MANITOBA PUBLIC INSURANCE

2019

RATE APPLICATION

Rates take effect March 1, 2019



MANITOBA
PUBLIC INSURANCE



Manitoba
Public Insurance

MANITOBA PUBLIC INSURANCE

2019 Rate Application

June 15, 2018

Manitoba Public Insurance
Société d'assurance publique du Manitoba

June 15, 2018

Via Email

Mr. Darren Christle
Board Secretary and Executive Director
The Public Utilities Board
400 – 330 Portage Avenue
Winnipeg MB R3C 0C4

Dear Mr. Christle:

RE: Manitoba Public Insurance – 2019 General Rate Application (GRA)

In accordance with provisions of *The Crown Corporations Governance and Accountability Act* and *The Public Utilities Board Act,* Manitoba Public Insurance (MPI) is applying to the Manitoba Public Utilities Board (PUB) seeking approval of the rates and premiums for compulsory driver and vehicle insurance effective of March 1, 2019.

The GRA is available on the MPI website at:
https://apps.mpi.mb.ca/Rate-Application/2019/index.aspx

The Public Utilities Board may use the above URL on its website to direct the public to the GRA. Please note that the web posted version is password secured for editing. The password will be shared, by separate email, with the PUB and intervenors to allow editing of a locally saved version of the GRA.

In addition, USB flash drives loaded with an unsecured copy of the GRA, and Excel workbooks replicating each of the tables contained within the GRA will be provided directly to parties on Monday June 18th. Further, MPI has established a secure FTP site to host the Excel workbooks for the duration of the proceeding, and will make login credentials available to the PUB and intervenors.

Finally, certain materials in the GRA are commercially sensitive and will be the subject of a motion seeking confidential treatment pursuant to Rule 13 of the PUB Rules of Practice. MPI will file this motion upon completion of the prehearing conference.

Yours truly,



Michael Triggs
General Counsel and Corporate Secretary

MT/st

Encl.

cc: K. McCandless
2018 GRA Registered Interveners

PART I:
APPLICATION

LA - LEGAL APPLICATION
COM - COMPLIANCE WITH PUB ORDERS
MFR – MINIMUM FILING REQUIREMENTS
OV – OVERVIEW

Manitoba
Public Insurance

LEGAL APPLICATION

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

LEGAL APPLICATION

Manitoba Public Insurance (the Corporation, or MPI) hereby applies to the Public Utilities Board (the PUB, or Board) for approval of the Corporation's premiums charged with respect to compulsory driver and vehicle insurance (rates for service), in accordance with the provisions of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act.*

In the 2019 General Rate Application (GRA) for Basic Autopac the Corporation is requesting that the PUB approve the premiums charged with respect to compulsory driver and vehicle insurance (rates for service) effective March 1, 2019, including:

1. A 2.2% overall increase in Basic vehicle premium revenue (including Vehicles for Hire rates for service) comprised of:

    i. 0.1% increase to the break-even cost of policies
    ii. 2.1% increase for a Net Capital Maintenance Provision to maintain MPI's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision accounts for the positive impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position

2. A minimum (lower) RSR target of 34% Minimum Capital Test (MCT), (total equity equivalent of $143 million as at February 28, 2019), based on a 1-in-40 probability Dynamic Capital Adequacy Test (DCAT) scenario.

3. A maximum (upper) range RSR target of 85% Minimum Capital Test (MCT), (total equity equivalent of $305 million as at February 28, 2019), based on a 2 year, 1-in-40 DCAT scenario with no management action.

4. No changes to Miscellaneous Permits and Certificates

5. No changes to driver premiums through the Driver Safety Rating (DSR) system, and no change to Vehicle Premium Discounts

6. No changes to Basic Autopac Service and Transaction Fees

7. No Changes to Fleet Rebates and Surcharges

8. Consistent with the 2018 Vehicles for Hire (VFH) Interim Application, the continued:

    a) Eligibility of vehicles for hire for vehicle premium discounts
    b) Waiving of service fees for change of insurance for vehicles for hire

Tables detailing the requested rates and fees are presented in *Part VIII – ART Application Rate Tables*. Experience-based rate adjustments ranging from -15% to +15%, as shown in *Part V(ii) RM Ratemaking Appendix 3* based on adjustment rules shown in *Part V(ii) RM Ratemaking RM.5*. Combined classification offsets for all vehicles except off-road vehicles, to achieve revenue neutrality in implementing rate group, rate line and classification changes for 2019/20, as shown in *Part V(ii) RM Ratemaking Appendix 2.*

Discussion and analysis of the applied for Rate Stabilization Reserve (RSR) capital targets, and the Net Capital Maintenance Provision is provided in *Part VI RSR Rate Stabilization Reserve*.

In the 2019 GRA the Corporation is also requesting final approval of VFH rates for service, approved on an interim basis by PUB Order 11/18.

Bill 30, establishing *The Local Vehicles for Hire Act* ("the VFH Act"), received Royal Assent on November 10th, 2017. The VFH Act eliminates regulation of the taxi industry in Winnipeg through the Taxicab Board and transfers regulatory responsibilities for all vehicles for hire to each municipality in the Province of Manitoba. The VFH Act came into force on February 28, 2018 and allows for a new class of vehicles for hire in addition to the existing taxicab/livery service.

To offer compulsory insurance for vehicles for hire, MPI sought and obtained the Board's interim approval of premium rates both for this new class of vehicles for hire, and for new premium rates for the existing classes of vehicles for hire (taxicabs, limos and wheelchair accessible vehicles).

The Corporation is requesting final approval of the premiums charged with respect to compulsory vehicles for hire insurance (rates for service), effective March 1, 2018 including:

iii. Vehicles for hire rates for service for both the 2017/18 and 2018/19 insurance year in this application, based on rates approved in PUB Orders 162/16 and 130/17 respectively
iv. Changes to eligibility for vehicle premium discounts for vehicles for hire
v. Waiving of service fees for change of insurance for vehicles for hire
vi. A mechanism for refunding/collecting any variance between interim and final approved vehicles for hire Rates for Service

Rate tables for interim vehicles for hire rates for service are provided as Appendix 1 and Appendix 2 to the Interim Vehicles for Hire Application, included in this 2019 GRA as *Part V(ii) VFH Vehicles for Hire Appendix 1*.

COMPLIANCE WITH PUB ORDERS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

COMPLIANCE WITH PUB ORDERS

The following table of concordance identifies MPI's compliance with directives from Order 130/17 approving the 2018 General Rate Application, and Order 11/18 approving the Interim Vehicles for Hire application. Links to the response to each directive are provided below.

PUB Order 130/17 – 2018 General Rate Application

Order Number	Order	Location in 2019 GRA
11.1	There shall be an overall 2.6% rate increase in compulsory Motor Vehicle Premiums for 2017/18 insurance year, effective March 1, 2018 for all major classes combined, which rate increase BE AND HEREBY IS APPROVED. This rate increase is as derived by the Corporation in accordance with accepted actuarial practice, based on a 50/50 interest rate forecast taking into account interest rates as at September 30, 2017, and using an estimated new money rate for cash flow discounting purposes.	Order 130-17 Compliance Filling
11.2	The Corporation shall file for approval by the Board, within five business days from the date of this Order, a table of indicated rate changes and approved rate changes (i.e., after capping and rebalancing) by Major Class (and overall) reflecting the approved overall 2.6% rate increase.	Order 130-17 Compliance Filling
11.3	There shall be an overall rate increase of 1.8% in driver premiums through the demerit side of the Driver Safety Rating program, which rate increase BE AND HEREBY IS APPROVED.	Order 130-17 Compliance Filling

Order Number	Order	Location in 2019 GRA
11.3 Varied	The requested changes to the driver premiums through the demerit side of the Driver Safety Rating program, which will produce a forecasted revenue increase of $17.5 million in fiscal year 2018/19 (an amount equivalent to an overall 1.8% increase in compulsory Motor Vehicle Premiums) BE AND HEREBY ARE APPROVED.	Order 130-17 Compliance Filling
11.4	MPI's requests that there be no change in Permit and Certificate rates, Vehicle Premium Discounts, Service and Transaction Fees, Fleet Rebates or Surcharges, or the discount on approved after-market and manufacturer/dealer installed anti-theft devices BE AND HEREBY ARE APPROVED.	Order 130-17 Compliance Filling

Order Number	Order	Location in 2019 GRA
11.5	There shall be a Technical Conference, facilitated by the Board at a mutually convenient time and in sufficient time to allow any findings from the Technical Conference to be fully reflected in the 2019 GRA, which shall seek a consensus approach to estimating a Capital Maintenance Provision, as well as seeking consensus on the following matters relating to the interpretation of rate setting in accordance with Accepted Actuarial Practice in Canada: • Basing the cash flow discount rate assumption on the expected new money rate averaged over the full proposed rating year rather than as at the start of that rating year; • Segregating the pension liabilities and the related supporting investment assets from the determination of the cash flow discount rate and the expected return on investment assets supporting Basic Total Equity; and • Improving recognition of investment fees in the determination of the cash flow discount rate and the expected return on investment assets supporting Basic Total Equity.	Technical Conference held at PUB Hearing Room on Friday March 2, 2018.
11.6	The Corporation shall file the results of its Service Fees review in the 2019 GRA.	*Part V(i) EXP. Appendix 2*

Order Number	Order	Location in 2019 GRA
11.7	There shall be a Technical Conference, facilitated by the Board, on the availability and practicality of other analytical tools and ratemaking methodologies to better determine DSR rates and vehicle premium discounts based on principal driver rating rather than simply registered driver rating. The date of the Technical Conference is to be mutually agreed upon as between the Board and MPI, but shall be sufficiently early such that the information shared in the Technical Conference will be included in the 2019 GRA.	Technical Conference held at PUB Hearing Room on Friday March 2, 2018.
11.8	In the 2019 GRA, the Corporation shall file proposed driver premium rates that are more statistically consistent with the estimated average claims cost per driver for each level on the demerit side of the DSR scale.	Held in Abeyance by Order 29/18. Please refer to Part V(ii) DSR.3
11.9	In the 2021 GRA, the Corporation shall file proposed vehicle premium discounts that are actuarially indicated based on principal driver performance evaluation.	Held in Abeyance by Order 29/18. Please refer to Part V(ii) DSR.3
11.10	In the 2019 GRA, MPI shall report back on its efforts to seek insight on longer tail experience from other jurisdictions, and in particular from the Société de l'assurance automobile du Québec.	*Part VIII EAR Appendix 1*
11.11	The Corporation shall file its new IT Strategic Plan with the Board forthwith following its approval by the MPI Board of Directors.	*Part IV(ii) IT Appendix 2*

Order Number	Order	Location in 2019 GRA
11.12	In the 2019 GRA, the Corporation shall file a detailed breakdown of its analysis on the costs to operate and maintain the PDR program.	*Part IV(ii) VM.3*
11.13	In the 2019 GRA, the Corporation shall file an update, prepared by Gartner, to its 2017 PDR Program Evaluation.	*Part IV(ii) VM Appendix 6*
11.14	In the 2019 GRA, the Corporation shall file a cost/benefit analysis of the five remaining projects to be completed as part of the PDR program, should no such cost/benefit analyses form part of the new IT Strategic Plan. The discount rate used in the cost/benefit analysis shall be higher than the 3% previously used in the PDR project cost benefit evaluation. The Corporation shall select and justify the use of an appropriate discount rate commensurate with the risks inherent in the project.	*Part IV(ii) VM.3*
11.15	In the 2019 GRA, the Corporation shall file a business case and a cost/benefit analysis for the IT Modernization project, specific to the AOL and CARS redevelopment or replacement.	*Part IV(ii) VM.2*
11.15	Directive 11.15 should be varied such that MPI will be required to file the business case and cost/benefit analysis in the 2020 GRA. The Board will also require that in the 2019 GRA MPI provide an update on the progress made towards completing the review and business case for the AOL and CARS redevelopment and replacement.	Varied by Order 29/18 *Part IV(ii) VM.2*

Order Number	Order	Location in 2019 GRA
11.16	The Corporation shall file the Mercer Canada Asset Liability Management study with the Board concurrently with its delivery to the MPI Board of Directors.	The three phases of the ALM study were delivered to the PUB as they were made available to MPI's Board of Directors. The last one was delivered on Feb 8, 2018.
11.17	The Corporation shall require Mercer Canada to update the Asset Liability Management Study as necessary in order to take into account the directives issued in this Order, to add an analysis of the bucket matching approach similar to that used by Saskatchewan Auto Fund, and to take into account each of the 18 recommendations made by Mr. Viola in the 2017 GRA, which are set out in Appendix E to Order 162/16.	Part VI INV: *Appendix12* *Appendix 13* *Appendix 14* *Appendix 15* *Appendix 16*
11.18	A Technical Conference shall be held on the Mercer Canada Asset Liability Management study, at a date to be mutually agreed upon as between the Board and MPI, but shall be sufficiently early such that the information shared in the Technical Conference will be included in the 2019 GRA.	Technical Conference held at PUB Hearing Room on Friday March 2, 2018.

Order Number	Order	Location in 2019 GRA
11.19	The 50/50 interest rate forecast shall be used for rate-setting and target capital purposes.	Order 130-17 Compliance Filling
11.20	For fiscal year 2017/18, the lower threshold for the Basic Total Equity will be $180 million, based on the iterative modelling approach over a two-year time horizon at a 1-in-40-year (97.5th percentile) outcome level after routine management / regulatory actions BE AND IS HEREBY APPROVED.	Order 130-17 Compliance Filling
11.21	For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modeling of a 1-in-40-year scenario over a two-year time horizon after routine management / regulatory actions BE AND IS HEREBY APPROVED.	Order 130-17 Compliance Filling
11.22	MPI shall enter into discussions with CMMG regarding a proposal for a pilot program for wildlife collision prevention initiatives and shall advise the Board of the discussions as they develop.	*Part VII LP Appendix 1*

Order Number	Order	Location in 2019 GRA
11.23	A Technical Conference shall be held on road safety and loss prevention in early 2019, which shall be initiated by the Board but on such dates as are mutually agreed as between the Board and MPI. Included within the Technical Conference shall be the following: Progress on the implementation of the Loss Prevention Strategy and Framework; Reports on the activities of the External Stakeholder Committee on Loss Prevention and the Provincial Road Safety Committee; Progress on the 2017-2020 Road Safety Operational Plan; Progress on the Provincial Road Safety Plan - Road to Zero; Reports on MPI's priorities for road safety and loss prevention;	MPI expects to begin preparations for this Technical Conference in Q3 of 2018

Order Number	Order	Location in 2019 GRA
	Reports on the success of the Drug Impaired Driving Communication Strategy and any other efforts undertaken by MPI to address drug-impaired driving; Reports on MPI's efforts to address speed and distracted driving; Progress on the High School Driver Education Program Redevelopment; An update on MPI's rural road strategy; A discussion / review of the incorporation of the social costs of collisions in MPI's road safety efforts; An effort to obtain feedback from members of the External Stakeholder Committee on Loss Prevention on the effectiveness of that committee; and A jurisdictional scan conducted by the Corporation of road safety measures, including wildlife collision prevention initiatives.	
11.24	On or before April 1, 2018 the Corporation shall file with the Board an update on the status of its compliance with all directives in this Order.	Letter filed on April 1 updating on the status of compliance.

PUB Order 11/18 – Interim Vehicles for Hire Application

Order Number	Order	Location in 2019 GRA
6.1	The Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years, as set out in Appendix 1 and Appendix 2 to the Vehicles for Hire 2018 Interim Application filed by Manitoba Public Insurance on December 15, 2017, BE AND HEREBY ARE APPROVED on an interim basis, effective March 1, 2018.	*Part V(ii) VFH.3*
6.2	The Corporation shall apply for final Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years in the 2019 General Rate Application.	*Part V(ii) VFH.3*
6.3	The Corporation shall refund or collect any variance between interim Rates for Service hereby approved and the Rates for Service finally approved through the 2019 General Rate Application (GRA).	*Part V(ii) VFH.3.1*
6.4	Vehicles for hire in all categories of the vehicles for hire pool shall be eligible for Driver Safety Rating vehicle premium discounts if registered by individual customer.	*Part V(ii) VFH.1*
6.5	The waiving of service fees for changes of insurance coverage for vehicles for hire BE AND HEREBY IS APPROVED.	*Part V(ii) VFH.1*
6.6	The Corporation shall inform vehicles for hire customers, in advance of placement of coverage, of the possibility of a refund or the collection of additional premiums due to a re-rating resulting from the final approval of Rates for Service for vehicles for hire through the 2019 GRA.	*Part V(ii) VFH.8*

Order Number	Order	Location in 2019 GRA
6.7	The Corporation shall develop and report on a plan for the collection of data specific to the vehicles for hire pool and shall file the report in the 2019 GRA. The plan the Corporation is to develop will include collection of information as to:	See below
6.7.1	A new vehicles for hire insurance use pool so that experience suitable for ratemaking can be tracked separately from other Basic vehicle classes;	*Part V(ii) VFH.6*
6.7.2	Tracking of ratemaking experience (e.g., exposures, premiums, and claim counts and amounts) within the vehicles for hire pool, separated by each sub-category within the vehicles for hire pool (e.g., use category, number of time bands, territory), as well as separated by each time band;	*Part V(ii) VFH.6*
6.7.3	Forecasting of claims incurred for the vehicles for hire pool; and A means of allocating to the appropriate time band those claims occurring during any overlap of time bands in which the customer has selected both of the overlapping time bands.	*Part V(ii) VFH.6*
6.7.4	The Corporation shall gather data on the number and frequency of changes made to insurance policies for vehicles for hire and provide a report in that regard in the 2019 GRA.	*Part V(ii) VFH.7*
6.8	In the 2019 GRA, the Corporation shall provide information as to the total cost resulting from the vehicles for hire rating model. The total cost information shall include, but will be not be limited to:	See Below

Order Number	Order	Location in 2019 GRA
6.8.1	The financial impact of changes on the Corporation's pro forma financial forecast;	*Part V(i) EXP Appendix 20*
6.8.2	Driver safety rating premium discounts;	*Part V(i) EXP Appendix 20*
6.8.3	Reduced deductible from $600.00 to $500.00 for taxicabs, limousines and accessible vehicles for hire;	*Part V(i) EXP Appendix 20*
6.8.4	One-time and ongoing information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire; and	*Part V(i) EXP Appendix 20*
6.8.5	Broker commission and service fees relating to transactions associated with vehicle for hire registration and time band selection.	*Part V(i) EXP Appendix 20*
6.9	In the 2019 GRA, the issue of Passenger VFH insurance rates as compared to the Taxicab VFH insurance rates be reviewed.	*Part V(ii) VFH.6*
6.10	In the 2019 GRA, the Corporation shall examine the issue of whether, for insurance purposes, the Taxicab vehicles for hire category should be eliminated such that Taxicabs would fall within another vehicles for hire use category.	*Part V(ii) VFH.6*
6.11	The Corporation shall monitor best practices and standards of the TNC industry and present the results of its monitoring in the 2019 GRA.	*Part V(ii) VFH.9*

Order Number	Order	Location in 2019 GRA
6.12	In the 2019 GRA, the Corporation shall file a report on engagement that it has conducted relating to vehicles for hire with any stakeholders such as the City of Winnipeg, other municipalities, TNCs, consumer groups, representatives of the taxicab industry and disability groups.	*Part V(ii) VFH.10*
6.13	Included among the issues to be examined in the 2019 Road Safety Technical Conference directed in Order 130/17 shall be:	MPI expects to begin preparations for this Technical Conference in Q3 of 2018
6.13.1	Safety for drivers and clients of VFH;	See 6.13 above
6.13.2	Safety and training standards for all VFH drivers; and	See 6.13 above
6.13.3	Safety issues relating to persons with disabilities and VFH.	See 6.13 above
6.14	The road safety information filed by the Corporation in the 2019 GRA include information regarding emerging road safety issues as a result of the introduction of TNCs in Manitoba.	*Part VII Loss Prevention*
6.1	The Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years, as set out in Appendix 1 and Appendix 2 to the Vehicles for Hire 2018 Interim Application filed by Manitoba Public Insurance on December 15, 2017, BE AND HEREBY ARE APPROVED on an interim basis, effective March 1, 2018.	*Part V(ii) VFH.3*

MINIMUM FILING REQUIREMENTS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

MINIMUM FILING REQUIREMENTS

The following table of concordance identifies the Minimum Filing Requirements (MFR) established by Public Utilities Board Order 61/18. Links to the response to each MFR are provided below.

MFR	Topic	Requested Information	Location in 2019 GRA
General			
A.1	Value Proposition	Please advise of any enhanced value or benefits flowing to Manitobans from MPI aligned with the Corporate Strategic Plan (this information can be contained with the Costs Containment section of the GRA)	*Part IV(i) Benchmarking BMK.1*
A.2	Cross Canada Rate Comparison	To the extent that the Corporation asserts that Manitoba has among the lowest vehicle and/or motorcycle rates in Canada, please provide a schedule reflecting the maximum, 75th percentile, median, 25th percentile and minimum rates underlying each representative rate cited in each jurisdiction relied upon.	*Part IV(i) Benchmarking BMK.4.3.1*
A.3	Pro-Formas	Please provide all Pro-Forma statements separating the vehicle premiums from any RSR Rebuilding Fees, and separating out amounts	*Part V(i) Pro Formas*

MFR	Topic	Requested Information	Location in 2019 GRA
		relating to any premium deficiency reserves. Where necessary, expand the pro-forma statements to show the requested itemizations, showing $0 as needed.	
A.4	Financial Statement	Please file a link to the Audited Corporate Financial Statements.	*Part VIII Annual Reports*
A.5	Risk Assessment and Management	Risk Management Evaluation table in a similar format as that filed in response to Information Request (CAC) 2-38 in the 2017 GRA.	*Part VI Risk Management Framework*
Net Income			
B.1	Quarterly Reports	Please file the Corporation's quarterly reports as available.	*Part VIII Annual Reports Appendix 2*
B.2	Financial Overview	Please file updated financial forecast comparisons for the most recently completed fiscal year and the current fiscal year with what was forecast at the last GRA, including detailed explanations of variances.	*Part V(i) Pro Formas*
B.3	Pro-Formas	Please provide a complete set of restated Pro-Forma statements reflecting each of the following:	

MFR	Topic	Requested Information	Location in 2019 GRA
		a) As proposed but excluding any proposed rate level change; b) As proposed but excluding any proposed RSR Rebuilding Fee; c) As proposed but excluding both any proposed rate level change and any proposed RSR Rebuilding Fee.	a) *Part V(i) Pro Formas* b) No RSR rebuilding fee proposed c) No RSR rebuilding fee proposed
B.4	Service Fees & Other Revenue	Please provide support for any proposed changes or for proposing no change.	*Part V(i)Revenues* *Appendix 2*
Investments			
C.1	Investment Management	Please provide a description of all aspects of the investment functions of MPI's portfolio highlighting any recent changes.	*Part VI INV:* *Appendix 1* *Appendix 2* *Appendix 3* *Appendix 4* *Appendix 5* *Appendix 8*
C.2	Equity Holdings & Impaired Investments	Please provide a schedule of the Corporation's equity investment holdings and impaired investments, both written off and currently held and including original book value,	*Part VI Investments* *Appendix 6,*

MFR	Topic	Requested Information	Location in 2019 GRA
		revised book value and current book value.	*Part VI Investments Appendix 7*
C.3	Investment Income Allocation	Please update the table of investment income allocation weightings including any changes in the basis of allocation among the lines of business, RSR and Pension.	*Part VI Investments INV.10.5*
C.4	Actual v. Benchmark Returns	Please provide a comparison by asset class of actual returns with the annual expected return benchmarks set out in the Investment Policy Statement for the last five years.	*Part VI Investments Appendix 10* Not required by Order 61/18
C.5	Investment Returns	Please provide a 5-year comparison of the Corporation's total annual investment return rates with the corresponding annual return rates of: a) the Workers' Compensation Board, b) the Teachers' Retirement Allowances Fund, c) the Civil Service Superannuation Board of Manitoba	*Part VI Investments INV.18*

MFR	Topic	Requested Information	Location in 2019 GRA
		d) Insurance Corporation of British Columbia, and e) Saskatchewan Auto Fund, and please provide commentary on any significant differences.	
Basic Expenses			
D.1	Benchmarking	Please file a complete trend analysis for Basic & the Corporation as a whole for the last five historical years through the outlook period, including all expenditures, showing compound annual growth rates separately for the historical period and for the outlook period.	*Part V(i) Expenses Appendix 1*
D.2	Benchmarking	Please provide a trend analysis since the inception of PIPP for the last five historical years through the outlook period, including growth in Claims Expenses, Operating Expenses, Claims Expenses per Claim and Operating Expenses per Policy relative to CPI.	*Part V(i) Expenses Appendix 1*
D.3	Benchmarking	Please provide an update of the performance indicators for the last five fiscal years through the outlook period. Please indicate all BI3	*Part V(i) Expenses Appendix 1*

MFR	Topic	Requested Information	Location in 2019 GRA
		Benchmarks and any other new indicators developed.	
D.4	Cost Allocation Methodology	Please advise of any changes in allocators, groupings of accounting units or purification adjustments used within MPI's Cost Allocation Methodology including any changes in the basis of allocation among the lines of business, RSR and Pension.	*Part V(i) Expenses EXP.5*
Claims Costs			
E.1	Claims Incurred	Please provide a breakdown of the number of individual claims and their severity by Major Class over dollar thresholds of $100,000, $250,000, $500,000, $1,000,000 and $2,000,000 for each of the last ten years.	*Part V(i) Claims Incurred Appendix 10*
E.2	PIPP Costs	Please provide a breakdown of PIPP costs by component coverage since the inception of PIPP, in both dollars and percentages.	*Part V(i) Claims Incurred Appendix 11*
E.3	PIPP Claims	Please provide a table of frequencies and severities by type of claim, since the inception of PIPP through to the forecast for the current fiscal year.	*Part V(i) Claims Incurred Appendix 12*

MFR	Topic	Requested Information	Location in 2019 GRA
E.4	Claims Forecasting	Please file a table for the last ten years showing original projected, revised forecast, and final actual frequencies/ severities/ claims incurred, broken down by coverage and for all coverages combined.	*Part V(i) Claims Incurred Appendix 9*
Operating & Administrative Expenses			
F.1	Operating Expenses	Please include the detail of the MPI operating expenses by category for the last five fiscal years through the outlook period, showing compound annual growth rates separately for the historical period and for the outlook period.	*Part V(i) - Expenses Figure EXP 31* *Part V(i) EXP Appendix 4*
F.2	Operating Expenses	Please provide schedule(s) by expense category for the last five fiscal years through the outlook period for Basic total operations, and Basic normal operations, showing compound annual growth rates separately for the historical period and for the outlook period.	*Part V(i) - Expenses Figure EXP 39* *Part V(i) EXP Appendix 5* *Part V(i) EXP Appendix 6*
F.3	Operating Expenses	Please provide a summary of Basic expenses by category for the last two fiscal years and through the outlook period, broken down between Claims Expenses, Operating Expenses, Road Safety Expenses, Regulatory/Appeal Expenses and in total, and shown separately for Normal Operations,	*Part V(i) EXP Appendix 2*

MFR	Topic	Requested Information	Location in 2019 GRA
		Improvement Initiatives and in total.	
F.4	Expense Details	Please provide a detailed breakdown by cost category of actual Basic Claims, Operating and Road Safety expenses for the last five fiscal years.	*Part V(i) EXP Appendix 3*
F.5	Capital Expenditures	Please provide a comparison between actual capital expenditures in the last fiscal year and that forecast at the last GRA and explain all material differences, including a breakdown of deferred development costs by project.	*Part V(i) EXP Appendix 16* *Part V(i) EXP Appendix 17*
F.6	Deferred Development Costs	Please provide a continuity schedule of deferred development costs and amortization costs by project for the last ten fiscal years through the outlook period.	*Part V(i) EXP Appendix 18*
F.7	IT Expenses	Please provide a schedule detailing IT costs by major capital project for the last ten fiscal years through the outlook period, and identify internal v. external costs for the historical period and for the outlook period.	*Part V(i) EXP Appendix 19*
F.8	IT Expenses	Please provide Information Technology Costs broken down between Normal Operations, Initiative Implementation and Initiative Ongoing expenses, for	*Part V(i) EXP Appendix 19*

MFR	Topic	Requested Information	Location in 2019 GRA
		the last five fiscal years and through the outlook period.	
F.9	Consultants	Please provide number of consultants supporting operating activities, general operating activities, compared to the number of consultants that are supporting improvement initiatives and their related annual costs for the last five fiscal years and forecast through each year in the outlook period.	*Part V(i) EXP Appendix 19*
F.10	IT Expenses	Please provide IT expenses for the last ten fiscal years and through the outlook period, and include two columns providing the compound annual growth rate separately for the historical period and for the outlook period.	*Part V(i) EXP Appendix 19*
F.11	Project Costs	Please provide a budget comparison of BTO/BPR projects by major component this year with the budget provided last year.	*Part V(i) EXP Appendix 17*
F.12	Gartner Group Recommenda-tions	Please provide an update detailing the status of all recommendations made by the Gartner Group, including any new recommendations, and highlight any changes in the recommendations or MPI's actions	*Part IV(i) BMK Appendix 1*

MFR	Topic	Requested Information	Location in 2019 GRA
		flowing from the recommendations from that provided last year.	
F.13	Staffing Levels	Please file a corporate staffing analysis for Normal Operations.	*Part V(i) EXP Appendix 9* *Part V(i) EXP Appendix 10*
F.14	Staffing Levels	Provide a comparison of the prior GRAs staffing (Basic and Corporate) budget to actual staffing for the 2017/18 year.	*Part V(i) EXP Appendix 9*
F.15	Staffing Levels	Please provide a schedule of Basic and Corporate Staffing Levels for the 2018/19 year.	*Part V(i) EXP Appendix 11*
F.16	Compensation	Please file an updated schedule of Basic compensation increases by category for the last five fiscal years through the outlook period.	*Part V(i) EXP Appendix 3*
F.17	Compensation	Please file an updated schedule of average salary levels by classification for the last ten fiscal years through the outlook period, showing compound annual growth rates separately for the historical period and the outlook period.	*Part V(i) EXP Appendix 8*

MFR	Topic	Requested Information	Location in 2019 GRA
F.18	Salary Expenses	Please file a table reflecting each of: a) Corporate Compensation Analysis - Normal Operations; b) Corporate Compensation/Payroll Costs - Normal Operations; c) Corporate Annual Compensation Changes - Normal Operations; d) Corporate Compensation Analysis - Corporate Total; e) Corporate Compensation/Payroll Costs - Corporate Total; and f) Corporate Annual Compensation Changes - Corporate Total. Please also file a similar analysis for Basic.	*Part V(i) EXP Appendix 12*
Road Safety & Loss Prevention			
G.1	Actual v. Budgeted Expenditures	Please provide a five year comparative history of actual v. budgeted expenditures by Road Safety and Loss Prevention program category.	Not required by Order 61/18
G.2	Expense Forecast	Please provide a detailed forecast of Road Safety and Loss Prevention expenses by program through the outlook period.	Not required by Order 61/18

MFR	Topic	Requested Information	Location in 2019 GRA
G.3	Loss Prevention	Please provide a detailed Road Safety and Loss Prevention budget for the current year by specific program and compare that to actual spending for the last fiscal year.	*Part V(i) Figure EXP 40* *Part V(i) EXP Appendix 15*
G.4	Accident Maps	Please file updated Accident Maps.	Not required by Order 61/18
Ratemaking			
H.1	Indicated and Proposed Rate Level Changes	Please provide a table reflecting the indicated rate change by Major Class together with the applied for rate changes. Please prepare an exhibit, with accompanying explanatory narrative, illustrating the transition from rate requirement indicators to requested revenue adjustments by Major Class.	*Part V(ii) RM Appendix 4*
H.2	Regressions	For all selected regressions included in the ratemaking analysis, please provide a graphical representation, including display of actual data and fitted and selected trend lines, accompanied by the customary regression diagnostics.	*Part V(ii) RM Appendix 9, Table 8*

MFR	Topic	Requested Information	Location in 2019 GRA
H.3	Significant Changes to Methodology or Basis of Selection of Assumptions	Relative to the prior GRA, please provide a summary, with supporting rationale, for any significant changes to methodology or significant changes to the basis of selection of assumptions used in the derivation of the indicated changes in rate level in accordance with accepted actuarial practice in Canada, both overall and at the classification level.	*Part V(ii) RM Appendix 8*
H.4	Composition of Overall Required Rate	Please provide a comparative table for the current GRA and most recent prior GRA of the estimated $ composition of the Income Sources and Expenditures, with accompanying narrative on any significant deviations in a similar format as PUB (MPI) 1-10 from the last GRA.	*Part V(ii) RM Appendix 10*
Driver Safety Rating			
I.1	Prospective Modeling Assumptions	Please provide documentation of the DSR prospective modeling assumptions for each of the forecast years. Please display the forecasted number of Earned Drivers by DSR level for each of the forecast years.	*Part V(i) Revenues REV.2* *Part V(i) REV Appendix 1*

MFR	Topic	Requested Information	Location in 2019 GRA
I.2	Significant Changes to Methodology or Basis of Selection of Assumptions	Relative to the prior GRA, please provide a summary, with supporting rationale, for any significant changes to methodology or significant changes to the basis of selection of assumptions used in the derivation of the DSR indications.	*Part V(i) Revenues REV.2*
Valuation of Policy Liabilities			
J.1	Runoff	In a single table, please provide the breakdown by insurance year and valuation line of business of the latest complete fiscal year Basic – Total (Net) – PIPP (undiscounted) runoff.	*Part VIII, External Actuary Review EAR.2*
J.2	Sources of Runoff	With respect to the latest complete fiscal year Basic – Total (Net) – PIPP (undiscounted) runoff, please provide a separation of the total amount of runoff into the portion attributable to changes in experience vs. the portion attributable to changes in valuation methodology vs. the portion attributable to changes in valuation assumptions, including commentary on the basis for this separation and the nature of and rationale for the changes.	*Part VIII, External Actuary Review EAR.2*

MFR	Topic	Requested Information	Location in 2019 GRA
J.3	Regressions	For all selected regressions included in the valuation, please provide a graphical representation, including display of actual data and fitted and selected trend lines, accompanied by the customary regression diagnostics.	*Part VIII, External Actuary Review EAR.3*
J.4	Actuarial Specialist Report	Please provide a copy of the actuarial specialist report on the Basic actuarial valuation prepared as audit evidence in support of the audit opinion provided by PricewaterhouseCoopers LLP for the latest audited financial statements.	*Part VIII External Actuary Review EAR Attachment C*
DCAT			
K.1	GRA Forecast vs. DCAT Base Scenario	Please identify and justify all significant differences in modeling assumptions between the GRA Basic forecast and the DCAT Base Scenario, and indicate which forecast represents the Corporation's best estimate projection of Basic operations.	*Part VI Dynamic Capital Adequacy Testing*
K.2	DCAT External Peer Review	Please provide the latest available external peer review of a Basic DCAT investigation.	*Part VI Dynamic Capital Adequacy Testing Attachment A*

MFR	Topic	Requested Information	Location in 2019 GRA
K.3	MCT Ratio	For all modeled scenarios (base or adverse), please include in the summary of scenario results the modeled MCT ratio based on OSFI's current MCT Guideline.	*Part VI Dynamic Capital Adequacy Testing*
K.4	MCT Ratio	If there has been a change in the OSFI MCT Guideline being used relative to the prior GRA, please include supporting details for the impact of the resulting change in the MCT ratio calculation for each historical and forecast year included in the modeled base scenario.	*Part VI Rate Stabilization Reserve RSR.4.5.3*
K.5	Target Capital Scenario Testing	File the indicated upper and lower target capital thresholds based on the methodology approved by the Board in Order 130/17 Directives 11.20 & 11.21.	*Part VI Dynamic Capital Adequacy Testing DCAT.1.7.3*

OVERVIEW

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

OVERVIEW 3
OV.1 CONTEXT FOR THE APPLICATION 3
OV.2 EXCEPTIONAL COVERAGE 5
OV.3 EXCEPTIONAL SERVICE 7
OV.4 AFFORDABLE RATES 10
OV.4.1 Appropriate Premiums based upon Actuarial Accepted Practice (AAP) 10
OV.4.2 Effective and Efficient Operations 12
OV.4.3 Adequate Capital Reserves 17
OV.5 SAFER ROADS 19
OV.6 CONCLUSION 21

OVERVIEW

OV.1 CONTEXT FOR THE APPLICATION

Significant change has occurred at Manitoba Public Insurance (MPI) in the past year. The legislation that lays out the governance framework of crown corporations and authorizes the Public Utilities Board (PUB) to review proposed changes to the MPI's rates for services was substantially overhauled with the enactment of *The Crown Corporations Governance and Accountability Act* (CGAA).

The new provisions of the CGAA clearly set out roles, responsibilities and accountabilities of MPI, its Board of Directors and the Minister of Crown Services. Of key importance is the requirement for an Annual Business Plan, approved by the Minister of Crown Services and the Board of Directors. The Annual Business Plan articulates the direction MPI will take in the coming year.

The Board of Directors approved a new mission statement focusing on and guiding the core business of MPI:

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

Benjamin Graham was hired by the Board of Directors as the new President and CEO to lead MPI in achieving this mission. Upon Mr. Graham's appointment, the Minister of Crown Services stated:

> *"Mr. Graham's international experience will bring new perspectives to the organization and ensure the Crown Corporation is delivering industry best-practice solutions within the public insurance context that we are so proud to offer to Manitobans."*

The Board of Directors believes transparency is a best-practice solution. Greater effort will be made in this application to improve the public's understanding of MPI's operations and the requirements for the rates sought.

Another important industry best practice is recognizing the fundamental role of actuarial practices to the Corporation in attaining its mission. To this end, Mr. Luke Johnston, was appointed to the Executive Management team as the Chief Actuary & Vice President, Product and Risk Management.

The 2019 General Rate Application is the first application prepared under the new legislative framework, a new Corporate Mission Statement, and a new President and Chief Executive Officer, Mr. Ben Graham.

One factor that has not changed from last year's application is the requirement for prudent fiscal management based upon the following three pillars:

1. Appropriate premiums based upon Actuarial Accepted Practice (AAP)

2. Effective and efficient operations

3. Adequate capital reserves

MPI is seeking an overall 2.2% increase to the average rate for universal compulsory automobile insurance comprised of 0.1% break-even rate change and a 2.1% net capital maintenance provision. This is the first time MPI has sought a capital maintenance provision. This step is being taken as a direct result of PUB order 130/17 and the March 2, 2018 Technical Conference to seek consensus on estimating a capital maintenance provision.

Premium Revenue Required	=	Cost of Coverage	+	Cost of Service Delivery	+	Net Capital Maintenance Provision

OV.2 EXCEPTIONAL COVERAGE

Every year a General Rate Application is made to set rates for the delivery of universal compulsory automobile insurance coverage. However, previously, very little emphasis was placed on the coverage Manitobans were purchasing for these rates. The discussions focused on numbers, analytics and the percentage changes in rates. It could be said prior applications lost sight of the importance of coverage because coverage is not within the jurisdiction of the PUB to review. Coverage is established in legislation and the PUB's responsibility is to ensure that premiums charged are appropriate for that level of coverage.

The new mission statement brings to the forefront the reason that MPI exists: to provide exceptional automobile coverage to Manitobans. Universal compulsory automobile insurance coverage is set in law. MPI must provide this coverage. The revenue generated from the rates approved by the PUB allow for this coverage to be provided.

Insurance at its core is the undertaking to indemnify someone against a loss or liability from a certain risk or peril and to pay a sum of money upon the happening of a certain event. Those losses, liabilities, risk, perils, events and the amount of money to be paid is what makes up the coverage.

In previous applications, MPI emphasized that rates charged to Manitobans were among the lowest in Canada when compared to the purchase of similar coverage in other jurisdictions. This is in some sense a futile exercise because what is minimum coverage in Manitoba is generally **not** compulsory coverage in other jurisdictions. Consumers must search to find equivalent coverage to supplement the limited mandatory insurance in their jurisdictions. Simply put, Manitobans have greater protection from potential losses and liabilities than the majority of other Canadians. The coverage provided by universal compulsory automobile insurance is not only exceptional, we believe it is amongst the best products available in Canada.

Part III Exceptional Coverage through Public Auto Insurance provides greater detail of the exceptional coverage Manitobans receive for their universal compulsory automobile insurance.

MPI's coverage has recently expanded to a new class of vehicles for hire. *The Local Vehicles for Hire Act* came into effect on February 28, 2018 having a significant impact on the vehicles for hire industry. The Winnipeg Taxicab Board was abolished and regulatory responsibility was transferred to municipalities. The Act also recognized that not just taxis and limousines could be vehicles for hire but that passenger vehicles could be hired by way of a mobile app through a Transportation Network Company.

Vehicles for hire (whether they are taxis, limousines or passenger vehicles hired by way of a digital network) are vehicles operating in Manitoba and as such require universal compulsory automobile insurance. As of April 30, 2018, there were 872 vehicles insured for use as vehicles for hire. Of these, 497 vehicles were in the Taxicab Vehicle for Hire uses and 304 vehicles were insured in the Passenger Vehicle for Hire uses (the remainder were in other sub-category uses).

As of May 23, 2018, the City of Winnipeg had approved 16 Transportation Network Companies (the City refers to them as Personal Transportation Providers) to operate as dispatchers for Passenger Vehicles for Hire operators. Thus far, Canadian Transportation Network Companies have publicly embraced the universal compulsory automobile insurance as providing complete coverage for their drivers; whereas, large worldwide multinational Transportation Network Companies have publicly stated, thus far, they cannot operate in Manitoba because the insurance model is too onerous for their business model. This business model remains a major challenge for public insurers across Canada.

Part V(ii) VFH Vehicles for Hire will explain this in greater detail.

OV.3 EXCEPTIONAL SERVICE

The service that delivers the exceptional coverage must also be exceptional; for what good is an exceptional product if it is not properly delivered. Universal compulsory automobile insurance is for all Manitobans and it has to be delivered to all Manitobans throughout the province.

Service to Manitobans is provided by people. The appropriate number of properly trained people with the proper tools applying proper procedures will result in exceptional service. There are costs associated with staff and brokers, to train them and to provide the tools to do their job. These costs need to be reasonable and they need to be affordable.

How service is delivered changes to meet changing customer expectations. Long gone are the days when Manitobans lined up together on February 28th to purchase their insurance. Manitobans expect MPI to be current with modern practice in providing both in-person customer service as well as online tools to make transactions with MPI easier and more efficient. MPI does not need its service delivery to be based upon leading edge technology innovation to meet customers' expectations of exceptional service. The expectation is to be reasonably current with modern practice and to be responsive in foreseeing and addressing customer needs.

MPI is changing practices to enhance the service delivery experience for customers. MPI has significantly reduced the time it takes to process customers' physical damage claims, it has adapted new triage methodologies for administering PIPP claims, it is enhancing services in rural, northern and remote communities, as well as considering ways to leverage on-line access.

These changing practices are not isolated initiatives. Changes flow from a new Customer Experience Framework that will follow a core strategy that is customer-centric, ensuring that business activities revolve around the customer. It will also implement an ideal vision of what the customer should experience with the Corporation, maintaining a focus on delivering exceptional customer service. The Customer Experience framework will align the Corporation's mission and values with

the overall customer expectations at key customer experience touchpoints. A customer-centric focus, based on the ideal Customer Experience, will lead to a more comprehensive understanding of customer needs, desires, and expectations; and will contribute to better MPI products and services, promote greater customer satisfaction, increase staff engagement; and, heighten the Corporation's credibility as a customer-driven company.

The relationship between MPI and their customer begins with the purchase of universal compulsory automobile insurance. The customer can purchase this insurance directly from MPI at one of its Service Centres or from an insurance broker. These two options provide all Manitobans with reasonable access to in-person interactions to purchase their insurance. Brokers are paid for their services by way of commissions and flat fees. The broker network is a cost effective means to deliver the convenient in-person access to Basic Insurance service throughout Manitoba.

However, customer expectations are changing. There is the expectation for certain services to be available on-line, as well as having access to the expertise of insurance brokers. As such, exceptional service will require service delivery to be both in-person and on-line.

Information Technology has an important role in the delivery of exceptional customer service. That role is supporting business operations. It has been said that MPI "has become primarily a technology company that sells insurance and provides a myriad of services to its customers"[1]. MPI does not, and should not, consider itself as "primarily a technology company". As is evident from the new Corporate Mission, the Annual Business Plan and the IT Strategic Plan, MPI is an insurance company and DVL administrator. The role of IT is limited to enabling exceptional service.

There are costs associated with IT assisting in the delivery of exceptional services. To use a car analogy (at MPI we love car analogies) – there are costs associated with owning a vehicle: the purchase, buying the gas, performing regular maintenance, and of course purchasing insurance. The big cost will be the purchase but without the

[1] 2018 GRA Transcripts page 1779-80

maintenance and operating costs being incurred the vehicle will not operate. Similar to a person deciding whether to incur various vehicle costs, MPI has to make decisions on whether to incur various IT costs (purchase, maintenance and operation).

MPI has learned the importance of making informed decisions on whether to incur various IT costs. To assist in making these informed decisions, MPI has implemented a more robust Value Management Process. Frequently, IT costs when viewed in isolation do not have a positive return on investment, they are often simply the cost of carrying on business. Some examples are the costs associated with maintaining functionality of software, licencing fees, and security. By the car analogy these would be the gas, regular maintenance, and insurance costs. The Value Management Process identifies these expenditures as such.

The Value Management Process is also used to assist in determining whether the "vehicle" should be purchased. When Value Management identifies no positive return on investment, Management is faced with the question - should MPI continue with this spend? As is outlined in *Part IV(ii) VM Value Management*, MPI applied Value Management to the in-flight Customer Claims Reporting System (CCRS) and decided to cancel the project. The positive lesson learned is that business operations are the driver of IT support and if a project does not have a positive return on investment there needs to be a strong justification to proceed.

MPI has filed 8 business cases prepared pursuant to the Value Management Process. These business cases include all current IT projects with a cost in excess of $500,000. These business cases are filed to demonstrate that the Value Management Process is being applied, and that all relevant issues are being considered in order to make informed decisions.

OV.4 AFFORDABLE RATES

Although the coverage and service are to be exceptional, the costs for doing so must be within the confines of being affordable. This is attained through the application of the three pillars of prudent fiscal management:

1. Appropriate premiums based upon Actuarial Accepted Practice (AAP)
2. Effective and efficient operations
3. Adequate capital reserves

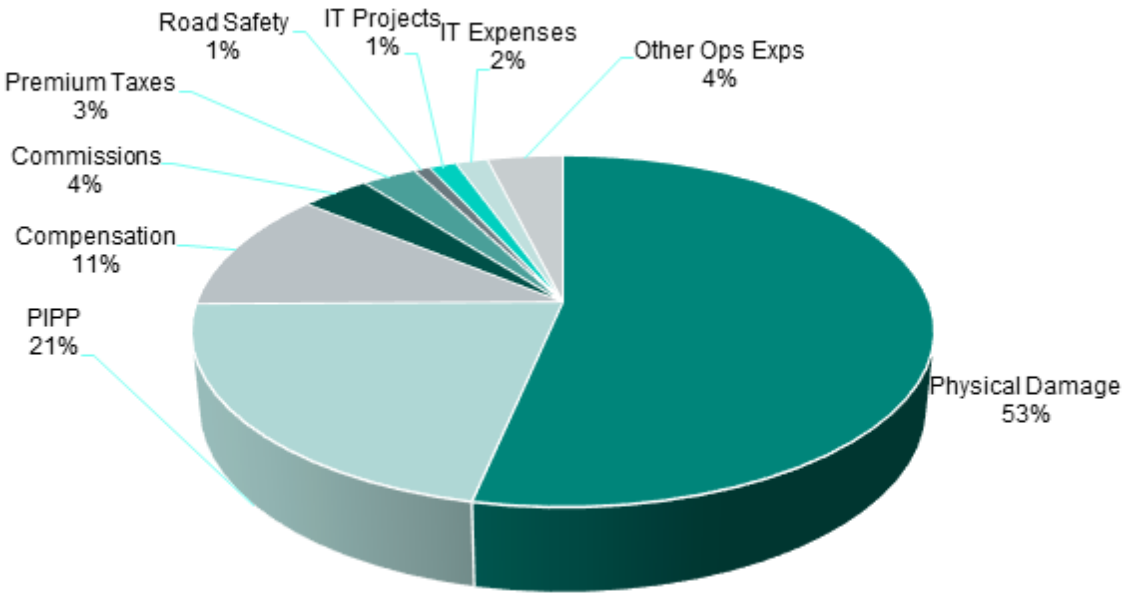
OV.4.1 Appropriate Premiums based upon Actuarial Accepted Practice (AAP)

Appropriate premiums should be based upon AAP. In the context of Basic's not for profit business model of breakeven rate making this means that the premiums must be sufficient to cover the costs of delivering the coverage. It is a foundational principle that Basic Insurance is self-sustaining; the costs of coverage and service delivery of the Basic Insurance program must be paid for by the premiums charged to customers to purchase the coverage.

Revenue from premiums must equal costs.

Based upon AAP calculations the best estimate of cost of delivering coverage is approximately $1.2 billion. The following pie chart shows, at a high level, where these costs are incurred.

Figure OV- 1: 2019/20 Basic Expense Composition



The costs of delivering the coverage can fall into two broad categories.

- The cost of exceptional coverage, and
- The cost of exceptional service.

The costs of exceptional coverage are the benefits and fees paid to customers and service providers (such as repair trades and health care providers) for damages arising from events covered by universal compulsory insurance (in the above chart – Physical Damage and PIPP). Most of these cost will be paid in the first couple of years following the motor vehicle accident; however, some cost will not be paid for many decades after the claim.

The cost of exceptional service delivery includes the costs of staff, service centres, brokers, consultants and IT expenditures that are necessary to enable its delivery.

OV.4.2 Effective and Efficient Operations

The role of the PUB is to determine if MPI's estimates of the costs are fair and reasonable. If MPI's operations are effective and efficient, the costs of coverage and service delivery will be reasonable.

For the second year in a row, MPI is forecasting decreases in expenses in excess of $5 million over the previous year's forecast. This pattern substantiates MPI's continued focus on commitment to managing and controlling operating costs.

It is also important for Manitobans to understand that the Corporation is successfully surpassing the vast majority of benchmarks that measure the efficiency of operations. Specific attention should be paid to *Part IV(i) BMK Benchmarking*. While there is always room for improvement and not every benchmark is surpassed, the overall message from the independent reporting is that MPI is an efficiently run organization.

The PUB, in Order 130/17, expressed concerns regarding IT expenditures. MPI understands the concerns are related to knowing whether proper controls and oversight of IT projects exist to avoid unnecessary cost overruns.

The MPI Board of Directors, which is given legislative responsibility for the administration of the Corporation, appreciate the assistance and perspective that the PUB can provide in identifying areas of concern. Both publicly appointed bodies have the common goal of ensuring that Manitobans receive appropriate value for the premiums paid.

The PUB stated in Order 130/17:

> The Board looks forward to receiving the IT Strategic Plan and anticipates that this will be an important issue, which will be subject to a thorough review, or "deep dive", in the 2019 GRA.

MPI understands the importance of this issue is in part because of the above mentioned observation that MPI "is primarily a technology company". If MPI was a

technology company then it would be critical to understand the IT strategic direction the company was planning on taking.

MPI, however, is an automobile insurance company and administrator of *The Drivers and Vehicles Act*. The "IT Strategic Plan" is to support the business carry out the corporation's mission - *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*. IT expenses are incurred to meet business needs. Business needs are not determined by an IT Strategic Plan.

As previously mentioned, MPI uses a Value Management Process to ensure that IT expenditures will only be incurred when it is appropriate to do so. As the PUB noted in Order 130/17 this process is applied on all new initiatives with a budget in excess of $500,000. The MPI Board of Directors recognized in the same Order, the PUB expressed concerns about IT projects that were currently "in-flight". The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative.

MPI identified in the 2018 GRA that there are concerns regarding IT legacy systems that are 20 to 30 years old. Replacing these systems could potentially have significant costs. On direction from its Board, Management retained two industry consultants to complete independent assessments of the MPI legacy system risks and to confirm the need for future action to mitigate the associated technical and business risks. The assessment also entails recommendations, business case and financials, and a roadmap for execution. Two separate consultants have been retained in order to ensure that more than one perspective is considered. The Board of Directors wants options on how to address a potentially significant IT expenditure. With the information gained from these reports the Board of Directors will exercise its discretion to determine what, if any, resources should be expended to address the IT legacy system issues.

Throughout this General Rate Application process, MPI will, as requested, provide updates on the progress made towards completing the review and business case for the AOL and CARS redevelopment or replacement (legacy system review). As of the

date of the filing the Application, one of the consultants is in the process of conducting their initial investigation.

Another factor that impacts the prudent fiscal management of MPI are the issues related to Basic's $2.3 billion investment portfolio.

MPI is in the process of a significant change in the way it manages the investment portfolio. The past practice was to view the Fund as a single purpose consolidated investment fund in which investment risks and benefits were allocated based upon a consolidated perspective. The fund was to be invested in Fixed Income (70%), Public Equities (15%) and Alternative Investments (15%) with the gains and losses allocated to the various lines of business based upon an Audit Committee approved investment income allocation methodology prepared by Deloitte Canada (based upon the net equity position of each line of business). Further details related to the basis of this methodology can be found in *Part VI – INV Appendix 9*.

The Board of Directors, have considerable expertise in the investment field, and after considering advice from Management and Mercer (Canada) Limited, have decided the portfolio should be segmented based upon the purpose for which the investment funds are needed. The purpose of each particular portfolio will determine the appropriate risk and investment vehicles to be used to attain the investment goals of that portfolio. The gains and losses for that particular portfolio will belong to that portfolio and will not be allocated to other portfolios. This approach has been endorsed by the Department of Finance.

The Board of Directors has made a fundamental change in the way it views the purpose of the investments and the risks to be taken. No longer will it be the sole purpose of these various portfolios to generate wealth to reduce the average premiums paid by ratepayers to cover the costs of delivering coverage.

The Basic Insurance investments will be three segregated portfolios with three distinct purposes.

- Basic Claims
- Rate Stabilization Reserve (RSR)
- Employee Future Benefits

Basic Claims

Customers purchase insurance to pay for future damages they will incur. The accidents have now occurred and through actuarial analysis, the amount of money necessary to pay for those future damages has been estimated. The only purpose of this portfolio is to pay for known future claims costs. Very little investing risk will be taken to jeopardize having the sufficient funds necessary to pay for these known future claims expenses. Past customers have purchased policies to pay for these claims. MPI's Board of Directors will not put at risk the funds necessary to pay existing claimants' future known damages for the potential benefit of reducing the premiums next year's customers pay to buy their coverage.

Rate Stabilization Reserve (RSR)

The RSR is Basic's capital reserve. It is there to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and losses arising from non-recurring events.

When calculating rates MPI uses its best estimates to forecast, amongst other items, future interest rates, the number of claims that will be filed in a rating year, the severity of the damages incurred, and the costs of benefits to be paid decades into the future. These best estimate forecasts are what is expected to occur. Even though these best estimates are tested by the PUB, these forecasts will have unexpected variances.

The reason that unexpected variances arise is because MPI does not know the future. MPI does not know the number of hail storms that will occur in Manitoba in 2019 or where the hail will fall. Will the hail fall in a farmer's field or over Winnipeg during rush hour? The photo below shows the results of a hailstorm at 4:00 pm on May 25,

2018 in the RM of McCreary. The impact on MPI's forecasts would have been significantly impacted if this storm occurred at that time over Winnipeg.

MPI does not know what the 2019/20 winter weather will be like; MPI does not know if one of the tens of thousands of motor vehicle accidents that will happen in 2019 will result in multiple fatalities and multiple catastrophic injuries similar to the tragic bus accident that occurred in Saskatchewan on April 6, 2018.



Staff Photo: RM of McCreary
25/5/18

MPI will use its best estimates to calculate the outcomes of a myriad of possibilities but there will most likely be unexpected variances from those forecasted results. If MPI has underestimated the amount of money necessary to pay the claims associated with the policies purchased in 2019/20 money will have to come from somewhere to pay those claims. The choice is simple – either the next year's customers will have to make up the shortfall and pay more than what their otherwise AAP indicated rates would require or the shortfall will be paid out of the RSR. The purpose of the RSR is to pay for these losses so that next year's ratepayers do not. It is the Board of Director's view that it is imperative to have adequate capital to avoid charging rate payers increase caused by these unforeseen variances – whether that charge is directly as higher rates the following year or in the form of a rebuilding fee.

It is important to note that limiting the size of the RSR to $1 above the lower target defeats the purpose of the reserve because as soon as that a loss occurs the Corporation is in unsatisfactory financial status and motorists may be facing a rebuilding fee.

Given the purpose of the RSR, the investment risk tolerance can vary. There will be minimal investment risk tolerance when the RSR balance is below the DCAT minimum;

however, there will be moderate investment risk tolerance when the RSR is within the approved range.

Employee Future Benefits

The purpose of this fund is to ensure that pension and other obligations are paid as they become due, while earning investment returns that keep contribution rates at reasonable levels. This fund represents combined pension liabilities for all lines of business (approximately 85% allocated to Basic and 15% to the other lines of business). Because of this purpose the investment risk tolerance is moderate.

OV.4.3 Adequate Capital Reserves

The Board of Directors, once again, transferred a significant amount of capital ($37.3 million) from the excess retained earnings of the Corporation's Extension line of business to the Basic RSR in order to permit the Chief Actuary to certify that the Basic line of business is in satisfactory financial status. Between 2013/14 and 2016/17 the Basic line of business suffered net income losses totaling $250 million. In 2017/18 the Basic line of business saw a positive net income of $34 million but the transfer was nevertheless necessary because of the pre-existing inadequacy of the capital reserves.

While the Board of Director's respects the PUB opinion in Orders 130/17 and 29/18 that the minimum lower target of the RSR should be $180 million, the Board of Directors does not believe that this number is calculated using best estimates. As such, the Board of Directors and the Corporation's Chief Actuary cannot sign off that the Basic line of business is in satisfactory financial condition if the Basic RSR is less than $201 million as of February 28, 2018. It is the Corporation's legislative responsibility to establish and maintain reserves in such amounts that, at all times, it has sufficient funds to meet all the payments as may become payable under *The Manitoba Public Insurance Corporation Act*.

The Board of Directors has determined that the minimum amount of the RSR is $201 million, as of February 28, 2018 for the 2018/19 fiscal year. In order to provide a

greater buffer to the capital reserve so that it is not sitting at $1 above unsatisfactory financial status, the Board of Directors transferred funds to raise the RSR to $211 million.

Determination of the range for the RSR is based upon risks facing MPI. The recent changes to how the Corporation manages investments has significantly reduced the risks its faces. Accordingly, MPI is seeking for the 2019/20 fiscal year approval of an RSR range of 34% to 85% MCT (forecast equivalent to $143 million to $305 million as at February 28, 2019). MPI is forecasting that as of February 28, 2020 it will have an RSR of 70% ($280 million).

Capital Maintenance Provisions

Having adequate capital reserves is a pillar of prudent fiscal management. The PUB stated in Order 130/17:

> *"…the Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims. The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective."*

A PUB ordered technical conference was held, and from MPI's perspective, there was consensus on the requirement for a Capital Maintenance Provision to be incorporated into the rate making process. This is an extremely important development towards ensuring long term rate stability for customers and satisfactory financial status for the shareholder. Although, in this year's rate application the Capital Maintenance Provision accounts for 2.1% of the 2.2% sought for rate increase, it must be noted that MPI forecasts, if there are no expected variances in the coming 5 years, that there will not be an on-going requirement for Capital Maintenance Provision increases, capital build requirements or transfers from the Extension line of business to maintain adequate capital reserves.

OV.5 SAFER ROADS

As its Mission Statement makes clear, MPI has a role in making the roads in Manitoba safer. Road safety is a complex, multi-faceted area which requires the participation of multiple stakeholders to bring about meaningful positive change. The best way for MPI to achieve this mission is by collaborating with other road safety stakeholders.

MPI will continue working with many different stakeholders in many different ways to take positive steps towards improving road safety. MPI regularly meets with stakeholders through the Manitoba Association of Chiefs of Police/MPI Traffic Committee, and the External Stakeholder Committee on Loss Prevention to seek input, share direction and validate the road safety priorities that are important to all stakeholders. The External Stakeholder Committee includes active representations from all recent Intervenors in the GRA process, which allows these organizations to bring forward concerns and discuss areas of common interest in a forum exclusively dedicated to loss prevention and road safety issues.

A key role MPI performs in coordinating the efforts of improving road safety in Manitoba is being a co-chair of the Provincial Road Safety Committee. As a co-chair, MPI is committed to the cultural and systems vision for safe roads, safe vehicles, safe speeds, and safe road users within the *Road to Zero: Provincial Road Safety Plan 2017-2020* and its priorities for action to achieve a gradual downward trend toward zero injuries and death on our roadways.

In past rate applications, MPI has provided extensive detail regarding road safety. The PUB directed in Order 130/17 that this information be considered at a technical conference in 2019. Accordingly, this application has less information than previous applications. Nevertheless, MPI feels it is important to provide in Part VII 01 LP Loss Prevention an update on the following new initiatives that will occur in this year:

- Improving driver testing;
- Launching a new traffic safety culture campaign;
- Launching a new consumer awareness campaign regarding driver assistive technology;

- Forward collision warning pilot for taxis;
- Continuing its comprehensive public awareness and education campaign related to drug impaired driving;
- Launching a campaign to address emerging trends in auto theft with keys;

MPI maintains its commitment and progressive effort to ensure that loss prevention programming and activities are grounded in evidence and demonstrate value to Manitoba rate payers. It believes in leveraging data and analytics to find new opportunities and maximize benefits that can be realized through new interventions. MPI will also continue to invest in proven or promising initiatives that can contribute to a reduction in collisions or claims costs.

Most importantly, MPI recognizes that it cannot achieve safer roads on its own, and that there is no simple answer to making roads in Manitoba safer for all. This goal can only be achieved through active engagement and collaboration with others in different forums. Each forum addresses different components and responsibilities of the overall road safety solution. This forum's role is at a higher level review of the costs incurred and the rates charged to cover those costs.

OV.6 CONCLUSION

In this Application, MPI is looking forward to the 2019/20 fiscal year. Through the transparency of the documents submitted, Manitobans can seeing the benefits of MPI focusing on its core business and applying rigor to the three pillars of prudent fiscal management. Costs are being contained, service is being improved and the financial stability of MPI appears promising.

It is an unfortunate reality that the business of automobile insurance is often related to tragic consequences. These tragic consequences became personally evident to all those who have participated in the Corporation's rate application process over the past years when, on May 24, 2018, Robyn Gray was killed in a motor vehicle accident. Mr. Gray was a founding member of the Coalition of Manitoba Motorcycle Groups and has participated in these hearings as a member of their executive or in his personal capacity. MPI acknowledges Mr. Gray's contribution to the GRA process.

PART II:
CORPORATE MISSION

CM – CORPORATE MISSION

Manitoba
Public Insurance

CORPORATE MISSION

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

CORPORATE MISSION 3

CM.1 NEW CORPORATE MISSION STATEMENT 3

CM.2 NEW CORPORATE VALUES 3

CM.3 MISSION STATEMENT IS REFLECTED THROUGHOUT THIS APPLICATION..... 4

CORPORATE MISSION

CM.1 New Corporate Mission Statement

Since 2004 MPI's corporate mission statement "Working with Manitobans to Reduce Risk on the Road" summarized MPI's purpose and defined the brand. As with other aspects of the business that are being reviewed and refreshed, in 2018 the Board of Directors of Manitoba Public Insurance adopted a new Corporate Mission Statement:

> *Exceptional coverage and service, affordable rates and safer roads through public auto insurance.*

The Corporate Mission Statement reflects the purpose of Manitoba Public Insurance, and will guide the actions of the Corporation. It will be the touchstone for everything the Corporation undertakes on a go forward basis.

CM.2 New Corporate Values

The Board of Directors also defined the following corporate values that articulate how MPI will fulfill its mission:

> *As a public auto insurer, we hold ourselves accountable to all Manitobans to deliver value by fostering a culture of excellence. We achieve this through our four core values:*
>
> ***Doing What's Right***
>
> - *We act with integrity and accountability. We strive to be open and transparent.*
>
> ***Investing in People***
>
> - *We empower our employees to provide excellent service. We work together with business, community and road safety partners to fulfil our mission.*

Striving for Excellence

- *We provide exceptional coverage and service. We adapt to meet evolving customer and industry needs, focusing on continuous improvement.*

Providing Value to Manitobans

- *We maintain affordable rates and ensure accessible coverage. As a public auto insurer, fiscal responsibility is at the forefront of everything we do.*

The mission statement and values were updated based on feedback from within MPI, and align with MPI's culture of excellence, and the value that public auto insurance brings to Manitobans.

CM.3 Mission Statement is reflected throughout this Application

The 2019 General Rate Application is based upon carrying out the mission statement, vision and corporate values, as it pertains to universal compulsory automobile insurance. Everything that is proposed in the application flows from the new Corporate Mission Statement.

PART III:
EXCEPTIONAL COVERAGE THROUGH EFFECTIVE PUBLIC AUTO INSURANCE

BAC – BASIC AUTOPAC COVERAGE AND BENEFITS
CBP – COMPARISON OF BASIC POLICIES TO OTHER JURISDICTIONS

Manitoba Public Insurance

BASIC AUTOPAC COVERAGE AND BENEFITS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

BASIC AUTOPAC COVERAGE AND BENEFITS 3

BAC.1 INTRODUCTION 3
BAC.2 EXCEPTIONAL COVERAGE THROUGH EFFECTIVE PUBLIC AUTO INSURANCE 4
BAC.3 BASIC INSURANCE DELIVERS COMPREHENSIVE COVERAGE AND VALUE TO MANITOBANS 6
BAC.4 EVOLVING PIPP COVERAGE MEETS THE NEEDS OF MANITOBANS 7
BAC.5 TABLE OF PIPP LEGISLATED ENHANCEMENTS AND AMENDMENTS 11
BAC.6 CORPORATE PRIORITY REVIEWS 17
BAC.7 SUMMARY OF BASIC AUTOPAC COVERAGE AND BENEFITS 18

BASIC AUTOPAC COVERAGE AND BENEFITS

BAC.1 INTRODUCTION

The Manitoba Public Insurance Corporation (MPI) was established as a crown corporation in 1971, to provide and administer basic compulsory, universally available, automobile insurance coverage (referred to as Autopac) to Manitoba motorists. Basic compulsory insurance is the minimum level of coverage that is legally required to operate a vehicle on the roadway in Manitoba. Extended coverage is also provided on an optional basis, through our Autopac Extension and Special Risk Extension (SRE) products, in competition with private insurance companies.

Compulsory public automobile insurance was introduced in Manitoba in response to a number of problems that existed under the previous private auto insurance system which failed to provide Manitobans with adequate, affordable automobile insurance. The problems were as follows:

- Automobile insurance was not compulsory. It was estimated that at least 10 percent of vehicles on the roadway carried no insurance.
- Insurance companies denied some people coverage. These people could pay into a special fund that paid claims for damage they caused, but they were indebted to the fund and were expected to repay the full amount.
- There were gaps in coverage. For example, "voluntary, unpaid" passengers who were injured in an accident caused by their driver received no compensation unless they could prove gross negligence or wilful and wanton misconduct on the part of their driver.
- Rates charged in Manitoba had as much to do with claims costs in the rest of Canada as with claims costs in Manitoba. As well, the rating system was complex and confusing, with many opportunities for manipulation by private insurers.

- Claimant and policy holder satisfaction was determined to be low, and the majority of the public was uninformed of their basic rights, duties and obligations.
- There was evidence that insurers used tactics to reduce their financial exposure, rather than adjusting claims in a manner that compensated people for their actual losses.

As noted in this chapter, compulsory, public insurance provides fair and affordable automobile insurance and addresses the issues that existed under the previous system.

BAC.2 EXCEPTIONAL COVERAGE THROUGH EFFECTIVE PUBLIC AUTO INSURANCE

Manitobans continue to benefit from a public auto insurance system. The value that MPI strives to provide to all Manitobans is reflected in our Corporate Mission Statement:

> *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*

As a public auto insurer, MPI is accountable to all Manitobans to deliver Basic compulsory insurance that provides value through:

- Guaranteed access for all Manitobans to basic automobile insurance
  - Guaranteed, reasonable basic level of protection (See: *BAC.3*)
  - Guaranteed availability; no one can be denied the ability to insure their vehicle, as long as they are eligible to register the vehicle for use on the roadway
  - Guaranteed/non-discriminatory rating;not based on age, gender, or other personal factors but based solely on the vehicle risk (type of vehicle, use, territory), and the driver's record (Driver Safety Rating (DSR))
  - Guaranteed access to injury benefits; all Manitoba residents are entitled to Personal Injury Protection Plan (PIPP) benefits under Part II of the

Manitoba Public Insurance Corporation Act, regardless of whether they drive or register an automobile
    - Guaranteed access by making Autopac services available throughout Manitoba
- Exceptional, comprehensive, coverage
    - Among the most comprehensive insurance coverage in Canada (See: *Part III Comparison of Basic Policies to Other Jurisdictions*)
    - Appropriate compensation in that Basic Autopac includes all-perils physical damage coverage, third party liability coverage, and no-fault automobile accident injury coverage with most economic losses being compensated

In addition to exceptional coverage, with guaranteed access, public insurance offers other fundamental advantages, including:

- Affordable rates (premiums)
    - Motorists are required to purchase compulsory auto insurance; therefore premiums must be affordable
    - MPI provides rates that are consistently among the lowest in Canada for comparable coverage and service (See: *Part IV Benchmarking Figure BMK-3)*
- Fiscal responsibility and accountability
    - Providing cost-effective coverage and service
    - Operating within strict guidelines and legislation, to protect public interests
    - Investing in Manitoba where prudent and using investment income to support maintainence of adequate capital
    - Adhering to best practices in insurance
    - As a non-profit provider, the Basic compulsory program operates on a self-sustaining basis and policy premiums reflect the forecast cost of insurance, with no expectation of profit
    - Funds are held to pay claims, maintain a Basic Insurance Rate Stabilization Reserve and to protect motorists from rate increases due to unexpected adverse events

- Evolving products and services to meet the diverse and evolving needs of Manitobans (See: *BAC.5* and *BAC.6*)

A single public administrator of the public auto insurance plan delivers certain efficiencies that further contribute to the mission of comprehensive coverage with affordable rates, namely:

- Consistent interpretation and application of plan and the coverage provided under it
- Avoidance of of extraneous administrative costs
- The ability to improve the plan and make it more responsive to the needs of the public with greater ease
- A better control of costs by leveraging synergies with repair shops, medical clinics and business partners

BAC.3 BASIC INSURANCE DELIVERS COMPREHENSIVE COVERAGE AND VALUE TO MANITOBANS

- Autopac provides comprehensive coverage at rates that are consistently among the lowest in Canada for comparable coverage and service. (See: *Part IV Benchmarking Figure BMK-3)*

Basic Compulsory insurance is available to every Manitoba resident eligible to register a vehicle in Manitoba. It applies to most private passenger vehicles, and some light commercial use vehicles. The following Basic Compulsory coverage applies to most registered vehicles:[1]

- All-perils coverage for accidental damage (to most registered vehicles) subject to a $500 deductible
- Basic Third Party Liability (TPL) coverage to a maximum of $200,000
- Basic First Party Loss of Use coverage for theft
- Maximum Insured Value (MIV) of $50,000 for the vehicle

1 See: *BAC.7* Section 5 - All Perils Coverage for a list of varied coverage by vehicle type and exclusions

- PIPP benefits for injury or death caused by a motor vehicle to a Manitoba resident, if the accident occurs anywhere in Canada or the United States, and for non-Manitoba residents if the accident occurs within Manitoba

In addition to providing the Basic Compulsory insurance that is required to legally operate a vehicle on the roadway, MPI also offers two types of optional coverage, which it provides in competition with private sector insurers, namely:

- Autopac Extension, which provides optional, supplementary protection to the basic Autopac package and can be acquired to:
  - Increase TPL limits
  - Reduce deductibles
  - Provide Excess Value Coverage
  - Provide coverage for the loss of use of a vehicle
  - Provide Lay-up coverage
  - Provide coverage for use of a rental vehicle
  - Provide protection for a leased or new vehicle
  - Provide coverage for off-road vehicle (ORV) ORV (beyond compulsory TPL)
  - Increase PIPP Income Replacement Indemnity (IRI) coverage to insure income for amounts that are in excess of the Basic plan's Maximum Yearly Insurable Earnings of $96,000 (also applies to the calculation of Death Benefits payments and Retirement Income Benefits)
- Special Risk Extension (SRE), which provides optional coverage for specialized risks, for which Basic Autopac does not provide coverage, and includes coverage for large commercial trucking fleets and garage policies

BAC.4 EVOLVING PIPP COVERAGE MEETS THE NEEDS OF MANITOBANS

Throughout its history, MPI has meaningfully changed its Basic Compulsory insurance plan to continually improve service and value, and to respond to the needs of Manitobans in the face of changing technologies, customer preferences, demographics, and other factors.

The most notable change was the introduction of PIPP: a pure no-fault injury compensation plan introduced on March 1, 1994, and a key component of the Basic Compulsory insurance plan. Modeled after Quebec's no-fault plan, it replaced the tort add-on scheme that existed in Manitoba previously, which included the right to sue an at-fault party but provided limited no-fault accident benefits and tort compensation.

Under PIPP, claimants' rights to sue for compensation were removed, and replaced with guaranteed, scheduled, comprehensive, consistently applied, and timely injury benefits, for real economic loss, regardless of fault. In addition, benefits are indexed annually to ensure that they meet changing economic conditions. PIPP helps ensure that Autopac claims costs are stabilized, and that premiums remain stable, predictable, affordable and among the lowest in Canada.

A dispute resolution process is also available to claimants who feel that they have not been adequately compensated under PIPP. This dispute resolution process consists of:

- A review of a disagreeable decision by the Internal Review Office (IRO)
- A right of appeal to the Automobile Injury Compensation Appeal Commission (AICAC)
- A further limited right of appeal of an AICAC decision to the Manitoba Court of Appeal (with leave)

In addition, since 2012, MPI has piloted an Automobile Injury Mediation (AIM) office, as a mediation option for claimants filing an appeal of their injury claim. In the coming year, MPI plans to formalize the permanent establishment of the mediation option in the dispute resolution process.

Most PIPP benefits provide unlimited coverage, based strictly on medical need and proven disability. MPI has policies and guidelines in place to ensure that claims are managed, while still providing claimants with the care that they require.

There are eight overarching coverage categories that are central to PIPP:

- Medical and Personal Expenses
- Personal Care Assistance Expenses (PCA)
- Rehabilitation Expenses
- Income Replacement Indemnity (IRI)
- Retirement Income Benefit (RIB)
- Caregiver Expenses (CGWI)
- Permanent Impairment (PI) Benefits
- Death Benefits

PIPP's products and services have been continuously monitored and reviewed since its inception in 1994 to ensure that it continues to adhere to the core principles and objectives upon which it was based. This also reinforces achieving PIPP's vision, that

> *"We will support Manitobans in their recovery from automobile accidents by being leaders in providing a personal injury rehabilitation plan..."*[2]

The active monitoring of PIPP includes strategic reviews of coverage, as well as formal cyclical coverage reviews of its many components. These reviews include jurisdictional comparisons with other Canadian plans, to ensure that PIPP provides among the most comprehensive bodily injury coverage in Canada.

As a result of these reviews, numerous enhancements to PIPP have been implemented since its introduction in 1994, to ensure continued high levels of support in the face of challenging and evolving claimant needs, particularly for those most seriously injured.

Significant enhancements include:

- The introduction of RIB (June, 1998)
- Enhanced Death Benefits, including grief counselling (February, 2003)
- Enhanced PIPP benefits for catastrophically injured claimants (October, 2009), including:
  - Enhanced IRI

2 *2012 GRA Part III AI.12 Attachment – Post Implementation Review, page 13*

    - Enhanced PCA
    - Enhanced PI
    - Transitional Expense Coverage (TEC) for special circumstances based on demonstrated need
- Introduction of additional coverage for catastrophically injured claimants (August, 2011) including:
    - Modifications to main or secondary home, due to health or family circumstances
    - Extraordinary travel and accommodation costs, including attendant costs
    - Attendant care to engage in employment
    - Motor vehicle acquisition (up to $50,000) and adaptation
    - Support for participation in leisure and recreational activities
- Extend CGWI for ongoing care of dependents where the deceased's primary occupation was the care of the dependents (June, 2015)

See *BAC.5*, for a complete chronological listing of all legislated PIPP coverage enhancements that have come into force since 1994.

BAC.5 TABLE OF PIPP LEGISLATED ENHANCEMENTS AND AMENDMENTS

Date	Amendment/Enhancement
June 1995	Reimbursement of expenses Regulation 40/94 amended to remove limit for hair pieces and provide reimbursement of tuition fees
June 1998	Income replacement indemnity (IRI) senior step down provisions eliminated and retirement income benefit (RIB) provisions introduced
June 1998	Student lump sum indemnities amended to allow proration based on semesters within a school year for partial school years missed
April 2000	Schedule A of Regulation 41/94, specifying permanent impairments replaced in its entirety
February 2003	Regulation 34/2003 introduced specifying methods for calculating RIB
February 2003	Income determination Regulation 39/94 amended to specify self-employed earners and shareholders of Canadian controlled Private Corporations
February 2003	Reimbursement of expenses Regulation 40/94 amended to provide grief counseling coverage for survivor family members
February 2003	Schedule A of Regulation 41/94, specifying permanent impairments updated
June 2004	PIPP dispute resolution, claimant advisers office introduced
June 2004	Law and order provision expanded to include reduction of IRI, permanent impairment payments and death payments for specified criminal code convictions Flight from police officer Theft where the property stolen is a motor vehicle Taking motor vehicle without consent

Date	Amendment/Enhancement
October 2004	Schedules C & D of Regulation 40/94 revised comprehensive personal care assistance assessment determination tool introduced
October 2004	Reimbursement of expenses Regulation 40/94 critical care attendance coverage introduced
June 2004	PIPP dispute resolution, allows appeals to the Automobile Injury Compensation Appeals Commission to be heard by one commissioner or a panel of three
February 2006	Income determination Regulation 39/94 Schedule C providing a proxy of occupations and incomes updated for current statistics and reference to the National Occupation Classification for Statistics
February 2006	Reimbursement of expenses Regulation 40/94 clothing allowance introduced for repair or replacement of clothing due to excess wear and tear or alteration as result of use of a wheel chair, prosthesis or orthodic device
February 2007	Schedule B of Regulation 41/94 stating calculation of successive remainders amended
June 2009	Law and order provision expanded that reduce specified PIPP payments when claimant is convicted of specified criminal code infractions Criminal negligence causing death while street racing Criminal negligence causing bodily harm while street racing Dangerous operation while street racing Dangerous operation causing bodily harm while street racing Dangerous operation causing death while street racing Operating a motor vehicle while impaired Impaired driving causing bodily harm Blood alcohol over .08 - causing bodily harm Refuse to supply sample - causing bodily harm

Date	Amendment/Enhancement
	Impaired driving causing death Blood alcohol over .08 - causing death Refuse to supply sample – causing death
October 2009	Catastrophic injury coverage introduced including defining catastrophic injures Minimum IRI payable based on industrial average wage versus minimum wage Increased permanent impairment payment Increase personal care assistance monthly maximum Introduction of a legislated coordinating authority and transitional expense coverage to bridge coordination between government programs and for special circumstances Amendment applied to Permanent Impairment Regulation 41/94 in support of determining catastrophic injuries
August 2010	Reimbursement of expenses Regulation 40/94 addition of physician assistants, clinical assistants, nurse practitioners as recognized practitioners permitting reimbursement of expenditures associated with those practitioners
June 2011	Law and order provision to eliminate access to PIPP for certain Criminal Code Convictions and allow recovery of any PIPP benefits paid prior to the conviction Flight from police officer Criminal negligence causing death while street racing Criminal negligence causing bodily harm while street racing Dangerous operation while street racing Dangerous operation causing bodily harm while street racing

Date	Amendment/Enhancement
	Dangerous operation causing death while street racing Motor vehicle theft Theft where the property stolen is a motor vehicle Take motor vehicle without consent Applies if the claimant is convicted in a state or territory of the United States or the District of Columbia in the United States of an offence that is the same or similar
August 2011	Reimbursement of expenses Regulation 40/94amended to better support continued per-accident activities and new life requirements of catastrophically injured Home modifications to secondary home/cottage use Extraordinary travel expenses Attendance expenses More than one motor vehicle adaptable and purchase of a vehicle (catastrophically injured – purchase once every 5 years) Bi annual extraordinary cost reimbursement for recreation and leisure activities based on rating of permanent impairment ranging from $500 to $4,000 (20% to catastrophically injured)
August 2011	Reimbursement of expenses Regulation 40/94 meal allowances increased and indexing provisions added
June 2013	Reimbursement of expenses Regulation 40/94 grief counseling amount increased, grief counseling travel added and indexing provisions added
June 2013	Retirement income benefit Regulation 34/2003 definition of other pension amended regarding pension splitting, and lump sum RRSP withdrawals

Date	Amendment/Enhancement
June 2014	Amendments specifying bodily injury caused by golf carts and other vehicles that don't meet provincial and federal safety standards for motor vehicles and cannot be registered under the Drivers and Vehicles Act cannot have access to PIPP unless a moving motor vehicle is involved in the accident
June 2014	Amendments specifying PIPP does not apply to bodily injury caused while the accident takes place on a track or other location closed to automobile traffic whether or not it is an automobile contest, race or show
June 2014	Amendment specifying recovery (subrogation) from other insurers is intended to be based on PIPP and not tort compensation
June 2014	Student lump sum indemnities extended to age 18 to align with Manitoba Stay in School Act (previously students could leave school at age 16)
June 2014	Catastrophically injured claimant are exempt from having residual capacity determinations applied to offset long term IRI. Also, catastrophically injured claimants who receive a reduced IRI due to post accident work will have their full IRI reinstated in event they lose their employment for any reason whether or not directly related to the accident. MPI recognized that catastrophically injured claimants face considerable barriers to obtain and sustain employment
June 2014	Non dependent death payment increased and indexing added
June 2014	Amendment to specify care giver weekly indemnity may apply to persons regularly incapable of employment or over age 65 without employment but whose main occupation at the time of the accident was the care of dependents without remuneration. For clarity, no entitlement to an IRI or RIB is created because of this amendment
March 2015	Reimbursement of expenses Regulation 40/94 amounts increased and indexing provisions applied for the coverage Critical care attendance

Date	Amendment/Enhancement
	Clothing allowance Reimbursement for medical reports in support of review and appeals
May 2015	Regulation 41/94, specifying permanent impairments medical terminology updated to provide more specific permanent impairment determinations
June 2015	Death payments amended to extend care giver weekly indemnities to survivor caregiver where the deceased's main occupation was the care of dependants without remuneration
November 2015	Clarified that an automobile injury compensation appeals commissioner, other than the chief commissioner, is appointed for not more than three years and continues to hold office until reappointed or replaced.

BAC.6 CORPORATE PRIORITY REVIEWS

The 2018-19 Annual Business Plan sees "an emphasis on building a culture of excellence, customer service and product assessment, with an ogoing focus on core business and building value". To that end, MPI will review of a number of corporate priorities to ensure that it is fulfilling its mission and values, and delivering value to Manitobans. Included in this review are:

- Product Suite Review
  - A comprehensive product review is underway, still in its infancy. This review will look for opportunities within the Basic Compulsory, Autopac Extension and SRE insurance products and will specifically consider:
    - PIPP entitlements and coverage
    - Basic deductible, TPL, First-Party all-perils coverage MIV
- Appeal Process Review (PIPP and Physical Damage)
  - A comprehensive review to simplify and improve the various appeal processes for physical damage claims
  - A review to create efficiencies in the PIPP appeal process.

BAC.7 SUMMARY OF BASIC AUTOPAC COVERAGE AND BENEFITS

The table provided below is a complete listing of available Basic Compulsory coverage, along with coverage details and current coverage limits.

COVERAGE NAME	2018 COVERAGE LIMIT
1. PERSONAL INJURY PROTECTION PLAN	Annual indexing of Benefits to 2017 Consumer Price Index (CPI) wasadded March 1, 2018
Includes:	
Medical Expenses	**Unlimited** – all eligible expenses
Rehabilitation Expenses	**Unlimited** – all eligible expenses Coverage enhancements: • Enhanced coverage for catastrophically injured claimats for: o Extraordinary expenses related to travel and accommodation o Attendant care to engage in employment o Adaptation of primary and secondary residences o Adaptation of more than one motor vehicle o Purchase of adapted motor vehicle for catastrophically injured claimant (every 5 years, up to $50,000 per acquisition) • Enhanced coverage for extraordinary expenses to participate in leisure and recreation activities; subject to bi-annual limits of $500-$4,000 based on permanent impairment rating

COVERAGE NAME	2018 COVERAGE LIMIT
PERSONAL INJURY PROTECTION PLAN *(cont'd)*	
Funeral Expense Reimbursement	To a maximum $8,544 per deceased
Death Payments	Spouse: $62,693 to $480,000 based on victim's age and income Dependants: $29,778 to $54,857 based on dependant's age Non-Dependant Parent or Child: $13,961 each Disabled Dependants: Additional sum of $27,427
Impairment Benefits	Scheduled Lump Sum Payment ranging from a minimum of $782 to a maximum of $156,729 Permanent Impairment Payment for catastrophically injured $247,477 Lump Sum Payment

Note: Permanent Impairment and Death Benefits are **both** payable in the event that the claimant sustains a permanent impairment as a result of the motor vehicle accident, and subsequently succumbs to their motor vehicle accident injuries. The claimant must survive a minimum of 90 days after the motor vehicle accident for the Permanent Impairment to be payable.

Income Replacement Indemnity	
a) Earners	90% of net income to a gross maximum of $96,000 for as long as claimant is unable to hold employment
b) Non-Earners	Claimants who are unemployed but able to work prior to the accident receive any Employment Insurance or National Training Act benefit lost, or an Income Replacement Indemnity after 180 days (IRI during first 180 days if promised or seasonal employment is proven) Claimants who are unemployable due to physical or mental infirmity do not receive Income Replacement Indemnity benefits; all other benefits apply

COVERAGE NAME	2018 COVERAGE LIMIT
PERSONAL INJURY PROTECTION PLAN *(cont'd)*	
Note: Temporary and part-time workers, and non-earners (capable of working full-time prior to the accident) receive an Income Replacement Indemnity based on full-time employment after 180 days. For claimants who meet the catastrophic injury definition, the minimum Income Replacement Indemnity is based on the Industrial Average Wage.	
c) Student Indemnity	Paid for delayed entry into the workforce due to missed school due to the MVA. Paid in addition to any Income Replacement Indemnity benefits
For Each School Year Lost	Students entitled to: Kindergarten to Grade 8 $5,328 Grade 9 to Grade 12 $9,873 Post-Secondary $9,873 per term to a maximum of $19,751 per year
Students Remaining Disabled at Scheduled End of Studies	Income Replacement Indemnity payable; no less than Industrial Average Wage
Personal Care Assistance	Up to $4,700 per month, with no lifetime limit (non-catastrophic) The monthly limit increases by up to an additional $920 per month for catastrophic injuries
Dependant Care Expense	Depending on the number of children or infirm persons cared for, a minimum of $117 up to maximum of $236 weekly reimbursement for additional care expenses incurred (part-time caregiver)
Caregiver's Weekly Indemnity	Depending on the number of persons cared for, a minimum of $454 to a maximum of $596 per week for part-time earner or non-earner who cares for other person (full-time caregiver) Caregivers have the option of receiving Income Replacement Indemnity based on full-time employment 180 days after the accident

COVERAGE NAME	2018 COVERAGE LIMIT
PERSONAL INJURY PROTECTION PLAN *(cont'd)*	
Caregiver's Weekly Indemnity *(cont'd)*	If the caregiver dies due to the motor vehicle accident, the amount of the weekly indemnity that would have been payable had they survived, is payable to the deceased's spouse or common-law partner or the legal guardian of the child(ren). If care was provided to an infirm adult, the payment is made to that adult
Substitute Labour Costs for Unpaid Family Owned Business	Up to $782 weekly reimbursement for the cost of hiring someone else to replace the labour of an unpaid family member for the first 180 days following the motor vehicle accident
Special Expenses Reimbursement	Specific expense amounts as governed by Regulations (e.g., telephone, travel, clothing, etc.) Interest on any indemnity not paid within 30 days
Grief Counselling Reimbursement	To a maximum of $3,573 per eligible claimant Travel/accommodation/meals (to obtain grief counselling) to a maximum of $3,573 per eligible claimant
Critical Care Attendance Reimbursement	To a maximum of $4,655 per claim, for up to two persons
Reimbursement Rate for Claimant Travel	$0.40 per kilometer (as of April 1, 2009)
Meal Allowance	To a daily maximum of $45.35
Clothing Allowance-wear and tear	$1,081 maximum per calendar year, for excess wear or alteration of clothing as follows: Where due to the use of a prosthesis/orthosis for a period of six months or more: $361 for clothing worn on the upper body $720 for clothing worn on the lower body Where due to permanent confinement to a wheelchair: $1,081

COVERAGE NAME	2018 COVERAGE LIMIT
PERSONAL INJURY PROTECTION PLAN *(cont'd)*	
Clothing Allowance-wear and tear (*cont'd*)	Where due to the use of an orthosis for a period of less than six months: $120
Retirement Income Benefit	Payable to claimants who remain disabled from working, paid the later of the claimant reaching age 65 or the claimant collecting IRI for 5 years; 70% of net income to a maximum insurable gross annual income of $96,000, less any other pension income (i.e., CPP, OAS)
Transitional Expense Coverage	Payment of certain expenses for catastrophically injured claimants to a lifetime limit of $1,151,061 in order to: • bridge funding while benefits are being coordinated between PIPP and other Government programs; • pay expenses which are in excess or outside of existing coverage which, if paid, will result in an equal or greater reduction in amounts payable under PIPP
Medical Report (review or appeal)	$388 per report; max. 3 reports for review; max. three (3) reports for appeal
2. THIRD PARTY LIABILITY	$200,000 ($500,000 ORV only)
3. UNDERINSURED MOTORIST COVERAGE	$500,000 (ORV only)
4. UNINSURED MOTORIST COVERAGE	$200,000 (for Property Damage only, after March 1, 1994)
5. ALL-PERILS	
Maximum Insured Value:	
• Passenger Cars and Vans	$50,000
• Trucks	$50,000
• Snow Vehicles (HTA)	$50,000

COVERAGE NAME	2018 COVERAGE LIMIT
5. ALL-PERILS (cont'd)	
Declared Value Range:	
• Motor homes	$50,000
• Motorcycles	$50,000
• Buses	$50,000
• Mopeds and Mobility Vehicles	$50,000
• Trailers	$50,000
• Wheelchair Livery Bus	$50,000
Loss of Use for Theft of Entire Vehicle	$34 per day to a maximum of $1,020
Originally Installed Sound and Electronic Communication Equipment (OEM)	No limit
Aftermarket Sound and Electronic Communication Equipment	$1,000
Deductibles:	
• Private Passenger Vehicles, Station Wagons, Vans, and Sport Utility Vehicles	$500
• School Buses, Charter Bus, and Disabled persons/ Private/ Business Bus	$500
• Motorcycles	$500 Collision & Upset Only
• Mopeds and Mobility Vehicles	$150 Collision & Upset Only
• Trailers $2,501 value and over	$500
• Trailers under $2,501	$150
• Taxis and Livery Vehicles (effective March 1, 2019 this registration class will be eliminated)	$600

COVERAGE NAME	2018 COVERAGE LIMIT
5. ALL-PERILS *(cont'd)*	
Deductibles *(cont'd):*	
• Vehicles for Hire (passenger vehicles up to 10 occupants; light trucks GVW under 4,500 kg)	$500
• Funeral Passenger Vehicle	$500
• Truck Tractors, Transit Buses, U-Drive Buses, PSV Vehicles, and Petroleum/Chemical Trucks with Tankers, Sand/Gravel Trucks and Logging Trucks	$800
• Farm Trucks (including Truck Tractor body style)	$500
• Other Trucks	$500

Deductible reduction of 50% (reduced from $500 to $250) where vehicle is stolen and it had an anti-theft device properly in use and was defeated (as of June, 2001)

Exclusions:
Trucks and truck tractors over 16,330 kg, except Farming/Fishing trucks, drive-away units, dealer-plated vehicles, and repairer-plated vehicles. City of Winnipeg Transit buses and buses that are Public Service Vehicles do not carry All-Perils coverage under the Basic program. Repairer-plated vehicles carry Collision & Upset only.

Commercially Registered Trucks (CT Plated) in excess of 5,499 kg. Gross Vehicle Weight and Public Service Vehicles operating beyond 161 km outside the borders of the province of Manitoba (extra provincially). These vehicles do not carry Third Party Liability or All Perils coverage under the Basic program.

Semi-trailers have no coverage through Basic Autopac.

COMPARISON OF BASIC POLICIES TO OTHER JURISDICTIONS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

COMPARISON OF BASIC POLICIES TO OTHER JURISDICTIONS 3
CBP.1 AUTOMOBILE INSURANCE IN CANADA 3
CBP.2 WHY PUBLIC INSURANCE IN MANITOBA? 5
CBP.3 PIPP BENEFITS OFTEN EXCEED OTHER NO-FAULT PLANS 6
CBP.4 COVERAGE MODIFICATIONS IN OTHER PROVINCES HIGHLIGHT THE VALUE OF BASIC AUTOPAC 8
CBP.5 COMPARISON OF MPI BASIC INSURANCE COVERAGE TO OTHER PROVINCES 9

COMPARISON OF BASIC POLICIES TO OTHER JURISDICTIONS

CBP.1 AUTOMOBILE INSURANCE IN CANADA

In Canada, the frameworks of automobile insurance differ significantly from province to province. Automobile insurance systems are comprised of varying combinations of the following design considerations, depending on the objectives of the system:

- Compulsory (mandatory)[1] vs. Optional insurance
- Public (government) Insurance vs. Private Insurance
- Tort vs. No-Fault compensation (the role of liability in compensation)
- Pricing scheme

All provinces in Canada mandate a minimum level of compulsory automobile insurance:

- In provinces with a public insurance provider, compulsory insurance is provided by the public insurer. Optional insurance (to supplement the compulsory insurance) may be offered by the public insurer, in competition with private insurance companies
- In most provinces, $200,000 Third Party Liability is compulsory
    - Except: Quebec $50,000; Nova Scotia $500,000
- In most provinces first-party accident benefits is compulsory
    - Except: Newfoundland and Labrador
- In a couple of provinces first-party property damage coverage is compulsory
    - Saskatchewan, Manitoba
- All provinces mandate uninsured motorist coverage (to protect against injury caused by uninsured at-fault motorists)

[1] Compulsory (mandatory) insurance is the minimum level of automobile coverage that is legally required to operate a motor vehicle in a province. Compulsory insurance coverage typically includes liability coverage, personal injury protection/first-party accident benefits, and underinsured motorist coverage. A few jurisdictions require coverage for first-party property damage to one's own automobile.

In Manitoba, Saskatchewan and British Columbia, compulsory insurance is provided publicly through the provincial government insurers (Manitoba Public Insurance (MPI), Saskatchewan Government Insurance (SGI) and The Insurance Corporation of British Columbia (ICBC)). Optional coverage can be purchased either through the provincial government insurer, or through private insurance providers. In British Columbia, coverage for first party physical damage is optional.

- Manitoba operates a "pure" no-fault compensation system (for bodily injury), which removes the right to sue an at-fault motorist in exchange for a comprehensive package of bodily injury benefits administered by the public insurer.

- Saskatchewan provides a no-fault system (for bodily injury), which removes the right to sue for non-economic loss (pain and suffering). However, it does afford the right to sue for economic loss that is in excess of first party benefits. (Saskatchewan consumers have a choice between a no-fault and a tort plan; however, the vast majority retain the default no-fault insurance).

- British Columbia operates under a tort compensation system (can sue the liable party for non-economic and economic loss)

Quebec has a hybrid auto insurance system. The provincial government insurer provides public compulsory injury coverage (on a "pure" no-fault basis), while private insurers provide compulsory Third Party Liability (for physical damage only), and optional first party physical damage coverage.

All other provinces (Alberta, Ontario, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, Northwest Territories, Nunavut and Yukon) operate under private insurance regimes, all of which provide tort compensation access:

- Except: Ontario, which has a modified No-fault system; the right to sue for non-economic losses (pain and suffering) is subject to a verbal severity threshold and a deductible; tort action for economic losses in excess of first party benefits

- Most tort jurisdictions provide a level of no-fault accident benefits ranging from $10,000 to $50,000 with the exception of Newfoundland and Labrador (where accident benefits are optional).
- Where injuries are deemed "minor," tort awards are usually capped at a maximum amount, and a deductible may apply.

The Comparison of MPI Basic Insurance Coverage to other Provinces (See: *CBP.5*) provides a detailed comparison of the coverage available under that plan to the coverage available in the plans offered in provinces with public, compulsory, automobile insurance as well as in provinces with pure no-fault or an enhanced degree of no-fault accident benefits (injury coverage). The five Canadian jurisdictions are Manitoba, Saskatchewan, British Columbia, Québec and Ontario.

- Like Manitoba, automobile insurance is provided by public insurance in Saskatchewan, British Columbia, and Québec
- Manitoba, Saskatchewan and Quebec provide some measure of "no-fault" injury benefits
- Ontario (a private regime) is included, as it provides enhanced accident benefits coverage

CBP.2 WHY PUBLIC INSURANCE IN MANITOBA?

MPI was created in 1971 to provide basic compulsory automobile insurance to Manitobans. This was in response to problems with the private auto insurance system that existed at the time, including:

- The difficulty consumers faced discerning value for money
  - Insurance packages which differed from insurer to insurer and made cost comparisons difficult
  - Premiums paid were often higher due to operating costs (factors such as advertising and shareholder returns increase operating costs)[2]

[2] See: *Part IV Benchmarking BMK.4.1.6* MPI's loss ratio (a measure of operational efficiency) consistently exceeds those of other benchmark groups. This is expected, given that MPI is a not-for-profit corporation, and has a mandate of returning benefits to Manitobans while keeping insurance rates low.

- Some claimants had to deal with multiple insurers in the course of their claims
- Understanding policy provisions, rights and obligations was often difficult for consumers who were often required to "read the fine print."

Public insurance was created in order to provide a more equitable automobile insurance environment for Manitobans. Today, Basic compulsory public insurance provides Manitobans with, among other things:

- Unlimited comprehensive medical and rehabilitation coverage based on proven needs (see *CBP.3* for details);
- First-Party physical damage coverage with a Maximum Insured Value of $50,000, which exceeds the First-Party requirements in other private jurisdictions
- Affordable rates (premiums) that are stable and predictable. In a public insurance regime with no-fault injury benefits (and no right to sue), claims costs are stabilized, predictable and controlled, resulting in more comprehensive benefits and affordable premiums

Overall, Manitoba's Public Insurance system, combined with a no-fault injury scheme, provides the best value for Manitobans, in terms of comprehensive coverage, with comparatively affordable rates.

Please see: *Part III Basic Autopac Coverage and Benefits BAC.7* for a summary of Manitoba's comprehensive automobile insurance coverage and benefits.

CBP.3 PIPP BENEFITS OFTEN EXCEED OTHER NO-FAULT PLANS

MPI's Personal Injury Protection Plan (PIPP) provides among the most comprehensive, universally accessible automobile injury coverage in Canada, while helping to provide overall compulsory insurance rates that are consistently among the lowest in the country for comparable coverage and service. Most benefits provide unlimited coverage, with no expiry, based on medical need and proven disability.

PIPP Medical and Rehabilitation coverage in Manitoba is unlimited; in comparison:

- SGI has a maximum limit of $6,813,680
- ICBC has a maximum of $150,000 per person
- Ontario has a $3,500 limit for minor injuries ($65,000 limit for non-minor/non-catastrophic injuries and a $1,000,000 limit for catastrophic injuries)

In addition to unlimited medical and rehabilitation coverage, PIPP provides enhanced benefits for catastrophically injured claimants that is amongst the best coverage for the catastrophically injured within the three no-fault provinces (Manitoba, Saskatchewan, Quebec). Enhanced coverage for catastrophically injured claimants includes:

- Enhanced Income Replacement Indemnity (IRI)
- Enhanced Personal Care Assistance (PCA)
- Enhanced Permanent Impairment (PI)
- Transitional Expense Coverage (TEC) for special circumstances based on demonstrated need
- Modifications to main or secondary home, due to health or family circumstances
- Extraordinary travel and accommodation costs, including attendant costs
- Attendant care to engage in employment
- Motor vehicle acquisition (eligible every 5 years) and adaptation
- Support for participation in leisure and recreational activities

PIPP is monitored and reviewed continuously to ensure that it remains among the most supportive plans in Canada for victims of automobile accidents.

CBP.4 COVERAGE MODIFICATIONS IN OTHER PROVINCES HIGHLIGHT THE VALUE OF BASIC AUTOPAC

Other jurisdictions modify coverage levels from time to time. In recent years, Ontario has reduced some coverages, in order to reduce claims costs, as an alternative to premium increases. SGI made enhancements to their injury coverage (effective January 1, 2017), in some cases to bring coverage levels up to those already provided by MPI.

Currently, ICBC (a tort-based compensation model) is undergoing reform, in order to reduce rising claims costs, and to keep rates affordable.[3] This is expected to involve changing how injuries are treated and compensated by moving toward a care-based model, with increased accident benefits, while taking steps to reduce legal costs. Together, these changes focus on providing timely treatment and support that customers need in order to recover, as opposed to cash settlements (in tort) which attempt to estimate future needs.

The changes being made by ICBC are expected to come into effect on April 1, 2019, and include the following:

- Enhanced accident benefits, aimed at improving care and support for recovery
  - Increase the overall allowance for medical care and recovery expenses to $300,000 (from $150,000), to better support those most catastrophically injured (once legislated, benefit will be retroactive to January 1, 2018)
  - Significantly greater treatment costs will be covered (based on current, fair market rates, that have not been updated since 1991)
  - Customers will no longer be out-of-pocket for most expenses
- More types of service providers will be covered by ICBC, so that customers have more choice about the treatments they are able to receive

[3] https://news.gov.bc.ca/releases/2018AG0003-000164

- Wage loss support up to $740 per week (from $300/week). This will be indexed to inflation
- Homemaker's benefits up to $280 per week (from $145/week)
- Funeral costs up to $7,500 (from $2,500)
- Death benefits up to $30,000 (from $17,580-$20,080)
- Limits to minor injury claims:
  - $5,500 limit on pain and suffering awards for minor injuries.
  - Optional coverage will be available for higher limit in pain and suffering compensation. Limit will be set at $75,000
- Minor injury definition
- New dispute resolution model for minor injury claims (Civil Resolution Tribunal (CRT), which is independent of ICBC)

These expected changes, though relevant to ICBC's current accident benefits coverage, still do not meet the level of benefits currently provided by Manitoba's PIPP benefits. Arguably, ICBC's shift to a care-based model (with measures to reduce legal costs) highlights the value of Manitoba's no-fault (PIPP) system.

Newfoundland and Labrador is currently undergoing an auto insurance review, in light of rising claims costs. The province is exploring caps on minor injuries.[4]

New Brunswick's auto insurers are also calling for significant rate increases, and the provincial government is going to take time to review and consider whether changes are needed to the automobile insurance system.[5]

CBP.5 COMPARISON OF MPI BASIC INSURANCE COVERAGE TO OTHER PROVINCES

The following table provides a detailed comparison of the basic compulsory insurance benefits of five comparable Canadian jurisdictions.

[4] Per: Thompson's World Insurance News, Article: Government consultant confirms insurers are losing money
[5] http://www.cbc.ca/news/canada/new-brunswick/car-insurance-new-brunswick-insurance-board-rates-increase-1.4607701

MANITOBA PUBLIC INSURANCE

COMPARISON OF BASIC POLICIES: 2018-2019 INSURANCE YEAR

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
			*ICBC coverage changes pending for April 1, 2019 are not reflected in this table. See *CBP.4* for details.		
Insurance System (no-fault type)	Pure No-Fault (tort eliminated) Annual indexation of benefits	Choice of: No-Fault or Tort If No-Fault is selected: Have option for Reduced No-Fault on owned motorcycles Provides tort level benefits for an at-fault driver ((50% or more at fault, or single vehicle accidents) If not at-fault, receive full No-Fault benefits Annual indexation of benefits	Tort with No-Fault Benefits	Pure No-Fault (tort eliminated) Annual indexation of benefits	Tort with No-Fault Benefits (tort restrictions) Optional indexation of certain benefits (see Auto Bulletin No. A-05/17 - http://www.fsco.gov.on.ca/en/auto/autobulletins/2017/pages/a-05-17.aspx

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Legal Action: Bodily Injury	No claim against liable party for bodily injury	Under No-Fault Coverage, an injured person not responsible for the collision can sue for: • economic loss in excess of the plan's benefits • pain and suffering (non-economic) if responsible driver is convicted of: • impaired driving (if responsible driver dies and is not convicted, can sue Estate if evidence of impaired driving) • an intentional act • criminal negligence (incl. street racing) • flight from peace officer • dangerous operation while street racing Can sue certain institutional third parties whose negligence contributes to a collision (i.e. vehicle manufacturers, repairers, licenced drinking establishments) Reduced No-Fault: Limited ability to sue for economic and non-economic loss *Tort:* *Non-liable victim can sue for economic and non-economic loss* *$5,000 deductible applied to any pain and suffering payment*	Non-liable victim can sue for economic and non-economic loss; wage loss limited to "net" income loss (i.e. after tax and EI premium deductions)	No claim against liable party for bodily injury	Tort action for non-economic losses subject to threshold: i. Death or permanent and serious disfigurement or ii. Permanent and serious impairment of an important physical, mental or psychological function and • subject to deductible of: $37,983.33 (Jan 1, 2018 - Dec 31, 2018) Deductible does not apply to awards over: $126.610.07 (Jan 1, 2018 - Dec 31, 2018) As of Sep 1, 2010: Optional reduced deductible available Non-pecuniary losses under Family Law Act: • subject to deductible of: $18,991.67 (Jan 1, 2018 - Dec 31, 2018)

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Legal Action: Bodily Injury *(cont'd)*					Deductible does not apply to awards over: $63,304.51 (Jan 1, 2018 - Dec 31, 2018) As of Sep 1, 2010: Optional reduced deductible available Tort action for economic losses in excess of accident benefits
Legal Action: Property Damage	Tort	Tort	Tort	Direct Compensation	Direct Compensation As of Sep 1, 2010: Deductible option for Direct Compensation
Compulsory Insurance Coverage	Third Party Liability, No-Fault Accident Benefits (PIPP), All Perils	Third Party Liability, No-Fault Accident Benefits (both Tort and No-Fault or Reduced No-Fault), All Perils	Third Party Liability, Underinsured Motorist Protection, Accident Benefits, Uninsured Motorist and Unidentified Motorist Protection, Inverse Liability for BC Residents	Third Party Liability, No-Fault Accident Benefits	Third Party Liability, No-Fault Accident Benefits (Statutory Accident Benefits (SABS)), Direct Compensation, Uninsured Motorist Coverage

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
A) NO-FAULT ACCIDENT BENEFITS					
Income Replacement Indemnity (IRI)	Income Replacement Indemnity (IRI): Based on employment classification at the time of the accident *Full-time earner:* Employed at one employment for 28 hours or more per week for at least one year, or for successive or intermittent periods of eight months or more, with intervals of four months or more, for at least two years *Temporary earner:* Employed for 28 hours or more per week, for less than one year *Part-time earner:* Employed for less than 28 hours per week *Non-earner* : Unemployed at the time of accident, but able to work	Income Replacement Benefit (IRB): Based on employment status at the time of the accident Employed at the time of the accident OR Unemployed, but could have been working at the time of the accident Regularly incapable of working at the time of the accident (no entitlement)	Wage Loss Benefit (Disability Benefit): Based on employment status at the time of the accident *Employed:* Employed at time of accident OR Employed for at least 6 of the 12 months immediately preceding the date of accident	Income Replacement Indemnity (IRI): Based on employment classification at the time of the accident *Full-time earner* : Employed for 28 hours or more per week, for at least one year OR for successive or intermittent periods of eight months or more for the same employer, with intervals of no more than four months, for more than two years *Temporary earner* : Employed for 28 hours or more per week, for less than one year *Part-time earner:* Employed for less than 28 hours per week; duration of employment is irrelevant Unemployed (*Non-earner):* Unemployed at the time of accident, but able to work	Income Replacement Benefit (IRB): Based on status at the time of the accident Employed at time of accident OR Unemployed at time of accident, but: Employed for at least 26 of the 52 weeks immediately prior to the accident (or receiving EI benefits at time of accident) OR At least 16 years of age or was excused from attending school *No disability benefit if:* Unemployed for more than 26 of the 52 weeks immediately prior to the accident

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*	*Minor:* Under 18 years of age *Student:* 18 years of age or older and attending a secondary or post-secondary educational institution on a full-time basis; or a minor who has met the requirements for receiving a high school diploma or provincial certificate of completion and is attending a post-secondary education institution on a full-time basis *Persons Incapable of Employment:* Persons regularly incapable of holding employment for any reason except age (no entitlement)			*Student under the age of 16 years:* Student under the age of 16 years and attending an elementary or secondary educational institution on a full-time basis *Student 16 years of age or over:* Student age 16 years or over and attending a secondary or post-secondary educational institution on a full-time basis *Persons regularly unable to hold any Employment:* Persons regularly unable to hold any employment, for any reason whatever except age (no entitlement)	Non-Earner Benefit: If: Did not qualify for IRB; At least 16 years of age and a full-time student (elementary, secondary, or post-secondary); OR had completed education in previous year but had not yet secured employment in a capacity that reflected the education or training As of June 1, 2016, the insurer is not required to pay a non-earner benefit: for the first four weeks after the onset of the complete inability to carry on a normal life; before the insured person is 18 years of age; for more than 104 weeks after the accident; or if the insured person is eligible to receive and has elected under section 35 to receive either an income replacement benefit or a caregiver benefit under this Part. O. Reg. 251/15, s. 4(2).

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*	Income Replacement Indemnity (IRI): *General Provisions:* 90% of net income earned computed on a yearly basis Net income is based on Gross Yearly Employment Income (GYEI) up to a Maximum Yearly Insurable Earnings of $96,000 Indexed annually No entitlement to IRI for persons regularly incapable of holding employment No compensation payable for first seven days after the accident (including catastrophic) Catastrophic Injury: GYEI used to calculate IRI for catastrophic injury shall not be less than a GYEI based on Industrial Average Wage (IAW)	Income Replacement Benefit (IRB): *General Provisions:* 90% of net income earned computed on a yearly basis Net income is based on a Gross Annual Income up to a Maximum Yearly Insurable Earnings of $96,034 Indexed annually Self-employed: Based on lost income, or The actual cost of replacement labour to a yearly maximum of $45,136 No entitlement to IRB for persons regularly incapable of holding employment No compensation payable for first seven days after the accident (waived for catastrophic) Catastrophic Injury: GYEI used to calculate IRB for catastrophic injury shall not be less than a GYEI based on Industrial Average Wage (IAW)	Wage Loss Benefit (disability benefit) for employed persons: *First 104 weeks:* Based on 75% of average gross weekly earnings (for 12 month period immediately preceding the accident), <LESS> the weekly gross total of payments from all other disability compensation Maximum of $300 per week No compensation payable for first seven days after the accident *After 104 weeks:* Benefits are reduced by any benefits received from the Canada or Québec Pension Plans Disability benefit continues for duration of disability until age of 65	Income Replacement Indemnity (IRI): *General Provisions:* 90% of net income computed on a yearly basis Net income is based on a Gross Annual Income up to a Maximum Yearly Insurable Earnings of $73,500 Indexed annually No entitlement to IRI for persons regularly unable to hold any employment for any reason whatever except age No compensation payable for the first seven days after the accident	Income Replacement Benefit (IRB): Entitled to IRB if: Employed at time of accident, and, within 104 weeks of the accident, suffer a substantial inability to perform the essential tasks of that employment Not employed at time of accident, but: Employed at least 26 weeks during the 52 weeks prior (or receiving EI benefits at time of accident) OR At least 16 years of age or was excused from attending school at time of accident AND within 104 after the accident, suffers a substantial inability to perform the essential tasks of the employment in which the person spent the most time during the 52 weeks prior to the accident No income replacement benefit is payable if eligible to receive and has elected to receive either non-earner or caregiver benefit

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*		*Reduced No-Fault or Tort:* *Maximum $438 per week (total disability)* *Maximum $219 per week (partial disability)* *Paid for up to 104 weeks* *After 104 weeks,* *If permanent disability and unable to hold any employment, paid for life* *Cannot be less than minimum wage* *Includes homemaker for first two years* *If claimant has returned to work or homemaking duties within the first 104 weeks, but subsequently suffers a relapse or is required to undergo medical treatment: a "one-time" disability income benefit for up to 16 weeks*			*First 104 weeks:* If substantial inability to perform essential tasks of employment: Based on 70% of gross weekly income (minus income replacement assistance payable from other sources); Maximum of $400 per week *After 104 weeks:* Only if complete inability to engage in any employment or self-employment for which the person is reasonably suited Based on the greater of: 70% of gross weekly income, or $185 Maximum of $400 per week No compensation payable for first seven days of disability

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*	Full-time earners: IRI based on gross income earned at time of accident GYEI used to calculate IRI for full-time earner cannot be less than a GYEI based on minimum wage Temporary, Part-time, and Non-earners: *First 180 days:* IRI based on gross income earned at time of accident (or would have earned during first 180 days, but for the accident) *After first 180 days:* Reassessed, if still unable to work IRI based on gross income of a full-time (or part-time) employment that could have been held, as determined by the insurer Shall not be less than IRI received during the first 180 days GYEI used to calculate IRI for person reassessed and determined into a full-time employment after 180 days cannot be less than a GYEI based on minimum wage	Employed/would have held employment (including unemployed with promised employment)t: *First 180 days:* 90% of net income to a maximum gross salary of $96,034 annually to age 65 If self-employed: Based on lost income, OR, The actual cost of replacement labour (Substitute worker election) $45,136 yearly maximum *After first 180 days (non-seasonal earner):* *IRB based on the greatest of:* Yearly income used to calculate IRB in first 180 days; Average employment income earned in the two years before the accident; Yearly employment income based on minimum wage	Unemployed (*for at least 6 of the 12 months immediately preceding the date of accident) :* No disability benefits Homemaker's (disability) benefit: For homemaker who is substantially and continuously disabled from performing most of their household tasks First 104 weeks: Up to $145 per week for reasonable expenses to hire a person to perform household tasks No compensation where household tasks are performed by a family member No benefit payable for first seven days Payable for duration of disability to a maximum of 104 weeks After 104 weeks: Benefits (after 104 weeks) are reduced by any benefits received from the Canada or Québec Pension Plans Disability benefit continues for duration of disability until age of 65	Full time earners: IRI based on gross income earned at time of accident GYEI used to calculate IRI for full-time earner cannot be less than a GYEI based on minimum wage Temporary, Part-time and Non-earners: *First 180 days:* IRI based on gross income earned at time of accident (or would have earned during first 180 days, but for the accident), or lost (regular or employment benefits) during first 180 days, because of the accident *After first 180 days:* Reassessed, if still unable to work IRI based on gross income of a full-time (or part-time) employment that could have been held, as determined by the insurer Can be less than IRI received during the first 180 days The income used to calculate IRI for person reassessed and determined into a full-time employment after 180 days comes from the data collected by an independent firm and contained in a listing called Repères. It cannot be less than a GYEI based on minimum wage	Non-earner (benefit): Entitled to a non-earner benefit if: Completely unable to carry on a normal life, and: Did not qualify for IRB; At least 16 years of age and a full-time student; OR had completed education in previous year but had not yet secured employment in a capacity that reflected the education or training First 104 weeks: $185 per week (less total of all other income replacement assistance) 26 week waiting period from onset of complete inability to carry on a normal life As of June 1, 2016 this is revoked: After 104 weeks: Amount will increase to $320 for each week of complete inability to carry on a normal life (less total of all other income replacement assistance) No non-earner benefit is payable if eligible to receive and has elected to receive either IRB or caregiver benefit

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*		After first 180 days (seasonal earner): IRB based on greatest of: Employment income earned in the year before the accident Average employment income earned in the two years before the accident; Yearly employment income based on minimum wage If seasonal employment not held until on or after July 1 of the year before the date of accident, or not otherwise held in the two years prior, IRB is based on greatest of: Employment income earned in the year before the accident Average employment income earned in the two years before the accident Yearly employment income determined for an employment of the same class as the seasonal employment held/would have held; Yearly employment income based on minimum wage (Can be less than yearly income used to calculate IRB in first 180 days)			
Income Replacement Indemnity (IRI) (cont'd)		Unemployed at time of accident but able to work: After 180 days: IRB based on minimum wage; reduced based on ability to perform activities of daily living			

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*	After second anniversary of accident: If maximum medical improvement has been reached and a functional deficit still exists, insurer may determine a residual employment, based on residual earning capacity Will continue to receive same IRI as before, for a period of one year (job search year) At the end of the job search year, IRI will be reduced by the greater of: the net income earned, or the net income of the determined residual employment (No residual employment determination if catastrophic injuries)	After second anniversary of accident: If able to work but unable to hold an employment from which the yearly employment income is equal to or greater than the yearly employment income on which IRB is calculated: Insurer may determine a residual employment, based on residual earning capacity Will continue to receive same IRB as before, (reduced by 90% of actual income) for a period of one year (job search year) At the end of the job search year, IRB will be reduced by the greater of: the net income earned, or the net income of the determined residual employment		After second anniversary of accident: If maximum medical improvement has been reached and a functional deficit still exists, insurer may determine a residual employment, based on residual earning capacity Will continue to receive same IRI as before, for a period of one year (job search year) At the end of the job search year, IRI will be reduced by the greater of: the net income earned, or the net income of the determined residual employment	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Income Replacement Indemnity (IRI) *(cont'd)*	Part-time earners and Non-earners: May also be entitled to Caregiver Weekly Indemnity (CGWI) during the first 180 days After 180 days, may elect IRI (based on full-time determined employment), or continue with CGWI (and part-time IRI if applicable) (See: Expense Section) Full-time earners, Temporary Earners, or Students (or part-time or non-earners who have elected IRI after 180 days): May also be entitled to a Dependant Care Expense (See: Expense Section)	Caregivers: May also be entitled to Caregiver Benefit during the first 180 days After 180 days, may elect IRB (based on minimum wage), or continue with caregiver benefit (See: Expense Section) Medical appointment IRB: Persons may be entitled to an income replacement benefit following a return to work and while attending a medical appointment or treatment program authorized by the insurer. Not entitled if currently receiving: Income Replacement Benefit Caregiver Benefit Family Enterprise Benefit Substitute Worker Benefit		Part time earners and Non-earners: May also be entitled to Care Allowance during the first 180 days (See: Expense Section) After 180 days, may elect IRI (based on full-time determined employment), or continue with Care Allowance (See: Expense Section)	
Indemnities for Students and Minors	Students and Minors lost employment income: Entitled to an IRI for employment held/would have held while attending studies (This is in addition to any LSI, or IRI following scheduled end date of studies)	Students lost employment income: Entitled to an IRB for employment held/would have held while attending studies (This is in addition to any LSI, or IRI following scheduled end date of studies)		Students lost employment income: Entitled to an IRI for employment held/would have held while attending studies (This is in addition to any LSI, or IRI following scheduled end date of studies)	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Indemnities for Students and Minors(cont'd)	Students and Minors Lump-sum Indemnity: Entitled to a fixed lump-sum indemnity for each school year or term not completed If minor (at time of loss): Indemnity paid if unable to begin/resume studies Paid until the end of the school year in which the minor turns age 18 If student (at time of loss): Indemnity paid if unable to begin/resume studies Paid until the scheduled end date (at time of accident) of current level of studies (See also Other Expenses - Tuition Fees)	Students Loss of Studies Benefit: Student: under 16 years of age, OR Attends an elementary, secondary or post-secondary educational institution on a full-time basis Benefit paid if unable to begin/resume studies Paid until the scheduled end date of studies If able to complete some (but not all) classes, benefit based on portion of the maximum loss of studies benefit, depending on the number of classes that couldn't be completed Loss of scholarship, tuition, textbooks: If student is unable to begin/resume current studies (or a portion thereof): Payment provided for any scholarship income lost Payment provided for any non-refundable book and tuition expenses (for full-time and part-time students) $20,531 maximum per school year		Students Lump-sum Indemnity: Entitled to a fixed lump-sum indemnity for each school year or term delayed by reason of the accident If under 16 years of age (at time of the accident): Indemnity paid if by reason of the accident, unable to begin/resume studies and they are delayed Paid until end of the school year in which the student turns age 16 If 16 years of age or over (at time of the accident): Indemnity paid if, by reason of the accident, unable to begin/resume studies and they are delayed Indemnity paid until the scheduled end date (at time of accident) of current level of studies Under and over 16 years of age (at time of the accident): If resume studies but, by reason of the accident, is unable to hold any employment after ending current studies before the scheduled date therefore at the time of the accident: Entitled to a lump-sum indemnity until the date scheduled as the date of the end of studies	Lost Educational Expenses: Entitled to an indemnity per school year missed Eligible if enrolled in a program of elementary, secondary, post-secondary or continuing education at the time of accident, and unable to continue the program as a result of the accident Payment for lost educational expenses (e.g., lost tuition, books, equipment, room and board): Maximum $15,000

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Indemnities for Students and Minors *(cont'd)*	Lump-sum indemnity: Elementary (Kindergarten to Grade 8): $5,328 for each school year not completed Secondary (Grade 9-12): $9,873 pro-rated and payable for each semester or term not completed (maximum $9,873 per school year) Post-Secondary: $9,873 per term (maximum of $19,751 per year)	Loss of studies benefit: Elementary: $5,525 for each school year not completed Secondary: $5,133 per semester (maximum two per year) to a maximum of $10,266 per school year Post-Secondary: $10,266 per semester (to a maximum of $20,531 per year)		Lump-sum indemnity: Elementary (Kindergarten to Grade 6): $5,256 for each school year delayed Secondary: $9,645 per school year delayed Post-Secondary: $9,645 per term delayed (to a maximum of $19,289 per year)	Non-earner (benefit): Entitled to a non-earner benefit if: Completely unable to carry on a normal life, and: Did not qualify for IRB; OR Had completed education in previous year but had not yet secured employment in a capacity that reflected the education or training First 104 weeks: $185 per week (less total of all other income replacement assistance) For policies issued on or after June 1, 2016, this benefit compensates a claimant if: • they suffer a complete inability to carry on a normal life, and • do not qualify for an income replacement benefit or have not elected a caregiver benefit

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Indemnities for Students and Minors *(cont'd)*					The benefit is not payable for the first four weeks after the onset of the disability and for more than 104 weeks following an accident. The benefit is $185 per week less the total of all other income replacement assistance. This benefit is not payable to a claimant if they are under 18 years of age As of June 1, 2016 this was revoked: After 104 weeks: Amount will increase to $320 for each week of complete inability to carry on a normal life (less total of all other income replacement assistance)

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Indemnities for Students and Minors *(cont'd)*	Students and Minors - Entitlement to Income Replacement Indemnity (IRI): If minor (at time of loss): If both unable to resume studies AND hold employment at end of the school year in which the minor turn 18: Entitled to an IRI based on Industrial Average Wage (IAW) for as long as unable to hold employment If able to resume studies, but unable to hold employment at scheduled end date of current studies: Entitled to an IRI based on Industrial Average Wage (IAW) for as long as unable to hold employment If student (at time of loss): If unable to hold employment at scheduled end date of current studies: Entitled to an IRI based on Industrial Average Wage (IAW) for as long as unable to hold employment	Students (Entitlement to Income Replacement Benefit (IRB): Students: If unable to hold employment at end of secondary level of studies or at age 16: Entitled to income benefit based on minimum wage (unless catastrophic) If still unable to hold employment one year after the end of secondary level studies or age 16: Entitled to Income benefit based on the industrial average wage If unable to hold employment at end of post-secondary level of studies: Entitled to income benefit based on industrial average wage If catastrophically injured: Entitled to income benefit based on industrial average wage (at end of current studies or at age 16)		Students - Entitlement to Income Replacement Indemnity (IRI): If under age 16 (at time of the accident): If unable to begin/resume studies and to hold any employment by reason of the accident from the end of the school year in which the student turns 16: Entitled to an IRI based on Industrial Average Wage (IAW) If student is age 16 or over (at time of the accident): If unable to begin/resume studies and to hold any employment after the scheduled end date of current studies: Entitled an IRI based on Industrial Average Wage (IAW) Both under and over 16 (at time of the accident): If resume studies but, by reason of the accident, is unable to hold any employment after having completed or ended them: Entitled from the scheduled end date of current studies (if they ended them) or from the end date of studies (if completed) to an IRI based on Industrial Average Wage (IAW)	

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Indemnities for Students and Minors *(cont'd)*	At any time after scheduled end date of studies (or after year in which minor turns 18, if unable to resume studies): Insurer may determine a residual employment, if minor or student is able to work but unable to hold an employment for which the gross income is equal to or greater than the IRI being received (i.e. IAW) Will continue to receive same IRI as before (IAW), for a period of one year (job search year) At the end of the job search year, IRI will be reduced by the greater of: the net income earned, or the net income of the determined residual employment (No residual employment determination if catastrophic injuries)	At any time after scheduled end date of studies: Insurer may determine a residual employment, if student is able to work but unable to hold an employment for which the gross income is equal to or greater than the IRB being received after studies Will continue to receive same IRB as before for a period of one year (job search year) At the end of the job search year, IRB will be reduced by the greater of: the net income earned, or the net income of the determined residual employment		At any time after scheduled end date of studies: Insurer may determine a residual employment, if student is able to work but unable to hold an employment for which the gross income is equal to or greater than the IRI being received after studies Will continue to receive same IRI as before (IAW), for a period of one year (job search year) At the end of the job search year, IRI will be reduced by the greater of: the net income earned, or the net income of the determined residual employment	

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Retirement Income (Income Benefit after Age 65)	IRI if 65 years of age or older (Retirement Income Benefit): If receiving IRI and subsequently turn 65: IRI ceases and entitlement to a Retirement Income Benefit (RIB) begins on the later of: 65th birthday, OR Five years after day on which IRI first received If age 65 or older and employed at time of accident: Full IRI for five years, then entitlement to RIB If age 65 years of age or older and does not hold employment at time of accident: No entitlement to IRI; no entitlement to RIB Retirement Income Benefit (RIB) is calculated as: 70% of net income (last used to calculate IRI) LESS any other net pension income Payable for life; Indexed annually	IRB if 65 years of age or older: If receiving IRB or substitute worker benefit for 24 consecutive months or more: Eligible to receive a lump-sum (pension) benefit, based on 10% of your total income benefits, up to age 65 Payable at age 65, or when entitlement to IRB or substitute worker benefit ends If between ages of 63 and 65 and employed at time of accident: Receive full income benefit for 24 months If age 65 or older and employed at time of accident: Full IRB for one year As of the second year: reduced by 25% As of the third year: reduced by 50% As of the fourth year: reduced by 75% IRB ends four years after the date of accident If age 65 years of age or older and does not hold employment at time of accident: No entitlement to IRB	Wage Loss Benefit (disability benefit) if 65 years of age or older: Disability benefit continues for duration of disability until age of 65 If receiving disability benefit (employed or homemaker) and turn age 65 within first 104 weeks: Receive disability benefits for up to 104 weeks If 65 or older (and employed or homemaker) at time of accident: Receive disability benefits for up to 104 weeks	IRI if 65 years of age or older: If receiving IRI and subsequently turn 65: On 65th birthday: reduced by 25% On 66th birthday: reduced by 50% On 67th birthday: reduced by 75% On 68th birthday: ceases to be paid If age 64 years or over and employed at the date of accident: Full IRI for one year As of the second year: reduced by 25% As of the third year: reduced by 50% As of the fourth year: reduced by 75% IRI ends four years after the date of accident If age 65 or over and employed at time of accident: During first 180 days: IRI based on employment held/would have held during first 180 days, at time of the accident or on the regular benefits/employment benefits lost because of the accident After 180 days: IRI based on a determined employment As of the second year: reduced by 25% As of the third year: reduced by 50% As of the fourth year: reduced by 75%	IRB if 65 years of age or older: If receiving IRB or Non-earner Benefit and subsequently turn 65: IRB or non-earner benefits is adjusted on the later of: 65th birthday OR Two years after day on which benefit first received Benefit is converted at that time to a lifetime pension at a reduced rate Adjustment is based on 2% of weekly benefits received, multiplied by the number of years of disability (to a maximum of 35 years)

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Retirement Income (Income Benefit after Age 65) *(cont'd)*				If 65 years of age or over and does not hold employment at the date of the accident: No entitlement to an IRI	If age 65 or older and entitled to IRB or non-earner benefit at time of accident: Benefits for up to 208 weeks (4 yrs), and are gradually reduced over the period Weekly benefit (before deductions), is multiplied by a factor based on the number of weeks that have elapsed since the person became entitled: Less than 52 weeks – 1.0; 52 weeks or more but less than 104 weeks – 0.8; 104 weeks or more but less than 156 weeks – 0.6; 156 weeks or more but less than 208 weeks – 0.3

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Death Benefits	Spouse or common-law partner: Lump-sum indemnity based on deceased's gross yearly employment income that the deceased would have been entitled to at date of death, had they survived, and age (at date of death): Minimum $62,693 Maximum $480,000 Calculation factors in whether spouse or common-law partner is disabled Payable to dependants (divided equally) if no spouse or common-law partner If the deceased would have been entitled to a Caregiver Weekly Indemnity, had they survived: The indemnity is payable to the deceased's spouse/common-law partner or the legal guardian of the child(ren). If care was provided to an infirm adult, the payment is made to that adult (See: Expense Section)	Spouse or common law partner: Spousal Benefit: Weekly death benefit based on 45% of deceased's net income to a maximum gross salary of $96,034 annually (IRB varies depending on whether seasonal or non-seasonal earner) Minimum $71,066 Weekly benefit paid to spouse for life Or capitalized lump sum Payable to dependants, if no spouse or common-law partner *Reduced No-Fault or Tort:* *Based on 45% of deceased's net income to a maximum gross salary of $96,034 annually;* *minimum $60,660 payable bi-weekly or lump sum*	Spouse or common-law partner: Where the deceased is "Head of Household"(of a two-parent household): Initial payment to surviving spouse of $5,000 plus a payment of $145 per week for 104 weeks (Total $20,080) Where the deceased is the "spouse" of the head of household: Initial payment to surviving head of household of $2,500, plus a payment of $145 per week for 104 weeks (Total $17,580)	Spouse or common-law partner: Lump-sum indemnity based on deceased's gross income that the deceased would have been entitled to at 181st day, had they survived, and age. Minimum $70,139 Maximum $367,500	Spouse or common-law partner: Death benefit (to survivor) payable if insured person dies: Within 180 days after the accident, or Within 156 weeks after the accident if the injury sustained resulted in a continuous disability during that period $25,000 to spouse No payment to person who dies before the insured person or within 30 days after the insured person $10,000 to former spouse (if obligation to provide support)

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Death Benefits *(cont'd)*		Dependant Benefit: Spouse is also paid additional weekly benefit for care and maintenance of dependant (where dependant children under age 21, or disabled dependant older than age 21): Based on 5% of deceased's net income to a maximum gross salary of $96,034 annually, for each dependant Subject to minimum weekly amounts $30 to $77 based on number of dependants Paid until child reaches age 21, or for life if dependant is disabled Paid directly to dependants if no spouse Education Benefit: Surviving spouse entitled to benefit to assist with return to school to achieve greater degree of independence and financial stability Covers essential costs such as tuition, books and materials, and child care Request must be within five years of date of accident Maximum $47,377 Vocational counseling: Maximum $687 to spouse			

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Death Benefits *(cont'd)*	Dependant: Lump-sum indemnity (to each dependant) based on dependant's age: Minimum $29,778 Maximum $54,857 Disabled Dependant: Additional lump-sum indemnity $27,427	Dependant: Dependant benefit (5% of deceased's net income to a maximum gross salary of $96,034 annually, per dependant); is payable to spouse (See Spousal Benefit) *Reduced No-Fault or Tort:* *5% of deceased's net income to a maximum gross salary of $96,034 annually*	Dependant: Where the deceased is "head of household" or "spouse of head of household" (of a two-parent household): Initial payment to each surviving child of $1,000, plus a payment of $35 per week for 104 weeks	Dependant: Lump-sum indemnity (to each dependant) based on dependant's age: Minimum $33,314 Maximum $61,373 Disabled Dependant: Additional lump-sum indemnity $28,932	Dependant: $10,000 to surviving dependant No payment to person who dies before the insured person or within 30 days after the insured person

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Death Benefits *(cont'd)*	*Dependant child(ren) (where deceased has no spouse or common-law partner*):	*Dependant child(ren) (where deceased has no spouse or common-law partner):*	*Dependant child(ren) (where deceased has no spouse or common-law partner)* :	*Dependant child(ren) (where deceased has no spouse or common-law partner):*	Dependant child(ren) (where deceased has no spouse or common-law partner):
	Where no surviving spouse or common law partner, dependants receive the lump sum spousal benefit, divided equally	Where no surviving spouse or common-law partner: Dependant benefit paid directly to dependants via public trustee (i.e. deceased is the sole parent) Where no surviving spouse or common-law partner, dependants receive the lump sum spousal benefit, divided equally, Payable until age 21 (See Spousal Death Benefit) Where both parents are deceased: Spousal benefit of 45% of each deceased's net income to a maximum gross salary of $96,034 annually; divided equally, until age 21 Plus an additional 5% of each deceased's net income to a maximum gross salary of $96,034 annually) for each additional child (beyond the first) totaled and divided equally to age 21, or for life if dependant is disabled For calculation purposes, the youngest dependant is deemed to be the surviving spouse; benefit paid until the youngest turns 21 *Reduced No-Fault or Tort:* *Dependants receive the spousal benefits, if no spouse*	*Where the deceased is head of a one-parent household:* Initial payment for one child of $5,000, plus a payment of $145 per week for 104 weeks; Initial payment for each additional child (beyond 1st) of $1,000, plus a payment of $35 per week for 104 weeks (If more than one child, all benefits are added together and divided equally) *Where both head of household and spouse deceased:* Initial payment for one child of $7,500, plus a payment of $145 per week for 104 weeks Initial payment for each additional child (beyond 1st) of $1,000, plus a payment of $35 per week for 104 weeks (If more than one child, all benefits are added together and divided equally)	Where no surviving spouse, dependants receive the lump sum spousal benefit, divided equally	Where no surviving spouse, dependants receive additional $25,000 divided equally No payment to person who dies before the insured person or within 30 days after the insured person

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Death Benefits *(cont'd)*	Non-dependant child(ren) and parents (where deceased has no spouse or other dependants): Lump sum indemnity to each non-dependant child and parent: $13,961 each	Non-dependant child(ren) and parents (where deceased has no spouse or dependants): Lump sum payment to each non-dependant and parent: Maximum per survivor $15,792 Maximum total payable $71,066 No surviving spouse or dependants and no non-dependant children and parents: $15,792 lump-sum to Estate If deceased is under 21 years and no surviving spouse or dependants, but one or more parents: $31,584 lump-sum to Estate *Reduced No-Fault or Tort:* *No spouse, no dependants is $13,480 (to Estate)*	Non-dependant child(ren) and parents (where deceased has no spouse or dependants): Parent(s) Benefit: Where deceased is dependant child: Parent(s) receive lump-sum payment of up to $1,500, depending on deceased child's age	Non-dependant child(ren) and parents (where deceased has no spouse or dependants): Parent(s) Benefit: Lump-sum indemnity paid to surviving parents (equal shares) if deceased was minor (with no dependants) $56,217 If one parent is deceased, deprived of parental authority, or has abandoned the deceased (insured), the share of that parent accrues to the other parent If both parents are deceased, the indemnity is paid to Estate If deceased is of full age (no dependants): Indemnity is paid to the Estate	Non-dependant child(ren) and parents (where deceased has no spouse or dependants): $10,000 to person in respect of whom person was a dependant $10,000 to the spouse of a person in respect of whom the insured was a dependant, if the spouse was the insured's primary caregiver and the person in respect of whom the insured was a dependant dies before the insured, or within 30 days $10,000 to the dependants of a person in respect of whom the insured was a dependant, if no payment is required to be made to a parent or spouse of parent (as above), divided equally No payment to person who dies before the insured person or within 30 days after the insured person
Funeral Expenses	Funeral Expenses: Reimburse deceased's estate for actual cost of funeral expenses, including cost of any grave marker: Maximum of $8,544 Grief Counseling for survivors of deceased who are eligible for Death Benefits (See Expense Section)	Funeral Expenses: Lump-sum to deceased's estate, regardless of actual cost $10,331 *Reduced No-Fault or Tort:* *$6,740*	Funeral Expenses: Reimbursement for burial and funeral expenses Maximum $2,500	Funeral Expenses: $5,256 payment to estate	Funeral Expenses: Reimbursement for funeral expenses incurred Maximum $6,000

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Permanent Impairment	Permanent Impairment: Lump-sum indemnity for permanent physical or mental impairment: Based on maximum amount applicable on date of accident, and a percentage determined for the permanent impairment Non-catastrophic injuries: Minimum $782 Maximum $156,729 Catastrophic injuries: Maximum $247,477 Permanent impairment not payable if victim dies within 89 days of accident (if cause of death is related to accident)	Permanent Impairment: Lump-sum benefit for permanent impairment: Based on maximum amount applicable on date of accident, and a percentage determined for the permanent impairment (Non-catastrophic) permanent injuries: Maximum $197,405 Catastrophic injuries: Maximum $241,102 Permanent impairment not payable if victim dies of a cause related to the accident *Reduced No-Fault or Tort:* *$175,240 maximum (catastrophic injuries)* *$13,480 maximum (all others)*		Non-pecuniary damage indemnity: Lump-sum indemnity for loss of enjoyment of life (diminished quality of life), pain, and mental suffering and other consequences of the temporary or permanent injuries or functional or cosmetic sequelae Maximum $245,946 for non-pecuniary damage Maximum $1,406 for temporarily diminished quality of life No indemnity if person dies within 24 hours after the accident If victim dies more than 24 hours but within 12 months after accident, indemnity as fixed by regulation for the compensation of bodily injury Based on the maximum amounts in force on the date of the decision	

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Permanent Impairment *(cont'd)*				Expenses incurred for the correction of a scar: $280 maximum for scar of less than 4 cm^2 $415 maximum for scar 4 cm^2 to 10 cm^2 $625 maximum for scar of more than 10 cm^2 up to 20 cm^2 $835 maximum for scar of more than 20 cm^2 Expenses incurred for the correction of a deformity: Maximum of $925 for liposuction in the case of a single lesion Maximum $465 per liposuction to treat each additional lesion Maximum $925 for an injection of fat in the case of a single lesion Maximum $465 per fat injection to treat each additional lesion	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Reimbursement of Expenses	Medical and Rehabilitation Expenses: General provisions: No overall limit for medical and rehabilitation expenses However, there may be specified limits on individual expense components Reasonable and necessary expenses not covered by another universal government health plan	Medical and Rehabilitation Expenses: General provisions: Maximum $6,888,630 *Reduced No-Fault or Tort:* *Non-catastrophic injuries:* *Maximum $26,960* *Catastrophic injuries:* *Maximum $202,200*	Medical and Rehabilitation Expenses: General provisions: Maximum of $150,000 per person for all medical and rehabilitation services Reasonable and necessary expenses not covered by another health plan	Medical and Rehabilitation Expenses: General provisions: No overall limit for medical and rehabilitation expenses However, there may be specified limits on individual expense component Reasonable and necessary expenses not covered by another health plan	Medical and Rehabilitation Expenses: General provisions: Medical Benefit: Reasonable and necessary expenses that are not covered by another health plan Rehabilitation Benefit: Reasonable and necessary rehabilitation measures Medical and Rehabilitation Benefit limit based on classification of injury: Minor injuries: Maximum $3,500 (less amounts paid in accordance with Minor Injury Guideline) As of June 1, 2016: No coverage after 260 weeks after the accident, in case injured person was 18 yrs. or older; or after 28th birthday in case injured person was under 18 yrs. As of June 1, 2016: Non-minor/Non-catastrophic injury: Maximum $65,000 No coverage after 260 weeks after the accident, in case injured person was 18 yrs. or older; or after 28th birthday in case injured person was under 18 yrs. Catastrophic injury: Maximum $1,000,000 No time limit on coverage

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Reimbursement of Expenses *(cont'd)*					Duration of medical, rehabilitation and attendant care benefits: No coverage after 260 weeks after the accident, in case injured person was 18 yrs or older; or after 28th birthday in case injured person was under 18 yrs No attendant care benefit is payable for expenses incurred more than 104 weeks after the accident (unless catastrophic impairment)

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Personal Home Assistance Expenses	Personal home assistance (personal care assistance): Reimbursement of actual expenses incurred for obtaining assistance due to inability to care for self or perform essential activities of everyday life Maximum $4,700 per month No lifetime limit Need for assistance is assessed, and must reach a minimum level Personal home assistance (catastrophic injury): Non-catastrophic maximum is increased by $920 per month for catastrophic Based on actual expenses Does not include expenses incurred because of inability to care for others (may be compensable under CGWI or Care Expense Reimbursement).	Living Assistance Expenses Benefit: Benefit for expenses related to obtaining assistance due to inability to care for self or perform basic activities of daily living Functional care: Maximum $868 per week Cognitive care: Maximum $436 per week Included in maximum medical and rehabilitation: $6,888,630 cap	Attendant Care: Reimbursement for cost of attendant care other than that provided by a family member, where the insured has returned to and is residing in the community, but is not capable of performing some or all of the tasks necessary to sustain and independent lifestyle Reimbursement limited to the lesser of: Monthly cost of a group residence (including a long term care facility), and Monthly cost of attendant care, the level and type of which will be determined by the rehab team (per standards and criteria) Included in medical and rehab benefits; (maximum $150,000 for each insured person, for all medical and rehab services)	Personal home assistance: Expenses incurred for personal home assistance, if the insured's physical or mental condition warrants the continual attendance of another person, or renders him unable to care for himself and perform, without assistance, the essential activities of daily living Maximum $878 per week; no lifetime cap	Attendant Care Benefit: Reimbursement for reasonable and necessary expenses incurred to purchase personal care services supplied by an aide or attendant; or a long-term care facility, including a long-term care home or chronic-care hospital Eligible if no longer able to take care of yourself, and require assistance for essential activities Minor injuries: Not eligible for attendant care services Non-minor/Non-Catastrophic injuries: Maximum $3,000 per month No coverage after two years Up to a total of $36,000 (overall limit) for expenses incurred within 104 weeks of the accident As of June 1, 2016, new combined standard benefit for Medical Rehabilitation and Attendant Care pays up to $65,000 for medical, rehabilitation and attendant care expenses, combined with a five year time limit in most cases Catastrophic injuries: Maximum $6,000/month As of June 1, 2016, combined standard for Medical Rehabilitation and Attendant Care is $1,000,000 for CAT

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Personal Home Assistance Expenses *(cont'd)*			Homemaker's (disability) benefit: Weekly benefit for homemaker who is substantially and continuously disabled from performing most of their household tasks Up to $145 per week for reasonable expenses to hire a person to perform household tasks No compensation where household tasks are performed by a family member, no benefit payable for first seven days Payable for duration of disability to a maximum of 104 weeks If disability continues beyond 104 weeks benefits continue until the person reaches the age of 65; Benefits (after 104 weeks) are reduced by any benefits received from the Canada or Québec Pension Plans If person turns age 65 (within first 104 weeks) will still receive disability benefits for up to 104 weeks Person over age 65 and a homemaker at time of accident will receive disability benefits for up to 104 weeks		Standard Housekeeping and Home Maintenance coverage: Housekeeping and home maintenance: Reasonable and necessary additional expenses for housekeeping and home maintenance services, if insured sustains a catastrophic impairment that results in a substantial inability to perform the housekeeping and home maintenance services normally performed Maximum $100 per week

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Caregiver Weekly Indemnity	Caregiver Weekly Indemnity (CGWI): Weekly indemnity for part-time earner or non-earner (i.e. full-time caregivers) who's main occupation is taking care, without remuneration, of other person(s) under age of 16 or (adults) regularly unable to hold employment Weekly indemnity (if unable to provide care) based on number of persons cared for: $454 one person $502 two persons $551 three persons $596 four or more persons After first 180 days: Part-time earners and non-earners have the option of continuing to receive CGWI, or receiving an Income Replacement Indemnity based on a full-time determined employment If caregiver dies due to the accident, the weekly indemnity that would have been payable, had they survived, is payable to the deceased's spouse/common-law partner or the legal guardian of the child(ren). If care was provided to an infirm adult, the payment is made to that adult	Caregiver Weekly Indemnity: Weekly indemnity for person who's main occupation is taking care, without remuneration, of other person(s) under age of 16 or (adults) regularly unable to hold employment Reimbursement of actual and reasonable expenses (if completely unable to provide care) $868 Maximum per week After first 180 days: Option of continuing to receive caregiver benefit based on: Actual and reasonable expenses, or minimum wage (as long as unable to perform activities of daily living) OR Elect to receive an Income Replacement Benefit (IRB)		Care Allowance: Weekly indemnity for part-time or unemployed persons whose main occupation is taking care, without remuneration, of children under 16 years of age or (disabled) person ordinarily unable to hold any employment Weekly indemnity (if unable to provide care) is based on number of persons cared for: $438 one person $492 two people $543 three people $598 four or more persons After first 180 days: Part-time earners and non-earners have the option of continuing to receive Care Allowance or receiving an IRI based on a full-time determined employment after180 days	Standard Caregiver Benefit: Weekly indemnity to primary caregiver, without remuneration, and while residing with person in need of care (dependant child or adult in need of care) Entitlement if sustained a catastrophic impairment and are, within 104 weeks of the accident, substantially unable to carry out the care giving activities previously carried out Insurer not obligated to pay for period of longer than 104 weeks, unless completely unable to carry on a normal life For incurred expenses: Maximum $250 per week for first person Additional $50 per week for each additional dependant No caregiver benefit is payable if eligible to receive and has elected to receive either IRB or non-earner benefit

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Care Expense Reimbursement	Dependant Care Expense: Weekly reimbursement (for part-time caregivers) for extraordinary expenses incurred for the purpose of caring for child under age of 16 or (adults) regularly unable to hold employment Weekly reimbursement (if unable to provide care) based on number of persons cared for: $117 one person $156 two persons $196 three persons $236 four or more persons Entitled if: Full-time earner, temporary earner, hold more than one regular part-time employment (not less than 28 hrs/wk), student, or part-time or non-earner who has elected IRI after 180 days Entitled only for such time as the spouse or common-law partner is also unable to care for the person, due to illness, disability, or work or studies outside of the residence	Reduced Caregiver Benefit: Weekly reimbursement for additional care expenses incurred (paid in addition to IRB), for persons who work or study outside of the home and are also responsible for caregiving Actual and reasonable expenses $436 maximum per week (subject to a maximum hourly rate based on minimum wage)		Care Expense: Weekly reimbursement for additional care expenses where person is no longer able, due to the accident, to take care of a child under 16 years of age or of a disabled person who was being looked after at the time of accident Weekly reimbursement (if unable to provide care) based on number of persons cared for: $133 one person $175 two persons $223 three persons $264 four or more persons Entitled only if spouse is unable to take care of the children or disabled person Entitlement maintained (when insured regains ability to care for child), where victim must: Receive medical or paramedical care, or undergo an examination (as required by the SAAQ)	Dependant Care Benefit: Optional dependant care benefits: Expenses for caring for dependants if employed at time of accident and not receiving caregiver benefit $75 per week for first dependant, $25 per week for each additional dependant maximum of $150 per week in total

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Family Enterprise (substitute labour)	Reimbursement of Expenses re: family enterprise: Reimbursement of substitute labour expenses where unpaid worker in family enterprise is unable to perform regular duties Maximum $782 per week during the first 180 days after the accident	Family Enterprise Benefit: Reimbursement of substitute labour expenses where unpaid worker in family enterprise is unable to perform regular duties Maximum of $45,136 per year After 180 days: Insured (other than student) entitled to family enterprise benefit, may elect to receive an Income Replacement Benefit		Substitute labour cost in a family business: Reimbursement of substitute labour expenses where unpaid worker in family enterprise is unable to perform regular duties Maximum $876 per week with supporting documents during the first 180 days after the accident	Reimbursement of Expenses re: family enterprise: Additional expenses may be included as part of IRB calculation

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Medical or Paramedical Care	Medical or Paramedical Care: General provisions: Reimbursement of various expenses to the extent person is not entitled to reimbursement under the Health Services Insurance Act or any other Act, including: Medical and paramedical care, including transportation and lodging for the purpose of receiving the care; Purchase of prostheses or orthopedic devices; Cleaning, repairing or replacing clothing that the insured was wearing at the time of the accident that was damaged; Such other expenses as may be prescribed by regulation Care includes: medical, dental, chiropractic, psychological, physiotherapeutical, psychiatric, optometric, prosthetic, paramedic (ambulance), professional nursing, pharmaceutical and other professionally supplied services, including athletic therapy, approved acupuncture, and massage therapy	Medical or Paramedical Care: General provisions: Reimbursement of various expenses including: Medical and paramedical care, including transportation and lodging for the purpose of receiving the care; Prostheses or orthopedic devices; Cleaning, repairing or replacing clothing that the victim was wearing at the time of the accident that was damaged; Any other prescribed expense	Medical or Paramedical Care: General provisions: Reimbursement of all reasonable expenses incurred to the extent they are not payable under a medical, surgical, dental or hospital plan or law, or paid or payable by another insurer for necessary: Medical, surgical, dental, hospital, ambulance or professional nursing services, or for necessary physical therapy, chiropractic treatment, occupational therapy or speech therapy or for prosthesis or orthosis Medication, medical supplies or equipment Attendant care	Medical or Paramedical Care: General provisions: Reimbursement of various expenses to the extent insured is not entitled to reimbursement under the Health Services Insurance Act or any other Act, including: Medical and paramedical care, including transportation and lodging for the purpose of receiving the care; Purchase of prostheses or orthopedic devices; Cleaning, repairing or replacing clothing that the insured was wearing at the time of the accident that was damaged; Such other expenses as may be prescribed by regulation	Medical benefit: General provisions: Reasonable and necessary expenses that are not covered by another health plan Includes: Medical, surgical, dental, optometric, hospital, nursing, ambulance, audiometric and speech-language pathology services; Chiropractic, psychological, occupational therapy and physiotherapy services; Medication; prescription eyewear; dentures and other dental devices; hearing aids, wheelchairs or other mobility devices, prostheses, orthotics and other assistive devices; transportation to and from treatment including transportation for an aide or attendant; and as of June 1, 2016, other required goods and services of a medical nature that are not covered elsewhere agreed by the insurer

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Medical or Paramedical Care *(cont'd)*	Medical or Paramedical Care continued: Massage therapy (only if dispensed by a physician, chiropractor, physiotherapist, athletic therapist or nurse practitioner) Dental care, chiropractic treatment and physiotherapy (rates fixed by the Corporation)		Medical or Paramedical Care continued: Maximum payable for medical, surgical, dental, nursing or physical therapy services or for chiropractic treatment, occupational therapy or speech therapy listed in the payment schedules established by the Medical Services Commission, is the amount listed in the payment schedules for that service, treatment or therapy Not liable for more than 12 physical therapy treatments, unless certified as necessary by the corporation's medical advisor or the insured's medical practitioner	Medical or Paramedical Care continued: Professional's fees are reimbursed according to certain criteria Dental care Expenses incurred for purposes of receiving dental care qualify for reimbursement to the maximum amounts provided in the dental fee schedules.	

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Medical or Paramedical Care (cont'd)				$55 maximum per prescribed treatment for physiotherapy (up to 15 prescribed sessions); $65 per session for home treatment (where person's physical state renders them incapable of travel) $36 maximum per prescribed treatment for occupational therapy (up to 15 prescribed sessions); $54 per session for home treatment (where person's physical state renders them incapable of travel) $31 maximum per prescribed treatment for chiropractic care (up to 15 prescribed sessions); $26 maximum per prescribed treatment by acupuncture (up to 15 sessions per prescription) $86.60/hr. maximum per prescribed psychological treatment (up to 15 hrs. of treatment per prescription)	

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Medical or Paramedical Care *(cont'd)*				Medical Report: Expenses incurred for obtaining medical report prepared by a health care professional $30 maximum for report by health care professional other than a physician For a Physician's report: $30 maximum for an Initial Medical Report $80 maximum for a Medical Assessment Report $80 maximum for a Medical Progress Report $75 maximum for a Medical Aftereffects Report $30 maximum if report prepared by physician otherwise than on a form provided	Cost of examinations: Reasonable fees for preparing a disability certificate required by the insurer, including any assessment or examination necessary for that purpose Fees charged in accordance with the Minor Injury Guideline for preparing a treatment confirmation form and for conducting an assessment or examination and preparing a report Reasonable fees charged by a health practitioner for reviewing and approving a treatment and assessment plan, including any assessment or examination necessary for that purpose Reasonable fees charged by an occupational therapist or a registered nurse for preparing an assessment of attendant care needs, including any assessment or examination necessary for that purpose
	Hospital care: Private room, semi-private room, private nursing care in a hospital (if not covered by Health Services Insurance Act)			Hospital room: Expenses incurred for private or semi-private hospital rooms, or for receiving private nursing care if health of insured requires such a room by prescription (if not covered by other insurance plan)	

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Medical or Paramedical Care *(cont'd)*	Prosthesis and orthosis: Reasonable expenses for the purchase, rental, repair, replacement, fitting or adjustment of a prosthesis or orthosis Includes: Eyeglasses or ocular prosthesis Contact lenses Hairpiece Dentures Fixed prosthesis resting on implant Other Prosthetic & Orthotic Devices (including specialty shoes and clothing)	Prosthesis and orthosis: Reasonable expenses for the purchase, rental, repair, replacement, fitting or adjustment of a prosthesis or orthosis Includes: Eyeglasses or ocular prosthesis Contact lenses Hairpiece Dentures Fixed prosthesis resting on implant Other Prosthetic & Orthotic Devices		Prosthesis and orthosis: Expenses incurred for the purchase, rental, repair, replacement, fitting or adjustment of a prosthesis or orthosis Expenses incurred for the purchase or repair, or replacement of a prosthesis or an orthosis intended for the spinal column or lower or upper limbs Expenses incurred for the purchase, fitting and adjustment of eyeglasses: Maximum $2,000 for ocular prosthesis Maximum $200 for frames and amount paid for lenses in the case of prescription eyeglasses (Eye examination fees, if not already covered by a social security plan) Expenses for the purchase, fitting and adjustment of contact lenses: Maximum $110 When some particular conditions/disease are present: Maximum $300 (purchase) Expenses for the purchase fitting and adjustment of a hairpiece: Maximum $2,000	Prosthesis and orthosis: Reimbursement for reasonable expenses incurred in repairing or replacing: Prescription eyewear, dentures, hearing aids, prostheses and other medical or dental devices that were lost or damaged

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Medical or Paramedical Care *(cont'd)*				Prosthesis and orthosis: Expenses for the purchase fitting and adjustment of a denture (Scheduled) Expenses for purchase, fitting, adjustment of a fixed prosthesis resting on an implant (when ordinary fixed prosthesis inadequate) Replacement of a dental prosthesis, maximum varies depending on type of prostheses (according to regulations) Other types of prostheses or orthotic devices (i.e. hairpieces, orthopedic footwear, etc) medically prescribed	
	Grief counseling for survivors of deceased victim: Actual costs of counseling services (including medications) Maximum $3,573 per eligible survivor Must be receiving death benefit to be eligible Travel , accommodation and meals (if more than 50km; 100 km round trip) to obtain grief counseling: Maximum $3,573 per eligible survivor	Counseling for immediate family members of deceased or injured victims: Maximum aggregate $5,055 per family		Psychological treatment: Reimbursement to persons entitled to a lump-sum death benefit, for up to 15 hours of psychological treatment/counselling up to the maximum amount of $86.60 per hr.	

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Medical or Paramedical Care *(cont'd)*	Critical Care Expenses: Reimbursement of expenses for up to two eligible persons in attending to a person requiring critical care Not otherwise payable under the Health Services Insurance Act or other Act Actual proven expenses incurred within 21 days from date of accident Maximum $4,655 (per claim) for all eligible persons (Coverage Regulation effective March 30, 2015; indexation provisions have been added) Eligible expenses: Transportation, parking and tolls Accommodation Meals Extraordinary childcare expenses Loss of net income (90% of proven loss)	Critical Care Expenses: Critical Care Accompanying Expense: Reimbursement of expenses for up to two persons to attend to a person requiring critical care Maximum $30,330 Eligible expenses: Transportation Lodging Lost earnings Other prescribed expenses		Availability Allowance: Allowance for the person who accompanies the client whose physical or mental condition or age so requires when the client must receive medical or paramedical care or undergo an examination as required by SAAQ $35 maximum for availability of 4 hours or less for each day such availability is required $70 maximum for availability of more than 4 hours daily The person is also entitled to the reimbursement of lodging and transportation expenses	

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Rehabilitation	Rehabilitation Expenses: Payment for necessary or advisable expenses to promote rehabilitation Unlimited Motor vehicle adaptation: Extraordinary cost to adapt one or more motor vehicles (for use as driver or passenger) Extraordinary cost to adapt a motor vehicle for use in employment Home Renovation or Relocation: Extraordinary cost for alteration or relocation of principal residence, or to alter the plans for construction Adaptation/Relocation of secondary residences, if catastrophically injured Extraordinary cost to alter primary residence where moving to accommodate an approved academic or vocational rehabilitation plan, or where minor or dependant (at time of accident) is moving from the family home	Rehabilitation Expenses: Payment for necessary or advisable expenses to promote rehabilitation: Maximum $6,888,630 (includes medical expenses and rehabilitation, including personal care) Modification or purchase of a motor vehicle: To acquire a motor vehicle equipped to be used by the insured, or funds to reimburse for extraordinary costs required to adapt a motor vehicle Alterations to residence: Extraordinary costs required to: Alter the insured's principal residence; Relocate (if alteration not practical), or Alter the plans for construction Extraordinary costs to alter principal residence if moving to accommodate an approved academic or vocational rehabilitation plan, or insured was a dependant and is moving from the family home	Rehabilitation Benefits: Necessary or advisable expensed to promote rehabilitation Maximum $150,000 for each insured person (for all medical and rehabilitation services) Motor vehicle adaptation: Funds to the insured, once during the lifetime, for the acquisition of one motor vehicle equipped as necessary Alteration of residence: Funds to the insured, once during the lifetime, for alterations to the insured's residence that are necessary to make the residence accessible and usable Attendant care : (See Personal Home Assistance Section)	Rehabilitation Benefits: Wheelchairs: Purchase, repair, rental, replacement of wheelchair and accessories Purchase of wheelchair, including delivery and labour charges: $3,500 maximum for manual wheelchair $3,500 maximum for a scooter-type wheelchair $6,500 maximum for a manual wheelchair with a manual standing mechanism; $9,500 maximum for a manual wheelchair with a powered standing mechanism $11,000 maximum for a 4-wheel powered wheelchair $13,000 maximum for a 4-wheel powered wheelchair with a chin, breath or other type of control $15,500 maximum for a powered wheelchair with a powered standing mechanism Repair if manual and scooter-type wheelchair (including delivery and labour charges) $300 during the first year following the purchase of the wheelchair, and $1,000 for subsequent years	Rehabilitation Benefit: Reimbursement for reasonable and necessary expenses for: life skills training; family counseling; social rehabilitation counseling; financial counseling; employment counseling; vocational assessments; vocational or academic training; workplace modifications and workplace devices, including communications aids, Home modifications and home devices, including communication aids, or the purchase of a new home if it is more reasonable than to renovate existing home Vehicle modifications, or the purchase of a new vehicle, if more reasonable than to modify an existing vehicle (purchase or modify every five years) Transportation to and from counseling and training sessions, including transportation for an aide or attendant; and Other goods and services required that the insurer agrees are essential that are rehabilitative in nature (except housekeeping and caregiver expenses)

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Rehabilitation *(cont'd)*	Rehabilitation Expenses: Reimbursement for: Wheelchairs and accessories; Mobility aids and accessories; Medically required beds, equipment and accessories; Specialized medical supplies; Communication and learning aides; Specialized bath and hygiene equipment; Specialized kitchen and homemaking aides, and Cognitive therapy devices Via policy, this includes repair/replacement of mobility devices medically required prior to the motor vehicle accident which are damaged due to the accident; mobility aid includes guide dogs Funds for: Occupational, educational or vocational rehabilitation	Rehabilitation Expenses: Occupational and vocational training programs Purchase, maintenance or repair of special equipment Repairs to residence or vehicle from damage resulting from normal use of special equipment Extraordinary costs associated with use of special equipment Physical and acquired brain injury programs and treatment Any additional prescribed measure, program or treatment Reimbursement for: Wheelchairs and accessories; Mobility aids and accessories; Medically required beds, equipment and accessories; Specialized medical supplies; Communication and learning aides; Specialized bath and hygiene equipment; Specialized kitchen and homemaking aides, and Cognitive therapy devices Funds for: Occupational, educational or vocational rehabilitation	Rehabilitation Expenses: Purchase and reasonable repair, adjustment or replacement of: Wheelchair; Medically prescribed bed (other than hospital use); Bowel and bladder equipment; Aids for communication, dressing, eating, grooming and hygiene; Transfer equipment; Ventilator Funds for: Vocational or other training Other costs (in corporations sole discretion)	Rehabilitation Expenses: Rental of wheelchair: Rental period not to exceed 3 months and person has applied and is waiting for a permanent wheelchair $50 for a conventional manual wheelchair $165 for a manual wheelchair with an adjustable centre of gravity $200 for a powered wheelchair or a scooter $350 for a stand-up wheelchair Expenses incurred for wheelchair accessories if they are for the wheelchair, the purchase of which was reimbursed by the insured or under another plan Repair or replacement of accessories Annual maximum $100 No annual maximum for expenses incurred for repair or replacement of a special cushion, an upholstery cover or a technical posture assist Expenses incurred for an evaluation by an occupational therapist of the insured's needs $400 for manual wheelchair or scooter $550 for 4-wheel powered wheelchair or a stand-up wheelchair	

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Leisure and Recreational Activities	Leisure and Recreational Activities: Extraordinary costs incurred by permanently impaired person for leisure or recreational activities: Costs necessarily incurred for attendant care Maximum $500-$4,000 biennial limits (every two years) depending on the severity of injury				

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Travel and Accommodation	Travel and Accommodation: Travel or accommodation expenses for the purpose of receiving care: Not to exceed 100 km (unless care not available within 100 km of residence) Commercial accommodation: all reasonable expenses Private accommodation: $25 per day Ambulance: From scene of accident to hospital For purpose of receiving care (where required by physician, nurse practitioner, clinical assistance or physician assistant) Bus or train: Private Vehicle: Reimbursement for travel: $0.40 per km. (as of April 1, 2009) Parking and tolls (associated with use of private vehicle)	Travel and Accommodation: Travel or accommodation expenses for the purpose of receiving care: Not to exceed 100 km (unless care not available within 100 km of residence) Private accommodation: $23 per day Ambulance: For purpose of receiving medical care when prescribed by a physician Common carrier (actual expenses) Travel by automobile: $0.41 per km. Parking and tolls (associated with use of private vehicle) Transportation by air: If less expensive than other means, or other means is inadequate or dangerous due to travel time or road or weather conditions Emergency transportation (where warranted)		Travel or Accommodation: Travel or accommodation expenses for the purpose of receiving care: Not to exceed 100 km (unless care not available within 100 km of residence) Accommodation away from residence: Where distance between place of residence and receiving care warrants or where person's state warrants Accommodation: Lodging in a hotel or motel Island of Montréal or outside Québec: $126.00 (low season) 138.00 (high season) Communauté métropolitaine de Québec: $106.00 Laval, Gatineau, Longueuil, Lac-Delage and Lac-Beauport:: $102.00 (low season) $110.00 (high season) Elsewhere in Québec: $83,00 (low season) $87,00 (High season) Lodging other than in a hotel or motel $22.25 Ambulance: From scene of accident to hospital For purpose of receiving care (by prescription)	Transportation Expenses: Reasonable expenses incurred for authorized transportation expenses incurred in transporting person to and from and assessment or examination, including transportation expenses for an aide or an attendant Unless catastrophic impairment, travel expenses are only paid if you have to travel more than 50 km., and then only for the amount in excess of 50 km.

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Travel and Accommodation *(cont'd)*	Transportation by air: If less expensive than other means, or other means is inadequate or dangerous due to travel time or road or weather conditions Emergency transportation (where warranted)			Private Vehicle: Reimbursement for travel: $0.145 per km. Parking and road tolls Air transportation (Where warranted) Emergency transportation (where warranted) Bus, subway, train Reimbursement of fee for disabled parking permit obtained as a result of an accident Taxi fares (and time spent waiting for taxi) reimbursed only where public transit does not service the route, or where condition does not allow for use of public transit	
	Meal allowances: Breakfast: $9.72 Lunch: $14.26 Dinner: $21.38 Daily Max: $45.35	Meal allowances: Breakfast: $9.50 Lunch: $13.50 Dinner: $16.55 Daily Max: $39.55		Meal allowances: Breakfast: $10.40 Lunch: $14.30 Dinner: $21.55 Daily Max: $46.25	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Travel and Accommodation *(cont'd)*	Expenses incurred in connection with a medical examination requested by the insurer: Travel and accommodation of the insured An allowance and any transportation, lodging or other expenses incurred by a person accompanying the insured to a medical exam, where the insured's physical or mental condition or age warrants	Expenses incurred in connection with a medical examination requested by the insurer: Reimbursement for transportation, lodging and other expenses incurred in connection with an examination requested by the insurer		Expenses incurred in connection with a medical examination requested by the insurer: Travel and accommodation of the insured	Expenses incurred in connection with a medical examination: Maximum $2,000 in respect of fees and expenses for conducting any one assessment or examination and for preparing reports in connection with it, whether requested by the insured or the insurer Reasonable fees charged for preparing an application for a determination of whether the insured has sustained a catastrophic impairment, including any assessment or examination necessary for that purpose Not required to pay for an in-home assessment or examination unless the person sustained an impairment that is not a minor injury

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Travel and Accommodation *(cont'd)*	Expenses of person accompanying victim: Travel, accommodation and meals (and other expenses) incurred by person accompanying insured, where physical or mental condition or age of insured warrants, to obtain medical or paramedical care	Benefit for accompanying insured: Lost earnings to a maximum of $4,541 transportation and lodging costs and other associated prescribed expenses, incurred by person accompanying insured, where physical or mental condition or age of insured warrants, to obtain medical or paramedical care		Expenses of person accompanying victim: Travel, accommodation and meals incurred by person accompanying insured, where physical or mental condition or age of insured warrants, to obtain medical or paramedical care or undergo an examination requested by the insurer Availability allowance: Allowance to the person who escorts a person whose physical or mental condition or age so requires, when the person must receive medical or paramedical care or undergo an examination requested by the insurer $35 maximum for availability of 4 hours or less for each day such availability is required $70 maximum for availability of more than 4 hours daily	
Clothing of Volunteer Giving Emergency Assistance	Clothing of volunteer giving emergency assistance: Cleaning, repair or replacing clothing damaged, and for any other necessary expense, incurred by a volunteer providing emergency assistance at the scene of accident	Clothing of volunteer giving emergency assistance: Cleaning, repair or replacing clothing damaged, and for any other necessary expense, incurred by a volunteer providing emergency assistance at the scene of accident $1,581 maximum			

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Other Expenses	Other Expenses: Shoes: Purchase, manufacture, alteration, repair or replacement of shoes Clothing or medical appliance or medical equipment: Purchase, rental, repair, replacement, fitting or adjustment of clothing or a medical appliance or medical equipment	Other Expenses: Shoes: Purchase, manufacture, alteration, repair or replacement of shoes Clothing or medical appliance or medical equipment: Purchase, rental, repair, replacement, fitting or adjustment of clothing or a medical appliance or medical equipment		Other Expenses: Shoes: Purchase, manufacture, alteration, repair or replacement of shoes (prescribed) Specialty shoes when alteration not adequate Expenses incurred for the purchase of 5 pairs of shoes at a rate of 100%. Alteration qualify for full reimbursement Expenses incurred for the replacement of the 5 pairs of shoes covered at a rate of 50%. Alteration qualify for full reimbursement Clothing or medical appliance or medical equipment: Purchase, repair, replacement or adjustment of clothing adapted to the persons physical condition, when incurred for a medical reason and when prescribed No maximum limit	
	Clothing allowance (for clothing worn at time of the accident): Cleaning, repairing or replacing clothing worn and damaged at the time of the accident	Clothing allowance (for clothing worn at time of the accident): Clean, repair, replace clothing worn and damaged at the time of the accident Maximum $1,581		Clothing allowance (for clothing worn at time of the accident): Cleaning, repair or replacement of clothing worn and damaged at the time of the accident: Maximum $400 Leather garments or a helmet worn by a motorcyclist, cyclist, or moped rider Maximum $1,000 Priority goes to cleaning and repair	Clothing allowance (for clothing worn at time of the accident): Reimbursement for reasonable expenses incurred in repairing or replacing of clothing worn at the time of the accident that was lost or damaged

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Other Expenses *(cont'd)*	Clothing Allowance (for excess wear or alteration of clothing): At insurer's discretion, an annual allowance for excess wear or alteration of clothing directly resulting from an accident, to a person who is confined permanently to a wheelchair; or is required to wear a prosthesis, or to make use of an orthotic device, including a splint, brace, cast or crutches $1,081 Maximum (per calendar year) for excess wear or alteration of clothing as follows: Where due to the use of a prosthesis/orthosis, for a period of sis months or more: $361 for clothing worn on the upper body; $720 for clothing worn on the lower body Where due to permanent confinement to a wheelchair: $1,081 Where due to the use of an orthosis for a period of less than six months: $120 (Coverage Regulation effective Mar 30, 2015; indexation provisions have been added)				

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Other Expenses *(cont'd)*	Medication, dressings, medical supplies: Purchase of medication, dressings and other medical supplies required for a medical reason resulting from the accident	Medication, dressings, medical supplies: Purchase of medication, dressings and other medical supplies required for a medical reason resulting from the accident		Medication, dressings, medical supplies: Purchase of medication prescribed (some non-prescription, under certain conditions) Purchase of medical dressings Purchase, repair, replacement, rental of medical supplies or a medical appliance Purchase of urological supplies Evaluation of insured's need by a specialized nurse relating to urological supplies $25 maximum for evaluation	
	Guardian or trustee: Expense incurred by insured for the appointment of a guardian, trustee or committee for the insured	Guardian or trustee: Expense incurred by insured for the appointment of a guardian, trustee or committee for the insured		Guardian or trustee: Expense incurred by insured for the appointment of a guardian, trustee or legal counsel, where mentally incompetent insured Maximum $2,500	
	Loss of earnings to undergo medical examination: Loss of earnings incurred by insured in order to undergo a medical examination as requested by the insurer			Loss of salary to receive medical or paramedical care or undergo examination requested by the insurer: Maximum $160 a day for real loss of wages	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Other Expenses *(cont'd)*	Tuition fees: Expense incurred for tuition fees paid for a course (a) that is part of the current studies of a victim who is a student; and (b) for which the insured is unable to obtain credit as result of the accident Not payable if the student received the lump-sum indemnity for loss of school semester or year	See Indemnities for Students and Minors, SGI (page 18-22)			See Indemnities for Students and Minors, FSCO
	Telephone calls: Expenses incurred for long-distance telephone calls made by a hospitalized insured. Maximum $50 for each 30 day period Expense incurred by insured for a long-distance telephone call to make an appointment to undergo a medical examination required by the insurer	Telephone calls: If hospitalized or in a treatment facility: Reimbursement of telephone and reasonable long distance calls Expense incurred by insured for a long-distance telephone call to make an appointment to undergo a medical examination required by the insurer Television: If hospitalized, reimbursement of in-room television service		Telephone calls: Expenses incurred for long-distance telephone calls made by a hospitalized insured. Maximum $50 for each 30 day period Expense incurred by insured for a long-distance telephone call to make an appointment to undergo a medical examination required by the insurer. Paid in full	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Reimbursement of Medical Assessment Fees	Medical report (in support of review or appeal): Reimbursement of cost of medical report obtained in support of a review or appeal, to the following maximum amounts: $388 or each report prepared by one practitioner; maximum of three medical reports, each prepared by a different practitioner who examined the person, can be filed in support of their application for a review and a further three medical reports can be filed in support of their appeal (Coverage Regulation effective March 30, 2015; indexation provisions have been added)	Medical Report (in support of appeal): Reimbursement for expenses in obtaining a medical report in support of an appeal, and the appeal is allowed $393 for report prepared by an practitioner, up to a maximum of three practitioners when jointly prepared		Medical Report (in support of appeal): Reimbursement of cost of medical report obtained in support of a an appeal that has been approved, to the following maximum amounts: $690 for a medical assessment produced following the examination by one physician $690 for each physician, to a maximum of $2,070 when the assessment is made following a joint examination by more than one physician	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Enhanced Reimbursement for Catastrophically Injured Victims	Enhanced reimbursements for catastrophically injured (Consent of corporation required): Adaptation/relocation of Principal Residence: Adaptation of principal residence when circumstances change Alter primary residence owned by a parent where victim is a minor Adaptation/relocation of secondary residence: Owned by the victim or spouse and used regularly Alter plans for construction for secondary residence Alter secondary residence owned by a parent where victim is a minor Extraordinary costs to alter a temporary residence required by an approved academic or vocational rehabilitation plan Extraordinary travel and accommodation costs: Where catastrophically injured victim engages in travel activities consistent with pre-accident travel activities Including travel and accommodation costs associated with attendant, where attendant care required Attendant Care for Employment: Attendant care required by catastrophically injured to engage in employment (In addition to Personal Care Assistance)				

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Enhanced Reimbursement for Catastrophically Injured Victims *(cont'd)*	Motor vehicle acquisition: Purchase of pre-adapted motor vehicle or vehicle for adaptation Maximum $50,000 plus necessary modifications Replacement of vehicle no more than once every five years				
	Leisure and recreational activities (not indexed): For extraordinary expenses to support participation in recreation and leisure activities subject to bi-ennial limits $4,000 max (every two years) for catastrophic injuries	Leisure and recreational activities: For extraordinary expenses incurred to facilitate a catastrophically injured claimants participation in recreation or leisure activities Maximum aggregate $2,528 per year			
	Transitional Expense Coverage: Payment (at corporation's discretion) for catastrophically injured under the following special circumstances: Provide temporary benefits when waiting for funds from a government program Cover an expense not normally paid under PIPP (or another government program) that will lead to less PIPP benefits being needed in the longer term Transitional Expense Coverage: Maximum $1,151,061 (lifetime)	Considered as ex-gratia payment based on individual circumstances and not included in Part VIII limits		Special Cases Program (procedurally): Funding for expenses that do not specifically fall within any of the other guidelines or fees (and not covered under another social security plan) in excess of other guidelines on the following provisions: To meet special needs within rehabilitation and social, educational systems or labour force re-entry process To permit rehabilitation plan innovation targeting more appropriate and cost-effective solutions that can eventually be included in the regular programs	

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
Other Expenses (Other jurisdictions)		Financial counseling: Maximum $1,377 Non-refundable expense: Actual and reasonable non-refundable expenses incurred by the insured before the accident for a service or benefit that, as a consequence of the accident, they are unable to use, and that is not refundable Additional moving expenses to complete a move that was in process or scheduled, at the time of the accident Additional labor costs to complete critical components of a renovation that was in process at the time of the accident Maximum aggregate amount $2,528 Child care: Where main occupation is caregiver, and unable to care for children while receiving treatment: Reimbursement of child care expenses incurred in order for someone else to care for children while receiving treatment		Expenses incurred for using the jaws of life: Maximum $561 Maximum of $1.75 per km travelled when distance to transport jaws of life device to scene of accident is over 50 km.	Case Manager Services: Medical or rehabilitation benefits shall pay for all reasonable and necessary expenses incurred for services provided by a case manager in accordance with a treatment and assessment plan if: Insured sustained catastrophic impairment, or Optional medical, rehabilitation and attendant care benefits is available to the insured Expenses of Visitors: Reasonable and necessary expenses incurred for not more than 104 weeks after the accident for eligible persons visiting the insured person during their treatment or recovery from impairment (time limit does not apply to catastrophic impairment)

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
B) THIRD PARTY LIABILITY					
TPL	$200,000 Priority of claims-claims arising out of injury or death have a priority over claims arising from loss or damage to property to the extent of a 90%/10% split $500,000 (for ORV only)	$200,000 Priority of claims-claims arising out of injury or death have a priority over claims arising from loss or damage to property to the extent of a 95%/5% split	$200,000 Priority of claims-claims arising out of injury or death have a priority over claims arising from loss or damage to property to the extent of a 90%/10% split	$50,000 The maximum amounts that may be paid by the SAAQ (exclusive of interest and judicial costs) are $50,000 per accident for bodily injury, and $10,000 per accident for property damage	Minimum Liability $200,000 Priority of claims-claims arising out of injury or death have a priority over claims arising from loss or damage to property to the extent of a 95%/5% split
Underinsured Motorist (UIM)	$500,000 (for ORV only)		Underinsured Motorist Protection (UMP): Up to $1,000,000		
Uninsured Motorist	Uninsured Motorist Protection: $200,000 (For property damage only, after March 1, 1994)	Uninsured Motorist Protection: $200,000	Uninsured Motorist Protection: $200,000		Uninsured automobile coverage: $200,000
Unidentified Motorist	Unidentified Motorist Protection: $200,000 (Does not apply in Manitoba after March 1, 1994)	Unidentified Motorist Protection: $200,000	Unidentified Motorist Protection: $200,000		Unidentified Motorist: $200,000 for bodily injury $25,000 for property damage

Basic Policies	MANITOBA PUBLIC INSURANCE (MPI)	SASKATCHEWAN GOVERNMENT INSURANCE (SGI)	INSURANCE CORPORATION OF BRITISH COLUMBIA (ICBC)	SOCIÉTÉ DE L'ASSURANCE AUTOMOBILE DU QUÉBEC (SAAQ)	FINANCIAL SERVICES COMMISSION OF ONTARIO (FSCO)
C) PHYSICAL DAMAGE					
All Perils - Private Passenger Vehicles	$500 Deductible	$700 Deductible	Physical damage optional through ICBC and private carriers	Physical damage optional through private carriers	Physical damage coverage is optional through private carriers
Inverse Liability Coverage			Inverse Liability Coverage: Compulsory physical damage coverage where at-fault party comes from jurisdiction that prohibits right of recovery Pays cost of repairs to insured's vehicle to the extent other driver is liable		
Direct Compensation for Property Damage					Direct Compensation for Property Damage: If two or more vehicles involved in an accident are insured by a motor vehicle liability policy, an insured is entitled to recover for property damage to their own vehicle directly from their own insurer, instead of from the person who caused the damage (based on degree of fault) As of September 1, 2010: Deductible option for Direct Compensation

PART IV:
EXCEPTIONAL SERVICE THROUGH EFFECTIVE PUBLIC AUTO INSURANCE

PART IV(i):
LEADING CUSTOMER SERVICE AND EFFECTIVE OPEATIONS

SDM - SERVICE DELIVERY MODEL
BMK – BENCHMARKING

PART IV(ii):
INVESTMENTS AND INNOVATION IN SERVICE DELIVERY

VM - VALUE MANAGEMENT
IT – INFORMATION TECHBNOLOGY

Manitoba Public Insurance

SERVICE DELIVERY MODEL

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

TABLE OF CONTENTS

SERVICE DELIVERY MODEL 3
SDM.1 INTRODUCTION TO SERVICE DELIVERY MODEL **3**
SDM.1.1 Driver's Licensing Initiatives 3
SDM.1.2 Contact Centre Callbacks 5
SDM.1.3 Working with an Adjuster – Physical Damage 6
SDM.1.4 Rodent claims successfully modified 7
SDM.1.5 Getting Hail Repaired: Paintless Dent Repair 8
SDM.1.6 Getting your vehicle estimated 9
SDM.1.7 Getting your vehicle repaired 11
SDM.1.7.1 Direct Repair Program Status 11
SDM.1.7.2 Direct Repair Maturity Creates Program Sustainability 12
SDM.1.7.3 Direct Repair Uptake 12
SDM.1.7.4 Creating a Positive Repair Experience 13
SDM.1.7.5 Industry Performance 14
SDM.1.8 Buying or repairing a salvage vehicle 16
SDM.1.8.1 Repairing salvaged vehicles in Manitoba 16
SDM.1.8.2 Buying salvage from MPI 16
SDM.1.9 Recovering from a Bodily Injury 17
SDM.1.9.1 Current State of PIPP 17
SDM.1.10 Introduction of new on-line Customer Self Service 19
SDM.2 CUSTOMER EXPERIENCE FRAMEWORK **21**

SERVICE DELIVERY MODEL

SDM.1 INTRODUCTION TO SERVICE DELIVERY MODEL

Manitoba Public Insurance (MPI or the Corporation) has made numerous positive changes to its claims processing and customer service operations. In this Rate Application, MPI highlights some of these changes, describes how they benefit customers (and possibly all Manitobans) through more efficient service delivery, and provides examples of the improvements made at each customer "touchpoint", namely:

1. Obtaining a license
2. Calling the contact center about an issue
3. Working with a MPI adjuster on a claim
4. Making claims involving rodents and hail
5. Getting a vehicle estimated for damage
6. Getting a vehicle repaired
7. Buying or repairing a salvage vehicle from MPI
8. Recovering from bodily injury
9. General interaction with MPI online

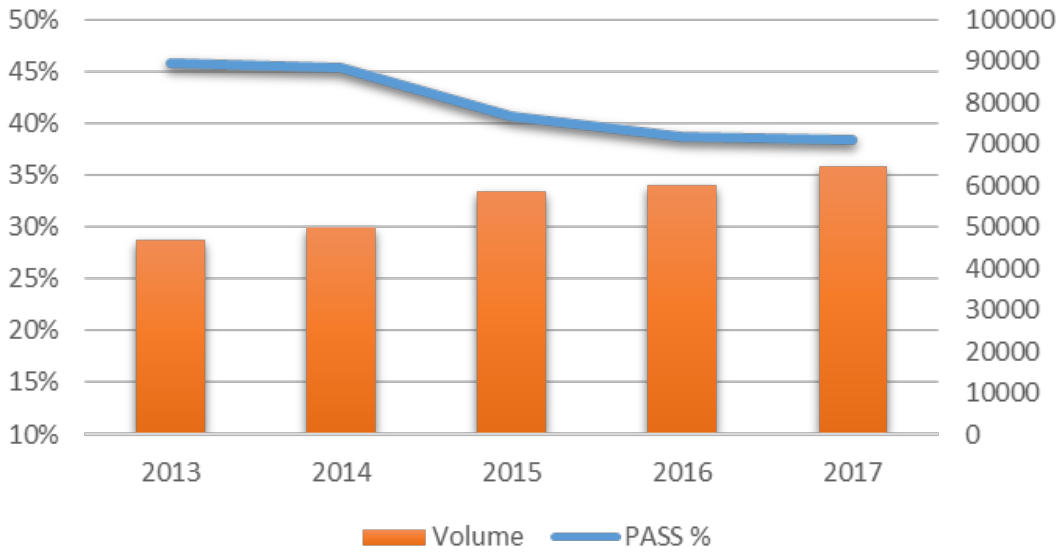
Additionally, this Rate Application outlines the new Customer Experience Program MPI established for 2018/19, which seeks to better measure customer satisfaction at key touchpoints with MPI and with its processes.

SDM.1.1 Driver's Licensing Initiatives

The overall pass rate for MPI customers attempting to obtain their driver's licence through the road test has been declining since 2014. While pass rates for road testing for all classes of driver's licences have declined, the pass rate for road testing for Class 5 licences, the most frequently taken driver's licence road test, has experienced the greatest decline.

Declining pass rates increase demand for services from MPI's driver examiners. When road tests must be re-taken multiple times, the ability of driver examiners to offer services to first time examination candidates decreases. Additionally, the safety and collision risk to drivers and driver examiners increases as the preparedness of examination candidates decreases.

Figure SDM- 1 Class 5 Road Test Pass Rate and Volume



In an effort to reverse the trend of declining pass rates for Class 5 road testing and subsequently improve road safety, MPI has implemented a number of initiatives, including:

- Web Page Re-design: all information pertaining to preparing for a road examination, as well what to expect on your road test, has been compiled into a single web page for ease of access
- Information Hand-out: in addition to the website re-design, all customers who successfully complete the knowledge (written) test are now provided with a document that provides basic information on how to prepare for a road test and points the customer to the re-designed website
- 4-Attempt Policy Change: a customer will be required to take two hours of driving lessons from a certified driving school after the fourth (and each

subsequent) unsuccessful attempt to pass a road test. This limits some customers returning immediately after 20 or 30 failed and potentially unsafe attempts.

In July 2015, new legislation came into effect affecting Class 5A licence holders (Authorized Instruction). Previously, Class 5A licence holders were permitted to re-test immediately following a failed road test. As a result of these legislated changes, Class 5A licence holders must now wait 14 days following a failed road test to re-test, a requirement which mirrors those of the Class 5L Licence (Graduated Driver Licence). The aim of this legislative change was to increase operating efficiencies and improve road safety by mandating a 14-day "cooling-off" period with the expectation that drivers would use this period to better prepare for their next road test.

To this point, the new initiatives and legislative changes have not produced an overall improvement in the pass rate for Class 5 licence road tests. However, MPI will continue to monitor results and look for further process improvements that will increase pass rates.

SDM.1.2 Contact Centre Callbacks

Customers are increasingly less tolerant of service providers who require them to wait on the telephone an excessive length of time before they are able speak with a representative of that service provider. Understanding the importance of our customers' expectation, MPI implemented a customer callback strategy in May 2017. Specifically, when wait times exceed 90 seconds, the automated service prompts customers to provide a name and telephone number, maintains their spot in the queue and will arrange a call-back from a live customer service representative when they become available. MPI expects the callback strategy to increase customer satisfaction by reducing wait times and call-abandonment rates; as well as increasing efficiency by reducing agent idle times (thereby increasing capacity to meet the 90 second service level).

Since the introduction of the strategy in May 2017, 29,312 callbacks have been made to date. The result has been an overall reduction in call-abandonment rates by 0.5% with a 2.32% reduction in January 2018, the month with the highest volume of calls.

SDM.1.3 Working with an Adjuster – Physical Damage

Under the previous "Team Adjusting" service model for Physical Damage (PD) claims a customer was assigned a group of adjusters at the first notice of loss who would complete task-based work required on the claim. Customers could potentially be speaking to a different adjuster each time they called MPI. This resulted in:

- Customers repeating (sometimes numerous times) the details of the claim
- PD adjusters requiring additional time to familiarize themselves with the claim
- Customer complaints surrounding the process and what was perceived as a reduced service level

The service model also resulted in internal challenges for tracking productivity, performance and general metrics:

- Lack of tools for supervisors to accurately measure quality performance, resulting in reduced accountability and limited individualized feedback for adjusters
- Concerns from leadership teams with available metrics and the number of aging claim files.

The Supported Adjusting Service Model was piloted in early 2017 and was formally introduced in June 2017. The new model involves a transition from a team of adjusters working on every PD claim, to a hybrid system of individual and team adjusting. Under this model, individual adjusters are assigned to more contentious claims, resulting in better claims management and more efficient use of time. Since August 2017, less contentious claims are assigned to "Triage Adjusters" who work to resolve claims with customers over the phone instead of in person. If resolved, these claims remain in a team environment and are not individually assigned. The "Transfer

to Triage" program requires Customer Care Agents in the Contact Centre to identify these less contentious claims and to transfer the customer directly to a Triage Adjuster for immediate resolution. For more contentious claims, customers are able to contact their assigned Adjuster directly, but also have the option to speak to a team member if their assigned adjuster is unavailable.

The Supported Adjusting Service Model has already resulted in an improved PD claims experience for customers and MPI staff and has made the process of concluding PD claims more efficient, resulting in a reduction in the average:

- Call time - by 721 hours per month or 2 minutes per call (average number of calls per month = 21,600)
- Age of claim "events" (items of work) - by 4 days (from 7 days to 3 days)
- PD claim duration - by 19 days (from 76 days to 57 days)

Additionally, the Transfer to Triage Program has increased claims management efficiency by reducing the number of adjuster appointments necessary (each appointment lasting 40 minutes on average), while improving customer service by resolving claims on the first call (each call lasting 8 minutes on average). This new model has saved 663 adjuster-appointments to date.

SDM.1.4 Rodent claims successfully modified

In 2008, MPI implemented a "zero tolerance" policy towards rodent infestation claims in vehicles, RVs and trailers, due to the possibility of Hantavirus infection from deer mouse droppings. Under that Policy, vehicles with rodent damage were taken apart, sanitized and often written-off. Since the implementation of the Policy, the number and cost of rodent claims has steadily increased from roughly $2m in 2008/09 to $15m in 2016/17. Additionally, the average length of the repair was exceeding 70 days.

In 2017, MPI introduced revised claims handling and vehicle remediation protocols for rodent infestation claims. These changes simplified the claims handling process, sped

up the vehicle remediation process and significantly reduced the number of and costs associated with rodent remediation claims. These changes also aligned MPI with other insurers, while ensuring the health and safety of customers, based on guidelines from Health Canada and new research by the Public Health Service of Canada[1]. As a result, the changes will benefit all ratepayers as MPI will spend $10.7m less per year on rodent infestation claims.

SDM.1.5 Getting Hail Repaired: Paintless Dent Repair

In 2017, MPI introduced a process to create Paintless Dent Repair estimates for hail claims. Paintless Dent Repair is an industry-standard method of removing dents from the exterior of vehicle body panels without requiring filler material or refinishing. With specialized tools and techniques, a qualified Paintless Dent Repair technician can push or pull dented metal back to its original shape without damaging the panel's painted surface. Unlike conventional repair methods, Paintless Dent Repair does not require sanding, filling or painting materials and, as a result, the cycle times and repair costs are greatly reduced. The Paintless Dent Repair estimating standard and hail calculator enables estimators to determine the cost of damage based on this industry accepted repair process.

These changes simplify the first estimate for hail claims and enhance customer service by increasing the number of Paintless Dent Repair facilities recognized to complete the repair. The Paintless Dent Repair estimating process also reduces the costs associated with hail claims, which benefits all ratepayers.

[1] Please refer back to exhibit 52 provided in the 2018-2019 General Rate Application

SDM.1.6 Getting your vehicle estimated

On March 6, 2017, MPI switched from an estimating "Global Queue" process to an "Estimator Pod" concept process.

Under the Global Queue process, the Estimator who inspected the vehicle and prepared the first estimate would not necessarily receive and approve supplemental estimates once the vehicle was fully inspected by a repair shop. Instead, the task would be handled by the next available Estimator in the queue. This process was not preferred in that it:

- Required estimators to review all preceding estimates, thereby increasing the amount of time required to approve/decline supplemental ones
- Resulted in concerns from the repair shops regarding service times, estimating decisions and estimate inconsistencies
- Made it more difficult to ensure accountability for the overall work product and to produce productivity metrics

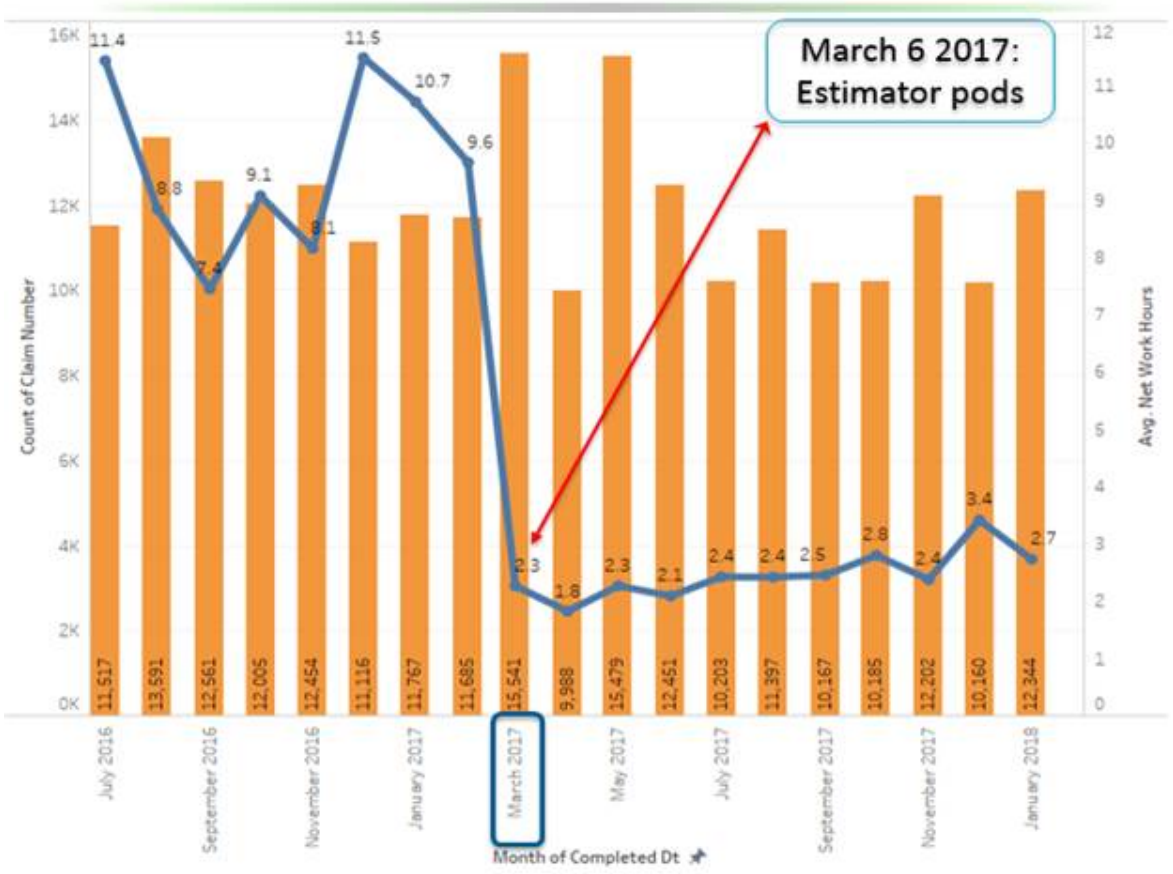
The Estimator Pod process places estimators into small, more localized teams thereby combining the main benefit of the Global Queue process (providing estimators with support) with the benefits associated with having one estimator responsible for all estimates on a claim.

Since its implementation, the move to Estimator Pods has:

- Reduced the number of supplemental estimates per claim
- Improved estimate approval times
- Improved estimating consistency
- Increased estimator ownership and accountability and staff engagement
- Improved repair cycle times
- Reduced estimator overtime by 45%
- Saved MPI $0.8m in compensation for 2018/19

The below graph shows the average number of working hours required to approve supplements before and after the implementation of the Estimator Pods process (with claim volumes staying roughly the same during this period):

Figure SDM- 2 Supplement Performance with Estimator Pods



Additionally, on March 1, 2018, MPI implemented a form of straight-through processing for high-performing repair shops. By complying with MPI estimating standards and establishing a proven record of accomplishment on performance, repair shops can earn the privilege of not requiring estimator approval for jobs valued between $1,500 and $3,500. MPI maintains financial control over these claims by conducting risk-based, post-payment audits.

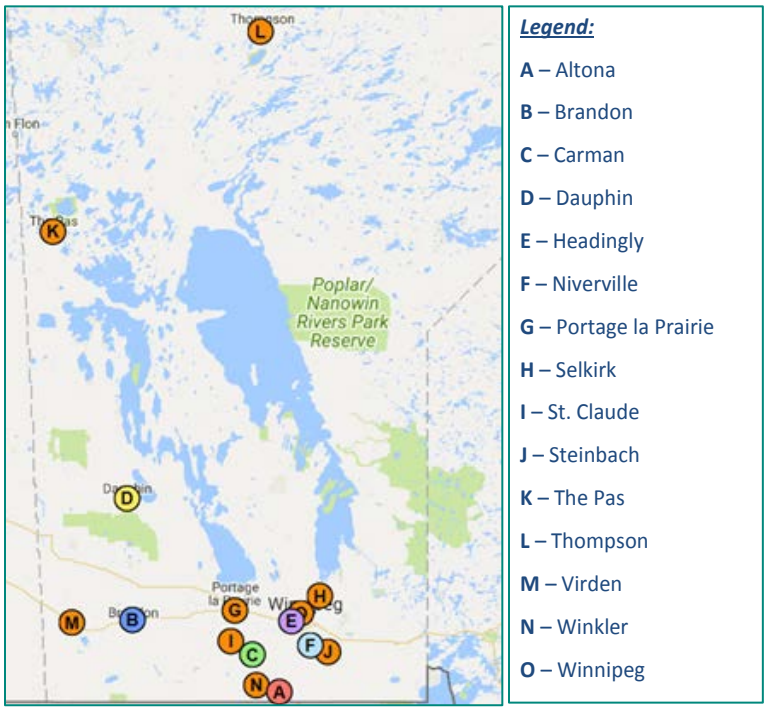
SDM.1.7 Getting your vehicle repaired

SDM.1.7.1 Direct Repair Program Status

MPI implemented the Direct Repair Program on March 1, 2017. In this optional program repair shops (not MPI) write the first estimate on claims. In addition to the Direct Repair Program, MPI also implemented the Direct Repair Plus Program, which permits repair shops enrolled in the Direct Repair Program to handle more perils and claim types than those shops solely in the Direct Repair Program.

In the first year, MPI allowed 74 repair shops (representing 64% of the total light vehicle repair work) to enroll in the Direct Repair Program, of which 6 were also accepted into the Direct Repair Plus Program. Accordingly, the Direct Repair Program is now available to most Manitobans. The map below depicts the current areas that have at least one (1) repair shop participating in the Direct Repair Program.

Figure SDM- 3: Direct Repair Shop Locations



SDM.1.7.2 Direct Repair Maturity Creates Program Sustainability

MPI expects the Direct Repair (DR) Program to continue to grow and generate efficiencies for MPI and repair shops alike as it matures. On the growth side, MPI anticipates that customer adoption rates will increase as they become more familiar with and appreciate the benefits of the Program. On the efficiency side, MPI expects that new efficiencies will be created through a reduction in the number of transactions requiring its review and approval as more repair shops become eligible for enrollment in the Program. MPI also expects that repair shops will also improve their efficiency levels by streamlining their intake and throughput processes. To date, nearly 20,000 first estimates and 25,000 supplemental estimates have been processed through the DR Program and 5 full-time equivalent positions have been reduced (through attrition).

However, the current Light Vehicle Accreditation Agreement between MPI and the repair industry negatively impacts the financial viability of the DR Program. Under this Agreement, from March 1, 2018 until February 28, 2019 (when the Agreement expires), all repair shops completing repairs under the DR Program are entitled to an $81 DR Premium per claim which could cost MPI up to $6.3 million annually. The problem is that this premium currently exceeds the value saved by the Corporation as a result of having repair shops prepare the first estimate. While the repair industry objects to the present eligibility criteria for enrollment in the Program (i.e. it is only available to repair shops that repair more than 260 claims per year and meet certain performance expectations), the $81 Direct Repair Premium limits MPI's ability to expand the eligibility criteria further. MPI is otherwise supportive of expanding the eligibility criteria, as doing so would make the DR Program available to more Manitobans.

SDM.1.7.3 Direct Repair Uptake

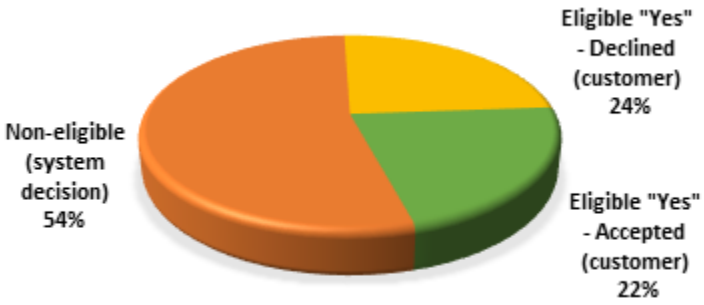
MPI has not actively promoted the DR Program in the 12-month period following its implementation date. The process to enroll a repair shop in the Program takes approximately 12 months as robust internal controls (i.e. audits, inspections,

customer surveys, etc.) must be in place in order to mitigate risk and ensure their successful long-term participation in the Program. Given this, MPI felt that earlier promotion of the program would have been counterproductive, as the Program may not have had the capacity to manage the expectations of customers, resulting in their dissatisfaction with the Program and a reluctance to utilize the Program in the future.

In February 2018, 46% of all PD claims registered were eligible for Direct Repair. Out of these eligible claims, 48% of customers accepted the offer of a Direct Repair estimate. The remaining customers chose not to accept Direct Repair because:

- They were more comfortable with having their vehicle estimated at MPI
- They were not familiar with the Direct Repair program
- They believed that arranging an estimate through MPI would be faster than arranging one through Direct Repair shop
- They were already attending an MPI Service Centre to address adjusting issues such as liability, loss details, etc.

Figure SDM- 4: February 2018 DR and DR Plus Claims

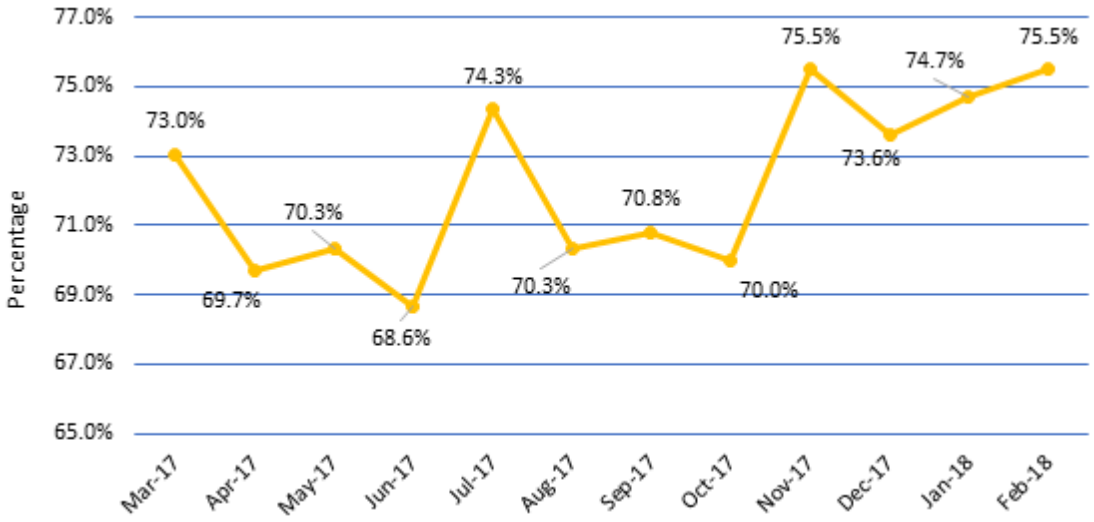


SDM.1.7.4 Creating a Positive Repair Experience

MPI retained an independent firm to survey customers on their experiences with the repair shops completing their insurance-covered repairs. These surveys use the Net Promotor Score Method to gauge the customer loyalty. Currently, MPI's Net Promotor Score is 75.5%, which MPI considers very positive. MPI will continue to monitor the

results of these surveys to ensure that the experience of its customers remains a generally positive one. See Figure SDM-3 below for the Net Promotor Score trend.

Figure SDM- 5: Repair Shop Net Promoter Score



SDM.1.7.5 Industry Performance

The DR Program is highly reliant on creating trust between the repair industry and MPI. MPI developed a series of key performance indicators (shop measures) to monitor and evaluate the performance of shops enrolled in the Program and to assist in determining whether to increase the approval limits available to them. The earned approval limits give shops more control over their intake process and cycle times and generally increase sales volumes. Eligibility for entry into the DR Program is also based on these performance indicators. The two most closely monitored indicators are the Composite Score (tally of all performance measures) and the Ask-Approve Variance. The Ask-Approve Variance measures the instances where MPI has denied a request from a repair shop (currently 1.3%). If they comply with MPI's expectations, repair shops can qualify for enrollment in the DR Program and earn up to $3,500 automatic approval authority.

The tables below illustrate the significant industry performance improvement within the first year of the DR Program.

Figure SDM- 6: Composite Score

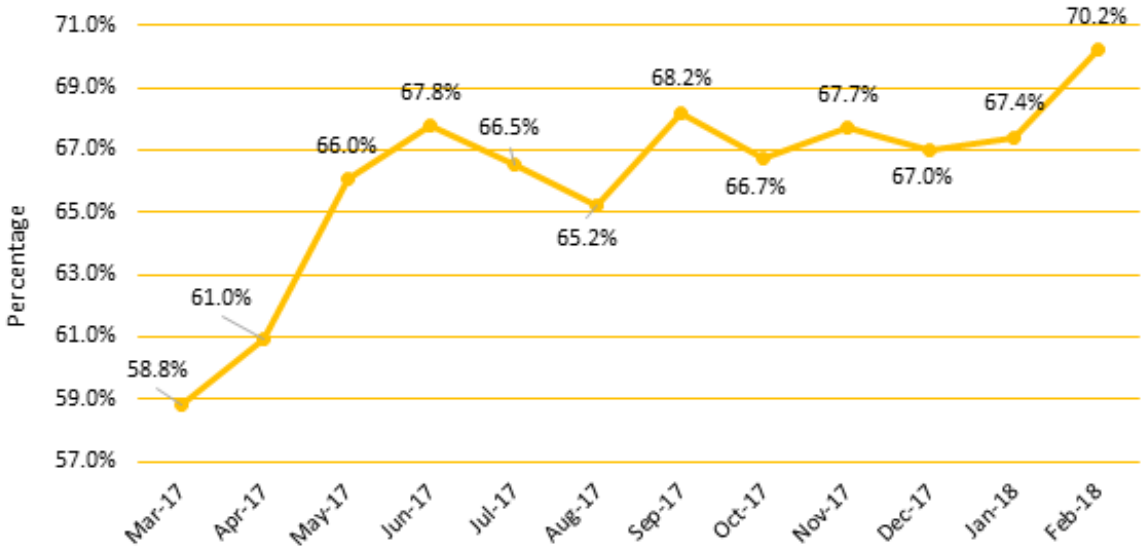
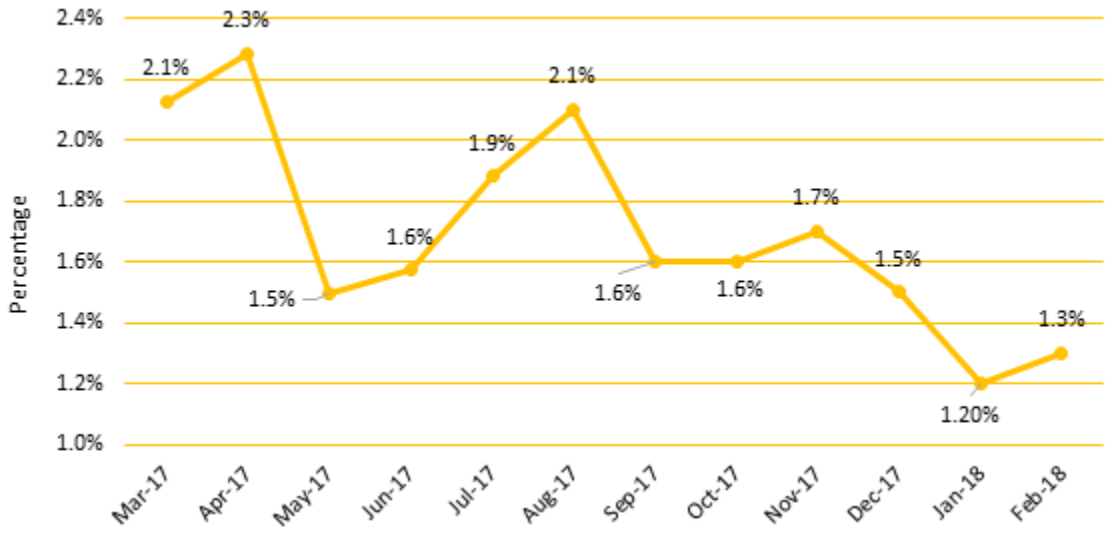


Figure SDM-7: Ask-Approve Variance Ratio



In summary, the first year of the DR Program has been successful on many counts. However, MPI has also learned many lessons and its primary focus will be making the Program more cost effective to ensure its sustainability in the future.

SDM.1.8 Buying or repairing a salvage vehicle

SDM.1.8.1 Repairing salvaged vehicles in Manitoba

As part of MPI's continuing emphasis on ensuring the safety of vehicles on the road and that accredited repair shops have the necessary training, equipment, repair methods and facilities to complete a proper repair, MPI introduced new requirements for the Body Integrity Inspection Program on June 1, 2017. The Body Integrity Inspection Program is part of the Stolen and Wrecked Vehicle Monitoring Program (SWVMP), a Canada-wide vehicle inspection and monitoring program designed to prevent registration of stolen/irreparable vehicles, certify salvageable vehicles (after they have been properly rebuilt) and provide consumers with the information they need about a vehicle to make an informed buying decision. Customers wanting to rebuild a vehicle with a Salvageable status must now complete a repair plan with the inspection mechanic at their Body Integrity Inspection Station prior to starting any repairs on the vehicle. The repair plan must include four colour photos of the vehicle and Original Equipment Manufacturer (OEM) repair procedures. The Body Integrity Inspection Station will do an initial inspection of the vehicle, sign off on the repair plan, and ensure the repairer has the tools and training to repair the vehicle safely. The customer must return to the Body Integrity Inspection Station within 120 calendar days from their initial inspection. If they do not return, the station will void their certificate.

SDM.1.8.2 Buying salvage from MPI

The current Salvage Management System (SMS) runs on an old platform that cannot be enhanced. It has limited capacity for photos, has poor reporting and payment

processes, and does not allow for integration with other MPI software. The current SMS does not allow for any type of salvage revenue or customer improvement opportunities. The SMS review for 2018/19 is to develop a strategy that will address the identified limitations of the current system, provide an improved customer service experience by allowing an online bidding option, increase market penetration and revenues. An integrated online SMS will also help address capacity issues in the Physical Damage Centre holding compound, reduce inventory cycle times, promote a more efficient customer buying process and reduce rural towing and storage costs.

SDM.1.9 Recovering from a Bodily Injury

The Personal Injury Protection Plan (PIPP) is a true no-fault injury compensation scheme protecting Manitobans from the rate instability and premium growth problems faced by many tort-based jurisdictions due to a number of factors, including: unpredictable court settlements, rising litigation costs, fraud and soft fraud, and the pressure to enrich accident benefits to reduce tort actions.

SDM.1.9.1 Current State of PIPP

The injury and medical environment in which PIPP resides continues to evolve due to an overall increase in the complexity of injury claims caused by the rising number of mental health claims, such as addictions, depression, anxiety, and chronic pain, as well as concussion and post-concussion diagnosis. MPI seeks to continuously improve and adapt to these changes given their significant impact to reserves in 2016 and 2017. The downstream impact of this trend on MPI is significant growth in our retained claims beyond five years from first notice of loss (FNOL). Through the deep-dive review of this area in 2017, various process improvements have been initiated that will mitigate this trend.

Centralized Reserving:

On March 1, 2017, injury file reserving moved from being the responsibility of benefit administrators and case managers to that of a centralized reserving unit. The goals

were to improve the consistency and reliability of reserves, and build capacity for the benefit administrators and case managers to allow more time to focus on return to health / work efforts. Effective May 1, 2018, the oversight of this unit will be a shared responsibility between the Director, Injury Claims Management and the Chief Actuary, and Vice President, Risk Management. The purpose for this change is to ensure there is open communication and collaboration between the two areas that will result in improved operational effectiveness, and sound actuarial practices related to reserves.

Interest Policy Change:

Although legislative amendment was not required, MPI recently revised the policy concerning payment of interest on permanent impairment benefits under sections 197.1 and 163 of The Manitoba Public Insurance Corporation Act. MPI now only pays interest if payment is made 30 days after the Corporation issues a decision on permanent impairment or where Internal Review or the Automobile Injury Compensation Appeal Commission overturns a coverage decision. It is estimated this change will save the Corporation approximately $1,000,000 per year.

Claims Intake and Triage:

On May 1, 2017, MPI improved its injury claims intake and triaging processes to identify complex claims early and triage those claims to the most appropriate case management resource. Intervention and rehabilitation efforts were initiated as early in the claim as possible, which is a much better customer outcome. The claims triage model was adapted from the Transport Accident Commission in Victoria, Australia, and customized for Manitoba. It measures a claimant's cognition, resilience, social support, persistent pain, and pre-existing mental health. Development of these claims takes time, but early results are promising, and MPI has seen a two percent (2%) increase in the number of claims closed within the first three months from FNOL.

Workforce Planning:

Part of the BI^3 business case was to reduce FTE costs by adopting more passive case management practices. The outcome was a 28 FTE reduction; however, an unforeseen consequence of this was an overall reduction in case manager capacity, which when combined with the increased complexity of claims, was a factor in the

overall growth in retained claims. A jurisdictional review identified that other jurisdictions are in fact increasing their staffing levels as a means to manage claims for better results.

MPI's response to manage these trends is to add more case management capacity for a more pro-active case management experience with customers. The main effort is to implement a centralized claims intake and triage group by the end of the 2018/19 fiscal year. Treating claims intake and triage as a specialized function is in line with industry best practice and will refine the accuracy of the initial information collected, and further standardize the triage process. This will also remove these functions from case managers, increasing their overall capacity and allow case managers to focus solely on rehabilitation planning and return to work efforts that will reduce disability durations, reduce claims costs, and increase customer service.

SDM.1.10 Introduction of new on-line Customer Self Service

In response to the modern day customer service demands, expectations and needs of consumers, MPI will be introducing a new on-line customer self service delivery channel in the summer of 2018 for mobile, tablet and/or personal computing devices. Customers will be able to utilize this channel to gain access to and pay for MPI services, which do not require informed insurance related consultation and expertise in order to obtain. The initial launch will be focused on class 5 and 6 Knowledge tests and Road test appointments. These high-volume transactions present a good candidate transaction base to launch the new service and provide high-value to customers who require options, flexibility in appointment bookings and available hours of service. This initial on-line presence will be primarily associated with the DVA line of business. However, the base architecture will be utilized and shared amongst all lines of business.

Subsequently over the remainder of 2018, MPI will be finalizing the base architecture components of the new service delivery channel by implementing the following capabilities:

- E-cash payment capability
- Secure Messaging and e-document delivery
- Full authenticated and highly secure user sign-on and authentication

The overall base architecture that will be implemented in 2018 will be extensively utilized by the Basic line of business in that customers will have the ability to make on-line payments with expanded payment methods, receive secure messages which provide updates on claims repair status and introduce an e-document delivery method instead of paper mail for all future MPI related customer communications.

Once the base architecture is in place, MPI will then expand the customer self-service offerings to include (but not limited to):

- Class 1-4 Road and Knowledge tests
- Ability to change or cancel Road and Knowledge tests
- Obtain a driver's abstract
- Obtain a claims experience letter
- Electively transition customers to e-document delivery for all MPI communications versus existing paper mailings
- Driver Education registration
- Driving Instructor related Road tests
- Issue replacement Driver's Licence and Identification card
- Issue replacement vehicle registration/insurance certificates

As MPI continues to expand the associated services available through the new on-line customer service delivery channel, ongoing engagement with customers, Autopac agents and the Insurance Brokers Association of Manitoba will be conducted to ensure a smooth transition for all stakeholders involved and impacted.

MPI also intends on establishing a long-term customer self-service vision and roadmap by the end of 2018. This will set the long-term direction and business case for the completion of this very important customer service delivery channel.

SDM.2 CUSTOMER EXPERIENCE FRAMEWORK

To align with industry best practices and allow for MPI to measure performance against industry standards and against comparable organizations, a new Customer Experience framework is being developed. The new Customer Experience framework will evolve the Corporation's customer-centric focus, introduce new channel choice to customers where needed, align with industry standards, benchmark against comparable organizations in the industry, and allow MPI to have access to near real-time metrics and data upon which to act.

MPI's current Customer Service Standard (CSS) measures, used to monitor operational performance and customer satisfaction, were developed internally in 1998 and have not substantially changed or evolved in the nearly twenty years they have been in use. The focus of CSS has been largely on operational efficiencies more so than on customer expectations. CSS measures follow a delayed reporting structure, typically gathering and reporting feedback three to six months after a customer transaction.

Internal evaluations of CSS have revealed that these measures provide valuable operational input, but may not be optimized to modern expectations for satisfaction or possible points of delight from the customer's perspective. The current operational measures also do not offer the Corporation opportunity to compare against other organizations and industry benchmarks. With a focus on operational standards, the CSS measures do not provide a primary focus on quality of service from the customers' point of view. A lack of real-time customer feedback also impacts the Corporation's ability to respond to issues in the moment.

The overall objectives of the new Customer Experience Framework are to provide MPI with:

- awareness of evolving customer needs and expectations;
- increased understanding of our performance in meeting these customer expectations; and

- pragmatic, cost-effective solutions to address gaps between customer expectations and experiences.

The Customer Experience framework will follow a core strategy that is customer-centric, ensuring that business activities revolve around the customer. It will also implement an ideal vision of what the customer should experience with the Corporation, maintaining a focus on delivering exceptional customer service. The Customer Experience framework will align the Corporation's vision, goals, and objectives with the overall customer expectations by key touchpoint with MPI. A customer-centric focus based on the ideal Customer Experience will lead to a more comprehensive understanding of customer needs, desires, and expectations, contribute to better MPI's products and services, promote greater customer satisfaction, increase staff engagement, and, heighten the Corporation's credibility as a customer-driven company.

The 2018/19 fiscal year will be a developmental year for MPI's Customer Experience framework. While work is completed to define the core dimensions of the new Customer Experience framework, transitional changes will be made to ongoing data collection and feedback mechanisms to ensure the Corporation continues to respond to customer needs and track customer input and satisfaction levels. Development of the new Customer Experience framework is expected to be complete by the end of the fiscal year 2018/19, providing MPI the ability to compare new Customer Experience metrics against industry standards and similar organizations. Ongoing implementation and evolution of the Customer Experience framework will continue well beyond this period.

BENCHMARKING

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

BENCHMARKING **4**
BMK.1 EXECUTIVE SUMMARY **4**
BMK.2 MPI BUSINESS MODEL – SUMMARY OF PERFORMANCE MEASUREMENTS AND RESULTS **7**
BMK.3 MANITOBA PUBLIC INSURANCE BENCHMARKING FRAMEWORK **9**
BMK.4 OPERATIONAL EFFICIENCY **10**
BMK.4.1 Corporate and Claims Performance 11
BMK.4.1.1 Total gross expenses as % of GPW 12
BMK.4.1.2 Total gross expenses per adjusted policy in force 12
BMK.4.1.3 FTEs per $100 million of GPW 13
BMK.4.1.4 Ratio of staff to management 14
BMK.4.1.5 Total Personnel Expense per FTE 14
BMK.4.1.6 Loss ratio 15
BMK.4.1.7 Net investment yield 16
BMK.4.2 Claims Performance 17
BMK.4.2.1 Claims Expense as Percentage of GPW 17
BMK.4.2.2 MPI's Claims Expense Per Reported Claim 18
BMK.4.2.3 MPI's Reported Claims Per FTE 18
BMK.4.2.4 MPI's Reported Claims Per 1,000 Policies in Force 19
BMK.4.2.5 MPI's Personal Lines Losses Incurred Per Paid Claim 20
BMK.4.2.6 MPI's FTEs Per 100,000 Reported Claims 21
BMK.4.2.7 MPI's Management Per 100,000 Reported Claims 21
BMK.4.2.8 MPI's Staff per 100,000 Reported Claims 22
BMK.4.2.9 MPI's Total Gross Expenses per Reported Claim 22
BMK.4.3 Macro-Mandate Performance 23
BMK.4.3.1 Premium rates that are on average lower than those charged by private insurance companies for comparable price and coverage 23
BMK.4.3.2 Basic returns at least 85% of premium revenue to Manitobans in the form of claims benefits 27
BMK.4.3.3 Lower annual increases in premium growth in comparison to other Canadian auto insurers 28

BMK.5 IT SERVICE DELIVERY CAPABILITY 30
BMK.5.1 IT Spending 32
BMK.5.1.1 IT Spend as a Percentage of Operating Expense 32
BMK.5.1.2 IT Spend to Run, Grow, and Transform the Business 33
BMK.5.2 IT Staffing 35
BMK.5.2.1 MPI's IT FTEs as a Percentage of Company Employees 35
BMK.5.2.2 In-House vs. Contractor IT FTEs 36
BMK.5.3 Infrastructure and Operations Spending 38
BMK.5.3.1 Infrastructure and Operations Spending by Cost Category 38
BMK.5.3.2 Infrastructure and Operations Spending by Sourcing Type 39
BMK.5.4 IT Maturity Ratings (CIO Scorecard) 40
BMK.5.5 IT Score 42
BMK.6 SERVING MANITOBANS 44
BMK.6.1 Public Perception Benchmarking Measures 45
BMK.6.1.1 Service when dealing with vehicle insurer 45
BMK.6.1.2 Experience with vehicle insurer 46
BMK.6.1.3 Describing Vehicle Insurers 47
BMK.6.2 Customer Service Trending Measures 48
BMK.6.2.1 Physical Damage Claimant Satisfaction Survey 48
BMK.6.2.2 Injury Claimant Satisfaction Survey 49
BMK.6.2.3 Insurance and Licensing Customer Satisfaction Survey 50
BMK.7 COMMUNITY IMPACT MEASURES 51
BMK.7.1 Benchmarked Public Perception 52
BMK.7.1.1 Public support for Manitoba Public Insurance 52
BMK.7.1.2 Value for Money 53
BMK.7.1.3 Value for Money Over Time 54
BMK.7.1.4 Corporate Performance Index 55
BMK.7.1.5 Overall Corporate Performance Index Over Time 57
BMK.7.1.6 Products and Programs 58
BMK.7.2 Road Safety Public Perception Measures 59
BMK.7.2.1 Success in Addressing Driving Safety 59
BMK.7.2.2 Success Addressing Specific Driving Safety Issues in Manitoba 60

Appendix 1: Gartner Recommendations
Attachment A: MPI IT Benchmark and Maturity Assessment – Executive Report

BENCHMARKING

BMK.1 EXECUTIVE SUMMARY

Manitoba Public Insurance (MPI or the Corporation) continues to provide value to Manitobans by containing costs and seeking increased efficiencies through innovation, process changes and leveraging technology. MPI continually reassesses its current practices and looks to anticipate its future needs. The value provided to Manitobans is captured in the Value Equation below, through the combination of price, coverage, service and access.



MPI continues to balance efforts to contain costs while meeting the evolving needs and expectations of Manitobans. MPI has delivered increased value by:

- Providing guaranteed access to superior products and coverage
- Implementing service enhancements
- Implementing loss prevention strategies
- Undertaking IT Optimization projects
- Promoting safer roads through education, awareness and enforcement
- Offering province-wide service accessibility
- Actively managing costs through various cost containment initiatives
- Preparing for a changing auto repair industry

MPI's priority is to provide exceptional value to all Manitobans and as such, improving customer service and corporate performance is paramount. To ensure that MPI is using best practices and best industry standards, it employs Benchmarking to compare its practices and performance against those of other organizations. The resulting information is used to assess and enhance corporate performance. Benchmarking assists MPI in achieving its corporate goals and in attaining optimum performance across all areas. Specifically, this process helps to identify improvement opportunities for managing expenses and improving efficiencies in both services and operations in order to successfully move forward and continue to provide the best value to Manitobans.

This benchmarking report shows positive results in each of the four benchmarking components and confirms that overall performance has improved under MPI's business model and governance practices.

In terms of Operational Efficiency, MPI compares favourably in many aspects against the benchmark groups. This is especially true with regards to the macro-mandate measurements that gauge operational efficiency at a macro level. For corporate and claims performance metrics, the results must be examined within the context of MPI's unique business model. This model currently permits and facilitates a high frequency of claims due to a low Basic deductible and a Driver Safety Rating (DSR) model that does not punitively penalize a customer for filing a claim. This model allows MPI to provide a better customer experience but requires more employees than private-sector models, which often outsource services.

In addition, unlike private insurers, MPI is a not-for-profit Crown Corporation. Since MPI does not earn a profit on Basic insurance, premium revenue will be lower than private companies. Therefore, the ratio of expenses relative to premium revenue will appear higher, all else being equal.

Key metrics comprising IT Service Delivery Capability demonstrate MPI's improvement and growth within this area. Specifically, spending, as a percentage of overall operating expenses, continues to decrease year-over-year. MPI's improving IT maturity has increased the quality and benefits derived from IT initiatives. MPI will

continue to develop its processes; especially its governance and value management process, in order ensure the effectiveness of its future operations.

The results of 'Serving Manitobans and Community Impact' metrics evidence of MPI's commitment to superior service and that of being a strong corporate citizen. MPI consistently scores high in customer and claimant satisfaction surveys, an indication that MPI continues to meet the needs and expectations of Manitobans.

Taken together, these benchmarking results are favourable, evidence the effectiveness of MPI's business model and confirm that MPI continues to achieve its mission of providing exceptional value to Manitobans. MPI will continue to evaluate its corporate performance against the indicators described in this benchmarking framework.

BMK.2 MPI BUSINESS MODEL – SUMMARY OF PERFORMANCE MEASUREMENTS AND RESULTS

The key factors of MPI's business model that impact operating expenses, staffing levels and related benchmarking metrics include:

- **Comprehensive customer service performed internally by MPI employees.** This results in a better customer experience but requires more employees than models which rely on out-sourced call centres or full distributed estimating for example. This means when benchmarking against private insurance companies, MPI's FTEs (Full Time Equivalent) per $100 million of GPW (Gross Premium Written) ratio, for example, will be higher. The additional FTEs will also increase expenses which will in turn increase MPI's total gross expenses as a percentage of the GPW ratio. There is a direct relationship between the number of employees and MPI's business model. MPI requires an adequate complement of employees to make the service delivery model function and meet customer expectations.
- **The Service Centre model and the concept of providing convenient access to services province-wide.** This means that MPI requires strategically located service centres throughout the province to serve low population density areas. This is due to the geographic and demographic realities of Manitoba and requires a sufficient number of employees to fully staff the Service Centres. With more physical space required, there can be a negative effect on occupancy costs and staffing levels. This will result in higher total gross expenses as a percentage of the GPW and higher FTEs per $100 million of GPW ratios for the Corporation.
- **The business model is designed so that customers will use their insurance as needed and not be reluctant to make a claim should they have an accident.** However, this increases the number of claims reported and in turn, requires additional claims personnel to administer end-to-end service. This means that MPI's reported claims per claims FTE and reported claims per 1,000 policies in force ratios will generally be higher than the ratios of private insurance companies.

- **Unlike private insurers, MPI is a not-for-profit Crown Corporation.** Since MPI does not earn a profit on Basic insurance, premium revenue will be lower than private companies. Therefore, the ratio of expenses relative to premium revenue will appear higher, all else being equal for MPI.

BMK.3 MANITOBA PUBLIC INSURANCE BENCHMARKING FRAMEWORK

MPI's benchmarking framework reflects the goals and strategies it has developed to meet the requirements of Manitobans as demonstrated in its Value Equation. The framework includes four major areas of corporate performance. Collectively, the metrics in these areas form an overall, representative benchmarking framework for MPI and its operations.

Benchmarking	Area Description
Operational Efficiency	The capability to deliver products and services to Manitobans in the most cost-effective manner possible while ensuring the high quality of its products, services and support
IT Service Delivery Capability	How effective and mature MPI is in terms of IT organization, processes and infrastructure, including both operational effectiveness indicators and ratings evaluating the effectiveness of its IT departments to meet the needs of the business
Serving Manitobans	Measures corporate performance by monitoring Manitobans' perceptions of the service that MPI provides, as the provincial vehicle insurer and in relation to specific products and services
Community Impact	Measures are designed to assess general perceptions of MPI's performance as a corporate citizen. In addition, MPI consistently monitors self-reported road safety behaviors to identify areas for improvement and to increase the effectiveness of its advertising and educational programs

BMK.4 OPERATIONAL EFFICIENCY

Operational efficiency speaks to MPI's capacity to deliver products and services to Manitobans in the most cost-effective manner possible while ensuring the high quality of its products, services and support.

To attain optimal operational efficiency, MPI seeks to effectively manage expenses by leveraging the resources that contribute to corporate success such as its workforce, technology and business processes.

Methodology

In order to assess its operational efficiency, MPI engages the Ward Group to provide benchmarking services in connection with Ward's Property & Casualty Core Enterprise Operations benchmarking program.

The Ward Group is a provider of benchmarking and best practices research studies for insurance companies in North America. Ward has worked with over 400 companies and performed nearly 3,000 benchmarking exercises since 1991.

The operational benchmarking program provides:

- A staffing and expense benchmark for major corporate functions
- An independent and comprehensive analysis of cost structure
- Statistical benchmarking information, in report form, detailing MPI results and benchmarking group results

The Ward benchmarking process:

- Develops "apples-to-apples" comparisons
- Conducts On-site Best Practices Analysis – Ward spends time at MPI offices to understand business practices, operating philosophies and corporate culture
- Reviews the Results – Ward has on-site meetings with MPI management to review customized results developed specifically for MPI

- Monitors the Results – After the second year of collecting information, a trend analysis report is prepared annually to help MPI management monitor year-to-year performance improvement

For this program, MPI is compared to three benchmark groups.

- Canadian Personal Auto Benchmark Group – 10 Canadian insurers
- Canadian Benchmark Group – 10 Canadian insurers
- US Personal Auto Benchmark Group – 7 US insurers

BMK.4.1 Corporate and Claims Performance

MPI compares well against the benchmark groups in many of the operational efficiency measures. Below are key 2016/17 benchmark indicators that provide confirmation that MPI is operating efficiently and effectively.

Figure BMK- 1: Corporate Performance Results

Line No.	Metric	Corproate Performance Measures	MPI 2012/13	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Canadian Personal Auto Group 2016/17	Canadian Benchmark Group 2016/17	US Personal Auto Group 2016/17
1	4.1.1	Total Gross Expenses as a % of Gross Premiums Written (GPW)	32.01%	30.41%	29.88%	27.89%	27.16%	36.27%	38.86%	36.75%
2	4.1.2	Total Gross Expenses per Policy In Force	$288	$282	$286	$280	$279	$444	$591	$436
3	4.1.3	FTEs per $100 million of GPW	153.25	148.33	140.39	130.98	128.30	104.01	107.79	102.78
4	4.1.4	Ratio of Staff to Management	6.83	7.52	7.04	6.64	6.95	5.72	5.93	5.75
5	4.1.5	Total Personnel expense per FTE	$ 79,058	$ 76,872	$ 78,342	$ 81,473	$ 81,978	$ 92,636	$ 94,396	$ 108,242
6	4.1.6	Loss Ratio	77.75%	88.42%	82.99%	70.90%	85.66%	60.87%	61.71%	61.60%
7	4.1.7	Net Investment Yield	5.88%	7.10%	9.13%	-1.44%	6.08%	3.06%	1.76%	3.00%

BMK.4.1.1 Total gross expenses as % of GPW

Total gross expenses include all underwriting, loss adjusting and investment expenses; however excludes reserve change for loss adjusting expenses. This is the overall expense ratio that shows how much revenue the company is spending on expenses. Generally, a lower expense ratio means the company is more efficient and competitive.

Observation

MPI's gross expense as a % of GPW ratio has steadily decreased annually from 32.01% in 2012/13 to 27.16% in 2016/17. The current decrease can be attributed in part to an increase in gross premiums written as well as cost containment strategies implemented by the Corporation.

The ratio continues to be considerably lower than the benchmark groups. This is notable given the Corporation's break-even mandate that generally results in higher expenses to GPW ratios than those of private insurers. The Corporation's favourable expense drivers include its commission structure, less complex underwriting environment, and lower taxes/assessments and legal expenses.

BMK.4.1.2 Total gross expenses per adjusted policy in force

Total gross expenses include all underwriting, loss adjusting and investment expenses; however excludes reserve change for loss adjusting expenses. Policies in force are represented by an average of the number of beginning and end of fiscal year policies in force. Similar to the expenses per GPW metric, this measure shows how much of the policy premium is used to pay company expenses. Companies can see how much of the policy premium they are spending on expenses and also examine the claims costs per policy to determine if the premium covers both of those costs. If so, this will result in an underwriting profit and if not, then an underwriting loss will occur.

Observation

MPI's total gross expenses per policy in force decreased from $288 in 2012/13 and to

$282 in 2013/14. After a slight increase to $286 in 2014/15, it has decreased to a current low of $279 in 2016/17.

MPI's total gross expenses per policy in force figure remained significantly lower than the benchmark groups. This can be attributed to the Corporation's low claims legal expenses which can be attributed to Manitoba's more economical no-fault insurance system.

BMK.4.1.3 FTEs per $100 million of GPW

This is calculated as FTEs divided by GPW, and measures the number of headcount the organization has compared to premium. Generally the lower the number the more efficient the organization, but some companies outsource more insurance functions than others. Therefore, the differences in business models and the dependency on third parties must be considered when using this metric to compare organizations.

Observation

MPI's FTEs per $100 million of GPW ratio has decreased from 148.33 in 2013/14 to 130.98 in 2015/16. It has since decreased to a low of 128.30 in 2016/17. This result is due to a decrease in FTEs across several functional areas and an increase in GPW.

The Corporation's FTEs per $100 million of GPW ratio has been consistently higher than the Canadian and US benchmark groups. This is due to the Corporation's business model which also impacts this benchmark. As the model is based on end-to-end customer service which is performed internally by MPI employees it requires more employees than do models based on for example, out-sourced call centres or damage estimates handled by repair shops. The MPI model results in a more comprehensive customer experience but requires more staff.

BMK.4.1.4 Ratio of staff to management

This is the number of staff FTEs per manager. A greater span of control has several benefits such as lower compensation (since staff tend to cost less than managers), and better communication with fewer levels of management (i.e. flatter organization structure).

Observation

The staff to management ratio at MPI increased from 6.83 in 2012/13 to 7.52 in 2013/14. The span of control decreased to 7.04 in 2014/15 and to 6.64 in 2015/16. It has since increased to 6.95 in 2016/17 due to a decrease in management.

MPI's staff vs. management ratios are higher than the Canadian and US benchmark groups, indicating that overall, MPI has a "flatter" organizational structure, as compared to the benchmark groups. In addition, the Corporation's overall personnel expenses per FTE and Management personnel expense per FTE are both considerably lower than those of the benchmark groups.

BMK.4.1.5 Total Personnel Expense per FTE

Personnel costs are "fully-loaded," meaning they include salary, overtime, benefit costs, payroll taxes, and retirement costs. This metric measures the average compensation per FTE within the organization. Typically companies compensate employees close to the industry average in order to retain talent. Overpaying can lead to expense challenges and underpaying can lead to lower productivity and higher turnover.

Observation

MPI's personnel expense per FTE has steadily increased from $79,058 in 2012/13 to $81,978 in 2016/17.

The Corporation's personnel expenses continue to be much lower than the benchmark groups. This can be attributed to the Corporation's lower base salaries and the fact that the Corporation does not pay employee bonuses.

BMK.4.1.6 Loss ratio

Calculated as losses incurred (paid claims plus reserve change) divided by Net Premiums Earned, this ratio shows the company how much of the premium is dedicated to paying claims. For-profit companies seek to have a low loss ratio, since this is the biggest cost to the company and has a major impact on their profitability. Public not-for-profit insurers look to have a loss ratio and expense ratio that comes close to breakeven, so the lower the expense ratio, the more they can spend on claims.

Observation

MPI experienced an increase in its loss ratio from 77.75% in 2012/13, to a high of 88.42% in 2013/14. It then decreased to 82.99% in 2014/15 and to a low of 70.90% in 2015/16. In 2016/17, the loss ratio increased to 85.66% due to an increase in losses incurred.

MPI's loss ratios have consistently exceeded those of the benchmark groups. This was expected given that MPI is a not-for-profit corporation and has a mandate of returning benefits to Manitobans while keeping insurance rates affordable.

BMK.4.1.7 Net investment yield

Net investment yield[1] is calculated as net investment income (inclusive of realized and unrealized gains) divided by the average invested assets, the yield shows how much return a company is getting on its assets. Companies tend to seek a high yield since the income offsets the losses and expenses a company incurs.

Observation

MPI's net investment yield increased from 5.88% in 2012/13 to a high of 9.13% in 2014/15. In 2015/16, this metric significantly decreased to -1.44% reflecting a decline in investment income brought about by low interest rates and a decline in the equity market. In 2016/17, net investment yield increased to 6.08%.

Currently, MPI has a greater net investment yield as compared to the Canadian and US benchmark groups.

[1] Net investment yield is calculated in accordance with Ward methodology for the benchmarking exercise.

BMK.4.2 Claims Performance

Figure BMK- 2: Claims Performance Results

Line No.	Metric	Claims Perfromance Measures	MPI 2012/13	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Canadian Personal Auto Group 2016/17	Canadian Benchmark Group 2016/17	US Personal Auto Group 2016/17
1	4.2.1	Claims Expense as % of GPW	7.21%	6.91%	6.60%	6.33%	5.96%	6.96%	7.06%	6.70%
2	4.2.2	Claims Expense per reported claim	$ 264	$ 244	$ 257	$ 247	$ 234	$ 887	$ 1,051	$ 505
3	4.2.3	Reported claims per claims FTE	328.56	341.83	331.19	355.78	371.02	223.74	206.81	279.70
4	4.2.4	Reported claims per 1,000 policies in force	246.20	262.50	245.00	256.90	261.28	95.91	102.09	157.14
5	4.2.5	Personal Lines losses incurred per paid claim	$ 3,115	$ 2,845	$ 3,063	$ 2,841	$ 3,624	$ 7,604	$ 7,262	$ 4,351
6	4.2.6	FTEs per 100,000 Reported claims	560.21	523.32	547.65	510.86	503.72	1,327.96	1,605.18	775.34
7	4.2.7	Management per 100,000 reported claims	71.94	61.81	68.51	66.89	63.39	197.33	231.75	114.93
8	4.2.8	Staff per 100,000 Reported Claims	488.27	461.51	479.14	443.97	440.34	1,130.63	1,373.42	660.41
9	4.2.9	Total Gross Expenses per Reported Claims	$ 1,174	$ 1,073	$ 1,166	$ 1,088	$ 1,066	$ 4,625	$ 5,787	$ 2,772

BMK.4.2.1 Claims Expense as Percentage of GPW

Claims expenses consist of internal and external costs associated with settling claims, including litigation costs. The claims division tends to be the largest division in an insurance company. This measure shows expenses related to settling claims, and generally the lower the metric, the more efficient the claims division.

Observation

MPI's claims expense as a % of GPW has been steadily declining. Since 2012/13, it decreased from 7.21% to 5.96% in 2016/17. This reduction is related to an increase in GPW as well a decrease in claims expenses.

In 2016/17, MPI's claims expense as a % of GPW ratio was lower compared to the other benchmark groups and this is attributed to the difference in litigation expenses between MPI's no-fault system and tort systems.

BMK.4.2.2 MPI's Claims Expense Per Reported Claim

Claims expenses consist of internal and external costs associated with settling claims including litigation costs. Reported claims are the number of claims reported in the fiscal year. This measure shows the average cost of settling a claim, and the lower the metric, the more efficient the claims division.

Observation

Claims expenses per reported claim decreased from $264 in 2012/13 to $244 in 2013/14. It increased to $257 in 2014/15 and has since decreased to a low of $234 in 2016/17. This change is attributed to a decrease in claims expenses.

MPI has consistently maintained significantly lower claims expenses per reported claim dollar value in comparison to the Canadian and US benchmark groups and this again can be attributed to the difference between a no-fault and tort system. However, MPI's business model which results in a high frequency of claims and its efficiency in settling these claims is also a contributing factor for the positive variance between MPI and the benchmark groups.

BMK.4.2.3 MPI's Reported Claims Per FTE

Reported claims are the number of claims reported in the fiscal year. This metric is a workload metric that shows the average number of claims handled per claims FTE. Generally, the higher the metric, the more efficient the company.

Observation

MPI's reported claims per claims FTE has steadily increased since 2012/13. This figure rose from 328.56 in 2012/13 to 341.83 in 2013/14. There was a slight decrease in 2014/15 to 331.19 but the metric increased to 355.78 in 2015/16 and to 371.02 in 2016/17. This result is reflective of an increase in reported claims.

MPI has consistently had significantly higher reported claims per claims FTE ratio compared to the benchmark groups. The high number of reported claims is due to

MPI's business model which results in a high frequency of claims and the high ratio is evidence that MPI has been able to efficiently process the high volume of claims, especially when compared to the benchmark groups.

BMK.4.2.4 MPI's Reported Claims Per 1,000 Policies in Force

Reported claims are the number of claims reported in the fiscal year. Policies in force are represented by an average of the number of beginning and end of fiscal year policies in force. This is a frequency measure that shows how many claims a company has relative to policies in force. The lower the metric, the less claims frequency, which should result in fewer claims.

It should be noted that other jurisdictions may have as many collisions as Manitobans; but lower reported claims stem from the fact that potential claimants in other jurisdictions elect to self-insure in many instances to avoid insurance cost increases.

Observation

Reported claims for every 1,000 policies in force increased from 246.20 in 2012/13 to 262.50 in 2013/14. It decreased to 245.00 in 2014/15 but has since increased to 261.28 in 2016/17. This is due to an increase in the number of reported claims. MPI has a higher frequency of claims and thus a higher reported claims per 1,000 policies due to its business model which is designed to allow customers to use their insurance as needed rather than be reluctant to make a claim should an accident occur.

BMK.4.2.5 MPI's Personal Lines Losses Incurred Per Paid Claim

Personal lines[2] losses incurred refer to MPI's basic line and include claim payments and reserve changes related to personal lines. Paid claims is the number of reported claims the company had in a fiscal year where there was a claim payment. This metric shows the average settlement amount per paid claim. This is a severity metric. In general, a lower metric will result in lower severity and lower loss ratio. The loss ratio is heavily influenced by the frequency of claims (how often) and the severity of claims (how much). This metric and the previous metric show the drivers of the loss ratio.

Observation

Personal losses incurred per paid claim decreased from $3,115 in 2012/13 to $2,845 in 2013/14. It increased to $3,063 in 2014/15 before decreasing to $2,841 in 2015/16. This metric has since increased to $3,624 in 2016/17 due to an increase in losses incurred.

MPI's personal losses incurred per paid claim ratio remains lower than the benchmark groups. This can be attributed to MPI's business model which results in a lower number of severity claims compared to private insurers.

[2]The term Personal lines is a definition derived from the Ward Group methodology that organizes corporate expense data across various lines of statutory business. Personal lines is mostly comprised of MPI's Basic with a small portion of MPI's Special Risk Extension in order to adhere to Ward methodology and to ensure an accurate comparison with benchmark groups.

BMK.4.2.6 MPI's FTEs Per 100,000 Reported Claims

This metric assesses the number of FTEs for every 100,000 reported claims and is a measure of workload and efficiency within a corporation. Generally, the lower the metric, the more resourceful the corporation.

Observation

FTEs per 100,000 reported claims increased from 523.32 in 2013/14 to 547.65 in 2014/15, but has since decreased to 510.86 in 2015/16 and to 503.72 in 2016/17. The decrease over the past several years can be attributed to a combination of an overall decrease in the number of FTEs and an increase in reported claims.

MPI has consistently maintained a significantly lower FTE per 100,000 reported claims compared to the Canadian and US personal auto benchmark groups. This shows that MPI has consistently been very effective in managing a high reported claims volume compared to the benchmark groups.

BMK.4.2.7 MPI's Management Per 100,000 Reported Claims

This metric examines the number of managers per 100,000 reported claims. Management is defined as positions that have direct reports. Ideally, the lower the metric the less top heavy and more efficient the company.

Observation

Since 2012/13, this metric has varied from 71.94 in 2012/13 to 61.81 in 2013/14, before increasing to 68.51 in 2014/15. In 2015/16, the metric decreased to 66.89 and has continued with this trend and decreased to 63.39 in 2016/17. MPI's management per 100,000 reported claims has remained significantly lower than that of the US and Canadian benchmark groups since 2012/13.

BMK.4.2.8 MPI's Staff per 100,000 Reported Claims

This metric examines the proportion of staff to reported claims. A more efficient corporation would display a lower value for this metric, indicating less staff is required to manage reported claims.

Observation

MPI has seen a decrease in staff per 100,000 reported claims, which decreased to 440.34 in 2016/17, from 443.97 in 2015/16. Previously it ranged from a high of 488.27 in 2012/13 to 461.51 in 2013/14.

MPI's staff per 100,000 reported claims continues to be lower than that of the US and Canadian Benchmark groups. This reflects MPI's ability to keep staffing levels lower relative to reported claims, as compared to the benchmark groups.

BMK.4.2.9 MPI's Total Gross Expenses per Reported Claim

Total gross expenses include all underwriting, loss adjusting and investment expenses, but excludes reserve change for loss adjusting expenses. This metric examines gross expenses relative to each reported claim. A lower ratio indicates increasingly efficient operations and use of expenses.

Observation

MPI's total gross expenses per reported claim decreased from $1,174 in 2012/13 to $1,073 in 2013/14. It increased to $1,166 in 2014/15, but has since decreased to $1,066 in 2016/17. The current results can be attributed to an increase in reported claims.

MPI's total gross expense per reported claim has consistently been lower than that of the Canadian and US benchmark groups. This difference can be attributed to MPI's effectiveness in managing reported claims.

BMK.4.3 Macro-Mandate Performance

Historically, MPI has ensured that meets three specific benchmarks as a way of gauging ongoing and annual success in terms of operating efficiency and providing value to Manitobans.

BMK.4.3.1 Premium rates that are on average lower than those charged by private insurance companies for comparable price and coverage

First, as expressed in MPI's corporate goals, it will charge rates that are, on average, "lower than those charged by private insurance companies for comparable price and coverage". The figure below provides sound support for this statement.

Figure BMK- 3: Canada Rates Map

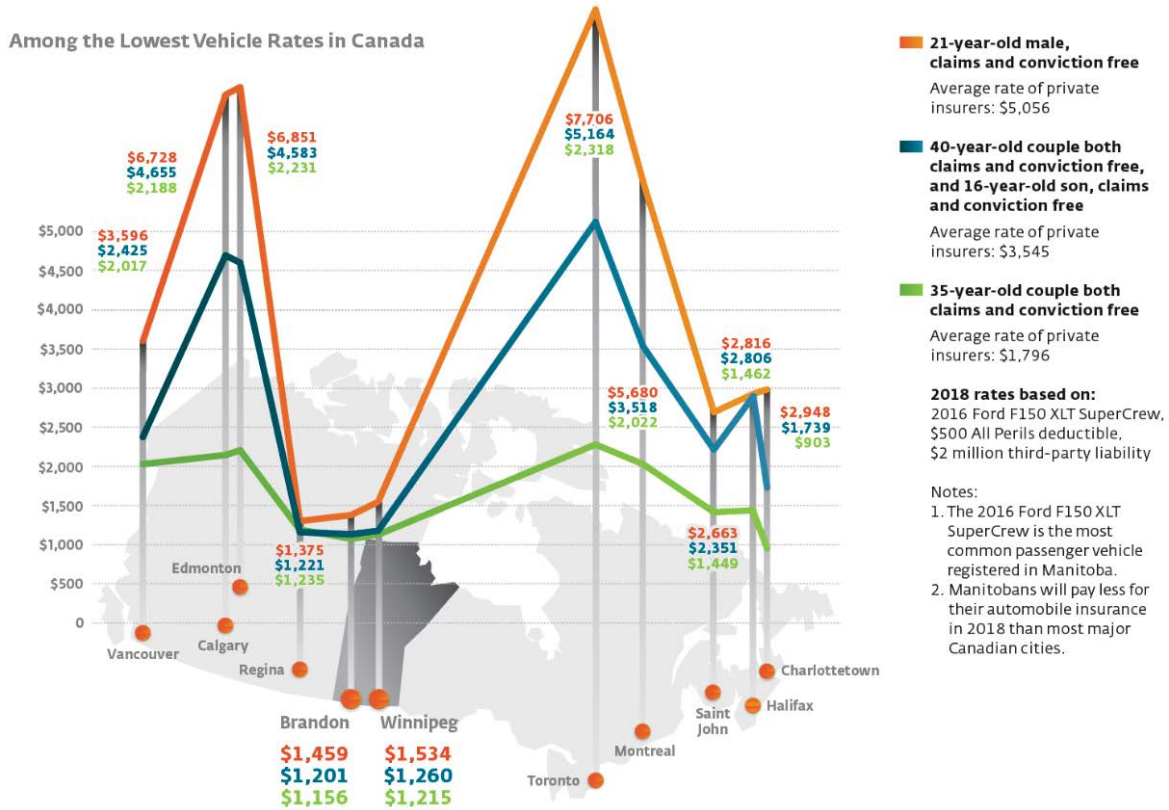


Figure BMK- 4: Passenger Vehicle Rates Comparison Charts by Driver Profile (Winnipeg, Halifax, Calgary, Charlottetown, Quebec City, Regina and Toronto)

Line No.	35 year old couple; both claims and conviction free		
1	Jurisdiction	2017	2018
2	Winnipeg	$ 1,132	$ 1,215
3	Halifax	$ 1,309	$ 1,462
4	Calgary	$ 1,961	$ 2,188
5	Charlottetown	$ 983	$ 903
6	Quebec City	$ 1,336	$ 1,556
7	Regina	$ 1,219	$ 1,235
8	Toronto	$ 3,079	$ 2,318

	40 year old couple and 16 year old son; all claims and conviction free		
9			
10	Jurisdiction	2017	2018
11	Winnipeg	$ 1,177	$ 1,260
12	Halifax	$ 2,766	$ 2,806
13	Calgary	$ 2,941	$ 4,655
14	Charlottetown	$ 2,058	$ 1,739
15	Quebec City	$ 2,317	$ 2,943
16	Regina	$ 1,219	$ 1,221
17	Toronto	$ 5,637	$ 5,164

	21 year old; male claims and convicitions free		
18			
19	Jurisdiction	2017	2018
20	Winnipeg	$ 1,429	$ 1,534
21	Halifax	$ 2,926	$ 2,816
22	Calgary	$ 4,064	$ 6,728
23	Charlottetown	$ 2,499	$ 2,948
24	Quebec City	$ 3,236	$ 4,555
25	Regina	$ 1,357	$ 1,375
26	Toronto	$ 6,002	$ 7,706

27 *The rates are based on the most commonly registered vehicle in Manitoba, 2016 Ford F150 XLT SuperCrew, $500 collision deductible, $500 comprehensive*

28 *Prior to 2018, the 2010 Dodge Grand Caravan SE was the most commonly registered vehicle in Manitoba*

Figure BMK- 5: Passenger Vehicle Comparison Charts by Minimum, Maximum, 25th Percentile, and 75th Percentile[3]

35 year old female primary driver; 35 year old male secondary driver; both 15 years claims and convictions free

Line No.	Category	Vancouver	Calgary	Regina	Winnipeg	Toronto	Montreal	Saint John	Halifax	Charlottetown
2	Minimum		$ 1,621			$ 1,702	$ 1,371	$ 1,339	$ 1,233	$ 814
3	Maximum		$ 3,001			$ 4,189	$ 2,701	$ 1,578	$ 1,711	$ 1,031
4	Median		$ 2,156			$ 2,193	$ 2,054	$ 1,425	$ 1,516	$ 881
5	25th percentile		$ 1,749			$ 1,863	$ 1,583	$ 1,390	$ 1,258	$ 858
6	75th percentile		$ 2,620			$ 2,613	$ 2,405	$ 1,515	$ 1,590	$ 930
7	Average	$ 2,017	$ 2,188	$ 1,235	$ 1,215	$ 2,318	$ 2,022	$ 1,449	$ 1,462	$ 903

40 year old female primary driver; 15 years claims and convictions free; secondary 40 year old male driver with 15 years claims and convictions free; and secondary 16 year old male driver with claims and convictions free

Line No.	Category	Vancouver	Calgary	Regina	Winnipeg	Toronto	Montreal	Saint John	Halifax	Charlottetown
11	Minimum		$ 3,352			$ 3,230	$ 2,195	$ 2,189	$ 2,589	$ 1,189
12	Maximum		$ 6,009			$ 9,579	$ 4,283	$ 2,569	$ 3,207	$ 2,363
13	Median		$ 4,694			$ 5,005	$ 3,898	$ 2,325	$ 2,711	$ 1,610
14	25th percentile		$ 4,219			$ 4,109	$ 3,042	$ 2,280	$ 2,612	$ 1,528
15	75th percentile		$ 5,046			$ 5,550	$ 4,031	$ 2,390	$ 2,912	$ 2,005
16	Average	$ 2,425	$ 4,655	$ 1,221	$ 1,260	$ 5,164	$ 3,518	$ 2,351	$ 2,806	$ 1,739

21 year old driver primary driver; 5 years claims and convictions free; no secondary driver

Line No.	Category	Vancouver	Calgary	Regina	Winnipeg	Toronto	Montreal	Saint John	Halifax	Charlottetown
20	Minimum		$ 4,490			$ 3,700	$ 3,731	$ 1,782	$ 2,393	$ 2,695
21	Maximum		$ 8,999			$ 14,071	$ 12,052	$ 3,201	$ 3,411	$ 3,267
22	Median		$ 6,542			$ 7,196	$ 4,446	$ 3,108	$ 2,898	$ 2,980
23	25th percentile		$ 5,490			$ 6,045	$ 3,887	$ 2,035	$ 2,480	$ 2,792
24	75th percentile		$ 8,042			$ 8,376	$ 5,388	$ 3,190	$ 2,900	$ 3,006
25	Average	$ 3,596	$ 6,728	$ 1,375	$ 1,534	$ 7,706	$ 5,680	$ 2,663	$ 2,816	$ 2,948

26 *The vehicle rates show the minimum, maximum, median, 25th percentile, 75th percentile, and average rates. These measures are calculated using the rates available for each jurisdiction. The rate comparison is based on the 2016 Ford F150 and includes three driver profiles*

27 *Prior to 2018, the 2010 Dodge Grand Caravan SE was most commonly registered vehicle in Manitoba*

[3] The 25th percentile indicates that for the given jurisdiction, 25% of the rates are at or below the specified rate. The 75th percentile indicates that for the given jurisdiction, 75% of the rates are at or below the specified rate.

Figure BMK- 6: Motorcycle rates comparison charts by driver profile (Winnipeg, Calgary, Regina and Toronto)

21 year old male claims and convictions free

Jurisdiction	2014	2015	2016	2017	2018
Winnipeg	$ 1,380	$ 1,249	$ 1,093	$ 1,057	$ 1,118
Calgary	$ 2,427	$ 2,427	$ 2,427	$ 2,427	$ 2,427
Regina	$ 1,929	$ 2,134	$ 2,134	$ 2,134	$ 2,134
Toronto	$ 2,679	$ 2,655	$ 2,570	$ 2,327	$ 2,392

50 year old male claims and convictions free

Jurisdiction	2014	2015	2016	2017	2018
Winnipeg	$ 1,098	$ 994	$ 879	$ 850	$ 898
Calgary	$ 1,053	$ 1,053	$ 1,053	$ 1,053	$ 1,053
Regina	$ 1,724	$ 1,906	$ 1,906	$ 1,906	$ 1,906
Toronto	$ 1,822	$ 1,728	$ 1,585	$ 1,377	$ 1,395

50 year old male One at fault claim in the last year and claims and convictions free prior to that

Jurisdiction	2014	2015	2016	2017	2018
Winnipeg	$ 1,206	$ 1,092	$ 962	$ 931	$ 984
Calgary	$ 1,267	$ 1,267	$ 1,267	$ 1,267	$ 1,267
Regina	$ 1,768	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Toronto	$ 4,033	$ 4,237	$ 4,209	$ 3,701	$ 3,877

The 2018 rates are based on the most commonly registered touring motorcycle in Manitoba, 2013 Harley Davidson FLHX Street Glide , $500 collision deductible, $500 comprehensive deductible, $2 million third-party liability

Previous to 2018, the 2012 Harley Davidson FLHX was the most commonly registered touring motorcycle

The minimum, maximum, median, 25th percentile, and 75th percentile information requested does not exist for motorcycle rates. Currently, there is no single third party data service that provides comparative rates from private insurers for motorcycles in Canada, as exists for auto insurance rates. Therefore, the motorcycle comparative rates are single rate quotes, and are not based on an average.

For all rate comparison macro-mandate metrics, MPI continues to excel; the yearly comparison of rates within Canada provides validation of this. MPI's rates have resulted in insurance rates being amongst the lowest of all vehicle insurers in Canada.

BMK.4.3.2 Basic returns at least 85% of premium revenue to Manitobans in the form of claims benefits

The second key macro-mandate metric for MPI is that the Basic plan returns at least 85% of premium revenue to Manitobans in the form of claims benefits.

One of the most straightforward and effective ways of comparing public auto insurance programs is to look at each premium dollar and how much was returned to the ratepayer in the form of claims payments/benefits. This provides a lateral and accurate comparison while removing the impact of variables, such as:

- Different levels of coverage
- Different pricing and claiming practices
- Different governance and ownership models
- Different marketing and underwriting methods

Figure BMK- 7: Premium Returned for Each Dollar Earned[4]

Line No.	Year	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
1	Premium returned for each dollar earned	1.04	1.14	1.09	0.93	1.10	0.96

MPI has consistently returned from 95% to 110% of every premium dollar earned and thus, averaged over the 85% target.

[4] Premiums returned in the form of claims benefits is comprised of net claims incurred, claims expense, and road safety and loss prevention expenses.

Figure BMK- 8: Net Claims Incurred as a Percentage of Premiums Earned[5]

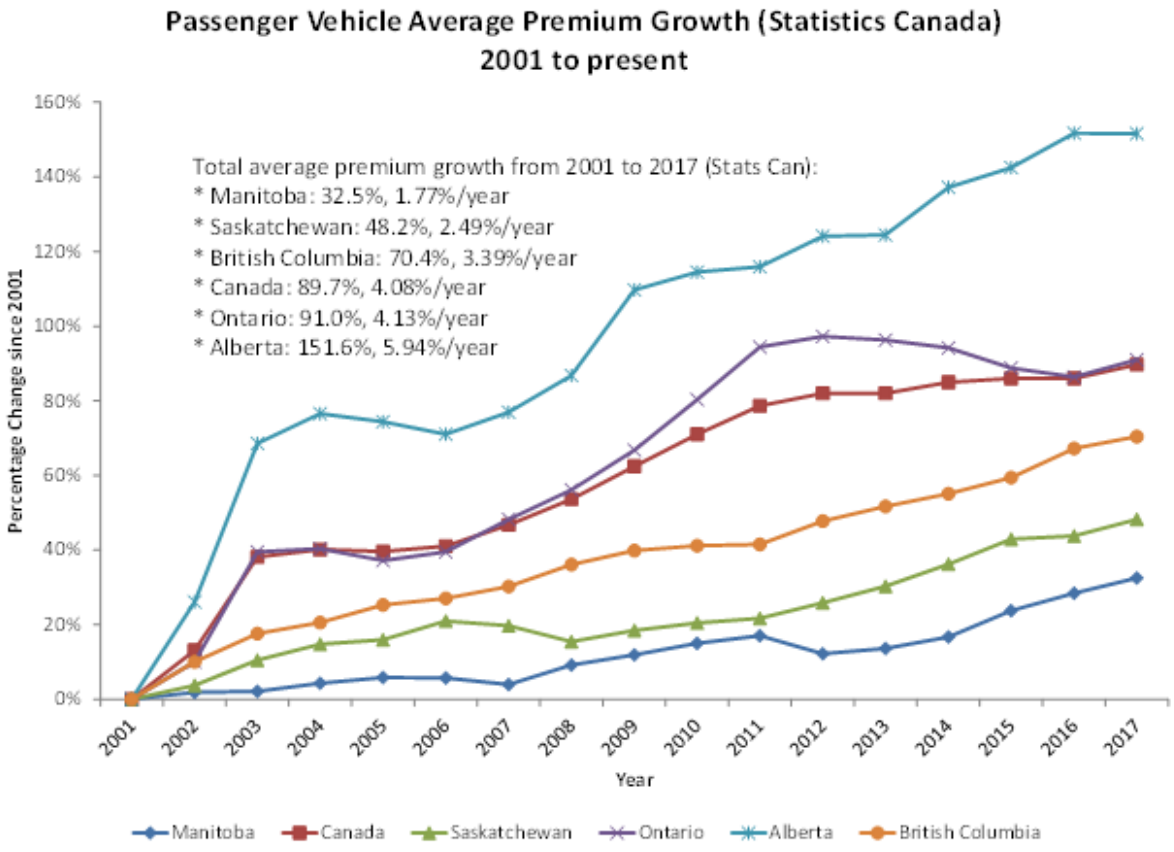
Line No.	Year	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
1	Net claims incurred as a % of premiums earned	0.87	0.98	0.93	0.77	0.95	0.80

BMK.4.3.3 Lower annual increases in premium growth in comparison to other Canadian auto insurers

The third macro-mandate metric is that MPI's annual average premium growth is lower compared to other Canadian auto insurers. Since 2000/01, Manitoba's premium growth rate has been consistently lower when compared to the growth rates of other Canadian auto insurers and to the national average (currently, 1.77% per year for Manitoba).

[5] Net claims incurred is an estimate of the amount of outstanding liabilities over a given valuation period. It includes all paid claims during the period plus a reasonable estimate of unpaid liabilities.

Figure BMK- 9: Passenger vehicle average premium growth



BMK.5 IT SERVICE DELIVERY CAPABILITY

IT Service Delivery Capability refers to the effectiveness and maturity of a corporation in terms of its IT organization, processes and infrastructure. This measure includes both operational effectiveness indicators (IT spending and IT staffing) and ratings that evaluate the effectiveness of the IT organization to deliver on the needs of the business (IT Score ratings, formerly CIO Scorecard ratings methodology – see section *BMK.5.4.3* for further information).

IT Service Delivery Capability is an important measure, as it demonstrates whether an organization has enhanced processes and capabilities in place to overcome obstacles quickly, to minimize operational risks, and to provide ongoing cost effective operation and service to customers.

Results must be examined within the context of MPI's business model and current corporate priorities that guide IT initiatives. The analytic challenge is that MPI is a hybrid organization – it is an insurer, but our public mission is to serve Manitobans, not maximize revenues.

Overall, Gartner benchmarking results indicate that MPI continues to improve its Maturity (at a 3.9% CAGR over 5 years using the ratings from the CIO Scorecard). IT Spending relative to operating expenses has continued to decrease annually. With a reduction in the current project portfolio, it is expected that going forward personnel spending (specifically consultants) will also decrease. In line with Gartner recommendations and subsequent to conducting a comprehensive review of Business Process Management and associated expenses, MPI has redirected its focus on further developing Enterprise Architecture capabilities to advance corporate IT maturity.

Methodology

For IT benchmarking, MPI engages Gartner Consulting, a leading information technology research and advisory company (see *Part IV(i) Benchmarking Attachment A*). Founded in 1979, Gartner is headquartered in Stamford, Connecticut, USA, has 380,000 client interactions, and more than 1, 900 research analysts and consultants.

The objectives of the Gartner benchmarking engagement are as follows:

1. Communicate how MPI's IT resources are utilized and focused on helping the organization run, grow and transform the company.

2. Evaluate the relative maturity of the IT organization in critical IT disciplines.

3. Demonstrate that the IT organization can quickly react to rapidly changing business requirements and make calculated IT investments that will pay off in the future.

4. Compare relative funding levels of IT at MPI and the distribution of those budget expenditures.

For this exercise, MPI was benchmarked against 12 peer organizations that vary annually. Six of these organizations updated their data from 2015/16 and these updates are included in the peer group averages. The peer group is determined by the role IT plays in the enterprise and consists of organizations within the insurance and provincial government areas that are comparable in size to MPI.

BMK.5.1 IT Spending

BMK.5.1.1 IT Spend as a Percentage of Operating Expense

IT Spend as a percentage of operating expenses is a measure of IT's role in the business, and a measure to assess the comparative level of spending with industry peers. Organizations can use this data to assess the level of spending in their environment and the distribution of spending between applications and infrastructure.

The value of this measure is that it assists in identifying the competitiveness of investment levels relative to operating expenses, a fundamental measure of business performance relative to MPI and other government entities.

Since 2015/16, Gartner has recommended that MPI focus on IT Spend as a percentage of Operating Expenses, rather than Revenue. The rationale is that examination within this parameter gives a more accurate picture of IT spending as MPI's mandate is not focused on maximizing revenues and further, revenues are impacted by investments as compared to its peers within the industry.

Figure BMK- 10: IT Spend Analysis

Line No.	Metric	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Peer Average 2016/17
1	IT Spend as % of Business Operating Expenses	6.9%	5.4%	6.1%	5.4%	4.8%

Observation

MPI's IT Spend as a Percentage of Operating Expenses has stabilized in recent years. This metric rose from 5.4% in 2014/15 to 6.1% in 2015/16 due to a reduction in operating expenses, before decreasing to 5.4% in 2016/17. Although the IT budget has increased, it has done so to a lesser extent than business operating expenses.

Compared to the peer groups (4.8%), MPI's IT Spend relative to operating expenses is slightly higher (5.4%).

As IT operations continue to mature, MPI expects that they will increase business efficiencies and lower overall operating expenses. MPI also continues to exercise a measure of control over its 3rd party service providers through licensing agreements, reporting, the use of consultants to monitor IT Spend, and ensuring that benefits are captured. Furthermore consistent with leading practices, MPI has formed a single consolidated unit overseeing the management of its major IT vendor contracts for the purposes of standardization and identification of opportunities for improvements and cost efficiencies.

BMK.5.1.2 IT Spend to Run, Grow, and Transform the Business

The distribution of IT spending to "run the business," "grow the business" and "transform the business" provides a view of the IT investment profile to support business performance. Classifying IT spending into categories that show impact on business outcomes or success can aid alignment and quantify under-investment in IT. Gartner uses the following portfolio spending categories and defines them as follows:

Run the Business

Run-the business IT initiatives are aimed at essential (and generally non-differentiated) business processes. The objective of a run-the-business initiative is to improve or maintain the desired balance among cost, quality and risk for these essential processes.

Grow the Business

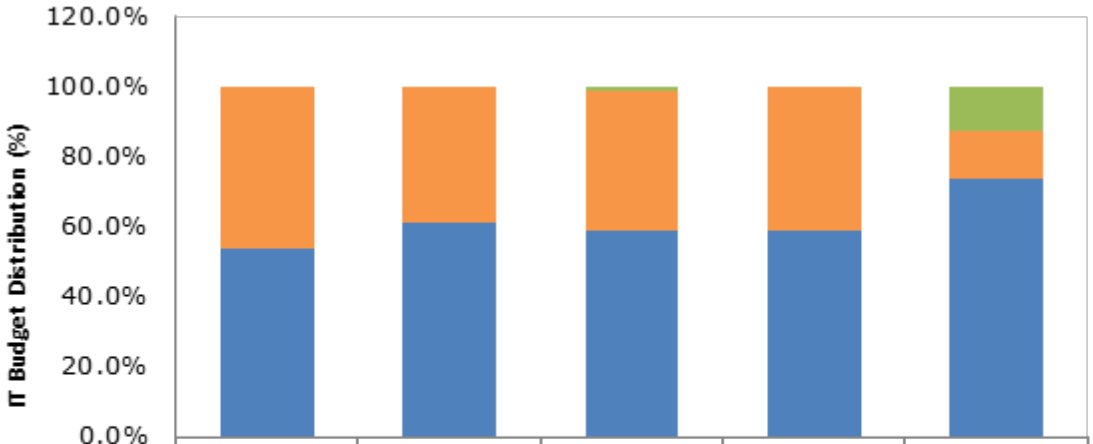
Grow-the-Business is an indicator of how much IT resource is consumed and focused on developing and enhancing IT systems in support of business growth (typically organic growth).

Transform the Business

Transform-the-business is an indicator of how much IT resource is consumed and focused on implementing technology systems that enable the enterprise to enact new business models. According to Gartner methodology, this metric is defined as a "venture" category and would be represented by activities such as brick-and-mortar retailers moving to online shopping; a traditional bank offering online banking (or offering insurance services); or a commercial airline offering new freight services.

A Run-Grow-Transform analysis can determine whether the IT budget properly reflects IT's designated role in achieving the organization's mission. Please see *Part IV(i) Benchmarking Appendix 01* for the current recommendations related to running, growing, and transforming the business.

Figure BMK- 11: IT Spend to Run, Grow and Transform the Business



	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Peer Average 2016/17
Transform	0.0%	0.0%	1.6%	0.0%	12.5%
Grow	46.0%	39.0%	39.7%	41.0%	14.0%
Run	54.0%	61.0%	58.8%	59.0%	73.5%

Observation

The Corporation's proportion of IT Spend on activities that are focused on running the business (vs. growing and transforming) is lower than the peer group. The proportion of IT spend related to growing the business exceeds that of the peer group average.

MPI spending on transforming the business is lower than the peer group average and is not expected to increase as its mission is not to diversify and acquire additional lines of business. As "Catch-up" investments stabilize the run the business metric has remained stable as the focus is on business improvements.

When making investments to grow and improve business, MPI will continue to focus on effective execution to maximize benefits. MPI has taken steps by forming senior leadership committees to oversee vital processes such as Vendor Management and Enterprise Architecture. Additionally, another way this is achieved is through the Value Management process. In taking on projects to add value, MPI follows a systematic value management process which ensures that results and benefits are realized at the various steps within each project. For more detail on the Value Management process please see *Part IV (ii) Value Management*.

BMK.5.2 IT Staffing

It is critical for organizations to understand whether their IT departments are staffed adequately, if their human resources are effective, and whether they are sufficiently trained and motivated to meet changing business needs. The following metrics provide a broad view of IT staffing with regards to internal support and IT hiring strategy.

BMK.5.2.1 MPI's IT FTEs as a Percentage of Company Employees

The percentage of IT employees in the company compared to the total number of employees is a key measure of how critical IT support is to the business. This measure can be heavily influenced, however, by an organization's level of outsourcing. Organizations with high levels of manageability and automation should require fewer operational staff. A higher ratio of IT staff may indicate that more business processes are supported by technology leading to a more efficient overall operation.

Figure BMK- 12: IT FTE as % of Company Employees

Line No.	Metric	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Peer Average 2016/17
1	IT FTE as a % of Company Employees	17.2%	16.6%	16.7%	17.0%	13.0%

Observation

The IT FTE as a percentage of Company Employees ratio has remained relatively consistent from 17.2% in 2013/14 to 16.6% in 2014/15 and 16.7% in 2015/16. It has since increased to 17.0% in 2016/17.

MPI's IT FTEs as a Percentage of Company Employees ratio remains higher than the peer average but this ratio should be considered within the context of the overall enterprise labour sourcing strategy and future-state objectives. In 2016/17, the high ratio is reflective of a number of IT initiatives undertaken by the Corporation. Going forward, MPI has reduced a number of IT initiatives and as a result, a reduction in the proportion of consultants is expected. For more information please see *Part IV Information Technology IT.3, page 5.*

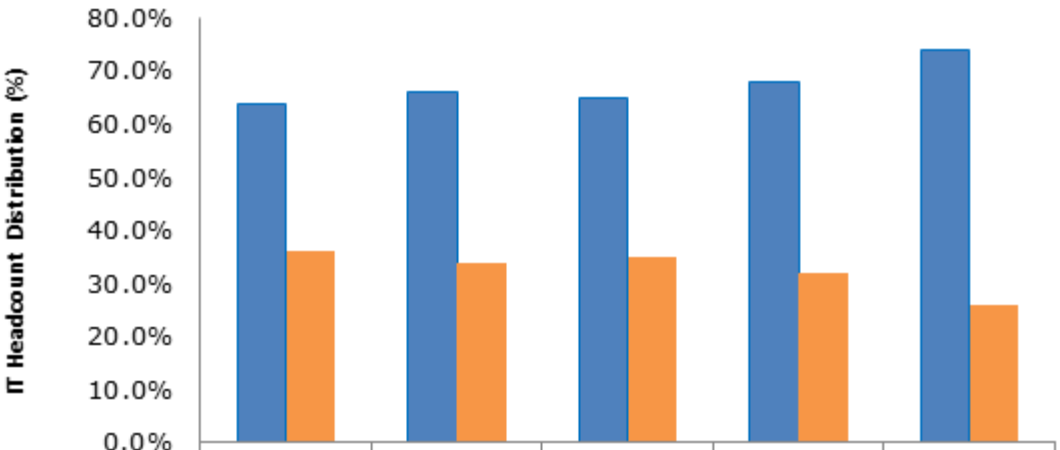
BMK.5.2.2 In-House vs. Contractor IT FTEs

In-house employee vs. independent contractor[6] ratio provides another view of the IT staffing strategy.

IT contract labour or contractor usage can be an effective approach to maintaining flexibility and agility when business conditions are changing. However, retaining contractors for extended periods can be costly and can limit process standardization.

[6] Contractor is Gartner terminology, whereas MPI refers to the term Consultant.

Figure BMK-13: In-house vs. Contractor Distribution



	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Peer Average 2016/17
In-house	64.0%	66.0%	65.1%	67.9%	74.2%
Contractors	36.0%	34.0%	34.9%	32.1%	25.8%

Observation

From 2013/14 to 2016/17 MPI has decreased the proportion of its consultants. This metric decreased from 36.0% in 2013/14 to 32.1% in 2016/17, which is higher than the peer group (25.8% in 2016/17).

The higher consultant ratio is reflective of a greater number of IT initiatives undertaken by the Corporation in the stated years. As previously stated, MPI has reduced its project portfolio and decreases in the number of consultants are expected going forward. Through the formation of a consolidated vendor management unit, MPI will continue to be vigilant in monitoring its outsourcing and consultant usage levels, and take added precautions to ensure appropriate knowledge transfer to ensure internal resources can be used going forward.

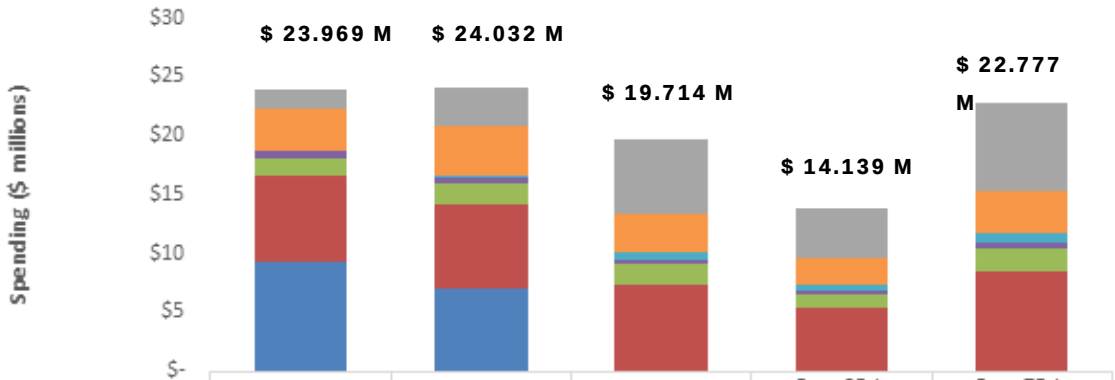
For additional description of work being done to replace external labour with internal staff please see *Part IV Information Technology IT.3, page 5.*

BMK.5.3 Infrastructure and Operations Spending

The Infrastructure and Operations metrics evaluate spending related to essential corporate operation components within IT. It focuses on the delivery of both personal computing (i.e., desktop, printers, scanner etc.) and enterprise computing (i.e., data center, operational security, networking and connectivity, etc.) to the enterprise.

BMK.5.3.1 Infrastructure and Operations Spending by Cost Category

Figure BMK-14: Infrastructure and Operations Spending by Cost Category



	MPI 2016/17	MPI 2015/16	Peer Average	Peer 25th Percentile	Peer 75th Percentile
Hardware	$1.6	$3.3	$6.3	$4.3	$7.4
Software	$3.6	$4.1	$3.3	$2.3	$3.7
Disaster Recovery	$0.1	$0.2	$0.7	$0.5	$0.8
Occupancy	$0.5	$0.6	$0.4	$0.3	$0.5
Transmission	$1.5	$1.8	$1.8	$1.2	$2.1
Personnel	$7.4	$7.2	$7.3	$5.4	$8.4
Unallocated	$9.2	$7.0	$-	$-	$-

Observation

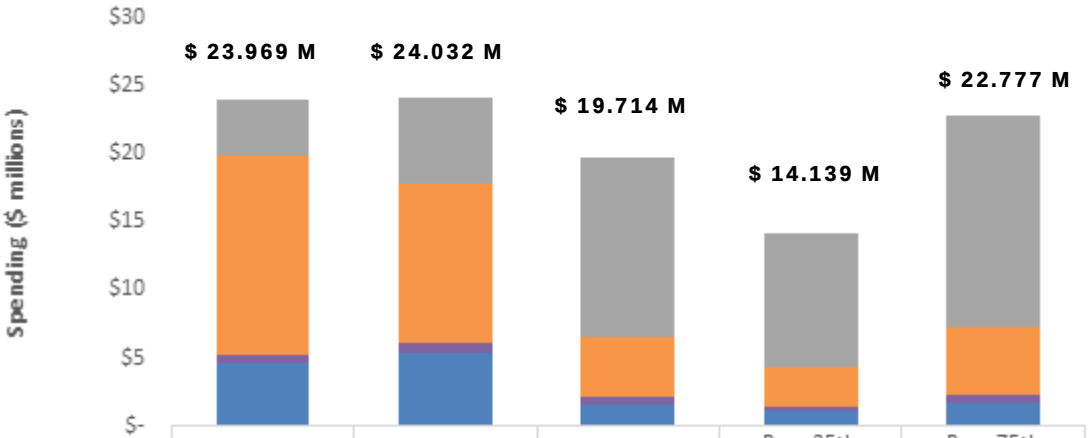
In 2016/17, MPI's overall Infrastructure & Operations Spending ($24.0 million) is higher than the peer group average ($19.7 million), with outsourcing costs being the main contributor. This component is comprised of labour and additional 3rd party

services, namely IBM, who is a top-tier provider of expertise and facilities. MPI will continue to partner with IBM to optimize costs within this area.

Since 2015/16, MPI has decreased spending on majority of the cost categories, thus narrowing the gap between its own performance and that of its peers. The unallocated cost category and $9.2 million encompasses the outsourcing expenses after Transmission and Personnel are removed.[7] The outsourcing for the peer groups is included within the allocated categories. Occupancy and software provide opportunities for cost savings.

BMK.5.3.2 Infrastructure and Operations Spending by Sourcing Type

Figure BMK-15: Infrastructure and Operations Spending by Sourcing Type



	MPI 2016/17	MPI 2015/16	Peer Average	Peer 25th Percentile	Peer 75th Percentile
Insourced	$4.1	$6.2	$13.2	$9.8	$15.5
Outsourced	$14.7	$11.7	$4.4	$2.9	$4.9
Contractor	$0.5	$0.8	$0.5	$0.4	$0.6
Maintenance	$4.6	$5.3	$1.5	$1.1	$1.7

[7] Gartner assumes 30% of the outsourced amount in the unallocated category is for personnel.

Observations

MPI's spending on Outsourcing costs increased from $11.7M in 2015/16 to $14.7M in 2016/17. This is due to expenses related to external labour and 3rd party service providers. Across all other components, MPI's expenses decreased. Both Outsourced and Maintenance expenses are significantly higher than the peer group average for Infrastructure and Operations. As stated previously, MPI will continue to focus on effective vendor management with respect to 3rd party service providers in addition to a reduction in its project portfolio. Taken together, future improvements in outsourcing spending are expected. Please see *Part IV, Information Technology IT.3, page 5* for further details on the labour strategy.

BMK.5.4 IT Maturity Ratings (CIO Scorecard)

The IT Maturity ratings (CIO Scorecard) serve to evaluate the effectiveness of the IT organization to deliver on the needs of the business. The CIO Scorecard rating examines MPI's maturity levels across eight key disciplines and compares them to the insurance industry benchmark. Ratings are based on a scale of 1 to 5 with 5 as most mature. Increasing maturity in each of the eight areas is the result of improving the efficiency and effectiveness within both IT and MPI. For example, mature organizations ensure IT governance efforts are focused on capturing benefits realization from its IT investments in the form of lower operating expenses or revenue growth.

It is important to note that Gartner has transitioned to a new methodology (called the IT Score), which improves on the existing CIO Scorecard maturity ratings. As a result, this is the last year the CIO Scorecard maturity ratings will be presented[8].

[8] Due to Gartner's transition to the new IT Score surveys, the Insurance Average data is considered out of date as other companies are no longer submitting data using the prior methodology. As such, the CIO Scorecard maturity ratings should be viewed in the context of trending only and not benchmarking.

Figure BMK- 16: CIO Scorecard Maturity Ratings

Line No.	Metric	Evaluation Capability	MPI 2013/14	MPI 2014/15	MPI 2015/16	MPI 2016/17	Insurance Average 2016/17
1	5.4.1	Infrastructure & Operations	2.6	2.9	3.0	3.1	2.2
2	5.4.2	Cost Containment	2.8	3.0	3.1	3.2	2.5
3	5.4.3	Applications Organization	2.8	2.8	2.9	3.2	2.8
4	5.4.4	Business Process Management	1.4	1.6	1.6	1.6	1.8
5	5.4.5	Enterprise Architecture	3.1	3.2	3.2	3.2	2.5
6	5.4.6	Open Innovation Readiness	3.8	3.8	4.1	4.1	2.5
7	5.4.7	Effectiveness/Innovation Enterprise Viewpoint	4.0	4.0	4.1	4.1	3.2
8	5.4.8	Effectiveness/Innovation IT Organization Viewpoint	3.7	3.8	3.9	3.9	3.2
9	5.4.9	Overall Score	3.2	3.3	3.4	3.5	2.8

Observations

MPI increased its overall CIO Scorecard maturity rating from 3.42 in 2015/16 to 3.52 in 2016/17. This is a result of increases in three of eight components, with the remaining five categories indicating no change in maturity. MPI's Business Process Management (BPM) score remained the same in 2015/16 and 2016/17 at 1.60, and remains an opportunity for improvement. Gartner previously defined BPM as an emerging discipline that leverages various methods to discover, model, analyze, measure, improve and optimize business processes. Overall, BPM is used to align Information Technology and Operational Technology investments to business strategy. Gartner has since revised its methods in assessing BPM (Please see *BMK 5.4.4 IT Score*). In accordance with Gartner recommendations and its own thorough review, MPI has decided to defer emphasis on BPM and redirect focus to the increased development of Enterprise Architecture (EA) capabilities.

MPI's increase in overall CIO Scorecard maturity ratings demonstrates the effectiveness of its IT organization in both supporting and executing business requirements, specifically in the areas of Applications and Infrastructure and Operations. Overall, the annual trending results confirm that MPI IT Governance

efforts and Value Management are focused on linking projects to business value and are ensuring benefits realization from IT investments.

BMK.5.5 IT Score

Previously, the CIO Scorecard was used to assess MPI's process maturity. This methodological approach has since been discontinued by Gartner. The current tool recommended by Gartner for IT maturity assessments is the IT Score. The new measurement will provide a method for annual comparisons with current peer group data from the insurance industry, whereas the CIO Scorecard peer group data is no longer being collected. The IT Score uses a different methodology with additional elements and weightings that vary based on the capability being assessed. All capabilities are rated on a 5 point scale with higher scores indicating better performance.

In the new IT Score methodology it is important to note that BPM has been conceptually modified to reflect an industry change in focus where IT organizations have shifted from business process maturity to an emphasis on improving the partnership between IT and the business itself. According to Gartner, "All enterprise leaders (not just CIOs and IT leaders) must adapt and drive change in order to mature overall maturity beyond level 3 which is a critical step in surviving and exploiting digital business". As a result, BPM is rolled up into the Executive View component to reflect the Corporation's ability to leverage IT for business value.

Similar to BPM, EA has changed for the IT industry in terms of maturity and scope and Gartner has made changes to the way in which this metric is measured. For this reason MPI scores higher on EA in the previous CIO Scorecard maturity ratings but lower in the new IT Score methodology. The two cannot be directly compared as they are measuring the EA capability differently.

Figure BMK-17: IT Score Ratings

Line No.	Metric	Evaluation Capability	MPI 2016/17	Insurance Average 2016/17
1	5.5.1	Executive View	3.4	
2	5.5.2	Applications Organization	2.4	2.4
3	5.5.3	Enterprise Architecture	2.3	3.0
4	5.5.4	Infrastrcuture and Operations	2.7	2.5
5	5.5.5	Vendor Management	3.0	2.5
6	5.5.6	Program and Portfolio Management	3.6	2.8
7	5.5.7	Privacy	4.1	3.3
8	5.5.8	Information Security	3.6	3.0
9	5.5.9	Enterprise	3.1	

Observations

Gartner does not provide benchmarks for the Executive View and Enterprise capability as these assessments are based on a combination of various survey types across participants and not a single survey.

In 2016/17, MPI's overall maturity level is assessed at 3.1 using the IT Score methodology[9]. Furthermore, MPI scores above the insurance average in all but two capabilities. It is on par with the insurance average in Applications Organization with a score of 2.4. EA maturity is lower than the insurance average where MPI scores at 2.3 compared to 3.0 (peer). MPI has increased its governance including regular reviews of all major enterprise architecture decisions, increased engagement with key business stakeholders on major initiatives, and increased Executive awareness activities related to EA. Taken together these initiatives will help establish a more mature EA going forward.

[9] Although MPI's IT maturity score is higher (3.52) using the CIO Scorecard during the same period, the methodologies and associated metrics are different and thus cannot be directly compared.

BMK.6 SERVING MANITOBANS

MPI receives feedback on the service we provide from both customers and the general public. In achieving excellence in customer service, MPI aims to position itself as a strong corporate citizen by offering quality products and services.

Overall, the benchmarking results indicate that MPI continues to perform very well in meeting the needs of Manitobans.

Methodology

The Public Perception Benchmarking Measures are assessed through a telephone survey that collects public feedback on various aspects of the Corporation and its role as the provincial vehicle insurer. Public responses are collected by a third-party research firm that randomly selects residents from Manitoba in addition to those residing in other Canadian jurisdictions. The collection of data from the benchmark provinces is done biennially.

The Customer Service Trending Measures assessing overall customer satisfaction are collected through telephone surveys that measure satisfaction with service provided across specific lines of business. Respondents who have recently used MPI services are randomly selected and interviewed for this purpose.

BMK.6.1 Public Perception Benchmarking Measures

BMK.6.1.1 Service when dealing with vehicle insurer[10]

Manitobans were asked to rate their level of agreement with a number of words that could be used to describe how they feel when dealing with their vehicle insurer. The '*feelings'* were identified by Manitobans in past focus groups, i.e. how they would like to feel when dealing with their ideal insurer. Currently (November 2017) about two-thirds say that when dealing with MPI they feel *protected* (69%), *confident* (68%), *comfortable* (65%), and *looked after* (65%). About six in 10 say they feel *relaxed* when dealing with MPI (57%). MPI scores are slightly below 2017/18 scores for SGI, but higher than 2017/18 ratings for ICBC.

Figure BMK-18: Feelings when dealing with insurance provider by province

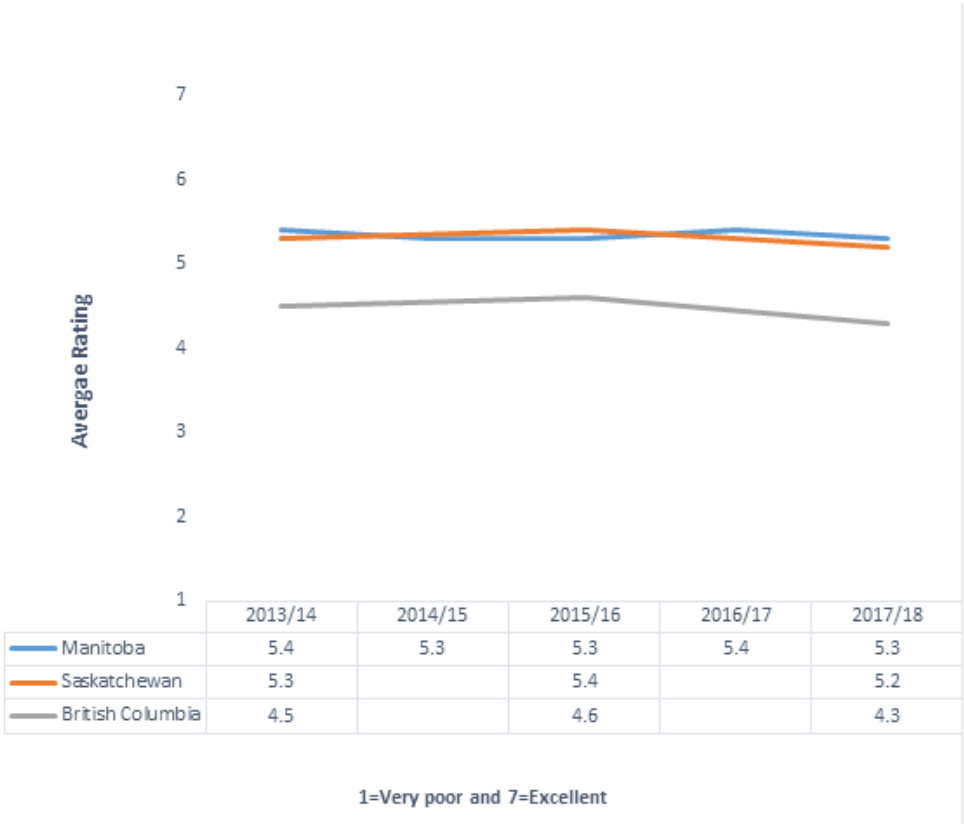
Line No.	Feeling	Manitoba 2017/18	Saskatchewan 2017/18	British Columbia 2017/18
1	Protected	5.0	5.0	3.9
2	Confident	4.9	5.0	3.7
3	Looked After	4.9	5.0	3.7
4	Comfortable	4.9	5.0	3.8
5	Relaxed	4.6	4.8	3.6
6	Average rating out of 7, where 1 is strongly disagree and 7 is strongly agree			

[10] The Western Province Poll (which measures the extra-provincial jurisdictions) is used to examine MPI's performance in relation to Saskatchewan and British Columbia and is conducted every second year.

BMK.6.1.2 Experience with vehicle insurer

Manitobans were asked to rate their experience when dealing with their vehicle insurer on a scale of 1 to 7, where 7 indicates an *excellent experience* and 1 means a *very poor* experience. Similar to past findings, about eight in ten Manitobans say they have had good experiences when dealing with MPI (77% in 2017/18). Current MPI ratings are slightly higher than SGI's (73% in 2017/18) while ICBC continues to receive the lowest rating for '*experience*' at 53% (2017/18).

Figure BMK-19: Average rating for experience when dealing with insurer: 2013/14-2017/18



	2013/14	2014/15	2015/16	2016/17	2017/18
Manitoba	5.4	5.3	5.3	5.4	5.3
Saskatchewan	5.3		5.4		5.2
British Columbia	4.5		4.6		4.3

BMK.6.1.3 Describing Vehicle Insurers

Manitobans were asked to rate their level of agreement with a number of words that could be used to describe their vehicle insurer. Results from 2017/18 show that most Manitobans said the following words describe MPI: *accessible* (82%), *trustworthy* (68%), *service-minded* (68%), *good value,* (65%) and *fair* (61%). About half agree that MPI is *caring* (55%), a *leader* (54%), and *innovative* (50%).

Historically, SGI and MPI have received similar ratings for all descriptors with ICBC receiving the lowest scores across all descriptors. MPI's current results trail slightly behind SGI's in 2017/18 but are higher than ICBC's 2017/18 scores.

Figure BMK-20: Agreement with descriptor of insurance provider by province

Line No.	Descriptor	Manitoba 2017/18	Saskatchewan 2017/18	British Columbia 2017/18
1	Accessible	5.5	5.6	4.6
2	Trustworthy	5.0	5.1	3.7
3	Good Value	4.8	4.9	3.5
4	Service Minded	4.9	4.9	3.8
5	Leader	4.6	4.7	3.4
6	Fair	4.7	4.8	3.5
7	Innovative	4.4	4.5	3.3
8	Caring	4.5	4.7	3.3

9 *Average rating out of 7, where 1 is strongly disagree and 7 is strongly agree*

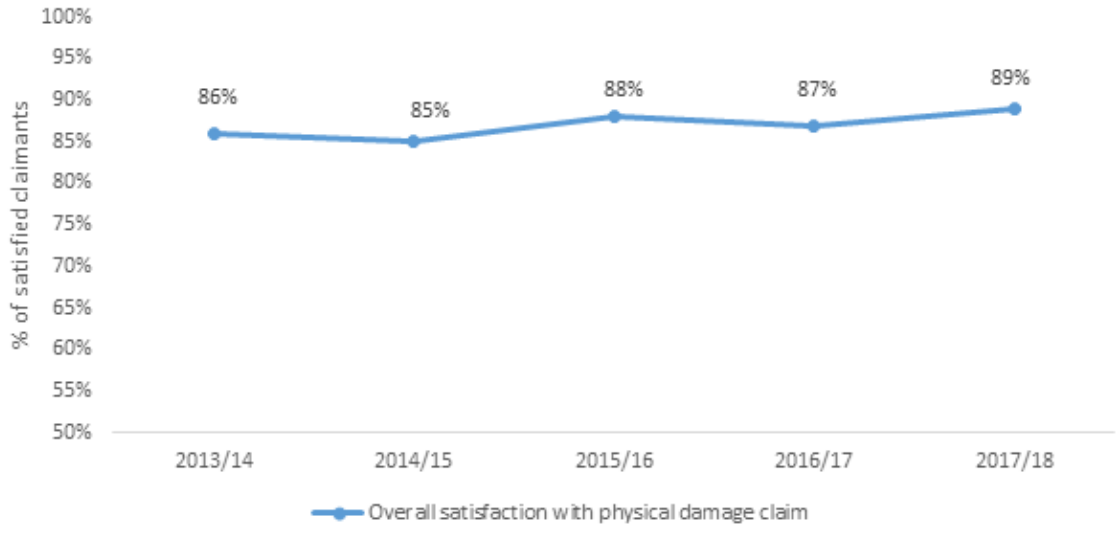
BMK.6.2 Customer Service Trending Measures

MPI uses a variety of surveys to monitor how well it is serving customers and claimants who receive services at MPI Service Centres or broker locations. The survey results indicate overall satisfaction with the service received.

BMK.6.2.1 Physical Damage Claimant Satisfaction Survey

The statistic 'overall satisfaction with physical damage claim' comes from the quarterly Physical Damage Claimant Satisfaction telephone survey. The annual statistic combines the four quarters from the fiscal year. A claimant is deemed to be satisfied if they provided a rating of 4 or 5 in response to the question "Using a 5 point scale where "1" means VERY DISSATISFIED and "5" means VERY SATISFIED, please rate your level of OVERALL satisfaction with respect to your most recent physical damage claim."

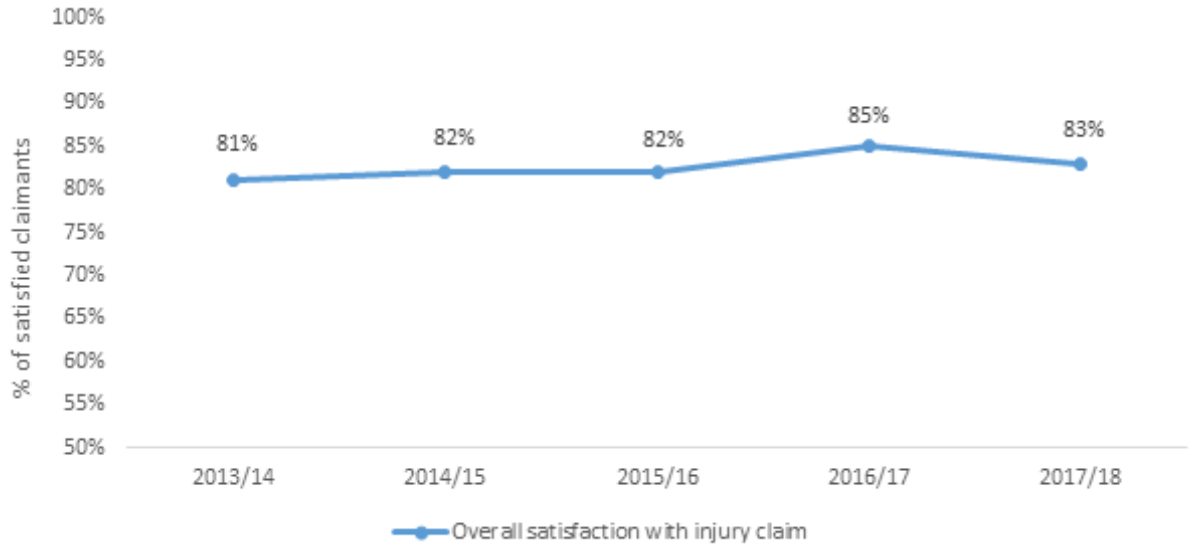
Figure BMK-21: Overall satisfaction with physical damage claim



BMK.6.2.2 Injury Claimant Satisfaction Survey

The statistic "overall satisfaction with injury claim" comes from the Injury Claimant Satisfaction telephone survey which is conducted twice a year. The annual statistic combines the two surveys from the fiscal year. A claimant is deemed to be satisfied if they provided a rating of 4 or 5 in response to the question "Using a 5 point scale where "1" means VERY DISSATISFIED and "5" means VERY SATISFIED, please rate your level of OVERALL satisfaction with respect to your most injury recent claim."

Figure BMK-22: Overall satisfaction with injury claim

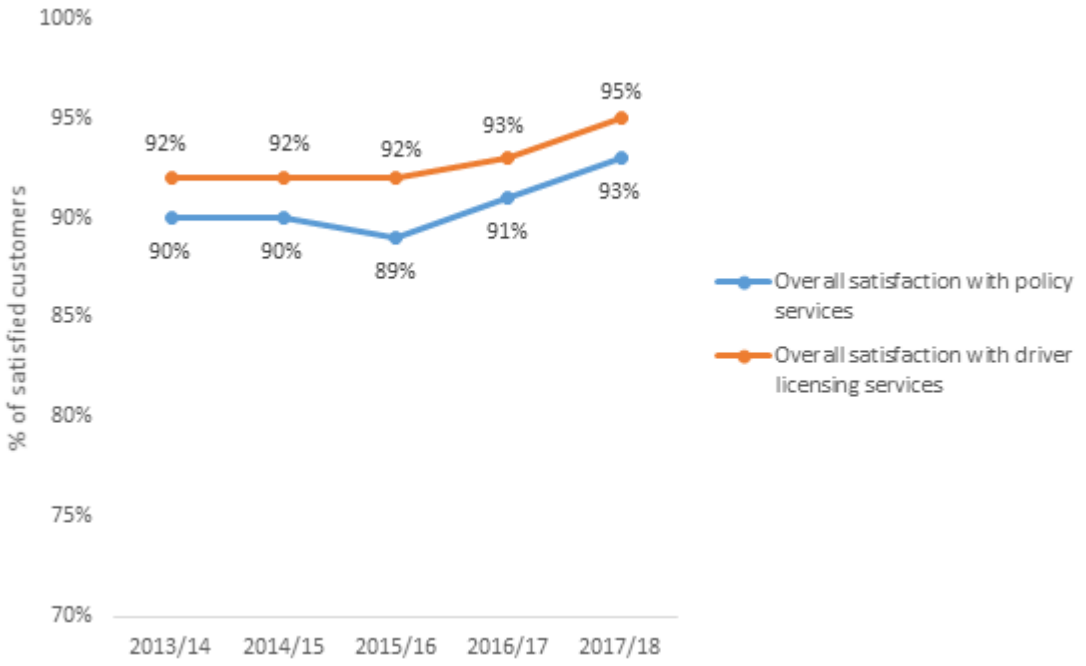


BMK.6.2.3 Insurance and Licensing Customer Satisfaction Survey

The following survey results are from customers visiting either an independent broker agency or an MPI Service Centre for a driver's licence and/or Autopac transaction.

Insurance and licensing customer satisfaction is measured quarterly from the Insurance and Licensing Customer telephone survey. The annual statistics combine the four quarters from the fiscal year. Customers who conducted either a policy transaction or a driver's licence transaction are deemed to be satisfied with the overall level of service they received at broker agencies or MPI Service Centres if they provided a rating of 4 or 5 in response to the question "Using a 5-point scale, where 1 means VERY DISSATISFIED and 5 means VERY SATISFIED, how would you rate your OVERALL satisfaction with the service you received?"

Figure BMK-23: Overall satisfaction with policy and driver licensing services



BMK.7 COMMUNITY IMPACT MEASURES

Community Impact measures are designed to assess general perceptions of MPI's performance as a corporate citizen. In addition, MPI consistently monitors self-reported road safety behaviors to identify areas for improvement and to increase the effectiveness of its advertising and educational programs.

Overall, MPI's Community Impact measures are favourable, with a large majority of Manitobans polled having a favourable view of the Corporation.

Methodology

The Public Perception Benchmarking Measures are assessed annually through MPI's public polling which collects feedback on various aspects related to the Corporation's work as the provincial vehicle insurer. Public response is collected by a third-party research firm that randomly selects residents from Manitoba in addition to those residing in other Canadian jurisdictions.

Influencing Factors

- **Inclusion of Home Insurance:** A factor that may have some impact on scores in Saskatchewan is that the vehicle insurer in this province also offers home insurance. Across all western provinces, people are very favourable toward their home insurer, as compared to their phone company, hydro company, TV service provider and Worker's Compensation Board. The tendency to be favourable toward your home insurer would improve scores for a vehicle insurer if they are one in the same.

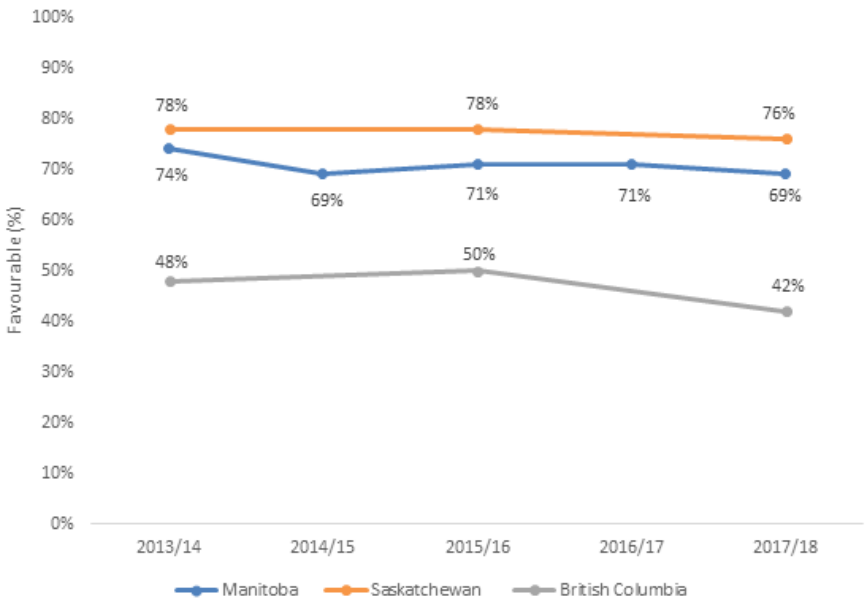
BMK.7.1 Benchmarked Public Perception

BMK.7.1.1 Public support for Manitoba Public Insurance

Manitobans were asked to rate how favourable they are toward their vehicle insurer on a scale out of 7, where 7 indicates very favourable and 1 is very unfavourable. The figure below shows the proportion of respondents who rate their vehicle insurer favourably (5 to 7 out of 7).

MPI's public support continues to be strong and stable; 69 percent of Manitobans have a favourable view of the Corporation, and the Corporation has an annual average mean public support score of 4.9 (out of 7). MPI's favourability score (69%) is below SGI's score (76% in 2017/2018) but well above ICBC's score (42% in 2017/2018). This rank order is consistent with results since 2007.

Figure BMK-24: Proportion of Residents who are favourable toward their vehicle insurer, by Province: 2013/14-2017/18

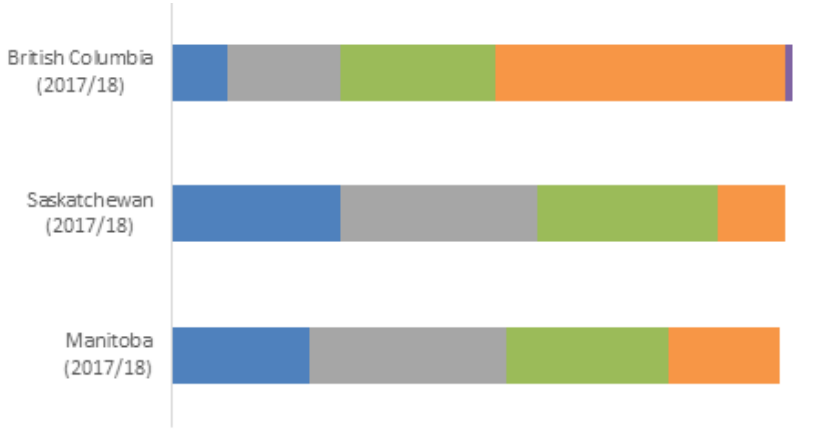


BMK.7.1.2 Value for Money

About six in ten Saskatchewan residents (61% in 2017/18) and Manitobans (57% in 2017/18) say that the cost of vehicle insurance has a positive impact on how they feel about their vehicle insurer. Only one-quarter of British Columbia residents say the same (25% in 2017/18).

People were asked to rate the extent to which they agree or disagree that their vehicle insurer provides them or residents of their province with good value for their money. Saskatchewan residents are most likely to say they get good value for their money from their vehicle insurer (59% in 2017/18). Slightly fewer Manitobans (55% in 2017/18) also agree with this statement. Manitoba's rating remains well above the rating for ICBC (27%) in 2017/18.

Figure BMK-25: Proportion who agree that their vehicle insurer provides good value, by province[11]



	Manitoba (2017/18)	Saskatchewan (2017/18)	British Columbia (2017/18)
Strongly Agree	22%	27%	9%
Agree	32%	32%	18%
Neutral	26%	29%	25%
Disagree	18%	11%	47%
Don't Know	0	0	1%

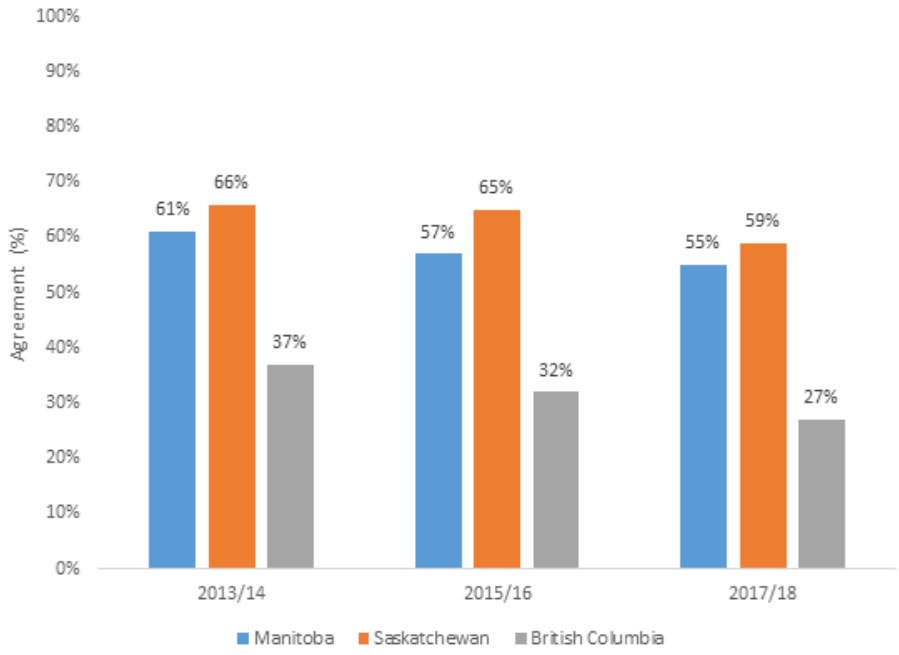
[11] "Don't know" options for Manitoba and Saskatchewan are both <1%. Manitoba's total may not equal to 100% due to rounding

BMK.7.1.3 Value for Money Over Time

The table below summarizes the proportion of residents that either agree or strongly agree that their vehicle insurer provides good value for their money (by province over time).

Since 2009/10, Saskatchewan residents are consistently most likely to say they receive good value for their money from their vehicle insurer. Currently, six in ten Manitobans also agree with this statement.

Figure BMK-26: Proportion who agree that their vehicle insurer provides good value, by province: 2013/14-2017/18



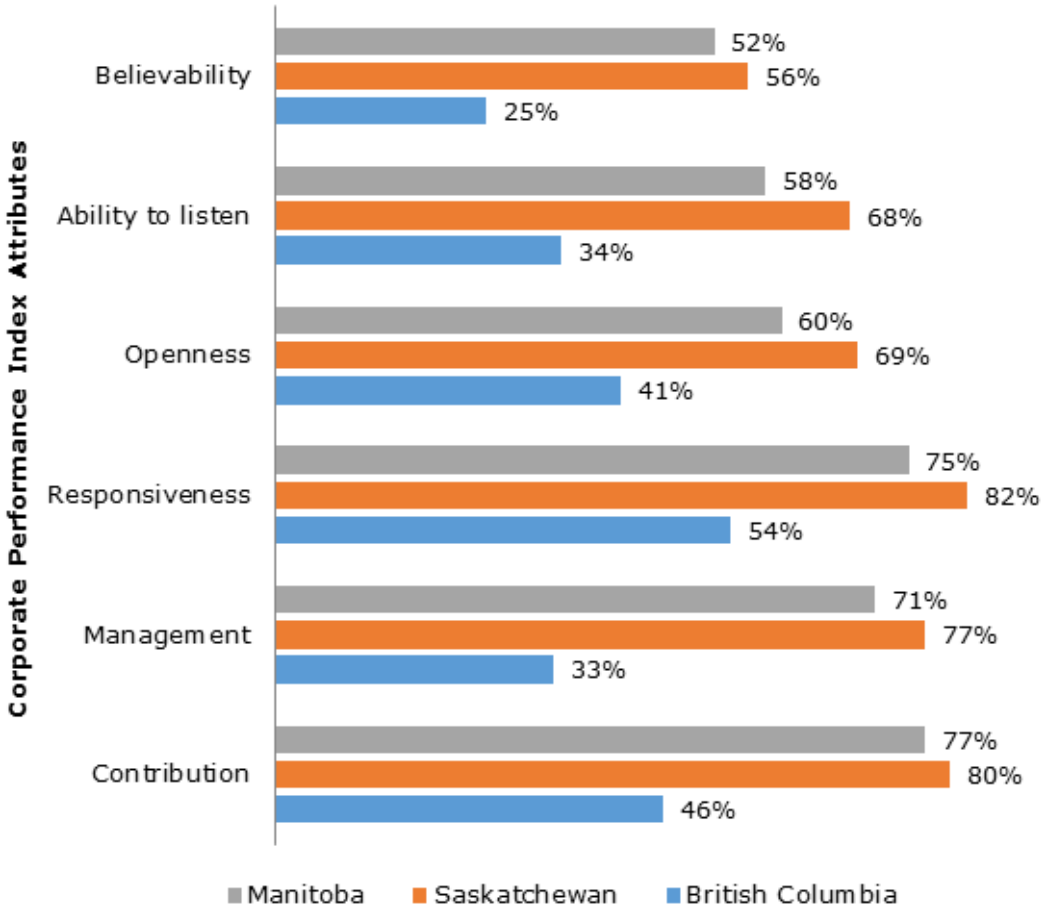
BMK.7.1.4 Corporate Performance Index

Manitobans were asked to rate their vehicle insurer on six attributes used to calculate the Corporate Performance Index. These attributes are:

- Overall management
- Social and economic contribution to the province
- Responsiveness to the public
- Listening to the concerns of the public
- Openness to new ideas
- Believability of the statements the Corporation makes to the public and in the media.

Taken together, MPI's Corporate Performance Index provides a valid and reliable measurement for corporate performance. MPI's scores are slightly lower than those of SGI but again higher than those of ICBC.

Figure BMK-27: Proportion of residents with positive ratings for Corporate Performance Index Attributes, by province: 2017/18

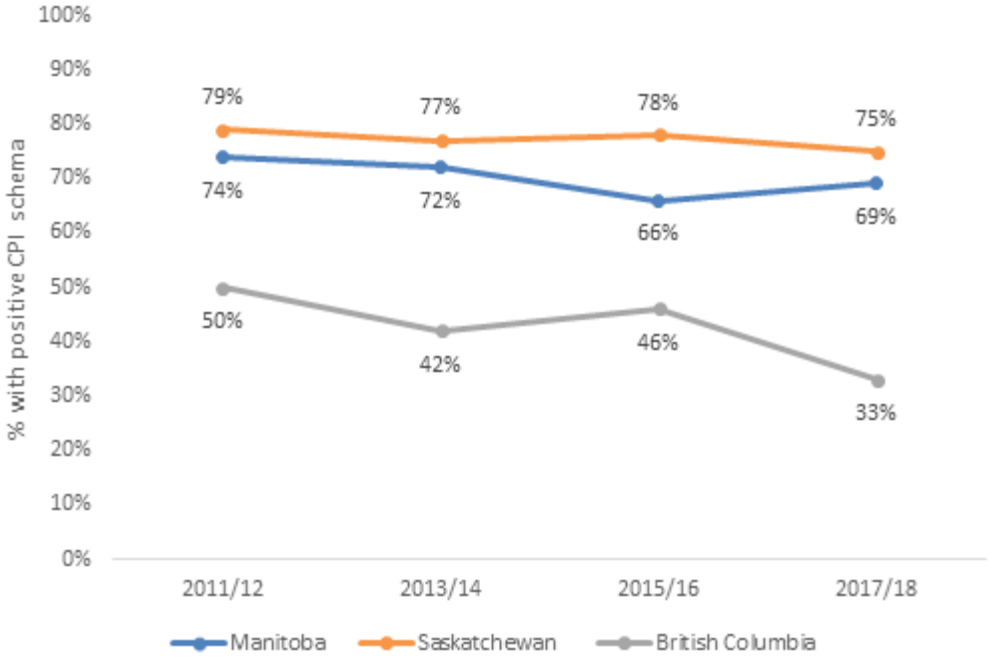


BMK.7.1.5 Overall Corporate Performance Index Over Time

Overall, Corporate Performance Index is calculated by averaging all six attributes.

The figure below shows the proportion of residents over time with a positive Corporate Performance Index schema by province. The proportion of Manitobans who have a positive Corporate Performance Index is 69% in 2017/18; this rating is below SGI's positive rating (75% in 2017/18) but above ICBC's rating (33% in 2017/18).

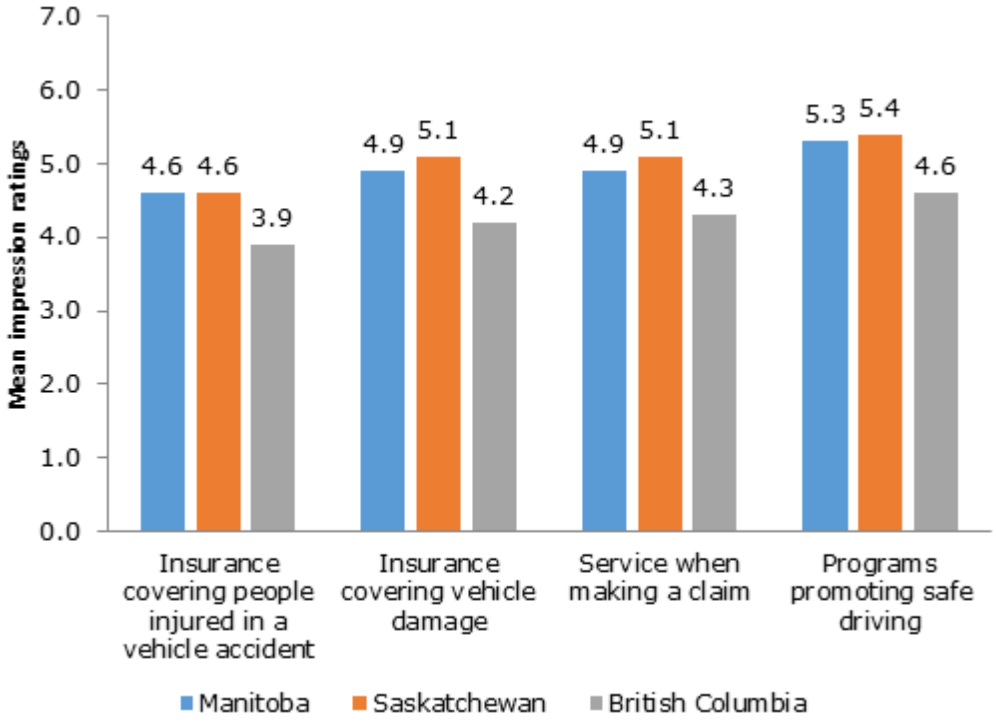
Figure BMK-28: Residents with positive consumer performance index



BMK.7.1.6 Products and Programs

Residents were asked to rate their impressions of several programs and products provided by their vehicle insurer. In each province, residents are most positive about their insurer's programs promoting safe driving and least positive about injury protection. Overall, MPI's scores are comparable to the scores for SGI and higher than the scores for ICBC.

Figure BMK-29: Mean scores for programs and products provided by vehicle insurers 2017/18



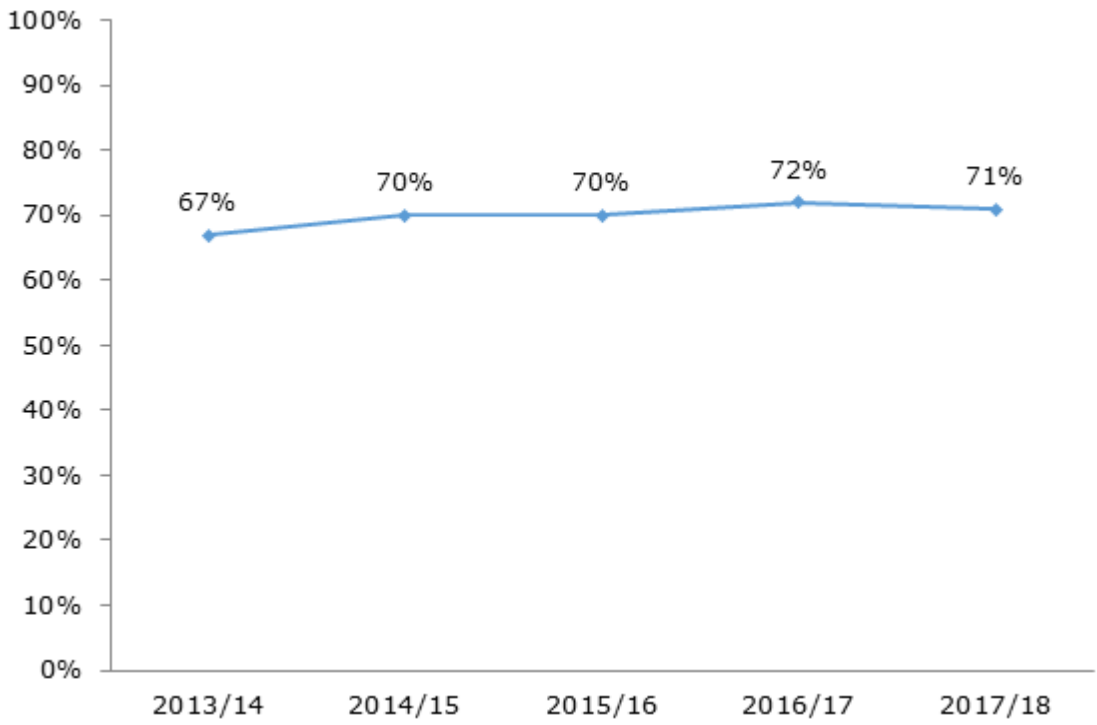
BMK.7.2 Road Safety Public Perception Measures

MPI consistently measures Manitoban's perceptions of its performance related to road safety in order to identify areas for improvement and to increase the effectiveness of its advertising and educational programs.

BMK.7.2.1 Success in Addressing Driving Safety

Manitobans were asked how successful MPI has been in addressing driving safety problems in the province. As shown in the chart below, about seven in ten Manitobans say the Corporation has been successful.

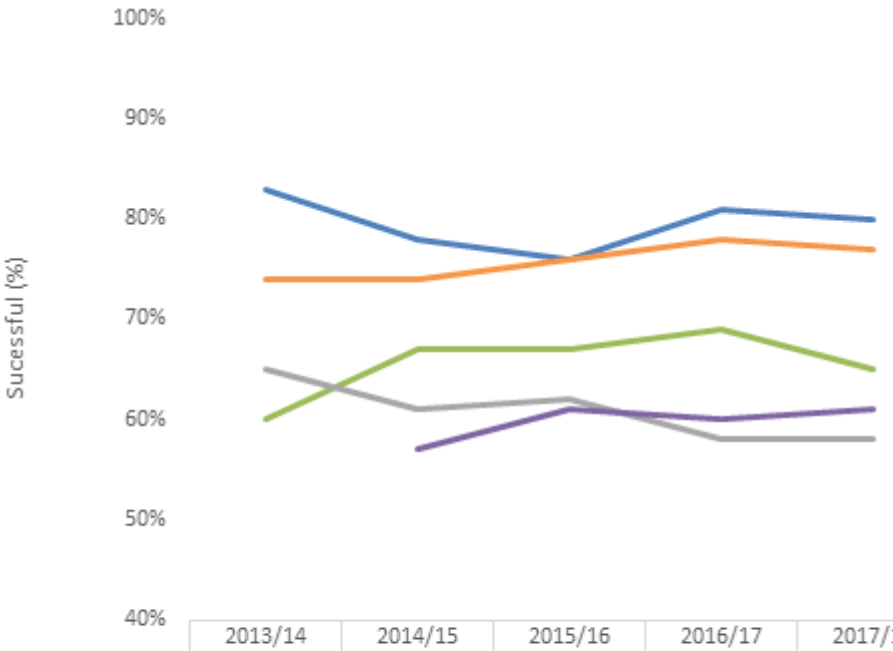
Figure BMK-30: MPI's Success in addressing driving safety issues: 2013/14-2017/18



BMK.7.2.2 Success Addressing Specific Driving Safety Issues in Manitoba

Manitobans were asked to rate (on a scale from 1 to 7, where 1 is very unsuccessful and 7 is very successful) how successful MPI has been in addressing specific driving safety problems in Manitoba. Results show that about eight in ten Manitobans say that MPI is successful in addressing seatbelt use and drinking and driving. About two-thirds say MPI is successful in addressing speed and close to six in ten say MPI is successful in addressing auto theft. In the past four years, the survey included a question on rating the success MPI had in addressing the use of cell phones while driving in Manitoba. About six in ten say that MPI is successful in these efforts.

Figure BMK-31: MPI's success in addressing driving safety issues: 2013/14-2017/18



	2013/14	2014/15	2015/16	2016/17	2017/18
Seat belts	83%	78%	76%	81%	80%
Drinking & Driving	74%	74%	76%	78%	77%
Speed	60%	67%	67%	69%	65%
Autotheft	65%	61%	62%	58%	58%
Handheld Cell Phone Use		57%	61%	60%	61%

Appendix 1: GARTNER'S RECOMMENDATIONS – STATUS UPDATE

As part of the annual scorecard review, Gartner provides MPI with recommendations to further improve process maturity where it concerns Information Technology (IT). These recommendations reflect industry best practices based upon Gartner research. Gartner provides recommendations for all subject areas, meaning that the presence of a recommendation does not represent an area where MPI is deficient (in several cases, Gartner has provided recommendations to areas where MPI exceeds its peer group). MPI reviews and acts upon these recommendations as part of its operational and project activities. All recommendations in this report, and changes made to previously provided recommendations are investigated and applied as resources (staff time and budget) allow. For readability, recommendations marked as rejected, complete or operational in the *2018 GRA information request PUB (MPI) 1-50* have not been included in this document.

As noted in *Part IV(i) BMK Benchmarking Attachment A, page 15* Gartner transitioned from the CIO Dashboard to the IT Score assessment tool. As part of this, Gartner conducted a review of all outstanding recommendations provided using the CIO Dashboard tool and confirmed that they remained appropriate and measurable using the IT Score tool. This resulted in the following changes:

- Where Gartner identified a recommendation as no longer applicable to MPI, it is identified as "Recommendation withdrawn by Gartner" in the table below.
- Where Gartner identified a new recommendation, based on a recommendation which was in the *2018 GRA*, it will be referenced in the Comments.
- Where Gartner identified a new recommendation, not based on previous recommendations, it will be found in *section 5 - New recommendations from IT Score*

The update of the Gartner Scorecard occurred in Q4 2017/18. In past years Gartner performed this exercise in Q3. The change in timing of the Gartner Scorecard results was due to resource constraints and prioritization of corporate initiatives and planning. Completing this scorecard requires input from several key leaders who were all

involved in the re-planning and strategy development that has been occurring. Management is working to move the timeline back from Q4 to Q3 in 2018/19.

Appendix 1: GARTNER'S RECOMMENDATIONS – STATUS UPDATE

#	Description	2019 Application Status	2018 Application Status	Current Status
1. In order for Manitoba Public Insurance (MPI) to better support running the business, MPI should consider:				
1.26	Benchmark service catalog to enhance transparency to the business and drive better IT Economics.	Recommendation withdrawn by Gartner	In Progress (Q4 – 2017-18)	MPI continues to document its key IT services and ensure that they are being delivered effectively. MPI has not been able to find sufficient data to facilitate external benchmarking of these services. At this time, this recommendation has been withdrawn by Gartner as part of their review of all outstanding recommendations.
2. In order for Manitoba Public Insurance (MPI) to better support growing the business, MPI should consider:				
2.06	Consider the acquisition and deployment of dependency mapping tools that connect the relationships between applications and infrastructure resources to business processes in order to ensure appropriate IT resources to support growth.	Recommendation withdrawn by Gartner	Deferred	This recommendation has been withdrawn by Gartner. Based upon a preliminary review of internal capabilities (existing tools and data sources) MPI does not see sufficient value in a tool purchase at this time.

2. In order for Manitoba Public Insurance (MPI) to better support growing the business, MPI should consider *(cont'd):*

#	Description	2019 Application Status	2018 Application Status	Current Status
2.07	Ensure the information needs meet the context of regulatory requirements in order to effectively support new projects.	Recommendation withdrawn by Gartner	New Request, To be evaluated (Q4 2017/18)	Upon further review with Gartner, MPI has confirmed that regulatory requirements are considered in projects. At this time, this recommendation has been withdrawn by Gartner as part of their review of all outstanding recommendations. MPI considers this complete and does not plan to review further.
2.08	Evaluate Bimodal approach that balances 'traditional and efficient' delivery of IT with 'fast and flexible' to address the needs of innovation.	Recommendation revised by Gartner	New Request, To be evaluated (Q4 2017/18)	Please see recommendation 5.08
2.09	Determine if the skills required for digital transformation exist within the organization or are needed from the outside (adaptive sourcing).	Complete	New Request, To be evaluated (Q4 2017/18)	Ensuring the organization has the right skills for current and future needs is an ongoing activity that MPI continues to undertake

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.02	Increase the span of Enterprise Architecture's (EA) influence throughout business areas by ensuring that governance processes exist and their importance is clearly communicated such that they are not circumvented. Often this involves building up stakeholder support.	See recommendation 5.02	Reworded by Gartner see 3.05	Gartner has consolidated this recommendation into 5.02 going forward.
3.03	Clearly communicate the value of enterprise architecture (EA), or its content, to the key stakeholders in terms that relate to their issues and proactively address their opportunities. This includes business management, key business stakeholders, key IT stakeholders and the overall enterprise architecture community. Look to build business outcome oriented deliverables and communicate success to drive ongoing support for EA.	See recommendation 5.02	Reworded by Gartner see 3.06	Gartner has consolidated this recommendation into 5.02 going forward.
3.04	Ensure that a culturally appropriate future state architecture exists, that a baseline of your current state exists, and a gap analysis is performed.	See recommendation 5.02	Reworded by Gartner see 3.07	Gartner has consolidated this recommendation into 5.02 going forward.

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.05	Plan the future state architecture to support MPI's goals of access and support for existing and new services.	See recommendation 5.02	On Hold (Review again Q4-2017/18)	Gartner has withdrawn this recommendation and includes the key points in recommendation 5.02. MPI is considering this recommendation as part of the Legacy Modernization business case.
3.06	Perform a baseline of the current state, and perform gap analyses as the architecture is implemented.	See recommendation 5.02	On Hold (Review as part of the budgeting process Q3-2017/18)	Gartner has withdrawn this recommendation and includes the key points in recommendation 5.02. MPI is considering this recommendation as part of the Legacy Modernization business case.
3.07	Continue to increase the span of EA's influence throughout business areas by ensuring that governance processes (as measured by process maturity) and their importance is clearly communicated such that they are not circumvented. Often this involves building up stakeholder support and requires clear communications regarding EA's value to the business.	See recommendation 5.02	In progress (Q4-2017/18)	Gartner has consolidated this recommendation into 5.02 going forward.

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.08	Evolve contracts with IT service providers so that these are aligned to business outcomes, transformation deliverables, and process performance. Consider a balanced scorecard approach to monitor and track progress.	See recommendation 5.09	To be evaluated (Q4-2017/18)	MPI did not complete an additional review of this recommendation, prior to the changes from Gartner. Gartner has consolidated this recommendation into 5.09 going forward.

4. In order for Manitoba Public Insurance (MPI) to be more effective and innovative, MPI should consider:

4.09	Communicate technical debt to IT and business leadership and develop a long-term program to remove it from the MPI environment (e.g. through increased adherence to technology standards and application re-use) and track the success of those efforts	See recommendation 5.01	In Progress (Q4 - 2017/18)	IT leaders presented an update on Application Portfolio Management to Executive in Q1 – 2018/19 which aligns to this recommendation. Additionally, MPI continues to invest in the Technology Risk Management program which is specifically focused on addressing technical debt. Going forward, this recommendation has been replaced by recommendation 5.01.
4.10	Develop 3 year staffing model to ensure key skills are available in-house to reduce reliance on contractors and consultants	In Progress (Q1 – 2019/20) – please see recommendation 5.04 going forward	In Progress (Q1 - 2019/20)	MPI continues to execute its External labor strategy. Going forward, this recommendation has been replaced by recommendation 5.04.

4. In order for Manitoba Public Insurance (MPI) to be more effective and innovative, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
4.12	Review compensation strategies to ensure that MPI is competitive with market rates and can attract the talent it needs to deliver on its mission.	Complete	In Progress (Q3 - 2017/18)	MPI completed a comprehensive review of the majority of IT positions in Q3 2017/18 and will be implementing changes in Q1 2018/19 based on these findings.
4.13	Use a Pace-Layered Application strategy to balance maturity based ITIL and CMMI processes with evolution towards Agile, DevOps, and Automation Reusable used in development for cloud implementation.	In progress (Q4-2018/19)	To be evaluated (Q4-2017/18)	MPI currently leverages ITIL based processes in the delivery of IT services. MPI is looking for an opportunity to pilot Agile / DevOps on a 2018/19 project or operational activity to determine pros / cons over current approaches. An update on this specific recommendation will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider:

5.01	Continue to Maintain Technology Currency: With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years. Make periodic assessments of technology investments and report findings to executive leadership for I&O.	New	4.09	This recommendation references recommendation 4.09. This is currently being addressed by the Technology Risk Management Program which involves an annual review of IT assets and creation of projects to invest in technology refreshes and other work to maintain said assets. In 2018/19 the spend limit is $4.5M in a combination of IT operational expense and IT operational capital. These initiatives leverage the Value Management process. MPI will continue to assess its technology spend annually and report to Executive as part of the Gartner IT score process. MPI considers this recommendation implemented.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.02	Continue to Improve Enterprise Architecture Maturity: EA requires stronger relationships with business stakeholders, because it involves finding opportunities to deliver transformative value to the business operations by applying information technology to back and front office processes, business information assets, new products and services. Human collaboration and networked relationships should be tested and exploited. Establish reporting for the EA program using metrics to track value delivered to the organization and business outcomes as well as metrics to track continuous improvement of the EA practice itself. Ensure metrics are quantitative (linked to the business outcomes) and qualitative (measuring the perceptions of its stakeholders). Build future state models linked with current state models, ensuring that the future state is consistent with the relevant architecture principles. Integrate Applications into EA by involving enterprise architects in the Applications strategy. Utilize EA principles as a way to ensure the Applications strategy is linked to a business strategy which delivers measurable business value.	New	3.02 to 3.07	This recommendation references recommendations 3.02, 3.03, 3.04, 3.05, 3.06, and 3.07. Expanding Enterprise Architecture capabilities within MPI is a priority in 2018/19 and will be built into the Legacy Modernization program implementation and amendments, and will be part of the corporate strategic planning process. An update on this specific recommendation will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.03	Improve IT Governance Maturity: Improve IT governance maturity by continuing the existing process which matches IT services to business demand and by capturing better metrics to measure the achievement of business outcomes. The governance structure needs to be made more explicit, and should incorporate multiple levels within the organization that are capable of resolving process and policy discrepancies. Governance decisions should be mapped to balancing IT investments against run, grow and transform allocations.	New	N/A	There is anticipated to be additional cost associated with this recommendation (governance, approval layers) without clear net benefit. Further review will occur with Gartner in 2018/19 to better understand this opportunity with an update in the 2020 GRA

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.04	Improve People & Skills Management: Implement process roles within the organization and address collaboration and innovation culture required to improve the relationship with the business. Skills development and training should be improved for all areas of IT, especially for Infrastructure and Operations (I&O). Build a comprehensive strategic workforce plan with specific goals. Establish formalized training policies, mentoring programs and training development plan across all roles. Track employees' skills and competencies, documenting gaps. Define skills requirements and acquire people skills necessary to meet commitments. Utilize the skills inventory to ensure vendor management skills are in place to effectively oversee external providers. Continue to integrate "process" as an organizing construct to complement functional, product and geographical orientation within the organization.	New	4.10	MPI is conducting work force planning activities at the directorate level which will incorporate many of the recommendations listed, as related to training and development. MPI continues to invest in the development of corporate culture and focuses on both innovation and collaboration in those activities. Gartner's recommendations will be included in the appropriate department level work plans. Further review required to determine the potential cost / benefit associated with these changes. This will occur in 2018/19 with an update available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.04 *(cont'd)*	Employees should be able to anticipate the impact of change beyond the processes they participate in and the constituents affected by the processes. Employees should be able to anticipate the impact of change beyond the processes they participate in and the constituents affected by the processes. Ensure that collaboration becomes second nature and resistance to change should be deemed inappropriate. Develop a culture of innovation.			
5.05	Improve the IT Strategic Plan: Implement the following improvements to the IT strategic plan: Ensure the I&O component of the IT strategic plan is documented and formally approved to serve as the basis for annual operational plans and major upgrade initiatives. Ensure business objectives, strategies, plans and needs drive the I&O component of the IT strategic plan and that business needs are defined in sufficient detail to drive investment decisions. Improve alignment between IT and business strategic planning processes.	New	N/A	The IT Strategy and major corporate initiatives address the first and fourth parts of this recommendation. Further exploration of infrastructure operations (including operational plans linked to corporate strategy) will be reviewed further in 2018/19 with an update provided in the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.06	Improve the Use of Standards: Ensure standards are consistently used, measured and monitored. Implement standard, documented processes for Application Development. Maintain a standardized operating environment and work with IBM to increase standardization within the infrastructure	New	N/A	MPI is refining its project delivery processes in 2018/19 which includes the standardization of many deliverables used in Application Development. Additional standardization of deliverables will be reviewed at the completion of this activity. MPI actively engages with IBM to ensure the enterprise computing environment is standardized and appropriately documented. Remediation of any discrepancies found, occurs operationally, or as part of major projects. Further review required to determine the potential cost / benefit associated with these changes. This will occur in 2018/19 with an update available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.07	Improve IT Financial Management Disciplines and Key Performance Indicators (KPIs): Realign cost accounting and financial management away from the asset focused paradigms of a cost center, toward the activity based costing of the service, value and outcome oriented paradigms of a business. IT Financial Management approaches should therefore be based on IT as a service provider which utilizes analytics based asset tracking, chargeback based on volumes and usage and service line trending. For Applications, MPI should continue to improve financial transparency. Develop KPIs for financial management of business applications and categorize spending to develop tighter links to business capability delivery. Include total life cycle costing for Applications that includes operations spending.	New	N/A	MPI is reviewing in 2018/19 to determine potential benefits associated with these changes. An update available for the 2020 GRA reflecting the findings of this review.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.07 *(cont'd)*	For I&O, create business based financial management and performance reporting. Implement tools for business management as well as improved financial management. MPI should continue work on asset/license management, track asset utilization and usage and implement allocation of specific service costs based upon simple IT user metrics (e.g. number of users, PCs, phone sets) as well as unit cost metrics (e.g. cost per Windows Instance).			
5.08	Implement Bimodal Service Delivery Capabilities: Implement bimodal service delivery by creating differentiated processes for predictable Mode 1 work and developing more agile processes for exploratory or experimental Mode 2 work.	New	2.08	This recommendation references recommendation 2.08. MPI is piloting this capability in 2018/19 to better understand the associated cost / benefit of this model. An update will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.09	Improve Vendor Management Capabilities: Implement consistent vendor management approaches, expand vendor management to all vendors and departments and develop standard terms and templates for contracts. Work with vendors to develop better service level agreements (SLAs), and look at ways to integrate IT operations management tools. Create a formalized vendor engagement model, with defined vendor management processes which are implemented for all vendor interactions. Segment vendors that require centralized management and delegate responsibilities for those vendors that do not require sophisticated management. Put in place reporting capabilities for spending management and demand management that support vendor management. Identify vendor performance metrics, track the metrics using tools and enforce consistently across all spending categories.	New	3.08	This recommendation references recommendation 3.08. In July 2017/18 MPI consolidated IT Vendor Management into one team. In 2018/19 the vendor management team will be creating a strategy which will include many of the Gartner recommendations noted in 5.09; An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.10	Reduce the Risk associated with Privacy Issues: This should be accomplished by ensuring that policies and processes and other defined elements of the enterprise privacy program are reviewed regularly, with solicitation of feedback concerning policy acceptance and performance. Solicit involvement from marketing, employee representatives, external auditors and compliance officers and develop a plan for measuring the success of the enterprise's privacy awareness program. Work to link disparate and currently disjointed elements of the established privacy program and ensure privacy policies apply to all business units and locations.	New	N/A	MPI has a comprehensive privacy program, but will review these specific recommendations for opportunities to improve further. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.11	Reduce Information Security Risks: This should be accomplished by creating a formal cross-organizational committee to collaborate on information security issues focused on realistic, actionable metrics for measuring the success and challenges of the security program. Ensure TVM (Threat and Vulnerability Management) processes are documented and formalized, with associated RASCI charts and performance metrics, integrated with the IT change management process and increase the resources allocated to performing formal threat research. Define a formal risk management process using controls assessment tools and services and continue practice of reporting risks to technical staff and perform updated assessment using a 3rd party.	New	N/A	MPI has a comprehensive Information Security program which transitioned from project to operations in 2018/19. MPI will review the operation of this program with Gartner, and confirm that all recommendations are fully addressed. An update on the progress of these activities will be available for the 2020 GRA.
5.12	Explore the Utilization of Cloud Services: Explore dynamic resource sharing (e.g. Cloud) Become the broker of best fit solutions – Cloud and Internal	New	N/A	This recommendation references recommendation 1.27 which was reported as complete in GRA 2018, but needs to be re-evaluated in 2018/19 fiscal. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.13	Pursue Improvements in IT Service Management Processes: Establish common processes and ensure they are consistently followed across all teams. Formalize process improvement programs. Invest in process discovery technologies, such as business process analysis, and start building a business process framework and architecture. The IT organization should work with relevant groups within MPI to apply BPM techniques using iterative methods with process owners driving iterations. These methods should be a collection of best practices drawn from Six Sigma, Lean and other methodologies. Pilot use of process modeling and build support for this practice. Build cross-platform IT Service Management processes for incident management, problem management and change management. Formalize release, capacity and service level management. Improve service level management by formulating comprehensive end to end SLAs with customers.	New	N/A	This recommendation references recommendation 1.21 which was reported as complete in GRA 2018. MPI currently has operational IT processes which are consistently applied across all teams. These include incident and change management. Process improvement occurs regularly within each process (conducted by the process leader as opposed to a centralized team). In Q4 – 2017/18 a group of senior leaders presented a proposal to improve BPM (Business Process Management) maturity. This proposal is not planned for implementation within 2018/19 fiscal year due to higher priority work. All other recommendations require further review, which will occur by Q3 – 2018/19. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.13 (cont'd)	Define and implement process ownership roles. Define and implement business service management processes and tools. Focus IT processes on automating and optimizing individual service delivery and support processes and perform continuous IT process optimization through trending.			
5.14	Improve Project Portfolio Management (PPM) Maturity through the use of tools: Expand the use of tools which were recently implemented for strategy development and resource management, decision support and risk modelling. Standardize the use of tools where multiple tools exist.	New	N/A	MPI is actively pursuing increased adoption of its PPM tools and processes in 2018/19. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.15	Determine improvements that can be made to the information management strategy. Starting in 2017/18, information management maturity will be measured using the data and analytics survey in the IT Score survey.	New	N/A	A draft data strategy was created in Q1, 2018/19 for use in Q1-Q3 2018/19. This document will be updated in Q3 2018/19 for use in the 2019/20 fiscal year and will incorporate these recommendations. MPI plans to leverage the Gartner Enterprise Information Maturity (EIM) model to measure the effectiveness of its Data and Analytics capabilities. An update on the progress of these activities will be available for the 2020 GRA

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.16	Replace the CIO Scorecard with Gartner's IT Score Methodology: Replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis. Add two additional surveys (Strategy & Execution, Data & Analytics) to the IT Score methodology to assess the maturity of the IT Strategy and information management disciplines. The addition of these two surveys will also increase the overall confidence level of the enterprise view.	New	N/A	MPI has replaced the CIO Scorecard with Gartner's IT Score methodology and included it in the 2019 GRA. MPI anticipates completing the 2 additional areas, recommended by Gartner, and including the findings as part of the report filed in the 2020 GRA.

Manitoba Public Insurance

Benchmark Findings and Recommendations – Executive Report

Manitoba Public Insurance

This report has been prepared as advice, opinions, proposals, recommendations, analyses or policy options developed by or for the public body or a minister, as per Section 23(1) of the Freedom of Information and Protection of Privacy Act.

Prepared for: Manitoba Public Insurance

Project Number: 330032344

28 May 2018

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Background

Background

- Manitoba Public Insurance (MPI) is a non-profit Crown Corporation that has provided basic automobile coverage since 1971. MPI provides driver and vehicle licensing services, and insurance services through a broker network and throughout MPI in claim centres and customer service centres.
- MPI originally engaged Gartner to prepare CIO and IT Budget Scorecards using 2010/11 budget data. MPI repeated this analysis in 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, and has continued its program in 2016/17.
- The current engagement is using 2016/17 actual financial results.

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Objectives

MPI has retained Gartner to conduct an annual review of the IT service delivery capability (organization, processes, and infrastructure)

Four Structure Evaluation Instruments

1. IT Budget Assessment
2. CIO Dashboard Survey
3. Infrastructure & Operations (I&O) Scorecard
4. IT Score Survey

Outcomes

- Evaluate the relative maturity of the IT organization in critical IT disciplines
- Assess the IT organization's ability to react to rapidly changing business requirements and make calculated IT investments
- Compare relative funding levels of IT at MPI and the distribution of those expenditures
- Compare MPI's infrastructure and operations costs, staffing and service levels with those of similar enterprises and document findings.
- Establish a baseline for infrastructure and operations spending, staffing and service levels, providing an indicator of where improvements are possible

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MPI's Mission and level of Project Investment required some additional normalizations and peer group modifications in the Gartner Analysis

Analysis Challenge	Analysis Risk	Analysis Mitigation
MPI is a hybrid organization – it is an Insurer, but its public mission is to serve Manitobans, not maximize revenues	If MPI is successful in its Mission - returning more benefits to Manitobans while driving down prices – revenues will be lower than those of similar organizations who focus on profit maximization	▪ Included 2 Canadian Provincial & Local Government Peers ▪ As government entities do not report revenue and MPI revenue are impacted by investments, focus is placed on IT spend as a % of operating expense.
A total of 12 peer organizations are included in the 2016/17 comparison. It is important to note that the peer group changes from year-to-year as organizations do not necessarily participate every year. Six of the peer organizations from 2015/16 updated their data and this updated data is used in the 2016/17 peer analysis. Year-to-year changes in peer results are reflective of changes in the peer group as well as changes to the individual organisations' data.		

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MPI's Enterprise Metrics from 2012/13 to 2016/17

	5 Year Trend	CAGR	2016/17	2015/16 - 2016/17 Growth
MPI Revenue		4.6%	$ 1,287,470,000	14.5%
MPI Expenses		5.1%	$ 1,372,674,000	18.8%
MPI IT Budget		-2.4%	$ 74,755,663	5.8%
MPI Run The Business IT Cost		1.3%	$ 44,105,841	4.0%
MPI Change the Business IT Investment		-6.6%	$ 30,649,822	8.4%
MPI Employees		0.5%	1,971	1.9%
MPI IT FTEs		-1.5%	336	3.7%
MPI IT as a % or Revenue		-6.6%	5.8%	-7.6%
MPI IT as a % of Operating Expense		-7.1%	5.4%	-10.9%
MPI Enterprise Maturity Score		3.9%	3.52	2.9%

Observations:

- Revenue has increased while business costs associated with running the business have also increased
- The IT Budget has increased, but to a lesser extent than business OPEX
- MPI's IT Spending as a % of Revenue has decreased by 7.6% year over year and has decreased by 6.6% during the last 5 years
  - Business revenue from policies is higher due to growth in the number of vehicles on the road in Manitoba
- MPI's IT Spending as a % of Operating Expense has decreased by 10.9% year over year and has decreased by 7.1% over the last 5 years
- MPI continues to improve its Maturity (3.9% over 5 years using CIO Dashboard), driving effectiveness
- In 2016/17, overall personnel spending and staffing were higher than Peers

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Key takeaways from the analysis

Key Findings

- Personnel spending and staffing levels remain higher than peers, with a slight increase in IT to Company FTE ratio (16.7% to 17%)
- Similar to previous years, the focus for MPI IT investment is on reliability, availability, and lowering risk. These investments, along with initiatives to provide better access and a better user experience, increase the IT footprint, resulting in higher steady-state IT expenses.
- MPI improved its overall Maturity rating from 3.42 in 2015/16 to 3.52 in 2016/17.
- Similar to previous years, MPI spends 62% of the IT budget on Personnel vs. 45% for the peers. 32% of MPI's IT staff is made up of contractors vs. 24% for the peers. Higher staffing levels relative to peers is particularly evident in Infrastructure and Operations.
- Business Process Management and Enterprise Architecture maturity remains generally low and appears to be an opportunity for improvement.

Implications and Recommendations

- With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years.
- MPI's IT organization should focus on establishing linkages through enterprise architecture and focus future investments on delivering transformative value to the business operations.
- MPI should develop stronger relationships with business stakeholders.
- Maturity improvements should be focused on governance and metrics to track value delivered to the business and achievement of business outcomes.
- MPI should continue the efforts currently underway to review the size of its retained staff and the number of contractors as it increases its use of third-party support for infrastructure services.
- Internal skills development and training should be a priority.
- MPI should replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis.

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MPI's IT spending has become more stable in recent years and with an improved ratio vs. business operating expense.

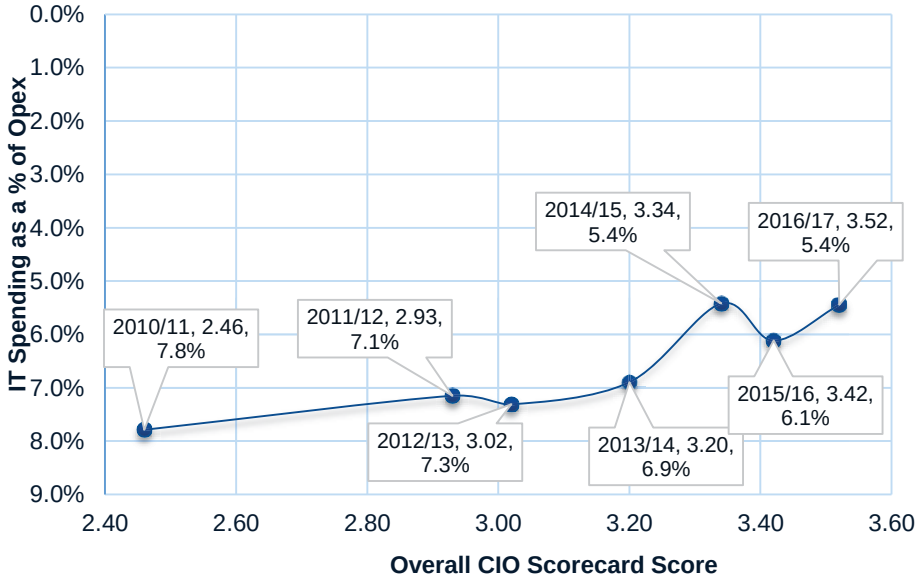
Observations:

- IT spending as a percentage of business operating expense is a better performance indicator for MPI. MPI is supporting a growing business workload with modest increases in IT spending (OPEX increased by 18.8% but IT spending only increased 5.8%.)
- IT Maturity continues to improve and should help MPI contain costs providing leverage in new initiatives.
- Six of the peer organizations from 2015/16 updated their data and this updated data is used in the 2016/17 peer analysis. IT Spending as a % of OPEX has been trending lower for the peer group.

Implications:

- OPEX spending is higher due to higher claims payouts*. Gartner has observed that mature IT operations contribute towards business efficiencies (lower overall operating expense) in the enterprise. MPI IT should unlock efficiency to the business, which will in turn contribute towards a reduction in OPEX spending (not withstanding other non-IT related expenses.)
- Continuing to work on process maturity will assist in improved efficiency in the IT operations and the delivery of additional value to the organization's business operations.

*** Source:** Manitoba Public Insurance 2016 Annual Report



	Maturity Score	IT as a % of Opex
2010/11	2.46	7.8%
2011/12	2.93	7.1%
2012/13	3.02	7.3%
2013/14	3.20	6.9%
2014/15	3.34	5.4%
2015/16	3.42	6.1%
2016/17	3.52	5.4%
2016/17 Peer	2.84	4.8%

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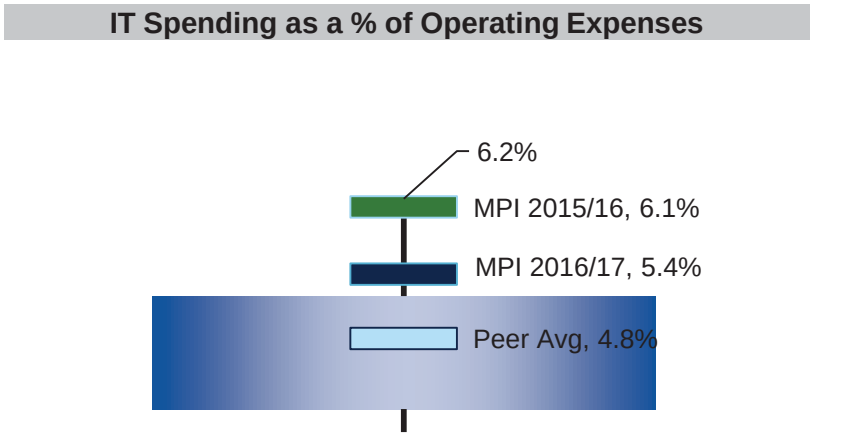
MPI's IT Spend as a % of OPEX is lower compared with 2015/16, but higher than the peer group average



Cylinder denotes the median 50% of responses

= Peer Range

= Peer Average

= Peer Middle Quartiles

= MPI

Observations:

- MPI's spending as a percentage of OPEX is lower compared with the previous year's measurement
- MPI's spending as a percentage of OPEX is higher than the peer group

Implications:

- MPI should continue to invest in strong governance over third-party service providers and continue its continuous improvement initiatives to ensure it receives the expected benefits from its optimization programs.

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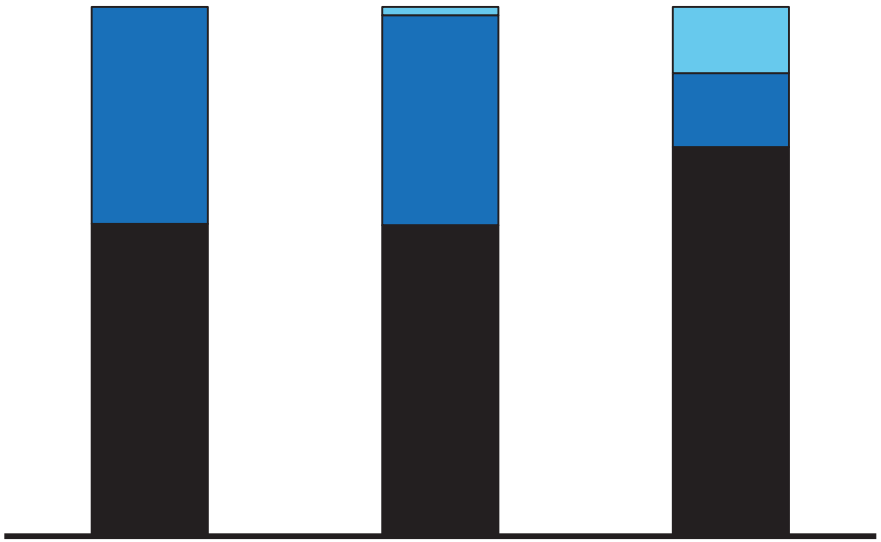
MPI has maintained its "Change the Business" % of its budget and is higher than Peers. IT Spending is focused on internal improvements and delivering new capabilities.

IT Spending to Run, Grow and Transform the Business



Change the business	MPI 2016/17	MPI 2015/16	Peer Avg
Transform	0.0%	1.6%	12.5%
Grow	41.0%	39.7%	14.0%
Run	59.0%	58.8%	73.5%

Run: Run-the-business IT initiatives are aimed at essential (and generally non-differentiated) business processes. The objective of a run-the-business initiative is to improve or maintain the desired balance among cost, quality and risk for these essential processes.

Grow the business: This is an indicator of how much of the IT resource is consumed and focused on developing and enhancing IT systems in support of business growth (typically organic growth).

Transform the business: This is an indicator of how much of the IT resource is consumed and focused on implementing technology systems that enable the enterprise to enact new business models

Observations:

- MPI spending on running the business is lower than the peer group average
- MPI spending on growing the business is higher than the peer group average
- MPI spending on transforming the business is lower than the peer group average
- As the core infrastructure "catch-up" investments end, the run the business metric has remained flat
- MPI has been making investments to continue to support customer service improvements to Manitobans.

Implications:

- Lower spending on running the business frees up more IT budget to enable growth
- As MPI continues to make technology investments, it should focus on proper execution of these investments to maximize benefits realization

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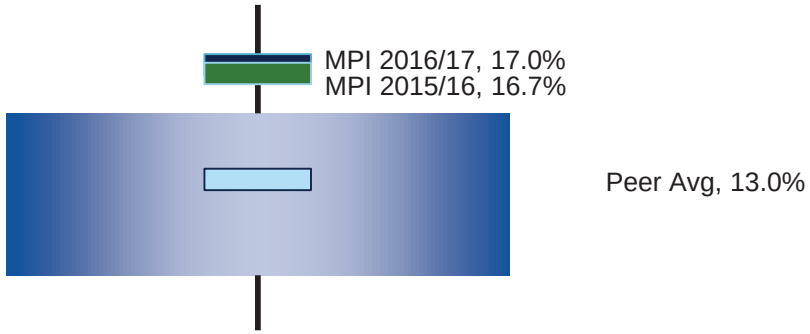
MPI has more IT FTEs as a percentage of total company employees than peers

IT FTEs as a % of Company Employees



Cylinder denotes the median 50% of responses

= Peer Range

= Peer Average

= Peer Middle Quartiles

= MPI

Observations:

- MPI's overall staffing level rose slightly from 324 FTEs to 336 FTEs (16.7% to 17%)
- MPI's staffing level is 33% higher than the peers
- MPI continues to transition to third-party services for a number of areas within Infrastructure and Operations
- The benchmark measured a high level of availability for infrastructure functions (service levels increased year over year and are better than peer averages)

Implications:

- High staffing levels may be due to business growth which limits the ability to optimize costs
- Higher staffing levels may be an enabler of the high levels of service offered by IT to the business
- With the move to third party services come additional requirements for oversight and operational process staff in managing the vendor

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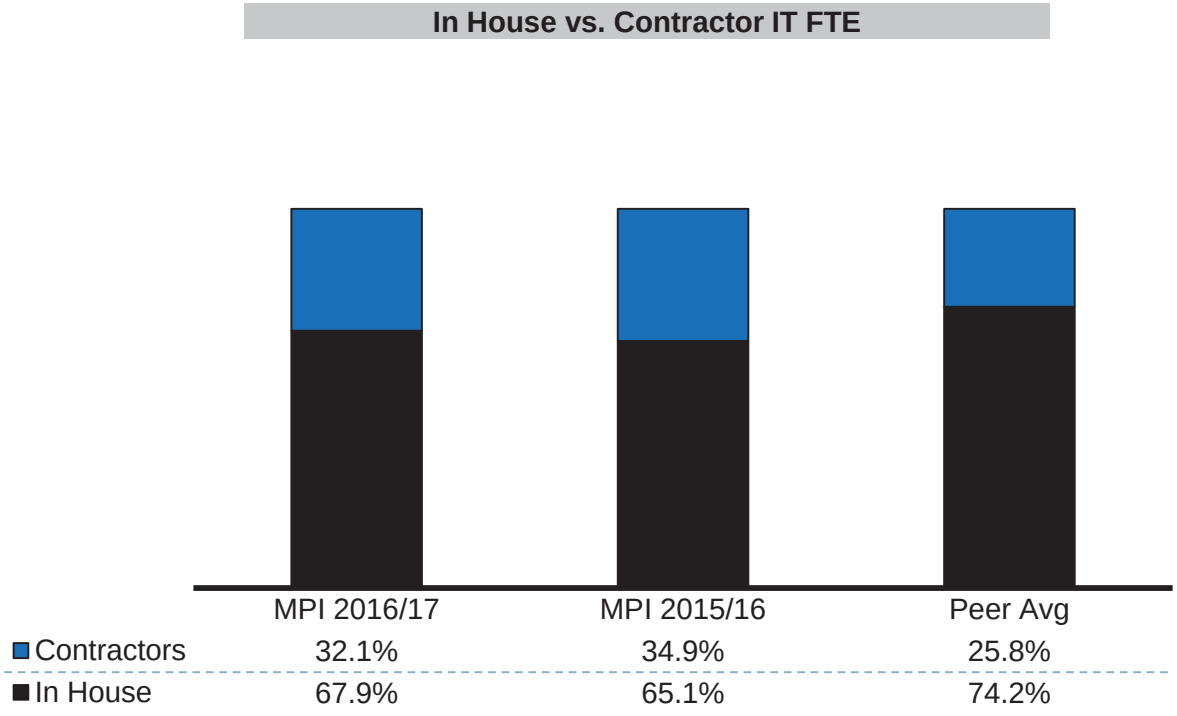
MPI's proportion of contractors is higher than the peer group average



Observations:

- MPIs proportion of contractors is higher than the peer group average but lower than the previous year's measurement

Implications:

- MPI continues to transition to outsourced services for a number of areas within Infrastructure, making use of contractors to bridge skills gaps
- MPI should continue to monitor skills gaps, looking for opportunities to build internal skills as a way to contain increases in average labour costs

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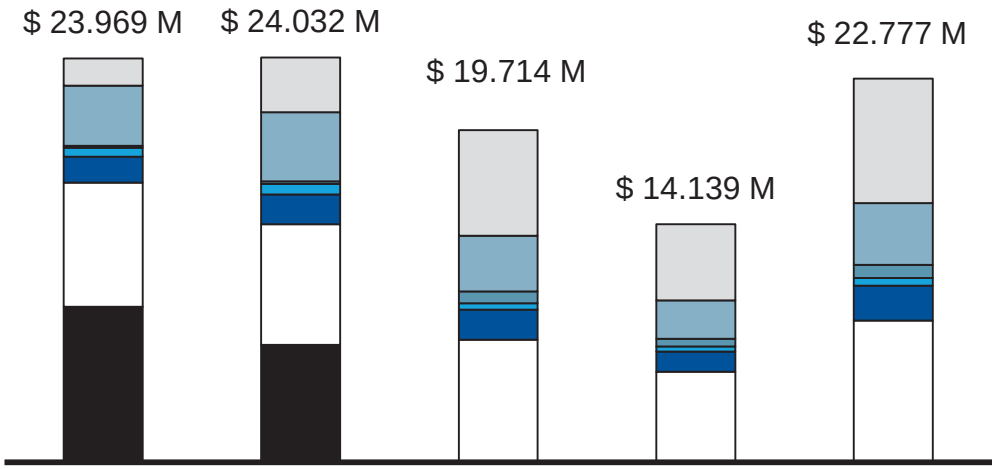
At $24 M, MPI's overall Infrastructure & Operations Spending is $4.3 M or 22% higher than the peer group average, driven by higher outsourcing costs. MPI should continue to review this area.

I & O Total Spending by Cost Category



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Hardware	$ 1.602 M	$ 3.257 M	$ 6.271 M	$ 4.525 M	$ 7.388 M
Software	$ 3.582 M	$ 4.095 M	$ 3.293 M	$ 2.275 M	$ 3.661 M
Disaster Recovery	$ 0.116 M	$ 0.150 M	$ 0.701 M	$ 0.468 M	$ 0.778 M
Occupancy	$ 0.528 M	$ 0.625 M	$ 0.391 M	$ 0.294 M	$ 0.459 M
Transmission	$ 1.542 M	$ 1.769 M	$ 1.780 M	$ 1.195 M	$ 2.078 M
Personnel	$ 7.366 M	$ 7.171 M	$ 7.277 M	$ 5.382 M	$ 8.412 M
Unallocated	$ 9.233 M	$ 6.965 M	$ 0.000 M	$ 0.000 M	$ 0.000 M
Total	$ 23.969 M	$ 24.032 M	$ 19.714 M	$ 14.139 M	$ 22.777 M

Observations:

- IT Spending is 22% higher than Workload Peers
- The gap between MPI and peers has narrowed from 2015/16 to 2016/17 (35% to 22%)
- Variances to peers are highest in Occupancy (35%) and Software (9%)
- The unallocated amount of $9.2M is the outsourcing amount after transmission and personnel is removed assuming 30% of the outsourced amount is for personnel. Outsourcing for the peer group is included within the allocated categories.

Implications:

- Occupancy and software costs provide potential opportunities for cost savings.

Note:

- Approximately $482K previously included for software was determined to be out of scope for Infrastructure and operations according to Gartner's consensus model and was removed fro 2016/17. These amounts were included in previous years.

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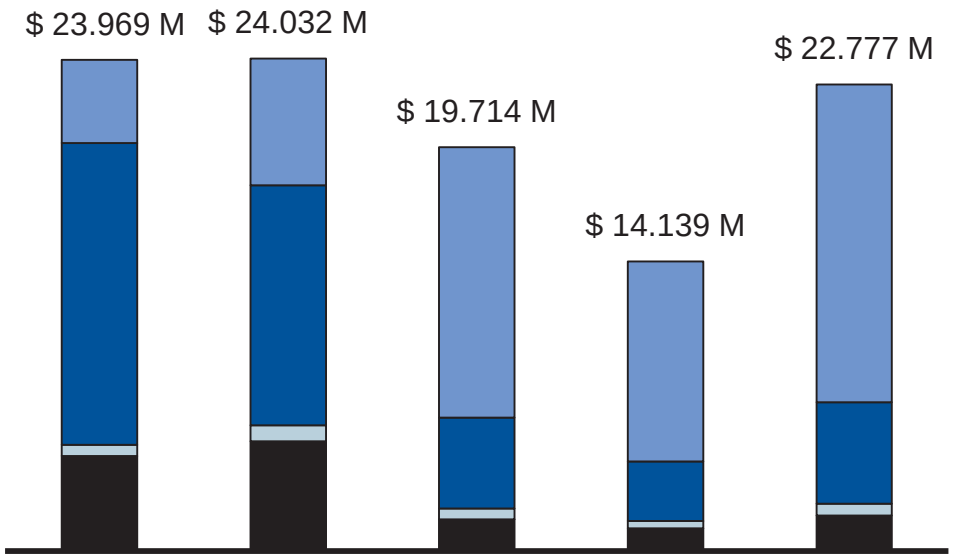
MPIs spending outsourcing and maintenance is significantly higher than the peer group average for Infrastructure and Operations

I & O Total Spending by Sourcing Type



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Insourced	$ 4.057 M	$ 6.182 M	$ 13.195 M	$ 9.763 M	$ 15.521 M
Outsourced	$ 14.732 M	$ 11.719 M	$ 4.448 M	$ 2.904 M	$ 4.943 M
Contractor	$ 0.549 M	$ 0.783 M	$ 0.530 M	$ 0.357 M	$ 0.579 M
Maintenance	$ 4.631 M	$ 5.349 M	$ 1.541 M	$ 1.116 M	$ 1.734 M
Total	$ 23.969 M	$ 24.032 M	$ 19.714 M	$ 14.139 M	$ 22.777 M

Observations:

- Outsourced spending is 3.3X higher than the peer group average
- Maintenance costs are 3X higher than the peer group average
- MPI's outsourcing costs include a prepayment for future upgrades as part of a 'vitality' clause in the IBM contract which avoids large single year increases, but presents a higher yearly cost than might be expected.

Implications:

- MPI may benefit from an assessment of the competitiveness of the outsourcing and maintenance agreements

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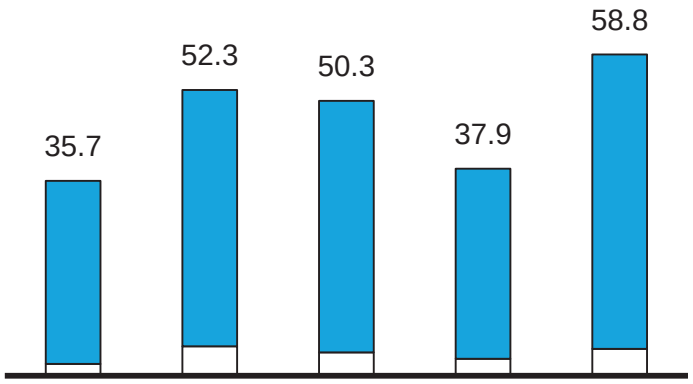
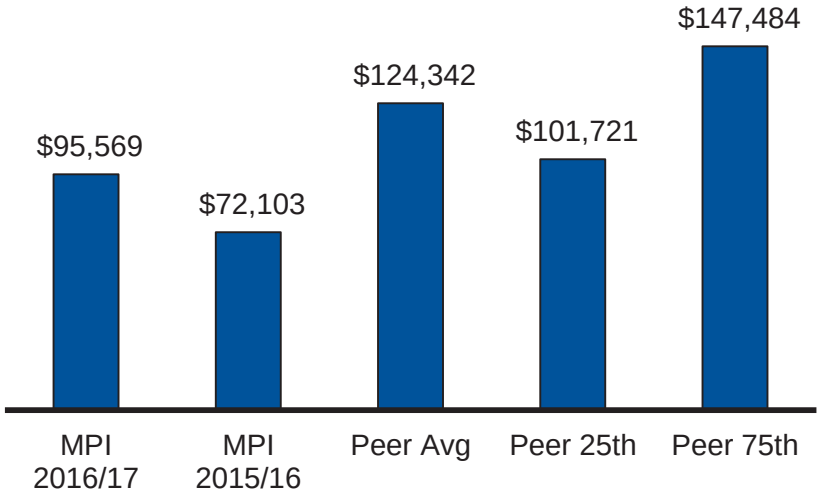
MPI's staffing levels for I&O are lower than in 2015/16 and lower than the peer group, however, the staffing levels need to be considered in the context of the high level of outsourcing.

In House vs. Contractor IT FTE



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Insourced	33.5	46.9	46.1	34.8	53.9
Contractor	2.2	5.4	4.3	3.1	5.0
Total	35.7	52.3	50.3	37.9	58.8

Cost per blended FTE



Observations:

- Insourced headcount for I&O has decreased since 2015/16
- MPI has embraced outsourcing for 8 of 10 I&O functions, including Windows Server, Unix Server, Linux Servers, Storage, LAN, WAN, Internet Access Servers, Voice Premises Technology. Service Desk and End-User Computing are retained by MPI.

Implications:

- MPI should evaluate the size of the retained organization in support of IT functions that are handed by the outsourced service provider
- The need for oversight and operational process staff for vendor management may limit staff reduction opportunities

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MPI previously used the Gartner CIO Dashboard to assess MPI's process maturity which has been discontinued. Gartner recommends transitioning to IT Score for 2017/18.

	CIO Dashboard	IT Score
Toolset Overview	• Previously used to assess MPI's process maturity. • This tool has been discontinued by Gartner.	• MPI provided data for 2016/17. • Current tool used by Gartner to perform in-depth maturity assessments.
Comparison Data	• While the framework provides a way to perform year on year comparisons of MPI's maturity level, the peer data should be considered out of date.	• Provides a way to perform year on year comparisons • Current peer data is available for the Insurance industry
Scoring	• MPI's maturity level assessed at level 3.52 using CIO Dashboard methodology during the 2016/17 period.	• IT Score is a different methodology with different weightings in the assessment domains. • MPI's maturity level assessed at level 3.10 using IT Score methodology during 2016/17 period.
Assessment Framework	• Infrastructure and Operations • Applications Organization • Business Process Management • Enterprise Architecture • Cost Containment • Open Innovation Readiness • Effectiveness / Innovation Enterprise Viewpoint • Effectiveness / Innovation IT Organization Viewpoint • Overall Score	• Infrastructure & Operations • Applications Organization • Enterprise Architecture • Vendor Management • Program and Portfolio Management • Security and Risk Management - Privacy • Security and Risk Management - Information Security • Enterprise View

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MPI saw significant improvements in process maturity in Application Organization, Infrastructure and Operations and Cost Containment

	MPI 2016/17	MPI 2015/16	MPI 2014/15	MPI 2013/14	MPI 2012/13	MPI 2011/12	Insurance Avg
Infrastructure & Operations	3.14	2.98	2.85	2.64	2.32	2.32	2.20
Cost Containment	3.21	3.10	2.97	2.79	2.38	2.15	2.51
Applications Organization	3.17	2.94	2.83	2.81	2.66	2.70	2.76
Business Process Management	1.60	1.60	1.60	1.40	1.40	1.20	1.76
Enterprise Architecture	3.18	3.18	3.18	3.05	2.84	2.73	2.53
Open Innovation Readiness	4.13	4.13	3.75	3.75	3.75	3.63	2.46
Effectiveness/Innovation Enterprise Viewpoint	4.09	4.09	4.00	4.00	4.00	4.00	3.23
Effectiveness/Innovation IT Organization Viewpoint	3.89	3.89	3.78	3.67	3.67	3.44	3.17
Overall Score	**3.52**	**3.42**	**3.34**	**3.20**	**3.02**	**2.93**	**2.82**

Evaluation Criteria: MPI compares itself against seven key criteria that evaluate the effectiveness of the IT organization to deliver to the needs of the business. Comparisons are made to previous years and Gartner's IT Score for the CIO role as the CIO Dashboard has been discontinued. The insurance average had not shown material change over the past few years and can still be considered relevant.

Observations: MPI has improved over 2015/16, especially in Applications (+8%) and Infrastructure & Operations (+6%), but opportunities still remain to improve. Business Process Management is unchanged from last year and is still very low. MPI's overall IT Score was 3.52 (+3% over 2015/16)

Implications: MPI has increased its Maturity across the board, but can still improve in areas such as Business Process Management Increasing Maturity in these areas will improve the efficiency and effectiveness of both IT and MPI overall.

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IT Score

MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward. Opportunities exist for improvements in enterprise architecture and applications maturity.

	MPI 2016/17	Insurance Avg
Executive View	3.4	-
Applications Organization	2.4	2.4
Enterprise Architecture	2.3	3.0
Infrastructure & Operations	2.7	2.5
Vendor Management	3.0	2.5
Program and Portfolio Management	3.6	2.8
Security and Risk Management - Privacy	4.1	3.3
Security and Risk Management - Information Security	3.6	3.0
Enterprise	3.1	-

Note: Gartner does not provide benchmarks at the overall Enterprise level. The Enterprise and Executive score / assessments are based on a varying compilation of survey types across participants, not just a single survey.

Observations:

- MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward.
- Enterprise Architecture maturity is lower than the peer group average

Recommendations:

- Focus initiatives for improvements on enterprise architecture

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Reconciling CIO Dashboard with IT Score

How does Business Process Management, as measured in CIO Dashboard map to the IT Score survey?

- In the CIO Dashboard survey, Business Process Management was assessed in various domains with MPI having low maturity in Organization and Culture and Metrics and Measures. It should be noted that the peer data within is outdated, meaning that MPI was being compared to the industry as it was, several years ago.
- In addition, within the insurance industry, IT organizations have shifted from business process maturity to a focus on improving the partnership between IT and the business.
- The newer IT Score Methodology is based on Gartner research* which finds that Enterprise IT maturity is more than the sum of individual IT functions and technical capabilities. *All* enterprise leaders (not just CIOs and IT leaders) must adapt and drive change in order to mature overall maturity beyond level 3 which is a critical step in surviving and exploiting digital business.
- Instead of simply measuring business process management as a separate domain, the IT Score methodology consists of an executive view which is separate from the IT domains. Rather than a focus on business processes, the domains within the executive view reflect the current focus areas with regard to enabling IT as an enabler for business value.

Why is Enterprise Architecture assessed with a high score in the CIO Dashboard survey and a low score in the IT Score survey?

- In the CIO Dashboard survey, enterprise architecture consisted of multiple domains with MPI being assessed as relatively weak in architecture impact, but stronger in every other domain.
- Similar to business process management, the scope and maturity level of enterprise architecture has changed for IT organizations within the entire insurance industry.
- In the newer IT Score survey, enterprise architecture consists of 7 domains which reflect the current best practice focus areas for modern IT organizations. MPI was assessed with a lower level of maturity in the current domains, most notably governance and metrics. Comparisons are made to recent peer data.

** Source: ITScore for the Enterprise - G00343561*

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In Summary, MPI continues to improve in most dimensions measured, but opportunities for continuous improvement remain.

Spending	Spending Allocation	Alignment and Maturity
▪ IT Spending as a % of Revenue dropped from 6.3% to 5.8% – compared with 3.7% for peers ▪ IT Spending as a % of Operating Expense dropped from 6.1% to 5.4% – compared with 4.8% for peers	▪ MPI has moved out of it's "catch up" stage and the balance of spending for growth is decreasing. ▪ MPI continues to spend more on Contractors and external third-parties, which increases spending. ▪ MPI's "Run the Business" spending is lower than the Peers.	▪ MPI improved in many process areas as measured using the CIO Dashboard survey ▪ The overall IT Maturity score increased using the CIO Dashboard survey ▪ Measurements have been made using the new IT Score methodology which will enable ongoing year on year comparisons and comparisons to peer organizations

- MPI's mission is to serve Manitobans, not maximize revenues, which has an effect on metrics reported as a % of revenue. Spending as a % of overall operating expense compares well with peers.
- Improving MPI's long-term IT cost position is reliant on managing outsourced service provider costs and decreasing dependence on outside contractors.
- MPI will increase value to the business through improvements in enterprise architecture which will enable transformative value to the enterprise.
- MPI will enable future maturity and efficiency improvements through a focus on skills development and training.
- MPI will transition to the IT Score survey which reflects priorities and best practices for modern IT organizations and enables peer comparisons

VALUE MANAGEMENT

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

VALUE MANAGEMENT 3

VM.1 MPI INCORPORATES THE VALUE MANAGEMENT PROCESS IN CAPITAL PROJECTS MANAGED BY THE BUSINESS TRANSFORMATION OFFICE 3

VM.1.1 Technology Risk Management 3
VM.1.2 Legacy Systems Modernization 12
VM.1.3 High School Driver Education Phase 3 17
VM.1.4 Customer Self-Service – Phase 1, 2 and 3 21
VM.1.5 BI3/Fineos Upgrade 2020 23
VM.1.6 Credit Card Strategy 24
VM.1.7 Finance Re-engineering 25

VM.2 MPI'S COST BENEFIT ANALYSIS OF CUSTOMER CLAIMS REPORTING SYSTEM (CCRS) 28

VM.3 MPI HAS COMPLETED AN UPDATED COST BENEFIT ANALYSIS FOR PHYSICAL DAMAGE RE-ENGINEERING (PDR) 34

VM.4 MPI HAS MADE REVISIONS TO THE PROJECT GOVERNANCE FRAMEWORK THAT FORMALLY INCORPORATES THE VALUE MANAGEMENT PROCESS 43

Appendix 1 Technology Risk Management Business Case
Appendix 1a Application Risk Management Financial Analysis
Appendix 1b Information Security Risk Management Financial Analysis
Appendix 1c Infrastructure Risk Management Financial Analysis
Appendix 1d Risk Registry Remediation Financial Analysis
Appendix 2 High School Driver Education Phase 3 Business Case
Appendix 2a High School Driver Education Financial Analysis
Appendix 2b High School Driver Education 2 percent PD BI Claims Forecasting
Appendix 2c High School Driver Education 5 percent PD BI Claims Forecasting
Appendix 4 BI3 – Fineos Upgrade 2020 Business Case
Appendix 4a BI3 - Fineos Upgrade 2020 Financial Analysis
Appendix 5 Finance Re-Engineering Business Case
Appendix 6 Physical Damage Re-Engineering Program Evaluation 2018
Appendix 7 Discount Rate Methodology

Documents Subject of Confidential Motion

Appendix 3 Customer Self-Serve
Appendix 8 Capital Space Plan

VALUE MANAGEMENT

VM.1 MPI INCORPORATES THE VALUE MANAGEMENT PROCESS IN CAPITAL PROJECTS MANAGED BY THE BUSINESS TRANSFORMATION OFFICE

Manitoba Public Insurance (MPI or the Corporation) has created business cases for Business Transformation Office (BTO) managed projects of $500,000 or more in the 2018/19 Capital Budget as follows:

Project Name	2018/19 Capital Budget
Technology Risk Management	$ 4,500,000
Legacy Systems Modernization	$ 2,000,000
High School Driver Education Phase 3	$1,900,000[1]
Customer Self-Service – Phase 1	$ 1,500,000
BI3/Fineos Upgrade 2020	$ 1,257,000
Credit Card Strategy	$ 1,000,000
Finance Re-engineering	$ 500,000

In April 2018, subsequent to the approval of the 2018/19 Capital budget, a business case was prepared for the Five Year Strategic Space Plan and submitted for approval to the Board of Directors. This multi-phase, multi-year project focuses on the redevelopment of MPI's physical facilities. In the first phase, a budget of $2,065,000 was approved for 2018/19. Details of this business case are commercially sensitive, and are the subject of a motion seeking confidential treatment prior to filing with the PUB.

Additionally, the Customer Self Service – Phase 1 business case contains commercially sensitive information and will also the subject of the aforementioned motion seeking confidential treatment.

[1] The 2018/19 approved budget for HSDE was $900,000 with additional funding of $1 million approved at the April 19, 2018 Board meeting.

PUB Order 29/18 stated the following with respect to directive 11.15 of PUB Order 130/17:

> *The Board is satisfied that Directive 11.15 should be varied such that MPI will be required to file the business case and cost/benefit analysis in the 2020 GRA. The Board will also require that in the 2019 GRA MPI provide an update on the progress made towards completing the review and the business case for the AOL and CARS redevelopment and replacement.*

The progress update on the Legacy Systems Modernization is included in this section *VM.1.2* of this chapter.

A brief overview of the value management business cases are provided below, with the detailed business cases included as Appendices to this chapter.

VM.1.1 Technology Risk Management

MPI recognizes the need to continue to invest in its technical assets, to avoid technology obsolescence, and to achieve the goals identified in the Annual Business Plan.

Information Technology focused investments are proposed annually to improve Technology Risk Management. This will provide regular investment in technology systems and processes to avoid significant capital outlays in future years.

The goal of the Technology Risk Management program is to implement projects that will keep existing technology in a stable and supported state and address other technology risk through process and technology improvements.

Return on investment will be realized through risk reduction. This includes reduced risk of running on unsupported or outdated technologies and reducing risks identified in various risk assessments. Improvements are focused on the following areas:

- Application Risk Management: Investments in the remediation of prioritized recommendations identified by the Application Portfolio Management process. This also includes improvements to how MPI monitors and manages applications.
- Information Security Risk Management: Implement solutions to manage risks identified by the Corporate Information Security Office and as identified through the use of MPI's security risk assessment capabilities.
- Infrastructure Risk Management: Investments in infrastructure upgrades to remain on current and supported technologies. Infrastructure Risk Management invests in technology services and solutions which improves our operation of IT Infrastructure assets within the IBM data center. While some of these costs are covered within the IBM enterprise agreement, it is essential to test and remediate the systems and residing applications after any significant infrastructure upgrades to ensure there is no loss of functionality and to minimize or remove any risk to the business. This may include limited application configuration changes, and related testing, to ensure applications function on updated platforms
- Risk Registry Remediation: Implement solutions to lessen high priority Enterprise risks. This is currently focused on Business Continuity and Disaster Recovery, reducing risk through better event preparedness and by investing in response capabilities.

Financial Cost/Benefits Metrics

Project Costs	$4,500,000

The business cases for these four initiatives are included in *Part V(ii) VM Appendix 1 Technology Risk Management Business Case*. The financial analysis for these business cases are included in:

- *Part V(ii) VM Appendix 1a Application Risk Management Financial Analysis*
- *Part V(ii) VM Appendix 1b Information Security Risk Management Financial Analysis*

- *Part V(ii) VM Appendix 1c Infrastructure Risk Management Financial Analysis*
- *Part V(ii) VM Appendix 1d Risk Registry Remediation Financial Analysis*

The financial analyses are also included in excel format attached to the application PDF.

Technology Risk Management Life Cycle

1. MPI leverages internal expertise and external advisory services to identify specific opportunities for improved Technology Risk Management (ex. Application Portfolio Management process, Information Security Office, Gartner Recommendations).

2. In accordance with the Value Management process, these opportunities are documented, reviewed, and refined. Technology Risk Management uses Value Management templates to collect the initial information on opportunities.

3. Potential opportunities are reviewed for value, and synergy. Where value is confirmed and synergy exists, individual opportunities are combined into projects and costing is completed. Projects are reviewed for inclusion into the program each fiscal year.

4. The final set of business cases follow Value Management processes and are submitted to Executive and Board for approval. In 2018-19, there were four complete business cases (one for each of the four areas above)

5. A program charter is created for the Technology Risk Management for the fiscal year which guides overall program execution.

6. Throughout the delivery of the product(s) or service(s) described in this Charter, the Program Director and Project Managers will leverage the MPI Enterprise Project Management Methodology which will be modified for efficiency and to address the technical focus of Technology Risk Management

projects and the EPMO Toolkit to provide the clearly defined delivery framework for project management consistency.

7. Each project within the program will follow the process outlined above to produce a project specific documentation which guides the delivery of that project's objectives, scope and defined deliverables. All projects will be governed using the program governance approach which includes regular reporting on time, scope, and budget.

8. At completion of a project, lessons learned are completed which are leveraged in future year's planning and execution.

Technology Risk Management Initiatives (2018/19)

Focus	**Application Risk Management**
Project	**Application Performance Management Suite Implementation (APMS)**
Install and integrate an APMS suite into the MPI environment to gain full application end to end insight and the following key functions application performance management, end-user monitoring, infrastructure visibility, and application analytics. This enables better identification of negative application performance and facilitates faster response times to these negative events.	
Project	**VIP Upgrade**
Merge three outdated VIP applications into a single modern application. The three applications in question are VIP Inquiry, VIP2, and VIP_CARS. The focus is to ensure the platform operates on stable / supported infrastructure, uses secure and stable application components, and has the appropriate levels of data protection and auditing. This was recommended by the Application Portfolio Management (APM) process.	

Project	Loss of Use - Platform Upgrade
Upgrade the Loss of Use Web Application (LOU) from its current unsupported VB.NET framework to a current supported environment. This was recommended by the Application Portfolio Management (APM) process.	
Project	**CDW-EDW Migration Strategy**
Conduct a review of the Classic Data Warehouse (CDW) and propose a strategy to reduce support risk and shift workload to other internal platforms.	

Focus	Application Risk Management *(cont'd)*
Project	**Dollar Universe Upgrade 6.7**
Upgrade the Automic Dollar Universe Application Suite to the latest stable version of the product, as recommended by the vendor. This was recommended by the Application Portfolio Management (APM) process.	
Project	**Team Foundation Servers (TFS) and Visual Studio Upgrade**
Refresh the Microsoft Team Foundation Server (TFS) and Visual Studio development environments ensuring operation of current supported versions and to gain capabilities required to support modern application development processes.	
Project	**Informatica Update**
Upgrade Informatica to version 10.1. Version 10.1 will be supported until 2020 (or later). Informatica is used in the extraction, transformation, and loading (ETL) of data which populates the enterprise data warehouse. It is critical for report generation. This upgrade is covered under an existing maintenance agreement with the vendor and is planned to be completed by leveraging internal MPI resources.	

1

Focus	Information Security Risk Management
Project	**Redacted for IT Security purposes**
Redacted for IT Security purposes	
Project	**Redacted for IT Security Purposes**
Redacted for IT Security purposes	
Project	**Redacted for IT Security purposes**
Redacted for IT Security purposes	
Project	**Redacted for IT Security purposes**
Redacted for IT Security purposes	
Project	**Redacted for IT Security purposes**
Redacted for IT Security purposes	
Project	**Redacted for IT Security purposes**
Redacted for IT Security purposes	

Focus	Infrastructure Risk Management
Project	**File Server Storage Solution**
Redefine the file storage environment in order to reduce operational costs while improving efficiencies and accommodating MPI's evolving business needs.	
Project	**Security Device Refresh**
Execute a refresh for the hardware and add improvements in technology (i.e. High Availability (HA) or Disaster Recovery (DR) capabilities and storage upgrades for retention improvements) if viable within budget and timeline. The Software version will be upgraded to the latest supported version to ensure MPI is maximizing all available features for the Managed SIEM (Security Incident and Event Management) service.	
Project	**SAN Storage and TSM Backup Upgrade**
Modernize storage and backup solutions to ensure supportability, capacity, and value.	
Project	**Windows Server Vitality (2009 -> 2016)**
Reduce the risks associated with running End of Life software in our environment. Execute on IBM contractual agreement to perform a major Operating System upgrade every 4 years and validate the changes through formal testing processes.	

Focus	Infrastructure Risk Management *(cont'd)*
Project	**Intel Server Hardware and VMware ESXi Refresh**

Upgrade plan is to move to execute a "like for like" refresh and expected to move to new IT infrastructure.

Intel Server Hardware Refresh / Vitality

To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life hardware in our environment. HX5 blades (current technology) are no longer in production. To remain current on all major Data Centre platforms, and to execute on IBM contractual agreement to upgrade Data Centre infrastructure once every 5 years.

VMWare ESXi 5.5 Upgrade to ESXi 6.5 (Vitality)

To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life Support platforms in our environment. End of general support for ESXi 5.5 is 2018/09. To remain current on all major Data Centre platforms and to execute on IBM contractual agreement to upgrade Operating Systems and Middleware once every 4 years.

Focus	Risk Registry Remediation
Project	**Risk Registry Remediation - 2018**

Implement solutions to lessen high priority Enterprise risks. Upcoming investments will focus on improving process maturity for Business Continuity Management (BCM) with specific investments in Information Technology Service Continuity Maturity (ITSC). The goals of this project focus on review, refinement, and testing of MPI's IT recovery capabilities. This project addresses recommendations from a 2017/18 external review.

VM.1.2 Legacy Systems Modernization

Project Description

The Legacy System Modernization project will develop a business case package, strategy and roadmap to modernize the following enterprise applications (and associated supporting applications) over a multi-year, multi-phase program:

- AOL, DLS and CARS
- SIS replacement for the SRE line of business
- Financial Re-engineering

Two neutral 3rd party consultant partners will be engaged to perform an independent Legacy Modernization assessment. A neutral 3rd party will ensure that a bias free assessment and target solution is recommended. Their mandate will be:

- Determine if MPI is a good candidate for modernizing legacy systems
- Complete an MPI application assessment and identify highest business and technical risks and priorities
- Recommend a technology solution that fits the depth and breadth of MPI's Legacy Systems business needs, takes into consideration the scale of MPI as an organization, aligns to MPI's core business needs, and modular in design to be easily expanded to respond to new business capabilities that may arise in the future
- Forecast impact to IT staffing and infrastructure
- Establish the high level parameters for the detailed business case
- The preliminary assessment will be reviewed with the MPI Board of Directors before proceeding with the development of the detailed business case.

Business Needs

Business Perspective**:**

- MPI's current enterprise legacy applications are not designed to meet future customer, business and marketplace demands. Constraints include:
    - Fixed batch window from 10:30pm-2:30am impacts demands for 7/24 customer service availability
    - Technologies which cannot be readily exposed to customers' for self-service or Omni channel on modern access platforms
    - Customer information is stored and independently maintained in many systems causing inconsistent or out-of-date reporting
    - Lengthy time to market with product and service improvements
    - Business cases for product and service enhancements are negatively impacted by system implementation costs
    - Becoming incrementally more difficult to meet the needs of Government for system and administrative changes

Security Perspective**:**

- Legacy systems were not designed to handle today's modern security threats
- Security and compliance controls (regulatory / non-regulatory) are needed such as:
    - Role-Based Access Control (RBAC) which supports "need to know"
    - Integration for logging and monitoring services
    - Support of secure network zoning models (Zones of Trust)
- Retrofitting these controls into the legacy applications would be difficult, labour intensive, cost prohibitive and disruptive to business processes
- The ability to support emerging security requirements to defend against cyber threats is required to achieve MPI's stated Capability Maturity goal and desire for continuous improvement

- Security Control Considerations:
    - Access Management: Supportability of advanced access controls such as modern password controls (length, complexity, and strength), multi-factor authentication and centralized identity management.
    - Compliance and Audit Monitoring: Supportability for modern security event logging and monitoring requirements.
    - Segmentation: Ability to increase segmented application layers in support of security boundary controls (Zones of Trust).
    - Application Development Practices: Reducing confidentiality, integrity and availability risks by following defined application development practices and standards that include security best practices.

Technical Perspective**:**

- The current application architecture ranges in age from 25 – 40 years old.
- Availability of resources to support our oldest legacy systems are scarce.
- MPI has a large footprint of aging technologies such as PowerBuilder, COBOL and RPG. Local resources are becoming harder to find.

  Business impact: Shortage of labour increases our operational risk and lengthens business change.

- A new enterprise platform would modernize a significant portion of our infrastructure
    - A consolidated system reduces our technology footprint for production and the corresponding non-production environments
    - Reduces the number of different technologies in use
    - Lowers our IT operating costs by reducing IT infrastructure, software licenses and labour
    - The move to the new platform will eliminate a significant portion of the defects, reducing our overall technical debt

Business impact: Reduces operational IT spend on our core systems.

- A new enterprise platform has a number of technology benefits available. MPI will review platforms that provide:
    - Easier consumption of services available in digital ecosystems such as Amazon's AWS or Microsoft's Azure platforms
    - Built on a common technology platform such as Java or Microsoft
    - Large and healthy local resources pool with these skills
    - Courses available at local post-secondary institutions
    - More accurate view of our "data"

Business Impact: Improves IT agility enabling faster business change

Financial Impact**:**

- Total cost of ownership for all associated platforms continue to increase beyond CPI
- Scarcity of resources will result in increased ongoing costs to secure required resources in the future
- Product and service changes are becoming cost prohibitive from a business case perspective
- Market share for competitive lines may be negatively impacted in the future as other insurers continue to advance technology and customer service offerings

Project Objectives

This project will be responsible for completing a Legacy Modernization assessment to validate and confirm the need for MPI to take future action. This will encompass the completion of an application risk and strategy assessment and the development of a detailed business case which will include the following material:

- Business Case Executive Summary
- Financial analysis for replacing the legacy systems identified as modernization priority during the Application assessment phase of the project

- Business Vision - A strategic description of the business end state
- Project Charter(s)
- Program implementation road map and high-level project plan
- Conceptual Architecture for the business, application and data domains

Project Benefits

The project approach being taken by MPI for such a significant future capital investment demonstrates MPI's ongoing commitment to the Value Management process. An independent 3rd party will review and assess MPI's legacy systems risk and confirm what action MPI should take with respect to the Legacy Modernization program. A detailed business case, risk assessment, plan, roadmap, and financial forecast that defines the multi-year program will be prepared for review and approval by the MPI Board of Directors prior to any Legacy Modernization implementation actions being taken.

Proposed Timing and Significant Milestones

Project Start Date	March, 1, 2018
Vendor RFP Award	April, 1, 2018
Vendor #1 Assessment Start	April, 15, 2018
RFI Vendor Demos	June, 2018
Vendor #1 Board presentation	June 21, 2018
Vendor #2 Assessment Start	July 2018
Vendor #2 Board presentation	September 2018
Development, Release and Evaluation of Product RFP's	July thru November 2018
Final Board presentation of business case and final report	February, 2019
Project End Date	February 28, 2019
Other Milestones	Quarterly check points

Financial Cost/Benefits Metrics

Project Costs	$2,000,000

VM.1.3 High School Driver Education Phase 3

Project Description

The purpose of formal driver education is to establish good driving beliefs and behaviours that contribute to a safe road culture and to develop driving skills to prevent collisions on Manitoba roadways. Educating drivers before they receive their licence is a critical early intervention that positively affects driver preparedness and attitude for the long term.

The High School Driver Education (HSDE) program currently offered by MPI requires renewal to meet the needs of future drivers and the expectations of customers. The redevelopment project is a complete re-visioning, redesign, and redeployment of the program, including what we teach, how we teach, what tools we use, and the delivery model we employ to provide the teenage novice driver with the best foundation possible in preparation for their life as a driver. The redevelopment project represents the first major overhaul of the program since the mid-1990s.

The overall project involves three phases over several years. Phases one (visioning) and two (proof of technology concepts) are complete, with work already progressed in Phase three (curriculum redesign). By using behavioural science, research and proven approaches, the new Driver Z program focuses on altering driver behaviour and reducing a teen's risk of collision.

Project Objectives

The phase three redevelopment of HSDE will be successfully addressed by meeting the following project objectives:

1. Curriculum redesign including: vision, learning objectives, lesson plans, instructional design, complete on-line lessons (students, parents/co-pilots), in-class guided facilitation teaching materials, new scripts and video production, in-class and in-car assessment requirements and methods, parent/co-pilot coaching resources and route guidance, instructor training, and business architecture.

2. Technology support in the form of: estimates, requirements, and development of system integrations, Customer Learning Management System, Customer and Partner Portals, on-line book and pay for course registration, ability to finance enrolment fees for parents, new program-specific application with in-car and in-class assessment and two-way feedback from instructor to student and co-pilot, student progression history and scores, and notifications.

3. People Readiness as evidenced by: prepared and resourced operations within Driver Education department, a recruited and fully trained team of contracted instructors, informed and prepared brokers, and an informed public through executed communication and marketing strategy.

Project Benefits

The value proposition for driver education is simple – if the program is effective, drivers who participate are more skilled and safer than those who do not. This is demonstrated through three primary indicators: testing pass rates (preparedness and skill to drive); traffic conviction rates (attitude); and claims frequency and severity (risk).

- **Preparedness:** Higher first attempt pass rates on knowledge and road tests indicate that educated drivers have more knowledge and skill, making them better prepared to drive than non-educated drivers.
- **Attitude:** Lower traffic conviction rates provide evidence that educated drivers are less likely to speed, drive impaired, or engage in other high risk driving behaviour than non-educated drivers.
- **Risk:** A lower frequency rate and severity of claims for educated drivers is an indicator that represents a reduced risk when behind the wheel than non-educated drivers.

To achieve these outcomes, it is critical for MPI to invest in its driver education programming to develop a higher quality learning experience with proven superior outcomes. With a proven program on offer, it is then critical to maximize participation and reach a broader range of audiences to increase the potential economic and societal benefits associated with the program. The redevelopment of HSDE is expected to achieve the following desired outcomes:

Value Drivers for our customers who require exceptional service and products

- Increase client engagement so students and co-pilots contribute more time and effort to achieve better preparation and safer driving.
- Enhance program reputational value as world-class education product
- Improve driver skills to better perceive and navigate hazards, prepare for different road types and conditions, and operate a vehicle with an appropriate level of confidence and skill
- Improve learning outcomes through broader understanding and deeper critical thinking, thereby impacting the traffic safety culture throughout and beyond the program experience
- Change driver attitude and culture to help Manitobans shift from passive observers to become active participants in our pursuit of zero fatalities on Manitoba roadways

Business Drivers for MPI and its ratepayers

- Reduce rate of at-fault physical damage claims for customers 15-24 years old
- Reduce rate of at-fault serious injury claims and fatality collisions for customers 15-24 year old
- Maintain excellent knowledge tests outcomes and improve poor road test outcomes for program participants
- Reduce the conviction rate for customers 15-24 years old
- Maintain student enrollment and increase completion rates

Financial Cost/Benefits Metrics

Project Costs – Phase 1 & 2	$2,089,352
Project Costs – Phase 3	$2,910,648

	Forecast 2% improvement	**Optimistic 5% improvement**
Net Present Values (Negative)	($ 56,422)	$ 4,042,866
Discounted Payback in years	16.2 years (2030/31)	12.85 years (2026/27)
Internal Rate of Return	6.3%	14.8%

The business case is included in *Part IV(ii) VM Appendix 2 - High School Driver Education Phase 3 Business Case*. The related research studies and financial analysis workbooks to support this initiative are included in:

- *Part V(ii) VM Appendix 2a High School Driver Education Financial Analysis*
- *Part V(ii) VM Appendix 2b High School Driver Education 2 percent PD BI Claims Forecasting*
- *Part V(ii) VM Appendix 2c High School Driver Education 5 percent PD BI Claims Forecasting*

VM.1.4 Customer Self-Service – Phase 1, 2 and 3

Project Description

This project will introduce a new customer self-service channel via the Internet and mobile platforms to meet current and future customer service expectations and needs. Building on the business architecture and technology infrastructure being introduced by the Physical Damage Re-engineering (PDR) program with respect to shop appointment booking as well as the portal technology for the business partner portal, this project will leverage these foundational corporate technology investments and assets to introduce an extended customer self-service channel for high volume/low-value transactions for maximum impact.

Phase 1 (Summer 2018)

The FY17/18 and FY18/19 funding for this project will implement the necessary base business and technical architecture which will provide a long-term and strategic platform for the customer self-service delivery channel and provide some relief to customer service delays being experienced in MPI Service Centres. This will include the implementation of:

- Customer portal for on-line authentication via the following type of devices (mobile phone, personal computer, personal device)
- MPI appointment based services eligibility & booking (for road tests and knowledge tests)

Phase 2 (Fall 2018)

This phase will introduce the expandability customer self-service capability of:

- Secure messaging (i.e. ability to send claims status messages)
- High School Driver's Education Registration
- E-notification (transition from paper mail to on-line e-copy of MPI notifications

Phase 3 (Winter 2018)

This phase will introduce the expandability customer self-service capability of:

- Driver abstracts (ability to purchase and obtain electronic copy)
- Claims experience letters (ability to purchase and obtain electronic copy)

Project Objectives

Introducing a customer self-service delivery channel at MPI will:

- Meet current and ongoing customer service levels and demand
- Eliminate excessive customer service delays at Service Centres
- Reduce operating expenses up to $416,000 per annum
- Is anticipated to reduce broker commissions

Project Benefits

The implementation of Phase 1 through 3 of a customer self-service channel is expected to generate the following project benefits:

- Eliminate excessive customer service delays at Service Centres
- Reduce service center employees which will be met through attrition
- Potentially reduce in broker transaction fees payable
- Meet the current and future customer service needs of an evolving customer base
- Reduce future mailing operational expenses by up to $172,500 per annum

This business case in its current form is not providing a near-term positive financial return on investment. It will however start to provide a positive financial return after year 8. The financial investment is deemed to be strategic in nature and partially a 'cost of doing business' to meet future customer needs from a service delivery and service channel perspective. The business case is also challenged in the early stages due to the licensing model for the portal technology. Until a critical mass of over

300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained. The financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

The business case and supporting financial analysis to support this initiative contains commercially sensitive information and is the subject of a motion seeking confidential treatment.

VM.1.5 BI3/Fineos Upgrade 2020

Project Description

In order to comply with the contractual provisions of the software licensing agreement between MPI and Fineos, MPI must maintain a 4-year vitality cycle on the Fineos platform. The last Fineos upgrade was completed in early 2016. Therefore, MPI must complete an upgrade of the Fineos platform before the end of calendar year 2020 to maintain status quo annual licensing rates.

The 4-year vitality cycle is a contractual provision of the MPI/Fineos software licensing agreement which requires MPI to maintain a software upgrade cycle on the software platform. If MPI does not maintain the 4-year vitality cycle, there is an option to exercise a 2-year extended maintenance period with a financial penalty of 2% in annual licensing fees and 10% in the annual customized licensing fee. At the end of the extended maintenance period, if MPI has not upgraded the software, the software will no longer be operationally supported or maintained by Fineos in the event of a defect, business problem, or system issue.

Project Objectives

- Upgrade the Fineos software platform to version 8.8

- De-commission some of the MPI customized functionality onto equivalent version 8.8 out of the box functionality to facilitate the ease and reduce the costs of future upgrades

Project Benefits

- MPI will meet the needs of the 4-year vitality cycle and will avoid incremental annual ongoing licensing costs
- Based on the preliminary scope determination and approach, MPI has identified 11 pieces of custom code that can be retired and migrated to out-of-the-box functionality. This will result in a reduction to the annual MPI customization support/licensing fees related to these identified customizations.
- Fineos platform will be migrated to a more mainstream and supported version of the software to reduce the risk associated with software availability and any maintenance support required by Fineos.

Financial Cost/Benefits Metrics

Project Costs	$2,277,264
Benefits Licensing Fee cost savings/avoidance	$127,000

The business case to support this initiative is included in *Part IV(ii) VM Appendix 4 BI3 – Fineos Upgrade 2020 Business Case*. The financial analysis for this business case is included in *Part IV(ii) VM Appendix 4a BI3 - Fineos Upgrade 2020 Financial Analysis*.

VM.1.6 Credit Card Strategy

A funding envelope for the Credit Card Strategy was approved in the 2018/19 Capital Budget based upon a particular solution. An alternative, less costly, solution is

presently being considered. Management is targeting a completed business case by the Fall 2018.

VM.1.7 Finance Re-engineering

Project Description

The Finance Re-engineering project (FRE) will develop a final detailed business case, strategy and roadmap to build upon the finance re-engineering study conducted by Deloitte in 2015. The FRE project will also revisit the recommendations from the original business case to ensure they are still viable for the current environment.

Ultimately, the Finance Re-engineering program will take documented future requirements and implement them in order to take advantage of opportunities to simplify, standardize and streamline processes, increase automation and improve the timeliness and visibility of financial information. The current project is to assess viability prior to the significant spend decision.

Improving process and technology maturity was identified as a high priority during the Finance Division review. The lack of mature infrastructure fundamentally limits Finance effectiveness and efficiency. The project will re-assess the original recommendations and alignment with the new Legacy Modernization project with the goal of moving this maturity along and allow for increased effectiveness and efficiency while considering impacts of the impending adoption of IFRS 17. Without efficient processes, timely and accurate information cannot be provided to the business.

Project Objectives

This project will be responsible for reassessing the FRE business case and recommendations from the Deloitte study conducted in 2015 and validate and confirm the need for MPI to take future action. This will include the following deliverables:

- Detailed business case

- Financial analysis for updating the finance systems
- Business vision – a strategic description of the business end state
- Project charter
- Project road map

Project Benefits

The project will establish a business case and project charter for the modernizing the systems and processes within the finance function. The project will identify opportunities for process improvements, increased automation, and enhanced efficiencies, which may include:

- Automated, scheduled processes and interfaces
- Automated workflows and approvals
- Electronic reporting and distribution
- Enhanced reporting and analytics
- Enhanced data governance
- Standardized processes with templates and tools
- Establishing a technology roadmap
- Enhanced integration with other corporate systems
- Electronic document management storage and access
- Self-service functionality, reducing paper-based processes

Realizing these opportunities through FRE is expected to deliver more timely and meaningful information to the business end users and stakeholders.

The project approach being taken demonstrates MPI's ongoing commitment to the Value Management process. MPI engaged a 3rd party to review and assess the current financial reporting system and provide independent recommendations. Due to other priorities these recommendations were not acted on and now they are being revisited to ensure their validity and applicability three years later.

An updated detailed business case, roadmap, financial impact will define the multi-year program.

Financial Cost/Benefits Metrics

Project Costs	$500,000

The business case to support this initiative is included in *Part IV(ii) VM Appendix 5 Finance Re-Engineering Business Case*.

VM.2 MPI'S COST BENEFIT ANALYSIS OF CUSTOMER CLAIMS REPORTING SYSTEM (CCRS)

Directive 11.14 of PUB Order 130/17 stated:

> *In the 2019 GRA, the Corporation shall file a cost/benefit analysis of the five remaining projects to be completed as part of the PDR program, should no such costs/benefit analyses form part of the new IT Strategic Plan. The discount rate used in the cost/benefit analysis shall be higher than the 3% previously used in the PDR project costs benefit evaluation. The Corporation shall select and justify the use of an appropriate discount rate commensurate with the risks inherent in the project.*

In response to this directive, MPI has completed an extensive cost benefit analysis and evaluation of the Customer Claims Reporting System (CCRS) aspect of the PDR Program, which is the largest capital investment remaining within the program. This evaluation was completed from multiple perspectives; sensitivity analysis criterion, discount rates, cash flow years, project scope alternatives, full project financial investment ($19M) and remaining financial investment to completion ($9.6M). The multitude of scenarios ensured that an informed decision as to whether or not to proceed with the project could be confidently made.

Customer Focus Group Feedback

In conjunction with the financial analysis, the Corporation also assessed the initiative from a customer perspective. In February 2018, with the assistance of Prairie Research Associates, nine customer focus group sessions were completed to engage customers and obtain feedback on a working prototype of the customer self-service first notice of loss experience and technology (mobile and PC versions of the platform).

- Six groups were segmented by age (18 to 29, 30 to 54, and 55 and older) and length of time since their last vehicle damage claim with MPI (within the past six months or more than two years ago/never had a claim).

- Three groups were conducted with claimants (i.e. within the past six months) split into three sub-groups: those with education no higher than a high school diploma, those whose first learned language was not English, and those who completed the process on PCs in the Corporation's computer lab.

After the completion of the customer focus groups, the following feedback and realizations were obtained:

- Current prototype has many technical, performance, stability and user experience issues
- 44 issues were identified that must be addressed by the MPI team, MPI/Mitchell team and Mitchell team in order to have a more usable product and to maintain customer engagement, adoption and utilization rates
- Despite the above stated technical issues, overall, customer feedback was very positive and receptive to the potential new customer service offering and experience

CCRS "Lite" Scope Option

With the positive customer feedback and overall consumer interest in utilizing this new customer service offering, Executive Sponsors then requested that the MPI project team assess a less complex business and technical solution with a reduced scope and reduced remaining project investment ($4M vs. $9.6M) to determine if a less complex business solution resulted in a more positive financial analysis. Unfortunately, due to the limited automation and internal operational efficiencies that would be realized with this option versus the full project scope, the overall financial analysis of this option resulted in a more negative NPV and a longer payback period and therefore was abandoned. A detailed review of the financials is provided below in the Financial Analysis section.

Project Risks

The remaining project risks were also evaluated in the overall project assessment, and also raised concerns regarding the successful delivery and benefits realization of the initiative. These project risks were as follows:

- Project timeline and budget being successfully met
- With a complete redesign and lack of a working prototype to perform a time and motion study for MPI contact centre staff (primary customer service channel for initiating a first notice of loss for a claim), there is a potential for negative productivity impacts to MPI contact centre first notice of loss process, resulting in having to increase FTE's in order to maintain customer service levels

The risks identified above also reduced the Corporation's confidence in the cost benefit analysis projection results. In order to keep overall project costs down and within budget, a significant portion (~$3M) of the business functionality was targeted to be incorporated into the existing CARS legacy system. With the recently identified Legacy Modernization risks and pending assessment for future viability of existing MPI legacy systems like AOL/CARS, the Corporation also assessed the potential near-term future need to replace CARS and re-invest in a new platform to build out the necessary CCRS business solution. This also presented the need for CCRS to have a pay-back period of less than 5 years in order to be considered a financially viable project worth pursuing.

Financial Analysis

The Corporation assessed the financial viability of the CCRS project from three different perspectives.

- First, from an 'incremental' spend perspective, which assessed the value management of the project from the remaining investment value of $9.6M. This view provided the perspective of 'should MPI continue to invest' in CCRS to its completion.
- Second, from a 'project lifecycle' spend perspective, which assessed the value management of the project for the entire investment value of $18.9M. Within each 'incremental' and 'project lifecycle' perspective models, the "Lite" scope and "Full" scope project costs were also analyzed from a sensitivity analysis perspective.
- Third, from a 'terminate' project perspective, which assessed the value management of terminating the project with a project LTD of $10.2M. This analysis also anticipated a 'status quo' operational model whereby as claims growth occurs over time, a relative growth in FTE's to support the business will be required due to no internal efficiencies gained.

The results of that 'incremental' spend financial analysis, assuming a 9.5% discount rate, are as follows:

Scope Option (Incremental)	**NPV – 10 Cost/Benefit Years (2018/19 to 2027/28)**	**NPV – 15 Cost/Benefit Years (2018/19 to 2032/33)**
CCRS "Lite" ($4M)	$(8,450,792)	$(11,366,373)
CCRS "Project Lifecycle" ($9.6M)	$(5,392,805)	$(3,332,909)

The results of that 'project lifecycle' spend financial analysis are as follows:

Scope Option (Project Lifecycle)	NPV – 10 Cost/Benefit Years (2018/19 to 2027/28)	NPV – 15 Cost/Benefit Years (2018/19 to 2032/33)
CCRS "Lite" ($13.3M)	$(17,957,411)	$(20,257,789)
CCRS "Project Lifecycle" ($18.9M)	$(15,164,729)	$(12,921,293)

The results of that 'terminate' project financial analysis are as follows:

Scope Option (Terminate)	NPV – 10 Cost/Benefit Years (2018/19 to 2027/28)	NPV – 15 Cost/Benefit Years(2018/19 to 2032/33)
CCRS Terminate Project ($10.2M)	$(13,458,581)	$(14,635,490)

Analysis Notes:

- Sensitivity analysis using 6.5% and 9.5% discount rates were performed. The NPV differences were not material to the financial comparison of the scenarios.
- $5.3M of costs previously classified as CCRS were written-off in 2017/18 and were deemed to not be directly related to CCRS. Therefore, not included in the NPV analysis.

Cost Benefit Analysis – financial analysis NPV drivers

- Ongoing Costs – additions
    - Mitchell software licensing costs
    - Software maintenance costs and FTE support requirements
- Ongoing Costs – variances
    - CCRS customer adoption rate percentages over time were reduced to be more realistic

    - Internal Efficiencies – staff productivity gains were reduced to be more realistic
- Project Costs – increased overall costs due to latest project budget forecasts
- Discount rate – 9.5% based on appropriate project risk categorization. The project was assessed as "high" risk and as such the discount rate was determined using a methodology developed by the Value Management Office. For the documented methodology see *VM Appendix 7 Discount Rate Methodology*.

Conclusion

It is acknowledged that customer demands and expectations of on-line and mobile customer self-service options are growing in the marketplace. The financial analysis, project risks and potential technology replacement risks in evaluating the CCRS project did not support the completion of the project at this time. Therefore, the Corporation has made the decision to cancel the CCRS project which has resulted in a FY2017/18 write-off of $9.3M in relation to the CCRS project expenses incurred to-date (note this is in addition to the $5.3M write-off discussed above). This action and result also demonstrates that the Corporation is adhering to the results of a rigorous Value Management process and that the practice of Value Management continues to mature. Gartner has also completed a detailed review of MPI's updated business case for CCRS, in the 2018 Physical Damage Re-engineering Program evaluation (*Part IV(ii) VM Appendix 6 Physical Damage Re-Engineering Program Evaluation 2018*), and acknowledges the appropriate level of detail in recent financial analysis in contrast to the 2017 PDR program review. Gartner has also confirmed support for MPI's decision to terminate the CCRS project based on the results of the 2018 financial analysis.

The Corporation however has not abandoned the business vision of a CCRS like solution in the future. As the results of the Legacy Modernization assessment are available and pending actions and priorities are identified, as well as marketplace advancements in available technologies that provide a similar customer self-service capability, the Corporation may re-develop a business case.

VM.3 MPI HAS COMPLETED AN UPDATED COST BENEFIT ANALYSIS FOR PHYSICAL DAMAGE RE-ENGINEERING (PDR)

Also in response to Directive 11.14 of PUB Order 130/17, whereby the PUB ordered:

> *In the 2019 GRA, the Corporation shall file a detailed breakdown of its analysis on the costs to operate and maintain the PDR Program*

The Corporation has completed a thorough analysis of the overall PDR program from a cost/benefit analysis and ongoing operating, staffing, maintenance and software licensing costs perspective. Incrementally, the Corporation completed a thorough cost/benefit analysis on the Remote Estimating and the CCRS projects.

Three projects, Appointment Manager, Partner Portal, and Enhanced Direct Repair, could not be independently evaluated as the PDR program is complex with many inter-dependencies, and inter-solution components which are very difficult to separate and evaluate independently. These three projects were however included in the overall PDR program cost/benefit and financial analysis. A more detailed explanation is provided below.

Accordingly, MPI believes it satisfied the spirit and intent of PUB Order 130/17 directive 11.14, in a manner that is pragmatic and coherent in the context of the PDR program.

Appointment Manager Project

The scope of this project was to complete a technology and architecture modernization of the Appointment Manager system. Also, the system was enhanced to support the ability for repair shops to manage repair estimate appointments which can be exposed to MPI customers via the CCRS or via the new customer self-service portal. This project is directly tied to the long-term vision and success of the Direct Repair Service model. Also, since the project was 80% complete at the time of the PUB Order and on track from a budget and schedule perspective (Feb. 2018 completion), the Corporation made the decision to complete the project as planned. That decision was supported

by the fact that this project will not have any incremental costs impacts (maintenance, hardware, software licensing) or staffing impact, as this was an upgrade to existing technology versus the introduction of a net new capability and was primarily based on a technology modernization and risk mitigation basis.

It is for the above reasons that the Corporation did not complete an independent cost/benefit analysis for the Appointment Manager project.

Partner Portal

The scope of this project was to complete a technology and architecture modernization of the Partner Portal system. This system is used to provide a secure platform to communicate and share critical information with Manitoba repair industry partners. This projects was completed in September 2017, therefore at the time of receiving the PUB Order, the project spend was incurred and the project was fully operational. As this was a replacement technology to an existing business/technical capability, no incremental maintenance or staffing impact is forecasted. The associated portal licensing expenses are incorporated into the PDR financial analysis.

It is for the above reasons that the Corporation did not complete an independent cost/benefit analysis for the Partner Portal project.

Enhanced Direct Repair

The Corporation did not complete an independent project cost/benefit analysis for the Enhanced Direct Repair project. The Enhanced Direct Repair project included the following scope items:

- Direct Repair Plus
- Enhancements to Direct Repair shop search tool
- New Collaborative Estimating/Direct Repair Parts Solution
- New Loss of Use Solution

The Direct Repair Plus and the Enhancements to the Direct Repair shop search tool are business and technology supported solutions which were part of the Direct Repair launch and commitments and formal agreements made with the Manitoba repair trade. This aspect of the PDR project was the final stage in implementing the overall solution to support the new Direct Repair process and were not independent solution components of the PDR program. A financial cost/benefit analysis of this independent component would not provide any 'measurable' value as it is directly tied to the overall vision and transformation of physical damage claims via Collaborative Estimating and Direct Repair which are the 'core' of the overall PDR program. The project was also nearing completion at the time of receiving the PUB Order.

It is for the above reasons that the Corporation did not complete an independent cost/benefit analysis for the Direct Repair Plus and the Enhancements to the Direct Repair shop search tool.

The new Collaborative Estimating/Direct Repair Parts Solution is a project that has experienced some challenges with respect to finalizing the business and technical solution. Multiple business and technical solutions have been evaluated to ensure that the Corporation's objectives in relation to a new Parts solution are realized. The project team have now finalized the direction and business and technical solution and the project is targeting a FY18/19 project completion.

The projected annual financial benefits of the new Parts Solution are in excess of $2.0M in future years, and with and overall investment of ~$1.5M for project implementation costs, the independent financial return is significant and very positive from a value management measurements perspective. This narrow independent view/analysis however is not an accurate financial measurement of the Parts Solution overall. The Parts Solution was an integrated component of the overall PDR program business case and benefits stream. Thus, other significant components of the PDR program expenditures contributed to the business capability to implement a new Parts Solution. It is therefore concluded by the Corporation that an independent cost benefit/financial analysis of the new Parts Solution is not an accurate reflection of the true cost/benefits of implementing this solution from a value management

perspective. The associated costs/benefits of this project are properly incorporated and included in the overall PDR program financial analysis.

The new Loss of Use Solution has been constructed into two streams from a business and technical solution. The first stream is to implement changes which better streamline and automate the repair shop and rental agency ask/approve process with respect to Loss of Use coverage utilization. By incorporating incremental automation, it is providing an enhanced customer and business partner experience while still managing and monitoring claims costs. The first phase of this solution was implemented in February 2018 and some incremental features are targeted to be implemented at the end of June 2018. The larger 'transformational' changes associated with Loss of Use are pending at this time. In order to proceed with investing in the associated business and technical solution changes, further discussions and negotiations with the Manitoba repair trade are required. At this time, these discussions are pending and will be incorporating into the MPI/Manitoba repair trade negotiations in the fall of 2018. Therefore, the corporation has temporarily suspended further work on the Loss of Use project. At the conclusion of the negotiations, the Corporation will conclude if the final stage of the Loss of Use project should proceed.

As per the Parts Solution stated above, the originally projected annual financial benefits of the new Loss of Use solution are in excess of $3.0M in future years, and with and overall investment of ~$1.4M for project implementation costs, the independent financial return is significant and very positive from a value management measurements perspective. Due to trade negotiations and the pending confirmation of the new business solution, the Loss of Use solution, implementation costs, and benefit stream have been re-forecasted accordingly. This narrow independent view/analysis however is not an accurate financial measurement of the Loss of Use Solution overall. The Loss of Use Solution was an integrated component of the overall PDR program business case and benefits stream. Thus, other significant components of the PDR program expenditures contributed to the business capability to implement a new Loss of Use Solution. It is therefore concluded by the Corporation that an independent cost benefit/financial analysis of the new Loss of Use Solution is not an accurate reflection of the true cost/benefits of implementing this solution from a value

management perspective. The associated costs/benefits of this project are properly incorporated and included in the overall PDR program financial analysis.

Remote Estimating

The Corporation did complete a detailed cost/benefit analysis of the Remote Estimating project during the summer/fall of 2017. This analysis was completed prior to the PUB Order and based on the outcome of that analysis, the Corporation made the decision to cancel the project. The project had a budget of $1.16M and at the time of the decision, $240K had already been incurred. The Remote Estimating project intended to leverage a video streaming technology to streamline and enhance claims estimating processes, quality of repair inspections, and rural claims processing.

As the project progressed into business solution development and contract negotiations with the incumbent vendor, issues and concerns surrounding the business solution, implementation costs, technology costs and software licensing costs, as well as limited FTE savings resulted in an in-depth review of the solution including a detailed financial cost/benefit analysis.

- From this analysis, the Corporation concluded the following:
- Utilization of video streaming technology in the physical damage repair industry would be a leading edge business and technical solution; the physical damage repair industry is primarily utilizing digital photo-based technology vs. video streaming technology
- Technical and business solution could not be successfully implemented within the budget allocation of $1.16M
- Ongoing software licensing costs were significant in comparison to the forecasted operational efficiency benefit and operating costs reductions
- FTE savings and internal efficiency opportunity was not large enough to justify the project investment
- The decision to cancel the project was a difficult decision for the Corporation to make, as this project did provide an opportunity to significantly enhance customer service for physical damage claims for rural Manitoba customers. However, in applying the new corporate Value Management process and

discipline, the Corporation believes the correct decision has been made with respect to the Remote Estimating project in that the investment to complete did not have a meaningful enough financial return to proceed.

PDR Program Financial Analysis

The in-depth review of the PDR project costs, ongoing costs and business benefits streams resulted in the following major variances that ultimately impact the PDR program value management, NPV and project pay-back period:

- Project Costs
  - Project costs for Predictive Analytics incorporated into financial analysis since benefits stream is accounted for in PDR program
  - CCRS project termination costs
- Ongoing Costs
  - Incorporated incremental staff costs for oversight and management of Direct Repair program and shop relationship management
  - Direct Repair premium paid per claim to Direct Repair Shops
  - Mitchell software licensing costs
  - Predictive Analytics operations
  - Partner Portal software licensing costs
  - Predictive Analytics software licensing costs
  - Parts Solution software licensing costs
- Benefits Stream Projection Updates:

Figure VM - 1 Difference between Gartner GRA and MPI at April 2018

Line No.	GARTNER SUBMISSION IN 2018 GRA - PDR FORECASTED BENEFIT STREAM						
1	Program Component	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
2	Internal Efficiencies/ Process Improvements	$ 380,000	$ 230,000	$ 380,000	$ 750,000	$ 2,040,000	$ 2,650,000
3	Labour Rate/ Repair Shop Savings		$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
4	Parts Sourcing Savings	$ 740,000	$ 1,050,000	$ 1,370,000	$ 2,170,000	$ 2,480,000	$ 2,800,000
5	Loss Prevention / Predictive Analytics			$ 500,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
6	Loss of Use				$ 1,050,000	$ 2,250,000	$ 3,000,000
7	Total Loss Valuation with Salvage					$ 1,200,000	$ 1,200,000
8	**Total**	**$ 1,120,000**	**$ 4,280,000**	**$ 5,250,000**	**$ 7,970,000**	**$ 11,970,000**	**$ 13,650,000**
9	APRIL 19 2018 - CCRS TERMINATION MPI EVALUATION - PER GARTNER CATEGORIES						
10	Program Component	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
11	Internal Efficiencies/ Process Improvements	$ -	$ 1,278,360	$ 924,526	$ 1,343,115	$ 1,720,246	$ 1,648,821
12	Labour Rate/ Repair Shop Savings	$ -	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
13	Parts Sourcing Savings	$ -	$ 600,000	$ 1,050,000	$ 1,370,000	$ 2,000,000	$ 2,050,000
14	Loss Prevention / Predictive Analytics	$ -	$ 83,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
15	Loss of Use	$ -			$ 43,753	$ 89,694	$ 91,936
16	Total Loss Valuation with Salvage	$ -					
17	Claims Audit Recoveries	$ -	$ 518,900	$ 500,000	$ 500,000	$ 500,000	$ 500,000
18	**Total**	**$ -**	**$ 5,480,260**	**$ 5,974,526**	**$ 6,756,868**	**$ 7,809,940**	**$ 7,790,757**
19	**Difference between Gartner GRA and MPI at Jan 2018**	**$ (1,120,000)**	**$ 1,200,260**	**$ 724,526**	**$ (1,213,132)**	**$ (4,160,060)**	**$ (5,859,243)**

- Benefits Stream Variances
  - Loss of Use savings updated based on changes in market place and trade negotiation forecasts
  - Internal efficiencies impacted by CCRS project termination
  - Parts Sourcing savings re-forecasted based on final business solution
  - Loss Prevention/Predictive Analytics re-forecasted based on operational results
  - Total Loss Valuation with Salvage by CCRS/PDR scope changes and CCRS project termination
  - Claim Audit Recoveries based on operational results

- Updated PDR NPV Analysis:

Discount Rate	NPV – 10 Cost / Benefit Years (2017/18 to 2026/27)	NPV – 15 Cost / Benefit Years (2017/18 to 2031/32)	NPV – 20 Cost / Benefit Years (2017/18 to 2036/37)
6.5%	$(58,251,784)	$(57,520,299)	$(56,916,244)
9.5%	$(49,876,271)	$(49,455,378)	$(49,152,881)

Conclusion

The Corporation has concluded the PDR Program did not attain desired results from a project delivery, value management assessment and realization perspective. During the course of the PDR program execution, the Corporation has identified the need for a more formal value management process and with the recent PDR, CCRS and other corporate initiative value management financial analysis and evaluations, the Corporation has demonstrated that the value management process is maturing at MPI. Examples of this would include the following project cancellation/termination decisions made during the course of the PDR program execution:

- Customer Claims Reporting System (CCRS)
- Remote Estimating
- Out-of-Province Estimating
- FNOL – Self Service Analytics
- Towing
- Enhanced Registration Card
- Enhanced Accident Profiling
- Bodily Integrity Inspection Certificate (BIIC) and Certificate of Inspection (COI)

The other lessons learned during the course of the PDR Program:

- Large Capital Program like PDR should have iterative business cases with no longer than 3 years project funding/value management period assessments

- Future software licensing, maintenance and operational support resource expenses need to be properly forecasted and included in financial analysis
- Appropriate Discount Rate needs to be applied to financial analysis based on project risk
- Appropriate project contingency % needs to be incorporated into project cost estimates based on project risks and updated annually based on findings/realizations
- Sensitivity analysis should be performed with respect to benefit stream projections

VM.4 MPI HAS MADE REVISIONS TO THE PROJECT GOVERNANCE FRAMEWORK THAT FORMALLY INCORPORATES THE VALUE MANAGEMENT PROCESS

In recognition of the evolution and increased maturity of the value management process, as well as the involvement of the Value Management Office in the development, review and post implementation reviews of business case realization, as well as the corporate objective of more actively and engaging operational management in the projects associated with their respective business cases, MPI Management has decided to change key project leadership roles and responsibilities and introduce a new role “Operational Business Champion”. As well as more actively engaging the Value Management Office in the entire lifecycle of the project.

Historically, all corporate initiatives were led from a business perspective by the Corporate Initiatives Sponsor. The Corporate Initiatives Sponsor served as the champion of all corporate projects and was the principal interface between the initiatives and the business community.

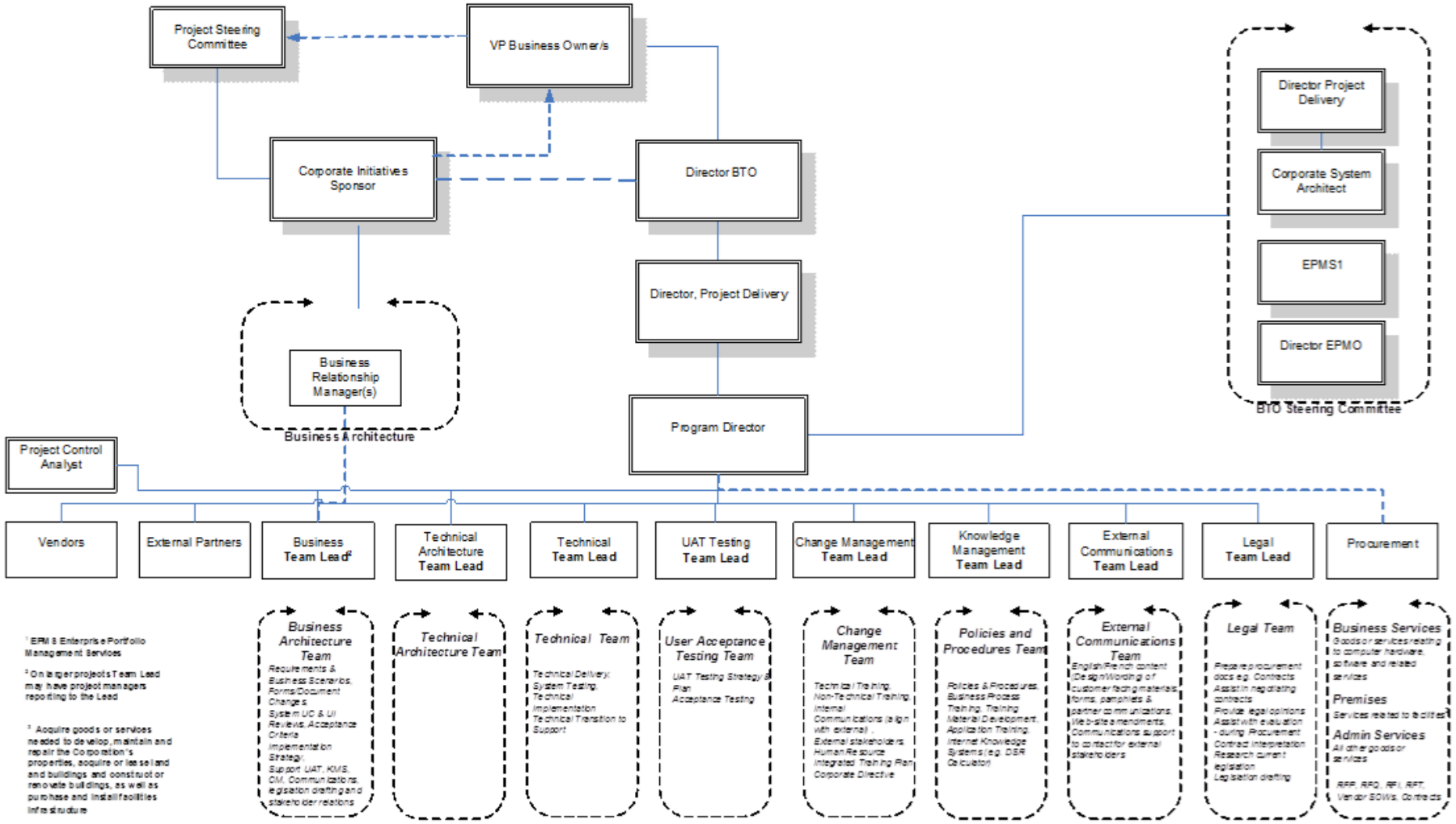
The Corporate Initiatives Sponsor had the authority to accept all deliverables and resolve all project issues.

Responsibilities included:

- Authorize and approve adequate budget and resources to successfully complete corporate initiatives
- Promote the benefits of the initiatives so as to gain buy-in from stakeholders
- Promote strategic and tactical direction to initiatives
- Overall acceptor of key project deliverables

In addition to assuming the role of champion on corporate initiatives, provided Business Strategy and Business Architecture support services from a project resourcing perspective.

Figure VM- 2: Historical view of project organizational structure and governance

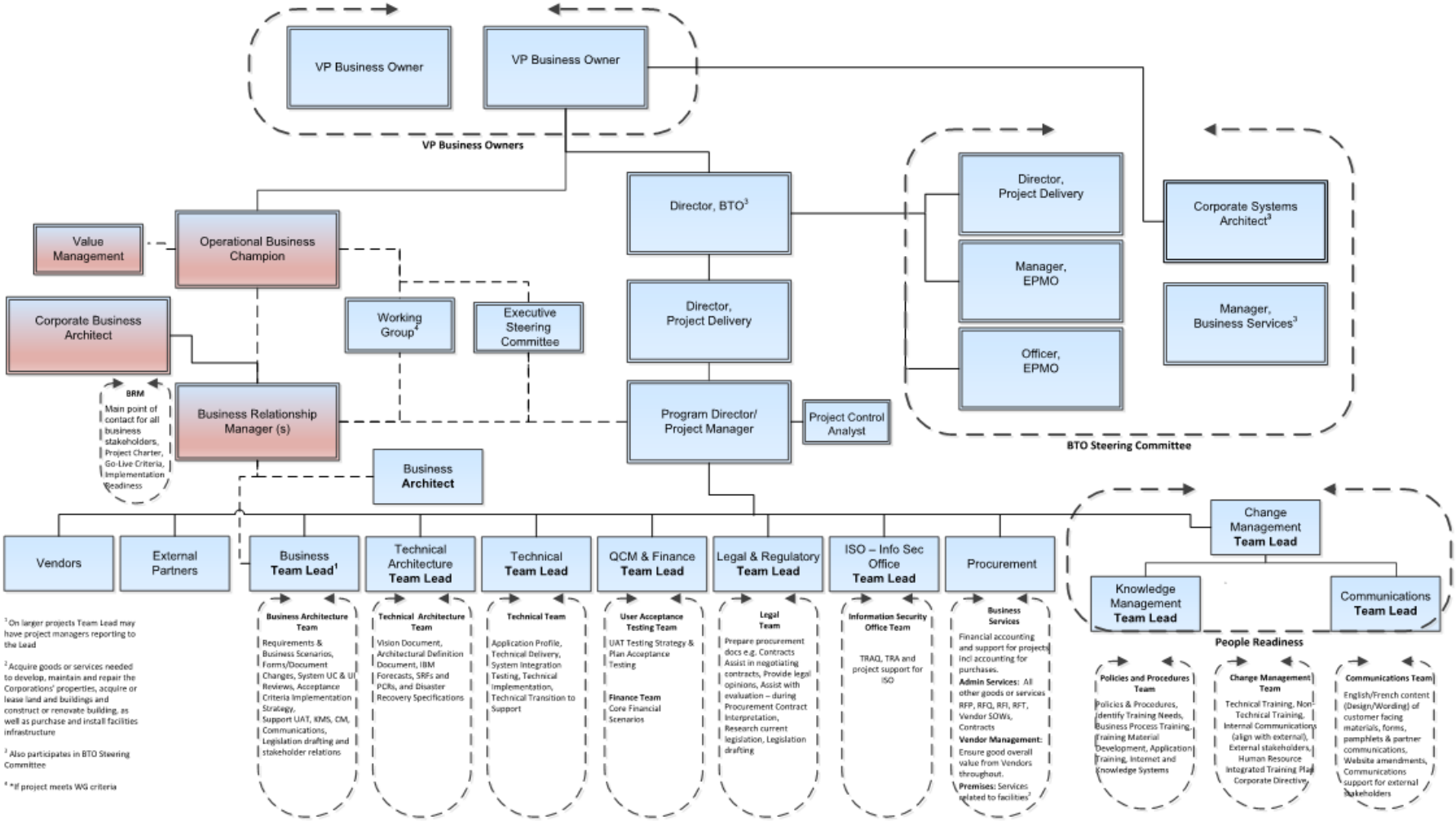


The new “Operational Business Champion” role will provide MPI operational management with the opportunity to become more actively involved, engaged, responsible and accountable for the development of future business cases for consideration and in the delivery of the business solution, project execution and overall expected benefits and ongoing costs realization.

The Operational Business Champion will have delegated responsibility/accountability and the proper authority and decision making to be successful in achieving:

- Corporate project objectives
- Project business case & value management measurements
- Future operational cost projections
- Review/approve business solution to ensure alignment to business case
- Shared accountability with Business Transformation Office (BTO) with respect to project scope, budget, milestones, and delivery date targets realized
- Personal & divisional performance management objectives, actions and timelines

Figure VM- 3: New view of project organizational structure and governance



As part of the new project organizational structure and governance model, the Value Management Office will continue to play a critical role in evaluating, measuring, and validating the business value of corporate initiatives.

This will be achieved by including the Value Management Office as follows:

- Business case draft review/feedback
- Project Change Requests and Decision Requests – review/assess potential impact to business case
- Validate assumptions from business case throughout the project
- Value management will need to link in on the project close out report to trigger future work required to measure benefits realization
- Complete project post-implementation review and benefits realization validation

In conclusion, MPI Management is confident that the introduction of the Operational Business Champion role and new project organizational structure and governance model will effectively align to the go the forward principles, expectations and outcomes that the value management process is expected to achieve.

Manitoba Public Insurance

Business Case

PROJECT NAME:	ITBT-2018-103 Technology Risk Management Program (2018-19) Application Risk Management
DATE CREATED:	9/20/2017
PREPARED/SUBMITTED BY:	Lawrence Lazarko & Karthi Pariyasamy
BUSINESS OWNER	Alex Ramirez, Jonathan Yakel, Karthi Pariyasamy
DEPARTMENT	Information Technology, Enterprise Systems Support
DIVISION	ITBT

PROJECT DESCRIPTION:

Application Risk Management: Invests in Information Technology application upgrades to remain on current and supported technologies. These investments are in people, process, and technology and include selection, design, deployment, testing and the remediation required to implement successfully. (Often applications will require updates / upgrades to work with each other. These application changes are included in scope where feasible).

BUSINESS NEED:

Application Risk Management: ensures maximum service availability and recoverability by ensuring information technology applications remain at peak effectiveness (free of defects, patched to resist security exploits, and compatibility with each other)

PROJECT OBJECTIVES:

Application Risk Management: invests in technology services and solutions which improves the operation of IT Applications within the IBM data centre. Investments in 2018/19 include:

- VIP Application Re-platform (off of Access 2003)
- Loss of Use Re-platform (off of .Net 2.0)
- Application Performance Management Suite (Enhanced Monitoring and Troubleshooting, deploy before BI3 upgrade)
- Team Foundation Server Upgrade
- Informatica 10 Upgrade
- CDW-EDW Strategy and Operational risk management
- Dollar Universe Upgrade

For each of the upgrade/improvement initiatives listed above in the project objectives section, a separate set of project documents will be completed. The individual project documents will address detailed project objectives/benefits and the monitoring of costs and benefits.

PROJECT BENEFITS:
• Optimal availability of applications, supporting key business services • Improved ability to identify and resolve application performance problems (down, degraded) • Improved support by having applications on a vendor supported version • Cost saving through better error detection and remediation • Reduce risk to business by upgrading aging and unsupported software platforms • Improved security and access controls • Improved integration with newer technologies

MONITORING OF ACTUAL PROJECT BENEFITS:
• Successful implementation of solutions (people, process, technology) which address the noted business needs, retaining the ability to receive / apply vendor updates and security patches • Each individual initiative will outline how it intends to monitor its costs and achievement of benefits • APM process will be used to gauge the risk level after the implementation of each initiative

IMPACT ANALYSIS:	
Who will be impacted	**What is the impact**
MPI Communications	Limited communications anticipated
MPI Human Resources	Additional roles and responsibilities may be required of existing staff. This may require training which would be implemented as part of the project.
MPI Organizational Readiness (Change Management)	Limited training required
Other Departments within MPI (please specify and add more rows as needed)	Limited change anticipated.

RISK ANALYSIS:		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**
Risks/Obstacles of Proceeding with Project		
Resource conflicts between this project and other projects or operational activities	M	Secure additional resources to allow required activities to be completed in parallel. If this is not possible, look for synergies to gain efficiencies. As a last resort, leverage change control to reduce scope.

Risks of NOT Proceeding with Project		
Additional downtime is incurred due to errors in or the inefficient execution of processes / procedures	H	There is increasing risk to availability of key services if continued investments in Information Technology Infrastructure are not made to keep up with new / emerging / future threats.

Legend L=Low; M=Medium; H=High

PROPOSED TIMING

Start in April 2018 and continue until February 2019 with quarterly progress checkpoints and regular reporting (weekly progress, monthly executive, and quarterly Gartner review)

LEGAL REVIEW REQUIRED?

No X Yes

If yes, include legal review's response:

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED?

(To be considered for medium and detailed business cases)

No **Yes** X

Yes: As per standard application services process Enterprise Architecture and Information Security will be consulted for all initiatives.

ENTERPRISE ARCHITECTURE REVIEW:

(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)

Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No
Technical Architecture	Reviewed Date: Nov 28, 2017 Review Completed By: Gary Dessler Findings: All of the application listed will require some level of architecture support. No concerns with the applications listed. Recommended to proceed: Yes

ENTERPRISE ARCHITECTURE REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: December 6, 2017 Review Completed By: Colin McDonald (David Bravi) Findings: ISO will need to be engaged to conduct a review and determine if a TRA is required, and to identify the applicable security policies and standards. Recommended to proceed: Yes

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	$875,000
• Capital percentage (if known)	%	77%
Estimated reduction/(increase) in cost (must be completed if applicable)		
• Continuing annual cost reduction/(increase) amount	$	(83,000) in 2019/20 increasing to (90,594) in 2022/23 (Year 5)
• One time cost reduction	$	0
• Other (specify)	$	0
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	0
• One time revenue increase	$	0
• Other	$	0

Cost/Benefit Analysis		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	N/A
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	N/A
• Internal Rate of Return (IRR)	%	N/A
• Net Present Value (NPV)	$	(1,034,130)
• Other (specify)		Benefit is derived from the reduction of corporate risk, and by ensuring suitable information technology application capabilities are in place

INITIAL ASSUMPTIONS:	
Cost Assumptions	External Labour: $125 / hr Internal Labour: $75 / hr Technology cost estimates are based expert judgement from the IBM, IT, and ESS teams. Cost refinement will occur in Q4 2017-18.
Cost/Benefit Assumptions	Benefits associated with each solution are independent
Other Assumptions	The continuing annual cost increases represent operating costs for licensing and IBM maintenance.

CONSTRAINTS/DEPENDENCIES:	
Cost Constraints	The ability to secure external resources with the necessary skills for the outlined rate
Schedule Constraints/ Dependencies	The resources are able to complete the required deliverables in the estimated time. These estimates were completed by MPI internal staff who are familiar with what is required for this activity, but may over / under estimate some activities. A contingency amount has been added to address this.
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES:	
Project Start Date	April 30, 2018
Project End Date	February 28, 2019
Other Milestones	Quarterly check points

APPROVAL REQUEST/RECOMMENDATION:
Requesting the Vice President of Information Technology and Business Transformation approve the following: The request for $875,000 be included in the Budget as part of the Technology Risk Management program (2018/19 fiscal year).

SIGN-OFF BY DOCUMENT CONTRIBUTORS: *(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)*			
Area/Department	**Date**	**Name of Individual Required for Sign-off**	**Signature**
ISO		Colin McDonald	
Business Architecture		John Remillard	
Technical Architecture		Gary Dessler	
Technology Modernization Project Delivery		Lawrence Lazarko	
BTO Project Delivery		Ginette Johnston	
Enterprise Systems Support		Jonathan Yakel	

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	September 21, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle YES or NO
Approved By	**Date**	**Printed Name**	**Signature**
Colin McDonald	Complete		
John Remillard	Complete		
Gary Dessler	Complete		
Lawrence Lazarko	Complete		
Jonathan Yakel	Complete		

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**
Brad Bunko			

Manitoba Public Insurance

Business Case

PROJECT NAME:	ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management
DATE SUBMITTED:	9/20/2017
PREPARED/SUBMITTED BY:	Lawrence Lazarko & Rafiq Valliani
BUSINESS OWNER	Colin McDonald, Rob Crittenden, Alex Ramirez
DEPARTMENT	Information Security Office, Information Technology
DIVISION	ITBT

PROJECT DESCRIPTION:

Information Security Risk Management: Invest in process and technology to protect MPI from current, emerging, and future threats. These further investments build processes and technologies reviewed, recommended, and deployed in 2017/18.

BUSINESS NEED:

Information Security Risk Management: MPI collects, stores, and leverages customer and partner data as part of the insurance, registry, and identity services it provides. It is important to continue investments in people, processes, and technology to address current, emerging, and future threats.

The ISSRM program will complete in Feb 2018 and leveraged the ISO 27001/27002, version 2005. MPI is expected to achieve the target level of maturity, set at the start of the program. Further investment is required to maintain this level of maturity when compared to newer standards which require higher levels of Cyber Security awareness, responsiveness, and protection.

PROJECT OBJECTIVES:

The project will be complete / successful when it has implemented solutions which address the following business needs, they include:

- [Redacted for IT security reasons]
- [Redacted for IT security reasons]
- [Redacted for IT security reasons]
- [Redacted for IT security reasons]
- [Redacted for IT security reasons]
- [Redacted for IT security reasons]

For each of the upgrade/improvement initiatives listed above in the project objectives section, a separate set of project documents will be completed. The individual project documents will address detailed project objectives/benefits and the monitoring of costs and benefits.

PROJECT BENEFITS:
• Reduced risk from current, emerging, and future information security threats • Optimized investment in efficient processes and the right technologies

MONITORING OF ACTUAL PROJECT BENEFITS:
• Successful implementation of solutions (people, process, technology) which address the noted business needs • Measurement of process maturity • Measurement of the effectiveness of Information Security Solutions

IMPACT ANALYSIS:	
Who will be impacted	**What is the impact**
MPI Communications	Limited communications anticipated
MPI Human Resources	Additional roles and responsibilities may be required of existing staff. This may require training, discussions with MGEU.
MPI Organizational Readiness (Change Management)	Change support will be required in cases where there are significant changes to processes / procedures, and in cases where awareness training is required.
Other Departments within MPI (please specify and add more rows as needed)	Limited change anticipated

RISK ANALYSIS:		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**
Risks/Obstacles of Proceeding with Project		
Resource conflicts between this project and other projects or operational activities	M	Secure additional resources to allow required activities to be completed in parallel. If this is not possible, look for synergies to gain efficiencies. As a last resort, leverage change control to reduce scope.
New requirements for projects and operational activities	M	Apply changes to new projects going forward. Implement changes / remediation, required for in flight projects, as part of continuous improvement activities.
Significant amounts of parallel activities	H	Additional change management activities may be required to ensure effective technology onboarding and adoption.

Risks of NOT Proceeding with Project		
Additional downtime is incurred due to errors in or the inefficient execution of processes / procedures	H	There is increasing risk to availability of key services if continued investments in Information Security are not made to keep up with new / emerging / future threats.
Customer and Partner information have a significant market value making MPI a target for cyber threats	H	There is increasing risk to integrity / confidentiality of key customer / partner information if continued investments in Information Security are not made to keep up with new / emerging / future threats. There is also reputational risk, that customers / partners lose trust in working with MPI as a result of a breach which results in incremental costs to restore this trust.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING

Start in April 2018 and continue until February 2019 with quarterly progress checkpoints and regular reporting (weekly progress, monthly executive, and quarterly Gartner review)

LEGAL REVIEW *REQUIRED*?

No X Yes

A decision regarding the necessity of a Legal review will be revisited prior to initiating each project/ initiative.

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED?
(To be considered for medium and detailed business cases)

No **Yes** X

Reviews will be completed prior to initiating each project/ initiative.

ENTERPRISE ARCHITECTURE REVIEW:
(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)

Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

ENTERPRISE ARCHITECTURE REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Technical Architecture	Reviewed Date: Dec 12, 2017 Review Completed By: Gary Dessler Findings: Most of the initiatives identified will require involvement from the Technical Architecture team. Please include an architect in the project work going forward. Recommended to proceed: Yes

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date:2017-12-06 Review Completed By: Colin McDonald (Leroy de Souza) Findings: Please ensure that the Information Security Office is engaged during each of the project phases so that updated corporate security policies and standards are identified and met. Recommended to proceed: Yes

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	1,700,000
• Capital percentage (if known)	%	100%
Estimated reduction/(increase) in cost (must be completed if applicable)		
• Continuing annual cost reduction/(increase) amount	$	(229,000) in 2018/19 to (338,301) in 2022/23 (Year 5)
• One time cost reduction	$	0
• Other (specify)	$	0
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	0
• One time revenue increase	$	0
• Other	$	0

Cost/Benefit Analysis		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	N/A
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	N/A
• Internal Rate of Return (IRR)	%	N/A
• Net Present Value (NPV)	$	(2,853,997)
• Other (specify)		Benefit is derived from the reduction of corporate risk, and by ensuring suitable information security capabilities are in place

INITIAL ASSUMPTIONS:	
Cost Assumptions	External Labour: $125 / hr. Internal Labour: $57 / hr. Technology cost estimates are based on expert judgement from the ISO team. Cost refinement will occur in Q4 2017-18. With significant Information Security investments occurring in significant changes occurring in industry (ex. new and emerging Cyber Security threats), further refinement of scope will be required to ensure maximum usage of the allocated funds.
Cost/Benefit Assumptions	Benefits associated with each solution are independent
Other Assumptions	The continuing annual cost increases represent maintenance of various network and security applications and the data loss prevention solutions.

CONSTRAINTS/DEPENDENCIES:	
Cost Constraints	The ability to secure external resources with the necessary skills for the outlined rate
Schedule Constraints/ Dependencies	The resource is able to complete the required deliverables in the estimated time. These estimates were completed by MPI internal staff who are familiar with what is required for this activity, but may over / under estimate some activities. A contingency amount has been added to address this.
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES:	
Project Start Date	April 30, 2018
Project End Date	February 28, 2019
Other Milestones	Quarterly check points

APPROVAL REQUEST/RECOMMENDATION:
Requesting the Vice President of Information Technology and Business Transformation approve the following: This request for $1,700,000 to be included in the Budget, as part of the Technology Risk Management program (2018/19 fiscal year)

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature
ISO		Colin McDonald	
Business Architecture		John Remillard	
Technical Architecture		Gary Dessler	
Technology Modernization Project Delivery		Lawrence Lazarko	
BTO Project Delivery		Ginette Johnston	
Enterprise Systems Support		Jonathan Yakel	

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	September 21, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle YES or NO
Approved By	**Date**	**Printed Name**	**Signature**
Colin McDonald	Complete		
John Remillard	Complete		
Gary Dessler	Complete		
Lawrence Lazarko	Complete		
Jonathan Yakel	Complete		

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**
Brad Bunko			

Manitoba Public Insurance

Business Case

PROJECT NAME:	ITBT-2018-102 Technology Risk Management Program (2018-19) Infrastructure Risk Management
DATE SUBMITTED:	9/20/2017
PREPARED/SUBMITTED BY:	Lawrence Lazarko
BUSINESS OWNER	Rob Crittenden, Alex Ramirez, Jonathan Yakel, Al Williams
DEPARTMENT	Information Technology, Enterprise Systems Support
DIVISION	ITBT

PROJECT DESCRIPTION:

Infrastructure Risk Management: Invests in Information Technology infrastructure upgrades to remain on current and supported technologies. These investments are in people, process, and technology and include selection, design, deployment, testing and the remediation required to implement successfully. (Often applications will require updates / upgrades to work on different infrastructure. These application changes are included in scope where feasible).

BUSINESS NEED:

Infrastructure Risk Management: ensures maximum service availability and recoverability by ensuring information technology infrastructure remains at peak effectiveness (free of defects, patched to resist security exploits, and compatibility with different applications)

PROJECT OBJECTIVES:

Infrastructure Risk Management: invests in technology services and solutions which improves our operation of IT Infrastructure assets within the IBM data centre. Investments in 2018/19 include:

Foundational platform Upgrades to maintain supportability, avoiding infrastructure risk:

- Intel Server Hardware and VMware ESXi Refresh
- Windows Server Vitality (2008 > 2016)

Hardware vitality to avoid failure, improve performance, and invest in newer platforms that provide infrastructure maximization:

- File Server Storage Solution
- SAN Storage and TSM Backup
- Security Device Refresh

For each of the upgrade/improvement initiatives listed above in the project objectives section, a separate set of project documents will be completed. The individual project

documents will address detailed project objectives/benefits and the monitoring of costs and benefits.

PROJECT BENEFITS:

- Optimal availability of infrastructure, supporting key business services.
- Maintaining vendor support to minimize risk to business applications
- Where environments are more complex we are looking to invest some extra time and effort into making sure that vendor best practices are followed, to maximize uptime of the environment.

MONITORING OF ACTUAL PROJECT BENEFITS:

- Software Platform Upgrades, will be completed, keeping the platform in a supported position with the vendor
- Hardware updates for filesystems and server hardware will be selected, ordered, installed and the migration to these platforms will be completed.
- Overall, successful implementation of solutions (people, process, technology) will address the noted business needs, retaining the ability to receive / apply vendor updates and security patches

IMPACT ANALYSIS:

Who will be impacted	What is the impact
MPI Communications	Limited communications anticipated
MPI Human Resources	Additional roles and responsibilities may be required of existing staff. This may require training which would be implemented as part of the project.
MPI Organizational Readiness (Change Management)	Very limited change required; however training of ITBT Support staff, on new platforms, may be required.
Other Departments within MPI (please specify and add more rows as needed)	Very limited outside of ITBT, as this would be limited to the underlying platforms – system users should see little to no impact.

RISK ANALYSIS:		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**
Risks/Obstacles of Proceeding with Project		
Resource conflicts between this project and other projects or operational activities	M	Secure additional resources to allow required activities to be completed in parallel. If this is not possible, look for synergies to gain efficiencies. As a last resort, leverage change control to reduce scope.
Significant volume of upgrades / updates may result in additional change to applications	H	Any unplanned scope / risk identified will be addressed via project change control, leveraging project contingency as required.

Risks of NOT Proceeding with Project		
Additional downtime is incurred due to errors in or the inefficient execution of processes / procedures	H	There is increasing risk to availability of key services if continued investments in Information Technology Infrastructure are not made to keep up with new / emerging / future threats.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING

Start in April 2018 and continue until February 2019 with quarterly progress checkpoints and regular reporting (weekly progress, monthly executive, and quarterly Gartner review)

LEGAL REVIEW REQUIRED?

No **Yes** - Prior to starting each new upgrade/improvement/ project

If yes, include legal review's response:

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED?
(To be considered for medium and detailed business cases)

No **Yes** - Prior to starting each new upgrade/improvement/ project

ENTERPRISE ARCHITECTURE REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No
Technical Architecture	Reviewed Date: Dec 1, 2017 Review Completed By: Gary Dessler Findings: Please include technical architecture when this initiative begins. Recommended to proceed: Yes.

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)* **Yes** - Will be done prior to starting each new upgrade/improvement/ project	
Information Security Office	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	1,625,000
• Capital percentage (if known)	%	100%
Estimated reduction/(increase) in cost (must be completed if applicable)		
• Continuing annual cost reduction/(increase) amount	$	175,000 in 2018/19, increasing to 605,740 in 2022/23 (Year 5)
• One time cost reduction	$	0
• Other (specify)	$	0
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	0
• One time revenue increase	$	0
• Other	$	0

Cost/Benefit Analysis		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs.	4.19
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs.	3.83
• Internal Rate of Return (IRR)	%	17.0%
• Net Present Value (NPV)	$	356,312
• Other (specify)		Benefit is derived from the reduction of corporate risk, and by ensuring suitable information technology infrastructure capabilities are in place

INITIAL ASSUMPTIONS:	
Cost Assumptions	External Labour: $125 / hr Internal Labour: $45 - $75 / hr Technology cost estimates are based expert judgement from the IBM, IT, and ESS teams. Cost refinement will occur in Q4 2017-18.
Cost/Benefit Assumptions	The Cost/Benefit of keeping current on technology, is that we retain vendor support, maintain the ability to patch (which can include security patches) and reduce overall risk to the computing environment. It also helps to keep the level of technical debt from increasing. The net annual cost reduction represents reduced IBM maintenance costs slightly offset by external storage costs.

Other Assumptions	Based upon technology assessed in 2016-17, prices may change during procurement

CONSTRAINTS/DEPENDENCIES:	
Cost Constraints	The ability to secure external resources with the necessary skills for the outlined rate
Schedule Constraints/ Dependencies	Resource are able to complete the required deliverables in the estimated time. These estimates were completed by MPI internal staff who are familiar with what is required for this activity, but done so with limited understanding of the other IT impacting business cases that would impact resourcing. A contingency amount has been added to hopefully address this.
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES:	
Project Start Date	April 30, 2018
Project End Date	February 28, 2019
Other Milestones	Quarterly check points

APPROVAL REQUEST/RECOMMENDATION:
Requesting the Vice President of Information Technology and Business Transformation approve the following: The request for $1,625,000 be included in the Budget as part of the Technology Risk Management program (2018/19 fiscal year).

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature
ISO		Colin McDonald	
Business Architecture		John Remillard	
Technical Architecture		Gary Dessler	
Technology Modernization Project Delivery		Lawrence Lazarko	
BTO Project Delivery		Ginette Johnston	
Enterprise Systems Support		Jonathan Yakel	

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	Sept 21/ 17		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle YES or NO
Approved By	**Date**	**Printed Name**	**Signature**
Colin McDonald			
John Remillard			
Gary Dessler			
Lawrence Lazarko			
Jonathan Yakel			

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**
Brad Bunko			

Manitoba Public Insurance

Business Case

PROJECT NAME:	ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation
DATE SUBMITTED:	9/21/2017
PREPARED/SUBMITTED BY:	Lawrence Lazarko/ Kenton Friesen
BUSINESS OWNER	John Remillard, Jonathan Yakel, Lawrence Lazarko, Alex Ramirez
DEPARTMENT	Information Technology, Business Architecture, ESS
DIVISION	ITBT

PROJECT DESCRIPTION:

Risk Registry Remediation: Implement solutions to lessen high priority Enterprise risks. Upcoming investments will focus on improving process maturity for Business Continuity Management (BCM) with specific investments in Information Technology Service Continuity Maturity (ITSC). The goals of this project focus on review, refinement, and testing of MPI's IT recovery capabilities:

- Update IT major incident and disaster recovery processes and procedures to reflect additional technical and business scenarios.
- Execute major incident and disaster recovery exercises simulations and tests, based on processes and procedures, and report on the results.
- Further refine processes and procedures based upon the outcome of these exercises, simulations and tests.
- Further integrate Information Technology Service Continuity processes into Information Technology Operational Processes and Business Transformation Project Delivery processes ensuring operational and project changes incorporate requirements for, and ensure updates to Information Technology Service Continuity processes. This ensures continuous maintenance of the processes and procedures, and/or documented additions for new scenarios.

The project will attempt to find resources internally to fulfill project resourcing needs. If resources are not available internally, then the project will work with the Enterprise Project Management Office (EPMO) to secure resources through the master service agreement with MPI's resourcing partners DXC Technologies (formerly HP) and IBM.

BUSINESS NEED:

Risk Registry Remediation: Implement solutions to lessen high priority Enterprise risks. Past investments have focused on:

- Business Continuity and Disaster Recovery, which reduced enterprise risk through better event preparedness and by investing in response capabilities. This was delivered as part of the Information Technology Optimization Program and prior to the Technology Risk Management program.

- Data masking, which reduced enterprise risk by ensuring personally identifiable information (PII) was protected from unauthorized use outside of production environments. This involved masking or "changing" data (ex. key identifiers such as Customer Name) so that it is still usable for application development and testing purposes, but no longer reflects a specific customer. Additional processes and safeguards were also implemented into non-production environments where data could not be masked. This was delivered in Year 1 and Year 2 of the Technology Risk Management program.

In Q2 – 2017/18 MPI engaged IBM Resiliency Services (RS) for a Recoverability Assessment (RA). The document was completed in Q3 2017-18 and identified recommendations for improvement. MPI also completed a self-assessment using the Gartner ITScore for Business Continuity Management (BCM) as a baseline and verified ratings and findings with a Gartner Analyst. This assessment also highlighted recommendations for further improvement.

The BCMP Strategic and Annual Work Plan identifies the Loss of Technology (aka Disaster Recovery/ DR) as one of the pillars of the BCM Program. This includes maturing MPI Loss of Technology as such there are integration points between this project and the BCMP Strategic and Annual Work Plan.

MPI has the technical and process capability to recover from a significant disaster (loss of an entire computing facility) through the Information Technology Optimization program. Since the completion of that program however, the business need has increased to include further recovery scenarios (recover part of the computing environment). MPI has the technical and IT process capability to do this, but has not fully documented new or evolving scenarios, and does not have a regular plan to test and validate these scenarios.

PROJECT OBJECTIVES:

The project will be complete / successful when it has:

- Addressed the recommended remediation identified by IBM Resiliency Services (RS) in the Recoverability Assessment (RA) report.
- Implemented continuous improvement processes that will contribute to increasing BCMP maturity.
- Created Business Continuity Management (BCM) and Information Technology / Disaster Recovery (IT/DR) artifacts that address the IBM recommended remediation (e.g. procedures, response plans, exercises plans, etc.).

PROJECT BENEFITS:

- The recommended remediation identified by IBM Resiliency Services (RS) in the Recoverability Assessment (RA) report have been addressed (e.g. resiliency improved, increase BCMP maturity, etc.).
- Improve MPI's capability to respond to an IT service disruption through enhanced processes and procedures, resulting in less downtime.

- Improve auditability of these processes / procedures through validation exercising and testing.
- Continuous improvement processes implemented will ensure capabilities are not reduced through project or operational change, and that maturity increases over time without further project investment.

MONITORING OF ACTUAL PROJECT BENEFITS:

- Annual maturity assessment, with results provided as per the Value Management process.
- A quarterly report from the Business Continuity Management Program (BCMP) team outlining exercises / tests executed and the results, as well as the ongoing review of processes and procedures.
- Project timelines and costs are to be monitored by the Technology Modernization Program project management team, with assistance from the BCMP Team.
- BCMP Team to validate that the recommended remediation activities identified by IBM Resiliency Services (RS) in the Recoverability Assessment (RA) report have been implemented.
- Reassessment of the Gartner BCM Maturity Score and compare the new score with the previous score.
- Validate that the project deliverables have been created as planned (e.g. MPI DR run books, DR response plan, DR exercise plan, etc.) and are readily accessible to MPI for use in case of a DR incident.

IMPACT ANALYSIS:

Who will be impacted	What is the impact
MPI Communications	No significant impact
MPI Human Resources	Based upon the insights gained from IBM Resiliency Services (RS), Gartner, and findings from major incidents which occurred in 2017-18, it is recommended that additional outside expertise be brought in to augment the existing team and cross train MPI resources (providing long term capability).
MPI Organizational Readiness (Change Management)	No significant impact
Other Departments within MPI (please specify and add more rows as needed)	Additional work will be required from the Business Continuity Management Program (BCMP) Team and members of the Information Technology and Business Transformation division to ensure that processes / procedures are adhered to and the outlined testing, reporting, metrics and continuous improvement are executed to achieve and maintain the desired level of maturity.

	The other ITBT directorates / department impacted may include Business Architecture, Technical Architecture, Information Technology (IT), Enterprise Systems Support (ESS) and the Information Security Office (ISO). This will include connecting the DR processes implemented with the procedures for gathering technical DR requirements, change management, problem management, incident management, project management, etc. All of which is to ensure that the DR capabilities created are done to meet the expectations of the business in a disaster situation (i.e. Recovery Time Objective or RTO).

RISK ANALYSIS:		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**
Risks/Obstacles of Proceeding with Project		
Resource conflicts between this project and other projects or operational activities.	M	Secure additional resources to allow required activities to be completed in parallel. If this is not possible, look for synergies to gain efficiencies. As a last resort, leverage change control to reduce scope.
New requirements for projects and operational activities	M	Apply changes to new projects going forward. Implement changes / remediation, required for in flight projects, as part of continuous improvement activities.

Risks of NOT Proceeding with Project		
Additional downtime is incurred due to errors in or the inefficient execution of processes / procedures.	H	Refined processes and procedures, along with regular testing and reported metrics address this.
Insufficient resources to execute 2018-19 Business Continuity Management program.	M	Past attempts to execute this operationally, in parallel to other priorities, has not yielded the desired level of results and metrics. The resource(s) requested will enable the desired results to be achieved.
Additional time to develop this capability.	M	The skillset required for this work differs from that of internal staff. It will take longer to do.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING
Start in April 2018 and continue until February 2019 with quarterly progress checkpoints and regular reporting (weekly progress, monthly executive, and quarterly Gartner review)
LEGAL REVIEW REQUIRED?
No X Yes **To be confirmed prior to start of start of project.**

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED? *(To be considered for medium and detailed business cases)*	
No Yes X	
To be completed prior to start of project	
ENTERPRISE ARCHITECTURE REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No
Technical Architecture	Reviewed Date: Dec 1, 2017 Review Completed By: Gary Dessler Findings: The project is approved to proceed. Architecture support will be provided as needed. Recommended to proceed: Yes

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: December 6, 2017 Review Completed By: Colin McDonald (David Bravi) Findings: ISO will need to be engaged to ensure security related items are considered as part of the process. Recommended to proceed: Yes

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	300,000
• Capital percentage (if known)	%	0%
Estimated reduction in cost (must be completed if applicable)		
• Continuing annual cost reduction amount	$	0
• One time cost reduction	$	0
• Other (specify)	$	0
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	0
• One time revenue increase	$	0
• Other	$	0

Cost/Benefit Analysis		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs.	N/A
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs.	N/A
• Internal Rate of Return (IRR)	%	N/A
• Net Present Value (NPV)	$	(281,690)
• Other (specify)		Benefit is derived from the reduction of corporate risk, and by ensuring suitable business continuity capabilities are in place and regularly validated through test and full exercises.

INITIAL ASSUMPTIONS:	
Cost Assumptions	Assumes 2000 hours of external resources time as follows: • 400 hours on MPI specific run books (how to manuals, refinement of existing and creation of new) • 800 hours on response planning, exercising of responses, and documenting results and metrics • 150 hours on review of / updates to the BCMP Loss of Technology Strategy • 250 hours on updates to the Business Impact Assessment documents, including continuous improvement processes • 200 hours on cross training MPI staff • 200 hours for Project Manager This uses the BTO external rate of $125 / hr. and includes 8% contingency. The project hours assigned to BCMP internal staff (400 hours) are assigned a labour rate of $75/hr.
Cost/Benefit Assumptions	Assumes the Gartner ITScore (method of measuring benefits) does not change, and that we use the results of the 2017-Q3 IBM assessment (that there are no new requirements added beyond what was included in that review).
Other Assumptions	There is no opportunity to eliminate BCMP operational activities in order to release internal staff to work on this project beyond the 400 hours currently assigned. The project plan (including milestones, deliverables, etc.) will be monitored by Technology Modernization (TechMod) resources.

CONSTRAINTS/DEPENDENCIES:	
Cost Constraints	The ability to secure external resources with the necessary skills for the outlined rate.
Schedule Constraints/ Dependencies	The resource is able to complete the required deliverables in the estimated time. These estimates were completed by MPI internal staff who are familiar with what is required for this activity, but may over / under estimate some activities. A contingency amount has been added to address this.
Other Constraints/ Dependencies	This assumes assistance and oversight from the existing MPI Business Continuity Program (BCMP) Team (estimate of 400 hours in total). If this cannot be provided, then there is risk some deliverables may not fully integrate into the larger corporate processes.

SIGNIFICANT MILESTONES:	
Upon Approval	Upon Approval a Resource Request is to be submitted as per master agreements in preparation for the project start date (approval expected in January, March, or February 2018).
Project Start Date	April 30, 2018
Project End Date	February 28, 2019
Other Milestones	Quarterly check points

APPROVAL REQUEST/RECOMMENDATION:
Requesting the Vice President of Information Technology and Business Transformation approve the following: The inclusion of $300,000 in the Budget, as part of the Technology Risk Management program (2018/19 fiscal year)

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature
ESS – BCMP	Nov 10-2017	Kenton Friesen	
Information Technology (IT)	Nov 10-2017	Lawrence Lazarko	

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	Nov 13-2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle **YES** or NO
Approved By	**Date**	**Printed Name**	**Signature**
John Remillard	Complete		
Jonathan Yakel	Complete		
Lawrence Lazarko	Complete		
Colin McDonald	Complete		

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**
Brad Bunko			

PROJECT NAME: ITBT-2018-103 Technology Risk Management Program (2018) Application Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	Project Costs	(875,000)	0	0	0	0	**(875,000)**
2	Project Benefit	67,000	(83,000)	(83,000)	(86,750)	(90,594)	**(276,344)**
3	Net Project Impact	(808,000)	(83,000)	(83,000)	(86,750)	(90,594)	**(1,151,344)**
4	Cumulative Net Project Impact	(808,000)	(891,000)	(974,000)	(1,060,750)	(1,151,344)	
5	**Net Present Value**	**(1,034,130)**	based on discount rate of	6.50%			
6	**IRR**	**N/A**					
7	**Payback Period in years** **Return on Investment**	-92%	-102%	-111%	-121%	-132%	
8	**Discounted Payback Period in years**						

PROJECT NAME: ITBT-2018-103 Technology Risk Management Program (2018) Application Risk Management

List all major financial assumptions used to develop the Financial Template

Line No.	Spreadsheet Assumptions		Source
2	Project Contingency	15%	Project
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.
5	Inflation increase on expenses/costs	2.50%	Finance unless fixed price - amend specific cells
6	Benefits Gross up as % of Salary	30%	HR/Finance covers pension, cpp, ei, heath benefits, etc.

7 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

8 **Project Specific Assumptions (please list)**

9	1	The ability to secure external resources with the necessary skills for the outlined rate.
10	2	This document is a summary of multiple work estimates: - ITBT-2018-004 - Application Performance Management Suite - ITBT-2018-005 - VIP - ITBT-2018-055 - TFS - ITBT-2018-006 - LOU - ITBT-2018-001 - Informatica - ITBT 2018-008 - CDW and EDW - ITBT 2018-009 - Dollar U Upgrade
11	3	Staff costs included in the $75 /hr resource estimate value
12	4	Additional benefits from Application Dynamics (Monitoring) resulting in availability improvements, reduced staff effort (small), OT charges (small) are not factored in at this point
13	5	TFS: One time costs includes Project manager, IIS resources and standing up of 2 windows servers, 1 SQL Database se
14	6	The ongoing cost for the "hardware" servers is assumed to be the same cost as the 3 TFS 2012 servers that are going to be decommissioned as part of this initiative

PROJECT NAME: ITBT-2018-103 Technology Risk Management Program (2018) Application Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	External Labour (list various categories)						
2	T&M Costs (Application Dynamics)	300,000					300,000
3	(TFS one time costs)	15,000					15,000
4	**Total External Labour**	**315,000**	**0**	**0**	**0**	**0**	**315,000**
5	Other External Operating Costs						
6	Travel						0
7	Training						0
8	Ongoing Costs - File Server Storage (Year 1)	100,000					100,000
9	**Total Other External Operating Costs**	**100,000**	**0**	**0**	**0**	**0**	**100,000**
10	Capital Expenditures						
11	Hardware						0
12	Software						0
13	Furniture						0
14							0
15	**Total Capital Expenditures**	**0**	**0**	**0**	**0**	**0**	**0**
16	**Total External Cost before Contingency**	**415,000**	**0**	**0**	**0**	**0**	**415,000**
17	Contingency - app 15%	60,000	0	0	0	0	60,000
18	**Total External Costs**	**475,000**	**0**	**0**	**0**	**0**	**475,000**
19	Internal Incremental Costs (list)						
20	**Total Staffing**	**400,000**	**0**	**0**	**0**	**0**	**400,000**
			0	0	0	0	0
							0
							0
							0
21	**Total Internal Incremental Costs**	**400,000**	**0**	**0**	**0**	**0**	**400,000**
22	**Total Project Costs**	**875,000**	**0**	**0**	**0**	**0**	**875,000**

23 **Describe in detail all Project Cost amounts below:**

PROJECT NAME: ITBT-2018-103 Technology Risk Management Program (2018) Application Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Impact**						
2	**One time Impact**						
3	Cost Savings						0
4	Cost Avoidance						0
5	Revenue increase						0
6	**Total One Time Impact**	**0**	**0**	**0**	**0**	**0**	**0**
7	**On Going Impact**						
8	Cost Increases						
9	Maintenance				0	0	0
10	Software				0	0	0
11	Licensing		150,000	150,000	153,750	157,594	611,344
12	Facilities				0	0	0
13	Other						0
14	**Total Cost Increases**	**0**	**150,000**	**150,000**	**153,750**	**157,594**	**611,344**
15	Cost Decreases/avoidance						
16	Staffing (net)		0	0	0	0	0
17	Maintenance						0
18	Software	67,000	67,000	67,000	67,000	67,000	335,000
19	Licensing						0
20	Facilities			0	0	0	0
21	Other		0	0	0	0	0
22		**67,000**	**67,000**	**67,000**	**67,000**	**67,000**	**335,000**
23	Claims Incurred Decrease		0	0	0	0	0
24	Revenue Increase		0	0	0	0	0
25	**Total Ongoing Impact**	**67,000**	**(83,000)**	**(83,000)**	**(86,750)**	**(90,594)**	**(276,344)**
26	**Total Project Impact**	**67,000**	**(83,000)**	**(83,000)**	**(86,750)**	**(90,594)**	**(276,344)**

27 **Describe in detail all Project Impact amounts below**

PROJECT NAME: ITBT-2018-103 Technology Risk Management Program (2018) Application Risk Manageme

Line No.			2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Staff**							
2	**Total Staffing**		**400,000**					**400,000**
3	**Total Salary**		**400,000**	**0**	**0**	**0**	**0**	**400,000**
4	Benefits	30%	0	0	0	0	0	0
5	* benefits included in the staffing amount above							
6	**Total Salary and Benefits**		**400,000**	**0**	**0**	**0**	**0**	**400,000**
7	**Impact of Project on Staffing (Increases and Decreases)**							
8	Reduction of Staff			0	0	0	0	0
9	New Staff			0	0	0	0	0
								0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
10	**Total Salary**		**0**	**0**	**0**	**0**	**0**	**0**
11	Benefits	30%	0	0	0	0	0	0
12	**Total Salary and Benefits**		**0**	**0**	**0**	**0**	**0**	**0**

13 **Describe in detail all Staffing changes resulting from the project below:**

PROJECT NAME: ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	Project Costs	(1,700,000)	0	0	0	0	**(1,700,000)**
2	Project Benefit	(229,000)	(314,080)	(318,563)	(328,276)	(338,301)	**(1,528,220)**
3	Net Project Impact	(1,929,000)	(314,080)	(318,563)	(328,276)	(338,301)	**(3,228,220)**
4	Cumulative Net Project Impact	(1,929,000)	(2,243,080)	(2,561,643)	(2,889,918)	(3,228,220)	
5	**Net Present Value**	**(2,853,997)**	based on discount rate of	6.50%			
6	**IRR**	**N/A**					
7	**Payback Period in years**						
	Return on Investment	-113%	-132%	-151%	-170%	-190%	
8	**Discounted Payback Period in years**						

PROJECT NAME: ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management

List all major financial assumptions used to develop the Financial Template

Line No.					
1	**Spreadsheet Assumptions**		**Source**		
2	Project Contingency	15%	Project		
3	Interest/Discount Rate for NPV calculation	6.50%	See Note 1 for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.		
4	Inflation increase on expenses/costs	2.50%	Finance	unless fixed price - amend specific cells	
5	Benefits Gross up as % of Salary	30%	HR/Finance	covers pension, cpp, ei, heath benefits, etc	
6	**Note 1**	Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.				
7	**Project Specific Assumptions (please list)**				
8	1	The ability to secure external resources with the necessary skills for the outlined rate.			
9	2	This is a combination of multiple sub documents - Redacted for IT Security reasons			
10	3	Staff costs included in the $75 /hr resource estimate value			

PROJECT NAME: ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	External Labour (list various categories)						
2	T&M Costs	300,000					300,000
							0
							0
							0
							0
							0
3	**Total External Labour**	**300,000**	**0**	**0**	**0**	**0**	**300,000**
4	Other External Operating Costs						
5	Travel	3,000					3,000
6	Training	10,000					10,000
7	Redacted for IT Security Reasons	120,000					120,000
	Redacted for IT Security Reasons	20,000					20,000
							0
8	**Total Other External Operating Costs**	**153,000**	**0**	**0**	**0**	**0**	**153,000**
9	Capital Expenditures						
10	Total Hardware	66,750					66,750
11	Total Software	655,000					655,000
12	**Total Capital Expenditures**	**721,750**	**0**	**0**	**0**	**0**	**721,750**
13	Total External Cost before Contingency	1,174,750	0	0	0	0	1,174,750
14	Contingency - approx 15%	167,750	0	0	0	0	167,750
15	**Total External Costs**	**1,342,500**	**0**	**0**	**0**	**0**	**1,342,500**
16	Internal Incremental Costs (list)						
17	Total Staffing	357,500	0	0	0	0	357,500
							0
			0	0	0	0	0
							0
							0
							0
							0
18	**Total Internal Incremental Costs**	**357,500**	**0**	**0**	**0**	**0**	**357,500**
19	**Total Project Costs**	**1,700,000**	**0**	**0**	**0**	**0**	**1,700,000**

20 **Describe in detail all Project Cost amounts below:**

PROJECT NAME: ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Impact**						
2	**One time Impact**						
3	Cost Savings						0
4	Cost Avoidance						0
5	Revenue increase						0
6	**Total One Time Impact**	**0**	**0**	**0**	**0**	**0**	**0**
7	**On Going Impact**						
8	Cost Increases						
9	Maintenance (All)	188,000	188,000	188,000	192,700	197,518	954,218
10	Support	13,500	90,680	93,947	97,570	101,335	397,032
11	Redacted for IT Security Reasons	5,000	5,000	5,000	5,125	5,253	25,378
12	Redacted for IT Security Reasons		7,000	7,280	7,571	7,874	29,725
13	Software	22,500	23,400	24,336	25,309	26,322	121,867
14	Facilities				0	0	0
15	Other						0
16	**Total Cost Increases**	**229,000**	**314,080**	**318,563**	**328,276**	**338,301**	**1,528,220**
17	Cost Decreases/avoidance						
18	Staffing (net)	0	0	0	0	0	0
19	Maintenance		0	0	0	0	0
20	Software				0	0	0
21	Licensing		0	0	0	0	0
22	Facilities			0	0	0	0
23	Other		0	0	0	0	0
24		0	0	0	0	0	0
25	Claims Incurred Decrease		0	0	0	0	0
26	Revenue Increase		0	0	0	0	0
27	**Total Ongoing Impact**	**(229,000)**	**(314,080)**	**(318,563)**	**(328,276)**	**(338,301)**	**(1,528,220)**
28	**Total Project Impact**	**(229,000)**	**(314,080)**	**(318,563)**	**(328,276)**	**(338,301)**	**(1,528,220)**

29 **Describe in detail all Project Impact amounts below:**
30 Maintenance is estimated at 20% per year with a 4% inflation rate.

PROJECT NAME: ITBT-2018-101 Technology Risk Management Program (2018) Information Security Risk Management

Line No.			2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Staff**							
2	Total Staffing		275,000					275,000
3	Total Salary		275,000	0	0	0	0	275,000
4	Benefits	30%	82,500	0	0	0	0	82,500
5	* benefits included in the staffing amount above							
6	**Total Salary and Benefits**		**357,500**	**0**	**0**	**0**	**0**	**357,500**
7	**Impact of Project on Staffing (Increases and Decreases)**							
8	Reduction of Staff			0	0	0	0	0
9	New Staff			0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
10	Total Salary		0	0	0	0	0	0
11	Benefits	30%	0	0	0	0	0	0
12	**Total Salary and Benefits**		**0**	**0**	**0**	**0**	**0**	**0**

13 **Describe in detail all Staffing changes resulting from the project below:**

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	Project Costs	(1,625,000)	0	0	0	0	**(1,625,000)**
2	Project Benefit	175,000	470,000	514,500	560,113	605,740	**2,325,353**
3	Net Project Impact	(1,450,000)	470,000	514,500	560,113	605,740	**700,353**
4	Cumulative Net Project Impact	(1,450,000)	(980,000)	(465,500)	94,613	700,353	
5	**Net Present Value**	**356,312**	based on discount rate of	6.50%			
6	**IRR**	**17.0%**					
7	**Payback Period in years**				**3.83**		
8	**Return on Investment**	-89%	-60%	-29%	6%	43%	
9	**Discounted Payback Period in years**					**4.19**	

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

List all major financial assumptions used to develop the Financial Template

Line No.				
1	**Spreadsheet Assumptions**		**Source**	
2	Project Contingency	15%	Project	
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.	
5	Inflation increase on expenses/costs	2.50%	Finance	unless fixed price - amend specific cells
6	Benefits Gross up as % of Salary	30%	HR/Finance	covers pension, cpp, ei, heath benefits, etc

7 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

8 **Project Specific Assumptions (please list)**

9 1 The ability to secure external resources with the necessary skills for the outlined rate.

Reflects individual assessments of cost including:

10 2 ITBT - 2018 - 003 - File Server Storage
ITBT - 2018 - 029 - Security Device Refresh
ITBT - 2018 - 030 - SAN and TSM
ITBT - 2018 - 031 - Windows Server and Vitality
ITBT - 2018 - 033 - Intel Server / VMWare

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	External Labour (list various categories)						
2	Total External Labour and Services	975,000					975,000
							0
3	**Total External Labour**	**975,000**	**0**	**0**	**0**	**0**	**975,000**
4	Other External Operating Costs						
5	Travel						0
6	Training						0
7	Ongoing Costs (File Server Storage)	100,000					100,000
							0
8	**Total Other External Operating Costs**	**100,000**	**0**	**0**	**0**	**0**	**100,000**
9	Capital Expenditures						
10	Hardware						0
11	Software						0
12	Furniture						0
							0
13	**Total Capital Expenditures**	**0**	**0**	**0**	**0**	**0**	**0**
14	Total External Cost before Contingency	1,075,000	0	0	0	0	1,075,000
15	Contingency - approx 15%	160,000	0	0	0	0	160,000
16	**Total External Costs**	**1,235,000**	**0**	**0**	**0**	**0**	**1,235,000**
17	Internal Incremental Costs (list)						
18	Total Staffing	390,000	0	0	0	0	390,000
			0	0	0	0	0
							0
							0
19	**Total Internal Incremental Costs**	**390,000**	**0**	**0**	**0**	**0**	**390,000**
21	**Total Project Costs**	**1,625,000**	**0**	**0**	**0**	**0**	**1,625,000**

22 **Describe in detail all Project Cost amounts below:**

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Impact**						
2	**One time Impact**						
3	Cost Savings Backup/SAN						0
4	Cost Avoidance						0
5	Revenue increase						0
6	**Total One Time Impact**	**0**	**0**	**0**	**0**	**0**	**0**
7	**On Going Impact**						
8	Cost Increases						
9	Maintenance				0	0	0
10	External Storage		150,000	150,000	153,750	157,594	611,344
11	Security device	25,000	25,000	25,500	26,138	26,791	128,428
12	Facilities				0	0	0
13	Other						0
14	**Total Cost Increases**	**25,000**	**175,000**	**175,500**	**179,888**	**184,385**	**739,772**
15	Cost Decreases/avoidance						
16	Staffing (net)	0	0	0	0	0	0
17	Maintenance		0	0	0	0	0
18	Data Processing	200,000	445,000	490,000	535,000	580,000	2,250,000
19	Backup and SAN		200,000	200,000	205,000	210,125	815,125
20	Licensing		0	0	0	0	0
21	Facilities			0	0	0	0
22	Other		0	0	0	0	0
25		200,000	645,000	690,000	740,000	790,125	3,065,125
26	Claims Incurred Decrease		0	0	0	0	0
27	Revenue Increase		0	0	0	0	0
28	**Total Ongoing Impact**	**175,000**	**470,000**	**514,500**	**560,113**	**605,740**	**2,325,353**
29	**Total Project Impact**	**175,000**	**470,000**	**514,500**	**560,113**	**605,740**	**2,325,353**

30 **Describe in detail all Project Impact amounts below:**

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

Line No.			2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Staff**							
2	Total Staffing		300,000					300,000
								0
								0
								0
								0
								0
3	Total Salary		300,000	0	0	0	0	300,000
4	Benefits	30%	90,000	0	0	0	0	90,000
5	Total Salary and Benefits		390,000	0	0	0	0	390,000
6	**Impact of Project on Staffing (Increases and Decreases)**							
7	Reduction of Staff			0	0	0	0	0
8	New Staff			0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
9	Total Salary		0	0	0	0	0	0
10	Benefits	30%	0	0	0	0	0	0
11	Total Salary and Benefits		0	0	0	0	0	0

12 Describe in detail all Staffing changes resulting from the project below:

PROJECT NAME: ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	Project Costs	(300,000)	0	0	0	0	**(300,000)**
2	Project Benefit	0	0	0	0	0	**0**
3	Net Project Impact	(300,000)	0	0	0	0	**(300,000)**
4	Cumulative Net Project Impact	(300,000)	(300,000)	(300,000)	(300,000)	(300,000)	
5	**Net Present Value**	**(281,690)**	based on discount rate of	6.50%			
6	**IRR**	**N/A**					
7	**Payback Period in years** **Return on Investment**	-100%	-100%	-100%	-100%	-100%	
8	**Discounted Payback Period in years**						

PROJECT NAME: ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation

List all major financial assumptions used to develop the Financial Template

Line No.	Spreadsheet Assumptions		Source	
2	Project Contingency	8%	Project	
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.	
4	Inflation increase on expenses/costs	2.50%	Finance	unless fixed price - amend specific cells
5	Benefits Gross up as % of Salary	30%	HR/Finance	covers pension, cpp, ei, heath benefits, etc

6 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

7 **Project Specific Assumptions (please list)**

8	1	The ability to secure external resources with the necessary skills for the outlined rate.
9	2	Assumes the Gartner ITScore (method of measuring benefits) do not change, and that we use the results of the 2017-Q3 assessment (that there are no new requirements added beyond what was included in that review).
10	3	The skillset required to do this work is not required long term (that it can be developed within existing MPI staff) and can be cross trained without any changes to position descriptions (assuming no union concern or impact).
11	4	This assumes assistance and oversight from the existing MPI Business Continuity Team (estimate of 400 hours in total). If this cannot be provided, then there is risk some deliverables may not fully integrate into the larger corporate processes.
12	5	Adjusted contingency to 8% to reflect budget constraints.

PROJECT NAME: ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	External Labour (list various categories)						
2	See activity details below	225,000					225,000
3	Project Manager	25,000					25,000
							0
4	**Total External Labour**	**250,000**	**0**	**0**	**0**	**0**	**250,000**
5	Other External Operating Costs						
6	Travel						0
7	Training						0
							0
							0
9	**Total Other External Operating Costs**	**0**	**0**	**0**	**0**	**0**	**0**
10	Capital Expenditures						
11	Hardware						0
12	Software						0
13	Furniture						0
							0
14	**Total Capital Expenditures**	**0**	**0**	**0**	**0**	**0**	**0**
15	Total External Cost before Contingency	250,000	0	0	0	0	250,000
16	Contingency - approx 15%	20,000	0	0	0	0	20,000
17	**Total External Costs**	**270,000**	**0**	**0**	**0**	**0**	**270,000**
18	Internal Incremental Costs (list)						
19	Staffing	30,000	0	0	0	0	30,000
							0
							0
							0
20	**Total Internal Incremental Costs**	**30,000**	**0**	**0**	**0**	**0**	**30,000**
21	**Total Project Costs**	**300,000**	**0**	**0**	**0**	**0**	**300,000**

22 **Describe in detail all Project Cost amounts below:**

23	**Tasks**		**Total Cost**
24	1. MPI Specific run books (how to manuals, refinement of existing and creation of new	$	50,000
25	2. Response Planning, Exercising of Responses, Documenting results and metrics	$	100,000
26	3. Review of updates to the BCMP Loss of Technology Strategy	$	18,750
27	4. Updates to Business Impact Assessment documents including continuance improvement processes	$	31,250
28	5. Cross training MPI staff	$	25,000
29	Total	$	225,000

PROJECT NAME: ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Impact**						
2	**One time Impact**						
3	Cost Savings						0
4	Cost Avoidance						0
5	Revenue increase						0
6	**Total One Time Impact**	**0**	**0**	**0**	**0**	**0**	**0**
7	**On Going Impact**						
8	Cost Increases						
9	Maintenance				0	0	0
10	IBM				0	0	0
11	Licensing				0	0	0
12	Facilities				0	0	0
13	Other						0
16	**Total Cost Increases**	**0**	**0**	**0**	**0**	**0**	**0**
17	Cost Decreases/avoidance						
18	Staffing (net)	0	0	0	0	0	0
19	Maintenance		0	0	0	0	0
20	IBM				0	0	0
21	Licensing		0	0	0	0	0
22	Facilities			0	0	0	0
23	Other		0	0	0	0	0
24		**0**	**0**	**0**	**0**	**0**	**0**
25	Claims Incurred Decrease		0	0	0	0	0
26	Revenue Increase		0	0	0	0	0
27	**Total Ongoing Impact**	**0**	**0**	**0**	**0**	**0**	**0**
28	**Total Project Impact**	**0**	**0**	**0**	**0**	**0**	**0**

29 **Describe in detail all Project Impact amounts below:**

PROJECT NAME: ITBT-2018-100 Technology Risk Management Program (2018) Risk Registry Remediation

Line No.			2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	**Project Staff**							
2	BCMP Resources		30,000					30,000
								0
								0
								0
								0
								0
3	**Total Salary**		**30,000**	**0**	**0**	**0**	**0**	**30,000**
4	Benefits	30%	0	0	0	0	0	0
5								
6	**Total Salary and Benefits**		**30,000**	**0**	**0**	**0**	**0**	**30,000**
7	**Impact of Project on Staffing (Increases and Decreases)**							
8	Reduction of Staff			0	0	0	0	0
9	New Staff			0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
				0	0	0	0	0
10	**Total Salary**		**0**	**0**	**0**	**0**	**0**	**0**
11	Benefits	30%	0	0	0	0	0	0
12	**Total Salary and Benefits**		**0**	**0**	**0**	**0**	**0**	**0**

13 **Describe in detail all Staffing changes resulting from the project below:**

		Hours	Total Costs
14	1 BCMP Resourcing to support the project.	400	$30,000.00
15			
16	Internal hourly rate budgeted at $75.		

Manitoba Public Insurance

Business Case

Driver Z: High School Driver Education (HSDE) Redevelopment Project

This report has been prepared as advice, opinions, proposals, recommendations, analyses or policy options developed by or for the public body or a minister, as per Section 23(1) of the Freedom of Information and Protection of Privacy Act.

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Manitoba Public Insurance

CONTENTS

EXECUTIVE OVERVIEW 4

PROJECT DESCRIPTION 4
PROJECT OBJECTIVES 4
PROJECT BENEFITS 5
PROPOSED TIMING AND SIGNIFICANT MILESTONES 6
FINANCIAL COST AND BENEFITS METRICS 6

OVERVIEW 8

PROJECT DESCRIPTION 8
BUSINESS NEED 9
PROJECT OBJECTIVES 11
PROJECT BENEFITS 12
BACKGROUND – DRIVER EDUCATION 14
STRATEGIC IMPORTANCE 15

APPROACH 15

TIME, EFFORT, COSTS 19

IMPACT ANALYSIS 19
COSTS AND BENEFITS 22
RISK ANALYSIS 24
PROPOSED TIMING 26

ASSUMPTIONS 27

INITIAL ASSUMPTIONS 27

CONSTRAINTS/DEPENDENCIES 28

CONSULTATION 28

APPENDICES 29

Appendix A – Financial Analysis and NPV 29
Appendix B – 2percent PD BI claims forecasting 29
Appendix C – 5percent PD BI claims forecasting 29

EXECUTIVE OVERVIEW

PROJECT DESCRIPTION

The purpose of formal driver education is to establish good driving beliefs and behaviours that contribute to a safe road culture and to develop driving skills to prevent collisions on Manitoba roadways. Educating drivers before they receive their licence is a critical early intervention that positively affects driver preparedness and attitude for the long term.

The High School Driver Education (HSDE) currently offered by Manitoba Public Insurance (MPI or the Corporation) requires renewal to meet the needs of future drivers and the expectations of customers. The redevelopment project is a complete re-visioning, redesign, and redeployment of the program, including what we teach, how we teach, what tools we use, and the delivery model we employ to provide the teen novice driver with the best foundation possible in preparation for their life as a driver. The redevelopment project represents the first major overhaul of the program since the mid-1990s.

The overall project involves three phases over several years. Phases one (visioning) and two (proof of technology concepts) are complete, with work already progressed in Phase three (curriculum redesign). By using behavioural science, research and proven approaches, the new Driver Z program focuses on altering driver behaviour and reducing a teen's risk of collision.

PROJECT OBJECTIVES

MPI has the mandate to be the sole provider of voluntary HSDE programming in the province, representing a unique opportunity to develop skilled, knowledgeable, and responsible drivers (customers) to minimize insurance claims and create a culture of road safety consciousness and action in the Manitoba driving population. This opportunity is matched by the Corporation's obligation to be exceptional in the products and services it provides to customers. Manitobans have entrusted MPI to develop and deliver the best driver education programming possible for their children and the Corporation must respond with the best product and outcomes achievable within its capacity as a public insurer.

The phase three redevelopment of High School Driver Education will be successfully addressed by meeting the following project objectives:

1. Curriculum redesign including: vision, learning objectives, lesson plans, instructional design, complete on-line lessons (students, parents/co-pilots), in-class guided facilitation teaching materials, new scripts and video production, in-class and in-car assessment requirements and methods, parent/co-pilot coaching resources and route guidance, instructor training, and business architecture.

2. Technology support in the form of: estimates, requirements, and development of system integrations, Customer Learning Management System, Customer and Partner Portals, on-line book and pay for course registration, new program-specific application with in-car and in-class assessment and two-way feedback from instructor to student and co-pilot, student progression history and scores, and notifications.

3. People Readiness as evidenced by: prepared and resourced operations within Driver Education department, a recruited and fully trained team of contracted instructors, informed and prepared brokers, and an informed public through executed communication and marketing strategy.

PROJECT BENEFITS

The value proposition for driver education is simple – if the program is effective, drivers who participate are more skilled and safer than those who do not. This is demonstrated through three primary indicators: testing pass rates (preparedness and skill to drive); traffic conviction rates (attitude); and claims frequency and severity (risk).

- **Preparedness:** Higher first attempt pass rates on knowledge and road tests indicate that educated drivers have more knowledge and skill, making them better prepared to drive than non-educated drivers.
- **Attitude:** Lower traffic conviction rates provide evidence that educated drivers are less likely to speed, drive impaired, or engage in other high risk driving behaviour than non-educated drivers.
- **Risk:** A lower frequency rate and severity of claims for educated drivers is an indicator that represents a reduced risk when behind the wheel than non-educated drivers.

To achieve these outcomes, it is critical for MPI to invest in its driver education programming to develop a higher quality learning experience with proven superior outcomes. With a proven program on offer, it is then critical to maximize participation and reach a broader range of audiences to increase the potential economic and societal benefits associated with the program. The redevelopment of HSDE is expected to achieve the following desired outcomes:

Value Drivers for our customers who require exceptional service and products

- Increase client engagement so students and co-pilots contribute more time and effort to achieve better preparation and safer driving.
- Enhance program reputational value as world-class education product
- Improve driver skills to better perceive and navigate hazards, prepare for different road types and conditions, and operate a vehicle with an appropriate level of confidence and skill
- Improve learning outcomes through broader understanding and deeper critical thinking, thereby impacting the traffic safety culture throughout and beyond the program experience
- Change driver attitude and culture to help Manitobans shift from passive observers to become active participants in our pursuit of zero fatalities on Manitoba roadways

Business Drivers for MPI and its ratepayers

- Reduce rate of at-fault physical damage claims for customers 15-24 years old
- Reduce rate of at-fault serious injury claims and fatality collisions for customers 15-24 year old
- Maintain excellent knowledge tests outcomes and improve poor road test outcomes for program participants
- Reduce the conviction rate for customers 15-24 years old
- Maintain student enrollment and increase completion rates

PROPOSED TIMING AND SIGNIFICANT MILESTONES

The proposed timing and significant milestones are noted as reference and subject to change.

- Dependent projects completed, May – October 2018
- Curriculum content completed, June 2018
- Development of technologies completed, October 2018
- Testing concludes, February 2019
- Pilot begins, March 1, 2019
- Full implementation, Fall 2019

FINANCIAL COST AND BENEFITS METRICS

As stated in the Project Benefits section of this business case, the benefits that support this initiative are primarily focused on achieving best practices in preparing Manitoba drivers to operate motor vehicles safely and thus reducing risk on the road.

A measurable financial benefit of a better prepared driver is a reduction in at-fault accidents and corresponding claims. An increase in supervised practice from 24 to 45 hours is estimated to decrease collision claim risk by two percent (2%) and is supported by evidence as an anticipated outcome for this project. Empirical data is not available to consistently estimate the impact that program aspects will have on claims risk at this time; however the incorporation of these practices has the potential to extend claims benefits further. It is reasonable that a hypothetical five percent (5%) improvement in claims could be achieved as an optimistic target.

Our analysis of historical property damage (PD) and bodily injury (BI) claims experience for HSDE drivers over a 5 year period (2013 to 2017) demonstrates fairly consistent results in terms of the percentage of HSDE customers with at-fault claims in comparison to the total population of HSDE customers in the age group of 15 to 24 years old. Based on this analysis we have established the following baseline, forecast and optimistic outcomes:

Physical Damage Claims Experience

	Historical PD Claims Experience	Forecast 2% improvement	Optimistic 5% improvement
Percentage to total HSDE 15-24 yr age group	8.59%	**8.42%**	8.16%
Reduction in number of HSDE Customers with At Fault Claims – 2020/21		**8**	19
Average Claim Cost per Customer – 2020/21		**$ 5,408**	$ 5,408
Annual Cost Avoidance – 2020/21		**$ 43,264**	$ 102,752

Reduction in number of HSDE Customers with At Fault Claims – 2029/30		**147**	367
Average Claim Cost per Customer – 2029/30		**$ 8,390**	$ 8,390
Annual Cost Avoidance – 2029/30		**$ 1,233,330**	$ 3,079,130

Bodily Injury Claims Experience

	Historical BI Claims Experience	Forecast 2% improvement	Optimistic 5% improvement
Percentage to total HSDE 15-24 yr age group	0.674%	**0.660%**	0.640%
Reduction in number of HSDE Customers with At Fault Claims – 2020/21		**1**	2
Average Claim Cost per Customer – 2020/21		**$ 8,563**	$ 8,563
Annual Cost Avoidance – 2020/21		**$ 8,563**	$ 17,126
Reduction in number of HSDE Customers with At Fault Claims – 2029/30		**12**	29
Average Claim Cost per Customer – 2029/30		**$ 10,233**	$ 10,233
Annual Cost Avoidance – 2029/30		**$ 122,796**	$ 296,757

The resulting key financial metrics of the business case under the forecast and optimistic scenarios are:

	Forecast 2% improvement	Optimistic 5% improvement
Net Present Values (Negative)	**($ 56,422)**	$ 4,042,866
Discounted Payback in years	**16.2 years (2030/31)**	12.85 years (2026/27)

Internal Rate of Return	**6.3%**	14.8%

OVERVIEW

PROJECT DESCRIPTION

The purpose of formal driver education is to establish good driving beliefs and behaviours that contribute to a safe road culture and to develop driving skills to prevent collisions on Manitoba roadways. Educating drivers before they receive their licence is a critical early intervention that positively affects driver preparedness and attitude for the long term.

HSDE currently offered by MPI requires renewal to meet the needs of future drivers and the expectations of customers. The redevelopment project is a complete re-visioning, redesign, and redeployment of the program, including what we teach, how we teach, what tools we use, and the delivery model we employ to provide the teen novice driver with the best foundation possible in preparation for their life as a driver. The redevelopment project represents the first major overhaul of the program since the mid-1990s.

MPI's effort and investment in the creation of a new and best driver education program predates the current project. In depth summative and formative evaluations of the existing program in the early 2000s represented the Corporation's desire to understand what aspects of its program reflected best practices and identified gaps and opportunities for more effective programming. A comprehensive *Global Analysis of Emerging, Promising, and Best Practices in Driver Education*, completed by the American Driver & Traffic Safety Association (ADTSEA) for MPI in 2013 provided a fulsome review and roadmap for future design efforts considered within scope of the HSDE Redevelopment Project. The document has been modified to include text boxes which indicate how the resulting MPI Driver Z program project is addressing the findings and building the program to incorporate best practice from around the world.

The overall project involves three phases over several years. Phases one (visioning) and two (proof of technology concepts) are complete, with work already progressed in Phase three (curriculum redesign). By using behavioural science, research and proven approaches, the new Driver Z program focuses on altering driver behaviour and reducing a teen's risk of collision.

Phase One: Engagement with IBM to create stakeholder profiles (students, parents/guardians, and instructors) and establish a journey map of the program experience to focus tactical and strategic redevelopment efforts. Tactical outcomes included online/web learning technologies, increasing and improving practice driving time, use of vehicle telematics[1], and stronger parental/co-pilot and student engagement. A roadmap for implementation and the transition to an envisioned future state and identification of strategic priorities was completed, providing the foundation for future phases of development.

Phase Two: Proof of technology concepts to determine if telematics, simulators and mobile/on-line learning technologies would be valuable additions to the program to enhance learning and if they could

[1] Telematics is a method of monitoring a vehicle and the driving behaviours of the operator. The technology combines Global Positioning System with on-board vehicle diagnostics to record and map where a vehicle has travelled and, by also using telemetry, can monitor and record speed, braking and cornering experiences, and other data that may be useful in objectively determining driver behaviour.

be successfully operationalized efficiently and effectively. Multiple hypotheses were developed and tested in real-world class scenarios. Results informed the approach to curriculum redesign in Phase three.

Phase Three: Redevelopment activities associated with the detailed vision and associated curriculum for the new program, including the integration of new technologies, learning tools and instructor competencies and supports. These new technologies leverage MPI's developed Partner Portal and KT applications. New technologies will be developed to support detailed in-car and in-class learning objectives and lesson plans with integration of higher-order learning strategies; the development of on-line mobile learning components for students, parents and co-pilots; a flexible delivery model design for interchangeable components; reimagined video, animations, and simulations; new assessment and progression dashboard with gamification and social community connectivity; and modified timeline of course events and requirements. Phase three carries the project through limited pilot implementation and concludes at the full operational implementation in the fall of 2019/20. Based on this timing, financial benefits related to claim cost savings will begin in mid-2020/21 with the first full year of financial benefits realized in 2021/22. See Appendix A, B and C for further details.

The business case for driver education programming redevelopment is rooted in the Corporation's commitment to provide exceptional products and services to our Manitoba customers. The Corporation must meet its obligation with investment that will provide value to program participants and ratepayers alike. The business case reflects the financial implications for the entire project but is focused on curriculum redesign, technology support, and people readiness in Phase three that is required to pilot and implement the program fully in 2019/20.

BUSINESS NEED

MPI is mandated to be the sole provider of voluntary HSDE programming in the province, representing a unique opportunity to develop skilled, knowledgeable, and responsible drivers (customers) to minimize insurance claims and create a culture of road safety consciousness and action in the Manitoba driving population. This opportunity is matched by the Corporation's obligation to be exceptional in the products and services it provides to customers. Manitobans have entrusted MPI to develop and deliver the best driver education programming possible for their children and the Corporation must respond with the best product and outcomes achievable within its capacity as a public insurer.

The *Road to Zero: Manitoba Road Safety Plan 2017-2020* has established a vision for road safety and the priorities that will be pursued to achieve it. To address the 'Toward Zero' vision, free of traffic fatalities and injuries, MPI and the Province of Manitoba have prioritized increased access to driver education programming in Manitoba and improved safety outcomes for young road users and novice drivers. The best tool in achieving objectives related to these priorities is HSDE in Manitoba.

The value proposition for driver education is simple – if the program is effective, drivers who participate are more skilled and safer than those who do not. This is demonstrated through three primary indicators: testing pass rates (preparedness and skill to drive); traffic conviction rates (attitude); and claims frequency and severity (risk).

- **Preparedness:** Higher first attempt pass rates on knowledge and road tests indicate that educated drivers have more knowledge and skill, making them better prepared to drive than non-educated drivers.

- **Attitude:** Lower traffic conviction rates provide evidence that educated drivers are less likely to speed, drive impaired, or engage in other high risk driving behaviour than non-educated drivers.

- **Risk:** A lower frequency rate and severity of claims for educated drivers is an indicator that represents a reduced risk when behind the wheel than non-educated drivers.

To achieve these outcomes, it is critical for MPI to invest in its driver education programming to develop a higher quality learning experience with proven superior outcomes. With a proven program on offer, it is then critical to maximize participation and reach a broader range of audiences to increase the potential economic and societal benefits associated with the program.

In general, instructional pedagogy has evolved over time and is adaptive to new technology tools. MPI recognizes that its HSDE must also evolve and adapt to customer needs, the changing learning landscape, and innovations in education technology to enable the best outcomes. The Corporation has identified opportunity to improve the program and make further progress on its loss prevention objectives within the population of young drivers in Manitoba.

The community of road safety practice in the developed world provides sufficient evidence to prove that jurisdictions with the most rigorous driver education, public awareness, and proactive enforcement strategies have made the best progress on safety outcomes, including serious injuries and fatality rates.

An example of proven practice is teenSMART, a private U.S.-based driver education system which claims that, in repeated trials, students who complete the program have up to 30% fewer collisions one year after training than those who didn't take teenSmart.[2] An independent review by the Traffic Injury Research Foundation (TIRF), concludes, "Considering all the available evidence, it is possible that teenSMART does in fact have a safety effect which may range from as low as 4%, based on recent evidence about the impact of driver education, to 28%, based on insurance claims data and discount practices. These estimates provide a range of potential safety benefits that have been used in a cost-benefit analysis"[3].

The Insurance Institute for Highway Safety has quantified the expected change in collision claims and fatal crashes associated with the proven practice of supervised practice hours of driving under Graduated Driver Licensing schemes across the U.S. A state that implements 25 hours of mandatory supervised driving can expect a 7% reduction in collision claims and a 1% reduction in fatal collisions. If the number of hours of supervised driving in increased to 45 hours, the risk of collision claims is reduced by 11% and fatal crashes decreases by 3%. For an increase in supervised driving to 70 hours, risk of collision claims is reduced by 17% and fatal crashes by 4%[4]

To this end there is a business need to reduce claim frequency and correspondingly claim costs by improving the claims experience of drivers graduating from the HSDE program. In recent years HSDE drivers in the 15-24 year old age group have experienced at-fault physical damage claims at the rate of over 8% (number of HSDE customers with claims as a percentage of total HSDE customers) and BI claims

[2] teenSMART website, May, 2018.
[3] TIRF White Paper on teenSMART, December 2016.
[4] IIHS GDL Crash Reduction Calculator, May, 2018 (Alabama state example – baseline 0 hours supervised practice time).

at the rate of over 0.6%. By incorporating best and proven practices into MPI's new driver education programming, the Corporation is confident that these rates can be reduced.

PROJECT OBJECTIVES

Project objectives for phase one and two included the following:

1. Stakeholder profiles and journey map for potential development and implementation.

2. Assessment of new technology concepts identified in phase one.

   Online learning: The online learning component of the proof of concept demonstrated an increase in student and parent/guardian engagement. The possibilities for the technology to provide repeated touch points and opportunities to interact with the program and cement higher order learning will, therefore, be expanded and further tested as part of the curriculum redevelopment.

   Driving Simulators: IBM concluded that in order to effectively hone skills, the existing curriculum would require adjustment to enable significantly more time for simulator use by students (up to six hours per student). Future feasibility may be contemplated for specific applications (i.e. remote communities without infrastructure) and consider the needs of students, operationalization of the technology, and associated costs. Phase 3 will incorporate the use of observable video simulations to teach situational driving, decision making, hazard perception, etc.

   Telematics: The telematics solution tested with instructor vehicles and a portion of guardian/parent vehicles saw an increase in objective feedback and higher engagement levels, thereby demonstrating the value of the technology. Due to some challenges with the vendor and the beta level of technology, the project recommended a broader pilot study to include more participants. It is important for parents to recognize the outputs and outcomes of the telematics devices and promoting the benefits will be important to encourage optimal use of the technology.

   Dash Cameras: Dash camera data consumption is very high and presents significant logistical and cost challenges. If pursued, IBM recommended that the Corporation revisit its need to store all video information centrally and suggested investigation of an approach to store video in a secure in-vehicle box, assuming this would address privacy and liability considerations.

The phase three redevelopment of HSDE will be successfully addressed by meeting the following project objectives:

1. Curriculum redesign including: vision, learning objectives, lesson plans, instructional design, complete on-line lessons (students, parents/co-pilots), in-class guided facilitation teaching materials, new scripts and video production, in-class and in-car assessment requirements and methods, parent/co-pilot coaching resources and route guidance, instructor training, and business architecture.

2. Technology support in the form of: estimates, requirements, and development of system integrations, Customer Learning Management System, Customer and Partner Portals, on-line book and pay for course registration, new program-specific application with in-car and in-class

assessment and two-way feedback from instructor to student and co-pilot, student progression history and scores, and notifications.

3. People Readiness as evidenced by: prepared and resourced operations within Driver Education department, a recruited and fully trained team of contracted instructors, informed and prepared brokers, and an informed public through executed communication and marketing strategy.

PROJECT BENEFITS

The redeveloped program will achieve success by creating a positive traffic safety culture and elevating knowledge and behaviour on the roadway. This will contribute to a reversal in the climbing trend in at-fault claims, both physical damage and bodily injury, for the 15-24 year old demographic. It is important to recognize that in addition to an upgrade to the HSDE curriculum, a reversal of trend will be contingent on variables external to driver education (vehicle technology, vehicle usage and kilometers driven, societal change, or the introduction of new legislative countermeasures preventing risky behaviour, etc.).

The program indicators of success will be measured annually through the Driver Education data dashboard, leveraging existing benchmarks for claims, fatalities/injuries, traffic convictions, course completion and pass rates. New benchmarks and data collection will be established for engagement measurement. Culture scores within Customer Research will be leveraged to measure driver attitude and culture.

Multiple reduction scenarios are calculated in the project financial summary – two percent reduction is the estimated forecast for this business case and five percent reflects optimistic potential improvement to provide a range of possible project financial benefit outcomes. Five year historical claim frequency and claim costs form the basis for establishing a baseline to measure claim cost avoidance targets. The different scenarios are predicated on different target assumptions for improvements in at-fault claim frequency for HSDE customers graduating from the new curriculum being implemented as part of Phase 3 of the project and applying average PD and BI claim costs factoring inflation. The forecasted benefits results are used to calculate the financial net present value ranges of this project. See Appendix A.

The redevelopment of HSDE is expected to achieve the following desired outcomes:

Value Drivers for our customers who require exceptional service and products

- Increase client engagement so students and co-pilots contribute more time and effort to achieve better preparation and safer driving.
  Intended outcome: Continuous improvement to program performance metrics, feedback and outcomes as compared to program participants in current program.

- Enhance program reputational value as world-class education product
  Intended outcome: Improvement in parental/guardian support measured through feedback and engagement as compared to program participants in current program.

- Improve driver skills to better perceive and navigate hazards, prepare for different road types and conditions, and operate a vehicle with an appropriate level of confidence and skill

Intended outcome: Stronger skills and preparedness in the real world driving environment that contribute to reduced rate of claims and severity of same.

- Improve learning outcomes through broader understanding and deeper critical thinking, thereby impacting the traffic safety culture throughout and beyond the program experience
  Intended outcome for redevelopment: Better decisions of participants on the road with less propensity for risk which is indicated by reduced traffic convictions for program participants.

- Change driver attitude and culture to help Manitobans shift from passive observers to become active participants in our pursuit of zero fatalities on Manitoba roadways
  Intended outcome for redevelopment: Improved scores on traffic safety culture surveys for the youngest driver demographic.

Business Drivers for MPI and its ratepayers

- Reduce rate of at-fault physical damage claims for customers 15-24 years old
  Intended outcome: A reduction in the rate of claims frequency, achieved incrementally as students graduate the new program. By 2030 the entire eligible 15-24 year old age cohort will have exposure to the new program and when benefits of redevelopment will reach their full maturity. Historical PD claims experience for HSDE customers indicates that approximately and consistently over 8% of drivers in the cohort experience an at-fault claim, (8.62% in 2017 and a three year average of 8.59%). A two percent improvement to the three year average at-fault rate of claims for each new group of graduates equates to 8.42% of graduates experiencing at-fault claims). The estimated claims avoidance for this group is a reduction of 147 claims equating to $1.21M annually in claims cost avoided by 2030.

  Note that PD claims are a product of many other factors beyond driver education, and costs are impacted by inflation and an evolving manufacturing and repair industry. Therefore, to monitor the realization of benefits, the *rate* of at-fault claims will be the primary indicator for this outcome.

- Reduce rate of at-fault serious injury claims and fatality collisions for customers 15-24 year old
  Intended outcome: Downward trending of at-fault serious injury and fatality collisions by 15-24 year olds over ten years. A reduction in BI at-fault claims[5] rate for 15-24 year olds by two percent (falling from 0.674% - three year average to 0.66%) for each graduating cohort, equates to the estimated claims avoidance for this group of approximately 12 claims per year or $123 K annually. However, similar to PD, medical and rehabilitative costs, inflation and other confounding variables will impact injury costs. Therefore, the *rate* of at-fault fatality and injury claims will be the primary indicator of benefits.

- Maintain excellent knowledge tests outcomes and improve poor road test outcomes for program participants
  Intended outcome: Improve the Class 5 road test pass rate to 75 per cent for program participants and maintain knowledge test past rate of 85 per cent. This is anticipated to result in less road tests administered; however, testing is demand driven and staff reductions will be dependent upon operational need and customer service requirements that are difficult to predict in the long term.

[5] 2016/17 and 2017/18 average total value of injury claims costs and trend increase over 2012-2017.

Therefore, there are no financial benefits quantified in this business case for the 75% first attempt road test pass rate target. The decrease in test attempts will be spread across the province and the entire population of driver examiners and service centres.

HSDE students have experienced consistently high knowledge test pass rates compared to those who don't take the course (85% versus 60% pass on first attempt). Moving course material that is taught to prepare learners for the knowledge test to a self-directed on-line format comes with some degree of risk. This is offset by the classroom review which shall be further incorporated into the course, and this current program outcome should be sustained.

- Reduce the conviction rate for customers 15-24 years old
  Intended outcome: Downward trending of conviction rates will demonstrate that the education program has changed young driver attitudes and behaviors. This intended outcome will not be quantified into financial benefits.

- Maintain student enrollment and increase completion rates
  Intended outcome: Maintain enrolment of eligible demographic and increase completion rate from 30 per cent to 50 per cent. Better completion rate will achieve more sanctioned on-road practice and a larger student audience will expand incremental benefits.

BACKGROUND – DRIVER EDUCATION

Across Canada and the developed world, young, novice drivers contribute to crash losses that are disproportionate to their representation in the driver population and the distances they drive. New drivers need between five and seven years to reach mature risk levels and driver education is intended to accelerate this process.

The Manitoba HSDE program was started in 1966 under the Department of Public Works and later operated by Manitoba Driver and Vehicle Licensing. MPI assumed responsibility for the program in 1987 and branded the curriculum as its own in 2006.

The program is currently delivered by approximately 200 contracted instructors who are supported and supervised by program administrative staff within the Driver Education and Training department of MPI. At present, the course consists of 34 hours of in-class instruction in two hour sessions twice per week and 16 hours of in-car instruction (eight hours as a driver and eight as an observer of another student driver). The program is structured traditionally in lecture format supported by PowerPoint slides and supplemented by a variety of activities, class discussion and guest speakers. Once in-class and in-car lessons are complete, parents and guardians are expected to practice on their own for the following 6-7 months prior to challenging the road test. Parents/guardians participate in a special two hour session that is intended to set expectations, provide information and teaching tips. This is their only direct involvement in the course.

The new curriculum is an expression of the best and most up to date research in a variety of relevant fields. It has been developed to incorporate best practices in road safety such as the Safe Systems Approach and traffic safety culture concepts, while folding in proven and effective driver education practices from other leading programs, like teenSMART. This includes addressing the chief factors behind motor vehicle crashes (visual search, hazard detection, speed adjustment, space management, risk perception and lifestyle issues) and incorporating interactive computer based lessons, increased

parental/guardian involvement (safe driving discussions, videos and in-car driving exercises that reinforce on-line and in-class learning) and a substantial increase in dedicated practice time for students. Recent developments in neuroscience, learning theory and adolescent behaviour change models have also heavily influenced the curriculum with methods, mediums and content designed to reflect how to most effectively educate young people and enhance their capabilities to learn and retain content. Various studies and sources were referenced through development and formative and summative evaluations of HSDE over the past decade have provided guidance in the redevelopment effort for driver education.

STRATEGIC IMPORTANCE

Corporate Purpose

The Corporation's emphasis on loss prevention is formalized in our Loss Prevention Strategy and Framework, which amalgamates the various loss prevention elements that contribute to our overall loss goal of reduced claims and lower claims costs. Driver Education represents a critical and direct intervention in support of the Corporate objective to prevent loss.

Corporate Mission

The mission of MPI is, "Exceptional coverage and service, affordable rates and safer roads through public auto insurance." Successful loss prevention and road safety initiatives are perfectly aligned with the Corporate Mission of risk reduction and are expected by Manitobans.

APPROACH

DRIVER Z

The new HSDE program, branded as "Driver Z" (Z, pronounced 'zed'), incorporates progressive curriculum design, new technology elements, and a restructured program delivery model that will provide extended, interactive engagement with students throughout their 5A Authorized Instruction (Learners) stage of license and beyond.

Through a blended learning approach focused on building higher-order thinking skills, the overall goal of the program is to help young drivers:

- Develop greater capacity for decision making, judgment, attitude, hazard perception and reduce their propensity to take risks
- Shift their mindsets and behaviour as they learn technical skills to become safer drivers

The new curriculum will be an interactive experience for students and guardians, replacing conventional instruction with a blended higher order learning approach that is focused on key learning outcomes that are introduced and revisited for deeper understanding as the learner moves through the program of study. By engaging students' higher-order thinking skills systematically, Driver Z will drive the change from rote recall of facts to the analysis and evaluation of real world situations and respond appropriately.



Learners will engage in a set of experiences including peer and application based learning, and then are helped to process and draw meaning from them, building on previous experiences and moving to broader, deeper or more complex understandings to enable positive behavior and decision making. Direct linkages are developed between on-line, in-class and in-car experiences, with specific focus on the main causes of novice driver judgement error and crashes – the teenage brain, visual search, hazard detection, speed adjustment, space management, risk perception and lifestyle issues (risk taking behaviour, impairment, fatigue, etc).

Current HSDE instruction is highly focused on lower level, traditional learning approaches - memorization, lecture explanations to help students understand rules of the road and applying knowledge in the car during practice lessons. Driver Z will allocate the lowest level learning requirements to on-line, self-directed student sessions and reserves valuable class time to focus on analysis, evaluation and creativity to build upon foundational cognitive skills to strengthen overall development.



Driver Z Curriculum Learning Path

The learning path in Driver Z is non-linear, with various modes of learning occurring in a coordinated manner.



Online Learning takes place before students enter the classroom. It establishes expectations for the program, guides participants through important information and provides regular assessment opportunities.



Instructor-Led classroom sessions are designed to create an environment that encourages students to engage in activities and discussion to strengthen foundational skills and apply, analyze and evaluate new information.



In-car instruction creates a safe environment for students to practically apply learned skills, react and respond on the roadway, and receive regular feedback for future improvement. Increased practice time with learning, coaching and support further elevates learning.



The Capstone Project is a unique addition to the program focused on inviting students to transform the knowledge acquired and create personalized projects highlighting what they have learned.



Students will be engaged in the **Driver Z Community** application as they progress and complete their on-line learning, in-class and in-car lessons and independent practice hours before their final in-car lesson and road test. Gamification and visual assessment enables students and co-pilots to manage time, progress and requirements in an entertaining model.

What's New for Students

Online Learning Community

- An integrated program model with a specialized application for the Driver Z community
- Engaging on-line self-directed learning, at their own pace in small, bite-size components
- Gamification to motivate and encourage students with instant feedback and progress measures
- Ongoing assessment and communication between instructor and co-pilot
- Expanded accessibility for different abilities, languages and access capacities
- Messaging between instructor and student
- Integrated social media
- Reminders and alerts to help them stay on schedule and complete requirements
- Integration of online learning modules with new interactive electronic Manitoba Driver Handbook

In the Classroom

- Higher order experiential and peer-based learning
- Linkage between in-class learning and in-car skills development
- One class per week with short, daily on-line tasks (videos, quizzes, etc.) to prepare learner for class activities and discussion

- Capstone project to showcase what the student has learned throughout the Driver Z experience

In the Car

- Telematic and instructor-observed assessment information and feedback loop
- 15 hours in-car instruction concurrent with in-class lessons. Must qualify for final in-car lesson (45 hours of independent practice required under supervision of co-pilot must be achieved before final lesson is scheduled)
- Expanded practice requirements to 45 hours to receive Driver Z certification

What's new for Co-pilots (Parents/Guardians/Qualified Family or Friend)

- Completion of pre-class co-pilot training with customized content and assessments
- Regular, short, instructional videos and pointers delivered just-in-time to refresh skills and knowledge to enable correct coaching
- Fully developed co-pilot resources and guidance for in-car practice sessions
- Access to the student dashboard to monitor progress, receive assessments and log practice information
- Feedback on instructor-led in-car lessons to guide co-pilot practice time
- Reminders and alerts to stay informed if their child is falling behind or if co-pilot action is required
- Messaging between instructor and co-pilot (and parent)

What's new for Instructors

- Updated competency model to ensure instructors have the right skills and competencies to deliver the Driver Z program with ongoing performance management
- On-board training vehicle telematics to provide objective assessment and feedback to students and co-pilots
- Modular, flexible resource options to build the in-class course that best meets the needs of their student demographics and geography, for instance: specially designed instruction resources for northern remote students with limited infrastructure
- In-car assessment technology to enable instantaneous feedback and easier assessment
- Designed facilitator guides with timing, tips and scripting
- Ongoing access to resources, support and updates to curriculum to keep current and on trend

TIME, EFFORT, COSTS

IMPACT ANALYSIS

Estimated Impact: Internal Staff			
Estimated Time Commitment Scale (days, weeks, months)			
LOW Time commitment ≤ 2 work weeks	**MEDIUM** Time commitment of 2-4 work weeks	**HIGH** Time commitment of more than 4 work weeks	
Impacted Stakeholders	**Description of potential impact**	**Level of Impact**	**Type of Impact – Project or Operations**
Manager, Driver Education	With the new Driver Z program, the leader and manager of the department is engaged throughout the program/project as they are responsible for budget and resources and ongoing operationalization of the program.	**High**	**Project and Operations**
Driver Education – Program Delivery Coordinator, Course Coordinator, Liaison Officers, Training Clerks, Curriculum Developer & Training Support Specialist	Changes to current departmental processes to facilitate the newly redesigned Driver Z program. This team of individuals oversees aspects of the program and individuals have specific responsibilities for supporting and engaging with participants, instructors, schools, etc. This group is key to the ongoing operationalization of the Driver Z program with required updates and changes. This includes: monitoring performance with key metrics, score cards, etc.to ensure corrective needs are met with ongoing alignment of corporate vision, mission, trends, etc.	**High**	**Project and Operations**
Road Safety	Coordination of activities and campaigns to reinforce and share road safety culture philosophy.	**Low**	**Project and Operations**
Communications and Digital & Creative Engagement Services	Will support the strategy to staff and ensure consistent messaging including creation of content and delivery mechanisms. This includes the creation of concept videos and procedural content animations. The redesign of the handbook is a dependency – but not included as project work, delivered operationally.	**High**	**Project and Operations**
Human Resources	The engagement of this team is required for assisting with instructor core competencies, performance, and recruitment. Ensures changes with our internal complement of staff are appropriately reflected in their jobs.	**Low**	**Project**
KMS	The training and communication related to the new processes for all audiences, including but not limited	**High**	**Project**

	to: online learning, instructor led training, audience materials, policies, procedures, etc.		
Organizational Change Management	A resource allocated to the project to ensure change management strategy is created and implemented. Some aspects of change extend to partners and therefore activities must be coordinated from a stakeholder management perspective.	**High**	**Project**
Organizational Development	The coaching and facilitation core competency content for delivery and support to instructors and internal staff.	**Medium**	**Project**
Service Centre Representatives	See brokers.	**Low**	**Operations**
Contact Centre	Ability to provide information to customers about the program and support brokers in business transactions.	**Low**	**Operations**
IT Support Desk	The team which will support the business application and IT components of the program.	**Low**	**Operations**
Business Transformation and Information Technology Division	This is the architecture, delivery and technology are of the project team where resource assignment will include: project managers, architects – business and technical, developers, analysts, support personnel, etc.	**High**	**Project**

Estimated Impact: Partners/External			
Estimated Time Commitment Scale (days, weeks, months)			
LOW Time commitment ≤ 2 work weeks	**MEDIUM** Time commitment of 2-4 work weeks	**HIGH** Time commitment of more than 4 work weeks	
Impacted Stakeholders	**Description of potential impact**	**Degree of impact**	**Type of Impact – Project or Operations**
Instructors – In-Class & In-Car	The desired behaviour for instructors is now a facilitator and coach for the program. The performance expectations and new core competency model with feedback will be enacted. The in-class content is supplemented by online and social learning while the in-car content is now geared towards related skills and personalization to add value to in-car practice. The necessary skills to deliver the new program will be changing from the previous lecture style model requiring all instructors to adopt the new mindset. The in-car model is also changing to the final lesson adjacent to eligibility for the road test.	**High**	**Operations**
Driving Schools	The new program and practice hours model for in-car and copilot are further reaching and may impact schools in their current delivery model.	**Low**	**Operations**

High Schools and Administrators	The requirements to facilitate the program with a new schedule need to be communicated to schools and gaps must be addressed to facilitate new items like larger attendance for the combined student, parent/guardian and co-pilot evening.	**Medium**	**Operations**
Brokers	The brokers will have a change to their processes for prospective participants in the Driver Z program. This includes but is not limited to the updated new customer processes to facilitate self-service options.	**Medium**	**Operations**
IBAM	Governing body for brokers who may have concerns about new process and transactions and how it will affect compensation, etc.	**Low**	**Operations**
MB Public	The new program designed to shift mindsets and behaviours. Focus on how participants think and make decisions behind the wheel, as well as the technical components of driving. Currently have some understanding of previous program, concerns about young drivers, and road safety.	**Medium**	**Operations**

Estimated Impact: Program Participants			
Estimated Time Commitment Scale (days, weeks, months)			
LOW Time commitment ≤ 2 work weeks	**MEDIUM** Time commitment of 2-4 work weeks	**HIGH** Time commitment of more than 4 work weeks	
Impacted Stakeholders	**Description of potential impact**	**Degree of impact**	**Type of Impact – Project or Operations**
Students	The new program is an interactive program with learning spanning pre, during and post classroom learning leveraging best practices and technology for engagement and enablement. Continued engagement is sought through the program and beyond throughout the GDL process.	**Medium**	**Operations**
Parents/Guardians and Copilots	The program encourages greater involvement by this audience and provides additional supports to enable a more structured and facilitative approach to support students.	**High**	**Operations**
Other Driver Education Audiences	The content could be leveraged in the future for other audiences includes: adult driver education, driver improvement and control, etc.	**Low**	**Operations**

COSTS AND BENEFITS

History

- In Phase 1, IBM completed a study and established a roadmap and vision for a new HSDE Program with a cost of $4.5M - $8.0M over 3 years.
- MPI Management set HSDE program budget at $5.5M (based on a funding envelope approach vs. project estimate) and received board approval for funding.
- In June '14 as part of PUB GRA 2015 – MPI filed HSDE project charter which stated project budget $5.5M – this amount was later revised and decreased to $5M.
- As part of FY17/18 Capital budget finalization, reductions in capital spend were required to achieve corporate financial targets, resulting in HSDE program funding being reduced to $4.0M.

Current

- Project forecast is now $5.0M.
- Project assumes that the entire budget, including contingency, will be consumed. The requested $1.0M in incremental funding at the April 19, 2018 Board meeting is less than the project initial estimates; project will be designed and trimmed to fit.
- Approx. $1.0M over current approved project funding level of $4.0M & 8 months past desired implementation timeframe (but still under $5.5M – original program funding).
- Pilot in March 2019 with full implementation in Fall of 2019.

Summary of Costs –

HSDE Board Approved Funding at 2017/18 Capital Budget		**$ 4,000,000**
Phase 1 - 2014/15 - Actuals	$ 314,771	
Phase 1 - 2015/16 - Actuals	$ 327,274	
Total Phase 1 Project Costs	$ 642,045	
Phase 2 Technology PoCs - 2016/17 - Actuals	$ 1,335,305	
Phase 2 Technology PoCs - 2017/18 - Actuals	$ 112,002	
Total Phase 2 Project Costs	$ 1,447,307	
Total Phase 1 & 2 Completed Project Costs		$ 2,089,352
Remaining Board Approved Funding Available for Phase 3		$ 1,910,648
Phase 3 2017/18 - Actuals	$ 680,791	
Phase 3 2018/19 - Forecast	$ 2,229,857	
Total Phase 3 Forecast		$ 2,910,648
Shortfall in Existing Funding Envelope to Complete Phase 3	$ (1,000,000)	
Total Additional Funding Requested - April 2018		$ 1,000,000
Total HSDE Project Funding Phase 1, 2 and 3		**$ 5,000,000**

Summary		
Project Costs		
• Total estimated range of project cost	$	5,000,000 including all contingency
• Capital percentage	%	Phase 1 & 2 expensed, Phase 3 expected to be 100% Capital
Estimated reduction in cost (must be completed if applicable)		
• Continuing annual cost avoidance amount – realized in FY 2029/30.	$	2% reduction at-fault claims 1,356,126 5% reduction at-fault claims 3,375,887
• Other (Cost Avoidance)	$	N/A
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	525,000 (10,500 participants at increase fee of $50)
Cost/Benefit Analysis		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	**2% reduction - 16.20 (forecast)** 5% reduction – 12.85 (optimistic)
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	**2% reduction – 13.52 (forecast)** 5% reduction – 11.49 (optimistic)
• Internal Rate of Return (IRR)	%	**2% reduction - 6.3% (forecast)** 5% reduction – 14.8 % (optimistic)
• Net Present Value (NPV) (Based on discounted rate of 6.5%)	$	**2% reduction – (56,422) - negative** 5% reduction – 4,042,866

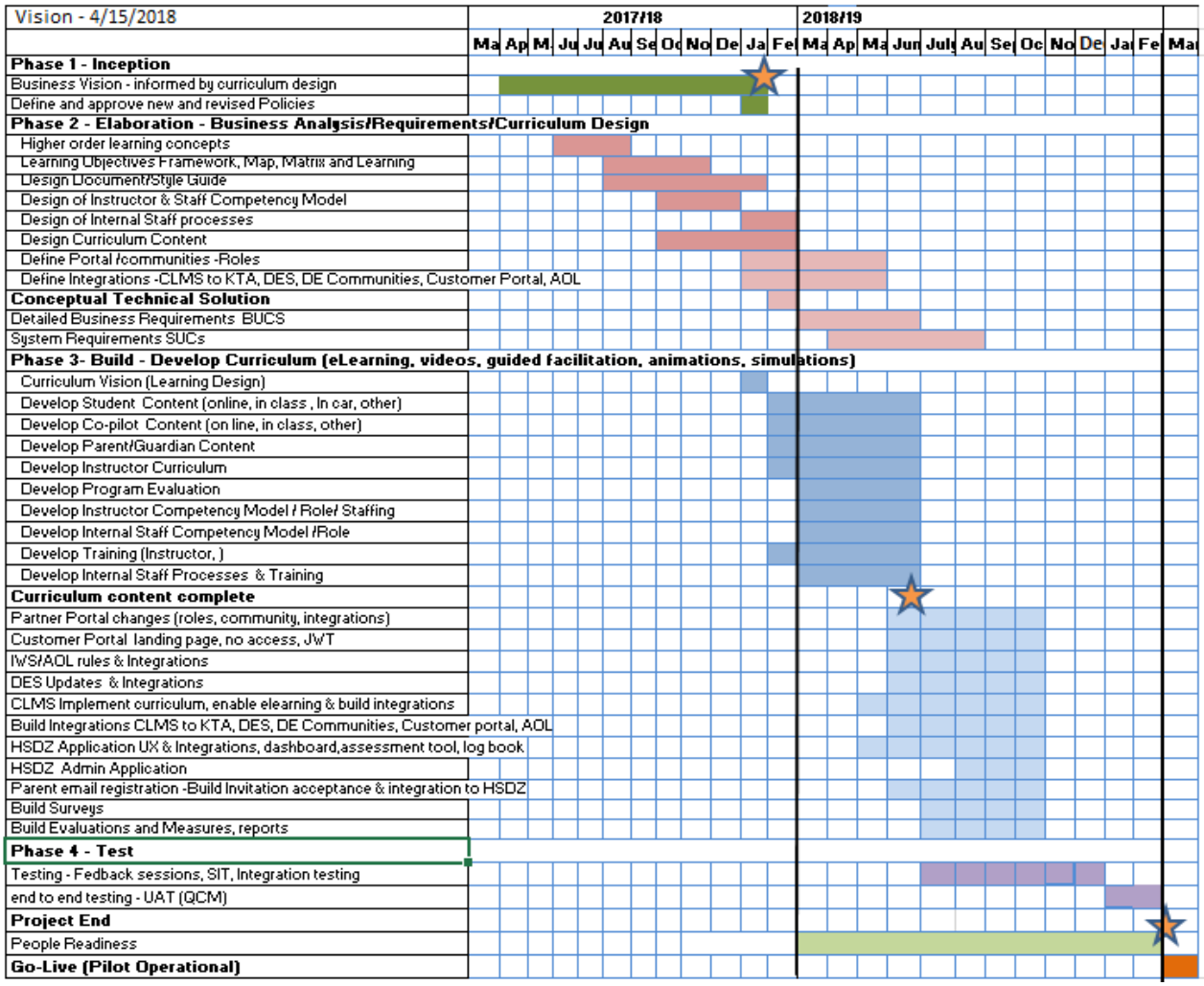
Estimated Costs:	Unquantifiable Benefits:
Entire Program cost of $5.0 M.	MPI's exceptional service requirement for its customers extends to driver education. Manitobans expect and deserve programming that incorporates best practice and proven learning strategies from around the globe. Manitobans have entrusted MPI to develop and deliver the best driver education programming possible for their children and the Corporation has an obligation to respond with the best product and outcomes achievable within its capacity as a public insurer. • Worldwide best practice in driver education has moved to reinforce a strong traffic safety culture, integrate higher order learning and engagement, and increase practice time. • We will teach skills and build knowledge • We will connect meaningfully with our students • We will shape beliefs, values, and attitudes • We will shape the culture and develop new potential ambassadors within each student • We will add value for ratepayers by developing the best drivers in Canada

RISK ANALYSIS

Potential Risk	Likelihood *L – Low M – Medium H – High*	Description of Impact of Risk	Accept & Manage Risk
Risks/Obstacles of Proceeding with Project			
New Technology	**High**	These aspects are critical to engagement in the new Driver Z program – the customer focus is important in aligning to make the new program successful for all participants, instructors, etc. Examples of challenges: Driver Z application and crossing boundaries of communities, hierarchies, pools, etc., relationships for parent and co-pilot with the many to many aspects, telematics for instructors, copilots suspended mid-program, etc. And, meeting the needs of the exception audience for accessibility (access, etc.). Testing and piloting of the program with initial and ongoing adjustments – including focus groups to ensure solution meets customer needs (participants, instructors, internal, etc.) for corporate business case and benefits alignment and realization (tangible and intangible – societal), etc.	Yes
Resistance and lack of buy In among stakeholders	**High**	Engagement and enablement of customers, instructors and internal staff is critical to embed the loss prevention culture in all stakeholders and ensure success in the new Driver Z program. Unmanaged expectations or poor communications could leave the users feeling like they were not heard, creating poor staff engagement. If staff are not engaged properly, resistance to change could be significant and costly to the corporation. The team must work closely with all affected stakeholders to ensure they have what they need to achieve success – communication, training, and ongoing engagement and updates to the program are critical here. Partnership with the organizational change management and engagement with stakeholders will mitigate this risk.	Yes
Validity of Solution	**Medium**	There has been a significant amount of research done of the new reimagined journey and curriculum with best practices. As the solution continues to evolve it will be tested with pilot groups and incremental research to ensure that analysis and continuous improvement is incorporated. Decisions have been made to leverage leading practices including online learning and mitigation to encourage reviews and practice of knowledge higher order learning.	Yes
Resources Allocation and	**Medium**	Dependencies from constraints and other projects, expertise and skill specialization, needing a technical implementation	Yes

Schedule Slippage		manager, to using internal where possible to other projects, etc. Project management being critical to ensure tasks, activities, etc. have the necessary focus.	
Budget	**Medium**	The program will include the alignment of solutions with fiscal program/project mandates and optimizing/leveraging existing technology where possible. This means that the team will look for opportunities to streamline and build to cost by prioritization of the solution components.	Yes
Parallel Streams of Work	**Medium**	Parallel streams of work need to be strategically integrated with coordination between different business units working on same tasks. This will be achieved with colocation of project team members and regular status meetings and check points to ensure alignment.	Yes
Public Perception	**Medium**	Costs of the project may be viewed as not required for the core business. Demonstration of the long term ROI and overall positive financial impact of both the cost reductions will mitigate this risk. Comparisons to industry standards and other jurisdictions provide evidence that these changes can create significant impact both financially and societally and this must be stressed to Manitobans for support in the program.	Yes
Risks of NOT Proceeding with Project			
Claims rates remain the same or increase	**High**	The costs of claims continue to rise with the 15-24 year old age group and liability and exposure is also increasing year over year.	Yes
Program remains out of date and content and delivery is not best practice	**High**	If our program does not reflect our values and the culture we are creating internally and externally – then staff, partners and the public may feel like they are not being heard, creating poor engagement and obsolescence. If we do not take advantage of the opportunity to stay current and on trend for this demographic we may be seen as disconnected and therefore the program will be looked at as poor value and not realize the results. We need to remain relevant to Manitobans and emphasize the importance of this program in creating better drivers to make everyone safer.	Yes

PROPOSED TIMING



ASSUMPTIONS

INITIAL ASSUMPTIONS

Cost Assumptions	• Of the remaining forecasted budget for Year 5, about $1 Million is intended for project resources, both technical and business, to facilitate and enable the new curriculum in development of supporting technologies and interfaces. The original estimates for this work take the project beyond $5 Million however we will be designing and trimming costs accordingly to adhere to budget. • Phase 3 Pilot implemented start of FY 2019/20; Launch will occur in Fall 2019/20 and first full year of HSDE is FY 2020/21. The first full year when all customers in the age group 15-24 years will have accessed the Phase 3 curriculum is 2029/30. • No incremental operating costs from HSDE Phase 3 - Costs to administer the program remain unchanged at $4.93 M regardless of enrollment (i.e. 10,232 in 2016 and 10,628 in 2017). • Temporary resources will be required to support the pilot and implementation with operational resources. An estimated $200,000 in licensing fees beginning in FY 2019/20 based on and quotes provided by vendors to date.
Cost/Benefit Assumptions	• As the project is implemented the benefits will be realized based on the annual progression of participants through the program to full realization after ten years. See Benefits Section of Business Case. • The cost avoidance benefit target of 2% of at-fault claims for HSDE customers are calculated using a 3 year averages (2015 to 2017) of at-fault claims experience as a base. See Appendix B and C for detailed calculations. • The assumed annual percentage increase in future year PD and BI claim costs is estimated at 5% and 2% as provided by MPI's Actuarial department. • The features of the new program provide confidence that improvements will be realized are based on research, studies and best-practices as documented, included but not limited to: increased practice times, etc. • Driver Examiner FTE efficiencies are based on an improved 1st attempt road test pass rate. (A reduction 2 FTEs in 2021/22). • Cost recovery from students increasing by 100% from $50 to $100. The average cost is ~450 per student and in Northern Communities with smaller class sizes, $800 per student. The $50 fee increase to HSDE customers will not be implemented until the third full year of implementation, 2022/23.

Other Assumptions	• Efforts will continue to further review the admin costs for cost savings needed to address- inflationary pressures, rationalization of fleet, etc. • The benefits and claim savings are related to student participation and do not reflect any incremental effects to adjacent audiences that participate in the program or those that are offered content/learning: ie. guardians/parents, copilots, adult/new immigrant driver education, etc. • The costs related to customer self-serve and book and pay functionality are not included in this business case. • Conceptual technical solution options are high level and are based on system functions desired which shall be validated during the analysis phase. • Any potential monetization as a result of the newly developed program is not contemplated in the calculations. • The social impact is not quantified in quantitative measures.

CONSTRAINTS/DEPENDENCIES

Cost Constraints	The approved Board budget for the program/project is 5 million dollars therefore all associated costs must adhere to this constraint.
Schedule Constraints/ Dependencies	• Resources are available in the timeframe required, including but not limited to: Systems Analysts, Developers, KMS, Web & Multimedia. This includes a blend of internal and external resources weighted more towards external since internal resource as availability is very limited with other projects still underway – customer self-services, etc. • UAT Test cycle availability • Technical estimates include Previous estimates for Non- technical resources remain unchanged (Training, testing, curriculum) and technical estimates include the breakdown of 20% BA, 40%SA, 40% Dev.
Other Constraints/ Dependencies	There are multiple pieces of functionality being delivered by other dependent projects, dates are based on current targets and may change: - Book and Pay delivered from CSS project end of July 2018 - Parental consents delivered from CSS project end of July 2018 - Full authentication being delivered by CSS project required by August 2018 - Secure messaging being delivered by CSS project required by August 2018 - Customer Landing page being delivered by CSS project; requirements needed by May 2018 - Portal Registration being delivered by CSS project; requirements needed by May 2018 - Single Sign on Functionality being delivered by CSS project; requirements needed by May 2018 - CLMS Instructor Access being delivered by CLMS project; needed by end of August 2018

CONSULTATION

The project team has included various business groups to provide input into the solution and all relevant project/program components. Furthermore, the team has included both internal and external stakeholders as well as vendors in consultation.

APPENDICES

Appendix A – Financial Analysis

Appendix B – 2percent PD BI claims forecasting

Appendix C – 5percent PD BI claims forecasting

PROJECT NAME: High School Driver Education (HSDE)

Line No.																	
1	**At Fault Claims Rate**	2%															
2		**FY14/15**	**FY15/16**	**FY16/17**	**FY17/18**	**FY18/19**	**FY19/20**	**FY20/21**	**FY21/22**	**FY22/23**	**FY23/24**	**FY24/25**	**FY25/26**	**FY26/27**	**FY27/28**	**FY28/29**	**FY29/30**	
3		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Total**
4	Project Costs	(314,770)	(327,274)	(1,335,304)	(792,795)	(2,229,857)	0	0	0	0	0	0	0	0	0	0	0	**(5,000,000)**
5	Project Benefit	0	0	0	0	(21,500)	(350,900)	(190,773)	73,160	704,106	813,879	940,443	1,081,194	1,231,655	1,387,803	1,602,351	1,806,201	**9,077,620**
6	Net Project Impact	(314,770)	(327,274)	(1,335,304)	(792,795)	(2,251,357)	(350,900)	(190,773)	73,160	704,106	813,879	940,443	1,081,194	1,231,655	1,387,803	1,602,351	1,806,201	**4,077,620**
7	Cumulative Net Project Impact	(314,770)	(642,044)	(1,977,348)	(2,770,143)	(5,021,500)	(5,372,400)	(5,563,173)	(5,490,013)	(4,785,907)	(3,972,028)	(3,031,584)	(1,950,390)	(718,735)	669,068	2,271,419	4,077,620	
8																		
9																		
10	**Net Present Value**	**(56,422)**	based on discount rate of 6.50%															
11	**IRR**	**6.3%**																
12	**Payback Period in years**														**13.52**			
14	**Return on Investment**	-100%	-100%	-100%	-100%	-100%	-107%	-111%	-110%	-96%	-79%	-61%	-39%	-14%	13%	45%	94%	
15	**Discounted Payback Period in years**																	

16 Note: The overall budget and schedule is subject to change based on project dependencies.

PROJECT NAME: High School Driver Education (HSDE)

List all major financial assumptions used to develop the Financial Template

Line No.				
1	**Spreadsheet Assumptions**		**Source**	
2	Project Contingency	20%	Project	
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.	
4	Inflation increase on expenses/costs	2.50%	Finance	unless fixed price - amend specific cells
5	Benefits Gross up as % of Salary	30%	HR/Finance	covers pension, cpp, ei, heath benefits, etc

6 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

7 **Project Assumptions**

8 **Fee increase for HSDE Program**

9 The current costs to administer the program of $4.9M in FY2017/18 (See Finance reporting "Program 7 High School Driver Ed FY17-18.xlsx")

10 a. The cost recovery is increasing from $50 per student to an incremental $50 in 2021/22 resulting in the cost to participants of the new program

11 i. The average cost to the corporation per participant is approximately $450, however northern communities where class sizes are closer to 6-10 students the proportional cost is closer to $800 per student.

12 ii. See appended slide deck for a jurisdictional scan containing information on other North American jurisdictions that provide similar services and costs associated.

13 b. Efforts will continue to further maintain the admin costs by finding further cost savings - inflationary pressures, rationalization of fleet, etc.

14 The costs related to customer self-serve and book and pay functionality are not included in this business case.

15 Any monetizaton is considered a bonus and is not included in the calculations.

16 The social impact of this project is not quantified in quantitative measures.

PROJECT NAME: High School Driver Education (HSDE)

Line No.		FY14/15 Year 1	FY15/16 Year 2	FY16/17 Year 3	FY17/18 Year 4	FY18/19 Year 5	FY19/20 Year 6	FY20/21 Year 7	FY21/22 Year 8	FY22/23 Year 9	FY23/24 Year 10	FY24/25 Year 11	FY25/26 Year 12	FY26/27 Year 13	FY27/28 Year 14	FY28/29 Year 15	FY29/30 Year 16	Total
1	External Labour (list various categories)																	
2	External Services	308,574	230,251	1,017,473	(9,097)													526,900
3																		11,925
4																		1,008,376
5	Resources - External	1,691	96,570	223,168	530,981	893,134												1,745,544
6	Resources - Internal, Chargeable				69,397	161,059												230,456
7	Phase Three - CR for Option One					1,000,000												1,000,000
8	Total External Labour	310,265	326,821	1,240,641	591,281	2,054,193	0	0	0	0	0	0	0	0	0	0		4,523,201
9	Other External Operating Costs																	
10	Travel	2,493		41,356														43,849
11	Workshops	1,009	287															1,296
12	PMT to outside driving instructors			5,480														5,480
13	MPI incrementals			44,565														44,565
14	MPI employee travel/parking			454	444													898
15	Simulator rental related			42	107,873													107,915
16	Miscellaneous			624														624
17	Printing Materials					10,000												10,000
18	Training with Vendor																	0
19	KTA Upgrades																	0
20	Total Other External Operating Cost	3,502	287	92,521	108,317	10,000	0	0	0	0	0	0	0	0	0	0		214,627
21	Capital Expenditures																	
22	Hardware																	0
23	Software																	0
24	Furniture																	0
25	Video Assets				93,197	165,664												258,861
26																		0
27	Total Capital Expenditures	0	0	0	93,197	165,664	0	0	0	0	0	0	0	0	0	0		258,861
28	Total External Cost before Contingency	313,767	327,108	1,333,162	792,795	2,229,857	0	0	0	0	0	0	0	0	0	0		4,996,689
29	Contingency 20%					0	0	0	0	0	0	0	0	0	0	0		0
30	Total External Costs	313,767	327,108	1,333,162	792,795	2,229,857	0	0	0	0	0	0	0	0	0	0		4,996,689
31	Internal Incremental Costs (list)																	
32	Staffing	0	0	0		0	0	0	0	0	0	0	0	0	0	0		0
33	Employee travel/parking	53	102	13														168
34	Miscellaneous	950		285														1,235
35	Software		64															64
36	Gift cards			650														650
37	Simulator Related Charges			1,194														1,194
38																		0
39																		0
40																		0
41	Total Internal Incremental Costs	1,003	166	2,142	0	0	0	0	0	0	0	0	0	0	0	0		3,311
42	Total Project Costs	**314,770**	**327,274**	**1,335,304**	**792,795**	**2,229,857**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**5,000,000**

43 **Project Cost Assumptions (please list)**

44 1. Years 1-4 project costs are based on actuals. Year 5 costs are estimates.
45 2. Incremental costs for 1M (including any contingency) CR on Option One included in 18/19 . Some costs are already allocated in placeholders and are maintained based on the respective estimated costs.
46 3. Project assumes that the entire budget, including contingency, will be consumed. The requested 1M in incremental funding is less than the project initial estimates; project will be designed and trimmed to fit .
47 4. Placeholders for initial operating costs allocations including printing materials, training with vendors (estimated for Humphrey Group or other vendor), and KTA upgrades.
48 5. Video asset purchasing costs allocated based on estimates provided by vendor.
49 6. Estimates do not include costs for internal non-incremental resources
50 7. Year 5 resources are estimated based on conceptual technical solution. Assumes blend of internal and external resources however weighted more towards external since internal resource availability is very limited with other projects still underway.
51 8. External resources costed at blended rate of $125/hr. Internal incremental resources costed at $75/hour (including salary benefits).
52 9. Estimates are based on project completion date of February 2019

PROJECT NAME: High School Driver Education (HSDE)

Line No.	Project Impact	FY14/15 Year 1	FY15/16 Year 2	FY16/17 Year 3	FY17/18 Year 4	FY18/19 Year 5	FY19/20 Year 6	FY20/21 Year 7	FY21/22 Year 8	FY22/23 Year 9	FY23/24 Year 10	FY24/25 Year 11	FY25/26 Year 12	FY26/27 Year 13	FY27/28 Year 14	FY28/29 Year 15	FY29/30 Year 16	Total
2	**One time Impact**																	
3	Cost Savings																	0
4	Cost Avoidance																	0
5	Revenue increase																	0
6	Total One Time Impact	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
7	**On Going Impact**																	
8	Cost Increases																	
9	Liaison Officer Term 1 (**Note 4**)		0	0	0	21,500	64,400	37,600	0	0	0	0	0	0	0	0	0	123,500
10	Liaison Officer Term 2 (**Note 4**)		0	0	0	0	86,500	0	0	0	0	0	0	0	0	0	0	86,500
11	Licensing **Note 1**		0	0	0	0	200,000	205,000	210,125	215,378	220,763	226,282	231,939	237,737	243,681	205,000	210,125	2,406,029
12	Facilities		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13								0	0	0	0	0	0	0	0	0	0	0
14	Total Cost Increases	0	0	0	0	21,500	350,900	242,600	210,125	215,378	220,763	226,282	231,939	237,737	243,681	205,000	210,125	2,616,029
15	Cost Decreases/Avoidance																	
16	Staffing (net) **See Staffing tab**	0	0	0	0	0	0	0	135,200	135,200	135,200	135,200	135,200	135,200	135,200	135,200	135,200	1,216,800
17	Cost Avoidance/Savings - reduction in **PD** claims frequency and $ (**Note 2 & 3**)						0	43,264	130,617	232,557	338,094	460,180	586,755	732,048	882,760	1,046,821	1,233,330	5,686,426
18	Cost Avoidance/Savings - reduction in **BI** claims frequency and $ (**Note 2 & 3**)						0	8,563	17,468	26,727	36,348	46,345	66,178	77,144	88,524	100,330	122,796	590,423
19		0	0	0	0	0	0	51,827	283,285	394,484	509,642	641,725	788,133	944,392	1,106,484	1,282,351	1,491,326	7,493,649
20	Claims Incurred Decrease		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Revenue Increase **(Note 6)**		0	0	0	0	0	0	0	525,000	525,000	525,000	525,000	525,000	525,000	525,000	525,000	4,200,000
22	Total Ongoing Impact	0	0	0	0	(21,500)	(350,900)	(190,773)	73,160	704,106	813,879	940,443	1,081,194	1,231,655	1,387,803	1,602,351	1,806,201	9,077,620
23	Total Project Impact	0	0	0	0	(21,500)	(350,900)	(190,773)	73,160	704,106	813,879	940,443	1,081,194	1,231,655	1,387,803	1,602,351	1,806,201	9,077,620

24 **Describe in detail all Project Impact amounts below:**

25 1. The licensing costs are associated with maintaining the technologies involved with enablement of the program, including but not limited to: video assets, etc. The increase in costs are based on inflation as per project assumptions.

26 2. The benefits and claim savings are related to student participation and do not reflect any incremental effects to adjacent audiences that participate in the program or those that are offered content/learning: ie. guardians/parents, copilots, adult/new immigrant driver education, etc.

27 a. PD Claims Cost Avoidance, to develop better and safer drivers, will be measured by tracking PD At-Fault Claims for HSDE graduates of new Phase 3 curriculum. See PD Table below.

28 b. BI Claims Cost Avoidance, to develop better and safer drivers, will be measured by tracking At-Fault BI Claims for HSDE Graduates of new Phase 3 curriculum. See BI Table below.

30 **PD At Fault Claims Cost Avoidance Table See "PD and BI forecast Analysis - HSDE dynamic model vers3.xlsx" for source details and related assumptions.**

		%	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30
32	1	1	20,906	65,855	115,246	169,411	228,705	293,505	364,213	441,258	525,097	616,217
33	2	2	43,264	130,617	232,557	338,094	460,180	586,755	732,048	882,760	1,046,821	1,233,330
34	3	5	102,752	329,382	578,411	845,235	1,143,876	1,470,339	1,819,248	2,206,900	2,629,039	3,079,130
35	4	0	0	0	0	0	0	0	0	0	0	0
36	5	10	209,063	658,547	1,152,458	1,694,113	2,287,052	2,935,051	3,642,131	4,412,582	5,250,972	6,162,170

37 **BI At Fault Claims Cost Avoidance Table See "PD and BI forecast Analysis - HSDE dynamic model vers3.xlsx" for source details and related assumptions.**

		%	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30
39	1	1	2,596	7,945	13,506	19,286	25,293	31,531	38,010	44,734	51,713	58,953
40	2	2	8,563	17,468	26,727	36,348	46,345	66,178	77,144	88,524	100,330	122,796
41	3	5	17,126	43,670	71,272	99,957	129,766	160,718	192,860	226,228	260,858	296,757
42	4	0	0	0	0	0	0	0	0	0	0	0
43	5	10	25,963	79,446	135,058	192,862	252,925	315,313	380,096	447,344	517,129	589,528

44 3 Cost savings are based on the 15-24 year age range where participants of the program are anticipated to be 1/10 of the range based on new program launch. With the launch occuring in fiscal mid-year the first year FY 19/20 demonstrates a 50% savings of the forecast for 2020/21, and benefits on an annual basis are then incrementally reflected per year at the respective 10%.

45 4 Liaison Officer Term 1 and Term 2 staffing is explained in "Liaison Officer temp staffing.docx" and financial costs calculated on "Liaison Officer Staffing" tab on this workbook.

46 5. See Staffing tab for details on FTE reductions

47 6. To estimate HSDE participants for revenue forecasting we used HSDE Enrollment numbers from IWS and revenues validated in financial statements. In 2016 enrollment was 10,232 and in 2017 it was 10,628.

48 Based on these totals an average of 10,500 was used and assumes the improved curriculum will offset the potential negative impact to enrollment of a fee increase. Strategies will be developed to maintain enrollment at current levels.

	ASSUMES Fee increase to take effect in 2022/23	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30
50	Enrollment	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500
51	Fee increase			$ 50	$ 50	$ 50	$ 50	$ 50	$ 50	$ 50	$ 50

PROJECT NAME: High School Driver Education (HSDE)

	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Total
Project Staff																	
																	0
																	0
																	0
																	0
																	0
																	0
Total Salary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Benefits 30%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Salary and Benefits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Impact of Project on Staffing (Increases and Decreases)																	
Reduction of Staff - 2021-2022 (2 FTEs)		0	0	0	0	0		104,000	104,000	104,000	104,000	104,000	104,000	104,000	104,000	104,000	936,000
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Salary	0	0	0	0	0	0	0	104,000	104,000	104,000	104,000	104,000	104,000	104,000	104,000	104,000	936,000
Benefits 30%	0	0	0	0	0	0	0	31,200	31,200	31,200	31,200	31,200	31,200	31,200	31,200	31,200	280,800
Total Salary and Benefits	0	0	0	0	0	0	0	135,200	135,200	135,200	135,200	135,200	135,200	135,200	135,200	135,200	1,216,800

Year 6 - Pilot Year 7

			2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	Total
6 Year Model			0	0	0		2	0								2

Staffing Assumptions

Improve the Class 5.0 road test pass rate to 75%. This will result in a reduction of 3,000 second attempt road tests in 2021/22 first full year of curriculum participants being eligible to take road test. Converts to 2 FTE savings in 2021/22. See "HSDE forecast FTE savings for pass rate improvements vers3 May 18.xlsx" for details.

The salary amount is based on mid-range of 52K for a customer service representative class specification and speaks to improvement of first attempt road test past rates to 75% for participants, operational efficiencies.

PROJECT NAME: High School Driver Education (HSDE)

Term 1 Liaison Officer	$	95,000.00	
# of months		23	Nov 1, 2018 to Sept 30, 2020
	$	4,130.43	Monthly salary

	2018/19	2019/20	2020/21	Total
Salary	$ 16,522	$ 49,565	$ 28,913	$ 95,000
30% benefits	$ 4,957	$ 14,870	$ 8,674	$ 28,500
	$ 21,478	$ 64,435	$ 37,587	**$ 123,500**

Term 2 Liaison Officer	$	66,000.00	
# of months		16	March 1, 2019 to June 30, 2020
	$	4,125.00	Monthly salary

	2018/19	2019/20	2020/21	Total
Salary	$ -	$ 49,500	$ 16,500	$ 66,000
30% benefits	$ -	$ 14,850	$ 4,950	$ 19,800
	$ -	$ 64,350	$ 21,450	$ 85,800

BlackBerry	$	700	
	$	**86,500**	**$ 210,000**

The business is requesting approval to hire two (2) Term Liaison Officers (LO):

- **LO Term (1) - November 1, 2018 until September 30, 2020**
- **LO Term (2) - March 1, 2019 until June 30, 2020**
- There is **no operations budget** for these term positions currently. The Department is committed to delay hiring until absolutely necessary to minimize the DE over-budget impact for current fiscal (Nov 1 – Feb 28, 2019).

Estimate on total cost (for use in financial analysis in BC):

• Term one	@	$95,000
• Term two	@	$66,000
• Blackberry	@	$700
		$161,700
plus 30% benefits		$48,300
Total		**$ 210,000**

PD Claims History and Forecasted Savings for HSDE drivers in New HSDE program (post Phase 3 Implementation)

Line No.						Col 3 * 4		Col 6 * 7		Col 3 * 5		Col 9 * 10	Col 11 - 8	Col 9 - 6
	1	2	3	4	5	6	7	8		9	10	11	12	13
	Year	# of HSDE Drivers **(Note 1)**	Cumulative # of Drivers	% of HSDE customers with Claim **(Note 2)**	Target Improvement Rate 2% improvement	# of at fault claims based on history %	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost based on history		# of at fault claims at target	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost at Target Improvement Rate	Annual Claim Cost savings	Annual Reduction in Number of Customers with Claims
1	2020/21	4,500	4,500	8.59%	8.42%	387	$ 5,408	$ 2,090,626		379	$ 5,408	$ 2,048,814	$ 43,264	(8)
2	2021/22	9,000	13,500	8.59%	8.42%	1,160	$ 5,679	$ 6,585,473		1,136	$ 5,679	$ 6,453,763	$ 130,617	(23)
3	2022/23	9,000	22,500	8.59%	8.42%	1,933	$ 5,963	$ 11,524,577		1,894	$ 5,963	$ 11,294,086	$ 232,557	(39)
4	2023/24	9,000	31,500	8.59%	8.42%	2,706	$ 6,261	$ 16,941,129		2,652	$ 6,261	$ 16,602,306	$ 338,094	(54)
5	2024/25	9,000	40,500	8.59%	8.42%	3,479	$ 6,574	$ 22,870,524		3,409	$ 6,574	$ 22,413,113	$ 460,180	(70)
6	2025/26	9,000	49,500	8.59%	8.42%	4,252	$ 6,903	$ 29,350,506		4,167	$ 6,903	$ 28,763,496	$ 586,755	(85)
7	2026/27	9,000	58,500	8.59%	8.42%	5,025	$ 7,248	$ 36,421,309		4,925	$ 7,248	$ 35,692,883	$ 732,048	(101)
8	2027/28	9,000	67,500	8.59%	8.42%	5,798	$ 7,610	$ 44,125,817		5,682	$ 7,610	$ 43,243,301	$ 882,760	(116)
9	2028/29	9,000	76,500	8.59%	8.42%	6,571	$ 7,991	$ 52,509,722		6,440	$ 7,991	$ 51,459,528	$ 1,046,821	(131)
10	2029/30	9,000	85,500	8.59%	8.42%	7,344	$ 8,390	$ 61,621,704		7,198	$ 8,390	$ 60,389,270	$ 1,233,330	(147)

11	**Note 1**	# of HSDE drivers represents average annual number who earn their 5L licence in a given year based on 2015 to 2017 historical results. With the launch of the new curriculum occuring in mid-year FY19/20, only about 50% of HSDE drivers will have benefited from the program in 2020/21 hence the 4,500 drivers in 2020/21.
12	**Note 2**	8.59% of customers is percentage derived from Business Analytics department history 15-24 year old age range analysis. 3 year average 2015 to 2017.
13		See "PD and BI historical - HSDE at-fault claims and costs" excel file
14	**Note 3**	$5,408 avg claim per customer is from Business Analytics dept history 15-24 yr old age range analysis. Represents 3 year average of $4,672 (2015 to 2017) and annual 5% increases (for 2018, 2019 and 2020) per forecast from MPI Actuarial department. 5% continues to be applied annually 2021/22 to 2029/30.
15		See "PD and BI historical - HSDE at-fault claims and costs" excel file

BI Claims History and Forecasted Savings for HSDE drivers in New HSDE program (post Phase 3 Implementation)

Line No.	1	2	3	4	5	Col 3 * 4	6	7	Col 6 * 7		Col 3 * 5	9	10	Col 9 * 10	11	Col 11 - 8	12	Col 9 - 6	13
	Year	# of HSDE Drivers **(Note 1)**	Cumulative # of Drivers	% of HSDE customers with Claim **(Note 2)**	Target Improvement Rate 2% improvement	# of at fault claims based on history	Avg claim $ per customer **(Note 3)**		Total Annual Claim cost based on history		# of at fault claims at target	Avg claim $ per customer **(Note 3)**		Total Annual Claim cost at Target Improvement Rate		Annual Claim Cost savings		Annual Reduction in Number of Customers with Claims
1	2020/21	4,500	4,500	0.674%	0.660%	30	$	8,563	$ 259,626		30	$	8,563	$ 254,434		$ 8,563		(1)	
2	2021/22	9,000	13,500	0.674%	0.660%	91	$	8,734	$ 794,457		89	$	8,734	$ 778,568		$ 17,468		(2)	
3	2022/23	9,000	22,500	0.674%	0.660%	152	$	8,909	$ 1,350,577		149	$	8,909	$ 1,323,565		$ 26,727		(3)	
4	2023/24	9,000	31,500	0.674%	0.660%	212	$	9,087	$ 1,928,624		208	$	9,087	$ 1,890,051		$ 36,348		(4)	
5	2024/25	9,000	40,500	0.674%	0.660%	273	$	9,269	$ 2,529,253		267	$	9,269	$ 2,478,667		$ 46,345		(5)	
6	2025/26	9,000	49,500	0.674%	0.660%	334	$	9,454	$ 3,153,135		327	$	9,454	$ 3,090,072		$ 66,178		(7)	
7	2026/27	9,000	58,500	0.674%	0.660%	394	$	9,643	$ 3,800,961		386	$	9,643	$ 3,724,942		$ 77,144		(8)	
8	2027/28	9,000	67,500	0.674%	0.660%	455	$	9,836	$ 4,473,438		446	$	9,836	$ 4,383,970		$ 88,524		(9)	
9	2028/29	9,000	76,500	0.674%	0.660%	515	$	10,033	$ 5,171,295		505	$	10,033	$ 5,067,869		$ 100,330		(10)	
10	2029/30	9,000	85,500	0.674%	0.660%	576	$	10,233	$ 5,895,276		565	$	10,233	$ 5,777,371		$ 122,796		(12)	

11	**Note 1**	# of HSDE drivers represents average annual number who earn their 5L licence in a given year based on 2015 to 2017 historical results. With the launch of the new curriculum occuring in mid-year FY19/20, only about 50% of HSDE drivers will have benefited from the program in 2020/21 hence the 4,500 drivers in 2020/21.
12	**Note 2**	0.674% of customers is percentage derived from Business Analytics department history 15-24 year old age range analysis. 3 year average (2015 to 2017).
13		See "PD and BI historical - HSDE at-fault claims and costs" excel file
14	**Note 3**	$8,689 avg claim per customer is from Business Analytics dept history 15-24 yr old age range analysis. Represents 2017 average claim cost with annual 2.0% increase (2018, 2019 and 2020). 2.0% increase continues to be applied annually 2021/22 to 2029/30.
15		See "PD and BI historical - HSDE at-fault claims and costs" excel file

PD Claims History and Forecasted Savings for HSDE drivers in New HSDE program (post Phase 3 Implementation)

Line No.														
						Col 3 * 4		**Col 6 * 7**		**Col 3 * 5**		**Col 9 * 10**	**Col 11 - 8**	**Col 9 - 6**
	1	2	3	4	5	6	7	8		9	10	11	12	13
	Year	# of HSDE Drivers **(Note 1)**	Cumulative # of Drivers	% of HSDE customers with Claim **(Note 2)**	Target Improvement Rate 5%	# of at fault claims based on history %	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost based on history		# of at fault claims at target	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost at Target Improvement Rate	Annual Claim Cost savings	Annual Reduction in Number of Customers with Claims
1	2020/21	4,500	4,500	8.59%	8.16%	387	$ 5,408	$ 2,090,626		367	$ 5,408	$ 1,986,095	$ 102,752	(19)
2	2021/22	9,000	13,500	8.59%	8.16%	1,160	$ 5,679	$ 6,585,473		1,102	$ 5,679	$ 6,256,199	$ 329,382	(58)
3	2022/23	9,000	22,500	8.59%	8.16%	1,933	$ 5,963	$ 11,524,577		1,836	$ 5,963	$ 10,948,349	$ 578,411	(97)
4	2023/24	9,000	31,500	8.59%	8.16%	2,706	$ 6,261	$ 16,941,129		2,571	$ 6,261	$ 16,094,072	$ 845,235	(135)
5	2024/25	9,000	40,500	8.59%	8.16%	3,479	$ 6,574	$ 22,870,524		3,305	$ 6,574	$ 21,726,998	$ 1,143,876	(174)
6	2025/26	9,000	49,500	8.59%	8.16%	4,252	$ 6,903	$ 29,350,506		4,039	$ 6,903	$ 27,882,980	$ 1,470,339	(213)
7	2026/27	9,000	58,500	8.59%	8.16%	5,025	$ 7,248	$ 36,421,309		4,774	$ 7,248	$ 34,600,244	$ 1,819,248	(251)
8	2027/28	9,000	67,500	8.59%	8.16%	5,798	$ 7,610	$ 44,125,817		5,508	$ 7,610	$ 41,919,526	$ 2,206,900	(290)
9	2028/29	9,000	76,500	8.59%	8.16%	6,571	$ 7,991	$ 52,509,722		6,243	$ 7,991	$ 49,884,236	$ 2,629,039	(329)
10	2029/30	9,000	85,500	8.59%	8.16%	7,344	$ 8,390	$ 61,621,704		6,977	$ 8,390	$ 58,540,619	$ 3,079,130	(367)

11	**Note 1**	# of HSDE drivers represents average annual number who earn their 5L licence in a given year based on 2015 to 2017 historical results. With the launch of the new curriculum occuring in mid-year FY19/20, only about 50% of HSDE drivers will have benefited from the program in 2020/21 hence the 4,500 drivers in 2020/21.
12	**Note 2**	8.59% of customers is percentage derived from Business Analytics department history 15-24 year old age range analysis. 3 year average 2015 to 2017.
13		See "PD and BI analyis of HSDE redevelopment project - At Fault Query (As of March 6 2018)vers3" excel file
14	**Note 3**	$5,408 avg claim per customer is from Business Analytics dept history 15-24 yr old age range analysis. Represents 3 year average of $4,672 (2015 to 2017) and annual 5% increases (for 2018, 2019 and 2020) per forecast from MPI Actuarial department. 5% continues to be applied annually 2021/22 to 2029/30.
15		See "PD and BI analyis of HSDE redevelopment project - At Fault Query (As of March 6 2018)vers3" excel file

BI Claims History and Forecasted Savings for HSDE drivers in New HSDE program (post Phase 3 Implementation)

Line No.						Col 3 * 4		Col 6 * 7		Col 3 * 5		Col 9 * 10	Col 11 - 8	Col 9 - 6
	1	2	3	4	5	6	7	8		9	10	11	12	13
	Year	# of HSDE Drivers **(Note 1)**	Cumulative # of Drivers	% of HSDE customers with Claim **(Note 2)**	Target Improvement Rate 5%	# of at fault claims based on history	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost based on history		# of at fault claims at target	Avg claim $ per customer **(Note 3)**	Total Annual Claim cost at Target Improvement Rate	Annual Claim Cost savings	Annual Reduction in Number of Customers with Claims
1	2020/21	4,500	4,500	0.674%	0.640%	30	$ 8,563	$ 259,626		29	$ 8,563	$ 246,645	$ 17,126	(2)
2	2021/22	9,000	13,500	0.674%	0.640%	91	$ 8,734	$ 794,457		86	$ 8,734	$ 754,734	$ 43,670	(5)
3	2022/23	9,000	22,500	0.674%	0.640%	152	$ 8,909	$ 1,350,577		144	$ 8,909	$ 1,283,048	$ 71,272	(8)
4	2023/24	9,000	31,500	0.674%	0.640%	212	$ 9,087	$ 1,928,624		202	$ 9,087	$ 1,832,193	$ 99,957	(11)
5	2024/25	9,000	40,500	0.674%	0.640%	273	$ 9,269	$ 2,529,253		259	$ 9,269	$ 2,402,790	$ 129,766	(14)
6	2025/26	9,000	49,500	0.674%	0.640%	334	$ 9,454	$ 3,153,135		317	$ 9,454	$ 2,995,478	$ 160,718	(17)
7	2026/27	9,000	58,500	0.674%	0.640%	394	$ 9,643	$ 3,800,961		374	$ 9,643	$ 3,610,913	$ 192,860	(20)
8	2027/28	9,000	67,500	0.674%	0.640%	455	$ 9,836	$ 4,473,438		432	$ 9,836	$ 4,249,766	$ 226,228	(23)
9	2028/29	9,000	76,500	0.674%	0.640%	515	$ 10,033	$ 5,171,295		490	$ 10,033	$ 4,912,730	$ 260,858	(26)
10	2029/30	9,000	85,500	0.674%	0.640%	576	$ 10,233	$ 5,895,276		547	$ 10,233	$ 5,600,512	$ 296,757	(29)

11	**Note 1**	# of HSDE drivers represents average annual number who earn their 5L licence in a given year based on 2015 to 2017 historical results. With the launch of the new curriculum occuring in mid-year FY19/20, only about 50% of HSDE drivers will have benefited from the program in 2020/21 hence the 4,500 drivers in 2020/21.
12	**Note 2**	0.674% of customers is percentage derived from Business Analytics department history 15-24 year old age range analysis. 3 year average (2015 to 2017).
13		See "PD and BI analyis of HSDE redevelopment project - At Fault Query (As of March 6 2018)vers3" excel file
14	**Note 3**	$8,689 avg claim per customer is from Business Analytics dept history 15-24 yr old age range analysis. Represents 2017 average claim cost with annual 2.0% increase (2018, 2019 and 2020). 2.0% increase continues to be applied annually 2021/22 to 2029/30.
15		See "PD and BI analyis of HSDE redevelopment project - At Fault Query (As of March 6 2018)vers3" excel file

Manitoba Public Insurance

Business Case

PROJECT NAME:	Customer Self Service – Phase 1 , 2 and 3
DATE SUBMITTED:	November 16, 2017
PREPARED/SUBMITTED BY:	John Remillard, Corporate Business Architect, Business Architecture
BUSINESS OWNER	Brad Bunko, VP, IT & Business Transformation & CIO Curtis Wennberg, VP, Customer Service & COO
DEPARTMENT	Service Operations / Business Architecture
DIVISION	Customer Service and Information Technology & Business Transformation

PROJECT DESCRIPTION:
(Provide a summary description of the project along with the current process and proposed future process)

This project will introduce a new customer self-service channel via the Internet and mobile platforms to meet current and future customer service expectations and needs. Building on the business architecture and technology infrastructure being introduced by the Physical Damage Re-engineering program (PDR) with respect to shop appointment booking as well as the portal technology for the business partner portal, this project will leverage these foundational corporate technology investments and assets to introduce an extended customer self-service channel for high volume/low-value transactions for maximum impact.

The Business Transformation Office will assume responsibility for oversight, management, and delivery of this project. Corporately, other key stakeholders include Service Operations, Broker Support Services and Finance.

<u>Phase 1 (Summer 2018)</u>
The FY17/18 and FY18/19 funding for this project will implement the necessary base business and technical architecture which will provide a long-term and strategic platform for the customer self-service delivery channel and provide some relief to customer service delays being experienced in MPI Service Centres. This will include the implementation of:

- Customer portal for on-line authentication via the following type of devices (mobile phone, personal computer, personal device)
- MPI appointment based services eligibility & booking (for road tests and knowledge tests)

<u>Phase 2 (Fall 2018)</u>

This phase will introduce the expandability customer self-service capability of:

- Secure messaging (i.e. ability to send claims status messages)
- High School Driver's Education Registration

- E-notification (transition from paper mail to on-line e-copy of MPI notifications

Phase 3 (Winter 2018)

This phase will introduce the expandability customer self-service capability of:

- Driver abstracts (ability to purchase and obtain electronic copy)
- Claims experience letters (ability to purchase and obtain electronic copy)

This project is also strategically related to the High School Driver's Education – Phase 3 project, the Legacy Systems Modernization project, the customer self-service strategy and roadmap, and Broker Compensation Negotiations FY19/20.

The above stated customer self-service strategy and roadmap and the Broker Compensation Negotiations FY19/20 will collectively establish the long-term vision, priorities, capabilities and overall financial viability of migrating further existing services to the customer self-service channel.

After the base infrastructure is implemented for customer self-service, it will be imperative to invest in future customer self-service 'applets' which align to the direction of the Legacy Systems Modernization project. Also, as each service offering is considered for the customer self-service delivery channel, this business case will be updated accordingly with transaction migration impacts and associated impact to customer portal licensing costs, MPI FTE impacts, MPI operating costs, and broker compensation impacts.

BUSINESS NEED:
(Provide a detailed description of the project/initiative and how it will satisfy the business need. Include opportunities and the issues that led you to prepare this document)

Currently, at peak times throughout the day, urban Service Centres are 'deflecting' up to 20% of our customers to local Autopac agencies due to excessive wait times (excess of 25 minutes) to receive service at the front counter.

Autopac agents also continue to deflect complicated, time-consuming transactions to Service Centres.

In looking at other related Canadian insurers, SGI offers a far greater presence for customer self-service with up to 80% of their transactions available. MPI will review and consider similar self-service offerings in the long-term strategy and roadmap.

Online Service	MPI	SGI
Change of address	**No**	**Yes**
Reassess/Renew DL	**No**	**Yes**
Replace DL	**No**	**Yes**
Cancel DL	**No**	**No**
Driver info (abstract)	**No**	**Yes**
Schedule Knowledge Test/Road Test	**No**	**Yes**
View Registration/ Insurance	**No**	**Yes**
Cancel Registration / Insurance	**No**	**Yes**
File PD Claim	**No**	**Yes**
Schedule Estimate	**No**	**Yes**

With the marketplace changes in society and business, customers are getting self-service options from brokers, insurance providers, banks and similar organizations to MPI. In 2014, MPI launched the first customer self-service transaction via the on-line credit card payment process. To-date, no targeted marketing nor aggressive customer communications have occurred and yet over 50,000 customers utilized this service last year.

Lastly, with the pending High School Driver's Education curriculum re-design launch in 2018, there is an opportunity for MPI to permanently establish 'a new way of doing business' with these year-over-year new customers to MPI. With a strong and meaningful customer self-service channel with transactions and capabilities that are relevant to customer needs, the self-service channel will become 'the future way to seek services' with MPI for this customer demographic. This will ultimately transform the service delivery model and ensure that MPI remains relevant to Manitobans' from a customer service perspective.

PROJECT OBJECTIVES:
(List SMART objectives – Specific, Measurable, Attainable, Realistic, Time-limited)

Introducing a customer self-service delivery channel at MPI will:

- Meet current and ongoing customer service levels and demand
- Eliminate excessive customer service delays at Service Centres
- Reduction in operating and other expenses up to $776,000 per annum

PROJECT BENEFITS:

(Provide a description of the benefits that this project/initiative would provide)

The implementation of Phase 1 of a customer self-service channel is expected to generate the following project benefits:

- Eliminate excessive customer service delays at Service Centres
- Reduce Service Centre FTE's by up to 14 through attrition
- Reduction of broker transaction fees
- Meet the current and future customer service needs of an evolving customer base
- Reduce future mailing operational expenses by up to $172,500 per annum

This business case in its current form is not providing a near-term positive financial return on investment. It will however start to provide a positive financial return after year 7. The financial investment is deemed to be strategic in nature and partially a 'cost of doing business' to meet future customer needs from a service delivery and service channel perspective. The business case is also challenged in the early stages due to the licensing model for the portal technology. Until a critical mass of over 300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained, the financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

Also, the near-term high-volume/low-value transactions and services envisioned for the customer self-service delivery channel are 'flat fee' based broker compensation transactions. Thus, not having a significant impact on the overall $80M broker compensation operating expenses overall.

An opportunity exists to also introduce a 'kiosk' model for customer self-service in MPI service centres. This concept and associated costs for computer equipment and/or premises renovations have not been incorporated into the business case at this time. This will be a concept that is observed and continuously reviewed and evaluated with subsequent iterations of the business case in conjunction with the customer self-service strategy and roadmap.

This project provides many opportunities to enhance customer service and reduce operational costs from a MPI service centre, mailing costs, and broker compensation expense perspective. Strategic conversations between MPI executive management, MPI Board of Directors, and IBAM executive are required to determine:

- How quickly do we transition to the customer self-service channel
- Which inventory of products, services can be made available thru the customer self-service channel
- What does the future Autopac agent commission structure look like in co-relation to a customer self-service channel

MONITORING OF ACTUAL PROJECT BENEFITS: *(List tools and processes to monitor attainment of listed project benefits*
• Corporate FTE levels • Customer transaction volumes by service channel (self-service, MPI service centres, Autopac agents) • Broker transaction fees • Corporate mailing expenses

IMPACT ANALYSIS: *(Describe the quantifiable and non-quantifiable effects of the outcome of this project. Include a summary only)*	
Who will be impacted	**What is the impact**
Service Centre Operations	Service Centre Operations (front counter service representatives) – reduction in effort and associated staffing required as customers transition to the self-service channel as the primary channel
Driver Licensing	Reduction in effort required to support customer service needs as customers transition to self-service channel as a primary channel
Communications	Customer communications campaign to inform customers of new customer service delivery channel will be required. Conduct client polls to confirm support of new customer self-service strategy
Human Resources	Staff reductions are anticipated to occur via attrition versus staff redeployments
Autopac Agents	Reduction in customer traffic for high volume/low value transactions and corresponding fees
Premises	Reduction in Service Centre real estate footprint over time and facilitate/align to strategy to decommission Service Centre locations

RISK ANALYSIS: *(Describe the impact of risk and the likelihood of it happening, both for proceeding or not proceeding with the project)*		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**

Risks/Obstacles of Proceeding with Project *(A high likelihood of risk without sufficient planned action for mitigation, may impact the discount rate used in calculating the Net Present Value of forecasted financial benefits. Impact to be discussed with the VM office)*		
Customer transition rate to self-service channel slower than anticipated	M	Will impact business case savings stream and overall financial return of the project. Adoption rates in financial analysis are deemed conservative.

Autopac agents concerned about self-service channel and MPI long-term direction and intentions	M	Will require ongoing dialogue with the broker community.

Risks of NOT Proceeding with Project		
Customer opinion of MPI and services offered could be negatively impacted	M	MPI relevance to and opinion of Manitobans' could suffer.
Lost opportunity to reduce operational costs	M	Operational cost savings opportunity would be lost or deferred
Customer service delays in Service Centres will continue and increase into the future	M	MPI service centres will continue to experience customer service delays and line-ups of customers. Service operation will need to consider FTE increases or service centre front-counter staffing models which increase service availability. There is a risk of increasing ongoing operating costs.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING
(When, how long, and organizational capacity)

Initial implementation in June 2018, with subsequent expanded service offerings each quarter over FY 18/19.

LEGAL REVIEW REQUIRED?

No X Yes

If yes, include legal review's response:

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED?
(To be considered for medium and detailed business cases)

No Yes X

Enterprise Architecture is already engaged and involved with the business case preparation and the project.

ENTERPRISE ARCHITECTURE REVIEW:

(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)

Business Architecture	Reviewed Date:

	Review Completed By: Findings: Recommended to proceed: Yes / No
Technical Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes/No

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	3,179,495
• Capital percentage (if known)	%	100
Estimated reduction/increases in cost (must be completed if applicable)		
• Continuing annual cost reduction amount	$	500k to 1.5M from 2019/20 to 2023/24
• Continuing annual cost (increases)	$	(330k) to (720k) from 2019/20 to 2023/24
• Other (specify)	$	
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	
• One time revenue increase	$	
• Other	$	

Cost/Benefit Analysis *(To generate these measures see Business Case Financials template at end of package)*		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	➢ 8
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	8 years
• Internal Rate of Return (IRR)	%	(34 %)
• Net Present Value (NPV)	$	(2,227,360)
• Other (specify)		

INITIAL ASSUMPTIONS: *(What are you assuming to be true, or what conditions are you assuming will prevail that will make this achievable?)*	
Cost Assumptions	• Customer self-service project will fund customer portal user authentication development and will incur customer portal user licensing costs
Cost/Benefit Assumptions	Customer adoption rates will be impacted by other corporate projects (High School Driver's Education) Broker negotiations in FY18/19 will consider impact of customer self-service project and delivery channel.
Other Assumptions	

CONSTRAINTS/DEPENDENCIES: *(What are the constraints or dependencies, if any, that limit the range of options?)*	
Cost Constraints	
Schedule Constraints/ Dependencies	Project assumes High-School Driver's Education launch by Spring 2019
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES: *(List the high-level key events, and their dates, that need to occur for this project to be delivered as planned)*	
Project Start Date	FY 17/18
Phase 1 Implementation	June, 2018
Phase 2 Implementation	Fall, 2018
Phase 3 Implementation	Winter, 2018
Project End Date	FY 18/19
Other Milestones	Remaining phases will be part of customer self-service strategy, roadmap and updated business case.

APPROVAL REQUEST/RECOMMENDATION: *(Indicate what project stage and funding $ amount you are requesting approval for)*
Requesting approval of $1.5M for FY 18/19 and approval to proceed with pursuing base technology architecture by end of FY 18/19.

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	Vers 1 Dec 5, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle **YES** or **NO**
Approved By	**Date**	**Printed Name**	**Signature**

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	**Total**
1	Project Costs	(1,679,495)	(1,500,000)	0	0	0	0	0	**(3,179,495)**
2	Project Benefit	0	(71,890)	163,906	306,447	495,428	708,264	778,156	**2,380,311**
3	Net Project Impact	(1,679,495)	(1,571,890)	163,906	306,447	495,428	708,264	778,156	**(799,183)**
4	Cumulative Net Project Impact	(1,679,495)	(3,251,385)	(3,087,479)	(2,781,032)	(2,285,604)	(1,577,340)	(799,183)	
5	**Net Present Value**	**(2,227,361)**	based on discount rate of 6.50%						
6	**IRR**	**-34.0%**							
7	**Payback Period in years** **Return on Investment**	-100%	-102%	-97%	-87%	-72%	-50%	-25%	
8	**Discounted Payback Period in years**								

PROJECT NAME: Customer Self Service

List all major financial assumptions used to develop the Financial Template

Line No.	Spreadsheet Assumptions		Source
2	Project Contingency	15%	Project
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.
4	Inflation increase on expenses/costs	2.50%	Finance unless fixed price - amend specific cells
5	Benefits Gross up as % of Salary	30%	HR/Finance covers pension, cpp, ei, heath benefits, etc

6 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

7 Project Specific Assumptions (please list)

8 * Service Centre operations staff reductions will occur thru attrition

9 * High school driver's education launch in FY 19/20 is linked to success of customer adoption rates of customer self-service

10 * ongoing mailing costs reductions will be realized by customer adoption of e-notifications vs. paper mail customer communications channel

11 * customer self-service project will fund the customer portal development in FY 17/18 & carryover into FY 18/19

12 * An assumption is being made that all customers which adopt customer portal will elect to transition to e-notification for all MPI letters etc.

13 * Note this project has future anticipated funding of $1.0M in FY 19/20 and FY 20/21 respectfully that is not accounted for in the project costs all future expanded customer self-service capabilities associated with that funding will have to demonstrate via a revised business case that the investment is worthy of consideration

14 **Based on PMIS licencing scale and the user thresholds, once the threshold is met and maintained for 3 months, the higher volume and lower price per user will immediately apply**

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	External Labour (list various categories)								
2		1,460,430	1,304,348	0	0				2,764,778
									0
									0
3	Total External Labour	1,460,430	1,304,348	0	0	0	0	0	2,764,778
4	Other External Operating Costs								
5	Travel								0
6	Training								0
									0
									0
7	Total Other External Operating Cos	0	0	0	0	0	0	0	0
8	Capital Expenditures								
9	Hardware								0
10	Software								0
11	Furniture								0
									0
12	Total Capital Expenditures	0	0	0	0	0	0	0	0
13	Total External Cost before Contingency	1,460,430	1,304,348	0	0	0	0	0	2,764,778
14	Contingency 15%	219,065	195,652	0	0	0	0	0	414,717
15	Total External Costs	1,679,495	1,500,000	0	0	0	0	0	3,179,495
16	Internal Incremental Costs (list)								
17	Staffing	0	0	0	0	0	0	0	0
									0
									0
									0
18	Total Internal Incremental Costs	0	0	0	0	0	0	0	0
19	Total Project Costs	**1,679,495**	**1,500,000**	**0**	**0**	**0**	**0**	**0**	**3,179,495**

20 Project Cost Assumptions

21 * External labour costs are not based on 'bottom-up' estimating, the costs are capital funding allocations and the project team will need to design and deliver associated functionality for capital funding amount provided

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	**Project Impact**								
2	**One time Impact**								
3	Cost Savings								0
4	Cost Avoidance								0
5	Revenue increase								0
6	Total One Time Impact	0	0	0	0	0	0	0	0
7	**On Going Impact**								
8	Cost Increases								
9	Maintenance			50,000	51,250	52,531	53,845	55,191	262,816
10	Software				0	0	0	0	0
11	Licensing		104,160	289,045	441,930	548,345	630,871	665,010	2,679,360
12	Facilities				0	0	0	0	0
13	Other								0
14	Total Cost Increases	0	104,160	339,045	493,180	600,876	684,716	720,200	2,942,176
15	Cost Decreases/avoidance								
16	Staffing (net) and tx fees		32,270	412,624	661,524	910,424	1,159,324	1,226,924	4,403,090
17	Maintenance		0	0	0	0	0	0	0
18	Software				0	0	0	0	0
19	Licensing		0	0	0	0	0	0	0
20	Other (mailing costs)		0	90,327	138,103	185,880	233,656	271,433	919,398
21	Other		0	0	0	0	0	0	0
22		0	32,270	502,951	799,627	1,096,304	1,392,980	1,498,357	5,322,488
23	Claims Incurred Decrease		0	0	0	0	0	0	0
24	Revenue Increase		0	0	0	0	0	0	0
25	Total Ongoing Impact	0	(71,890)	163,906	306,447	495,428	708,264	778,156	2,380,311
26	Total Project Impact	0	(71,890)	163,906	306,447	495,428	708,264	778,156	2,380,311

27 Describe in detail all Project Impact amounts below:

28	**Customer Take up rate**							
29	MPI Customer Base	1,000,000						
30	Road test/Knowledge test volume	100,000						
31	Customer self service txn adoption rate % for Broker commission (see last assumption below)	10%	20%	30%	40%	50%	50%	
32	HSDE	10,500	10,500	10,500	10,500	10,500	10,500	
33	HSDE parent/co-pilot	22,050	22,050	22,050	22,050	22,050	22,050	
34								
35	Customer self service (services)		20,000	30,000	40,000	50,000	50,000	
36	Customer self service (e-docs)		20,000	40,000	60,000	80,000	100,000	
37	HSDE for life		10,500	21,000	31,500	42,000	52,500	
38	HSDE parent/co-pilot for life		7,277	14,553	21,830	29,106	36,383	
39	**Total - customer portal licences**	**32,550**	**90,327**	**138,103**	**185,880**	**233,656**	**271,433**	

40 * Maintenance costs are a post-implementation operations based funding allocated provided to add minor features/resolve production issues for implemented functions in FY18/19, not associated with adding new capabilities/service. Timing of expense is related to timing of implementation of customer portal and initial self-service functions

41 * Licensing costs are based on PMIS Licensing costs model. Based on customer/user take-up rates the associated rate will be incurred annually per customer

42 * HSDE take-up; assumption is that all year over year HSDE students, parents and co-pilots will utilize the Customer Portal in order to access necessary/applicable content, service and functions associated with the new HSDE program. Volume is based on operational take-up rates for HSDE program

43 * A management decision has been made that customer self-service will incur all associated customer portal licensing fees. (i.e. HSDE business case will not incur portal licensing fees, will be allocated to this business case)

44	*	HSDE for life - assumption is that all HSDE customer are new customers to MPI and based on demographic and customer service needs/preferences will continue to use customer portal as a primary service channel into the future
45	*	HSDE parent/co-pilot for life - assumption is that 1/3 of HSDE parents/co-pilots will prefer to permanently transition for the new customer portal service channel (deemed to be a conservative estimate)
46	*	For 'customer self service' adoption rates - assumed 2% of MPI customers will elect/prefer to transition to the new customer portal service delivery channel (deemed to be a conservative estimate)
47	*	Overall - as the premlinary services planned to be migrated to the customer self-service channel (road/knowledge test appointment bookings, driver abstracts, claims experience letters, and secure messaging for claims status, and electronic document delivery vs. paper mail for customer communications/mailings) the main MPI benefit/impact will be to service provided at MPI service centres vs. Autopac agents.
48	*	Mailing costs - $1 for every edocs customer and HSDE for life and HSDE parent/co-pilot for life.

PROJECT NAME: Customer Self Service

Line No.			FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	Project Staff									
										0
										0
										0
										0
										0
										0
2	Total Salary		0	0	0	0	0	0	0	0
3	Benefits	30%	0	0	0	0	0	0	0	0
4	Total Salary and Benefits		0	0	0	0	0	0	0	0
5	Impact of Project on Staffing (Increases and Decreases)									
6	Reduction of Staff			0	156,000	312,000	468,000	624,000	676,000	2,236,000
7	New Staff			0	0	0	0	0	0	0
8				0	0	0	0	0	0	0
9				0	0	0	0	0	0	0
10				0	0	0	0	0	0	0
11				0	0	0	0	0	0	0
12	Total Salary		0	0	156,000	312,000	468,000	624,000	676,000	2,236,000
13	Benefits	30%	0	0	46,800	93,600	140,400	187,200	202,800	670,800
14	Total Salary and Benefits		0	0	202,800	405,600	608,400	811,200	878,800	2,906,800

15 Describe in detail all Staffing changes resulting from the project below:

16 Describe in detail all Staffing changes resulting from the project below:

17										
6 Year Model			2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	Total
18		0	0	3	3	3	3	1	1	14

19 SCR reductions in Service Centres operations are supported by anciliary models

Manitoba Public Insurance

Business Case

PROJECT NAME:	BI3/Fineos Upgrade 2020
DATE SUBMITTED:	November 6, 2017
PREPARED/SUBMITTED BY:	John Remillard, Corporate Business Architect, Business Architecture
BUSINESS OWNER	Curtis Wennberg, VP, Customer Service & COO; Brad Bunko, VP, IT, Business Transformation & CIO
DEPARTMENT	Business Architecture
DIVISION	Information Technology & Business Transformation

PROJECT DESCRIPTION:
(Provide a summary description of the project along with the current process and proposed future process)

In order to comply with the contractual provisions of the software licensing agreement between MPI and Fineos, MPI must maintain a 4-year vitality cycle on the Fineos platform. The last Fineos upgrade was completed in early 2016. Therefore, MPI must complete an upgrade of the Fineos platform before the end of calendar year 2020 to maintain status quo annual licensing rates.

The 4-year vitality cycle is a contractual provision of the MPI/Fineos software licensing agreement which requires MPI to maintain a software upgrade cycle on the software platform. If MPI does not maintain the 4-year vitality cycle, there is an option to exercise a 2-year extended maintenance period with a financial penalty of a small % in annual licensing fees and a larger % in the annual customized licensing fee. At the end of the extended maintenance period, if MPI has not upgraded the software, the software will no longer be operationally supported or maintained by Fineos in the event of a defect, business problem, or system issue.

It should be noted that the last upgrade (to release 8.01) of the BI3/Fineos platform was the first upgrade since the initial implementation of the product (release 6.5) in 2010. This project experienced unforeseen technical complications and project execution complexities resulting in significant cost and schedule overruns. The primary lesson learned from that project was to maintain a consistent and more timely cycle of system upgrades.

The Enterprise Systems Support area will assume responsibility for leadership, oversight and delivery of the project and will directly engage and involve key stakeholders from the Injury Claims Management area as well as Financial Services as part of the project delivery cycle.

MPI intends to upgrade to release 8.8of the Fineos software. Prior to the software upgrade component of the project, the ESS will work with Injury Claims Management to prioritize existing MPI customizations of the software that can now be transitioned to out of the box

functionality. The scope and actual customizations will be finalized in preliminary project planning and will be incorporated into four 6-week software delivery cycles.

Due to the limited MPI experience in upgrading the Fineos software, it is highly recommended that the upgrade begin well in advance of the December 2020 deadline for the 4-year vitality cycle as a risk mitigation action to ensure project completion before the December 2020 deadline. Also, from a corporate project portfolio perspective, the timing of the upgrade is optimal as large delivery projects such as PDR are reaching completion and prior to potential start-up of the Legacy Modernization Program.

BUSINESS NEED:

(Provide a detailed description of the project/initiative and how it will satisfy the business need. Include opportunities and the issues that led you to prepare this document)

The Fineos platform is considered to be a "Tier 1" application, and the associated system performance and availability are critical in supporting the Injury Claims Management Department and our PIPP benefits related customers in their rehabilitation case management needs.

Therefore, the Fineos system must be operational and in a stable state to successfully meet the needs of MPI's ongoing day-to-day operational and customer service aspects of our PIPP benefits business. It is therefore critical that the Fineos platform be upgraded to comply with software licensing and support requirements of the software licensing agreement between MPI and Fineos to maintain technical viability and operational support of the software platform.

PROJECT OBJECTIVES:

(List SMART objectives – Specific, Measurable, Attainable, Realistic, Time-limited)

- Upgrade the Fineos software platform to version 8.8
- De-commission some of the MPI customized functionality onto equivalent version 8.8 out of the box functionality to reduce the future effort and costs of future upgrades

PROJECT BENEFITS:

(Provide a description of the benefits that this project/initiative would provide)

- MPI will meet the needs of the 4-year vitality cycle and will avoid incremental annual ongoing licensing costs
- Based on the preliminary scope determination and approach, MPI has identified 11 pieces of custom code that can be retired and migrated to out-of-the-box functionality. This will result in a reduction in the annual MPI customization support/licensing fees related to these identified customizations.
- The anticipated cost savings/avoidance of the two benefits above amount to $127k annually.

- Fineos platform will be migrated to a more mainstream and supported version of the software to reduce the risk associated with software availability and any required maintenance support on required by Fineos.

MONITORING OF ACTUAL PROJECT BENEFITS AND ACTUAL PROJECT COSTS:
(List tools and processes to monitor attainment of listed project benefits and of project costs)

- Successful completion of the project before the 4-year vitality cycle cut-off period
- Annual licensing costs are status quo (without financial licensing cost penalties) based on software licensing agreement licensing fees and actual expenditures incurred. Vendor Licensing fees will be monitored to ensure no penalties are being charged. Tracked to IT Licensing G/L account.
- Annual customized licensing fees are reduced. This will be tracked to IT Licensing G/L Account.

IMPACT ANALYSIS:
(Describe the quantifiable and non-quantifiable effects of the outcome of this project. Include a summary only)

Who will be impacted	What is the impact
Injury Claims Management	The staff will need to be trained on a new version of the software from a user interface and policies and procedures perspective. Size of impact can only be confirmed at the end of the project inception phase. Based on historical upgrades, 2 full-time SMEs were required for the duration of the project.
IT & Enterprise Systems Support	The staff will need to be trained on a new version of the software from a user interface and policies and procedures perspective. Size of impact can only be confirmed at the end of the project inception phase. Based on high-level planning, a team of 6 FTE's and one team leader will be required for the duration of the project.
Finance	Finance staff will need to be engaged on the project to perform quality assurance testing and validation of existing finance policies and procedures. Based on historical upgrade experience, 1 FTE will be required to support acceptance testing phase of the project.
Knowledge Management Services	KMS staff will need to be engaged on the project to prepare updated policies and procedures and training material. Preliminary planning assumes 1 FTE will be required in support for the duration of the project.

RISK ANALYSIS:
(Describe the impact of risk and the likelihood of it happening, both for proceeding or not proceeding with the project)

Potential Risk	Likelihood (L,M,H)	Description of Impact of Risk and description of planned action taken to mitigate this risk

Risks/Obstacles of Proceeding with Project *(A high likelihood of risk without sufficient planned action for mitigation, may impact the discount rate used in calculating the Net Present Value of forecasted financial benefits. Impact to be discussed with the VM office)*		
Project Complexity, schedule and costs	M	The last upgrade of the Fineos platform was a large upgrade and the first upgrade completed since the initial project implementation. The project experienced many challenges from a technical, complexity and project schedule and costs over-run perspectives. MPI is still immature on this platform from an upgrade path perspective, thus, there are inherent risks regarding project complexity, size, and associated project schedule and costs. The project approach to reduce the MPI customizations will reduce overall complexity of the upgrade. Incrementally, this is not a 'major' platform and version release like the previous upgrade in 2016. Therefore, based on feedback and advice from Fineos experts, the upgrade will not be as complex.

Risks of NOT Proceeding with Project		
Increase in Fineos annual licensing costs	H	The MPI/Fineos software licensing agreement requires MPI to maintain a 4-year vitality cycle without financial penalties. If MPI does not maintain that cycle, incremental annual licensing fees will be incurred.
Stability and support of Fineos Platform	H	MPI must maintain the 4-year vitality cycle to maintain software support and ongoing patches and defect resolutions to the software.
Security and operating system risks of cyber threats	M	Ongoing security patches and enhancements are made in the software with releases. Maintaining an upgrade cycle is imperative to reduce the likelihood of a security based incident.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING *(When, how long, and organizational capacity)*
Project to be initiated in 3rd quarter of FY18/19 and conclude by end of 2nd quarter FY 19/20 which provides ample schedule contingency for the 4-year vitality cycle and the associated due date of December 2020.

LEGAL REVIEW REQUIRED?
No - no impact to licensing agreements, MSA is expected.

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED? (To be considered for medium and detailed business cases)
No this is an existing enterprise Tier 1 application and no changes to infrastructure, hardware etc. are anticipated as part of this project. Enterprise Architecture resources will be engaged as part of the project.

ENTERPRISE ARCHITECTURE REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes
Technical Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	2,277,264
• Capital percentage (if known)	%	100
Estimated reduction in cost (must be completed if applicable)		
• Continuing annual cost reduction amount	$	licensing fees cost avoidance and reductions of $126.9k in 2020/21, increasing annually to $136.7k in 2023/24.
• One time cost reduction	$	0
• Other (specify)	$	0
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	0
• One time revenue increase	$	0
• Other	$	0

COST/BENEFIT ANALYSIS *(To generate these measures see Business Case Financials template at end of package)*		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	N/A – this upgrade is considered a costs of doing business and supporting the day-to-day operations for our PIPP aspect of our business.
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	N/A – this upgrade is considered a costs of doing business and supporting the day-to-day operations for our PIPP aspect of our business.
• Internal Rate of Return (IRR)	%	N/A – this upgrade is considered a costs of doing business and supporting the day-to-day operations for our PIPP aspect of our business.
• Net Present Value (NPV)	$	(1,682,581)
• Other (specify)		
Annual licensing cost avoidance	$	

INITIAL ASSUMPTIONS: *(What are you assuming to be true, or what conditions are you assuming will prevail that will make this achievable?)*	
Cost Assumptions	Assume two external resources; Technical Architect, and Project Manager and various internal staff as detailed in the Financial Analysis file that outlines the project costs
Cost/Benefit Assumptions	

Other Assumptions	Project can be completed within the forecasted funding and before end of calendar year 2020.

CONSTRAINTS/DEPENDENCIES: *(What are the constraints or dependencies, if any, that limit the range of options?)*	
Cost Constraints	
Schedule Constraints/ Dependencies	Project must be completed before end of calendar year 2020 otherwise annual financial licensing penalties will be incurred
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES: *(List the high-level key events, and their dates, that need to occur for this project to be delivered as planned)*	
Project Start Date	June FY 18/19
Customization Sprint #1	July, 2018
Customization Sprint #2	August, 2018
Customization Sprint #3	September, 2018
Customization Sprint #4	October, 2018
Software Upgrade start	November, 2018
Project End Date	June FY 19/20
Other Milestones	

APPROVAL REQUEST/RECOMMENDATION: *(Indicate what project stage and funding $ amount you are requesting approval for)*
Requesting approval for overall capital project funding allocation of $2,277,263. The fiscal year capital investment/funding is as follows: FY18/19 $1,256,939 FY 19/20 $1,020,325

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	Dec 11, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle YES or NO
Approved By	Date	Printed Name	Signature

EXECUTIVE APPROVAL:			
Approved By	Date	Printed Name	Signature

PROJECT NAME: BI3/Fineos Upgrade 2020

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	2023/24 Year 6	Total
1	Project Costs	(1,256,939)	(1,020,325)	0	0	0	0	**(2,277,265)**
2	Project Benefit	0	0	126,930	130,103	133,356	136,690	**527,079**
3	Net Project Impact	(1,256,939)	(1,020,325)	126,930	130,103	133,356	136,690	**(1,750,186)**
4	Cumulative Net Project Impact	(1,256,939)	(2,277,265)	(2,150,335)	(2,020,231)	(1,886,876)	(1,750,186)	
5	**Net Present Value**	**(1,682,581)**	based on discount rate of	6.50%				
6	**IRR**	**N/A**						
7	**Payback Period in years** **Return on Investment**	-100%	-100%	-94%	-89%	-83%	(1)	
8	**Discounted Payback Period in years**							

PROJECT NAME: BI3/Fineos Upgrade 2020

List all major financial assumptions used to develop the Financial Template

Line No.	Spreadsheet Assumptions		Source	
2	Project Contingency	15%	Project	
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.	
5	Inflation increase on expenses/costs	2.50%	Finance	unless fixed price - amend specific cells
6	Benefits Gross up as % of Salary	30%	HR/Finance	covers pension, cpp, ei, heath benefits, etc

7 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

8 **Project Specific Assumptions (please list)**

- project will start in June of FY2018/19 and will be completed by Jun FY 2019/20
- 9 the upgrade will not have any impact to ongoing licensing, maintenance, hardware or staff support expenses
- the upgrade will not require any net new hardware to be purchased as part of the project costs or post-implementation costs
- 10 BI3 platform is on a 4 year vitality cycle, option for 2 year extended but a small % increase in the annual license fee and larger % increase in the annual customized license fee if 4 year vitality cycle is not adhered to.
- 11 Project will be completed by ESS team (vs. BTO) and associated supporting business/operation teams

PROJECT NAME: BI3/Fineos Upgrade 2020

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	2023/24 Year 6	Total
1	External Labour (list various categories)							
2	Project Manager/Architect/Support	241,095	35,343					276,438
								0
								0
4	Total External Labour	241,095	35,343	0	0	0	0	276,438
5	Other External Operating Costs							
6	Travel							0
7	Training							0
								0
								0
9	Total Other External Operating Costs	0	0	0	0	0	0	0
10	Capital Expenditures							
11	Hardware							0
	Software							0
	Furniture							0
12								0
13	Total Capital Expenditures	0	0	0	0	0	0	0
14	Total External Cost before Contingency	241,095	35,343	0	0	0	0	276,438
15	Contingency - approx 15%	36,164	5,302	0	0	0	0	41,467
16	Total External Costs	277,259	40,645	0	0	0	0	317,905
17	Internal Incremental Costs (list)							
18	Staffing	979,680	979,680	0	0	0	0	1,959,360
								0
								0
								0
21	Total Internal Incremental Costs	979,680	979,680	0	0	0	0	1,959,360
22	Total Project Costs	**1,256,939**	**1,020,325**	**0**	**0**	**0**	**0**	**2,277,265**

23 **Project Costs Assumptions (please list)**

External technical architect in support of ESS team for the upgrade
External Project manager in support of the ESS team for the upgrade

PROJECT NAME: BI3/Fineos Upgrade 2020

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	2023/24 Year 6	Total
1	**Project Impact**							
2	**One time Impact**							
3	Cost Savings							0
				0	0	0		0
4	Cost Avoidance			0	0	0		0
5	Revenue increase							0
6	Total One Time Impact	0	0	0	0	0	0	0
7	**On Going Impact**							
8	Cost Increases							
9	Maintenance				0	0	0	0
10	IBM				0	0	0	0
11	Licensing				0	0	0	0
12	Facilities				0	0	0	0
13	Other							0
14	Total Cost Increases	0	0	0	0	0	0	0
15	Cost Decreases/avoidance							
16	Staffing (net)	0	0	0	0	0	0	0
17	Maintenance		0	0	0	0	0	0
18	IBM				0	0	0	0
19	Licensing reductions		0	126,930	130,103	133,356	136,690	527,079
20	Facilities			0	0	0	0	0
21	Other		0	0	0	0	0	0
22		0	0	126,930	130,103	133,356	136,690	527,079
23	Claims Incurred Decrease		0	0	0	0	0	0
24	Revenue Increase		0	0	0	0	0	0
25	Total Ongoing Impact	0	0	126,930	130,103	133,356	136,690	527,079
26	Total Project Impact	0	0	126,930	130,103	133,356	136,690	527,079

27 Describe in detail all Project Impact amounts below:

28 • the licensing reductions relate to cost avoidance that would have otherwise been incurred annually as an increase to the licensing fees for not maintaining the 4-year vitality cycle of the software as per the MPI/Fineos software licensing agreement and the cost savings associated with reduced

29 • software licensing amounts due to transition from customization to out-of-the box functionality with CPI applied in future years. Represents 11 pieces of custom code that are targeted for retirement and migration to out-of-box functionality.

PROJECT NAME: BI3/Fineos Upgrade 2020

Line No.			2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	2023/24 Year 6	Total
1	**Project Staff**								
2	Injury Claims Management								0
3	KMS								0
4	Finance								0
5	IT & Enterprise Systems Support								0
6	BA's								0
7	Analysts								0
8	Developers								0
9	Lead								0
10	Total Salary		753,600	753,600	0	0	0	0	1,507,200
11	Benefits	30%	226,080	226,080	0	0	0	0	452,160
12	Total Salary and Benefits		979,680	979,680	0	0	0	0	1,959,360
13	**Impact of Project on Staffing (Increases and Decreases)**								
14	Reduction of Staff			0	0	0	0	0	0
15	New Staff			0	0	0	0	0	0
				0	0	0	0	0	0
				0	0	0	0	0	0
				0	0	0	0	0	0
				0	0	0	0	0	0
16	Total Salary		0	0	0	0	0	0	0
17	Benefits	30%	0	0	0	0	0	0	0
18	Total Salary and Benefits		0	0	0	0	0	0	0

19 Describe in detail all Staffing changes resulting from the project below:
20 • The B3 Upgrade 2020 project is not anticipated to have an impact on support or operational staff requirements

Manitoba Public Insurance

Business Case

PROJECT NAME:	Finance Re-engineering (FRE) Project (FY18/19)
DATE SUBMITTED:	Nov 25, 2017
PREPARED/SUBMITTED BY:	Cynthia Campbell, Corporate Controller John Remillard, Corporate Business Architect
BUSINESS OWNER	Mark Giesbrecht, Brad Bunko
DEPARTMENT	Finance, Business Architecture
DIVISION	Finance & Information Technology & Business Transformation

PROJECT DESCRIPTION:
(Provide a summary description of the project along with the current process and proposed future process)

In 2015, MPI issued an RFP to hire a consulting firm to review the Finance Division in order to determine the Finance Division vision, mission, and structure to ensure the best use of corporate resources and consistently meet all the Divisional objectives and deadlines in a timely manner. This Finance Division Review was conducted and completed by Deloitte with a report submitted in March 2015.

The Finance Division Review identified opportunities to improve the finance systems and processes to support the success of Finance operations. These opportunities were further explored during a separate engagement in 2015, conducted by Deloitte, which resulted in documented business requirements to simplify, standardize and streamline processes, increase automation and improve the timeliness and visibility of financial information. These requirements formed the basis for the Finance Re-engineering (FRE) project.

Due to other priorities and limited funding, the original FRE project was deferred.

In conjunction with the Legacy Systems Modernization and HRMS - Human Resource Management System Phase 3 / 4 project, the 2018/19 funding for this renewed project will involve an assessment of the long-term strategic fit and viability of the Infor suite of products, potential expanded utilization of the Infor suite as part of the strategy to decommission the Legacy Systems (AOL, DLS, CARS) as well as re-validation of the business vision, roadmap, budget and business case for the Finance Re-engineering program.

The key deliverables from the 2018/19 spend will be a business case, strategy and roadmap, including updating the business requirements established in 2015. This will determine the estimated future spend in 2019/20 and beyond.

BUSINESS NEED:
(Provide a detailed description of the project/initiative and how it will satisfy the business need. Include opportunities and the issues that led you to prepare this document)

The 2015 Finance Division review identified the need for improving process and technology maturity as a high priority. The lack of mature infrastructure fundamentally limits Finance's effectiveness and efficiency. This project will move this maturity along and allow for increased effectiveness and efficiency. Without efficient processes, timely and accurate information cannot be provided to the business.

The current Finance systems are not meeting the current business users needs, the second engagement with Deloitte outlined the future business requirements and the potential for efficiency and effectiveness within the Finance Division. The resulting business case will expand on the infrastructure (human & technical) necessary to support the end users in decision making through improved processes, systems, and the development of performance measures. This project will outline the roadmap to be able to deliver on these potential improvements in order to increase effectiveness and efficiency.

PROJECT OBJECTIVES:
(List SMART objectives – Specific, Measurable, Attainable, Realistic, Time-limited)

This project will be responsible for reassessing the original 2015 FRE business case and recommending and validating and confirming the need for MPI to take future actions. This current project will include the following deliverables:

- Detailed business case
- Financial analysis for updating the financial systems and processes
- Business vision – a strategic description of the business end state
- Project charter
- Project road map

Ultimately the overall objectives of the FRE program is to:

- Provide timely access to accurate financial information
- Increase efficiency and effectiveness of financial processes and system integration
- Provide appropriate support to other Divisions within the Corporation to guide decision making

PROJECT BENEFITS:
(Provide a description of the benefits that this project/initiative would provide)

The assessment will yield an updated business case and establish an updated project roadmap and execution timelines while ensuring that enterprise architecture principles are applied regarding the future solution for FRE and the Legacy Systems Modernization projects. The assessment will also validate the need for the FRE program prior to the significant spend decision being made.

MONITORING OF ACTUAL PROJECT BENEFITS: *(List tools and processes to monitor attainment of listed project benefits*
Completion of a document outlining an updated project roadmap, and a business case with a cost benefit analysis and specific deliverables for the FRE initiative for Board approval, will be evidence of progress of the stated Project benefits for this business case.

IMPACT ANALYSIS: *(Describe the quantifiable and non-quantifiable effects of the outcome of this project. Include a summary only)*	
Who will be impacted	**What is the impact**
Finance	Significant SME support and engagement will be required to complete this project
Information Technology	Significant support and engagement will be required to complete this project
Vendor Management	Provide advice and support with respect to potential Infor MSA and/or licensing impacts

RISK ANALYSIS: *(Describe the impact of risk and the likelihood of it happening, both for proceeding or not proceeding with the project)*		
Potential Risk	**Likelihood (L,M,H)**	**Description of Impact of Risk and description of planned action taken to mitigate this risk**

Risks/Obstacles of Proceeding with Project *(A high likelihood of risk without sufficient planned action for mitigation, may impact the discount rate used in calculating the Net Present Value of forecasted financial benefits. Impact to be discussed with the VM office)*		
Corporate capacity to complete this project, HRMS phase ¾ and Legacy Systems Modernization concurrently	M	Advance planning and corporate project portfolio management and resource management
Resource conflicts between this project and other financial operational activities (regular reporting and project based)	M	Where necessary, secure additional resources to allow required activities to be completed in parallel.
Significant amounts of parallel activities relating to changing systems or changing operational requirements (such as IFRS, ALM, etc.)	M	Additional change management activities may be required to ensure effective understanding and eventual adoption of the proposed changes

Risks of NOT Proceeding with Project		
Independent business and technical architecture views will be established for FRE, HRMS phase ¾ and Legacy Systems Modernization. This could result in a non-optimal business and technical strategic solution to meet future business needs	H	Project re-work may be required if the projects proceed independently.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING*(When, how long, and organizational capacity)*
Start May 1, 2018 and meeting associated significant milestones

LEGAL REVIEW REQUIRED?
No X Yes

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED? *(To be considered for medium and detailed business cases)*
No X Yes
Enterprise Architecture has been engaged during the development of this business case and will be engaged during the project.
ENTERPRISE ARCHITECTURE REVIEW: The enterprise Architecture team is aware and engaged on this initiative. *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*

Business Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

Technical Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes/No

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	500K
• Capital percentage (if known)	%	0%
Estimated reduction in cost (must be completed if applicable)		
• Continuing annual cost reduction amount	$	N/A
• One time cost reduction	$	N/A
• Other (specify)	$	N/A
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	N/A
• One time revenue increase	$	N/A
• Other	$	N/A

Cost/Benefit Analysis *(To generate these measures see Business Case Financials template at end of package)*		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	N/A
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	N/A
• Internal Rate of Return (IRR)	%	
• Net Present Value (NPV)	$	(469,484)
• Other (specify)		N/A

INITIAL ASSUMPTIONS: *(What are you assuming to be true, or what conditions are you assuming will prevail that will make this achievable?)*	
Cost Assumptions	The project can be completed with the $500K funding
Cost/Benefit Assumptions	N/A
Other Assumptions	

CONSTRAINTS/DEPENDENCIES: *(What are the constraints or dependencies, if any, that limit the range of options?)*	
Cost Constraints	This associated scope of work is not to exceed the project funding
Schedule Constraints/ Dependencies	Significant milestones and checkpoints are associated with this project to maintain cadence with the MPI Board of Directors mtg(s) and associated budget review/approval timelines
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES: *(List the high-level key events, and their dates, that need to occur for this project to be delivered as planned)*	
Project Start Date	May 2018
Project End Date	February 2019
Other Milestones	Dec 2018 - Revised Business Case for FRE program Dec 2018 – Board of Directors mtg for review/approval of FRE business case, roadmap and budget

APPROVAL REQUEST/RECOMMENDATION: *(Indicate what project stage and funding $ amount you are requesting approval for)*
Seeking FY18/19 budget approval of $500K

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	December 4, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle **YES** or **NO**
Approved By	**Date**	**Printed Name**	**Signature**

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**

A Report for

Manitoba Public Insurance

Physical Damage Re-Engineering (PDR) 2018 Program Evaluation

15 May 2018
Engagement: 330050285

Table of Contents

Executive Summary **1**
PDR 2018 Program Evaluation **3**
Report Context and Background **4**
Evaluation Approach **4**
Physical Damage Re-engineering (PDR) Program **5**
Overview 5
PDR Program Objectives 5
PDR Program Progress 8
Comparison between May 2017 and April 2018 Analysis 12
Gartner Perspective on PDR Program Disposition **14**
Gartner Prior Advice to MPI Management 14
Gartner Conclusions 14
Appendix: Management Considerations **16**
MPI's Development of Strategic Principles 17
Gartner Insights on IT Project Success 18
The Evolution of P&C Insurance and MPI 21

Executive Summary

Context and Background

In response to an order from the Public Utilities Board (PUB), MPI has contracted Gartner to conduct an assessment of the PDR program as follows: The PUB ordered that in the 2019 GRA, the Corporation shall file an update, prepared by Gartner, to its 2017 PDR report. The 2017 Order required … *an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project.*

Evaluation Approach

Gartner assigned additional senior resources to conduct the updated assessment. The new team is comprised of the leader of our Western Canada Public Sector practice, and the Vice President, Solution and Pricing. They are being supported by the established Gartner team that conducted the review in 2017.

The team reviewed a number of key program artifacts including the following:

- An MPI Management presentation regarding the PDR Program to the MPI Board of Directors (dated April 19, 2018) restating the PDR cost and benefit projections.
- MPI-generated value management analysis which provided data and analysis supporting the Management analysis and recommendations
- Project status reports
- Interviews on site at MPI on April 19, 2018

Program Structure and Disposition

Over the past 5+ years MPI has been on a journey to improve service to Manitobans in three areas:

- Physical damage
- Loss prevention / road safety
- Customer service

This evolved into a business case for PDR with projections for costs at $65M and the identification of a high level benefits stream. The overall business case (benefits – costs) has been analyzed and refined by MPI's value management team and the project team over the past year.

As the program evolved, two conditions developed:

1. MPI had difficulties measuring/breaking out some of the ongoing costs, especially licensing, due to complex license schemes from vendors and components from multiple vendors being used, and re-used, across multiple projects.
2. Senior executives led negotiations with the repair industry (savings) and solution vendors (costs) with limited engagement at the business unit level for developing, monitoring and delivering projected benefits. The resulting agreements sometimes limited the business unit's ability to achieve projected benefits.

MPI management has recently conducted a detailed assessment of current costs/expenditures to date, the balance of the approved available budget, and a detailed evaluation of the benefits that could be achieved from the expenditure of the remaining funds. They concluded that the

benefits to be achieved would not be supported by the cost to achieve them, and they have recommended to the MPI Board of Directors that the CCRS component of the PDR program be cancelled.

Note: there are a few smaller projects within the PDR program continuing and all will complete in 2018/19.

Comparison between 2017 and 2018

Based on the information provided by MPI, Gartner's 2017 report indicated that the PDR Program, was showing a lengthy payback period, but a positive Net Present Value (NPV) of $13.7M (using a 3% discount rate approximating MPI's cost of capital) over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

In early 2018, after further internal analysis, the MPI management team restated a number of the projected costs and benefits of the overall PDR program. Management provided the restated analysis to the MPI Board on April 19, 2018.

There is a significant difference in some of the costs and the benefits, and the overall Net Present Value (NPV), between the 2017 Gartner report and the 2018 MPI team restatement. The key differences are an expected project costs of $57M as opposed to the originally projected $65M, and a negative NPV of ($49.9M) as opposed to the pre-restatement Gartner projected $13.7M.

At the highest level the factors for these differences are threefold:

- Some costs that should have been attributed to the PDR Program were not included in the original analysis.
- New evidence shows that some benefits of the PDR Program are planned to be lower than projected.
- MPI is using a newly agreed upon risk-based standard discount rate of between 6.5% and 9.5% for NPV calculations to make project investment decisions.

Gartner has reviewed the MPI restatement. To the degree that the data/analysis has been made available to Gartner, we believe that the restatement is complete and correct.

Gartner Perspective

Gartner has reviewed the latest iteration of the PDR Value Management/Business Case data and related assumptions. It would appear that, in addressing the request from the Board, MPI has followed the advice provided by Gartner and applied a much more rigorous approach to the PDR business case and application of the value management framework. The MPI financial analysis is much more detailed, complete, and sophisticated than we have seen in the past. There is a much greater focus on value management and benefits realization which is a key driver for program success.

MPI has continued to mature its value management capabilities and is now formally tracking benefits. This leads to a more holistic, and potentially more conservative, view of benefits than was previously the case due to the higher level of accountability and operational involvement across MPI for achieving the forecasted costs and benefits. We view this as a positive step forward for MPI.

Gartner's independent analysis, based on the more detailed data available, supports the current value projections. Gartner supports MPI's decision to terminate the CCRS component of the PDR program and to finish the few remaining components in 2018/19.

PDR 2018 Program Evaluation

Report Context and Background

In response to an order from the Public Utilities Board (PUB), MPI has contracted Gartner to conduct an assessment of the PDR program as follows. The PUB ordered that in the 2019 GRA, the Corporation shall file an update, prepared by Gartner, to its 2017 PDR report. The 2017 Order required … *an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project.*

The 2017 report provided an assessment of the PDR program including:

- Progress of pilots to date
- Timing of full implementation
- Project costs
- Savings / benefits to be realized

Gartner is pleased to provide this update as requested by MPI. Gartner Consulting provides fact-based consulting services to help clients use and manage IT to enable business performance by bringing together research insight, benchmarking data, problem-solving methodologies and hands-on experience to improve the return on IT investment.

The Gartner report addresses the issues raised in the PUB and also provides an update to the project constraints / challenges identified in the previous report.

Evaluation Approach

Gartner has assigned additional senior resources to conduct the updated assessment this year. The new team is comprised of the leader of our Western Canada Public Sector practice, and the leader of our Solution and Pricing team. They are being supported by the Gartner team that conducted the reviews in 2016 and 2017.

The team reviewed a number of key program artifacts including the following:

- An MPI Management presentation regarding the PDR Project to the MPI Board of Directors (dated April 19, 2018) restating the PDR cost and benefit projections.
- MPI-generated spreadsheets which provided data and analysis supporting the Management analysis and recommendations
- Project status reports

Gartner interviewed a number of key individuals including multiple project managers and business relationship managers and senior members of the MPI program and project organization including the Enterprise Architect, solution architects, the Business Transformation Office, Business Architecture, and Value Management.

Prior PUB orders specified five key areas (Progress of pilots to date, Timing of full implementation, Project costs, Maintenance costs, Savings / benefits to be realized). Given that the program is being completed, we address here the overall program cost and projected benefits to be achieved, and compare that to the findings of the previous reports.

Physical Damage Re-engineering (PDR) Program

Overview

Over the past 5+ years MPI has been on a journey to improve service to Manitobans in three areas:

- Physical damage
- Loss prevention / road safety
- Customer service

This evolved into a business case for PDR with projections for costs at $65M and a high level benefits stream. The overall business case (benefits – costs) has been analyzed and refined by MPI's value management team over the past year.

As the program evolved, two conditions developed:

1. MPI had difficulties measuring/breaking out some of the ongoing costs, especially licensing, due to complex license schemes from vendors and components from multiple vendors being used, and re-used, across multiple projects.
2. Senior executives led negotiations with the repair industry (savings) and solution vendors (costs) with limited engagement at the business unit level for developing, monitoring and delivering projected benefits. The resulting agreements sometimes limited the business unit's ability to achieve projected benefits.

To improve its ability to achieve forecasted benefits, MPI has recently updated its project management methodology by introducing value management and increasing the engagement and accountability of operational management for achieving projected benefits. These changes enable a more holistic, and potentially more conservative, view of costs and benefits and adds assurances that business case costs and benefits will be achieved.

PDR has delivered benefits in the estimating process, but not the claims submission and adjusting process. MPI has re-evaluated the degree to which PDR can support enhancements to claims submission and adjusting, and has determined that an approach that is likely to have more success will be to focus on the claims process as the core of their claims and repairs business. This has increased the focus on legacy modernization and MPI is now investigating the marketplace to understand the capabilities of various vendors in supporting claims processing.

MPI management has recently conducted a detailed assessment of current costs, remaining approved available budget, and a detailed evaluation of the benefits that could be achieved from the expenditure of the remaining funds. They concluded that the benefits to be achieved would not be supported by the cost to achieve them, and they have proposed to the MPI Board of Directors that the CCRS component of the PDR project be cancelled and the few remaining components be completed in 2018/19.

PDR Program Objectives

The PDR project has delivered on some of the MPI originally specified business objectives:

- Ensure vehicles are repaired in a safe and cost-effective manner

- Deliver and orchestrate the full lifecycle of physical damage claims management services, in partnership with the extended repair industry, to meet customers' evolving needs for quality, safety, cost control and service.
- Work with business partners to promote a local collision repair industry that is healthy and sustainable in both economic and environmental terms.
- Work with the global industry to foster safe and cost-effective vehicle repair and occupant protection.

Gartner reported in 2017 that the PDR program was expected to deliver the following:

- Reduction of 50% physical (PD) claims effort in Contact Centre activity.
- Direction of nearly 85% of estimates to distributed estimating (DE) shops
- Correct Repair shop will be identified 98+% of the time.
- Once a vehicle is at repair shop, claim is ready for repairs 98% of the time—no waiting for customer or shop.
- Customers and shops are not required to repeat work already performed, as measured by new process design and customer service experience
- Lower overall claims spend in comparison to current operations which will also preserve relative claims costs in relation to industry
- Less hands-on MPI involvement for most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new First Notice of Loss (FNOL) claims
- Smaller MPI operational footprint achieved through decommissioning and / or repurposing MPI service centres
- Mitigation of leakage risks through ongoing claims financials management, forecasting, audit and monitoring
- Continued health of the overall Repair industry measured by the continued profitability of the Manitoba repair industry.
- Vehicle repairs meet relevant standards as defined and measured by quality of repairs standards and KPI's.

The current projections indicate that the following benefits will not be achieved:

- Reduction of 50% physical (PD) claims effort in Contact Centre activity.
- Direction of nearly 85% of estimates to distributed estimating (DE) shops
- Correct Repair shop will be identified 98+% of the time.
- Once a vehicle is at repair shop, claim is ready for repairs 98% of the time—no waiting for customer or shop.
- Less hands-on MPI involvement for most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new First Notice of Loss (FNOL) claims
- Lower overall claims spend in comparison to current operations which will also preserve relative claims costs in relation to industry

However, the benefits below are projected to be achieved and have MPI's management commitment to track the achievement of the benefits.

- Mitigation of leakage risks through ongoing claims financials management, forecasting, audit and monitoring

- Continued health of the overall Repair industry measured by the continued profitability of the Manitoba repair industry.
- Vehicle repairs meet relevant standards as defined and measured by quality of repairs standards and KPI's.
- Customers and shops are not required to repeat work already performed, as measured by new process design and customer service experience
- Smaller MPI operational footprint achieved through decommissioning and / or repurposing MPI service centres
- Internal efficiencies previously reported have been achieved (and as per Table 1, are expected to continue)

In addition MPI is achieving other benefits to which it is not possible to assess a financial benefits. These are:

- Improved customer service
- Reduced technical risk
- Reduced fraud risk

Table 1: MPI Committed benefits from PDR though 2021/22

Savings Category	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Internal Efficiencies	$1, 278,360	$ 924,526	$1,343,115	$1,720,246	$ $1,648,821
2017/18 internal efficiencies as a result of Direct Repair are actuals					
Labour Rate Differential	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Labour Rate Differential represents the $3 million reduction in labour rates that was achieved by paying the Mitchell licensing fees on behalf of body shops from implementation of DR (2017/18) to expiration of 2nd term of Mitchell Licensing agreement (2022/2023)					
Parts Savings	$ 600,000	$1,050,000	$1,370,000	$2,000,000	$2,050,000
2017/18 parts savings are actuals and savings are monitored in the monthly Estimatics dashboard for Alternate Parts					
Predictive Analytics	$ 83,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
Source is Special Investigations Unit (SIU)					
Loss of Use	$ -	$ -	$ 43,753	$ 89,694	$ 91,936
Loss of Use staffing reductions - 1.5 FTE saving due to automation of certain claim process efforts					
Claims Audit Recoveries	$ 518,900	$ 500,000	$ 500,000	$ 500,000	$ 500,000
2017/18 claims audit recoveries as a result of Direct Repair are actuals					

Totals	**$5,480,260**	**$5,974,526**	**$ 6,756,868**	**$7,809,940**	**$7,790,757**

MPI has created a new corporate value management process, a new strategic objectives "ownership" direction and a new corporate performance management program. Through these directions, programs and initiatives MPI will be tracking the achievement of all projects business cases and their value delivery.

PDR Program Progress

The PDR program started in 2013. In late 2013 / early 2014 MPI conducted a comprehensive assessment to confirm that the program would still provide the projected benefits. A "Business Re-Visioning" project completed in early 2015 defined an approach which would focus on key outcomes which would drive achievement of the overall business case.

Toward the end of fiscal 2016/2017, MPI restructured the PDR program as reported by Gartner in the May 2017 report:

- Eight PDR projects have been completed.
- Seven PDR projects have been cancelled. MPI determined that they are not strategic and do not add to the business case.
- Five projects now comprise the remainder of the PDR program. Some of these were components of the original PDR projects and some have been added to the program.

At the time of this review, these five remaining projects have been cancelled or largely completed with a few components to complete in 2018/19 as follows:

Completed Projects

1. Appointment Manager
   - A technology refresh of an existing platform as well as the ability to be exposed to external partners over the internet and the ability to support customer self-service. Expands the capability to integrate shop scheduling into the portal.
   - Budget $1.4M, completed at a cost of $1.45M.
   - Outcome: Technology updated; customer scheduling not enabled as yet
2. Enhanced Direct Repair Capabilities
   - Delivers the ability for certified shops to process a broader set of more complex claims and repair types.
   - Budget $2.99M, completed with reduced scope at a cost of $1.80M
   - Outcome: Besides expanding to a broader set of claims, it Includes new functionality such as enabling clients to find a certified shop based on geo-locating capabilities
3. Partner Portal
   - Provides a technical platform for provisioning and management of authentication and authorization for external partner access to MPI services. It also integrates services such as appointment manager (which is not currently enabled). Finally is has updated the technology to avoid obsolescence risk
   - Completed for $2.56M on a budget of 2.41M with change requests.

- Outcome: An improved platform this is the major vehicle for repair shop communications (i.e. repair standards, qualification standards etc.)

In-flight Projects that complete in 2018/19

1. Parts / Loss of Use, budgeted within Enhanced Direct Repair
   - The actual parts budget was $1.2M and the forecast spend is $0.5M
   - The reduction in parts spending represents about 50% of the difference between enhanced direct report budget ($3M) and actual ($1.7M)
   - Loss of Use benefits projected in table 1. MPI originally projected a larger benefit stream but has not been able to reach agreement regarding required changes with repair shops and has therefore removed both further spending and projecting further benefits for Loss of Use Phase 2.

Cancelled Projects

1. Customer Claims Reporting System (CCRS)
   - Included Optimized Adjusting, co-development of the Mitchell solution, building out the CARS solution, managing the change management for the delivered solutions, and building out the analytics tools to monitor and manage the new service delivery channel.
   - Termination costs of $10.2M
2. Remote Estimating
   - Project intended to enable remote and rural repair shops to participate in a collaborative estimating process by equipping rural repair shops with technology to share digital imaging with MPI estimators.
   - Budget $220K, $240K spent.

MPI continued to evolve the PDR program and its definition of projects, as PDR is wound down there are sixteen projects completed (excludes PDR unallocated which is an accounting entry and not a project), one that is still in-flight (Parts / Loss of Use within Enhanced Direct Repair) and eight projects cancelled (see Table 2).

Table 2: Project Status with Benefit streams

Program / Project	Budget	Spend as of March 31, 2018	Disposition (complete / cancelled)	Benefit Stream
Completed / In-flight Projects				
PDR – Original approved budget unallocated	$2.8M	$0.0	N/A	N/A
PDR Phases 1&2	$3.11M	$3.11M	Complete	N/A
Appointment Manager	$1.4M	$1.45M	Complete	Not enabled
Enhanced Direct Repair	$2.99M	$1.80M	In-flight, Parts and Loss of Use remaining to complete	• All Loss of Use • Internal efficiencies & process improvements • Labour rate • Customer Service

Program / Project	Budget	Spend as of March 31, 2018	Disposition (complete / cancelled)	Benefit Stream
Portal	$2.41M	$2.56M	Complete	• Risk Reduction • Service Improvement
Mitchell Data Services (Tableau) - MDS	$0.15M	$0.15 M	Complete	• Contributes to Claims Audit recoveries • Fraud Risk reduction
PDR Program Management	$5.01M	$5.0 M	Complete	N/A
Website Redesign and Portal Consolidation	$4.54M	$4.54M	Complete	• Fraud Risk Reduction • Service Improvement
Collaborative Estimating (CE) & Autochex	$10.75M	$10.75M	Complete	Labour rate
Direct Repair (DR) – previously Distributed Estimating (DE)	$5.26M	$5.26M	Complete	• Labour rate (DR is the primary driver) • Internal efficiencies & process improvements • Customer Service
Accreditation	$1.12M	$1.12M	Complete	Fraud Risk reduction
Shop Support Administration	$1.7M	$1.7M	Complete	N/A
Interim Shop Search	Included in Direct Repair	Included in Direct Repair	Complete	Customer Service
Shop Training Management	$0.12M	$0.12M	Complete	N/A
Parts	Included in enhanced direct repair	Included in enhanced direct repair	In-flight as part of Enhanced Direct Repair	All Parts benefits
Predictive Analytics / Loss Prevention	Not budgeted	$2.19M	Complete	Loss Prevention
Autochex	Included in Collaborative Estimating	Included in Collaborative Estimating	Complete	Customer Service (measurement)
Not in 2017 Report				
JSST (Joint Solution Support Team)	$0.05M	$0.05M	Complete	N/A
PDR Re-Visioning	$0.47M	$0.47M	Complete	N/A
Cancelled Projects				

Program / Project	Budget	Spend as of March 31, 2018	Disposition (complete / cancelled)	Benefit Stream
Customer Claims Reporting System (CCRS)	$23.39M	$16.08M	Cancelled	N/A
Remote Estimating	$0.22M	$0.24M	Cancelled	N/A
Out of Province Estimating	$0.0	$0.0	Cancelled	N/A
FNOL – Self Service Analytics	$0.0	$0.0	Cancelled	N/A
Towing	$0.0	$0.0	Cancelled	N/A
Enhanced Registration Card	$0.0	$0.0	Cancelled	N/A
Enhanced Accident Profiling	$0.0	$0.0	Cancelled	N/A
Body Integrity Inspection Certificate (BIIC) and Certificates of Inspection (COI)	$0.0	$0.0	Cancelled	N/A
Total	$65.49M	$56.59M		

The most ambitious area of PDR was Customer Claim Reporting System (CCRS). Based on a partnership with Mitchell, it proposed to significantly innovate around customer service while providing an extensive collection of trusted data that would provide an analytics base to enable future efficiencies and product improvements and be the basis for road safety analysis.

As noted earlier, in 2018 MPI re-evaluated the degree to which PDR can support enhancements to claims submission and adjusting, and has determined that a more successful approach will be to focus on assessing commercially available solutions can address legacy modernization needs for the claims process. As the project developed a number of elements became clear:

- Claims are complex transactions and they happen infrequently and at a time of high stress for the user; thus the user experience needs to be both simple and sophisticated.
- This is a complex area where experimentation is risky and expensive
- This area is new to both MPI and Mitchell
- Mitchells' estimating based accident reporting system would need to be integrated into MPIs legacy back end system for which MPI is currently assessing the business case and effort to replace.

MPI concluded that it should cancel CCRS and wait for the claims vendors to develop these capabilities while it focuses on "simpler" client interactions.

Note:Current Mitchell cost projections are conservative as Mitchell is a valued partner and future negotiations may enable MPI to limit these fees and/or reallocate some of them to other functional areas.

Comparison between May 2017 and April 2018 Analysis

Gartner reported in early 2017 that, the Program, was showing a lengthy payback period, an Internal Rate of Return of 7% and a Net Present Value (NPV) of $13.7M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

Late in 2017, after requests to management for more detailed analysis, the MPI management team restated a number of the projected costs and benefits of the overall PDR program. Management provided the restated analysis to the Board on April 19, 2018.

There is a significant difference in some of the costs and the benefits, and the overall Net Present Value (NPV), between the 2017 Gartner report and the 2018 MPI team restatement. The key differences are an expected project costs of $57M as opposed to the originally projected $65M, and a NPV of ($49.9M) as opposed to the Gartner projected $13.7M.

At the highest level the factors for these differences are threefold:

- Some costs that should have been attributed to the Program were not included in the analysis.
- New evidence shows that some benefits of the PDR Program (without CCRS) are planned to be lower than projected.
- MPI is using a newly agreed upon standard for a corporate cost of capital of between 6.5% and 9.5% for NPV calculations to make project investment decisions.

Gartner has reviewed the MPI restatement. To the degree that the data has been made available to Gartner, we believe that the restatement is complete and correct.

This report to MPI management and to the PUB, provides Gartner's perspective on the restated PDR value proposition, and on the likely final disposition of the PDR project outcomes.

Gartner developed the 2016 and 2017 analysis framework and the resulting NPV calculations based solely on input provided in interviews with MPI management and with PDR project leadership, and on reviews of project status reports, change requests, budgets, and benefit projections. Gartner made a number of requests for clarification and additional detail on external costs, as well as on the benefits estimates that were provided

An analysis of the differences between the Gartner May 2017 report and the April 2018 MPI analysis follows.

Cost of Capital	
Discount rate (cost of capital) at 3%	Gartner requested that MPI provide a cost of capital/rate of return for determining the NPV, and was told that MPI did not have a standard rate of return, or an NPV template at that time. Gartner made the assumption that MPI, as a Crown Corporation, has very easy access to low cost capital, and therefore selected a low number (3%) at roughly double the inflation rate for the purposes of calculating the NPV. MPI had not previously utilized NPV analysis as part of project investment decisions and ongoing evaluation. Gartner introduced this as part of our assessment report to the PUB. We understand that MPI is adopting this analysis as standard practice, and it is as part of that effort that MPI has developed its proposed corporate cost of capital.

Increased costs	
Mitchell Licensing Fees not included in Total cost of the program	Gartner asked about incremental (software licensing) costs just for PDR, and was informed that the contract was complex and it was impossible to separate these cost components, as it was part of an integrated contract with other Mitchell services. To address this lack of detailed data, among other things, Gartner reported that: • "MPI has operationalized a large number of the PDR projects and the ongoing operations of the solutions are funded through existing MPI operating budget." • "… solutions that are provided on a Software as a Service (SaaS) have no upgrade, support, or maintenance fees and the maintenance and upgrade charges are included in the SaaS subscription agreement and that these costs were included in operating costs" • "The current fee, and projected future fees should be specified in the vendor agreement and should be completely transparent and accounted for in MPI's operating budget. Gartner has not reviewed each of these agreements to confirm that this is the case for all of these agreements and what the pricing amount and structure is for each."
Direct Repair premium paid to repair shops	The $81 premium is paid on all claims made by Direct Repair certified shops. This cost was not reported to Gartner until after the 2017 Report. It wasn't mentioned/discussed in any of the interviews we conducted at that time, nor was it included or referenced in any of the documentation reviewed by Gartner. As such, it was not included in the total program costs documented in the 2017 report.
Changes in Benefit Stream	
Internal Efficiencies	MPI projected internal efficiencies to reach $2.65M per year by 2021/22. This is revised to $1.65M due to the loss of benefits from cancelled projects.
Parts Source Savings	MPI projected annual savings of $2.8M by 2021/22; this is revised to $2.05M after the change in the solution to Car Parts Pro.
Loss Prevention / Predictive Analytics	MPI projected savings of $0.5M by 2018/18 and increasing to $1.0M by 2019/20. This is revised to $0.5M 2018/19 and continues at that level based on actual results.
Loss of Use benefit	MPI forecast $1.05M in 2019/20 rising to $3M by 2021/22. As MPI was unable to negotiate this benefits with the industry, this benefits is now forecast at $0.1M (due to reduced headcount from improved procedures)
Total Loss benefit	This component was removed from the Program subsequent to the last report due to the cancellation of Loss of Use Phase 2.
Claims Audit recoveries	This is a net new benefit of $0.5M / year. It was not previously described by MPI and was not included in the Gartner analysis.

Gartner Perspective on PDR Program Disposition

Gartner Prior Advice to MPI Management

Gartner has provided the following recommendations to MPI management in quarterly reviews going back as far as the December 2016 review:

- Mature value management/benefits realization process.
- Emphasize realistic business cases, disciplined project gating and pragmatic business expectations

Some of the value management / benefits realization recommendations we provided included:

- Retroactively include specific projects in the value management process, notwithstanding an MPI policy that only projects initiated after the advent of the value management framework should follow that framework
- Expand application of the Value Management process to newly identified projects, but also to some of the key projects already in flight – such as PDR, etc.
- Expand the Value Management role beyond advisory and facilitation to include hands on support for organizational units in their development of business cases, baselines, processes, and reporting for value management. Extending it to include value management engagement during project execution (e.g. review of the development of value tracking and measurement into solution deliverables).
- Developing business cases which are realistic and map project deliverables to business value/outcomes with enough details to track identified benefits.
- Increase focus on disciplined adoption of the value management / benefits realization processes.
- Development of communication, measurement processes and tools which make it clear that business owners are accountable for benefits realization

Gartner Conclusions

Gartner has reviewed the latest iteration of the PDR Value Management/Business Case data and related assumptions. It seems that, in addressing the request from the Board, MPI has followed the advice Gartner provided and has applied a much more rigorous approach to the PDR business case and application of the benefits realization framework. The MPI financial analysis is much more detailed, complete, and sophisticated than we have seen in the past. There is a much greater focus on benefits realization which is a key driver for program success.

MPI has continued to mature its value management capabilities and is now formally tracking benefits. This leads to a more holistic, and potentially more conservative view of benefits than was previously the case due to the higher level of accountability across MPI for achieving the forecasted benefits. We view this is a positive step forward for MPI.

Gartner's independent analysis, based on the more detailed data available, supports the current value projections. Gartner supports MPI's decision to terminate the CCRS component of the PDR program and to finish the few remaining components in 2018/19.

We recognize that this is a difficult decision to make given the amount of investment to date, but endorse the newly applied Value Management discipline/approach that has been applied to the PDR Program, and the need for MPI to continually evaluate of the costs/benefits of its large, long-term projects to ensure value is being delivered to stakeholders. The decision to terminate PDR formally recognizes that the expected benefits were not achieved, and in doing so limits the potential future costs (losses) that would have been incurred.

Through the program, MPI has learned that a subset of their clients are quite willing to do accident reporting online and see this capability positively. MPI will keep the vison of a more online enabled business and work towards lower cost and likely more incremental solutions. Mitchell remains a valued partner and future negotiations may enable MPI to limit these fees and/or reallocate some of them to other functional areas.

Gartner has provided advice and recommendations to MPI management to further enhance the likelihood of project and program success in the Appendices to this document.

Appendix: Management Considerations

MPI's Development of Strategic Principles

It seems that through the recent analysis resulting in the restatement of PDR value, and in cancelling the CCRS component of PDR, MPI has developed what is effectively an initial set of strategic principles for MPI. We have captured them for use as a basis for MPIs evolving strategic framework, as follows:

- MPI will use vendor provided claims processing capabilities, either COTS in house or SAAS, as the business process base for long term partner interactions based on the outcome of the legacy modernization review
- MPI will enhance customer service through enhanced web based capabilities, e.g. MPI will endeavor to provide an online claims capability similar to other NA auto insurers
- MPI will be a market place follower, using broadly available software and services from the marketplace services to provide service to clients in the most cost effective manner possible

We see these principles as an important component of a strategic framework that will guide IT (and likely other) investments over the next 3-5 years.

Strategic principles are an essential component of a strategy framework; they provide the guardrails for decision making, and when applied consistently throughout the enterprise ensure that decisions are made on a consistent basis and in line with the enterprise's long-term direction.

The definition and execution of strategy involves many decisions. Without guidance on how to make these decisions, MPI runs the risk of making inconsistent or even contradictory decisions and/or decisions that are not consistent with its strategies, goals and objectives.

Strategic principles, in addition to shaping and influencing the decisions made when creating and executing strategic plans, also provide a starting point for the development of more detailed principles in areas such as the target architecture and operating model required to achieve the enterprise's objectives.

Strategic principles should be focused on the decisions, actions and behaviors that will ensure that MPI stays on track to deliver its strategy. We commend MPI on starting to identify the areas of your strategy where clear guidance is required. In our experience these will often be areas that are either new to MPI or where a change in approach is required. Other organizations have found that strategic principles for risk, innovation, talent and investment priorities are also very useful.

To be effective, a strategic principle must:

- Connect to business outcomes. The principle should be clearly connected to how the enterprise defines success. MPIs business value analysis can provide key insights for developing these principles. Generally, we believe that in the public sector, if your agency's objective is to better serve your citizens, your principles should directly support that mission.
- Be specific to MPI. The principle should not be generic. It should not be applicable to any enterprise anywhere. It should be clear that the principle is specific to your organizational objectives and situation.
- Be clear enough that it cannot be misinterpreted. The meaning of principle should be transparent across the enterprise. There should be no room for ambiguity or differences in how the principles will be applied across the organization.
- Drive decision making. The principle should drive toward a particular alternative. It should help an associate choose between different options, guiding their behavior.

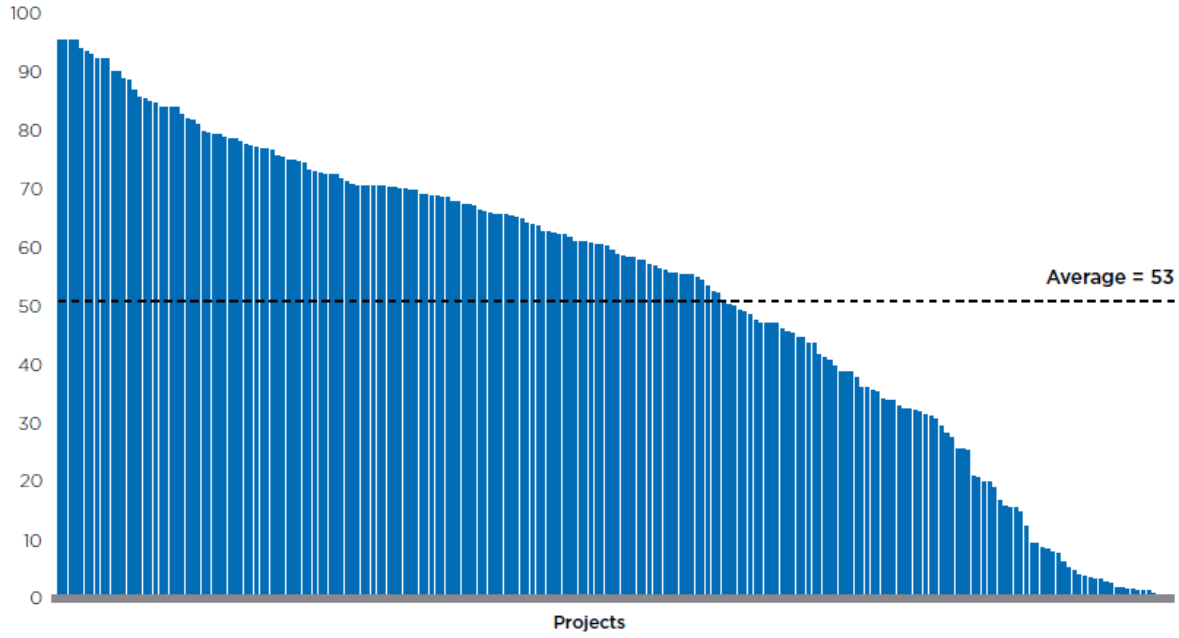
Gartner Insights on IT Project Success

Background and Context

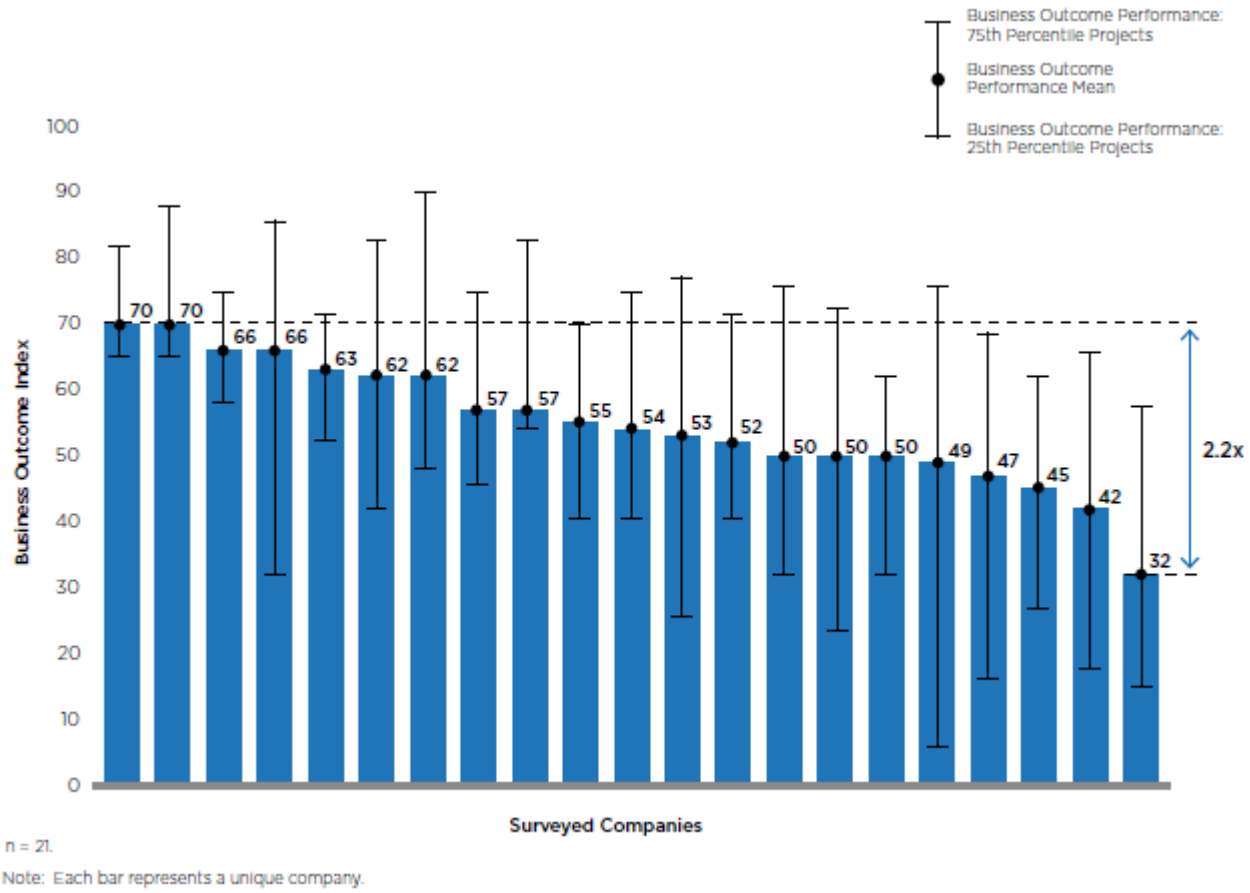
CIO magazine reports that “fifty percent of businesses had an IT project fail during the last year,” while the New York Times finds, “94 percent of large federal information technology projects over the past 10 years were unsuccessful … and 41.4 percent failed completely.” The consequences of project failure can be catastrophic — the Harvard Business Review found that one in six technology projects are “black swans” that fail spectacularly, with a cost overrun of 200 percent on average.

Project failure can not only derail progress towards strategic priorities but also catastrophically impact the bottom line. An analysis by the PMO Executive Council (part of Gartner’s 2017 acquisition the Corporate Executive Board) of their project database reveals a disturbing reality: even among those projects that are delivered at least 90% on time and on budget, the majority fail to deliver business outcomes.

The top-performing projects in terms of budget and schedule compliance attain an average of only 53% of their business outcome expectations.



The Council found that best performing organizations are more than two times better at delivering on business outcomes than the worst performing companies. Also, best performing companies are more reliable at delivering projects to business outcomes.



The conclusion is that projects must be managed from the beginning to deliver business outcomes. MPI is well positioned to continue to improve its ability to deliver business outcomes based on current investments and the positive evolution that Gartner has observed.

Observations for MPI

- Continue to invest in Value Management. MPI has made significant progress in applying value management principles to its project portfolio. We'd recommend this focus be extended into project management teams and MPI's project management methodology. Specifically we recommend that MPI:
    - Emphasize general management capabilities when selecting a project manager and provide stakeholder management training and insights as it is the number one driver of sponsor satisfaction
    - Continue to explicitly link project objectives to organizational goals. A project team and sponsor who can specifically link planned project outcomes to broader organizational goals can continually assess project effectiveness and make earlier and better decisions about changes in scope, timelines, budgets and overall project value.
- Further increase the focus of plans to business outcomes. MPI's project resource management plans should include resources at project conception / initiation time that define project success in terms of business outcomes, and the plans should ensure there is

a matching investment as project phases complete to ensure that benefits are harvested or realized.
  - This requires up front scope to be clear while allowing room for flexibility to manage uncertainties and changes to benefit profiles as the project evolves.
  - The up-front investment should endeavor to create leading indicators of benefits realization and imbed them into project health checks

- Harness the Power of Stakeholders.
  - Expand engagement with stakeholders at project conception and launch as that is the best time to both foster collaboration and provide delivery flexibility to match stakeholder needs and constraints.
  - Educate sponsors into the issues they will need to take ownership of and address throughout the course of the projects.

The Evolution of P&C Insurance and MPI

Background and Context: The Digitalization of P&C Insurance

Gartner Research indicates that Digitalization is beginning to radically transform the worldwide property and casualty insurance industry. Understanding the impact of the most transformational technologies, such as artificial intelligence (AI) and analytics, will be difficult for many P&C organizations given the large number of emerging technologies that are being developed and the budgetary restrictions that are a reality for MPI and most P&C firms.

Gartner sees technology advancing in these area that will affect MPI:

- Mobility and customer support, MPI's customers are no longer tethered to, nor expect service primarily from, a computer. Instead, they are tied to mobile devices, text messaging and social media.
- Maturing use cases for Artificial Intelligence (AI) in areas such as claims handling, where combinations of cognitive computing and Chatbot's are supporting touchless claims processing.
- Continued evolution and adoption of telematics among worldwide auto insurers to support new business models. This includes a growing focus on in-depth analytics, including the use of Internet of Things (IoT) data for behavioral modeling.
- Greater acceptance of software as a service (SaaS) solutions by P&C insurers for policy administration.
- Innovation centering on product development, including the development of on-demand insurance products and improvements in customer experience management.

As unsettling and challenging as these technologies seem, we believe that transformation is essential and required to withstand new market challenges, such as disruption from consumer demand, new market entrants in neighboring markets causing MPI's clients to demand changes in service, and shrinking profit margins.

Observations for MPI

MPI is well aware that the ground shifting beneath it is part of a much bigger and wider change occurring across the majority of public- and private-sector enterprises. We believe that MPI will be affected by many of the same technology advances and business pressures as others in the P&C industry are facing.

To respond to these challenges, Gartner believes that IT organizations need to evolve into a "Bimodal" organization. A bimodal capability is the marriage of two distinct, but coherent approaches to creating and delivering business change:

- Mode 1 is a linear approach to change, emphasizing predictability, accuracy, reliability and stability.
- Mode 2 is a nonlinear approach that involves learning through iteration, emphasizing agility and speed and, above all, the ability to manage uncertainty.

Organizations need to change their methods. They need to adopt more appropriate governance and planning mechanisms, as well as create a capability and a culture that allows them to experiment more, fail fast, fail small and fail visibly. They need to manage this capability in combination with running the more-predictable, mission-critical steady state. This is a bimodal capability.

Gartner has surveyed many organizations to ask "What is the main thing that prevents your IT organization from becoming more bimodal?" There are dozens of areas that clients see impacting their future but the big three are:

1. Culture / Business Culture
2. Priority
3. The Legacy Environment

Culture / Business Culture

Fifteen percent of organization say that culture change is the biggest inhibitor to the bimodal evolution. MPI has made significant advances in recognizing business benefit as the key outcome of projects and this is driving culture change. When combined with a focus on continuous learning, a focus on teams vs. individuals and on personal commitment across IT and the business, MPI has the tools to continue to evolve its culture. Cultural change is a complex and long-term undertaking, and bimodal is about culture change right across the enterprise, not just within the IT organization. MPI can begin developing bimodal capabilities by:

- Starting small.
- Celebrating the value and contribution of both modes, and ensure equity in terms of reward, recognition, development and remuneration. Do not allow Mode 2 to act or be perceived as the "cool kids." The use of analogies can help here: Gartner uses the analogy of Mode 1 "samurais" and Mode 2 "ninjas." We have also seen the use of classical musicians versus jazz ensembles, among others. Ensure the analogy is positive for both sides.
- Showing leadership, personal involvement and commitment to the bimodal cause.

Priority

Thirteen percent of organizations currently adopting a bimodal approach are constrained in their ability to expand the use of bimodal because they consider that they have competing priorities, with other important and/or more urgent things gaining their attention.

MPI has a significant project portfolio led by legacy modernization that it is assessing to understand the costs and benefits over the next 3 -5 years. We recommend MPI take advantage of its new senior leadership team and the engagement of all key business stakeholder to ensure bimodal is a driver of those planned changes by creating a two- to three-year vision of the bimodal capability. To keep the development moving, it's important to have an idea about what capabilities MPI believes it will need in the longer term. This includes:

- How the goals for bimodal will evolve
- The areas of the business to which it will be applied, e.g. internet claims
- The clear roadmap for the legacy environment and enable mode 2 investments around this base
- The capabilities the organization will need to develop (for example, Service Oriented Architecture - SOA), adaptive sourcing, innovation management)

Legacy

Ten percent of organizations cite the constraints of their legacy environment as the primary limitation to them being able to further expand bimodal.

While initial efforts to become bimodal focus on creating a Mode 2 capability, we know that when it gets to the point of scaling the Mode 2 capability, it is actually the renovation of the legacy environment that unleashes the full potential of bimodal.

Fortunately, MPI has already made a commitment to a legacy modernization assessment to assist in determining its future course of action regarding its legacy applications. As such, as MPI embarks on planning for the renovation in parallel to the development of the Mode 2 capabilities, it will need to consider the following key elements (as well as others that will be more unique to MPI):

- Making SOA a key element of new applications
- Creating and sharing Application Program Interfaces (APIs)
- Rationalizing applications
- Changing governance and funding mechanisms to support these activities

Garner encourages the leadership team at MPI to:

- Have an ongoing dialogue regarding legacy renovation across the organization
- Secure and re-affirm sponsorship for renovation from key business stakeholders, particularly those who have imperatives to support new capabilities, and use that as leverage to gain support for the renovation.
- Continue to make the re-envisioning of your application integration and SOA strategies a top priority
- Develop the business application and infrastructure Total Cost of Ownership (TCO) models, using renovation work to optimize the TCO.
- Create a Pace-Layered Application Strategy that recognizes that the business requires several types of applications with different governance, sourcing, funding, data/process integrity, software development and deployment models
- Recognize that it is not possible to move the technology from monolithic IT to bimodal IT without making fundamental changes in the way that money flows to IT. Ensure that re-architecting the money flow is a priority initiative within the bimodal transformation.
- Continue to invest in and improve the level of capability across all eight key disciplines of application value management; in particular, application portfolio management (APM) and project and portfolio management (PPM) highlighted in the list below
    - **Application portfolio management (APM)**
    - **Project and portfolio management (PPM)**
    - Staffing, skills and sourcing
    - Financial analysis and budgets
    - Management of architecture
    - Software processes
    - Operations and support collaboration
    - Vendor management

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MPI Determination of Cost of Capital for Value Management Business Cases

Summary:

Proposing a standard corporate Cost of Capital (hurdle rate) for the financial analysis of business cases from March 1, 2018[1] onward as follows:

- 4.0% for low risk projects
- 6.5% for medium risk projects
- 9.5% for high risk projects

Background:

- The Cost of Capital, or hurdle rate, undergoes a regular review to ensure that an appropriate discount rate is applied to cost benefit analysis of projects and other initiatives. This review will be performed on annual basis or more frequently as deemed necessary by MPI Finance.
- Several methods to determine the cost of capital are evaluated and compared to ensure MPI's unique position as a Crown corporation in a competitive market sector is considered.

Cost of Capital (Discount Rate):

Net Present Value (NPV) is a calculation of the present value of a series of cash inflows and outflows over a specified period of time. A key factor is the discount rate utilized to calculate the value of future cash flows in today's dollars. The discount rate should be reflective of the associated risk and the alternative options for utilizing the funds (i.e. a market investment).

The resulting Net Present Value (NPV) is used for decision support purposes to help assess, as required, whether or not a project is attaining the required return on investment or meeting a minimum target. The alternatives reviewed as possible options for the cost of capital for MPI are:

Option	***Description***	***Hurdle Rate***
Option 1	*MPI Expected Average Investment Return*	4.0%
Option 2	*Risk Based Model (Capital Asset Pricing Model)*	6.5%
Option 3	*Average Return on Equity Model*	9.5%

[1] The Initial review was conducted in July 2017 resulting in the following rates ; 4.0%; 6.0% and 10.0%

MPI Determination of Cost of Capital for Value Management Business Cases

Option Analysis – performed by the Value Management Office with input from the Investment Department

Option 1: Average investment return

MPI's actual average investment return on fixed income securities was 3.6%[2]. The overall average investment return on the entire investment portfolio in 2017 was 6.3% and over the last four years was 6.4%[3], however the financial model used for the General Rate Application (2018 GRA) is projecting returns of approximately 4.0% for the next several years.

This represents the investment returns that would have been realized if funds remained within the investment portfolio (i.e. an opportunity cost). That is, when the Corporation has funds available, it can utilize the funds to invest in its portfolio or to invest in projects.

- **Pros** – It is reflective of the Corporation's opportunity cost on a relatively low risk basis. This rate is also comparable to MPI's available access to debt capital as a Manitoba crown corporation [4].

- **Cons** -- MPI's investment portfolio is a conservative portfolio with 70%[5] invested in fixed income bonds aimed to achieve reasonable returns due to the need to comply with government regulations. A hurdle rate based on this rate may be too low to reflect the true risk of corporate projects that are being considered. It encourages decision-making that is not consistent with project risks.

Option 2: Risk Based Model (Capital Asset Pricing Model)

A second alternative is to use a discount rate derived from a risk based model (i.e. Capital Asset Pricing Model) utilizing a minimum rate of return adjusted with a risk premium. This approach for dealing with the relationship between risk and expected return is widely accepted in the business environment.

Using this approach, the discount rate would be 6.35% using an industry average beta (risk factor)[6]. For rounding purposes the discount rate is shown as 6.5%

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[2] Based on the Feb 2017 naïve forecast in the 2018 GRA. It is the average YTM of the total fixed income portfolio over the 5 year forecast.

[3] The 1 and 4 year total MPI portfolio returns Wes S updated to 2017 are from a returns report from Ellement (MPI's 3rd party return calculation provider).

[4] From the perspective of debt financing the Province's Department of Finance advised that based on Feb 2018 rates, MPI could obtain financing for a 10 year period at 3.5% to 3.625%and for 20 years at 3.625% to 3.75% - Source M. Giesbrecht.

[5] Next year we will need to change the % allocation. We will be adding more fixed income as a result of the ALM study. The change has yet to be formally approved.

[6] See Appendix A for the calculation

MPI Determination of Cost of Capital for Value Management Business Cases

- **Pros** – Incorporates a minimum rate of return adjusted with a risk premium that is comparable to industry.

- **Cons** – Like any model, it is limited by the assumptions made regarding how the market operates and the relationship between variables. Note also that the risk premium is calculated based upon the observed results of US Insurance Firms classified as Property & Casual (P&C) firms.

Option 3: Average Return on Equity Model

As MPI's capital cost structure does not include long-term debt, all projects are funded through retained earnings. For this reason, the discount rate could be set at the expected return shareholders (people of Manitoba) would demand.

One external benchmark for this rate is the average return on equity within a comparable benchmark group in the Canadian Property and Casual (P&C) industry. The average of the 3-year Return On Equity (ROE) reported in 2014 – 2016 is approximately 9.5%[7].

- **Pros** – It is reflective of a competitive rate of return that would be expected in a competitive, profit-seeking, environment.

- **Cons** - When using industry average rate of return as a benchmark for MPI, one must also consider that the industry includes insurers with different capital structures, who are involved in various insurance lines, and have different opportunities and constraints than MPI.

Using the industry average as a hurdle rate will encourage competitive decision making that is comparable to that in the private sector. There is an associated risk that will exist if the Corporation is attempting to meet its social mandate while trying to make decisions using a private sector hurdle rate.

Recommendation

In determining the cost of capital with the above methods a range in rates of 4.0% to 9.5% was calculated. Previous MPI practice was to utilize a singular rate, namely 4.0% which was based on MPI's average return on investments (Option 1 above).

[7] See Appendix B for a list of P&C returns taken from the 2016 SCOR Report

MPI Determination of Cost of Capital for Value Management Business Cases

We recommend that a set of criteria be established that defines the appropriate option and discount rate that should be used in calculating a project's Net Present Value.[8]

Option 1 – MPI Expected Average Investment Return

This Option should be selected for:

- recurring or repetitive projects
- low risk of not meeting the intended deliverables (known and manageable obstacles to project objectives)
- Short project life span (project expected to be completed within 24 months).

Option 2 – Risk Based Model (Capital Asset Pricing Model)

This Option should be selected for:

- All projects that are not defined in Option 1 and 3. This would comprise the majority of MPI new projects.
- The higher discount rate over Option 1 reflects the fact that there is greater risk to attaining project deliverables, there may be a longer project life span and therefore the expectations for positive financial returns are set at a higher level.
- This presumes that the risk analysis as described in the business case, irregardless of the net financial benefits, is within the corporation's risk tolerance level and the identified risks are deemed to be manageable and subject to mitigation.

Option 3 – Average Return on Equity Model

This Option should be selected for:

- Initiatives in areas new to the corporation or where the corporation has no past experience; this increases the risk of realizing projected cash flows or controlling estimated costs. An additional consideration is whether the initiative impacts the Basic or non-Basic line of business. In some instances a higher return and expected cost of capital may be expected from our competitive line.

[8] We also noted that other Options could be considered such as deriving a discount rate in reference to the capital required to meet MCT (Minimum Capital Test) for the relevant line of business. This option has not been pursued at this time.

MPI Determination of Cost of Capital for Value Management Business Cases

Overall consideration

Beyond the guidelines provided above regarding risk, the rational for choosing the risk level and related discount rate should be clearly explained in the business case based on consultation between business case stakeholders and the Value Management Office/Chief Financial Officer.

MPI Determination of Cost of Capital for Value Management Business Cases

Appendix A

Capital Asset Pricing Model (CAPM)

In equation form, the CAPM is represented as follows:

(1) $k_e = R_f + ß * (R_m - R_f)$

where

k_e is the required return on equity capital.

R_f is the current expected return on risk-free assets. The interest rate on a 2 year term Government of Canada (GOC) bond is used to represent a close proxy for a risk free rate for MPI. The 2 year GOC rate (as of Feb 1, 2018) is 1.9%[9].

ß is the degree of systematic market risk for the stock (correlation to the broader market). It reflects the company's ability to achieve the return on investment expected by its shareholders while meeting the debt service requirements of its lenders. Although MPI does not have a calculated ß, data from Value Line indicates that US companies in the Insurance (Property/Casual) sector have an average ß of 0.84[10].

R_m is the expected return on risky equity investments, and (Rm - Rf) represents the premium required by investors in the average stock in the market. The expected return on MPI's combined Canadian and US equity portfolio is forecasted at 7.2%[11].

Substituting these values into formula (1) we get (2).

(2) $Ke = 1.9 + .84 * (7.2 – 1.9)$

$Ke \approx 6.35$

Therefore, rounded to the nearest half percent, Ke, the required return on equity capital is calculated at 6.5%.

.

[9] Source:Bank of Canada. Higher risk rates are the 3 year GOC rate of 2.0% and 5 year rate of 2.14%
[10] Average beta calculated from Value Line data for 50 publicly traded US P&C insurance firms as of January 2018. Source: Damodaran Online
[11] 2018 GRA forecasted return was 7.2%. The 2019 GRA forecast hasn't been determined yet.

MPI Determination of Cost of Capital for Value Management Business Cases

Appendix B

Return on Equity (ROE) data from 2016 SCOR Report

Company [12]	ROE for 2014	ROE for 2015	ROE for 2016	Average
AIG Insurance Co. of Canada	29.5	16.9	6.75	17.72
Alberta Motor Association	4.51	(2.73)	(36.80)	(11.67)
Allstate Insurance Co of Canada	17.86	14.39	11.42	14.56
CAA Insurance Company	8.88	16.67	13.07	12.87
Co-operators General (consolidated)	9.57	11.0	9.57	10.05
Economical Insurance Group	5.17	10.17	(-1.13)	4.74
Gore Mutual	12.97	8.22	9.96	10.38
Intact Financial Corporation (formerly ING)	16.10	13.40	9.60	13.03
Motors Insurance Company	10.32	13.79	12.53	12.21
Ontario Mutual Insurance Association	7.57	4.17	4.48	5.41
Royal Sunalliance Group	24.10	8.25	5.17	12.51
SGI Canada Consolidated	13.48	19.13	16.52	16.38
Wawanesa Mutual	5.60	9.30	1.56	5.49
AVERAGE	**12.74**	**10.97**	**4.82**	**9.51**
Rounded				**9.5%**

[12] **Out of the 49 companies identified on the 2016 SCOR report, 13 companies were selected for the benchmark analysis. Note that the average of all 49 companies was 8.5%.**

Appendix 8: CAPITAL SPACE PLAN

This material is subject of confidential motion.

INFORMATION TECHNOLOGY

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

INFORMATION TECHNOLOGY 3
IT.1 USING INFORMATION TECHNOLOGY TO DELIVER VALUE 3
IT.2 USING IT STRATEGY TO CONNECT THE BUSINESS PLAN AND CORPORATECAPITAL MASTER SUMMARY 4
IT.3 EFFECTIVELY MANAGING IT LABOUR 4
IT.4 MPI EFFECTIVELY MANAGES STRATEGIC CORPORATE INITIATIVES 6
IT.5 MPI EFFECTIVELY MANAGES INFORMATION TECHNOLOGY COSTS 6

Appendix 1 External Labour Measures and Metrics
Appendix 2 IT Strategy 2018 - 2019

INFORMATION TECHNOLOGY

IT.1 USING INFORMATION TECHNOLOGY TO DELIVER VALUE

To continue to provide value to its customers and partners, Manitoba Public Insurance (MPI or the Corporation) must always seek to improve and evolve how it delivers products and services. This requires regular review and ongoing investments in people, processes and technology. This cannot occur in isolation as business success requires the right Business and Information Technology (IT) capabilities at the right time. IT is only effective when working in lockstep with the Business Units to determine those capabilities. Further, developing new capabilities or enhancing existing capabilities must occur in a structured and systematic approach, with the appropriate level of oversight and external review.

This year's IT chapter highlights this in the following sections:

- IT Strategy: Using Enterprise Architecture concepts, MPI highlights linkages between the Business Plan and Capital Master Summary. This strategy emphasizes the Business and IT capabilities needed to ensure MPI is successful, as defined in its Annual Business Plan.
- External Labour Update: An update has been included below highlighting continued progress towards reducing the number of consultants and the targeted cost savings. A separate appendix has been provided which further quantifies this progress including supporting tables from past GRA submissions.
- Project Updates: Reflecting emphasis on how IT supports MPI's objectives and strategies, project updates are now included in the Value Management section.
- Benchmarking: The latest Gartner assessment of IT capabilities is included in the Benchmarking section, including an update on Gartner recommendations and related next steps.

IT.2 USING IT STRATEGY TO CONNECT THE BUSINESS PLAN AND CORPORATE CAPITAL MASTER SUMMARY

In the 2016 GRA, MPI shared its IT Strategy in *2016 GRA Volume I IT Strategy* which outlined:

- The Basis for the IT strategy, including Architectural Drivers and Principles
- Key Drivers for Change (Business Drivers and Information Technology Drivers)
- The Corporate Roadmap of Strategic IT Initiatives

In the 2019 GRA, MPI has continued to evolve and has a new IT Strategy which focuses on the alignment between Business objectives and strategies, and IT investments. This new document focuses less on specific projects and more on bridging strategy and action, ensuring that the necessary Business capabilities and IT capabilities are developed or improved to meet business needs. This document leverages the MPI Annual Business Plan published in April 2018. Key sections of this year's IT strategy include:

- Business Context, Business Objectives, and Strategies; highlights the current context, objectives, and strategies for business success which will be considered in this IT strategy
- Major Influences and Guiding Principles; describes several major influencers that need to be considered in the strategy and reflects experiences and best practices which are used to guide all IT decisions and shape the development of business and IT capabilities
- Developing Business and IT Capabilities and Required capabilities; defines and explains the business and IT capabilities which are required for development through active or yet to be planned projects (aligned to key business objectives and strategies)
- Applying the IT Strategy to Projects and Operations; provides an overview of the methodology, and highlights how the strategy is expected to impact both business and IT capabilities, and the organization in general

The IT strategy has been included in *Part IV(ii) IT Appendix 2 – IT Strategy 2018-19* and will be updated annually.

IT.3 EFFECTIVELY MANAGING IT LABOUR

As per Order 128/15 – 10.4 MPI developed an approach to transition up to 27 positions from external to internal over the 2016-17 to 2019/20 fiscal years. Details on this approach can be found in GRA 2017 - Volume I, Chapter 3, Section IT Update. The 2019 GRA update on this strategy is as follows:

- To date, twenty (20) positions have been successfully converted from external to internal.
- Cost savings are in line with amounts that were previously submitted to the PUB.
- Potential positions to be converted continue to be assessed and MPI remains committed to converting the remaining seven (7) positions by 2019/20.
- Once the external labour strategy has been fully executed the annual cost savings are expected to be between 2.4 and 3.0 million per annum.
- MPI continues to explore opportunities to reduce the volume of and costs related to the use of external labour and anticipates additional measures in place in Q4 2018/19; the approach and related business case are currently under development.
- An update on the results of the external labour strategy and the additional measures taken in 2018/19 will be included in the 2020 GRA.

MPI has updated and filed previously requested tables and charts related to External Labour, please see: *Part IV(ii) IT Appendix 1– External Labour Measures and Metrics* to further quantify this update.

IT.4 MPI EFFECTIVELY MANAGES STRATEGIC CORPORATE INITIATIVES

As noted in the introduction, the IT Strategy highlights linkages between the Business Plan and Capital Master Summary. Details for these projects, including business cases have been included in the 2019 Rate Application. Please see: *Part IV(ii) Value Management* and related Value Management appendices.

IT.5 MPI EFFECTIVELY MANAGES INFORMATION TECHNOLOGY COSTS

To ensure comparable performance to an industry peer group, MPI continues to leverage benchmarking services provided by Gartner. The results and findings based upon 2016/17 data are included in the Benchmarking Chapter, as well as Gartner recommendations and responses/actions. Please see:

- *Part IV(i) Benchmarking BMK.5 IT Service Delivery Capability*
- *Part IV(i) Benchmarking Attachment A – Gartner CIO Scorecard*
- *Part IV(i) Benchmarking Appendix 1 – Gartner Recommendations*

Appendix 01: EXTERNAL LABOUR - MEASURES AND METRICS – STATUS UPDATE

TABLE NAME(s): Figure IT App 1– 1 IT Personal / Figure IT App 1– 2 IT Personal Costs

REFERENCE: Update on PUB (MPI) 1-31 (2018 GRA) & (II Exp. Appendix 18 PUB/MPI 1-18 (2017 GRA) - Figure IT - 1: IT Personal & Figure IT - 2: IT Personal Costs

DESCRIPTION: Figure 1 below contains a 5 year historical summary and a 3 year forecast for both internal resources and consultants that have worked and are expected to work within the Information Technology area. Figure 2 below provides the actual spend for 2017/18 and also the forecasted spend on internal and external resources for the next three years.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Tables updated to include 2020/21 figures and revised forecasts for 2018/19 and 2019/20.
- Figure 1: Note - As of May 2018 # of external has been reduced to 82.
- Figure 1: Corporate Reorganizations occurred in 2017/18 and 2018/19 which resulted in 35.6 internal FTE being transferred into the division from other areas of the corporation. The increase has been identified as a separate line item in Figure 1 below.
- Figure 1: 18 Consultant Conversions also appear as a separate line item below. These positions were added into the operational budgets (2017/18 & 2018/19). Note – Three additional conversions occurred in 2016/17…these positions are reflected in the project budgets.
- Figure 1: Additional changes listed decrease the overall FTE totals by 2.5 in 2017/18 and 0.6 in 2018/19.

- Figure 2: Approximated internal costs based on budgeted/forecasted FTEs. Approximated external costs based on anticipated consultants in relation to known projects.

Figure IT App 1- 1: IT Personal – Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2013/14	2014/15	2015/16	2016/17	2017/18(A)	2018/19 (B)	2019/20 (F)	2020/21 (F)
1	**Internal FTE**	212	210	223	235.7	235.7	271.8	290.2	290.2
2	**Corporate Re-Organization(s)**					27.6	8		
3	**Consultant Conversions**					11	7		
4	**New Positions (security, etc.)**					2	2		
5	**Divisional Reductions**					(4.50)	(2.60)		
6	**Internal FTE Total**	212	210	223	235.7	271.8	286.2	290.2	290.2
7	**Consultants**	120	110	114	107	107	82	80	80
8	**Total**	**332**	**320**	**337**	**342.7**	**378.8**	**368.2**	**370.2**	**370.2**

Figure IT App 1- 2: IT Personal Costs- - Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2017/18(A)	2018/19(B)	2019/20(F)	2020/21(F)
	(C$000s except where noted)				
1	**Internal FTE Costs ($)**	$ 22,392	$ 24,119	$ 25,417	$ 26,203
2	**Consultant Costs ($)**	$ 14,346	$ 11,517	$ 10,333	$ 10,334
3		$ 36,738	$ 35,636	$ 35,750	$ 36,537
4	* Two internal departments moved under IT umbrella during 2017/18				

TABLE NAME(s): Figure IT App 1- 3 IBM Master Service Agreement / Figure IT App 1- 4 HP Master Service Agreement / Figure IT App 1-5 IBM Data Center Costs

REFERENCE: Update on PUB (MPI) 1-32 (2018 GRA) & II EXP Appendix 14 PUB/MPI I-29 (2017 GRA) – Figure IT - 1: IBM Master Service Agreement / Figure IT - 2: HP Master Service Agreement / Figure IT - 3: IBM Data Center Costs

DESCRIPTION: The first two tables below contains a 5 year historical summary of the annual spend that occurred under the HP & IBM Master Services Agreement. The last table provides an historical summary of the IBM Data Center Costs.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 3 & 4 updated to include 2017/18 figures.
- Figure IT App 1- 3 & 4 summaries capture all payment transactions that occurred between March 1st and Feb 28th in each of the years listed.

Figure IT App1- 3: IBM Master Service Agreement– Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	8.92	16.71	13.4	12.68	14.52	14.4

Figure IT App 1- 4: HP Master Service Agreement Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	19.5	25.08	23.18	24.61	21.09	20.1

TABLE NAME(s): Figure IT App 1- 5 IT Personal – Internal (FTE) / Figure IT App 1- 6 IT Personal – Consultants (FTE) / Figure IT App 1- 7 IT Personal – Internal Costs / Figure IT App 1- 8 IT Personnel - Consultant Costs / Figure IT App 1- 9 IT Personal - FTE 2011/12 – 2020/21 / Figure IT App 1- 10 IT Personal – Costs 2011/12 – 2020/21 / Figure IT App 1- 11 Average Cost per FTE

REFERENCE: Update on PUB (MPI) 2-17 (2018 GRA) & PUB (MPI) 1-31, PUB (MPI) 1-27 (2017 GRA) – Figure IT - 6 thru 12.

DESCRIPTION: The tables below contain a 5 year historical summaries of IT Personal and their related costs. The last three tables provide a broader perspective and cover a ten year period (7 years actual and 3 years forecast).

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 5 to 8 updated to include forecasts to 2020/21
- Figure IT App 1- 9 to 11 updated to include forecasts to 2020/21

- Figure IT App 1- 5 to 7: Major changes for 2017/18 & 2018/19 include the following:
  - Corporate Reorganizations – 27.6 FTE added to division in 2017/18 & 8 FTE added in 2018/19
  - Consultant Conversions – 11 FTE added to operational budget in 2017/18 and 7 FTE added in 2018/19
  - New Positions/Reductions – Net change -2.5 FTE in 2017/18 and -0.6 FTE in 2018/19.
- Figure IT App 1- 5: The remaining consultant conversions will occur in the 2019/20 budget.
- Figure IT App 1- 6: Variance in 2017/18 was due to additional testing requirements for the CLMS and the Infor Lawson upgrade projects. Projects went a little longer than anticipated…as of May 2018 the number of consultants has been reduced to 82. As noted in the IT Chapter, External Labour Update, it is anticipated that there will be additional reductions to 2019/20 numbers. Specific details are not available at the time of this submission so previous forecasts have been leveraged.
- Figure IT App 1– 7: Variances due to the staff increase as explained in the major changes note above.
- Figure IT App 1- 8: The variance mainly reflects changes to major projects requiring fewer consultants and the external labour strategy accelerating vs. plan.
- Figure IT App 1- 11: * denotes an increase in average consultant fee for 2013/14 is due to one-time transition/migration cost of IBM data center operations. The additional reduction measures identified in the IT Chapter, External Labour Update, are anticipated to further reduce average external labour cost per hour.

  An update is expected in 2018/19 and will be included in GRA 2020.

Figure IT App 1- 5: IT Personnel - Internal (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2016/17	235.7	235.7	0
2	2017/18	248.2	248.2	0
3	2018/19	286.2	253.2	33
4	2019/20	290.2	249.2	41
5	2020/21	290.2	n/a	

Figure IT App 1- 6: IT Personnel - Consultants (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	**2016/17**	107	107	0
2	**2017/18**	107	92	15
3	**2018/19**	82	81	1
4	**2019/20**	80	80	0
5	**2020/21**	80	n/a	

Figure IT App1- 7: IT Personnel - Internal Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)				
1	**2016/17**	$ 20,189	$ 20,189	$ -	0.0%
2	**2017/18**	$ 22,392	$ 22,199	$ 193	0.9%
3	**2018/19**	$ 24,119	$ 23,584	$ 535	2.3%
4	**2019/20**	$ 25,417	$ 24,655	$ 762	3.1%
5	**2020/21**	$ 26,203	n/a		

Figure IT App 1- 8: IT Personnel - Consultant Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)				
1	**2016/17**	$ 19,904	$ 23,965	$ (4,061)	-16.9%
2	**2017/18**	$ 14,346	$ 16,233	$ (1,887)	-11.6%
3	**2018/19**	$ 11,517	$ 14,292	$ (2,775)	-19.4%
4	**2019/20**	$ 10,333	$ 14,166	$ (3,833)	-27.1%
5	**2020/21**	$ 10,334	n/a		

Please see Figure IT App 1- 9 to 11 for historical IT Personnel FTE and Costs for Internal and Consultants, respectively and average cost per FTE.

Figure IT App 1- 9: IT Personnel – (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
1	**2011/12**	215	98
2	**2012/13**	227	129
3	**2013/14**	212	120
4	**2014/15**	210	110
5	**2015/16**	223	114
6	**2016/17**	235.7	107
7	**2017/18**	281.2	107
8	**2018/19F**	286.2	82
9	**2019/20F**	290.2	80
10	**2020/21F**	290.2	80

Figure IT App 1- 10: IT Personnel - Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
1	**2011/12**	$ 17,663	$ 17,219
2	**2012/13**	$ 19,043	$ 29,468
3	**2013/14**	$ 19,380	$ 35,527
4	**2014/15**	$ 17,588	$ 23,158
5	**2015/16**	$ 18,632	$ 25,396
6	**2016/17**	$ 20,189	$ 23,965
7	**2017/18**	$ 22,392	$ 14,346
8	**2018/19F**	$ 24,119	$ 11,517
9	**2019/20F**	$ 25,417	$ 10,333
10	**2020/21F**	$ 26,203	$ 10,334

Figure IT App 1- 11: Average Cost per FTE- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
	(C$000s except where noted)		
1	**2011/12**	$ 82.15	$ 175.70
2	**2012/13**	$ 83.89	$ 228.43
3 *	**2013/14**	$ 91.42	$ 296.06
4	**2014/15**	$ 83.75	$ 210.53
5	**2015/16**	$ 83.55	$ 222.77
6	**2016/17**	$ 85.66	$ 223.97
7	**2017/18**	$ 79.63	$ 134.07
8	**2018/19F**	$ 84.27	$ 140.45
9	**2019/20F**	$ 87.58	$ 129.16
10	**2020/21F**	$ 90.29	$ 129.18

* Increase in average consultant fee for 2013/14 is due to one time transition/migration cost of IBM data center operations

TABLE NAME(s): Figure IT App 1-12 External IT Resources

REFERENCE: Update on PUB (MPI) 2-18 (2018 GRA) & PUB (MPI) 1-32
Appendix 14, PUB (MPI) 1-29 (2017 GRA) – Figure 1: External IT Resources

DESCRIPTION: The tables below contains a list of external labour resources who provide Information Technology (IT) services to projects and operations.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

The list below includes 82 Information Technology (IT) consultants from DXC and IBM who are working within MPI on operational and project initiatives as at May 2018.

Figure IT App 1- 12: External IT Resources - Updated chart previously submitted in response to PUB (MPI) 2-18 (2018 GRA question a)

Line No.	Identifier	Role May 2018	Project/Ops
1	DXC - 001	Senior Systems Analyst	Operations
2	DXC - 002	Senior Software Designer	Operations
3	DXC - 003	SharePoint Developer	Operations
4	DXC - 004	Senior Informatica Developer	Operations
5	DXC - 005	Programmer Analyst	Operations
6	DXC - 006	SharePoint Developer	Operations
7	DXC - 007	Programmer Analyst	Operations
8	DXC - 008	Senior Informatica Developer	Operations
9	DXC - 009	Senior Systems Analyst	Operations
10	DXC - 010	Senior Business Analyst	Operations
11	DXC - 011	Senior Informatica Developer	Operations
12	DXC - 012	Senior Informatica Developer	Operations
13	DXC - 013	Intermediate Programmer Analyst	Operations
14	DXC - 014	SharePoint Consultant	Projects
15	DXC - 015	Intermediate Project Manager	Projects
16	DXC - 016	Senior Application Architect	Projects
17	DXC - 017	Application Architect	Projects
18	DXC - 018	Senior Systems Analyst	Projects
19	DXC - 019	Snr Data Architect	Projects
20	DXC - 020	Senior Business Analyst	Projects
21	DXC - 021	Intermediate Project Manager	Projects
22	DXC - 022	Technical Writer	Projects
23	DXC - 023	Intermediate Project Manager	Projects
24	DXC - 024	Senior Business Analyst	Projects
25	DXC - 025	Senior Systems Analyst	Projects
26	DXC - 026	Intermediate Project Manager	Projects
27	DXC - 027	Project Director	Projects

Line No.	Identifier	Role May 2018	Project/Ops
28	DXC - 028	Senior Software Designer	Projects
29	DXC - 029	Senior Business Analyst	Projects
30	DXC - 030	Senior Business Analyst	Projects
31	DXC - 031	Senior Software Designer	Projects
32	DXC - 032	Technical Consultant	Projects
33	DXC - 033	Senior Technical Architect	Projects
34	DXC - 034	Senior Systems Analyst	Projects
35	DXC - 035	Senior Systems Analyst	Projects
36	DXC - 036	Senior Systems Analyst	Projects
37	DXC - 037	Senior Software Designer	Projects
38	DXC - 038	Senior Systems Analyst	Projects
39	DXC - 039	Intermediate Project Manager	Projects
40	DXC - 040	Business Consultant	Projects
41	DXC - 041	Technical Consultant	Projects
42	DXC - 042	Project Control Analyst	Projects
43	DXC - 043	Project Control Analyst	Projects
44	DXC - 044	Project Director	Projects
45	DXC - 045	Senior Business Analyst	Projects
46	DXC - 046	Senior Project Manager	Projects
47	DXC - 047	Senior Project Manager	Projects
48	DXC - 048	Senior Systems Analyst	Projects
49	DXC - 049	Business Analyst	Projects
50	DXC - 050	Senior Systems Analyst	Projects
51	DXC - 051	Senior Instructional Designer	Projects
52	DXC - 052	Senior Application Architect	Projects
53	DXC - 053	Senior Software Designer	Projects
54	DXC - 054	Senior Program Manager	Projects
55	DXC - 055	Project Control Analyst	Projects
56	DXC - 056	Senior Application Architect	Projects
57	DXC - 057	Snr Systems Analyst	Projects
58	DXC - 058	Snr Software Designer	Projects
59	DXC - 059	Intermediate Project Manager	Projects
60	DXC - 060	Technical Writer	Projects
61	DXC - 061	Senior Systems Analyst	Projects
62	DXC - 062	Senior Systems Analyst	Projects
63	DXC - 063	Application Architect	Projects
64	DXC - 064	Senior Business Analyst	Projects
65	DXC - 065	Senior Systems Analyst	Projects
66	DXC - 066	Senior Systems Analyst	Projects
67	DXC - 067	Business Architect	Projects

Line No.	Identifier	Role May 2018	Project/Ops
68	DXC - 068	Senior Business Analyst	Projects
69	DXC - 069	Technical Writer	Projects
70	DXC - 070	Senior Business Analyst	Projects
71	DXC - 071	Senior Software Designer	Projects
72	DXC - 072	Business Architect	Projects
73	DXC - 073	Senior Business Architect	Projects
74	DXC - 074	Senior Business Analyst	Projects
75	DXC - 075	Senior Project Manager	Projects
76	DXC - 076	Systems Analyst	Projects and Operations
77	DXC - 077	Intermediate Programmer Analyst	Projects and Operations
78	DXC - 078	Systems Analyst	Projects and Operations
79	DXC - 079	DBA	Projects and Operations
80	DXC - 080	SharePoint Developer	Projects and Operations
81	IBM-001	Senior DBA	Projects and Operations
82	IBM-002	Senior DBA	Projects and Operations

MANITOBA PUBLIC INSURANCE

INFORMATION TECHNOLOGY STRATEGY

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Next Full Review: Q1 - 2019/20

Table of Contents

Message from the Chief Information Officer at MPI 3
1. Executive Summary 4
2. Introduction 7
3. Business Context 9
4. Business Objectives and Strategies 10
5. Major Influences 12
6. Guiding Principles 15
7. Developing Business and IT Capabilities 16
8. Required Business and IT Capabilities 18
9. Applying the IT Strategy 23

Message from the Chief Information Officer at MPI

Manitoba Public Insurance's Information Technology Strategy establishes the strategic direction for information technology (IT) investments within the corporation for the foreseeable future. At its core, the strategy is intended to guide which IT capabilities will be created to support the business capabilities required to meet the Corporation's business objectives. This will result in the delivery of better products and services, and ultimately enhancing the value being offered to Manitobans.

At MPI, business and technology decisions need to envision beyond the corporation and consider the extended enterprise of business partners while continuing to align to the service of our customers. The goal of this alignment is to support the persistent optimization of core business functions, including ensuring the Corporations' ability to adapt to changes in the auto insurance and registration environment.

The maturing of value management within the corporation has created a more formalized process in the selection of candidate initiatives. Included in this are specific actions designed to strengthen current enterprise governance, a key to our success going forward.

This year, MPI is performing an assessment of our legacy systems to see if they are a candidate for modernization based upon their ability to meet the needs of the corporation into the future. Some of the drivers of this assessment are the evolving customer expectations on service delivery, product and service flexibility and agility, and application risk. Given the pervasiveness of our legacy systems within our technology infrastructure, the outcome of this assessment may have a significant impact on our IT roadmap and how IT capabilities are created for the next several years.

On an annual basis, the Information Technology and Business Transformation division (ITBT) will update this strategy to reflect the progress made and any changes required to maintain alignment to the Corporation's business plan.

_____

Brad Bunko

Vice President, IT, Business Transformation & Chief Information Officer

1. Executive Summary

This IT Strategy marks the start of a fundamental shift in how MPI views new technology and how new technology will be implemented. Over the last two years (since our last IT Strategy) there has been careful consideration by Management and our Board as to how we need to evolve to increase our effectiveness at introducing the technology needed for business transformation. The following table summarizes the significant changes we have adopted in our strategy by indicating what our past practice was, what are new practice is and how we will ensure our change has been effective.

Where we were	**Where we are going**	**How we are going to measure success**
Leaders in creating innovation and pursuing unproven technologies	Adopt proven mainstream technology	Through the maturity of the products and solutions we implement
Executed High risk projects	Identify all risks prior to project initiation and incorporate into project decision	Risks initially unaccounted for do not surface during or post project delivery. Projects attain value benefits stream projections
Project Governance with non-business project sponsor for all projects	Project sponsor is the Operational Business Champion, will have shared accountability with the Business Transformation Office and has a long term stake in ensuring the benefits stream is met	Ongoing benefit realization is achieved through the Operational Business Champion.
Customize out of the box software to suit our processes	Align, wherever possible, our processes to industry best practices that is incorporated in vendor provided software	Reduced software costs and adoption of industry best practices
Candidate project were not vetted through a detailed value management process	Value management discipline becomes engrained in MPI process and culture and participates through the project lifecycle and beyond	Project decisions are based on the Value Management Process. IT expenditures will only be incurred after a value management assessment has been completed.
Technology driven change within the organization	IT capabilities are created to support Business Capabilities that are needed in pursuit of a Business Objective	Business value for IT expenditures

Within MPI's Annual Business Plan (published April 30, 2018) MPI outlines its mandate and strategic direction. This plan highlights MPI's key priorities and considerations (internal/external environment, and associated risks) as well as key metrics and targets, budgetary and human resource requirements, and capital plans.

The Annual Business Plan effectively sets the corporate direction for the 2018/19 fiscal year, and provides guidance for future years. It does this by highlighting the priorities which have been traditionally found in many supporting documents such as detailed budgets, schedules, briefing notes and business cases; and providing clear guidance on the path forward for the Corporation. The Annual Business Plan outlines strategies and specific activities that will support the achievement of the following business objectives and related strategies.

Business Objectives; with a focus on core Auto Insurance and DVA:

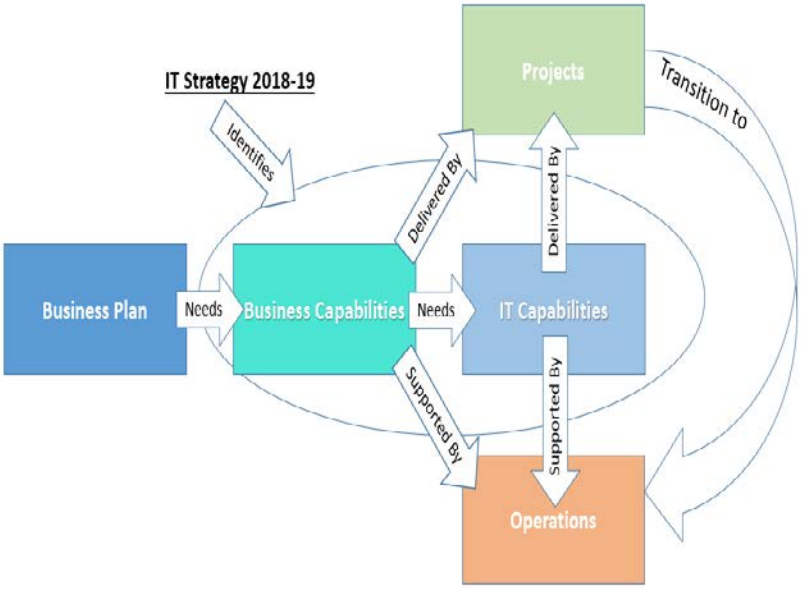
- Rate Stability and Predictability
- Operational Excellence
- Product and Service leadership

The IT Strategy fulfills a similar purpose, providing corporate IT direction for 2018/19 fiscal year and guidance for future years. Its primary purpose is to support the business objectives and strategies outlined in the Annual Business Plan; outlining which business and IT capabilities are needed to achieve these, and which specific capabilities need to be added, changed or improved to ensure MPI is successful in achieving its business objectives. The IT Strategy outlines how the practice of Enterprise Architecture will be used to ensure that the right set of capabilities are developed, at the right time, for the right cost.

This IT Strategy is a considerable evolution from an earlier version (June 2015) with significant emphasis on supporting the MPI business. This IT Strategy also reflects improved process maturity in several key areas:

- Enterprise Architecture: Increased emphasis on definition and alignment of capabilities.
- Information Security: Increased alignment to industry frameworks and best practices have brought structure and focus to this domain.
- Value Management: Improved focus on business cases and linking projects to business objectives and strategies.

By design, the IT Strategy sets the technology path forward based on the business context, business objectives, and business strategies for the current fiscal year and for future years. The IT strategy then applies guiding principles and considers major influences to develop the business capabilities and IT capabilities required to be successful. Business and IT capabilities are delivered by projects. Successfully implemented projects result in the transfer of business and IT capabilities to operational areas, which leverage and maintain these capabilities.



The Value Management process provides oversight to these projects to ensure they deliver appropriate business value for the investment made, as documented in the business case.

The Legacy Modernization Assessment project will have a significant influence on the future direction of IT within MPI. This assessment will review the feasibility and cost of replacing our core Insurance and Driver/Vehicle Registration systems and will complete at the end of Fiscal Year 2018/19. For this reason, this version of the IT Strategy will provide direction for the current year and guidance for foreseeable future years, with the understanding that significant change may be driven by the Legacy Modernization Assessment and will need to be factored into future versions of the IT Strategy.

The value of Legacy Modernization is derived from supporting the current and future needs of the Insurance and Driver/Vehicle registation businesses. Potential solutions will be evaluated for upfront value (business and IT capabilities gained by modifying existing processes and avoiding customization) and long term cost effectiveness .

There are also changes to the business context, objectives and strategies which need to be reviewed and considered on an ongoing basis. To ensure continuous alignment to the business direction, the IT Strategy will be reviewed, updated and communicated annually.

2. Introduction

Manitoba Public Insurance (MPI) has demonstrated a dedication to cost containment and a commitment to providing Manitobans with automobile insurance rates that continue to be among the lowest in Canada. Given the continuous advance in technology and the changing automotive industry, the Corporation also continues to refine and adapt our products and services with our customers and business partners in mind. By continuing to focus on our existing value proposition, as well as exploring new ways to create value for our customers, by consistently providing exceptional coverage and services, MPI can achieve its mission and maintain control of costs.

Exceptional coverage and service when combined with a focus on cost control is challenging when using legacy technologies. For a time, legacy systems can be stretched and strained beyond their original designs, but there is a price - incrementally increasing costs with each major enhancement. However, moving away from these legacy systems, without proper planning and diligence, can have significant cost implications and not deliver the required business value. Legacy system modernization requires major decisions to be made: such as, whether to build or buy, what technology to grow or replace, what change is critical now, and what change can be deferred. These major changes cannot be considered in isolation. They must be confirmed as appropriate for the business environment, aligned to current and future business needs, and consider the current technology environment and parallel technology priorities. The focus of this IT Strategy to provide clarity and focus on IT matters, in a way that is continually aligned to business needs.

This IT Strategy uses the concept of capabilities (combinations of people, processes, and technologies to achieve a business outcome), to ensure there are effective links between major documents such as the Annual Business Plan to the Corporate Capital Master Summary. The advantage of this approach is that it results in continuity and consistency across multiple parallel initiatives. This approach can be adjusted based upon the approved program portfolio, and complements the Value Management process / business cases which illustrate the proposed projects are prudent and necessary.

The IT Strategy is focused on the current and future needs of the business, and captures the key context, considerations and principles which frame this understanding. To ensure a full and comprehensive view, business needs must be examined at the highest level (Annual Business Plan), then specific strategies and objectives based on the business plan, then specific plans to impliment those strategies and achieve the objectives (operational and capital projects).

The IT Strategy then outlines the capabilities needed to meet these needs and the approach to integrate these capabilities into projects and operations in the 2018/19 fiscal year. The information is organized as follows:

- Business Context, Business Objectives, and Strategies; highlights the current context, objectives, and strategies for business success which will be considered in this IT strategy
- Major Influences and Guiding Principles; describes several major influencers that need to be considered in the strategy and reflects experiences and best practices which are used to guide all IT decisions and shape the development of business and IT capabilities
- Developing Business and IT Capabilities and Required capabilities; defines and explains the business and IT capabilities which are required for development through active or yet to be planned projects (aligned to key business objectives and strategies)
- Applying the IT Strategy to Projects and Operations; provides an overview of the methodology, and highlights how the strategy is expected to impact both business and IT capabilities, and the organization in general

3. Business Context

These external drivers will shape our business over the foreseeable future include:

- *Changing customer expectations:*
  Customers expect enhanced service capabilities that are oriented toward the customer experience they have grown accustomed to from online retailers. These enhanced service capabilities affect the speed (faster responses from insurance companies), access to and quality of service (more self-service and better analytical insight into customer preferences), and product features (more-individualized products and services). These customer expectations vary based upon demographics and require MPI to refine its methods for measuring customer expectations and engagement, and further developing analytic capabilities. The introduction of new channels adds complexity to the service delivery model and increase expectations for service availability for any technology solution.

- *Partnerships and the extended enterprise:*
  Product delivery through insurance brokers and physical damage claims services provided by the repair industry are critical to the MPI service delivery model. MPI will continue to be an extended enterprise, reliant upon partners to provide services directly to customers with IT systems acting as the conduit between all parties. These systems need to interoperate with an increasing volume and variety of partner and customer technologies.

- *Traffic Safety Culture:*
  MPI, in partnership with Manitoba Infrastructure, is pursuing the goal of having the safest roads in Canada and pursuing the objective of significantly reducing fatalities on our roadways. This goal is challenged by new trends such as “texting and driving” which impacts claims frequency, as well as potential impacts as a result of the legalization of cannabis. MPI continues to invest in education, control, and awareness programs. Integrating technology solutions into these programs allows MPI to reach customers in new ways. Through the use of analytics, program results can be further quantified and improved.

- *Vehicle technology changes:*
  New technologies, such as partial and full autonomous vehicles and the Internet of Things (IoT), are changing the risk landscape for insurance companies. With the potential to affect premiums going forward there is the need to monitor these changes and take appropriate actions to mitigate their associated risks. The near term impact can be seen in Physical Damage costs as new technologies (ex. automatic parking, pedestrian emergency braking) reduce the frequency of accidents but result in higher severity (aluminum alloys require special tools and training; and in vehicle technologies increase the cost and complexity of repairs). This requires the technology behind estimating and adjusting solutions to be flexible, continuously updated, and consistently available – connecting MPI and its repair partners.

- *Insurance Industry Requirements:*
  The insurance industry is facing changing regulations and in some cases, more supervision by regulators at the federal or global level. This results in stricter solvency capital regulations that are forcing insurers to set aside more capital for the business that they are underwriting, and to increase investments in information/cyber security. MPI needs to continue to monitor these regulatory changes to be prepared for, and to ensure compliance as required.

4. Business Objectives and Strategies

Our corporate mission statement outlines the foundation for how MPI will be successful as a business:

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

This will be accomplished through a focus on the effective management of claims, underwriting and investment income. This cannot be done in isolation. In order to meet the diverse needs of our geographically dispersed customers, MPI must incorporate effective partnerships in the delivery of products, programs and services, as well as a deep understanding and adaptation to ongoing industry changes. This will require new technical capabilities which must be secure, reliable, and cost effective but also responsive to the needs of customers and partners and adaptable to the changes in products, services, and programs.

Objective 1: Rate Stability and Predictability

Strategy: The Basic compulsory insurance program must be operated on a self-sustaining basis with sufficient capital reserves, while maintaining stability, predictability and affordability. Strategic focus will be on risks, opportunities, and threats which materially impact this goal such as agreement negotiations with Brokers and the Repair Industry, Investment and Capitalization strategies, Claims control programs, and management of enterprise risk and related safeguards such as reinsurance.

Objective 2: Operational Excellence

Strategy: The Corporation will continue to demonstrate fiscal prudence and sound financial management practices while driving cost-containment, streamlining of operations and elimination of unnecessary operational expenses. This strategy will be supported by Capital projects and major technological initiatives will focus on supporting and optimizing core business functions, including ensuring the Corporation's ability to adapt appropriately to changes in the auto insurance and registration environment. These enterprise wide activities include creating an overall roadmap for online products and services, corporate wide efforts to enable a high performing culture, and new reporting and dashboards. This also includes division level optimization of key processes (appeals, financial management, information technology, and facilities).

Objective 3: Product and Service Leadership

Strategy: The Corporation will continue to evolve to address the changing needs of Manitobans including services to Manitobans in rural, northern, and remote communities. This will be facilitated through analysis of current stakeholders, the review and refinement of the existing product suite, and the implementation of a customer needs and experience framework. Opportunities will be explored to deliver the technical components of these initiatives in a timely fashion using new agile processes.

Clearly defined business objectives, backed by strategies to achieve them, are the first step in defining the business capabilities required for success. Section 6 outlines key considerations which help MPI guide the selection and prioritization of new capabilities. Section 8, outlines those capabilities and the need for changes and improvements needed to ensure success.

To ensure a full and comprehensive view needs must inform strategies, which must inform plans. At the highest level business needs must be consistent with the Annual Business Plan. Then specific strategies and objectives must then be developed based on the business plan. Finally, the specific plans to impliment those strategies and achieve the objectives (operational and capital projects) must be devised. For example, the following of Corporate Strategic Priorities focus on achieving core business objectives, and were considered in the development of capabilities (or needs, see section 8), but also need to be evaluated for the potential impact on the strategy to achieve Legacy Modernization.

ALM Implementation	Repair Negotiation	Online Self Service
Broker Negotiation	Risk Appetite	Performance Culture
Capitalization Autopac	Appeal Process Review	Reinsurance
Claims Cost Control	DVA Review	Reports / Dashboards
Customer Experience	Finance Re-Engineering	Space Plan
Product Suite Review	IT Legacy Update	Stakeholder Agenda Analysis

*Dark shading denotes Legacy Modernization impact, light shading denotes potential Legacy Modernization impact

5. Major Influences

The following pre-existing projects and processes have a significant impact on many business and IT capabilities proposed in this strategy. A brief summary of each and their impacts is highlighted here:

Legacy Modernization

A Legacy Modernization assessment has been established to determine how our existing application infrastructure can be modernized to be successful in meeting the current, new and known future business requirements. Potential solutions will be evaluated for upfront value (business and IT capabilities gained by modifying existing processes and avoiding customization) and long term cost effectiveness. The core objectives of the project are:

- Perform a detailed assessment of our core systems and their associated business processes.
- Perform an industry survey of available technologies in both the Property & Casualty Insurance policy issuance and claims administration, and in the Driver and Vehicle Administration domain.
- Create a set of recommendations and guidelines defining how to transform MPI's legacy systems to meet long term business needs and close identified gaps in business and IT capabilities.
- Create an Application Strategy that outlines how MPI will address the proposed recommendations for transforming MPI's legacy systems to meet long term business needs
- Create a detailed comprehensive Business Case that outlines the costs, benefits, and risks for implementing and then operationalizing the solution defined by the Application Strategy.

The results from the assessments and the industry surveys will be used as input into developing a detailed business case which will be presented to MPI's Board of Directors. During the process of completing these assessments, MPI will gain detailed, third party, insight into the business and IT capabilities provided by key systems. These insights may have a significant impact in how business and IT capabilities are created for the foreseeable future and may significantly shape the 2019/20 IT strategy and 2019/20 project portfolio.

Information Security and IT Risk Management Processes

Mature Information Security and IT Risk management are critical to the success of the modern corporation due to the complex and changing IT and information security risk landscapes. Effective governance and oversight must exist, continually identifying threats, evaluating risks, and enhancing controls and capabilities. To guide these activities, MPI has formed the Information Security Office (ISO) which manages three key governance functions: Information Security, IT Risk Management and Information Security Architecture.

The ISO has established the IT Risk Management practice through a framework for defining and measuring key IT risks in the areas of application, infrastructure, security and compliance, resourcing, and project management. IT Risk Management ensures that appropriate information technology and business process and controls are in place, measured, effective, and aligned to defined risk tolerances.

The role of ISO is critical to maintaining compliance to information security standards, requirements, evolving customer and regulatory expectation and requirements, evolving contractual commitments and controls with strategic business partners, while ensuring technology change are aligned to risk practices and measures, including monitoring and aligning our Information Security maturity targets.

Data and Analytics Processes

To maximize the business value found within its data, MPI consolidated four operational departments and centralized them within one directorate in Q2, 2017/18. In the short term this created operational efficiencies and improved service delivery on data and analytic initiatives. A second step has been the creation of a draft Data Strategy which outlines a corporate level governance structure over data and analytics, and a roadmap for incremental improvements in people, processes and technology. To support the business strategies, this area will focus on the implementation of standardized dashboards and consistency in reporting key performance indicators (KPIs) for strategic priorities and corporate performance measures. As part of the Legacy Modernization program, this area will ensure that the proposed system solutions incorporate the data and analytics capabilities required to produce accurate reporting and actionable business insights upon implementation and in the future.

Technology Risk Management Program

The Technology Risk Management (TRM) program provides regular investment in technology systems and processes. This ensures that existing technologies stay on supported versions and technology risks are addressed through process and technology improvements. Investments are identified and prioritized annually. The 2018/19 program budget will be spread across 4 key areas: Application Risk Management, Infrastructure Risk Management, Information Security Risk Management and Risk Registry Remediation. Investments in 2018/19 include the increased adoption / deployment of Information Security technologies and the upgrade and/or replacement of significant parts of the IBM managed IT infrastructure (including network, security, and storage devices). These projects will require careful planning and coordination to minimize any downtime associated with the changes.

Value Management Process

MPI has continued to increase its use of the Value Management process to effectively identify, qualify, quantify, and evaluate projects. Value Management begins with business cases which; outline the goals and scope of an initiative, highlight the associated cost and benefit estimates, and present the monetary impact using a consistent set of financial measures. The process continues over the duration of the project, with emphasis on delivery to the business case and review of any project changes which materially impact the business case. At the completion of projects, Value Management confirms attainment of business case goals, including attainment of financial measures. The Value Management process also includes steps to review candidate projects for potential synergies or conflicts. The outcome of this review is recorded in the Enterprise Architecture section of the business case and looks for conflicts on a business, technical or security architecture perspective.

Enterprise Architecture Process

Enterprise Architecture (EA) is the discipline of proactively and holistically managing business and IT capabilities by identifying and analyzing the execution of change toward the desired business vision and outcomes. EA delivers value by presenting business and IT leaders with complete recommendations for adjusting processes and projects to achieve business outcomes that align to the business plan. MPI is actively pursuing improvements to its EA process maturity as a way to reduce the risk and cost associated with implementation of the key business strategies. EA involves Business Architecture, Technical / Data Architecture, and the ISO and is a key input to upcoming major initiatives (there is a specific focus on EA within Legacy Modernization). EA actively integrates business plans, business capabilities, IT capabilities, and leverages industry best practices and MPI guiding principles to ensure consistency and efficiency across the enterprise. EA is a critical process to the development and maintenance of the IT Strategy.

6. Guiding Principles

Guiding principles represent distilled organizational knowledge and best practices acquired through experience and are used to support the organizational decision making. This knowledge was collected and considered as part of the preparation of this strategy, and will be used to guide the development of business and IT capabilities.

- Enterprise Architecture shall align solutions with the Corporation's mission and vision to maximize business value while providing business agility, reducing complexity and total cost of ownership
- IT services of the Corporation shall be governed and managed centrally.
- IT services and solutions shall align and evolve with the Corporation's security, privacy and business continuity policies, standards and requirements to ensure information is appropriately safeguarded.
- Technology solutions shall leverage industry proven technologies and shall be maintained such that they operate within the vendors' supported set of technologies.
- Commercial software shall be considered before in-house custom development.
- MPI will seek to standardize its products and processes, where prudent, to avoid uneconomical customization of commercial software.

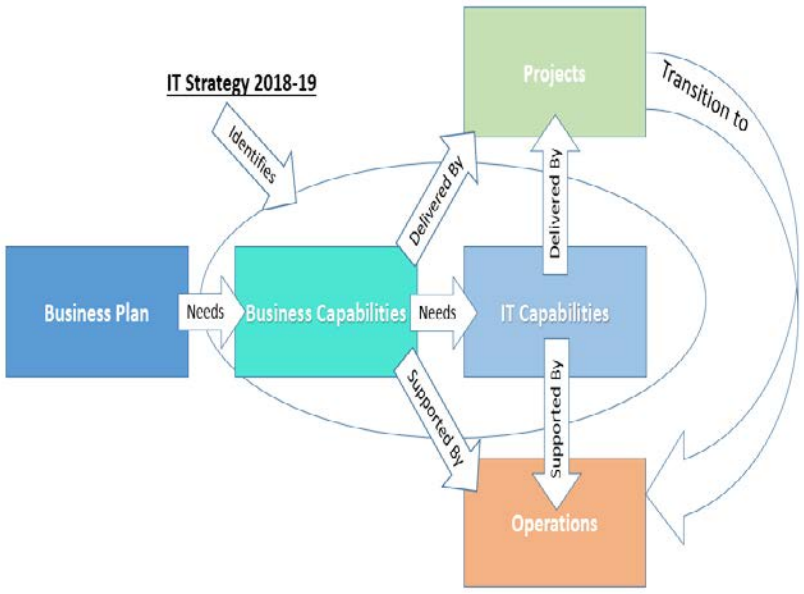
7. Developing Business and IT Capabilities

Enterprise Architecture identifies two concepts (Business Capability and IT Capability) which enable the connection between business strategy, objectives and specific IT initiatives:

- Business Capability: A business capability refers to a combination of resources (people, organizational structures, assets, systems, technologies and partnerships) that is necessary to reach the future state described by the business strategy. For MPI, the business strategy is included in the 2018/19 Annual Business Plan.
- Information Technology Capability: An IT capability refers to a combination of resources (people, organizational structures, assets, systems, technologies and partnerships) that is necessary to support a business capability. For MPI, IT projects are completed to add or change IT capabilities.

MPI is investing significant operational effort in establishing and advancing Enterprise Architecture based upon recommendations from Gartner and comparison to peer organizations.

The MPI Annual Business Plan summarizes the needs of the corporation for the next fiscal year. These needs are met using a combination of people, processes and technology to achieve the intended business result. Within this IT Strategy, MPI has shared the business and IT capabilities which will achieve the top business objectives. The next section illustrates that business capabilities may exist independently, or may be supported by one or more technology solutions, each with their own requirements for people, process, and technology. These have been referred to in this strategy as IT capabilities. MPI deploys new capabilities via projects, and then transfers ongoing support, maintenance and continuous improvement of capabilities to operational departments.



The IT Strategy illustrates how business goals, objectives and strategies (outlined in the Annual Business Plan), translate into business capabilities and IT capabilities, and will be delivered by projects and supported by operations. Each major project in the Corporate Capital Master Summary has a business

case associated with it, which outlines the specific needs of the business. These needs can be translated into business capabilities which can be linked back to this IT Strategy.

8. Required Business and IT Capabilities

The following key capabilities are under development, with most starting within the 2018/2019 fiscal year.

8.1 Introduction of internet customer self-service channel for purchasing products and services

Business Objective: Operational Excellence

Business Capabilities: In FY18/19, MPI will introduce a new secure internet based customer self-service channel for purchasing products and services which are high volume and low complexity in nature (i.e. appointment based services like knowledge and road tests). MPI intends to expand these service offerings and capabilities over the next several years.

IT Capabilities: A secure customer self-service channel requires new technologies which effectively manage a customer identity and provide secure ways to interact with MPI, including information lookup and payment. These new interactions need to ensure the right balance of security and functionality, and have appropriate measures to log / track the transaction for quality assurance purposes. Information must be accessible on demand, but must also ensure the appropriate privacy controls are in place to prevent unauthorized disclosure. Legacy Modernization assessment will further guide this activity as the IT capabilities required on current platforms versus newer industry solutions could be very different.

Related Project(s): Customer Self-Service; Legacy Modernization Assessment

8.2 Introduction of secure customer messaging and electronic documents to increase customer communication channels and reduce ongoing mailing costs

Business Objective: Product and Service Leadership

Business Capabilities: In conjunction with the internet customer self-service channel, MPI will be introducing secure customer messaging via email and / or SMS text messages, as well as electronic document distribution via a secure MPI customer portal 'inbox'. MPI will be utilizing email and / or SMS text messages as a communication medium in conjunction with the new driver's education program to provide drivers with reminder messages, driving and testing feedback, and to increase overall communications between MPI, instructor and the students. Incrementally, MPI will utilize the new secure 'inbox' as a means to transform MPI customer communications from a paper-based mailing medium to electronic documents. Initially, this service will be an optional service offering to customers.

IT Capabilities: A secure method of communication with customers and partners needs significant Information Technology capabilities. These new interactions need to have the right balance of security timeliness and functionality, be built on platforms that are designed for higher availability, and able to handle spikes in transaction volume around peak business times. Diligence is also required to link digital and physical transactions (started by SMS, continued by e-mail, finished in person). This complexity along with the rapidly expanding number of devices and communication platforms results in additional efforts for testing on the deployment and continued support of new transaction types.

Related Project(s): Customer Self-Service Project; High School Driver's Education Program

8.3 Introduction of customer feedback and survey mechanisms as part of customer self-service experience

Business Objective: Product and Service Leadership

Business Capabilities: As part of the customer self-service channel, MPI will be introducing new real-time customer feedback tools with the capability to capture feedback and opinions regarding our products and the customer's overall service experience. This capability will also be extended to the MPI public website to provide Manitobans with an incremental customer feedback and survey mechanism for all future customer service experiences.

IT Capabilities: The ability to measure and report on customer feedback requires several different technologies. The first focuses on the secure capture of information, and includes the appropriate mechanisms for a customer to "opt-out" which will be consistent across connections. The second ensures information provided by customers is analyzed and reported in a timely, secure and consistent way with the appropriate privacy controls. Finally, information that is no longer required needs to be securely disposed of.

Related Project(s): Customer Self-Service project is a prerequisite. A separate business case and project will be required to deliver this capability.

8.4 Enhanced performance measurements and real-time dashboard reporting

Business Objectives: Operational Excellence, Product and Service Leadership

Business Capabilities: In FY18/19, MPI will be establishing performance measurements which will serve as corporate KPI's into the future. Once established, it is envisioned that real-time dashboard reporting of these KPI's will be operationalized and made available to all key MPI stakeholders.

IT Capabilities: Online customer experience management and real-time dashboard creation require the expansion of existing capabilities and technologies to analyze and consolidate existing and new data sources. Capabilities gained in this activity can be leveraged to enhance both pre-existing and new internal operational reporting. Legacy Modernization assessment will further guide this activity as the IT capabilities required on current platforms versus newer industry solutions could be very different.

Related Project(s): Customer Self-Service project is a prerequisite. A separate business case and project will be required to deliver this capability. Legacy Modernization Assessment will guide the capabilities considered in this area.

8.5 Increase efficiency and effectiveness of corporate financial reporting processes and controls

Business Objective: Operational Excellence

Business Capabilities: MPI intends to complete an assessment of its current financial reporting processes and controls in the near term. As a starting point, the Corporation will utilize the recently completed (2015) Finance study and re-validate and adjust findings based on current and future corporate needs. The assessment will also determine the corporate impacts, gaps and remediation priorities to ensure the corporation is in compliance to IFRS 17 accounting standards and requirements, prior to the January 2021 financial reporting deadline. Additionally, MPI will assess and confirm the future viability and alignment of the existing financial technology suite based on the findings of the Legacy Modernization Assessment engagement.

IT Capabilities: The existing financial platform will be further reviewed to confirm it can perform the business functions required, and can be augmented with additional solutions as required and feasible. As part of this assessment, vendor and industry best practices will be reviewed to identify opportunities to meet business needs and further leverage platform capabilities. IT capabilities will include technology solutions to facilitate self-service capabilities and process automation opportunities. These activities need to be closely aligned to the Legacy Modernization Assessment.

Related Project(s): Finance Re-engineering; Legacy Modernization Assessment

8.6 Transform the Driver's Education Program to modern learning tools, media and introduce social media collaboration

Business Objective: Product and Service Leadership

Business Capabilities: In spring 2019, MPI intends to launch a new driver's education program which will transform the existing program from a lecture and paper-based medium for training, to a more modern demographically focused medium which leverages video, computer based simulation exercises, gamification, social media collaboration and the mobile platform as the primary technology base. This will result in:

- Improved driver education program and services
- New channel for driver education for instructors, students, and related customers
- Supports for the implementation of social media with appropriate policies, controls and oversight

IT Capabilities: These business capabilities require new skill sets within MPI (web development for mobile devices, including standards for accessibility) and new technical capabilities (enhanced testing on mobile devices). These platforms also have a higher expectation for availability (24/7 operation), which requires different types of support and transaction processing which avoid downtime. These activities also generate new types of transactions and related meta-data which requires different solutions to track and manage in ways that are secure and efficient.

Related Project(s): High School Driver's Education Program

8.7 Further streamline key Physical Damage processes to maintain effective cost control

Business Objective: Rate Stability and Predictability

Business Capabilities: Further streamline the core business capabilities, processes and administration to enable better management of claims costs. This will be completed by enhancing claims cost controls related to the different factors which affect claim severity. This involves a review and potential changes to estimating processes and standards, repair processes and guidelines, and changes to repair certification and related training. This also requires the capability to continually evolve all these areas as manufacturer requirements and vehicle composition (ex. advanced metals, increasingly complex onboard computing) changes.

IT Capabilities: Ensure that the existing vendor supplied platforms can be updated where existing IT capabilities have been replaced with updated products (such as estimating standards) without incurring significant cost and / or with limited business process disruption. This technology management capability needs to apply to both MPI and Repair Shops. This also requires the introduction of a new commercial parts sourcing solution which will replace a current MPI custom solution.

Related Project(s): Enhanced DR Capabilities (Parts, LOU)

8.8 Ensure consistent and necessary investments in Information Security Resiliency and IT Risk Management

Business Objectives: Rate Stability and Predictability, Operational Excellence

Business Capabilities: Continue to monitor and evolve information and cyber security risks, and IT security defense plans, measures and actions. Maintain effective operational controls to ensure the timely completion of threat identification, threat response and ongoing preventative measures. Assess the effectiveness of measures and safeguards, and optimize over time.

IT Capabilities: This requires the introduction of new IT capabilities throughout the lifecycle of a system. This begins with requirements, design, and development, including security requirements and review throughout. It continues into testing and through implementation, ensuring no security gaps exist when a project is deployed into production. This continues with regular reviews to ensure operational activities (ex. system patching, defect fixes) reduce risks consistently, and do not create new security vulnerabilities. Monitoring capabilities are enhanced to look for known threats and unusual patterns of behavior (emerging, not reported, threats or MPI specific attacks). The Legacy Modernization assessment has the potential to make recommendations which could significantly change the focus of these investments.

Related Project(s): Technology Risk Management; Credit Card Strategy; BI3 Fineos Upgrade; Legacy Modernization Assessment

8.9 Complete market and stakeholder analysis to ensure continued product excellence

Business Objectives: Product and Service Leadership

Business Capabilities: A review of product suites and the needs of key stakeholders will occur in the 2018/19 fiscal year. It is anticipated that changes to products and services may be recommended from this review. Changes to Business Capabilities may / may not require changes to IT capabilities. A recent example of this type of change has been the introduction of Transportation Network Companies, which is leveraging existing IT capabilities in new ways.

IT Capabilities: The identification of impacts to IT capabilities will be determined based on the outcome of the product suite review. This will be updated in the 2019/20 IT Strategy and may include new business cases and related initiatives

Related Project(s): AOL PUB Release; SRE

9. Applying the IT Strategy

Overview

The MPI Annual Business Plan summarized three business objectives and their related strategies.

- Rate Stability and Predictability
- Operational Excellence
- Product and Service Leadership

The IT Strategy outlines both the business and IT capabilities which will be required to achieve these objectives. The Strategy provides the framework for evaluating, planning and building MPI business and IT capabilities necessary to ensure MPI is successful in attaining these objectives.

Organizational Impact

Executing the portfolio of initiatives necessary to achieve MPI's business objectives will have a major impact on the MPI corporate culture, and will require higher levels of collaboration, and accountability within divisions and between departments. To facilitate this, the corporation has reorganized its divisions to recognize its increased emphasis on risk management, align operational functions and to improve the management of claims. Examples of key areas of change include:

- Continued development and formalization of Value Management processes are being adopted across the corporation.
- Strategic Projects have an additional leadership role; Operational Business Champion (OBC). This role is accountable for making key decisions (in consultation with Executive Sponsors), on the initiative.
- Project and Operational financial reporting, as well as technology procurement have been consolidated and transitioned to the Finance division.
- The Data and Analytics team has been formed and is responsible for the maturing of corporate data and analytics competencies and standards, as well as development, implementation, and ongoing maintenance of corporate dashboards, thereby increasing the transparency on strategic priorities and key corporate metrics.
- The Application Services group has been successfully integrated into the Enterprise System Support directorate resulting in end to end operational support capabilities for critical corporate applications.
- The Information Security Office has expanded its scope of responsibilities, providing services at a corporate level.

Changing roles, skills, and priorities to support business and IT capabilities

Delivering the business capabilities and related IT capabilities will require changes to employee skill sets. There will be an increasing emphasis on analytical skills, technical skills (newer coding practices optimized for web development), and business, technical and security architectural skills. MPI is active in the development of internal staff through project and operational opportunities. MPI is also executing an External Labour strategy to ensure MPI transitions knowledge and skills from external contractors / consultants to internal staff.

Prioritization is also occurring to ensure there are sufficient resources to develop the required capabilities. Select non-critical operational work was deferred until the end of Q1-2018/19 allowing more internal resources to participate in key projects. This is a balance, because as significant changes are implemented, the importance of operational processes which quickly identify and resolve application defects, remains critical to the integrity and availability of key corporate systems. These operational processes must not be negatively impacted by any changes in staffing allocation to build capabilities, doing so would increase risk to the stability of key platforms.

As MPI considers the future of its core system (Legacy Modernization Assessment), MPI will revalidate the long term mix of analytical, technical, and architectural consultants required to support its critical applications and propose a staffing strategy to align to the long term corporate requirements. It will also continue to evaluate the requirement for, and priority of, operational work related to Legacy platforms.

Delivering projects which result in new / enhanced IT and Business capabilities

To support the deployment of the business and IT capabilities identified in section 8, some projects will require an additional delivery approach which provides more agility and improves time to deliver. The existing delivery model focuses on structure, rigor and consistency and has a formal progression of steps including:

- Production of detailed business requirements
- Detailed technical requirements and solution designs
- Comprehensive testing and implementation
- Solution delivery and warranty

MPI is currently exploring an additional methodology which can operate in parallel (An Agile methodology) which focuses on rapid, small deliveries. This would be used to bring solutions to production more quickly, often using pilots to provide proof of value before embarking on a full project using the traditional 'waterfall' delivery methodology. This also provides MPI with practical experience in alternate delivery models which are seeing increased adoption in the insurance industry. This broader experience allows MPI to better partner with current and future strategic technology providers, leveraging and learning their best practices.

Ongoing Oversight and Governance

Developing this IT Strategy has provided MPI with the opportunity to confirm the alignment of the business plan, business capabilities, IT capabilities and IT projects. The result is a single document which succinctly links the MPI business plan, business strategy, key business process documentation, and project documents (such as business cases and project / program charters) resulting in increased transparency and clarity. This document is used within MPI to guide project and operational teams.

Enterprise Architecture concepts and practices have been critical to the development of this strategy. MPI continues to develop its Enterprise Architecture process maturity, with assistance from Gartner research and experts, and through initiatives such as the Legacy Modernization assessment. As Enterprise Architecture process maturity continues to improve, and further clarity on future business and IT capabilities emerge, updates to this document will be required.

On an annual basis, MPI will update this strategy to reflect the progress made and any changes required to maintain alignment to the Corporation's business plan.

PART V:
AFFORDABLE RATES THROUGH EFFECTIVE PUBLIC AUTO INSURANCE

PART V(i):
BREAKEVEN PRICING TO MATCH THE COST OF NEW POLICIES

PF – PRO FORMAS
REV – REVENUES
EXP - EXPENSES
CI – CLAIMS INCURRED

PART V(ii):
PREMIUMS REFLECT THE RISK OF DRIVERS AND VEHICLES

RM – RATEMAKING
RSF – RATE SETTING FRAMEWORK
VFH – VEHICLES FOR HIRE
DSR – DRIVER SAFETY RATING
DCS – DRIVER CLASSIFICATION SYSTEM
VCS – VEHICLE CLASSIFICATION SYSTEM
VRG – VEHICLE RATE GROUPS

Manitoba Public Insurance

PROFORMAS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

PROFORMAS 3
PF.1 STATEMENT OF OPERATIONS – 2.2% RATE CHANGE 4
PF.2 STATEMENT OF FINANCIAL POSITION – 2.2% RATE CHANGE 5
PF.3 STATEMENT OF CHANGES IN EQUITY – 2.2% RATE CHANGE 6
PF.4 STATEMENT OF OPERATIONS – 2017/18 COMPARATIVE 7
PF.5 STATEMENT OF OPERATIONS – 2018/19 COMPARATIVE 9
PF.6 STATEMENT OF OPERATIONS – 2019/20 COMPARATIVE 11
PF.7 STATEMENT OF OPERATIONS – 2020/21 COMPARATIVE 13
PF.8 STATEMENT OF OPERATIONS – 0.0% RATE CHANGE 15
PF.9 STATEMENT OF FINANCIAL POSITION – 0.0% RATE CHANGE 16
PF.10 STATEMENT OF CHANGES IN EQUITY – 0.0% RATE CHANGE 17

PROFORMAS

There are a total of ten statements presented in the Pro Forma section of the 2019 General Rate Application (GRA). The first three financial statements, PF.1 through PF.3, illustrate the 2019 GRA base forecast that supports this application's request for a 2.2% rate increase. These pro formas, contain two columns for 2018/19, the 'Budget Year' preceding the rating years, denoted as "B" and "FB". The "B" column represents the Board of Director's approved Budget for 2018/19. The "FB" column represents the updated base assumption for the rating years for modeling purposes only.

The notable update included in the 2019 GRA pro forma financial statements is the inclusion of the Board of Director's approved asset liability management review that was ordered by the Public Utilities Board in 2017 GRA (order 162/16, 10.13) and 2018 GRA (order 130/17) hearings.

When comparisons are made against 2018/19, the Forecast Base (FB) is the basis for comparison, as this scenario reflects the assumptions that underpin the requested rate increase in this application.

The next four pro forma statements PF.4 through PF.7 contain comparatives of actual, budgeted, and forecasted statements of operations between this year's GRA versus last year's GRA. The last three pro forma statements, PF.8 though PF.10 reflect the 2019 GRA base forecast except with a 0% rate increase.

The pro forma financial statements included here have been presented on the same basis utilized in the Corporations most recent fiscal year end. No attempt has been made to adjust future forecasted years for upcoming accounting standards such as IFRS 17 or IFRS 9.

PF.1 STATEMENT OF OPERATIONS – 2.2% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*		*For the Years Ended February,*						
1			2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC		2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3		Motor Vehicles	955,941	1,018,965	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
4		Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5		Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6		Total Net Premiums Written	994,593	1,076,138	1,076,987	1,144,565	1,191,358	1,239,068	1,288,938
7		Net Premiums Earned							
8		Motor Vehicles	922,617	988,774	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9		Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10		Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11		Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
12		Service Fees & Other Revenues	22,849	23,322	23,832	25,839	27,613	29,525	31,617
13		Total Earned Revenues	982,991	1,059,512	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301
14		Claims Incurred	783,040	870,564	853,863	896,982	943,502	992,469	1,044,612
15		DPAC \ Premium Deficiency Adjustment	-	(15,750)	(28,521)	(5,380)	(4,243)	3,999	7,997
16		(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(8,203)	8,610	11,453	10,124	10,109
17		Total Claims Incurred	767,239	831,017	817,139	900,212	950,712	1,006,592	1,062,718
18		Claims Expense	143,337	136,975	137,168	135,428	139,216	144,330	146,780
19		Road Safety/Loss Prevention	13,146	13,843	13,606	12,693	12,818	13,003	13,279
20		Total Claims Costs	923,722	981,835	967,913	1,048,333	1,102,746	1,163,925	1,222,777
21		Expenses							
22		Operating	70,201	73,799	75,060	73,606	76,313	79,998	82,908
23		Commissions	37,378	40,407	40,338	42,690	44,835	46,610	48,443
24		Premium Taxes	29,143	31,445	31,518	33,736	35,435	36,861	38,334
25		Regulatory/Appeal	4,443	4,666	4,669	4,840	4,998	5,114	5,233
26		Total Expenses	141,165	150,317	151,585	154,872	161,581	168,583	174,918
27		Underwriting Income (Loss)	(81,896)	(72,640)	(56,258)	(64,247)	(67,188)	(86,168)	(100,394)
28		Investment Income	111,731	82,203	191,814	82,148	84,863	87,773	90,599
29		(b) Investment Income - Interest Rate Impact	4,589	-	-	-	-	-	-
30		Net Investment Income	116,320	82,203	191,814	82,148	84,863	87,773	90,599
31		Net Income (Loss)	34,424	9,563	135,556	17,901	17,675	1,605	(9,795)
32		Total net Impact due to interest rate change (b) - (a)	20,390	23,797	8,203	(8,610)	(11,453)	(10,124)	(10,109)

PF.2 STATEMENT OF FINANCIAL POSITION – 2.2% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*		*For the Years Ended February,*						
1			2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC		2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets								
4		Cash and cash equivalents	72,998	11,929	28,178	63,651	77,095	85,793	81,355
5		Investments	2,272,545	2,451,402	2,508,579	2,597,256	2,703,872	2,814,348	2,925,883
6		Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7		Due from other insurance companies	2	-	-	-	-	-	-
8		Accounts receivable	389,186	357,114	354,564	375,397	390,253	405,447	421,338
9		Prepaid expenses	714	-	-	-	-	-	-
10		Deferred policy acquisition costs	-	9,628	17,110	24,394	29,940	27,275	20,674
11		Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12		Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13		Deferred development costs	55,423	72,551	43,654	47,106	59,150	61,159	63,190
14			2,916,137	3,025,250	3,055,846	3,212,402	3,362,859	3,496,117	3,617,913
15	Liabilities								
16		Due to other insurance companies	141	2,642	144	144	144	144	144
17		Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18		Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19		Unearned premiums and fees	508,089	548,406	547,303	582,126	607,614	633,826	661,368
20		Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21		Provision for employee future benefits	331,910	316,773	341,796	357,994	373,915	389,863	406,134
22		Provision for unpaid claims	1,806,067	1,920,634	1,851,107	1,930,655	2,011,231	2,088,693	2,164,452
23			2,705,292	2,840,245	2,801,426	2,932,229	3,055,908	3,177,826	3,298,844
24	Equity								
25		Retained Earnings	170,975	134,734	306,531	324,432	342,107	343,712	333,916
26		Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
27	Total Equity		210,845	185,005	254,420	280,173	306,951	318,291	319,069
28	Total Liabilities & Equity		2,916,137	3,025,250	3,055,846	3,212,402	3,362,859	3,496,117	3,617,913

PF.3 STATEMENT OF CHANGES IN EQUITY – 2.2% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	306,531	324,432	342,107	343,712
6	Net Income (Loss) from annual operations	34,424	9,563	135,556	17,901	17,675	1,605	(9,795)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	306,531	324,432	342,107	343,712	333,916
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,259)	(35,155)	(25,421)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,853	9,103	9,734	10,573
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
13	Total Equity Balance	210,845	185,005	254,420	280,173	306,951	318,291	319,069
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	306,531	324,432	342,107	343,712	333,916
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
18	Total Rate Stabilization Reserve	210,845	185,005	254,420	280,173	306,951	318,291	319,069
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	254,420	280,173	306,951	318,291	319,069
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	MCT RATIO (%)	44%	28%	70%	70%	70%	70%	66%

PF.4 STATEMENT OF OPERATIONS – 2017/18 COMPARATIVE

Line No.		2018 GRA 2017-18FB	2019 GRA 2017-18A	Inc (dec)	Ref.	Increase / (Decrease)
1	*(C$ 000s, except where noted)*					
2		$	$	$		%
3	Net Premiums Written					
4	Motor Vehicles	958,740	955,941	(2,799)		(0.29)
5	Drivers	50,334	49,946	(388)		(0.77)
6	Reinsurance Ceded	(11,291)	(11,294)	(3)		0.03
7	Total Net Premiums Written	997,783	994,593	(3,190)	(1)	(0.32)
8	Net Premiums Earned					
9	Motor Vehicles	925,950	922,617	(3,333)		(0.36)
10	Drivers	49,265	48,819	(446)		(0.91)
11	Reinsurance Ceded	(11,291)	(11,294)	(3)		0.03
12	Total Net Premiums Earned	963,924	960,142	(3,782)		(0.39)
13	Service Fees & Other Revenues	22,204	22,849	645		2.90
14	Total Earned Revenues	986,128	982,991	(3,137)		(0.32)
			-			
15	Net Claims Incurred	827,183	783,040	(44,143)		(5.34)
16	DPAC \ Premium Deficiency Adjustment	(12,127)	-	12,127		(100.00)
17	(a) Claims Incurred - Interest rate impact	(75,641)	(15,801)	59,840		(79.11)
18	Total Claims Incurred	739,415	767,239	27,824	(2)	3.76
19	Claims Expense	134,294	143,337	9,043	(4)	6.73
20	Road Safety/Loss Prevention	13,210	13,146	(64)	(4)	(0.48)
21	Total Claims Costs	886,919	923,722	36,803		4.15
22	Expenses					
23	Operating	72,563	70,201	(2,362)	(4)	(3.26)
24	Commissions	37,655	37,378	(277)		(0.74)
25	Premium Taxes	29,256	29,143	(113)		(0.39)
26	Regulatory/Appeal	4,054	4,443	389	(4)	9.60
27	Total Expenses	143,528	141,165	(2,363)		(1.65)
28	Underwriting Income (Loss)	(44,319)	(81,896)	(37,577)		84.79
29	Investment Income	101,827	111,731	9,904		9.73
30	(b) Investment Income - Interest rate impact	-	4,589	4,589		-
31	Total Investment Income	101,827	116,320	14,493	(3)	14.23
32	Net Income (Loss)	57,508	34,424	(23,084)		(40.14)
33	Allocated Corporate Expenses					
34	Claims Expense	134,294	143,337	9,043		6.73
35	Road Safety/Loss Prevention	13,210	13,146	(64)		(0.48)
36	Operating	72,563	70,201	(2,362)		(3.26)
37	Regulatory/Appeal	4,054	4,443	389		9.60
38	Total Allocated Corporate Expenses	224,121	231,127	7,006		3.13
39	Allocated Corporate Expenses					
40	Normal Operations	221,706	210,897	(10,809)	(4)	(4.88)
41	Initiatives Implementation	2,444	20,230	17,786	(4)	727.74
42	Initiatives Ongoing	(29)	-	29	(4)	(100.00)
43	Total Allocated Corporate Expenses	224,121	231,127	7,006		3.13
44	*Total net positive impact due to interest rates	75,641	20,390	(55,251)		(73.04)

Explanation of Significant Variances – 2017/18 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	997,783	2018 GRA
2			(588)	Lower than expected premium related to volume
3			(3,755)	Lower motor vehicle premium upgrade due to fewer new vehicles
4			(105)	Lower premium due to rate change
5			1,671	Lower than expected fleet rebate
6			(388)	Lower driver premiums primarily due to lower volume
7			(25)	Other
8			994,593	2019 GRA
9	*detailed explanations along with commentary found in Part V-Revenues			
10	(2)	Net Claims Incurred	739,415	2018 GRA
11			59,840	Lower growth in interest rates
12			(34,845)	Lower Physical Damage claims (Low hail counts)
13			(4,187)	Lower PIPP and Liability claims
14			(6,686)	Lower ILAE
15			47	Higher ULAE
16			16,492	Higher Write Down DPAC/Premium Deficiency
17			(2,837)	Other (Allowance for Doubtful Accts, Reinsurance Ceded)
18			767,239	2019 GRA
19	*detailed explanations along with commentary found in Part V-Claims Incurred			
20	(3)	Investment Income	101,827	2018 GRA
21			4,589	Higher than expected ALM impact due to interest rate forecast
22			1,384	Higher than expected interest income
23			(7,971)	Lower than expected equity investment income
24			13,995	Higher than expected alternative investment income
25			428	Higher than expected fees
26			8,616	Higher than expected amortization
27			(6,029)	Lower than expected pension expense
28			(519)	Other
29			116,320	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	221,706	2018 GRA
32		(Normal Operations)	(2,415)	Lower than expected regular salaries
33			(602)	Lower than expected overtime
34			(1,359)	Lower than expected benefits
35			(785)	Lower than expected data processing expense
36			(2,273)	Lower than expected building expenses
37			(1,175)	Lower than expected safety/loss prevention expense
38			(1,010)	Lower than expected furniture and equipment expense
39			(562)	Lower than expected credit card fees
40			(628)	Other
41			210,897	2019 GRA
42	(4)	Allocated Corporate Expenses	2,444	2018 GRA
43			996	Higher than expected salaries
44			16,818	Higher than expected data processing
45			(28)	other
46			20,230	2019 GRA
47	(4)	Allocated Corporate Expenses	(29)	2018 GRA
48		(Initiatives Ongoing)	29	other
49			-	2019 GRA
50	*detailed explanations along with commentary found in Part V-Expenses			

PF.5 STATEMENT OF OPERATIONS – 2018/19 COMPARATIVE

Line No.		2018 GRA 2018-19F	2019 GRA 2018-19FB	Inc (dec)	Ref.	Increase / (Decrease)
1	*(C$ 000s, except where noted)*					
2		$	$	$		%
3	Net Premiums Written					
4	Motor Vehicles	1,025,482	1,019,281	(6,201)		(0.60)
5	Drivers	69,148	68,902	(246)		(0.36)
6	Reinsurance Ceded	(11,517)	(11,196)	321		(2.79)
7	Total Net Premiums Written	1,083,113	1,076,987	(6,126)	(1)	(0.57)
8	Net Premiums Earned					
9	Motor Vehicles	994,660	991,058	(3,602)		(0.36)
10	Drivers	59,702	59,546	(156)		(0.26)
11	Reinsurance Ceded	(11,517)	(11,196)	321		(2.79)
12	Total Net Premiums Earned	1,042,845	1,039,408	(3,437)		(0.33)
13	Service Fees & Other Revenues	24,328	23,832	(496)		(2.04)
14	Total Earned Revenues	1,067,173	1,063,240	(3,933)		(0.37)
			-			
15	Net Claims Incurred	865,295	853,863	(11,432)		(1.32)
16	DPAC \ Premium Deficiency Adjustment	(9,474)	(28,521)	(19,047)		201.04
17	(a) Claims Incurred - Interest rate impact	8,465	(8,203)	(16,668)		(196.90)
18	Total Claims Incurred	864,286	817,139	(47,147)	(2)	(5.46)
19	Claims Expense	137,885	137,168	(717)	(4)	(0.52)
20	Road Safety/Loss Prevention	13,090	13,606	516	(4)	3.94
21	Total Claims Costs	1,015,261	967,913	(47,348)		(4.66)
22	Expenses					
23	Operating	74,921	75,060	139	(4)	0.19
24	Commissions	40,593	40,338	(255)		(0.63)
25	Premium Taxes	31,631	31,518	(113)		(0.36)
26	Regulatory/Appeal	4,132	4,669	537	(4)	13.00
27	Total Expenses	151,277	151,585	308		0.20
28	Underwriting Income (Loss)	(99,365)	(56,258)	43,107		(43.38)
29	Investment Income	78,109	191,814	113,705		145.57
30	(b) Investment Income - Interest rate impact	(0)	(0)	(0)		172.00
31	Total Investment Income	78,109	191,814	113,705	(3)	145.57
32	Net Income (Loss)	(21,256)	135,556	156,812		(737.73)
33	Allocated Corporate Expenses					
34	Claims Expense	137,885	137,168	(717)		(0.52)
35	Road Safety/Loss Prevention	13,090	13,606	516		3.94
36	Operating	74,921	75,060	139		0.19
37	Regulatory/Appeal	4,132	4,669	537		13.00
38	Total Allocated Corporate Expenses	230,028	230,503	475		0.21
39	Allocated Corporate Expenses					
40	Normal Operations	222,267	227,083	4,816	(4)	2.17
41	Initiatives Implementation	2,566	3,420	854	(4)	33.28
42	Initiatives Ongoing	5,195	-	(5,195)	(4)	(100.00)
43	Total Allocated Corporate Expenses	230,028	230,503	475		0.21
44	*Total net positive impact due to interest rates	(8,465)	8,203	16,668		(196.90)

Explanation of Significant Variances – 2018/19 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	1,083,113	2018 GRA
2			(4,447)	Lower than expected 2017/18 actual premiums
3			(1,168)	Lower rate change due to 2.7 % vs 2.6% Rate Increase
4			(67)	Lower than expected premium related to volume
5			(1,303)	Lower motor vehicle premium upgrade due to less new vehicles
6			723	Lower than expected fleet rebate
7			60	Lower than expected Immobilizer discounts
8			(246)	Lower driver premiums
9			322	Lower than expected reinsurance premiums and other
10			1,076,987	2019 GRA
11	*detailed explanations along with commentary found in Part V-Revenues			
12	(2)	Net Claims Incurred	864,286	2018 GRA
13			(16,668)	Higher forecasted growth in interest rates
14			(18,538)	Lower forecast for Physical Damage claims
15			474	Higher forecast for PIPP and Liability claims
16			408	Higher forecasted ILAE
17			6,223	Higher forecasted ULAE
18			(19,047)	Lower forecasted Write Down DPAC/Premium Deficiency
19			1	Other
20			817,139	2019 GRA
21	*detailed explanations along with commentary found in Part V-Claims Incurred			
22	(3)	Investment Income	78,109	2018 GRA
23			4,800	Higher than expected interest income
24			106,146	Higher than expected equity investment income
25			1,361	Higher than expected alternative investment income
26			479	Higher than expected fees
27			465	Higher than expected amortization
28			455	Higher than expected pension expense
29			191,814	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	222,267	2018 GRA
32		(Normal Operations)	(300)	Lowere than expected salaries
33			1,290	Higher than expected data processing
34			1,559	Higher than expected special services
35			(1,238)	Lower than expected building expenses
36			818	Higher than expected safety loss prevention
37			2,139	Higher "Other" expenses primarily due to stretch target
38			1,936	Higher than expected amortization expenses
39			(634)	Lower than expected capital depreciation
40			(754)	Other
41			227,083	2019 GRA
42	(4)	Allocated Corporate Expenses	2,566	2018 GRA
43		(Initiatives Implementation)	854	Higher than expected data processing
44			3,420	2019 GRA
45	(4)	Allocated Corporate Expenses	5,195	2018 GRA
46		(Initiatives Ongoing)	938	Higher than expected salaries
47			(2,013)	Lower than expected data processing
48			(4,077)	Lower than expected amortization expense
49			(43)	Other
50			-	2019 GRA
51	*detailed explanations along with commentary found in Part V-Expenses			

PF.6 STATEMENT OF OPERATIONS – 2019/20 COMPARATIVE

Line No.		2018 GRA	2019 GRA			Increase /
1	*(C$ 000s, except where noted)*	2019-20F	2019-20F	Inc (dec)	Ref.	**(Decrease)**
2		$	$	$		%
3	Net Premiums Written					
4	Motor Vehicles	1,068,082	1,085,082	17,000		1.59
5	Drivers	71,252	70,903	(349)		(0.49)
6	Reinsurance Ceded	(11,747)	(11,420)	327		(2.78)
7	Total Net Premiums Written	1,127,587	1,144,565	16,978	(1)	1.51
8	Net Premiums Earned					
9	Motor Vehicles	1,048,409	1,054,643	6,234		0.59
10	Drivers	70,196	69,896	(300)		(0.43)
11	Reinsurance Ceded	(11,747)	(11,420)	327		(2.78)
12	Total Net Premiums Earned	1,106,858	1,113,119	6,261		0.57
13	Service Fees & Other Revenues	26,431	25,839	(592)		(2.24)
14	Total Earned Revenues	1,133,289	1,138,958	5,669		0.50
			-			
15	Net Claims Incurred	908,455	896,982	(11,472)		(1.26)
16	DPAC \ Premium Deficiency Adjustment	2,471	(5,380)	(7,851)		(317.73)
17	(a) Claims Incurred - Interest rate impact	1,930	8,610	6,679		346.01
18	Total Claims Incurred	912,856	900,212	(12,644)	(2)	(1.39)
19	Claims Expense	139,841	135,428	(4,413)	(4)	(3.16)
20	Road Safety/Loss Prevention	12,947	12,693	(254)	(4)	(1.96)
21	Total Claims Costs	1,065,644	1,048,333	(17,311)		(1.62)
22	Expenses					
23	Operating	75,469	73,606	(1,863)	(4)	(2.47)
24	Commissions	42,723	42,690	(33)		(0.08)
25	Premium Taxes	33,558	33,736	178		0.53
26	Regulatory/Appeal	4,217	4,840	623	(4)	14.77
27	Total Expenses	155,967	154,872	(1,095)		(0.70)
28	Underwriting Income (Loss)	(88,322)	(64,247)	24,075		(27.26)
29	Investment Income	80,017	82,148	5,880		7.35
30	(b) Investment Income - Interest rate impact	-	(1)	(0)		-
31	Total Investment Income	80,017	82,147	5,880	(3)	7.35
32	Net Income (Loss)	(8,305)	17,900	29,955		(360.69)
33	Allocated Corporate Expenses					
34	Claims Expense	139,841	135,428	(4,413)		(3.16)
35	Road Safety/Loss Prevention	12,947	12,693	(254)		(1.96)
36	Operating	75,469	73,606	(1,863)		(2.47)
37	Regulatory/Appeal	4,217	4,840	623		14.77
38	Total Allocated Corporate Expenses	232,474	226,567	(5,907)		(2.54)
39	Allocated Corporate Expenses					
40	Normal Operations	220,404	221,926	1,522	(4)	0.69
41	Initiatives Implementation	2,602	757	(1,845)	(4)	(70.91)
42	Initiatives Ongoing	9,468	3,884	(5,584)	(4)	(58.98)
43	Total Allocated Corporate Expenses	232,474	226,567	(5,907)		(2.54)
44	*Total net positive impact due to interest rates	(1,930)	(8,610)	(6,680)		346.02

Explanation of Significant Variances – 2019/20 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	1,127,587	2018 GRA
2			(6,984)	Lower starting base due to lower than expected 2018/19 rate increase
3			23,743	Higher Premiums due to applied for 2.2% rate increase
4			(105)	Lower than expected premium related to volume factor
5			(516)	Lower motor vehicle premium upgrade due to less new vehicles
6			758	Lower than expected fleet rebate
7			104	Lower than expected Immobilizer discounts
8			(349)	Lower driver premiums primarilary due to DSR impact
9			327	Lower than expected reinsurance premiums and other
10			1,144,565	2019 GRA
11	*detailed explanations along with commentary found in Part V-Revenues			
12	(2)	Net Claims Incurred	912,856	2018 GRA
13			6,680	Forecasted decrease in claims discount rate
14			(18,892)	Lower forecast for Physical Damage claims
15			776	Higher forecast for PIPP and Liability claims
16			174	Higher forecasted ILAE
17			6,469	Higher forecasted ULAE
18			(7,851)	Lower forecasted Write Down DPAC/Premium Deficiency
19			900,212	2019 GRA
20	*detailed explanations along with commentary found in Part V-Claims Incurred			
21	(3)	Investment Income	80,017	2018 GRA
22			16,742	Higher than expected interest income
23			(18,763)	Lower than expected equity investment income
24			(20,788)	Lower than expected alternative investment income
25			2,982	Higher than expected fees
26			14,802	Higher than expected amortization
27			6,167	Higher than expected pension expense
28			987	Other
29			82,147	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	220,404	2018 GRA
32		(Normal Operations)	(1,372)	Lower than expected salaries
33			923	Higher than expected data processing
34			(915)	Lower than expected postage
35			2,342	Higher than expected other
36			(583)	Lower than expected capital depreciation
37			1,750	Higher than expected amortization expenses
38			(623)	Other
39			221,926	2019 GRA
40	(4)	Allocated Corporate Expenses	2,602	2018 GRA
41		(Initiatives Implementation)	(1,845)	Lower than expected data processing
			757	2019 GRA
42	(4)	Allocated Corporate Expenses	9,468	2018 GRA
43		(Initiatives Ongoing)	1,997	Higher than expected salaries
44			(1,078)	Lower than expected data processing
45			(6,225)	Lower than expected amortization expenses
46			(278)	Other
46			3,884	2019 GRA
48	*detailed explanations along with commentary found in Part V-Expenses			

PF.7 STATEMENT OF OPERATIONS – 2020/21 COMPARATIVE

Line No.		2018 GRA 2020-21F	2019 GRA 2020-21F	Inc (dec)	Ref.	Increase / (Decrease)
1	*(C$ 000s, except where noted)*					
2		$	$	$		%
3	Net Premiums Written					
4	Motor Vehicles	1,112,891	1,130,121	17,230		1.55
5	Drivers	73,311	72,885	(426)		(0.58)
6	Reinsurance Ceded	(11,982)	(11,648)	334		(2.79)
7	Total Net Premiums Written	1,174,220	1,191,358	17,138	(1)	1.46
			-			
8	Net Premiums Earned					
9	Motor Vehicles	1,092,198	1,109,287	17,089		1.56
10	Drivers	72,277	71,887	(390)		(0.54)
11	Reinsurance Ceded	(11,982)	(11,648)	334		(2.79)
12	Total Net Premiums Earned	1,152,493	1,169,526	17,033		1.48
13	Service Fees & Other Revenues	28,532	27,613	(919)		(3.22)
14	Total Earned Revenues	1,181,025	1,197,139	16,114		1.36
			-			
15	Net Claims Incurred	953,443	943,502	(9,941)		(1.04)
16	DPAC \ Premium Deficiency Adjustment	3,625	(4,243)	(7,868)		(217.05)
17	(a) Claims Incurred - Interest rate impact	42	11,453	11,411		27,165.82
18	Total Claims Incurred	957,110	950,712	(6,398)	(2)	(0.67)
19	Claims Expense	142,811	139,216	(3,595)	(4)	(2.52)
20	Road Safety/Loss Prevention	13,210	12,818	(392)	(4)	(2.97)
21	Total Claims Costs	1,113,131	1,102,746	(10,385)		(0.93)
22	Expenses					
23	Operating	77,262	76,313	(949)	(4)	(1.23)
24	Commissions	44,438	44,835	397		0.89
25	Premium Taxes	34,934	35,435	501		1.43
26	Regulatory/Appeal	4,302	4,998	696	(4)	16.18
27	Total Expenses	160,936	161,581	645		0.40
28	Underwriting Income (Loss)	(93,042)	(67,188)	25,854		(27.79)
			-			
29	Investment Income	85,863	84,863	2,832		3.30
30	(b) Investment Income - Interest rate impact	-	(0)	(0)		-
31	Total Investment Income	85,863	84,863	2,832	(3)	3.30
32	Net Income (Loss)	(7,179)	17,675	28,686		(399.58)
33	Allocated Corporate Expenses					
34	Claims Expense	142,811	139,216	(3,595)		(2.52)
35	Road Safety/Loss Prevention	13,210	12,818	(392)		(2.97)
36	Operating	77,262	76,313	(949)		(1.23)
37	Regulatory/Appeal	4,302	4,998	696		16.18
38	Total Allocated Corporate Expenses	237,585	233,345	(4,240)		(1.78)
39	Allocated Corporate Expenses					
40	Normal Operations	224,745	227,212	2,467	(4)	1.10
41	Initiatives Implementation	2,046	757	(1,289)	(4)	(63.00)
42	Initiatives Ongoing	10,794	5,376	(5,418)	(4)	(50.19)
43	Total Allocated Corporate Expenses	237,585	233,345	(4,240)		(1.78)
44	*Total net positive impact due to interest rates	(42)	(11,453)	(11,411)		27,166.30

Explanation of Significant Variances – 2020/21 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	1,174,220	2018 GRA
2			16,139	Higher starting base due to applied for 2.2% rate increase
3			242	Higher than expected premium related to volume factor
4			(56)	Lower motor vehicle premium upgrade due to less new vehicles
5			802	Lower than expected fleet rebate
6			103	Lower than expected Immobilizer discounts
7			(426)	Lower driver premiums primarilary due to DSR impact
8			334	Lower than expected reinsurance premiums and other
9			1,191,358	2019 GRA
10	*detailed explanations along with commentary found in Part V-Revenues			
11	(2)	Net Claims Incurred	957,110	2018 GRA
12			11,411	Forecasted decrease in claims discount rate
13			(18,594)	Lower forecast for Physical Damage claims
14			1,588	Higher forecast for PIPP and Liability claims
15			54	Higher forecasted ILAE
16			7,011	Higher forecasted ULAE
17			(7,868)	Lower forecasted Write Down DPAC/Premium Deficiency
18			950,712	2019 GRA
19	*detailed explanations along with commentary found in Part V-Claims Incurred			
20	(3)	Investment Income	85,863	2018 GRA
21			18,452	Higher than expected interest income
22			(25,471)	Lower than expected equity investment income
23			(21,262)	Lower than expected alternative investment income
24			3,155	Higher than expected fees
25			15,120	Higher than expected amortization
26			6,374	Higher than expected pension expense
27			2,630	Other
28			84,863	2019 GRA
29	*detailed explanations along with commentary found in Part VI-Investments			
30	(4)	Allocated Corporate Expenses	224,745	2018 GRA
31		(Normal Operations)	1,386	Higher than expected data processing
32			536	Higher than expected regulatory appeal
33			(882)	Lower than expected postage
34			1,636	Higher than expected amortization expenses
35			(209)	Other
36			227,212	2019 GRA
37	(4)	Allocated Corporate Expenses	2,046	2018 GRA
38		(Initiatives Implementation)	(1,289)	Lower than expected data processing
39			757	2019 GRA
40	(4)	Allocated Corporate Expenses	10,794	2018 GRA
41		(Initiatives Ongoing)	1,997	Higher than expected salaries
42			(1,078)	Lower than expected data processing
43			(6,225)	Lower than expected amortization expenses
44			(112)	Other
45			5,376	2019 GRA
46	*detailed explanations along with commentary found in Part V-Expenses			

PF.8 STATEMENT OF OPERATIONS – 0.0% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.0% Rate Change* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,061,339	1,105,401	1,150,505	1,197,723
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,120,822	1,166,638	1,213,347	1,262,169
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,041,883	1,085,018	1,129,640	1,175,880
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,100,359	1,145,257	1,191,557	1,239,399
12	Service Fees & Other Revenues	22,849	23,322	23,832	25,414	27,146	29,013	31,058
13	Total Earned Revenues	982,991	1,059,512	1,063,240	1,125,773	1,172,403	1,220,570	1,270,457
14	Claims Incurred	783,040	870,564	853,863	896,982	943,501	992,468	1,044,609
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(28,521)	5,110	(4,035)	4,504	8,458
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(8,203)	8,547	11,464	10,034	10,132
17	Total Claims Incurred	767,239	831,017	817,139	910,639	950,930	1,007,006	1,063,199
18	Claims Expense	143,337	136,975	137,168	135,428	139,258	144,385	146,834
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,693	12,822	13,009	13,285
20	Total Claims Costs	923,722	981,835	967,913	1,058,760	1,103,010	1,164,400	1,223,318
21	Expenses							
22	Operating	70,201	73,799	75,060	73,606	76,334	80,026	82,936
23	Commissions	37,378	40,407	40,338	42,362	44,049	45,791	47,592
24	Premium Taxes	29,143	31,445	31,518	33,353	34,707	36,103	37,546
25	Regulatory/Appeal	4,443	4,666	4,669	4,840	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,585	154,161	160,088	167,034	173,307
27	Underwriting Income (Loss)	(81,896)	(72,640)	(56,258)	(87,148)	(90,695)	(110,864)	(126,168)
28	Investment Income	111,731	82,203	191,814	82,118	84,733	87,503	90,172
29	(b) Investment Income - Interest Rate Impact	4,589	-	-	-	-	-	-
30	Net Investment Income	116,320	82,203	191,814	82,118	84,733	87,503	90,172
31	Net Income (Loss)	34,424	9,563	135,556	(5,030)	(5,962)	(23,361)	(35,996)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	8,203	(8,547)	(11,464)	(10,034)	(10,132)

PF.9 STATEMENT OF FINANCIAL POSITION – 0.0% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.0% Rate Change* *(C$ 000s, rounding may affect totals)*			*For the Years Ended February,*					
1			2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC		2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets								
4		Cash and cash equivalents	72,998	11,929	28,178	49,262	42,715	30,568	4,408
5		Investments	2,272,545	2,451,402	2,508,579	2,595,143	2,698,165	2,804,760	2,912,110
6		Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7		Due from other insurance companies	2	-	-	-	-	-	-
8		Accounts receivable	389,186	357,114	354,564	369,100	383,697	398,624	414,238
9		Prepaid expenses	714	-	-	-	-	-	-
10		Deferred policy acquisition costs	-	9,628	17,110	13,216	18,526	15,327	8,235
11		Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12		Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13		Deferred development costs	55,423	72,551	43,654	47,106	59,147	61,154	63,184
14			2,916,137	3,025,250	3,055,846	3,178,425	3,304,799	3,412,528	3,507,648
15	Liabilities								
16		Due to other insurance companies	141	2,642	144	144	144	144	144
17		Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18		Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19		Unearned premiums and fees	508,089	548,406	547,303	571,143	596,179	621,928	648,984
20		Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21		Provision for employee future benefits	331,910	316,773	341,796	357,994	373,911	389,851	406,112
22		Provision for unpaid claims	1,806,067	1,920,634	1,851,107	1,930,592	2,011,177	2,088,548	2,164,327
23			2,705,292	2,840,245	2,801,426	2,921,183	3,044,415	3,165,771	3,286,313
24	Equity								
25		Retained Earnings	170,975	134,734	306,531	301,501	295,539	272,178	236,182
26		Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
27	Total Equity		210,845	185,005	254,420	257,242	260,384	246,757	221,335
28	Total Liabilities & Equity		2,916,137	3,025,250	3,055,846	3,178,425	3,304,799	3,412,528	3,507,648

PF.10 STATEMENT OF CHANGES IN EQUITY – 0.0% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.0% Rate Change* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	306,531	301,501	295,539	272,178
6	Net Income (Loss) from annual operations	34,424	9,563	135,556	(5,030)	(5,962)	(23,361)	(35,996)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	306,531	301,501	295,539	272,178	236,182
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,259)	(35,155)	(25,421)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,852	9,104	9,734	10,574
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
13	Total Equity Balance	210,845	185,005	254,420	257,242	260,384	246,757	221,335
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	306,531	301,501	295,539	272,178	236,182
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
18	Total Rate Stabilization Reserve	210,845	185,005	254,420	257,242	260,384	246,757	221,335
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	254,420	257,241	260,384	246,757	221,335
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	MCT RATIO (%)	44%	28%	70%	63%	58%	51%	41%

REVENUES

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

REVENUES **3**
MULTI-YEAR STATEMENTS - REVENUES **3**
REV.1 MOTOR VEHICLE PREMIUM **4**
REV.1.1 Volume Factor 5
REV.1.2 Upgrade Factor 8
REV.1.3 Net Fleet Rebates 11
REV.1.4 Anti-Theft Discounts 14
REV.1.5 Total Motor Vehicle Premium 15
REV.2 DRIVER PREMIUMS **18**
REV.3 REINSURANCE PREMIUM CEDED **26**
REV.4 SERVICE FEES AND OTHER REVENUE **28**

Appendix 1: Driver Premium Forecast by DSR Level
Appendix 2: Basic Service and Transaction Fee
Appendix 3: Service Fee Review

REVENUES

The Revenue chapter summarizes the methodologies used to forecast vehicle and driver premiums, reinsurance premiums ceded, service fees, and other forms of revenue applicable to Basic insurance.

MULTI-YEAR STATEMENTS - REVENUES

Figure REV- 1: 2019 GRA – 2.2% Rate Change

Line No.	BASIC	2018A	2019 FB	2020F	2021F	2022F	2023F
		For the Years Ended February,					
1	***(C$ 000s, except where noted)***						
2	**Motor Vehicles**	955,941	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
3	**Drivers**	49,946	68,902	70,903	72,885	74,723	76,565
4	**Reinsurance Ceded**	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	**Total Net Premiums Written**	**994,593**	**1,076,987**	**1,144,565**	**1,191,358**	**1,239,068**	**1,288,938**
6							
7	**Net Premiums Earned**						
8	**Motor Vehicles**	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9	**Drivers**	48,819	59,546	69,896	71,887	73,798	75,638
10	**Reinsurance Ceded**	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	**Total Net Premiums Earned**	**960,142**	**1,039,408**	**1,113,119**	**1,169,526**	**1,216,815**	**1,265,684**
12	**Service Fees & Other Revenues**	22,849	23,832	25,839	27,613	29,525	31,617
13	**Total Earned Revenues**	**982,991**	**1,063,240**	**1,138,958**	**1,197,139**	**1,246,340**	**1,297,301**

REV.1 MOTOR VEHICLE PREMIUM

Motor vehicle premium represents the amounts collected from customers for Basic vehicle insurance.

Figure REV- 2: Motor Vehicle Premium Forecast: Assumes 2.2% Rate Change for 2019/20 Policies

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	**Written Premium**	955,941	1,019,281	1,085,082	1,130,121	1,176,226
3	**Earned Premium**	922,617	991,058	1,054,643	1,109,287	1,154,898

Forecasting Methodology

The forecasted motor vehicle written premiums are calculated as follows:

Current Year's Written Premium Forecast =
Previous Year's Written Premium
x (1+ Volume Factor)
x (1+ Upgrade Factor)
x (1+ Rate Change)
- Net Fleet Rebates
- Anti-Theft Discounts

The motor vehicle earned premium forecast is based on the written premium forecast and the historical relationship between premiums written and earned.

The following figure provides a summary of the motor vehicle premium forecast by component. The sections below describe the forecast details for each component of the motor vehicle premium forecast.

Figure REV- 3: Premiums Written and Earned: 2019 GRA - 2.2% Rate Change

Line No.	BASIC	2018A	2019B	2020F	2021F	2022F	2023F
1	*(C$ 000s, except where noted)*						
2							
3	HTA Volume Change	1.44%	1.50%	1.50%	1.50%	1.50%	1.50%
4	HTA Upgrading & Other Changes	2.40%	2.39%	2.54%	2.58%	2.51%	2.54%
5	Rate Change	3.70%	2.60%	2.20%	0.00%	0.00%	0.00%
6	Premiums Unearned during Year	46.37%	46.26%	46.26%	46.26%	46.26%	46.26%
7							
8	Basic Insurance Written						
9	Last Year Premiums Written	904,245	972,433	1,036,935	1,102,982	1,148,358	1,194,858
10	Volume Increase	12,976	14,587	15,554	16,545	17,225	17,923
11	Total Volume Written	917,221	987,020	1,052,489	1,119,527	1,165,583	1,212,781
12							
13	Upgrading & Other Changes	21,967	23,638	26,750	28,831	29,275	30,792
14	Total With Upgrading	939,188	1,010,658	1,079,239	1,148,358	1,194,858	1,243,574
15							
16	Impact of Rate Change	34,750	26,277	23,743	0	0	0
17	Adjustments	(1,505)	0	0	0	0	0
18	Total Premium Written Before Rebates	**972,433**	**1,036,935**	**1,102,982**	**1,148,358**	**1,194,858**	**1,243,574**
19							
20	Fleet Rebates	(13,377)	(14,935)	(15,532)	(16,150)	(16,796)	(17,463)
21	Anti Theft & Other Charges	(3,115)	(2,719)	(2,367)	(2,087)	(1,837)	(1,618)
22	Total Premiums Written	**955,941**	**1,019,281**	**1,085,082**	**1,130,121**	**1,176,226**	**1,224,492**
23							
24	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
25	Total Net Premiums Written	**944,647**	**1,008,085**	**1,073,662**	**1,118,473**	**1,164,345**	**1,212,373**
26							
27	Basic Insurance Earned						
28	Beginning Unearned Premium Balance	409,960	443,284	471,507	501,946	522,780	544,108
29	Premiums Written	955,941	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
30	Unearned Premiums during Year	443,284	471,507	501,946	522,780	544,108	566,435
31	Premiums Earned	**922,617**	**991,058**	**1,054,643**	**1,109,287**	**1,154,898**	**1,202,165**
32							
33	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
34	Total Net Premiums Earned	**911,323**	**979,862**	**1,043,223**	**1,097,638**	**1,143,017**	**1,190,046**

REV.1.1 Volume Factor

The volume factor represents the growth rate in Basic earned vehicle units over a given insurance year. An earned unit represents the portion of the earning period that a vehicle has Basic insurance. For example, a private passenger vehicle insured for three months of the insurance year would be approximately 0.25 earned units (i.e. 3 months / 12 months = 0.25).

Earned units are classified into *The Highway Traffic Act* (HTA) vehicles (private passenger, commercial, public and motorcycles) and non-HTA vehicles (trailers and off road vehicles).

Figure REV- 4: Volume Factor Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	Volume Factor	1.50%	1.50%	1.50%	1.50%	1.50%

Forecasting Methodology

For the purposes of forecasting motor vehicle premiums, Manitoba Public Insurance (MPI or the Corporation) forecasts overall volume growth based only on the historical HTA unit growth data. Although HTA units account for only 76% of total earned units, they represent over 98% of total Basic written premiums. Therefore, the HTA unit forecast is the most relevant to the overall Basic vehicle premium forecast.

Historical Results

The figure below shows the historical volume growth for HTA, non-HTA and total Basic earned units over the past fifteen years.

Figure REV- 5: HTA and Non-HTA Earned Units – 2003/04 to 2017/18

Line No.	Year	HTA	% Change	Non-HTA	% Change	Total	% Change
1	**2003/04**	694,822	0.90%	123,580	3.95%	818,402	1.35%
2	**2004/05**	703,612	1.27%	130,963	5.97%	834,575	1.98%
3	**2005/06**	713,135	1.35%	140,114	6.99%	853,249	2.24%
4	**2006/07**	721,360	1.15%	149,406	6.63%	870,765	2.05%
5	**2007/08**	735,225	1.92%	163,183	9.22%	898,408	3.17%
6	**2008/09**	751,937	2.27%	178,140	9.17%	930,077	3.53%
7	**2009/10**	763,251	1.50%	188,334	5.72%	951,585	2.31%
8	**2010/11**	774,765	1.51%	199,941	6.16%	974,707	2.43%
9	**2011/12**	791,384	2.15%	215,243	7.65%	1,006,627	3.27%
10	**2012/13**	811,247	2.51%	230,202	6.95%	1,041,448	3.46%
11	**2013/14**	822,677	1.41%	241,392	4.86%	1,064,070	2.17%
12	**2014/15**	834,238	1.41%	249,247	3.25%	1,083,485	1.82%
13	**2015/16**	847,108	1.54%	255,740	2.61%	1,102,848	1.79%
14	**2016/17**	860,978	1.64%	264,141	3.28%	1,125,119	2.02%
15	**2017/18**	873,374	1.44%	271,423	2.76%	1,144,797	1.75%
16	**Averages**						
17	**3-Year**		1.54%		2.88%		1.85%
18	**5-Year**		1.49%		3.35%		1.91%
19	**10-Year**		1.74%		5.22%		2.45%
20	**15-Year**		1.60%		5.66%		2.35%

Over the last five years the HTA unit growth rate has averaged 1.49%. If the 'high growth' years in 2011/12 and 2012/13 are excluded, then the long term HTA growth rate appears to be close to 1.50% per year.

The growth rate for Non-HTA (i.e. trailers and ORVs) units appears to have stabilized at approximately 3.0% after experiencing more than a decade of growth rates in excess of 4.0% (2004/05 to 2013/14 average growth of 6.93% per year). MPI has expected that the high growth rates of non-HTA units would eventually return to more modest levels. As explained above, MPI does not use non-HTA growth rates for forecasting overall motor vehicle premium growth.

This Year's Forecast

The HTA units are forecast to grow by 1.50% per year in 2018/19 and, thereafter, based on the recent five year average and the long-term average excluding certain 'high growth' years.

Comparison to Last Year's Forecast

The following figure shows the projected HTA volume factors along with a comparison to last year's forecast.

Figure REV- 6: HTA Earned Unit Forecast

Line No.	Year	This Year	Last Year	Difference
1	**2017/18(a)**	1.44%	1.50%	-0.06%
2	**2018/19 and thereafter**	1.50%	1.50%	0.00%

REV.1.2 Upgrade Factor

The upgrade factor measures the changes in the average vehicle premium that occur from sources other than rate changes. There are two upgrade factors used by MPI for forecasting purposes: (i) vehicle upgrade and (ii) Driver Safety Rating (DSR) upgrade.

The vehicle upgrade factor measures the impact on vehicle insurance premiums from changes in the distribution of the vehicle population. Such distributional changes can occur for rate groups, vehicle types, body styles, insurance uses and territories.

The DSR upgrade factor measures the impact on vehicle insurance premiums from changes in the average DSR level of registered vehicle owners. The vehicle merit discount level is a direct function of the registered owner's DSR level.

Figure REV- 7: Upgrade Factor Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	**Upgrade Factor**	2.39%	2.54%	2.58%	2.51%	2.54%

Forecasting Methodology

Vehicle Upgrade: The vehicle upgrade factor is forecasted based on an analysis of the following:

- historical vehicle upgrade factors
- changes in the rate setting methodology (e.g. rate line)
- changes in trends in the vehicle population (e.g. more vehicles moving to all purpose)

DSR Upgrade: The DSR upgrade factor is forecasted based on a simulation of all drivers and vehicle owners in the DSR model. This model is described in section *REV.2 Driver Premiums*.

The actual upgrade factors are estimated using the Rate Model Method. The Rate Model method takes a snapshot of the vehicle fleet at the same point in time from the current year and the previous year. The average premium is then calculated for both vehicle populations using the latest year's approved rates (i.e. 2018/19 rates). The percentage change in the average premium of this year's vehicle fleet relative to last year's vehicle fleet is the total upgrade (i.e. vehicle and DSR upgrade) of the vehicle fleet for that year.

To calculate the vehicle upgrade, the above procedure is repeated except with all vehicles held at their base rates (i.e. no vehicle merit discount). This calculation eliminates the impact of changes in the average DSR level. The DSR upgrade factor is equal to the overall upgrade minus the vehicle upgrade.

Similar to the earned unit forecasting methodology, the upgrade factor is calculated using only HTA units.

Historical Results

The figure below summarizes the recent historical trends in the overall upgrade, the vehicle upgrade, and the DSR upgrade for HTA vehicles.

Figure REV- 8: Historical Upgrade Factors

Line No.	Insurance Year	Vehicle Upgrade	DSR Upgrade	Total Upgrade
1	2013/14	2.58%	0.11%	2.69%
2	2014/15	2.58%	0.14%	2.72%
3	2015/16	2.54%	-0.16%	2.38%
4	2016/17	2.23%	-0.24%	1.99%
5	2017/18	2.32%	0.08%	2.40%
6		Statistics		
7	3 Year Avg	2.36%	-0.10%	2.26%
8	5 Year Avg	2.45%	-0.01%	2.44%

After remaining very stable at approximately 2.60% per year from 2011/12 to 2015/16, the vehicle upgrade factor fell to 2.23% in 2016/17 and 2.32% in 2017/18. The main cause of the decrease in vehicle upgrade is a drop in the number of customers that 'upgraded' their vehicles (i.e. purchased newer vehicles). From 2011/12 to 2015/16 the average age of an HTA vehicle was stable at approximately 9.92 years; however, in 2016/17 and 2017/18 the average age increased to 10.05 years and 10.21 years respectively. If the 'age of vehicle' distribution had remained the same in 2017/18, then the upgrade factor would have been approximately 2.55%. The Corporation does not anticipate vehicle age to continue this upward trend in future years.

The DSR upgrade is less significant than the vehicle upgrade and turns positive for this past fiscal year from negative. The main reason is because most of the large cohort of drivers that were placed on the DSR scale at +10 in 2010/11 reached their maximum discount on the DSR in 2016/17. The Corporation anticipated a positive DSR upgrade factor in last year's forecast. The DSR upgrade should be closer to zero in future years at the movement of drivers continues to stabilize over time.

This Year's Forecast and Comparison to Last Year's Forecast

The figure below provides a comparison of this year's forecast to last year's forecast.

Figure REV- 9: Upgrade Forecast Comparison

Line No.		Vehicle Upgrade			DSR Upgrade		
1	Year	This Year	Last Year	Difference	This Year	Last Year	Difference
2	2017/18 (a)	2.32% (a)	2.50%	-0.18%	0.08%	0.14%	-0.06%
3	2018/19	2.45%	2.50%	-0.05%	-0.06% *	0.02%	-0.04%
4	2019/20	2.45%	2.50%	-0.05%	0.09%	0.07%	0.02%
5	2020/21	2.45%	2.50%	-0.05%	0.13%	0.12%	0.01%
6	2021/22	2.45%	2.50%	-0.05%	0.06%	0.04%	0.02%
7	2022/23	2.45%	2.50%	-0.05%	0.09%	n/a	n/a

* Note: The 2018/19 DSR upgrade was adjusted to recognize the introduction of DSR discounts for taxi VFH, limousine VFH, and accessible VFH. The reduction is 0.1%

Although the Corporation does not expect the increases in vehicle age to continue over the long term, we have given some weight to the recent experience. For 2018/19 onwards, MPI has judgmentally adjusted down the vehicle upgrade forecast by 0.05% from 2.50% to 2.45%.

The DSR upgrade factor is forecasted based on the DSR simulation model (described in section *REV.2*). Further, we've adjusted the DSR upgrade factor for 2018/19 to account for the introduction of DSR discounts for taxi vehicle-for-hire (VFH), limousine VFH, and accessible VFH. These vehicles became eligible for DSR discounts as a result of the introduction of The Local Vehicles for Hire Act, which came into force on February 28, 2018. The DSR upgrade factor was adjusted downwards based on the assumption that the introduction of DSR discounts for these vehicles will result in a $1,000,000 reduction in premiums. The adjustment reduced the DSR upgrade factor by 0.1%.

REV.1.3 Net Fleet Rebates

Customers are deemed to be a fleet owner when they have ten or more vehicles registered on the first day of any customer month. Fleet premiums are determined on a retrospective basis on the actual loss experience of the fleet in the policy year. The loss experience is the ratio between all losses paid by MPI and fleet premiums. Claims are included according to the degree of responsibility with the exception of comprehensive claims, which are fully included in the loss ratio calculation. The current maximum amount used for any individual loss is $25,000.

At the end of their experience period, fleet owners will receive either a rebate, a surcharge, or have no change in premiums from the base premiums paid at the start of the policy year.

Rebates and surcharges will vary depending on the loss ratio. For the 2018/19 policy year, the maximum rebate is 33% of fleet premiums and the maximum surcharge is 50% of fleet premiums. These percentages were chosen to reflect a fleet program break-even loss ratio of 80% to 85%. *Part VIII Application Rate Table ART.4* shows the fleet rebate and surcharge scale. Further information on the fleet program is contained in *Part V(ii) Vehicle Classification System*.

Figure REV- 10: Net Fleet Rebates Attributed to Basic Only Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Net Fleet Rebates	(14,935)	(15,532)	(16,150)	(16,796)	(17,463)

Forecasting Methodology

Fleet premiums are assumed to grow based on the: (i) overall rate change for all vehicles; (ii) HTA volume factor; and (iii) vehicle (HTA) upgrade factor (Please see sections *REV.1.1* and *REV.1.2 Upgrade*).

The percentage of rebates and surcharges are forecasted based on the historical experience of the fleet program. In the 2012/13 policy year, the fleet scale was changed to include rebates from a maximum 25% up to 33%. To account for this change MPI restated the historical results based on the current scale.

Historical Results

The figure below shows the historical results for the fleet program, on a corporate basis, under the previous and current fleet scale. The figures in bold represent the actual fleet results. The remaining figures represent historical data that was adjusted to reflect the current fleet scale.

Note: Since fleets are rated on a retrospective basis, the net fleet rebates are not calculated until after the policy year. For example, fiscal year 2015/16 (shown in the figure below) represents the net fleet premiums from the 2014/15 policy year.

Figure REV- 11: Fleet Premiums

Line No.		Old Fleet Scale			Current Fleet Scale			
1	Fiscal Year	Rebates	Sur-charges	Net Rebates	Rebates	Sur-charges	Net Rebates	Total Premiums
2	*($000)*							
3	**2012/13**	$12,322	$1,634	$10,688	$16,018	$1,634	$14,384	**$59,045**
4	**2013/14**	$13,631	$2,101	$11,530	$14,031	$2,101	$11,930	**$57,983**
5	**2014/15**	$14,545	$2,243	$12,302	$14,545	$2,243	$12,302	**$60,092**
6	**2015/16**	$15,513	$1,992	$13,521	$15,513	$1,992	$13,521	**$62,607**
7	**2016/17**	$16,041	$2,637	$13,404	$16,041	$2,637	$13,404	**$67,920**
8	**2017/18**	$16,396	$2,529	$13,867	$16,396	$2,529	$13,867	**$71,501**
9		Average Percentage Increases/Decreases						
10	**3 year**	4.09%	5.70%	4.17%	4.09%	5.70%	4.17%	5.98%
11	**5 year**	5.92%	10.49%	5.41%	0.71%	10.49%	-0.71%	3.96%

Figure REV- 12: Percentage of Total Fleet Premium

Line No.		Old Fleet Scale			Current Fleet Scale			
1	Fiscal Year	Rebates	Sur-charges	Net Rebates	Rebates	Sur-charges	Net Rebates	Total Premiums
2	**2012/13**	20.87%	2.77%	18.10%	27.13%	2.77%	24.36%	**100.00%**
3	**2013/14**	23.51%	3.62%	19.89%	24.20%	3.62%	20.57%	**100.00%**
4	**2014/15**	24.20%	3.73%	20.47%	24.20%	3.73%	20.47%	**100.00%**
5	**2015/16**	24.78%	3.18%	21.60%	24.78%	3.18%	21.60%	**100.00%**
6	**2016/17**	23.62%	3.88%	19.73%	23.62%	3.88%	19.73%	**100.00%**
7	**2017/18**	22.93%	3.54%	19.39%	22.93%	3.54%	19.39%	**100.00%**
8		Average						
9	**3 year**	23.78%	3.53%	20.24%	23.78%	3.53%	20.24%	100.00%
10	**5 year**	23.81%	3.59%	20.22%	23.95%	3.59%	20.35%	100.00%

This Year's Forecast and Comparison to Last Year's Forecast

The Corporate fleet forecast, along with a comparison to last year's forecast, is shown in the figure below. The forecast includes the volume and upgrade assumptions from sections *REV.1.1* and *REV.1.2*. The allocation of net fleet rebates to Basic is shown in the last column.

Figure REV- 13: Fleet Premiums

Line No.	Fiscal Year	Total Premiums	Rebates	Sur-charges	Net Rebates	Last Year	Difference	Net Rebates Attributed to Basic Only
1	*($000)*							
2	**2017/18 (a)**	$71,501	$16,396	$2,529	$13,867	$15,462	-$1,595	$13,340
3	**2018/19**	$76,274	$18,265	$2,739	$15,525	$16,277	-$752	$14,935
4	**2019/20**	$79,323	$18,995	$2,849	$16,146	$16,934	-$788	$15,532
5	**2020/21**	$82,476	$19,750	$2,962	$16,788	$17,621	-$833	$16,150
6	**2021/22**	$85,775	$20,540	$3,081	$17,459	$18,332	-$873	$16,796
7	**2022/23**	$89,185	$21,356	$3,203	$18,153	$19,077	-$924	$17,463

The percentage of rebates (24.79%), surcharges (3.44%), and net rebates (21.35%) in the figure below are based on the five year average from the restated history of the fleet program.

Figure REV- 14: Percentage of Fleet Premiums

Line No.	Fiscal Year	Rebates	Surcharges	Net Rebates	Net Rebates Last Year	Difference
1	**2017/18(a)**	23.62%	3.88%	19.74%	22.04%	-2.30%
2	**2018/19 and thereafter**	24.79%	3.44%	21.35%	22.04%	-0.69%

REV.1.4 Anti-Theft Discounts

MPI provides vehicle owners with a $40 anti-theft discount if they install an approved aftermarket theft deterrent system (i.e. immobilizer) device in their vehicle. The Immobilizer Incentive Program has resulted in over 200,000 immobilizer installations since its implementation in 2006/07.

Figure REV- 15: Anti-Theft Discounts Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	**Anti-Theft Discounts**	-$2,719	-$2,367	-$2,087	-$1,837	-$1,618

Forecasting Methodology

To predict the amount of anti-theft discounts in future periods. MPI: (i) forecasts the number of earned units with anti-theft devices; and (ii) multiplies the earned units by the $40 anti-theft discount. The earned unit forecast is made by reviewing the historical attrition rates of vehicles by model year. The attrition rate measures how the number of vehicles in a given model year changes as these vehicles age. This forecast also considers the number of new installations that occur in future periods.

Historical Results and Forecast Details

The figure below shows this year's anti-theft discount forecast along with a comparison to last year's forecast.

Figure REV- 16: Anti-Theft Discounts

Line No.	Year	This Year's Forecast	Last Year's Forecast	Difference
1	*($000)*			
2	**2017/18 (a)**	($3,115)	($3,093)	($22)
3	**2018/19**	($2,719)	($2,778)	$59
4	**2019/20**	($2,367)	($2,471)	$104
5	**2020/21**	($2,087)	($2,190)	$103
6	**2021/22**	($1,837)	($1,937)	$100
7	**2022/23**	($1,618)		

REV.1.5 Total Motor Vehicle Premium

Sections *REV.1.1* through *REV.1.4* provide the details of the forecasts for each of the components of written motor vehicle premium. The Motor Vehicle Premiums Written and Earned Premium Revenues figure on page 4 of this document shows how the forecast components result in the overall written premium forecast.

Figure REV- 17: Motor Vehicle Premium Forecast

Line No.	Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22
1	*($000)*					
2	**Written Premium**	958,740	1,025,482	1,068,082	1,112,891	1,158,599
3	**Earned Premium**	925,950	994,660	1,048,409	1,092,198	1,137,491

Written Motor Vehicle Premiums

A comparison of this year's and last year's total written vehicle premium forecast is shown below:

Figure REV- 18: Motor Vehicle Premiums Written, Assumes 2.2% rate change to 2019/20 Rates

Line No.	Fiscal Year	This Year	Last Year	Difference	% Difference
1	*($000)*				
2	**2017/18 (a)**	955,941	958,740	(2,799)	-0.29%
3	**2018/19**	1,019,281	1,025,482	(6,201)	-0.60%
4	**2019/20**	1,085,082	1,068,082	17,000	1.59%
5	**2020/21**	1,130,121	1,112,891	17,230	1.55%
6	**2021/22**	1,176,226	1,158,599	17,627	1.52%
7	**2022/23**	1,224,492	1,205,902	18,590	1.54%

The 2017/18 written vehicle premiums were $6.4 million under-budget as a result of a lower than expected HTA volume factor (actual: 1.44%; forecast: 1.50%) and HTA upgrade factor (actual: 2.40%; forecast: 2.64%). In 2018/19, the forecast is $6.2 million lower than last year's forecast as a result of: (i) $4.4 million reduction from the rolling forward of the lower base revenue in 2017/18; (ii) $1.2 million reduction because of the difference between the applied for 2.7% rate increase and the PUB ordered 2.6%; and (iii) the remainder is attributable to lower than expected upgrade factor (2018 General Rate Application (GRA) forecast is 2.52%, 2019 GRA forecast is 2.39%). In 2019/20 and through the remaining forecast, premium written revenues are greater than expected due to the applied for 2.2% rate increase in this year's GRA.

Earned Vehicle Premiums

Figure REV- 19: Earned Motor Vehicle Premium Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	**Earned Premium**	991,058	1,054,643	1,109,287	1,154,898	1,202,165

MPI forecasts the earned motor vehicle premium as follows:

Current Year's Earned Premium =
Beginning of Year Unearned Premium Balance + Premiums Written in the Year –
Expected Unearned Premiums During the Year

Figure REV-2 on page 4 of this chapter shows the resulting earned premiums based on the above formula. The 'Beginning of Year Unearned Premium Balance' is the actual balance from the financial system at year end. The 'Current Year's Written Premium' is based on the forecasted written premium from the previous section. The 'Unearned Premiums During the Year' is the expected unearned premium balance at year end. It is calculated by multiplying the current year written premiums by the historical ratio of unearned premiums to written premiums (46.26%).

A comparison of this year's and last year's earned vehicle premium forecast is shown below:

Figure REV- 20: Motor Vehicle Premiums Earned – Assumes 2.2% Rate Change in 2019/20

Line No.	Year	This Year	Last Year	Difference	% Difference
1	*($000)*				
2	**2017/18 (a)**	922,617	925,950	(3,333)	-0.36%
3	**2018/19**	991,058	994,660	(3,602)	-0.36%
4	**2019/20**	1,054,643	1,048,409	6,234	0.59%
5	**2020/21**	1,109,287	1,092,198	17,089	1.56%
6	**2021/22**	1,154,898	1,137,491	17,407	1.53%
7	**2022/23**	1,202,165	1,184,057	18,108	1.53%

The explanation for the earned motor vehicle premium forecast follows directly from the written premium forecast. Due to staggered renewals, the 2.2% assumed rate increase to 2019/20 policies is only partially earned in the 2019/20 fiscal year.

REV.2 DRIVER PREMIUMS

A basic insurance premium is charged on every Manitoba driver licence to ensure that all Manitoba drivers share the risk of accidents. Effective March 1, 2010, MPI implemented the DSR program as a method of classifying driver risk. The insurance premium charged on the licence varies based on the risk of the driver as measured by the DSR scale. The DSR program is described in detail in *Part V(ii) Driver Classification System*. The DSR scale is shown in *Part VIII Application Rate Table ART.3* and in *Part V(i) Revenue Appendix 1*.

Driver Premium Forecast ($000)

Figure REV- 21: Driver Premium Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	**Written Premium**	68,902	70,903	72,885	74,723	76,565
3	**Earned Premium**	59,546	69,896	71,887	73,798	75,638

Forecasting Methodology

Driver premiums are forecasted by simulating the movements of all drivers on the DSR scale. The forecast considers the following five components:

- The number of earned driver units by DSR level
- The expected movement of drivers on the DSR scale, including drivers entering and exiting the system
- The average number of earned units per driver by DSR level (i.e. the average portion of a year that a driver at a given DSR level keeps their licence active)
- The driver licence premiums by DSR level
- Percentage reduction in drivers' premiums from appeals

Earned Driver Units

A driver unit represents one active driver licence for a full year. Drivers can earn partial driver units if they enter or exit the system in the middle of a year, choose not

to renew their licence, receive a suspension, etc. The following figure shows the historical driver unit growth over the past ten years.

Figure REV- 22: Historical Earned Driver Units

Line No.	Fiscal Year	Driver Units	Annual Change
1	2008/09	748,304	1.74%
2	2009/10	760,143	1.58%
3	2010/11	772,922	1.68%
4	2011/12	795,972	2.98%
5	2012/13	810,697	1.85%
6	2013/14	822,988	1.52%
7	2014/15	833,376	1.26%
8	2015/16	846,099	1.53%
9	2016/17	857,597	1.36%
10	2017/18	869,829	1.43%
11		Averages	
12	3-Year		1.44%
13	5-Year		1.42%
14	10-Year		1.69%

The driver unit growth rate was 1.43% in 2017/18 compared to the forecasted 1.50% from last year. Going forward, MPI expects driver units will grow at a similar pace as HTA vehicles. Alternatively stated, MPI expects the ratio of HTA vehicles per driver to remain stable. The figure below shows the earned driver unit forecast by fiscal year.

Figure REV- 23: Earned Driver Unit Growth Forecast

Line No.	Fiscal Year	Earned Driver Units	Annual Change	Last Year's Forecast	Difference
1	2017/18 (a)	869,829	1.43%	1.50%	-0.07%
2	2018/19	882,876	1.50%	1.50%	0.00%
3	2019/20	896,119	1.50%	1.50%	0.00%
4	2020/21	909,561	1.50%	1.50%	0.00%

Expected Driver Movement

The forecasted driver movement probabilities for 2017/18 policy year and beyond were judgmentally selected based on the past seven years actual driver movement probabilities.

The figure below shows the forecasted probability of upward movement (i.e. infraction free driving year) by DSR level in the last two forecasts. The actual driver movement

matrix includes all of the over 500 possible movement combinations for drivers on the DSR scale.

Figure REV- 24: Probability of Upward Movement on the DSR Scale by DSR Level

Line No.	DSR	This Year	Last Year	Difference
1	**15**	94.2%	94.8%	-0.6%
2	**10 to 14**	88.5%	89.6%	-1.1%
3	**0 to 9**	79.9%	80.5%	-0.6%
4	**-1 to -10**	72.0%	72.6%	-0.5%
5	**-11 to -20**	62.2%	62.5%	-0.3%

The upward movement probabilities have largely stabilized as the DSR program has matured.

Average Number of Earned Driver Units per Driver Count

After predicting the movement of drivers by DSR level, MPI calculated the expected earned driver units at each DSR level. This adjustment is required because driver premiums are only received for the portion of the year that the licence is active. Also, the earned driver units per driver are not consistent by DSR level, as demerit drivers are much more likely to have a licence for less than a full year.

The following figure shows the fitted average earned driver units per driver counts used in this year's versus last year's forecast. The 2016/17 policy year figures were used to make this year's forecast as they are considered to be the most relevant for forecasting purposes.

Figure REV- 25: Earned Driver Units per Driver Count by DSR Level

Line No.	DSR	This Year	Last Year	Difference
1	**15**	0.990	0.992	-0.002
2	**10 to 14**	0.989	0.992	-0.003
3	**0 to 9**	0.980	0.981	-0.001
4	**-1 to -10**	0.963	0.963	-0.001
5	**-11 to -20**	0.892	0.899	-0.007

The driver counts are multiplied by the expected number of units per driver to produce the estimated earned drivers by DSR level. The figures below show the projected

number and distribution of earned drivers by fiscal year over the forecast period. The detailed forecast of driver units for all DSR levels is provided in *Part V(i) Revenue Appendix 1*.

Figure REV- 26: Fiscal Year Earned Driver Units by DSR Level

Line No.	DSR	2017/18(a)	2018/19	2019/20	2020/21
1	**15**	272,648	280,204	286,903	286,951
2	**10 to 14**	174,149	165,940	163,901	167,708
3	**0 to 9**	350,203	360,842	367,025	374,062
4	**-1 to -10**	62,508	64,824	66,792	68,956
5	**-11 to -20**	10,321	11,067	11,498	11,884
6	**Total**	**857,597**	**870,461**	**883,518**	**896,770**

Figure REV- 27: Distribution of Fiscal Earned Driver Units by DSR Level

Line No.	DSR	2017/18(a)	2018/19	2019/20	2020/21
1	**15**	31.3%	31.7%	32.0%	31.5%
2	**10 to 14**	20.0%	18.8%	18.3%	18.4%
3	**0 to 9**	40.3%	40.9%	41.0%	41.1%
4	**-1 to -10**	7.2%	7.3%	7.5%	7.6%
5	**-11 to -20**	1.2%	1.3%	1.3%	1.3%

Driver Licence Premiums by DSR Level

MPI is not proposing any changes to the DSR driver licence premiums or the vehicle premium discounts by DSR level in the 2019/20 rate application. The DSR premium and vehicle premium discount tables are shown below and in *Volume II Application Rate Table ART.3*.

Figure REV- 28: Driver Licence Premiums by DSR Level

Drivers License Premium and Vehicle Premium Discount Table	DSR Level	2019 Driver License Premium	2019 Vehicle Premium Discount
Merits	15	$15	33%
	14	$20	30%
	13	$20	29%
	12	$20	28%
	11	$20	27%
	10	$20	26%
	9	$25	25%
	8	$30	25%
	7	$30	25%
	6	$30	20%
	5	$30	15%
	4	$30	15%
	3	$35	10%
	2	$35	10%
	1	$40	5%
Base	0	$45	0%
Demerits	-1	$200	0%
	-2	$200	0%
	-3	$300	0%
	-4	$400	0%
	-5	$450	0%
	-6	$500	0%
	-7	$650	0%
	-8	$800	0%
	-9	$900	0%
	-10	$1,000	0%
	-11	$1,200	0%
	-12	$1,400	0%
	-13	$1,600	0%
	-14	$1,800	0%
	-15	$2,000	0%
	-16	$2,200	0%
	-17	$2,400	0%
	-18	$2,600	0%
	-19	$2,800	0%
	-20	$3,000	0%

DSR Upgrade

The forecasted DSR vehicle premium upgrade factors, discussed in section *REV.1.2*, are not a part of the driver premium forecast. However, the calculation of DSR

upgrade is a direct output from the DSR simulation model, which is why the details of this forecast are shown in this section.

To calculate the projected DSR upgrade factors, MPI first forecasts the number of earned HTA vehicle units per earned driver units at each DSR level. The figure below shows the estimated vehicles per driver used in this year's and last year's forecast. The forecast is based on the 2016/17 policy year data at 12 month. The detailed forecast of HTA vehicle units per driver for all DSR levels is provided in *Part V(i) Revenue Appendix 1*.

Figure REV- 29: Earned HTA Vehicle Units per Earned Driver Unit by DSR Level

Line No.	DSR	This Year	Last Year	Difference
1	**15**	1.22	1.22	0.01
2	**10 to 14**	1.14	1.13	-0.01
3	**0 to 9**	0.67	0.66	-0.03
4	**-1 to -10**	0.71	0.70	0.00
5	**-11 to -20**	0.77	0.77	-0.02

The above figure is multiplied by the forecasted number of earned drivers to produce a distribution of HTA vehicles by DSR level. MPI calculates the average vehicle discount level based on this revised distribution. The DSR upgrade measures the year-to-year changes in the average vehicle discount level. The output from the model is discussed in section *REV.1.2 Upgrade*.

Driver Premium Appeals

A driver is able to appeal the additional driver premium on their driver's licence to the Rates Appeal Board through the rates appeal process. The figure below shows the reduction in driver premium from appeals for the DSR demerit levels over the past three policy years.

Figure REV- 30: Driver Written Premium Appeal Reduction Percentage

Line No.	DSR Level	2014	2015	2016
1	0	-0.34%	-0.27%	-0.34%
2	-1	-0.69%	-0.69%	-0.23%
3	-2	-0.05%	-0.27%	-0.56%
4	-3	1.48%	1.20%	1.09%
5	-4	0.59%	0.37%	0.49%
6	-5	1.90%	1.91%	1.57%
7	-6	1.38%	0.98%	0.57%
8	-7	0.93%	0.72%	0.55%
9	-8	0.91%	0.64%	0.38%
10	-9	1.51%	0.53%	0.36%
11	-10	0.64%	0.51%	0.58%
12	-11	0.87%	1.04%	1.83%
13	-12	1.74%	1.84%	1.93%
14	-13	1.36%	0.49%	1.93%
15	-14	2.31%	2.08%	2.06%
16	-15	1.08%	3.18%	2.79%
17	-16	0.85%	3.49%	3.65%
18	-17	2.71%	3.24%	2.54%
19	-18	2.42%	3.14%	2.09%
20	-19	5.50%	3.96%	2.89%
21	-20	3.05%	3.59%	3.19%

Based on the above historical information, MPI determined that an adjustment for appeals was necessary. The appeals reduction for the forecasted period was judgmentally selected based on the recent three policy year's percentage reductions.

Forecast Results and Comparisons

The written driver premium forecast is calculated by multiplying the policy year projected earned driver units by the driver licence premiums at each DSR level after adjustment for appeals. The earned driver premium is calculated based on the written premium and the historical relationship between written and earned driver premiums.

The figures below compare this year's written and earned driver premium forecasts:

Figure REV- 31: Driver Written Premium Forecast

Line No.	Year	Written Premium This Year	Written Premium Last Year	Written Premium Difference
1	*($000)*			
2	2017/18(a)	$50,187	$50,334	($147)
3	2018/19	$68,902	$69,149	($247)
4	2019/20	$70,903	$71,252	($349)
5	2020/21	$72,885	$73,311	($427)
6	2021/22	$74,723	$75,163	($440)
7	2022/23	$76,565		

Figure REV- 32: Driver Earned Premium Forecast

Line No.	Year	Earned Premium This Year	Earned Premium Last Year	Earned Premium Difference
1	*($000)*			
2	2017/18(a)	$49,204	$49,434	($230)
3	2018/19	$59,475	$59,671	($197)
4	2019/20	$69,895	$70,192	($298)
5	2020/21	$71,886	$72,274	($388)
6	2021/22	$73,797	$74,230	($433)
7	2022/23	$75,637		

The slight reduction in 2018/19 written driver premium forecast can be attributed to the reduction in the driver unit forecast.

REV.3 REINSURANCE PREMIUM CEDED

MPI's Basic reinsurance program consists of two main components:

- The Catastrophe program protects MPI against major weather related physical damage events such as hail and flood.
- The Casualty Excess of Loss program protects MPI against the cost of serious bodily injury claims under PIPP and third party liability legal actions in jurisdictions outside Manitoba.

Figure REV- 33: Basic Reinsurance Premium Ceded Forecast

Line No.	Fiscal Year	2017/18 (Actual)	2018/19 (Budget)	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	**Catastrophe**	9,274	9,148	9,331	9,517	9,707	9,901
3	**Casualty**	2,017	2,048	2,089	2,131	2,173	2,216
4	**Total**	**11,291**	**11,196**	**11,420**	**11,648**	**11,880**	**12,117**

Catastrophe Program

As described in the 2015 GRA, MPI has moved from a multi-year structure to an annual structure for the catastrophe reinsurance program. The overall program is shown in the following figure.

Figure REV- 34: Reinsurance Premiums Ceded – Catastrophe Program

Line No.	Fiscal Year	2017/18(a)	2018/19*	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	**10M xs 15M**	1,428	1,395	1,423	1,451	1,480	1,510
3	**25M xs 25M**	2,792	2,634	2,687	2,741	2,796	2,851
4	**50M xs 50M**	2,233	2,193	2,237	2,282	2,327	2,374
5	**100M xs 100M**	1,847	n/a	n/a	n/a	n/a	n/a
6	**100M xs. 200M**	974	n/a	n/a	n/a	n/a	n/a
7	**50M xs 100M (New)**	n/a	1,096	1,118	1,140	1,163	1,186
8	**115M xs 150M (New)**	n/a	1,830	1,866	1,903	1,941	1,980
9	**Total**	**$9,274**	**$9,148**	**$9,331**	**$9,517**	**$9,707**	**$9,901**

10 (a) 2017/18 actual reinsurance premiums paid including reinstatement premiums
11 * 2018/19 reinsurance premiums reflect the actual amounts negotiated by the Corporation

- MPI continues to self-insure the first $15 million of each catastrophic incident.
- The layers above in line 5 & 6 (100M xs 100M) & (100M xs 200M) were restructured during 2018/19 program renegotiations and no longer exist. These two layers were replaced by (50M xs 100M) and (115M xs 150M).
- All layers in 2018/19 are 100% insured.

In keeping with MPI's emphasis on cost containment, renewal premiums for 2018/19 are once again below those forecasted in the 2018 GRA and below the actual 2017/18 premiums, as more favourable terms were secured. For the past four consecutive years, MPI has been able to negotiate lower rates than forecast. Prospectively, premiums are projected to grow by assumed inflation of 2.0% per year over the forecast period.

Casualty Program

There was no structure changes to the casualty reinsurance program at the 2018/19 renewal. The overall program was placed as follows:

Figure REV- 35: Reinsurance Premiums Ceded – Casualty Program

Line No.	Fiscal Year	2017/18(a)	2018/19*	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	**5M xs 5M**	762	793	808	824	840	857
3	**10M xs 10M**	580	580	592	604	616	628
4	**30M xs 20M**	675	675	689	703	717	731
5	**Total**	**2,017**	**2,048**	**2,089**	**2,131**	**2,173**	**2,216**
9	*** 2018/19 reinsurance premiums reflect the actual amounts negotiated by the Corporation**						

MPI negotiated reductions in premiums for the 2018/19 Basic casualty program resulting in a savings of approximately $10,000 from forecast. Premiums are forecasted to grow by assumed inflation of 2.0% per year over the forecast period.

Total Reinsurance Program – Catastrophe and Casualty

The following figure shows the total Basic earned reinsurance premiums ceded:

Figure REV- 36: Total Earned Reinsurance Premiums Ceded

Line No.	Fiscal Year	This Year	Last Year	Difference	% Difference
1	*($000)*				
2	**2017/18(a)**	$11,291	$11,291	$0	0.0%
3	**2018/19***	$11,196	$11,517	($321)	-2.8%
4	**2019/20**	$11,420	$11,747	($327)	-2.8%
5	**2020/21**	$11,648	$11,982	($334)	-2.8%
6	**2021/22**	$11,881	$12,222	($341)	-2.8%
7	**2022/23**	$12,119	N/A	N/A	

MPI's 2018/19 reinsurance renewal resulted in a reduction to Basic reinsurance earned premiums ceded of $321,000 relative to last year's forecast. The revised forecast assumes these savings will continue throughout the forecast period with inflationary growth of 2.0% per year.

REV.4 SERVICE FEES AND OTHER REVENUE

Service fees represent charges for services related to the Basic insurance coverage offered by MPI. These fees are outlined in *Part V(i) Revenues Appendix 2*.

Service fees and other revenue account for approximately 2.0% to 2.5% of annual revenues for the Basic Program. There are approximately 25 to 30 service fees and revenue types that are allocated to Basic. Service fees and other revenue include revenue from quarterly and monthly pre-authorized payment plans, late payment fees, motor vehicle transaction fees (MVTF), dishonoured payment fees, pre-authorized default fees and other fee related items.

MPI has not applied for any change in Service Fee rates in the 2019 GRA and there are no new Service Fees within the forecast as compared to the 2018 GRA. MPI conducted a Service Fee Review in 2017/18, which is provided in Appendix 3.

The following sections provide the details of the Service Fee and Other Revenue forecast by component.

Figure REV- 37: 2019 GRA - Basic Service Fee Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	**MV Transaction Fees**	6,049	6,227	6,392	6,561	6,735
3	**MV Late Payment Fees**	709	704	696	688	680
4	**Dishonoured Cheques**	527	539	550	560	571
5	**Arrears Interest**	89	91	93	94	96
6	**Finance Plans**	15,237	17,045	18,634	20,361	22,263
7	**Drivers Ed Course Fees**	556	562	573	582	594
8	**Miscellaneous**	614	619	624	627	628
9	**Specialty Plates**	21	21	21	21	21
10	**Other Income**	30	30	30	30	30
11	**Total**	**23,832**	**25,839**	**27,613**	**29,525**	**31,617**
12	*** MV = Motor Vehicle**					

Motor Vehicle Transaction Fees (MVTF)

MVTFs is the largest category within Service Fees and Other Revenue. This category consists of approximately 15 different types of service fees.

The service fees in this category have a price range of $9 to $15 and are expected to remain the same over the forecasting period. MVTFs are predominantly comprised of ownership document fees and short term policy fees, which accounts for approximately 75% of total MVTFs.

Forecasting Assumptions

The MVTFs forecast is based on historical average growth rates.

Figure REV- 38: Motor Vehicle Transaction Fee Forecast

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	**Motor Vehicle Transaction Fees**	5,872	6,049	6,227	6,392	6,561	6,735
3	**Last Year's Forecast**	5,806	5,960	6,111	6,243	6,379	-
4	**Difference**	**66**	**89**	**116**	**148**	**182**	**-**

Motor Vehicle Late Payment Fees

Motor vehicle late payment fees remain unchanged at $20. The forecast for late fees is based on the forecasted volume increases as well as product maturity considerations. A negative correlation is observed between pre-authorized payment and late fees; as pre-authorized payments increases, late payment fees decreases.

Figure REV- 39: Motor Vehicle Late Payment Fee Forecast

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	**Late Payment Fees**	709	709	704	696	688	680
3	**Last Year's Forecast**	618	617	618	610	604	-
4	**Difference**	**91**	**91**	**87**	**86**	**84**	**-**

Dishonoured Cheque Fees and Default Fees

Dishonoured Cheque Fees and Default Fees for returned quarterly time payments and preauthorized monthly time payments remain unchanged at $20. A positive correlation is observed between pre-authorized payment and default fees; as pre-authorized payments increases, default fees increases.

Forecasting Assumptions

The forecast is based on expected volume increases and product maturity considerations.

Figure REV- 40: Dishonoured Cheque Fee and Default Fee Forecast

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Dishonoured Cheque Fees / PAD Fees	505	527	539	550	560	571
3	Last Year's Forecast	535	554	571	582	593	-
4	Difference	(30)	(27)	(32)	(33)	(33)	-
5	*PAD = Pre authorized default						

Arrears Interest

Arrears interest is the interest charged on outstanding customer financial obligations.

Forecasting Assumptions

The forecast is based on expected volume increases.

Figure REV- 41: Arrears Interest Forecast

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Arrears Interest	77	89	91	93	94	96
3	Last Year's Forecast	96	101	104	106	108	-
4	Difference	(19)	(12)	(13)	(13)	(14)	-

Finance Plans

Quarterly and monthly time payment financing plans offered by MPI include a $4 administration fee and interest charges. Customers opting to select financing can arrange to have recurring payments made at pre-determined frequency on specified date by setting up a preauthorized payment.

Forecasting Assumptions

The assumptions used to calculate finance administration fees and financing interest for the forecasting period are shown in the figure below:

Figure REV- 42: Finance Plans - Assumptions

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21
1	% Taking Quarterly Time Payments	7.80%	7.80%	7.80%	7.80%
2	% Taking Monthly Time Payments	35.70%	35.70%	35.70%	35.70%
3	% Taking Annual Payments	56.50%	56.50%	56.50%	56.50%
4	Basic HTA Volume Increase (Decrease)	1.50%	1.50%	1.50%	1.50%
5	Basic Upgrade/drift Factor Increase (Decrease)	2.40%	2.39%	2.54%	2.58%
6	Basic Rate Increase (Decrease)	3.70%	2.60%	2.20%	0.00%
7	Quarterly/Monthly Time Payment Fee	$4	$4	$4	$4
8	Average Financing Interest Rate (Prime+2%)	4.98%	5.45%	5.45%	5.45%

Financing interest rates for quarterly and monthly payments are based on the prime rate set by the Bank of Canada plus 2%. Financing administration fees are based on the number of actual and expected transactions.

The forecast for quarterly and monthly financing interest revenue is based on the prior year's amount multiplied by a compounded growth rate comprised and calculated as follows:

*Interest rate * volume factor * upgrade factor * the expected rate change.*

The financing interest revenue is expected to decrease as compared to last year's forecast. The decrease is due to a lower than expected premiums.

Figure REV- 43: Forecasted Average Financing Interest Rate (Prime + 2%)

Line No.	GRA	2018 GRA	2019 GRA
1	2018/19B	6.74%	5.45%
2	2019/20F	7.20%	5.45%
3	2020/21F	7.20%	5.45%
4	2021/22F	7.20%	5.45%
5	2022/23F	7.20%	5.45%

Figure REV- 44: Finance Plans Forecast including Driver License Financing

Line No.	Fiscal Year	!017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Quarterly Financing Interest	1,699	1,937	2,192	2,415	2,659	2,928
3	Monthly Financing	9,617	10,963	12,407	13,671	15,049	16,571
4	Financing Admin Fees	2,226	2,337	2,446	2,548	2,654	2,765
5	Total	13,542	15,237	17,045	18,634	20,361	22,263
6	Last Year's Forecast	13,934	15,879	17,801	19,759	21,929	-
7	Difference	(392)	(642)	(756)	(1,125)	(1,568)	-

As shown above the difference is related to the prime rate forecast. As the interest rate is forecasted to be lower in the 2019 GRA as compared to the 2018 GRA, the financing interest revenue is also lower.

Drivers Ed Course Fees

MPI offer drivers education courses at a nominal fee to ensure accessibility to Manitobans.

Figure REV- 45: Drivers Ed Course Fees

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Drivers Ed Course Fees	571	556	562	573	582	594
3	Last Year's Forecast	492	494	496	498	501	-
4	Difference	79	62	65	75	81	-

Miscellaneous

Miscellaneous revenues include items such as miscellaneous salvage sales and unclaimed cheque revenues. The forecast for miscellaneous revenues is based on prior year's amounts except for unclaimed cheques. Unclaimed cheque forecasts are based on a historical analysis and forecasted based on expected amount of normal operations write offs.

Figure REV- 46: Miscellaneous Fees Forecast

Line No.	Fiscal Year	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	*Miscellaneous Fees*	1,507	614	619	624	627	628
3	Last Year's Forecast	673	674	681	685	687	-
4	Difference	833	(60)	(62)	(61)	(60)	-

The better than budget variance in 2017/18 is a result of a one-time license agreement.

Other Income and Specialty Plates

These two categories have been included separately for this year's GRA. Other Income is a new fee relating to police service fees, while Specialty Plates was formerly included in motor vehicle transaction fees but has now been provided in a separate forecast.

Figure REV- 47: Other Income

Line No.	Category	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(C$000, except where noted)*						
2	Other Income	30	30	30	30	30	30
3	Last Year's Forecast	30	30	30	30	30	30
4	Difference	-	-	-	-	-	-

Figure REV- 48: Specialty plates

Line No.	Category	2017/18(a)	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(C$000, except where noted)*						
2	**Specialty Plates**	20	21	21	21	21	21
3	**Last Year's Forecast**	19	19	19	19	19	-
4	**Difference**	**1**	**2**	**2**	**2**	**2**	-

Total Basic Service Fees and Other Revenue

The figure below contains the total forecasted Basic Services Fees and Other Revenues for 2017/18 to 2023/24, along with a comparison to last year's forecast.

Figure REV- 49: Total Service Fees and Other Revenue

Line No.	Year	This Year	Last Year	Difference	% Difference
1	***($000)***				
2	**2018/19B**	$22,834	$22,204	$630	2.84%
3	**2019/20F**	$23,832	$24,328	($496)	-2.04%
4	**2020/21F**	$25,839	$26,431	($592)	-2.24%
5	**2021/22F**	$27,612	$28,532	($920)	-3.22%
6	**2022/23F**	$29,524	$30,849	($1,325)	-4.29%
7	**2023/24F**	$31,617	0	0	0

Overall, the forecast for Service Fees and Other revenue is lower in this year's GRA as compared to last year's GRA submission. The main reason for the reduction in revenue is primarily related to lower than expected prime interest rates which unfavorably affected interest revenue.

Driver Premium Forecast by DSR Level

DSR	Policy Year Earned Drivers by DSR Level					Distribution of Earned Drivers				
Level	2017 (a)	2018	2019	2020	2021	2017 (a)	2018	2019	2020	2021
15	273,525	286,983	286,823	287,081	298,435	31.21%	32.26%	31.77%	31.33%	32.09%
14	39,674	25,326	25,747	38,451	27,392	4.53%	2.85%	2.85%	4.20%	2.94%
13	28,447	29,093	43,789	30,831	31,691	3.25%	3.27%	4.85%	3.36%	3.41%
12	25,549	42,262	27,055	28,150	34,470	2.92%	4.75%	3.00%	3.07%	3.71%
11	46,432	29,253	30,689	37,378	29,750	5.30%	3.29%	3.40%	4.08%	3.20%
10	31,950	33,801	40,848	32,470	34,362	3.65%	3.80%	4.52%	3.54%	3.69%
9	25,289	32,234	22,857	25,166	30,565	2.89%	3.62%	2.53%	2.75%	3.29%
8	33,286	23,408	26,236	31,752	26,278	3.80%	2.63%	2.91%	3.46%	2.83%
7	22,879	26,319	31,813	26,168	28,148	2.61%	2.96%	3.52%	2.86%	3.03%
6	27,510	32,893	27,218	29,516	32,380	3.14%	3.70%	3.01%	3.22%	3.48%
5	33,875	28,306	31,028	33,769	31,865	3.87%	3.18%	3.44%	3.69%	3.43%
4	28,883	32,012	34,601	33,012	34,326	3.30%	3.60%	3.83%	3.60%	3.69%
3	34,574	37,074	35,901	37,240	39,376	3.95%	4.17%	3.98%	4.06%	4.23%
2	40,317	39,690	40,966	43,205	43,395	4.60%	4.46%	4.54%	4.71%	4.67%
1	44,366	45,426	47,817	48,433	49,814	5.06%	5.11%	5.30%	5.29%	5.36%
0	64,997	68,420	69,852	71,663	73,479	7.42%	7.69%	7.74%	7.82%	7.90%
-1	12,641	12,693	13,227	13,714	13,971	1.44%	1.43%	1.47%	1.50%	1.50%
-2	10,389	10,684	11,147	11,369	11,703	1.19%	1.20%	1.23%	1.24%	1.26%
-3	7,585	7,844	7,906	8,176	8,476	0.87%	0.88%	0.88%	0.89%	0.91%
-4	9,741	10,063	10,386	10,751	11,013	1.11%	1.13%	1.15%	1.17%	1.18%
-5	6,595	6,900	7,155	7,334	7,551	0.75%	0.78%	0.79%	0.80%	0.81%
-6	4,529	4,588	4,713	4,896	5,042	0.52%	0.52%	0.52%	0.53%	0.54%
-7	4,371	4,435	4,587	4,722	4,857	0.50%	0.50%	0.51%	0.52%	0.52%
-8	2,991	3,185	3,285	3,386	3,500	0.34%	0.36%	0.36%	0.37%	0.38%
-9	2,730	2,833	2,919	3,013	3,101	0.31%	0.32%	0.32%	0.33%	0.33%
-10	2,394	2,470	2,579	2,662	2,741	0.27%	0.28%	0.29%	0.29%	0.29%
-11	1,573	1,651	1,691	1,744	1,799	0.18%	0.19%	0.19%	0.19%	0.19%
-12	1,560	1,597	1,647	1,705	1,756	0.18%	0.18%	0.18%	0.19%	0.19%
-13	1,764	1,867	1,945	2,007	2,071	0.20%	0.21%	0.22%	0.22%	0.22%
-14	872	908	935	964	993	0.10%	0.10%	0.10%	0.11%	0.11%
-15	822	858	894	926	955	0.09%	0.10%	0.10%	0.10%	0.10%
-16	725	772	796	818	842	0.08%	0.09%	0.09%	0.09%	0.09%
-17	510	517	536	551	572	0.06%	0.06%	0.06%	0.06%	0.06%
-18	443	472	495	512	528	0.05%	0.05%	0.05%	0.06%	0.06%
-19	323	325	333	343	354	0.04%	0.04%	0.04%	0.04%	0.04%
-20	2,241	2,338	2,423	2,503	2,578	0.26%	0.26%	0.27%	0.27%	0.28%
Total	876,352	889,498	902,840	916,383	930,128	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Driver Premium Forecast by DSR Level

DSR Level	Driver Premiums 2017 (a)	2018	2019	2020	2021	Driver Premiums after Appeals Adjustment 2017 (a)	2018	2019	2020	2021
15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15
14	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
13	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
12	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
11	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
10	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
9	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25
8	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
7	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
6	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
5	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
4	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
3	$35	$35	$35	$35	$35	$35	$35	$35	$35	$35
2	$35	$35	$35	$35	$35	$35	$35	$35	$35	$35
1	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
0	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
-1	$100	$200	$200	$200	$200	$100	$200	$200	$200	$200
-2	$100	$200	$200	$200	$200	$100	$200	$200	$200	$200
-3	$200	$300	$300	$300	$300	$198	$297	$297	$297	$297
-4	$200	$400	$400	$400	$400	$199	$398	$398	$398	$398
-5	$300	$450	$450	$450	$450	$295	$443	$443	$443	$443
-6	$300	$500	$500	$500	$500	$298	$496	$496	$496	$496
-7	$400	$650	$650	$650	$650	$397	$646	$646	$646	$646
-8	$400	$800	$800	$800	$800	$398	$796	$796	$796	$796
-9	$500	$900	$900	$900	$900	$498	$896	$896	$896	$896
-10	$500	$1,000	$1,000	$1,000	$1,000	$497	$995	$995	$995	$995
-11	$700	$1,200	$1,200	$1,200	$1,200	$690	$1,183	$1,183	$1,183	$1,183
-12	$900	$1,400	$1,400	$1,400	$1,400	$883	$1,374	$1,374	$1,374	$1,374
-13	$1,100	$1,600	$1,600	$1,600	$1,600	$1,087	$1,581	$1,581	$1,581	$1,581
-14	$1,300	$1,800	$1,800	$1,800	$1,800	$1,273	$1,763	$1,763	$1,763	$1,763
-15	$1,500	$2,000	$2,000	$2,000	$2,000	$1,455	$1,940	$1,940	$1,940	$1,940
-16	$1,700	$2,200	$2,200	$2,200	$2,200	$1,639	$2,121	$2,121	$2,121	$2,121
-17	$1,900	$2,400	$2,400	$2,400	$2,400	$1,845	$2,331	$2,331	$2,331	$2,331
-18	$2,100	$2,600	$2,600	$2,600	$2,600	$2,045	$2,532	$2,532	$2,532	$2,532
-19	$2,300	$2,800	$2,800	$2,800	$2,800	$2,221	$2,704	$2,704	$2,704	$2,704
-20	$2,500	$3,000	$3,000	$3,000	$3,000	$2,415	$2,898	$2,898	$2,898	$2,898
Total	$56.74	$77.81	$78.93	$79.98	$80.90	$56	$77	$78	$79	$80

Driver Premium Forecast by DSR Level

DSR	Vehicle Premium Discounts					Merit Eligible Vehicle per Driver					Average Merit Eligible Vehicle Premium				
Level	2017 (a)	2018	2019	2020	2021	2017 (a)	2018	2019	2020	2021	2017 (a)	2018	2019	2020	2021
15	33%	33%	33%	33%	33%	1.22	1.23	1.23	1.23	1.23	$918	$963	$986	$1,010	$1,034
14	30%	30%	30%	30%	30%	1.25	1.25	1.25	1.25	1.25	$959	$1,006	$1,030	$1,055	$1,080
13	29%	29%	29%	29%	29%	1.18	1.18	1.18	1.18	1.18	$973	$1,020	$1,045	$1,070	$1,096
12	28%	28%	28%	28%	28%	1.06	1.06	1.06	1.06	1.06	$986	$1,035	$1,059	$1,085	$1,111
11	27%	27%	27%	27%	27%	1.12	1.12	1.12	1.12	1.12	$1,000	$1,049	$1,074	$1,100	$1,126
10	26%	26%	26%	26%	26%	1.04	1.04	1.04	1.04	1.04	$1,014	$1,063	$1,089	$1,115	$1,142
9	25%	25%	25%	25%	25%	1.00	1.00	1.00	1.00	1.00	$1,028	$1,078	$1,104	$1,130	$1,157
8	25%	25%	25%	25%	25%	1.00	1.00	1.00	1.00	1.00	$1,028	$1,078	$1,104	$1,130	$1,157
7	25%	25%	25%	25%	25%	0.86	0.86	0.86	0.86	0.86	$1,028	$1,078	$1,104	$1,130	$1,157
6	20%	20%	20%	20%	20%	0.83	0.83	0.83	0.83	0.83	$1,096	$1,150	$1,177	$1,205	$1,234
5	15%	15%	15%	15%	15%	0.81	0.81	0.81	0.81	0.81	$1,165	$1,221	$1,251	$1,281	$1,312
4	15%	15%	15%	15%	15%	0.69	0.69	0.69	0.69	0.69	$1,165	$1,221	$1,251	$1,281	$1,312
3	10%	10%	10%	10%	10%	0.65	0.65	0.65	0.65	0.65	$1,233	$1,293	$1,324	$1,356	$1,389
2	10%	10%	10%	10%	10%	0.58	0.58	0.58	0.58	0.58	$1,233	$1,293	$1,324	$1,356	$1,389
1	5%	5%	5%	5%	5%	0.49	0.49	0.49	0.49	0.49	$1,302	$1,365	$1,398	$1,431	$1,466
0	0%	0%	0%	0%	0%	0.34	0.34	0.34	0.34	0.34	$1,370	$1,437	$1,471	$1,507	$1,543
-1	0%	0%	0%	0%	0%	0.71	0.72	0.72	0.72	0.72	$1,370	$1,437	$1,471	$1,507	$1,543
-2	0%	0%	0%	0%	0%	0.69	0.69	0.69	0.69	0.69	$1,370	$1,437	$1,471	$1,507	$1,543
-3	0%	0%	0%	0%	0%	0.73	0.73	0.73	0.73	0.73	$1,370	$1,437	$1,471	$1,507	$1,543
-4	0%	0%	0%	0%	0%	0.69	0.69	0.69	0.69	0.69	$1,370	$1,437	$1,471	$1,507	$1,543
-5	0%	0%	0%	0%	0%	0.66	0.66	0.66	0.66	0.66	$1,370	$1,437	$1,471	$1,507	$1,543
-6	0%	0%	0%	0%	0%	0.74	0.74	0.74	0.74	0.74	$1,370	$1,437	$1,471	$1,507	$1,543
-7	0%	0%	0%	0%	0%	0.73	0.73	0.73	0.73	0.73	$1,370	$1,437	$1,471	$1,507	$1,543
-8	0%	0%	0%	0%	0%	0.76	0.76	0.76	0.76	0.76	$1,370	$1,437	$1,471	$1,507	$1,543
-9	0%	0%	0%	0%	0%	0.72	0.72	0.72	0.72	0.72	$1,370	$1,437	$1,471	$1,507	$1,543
-10	0%	0%	0%	0%	0%	0.73	0.73	0.73	0.73	0.73	$1,370	$1,437	$1,471	$1,507	$1,543
-11	0%	0%	0%	0%	0%	0.79	0.79	0.79	0.79	0.79	$1,370	$1,437	$1,471	$1,507	$1,543
-12	0%	0%	0%	0%	0%	0.77	0.77	0.77	0.77	0.77	$1,370	$1,437	$1,471	$1,507	$1,543
-13	0%	0%	0%	0%	0%	0.76	0.76	0.76	0.76	0.76	$1,370	$1,437	$1,471	$1,507	$1,543
-14	0%	0%	0%	0%	0%	0.72	0.72	0.72	0.72	0.72	$1,370	$1,437	$1,471	$1,507	$1,543
-15	0%	0%	0%	0%	0%	0.76	0.76	0.76	0.76	0.76	$1,370	$1,437	$1,471	$1,507	$1,543
-16	0%	0%	0%	0%	0%	0.68	0.68	0.68	0.68	0.68	$1,370	$1,437	$1,471	$1,507	$1,543
-17	0%	0%	0%	0%	0%	0.79	0.79	0.79	0.79	0.79	$1,370	$1,437	$1,471	$1,507	$1,543
-18	0%	0%	0%	0%	0%	0.77	0.77	0.77	0.77	0.77	$1,370	$1,437	$1,471	$1,507	$1,543
-19	0%	0%	0%	0%	0%	0.81	0.81	0.81	0.81	0.81	$1,370	$1,437	$1,471	$1,507	$1,543
-20	0%	0%	0%	0%	0%	0.81	0.81	0.81	0.81	0.81	$1,370	$1,437	$1,471	$1,507	$1,543
Total	20.93%	20.83%	20.73%	20.60%	20.53%	0.94	0.93	0.93	0.93	0.93	$1,031	$1,083	$1,110	$1,138	$1,166

Appendix 2: BASIC SERVICE AND TRANSACTION FEES

The Revenue Appendix 2 table displays the 2019/20 Basic Autopac Service and Transaction Fees. For 2019/20, no changes are proposed to Service and Transaction Fees.

NAME	CURRENT FEE	WHEN & WHY CURRENT FEE ESTABLISHED
Dishonoured Cheque	$20	Increased from $10 on Mar 1, 1992
Dishonoured Cheque (Electronic)	$20	Introduced on Mar 1, 2000 with implementation of 12-Pay
Late Payment	$20	Introduced on Mar 1, 1988 with time payment plan extended to three installments.
4 Payment Financing	$4 plus financing at prime plus 2%	This changed from a flat fee of $14 with implementation of Autopac-on-line in July, 1995.
12 Pre-Authorized Payment Financing	$4 plus financing at prime plus 2%	Reduced to $4 from $8 on Mar 1, 2005 – to reflect the fact that implementation costs for the monthly payment plan have been fully amortized. Both financing administration fees will now be the same at $4.
Mid-term change 4 payment to 12 Pre-Authorized Payment Financing	$4 plus Interest Adjustment	Introduced on Mar 1, 2000 with implementation of 12-Pay.
Ownership Document	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Transfer	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.

NAME	CURRENT FEE	WHEN & WHY CURRENT FEE ESTABLISHED
Load Increase/Decrease	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Vehicle Class Change	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Estate-to-Spouse Transfer	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Sticker Replacement	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Plate Replacement includes sticker (except Semi-trailer)	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Plate Replacement for Semi-trailer	$4	This fee was reduced to $4 Mar 1, 1996 from $9.
Registration Card Replacement	$9	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Coverage Reduction, except in the case of a reduction of excess value coverage	$15	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Claims Record Request	$15	This fee was established Mar 1, 1993 to help compensate for the rise in claims costs and decrease in rate return on investments.
Request for Proof of Insurance	$15	Introduced in 1995.

NAME	CURRENT FEE	WHEN & WHY CURRENT FEE ESTABLISHED
Historical Document Request	$15	Introduced in 1996.
Prorating: New Applications	Daily	This has been in effect since July 1, 1995. Motorists renewing or making changes to their Autopac coverage anytime during the month will have their premiums calculated from the day their new insurance coverage takes effect. This way, you are only paying for the actual number of days you are insured.
Cancellations: Annual policy except motorcycle, moped, mobility vehicle, trailer less than $2500, snow vehicle (DVA), off-road vehicle, collector vehicle.	Short Rate subject to minimum retained premium of $25	July 1, 1995 – cancellation takes effect from the day you cancel your policy subject to short rate factors and a minimum retained premium of $25. Previously cancellation based on 1/12th of annual premium for each full calendar month remaining in the term of coverage.
Short term policy except motorcycle, moped, mobility vehicle, collector vehicle.	Short rate subject to minimum retained premium of $25 or 30 days written premium, whichever is greater	Introduced with introduction of Short Term Policies on Mar 1, 1998.
Motorcycle, moped, mobility vehicle, snow vehicle (DVA), collector vehicle.	Seasonally prorated	Seasonal Proration introduced on Mar 1, 2001.
Off-road vehicle, trailer $2,500 or less.	No refund	Mar 1, 1993 introduced for trailers as they are rated on their declared value, not on their declared use.

Appendix 3: Service Fee Review

Introduction

The majority of the Basic Insurance service and transaction fees were introduced in the 1990s and have not been updated since their introduction. Increasing service and transaction fees will not result in increased revenue to MPI because the net zero overall effect of the breakeven rate setting model will correspondingly reduce premium revenue. That said, a review was necessary to assess the appropriateness of many of the long-standing MPI service fees, and to respond to Directive 11.6 of PUB Order 130/17.

Although a majority of the fees are outdated, MPI is not requesting any changes to service fees in the 2019 GRA. Changing service fees is complicated by the close relationship between Basic Insurance and MPI's role as the administrator of *The Drivers and Vehicles Act* on behalf of the Government of Manitoba. A benefit to Manitobans of the integration of Basic Insurance and Driver Vehicle Administration (DVA) is that customers have a one stop shop for their vehicle registration, licensing and insurance requirements. A consequence of the integration is that it is not readily apparent to the consumer whether a particular fee paid to MPI is a Basic Insurance related service fee or a DVA related service fee. To complicate the matter further, the Automobile Insurance Certificates and Rates Regulation (M.R. 23/2017) specifies that a number of services have a dual component whereby part of the fee paid by the customer is Basic Insurance related and another part is DVA related.

DVA related fees collected by MPI are monies passed onto the Government of Manitoba. These fees are government revenue. The Government of Manitoba in turn reimburses MPI for expenses associated with its administration of the DVA. MPI and the Government are in the process of reviewing DVA related service fees. Accordingly, it would be premature to seek changes to the Basic service and transaction fees prior to MPI knowing the outcome of any change by the Government to the DVA service fees charged by MPI.

Current Service Fees

MPI collects three categories of service and transaction fees related to Basic Insurance and DVA.

1. Basic Insurance service and transaction fees;
2. DVA service and transaction fees;
3. Service and transaction fees that are a hybrid of 1 and 2.

The chart below lists all the fees for the first and third categories.

The following list are the hybrid services (third category).

- Ownership Document
- Transfer
- Load Increase/Decrease
- Vehicle Class Change
- Estate-to-Spouse Transfer
- Sticker Replacement
- Plate Replacement (except Semi-trailer)
- Registration Card Replacement
- Coverage Reduction
- Claims Record Request
- Request for Proof of Insurance
- Historical Document Request
- Change of Insurance use from/to collector

The total fee charged to customers for the hybrid services is currently $15 ($9 MPI, $6 Government). In this Rate Application (see *Part V(i) REV Appendix 2*), and prior applications, MPI has only referenced the $9 fee as this fee is the one specified in the Automobile Insurance Certificates and Rates Regulation as the fee charged by MPI.

The $6 fee is charged by Government for DVA services and is not for Basic Insurance services.

Adequacy of Current Service Fees

The table below provides a comparison of the total service fees charged at MPI, SGI, and ICBC. MPI was unable to determine what portion, if any, of the various SGI and ICBC fees were of a hybrid nature similar to those charged to Manitoba residents. For reference, the table also includes an estimate of what the fee would be, if it had escalated by the consumer price index (CPI) since the fee's inception.

Fee Type	Current Total Fee	Direct Costs	MPI Staff Costs	Broker Costs	CPI Increase since inception	Other Jurisdictions		
						MB Hydro	ICBC	SGI
Dishonoured Cheque	$20	$15	$6.41	n/a	$31.85	$20	$18	$15
Dishonoured Cheque (Electronic)	$20	$15	$6.41	n/a	$28.21	$20	$18	$15
Late Payment	$20	n/a	$6.41	n/a	37.76		$18	$0
4 Payment Financing	$4 + Prime Plus 2%	n/a	$6.41	n/a	$6.09 + Prime Plus 2%		Not Available	Not Available
12 Pre-Authorized Payment Financing	$4 + Prime Plus 2%	n/a	$6.41	n/a	$5 + Prime Plus 2%	4.8%-6.75%	2.50%	4%
Mid-term Change 4 Payment to 12 Pre-authorized Payment Financing	$4 Plus Interest Adjustment	n/a	$6.41	n/a	$5.64 + Prime Plus 2%		n/a	n/a
Ownership Document	$15	n/a	$12.82	$9.22	$23.47		$18	$40
Transfer	$15	n/a	$12.82	$6.51	$23.47		$28	$15

Fee Type	Current Total Fee	Direct Costs	MPI Staff Costs	Broker Costs	CPI Increase since inception	Other Jurisdictions		
						MB Hydro	ICBC	SGI
Load Increase/Decrease	$15	n/a	$9.61	$4.61	$23.47		$0	$15
Vehicle Class Change	$15	n/a	$9.61	$6.51	$23.47		$0	$15
Estate-to-Spouse Transfer	$15	n/a	$9.61	$6.51	$23.47		$28	$0
Sticker Replacement	$15	n/a	$12.82	$4.61	$23.47		$18	n/a
Plate Replacement includes sticker (except Semi-trailer)	$15	$4.49	$6.41	$4.61	$23.47		$18	$15-$63
Plate Replacement - Semi-Trailer	$10	$4.49	$6.41	$4.61	$15.65		$18	$15-$64
Registration Card Replacement	$15	n/a	$12.82	n/a	$23.47		$18	$15
Coverage Reduction	$15	n/a	$6.41	n/a	$23.47		$0	$15
Claims Record Request	$15	n/a	$3.48	n/a	$23.47		$18	$20
Request for Proof of Insurance	$15	n/a	$6.41	n/a	$23.47		$18	$20
Historical Document Request	$15	n/a	$9.61	$4.56	$23.47		$18	$20
Change of Insurance use from/to collector	$15			n/a	$23.47			

Fee Type	Current Total Fee	Direct Costs	MPI Staff Costs	Broker Costs	CPI Increase since inception	Other Jurisdictions		
						MB Hydro	ICBC	SGI
Prorating:								
New Applications	Daily				no change		$25	$35
Cancellation:								
Annual policy except motorcycle, moped, mobility vehicle, trailer less than $2500, snow vehicle (HTA), off-road vehicle, collector vehicle	Min of $25		$9.36	$4.56	no change		$30	Max of $25
Short-term policy except motorcycle, moped, mobility vehicle, collector vehicle	$25 or 30 days written premium		$9.36	$4.56	no change		$30	$11 plus %

EXPENSES

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

EXPENSES **5**
EXP.1 ANOTHER YEAR OF PRUDENT FISCAL MANAGEMENT **5**
EXP.2 EXECUTIVE SUMMARY **8**
EXP.2.1 Corporate Expense Overview/Summary of Forecast 8
EXP.2.2 Cost Containment 9
EXP.2.3 Corporate Operating Expenses and Variance Analysis 9
EXP.2.4 Expense Allocation Process 10
EXP.2.5 Basic Expenses 10
EXP.2.6 Basic Capital and Related Expense 12
EXP.3 EXPENSE OVERVIEW **12**
EXP.3.1 Summary of Key Expense Drivers & Allocators 13
EXP.3.2 Cost Containment 14
EXP.4 CORPORATE OPERATING EXPENSE **16**
EXP.4.1 Corporate Normal Operating Expenses 20
EXP.4.1.1 Corporate Normal Operating Expenses – Detailed Expenses 21
EXP.4.1.2 Compensation – Salaries 22
EXP.4.1.3 Historical Corporate Salary Analysis – Normal Operations 26
EXP.4.2 2019 GRA vs. 2018 GRA Comparative Analysis 29
EXP.4.2.1 Corporate Normal Operations 29
EXP.4.2.2 Compensation – Benefits 30
EXP.4.2.3 Data Processing 31
EXP.4.2.4 Special Services 32
EXP.4.2.5 Building Operating Expenses 33
EXP.4.2.6 Road Safety/Loss Prevention Program 34
EXP.4.2.7 Printing, Stationery, Supplies 36
EXP.4.2.8 Postage 37
EXP.4.2.9 Driver Education Program 38
EXP.4.2.10 Furniture and Equipment 39
EXP.4.2.11 Merchant Fees & Bank Charges 40
EXP.4.2.12 Other 40
EXP.4.2.13 Amortization of Deferred Development 41
EXP.4.2.14 Overall Normal Operating Expenses 43

EXP.5 COST ALLOCATION METHODOLOGY 46
EXP.5.1 Allocators of Expenses related to the Basic Program 50
EXP.5.1.1 Claims Incurred Allocator 51
EXP.5.1.2 Weighted Average Customer Contact Center Call Ratio Allocator (WCCCCR) 51
EXP.5.1.3 Business Transformation Office Allocator (BTO) 52
EXP.5.1.4 FTE Proportions Between Claims and Operating Allocator 53
EXP.5.2 Allocated Basic Normal Operating Expenses 54
EXP.5.3 Allocated Basic Road Safety/Loss Prevention Program and Driver Education and Improvement 57
EXP.6 ALLOCATED BASIC IMPROVEMENT INITIATIVES AND CAPITAL EXPENDITURES 58
EXP.6.1 Administrative Capital and Initiative Capital Costs Expenditures 59
EXP.6.2 Total Basic Capital Expenditures – BTO Project Costs 60
EXP.6.3 Total Basic Associated Capital Expenses 64
EXP.7 COMMISSIONS 67
EXP.7.1 Description 67
EXP.7.2 Forecasting Assumptions 68
EXP.8 PREMIUM TAXES 68
EXP.8.1 Expenses 68
EXP.9 CONCLUSION 69

Appendix 1: Internal Operation Measures
Appendix 2: Summary of Basic Expenses by Category
Appendix 3: 10 Year Summary - Basic Total Expenses by Category
Appendix 4: Compounded Annual Growth Rates – Basic Total Expenses
Appendix 5: 10-year Summary Corporate Normal Operating Expenses
Appendix 6: 10-year Summary Basic Normal Operating Expenses
Appendix 7: 2017 versus 2018 GRA Expense Comparative
Appendix 8: Average Regular Salary by Classification
Appendix 9: Staffing Levels by Category
Appendix 10: Staffing Levels by Category (Corporate – 2016/17)
Appendix 11: Staffing Levels by Category (Corporate – 2017/18)
Appendix 12: Compensation Analysis
Appendix 13: Cost Allocation Methodology
Appendix 14: Cost Allocation Analysis of Calculations
Appendix 15: Road Safety Program Costs
Appendix 16: Basic Capital Expenditures
Appendix 17: Capital Expenditures - Project Costs Comparison
Appendix 18: Deferred Development Costs
Appendix 19: Information Technology Costs
Appendix 20: Vehicles for Hire Order 11/18 Directive 6.8

EXPENSES

EXP.1 ANOTHER YEAR OF PRUDENT FISCAL MANAGEMENT

As illustrated in prior General Rate Applications (GRA), the Corporation's prudent management of operating costs has ensured the 2019 GRA requested rate increase is not a result of operating expenses. MPI continues to focus on containing and, where feasible, reducing operating expenses, which has resulted in reductions in the current rating years (2019/20 and 2020/21), over the prior GRA forecast.

The various comparatives within this chapter support MPI's continued diligence in controlling and reducing expenses. The following, highlights the steps MPI has taken to demonstrate fiscal restraint on to the benefit of ratepayers:

- Expected reduction in Full Time Equivalent (FTE) staffing counts equating to 3.6% from 2020/21 as compared to the 2017/18 budgeted levels
- Overall reduction in 2017/18 normal operating expenses of approximately 1% as compared to 2016/17 despite increases related to contractual workforce general wage increase obligations and CPI increases
- Achievement of the 2017/18 Management controlled stretch target of more than the initially anticipated $2.6 million
- A 2018/19 budget which includes the achievement of the 15% management reductions from 2016/17 as well as committed staff reductions through improvement initiative efficiencies
- Reduction in implementation expenses in the rating years and throughout the forecast mainly due to an enhanced focus on value management related to projects and a zero budget for insertions of work
  Continued reduction of building expenses via identification of efficiencies/synergies which has led to further building closures

Figure EXP-1 below provides a comparison of the prior year and current year forecasted Basic expenses over the rating years (2019/20 and 2020/21). Total Basic Expenses have been grouped into two main categories: allocated expenses from Corporate, and direct expenses. As illustrated in line 6 below, the basic expenses reflect a decrease of approximately $5.1 million, or 2.2% decrease, in comparison to the same rating years (2019/20 and 2020/21) from the 2018 GRA. This follows the same pattern as presented in last year's GRA, and once again supports the Corporation's continued focus on and commitment to managing and controlling operating costs.

Figure EXP- 1: Expense Comparison – 2019 vs. 2018 GRA Rating Years

Line No.		2019 GRA Avg. of Rating Yrs	2018 GRA Avg. of Rating Yrs	Change (2019-2018)	Change (Percent)
	(C$ 000s, rounding may affect totals)				
1	Basic Allocated Corporate Expenses				
2	Claims Expense	137,322	141,326	(4,004)	-2.8%
3	Road Safety/Loss Prevention	12,755	13,079	(324)	-2.5%
4	Operating	74,959	76,366	(1,407)	-1.8%
5	Regulatory/Appeal	4,919	4,260	659	15.5%
6	Total Basic Allocated Corporate Expenses	229,955	235,031	(5,076)	-2.2%
7	Basic Direct Expenses				
8	Commissions	43,763	43,581	182	0.4%
9	Premium Taxes	34,586	34,246	340	1.0%
10	Total Basic Direct Expenses	78,349	77,827	522	0.7%
11	Total Basic Expenses	308,304	312,858	(4,554)	-1.5%

Figure *EXP-2* below provides a summary of historical and forecasted Corporate and Basic Expenses along with total direct Basic expenses related to commissions and premium tax. The purpose of the Expenses chapter is to discuss and explain variances related to corporate expenses, allocated Basic Expenses, and direct expenses.

Figure EXP- 2: Ten Year Summary of Total Corporate and Basic Expenses

Line No.		2013/14A	(Restated) 2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Total Corportate Expenses	267,754	273,767	275,343	279,123	299,164	301,680	298,785	306,702	319,043	325,126
2	**Basic Allocated Corporate Expenses**										
3	Claims Expense	114,552	116,578	118,615	120,972	143,337	137,168	135,428	139,216	144,330	146,780
4	Road Safety/Loss Prevention	12,816	11,359	13,029	12,530	13,146	13,606	12,693	12,818	13,003	13,279
5	Operating	67,982	74,283	71,638	72,785	70,201	75,060	73,606	76,313	79,998	82,908
6	Regulatory/Appeal	3,765	3,935	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233
7	Total Basic Allocated Corporate Expenses	199,115	206,155	206,957	211,176	231,127	230,503	226,567	233,345	242,445	248,200
8	*Percentage of Corporate Operating Expenses*	*74.4%*	*75.3%*	*75.2%*	*75.7%*	*77.3%*	*76.4%*	*75.8%*	*76.1%*	*76.0%*	*76.3%*
9	Basic Direct Expenses										
10	Commissions	32,058	32,845	33,862	35,086	37,378	40,338	42,690	44,835	46,610	48,443
11	Premium Taxes	23,343	24,531	26,205	27,563	29,143	31,518	33,736	35,435	36,861	38,334
12	Total Basic Direct Expenses	55,401	57,376	60,067	62,649	66,521	71,856	76,426	80,270	83,471	86,777

EXP.2 EXECUTIVE SUMMARY

The costs associated with delivering Universal Compulsory Automobile Insurance (the Basic program) to Manitoba motorists fall into seven major categories: Net Claims Incurred; Claims Expenses; Road Safety/Loss Prevention Expenses; Operating Expenses; Regulatory/Appeal Expenses; Commissions; and Premium Taxes.

Costs relating to net claims incurred will be discussed in *Part V(i) CI Claims Incurred*, while the remaining costs will be discussed in this part.

This section will describe how the Corporate (insurance and non-insurance lines of business) expense categories (Claims Expenses, Operating Expenses, Road Safety/Loss Prevention expenses, and Regulatory/Appeal expenses) are derived for the Basic program based on the cost allocation methodology approved by the Public Utilities Board (PUB) in Board Order 157/12. Costs associated with Commissions and Premium Taxes are directly incurred by the Basic line of business and are discussed in sections *EXP.7* and *EXP.8*, respectively.

As will be shown throughout this part, MPI continues to consistently and diligently manage Corporate and Basic operating costs. The Corporation continues to seek ways to implement cost reduction measures, take advantage of efficiencies/synergies, and manage controllable expenses where possible. The Corporation was successful in absorbing inflationary increases and other pressures during the 2017/18 year and has targeted this same outcome in 2018/19.

EXP.2.1 Corporate Expense Overview/Summary of Forecast

The first section of this chapter provides a brief overview of the Corporate/Basic operating expenses as well as a summary table that lists the key assumptions used in last year's rate application as compared to this year's rate application. To assist in the analysis and understanding, Corporate expenses are separated into three categories: Normal Operating (day to day); Improvement Initiative – Ongoing (future normal operating); and Improvement Initiative – Implementation (one time project expense).

EXP.2.2 Cost Containment

Within the Cost Containment section, an update on MPI's current year and future year's cost containment strategies are discussed. As will be illustrated, MPI continues to make strides in reducing operating expense related costs primarily related to building closures, fleet reductions, and sponsorship reductions.

EXP.2.3 Corporate Operating Expenses and Variance Analysis

Expense variances over the prior year's forecast are best explained at the Corporate expense level due to the various changes in the year-over-year Basic allocation percentages. Corporate expenses are classified into various expense categories. Only the largest and most relevant categories will be analyzed and discussed. The detailed analysis and explanations are provided for the following expense categories:

- Compensation
  - Salaries
  - Benefits
- Data Processing
- Special Services
- Building Expenses
- Road Safety/Loss Prevention Program
- Printing, Stationery and Supplies
- Postage
- Driver Education Program
- Furniture and Equipment
- Merchant Fees and Bank Charges
- Amortization
- Other

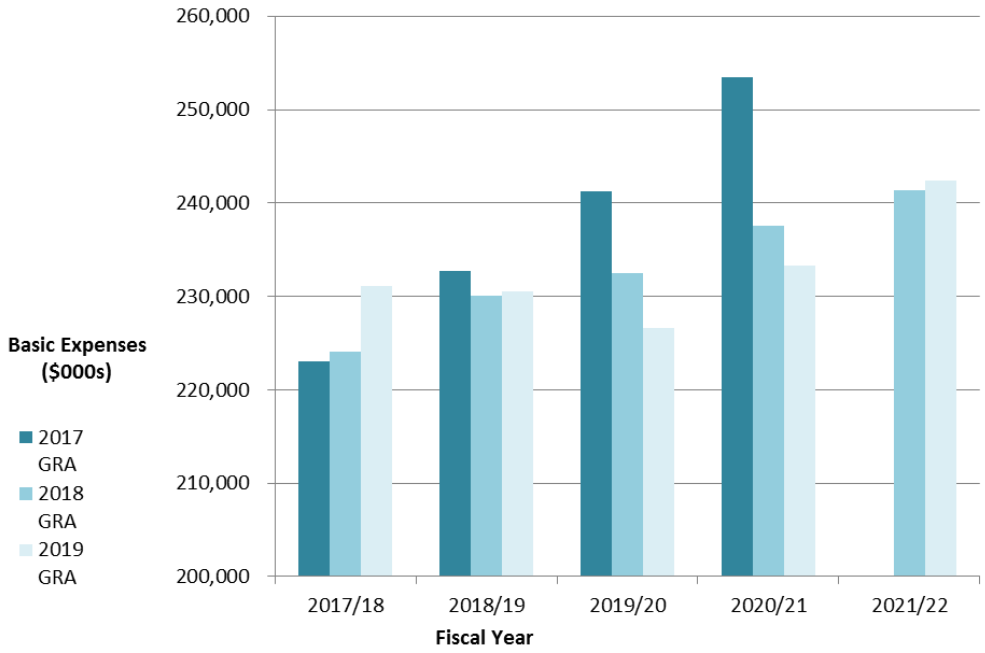
EXP.2.4 Expense Allocation Process

Total Basic expenses include expenses allocated from Corporate expenses through an allocation methodology. The purpose of the allocation methodology is to distribute/separate Corporate expenses into the four lines of business (LOB) via various allocators. Subsequently, each LOB is further segmented into four expense line items as shown on the Statement of Operations (Claims Expense, Operating expense, Loss Prevention/Road safety, and Regulatory/Appeal). This allocation methodology was developed in consultation with Deloitte Canada and was approved by the PUB in Board Order 157/12. Key allocation drivers embedded in the process include the following: full time equivalent (FTE) proportion of claims and operating staff; proportion of claims incurred costs for each LOB compared to total Corporate claims incurred; Business Transformation Office (BTO) departmental allocation; and weighted customer contact centre call ratio (WCCCCR). Please refer to *Figure EXP-4: Summary Table of Assumptions* for a summary of the key expense drivers and allocators used in this year and last year's forecast. As shown in *Appendix 7*, the percentage of corporate operating expenses allocated to Basic insurance has remained consistent over the last several years at 76% to 77% of total costs.

EXP.2.5 Basic Expenses

Upon the completion of the allocation process, expenses attributable to the Basic program are established for Normal Operations and Improvement Initiatives. Basic expense variances are explained either by the increase/decrease in Corporate expenses and/or a change in the allocation drivers/percentages. A high level illustration of Basic expenses forecasted in this year's GRA as compared to the last two GRA's has been provided in the following chart and will be discussed in further detail in section *EXP.5.2*.

Figure EXP- 3: Total Basic Expense 3 Year GRA Comparison



The preceding chart shows forecasted Basic expenses (Normal Operations and Improvement Initiatives) in this year's rate application as compared to the last two rate applications (2017 and 2018 GRA's). The increase in expenses for the 2017/18 fiscal year is primarily attributable to the impairment expense related to various initiatives including the Customer Claims Reporting System. The Corporation undertook an extensive review of projects, as detailed in *Part IV(ii) Value Management*. Upon completion of the review, any initiative costs that did not meet the criteria for capitalization were expensed in 2017/18. For the years 2018/19 and outward, forecasted expenses overall, are lower, most notably in the 2019 GRA rating years (2019/20 and 2020/21). This is a result of various Management actions / cost containment strategies taken to control costs. Such actions include Management invoked stretch targets, FTE reductions, overtime reductions, reductions in Improvement Initiative related expenses, and a focus on change to business processes and reducing controllable operational expenses where possible. These cost saving approaches are all discussed in greater detail in the subsequent sections.

EXP.2.6 Basic Capital and Related Expense

Basic capital is comprised of seven asset categories. These asset categories include: land, buildings, land improvements, data processing equipment, automobiles, office furniture and equipment, and deferred development costs. Deferred development costs are associated with project initiatives MPI has undertaken. Tracking and understanding capital cost spending is imperative in the GRA forecast as all capital expenditures are ultimately expensed over the life of the asset whereby each asset class has varying amortization/depreciation periods. For example, building capital costs are recognized as an expense over a period of 40 years whereas data processing equipment costs are recognized as an expense over a period of 3 years. All capital expenditures utilize the straight line depreciation/amortization method.

Section *EXP.6.3* discusses in detail all capital expenditures and associated depreciation/amortization. Also discussed in this section are the implementation expenses related to the various projects currently underway or anticipated in the future. This will be followed by a discussion and explanation on the variances between this year's GRA and last year's GRA submission. As will be demonstrated, MPI has once again taken significant steps to reduce budgeted and forecasted capital expenditures when compared against prior GRA's. A key focus going forward, related to capital projects, is to ensure initiatives undertaken support and optimize our core business functions.

EXP.3 EXPENSE OVERVIEW

Corporate operating expenses include costs to run MPI's four lines of business (Basic, Extension, Special Risk Extension, and Drivers and Vehicles Act) with the exception of claims payments, broker commissions, and premium taxes. In the rating years (2019/20 and 2020/21), total Basic expenses represent approximately 18.6% of total Basic costs (operating expenses plus claims incurred, commissions, and premium taxes). This is approximately 0.8% less when compared to the 2018 GRA. Although the expense section in this year's GRA will focus on explaining expenses from a

Corporate perspective, the allocated Basic expenses are the basis for determining the 2019/20 rate requirement.

Corporate expenses are comprised of three main categories:

- Normal Operating Expenses
- Improvement Initiative–Ongoing Expenses
- Improvement Initiative–Implementation Expenses

Normal Operating expenses include expenses incurred to manage the day-to-day operations of MPI and are generally fixed (non-discretionary) in nature. Improvement Initiatives are project costs that will increase efficiency and/or provide better customer service. There are two types of Improvement Initiative expenses: Ongoing and Implementation.

Improvement Initiative-Ongoing expenses are expenses that occur as a result of a project that typically transfers into normal operations once the project has been completed. These expenses are forecasted as ongoing-improvement initiative expenses while the project is in progress and become normal operating expenses upon project completion. Examples include salaries, licensing costs for purchased software, future maintenance on hardware purchase, and amortization related to deferred development. Amortization of deferred development expenses generally have a large impact on normal operations expenses and are therefore shown at the bottom of the summary expense tables.

Improvement Initiatives–Implementation expenses are one-time expenses related to a project, which cease upon completion of the project. Examples include software and hardware purchases.

EXP.3.1 Summary of Key Expense Drivers & Allocators

To forecast expenses accurately and reliably, it is imperative that MPI understand cost behaviors and associated underlying cost drivers in order to derive appropriate

assumptions. The table below outlines the key assumptions used when forecasting expenses for this year's rate application compared to last year's application, along with the corresponding section where these assumptions are supported.

Figure EXP- 4: Summary Table of Assumptions

Line No.		2018 GRA	2019 GRA	Reference
1		2018/19 – 1868.7	2018/19 – 1874.1	
2	FTE Count	2019/20 – 1794.5	2019/20 – 1877.1	Figure EXP-14
3		2020/21 – 1794.5	2020/21 – 1859.1	
4				
5	FTE Allocator			
6	Claims	67.78%	67.95%	Figure EXP-38
7	Operating	32.22%	32.05%	Figure EXP-38
8	Claims Incurred Allocator			
9	Basic % (4 year rolling average)	Avg 87.0% throughout forecast period	Avg 87.0% throughout forecast period	Figure EXP-35
10	BTO Project Department Allocation	2018/19 – 71.6%	2018/19 – 72.6%	
11	Basic Portion	2019/20 – 82.1%	2019/20 – 72.8%	
12		2020/21 – 82.1%	2020/21 – 81.6%	Figure EXP-37
13	Weighted Customer Contact Centre Call Ratio(WCCCCR)			
14	(4 year rolling average)			
15	Total Operating	93.40%	93.22%	Figure EXP-36
16	Salaries Growth Rates			
17	Economic Increase – In Scope	1.75%-2018/19	2.00%-2018/19	
18		2.00%-2019/20	2.00%-2019/20	
19		1.00%-2020/21	0.00%-2020/21	Figure EXP-13
20	Step in Scale – In Scope	1.75%	1.75%	
21	Step in Scale – Out of Scope	2.25%	2.25%	EXP.4.1.2
22	Most other Expense Category Growth Rates	0% in 2018/19 and 2019/20, 2.0% remaining forecast	0% in 2018/19 and 1.9% in 2019/20, 2.0% remaining forecast	Expense Book

Overall, most assumptions remain similar to the prior year with key differences related to FTE counts, salary growth rates, and the application of CPI for the year 2019/20.

EXP.3.2 Cost Containment

MPI continues to prioritize and control day-to-day operational expenses and project expenses. MPI is committed to providing value to Manitobans through cost containment, which has become firmly embedded into MPI's culture.

As presented in the 2018 GRA (Volume II – Expenses, EXP.1 & Volume II Expense Appendix 6, page 10), during the 2017/18 fiscal year, the Corporation established corporate expense stretch targets whereby new strategies and methods were implemented to reduce day to day operating expenses. Management implemented cost containment measures related to the following:

- Entry Level Professional Truck Driver Training Program;
  - Discontinued non basic Driver training
- Information Technology;
  - Reduce costs related to equipment and smart phones
- Forward Collision Avoidance Systems for Taxicabs;
  - Initiative was deferred
- Corporate Vehicle Fleet reductions
  - Approximately 40-45% of the corporate fleet was eliminated
- Corporate Sponsorships
  - Overall reduction in corporate sponsorships
- Road Safety Advertising
  - Overall reduction in road safety promotion
- Deferral of department redevelopments
  - Space redevelopment initiative was deferred

Upon initial recommendation and subsequent review, it was anticipated the Corporation could achieve a $2.6 million savings based on cost reduction strategies related to the above expense items.

The progress of the strategies and savings were closely monitored throughout the 2017/18 fiscal year. This prudent approach, has resulted in an excess savings of $1.3 million for a total amount of savings of $3.9 million. The detailed results of each strategy are as follows:

Figure EXP- 5: 2017/18 Cost Containment

Line No.	Cost Saving Category	2017/18A
	($000's, except where noted)	
1	Entry Level Professional Truck Driver Training	450
2	Information Technology	366
3	Smart Phones - VOIP	82
4	Road Safety Advertising	160
5	Road Safety/Loss Prevention Initiative - Forward Collision Avoidance	164
6	Corporate Vehicle Fleet	882
7	Reduction in Corporate Sponsorships	192
8	Road Safety Advertising	300
9	One time deferral of department redevelopments	1,300
10	Total 2017/18 Savings	3,896

EXP.4 CORPORATE OPERATING EXPENSE

The following table reflects one year of actual, one year of the forecast base, and four years of forecast for total corporate operating expenses. This is normal operating expenses plus all expenses related to current and expected initiatives.

Figure EXP- 6: Total Corporate Operating Expenses

Line No.	Expense	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)						
1	Compensation - Salaries	130,689	136,551	140,609	143,795	146,123	149,155
2	Compensation - Overtime	1,093	1,874	1,878	1,869	1,868	1,869
3	Compensation - Benefits	30,987	33,579	34,469	35,197	36,005	36,986
4	Compensation - H & E Tax	2,816	2,927	3,016	3,067	3,128	3,190
5	Sub Total - Compensation	165,585	174,931	179,972	183,928	187,124	191,200
6	*% increase / (decrease) over prior year*		*4.9%*	*2.9%*	*2.2%*	*1.7%*	*2.2%*
7	Data Processing	44,275	28,471	26,596	28,083	31,738	32,549
8	Special Services	6,867	7,790	5,999	5,884	6,000	6,121
9	Building Expenses	10,575	10,705	12,162	12,044	12,285	12,532
10	Safety/Loss Prevention Programs	3,327	4,842	3,578	3,497	3,568	3,639
11	Telephone/Telecommunications	2,054	2,121	2,175	2,230	2,274	2,320
12	Public Information/Advertising	2,542	2,988	3,045	3,106	3,168	3,231
13	Printing, Stationery, Supplies	4,080	4,753	4,637	4,386	4,475	4,563
14	Postage	4,823	4,183	3,170	3,314	3,380	3,448
15	Regulatory/Appeal	4,145	4,212	4,369	4,510	4,600	4,692
16	Travel and Vehicle Expense	990	1,326	1,352	1,379	1,407	1,435
17	Driver Education Program	4,557	4,541	4,578	4,669	4,761	4,856
18	Grants in Lieu of Taxes	1,945	1,889	1,964	2,042	2,084	2,124
19	Furniture & Equipment	814	1,563	1,289	1,387	1,415	1,444
20	Merchant Fees & Bank Charges	11,772	12,579	13,081	13,565	13,837	14,112
21	Other	5,103	6,192	6,412	6,518	6,647	6,780
22	Sub total - Other Normal Operating Expenses	107,869	98,155	94,407	96,614	101,639	103,846
23	*% increase / (decrease) over prior year*		*-8.1%*	*-3.8%*	*2.3%*	*5.2%*	*2.2%*
24	Depreciation-Capital Assets	4,954	5,281	6,064	6,731	6,665	6,087
25	Amortization-Deferred Development	20,756	23,313	18,342	19,429	23,615	23,993
26	Subtotal - Depreciation / Amortization	25,710	28,594	24,406	26,160	30,280	30,080
27	*% increase / (decrease) over prior year*		*11.2%*	*-14.6%*	*7.2%*	*15.7%*	*-0.7%*
28	Total Expenses	299,164	301,680	298,785	306,702	319,043	325,126

Note: Table includes improvement initiative (ongoing and implementation) expenses

Corporate expenses are grouped into 21 expense categories as listed above, including 4 categories related to compensation. As mentioned in prior GRA submissions, these categories allow MPI to understand, manage, and investigate variances to assist in controlling costs. As explained above, Corporate operating expenses include all normal operations (day to day expenses) plus all improvement initiative expenses (implementation and ongoing).

The year over year increases and decreases are primarily driven from contractual wage increases, pension obligation valuations, inflationary increases, and amortization expenses related to deferred development capital costs.

The following pie charts illustrate the composition of the expense categories which make up Corporate expenses.

Figure EXP- 7: 2017/18 Budget – Total Corporate Expenses (2018 GRA)

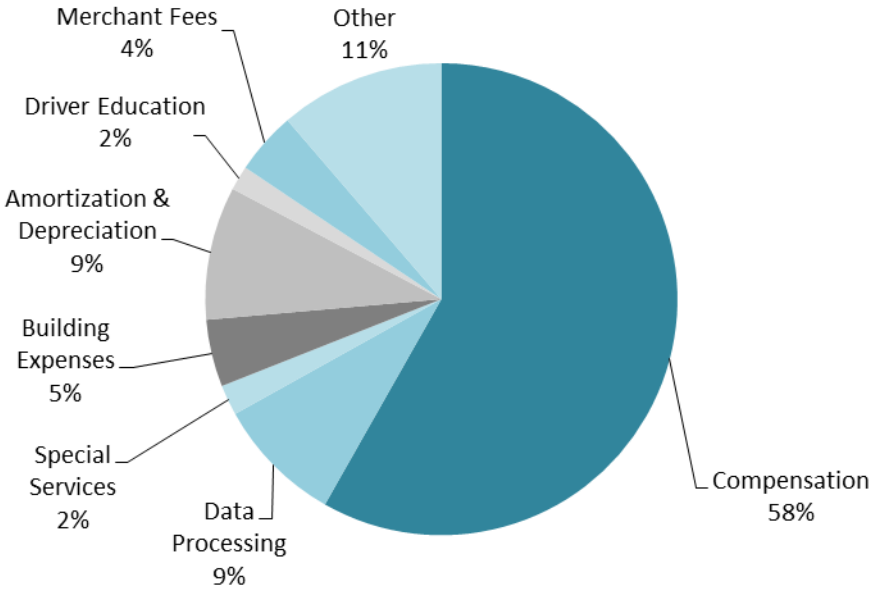
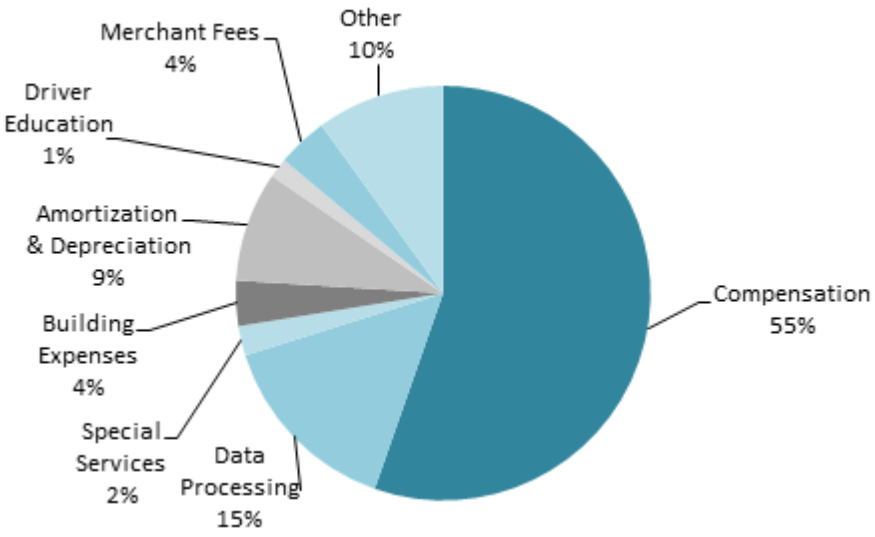


Figure EXP- 8: 2017/18 Actual – Total Corporate Expenses

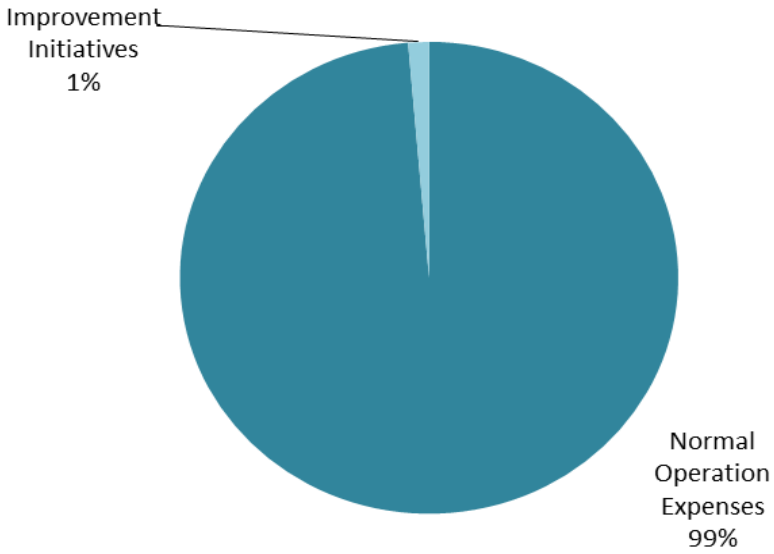


The above charts show a comparison of the expense grouping composition of the 2017/18 budget versus the 2017/18 actual. Decreased grouping percentages occurred for compensation and building expenses whereas increased grouping percentages occurred for data processing expenses. All other groupings remain relatively stable. Explanations for these variances will be discussed in *EXP.4.2* for normal operations, and *Appendix 7* for total Corporate expenses.

The compensation expense category drives the majority of all corporate operating costs and makes up approximately 55% of MPI's overall Corporate expenses for 2017/18. Compensation includes the costs related to salaries, benefits, overtime, and health and education tax. As this category is the primary contributor to Corporate expenses, a greater focus on this category is explained in the following section.

The chart below illustrates for the 2018/19 forecast base year. The majority (99%) of Corporate expenses are considered normal operating expenses with the remaining 1% of total Corporate expenses related to the implementation expenses for initiative projects. This percentage is the same as presented in last year's GRA, which supports continued steps in mitigating project costs. The corporation is committed to managing only core business functions.

Figure EXP- 9: 2018/19 Forecast Budget – Total Corporate Expenses



The following section will provide analysis of changes in year-over-year Corporate normal operating expenses. As mentioned earlier, expenses are best analyzed at the Corporate level as this removes the impacts of the allocation process. Overall Basic is consistently approximately 76% of Corporate expenses. The table presents expenses via major expense category for normal (day to day) operating expenses only. Total corporate expenses (normal operations plus project related expenses) will be discussed in *Appendix 7*.

EXP.4.1 Corporate Normal Operating Expenses

Corporate Normal Operating expenses are the day-to-day expenses MPI incurs to manage its operations. With approximately 99% of Corporate expenses attributable to normal operations, this expense type has the largest impact to the rate requirement for the Basic program and thus will be explained in detail within the largest or most variable expense categories.

EXP.4.1.1 Corporate Normal Operating Expenses – Detailed Expenses

The table below shows the breakdown of the Corporate Normal Operating expenses.

Figure EXP- 10: Corporate Normal Operating Expenses

Line No.	*Category*	*Section*	*2017/18A*	*2018/19FB*	*2019/20F*	*2020/21F*	*2021/22F*	*2022/23F*
	($000's, except where noted)							
1	Compensation - Salaries	EXP.4.1.2	130,641	136,551	140,889	144,837	147,484	150,516
2	Compensation - Overtime		1,051	1,874	1,878	1,869	1,868	1,869
3	Compensation - Benefits	EXP.4.2.2	30,987	33,579	34,469	35,197	36,005	36,986
4	Compensation - H & E Tax		2,816	2,927	3,016	3,067	3,128	3,190
5	Sub Total - Compensation		165,495	174,931	180,252	184,970	188,485	192,561
6	% increase / (decrease) over prior year			5.70%	3.04%	2.62%	1.90%	2.16%
7	Data Processing	EXP.4.2.3	22,042	24,416	24,247	25,244	25,748	26,263
8	Special Services	EXP.4.2.4	6,867	7,790	5,999	5,884	6,000	6,121
9	Building Expenses	EXP.4.2.5	10,575	10,705	12,162	12,044	12,285	12,532
10	Safety/Loss Prevention Programs	EXP.4.2.6	3,327	4,842	3,578	3,497	3,568	3,639
11	Telephone/Telecommunications		2,054	2,121	2,175	2,230	2,274	2,320
12	Public Information/Advertising		2,542	2,988	3,045	3,106	3,168	3,231
13	Printing, Stationery, Supplies	EXP.4.2.7	4,071	4,753	4,637	4,386	4,475	4,563
14	Postage	EXP.4.2.8	4,823	4,183	3,170	3,314	3,380	3,448
15	Regulatory/Appeal		4,145	4,212	4,369	4,510	4,600	4,692
16	Travel and Vehicle Expense		988	1,326	1,352	1,379	1,407	1,435
17	Driver Education Program	EXP.4.2.9	4,557	4,541	4,578	4,669	4,761	4,856
18	Grants in Lieu of Taxes		1,945	1,889	1,964	2,042	2,084	2,124
19	Furniture & Equipment	EXP.4.2.10	598	1,563	1,289	1,387	1,415	1,444
20	Merchant Fees & Bank Charges	EXP.4.2.11	11,772	12,579	13,081	13,565	13,837	14,112
21	Other	EXP.4.2.12	5,090	6,192	6,412	6,518	6,647	6,780
22	Sub total - Other Normal Operating Expenses		85,396	94,100	92,058	93,775	95,649	97,560
23	% increase / (decrease) over prior year			10.19%	-2.17%	1.87%	2.00%	2.00%
24	Depreciation-Capital Assets		*4,941*	5,281	6,064	6,731	6,665	6,087
25	Amortization-Deferred Development	EXP.4.2.13	20,756	23,313	14,865	13,377	7,939	2,617
26	Subtotal - Depreciation / Amortization		25,697	28,594	20,929	20,108	14,604	8,704
27	% increase / (decrease) over prior year			11.27%	-26.81%	-3.92%	-27.37%	-40.40%
28	Total Expenses	*EXP.4.2.14*	276,588	297,625	293,239	298,853	298,738	298,825

The expenses above for 2018/19 represent MPI's annual normal operations forecast base. The expenses for subsequent years (2019/20 and onward) are forecasted based on the previously outlined assumptions. A section reference has been provided for those expense categories with significant variances from last year's GRA. Expanded

analysis of all Corporate Normal Operating expenses is available *Appendix 5* and *Appendix 7.*

EXP.4.1.2 Compensation – Salaries

Description

Salaries represent all regular payments associated to MPI's staff, as well as other salary related accounts including retirement allowances, maternity benefits, vacation payouts/buyouts, and banked vacation. Salaries are 1 of 4 categories within the Compensation grouping and represent approximately 46% of all Corporate Normal Operating expenses.

Forecasting Assumptions

To derive the forecast for salaries, current actual salaries are taken at a point in time (during the 2017/18 fiscal year) and then forecasted using the estimation, or application of known increases, related to five key drivers. These five key drivers are: economic increases, step in scale increases, budgeted / forecasted FTE count changes, provision for vacancy allowances, and other salary account changes.

The five key drivers of forecasted salaries expenses are described in detail as follows:

- **Economic Increases –** Represents the contractual general wage increases as specified within the Collective Agreement as negotiated between MPI and the Manitoba Government Employees Union (MGEU). The most recently completed negotiations between MPI and MGEU related to economic increases occurred in 2016/17 whereby the contract covered the periods 2016/17 through to 2020/21.
    - The negotiated and forecasted economic increases are shown below:

Figure EXP- 11: Economic Increases Negotiated (In Scope Staff)*

Line No.	Effective Date	Rate	Fiscal Year	Impact
1	September 22, 2013	0.00%	2013/14	0.00%
2	September 21, 2014	2.75%	2014/15	1.15%
3	September 20, 2015	2.75%	2015/16	2.75%
4	September 18, 2016	2.00%	2016/17	2.38%
5	September 17, 2017	1.50%	2017/18	1.75%
6	September 16, 2018	2.00%	2018/19	1.75%
7	September 15, 2019	2.00%	2019/20	2.00%
8	September 26, 2020	0.00%	2020/21	1.00%
9	September 25, 2021	0.00%	2021/22	0.00%

** Effective from September 23, 2012 to September 17, 2016 (Contractual)*

** Effective from September 18, 2016 to September 26, 2020 (Contractual)*

- **Step in Scale Increases -** The Collective Agreement specifies a pay plan. Each in-scope position aligns to a salary range which has six "steps". The incumbent of a position will be eligible for up to five annual 3.5% increases until they reach the maximum salary (step) for the specific position. Upon reaching the maximum salary, the incumbent will only be eligible to receive a general wage increase as provided above. The forecasted rate used in this year's GRA is 1.75% (assumption is 50% of employees will receive), which is consistent with the rate used in prior years.
- **Full Time Equivalent (FTE) Counts –** Represents the equivalent number of employees (staff) who are working full time hours.

The table below shows the five year historical and five year forecast of actual and budgeted staffing levels.

Figure EXP- 12: Normal Operations Staffing*

Line No.	Fiscal Year	Actual	Budget	Over (Under) Variance
1	2013/14A	1,890.3	1,936.7	(42.0)
2	2014/15A	1,874.8	1,934.7	(44.4)
3	2015/16A	1,866.7	1,927.7	(52.9)
4	2016/17A	1,898.9	1,898.7	(32.0)
5	2017/18A	1,860.9	1,910.0	(49.1)
6	2018/19FB	-	1,874.1	-
7	2019/20F	-	1,877.1	-
8	2020/21F	-	1,859.1	-
9	2021/22F	-	1,853.1	-
10	2022/23F	-	1,853.1	-

**The above table includes 13.0 FTE in 2018/19 FB and onward. This is related to an increase required for Personal Injury Plan Protection Case Managers. As the expected costs for these positions are expected to be offset with claims savings, these do not factor into the compensation analysis*

The figure above summarizes staffing levels actual to budget FTEs up to 2017/18 and then presents the Corporation's FTE forecast thereafter. The forecast includes staff reductions associated to improvement initiative efficiencies. The expense dollars related to these expected savings are classified as an Improvement Initiative - ongoing expense, but to get a true reflection of future normal operations FTE counts, these have been included in the table above. Staff counts continue to remain consistently below budgeted levels for the past five years. This variance is primarily attributable to the Corporation's Vacancy Management Program which was set up as a means to contain costs.

The budget and forecast reflects MPI's commitment to continual cost savings through the management of staff reductions. It is anticipated MPI will reduce staff FTE counts by approximately 51 positions by 2020/21 as compared to 2017/18 budgeted levels through realizing synergies/efficiencies from projects, and seeking ways to improve and simplify business processes.

For a detailed review of 2017/18 actual versus budgeted and 2018/19 budgeted staffing levels please refer to *Appendix 10* and *Appendix 11*.

- **Other Salary Adjustments -** These include a number of salary related items, such as retirement payments/provisions, sick leave provision, vacation payouts/buyouts, and banked vacation. The largest component represents retirement payments, which is a function of the number of retirements in a particular year. This category also contains the Health and Well Being Flexible Spending account and an allowance for in-scope staff who work in downtown Winnipeg.
- **Vacancy Allowance -** In the normal course of operations, vacant positions arise from staff turnover related to job changes, retirements, resignations etc. This results in a certain number of positions being vacant at any given point in time. This vacancy means that salary dollars are not being paid, which in effect reduces salary expense. In order to more accurately reflect budgeted and forecasted salary expenses, the Corporation accounts for these cumulative non remunerative vacancies through a vacancy allowance provision. The budgeted and forecasted vacancy allowance is provided in *Figure EXP -13*.

To illustrate the year over year forecasting methodology using all five salary expense drivers, *Figure EXP -13* below illustrates the various changes involved to derive normal operating salaries from the actual salary expense in the 2017/18 fiscal year through to the 2020/21 forecasted year. The major increases are generally attributable to mandated in-scope economic and step in scale increases.

Figure EXP- 13: Corporate Salary Analysis – Normal Operations

Line No.		2017/18A	2018/19FB	Change	%	2019/20F	Change	%	2020/21F	Change	%
	(C$000s, except where noted)										
1	Gross Salaries*	137,731	138,051	321		142,389	4,338		146,337	3,948	
2	Vacancy Allowance	(7,090)	(1,500)	5,590		(1,500)	-		(1,500)	-	
3	Total Net Salaries	130,641	136,551	5,911	4.52%	140,889	4,338	3.18%	144,837	3,948	2.80%

4	GENERAL WAGE INCREASE ANALYSIS	2019FB	Change	2020F	Change	2021F	Change	
5	Prior Year Balance		130,641		136,551		140,889	
6	FTE Normal Ops Reductions / Changes (2018/19)		-		-		-	
7	FTE Normal Ops Reductions / Changes (2019/20)		-		(100)		-	
8	FTE Normal Ops Reductions / Changes (2020/21)		-		-		(333)	
9	Economic - Inscope	1.75%	884	2.00%	2,020	1.00%	1,202	
10	Economic - Out of Scope	1.50%	350	2.00%	560	2.00%	601	
11	Steps in scale	1.75%	2,367	1.75%	2,437	1.75%	2,530	
12	Other Salary Acct adjustments**		2,399		(545)		(52)	
13	Other / Rounding		(89)		(34)		(1)	
14	Total		136,551		140,889		144,837	

**Note: Gross Salaries* - *Gross Salaries are determined based on the assumption that all budgeted FTE positions are filled throughout the entire year. Gross Salaries include regular salaries, plus all other salaries accounts including vacation payouts and buyouts and retirement payouts*

***Note: Other Salary Accounts* - *Other Salary accounts is described in EXP. 4.1.2 and includes 9 other accounts pertaining to various other salary related items*

EXP.4.1.3 Historical Corporate Salary Analysis – Normal Operations

The above section described the steps to calculate the budgeted and forecasted salary expenses relating to this year's GRA. The following tables reflect analysis related to the historical corporate salary expenses for normal operations. For the purpose of this analysis, "other" salary accounts (banked vacation, accrued vacation, retirement allowance, etc.) are not included. The analysis below relates to regular salaries only.

Figure EXP- 14: Corporate Annual Salary – Normal Operations

Line No.	Fiscal Year	Corporate Annual Salary	Change from prior year	Change (%)	Average actual FTE	Average Salary per FTE	Change (%)
	(C$000s, except where noted)						
1	2013/14A	115,344	1,283	1.12%	1890.3	61.02	1.36%
2	2014/15A	116,457	1,113	0.96%	1874.8	62.12	1.80%
3	2015/16A	120,666	4,209	3.61%	1866.7	64.64	4.06%
4	2016/17A	127,761	7,095	5.88%	1898.9	67.28	4.08%
5	2017/18A	126,504	-1,257	-0.98%	1860.9	67.98	1.04%

Figure EXP- 15: Corporate Annual Salary Changes – Normal Operations

Line No.	Fiscal Year	Change due to Economic Increase	Change due step in scale and other	Total Change due to salary rate changes	Change due to FTE changes	Total salary Increase	Change in Average Actual FTE	Change in Average Salary per FTE ($)
	(C$000s, except where noted)							
1	2013/14A	-	1,551	1,551	(268)	1,283	(4.4)	0.82
2	2014/15A	1,326	750	2,077	(964)	1,113	(15.5)	1.10
3	2015/16A	3,203	1,529	4,732	(522)	4,209	(8.1)	2.52
4	2016/17A	2,872	2,057	4,929	2,166	7,095	32.2	2.64
5	2017/18A	2,214	2,236	4,450	(5,706)	(1,257)	(38.0)	0.70

The two figures above, provide a detailed analysis of the year-over-year changes as it relates to normal operation salary expenses for the period from 2013/14 to 2017/18.

Figure EXP - 14 illustrates the year–over-year dollar and percentage changes along with the corresponding dollar and percentage changes in average salary. A highlight of this table is the favorable change form 2016/17 compared to 2017/18. Despite mandated salary and step in scale increases for in-scope staff, overall salary expense has decreased by approximately $1.3 million, or about 1%. This is due to many factors, including controlling FTE counts, managing the vacancy allowance, and applying a 0% general wage and merit increase to Management in 2017/18. This further demonstrates the continued Corporate commitment to prudent fiscal management.

Figure EXP - 15 provides a breakdown as to the reasons for the increase/decrease in normal operations salary expense. Annually the majority of growth is attributable to economic and step in scale increases with the remaining variance attributable to FTE changes. The Corporation reduced the FTE composition by 38 in 2017/18 as compared to 2016/17.

Figure EXP – 16 provides further details on the drivers of the overall dollar changes in the form of a percentage. The majority of the year-over-year changes are attributed to the mandated economic increases and the step in scale increases. In 2016/17, a large portion of the increase was due to FTE count increases, whereas in 2017/18 the majority of the decrease is also due to FTE counts. For a detailed analysis on

compensation (including benefits, overtime and Health & Education tax) for the preceding three tables please refer to *Expense Appendix 12*.

Figure EXP- 16: Compound Annual Salary Analysis Percentage Change

Line No.	Fiscal Year	% change due to economic increase	% change due to steps in scale and other	% change due to all salary level changes	% change due to FTE changes	Total % change in salaries
1	2013/14A	0.00%	1.36%	1.36%	-0.24%	1.12%
2	2014/15A	1.15%	0.65%	1.80%	-0.84%	0.96%
3	2015/16A	2.75%	1.31%	4.06%	-0.45%	3.61%
4	2016/17A	2.38%	1.70%	4.08%	1.80%	5.88%
5	2017/18A	1.73%	1.73%	3.47%	-2.02%	1.44%
6	Compounded Annual Growth Rate					
7	2013/14 to 2017/18	2.02%	1.39%	3.34%	-1.11%	2.34%
8	2016/17 to 2017/18	2.09%	1.76%	3.81%	-1.48%	2.39%

To further analyze salary expenses, the percentage compounded change in economic increases, steps in scale, and FTE changes have been provided in the table above.

Percentage change due to Economic Increase

The compounded annual growth rate for economic increases since 2013/14 has been 2.02%. This compounded annual growth rate increases is due to higher negotiated rates in 2014/15, 2015/16, and 2016/17. For the past two years (2016/17 and 2017/18), the average growth in this category has been 2.09%. The change in economic increase is one of the primary drivers for changes in the salary expense category.

Percentage change due to Step in Scale and Other

This category includes step in scale increases during the year in addition to various other factors that causes changes in salaries. The average compounded growth rate has remained fairly consistent over the prior two and four consecutive years, as can be seen from the 1.39% and 1.76% increase respectively.

Percentage changes due to Staff Changes

The last key driver in assessing actual regular Normal Operations salaries is all related FTE changes from year to year including vacancy management and turnover. Throughout the historical period (2013/14 through to 2017/18), the percentage change in salaries due to FTE growth is nearly zero (1.11% decrease). From 2016/17 to 2017/18, FTE changes account for a 1.48% decrease in salaries. The negative average throughout the past four years is fully attributable to the Corporate focus on containing salary expenses through the management of FTE counts.

EXP.4.2 2019 GRA vs. 2018 GRA Comparative Analysis

EXP.4.2.1 Corporate Normal Operations

The following table presents the variance in salaries between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 17: Salaries Variance (Total net Salaries)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	130,641 (a)	133,292	(2,651)	-1.99%
2	2018/19FB	136,551	136,515	36	0.03%
3	2019/20F	140,889	141,264	(375)	-0.27%
4	2020/21F	144,837	144,216	621	0.43%

The differences in the salaries forecasts are due to the following:

- The 2017/18 decrease is mainly due to lower overtime than expected of about approximately $720,000 and the remainder due to regular salaries.
- In 2018/19 and onward, the salary levels are expected to be similar to that forecasted in the 2018 GRA. The year over year increases and decreases are attributable to general wage and step in scale increases combined with offsetting FTE reductions.

EXP.4.2.2 Compensation – Benefits

Description

As part of the overall compensation for employees, MPI provides various employee benefits including a defined benefit pension plan, post-retirement extended health benefits, employment insurance premiums, Canada pension plan premiums, group life premiums, and employer contributions to medical and dental plans.

Forecasting Assumptions

Each benefit is forecasted based on individual behaviors, expected rate increases/decreases, and discussions and advice from benefit consultants.

The following table presents the variance in Benefits between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 18: Benefits Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	30,987 (a)	32,791	(1,804)	-1.05%
2	2018/19FB	33,579	33,756	(177)	-1.44%
3	2019/20F	34,469	34,621	(152)	-1.41%
4	2020/21F	35,197	35,687	(490)	-1.37%

The primary difference is due to the following:

- In 2017/18, the under budget variance is primarily due to Canada Pension Plan contributions and Employment Insurance premiums of about $900,000, Pension / Superannuation contributions are approximately $370,000 lower than budget and group long term disability accounts for about $350,000 of the variance.

EXP.4.2.3 Data Processing

Description

Data Processing represents costs associated with maintenance and licensing of computer hardware /software and system applications. Also included in this technology related expense category is external labor costs and computer costs. See EXP. *Appendix 19* for a detailed analysis of Corporate Information Technology departmental and corporate costs, which represent the majority of this line item.

Forecasting Assumptions

In consultation with the Information Technology Department, a long term vision is established for data processing expense requirements. All major sub categories (licensing, hardware, external labor, software, and maintenance) are reviewed and future expense increases/decreases are approximated.

The following table presents the variance in data processing between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 19: Data Processing Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	22,042 (a)	22,975	(933)	-4.06%
2	2018/19FB	24,416	22,900	1,516	6.62%
3	2019/20F	24,247	23,048	1,199	5.20%
4	2020/21F	25,244	23,509	1,735	7.38%

Data Processing expense differences compared to last year's GRA submission are mainly due to the following:

- Lower than budget results in 2017/18 is primarily due to lower than expected external labor of approximately $860,000
- In 2018/19, costs are greater than expected versus the 2018 GRA mainly due to IBM Data Centre and costs for additional IBM Security Operations services of about $800,000 and greater than expected licensing fees of approximately $600,000

- In 2019/20, the variance is reduced as the Corporation is anticipating a reduction in External labor costs of approximately $500,000
- In 2020/21, the variance for data processing expenses increases to approximately $1.7 million as the Corporation expects an increase to IBM Data Centre Operations of approximately $600,000

EXP.4.2.4 Special Services

Description

Special Service expenses are unique expenses often associated to one or a small number of cost centres. This expense category includes such items as auctioneer and auditor fees, external consulting costs related to operational initiatives, and the employee opinion survey.

Forecasting Assumptions

Special services expenses have been forecasted to decrease in 2018/19 and 2019/20 by approximately 4% in each year and then indexed by CPI over the remaining forecast.

The following table presents the variance in special services between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 20: Special Services Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	6,867 (a)	6,117	750	12.26%
2	2018/19FB	7,790	5,880	1,910	32.48%
3	2019/20F	5,999	5,650	349	6.18%
4	2020/21F	5,884	5,762	122	2.12%

Special Services expense differences compared to last year's GRA submission is mainly due to the following:

- In 2017/18, Special Services expenses are greater than budget of approximately $1.4 million primarily due to Special Services – Other. This has been partially offset by lower than expected expenses related to PIPP Mediation of $300,000 and customer service standards of $240,000.
- In 2018/19 Special Services is expected be approximately $1.9 million greater than what was forecasted in the 2018 GRA. This is due to a $1.5 million greater than expected special services expense for a strategic spend with Executive and a $225,000 greater than expected expense related to International Financial Reporting Standards.

EXP.4.2.5 Building Operating Expenses

Description

Building operating expenses are the costs incurred to operate all properties and buildings used in MPI's operations. This includes costs related to insurance, general maintenance, repairs or upgrades. Also included are expense items related to rent, utilities, security costs, and janitorial services.

Forecasting Assumptions

Annually, MPI assesses its physical capacity to run operations in determining the optimum levels for cost containment and customer service. As presented in last year's GRA, it was expected the Corporation would close the Flin Flon Claims Centre and the Pacific Avenue Service Centre. These closures have both been completed with savings to occur in the 2018/19 fiscal year. For the Pacific Service Centre this is one year sooner than expected. Most other expenses related to building costs have a 0% CPI increase for 2018/19, with CPI increases applied in 2019/20 and onward.

The following table presents the variance in building expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 21: Building Operating Expenses Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	10,575 (a)	13,510	(2,935)	-21.72%
2	2018/19FB	10,705	12,318	(1,613)	-13.09%
3	2019/20F	12,162	12,231	(69)	-0.56%
4	2020/21F	12,044	12,478	(434)	-3.48%

Actual and forecasted Building operations expenses vary from the prior year's application mainly due to the following:

- The under budget variance during 2017/18, was mainly a result of the cancellation of departmental space redevelopments at the Cityplace building. This was a cost containment initiative which brought in savings of about $1.3 million. Also contributing to the less than expected expenses is snow removal, general maintenance & repairs, and contracted cleaning services of about $550,000. The remaining favorable variance is due to major projects related to buildings of about $900,000 that were canceled.

- In 2018/19, the forecast in the 2019 GRA is $1.6 million better than the forecast in the 2018 GRA. This is primarily due to a $1.5 million reduction related to deferred departmental space redevelopments at the Cityplace building.

EXP.4.2.6 Road Safety/Loss Prevention Program

Description

The Road Safety and Loss Prevention Program cost category is comprised of expenses which include the immobilizer program (for 2018/19 only), roadwatch, impaired driving & distracted driving strategies along with other initiatives. This category also includes safety grants and programming. *Appendix 15* provides additional detailed information on Basic Road Safety and Loss Prevention Program costs.

Forecasting Assumptions

One of the key differences in this years rate application is related to the cost of delivering the Immobilizer program. This highly successful program has matured and the Corporation has made the decision to discontinue this program commencing in 2019/20. Other key areas expected to see growth/decline include the impaired driving strategies, distracted driving, and road watch program. CPI growth has been applied at 1.9% in 2019/20 and 2.0% in 2020/21 and onward.

The following table presents the variance in road safety and loss prevention expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 22: Road Safety / Loss Prevention Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	3,327 (a)	4,622	(1,295)	-28.02%
2	2018/19FB	4,842	3,899	943	24.19%
3	2019/20F	3,578	3,713	(135)	-3.64%
4	2020/21F	3,497	3,787	(290)	-7.66%

Variances from this year's, compared to last year's, GRA are primarily due to the following:

- In 2017/18, lower than expected expenses of approximately $1.3 million were primarily due to the Immobilizer Program lower than expected ($350,000) and the Road Watch program coming in under budget by approximately $290,000. Also contributing to the decrease, were less than expected expenses related to the safety program evaluation and vehicle safety strategies of $400,000.
- In 2018/19, the Corporation anticipates expenses to be approximately $950,000 greater as compared to what was presented in the 2018 GRA. This is attributable to approximately $400,000 greater than expected spending on the Roadwatch program, a one year deferral related to vehicle safety strategies of $240,000, and $130,000 related to speed management strategies. Please see *Part VII Loss Prevention* and *Appendix 15* for further detail.

EXP.4.2.7 Printing, Stationery, Supplies

Description

Printing, Stationery, and Supplies include the cost of general office supplies, reference materials, photocopying expenses, and printed forms. Also included in this category are computer accessories and supplies.

Forecasting Assumptions

For the years 2019/20 and onward, all printing, stationery, and supply accounts are forecasted with expected CPI growth.

The following table presents the variance in printing, stationery and supplies expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 23: Printing, Stationery, Supplies Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	4,071 (a)	4,582	(511)	-11.15%
2	2018/19FB	4,753	4,751	2	0.04%
3	2019/20F	4,637	4,865	(228)	-4.69%
4	2020/21F	4,386	4,963	(577)	-11.63%

Overall Printing, Stationery, and Supply expenses are lower when compared to last year's forecast. Differences are primarily due to the following:

- During 2017/18, the under budget variance of approximately $500,000 is due to less than expected expenses of about $180,000 for computer accessories/supplies and approximately $225,000 related to printed forms and stationery.
- In the years 2019/20 and 2020/21, the less than anticipated spend on printing, stationery, and supplies is primarily related to non-Basic items as well as computer accessories/supplies.

EXP.4.2.8 Postage

Description

Postage is comprised of all expenses related to the distribution and mailing of communication and correspondence to various stakeholders. Postage expenses include the costs of regular mail, refund checks, statement of accounts, and renewals.

Forecasting Assumptions

The expected costs for postage are determined in consultation with the applicable business units. For the years 2019/20 through to 2020/21 growth assumptions have been set at 1.9% and 2.0% respectively.

The following table presents the variance in postage between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 24: Postage Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	4,823 (a)	4,556	267	5.86%
2	2018/19FB	4,183	4,556	(373)	-8.19%
3	2019/20F	3,170	4,556	(1,386)	-30.42%
4	2020/21F	3,314	4,647	(1,333)	-28.69%

Postage variances are mainly due to the following:

- The large reductions related to postage expenses occurring in 2019/20 and 2020/21 is related to the removal of expedited mail delivery service where indicated. The Corporation is planning on shifting the use of expedited mail to regular mail delivery service which will provide significant cost savings to the Corporation.

EXP.4.2.9 Driver Education Program

Description

The Driver Education Program cost category is comprised of all expenses related to the oversight of the Driver Education Program. Expense types include Drivers Education instructor expenses such as mileage and insurance, as well as materials for students and expenses related to instructor courses. These expenses contribute towards shaping good driving behaviors that will result in safe driving.

Forecasting Assumptions

The expected costs are determined in consultation with the applicable business units. General cost increases have been set at 1.9% in 2019/20 and a 2.0% CPI growth thereafter.

The following table presents the variances in Driver Education Program expenses in this year's forecast (2019 GRA) as compared to last year's forecast (2018 GRA)

Figure EXP- 25: Driver Education Program Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	4,557 (a)	4,916	(359)	-7.30%
2	2018/19FB	4,541	4,745	(204)	-4.30%
3	2019/20F	4,578	4,245	333	7.84%
4	2020/21F	4,669	4,330	339	7.83%

The primary difference attributed to the 2017/18 fiscal year and subsequent forecast years is related to the following:

- In 2017/18 lower than budgeted expenses occurred for non-Basic expenses of approximately $270,000 for third party education and training contract, with the remaining variance primarily associated to Driver Vehicle expenses.
- In 2019/20 and 2020/21, the higher than expected expense is mainly due to an increase in the Commercial Driving School Contractor expense of about $350,000

EXP.4.2.10 Furniture and Equipment

Description

This expense category includes all non-capital furniture and equipment purchases and maintenance thereof. These expenses include items such as filing cabinets, chairs, and computer equipment such as laptops, hard drives, and monitors.

Forecasting Assumptions

The expected costs are determined in consultation with the applicable business units. One of the key drivers to this expense category is computer equipment which occasionally requires a refresh due to technological obsolescence. Commencing in 2020/21 and onward an annual 2.0% CPI growth has been applied to the forecast.

The following table presents the variance in furniture and equipment expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 26: Furniture and Equipment Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	598 (a)	1,835	(1,237)	-67.41%
2	2018/19FB	1,563	1,765	(202)	-11.44%
3	2019/20F	1,289	1,426	(137)	-9.61%
4	2020/21F	1,387	1,455	(68)	-4.67%

Forecasted Furniture & Equipment expenses vary from last year's GRA submission. Differences are primarily due to the following:

- In 2017/18, the main driver for the $1.2 million favorable expense variance is due to the deferral of various IT equipment refreshment cycles. This included desktop PC's, printers, and wireless devices.

EXP.4.2.11 Merchant Fees & Bank Charges

Description

Merchant Fees & Bank Charges are the costs paid to credit card companies in exchange for providing a service to policyholders with multiple payment options. These fees include electronic and standard transactions and the rates are subject to change by the Merchant or Bank.

Forecasting Assumptions

The business unit overseeing all Merchant Fee accounts conducts an annual analysis in preparation of the 2018/19 budget and forecast cycle. The budget accounts for incurred actual amounts, volume increases and rate changes. Based on this analysis, the 2018/19 budget and 2019/20 & 2020/21 forecast years were established.

The following table presents the variance in merchant fees and bank charges between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 27: Merchant Fees and Bank Charges Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	11,772 (a)	12,567	(795)	-6.33%
2	2018/19FB	12,579	13,032	(453)	-3.48%
3	2019/20F	13,081	13,621	(540)	-3.96%
4	2020/21F	13,565	13,893	(328)	-2.36%

In the year 2017/18 less than expected Merchant fee expenses were incurred mainly due to less premiums collected as compared to budget and lower credit card fees.

EXP.4.2.12 Other

Description

Other expenses include many smaller expense categories and are comprised of the following:

- Corporate/Community Relations
- Corporate Training
- Director's Expenses
- Memberships/Conferences
- Miscellaneous expenses

Forecasting Assumptions

In the 2019 GRA, all "other" accounts are forecast with CPI growth (1.9%) in 2019/20 and 2.0% of CPI growth in each year thereafter.

The following table presents the variance in "other" expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA)

Figure EXP- 28: Other Variances

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	5,090 (a)	4,004	1,086	27.12%
2	2018/19FB	6,192	3,642	2,550	70.02%
3	2019/20F	6,412	3,574	2,838	79.41%
4	2020/21F	6,518	3,645	2,873	78.82%

- At the time of filing the 2018 GRA, a $2.64 million stretch target was budgeted in this expense category, as cost saving strategies were not fully known. As strategies were confirmed, and savings realized, these permanent savings are now removed from the "Other" budget / forecast and reflected in the actual expense categories. This accounts for the higher than expected other expense throughout the 2017/18 to 2020/21 period.

EXP.4.2.13 Amortization of Deferred Development

Description

Amortization expenses related to deferred development are associated with capital expenditures from prior years. Deferred development is primarily costs related to retaining the services of consultants and internal labor required for improvement

initiatives. Also included is the costs related to the purchase of software. Amortization of deferred development expenses related to in-progress projects are forecasted and classified as an ongoing expense, while amortization of deferred development expenses related to completed projects are forecasted and classified as normal operations expenses. Please refer to *Appendix 18* for historical data and additional detail on deferred development expenses.

Forecasting Assumptions

Amortized Deferred Development expenses are amortized or expensed on a straight line basis. The amortization of deferred development expenses begin March 1st of the year following the completion of the project. Costs are generally amortized over 5 years with the exception of certain upgrade projects whereby costs are amortized over 4 years.

The following table presents the variance in amortization and deferred development between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 29: Amortization and Deferred Development Variances

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	20,756 (a)	21,234	(478)	-2.25%
2	2018/19FB	23,313	21,234	2,079	9.79%
3	2019/20F	14,865	12,966	1,899	14.65%
4	2020/21F	13,377	11,479	1,898	16.53%

Forecasted amortization expense variances can be explained either through timing relating to the completion of the project or the decision to no longer pursue a project as compared to the prior year's GRA submission.

Differences related to this year's GRA compared to last years are primarily due to the following:

- In 2017/18, the variance is mainly due to slightly less than expected amortization expenses related to the Physical Damage Re-Engineering project (Phase 3) and the Technology Risk Management project.

- In 2018/19 and outward, the variances are primarily due to incoming transfers from ongoing related amortization expenses. Due to completion, the following Basic related projects were transferred into normal operations amortization expense (2019 GRA) from an ongoing expense (2018 GRA):
  - Corporate Learning Management
  - Appointment Manager
  - Physical Damage Centre of Excellence
  - Phase 2 of the Information Security and Strategy initiative

EXP.4.2.14 Overall Normal Operating Expenses

The following table presents the variance in overall normal operating expenses between this year's forecast (2019 GRA) and last year's forecast (2018 GRA).

Figure EXP- 30: Total Corporate Normal Operating Expenses Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance – 2019 vs 2018	% Change
	(C$000s)				
1	2017/18A	276,588 (a)	290,112	(13,524)	-4.66%
2	2018/19FB	297,625	292,771	4,854	1.66%
3	2019/20F	293,239	290,274	2,965	1.02%
4	2020/21F	298,853	295,319	3,534	1.20%

- During 2017/18 the Corporation reduced expenses as compared to budget by approximately 4.7%. This was primarily a result of continued cost containment measures and the prudent management of expenses. Reductions in the following expense categories has led to another year of under budget variances:
  - Salaries
  - Overtime
  - Benefits
  - Building expenses
  - Furniture & equipment
  - Data Processing

- The greater than expected variance of $4.9 million in 2018/19 is primarily related to the amortization of deferred development expenses. As projects have completed during 2017/18, the amortization expense has flowed into normal operations in 2018/19. Also, contributing to this increase is Road Safety expenses related to the Road Watch program, and special services expenses related to strategic operational initiatives.
- In 2019/20 and 2020/21, the $3 million and $3.5 million increase respectively include amortization and data processing expense increases.

The following table has been provided which represents the compounded average annual growth rates of Corporate Normal Operations expenses shown over two different time periods; the last four years of actual results and the next three years of the forecast (which includes the rating years).

Figure EXP- 31: Corporate Normal Operations Expense – Compounded Annual Growth Rates

Line No.	Expense	14/15 - 17/18 (4 years)	18/19 - 20/21 (3 years)
1	Compensation - Salaries	2.2%	3.5%
2	Compensation - Overtime	-23.3%	21.2%
3	Compensation - Benefits	3.0%	4.3%
4	Compensation - H & E Tax	3.0%	2.9%
5	Sub Total - Compensation	2.0%	3.8%
6	Data Processing	5.1%	4.6%
7	Special Services	-0.2%	-5.0%
8	Building Expenses	-4.0%	4.4%
9	Safety/Loss Prevention Programs	-7.2%	1.7%
10	Telephone/Telecommunications	-9.4%	2.8%
11	Public Information/Advertising	-6.4%	6.9%
12	Printing, Stationery, Supplies	-2.3%	2.5%
13	Postage	3.8%	-11.8%
14	Regulatory/Appeal	2.8%	2.9%
15	Travel and Vehicle Expense	-11.6%	11.8%
16	Driver Education Program	5.0%	0.8%
17	Grants in Lieu of Taxes	2.2%	1.6%
18	Furniture & Equipment	-18.2%	32.4%
19	Merchant Fees & Bank Charges	-	4.8%
20	Other	-5.1%	8.6%
21	Sub total - Other Normal Operating Expenses	0.2%	3.2%
22	Depreciation-Capital Assets	-6.8%	10.9%
23	Amortization-Deferred Development	23.8%	-13.6%
24	Subtotal - Depreciation / Amortization	13.7%	-7.8%
25	Total Expenses	2.3%	2.6%

One of the key highlights within expenses for the 2019 GRA is based on the column illustrating fiscal periods 2014/15 through to 2017/18. Notable average expense reductions include many of the controllable expense categories such as overtime, special services, buildings, telephone/telecommunications, public information/advertising, printing stationery and supplies, travel and vehicle expense furniture and equipment, and other. All of these expense categories have averaged an annual negative growth since 2014/15. This supports the strides the Corporation continues to make as it relates to managing and monitoring expenses. Areas with positive growth are generally less controllable, including salaries (mandated salary increases and step in scale growth), benefits and grants in lieu of taxes.

The forecast period from 2018/19 through to 2020/21 reflects an overall expected average increase of only 2.6%. This represents a low growth percentage when consideration is made for natural expense growth, mandated salary increases of 1.75% to 2.0%, and an expected 4.3% average growth in non-discretionary benefit costs.

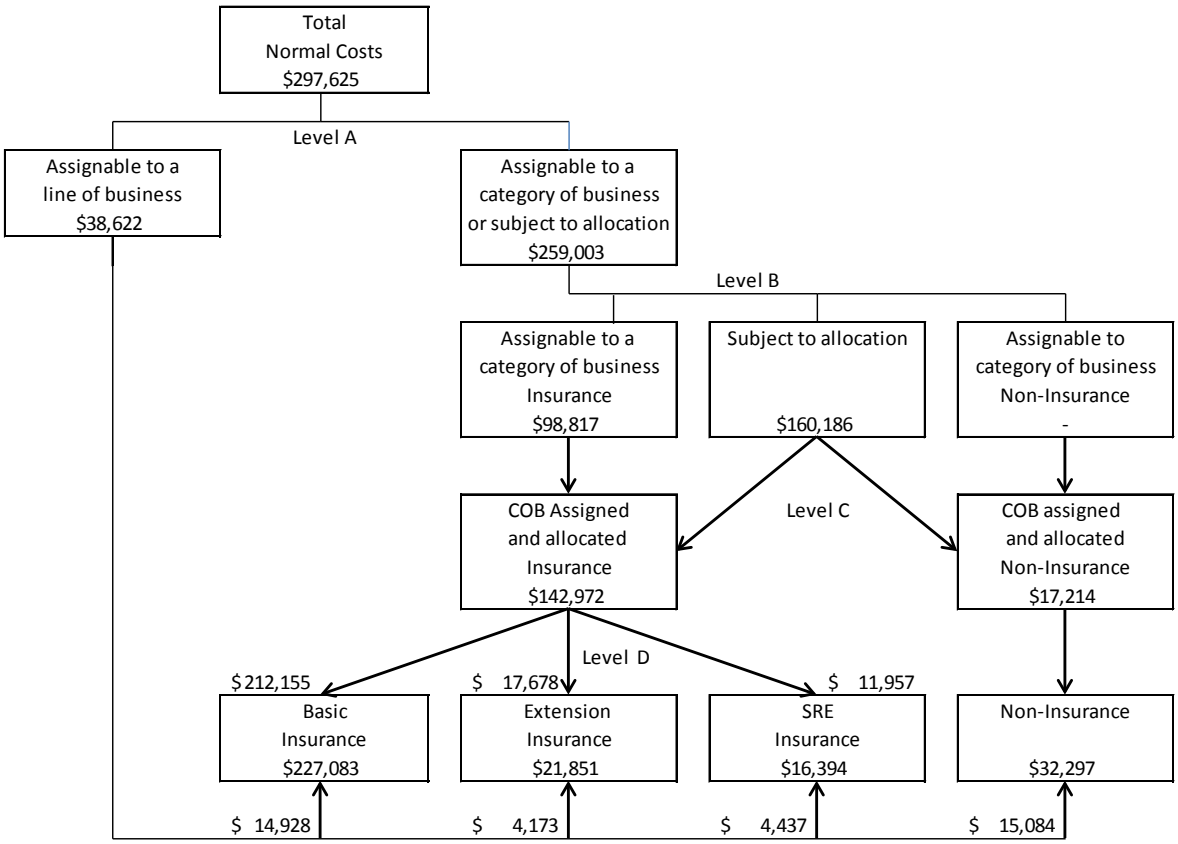
EXP.5 COST ALLOCATION METHODOLOGY

MPI allocates expenses between the major lines of business/divisions based upon the PUB approved expense allocation methodology. In 2009, MPI, in consultation with Deloitte, developed a new cost allocation method that was approved by the PUB in Board Order 157/12[1]. The cost allocation methodology compiles all corporate normal operating expenses within MPI and ultimately distributes these expenses into the four lines of business (Basic, Extension, Special Risk Extension, and *The Drivers and Vehicles Act*) and subsequently to the four expense groupings found on the Statement of Operations (Claims, Operating, Road Safety, and Regulatory Appeal) through the use of various steps and allocators.

The following illustration has been provided for the 2018/19 budget year:

[1] In Board Order 157/12, pages 31 and 32, the PUB authorized the use of Deloitte Allocation Methodology for rate setting purposes. http://www.pub.gov.mb.ca/pdf/mpi07/157-12.pdf

Figure EXP- 32: Cost Allocation Flowchart



Essentially, the corporation expects a normal operations operating expense budget of approximately $297.6 million for the fiscal 2018/19. Once these expenses flow through the allocation process, Basic total normal operations expenses total approximately $227.1 million. To further aid in the understanding of the allocation process, the sequence of steps has been individually explained as follows:

Purification

The first step in the process is referred to as purification. During the purification process all identifiable direct accounts and expenses are charged against the applicable line of business, all occupancy and benefit expenses are distributed to the various cost centers within MPI and subsequently assigned into allocation cost categories. Annually, MPI makes changes to the purification process via review of square footage assigned to each department. New departments and physical moves due to organizational changes are taken into account when allocating occupancy costs.

MPI added three new departments during 2017/18 and for the 2018/19 budget year, while discontinuing one operating department during the 2017/18 fiscal year. These include the following:

Additions:

- 408 - Budgeting
- 409 – Total Loss and Evaluations
- 410 – Customer and Corporate Communications

Discontinued department:

- 017 – Pacific Avenue Service Centre
- 185 – Brandon Testing Service Outlet

Once purification of the expenses is complete, expenses are then allocated through a five step process as illustrated above in *Figure EXP-34*. This is further described in more detail below.

Level A

After completion of purification (all expenses assigned to insurance and non-insurance allocation groupings), the cost allocation methodology illustrated above is initiated. In Level A, all allocation groupings directly assignable to one of the four lines of business are undertaken. For example, all of the costs related to the Compulsory Insurance Department are assigned to the Basic line of business. All expenses related to the Special Risk Extension (SRE) department are assigned to the SRE line of business. The expenses that are not directly identifiable to a specific line of business then proceed to level B of the allocation process.

Level B

The expenses remaining from Level A are classified into one of 3 categories of business (COB):

- Insurance – This category includes all expenses related to the Basic, Extension, and SRE lines of business
- Non–Insurance – This category includes all expenses related to *The Drivers and Vehicles Act* line of business
- Subject to allocation – The remaining expenses that cannot be directly assigned to insurance or non–insurance

An example of an insurance related cost are expenses related to the injury claims subdivision and the Physical Damage Centre. Expenses related to PIPP and injury claims are all relative to the insurance side of the business.

Level C

This level takes all expenses that cannot be assigned to a COB or LOB category. Essentially this level allocates costs related to corporate support functions. These include such areas as Corporate Information Technology, Human Resources, and Accounting and Finance costs. Costs in this category are classified as "subject to allocation" and assigned to an insurance, non-insurance, or "subject to allocation" category. The primary allocator used in this level is the weighted customer contact centre call ratio (WCCCCR) allocator described below. Other allocators, such as work effort and a category of business salary ratio are also used to separate insurance and non-insurance related expenses.

Level D

All expenses that have been classified as insurance through levels B and C, are now subject to allocation to one of 3 insurance related lines of business, Basic, Extension, or SRE. This allocation is conducted primarily based on the claims incurred allocator, but also utilizes other allocators such as claims reserves/unearned premiums for the Investment Department. At the culmination of level D, all expenses will now have been assigned to one of the four lines of business.

Level E

Once all Corporate Normal Operating expenses have been allocated to one of the four lines of business, the expenses need to be further assigned to one of the four expense line items on the Statement of Operations. These are Claims, Operating, Road Safety,

and Regulatory Appeal. To accomplish this, all identifiable allocation groupings are assigned directly to one of these expense line items. For example, all expenses related to physical damage and injury claims are assigned to Claims, all expenses associated with central administration and Finance are assigned to Operating. The expenses remaining that are not directly related are then allocated to Claims or Operating based on FTE proportions.

To illustrate the sequence of steps within the allocation process, the 2018/19 budget year has been demonstrated for Corporate Normal Operations allocations within *Appendix 14*.

Also, please refer to *Appendix 13* which provides detailed definitions for the allocation methodology. A detailed breakdown of the Basic share of Normal Operating Expenses has been provided in *Appendix 2*, *Appendix 3* and *Appendix 7*, including the Basic percentage of the Corporate Normal Operating Expenses.

Improvement Initiatives Allocations

The cost allocations for improvement initiatives follow a different methodology. Each project is allocated independently. Upon approval for implementation, each project is individually assessed to determine relativity against the four lines of business in Level D and four expense categories at Level E. Based on this assessment, the project isallocated accordingly.

EXP.5.1 Allocators of Expenses related to the Basic Program

Once Corporate expenses are determined they are subjected to the allocation methodology recommended by Deloitte in order to derive Basic-only expenses.

The key allocation drivers in the process include LOB claims incurred proportions, the BTO department allocation, Weighted Customer Contact Centre Call Ratio (WCCCCR), and FTE proportions to Claims and Operating. These four primary allocators are described below.

EXP.5.1.1 Claims Incurred Allocator

Description

The claims incurred allocator is established using a four year rolling average and is based on the proportion of claims incurred for each line of business relative to the claims incurred expected corporately. It is utilized at level D in the allocation process. The greater percentage in the claims incurred allocator means a greater amount of expenses being allocated to the Basic program.

The selection of this allocator is due to the alignment of the costs being allocated. Claims incurred dollars represent the driver of claims handling expenses.

The following table shows a comparative of the claims incurred allocator used in this year's GRA as compared to last year's GRA.

Figure EXP- 33: Claims Incurred Allocator Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2018/19FB	87.3%	87.3%	0.0%
2	2019/20F	86.8%	87.1%	-0.3%
3	2020/21F	87.0%	86.8%	0.2%

The above variances indicate that a lesser amount of expenses will be allocated to the Basic line of business in the 2019 GRA as compared to that forecast in the 2018 GRA for the 2019/20 year and a greater amount will be allocated in the 2020/21 year.

EXP.5.1.2 Weighted Average Customer Contact Center Call Ratio Allocator (WCCCCR)

Description

The basis of determining this allocator is through a log of calls received at the MPI Contact Centre. All calls related to the Drivers and Vehicles Administration (DVA) line of business are identified and utilized for the purpose of allocating expenses to DVA

within Level C. The WCCCCR is also based on a four year rolling average. Once this percentage is established it remains static throughout the forecast years.

Figure EXP- 34: Weighted Average Customer Contact Center Call Ratio Allocator (WCCCCR) Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2018/19FB	93.2%	93.4%	-0.2%
2	2019/20F	93.2%	93.4%	-0.2%
3	2020/21F	93.2%	93.4%	-0.2%

The greater percentage in WCCCCR means a greater percentage allocated to the remaining three lines of business [Basic, Extension and Special Risk Extension (SRE)] and lower percentage allocated to DVA. As the percentage in this year's forecast is lower compared to last year's forecast, this means a lower amount of expenses are being allocated to Basic, Extension and SRE as compared to last year.

EXP.5.1.3 Business Transformation Office Allocator (BTO)

Description

The Business Transformation Office (BTO) is responsible for overseeing all corporate initiatives. The normal operating expenses incurred annually for this department (approximately $5.6 million) are allocated based on the allocated LOB cost proportions for projects undertaken for that year. The percentage allocator is solely dependent on the type of project. If MPI works on more Basic related projects in one year, then most of the $5.6 million will be allocated to this line of business. If MPI undertakes primarily non-Basic related projects, then the $5.6 million will be allocated mostly to the non-Basic lines of business. This allocator is dynamically applied in each forecast year. As the LOB cost composition for all annual projects change, so too does the allocation.

The following table indicated that a greater portion of BTO related expenses will be allocated to the Basic line of business as compared to the three non-Basic lines of business.

Figure EXP- 35: Business Transformation Office Allocator (BTO) Variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2018/19FB	72.6%	84.3%	-11.7%
2	2019/20F	72.8%	71.6%	1.2%
3	2020/21F	81.6%	82.1%	-0.5%

The variance reflected in the 2018/19 forecast base year, indicates that a lesser amount of Basic expenses will be allocated as compared to the 2018 GRA. The greater the percentage, the greater the amount of expenses assigned to Basic.

EXP.5.1.4 FTE Proportions Between Claims and Operating Allocator

Description

At Level E, the primary allocator used to split expenses into the Statement of Operations categories (Claims expense and Operating expense) is FTE proportions. These proportions are established based on an assessment of FTE staff for all allocation groupings deemed as a shared cost for claims and operating staff. Examples include the accounting and finance allocation grouping, Contact Centre, and the Fair Practices Office. Based on the analysis completed for 2018/19, the following table indicates there will be a slight upward shift in claims expense relative to operating expense in the forecast.

Figure EXP- 36: FTE proportions between claims and operating allocator variance

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2018/19FB - Claims	67.95%	67.80%	0.15%
2	2018/19FB - Operating	32.05%	32.20%	-0.15%
3	2019/20F - Claims	67.95%	67.80%	0.15%
4	2019/20F - Operating	32.05%	32.20%	-0.15%
5	2020/21F - Claims	67.95%	67.80%	0.15%
6	2020/21F - Operating	32.05%	32.20%	-0.15%

EXP.5.2 Allocated Basic Normal Operating Expenses

The following represents the percentage of corporate normal operating expenses allocated to Basic for the period from 2017/18 to 2022/23:

Figure EXP- 37: Corporate Normal Operations Operating Expenses Allocation % to Basic

Line No.		2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
1	% Basic	76.25%	76.30%	75.68%	76.03%	75.71%	76.06%
2	Increase / (Decrease)		0.05%	-0.62%	0.35%	-0.32%	0.35%

As shown in the above table, the allocation to Basic is consistently around 76%. The slight volatility is due to the allocator percentages as described above. The reason for the slight decrease in Basic from 2018/19 to 2019/20 is primarily due to the decrease in the claims incurred allocator. As this allocator decrease, so do the expenses associated with Basic.

Once Corporate Normal Operating expenses are allocated to the Basic line of business via the approved allocation methodology, total Basic expenses are then determined which has a direct impact on the establishment of the rate requirement. The following table shows the historical and forecasted year-over-year results for Basic normal operating expenses along with the compounded annual growth rates.

Figure EXP- 38: Basic Normal Operations by Category

Line No.	Expense	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)						
1	Compensation - Salaries	98,041	101,798	104,474	108,025	109,758	112,634
2	Compensation - Overtime	805	1,441	1,436	1,433	1,432	1,437
3	Compensation - Benefits	23,364	25,044	25,571	26,262	26,805	27,688
4	Compensation - H & E Tax	2,123	2,183	2,237	2,287	2,329	2,388
5	Subtotal - Compensation	124,333	130,466	133,718	138,007	140,324	144,147
6	Data Processing	18,045	19,961	19,704	20,602	20,979	21,504
7	Special Services	5,623	6,271	4,806	4,770	4,838	4,979
8	Building Expenses	8,193	8,243	9,312	9,273	9,438	9,681
9	Safety/Loss Prevention Programs	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	1,680	1,732	1,764	1,814	1,849	1,895
11	Public Information/Advertising	1,936	2,339	2,370	2,426	2,473	2,534
12	Printing, Stationery, Supplies	1,080	1,700	1,650	1,567	1,596	1,634
13	Postage	3,242	2,887	2,174	2,280	2,323	2,380
14	Regulatory/Appeal	4,122	4,179	4,334	4,479	4,582	4,689
15	Travel and Vehicle Expense	670	932	945	968	985	1,010
16	Driver Education Program	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	1,506	1,454	1,504	1,573	1,601	1,641
18	Furniture & Equipment	489	1,275	1,045	1,128	1,149	1,177
19	Merchant Fees & Bank Charges	8,460	9,175	9,539	9,893	10,091	10,294
20	Other	3,961	4,908	5,048	5,148	5,245	5,373
21	Subtotal - Other Normal Operating Expenses	65,636	73,293	71,186	72,939	74,300	76,116
22	Depreciation-Capital Assets	3,830	4,107	4,729	5,303	5,242	4,800
23	Amortization-Deferred Development	17,098	19,217	12,293	10,963	6,306	2,228
24	Subtotal - Depreciation / Amortization	20,928	23,324	17,022	16,266	11,548	7,028
25	Total Expenses	210,897	227,083	221,926	227,212	226,172	227,291

From 2017/18 to 2018/19, the overall total Basic Normal Operating expenses increase by approximately $16.2 million. This is mainly due to expected increases in various non-controllable expense categories including salaries (mandatory salary increases), Benefits, merchant fees (transaction volume increases), and amortization of deferred development. From 2018/19FB to 2019/20, the corporation anticipates overall Basic Normal Operating expenses to decrease by approximately $5.2 million. This is primarily driven by less expenses related to the amortization of deferred development.

To further analyze the Basic Normal Operating expenses, compounded annual growth rates have been established for four years of actual, followed by three years of budget and forecast.

Figure EXP- 39: Basic Normal Operation Expense – Compounded Annual Growth Rates

Line No.	Expense	14/15 - 17/18 (4 years)	18/19 - 20/21 (3 years)
1	Compensation - Salaries	2.8%	3.3%
2	Compensation - Overtime	-23.4%	21.2%
3	Compensation - Benefits	3.7%	4.0%
4	Compensation - H & E Tax	3.7%	2.5%
5	Sub Total - Compensation	2.6%	3.5%
6	Data Processing	6.2%	4.5%
7	Special Services	4.7%	-5.3%
8	Building Expenses	-2.5%	4.2%
9	Safety/Loss Prevention Programs	-7.6%	0.2%
10	Telephone/Telecommunications	-8.6%	2.6%
11	Public Information/Advertising	-5.9%	7.8%
12	Printing, Stationery, Supplies	-11.8%	13.2%
13	Postage	5.1%	-11.1%
14	Regulatory/Appeal	3.0%	2.8%
15	Travel and Vehicle Expense	-12.6%	13.0%
16	Driver Education Program	3.0%	3.3%
17	Grants in Lieu of Taxes	2.8%	1.5%
18	Furniture & Equipment	-17.3%	32.1%
19	Merchant Fees & Bank Charges	6.1%	5.4%
20	Other	-4.8%	9.1%
21	Sub total - Other Normal Operating Expenses	0.9%	3.6%
22	Depreciation-Capital Assets	-6.4%	11.5%
23	Amortization-Deferred Development	21.6%	-13.8%
24	Subtotal - Depreciation / Amortization	13.0%	-8.1%
25	Total Expenses	2.9%	2.5%

The differences in Basic expenses between rate applications is best described as follows:

1. Changes in the total Corporate operating expense being allocated, and;

2. Changes in the percentage allocated to Basic.

Evaluating Basic Normal Operating expenses is similar to the evaluation completed for Corporate Normal Operating expenses, except for the inclusion of the various allocator changes discussed above. Included in the above analysis is four years of actual data

and three years of forecasted data. From 2014/15 through to 2017/18, the Corporation's overall basic normal operating expenses grew an average of 2.9% per annum. This growth is primarily attributed to the increase in amortization expenses related to deferred development costs for projects. With the Corporation enhancing its review on projects through the value management process, costs are expected to decrease going forward.

It should be noted, that during this period the Corporation also incurred mandatory salary increase and general inflationary growth. Despite this unavoidable growth, the Corporation's expenses were at 2.9% average annual growth. This is primarily attributable to corporate cost containment efforts. Many expense categories have seen negative average growth rates including overtime (-23%), building (-2.5%), safety/loss prevention (-7.6%), telephone/telecommunications (-8.6%), public information/advertising (-5.9%), printing stationery & supplies (-11.8%), travel and vehicle expense (-12.6%), furniture & equipment (-17.3%), and other (-4.8%).

From 2018/19 through 2020/21, the corporation expects a modest average growth in Basic normal operating expenses of 2.5%. This is primarily due to the application of CPI to most expense categories of 1.9% in 2019/20 and 2.0% in 2020/21, as well as contractual salary increases.

For further analysis of compounded annual growth rates at the Basic total level (Normal Operating Expense and Improvement Initiative – ongoing Expense), please refer to *Appendix 4*.

EXP.5.3 Allocated Basic Road Safety/Loss Prevention Program and Driver Education and Improvement

Every year, expenses related to Road Safety/Loss Prevention and Driver Education and Improvement are reviewed and discussed to ensure that MPI is continuing to focus attention on these important areas as it relates to the Basic program. MPI has always been committed to loss prevention in order to mitigate risk on Manitoba roads and therefore this expense category is highlighted within this section. A review of

current 2017/18 Normal Operating Basic actual and 2018/19 forecasted expenditures has been provided in the table below. A further detailed analysis of this section has been provided in *Appendix 15*.

Figure EXP- 40: Road Safety and Loss Prevention Program Costs

Line No.	Program	2017/18 Actual	2018/19 Forecast Base	Increase (Decrease)
	(C$000's)			
1	Driver Education and Improvement	3,600	3,879	279
2	Impaired Driving Prevention Strategies	1,725	2,127	402
3	Speed Management Strategies	135	384	249
4	Occupant Safety Education Strategies	101	280	180
5	Auto-Crime Prevention Strategies	1,514	1,732	218
6	Motorcycle Safety Education	77	40	(37)
7	Vulnerable Road User Education Strategies	420	419	(1)
8	Safety Programming Other	587	1,323	736
9	Safety Grants and Sponsorships	-	-	-
10	Road Safety Production and Advertising	79	166	87
11	Program Evaluation	23	137	114
12	Cell Phone/Distracted Driver Advertising	330	219	(112)
13	Other	1,823	-	(1,823)
14	Total Program Costs	10,413	10,704	292
15	Departmental Expenses	2,733	2,901	168
16	Total Program Costs/Expenses	13,146	13,606	460

MPI continues to closely monitor spending related to Road Safety and Loss Prevention. It is imperative these programs continue to meet the ultimate objectives of reducing claims and subsequent claims costs. Notable variances above include the impact of re-categorizing the High School Driver Education project (Phase 3) from a deferred development capital cost to a data processing expense. As this project no longer met the criterion for capitalization the full cost of the project was expensed in 2017/18.

EXP.6 ALLOCATED BASIC IMPROVEMENT INITIATIVES AND CAPITAL EXPENDITURES

As described in section *EXP.5*, the allocation of Improvement Initiative expenses, both Implementation and Ongoing, is project specific. Improvement Initiative - Implementation expenses are included in this section as part of the overall discussion of capital expenditures. Also included in this section is a discussion on administrative or normal operations capital.

EXP.6.1 Administrative Capital and Initiative Capital Costs Expenditures

There are two types of capital expenditures incurred by MPI in the delivery of the Basic program to Manitoba motorists – administrative capital (which includes physical properties) and capital associated with the implementation of Corporate initiatives.

Administrative capital costs are depreciated over time and are included in Corporate Normal Operating expenses. These costs are allocated across the various lines of business under the approved cost allocation methodology. Administrative capital includes costs for the regular replacement of capital items such as furniture, fixtures and equipment. Administrative capital also includes property and premises upgrades and expansions to ensure MPI is meeting customer demand. Administrative capital is evaluated to determine if it meets the criteria under International Financial Reporting Standards for capitalization on an item by item basis and, if qualified, the costs are depreciated over time. Depreciable periods can range anywhere from three years for data processing equipment to 40 years for buildings.

Project capital costs can be specific to particular lines of business or the costs can be shared amongst all lines of business. These costs are allocated based on an independent review of each initiative. Project capital costs are generally categorized as deferred development as well as some depreciable capital related to data processing equipment.

A key distinction to make when discussing capital is the difference between depreciation expense and amortization expense. Depreciation expense is associated with physical or tangible assets such as buildings, automobiles or equipment. Amortization expense is associated with intangible assets such as deferred development. Generally, amortization expenses are costs comprised of consultant fees but can also be related to the purchase of packaged software, data processing costs related to the testing of systems, and internal labor required for assisting with project implementation.

The table below shows Basic's share of all capital expenditures anticipated over the next five budget and forecast years. The top section is related to capital and

implementation expense associated with initiatives, whereas the middle and last part of this section is related to Administrative or normal operations capital. Also of note is the column to the right called Unassigned Capital. This is the 2017/18 budgeted variance in project capital and expense that has been unassigned to a fiscal year due to the timing of filing the rate application.

Figure EXP- 41: Basic Capital Expenditures

Line No.		2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
	(C$000s except where noted)							
1	Deferred Development	(574)	7,436	18,611	27,195	20,350	20,689	(75)
2	Capital	936	-	-	-	-	-	534
3	Implementation Expenses	20,459	3,420	757	757	757	757	189
4	Subtotal	20,821	10,856	19,368	27,952	21,107	21,446	648
5	Land and Buildings	2,663	2,422	3,069	1,560	2,763	5,197	-
6	Automobiles	330	924	486	327	547	255	-
7	Furniture and Equipment	1,075	2,023	2,661	1,395	1,408	1,526	-
8	Subtotal	4,068	5,369	6,216	3,282	4,718	6,978	-
9	Investment Capital	246	1,309	639	513	741	2,220	-
10	Total Capital Expenditures	25,135	17,534	26,223	31,747	26,566	30,644	648

The pattern of year-over-year capital related expenditures is consistent with prior years and illustrates MPI's commitment to focusing on core insurance activities,, while eliminating unnecessary capital expenditures. Automobile costs are expected to decrease in 2019/20 while furniture and equipment costs are lower than in prior GRA submissions. Another notable change is the deferred development decrease in 2018/19. As the Corporation focuses solely on optimizing core business functions only, these capital costs have declined in comparison to prior years. Also, see *Appendix 16*, *Appendix 17* and *Appendix 18* for historical data and comparatives on deferred development and capital expenditures.

EXP.6.2 Total Basic Capital Expenditures – BTO Project Costs

Implementation expenses for BTO projects are costs incurred for the development of new projects, systems, system enhancements and process improvements. Based on the type of expense incurred and the use of the expenditure, costs are classified into deferred development, capital expenditure and implementation expense.

Forecasting for initiatives takes place throughout the fiscal year. Projects are submitted based on the results of: i) the strategic planning process and from divisional management and staff to improve MPI operations in areas such as customer service and product enhancements; and ii) savings related to improved processes, enhancement to current processes, etc. Each project submission is scrutinized through the value management process as demonstrated in *Part IV (ii) Value Management* and then ascends to the appropriate level of authority including the Executive Committee and the Board of Directors. *Part IV (ii) Value Management* also describes the new project governance framework for managing and monitoring new initiatives.

The following figure outlines in detail, all Basic related projects currently in progress at the time of filing the 2019 GRA as well as Basic related projects expected to be undertaken.

Figure EXP- 42: Basic Capital Expenditures by Project

Basic Capital Expenditures by Project

Line No.	Project	LTD Actual*	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital**
	(C$000s, except where noted)							
1	Deferred Development	-	-	-	-	-	-	-
2	Capital Depreciation	-	-	-	-	-	-	-
3	Expense	201	163	-	-	-	-	-
4	HR Management System Phase 3 & 4	201	163	-	-	-	-	-
5	Deferred Development	-	1,159	941	-	-	-	-
6	Capital Depreciation	-	-	-	-	-	-	-
7	Expense	-	-	-	-	-	-	-
8	BI3 Fineos Upgrade 2020	-	1,159	941	-	-	-	-
9	Deferred Development	-	-	-	-	-	1,153	-
10	Capital Depreciation	-	-	-	-	-	-	-
11	Expense	-	-	-	-	-	-	-
12	BI3 Fineos Upgrade 2024	-	-	-	-	-	1,153	-
13	Deferred Development	-	-	-	1,628	814	-	-
14	Capital Depreciation	-	-	-	-	-	-	-
15	Expense	-	-	-	-	-	-	-
16	Infor Major Upgrade 2022	-	-	-	1,628	814	-	-
17	Deferred Development	595	786	-	-	-	-	(771)
18	Capital Depreciation	-	-	-	-	-	-	-
19	Expense	-	-	-	-	-	-	(9)
20	High School Driver Education Phase 3	595	786	-	-	-	-	(780)
21	Deferred Development	2,274	204	-	-	-	-	105
22	Capital Depreciation	-	-	-	-	-	-	-
23	Expense	159	-	-	-	-	-	10
24	Corporate Learning Management	2,433	204	-	-	-	-	115
25	Deferred Development	2,368	186	-	-	-	-	264
26	Capital Depreciation	-	-	-	-	-	-	-
27	Expense	641	-	-	-	-	-	(486)
28	Technology Risk Management - 2017	3,009	186	-	-	-	-	(222)
29	Deferred Development	-	3,070	-	-	-	-	-
30	Capital Depreciation	-	-	-	-	-	-	-
31	Expense	-	407	-	-	-	-	-
32	Technology Risk Management - 2018	-	3,477	-	-	-	-	-
33	Deferred Development	-	-	3,256	-	-	-	-
34	Capital Depreciation	-	-	-	-	-	-	-
35	Expense	-	-	407	-	-	-	-
36	Technology Risk Management - 2019	-	-	3,663	-	-	-	-
37	Deferred Development	-	-	-	3,256	-	-	-
38	Capital Depreciation	-	-	-	-	-	-	-
39	Expense	-	-	-	407	-	-	-
40	Technology Risk Management - 2020	-	-	-	3,663	-	-	-

Line No.	Project	LTD Actual*	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital**
41	Deferred Development	-	-	-	-	3,256	-	-
42	Capital Depreciation	-	-	-	-	-	-	-
43	Expense	-	-	-	-	407	-	-
44	Technology Risk Management - 2021	-	-	-	-	3,663	-	-
45	Deferred Development	-	-	-	-	-	3,256	-
46	Capital Depreciation	-	-	-	-	-	-	-
47	Expense	-	-	-	-	-	407	-
48	Technology Risk Management - 2022	-	-	-	-	-	3,663	-
49	Deferred Development	955	-	-	-	-	-	607
50	Capital Depreciation	-	-	-	-	-	-	-
51	Expense	631	461	-	-	-	-	81
52	Enhanced Direct Repair Capabilities	1,586	461	-	-	-	-	688
53	Deferred Development	-	-	5,460	5,217	-	-	-
54	Capital Depreciation	-	-	-	-	-	-	-
55	Expense	280	407	-	-	-	-	-
56	Finance Re-Engineering Initiative	280	407	5,460	5,217	-	-	-
57	Deferred Development	1,345	1,221	814	814	-	-	(577)
58	Capital Depreciation	-	-	-	-	-	-	-
59	Expense	-	-	-	-	-	-	-
60	Customer Self Service	1,345	1,221	814	814	-	-	(577)
61	Deferred Development	-	-	8,140	16,280	16,280	16,280	-
62	Capital Depreciation	-	-	-	-	-	-	-
63	Expense	-	1,628	-	-	-	-	-
64	Legacy Systems Modernization	-	1,628	8,140	16,280	16,280	16,280	-
65	Deferred Development	208	810	-	-	-	-	202
66	Capital Depreciation	-	-	-	-	-	-	-
67	Expense	154	4	-	-	-	-	-
68	Credit Card Strategy	362	814	-	-	-	-	202
69	Deferred Development	-	-	-	-	-	-	-
70	Capital Depreciation	-	-	-	-	-	-	-
71	Expense	898	350	350	350	350	350	19
72	AOL PUB Release	898	350	350	350	350	350	19
73	Total BTO / BPR Project Costs	10,709	10,856	19,368	27,952	21,107	21,446	(555)

74 **LTD actual are expenditures from 2011/12 to 2017/18 for current projects only.*

75 ***The total unassigned capital in Table 6.2 is different from Table 6.1. Only current projects are presented in Table 6.2.*

1 The above table illustrates the overall costs associated with current approved projects
2 over the forecast period that will have an impact on the Basic program. Notable
3 projects included Technology Risk Management, Legacy Modernization, and the
4 Finance Re-Engineering Initiative. For a comparative view of BTO Project costs
5 forecasted for the current GRA as compared to last year's GRA, please see *Appendix*
6 *17*.

EXP.6.3 Total Basic Associated Capital Expenses

An understanding of future capital requirements and subsequent depreciation/amortization is critical to forecasting rating impacts on the Basic program. Depreciation and amortization expenses are directly associated with capital purchases and account for approximately 8.3% of all Basic expenses in 2018/19, falling to 9.7% in 2021/22.

Figure EXP- 43: Basic Ongoing / Depreciation / Amortization Expenses

Line No.	Project	2017/18A	2018/19F	2019/20F	2020/21F	2021/22F	2022/23F
	(C$000s, except where noted)						
	Ongoing Expenses						
1	Financial Re-Engineering Initiative	-	-	-	-	2,135	2,135
2	BI3 Fineos Upgrade 2020	-	-	-	525	525	525
3	Credit Card Strategy	-	-	244	244	244	244
4	Infor/Lawson Upgrade	-	-	632	632	632	632
5	Enhanced DR Capabilities	-	-	430	430	430	430
6	Customer Self Service	-	-	467	630	793	793
7	Infor Major Upgrade 2022	-	-	-	-	-	488
8	Legacy Systems Modernization	-	-	-	-	4,884	8,140
9	High School Driver Education Phase 3	-	-	352	352	352	352
10	Technical Risk Management - 2018	-	-	614	614	614	614
11	Technical Risk Management - 2019	-	-	-	651	651	651
12	Technical Risk Management - 2020	-	-	-	-	651	651
13	Technical Risk Management - 2021	-	-	-	-	-	651
14	Total - Ongoing Expenses	-	-	2,739	4,078	11,911	16,306
15	Depreciation Expenses						
16	Physical Properties	2,663	2,755	2,801	2,835	2,860	2,772
17	Automobiles	403	464	547	570	552	507
18	Data Processing	335	663	1,245	1,775	1,751	1,403
19	Office Equipment/Systems Furniture/ Demountable Wall Systems	459	427	354	311	273	282
20	Total Depreciation Expenses	3,860	4,309	4,947	5,491	5,436	4,964
21	Amortization Expenses						
22	Appointment Manager	-	266	266	267	267	268
23	Corporate Learning Management	-	518	515	517	516	518
24	Partner Portal	-	444	443	445	445	447
25	Information Security Strategy and Road Map Phase 2	-	495	492	494	493	495
26	Technical Risk Management - 2017	-	503	519	520	520	522
27	Physical Damage - Centre of Excellence	-	143	142	143	143	143
28	Physical Damage Re-engineering - Main/Phase 3	2,411	2,179	2,175	2,184	2,185	-
29	PDR Opt Rep - Distributive Estimating	967	966	964	968	968	-
30	Technology Risk Management - 2016/17	385	388	386	387	386	-
31	Information Security Strategy and Road Map Phase 1	549	549	546	547	547	-
32	PDR Opt Rep - Collaborative Estimating & JSST	1,986	1,983	1,979	1,988	-	-
33	ITO - High Availability	1,426	1,423	1,414	1,418	-	-
34	Legal Management Project	426	425	423	424	-	-
35	Predictive Analytics	355	355	353	354	-	-
36	BI3 Fineos Upgrade 2016	992	991	989	-	-	-
37	Enterprise Data Masking	476	475	472	474	-	-
38	Physical Damage Re-engineering - Phase 1 & 2	381	381	380	-	-	-
39	IT Optimization	1,896	1,892	-	-	-	-
40	Disaster Recovery	2,667	2,662	-	-	-	-
41	HR Management System Phase 1 & 2	2,182	2,177	-	-	-	-
42	Total Amortization Expenses	17,099	19,215	12,458	11,130	6,470	2,393
43	Total Ongoing/Depreciation/ Amortization Expenses	20,959	23,525	20,144	20,699	23,817	23,663

The table above represents the various Basic expenses related to ongoing initiatives expenses as well as depreciation and amortization expenses related to capital expenditures for normal operations and projects. The ongoing expenses are comprised primarily of amortization expense, but also contain a small portion of expenses related to depreciation and data processing. These ongoing expenses relate to in-progress and forecasted projects. Once the project is completed, the estimated expense amounts

shown above are expected to transfer into normal operations. The depreciation expenses are related to the capital purchases required to manage the day-to-day operations and are captured in normal operations. The amortization expenses are related to all past projects that have been completed on or before the end of 2018/19. These amortization expenses were previously classified as ongoing expenses but transferred into normal operations as the projects completed. Due to the timing of project completion and changing estimates, MPI does not include ongoing expenses in normal operations but rather, tracks them separately until projects are complete.

Ongoing expenses (primarily amortization) are expected to increase as new projects reach completion, while normal operations amortization expenses will decline as former projects become fully amortized (for most projects, after five years). This explains the increasing and decreasing trends within these categories.

EXP.7 COMMISSIONS

Figure EXP- 44: Commissions Summary from Total Corporate and Basic Expenses

Line No.		2013/14A	(Restated) 2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Total Corportate Expenses	267,754	273,767	275,343	279,123	299,164	301,680	298,785	306,702	319,043	325,126
2	**Basic Allocated Corporate Expenses**										
3	Claims Expense	114,552	116,578	118,615	120,972	143,337	137,168	135,428	139,216	144,330	146,780
4	Road Safety/Loss Prevention	12,816	11,359	13,029	12,530	13,146	13,606	12,693	12,818	13,003	13,279
5	Operating	67,982	74,283	71,638	72,785	70,201	75,060	73,606	76,313	79,998	82,908
6	Regulatory/Appeal	3,765	3,935	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233
7	Total Basic Allocated Corporate Expenses	199,115	206,155	206,957	211,176	231,127	230,503	226,567	233,345	242,445	248,200
8	*Percentage of Corporate Operating Expenses*	*74.4%*	*75.3%*	*75.2%*	*75.7%*	*77.3%*	*76.4%*	*75.8%*	*76.1%*	*76.0%*	*76.3%*
9	Basic Direct Expenses										
10	Commissions	32,058	32,845	33,862	35,086	37,378	40,338	42,690	44,835	46,610	48,443
11	Premium Taxes	23,343	24,531	26,205	27,563	29,143	31,518	33,736	35,435	36,861	38,334
12	Total Basic Direct Expenses	55,401	57,376	60,067	62,649	66,521	71,856	76,426	80,270	83,471	86,777

EXP.7.1 Description

Compensation in the form of commissions and flat fees are paid out to brokers (approximately 300) across Manitoba for selling MPI's Basic insurance products. There are variable commissions related to the purchase of Basic insurance policies and flat fees which are paid out for administering various types of transactions. Examples of flat fee transaction types include cancellations, buyouts, document replacement and midterm changes. Flat fees represent approximately 16% of overall commissions paid out on the Basic program. Commissions related to administering driver's licenses are also included.

Commission rates are generally established through negotiation with the Insurance Brokers Association of Manitoba, and then reflected in provincial regulation (*Agent Commissions Regulation, M.R. 93/2009* under *The Manitoba Public Insurance Corporation Act*).

EXP.7.2 Forecasting Assumptions

For 2018/19 and onward, the Basic variable commission rates are calculated based on an effective interest rate of 3.25% of Premiums Written; these amounts also include Drivers Variable commissions. Flat fees are subject to CPI increases and are forecasted based on transaction volumes and range from about $4.61 to $21.70 per transaction.

EXP.8 PREMIUM TAXES

Figure EXP- 45: Premium Taxes Summary from Total Corporate and Basic

Line No.		(Restated) 2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Total Corportate Expenses	267,754	273,767	275,343	279,123	299,164	301,680	298,785	306,702	319,043	325,126
2	**Basic Allocated Corporate Expenses**										
3	Claims Expense	114,552	116,578	118,615	120,972	143,337	137,168	135,428	139,216	144,330	146,780
4	Road Safety/Loss Prevention	12,816	11,359	13,029	12,530	13,146	13,606	12,693	12,818	13,003	13,279
5	Operating	67,982	74,283	71,638	72,785	70,201	75,060	73,606	76,313	79,998	82,908
6	Regulatory/Appeal	3,765	3,935	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233
7	Total Basic Allocated Corporate Expenses	199,115	206,155	206,957	211,176	231,127	230,503	226,567	233,345	242,445	248,200
8	*Percentage of Corporate Operating Expenses*	*74.4%*	*75.3%*	*75.2%*	*75.7%*	*77.3%*	*76.4%*	*75.8%*	*76.1%*	*76.0%*	*76.3%*
9	Basic Direct Expenses										
10	Commissions	32,058	32,845	33,862	35,086	37,378	40,338	42,690	44,835	46,610	48,443
11	Premium Taxes	23,343	24,531	26,205	27,563	29,143	31,518	33,736	35,435	36,861	38,334
12	Total Basic Direct Expenses	55,401	57,376	60,067	62,649	66,521	71,856	76,426	80,270	83,471	86,777

EXP.8.1 Expenses

Description

Premium taxes (above) are taxes paid by MPI on the premiums collected.

Forecasting Assumption

Costs associated with Premium Taxes are directly related to the Basic line of business insurance policies. The Basic amount of premium taxes is calculated based on 3.0% of earned premiums.

The following table illustrates the calculated values for premium taxes:

Figure EXP- 46: Premium Tax Calculations

Line No.	Category	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	(C$000s, except where noted)										
1	Motor Vehicles	741,077	774,785	827,701	871,174	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
2	Drivers	37,015	42,926	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
3	Total Basic Premiums earned	778,092	817,712	873,488	918,780	971,436	1,050,604	1,124,539	1,181,174	1,228,696	1,277,803
4	Premium tax Rate	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
5	Premium Taxes Paid	23,343	24,531	26,205	27,563	29,143	31,518	33,736	35,435	36,861	38,334

EXP.9 CONCLUSION

MPI continues to control corporate wide spending to support rate predictability and stability for all Manitobans. Reductions in FTE counts, reducing overtime, focusing on core business initiatives, and employing successful cost containment strategies are the primary ways the Corporation has demonstrated prudent fiscal management.

As a result of MPI's continued focus on prudently managing its operating expenses, forecasted operating expenses do not form part of the 2.2% rate indication. The Corporation believes that continued diligence in managing and reducing operating expenses will support the new corporate mission: *to provide exceptional coverage and service, affordable rates and safer roads through public auto insurance.*

Below are the internal operation measures that are traditionally provided through the information request process.

Line No.		Metric	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Annual Compound Growth 5 Year Historical	Annual Compound Growth 3 Year Historical
1	1	Net premiums earned ($000)	764,670	803,881	861,065	907,145	960,142	1,039,407	1,113,119	1,169,526	5.9%	6.1%
2	2(a)	Operating Expenses ($000)	71,748	78,218	75,316	77,674	74,644	79,729	78,446	81,311	1.0%	1.0%
3	2(b)	Normal Operating Expenses-excluding all improvement initiatives expenses ($000)	68,449	75,799	74,541	77,559	73,724	78,543	76,967	79,522	1.9%	0.6%
4	2(c)	Normal Operating Expenses-excluding all improvement initiatives expenses & amortization of prior improvement initiatives ($000)	65,613	70,942	72,112	73,943	70,386	74,741	74,699	76,988	1.8%	1.5%
5	3(a)	Claims Expenses ($000)	127,368	127,937	131,641	133,502	156,483	150,774	148,121	152,034	5.3%	0.4%
6	3(b)	Normal Claims Expenses-excluding all improvement initiatives & Immobilizer expenses ($000)	117,683	121,390	126,214	135,170	136,200	147,520	144,959	147,690	3.7%	0.1%
7	3(c)	Normal Claims Expenses-excluding all improvement initiatives, Immobilizer expenses & amortization of prior improvement initiatives ($000)	112,701	112,202	118,989	124,630	122,440	132,105	132,029	135,017	2.1%	1.1%
8	4	Net Claims Incurred ($000)	747,435	745,837	666,404	860,035	767,239	817,139	900,212	950,712	0.7%	7.9%
9	5	Commissions & Premiums Taxes ($000)	55,399	57,376	60,067	62,649	66,521	71,856	76,426	80,270	4.7%	5.7%
10	6	Investment Income ($000)	147,735	188,451	(4,038)	82,897	116,320	191,814	82,147	84,863	N/A	N/A
11	7	Number of claims (Note 1)	243,891	227,904	242,732	255,017	247,993	249,748	251,510	253,278	0.4%	0.7%
12	8	Number of policies	1,045,281	1,064,506	1,086,538	1,107,011	1,124,731	1,143,088	1,160,177	1,177,522	1.8%	1.5%
13	9	Number of Support employees	442	435	439	448	434	444	440	432	-0.5%	-1.4%
14	10	Number of Claims employees	933	918	927	946	917	937	929	912	-0.4%	-1.3%
15	11	Gross Premiums Written ($000)	798,162	838,694	900,788	935,424	1,005,887	1,088,183	1,155,985	1,203,006	6.0%	5.1%
16	12	Net Premiums Written ($000)	784,741	824,865	888,365	923,789	994,593	1,076,987	1,144,565	1,191,358	6.1%	5.2%
17	13	Provincial population (000)	1,282.0	1,294.9	1,296.0	1,318.1	1,338.1	1,355.2	1,372.9	1,389.7	1.1%	1.3%

Note 1 - includes total corporate number of claims excluding claims with only Extension or SRE covers

Line No.		Metric	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Annual Compound Growth 5 Year Historical	Annual Compound Growth 3 Year Historical
1	i(a)	Operating Expense Ratio [2(a)/1]	9.38	9.73	8.75	8.56	7.77	7.67	7.05	6.95	-4.6%	-4.8%
2		Yearly Change (%)	5.74	3.70	(10.10)	(2.11)	(11.12)	(1.33)	(8.13)	(1.35)		
3	i(b)	Operating Expense Ratio [2(b)/1]	8.95	9.43	8.66	8.55	7.68	7.56	6.91	6.80	-3.8%	-5.1%
4		Yearly Change (%)	5.67	5.34	(8.19)	(1.24)	(11.30)	(1.59)	(8.50)	(1.66)		
5	i(c)	Operating Expense Ratio [2(c)/1]	8.58	8.82	8.37	8.15	7.33	7.19	6.71	6.58	-3.9%	-4.3%
6		Yearly Change (%)	5.96	2.85	(5.10)	(2.67)	(12.47)	(1.91)	(6.67)	(1.91)		
7	ii(a)	Claims Expense Ratio [3(a)/1]	16.66	15.91	15.29	14.72	16.30	14.51	13.31	13.00	-0.5%	-5.3%
8		Yearly Change (%)	3.64	(4.45)	(3.94)	(3.74)	6.60	(11.00)	(8.27)	(2.31)		
9	ii(b)	Claims Expense Ratio [3(b)/1]	15.39	15.10	14.66	14.90	14.19	14.19	13.02	12.63	-2.0%	-5.7%
10		Yearly Change (%)	3.20	(1.88)	(2.93)	1.66	(3.22)	0.05	(8.24)	(3.03)		
11	ii(c)	Claims Expense Ratio [3(c)/1]	14.74	13.96	13.82	13.74	12.75	12.71	11.86	11.54	-3.6%	-4.7%
12		Yearly Change (%)	3.38	(5.30)	(0.99)	(0.58)	(7.72)	(0.33)	(6.68)	(2.67)		
13	iii	Loss Ratio [4/1]	97.75	92.78	77.39	94.81	79.91	78.62	80.87	81.29	-4.9%	1.7%
14		Yearly Change (%)	11.86	(5.08)	(16.58)	22.50	3.25	(1.62)	2.87	0.52		
15	iv(a)	Combined Ratio [(2(a)+3(a)+4+5)/1]	131.03	125.56	108.40	124.99	110.91	107.71	108.09	108.11	-4.1%	0.2%
16		Yearly Change (%)	8.88	(4.17)	(13.66)	15.30	2.31	(2.89)	0.36	0.01		
17	iv(b)	Combined Ratio [(2(b)+3(b)+4+5)/1]	129.33	124.45	107.68	125.16	108.70	107.28	107.68	107.58	-4.3%	0.1%
18		Yearly Change (%)	8.88	(3.78)	(13.47)	16.23	0.94	(1.31)	0.37	(0.09)		
18	iv(c)	Combined Ratio [(2(c)+3(c)+4+5)/1]	128.31	122.70	106.56	123.60	106.92	105.43	106.31	106.28	-4.5%	0.4%
20		Yearly Change (%)	8.97	(4.37)	(13.15)	15.99	0.34	(1.39)	0.84	(0.03)		
21	v	Operating Expense/Policy [2(c)/8]	$ 62.77	$ 66.64	$ 66.37	$ 66.79	$ 62.58	$ 65.39	$ 64.39	$ 65.38	-0.1%	0.0%
22		Yearly Change (%)	3.88	6.17	(0.41)	0.64	(5.71)	4.48	(1.53)	1.55		
23	vi	Claims Expense/Claim [3(c)/7]	$ 462.10	$ 492.32	$ 490.21	$ 488.71	$ 493.72	$ 528.95	$ 524.95	$ 533.08	1.7%	0.4%
24		Yearly Change (%)	(1.23)	6.54	(0.43)	(0.31)	0.72	7.14	(0.76)	1.55		
25	vii	Policies/Support Employees [8/9]	2,365	2,447	2,475	2,471	2,592	2,575	2,637	2,726	2.3%	2.9%
26		Yearly Change (%)	(5.89)	3.48	1.14	(0.16)	4.71	(0.66)	2.42	3.37		
27	viii	Claims/Claims Employees [7/10]	261	248	262	270	270	267	271	278	0.9%	2.1%
28		Yearly Change (%)	5.77	(5.03)	5.47	2.95	3.28	(1.44)	1.57	2.58		
29	ix	Premiums/Policy [11/8]	763.59	787.87	829.04	845.00	894.34	951.97	996.39	1021.64	4.0%	3.6%
30		Yearly Change (%)	2.51	3.18	5.23	1.92	7.88	6.44	4.67	2.53		
31	x	Insurance Costs/Capita [12/13]	612.12	637.01	685.48	700.84	743.28	794.73	833.68	857.31	5.0%	3.9%
32		Yearly Change (%)	3.95	4.07	7.61	2.24	8.43	6.92	4.90	2.83		

Appendix 2: SUMMARY OF BASIC EXPENSES BY CATEGORY

Normal Operations

5 Year Summary of Basic Expenses by Category - Normal Operations Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
1	*($000's, except where noted)*															
2	Compensation - Salaries	66,417	66,794	69,168	71,060	73,443	30,993	29,116	30,278	31,179	32,278	1,762	1,891	1,978	1,848	1,906
3	Compensation - Overtime	1,047	644	1,133	1,128	1,127	193	154	292	291	290	14	2	13	13	13
4	Compensation - Benefits	15,201	15,718	17,031	17,407	17,870	7,374	7,140	7,456	7,639	7,854	352	447	465	431	441
5	Compensation - H & E Tax	1,421	1,429	1,485	1,524	1,558	689	648	649	667	683	33	41	41	38	38
6	Subtotal - Compensation	84,086	84,585	88,817	91,119	93,998	39,249	37,058	38,675	39,776	41,105	2,161	2,381	2,497	2,330	2,398
7	Data Processing	12,945	12,544	14,108	13,933	14,563	6,008	5,487	5,837	5,771	6,039	11	14	16	-	-
8	Special Services	1,973	2,314	2,325	1,794	1,788	2,905	3,218	3,682	2,837	2,810	118	90	263	175	172
9	Building Expenses	6,239	5,794	5,768	6,522	6,492	2,591	2,293	2,364	2,679	2,672	99	100	105	104	103
10	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
11	Telephone/Telecommunications	1,234	1,162	1,199	1,221	1,256	585	518	533	543	558	-	-	-	-	-
12	Public Information/Advertising	53	16	15	15	16	240	95	243	247	254	2,328	1,825	2,081	2,108	2,156
13	Printing, Stationery, Supplies	799	468	947	919	873	556	552	695	675	641	49	60	57	55	52
14	Postage	1	1	1	-	1	2,995	3,241	2,886	2,174	2,279	-	-	-	-	-
15	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Travel and Vehicle Expense	724	524	746	757	775	211	138	174	177	181	5	7	11	10	11
17	Driver Education Program	-	-	-	-	-	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
18	Grants in Lieu of Taxes	1,059	1,065	1,018	1,053	1,101	439	422	417	433	453	17	18	18	17	18
19	Furniture & Equipment	142	182	677	555	599	324	307	598	490	529	-	-	-	-	-
20	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893	-	-	-	-	-
21	Other	929	793	1,177	1,214	1,239	3,544	3,080	3,543	3,645	3,715	101	87	187	188	192
22	Subtotal - Other Expenses	26,098	24,863	27,981	27,983	28,703	28,584	27,811	30,147	29,210	30,024	10,258	8,830	10,975	9,648	9,722
23	Depreciation-Capital Assets	2,723	2,641	2,721	3,054	3,396	1,220	1,074	1,250	1,553	1,802	56	113	134	120	103
24	Amortization-Deferred Development	10,540	13,760	15,415	10,705	9,370	3,617	3,338	3,802	1,588	1,593	-	-	-	-	-
25	Total	123,447	125,849	134,934	132,861	135,467	72,670	69,281	73,874	72,127	74,524	12,475	11,324	13,606	12,098	12,223
26	**Rounding may affect totals*															

	Expense	Regulatory 2016/17A	Regulatory 2017/18A	Regulatory 2018/19FB	Regulatory 2019/20F	Regulatory 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
27	($000's, except where noted)										
28	Compensation - Salaries	247	240	374	387	398	99,419	98,041	101,798	104,474	108,025
29	Compensation - Overtime	4	5	3	4	3	1,258	805	1,441	1,436	1,433
30	Compensation - Benefits	59	59	92	94	97	22,986	23,364	25,044	25,571	26,262
31	Compensation - H & E Tax	6	5	8	8	8	2,149	2,123	2,183	2,237	2,287
32	Subtotal - Compensation	316	309	477	493	506	125,812	124,333	130,466	133,718	138,007
33	Data Processing	-	-	-	-	-	18,964	18,045	19,961	19,704	20,602
34	Special Services	-	1	1	-	-	4,996	5,623	6,271	4,806	4,770
35	Building Expenses	-	6	6	7	6	8,929	8,193	8,243	9,312	9,273
36	Safety/Loss Prevention Programs	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
37	Telephone/Telecommunications	-	-	-	-	-	1,819	1,680	1,732	1,764	1,814
38	Public Information/Advertising	-	-	-	-	-	2,621	1,936	2,339	2,370	2,426
39	Printing, Stationery, Supplies	1	-	1	1	1	1,405	1,080	1,700	1,650	1,567
40	Postage	-	-	-	-	-	2,996	3,242	2,887	2,174	2,280
41	Regulatory/Appeal	4,555	4,122	4,179	4,334	4,479	4,555	4,122	4,179	4,334	4,479
42	Travel and Vehicle Expense	1	1	1	1	1	941	670	932	945	968
43	Driver Education Program	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
44	Grants in Lieu of Taxes	-	1	1	1	1	1,515	1,506	1,454	1,504	1,573
45	Furniture & Equipment	-	-	-	-	-	466	489	1,275	1,045	1,128
46	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893
47	Other	16	1	1	1	2	4,590	3,961	4,908	5,048	5,148
48	Subtotal - Other Expenses	4,573	4,132	4,190	4,345	4,490	69,513	65,636	73,293	71,186	72,939
49	Depreciation-Capital Assets	-	2	2	2	2	3,999	3,830	4,107	4,729	5,303
50	Amortization-Deferred Development	-	-	-	-	-	14,157	17,098	19,217	12,293	10,963
51	Total	4,889	4,443	4,669	4,840	4,998	213,481	210,897	227,083	221,926	227,212
52	**Rounding may affect totals*										

Initiatives

5 Year Summary of Basic Expenses by Category - Initiative Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
	($000's, except where noted)															
1	Compensation - Salaries	(3,356)	15	-	(258)	(258)	(568)	25	-	-	-	-	-	-	-	-
2	Compensation - Overtime	2	21	-	-	-	2	12	-	-	-	-	-	-	-	-
3	Compensation - Benefits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Compensation - H & E Tax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Subtotal - Compensation	(3,354)	36	-	(258)	(258)	(566)	37	-	-	-	-	-	-	-	-
6	Data Processing	820	17,243	2,234	952	1,056	679	878	1,186	799	848	18	1,822	-	243	243
7	Special Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Building Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Printing, Stationery, Supplies	12	3	-	-	-	-	-	-	-	-	35	-	-	-	-
13	Postage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Grants in Lieu of Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Furniture & Equipment	-	188	-	-	-	-	-	-	-	-	1	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Other	39	7	-	-	-	2	4	-	-	-	1	-	-	-	-
21	Subtotal - Other Expenses	872	17,441	2,234	952	1,056	681	883	1,186	799	848	55	1,822	-	243	243
22	Depreciation-Capital Assets	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Amortization-Deferred Development	-	-	-	1,873	2,951	-	-	-	680	941	-	-	-	352	352
24	Total	(2,475)	17,488	2,234	2,567	3,749	115	920	1,186	1,479	1,789	55	1,822	-	595	595
25	*Rounding may affect totals*															

	Expense	Regulatory Appeal 2016/17A	Regulatory Appeal 2017/18A	Regulatory Appeal 2018/19FB	Regulatory Appeal 2019/20F	Regulatory Appeal 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
	($000's, except where noted)										
26	Compensation - Salaries	-	-	-	-	-	(3,924)	40	-	(258)	(258)
27	Compensation - Overtime	-	-	-	-	-	4	33	-	-	-
28	Compensation - Benefits	-	-	-	-	-	-	-	-	-	-
29	Compensation - H & E Tax	-	-	-	-	-	-	-	-	-	-
30	Subtotal - Compensation	-	-	-	-	-	(3,920)	73	-	(258)	(258)
31	Data Processing	-	-	-	-	-	1,517	19,943	3,420	1,994	2,147
32	Special Services	-	-	-	-	-	-	-	-	-	-
33	Building Expenses	-	-	-	-	-	-	-	-	-	-
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
36	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-
37	Printing, Stationery, Supplies	-	-	-	-	-	47	3	-	-	-
38	Postage	-	-	-	-	-	-	-	-	-	-
39	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
40	Travel and Vehicle Expense	-	-	-	-	-	1	1	-	-	-
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	-	-	-	-	-	-	-	-	-	-
43	Furniture & Equipment	-	-	-	-	-	1	188	-	-	-
44	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
45	Other	-	-	-	-	-	42	11	-	-	-
46	Subtotal - Other Expenses	-	-	-	-	-	1,608	20,146	3,420	1,994	2,147
47	Depreciation-Capital Assets	-	-	-	-	-	7	11	-	-	-
48	Amortization-Deferred Development	-	-	-	-	-	-	-	-	2,905	4,244
49	Total	-	-	-	-	-	(2,305)	20,230	3,420	4,641	6,133
50	*Rounding may affect totals*										

Total

5 Year Summary of Basic Expenses by Category - Total Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
	($000's, except where noted)															
1	Compensation - Salaries	63,061	67,695	69,168	70,802	73,185	30,425	29,172	30,278	31,179	32,278	1,762	1,930	1,978	1,848	1,906
2	Compensation - Overtime	1,049	665	1,133	1,128	1,127	195	166	292	291	290	14	2	13	13	13
3	Compensation - Benefits	15,201	15,718	17,031	17,407	17,870	7,374	7,140	7,456	7,639	7,854	352	447	465	431	441
4	Compensation - H & E Tax	1,421	1,429	1,485	1,524	1,558	689	648	649	667	683	33	41	41	38	38
5	Subtotal - Compensation	80,732	85,507	88,817	90,861	93,740	38,683	37,126	38,675	39,776	41,105	2,161	2,420	2,497	2,330	2,398
6	Data Processing	13,765	28,895	16,342	14,885	15,619	6,687	6,334	7,023	6,570	6,887	29	1,796	16	243	243
7	Special Services	1,973	2,314	2,325	1,794	1,788	2,905	3,218	3,682	2,837	2,810	118	90	263	175	172
8	Building Expenses	6,239	5,794	5,768	6,522	6,492	2,591	2,293	2,364	2,679	2,672	99	100	105	104	103
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
10	Telephone/Telecommunications	1,234	1,162	1,199	1,221	1,256	585	518	533	543	558	-	-	-	-	-
11	Public Information/Advertising	53	16	15	15	16	240	95	243	247	254	2,328	1,825	2,081	2,108	2,156
12	Printing, Stationery, Supplies	811	471	947	919	873	556	552	695	675	641	84	60	57	55	52
13	Postage	1	1	1	-	1	2,995	3,241	2,886	2,174	2,279	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	725	529	746	757	775	211	139	174	177	181	5	8	11	10	11
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
17	Grants in Lieu of Taxes	1,059	1,065	1,018	1,053	1,101	439	422	417	433	453	17	18	18	17	18
18	Furniture & Equipment	142	370	677	555	599	324	307	598	490	529	1	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893	-	-	-	-	-
20	Other	968	801	1,177	1,214	1,239	3,546	3,084	3,543	3,645	3,715	102	87	187	188	192
21	Subtotal - Other Expenses	26,970	41,418	30,215	28,935	29,759	29,265	28,663	31,333	30,009	30,872	10,313	10,613	10,975	9,891	9,965
22	Depreciation-Capital Assets	2,730	2,652	2,721	3,054	3,396	1,220	1,074	1,250	1,553	1,802	56	113	134	120	103
23	Amortization-Deferred Development	10,540	13,760	15,415	12,578	12,321	3,617	3,338	3,802	2,268	2,534	-	-	-	352	352
24	Total	120,972	143,337	137,168	135,428	139,216	72,785	70,201	75,060	73,606	76,313	12,530	13,146	13,606	12,693	12,818
25	**Rounding may affect totals*															

	Expense	Regulatory Appeal 2016/17A	Regulatory Appeal 2017/18A	Regulatory Appeal 2018/19FB	Regulatory Appeal 2019/20F	Regulatory Appeal 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
	($000's, except where noted)										
26	Compensation - Salaries	247	240	374	387	398	95,495	99,037	101,798	104,216	107,767
27	Compensation - Overtime	4	5	3	4	3	1,262	838	1,441	1,436	1,433
28	Compensation - Benefits	59	59	92	94	97	22,986	23,364	25,044	25,571	26,262
29	Compensation - H & E Tax	6	5	8	8	8	2,149	2,123	2,183	2,237	2,287
30	Subtotal - Compensation	316	309	477	493	506	121,892	125,362	130,466	133,460	137,749
31	Data Processing	-	-	-	-	-	20,481	37,025	23,381	21,698	22,749
32	Special Services	-	1	1	-	-	4,996	5,623	6,271	4,806	4,770
33	Building Expenses	-	6	6	7	6	8,929	8,193	8,243	9,312	9,273
34	Safety/Loss Prevention Programs	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
35	Telephone/Telecommunications	-	-	-	-	-	1,819	1,680	1,732	1,764	1,814
36	Public Information/Advertising	-	-	-	-	-	2,621	1,936	2,339	2,370	2,426
37	Printing, Stationery, Supplies	1	-	1	1	1	1,452	1,083	1,700	1,650	1,567
38	Postage	-	-	-	-	-	2,996	3,242	2,887	2,174	2,280
39	Regulatory/Appeal	4,555	4,122	4,179	4,334	4,479	4,555	4,122	4,179	4,334	4,479
40	Travel and Vehicle Expense	1	1	1	1	1	942	677	932	945	968
41	Driver Education Program	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
42	Grants in Lieu of Taxes	-	1	1	1	1	1,515	1,506	1,454	1,504	1,573
43	Furniture & Equipment	-	-	-	-	-	467	677	1,275	1,045	1,128
44	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893
45	Other	16	1	1	1	2	4,632	3,973	4,908	5,048	5,148
46	Subtotal - Other Expenses	4,573	4,132	4,190	4,345	4,490	71,121	84,826	76,713	73,180	75,086
47	Depreciation-Capital Assets	-	2	2	2	2	4,006	3,841	4,107	4,729	5,303
48	Amortization-Deferred Development	-	-	-	-	-	14,157	17,098	19,217	15,198	15,207
49	Total	4,889	4,443	4,669	4,840	4,998	211,176	231,127	230,503	226,567	233,345
50	**Rounding may affect totals*										

Appendix 3: 10-YEAR SUMMARY BASIC TOTAL EXPENSES BY CATEGORY

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
						Claims Expenses					
	($000's, except where noted)										
1	Compensation - Salaries	58,886	61,090	64,266	63,061	66,809	69,168	70,802	73,185	74,195	76,194
2	Compensation - Overtime	1,911	1,389	1,147	1,049	665	1,133	1,128	1,127	1,126	1,130
3	Compensation - Benefits	13,294	13,448	15,323	15,201	15,718	17,031	17,407	17,870	18,241	18,853
4	Compensation - H & E Tax	1,209	1,271	1,354	1,421	1,429	1,485	1,524	1,558	1,586	1,627
5	Subtotal - Compensation	75,300	77,198	82,090	80,732	84,621	88,817	90,861	93,740	95,148	97,804
6	Data Processing	14,650	13,274	12,468	13,765	29,787	16,342	14,885	15,619	17,630	18,168
7	Special Services	2,287	2,200	2,157	1,973	2,314	2,325	1,794	1,788	1,808	1,874
8	Building Expenses	6,315	6,523	6,709	6,239	5,794	5,768	6,522	6,492	6,608	6,781
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
10	Telephone/Telecommunications	1,742	1,387	1,319	1,234	1,162	1,199	1,221	1,256	1,280	1,312
11	Public Information/Advertising	55	17	3	53	16	15	15	16	16	16
12	Printing, Stationery, Supplies	996	769	789	811	471	947	919	873	889	911
13	Postage	1,581	-	-	1	1	1	-	1	1	1
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	820	758	742	725	524	746	757	775	789	809
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-
17	Grants in Lieu of Taxes	939	966	1,026	1,059	1,065	1,018	1,053	1,101	1,121	1,150
18	Furniture & Equipment	604	471	189	142	370	677	555	599	610	625
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
20	Other	922	443	900	968	800	1,177	1,214	1,239	1,262	1,293
21	Subtotal - Other Normal Operating Expenses	30,911	26,808	26,302	26,970	42,304	30,215	28,935	29,759	32,014	32,940
22	Depreciation-Capital Assets	3,359	3,384	2,998	2,730	2,652	2,721	3,054	3,396	3,323	2,985
23	Amortization-Deferred Development	4,982	9,188	7,225	10,540	13,760	15,415	12,578	12,321	13,845	13,051
24	Subtotal - Depreciation / Amortization	8,341	12,572	10,223	13,270	16,412	18,136	15,632	15,717	17,168	16,036
25	Total Expenses	114,552	116,578	118,615	120,972	143,337	137,168	135,428	139,216	144,330	146,780

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
						Operating Expenses					
	($000's, except where noted)										
26	Compensation - Salaries	28,308	29,533	29,813	30,425	29,141	30,278	31,179	32,278	32,700	33,519
27	Compensation - Overtime	520	354	270	195	166	292	291	290	290	291
28	Compensation - Benefits	6,569	6,769	7,440	7,374	7,140	7,456	7,639	7,854	8,014	8,268
29	Compensation - H & E Tax	597	639	656	689	648	649	667	683	695	712
30	Subtotal - Compensation	35,994	37,295	38,179	38,683	37,095	38,675	39,776	41,105	41,699	42,790
31	Data Processing	7,767	7,440	5,799	6,687	6,365	7,023	6,570	6,887	7,818	8,046
32	Special Services	2,677	3,258	4,148	2,905	3,218	3,682	2,837	2,810	2,855	2,926
33	Building Expenses	2,643	2,755	2,717	2,591	2,293	2,364	2,679	2,672	2,718	2,785
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	846	680	622	585	518	533	543	558	569	583
36	Public Information/Advertising	405	470	225	240	95	243	247	254	260	268
37	Printing, Stationery, Supplies	751	667	687	556	552	695	675	641	653	668
38	Postage	1,050	2,945	3,072	2,995	3,241	2,886	2,174	2,279	2,322	2,379
39	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
40	Travel and Vehicle Expense	349	295	231	211	139	174	177	181	184	189
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	395	416	420	439	422	417	433	453	461	472
43	Furniture & Equipment	456	330	339	324	307	598	490	529	539	552
44	Merchant Fees & Bank Charges	6,671	7,339	7,570	8,186	8,460	9,175	9,539	9,893	10,091	10,294
45	Other	3,632	4,004	3,889	3,546	3,084	3,543	3,645	3,715	3,786	3,878
46	Subtotal - Other Normal Operating Expenses	27,642	30,598	29,719	29,265	28,694	31,333	30,009	30,872	32,256	33,040
47	Depreciation-Capital Assets	1,510	1,533	1,311	1,220	1,074	1,250	1,553	1,802	1,856	1,780
48	Amortization-Deferred Development	2,836	4,857	2,429	3,617	3,338	3,802	2,268	2,534	4,187	5,298
49	Subtotal - Depreciation / Amortization	4,346	6,390	3,740	4,837	4,412	5,052	3,821	4,336	6,043	7,078
50	Total Expenses	67,982	74,283	71,638	72,785	70,201	75,060	73,606	76,313	79,998	82,908

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	Road Safety Expenses										
	($000's, except where noted)										
1	Compensation - Salaries	1,407	1,220	1,597	1,762	1,891	1,978	1,848	1,906	1,939	1,987
2	Compensation - Overtime	19	15	6	14	2	13	13	13	13	13
3	Compensation - Benefits	311	286	317	352	447	465	431	441	451	465
4	Compensation - H & E Tax	28	27	28	33	41	41	38	38	39	40
5	Subtotal - Compensation	1,765	1,548	1,948	2,161	2,381	2,497	2,330	2,398	2,442	2,505
6	Data Processing	59	102	309	29	1,836	16	243	243	243	243
7	Special Services	102	146	414	118	90	263	175	172	175	179
8	Building Expenses	91	95	99	99	100	105	104	103	105	108
9	Safety/Loss Prevention Programs	4,963	3,725	3,897	4,131	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
11	Public Information/Advertising	2,023	1,947	2,348	2,328	1,825	2,081	2,108	2,156	2,197	2,250
12	Printing, Stationery, Supplies	51	41	100	84	60	57	55	52	53	54
13	Postage	29	-	-	-	-	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	12	14	6	5	7	11	10	11	11	11
16	Driver Education Program	3,200	3,256	3,378	3,399	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	12	13	14	17	18	18	17	18	18	18
18	Furniture & Equipment	8	1	-	1	-	-	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
20	Other	371	367	443	102	87	187	188	192	195	201
21	Subtotal - Other Normal Operating Expenses	10,921	9,707	11,008	10,313	10,652	10,975	9,891	9,965	10,148	10,389
22	Depreciation-Capital Assets	129	104	73	56	113	134	120	103	61	33
23	Amortization-Deferred Development	-	-	-	-	-	-	352	352	352	352
24	Subtotal - Depreciation / Amortization	129	104	73	56	113	134	472	455	413	385
25	Total Expenses	12,815	11,359	13,029	12,530	13,146	13,606	12,693	12,818	13,003	13,279

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	Regulatory/Appeal Expenses										
	($000's, except where noted)										
26	Compensation - Salaries	-	-	-	247	240	374	387	398	407	417
27	Compensation - Overtime	-	-	-	4	5	3	4	3	3	3
28	Compensation - Benefits	-	-	-	59	59	92	94	97	99	102
29	Compensation - H & E Tax	-	-	-	6	5	8	8	8	9	9
30	Subtotal - Compensation	-	-	-	316	309	477	493	506	518	531
31	Data Processing	-	-	-	-	-	-	-	-	-	-
32	Special Services	99	-	-	-	1	1	-	-	-	-
33	Building Expenses	-	-	-	-	6	6	7	6	7	7
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
36	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-
37	Printing, Stationery, Supplies	-	-	-	1	-	1	1	1	1	1
38	Postage	-	-	-	-	-	-	-	-	-	-
39	Regulatory/Appeal	3,667	3,935	3,675	4,555	4,122	4,179	4,334	4,479	4,582	4,689
40	Travel and Vehicle Expense	-	-	-	1	1	1	1	1	1	1
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	-	-	-	-	1	1	1	1	1	1
43	Furniture & Equipment	-	-	-	-	-	-	-	-	-	-
44	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
45	Other	-	-	-	16	1	1	1	2	2	1
46	Subtotal - Other Normal Operating Expenses	3,766	3,935	3,675	4,573	4,132	4,190	4,345	4,490	4,594	4,700
47	Depreciation-Capital Assets	-	-	-	-	2	2	2	2	2	2
48	Amortization-Deferred Development	-	-	-	-	-	-	-	-	-	-
49	Subtotal - Depreciation / Amortization	-	-	-	-	2	2	2	2	2	2
50	Total Expenses	3,766	3,935	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233

Line No.	Expense	Total Expenses 2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Compensation - Salaries	88,602	91,843	95,676	95,495	98,081	101,798	104,216	107,767	109,241	112,117
2	Compensation - Overtime	2,450	1,758	1,423	1,262	838	1,441	1,436	1,433	1,432	1,437
3	Compensation - Benefits	20,174	20,503	23,080	22,986	23,364	25,044	25,571	26,262	26,805	27,688
4	Compensation - H & E Tax	1,834	1,937	2,038	2,149	2,123	2,183	2,237	2,287	2,329	2,388
5	Subtotal - Compensation	113,060	116,041	122,217	121,892	124,406	130,466	133,460	137,749	139,807	143,630
6	Data Processing	22,476	20,816	18,576	20,481	37,988	23,381	21,698	22,749	25,691	26,457
7	Special Services	5,165	5,604	6,719	4,996	5,623	6,271	4,806	4,770	4,838	4,979
8	Building Expenses	9,049	9,373	9,525	8,929	8,193	8,243	9,312	9,273	9,438	9,681
9	Safety/Loss Prevention Programs	4,963	3,725	3,897	4,131	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	2,588	2,067	1,941	1,819	1,680	1,732	1,764	1,814	1,849	1,895
11	Public Information/Advertising	2,483	2,434	2,576	2,621	1,936	2,339	2,370	2,426	2,473	2,534
12	Printing, Stationery, Supplies	1,798	1,477	1,576	1,452	1,083	1,700	1,650	1,567	1,596	1,634
13	Postage	2,659	2,945	3,072	2,996	3,242	2,887	2,174	2,280	2,323	2,380
14	Regulatory/Appeal	3,667	3,935	3,675	4,555	4,122	4,179	4,334	4,479	4,582	4,689
15	Travel and Vehicle Expense	1,180	1,067	979	942	671	932	945	968	985	1,010
16	Driver Education Program	3,200	3,256	3,378	3,399	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	1,346	1,395	1,460	1,515	1,506	1,454	1,504	1,573	1,601	1,641
18	Furniture & Equipment	1,068	802	528	467	677	1,275	1,045	1,128	1,149	1,177
19	Merchant Fees & Bank Charges	6,671	7,339	7,570	8,186	8,460	9,175	9,539	9,893	10,091	10,294
20	Other	4,926	4,815	5,232	4,632	3,972	4,908	5,048	5,148	5,245	5,373
21	Subtotal - Other Normal Operating Expenses	73,239	71,050	70,704	71,121	85,782	76,713	73,180	75,086	79,012	81,069
22	Depreciation-Capital Assets	4,998	5,021	4,382	4,006	3,841	4,107	4,729	5,303	5,242	4,800
23	Amortization-Deferred Development	7,818	14,045	9,654	14,157	17,098	19,217	15,198	15,207	18,384	18,701
24	Subtotal - Depreciation / Amortization	12,816	19,066	14,036	18,163	20,939	23,324	19,927	20,510	23,626	23,501
25	Total Expenses	199,115	206,155	206,957	211,176	231,127	230,503	226,567	233,345	242,445	248,200

Appendix 4: COMPOUNDED ANNUAL GROWTH RATES – BASIC TOTAL EXPENSES

Line No.	Expense	Compounded Annual Growth Rates 14/15 - 17/18 (4 years)	18/19 - 20/21 (3 years)	21/22 - 22/23 (2 years)
1	Compensation - Salaries	2.6%	2.9%	2.0%
2	Compensation - Overtime	-23.5%	19.6%	0.1%
3	Compensation - Benefits	3.7%	4.0%	2.7%
4	Compensation - H & E Tax	3.7%	2.5%	2.2%
5	Sub Total - Compensation	2.4%	3.2%	2.1%
6	Data Processing	14.0%	-15.0%	7.8%
7	Special Services	2.1%	-5.3%	2.2%
8	Building Expenses	-2.5%	4.2%	2.2%
9	Safety/Loss Prevention Programs	-11.6%	0.2%	2.2%
10	Telephone/Telecommunications	-10.2%	2.6%	2.2%
11	Public Information/Advertising	-6.0%	7.8%	2.2%
12	Printing, Stationery, Supplies	-11.9%	13.1%	2.1%
13	Postage	5.1%	-11.1%	2.2%
14	Regulatory/Appeal	3.0%	2.8%	2.3%
15	Travel and Vehicle Expense	-13.2%	12.7%	2.1%
16	Driver Education Program	3.0%	3.3%	2.2%
17	Grants in Lieu of Taxes	2.8%	1.5%	2.1%
18	Furniture & Equipment	-10.8%	18.6%	2.1%
19	Merchant Fees & Bank Charges	6.1%	5.4%	2.0%
20	Other	-5.2%	9.0%	2.2%
21	Sub total - Other Expenses	4.0%	-4.0%	3.9%
22	Depreciation-Capital Assets	-6.4%	11.4%	-4.9%
23	Amortization-Deferred Development	21.6%	-3.8%	10.9%
24	Subtotal - Depreciation / Amortization	13.1%	-0.7%	7.0%
25	Total Expenses	3.8%	0.3%	3.1%

Appendix 5: 10-YEAR SUMMARY CORPORATE NORMAL OPERATING EXPENSES

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Compensation - Salaries	119,695	122,536	125,929	132,133	130,641	136,551	140,889	144,837	147,484	150,516
2	Compensation - Overtime	3,030	2,140	1,709	1,594	1,051	1,874	1,878	1,869	1,868	1,869
3	Compensation - Benefits	27,533	27,568	30,669	30,557	30,987	33,579	34,469	35,197	36,005	36,986
4	Compensation - H & E Tax	2,503	2,604	2,708	2,858	2,816	2,927	3,016	3,067	3,128	3,190
5	Subtotal - Compensation	152,761	154,848	161,015	167,142	165,495	174,931	180,252	184,970	188,485	192,561
6	Data Processing	18,089	20,240	19,975	23,178	22,042	24,416	24,247	25,244	25,748	26,263
7	Special Services	6,916	6,503	7,965	6,219	6,867	7,790	5,999	5,884	6,000	6,121
8	Building Expenses	12,434	12,239	12,321	11,490	10,575	10,705	12,162	12,044	12,285	12,532
9	Safety/Loss Prevention Programs	4,489	3,265	3,352	4,614	3,327	4,842	3,578	3,497	3,568	3,639
10	Telephone/Telecommunications	3,050	2,562	2,377	2,221	2,054	2,121	2,175	2,230	2,274	2,320
11	Public Information/Advertising	3,307	3,098	3,294	3,234	2,542	2,988	3,045	3,106	3,168	3,231
12	Printing, Stationery, Supplies	4,464	3,923	4,392	3,975	4,071	4,753	4,637	4,386	4,475	4,563
13	Postage	4,157	4,465	4,616	4,491	4,823	4,183	3,170	3,314	3,380	3,448
14	Regulatory/Appeal	3,707	3,967	3,706	4,590	4,145	4,212	4,369	4,510	4,600	4,692
15	Travel and Vehicle Expense	1,619	1,506	1,385	1,314	988	1,326	1,352	1,379	1,407	1,435
16	Driver Education Program	3,743	4,649	4,541	4,472	4,557	4,541	4,578	4,669	4,761	4,856
17	Grants in Lieu of Taxes	1,783	1,828	1,900	1,950	1,945	1,889	1,964	2,042	2,084	2,124
18	Furniture & Equipment	1,335	1,022	632	570	598	1,563	1,289	1,387	1,415	1,444
19	Merchant Fees & Bank Charges	9,176	10,207	10,632	11,463	11,772	12,579	13,081	13,565	13,837	14,112
20	Other	6,279	6,879	6,617	5,899	5,090	6,192	6,412	6,518	6,647	6,780
21	Subtotal - Other Expenses	84,548	86,353	87,705	89,680	85,396	94,100	92,058	93,775	95,649	97,560
22	Depreciation-Capital Assets	6,552	5,631	5,653	5,167	4,941	5,281	6,064	6,731	6,665	6,087
23	Amortization-Deferred Development	8,847	16,575	11,506	16,859	20,756	23,313	14,865	13,377	7,939	2,617
24	Subtotal - Depreciation / Amortization	15,399	22,206	17,159	22,026	25,697	28,594	20,929	20,108	14,604	8,704
25	Total Expenses	252,708	263,407	265,879	278,848	276,588	297,625	293,239	298,853	298,738	298,825

The above table is an expanded view of *Part V(i) Expenses Figure EXP-12*. The information in this table is also the source data used to calculate the compounded annual growth rates in *Part V(i) Expenses Figure EXP-33*.

Appendix 6: 10-YEAR SUMMARY BASIC NORMAL OPERATING EXPENSES

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Compensation - Salaries	87,897	91,149	94,697	99,419	98,041	101,798	104,474	108,025	109,758	112,634
2	Compensation - Overtime	2,343	1,643	1,295	1,258	805	1,441	1,436	1,433	1,432	1,437
3	Compensation - Benefits	20,174	20,503	23,080	22,986	23,364	25,044	25,571	26,262	26,805	27,688
4	Compensation - H & E Tax	1,834	1,937	2,038	2,149	2,123	2,183	2,237	2,287	2,329	2,388
5	Subtotal - Compensation	112,248	115,232	121,110	125,812	124,333	130,466	133,718	138,007	140,324	144,147
6	Data Processing	14,188	16,189	16,326	18,964	18,045	19,961	19,704	20,602	20,979	21,504
7	Special Services	4,684	5,181	6,407	4,996	5,623	6,271	4,806	4,770	4,838	4,979
8	Building Expenses	9,049	9,372	9,525	8,929	8,193	8,243	9,312	9,273	9,438	9,681
9	Safety/Loss Prevention Programs	4,160	3,045	3,139	4,131	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	2,411	2,053	1,941	1,819	1,680	1,732	1,764	1,814	1,849	1,895
11	Public Information/Advertising	2,465	2,435	2,576	2,621	1,936	2,339	2,370	2,426	2,473	2,534
12	Printing, Stationery, Supplies	1,781	1,474	1,538	1,405	1,080	1,700	1,650	1,567	1,596	1,634
13	Postage	2,658	2,945	3,072	2,996	3,242	2,887	2,174	2,280	2,323	2,380
14	Regulatory/Appeal	3,667	3,935	3,675	4,555	4,122	4,179	4,334	4,479	4,582	4,689
15	Travel and Vehicle Expense	1,148	1,058	964	941	670	932	945	968	985	1,010
16	Driver Education Program	3,200	3,256	3,378	3,399	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	1,346	1,394	1,460	1,515	1,506	1,454	1,504	1,573	1,601	1,641
18	Furniture & Equipment	1,043	802	515	466	489	1,275	1,045	1,128	1,149	1,177
19	Merchant Fees & Bank Charges	6,671	7,339	7,570	8,186	8,460	9,175	9,539	9,893	10,091	10,294
20	Other	4,822	4,793	5,142	4,590	3,961	4,908	5,048	5,148	5,245	5,373
21	Subtotal - Other Normal Operating Expenses	63,293	65,271	67,228	69,513	65,636	73,293	71,186	72,939	74,300	76,116
22	Depreciation-Capital Assets	4,998	4,299	4,378	3,999	3,830	4,107	4,729	5,303	5,242	4,800
23	Amortization-Deferred Development	7,818	14,045	9,654	14,157	17,098	19,217	12,293	10,963	6,306	2,228
24	Subtotal - Depreciation / Amortization	12,816	18,344	14,032	18,156	20,928	23,324	17,022	16,266	11,548	7,028
25	Total Expenses	188,357	198,847	202,370	213,481	210,897	227,083	221,926	227,212	226,172	227,291

The above table is an expanded view of the table provided in *Part V(i) Expenses Figure EXP-40* along with source data for the compounded annual growth rates in *Part V(i) Expenses Figure EXP-41*.

Appendix 7: 2018 GRA VERSUS 2019 GRA COMPARATIVE

The following series of tables compares forecasted corporate expenses from the 2018 GRA to actual and forecasted expenses from equivalent periods in the 2019 GRA. Explanations are provided for significant ($500,000 or greater) differences between expense category amounts for the 2018 GRA and 2019 GRA for 2017/18 through 2020/21.

The common variance explanations found throughout the corporate expense forecast as well as cost containment measures undertaken by the corporation are as follows:

- Lower depreciation expenses due to automobile depreciation related to the corporate fleet reduction as well as an overall expected reduction to administrative capital
- Lower than expected amortization of deferred development expenses due to certain projects no longer meeting deferred development capital criterion and thus all cumulative costs fully expensed in 2017/18
- Lower than expected postage expenses related to the transition from expedited mail to regular mail delivery service.
- Lower building expenses due to strategic postponement of building redevelopment
- Higher “other” expenses due to the actual expense savings relating to the 2018 GRA Stretch target (expense savings) of $2.64 million being recorded to the relevant expense categories and not to the “other” expense category where the savings were budgeted.

In Appendix 7, the details of both changes in corporate operating expense and changes in the percentage allocated to Basic are provided on an expense line basis. The schedules also show total corporate operating expenses split between normal operating expenses and corporate improvement initiatives; ongoing and implementation expenses.

The lead table summarizes all expenses from a corporate and Basic perspective in the different views (normal operations and initiatives as well as claims, operating, road safety, and regulatory) throughout the expense book.

As shown in the expense summary table, Basic expenses are consistently around 76% of the overall corporate expenses. Fluctuations in Basic related expenses are primarily

attributable to the various allocators used during the allocation process as well as the projects undertaken in the forecast.

Also presented in the lead table is the distribution of claims and operating expenses:

- Basic expenses associated with operating functions of the Corporation account for approximately 60% of corporate operating expenses
- Basic expenses associated to claims functions account for approximately 88% of corporate claims expenses.

A larger percentage of claims expenses is allocated to Basic due to certain claims related departments having an expense allocation weighting of 100% to the claims expense category. This drives a higher proportion of claims expense to Basic, than for operating expenses, which have more equally distributed allocation weightings, resulting in a lower allocation to Basic.

Figure EXP App 7 – 1: Summary of Comparative Expenses

	CORPORATE	2017/18A		2018/19FB		2019/20F		2020/21F		2021/22F		2022/23F	
Line No.	Expense Caterory	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA
1	*(C$000s, rounding may affect totals)*												
2	Compensation Expenses	170,830	165,585	174,061	174,931	177,542	179,972	181,668	183,928	186,021	187,124	-	191,200
3	Administrative Expenses	95,841	107,869	96,315	98,155	95,689	94,407	96,990	96,614	99,016	101,639	-	103,846
4	Amortization/Depreciation Exper	26,792	25,710	32,112	28,594	31,405	24,406	31,891	26,160	30,653	30,280	-	30,080
5	Total	293,463	299,164	302,488	301,680	304,636	298,785	310,549	306,702	315,690	319,043	n/a	325,126
6	Normal Operations Expenses	290,112	276,588	292,771	297,625	290,274	293,239	295,319	298,853	296,666	298,738	-	298,825
7	Initiative - Implementation Expe	3,389	22,576	3,567	4,055	3,110	849	2,429	851	2,351	849	-	849
8	Initiative - Ongoing Expenses	(38)	-	6,150	-	11,252	4,697	12,801	6,998	16,673	19,456	-	25,452
9	Total	293,463	299,164	302,488	301,680	304,636	298,785	310,549	306,702	315,690	319,043	n/a	325,126
10	Claims	152,141	161,582	157,327	155,957	159,328	154,708	162,221	158,561	163,824	164,629	-	166,999
11	Operating	121,557	117,777	125,633	125,505	126,303	124,542	128,952	128,347	132,124	134,287	-	137,635
12	Road Safety	15,684	15,347	15,367	15,528	14,760	14,672	15,043	14,776	15,321	15,004	-	15,259
13	Regulatory Appeal	4,081	4,458	4,161	4,690	4,245	4,863	4,333	5,018	4,421	5,123	-	5,233
14	Total	293,463	299,164	302,488	301,680	304,636	298,785	310,549	306,702	315,690	319,043	n/a	325,126

	BASIC	2017/18A		2018/19FB		2019/20F		2020/21F		2021/22F		2022/23F	
15	Expense Caterory	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA
16	Compensation Expenses	128,794	124,406	130,074	130,466	133,192	133,460	136,697	137,749	140,077	139,807	-	143,630
17	Administrative Expenses	73,567	85,782	73,860	76,713	74,070	73,180	75,195	75,086	76,796	79,012	-	81,069
18	Amortization/Depreciation Exper	21,760	20,939	26,094	23,324	25,212	19,927	25,693	20,510	24,398	23,626	-	23,501
19	Total	224,121	231,127	230,028	230,503	232,474	226,567	237,585	233,345	241,271	242,445	n/a	248,200
20	Normal Operations Expenses	221,706	210,897	222,267	227,083	220,404	221,926	224,745	227,212	225,402	226,172	-	227,291
21	Initiative - Implementation Expe	2,444	20,230	2,566	3,420	2,602	756	2,046	758	1,982	756	-	756
22	Initiative - Ongoing Expenses	(29)	-	5,195	-	9,468	3,885	10,794	5,375	13,953	15,517	-	20,153
23	Total	224,121	231,127	230,028	230,503	232,474	226,567	237,585	233,345	241,337	242,445	n/a	248,200
24	Claims	134,294	143,337	137,885	137,168	139,841	135,428	142,811	139,216	144,224	144,330	-	146,780
25	Operating	72,563	70,201	74,921	75,060	75,469	73,606	77,262	76,313	79,277	79,998	-	82,908
26	Road Safety	13,210	13,146	13,090	13,606	12,947	12,693	13,210	12,818	13,447	13,003	-	13,279
27	Regulatory Appeal	4,054	4,443	4,132	4,669	4,217	4,840	4,302	4,998	4,389	5,114	-	5,233
28	Total	224,121	231,127	230,028	230,503	232,474	226,567	237,585	233,345	241,337	242,445	n/a	248,200

	BASIC % of CORPORATE	2017/18A		2018/19FB		2019/20F		2020/21F		2021/22F		2022/23F	
29	Expense Caterory	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA	2018 GRA	2019 GRA
30	Compensation Expenses	75%	75%	75%	75%	75%	74%	75%	75%	75%	75%	-	75%
31	Administrative Expenses	77%	80%	77%	78%	77%	78%	78%	78%	78%	78%	-	78%
32	Amortization/Depreciation Exper	81%	81%	81%	82%	80%	82%	81%	78%	80%	78%	-	78%
33	Total	76%	77%	76%	76%	76%	76%	77%	76%	76%	76%	n/a	76%
34	Normal Operations Expenses	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%	-	76%
35	Initiative - Implementation Expe	72%	90%	72%	84%	84%	89%	84%	89%	84%	89%	-	89%
36	Initiative - Ongoing Expenses	76%	-	84%	-	84%	83%	84%	77%	84%	80%	-	79%
37	Total	76%	77%	76%	76%	76%	76%	77%	76%	76%	76%	n/a	76%
38	Claims	88%	89%	88%	88%	88%	88%	88%	88%	88%	88%	-	88%
39	Operating	60%	60%	60%	60%	60%	59%	60%	59%	60%	60%	-	60%
40	Road Safety	84%	86%	85%	88%	88%	87%	88%	87%	88%	87%	-	87%
41	Regulatory Appeal	99%	100%	99%	100%	99%	100%	99%	100%	99%	100%	-	100%
42	Total	76%	77%	76%	76%	76%	76%	77%	76%	76%	76%	n/a	76%

The following tables provide the source information for the above summary table. The first comparative is between the 2017/18 actual expenses against the 2018 GRA budget. The second table compares the 2018/19 budget in this year's GRA against the 2018 GRA forecast and the remaining years in 2019/20 and 2020/21 compare forecasts from this year's GRA to last year's GRA, respectively.

Figure EXP App 7 – 2: Comparison of 2017/2018 Actual Expenses to 2018 GRA (2019 GRA is Actual)

CORPORATE

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
	(C$000s,rounding may affect totals)												
1	Compensation - Salaries	133,292	130,641	(2,651)	-	48	48	(55)	-	55	133,237	130,689	(2,548)
2	Compensation - Overtime	1,817	1,051	(766)	-	42	42	-	-	-	1,817	1,093	(724)
3	Compensation - Benefits	32,791	30,987	(1,804)	-	-	-	-	-	-	32,791	30,987	(1,804)
4	Compensation - H & E Tax	2,985	2,816	(169)	-	-	-	-	-	-	2,985	2,816	(169)
5	Subtotal - Compensation	170,885	165,495	(5,390)	-	90	90	(55)	-	55	170,830	165,585	(5,245)
6	Data Processing	22,975	22,042	(933)	2,571	22,233	19,662	-	-	-	25,546	44,275	18,729
7	Special Services	6,117	6,867	750	-	-	-	-	-	-	6,117	6,867	750
8	Building Expenses	13,510	10,575	(2,935)	-	-	-	-	-	-	13,510	10,575	(2,935)
9	Safety / Loss Prevention Program	4,622	3,327	(1,295)	-	-	-	-	-	-	4,622	3,327	(1,295)
10	Telephone/Telecommunications	2,275	2,054	(221)	51	-	(51)	-	-	-	2,326	2,054	(272)
11	Advertising & Public Info	3,121	2,542	(579)	-	-	-	-	-	-	3,121	2,542	(579)
12	Printing, Stationery & Supplies	4,582	4,071	(511)	-	9	9	-	-	-	4,582	4,080	(502)
13	Postage	4,556	4,823	267	-	-	-	-	-	-	4,556	4,823	267
14	Regulatory/Appeal	3,759	4,145	386	-	-	-	-	-	-	3,759	4,145	386
15	Travel & Vehicle Expense	1,634	988	(646)	-	2	2	-	-	-	1,634	990	(644)
16	Driver Education Program	4,916	4,557	(359)	-	-	-	-	-	-	4,916	4,557	(359)
17	Grant in Lieu of Taxes	1,979	1,945	(34)	-	-	-	-	-	-	1,979	1,945	(34)
18	Furniture & Equipment	1,835	598	(1,237)	646	216	(430)	-	-	-	2,481	814	(1,667)
19	Merchant Fees	12,567	11,772	(795)	-	-	-	-	-	-	12,567	11,772	(795)
20	Other	4,004	5,090	1,086	121	13	(108)	-	-	-	4,125	5,103	978
21	Sub total - Other Operating Expenses	92,452	85,396	(7,056)	3,389	22,473	19,084	-	-	-	95,841	107,869	12,028
22	Depreciation of Capital Investments	5,541	4,941	(600)	-	13	13	17	-	(17)	5,558	4,954	(604)
23	Amortization of Deferred Development	21,234	20,756	(478)	-	-	-	-	-	-	21,234	20,756	(478)
24	Total Expenses	290,112	276,588	(13,524)	3,389	22,576	19,187	(38)	-	38	293,463	299,164	5,701

BASIC

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
25	*(C$000s,rounding may affect totals)*												
26	Compensation - Salaries	100,457	98,041	(2,416)	-	40	40	(44)	-	44	100,413	98,081	(2,332)
27	Compensation - Overtime	1,408	805	(603)	-	33	33	-	-	-	1,408	838	(570)
28	Compensation - Benefits	24,722	23,364	(1,358)	-	-	-	-	-	-	24,722	23,364	(1,358)
29	Compensation - H & E Tax	2,251	2,123	(128)	-	-	-	-	-	-	2,251	2,123	(128)
30	Subtotal - Compensation	128,838	124,333	(4,505)	-	73	73	(44)	-	44	128,794	124,406	(4,388)
31	Data Processing	18,830	18,045	(785)	2,162	19,943	17,781	-	-	-	20,992	37,988	16,996
32	Special Services	4,993	5,623	630	-	-	-	-	-	-	4,993	5,623	630
33	Building Expenses	10,465	8,193	(2,272)	-	-	-	-	-	-	10,465	8,193	(2,272)
34	Safety / Loss Prevention Program	4,204	3,029	(1,175)	-	-	-	-	-	-	4,204	3,029	(1,175)
35	Telephone/Telecommunications	1,862	1,680	(182)	47	-	(47)	-	-	-	1,909	1,680	(229)
36	Advertising & Public Info	2,449	1,936	(513)	-	-	-	-	-	-	2,449	1,936	(513)
37	Printing, Stationery & Supplies	1,560	1,080	(480)	-	3	3	-	-	-	1,560	1,083	(477)
38	Postage	3,107	3,242	135	-	-	-	-	-	-	3,107	3,242	135
39	Regulatory/Appeal	3,717	4,122	405	-	-	-	-	-	-	3,717	4,122	405
40	Travel & Vehicle Expense	1,187	670	(517)	-	1	1	-	-	-	1,187	671	(516)
41	Driver Education Program	3,638	3,600	(38)	-	-	-	-	-	-	3,638	3,600	(38)
42	Grant in Lieu of Taxes	1,533	1,506	(27)	-	-	-	-	-	-	1,533	1,506	(27)
43	Furniture & Equipment	1,499	489	(1,010)	130	188	58	-	-	-	1,629	677	(952)
44	Merchant Fees	9,022	8,460	(562)	-	-	-	-	-	-	9,022	8,460	(562)
45	Other	3,057	3,961	904	105	11	(94)	-	-	-	3,162	3,972	810
46	Subtotal - Other Operating Expenses	71,123	65,636	(5,487)	2,444	20,146	17,702	-	-	-	73,567	85,782	12,215
47	Depreciation of Capital Investments	4,298	3,830	(468)	-	11	11	15	-	(15)	4,313	3,841	(472)
48	Amortization of Deferred Development	17,447	17,098	(349)	-	-	-	-	-	-	17,447	17,098	(349)
49	Total Expenses	221,706	210,897	(10,809)	2,444	20,230	17,786	(29)	-	29	224,121	231,127	7,006

Basic % Allocation

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives 2018 GRA	Initiatives 2019 GRA	Initiatives Chg.	Ongoing 2018 GRA	Ongoing 2019 GRA	Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
50	Compensation - Salaries	75.4%	75.0%	-0.3%		83.3%		80.0%			75.4%	75.0%	-0.3%
51	Compensation - Overtime	77.5%	76.6%	-0.9%		78.6%					77.5%	76.7%	-0.8%
52	Compensation - Benefits	75.4%	75.4%	0.0%							75.4%	75.4%	0.0%
53	Compensation - H & E Tax	75.4%	75.4%	0.0%							75.4%	75.4%	0.0%
54	Subtotal	75.4%	75.1%	-0.3%		81.1%		80.0%			75.4%	75.1%	-0.3%
55	Data Processing	82.0%	81.9%	-0.1%	84.1%	89.7%	5.6%				82.2%	85.8%	3.6%
56	Special Services	81.6%	81.9%	0.3%							81.6%	81.9%	0.3%
57	Building Expenses	77.5%	77.5%	0.0%							77.5%	77.5%	0.0%
58	Loss Prev/Safety Program	91.0%	91.0%	0.1%							91.0%	91.0%	0.1%
59	Telephone/Telecommunications	81.8%	81.8%	-0.1%	92.2%						82.1%	81.8%	-0.3%
60	Advertising & Public Info	78.5%	76.2%	-2.3%							78.5%	76.2%	-2.3%
61	Printing, Stationery & Supplies	34.0%	26.5%	-7.5%		33.3%					34.0%	26.5%	-7.5%
62	Postage	68.2%	67.2%	-1.0%							68.2%	67.2%	-1.0%
63	Regulatory/Appeal Expenses	98.9%	99.4%	0.6%							98.9%	99.4%	0.6%
64	Travel & Vehicle Expense	72.6%	67.8%	-4.8%		50.0%					72.6%	67.8%	-4.9%
65	Driver Education Program	74.0%	79.0%	5.0%							74.0%	79.0%	5.0%
66	Grant in Lieu of Taxes	77.5%	77.4%	0.0%							77.5%	77.4%	0.0%
67	Furniture & Equipment	81.7%	81.8%	0.1%	20.1%	87.0%	66.9%				65.7%	83.2%	17.5%
68	Merchant Fees	71.8%	71.9%	0.1%							71.8%	71.9%	0.1%
69	Other	76.3%	77.8%	1.5%	86.8%	84.6%	-2.2%				76.7%	77.8%	1.2%
70	Subtotal	76.9%	76.9%	-0.1%	72.1%	89.6%	17.5%				76.8%	79.5%	2.8%
71	Depreciation of Capital Investments	77.6%	77.5%	-0.1%		84.6%		88.2%			77.6%	77.5%	-0.1%
72	Amortization of Deferred Development	82.2%	82.4%	0.2%							82.2%	82.4%	0.2%
73	TOTAL	76.4%	76.2%	-0.2%	72.1%	89.6%	17.5%	76.3%			76.4%	77.3%	0.9%

2017/18 CORPORATE TOTAL Comparative Explanations:

a) **Compensation - Salaries** - $2.5 million decrease compared to the 2018 GRA is mainly a result of the following:

- Lower than expected regular salaries is the primary contributor to the decrease. The Corporation continues to diligently manage FTE hiring's upon vacancy which accounts for the majority of the savings

b) **Benefits –** $1.8 million decrease compared to the 2018 GRA is primarily attributed to the following:

- Lower Canada Pension Plan contributions and Employment Insurance Premiums of approximately $900,000
- Lower than expected employer pension superannuation expense of approximately $360,000
- Lower than expected Group Long Term Disability premiums of $350,000

c) **Data Processing –** $18.7 million increase compared to the 2018 GRA is primarily due to the following:

- Impairment of various project costs totaling approximately $20.3 million occurred during the 2017/18 fiscal year. These projects no longer met the criterion to be classified as deferred development capital costs and thus were expensed.
- Partially offsetting the above expenses were approximately $1.6 million of less than expected external labor expenses. This is primarily related to external labor for CARS and AOL of about $1.7 million.

d) **Special Services** – $0.8 million increase compared to the 2018 GRA is primarily due to the following:

- The over budget expenses for special services expense is mainly due to approximately $1.1 million in Special Services – other for Executive, which is partially offset by approximately $310,000 reduction for customer service standards and $240,000 reduction related to PIPP Mediation.

e) **Building Expenses -** $2.9 million decrease compared to the 2018 GRA is primarily due to the following:

- Cancellation of departmental redevelopments within Cityplace account for approximately $1.3 million of the decrease
- Also contributing to the under budget variance are less than expected expenses for snow removal, general maintenance, and cleaning of approximately $550,000
- The remaining under budget expenses relates to major project expenses on various buildings including Gateway, Main Street, and Bison Service Centres

f) **Safety / Loss Prevention Expenses -** $1.3 million decrease compared to the 2018 GRA is primarily due to the following:

- Lower than expected expenses related to the Road Watch and Immobilizer programs of $630,000
- Lower than expected expenses related to the safety program evaluation and vehicle safety strategy of approximately $400,000 with the remainder due to various smaller accounts

g) **Advertising and Public Information –** Approximately $580,000 decrease compared to the 2018 GRA related to speed management of approximately $240,000, $110,000 for distracted driving, $120,000 community promotion and the remainder due to other safety initiatives

h) **Printing, Stationery, and Supplies** - $0.5 million decrease compared to the 2018 GRA is due to approximately $180,000 under budget for printed forms and stationery, with the remaining $220,000 variance due to less than expected office supplies

i) **Travel and Vehicle Expenses -** $0.6 million decrease compared to the 2018 GRA is primarily related to the corporate fleet reduction. This was one of the 2017/18 corporate cost containment strategies implemented by Management. The savings of $640,000 mainly related to lower insurance and gasoline expenses

j) **Furniture and Equipment**– $1.7 million decrease compared to the 2018 GRA due primarily to the following:

- Lower than expected expense related to computer equipment of approximately $1 million
- Lower than expected expenses due to wireless equipment of about $150,000
- Lower than expected expenses related to a non-basic project of approximately $500,000

k) **Merchant Fees** – $0.8 million decrease compared to the 2018 GRA due primarily to lower than budgeted volume related to credit card processing

l) **Other** – $1.0 million increase compared to the 2018 GRA due primarily to the following:

- At the time of filing the 2018 GRA, a $2.64 million stretch target was budgeted in this expense category, as cost saving strategies were not fully known. As strategies were confirmed, and savings realized, these permanent savings are now removed from the “Other” budget / forecast and reflected in the actual expense categories.

m) **Depreciation of Capital Investments** – $0.6 million decrease compared to the 2018 GRA due primarily to the following:

- Lower than expected automobile depreciation of approximately $260,000 related to the corporate vehicle fleet cost saving initiative
- Lower than expected depreciation expense of approximately $250,000 for data processing equipment

Figure EXP App 7 – 3: Comparison of 2018/2019 Expenses in 2018 GRA to 2019 GRA

CORPORATE

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
	(C$000s,rounding may affect totals)												
1	Compensation - Salaries	136,515	136,551	36	-	-	-	(1,037)	-	1,037	135,478	136,551	1,073
2	Compensation - Overtime	1,781	1,874	93	-	-	-	-	-	-	1,781	1,874	93
3	Compensation - Benefits	33,756	33,579	(177)	-	-	-	-	-	-	33,756	33,579	(177)
4	Compensation - H & E Tax	3,046	2,927	(119)	-	-	-	-	-	-	3,046	2,927	(119)
5	Subtotal - Compensation	175,098	174,931	(167)	-	-	-	(1,037)	-	1,037	174,061	174,931	870
6	Data Processing	22,900	24,416	1,516	3,067	4,055	988	2,356	-	(2,356)	28,323	28,471	148
7	Special Services	5,880	7,790	1,910	-	-	-	-	-	-	5,880	7,790	1,910
8	Building Expenses	12,318	10,705	(1,613)	-	-	-	-	-	-	12,318	10,705	(1,613)
9	Safety / Loss Prevention Program	3,899	4,842	943	-	-	-	-	-	-	3,899	4,842	943
10	Telephone/Telecommunications	2,288	2,121	(167)	-	-	-	50	-	(50)	2,338	2,121	(217)
11	Advertising & Public Info	3,121	2,988	(133)	-	-	-	-	-	-	3,121	2,988	(133)
12	Printing, Stationery & Supplies	4,751	4,753	2	-	-	-	-	-	-	4,751	4,753	2
13	Postage	4,556	4,183	(373)	-	-	-	-	-	-	4,556	4,183	(373)
14	Regulatory/Appeal	3,833	4,212	379	-	-	-	-	-	-	3,833	4,212	379
15	Travel & Vehicle Expense	1,615	1,326	(289)	-	-	-	-	-	-	1,615	1,326	(289)
16	Driver Education Program	4,745	4,541	(204)	-	-	-	-	-	-	4,745	4,541	(204)
17	Grant in Lieu of Taxes	1,997	1,889	(108)	-	-	-	-	-	-	1,997	1,889	(108)
18	Furniture & Equipment	1,765	1,563	(202)	500	-	(500)	-	-	-	2,265	1,563	(702)
19	Merchant Fees	13,032	12,579	(453)	-	-	-	-	-	-	13,032	12,579	(453)
20	Other	3,642	6,192	2,550	-	-	-	-	-	-	3,643	6,192	2,549
21	Subtotal - Other Operating Expenses	90,342	94,100	3,758	3,567	4,055	488	2,406	-	(2,406)	96,316	98,155	1,839
22	Depreciation of Capital Investments	6,097	5,281	(816)	-	-	-	76	-	(76)	6,173	5,281	(892)
23	Amortization of Deferred Development	21,234	23,313	2,079	-	-	-	4,705	-	(4,705)	25,939	23,313	(2,626)
24	Total Expenses	292,771	297,625	4,854	3,567	4,055	488	6,150	-	(6,150)	302,489	301,680	(809)

BASIC

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
25	*(C$000s,rounding may affect totals)*												
26	Compensation - Salaries	102,098	101,798	(300)	-	-	-	(937)	-	937	101,161	101,798	637
27	Compensation - Overtime	1,375	1,441	66	-	-	-	-	-	-	1,375	1,441	66
28	Compensation - Benefits	25,259	25,044	(215)	-	-	-	-	-	-	25,259	25,044	(215)
29	Compensation - H & E Tax	2,279	2,183	(96)	-	-	-	-	-	-	2,279	2,183	(96)
30	Subtotal - Compensation	131,011	130,466	(545)	-	-	-	(937)	-	937	130,074	130,466	392
31	Data Processing	18,672	19,961	1,289	2,566	3,420	854	2,013	-	(2,013)	23,251	23,381	130
32	Special Services	4,712	6,271	1,559	-	-	-	-	-	-	4,712	6,271	1,559
33	Building Expenses	9,480	8,243	(1,237)	-	-	-	-	-	-	9,480	8,243	(1,237)
34	Safety / Loss Prevention Program	3,539	4,358	819	-	-	-	-	-	-	3,539	4,358	819
35	Telephone/Telecommunications	1,865	1,732	(133)	-	-	-	46	-	(46)	1,911	1,732	(179)
36	Advertising & Public Info	2,510	2,339	(171)	-	-	-	-	-	-	2,510	2,339	(171)
37	Printing, Stationery & Supplies	1,612	1,700	88	-	-	-	-	-	-	1,612	1,700	88
38	Postage	3,097	2,887	(210)	-	-	-	-	-	-	3,097	2,887	(210)
39	Regulatory/Appeal	3,789	4,179	390	-	-	-	-	-	-	3,789	4,179	390
40	Travel & Vehicle Expense	1,165	932	(233)	-	-	-	-	-	-	1,165	932	(233)
41	Driver Education Program	3,696	3,879	183	-	-	-	-	-	-	3,696	3,879	183
42	Grant in Lieu of Taxes	1,538	1,454	(84)	-	-	-	-	-	-	1,538	1,454	(84)
43	Furniture & Equipment	1,437	1,275	(162)	-	-	-	-	-	-	1,437	1,275	(162)
44	Merchant Fees	9,355	9,175	(180)	-	-	-	-	-	-	9,355	9,175	(180)
45	Other	2,768	4,908	2,140	-	-	-	-	-	-	2,768	4,908	2,140
46	Subtotal - Other Operating Expenses	69,235	73,293	4,058	2,566	3,420	854	2,059	-	(2,059)	73,860	76,713	2,853
47	Depreciation of Capital Investments	4,740	4,107	(633)	-	-	-	66	-	(66)	4,806	4,107	(699)
48	Amortization of Deferred Development	17,281	19,217	1,936	-	-	-	4,007	-	(4,007)	21,288	19,217	(2,071)
49	Total Expenses	222,267	227,083	4,816	2,566	3,420	854	5,195	-	(5,195)	230,028	230,503	475

Basic % Allocation

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives 2018 GRA	Initiatives 2019 GRA	Initiatives Chg.	Ongoing 2018 GRA	Ongoing 2019 GRA	Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
50	Compensation - Salaries	74.8%	74.5%	-0.2%				90.4%			74.7%	74.5%	-0.1%
51	Compensation - Overtime	77.2%	76.9%	-0.3%							77.2%	76.9%	-0.3%
52	Compensation - Benefits	74.8%	74.6%	-0.2%							74.8%	74.6%	-0.2%
53	Compensation - H & E Tax	74.8%	74.6%	-0.2%							74.8%	74.6%	-0.2%
54	Subtotal	74.8%	74.6%	-0.2%				90.4%			74.7%	74.6%	-0.1%
55	Data Processing	81.5%	81.8%	0.2%	83.7%	84.3%	0.7%	85.4%			82.1%	82.1%	0.0%
56	Special Services	80.1%	80.5%	0.4%							80.1%	80.5%	0.4%
57	Building Expenses	77.0%	77.0%	0.0%							77.0%	77.0%	0.0%
58	Loss Prev/Safety Program	90.8%	90.0%	-0.8%							90.8%	90.0%	-0.8%
59	Telephone/Telecommunications	81.5%	81.7%	0.1%				92.0%			81.7%	81.7%	-0.1%
60	Advertising & Public Info	80.4%	78.3%	-2.1%							80.4%	78.3%	-2.1%
61	Printing, Stationery & Supplies	33.9%	35.8%	1.8%							33.9%	35.8%	1.8%
62	Postage	68.0%	69.0%	1.0%							68.0%	69.0%	1.0%
63	Regulatory/Appeal Expenses	98.9%	99.2%	0.4%							98.9%	99.2%	0.4%
64	Travel & Vehicle Expense	72.1%	70.3%	-1.8%							72.1%	70.3%	-1.8%
65	Driver Education Program	77.9%	85.4%	7.5%							77.9%	85.4%	7.5%
66	Grant in Lieu of Taxes	77.0%	77.0%	0.0%							77.0%	77.0%	0.0%
67	Furniture & Equipment	81.4%	81.6%	0.2%	0.0%						63.4%	81.6%	18.1%
68	Merchant Fees	71.8%	72.9%	1.2%							71.8%	72.9%	1.2%
69	Other	76.0%	79.3%	3.3%							76.0%	79.3%	3.3%
70	Subtotal	76.6%	77.9%	1.3%	71.9%	84.3%	12.4%	85.6%			76.7%	78.2%	1.5%
71	Depreciation of Capital Investments	77.7%	77.8%	0.0%				86.8%			77.9%	77.8%	-0.1%
72	Amortization of Deferred Development	81.4%	82.4%	1.0%				85.2%			82.1%	82.4%	0.4%
73	TOTAL	75.9%	76.3%	0.4%	71.9%	84.3%	12.4%	84.5%			76.0%	76.4%	0.4%

2018/19 CORPORATE TOTAL Comparative Explanations:

a) **Compensation - Salaries** - $1.0 million increase compared to the 2018 GRA is related to the following:

- Approximately $700,000 greater than expected for severance/retirement payouts and the remaining increase due to higher than expected FTE count of approximately 6 FTE

b) **Special Services –** $1.9 million increase compared to the 2018 GRA is primarily due to the following:

- This is mainly due to a $1.5 million greater than expected special services budget for potential implementation of new strategies under new Executive leadership and a $225,000 greater than expected expense related to International Financial Reporting Standards.

c) **Building Expenses** – $1.6 million decrease compared to the 2018 GRA is mainly due to the following:

- This is primarily due to a $1.5 million reduction related to a deferral with departmental space redevelopments at the Cityplace building.

d) **Safety / Loss Prevention Program -** $0.9 million increase compared to the 2018 GRA is mainly due to the following:

- This is attributable to approximately $400,000 greater than expected spending on the Roadwatch program, a one year deferral related to vehicle safety strategies of $240,000, and $130,000 related to speed management strategies.

e) **Furniture & Equipment -** $0.7 million decrease compared to the 2018 GRA is mainly due to the following:

- This is primarily due to $500,000 in expense for a non-basic project that was forecasted in the 2018 GRA but not in the 2019 GRA.

f) **Other -** $2.5 million increase compared to the 2018 GRA is mainly due to the following:

- At the time of filing the 2018 GRA, a $2.64 million stretch target was budgeted in this expense category, as cost saving strategies were not fully known. As strategies were confirmed, and savings realized, these permanent savings are now removed from the "Other" budget / forecast and reflected in the actual expense categories.

g) **Depreciation of Capital Investments -** $0.9 million decrease compared to the 2018 GRA is mainly due to the following:

- Approximately $300,000 lower than expected automobile depreciation related to the corporate vehicle fleet cost saving initiative
- The remainder is due to various items including lower than expected depreciation expense of approximately $160,000 for data processing equipment, lower building depreciation (sale of Pacific Avenue Service Centre), and significantly less administrative capital purchases related to systems furniture, demountable wall systems, roofing systems etc.

h) **Amortization of Deferred Development -** $2.6 million decrease compared to the 2018 GRA is mainly due to the following:

- Approximately $800,000 related to the one year deferral of project completion for the Infor/Lawson upgrade project
- Approximately $700,000 due to the reclassification of the High School Driver Education – Phase 2 project. This project was deemed to no longer meet deferred development capitalization criterion, and thus was fully expensed in the 2017/18 fiscal year

- Approximately $400,000 of less than expected amortization associated with the Physical Damage Reengineering (PDR) – phase 3 project. A portion of this project was fully expensed in 2017/18
- Approximately $300,000 related to the one year completion deferral for the Enhanced DE project

Figure EXP App 7 – 4: Comparison of 2019/2020 Expenses in 2018 GRA to 2019 GRA

CORPORATE

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
	(C$000s,rounding may affect totals)												
1	Compensation - Salaries	141,264	140,889	(375)	-	-	-	(3,164)	(280)	2,884	138,100	140,609	2,509
2	Compensation - Overtime	1,770	1,878	108	-	-	-	-	-	-	1,770	1,878	108
3	Compensation - Benefits	34,621	34,469	(152)	-	-	-	-	-	-	34,621	34,469	(152)
4	Compensation - H & E Tax	3,051	3,016	(35)	-	-	-	-	-	-	3,051	3,016	(35)
5	Subtotal - Compensation	180,706	180,252	(454)	-	-	-	(3,164)	(280)	2,884	177,543	179,972	2,429
6	Data Processing	23,048	24,247	1,199	3,110	849	(2,261)	2,709	1,500	(1,209)	28,867	26,596	(2,271)
7	Special Services	5,650	5,999	349	-	-	-	-	-	-	5,650	5,999	349
8	Building Expenses	12,231	12,162	(69)	-	-	-	-	-	-	12,231	12,162	(69)
9	Safety / Loss Prevention Program	3,713	3,578	(135)	-	-	-	-	-	-	3,713	3,578	(135)
10	Telephone/Telecommunications	2,299	2,175	(124)	-	-	-	51	-	(51)	2,350	2,175	(175)
11	Advertising & Public Info	3,122	3,045	(77)	-	-	-	-	-	-	3,122	3,045	(77)
12	Printing, Stationery & Supplies	4,865	4,637	(228)	-	-	-	-	-	-	4,865	4,637	(228)
13	Postage	4,556	3,170	(1,386)	-	-	-	-	-	-	4,556	3,170	(1,386)
14	Regulatory/Appeal	3,908	4,369	461	-	-	-	-	-	-	3,908	4,369	461
15	Travel & Vehicle Expense	1,613	1,352	(261)	-	-	-	-	-	-	1,613	1,352	(261)
16	Driver Education Program	4,245	4,578	333	-	-	-	-	-	-	4,245	4,578	333
17	Grant in Lieu of Taxes	1,948	1,964	16	-	-	-	-	-	-	1,948	1,964	16
18	Furniture & Equipment	1,426	1,289	(137)	-	-	-	-	-	-	1,426	1,289	(137)
19	Merchant Fees	13,621	13,081	(540)	-	-	-	-	-	-	13,621	13,081	(540)
20	Other	3,574	6,412	2,838	-	-	-	-	-	-	3,574	6,412	2,838
21	Subtotal - Other Operating Expenses	89,819	92,058	2,239	3,110	849	(2,261)	2,760	1,500	(1,260)	95,689	94,407	(1,282)
22	Depreciation of Capital Investments	6,783	6,064	(719)	-	-	-	75	-	(75)	6,858	6,064	(794)
23	Amortization of Deferred Development	12,966	14,865	1,899	-	-	-	11,581	3,477	(8,104)	24,547	18,342	(6,205)
24	Total Expenses	290,274	293,239	2,965	3,110	849	(2,261)	11,252	4,697	(6,555)	304,636	298,785	(5,851)

BASIC

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
25	*(C$000s,rounding may affect totals)*												
26	Compensation - Salaries	105,846	104,474	(1,372)	-	-	-	(2,255)	(258)	1,997	103,591	104,216	625
27	Compensation - Overtime	1,364	1,436	72	-	-	-	-	-	-	1,364	1,436	72
28	Compensation - Benefits	25,951	25,571	(380)	-	-	-	-	-	-	25,951	25,571	(380)
29	Compensation - H & E Tax	2,286	2,237	(49)	-	-	-	-	-	-	2,286	2,237	(49)
30	Subtotal - Compensation	135,447	133,718	(1,729)	-	-	-	(2,255)	(258)	1,997	133,192	133,460	268
31	Data Processing	18,781	19,704	923	2,602	756	(1,846)	2,320	1,238	(1,082)	23,703	21,698	(2,005)
32	Special Services	4,579	4,806	227	-	-	-	-	-	-	4,579	4,806	227
33	Building Expenses	9,420	9,312	(108)	-	-	-	-	-	-	9,420	9,312	(108)
34	Safety / Loss Prevention Program	3,350	3,106	(244)	-	-	-	-	-	-	3,350	3,106	(244)
35	Telephone/Telecommunications	1,870	1,764	(106)	-	-	-	47	-	(47)	1,917	1,764	(153)
36	Advertising & Public Info	2,505	2,370	(135)	-	-	-	-	-	-	2,505	2,370	(135)
37	Printing, Stationery & Supplies	1,648	1,650	2	-	-	-	-	-	-	1,648	1,650	2
38	Postage	3,090	2,174	(916)	-	-	-	-	-	-	3,090	2,174	(916)
39	Regulatory/Appeal	3,865	4,334	469	-	-	-	-	-	-	3,865	4,334	469
40	Travel & Vehicle Expense	1,163	945	(218)	-	-	-	-	-	-	1,163	945	(218)
41	Driver Education Program	3,686	3,885	199	-	-	-	-	-	-	3,686	3,885	199
42	Grant in Lieu of Taxes	1,500	1,504	4	-	-	-	-	-	-	1,500	1,504	4
43	Furniture & Equipment	1,159	1,045	(114)	-	-	-	-	-	-	1,159	1,045	(114)
44	Merchant Fees	9,777	9,539	(238)	-	-	-	-	-	-	9,777	9,539	(238)
45	Other	2,708	5,048	2,340	-	-	-	-	-	-	2,708	5,048	2,340
46	Subtotal - Other Operating Expenses	69,101	71,186	2,085	2,602	756	(1,846)	2,367	1,238	(1,129)	74,070	73,180	(890)
47	Depreciation of Capital Investments	5,313	4,729	(584)	-	-	-	65	-	(65)	5,378	4,729	(649)
48	Amortization of Deferred Development	10,543	12,293	1,750	-	-	-	9,291	2,905	(6,386)	19,834	15,198	(4,636)
49	Total Expenses	220,404	221,926	1,522	2,602	756	(1,846)	9,468	3,885	(5,583)	232,474	226,567	(5,907)

Basic % Allocation

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives 2018 GRA	Initiatives 2019 GRA	Initiatives Chg.	Ongoing 2018 GRA	Ongoing 2019 GRA	Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
50	Compensation - Salaries	74.9%	74.2%	-0.8%				71.3%	92.1%	20.9%	75.0%	74.1%	-0.9%
51	Compensation - Overtime	77.1%	76.5%	-0.6%							77.1%	76.5%	-0.6%
52	Compensation - Benefits	75.0%	74.2%	-0.8%							75.0%	74.2%	-0.8%
53	Compensation - H & E Tax	74.9%	74.2%	-0.8%							74.9%	74.2%	-0.8%
54	Subtotal	75.0%	74.2%	-0.8%				71.3%	92.1%	20.9%	75.0%	74.2%	-0.9%
55	Data Processing	81.5%	81.3%	-0.2%	83.7%	89.0%	5.4%	85.6%	82.5%	-3.1%	82.1%	81.6%	-0.5%
56	Special Services	81.0%	80.1%	-0.9%							81.0%	80.1%	-0.9%
57	Building Expenses	77.0%	76.6%	-0.5%							77.0%	76.6%	-0.5%
58	Loss Prev/Safety Program	90.2%	86.8%	-3.4%							90.2%	86.8%	-3.4%
59	Telephone/Telecommunications	81.3%	81.1%	-0.2%				92.2%			81.6%	81.1%	-0.5%
60	Advertising & Public Info	80.2%	77.8%	-2.4%							80.2%	77.8%	-2.4%
61	Printing, Stationery & Supplies	33.9%	35.6%	1.7%							33.9%	35.6%	1.7%
62	Postage	67.8%	68.6%	0.8%							67.8%	68.6%	0.8%
63	Regulatory/Appeal Expenses	98.9%	99.2%	0.3%							98.9%	99.2%	0.3%
64	Travel & Vehicle Expense	72.1%	69.9%	-2.2%							72.1%	69.9%	-2.2%
65	Driver Education Program	86.8%	84.9%	-2.0%							86.8%	84.9%	-2.0%
66	Grant in Lieu of Taxes	77.0%	76.6%	-0.4%							77.0%	76.6%	-0.4%
67	Furniture & Equipment	81.3%	81.1%	-0.2%							81.3%	81.1%	-0.2%
68	Merchant Fees	71.8%	72.9%	1.1%							71.8%	72.9%	1.1%
69	Other	75.8%	78.7%	3.0%							75.8%	78.7%	3.0%
70	Subtotal	76.9%	77.3%	0.4%	83.7%	89.0%	5.4%	85.8%	82.5%	-3.2%	77.4%	77.5%	0.1%
71	Depreciation of Capital Investments	78.3%	78.0%	-0.3%				86.7%			78.4%	78.0%	-0.4%
72	Amortization of Deferred Development	81.3%	82.7%	1.4%				80.2%	83.5%	3.3%	80.8%	82.9%	2.1%
73	TOTAL	75.9%	75.7%	-0.2%	83.7%	89.0%	5.4%	84.1%	82.7%	-1.4%	76.3%	75.8%	-0.5%

2019/20 CORPORATE TOTAL Comparative Explanations:

a) **Compensation – Salaries** - $2.5 million increase compared to the 2018 GRA is related to the following:

- This increase is primarily related to greater than expected FTE counts in the 2019 GRA as compared to the 2018 GRA. During the 2018 GRA, the Corporation estimated improvement initiative efficiencies for the Customer Claims Reporting System (CCRS) and a non-Basic project. As CCRS has been suspended and the non-Basic project delayed, the FTE savings are not forecast to be realized.

b) **Data Processing –** $2.3 million decrease compared to the 2018 GRA is primarily due to the following:

- The decrease is mainly due to the Corporation no longer including a budget for insertions of work. In the 2018 GRA, the Corporation set aside $2.0 million related to insertions of work (Government related projects) whereas in the 2019 GRA, there is no budget.

c) **Postage** – $1.4 million decrease compared to the 2018 GRA is mainly due to the following:

- The large decrease is associated with the removal of expedited mail. Where possible, the Corporation is transitioning from expedited mail to regular mail as a means of saving on costs.

d) **Merchant Fees -** $0.5 million decrease compared to the 2018 GRA is mainly due to the following:

- Lower than budgeted volume related to credit card processing

e) **Other -** $2.8 million increase compared to the 2018 GRA is primarily due to the following:

- At the time of filing the 2018 GRA, a $2.64 million stretch target was budgeted in this expense category, as cost saving strategies were not fully known. As strategies were confirmed, and savings realized, these permanent savings are now removed from the "Other" budget / forecast and reflected in the actual expense categories

f) **Depreciation of Capital Investments -** $0.8 million decrease compared to the 2018 GRA related to:

- As mentioned in prior years above, the majority of the decrease is related to the corporate fleet reduction. Also contributing to this decrease is an expected decrease in administrative capital additions.

g) **Amortization of Deferred Development –** $6.2 million decrease compared to the 2018 GRA due to:

- The main reason for this decrease is related to the Customer Claims Reporting System project. During the 2018 GRA, the Corporation expected approximately $4.7 million of amortization expense to commence in 2019/20. Based on further analysis conducted during the 2017/18 fiscal year, this project was deemed not suitable at this time and was suspended. All cumulative costs related this to project were fully expensed in 2017/18 and a result, there is no anticipated amortization in future years.
- Approximately $700,000 is due to the reclassification of the High School Driver Education – Phase 2 project. This project was deemed to no longer meet deferred development capitalization criterion, and thus was fully expensed in the 2017/18 fiscal year.

Figure EXP App 7 – 5: Comparison of 2020/2021 Expenses in 2018 GRA to 2019 GRA

CORPORATE

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
	(C$000s,rounding may affect totals)												
1	Compensation - Salaries	144,216	144,837	621	-	-	-	(3,164)	(1,042)	2,122	141,052	143,795	2,743
2	Compensation - Overtime	1,818	1,869	51	-	-	-	-	-	-	1,818	1,869	51
3	Compensation - Benefits	35,687	35,197	(490)	-	-	-	-	-	-	35,687	35,197	(490)
4	Compensation - H & E Tax	3,111	3,067	(44)	-	-	-	-	-	-	3,111	3,067	(44)
5	Subtotal - Compensation	184,832	184,970	138	-	-	-	(3,164)	(1,042)	2,122	181,668	183,928	2,260
6	Data Processing	23,509	25,244	1,735	2,429	851	(1,578)	2,890	1,988	(902)	28,828	28,083	(745)
7	Special Services	5,762	5,884	122	-	-	-	-	-	-	5,762	5,884	122
8	Building Expenses	12,478	12,044	(434)	-	-	-	-	-	-	12,478	12,044	(434)
9	Safety / Loss Prevention Program	3,787	3,497	(290)	-	-	-	-	-	-	3,787	3,497	(290)
10	Telephone/Telecommunications	2,345	2,230	(115)	-	-	-	51	-	(51)	2,396	2,230	(166)
11	Advertising & Public Info	3,184	3,106	(78)	-	-	-	-	-	-	3,184	3,106	(78)
12	Printing, Stationery & Supplies	4,963	4,386	(577)	-	-	-	-	-	-	4,963	4,386	(577)
13	Postage	4,647	3,314	(1,333)	-	-	-	-	-	-	4,647	3,314	(1,333)
14	Regulatory/Appeal	3,988	4,510	522	-	-	-	-	-	-	3,988	4,510	522
15	Travel & Vehicle Expense	1,646	1,379	(267)	-	-	-	-	-	-	1,646	1,379	(267)
16	Driver Education Program	4,330	4,669	339	-	-	-	-	-	-	4,330	4,669	339
17	Grant in Lieu of Taxes	1,988	2,042	54	-	-	-	-	-	-	1,988	2,042	54
18	Furniture & Equipment	1,455	1,387	(68)	-	-	-	-	-	-	1,455	1,387	(68)
19	Merchant Fees	13,893	13,565	(328)	-	-	-	-	-	-	13,893	13,565	(328)
20	Other	3,645	6,518	2,873	-	-	-	-	-	-	3,645	6,518	2,873
21	Subtotal - Other Operating Expenses	91,620	93,775	2,155	2,429	851	(1,578)	2,941	1,988	(953)	96,990	96,614	(376)
22	Depreciation of Capital Investments	7,388	6,731	(657)	-	-	-	75	-	(75)	7,463	6,731	(732)
23	Amortization of Deferred Development	11,479	13,377	1,898	-	-	-	12,949	6,052	(6,897)	24,428	19,429	(4,999)
24	Total Expenses	295,319	298,853	3,534	2,429	851	(1,578)	12,801	6,998	(5,803)	310,549	306,702	(3,847)

BASIC

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives - Implementation 2018 GRA	Initiatives - Implementation 2019 GRA	Initiatives - Implementation Chg.	Initiatives - Ongoing 2018 GRA	Initiatives - Ongoing 2019 GRA	Initiatives - Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
25	*(C$000s,rounding may affect totals)*												
26	Compensation - Salaries	108,378	108,025	(353)	-	-	-	(2,255)	(258)	1,997	106,123	107,767	1,644
27	Compensation - Overtime	1,405	1,433	28	-	-	-	-	-	-	1,405	1,433	28
28	Compensation - Benefits	26,830	26,262	(568)	-	-	-	-	-	-	26,830	26,262	(568)
29	Compensation - H & E Tax	2,339	2,287	(52)	-	-	-	-	-	-	2,339	2,287	(52)
30	Subtotal - Compensation	138,952	138,007	(945)	-	-	-	(2,255)	(258)	1,997	136,697	137,749	1,052
31	Data Processing	19,216	20,602	1,386	2,046	758	(1,288)	2,468	1,389	(1,079)	23,730	22,749	(981)
32	Special Services	4,681	4,770	89	-	-	-	-	-	-	4,681	4,770	89
33	Building Expenses	9,638	9,273	(365)	-	-	-	-	-	-	9,638	9,273	(365)
34	Safety / Loss Prevention Program	3,404	3,044	(360)	-	-	-	-	-	-	3,404	3,044	(360)
35	Telephone/Telecommunications	1,914	1,814	(100)	-	-	-	47	-	(47)	1,961	1,814	(147)
36	Advertising & Public Info	2,562	2,426	(136)	-	-	-	-	-	-	2,562	2,426	(136)
37	Printing, Stationery & Supplies	1,686	1,567	(119)	-	-	-	-	-	-	1,686	1,567	(119)
38	Postage	3,161	2,280	(881)	-	-	-	-	-	-	3,161	2,280	(881)
39	Regulatory/Appeal	3,943	4,479	536	-	-	-	-	-	-	3,943	4,479	536
40	Travel & Vehicle Expense	1,191	968	(223)	-	-	-	-	-	-	1,191	968	(223)
41	Driver Education Program	3,772	3,974	202	-	-	-	-	-	-	3,772	3,974	202
42	Grant in Lieu of Taxes	1,536	1,573	37	-	-	-	-	-	-	1,536	1,573	37
43	Furniture & Equipment	1,186	1,128	(58)	-	-	-	-	-	-	1,186	1,128	(58)
44	Merchant Fees	9,973	9,893	(80)	-	-	-	-	-	-	9,973	9,893	(80)
45	Other	2,771	5,148	2,377	-	-	-	-	-	-	2,771	5,148	2,377
46	Subtotal - Other Operating Expenses	70,634	72,939	2,305	2,046	758	(1,288)	2,515	1,389	(1,126)	75,195	75,086	(109)
47	Depreciation of Capital Investments	5,832	5,303	(529)	-	-	-	65	-	(65)	5,897	5,303	(594)
48	Amortization of Deferred Development	9,327	10,963	1,636	-	-	-	10,469	4,244	(6,225)	19,796	15,207	(4,589)
49	Total Expenses	224,745	227,212	2,467	2,046	758	(1,288)	10,794	5,375	(5,419)	237,585	233,345	(4,240)

Basic % Allocation

Line No.	Expense Category	Normal Ops 2018 GRA	Normal Ops 2019 GRA	Normal Ops Chg.	Initiatives 2018 GRA	Initiatives 2019 GRA	Initiatives Chg.	Ongoing 2018 GRA	Ongoing 2019 GRA	Ongoing Chg.	Total 2018 GRA	Total 2019 GRA	Total Chg.
50	Compensation - Salaries	75.1%	74.6%	-0.6%				71.3%	24.8%	-46.5%	75.2%	74.9%	-0.3%
51	Compensation - Overtime	77.3%	76.7%	-0.6%							77.3%	76.7%	-0.6%
52	Compensation - Benefits	75.2%	74.6%	-0.6%							75.2%	74.6%	-0.6%
53	Compensation - H & E Tax	75.2%	74.6%	-0.6%							75.2%	74.6%	-0.6%
54	Subtotal	75.2%	74.6%	-0.6%				71.3%	24.8%	-46.5%	75.2%	74.9%	-0.4%
55	Data Processing	81.7%	81.6%	-0.1%	84.2%	89.1%	4.8%	85.4%	69.9%	-15.5%	82.3%	81.0%	-1.3%
56	Special Services	81.2%	81.1%	-0.2%							81.2%	81.1%	-0.2%
57	Building Expenses	77.2%	77.0%	-0.2%							77.2%	77.0%	-0.2%
58	Loss Prev/Safety Program	89.9%	87.0%	-2.8%							89.9%	87.0%	-2.8%
59	Telephone/Telecommunications	81.6%	81.3%	-0.3%				92.2%			81.8%	81.3%	-0.5%
60	Advertising & Public Info	80.5%	78.1%	-2.4%							80.5%	78.1%	-2.4%
61	Printing, Stationery & Supplies	34.0%	35.7%	1.8%							34.0%	35.7%	1.8%
62	Postage	68.0%	68.8%	0.8%							68.0%	68.8%	0.8%
63	Regulatory/Appeal Expenses	98.9%	99.3%	0.4%							98.9%	99.3%	0.4%
64	Travel & Vehicle Expense	72.4%	70.2%	-2.2%							72.4%	70.2%	-2.2%
65	Driver Education Program	87.1%	85.1%	-2.0%							87.1%	85.1%	-2.0%
66	Grant in Lieu of Taxes	77.3%	77.0%	-0.2%							77.3%	77.0%	-0.2%
67	Furniture & Equipment	81.5%	81.3%	-0.2%							81.5%	81.3%	-0.2%
68	Merchant Fees	71.8%	72.9%	1.1%							71.8%	72.9%	1.1%
69	Other	76.0%	79.0%	3.0%							76.0%	79.0%	3.0%
70	Subtotal	77.1%	77.8%	0.7%	84.2%	89.1%	4.8%	85.5%	69.9%	-15.6%	77.5%	77.7%	0.2%
71	Depreciation of Capital Investments	78.9%	78.8%	-0.2%				86.7%			79.0%	78.8%	-0.2%
72	Amortization of Deferred Development	81.3%	82.0%	0.7%				80.8%	70.1%	-10.7%	81.0%	78.3%	-2.8%
73	TOTAL	76.1%	76.0%	-0.1%	84.2%	89.1%	4.8%	84.3%	76.8%	-7.5%	76.5%	76.1%	-0.4%

2020/21 CORPORATE TOTAL Comparative Explanations:

a) **Compensation - Salaries** - $2.7 million increase compared to the 2018 GRA is related to the following:

- This increase is primarily related to the greater than expected FTE counts in the 2019 GRA as compared to the 2018 GRA. During the 2018 GRA, the Corporation estimated improvement initiative efficiencies for the Customer Claims Reporting System (CCRS) and a non-Basic project. As CCRS has been suspended and the non-Basic project delayed, the FTE savings are not forecast to be realized.

b) **Data Processing –** $0.7 million decrease compared to the 2018 GRA is primarily due to the following:

- Normal operations is greater than expected by approximately $1.7 million due to expected increases related to the IBM Data Centre of $1.2 million and licensing charges of $650,000
- This is more than offset by Data Processing expenses related to improvement initiatives by approximately $2.5 million. Improvement initiative implementation expenses are approximately $1.6 million lower primarily due to the elimination of the insertions of work budget. In addition, improvement initiatives ongoing expenses are approximately $900,000 lower due to lower than expected project expenses for license fees and software.

c) **Printing Stationery and Supplies** – $0.6 million decrease compared to the 2018 GRA is mainly due to the following:

- This decrease is mainly attributable to an expected reduction in computer accessories and supplies of approximately $340,000 with the remainder due to non-Basic items.

d) **Postage -** $1.3 million decrease compared to the 2018 GRA is mainly due to the following:

- The large decrease is associated to the removal of expedited mail. Where possible, the Corporation is transitioning from expedited mail to regular mail as a means of saving on costs.

e) **Regulatory Appeal -** $0.5 million increase compared to the 2018 GRA is primarily due to the following:

- This increase is mainly due to greater than expected costs related to the Public Utilities Board of approximately $370,000 with the remaining due to increased expenses for the Claimant Advisory Office and the Automobile Injury Claims Commission

f) **Other -** $2.8 million increase compared to the 2018 GRA is due to the following:

- At the time of filing the 2018 GRA, a $2.64 million stretch target was budgeted in this expense category, as cost saving strategies were not fully known. As strategies were confirmed, and savings realized, these permanent savings are now removed from the “Other” budget / forecast and reflected in the actual expense categories.

g) **Depreciation of Capital Investments –** $0.7 million decrease over the 2018 GRA due to the following:

- As mentioned in the years above, the majority of the decrease is related to the corporate fleet reduction. Also contributing to this decrease is an expected decrease in administrative capital additions.

h) **Amortization of Deferred Development -** $5.0 million decrease over the 2018 GRA primarily related to the following:

- The main reason for this decrease is related to the Customer Claims Reporting System project. During the 2018 GRA, the Corporation expected approximately $4.7 million of amortization expense to commence in 2019/20. Based on further analysis conducted during the 2017/18 fiscal year, this project was deemed not suitable at this time and was suspended. All cumulative costs related this to project were fully expensed in 2017/18.

Appendix 8: AVERAGE REGULAR SALARY BY CLASSIFICATION

The following schedule shows an average annual regular salary per full time equivalent employee categorized into four general classifications. Regular salaries are described as an approximate average of a full time equivalent employee in the respective classification, which has been earned in normal operations. Regular Salaries do not include overtime, banked vacation, accrued vacation or retirement allowance. The calculation for the five year actual has been derived by dividing the total regular salaries of all employees by the number of employees within each classification. When calculating the average, part time and hourly employee's salaries have been converted into full time equivalent annual salaries. All historical values are calculated using a point in time data. The calculation for the 5 years of forecast data (2018/19 through to 2022/23) has been calculated by applying step in scale and economic increases to the 2017/18 actual amounts.

Figure EXP App 8: Average Annual Regular Salary by Classification

Line No.	Classification	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	2014/15-2017/18 (4 years)	2019/20-2020/21* (2 years)	2018/19-2022/23 (5 years)
1	(C$000's, except where noted)													
2	Clerical	41,863	44,105	45,410	46,394	47,878	49,553	51,411	52,825	53,749	54,894	3.41%	3.25%	2.77%
3	Technical/Professional	62,526	64,301	66,484	67,462	69,404	71,833	74,527	76,576	77,916	79,576	2.64%	3.25%	2.77%
4	Supervisor	68,310	70,617	72,328	72,920	75,032	77,658	80,570	82,786	84,235	86,029	2.37%	3.25%	2.77%
5	Management	105,486	105,895	113,350	111,954	116,501	120,870	126,007	131,362	134,318	137,340	2.51%	4.25%	3.35%
6	Corporate Average	58,987	61,576	64,012	64,905	66,399	68,786	71,495	73,868	75,302	76,941	3.00%	3.63%	2.99%
7	*% increase over prior year*	*1.20%*	*4.39%*	*3.96%*	*1.40%*	*2.30%*	*3.59%*	*3.94%*	*3.32%*	*1.94%*	*2.18%*			
8	Manitoba (CPI)	1.90	2.00	1.50	1.30	1.60	2.00	2.00	2.00	2.00	2.00	1.64%	2.02%	2.08%

Note: Regular salaries does not include overtime, banked vacation, accrued vacation, retirement allowance.
* Rating Years

The historical trend of average salaries are not always in line with CPI primarily due to the negotiated increases under the collective agreement in addition to market adjustments. For further details regarding negotiated increases and forecast salary growth rates please refer to *Part V(i) – Expenses section EXP.4.1.2* of the application.

Appendix 9: STAFFING LEVELS BY CATEGORY (NORMAL OPERATIONS 2017/18)

The following schedules show the budget versus actual comparative of average corporate staffing levels for each position category by division for period 2017/18. The Corporation consists of seven divisions that are comprised of four main position types.

Figure EXP App 9: Staffing Levels by Category -Normal Operations

NORMAL OPERATIONS STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	47.2	24.2	16.1	16.9	8.5	1.6	23.2	0.0	137.7
2	Supervisory	109.3	20.7	2.0	2.0	0.0	1.0	4.0	0.0	139.0
3	Technical/Professional	505.2	143.1	80.5	73.7	10.2	20.0	214.1	0.0	1,046.8
4	Clerical	373.1	110.6	7.5	18.0	1.0	5.0	10.7	0.0	525.9
5	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
6	Total	1,034.8	298.6	106.1	110.6	19.7	27.6	252.0	0.0	1,860.9

SPECIALTY PROGRAMS STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Supervisory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Technical/Professional	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6
4	Clerical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Student/Intern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Total	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6

TOTAL NORMAL OPERATIONS INCLUDING SPECIALTY PROGRAMS STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	47.2	24.2	16.1	16.9	8.5	1.6	23.2	0.0	137.7
2	Supervisory	109.3	20.7	2.0	2.0	0.0	1.0	4.0	0.0	139.0
3	Technical/Professional	505.2	143.1	80.5	76.3	10.2	20.0	214.1	0.0	1,049.4
4	Clerical	373.1	110.6	7.5	18.0	1.0	5.0	10.7	0.0	525.9
5	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
6	Total	1,036.4	302.5	109.2	113.2	19.7	27.6	254.9	0.0	1,863.5

NORMAL OPERATIONS STAFFING BUDGET IN 2017/2018

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	67.0	22.0	30.0	15.0	10.0	2.0	28.0	(19.0)	155.0
2	Supervisory	113.0	14.0	4.0	0.0	0.0	1.0	3.0	0.0	135.0
3	Technical/Professional	550.2	93.6	126.7	57.6	10.0	18.8	208.2	0.0	1,065.1
4	Clerical	423.9	87.0	15.0	15.0	1.0	4.0	9.0	0.0	554.9
5	Student/Intern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Total	1,154.1	216.6	175.7	87.6	21.0	25.8	248.2	(19.0)	1,910.0

NORMAL OPERATIONS COMPARISON ACTUAL VS. BUDGET 2017/2018

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	(19.8)	2.2	(13.9)	1.9	(1.5)	(0.4)	(4.8)	19.0	(17.3)
2	Supervisory	(3.7)	6.7	(2.0)	2.0	0.0	0.0	1.0	0.0	4.0
3	Technical/Professional	(45.0)	49.5	(46.2)	18.7	0.2	1.2	5.9	0.0	(15.8)
4	Clerical	(50.8)	23.6	(7.5)	3.0	0.0	1.0	1.7	0.0	(29.0)
5	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
6	Total	(117.7)	85.9	(66.5)	25.6	(1.3)	1.8	6.7	19.0	(46.6)

Explanation of variance: Actual FTE counts were less than budget due to active management of vacancies to control costs.

Appendix 10: STAFFING LEVELS BY CATEGORY (CORPORATE 2017/18)

The following schedules show total corporate staffing levels by different category. The first three schedules list staffing levels by normal operations, specialty programs and improvement initiatives. The last three schedules list staffing levels on a consolidated basis with a comparative to budgeted total for each position category by division for the 2017/18 period. The Corporation consists of seven divisions that are comprised of four main position types. The "management reductions column" in each schedule represents the number of FTE reductions for the Corporation that were budgeted in that fiscal year.

Figure EXP App 10: Staffing Levels by Category

NORMAL OPERATIONS STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	47.2	24.2	16.1	16.9	8.5	1.6	23.2	0.0	137.7
2	Supervisory	109.3	20.7	2.0	2.0	0.0	1.0	4.0	0.0	139.0
3	Technical/Professional	505.2	143.1	80.5	73.7	10.2	20.0	214.1	0.0	1,046.8
4	Clerical	373.1	110.6	7.5	18.0	1.0	5.0	10.7	0.0	525.9
5	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
6	Total	1,036.4	302.5	109.2	110.6	19.7	27.6	254.9	0.0	1,860.9

SPECIALTY PROGRAMS STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Supervisory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Technical/Professional	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6
4	Clerical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Student/Intern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Total	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6

IMPROVEMENT INITIATIVE STAFFING LEVELS

2017/18 Total Staff Actual (FTE)

Line No.	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
1	Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Supervisory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Technical/Professional	0.0	0.0	0.0	0.0	0.0	0.0	14.7	0.0	14.7
4	Clerical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Student/Intern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Total	0.0	0.0	0.0	0.0	0.0	0.0	14.7	0.0	14.7

TOTAL CORPORATE STAFFING LEVELS
2017/18 Total Staff Actual (FTE)

	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
7	Management	47.2	24.2	16.1	16.9	8.5	1.6	23.2	0.0	137.7
8	Supervisory	109.3	20.7	2.0	2.0	0.0	1.0	4.0	0.0	139.0
9	Technical/Professional	505.2	143.1	80.5	76.3	10.2	20.0	228.8	0.0	1,064.0
10	Clerical	373.1	110.6	7.5	18.0	1.0	5.0	10.7	0.0	525.9
11	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
12	Total	1,036.4	302.5	109.2	113.2	19.7	27.6	269.6	0.0	1,878.1

TOTAL CORPORATE STAFFING BUDGET
2017/18 Total Staff (FTE)

	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
7	Management	67.0	22.0	30.0	15.0	10.0	2.0	28.0	(19.0)	155.0
8	Supervisory	113.0	14.0	4.0	0.0	0.0	1.0	3.0	0.0	135.0
9	Technical/Professional	550.2	93.6	126.7	57.6	10.0	18.8	225.1	0.0	1,082.0
10	Clerical	423.9	87.0	15.0	15.0	1.0	4.0	9.0	0.0	554.9
11	Student/Intern									0.0
12	Total	1,154.1	216.6	175.7	87.6	21.0	25.8	265.1	(19.0)	1,926.9

CORPORATE STAFF COMPARISON ACTUAL VS. BUDGET 2017/2018

	CATEGORY	Customer Service	Loss Prevention & Communications	People & Product	Finance	Management, Internal Audit & Regulatory	Legal & General Counsel	IT & BT	Management Reductions	Total
13	Management	(19.8)	2.2	(13.9)	1.9	(1.5)	(0.4)	(4.8)	19.0	(17.3)
14	Supervisory	(3.7)	6.7	(2.0)	2.0	0.0	0.0	1.0	0.0	4.0
15	Technical/Professional	(45.0)	49.5	(46.2)	18.7	0.2	1.2	3.7	0.0	(18.0)
16	Clerical	(50.8)	23.6	(7.5)	3.0	0.0	1.0	1.7	0.0	(29.0)
17	Student/Intern	1.6	3.9	3.1	0.0	0.0	0.0	2.9	0.0	11.5
18	Total	(117.7)	85.9	(66.5)	25.6	(1.3)	1.8	4.5	19.0	(48.8)

Appendix 11: STAFFING LEVELS BY CATEGORY (CORPORATE 2018/19FB)

The following schedules show the forecast base versus actual comparative for average normal operations staffing levels for each position category by division for the 2018/19 forecast base year. The Corporation is comprised of seven divisions with four main position types. New to this year's analysis is the inclusion of staff counts for specialty programs.

Figure EXP App 11: Staffing Budget in 2018/19

NORMAL OPERATIONS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	48.00	7.00	14.00	12.00	8.00	-	22.00	111.00
2	Supervisory	122.00	4.00	3.00	2.00	-	1.00	3.00	135.00
3	Technical/Professional	555.50	53.30	124.60	77.00	9.00	21.00	251.20	1,091.60
4	Clerical	467.50	11.00	21.00	22.00	1.00	4.00	10.00	536.50
5	Total	1,193.00	75.30	162.60	113.00	18.00	26.00	286.20	1,874.10

IMPROVEMENT INITIATIVE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
3	Technical/Professional	-	-	-	-	-	-	18.55	18.55
4	Clerical	-	-	-	-	-	-	-	-
5	Total	-	-	-	-	-	-	18.55	18.55

SPECIALTY PROGRAMS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Resources & Corporate Services	Finance	Executive	General Counsel	Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
3	Technical/Professional	2.00	-	3.00	1.00	-	-	-	6.00
4	Clerical	2.33	-	-	1.55	-	-	-	3.88
5	Total	4.33	-	3.00	2.55	-	-	-	9.88

CORPORATE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	48.00	7.00	14.00	12.00	8.00	-	22.00	111.00
2	Supervisory	122.00	4.00	3.00	2.00	-	1.00	3.00	135.00
3	Technical/Professional	557.50	53.30	127.60	78.00	9.00	21.00	269.75	1,116.15
4	Clerical	469.83	11.00	21.00	23.55	1.00	4.00	10.00	540.38
5	Total	1,197.33	75.30	165.60	115.55	18.00	26.00	304.75	1,902.53

Appendix 12: COMPENSATION ANALYSIS

The following tables provide a detailed explanation of the changes in the compensation expense category -- salaries, overtime, benefits, and health and education tax. The first three tables display detailed information relating to normal operations while the three subsequent tables show the detail related to compensation for all corporate compensation expenses including initiatives.

Figure EXP App 12 - 1: Corporate Annual Compensation Changes - Normal Operations

Line No.		2017/18A	2018/19FB	Change	%	2019/20F	Change	%	2020/21F	Change	%
1	(C$000s, except where noted)										
2	Total Compensation	172,586	176,431	3,845	2.23%	181,752	5,321	3.02%	186,470	4,718	2.60%
3	Vacancy Allowance*	(7,090)	(1,500)	5,590		(1,500)	-		(1,500)	-	
4	Total Net Compensation	165,496	174,931	9,435	5.70%	180,252	5,321	3.04%	184,970	4,718	2.62%

5	TOTAL COMPENSATION INCREASE ANALYSIS	2019FB	Change	2020F	Change	2021F	Change
6	Prior Year Balance		165,496		174,931		180,252
7	FTE Normal Ops Reductions / Changes (2018/19)		-		-		-
8	FTE Normal Ops Reductions / Changes (2019/20)		-		(100)		-
9	FTE Normal Ops Reductions / Changes (2020/21)		-		-		(333)
10	Economic - Inscope	1.75%	884	2.00%	2,020	1.00%	1,202
11	Economic - Out of Scope	1.50%	350	2.00%	560	2.00%	601
12	Steps in scale	1.75%	2,367	1.75%	2,437	1.75%	2,530
13	Other Salary Acct adjustments		2,397		(543)		(52)
14	Overtime		823		4		(9)
15	Benefits		2,592		889		729
16	H&E Tax		111		89		51
17	Other / Rounding		(89)		(35)		(1)
18	Total		174,931		180,252		184,970

*Note: Vacancy Allowance includes Management FTE Reductions

Figure EXP App 12 - 2: Corporate Compensation / Payroll Costs – Normal Operations

Line No.	Fiscal Year	Payroll Costs	Change from prior year	Change (%)	Average actual FTE	Average Comp per FTE	Change (%)
1	(C$000s, except where noted)						
2	2013/14A	152,761	1,821	1.21%	1890.3	80.81	1.44%
3	2014/15A	154,848	2,087	1.37%	1874.8	82.59	2.20%
4	2015/16A	161,016	6,168	3.98%	1866.7	86.26	4.43%
5	2016/17A	167,142	6,126	3.80%	1898.9	88.02	2.04%
6	2017/18A	165,496	-1,646	-0.98%	1860.9	88.93	1.04%

Figure EXP App 12 - 3: Corporate Annual Compensation Changes - Normal Operations

Line No.	Fiscal Year	Change due to Economic Increase	Change due step in scale and other	Total Change due to salary rate changes	Change due to FTE changes	Change due to Overtime	Change due to H & E Tax	Change due to Benefit	Total Change in Comp. Inc / (Dec)	Change in Average Actual FTE	Change in Average Comp per FTE ($)
1	(C$000s, except where noted)										
2	2013/14A	0	1,686	1,686	(268)	713	(23)	(288)	1,820	(4.4)	0.82
3	2014/15A	1,326	2,479	3,805	(964)	(890)	101	35	2,087	(15.5)	1.10
4	2015/16A	3,203	714	3,917	(522)	(430)	105	3,099	6,168	(8.1)	3.66
5	2016/17A	2,872	1,163	4,035	2,166	(116)	149	(110)	6,126	32.2	1.76
6	2017/18A	2,214	1,981	4,195	(5,686)	(544)	(43)	430	(1,646)	(38.0)	0.91

In the 2017/18 fiscal year the overall $1.6 million decrease is mainly due to the change related to Full Time Equivalent (FTE) count reductions as compared to 2016/17. Also, largely contributing to this decrease is the significant reduction in overtime costs. This is a trend that continues for the Corporation.

Figure EXP App 12 - 4: Corporate Compensation Analysis – Corporate

Line No.		2017/18A	2018/19FB	Change	%	2019/20F	Change	%	2020/21F	Change	%
1	(C$000s, except where noted)										
2	Total Compensation	172,625	176,431	3,806	2.20%	181,472	5,041	2.86%	185,428	3,956	2.18%
3	Vacancy Allowance*	(7,040)	(1,500)	5,540		(1,500)	(1,500)		(1,500)	(1,500)	
4	Total Net Compensation	165,585	174,931	9,346	5.64%	179,972	5,041	2.88%	183,928	3,956	2.20%

	TOTAL COMPENSATION INCREASE ANALYSIS	2019FB	Change	2020F	Change	2021F	Change
6	Prior Year Balance		165,585		174,931		179,972
7	FTE Normal Ops Reductions / Changes (2018/19)		-		-		-
8	FTE Normal Ops Reductions / Changes (2019/20)		-		(100)		-
9	FTE Normal Ops Reductions / Changes (2020/21)		-		-		(333)
10	Improvement Initiative Efficiencies		-		(280)		(762)
11	Economic - Inscope	1.75%	884	2.00%	2,020	1.00%	1,202
12	Economic - Out of Scope	1.50%	350	2.00%	560	2.00%	601
13	Steps in scale	1.75%	2,367	1.75%	2,437	1.75%	2,530
14	Other Salary Acct adjustments		2,399		(543)		(60)
15	Overtime		781		4		(9)
16	Benefits		2,592		889		729
17	H&E Tax		111		89		51
18	Other / Rounding		(138)		(35)		7
19	Total		174,931		179,972		183,928

*Note: Vacancy Allowance includes Management FTE Reductions

Figure EXP App 12 - 5: Corporate Compensation / Payroll Costs – Corporate

Corporate Compensation/Payroll Costs - Corporate

Line No.	Fiscal Year	Payroll Costs	Change from prior year	Change (%)	Average actual FTE	Average Comp per FTE	Change (%)
1	(C$000s, except where noted)						
2	2013/14A	153,741	1,352	0.89%	1908.5	80.56	1.06%
3	2014/15A	155,761	2,020	1.31%	1886.6	82.56	2.49%
4	2015/16A	162,650	6,889	4.42%	1882.4	86.41	4.66%
5	2016/17*	167,180	4,883	3.01%	1898.9	88.04	2.11%
6	2017/18	165,585	-1,595	-0.95%	1860.9	88.98	1.07%

*For the purpose of analysis, in 2016/17 the one time accounting adjustment of $4.53 million was added back to payroll costs and the average actual FTE for normal operations only as FTE initiatives for improvement initiatives are capitalized

Figure EXP App 12 - 6: Corporate Annual Compensation Changes – Corporate

Line No.	Fiscal Year	Change due to Economic Increase	Change due step in scale and other	Total Change due to salary rate changes	Change due to FTE changes	Change due to Overtime	Change due to H & E Tax	Change due to Benefit	Total Change in Comp. Inc / (Dec)	Change in Average Actual FTE	Change in Average Comp per FTE ($)
1	(C$000s, except where noted)										
2	2013/14A	-	1,265	1,265	(200)	719	(47)	(385)	1,352	(3.3)	0.84
3	2014/15A	1,331	2,782	4,113	(1,353)	(876)	101	35	2,020	(21.9)	2.00
4	2015/16A	3,203	914	4,117	(522)	(262)	105	3,099	6,536	(4.2)	3.85
5	2016/17A	2,872	830	3,702	1,423	(279)	149	(112)	4,883	16.5	1.63
6	2017/18A	2,214	2,001	4,215	(5,691)	(506)	(43)	430	(1,595)	(38.0)	0.94

The three tables above illustrate a year-over-year comparative of overall corporate compensation. This includes normal operating costs plus expenses related to improvement initiatives. Also included are overtime, benefits expenses, and health and education taxes.

One trend to highlight above is the continued decrease related to the change in overtime expenses. The Corporation continues to manage all controllable expenses where possible. For the past four years, overtime expenses have continued to decline, with a cumulative four year decrease of approximately $1.9 million.

Appendix 13: COST ALLOCATION METHODOLOGY

Acronym Key

B – Basic

E – Extension

SRE – Special Risk Extension

FTE – Full Time Equivalent

WCCCCR – Weighted Average Customer Contact Center Call Ratio

Detailed Allocation Definitions:

Category	Cost Category	Accounting Units	PUB Approved Method
Injury Claims Management - PIPP	A	018,042,048, 052,054,404	Based on Claims under Mgmt (B&E) then 100% Claims
Injury Claims Management - Liability	S	019	Based on Claims under Mgmt (B,E &SRE) then 100% Claims
Claims Ins Support Operations	B	003,011,079	Insurance based on Claims Incurred (B,E&SRE) then 100% Claims
Loss Prevention Programs	C	008,010	Insurance based on Claims Incurred (B,E&SRE) then 100% Road Safety/Loss Prevention
Driver Records	E	104	50/50 Insurance/Non-Insurance then Insurance 100% Basic Operating
Vehicle Registration	F	102	Based on estimated work effort (13.4% Insurance 86.6% Non-

Category	Cost Category	Accounting Units	PUB Approved Method
			Insurance) then Insurance 100% Basic operating
Claims Centres	H	023,026,027, 035,260,261, 499	Insurance based on Claims Incurred (B,E&SRE) then 100% Claims
Service Centres **Service Centres *(cont'd)***	I	013,014,015, 021,025,029, 031,032,033, 034,037,039, 041,046,047, 049,050,401	Insurance and Non-Insurance based on COB salary ratio then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage
Physical Damage Centre	J	022,077,108, 109,402,403, 409	Insurance based on Claims Incurred (B,E&SRE) then 100% Claims
Central Administration	K	005,038,400	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Physical Properties	L	072,110,114, 115,116,118, 119,120,121, 122,125,127, 129,130,132, 133,134,135, 137,139,141, 145,161,177, 178	072 including allocated Corporate Benefits plus all buildings allocated based on square footage
Corporate Information Technology	M	081,093,094, 198, 498,406	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then

Category	Cost Category	Accounting Units	PUB Approved Method
			Claims and Operating based on FTE percentage
Human Resources and Training	N	071,080,083, 405	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Advertising and Communications	O	066,070,074, 410	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Fair Practices	P	043	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage
Accounting and Finance	Q	002,004,006, 045,067, 095,408	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Investments	R	064	100% Insurance (B,E&SRE) based on Claims Reserve/Unearned Premium then 100% Operating
Employee Benefits	T	007	Allocated to units based on Compensation $'s/Total Compensation $'s * unit 007 Expenses

Category	Cost Category	Accounting Units	PUB Approved Method
Legal	U	059	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage
ID Verification and Data Integrity	V	069	Based on work effort 50/50 Insurance & Non-insurance. Insurance (B,E&SRE) based on Claims Incurred then 100% Operating
Customer Service and Support	W	076,086	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Basic Policy	X	036	100% Basic Operating
Enterprise Systems Support	AA	068,075,088, 091	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE
Internal Audit	BB	055	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Regulatory / Appeal	CC	062	Crown Corp Levy allocated Insurance and Non-insurance based on WCCCCR then Insurance based on Claims

Category	Cost Category	Accounting Units	PUB Approved Method
			Incurred (B,E&SRE) then 100% Regulatory/Appeal Remainder 100% Basic Regulatory Appeal
Management Committee	DD	063	Insurance and Non-insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then 100% Operating
Contact Centre Operations	EE	078	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage
Business Transformation Office	FF	092, 051, 407	Refer to Improvement Initiatives for allocation. Uses the LOB proportion of all BTO initiative costs undertaken for the year.
Product & Policy Management	ZZ	096,057, 058, 060, 073	Insurance and Non-Insurance based on WCCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage

Initiatives:

Category	Board Approved Method	Basic %
AOL PUB Release	Insurance 100% Operating Basic	100%
High School Driver Education	Insurance based on Claims Incurred (B,E&SRE) then 100% Road Safety/Loss Prev.	87.33%
BI3 Fineos Upgrade	Insurance based on Claims Incurred (B&E) then 100% Claims	92.24%
Physical Damage Reengineering (all phases)	Insurance based on Claims Incurred (B&E) then 100% Claims	92.24%
• Technology Risk Management • Credit Card Strategy • HRMS – Phase 3 & 4 • Infor/Lawson Upgrade • Legacy Modernization • Information Security Strategy • Finance Reengineering • Customer Self Service	Insurance and Non-Insurance based on WCCCR then Insurance based on Claims Incurred (B,E&SRE) then Claims and Operating based on FTE percentage	81.40%

Appendix 14: COST ALLOCATION ANALYSIS OF CALCULATIONS

Figure EXP App 14 - 1: Cost Allocation Methodology Detail

Line No.	Level/ Step	($ in 000's) Cost Category/Type	2018/19FB	Allocators Used	2019/20F	2020/21F	2021/22F	2022/23F
1		Corporate Normal Operating Expenses	297,625		293,239	298,855	298,738	298,825
2	A	Direct to Lines of Business (LOB)						
3		Basic	14,928	Units or costs	14,445	14,974	15,357	15,753
4		Extension	4,173	directly	4,329	4,478	4,565	4,656
5		SRE	4,437	attributable	4,633	4,739	4,823	4,921
6		DVA	15,084	to LOB's	15,237	15,461	15,741	15,297
7		Total Level A	38,622		38,644	39,652	40,486	40,627
8		Non assignable to LOB	259,003		254,595	259,203	258,252	258,198
9	B	Direct to Insurance Category of						
10		Business (COB)						
11		Injury Claims Mgmt	27,702	Units 100%	28,163	27,154	25,398	22,433
12		Claims Insurance Support Ops	33,147	Insurance	34,221	35,003	35,648	36,365
13		Loss Prevention Programs	14,075	related	13,939	14,042	14,270	14,526
14		Claims Centres	8,515		8,788	8,991	9,156	9,347
15		Physical Damage Centre	13,195		13,627	13,909	14,141	14,365
16		Investments	874		874	893	910	930
17		Injury Claims Mgmt - Liability	1,309		1,353	1,385	1,411	1,441
18		Total Level B	98,817		100,965	101,377	100,934	99,407
19		Balance to Allocate	160,186		153,630	157,826	157,318	158,791
20	C	Allocate balance from Level B to Insurance						
21		and Non-Insurance		WCCCCR,				
22		Insurance	142,972	work effort,	136,624	140,400	139,506	141,074
23		Non-Insurance (dva)	17,214	or COB	17,003	17,426	17,812	17,719
24			160,186	salary ratio	153,627	157,826	157,318	158,793
25	D	Allocate Insurance COB from Level B&C to LOB						
26		Basic	212,155	Claims Incurred	207,481	212,238	210,815	211,538
27		Extension	17,678		17,738	17,200	16,933	16,339
28		SRE	11,957		12,370	12,339	12,692	12,604
29			241,790		237,589	241,777	240,440	240,481
30		Totals by LOB						
31		Basic	227,083		221,926	227,212	226,172	227,291
32		Extension	21,851		22,067	21,678	21,498	20,995
33		SRE	16,394		17,003	17,078	17,515	17,525
34		DVA	32,297		32,243	32,885	33,553	33,014
35			297,625		293,239	298,853	298,738	298,825
36	E	Allocate to Cost Categories						
37		Claims Expense		Direct by				
38		Basic	134,934	department,	132,861	135,467	133,690	132,989
39		Extension	11,356	Indirect by	11,474	11,088	10,849	10,376
40		SRE	7,137	by FTE %	7,446	7,386	7,579	7,516
41			153,427		151,781	153,941	152,118	150,881
42		Road Safety Expense						
43		Basic	13,606		12,098	12,223	12,408	12,684
44		Extension	1,059		1,045	1,000	1,006	988
45		SRE	867		847	872	908	906
46			15,532		13,990	14,095	14,322	14,578
47		Operating Expense						
48		Basic	73,874		72,127	74,524	74,960	76,385
49		Extension	9,424		9,535	9,579	9,638	9,626
50		SRE	8,381		8,700	8,811	9,024	9,099
51			91,679		90,362	92,914	93,622	95,110
52		Regulatory Appeal Expense						
53		Basic	4,669		4,840	4,998	5,114	5,233
54		Extension	12		13	11	5	5
55		SRE	9		10	9	4	4
56			4,690		4,863	5,018	5,123	5,242
57		DVL LOB	32,297		32,243	32,885	33,553	33,014
58		Total Corporate	297,625		293,239	298,853	298,738	298,825
59		*(rounding may affect totals)*						

The above analysis demonstrates the five key steps taken in the allocation of the corporate normal operating expenses.

The total Basic allocated normal operating expenses subsequent to the cost allocation process is as follows:

Figure EXP App 14 - 2: Cost Allocation Methodology Detail

Line No.	Basic (C$000'a)	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
1	Claims Expense	134,934	132,861	135,467	133,690	132,989
2	Road Safety Expense	13,606	12,098	12,223	12,408	12,684
3	Operating Expense	73,874	72,127	74,524	74,960	76,385
4	Regulatory Appeal Expense	4,669	4,840	4,998	5,114	5,233
5	Total	227,083	221,926	227,212	226,172	227,291

Appendix 15: ROAD SAFETY PROGRAMS COSTS

The tables below represent total Basic Road Safety and Loss Prevention Program Costs.

Figure EXP App 15 - 1: Road Safety and Loss Prevention Program Costs – Approved Budgets and Actuals

Line No.	BASIC'S SHARE	2013/14 Forecast Actual	(2014 GRA)	Diff	2014/15 Forecast Actual	(2015 GRA)	Diff	2015/16 Forecast Actual	(2016 GRA)	Diff	2016/17 Forecast Actual	(2017 GRA)	Diff	2017/18 Budget Actual	(2018 GRA)	Diff
	($ 000s, except where noted)															
1	Driver Education and Improvement	3,200	3,307	(107)	3,257	3,520	(263)	3,378	3,557	(179)	3,399	3,549	(150)	3,600	3,638	(39)
2	Impaired Driving Prevention Strategies	932	724	208	1,107	1,090	17	1,242	1,208	34	2,217	2,310	(93)	1,725	2,129	(404)
3	Speed Management Strategies	357	281	76	225	297	(72)	242	293	(51)	318	373	(55)	135	345	(210)
4	Occupant Safety Education Strategies	123	308	(185)	121	325	(204)	111	135	(24)	123	129	(6)	101	272	(171)
5	Auto-Crime Prevention Strategies	4,007	4,046	(39)	2,831	2,509	322	2,863	2,498	365	2,162	2,877	(715)	1,514	1,895	(381)
6	Motorcycle Safety Education	67	98	(31)	64	105	(41)	64	74	(10)	66	65	1	77	65	12
7	Vulnerable Road User Education Strategies	255	213	42	185	215	(30)	179	191	(12)	370	311	59	420	362	58
8	Safety Programming Other	314	375	(61)	313	405	(92)	346	335	11	752	719	33	587	757	(171)
9	Safety Grants and Sponsorships	317	262	55	311	288	23	313	293	20	-	-	-	-	-	-
10	Road Safety Production and Advertising	466	360	106	461	356	105	692	362	330	82	88	(6)	79	166	(87)
11	Program Evaluation	5	110	(105)	12	18	(6)	53	36	17	41	55	(14)	23	229	(206)
12	Cell Phone/Distracted Driver Advertising	592	225	367	459	246	213	645	561	84	511	570	(60)	330	534	(204)
13	Driver Education On-Line Curriculum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	*Other	58	-	58	169	-	169	660	88	572	56	88	(32)	1,823	-	1,823
15	Departmental Expenses	2,122	2,117	5	1,844	1,976	(132)	2,238	1,865	373	2,435	2,184	251	2,733	2,817	(84)
16	Total	12,815	12,426	389	11,359	11,350	9	13,026	11,496	1,530	12,530	13,318	(788)	13,146	13,209	(63)
17	*Other includes projects / initiatives															

One notable variance related to the 2017/18 fiscal year is the over budget difference related to Other. As the High School Driver Education Project – Phase 2 no longer meets the criterion to capitalize as deferred development, the full amount of the project has been expensed in 2017/18.

Figure EXP App 15 - 2: Road Safety and Loss Prevention Program Costs – Forecast Comparison

Line No.	BASIC'S SHARE	Forecast Base 2019 GRA	2018/19 Forecast 2018 GRA	Diff	2019/20 Forecast 2019 GRA	2019/20 Forecast 2018 GRA	Diff	2020/21 Forecast 2019 GRA	2020/21 Forecast 2018 GRA	Diff	2021/22 Forecast 2019 GRA	2021/22 Forecast 2018 GRA	Diff	2022/23 Forecast 2019 GRA	2022/23 Forecast 2018 GRA	Diff
	(C$ 000s, except where noted)															
1	Driver Education and Improvement	3,879	3,696	183	3,929	3,687	242	4,018	3,773	245	4,094	3,852	242	4,193	N/A	N/A
2	Impaired Driving Prevention Strategies	2,127	1,912	215	2,284	1,900	384	2,203	1,945	259	2,245	1,986	259	2,299	N/A	N/A
3	Speed Management Strategies	384	344	40	389	343	46	398	351	47	405	358	47	415	N/A	N/A
4	Occupant Safety Education Strategies	280	129	152	74	128	(54)	76	131	(55)	77	134	(57)	79	N/A	N/A
5	Auto-Crime Prevention Strategies	1,732	1,695	37	717	1,526	(809)	733	1,396	(663)	747	1,287	(540)	765	N/A	N/A
6	Motorcycle Safety Education	40	65	(25)	40	65	(25)	41	66	(25)	42	68	(26)	43	N/A	N/A
7	Vulnerable Road User Education Strategies	419	357	62	304	421	(117)	311	431	(120)	317	440	(123)	324	N/A	N/A
8	Safety Programming Other	1,323	755	568	1,287	753	534	1,289	771	518	1,313	787	527	1,345	N/A	N/A
9	Safety Grants and Sponsorships	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	N/A
10	Road Safety Production and Advertising	166	113	53	168	113	55	172	116	56	175	118	57	179	N/A	N/A
11	Program Evaluation	137	154	(17)	82	55	28	84	56	28	86	57	29	88	N/A	N/A
12	Cell Phone/Distracted Driver Advertising	219	533	(314)	208	531	(323)	213	544	(331)	217	555	(338)	222	N/A	N/A
13	*Other	0	829	(829)	352	829	(478)	354	829	(476)	355	829	(475)	357	N/A	N/A
14	Departmental expenses	2,901	2,510	391	2,859	2,598	262	2,927	2,806	121	2,930	2,982	(51)	2,970	N/A	N/A
15	Total	13,606	13,090	516	12,693	12,948	(255)	12,818	13,214	(397)	13,003	13,452	(450)	13,279	N/A	N/A
16	*Other includes projects / initiatives															

The table above provides a comparison of forecasts presented in the 2019 and 2018 GRAs, respectively. As can be seen, the 2019 GRA forecast is generally lower when compared to the 2018 GRA forecast for the period 2019/20 to 2021/22. The primary reason for this is due to the elimination of the Immobilizer Program expenses commencing in 2019/20. The Corporation has determined that approximately 99% of most at risk older vehicles are immobilized. This, coupled with the fact vehicles manufactured after 2006 are equipped with factory immobilizers, allowed the Corporation to discontinue the program. For further discussion related to Road Safety and Loss Prevention, please refer to *Part VII Working Towards Safer Roads through Effective Public Auto Insurance*.

Appendix 16: BASIC CAPITAL EXPENDITURES

Figure EXP App 16:Basic Capital Expenditures

Line No.	Expenditure Type	2018 GRA (2017/18B)	2019 GRA (2017/18A)	Difference (2019 GRA - 2018 GRA)	2018 GRA (2018/19F)	2019 GRA (2018/19FB)	Difference (2019 GRA - 2018 GRA)
	(C$000s, except where noted)						
1	Land and Building	5,621	3,599	(2,022)	2,786	2,422	(364)
2	Automobiles	1,118	330	(788)	1,133	924	(209)
3	Office Equipment / Systems Furniture / Demountable Walls	1,370	959	(411)	856	-	(856)
4	Data Processing Equipment	905	116	(789)	2,016	2,023	7
5	Deferred Development	13,890	18,104	4,214	20,983	-	(20,983)
6	Impairment of Deferred Development	-	(18,678)	(18,678)	-	-	-
7	**Subtotal - Expenditures**	**22,904**	**4,430**	**(18,474)**	**27,774**	**5,369**	**(22,405)**
8	Implementation Expense	2,443	1,781	(662)	2,566	3,420	854
9	Impairment of Deferred Development	-	18,678	18,678	-	-	-
10	**Total Expenses**	**25,347**	**24,889**	**(458)**	**30,340**	**8,789**	**(21,551)**

NOTE: Basic % of capital estimated

2017/18

Land and Building

Land and Building costs are lower than expected for 2017/18 mainly due to decreased spending for various buildings.

Automobiles

The number of vehicles requiring replacement decreased.

Office Equipment / Systems Furniture

Equipment spending on Systems Furniture for various locations did not materialize.

Data Processing Equipment

Data Processing equipment costs are lower than the 2018 GRA forecast mainly due to some deferred IT division spending.

Deferred Development

Deferred Development is higher in comparison to the 2018 GRA submission mainly due to higher Partner Portal, Corporate Learning Management and High School Driver Education - Phase 3.

Impairment of Deferred Development

Impairment of the following initiatives were recognized in 2017/18; portion of Physical Damage Re-engineering – Phase 3, Customer Claims Reporting System, portion of Enhanced DR Capabilities, High School Driver Education – Phase 2, PDR Remote Estimating, Finance Re-engineering, HRMS – Phase 3 & 4, and Technology Innovation and Capabilities.

Implementation Expense

Implementation Expenses are lower than the 2018 GRA forecast mainly due to reduction in Credit Card Strategy expenses.

2018/19

Land and Building

Land and Building costs are forecasted to be slightly lower than the 2018 GRA submission mainly due to expected decrease in spending for various buildings.

Automobiles

The forecasted number of vehicles that require replacement has decreased.

Office Equipment / Systems Furniture

Expected spending on Systems Furniture for various locations has been deferred.

Data Processing Equipment

Data Processing equipment costs are forecasted to be slightly higher in comparison to the 2018 GRA.

Deferred Development

Deferred Development forecast is lower in comparison to the 2018 GRA submission mainly due to reductions in Customer Claims Reporting Systems, HRMS-Ph3/4, Legacy Systems Modernization and Insertions of Work offset by increases in Customer Self-Service, Credit Card Strategy and High School Driver Education - Phase 3.

Implementation Expense

Implementation Expenses are higher than the 2018 GRA forecast mainly due to increases in Legacy Systems Modernization, Enhanced Direct Repair Capabilities and Financial Re-engineering Initiative offset by reduction in the Insertions of Work expense.

Appendix 17: CAPITAL EXPENDITURES – PROJECTS COSTS COMPARISON

Figure EXP App 17:Basic Capital Expenditures - Project Costs Comparison

Line No.	Project	2018 GRA (2017/18B)	2019 GRA (2017/18A)	Difference (2019 GRA - 2018 GRA)	2018 GRA (2018/19F)	2019 GRA (2018/19FB)	Difference (2019 GRA - 2018 GRA)	2018 GRA (2019/20F)	2019 GRA (2019/20F)	Difference (2019 GRA - 2018 GRA)
	(C$000s, except where noted)									
1	Deferred Development									
2	HR Management System Phase 3 & 4	-	-	-	1,361	-	(1,361)	-	-	-
3	Physical Damage Re-Engineering	508	369	(139)	-	-	-	-	-	-
4	BI3 Fineos Upgrade 2016	-	-	-	-	-	-	-	-	-
5	BI3 Fineos Upgrade 2020	-	-	-	1,161	1,159	(2)	942	941	(1)
6	High School Driver Education Phase 2	854	98	(756)	-	-	-	-	-	-
7	High School Driver Education Phase 3	-	595	595	-	786	786	-	-	-
8	Infor/Lawson Upgrade	735	898	163	-	-	-	-	-	-
9	Corporate Learning Management	285	1,147	862	-	204	204	-	-	-
10	Information Security Strategy and Road Map Phase 1	-	106	106	-	-	-	-	-	-
11	Information Security Strategy and Road Map Phase 2	1,359	1,433	74	-	-	-	-	-	-
12	Technology Risk Management - 2016/17	-	118	118	-	-	-	-	-	-
13	Technology Risk Management - 2017	3,263	2,367	(896)	-	186	186	-	-	-
14	Technology Risk Management - 2018	-	-	-	3,263	3,070	(193)	-	-	-
15	Technology Risk Management - 2019	-	-	-	-	-	-	3,263	3,256	(7)
16	Appointment Manager	1,261	1,295	34	-	-	-	-	-	-
17	Customer Claims Reporting System	2,771	4,648	1,877	8,634	-	(8,634)	-	-	-
18	Enhanced DR Capabilities	980	1,313	333	-	-	-	-	-	-
19	Partner Portal	582	2,083	1,501	-	-	-	-	-	-
20	Financial Re-engineering Initiative	-	1	1	-	-	-	2,532	5,460	2,928
21	Customer Self Service	1,292	1,370	78	816	1,221	405	816	814	(2)
22	Credit Card Strategy	-	208	208	-	810	810	-	-	-
23	Legacy Systems Modernization	-	-	-	1,631	-	(1,631)	16,314	8,140	(8,174)
24	Insertions of Work	-	-	-	4,117	-	(4,117)	-	-	-
25	Allocation adjustment	-	55	55						
26	Subtotal - Deferred Development	13,890	18,104	4,214	20,983	7,436	(13,547)	23,867	18,611	(5,256)
27	Impairment of Deferred Development	-	(18,678)	(18,678)	-	-	-	-	-	-
28	Capital Expenditures									
29	High School Driver Education Phase 2	437	-	(437)	-	-	-	-	-	-
30	Physical Damage - Centre of Excellence	1,865	936	(929)	-	-	-	-	-	-
31	Subtotal - Capital Expenditures	2,302	936	(1,366)	-	-	-	-	-	-
32	Implementation Expense									
33	HR Management System Phase 3 & 4	-	201	201	-	163	163	-	-	-
34	Physical Damage Re-Engineering Main/Phase 3	87	1,349	1,262	-	-	-	-	-	-
35	High School Driver Education Phase 2	-	1,822	1,822	-	-	-	-	-	-
36	Infor/Lawson Upgrade	-	1	1	-	-	-	-	-	-
37	Corporate Learning Management	170	159	(11)	-	-	-	-	-	-
38	Physical Damage - Centre of Excellence	194	200	6	-	-	-	-	-	-
39	Information Security Strategy and Road Map Phase 1	-	6	6	-	-	-	-	-	-
40	Information Security Strategy and Road Map Phase 2	8	-	(8)	-	-	-	-	-	-
41	Technology Innovation & Capabilities	-	244	244	-	-	-	-	-	-
42	Technology Risk Management - 2016/17	-	32	32	-	-	-	-	-	-
43	Technology Risk Management - 2017	408	641	233	-	-	-	-	-	-
44	Technology Risk Management - 2018	-	-	-	408	407	(1)	-	-	-
45	Technology Risk Management - 2019	-	-	-	-	-	-	408	407	(1)
46	Customer Claims Reporting System	-	14,431	14,431	-	-	-	-	-	-
47	Enhanced DR Capabilities	-	631	631	-	461	461	-	-	-
48	Financial Re-engineering Initiative	-	280	280	-	407	407	212	-	(212)
49	Credit Card Strategy	1,226	-	(1,226)	-	4	4	-	-	-
50	Legacy Systems Modernization	-	-	-	-	1,628	1,628	-	-	-
51	AOL PUB Release	350	90	(260)	350	350	-	350	350	-
52	Insertions of Work	-	372	372	1,808	-	(1,808)	1,631	-	(1,631)
53	Allocation adjustment	-	42	42	-	-	-	-	-	-
54	Subtotal - Implementation Expenses	2,443	1,781	(662)	2,566	3,420	854	2,601	757	(1,844)
55	Impairment of Deferred Development	-	18,678	18,678						
56	Total Expenditures	18,635	20,821	2,186	23,549	10,856	(12,693)	26,468	19,368	(7,100)

Appendix 18: DEFERRED DEVELOPMENT COSTS

Line No.	Project	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
	(C$000s, except where noted)											
1	IT Optimization	1,967	-	-	37	-	-	-	-	-	-	-
2	Disaster Recovery	9,202	-	-	11	-	-	-	-	-	-	-
3	HR Management System Phase 1 & 2	2,261	(210)	-	1,289	-	-	-	-	-	-	-
4	HR Management System Phase 3 & 4	110	84	-	-	-	-	-	-	-	-	-
5	Physical Damage Re-Engineering Phase 1 & 2	-	1,528	-	360	-	-	-	-	-	-	-
6	PDR Opt Repair - Collaborative Estimating & JSST	-	8,834	358	635	-	-	-	-	-	-	-
7	PDR Opt Repair - Distributed Estimating	-	1,183	1,474	2,160	2	-	-	-	-	-	-
8	Physical Damage Re-Engineering Main/Phase 3	10,272	(4,111)	4,354	(2,244)	260	-	-	-	-	-	-
9	PDR Opt Repair - Remote Estimating	-	1	39	65	107	-	-	-	-	-	-
10	BI3 Fineos Upgrade 2016	257	1,462	1,852	531	-	-	-	-	-	-	-
11	BI3 Fineos Upgrade 2020	-	-	-	-	-	1,159	941	-	-	-	-
12	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	-	-	1,153	-
13	Enterprise Data Masking	507	950	876	2	-	-	-	-	-	-	-
14	High School Driver Education Phase 2	-	271	287	1,167	98	-	-	-	-	-	-
15	High School Driver Education Phase 3	-	-	-	-	595	786	-	-	-	-	(771)
16	Infor/Lawson Upgrade	-	138	796	1,027	898	-	-	-	-	-	25
17	Infor Major Upgrade 2022	-	-	-	-	-	-	-	1,628	814	-	-
18	ITO - High Availability	-	2,332	3,971	766	-	-	-	-	-	-	-
19	Legal Management Project	-	868	1,249	(7)	-	-	-	-	-	-	-
20	Predictive Analytics	-	1,260	488	1	-	-	-	-	-	-	-
21	Corporate Learning Management	-	210	-	917	1,147	204	-	-	-	-	105
22	Physical Damage - Centre of Excellence	-	-	471	248	-	-	-	-	-	-	-
23	Information Security Strategy and Road Map Phase 1	-	-	1,330	1,579	106	-	-	-	-	-	9
24	Information Security Strategy and Road Map Phase 2	-	-	-	538	1,433	-	-	-	-	-	168
25	Technology Innovation & Capabilities	-	-	10	(10)	-	-	-	-	-	-	-
26	Technology Risk Management - 2016/17	-	-	-	1,807	118	-	-	-	-	-	20
27	Technology Risk Management - 2017	-	-	-	1	2,367	186	-	-	-	-	265
28	Technology Risk Management - 2018	-	-	-	-	-	3,070	-	-	-	-	-
29	Technology Risk Management - 2019	-	-	-	-	-	-	3,256	-	-	-	-
30	Technology Risk Management - 2020	-	-	-	-	-	-	-	3,256	-	-	-
31	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	3,256	-	-
32	Technology Risk Management - 2022	-	-	-	-	-	-	-	-	-	3,256	-
33	Appointment Manager	-	-	-	2	1,295	-	-	-	-	-	-
34	Customer Claims Reporting System	-	-	-	9,764	4,648	-	-	-	-	-	-
35	Enhanced DR Capabilities	-	-	-	269	1,313	-	-	-	-	-	607
36	Partner Portal	-	-	-	268	2,083	-	-	-	-	-	(128)
37	Financial Re-engineering Inititiative	-	-	-	279	1	-	5,460	5,217	-	-	-
38	Customer Self Service	-	-	-	-	1,370	1,221	814	814	-	-	(577)
39	Credit Card Strategy	-	-	-	-	208	810	-	-	-	-	202
40	Legacy Systems Modernization	-	-	-	-	-	-	8,140	16,280	16,280	16,280	-
41	Allocation adjustment	-	-	-	-	55						
42	Total Deferred Development Costs	24,576	14,800	17,555	21,462	18,104	7,436	18,611	27,195	20,350	20,689	(75)
43	Impairment of Deferred Development	-	-	-	-	(18,678)	-	-	-	-	-	-

Line No.	Project	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
44	Driver Safety Rating	1,389	1,389	-	-	-	-	-	-	-	-	
45	Streamlined Renewal	1,020	850	-	-	-	-	-	-	-	-	
46	PIPP Infrastructure Phase	4,154	4,191	2,123	-	-	-	-	-	-	-	
47	Enterprise Data Warehouse	442	447	114	-	-	-	-	-	-	-	
48	Enterprise Architecture-Portal	280	284	96	-	-	-	-	-	-	-	
49	New Call Management	533	540	550	759	-	-	-	-	-	-	
50	IT Optimization	-	1,850	1,884	1,913	1,896	1,892	-	-	-	-	
51	Disaster Recovery	-	2,609	2,657	2,674	2,667	2,661	-	-	-	-	
52	HR Management System Phase 1 & 2	-	1,884	1,919	2,700	2,182	2,177	-	-	-	-	
53	Physical Damage Re-Engineering Phase 1 & 2	-	-	310	452	381	381	380	-	-	-	
54	PDR Opt Repair - Collaborative Estimating & JSST	-	-	-	1,982	1,986	1,983	1,979	1,988	-	-	
55	PDR Opt Repair - Distributed Estimating	-	-	-	-	967	966	964	968	968	-	
56	Physical Damage Re-Engineering Main/Phase 3	-	-	-	-	2,411	2,179	2,175	2,184	2,185	-	
57	BI3 Fineos Upgrade 2016	-	-	-	990	992	991	989	-	-	-	
58	BI3 Fineos Upgrade 2020	-	-	-	-	-	-	-	525	525	525	
59	Enterprise Data Masking	-	-	-	477	476	475	472	474	-	-	
60	High School Driver Education Phase 3	-	-	-	-	-	-	352	352	352	352	
61	Infor/Lawson Upgrade	-	-	-	-	-	-	632	632	632	632	
62	Infor Major Upgrade 2022	-	-	-	-	-	-	-	-	-	488	
63	ITO - High Availability	-	-	-	1,427	1,425	1,423	1,414	1,418	-	-	
64	Legal Management Project	-	-	-	427	426	425	423	424	-	-	
65	Predictive Analytics	-	-	-	356	355	355	353	354	-	-	
66	Corporate Learning Management	-	-	-	-	-	518	515	517	516	517	
67	Physical Damage - Centre of Excellence	-	-	-	-	-	143	142	143	143	148	
68	Information Security Strategy and Road Map Phase 1	-	-	-	-	549	549	546	547	547	-	
69	Information Security Strategy and Road Map Phase 2	-	-	-	-	-	495	492	494	494	492	
70	Technology Risk Management - 2016/17	-	-	-	-	386	388	386	387	388	-	
71	Technology Risk Management - 2017	-	-	-	-	-	505	520	520	520	522	
72	Technology Risk Management - 2018	-	-	-	-	-	-	614	614	614	614	
73	Technology Risk Management - 2019	-	-	-	-	-	-	-	651	651	651	
74	Technology Risk Management - 2020	-	-	-	-	-	-	-	-	651	651	
75	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	-	651	
76	Appointment Manager	-	-	-	-	-	266	266	267	267	268	
77	Enhanced DR Capabilities	-	-	-	-	-	-	430	430	430	430	
78	Partner Portal	-	-	-	-	-	444	443	445	445	447	
79	Financial Re-engineering Inititiative	-	-	-	-	-	-	-	-	2,135	2,135	
80	Customer Self Service	-	-	-	-	-	-	467	630	793	793	
81	Credit Card Strategy	-	-	-	-	-	-	244	244	244	244	
82	Legacy Systems Modernization	-	-	-	-	-	-	-	-	4,884	8,140	
83	Total Amortization Costs	7,818	14,044	9,653	14,157	17,099	19,216	15,198	15,208	18,384	18,700	-

84 Note: The amortization numbers include allocated Program Management.

1

Appendix 19: INFORMATION TECHNOLOGY COSTS

The following tables provide a comprehensive analysis of Corporate Information Technology (CIT) expenses and capital expenditures. This includes both historical actual from 2013/14 to 2017/18 and the forecast period from 2018/19 to 2022/23.

The first table provides a summary, including compounded annual growth rates for all corporate expense costs related to IT within MPI.

Figure EXP App 19 – 1: Information Technology Costs (Corporate)

Line No.	Summary	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/232F	Compound Annual Growth 13/14A-17/18A (5 years)	Compound Annual Growth 18/19B-22/23F (5 years)
	(C$000s, except where noted)												
1	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255	8.6%	2.5%
2	Deferred Development Costs	29,819	17,079	20,847	27,671	204	10,902	25,757	33,409	26,500	25,250		
3	Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625		
4	Total IT Costs	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875		

The following two tables provide detail for the summary showing budgeted and forecasted amounts for the three IT related departments within the Corporation as well as all of the capital IT costs within the Corporation.

Figure EXP App 19 – 2: Total Information Technology Expenses

Line No.	IT Expenses	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F
1	*($C 000s, except where noted)*										
2	CIT Departmental Expenses:										
3	Data processing:										
4	Computer Costs	377	14	-	-	-	-	-	-	-	-
5	Licence Charges	6,431	5,698	6,219	5,826	7,408	8,126	8,342	8,720	8,894	9,072
6	Computer Maintenance	1,683	1,348	1,371	1,484	1,787	1,689	1,715	1,748	1,783	1,819
7	Software	1,668	702	277	805	176	352	258	258	263	268
8	IBM Data Centre	-	6,080	7,276	9,550	9,176	9,790	9,972	10,558	10,769	10,984
9	IBM Security Operations Centre	-	-	-	-	-	550	550	550	561	572
10	External Labour										
11	AOL	3,145	2,955	2,313	2,305	1,230	2,201	1,887	1,887	1,924	1,963
12	CARS	793	739	578	576	308	624	535	535	546	557
13	Other	3,832	2,414	1,522	2,324	1,672	730	634	627	639	659
14	Total Data Processing	17,929	19,950	19,556	22,870	21,756	24,062	23,893	24,883	25,379	25,894
15	Compensation	10,382	9,388	10,044	11,231	11,521	13,314	14,100	14,511	14,764	15,056
16	Training	103	144	142	132	127	129	140	143	146	149
17	Special Services	1,203	969	766	991	1,024	926	944	963	982	1,002
18	Printing, Stationery and Supplies	596	338	295	231	169	582	564	225	229	234
19	Telephone and Telecommunications	3,049	2,562	2,377	2,221	2,054	2,121	2,174	2,231	2,275	2,321
20	Computer Equipment Expense	645	674	289	167	295	1,161	878	969	989	1,008
21	Miscellaneous	291	115	30	116	42	80	81	83	84	86
22	Total CIT Dept Exp (before Dep'n/Amort)	34,198	34,140	33,499	37,959	36,989	42,375	42,774	44,008	44,848	45,750
23	Depreciation - Data Processing Equipment	1,847	826	1,075	672	411	813	1,526	2,176	2,176	2,176
24	Amortization of Deferred Dev Costs	-	7,941	8,534	9,415	12,702	14,573	6,125	6,125	2,835	1,683
25	Total CIT Direct Departmental Expenses	36,045	42,907	43,108	48,046	50,103	57,761	50,425	52,309	49,859	49,609
26	Allocated Building Expenses	1,264	1,293	1,292	1,309	1,112	1,311	1,347	1,362	1,384	1,406
27	Allocated Corporate Benefits	2,786	2,870	2,951	3,092	3,304	3,997	4,119	4,196	4,275	4,275
28	DP - Microfiche	42	44	43	43	43	44	44	45	46	46
29	DP - External Labour - Other	118	247	376	264	244	310	310	316	323	323
30	Total CIT Departmental Expenses including allocations	40,255	47,361	47,770	52,754	54,806	63,423	56,245	58,228	55,887	55,659
31	Implementation Expense:										
32	Licence Charges	10	52	33	12	243	5	-	-	-	-
33	Computer Maintenance	-	-	-	-		-	-	-	-	-
34	IBM Data Centre	-	-	-	150	161	500	500	500	500	500
35	Software	-	-	5	-		500	-	-	-	-
36	Deferred Development Impairment					20,258	-	-	-	-	-
37	External Labour	4,955	5,707	4,891	4,290	1,571	3,050	350	350	350	350
38	Total Implementation Expense	4,965	5,759	4,929	4,452	22,233	4,055	850	850	850	850
39	Ongoing expense:										
40	Licence Charges	-	-	-	205	-	-	233	308	955	955
41	Amortization of Deferred Dev Costs	-	-	-	-	-	-	3,477	6,052	15,676	21,376
42	Computer Maintenance	-	-	-	-	-	-	-	-	-	-
43	Software	-	-	-	-	-	-	50	50	50	50
44	IBM Data Centre	7,170	1,513	1,808	-	-	-	1,217	1,630	4,136	4,432
45	Total Ongoing Expense	7,170	1,513	1,808	205	-	-	4,977	8,041	20,817	26,812
						-					
46	Total other CIT Exp	16,345	11,726	11,399	9,365	26,936	9,717	11,647	14,810	27,695	33,712
47	Depreciation - Data Processing	-	903	-	-	-	-	-	-	-	-
48	Amortization of Deferred Dev Costs	8,847	8,634	2,972	6,878	8,055	8,740	8,740	7,253	5,102	934
49	Total CIT other Exp (after Dep'n/Amort)	25,192	21,263	14,371	16,243	34,991	18,457	20,388	22,063	32,797	34,646
50	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255

Figure EXP App 19 – 3: Corporate Capital Expenditures - Deferred Development Costs

Line No.	Project Description	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
1	*(C$000s, except where noted)*											
2	Projects that do not impact Basic	-	135	533	3,154	31	2,000	3,029	-	1,500	-	-
3	Projects that impact Basic											-
5	IT Optimization	2,688	-	-	46	-	-	-	-	-	-	-
6	Disaster Recovery	11,826	-	-	14	-	-	-	-	-	-	-
7	HR Management System Phase 1 & 2	2,945	(302)	-	1,579	-	-	-	-	-	-	-
8	HR Management System Phase 3 & 4	102	145	-	-	-	-	-	-	-	-	-
9	Physical Damage Re-engineering	-	1,674	-	390	-	-	-	-	-	-	-
10	PDR Opt Repair - Collaborative Estimating & JSST	-	9,676	387	688	-	-	-	-	-	-	-
11	PDR Opt Repair - Distributed	-	1,296	1,593	2,343	2	-	-	-	-	-	-
12	Physical Damage Re-engineering Main/Phase 3	11,350	(4,529)	4,707	(2,434)	282	-	-	-	-	-	-
13	PDR Opt Repair - Remote Estimating	-	1	42	70	115	-	-	-	-	-	-
14	BI3 Fineos Upgrade 2016	257	1,462	2,002	577	-	-	-	-	-	-	-
15	BI3 Fineos Upgrade 2020	-	-	-	-	-	1,257	1,020	-	-	-	-
16	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	-	-	1,250	-
17	Enterprise Data Masking	651	1,189	1,077	3	-	-	-	-	-	-	-
18	High School Driver Education Phase 2	-	314	327	1,333	112	-	-	-	-	-	-
19	High School Driver Education Phase 3	-	-	-	-	681	900	-	-	-	-	(882)
20	Infor/Lawson Upgrade	-	172	978	1,258	1,101	-	-	-	-	-	31
21	Infor Major Upgrade 2022	-	-	-	-	-	-	-	2,000	1,000	-	-
22	ITO - High Availability	-	2,919	4,881	938	-	-	-	-	-	-	-
23	Legal Management Project	-	1,086	1,536	(8)	-	-	-	-	-	-	-
24	Predictive Analytics	-	1,578	600	1	-	-	-	-	-	-	-
25	Corporate Learning Management	-	263	-	1,123	1,406	250	-	-	-	-	129
26	Physical Damage - Centre of	-	-	537	283	-	-	-	-	-	-	-
27	Information Security Strategy and Road Map Phase 1	-	-	1,298	1,934	130	-	-	-	-	-	11
28	Information Security Strategy and Road Map Phase 2	-	-	337	659	1,756	-	-	-	-	-	206
29	Technology Innovation & Capabilities	-	-	12	(12)	-	-	-	-	-	-	-
30	Technology Risk Management -	-	-	-	2,213	145	-	-	-	-	-	25
31	Technology Risk Management - 2017	-	-	-	-	2,902	228	-	-	-	-	325
32	Technology Risk Management - 2018	-	-	-	-	-	3,772	-	-	-	-	-
33	Technology Risk Management - 2019	-	-	-	-	-	-	4,000	-	-	-	-
34	Technology Risk Management - 2020	-	-	-	-	-	-	-	4,000	-	-	-
35	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	4,000	-	-
36	Technology Risk Management - 2022	-	-	-	-	-	-	-	-	-	4,000	-
37	Appointment Manager	-	-	-	2	1,402	-	-	-	-	-	-
38	Customer Claims Reporting System	-	-	-	10,592	5,032	-	-	-	-	-	-
39	Enhanced DR Capabilities	-	-	-	292	1,422	-	-	-	-	-	658
40	Partner Portal	-	-	-	291	2,256	-	-	-	-	-	(140)
41	Financial Re-Engineering Initiative	-	-	-	342	1	-	6,708	6,409	-	-	-
42	Customer Self Service	-	-	-	-	1,679	1,500	1,000	1,000	-	-	(709)
43	Credit Card Strategy	-	-	-	-	255	995	-	-	-	-	249
44	Legacy Systems Modernization	-	-	-	-	-	-	10,000	20,000	20,000	20,000	-
45	Total Deferred Development Costs	29,819	17,079	20,847	27,671	20,710	10,902	25,757	33,409	26,500	25,250	(97)
46	Impairment of Deferred Development	-	-	-	-	(20,506)	-	-	-	-	-	-
46	Data Processing Equipment:											
47	Provision for New and Replacement	1,019	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	
48	Projects that impact Basic											
49	IT Optimization	136	-	-	-	-	-	-	-	-	-	
50	Total Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	-
51	Total Capital Requirements for IT	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875	(97)

1

The table below provides the number of Consultants supporting IT operational activities as well as Consultants utilized on projects. The subsequent Basic Program costs for these Consultant activities are also provided. Improvement Initiative Costs do not include deferred development costs.

Figure EXP App 19 – 4: Summary of Consultant Costs and FTE

Line No.	Consultants - Corporate[1]	2013/14A[3]	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F[4]	2020/21F[4]
1	IT Operational Activities	49	40	37	31	17	16	20	20
2	Improvement Initiatives	71	70	77	76	90	66	60	60
3	Total	120	110	114	107	107	82	80	80
4	Consulting Costs - Basic only								
5	IT Operational Activities[2]	6,311	5,084	3,831	4,376	2,568	2,880	2,480	2,480
6	Improvement Initiatives	23,100	14,553	17,214	15,528	11,778	8,637	7,853	7,854
7	Total	29,411	19,637	21,045	19,904	14,346	11,517	10,333	10,334

(1) Contractor counts vary throughout the year. For this table on September of each fiscal year (mid-point) thus 2016-17 actuals do not reflect all contractor conversions in Q3 and Q4. Please see GRA 2017 Volume I, Chapter 8, IT.2 for details on this.

(2) Basic IT Operational Activities are estimated at 80% of Corporate

(3) Adjusted as the improvement initiatives total had previously included IT Operational Activities, some license fees and software maintenance.

(4) Any changes to the planned improvement initiatives for 2019/20 and 2020/21 will impact the number of consultants.

Appendix 20: ORDER 11/18 DIRECTIVE 6.8

PUB Order 11/18 Directive 6.8

Directive 6.8 of PUB Order 11/18 reads:

> *In the 2019 GRA, the Corporation shall provide information as to the total cost resulting from the vehicles for hire rating model. The total cost information shall include, but will be not be limited to:*
>
> *6.8.1 The financial impact of changes on the Corporation's pro forma financial forecast;*
>
> *6.8.2. Driver safety rating premium discounts;*
>
> *6.8.3. Reduced deductible from $600.00 to $500.00 for taxicabs, limousines and accessible vehicles for hire;*
>
> *6.8.4. One-time and ongoing information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire; and*
>
> *6.8.5. Broker commission and service fees relating to transactions associated with vehicle for hire registration and time band selection.*

Compliance with these directives is provided below.

6.81 Financial Impact on Proformas

The financial impact of changes to the Corporation's Statement of Operations (PF-1) is provided below.

Figure EXP App 20:Statement of Operations

Line No.	2019 GRA - 2019/20 Basic Rate Change of +2.2% excludes Vehicle for Hire Initiative (C$ 000s, rounding may affect totals)	For the Years Ended February,					
1		2018A	2019BF	2020F	2021F	2022F	2023F
2	BASIC						
3	Motor Vehicles	955,941	1,020,307	1,086,173	1,131,257	1,177,408	1,225,723
4	Drivers	49,946	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,078,013	1,145,656	1,192,494	1,240,250	1,290,169
7	Net Premiums Earned						
8	Motor Vehicles	922,617	991,609	1,055,704	1,110,402	1,156,059	1,203,373
9	Drivers	48,819	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,039,959	1,114,180	1,170,641	1,217,976	1,266,892
12	Service Fees & Other Revenues	22,849	23,850	25,858	27,634	29,548	31,643
13	Total Earned Revenues	982,991	1,063,809	1,140,038	1,198,275	1,247,524	1,298,535
14	Claims Incurred	783,040	853,862	896,982	943,502	992,469	1,044,612
15	DPAC \ Premium Deficiency Adjustment	-	(28,932)	(5,397)	(4,311)	3,979	7,974
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(8,201)	8,614	11,456	10,126	10,068
17	Total Claims Incurred	767,239	816,729	900,199	950,647	1,006,574	1,062,654
18	Claims Expense	143,337	137,168	135,428	139,204	144,330	146,780
19	Road Safety/Loss Prevention	13,146	13,606	12,693	12,816	13,003	13,279
20	Total Claims Costs	923,722	967,503	1,048,320	1,102,667	1,163,907	1,222,713
21	Expenses						
22	Operating	70,201	75,584	73,606	76,306	79,998	82,908
23	Commissions	37,378	40,352	42,724	44,871	46,647	48,482
24	Premium Taxes	29,143	31,535	33,768	35,469	36,896	38,370
25	Regulatory/Appeal	4,443	4,669	4,840	4,998	5,114	5,233
26	Total Expenses	141,165	152,140	154,938	161,644	168,655	174,993
27	Underwriting Income (Loss)	(81,896)	(55,834)	(63,220)	(66,036)	(85,038)	(99,171)
28	Investment Income	111,731	191,827	82,162	84,883	87,800	90,631
29	(b) Investment Income - Interest Rate Impact	4,589	(0)	(1)	(0)	(0)	0
30	Net Investment Income	116,320	191,827	82,161	84,883	87,800	90,631
31	Net Income (Loss)	34,424	135,993	18,941	18,847	2,762	(8,540)
32	Net Income (Loss) - 2019/20 Basic Rate Change of +2.2%	34,424	135,556	17,901	17,675	1,605	(9,795)
33	Net Income impact - Increase / (Decrease)	-	(437)	(1,040)	(1,172)	(1,157)	(1,255)

The Statement of Operations above reflects the Basic forecasted revenues and expenses excluding the impacts related to the vehicle for hire initiative. Overall, the net income is slightly higher versus the 2019 base GRA forecast which is primarily attributable to the added premium revenue related to driver safety rating program.

6.82 Driver safety rating premium discounts

MPI anticipates that for the 2019/20 rating year there will a reduction in premium revenue of $1M as a result of allowing Taxi VFH, Limousine VFH and Accessible VFH to be eligible for DSR discounts. The $1M was determined based on MPI's response to PUB (MPI) 12, which was filed as part of the interim VFH filing. MPI has incorporated this reduction in its determination of the rates for 2019/20.

6.83 Reduced deductible from $600.00 to $500.00 for taxicabs, limousines and accessible vehicles for hire

MPI anticipates that the claims costs increase from reducing the deductible from $600 to $500, for Taxi VFH, Limousine VFH and Accessible VFH, will be offset by the claims costs decrease from reduced loss exposure for these three insurance uses i.e. there will be net zero impact. Further, historical data for the last 10 years (from 2008 to 2017) indicates an average of 800 collision and comprehensive claims a year for these three insurance uses. Assuming that there is no reduction in loss exposure (as anticipated), and all the claims are at-fault claims, the maximum annual impact is minimal, at $80,000 annually.

6.84 One-time and ongoing information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire

The information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire is forecasted to be $600,000. As of March 31, 2018, the life-to-date spend is $365,343.

6.85 Broker commission and service fees relating to transactions associated with vehicle for hire registration and time band selection.

Broker commissions are not recorded in a manner that allows MPI to determine the Basic commissions paid specifically for VFH associated transactions. However, the Corporation estimates that the broker commissions paid on Basic policy transactions for policies with vehicle for hire insurance use is approximately $22,000 for the period of March 1, 2018 to May 24, 2018. There were no service fees collected relating to transactions associated with vehicle for hire registration and time band selection.

CLAIMS INCURRED

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

NET CLAIMS INCURRED **5**
CLAIMS INCURRED **7**
CI.1 FORECAST METHODOLOGY **8**
CI.2 GENERAL FORECASTING ASSUMPTIONS **9**
CI.2.1 Volume Growth 9
CI.2.2 Development Assumptions 9
CI.2.3 Historical Ultimate Incurred Losses by Accident Year 10
CI.2.4 Manitoba Inflation Rate 10
CI.2.5 Discount Rate 10
CI.2.6 Duration of Claims Liabilities 11
CI.2.7 Margins for Adverse Deviation 12
CI.2.8 Indexed Case Reserves 13
CI.3 CLAIMS INCURRED BEFORE PROVISIONS **13**
CI.4 WEEKLY INDEMNITY **14**
CI.4.1 Accident Year Ultimate Forecast 14
CI.4.2 Fiscal Year Claims Incurred Forecast 17
CI.5 ACCIDENT BENEFITS OTHER (ABO) – INDEXED **19**
CI.5.1 Accident Year Ultimate Forecast 19
CI.5.2 Fiscal Year Claims Incurred Forecast 21
CI.6 ACCIDENT BENEFITS OTHER (ABO) – NON-INDEXED **23**
CI.6.1 Accident Year Ultimate Forecast 23
CI.6.2 Fiscal Year Claims Incurred Forecast 25
CI.7 PIPP ENHANCEMENTS **27**
CI.7.1 Accident Year Ultimate Forecast 28
CI.7.2 Fiscal Year Claims Incurred Forecast 29
CI.8 PUBLIC LIABILITY – BODILY INJURY **31**
CI.8.1 Accident Year Ultimate Forecast 31
CI.9 COLLISION **34**
CI.9.1 Collision Frequency 34
CI.9.1.1 Collision Repair Frequency 35
CI.9.1.2 Collision Total Loss Frequency 35
CI.9.1.3 Collision Frequency Forecast 36

CI.9.2 Collision Severity 37
CI.9.2.1 Collision Repair Severity 37
CI.9.2.2 Collision Total Loss Severity 38
CI.9.2.3 Collision Severity Forecast 38
CI.9.3 Ultimate Collision Forecast 39
CI.9.4 Collision Fiscal Year Claims Incurred Forecast 40
CI.10 COMPREHENSIVE 41
CI.10.1 Comprehensive Frequency 41
CI.10.1.1 Comprehensive Hail Claim Count 41
CI.10.1.2 Comprehensive Theft Frequency 43
CI.10.1.3 Comprehensive Vandalism Frequency 45
CI.10.1.4 Comprehensive Glass Claim Count 47
CI.10.1.5 Comprehensive Rodent Frequency 49
CI.10.1.6 Comprehensive All Other Frequency 51
CI.10.2 Comprehensive Severity 53
CI.10.2.1 Comprehensive Hail Severity 53
CI.10.2.2 Comprehensive Theft Severity 55
CI.10.2.3 Comprehensive Vandalism Severity 57
CI.10.2.4 Comprehensive Glass Severity 59
CI.10.2.5 Comprehensive Rodent Severity 61
CI.10.2.6 Comprehensive All Other Severity 63
CI.10.3 Comprehensive Ultimate Forecast 65
CI.10.4 Fiscal Year Claims Incurred Forecast 66
CI.11 PROPERTY DAMAGE 67
CI.11.1 Property Damage Frequency 67
CI.11.2 Property Damage Severity 68
CI.11.2.1 Third Party Deductible Transfer Severity 69
CI.11.2.2 Third Party Loss of Use Severity 69
CI.11.2.3 All Other Severity 69
CI.11.3 Property Damage Ultimate Forecast 70
CI.11.4 Fiscal Year Claims Incurred Forecast 70
CI.12 BASIC TOTAL 71
CI.12.1 Claims Incurred Before Provisions 71
CI.12.1.1 Accident Year Ultimate Forecast 72
CI.12.1.2 Fiscal Year Claims Incurred Forecast 72
CI.12.2 Unallocated Loss Adjustment Expenses (ULAE) 74
CI.12.2.1 ULAE Forecast 75

CI.12.3 Change in Internal Loss Adjustment Expenses (ILAE) 76
CI.12.3.1 ILAE Forecast 76
CI.12.4 Reinsurance Ceded Claims 77
CI.12.4.1 Reinsurance Claims Ceded Forecast 77
CI.12.5 Change in Premium Deficiency or DPAC Write-Down 78
CI.12.5.1 Premium Deficiency Forecast 79
CI.12.6 Total Fiscal Year Net Claims Incurred 80
CI.12.6.1 Fiscal Year Net Claims Incurred Forecast 80

[Provided electronically only]

Appendix 1: Accident Benefits Weekly Indemnity
Appendix 1b: Accident Benefits – Weekly Indemnity (PIPP Enhancement: IAW Increase)
Appendix 2: Accident Benefits Other - Indexed
Appendix 2b: Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)
Appendix 2c: Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)
Appendix 2d: Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)
Appendix 2e: Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)
Appendix 2f: Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)
Appendix 2g: Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)
Appendix 3: Accident Benefits - Other Non-Indexed
Appendix 3b: Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)
Appendix 4: Basic Public Liability
Appendix 5: Basic Collision
Appendix 6: Basic Comprehensive
Appendix 7: Basic Property Damage
Appendix 8: Claims Incurred Expenses
Appendix 9: 10 Year Claims Frequency Comparison
Appendix 10: Claims Severity Groupings by Major Class
Appendix 11: Distribution of PIPP Costs ($000); Direct Claims Incurred by Coverage
Appendix 12: PIPP Claims Statistics by Injury Type

NET CLAIMS INCURRED

The Total Net Claims Incurred (CI) is the amount that appears on Manitoba Public Insurance's (MPI or the Corporation) Statement of Operations. The Total Net CI in a given fiscal year is the sum of the following amounts:

- Reported claims incurred in the fiscal year (incurred = paid + change in case reserve)
- Change in actuarial provisions (i.e. incurred-but-not-reported)
- Change in claims incurred financial provisions (i.e. loss adjustment expenses, reinsurance recoveries, premium deficiency)

The above items are described in detail in this document. The net CI represents the Basic claims incurred from section *CI.12.1.2* plus the additional claims provisions described in sections *CI.12.2 through CI.12.6*.

Figure CI- 1: Net Claims Incurred

Line No.		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Claims Incurred before Financial Provisions						
3	Weekly Indemnity	$129,832	$88,113	$97,141	$99,358	$99,540	$100,275
4	ABO - Indexed	$17,901	$72,226	$78,135	$80,356	$80,943	$82,044
5	ABO – Non-Indexed	$37,142	$30,664	$31,387	$31,877	$32,325	$32,780
6	PIPP Enhancements	$2,148	$8,983	$10,629	$11,095	$11,226	$11,484
7	Public Liability - BI	$4,680	$5,096	$5,214	$5,271	$5,340	$5,411
8	Collision	$415,906	$438,921	$469,735	$502,938	$538,554	$576,775
9	Comprehensive	$69,497	$99,974	$105,494	$111,624	$118,151	$125,002
10	Property Damage	$48,647	$46,869	$48,499	$50,185	$51,943	$53,779
11	Total	$726,240	$790,845	$846,233	$892,705	$938,021	$987,550
12	Unallocated Loss Adjustment Expenses	$42,252	$50,135	$52,371	$54,921	$57,537	$60,210
13	Change in Internal Loss Adjustment Expense Provision	($2,219)	$4,679	$6,988	$7,329	$7,035	$6,961
14	Change in Reinsurance Ceded Provision	($676)	$0	$0	$0	$0	$0
15	Other Financial Adjustments	($2,722)	$0	$0	$0	$0	$0
16	Change in DPAC / Premium Deficiency Provision	$4,364	($28,521)	($5,380)	($4,243)	$3,999	$7,997
17	Total Net Claims Incurred	$767,240	$817,139	$900,212	$950,712	$1,006,592	$1,062,718

The 2019/20 net CI forecast has decreased by $12.6 million from last year's forecast as a result of the following:

- Physical Damage: $18.5 million decrease before interest rate impacts
- Premium Deficiency and DPAC Write-Down: $7.9 million favourable impact
- Interest Rate Impact: $6.7 million unfavourable interest rate impact
- Unallocated and Internal Loss Adjustment Expenses: $6.5 million unfavourable impact
- PIPP and Bodily Injury: $0.7 million increase before interest rate impacts
- Net effect of all other financial provisions: $0.1 million favourable impact

CLAIMS INCURRED

In this document, the CI is shown on both an accident year basis and a fiscal year basis.

On an accident year basis, CI represents the total of paid losses, case reserves, and incurred-but-not-reported (IBNR) for all claims that occur in a given accident year. The accident year CI is used for rate setting purposes.

On a fiscal year basis, CI represents the total reported CI in a given fiscal year (i.e. paid + change in case reserves) plus the change in IBNR in the fiscal year. The fiscal year basis is used for financial reporting only.

The CI forecasts on an accident year and fiscal year basis are provided in section *CI.12.1*.

CI.1 FORECAST METHODOLOGY

The primary actuarial technique used in claims forecasting is the loss development technique. The technique assumes that the historical development patterns in accident year paid and incurred losses can be used to predict the development of paid and incurred losses in future periods. For each coverage grouping, development assumptions are selected starting from the accident year in which the claims occur and extending until all claims from that accident year are assumed to be closed (i.e. ultimate). The claims forecasts in this section use the development assumptions from the February 2018 Appointed Actuary's report *Part VIII External Actuary Review of Policy Liabilities Attachment A*. The claims development exhibits by coverage are provided at the end of this section. For more details on the loss development technique see the October 2017 Appointed Actuary's report (*Part VIII External Actuary Review of Policy Liabilities Attachment B*).

MPI starts by forecasting the accident year ultimate incurred losses and then uses the development assumptions to project 'backwards' the paid and incurred losses from ultimate to 12 months. In general, it is assumed that the historical ultimate losses are the best predictor of future ultimate losses by accident year. However, there are circumstances where this assumption may not be appropriate because of significant changes in claims patterns (actual or expected). In these cases, the methodology used to make the forecast will be described in the applicable section of this document.

The application of assumed loss development patterns results in a projection of paid and reported losses by fiscal period from the current year until all claims are paid. These payment 'cash flows' are discounted to a present value basis at the end of each fiscal year using the assumed investment return at that date. Actuarial Provisions for Adverse Deviation (PfADs) are then applied to the discounted loss payments. The assumed PfADs are from the February 2018 Appointed Actuary's report. The IBNR amounts are then calculated at each fiscal year-end. The IBNR is equal to the present value of all future unpaid claims including actuarial PfADs minus the projected case reserves (i.e. amounts already set aside for these claims by case managers).

The CI by fiscal year are calculated as the reported incurred plus the change in the IBNR provision in that fiscal year.

CI.2 GENERAL FORECASTING ASSUMPTIONS

This section outlines the general forecasting assumptions that apply to all of the individual forecasts.

CI.2.1 Volume Growth

For forecasts where claims growth is assumed to follow the growth in vehicle units (e.g. Collision coverage), selected the forecasts in *Part V(i) Revenues REV.1.1* are based on volume growth factors under *The Highway Traffic Act* (HTA). The assumed HTA volume growth in this year's forecast is 1.50% per year.

CI.2.2 Development Assumptions

The details on the paid and incurred development assumptions by coverage are provided in the October 2017 and February 2018 Appointed Actuary's reports (*Part VIII External Actuary Review of Policy Liabilities*). The figure below shows the paid and incurred assumptions for each major coverage category.

Figure CI- 2: Percentage of Total Ultimate Paid in Each Year

Line No.	Cover	1	2	3	4	5	6	7	8	9	10+
1	Accident Benefits – WI	11.27%	11.78%	6.31%	4.96%	4.38%	3.85%	3.38%	3.08%	2.82%	48.17%
2	ABO – Indexed	17.88%	20.34%	6.42%	3.64%	3.02%	2.59%	2.53%	2.45%	2.09%	39.05%
3	ABO – Non-Indexed	21.88%	33.69%	25.11%	7.50%	3.57%	1.88%	1.40%	1.24%	0.67%	3.05%
4	Bodily Injury	4.21%	14.12%	16.45%	17.65%	15.78%	10.91%	10.21%	5.27%	2.36%	3.04%
5	Collision	75.50%	22.92%	1.23%	0.25%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
6	Comprehensive	75.13%	20.89%	3.08%	0.55%	0.20%	0.10%	0.05%	0.00%	0.00%	0.00%
7	Property Damage	56.57%	36.91%	5.33%	0.84%	0.30%	0.05%	0.00%	0.00%	0.00%	0.00%

Figure CI- 3: Percentage of Total Ultimate Incurred in Each Year

Line No.	Cover	1	2	3	4	5	6	7	8	9	10+
1	Accident Benefits – WI	32.98%	17.60%	37.42%	3.55%	2.75%	1.87%	0.00%	0.00%	0.00%	3.85%
2	ABO – Indexed	72.64%	11.56%	2.54%	1.31%	1.32%	1.19%	0.75%	0.38%	0.23%	8.08%
3	ABO – Non-Indexed	65.64%	20.29%	8.70%	2.14%	1.13%	0.39%	0.20%	0.20%	0.20%	1.13%
4	Bodily Injury	60.48%	7.56%	12.15%	6.67%	6.03%	4.00%	2.25%	0.69%	0.10%	0.07%
5	Collision	95.36%	3.45%	0.89%	0.18%	0.08%	0.03%	0.00%	0.00%	0.00%	0.00%
6	Comprehensive	91.47%	7.00%	1.38%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7	Property Damage	81.61%	15.56%	2.59%	0.28%	0.17%	-0.02%	-0.05%	-0.05%	-0.05%	-0.03%

CI.2.3 Historical Ultimate Incurred Losses by Accident Year

The details of the assumptions used to estimate the historical accident year ultimate incurred are provided in the October 2017 and February 2018 Appointed Actuary's Reports (*Part VIII External Actuary Review of Policy Liabilities*). The CI section of the application describes how the historical ultimate incurred losses are used for forecasting purposes, but it does not restate the detailed information provided in the Appointed Actuary's reports.

CI.2.4 Manitoba Inflation Rate

The projected Manitoba inflation rate is based on the average forecast from TD Economics, RBC Economics, BMO Financial Group, and Global Insight. The Manitoba inflation rate is forecasted at 2.0% in 2018/19 and 2.0% thereafter. Please see *Part VI Investments INV.14.2.2* for more information. MPI assumes the long term forecasted inflation rate of 2.0% for the purposes of indexing.

CI.2.5 Discount Rate

As part of the Corporation's Asset and Liability Management (ALM) Strategy, the calculation of the discount rate has changed from a duration weighted yield of the fixed income portfolio to a dollar weighted yield of the fixed income portfolio. This

change in methodology increased the discount rate by 15 basis points. For an outline of the Corporation's ALM Strategy see *Part VI Investments INV.16*. A detailed description on the claims liability discount rate calculation is included in the October 2017 Appointed Actuary's Report (*Part VIII External Actuary Review of Policy Liabilities Attachment B*).

MPI's forecasts include a calculation of the projected claims liability discount rates at each fiscal year end. The forecasted discount rate is used to re-evaluate claim liabilities at each fiscal year end, which results in a fiscal year net CI forecast *including* the expected impact of interest rate changes. The figure below shows the assumed discount rates at each fiscal year end. PIPP claims liabilities that are indexed annually based on Manitoba inflation (i.e. Weekly Indemnity and Accident Benefits Other – Indexed) are discounted based on the 'real' rate (i.e. net of inflation). All other claim liabilities are discounted based on the 'nominal' rate. The full details on the interest rate forecast are provided in *Part VI Investments INV.14*.

Figure CI- 4: Assumed Claims Liability Discount Rate

Line No.	Fiscal Year End	Nominal	Real
1	2017/18 (a)	3.47%	1.44%
2	2018/19	3.51%	1.48%
3	2019/20	3.47%	1.44%
4	2020/21	3.42%	1.39%
5	2021/22	3.37%	1.34%
6	2022/23	3.32%	1.30%

CI.2.6 Duration of Claims Liabilities

MPI's Investment Policy Statement (IPS) states that the duration of the fixed income portfolio will match the duration of claims liabilities. Based on the projected interest rates used in the fixed income asset forecast, MPI's overall claims duration was recalculated at the end of each quarter. *Part VI Investments INV.4* provides additional information on the fixed income duration assumptions for the forecast. The forecasted

claims liability durations including all actuarial provisions are shown in the figure below.

Figure CI- 5: Assumed Claim Liability Modified Duration (Years)

Line No.	Fiscal Year End	Duration
1	2017/18 (a)	10.17
2	2018/19	10.02
3	2019/20	9.96
4	2020/21	9.91
5	2021/22	9.85
6	2022/23	9.79

CI.2.7 Margins for Adverse Deviation

The margins for adverse deviation used in the claims forecast are the same as those used in the February 2018 Appointed Actuary's report. A summary of the margins for each coverage are provided in the figure below.

Figure CI- 6: Margins for Adverse Deviation

Line No.		MFAD
1	Interest Rate Margin For Adverse Deviation – All Coverages	0.50%
2	Claims Development Margin for Adverse Deviation:	
3	· Weekly Indemnity	15.00%
4	· Accident Benefits – Other (Indexed)	15.00%
5	· Accident Benefits – Other (Non-Indexed)	10.00%
6	· Public Liability	15.00%
7	· Collision	7.50%
8	· Comprehensive	7.50%
9	· Property Damage	5.00%

CI.2.8 Indexed Case Reserves

Prior to 2015/16, MPI did not index case reserves for coverages that are subject to indexation. As a result, the projected *reported* incurred did not account for the increase in benefits from indexation. MPI has since indexed its case reserves as presented in *Appendix 1 Table 7* and *Appendixes 1b through 2f Table 6*. This change increases the yearly reported incurred for these coverages, which is offset by an equal decrease in IBNR. *Appendix 1 Tables 7 through 10* and *Appendixes 1b through 2f Tables 6 through 9* are now indexed to reflect this change.

CI.3 CLAIMS INCURRED BEFORE PROVISIONS

The sections that follow provide the CI forecasts on an accident year and fiscal year basis before the inclusion of CI financial provisions (e.g. loss adjustment expenses, reinsurance recoveries, premium deficiency). The figure below shows the forecast of fiscal year CI before financial provisions.

Figure CI- 7: Claims Incurred before Provisions Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Weekly Indemnity	$88,113	$97,141	$99,358	$99,540	$100,275
3	ABO - Indexed	$72,226	$78,135	$80,356	$80,943	$82,044
4	ABO – Non-Indexed	$30,664	$31,387	$31,877	$32,325	$32,780
5	PIPP Enhancements	$8,983	$10,629	$11,095	$11,226	$11,484
6	Public Liability - BI	$5,096	$5,214	$5,271	$5,340	$5,411
7	Collision	$438,921	$469,735	$502,938	$538,554	$576,775
8	Comprehensive	$99,974	$105,494	$111,624	$118,151	$125,002
9	Property Damage	$46,869	$48,499	$50,185	$51,943	$53,779
10	Basic Total	$790,845	$846,233	$892,705	$938,021	$987,550

CI.4 WEEKLY INDEMNITY

Weekly Indemnity provides coverage for loss of wages resulting from the insured's inability to work following an automobile accident.

Figure CI- 8: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Weekly Indemnity	$88,113	$97,141	$99,358	$99,540	$100,275

CI.4.1 Accident Year Ultimate Forecast

Weekly Indemnity is forecasted based on the historical accident year claims counts, severity, and ultimate losses for this coverage (*Appendix 1 Table 1*). The figure below shows the historical experience and the forecasted ultimate losses for Weekly Indemnity along with a comparison to last year's forecast.

Figure CI- 9: Weekly Indemnity Ultimate Losses

Line No.	Accident Year	Claim Count Incurred >$0	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2003/04	2,109	$25,555	$53,896	-6.21%	$54,093	($197)
2	2004/05	2,040	$23,383	$47,702	-11.49%	$45,835	$1,867
3	2005/06	1,942	$30,199	$58,646	22.94%	$56,891	$1,755
4	2006/07	2,102	$35,474	$74,567	27.15%	$71,164	$3,403
5	2007/08	2,051	$35,535	$72,882	-2.26%	$71,896	$987
6	2008/09	1,884	$37,564	$70,771	-2.90%	$69,155	$1,616
7	2009/10	1,878	$35,658	$66,966	-5.38%	$63,876	$3,091
8	2010/11	1,929	$44,342	$85,539	27.73%	$79,796	$5,742
9	2011/12	1,833	$45,174	$82,795	-3.21%	$76,575	$6,220
10	2012/13	2,028	$46,164	$93,615	13.07%	$73,567	$20,048
11	2013/14	1,897	$41,447	$78,636	-16.00%	$80,004	($1,369)
12	2014/15	1,664	$39,967	$66,523	-15.40%	$72,903	($6,380)
13	2015/16	1,815	$46,870	$85,048	27.85%	$70,449	$14,598
14	2016/17	1,817	$45,087	$81,912	-3.69%	$64,966	$16,945
15	2017/18	1,850	$41,186	$76,173	-7.01%	$72,058	$4,115
16	5-year Trend	1,826	$44,290	$80,797	6.06%	$64,928	
17	10-year Trend	1,795	$45,376	$81,697	-1.50%	$71,750	
18	All year Trend	1,758	$49,252	$88,468	-0.17%	$78,534	
19	2018/19	1,707	$45,012	$76,840	0.88%	$72,093	$4,747
20	2019/20	1,680	$45,800	$76,953	0.15%	$72,107	$4,846
21	2020/21	1,653	$46,602	$77,046	0.12%	$72,100	$4,947
22	2021/22	1,626	$47,418	$77,119	0.09%	$72,070	$5,049
23	2022/23	1,599	$48,248	$77,171	0.07%		

As shown in the above figure, there were significant increases made to the prior year's ultimate loss estimates in the October 2017 (*Part VIII External Actuary Review of Policy Liabilities Attachment B*) and February 2018 Appointed Actuary's reports (*Part VIII External Actuary Review of Policy Liabilities Attachment A*). In particular, the ultimate loss estimates for the 2010/11 through 2016/17 accident years were increased by $55.8 million over last year's estimates. The increase is driven primarily by the introduction of centralized reserving. An outline of centralized reserving can be found in *Part VIII External Actuary Review of Policy Liabilities*.

The 2018/19 forecasted ultimate losses of $76.8 million are based on the forecasted non-zero claim counts and severity. Claim counts were forecasted based on the all year trend line as shown in the above figure.

The 2018/19 severity is based on the six-year average of the ultimate severity indexed to current levels, excluding the most recent year, with two years of severity growth plus indexation applied. Severity growth is determined by calculating a weighted average severity growth based on the ultimate severity of claims broken down into three groups: (i) claims with incurred between $0 and $100,000, (ii) claims with incurred between $100,000 and $250,000; and (iii) claims with incurred greater than $250,000. Severity growth is then calculated based on the last 17 years (excluding the two most recent years) trend in these three groups. The two most recent years are excluded because it generally takes at least two years for case managers to reasonably assess the reserve requirements for serious injury claims. The seventeen-year trend is used because this is the farthest back that MPI has data available in this format. A weighted average severity growth is calculated between these three severity groups to produce the forecasted severity trend.

Figure CI- 10: Weekly Indemnity Ultimate Severity

Line No.	Accident Year	Average Severity $0-$100,000	$100,000-$250,000	$250,000+
1	2003/04	$7,066	$158,667	$702,560
2	2004/05	$6,329	$165,753	$697,225
3	2005/06	$7,212	$158,952	$751,922
4	2006/07	$7,361	$153,293	$695,448
5	2007/08	$7,273	$147,143	$737,008
6	2008/09	$8,689	$151,327	$673,040
7	2009/10	$8,420	$148,117	$736,280
8	2010/11	$9,638	$157,862	$745,822
9	2011/12	$9,397	$151,424	$738,253
10	2012/13	$8,955	$149,064	$679,244
11	2013/14	$8,805	$149,999	$625,025
12	2014/15	$9,374	$141,490	$645,818
13	2015/16	$10,025	$162,572	$601,792
14	2016/17	$17,384	$157,449	$768,714
15	2017/18	$23,117	$142,945	$805,144
16	Severity Growth	3.22%	0.05%	-1.25%
17	Total Incurred	$224,445,611	$77,211,101	$799,190,239
18	Weighted Average Severity Growth	-0.25%		
19	Indexation	2.00%		
20	Total Severity Growth	1.75%		

CI.4.2 Fiscal Year Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for Weekly Indemnity. The reported incurred, which are shown in *Appendix 1 Table 5* for Pre-PIPP and *Appendix 1 Table 3*, are based on the projected ultimate losses and the incurred development assumptions. The change in IBNR, which is shown in *Appendix 1 Table 5* for Pre-PIPP and *Appendix 1 Table 9*, is based on the projected ultimate losses, assumed paid development factors, claims liability discount rates, and provisions for adverse deviation. The change in IBNR is shown with and without the impact of changing interest rates.

Figure CI- 11: Weekly Indemnity Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$105,880	($11,837)	$0	$241	($11,596)	$94,284	$94,284	$0
3	2014/15	$66,093	$56,900	$0	$3,977	$60,877	$126,971	$126,971	$0
4	2015/16	$70,518	($34,648)	($17,608)	$42,682	($9,573)	$60,945	$60,945	$0
5	2016/17	$93,476	($4,227)	$0	$36,334	$32,108	$125,584	$125,584	$0
6	2017/18	$172,511	($7,609)	$0	($35,070)	($42,679)	$129,832	$51,643	$78,189
7	2018/19	$95,183	($4,126)	$0	($2,944)	($7,070)	$88,113	$89,680	($1,567)
8	2019/20	$90,810	$4,217	$0	$2,114	$6,332	$97,141	$87,539	$9,602
9	2020/21	$91,481	$5,621	$0	$2,256	$7,877	$99,358	$86,985	$12,373
10	2021/22	$92,295	$4,979	$0	$2,266	$7,245	$99,540	$87,419	$12,121
11	2022/23	$92,407	$4,981	$0	$2,887	$7,867	$100,275		

The 2017/18 Weekly Indemnity CI was over budget by $78.2 million as a result of several factors. Reported claims increased $87.1 million over the budget of $85.4 million. Lower than expected interest rates caused a decrease in IBNR of $7.6 million relative to the budgeted decrease of $34.4 million in last year's forecast. The remaining impact stems mainly from the changes in assumptions and methodology used in the October 2017 *(Part VIII External Actuary Review of Policy Liabilities Attachment B)* and February 2018 Appointed Actuary's reports *(Part VIII External Actuary Review of Policy Liabilities Attachment A)*, which can be broken down as follows:

- The loss development factors were revised which caused a decrease in IBNR of $41.3 million.
- The change in the selected IBNR resulted in a decrease in IBNR of $15.3 million.
- The selected margin for claims development was changed which caused a decrease in IBNR of $15.0 million.

In 2019/20, the CI forecast increases over last year's forecast as a result of a decreasing discount rate and higher forecasted ultimates.

CI.5 ACCIDENT BENEFITS OTHER (ABO) – INDEXED

Accident Benefits Other – Indexed provides coverage for an insured's medical and rehabilitation expenses including travel expenses and personal care costs arising as a result of an automobile accident.

Figure CI- 12: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	ABO - Indexed	$72,226	$78,135	$80,356	$80,943	$82,044

CI.5.1 Accident Year Ultimate Forecast

Accident Benefits Other – Indexed is forecasted based on the historical accident year claims counts, severity, and ultimate losses for this coverage (*Appendix 2 Table 1*). The figure below shows the historical experience and the forecasted ultimate losses for Accident Benefits Other – Indexed along with a comparison to last year's forecast.

Figure CI- 13: Accident Benefits Other – Indexed Ultimate Losses

Line No.	Accident Year	Claim Count Incurred >$0	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2003/04	11,651	$4,458	$51,940	-8.13%	$52,895	($955)
2	2004/05	11,328	$5,234	$59,287	14.14%	$59,167	$120
3	2005/06	10,757	$4,748	$51,077	-13.85%	$51,288	($210)
4	2006/07	12,061	$5,605	$67,600	32.35%	$69,169	($1,568)
5	2007/08	11,936	$5,637	$67,278	-0.48%	$65,008	$2,270
6	2008/09	11,420	$4,827	$55,127	-18.06%	$55,386	($259)
7	2009/10	11,241	$5,353	$60,171	9.15%	$59,564	$607
8	2010/11	11,845	$4,573	$54,166	-9.98%	$59,376	($5,210)
9	2011/12	11,254	$5,461	$61,460	13.47%	$61,896	($435)
10	2012/13	12,134	$5,238	$63,565	3.42%	$62,446	$1,120
11	2013/14	12,365	$4,514	$55,811	-12.20%	$69,349	($13,537)
12	2014/15	10,717	$5,098	$54,637	-2.10%	$65,236	($10,600)
13	2015/16	11,636	$5,980	$69,580	27.35%	$68,552	$1,028
14	2016/17	11,656	$5,954	$69,406	-0.25%	$65,273	$4,133
15	2017/18	12,432	$5,602	$69,638	0.33%	$67,461	$2,177
16	5-year Trend	12,083	$6,339	$76,541	10.70%	$66,053	
17	10-year Trend	11,990	$5,807	$69,492	8.58%	$70,502	
18	All year Trend	11,891	$5,619	$66,689	3.86%	$68,957	
19	2018/19	11,737	$5,440	$63,849	-8.31%	$68,219	($4,370)
20	2019/20	11,758	$5,491	$64,567	1.13%	$68,984	($4,417)
21	2020/21	11,779	$5,543	$65,294	1.12%	$69,758	($4,465)
22	2021/22	11,800	$5,596	$66,028	1.12%	$70,541	($4,513)
23	2022/23	11,821	$5,649	$66,770	1.12%		

The 2018/19 ultimate losses of $63.8 million are based on the forecasted claim counts and severity. Per the above figure, claim counts are forecasted based on the all year trend line.

The 2018/19 severity is based on the six-year average of the ultimate severity indexed to current levels, excluding the most recent year, with two years of severity growth plus indexation applied. Severity growth is determined by calculating a weighted average severity growth based on the ultimate severity of claims broken down into three groups: (i) claims with incurred between $0 and $100,000, (ii) claims with incurred between $100,000 and $250,000; and (iii) claims with incurred greater than $250,000. Severity growth is then calculated based on the last seventeen years

(excluding the two most recent years) trend in these three groups. The two most recent years are excluded because it generally takes at least two years for case managers to reasonably assess the reserve requirements for serious injury claims. The seventeen-year trend is used because this is the farthest back that MPI has data available in this format. A weighted average severity growth is calculated between these three severity groups to produce the forecasted severity trend.

Figure CI- 14: Accident Benefits Other – Indexed Ultimate Severity

Line No.	Accident Year	Average Severity $0-$100,000	$100,000-$250,000	$250,000+
1	2003/04	$2,281	$146,603	$1,116,771
2	2004/05	$2,018	$156,384	$2,134,225
3	2005/06	$2,231	$144,052	$1,048,770
4	2006/07	$2,088	$149,512	$1,374,165
5	2007/08	$2,107	$143,071	$1,631,015
6	2008/09	$2,337	$164,184	$1,098,379
7	2009/10	$2,425	$142,798	$1,169,737
8	2010/11	$2,464	$150,085	$927,485
9	2011/12	$2,570	$149,175	$1,120,790
10	2012/13	$2,738	$142,166	$775,743
11	2013/14	$2,869	$138,058	$685,123
12	2014/15	$2,918	$156,321	$974,649
13	2015/16	$3,327	$149,455	$877,443
14	2016/17	$3,881	$136,696	$1,253,496
15	2017/18	$4,375	$119,940	$342,369
16	Severity Growth	2.82%	-0.06%	-4.73%
17	Total Incurred	$422,221,314	$59,609,660	$461,788,648
18	Weighted Average Severity Growth	-1.05%		
19	Indexation	2.00%		
20	Total Severity Growth	0.95%		

CI.5.2 Fiscal Year Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for Accident Benefits Other - Indexed. The reported CI, which are calculated in *Appendix 2 Table 3*, are based on the projected ultimate losses and the incurred development assumptions. The change in IBNR, which is shown in *Appendix 2 Table 8*, is based on the projected

ultimate losses, assumed paid development factors, claims liability discount rates, and provisions for adverse deviation. The change in IBNR is shown with and without the impact of changing interest rates in the figure below.

Figure CI- 15: Accident Benefits Other – Indexed Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$82,867	($9,096)	$0	$2,965	($6,131)	$76,736	$76,736	$0
3	2014/15	$49,102	$46,922	$0	$11,405	$58,327	$107,429	$107,429	$0
4	2015/16	$59,839	($26,782)	($13,584)	$12,566	($27,799)	$32,039	$32,039	$0
5	2016/17	$66,910	($2,969)	$0	$11,680	$8,711	$75,621	$75,621	$0
6	2017/18	$46,866	($4,560)	$0	($24,405)	($28,966)	$17,901	$55,652	($37,752)
7	2018/19	$76,904	($2,415)	$0	($2,263)	($4,678)	$72,226	$82,893	($10,667)
8	2019/20	$77,561	$2,456	$0	($1,881)	$575	$78,135	$82,112	($3,976)
9	2020/21	$78,793	$3,256	$0	($1,693)	$1,563	$80,356	$82,712	($2,356)
10	2021/22	$80,068	$2,867	$0	($1,993)	$874	$80,943	$83,750	($2,807)
11	2022/23	$81,419	$2,853	$0	($2,228)	$625	$82,044		

The 2017/18 Accident Benefits Other - Indexed CI was under budget by $37.8 million as a result of the lower than expected reported claims which were $32.5 million under the budget of $79.3 million. This was offset by lower than expected interest rates which caused a decrease in IBNR of $4.6 million relative to the budgeted decrease of $23.9 million in last year's forecast. The remaining impact stems mainly from the changes in assumptions and methodologies used in October 2017 *(Part VIII External Actuary Review of Policy Liabilities Attachment B)* and February 2018 Appointed Actuary's reports *(Part VIII External Actuary Review of Policy Liabilities Attachment A)*, which include the following:

- The loss development factors were revised which caused an increase in IBNR of $0.6 million.
- The change in the selected IBNR resulted in a decrease in IBNR of $10.0 million.
- The selected margin for claims development was changed which caused a decrease in IBNR of $10.4 million.

In 2019/20, the CI forecast decreases over last year's forecast as a result of a decreasing discount rate and lower forecasted ultimates.

CI.6 ACCIDENT BENEFITS OTHER (ABO) – NON-INDEXED

Accident Benefits Other – Non-Indexed coverage provides lump sum payments in the event that the insured is permanently injured or deceased as a result of an automobile accident.

Figure CI- 16: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	ABO – Non-Indexed	$30,664	$31,387	$31,877	$32,325	$32,780

CI.6.1 Accident Year Ultimate Forecast

Accident Benefits Other – Non-Indexed is forecasted based on the historical accident year claims counts, severity, and ultimate losses for this coverage (*Appendix 3 Table 1*). The figure below shows the ten-year historical experience and the forecasted ultimate losses for Accident Benefits Other – Non-Indexed along with a comparison to last year's forecast.

Figure CI- 17: Accident Benefits Other – Non-Indexed Ultimate Losses

Line No.	Accident Year	Claim Count Incurred >$0	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2003/04	1,517	$16,694	$25,325	-5.59%	$25,412	($87)
2	2004/05	1,412	$17,550	$24,781	-2.15%	$24,786	($5)
3	2005/06	1,467	$19,719	$28,928	16.73%	$28,984	($56)
4	2006/07	1,640	$20,774	$34,070	17.78%	$34,067	$3
5	2007/08	1,503	$20,088	$30,183	-11.41%	$30,208	($25)
6	2008/09	1,439	$20,255	$29,155	-3.41%	$28,989	$166
7	2009/10	1,433	$20,926	$29,987	2.85%	$30,058	($71)
8	2010/11	1,343	$21,307	$28,605	-4.61%	$28,504	$102
9	2011/12	1,589	$20,164	$32,032	11.98%	$31,822	$210
10	2012/13	1,446	$20,936	$30,277	-5.48%	$30,373	($96)
11	2013/14	1,264	$21,828	$27,596	-8.85%	$27,550	$46
12	2014/15	1,101	$25,645	$28,224	2.27%	$27,901	$323
13	2015/16	1,498	$20,507	$30,723	8.86%	$27,146	$3,577
14	2016/17	1,493	$21,533	$32,139	4.61%	$29,745	$2,394
15	2017/18	1,520	$19,883	$30,213	-5.99%	$30,061	$153
16	5-year Trend	1,646	$19,478	$32,524	2.60%	$30,540	
17	10-year Trend	1,422	$21,773	$30,598	1.02%	$28,751	
18	All year Trend	1,386	$22,677	$31,211	-0.29%	$29,755	
19	2018/19	1,360	$22,723	$30,911	2.31%	$30,466	$445
20	2019/20	1,360	$23,046	$31,350	1.42%	$30,877	$473
21	2020/21	1,360	$23,374	$31,796	1.42%	$31,293	$503
22	2021/22	1,360	$23,706	$32,249	1.42%	$31,715	$533
23	2022/23	1,360	$24,044	$32,707	1.42%		

The 2018/19 ultimate losses of $30.9 million are based on the forecasted claims counts and severity. Claim counts are forecasted based on the six-year average of the ultimate claim counts, excluding the most recent year and remain at that level throughout the forecast period (based on historical trends).

The 2018/19 severity is based on the six-year average of the ultimate severity, excluding the most recent year, with two years of severity growth applied. Severity growth is determined by calculating a weighted average severity growth based on the ultimate severity of claims broken down into three groups: (i) claims with incurred between $0 and $100,000, (ii) claims with incurred between $100,000 and $250,000; and (iii) claims with incurred greater than $250,000. Severity growth is then

calculated based on the last seventeen years (excluding the two most recent years) trend in these three groups. The two most recent years are excluded because it generally takes at least two years for case managers to reasonably assess the reserve requirements for serious injury claims. The s-year trend is used because this is the farthest back that MPI has data available in this format. A weighted average severity growth is calculated between these three severity groups to produce the forecasted severity trend.

Figure CI- 18: Accident Benefits Other – Non-Indexed Ultimate Severity

Line No.	Accident Year	Average Severity $0-$100,000	$100,000-$250,000	$250,000+
1	2003/04	$12,958	$174,662	$355,092
2	2004/05	$12,857	$164,617	$302,162
3	2005/06	$13,475	$175,586	$295,388
4	2006/07	$13,849	$172,204	$312,161
5	2007/08	$13,902	$168,178	$328,245
6	2008/09	$13,231	$157,985	$340,424
7	2009/10	$14,820	$164,577	$320,389
8	2010/11	$14,803	$166,284	$327,432
9	2011/12	$14,796	$162,439	$313,525
10	2012/13	$14,534	$174,365	$336,656
11	2013/14	$16,078	$159,696	$333,418
12	2014/15	$16,898	$181,236	$355,451
13	2015/16	$15,085	$155,379	$380,285
14	2016/17	$13,723	$154,265	$339,099
15	2017/18	$14,267	$135,834	$472,188
16	Severity Growth	1.96%	-0.28%	1.31%
17	Total Incurred	$293,429,572	$89,091,511	$48,937,605
18	Weighted Average Severity Growth	1.42%		
19	Indexation	0.00%		
20	Total Severity Growth	1.42%		

CI.6.2 Fiscal Year Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for Accident Benefits Other – Non-Indexed. The reported CI, which are calculated in *Appendix 3 Table 3*, are based on the projected ultimate losses and the incurred development

assumptions. The change in IBNR, which is shown in *Appendix 3 Table 8*, is based on the projected ultimate losses, assumed paid development factors, claims liability discount rates, and provisions for adverse deviation. The change in IBNR is shown with and without the impact of changing interest rates in the figure below.

Figure CI- 19: Accident Benefits Other – Non-Indexed Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$31,284	($146)	$0	$3,612	$3,466	$34,750	$34,750	$0
3	2014/15	$26,226	$774	$0	$2,237	$3,011	$29,237	$29,237	$0
4	2015/16	$27,148	($401)	($214)	($17)	($632)	$26,515	$26,515	$0
5	2016/17	$30,382	($49)	$0	$1,802	$1,752	$32,134	$32,134	$0
6	2017/18	$34,170	($92)	$0	$3,064	$2,972	$37,142	$29,610	$7,532
7	2018/19	$30,564	($48)	$0	$148	$100	$30,664	$30,535	$130
8	2019/20	$31,179	$50	$0	$158	$208	$31,387	$30,890	$497
9	2020/21	$31,668	$65	$0	$144	$209	$31,877	$31,300	$578
10	2021/22	$32,138	$57	$0	$130	$187	$32,325	$31,718	$607
11	2022/23	$32,603	$57	$0	$120	$177	$32,780		

The 2017/18 Accident Benefits Other – Non-Indexed CI was over budget by $7.5 million as a result of the higher than expected reported claims which were $4.8 million over the budget of $29.3 million.

Including interest rate impacts, the 2019/20 CI is $31.4 million, which is essentially unchanged from last year's forecast.

CI.7 PIPP ENHANCEMENTS

On October 8, 2009, the provincial government enacted improvements to PIPP benefits to claimants who meet the definition of "Catastrophic Injury". Further improvements to PIPP benefits were enacted on August 19, 2011 and May 1, 2015.

A list of all improvements is provided below (all figures at March 1, 2018 levels):

1. The minimum Income Replacement Indemnity for catastrophically injured claimants was increased to the Industrial Average Wage.

2. The maximum monthly Personal Care Assistance payment for catastrophically injured claimants was increased to $5,620.

3. The Vehicle Purchase Policy for catastrophically injured claimants was revised to allow for the purchase of a new vehicle every five years.

4. Claimants were now entitled to an Annual Spending Allowance for extraordinary expenses for leisure and recreational activities, with biannual limits ranging from $500 to $4,000 depending on the extent of the claimants' injuries.

5. Improvements to PIPP benefits per a reinterpretation of section 138 of *The Manitoba Public Insurance Corporation Act*. These improvements include benefits for modification of a secondary residence, as well as reimbursement for extraordinary expenses to support continuation of pre-accident activities.

6. The primary caregiver of a deceased claimant's dependants is now eligible for caregiver weekly indemnity benefits. Eligibility for this benefit depends on the deceased claimant's occupation directly preceding the accident. These payments start at $454 per week for one dependant and $596 per week for four or more dependants.

7. The maximum Permanent Impairment benefit for catastrophically injured claimants was increased to $247,477.

8. If death (of a claimant) occurs more than 90 days after the accident, both the Death and Permanent Impairment benefits are now payable. Previously, the Death benefit payable was offset by the Permanent Impairment benefit already paid.

Figure CI- 20: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	PIPP Enhancements	$8,983	$10,629	$11,095	$11,226	$11,484

CI.7.1 Accident Year Ultimate Forecast

MPI forecasts PIPP Enhancements based on the historical ultimates as many claimants are not categorized as catastrophically injured claimants until twelve or more months after the date of loss. The figure below shows the historical and forecasted ultimate losses for PIPP Enhancements along with a comparison to last year's forecast. The detailed breakdown of the forecasts for each PIPP enhancement are included in *Appendixes 1b, 2b, 2c, 2d, 2e, 2f, 2g, and 3b*.

Figure CI- 21: PIPP Enhancement Ultimate Losses

Line No.	Accident Year	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2003/04	$4,670	-29.88%	$5,089	($419)
2	2004/05	$6,887	47.46%	$6,962	($75)
3	2005/06	$5,814	-15.58%	$5,596	$218
4	2006/07	$9,902	70.31%	$10,021	($120)
5	2007/08	$8,534	-13.82%	$7,627	$906
6	2008/09	$6,290	-26.29%	$6,171	$119
7	2009/10	$6,380	1.43%	$6,319	$61
8	2010/11	$4,221	-33.84%	$5,199	($978)
9	2011/12	$5,420	28.42%	$5,315	$105
10	2012/13	$5,387	-0.61%	$5,791	($404)
11	2013/14	$4,524	-16.03%	$4,401	$123
12	2014/15	$4,828	6.72%	$5,604	($776)
13	2015/16	$6,524	35.12%	$8,571	($2,048)
14	2016/17	$9,719	48.99%	$9,918	($198)
15	2017/18	$8,846	-8.99%	$8,075	$771
16	5-year Average	$6,888	13.16%	$7,314	
17	10-year Average	$6,214	3.49%	$6,536	
18	All year Trend	$6,949	12.69%	$7,408	
19	2018/19	$7,597	-14.12%	$8,075	($478)
20	2019/20	$7,597	0.00%	$8,075	($478)
21	2020/21	$7,597	0.00%	$8,075	($478)
22	2021/22	$7,597	0.00%	$8,075	($478)
23	2022/23	$7,597	0.00%		

Although the year-to-year changes in PIPP enhancement ultimate losses are highly variable, the long term trend appears to be relatively flat. The 2018/19 ultimate losses were selected based on the ten year average, with the exception of Caregiver Death Benefits which was forecasted at $2.0 million. For 2019/20 and thereafter, the ultimate losses were assumed to grow at 0%.

CI.7.2 Fiscal Year Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for PIPP Enhancements. The reported CI, which are calculated in Table 3 of each Appendix, are

based on the projected ultimate losses and the incurred development assumptions. The change in IBNR, which is shown in Table 8 of each Appendix, is based on the projected ultimate losses, assumed paid development factors, claims liability discount rates, and provisions for adverse deviation. The change in IBNR is shown with and without the impact of changing interest rates in the figure below.

Figure CI- 22: PIPP Enhancements Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$5,623	($2,330)	$0	($6,584)	($8,915)	($3,292)	($3,292)	$0
3	2014/15	$4,905	$12,477	$0	($7,393)	$5,084	$9,989	$9,989	$0
4	2015/16	$4,264	($6,607)	($3,285)	$1,350	($8,542)	($4,278)	($4,278)	$0
5	2016/17	$3,988	($708)	$0	$5,629	$4,920	$8,908	$8,908	$0
6	2017/18	$8,106	($1,098)	$0	($4,860)	($5,958)	$2,148	$4,771	($2,623)
7	2018/19	$12,167	($580)	$0	($2,604)	($3,183)	$8,983	$11,095	($2,111)
8	2019/20	$9,214	$591	$0	$824	$1,414	$10,629	$10,908	($280)
9	2020/21	$8,650	$786	$0	$1,659	$2,445	$11,095	$11,037	$58
10	2021/22	$8,699	$695	$0	$1,832	$2,527	$11,226	$11,270	($44)
11	2022/23	$9,007	$525	$0	$1,952	$2,477	$11,484		

The 2017/18 PIPP Enhancements CI was under budget by $2.6 million as a result of the lower than expected reported claims which were $3.1 million under the budget of $11.2 million.

The reported incurred forecast in 2018/19 increases significantly as the development assumptions assume that a large percentage of the current IBNR for PIPP Enhancements will be reported. Thereafter, the reported incurred is more reflective of the ultimate forecast and assumed loss development factors.

The 2019/20 PIPP Enhancement CI forecast is $0.3 million or 2.6% lower than last year's forecast of $10.9 million.

CI.8 PUBLIC LIABILITY – BODILY INJURY

Public Liability – Bodily Injury provides third-party liability protection to the insured against a claim or suit for bodily injury arising out of the operation of a vehicle.

Figure CI- 23: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Public Liability – Bodily Injury	$5,096	$5,214	$5,271	$5,340	$5,411

CI.8.1 Accident Year Ultimate Forecast

Public Liability - Bodily Injury is forecasted based on the historical claim counts, severity, and ultimate incurred losses (*Appendix 4 Table 1*). The figure below shows the historical experience and the forecast by accident year, along with a comparison to last year's forecast.

Figure CI- 24: Public Liability – Bodily Injury Ultimate Incurred

Line No.	Accident Year	Claim Count Incurred >$0	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2003/04	119	$33,183	$3,949	-14.70%	$3,949	$0
2	2004/05	121	$42,943	$5,196	31.59%	$5,196	$0
3	2005/06	117	$36,140	$4,228	-18.62%	$4,223	$6
4	2006/07	109	$32,710	$3,565	-15.68%	$3,565	$0
5	2007/08	105	$35,720	$3,751	5.19%	$3,738	$12
6	2008/09	85	$28,604	$2,431	-35.18%	$2,442	($11)
7	2009/10	79	$44,034	$3,479	43.08%	$3,488	($10)
8	2010/11	104	$42,595	$4,444	27.76%	$4,283	$162
9	2011/12	69	$37,456	$2,593	-41.65%	$2,603	($10)
10	2012/13	74	$51,311	$3,804	46.69%	$3,959	($155)
11	2013/14	110	$37,391	$4,100	7.77%	$4,400	($301)
12	2014/15	112	$53,139	$5,952	45.18%	$5,883	$68
13	2015/16	93	$54,317	$5,054	-15.08%	$5,523	($468)
14	2016/17	85	$65,140	$5,555	9.91%	$5,853	($298)
15	2017/18	102	$54,931	$5,624	1.24%	$4,534	$1,089
16	2012-2016 Average	95	$52,260	$4,893	18.89%	$5,124	
17	10-year Trend	102	$62,773	$6,193	12.40%	$6,026	
18	All year Trend	86	$57,647	$5,119	14.58%	$5,041	
19	2018/19	95	$53,681	$5,090	-9.49%	$4,572	$518
20	2019/20	95	$54,406	$5,159	1.35%	$4,611	$548
21	2020/21	95	$55,141	$5,229	1.35%	$4,649	$579
22	2021/22	95	$55,886	$5,299	1.35%	$4,688	$611
23	2022/23	95	$56,641	$5,371	1.35%		

The 2017/18 ultimate incurred was $1.1 million higher than forecasted as a result of higher than expected claim counts.

The 2018/19 ultimate losses of $5.1 million are based on the forecasted claim counts and severity. Claim counts are forecasted based on the six-year average of the ultimate claim counts, excluding the most recent year and remain at that level throughout the forecast period (based on historical trends).

The 2018/19 severity is based on the six-year average of the ultimate severity, excluding the most recent year with two years of severity growth applied. Severity growth is determined by calculating a weighted average severity growth based on the ultimate severity of claims broken down into two groups: (i) claims with incurred between $0 and $100,000; and (ii) claims with incurred greater than $100,000.

Severity growth is then calculated based on the last seventeen years (excluding the two most recent years) trend in these two groups. The seventeen-year trend is used because this is the farthest back that MPI has data available in this format. A weighted average severity growth is calculated between these two severity groups to produce the forecasted severity trend.

Figure CI- 25: Public Liability – Bodily Injury Ultimate Severity

Line No.	Accident Year	Average Severity $0-$100,000	Average Severity $100,000+
1	2003/04	$19,281	$169,677
2	2004/05	$14,872	$193,639
3	2005/06	$15,091	$191,001
4	2006/07	$19,931	$218,920
5	2007/08	$13,128	$182,567
6	2008/09	$17,382	$176,357
7	2009/10	$17,215	$180,189
8	2010/11	$17,249	$173,156
9	2011/12	$20,049	$192,866
10	2012/13	$17,273	$269,977
11	2013/14	$17,434	$200,703
12	2014/15	$21,516	$229,857
13	2015/16	$32,501	$172,285
14	2016/17	$35,272	$175,421
15	2017/18	$36,912	$235,261
16	Severity Growth	2.52%	0.59%
17	Total Incurred	$24,692,489	$37,739,751
18	Weighted Average Severity Growth	1.35%	
19	Indexation	0.00%	
20	Total Severity Growth	1.35%	

The figure below shows the historical and projected fiscal year CI for Public Liability – Bodily Injury. The reported CI, which are calculated in Table 3 of each Appendix, are based on the projected ultimate losses and the incurred development assumptions. The change in IBNR, which is shown in Table 8 of each Appendix, is based on the projected ultimate losses, assumed paid development factors, claims liability discount rates, and provisions for adverse deviation. The change in IBNR is shown with and without the impact of changing interest rates in the figure below.

Figure CI- 26: Public Liability – Bodily Injury Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$3,337	($54)	$0	($347)	($401)	$2,936	$2,936	$0
3	2014/15	$5,462	$301	$0	$454	$754	$6,216	$6,216	$0
4	2015/16	$5,618	($185)	($95)	$405	$126	$5,744	$5,744	$0
5	2016/17	$5,209	($23)	$0	$257	$234	$5,443	$5,443	$0
6	2017/18	$4,809	($37)	$0	($92)	($129)	$4,680	$4,362	$318
7	2018/19	$4,962	($19)	$0	$153	$134	$5,096	$4,595	$501
8	2019/20	$5,072	$20	$0	$122	$142	$5,214	$4,600	$614
9	2020/21	$5,145	$26	$0	$100	$126	$5,271	$4,629	$642
10	2021/22	$5,224	$23	$0	$93	$116	$5,340	$4,674	$666
11	2022/23	$5,292	$22	$0	$97	$119	$5,411		

The 2017/18 Public Liability – Bodily Injury CI was over budget by $0.3 million.

The 2019/20 Public Liability – Bodily Injury CI is $0.6 million, or 13.3% higher than last year's forecast of $4.6 million.

CI.9 COLLISION

Collision provides coverage for damages to the insured's vehicle caused by collision with another vehicle or object.

Figure CI- 27: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Collision	$438,921	$469,735	$502,938	$538,554	$576,775

CI.9.1 Collision Frequency

The figure below shows the historical (ten year) ultimate Collision frequency per HTA unit.

Figure CI- 28: Ultimate Collision Frequency per HTA Unit by Claim Type

Line No.	Accident Year	Repair Frequency	% Change	Total Loss Frequency	% Change	Total Frequency	% Change
1	2008/09	0.107	-0.21%	0.025	0.82%	0.132	-0.02%
2	2009/10	0.102	-4.98%	0.024	-0.63%	0.127	-4.17%
3	2010/11	0.110	7.86%	0.027	10.57%	0.137	8.38%
4	2011/12	0.102	-7.50%	0.026	-3.92%	0.128	-6.79%
5	2012/13	0.109	6.89%	0.027	4.74%	0.136	6.45%
6	2013/14	0.113	3.85%	0.029	7.39%	0.142	4.56%
7	2014/15	0.096	-15.05%	0.026	-11.75%	0.122	-14.37%
8	2015/16	0.093	-3.47%	0.028	6.79%	0.120	-1.29%
9	2016/17	0.097	4.34%	0.029	4.06%	0.125	4.27%
10	2017/18	0.097	-0.23%	0.029	0.15%	0.125	-0.14%
11	Straight Average						
12	3-year	0.095	0.21%	0.028	3.67%	0.124	0.95%
13	5-year	0.099	-2.11%	0.028	1.33%	0.127	-1.40%
14	10-year	0.103	-0.85%	0.027	1.82%	0.130	-0.31%
15	Exponential Trend						
16	5-year	0.090	-3.05%	0.029	0.70%	0.118	-2.24%
17	7-year	0.092	-2.11%	0.029	1.23%	0.121	-1.40%
18	All-year	0.097	-0.76%	0.030	1.91%	0.127	-0.22%

CI.9.1.1 Collision Repair Frequency

Relative to the long term average, the last four accident years have had below average Collision frequency. Some of the reduction in the past four years is related to mild winters; however, there has also been a reduction in summer Collision frequency over the past six years. For forecasting purposes, MPI has selected the latest frequency of 0.097 and a -0.50% trend rate which is reflective of the long term trends.

CI.9.1.2 Collision Total Loss Frequency

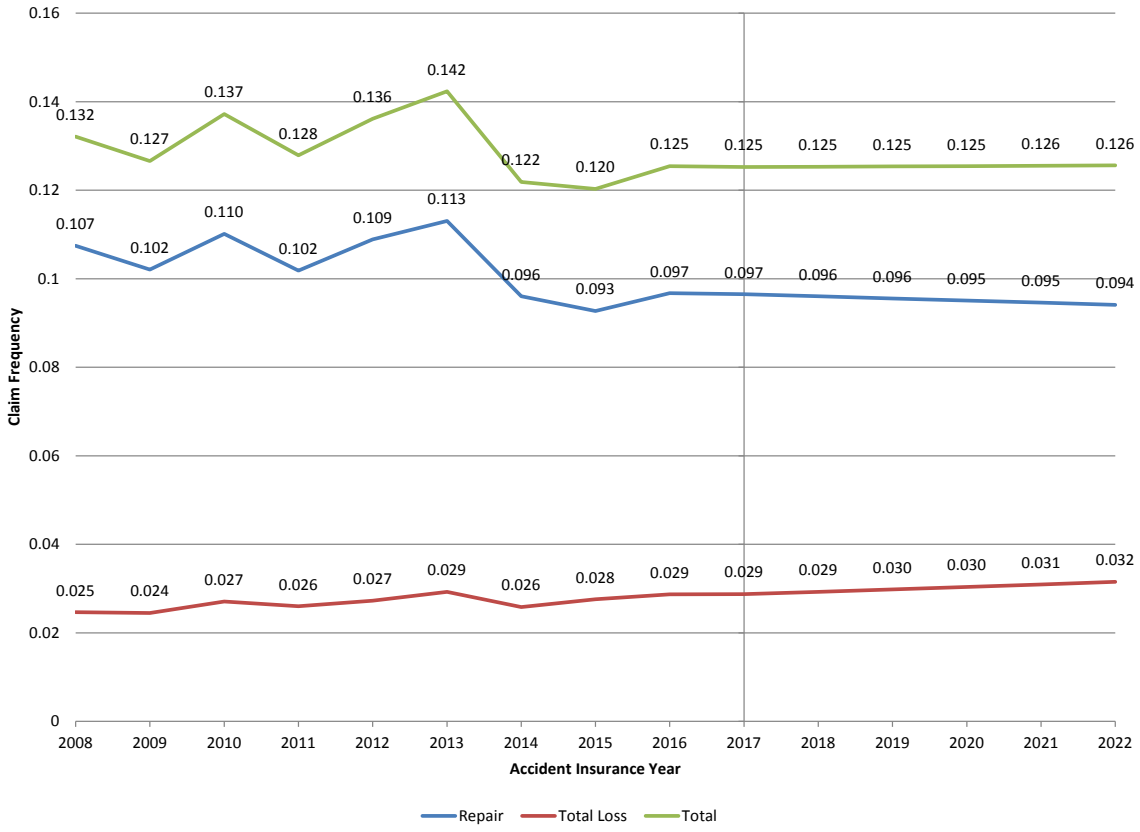
Collision total loss frequency has been increasing over the past decade. As vehicles become increasingly complex and more expensive to repair, there has been an increase in the percentage of Collision claims resulting in total losses. MPI has selected

the latest frequency of 0.029 and a 1.85% trend rate which is reflective of the long term trends.

CI.9.1.3 Collision Frequency Forecast

The chart below shows the historical and forecasted frequencies for Collision repair and Collision total loss.

Figure CI- 29: Ultimate Basic Collision Frequency per Earned Vehicle Unit Excluding $0 Claims



CI.9.2 Collision Severity

The figure below shows the historical average severities and severity growth rates for Collision repair, total loss, and overall Collision claims as at ultimate.

Figure CI- 30: Ultimate Collision Severity by Claim Type

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$1,914	2.37%	$4,699	-0.69%	$2,434	1.44%
2	2009/10	$1,978	3.30%	$4,730	0.65%	$2,510	3.12%
3	2010/11	$2,024	2.36%	$4,694	-0.76%	$2,551	1.64%
4	2011/12	$2,134	5.40%	$4,912	4.66%	$2,699	5.80%
5	2012/13	$2,243	5.12%	$5,090	3.61%	$2,813	4.22%
6	2013/14	$2,357	5.10%	$5,402	6.13%	$2,983	6.06%
7	2014/15	$2,471	4.82%	$5,559	2.91%	$3,125	4.76%
8	2015/16	$2,696	9.12%	$6,019	8.26%	$3,458	10.64%
9	2016/17	$2,819	4.55%	$6,131	1.87%	$3,577	3.43%
10	2017/18	$2,918	3.54%	$6,511	6.20%	$3,743	4.65%
11				Straight Average			
12	3-year	$2,811	5.74%	$6,220	5.44%	$3,593	6.24%
13	5-year	$2,652	5.42%	$5,925	5.08%	$3,377	5.91%
14	10-year	$2,355	4.57%	$5,375	3.29%	$2,989	4.58%
15				Exponential Trend			
16	5-year	$3,127	5.75%	$6,809	4.83%	$4,015	6.06%
17	7-year	$3,117	5.62%	$6,810	4.85%	$4,000	5.92%
18	All-year	$2,954	4.22%	$6,330	2.92%	$3,750	4.20%

CI.9.2.1 Collision Repair Severity

Ultimate Collision repair severity increased by 3.54% in 2017/18, which (subject to future claims development) was the lowest growth rate since the 2010/11 year. MPI has experience abnormally high severity growth of approximately 5.73% (compounded) per year in the 2011/12 through 2016/17 period. It is too early to determine if the latest year's results reflect a change in the recent trends.

CI.9.2.2 Collision Total Loss Severity

Ultimate Collision total loss severity increased by 6.20% in 2017/18. The increased total loss severity is highly correlated with the change in the average BlackBook value, which increased by approximately 9.92% in 2017/18 relative to the 4.43% increase in 2016/17.

CI.9.2.3 Collision Severity Forecast

Based on the information provided in the previous sections, MPI has forecasted Collision repair and total loss severity as follows:

Figure CI- 31: Ultimate Basic Collision Severity per Non-Zero Claim

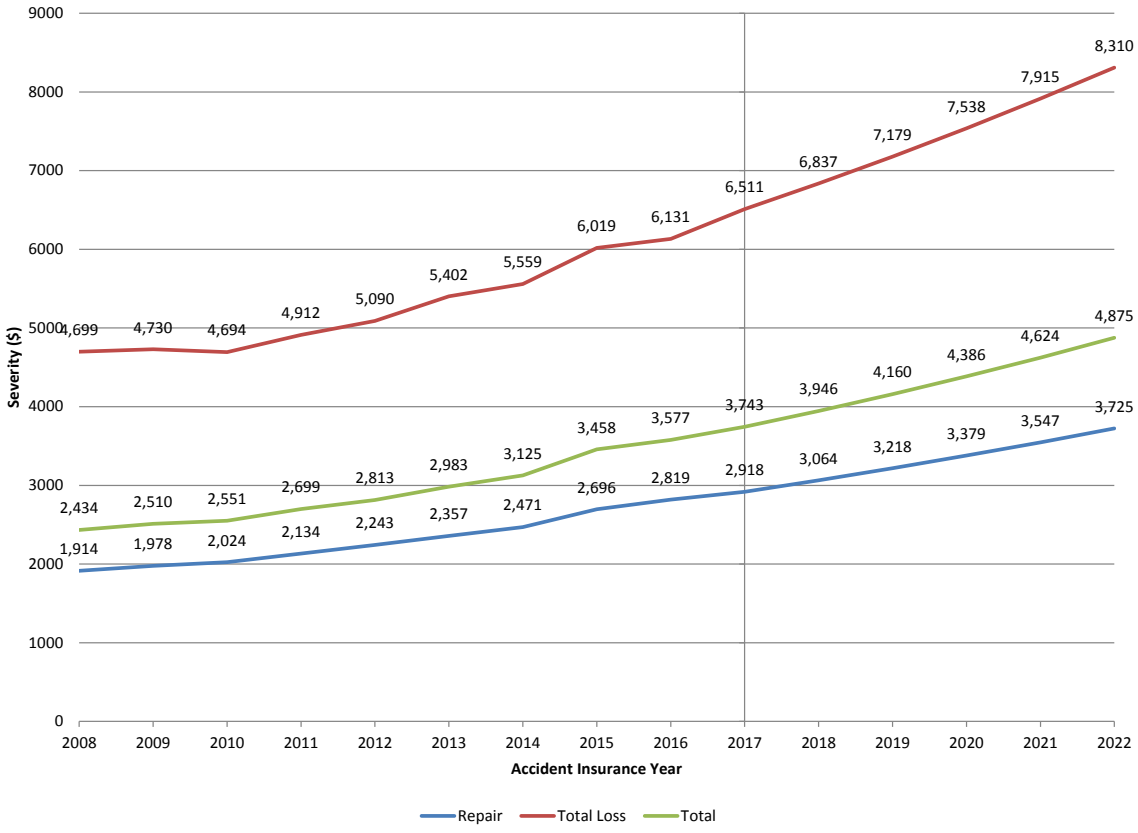


Figure CI- 32: Collision Ultimate Severity Growth Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	Collision Repairs	5.00%	5.00%	5.00%	5.00%	5.00%
2	Collision Total Loss	5.00%	5.00%	5.00%	5.00%	5.00%
3	Total Collision	5.42%	5.42%	5.43%	5.43%	5.43%

The Collision repair and Collision total loss severity forecasts are supported by the recent historical growth rates. Collision repair severity growth was forecasted at 5.00% which follows the 5-year Olympic average of 4.82% and the longer term growth rates. Collision total loss severity growth was forecasted at 5.00%, which follows the three and five-year average growth rates of approximately 5.08%.

CI.9.3 Ultimate Collision Forecast

The figure below shows the historical experience and the forecast by accident year for Collision, along with a comparison to last year's forecast. The 2019/20 ultimate Collision losses are forecasted at $469.2 million, or 1.1% lower than last year's forecast of $474.5 million.

Figure CI- 33: Collision Ultimate Incurred

Line No.	Accident Year	Claim Frequency	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2008/09	0.132	$2,434	$241,750	3.72%	$241,758	($8)
2	2009/10	0.127	$2,510	$242,510	0.31%	$242,523	($13)
3	2010/11	0.137	$2,551	$271,184	11.82%	$271,174	$10
4	2011/12	0.128	$2,699	$273,139	0.72%	$273,093	$46
5	2012/13	0.136	$2,813	$310,634	13.73%	$310,751	($117)
6	2013/14	0.142	$2,982	$349,215	12.42%	$349,214	$0
7	2014/15	0.122	$3,126	$317,797	-9.00%	$317,313	$484
8	2015/16	0.120	$3,458	$352,355	10.87%	$352,428	($73)
9	2016/17	0.125	$3,575	$386,123	9.58%	$385,169	$954
10	2017/18	0.125	$3,788	$414,398	7.32%	$416,462	($2,064)
11	5-year Trend	0.118	$4,004	$423,585	8.76%	$424,822	
12	10-year Trend	0.124	$3,848	$420,495	8.22%	$420,930	
13	All year Trend	0.127	$3,702	$410,534	7.85%	$410,848	
14	2018/19	0.125	$3,946	$438,325	5.77%	$444,501	($6,176)
15	2019/20	0.125	$4,160	$469,244	7.05%	$474,457	($5,214)
16	2020/21	0.125	$4,386	$502,411	7.07%	$506,465	($4,055)
17	2021/22	0.126	$4,624	$537,993	7.08%	$540,666	($2,673)
18	2022/23	0.126	$4,875	$576,172	7.10%		

CI.9.4 Collision Fiscal Year Claims Incurred Forecast

The historical and forecasted fiscal year CI for Collision, along with a comparison to last year's forecast, is shown in the figure below. Due to the short-tail nature of this coverage, changing interest rates do not have a significant impact on Collision IBNR calculations. The changes to the forecast compared to last year follow closely with the changes in the ultimate incurred forecast discussed in the previous section.

Figure CI- 34: Collision Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$338,778	($66)	$0	$15,333	$15,267	$354,045	$354,045	$0
3	2014/15	$329,303	$265	$0	($14,588)	($14,323)	$314,980	$314,980	$0
4	2015/16	$347,835	($141)	($78)	$5,529	$5,310	$353,144	$353,144	$0
5	2016/17	$382,916	($23)	$0	$9,604	$9,581	$392,497	$392,497	$0
6	2017/18	$413,823	($50)	$0	$2,133	$2,083	$415,906	$417,031	($1,125)
7	2018/19	$436,743	($28)	$0	$2,206	$2,178	$438,921	$444,959	($6,038)
8	2019/20	$467,407	$31	$0	$2,297	$2,328	$469,735	$474,907	($5,173)
9	2020/21	$500,404	$206	$0	$2,328	$2,534	$502,938	$506,936	($3,998)
10	2021/22	$535,831	$39	$0	$2,684	$2,723	$538,554	$541,168	($2,614)
11	2022/23	$573,847	$41	$0	$2,887	$2,928	$576,775		

CI.10 COMPREHENSIVE

Comprehensive provides coverage for damages to the insured's vehicle not covered under Collision coverage (e.g. hail, theft, vandalism, glass, etc.).

Figure CI- 35: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Comprehensive	$99,974	$105,494	$111,624	$118,151	$125,002

CI.10.1 Comprehensive Frequency

CI.10.1.1 Comprehensive Hail Claim Count

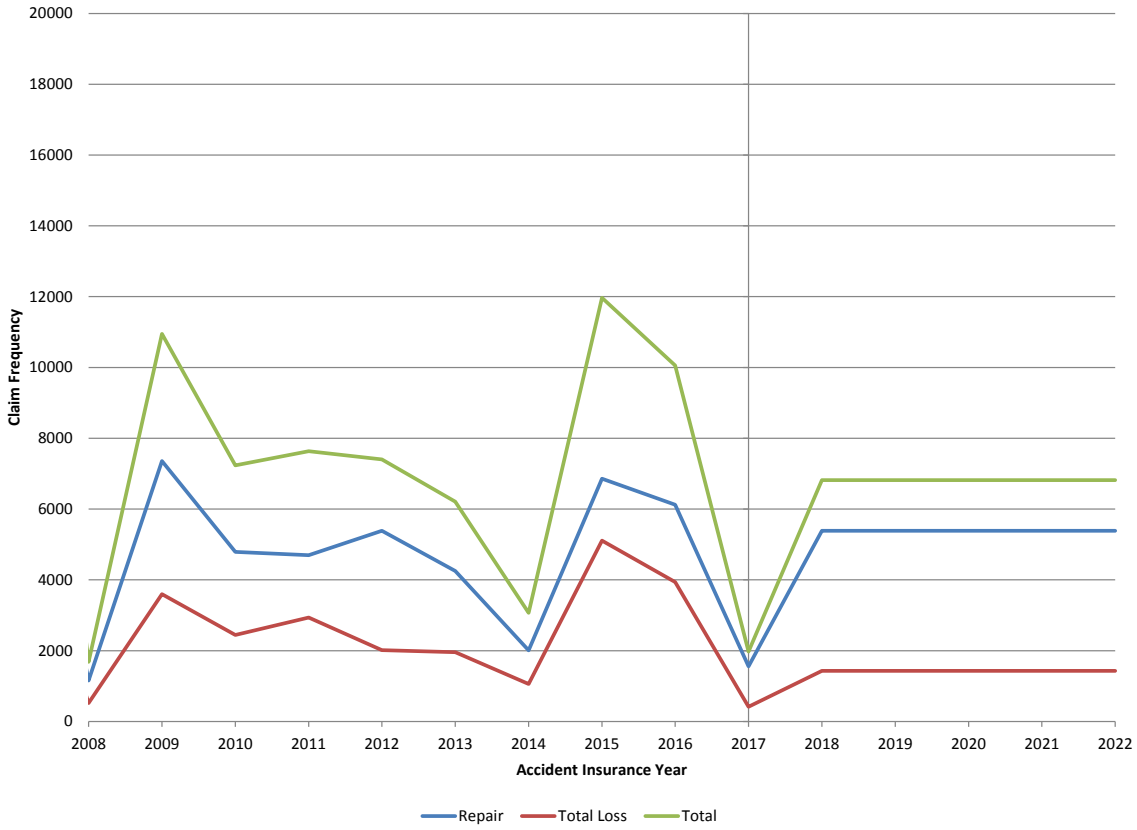
The figure below shows the historical (ten year) Hail claim count experience excluding $0 claims. In 2017 MPI implemented Paintless Dent Repair for minor hail claims as outlined in *Part IV Service Delivery Model SDM.1.8*. This initiative has greatly reduced the severity of hail claims. By reducing the cost to repair claims there will be less

claims that are a total loss. Therefore, MPI has selected a ten-year average of claims and applied the latest repair and total loss ratio of 21% and 79% respectively.

Figure CI- 36: Comprehensive Hail Claim Count Excluding $0 Claims

Line No.	Accident Year	Repair Claim Count	% Change	Total Loss Claim Count	% Change	Total Claim Count	% Change
1	2008/09	1,159	-89.91%	523	-92.38%	1,682	-90.83%
2	2009/10	7,355	534.60%	3595	587.38%	10,950	551.01%
3	2010/11	4,787	-34.92%	2,445	-31.99%	7,232	-33.95%
4	2011/12	4,697	-1.88%	2,936	20.08%	7,633	5.54%
5	2012/13	5,388	14.71%	2,012	-31.47%	7,400	-3.05%
6	2013/14	4,253	-21.07%	1,958	-2.68%	6,211	-16.07%
7	2014/15	2,012	-52.70%	1,056	-46.05%	3,068	-50.60%
8	2015/16	6,859	241.00%	5,107	383.44%	11,967	290.05%
9	2016/17	6,119	-10.79%	3,938	-22.88%	10,058	-15.95%
10	2017/18	1,559	-74.53%	413	-89.50%	1,972	-80.39%
11				Straight Average			
12	3-year	4,846	51.90%	3,153	90.35%	7,999	64.57%
13	5-year	4,160	16.38%	2,495	44.46%	6,655	25.41%
14	10-year	4,419	50.45%	2,398	67.39%	6,817	55.58%
15				Exponential Trend			
16	5-year	2,710	-8.56%	1,031	-16.42%	3,862	-10.48%
17	7-year	2,711	-8.79%	1,161	-12.00%	3,975	-9.49%
18	All-year	3,819	0.24%	1,795	-0.54%	5,750	0.27%

Figure CI- 37: Basic Comprehensive Hail Claim Count Excluding $0 Claims



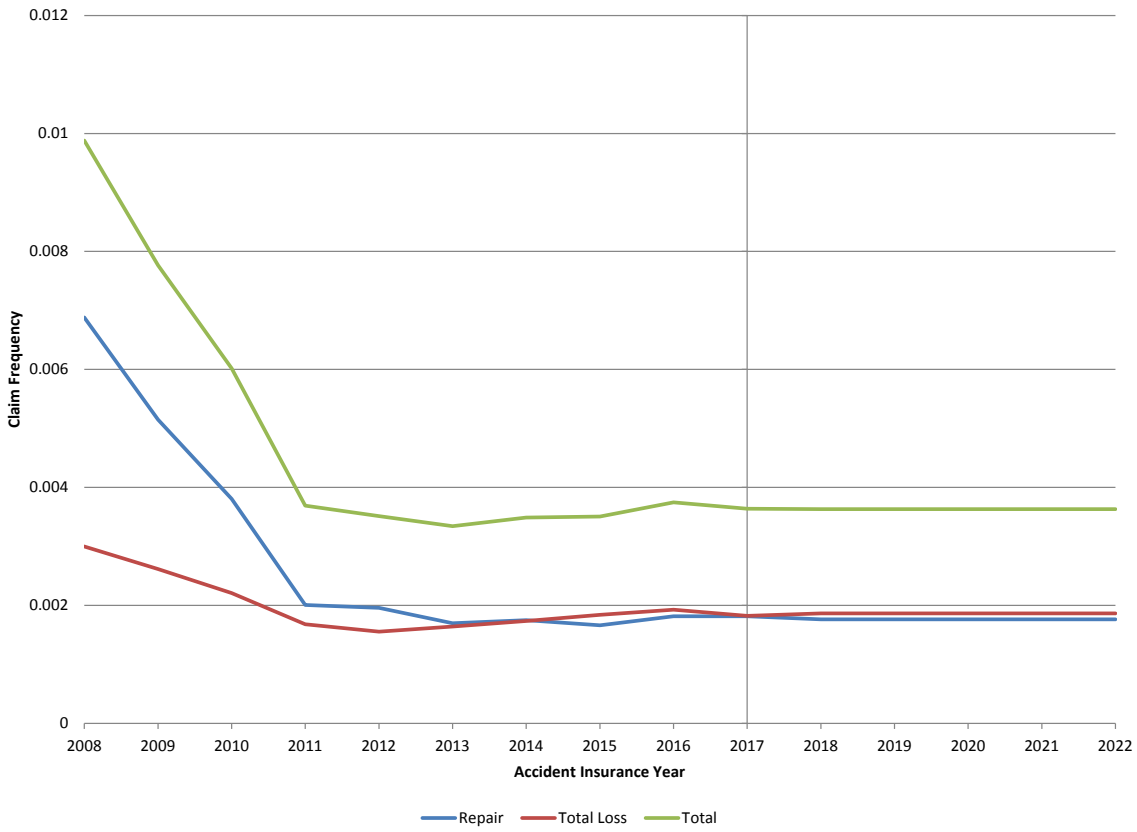
CI.10.1.2 Comprehensive Theft Frequency

The figure below shows the historical (ten year) Theft claim count excluding $0 claims per HTA unit. Theft frequency for the last three to five-years has been very stable. MPI selected a three-year average frequency for its forecast.

Figure CI- 38: Comprehensive Theft Frequency Excluding $0 Claims

Line No.	Accident Year	Repair Frequency	% Change	Total Loss Frequency	% Change	Total Frequency	% Change
1	2008/09	0.0069	-45.78%	0.0030	-38.65%	0.0099	-43.80%
2	2009/10	0.0051	-25.18%	0.0026	-12.71%	0.0078	-21.40%
3	2010/11	0.0038	-26.05%	0.0022	-15.54%	0.0060	-22.51%
4	2011/12	0.0020	-47.23%	0.0017	-23.93%	0.0037	-38.67%
5	2012/13	0.0020	-2.51%	0.0016	-7.51%	0.0035	-4.79%
6	2013/14	0.0017	-13.18%	0.0016	5.72%	0.0033	-4.81%
7	2014/15	0.0018	2.96%	0.0017	5.66%	0.0035	4.29%
8	2015/16	0.0017	-4.93%	0.0018	6.02%	0.0035	0.52%
9	2016/17	0.0018	9.25%	0.0019	4.70%	0.0037	6.86%
10	2017/18	0.0018	-0.12%	0.0018	-5.46%	0.0036	-2.87%
11				Straight Average			
12	3-year	0.0018	1.40%	0.0019	1.75%	0.0036	1.50%
13	5-year	0.0018	-1.20%	0.0018	3.33%	0.0035	0.80%
14	10-year	0.0029	-15.28%	0.0020	-8.17%	0.0049	-12.72%
15				Exponential Trend			
16	5-year	0.0018	1.71%	0.0020	3.16%	0.0038	2.43%
17	7-year	0.0017	-1.67%	0.0019	2.85%	0.0036	0.48%
18	All-year	0.0011	-13.52%	0.0015	-4.37%	0.0025	-9.79%

Figure CI- 39: Basic Comprehensive Theft Frequency Excluding $0 Claims



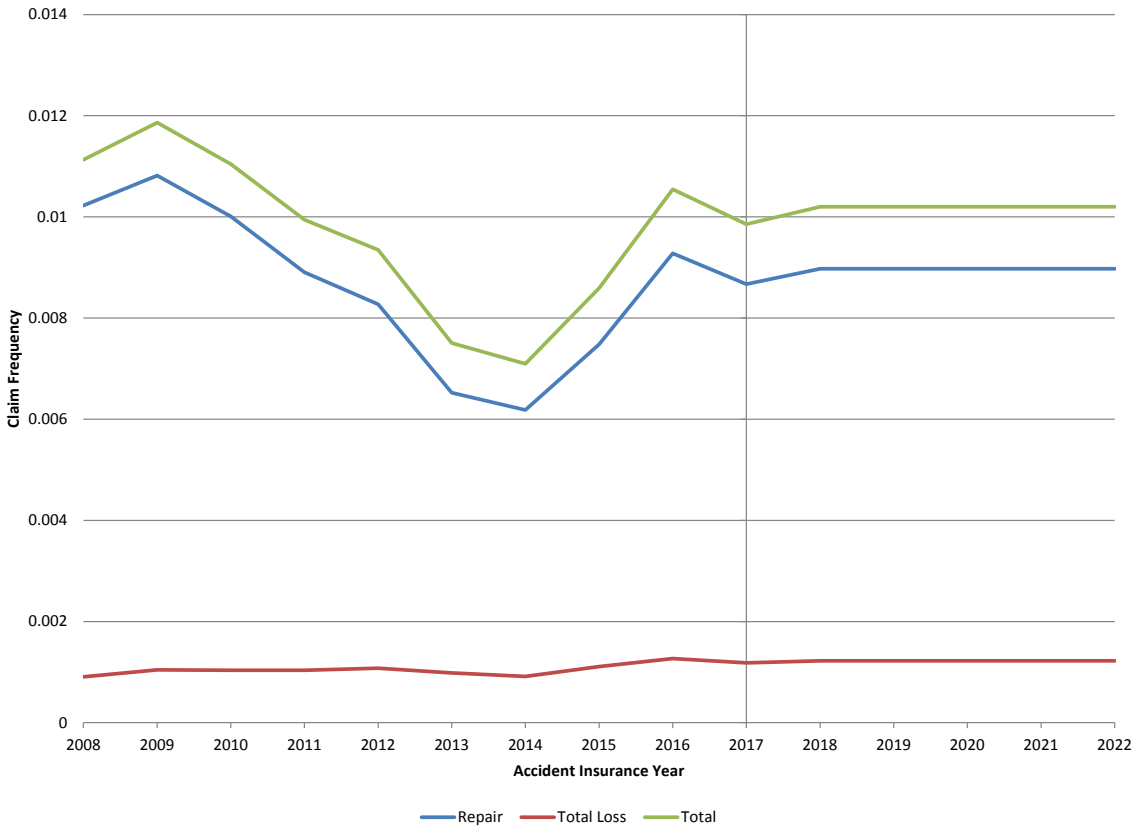
CI.10.1.3 Comprehensive Vandalism Frequency

The figure below shows the historical (ten year) Vandalism claim count excluding $0 claims per HTA unit. In October 2015, MPI began waiving the deductible on vandalism claims for customers who purchased the $200 or $100 reduced deductible products. This change is believed to be a contributing factor to the 43.83% increase in Vandalism frequency in 2015/16 and 2016/17. However, 2017/18 vandalism frequency is similar to the frequency observed in the 2007/08 to 2010/11 period, so the increase may simply be a reversion to historical vandalism rates. MPI selected a two-year average claim frequency for its forecast.

Figure CI- 40: Comprehensive Vandalism Frequency Excluding $0 Claims

Line No.	Accident Year	Repair Frequency	% Change	Total Loss Frequency	% Change	Total Frequency	% Change
1	2008/09	0.0102	-23.04%	0.0009	6.20%	0.0111	-21.27%
2	2009/10	0.0108	5.81%	0.0010	15.44%	0.0119	6.59%
3	2010/11	0.0100	-7.48%	0.0010	-0.87%	0.0110	-6.89%
4	2011/12	0.0089	-11.03%	0.0010	0.09%	0.0099	-9.98%
5	2012/13	0.0083	-7.11%	0.0011	3.85%	0.0093	-5.97%
6	2013/14	0.0065	-21.16%	0.0010	-8.61%	0.0075	-19.71%
7	2014/15	0.0062	-5.19%	0.0009	-7.25%	0.0071	-5.46%
8	2015/16	0.0075	21.00%	0.0011	21.73%	0.0086	21.10%
9	2016/17	0.0093	24.04%	0.0013	13.92%	0.0105	22.73%
10	2017/18	0.0087	-6.55%	0.0012	-6.56%	0.0099	-6.55%
11				Straight Average			
12	2-year	0.0090	8.74%	0.0012	3.68%	0.0102	8.09%
13	5-year	0.0076	2.43%	0.0011	2.65%	0.0087	2.42%
14	10-year	0.0086	-3.07%	0.0011	3.79%	0.0097	-2.54%
15				Exponential Trend			
16	5-year	0.0101	10.25%	0.0013	7.19%	0.0114	9.86%
17	7-year	0.0081	1.03%	0.0012	3.04%	0.0094	1.26%
18	All-year	0.0071	-3.18%	0.0012	2.22%	0.0083	-2.63%

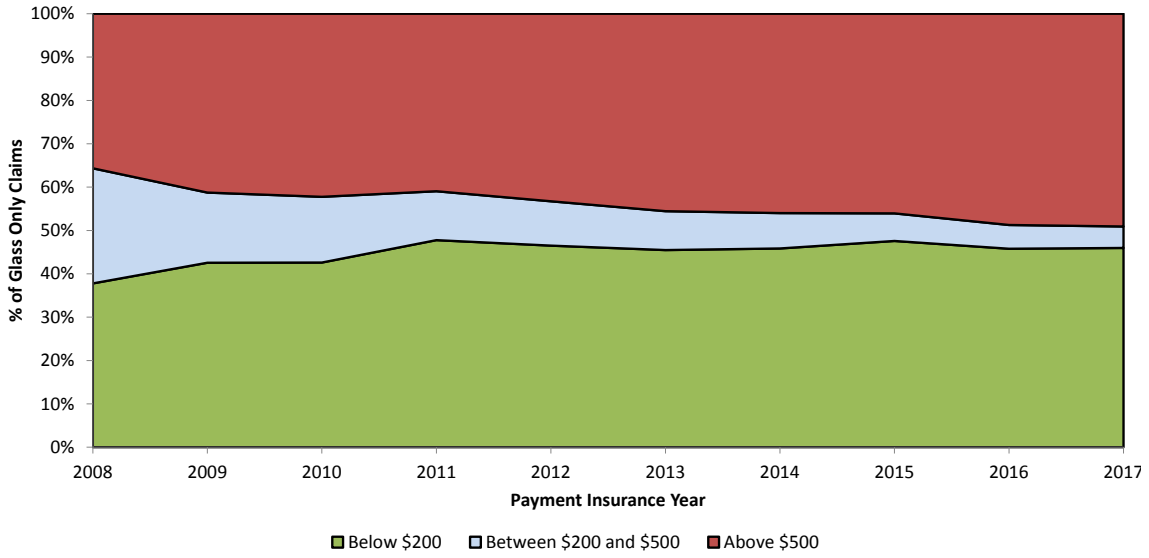
Figure CI- 41: Basic Comprehensive Vandalism Frequency Excluding $0 Claims



CI.10.1.4 Comprehensive Glass Claim Count

Glass claims have been steadily increasing over the past ten years. MPI looked at Glass claims gross of the Basic Deductible to see if there was a trend.

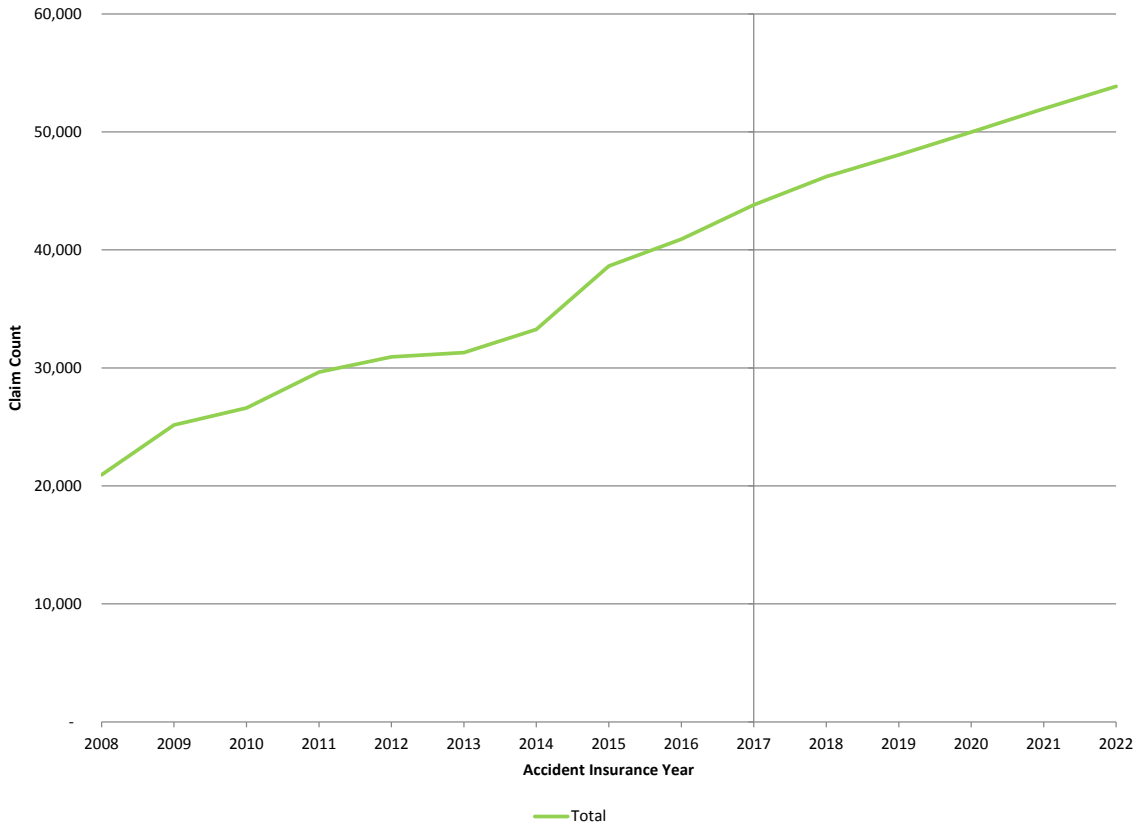
Figure CI- 42: Distribution of Glass Claim Counts Gross of the Basic Deductible



The portion of Glass claims that fall above the $500 deductible has been increasing. This means that as the cost of parts and labour increase, more Glass claims will move above the Basic deductible of $500. MPI used Glass claims from 2017/18 and forecasted the distribution of claim counts that would fall above the Basic deductible of $500. What MPI found is that the majority of the Glass claims around the $500 Basic deductible have already increased to above the Basic deductible.

Based on the above, MPI believes that future increases in Basic Glass claim counts will be at a slower rate than in recent years. MPI selected an average claim count growth rate of 4.22% during the forecast period.

Figure CI- 43: Basic Comprehensive Glass Claim Count Excluding $0 Claims



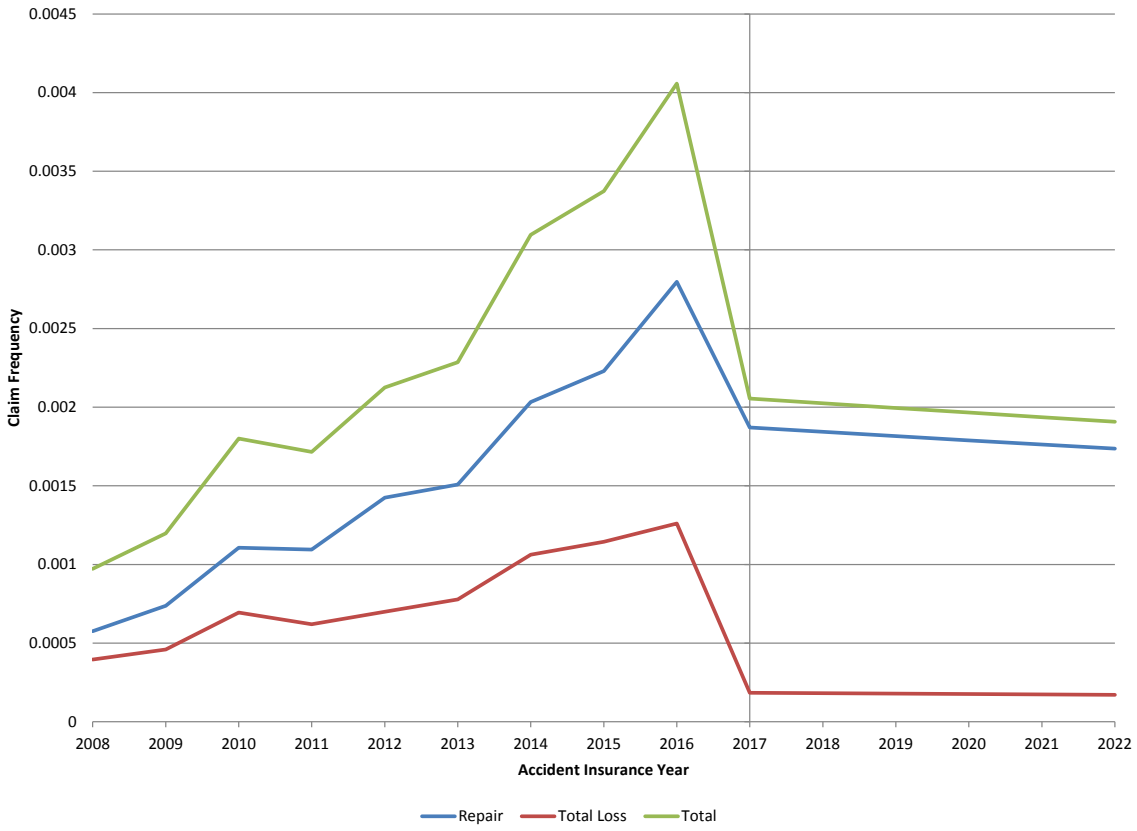
CI.10.1.5 Comprehensive Rodent Frequency

The figure below shows the historical (ten year) Rodent claim count excluding $0 claims per HTA unit. The Rodent Claims Strategy was successful in reducing the repair costs of rodent claims in 2017/18 as outlined in *Part IV Service Delivery Model SDM.1.4*. By reducing the cost to of repair claims there will be less claims that are a total loss. Therefore, MPI has selected the latest total claim count and applied the latest repair and total loss ratio of 91% and 9% respectively.

Figure CI- 44: Comprehensive Rodents Frequency Excluding $0 Claims

Line No.	Accident Year	Repair Frequency	% Change	Total Loss Frequency	% Change	Total Frequency	% Change
1	2008/09	0.0006	53.96%	0.0004	138.83%	0.0010	80.04%
2	2009/10	0.0007	28.10%	0.0005	16.04%	0.0012	23.18%
3	2010/11	0.0011	49.96%	0.0007	51.00%	0.0018	50.36%
4	2011/12	0.0011	-0.96%	0.0006	-10.65%	0.0017	-4.70%
5	2012/13	0.0014	30.07%	0.0007	12.85%	0.0021	23.84%
6	2013/14	0.0015	5.86%	0.0008	11.11%	0.0023	7.59%
7	2014/15	0.0020	34.79%	0.0011	36.52%	0.0031	35.38%
8	2015/16	0.0022	9.68%	0.0011	7.71%	0.0034	9.00%
9	2016/17	0.0028	25.40%	0.0013	10.23%	0.0041	20.25%
10	2017/18	0.0019	-33.11%	0.0002	-85.34%	0.0021	-49.34%
11				Straight Average			
12	3-year	0.0023	0.66%	0.0009	-22.47%	0.0032	-6.69%
13	5-year	0.0021	8.52%	0.0009	-3.96%	0.0030	4.58%
14	10-year	0.0015	20.37%	0.0007	18.83%	0.0023	19.56%
15				Exponential Trend			
16	5-year	0.0026	7.78%	0.0003	-23.69%	0.0029	0.58%
17	7-year	0.0029	12.69%	0.0005	-7.13%	0.0035	8.27%
18	All-year	0.0032	16.61%	0.0007	2.71%	0.0041	13.07%

Figure CI- 45: Basic Comprehensive Rodents Frequency Excluding $0 Claims



CI.10.1.6 Comprehensive All Other Frequency

The All Other category contains claims that do not fall into the previous categories. These claims include fire, lightning, wind, and flood claims. The figure below shows the historical (ten year) All Other claim count excluding $0 claims per HTA unit. Given the variability in claim frequency, MPI selected a longer five-year average claim frequency for its forecast.

Figure CI- 46: Comprehensive All Other Frequency Excluding $0 Claims

Line No.	Accident Year	Repair Frequency	% Change	Total Loss Frequency	% Change	Total Frequency	% Change
1	2008/09	0.0051	3.00%	0.0014	-9.75%	0.0065	-0.03%
2	2009/10	0.0050	-3.14%	0.0015	8.98%	0.0065	-0.54%
3	2010/11	0.0065	30.63%	0.0021	37.01%	0.0086	32.13%
4	2011/12	0.0056	-13.08%	0.0016	-22.31%	0.0073	-15.33%
5	2012/13	0.0060	6.28%	0.0017	5.05%	0.0077	6.00%
6	2013/14	0.0054	-10.40%	0.0016	-5.58%	0.0070	-9.33%
7	2014/15	0.0053	-0.80%	0.0018	13.38%	0.0072	2.47%
8	2015/16	0.0062	17.11%	0.0020	11.55%	0.0083	15.69%
9	2016/17	0.0057	-9.26%	0.0017	-15.32%	0.0074	-10.75%
10	2017/18	0.0058	1.64%	0.0014	-21.10%	0.0071	-3.67%
11				Straight Average			
12	3-year	0.0059	3.16%	0.0017	-8.29%	0.0076	0.42%
13	5-year	0.0057	-0.34%	0.0017	-3.42%	0.0074	-1.12%
14	10-year	0.0057	2.20%	0.0017	0.19%	0.0074	1.66%
15				Exponential Trend			
16	5-year	0.0060	2.01%	0.0015	-3.86%	0.0075	0.70%
17	7-year	0.0058	0.34%	0.0016	-0.97%	0.0074	0.09%
18	All-year	0.0059	0.90%	0.0017	0.47%	0.0077	0.82%

Figure CI- 47: Basic Comprehensive Other (Fire, Lightning, Other) Frequency Excluding $0 Claims



CI.10.2 Comprehensive Severity

CI.10.2.1 Comprehensive Hail Severity

The figure below shows the historical (ten year) Hail average severities and severity growth rates by repair, total loss, and overall claims at ultimate. Hail severity can be highly variable based on the size and severity of the storm. In 2017 MPI implemented Paintless Dent Repair for minor hail claims as outlined in *Part IV Service Delivery Model SDM.1.8*. This has greatly reduced the severity of hail claims. However, given the low number of hail claims in 2017/18, it's not clear how well the Paintless Dent Repair program would do in a major hail storm. Because of the low credibility of

2017/18 results, MPI has selected a weighted average severity (33%/67%) of the last two years giving the latest year the most weight. That severity is assumed to grow at the longer term average severity growth rates of 4.00% and 3.50% for repair and total loss respectively.

Figure CI- 48: Comprehensive Hail Severity Excluding $0 Claims

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$3,187	0.62%	$3,097	-5.02%	$3,159	-1.35%
2	2009/10	$3,283	3.02%	$2,475	-20.07%	$3,018	-4.46%
3	2010/11	$3,726	13.50%	$2,603	5.15%	$3,346	10.89%
4	2011/12	$4,264	14.43%	$3,103	19.23%	$3,818	14.08%
5	2012/13	$3,082	-27.71%	$2,737	-11.81%	$2,988	-21.72%
6	2013/14	$3,664	18.87%	$3,249	18.72%	$3,533	18.23%
7	2014/15	$3,885	6.02%	$3,344	2.91%	$3,698	4.67%
8	2015/16	$4,304	10.79%	$3,663	9.54%	$4,030	8.97%
9	2016/17	$4,246	-1.34%	$3,605	-1.56%	$3,995	-0.87%
10	2017/18	$2,886	-32.02%	$3,277	-9.12%	$2,968	-25.70%
11				Straight Average			
12	3-year	$3,812	-7.52%	$3,515	-0.38%	$3,664	-5.87%
13	5-year	$3,797	0.46%	$3,427	4.10%	$3,645	1.06%
14	10-year	$3,653	0.62%	$3,115	0.80%	$3,455	0.27%
15				Exponential Trend			
16	5-year	$3,346	-3.81%	$3,519	0.93%	$3,340	-2.68%
17	7-year	$3,529	-1.31%	$3,683	3.02%	$3,530	-0.15%
18	All-year	$3,807	0.93%	$3,681	3.23%	$3,719	1.47%

Figure CI- 49: Basic Comprehensive Hail Severity Excluding $0 Claims



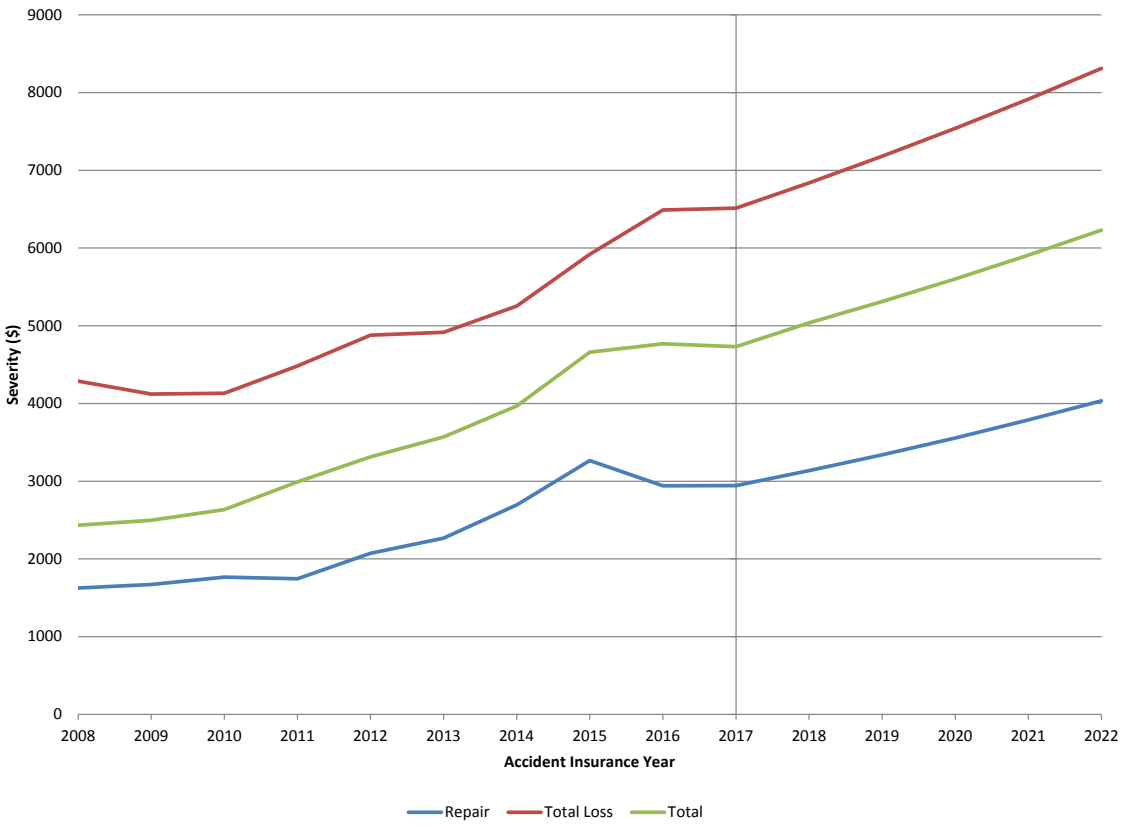
CI.10.2.2 Comprehensive Theft Severity

The figure below shows the historical (ten year) Theft average severities and severity growth rates for repair, total loss, and overall claims at ultimate. MPI selected the most recent severity and the longer term average severity growth rates of 6.50% and 5.00% for repair and total loss respectively.

Figure CI- 50: Comprehensive Theft Severity Excluding $0 Claims

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$1,627	1.18%	$4,287	5.95%	$2,434	6.49%
2	2009/10	$1,671	2.68%	$4,122	-3.85%	$2,497	2.57%
3	2010/11	$1,767	5.75%	$4,131	0.22%	$2,635	5.55%
4	2011/12	$1,744	-1.30%	$4,483	8.53%	$2,992	13.54%
5	2012/13	$2,072	18.82%	$4,879	8.81%	$3,314	10.77%
6	2013/14	$2,269	9.49%	$4,917	0.78%	$3,571	7.73%
7	2014/15	$2,695	18.77%	$5,253	6.84%	$3,969	11.16%
8	2015/16	$3,266	21.22%	$5,919	12.69%	$4,660	17.42%
9	2016/17	$2,940	-10.00%	$6,491	9.66%	$4,768	2.30%
10	2017/18	$2,945	0.16%	$6,513	0.34%	$4,732	-0.74%
11	Straight Average						
12	3-year	$3,050	3.79%	$6,308	7.56%	$4,720	6.33%
13	5-year	$2,823	7.93%	$5,819	6.06%	$4,340	7.57%
14	10-year	$2,300	6.68%	$5,100	5.00%	$3,557	7.68%
15	Exponential Trend						
16	5-year	$3,364	6.27%	$7,293	8.05%	$5,394	7.75%
17	7-year	$3,655	9.87%	$7,116	6.93%	$5,528	8.83%
18	All-year	$3,523	8.70%	$6,838	5.75%	$5,548	9.04%

Figure CI- 51: Basic Comprehensive Theft Severity Excluding $0 Claims



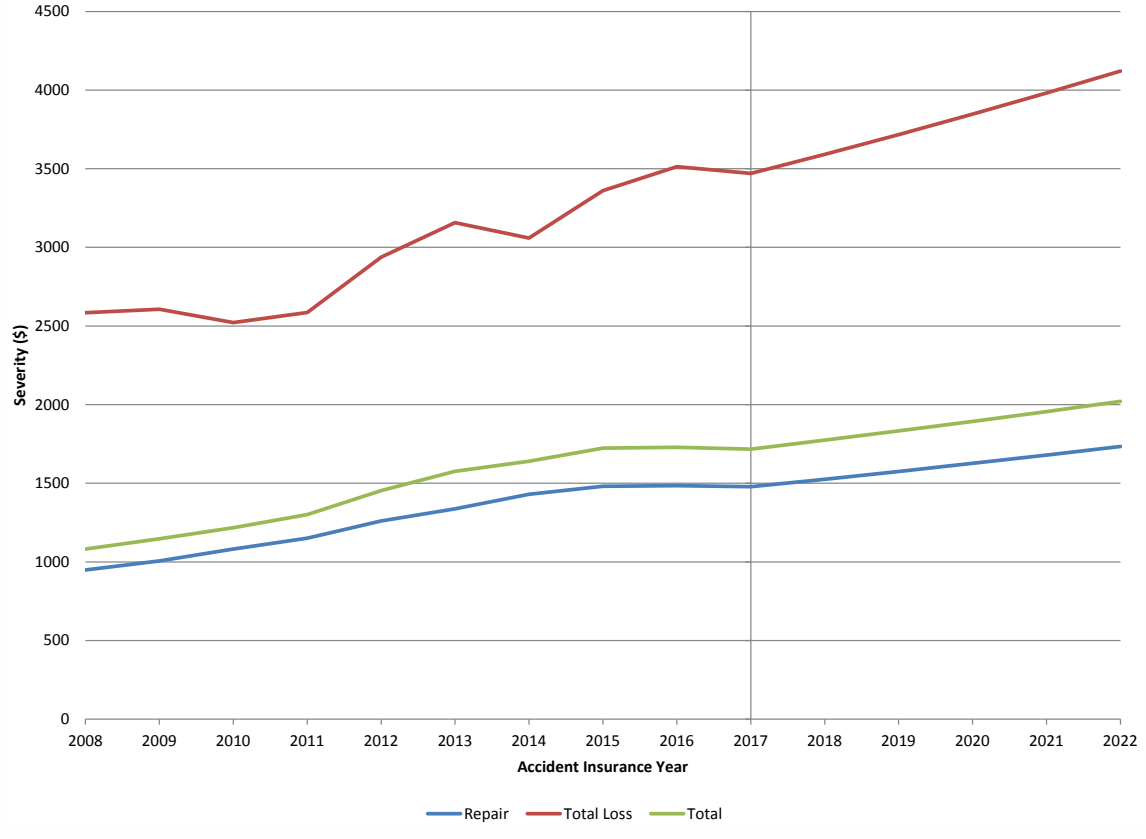
CI.10.2.3 Comprehensive Vandalism Severity

The figure below shows the historical (ten year) Vandalism average severities and severity growth rates for repair, total loss, and overall claims at ultimate. In October 2015, MPI began waiving the deductible on vandalism claims for customers who purchased the $200 or $100 Extension reduced deductible products. This change appears to have caused an increase in the reporting of lower severity vandalism claims (some of which exceed the $500 Basic deductible threshold) resulting in a lower than normal increase in Vandalism average severity growth for 2015/16 and 2016/17. As such, MPI selected the most recent severity and a longer term average severity growth rate of 3.25% and 3.50% for repair and total loss respectively.

Figure CI- 52: Comprehensive Vandalism Severity Excluding $0 Claims

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$949	17.83%	$2,584	2.84%	$1,082	19.12%
2	2009/10	$1,007	6.07%	$2,606	0.86%	$1,148	6.05%
3	2010/11	$1,082	7.54%	$2,522	-3.23%	$1,218	6.10%
4	2011/12	$1,151	6.38%	$2,586	2.54%	$1,301	6.87%
5	2012/13	$1,260	9.44%	$2,938	13.61%	$1,454	11.71%
6	2013/14	$1,337	6.12%	$3,157	7.46%	$1,576	8.43%
7	2014/15	$1,431	6.98%	$3,060	-3.10%	$1,640	4.07%
8	2015/16	$1,480	3.49%	$3,361	9.83%	$1,724	5.09%
9	2016/17	$1,485	0.30%	$3,514	4.56%	$1,729	0.28%
10	2017/18	$1,478	-0.48%	$3,470	-1.25%	$1,717	-0.67%
11				Straight Average			
12	3-year	$1,481	1.10%	$3,448	4.38%	$1,723	1.57%
13	5-year	$1,442	3.28%	$3,312	3.50%	$1,677	3.44%
14	10-year	$1,266	6.37%	$2,980	3.41%	$1,459	6.71%
15				Exponential Trend			
16	5-year	$1,547	2.40%	$3,649	3.33%	$1,792	2.26%
17	7-year	$1,620	4.30%	$3,781	4.76%	$1,899	4.63%
18	All-year	$1,687	5.60%	$3,704	4.18%	$1,976	5.95%

Figure CI- 53: Basic Comprehensive Vandalism Severity Excluding $0 Claims



CI.10.2.4 Comprehensive Glass Severity

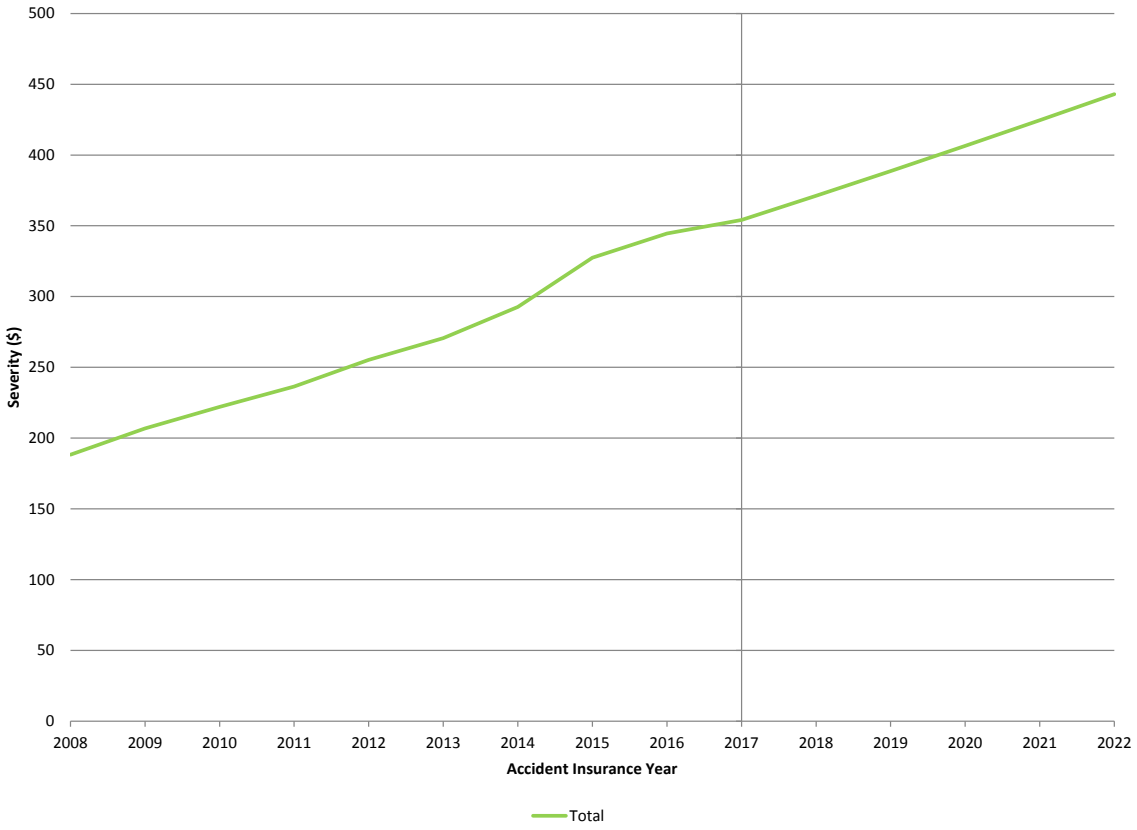
The figure below shows the historical (ten year) Glass average severities and severity growth rates. Basic Comprehensive Glass covers the portion of a Glass claim over the Basic deductible of $500. As the average Glass claim gross of the Basic deductible increases, the average Glass claim net of the Basic deductible increases at a higher rate. This effect make the Glass severity growth appear abnormally high on a net basis, even though the severity growth is close to inflationary on a gross basis (e.g. ten year average gross severity growth of 2.46%). MPI selected the all-year trend to forecast average Glass claim severity gross of the Basic deductible. To calculate the Basic portion, MPI subtracted the $500 deductible. This results in a 2018/19 Glass claim severity net of the Basic deductible of $371. The severity growth gross of the

Basic deductible is forecasted at the all-year exponential trend rate of 2.00%. This corresponds to an average severity growth net of the Basic deductible of 4.51%.

Figure CI- 54: Comprehensive Glass Severity Excluding $0 Claims

Line No.	Accident Year	Gross of Basic Deductible	% Change	Net of Basic Deductible	% Change
1	2008/09	$688	2.74%	$188	10.79%
2	2009/10	$707	2.70%	$207	9.88%
3	2010/11	$722	2.16%	$222	7.36%
4	2011/12	$736	1.97%	$236	6.40%
5	2012/13	$755	2.57%	$255	8.01%
6	2013/14	$771	2.03%	$271	5.99%
7	2014/15	$793	2.87%	$293	8.16%
8	2015/16	$827	4.39%	$327	11.89%
9	2016/17	$844	2.06%	$344	5.19%
10	2017/18	$854	1.15%	$354	2.81%
11			Straight Average		
12	3-year	$842	2.53%	$342	6.63%
13	5-year	$818	2.50%	$318	6.81%
14	10-year	$770	2.46%	$270	7.65%
15			Exponential Trend		
16	5-year	$886	2.73%	$390	7.26%
17	7-year	$885	2.68%	$392	7.42%
18	All-year	$881	2.52%	$393	7.47%

Figure CI- 55: Comprehensive Glass Severity Excluding $0 Claims



CI.10.2.5 Comprehensive Rodent Severity

The figure below shows the historical (ten year) Rodent average severities and severity growth rates for repair, total loss, and overall claims at ultimate. The Rodent Claims Strategy was successful in reducing the repair costs of rodent claims in 2017/18 as outline in *Part IV Service Delivery Model SDM.1.4*. For repair claims, MPI has selected the latest claim severity and applied a longer term average severity growth rate of 4.00%. For total loss claims, it's unclear how severity will grow given the low number of total loss claims in 2017/18. Therefore, MPI has selected a weighted average severity (33%/67%) of the last two years giving the latest year the most weight.

Figure CI- 56: Comprehensive Rodents Severity Excluding $0 Claims

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$1,810	32.50%	$4,825	14.05%	$3,039	35.29%
2	2009/10	$2,203	21.72%	$4,917	1.91%	$3,246	6.79%
3	2010/11	$2,537	15.15%	$3,977	-19.12%	$3,093	-4.71%
4	2011/12	$2,981	17.48%	$4,667	17.35%	$3,591	16.10%
5	2012/13	$3,070	2.99%	$4,667	-0.01%	$3,596	0.15%
6	2013/14	$3,542	15.38%	$4,864	4.24%	$3,992	11.01%
7	2014/15	$3,436	-2.99%	$4,274	-12.13%	$3,724	-6.72%
8	2015/16	$3,369	-1.96%	$4,618	8.04%	$3,793	1.84%
9	2016/17	$3,274	-2.83%	$4,558	-1.31%	$3,673	-3.16%
10	2017/18	$1,394	-57.41%	$5,293	16.14%	$1,745	-52.50%
11				Straight Average			
12	3-year	$2,679	-20.73%	$4,823	7.63%	$3,070	-17.94%
13	5-year	$3,003	-9.96%	$4,722	3.00%	$3,385	-9.90%
14	10-year	$2,762	4.00%	$4,666	2.92%	$3,349	0.41%
15				Exponential Trend			
16	5-year	$1,604	-17.42%	$5,051	2.36%	$1,968	-15.37%
17	7-year	$2,115	-7.56%	$4,888	1.00%	$2,450	-7.47%
18	All-year	$2,876	1.47%	$4,784	0.50%	$2,974	-1.74%

Figure CI- 57: Basic Comprehensive Rodents Severity Excluding $0 Claims



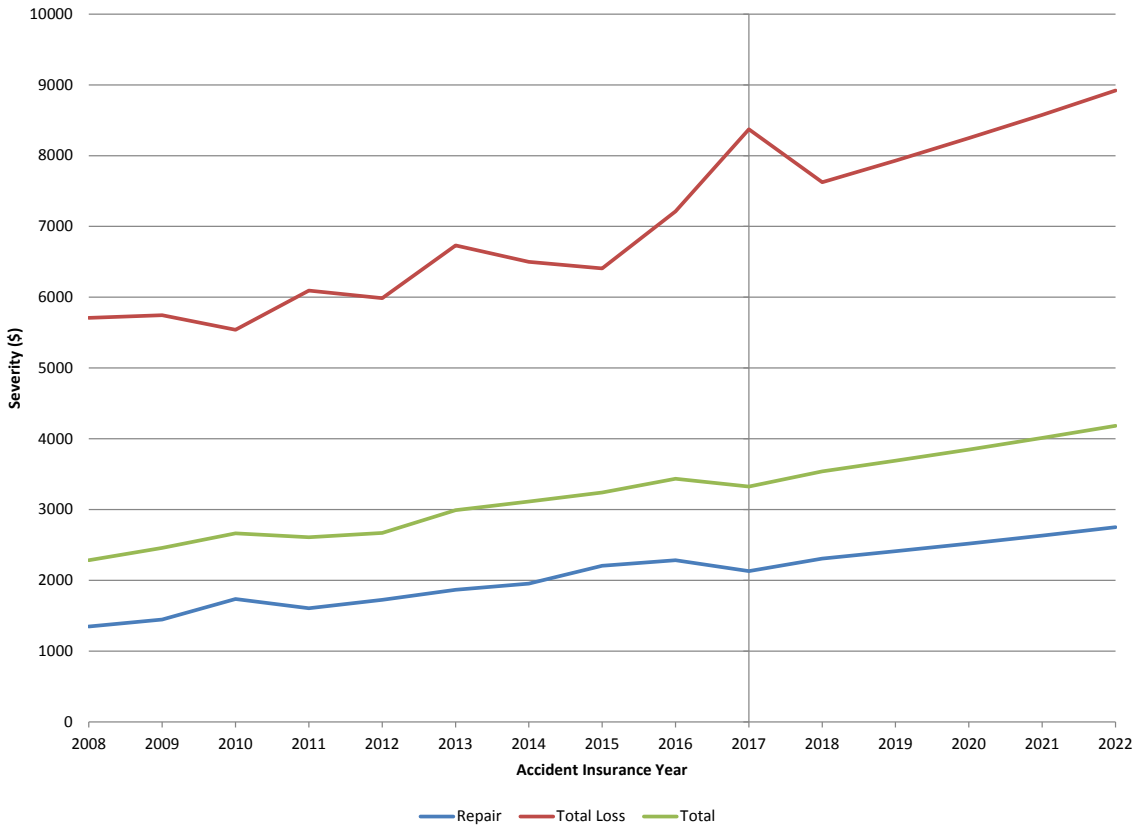
CI.10.2.6 Comprehensive All Other Severity

The All Other category contains claims that do not fall into the previous categories. These claims types include fire, lightning, wind, and flood claims. The figure below shows the historical (ten year) All Other average severities and severity growth rates by repair, total loss, and overall claims at ultimate. The average severity growth rates for repair and total loss have been fairly stable over the long term. For repair, MPI selected the most recent repair severity and the longer term average severity growth rate of 4.50%. For total loss, MPI selected a three-year average severity and a longer term average severity growth rate of 4.00%.

Figure CI- 58: Comprehensive All Other Severity Excluding $0 Claims

Line No.	Accident Year	Repair Severity	% Change	Total Loss Severity	% Change	Total Severity	% Change
1	2008/09	$1,349	-1.42%	$5,709	-2.53%	$2,284	-6.20%
2	2009/10	$1,449	7.43%	$5,746	0.65%	$2,459	7.66%
3	2010/11	$1,737	19.88%	$5,541	-3.57%	$2,664	8.34%
4	2011/12	$1,607	-7.48%	$6,093	9.97%	$2,610	-2.01%
5	2012/13	$1,726	7.39%	$5,986	-1.75%	$2,670	2.29%
6	2013/14	$1,869	8.28%	$6,733	12.47%	$2,991	12.03%
7	2014/15	$1,954	4.54%	$6,499	-3.48%	$3,114	4.11%
8	2015/16	$2,208	13.01%	$6,407	-1.42%	$3,242	4.09%
9	2016/17	$2,285	3.50%	$7,214	12.60%	$3,437	6.01%
10	2017/18	$2,132	-6.70%	$8,373	16.07%	$3,326	-3.21%
11				Straight Average			
12	3-year	$2,208	3.27%	$7,331	9.08%	$3,335	2.30%
13	5-year	$2,090	4.53%	$7,045	7.25%	$3,222	4.61%
14	10-year	$1,832	4.84%	$6,430	3.90%	$2,880	3.31%
15				Exponential Trend			
16	5-year	$2,364	4.29%	$8,244	5.55%	$3,533	3.16%
17	7-year	$2,448	5.79%	$8,062	4.67%	$3,668	4.80%
18	All-year	$2,453	5.72%	$7,816	3.75%	$3,648	4.56%

Figure CI- 59: Basic Comprehensive Other (Fire, Lightning, Other) Severity Excluding $0 Claims



CI.10.3 Comprehensive Ultimate Forecast

The figure below shows the historical experience and forecast by accident year for Comprehensive, along with a comparison to last year's forecast.

As shown in the figure, the 2019/20 Comprehensive incurred losses are $105.3 million, or 12.1%, lower than last year's forecast of $119.9 million.

Figure CI- 60: Comprehensive Ultimate Incurred

Line No.	Accident Year	Claim Frequency	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2008/09	0.059	$1,130	$49,809	-56.05%	$49,778	$31
2	2009/10	0.075	$1,380	$78,618	57.84%	$78,588	$30
3	2010/11	0.071	$1,358	$74,821	-4.83%	$74,748	$73
4	2011/12	0.070	$1,352	$74,634	-0.25%	$74,545	$89
5	2012/13	0.070	$1,279	$72,606	-2.72%	$72,469	$137
6	2013/14	0.066	$1,383	$74,802	3.03%	$74,636	$167
7	2014/15	0.064	$1,321	$70,979	-5.11%	$70,931	$47
8	2015/16	0.083	$1,698	$120,099	69.20%	$119,834	$265
9	2016/17	0.085	$1,628	$119,093	-0.84%	$123,042	($3,949)
10	2017/18	0.075	$1,123	$73,678	-38.13%	$107,168	($33,491)
11	5-year Trend	0.087	$1,367	$105,490	-17.78%	$134,275	
12	7-year Trend	0.082	$1,444	$105,899	-2.65%	$126,692	
13	All year Trend	0.081	$1,478	$104,773	5.94%	$119,389	
14	2018/19	0.083	$1,352	$99,534	35.09%	$113,373	($13,839)
15	2019/20	0.084	$1,390	$105,343	5.84%	$119,900	($14,557)
16	2020/21	0.085	$1,430	$111,507	5.85%	$126,797	($15,290)
17	2021/22	0.087	$1,471	$118,033	5.85%	$134,090	($16,057)
18	2022/23	0.088	$1,515	$124,877	5.80%		

CI.10.4 Fiscal Year Claims Incurred Forecast

The historical and forecasted fiscal year CI for Comprehensive, along with a comparison to last year's forecast, are shown in the figure below. Due to the short-tail nature of this coverage, changing interest rates do not have a significant impact on IBNR calculations.

Figure CI- 61: Comprehensive Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$75,191	($22)	$0	($1,212)	($1,234)	$73,957	$73,957	$0
3	2014/15	$72,269	$90	$0	($437)	($347)	$71,922	$71,922	$0
4	2015/16	$119,342	($103)	($57)	$7,164	$7,005	$126,346	$126,346	$0
5	2016/17	$119,957	($13)	$0	($2,739)	($2,752)	$117,204	$117,204	$0
6	2017/18	$73,580	($13)	$0	($4,070)	($4,083)	$69,497	$106,810	($37,312)
7	2018/19	$93,421	($9)	$0	$6,562	$6,553	$99,974	$113,436	($13,462)
8	2019/20	$104,329	$10	$0	$1,155	$1,165	$105,494	$120,001	($14,506)
9	2020/21	$110,854	$14	$0	$757	$771	$111,624	$126,907	($15,283)
10	2021/22	$117,373	$13	$0	$765	$778	$118,151	$134,208	($16,057)
11	2022/23	$124,184	$13	$0	$805	$818	$125,002		

CI.11 PROPERTY DAMAGE

Property Damage provides third-party liability protection to the insured against a claim or suit for property damage arising out of the operation of a vehicle.

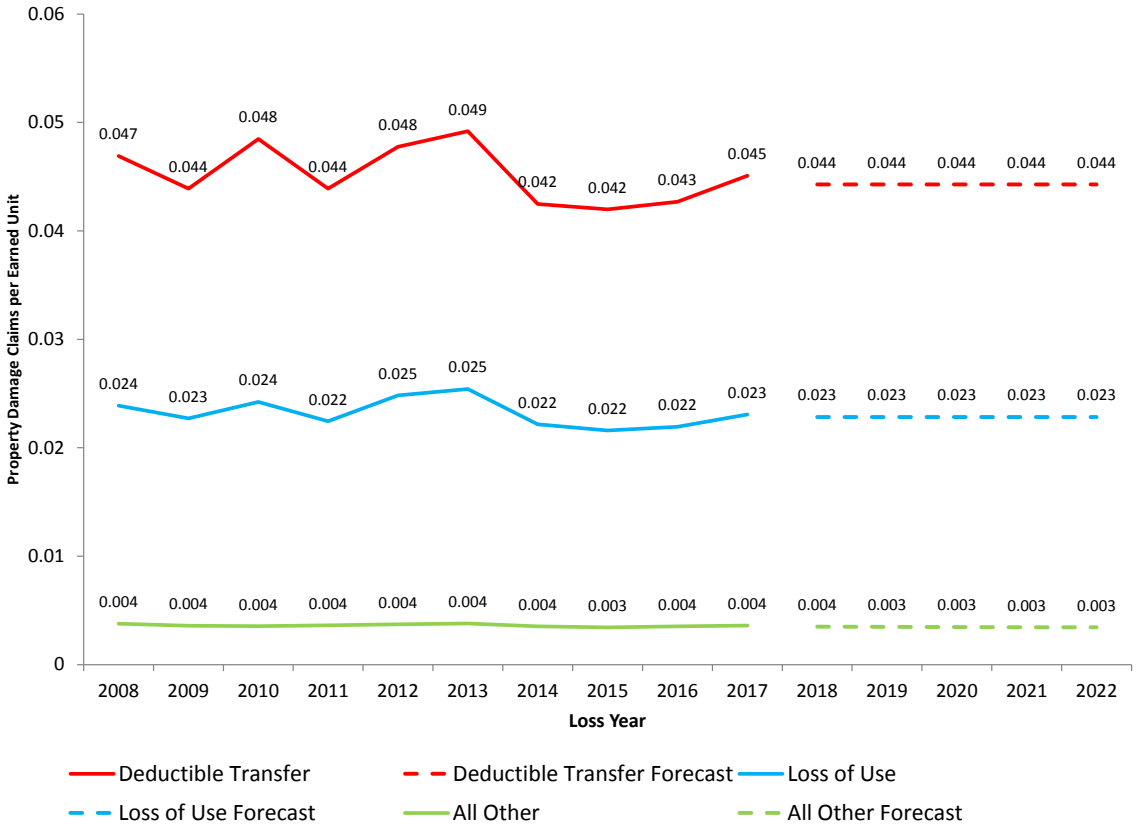
Figure CI- 62: Claims Incurred Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Property Damage	$46,869	$48,499	$50,185	$51,943	$53,779

CI.11.1 Property Damage Frequency

The Property Damage frequency forecast is split into three coverage categories: Third Party Deductible Transfer, Third Party Loss of Use, and Other Property Damage. Both Third Party Deductible Transfer and Third Party Loss of Use are highly correlated with Collision. As shown in the graph below, we have forecasted frequency based on the 5-year average and to remain flat over the forecast period with the exception of Other Property Damage which is forecast at the three-year average and to decline 0.50% over the period.

Figure CI- 63: Ultimate Basic Property Damage Frequency Excluding $0 Claims



CI.11.2 Property Damage Severity

The figure below shows the historical property damage severities split into the three coverage categories.

Figure CI- 64: Property Damage Severity by Coverage Category Excluding $0 Claims

Line No.	Accident Year	Third Party Deductible Transfer Severity	% Change	Third Party Loss of Use Severity	% Change	All Other Severity	% Change
1	2008/09	$502	0.16%	$400	0.68%	$3,906	7.49%
2	2009/10	$505	0.52%	$413	3.32%	$3,978	1.85%
3	2010/11	$504	-0.14%	$414	0.15%	$3,876	-2.56%
4	2011/12	$506	0.26%	$415	0.15%	$4,393	13.32%
5	2012/13	$505	-0.04%	$442	6.71%	$4,437	1.01%
6	2013/14	$507	0.22%	$503	13.69%	$4,684	5.56%
7	2014/15	$514	1.47%	$482	-4.27%	$4,786	2.18%
8	2015/16	$513	-0.12%	$490	1.78%	$4,871	1.79%
9	2016/17	$519	1.02%	$495	1.07%	$5,104	4.77%
10	2017/18	$516	-0.46%	$499	0.74%	$5,103	-0.01%
11				Straight Average			
12	3-year	$516	0.14%	$495	1.20%	$5,026	2.18%
13	5-year	$514	0.43%	$494	2.60%	$4,910	2.86%
14	10-year	$509	0.29%	$455	2.40%	$4,514	3.54%

CI.11.2.1 Third Party Deductible Transfer Severity

Severity is very stable as it is deductible based. Severity growth over the last ten years has been 0.29% on average. As such, we selected a three-year average of $515 with no growth.

CI.11.2.2 Third Party Loss of Use Severity

There have been large changes in severity in the history for third party loss of use. MPI has selected three-year average of $495 with a 4.00% severity growth based on the all-year trend.

CI.11.2.3 All Other Severity

MPI selected the three-year average of $5,026 with 3.50% severity growth based on the all-year average.

CI.11.3 Property Damage Ultimate Forecast

The figure below shows the historical experience and forecast by accident year for Property Damage, along with a comparison to last year's forecast.

Figure CI- 65: Property Damage Ultimate Incurred

Line No.	Accident Year	Claim Frequency	Severity	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2008/09	0.051	$947	$36,015	5.03%	$35,965	$51
2	2009/10	0.047	$966	$34,937	-3.00%	$34,921	$15
3	2010/11	0.052	$927	$37,337	6.87%	$37,314	$23
4	2011/12	0.047	$998	$37,475	0.37%	$37,488	($13)
5	2012/13	0.051	$1,001	$41,770	11.46%	$41,689	$81
6	2013/14	0.053	$1,045	$45,594	9.16%	$45,371	$223
7	2014/15	0.046	$1,073	$41,004	-10.07%	$40,929	$76
8	2015/16	0.045	$1,079	$41,203	0.48%	$41,150	$53
9	2016/17	0.046	$1,107	$43,652	5.94%	$41,997	$1,655
10	2017/18	0.048	$1,119	$46,445	6.40%	$44,360	$2,085
11	5-year Trend	0.044	$1,139	$44,884	5.53%	$42,475	
12	10-year Trend	0.046	$1,145	$46,830	3.58%	$45,394	
13	All year Trend	0.047	$1,137	$47,033	2.81%	$45,876	
14	2018/19	0.048	$1,096	$46,849	0.87%	$45,967	$882
15	2019/20	0.048	$1,117	$48,465	3.45%	$47,649	$816
16	2020/21	0.048	$1,139	$50,150	3.48%	$49,408	$742
17	2021/22	0.048	$1,161	$51,908	3.51%	$51,247	$661
18	2022/23	0.048	$1,184	$53,743	3.54%		

Based on the ultimate frequency and severity forecasts, the 2019/20 Property Damage ultimate is $48.5 million, or 1.71%, higher than last year's forecast of $47.6 million.

CI.11.4 Fiscal Year Claims Incurred Forecast

The historical and forecasted fiscal year CI for Property Damage, along with a comparison to last year's forecast, are shown in the figure below. Due to the short-tail

nature of this coverage, changing interest rates do not have a significant impact on IBNR calculations.

Figure CI- 66: Property Damage Claims Incurred

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$41,716	($22)	$0	$4,397	$4,375	$46,091	$46,091	$0
3	2014/15	$42,359	$107	$0	($3,020)	($2,913)	$39,445	$39,445	$0
4	2015/16	$41,481	($54)	($30)	$1,059	$975	$42,456	$42,456	$0
5	2016/17	$42,478	($7)	$0	$298	$291	$42,769	$42,769	$0
6	2017/18	$47,295	($12)	$0	$1,364	$1,352	$48,647	$44,363	$4,284
7	2018/19	$46,370	($7)	$0	$506	$499	$46,869	$46,001	$868
8	2019/20	$48,103	$7	$0	$389	$396	$48,499	$47,675	$824
9	2020/21	$49,791	$10	$0	$384	$394	$50,185	$49,432	$753
10	2021/22	$51,536	$8	$0	$399	$407	$51,943	$51,272	$671
11	2022/23	$53,358	$9	$0	$413	$421	$53,779		

CI.12 BASIC TOTAL

This section summarizes the overall forecast for Basic before and after CI financial provisions.

CI.12.1 Claims Incurred Before Provisions

This section shows the total of all Basic coverage categories that were described in sections *CI.3* through *CI.11*.

Figure CI- 67: Claims Incurred before Provisions Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Basic Total	$790,845	$846,233	$892,705	$938,021	$987,550

CI.12.1.1 Accident Year Ultimate Forecast

The figure below shows the historical and forecasted Basic ultimate losses, along with a comparison to last year's forecast.

Figure CI- 68: Total Basic Ultimate Incurred

Line No.	Accident Year	Ultimate ($000)	Annual % Change	Last Year's Forecast ($000)	Variance to Forecast ($000)
1	2013/14	$640,278	3.00%	$654,925	($14,647)
2	2014/15	$589,944	-7.86%	$606,701	($16,757)
3	2015/16	$710,586	20.45%	$693,654	$16,932
4	2016/17	$747,599	5.21%	$725,964	$21,635
5	2017/18	$725,014	-3.02%	$750,179	($25,165)
6	2018/19	$768,995	6.07%	$787,266	($18,270)
7	2019/20	$808,678	5.16%	$826,660	($17,982)
8	2020/21	$851,029	5.24%	$868,546	($17,516)
9	2021/22	$896,226	5.31%	$905,018	($8,792)
10	2022/23	$944,409	5.38%		

The 2019/20 total Basic ultimate incurred forecast is $18.0 million or 2.18% lower than last year's forecast as a result of:

- Comprehensive Hail: $11.5 million decrease
- Collision and Property Damage: $4.4 million decrease
- Comprehensive Theft and Vandalism: $1.6 million decrease
- All Other Comprehensive: $1.5 million decrease
- PIPP and Bodily Injury: $1.5 million increase
- PIPP Enhancements: $0.5 million decrease

CI.12.1.2 Fiscal Year Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for all Basic coverages in the 2019 GRA forecast.

Figure CI- 69: Total Basic Claims Incurred – 2019 GRA Forecast

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred	Last Year's Forecast	Variance to Forecast
1	*($000)*								
2	2013/14	$684,675	($23,574)	$0	$18,406	($5,168)	$679,507	$679,507	$0
3	2014/15	$595,720	$117,836	$0	($4,929)	$112,907	$708,627	$708,627	$0
4	2015/16	$676,044	($68,921)	($34,950)	$70,739	($33,132)	$642,912	$642,912	$0
5	2016/17	$746,019	($8,019)	$0	$60,456	$52,437	$798,456	$798,456	$0
6	2017/18	$801,649	($13,472)	$0	($61,937)	($75,409)	$726,240	$714,241	$11,999
7	2018/19	$796,313	($7,232)	$0	$1,764	($5,468)	$790,845	$823,192	($32,347)
8	2019/20	$833,674	$7,382	$0	$5,178	$12,560	$846,233	$858,631	($12,397)
9	2020/21	$876,787	$9,984	$0	$5,934	$15,918	$892,705	$899,938	($7,233)
10	2021/22	$923,164	$8,682	$0	$6,175	$14,857	$938,021	$945,479	($7,458)
11	2022/23	$972,118	$8,500	$0	$6,933	$15,433	$987,550		

The corresponding figure from the 2018 GRA forecast, along with a comparison between the 2019 GRA forecast and the 2018 GRA forecast, are shown in the figures below.

Figure CI- 70: Total Basic Claims Incurred – 2018 GRA Forecast

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred
1	*($000)*						
2	2012/13	$581,508	n/a	$0	n/a	$27,239	$608,747
3	2013/14	$684,675	($23,574)	$0	$18,406	($5,168)	$679,507
4	2014/15	$595,720	$117,836	$0	($4,929)	$112,907	$708,627
5	2015/16	$676,044	($68,921)	($34,950)	$70,739	($33,132)	$642,912
6	2016/17	$746,019	($8,019)	$0	$60,456	$52,437	$798,456
7	2017/18	$774,040	($64,854)	$0	$5,055	($59,799)	$714,241
8	2018/19	$812,418	$7,257	$0	$3,517	$10,774	$823,192
9	2019/20	$850,990	$1,655	$0	$5,986	$7,641	$858,631
10	2020/21	$892,203	$36	$0	$7,699	$7,735	$899,938
11	2021/22	$937,334	($252)	$0	$8,397	$8,145	$945,479

Figure CI- 71: Total Basic Claims Incurred – Difference between 2019 GRA and 2018 GRA Forecast

Line No.	Fiscal Year	Reported	Change in IBNR: Interest Rate Impact	Change in IBNR: Interest Rate Margin Change	Change in IBNR: All Other Changes	Change in IBNR: Total Change in IBNR	Claims Incurred
1	*($000)*						
2	2013/14	$0	n/a	$0	n/a	$0	$0
3	2014/15	$0	$0	$0	$0	$0	$0
4	2015/16	$0	$0	$0	$0	$0	$0
5	2016/17	$0	$0	$0	$0	$0	$0
6	2017/18	$27,608	$51,382	$0	($66,992)	($15,610)	$11,999
7	2018/19	($16,105)	($14,489)	$0	($1,752)	($16,242)	($32,347)
8	2019/20	($17,316)	$5,727	$0	($809)	$4,918	($12,397)
9	2020/21	($15,416)	$9,948	$0	($1,766)	$8,183	($7,233)
10	2021/22	($14,170)	$8,934	$0	($2,222)	$6,713	($7,458)
11	2022/23						

As described in *CI.3* through *CI.11*, the 2017/18 fiscal year results were 1.68% or $12.0 million over budget mainly as a result of (i) lower than expected interest rates, (ii) higher than expected increases in PIPP case reserves and (iii) associated IBNR adjustments from the Appointed Actuary's reports.

The 2019/20 CI is forecasted at $846.2 million, or 1.44% lower than last year's forecast of $858.6 million. Excluding interest rate impacts, the 2019/20 CI would be $838.9 million, or 2.11% lower than last year's 2019/20 forecast of $857.0 million. Similar to the previous section, the main cause of this $19.7 million deviation from forecast (excluding interest rate impacts) is from the Comprehensive Hail, Theft, Vandalism and Collision forecasts as outlined in section *CI.12.1.1*.

CI.12.2 Unallocated Loss Adjustment Expenses (ULAE)

ULAE represents claims costs that cannot be allocated to individual claims (e.g. towing charges, payments to Manitoba Health, and medical consultants' fees). The amounts paid for ULAE are added to fiscal year net CI.

Figure CI- 72: Unallocated Loss Adjustment Expenses

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	ULAE	$50,135	$52,371	$54,921	$57,537	$60,210

CI.12.2.1 ULAE Forecast

The figure below shows the historical and forecasted ULAE, along with a comparison to last year's forecast. The most significant ULAE item is payments to Manitoba Health (shown below), which are calculated based on MPI's agreement with Manitoba Health. The Direct Repair Program was implemented on March 1, 2017. MPI currently has an agreement with the repair industry that states Direct Repair shops will be entitled to an $81 premium on the completion of a first estimate beginning March 1, 2018. MPI has budgeted $6.0 million per year for this Direct Repair expense. For more information, please see *Part IV Service Delivery Model SDM.1.6*. A detailed forecast for all other ULAE categories is shown in *Appendix 8*.

Figure CI- 73: Unallocated Loss Adjustment Expenses

Line No.	Fiscal Year	Manitoba Health	All Other	Direct Repair	Total	Last Year's Forecast	Variance to Forecast
1	*($000)*						
2	2013/14	$24,829	$7,465	$0	$32,294	$32,294	$0
3	2014/15	$25,418	$11,777	$0	$37,195	$37,195	$0
4	2015/16	$26,943	$13,081	$0	$40,024	$40,024	$0
5	2016/17	$27,240	$12,629	$0	$39,869	$39,869	$0
6	2017/18	$29,408	$12,844	$0	$42,252	$42,205	$47
7	2018/19	$30,293	$13,842	$6,000	$50,135	$43,912	$6,224
8	2019/20	$32,259	$14,112	$6,000	$52,371	$45,901	$6,470
9	2020/21	$34,535	$14,386	$6,000	$54,921	$47,910	$7,011
10	2021/22	$36,884	$14,653	$6,000	$57,537	$50,195	$7,342
11	2022/23	$39,282	$14,928	$6,000	$60,210		

The 2019/20 ULAE forecast increased by $6.5 million, or 14.10%, over last year's forecast mainly because of the Direct Repair expense forecasted at $6.0 million.

CI.12.3 Change in Internal Loss Adjustment Expenses (ILAE)

The provision for ILAE refers to the unpaid amounts required to handle and maintain claims until all claims are paid (ultimate). This provision is reviewed annually as part of the review of policy liabilities. The change in this provision is reported in the fiscal year net CI.

Figure CI- 74: Change in ILAE Provision Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Change in ILAE	$4,679	$6,988	$7,329	$7,035	$6,961

CI.12.3.1 ILAE Forecast

The calculation of the latest ILAE is shown in detail in the February 2018 Appointed Actuary's Report (*Part VIII External Actuary Review of Policy Liabilities Attachment A*). For forecasting purposes, the change in the ILAE at a given fiscal year end was calculated by totaling 9.20% of the change in unpaid claims and 9.20% of the change in IBNR for that year.

Figure CI- 75: Change in ILAE Provision

Line No.	Fiscal Year	Change in Unpaid Claims	Change in IBNR	Change in ILAE	Last Year's Forecast	Variance to Forecast
1	*($000)*					
2	2013/14	$92,195	($5,168)	$12,579	$12,579	$0
3	2014/15	$83,811	$112,907	$8,015	$8,015	$0
4	2015/16	($303)	($33,132)	$503	$503	$0
5	2016/17	$3,752	$52,437	$10,168	$10,168	$0
6	2017/18	$35,783	($75,409)	($2,219)	($4,904)	$2,685
7	2018/19	$56,331	($5,468)	$4,679	$6,656	($1,977)
8	2019/20	$63,395	$12,560	$6,988	$5,853	$1,135
9	2020/21	$63,747	$15,918	$7,329	$5,637	$1,692
10	2021/22	$61,607	$14,857	$7,035	$5,535	$1,499
11	2022/23	$60,234	$15,432	$6,961		

The change in ILAE follows directly from the projected changes in unpaid claims and IBNR for overall Basic coverages.

CI.12.4 Reinsurance Ceded Claims

Reinsurance ceded represents the actual or estimated amount of claims ceded to reinsurers. The change in the amount recoverable from reinsurers is recorded as part of the fiscal year net CI.

Figure CI- 76: Reinsurance Ceded Claims Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Reinsurance Ceded	$0	$0	$0	$0	$0

CI.12.4.1 Reinsurance Claims Ceded Forecast

MPI assumes there are no changes to reinsurance claims ceded amounts in the forecast period. The figure below provides the historical changes in reinsurance ceded

amounts. A negative figure indicates amounts that were ceded to reinsurers, which reduces overall CI. For more details on MPI's reinsurance programs see *REV.3*.

Figure CI- 77: Change in Reinsurance Ceded

Line No.	Fiscal Year	Change in Reinsurance Ceded
1	*($000)*	
2	2013/14	($2,454)
3	2014/15	$1,279
4	2015/16	($1,076)
5	2016/17	$786
6	2017/18	($676)

CI.12.5 Change in Premium Deficiency or DPAC Write-Down

Deferred policy acquisition costs (DPAC) represent the premium taxes and commissions that are deferred to reflect the unearned portion of existing policies. As part of the October and February policy liability valuations, MPI calculates the Equity in the Unearned Premiums (EUP). The EUP equals the unearned premiums minus the expected claim costs and expenses associated with these unearned premiums. If the EUP is less than the DPAC asset, then MPI must write-down the DPAC asset to the amount of the EUP. If the EUP is negative, then MPI must write-down the DPAC asset to zero and post a premium deficiency equal to the amount of the negative EUP. The change in the DPAC write-down or premium deficiency is recorded in the current fiscal year's net CI.

Figure CI- 78: Change in Premium Deficiency or DPAC Write-Down Forecast

Line No.	Fiscal Year	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Change in Premium Deficiency/DPAC	($28,521)	($5,380)	($4,243)	$3,999	$7,997

CI.12.5.1 Premium Deficiency Forecast

Starting with the 2017 General Rate Application, MPI has provided a forecast for the changes in the premium deficiency and DPAC asset. In previous years MPI did not forecast this item because the financial model did not have the functionality to calculate these amounts.

In 2017/18, MPI increased the DPAC write-down by $2.4 million and increased the premium deficiency by $2.0 million (from $6.8 million to $8.8 million). MPI continues to have a DPAC write-down of $32.1 million as of February 28, 2018 mainly as a result of the continued low interest rate environment. For comparison, the actual interest rate used in the Appointed Actuary's report for year-ending February 28, 2018 was 3.47%, whereas the forecasted interest rate per the 2018 GRA was 3.78%.

Figure CI- 79: Change in Premium Deficiency or DPAC Write-Down

Line No.	Fiscal Year	This Year's Forecast	Last Year's Forecast	Variance to Forecast
1	*($000)*			
2	2013/14	$25,203	$25,203	$0
3	2014/15	($7,584)	($7,584)	$0
4	2015/16	($14,959)	($14,959)	$0
5	2016/17	$12,971	$12,971	$0
6	2017/18	$4,364	($12,128)	$16,492
7	2018/19	($28,521)	($9,474)	($19,048)
8	2019/20	($5,380)	$2,471	($7,852)
9	2020/21	($4,243)	$3,625	($7,868)
10	2021/22	$3,999	$6,251	($2,252)
11	2022/23	$7,997		

In 2018/19, MPI is forecasting a $19.7 million decrease in the DPAC write-down (from $32.1 million to $12.4 million) and a reduction of the premium deficiency by $8.8 million (from $8.8 million to $0.0 million). The $19.7 million decrease in the DPAC write-down can be largely attributed to the 2018 GRA approved rate increase of 2.60% and the ALM strategy which increased the discount rate. Thereafter, the change in the DPAC write-down is negative because of the proposed 2019 GRA rate

increase of 0.10% plus 2.10% capital maintenance provision. The figure below shows how the DPAC write-down and premium deficiency is calculated.

Figure CI- 80: Equity in Unearned Premium

Line No.	Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*						
2	Net Earned Premium	$960,142	$1,039,407	$1,113,119	$1,169,526	$1,216,815	$1,265,684
3	Operating Expenses as % of Earned Premium	8.99%	8.98%	8.19%	8.05%	8.06%	8.01%
4	Maintenance Expense Rate [(3) x 1/3]	3.00%	2.99%	2.73%	2.68%	2.69%	2.67%
5	Selected	3.16%	2.99%	2.86%	2.71%	2.69%	2.68%
6	ILAE Ratio to Losses - Selected	18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
7	Net Unearned Premium	$468,613	$506,193	$537,639	$559,472	$581,724	$604,979
8	Additional Expected Cost of Non-Proportional Reinsurance	$5,598	$5,710	$5,824	$5,941	$6,059	$6,059
9	Expected Claims (Including Ext Adj Expenses)	$383,468	$392,259	$412,378	$426,236	$446,776	$471,494
10	Reinsurance PFAD	$10	$0	$0	$0	$0	$0
11	Maintenance Expense [a]	$13,837	$14,989	$15,216	$14,978	$15,458	$16,047
12	Internal Loss Adjustment Expense	$70,595	$72,176	$75,878	$78,427	$82,207	$86,755
13	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	$3,950	$3,950	$3,950	$3,950	$3,950	$3,950
14	Equity in Unearned Premium [(7) - Sum((8) to (13))]	($8,845)	$17,110	$24,394	$29,940	$27,275	$20,674
15	Carried Deferred Policy Acquisition Expenses	$32,055	$29,489	$31,393	$32,696	$34,029	$35,426
16	Write Down Deferred Policy Acquisition Expenses [b]	$32,055	$12,379	$6,999	$2,756	$6,755	$14,752
17	Change	$2,363	($19,676)	($5,380)	($4,243)	$3,999	$7,997
18	Premium Deficiency [c]	$8,845	$0	$0	$0	$0	$0
19	Change	$2,001	($8,845)	$0	$0	$0	$0
20	Notes:						
21	[a] ((7) - (8)) x (4) x Discount to Valuation Date Without Margin						
22	[b] Min((15) - (14), (15)) if greater than 0, otherwise 0						
23	[c] Negative of (14) if greater than 0, otherwise 0						

CI.12.6 Total Fiscal Year Net Claims Incurred

The Total Net CI is the amount that appears on MPI's Statement of Operations. This amount represents the Basic CI from section *CI.12.1.2* plus the additional claims provisions described in sections *CI.12.2* through *CI.12.5*.

CI.12.6.1 Fiscal Year Net Claims Incurred Forecast

The figure below shows the historical and projected fiscal year CI for all Basic coverages including claims provisions.

Figure CI- 81: Total Basic Net Claims Incurred Including Claims Provisions

Line No.	Fiscal Year	Claims Incurred	ULAE	Change in ILAE	Change in Reinsurance Ceded	Other Financial Adjustments	Change in Premium Deficiency/DPAC	Total Net Claims Incurred
1	*($000)*							
2	2013/14	$679,507	$32,294	$12,579	($2,454)	$306	$25,203	$747,435
3	2014/15	$708,627	$37,195	$8,015	$1,279	$739	($7,584)	$748,271
4	2015/16	$642,912	$40,024	$503	($1,076)	($1,124)	($14,959)	$666,280
5	2016/17	$798,456	$39,869	$10,168	$786	($2,217)	$12,971	$860,034
6	2017/18	$726,240	$42,252	($2,219)	($676)	($2,722)	$4,364	$767,240
7	2018/19	$790,845	$50,135	$4,679	$0	$0	($28,521)	$817,139
8	2019/20	$846,233	$52,371	$6,988	$0	$0	($5,380)	$900,212
9	2020/21	$892,705	$54,921	$7,329	$0	$0	($4,243)	$950,712
10	2021/22	$938,021	$57,537	$7,035	$0	$0	$3,999	$1,006,592
11	2022/23	$987,550	$60,210	$6,961	$0	$0	$7,997	$1,062,718

The figure below compares this year's net CI forecast to last year's forecast.

Figure CI- 82: Total Basic Net Claims Incurred including Claims Provisions Comparison to Last Year's Forecast

Line No.	Fiscal Year	This Year's Forecast	Last Year's Forecast	Variance to Forecast
1	*($000)*			
2	2013/14	$747,435	$747,435	$0
3	2014/15	$745,835	$745,835	$0
4	2015/16	$666,404	$666,404	$0
5	2016/17	$860,034	$860,034	$0
6	2017/18	$767,240	$739,415	$27,825
7	2018/19	$817,139	$864,286	($47,147)
8	2019/20	$900,212	$912,856	($12,644)
9	2020/21	$950,712	$957,110	($6,398)
10	2021/22	$1,006,592	$1,007,461	($869)
11	2022/23	$1,062,718		

The 2017/18 net CI was $27.8 million over budget as a result of:

- Low Interest Rates: $51.4 million over budget
- Premium Deficiency and DPAC Write-Down: $16.5 million over budget
- Collision and Property Damage: $2.9 million over budget
- Unallocated and Internal Loss Adjustment Expenses: $2.7 million over budget

These increases were offset by:

- Comprehensive: $37.4 million under budget
- PIPP and Bodily Injury: $5.4 million under budget
- Allowance for doubtful accounts: $2.2 million under budget
- Change in Reinsurance Ceded: $0.7 million over budget

The 2019/20 net CI forecast has decreased by $12.6 million from last year's forecast, as a result of the following:

- Physical Damage: $18.5 million decrease before interest rate impacts
- Premium Deficiency and DPAC Write-Down: $7.9 million favourable impact
- Interest Rate Impact: $6.7 million unfavourable interest rate impact
- Unallocated and Internal Loss Adjustment Expenses: $6.5 million unfavourable impact
- PIPP and Bodily Injury: $0.7 million increase before interest rate impacts
- Net effect of all other financial provisions: $0.1 million favourable impact

Appendix 1
Accident Benefits Weekly Indemnity

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	5,503	11,517	14,876	17,375	19,192	21,135	22,764	24,310	25,722	27,159	28,408	29,399	30,296	31,065	31,785	32,769	33,744	34,915	56,060	16,103
95/96	5,820	11,948	15,475	18,012	20,387	22,106	24,416	26,238	27,855	29,263	30,525	31,693	33,079	34,379	35,512	36,736	37,784	39,407	67,635	22,364
96/97	4,586	9,046	11,161	13,069	14,761	16,265	17,410	18,440	19,222	19,963	20,542	21,216	21,895	22,474	23,124	23,812	24,808	25,469	39,706	12,291
97/98	4,437	8,949	11,665	13,632	15,538	17,249	18,673	19,865	20,892	21,846	22,857	23,840	24,677	25,279	25,973	26,742	27,668	28,626	43,065	12,764
98/99	4,471	9,332	12,372	15,163	17,555	19,700	21,633	23,265	24,667	26,033	27,327	28,645	29,873	31,130	33,021	34,354	35,824	37,130	57,282	18,920
99/00	5,029	11,028	14,675	17,514	19,895	21,923	23,521	24,992	26,218	27,199	28,136	29,061	30,479	31,641	32,887	33,981	34,972	35,995	53,178	17,183
00/01	5,821	12,385	15,953	18,806	21,189	23,206	24,839	26,216	27,380	28,420	29,473	30,540	31,500	32,573	33,607	34,780	35,869	36,971	56,430	20,561
01/02	6,064	12,381	15,533	17,565	19,226	20,607	21,716	22,781	23,857	24,775	25,664	27,097	28,197	29,387	30,319	31,322	32,307	33,313	49,153	17,832
02/03	5,974	12,558	15,282	17,666	19,547	21,022	22,499	23,910	25,180	26,714	28,216	29,714	30,985	32,590	34,042	35,407	36,663	37,905	57,465	23,423
03/04	6,170	12,441	15,890	18,323	20,032	21,923	23,613	24,977	26,381	28,049	29,655	31,162	32,588	33,871	35,096	36,168	37,177	38,175	53,896	20,025
04/05	5,576	10,858	13,401	15,330	17,162	18,430	19,746	20,855	21,817	22,967	24,132	25,479	26,425	27,464	28,542	29,634	30,663	31,680	47,702	21,277
05/06	6,426	12,912	16,496	19,011	20,986	22,822	24,339	26,103	27,800	29,690	31,268	32,797	34,395	35,751	36,970	38,206	39,369	40,520	58,646	25,849
06/07	6,927	14,252	17,852	20,964	23,659	25,917	28,896	31,538	33,780	35,992	38,303	40,265	42,185	43,996	45,624	47,273	48,827	50,364	74,567	36,265
07/08	7,403	15,118	19,428	22,270	25,429	28,407	31,000	33,541	35,791	37,719	39,682	41,603	43,355	45,006	46,490	47,994	49,411	50,813	72,882	35,163
08/09	7,727	16,109	20,535	24,497	28,209	31,172	33,562	35,821	37,816	39,934	41,722	43,403	44,936	46,380	47,679	48,995	50,235	51,461	70,771	32,955
09/10	7,997	15,921	20,048	23,352	26,386	29,023	31,229	33,203	35,294	37,015	38,752	40,384	41,873	43,276	44,538	45,816	47,020	48,211	66,966	33,763
10/11	9,017	19,104	24,227	28,398	32,029	35,406	38,610	41,908	44,320	46,560	48,820	50,945	52,882	54,707	56,350	58,013	59,580	61,130	85,539	46,928
11/12	8,604	18,165	23,453	28,014	31,618	34,519	37,539	40,116	42,475	44,666	46,876	48,955	50,850	52,636	54,242	55,869	57,403	58,919	82,795	48,276
12/13	9,883	20,040	25,645	30,101	34,344	38,237	41,498	44,465	47,181	49,705	52,250	54,644	56,827	58,883	60,733	62,607	64,373	66,119	93,615	59,272
13/14	9,077	18,266	23,404	27,581	31,224	34,203	36,819	39,200	41,380	43,404	45,447	47,368	49,119	50,769	52,253	53,756	55,173	56,574	78,636	51,055
14/15	7,527	15,374	19,531	23,019	25,918	28,469	30,710	32,748	34,615	36,349	38,099	39,744	41,243	42,656	43,928	45,215	46,429	47,628	66,523	46,992
15/16	9,116	19,311	25,159	29,366	33,076	36,341	39,210	41,819	44,209	46,428	48,667	50,772	52,692	54,501	56,128	57,776	59,328	60,864	85,048	65,737
16/17	9,474	19,812	24,903	28,908	32,440	35,548	38,278	40,762	43,037	45,149	47,281	49,285	51,112	52,834	54,383	55,951	57,430	58,891	81,912	72,438
17/18	10,268	19,020	23,706	27,391	30,642	33,503	36,015	38,301	40,395	42,339	44,301	46,145	47,827	49,411	50,837	52,281	53,641	54,986	76,173	76,173
18/19	9,610	18,538	23,317	27,077	30,394	33,311	35,875	38,207	40,342	42,326	44,327	46,208	47,924	49,540	50,994	52,467	53,855	55,228	76,840	
19/20	9,754	18,678	23,455	27,213	30,528	33,445	36,007	38,338	40,472	42,455	44,455	46,336	48,050	49,666	51,119	52,591	53,979	55,350	76,953	
20/21	9,900	18,817	23,591	27,346	30,658	33,572	36,132	38,461	40,594	42,575	44,574	46,453	48,166	49,781	51,233	52,704	54,090	55,461	77,046	
21/22	10,048	18,955	23,724	27,475	30,783	33,694	36,251	38,578	40,708	42,687	44,683	46,560	48,272	49,884	51,335	52,804	54,189	55,558	77,119	
22/23	10,199	19,093	23,854	27,600	30,903	33,810	36,363	38,686	40,814	42,789	44,783	46,657	48,366	49,976	51,425	52,892	54,274	55,641	77,171	

Appendix 1
Accident Benefits Weekly Indemnity

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	37,043	956	1,013	944	940	750	684	692	700	708	11,630	56,060
95/96	40,597	1,323	1,877	1,474	1,305	1,081	988	901	912	922	16,256	67,635
96/97	25,469	646	652	649	789	610	559	511	466	471	8,884	39,706
97/98	27,668	958	869	805	1,056	641	587	538	491	449	9,002	43,065
98/99	34,354	1,469	1,307	1,231	1,299	991	910	834	764	698	13,424	57,282
99/00	32,887	1,094	991	1,024	970	933	859	789	724	662	12,246	53,178
00/01	32,573	1,035	1,173	1,089	1,102	1,143	1,054	970	891	817	14,583	56,430
01/02	28,197	1,191	931	1,003	986	1,006	930	858	790	726	12,536	49,153
02/03	29,714	1,271	1,605	1,453	1,364	1,256	1,242	1,149	1,060	975	16,376	57,465
03/04	29,655	1,507	1,426	1,284	1,225	1,071	1,009	998	923	852	13,946	53,896
04/05	22,967	1,165	1,347	947	1,039	1,078	1,092	1,029	1,017	941	15,081	47,702
05/06	27,800	1,890	1,578	1,529	1,598	1,356	1,220	1,235	1,164	1,151	18,125	58,646
06/07	31,538	2,242	2,212	2,311	1,962	1,921	1,810	1,628	1,649	1,554	25,740	74,567
07/08	31,000	2,541	2,250	1,928	1,963	1,921	1,752	1,651	1,485	1,504	24,888	72,882
08/09	31,172	2,390	2,260	1,994	2,118	1,788	1,681	1,533	1,444	1,299	23,092	70,771
09/10	26,386	2,637	2,205	1,975	2,091	1,721	1,736	1,633	1,489	1,403	23,690	66,966
10/11	28,398	3,630	3,377	3,205	3,298	2,412	2,240	2,260	2,125	1,937	32,657	85,539
11/12	23,453	4,561	3,604	2,901	3,020	2,576	2,359	2,191	2,211	2,079	33,840	82,795
12/13	20,040	5,604	4,457	4,243	3,893	3,261	2,967	2,717	2,523	2,546	41,365	93,615
13/14	9,077	9,189	5,138	4,177	3,644	2,979	2,617	2,380	2,180	2,025	35,231	78,636
14/15		7,527	7,848	4,156	3,488	2,899	2,551	2,241	2,039	1,867	31,908	66,523
15/16			9,116	10,195	5,848	4,207	3,711	3,265	2,868	2,609	43,228	85,048
16/17				9,474	10,338	5,091	4,005	3,532	3,108	2,730	43,633	81,912
17/18					10,268	8,752	4,685	3,686	3,251	2,860	42,670	76,173
18/19						9,610	8,928	4,779	3,760	3,316	46,447	76,840
19/20							9,754	8,924	4,777	3,758	49,740	76,953
20/21								9,900	8,917	4,773	53,456	77,046
21/22									10,048	8,907	58,164	77,119
22/23										10,199	66,972	77,171
Total Insurance Year Paid		54,826	57,234	59,988	65,604	61,053	61,930	62,825	63,776	64,740		
Unpaid Provision						15,788	15,023	14,221	13,343	12,431		
Total Insurance Yr Paid & Prov.		54,826	57,234	59,988	65,604	76,840	76,953	77,046	77,119	77,171		
Change in Total Paid			4.39%	4.81%	9.36%	-6.94%	1.44%	1.45%	1.51%	1.51%		
Total Insurance Yr Claim Counts		1,539	1,848	1,826	1,867	1,720	1,683	1,656	1,629	1,602		
Average Yearly Ultimate		35,624	30,971	32,852	35,139	44,665	45,713	46,517	47,334	48,162		
Change in Avg Yearly Ult.			-13.06%	6.07%	6.96%	27.11%	2.35%	1.76%	1.76%	1.75%		

Appendix 1
Accident Benefits Weekly Indemnity

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	23,366	25,997	28,407	38,476	41,017	51,103	54,864	60,083	61,531	63,858	65,811	50,798	50,626	49,683	48,156	48,897	49,963	51,274	56,060	1,276
95/96	22,067	26,874	36,472	39,153	51,710	54,233	68,646	75,849	79,313	78,465	58,185	58,809	59,621	61,208	61,181	60,025	60,377	61,823	67,635	1,035
96/97	11,289	20,311	25,331	35,019	38,006	40,462	50,220	52,624	53,920	36,638	36,732	36,305	35,188	35,485	35,496	35,712	36,412	36,614	39,706	1,494
97/98	18,962	23,538	32,805	35,878	41,837	46,297	52,026	52,471	42,138	40,722	41,012	41,911	41,108	41,821	39,445	39,913	41,367	41,527	43,065	571
98/99	16,346	30,464	33,583	39,244	47,324	55,962	65,910	52,891	52,684	53,607	54,049	53,623	51,114	50,747	52,884	53,947	55,535	55,760	57,282	610
99/00	15,236	26,140	34,441	45,668	57,796	70,764	51,401	51,272	49,776	49,385	49,596	50,015	50,592	50,427	50,910	52,048	52,098	52,259	53,178	920
00/01	24,934	33,138	43,003	52,448	61,570	51,020	52,669	52,574	51,146	51,756	51,904	51,425	52,069	50,900	51,073	53,144	53,777	55,517	56,430	2,653
01/02	20,835	34,273	47,115	52,109	44,870	42,997	43,978	42,305	40,854	42,148	42,509	43,452	44,726	44,636	46,778	47,751	48,477	48,595	49,153	1,403
02/03	23,161	41,414	47,127	45,964	46,142	48,569	48,684	49,649	49,232	50,695	51,778	52,533	51,138	53,157	54,314	56,010	56,260	56,469	57,465	3,151
03/04	37,319	59,398	49,782	45,269	45,397	45,343	45,470	45,359	45,574	48,831	51,352	50,552	51,029	52,424	52,305	52,536	52,770	52,965	53,896	1,473
04/05	23,877	33,928	41,418	42,881	43,513	44,524	45,093	44,295	43,205	43,808	43,363	44,039	44,280	45,658	45,858	46,127	46,397	46,623	47,702	3,422
05/06	34,016	46,654	58,094	52,777	53,313	53,025	53,846	51,672	52,931	53,798	54,264	56,219	56,109	56,239	56,475	56,792	57,109	57,376	58,646	2,427
06/07	35,587	53,852	57,078	57,432	58,902	57,501	59,963	66,076	68,660	68,486	69,480	71,360	71,257	71,428	71,736	72,148	72,563	72,911	74,567	5,087
07/08	25,924	36,879	48,965	51,886	56,170	59,036	62,397	65,016	67,109	69,021	70,158	69,972	69,879	70,034	70,313	70,687	71,064	71,379	72,882	3,862
08/09	21,964	32,332	42,215	47,058	53,867	61,947	66,383	65,359	66,077	67,811	67,593	67,375	67,267	67,447	67,773	68,210	68,649	69,017	70,771	4,694
09/10	21,268	32,272	39,243	44,421	51,978	56,848	59,061	60,500	64,116	64,044	63,829	63,614	63,507	63,685	64,007	64,438	64,871	65,235	66,966	6,466
10/11	26,774	32,132	39,709	55,029	65,029	69,548	75,788	82,346	82,346	82,266	82,024	81,783	81,663	81,863	82,224	82,706	83,192	83,599	85,539	9,751
11/12	23,600	32,387	48,833	54,089	59,523	71,032	79,614	79,614	79,614	79,534	79,294	79,054	78,934	79,133	79,492	79,973	80,457	80,863	82,795	11,763
12/13	26,132	39,446	47,740	54,684	64,097	90,229	90,229	90,229	90,229	90,143	89,887	89,632	89,504	89,716	90,098	90,611	91,126	91,558	93,615	29,519
13/14	24,290	34,473	43,383	50,791	73,402	75,135	75,135	75,135	75,135	75,046	74,781	74,517	74,386	74,605	75,000	75,529	76,062	76,509	78,636	27,845
14/15	16,648	28,317	36,519	59,006	61,451	63,130	63,130	63,130	63,130	63,045	62,788	62,532	62,405	62,617	63,000	63,513	64,029	64,462	66,523	30,005
15/16	18,823	35,787	74,634	77,725	80,107	81,743	81,743	81,743	81,743	81,659	81,409	81,160	81,036	81,243	81,616	82,116	82,618	83,040	85,048	49,261
16/17	19,136	30,510	69,425	73,131	75,988	77,949	77,949	77,949	77,949	77,849	77,549	77,250	77,101	77,349	77,797	78,396	78,999	79,504	81,912	62,775
17/18	18,395	33,563	65,822	68,894	71,262	72,888	72,888	72,888	72,888	72,805	72,556	72,309	72,185	72,391	72,762	73,258	73,758	74,177	76,173	76,173
18/19	19,660	34,671	66,597	69,637	71,980	73,589	73,589	73,589	73,589	73,507	73,261	73,016	72,894	73,097	73,464	73,956	74,451	74,865	76,840	76,840
19/20	20,053	34,990	66,760	69,785	72,117	73,718	73,718	73,718	73,718	73,636	73,392	73,148	73,026	73,228	73,594	74,083	74,575	74,988	76,953	
20/21	20,454	35,311	66,908	69,917	72,236	73,829	73,829	73,829	73,829	73,748	73,504	73,262	73,141	73,342	73,705	74,192	74,681	75,092	77,046	
21/22	20,863	35,631	67,041	70,032	72,338	73,921	73,921	73,921	73,921	73,840	73,598	73,357	73,237	73,437	73,798	74,282	74,768	75,176	77,119	
22/23	20,877	35,655	67,086	70,079	72,386	73,971	73,971	73,971	73,971	73,890	73,648	73,406	73,286	73,486	73,847	74,332	74,818	75,227	77,171	

Appendix 1
Accident Benefits Weekly Indemnity

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	48,897	1,066	1,311	1,085	1,457	(708)	1,653	22	650	122	101	84	70	58	192	56,060
95/96	61,181	(1,155)	352	1,446	1,608	1,180	485	1,504	746	55	46	38	32	26	94	67,635
96/97	35,485	12	216	700	202	548	662	388	1,340	29	24	20	16	14	52	39,706
97/98	41,108	713	(2,377)	469	1,454	160	178	789	356	39	33	27	23	19	75	43,065
98/99	53,623	(2,509)	(367)	2,137	1,063	1,588	225	911	441	30	25	21	17	15	60	57,282
99/00	49,596	418	577	(164)	483	1,138	50	160	465	81	67	56	47	39	166	53,178
00/01	51,756	147	(479)	644	(1,169)	173	2,070	633	1,740	160	133	111	93	77	339	56,430
01/02	40,854	1,295	361	943	1,274	(90)	2,143	972	727	117	98	82	68	57	254	49,153
02/03	49,649	(417)	1,463	1,084	755	(1,396)	2,019	1,157	1,696	249	209	174	145	121	555	57,465
03/04	45,470	(111)	215	3,257	2,521	(800)	477	1,394	(119)	232	233	196	163	136	632	53,896
04/05	44,524	569	(799)	(1,089)	603	(445)	676	241	1,378	200	269	270	226	189	890	47,702
05/06	53,313	(288)	822	(2,174)	1,259	867	465	1,956	(111)	131	236	316	318	267	1,270	58,646
06/07	57,432	1,470	(1,401)	2,461	6,113	2,584	(174)	994	1,880	(103)	171	308	412	415	2,004	74,567
07/08	48,965	2,921	4,284	2,866	3,360	2,620	2,093	1,911	1,138	(187)	(93)	155	279	374	2,195	72,882
08/09	32,332	9,883	4,843	6,809	8,080	4,436	(1,024)	718	1,735	(218)	(218)	(109)	181	326	2,998	70,771
09/10	21,268	11,005	6,971	5,178	7,557	4,870	2,212	1,439	3,617	(72)	(216)	(215)	(107)	178	3,281	66,966
10/11		26,774	5,358	7,577	15,320	10,000	4,519	6,240	6,558	-	(81)	(242)	(241)	(120)	3,875	85,539
11/12			23,600	8,787	16,446	5,256	5,435	11,509	8,582	-	-	(80)	(241)	(240)	3,741	82,795
12/13				26,132	13,314	8,294	6,945	9,413	26,132	-	-	-	(86)	(256)	3,729	93,615
13/14					24,290	10,182	8,911	7,408	22,610	1,733	-	-	-	(88)	3,590	78,636
14/15						16,648	11,669	8,201	22,487	2,445	1,679	-	-	-	3,393	66,523
15/16							18,823	16,964	38,847	3,091	2,382	1,636	-	-	3,305	85,048
16/17								19,136	11,374	38,916	3,706	2,856	1,961	-	3,963	81,912
17/18									18,395	15,168	32,259	3,072	2,368	1,626	3,285	76,173
18/19										19,660	15,011	31,926	3,040	2,343	4,860	76,840
19/20											20,053	14,938	31,769	3,025	7,168	76,953
20/21												20,454	14,857	31,598	10,138	77,046
21/22													20,863	14,769	41,488	77,119
22/23														20,877	56,294	77,171
Total Insurance Year Inc'd		51,792	44,949	68,147	105,991	67,106	70,513	94,061	172,663	81,878	76,128	76,094	76,275	75,843		
IBNR Provision										(5,037)	825	953	844	1,328		
Total Insurance Yr Inc'd & Prov.		51,792	44,949	68,147	105,991	67,106	70,513	94,061	172,663	76,840	76,953	77,046	77,119	77,171		
Change in Total Inc'd			-13.21%	51.61%	55.53%	-36.69%	5.08%	33.40%	83.57%	-55.50%	0.15%	0.12%	0.09%	0.07%		
Total Insurance Yr Claim Counts		1944	1790	2012	1931	1,539	1,848	1,826	1,867	1,720	1,683	1,656	1,629	1,602		
Average Yearly Ultimate		26,642	25,111	33,870	54,889	43,603	38,156	51,512	92,482	44,665	45,713	46,517	47,334	48,162		
Change in Avg Yearly Ult.			-5.74%	34.88%	62.06%	-20.56%	-12.49%	35.00%	79.53%	-51.70%	2.35%	1.76%	1.76%	1.75%		

Appendix 1
Accident Benefits Weekly Indemnity

Table 5
Pre PIPP ('000)

	Insurance Year									
Liability	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
Unpaid (Excludes PFAD)	23,411	23,635	21,932	20,636	19,556	19,873	19,407	18,905	18,332	17,699
Increment Paid	2,060	2,043	2,015	1,950	1,976	1,175	1,175	1,175	1,175	1,175
Case Reserves	23,156	20,101	18,091	15,557	13,429	12,254	11,078	9,903	8,727	7,552
IBNR (Includes PFAD)	3,847	6,563	5,994	7,932	8,904	9,530	10,150	10,732	11,240	11,684
IBNR Annual Change	985	2,716	(569)	1,938	973	626	620	582	508	444
Reported	(111)	(1,012)	5	(585)	(152)	0	0	0	0	0
Provision for Adverse Deviation	3,593	3,029	2,153	2,853	2,777	1,911	1,821	1,730	1,635	1,536

Appendix 1
Accident Benefits Weekly Indemnity

Table 6
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	85,953	85,953	91,684	84,620	82,688	79,730	77,027	75,228	73,646	72,034
00/01	15,063	16,071	16,603	15,994	16,401	15,722	15,238	14,814	14,416	14,056
01/02	14,001	14,767	15,147	14,849	14,160	13,554	13,115	12,726	12,360	12,026
02/03	18,021	18,048	18,878	18,405	18,484	17,750	17,151	16,617	16,110	15,642
03/04	17,658	17,693	17,202	16,966	15,709	15,080	14,621	14,146	13,692	13,271
04/05	16,972	16,314	16,069	16,253	16,853	16,250	15,751	15,292	14,781	14,304
05/06	20,446	21,641	19,972	20,134	20,141	19,349	18,842	18,289	17,738	17,142
06/07	28,140	31,214	28,874	27,408	28,419	27,293	26,485	25,826	25,043	24,283
07/08	25,862	28,468	27,913	28,469	27,454	26,297	25,513	24,792	24,150	23,413
08/09	26,216	29,982	26,727	26,059	25,455	24,375	23,589	22,917	22,248	21,667
09/10	23,177	26,465	25,528	25,465	26,082	25,088	24,273	23,523	22,831	22,159
10/11	25,367	32,334	32,055	34,137	35,856	34,441	33,475	32,434	31,402	30,472
11/12	33,503	27,934	29,727	34,837	37,135	35,587	34,544	33,623	32,546	31,504
12/13	35,273	38,336	30,907	32,507	45,396	43,389	42,023	40,851	39,722	38,443
13/14	42,366	41,166	41,100	43,502	38,863	36,954	35,697	34,625	33,626	32,689
14/15		43,204	41,400	44,374	35,691	33,770	32,453	31,398	30,425	29,540
15/16			43,515	42,686	49,209	46,348	44,320	42,659	41,231	39,946
16/17				46,992	51,232	47,530	45,238	43,327	41,664	40,262
17/18					55,171	47,849	44,851	42,756	40,913	39,336
18/19						56,019	49,060	46,061	43,872	41,975
19/20							56,253	49,359	46,306	44,101
20/21								56,547	49,598	46,531
21/22									56,776	49,815
22/23										56,978
Total	428,017	489,589	523,299	573,654	640,399	662,375	689,521	717,811	745,097	771,591
Change in Total		14.39%	6.89%	9.62%	11.64%	3.43%	4.10%	4.10%	3.80%	3.56%

Appendix 1
Accident Benefits Weekly Indemnity

Table 7
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	102,067	99,526	96,071	93,719	91,357	88,441	85,745	83,194	80,689	78,174
00/01	18,327	17,466	18,364	17,908	18,545	17,914	17,314	16,749	16,219	15,726
01/02	16,529	15,248	16,459	16,429	16,170	15,587	15,033	14,509	14,018	13,560
02/03	22,820	20,153	20,567	20,272	20,604	19,989	19,314	18,666	18,050	17,468
03/04	21,697	19,390	18,441	18,552	17,208	16,696	16,223	15,695	15,186	14,700
04/05	20,841	19,231	18,560	17,854	18,194	17,662	17,159	16,697	16,175	15,668
05/06	25,131	24,109	22,996	23,422	21,713	20,898	20,293	19,723	19,202	18,610
06/07	34,538	34,880	32,494	31,178	31,095	29,653	28,540	27,710	26,925	26,206
07/08	31,396	31,475	31,318	31,302	30,477	28,936	27,596	26,560	25,786	25,055
08/09	30,775	32,821	29,538	28,261	27,877	26,389	24,941	23,698	22,804	22,186
09/10	25,591	27,825	27,832	27,297	28,822	27,570	26,090	24,651	23,417	22,533
10/11	26,631	33,000	34,142	37,177	40,438	38,787	37,149	35,237	33,381	31,777
11/12	25,380	26,075	27,905	36,513	42,075	40,289	38,640	37,003	35,089	33,231
12/13	19,406	22,095	24,583	29,753	51,992	49,706	47,613	45,682	43,772	41,554
13/14	15,213	16,207	19,979	23,210	42,177	41,750	39,863	38,134	36,537	34,935
14/15		9,121	12,943	16,988	35,987	36,244	36,062	34,405	32,887	31,483
15/16			9,706	16,476	49,476	49,326	48,931	48,180	46,039	44,079
16/17				9,662	10,697	45,413	46,010	46,213	45,896	43,799
17/18					8,126	14,833	43,818	44,043	43,968	43,485
18/19						10,050	16,456	45,028	45,165	45,015
19/20							10,299	16,639	45,054	45,177
20/21								10,554	16,823	45,068
21/22									10,814	17,009
22/23										10,678
Total	436,342	448,622	461,900	495,974	603,032	636,134	663,088	688,971	713,898	737,175
Change in Total		2.81%	2.96%	7.38%	21.59%	5.49%	4.24%	3.90%	3.62%	3.26%

Appendix 1
Accident Benefits Weekly Indemnity

Table 8
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3,724	10,575	2,221	2,056	699	351	832	1,409	1,901	2,353
00/01	285	1,855	958	670	469	296	319	375	424	477
01/02	782	2,534	1,188	831	258	124	158	219	271	324
02/03	(415)	1,548	1,348	1,139	860	602	570	585	596	617
03/04	(12)	1,739	1,455	1,203	1,048	812	741	708	679	663
04/05	1,147	633	251	1,081	1,411	1,219	1,132	1,048	967	908
05/06	1,387	3,211	177	48	1,733	1,607	1,605	1,518	1,385	1,274
06/07	1,991	4,569	2,653	790	2,011	2,113	2,269	2,309	2,166	1,982
07/08	2,192	4,525	2,673	3,337	1,520	1,692	2,105	2,286	2,291	2,148
08/09	3,246	5,103	3,017	3,461	1,803	2,015	2,538	2,987	3,087	3,009
09/10	4,444	5,640	3,272	3,716	1,609	1,676	2,199	2,758	3,173	3,259
10/11	6,175	7,861	4,917	4,414	1,421	1,389	1,883	2,574	3,217	3,718
11/12	17,851	9,188	8,305	5,935	1,293	1,246	1,664	2,212	2,861	3,493
12/13	25,921	26,226	13,044	9,847	1,035	954	1,445	1,995	2,567	3,281
13/14	38,627	35,542	30,020	29,758	3,215	1,405	1,826	2,299	2,716	3,208
14/15		44,761	37,347	37,005	5,684	3,189	1,847	2,274	2,650	3,009
15/16			42,901	35,393	7,946	4,775	2,835	1,665	2,139	2,590
16/17				47,173	51,565	10,035	6,809	4,409	2,800	3,259
17/18					58,623	43,302	8,518	5,895	3,846	2,503
18/19						57,707	43,167	8,739	6,091	4,055
19/20							57,759	43,367	9,014	6,360
20/21								57,883	43,491	9,278
21/22									57,919	43,586
22/23										58,320
Total	107,347	165,508	155,748	187,856	144,204	136,508	142,220	149,515	156,252	163,675
Change in Total		54.18%	-5.90%	20.62%	-23.24%	-5.34%	4.18%	5.13%	4.51%	4.75%

Appendix 1
Accident Benefits Weekly Indemnity

Table 9
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(5,292)	6,851	(8,354)	(165)	(1,357)	(348)	481	577	492	452
00/01	(1,095)	1,570	(897)	(288)	(201)	(173)	23	56	49	53
01/02	(1,019)	1,752	(1,346)	(357)	(572)	(134)	34	61	52	53
02/03	(1,836)	1,963	(200)	(208)	(279)	(259)	(31)	14	12	21
03/04	(867)	1,751	(283)	(253)	(155)	(236)	(72)	(33)	(29)	(16)
04/05	195	(514)	(382)	830	330	(192)	(87)	(84)	(80)	(59)
05/06	(13)	1,823	(3,034)	(129)	1,685	(126)	(2)	(86)	(134)	(111)
06/07	56	2,578	(1,916)	(1,863)	1,220	103	156	40	(143)	(184)
07/08	(228)	2,333	(1,851)	664	(1,817)	172	413	182	5	(143)
08/09	(6,198)	1,857	(2,085)	444	(1,658)	211	523	449	100	(78)
09/10	(12,495)	1,196	(2,368)	443	(2,106)	67	523	559	415	87
10/11	(16,947)	1,685	(2,944)	(503)	(2,994)	(32)	494	691	642	502
11/12	(6,071)	(8,664)	(883)	(2,370)	(4,643)	(47)	418	548	648	632
12/13	601	305	(13,182)	(3,197)	(8,812)	(81)	491	550	572	714
13/14	38,627	(3,085)	(5,522)	(263)	(26,542)	(1,810)	421	473	417	492
14/15		44,761	(7,414)	(342)	(31,321)	(2,495)	(1,342)	427	377	359
15/16			42,901	(7,508)	(27,446)	(3,172)	(1,939)	(1,170)	474	451
16/17				47,173	4,391	(41,530)	(3,226)	(2,400)	(1,610)	459
17/18					58,623	(15,320)	(34,785)	(2,623)	(2,048)	(1,343)
18/19						57,707	(14,540)	(34,428)	(2,648)	(2,036)
19/20							57,759	(14,392)	(34,353)	(2,654)
20/21								57,883	(14,392)	(34,213)
21/22									57,919	(14,333)
22/23										58,320
Total	(12,581)	58,162	(9,760)	32,108	(43,652)	(7,696)	5,712	7,295	6,737	7,423

Appendix 1
Accident Benefits Weekly Indemnity

Table 10
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	6,267	3,906	3,253	3,775	3,997	2,189	2,076	1,976	1,885	1,801
00/01	(1,169)	173	2,070	633	1,740	534	497	464	435	410
01/02	1,274	(90)	2,143	972	727	443	414	387	364	343
02/03	755	(1,396)	2,019	1,157	1,696	666	617	571	531	495
03/04	2,521	(800)	477	1,394	(119)	581	577	532	491	454
04/05	603	(445)	676	241	1,378	568	633	630	579	532
05/06	1,259	867	465	1,956	(111)	568	664	741	739	678
06/07	6,113	2,584	(174)	994	1,880	517	771	898	1,001	996
07/08	3,360	2,620	2,093	1,911	1,138	419	482	716	834	929
08/09	8,080	4,436	(1,024)	718	1,735	335	301	384	669	816
09/10	7,557	4,870	2,212	1,439	3,617	503	327	294	377	665
10/11	15,320	10,000	4,519	6,240	6,558	809	692	487	444	535
11/12	16,446	5,256	5,435	11,509	8,582	842	806	688	480	437
12/13	13,314	8,294	6,945	9,413	26,132	1,040	994	952	821	593
13/14	24,290	10,182	8,911	7,408	22,610	2,611	835	797	763	633
14/15		16,648	11,669	8,201	22,487	3,214	2,472	721	688	658
15/16			18,823	16,964	38,847	4,142	3,465	2,714	964	921
16/17				19,136	11,374	39,908	4,764	3,951	3,047	918
17/18					18,395	15,634	33,859	4,136	3,444	2,674
18/19						19,660	15,512	33,545	4,127	3,440
19/20							20,053	15,442	33,386	4,112
20/21								20,454	15,365	33,211
21/22									20,863	15,280
22/23										20,877
Total	105,991	67,106	70,513	94,061	172,663	95,183	90,810	91,481	92,295	92,407
Change in Total		-36.69%	5.08%	33.40%	83.57%	-44.87%	-4.59%	0.74%	0.89%	0.12%

Appendix 1
Accident Benefits Weekly Indemnity

Table 11
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	11,243	9,249	5,210	4,818	4,353	4,062	3,826	3,593	3,353	3,109
00/01	2,043	1,643	1,059	985	973	915	871	828	785	741
01/02	1,910	1,538	985	926	853	802	765	729	693	656
02/03	2,582	1,848	1,149	1,166	1,132	1,066	1,018	972	926	879
03/04	2,262	1,666	974	1,092	976	920	880	842	803	765
04/05	2,471	1,919	1,135	1,057	1,066	1,007	964	924	883	842
05/06	3,006	2,433	1,204	1,323	1,292	1,220	1,171	1,124	1,075	1,027
06/07	4,168	3,552	1,942	1,818	1,845	1,744	1,676	1,611	1,544	1,476
07/08	3,847	3,262	1,891	1,900	1,798	1,701	1,636	1,575	1,512	1,448
08/09	3,873	3,444	1,819	1,754	1,680	1,590	1,531	1,476	1,418	1,361
09/10	3,381	3,030	1,747	1,727	1,741	1,649	1,589	1,534	1,476	1,418
10/11	3,634	3,678	2,196	2,334	2,417	2,291	2,209	2,133	2,055	1,976
11/12	4,703	3,138	2,024	2,387	2,520	2,389	2,306	2,229	2,149	2,069
12/13	4,763	4,234	2,084	2,217	3,092	2,932	2,832	2,741	2,645	2,548
13/14	5,120	4,408	2,735	2,941	2,643	2,506	2,422	2,346	2,265	2,185
14/15		4,198	2,681	2,963	2,412	2,286	2,210	2,142	2,070	1,998
15/16			2,565	2,780	3,292	3,118	3,014	2,921	2,825	2,729
16/17				2,795	3,345	3,165	3,057	2,962	2,866	2,770
17/18					3,302	3,109	3,000	2,906	2,811	2,718
18/19						3,335	3,203	3,099	2,996	2,897
19/20							3,367	3,243	3,132	3,026
20/21								3,407	3,276	3,162
21/22									3,441	3,307
22/23										3,473
Total	59,004	53,241	33,401	36,983	40,730	41,809	43,548	45,339	46,998	48,581
Change in Total		-9.77%	-37.26%	10.73%	10.13%	2.65%	4.16%	4.11%	3.66%	3.37%

Appendix 1
Accident Benefits Weekly Indemnity

Table 12
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	8,595	9,168	8,462	8,269	7,973	7,703	7,523	7,365	7,203	7,038
00/01	1,506	1,607	1,660	1,599	1,640	1,572	1,524	1,481	1,442	1,406
01/02	1,400	1,477	1,515	1,485	1,416	1,355	1,311	1,273	1,236	1,203
02/03	1,802	1,805	1,888	1,841	1,848	1,775	1,715	1,662	1,611	1,564
03/04	1,766	1,769	1,720	1,697	1,571	1,508	1,462	1,415	1,369	1,327
04/05	2,546	1,631	1,607	1,625	1,685	1,625	1,575	1,529	1,478	1,430
05/06	3,067	3,246	1,997	2,013	2,014	1,935	1,884	1,829	1,774	1,714
06/07	4,221	4,682	4,331	2,741	2,842	2,729	2,649	2,583	2,504	2,428
07/08	3,879	4,270	4,187	4,270	2,745	2,630	2,551	2,479	2,415	2,341
08/09	3,932	4,497	4,009	3,909	2,546	2,438	2,359	2,292	2,225	2,167
09/10	3,477	3,970	3,829	3,820	2,608	2,509	2,427	2,352	2,283	2,216
10/11	3,805	4,850	4,808	5,121	3,586	3,444	3,347	3,243	3,140	3,047
11/12	5,025	4,190	4,459	5,225	3,713	3,559	3,454	3,362	3,255	3,150
12/13	5,291	5,750	4,636	4,876	4,540	4,339	4,202	4,085	3,972	3,844
13/14	6,355	6,175	6,165	6,525	3,886	3,695	3,570	3,463	3,363	3,269
14/15		6,481	6,210	6,656	3,569	3,377	3,245	3,140	3,042	2,954
15/16			6,527	6,403	4,921	4,635	4,432	4,266	4,123	3,995
16/17				7,049	7,685	4,753	4,524	4,333	4,166	4,026
17/18					8,276	7,177	4,485	4,276	4,091	3,934
18/19						8,403	7,359	4,606	4,387	4,198
19/20							8,438	7,404	4,631	4,410
20/21								8,482	7,440	4,653
21/22									8,516	7,472
22/23										8,547
Total	56,668	65,569	68,011	75,124	69,064	71,161	74,038	76,918	79,667	82,333
Change in Total		15.71%	3.72%	10.46%	-8.07%	3.04%	4.04%	3.89%	3.57%	3.35%

Appendix 1
Accident Benefits Weekly Indemnity

Table 13
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	19,838	18,417	13,672	13,087	12,326	11,765	11,349	10,958	10,556	10,147
00/01	3,549	3,250	2,719	2,584	2,613	2,487	2,395	2,310	2,227	2,146
01/02	3,310	3,015	2,500	2,411	2,269	2,158	2,077	2,002	1,929	1,859
02/03	4,384	3,652	3,037	3,006	2,980	2,841	2,733	2,634	2,537	2,443
03/04	4,027	3,436	2,694	2,789	2,547	2,428	2,342	2,257	2,173	2,092
04/05	5,017	3,550	2,742	2,682	2,752	2,632	2,539	2,453	2,361	2,272
05/06	6,073	5,679	3,201	3,337	3,306	3,155	3,055	2,953	2,849	2,741
06/07	8,389	8,234	6,273	4,559	4,687	4,474	4,324	4,194	4,048	3,905
07/08	7,726	7,532	6,078	6,170	4,543	4,331	4,187	4,054	3,927	3,789
08/09	7,805	7,942	5,828	5,663	4,225	4,028	3,890	3,768	3,643	3,527
09/10	6,858	7,000	5,576	5,547	4,350	4,158	4,017	3,886	3,759	3,634
10/11	7,439	8,528	7,004	7,455	6,003	5,735	5,557	5,377	5,195	5,024
11/12	9,728	7,329	6,483	7,612	6,233	5,948	5,761	5,592	5,404	5,220
12/13	10,054	9,985	6,720	7,093	7,631	7,271	7,035	6,826	6,617	6,393
13/14	11,475	10,583	8,900	9,466	6,529	6,202	5,992	5,808	5,628	5,454
14/15		10,679	8,891	9,619	5,981	5,663	5,456	5,281	5,112	4,952
15/16			9,092	9,183	8,213	7,753	7,446	7,187	6,948	6,724
16/17				9,844	11,030	7,918	7,581	7,295	7,032	6,796
17/18					11,578	10,287	7,485	7,181	6,902	6,651
18/19						11,738	10,562	7,705	7,383	7,094
19/20							11,805	10,647	7,762	7,436
20/21								11,889	10,716	7,815
21/22									11,957	10,780
22/23										12,020
Total	115,672	118,810	101,411	112,107	109,794	112,970	117,586	122,257	126,665	130,914
Change in Total		2.71%	-14.64%	10.55%	-2.06%	2.89%	4.09%	3.97%	3.61%	3.35%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	43	68	469	283
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	59	101	144	1,451	1,085
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	15	43	72	99	128	638	421
97/98	-	-	-	-	-	-	-	-	-	-	-	-	8	31	55	102	150	186	716	459
98/99	-	-	-	-	-	-	-	-	-	-	-	5	23	39	55	89	110	131	491	339
99/00	-	-	-	-	-	-	-	-	-	-	14	51	87	123	171	211	252	293	923	630
00/01	-	-	-	-	-	-	-	-	-	21	91	157	211	272	337	392	436	486	1,287	851
01/02	-	-	-	-	-	-	-	-	8	37	67	96	125	149	176	207	241	279	1,164	957
02/03	-	-	-	-	-	-	-	11	41	88	124	176	222	320	379	441	482	525	1,511	1,132
03/04	-	-	-	-	-	-	12	42	70	100	135	170	206	239	264	283	302	321	771	532
04/05	-	-	-	-	-	5	20	74	105	147	181	221	259	299	333	369	406	443	1,310	1,051
05/06	-	-	-	-	25	89	159	217	277	336	395	455	516	563	611	660	711	762	1,958	1,504
06/07	-	-	-	30	117	202	282	372	457	545	640	713	774	837	903	970	1,039	1,109	2,741	2,102
07/08	-	-	16	88	154	183	239	289	336	383	433	463	494	526	560	594	629	665	1,497	1,114
08/09	-	0	30	60	89	119	193	303	407	455	478	502	528	554	582	610	639	668	1,352	945
09/10	11	68	138	185	234	283	333	383	435	473	513	555	599	645	693	742	792	843	2,027	1,644
10/11	-	0	50	69	88	107	126	146	157	168	179	191	204	217	231	245	260	275	617	490
11/12	13	13	36	119	149	16	47	62	78	94	110	128	146	165	184	204	225	246	732	717
12/13	-	11	56	88	172	217	239	261	282	304	327	351	376	403	430	458	486	515	1,192	1,020
13/14	2	2	2	2	94	113	132	151	170	189	210	231	254	277	301	326	351	377	976	974
14/15	-	18	28	38	48	59	69	80	90	101	112	123	136	148	161	175	189	203	529	501
15/16	9	9	9	27	46	64	82	100	119	137	156	177	198	220	243	267	291	316	887	878
16/17	-	103	153	202	252	302	351	401	450	500	552	608	666	726	788	852	917	984	2,533	2,533
17/18	8	40	72	104	135	167	199	230	262	294	327	363	400	438	478	519	561	603	1,594	1,594
18/19	-	25	50	75	100	124	149	174	199	224	250	278	307	337	368	400	433	467	1,244	
19/20	-	25	50	75	100	124	149	174	199	224	250	278	307	337	368	400	433	467	1,244	
20/21	-	25	50	75	100	124	149	174	199	224	250	278	307	337	368	400	433	467	1,244	
21/22	-	25	50	75	100	124	149	174	199	224	250	278	307	337	368	400	433	467	1,244	
22/23	-	25	50	75	100	124	149	174	199	224	250	278	307	337	368	400	433	467	1,244	

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year										There-after	Ultimate
	Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	133	18	18	18	18	16	16	15	15	15	187	469
95/96	213	50	52	51	54	59	58	58	57	56	744	1,451
96/97	128	29	30	30	31	21	21	21	21	20	286	638
97/98	150	36	35	36	36	22	22	22	21	21	316	716
98/99	89	21	21	21	22	15	16	15	15	15	240	491
99/00	171	40	41	41	43	27	27	27	27	27	451	923
00/01	272	64	55	44	50	35	35	36	36	36	624	1,287
01/02	125	24	27	31	34	38	39	39	39	39	729	1,164
02/03	176	46	98	59	62	42	43	43	44	44	855	1,511
03/04	135	36	36	32	25	19	19	19	20	20	410	771
04/05	147	35	39	38	39	35	36	37	37	38	829	1,310
05/06	277	59	59	60	62	46	48	49	51	52	1,196	1,958
06/07	372	86	87	95	73	61	63	66	67	69	1,702	2,741
07/08	239	51	47	47	50	30	31	32	33	34	903	1,497
08/09	119	74	110	104	48	23	24	26	27	27	770	1,352
09/10	234	49	50	50	52	38	40	42	44	46	1,382	2,027
10/11	69	19	19	19	19	11	11	12	12	13	412	617
11/12	36	84	30	(133)	31	16	16	16	17	17	605	732
12/13	11	46	32	84	46	22	22	22	22	23	865	1,192
13/14	2	-	-	-	91	19	19	19	19	19	787	976
14/15		-	18	10	10	10	10	10	10	10	439	529
15/16			9	-	-	18	18	18	18	18	786	887
16/17				-	103	50	50	50	50	50	2,182	2,533
17/18					8	32	32	32	32	32	1,427	1,594
18/19						-	25	25	25	25	1,144	1,244
19/20							-	25	25	25	1,169	1,244
20/21								-	25	25	1,194	1,244
21/22									-	25	1,219	1,244
22/23										-	1,244	1,244
Total Insurance Year Paid		864	913	737	1,007	704	740	775	809	842		
Unpaid Provision						540	503	469	435	402		
Total Insurance Yr Paid & Prov.		864	913	737	1,007	1,244	1,244	1,244	1,244	1,244		
Change in Total Paid			5.67%	-19.26%	36.63%	-30.10%	5.17%	4.72%	4.36%	4.07%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	492	507	319	469	21
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	970	1,020	1,022	1,066	1,451	56
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	472	498	495	500	549	638	24
97/98	-	-	-	-	-	-	-	-	-	-	-	-	455	483	482	598	730	757	716	(102)
98/99	-	-	-	-	-	-	-	-	-	-	-	283	283	294	303	427	445	451	491	38
99/00	-	-	-	-	-	-	-	-	-	-	666	680	700	706	808	838	872	892	923	32
00/01	-	-	-	-	-	-	-	-	-	1,046	1,275	1,349	1,304	1,164	1,317	1,354	1,366	1,274	1,287	(79)
01/02	-	-	-	-	-	-	-	-	778	942	1,007	1,038	1,062	1,075	912	1,126	1,162	1,163	1,164	39
02/03	-	-	-	-	-	-	-	542	566	768	797	915	1,335	1,373	1,387	1,345	1,373	1,397	1,511	124
03/04	-	-	-	-	-	-	859	856	843	882	925	943	973	987	766	766	767	768	771	(216)
04/05	-	-	-	-	-	523	543	745	1,116	1,165	1,193	1,239	1,262	1,308	1,308	1,309	1,309	1,309	1,310	48
05/06	-	-	-	-	1,665	1,708	1,709	1,624	1,720	1,766	1,846	1,873	1,953	1,953	1,953	1,954	1,955	1,955	1,958	85
06/07	-	-	-	2,199	2,622	2,631	2,631	2,740	2,812	2,919	2,942	2,737	2,736	2,737	2,737	2,738	2,738	2,739	2,741	(200)
07/08	-	-	1,241	1,593	1,634	1,649	1,501	1,373	1,400	1,444	1,457	1,455	1,453	1,455	1,459	1,465	1,470	1,475	1,497	53
08/09	-	79	1,022	1,031	1,049	1,067	1,325	1,204	1,035	1,314	1,311	1,308	1,307	1,309	1,313	1,319	1,325	1,329	1,352	317
09/10	15	766	1,227	1,234	1,273	1,282	1,329	1,370	1,438	1,424	1,379	1,335	1,312	1,349	1,416	1,505	1,594	1,669	2,027	656
10/11	-	7	506	587	568	587	595	615	615	615	615	615	615	615	615	615	615	616	617	22
11/12	13	13	195	815	820	852	723	723	723	723	722	722	721	722	723	724	726	727	732	(120)
12/13	369	640	761	800	1,140	1,184	1,184	1,184	1,184	1,184	1,183	1,183	1,183	1,183	1,184	1,185	1,186	1,187	1,192	52
13/14	0	0	0	0	528	676	676	676	676	669	646	624	612	631	665	710	756	794	976	976
14/15	-	30	189	200	307	380	380	380	380	377	365	354	349	358	375	397	420	439	529	340
15/16	10	9	9	270	470	608	608	608	608	601	580	559	549	566	598	640	682	718	887	878
16/17	-	1,194	2,207	2,304	2,378	2,429	2,429	2,429	2,429	2,427	2,419	2,411	2,407	2,414	2,425	2,441	2,457	2,470	2,533	2,533
17/18	20	433	1,312	1,395	1,460	1,504	1,504	1,504	1,504	1,502	1,495	1,488	1,485	1,491	1,501	1,514	1,528	1,539	1,594	1,594
18/19	-	327	1,021	1,087	1,138	1,173	1,173	1,173	1,173	1,171	1,166	1,161	1,158	1,162	1,170	1,181	1,192	1,201	1,244	1,244
19/20	-	327	1,021	1,087	1,138	1,173	1,173	1,173	1,173	1,171	1,166	1,161	1,158	1,162	1,170	1,181	1,192	1,201	1,244	
20/21	-	327	1,021	1,087	1,138	1,173	1,173	1,173	1,173	1,171	1,166	1,161	1,158	1,162	1,170	1,181	1,192	1,201	1,244	
21/22	-	327	1,021	1,087	1,138	1,173	1,173	1,173	1,173	1,171	1,166	1,161	1,158	1,162	1,170	1,181	1,192	1,201	1,244	
22/23	-	327	1,021	1,087	1,138	1,173	1,173	1,173	1,173	1,171	1,166	1,161	1,158	1,162	1,170	1,181	1,192	1,201	1,244	

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	492	15	(188)	7	197	(95)	13	8	18	1	0	0	0	0	1	469
95/96	970	49	2	44	201	29	63	36	54	1	0	0	0	0	1	1,451
96/97	472	26	(3)	5	50	26	23	15	22	0	0	0	0	0	1	638
97/98	455	28	(1)	117	132	28	24	36	(104)	0	0	0	0	0	1	716
98/99	283	-	11	8	125	18	5	3	36	0	0	0	0	0	1	491
99/00	666	14	20	6	102	30	34	19	29	0	0	0	0	0	1	923
00/01	1,046	229	74	(45)	(139)	153	37	12	(92)	2	2	2	1	1	5	1,287
01/02	778	164	65	30	24	13	(163)	214	37	0	0	0	0	0	1	1,164
02/03	542	24	203	28	118	420	38	14	(42)	28	24	20	17	14	63	1,511
03/04	859	(3)	(13)	40	43	18	31	13	(221)	1	1	1	1	0	2	771
04/05	523	20	202	371	48	28	46	23	46	0	0	0	0	0	1	1,310
05/06	1,665	43	1	(85)	97	46	80	27	79	0	1	1	1	1	3	1,958
06/07	2,199	422	9	1	108	73	106	23	(205)	(0)	0	0	1	1	3	2,741
07/08	1,241	352	41	15	(148)	(127)	27	44	13	(3)	(1)	2	4	5	32	1,497
08/09	79	943	8	19	18	258	(121)	(169)	278	(3)	(3)	(1)	2	4	39	1,352
09/10	15	751	462	7	38	9	47	41	68	(15)	(45)	(44)	(22)	37	678	2,027
10/11		-	7	499	81	(19)	19	8	20	-	(0)	(0)	(0)	(0)	2	617
11/12			13	-	183	619	5	32	(129)	-	-	(0)	(1)	(1)	11	732
12/13				369	271	120	39	340	44	-	-	-	(0)	(1)	8	1,192
13/14					0	-	-	-	528	148	-	-	-	(8)	307	976
14/15						-	30	159	10	107	74	-	-	-	149	529
15/16							10	(1)	-	261	201	138	-	-	279	887
16/17								-	1,194	1,014	97	74	51	-	103	2,533
17/18									20	413	879	84	64	44	89	1,594
18/19										-	327	694	66	51	106	1,244
19/20											-	327	694	66	157	1,244
20/21												-	327	694	223	1,244
21/22													-	327	917	1,244
22/23														-	1,244	1,244
Total Insurance Year Inc'd		3,078	913	1,434	1,548	1,647	394	899	1,702	1,958	1,558	1,299	1,208	1,238		
IBNR Provision										(714)	(314)	(55)	36	6		
Total Insurance Yr Inc'd & Prov.		3,078	913	1,434	1,548	1,647	394	899	1,702	1,244	1,244	1,244	1,244	1,244		
Change in Total Inc'd			-70.33%	57.01%	7.94%	6.39%	-76.05%	127.84%	89.45%	-26.94%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	2,827	2,827	2,961	2,793	2,764	2,606	2,522	2,453	2,379	2,298
00/01	728	885	826	797	678	662	651	639	625	609
01/02	718	813	613	778	776	760	750	738	724	707
02/03	618	989	926	893	893	877	868	857	842	826
03/04	624	683	645	630	420	414	410	406	401	394
04/05	774	872	824	833	833	822	817	811	802	791
05/06	1,117	1,247	1,184	1,172	1,179	1,166	1,163	1,157	1,148	1,135
06/07	1,811	2,047	1,926	1,885	1,647	1,632	1,631	1,629	1,620	1,606
07/08	985	941	875	862	857	851	853	854	852	847
08/09	1,268	1,401	1,073	752	717	714	718	720	720	718
09/10	1,299	1,435	1,420	1,273	1,262	1,259	1,269	1,277	1,280	1,280
10/11	365	414	389	369	370	370	373	377	379	379
11/12	882	602	557	537	535	534	540	546	550	553
12/13	1,368	618	586	760	754	753	762	771	779	785
13/14	1,583	1,533	864	701	678	677	685	694	702	709
14/15		1,865	1,209	621	374	374	379	384	388	392
15/16			1,705	1,171	664	663	672	682	691	699
16/17				1,550	1,824	1,822	1,848	1,876	1,901	1,924
17/18					1,181	1,180	1,198	1,217	1,234	1,249
18/19						938	952	968	982	995
19/20							964	981	996	1,009
20/21								994	1,009	1,024
21/22									1,022	1,038
22/23										1,040
Total	16,967	19,174	18,582	18,377	18,407	19,075	20,025	21,031	22,025	23,005
Change in Total		13.00%	-3.09%	-1.10%	0.17%	3.63%	4.98%	5.03%	4.73%	4.45%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3,419	3,261	3,228	3,148	2,998	2,898	2,792	2,682	2,568	2,449
00/01	892	980	962	930	789	771	752	730	708	684
01/02	936	926	736	919	921	901	879	856	830	804
02/03	739	1,113	1,053	1,008	904	909	907	901	890	875
03/04	791	772	767	748	501	493	484	474	463	451
04/05	1,018	1,011	1,019	1,003	1,010	995	977	958	937	914
05/06	1,443	1,430	1,451	1,419	1,436	1,418	1,397	1,373	1,347	1,317
06/07	2,368	2,355	2,374	2,302	2,024	2,002	1,976	1,947	1,914	1,876
07/08	1,262	1,084	1,064	1,061	1,024	1,012	998	986	974	962
08/09	949	1,133	902	628	859	850	838	827	817	808
09/10	1,039	999	996	988	1,004	970	901	827	772	777
10/11	518	480	480	468	469	468	465	462	458	453
11/12	160	695	671	837	676	674	671	668	663	656
12/13	630	705	711	968	967	964	961	957	953	946
13/14	(2)	(2)	(2)	(2)	435	575	566	557	548	529
14/15		-	12	161	162	264	334	330	325	320
15/16			1	-	-	247	442	578	569	561
16/17				-	1,090	2,096	2,186	2,256	2,303	2,295
17/18					12	401	1,290	1,371	1,434	1,477
18/19						-	314	1,031	1,096	1,147
19/20							-	320	1,051	1,118
20/21								-	327	1,072
21/22									-	333
22/23										-
Total	16,160	16,943	16,425	16,586	17,282	18,906	20,135	21,093	21,946	22,823
Change in Total		4.84%	-3.06%	0.98%	4.19%	9.40%	6.50%	4.76%	4.05%	3.99%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	183	583	147	176	0	(1)	19	41	58	72
00/01	46	126	38	35	(4)	(5)	0	6	11	15
01/02	12	115	18	25	(21)	(21)	(13)	(4)	3	9
02/03	46	131	73	78	135	109	97	89	82	77
03/04	21	92	20	20	(12)	(12)	(8)	(4)	0	4
04/05	12	113	(2)	13	(37)	(37)	(27)	(17)	(8)	1
05/06	28	165	3	14	(57)	(57)	(42)	(27)	(14)	(2)
06/07	33	275	(2)	8	(93)	(93)	(72)	(49)	(30)	(12)
07/08	29	118	10	(2)	(17)	(14)	0	11	19	23
08/09	707	645	408	297	(14)	(11)	3	16	24	29
09/10	665	831	745	584	487	514	590	671	727	718
10/11	(36)	50	(2)	(11)	(31)	(31)	(26)	(19)	(14)	(9)
11/12	1,000	75	14	(170)	(42)	(42)	(34)	(24)	(16)	(7)
12/13	1,187	82	6	(23)	(69)	(70)	(59)	(46)	(34)	(22)
13/14	2,086	1,981	1,074	875	374	230	247	265	282	307
14/15		2,386	1,470	614	286	182	116	126	135	144
15/16			2,093	1,466	796	546	360	234	251	267
16/17				1,944	1,191	87	22	(18)	(40)	(9)
17/18					1,469	1,075	145	84	38	11
18/19						1,175	877	129	78	41
19/20							1,209	907	142	90
20/21								1,246	936	155
21/22									1,283	966
22/23										1,318
Total	6,020	7,768	6,112	5,943	4,342	3,524	3,406	3,618	3,913	4,184
Change in Total		29.04%	-21.32%	-2.76%	-26.94%	-18.84%	-3.36%	6.22%	8.18%	6.91%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(24)	400	(435)	29	(176)	(2)	21	21	17	14
00/01	(27)	80	(88)	(3)	(38)	(2)	5	6	5	4
01/02	(26)	103	(97)	7	(46)	(0)	8	9	7	6
02/03	(351)	84	(58)	5	57	(25)	(12)	(8)	(7)	(6)
03/04	(15)	71	(72)	(0)	(31)	(1)	4	5	4	4
04/05	(23)	101	(114)	15	(50)	(0)	10	11	9	8
05/06	(38)	138	(162)	12	(71)	(0)	14	15	13	12
06/07	(49)	242	(277)	11	(101)	0	21	23	19	18
07/08	(18)	89	(109)	(12)	(15)	3	14	11	7	5
08/09	(46)	(62)	(238)	(110)	(311)	3	14	13	8	5
09/10	(379)	166	(86)	(161)	(96)	26	77	80	56	(9)
10/11	(635)	86	(52)	(9)	(20)	(0)	6	6	5	5
11/12	(816)	(925)	(61)	(184)	129	(0)	8	9	9	8
12/13	(850)	(1,105)	(76)	(29)	(47)	(1)	12	13	12	12
13/14	2,086	(105)	(907)	(199)	(501)	(144)	17	18	17	25
14/15		2,386	(916)	(856)	(329)	(104)	(66)	10	9	9
15/16			2,093	(627)	(670)	(250)	(186)	(126)	17	16
16/17				1,944	(754)	(1,104)	(65)	(41)	(22)	31
17/18					1,469	(394)	(930)	(61)	(46)	(27)
18/19						1,175	(298)	(748)	(51)	(38)
19/20							1,209	(301)	(765)	(52)
20/21								1,246	(309)	(781)
21/22									1,283	(316)
22/23										1,318
Total	(1,210)	1,748	(1,656)	(169)	(1,601)	(818)	(118)	212	296	271

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	805	36	163	117	54	63	60	58	55	53
00/01	(139)	153	37	12	(92)	18	17	17	16	15
01/02	24	13	(163)	214	37	19	18	18	17	17
02/03	118	420	38	14	(42)	47	43	39	36	33
03/04	43	18	31	13	(221)	11	11	10	10	10
04/05	48	28	46	23	46	20	20	20	19	19
05/06	97	46	80	27	79	29	29	29	28	28
06/07	108	73	106	23	(205)	40	40	40	40	39
07/08	(148)	(127)	27	44	13	18	19	22	24	25
08/09	18	258	(121)	(169)	278	14	14	15	19	21
09/10	38	9	47	41	68	5	(27)	(29)	(7)	56
10/11	81	(19)	19	8	20	9	9	9	9	9
11/12	183	619	5	32	(129)	14	13	13	13	12
12/13	271	120	39	340	44	19	19	19	19	18
13/14	0	-	-	-	528	160	11	11	11	3
14/15		-	30	159	10	112	82	7	7	7
15/16			10	(1)	-	266	214	155	12	11
16/17				-	1,194	1,056	142	123	100	46
17/18					20	422	922	115	97	78
18/19						-	340	743	92	78
19/20							-	347	758	94
20/21								-	353	773
21/22									-	361
22/23										-
Total	1,548	1,647	394	899	1,702	2,342	1,999	1,781	1,729	1,806
Change in Total		6.39%	-76.05%	127.84%	89.45%	37.59%	-14.67%	-10.89%	-2.91%	4.44%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	350	439	163	146	132	122	114	106	98	90
00/01	101	88	50	48	39	37	35	33	31	29
01/02	123	105	49	49	47	44	42	40	38	35
02/03	75	107	61	59	56	53	51	48	46	43
03/04	93	78	45	43	27	26	25	24	23	21
04/05	139	121	69	59	56	53	51	49	47	45
05/06	187	161	93	86	83	79	76	73	70	67
06/07	318	276	157	143	120	114	110	107	102	98
07/08	159	120	68	68	65	62	60	58	56	54
08/09	197	167	76	61	56	54	52	51	49	47
09/10	210	180	109	108	103	98	96	93	90	87
10/11	62	54	31	32	31	30	29	29	28	27
11/12	146	78	44	49	47	45	44	43	42	41
12/13	243	76	44	71	68	65	64	63	61	60
13/14	264	216	79	67	63	61	60	59	57	56
14/15		241	91	61	36	34	34	34	33	32
15/16			133	119	65	63	62	61	60	59
16/17				161	184	178	176	174	172	169
17/18					122	119	117	117	115	113
18/19						97	96	95	94	93
19/20							100	99	98	97
20/21								103	103	102
21/22									107	106
22/23										122
Total	2,668	2,507	1,360	1,430	1,399	1,434	1,494	1,558	1,620	1,693
Change in Total		-6.01%	-45.75%	5.14%	-2.18%	2.48%	4.20%	4.30%	3.97%	4.52%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	424	444	419	415	261	252	245	238	230	221
00/01	109	133	124	120	68	66	65	64	62	61
01/02	108	122	92	117	78	76	75	74	72	71
02/03	93	148	139	134	89	88	87	86	84	83
03/04	94	103	97	95	42	41	41	41	40	39
04/05	116	131	124	125	83	82	82	81	80	79
05/06	167	187	178	176	118	117	116	116	115	113
06/07	272	307	289	283	165	163	163	163	162	161
07/08	148	141	131	129	86	85	85	85	85	85
08/09	190	210	161	113	72	71	72	72	72	72
09/10	195	215	213	191	126	126	127	128	128	128
10/11	55	62	58	55	37	37	37	38	38	38
11/12	132	90	84	81	53	53	54	55	55	55
12/13	205	93	88	114	75	75	76	77	78	79
13/14	237	230	130	105	68	68	69	69	70	71
14/15		280	181	93	37	37	38	38	39	39
15/16			256	176	66	66	67	68	69	70
16/17				233	274	182	185	188	190	192
17/18					177	177	120	122	123	125
18/19						141	143	97	98	99
19/20							145	147	100	101
20/21								149	151	102
21/22									153	156
22/23										156
Total	2,545	2,896	2,762	2,752	1,975	2,005	2,091	2,195	2,296	2,396
Change in Total		13.79%	-4.63%	-0.36%	-28.23%	1.51%	4.30%	4.93%	4.62%	4.34%

Appendix 1b
Accident Benefits - Weekly Indemnity (PIPP Enhancement: IAW Increase)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	774	883	582	561	392	374	359	344	327	311
00/01	210	221	174	168	107	103	100	97	94	90
01/02	231	227	141	166	125	120	117	114	110	106
02/03	168	255	200	193	145	141	137	134	130	126
03/04	187	181	142	137	69	67	66	64	63	61
04/05	255	252	193	184	140	136	133	130	127	124
05/06	354	348	270	262	201	195	192	189	185	180
06/07	590	583	446	426	285	277	273	269	264	259
07/08	306	261	199	197	150	147	145	143	141	138
08/09	388	377	237	174	128	125	124	123	121	119
09/10	405	395	322	299	229	224	223	221	218	215
10/11	116	116	89	88	68	67	67	66	66	65
11/12	278	168	127	129	100	98	98	98	97	96
12/13	449	169	132	185	143	141	140	140	139	138
13/14	502	446	208	172	131	128	128	128	128	127
14/15		521	272	154	73	72	72	72	72	71
15/16			389	294	132	129	129	130	130	129
16/17				394	457	360	361	362	362	361
17/18					299	296	237	238	238	238
18/19						237	239	192	192	193
19/20							244	246	198	198
20/21								252	254	204
21/22									260	262
22/23										278
Total	5,213	5,404	4,122	4,182	3,374	3,439	3,585	3,752	3,916	4,089
Change in Total		3.66%	-23.71%	1.45%	-19.32%	1.91%	4.26%	4.67%	4.35%	4.42%

Appendix 2
Accident Benefits Other - Indexed

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	7,042	16,143	21,368	24,504	26,563	28,067	29,440	30,696	31,807	32,668	33,409	34,043	34,652	35,179	35,976	36,602	37,497	38,658	57,846	14,127
95/96	7,797	19,075	23,400	26,594	29,134	31,341	33,379	34,748	35,760	37,003	38,120	39,106	40,230	41,124	42,139	41,128	42,543	44,062	70,039	21,072
96/97	11,807	19,999	23,780	26,122	27,934	29,439	30,724	31,629	32,374	32,931	33,499	34,087	34,536	35,009	35,543	36,069	36,893	37,530	49,464	10,012
97/98	11,830	20,746	24,481	26,835	28,533	29,887	30,971	31,862	32,585	33,205	34,006	34,610	35,199	35,899	36,643	37,333	38,083	38,813	53,620	13,307
98/99	11,625	20,320	24,205	26,855	28,737	30,322	31,405	32,149	32,782	33,393	34,046	34,562	35,149	35,864	36,525	37,436	38,268	38,883	50,852	11,080
99/00	8,566	17,951	21,578	23,871	25,343	26,521	27,406	28,125	28,752	29,336	29,821	30,258	31,587	32,141	32,701	33,189	33,748	34,262	45,319	11,057
00/01	9,576	19,898	23,304	24,931	26,154	27,015	27,735	28,409	28,982	29,513	30,223	31,148	31,865	32,533	33,122	33,676	34,226	34,741	45,982	11,756
01/02	10,435	20,708	23,639	25,146	26,184	26,885	27,574	28,249	28,844	29,913	30,766	31,900	33,136	33,811	34,564	35,241	36,006	36,716	50,873	15,632
02/03	10,632	19,879	22,117	23,628	24,816	25,779	26,635	27,479	28,586	29,758	30,894	32,003	33,044	34,180	35,574	36,588	37,482	38,392	56,537	20,963
03/04	10,954	20,777	23,984	25,837	27,127	28,234	29,286	30,479	31,610	32,700	33,669	34,692	35,619	36,359	37,142	37,767	38,402	39,048	51,940	15,581
04/05	9,870	18,114	21,018	22,912	24,444	25,640	26,924	28,167	29,265	30,587	31,620	32,616	33,662	34,687	35,667	36,663	37,677	38,708	59,287	25,624
05/06	9,593	19,053	21,984	23,569	25,019	26,401	27,683	29,280	30,346	31,304	32,165	32,968	33,888	34,605	35,261	35,928	36,607	37,298	51,077	18,110
06/07	9,869	20,390	23,966	26,708	28,645	30,373	31,960	33,494	34,957	36,431	37,701	39,358	40,758	41,877	42,901	43,943	45,003	46,082	67,600	29,900
07/08	9,907	21,108	24,912	27,429	29,304	31,100	32,808	34,588	35,814	36,896	38,214	39,654	41,023	42,118	43,119	44,138	45,175	46,230	67,278	30,381
08/09	9,606	21,284	25,532	27,848	30,085	31,646	33,147	34,678	35,541	36,366	37,303	38,186	39,026	39,697	40,312	40,937	41,572	42,219	55,127	19,587
09/10	11,001	22,096	25,939	28,823	30,781	32,357	34,064	35,509	36,857	38,003	39,111	40,154	41,146	41,939	42,665	43,404	44,155	44,920	60,171	24,662
10/11	10,309	23,220	27,388	29,874	31,721	33,318	34,470	35,399	36,352	37,228	38,074	38,871	39,629	40,235	40,790	41,354	41,928	42,512	54,166	19,696
11/12	11,557	24,890	29,565	32,296	34,439	35,315	37,041	38,416	39,586	40,662	41,701	42,679	43,610	44,355	45,036	45,728	46,433	47,151	61,460	26,145
12/13	13,541	27,602	32,442	35,055	36,753	38,432	39,812	41,149	42,288	43,334	44,344	45,297	46,202	46,926	47,588	48,262	48,948	49,646	63,565	26,813
13/14	12,137	28,634	33,117	35,444	36,866	37,873	38,858	39,812	40,625	41,371	42,093	42,772	43,419	43,935	44,408	44,889	45,379	45,877	55,811	20,368
14/15	11,366	25,302	29,156	31,345	32,703	33,869	35,009	36,114	37,055	37,919	38,755	39,541	40,290	40,888	41,435	41,992	42,559	43,135	54,637	25,481
15/16	14,704	30,178	35,549	37,785	39,639	41,231	42,787	44,295	45,579	46,760	47,899	48,974	49,995	50,811	51,559	52,319	53,092	53,879	69,580	39,402
16/17	14,187	30,990	34,980	37,241	39,117	40,727	42,302	43,827	45,126	46,320	47,473	48,560	49,593	50,419	51,175	51,944	52,727	53,523	69,406	55,219
17/18	14,924	28,473	32,748	35,172	37,181	38,907	40,594	42,229	43,621	44,900	46,136	47,300	48,407	49,293	50,103	50,927	51,765	52,618	69,638	69,638
18/19	14,728	26,892	30,730	32,906	34,710	36,259	37,774	39,242	40,492	41,640	42,749	43,795	44,789	45,583	46,310	47,050	47,803	48,569	63,849	
19/20	15,248	27,461	31,315	33,499	35,311	36,866	38,387	39,861	41,116	42,269	43,382	44,432	45,430	46,228	46,958	47,701	48,457	49,226	64,567	
20/21	15,786	28,046	31,914	34,107	35,926	37,487	39,014	40,493	41,752	42,910	44,028	45,082	46,083	46,884	47,617	48,363	49,122	49,894	65,294	
21/22	16,343	28,647	32,529	34,730	36,555	38,122	39,654	41,138	42,403	43,564	44,686	45,744	46,749	47,553	48,288	49,037	49,798	50,573	66,028	
22/23	16,920	29,265	33,160	35,368	37,199	38,771	40,308	41,798	43,066	44,232	45,358	46,418	47,427	48,234	48,972	49,722	50,486	51,264	66,770	

Appendix 2
Accident Benefits Other - Indexed

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year										There-After	Ultimate
	Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	40,692	1,035	900	1,092	770	1,112	1,131	1,151	1,171	1,192	7,601	57,846
95/96	45,302	1,071	1,497	1,096	1,101	1,510	1,536	1,563	1,591	1,618	12,152	70,039
96/97	37,530	673	625	625	586	652	663	675	687	699	6,050	49,464
97/98	38,083	730	801	699	704	802	816	830	845	860	8,449	53,620
98/99	37,436	832	615	890	698	611	622	633	644	655	7,217	50,852
99/00	32,701	487	560	513	513	577	587	597	608	618	7,558	45,319
00/01	32,533	589	554	550	515	573	583	594	604	615	8,272	45,982
01/02	33,136	675	753	677	765	710	722	735	748	761	11,192	50,873
02/03	32,003	1,041	1,136	1,394	1,014	894	910	926	942	958	15,319	56,537
03/04	33,669	1,023	927	740	783	624	635	646	658	669	11,565	51,940
04/05	30,587	1,033	996	1,047	1,025	979	996	1,014	1,032	1,050	19,529	59,287
05/06	30,346	958	861	803	921	717	656	667	679	691	13,780	51,077
06/07	33,494	1,463	1,473	1,270	1,657	1,400	1,119	1,024	1,042	1,060	22,597	67,600
07/08	32,808	1,780	1,226	1,082	1,318	1,440	1,369	1,095	1,002	1,019	23,139	67,278
08/09	31,646	1,500	1,531	863	825	937	883	840	671	614	14,816	55,127
09/10	30,781	1,576	1,706	1,445	1,348	1,146	1,107	1,043	992	793	18,232	60,171
10/11	29,874	1,847	1,597	1,152	929	953	876	846	797	758	14,536	54,166
11/12	29,565	2,731	2,143	876	1,726	1,374	1,171	1,075	1,039	979	18,781	61,460
12/13	27,602	4,840	2,614	1,697	1,680	1,380	1,337	1,139	1,046	1,011	19,221	63,565
13/14	12,137	16,497	4,483	2,327	1,422	1,007	985	954	813	747	14,440	55,811
14/15		11,366	13,936	3,854	2,189	1,358	1,166	1,140	1,105	941	17,582	54,637
15/16			14,704	15,474	5,371	2,236	1,854	1,592	1,556	1,508	25,285	69,580
16/17				14,187	16,803	3,990	2,262	1,876	1,610	1,574	27,104	69,406
17/18					14,924	13,549	4,275	2,423	2,010	1,726	30,731	69,638
18/19						14,728	12,164	3,838	2,176	1,804	29,139	63,849
19/20							15,248	12,213	3,854	2,185	31,068	64,567
20/21								15,786	12,260	3,868	33,380	65,294
21/22									16,343	12,303	37,381	66,028
22/23										16,920	49,850	66,770
Total Insurance Year Paid		53,749	55,637	54,353	59,587	55,259	55,673	56,915	58,522	60,196		
Unpaid Provision						8,590	8,894	8,379	7,506	6,574		
Total Insurance Yr Paid & Prov.		53,749	55,637	54,353	59,587	63,849	64,567	65,294	66,028	66,770		
Change in Total Paid			3.51%	-2.31%	9.63%	-7.26%	0.75%	2.23%	2.82%	2.86%		
Total Insurance Yr Claim Counts		10,532	11,620	12,275	12,295	11,658	11,755	11,782	11,803	11,823		
Average Yearly Ultimate		5,103	4,788	4,428	4,846	5,477	5,493	5,542	5,594	5,647		
Change in Avg Yearly Ult.			-6.18%	-7.52%	9.45%	13.01%	0.28%	0.90%	0.95%	0.95%		

Appendix 2
Accident Benefits Other - Indexed

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	54,511	49,755	45,688	47,847	50,106	52,559	55,376	62,556	63,349	62,777	64,085	51,826	51,680	49,631	50,054	51,233	52,786	53,614	57,846	596
95/96	51,775	52,275	56,628	61,067	69,756	70,935	75,848	80,530	80,155	78,215	65,825	66,150	66,014	66,607	67,364	64,156	65,354	67,535	70,039	(615)
96/97	34,407	38,035	42,450	47,661	50,077	51,511	56,412	58,338	58,693	48,077	48,587	48,757	47,984	45,680	46,698	46,781	48,022	47,868	49,464	(628)
97/98	47,707	52,971	58,455	54,603	56,105	56,647	57,129	58,549	49,699	48,688	49,151	49,279	49,332	48,833	49,866	50,721	51,341	51,843	53,620	316
98/99	40,647	48,014	48,878	50,996	54,328	54,988	55,710	49,074	48,174	48,080	46,915	47,006	46,756	47,170	47,549	47,947	49,148	49,631	50,852	1,026
99/00	32,626	38,961	39,816	43,012	43,834	44,431	40,444	42,395	41,753	42,256	42,393	42,166	43,383	43,740	43,489	43,901	44,729	44,793	45,319	526
00/01	54,823	56,053	54,669	49,200	49,681	42,739	43,775	42,558	42,967	42,393	41,704	44,084	45,096	44,984	45,850	46,035	46,750	43,763	45,982	(768)
01/02	50,923	52,070	56,138	51,801	43,742	44,446	45,364	44,132	43,688	45,236	45,088	47,395	48,056	47,211	48,935	49,375	48,194	48,462	50,873	1,498
02/03	46,420	58,852	56,873	47,541	47,287	47,405	46,793	49,071	48,479	49,217	49,673	50,346	49,749	51,442	52,797	53,388	53,674	53,961	56,537	3,740
03/04	54,454	56,504	45,411	43,724	45,301	45,123	46,274	46,555	47,187	48,874	49,499	49,827	50,343	49,796	48,782	49,044	49,307	49,571	51,940	2,144
04/05	38,684	49,807	48,595	48,610	49,194	49,722	52,003	50,637	52,222	53,899	53,913	54,614	55,439	55,377	55,675	55,974	56,275	56,577	59,287	3,847
05/06	42,494	47,694	46,911	44,209	44,618	45,578	48,176	49,320	48,388	48,599	47,986	47,822	47,535	47,784	48,035	48,287	48,541	48,795	51,077	3,255
06/07	51,170	60,203	59,197	59,251	58,686	59,355	60,403	62,998	63,091	63,379	64,712	62,922	63,228	63,536	63,846	64,157	64,469	64,784	67,600	2,888
07/08	46,677	51,248	51,687	53,786	56,863	59,523	61,642	60,410	59,242	60,430	62,336	62,638	62,942	63,248	63,555	63,863	64,173	64,485	67,278	6,848
08/09	38,810	44,188	49,967	50,388	52,291	54,489	53,271	53,543	51,045	50,563	50,724	50,994	51,265	51,537	51,810	52,085	52,361	52,639	55,127	4,082
09/10	39,834	50,509	51,322	52,311	53,351	53,528	54,356	54,863	55,086	55,231	55,405	55,697	55,990	56,284	56,580	56,878	57,177	57,477	60,171	5,308
10/11	57,904	53,924	50,621	51,726	52,698	53,380	55,421	50,273	50,381	50,489	50,619	50,836	51,054	51,273	51,493	51,715	51,937	52,161	54,166	(1,255)
11/12	64,186	52,444	58,872	58,033	59,391	56,653	56,500	56,710	56,841	56,973	57,131	57,396	57,662	57,930	58,199	58,469	58,741	59,014	61,460	4,807
12/13	52,255	63,109	59,241	56,549	56,511	57,977	58,434	58,651	58,786	58,923	59,087	59,361	59,636	59,913	60,191	60,471	60,752	61,034	63,565	7,054
13/14	53,359	56,895	51,428	51,136	49,540	50,252	50,706	50,921	51,057	51,192	51,355	51,628	51,902	52,177	52,454	52,732	53,012	53,293	55,811	4,676
14/15	47,521	49,362	49,740	47,717	48,482	49,180	49,626	49,837	49,970	50,103	50,263	50,531	50,800	51,070	51,342	51,615	51,889	52,165	54,637	4,897
15/16	54,438	59,947	61,204	62,026	62,861	63,623	64,110	64,341	64,486	64,631	64,806	65,098	65,392	65,687	65,983	66,281	66,581	66,882	69,580	9,633
16/17	55,480	64,045	64,906	65,348	65,796	66,206	66,467	66,591	66,669	66,747	66,841	66,998	67,156	67,314	67,473	67,634	67,795	67,956	69,406	13,926
17/18	59,372	63,712	64,664	65,153	65,648	66,101	66,390	66,527	66,613	66,699	66,803	66,977	67,151	67,326	67,502	67,679	67,857	68,036	69,638	69,638
18/19	56,276	59,478	60,180	60,540	60,906	61,240	61,453	61,554	61,618	61,681	61,758	61,886	62,014	62,144	62,273	62,404	62,535	62,667	63,849	63,849
19/20	57,610	60,552	61,197	61,528	61,864	62,170	62,366	62,459	62,517	62,576	62,646	62,764	62,882	63,001	63,120	63,240	63,360	63,482	64,567	
20/21	58,977	61,648	62,233	62,534	62,839	63,117	63,295	63,380	63,433	63,486	63,549	63,656	63,763	63,871	63,980	64,088	64,198	64,308	65,294	
21/22	60,378	62,767	63,291	63,559	63,832	64,081	64,240	64,316	64,363	64,411	64,468	64,563	64,659	64,756	64,853	64,950	65,048	65,146	66,028	
22/23	61,813	63,909	64,369	64,605	64,844	65,062	65,202	65,268	65,310	65,351	65,402	65,485	65,569	65,654	65,739	65,825	65,910	65,997	66,770	

Appendix 2
Accident Benefits Other - Indexed

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	51,233	1,553	829	2,126	(338)	(380)	1,261	966	(1,109)	225	207	191	177	163	743	57,846
95/96	67,364	(3,208)	1,198	2,181	300	906	1,263	650	(2,781)	271	250	231	213	196	1,006	70,039
96/97	45,680	1,018	84	1,241	(154)	727	901	596	(2,218)	189	175	161	149	138	778	49,464
97/98	49,332	(499)	1,033	855	620	502	516	945	(1,398)	196	181	167	154	142	874	53,620
98/99	47,006	(251)	415	378	398	1,201	483	195	(818)	203	187	173	160	148	973	50,852
99/00	42,393	(227)	1,217	357	(251)	412	828	64	(1,466)	212	196	181	167	154	1,082	45,319
00/01	42,393	(690)	2,381	1,012	(112)	865	185	715	(2,987)	229	212	196	181	167	1,235	45,982
01/02	43,688	1,548	(147)	2,306	661	(845)	1,725	439	(1,181)	269	249	230	213	196	1,523	50,873
02/03	49,071	(593)	738	456	673	(597)	1,693	1,355	591	286	287	266	246	227	1,837	56,537
03/04	46,274	281	632	1,687	625	328	516	(547)	(1,014)	262	263	264	244	226	1,898	51,940
04/05	49,722	2,281	(1,366)	1,585	1,677	14	701	825	(62)	298	299	301	302	280	2,430	59,287
05/06	44,618	960	2,598	1,144	(932)	211	(613)	(164)	(287)	250	251	252	253	255	2,282	51,077
06/07	59,251	(564)	669	1,048	2,595	93	287	1,334	(1,791)	306	308	310	311	313	3,131	67,600
07/08	51,687	2,099	3,077	2,660	2,119	(1,232)	(1,168)	1,188	1,906	302	304	305	307	309	3,415	67,278
08/09	44,188	5,779	421	1,904	2,198	(1,218)	272	(2,497)	(482)	161	269	271	272	273	3,317	55,127
09/10	39,834	10,675	813	989	1,040	177	829	506	223	145	174	292	293	295	3,887	60,171
10/11		57,904	(3,980)	(3,303)	1,105	972	682	2,041	(5,148)	108	108	130	217	218	3,112	54,166
11/12			64,186	(11,741)	6,428	(840)	1,358	(2,737)	(153)	209	131	132	158	265	4,064	61,460
12/13				52,255	10,854	(3,869)	(2,692)	(38)	1,467	456	217	136	136	164	4,479	63,565
13/14					53,359	3,536	(5,467)	(292)	(1,596)	712	454	215	135	136	4,619	55,811
14/15						47,521	1,841	378	(2,023)	765	699	446	211	133	4,667	54,637
15/16							54,438	5,509	1,257	822	835	763	487	231	5,239	69,580
16/17								55,480	8,565	861	442	448	410	261	2,939	69,406
17/18									59,372	4,340	952	488	496	453	3,537	69,638
18/19										56,276	3,202	702	360	366	2,943	63,849
19/20											57,610	2,941	645	331	3,040	64,567
20/21												58,977	2,670	586	3,060	65,294
21/22													60,378	2,389	3,261	66,028
22/23														61,813	4,957	66,770
Total Insurance Year Inc'd		78,065	74,796	59,140	82,867	48,483	59,839	66,910	46,866	68,353	68,462	69,169	69,946	70,826		
IBNR Provision										(4,504)	(3,895)	(3,876)	(3,918)	(4,055)		
Total Insurance Yr Inc'd & Prov.		78,065	74,796	59,140	82,867	48,483	59,839	66,910	46,866	63,849	64,567	65,294	66,028	66,770		
Change in Total Inc'd			-4.19%	-20.93%	40.12%	-41.49%	23.42%	11.82%	-29.96%	36.24%	1.13%	1.12%	1.12%	1.12%		
Total Insurance Yr Claim Counts		13147	12524	12340	12137	10,532	11,620	12,275	12,295	11,658	11,755	11,782	11,803	11,823		
Average Yearly Ultimate		5,938	5,972	4,793	6,828	4,603	5,150	5,451	3,812	5,477	5,493	5,542	5,594	5,647		
Change in Avg Yearly Ult.			0.58%	-19.75%	42.46%	-32.58%	11.87%	5.85%	-30.07%	43.69%	0.28%	0.90%	0.95%	0.95%		

Appendix 2
Accident Benefits Other - Indexed

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	81,892	81,892	85,920	83,602	81,885	69,249	66,077	62,929	59,448	55,551
00/01	12,321	13,630	12,889	13,066	9,920	9,643	9,399	9,125	8,804	8,439
01/02	14,051	14,457	14,687	14,565	13,020	12,698	12,428	12,122	11,758	11,341
02/03	16,866	17,466	17,537	17,595	17,339	16,959	16,659	16,316	15,901	15,419
03/04	14,781	15,879	15,276	14,277	12,764	12,516	12,335	12,127	11,867	11,561
04/05	21,015	22,463	21,792	21,867	21,057	20,696	20,458	20,180	19,821	19,390
05/06	16,680	17,989	16,314	15,628	14,612	14,320	14,194	14,043	13,839	13,588
06/07	25,987	27,813	26,087	26,721	23,884	23,169	22,908	22,729	22,466	22,132
07/08	25,917	26,097	23,114	23,769	24,459	23,717	23,219	22,982	22,779	22,507
08/09	21,304	21,155	19,080	16,713	15,718	15,227	14,905	14,609	14,445	14,312
09/10	22,001	22,683	20,803	20,185	19,446	18,850	18,439	18,071	17,695	17,490
10/11	21,873	23,107	20,630	20,850	15,593	15,079	14,762	14,459	14,156	13,857
11/12	28,214	27,951	25,479	22,198	20,241	19,432	18,981	18,607	18,205	17,819
12/13	33,169	30,925	23,099	21,415	20,779	19,979	19,378	18,954	18,561	18,156
13/14	46,022	36,199	30,152	28,231	15,621	15,049	14,620	14,200	13,875	13,584
14/15		50,384	33,675	30,054	19,176	18,349	17,863	17,379	16,862	16,473
15/16			43,397	32,219	28,025	26,559	25,683	25,039	24,335	23,607
16/17				44,375	31,909	28,765	27,550	26,680	25,985	25,249
17/18					47,160	34,703	31,605	30,317	29,331	28,560
18/19						42,173	31,310	28,567	27,377	26,482
19/20							42,509	31,639	28,849	27,644
20/21								42,886	31,935	29,123
21/22									43,227	32,222
22/23										43,554
Total	402,094	450,089	449,931	467,327	452,610	457,132	475,283	493,959	511,521	528,061
Change in Total		11.94%	-0.04%	3.87%	-3.15%	1.00%	3.97%	3.93%	3.56%	3.23%

Appendix 2
Accident Benefits Other - Indexed

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	82,138	80,678	80,932	79,432	65,268	62,526	59,450	56,029	52,251	48,106
00/01	12,451	12,728	12,359	12,524	9,022	8,851	8,642	8,392	8,102	7,770
01/02	14,920	13,399	14,371	14,134	12,187	11,981	11,729	11,428	11,077	10,675
02/03	18,342	16,705	17,262	17,223	16,800	16,515	16,198	15,822	15,385	14,886
03/04	15,830	15,135	14,724	13,437	11,640	11,503	11,346	11,167	10,943	10,673
04/05	23,312	22,293	21,998	21,777	20,690	20,408	20,091	19,736	19,342	18,878
05/06	18,043	17,295	15,821	14,854	13,646	13,443	13,291	13,116	12,917	12,694
06/07	29,504	28,134	26,948	27,012	23,564	22,920	22,534	22,227	21,880	21,493
07/08	28,834	25,822	23,428	23,534	24,122	23,445	22,805	22,424	22,120	21,778
08/09	22,843	20,124	18,865	15,505	14,197	13,690	13,325	12,988	12,815	12,695
09/10	22,570	21,170	20,293	19,354	18,229	17,572	16,953	16,494	16,067	15,838
10/11	21,852	20,977	20,062	20,951	14,874	14,309	13,797	13,312	12,951	12,613
11/12	29,308	25,737	24,952	21,338	19,459	18,660	17,952	17,310	16,703	16,248
12/13	35,508	26,799	21,493	19,758	19,545	18,994	18,209	17,509	16,874	16,277
13/14	41,222	28,261	18,311	15,692	12,674	12,626	12,327	11,789	11,292	10,843
14/15		36,155	24,060	20,583	16,372	16,094	15,929	15,511	14,854	14,259
15/16			39,733	29,768	25,655	24,726	24,160	23,763	23,081	22,132
16/17				41,293	33,055	30,525	29,242	28,312	27,579	26,681
17/18					44,448	35,944	33,206	31,816	30,813	30,024
18/19						41,548	33,238	30,640	29,326	28,355
19/20							42,362	33,753	31,089	29,744
20/21								43,191	34,274	31,544
21/22									44,035	34,802
22/23										44,893
Total	416,676	411,410	415,612	428,168	415,448	436,282	456,784	476,728	495,771	513,903
Change in Total		-1.26%	1.02%	3.02%	-2.97%	5.01%	4.70%	4.37%	3.99%	3.66%

Appendix 2
Accident Benefits Other - Indexed

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	19,434	23,682	18,479	17,713	13,234	12,207	11,566	10,912	10,164	9,345
00/01	3,093	4,047	3,098	3,108	2,323	2,151	2,058	1,971	1,874	1,771
01/02	2,887	4,455	3,282	3,330	2,737	2,539	2,451	2,371	2,277	2,176
02/03	3,115	4,940	3,863	3,923	3,121	2,922	2,852	2,795	2,717	2,627
03/04	3,036	4,600	3,718	3,758	3,059	2,876	2,794	2,702	2,598	2,489
04/05	3,588	5,694	4,356	4,617	3,617	3,423	3,413	3,396	3,328	3,248
05/06	3,365	5,173	3,936	4,038	3,256	3,085	3,055	3,020	2,948	2,849
06/07	3,914	6,678	4,686	5,335	4,107	3,879	3,909	3,950	3,936	3,882
07/08	4,547	6,899	4,636	5,277	4,255	4,030	4,054	4,108	4,117	4,087
08/09	4,628	6,429	4,324	4,777	4,848	3,974	3,943	3,913	3,862	3,791
09/10	5,821	7,333	5,003	5,167	5,363	5,266	4,440	4,445	4,406	4,357
10/11	6,371	8,084	5,038	4,393	4,063	3,982	4,091	3,465	3,453	3,421
11/12	7,015	9,429	6,064	5,663	5,138	4,936	5,076	5,240	4,425	4,403
12/13	6,935	12,069	6,631	6,304	5,722	5,281	5,325	5,490	5,623	4,796
13/14	16,388	17,050	18,381	18,672	6,334	5,670	5,440	5,459	5,547	5,623
14/15		25,901	16,806	15,991	6,970	6,230	5,792	5,611	5,631	5,734
15/16			12,365	9,335	8,451	7,597	7,092	6,690	6,502	6,552
16/17				11,974	5,671	4,475	4,293	4,161	4,031	4,018
17/18					12,141	6,162	5,258	5,096	4,893	4,724
18/19						9,046	4,761	4,134	4,013	3,889
19/20							8,645	4,655	4,036	3,927
20/21								8,284	4,502	3,922
21/22									7,861	4,330
22/23										7,407
Total	94,136	152,463	124,665	133,376	104,410	99,732	100,307	101,870	102,744	103,369
Change in Total		61.96%	-18.23%	6.99%	-21.72%	-4.48%	0.58%	1.56%	0.86%	0.61%

Appendix 2
Accident Benefits Other - Indexed

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(2,306)	4,248	(5,203)	(766)	(4,479)	(1,026)	(642)	(654)	(748)	(819)
00/01	71	954	(949)	10	(785)	(172)	(93)	(87)	(97)	(103)
01/02	14	1,568	(1,173)	49	(593)	(198)	(88)	(80)	(94)	(102)
02/03	(71)	1,826	(1,078)	60	(801)	(199)	(70)	(58)	(78)	(89)
03/04	505	1,563	(882)	40	(699)	(183)	(82)	(92)	(104)	(109)
04/05	38	2,106	(1,338)	261	(1,000)	(194)	(10)	(17)	(68)	(80)
05/06	(127)	1,808	(1,237)	102	(782)	(171)	(30)	(35)	(72)	(100)
06/07	(363)	2,764	(1,992)	649	(1,229)	(228)	30	41	(15)	(54)
07/08	(320)	2,352	(2,262)	640	(1,022)	(225)	24	54	9	(29)
08/09	(3,434)	1,801	(2,105)	453	71	(874)	(32)	(29)	(51)	(71)
09/10	(3,743)	1,512	(2,330)	164	196	(97)	(826)	5	(39)	(49)
10/11	(5,151)	1,712	(3,045)	(645)	(330)	(81)	109	(626)	(11)	(33)
11/12	(2,546)	2,414	(3,365)	(401)	(525)	(202)	141	164	(815)	(22)
12/13	(5,085)	5,134	(5,438)	(327)	(581)	(442)	44	166	133	(827)
13/14	16,388	663	1,330	292	(12,338)	(664)	(231)	19	88	77
14/15		25,901	(9,095)	(815)	(9,021)	(740)	(438)	(180)	20	103
15/16			12,365	(3,030)	(883)	(855)	(505)	(402)	(188)	50
16/17				11,974	(6,303)	(1,195)	(183)	(131)	(131)	(13)
17/18					12,141	(5,978)	(905)	(162)	(202)	(169)
18/19						9,046	(4,285)	(626)	(121)	(124)
19/20							8,645	(3,990)	(619)	(109)
20/21								8,284	(3,782)	(580)
21/22									7,861	(3,530)
22/23										7,407
Total	(6,130)	58,327	(27,798)	8,711	(28,966)	(4,678)	575	1,563	874	625

Appendix 2
Accident Benefits Other - Indexed

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	576	3,368	5,251	3,415	(9,791)	2,627	2,495	2,361	2,224	2,084
00/01	(112)	865	185	715	(2,987)	414	397	381	364	347
01/02	661	(845)	1,725	439	(1,181)	518	498	479	459	438
02/03	673	(597)	1,693	1,355	591	628	629	606	582	558
03/04	625	328	516	(547)	(1,014)	500	504	507	488	468
04/05	1,677	14	701	825	(62)	718	720	721	722	696
05/06	(932)	211	(613)	(164)	(287)	527	530	533	536	539
06/07	2,595	93	287	1,334	(1,791)	784	779	779	781	783
07/08	2,119	(1,232)	(1,168)	1,188	1,906	791	785	780	781	783
08/09	2,198	(1,218)	272	(2,497)	(482)	448	554	554	554	558
09/10	1,040	177	829	506	223	513	533	649	647	647
10/11	1,105	972	682	2,041	(5,148)	407	398	414	501	500
11/12	6,428	(840)	1,358	(2,737)	(153)	603	510	499	518	627
12/13	10,854	(3,869)	(2,692)	(38)	1,467	856	605	508	498	518
13/14	53,359	3,536	(5,467)	(292)	(1,596)	979	725	475	382	376
14/15		47,521	1,841	378	(2,023)	1,107	1,049	792	539	444
15/16			54,438	5,509	1,257	1,352	1,363	1,292	1,002	717
16/17				55,480	8,565	1,540	1,070	1,061	1,010	840
17/18					59,372	5,316	1,709	1,182	1,173	1,116
18/19						56,276	4,097	1,395	995	982
19/20							57,610	3,847	1,346	973
20/21								58,977	3,588	1,295
21/22									60,378	3,317
22/23										61,813
Total	82,867	48,483	59,839	66,910	46,866	76,904	77,561	78,793	80,068	81,419
Change in Total		-41.49%	23.42%	11.82%	-29.96%	64.09%	0.85%	1.59%	1.62%	1.69%

Appendix 2
Accident Benefits Other - Indexed

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	7,397	5,552	3,269	2,977	2,328	2,050	1,794	1,547	1,308	1,081
00/01	1,375	1,100	634	606	432	394	360	326	292	258
01/02	1,647	1,228	762	715	602	553	509	465	421	376
02/03	2,061	1,560	957	911	848	783	726	669	611	552
03/04	1,868	1,473	874	777	659	611	570	530	487	445
04/05	2,733	2,155	1,293	1,247	1,144	1,066	1,001	935	867	798
05/06	2,226	1,781	996	920	829	776	733	689	643	595
06/07	3,533	2,827	1,634	1,618	1,398	1,312	1,244	1,176	1,104	1,029
07/08	3,576	2,709	1,483	1,476	1,472	1,385	1,318	1,251	1,181	1,108
08/09	2,971	2,225	1,246	1,062	970	914	872	831	788	743
09/10	3,089	2,418	1,373	1,308	1,229	1,160	1,110	1,060	1,009	956
10/11	3,070	2,487	1,376	1,367	1,005	951	911	873	833	792
11/12	3,876	3,022	1,715	1,474	1,320	1,249	1,199	1,152	1,102	1,050
12/13	4,298	3,304	1,560	1,435	1,371	1,299	1,249	1,202	1,152	1,101
13/14	4,684	3,682	2,017	1,899	1,044	990	953	918	882	845
14/15		4,115	2,140	2,012	1,290	1,223	1,179	1,137	1,094	1,050
15/16			2,191	2,052	1,877	1,780	1,717	1,659	1,597	1,536
16/17				2,235	2,030	1,920	1,853	1,791	1,727	1,662
17/18					2,355	2,199	2,117	2,047	1,976	1,904
18/19						2,095	1,991	1,922	1,856	1,790
19/20							2,123	2,023	1,949	1,880
20/21								2,155	2,050	1,975
21/22									2,185	2,078
22/23										2,213
Total	48,404	41,638	25,522	26,092	24,203	24,710	25,529	26,358	27,111	27,817
Change in Total		-13.98%	-38.70%	2.23%	-7.24%	2.10%	3.31%	3.25%	2.86%	2.61%

Appendix 2
Accident Benefits Other - Indexed

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	11,281	12,888	12,540	12,283	6,925	6,608	6,293	5,945	5,555	5,125
00/01	1,766	2,045	1,933	1,960	992	964	940	912	880	844
01/02	1,922	2,169	2,203	2,185	1,302	1,270	1,243	1,212	1,176	1,134
02/03	2,163	2,620	2,631	2,639	1,734	1,696	1,666	1,632	1,590	1,542
03/04	2,578	2,382	2,291	2,141	1,276	1,252	1,234	1,213	1,187	1,156
04/05	2,188	3,369	3,269	3,280	2,106	2,070	2,046	2,018	1,982	1,939
05/06	3,092	2,698	2,447	2,344	1,461	1,432	1,419	1,404	1,384	1,359
06/07	2,740	4,172	3,913	4,008	2,388	2,317	2,291	2,273	2,247	2,213
07/08	3,801	3,915	3,467	3,565	2,446	2,372	2,322	2,298	2,278	2,251
08/09	3,862	3,173	2,862	2,507	2,358	1,523	1,490	1,461	1,444	1,431
09/10	3,508	3,402	3,120	3,028	2,917	2,828	1,844	1,807	1,769	1,749
10/11	3,831	3,466	3,094	3,127	2,339	2,262	2,214	1,446	1,416	1,386
11/12	4,039	4,193	3,822	3,330	3,036	2,915	2,847	2,791	1,821	1,782
12/13	4,342	4,639	3,465	3,212	3,117	2,997	2,907	2,843	2,784	1,816
13/14	6,072	5,430	4,523	4,235	2,343	2,257	2,193	2,130	2,081	2,038
14/15		7,558	5,051	4,508	2,876	2,752	2,679	2,607	2,529	2,471
15/16			6,510	4,833	4,204	3,984	3,852	3,756	3,650	3,541
16/17				6,656	4,786	4,315	4,132	4,002	3,898	3,787
17/18					7,074	5,205	4,741	4,548	4,400	4,284
18/19						6,326	4,697	4,285	4,107	3,972
19/20							6,376	4,746	4,327	4,147
20/21								6,433	4,790	4,369
21/22									6,484	4,833
22/23										6,533
Total	57,184	68,118	67,142	69,842	55,681	57,343	59,427	61,761	63,779	65,700
Change in Total		19.12%	-1.43%	4.02%	-20.28%	2.99%	3.63%	3.93%	3.27%	3.01%

Appendix 2
Accident Benefits Other - Indexed

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	18,677	18,440	15,809	15,260	9,253	8,657	8,087	7,492	6,864	6,206
00/01	3,142	3,145	2,567	2,566	1,424	1,358	1,300	1,238	1,172	1,102
01/02	3,570	3,397	2,965	2,900	1,904	1,822	1,751	1,677	1,596	1,510
02/03	4,225	4,179	3,587	3,551	2,582	2,479	2,392	2,301	2,201	2,094
03/04	4,445	3,855	3,166	2,919	1,935	1,863	1,804	1,742	1,674	1,601
04/05	4,921	5,524	4,562	4,527	3,249	3,136	3,047	2,953	2,849	2,737
05/06	5,318	4,479	3,443	3,265	2,290	2,208	2,152	2,093	2,026	1,954
06/07	6,272	6,999	5,547	5,626	3,786	3,629	3,535	3,449	3,350	3,242
07/08	7,377	6,623	4,950	5,041	3,918	3,757	3,640	3,549	3,458	3,358
08/09	6,833	5,398	4,108	3,569	3,328	2,437	2,363	2,292	2,232	2,174
09/10	6,596	5,820	4,493	4,336	4,146	3,988	2,954	2,868	2,778	2,705
10/11	6,900	5,953	4,471	4,495	3,344	3,212	3,125	2,319	2,248	2,177
11/12	7,915	7,215	5,537	4,803	4,356	4,164	4,047	3,943	2,922	2,832
12/13	8,640	7,942	5,025	4,647	4,488	4,296	4,156	4,045	3,936	2,917
13/14	10,756	9,112	6,540	6,134	3,388	3,247	3,146	3,048	2,963	2,883
14/15		11,672	7,191	6,520	4,166	3,975	3,858	3,744	3,623	3,521
15/16			8,701	6,884	6,081	5,764	5,570	5,414	5,248	5,077
16/17				8,892	6,816	6,235	5,985	5,793	5,625	5,450
17/18					9,429	7,404	6,858	6,595	6,376	6,188
18/19						8,421	6,688	6,207	5,962	5,762
19/20							8,499	6,769	6,276	6,027
20/21								8,588	6,841	6,343
21/22									8,669	6,911
22/23										8,746
Total	105,588	109,756	92,664	95,934	79,884	82,053	84,955	88,119	90,890	93,518
Change in Total		3.95%	-15.57%	3.53%	-16.73%	2.72%	3.54%	3.72%	3.14%	2.89%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	32	61	1,014	789
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	64	126	191	1,993	1,529
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	2	26	44	63	84	780	622
97/98	-	-	-	-	-	-	-	-	-	-	-	-	5	34	65	98	142	180	1,109	836
98/99	-	-	-	-	-	-	-	-	-	-	-	-	15	25	35	51	76	107	554	414
99/00	-	-	-	-	-	-	-	-	-	-	-	16	39	70	99	129	162	196	1,164	968
00/01	-	-	-	-	-	-	-	-	-	4	13	23	33	50	67	82	101	120	324	222
01/02	-	-	-	-	-	-	-	-	-	14	55	101	141	176	208	240	274	315	1,289	1,049
02/03	-	-	-	-	-	-	-	7	25	44	64	85	106	136	168	241	281	321	1,255	1,087
03/04	-	-	-	-	-	-	1	19	40	61	85	111	143	172	202	240	278	317	1,226	1,054
04/05	-	-	-	-	-	4	27	49	79	123	194	237	280	323	366	410	455	501	1,564	1,284
05/06	-	-	-	-	-	25	55	86	120	153	172	194	222	246	271	296	323	349	968	775
06/07	-	-	-	2	11	22	43	63	138	170	202	239	279	321	364	408	454	500	1,575	1,374
07/08	-	-	4	26	47	67	94	126	158	193	237	291	348	408	469	532	596	662	2,188	1,995
08/09	-	-	19	39	60	91	139	199	232	284	303	323	344	366	389	412	436	460	1,022	790
09/10	-	6	26	46	66	87	114	146	179	202	227	252	279	307	336	366	396	427	1,147	1,001
10/11	-	1	6	24	42	66	91	105	117	128	141	154	168	182	196	211	227	243	608	516
11/12	-	11	22	62	88	121	156	187	219	251	284	319	356	395	434	475	517	560	1,549	1,428
12/13	-	-	21	46	76	125	148	171	194	217	241	266	293	321	350	379	409	440	1,155	1,079
13/14	-	-	18	29	80	99	119	138	157	176	196	218	240	263	287	312	337	363	961	932
14/15	-	-	16	32	45	58	71	84	97	110	124	138	153	169	185	202	219	236	640	625
15/16	-	9	20	38	56	74	92	110	128	147	166	186	207	229	252	275	299	323	889	880
16/17	-	29	57	85	113	141	169	197	225	253	283	314	347	381	416	452	489	527	1,403	1,403
17/18	-	27	54	81	108	135	162	190	217	244	272	303	334	367	401	436	472	508	1,354	1,354
18/19	-	21	43	64	86	107	129	150	172	193	216	240	265	291	318	345	374	403	1,073	
19/20	-	21	43	64	86	107	129	150	172	193	216	240	265	291	318	345	374	403	1,073	
20/21	-	21	43	64	86	107	129	150	172	193	216	240	265	291	318	345	374	403	1,073	
21/22	-	21	43	64	86	107	129	150	172	193	216	240	265	291	318	345	374	403	1,073	
22/23	-	21	43	64	86	107	129	150	172	193	216	240	265	291	318	345	374	403	1,073	

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	123	33	35	33	26	46	45	45	44	43	540	1,014
95/96	255	66	69	74	66	83	83	82	81	79	1,055	1,993
96/97	84	22	28	25	25	32	32	32	32	31	438	780
97/98	142	37	48	45	42	41	41	41	40	40	592	1,109
98/99	51	24	32	32	33	19	19	19	19	18	289	554
99/00	99	30	33	34	35	43	43	43	43	43	716	1,164
00/01	50	17	15	20	19	9	9	9	9	9	159	324
01/02	141	35	32	32	34	42	43	43	43	43	801	1,289
02/03	85	21	30	32	73	40	40	41	41	42	810	1,255
03/04	85	27	32	29	30	38	38	39	40	40	829	1,226
04/05	123	72	42	43	43	43	44	45	46	46	1,016	1,564
05/06	120	33	19	21	28	24	25	26	26	27	619	968
06/07	63	75	32	32	37	40	42	43	44	45	1,121	1,575
07/08	94	32	33	34	44	54	57	59	61	63	1,656	2,188
08/09	91	48	60	33	52	19	20	21	22	23	634	1,022
09/10	66	21	27	32	33	23	24	26	27	28	840	1,147
10/11	24	18	25	25	14	12	12	12	13	14	440	608
11/12	22	41	26	32	35	32	32	32	34	35	1,229	1,549
12/13	-	21	25	30	49	23	23	23	23	24	914	1,155
13/14	-	-	18	11	52	19	19	19	19	19	785	961
14/15		-	-	16	17	13	13	13	13	13	543	640
15/16			-	9	11	18	18	18	18	18	778	889
16/17				-	29	28	28	28	28	28	1,234	1,403
17/18					-	27	27	27	27	27	1,219	1,354
18/19						-	21	21	21	21	987	1,073
19/20							-	21	21	21	1,008	1,073
20/21								-	21	21	1,030	1,073
21/22									-	21	1,051	1,073
22/23										-	1,073	1,073
Total Insurance Year Paid		671	661	674	825	767	798	828	857	886		
Unpaid Provision						306	275	245	215	187		
Total Insurance Yr Paid & Prov.		671	661	674	825	1,073	1,073	1,073	1,073	1,073		
Change in Total Paid			-1.60%	2.06%	22.41%	-7.10%	4.09%	3.74%	3.56%	3.32%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	630	938	954	1,014	(89)
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	497	1,570	1,642	1,716	1,993	63
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	129	312	334	377	425	780	227
97/98	-	-	-	-	-	-	-	-	-	-	-	-	881	1,066	1,182	1,216	1,261	1,291	1,109	(251)
98/99	-	-	-	-	-	-	-	-	-	-	-	-	274	305	433	441	457	478	554	56
99/00	-	-	-	-	-	-	-	-	-	-	503	691	965	993	1,026	1,042	1,080	1,104	1,164	60
00/01	-	-	-	-	-	-	-	-	-	220	226	226	245	358	371	383	397	320	324	(73)
01/02	-	-	-	-	-	-	-	-	846	1,063	1,074	1,120	1,171	1,216	1,243	1,251	1,287	1,288	1,289	37
02/03	-	-	-	-	-	-	-	493	773	516	542	561	898	922	936	1,261	1,261	1,260	1,255	319
03/04	-	-	-	-	-	-	699	1,305	854	755	1,031	795	1,049	1,058	1,152	1,158	1,164	1,171	1,226	168
04/05	-	-	-	-	-	910	912	1,282	1,318	1,355	1,435	1,471	1,491	1,553	1,554	1,555	1,555	1,556	1,564	73
05/06	-	-	-	-	352	583	595	549	600	611	698	676	914	918	922	926	930	934	968	293
06/07	-	-	-	333	771	578	886	886	801	1,070	1,097	1,462	1,469	1,477	1,484	1,492	1,500	1,507	1,575	479
07/08	-	-	369	937	1,013	1,024	1,055	1,093	1,143	1,184	1,925	1,941	1,957	1,973	1,990	2,006	2,023	2,039	2,188	1,004
08/09	-	662	547	586	638	643	857	1,075	814	879	884	893	901	910	918	927	936	944	1,022	209
09/10	-	237	894	926	941	962	989	1,019	1,042	1,045	1,049	1,055	1,061	1,067	1,073	1,079	1,086	1,092	1,147	129
10/11	-	816	1,099	1,228	1,265	1,295	1,103	568	569	570	571	574	576	578	580	583	585	587	608	(496)
11/12	-	163	173	483	907	1,501	1,538	1,538	1,539	1,539	1,539	1,540	1,540	1,541	1,542	1,542	1,543	1,543	1,549	48
12/13	-	220	588	615	628	1,159	1,159	1,158	1,158	1,158	1,158	1,158	1,158	1,157	1,157	1,157	1,157	1,157	1,155	526
13/14	-	99	425	450	772	794	807	814	818	822	827	835	843	852	860	868	877	885	961	511
14/15	-	298	517	518	531	544	552	555	558	560	563	568	572	577	582	587	592	597	640	124
15/16	-	183	199	267	335	398	438	457	469	481	496	520	544	568	592	617	642	666	889	706
16/17	-	810	905	954	1,004	1,049	1,078	1,091	1,100	1,109	1,119	1,136	1,154	1,171	1,189	1,207	1,224	1,242	1,403	1,403
17/18	-	572	698	762	828	888	926	944	955	966	980	1,003	1,026	1,049	1,072	1,096	1,119	1,143	1,354	1,354
18/19	-	454	553	604	656	703	733	748	757	766	777	795	813	831	850	868	887	905	1,073	1,073
19/20	-	454	553	604	656	703	733	748	757	766	777	795	813	831	850	868	887	905	1,073	
20/21	-	454	553	604	656	703	733	748	757	766	777	795	813	831	850	868	887	905	1,073	
21/22	-	454	553	604	656	703	733	748	757	766	777	795	813	831	850	868	887	905	1,073	
22/23	-	454	553	604	656	703	733	748	757	766	777	795	813	831	850	868	887	905	1,073	

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	630	308	16	38	19	41	32	19	(121)	4	4	4	3	3	14	1,014
95/96	497	1,073	72	75	47	54	69	44	31	4	4	3	3	3	15	1,993
96/97	129	183	21	43	48	45	13	70	195	4	4	3	3	3	16	780
97/98	881	185	116	34	45	30	35	34	(283)	4	3	3	3	3	16	1,109
98/99	-	274	31	127	8	16	21	21	24	4	3	3	3	3	17	554
99/00	503	188	274	28	33	16	38	25	28	3	3	3	3	2	17	1,164
00/01	220	6	-	19	112	14	12	14	(77)	0	0	0	0	0	2	324
01/02	846	217	11	46	51	46	27	8	36	0	0	0	0	0	1	1,289
02/03	493	280	(257)	26	19	337	24	14	325	(1)	(1)	(1)	(0)	(0)	(4)	1,255
03/04	699	606	(451)	(99)	276	(237)	254	9	94	6	6	6	6	5	45	1,226
04/05	910	2	370	36	37	80	36	20	62	1	1	1	1	1	7	1,564
05/06	352	231	13	(47)	51	11	87	(22)	239	4	4	4	4	4	35	968
06/07	333	438	(193)	307	0	(85)	269	27	365	7	7	8	8	8	76	1,575
07/08	369	568	77	11	32	38	50	41	741	16	16	16	16	16	182	2,188
08/09	662	(115)	38	53	4	215	218	(262)	65	5	8	9	9	9	104	1,022
09/10	-	237	657	31	15	22	27	30	24	3	4	6	6	6	80	1,147
10/11		-	816	283	130	37	30	(192)	(536)	1	1	1	2	2	32	608
11/12			-	163	10	310	425	593	37	0	0	0	0	1	9	1,549
12/13				-	220	367	28	13	531	(0)	(0)	(0)	(0)	(0)	(4)	1,155
13/14					-	99	326	25	322	21	14	6	4	4	139	961
14/15						-	298	219	1	14	12	8	4	2	83	640
15/16							-	183	16	68	69	63	40	19	431	889
16/17								-	810	95	49	50	45	29	325	1,403
17/18									-	572	126	64	65	60	467	1,354
18/19										-	454	99	51	52	417	1,073
19/20											-	454	99	51	469	1,073
20/21												-	454	99	520	1,073
21/22													-	454	619	1,073
22/23														-	1,073	1,073
Total Insurance Year Inc'd		4,682	1,610	1,175	1,158	1,456	2,318	933	2,928	837	791	814	832	838		
IBNR Provision										236	281	259	241	235		
Total Insurance Yr Inc'd & Prov.		4,682	1,610	1,175	1,158	1,456	2,318	933	2,928	1,073	1,073	1,073	1,073	1,073		
Change in Total Inc'd			-65.62%	-27.02%	-1.40%	25.66%	59.23%	-59.76%	213.91%	-63.36%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	4,646	4,646	4,694	4,790	4,928	4,268	4,129	4,014	3,891	3,757
00/01	345	351	353	252	172	168	166	163	159	155
01/02	802	826	847	865	853	836	824	811	796	777
02/03	650	440	699	709	847	831	822	811	798	782
03/04	939	753	808	801	850	836	829	821	810	796
04/05	1,095	1,135	1,176	1,226	1,021	1,008	1,002	995	984	970
05/06	446	547	441	398	611	604	602	599	594	588
06/07	1,213	926	846	867	1,085	1,075	1,075	1,073	1,067	1,058
07/08	1,299	1,350	1,253	1,108	1,572	1,561	1,565	1,567	1,562	1,553
08/09	768	915	988	599	590	588	590	593	593	591
09/10	967	763	787	779	768	766	772	777	779	778
10/11	1,238	1,279	1,318	1,169	395	395	399	402	404	405
11/12	897	869	1,196	1,099	1,087	1,085	1,097	1,110	1,118	1,124
12/13	958	1,303	987	807	797	795	805	815	823	829
13/14	1,124	922	1,227	686	676	676	684	693	701	707
14/15		831	1,000	877	464	463	469	475	481	486
15/16			1,213	1,033	657	657	665	675	684	691
16/17				1,259	1,031	1,030	1,045	1,061	1,075	1,088
17/18					1,009	1,008	1,023	1,039	1,054	1,067
18/19						809	821	835	847	858
19/20							832	846	859	871
20/21								857	870	883
21/22									882	895
22/23										907
Total	17,386	17,857	19,835	19,322	19,412	19,459	20,215	21,031	21,829	22,616
Change in Total		2.71%	11.08%	-2.58%	0.47%	0.24%	3.89%	4.04%	3.79%	3.60%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	5,171	5,162	5,125	5,093	4,740	4,589	4,429	4,261	4,086	3,904
00/01	308	305	302	296	200	195	190	185	179	173
01/02	1,029	1,040	1,036	1,011	1,014	992	967	941	913	884
02/03	476	792	787	768	1,020	1,000	977	953	927	899
03/04	947	683	906	886	950	937	922	906	887	866
04/05	1,232	1,240	1,234	1,211	1,230	1,212	1,191	1,168	1,143	1,115
05/06	479	458	526	482	692	686	677	668	657	645
06/07	823	663	900	895	1,223	1,214	1,203	1,189	1,173	1,154
07/08	962	967	985	991	1,688	1,682	1,674	1,662	1,646	1,628
08/09	551	718	876	582	595	593	592	591	588	585
09/10	875	875	875	872	863	860	856	852	846	839
10/11	1,205	1,223	1,229	1,012	463	461	459	457	454	451
11/12	152	421	819	1,380	1,382	1,378	1,373	1,367	1,359	1,348
12/13	220	567	569	553	1,034	1,031	1,027	1,023	1,019	1,013
13/14	-	99	407	421	692	708	716	717	715	713
14/15		-	298	501	485	496	505	510	510	509
15/16			-	174	179	233	291	344	375	383
16/17				-	781	865	904	945	983	1,003
17/18					-	556	670	723	779	830
18/19						-	450	541	584	629
19/20							-	459	552	596
20/21								-	468	563
21/22									-	477
22/23										-
Total	14,430	15,214	16,871	17,129	19,232	19,688	20,074	20,461	20,843	21,206
Change in Total		5.43%	10.89%	1.53%	12.27%	2.37%	1.96%	1.93%	1.86%	1.74%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	853	929	716	832	169	152	171	191	205	215
00/01	130	141	125	9	(0)	(0)	1	3	4	5
01/02	25	46	4	37	(24)	(23)	(14)	(5)	3	10
02/03	376	(221)	71	94	(36)	(35)	(25)	(15)	(6)	2
03/04	276	293	81	89	40	35	40	45	49	52
04/05	238	284	225	285	(37)	(38)	(26)	(13)	(3)	7
05/06	84	236	11	5	22	19	24	29	33	36
06/07	801	580	149	168	49	44	52	62	68	74
07/08	813	880	580	370	160	148	158	168	175	179
08/09	456	474	330	156	130	98	100	103	104	104
09/10	418	142	98	89	82	81	52	59	65	70
10/11	439	476	398	435	25	25	30	16	20	24
11/12	1,056	755	674	(17)	(38)	(40)	(23)	(4)	(44)	(29)
12/13	1,081	1,200	660	451	(46)	(47)	(34)	(20)	(7)	(37)
13/14	1,495	1,138	1,123	433	149	129	129	138	147	156
14/15		1,106	939	594	92	79	76	78	84	90
15/16			1,499	1,119	641	584	536	493	471	471
16/17				1,578	509	420	397	374	351	343
17/18					1,265	704	607	572	531	493
18/19						1,014	577	501	471	438
19/20							1,042	600	520	489
20/21								1,075	622	540
21/22									1,106	644
22/23										1,138
Total	8,542	8,460	7,682	6,727	3,151	3,349	3,871	4,450	4,970	5,514
Change in Total		-0.95%	-9.20%	-12.43%	-53.15%	6.27%	15.58%	14.96%	11.69%	10.95%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(69)	76	(213)	116	(663)	(18)	19	20	14	10
00/01	(53)	12	(17)	(115)	(9)	(0)	1	2	1	1
01/02	(40)	21	(42)	34	(61)	0	9	10	8	7
02/03	(481)	(597)	291	23	(130)	1	10	11	9	8
03/04	(148)	17	(212)	8	(49)	(5)	5	5	4	3
04/05	(34)	46	(59)	60	(322)	(0)	12	13	11	9
05/06	(35)	152	(225)	(6)	17	(3)	5	5	4	3
06/07	(22)	(221)	(431)	19	(119)	(5)	9	9	7	5
07/08	(57)	68	(300)	(210)	(210)	(11)	9	10	7	4
08/09	1	18	(144)	(174)	(26)	(32)	2	3	1	0
09/10	(411)	(277)	(44)	(9)	(7)	(1)	(29)	8	6	5
10/11	(84)	37	(79)	37	(409)	(1)	6	(14)	4	4
11/12	5	(301)	(80)	(691)	(21)	(2)	17	19	(40)	15
12/13	(297)	119	(540)	(209)	(497)	(1)	13	14	13	(30)
13/14	1,495	(357)	(15)	(691)	(284)	(19)	0	9	10	9
14/15		1,106	(167)	(345)	(502)	(12)	(3)	2	5	7
15/16			1,499	(380)	(478)	(57)	(48)	(43)	(22)	(1)
16/17				1,578	(1,070)	(88)	(23)	(23)	(23)	(7)
17/18					1,265	(560)	(98)	(35)	(41)	(38)
18/19						1,014	(436)	(77)	(30)	(33)
19/20							1,042	(442)	(80)	(31)
20/21								1,075	(453)	(82)
21/22									1,106	(462)
22/23										1,138
Total	(229)	(81)	(778)	(955)	(3,575)	197	522	579	520	544

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	200	203	208	212	(127)	118	113	109	104	100
00/01	112	14	12	14	(77)	4	4	4	4	4
01/02	51	46	27	8	36	20	20	19	19	18
02/03	19	337	24	14	325	20	19	19	19	18
03/04	276	(237)	254	9	94	25	25	25	24	24
04/05	37	80	36	20	62	25	25	25	24	24
05/06	51	11	87	(22)	239	18	18	18	18	17
06/07	0	(85)	269	27	365	32	32	32	32	32
07/08	32	38	50	41	741	50	50	51	51	51
08/09	4	215	218	(262)	65	17	21	21	21	21
09/10	15	22	27	30	24	20	21	24	24	24
10/11	130	37	30	(192)	(536)	10	10	11	12	12
11/12	10	310	425	593	37	28	28	28	28	28
12/13	220	367	28	13	531	20	20	20	20	20
13/14	-	99	326	25	322	36	28	21	19	19
14/15		-	298	219	1	24	23	18	14	13
15/16			-	183	16	73	76	72	50	28
16/17				-	810	113	68	71	68	52
17/18					-	584	142	82	85	82
18/19						-	472	115	66	69
19/20							-	481	117	67
20/21								-	491	119
21/22									-	501
22/23										-
Total	1,158	1,456	2,318	933	2,928	1,238	1,217	1,265	1,310	1,342
Change in Total		25.66%	59.23%	-59.76%	213.91%	-57.72%	-1.68%	3.97%	3.49%	2.45%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	681	693	331	258	214	198	185	172	159	145
00/01	41	42	20	15	10	9	9	8	8	7
01/02	132	136	65	55	52	49	46	44	41	39
02/03	105	65	53	46	53	50	48	46	43	41
03/04	143	111	57	54	55	52	50	48	46	43
04/05	211	220	106	86	69	66	63	60	58	55
05/06	50	65	30	29	43	41	39	38	36	34
06/07	229	178	76	66	79	75	73	70	67	65
07/08	281	295	124	87	119	113	110	106	102	98
08/09	124	140	70	49	46	44	43	42	40	39
09/10	181	139	67	66	62	60	58	57	55	53
10/11	220	229	111	102	33	32	31	30	30	29
11/12	176	175	118	99	95	91	89	87	85	83
12/13	199	268	94	75	72	69	68	66	65	63
13/14	203	177	119	66	63	60	59	59	57	56
14/15		150	87	87	44	43	42	42	41	40
15/16			104	105	64	62	62	61	60	59
16/17				131	104	101	100	99	97	96
17/18					104	101	100	100	98	97
18/19						83	83	82	81	80
19/20							86	86	85	84
20/21								89	88	88
21/22									92	91
22/23										95
Total	2,977	3,083	1,633	1,478	1,382	1,401	1,444	1,491	1,535	1,579
Change in Total		3.55%	-47.05%	-9.49%	-6.50%	1.38%	3.09%	3.25%	2.99%	2.87%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	697	704	719	739	427	413	401	389	376	361
00/01	52	53	53	38	17	17	17	16	16	15
01/02	120	124	127	130	85	84	82	81	80	78
02/03	97	66	105	106	85	83	82	81	80	78
03/04	141	113	121	120	85	84	83	82	81	80
04/05	164	170	176	184	102	101	100	99	98	97
05/06	67	82	66	60	61	60	60	60	59	59
06/07	182	139	127	130	108	108	107	107	107	106
07/08	195	203	188	166	157	156	156	157	156	155
08/09	115	137	148	90	89	59	59	59	59	59
09/10	145	114	118	117	115	115	77	78	78	78
10/11	186	192	198	175	59	59	60	40	40	41
11/12	135	130	179	165	163	163	165	166	112	112
12/13	144	195	148	121	120	119	121	122	123	83
13/14	169	138	184	103	101	101	103	104	105	106
14/15		125	150	132	70	69	70	71	72	73
15/16			182	155	99	98	100	101	103	104
16/17				189	155	155	157	159	161	163
17/18					151	151	153	156	158	160
18/19						121	123	125	127	129
19/20							125	127	129	131
20/21								129	131	132
21/22									132	134
22/23										136
Total	2,608	2,686	2,990	2,919	2,249	2,316	2,402	2,511	2,583	2,670
Change in Total		2.99%	11.31%	-2.36%	-22.95%	2.99%	3.70%	4.55%	2.87%	3.36%

Appendix 2b
Accident Benefits - Other Indexed (PIPP Enhancement: Max PC Increase)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	1,378	1,397	1,050	998	641	611	586	561	534	507
00/01	93	94	73	53	27	26	25	25	24	23
01/02	252	260	192	184	137	132	129	125	121	117
02/03	203	131	158	153	138	133	130	127	123	119
03/04	284	224	178	175	140	136	133	130	127	123
04/05	375	390	282	270	171	166	163	160	156	152
05/06	117	147	96	89	104	101	99	98	96	93
06/07	411	317	203	196	187	183	180	177	174	170
07/08	476	498	312	253	276	269	266	263	259	254
08/09	239	277	218	139	135	103	102	101	100	98
09/10	326	254	185	183	178	175	135	134	133	131
10/11	406	421	308	278	93	91	91	71	70	69
11/12	310	306	297	264	258	254	254	254	197	195
12/13	343	464	242	196	191	188	188	189	188	146
13/14	372	316	303	169	164	162	162	162	162	162
14/15		274	237	218	114	112	112	113	113	113
15/16			286	260	163	161	161	162	162	162
16/17				320	259	255	256	258	258	259
17/18					256	253	254	255	256	257
18/19						205	206	207	208	209
19/20							211	213	214	215
20/21								218	219	220
21/22									224	226
22/23										231
Total	5,585	5,769	4,622	4,397	3,631	3,717	3,846	4,002	4,118	4,249
Change in Total		3.29%	-19.88%	-4.88%	-17.42%	2.37%	3.47%	4.06%	2.91%	3.18%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	683	515
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	117	1,755	1,375
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	32	32	169	138
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	42	42	861	819
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	33	33	33	33	33	159	84
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	28	67	67	67	67	547	480
00/01	-	-	-	-	-	-	-	-	-	-	-	79	82	113	113	113	113	113	805	692
01/02	-	-	-	-	-	-	-	-	-	-	57	57	57	57	57	57	103	128	723	667
02/03	-	-	-	-	-	-	-	-	-	-	144	149	174	174	218	251	290	330	1,254	1,035
03/04	-	-	-	-	-	-	-	-	81	109	109	145	189	189	244	264	283	303	767	578
04/05	-	-	-	-	-	-	-	70	132	132	132	179	179	256	300	346	392	439	1,536	1,357
05/06	-	-	-	-	-	-	24	79	79	79	79	79	52	67	83	99	116	132	520	442
06/07	-	-	-	-	-	-	83	127	202	244	244	324	367	411	456	503	551	600	1,737	1,493
07/08	-	-	-	-	26	58	158	204	235	235	281	317	355	395	435	477	520	564	1,581	1,346
08/09	-	-	-	107	54	54	54	84	84	129	153	178	205	233	262	291	322	353	1,069	985
09/10	-	-	93	76	117	117	117	117	117	135	153	173	194	215	237	260	283	307	858	740
10/11	-	77	114	114	150	150	150	150	169	187	207	227	249	271	294	318	342	367	941	791
11/12	42	132	132	132	132	132	242	254	266	278	291	304	318	333	348	363	379	395	771	639
12/13	-	-	49	49	87	127	136	145	154	162	172	181	192	202	213	224	236	248	520	433
13/14	-	-	-	80	-	22	45	67	89	112	135	160	186	213	241	270	300	330	1,028	947
14/15	-	31	-	99	117	135	152	170	188	206	225	245	266	288	310	333	357	381	940	940
15/16	-	-	34	53	72	91	110	129	148	167	187	208	230	253	277	301	326	352	943	943
16/17	-	70	91	111	132	152	173	193	214	234	256	279	303	328	354	380	407	435	1,076	1,076
17/18	-	21	41	62	82	103	123	144	164	185	207	230	254	279	304	331	358	386	1,028	1,028
18/19	-	18	37	55	73	92	110	128	147	165	185	205	226	249	272	295	320	344	917	
19/20	-	18	37	55	73	92	110	128	147	165	185	205	226	249	272	295	320	344	917	
20/21	-	18	37	55	73	92	110	128	147	165	185	205	226	249	272	295	320	344	917	
21/22	-	18	37	55	73	92	110	128	147	165	185	205	226	249	272	295	320	344	917	
22/23	-	18	37	55	73	92	110	128	147	165	185	205	226	249	272	295	320	344	917	

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year										There-After	Ultimate
	Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	70	98	-	-	-	31	31	30	30	29	365	683
95/96	148	232	-	-	-	78	78	77	76	75	992	1,755
96/97	32	-	-	-	39	5	5	5	5	5	72	169
97/98	42	-	-	-	39	40	40	40	40	39	581	861
98/99	33	-	-	42	-	4	4	4	4	4	64	159
99/00	67	-	-	-	-	22	22	22	22	22	369	547
00/01	113	-	-	-	-	30	31	31	31	31	539	805
01/02	57	-	-	-	46	26	26	26	26	27	490	723
02/03	149	25	-	44	33	39	40	40	41	41	802	1,254
03/04	109	36	44	-	56	19	20	20	20	20	423	767
04/05	132	-	46	-	78	44	45	46	47	48	1,048	1,536
05/06	79	-	-	-	(26)	15	16	16	16	17	388	520
06/07	127	75	42	-	80	42	44	46	47	48	1,185	1,737
07/08	158	46	31	-	45	36	38	40	41	42	1,104	1,581
08/09	54	-	31	-	44	24	26	27	28	29	807	1,069
09/10	117	-	-	-	-	18	19	20	21	21	643	858
10/11	114	36	-	-	-	18	18	19	21	21	693	941
11/12	132	-	-	-	110	12	12	12	13	13	467	771
12/13	-	49	-	37	41	9	9	9	9	9	349	520
13/14	-	-	-	80	(80)	22	22	22	22	22	916	1,028
14/15		-	31	(31)	99	18	18	18	18	18	752	940
15/16			-	-	34	19	19	19	19	19	814	943
16/17				-	70	21	21	21	21	21	904	1,076
17/18					-	21	21	21	21	21	925	1,028
18/19						-	18	18	18	18	844	917
19/20							-	18	18	18	862	917
20/21								-	18	18	881	917
21/22									-	18	899	917
22/23										-	917	917
Total Insurance Year Paid		597	224	173	707	614	641	667	692	716		
Unpaid Provision						303	276	250	225	201		
Total Insurance Yr Paid & Prov.		597	224	173	707	917	917	917	917	917		
Change in Total Paid			-62.44%	-22.63%	307.32%	-13.08%	4.37%	4.08%	3.75%	3.42%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	770	683	(69)
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,430	1,389	1,755	2
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	158	158	169	4
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	558	1,030	1,011	1,016	861	(79)
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	145	133	133	145	150	159	4
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	199	420	421	425	428	547	118
00/01	-	-	-	-	-	-	-	-	-	-	-	796	828	826	836	861	849	802	805	(44)
01/02	-	-	-	-	-	-	-	-	-	-	614	720	727	735	728	720	724	724	723	4
02/03	-	-	-	-	-	-	-	-	-	870	925	923	935	918	934	1,255	1,255	1,255	1,254	320
03/04	-	-	-	-	-	-	-	-	909	818	825	899	892	918	788	786	784	783	767	(152)
04/05	-	-	-	-	-	-	-	1,215	1,215	1,495	1,451	1,450	1,411	1,495	1,498	1,501	1,504	1,507	1,536	124
05/06	-	-	-	-	-	-	729	685	691	677	613	613	512	512	513	514	514	515	520	(93)
06/07	-	-	-	-	-	1,765	1,762	1,783	1,738	1,812	1,852	1,734	1,734	1,734	1,734	1,735	1,735	1,735	1,737	(115)
07/08	-	-	-	-	1,128	1,134	1,362	1,194	1,314	1,325	1,573	1,574	1,574	1,575	1,575	1,576	1,576	1,577	1,581	256
08/09	-	-	-	1,064	1,114	1,089	1,090	1,058	943	1,073	1,073	1,072	1,072	1,072	1,072	1,071	1,071	1,071	1,069	126
09/10	-	-	1,218	1,149	1,133	1,143	863	858	849	849	849	850	850	851	851	852	852	853	858	(0)
10/11	-	918	913	1,021	1,015	975	894	901	903	904	905	907	909	912	914	916	918	921	941	47
11/12	252	652	539	568	575	735	755	755	756	756	757	757	758	759	760	761	762	763	771	36
12/13	-	200	552	519	487	519	519	519	519	519	519	519	519	519	519	519	520	520	520	33
13/14	-	-	-	659	-	117	191	226	248	271	297	342	387	432	477	523	569	615	1,028	369
14/15	144	376	424	652	684	713	731	740	746	751	758	769	780	791	803	814	826	837	940	516
15/16	-	-	403	456	510	559	591	605	615	624	635	654	673	692	711	731	750	769	943	943
16/17	-	736	791	819	847	873	890	898	903	908	914	924	934	944	954	964	974	985	1,076	1,076
17/18	-	434	530	579	628	673	702	716	725	733	744	761	779	796	814	831	849	867	1,028	1,028
18/19	-	388	473	517	561	601	627	639	647	655	664	680	695	711	727	742	758	774	917	917
19/20	-	388	473	517	561	601	627	639	647	655	664	680	695	711	727	742	758	774	917	
20/21	-	388	473	517	561	601	627	639	647	655	664	680	695	711	727	742	758	774	917	
21/22	-	388	473	517	561	601	627	639	647	655	664	680	695	711	727	742	758	774	917	
22/23	-	388	473	517	561	601	627	639	647	655	664	680	695	711	727	742	758	774	917	

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	-	-	770	9	12	(64)	20	5	(70)	0	0	0	0	0	0	683
95/96	-	-	1,430	(41)	278	(16)	17	85	2	0	0	0	0	0	0	1,755
96/97	-	-	144	13	-	-	10	(2)	4	0	0	0	0	0	0	169
97/98	-	-	558	472	(19)	4	(66)	(10)	(79)	0	0	0	0	0	0	861
98/99	-	-	145	(11)	-	12	5	5	4	0	0	0	0	0	0	159
99/00	-	-	-	199	221	0	4	4	118	0	0	0	0	0	0	547
00/01	-	-	796	32	(2)	11	25	(12)	(48)	0	0	0	0	0	2	805
01/02	-	-	614	106	7	8	(7)	(8)	5	(0)	(0)	(0)	(0)	(0)	(1)	723
02/03	-	-	870	56	(2)	12	(17)	16	321	(0)	(0)	(0)	(0)	(0)	(1)	1,254
03/04	-	-	909	(91)	7	74	(7)	27	(131)	(2)	(2)	(2)	(2)	(2)	(13)	767
04/05	-	-	1,215	(1)	280	(44)	(1)	(39)	84	3	3	3	3	3	25	1,536
05/06	-	-	729	(44)	6	(14)	(64)	0	(102)	1	1	1	1	1	6	520
06/07	-	-	1,765	(3)	21	(45)	74	39	(118)	0	0	0	0	0	2	1,737
07/08	-	-	1,128	6	227	(167)	120	11	249	0	0	0	0	0	5	1,581
08/09	-	-	1,064	50	(25)	1	(33)	(115)	130	(0)	(0)	(0)	(0)	(0)	(3)	1,069
09/10	-	-	1,218	(69)	(17)	10	(280)	(5)	(9)	0	0	1	1	1	7	858
10/11		-	918	(4)	107	(6)	(40)	(81)	7	1	1	1	2	2	32	941
11/12			252	400	(112)	28	7	160	20	1	0	0	1	1	13	771
12/13				-	200	352	(33)	(32)	32	0	0	0	0	0	1	520
13/14					-	-	-	659	(659)	117	74	35	22	22	757	1,028
14/15						144	232	48	227	32	29	19	9	6	194	940
15/16							-	-	403	53	54	49	31	15	338	943
16/17								-	736	55	28	28	26	17	186	1,076
17/18									-	434	95	49	50	45	354	1,028
18/19										-	388	85	44	44	357	917
19/20											-	388	85	44	401	917
20/21												-	388	85	444	917
21/22													-	388	530	917
22/23														-	917	917
Total Insurance Year Inc'd		-	14,525	1,078	1,190	300	(34)	756	1,127	696	673	658	661	672		
IBNR Provision										222	244	259	257	246		
Total Insurance Yr Inc'd & Prov.		-	14,525	1,078	1,190	300	(34)	756	1,127	917	917	917	917	917		
Change in Total Inc'd				-92.58%	10.39%	-74.80%	-111.44%	-2303.17%	49.04%	-18.60%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3,023	3,023	2,838	2,954	3,058	2,890	2,794	2,713	2,628	2,534
00/01	567	585	617	634	585	572	563	552	540	526
01/02	521	535	560	560	522	511	504	496	486	475
02/03	624	593	635	621	837	822	813	803	789	774
03/04	568	586	616	628	433	426	423	418	413	406
04/05	1,049	1,077	1,038	1,056	1,054	1,039	1,034	1,026	1,015	1,000
05/06	495	509	493	478	383	378	377	376	373	368
06/07	1,254	1,230	1,284	1,306	1,147	1,136	1,136	1,134	1,128	1,118
07/08	947	946	877	910	1,048	1,041	1,043	1,044	1,041	1,035
08/09	825	837	811	728	752	748	752	755	755	752
09/10	937	839	642	589	587	586	590	594	595	595
10/11	795	769	685	597	622	621	627	633	636	637
11/12	769	790	827	470	413	412	416	421	425	427
12/13	856	879	813	719	304	304	307	311	314	316
13/14	867	878	896	732	789	788	798	808	817	825
14/15		585	887	855	641	640	649	658	666	673
15/16			896	735	688	687	696	706	715	723
16/17				778	756	755	766	777	787	797
17/18					766	765	776	789	800	810
18/19						692	702	714	724	734
19/20							711	723	734	744
20/21								733	744	755
21/22									754	766
22/23										776
Total	14,099	14,660	15,416	15,348	15,383	15,813	16,476	17,184	17,879	18,567
Change in Total		3.98%	5.15%	-0.44%	0.22%	2.80%	4.19%	4.30%	4.04%	3.85%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3,789	3,396	3,386	3,430	3,332	3,214	3,091	2,964	2,832	2,696
00/01	713	723	748	736	688	672	654	634	614	593
01/02	671	678	671	663	622	608	593	577	559	541
02/03	774	761	744	716	1,004	984	962	939	913	886
03/04	716	754	703	730	544	533	521	509	495	481
04/05	1,363	1,319	1,271	1,233	1,238	1,221	1,202	1,180	1,156	1,129
05/06	612	599	534	535	459	454	447	440	431	422
06/07	1,656	1,536	1,568	1,608	1,410	1,395	1,377	1,356	1,333	1,307
07/08	1,203	990	1,079	1,089	1,293	1,282	1,269	1,253	1,234	1,213
08/09	1,035	1,036	973	858	944	938	930	920	908	894
09/10	1,015	1,025	746	741	731	728	724	718	711	702
10/11	907	864	824	744	751	748	745	741	736	730
11/12	407	436	443	603	513	512	510	508	505	501
12/13	200	503	470	400	391	390	389	388	386	384
13/14	-	-	-	578	-	96	152	169	172	176
14/15		144	346	424	553	578	601	614	617	615
15/16			-	-	369	411	456	497	520	526
16/17				-	666	714	736	760	781	792
17/18					-	422	508	549	591	630
18/19						-	384	463	500	538
19/20							-	392	472	510
20/21								-	400	482
21/22									-	408
22/23										-
Total	15,061	14,764	14,506	15,088	15,509	15,902	16,253	16,569	16,866	17,154
Change in Total		-1.97%	-1.75%	4.02%	2.79%	2.54%	2.21%	1.94%	1.79%	1.71%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	101	284	207	245	(10)	(9)	16	41	61	77
00/01	26	37	3	31	(10)	(10)	(5)	1	6	11
01/02	9	18	11	17	(16)	(16)	(10)	(4)	1	5
02/03	30	8	28	39	(31)	(30)	(21)	(11)	(2)	5
03/04	21	4	48	34	(39)	(37)	(31)	(24)	(18)	(13)
04/05	21	99	4	56	(8)	(11)	(0)	11	20	28
05/06	21	52	63	50	(11)	(12)	(8)	(3)	1	4
06/07	(5)	91	15	(7)	(65)	(65)	(51)	(35)	(21)	(8)
07/08	52	267	9	28	(61)	(62)	(48)	(33)	(20)	(9)
08/09	35	49	17	39	(21)	(59)	(48)	(37)	(27)	(17)
09/10	199	62	30	(14)	(9)	(9)	(30)	(21)	(14)	(7)
10/11	140	155	16	(5)	17	16	25	3	10	17
11/12	587	585	562	(21)	(2)	(3)	3	10	(5)	(0)
12/13	878	613	513	493	(14)	(15)	(10)	(5)	(0)	(11)
13/14	1,089	1,104	1,077	334	981	881	835	829	834	839
14/15		591	729	643	246	217	203	200	205	213
15/16			1,077	919	489	444	410	379	365	367
16/17				975	279	228	217	206	196	195
17/18					960	535	460	434	403	374
18/19						867	494	428	403	374
19/20							891	513	445	418
20/21								919	532	462
21/22									946	550
22/23										973
Total	3,203	4,020	4,410	3,859	2,673	2,848	3,292	3,803	4,321	4,849
Change in Total		25.49%	9.71%	-12.49%	-30.75%	6.58%	15.57%	15.51%	13.63%	12.23%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(91)	183	(77)	38	(255)	1	25	25	20	17
00/01	(9)	11	(34)	28	(42)	(0)	6	6	5	4
01/02	(18)	9	(7)	6	(33)	0	6	6	5	4
02/03	0	(22)	20	11	(70)	0	10	10	8	8
03/04	(13)	(17)	44	(14)	(73)	1	7	7	6	5
04/05	(18)	78	(95)	52	(65)	(2)	10	11	9	8
05/06	(11)	30	11	(13)	(61)	(0)	4	5	4	3
06/07	(64)	96	(77)	(21)	(59)	(0)	15	16	14	12
07/08	13	215	(258)	19	(89)	(1)	14	15	13	12
08/09	(8)	14	(32)	22	(60)	(38)	11	12	10	9
09/10	(0)	(136)	(32)	(44)	5	(0)	(21)	9	8	7
10/11	(106)	15	(139)	(21)	21	(1)	9	(22)	7	7
11/12	102	(2)	(23)	(583)	18	(1)	6	7	(15)	5
12/13	(228)	(265)	(100)	(20)	(508)	(1)	5	5	5	(11)
13/14	1,089	15	(26)	(743)	647	(100)	(46)	(6)	6	4
14/15		591	138	(86)	(398)	(28)	(15)	(3)	5	8
15/16			1,077	(158)	(430)	(45)	(35)	(30)	(14)	2
16/17				975	(696)	(51)	(11)	(10)	(10)	(2)
17/18					960	(425)	(74)	(27)	(31)	(29)
18/19						867	(373)	(66)	(26)	(28)
19/20							891	(378)	(68)	(26)
20/21								919	(387)	(70)
21/22									946	(395)
22/23										973
Total	639	816	390	(551)	(1,187)	176	444	511	518	528

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	492	(64)	(10)	87	(20)	67	64	62	59	57
00/01	(2)	11	25	(12)	(48)	14	14	13	13	13
01/02	7	8	(7)	(8)	5	12	12	12	11	11
02/03	(2)	12	(17)	16	321	20	20	19	19	18
03/04	7	74	(7)	27	(131)	9	9	9	8	8
04/05	280	(44)	(1)	(39)	84	28	28	27	27	26
05/06	6	(14)	(64)	0	(102)	10	10	10	9	9
06/07	21	(45)	74	39	(118)	28	28	28	27	27
07/08	227	(167)	120	11	249	26	26	26	26	25
08/09	(25)	1	(33)	(115)	130	19	19	18	18	18
09/10	(17)	10	(280)	(5)	(9)	15	15	15	15	15
10/11	107	(6)	(40)	(81)	7	16	16	16	17	17
11/12	(112)	28	7	160	20	11	11	11	11	11
12/13	200	352	(33)	(32)	32	8	8	8	8	8
13/14	-	-	-	659	(659)	119	79	41	27	28
14/15		144	232	48	227	44	42	32	22	18
15/16			-	-	403	61	64	61	44	27
16/17				-	736	69	43	45	43	34
17/18					-	443	108	62	65	62
18/19						-	404	98	56	59
19/20							-	412	100	58
20/21								-	420	102
21/22									-	428
22/23										-
Total	1,190	300	(34)	756	1,127	1,020	1,018	1,024	1,046	1,079
Change in Total		-74.80%	-111.44%	-2303.17%	49.04%	-9.52%	-0.13%	0.52%	2.23%	3.11%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	413	416	195	158	143	132	123	114	105	97
00/01	87	87	41	39	34	32	30	29	27	25
01/02	80	81	38	35	32	30	28	27	25	24
02/03	87	87	41	41	53	50	47	45	43	40
03/04	83	84	43	43	28	27	26	24	23	22
04/05	177	179	81	74	71	68	65	62	59	56
05/06	65	65	30	35	27	26	25	24	23	22
06/07	209	213	106	99	83	80	77	74	71	68
07/08	166	169	79	72	79	76	73	71	68	66
08/09	121	123	58	60	59	56	55	53	51	49
09/10	136	123	38	50	48	46	45	43	42	41
10/11	132	135	52	52	52	50	49	48	47	45
11/12	110	113	55	42	36	35	34	33	32	31
12/13	93	105	48	67	27	26	26	25	25	24
13/14	92	94	47	70	73	71	69	68	67	65
14/15		63	55	84	61	59	58	57	56	55
15/16			47	75	67	65	64	64	63	61
16/17				81	76	74	73	72	71	70
17/18					79	77	76	76	75	73
18/19						71	71	70	70	69
19/20							74	73	73	72
20/21								76	76	75
21/22									79	78
22/23										81
Total	2,051	2,137	1,054	1,177	1,130	1,149	1,188	1,230	1,270	1,310
Change in Total		4.22%	-50.68%	11.63%	-4.01%	1.70%	3.41%	3.55%	3.28%	3.15%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	454	426	443	459	289	279	271	263	253	243
00/01	85	88	93	95	59	57	56	55	54	53
01/02	78	80	84	84	52	51	50	50	49	48
02/03	94	89	95	93	84	82	81	80	79	77
03/04	85	88	92	94	43	43	42	42	41	41
04/05	157	162	156	158	105	104	103	103	101	100
05/06	74	76	74	72	38	38	38	38	37	37
06/07	188	185	193	196	115	114	114	113	113	112
07/08	142	142	132	136	105	104	104	104	104	104
08/09	124	126	122	109	113	75	75	75	75	75
09/10	141	126	96	88	88	88	59	59	60	60
10/11	119	115	103	90	93	93	94	63	64	64
11/12	115	118	124	70	62	62	62	63	42	43
12/13	128	132	122	108	46	46	46	47	47	32
13/14	130	132	134	110	118	118	120	121	123	124
14/15		88	133	128	96	96	97	99	100	101
15/16			134	110	103	103	104	106	107	109
16/17				117	113	113	115	117	118	120
17/18					115	115	116	118	120	121
18/19						104	105	107	109	110
19/20							107	109	110	112
20/21								110	112	113
21/22									113	115
22/23										116
Total	2,115	2,171	2,330	2,318	1,837	1,884	1,962	2,042	2,131	2,227
Change in Total		2.67%	7.30%	-0.51%	-20.74%	2.55%	4.13%	4.08%	4.37%	4.48%

Appendix 2c
Accident Benefits - Other Indexed (PIPP Enhancement: Change to Vehicle Purchase Policy)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	866	842	638	617	432	412	395	377	359	340
00/01	172	175	134	134	93	89	87	84	81	78
01/02	158	161	122	119	84	81	79	76	74	71
02/03	180	176	136	134	136	132	129	125	122	118
03/04	168	172	136	137	72	69	68	66	65	63
04/05	334	341	237	233	177	172	168	165	161	157
05/06	139	142	104	107	65	63	62	61	60	58
06/07	397	397	299	295	198	193	190	188	184	180
07/08	308	311	211	208	184	180	178	175	172	169
08/09	245	248	180	169	172	131	130	129	127	125
09/10	277	249	134	138	136	134	104	103	102	100
10/11	251	250	155	142	146	143	143	111	110	109
11/12	226	231	179	113	98	96	96	96	75	74
12/13	222	237	170	175	73	72	72	72	72	56
13/14	222	226	181	180	191	189	189	190	189	189
14/15		150	188	213	157	155	156	156	156	156
15/16			181	185	171	168	169	170	170	170
16/17				198	190	187	188	189	189	190
17/18					194	192	193	194	195	195
18/19						175	176	177	178	179
19/20							180	182	183	183
20/21								186	187	188
21/22									192	193
22/23										198
Total	4,166	4,308	3,384	3,495	2,967	3,033	3,150	3,272	3,402	3,537
Change in Total		3.43%	-21.46%	3.27%	-15.10%	2.23%	3.86%	3.88%	3.96%	3.98%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	113	112
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	38	113	(103)
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	113
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	113
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	113	107
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	4	113	110
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	117	115
01/02	-	-	-	-	-	-	-	-	-	-	-	-	1	294	298	298	298	291	120	(178)
02/03	-	-	-	-	-	-	-	-	-	-	-	1	1	2	3	5	11	18	172	170
03/04	-	-	-	-	-	-	-	-	-	157	159	167	171	172	172	170	167	164	99	(74)
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	12	19	26	179	179
05/06	-	-	-	-	-	-	-	-	-	-	-	0	0	4	8	12	16	20	118	118
06/07	-	-	-	-	-	-	-	-	3	5	5	7	15	23	31	39	47	56	258	253
07/08	-	-	-	-	-	-	-	-	-	1	1	7	14	20	27	34	42	49	222	221
08/09	-	-	-	-	-	-	-	-	0	0	4	9	13	17	22	27	32	37	152	152
09/10	-	-	-	-	-	-	-	1	1	4	8	12	16	20	24	29	33	38	147	147
10/11	-	-	-	-	0	0	2	2	6	9	13	17	21	25	29	33	38	42	148	146
11/12	-	-	-	-	-	-	-	4	8	12	17	21	26	31	36	42	47	53	182	182
12/13	-	-	-	-	-	-	4	8	11	15	19	23	28	32	37	42	47	52	170	170
13/14	-	-	-	-	-	2	5	7	9	11	14	16	19	22	25	28	31	34	105	105
14/15	-	-	-	2	5	8	11	14	17	20	24	27	31	35	38	42	47	51	147	147
15/16	-	2	3	6	8	10	12	15	17	19	21	24	26	29	32	35	38	41	110	108
16/17	-	0	4	8	12	16	20	24	28	32	36	41	45	50	55	60	66	71	196	196
17/18	-	4	8	12	16	19	23	27	31	35	39	43	48	53	58	63	68	73	194	194
18/19	-	3	6	9	12	16	19	22	25	28	31	35	38	42	46	50	54	58	155	
19/20	-	3	6	9	12	16	19	22	25	28	31	35	38	42	46	50	54	58	155	
20/21	-	3	6	9	12	16	19	22	25	28	31	35	38	42	46	50	54	58	155	
21/22	-	3	6	9	12	16	19	22	25	28	31	35	38	42	46	50	54	58	155	
22/23	-	3	6	9	12	16	19	22	25	28	31	35	38	42	46	50	54	58	155	

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	1	-	1	-	0	7	7	7	6	6	79	113
95/96	157	15	25	19	18	(7)	(7)	(7)	(7)	(7)	(87)	113
96/97	-	-	-	-	-	6	6	6	6	6	83	113
97/98	-	-	1	-	-	6	6	6	6	6	84	113
98/99	1	0	2	3	1	5	5	5	5	5	81	113
99/00	-	1	1	2	-	5	5	5	5	5	84	113
00/01	-	-	2	1	-	5	5	5	5	5	89	117
01/02	1	294	4	-	-	(7)	(7)	(8)	(8)	(8)	(141)	120
02/03	1	1	0	1	2	7	7	7	7	7	134	172
03/04	159	8	4	2	-	(3)	(3)	(3)	(3)	(3)	(60)	99
04/05	-	-	-	-	-	6	6	6	7	7	147	179
05/06	-	-	-	0	-	4	4	4	4	4	98	118
06/07	-	3	1	0	2	8	8	8	8	9	210	258
07/08	-	-	-	1	-	6	6	7	7	7	188	222
08/09	-	-	-	0	-	4	4	4	4	5	130	152
09/10	-	-	-	1	-	3	4	4	4	4	127	147
10/11	-	0	-	2	-	3	3	4	4	4	128	148
11/12	-	-	-	-	-	4	4	4	4	5	161	182
12/13	-	-	-	-	-	4	4	4	4	4	151	170
13/14	-	-	-	-	-	2	2	2	2	2	94	105
14/15		-	-	-	2	3	3	3	3	3	130	147
15/16			-	2	1	2	2	2	2	2	96	110
16/17				-	0	4	4	4	4	4	176	196
17/18					-	4	4	4	4	4	175	194
18/19						-	3	3	3	3	143	155
19/20							-	3	3	3	146	155
20/21								-	3	3	149	155
21/22									-	3	152	155
22/23										-	155	155
Total Insurance Year Paid		322	41	34	27	81	86	90	95	99		
Unpaid Provision						74	70	65	61	56		
Total Insurance Yr Paid & Prov.		322	41	34	27	155	155	155	155	155		
Change in Total Paid			-87.40%	-14.86%	-22.61%	204.59%	5.42%	5.13%	4.91%	4.66%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	113	88
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	661	113	(964)
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	113
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	150	150	150	113	(67)
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	56	56	11	11	53	113	57
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6	6	7	13	113	100
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	11	16	117	106
01/02	-	-	-	-	-	-	-	-	-	-	-	-	251	499	508	508	508	469	120	(388)
02/03	-	-	-	-	-	-	-	-	-	-	-	3	3	4	10	18	32	46	172	162
03/04	-	-	-	-	-	-	-	-	100	157	159	170	186	188	182	175	168	161	99	(90)
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	27	41	55	179	179
05/06	-	-	-	-	-	-	-	-	-	-	-	1	0	8	17	25	34	42	118	117
06/07	-	-	-	-	-	-	-	-	5	25	25	11	27	43	59	76	92	109	258	233
07/08	-	-	-	-	220	220	-	-	11	17	3	16	30	43	57	71	84	98	222	205
08/09	-	-	-	-	-	-	-	-	1	1	6	15	24	33	42	51	61	70	152	151
09/10	-	-	-	-	-	-	-	1	1	5	10	18	27	35	44	52	61	70	147	147
10/11	-	35	35	10	22	15	15	5	9	13	18	26	34	42	50	58	66	74	148	133
11/12	-	25	25	25	25	25	25	32	36	40	45	53	62	70	79	87	96	105	182	157
12/13	-	-	-	-	-	-	14	21	25	29	34	42	51	59	68	76	85	93	170	170
13/14	-	-	-	-	-	12	20	23	26	28	31	35	40	44	49	54	58	63	105	105
14/15	-	-	-	2	18	33	42	46	49	52	55	61	67	72	78	84	90	95	147	147
15/16	-	10	10	19	29	39	44	47	49	51	53	56	60	63	67	71	74	78	110	101
16/17	-	5	36	51	67	82	91	96	98	101	105	110	116	121	127	133	139	144	196	196
17/18	-	82	100	109	119	127	133	135	137	139	141	144	147	151	154	157	161	164	194	194
18/19	-	66	80	88	95	102	106	108	110	111	112	115	118	120	123	126	128	131	155	155
19/20	-	66	80	88	95	102	106	108	110	111	112	115	118	120	123	126	128	131	155	
20/21	-	66	80	88	95	102	106	108	110	111	112	115	118	120	123	126	128	131	155	
21/22	-	66	80	88	95	102	106	108	110	111	112	115	118	120	123	126	128	131	155	
22/23	-	66	80	88	95	102	106	108	110	111	112	115	118	120	123	126	128	131	155	

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	-	-	25	-	-	-	-	-	(19)	14	13	12	11	10	47	113
95/96	-	-	100	561	327	7	79	4	(6)	(120)	(110)	(102)	(94)	(87)	(445)	113
96/97	-	-	-	-	-	-	-	-	-	13	12	11	11	10	55	113
97/98	-	-	150	-	-	-	26	5	(5)	(7)	(7)	(6)	(6)	(5)	(32)	113
98/99	-	-	56	-	(44)	-	42	3	(8)	7	7	6	6	5	34	113
99/00	-	-	-	1	5	1	1	6	(10)	12	11	10	9	8	59	113
00/01	-	-	-	-	-	-	11	-	5	10	10	9	8	8	56	117
01/02	-	-	-	-	251	249	9	-	-	(39)	(36)	(33)	(31)	(28)	(221)	120
02/03	-	-	-	-	3	0	0	7	8	14	14	13	12	11	90	172
03/04	-	-	100	57	2	11	16	3	(6)	(7)	(7)	(7)	(6)	(6)	(50)	99
04/05	-	-	-	-	-	-	-	-	-	14	14	14	14	13	111	179
05/06	-	-	-	-	-	-	-	1	(0)	8	8	8	8	8	76	118
06/07	-	-	-	-	-	5	20	(0)	(14)	16	16	16	16	17	165	258
07/08	-	-	220	-	(220)	-	11	6	(14)	13	13	14	14	14	151	222
08/09	-	-	-	-	-	-	-	1	-	5	9	9	9	9	110	152
09/10	-	-	-	-	-	-	-	1	-	4	5	8	8	9	112	147
10/11		-	35	-	(25)	12	(7)	-	(10)	4	4	5	8	8	115	148
11/12			-	25	-	-	-	-	-	7	4	4	5	8	129	182
12/13				-	-	-	-	-	-	14	7	4	4	5	137	170
13/14					-	-	-	-	-	12	8	4	2	2	78	105
14/15						-	-	-	2	16	15	9	4	3	98	147
15/16							-	10	-	10	10	9	6	3	63	110
16/17								-	5	31	16	16	15	9	105	196
17/18									-	82	18	9	9	9	67	194
18/19										-	66	14	7	8	60	155
19/20											-	66	14	7	68	155
20/21												-	66	14	75	155
21/22													-	66	90	155
22/23														-	155	155
Total Insurance Year Inc'd		-	686	644	298	284	207	45	(71)	134	119	123	131	137		
IBNR Provision										21	37	32	25	18		
Total Insurance Yr Inc'd & Prov.		-	686	644	298	284	207	45	(71)	155	155	155	155	155		
Change in Total Inc'd				-6.07%	-53.66%	-4.77%	-27.27%	-78.39%	-258.73%	-319.21%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	524	524	509	477	421	372	361	352	343	332
00/01	89	89	84	105	97	95	93	91	89	87
01/02	85	85	80	(149)	(150)	(147)	(145)	(142)	(140)	(136)
02/03	98	122	115	144	140	137	136	134	132	129
03/04	83	81	76	(49)	(61)	(60)	(60)	(59)	(58)	(57)
04/05	130	128	121	150	147	145	145	144	142	140
05/06	93	91	83	100	96	95	95	94	94	93
06/07	202	199	188	226	203	202	201	201	200	198
07/08	167	156	148	181	178	177	177	177	177	176
08/09	148	140	119	126	121	121	121	122	122	122
09/10	125	116	102	121	116	116	117	118	118	118
10/11	118	116	106	124	115	114	116	117	117	118
11/12	112	105	121	145	142	142	143	145	146	147
12/13	121	110	87	127	132	132	133	135	136	137
13/14	152	101	87	81	81	81	82	83	84	85
14/15		151	105	109	111	111	112	114	115	116
15/16			146	128	81	81	82	83	84	85
16/17				169	147	147	149	151	153	155
17/18					145	145	147	149	151	153
18/19						117	119	121	123	124
19/20							120	123	124	126
20/21								124	126	128
21/22									128	130
22/23										131
Total	2,247	2,313	2,276	2,315	2,262	2,322	2,446	2,577	2,706	2,836
Change in Total		2.97%	-1.63%	1.73%	-2.28%	2.66%	5.31%	5.36%	5.04%	4.79%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	1,022	1,013	1,131	1,125	1,059	976	895	817	741	668
00/01	-	-	9	9	14	19	24	29	33	36
01/02	250	205	210	210	210	182	156	132	109	88
02/03	2	2	2	8	14	21	30	37	43	49
03/04	0	3	15	16	10	6	1	(3)	(7)	(11)
04/05	-	-	-	-	-	8	15	23	32	39
05/06	-	-	-	0	-	5	9	14	19	24
06/07	-	2	20	20	4	12	21	31	40	50
07/08	-	-	11	15	2	9	17	24	32	40
08/09	-	-	-	1	1	2	7	12	17	22
09/10	-	-	-	-	-	1	2	7	12	17
10/11	10	22	15	13	3	3	4	5	10	15
11/12	25	25	25	25	25	28	29	29	31	35
12/13	-	-	-	-	-	10	13	14	15	16
13/14	-	-	-	-	-	10	16	17	18	18
14/15		-	-	-	-	13	26	33	35	35
15/16			-	7	6	14	22	30	35	36
16/17				-	5	32	45	59	71	79
17/18					-	80	96	104	112	119
18/19						-	65	78	85	91
19/20							-	66	80	86
20/21								-	68	82
21/22									-	69
22/23										-
Total	1,309	1,272	1,438	1,448	1,350	1,432	1,495	1,559	1,630	1,704
Change in Total		-2.86%	13.06%	0.71%	-6.74%	6.01%	4.40%	4.34%	4.51%	4.58%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(330)	(360)	(543)	(619)	(630)	(560)	(491)	(424)	(362)	(302)
00/01	118	114	94	118	99	90	83	76	70	63
01/02	(138)	(96)	(112)	(391)	(384)	(352)	(323)	(296)	(270)	(245)
02/03	127	154	140	168	149	138	128	118	109	100
03/04	109	101	79	(75)	(81)	(76)	(71)	(66)	(61)	(56)
04/05	172	164	149	183	172	162	153	143	133	123
05/06	123	117	103	122	112	106	101	96	90	83
06/07	266	254	211	257	235	223	214	204	193	181
07/08	220	200	172	206	207	198	191	183	174	165
08/09	196	180	146	155	149	140	135	131	125	119
09/10	166	149	125	149	143	142	135	131	126	121
10/11	146	127	116	141	139	138	138	132	128	123
11/12	124	110	124	155	151	147	148	149	141	137
12/13	159	141	107	158	164	153	151	152	153	145
13/14	201	130	107	101	101	90	86	85	86	86
14/15		194	129	136	138	124	113	108	107	108
15/16			180	154	95	87	79	73	69	69
16/17				212	179	151	140	129	119	113
17/18					182	101	87	82	76	71
18/19						147	84	73	68	63
19/20							151	87	75	71
20/21								156	90	78
21/22									160	93
22/23										165
Total	1,659	1,679	1,327	1,330	1,319	1,349	1,433	1,521	1,600	1,675
Change in Total		1.17%	-20.95%	0.20%	-0.79%	2.28%	6.20%	6.17%	5.19%	4.70%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(1,571)	(30)	(183)	(76)	(11)	70	70	66	63	59
00/01	(247)	(4)	(19)	24	(20)	(9)	(7)	(7)	(7)	(6)
01/02	(463)	42	(16)	(279)	7	32	29	27	26	25
02/03	(331)	28	(15)	28	(19)	(11)	(10)	(10)	(9)	(9)
03/04	(195)	(8)	(22)	(154)	(6)	5	5	5	5	5
04/05	(265)	(8)	(15)	34	(10)	(10)	(9)	(10)	(10)	(10)
05/06	(217)	(7)	(14)	19	(9)	(6)	(5)	(5)	(6)	(6)
06/07	(389)	(12)	(43)	46	(22)	(12)	(10)	(10)	(11)	(12)
07/08	(85)	(20)	(28)	34	1	(9)	(7)	(8)	(9)	(9)
08/09	(321)	(16)	(34)	9	(7)	(9)	(5)	(5)	(5)	(6)
09/10	(336)	(17)	(24)	24	(6)	(1)	(6)	(4)	(5)	(5)
10/11	(324)	(19)	(11)	25	(2)	(1)	0	(6)	(4)	(5)
11/12	(360)	(14)	15	31	(5)	(4)	1	1	(8)	(4)
12/13	(431)	(19)	(34)	51	6	(11)	(2)	1	1	(7)
13/14	201	(71)	(23)	(6)	(1)	(10)	(5)	(1)	1	0
14/15		194	(65)	7	2	(14)	(11)	(6)	(1)	1
15/16			180	(26)	(59)	(8)	(7)	(7)	(3)	(0)
16/17				212	(33)	(28)	(11)	(11)	(11)	(5)
17/18					182	(80)	(14)	(5)	(6)	(5)
18/19						147	(63)	(11)	(4)	(5)
19/20							151	(64)	(12)	(4)
20/21								156	(66)	(12)
21/22									160	(67)
22/23										165
Total	(5,336)	19	(352)	3	(10)	30	84	88	79	75

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	288	8	147	18	(47)	(61)	(58)	(55)	(52)	(50)
00/01	-	-	11	-	5	11	10	10	9	9
01/02	251	249	9	-	-	(36)	(34)	(32)	(31)	(29)
02/03	3	0	0	7	8	15	15	14	14	13
03/04	2	11	16	3	(6)	(7)	(7)	(7)	(7)	(7)
04/05	-	-	-	-	-	14	14	15	15	15
05/06	-	-	-	1	(0)	8	9	9	9	10
06/07	-	5	20	(0)	(14)	17	17	18	18	19
07/08	(220)	-	11	6	(14)	14	14	15	15	16
08/09	-	-	-	1	-	5	9	10	10	10
09/10	-	-	-	1	-	4	5	9	9	10
10/11	(25)	12	(7)	-	(10)	4	4	5	9	9
11/12	-	-	-	-	-	7	5	5	6	10
12/13	-	-	-	-	-	14	7	5	5	6
13/14	-	-	-	-	-	12	8	4	3	3
14/15		-	-	-	2	16	16	10	5	4
15/16			-	10	-	10	11	10	7	4
16/17				-	5	31	17	18	17	12
17/18					-	84	20	12	12	12
18/19						-	68	17	10	10
19/20							-	70	17	10
20/21								-	71	17
21/22									-	73
22/23										-
Total	298	284	207	45	(71)	164	152	160	173	184
Change in Total		-4.77%	-27.27%	-78.39%	-258.73%	-331.52%	-7.29%	5.46%	7.62%	6.51%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	90	68	39	23	19	18	17	16	15	14
00/01	15	12	7	6	6	5	5	5	4	4
01/02	15	11	7	(9)	(9)	(9)	(8)	(8)	(7)	(7)
02/03	17	16	9	9	9	8	8	8	7	7
03/04	14	11	6	(3)	(4)	(4)	(4)	(3)	(3)	(3)
04/05	22	17	10	11	10	9	9	9	8	8
05/06	16	12	7	7	7	6	6	6	6	5
06/07	35	27	15	17	15	14	14	13	13	12
07/08	29	21	12	14	13	13	12	12	12	11
08/09	25	19	10	10	10	9	9	9	8	8
09/10	21	15	8	10	9	9	9	9	8	8
10/11	20	15	9	11	10	9	9	9	9	8
11/12	19	14	10	13	12	12	12	11	11	11
12/13	21	15	7	12	12	11	11	11	11	10
13/14	26	14	7	8	8	7	7	7	7	7
14/15		20	9	11	11	10	10	10	10	10
15/16			12	13	8	8	8	7	7	7
16/17				18	15	14	14	14	14	14
17/18					15	15	14	14	14	14
18/19						12	12	12	12	12
19/20							12	12	12	12
20/21								13	13	13
21/22									13	13
22/23										14
Total	385	307	184	181	174	179	187	195	203	211
Change in Total		-20.16%	-40.16%	-1.81%	-3.37%	2.65%	4.38%	4.46%	4.10%	3.91%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	79	76	72	63	37	36	35	34	33	32
00/01	13	13	13	16	10	9	9	9	9	9
01/02	13	13	12	(22)	(15)	(15)	(14)	(14)	(14)	(14)
02/03	15	18	17	22	14	14	14	13	13	13
03/04	12	12	11	(7)	(6)	(6)	(6)	(6)	(6)	(6)
04/05	20	19	18	22	15	15	14	14	14	14
05/06	14	14	12	15	10	10	9	9	9	9
06/07	30	30	28	34	20	20	20	20	20	20
07/08	25	23	22	27	18	18	18	18	18	18
08/09	22	21	18	19	18	12	12	12	12	12
09/10	19	17	15	18	17	17	12	12	12	12
10/11	18	17	16	19	17	17	17	12	12	12
11/12	17	16	18	22	21	21	21	22	15	15
12/13	18	16	13	19	20	20	20	20	20	14
13/14	23	15	13	12	12	12	12	12	13	13
14/15		23	16	16	17	17	17	17	17	17
15/16			22	19	12	12	12	12	13	13
16/17				25	22	22	22	23	23	23
17/18					22	22	22	22	23	23
18/19						18	18	18	18	19
19/20							18	18	19	19
20/21								19	19	19
21/22									19	19
22/23										20
Total	337	345	337	339	281	290	304	318	331	344
Change in Total		2.30%	-2.35%	0.62%	-17.06%	3.36%	4.63%	4.70%	4.00%	4.02%

Appendix 2d
Accident Benefits - Other Indexed (PIPP Enhancement: Section 138)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	168	144	111	86	57	54	52	50	48	46
00/01	29	25	20	22	15	15	14	14	13	13
01/02	27	24	18	(32)	(24)	(23)	(23)	(22)	(21)	(20)
02/03	31	35	27	31	23	22	21	21	20	20
03/04	27	23	18	(11)	(10)	(10)	(10)	(9)	(9)	(9)
04/05	42	36	28	33	25	24	24	23	23	22
05/06	30	26	19	22	16	16	16	15	15	15
06/07	65	56	44	51	35	34	34	33	33	32
07/08	54	44	34	41	31	31	30	30	29	29
08/09	48	40	28	29	28	21	21	21	20	20
09/10	40	33	24	28	27	26	21	20	20	20
10/11	38	33	25	29	27	26	26	21	20	20
11/12	36	30	28	35	34	33	33	33	26	25
12/13	39	31	20	31	32	31	31	31	31	24
13/14	49	29	20	20	20	19	19	19	19	19
14/15		43	24	27	27	27	27	27	27	27
15/16			34	32	20	20	20	20	20	20
16/17				43	37	36	37	37	37	37
17/18					37	36	36	37	37	37
18/19						30	30	30	30	30
19/20							31	31	31	31
20/21								32	32	32
21/22									32	33
22/23										33
Total	722	652	520	519	455	469	491	513	534	555
Change in Total		-9.67%	-20.16%	-0.24%	-12.30%	3.09%	4.53%	4.61%	4.04%	3.98%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 1
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	180	161
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	326	324
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	167	165
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	132	132
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84	84
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	121	120
00/01	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	7	7	7	175	168
01/02	-	-	-	-	-	-	-	-	-	-	-	-	5	7	7	11	16	22	179	167
02/03	-	-	-	-	-	-	-	-	-	-	3	7	13	17	20	23	33	42	256	237
03/04	-	-	-	-	-	-	-	-	-	-	0	0	1	2	6	11	16	22	147	145
04/05	-	-	-	-	-	-	-	-	-	8	8	12	12	16	25	33	43	52	266	254
05/06	-	-	-	-	-	-	-	-	-	-	-	1	1	6	12	18	24	30	175	175
06/07	-	-	-	-	-	-	-	4	4	7	7	7	19	30	43	55	68	81	383	376
07/08	-	-	-	-	1	9	18	9	14	16	21	29	38	48	57	67	78	88	330	314
08/09	-	-	-	-	6	8	8	14	14	14	19	25	31	37	44	51	57	64	227	213
09/10	-	-	-	-	0	3	3	3	3	8	14	20	26	32	38	45	52	59	219	216
10/11	-	-	0	8	16	16	16	16	21	26	31	36	42	47	53	60	66	72	221	204
11/12	-	-	-	-	1	4	4	10	16	22	29	35	42	50	57	65	73	81	271	267
12/13	-	-	-	-	2	2	7	13	18	24	30	36	43	49	57	64	71	79	254	252
13/14	-	1	1	1	1	4	7	11	14	18	21	25	29	33	37	42	46	51	157	156
14/15	-	-	2	6	11	15	20	24	29	33	38	43	48	54	60	65	71	78	219	217
15/16	-	-	-	3	7	10	14	17	21	24	28	31	35	40	44	48	53	57	164	164
16/17	-	-	6	12	18	24	30	36	42	48	54	61	67	75	82	90	98	106	291	291
17/18	-	6	12	17	23	29	35	40	46	52	58	65	71	78	86	93	101	109	289	289
18/19	-	5	9	14	18	23	28	32	37	42	47	52	57	63	68	74	81	87	231	
19/20	-	5	9	14	18	23	28	32	37	42	47	52	57	63	68	74	81	87	231	
20/21	-	5	9	14	18	23	28	32	37	42	47	52	57	63	68	74	81	87	231	
21/22	-	5	9	14	18	23	28	32	37	42	47	52	57	63	68	74	81	87	231	
22/23	-	5	9	14	18	23	28	32	37	42	47	52	57	63	68	74	81	87	231	

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	9	1	7	3	3	9	9	9	9	9	112	180
95/96	2	-	1	1	0	18	18	18	18	18	233	326
96/97	0	1	0	0	1	9	9	9	9	9	120	167
97/98	-	-	0	0	0	7	7	7	7	7	98	132
98/99	-	-	-	-	-	4	4	4	4	4	64	84
99/00	0	-	-	0	4	5	5	5	5	5	89	121
00/01	3	-	4	-	-	7	7	7	7	7	131	175
01/02	5	2	1	4	4	7	7	7	7	7	129	179
02/03	7	7	4	2	4	9	9	9	9	10	186	256
03/04	0	0	1	1	4	5	5	5	5	6	114	147
04/05	8	-	4	-	4	9	9	9	9	9	205	266
05/06	-	-	-	1	-	6	6	6	6	6	145	175
06/07	4	-	3	0	-	11	12	12	12	13	315	383
07/08	18	(9)	5	2	4	9	9	9	10	10	263	330
08/09	8	-	6	-	-	5	6	6	6	7	183	227
09/10	0	3	-	-	0	5	5	6	6	6	187	219
10/11	8	7	1	-	-	5	5	5	5	6	179	221
11/12	-	-	1	3	-	6	6	6	6	7	235	271
12/13	-	-	-	2	-	6	6	6	6	6	224	254
13/14	-	1	-	-	-	3	3	3	3	3	139	157
14/15		-	-	2	4	5	5	5	5	5	190	219
15/16			-	-	-	3	3	3	3	3	147	164
16/17				-	-	6	6	6	6	6	262	291
17/18					-	6	6	6	6	6	260	289
18/19						-	5	5	5	5	213	231
19/20							-	5	5	5	217	231
20/21								-	5	5	222	231
21/22									-	5	227	231
22/23										-	231	231
Total Insurance Year Paid		12	37	21	33	166	172	179	185	192		
Unpaid Provision						66	59	52	46	40		
Total Insurance Yr Paid & Prov.		12	37	21	33	231	231	231	231	231		
Change in Total Paid			201.23%	-42.75%	54.35%	407.63%	4.07%	3.80%	3.59%	3.37%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 3
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	39	180	35
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	140	326	102
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	222	227	167	(10)
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	141	137	132	(5)
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	50	70	69	84	15
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	77	126	128	125	125	121	(5)
00/01	-	-	-	-	-	-	-	-	-	-	-	-	90	109	164	164	164	188	175	10
01/02	-	-	-	-	-	-	-	-	-	-	-	103	149	154	155	154	215	212	179	24
02/03	-	-	-	-	-	-	-	-	-	29	278	283	364	364	359	348	339	331	256	(103)
03/04	-	-	-	-	-	-	-	-	55	115	114	110	61	61	105	108	112	115	147	86
04/05	-	-	-	-	-	-	-	54	54	296	322	307	308	301	298	295	293	290	266	(41)
05/06	-	-	-	-	-	-	54	74	176	161	100	118	136	139	142	144	147	150	175	57
06/07	-	-	-	-	-	56	289	391	397	219	221	420	417	415	412	410	408	405	383	162
07/08	-	-	-	-	81	415	438	458	441	485	538	525	512	499	487	474	461	448	330	(154)
08/09	-	-	-	57	277	330	329	203	154	230	230	230	230	230	229	229	229	229	227	72
09/10	-	-	-	134	164	164	161	158	155	157	159	163	166	170	174	178	181	185	219	61
10/11	-	194	185	250	248	270	269	259	258	257	255	253	251	249	247	245	243	240	221	(48)
11/12	-	178	178	178	173	170	170	174	177	180	183	188	194	199	205	210	216	221	271	101
12/13	2	37	69	33	101	98	111	117	121	124	129	137	144	152	160	167	175	183	254	153
13/14	-	11	11	11	17	33	43	48	51	54	58	64	70	76	82	88	95	101	157	146
14/15	56	112	111	114	126	136	143	146	148	150	153	157	161	165	169	173	177	182	219	108
15/16	-	44	116	121	126	130	133	134	135	136	137	138	140	142	144	145	147	149	164	120
16/17	5	66	102	121	140	157	168	173	176	180	184	190	197	203	210	217	224	230	291	286
17/18	-	122	149	163	177	190	198	201	204	206	209	214	219	224	229	234	239	244	289	289
18/19	-	98	119	130	141	151	158	161	163	165	167	171	175	179	183	187	191	195	231	231
19/20	-	98	119	130	141	151	158	161	163	165	167	171	175	179	183	187	191	195	231	
20/21	-	98	119	130	141	151	158	161	163	165	167	171	175	179	183	187	191	195	231	
21/22	-	98	119	130	141	151	158	161	163	165	167	171	175	179	183	187	191	195	231	
22/23	-	98	119	130	141	151	158	161	163	165	167	171	175	179	183	187	191	195	231	

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	-	-	39	118	(3)	3	(14)	3	35	0	0	0	0	0	0	180
95/96	-	-	93	47	136	10	(58)	(3)	102	0	0	0	0	0	0	326
96/97	-	-	4	218	4	(45)	(5)	-	(10)	0	0	0	0	0	0	167
97/98	-	-	-	116	25	(4)	1	(1)	(5)	0	0	0	0	0	0	132
98/99	-	-	4	-	46	20	(1)	(1)	15	0	0	0	0	0	0	84
99/00	-	-	-	77	49	2	(3)	-	(5)	0	0	0	0	0	0	121
00/01	-	-	-	90	19	55	-	-	23	(1)	(1)	(1)	(1)	(1)	(7)	175
01/02	-	-	-	103	46	6	1	(1)	61	(4)	(3)	(3)	(3)	(3)	(21)	179
02/03	-	-	29	249	5	81	(0)	(4)	(11)	(8)	(8)	(8)	(7)	(7)	(53)	256
03/04	-	-	55	60	(1)	(3)	(50)	-	44	3	3	3	3	3	25	147
04/05	-	-	54	-	242	25	(15)	1	(7)	(3)	(3)	(3)	(3)	(2)	(21)	266
05/06	-	-	54	21	102	(15)	(62)	18	18	3	3	3	3	3	25	175
06/07	-	-	56	232	103	6	(179)	2	199	(2)	(2)	(2)	(2)	(2)	(24)	383
07/08	-	-	81	334	23	20	(16)	43	53	(13)	(13)	(13)	(13)	(13)	(143)	330
08/09	-	-	57	220	53	(1)	(125)	(49)	76	(0)	(0)	(0)	(0)	(0)	(3)	227
09/10	-	-	-	134	30	(0)	(2)	(3)	(3)	2	2	4	4	4	49	219
10/11		-	194	(9)	65	(2)	21	(1)	(10)	(1)	(1)	(1)	(2)	(2)	(31)	221
11/12			-	178	(1)	0	(5)	(3)	0	4	3	3	3	5	82	271
12/13				2	35	32	(36)	68	(3)	13	6	4	4	5	125	254
13/14					-	11	-	-	7	16	10	5	3	3	103	157
14/15						56	57	(1)	3	12	11	7	3	2	71	219
15/16						-	44	72	5	5	4	3	1	30	164	
16/17							5	61	36	19	19	17	11	124	291	
17/18								-	122	27	14	14	13	100	289	
18/19									-	98	21	11	11	90	231	
19/20										-	98	21	11	101	231	
20/21											-	98	21	112	231	
21/22												-	98	133	231	
22/23													-	231	231	
Total Insurance Year Inc'd		-	720	2,191	976	256	(490)	118	714	183	154	153	156	160		
IBNR Provision										48	77	78	75	71		
Total Insurance Yr Inc'd & Prov.		-	720	2,191	976	256	(490)	118	714	231	231	231	231	231		
Change in Total Inc'd				204.40%	-55.42%	-73.74%	-291.19%	-124.11%	504.32%	-67.64%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 5
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	896	896	954	886	896	847	819	796	771	743
00/01	149	164	152	153	142	139	136	134	131	127
01/02	139	153	142	142	137	134	132	130	128	125
02/03	162	218	201	201	194	191	189	186	183	180
03/04	142	153	142	138	117	115	114	113	111	109
04/05	208	229	210	211	206	203	202	201	198	196
05/06	160	171	156	148	143	141	141	140	139	137
06/07	325	362	333	334	305	302	302	302	300	297
07/08	262	278	255	255	249	248	248	249	248	246
08/09	243	255	210	177	170	169	170	171	171	170
09/10	212	215	185	177	171	171	172	173	174	173
10/11	189	201	180	173	161	160	162	163	164	165
11/12	184	192	214	212	208	208	210	212	214	215
12/13	200	205	160	187	195	195	197	199	202	203
13/14	252	189	155	120	120	120	121	123	124	126
14/15		280	191	159	162	162	164	167	169	170
15/16			267	193	124	124	126	128	129	131
16/17				250	219	219	222	225	228	231
17/18					215	215	218	222	225	228
18/19						174	177	180	182	185
19/20							179	182	185	188
20/21								185	188	190
21/22									190	193
22/23										195
Total	3,722	4,162	4,108	4,115	4,135	4,237	4,403	4,580	4,753	4,924
Change in Total		11.84%	-1.29%	0.17%	0.47%	2.49%	3.89%	4.03%	3.78%	3.59%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	961	946	858	853	976	942	906	869	830	791
00/01	106	162	158	158	181	176	170	164	159	152
01/02	144	147	148	143	200	193	186	179	172	165
02/03	276	350	346	340	324	313	301	289	277	264
03/04	114	110	60	59	99	99	99	99	99	98
04/05	288	314	295	296	285	279	272	265	258	250
05/06	176	161	100	117	135	135	135	134	133	132
06/07	387	394	212	214	412	406	400	392	384	375
07/08	420	449	427	468	517	506	493	479	465	449
08/09	322	321	190	141	217	215	213	211	208	205
09/10	163	161	158	155	152	151	151	152	152	153
10/11	242	233	253	252	243	242	240	238	235	231
11/12	178	178	172	166	166	168	167	167	167	169
12/13	37	69	33	99	97	106	108	109	109	109
13/14	-	10	10	10	17	30	37	40	40	40
14/15		56	112	109	108	117	126	131	132	132
15/16			-	44	116	120	124	127	129	129
16/17				5	66	98	113	129	144	153
17/18					-	119	143	154	166	177
18/19						-	97	117	126	136
19/20							-	99	119	128
20/21								-	101	121
21/22									-	103
22/23										-
Total	3,815	4,059	3,532	3,629	4,311	4,415	4,484	4,546	4,605	4,662
Change in Total		6.40%	-12.99%	2.75%	18.78%	2.42%	1.56%	1.38%	1.29%	1.25%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	197	257	220	224	(2)	(2)	5	12	18	23
00/01	88	47	28	28	(17)	(16)	(13)	(10)	(8)	(6)
01/02	38	48	26	29	(41)	(38)	(33)	(29)	(25)	(22)
02/03	(66)	(74)	(101)	(96)	(98)	(92)	(82)	(73)	(65)	(58)
03/04	71	83	114	110	37	34	33	31	30	28
04/05	(13)	(19)	(35)	(38)	(44)	(42)	(37)	(33)	(28)	(24)
05/06	31	56	90	63	31	29	29	29	28	27
06/07	45	74	200	196	(54)	(53)	(47)	(41)	(35)	(30)
07/08	(74)	(89)	(112)	(155)	(224)	(215)	(203)	(189)	(176)	(162)
08/09	(4)	4	67	77	(8)	(16)	(14)	(11)	(9)	(6)
09/10	113	112	69	63	59	58	51	51	51	50
10/11	8	25	(31)	(38)	(44)	(44)	(41)	(46)	(42)	(39)
11/12	67	71	94	97	91	89	91	94	85	84
12/13	227	192	163	133	145	135	135	137	139	129
13/14	332	231	182	140	133	119	113	112	113	114
14/15		304	123	90	94	84	78	75	76	78
15/16			328	197	39	35	33	31	31	32
16/17				309	208	175	163	150	139	133
17/18					270	150	130	122	113	105
18/19						218	124	108	101	94
19/20							225	129	112	105
20/21								232	134	116
21/22									238	139
22/23										245
Total	1,059	1,322	1,424	1,428	575	610	738	882	1,020	1,158
Change in Total		24.80%	7.71%	0.30%	-59.76%	6.07%	21.05%	19.54%	15.69%	13.54%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(861)	61	(38)	4	(226)	0	7	7	6	5
00/01	(129)	(41)	(18)	(0)	(44)	1	3	3	2	2
01/02	(132)	10	(22)	3	(70)	3	4	4	4	4
02/03	(174)	(8)	(27)	5	(3)	7	9	9	8	8
03/04	(73)	13	30	(4)	(73)	(3)	(1)	(2)	(2)	(2)
04/05	(322)	(6)	(16)	(2)	(7)	2	5	5	5	4
05/06	(182)	25	35	(27)	(32)	(2)	(0)	(0)	(1)	(1)
06/07	(210)	29	126	(4)	(250)	2	6	6	6	5
07/08	(97)	(15)	(23)	(43)	(69)	9	13	13	14	14
08/09	(160)	8	63	10	(85)	(8)	3	3	2	2
09/10	(174)	(0)	(43)	(6)	(4)	(1)	(7)	0	(0)	(1)
10/11	(228)	17	(56)	(6)	(6)	0	3	(5)	4	4
11/12	(178)	4	23	3	(6)	(3)	2	3	(9)	(1)
12/13	(264)	(35)	(29)	(30)	13	(10)	(0)	2	2	(10)
13/14	332	(101)	(49)	(43)	(7)	(14)	(6)	(1)	1	1
14/15		304	(181)	(33)	5	(10)	(6)	(2)	1	2
15/16			328	(131)	(158)	(4)	(2)	(2)	(0)	1
16/17				309	(101)	(33)	(12)	(12)	(12)	(6)
17/18					270	(120)	(21)	(7)	(9)	(8)
18/19						218	(94)	(17)	(6)	(7)
19/20							225	(95)	(17)	(7)
20/21								232	(98)	(18)
21/22									238	(100)
22/23										245
Total	(2,851)	263	102	4	(853)	35	128	144	138	138

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	256	(14)	(79)	(1)	131	20	19	18	17	17
00/01	19	55	-	-	23	2	2	2	2	2
01/02	46	6	1	(1)	61	0	0	0	0	0
02/03	5	81	(0)	(4)	(11)	(2)	(2)	(2)	(2)	(2)
03/04	(1)	(3)	(50)	-	44	5	6	6	5	5
04/05	242	25	(15)	1	(7)	3	3	3	2	2
05/06	102	(15)	(62)	18	18	6	6	6	6	6
06/07	103	6	(179)	2	199	6	6	5	5	5
07/08	23	20	(16)	43	53	(3)	(3)	(4)	(4)	(5)
08/09	53	(1)	(125)	(49)	76	4	4	4	4	4
09/10	30	(0)	(2)	(3)	(3)	5	5	7	7	7
10/11	65	(2)	21	(1)	(10)	4	4	3	2	2
11/12	(1)	0	(5)	(3)	0	8	6	6	7	9
12/13	35	32	(36)	68	(3)	15	8	6	6	7
13/14	-	11	-	-	7	17	11	6	4	4
14/15		56	57	(1)	3	14	13	10	6	5
15/16			-	44	72	7	7	7	6	4
16/17				5	61	38	21	22	21	15
17/18					-	125	30	17	18	17
18/19						-	102	25	14	15
19/20							-	104	25	15
20/21								-	106	26
21/22									-	108
22/23										-
Total	976	256	(490)	118	714	273	248	252	259	269
Change in Total		-73.74%	-291.19%	-124.11%	504.32%	-61.73%	-9.18%	1.42%	3.03%	3.76%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	127	105	59	47	42	39	36	34	31	28
00/01	23	19	11	9	8	8	7	7	7	6
01/02	22	19	11	9	8	8	7	7	7	6
02/03	24	26	14	13	12	12	11	10	10	9
03/04	21	17	10	9	8	7	7	7	6	6
04/05	36	31	17	15	14	13	13	12	12	11
05/06	24	20	11	11	10	10	9	9	8	8
06/07	59	51	28	25	22	21	20	20	19	18
07/08	45	40	22	20	19	18	17	17	16	16
08/09	38	31	15	14	13	13	12	12	12	11
09/10	33	26	14	15	14	13	13	13	12	12
10/11	32	26	14	15	14	13	13	12	12	12
11/12	32	27	20	19	18	17	17	17	16	16
12/13	34	25	12	17	18	17	17	16	16	15
13/14	43	24	14	12	11	11	11	10	10	10
14/15		37	15	16	15	15	15	15	14	14
15/16			22	20	12	12	12	11	11	11
16/17				26	22	21	21	21	21	20
17/18					22	22	21	21	21	21
18/19						18	18	18	18	17
19/20							19	18	18	18
20/21								19	19	19
21/22									20	20
22/23										20
Total	594	527	310	313	303	307	316	326	336	345
Change in Total		-11.27%	-41.21%	0.91%	-3.18%	1.31%	3.03%	3.18%	2.92%	2.81%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	134	143	133	134	85	82	80	77	74	71
00/01	22	25	23	23	14	14	14	13	13	13
01/02	21	23	21	21	14	13	13	13	13	12
02/03	24	33	30	30	19	19	19	19	18	18
03/04	21	23	21	21	12	11	11	11	11	11
04/05	31	34	32	32	21	20	20	20	20	20
05/06	24	26	23	22	14	14	14	14	14	14
06/07	49	54	50	50	31	30	30	30	30	30
07/08	39	42	38	38	25	25	25	25	25	25
08/09	36	38	32	26	26	17	17	17	17	17
09/10	32	32	28	27	26	26	17	17	17	17
10/11	28	30	27	26	24	24	24	16	16	16
11/12	28	29	32	32	31	31	31	32	21	22
12/13	30	31	24	28	29	29	30	30	30	20
13/14	38	28	23	18	18	18	18	18	19	19
14/15		42	29	24	24	24	25	25	25	26
15/16			40	29	19	19	19	19	19	20
16/17				38	33	33	33	34	34	35
17/18					32	32	33	33	34	34
18/19						26	27	27	27	28
19/20							27	27	28	28
20/21								28	28	29
21/22									29	29
22/23										29
Total	558	633	606	619	496	508	527	547	564	581
Change in Total		13.41%	-4.29%	2.12%	-19.86%	2.50%	3.62%	3.78%	3.11%	3.12%

Appendix 2e
Accident Benefits - Other Indexed (PIPP Enhancement: Annual Spending Allowance)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	262	249	192	181	127	121	116	111	105	100
00/01	45	44	34	32	22	22	21	20	20	19
01/02	43	42	32	30	22	21	21	20	19	19
02/03	49	59	45	43	32	31	30	29	28	27
03/04	42	40	31	30	19	19	18	18	17	17
04/05	68	65	49	47	35	34	33	32	31	31
05/06	48	46	35	33	24	24	23	23	22	22
06/07	108	106	78	75	53	51	51	50	49	48
07/08	84	82	60	58	44	43	42	42	41	40
08/09	75	70	47	41	39	30	29	29	29	28
09/10	65	58	42	41	40	39	30	30	30	29
10/11	61	56	41	41	38	37	37	29	28	28
11/12	60	56	52	51	49	49	49	49	38	37
12/13	64	56	36	45	47	46	46	46	46	36
13/14	80	52	37	30	29	29	29	29	29	29
14/15		79	44	40	40	39	39	40	40	40
15/16			62	48	31	30	30	31	31	31
16/17				64	55	54	54	55	55	55
17/18					55	54	54	55	55	55
18/19						44	44	45	45	45
19/20							45	46	46	46
20/21								47	47	47
21/22									48	49
22/23										50
Total	1,153	1,160	916	932	799	815	843	873	899	926
Change in Total		0.68%	-21.07%	1.71%	-14.26%	2.05%	3.40%	3.56%	3.04%	3.01%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	-	-	-	-	-	25	52	76	99	123	146	170	170	170	170	170	145
09/10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14/15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15/16	27	153	331	483	635	786	938	1,090	1,242	1,393	1,545	1,697	1,848	2,000	2,000	2,000	2,000	2,000	2,000	1,847
16/17	-	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
17/18	15	196	376	557	737	917	1,098	1,278	1,459	1,639	1,820	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
18/19	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
19/20	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
20/21	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
21/22	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
22/23	-	182	364	545	727	909	1,091	1,273	1,455	1,636	1,818	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	-	-	-	-	-	-	-	-	-	-	-	-
95/96	-	-	-	-	-	-	-	-	-	-	-	-
96/97	-	-	-	-	-	-	-	-	-	-	-	-
97/98	-	-	-	-	-	-	-	-	-	-	-	-
98/99	-	-	-	-	-	-	-	-	-	-	-	-
99/00	-	-	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	25	27	24	24	24	24	24	-	170
09/10	-	-	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-	-	-
15/16			27	126	178	152	152	152	152	152	910	2,000
16/17				-	-	182	182	182	182	182	1,091	2,000
17/18					15	180	180	180	180	180	1,083	2,000
18/19						-	182	182	182	182	1,273	2,000
19/20							-	182	182	182	1,455	2,000
20/21								-	182	182	1,636	2,000
21/22									-	182	1,818	2,000
22/23										-	2,000	2,000
Total Insurance Year Paid		-	27	151	220	538	719	901	1,083	1,265		
Unpaid Provision						1,462	1,281	1,099	917	735		
Total Insurance Yr Paid & Prov.		-	27	151	220	2,000	2,000	2,000	2,000	2,000		
Change in Total Paid				459.62%	45.18%	144.43%	33.82%	25.27%	20.18%	16.79%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	-	-	-	-	-	56	170	170	170	170	170	170	170	170	170	170	114
09/10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14/15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15/16	763	887	1,324	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,113
16/17	-	-	1,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
17/18	45	1,218	1,805	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
18/19	1,000	1,600	1,900	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
19/20	1,000	1,600	1,900	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
20/21	1,000	1,600	1,900	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
21/22	1,000	1,600	1,900	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
22/23	1,000	1,600	1,900	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	-	-	-	-	56	114	0	-	-	-	-	-	170
09/10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10/11		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/12			-	-	-	-	-	-	-	-	-	-	-	-	-	-
12/13				-	-	-	-	-	-	-	-	-	-	-	-	-
13/14					-	-	-	-	-	-	-	-	-	-	-	-
14/15						-	-	-	-	-	-	-	-	-	-	-
15/16							763	124	438	676	-	-	-	-	-	2,000
16/17								-	-	1,500	500	-	-	-	-	2,000
17/18									45	1,173	587	196	-	-	-	2,000
18/19										1,000	600	300	100	-	-	2,000
19/20											1,000	600	300	100	-	2,000
20/21												1,000	600	300	100	2,000
21/22													1,000	600	400	2,000
22/23														1,000	1,000	2,000
Total Insurance Year Inc'd		-	-	-	-	-	763	180	596	4,349	2,687	2,096	2,000	2,000		
IBNR Provision										(2,349)	(687)	(96)	-	-		
Total Insurance Yr Inc'd & Prov.		-	-	-	-	-	763	180	596	2,000	2,000	2,000	2,000	2,000		
Change in Total Inc'd								-76.40%	231.37%	235.31%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	139	116	94	72	49	25	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			1,848	1,705	1,575	1,439	1,333	1,219	1,097	967
16/17				1,846	1,888	1,725	1,597	1,462	1,315	1,159
17/18					1,873	1,711	1,585	1,450	1,305	1,150
18/19						1,884	1,763	1,633	1,493	1,344
19/20							1,925	1,802	1,669	1,526
20/21								1,969	1,843	1,706
21/22									2,014	1,883
22/23										2,059
Total	-	-	1,848	3,690	5,452	6,852	8,276	9,586	10,762	11,794
Change in Total				99.68%	47.75%	25.68%	20.78%	15.83%	12.27%	9.58%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	31	120	96	74	50	26	0
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			736	733	1,013	1,547	1,420	1,288	1,149	1,005
16/17				-	-	1,345	1,702	1,544	1,378	1,204
17/18					30	1,043	1,486	1,532	1,367	1,195
18/19						1,000	1,475	1,630	1,574	1,405
19/20							1,000	1,505	1,663	1,606
20/21								1,000	1,535	1,696
21/22									1,000	1,566
22/23										1,000
Total	-	-	736	764	1,163	5,031	7,158	8,549	9,692	10,678
Change in Total				3.88%	52.27%	332.44%	42.28%	19.43%	13.38%	10.17%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	124	9	8	6	5	2	(0)
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			1,353	1,192	762	71	75	77	77	73
16/17				2,085	2,127	595	90	93	92	88
17/18					2,081	882	293	92	91	87
18/19						1,123	507	202	98	96
19/20							1,170	522	210	103
20/21								1,219	537	218
21/22									1,269	552
22/23										1,320
Total	0	0	1,353	3,402	4,979	2,677	2,140	2,211	2,376	2,537
Change in Total				151.37%	46.37%	-46.23%	-20.05%	3.28%	7.49%	6.76%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	124	(115)	(2)	(1)	(2)	(2)	(2)
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			1,353	(161)	(430)	(691)	4	2	(1)	(4)
16/17				2,085	42	(1,533)	(505)	3	(1)	(4)
17/18					2,081	(1,199)	(589)	(201)	(1)	(4)
18/19						1,123	(616)	(304)	(104)	(2)
19/20							1,170	(648)	(312)	(107)
20/21								1,219	(683)	(319)
21/22									1,269	(717)
22/23										1,320
Total	-	-	1,353	2,048	1,577	(2,302)	(537)	70	166	161

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	56	117	0	2	1	1	1
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			763	124	461	689	31	28	26	23
16/17				-	-	1,530	547	34	31	28
17/18					46	1,196	631	237	31	27
18/19						1,000	665	348	141	31
19/20							1,000	698	355	144
20/21								1,000	732	362
21/22									1,000	767
22/23										1,000
Total	-	-	763	180	623	4,416	2,876	2,347	2,316	2,382
Change in Total				-76.40%	246.31%	608.40%	-34.88%	-18.39%	-1.32%	2.86%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	2	1	1	1	0	0	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			56	50	42	35	29	24	19	14
16/17				54	51	42	35	29	23	17
17/18					50	42	35	29	23	17
18/19						51	43	36	29	23
19/20							52	44	37	30
20/21								53	45	38
21/22									54	46
22/23										56
Total	-	-	56	107	145	171	195	215	230	242
Change in Total				90.39%	36.21%	17.76%	14.24%	10.07%	7.07%	4.94%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	14	12	9	7	5	3	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			185	170	157	144	133	122	110	97
16/17				185	189	172	160	146	132	116
17/18					187	171	159	145	131	115
18/19						188	176	163	149	134
19/20							193	180	167	153
20/21								197	184	171
21/22									201	188
22/23										206
Total	-	-	185	369	545	685	828	959	1,076	1,179
Change in Total				99.68%	47.75%	25.68%	20.78%	15.83%	12.27%	9.58%

Appendix 2f
Accident Benefits - Other Indexed (PIPP Enhancement: Caregiver Death Benefit)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	16	13	10	8	5	3	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			241	221	200	179	163	146	129	111
16/17				239	240	215	195	175	154	133
17/18					238	213	194	174	153	132
18/19						239	219	199	179	158
19/20							244	225	204	183
20/21								250	230	208
21/22									256	235
22/23										262
Total	-	-	241	476	690	856	1,023	1,174	1,306	1,421
Change in Total				97.52%	45.16%	24.01%	19.47%	14.73%	11.32%	8.77%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	771	771
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	771	771
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	811	811
01/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	675	675
02/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39	79	1,008	1,008
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	45	68	601	601
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	74	112	151	1,055	1,055
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-	27	54	82	111	141	824	824
06/07	-	-	-	-	-	-	-	-	-	-	-	-	46	93	142	193	245	297	1,521	1,521
07/08	-	-	-	-	-	-	-	-	-	-	-	37	76	117	159	202	246	292	1,337	1,337
08/09	-	-	-	-	-	-	-	-	-	-	24	49	75	102	130	159	189	219	918	918
09/10	-	-	-	-	-	-	-	-	-	21	44	68	93	119	145	173	201	230	897	897
10/11	-	-	-	-	-	-	-	-	20	39	60	82	105	129	154	179	205	232	847	847
11/12	-	-	-	-	-	-	-	20	41	61	83	106	130	154	180	206	233	261	899	899
12/13	-	-	-	-	-	-	22	44	66	88	111	136	161	188	215	244	273	302	988	988
13/14	-	-	-	-	-	12	24	36	48	60	73	87	101	116	131	146	162	179	556	556
14/15	-	-	-	-	23	47	70	94	117	140	165	191	218	247	276	306	337	369	1,099	1,099
15/16	-	-	-	17	33	50	67	83	100	117	134	153	172	192	213	235	257	279	800	800
16/17	-	-	21	43	64	85	106	128	149	170	193	216	241	267	294	321	349	378	1,042	1,042
17/18	-	24	48	71	95	119	143	167	190	214	239	266	294	323	352	383	415	447	1,190	1,190
18/19	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
19/20	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
20/21	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
21/22	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
22/23	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	-	-	-	-	-	46	46	45	44	44	546	771
95/96	-	-	-	-	-	44	44	43	43	42	556	771
96/97	-	-	-	-	-	42	42	41	41	40	566	771
97/98	-	-	-	-	-	40	40	39	39	39	575	771
98/99	-	-	-	-	-	38	38	38	37	37	583	771
99/00	-	-	-	-	-	36	36	36	36	36	592	771
00/01	-	-	-	-	-	35	36	36	36	36	631	811
01/02	-	-	-	-	-	28	28	29	29	29	533	675
02/03	-	-	-	-	-	39	40	41	41	41	806	1,008
03/04	-	-	-	-	-	22	23	23	23	24	487	601
04/05	-	-	-	-	-	36	37	38	39	40	865	1,055
05/06	-	-	-	-	-	27	27	28	29	29	684	824
06/07	-	-	-	-	-	46	48	49	51	52	1,276	1,521
07/08	-	-	-	-	-	37	39	41	42	43	1,135	1,337
08/09	-	-	-	-	-	24	25	26	27	28	788	918
09/10	-	-	-	-	-	21	23	24	25	26	779	897
10/11	-	-	-	-	-	20	20	21	22	23	742	847
11/12	-	-	-	-	-	20	20	20	22	23	794	899
12/13	-	-	-	-	-	22	22	22	22	23	877	988
13/14	-	-	-	-	-	12	12	12	12	12	496	556
14/15		-	-	-	-	23	23	23	23	23	982	1,099
15/16			-	-	-	17	17	17	17	17	716	800
16/17				-	-	21	21	21	21	21	936	1,042
17/18					-	24	24	24	24	24	1,071	1,190
18/19						-	18	18	18	18	850	924
19/20							-	18	18	18	868	924
20/21								-	18	18	887	924
21/22									-	18	905	924
22/23										-	924	924
Total Insurance Year Paid		-	-	-	-	720	747	774	800	825		
Unpaid Provision						204	176	149	124	99		
Total Insurance Yr Paid & Prov.		-	-	-	-	924	924	924	924	924		
Change in Total Paid							3.86%	3.59%	3.35%	3.13%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	771	771
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	771	771
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
97/98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
98/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
99/00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	771	771
00/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	811	811
01/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	675	675
02/03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39	79	1,008	1,008
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	45	68	601	601
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	74	112	151	1,055	1,055
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-	27	54	82	111	141	824	824
06/07	-	-	-	-	-	-	-	-	-	-	-	-	46	93	142	193	245	297	1,521	1,521
07/08	-	-	-	-	-	-	-	-	-	-	-	37	76	117	159	202	246	292	1,337	1,337
08/09	-	-	-	-	-	-	-	-	-	-	24	49	75	102	130	159	189	219	918	918
09/10	-	-	-	-	-	-	-	-	-	21	44	68	93	119	145	173	201	230	897	897
10/11	-	-	-	-	-	-	-	-	20	39	60	82	105	129	154	179	205	232	847	847
11/12	-	-	-	-	-	-	-	20	41	61	83	106	130	154	180	206	233	261	899	899
12/13	-	-	-	-	-	-	22	44	66	88	111	136	161	188	215	244	273	302	988	988
13/14	-	-	-	-	-	12	24	36	48	60	73	87	101	116	131	146	162	179	556	556
14/15	-	-	-	-	23	47	70	94	117	140	165	191	218	247	276	306	337	369	1,099	1,099
15/16	-	-	-	17	33	50	67	83	100	117	134	153	172	192	213	235	257	279	800	800
16/17	-	-	21	43	64	85	106	128	149	170	193	216	241	267	294	321	349	378	1,042	1,042
17/18	-	24	48	71	95	119	143	167	190	214	239	266	294	323	352	383	415	447	1,190	1,190
18/19	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	924
19/20	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
20/21	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
21/22	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	
22/23	-	18	37	55	74	92	111	129	148	166	186	206	228	250	274	297	322	347	924	

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 10/11	11/12	12/13	13/14	14/15	15/16	20/21	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	-	-	-	-	-	-	-	-	-	46	46	45	44	44	546	771
95/96	-	-	-	-	-	-	-	-	-	44	44	43	43	42	556	771
96/97	-	-	-	-	-	-	-	-	-	42	42	41	41	40	566	771
97/98	-	-	-	-	-	-	-	-	-	40	40	39	39	39	575	771
98/99	-	-	-	-	-	-	-	-	-	38	38	38	37	37	583	771
99/00	-	-	-	-	-	-	-	-	-	36	36	36	36	36	592	771
00/01	-	-	-	-	-	-	-	-	-	35	36	36	36	36	631	811
01/02	-	-	-	-	-	-	-	-	-	28	28	29	29	29	533	675
02/03	-	-	-	-	-	-	-	-	-	39	40	41	41	41	806	1,008
03/04	-	-	-	-	-	-	-	-	-	22	23	23	23	24	487	601
04/05	-	-	-	-	-	-	-	-	-	36	37	38	39	40	865	1,055
05/06	-	-	-	-	-	-	-	-	-	27	27	28	29	29	684	824
06/07	-	-	-	-	-	-	-	-	-	46	48	49	51	52	1,276	1,521
07/08	-	-	-	-	-	-	-	-	-	37	39	41	42	43	1,135	1,337
08/09	-	-	-	-	-	-	-	-	-	24	25	26	27	28	788	918
09/10	-	-	-	-	-	-	-	-	-	21	23	24	25	26	779	897
10/11		-	-	-	-	-	-	-	-	20	20	21	22	23	742	847
11/12			-	-	-	-	-	-	-	20	20	20	22	23	794	899
12/13				-	-	-	-	-	-	22	22	22	22	23	877	988
13/14					-	-	-	-	-	12	12	12	12	12	496	556
14/15						-	-	-	-	23	23	23	23	23	982	1,099
15/16							-	-	-	17	17	17	17	17	716	800
16/17								-	-	21	21	21	21	21	936	1,042
17/18									-	24	24	24	24	24	1,071	1,190
18/19										-	18	18	18	18	850	924
19/20											-	18	18	18	868	924
20/21												-	18	18	887	924
21/22													-	18	905	924
22/23														-	924	924
Total Insurance Year Inc'd		-	-	-	-	-	-	-	-	720	747	774	800	825		
IBNR Provision										204	176	149	124	99		
Total Insurance Yr Inc'd & Prov.		-	-	-	-	-	-	-	-	924	924	924	924	924		
Change in Total Inc'd											0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3,655	3,655	4,076	3,966	4,215	3,998	3,870	3,764	3,653	3,529
00/01	575	665	685	730	686	670	659	647	632	616
01/02	494	570	541	569	567	556	548	539	529	517
02/03	657	837	798	839	842	827	817	807	793	778
03/04	491	564	536	561	499	491	487	482	475	467
04/05	735	863	817	868	869	857	852	846	837	825
05/06	718	810	720	674	674	667	665	662	656	649
06/07	1,054	1,259	1,191	1,279	1,234	1,223	1,223	1,221	1,214	1,204
07/08	1,065	1,069	1,016	1,069	1,077	1,070	1,073	1,074	1,071	1,064
08/09	919	979	851	735	734	731	734	737	737	735
09/10	838	870	779	715	711	710	715	720	722	721
10/11	632	722	686	709	666	665	672	678	681	683
11/12	609	633	650	696	702	700	708	716	722	725
12/13	681	784	618	776	765	763	772	782	790	796
13/14	918	705	506	414	427	427	432	438	442	447
14/15		1,104	827	785	838	837	847	859	869	879
15/16			1,112	876	605	604	612	621	629	636
16/17				1,014	782	782	793	805	815	825
17/18					887	886	899	913	926	938
18/19						696	707	719	729	739
19/20							716	728	739	750
20/21								738	749	760
21/22									759	771
22/23										781
Total	14,040	16,088	16,408	17,275	17,780	18,159	18,802	19,497	20,172	20,834
Change in Total		14.59%	1.98%	5.28%	2.93%	2.13%	3.54%	3.70%	3.46%	3.28%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 6
Total Case Reserves (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	-	-	-	-	-	-	-	-	-	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	-	-	-	-	-	-	-
12/13	-	-	-	-	-	-	-	-	-	-
13/14	-	-	-	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			-	-	-	-	-	-	-	-
16/17				-	-	-	-	-	-	-
17/18					-	-	-	-	-	-
18/19						-	-	-	-	-
19/20							-	-	-	-
20/21								-	-	-
21/22									-	-
22/23										-
Total	-	-	-	-	-	-	-	-	-	-
Change in Total										

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 7
Total IBNR (Indexed) {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	4,598	4,981	4,656	4,859	4,600	4,445	4,316	4,181	4,032	3,874
00/01	731	819	807	847	795	775	761	745	727	707
01/02	632	704	639	662	658	644	634	623	609	594
02/03	835	1,035	943	978	979	959	947	933	916	896
03/04	627	698	634	656	581	571	565	558	549	539
04/05	953	1,081	972	1,016	1,015	999	991	982	970	954
05/06	896	985	844	791	789	778	774	770	762	752
06/07	1,390	1,596	1,428	1,504	1,447	1,431	1,428	1,423	1,412	1,397
07/08	1,363	1,344	1,212	1,260	1,266	1,255	1,255	1,254	1,248	1,238
08/09	1,171	1,212	1,003	869	865	859	861	863	861	856
09/10	1,056	1,066	916	846	840	836	841	844	845	843
10/11	829	908	819	842	789	785	792	797	799	799
11/12	790	801	787	829	833	829	836	844	849	851
12/13	882	967	729	925	910	906	914	924	931	936
13/14	1,181	874	607	495	510	508	513	518	523	527
14/15		1,379	987	941	1,001	997	1,008	1,020	1,030	1,039
15/16			1,321	1,052	725	722	730	739	747	754
16/17				1,221	940	936	948	960	971	980
17/18					1,067	1,063	1,077	1,092	1,105	1,116
18/19						838	849	861	872	882
19/20							862	875	886	897
20/21								888	900	912
21/22									914	926
22/23										941
Total	17,935	20,450	19,306	20,593	20,609	21,136	21,901	22,695	23,460	24,212
Change in Total		14.02%	-5.59%	6.67%	0.08%	2.56%	3.62%	3.63%	3.37%	3.21%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 8
Total IBNR Annual Change (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(11)	383	(325)	202	(259)	(155)	(129)	(135)	(149)	(159)
00/01	(138)	87	(11)	40	(53)	(20)	(14)	(15)	(18)	(20)
01/02	15	73	(65)	23	(3)	(15)	(10)	(11)	(13)	(15)
02/03	(146)	199	(91)	35	1	(20)	(12)	(14)	(17)	(20)
03/04	(9)	71	(64)	22	(75)	(10)	(6)	(7)	(9)	(10)
04/05	(12)	127	(109)	44	(2)	(16)	(8)	(9)	(13)	(15)
05/06	(8)	88	(141)	(53)	(3)	(11)	(4)	(5)	(8)	(10)
06/07	(12)	206	(168)	76	(57)	(16)	(3)	(5)	(11)	(15)
07/08	81	(19)	(133)	48	6	(12)	0	(1)	(6)	(10)
08/09	(9)	41	(209)	(134)	(4)	(6)	2	1	(2)	(4)
09/10	(96)	10	(150)	(70)	(6)	(4)	5	4	0	(2)
10/11	(127)	79	(89)	23	(53)	(4)	6	6	2	0
11/12	(192)	11	(14)	42	4	(4)	7	8	5	2
12/13	(389)	85	(237)	196	(15)	(4)	8	9	7	5
13/14	1,181	(307)	(267)	(112)	14	(2)	5	6	5	4
14/15		1,379	(392)	(46)	60	(4)	11	12	10	9
15/16			1,321	(269)	(327)	(3)	8	9	8	7
16/17				1,221	(281)	(3)	11	13	11	10
17/18					1,067	(3)	13	15	13	12
18/19						838	11	12	11	10
19/20							862	13	11	11
20/21								888	12	11
21/22									914	12
22/23										941
Total	128	2,515	(1,144)	1,287	16	527	765	795	764	752

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 9
Total Reported Incurred (Indexed) ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	249	254	257	260	262
00/01	-	-	-	-	-	36	37	38	39	40
01/02	-	-	-	-	-	28	29	30	31	32
02/03	-	-	-	-	-	40	42	43	44	46
03/04	-	-	-	-	-	22	23	24	25	26
04/05	-	-	-	-	-	37	39	41	42	44
05/06	-	-	-	-	-	27	29	30	31	33
06/07	-	-	-	-	-	47	49	52	55	57
07/08	-	-	-	-	-	38	41	43	45	48
08/09	-	-	-	-	-	24	26	28	29	31
09/10	-	-	-	-	-	22	24	25	27	29
10/11	-	-	-	-	-	20	21	22	24	25
11/12	-	-	-	-	-	21	21	22	23	25
12/13	-	-	-	-	-	22	23	23	24	26
13/14	-	-	-	-	-	12	13	13	13	13
14/15		-	-	-	-	24	24	25	25	26
15/16			-	-	-	17	17	18	18	18
16/17				-	-	22	22	23	23	23
17/18					-	24	25	25	26	26
18/19						-	19	20	20	20
19/20							-	20	20	20
20/21								-	20	20
21/22									-	20
22/23										-
Total	-	-	-	-	-	734	778	822	866	911
Change in Total							5.94%	5.67%	5.41%	5.19%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	578	498	294	222	202	188	175	163	150	138
00/01	98	87	53	44	40	37	35	34	32	29
01/02	88	78	44	36	34	32	31	29	27	26
02/03	113	114	65	55	53	50	48	45	43	41
03/04	87	77	44	38	33	31	29	28	27	25
04/05	145	131	74	61	59	56	54	51	49	47
05/06	107	94	53	49	47	45	43	42	40	38
06/07	230	211	118	97	90	86	83	80	77	73
07/08	192	168	94	84	81	78	75	73	70	67
08/09	160	136	68	60	57	55	53	52	50	48
09/10	135	109	59	60	58	55	54	53	51	49
10/11	133	114	64	62	56	54	53	51	50	48
11/12	120	105	72	63	61	59	58	56	55	53
12/13	133	104	50	72	69	66	65	64	62	61
13/14	172	99	50	40	40	38	38	37	36	35
14/15		165	77	77	80	77	76	75	74	72
15/16			98	89	59	57	57	56	55	54
16/17				106	79	76	76	75	74	73
17/18					92	89	88	87	86	85
18/19						72	71	71	70	69
19/20							74	74	73	72
20/21								77	76	75
21/22									79	79
22/23										82
Total	2,491	2,289	1,379	1,317	1,290	1,301	1,335	1,372	1,407	1,441
Change in Total		-8.12%	-39.78%	-4.47%	-2.07%	0.89%	2.61%	2.77%	2.53%	2.43%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	365	408	397	421	400	387	376	365	353	340
00/01	58	67	69	73	69	67	66	65	63	62
01/02	49	57	54	57	57	56	55	54	53	52
02/03	66	84	80	84	84	83	82	81	79	78
03/04	49	56	54	56	50	49	49	48	48	47
04/05	73	86	82	87	87	86	85	85	84	83
05/06	72	81	72	67	67	67	66	66	66	65
06/07	105	126	119	128	123	122	122	122	121	120
07/08	106	107	102	107	108	107	107	107	107	106
08/09	92	98	85	74	73	73	73	74	74	73
09/10	84	87	78	71	71	71	72	72	72	72
10/11	63	72	69	71	67	66	67	68	68	68
11/12	61	63	65	70	70	70	71	72	72	73
12/13	68	78	62	78	76	76	77	78	79	80
13/14	92	70	51	41	43	43	43	44	44	45
14/15		110	83	79	84	84	85	86	87	88
15/16			111	88	60	60	61	62	63	64
16/17				101	78	78	79	80	82	83
17/18					89	89	90	91	93	94
18/19						70	71	72	73	74
19/20							72	73	74	75
20/21								74	75	76
21/22									76	77
22/23										78
Total	1,404	1,651	1,630	1,752	1,756	1,803	1,870	1,938	2,005	2,070
Change in Total		17.59%	-1.28%	7.52%	0.22%	2.67%	3.68%	3.68%	3.42%	3.26%

Appendix 2g
Accident Benefits - Other Indexed (PIPP Enhancement: Death Benefit)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	943	906	691	644	602	575	552	528	503	478
00/01	156	153	122	117	109	104	101	98	95	91
01/02	137	135	98	93	91	88	86	83	80	78
02/03	179	198	145	139	137	133	129	126	122	118
03/04	136	133	98	94	82	80	78	76	74	72
04/05	219	218	156	148	146	141	139	136	133	129
05/06	179	175	125	117	115	112	110	108	106	103
06/07	336	337	237	225	213	208	205	202	198	194
07/08	298	275	196	191	189	185	183	180	177	174
08/09	252	234	153	134	131	128	127	126	124	122
09/10	219	196	137	132	129	126	126	125	123	121
10/11	197	186	133	133	123	120	120	119	118	117
11/12	181	168	137	133	131	129	128	128	127	126
12/13	201	183	112	150	145	143	142	142	141	140
13/14	263	169	101	81	82	81	81	81	80	80
14/15		275	160	156	164	161	161	161	161	160
15/16			209	176	120	118	118	118	118	118
16/17				207	157	155	155	155	155	155
17/18					180	178	178	179	179	179
18/19						141	142	143	143	143
19/20							146	147	147	147
20/21								150	151	151
21/22									155	156
22/23										160
Total	3,895	3,940	3,008	3,069	3,046	3,104	3,205	3,311	3,412	3,511
Change in Total		1.15%	-23.65%	2.03%	-0.76%	1.92%	3.23%	3.31%	3.05%	2.92%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 1
Ultimate Claims Paid - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	5,278	9,460	11,572	13,318	13,828	14,257	14,487	14,657	14,864	14,956	15,144	15,348	15,412	15,460	15,496	15,546	15,611	15,762	16,068	44
95/96	6,026	11,522	14,585	15,874	16,714	17,283	17,772	18,089	18,264	18,452	18,539	18,556	18,848	18,986	19,147	19,214	19,249	19,270	19,524	62
96/97	4,592	10,252	11,984	12,619	13,490	14,023	14,477	14,736	15,026	15,212	15,401	15,518	15,540	15,671	15,894	15,964	15,973	16,077	16,348	20
97/98	5,810	11,518	13,453	14,952	15,866	16,440	16,859	17,108	17,169	17,320	17,385	17,561	17,638	17,707	17,827	17,888	18,005	18,165	18,239	17
98/99	5,703	10,727	13,277	15,577	16,825	17,350	17,778	18,173	18,441	18,699	18,901	18,977	19,067	19,077	19,079	19,239	19,296	19,360	19,444	73
99/00	5,490	11,914	15,017	17,476	18,457	19,011	19,358	19,540	19,688	19,737	19,813	19,908	20,070	20,107	20,158	20,196	20,221	20,228	20,348	119
00/01	6,513	13,853	18,406	20,372	21,275	21,731	22,082	22,358	22,417	22,470	22,581	22,622	22,674	22,948	23,118	23,153	23,158	23,158	23,158	-
01/02	7,346	15,867	19,946	21,445	22,777	23,304	23,668	23,871	24,012	24,036	24,135	24,309	24,385	24,559	24,595	24,615	24,641	24,642	24,642	28
02/03	6,987	15,767	22,022	23,920	25,318	25,716	25,879	25,956	26,152	26,390	26,535	26,591	26,632	26,654	26,733	26,823	26,824	26,824	26,824	91
03/04	5,230	14,785	20,087	22,545	23,511	23,885	24,130	24,252	24,473	24,703	24,753	24,867	25,055	25,073	25,286	25,311	25,325	25,325	25,325	252
04/05	4,301	14,603	20,441	22,390	23,010	23,916	24,061	24,347	24,461	24,421	24,488	24,606	24,641	24,694	24,730	24,762	24,781	24,781	24,781	139
05/06	7,343	18,724	23,942	25,717	26,817	27,446	27,976	28,392	28,522	28,552	28,634	28,767	28,803	28,840	28,877	28,909	28,928	28,928	28,928	161
06/07	9,266	21,828	27,152	30,127	31,442	32,032	32,693	33,248	33,460	33,704	33,796	33,849	33,899	33,950	34,000	34,045	34,070	34,070	34,070	274
07/08	7,190	18,383	25,006	26,917	27,975	28,555	29,099	29,507	29,633	29,741	29,829	29,894	29,960	30,026	30,092	30,150	30,183	30,183	30,183	442
08/09	5,326	17,720	22,564	24,711	26,333	26,927	27,361	27,744	28,300	28,432	28,556	28,667	28,778	28,889	29,001	29,099	29,155	29,155	29,155	855
09/10	6,123	15,654	23,877	26,886	28,319	29,041	29,208	29,313	29,578	29,643	29,702	29,754	29,807	29,860	29,913	29,960	29,987	29,987	29,987	674
10/11	4,584	16,805	24,563	26,363	27,248	27,797	27,969	28,111	28,201	28,265	28,323	28,375	28,428	28,480	28,533	28,579	28,605	28,605	28,605	636
11/12	7,949	21,458	27,160	29,371	30,444	30,740	31,181	31,393	31,509	31,592	31,668	31,735	31,802	31,870	31,938	31,998	32,032	32,032	32,032	1,292
12/13	6,556	17,483	25,424	28,327	28,863	29,316	29,528	29,715	29,817	29,890	29,956	30,015	30,075	30,134	30,194	30,247	30,277	30,277	30,277	1,413
13/14	7,317	16,626	23,688	25,415	26,465	26,723	26,916	27,085	27,178	27,244	27,305	27,358	27,412	27,467	27,521	27,569	27,596	27,596	27,596	2,181
14/15	6,855	15,890	23,105	25,826	26,551	26,933	27,218	27,469	27,605	27,704	27,793	27,872	27,952	28,032	28,113	28,183	28,224	28,224	28,224	5,119
15/16	7,122	14,577	22,044	25,416	27,020	27,865	28,497	29,052	29,354	29,572	29,769	29,945	30,122	30,299	30,477	30,634	30,723	30,723	30,723	16,146
16/17	9,407	17,942	25,966	28,364	29,505	30,106	30,555	30,950	31,166	31,321	31,461	31,586	31,711	31,838	31,964	32,075	32,139	32,139	32,139	22,733
17/18	7,300	17,183	24,548	26,748	27,796	28,348	28,760	29,122	29,320	29,462	29,591	29,705	29,821	29,936	30,053	30,155	30,213	30,213	30,213	30,213
18/19	7,958	17,858	25,235	27,440	28,489	29,042	29,455	29,818	30,016	30,158	30,287	30,402	30,517	30,633	30,750	30,852	30,911	30,911	30,911	
19/20	8,077	18,115	25,596	27,831	28,895	29,456	29,874	30,242	30,443	30,587	30,718	30,835	30,952	31,069	31,187	31,291	31,350	31,350	31,350	
20/21	8,198	18,377	25,961	28,228	29,307	29,875	30,299	30,673	30,876	31,023	31,155	31,273	31,392	31,511	31,631	31,736	31,796	31,796	31,796	
21/22	8,321	18,642	26,332	28,630	29,724	30,301	30,731	31,109	31,316	31,464	31,598	31,718	31,839	31,960	32,081	32,188	32,249	32,249	32,249	
22/23	8,446	18,911	26,708	29,039	30,148	30,732	31,168	31,552	31,761	31,912	32,048	32,170	32,292	32,414	32,537	32,645	32,707	32,707	32,707	

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	15,912	8	32	71	23	3,150	-	-	-	-	-	16,068
95/96	19,307	59	30	67	55	8	-	-	-	-	-	19,524
96/97	16,077	108	90	53	20	-	-	-	-	-	-	16,348
97/98	18,005	160	37	20	17	-	-	-	-	-	-	18,239
98/99	19,239	56	64	12	69	4	-	-	-	-	-	19,444
99/00	20,158	37	25	7	104	16	-	-	-	-	-	20,348
00/01	22,948	170	35	5	-	-	-	-	-	-	-	23,158
01/02	24,385	174	36	20	26	1	-	-	-	-	-	24,642
02/03	26,591	41	22	79	90	1	-	-	-	-	-	26,824
03/04	24,753	114	187	18	213	25	14	-	-	-	-	25,325
04/05	24,421	67	117	35	53	36	32	18	-	-	-	24,781
05/06	28,522	30	82	133	36	37	37	32	19	-	-	28,928
06/07	33,248	212	244	92	53	50	50	50	44	25	-	34,070
07/08	29,099	408	126	108	88	65	66	66	66	58	33	30,183
08/09	26,927	435	382	556	133	124	110	111	111	112	155	29,155
09/10	28,319	722	167	105	265	65	59	53	53	53	127	29,987
10/11	26,363	885	549	172	142	90	64	58	52	52	178	28,605
11/12	27,160	2,211	1,073	296	441	212	116	83	75	67	297	32,032
12/13	17,483	7,941	2,903	536	453	212	187	102	73	66	321	30,277
13/14	7,317	9,309	7,062	1,727	1,050	258	193	170	93	67	352	27,596
14/15		6,855	9,036	7,215	2,720	725	382	285	251	137	618	28,224
15/16			7,122	7,456	7,467	3,371	1,605	845	631	555	1,672	30,723
16/17				9,407	8,535	8,024	2,398	1,141	601	449	1,584	32,139
17/18					7,300	9,883	7,364	2,201	1,048	552	1,866	30,213
18/19						7,958	9,900	7,377	2,205	1,049	2,421	30,911
19/20							8,077	10,038	7,480	2,235	3,519	31,350
20/21								8,198	10,178	7,585	5,835	31,796
21/22									8,321	10,320	13,607	32,249
22/23										8,446	24,261	32,707
Total Insurance Year Paid		30,002	29,423	28,189	29,352	34,315	30,654	30,830	31,301	31,829		
Unpaid Provision						(3,404)	696	967	947	878		
Total Insurance Yr Paid & Prov.		30,002	29,423	28,189	29,352	30,911	31,350	31,796	32,249	32,707		
Change in Total Paid			-1.93%	-4.19%	4.13%	16.91%	-10.67%	0.57%	1.53%	1.69%		
Total Insurance Yr Claim Counts		1,203	1,050	1,516	1,604	1,327	1,462	1,357	1,345	1,341		
Average Yearly Ultimate		24,939	28,022	18,595	18,299	23,287	21,442	23,435	23,972	24,395		
Change in Avg Yearly Ult.			12.36%	-33.64%	-1.59%	27.26%	-7.92%	9.29%	2.29%	1.76%		

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 3
Ultimate Claims Incurred - PIPP ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	12,632	13,738	14,605	15,203	15,463	15,581	15,738	15,833	15,812	15,791	15,791	15,776	15,781	15,791	15,690	15,699	15,735	15,852	16,068	21
95/96	13,379	15,849	17,561	18,176	18,508	18,784	19,125	19,390	19,286	19,329	19,316	19,230	19,245	19,362	19,312	19,239	19,264	19,293	19,524	21
96/97	11,852	14,367	15,132	15,726	16,144	16,274	16,210	16,226	16,187	16,127	16,088	16,100	16,068	16,103	16,166	16,060	16,134	16,176	16,348	17
97/98	15,631	16,872	17,311	17,769	17,913	17,914	18,002	17,901	17,814	17,829	17,985	18,014	18,138	18,020	18,026	18,118	18,172	18,169	18,239	10
98/99	14,592	17,112	17,964	18,767	18,879	18,886	19,006	19,144	19,250	19,322	19,324	19,270	19,242	19,274	19,318	19,366	19,426	19,439	19,444	6
99/00	15,614	18,890	19,708	20,142	20,416	20,361	20,353	20,254	20,222	20,222	20,265	20,270	20,178	20,333	20,250	20,233	20,241	20,245	20,348	103
00/01	19,869	20,987	22,438	22,557	22,778	22,803	22,904	22,735	22,824	22,762	22,764	22,730	22,777	23,093	23,121	23,153	23,158	23,158	23,158	-
01/02	19,780	23,358	24,766	24,446	24,277	24,334	24,580	24,545	24,452	24,364	24,325	24,414	24,566	24,625	24,644	24,615	24,642	24,642	24,642	28
02/03	21,721	25,935	26,617	26,783	26,635	26,498	26,485	26,425	26,565	26,573	26,707	26,733	26,680	26,690	26,758	26,824	26,824	26,824	26,824	66
03/04	22,183	24,171	24,640	24,592	24,781	24,985	24,822	24,717	24,756	24,954	25,060	25,055	25,200	25,374	25,325	25,325	25,325	25,325	25,325	(49)
04/05	20,543	23,887	24,760	24,730	24,598	24,624	24,607	24,489	24,537	24,528	24,556	24,636	24,700	24,744	24,781	24,781	24,781	24,781	24,781	81
05/06	23,677	27,928	29,114	29,171	28,709	28,587	28,590	28,778	28,730	28,637	28,696	28,827	28,827	28,884	28,928	28,928	28,928	28,928	28,928	101
06/07	28,500	32,429	33,186	33,099	33,197	33,129	33,444	33,685	33,715	33,800	33,823	33,887	33,953	34,020	34,070	34,070	34,070	34,070	34,070	247
07/08	25,558	29,007	29,342	29,375	29,528	29,743	29,875	29,770	29,860	29,917	29,955	30,016	30,076	30,137	30,183	30,183	30,183	30,183	30,183	266
08/09	22,763	26,736	27,142	27,325	27,916	28,040	27,986	28,154	28,641	28,870	28,930	28,990	29,050	29,110	29,155	29,155	29,155	29,155	29,155	515
09/10	24,268	26,477	28,030	28,982	29,327	29,625	29,393	29,654	29,643	29,703	29,762	29,822	29,882	29,942	29,987	29,987	29,987	29,987	29,987	333
10/11	20,355	24,269	26,986	27,495	27,854	28,014	28,050	28,212	28,270	28,328	28,386	28,445	28,503	28,561	28,605	28,605	28,605	28,605	28,605	555
11/12	22,187	27,319	30,273	30,949	31,221	31,293	31,560	31,620	31,681	31,742	31,803	31,864	31,925	31,986	32,032	32,032	32,032	32,032	32,032	739
12/13	20,915	27,252	29,109	29,423	29,720	29,745	29,805	29,866	29,926	29,987	30,048	30,109	30,170	30,231	30,277	30,277	30,277	30,277	30,277	557
13/14	19,800	25,688	26,341	26,534	26,939	27,060	27,121	27,182	27,243	27,304	27,365	27,427	27,488	27,550	27,596	27,596	27,596	27,596	27,596	1,062
14/15	17,286	23,959	26,383	27,275	27,601	27,716	27,773	27,831	27,889	27,947	28,005	28,063	28,122	28,180	28,224	28,224	28,224	28,224	28,224	1,841
15/16	18,464	23,574	29,200	29,805	30,120	30,231	30,287	30,343	30,399	30,455	30,511	30,568	30,624	30,681	30,723	30,723	30,723	30,723	30,723	7,149
16/17	20,831	27,909	30,525	31,166	31,500	31,618	31,677	31,736	31,796	31,855	31,915	31,974	32,034	32,094	32,139	32,139	32,139	32,139	32,139	11,308
17/18	19,130	25,675	28,482	29,169	29,528	29,654	29,718	29,781	29,845	29,909	29,972	30,037	30,101	30,165	30,213	30,213	30,213	30,213	30,213	30,213
18/19	19,831	26,374	29,180	29,867	30,226	30,352	30,415	30,479	30,542	30,606	30,670	30,734	30,798	30,862	30,911	30,911	30,911	30,911	30,911	
19/20	20,227	26,796	29,613	30,302	30,663	30,789	30,853	30,917	30,981	31,045	31,109	31,173	31,237	31,302	31,350	31,350	31,350	31,350	31,350	
20/21	20,632	27,225	30,053	30,744	31,106	31,233	31,297	31,361	31,425	31,489	31,554	31,618	31,683	31,748	31,796	31,796	31,796	31,796	31,796	
21/22	21,045	27,661	30,499	31,193	31,556	31,684	31,748	31,812	31,876	31,941	32,005	32,070	32,135	32,200	32,249	32,249	32,249	32,249	32,249	
22/23	21,465	28,104	30,952	31,648	32,012	32,140	32,205	32,269	32,334	32,398	32,463	32,528	32,593	32,658	32,707	32,707	32,707	32,707	32,707	

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year															
	Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	15,699	36	116	85	111	(15)	(5)	18	21	-	-	-	-	-	-	16,068
95/96	19,312	(73)	25	29	125	(33)	38	80	21	-	-	-	-	-	-	19,524
96/97	16,103	63	(105)	74	42	36	68	51	17	-	-	-	-	-	-	16,348
97/98	18,138	(118)	6	92	54	(3)	33	26	10	-	-	-	-	-	-	18,239
98/99	19,270	(28)	31	45	48	60	13	(1)	6	-	-	-	-	-	-	19,444
99/00	20,265	5	(92)	155	(82)	(17)	7	4	103	-	-	-	-	-	-	20,348
00/01	22,762	2	(34)	46	317	28	32	5	-	-	-	-	-	-	-	23,158
01/02	24,452	(88)	(39)	89	152	58	19	(29)	28	-	-	-	-	-	-	24,642
02/03	26,425	140	8	134	26	(53)	10	68	66	-	-	-	-	-	-	26,824
03/04	24,822	(105)	38	198	106	(4)	145	174	(49)	-	-	-	-	-	-	25,325
04/05	24,624	(17)	(118)	48	(9)	28	81	63	44	37	-	-	-	-	-	24,781
05/06	28,709	(122)	3	188	(47)	(93)	58	131	0	58	43	-	-	-	-	28,928
06/07	33,099	98	(68)	315	241	31	85	23	64	66	67	50	-	-	-	34,070
07/08	29,342	33	153	216	132	(106)	90	57	38	61	61	61	46	-	-	30,183
08/09	26,736	406	182	592	124	(54)	168	487	229	60	60	60	60	45	-	29,155
09/10	24,268	2,209	1,553	952	345	298	(231)	261	(11)	59	60	60	60	60	45	29,987
10/11		20,355	3,914	2,717	508	359	159	37	162	58	58	58	58	58	102	28,605
11/12			22,187	5,131	2,954	677	272	72	267	61	61	61	61	61	168	32,032
12/13				20,915	6,337	1,856	314	297	25	60	60	61	61	61	229	30,277
13/14					19,800	5,888	654	193	405	121	61	61	61	61	292	27,596
14/15						17,286	6,673	2,424	892	326	115	58	58	58	335	28,224
15/16							18,464	5,110	5,626	604	316	111	56	56	380	30,723
16/17								20,831	7,078	2,617	640	335	118	59	462	32,139
17/18									19,130	6,545	2,807	687	359	126	559	30,213
18/19										19,831	6,543	2,806	687	359	685	30,911
19/20											20,227	6,568	2,817	689	1,048	31,350
20/21												20,632	6,593	2,828	1,744	31,796
21/22													21,045	6,616	4,588	32,249
22/23														21,465	11,242	32,707
Total Insurance Year Inc'd		22,796	27,763	32,020	31,285	26,226	27,148	30,382	34,170	30,564	31,179	31,668	32,138	32,603		
IBNR Provision										347	172	128	110	104		
Total Insurance Yr Inc'd & Prov.		22,796	27,763	32,020	31,285	26,226	27,148	30,382	34,170	30,911	31,350	31,796	32,249	32,707		
Change in Total Inc'd			21.79%	15.34%	-2.30%	-16.17%	3.51%	11.91%	12.47%	-9.54%	1.42%	1.42%	1.42%	1.42%		
Total Insurance Yr Claim Counts		1240	1498	1826	1367	1,203	1,050	1,516	1,604	1,327	1,462	1,357	1,345	1,341		
Average Yearly Ultimate		18,384	18,533	17,536	22,886	21,801	25,855	20,041	21,303	23,287	21,442	23,435	23,972	24,395		
Change in Avg Yearly Ult.			0.81%	-5.38%	30.51%	-4.74%	18.60%	-22.49%	6.30%	9.31%	-7.92%	9.29%	2.29%	1.76%		

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	681	330	3,298	3,078	3,123	-	-	-	-	-
00/01	139	3	-	-	-	-	-	-	-	-
01/02	194	64	48	-	1	-	-	-	-	-
02/03	206	71	35	25	1	-	-	-	-	-
03/04	396	248	162	325	38	14	-	-	-	-
04/05	257	178	98	137	83	49	18	-	-	-
05/06	408	257	186	201	117	84	50	18	-	-
06/07	681	487	289	248	205	161	115	68	25	-
07/08	1,035	541	449	422	323	267	210	151	89	33
08/09	1,392	919	656	614	650	546	453	356	255	150
09/10	1,340	926	505	657	363	309	260	216	170	122
10/11	1,660	998	580	474	435	359	306	258	214	168
11/12	3,833	2,101	1,143	961	751	561	464	396	333	276
12/13	11,482	4,583	1,675	1,341	848	660	494	409	349	294
13/14	18,300	11,958	3,664	1,916	999	770	601	450	372	318
14/15		17,839	10,731	4,369	2,140	1,475	1,140	891	667	551
15/16			18,720	11,784	7,892	4,730	3,268	2,527	1,974	1,479
16/17				19,106	13,314	5,607	3,369	2,329	1,800	1,406
17/18					21,525	12,210	5,152	3,097	2,141	1,654
18/19						21,547	12,240	5,168	3,107	2,148
19/20							21,863	12,423	5,246	3,154
20/21								22,189	12,606	5,325
21/22									22,516	12,792
22/23										22,848
Total	42,004	41,502	42,239	45,657	52,807	49,349	50,003	50,944	51,863	52,718
Change in Total		-1.19%	1.78%	8.09%	15.66%	-6.55%	1.33%	1.88%	1.81%	1.65%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	733	333	210	3,130	3,177	-	-	-	-	-
00/01	145	3	0	0	0	-	-	-	-	-
01/02	182	66	49	(0)	1	-	-	-	-	-
02/03	142	48	36	25	1	-	-	-	-	-
03/04	306	188	146	301	39	14	-	-	-	-
04/05	107	67	31	58	50	50	18	-	-	-
05/06	209	85	62	60	24	45	51	19	-	-
06/07	437	255	96	27	38	54	70	70	25	(0)
07/08	776	262	227	176	126	121	116	112	91	33
08/09	1,113	624	410	341	437	373	323	272	221	155
09/10	1,008	583	185	341	66	60	61	68	75	82
10/11	1,131	606	216	81	101	69	63	63	69	75
11/12	3,112	1,578	777	553	378	227	172	149	135	129
12/13	9,769	3,684	1,095	856	429	277	151	109	97	92
13/14	12,483	9,062	2,653	1,119	475	338	206	97	65	60
14/15		10,432	8,069	3,278	1,449	1,050	783	556	362	284
15/16			11,342	8,996	7,156	4,389	3,100	2,366	1,791	1,291
16/17				11,424	9,967	4,560	2,802	1,995	1,512	1,122
17/18					11,829	8,492	3,934	2,421	1,732	1,306
18/19						11,873	8,516	3,945	2,427	1,736
19/20							12,150	8,680	4,017	2,471
20/21								12,434	8,848	4,091
21/22									12,723	9,019
22/23										13,019
Total	31,654	27,878	25,603	30,767	35,742	31,992	32,516	33,354	34,191	34,965
Change in Total		-11.93%	-8.16%	20.17%	16.17%	-10.49%	1.64%	2.58%	2.51%	2.26%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	34	175	129	252	257	-	-	-	-	-
00/01	9	0	-	(0)	(0)	-	-	-	-	-
01/02	35	5	4	0	0	-	-	-	-	-
02/03	88	31	2	2	0	-	-	-	-	-
03/04	139	89	34	57	3	1	-	-	-	-
04/05	183	133	78	93	42	4	2	-	-	-
05/06	253	203	145	163	106	48	4	2	-	-
06/07	336	292	226	249	189	124	57	5	2	0
07/08	401	348	275	293	233	176	117	55	7	3
08/09	467	413	324	343	285	234	180	123	61	11
09/10	512	461	380	391	339	284	229	172	113	53
10/11	745	518	432	447	384	331	278	224	168	111
11/12	1,205	784	500	517	459	400	346	292	236	178
12/13	3,083	1,453	774	636	516	461	402	347	292	235
13/14	7,972	4,275	1,427	1,010	638	522	466	407	351	294
14/15		9,438	3,839	1,568	932	597	490	439	383	332
15/16			9,418	4,028	1,603	888	551	457	415	361
16/17				9,690	4,755	1,681	956	607	499	449
17/18					11,969	5,046	1,799	1,034	660	542
18/19						12,013	5,055	1,806	1,039	663
19/20							12,087	5,093	1,821	1,048
20/21								12,164	5,129	1,836
21/22									12,238	5,164
22/23										12,310
Total	15,461	18,618	17,986	19,738	22,710	22,810	23,018	23,227	23,414	23,591
Change in Total		20.42%	-3.40%	9.74%	15.06%	0.44%	0.91%	0.91%	0.80%	0.76%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(47)	142	(46)	124	5	(257)	-	-	-	-
00/01	(20)	(8)	(0)	(0)	-	0	-	-	-	-
01/02	(45)	(31)	(1)	(4)	0	(0)	-	-	-	-
02/03	(54)	(57)	(29)	(0)	(2)	(0)	-	-	-	-
03/04	(76)	(50)	(55)	24	(54)	(2)	(1)	-	-	-
04/05	(103)	(50)	(54)	14	(51)	(38)	(2)	(2)	-	-
05/06	(78)	(50)	(58)	18	(57)	(58)	(45)	(2)	(2)	-
06/07	(24)	(44)	(67)	23	(60)	(65)	(67)	(52)	(3)	(2)
07/08	22	(53)	(74)	18	(60)	(57)	(59)	(61)	(48)	(4)
08/09	78	(55)	(88)	19	(58)	(51)	(54)	(58)	(61)	(50)
09/10	33	(51)	(81)	12	(52)	(54)	(56)	(57)	(59)	(61)
10/11	26	(227)	(86)	14	(63)	(53)	(53)	(54)	(56)	(57)
11/12	(816)	(422)	(284)	17	(58)	(59)	(54)	(54)	(56)	(58)
12/13	(3,424)	(1,629)	(679)	(138)	(120)	(55)	(59)	(55)	(55)	(57)
13/14	7,972	(3,697)	(2,847)	(418)	(372)	(116)	(56)	(59)	(56)	(56)
14/15		9,438	(5,600)	(2,270)	(636)	(335)	(107)	(51)	(56)	(51)
15/16			9,418	(5,390)	(2,425)	(716)	(337)	(94)	(42)	(53)
16/17				9,690	(4,935)	(3,074)	(724)	(349)	(107)	(50)
17/18					11,969	(6,924)	(3,247)	(765)	(375)	(118)
18/19						12,013	(6,958)	(3,248)	(767)	(376)
19/20							12,087	(6,994)	(3,272)	(773)
20/21								12,164	(7,036)	(3,293)
21/22									12,238	(7,074)
22/23										12,310
Total	3,443	3,157	(632)	1,752	2,972	100	208	209	187	177

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	299	28	156	179	177	-	-	-	-	-
00/01	317	28	32	5	-	-	-	-	-	-
01/02	152	58	19	(29)	28	-	-	-	-	-
02/03	26	(53)	10	68	66	-	-	-	-	-
03/04	106	(4)	145	174	(49)	-	-	-	-	-
04/05	(9)	28	81	63	44	37	-	-	-	-
05/06	(47)	(93)	58	131	0	58	43	-	-	-
06/07	241	31	85	23	64	66	67	50	-	-
07/08	132	(106)	90	57	38	61	61	61	46	-
08/09	124	(54)	168	487	229	60	60	60	60	45
09/10	345	298	(231)	261	(11)	59	60	60	60	60
10/11	508	359	159	37	162	58	58	58	58	58
11/12	2,954	677	272	72	267	61	61	61	61	61
12/13	6,337	1,856	314	297	25	60	60	61	61	61
13/14	19,800	5,888	654	193	405	121	61	61	61	61
14/15		17,286	6,673	2,424	892	326	115	58	58	58
15/16			18,464	5,110	5,626	604	316	111	56	56
16/17				20,831	7,078	2,617	640	335	118	59
17/18					19,130	6,545	2,807	687	359	126
18/19						19,831	6,543	2,806	687	359
19/20							20,227	6,568	2,817	689
20/21								20,632	6,593	2,828
21/22									21,045	6,616
22/23										21,465
Total	31,285	26,226	27,148	30,382	34,170	30,564	31,179	31,668	32,138	32,603
Change in Total		-16.17%	3.51%	11.91%	12.47%	-10.55%	2.01%	1.57%	1.48%	1.45%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	4	1	8	7	8	-	-	-	-	-
00/01	2	0	-	-	-	-	-	-	-	-
01/02	3	1	0	-	0	-	-	-	-	-
02/03	4	1	0	0	0	-	-	-	-	-
03/04	9	4	1	2	0	0	-	-	-	-
04/05	7	3	1	1	1	0	0	-	-	-
05/06	13	6	2	2	1	1	0	0	-	-
06/07	24	12	4	3	2	1	1	0	0	-
07/08	38	15	8	6	4	3	2	1	0	0
08/09	49	26	12	10	10	7	5	3	2	1
09/10	45	25	9	12	6	5	3	2	1	1
10/11	50	26	10	8	8	6	5	3	2	1
11/12	101	50	20	16	13	10	8	6	4	3
12/13	222	96	26	22	15	11	9	7	5	4
13/14	325	183	50	29	17	13	10	8	6	5
14/15		248	103	57	33	25	20	15	12	9
15/16			169	106	102	73	56	44	34	27
16/17				168	116	72	52	40	31	24
17/18					184	106	66	48	37	29
18/19						184	106	67	49	37
19/20							187	108	68	49
20/21								190	110	69
21/22									193	112
22/23										196
Total	897	698	424	450	519	518	531	543	555	567
Change in Total		-22.18%	-39.22%	6.04%	15.38%	-0.12%	2.38%	2.42%	2.22%	2.11%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	82	33	175	297	303	-	-	-	-	-
00/01	14	0	-	-	-	-	-	-	-	-
01/02	19	6	5	-	0	-	-	-	-	-
02/03	21	7	3	2	0	-	-	-	-	-
03/04	40	25	16	31	4	1	-	-	-	-
04/05	26	18	10	13	8	5	2	-	-	-
05/06	41	26	19	19	11	8	5	2	-	-
06/07	68	49	29	24	20	16	12	7	3	-
07/08	104	54	45	41	31	27	21	15	9	3
08/09	139	92	66	59	63	55	45	36	26	15
09/10	134	93	50	63	35	31	26	22	17	12
10/11	166	100	58	46	42	36	31	26	21	17
11/12	383	210	114	93	73	56	46	40	33	28
12/13	1,148	458	168	129	82	66	49	41	35	29
13/14	1,830	1,196	366	185	97	77	60	45	37	32
14/15		1,784	1,073	421	208	147	114	89	67	55
15/16			1,872	1,135	766	473	327	253	197	148
16/17				1,841	1,293	561	337	233	180	141
17/18					2,090	1,221	515	310	214	165
18/19						2,155	1,224	517	311	215
19/20							2,186	1,242	525	315
20/21								2,219	1,261	533
21/22									2,252	1,279
22/23										2,285
Total	4,215	4,150	4,069	4,399	5,127	4,935	5,000	5,094	5,186	5,272
Change in Total		-1.53%	-1.95%	8.09%	16.56%	-3.74%	1.33%	1.88%	1.81%	1.65%

Appendix 3
Accident Benefits - Other: Non-Indexed

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	86	34	183	304	311	-	-	-	-	-
00/01	16	0	-	-	-	-	-	-	-	-
01/02	23	7	5	-	0	-	-	-	-	-
02/03	25	8	4	2	0	-	-	-	-	-
03/04	49	29	18	33	4	1	-	-	-	-
04/05	33	21	11	14	9	5	2	-	-	-
05/06	54	31	21	22	12	9	5	2	-	-
06/07	92	61	33	27	22	17	12	7	3	-
07/08	141	69	53	47	36	30	23	16	9	3
08/09	189	118	78	69	73	62	50	39	27	16
09/10	179	118	60	75	41	36	29	24	18	13
10/11	216	126	68	54	50	42	35	29	24	18
11/12	484	260	134	109	86	66	54	46	38	31
12/13	1,370	554	194	152	97	77	58	48	40	33
13/14	2,155	1,379	416	214	114	90	70	53	44	37
14/15		2,032	1,176	478	241	173	134	104	79	64
15/16			2,041	1,241	868	546	383	296	231	174
16/17				2,008	1,408	633	389	273	211	165
17/18					2,274	1,327	582	358	251	194
18/19						2,339	1,330	584	359	252
19/20							2,373	1,351	593	365
20/21								2,409	1,371	602
21/22									2,445	1,391
22/23										2,481
Total	5,111	4,848	4,493	4,848	5,646	5,453	5,531	5,638	5,742	5,839
Change in Total		-5.15%	-7.31%	7.90%	16.45%	-3.41%	1.43%	1.93%	1.85%	1.69%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 1
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,190	1,306	1,306	1,346	40
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,445	1,579	1,579	1,579	1,619	40
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	979	979	979	979	979	1,019	40
97/98	-	-	-	-	-	-	-	-	-	-	-	-	926	1,034	1,175	1,175	1,175	1,175	1,214	40
98/99	-	-	-	-	-	-	-	-	-	-	-	591	698	698	698	698	698	698	848	150
99/00	-	-	-	-	-	-	-	-	-	-	667	667	790	790	790	790	790	790	830	40
00/01	-	-	-	-	-	-	-	-	-	1,003	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	-
01/02	-	-	-	-	-	-	-	-	755	755	879	879	879	879	879	879	879	879	879	-
02/03	-	-	-	-	-	-	-	910	910	1,107	1,107	1,107	1,204	1,204	1,204	1,204	1,204	1,204	1,204	-
03/04	-	-	-	-	-	-	954	954	954	954	954	954	954	954	954	1,060	1,060	1,060	1,060	106
04/05	-	-	-	-	-	885	863	1,094	1,094	977	977	977	977	977	977	977	977	977	977	-
05/06	-	-	-	-	928	1,141	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	-
06/07	-	-	-	1,469	1,588	1,588	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	-
07/08	-	-	943	1,197	1,197	1,197	1,197	1,286	1,286	1,286	1,286	1,378	1,378	1,378	1,378	1,378	1,378	1,378	1,378	92
08/09	-	328	605	806	1,087	1,087	1,169	1,273	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	-
09/10	113	541	813	813	813	813	813	813	813	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	271
10/11	-	498	577	657	745	745	745	745	839	839	839	839	839	839	839	839	839	839	839	93
11/12	242	343	423	536	724	751	831	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	265
12/13	-	336	635	759	842	924	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	267
13/14	84	167	348	564	648	709	740	740	740	740	740	740	740	740	740	740	740	740	740	176
14/15	122	432	733	940	1,065	1,190	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	520
15/16	125	328	342	536	614	692	731	731	731	731	731	731	731	731	731	731	731	731	731	403
16/17	-	692	854	1,016	1,081	1,146	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178
17/18	128	395	662	930	1,037	1,144	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197
18/19	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
19/20	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
20/21	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
21/22	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
22/23	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 2
Yearly Claims Paid - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	1,306	-	-	-	-	40	-	-	-	-	-	1,346
95/96	1,579	-	-	-	-	40	-	-	-	-	-	1,619
96/97	979	-	-	-	-	40	-	-	-	-	-	1,019
97/98	1,175	-	-	-	-	40	-	-	-	-	-	1,214
98/99	698	-	-	-	111	40	-	-	-	-	-	848
99/00	790	-	-	-	-	40	-	-	-	-	-	830
00/01	1,128	-	-	-	-	-	-	-	-	-	-	1,128
01/02	879	-	-	-	-	-	-	-	-	-	-	879
02/03	1,107	97	-	-	-	-	-	-	-	-	-	1,204
03/04	954	-	-	-	-	106	-	-	-	-	-	1,060
04/05	977	-	-	-	-	-	-	-	-	-	-	977
05/06	1,250	-	-	-	-	-	-	-	-	-	-	1,250
06/07	1,687	-	-	-	-	-	-	-	-	-	-	1,687
07/08	1,197	90	-	-	-	92	-	-	-	-	-	1,378
08/09	1,087	82	105	106	-	-	-	-	-	-	-	1,379
09/10	813	-	-	-	-	271	-	-	-	-	-	1,084
10/11	657	89	-	-	-	93	-	-	-	-	-	839
11/12	423	113	188	28	80	185	-	-	-	-	-	1,016
12/13	336	298	124	82	82	185	-	-	-	-	-	1,109
13/14	84	84	180	216	84	62	31	-	-	-	-	740
14/15		122	310	301	207	125	125	63	-	-	-	1,253
15/16			125	203	14	194	78	78	39	-	-	731
16/17				-	692	162	162	65	65	32	-	1,178
17/18					128	267	267	267	107	107	53	1,197
18/19						-	263	263	263	105	158	1,053
19/20							-	263	263	263	263	1,053
20/21								-	263	263	526	1,053
21/22									-	263	789	1,053
22/23										-	1,053	1,053
Total Insurance Year Paid		975	1,031	936	1,398	1,979	926	999	1,000	1,034		
Unpaid Provision						(927)	126	54	53	19		
Total Insurance Yr Paid & Prov.		975	1,031	936	1,398	1,053	1,053	1,053	1,053	1,053		
Change in Total Paid			5.80%	-9.24%	49.34%	41.61%	-53.20%	7.82%	0.12%	3.40%		
Total Insurance Yr Claim Counts		-	-	-	-	-	-	-	-	-		
Average Yearly Ultimate												
Change in Avg Yearly Ult.												

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 3
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,190	1,306	1,306	1,346	40
95/96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,445	1,579	1,579	1,579	1,619	40
96/97	-	-	-	-	-	-	-	-	-	-	-	-	-	979	979	979	979	979	1,019	40
97/98	-	-	-	-	-	-	-	-	-	-	-	-	1,034	1,034	1,175	1,175	1,175	1,175	1,214	40
98/99	-	-	-	-	-	-	-	-	-	-	-	698	698	698	698	698	698	698	848	150
99/00	-	-	-	-	-	-	-	-	-	-	667	667	790	790	790	790	790	790	830	40
00/01	-	-	-	-	-	-	-	-	-	1,003	1,162	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128	-
01/02	-	-	-	-	-	-	-	-	755	755	879	879	879	879	879	879	879	879	879	-
02/03	-	-	-	-	-	-	-	910	1,056	1,107	1,107	1,107	1,204	1,204	1,204	1,204	1,204	1,204	1,204	-
03/04	-	-	-	-	-	-	954	954	954	954	954	954	954	954	954	1,060	1,060	1,060	1,060	106
04/05	-	-	-	-	-	885	863	1,094	1,094	977	977	977	977	977	977	977	977	977	977	-
05/06	-	-	-	-	928	1,247	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	-
06/07	-	-	-	1,469	1,588	1,588	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	1,687	-
07/08	-	-	1,027	1,197	1,197	1,197	1,197	1,286	1,286	1,286	1,286	1,378	1,378	1,378	1,378	1,378	1,378	1,378	1,378	92
08/09	-	410	794	888	1,087	1,087	1,169	1,273	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	1,379	(0)
09/10	113	543	814	813	813	813	813	813	813	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084	271
10/11	-	577	577	657	745	745	745	745	839	839	839	839	839	839	839	839	839	839	839	93
11/12	242	357	423	536	724	831	831	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	1,016	185
12/13	118	467	753	759	842	924	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	267
13/14	84	167	454	564	648	709	740	740	740	740	740	740	740	740	740	740	740	740	740	176
14/15	122	432	733	940	1,065	1,190	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	520
15/16	212	445	342	536	614	692	731	731	731	731	731	731	731	731	731	731	731	731	731	286
16/17	119	692	854	1,016	1,081	1,146	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,059
17/18	128	395	662	930	1,037	1,144	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197
18/19	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
19/20	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
20/21	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
21/22	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	
22/23	-	263	526	789	895	1,000	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053	

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 4
Yearly Claims Incurred - PIPP ('000)

Insurance Accident Year	Insurance Year: Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	1,190	116	-	-	-	-	-	-	-	40	-	-	-	-	-	1,346
95/96	1,445	134	-	-	-	-	-	-	-	40	-	-	-	-	-	1,619
96/97	979	-	-	-	-	-	-	-	-	40	-	-	-	-	-	1,019
97/98	1,034	-	141	-	-	-	-	-	-	40	-	-	-	-	-	1,214
98/99	698	-	-	-	-	-	-	-	111	40	-	-	-	-	-	848
99/00	667	-	124	-	-	-	-	-	-	40	-	-	-	-	-	830
00/01	1,003	159	(34)	-	-	-	-	-	-	-	-	-	-	-	-	1,128
01/02	755	-	124	-	-	-	-	-	-	-	-	-	-	-	-	879
02/03	910	146	52	-	-	97	-	-	-	-	-	-	-	-	-	1,204
03/04	954	-	-	-	-	-	-	-	-	106	-	-	-	-	-	1,060
04/05	885	(22)	231	-	(117)	-	-	-	-	-	-	-	-	-	-	977
05/06	928	319	3	-	-	-	-	-	-	-	-	-	-	-	-	1,250
06/07	1,469	119	-	98	-	-	-	-	-	-	-	-	-	-	-	1,687
07/08	1,027	169	-	-	-	90	-	-	-	92	-	-	-	-	-	1,378
08/09	410	385	94	198	-	82	105	106	(0)	-	-	-	-	-	-	1,379
09/10	113	430	271	(0)	-	-	-	-	-	271	-	-	-	-	-	1,084
10/11		-	577	-	79	89	-	-	-	93	-	-	-	-	-	839
11/12			242	114	66	113	188	108	-	185	-	-	-	-	-	1,016
12/13				118	349	285	7	82	82	185	-	-	-	-	-	1,109
13/14					84	84	287	110	84	62	31	-	-	-	-	740
14/15						122	310	301	207	125	125	63	-	-	-	1,253
15/16							212	233	(103)	194	78	78	39	-	-	731
16/17								119	573	162	162	65	65	32	-	1,178
17/18									128	267	267	267	107	107	53	1,197
18/19										-	263	263	263	105	158	1,053
19/20											-	263	263	263	263	1,053
20/21												-	263	263	526	1,053
21/22													-	263	789	1,053
22/23														-	1,053	1,053
Total Insurance Year Inc'd		1,955	1,825	529	461	962	1,107	1,058	1,082	1,979	926	999	1,000	1,034		
IBNR Provision										(927)	126	54	53	19		
Total Insurance Yr Inc'd & Prov.		1,955	1,825	529	461	962	1,107	1,058	1,082	1,053	1,053	1,053	1,053	1,053		
Change in Total Inc'd			-6.64%	-71.02%	-12.76%	108.50%	15.12%	-4.46%	2.28%	-2.72%	0.00%	0.00%	0.00%	0.00%		
Total Insurance Yr Claim Counts		0	0	0	0	0	0	0	0	0	0	0	0	0		
Average Yearly Ultimate																
Change in Avg Yearly Ult.																

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 5
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	350	349	350	353	233	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	97	100	100	104	104	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	160	82	82	90	90	-	-	-	-	-
08/09	238	161	80	0	-	-	-	-	-	-
09/10	318	243	239	267	266	-	-	-	-	-
10/11	167	84	82	92	92	-	-	-	-	-
11/12	382	243	241	260	182	-	-	-	-	-
12/13	728	368	255	273	182	-	-	-	-	-
13/14	1,105	695	427	180	90	30	-	-	-	-
14/15		1,049	605	371	300	183	62	-	-	-
15/16			1,037	753	371	186	113	38	-	-
16/17				1,196	458	309	155	95	32	-
17/18					993	755	510	256	156	53
18/19						977	744	502	252	154
19/20							978	745	503	252
20/21								979	745	503
21/22									980	746
22/23										981
Total	3,545	3,375	3,498	3,938	3,361	2,440	2,562	2,614	2,668	2,688
Change in Total		-4.81%	3.67%	12.57%	-14.67%	-27.40%	4.99%	2.06%	2.03%	0.76%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	-	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	-	-	-	-	-	-	-	-	-
08/09	0	0	0	0	-	-	-	-	-	-
09/10	-	-	-	-	-	-	-	-	-	-
10/11	-	-	-	-	-	-	-	-	-	-
11/12	-	-	-	80	-	-	-	-	-	-
12/13	131	118	-	-	-	-	-	-	-	-
13/14	-	-	107	-	-	-	-	-	-	-
14/15		-	-	-	-	-	-	-	-	-
15/16			87	117	-	-	-	-	-	-
16/17				119	-	-	-	-	-	-
17/18					-	-	-	-	-	-
18/19						-	-	-	-	-
19/20							-	-	-	-
20/21								-	-	-
21/22									-	-
22/23										-
Total	131	118	194	316	-	-	-	-	-	-
Change in Total		-9.85%	64.47%	62.86%	-100.00%					

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	387	386	386	389	257	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	109	111	111	115	115	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	182	93	91	100	100	-	-	-	-	-
08/09	270	181	89	0	-	-	-	-	-	-
09/10	360	274	267	294	294	-	-	-	-	-
10/11	189	94	92	101	101	-	-	-	-	-
11/12	430	274	269	207	200	-	-	-	-	-
12/13	685	294	284	301	200	-	-	-	-	-
13/14	1,235	776	369	199	99	33	-	-	-	-
14/15		1,169	671	411	332	202	68	-	-	-
15/16			1,063	717	410	206	125	42	-	-
16/17				1,209	508	342	171	104	35	-
17/18					1,103	837	564	283	172	58
18/19						1,085	825	556	279	170
19/20							1,086	825	556	279
20/21								1,087	826	557
21/22									1,088	827
22/23										1,089
Total	3,847	3,651	3,694	4,042	3,718	2,704	2,839	2,898	2,956	2,979
Change in Total		-5.08%	1.16%	9.44%	-8.02%	-27.27%	4.99%	2.07%	2.02%	0.76%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	1	(1)	1	2	(132)	(257)	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	(104)	-	-	-	-	-	-	-	-	-
03/04	0	2	(0)	4	(0)	(115)	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	(1)	(90)	(1)	8	(0)	(100)	-	-	-	-
08/09	(2)	(88)	(92)	(89)	(0)	-	-	-	-	-
09/10	(96)	(87)	(7)	27	(0)	(294)	-	-	-	-
10/11	(204)	(94)	(2)	9	(0)	(101)	-	-	-	-
11/12	(313)	(157)	(5)	(62)	(7)	(200)	-	-	-	-
12/13	(572)	(390)	(10)	17	(101)	(200)	-	-	-	-
13/14	1,235	(459)	(407)	(170)	(100)	(66)	(33)	-	-	-
14/15		1,169	(498)	(260)	(79)	(130)	(134)	(68)	-	-
15/16			1,063	(346)	(307)	(205)	(81)	(83)	(42)	-
16/17				1,209	(701)	(166)	(170)	(67)	(69)	(35)
17/18					1,103	(266)	(273)	(281)	(111)	(114)
18/19						1,085	(260)	(269)	(277)	(109)
19/20							1,086	(260)	(269)	(277)
20/21								1,087	(261)	(269)
21/22									1,088	(261)
22/23										1,089
Total	(55)	(195)	42	349	(324)	(1,014)	135	59	59	22

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	-	-	-	-	111	237	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	97	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	106	-	-	-	-
04/05	(117)	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	-	90	-	-	-	92	-	-	-	-
08/09	-	82	105	106	(0)	-	-	-	-	-
09/10	-	-	-	-	-	271	-	-	-	-
10/11	79	89	-	-	-	93	-	-	-	-
11/12	66	113	188	108	-	185	-	-	-	-
12/13	349	285	7	82	82	185	-	-	-	-
13/14	84	84	287	110	84	62	31	-	-	-
14/15		122	310	301	207	125	125	63	-	-
15/16			212	233	(103)	194	78	78	39	-
16/17				119	573	162	162	65	65	32
17/18					128	267	267	267	107	107
18/19						-	263	263	263	105
19/20							-	263	263	263
20/21								-	263	263
21/22									-	263
22/23										-
Total	461	962	1,107	1,058	1,082	1,979	926	999	1,000	1,034
Change in Total		108.50%	15.12%	-4.46%	2.28%	82.94%	-53.20%	7.82%	0.12%	3.40%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	2	1	1	1	1	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	2	2	1	0	0	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	6	2	1	0	0	-	-	-	-	-
08/09	8	5	1	0	-	-	-	-	-	-
09/10	11	7	4	1	1	-	-	-	-	-
10/11	5	2	1	0	0	-	-	-	-	-
11/12	10	6	4	1	0	-	-	-	-	-
12/13	14	8	4	1	0	-	-	-	-	-
13/14	20	11	6	1	0	0	-	-	-	-
14/15		15	6	2	2	1	0	-	-	-
15/16			9	6	2	1	0	0	-	-
16/17				12	4	2	1	0	0	-
17/18					10	6	3	2	1	0
18/19						10	6	3	2	1
19/20							10	6	3	2
20/21								10	6	3
21/22									10	6
22/23										10
Total	78	57	39	26	22	20	21	22	22	22
Change in Total		-26.35%	-31.25%	-33.39%	-17.65%	-5.37%	4.25%	2.27%	1.11%	0.34%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	35	35	35	35	23	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	10	10	10	10	10	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	16	8	8	9	9	-	-	-	-	-
08/09	24	16	8	0	-	-	-	-	-	-
09/10	32	24	24	27	27	-	-	-	-	-
10/11	17	8	8	9	9	-	-	-	-	-
11/12	38	24	24	26	18	-	-	-	-	-
12/13	73	37	25	27	18	-	-	-	-	-
13/14	110	70	43	18	9	3	-	-	-	-
14/15		105	60	37	30	18	6	-	-	-
15/16			104	75	37	19	11	4	-	-
16/17				120	46	31	16	9	3	-
17/18					99	76	51	26	16	5
18/19						98	74	50	25	15
19/20							98	74	50	25
20/21								98	75	50
21/22									98	75
22/23										98
Total	355	337	350	394	336	244	256	261	267	269
Change in Total		-4.81%	3.67%	12.57%	-14.67%	-27.40%	4.99%	2.06%	2.03%	0.76%

Appendix 3b
Accident Benefits - Other Non-Indexed (PIPP Enhancement: PI Increase)

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	37	36	36	36	24	-	-	-	-	-
00/01	-	-	-	-	-	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	12	12	11	11	11	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-
05/06	-	-	-	-	-	-	-	-	-	-
06/07	-	-	-	-	-	-	-	-	-	-
07/08	22	11	10	9	9	-	-	-	-	-
08/09	32	21	9	0	-	-	-	-	-	-
09/10	42	31	28	27	27	-	-	-	-	-
10/11	22	11	10	9	9	-	-	-	-	-
11/12	48	30	28	27	19	-	-	-	-	-
12/13	87	44	29	28	19	-	-	-	-	-
13/14	130	80	49	19	9	3	-	-	-	-
14/15		120	66	40	32	19	6	-	-	-
15/16			113	82	40	20	12	4	-	-
16/17				132	50	33	16	10	3	-
17/18					110	82	54	27	16	5
18/19						108	81	54	27	16
19/20							108	81	54	27
20/21								108	81	54
21/22									108	81
22/23										108
Total	432	395	389	420	358	264	277	283	289	291
Change in Total		-8.69%	-1.40%	7.91%	-14.85%	-26.07%	4.93%	2.08%	1.96%	0.73%

Appendix 4
Basic Public Liability

Table 1
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	Ultimate	
94/95	245	1,555	2,895	4,001	4,977	5,425	5,477	5,682	5,809	5,811	5,850	5,850	5,850	5,849	5,847	5,846	5,845	5,844	5,848	5
95/96	426	1,575	2,719	3,136	3,406	3,729	3,820	3,959	4,451	4,581	4,583	4,583	4,583	4,583	4,583	4,581	4,581	4,581	4,571	(10)
96/97	455	1,224	2,065	2,281	2,508	2,973	2,992	3,098	3,269	3,128	3,128	3,128	3,128	3,127	3,127	3,127	3,127	3,127	3,127	0
97/98	365	1,717	2,378	2,801	2,845	2,863	2,908	2,962	2,962	2,962	2,962	2,961	2,960	2,958	2,957	2,956	2,956	2,957	2,957	0
98/99	183	1,547	2,335	2,808	3,241	3,499	3,593	3,873	3,921	3,922	3,922	3,922	3,911	3,911	3,911	3,911	3,911	3,911	3,911	0
99/00	201	909	2,250	2,960	3,627	3,826	3,900	3,976	3,983	3,963	3,968	3,980	4,041	4,041	4,041	4,041	4,041	4,041	4,041	-
00/01	352	1,384	1,891	2,510	3,300	3,512	3,557	3,754	3,960	4,169	4,185	4,180	4,182	4,199	4,199	4,207	4,208	4,251	4,401	193
01/02	664	1,559	3,155	3,626	4,023	4,455	4,779	5,032	5,046	5,251	5,257	5,256	5,255	5,255	5,255	5,255	5,255	5,255	5,255	-
02/03	302	713	1,646	2,193	2,607	3,240	3,860	4,295	4,597	4,608	4,623	4,622	4,629	4,629	4,629	4,629	4,629	4,629	4,629	-
03/04	196	960	1,504	1,874	2,356	2,970	3,409	3,928	3,928	3,930	3,930	3,949	3,949	3,949	3,949	3,949	3,949	3,949	3,949	-
04/05	135	617	1,405	2,575	3,040	3,471	4,551	4,825	5,009	5,030	5,038	5,130	5,196	5,196	5,196	5,196	5,196	5,196	5,196	-
05/06	345	967	1,628	2,462	2,802	3,302	3,550	3,777	4,017	4,019	4,222	4,223	4,228	4,228	4,228	4,228	4,228	4,228	4,228	6
06/07	88	579	1,459	2,091	2,866	3,044	3,119	3,214	3,247	3,302	3,520	3,520	3,556	3,565	3,565	3,565	3,565	3,565	3,565	45
07/08	282	797	1,254	1,760	2,827	3,242	3,678	3,711	3,713	3,718	3,721	3,736	3,748	3,751	3,751	3,751	3,751	3,751	3,751	32
08/09	132	508	1,220	1,553	1,728	1,966	2,184	2,245	2,290	2,346	2,405	2,418	2,429	2,431	2,431	2,431	2,431	2,431	2,431	142
09/10	126	595	1,223	1,892	2,397	2,962	3,393	3,424	3,426	3,451	3,470	3,474	3,478	3,479	3,479	3,479	3,479	3,479	3,479	54
10/11	179	994	1,429	2,174	2,693	3,124	3,578	3,802	4,084	4,256	4,385	4,415	4,438	4,444	4,444	4,444	4,444	4,444	4,444	866
11/12	244	428	694	970	1,737	1,967	1,994	2,290	2,423	2,504	2,565	2,579	2,590	2,593	2,593	2,593	2,593	2,593	2,593	626
12/13	88	489	1,513	2,448	2,858	3,521	3,660	3,731	3,763	3,783	3,797	3,801	3,803	3,804	3,804	3,804	3,804	3,804	3,804	946
13/14	84	807	1,311	1,895	2,749	3,212	3,646	3,870	3,971	4,032	4,078	4,089	4,097	4,100	4,100	4,100	4,100	4,100	4,100	2,205
14/15	620	1,371	2,715	3,717	4,458	4,971	5,450	5,698	5,809	5,877	5,928	5,940	5,949	5,952	5,952	5,952	5,952	5,952	5,952	3,236
15/16	106	986	1,979	2,811	3,555	4,070	4,551	4,800	4,911	4,980	5,031	5,043	5,052	5,054	5,054	5,054	5,054	5,054	5,054	4,068
16/17	201	1,402	2,239	3,136	3,939	4,494	5,013	5,281	5,401	5,475	5,530	5,542	5,553	5,555	5,555	5,555	5,555	5,555	5,555	5,354
17/18	62	881	1,837	2,861	3,778	4,412	5,004	5,310	5,448	5,532	5,595	5,609	5,621	5,624	5,624	5,624	5,624	5,624	5,624	5,624
18/19	112	845	1,700	2,618	3,438	4,005	4,536	4,809	4,932	5,008	5,064	5,077	5,088	5,090	5,090	5,090	5,090	5,090	5,090	
19/20	113	857	1,723	2,653	3,484	4,059	4,597	4,874	4,999	5,076	5,133	5,146	5,156	5,159	5,159	5,159	5,159	5,159	5,159	
20/21	115	868	1,747	2,689	3,531	4,114	4,659	4,940	5,067	5,144	5,202	5,215	5,226	5,229	5,229	5,229	5,229	5,229	5,229	
21/22	116	880	1,770	2,725	3,579	4,170	4,722	5,007	5,135	5,214	5,272	5,286	5,297	5,299	5,299	5,299	5,299	5,299	5,299	
22/23	118	892	1,794	2,762	3,627	4,226	4,786	5,075	5,204	5,284	5,343	5,357	5,368	5,371	5,371	5,371	5,371	5,371	5,371	

Appendix 4
Basic Public Liability

Table 2
Yearly Claims Paid ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	5,843	-	0	-	-	5	-	-	-	-	-	5,848
95/96	4,581	-	-	-	-	(10)	-	-	-	-	-	4,571
96/97	3,127	-	-	-	-	0	-	-	-	-	-	3,127
97/98	2,956	1	0	-	-	0	-	-	-	-	-	2,957
98/99	3,911	-	-	-	-	0	-	-	-	-	-	3,911
99/00	4,041	-	-	-	-	-	-	-	-	-	-	4,041
00/01	4,199	1	7	1	43	150	-	-	-	-	-	4,401
01/02	5,255	-	-	-	-	-	-	-	-	-	-	5,255
02/03	4,622	7	-	-	-	-	-	-	-	-	-	4,629
03/04	3,930	19	-	-	-	-	-	-	-	-	-	3,949
04/05	5,030	7	92	66	-	-	-	-	-	-	-	5,196
05/06	4,017	2	203	1	6	-	-	-	-	-	-	4,228
06/07	3,214	34	55	218	0	36	9	-	-	-	-	3,565
07/08	3,678	33	2	5	2	15	12	3	-	-	-	3,751
08/09	1,966	218	62	44	57	58	13	11	3	-	-	2,431
09/10	2,397	565	431	31	2	25	19	4	3	1	-	3,479
10/11	2,174	518	431	454	225	281	173	129	30	24	6	4,444
11/12	694	277	767	229	27	296	133	82	61	14	14	2,593
12/13	489	1,023	936	410	663	138	71	32	20	15	7	3,804
13/14	84	723	504	584	854	464	434	224	100	62	67	4,100
14/15		620	752	1,344	1,001	741	513	480	248	111	143	5,952
15/16			106	880	993	832	744	515	481	248	255	5,054
16/17				201	1,201	836	898	802	555	519	543	5,555
17/18					62	820	955	1,025	916	634	1,212	5,624
18/19						112	734	855	917	820	1,652	5,090
19/20							113	744	867	930	2,506	5,159
20/21								115	754	878	3,482	5,229
21/22									116	764	4,419	5,299
22/23										118	5,253	5,371
Total Insurance Year Paid		4,048	4,348	4,469	5,136	4,800	4,820	5,019	5,071	5,137		
Unpaid Provision						290	339	210	229	234		
Total Insurance Yr Paid & Prov.		4,048	4,348	4,469	5,136	5,090	5,159	5,229	5,299	5,371		
Change in Total Paid			7.41%	2.79%	14.92%	-6.54%	0.42%	4.13%	1.03%	1.31%		
Total Insurance Yr Claim Counts		138	116	95	91	93	88	91	94	94		
Average Yearly Ultimate		29,335	37,482	47,043	56,437	54,528	58,560	57,240	56,383	57,388		
Change in Avg Yearly Ult.			27.78%	25.51%	19.97%	-3.38%	7.39%	-2.25%	-1.50%	1.78%		

Appendix 4
Basic Public Liability

Table 3
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Technical IBNR
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	Ultimate	28-Feb-18
94/95	2,155	4,523	5,391	5,580	5,844	5,707	5,802	5,837	5,913	5,936	5,855	5,855	5,855	5,854	5,852	5,851	5,850	5,849	5,848	-
95/96	2,060	3,296	3,909	4,331	5,075	4,925	4,875	4,629	4,728	4,571	4,573	4,573	4,573	4,573	4,573	4,571	4,571	4,571	4,571	-
96/97	1,200	2,295	2,988	3,254	3,248	3,419	3,411	3,326	3,299	3,148	3,148	3,148	3,148	3,148	3,147	3,147	3,147	3,147	3,127	(20)
97/98	2,826	3,655	3,193	3,232	3,115	3,122	3,012	2,962	2,962	2,962	2,962	2,961	2,960	2,958	2,957	2,956	2,956	2,966	2,957	-
98/99	2,670	3,981	4,084	4,356	4,354	4,224	4,006	4,035	4,041	3,922	3,922	3,922	3,911	3,911	3,911	3,911	3,911	3,911	3,911	-
99/00	2,706	4,025	4,682	4,481	4,285	4,383	4,322	4,201	4,208	4,188	4,193	4,205	4,041	4,041	4,041	4,041	4,041	4,041	4,041	-
00/01	2,511	3,268	3,500	3,769	3,861	3,993	4,092	4,209	4,160	4,219	4,235	4,230	4,232	4,249	4,249	4,277	4,278	4,401	4,401	123
01/02	3,243	4,572	5,056	5,158	5,031	5,150	5,237	5,240	5,254	5,254	5,257	5,256	5,255	5,255	5,255	5,255	5,255	5,255	5,255	-
02/03	2,921	3,308	3,637	4,082	4,385	4,466	4,471	4,511	4,677	4,638	4,623	4,622	4,629	4,629	4,629	4,629	4,629	4,629	4,629	-
03/04	2,677	2,729	3,283	3,393	4,006	4,016	4,150	3,928	3,928	3,930	3,930	3,964	3,949	3,949	3,949	3,949	3,949	3,949	3,949	-
04/05	3,057	3,832	4,336	4,604	4,572	4,940	5,238	5,091	5,176	5,176	5,238	5,180	5,196	5,196	5,196	5,196	5,196	5,196	5,196	-
05/06	2,752	2,817	3,225	3,541	4,008	4,257	4,213	4,276	4,236	4,238	4,242	4,223	4,228	4,228	4,228	4,228	4,228	4,228	4,228	6
06/07	2,913	2,666	3,058	2,973	3,456	3,409	3,434	3,459	3,626	3,547	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,565	0
07/08	2,010	2,824	3,207	3,513	3,776	3,859	3,738	3,772	3,733	3,738	3,751	3,751	3,751	3,751	3,751	3,751	3,751	3,751	3,751	12
08/09	1,915	2,323	2,437	2,383	2,163	2,318	2,422	2,430	2,440	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	(8)
09/10	3,282	2,894	3,436	3,438	3,315	3,601	3,643	3,474	3,476	3,479	3,479	3,479	3,479	3,479	3,479	3,479	3,479	3,479	3,479	4
10/11	3,166	3,238	3,505	3,532	4,139	4,301	4,230	4,437	4,442	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	214
11/12	2,160	1,924	1,880	2,037	2,422	2,441	2,553	2,586	2,591	2,593	2,593	2,593	2,593	2,593	2,593	2,593	2,593	2,593	2,593	152
12/13	1,860	1,748	3,173	3,410	3,604	3,657	3,764	3,797	3,802	3,804	3,804	3,804	3,804	3,804	3,804	3,804	3,804	3,804	3,804	200
13/14	3,031	2,546	3,387	3,745	3,761	3,951	4,059	4,092	4,097	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	355
14/15	3,073	4,577	4,851	5,295	5,596	5,796	5,909	5,944	5,949	5,952	5,952	5,952	5,952	5,952	5,952	5,952	5,952	5,952	5,952	1,101
15/16	2,606	3,684	3,998	4,353	4,675	4,888	5,009	5,046	5,052	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	1,370
16/17	3,495	3,762	4,444	4,817	5,156	5,380	5,508	5,547	5,552	5,555	5,555	5,555	5,555	5,555	5,555	5,555	5,555	5,555	5,555	2,060
17/18	3,279	3,728	4,449	4,844	5,202	5,439	5,574	5,615	5,621	5,624	5,624	5,624	5,624	5,624	5,624	5,624	5,624	5,624	5,624	5,624
18/19	2,839	3,270	3,962	4,341	4,685	4,912	5,042	5,082	5,087	5,090	5,090	5,090	5,090	5,090	5,090	5,090	5,090	5,090	5,090	
19/20	2,877	3,314	4,015	4,400	4,748	4,979	5,110	5,150	5,156	5,159	5,159	5,159	5,159	5,159	5,159	5,159	5,159	5,159	5,159	
20/21	2,916	3,359	4,070	4,459	4,812	5,046	5,179	5,220	5,226	5,229	5,229	5,229	5,229	5,229	5,229	5,229	5,229	5,229	5,229	
21/22	2,956	3,404	4,125	4,519	4,877	5,114	5,249	5,290	5,296	5,299	5,299	5,299	5,299	5,299	5,299	5,299	5,299	5,299	5,299	
22/23	2,996	3,450	4,180	4,580	4,943	5,183	5,320	5,362	5,368	5,371	5,371	5,371	5,371	5,371	5,371	5,371	5,371	5,371	5,371	

Appendix 4
Basic Public Liability

Table 4
Yearly Claims Incurred ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	5,851	(1)	(1)	(1)	-	-	0	-	-	-	-	-	-	-	-	5,848
95/96	4,573	(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	4,571
96/97	3,148	(0)	-	-	(1)	-	-	-	(20)	-	-	-	-	-	-	3,127
97/98	2,960	(2)	(1)	(1)	-	10	(9)	-	-	-	-	-	-	-	-	2,957
98/99	3,922	(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	3,911
99/00	4,193	12	(164)	-	-	-	-	-	-	-	-	-	-	-	-	4,041
00/01	4,219	15	(4)	2	17	1	27	1	123	-	-	-	-	-	-	4,401
01/02	5,254	(1)	3	(1)	(1)	-	-	-	-	-	-	-	-	-	-	5,255
02/03	4,511	166	(38)	(15)	(1)	7	-	-	-	-	-	-	-	-	-	4,629
03/04	4,150	(222)	-	2	-	34	(15)	-	-	-	-	-	-	-	-	3,949
04/05	4,940	298	(147)	85	1	61	(58)	16	-	-	-	-	-	-	-	5,196
05/06	4,008	249	(44)	64	(40)	2	4	(19)	6	-	-	-	-	-	-	4,228
06/07	2,973	483	(47)	26	25	167	(78)	18	0	-	-	-	-	-	-	3,565
07/08	3,207	306	263	83	(121)	33	(38)	5	12	-	-	-	-	-	-	3,751
08/09	2,323	114	(54)	(220)	154	104	8	9	(8)	-	-	-	-	-	-	2,431
09/10	3,282	(388)	542	3	(123)	286	43	(169)	2	2	-	-	-	-	-	3,479
10/11		3,166	72	267	27	607	161	(70)	207	5	2	-	-	-	-	4,444
11/12			2,160	(236)	(44)	157	385	19	112	33	5	2	-	-	-	2,593
12/13				1,860	(112)	1,425	237	194	53	107	33	5	2	-	-	3,804
13/14					3,031	(485)	841	358	17	190	108	33	5	2	-	4,100
14/15						3,073	1,503	274	444	301	199	114	35	5	2	5,952
15/16							2,606	1,078	313	355	322	213	121	37	8	5,054
16/17								3,495	267	682	373	339	224	128	47	5,555
17/18									3,279	449	721	395	358	237	185	5,624
18/19										2,839	431	692	379	344	405	5,090
19/20											2,877	436	702	384	759	5,159
20/21												2,916	442	711	1,159	5,229
21/22													2,956	448	1,895	5,299
22/23														2,996	2,375	5,371
Total Insurance Year Inc'd		4,182	2,538	1,918	2,812	5,482	5,618	5,209	4,809	4,962	5,072	5,145	5,224	5,292		
IBNR Provision										128	87	83	75	79		
Total Insurance Yr Inc'd & Prov.		4,182	2,538	1,918	2,812	5,482	5,618	5,209	4,809	5,090	5,159	5,229	5,299	5,371		
Change in Total Inc'd			-39.30%	-24.46%	46.63%	94.99%	2.47%	-7.29%	-7.66%	5.84%	1.35%	1.35%	1.35%	1.35%		
Total Insurance Yr Claim Counts		77	73	64	80	138	116	95	91	93	88	91	94	94		
Average Yearly Ultimate		54,309	34,774	29,961	35,145	39,727	48,430	54,827	52,850	54,528	58,560	57,240	56,383	57,388		
Change in Avg Yearly Ult.			-35.97%	-13.84%	17.30%	13.04%	21.91%	13.21%	-3.61%	3.18%	7.39%	-2.25%	-1.50%	1.78%		

Appendix 4
Basic Public Liability

Table 5
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	19	30	20	15	(5)	-	-	-	-	-
00/01	49	49	69	69	147	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	15	-	-	-	-	-	-	-	-
04/05	143	197	49	-	-	-	-	-	-	-
05/06	217	216	20	-	-	-	-	-	-	-
06/07	249	371	241	43	44	9	-	-	-	-
07/08	103	71	22	19	29	15	3	-	-	-
08/09	478	279	192	146	82	26	13	3	-	-
09/10	1,135	765	292	61	50	26	8	4	1	-
10/11	1,790	1,713	1,283	671	610	345	182	57	29	6
11/12	1,961	1,627	989	605	569	288	163	86	27	14
12/13	2,404	2,471	1,517	1,036	269	137	69	39	21	7
13/14	4,563	3,141	2,852	2,341	1,271	842	431	218	124	65
14/15		4,111	4,542	2,931	2,087	1,404	932	477	242	137
15/16			4,242	4,142	2,842	2,092	1,410	936	479	243
16/17				5,072	3,784	3,062	2,258	1,522	1,010	517
17/18					4,983	4,317	3,500	2,582	1,739	1,154
18/19						4,454	3,868	3,136	2,313	1,558
19/20							4,520	3,926	3,182	2,346
20/21								4,589	3,984	3,228
21/22									4,657	4,042
22/23										4,727
Total	13,110	15,055	16,328	17,151	16,762	17,018	17,358	17,575	17,807	18,042
Change in Total		14.84%	8.46%	5.04%	-2.27%	1.53%	2.00%	1.25%	1.32%	1.32%

Appendix 4
Basic Public Liability

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	15	24	15	15	(5)	-	-	-	-	-
00/01	50	50	70	70	150	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
03/04	-	15	-	-	-	-	-	-	-	-
04/05	146	200	50	-	-	-	-	-	-	-
05/06	219	219	20	(0)	(0)	-	-	-	-	-
06/07	245	378	245	45	45	9	-	-	-	-
07/08	60	60	20	20	30	15	3	-	-	-
08/09	352	238	185	150	85	27	13	3	-	-
09/10	918	638	250	50	50	27	9	4	1	(0)
10/11	1,358	1,446	1,177	652	635	358	188	59	30	6
11/12	1,187	1,067	684	474	559	296	168	89	28	14
12/13	1,259	1,660	962	746	136	105	66	39	21	7
13/14	2,947	1,739	2,076	1,850	1,013	739	413	222	127	67
14/15		2,454	3,205	2,135	1,578	1,138	825	459	246	140
15/16			2,500	2,698	2,018	1,541	1,119	818	458	247
16/17				3,294	2,360	2,205	1,681	1,217	887	495
17/18					3,218	2,847	2,612	1,982	1,424	1,027
18/19						2,727	2,424	2,262	1,723	1,247
19/20							2,764	2,457	2,292	1,747
20/21								2,802	2,490	2,323
21/22									2,839	2,524
22/23										2,878
Total	8,755	10,190	11,460	12,199	11,873	12,035	12,287	12,413	12,566	12,721
Change in Total		16.38%	12.46%	6.45%	-2.68%	1.37%	2.09%	1.03%	1.24%	1.23%

Appendix 4
Basic Public Liability

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	2	4	3	2	(1)	-	-	-	-	-
00/01	7	7	9	9	20	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	0	0	-	-	-	-	-
03/04	-	2	-	-	-	-	-	-	-	-
04/05	19	27	7	-	-	-	-	-	-	-
05/06	32	30	3	0	0	-	-	-	-	-
06/07	43	51	33	5	6	1	-	-	-	-
07/08	60	22	5	2	3	2	0	-	-	-
08/09	204	85	37	19	10	3	2	0	-	-
09/10	406	249	87	21	8	3	1	1	0	0
10/11	735	545	306	124	71	41	22	7	4	1
11/12	1,112	828	461	226	100	37	21	10	3	2
12/13	1,566	1,222	797	455	175	54	14	7	3	1
13/14	2,437	1,933	1,235	865	459	236	85	30	16	8
14/15		2,368	2,075	1,268	841	488	253	93	33	18
15/16			2,442	2,119	1,281	885	514	265	96	34
16/17				2,618	2,042	1,350	938	546	282	103
17/18					2,589	2,174	1,452	1,012	591	309
18/19						2,463	2,074	1,380	959	558
19/20							2,504	2,109	1,402	974
20/21								2,546	2,143	1,425
21/22									2,588	2,177
22/23										2,631
Total	6,623	7,373	7,499	7,733	7,604	7,738	7,880	8,006	8,121	8,240
Change in Total		11.32%	1.70%	3.12%	-1.67%	1.76%	1.83%	1.59%	1.45%	1.46%

Appendix 4
Basic Public Liability

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(15)	2	(1)	(1)	(3)	1	-	-	-	-
00/01	(0)	0	2	(0)	11	(20)	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	0	-	(0)	-	-	-	-
03/04	-	2	(2)	-	-	-	-	-	-	-
04/05	(6)	8	(21)	(7)	-	-	-	-	-	-
05/06	(43)	(2)	(27)	(3)	-	(0)	-	-	-	-
06/07	(48)	8	(19)	(28)	1	(4)	(1)	-	-	-
07/08	(178)	(38)	(17)	(3)	1	(1)	(1)	(0)	-	-
08/09	(161)	(120)	(47)	(18)	(9)	(7)	(1)	(1)	(0)	-
09/10	(373)	(157)	(162)	(66)	(13)	(5)	(2)	(0)	(0)	(0)
10/11	(502)	(190)	(239)	(182)	(53)	(30)	(19)	(15)	(3)	(3)
11/12	(580)	(284)	(366)	(236)	(126)	(62)	(17)	(10)	(7)	(1)
12/13	(933)	(344)	(425)	(342)	(280)	(121)	(40)	(8)	(4)	(2)
13/14	2,437	(504)	(698)	(369)	(406)	(223)	(151)	(55)	(14)	(8)
14/15		2,368	(294)	(807)	(427)	(353)	(235)	(161)	(59)	(15)
15/16			2,442	(323)	(838)	(396)	(371)	(249)	(169)	(62)
16/17				2,618	(577)	(691)	(412)	(392)	(263)	(180)
17/18					2,589	(415)	(723)	(440)	(420)	(283)
18/19						2,463	(389)	(694)	(421)	(401)
19/20							2,504	(395)	(706)	(429)
20/21								2,546	(403)	(718)
21/22									2,588	(411)
22/23										2,631
Total	(400)	750	126	234	(129)	134	142	126	116	119

Appendix 4
Basic Public Liability

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(1)	10	(9)	-	(20)	-	-	-	-	-
00/01	17	1	27	1	123	-	-	-	-	-
01/02	(1)	-	-	-	-	-	-	-	-	-
02/03	(1)	7	-	-	-	-	-	-	-	-
03/04	-	34	(15)	-	-	-	-	-	-	-
04/05	1	61	(58)	16	-	-	-	-	-	-
05/06	(40)	2	4	(19)	6	-	-	-	-	-
06/07	25	167	(78)	18	0	-	-	-	-	-
07/08	(121)	33	(38)	5	12	-	-	-	-	-
08/09	154	104	8	9	(8)	-	-	-	-	-
09/10	(123)	286	43	(169)	2	2	-	-	-	-
10/11	27	607	161	(70)	207	5	2	-	-	-
11/12	(44)	157	385	19	112	33	5	2	-	-
12/13	(112)	1,425	237	194	53	107	33	5	2	-
13/14	3,031	(485)	841	358	17	190	108	33	5	2
14/15		3,073	1,503	274	444	301	199	114	35	5
15/16			2,606	1,078	313	355	322	213	121	37
16/17				3,495	267	682	373	339	224	128
17/18					3,279	449	721	395	358	237
18/19						2,839	431	692	379	344
19/20							2,877	436	702	384
20/21								2,916	442	711
21/22									2,956	448
22/23										2,996
Total	2,812	5,482	5,618	5,209	4,809	4,962	5,072	5,145	5,224	5,292
Change in Total		94.99%	2.47%	-7.29%	-7.66%	3.18%	2.21%	1.45%	1.53%	1.30%

Appendix 4
Basic Public Liability

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	0	0	0	(0)	-	-	-	-	-
00/01	0	0	0	0	0	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	0	-	-	-	-	-	-	-	-
04/05	1	1	0	-	-	-	-	-	-	-
05/06	2	1	0	-	-	-	-	-	-	-
06/07	2	2	1	0	0	0	-	-	-	-
07/08	1	1	0	0	0	0	0	-	-	-
08/09	6	2	1	1	0	0	0	0	-	-
09/10	19	7	1	0	0	0	0	0	0	-
10/11	35	21	8	5	4	2	1	0	0	0
11/12	43	24	8	4	4	2	1	0	0	0
12/13	60	41	14	9	2	1	0	0	0	0
13/14	137	60	31	23	11	6	3	2	1	0
14/15		95	57	33	20	12	7	3	2	1
15/16			64	54	31	20	12	7	3	2
16/17				79	49	34	22	13	7	4
17/18					77	56	39	25	15	8
18/19						69	50	35	22	13
19/20							70	51	35	23
20/21								71	52	36
21/22									72	53
22/23										73
Total	306	254	186	208	200	202	205	207	210	213
Change in Total		-16.95%	-26.85%	12.08%	-3.98%	1.03%	1.26%	1.25%	1.28%	1.32%

Appendix 4
Basic Public Liability

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3	4	3	2	(1)	-	-	-	-	-
00/01	7	7	10	10	22	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	2	-	-	-	-	-	-	-	-
04/05	22	30	7	-	-	-	-	-	-	-
05/06	32	32	3	-	-	-	-	-	-	-
06/07	37	56	36	7	7	1	-	-	-	-
07/08	15	11	3	3	4	2	0	-	-	-
08/09	72	42	29	22	12	4	2	0	-	-
09/10	170	115	44	9	8	4	1	1	0	-
10/11	268	257	192	101	92	52	27	9	4	1
11/12	294	244	148	91	85	43	24	13	4	2
12/13	361	371	228	155	40	21	10	6	3	1
13/14	684	471	428	351	191	126	65	33	19	10
14/15		617	681	440	313	211	140	72	36	21
15/16			636	621	426	314	211	140	72	36
16/17				761	568	459	339	228	152	78
17/18					747	648	525	387	261	173
18/19						668	580	470	347	234
19/20							678	589	477	352
20/21								688	598	484
21/22									699	606
22/23										709
Total	1,967	2,258	2,449	2,573	2,514	2,553	2,604	2,636	2,671	2,706
Change in Total		14.84%	8.46%	5.04%	-2.27%	1.53%	2.00%	1.25%	1.32%	1.32%

Appendix 4
Basic Public Liability

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	3	5	3	2	(1)	-	-	-	-	-
00/01	8	8	10	10	22	-	-	-	-	-
01/02	-	-	-	-	-	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	2	-	-	-	-	-	-	-	-
04/05	22	30	7	-	-	-	-	-	-	-
05/06	34	33	3	-	-	-	-	-	-	-
06/07	40	58	37	7	7	1	-	-	-	-
07/08	16	11	3	3	4	2	0	-	-	-
08/09	78	44	30	23	13	4	2	0	-	-
09/10	189	122	45	10	8	4	1	1	0	-
10/11	303	278	200	105	96	54	28	9	4	1
11/12	337	268	156	95	89	45	25	13	4	2
12/13	421	411	242	164	42	22	11	6	3	1
13/14	821	531	459	374	202	132	68	34	19	10
14/15		711	738	472	333	223	146	75	38	21
15/16			700	675	458	334	224	147	75	38
16/17				840	617	493	360	241	159	81
17/18					824	704	564	412	276	181
18/19						737	631	505	369	247
19/20							748	640	513	375
20/21								759	650	520
21/22									771	659
22/23										782
Total	2,273	2,512	2,635	2,781	2,714	2,755	2,808	2,844	2,881	2,919
Change in Total		10.55%	4.88%	5.54%	-2.40%	1.49%	1.94%	1.25%	1.32%	1.32%

Appendix 5
Basic Collision

Table 1
Ultimate Claims Paid ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	86,120	101,955	102,671	103,733	105,102	105,114	105,120	105,122	105,122	105,122	105,122	105,122	105,121	105,121	105,121	105,121	105,121	105,121	105,116	(5)
95/96	99,799	126,529	127,479	127,811	127,838	127,843	127,858	127,869	127,869	127,879	127,879	127,879	127,879	127,879	127,879	127,878	127,877	127,877	127,869	(5)
96/97	95,694	123,967	125,403	125,514	125,558	125,572	125,582	125,585	125,586	125,585	125,584	125,583	125,579	125,579	125,579	125,579	125,580	125,583	125,584	1
97/98	100,574	117,451	118,007	118,090	118,133	118,140	118,145	118,144	118,143	118,134	118,132	118,131	118,129	118,126	118,123	118,122	118,122	118,122	118,119	0
98/99	104,900	124,519	125,011	124,995	124,977	124,935	124,879	124,822	124,789	124,754	124,727	124,699	124,690	124,662	124,647	124,619	124,615	124,611	124,609	(4)
99/00	116,997	137,602	138,074	138,047	137,948	137,866	137,826	137,776	137,701	137,638	137,584	137,542	137,500	137,479	137,465	137,464	137,458	137,457	137,458	0
00/01	123,402	152,556	153,089	153,016	152,975	152,857	152,761	152,671	152,614	152,556	152,511	152,479	152,446	152,429	152,412	152,409	152,407	152,393	152,392	(15)
01/02	131,945	161,488	162,161	162,043	161,874	161,767	161,635	161,535	161,455	161,412	161,384	161,329	161,307	161,294	161,289	161,280	161,277	161,272	161,272	(8)
02/03	146,831	179,714	180,387	180,298	180,210	180,081	179,957	179,850	179,787	179,732	179,688	179,638	179,614	179,609	179,601	179,589	179,589	179,589	179,589	(11)
03/04	154,636	193,717	194,748	194,717	194,581	194,416	194,300	194,197	194,108	194,068	194,025	193,990	193,970	193,956	193,942	193,942	193,942	193,942	193,942	(13)
04/05	155,775	201,098	202,178	202,138	202,005	201,873	201,771	201,705	201,694	201,652	201,633	201,629	201,612	201,613	201,613	201,613	201,613	201,613	201,613	2
05/06	161,519	202,623	203,686	203,651	203,502	203,359	203,235	203,150	203,099	203,086	203,061	203,050	203,058	203,057	203,057	203,057	203,057	203,057	203,057	8
06/07	170,895	223,189	224,689	224,701	224,510	224,466	224,447	224,467	224,455	224,448	224,426	224,444	224,451	224,451	224,451	224,451	224,451	224,451	224,451	25
07/08	171,130	231,439	233,171	233,132	233,148	233,212	233,172	233,127	233,121	233,099	233,085	233,083	233,083	233,083	233,083	233,083	233,083	233,083	233,083	(17)
08/09	181,664	239,566	241,628	241,777	241,779	241,720	241,769	241,760	241,757	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	(7)
09/10	190,539	240,059	242,341	242,470	242,488	242,487	242,527	242,521	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	(10)
10/11	199,400	267,787	270,479	270,824	271,056	271,155	271,164	271,180	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	20
11/12	214,272	269,801	272,304	272,876	272,972	273,089	273,138	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	50
12/13	225,089	306,035	309,624	310,271	310,526	310,628	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	108
13/14	241,769	343,166	347,849	348,807	349,189	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	408
14/15	246,199	312,218	316,334	317,432	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	1,464
15/16	275,030	347,393	351,192	352,022	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	4,962
16/17	295,258	380,284	384,834	385,754	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	90,865
17/18	319,679	408,283	413,049	414,012	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398
18/19	332,884	431,518	436,823	437,895	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	
19/20	356,366	461,957	467,636	468,784	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	
20/21	381,554	494,608	500,689	501,918	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	
21/22	408,577	529,638	536,149	537,465	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	
22/23	437,572	567,224	574,198	575,607	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	

Appendix 5
Basic Collision

Table 2
Yearly Claims Paid ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	105,121	-	-	-	-	(5)	-	-	-	-	-	105,116
95/96	127,877	(3)	-	(0)	-	(5)	-	-	-	-	-	127,869
96/97	125,583	1	-	0	-	1	-	-	-	-	-	125,584
97/98	118,122	0	-	(3)	-	0	-	-	-	-	-	118,119
98/99	124,619	(4)	(4)	1	(2)	(2)	-	-	-	-	-	124,609
99/00	137,465	(1)	(6)	(1)	-	0	-	-	-	-	-	137,458
00/01	152,429	(17)	(3)	(1)	(15)	(1)	-	-	-	-	-	152,392
01/02	161,307	(12)	(5)	(9)	(3)	(5)	-	-	-	-	-	161,272
02/03	179,638	(24)	(5)	(9)	(11)	-	-	-	-	-	-	179,589
03/04	194,025	(34)	(21)	(14)	(14)	1	-	-	-	-	-	193,942
04/05	201,652	(18)	(5)	(17)	1	1	-	-	-	-	-	201,613
05/06	203,099	(12)	(25)	(12)	9	(1)	-	-	-	-	-	203,057
06/07	224,467	(12)	(7)	(22)	18	7	-	-	-	-	-	224,451
07/08	233,172	(45)	(6)	(21)	(14)	(2)	-	-	-	-	-	233,083
08/09	241,720	49	(9)	(3)	(8)	0	-	-	-	-	-	241,750
09/10	242,488	(1)	41	(7)	(11)	0	-	-	-	-	-	242,510
10/11	270,824	232	99	10	16	4	-	-	-	-	-	271,184
11/12	272,304	572	95	118	48	1	-	-	-	-	-	273,139
12/13	306,035	3,589	647	255	101	6	-	-	-	-	-	310,634
13/14	241,769	101,397	4,682	958	382	26	-	-	-	-	-	349,215
14/15		246,199	66,019	4,116	1,098	365	-	-	-	-	-	317,797
15/16			275,030	72,363	3,798	831	333	-	-	-	-	352,355
16/17				295,258	85,025	4,551	920	369	-	-	-	386,123
17/18					319,679	88,604	4,766	963	386	-	-	414,398
18/19						332,884	98,633	5,305	1,072	430	-	438,325
19/20							356,366	105,591	5,680	1,148	460	469,244
20/21								381,554	113,054	6,081	1,722	502,411
21/22									408,577	121,061	8,355	537,993
22/23										437,572	138,600	576,172
Total Insurance Year Paid		351,854	346,518	372,961	410,099	427,262	461,018	493,782	528,769	566,291		
Unpaid Provision						11,063	8,226	8,629	9,224	9,881		
Total Insurance Yr Paid & Prov.		351,854	346,518	372,961	410,099	438,325	469,244	502,411	537,993	576,172		
Change in Total Paid			-1.52%	7.63%	9.96%	4.19%	7.90%	7.11%	7.09%	7.10%		
Total Insurance Yr Claim Counts		110,179	102,043	84,036	131,334	106,655	111,674	114,085	115,994	117,856		
Average Yearly Ultimate		3,193	3,396	4,438	3,123	4,110	4,202	4,404	4,638	4,889		
Change in Avg Yearly Ult.			6.34%	30.69%	-29.64%	31.62%	2.24%	4.80%	5.32%	5.40%		

Appendix 5
Basic Collision

Table 3
Ultimate Claims Incurred ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	103,524	102,176	102,724	103,783	105,136	105,140	105,143	105,120	105,120	105,120	105,116	105,116	105,116	105,116	105,116	105,116	105,116	105,116	105,116	-
95/96	125,975	126,821	127,535	127,812	127,835	127,838	127,854	127,864	127,865	127,875	127,875	127,875	127,875	127,875	127,874	127,873	127,872	127,872	127,869	-
96/97	124,042	124,274	125,456	125,533	125,573	125,587	125,596	125,601	125,587	125,585	125,585	125,584	125,580	125,580	125,580	125,580	125,581	125,585	125,584	-
97/98	117,685	117,700	118,036	118,112	118,151	118,158	118,158	118,145	118,144	118,135	118,133	118,131	118,129	118,126	118,124	118,123	118,122	118,122	118,119	-
98/99	124,898	124,776	125,029	125,003	124,980	124,937	124,877	124,820	124,787	124,752	124,725	124,697	124,688	124,660	124,645	124,617	124,613	124,609	124,609	(2)
99/00	136,700	137,904	138,143	138,073	137,955	137,903	137,833	137,782	137,708	137,642	137,588	137,545	137,501	137,479	137,466	137,465	137,459	137,458	137,458	-
00/01	149,983	152,903	153,212	153,073	152,986	152,863	152,768	152,677	152,619	152,561	152,510	152,478	152,451	152,433	152,411	152,408	152,407	152,392	152,392	(15)
01/02	158,514	161,824	162,209	162,067	161,875	161,766	161,634	161,534	161,454	161,411	161,379	161,325	161,302	161,290	161,284	161,275	161,272	161,272	161,272	(3)
02/03	177,244	180,064	180,457	180,328	180,235	180,102	179,958	179,850	179,787	179,732	179,688	179,638	179,614	179,609	179,601	179,589	179,589	179,589	179,589	(11)
03/04	189,454	194,070	194,795	194,738	194,590	194,419	194,305	194,200	194,108	194,069	194,025	193,991	193,970	193,956	193,942	193,942	193,942	193,942	193,942	(14)
04/05	194,940	201,574	202,353	202,240	202,085	201,944	201,823	201,756	201,745	201,703	201,684	201,630	201,614	201,613	201,613	201,613	201,613	201,613	201,613	(0)
05/06	201,283	203,164	203,746	203,659	203,507	203,360	203,236	203,150	203,099	203,087	203,062	203,050	203,057	203,057	203,057	203,057	203,057	203,057	203,057	7
06/07	220,075	223,943	224,775	224,726	224,525	224,480	224,459	224,474	224,461	224,455	224,432	224,451	224,451	224,451	224,451	224,451	224,451	224,451	224,451	19
07/08	226,358	232,077	233,300	233,164	233,155	233,211	233,172	233,125	233,118	233,097	233,083	233,083	233,083	233,083	233,083	233,083	233,083	233,083	233,083	(14)
08/09	237,890	240,293	241,745	241,825	241,815	241,729	241,771	241,761	241,758	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	241,750	(8)
09/10	237,783	240,773	242,617	242,505	242,501	242,521	242,538	242,523	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	242,510	(13)
10/11	260,480	268,555	270,607	270,877	271,084	271,170	271,174	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	271,184	10
11/12	266,005	270,556	272,437	272,909	272,982	273,093	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	273,139	46
12/13	294,980	307,183	309,907	310,381	310,596	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	310,634	38
13/14	324,806	344,576	348,084	348,865	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349,215	349
14/15	306,292	313,305	316,521	317,480	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	317,797	1,276
15/16	336,810	348,406	351,298	352,002	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	352,355	3,949
16/17	367,119	381,520	384,965	385,736	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	386,123	19,004
17/18	395,183	409,471	413,159	413,984	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398	414,398
18/19	417,987	433,110	437,013	437,887	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	438,325	
19/20	447,472	463,661	467,840	468,775	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	469,244	
20/21	479,100	496,433	500,907	501,909	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	502,411	
21/22	513,031	531,592	536,383	537,455	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	537,993	
22/23	549,439	569,317	574,447	575,596	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	576,172	

Appendix 5
Basic Collision

Table 4
Yearly Claims Incurred ('000)

Insurance Accident Year	Insurance Year: Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	105,116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105,116
95/96	127,874	(1)	(1)	(0)	-	(3)	-	(0)	-	-	-	-	-	-	-	127,869
96/97	125,580	0	0	1	3	(0)	-	0	-	-	-	-	-	-	-	125,584
97/98	118,129	(3)	(2)	(1)	(1)	0	-	(3)	-	-	-	-	-	-	-	118,119
98/99	124,697	(8)	(28)	(15)	(28)	(4)	(4)	1	(2)	-	-	-	-	-	-	124,609
99/00	137,588	(42)	(45)	(21)	(14)	(1)	(6)	(1)	-	-	-	-	-	-	-	137,458
00/01	152,561	(51)	(32)	(27)	(18)	(22)	(3)	(1)	(15)	-	-	-	-	-	-	152,392
01/02	161,454	(43)	(31)	(55)	(23)	(12)	(5)	(9)	(3)	-	-	-	-	-	-	161,272
02/03	179,850	(63)	(55)	(44)	(49)	(24)	(5)	(9)	(11)	-	-	-	-	-	-	179,589
03/04	194,305	(105)	(91)	(39)	(44)	(34)	(21)	(14)	(14)	-	-	-	-	-	-	193,942
04/05	201,944	(121)	(66)	(11)	(42)	(18)	(54)	(17)	(0)	-	-	-	-	-	-	201,613
05/06	203,507	(147)	(125)	(85)	(51)	(12)	(25)	(12)	7	-	-	-	-	-	-	203,057
06/07	224,726	(201)	(45)	(22)	15	(12)	(7)	(23)	19	-	-	-	-	-	-	224,451
07/08	233,300	(136)	(10)	57	(40)	(47)	(6)	(22)	(14)	-	-	-	-	-	-	233,083
08/09	240,293	1,452	80	(10)	(86)	42	(10)	(3)	(8)	-	-	-	-	-	-	241,750
09/10	237,783	2,990	1,844	(112)	(5)	20	17	(15)	(13)	-	-	-	-	-	-	242,510
10/11		260,480	8,075	2,052	270	206	86	4	10	-	-	-	-	-	-	271,184
11/12			266,005	4,552	1,880	472	73	111	46	-	-	-	-	-	-	273,139
12/13				294,980	12,204	2,724	473	215	38	-	-	-	-	-	-	310,634
13/14					324,806	19,770	3,508	781	349	-	-	-	-	-	-	349,215
14/15						306,292	7,014	3,216	959	317	-	-	-	-	-	317,797
15/16							336,810	11,596	2,892	705	353	-	-	-	-	352,355
16/17								367,119	14,401	3,445	771	386	-	-	-	386,123
17/18									395,183	14,288	3,688	826	414	-	-	414,398
18/19										417,987	15,123	3,903	874	438	-	438,325
19/20											447,472	16,189	4,178	936	469	469,244
20/21												479,100	17,334	4,473	1,504	502,411
21/22													513,031	18,561	6,401	537,993
22/23														549,439	26,733	576,172
Total Insurance Year Inc'd		264,001	275,472	301,198	338,778	329,336	347,835	382,916	413,823	436,743	467,407	500,404	535,831	573,847		
IBNR Provision										1,582	1,837	2,006	2,162	2,325		
Total Insurance Yr Inc'd & Prov.		264,001	275,472	301,198	338,778	329,336	347,835	382,916	413,823	438,325	469,244	502,411	537,993	576,172		
Change in Total Inc'd			4.34%	9.34%	12.48%	-2.79%	5.62%	10.09%	8.07%	5.92%	7.05%	7.07%	7.08%	7.10%		
Total Insurance Yr Claim Counts		102255	103590	108045	109542	110,179	102,043	84,036	131,334	106,655	111,674	114,085	115,994	117,856		
Average Yearly Ultimate		2,582	2,659	2,788	3,093	2,989	3,409	4,557	3,151	4,110	4,202	4,404	4,638	4,889		
Change in Avg Yearly Ult.			3.00%	4.83%	10.94%	-3.35%	14.04%	33.67%	-30.85%	30.43%	2.24%	4.80%	5.32%	5.40%		

Appendix 5
Basic Collision

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	6	6	4	(10)	(10)	-	-	-	-	-
00/01	5	(1)	(1)	(1)	(1)	-	-	-	-	-
01/02	(5)	(5)	(5)	(5)	(5)	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	1	1	1	1	1	-	-	-	-	-
04/05	50	50	2	2	1	-	-	-	-	-
05/06	1	1	1	1	(1)	-	-	-	-	-
06/07	7	7	7	6	6	-	-	-	-	-
07/08	(114)	(2)	(2)	(2)	(2)	-	-	-	-	-
08/09	(224)	(117)	(118)	1	0	-	-	-	-	-
09/10	(332)	(203)	(105)	3	0	-	-	-	-	-
10/11	(455)	(363)	(111)	9	4	-	-	-	-	-
11/12	(477)	(485)	(113)	4	1	-	-	-	-	-
12/13	2,555	(282)	(40)	221	6	-	-	-	-	-
13/14	103,437	3,142	464	394	25	-	-	-	-	-
14/15		68,644	3,869	947	359	-	-	-	-	-
15/16			72,748	4,903	1,133	327	-	-	-	-
16/17				88,205	5,686	1,254	363	-	-	-
17/18					92,861	5,953	1,314	380	-	-
18/19						103,348	6,629	1,463	423	-
19/20							110,664	7,099	1,567	453
20/21								118,522	7,604	1,678
21/22									126,949	8,145
22/23										135,992
Total	104,454	70,394	76,601	94,679	100,065	110,883	118,970	127,464	136,543	146,268
Change in Total		-32.61%	8.82%	23.60%	5.69%	10.81%	7.29%	7.14%	7.12%	7.12%

Appendix 5
Basic Collision

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(9)	(10)	(10)	(11)	(11)	-	-	-	-	-
00/01	5	(1)	(1)	(1)	(1)	-	-	-	-	-
01/02	(5)	(5)	(5)	(5)	(5)	-	-	-	-	-
02/03	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
03/04	1	1	1	1	1	-	-	-	-	-
04/05	51	51	2	2	1	-	-	-	-	-
05/06	1	1	1	1	(1)	-	-	-	-	-
06/07	7	7	7	6	7	-	-	-	-	-
07/08	(0)	(2)	(2)	(2)	(2)	-	-	-	-	-
08/09	9	2	1	1	0	-	-	-	-	-
09/10	13	34	11	3	0	-	-	-	-	-
10/11	53	28	15	10	4	-	-	-	-	-
11/12	132	32	10	4	1	-	-	-	-	-
12/13	1,148	283	109	70	6	-	-	-	-	-
13/14	83,037	1,410	236	58	26	-	-	-	-	-
14/15		60,093	1,088	187	48	-	-	-	-	-
15/16			61,780	1,013	106	(20)	-	-	-	-
16/17				71,861	1,237	131	(18)	(0)	(0)	(0)
17/18					75,504	1,188	110	(27)	0	0
18/19						85,103	1,593	190	(8)	-
19/20							91,106	1,705	204	(8)
20/21								97,546	1,825	218
21/22									104,454	1,955
22/23										111,867
Total	84,442	61,924	63,241	73,196	76,921	86,402	92,791	99,413	106,475	114,031
Change in Total		-26.67%	2.13%	15.74%	5.09%	12.33%	7.39%	7.14%	7.10%	7.10%

Appendix 5
Basic Collision

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(0)	0	0	(1)	(1)	-	-	-	-	-
00/01	1	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	(1)	(0)	(0)	(0)	(0)	-	-	-	-	-
02/03	-	-	-	0	0	-	-	-	-	-
03/04	0	0	0	0	0	-	-	-	-	-
04/05	3	3	0	0	0	-	-	-	-	-
05/06	0	0	0	0	(0)	-	-	-	-	-
06/07	0	0	0	0	0	-	-	-	-	-
07/08	(123)	(0)	(0)	(0)	(0)	-	-	-	-	-
08/09	(252)	(128)	(128)	0	0	-	-	-	-	-
09/10	(375)	(253)	(125)	0	0	-	-	-	-	-
10/11	(551)	(422)	(136)	1	0	-	-	-	-	-
11/12	(663)	(560)	(133)	0	0	-	-	-	-	-
12/13	1,593	(603)	(153)	169	0	-	-	-	-	-
13/14	28,670	1,968	256	367	2	-	-	-	-	-
14/15		13,958	3,078	836	339	-	-	-	-	-
15/16			16,613	4,277	1,116	373	-	-	-	-
16/17				23,205	4,897	1,222	408	0	0	0
17/18					24,582	5,234	1,307	437	(0)	(0)
18/19						26,286	5,559	1,388	464	-
19/20							28,169	5,954	1,487	496
20/21								30,199	6,377	1,592
21/22									32,373	6,832
22/23										34,707
Total	28,303	13,963	19,273	28,854	30,937	33,115	35,443	37,977	40,701	43,628
Change in Total		-50.66%	38.02%	49.71%	7.22%	7.04%	7.03%	7.15%	7.17%	7.19%

Appendix 5
Basic Collision

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	1	(0)	(1)	0	1	-	-	-	-
00/01	(0)	(1)	0	0	0	0	-	-	-	-
01/02	0	0	0	0	0	0	-	-	-	-
02/03	-	-	-	0	-	(0)	-	-	-	-
03/04	(0)	(0)	(0)	(0)	(0)	(0)	-	-	-	-
04/05	(0)	0	(3)	(0)	(0)	(0)	-	-	-	-
05/06	(0)	(0)	(0)	(0)	(0)	0	-	-	-	-
06/07	119	0	(0)	(0)	0	(0)	-	-	-	-
07/08	121	123	0	(0)	(0)	0	-	-	-	-
08/09	122	124	0	128	(0)	(0)	-	-	-	-
09/10	120	121	129	125	(0)	(0)	-	-	-	-
10/11	123	129	286	136	(0)	(0)	-	-	-	-
11/12	(2,341)	103	427	133	(0)	(0)	-	-	-	-
12/13	(11,666)	(2,196)	450	321	(168)	(0)	-	-	-	-
13/14	28,670	(26,702)	(1,712)	111	(366)	(2)	-	-	-	-
14/15		13,958	(10,881)	(2,242)	(496)	(339)	-	-	-	-
15/16			16,613	(12,336)	(3,161)	(744)	(373)	-	-	-
16/17				23,205	(18,308)	(3,675)	(814)	(408)	-	-
17/18					24,582	(19,349)	(3,926)	(871)	(437)	-
18/19						26,286	(20,728)	(4,170)	(925)	(464)
19/20							28,169	(22,215)	(4,467)	(990)
20/21								30,199	(23,821)	(4,785)
21/22									32,373	(25,541)
22/23										34,707
Total	15,268	(14,339)	5,309	9,581	2,083	2,178	2,328	2,534	2,723	2,928

Appendix 5
Basic Collision

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(39)	(9)	(10)	(3)	(2)	-	-	-	-	-
00/01	(18)	(22)	(3)	(1)	(15)	-	-	-	-	-
01/02	(23)	(12)	(5)	(9)	(3)	-	-	-	-	-
02/03	(49)	(24)	(5)	(9)	(11)	-	-	-	-	-
03/04	(44)	(34)	(21)	(14)	(14)	-	-	-	-	-
04/05	(42)	(18)	(54)	(17)	(0)	-	-	-	-	-
05/06	(51)	(12)	(25)	(12)	7	-	-	-	-	-
06/07	15	(12)	(7)	(23)	19	-	-	-	-	-
07/08	(40)	(47)	(6)	(22)	(14)	-	-	-	-	-
08/09	(86)	42	(10)	(3)	(8)	-	-	-	-	-
09/10	(5)	20	17	(15)	(13)	-	-	-	-	-
10/11	270	206	86	4	10	-	-	-	-	-
11/12	1,880	472	73	111	46	-	-	-	-	-
12/13	12,204	2,724	473	215	38	-	-	-	-	-
13/14	324,806	19,770	3,508	781	349	-	-	-	-	-
14/15		306,292	7,014	3,216	959	317	-	-	-	-
15/16			336,810	11,596	2,892	705	353	-	-	-
16/17				367,119	14,401	3,445	771	386	-	-
17/18					395,183	14,288	3,688	826	414	-
18/19						417,987	15,123	3,903	874	438
19/20							447,472	16,189	4,178	936
20/21								479,100	17,334	4,473
21/22									513,031	18,561
22/23										549,439
Total	338,778	329,336	347,835	382,916	413,823	436,743	467,407	500,404	535,831	573,847
Change in Total		-2.79%	5.62%	10.09%	8.07%	5.54%	7.02%	7.06%	7.08%	7.09%

Appendix 5
Basic Collision

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	0	0	(0)	(0)	-	-	-	-	-
00/01	0	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	0	0	0	0	0	-	-	-	-	-
04/05	0	0	0	0	0	-	-	-	-	-
05/06	0	0	0	0	(0)	-	-	-	-	-
06/07	0	0	0	0	0	-	-	-	-	-
07/08	(1)	(0)	(0)	(0)	(0)	-	-	-	-	-
08/09	(2)	(0)	(0)	0	0	-	-	-	-	-
09/10	(5)	(1)	(1)	0	0	-	-	-	-	-
10/11	(9)	(4)	(1)	0	0	-	-	-	-	-
11/12	(18)	(7)	(2)	0	0	-	-	-	-	-
12/13	(5)	(12)	(1)	1	0	-	-	-	-	-
13/14	512	(3)	(7)	2	0	-	-	-	-	-
14/15		258	7	5	1	-	-	-	-	-
15/16			189	19	4	1	-	-	-	-
16/17				245	21	5	1	-	-	-
17/18					261	22	5	1	-	-
18/19						290	25	6	1	-
19/20							311	27	6	1
20/21								333	29	6
21/22									357	31
22/23										383
Total	473	230	184	271	287	318	342	366	393	421
Change in Total		-51.35%	-20.12%	47.53%	6.08%	10.65%	7.41%	7.22%	7.18%	7.18%

Appendix 5
Basic Collision

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	0	0	(1)	(1)	-	-	-	-	-
00/01	0	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	0	0	0	0	0	-	-	-	-	-
04/05	4	4	0	0	0	-	-	-	-	-
05/06	0	0	0	0	(0)	-	-	-	-	-
06/07	1	1	1	0	0	-	-	-	-	-
07/08	(9)	(0)	(0)	(0)	(0)	-	-	-	-	-
08/09	(17)	(9)	(9)	0	0	-	-	-	-	-
09/10	(25)	(15)	(8)	0	0	-	-	-	-	-
10/11	(34)	(27)	(8)	1	0	-	-	-	-	-
11/12	(36)	(36)	(8)	0	0	-	-	-	-	-
12/13	192	(21)	(3)	17	0	-	-	-	-	-
13/14	7,758	236	35	30	2	-	-	-	-	-
14/15		5,148	290	71	27	-	-	-	-	-
15/16			5,456	368	85	25	-	-	-	-
16/17				6,615	426	94	27	-	-	-
17/18					6,965	446	99	28	-	-
18/19						7,751	497	110	32	-
19/20							8,300	532	118	34
20/21								8,889	570	126
21/22									9,521	611
22/23										10,199
Total	7,834	5,280	5,745	7,101	7,505	8,316	8,923	9,560	10,241	10,970
Change in Total		-32.61%	8.82%	23.60%	5.69%	10.81%	7.29%	7.14%	7.12%	7.12%

Appendix 5
Basic Collision

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	0	0	(1)	(1)	-	-	-	-	-
00/01	0	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	0	0	0	0	0	-	-	-	-	-
04/05	4	4	0	0	0	-	-	-	-	-
05/06	0	0	0	0	(0)	-	-	-	-	-
06/07	1	1	1	0	1	-	-	-	-	-
07/08	(9)	(0)	(0)	(0)	(0)	-	-	-	-	-
08/09	(19)	(9)	(9)	0	0	-	-	-	-	-
09/10	(30)	(17)	(9)	0	0	-	-	-	-	-
10/11	(43)	(31)	(10)	1	0	-	-	-	-	-
11/12	(54)	(43)	(10)	0	0	-	-	-	-	-
12/13	187	(33)	(4)	17	0	-	-	-	-	-
13/14	8,270	233	28	31	2	-	-	-	-	-
14/15		5,406	297	76	28	-	-	-	-	-
15/16			5,645	387	89	25	-	-	-	-
16/17				6,861	448	99	28	-	-	-
17/18					7,225	469	104	29	-	-
18/19						8,041	522	115	33	-
19/20							8,611	559	123	35
20/21								9,222	599	132
21/22									9,878	642
22/23										10,582
Total	8,307	5,509	5,929	7,372	7,792	8,634	9,264	9,926	10,633	11,391
Change in Total		-33.67%	7.61%	24.34%	5.70%	10.80%	7.30%	7.14%	7.12%	7.12%

Appendix 6
Basic Comprehensive

Table 1
Ultimate Claims Paid ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	29,288	34,543	35,050	35,135	35,153	35,174	35,195	35,198	35,198	35,199	35,201	35,201	35,201	35,201	35,203	35,203	35,203	35,203	35,196	(7)
95/96	34,986	42,526	43,781	43,940	43,990	44,012	44,023	44,025	44,027	44,027	44,030	44,030	44,033	44,033	44,033	44,033	44,033	44,033	44,040	7
96/97	63,228	83,736	87,537	87,761	87,847	87,871	87,885	87,900	87,910	87,912	87,908	87,905	87,903	87,897	87,895	87,894	87,893	87,890	87,906	16
97/98	33,950	40,379	41,040	41,143	41,175	41,181	41,170	41,159	41,147	41,137	41,120	41,113	41,104	41,087	41,081	41,074	41,065	41,055	41,049	(5)
98/99	29,116	34,620	35,212	35,309	35,315	35,316	35,290	35,284	35,274	35,257	35,232	35,235	35,231	35,214	35,199	35,196	35,183	35,182	35,174	(7)
99/00	32,058	38,314	39,073	39,166	39,152	39,135	39,100	39,079	39,066	39,043	39,027	39,000	38,988	38,962	38,945	38,934	38,923	38,923	38,922	(0)
00/01	34,667	44,196	44,904	44,933	44,909	44,930	44,925	44,661	44,637	44,616	44,594	44,545	44,538	44,532	44,529	44,516	44,516	44,522	44,522	6
01/02	52,778	67,289	71,095	71,275	71,298	71,296	71,290	71,294	71,281	71,262	71,254	71,246	71,225	71,222	71,220	71,217	71,216	71,216	71,216	(1)
02/03	39,189	45,849	46,396	46,300	46,248	46,201	46,182	46,176	46,157	46,143	46,127	46,117	46,115	46,113	46,113	46,113	46,113	46,113	46,113	(0)
03/04	43,542	52,490	53,247	53,325	53,316	53,286	53,259	53,243	53,227	53,193	53,164	53,160	53,151	53,146	53,147	53,147	53,147	53,147	53,147	0
04/05	52,048	61,740	62,360	62,443	62,450	62,436	62,431	62,382	62,366	62,365	62,367	62,356	62,365	62,357	62,357	62,357	62,357	62,357	62,357	(7)
05/06	56,060	69,323	70,616	70,838	70,878	70,865	70,864	70,871	70,866	70,858	70,861	70,857	70,856	70,856	70,856	70,856	70,856	70,856	70,856	(2)
06/07	58,688	72,866	74,476	74,787	74,828	74,867	74,917	74,887	74,896	74,889	74,881	74,850	74,850	74,850	74,850	74,850	74,850	74,850	74,850	(30)
07/08	79,527	105,876	111,978	112,904	113,112	113,270	113,274	113,296	113,318	113,322	113,323	113,323	113,323	113,323	113,323	113,323	113,323	113,323	113,323	1
08/09	39,099	48,701	49,806	49,950	49,969	49,962	49,954	49,915	49,802	49,809	49,809	49,809	49,809	49,809	49,809	49,809	49,809	49,809	49,809	6
09/10	57,053	74,256	77,777	78,329	78,471	78,534	78,562	78,612	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	6
10/11	55,592	71,578	74,053	74,394	74,548	74,716	74,785	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	36
11/12	55,712	71,318	73,820	74,319	74,488	74,583	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	51
12/13	54,940	69,344	71,869	72,303	72,469	72,569	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	137
13/14	54,230	71,557	73,996	74,487	74,691	74,765	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	316
14/15	55,650	68,736	70,403	70,731	70,872	70,943	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	576
15/16	90,408	115,170	119,011	119,674	119,917	120,038	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	4,929
16/17	88,759	114,369	118,031	118,679	118,915	119,034	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	30,334
17/18	58,631	71,271	73,137	73,466	73,587	73,647	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678
18/19	73,931	95,439	98,614	99,175	99,380	99,483	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	
19/20	78,246	101,008	104,369	104,962	105,179	105,288	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	
20/21	82,825	106,919	110,476	111,105	111,334	111,450	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	
21/22	87,672	113,176	116,941	117,607	117,850	117,972	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	
22/23	92,755	119,739	123,722	124,426	124,684	124,813	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	

Appendix 6
Basic Comprehensive

Table 2
Yearly Claims Paid ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	35,203	-	-	-	-	(7)	-	-	-	-	-	35,196
95/96	44,033	-	-	-	-	7	-	-	-	-	-	44,040
96/97	87,890	-	-	-	-	16	-	-	-	-	-	87,906
97/98	41,065	(9)	(2)	(0)	-	(5)	-	-	-	-	-	41,049
98/99	35,196	(13)	(1)	(2)	(1)	(6)	-	-	-	-	-	35,174
99/00	38,945	(11)	(10)	(1)	(0)	(0)	-	-	-	-	-	38,922
00/01	44,532	(4)	(12)	(0)	6	(0)	-	-	-	-	-	44,522
01/02	71,225	(3)	(2)	(3)	(1)	0	-	-	-	-	-	71,216
02/03	46,117	(2)	(2)	(0)	(0)	-	-	-	-	-	-	46,113
03/04	53,164	(5)	(9)	(4)	0	-	-	-	-	-	-	53,147
04/05	62,365	2	(11)	9	(7)	-	-	-	-	-	-	62,357
05/06	70,866	(8)	3	(4)	(2)	-	-	-	-	-	-	70,856
06/07	74,887	9	(6)	(8)	(30)	-	-	-	-	-	-	74,850
07/08	113,274	22	22	4	1	-	-	-	-	-	-	113,323
08/09	49,962	(8)	(39)	(112)	6	(0)	-	-	-	-	-	49,809
09/10	78,471	63	28	50	6	(0)	-	-	-	-	-	78,618
10/11	74,394	155	167	70	36	(0)	-	-	-	-	-	74,821
11/12	73,820	499	169	95	51	0	-	-	-	-	-	74,634
12/13	69,344	2,526	433	166	101	36	-	-	-	-	-	72,606
13/14	54,230	17,326	2,439	491	204	74	37	-	-	-	-	74,802
14/15		55,650	13,086	1,667	328	141	71	35	-	-	-	70,979
15/16			90,408	24,762	3,841	663	242	121	61	-	-	120,099
16/17				88,759	25,610	3,663	647	237	119	59	-	119,093
17/18					58,631	12,640	1,866	330	121	60	30	73,678
18/19						73,931	21,507	3,175	561	205	154	99,534
19/20							78,246	22,762	3,360	594	380	105,343
20/21								82,825	24,095	3,557	1,031	111,507
21/22									87,672	25,505	4,857	118,033
22/23										92,755	32,122	124,877
Total Insurance Year Paid		76,189	106,662	115,936	88,781	91,154	102,617	109,485	115,988	122,736		
Unpaid Provision						8,380	2,726	2,022	2,045	2,141		
Total Insurance Yr Paid & Prov.		76,189	106,662	115,936	88,781	99,534	105,343	111,507	118,033	124,877		
Change in Total Paid			40.00%	8.70%	-23.42%	2.67%	12.57%	6.69%	5.94%	5.82%		
Total Insurance Yr Claim Counts		54,264	69,472	64,952	71,625	73,913	75,464	77,482	79,877	82,073		
Average Yearly Ultimate		1,404	1,535	1,785	1,240	1,347	1,396	1,439	1,478	1,522		
Change in Avg Yearly Ult.			9.35%	16.26%	-30.56%	8.64%	3.66%	3.09%	2.68%	2.97%		

Appendix 6
Basic Comprehensive

Table 3
Ultimate Claims Incurred ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	35,363	35,024	35,104	35,154	35,172	35,190	35,209	35,212	35,213	35,214	35,194	35,194	35,194	35,194	35,196	35,196	35,196	35,196	35,196	-
95/96	42,760	43,719	43,835	43,980	44,023	44,021	44,030	44,033	44,034	44,034	44,037	44,038	44,041	44,041	44,041	44,041	44,041	44,041	44,040	-
96/97	87,798	88,775	89,265	87,803	87,882	87,905	87,919	87,928	87,939	87,940	87,934	87,931	87,929	87,923	87,921	87,920	87,919	87,916	87,906	-
97/98	40,018	41,299	41,048	41,153	41,173	41,180	41,168	41,157	41,145	41,132	41,115	41,108	41,099	41,082	41,076	41,069	41,060	41,051	41,049	-
98/99	33,781	34,779	35,239	35,311	35,315	35,315	35,285	35,279	35,268	35,251	35,227	35,230	35,225	35,208	35,194	35,191	35,177	35,176	35,174	(1)
99/00	35,221	38,412	39,134	39,189	39,156	39,138	39,103	39,082	39,069	39,046	39,030	39,003	38,988	38,963	38,945	38,934	38,924	38,922	38,922	(0)
00/01	39,018	44,381	44,946	44,955	44,923	44,942	44,934	44,668	44,644	44,623	44,596	44,546	44,539	44,533	44,530	44,517	44,517	44,523	44,522	5
01/02	66,220	71,375	72,842	72,820	72,788	72,776	71,293	71,298	71,280	71,275	71,255	71,245	71,224	71,221	71,219	71,217	71,215	71,216	71,216	(0)
02/03	43,217	45,945	46,428	46,321	46,261	46,211	46,189	46,182	46,160	46,143	46,128	46,117	46,115	46,113	46,113	46,113	46,113	46,113	46,113	(0)
03/04	48,702	52,660	53,280	53,341	53,317	53,294	53,267	53,251	53,234	53,200	53,172	53,160	53,151	53,146	53,147	53,147	53,147	53,147	53,147	0
04/05	58,890	61,969	62,416	62,461	62,483	62,448	62,437	62,384	62,367	62,366	62,367	62,356	62,368	62,357	62,357	62,357	62,357	62,357	62,357	(11)
05/06	65,073	69,705	70,773	70,910	70,945	70,931	70,929	70,935	70,930	70,873	70,862	70,857	70,856	70,856	70,856	70,856	70,856	70,856	70,856	(2)
06/07	68,118	73,243	74,584	74,818	74,845	74,884	74,917	74,887	74,896	74,894	74,881	74,850	74,850	74,850	74,850	74,850	74,850	74,850	74,850	(30)
07/08	103,723	111,438	114,763	114,401	114,337	113,326	113,277	113,312	113,322	113,327	113,323	113,323	113,323	113,323	113,323	113,323	113,323	113,323	113,323	(4)
08/09	46,053	49,142	50,045	50,073	50,048	50,030	50,011	49,971	49,855	49,859	49,809	49,809	49,809	49,809	49,809	49,809	49,809	49,809	49,809	(46)
09/10	74,498	78,712	79,825	78,457	78,487	78,573	78,558	78,619	78,613	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	78,618	(1)
10/11	69,030	72,719	74,537	74,745	74,632	74,810	74,845	74,879	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	74,821	(24)
11/12	69,285	74,386	75,257	75,459	74,988	75,014	75,035	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	74,634	(381)
12/13	67,507	72,748	73,740	73,869	73,466	73,394	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	72,606	(860)
13/14	69,045	74,601	75,766	75,751	74,695	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	74,802	(948)
14/15	65,631	70,391	71,180	70,770	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	70,979	(202)
15/16	113,688	120,900	121,791	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	120,099	(801)
16/17	112,389	119,216	119,105	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	119,093	6,704
17/18	67,391	72,550	73,567	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678	73,678
18/19	91,042	98,011	99,385	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	99,534	
19/20	96,355	103,730	105,185	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	105,343	
20/21	101,993	109,800	111,340	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	111,507	
21/22	107,962	116,226	117,856	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	118,033	
22/23	114,223	122,966	124,690	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	124,877	

Appendix 6
Basic Comprehensive

Table 4
Yearly Claims Incurred ('000)

Insurance Accident Year	Insurance Year														There-After	Ultimate
	Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23		
94/95	35,196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35,196
95/96	44,041	0	-	-	(0)	-	-	-	-	-	-	-	-	-	-	44,040
96/97	87,923	(2)	(2)	(1)	(3)	-	-	(10)	-	-	-	-	-	-	-	87,906
97/98	41,099	(18)	(6)	(7)	(9)	(9)	(2)	(0)	-	-	-	-	-	-	-	41,049
98/99	35,230	(5)	(17)	(15)	(3)	(13)	(1)	(2)	(1)	-	-	-	-	-	-	35,174
99/00	39,030	(27)	(14)	(26)	(18)	(11)	(10)	(1)	(0)	-	-	-	-	-	-	38,922
00/01	44,623	(27)	(50)	(7)	(6)	(4)	(12)	(0)	6	(1)	-	-	-	-	-	44,522
01/02	71,280	(5)	(19)	(10)	(21)	(3)	(2)	(3)	(1)	1	-	-	-	-	-	71,216
02/03	46,182	(22)	(17)	(15)	(11)	(2)	(2)	(0)	(0)	-	-	-	-	-	-	46,113
03/04	53,267	(16)	(16)	(34)	(28)	(12)	(9)	(4)	0	-	-	-	-	-	-	53,147
04/05	62,448	(11)	(54)	(16)	(2)	1	(11)	12	(11)	-	-	-	-	-	-	62,357
05/06	70,945	(14)	(2)	7	(5)	(57)	(11)	(5)	(2)	-	-	-	-	-	-	70,856
06/07	74,818	26	39	33	(30)	9	(2)	(13)	(30)	-	-	-	-	-	-	74,850
07/08	114,763	(362)	(64)	(1,011)	(49)	35	9	6	(4)	-	-	-	-	-	-	113,323
08/09	49,142	903	28	(26)	(18)	(19)	(40)	(116)	4	(50)	-	-	-	-	-	49,809
09/10	74,498	4,215	1,112	(1,367)	29	86	(15)	61	(6)	5	-	-	-	-	-	78,618
10/11		69,030	3,689	1,818	209	(114)	179	35	34	(58)	-	-	-	-	-	74,821
11/12			69,285	5,102	871	202	(471)	26	20	(401)	-	-	-	-	-	74,634
12/13				67,507	5,242	992	129	(403)	(71)	(789)	-	-	-	-	-	72,606
13/14					69,045	5,557	1,165	(16)	(1,056)	107	-	-	-	-	-	74,802
14/15						65,631	4,759	790	(411)	209	-	-	-	-	-	70,979
15/16							113,688	7,212	890	(1,692)	-	-	-	-	-	120,099
16/17								112,389	6,826	(111)	(12)	-	-	-	-	119,093
17/18									67,391	5,159	1,017	110	-	-	-	73,678
18/19										91,042	6,969	1,374	149	-	-	99,534
19/20											96,355	7,375	1,455	158	-	105,343
20/21												101,993	7,807	1,540	167	111,507
21/22													107,962	8,264	1,807	118,033
22/23														114,223	10,655	124,877
Total Insurance Year Inc'd		73,665	73,892	71,931	75,192	72,269	119,342	119,957	73,580	93,421	104,329	110,854	117,373	124,184		
IBNR Provision										6,113	1,014	654	660	693		
Total Insurance Yr Inc'd & Prov.		73,665	73,892	71,931	75,192	72,269	119,342	119,957	73,580	99,534	105,343	111,507	118,033	124,877		
Change in Total Inc'd			0.31%	-2.65%	4.53%	-3.89%	65.13%	0.52%	-38.66%	35.27%	5.84%	5.85%	5.85%	5.80%		
Total Insurance Yr Claim Counts		55550	56439	55618	53843	54,264	69,472	64,952	71,625	73,913	75,464	77,482	79,877	82,073		
Average Yearly Ultimate		1,326	1,309	1,293	1,397	1,332	1,718	1,847	1,027	1,347	1,396	1,439	1,478	1,522		
Change in Avg Yearly Ult.			-1.27%	-1.22%	7.98%	-4.63%	28.99%	7.51%	-44.38%	31.09%	3.66%	3.09%	2.68%	2.97%		

Appendix 6
Basic Comprehensive

Table 5
Total Unpaid {Excludes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(5)	20	15	6	6	-	-	-	-	-
00/01	-	-	-	(0)	(0)	-	-	-	-	-
01/02	-	-	-	0	0	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	0	-	-	-	-	-	-
05/06	(35)	-	-	-	-	-	-	-	-	-
06/07	(35)	(37)	(37)	-	-	-	-	-	-	-
07/08	(31)	(33)	(32)	(33)	-	-	-	-	-	-
08/09	(22)	(23)	(23)	(24)	(0)	-	-	-	-	-
09/10	15	(22)	(22)	(22)	(0)	-	-	-	-	-
10/11	78	(37)	(32)	(33)	(0)	-	-	-	-	-
11/12	292	42	(0)	(32)	0	-	-	-	-	-
12/13	2,083	323	112	(0)	36	-	-	-	-	-
13/14	20,724	2,517	475	152	108	37	-	-	-	-
14/15		16,392	2,819	520	239	103	35	-	-	-
15/16			34,148	4,558	1,048	409	177	60	-	-
16/17				33,511	4,589	1,022	400	173	58	-
17/18					14,685	2,337	521	204	88	30
18/19						24,981	3,978	887	347	150
19/20							26,447	4,212	939	367
20/21								28,005	4,460	995
21/22									29,653	4,723
22/23										31,382
Total	23,063	19,142	37,423	38,603	20,710	28,890	31,558	33,541	35,546	37,647
Change in Total		-17.00%	95.50%	3.15%	-46.35%	39.49%	9.23%	6.28%	5.98%	5.91%

Appendix 6
Basic Comprehensive

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	17	17	17	6	6	-	-	-	-	-
00/01	1	1	1	1	1	-	-	-	-	-
01/02	(1)	(1)	(0)	(1)	(1)	-	-	-	-	-
02/03	0	0	0	0	0	-	-	-	-	-
03/04	8	0	0	0	0	-	-	-	-	-
04/05	1	1	1	3	-	-	-	-	-	-
05/06	64	15	1	0	0	-	-	-	-	-
06/07	0	0	5	0	0	-	-	-	-	-
07/08	3	16	4	5	0	-	-	-	-	-
08/09	68	57	56	52	50	-	-	-	-	-
09/10	15	39	(5)	7	(5)	-	-	-	-	-
10/11	352	83	95	60	58	-	-	-	-	-
11/12	1,437	1,140	500	432	401	-	-	-	-	-
12/13	3,405	1,871	1,566	997	825	-	-	-	-	-
13/14	14,814	3,045	1,771	1,264	5	37	-	-	-	-
14/15		9,982	1,654	778	39	106	35	-	-	-
15/16			23,280	5,730	2,780	425	182	61	0	0
16/17				23,631	4,847	1,074	415	178	59	(0)
17/18					8,760	1,279	431	211	91	30
18/19						17,111	2,572	771	359	154
19/20							18,109	2,722	816	380
20/21								19,169	2,881	864
21/22									20,291	3,050
22/23										21,467
Total	20,184	16,265	28,945	32,965	17,764	20,031	21,744	23,112	24,498	25,946
Change in Total		-19.42%	77.96%	13.89%	-46.11%	12.76%	8.55%	6.29%	6.00%	5.91%

Appendix 6
Basic Comprehensive

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(16)	11	6	0	0	-	-	-	-	-
00/01	(1)	(1)	(1)	(1)	(1)	-	-	-	-	-
01/02	1	1	-	1	1	-	-	-	-	-
02/03	(0)	(0)	-	(0)	(0)	-	-	-	-	-
03/04	(8)	-	-	(0)	(0)	-	-	-	-	-
04/05	(1)	(1)	(1)	(3)	-	-	-	-	-	-
05/06	(102)	(15)	(1)	(0)	(0)	-	-	-	-	-
06/07	(39)	(40)	(45)	(0)	(0)	-	-	-	-	-
07/08	(37)	(52)	(39)	(41)	(0)	-	-	-	-	-
08/09	(92)	(82)	(81)	(78)	(50)	-	-	-	-	-
09/10	0	(63)	(19)	(31)	5	-	-	-	-	-
10/11	(269)	(123)	(130)	(96)	(58)	-	-	-	-	-
11/12	(1,122)	(1,096)	(500)	(467)	(401)	-	-	-	-	-
12/13	(1,154)	(1,523)	(1,446)	(997)	(787)	-	-	-	-	-
13/14	7,593	(328)	(1,259)	(1,101)	113	2	-	-	-	-
14/15		7,718	1,385	(217)	219	5	2	-	-	-
15/16			13,542	(815)	(1,648)	17	9	4	(0)	(0)
16/17				12,505	105	31	17	9	4	0
17/18					7,077	1,243	132	9	5	2
18/19						9,830	1,721	187	15	8
19/20							10,412	1,823	198	16
20/21								11,032	1,932	210
21/22									11,688	2,047
22/23										12,377
Total	4,753	4,406	11,411	8,659	4,576	11,128	12,293	13,064	13,842	14,660
Change in Total		-7.30%	158.97%	-24.12%	-47.15%	143.20%	10.47%	6.27%	5.95%	5.91%

Appendix 6
Basic Comprehensive

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	7	28	(5)	(6)	(0)	(0)	-	-	-	-
00/01	0	(0)	(0)	(0)	0	1	-	-	-	-
01/02	-	(0)	(1)	1	(0)	(1)	-	-	-	-
02/03	0	(0)	0	(0)	-	0	-	-	-	-
03/04	-	8	-	(0)	-	0	-	-	-	-
04/05	33	1	(0)	(2)	3	-	-	-	-	-
05/06	(0)	86	14	1	-	0	-	-	-	-
06/07	(1)	(1)	(5)	45	-	0	-	-	-	-
07/08	3	(14)	13	(2)	41	0	-	-	-	-
08/09	(14)	10	1	3	28	50	-	-	-	-
09/10	(7)	(63)	44	(13)	36	(5)	-	-	-	-
10/11	(101)	146	(7)	34	38	58	-	-	-	-
11/12	(180)	26	596	33	66	401	-	-	-	-
12/13	(8,569)	(370)	77	449	210	787	-	-	-	-
13/14	7,593	(7,920)	(931)	158	1,214	(110)	(2)	-	-	-
14/15		7,718	(6,333)	(1,602)	436	(214)	(3)	(2)	-	-
15/16			13,542	(14,356)	(833)	1,665	(9)	(5)	(4)	-
16/17				12,505	(12,400)	(75)	(13)	(8)	(5)	(4)
17/18					7,077	(5,834)	(1,111)	(123)	(4)	(3)
18/19						9,830	(8,109)	(1,534)	(172)	(8)
19/20							10,412	(8,589)	(1,625)	(182)
20/21								11,032	(9,101)	(1,721)
21/22									11,688	(9,641)
22/23										12,377
Total	(1,236)	(347)	7,005	(2,752)	(4,083)	6,553	1,165	771	778	818

Appendix 6
Basic Comprehensive

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(33)	(33)	(13)	(14)	(1)	-	-	-	-	-
00/01	(6)	(4)	(12)	(0)	6	(1)	-	-	-	-
01/02	(21)	(3)	(2)	(3)	(1)	1	-	-	-	-
02/03	(11)	(2)	(2)	(0)	(0)	-	-	-	-	-
03/04	(28)	(12)	(9)	(4)	0	-	-	-	-	-
04/05	(2)	1	(11)	12	(11)	-	-	-	-	-
05/06	(5)	(57)	(11)	(5)	(2)	-	-	-	-	-
06/07	(30)	9	(2)	(13)	(30)	-	-	-	-	-
07/08	(49)	35	9	6	(4)	-	-	-	-	-
08/09	(18)	(19)	(40)	(116)	4	(50)	-	-	-	-
09/10	29	86	(15)	61	(6)	5	-	-	-	-
10/11	209	(114)	179	35	34	(58)	-	-	-	-
11/12	871	202	(471)	26	20	(401)	-	-	-	-
12/13	5,242	992	129	(403)	(71)	(789)	-	-	-	-
13/14	69,045	5,557	1,165	(16)	(1,056)	107	-	-	-	-
14/15		65,631	4,759	790	(411)	209	-	-	-	-
15/16			113,688	7,212	890	(1,692)	-	-	-	-
16/17				112,389	6,826	(111)	(12)	-	-	-
17/18					67,391	5,159	1,017	110	-	-
18/19						91,042	6,969	1,374	149	-
19/20							96,355	7,375	1,455	158
20/21								101,993	7,807	1,540
21/22									107,962	8,264
22/23										114,223
Total	75,192	72,269	119,342	119,957	73,580	93,421	104,329	110,854	117,373	124,184
Change in Total		-3.89%	65.13%	0.52%	-38.66%	26.97%	11.68%	6.25%	5.88%	5.80%

Appendix 6
Basic Comprehensive

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(0)	7	0	0	0	-	-	-	-	-
00/01	-	-	-	(0)	(0)	-	-	-	-	-
01/02	-	-	-	0	0	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	0	-	-	-	-	-	-
05/06	(0)	-	-	-	-	-	-	-	-	-
06/07	(1)	(0)	(0)	-	-	-	-	-	-	-
07/08	(1)	(0)	(0)	(0)	-	-	-	-	-	-
08/09	(1)	(0)	(0)	(0)	(0)	-	-	-	-	-
09/10	0	(1)	(0)	(0)	(0)	-	-	-	-	-
10/11	(1)	(0)	(1)	(1)	(0)	-	-	-	-	-
11/12	1	(1)	(0)	(1)	0	-	-	-	-	-
12/13	12	0	(0)	(0)	0	-	-	-	-	-
13/14	129	11	1	(0)	0	0	-	-	-	-
14/15		78	9	1	1	0	0	-	-	-
15/16			113	15	6	2	1	0	-	-
16/17				111	19	5	2	1	0	-
17/18					50	10	3	1	0	0
18/19						86	16	5	2	1
19/20							91	17	5	2
20/21								96	18	5
21/22									102	19
22/23										108
Total	139	93	121	125	76	103	113	120	127	135
Change in Total		-32.76%	29.16%	3.81%	-38.96%	34.99%	9.11%	6.55%	6.19%	6.03%

Appendix 6
Basic Comprehensive

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(0)	1	1	0	0	-	-	-	-	-
00/01	-	-	-	(0)	(0)	-	-	-	-	-
01/02	-	-	-	0	0	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	0	-	-	-	-	-	-
05/06	(3)	-	-	-	-	-	-	-	-	-
06/07	(3)	(3)	(3)	-	-	-	-	-	-	-
07/08	(2)	(2)	(2)	(2)	-	-	-	-	-	-
08/09	(2)	(2)	(2)	(2)	(0)	-	-	-	-	-
09/10	1	(2)	(2)	(2)	(0)	-	-	-	-	-
10/11	6	(3)	(2)	(3)	(0)	-	-	-	-	-
11/12	22	3	(0)	(2)	0	-	-	-	-	-
12/13	156	24	8	(0)	3	-	-	-	-	-
13/14	1,554	189	36	11	8	3	-	-	-	-
14/15		1,229	211	39	18	8	3	-	-	-
15/16			2,561	342	79	31	13	4	-	-
16/17				2,513	344	77	30	13	4	-
17/18					1,101	175	39	15	7	2
18/19						1,874	298	67	26	11
19/20							1,984	316	70	28
20/21								2,100	335	75
21/22									2,224	354
22/23										2,354
Total	1,730	1,436	2,807	2,895	1,553	2,167	2,367	2,516	2,666	2,824
Change in Total		-17.00%	95.50%	3.15%	-46.35%	39.49%	9.23%	6.28%	5.98%	5.91%

Appendix 6
Basic Comprehensive

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(0)	8	1	0	0	-	-	-	-	-
00/01	-	-	-	(0)	(0)	-	-	-	-	-
01/02	-	-	-	0	0	-	-	-	-	-
02/03	-	-	-	-	-	-	-	-	-	-
03/04	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	0	-	-	-	-	-	-
05/06	(3)	-	-	-	-	-	-	-	-	-
06/07	(3)	(3)	(3)	-	-	-	-	-	-	-
07/08	(3)	(3)	(3)	(3)	-	-	-	-	-	-
08/09	(2)	(2)	(2)	(2)	(0)	-	-	-	-	-
09/10	1	(2)	(2)	(2)	(0)	-	-	-	-	-
10/11	5	(3)	(3)	(3)	(0)	-	-	-	-	-
11/12	23	2	(0)	(3)	0	-	-	-	-	-
12/13	169	25	8	(0)	3	-	-	-	-	-
13/14	1,683	200	37	11	9	3	-	-	-	-
14/15		1,308	220	40	19	8	3	-	-	-
15/16			2,674	357	84	33	14	5	-	-
16/17				2,624	363	82	32	14	5	-
17/18					1,152	185	42	16	7	2
18/19						1,959	315	71	28	12
19/20							2,074	333	75	29
20/21								2,197	353	80
21/22									2,326	374
22/23										2,462
Total	1,869	1,529	2,927	3,021	1,630	2,270	2,479	2,636	2,793	2,959
Change in Total		-18.17%	91.45%	3.18%	-46.04%	39.28%	9.23%	6.30%	5.99%	5.92%

Appendix 7
Basic Property Damage

Table 1
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical Unpaid at 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	12,135	18,073	18,558	18,696	18,710	18,706	18,711	18,711	18,717	18,717	18,717	18,716	18,715	18,715	18,715	18,715	18,715	18,715	18,725	11
95/96	13,720	21,215	21,658	21,769	21,839	21,909	21,967	21,967	21,966	21,966	21,966	21,968	21,968	21,968	21,968	21,967	21,967	21,967	21,967	(4)
96/97	12,910	20,799	21,288	21,542	21,606	21,727	21,735	21,735	21,735	21,734	21,733	21,732	21,732	21,732	21,731	21,732	21,732	21,732	21,729	(3)
97/98	14,156	20,077	20,885	20,951	20,953	20,955	20,953	20,953	20,948	20,955	20,953	20,953	20,952	20,951	20,951	20,951	20,951	20,951	20,956	2
98/99	15,764	22,041	22,711	22,758	22,741	22,731	22,731	22,804	22,796	22,791	22,775	22,769	22,768	22,768	22,767	22,758	22,756	22,763	22,761	(1)
99/00	15,892	21,972	22,364	22,408	22,391	22,392	22,388	22,364	22,350	22,347	22,336	22,313	22,307	22,303	22,297	22,297	22,296	22,296	22,295	(2)
00/01	16,519	24,929	25,772	25,838	25,846	25,820	25,804	25,793	25,790	25,784	25,777	25,764	25,761	25,756	25,752	25,756	25,753	25,751	25,750	(3)
01/02	16,546	25,207	25,599	25,780	25,773	25,773	25,769	25,753	25,746	25,741	25,736	25,731	25,728	25,725	25,722	25,722	25,722	25,723	25,723	1
02/03	18,730	27,597	28,092	28,085	28,133	28,118	28,109	28,092	28,080	28,073	28,070	28,067	28,064	28,061	28,059	28,057	28,057	28,057	28,057	(3)
03/04	18,993	28,813	29,622	29,635	29,620	29,615	29,603	29,585	29,572	29,563	29,574	29,568	29,566	29,564	29,561	29,560	29,560	29,560	29,560	(4)
04/05	18,242	28,445	29,510	29,581	29,601	29,661	29,653	29,644	29,637	29,632	29,625	29,621	29,617	29,615	29,616	29,616	29,616	29,616	29,616	(1)
05/06	18,707	28,553	29,581	30,336	30,358	30,335	30,333	30,315	30,306	30,302	30,298	30,296	30,292	30,292	30,292	30,292	30,292	30,292	30,292	(3)
06/07	20,009	31,897	33,426	33,607	33,611	33,599	33,591	33,586	33,585	33,581	33,579	33,574	33,574	33,574	33,574	33,574	33,574	33,574	33,574	(5)
07/08	19,426	32,210	33,604	33,784	34,041	34,058	34,056	34,253	34,250	34,240	34,238	34,290	34,290	34,290	34,290	34,290	34,290	34,290	34,290	50
08/09	20,382	33,764	35,384	35,674	35,782	35,840	35,841	35,849	35,847	35,880	36,015	36,015	36,015	36,015	36,015	36,015	36,015	36,015	36,015	168
09/10	21,932	33,089	34,462	34,913	34,931	34,924	34,947	34,945	34,944	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	(9)
10/11	21,420	35,388	36,991	37,080	37,108	37,077	37,162	37,167	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	175
11/12	23,155	35,292	36,905	37,370	37,416	37,457	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	18
12/13	23,572	38,611	40,890	41,096	41,540	41,614	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	230
13/14	23,093	42,107	44,850	45,364	45,404	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	230
14/15	23,110	38,121	40,561	40,757	40,969	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	444
15/16	24,289	38,931	40,787	41,081	41,185	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	2,272
16/17	24,887	41,369	43,236	43,530	43,634	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	18,765
17/18	27,412	43,587	45,924	46,292	46,423	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445
18/19	26,541	43,801	46,294	46,686	46,826	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	
19/20	27,456	45,311	47,890	48,296	48,440	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	
20/21	28,411	46,886	49,555	49,975	50,125	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	
21/22	29,407	48,530	51,292	51,727	51,882	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	
22/23	30,447	50,246	53,105	53,556	53,716	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	

Appendix 7
Basic Property Damage

Table 2
Yearly Claims Paid ('000)

Insurance Accident Year	Insurance Year: Prior to 13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	18,715	-	-	-	-	11	-	-	-	-	-	18,725
95/96	21,967	3	-	0	-	(4)	-	-	-	-	-	21,967
96/97	21,732	-	-	-	-	(3)	-	-	-	-	-	21,729
97/98	20,951	-	-	3	-	2	-	-	-	-	-	20,956
98/99	22,758	(2)	7	(1)	(0)	(1)	-	-	-	-	-	22,761
99/00	22,297	-	(1)	(0)	(2)	1	-	-	-	-	-	22,295
00/01	25,756	(4)	5	(4)	(2)	(1)	-	-	-	-	-	25,750
01/02	25,728	(3)	(3)	(0)	-	1	-	-	-	-	-	25,723
02/03	28,067	(3)	(2)	(2)	(3)	-	-	-	-	-	-	28,057
03/04	29,574	(6)	(3)	(2)	(3)	(0)	-	-	-	-	-	29,560
04/05	29,632	(7)	(4)	(4)	(2)	1	-	-	-	-	-	29,616
05/06	30,306	(4)	(4)	(3)	(3)	-	-	-	-	-	-	30,292
06/07	33,586	(1)	(4)	(2)	(5)	0	-	-	-	-	-	33,574
07/08	34,056	198	(4)	(9)	(2)	52	-	-	-	-	-	34,290
08/09	35,840	1	8	(2)	33	136	-	-	-	-	-	36,015
09/10	34,931	(6)	23	(2)	(2)	(7)	-	-	-	-	-	34,937
10/11	37,080	28	(31)	85	5	170	-	-	-	-	-	37,337
11/12	36,905	466	46	41	18	(0)	-	-	-	-	-	37,475
12/13	38,611	2,279	206	444	74	156	-	-	-	-	-	41,770
13/14	23,093	19,014	2,743	514	40	190	-	-	-	-	-	45,594
14/15		23,110	15,011	2,440	196	212	36	-	-	-	-	41,004
15/16			24,289	14,643	1,856	294	105	17	-	-	-	41,203
16/17				24,887	16,483	1,866	294	105	18	-	-	43,652
17/18					27,412	16,176	2,336	368	131	22	-	46,445
18/19						26,541	17,260	2,493	393	140	23	46,849
19/20							27,456	17,855	2,579	406	169	48,465
20/21								28,411	18,475	2,668	595	50,150
21/22									29,407	19,123	3,378	51,908
22/23										30,447	23,296	53,743
Total Insurance Year Paid		45,062	42,283	43,028	46,091	45,791	47,486	49,249	51,002	52,806		
Unpaid Provision						1,059	978	901	906	937		
Total Insurance Yr Paid & Prov.		45,062	42,283	43,028	46,091	46,849	48,465	50,150	51,908	53,743		
Change in Total Paid			-6.17%	1.76%	7.12%	-0.65%	3.70%	3.71%	3.56%	3.54%		
Total Insurance Yr Claim Counts		39,707	38,460	38,619	41,685	42,656	43,334	44,002	44,666	45,336		
Average Yearly Ultimate		1,135	1,099	1,114	1,106	1,098	1,118	1,140	1,162	1,185		
Change in Avg Yearly Ult.			-3.12%	1.34%	-0.76%	-0.67%	1.83%	1.91%	1.97%	2.00%		

Appendix 7
Basic Property Damage

Table 3
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Months Since Beginning of Accident Year																		Ultimate	Technical IBNR 28-Feb-18
	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216		
94/95	18,444	18,693	18,919	18,777	18,743	18,732	18,724	18,724	18,727	18,727	18,727	18,726	18,725	18,725	18,725	18,725	18,725	18,725	18,725	-
95/96	21,232	21,846	22,006	22,020	22,001	21,924	21,981	21,964	21,962	21,962	21,962	21,964	21,964	21,964	21,964	21,964	21,964	21,964	21,967	-
96/97	21,176	21,981	22,142	21,843	21,838	21,734	21,743	21,742	21,742	21,741	21,740	21,739	21,739	21,739	21,738	21,739	21,739	21,739	21,729	(10)
97/98	20,783	20,914	20,974	21,171	21,161	21,162	21,160	21,159	21,153	20,957	20,955	20,955	20,954	20,954	20,954	20,953	20,953	20,953	20,956	-
98/99	24,640	22,807	22,898	22,851	22,877	22,863	22,839	22,806	22,797	22,792	22,776	22,770	22,769	22,768	22,767	22,758	22,756	22,762	22,761	(0)
99/00	21,829	22,316	22,571	22,522	22,483	22,396	22,392	22,368	22,352	22,350	22,338	22,315	22,308	22,304	22,298	22,297	22,297	22,297	22,295	(2)
00/01	24,202	25,988	26,091	26,035	25,853	25,826	25,805	25,795	25,791	25,784	25,777	25,764	25,761	25,756	25,751	25,755	25,752	25,750	25,750	(2)
01/02	23,330	25,874	26,091	25,928	25,891	25,885	25,880	25,764	25,757	25,751	25,736	25,732	25,729	25,726	25,723	25,723	25,723	25,723	25,723	-
02/03	26,507	28,211	28,377	28,292	28,176	28,155	28,133	28,115	28,100	28,083	28,080	28,076	28,064	28,061	28,059	28,057	28,057	28,057	28,057	(3)
03/04	26,875	29,371	29,802	29,721	29,691	29,661	29,615	29,598	29,573	29,564	29,575	29,568	29,566	29,564	29,560	29,560	29,560	29,560	29,560	(4)
04/05	26,870	29,464	29,778	29,754	29,724	29,684	29,675	29,667	29,660	29,655	29,630	29,626	29,618	29,616	29,616	29,616	29,616	29,616	29,616	(2)
05/06	27,296	30,009	30,568	30,461	30,462	30,422	30,420	30,402	30,327	30,302	30,298	30,296	30,292	30,292	30,292	30,292	30,292	30,292	30,292	(3)
06/07	30,353	32,950	33,713	33,683	33,629	33,616	33,606	33,587	33,586	33,582	33,580	33,574	33,574	33,574	33,574	33,574	33,574	33,574	33,574	(6)
07/08	31,001	33,885	34,663	34,514	34,369	34,310	34,308	34,305	34,302	34,292	34,290	34,290	34,290	34,290	34,290	34,290	34,290	34,290	34,290	(2)
08/09	31,313	35,494	36,386	36,172	36,076	36,053	36,134	35,985	35,983	36,015	36,015	36,015	36,015	36,015	36,015	36,015	36,015	36,015	36,015	33
09/10	31,417	34,547	35,051	35,149	35,162	35,136	34,958	34,956	34,954	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	34,937	(20)
10/11	31,920	36,416	37,298	37,350	37,390	37,334	37,370	37,374	37,356	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	37,337	(33)
11/12	32,720	36,567	37,398	37,475	37,495	37,563	37,531	37,512	37,494	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	37,475	(89)
12/13	35,555	40,460	41,413	41,643	41,789	41,851	41,831	41,810	41,790	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	41,770	(19)
13/14	36,055	43,495	45,113	45,477	45,681	45,681	45,660	45,638	45,616	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	45,594	117
14/15	33,873	39,978	40,951	41,027	41,094	41,094	41,072	41,049	41,027	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	41,004	53
15/16	33,904	40,071	41,090	41,226	41,294	41,294	41,271	41,248	41,226	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	41,203	1,132
16/17	34,757	42,433	43,545	43,673	43,738	43,738	43,716	43,695	43,673	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	43,652	8,895
17/18	38,289	45,187	46,334	46,467	46,533	46,533	46,511	46,489	46,467	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445	46,445
18/19	38,232	45,521	46,733	46,873	46,943	46,943	46,920	46,896	46,873	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	46,849	
19/20	39,550	47,090	48,344	48,489	48,562	48,562	48,537	48,513	48,489	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	48,465	
20/21	40,926	48,727	50,025	50,175	50,250	50,250	50,225	50,200	50,175	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	50,150	
21/22	42,361	50,436	51,779	51,934	52,012	52,012	51,986	51,960	51,934	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	51,908	
22/23	43,858	52,219	53,609	53,770	53,851	53,851	53,824	53,797	53,770	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	53,743	

Appendix 7
Basic Property Damage

Table 4
Yearly Claims Incurred ('000)

Insurance Accident Year	Insurance Year: Prior to 09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	There-After	Ultimate
94/95	18,725	0	-	-	-	-	-	-	-	-	-	-	-	-	-	18,725
95/96	21,964	(0)	-	-	-	3	-	0	-	-	-	-	-	-	-	21,967
96/97	21,739	(1)	1	-	-	-	-	-	(10)	-	-	-	-	-	-	21,729
97/98	20,954	(0)	-	(1)	-	-	-	2	-	-	-	-	-	-	-	20,956
98/99	22,770	(1)	(1)	(0)	(10)	(2)	6	(1)	(0)	-	-	-	-	-	-	22,761
99/00	22,338	(23)	(8)	(3)	(6)	(1)	(1)	(0)	(2)	-	-	-	-	-	-	22,295
00/01	25,784	(8)	(13)	(3)	(5)	(5)	5	(4)	(2)	-	-	-	-	-	-	25,750
01/02	25,757	(5)	(15)	(4)	(3)	(3)	(3)	(0)	-	-	-	-	-	-	-	25,723
02/03	28,115	(15)	(17)	(3)	(3)	(12)	(3)	(2)	(3)	-	-	-	-	-	-	28,057
03/04	29,615	(18)	(24)	(9)	11	(7)	(3)	(2)	(4)	-	-	-	-	-	-	29,560
04/05	29,684	(8)	(9)	(7)	(5)	(24)	(4)	(9)	(2)	-	-	-	-	-	-	29,616
05/06	30,462	(39)	(2)	(18)	(75)	(25)	(4)	(3)	(3)	-	-	-	-	-	-	30,292
06/07	33,683	(54)	(12)	(11)	(19)	(1)	(4)	(2)	(6)	-	-	-	-	-	-	33,574
07/08	34,663	(149)	(145)	(59)	(2)	(3)	(4)	(9)	(2)	-	-	-	-	-	-	34,290
08/09	35,494	892	(214)	(96)	(23)	81	(149)	(2)	33	-	-	-	-	-	-	36,015
09/10	31,417	3,131	504	98	13	(25)	(178)	(2)	(2)	(17)	-	-	-	-	-	34,937
10/11		31,920	4,497	882	52	41	(56)	36	5	(19)	(19)	-	-	-	-	37,337
11/12			32,720	3,847	831	77	20	68	(32)	(19)	(19)	(19)	-	-	-	37,475
12/13				35,555	4,905	953	230	146	62	(20)	(20)	(20)	(20)	-	-	41,770
13/14					36,055	7,439	1,618	364	204	-	(22)	(22)	(22)	(22)	-	45,594
14/15						33,873	6,106	973	76	67	-	(22)	(22)	(22)	(22)	41,004
15/16							33,904	6,167	1,019	136	68	-	(23)	(23)	(45)	41,203
16/17								34,757	7,676	1,112	129	65	-	(22)	(65)	43,652
17/18									38,289	6,898	1,147	133	67	-	(89)	46,445
18/19										38,232	7,288	1,212	140	70	(94)	46,849
19/20											39,550	7,539	1,254	145	(24)	48,465
20/21												40,926	7,802	1,298	125	50,150
21/22													42,361	8,075	1,472	51,908
22/23														43,858	9,885	53,743
Total Insurance Year Inc'd		35,622	37,260	40,166	41,716	42,359	41,481	42,478	47,295	46,370	48,103	49,791	51,536	53,358		
IBNR Provision										480	362	358	372	385		
Total Insurance Yr Inc'd & Prov.		35,622	37,260	40,166	41,716	42,359	41,481	42,478	47,295	46,849	48,465	50,150	51,908	53,743		
Change in Total Inc'd			4.60%	7.80%	3.86%	1.54%	-2.07%	2.40%	11.34%	-0.94%	3.45%	3.48%	3.51%	3.54%		
Total Insurance Yr Claim Counts		39554	38234	41663	41863	39,707	38,460	38,619	41,685	42,656	43,334	44,002	44,666	45,336		
Average Yearly Ultimate		901	975	964	996	1,067	1,079	1,100	1,135	1,098	1,118	1,140	1,162	1,185		
Change in Avg Yearly Ult.			8.21%	-1.07%	3.36%	7.06%	1.10%	1.98%	3.15%	-3.20%	1.83%	1.91%	1.97%	2.00%		

Appendix 7
Basic Property Damage

Table 5
Total Unpaid {Excludes Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	11	11	10	15	5	-	-	-	-	-
00/01	-	(1)	(1)	(1)	(1)	-	-	-	-	-
01/02	1	1	1	0	0	-	-	-	-	-
02/03	10	1	-	-	-	-	-	-	-	-
03/04	1	-	-	-	(0)	-	-	-	-	-
04/05	23	6	6	0	0	-	-	-	-	-
05/06	21	-	-	-	-	-	-	-	-	-
06/07	(16)	1	1	1	0	-	-	-	-	-
07/08	211	34	34	51	51	-	-	-	-	-
08/09	148	250	98	116	133	-	-	-	-	-
09/10	142	149	(40)	(24)	(7)	-	-	-	-	-
10/11	162	177	168	149	167	-	-	-	-	-
11/12	317	(9)	(15)	31	(0)	-	-	-	-	-
12/13	2,574	379	446	144	153	-	-	-	-	-
13/14	21,454	2,214	237	7	187	-	-	-	-	-
14/15		16,556	2,874	356	242	35	-	-	-	-
15/16			16,152	2,162	404	119	17	-	-	-
16/17				16,721	2,226	405	120	17	-	-
17/18					18,595	2,785	506	150	22	-
18/19						19,835	2,973	541	160	23
19/20							20,525	3,076	560	165
20/21								21,246	3,184	579
21/22									21,998	3,297
22/23										22,782
Total	25,058	19,769	19,972	19,729	22,157	23,180	24,141	25,030	25,923	26,847
Change in Total		-21.11%	1.02%	-1.22%	12.31%	4.62%	4.15%	3.68%	3.57%	3.56%

Appendix 7
Basic Property Damage

Table 6
Total Case Reserves ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	18	17	16	16	6	-	-	-	-	-
00/01	0	(1)	(1)	(1)	(1)	-	-	-	-	-
01/02	1	1	1	1	1	-	-	-	-	-
02/03	10	1	-	-	-	-	-	-	-	-
03/04	1	0	0	0	(0)	-	-	-	-	-
04/05	23	6	6	1	1	-	-	-	-	-
05/06	21	-	-	-	-	-	-	-	-	-
06/07	1	1	1	1	0	-	-	-	-	-
07/08	253	52	52	52	52	-	-	-	-	-
08/09	213	293	136	136	136	-	-	-	-	-
09/10	231	212	11	11	10	-	-	-	-	-
10/11	270	283	257	208	208	19	-	-	-	-
11/12	494	105	79	106	56	38	19	0	0	0
12/13	1,849	523	547	249	237	61	40	20	0	0
13/14	12,962	1,388	263	113	277	87	65	43	22	(0)
14/15		10,762	1,858	391	270	125	90	67	45	22
15/16			9,615	1,140	303	145	108	91	68	45
16/17				9,870	1,064	309	144	104	86	65
17/18					10,877	1,599	411	175	111	89
18/19						11,691	1,720	439	187	117
19/20							12,094	1,779	454	193
20/21								12,515	1,841	470
21/22									12,953	1,905
22/23										13,411
Total	16,344	13,641	12,839	12,290	13,494	14,073	14,690	15,233	15,767	16,318
Change in Total		-16.54%	-5.88%	-4.28%	9.80%	4.29%	4.38%	3.70%	3.50%	3.50%

Appendix 7
Basic Property Damage

Table 7
Total IBNR {Includes PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(1)	0	0	1	0	-	-	-	-	-
00/01	(0)	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	1	0	0	0	0	-	-	-	-	-
02/03	1	0	-	-	-	-	-	-	-	-
03/04	1	-	-	(0)	(0)	-	-	-	-	-
04/05	1	0	0	0	0	-	-	-	-	-
05/06	1	-	-	-	-	-	-	-	-	-
06/07	(17)	0	0	0	0	-	-	-	-	-
07/08	(29)	(16)	(16)	2	2	-	-	-	-	-
08/09	(55)	(29)	(32)	(14)	5	-	-	-	-	-
09/10	(78)	(53)	(53)	(36)	(18)	-	-	-	-	-
10/11	(101)	(90)	(78)	(51)	(31)	(19)	-	-	-	-
11/12	(160)	(115)	(95)	(74)	(56)	(38)	(19)	(0)	(0)	(0)
12/13	871	(123)	(78)	(97)	(76)	(61)	(40)	(20)	(0)	(0)
13/14	9,700	948	(13)	(106)	(80)	(87)	(65)	(43)	(22)	0
14/15		6,702	1,170	(15)	(15)	(88)	(90)	(67)	(45)	(22)
15/16			7,396	1,138	123	(19)	(90)	(91)	(68)	(45)
16/17				7,743	1,281	117	(18)	(85)	(86)	(65)
17/18					8,709	1,335	123	(18)	(88)	(89)
18/19						9,201	1,412	131	(18)	(93)
19/20							9,525	1,462	135	(19)
20/21								9,864	1,514	140
21/22									10,217	1,568
22/23										10,585
Total	10,135	7,226	8,201	8,492	9,844	10,343	10,738	11,132	11,539	11,961
Change in Total		-28.70%	13.50%	3.55%	15.92%	5.07%	3.83%	3.67%	3.66%	3.65%

Appendix 7
Basic Property Damage

Table 8
Total IBNR Annual Change ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(0)	1	(0)	0	(0)	(0)	-	-	-	-
00/01	-	(0)	0	(0)	0	0	-	-	-	-
01/02	(0)	(0)	(0)	(0)	(0)	(0)	-	-	-	-
02/03	(0)	(1)	(0)	-	-	-	-	-	-	-
03/04	(0)	(1)	-	(0)	(0)	0	-	-	-	-
04/05	(0)	(1)	(0)	(0)	(0)	(0)	-	-	-	-
05/06	14	(1)	-	-	-	-	-	-	-	-
06/07	16	17	(0)	(0)	(0)	(0)	-	-	-	-
07/08	22	13	(0)	18	(0)	(2)	-	-	-	-
08/09	22	26	(3)	19	19	(5)	-	-	-	-
09/10	23	25	(0)	17	18	18	-	-	-	-
10/11	140	11	11	28	19	13	19	-	-	-
11/12	(910)	45	20	21	18	19	19	19	-	-
12/13	(4,654)	(995)	45	(19)	21	15	20	20	20	-
13/14	9,700	(8,751)	(962)	(92)	25	(7)	22	22	22	22
14/15		6,702	(5,532)	(1,185)	(0)	(73)	(1)	22	22	22
15/16			7,396	(6,258)	(1,015)	(142)	(71)	(1)	23	23
16/17				7,743	(6,462)	(1,164)	(135)	(68)	(1)	22
17/18					8,709	(7,374)	(1,212)	(141)	(70)	(1)
18/19						9,201	(7,789)	(1,282)	(149)	(75)
19/20							9,525	(8,062)	(1,327)	(154)
20/21								9,864	(8,350)	(1,374)
21/22									10,217	(8,648)
22/23										10,585
Total	4,374	(2,909)	975	291	1,352	499	396	394	407	421

Appendix 7
Basic Property Damage

Table 9
Total Reported Incurred ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	(16)	1	5	2	(13)	-	-	-	-	-
00/01	(5)	(5)	5	(4)	(2)	-	-	-	-	-
01/02	(3)	(3)	(3)	(0)	-	-	-	-	-	-
02/03	(3)	(12)	(3)	(2)	(3)	-	-	-	-	-
03/04	11	(7)	(3)	(2)	(4)	-	-	-	-	-
04/05	(5)	(24)	(4)	(9)	(2)	-	-	-	-	-
05/06	(75)	(25)	(4)	(3)	(3)	-	-	-	-	-
06/07	(19)	(1)	(4)	(2)	(6)	-	-	-	-	-
07/08	(2)	(3)	(4)	(9)	(2)	-	-	-	-	-
08/09	(23)	81	(149)	(2)	33	-	-	-	-	-
09/10	13	(25)	(178)	(2)	(2)	(17)	-	-	-	-
10/11	52	41	(56)	36	5	(19)	(19)	-	-	-
11/12	831	77	20	68	(32)	(19)	(19)	(19)	-	-
12/13	4,905	953	230	146	62	(20)	(20)	(20)	(20)	-
13/14	36,055	7,439	1,618	364	204	-	(22)	(22)	(22)	(22)
14/15		33,873	6,106	973	76	67	-	(22)	(22)	(22)
15/16			33,904	6,167	1,019	136	68	-	(23)	(23)
16/17				34,757	7,676	1,112	129	65	-	(22)
17/18					38,289	6,898	1,147	133	67	-
18/19						38,232	7,288	1,212	140	70
19/20							39,550	7,539	1,254	145
20/21								40,926	7,802	1,298
21/22									42,361	8,075
22/23										43,858
Total	41,716	42,359	41,481	42,478	47,295	46,370	48,103	49,791	51,536	53,358
Change in Total		1.54%	-2.07%	2.40%	11.34%	-1.96%	3.74%	3.51%	3.50%	3.54%

Appendix 7
Basic Property Damage

Table 10
Total Interest Rate Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	0	0	0	0	0	-	-	-	-	-
00/01	-	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	0	0	0	0	0	-	-	-	-	-
02/03	0	0	-	-	-	-	-	-	-	-
03/04	0	-	-	-	(0)	-	-	-	-	-
04/05	0	0	0	0	0	-	-	-	-	-
05/06	0	-	-	-	-	-	-	-	-	-
06/07	(0)	0	0	0	0	-	-	-	-	-
07/08	2	0	0	0	0	-	-	-	-	-
08/09	3	2	0	0	0	-	-	-	-	-
09/10	4	2	(0)	(0)	(0)	-	-	-	-	-
10/11	(1)	8	2	0	0	-	-	-	-	-
11/12	1	0	(0)	0	(0)	-	-	-	-	-
12/13	17	1	0	1	0	-	-	-	-	-
13/14	135	11	1	0	0	-	-	-	-	-
14/15		80	10	2	1	0	-	-	-	-
15/16			52	8	2	0	0	-	-	-
16/17				56	8	2	0	0	-	-
17/18					61	10	2	0	0	-
18/19						65	11	2	0	0
19/20							68	11	2	1
20/21								70	11	2
21/22									73	12
22/23										75
Total	162	105	66	67	73	77	81	84	87	90
Change in Total		-35.33%	-37.38%	2.22%	9.15%	5.56%	4.33%	3.76%	3.62%	3.62%

Appendix 7
Basic Property Damage

Table 11
Total Claims Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	1	1	0	1	0	-	-	-	-	-
00/01	-	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	0	0	0	0	0	-	-	-	-	-
02/03	0	0	-	-	-	-	-	-	-	-
03/04	0	-	-	-	(0)	-	-	-	-	-
04/05	1	0	0	0	0	-	-	-	-	-
05/06	1	-	-	-	-	-	-	-	-	-
06/07	(1)	0	0	0	0	-	-	-	-	-
07/08	11	2	2	3	3	-	-	-	-	-
08/09	7	12	5	6	7	-	-	-	-	-
09/10	7	7	(2)	(1)	(0)	-	-	-	-	-
10/11	8	9	8	7	8	-	-	-	-	-
11/12	16	(0)	(1)	2	(0)	-	-	-	-	-
12/13	129	19	22	7	8	-	-	-	-	-
13/14	1,073	111	12	0	9	-	-	-	-	-
14/15		828	144	18	12	2	-	-	-	-
15/16			808	108	20	6	1	-	-	-
16/17				836	111	20	6	1	-	-
17/18					930	139	25	7	1	-
18/19						992	149	27	8	1
19/20							1,026	154	28	8
20/21								1,062	159	29
21/22									1,100	165
22/23										1,139
Total	1,253	988	999	986	1,108	1,159	1,207	1,252	1,296	1,342
Change in Total		-21.11%	1.02%	-1.22%	12.31%	4.62%	4.15%	3.68%	3.57%	3.56%

Appendix 7
Basic Property Damage

Table 12
Total Provision for Adverse Deviation {PFAD} ('000)

Insurance Accident Year	Insurance Year									
	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
99/00 and Prior	1	1	1	1	0	-	-	-	-	-
00/01	-	(0)	(0)	(0)	(0)	-	-	-	-	-
01/02	0	0	0	0	0	-	-	-	-	-
02/03	1	0	-	-	-	-	-	-	-	-
03/04	0	-	-	-	(0)	-	-	-	-	-
04/05	1	0	0	0	0	-	-	-	-	-
05/06	1	-	-	-	-	-	-	-	-	-
06/07	(1)	0	0	0	0	-	-	-	-	-
07/08	13	2	2	3	3	-	-	-	-	-
08/09	10	14	5	6	7	-	-	-	-	-
09/10	11	10	(2)	(1)	(0)	-	-	-	-	-
10/11	7	17	10	8	9	-	-	-	-	-
11/12	17	(0)	(1)	2	(0)	-	-	-	-	-
12/13	146	20	23	8	8	-	-	-	-	-
13/14	1,208	122	13	0	10	-	-	-	-	-
14/15		908	154	19	13	2	-	-	-	-
15/16			860	116	22	6	1	-	-	-
16/17				892	119	22	6	1	-	-
17/18					991	149	27	8	1	-
18/19						1,057	159	29	8	1
19/20							1,094	165	30	9
20/21								1,132	171	31
21/22									1,172	177
22/23										1,214
Total	1,415	1,093	1,064	1,054	1,181	1,236	1,288	1,335	1,383	1,432
Change in Total		-22.74%	-2.66%	-1.00%	12.11%	4.67%	4.16%	3.69%	3.57%	3.57%

Appendix 8
Claims Incurred Expenses

MARCH 1 TO FEBRUARY 28						
	2017/18 ACTUAL	2018/19 BUDGET	2019/20 FORECAST	2020/21 FORECAST	2021/22 FORECAST	2022/23 FORECAST
Automated Estimating	**5,672,729**	6,286,700	6,398,400	6,512,400	6,628,600	6,747,200
Security Services	**795,538**	857,200	891,488	927,148	964,233	1,002,803
Personal Property Registry	**400,000**	469,000	478,000	488,000	498,000	508,000
Towing	**3,173,614**	3,264,080	3,329,600	3,396,400	3,464,400	3,533,600
Freon Removal	**837,995**	825,000	825,000	825,000	825,000	825,000
Claims Arbitration	**25,056**	30,000	30,600	31,200	31,800	32,400
Police Reports	**30,000**	30,600	31,200	31,800	32,400	33,000
Direct Repair	**-**	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Claims Review Fees	**(25,070)**	(26,000)	(26,520)	(27,050)	(27,591)	(28,143)
Trade Negotiation Payment	**42,698**	-	-	-	-	-
Subrogation Fees/Expenses	**(124,621)**	(170,000)	(170,000)	(170,000)	(170,000)	(170,000)
Collection Agency Fees	**354,569**	338,100	338,100	338,100	338,100	338,100
Non-Registered GST	**(1,766,258)**	(1,768,700)	(1,804,100)	(1,840,200)	(1,877,000)	(1,914,500)
Apprenticeship Grant Level IV	**136,000**	154,000	154,000	154,000	154,000	154,000
Apprenticeship Grant Level II	**22,000**	28,000	28,000	28,000	28,000	28,000
Tool Allowance Level IV	**79,761**	142,200	145,000	147,900	150,900	153,900
Tool Allowance Level II	**16,095**	24,800	25,300	25,800	26,300	26,800
PIPP Out of House Counsel	**15,736**	-	-	-	-	-
Medical Consultants	**1,511,664**	1,631,492	1,664,122	1,697,404	1,731,352	1,765,979
TBI Specialist	**122,529**	104,600	107,200	109,900	112,600	115,400
Chiropractic Consultants	**170,015**	194,700	199,600	204,600	209,700	214,900
Occupational Therapy Consultant	**19,192**	18,200	18,200	18,200	18,200	18,200
Dental Consultants	**200,467**	231,253	243,100	255,400	255,400	255,400
MHSC	**29,408,139**	30,293,337	32,259,165	34,535,436	36,884,469	39,281,982
Health Care Team Directors	**352,339**	363,400	373,800	385,000	396,600	408,500
Crown Prosecutor	**70,369**	80,000	80,000	80,000	80,000	80,000
Investigations	**632,761**	615,400	627,700	640,300	653,100	666,200
Physiotherapy Consultant	**81,611**	82,000	86,100	88,300	90,500	92,800
PIPP Brandon Housing	**(4,162)**	36,000	38,000	38,000	38,000	40,000
Total	**42,250,766**	**50,135,362**	**52,371,055**	**54,921,038**	**57,537,063**	**60,209,521**

RECAP:

Collision	**9,685,842**	16,484,980	16,674,068	16,868,498	17,067,142	17,270,160
Comprehensive	**-**	-	-	-	-	-
Accident Benefits	**32,564,924**	33,650,382	35,696,987	38,052,540	40,469,921	42,939,361
Total	**42,250,766**	50,135,362	52,371,055	54,921,038	57,537,063	60,209,521

Comparison to 2018 GRA Forecast

Prior Year forecast	42,205,171	43,911,718	45,901,381	47,910,339	50,195,231	50,195,231
Better / (Worse) than prior year forecast	(45,595)	(6,223,644)	(6,469,674)	(7,010,699)	(7,341,832)	(10,014,290)

Basic Insurance
Ten Year Claims Frequency Comparison
For the Insurance Year Ended February 28/29,

	2017/18			2016/17			2015/16			2014/15			2013/14		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- P.I.P.P	81,769	81,769	82,740	81,764	81,764	80,993	79,134	81,345	79,072	79,175	82,455	75,623	71,829	77,099	82,552
Collision	130,321	130,321	122,921	128,063	128,063	118,786	128,725	125,395	114,456	126,515	126,644	124,343	121,588	124,450	124,066
Comprehensive	72,888	72,888	69,265	70,562	70,562	77,233	60,848	60,288	73,641	60,045	59,968	58,233	62,025	59,323	57,701
Property Damage	78,349	78,349	77,688	76,965	76,965	68,912	78,055	74,808	71,443	76,722	73,557	73,163	73,308	75,621	76,198
Public Liability (*)															
- Pre Mar 1/94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Post Mar 1/94	160	160	154	159	159	142	136	157	179	136	124	224	137	137	140
	363,487	**363,487**	**352,768**	**357,513**	**357,513**	**346,066**	**346,898**	**341,993**	**338,791**	**342,593**	**342,748**	**331,586**	**328,887**	**336,630**	**340,657**

	2012/13			2011/12			2010/11			2009/10			2008/09		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
- P.I.P.P	66,952	73,480	86,772	67,462	66,828	88,181	71,980	65,497	72,570	76,762	69,939	60,408	75,529	75,469	61,578
Collision	119,478	119,435	120,532	116,627	117,839	117,710	116,371	114,740	115,446	111,135	114,912	109,592	109,422	109,560	113,531
Comprehensive	58,416	60,674	60,654	55,233	57,900	61,047	49,119	55,390	60,958	57,323	50,054	63,534	70,495	61,306	50,769
Property Damage	71,896	71,953	72,489	71,033	71,030	71,321	71,645	69,722	69,034	69,231	70,561	67,561	69,218	68,242	69,041
Public Liability (*)															
- Pre Mar 1/94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Post Mar 1/94	142	134	106	144	141	123	164	144	150	166	161	143	186	164	128
	316,884	**325,676**	**340,553**	**310,499**	**313,738**	**338,382**	**309,279**	**305,493**	**318,158**	**314,617**	**305,627**	**301,242**	**324,850**	**314,741**	**295,047**

* Represents incident counts

Basic Insurance
Ten Year Claims Severity Comparison
For the Insurance Year Ended February 28/29,

	2017/18			2016/17			2015/16			2014/15			2013/14		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.															
- P.I.P.P	$1,840	$2,967	$2,645	$1,818	$1,443	$3,506	$2,099	$1,113	$1,808	$2,936	$1,805	$4,158	$3,039	$2,778	$2,954
Collision	$3,250	$3,337	$3,470	$3,152	$3,191	$3,442	$2,931	$3,008	$3,096	$2,555	$2,769	$2,532	$2,476	$2,476	$3,015
Comprehensive	$1,209	$1,599	$974	$1,079	$1,563	$1,531	$1,353	$1,216	$1,676	$1,168	$1,320	$1,197	$1,132	$1,148	$1,345
Property Damage	$563	$564	$630	$590	$562	$626	$553	$583	$579	$533	$555	$522	$534	$527	$632
Public Liability															
- Pre Mar 1/94															
- Post Mar 1/94	$26,037	$28,444	$29,877	$23,497	$38,616	$39,345	$26,912	$23,809	$32,268	$32,394	$28,734	$28,384	$39,430	$32,090	$17,357

	2012/13			2011/12			2010/11			2009/10			2008/09		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.															
- P.I.P.P	$3,755	$2,953	$2,527	$3,513	$3,734	($822)	$3,255	$3,377	$2,896	$3,205	$3,171	$3,022	$3,313	$3,113	$2,295
Collision	$2,442	$2,393	$2,384	$2,356	$2,355	$2,385	$2,398	$2,275	$2,140	$2,312	$2,314	$2,181	$2,287	$2,225	$2,193
Comprehensive	$1,158	$1,082	$1,140	$1,140	$1,094	$1,240	$1,105	$1,106	$965	$1,078	$1,079	$948	$965	$1,056	$998
Property Damage	$552	$521	$529	$525	$542	$520	$558	$518	$519	$531	$535	$489	$506	$510	$525
Public Liability															
- Pre Mar 1/94															
- Post Mar 1/94	$37,076	$38,709	$20,390	$31,951	$36,333	$28,267	$30,669	$31,870	$37,469	$34,446	$30,280	$29,695	$40,065	$33,590	$21,424

Basic Insurance
Ten Year Claims Incurred Comparison
For the Insurance Year Ended February 28/29,

($000s)	2017/18			2016/17			2015/16			2014/15			2013/14		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.	($307)	$631	$880	($480)	($4,478)	$292	($450)	$462	($1,478)	$424	$1,727	$2,280	$528	$583	$732
- P.I.P.P	$150,437	$242,579	$218,852	$148,675	$117,953	$283,960	$166,085	$90,569	$142,988	$184,387	$148,857	$314,450	$210,923	$208,476	$243,891
Collision	$423,574	$434,895	$426,511	$403,666	$408,613	$408,806	$377,325	$377,229	$354,368	$337,593	$350,666	$314,886	$310,688	$321,025	$374,107
Comprehensive	$88,152	$116,513	$67,456	$76,167	$110,259	$118,255	$82,321	$73,307	$123,430	$76,633	$79,170	$69,729	$72,466	$72,950	$77,579
Property Damage	$44,115	$44,205	$48,940	$45,378	$43,276	$43,135	$43,197	$43,596	$41,368	$41,854	$40,795	$38,183	$39,099	$40,569	$48,193
Public Liability															
- Pre Mar 1/94	$0	$0	$0	$0	$0	$0	$0	$0	($49)	$0	$0	($48)	$0	$0	$504
- Post Mar 1/94	$4,166	$4,551	$4,601	$3,736	$6,140	$5,587	$3,660	$3,738	$5,776	$3,805	$3,563	$6,358	$4,438	$3,596	$2,430
	$710,137	$843,374	$767,240	$677,142	$681,763	$860,035	$672,138	$588,901	$666,403	$644,696	$624,778	$745,838	$638,142	$647,199	$747,436

	2012/13			2011/12			2010/11			2009/10			2008/09		
	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual	Original Projected	Revised Forecast	Actual
Accident Benefits															
- Pre P.I.P.P.	$885	$623	$754	$784	$981	($821)	$1,381	$783	$2,091	$1,462	$993	$3,658	$1,612	$2,911	$345
- P.I.P.P	$203,489	$204,156	$224,290	$253,323	$197,346	$222,805	$252,869	$244,576	($59,668)	$249,834	$236,182	$174,963	$242,099	$239,312	$186,107
Collision	$295,850	$295,720	$318,570	$284,780	$281,993	$280,675	$274,193	$270,217	$275,345	$266,466	$261,468	$234,523	$253,015	$253,568	$247,647
Comprehensive	$66,107	$69,634	$74,772	$63,946	$62,653	$69,584	$56,012	$60,606	$75,597	$63,354	$55,360	$61,282	$75,976	$66,166	$48,132
Property Damage	$38,414	$37,901	$42,370	$39,211	$37,005	$37,713	$37,588	$37,756	$35,925	$38,651	$36,571	$35,077	$36,751	$36,494	$33,747
Public Liability															
- Pre Mar 1/94	$0	$0	($45)	$6	$0	($427)	$10	$6	($459)	$15	$0	$926	$17	$14	($238)
- Post Mar 1/94	$5,599	$4,300	$576	$5,339	$5,458	$2,508	$5,240	$5,232	$4,240	$5,091	$5,131	$5,358	$6,407	$4,966	$3,801
	$610,344	$612,334	$661,287	$647,389	$585,436	$612,037	$627,293	$619,176	$333,071	$624,873	$595,705	$515,787	$615,877	$603,431	$519,541

Claims Severity Groupings by Major Class

	Private Passenger					Commercial					Public Vehicles				
	100,000 to 249,999	250,000 to 499,999	500,000 to 999,999	1,000,000 to 1,999,999	2,000,000 and over	100,000 to 249,999	250,000 to 499,999	500,000 to 999,999	1,000,000 to 1,999,999	2,000,000 and over	100,000 to 249,999	250,000 to 499,999	500,000 to 999,999	1,000,000 to 1,999,999	2,000,000 and over
2007	97	40	40	8	7	5	8	2		1	1	1	2		
2008	82	39	38	15	7	6	5	3	1		3	3	1		
2009	94	35	39	16	8	6	3	4			2		1		
2010	104	48	30	20	8	14	1	1	2		5	2	3		
2011	107	41	50	22	6	9	5	3	1	1	5		3	1	
2012	103	35	52	9	2	12	7	2	1	1	1	2	1		
2013	95	45	39	10	3	12	2	3		1	4	1	1		1
2014	116	61	40	11	7	4	2	3	1		6	1	2		
2015	154	23	4	1	5	5	2	1	1		3		1		
2016	61	8	17	1		7							1		

	Motorcycles/Mopeds					Off Roads w Basic				
	100,000 to 249,999	250,000 to 499,999	500,000 to 999,999	1,000,000 to 1,999,999	2,000,000 and over	100,000 to 249,999	250,000 to 499,999	500,000 to 999,999	1,000,000 to 1,999,999	2,000,000 and over
2007	9		4	2			1			
2008	13	1	3			1				
2009	11	6	6		2	4				
2010	7		3		1	1	1			
2011	6	3	3	1						
2012	11	6	4	2						
2013	12	2	1			1		1		
2014	12	6	6							
2015	14	3	1			2			1	
2016	8	3	1							

Distribution of PIPP Costs ($000)

Direct Claims Incurred*

For the Fiscal Years Ending February 28/29

Line No.	Coverage	2014		2015		2016		2017		2018	
		$	%	$	%	$	%	$	%	$	%
3	**Income Replacement**	107,539	47.6%	68,752	46.9%	70,907	43.8%	94,960	48.6%	174,365	66.6%
4	**Death Payments**	10,279	4.6%	8,839	6.0%	11,254	7.0%	9,967	5.1%	9,470	3.6%
5	**Permanent Impairment**	21,467	9.5%	18,348	12.5%	17,764	11.0%	21,652	11.1%	26,378	10.1%
6	**Personal Care**	30,999	13.7%	18,384	12.5%	16,907	10.4%	9,378	4.8%	16,533	6.3%
7	**Expenses**	46,026	20.4%	27,529	18.8%	39,833	24.6%	49,873	25.5%	33,289	12.7%
8	**Rehabilitation**	9,458	4.2%	4,867	3.3%	5,132	3.2%	9,677	4.9%	1,936	0.7%
		225,768	100.0%	146,719	100.0%	161,797	100.0%	195,507	100.0%	261,971	100.0%

*Based on direct claims incurred by fiscal year

PIPP Claims Statistics by Injury Type
Fiscal Years ended February 28/29

Number of Claims (#)	2017-18	2016-17	2015-16	2014-15	2013-14
Amputation	3	5	6	5	5
Burns	9	12	15	7	14
Dental	42	25	44	47	48
Internal Injury	19	16	14	15	10
Psychological	178	178	157	114	184
Sensory Loss	24	23	19	14	11
Fatal - Note 1	106	142	116	92	118
Brain damage	148	139	142	171	178
Quadriplegic	0	0	0	4	1
Paraplegic	1	2	3	4	2
Broken bones	848	821	876	686	707
Sprains and strains	8,396	7,858	7,749	7,177	5,669
Whiplash	5,715	6,655	6,237	6,170	9,018
Bruising/Lacerations	907	980	958	1,161	953
Other	1,338	417	539	600	449
Total	17,734	17,273	16,875	16,267	17,367

$ Incurred	2017-18	2016-17	2015-16	2014-15	2013-14
Amputation	189,189	856,993	938,210	85,389	277,298
Burns	5,412	113,174	171,702	31,950	128,879
Dental	295,785	158,556	307,634	301,801	259,955
Internal Injury	252,937	359,110	724,957	329,808	280,650
Psychological	567,914	499,031	449,420	280,845	702,764
Sensory Loss	1,337,258	1,719,971	651,418	626,854	23,500
Fatal	7,003,353	9,008,038	9,514,637	7,860,396	8,803,256
Brain damage	5,628,764	7,441,914	10,347,431	9,516,477	15,600,393
Quadriplegic	0	0	0	2,029,272	500,700
Paraplegic	995	975,530	1,820,449	2,962,802	178,559
Broken bones	29,326,672	24,773,321	26,348,516	17,677,600	22,180,360
Sprains and strains	25,117,514	24,429,652	19,767,155	19,323,480	17,761,856
Whiplash	22,992,221	22,716,645	20,245,714	17,956,804	28,922,803
Bruising/Lacerations	4,108,145	3,944,316	2,937,632	3,986,735	3,366,171
Other	2,867,693	1,168,102	1,190,965	1,395,666	810,690
Total	99,693,850	98,164,353	95,415,840	84,365,879	99,797,833

Severity ($)	2017-18	2016-17	2015-16	2014-15	2013-14
Amputation	63,063	171,399	156,368	17,078	55,460
Burns	601	9,431	11,447	4,564	9,206
Dental	7,043	6,342	6,992	6,421	5,416
Internal Injury	13,312	22,444	51,783	21,987	28,065
Psychological	3,191	2,804	2,863	2,464	3,819
Sensory Loss	55,719	74,781	34,285	44,775	2,136
Fatal	66,069	63,437	82,023	85,439	74,604
Brain damage	38,032	53,539	72,869	55,652	87,643
Quadriplegic	0	0	0	507,318	500,700
Paraplegic	995	487,765	606,816	740,701	89,279
Broken bones	34,583	30,175	30,078	25,769	31,373
Sprains and strains	2,992	3,109	2,551	2,692	3,133
Whiplash	4,023	3,413	3,246	2,910	3,207
Bruising/Lacerations	4,529	4,025	3,066	3,434	3,532
Other	2,143	2,801	2,210	2,326	1,806
Total	5,622	5,683	5,654	5,186	5,746

Note 1 - Fatal includes PIPP, non-PIPP and those under investigation as at February 28/29.
Years prior to 2015 have been restated.

RATEMAKING

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

RATEMAKING 4
RM.1 CERTIFICATE OF THE ACTUARY 4
RM.2 RATE MODEL 5
RM.3 RATE GROUP AND RATE LINE 7
RM.3.1 Rate Group 7
RM.3.2 Rate Line 9
RM.3.2.1 Rate Line Relativity Analytical Process 9
RM.3.2.2 Rate Line Impacts 10
RM.3.3 Combined Effect of Vehicle Rate Group and Rate Line Changes 13
RM.4 REQUIRED RATES AND RATE CHANGES 15
RM.4.1 Overview of the Methodology 15
RM.4.1.1 Pure Premium Approach 16
RM.4.1.2 Relativity Approach 17
RM.4.2 Determination of the Overall Required Rate 17
RM.4.2.1 Claims Costs 17
RM.4.2.2 Non-Claims Costs 21
RM.4.2.3 Costs Offsets – Other Income Sources 25
RM.4.2.4 Calculation of Overall Required Rate 26
RM.4.2.5 Calculation of the Overall Required Rate Change 28
RM.4.2.6 DSR Discounts for Vehicle-for-Hire (VFH) Vehicles 30
RM.4.2.7 Net Capital Maintenance Provision 30
RM.4.3 Major Classification Required Rates 32
RM.4.4 Vehicle Group Required Rates 41
RM.5 EXPERIENCE ADJUSTMENTS 47
RM.5.1 Rules 47
RM.5.2 Exceptions 48
RM.5.3 Special Adjustments and Capping 49
RM.5.4 Final Impact of Rate Changes 50
RM.6 SUMMARY AND DISTRIBUTION REPORTS 52

Provided Electronically Only

Appendix 1: Rate Line Relativities
Appendix 2: Offsets
Appendix 3: 2018 Experience Rate Adjustments
Appendix 4: Transition from Rate Requirement Indicators to Applied for Rate Adjustment
Appendix 5: Top 50 Dollar/Percent Increases and Decreases
Appendix 6: Top 5 Greatest Dollar Increases and Decreases by Territory
Appendix 7: Drift Calculation by Major Class
Appendix 8: Summary of Methodology and Assumption Changes
Appendix 9: Supporting Documents to Section RM.4
- Table 1: Rating Year 2018/19 Claims Costs Summary of All Coverages
- Table 2: Rating Year 2018/19 Claims Costs
- Table 3: Rating Year 2018/19 Claims Expenses
- Table 4: Rating Year 2018/19 Non-Claims Costs and Other Income Sources
- Table 5: Ratio of Commissions to Vehicle Premium
- Table 6: Operating Expense per Premium Dollar and Per Unit
- Table 7: Fleet Rebates and Surcharges
- Table 8: Pure Premium Trend
- Table 9: Major Classes Pure Premiums
- Table 10: Reported Loss and ALAE with Hail and Actual Serious Losses
- Table 11: Reported Serious Losses and ALAE
- Table 12: Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses
- Table 13: Earned Units
- Table 14: Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses
- Table 15: New Relativity Calculation
- Table 16: Indicated Rate Calculation

Appendix 10: Required Rate Comparison

RATEMAKING

RM.1 CERTIFICATE OF THE ACTUARY

I, Luke Johnston, a Fellow of the Canadian Institute of Actuaries, certify that:

1. I have derived the indicated rate(s) in accordance with Accepted Actuarial Practice in Canada, on behalf of Manitoba Public Insurance (MPI or the Corporation) , for the Basic Autopac program (Basic) for rates effective March 1, 2019 for new and renewal business.

2. I have reviewed the data underlying this rate application for reasonableness and consistency, and I believe the data is reliable and sufficient for the determination of the indicated rate changes.

3. The indicated rate changes, shown in the table below, have been calculated in accordance with Accepted Actuarial Practice in Canada. These indicated rate changes assume a 0% profit provision, and include a net capital maintenance provision (CMP).

Figure RM- 1: Indicated Rate Change

Line No.	Major Class	Current Average Rate	Indicated Average Rate	Indicated Rate Change
1	**Private Passenger**	$1,111	$1,138	2.4%
2	**Commercial**	$780	$798	2.4%
3	**Public**	$2,003	$2,014	0.6%
4	**Motorcycles**	$797	$822	3.1%
5	**Trailers**	$81	$78	-4.7%
6	**Off-Road Vehicles**	$10	$8	-20.0%
7	**Overall**	$855	$874	2.2%



June 11, 2018 Winnipeg, Manitoba

Signature of Actuary **Date** **Location**

RM.2 RATE MODEL

The impacts of adjustments to vehicle premiums are simulated through the use of a rate model. The model analyzes the combined impact on premiums resulting from rate and classification changes. The 2019/20 rate modeling process considered the impact on a vehicle population of 1,149,140 vehicles.

The rate model uses the vehicle population in Manitoba at a point in time. This point in time was chosen to obtain the greatest number of vehicles registered. With the exception of the following seasonally used vehicles, the vehicle population was taken as of November 1, 2017.

- Snowmobiles and snow vehicles as of January 1, 2018
- Motorhomes, motorcycles, mopeds, trailers and off road vehicles (except for snowmobiles and snow vehicles) as of August 1, 2017

For Basic Autopac, the vehicle classification plan groups vehicles together by using the following four classifications – rating territories, insurance uses, vehicle rating factors, and driving records. When any of these classification components change (e.g. passenger vehicle rate groups) or the relationship between components change (e.g. relationship between rates for passenger vehicle rate groups), the impact is determined by applying the changes to the rate model.

Rate group classification and relativity changes are applied to the model one at a time. To ensure that these changes do not result in a revenue increase or decrease, offsets are added to ensure revenue neutrality. For 2019/20, the following changes were applied:

- Rate group changes for the Canadian Loss Experience Automobile Rating (CLEAR) rated passenger vehicles and light trucks
- Rate group changes for heavy trucks and heavy-rated–as-light trucks
- Rate line changes for passenger vehicles, light trucks, heavy trucks, motorcycles, mopeds and mobility vehicles, motorhomes, trailers, and buses

For further information on the vehicle classification plan, refer to *Part V(ii) VCS Vehicle Classification System*. For further information on the rate group classification and relativity changes for 2019/20 and their impact on the vehicle population in the rate model, refer to *RM.3*.

After all classification and relativity changes are applied, experience adjustments are applied to produce the overall revenue change. Experience adjustments represent the revenue changes required for each individual classification group (e.g. All Purpose Passenger Vehicles in Territory 1). For further information on the determination of the required rate changes, refer to *RM.4*. For information on experience adjustments, refer to *RM.5*.

Finally, rates are adjusted to ensure relative ranking rules between vehicle classifications are maintained and rate changes are capped as per rules approved by the Manitoba Public Utilities Board (PUB or the Board). For further information on relative ranking and capping rules, refer to *RM.5.3*.

RM.3 RATE GROUP AND RATE LINE

Vehicle rating factors, reflecting the characteristics of a vehicle, are used to group together vehicles with similar risks. Vehicle rating factors include rate group, gross vehicle weight, engine displacement, seating capacity, and bodystyle. This section discusses the changes made to the rate groups for the different vehicle types, as well as the associated rate line changes.

Further information on the vehicle rating factors can be found in *Part V(ii) VCS Vehicle Classification System*.

RM.3.1 Rate Group

For 2019/20, rate group changes were applied to passenger vehicles, light trucks, heavy-rated-as-light trucks, and heavy trucks.

Passenger Vehicle and Light Trucks (including Heavy-Rated-as-Light Trucks)
The CLEAR system is used for assigning rate groups to passenger vehicles and light trucks (including heavy-rated-as-light trucks). Changes to rate group assignments from updated CLEAR rate groups result in changes to overall revenues. Offset adjustments are applied to ensure revenue neutrality. Two offsets are calculated for CLEAR rated vehicles, one for passenger vehicles (1.62%), and one for light trucks (2.46%). For each respective vehicle type, the offset is calculated based on the percentage change in revenue, and is then applied equally to the rates for all rate groups. Rate group offsets are applied to all insurance uses for passenger vehicles and light trucks, except those which are flat rated (i.e. one rate applies to all rate groups).

For 2019/20, the effects of CLEAR rate group reassignments to passenger vehicles and light trucks (including heavy-rated-as-light trucks) are as follows:

- 47.7% (384,308 vehicles) receive lower rates
- 0.3% (2,495 vehicles) remain unchanged
- 52.0% (419,099 vehicles) receive higher rates

Of those increasing:

- 21.9% (91,941 vehicles) increase by less than $20
- 11.3% (47,467 vehicles) increase by $20 to $29
- 7.2% (30,227 vehicles) increase by $30 to $39
- 20.8% (87,254 vehicles) increase by $40 to $49
- 17.8% (74,588 vehicles) increase by $50 to $59
- 9.8% (41,252 vehicles) increase by $60 to $69
- 6.5% (27,042 vehicles) increase by $70 to $79
- 2.9% (12,318 vehicles) increase by $80 to $89
- 1.4% (5,873 vehicles) increase by $90 to $99
- 0.3% (1,136 vehicles) increase by $100 to $149
- (1 vehicle) increase by $150 to $199

Heavy Truck Rate Groups

As in previous years, heavy truck rate groups are adjusted down one rate group per model year. This adjustment allows for the newest model year vehicles to be assigned the highest rate group while vintaging the remaining model year vehicles.

The annual vintaging of the heavy truck rate groups results in a change in revenue. A rate group offset adjustment of 3.52% was applied to ensure revenue neutrality.

Heavy trucks which do not carry physical damage coverage are flat rated, and are therefore unaffected by rate group changes and the offset adjustment.

For 2019/20, rate group changes for heavy trucks with physical damage coverage resulted in:

- 42.9% (11,700 vehicles) decrease in rate
- 57.1% (15,577 vehicles) increase in rate

Of those increasing:

- 89.4% (13,933 vehicles) increase by less than $20

- 9.6% (1,484 vehicles) increase by $20 to $29
- 0.9% (139 vehicles) increase by $30 to $39
- 0.1% (21 vehicles) increase by $40 to $59

RM.3.2 Rate Line

While the individual rate group assigned is an important factor in the premium paid, an equally important factor is how rate groups relate to one another and to the underlying costs of providing Basic Autopac coverage. The relationship between rate groups is defined by a rate line, which is individually determined for different vehicle types. Rate line relativity adjustments are applied to passenger vehicles, light trucks, heavy trucks, motorcycles, motorhomes, buses, and trailers. These adjustments modify the relative difference between rates charged across the rate group spectrum.

RM.3.2.1 Rate Line Relativity Analytical Process

The analytical process consists of the following steps:

- Historical loss data is organized by coverage, rate group, territory, and insurance use.
- For each coverage (collision, comprehensive, Personal Injury Protection Plan (PIPP), third party liability, and property damage), losses are examined for differences across rate groups. Historically, it has been shown that physical damage coverages (collision and comprehensive) increase by rate group, while the other coverages (PIPP, third party liability and property damage) do not have a consistent relationship by rate group.
- The minimum bias procedure is used to develop combined (collision and comprehensive) physical damage relativities. These relativities are then used to produce the expected average physical damage costs by rate group.
- Costs for the other coverages (PIPP, third party liability and property damage) and for operating expenses are then added to the selected physical damage

costs. The outcome is a set of indicated relativities relating the average total cost per rate group.

- Curves are fitted to the indicated rate line relativities using regression analysis. In general, the fitted curves are used as the selected relativities. However, indicated relativities are occasionally used if the experience for a certain rate group does not fit well with the selected regression line.
- The selected relativities are then credibility weighted with the current relativities.

Rate line relativities for passenger vehicles, light trucks, heavy trucks, motorcycles, motorhomes, trailers and buses can be found in *Ratemaking Appendix 1*.

RM.3.2.2 Rate Line Impacts

Passenger Vehicles and Light Trucks

All insurance uses for passenger vehicles, light trucks, and heavy-rated-as-light trucks, excluding Police/Emergency trucks which are flat rated, receive rate line adjustments. A rate line offset adjustment of -3.72% was applied to passenger vehicles and -4.51% was applied to light trucks to ensure revenue neutrality.

For 2019/20, due to rate line adjustments:

- 49.9% (401,851 vehicles) receive a rate decrease
- 4.6% (37,380 vehicles) remain unchanged
- 45.5% (366,671 vehicles) receive a rate increase

Of those receiving an increase:

- 74.0% (271,417 vehicles) increase by less than $20
- 14.4% (52,903 vehicles) increase between $20 and $29
- 3.6% (13,308 vehicles) increase between $30 to $39
- 3.2% (11,862 vehicles) increase between $40 to $49
- 2.2% (7,945 vehicles) increase between $50 to $59

- 2.2% (7,962 vehicles) increase between $60 to $69
- 0.3% (1,274 vehicles) increase between $70 to $149

Heavy Trucks

Rate line differentials are applied to all heavy truck insurance uses that are not flat rated. A rate line offset adjustment of 2.44% was applied to ensure revenue neutrality.

For 2019/20, of heavy trucks receiving rate line changes:

- 60.0% (16,357 vehicles) decrease in rate
- 0% (0 vehicles) remain unchanged
- 40.0% (10,920 vehicles) increase in rate

Of those increasing:

- 56.5% (6,167 vehicles) increase by less than $20
- 39.3% (4,294 vehicles) increase between $20 to $49
- 4.0% (437 vehicles) increase between $50 to $99
- 0.2% (22 vehicles) increase between $100 to $149

Motorcycles, Mopeds and Mobility Vehicles

Unlike other vehicle types, a significant portion of motorcycle claims costs are injury related, which do not vary greatly relative to the value of the motorcycle. As a result, the rate line for motorcycles is much flatter in comparison to other types of vehicles.

Rate line adjustments are applied to all vehicles in the motorcycle major class, which includes motorcycles, mopeds, and mobility vehicles. A rate line offset adjustment of -0.72% was applied to ensure revenue neutrality.

For 2019/20, as a result of rate line adjustments:

- 65.9% (11,218 vehicles) decrease in rate
- 4.2% (716 vehicles) remain unchanged

- 29.9% (5,091 vehicles) increase in rate

Of those increasing:

- 66.2% (3,372 vehicles) increase by less than $10
- 27.2% (1,383 vehicles) increase between $10 to $19
- 5.1% (260 vehicles) increase between $20 to $29
- 1.1% (58 vehicles) increase between $30 to $39
- 0.3% (17 vehicles) increase between $40 to $49
- 1 vehicle increase between $70 to $79

Motorhomes

Rate line adjustments are applied to motorhome insurance uses. A rate line offset adjustment of 0.19% was applied to ensure revenue neutrality.

For 2019/20, as a result of rate line changes:

- 33.9% (1,616 vehicles) decrease in rate
- 15.4% (735 vehicles) remain unchanged
- 50.7% (2,421 vehicles) increase in rate

Of those receiving rate increases:

- 99.1% (2,399 vehicles) increase by less than $10
- 0.9% (22 vehicles) increase between $10 to $19

Trailers

Rate line adjustments are applied to trailers. A rate line offset adjustment of -0.46% was applied to ensure revenue neutrality.

For 2019/20, as a result of rate line changes:

- 33.1% (66,536 vehicles) decrease in rate
- 60.5% (121,371 vehicles) remain unchanged

- 6.4% (12,770 vehicles) increase in rate

Of those receiving rate increases:

- 100% (12,770 vehicles) increase in the range of $1 - $9

Buses

All insurance uses for buses, excluding Transit Buses in Territory 1 which are flat rated, receive rate line adjustments. A rate line offset adjustment of 0.11% was applied to buses to ensure revenue neutrality.

For 2019/20, due to rate line adjustments:

- 66.0% (2,442 vehicles) receive a rate decrease
- 8.5% (314 vehicles) remain unchanged
- 25.5% (944 vehicles) receive a rate increase

Of those receiving an increase:

- 73.8% (697 vehicles) increase by less than $10
- 25.6% (242 vehicles) increase between $10 to $19
- 0.6% (5 vehicles) increase between $20 to $29

RM.3.3 Combined Effect of Vehicle Rate Group and Rate Line Changes

To ensure revenue neutrality, combined offset adjustments are applied to offset changes in total revenue resulting from both rate group (*RM.3.1*) and rate line changes (*RM.3.2*). These combined offset adjustments are determined for each respective vehicle type. Rate Group, Rate Line and Combined Offsets are listed in *Ratemaking Appendix 2*.

For 2019/20, as a result of combined rate group and rate line changes (for those vehicles receiving either one or both adjustments):

- 48.3% (511,301 vehicles) decrease in rate
- 11.9% (125,955 vehicles) are unchanged
- 39.8% (422,097 vehicles) increase in rate

Of those increasing:

- 15.7% (66,298 vehicles) increase by less than $10
- 5.0% (21,166 vehicles) increase between $10 and $19
- 7.7% (32,546 vehicles) increase between $20 and $29
- 7.9% (33,377 vehicles) increase between $30 and $39
- 12.5% (52,624 vehicles) increase between $40 to $49
- 39.7% (167,469 vehicles) increase between $50 to $99
- 9.0% (38,149 vehicles) increases between $100 to $149
- 2.3% (9,877 vehicles) increase between $150 to $199
- Less than 0.1% (121 vehicles) increase between $200 to $249
- 0.1% (464 vehicles) increase between $250 to $299
- Less than 0.1% (6 vehicles) increase between $300 or more

On a percentage increase basis, of those increasing:

- 65.0% (274,372 vehicles) increase by less than 5 percent
- 22.9% (96,674 vehicles) increase between 5 and 6 percent
- 0.9% (3,763 vehicles) increase between 6 and 7 percent
- Less than 0.1% (6 vehicles) increase between 7 and 8 percent
- 4.6% (19,636 vehicles) increase between 8 and 9 percent
- 0.9% (3,958 vehicles) increase between 9 and 10 percent
- 5.6% (23,633 vehicles) increase between 10 and 11 percent
- Less than 0.1% (48 vehicles) increase between 11 and 20 percent
- Less than 0.1% (7 vehicles) increase 20 percent or more

RM.4 REQUIRED RATES AND RATE CHANGES

This section provides the methodology used to determine the average required vehicle premium rates for the Basic program for the 2019/20 rating year[1]. The methodology used is in accordance with Accepted Actuarial Practice in Canada.

RM.4.1 Overview of the Methodology

The purpose of ratemaking is twofold:

(i) To determine the overall expected costs resulting from policies issued for rating year 2019/20.

(ii) To allocate the overall expected costs equitably to all insureds. The cost to the insured is the required rate.

Contributors to the overall expected costs are divided into two major categories:

(i) Claims Costs – all costs associated with the settling of claims

(ii) Non-Claims Costs – divided into the following subcategories:

- Commissions
- Premium Taxes
- Claims Expenses
- Operating Expenses
- Regulatory/Appeal
- Road Safety/Loss Prevention
- Fleet Rebate
- Anti-Theft Discount

[1] Rating year is also referred to as policy year. The rates charged when policies are issued or renewed are dependent on the rating year for the policyholder at the time of issuance or renewal. The rates charged for rating year 2019/20 are referred to as 2019/20 rates.

- Reinsurance

Other income sources serve as offsets to reduce the overall expected costs. Other income sources include driver premiums, and service fees and other revenues.

The required rate is determined first on an overall fleet basis. The overall fleet is then divided into six major classifications, and a required rate is determined for each major classification. Each major classification is then further divided into vehicle groups using rating variables, and a required rate is determined for each distinct vehicle group.

RM.4.1.1 Pure Premium Approach

The determination of the overall required rate and the major classification required rates are done using the pure premium approach. This approach is independent of the current premium structure.

Claims costs are first individually determined for the following coverages:

(i) Third Party Liability – Separated into Bodily Injury and Property Damage.

(ii) Accident Benefits, also known as Personal Injury Protection Plan (PIPP) – Separated into Income Replacement Indemnity, Accident Benefits - Other (Indexed), and Accident Benefits - Other (Non-Indexed)

(iii) All Perils – Separated into Collision and Comprehensive

These claims costs are then divided by the number of insured units to determine the respective pure premiums. The total pure premium for all coverages is then calculated. Non-claims costs on a per unit basis are then added to the total pure premium to determine the total costs per unit. The required rate is then determined by deducting the other income sources on a per unit basis from the total costs per unit.

The required rate change is derived by taking the required rate and dividing it by the current average rate adjusted for anticipated classification drift.

RM.4.1.2 Relativity Approach

The determination of the required rates for all vehicle groups is done using the relativity approach. A thorough discussion of this approach is presented in *RM.4.4*. Briefly, the relativity approach compares the risk of each vehicle group to all other vehicle groups within the major classification. This relative risk is then used to determine the required rate for the vehicle group.

RM.4.2 Determination of the Overall Required Rate

RM.4.2.1 Claims Costs

The claims costs used for ratemaking are based on the results of MPI's claims forecasting process. A thorough discussion of the methodology and results of this process is presented in *Part V(i) Claims Incurred*.

Rating Year Claims Costs

MPI's basis for analyzing and forecasting claims costs is by grouping claims based on accident year, which is the year in which the accident occurred. For rating purposes, claims costs must be grouped based on rating year, which is the rating year of the policy in effect when the accident occurred. As such, claims costs on an accident year basis must be converted to claims cost on a rating year basis.

In respect of the 2019/20 rating year, claims costs are incurred over accident years 2019/20 and 2020/21. This is a result of staggered renewals, i.e. policies are renewed throughout the rating year, which results in the last policies for the rating year expiring on February 28, 2021. As such, claims costs for accident years 2019/20 and 2020/21 are converted to claims costs for rating year 2019/20.

A detailed discussion of the methodology used to convert the claims costs from an accident year basis to a rating year basis, including the derivation by coverage of the rating year 2019/20 claims costs, is presented in *Ratemaking Appendix 9 Table 2*.

Improvements to PIPP Benefits

On October 8, 2009, the provincial government enacted improvements to PIPP benefits to claimants who meet the definition of "Catastrophic Injury". Further improvements to PIPP benefits were enacted on August 19, 2011 and May 1, 2015.

A list of all improvements is provided below (all figures at March 1, 2018 level):

(i) The minimum Income Replacement Indemnity for catastrophically injured claimants was increased to the Industrial Average Wage.

(ii) The maximum monthly Personal Care Assistance payment for catastrophically injured claimants was increased to $5,620.

(iii) The Vehicle Purchase Policy for catastrophically injured claimants was revised to allow for the purchase of a new vehicle every five years.

(iv) Claimants were now entitled to an Annual Spending Allowance for extraordinary expenses for leisure and recreational activities, with biannual limits ranging from $500 to $4,000 depending on the extent of the claimants' injuries.

(v) Improvements to PIPP benefits per a reinterpretation of section 138 of *The Manitoba Public Insurance Corporation Act*. These improvements include benefits for modification of a secondary residence, as well as reimbursement for extraordinary expenses to support continuation of pre-accident activities.

(vi) The primary caregiver of a deceased claimant's dependents is now eligible for caregiver weekly indemnity benefits. Eligibility for this benefit depends on the deceased claimant's occupation directly preceding the accident.

(vii) If death (of a claimant) occurs more than 90 days after the accident, both the Death and Permanent Impairment benefits are now payable. Previously, the Death benefit payable was offset by the Permanent Impairment benefit already paid.

(viii) The maximum Permanent Impairment benefit for catastrophically injured claimants was increased to $247,477.

For the purpose of determining the overall required rate and the major classification required rates, the claims costs for these improvements were added to overall PIPP claims costs as follows:

- Improvement (i) – Added to Income Replacement Indemnity
- Improvements (ii) to (vii) – Added to Accident Benefits - Other (Indexed)
- Improvement (viii) – Added to Accident Benefits - Other (Non Indexed)

Discounting Claims Costs

To comply with Accepted Actuarial Practice in Canada, the 2019/20 rating year claims costs must be discounted using an appropriate investment return to reflect the time value of money.

Payments were discounted from the midpoint of the development quarter/year to the end of rating year 2019/20 i.e. February 29, 2020.

The investment return used to discount future payments is based on the market value weighted yield of MPI's marketable bonds portfolio i.e. the new money yield. The investment return of 3.21% reflects the projected yield as at the midpoint of rating year 2019/20 i.e. September 1, 2019. Per the Canadian Institute of Actuaries' Consolidated Standards of Practice, paragraph 2620.15 states that the selected investment return is assumed to represent the "*expected investment income to be earned on assets that might be acquired with the net cash flows resulting from the revenue at the indicated rate*". Further, per paragraph 2620.16, the possible sets of such assets the actuary could consider using include "*fixed income assets of appropriate duration*".

The calculation of the discounted claims costs by coverage for rating year 2019/20 is presented in *Ratemaking Appendix 9 Table 2*.

Total Pure Premium

Ratemaking Appendix 9 Table 1 provides a summary of the claims costs for the 2019/20 rating year by coverage. The total pure premium is the total discounted claims costs for all coverages divided by the corresponding total number of insured units. The table below summarizes the total discounted claims costs for the 2019/20 rating year (per *Ratemaking Appendix 9 Table 1*).

Figure RM- 2: Rating Year 2019/20 Discounted Claims Costs

Line No.	Coverage	Discounted Claims Costs
1	***($000)***	
2	Bodily Injury	4,634
3	Property Damage	48,524
4	Income Replacement Indemnity	67,570
5	PIPP Enhancement	1,018
6	Accident Benefits – Other (Indexed)	59,037
7	PIPP Enhancement	4,664
8	ULAE[1]	36,881
9	Accident Benefits – Other (Non-Indexed)	29,908
10	PIPP Enhancement	970
11	Collision	479,833
12	ULAE[1]	16,774
13	Comprehensive	107,302
14	Incurred Claims (Excl PIPP Enh & ULAE[1])	796,809
15	PIPP Enhancement	6,653
16	ULAE[1]	53,655
17	**Total Incurred Claims**	**857,117**

18 [1]ULAE refers to Unallocated Loss Adjustment Expense, which are claims costs which cannot be allocated to individual claims.

Based on the forecasted total number of insured units for the 2019/20 rating year of 1,200,000:

2019/20 Rating Year Total Pure Premium

= $857,117,000 / 1,200,000 = $714.26

RM.4.2.2 Non-Claims Costs

Beyond the settling of claims, the total premiums collected must also be sufficient to cover non-claims costs. The following subsections discuss these costs on an undiscounted basis, reference the sources for the figures as appropriate, and provide a basis for which these costs are assumed to be incurred.

Ratemaking Appendix 9 Table 3 summarizes the derivation of claims expenses on both an undiscounted and discounted basis for rating year 2019/20. *Ratemaking Appendix 9 Table 4* summarizes the derivation of all other non-claims costs on a discounted basis for rating year 2019/20.

Commissions

Commissions paid to brokers consist of two components. The first component is a variable commission paid as a percentage of written premiums (both motor vehicles and drivers). These commissions are not "clawed back" when policies are cancelled mid-year. The second component is a commission flat fee paid per transaction.

For the 2019/20 rating year, the variable commission rate is 3.00% of written premiums. A commission rate of 3.24% of written premiums was selected to account for commissions not being "clawed back".

The commission flat fees for the 2019/20 rating year are $6,723,000, which corresponds to the commission flat fees for the 2019/20 fiscal year. This cost was allocated uniformly over development year 2019/20.

A history of earned commissions is presented in *Ratemaking Appendix 9 Table 5*.

Premium Taxes

Premium taxes are paid at a rate of 3.0% of written premiums (both motor vehicles and drivers).

Claims Expenses

The claims expenses for the 2019/20 rating year are assumed to be 17.25% of undiscounted claims costs for the 2019/20 rating year or $141,239,000.

To determine the 17.25%, we first calculated the ratios of paid claims expenses to paid claims for fiscal years 2019/20 to 2022/23. We then applied these ratios to the claims costs for rating year 2019/20 based on when these claims costs are expected to be incurred/paid. The 17.25% was then selected based on this review. Details of the review are presented in *Appendix 9 Table 3*.

Operating Expenses

The operating expenses for the 2019/20 rating year are $74,970,000, which corresponds to the average of the operating expenses for fiscal years 2019/20 and 2020/21 (*Part V(i) Pro Formas, Page 15*).

This cost was allocated as follows:

- Front-end cost – Two-thirds of the operating expenses (i.e. 2/3 * $74,970,000) were considered as front-end cost i.e. the initial cost of writing/issuing the insurance policy. This cost was allocated uniformly over development year 2019/20 based on the assumption that policies are written uniformly throughout the year.
- Maintenance and servicing of policy – The remaining one-third of the operating expenses (i.e. 1/3 * $74,970,000) was considered as the cost to maintain and service the insurance policy. This cost was allocated based on the portion of premium earned in the development quarter (for policies with rating year 2019/20) per the table below:

Figure RM- 3: Allocation by Development Quarter

Line No.	Development Year	Q1	Q2	Q3	Q4
1	2019/20	1/32	3/32	5/32	7/32
2	2020/21	7/32	5/32	3/32	1/32

Regulatory / Appeal

The regulatory/appeal costs for the 2019/20 rating year are $4,919,000, which corresponds to the average of the regulatory/appeal costs for fiscal years 2019/20 and 2020/21 (*Part V(i) Pro Formas, Page 15*). This cost was allocated uniformly over development years 2019/20 and 2020/21.

Road Safety / Loss Prevention

The road safety/loss prevention costs for the 2019/20 rating year are $12,757,500, which corresponds to the average of the road safety/loss prevention costs for fiscal years 2019/20 and 2020/21 (*Part V(i) Pro Formas, Page 15*). This cost was allocated uniformly over development years 2019/20 and 2020/21.

Fleet Rebate

MPI has a retrospective rating program for fleets. Historically, the program has an "off-balance" in that rebates exceed surcharges. A history of net fleet rebates is presented in *Ratemaking Appendix 9 Table 7*.

The fleet rebates for the 2019/20 rating year are $16,150,000. The $16,150,000 corresponds to the fleet rebates for the 2020/21 fiscal year (*Part V(i) Revenues Rev.1.3*) since rebates/surcharges are only assessed at the end of each fleet's registration period. This cost was allocated uniformly over development year 2020/21.

Anti-Theft Discount

The anti-theft discounts for the 2019/20 rating year are $2,367,000, which corresponds to the anti-theft discounts for the 2019/20 fiscal year (*Part V(i) Revenues Rev.1.4*). This cost was allocated uniformly over the development year 2019/20.

Reinsurance

The calculation of the pure premium was done net of ceded claims resulting from major catastrophes. In the most recent 20 years, MPI has had four major catastrophes as follows:

(i) Aug 21, 2001 Hail Storm – Gross claims of $18,442,000

(ii) Aug 9 & 10, 2007 Hail Storm – Gross claims of $45,144,000

(iii) Aug 13 & 14, 2009 Hail Storm – Gross claims of $30,267,000

(iv) Jun 2 & 3, 2011 Hail Storm – Gross claims of $14,377,000

(Note: All figures as of Feb 28, 2018)

Due to a lack of catastrophe experience, it is difficult to determine an experience-based catastrophe load. Instead, as a proxy, the catastrophe load was derived using the forecasted catastrophe reinsurance written premium.

MPI is also protected financially from any losses from a single incident exceeding $5,000,000 through casualty reinsurance.

The costs of reinsurance for the 2019/20 rating year are $2,110,000 and $9,424,500 for casualty reinsurance and catastrophe reinsurance respectively. These figures correspond to the average of the reinsurance ceded written premiums for fiscal years 2019/20 and 2020/21. The reinsurance programs for these two fiscal years provide reinsurance coverage for losses for rating year 2019/20, which can occur over the two fiscal years.

The costs of reinsurance were allocated uniformly over development years 2019/20 and 2020/21. Further details on reinsurance can be found in *Part V(i) Revenues Rev.3*.

Discounting Non-Claims Costs

Similar to the discounting of claims costs, non-claims costs were discounted from the midpoint of the development quarter/year to the end of rating year 2019/20 (i.e. February 29, 2020). The table below summarizes the undiscounted and discounted non-claims costs for the 2019/20 rating year (per *Ratemaking Appendix 9 Table 3* and *Ratemaking Appendix 9 Table 4*), as well as the discounted costs per unit based on the forecasted total number of insured units of 1,200,000.

Figure RM- 4: Rating Year 2019/20 Non-Claims Costs

Line No.	Description	Undiscounted Costs ($000)	Discounted Costs	Disc Costs / Insured Unit
1	Commission Flat Fees	6,723	6,830	5.69
2	Claims Expenses	141,239	137,449	114.54
3	Operating Expenses	74,970	75,770	63.14
4	Regulatory/Appeal	4,919	4,920	4.10
5	Road Safety/Loss Prevention	12,758	12,760	10.63
6	Fleet Rebate	16,150	15,898	13.25
7	Anti-Theft Discount	2,367	2,405	2.00
8	Reinsurance – Casualty	2,110	2,110	1.76
9	Reinsurance - Catastrophe	9,425	9,426	7.86

RM.4.2.3 Costs Offsets – Other Income Sources

Apart from vehicle premiums, MPI receives income from two other sources[2]. This income offsets some of the costs incurred, thus lowering the required rate. The following subsections discuss these income sources on an undiscounted basis, reference the sources for the figures as appropriate, and provide a basis for which these costs are assumed to be incurred. *Appendix 9 Table 4* summarizes the derivation of these income sources on a discounted basis for rating year 2019/20.

Driver Premium

The driver premiums for the 2019/20 rating year are $70,903,000, which corresponds to the written driver premium for fiscal year 2019/20 (*Part V(i) Pro Formas, page 15*). This income was allocated uniformly over development year 2019/20.

Service Fees and Other Revenues

The service fees and other revenues for the 2019/20 rating year are $26,280,000, which corresponds to the average of the service fees and other revenues for fiscal years 2019/20 and 2020/21 (*Part V(i) Pro Formas, page 15*).

[2] Investment income earned on the RSR is not considered a costs offset for determining the breakeven required rates. Instead, this investment income is considered in the determination of the Net CMP discussed in *Ratemaking RM.4.2.7*.

This income was allocated based on the portion of premium earned in the development quarter (for policies with rating year 2019/20) per the table below:

Figure RM- 5: Allocation by Development Quarter

Line No.	Development Year	Q1	Q2	Q3	Q4
1	2019/20	1/32	3/32	5/32	7/32
2	2020/21	7/32	5/32	3/32	1/32

Discounting Other Income Sources

Similar to the discounting of claims costs, other income sources were discounted from the midpoint of the development quarter/year to the end of rating year 2019/20 (i.e. February 29, 2020). The table below summarizes the undiscounted and discounted other income sources for the 2019/20 rating year (per *Ratemaking Appendix 9 Table 4*), as well as the discounted costs per unit based on the forecasted total number of insured units of 1,200,000.

Figure RM- 6: Rating Year 2019/20 Other Income Sources

Line No.	Description	Undiscounted Costs ($000)	Discounted Costs	Disc Costs / Insured Unit
1	Driver Premium	70,903	72,035	60.03
2	Service Fees and Other Revenues	26,280	26,282	21.90

RM.4.2.4 Calculation of Overall Required Rate

The overall required rate for the 2019/20 rating year was calculated by equating the total income sources with total expenditures. The calculation of this rate, “P”, on a per unit basis is presented below.

INCOME SOURCES

Vehicle Premium	=	P
Driver Premium	=	*$60.03*
Service Fees and Other Revenue	=	*$21.90*
Total Income	=	*$81.93 + $P*

EXPENDITURES

Claims Costs	=	*$714.26*
Claims Expense	=	*$114.54*
Operating Expense	=	*$63.14*
Regulatory/Appeal	=	*$4.10*
Road Safety/Loss Prevention	=	*$10.63*
Commissions	=	*0.0324 x ($P + $60.03)*
Premium Taxes	=	*0.0300 x ($P + $60.03)*
Commission Flat Fee	=	*$5.69*
Catastrophe Load	=	*$7.86*
Casualty Load	=	*$1.76*
Fleet Rebates	=	*$13.25*
Anti-Theft Discount	=	*$2.00*
Total Expenditures	=	*$940.98 + (0.0624 x $P)*

OVERALL REQUIRED RATE, P

$81.93 + $P	=	*$940.98 + (0.0624 x $P)*
$P	=	*$916.22*

An overall required rate of $916.22 is required if premiums for the 2019/20 rating year are all received on February 29, 2020. However, premiums for the 2019/20 rating year are received from March 1, 2019 to February 29, 2020.

Similar to the discounting of costs, the revenue stream resulting from vehicle premiums must recognize the time value of money. Vehicle premiums received are discounted from when they are received to the end of rating year 2019/20 i.e. February 29, 2020.

MPI has assumed that premiums will be received uniformly over the 2019/20 fiscal year as policies are renewed. Based on this assumption, it has been determined that an adjustment factor of 0.9843 to be applied to the overall required rate such that the final overall required rate is $901.83. An overall required rate of $901.83 is required, so that when investment income is considered on premiums received, the overall required rate as of February 29, 2020 is $916.22.

The factor of 0.9843 is derived as follows assuming that premiums will be received uniformly over the 2019/20 fiscal year.

Figure RM- 7: Derivation of Adjustment Factor

Line No.	2019/20 Fiscal Quarter	Weight	Factor
1	1	25%	1.0280 = 1.0321 ^ (10.5 /12)
2	2	25%	1.0199 = 1.0321 ^ (7.5 /12)
3	3	25%	1.0119 = 1.0321 ^ (4.5 /12)
4	4	25%	1.0040 = 1.0321 ^ (1.5 /12)
5		Weighted Factor:	1.0160
6		Reciprocal of Weighted Factor:	0.9843 = 1 / 1.0160

RM.4.2.5 Calculation of the Overall Required Rate Change

The overall required rate change was determined using the following four steps:

(i) Calculated the 2018/19 average rate.

(ii) Estimated the impact of vehicle drift.

(iii) Calculated the 2019/20 average rate without rate change based on the 2018/19 average rate and the vehicle drift.

(iv) Calculated the required rate change by comparing the 2019/20 average rate without rate change to the required rate.

The 2018/19 average rate of $857.67 was calculated based on the total premiums and total units derived from the population of vehicles as at November 1, 2017; the total premiums were calculated based on the approved 2018/19 rates.

Even without any rate change, the 2018/19 average rate is expected to change as the vehicle population changes. Newer and more expensive vehicles entering the fleet are subjected on average to higher rate groups thus increasing the overall average rate. Conversely, older vehicles placed in lower rate groups will result in a decrease in the overall average rate. The total impact of these changes is the vehicle drift.

The estimated annual overall vehicle drift for fiscal year 2017/18 was 2.24% as determined per the rate model. For fiscal years 2018/19 and 2019/20, the projected annual overall vehicle drifts are 1.96% and 2.15% respectively[3].

The 2019/20 average rate without rate change was calculated by projecting the 2018/19 average rate forward, based on the drift, to February 29, 2020, the average earning date for the March 2019 rate. This required a projection period of 28 months from November 1, 2017. As such, the appropriate vehicle drift factor is:

$$(1.0224)^{4/12} \times 1.0196 \times 1.0215 = 1.0492$$

The 2019/20 average rate without rate change was then calculated as:

2019/20 Average Rate Without Rate Change
= 2018/19 Average Rate x Vehicle Drift
= $857.67 x 1.0492 = $899.87

The required rate change was then calculated as:

Required Rate Change
= (2019/20 Required Rate) / (2019/20 Avg. Rate Without Rate Change) - 1
= ($901.83 / $899.87) – 1 = 0.2%

[3] Figures reflect overall vehicle drift. The HTA vehicle drift is 2.40%, 2.39% and 2.54% for 2017/18, 2018/19 and 2019/20 respectively per *Part V(i) Revenues Rev.1.2*.

RM.4.2.6 DSR Discounts for Vehicle-for-Hire (VFH) Vehicles

The Local Vehicles for Hire Act came into force on February 28, 2018, and allowed for a new class of Vehicles For Hire (VFH) in addition to the existing taxicab/livery service.[4]

One outcome of this change is the introduction of DSR discounts for certain vehicles previously not eligible for these discounts, specifically taxis, limousines, and wheelchair livery. With the reclassification of these vehicles as taxi VFH, limousine VFH and accessible VFH, these vehicles are now eligible for DSR discounts (if registered to an individual customer) similar to the new class of VFH vehicles i.e. passenger VFH.

To account for the introduction of DSR discounts for these vehicles (taxi VFH, limousine VFH and accessible VFH), an adjustment was made to the required rate change. The adjustment was necessary since the required rate change was determined excluding a corresponding potential reduction in loss exposure for these vehicles. The adjustment removed the required rate increase, which would have been applicable to all vehicles, as a result of providing Driver Safety Rating (DSR) discounts to specific vehicles.

The adjustment was calculated assuming a $1,000,000 reduction in premiums, which reflects the approximate reduction as a result of providing the DSR discounts. This is equivalent to approximately a 0.1% decrease in the required rate change, reducing the required rate change from 0.2% to 0.1%.

RM.4.2.7 Net Capital Maintenance Provision

For rating year 2019/20, MPI is applying for a Net CMP equivalent to an additional 2.1% required rate increase. The Net CMP is required to maintain capital adequacy in fiscal year 2019/20. Specifically, the Net CMP ensures that the Minimum Capital Test

[4] For a detailed discussion of this, refer to *Part V(ii) Vehicle for Hire*.

(MCT) ratio, which compares capital available to capital required, at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19.

The Net CMP of 2.1% is comprised of a 1.2% decrease in the required rate change from the investment income earned on the Rate Stabilization Reserve (RSR), offset by a 3.3% increase in the required rate change to maintain capital adequacy in fiscal year 2019/20.

To determine the 1.2% decrease from the investment income earned on the RSR, we first looked at the ratio of the investment income earned on the RSR to the Basic Vehicle Written Premium for the 2019/20 fiscal year. This calculation is presented in the table below.

Figure RM- 8: Ratio of Investment Income on RSR to Basic Vehicle Written Premium

Line No.	Description	Source	Fiscal Year 19/20
1	Basic Vehicle Written Premium	Part V(i) Proformas, Page 15	1,061,339
2	Investment Income from RSR	Part VI Investments, INV.19	11,830
3	Investment Income from RSR as percent of Basic Vehicle Written Premium		1.1%

We then applied the ratio of 1.1% as a cost offset to the required rates. This has the effect of decreasing the required rate change by 1.2% from 0.1% (per *Ratemaking RM.4.2.6*) to -1.1%.

After applying the required rate change of -1.1%, we compared the MCT ratio at fiscal year-end 2019/20 to fiscal year-end 2018/19. To ensure that the MCT ratio at fiscal year-end 2019/20 remains unchanged from fiscal year-end 2018/19, we had to revise the required rate change to 2.2%, which reflects an increase of 3.3% (from -1.1%).

Including the additional 2.1% required rate increase from the Net CMP results in a final required rate change of 2.2%.

RM.4.3 Major Classification Required Rates

For each major class – Private Passenger, Commercial, Public, Motorcycles, Trailers, and ORV's (or major class 1, 2, 3, 4, 5, and 6 respectively) – we employed the same approach to calculating the required rates as for the overall. The following additional considerations were made in the calculation of the major classes' required rates. The calculations of the indicated pure premiums by coverage for each major class are presented in *Ratemaking Appendix 9 Table 9*.

(i) The sum of the claims costs from the six major classes does not equal the overall claims costs due to MPI's procedure for coding losses. In the event that the insurance use, which determines the major class, is not applicable (for example pedestrian or cyclist claims), no entry is made in the insurance use field when the claim is processed. In addition, claims such as unidentified motorists are not coded with a specific insurance use. As such, the claims costs for these claims cannot be attributed to a major class.

(ii) Further to consideration (i), MPI revised its claims costs allocation for PIPP coverages pursuant to Board Order 97/05, Order #1(b):

> *"In any accident involving one or more MPI-insured vehicles and (i) one or more unidentified hit-and-run offenders, or (ii) another injured party or parties (including cyclists, pedestrians, and occupant(s) of out-of-province vehicles)… 50% of total PIPP costs are to be effectively allocated across all vehicle rating categories."*

In complying with this order, a special "pool" class was set-up. All PIPP claims costs which were to be allocated across all vehicle rating categories were assigned to the "pool" class. This included PIPP claims costs as per the order above, plus all PIPP claims costs arising out of consideration (i) which could not be successfully allocated as per the order.

The Board Order further added to the difference in claims costs as discussed in consideration (i) above. The pro-rata adjustment to account for this difference is described in considerations (x) and (xi) below.

(iii) Further to consideration (ii), pursuant to Board Order 122/10, MPI expanded Board Order 97/05, Order #1(b) to include single vehicle accidents involving wildlife/livestock. For accidents of this nature, 50% of total PIPP costs were allocated to the major class of the single vehicle, with the remaining 50% allocated to the "pool" class. This change resulted in a reduction of PIPP costs allocated to the major classes as presented in the table below.

Figure RM- 9: Reduction of PIPP Costs

Line No.	Major Class	Reduction
1	Private Passenger	1.80%
2	Commercial	1.25%
3	Public	0.30%
4	Motorcycle	4.25%
5	Overall	1.88%

The reduction is absorbed by the "pool" class and allocated across all vehicle rating categories.

(iv) Unallocated Loss Adjustment Expenses (ULAE) and the impact of improvements to PIPP benefits were not considered in the derivation of the indicated pure premiums by major class per *Ratemaking Appendix 9 Table 9*. The pro-rata adjustment to account for this is described in consideration (x) below.

(v) The calculation of the loss development factors by major class used data that, in some cases, exhibit significant year-to-year fluctuations and/or is not fully credible. The selected factors used considered both the major classes' indications and the overall loss development factors taken from the "Appointed Actuary's Report as at February 28, 2018" as presented in *Part VIII External Actuary Review*.

(vi) The historical pure premiums were trended forward to reflect the anticipated 2019/20 rating year costs levels.

For Income Replacement Indemnity, Accident Benefits - Other and Bodily Injury, trends were selected, by coverage, based on the extrapolation of past trends in the overall pure premiums. For these coverages, the selected trends were based on the overall indicated exponential trends for pure premiums for 2003/04 to 2017/18 rounded up to the nearest 0.25% i.e. a 15-year trend. A trend of 0.00% was judgmentally selected if the indicated exponential trend was negative. The overall indicated exponential trends for pure premiums were derived based on HTA insured units only. This recognizes that the claims costs for these coverages are driven primarily by HTA insured units.

For Collision, Comprehensive and Property Damage, trends were calculated, by coverage, based on the extrapolation of past trends in the overall pure premiums, as well as in the major classes' pure premiums. For these coverages, the trends were initially selected based on the overall indicated exponential trends for pure premiums. Then, by major class, these initial selected trends were compared to the trends based on the respective major class's indicated exponential trends for pure premiums. If a significant difference is observed and the goodness-of-fit of the major class's indicated exponential trend is high (as measured by the R-squared), then the initial selected trend is revised to the major class's indicated exponential trend. This recognizes the differences in trends by major class, and reflects the differences where appropriate.

Further considerations for Collision, Comprehensive and Property Damage:

- The overall indicated exponential trends for pure premiums were derived based on Highway Traffic Act (HTA) insured units only. This recognizes that the primary driver of claims costs for these coverages are HTA insured units.
- The selected trends were rounded up to the nearest 0.25%.
- A trend of 0.00% was judgmentally selected if the indicated exponential trend was negative.

- For Collision, the initial selected trend was based on the overall indicated exponential trend for pure premiums for 2008/09 to 2017/18 i.e. a 10-year trend. The selection of a shorter experience period recognizes both the stability in the year-over-year growth in pure premiums and the pure premium trends for more recent years.
- For Comprehensive and Property Damage, the initial selected trend was based on the overall indicated exponential trend for pure premiums for 2003/04 to 2017/18 i.e. a 15-year trend.

The historical pure premiums were trended forward to February 29, 2020, the average accident date for all policies written under the March 1, 2019 rates. For the 2017/18 pure premiums, this required a trending of two and a one-half years from the average accident date of August 31, 2017. This assumes a uniform distribution of renewals and claims across all months.

The derivation of the overall trends, by coverage, is shown in *Ratemaking Appendix 9 Table 8*.

(vii) In calculating the indicated pure premiums, equal weights were given to historical indicators. For almost all major classes and coverages, we used data for the five most recent years. Exceptions to this are as follows:

- For the Motorcycles major class, we used data for the 10 most recent years for Accident Benefits - Other and Income Replacement Indemnity to better smooth out the larger volatility in the data.
- For Serious Losses[5], we used data for the 10 most recent years for Accident Benefits - Other (Indexed) and Income Replacement Indemnity to better smooth out the larger volatility in the data.
- For the ORV's major class, we used data for the 10 most recent years for Bodily Injury and Property Damage to better smooth out the larger volatility in the data.

[5] For the purpose of ratemaking, a Serious Loss incident refers to an incident whereby the total Accident Benefits (PIPP) claims costs for the incident is greater than $500,000.

(viii) The calculation of the indicated pure premiums for Comprehensive coverage was done net of the total claims costs resulting from major catastrophes.

(ix) Per Board Order 156/06, an analysis was performed to determine the reduction in Collision claims costs for the Motorcycle major class if such costs were allocated equally to all vehicles involved in an accident involving a vehicle in the Motorcycle major class. Based on the analysis, for the 2019 GRA, the Collision pure premium for the Motorcycle major class was reduced by 24.50%, with the impact then allocated equally on a per unit basis to major classes 1, 2, and 3.

The table below presents the reduction in the Collision claims costs for the Motorcycle major class for the most recent five years based on the revised claims costs allocation. The reduction of 24.50% was based on the 5-year weighted hi-lo average.

Figure RM- 10: Collision Claims Costs for the Motorcycle Major Class

Line No.	Insurance Year	Current Allocation SV Incident	Current Allocation MV Incident	Revised Allocation SV Incident	Revised Allocation MV Incident	$ Decrease	% Decrease
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	13/14	566,698	590,111	566,698	295,055	295,055	25.51%
2	14/15	686,560	509,189	686,560	254,595	254,595	21.29%
3	15/16	723,891	659,190	723,891	329,595	329,595	23.83%
4	16/17	778,284	788,593	778,284	394,296	394,296	25.16%
5	17/18	728,477	690,072	728,477	345,036	345,036	24.32%
6	All Years	3,483,911	3,237,155	3,483,911	1,618,577	1,618,577	24.08%

7 SV – Single Vehicle; MV – Multiple Vehicle
8 (5) = 50% of (3)
9 (6) = [(2) + (3)] - [(4) + (5)]
10 (7) = (6) / [(2) + (3)]

(x) As a result of the above considerations, by coverage, the total claims costs from the six major classes will not equal the overall claims costs. In *Figure RM-10* (see below), the pure premiums as calculated in *Ratemaking Appendix 9 Table 9* were balanced to the overall pure premium on a pro-rata basis to account for this.

(xi) Further to consideration (x) and as a result of considerations (ii) and (iii), only 79.5% of the overall claims costs for Income Replacement Indemnity

(IRI), 77.2% for Accident Benefits - Other (Indexed) and 74.1% for Accident Benefits - Other (Non-Indexed) were balanced based on actual major class experience. The remaining 20.5%, 22.8% and 25.9% respectively, representing the percentage of claims costs assigned to the "pool" class, were allocated equally on a per unit basis to major classes 1, 2, 3, and 4.

The table below summarizes the above considerations, and presents the calculation of the major classes' total pure premiums.

Figure RM- 11: Rating Year 2019/20 Total Pure Premium by Major Class

Line No.	Coverage	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	Pure Premium from Appendix 9, Table 9*						
2	Acc. Benefits – Other (Ind)	60.67	57.48	170.18	146.51	0.00	0.00
3	Acc. Benefits – Other (Non-Ind)	23.75	31.52	45.22	133.84	0.00	0.00
4	Bodily Injury	6.24	0.95	11.68	0.58	0.00	4.74
5	Collision	533.68	261.41	982.17	83.20	8.03	0.00
6	Comprehensive	111.60	75.20	108.76	0.00	48.63	0.00
7	Property Damage	53.58	78.02	97.51	3.99	0.24	1.07
8	Income Replacement Indemnity	84.05	87.20	172.96	293.28	0.00	0.00
9	Total	873.57	591.78	1,588.48	661.40	56.90	5.81
10	Balanced Pure Premium						
11	Acc. Benefits – Other (Ind)	81.39	77.12	228.32	196.57	0.00	0.00
12	Acc. Benefits – Other (Non-Ind)	22.48	29.84	42.81	126.71	0.00	0.00
13	Bodily Injury	5.03	0.77	9.41	0.47	0.00	3.82
14	Collision	562.24	275.40	1,034.73	87.65	8.46	0.00
15	Comprehensive	110.77	74.64	107.95	0.00	48.27	0.00
16	Property Damage	52.34	76.21	95.25	3.90	0.24	1.05
17	Income Replacement Indemnity	56.33	58.44	115.92	196.56	0.00	0.00
18	Total	890.59	592.43	1,634.39	611.86	56.97	4.87
19	"Pool" Claims Costs						
20	Acc. Benefits – Other (Ind)	25.22	25.22	25.22	25.22	0.00	0.00
21	Acc. Benefits – Other (Non-Ind)	8.81	8.81	8.81	8.81	0.00	0.00
22	Income Replacement Indemnity	15.49	15.49	15.49	15.49	0.00	0.00
23	Total Pure Premium	940.12	641.95	1,683.91	661.38	56.97	4.87

24 *Accident Benefits - Other and Income Replacement Indemnity adjusted for wildlife/livestock costs reduction per Board Order 126/10.

25 *Collision adjusted for cost allocation per Board Order 156/06.

(xii) Consistent with last year, based on the "HTA Power Unit Basis" approach, the Trailers and ORV's major classes were allocated 0% of the standard allocation of operating expenses.

(xiii) The overall non-claims costs were allocated to the respective major classes as follows:

- Claims expenses were allocated on the basis of claims costs.
- Operating expenses, regulatory/appeal, road safety/loss prevention, commission flat fees, fleet rebates, anti-theft discount, and reinsurance were allocated on a per unit basis to applicable major classes.
- Premium taxes and commissions on vehicles are 3.00% and 3.24% respectively of the major classes' required rates.
- Premium taxes and commissions on drivers are 3.00% and 3.24% respectively of the driver premiums as applicable to the major classes.

(xiv) The overall other income sources were allocated to the respective major classes as follows:

- Driver premiums and service fees were allocated on a per unit basis to applicable major classes.

(xv) The major classes' required rates were balanced back to the overall revenue requirements calculated in *Ratemaking RM.4.2*.

(xvi) The applied for rate change for each major class was credibility weighted depending on the number of insured units in the class. In doing so, the methodology assigns a measure of reliability to the major class experience on its own, and then balances that with the overall experience. The applied for rate change for each major class was assigned a credibility of $\frac{N}{N+K}$. Here, *N* is the number of insured units in the class and *K* is a constant. The constant, *K*, is equal to 6,000, and was judgmentally chosen in order that the largest major class – Private Passenger – was at least 99% credible.

The complement of credibility, $1-\frac{N}{N+K}$, was assigned to the overall applied for rate change.

(xvii) Similar to the adjustment done for the overall required rate change, an adjustment was made to the credibility weighted required rate change for the Public major class to account for the introduction of DSR discounts for vehicles classified as taxi VFH, limousine VFH and accessible VFH. The adjustment was necessary since the required rate change was determined excluding a corresponding potential reduction in loss exposure for these vehicles. The adjustment removed the required rate increase, which would have been applicable to all vehicles in the major class, as a result of providing DSR discounts to specific vehicles in the major class.

The adjustment was calculated assuming a $1,000,000 reduction in premiums, which reflects the approximate reduction as a result of providing the DSR discount. This is equivalent to approximately a 3.8% decrease in the required rate change for the major class.

Figure RM- 11 summarizes the calculation of the major classes' required rates based on breakeven rates, which assumes a 0% profit provision, prior to the inclusion of the net CMP. Figure RM- 12 summarizes the calculation of the major classes' required rates based on breakeven rates, and including the net CMP.

Figure RM- 12: Rating Year 2019/20 Major Classification Required Rate Changes – Breakeven Rates

Line No.	Coverage	Overall	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	714.26	940.12	641.95	1,683.91	661.38	56.97	4.87
3	Claims Expense	114.54	150.76	102.95	270.04	106.06	9.14	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.14	83.42	83.42	83.42	83.42	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.69	39.03	26.98	68.76	26.85	2.58	0.20
8	Prem Tax: Vehicle	27.49	36.14	24.98	63.67	24.86	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.69	7.52	7.52	7.52	7.52	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.25	17.85	17.85	17.85	0.00	0.00	0.00
14	Anti-Theft Discount	2.00	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.03	79.31	79.31	79.31	79.31	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	916.22	1,204.75	832.66	2,122.17	828.58	79.59	6.02
19	Req Rate (Bal)	901.83	1,185.82	819.57	2,088.83	815.56	78.34	5.93
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	0.2%	0.3%	0.5%	2.1%	1.3%	-6.8%	-40.3%
24	Applied for Change	0.2%	0.3%	0.5%	2.1%	1.3%	-6.7%	-40.3%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		0.3%	0.5%	1.5%	1.1%	-6.6%	-37.3%
27	Cred Wtd Req Rate		1,185.85	819.34	2,076.94	813.31	78.50	6.22
28	Cred Wtd Req Rate (Bal)	901.85	1,186.02	819.46	2,077.25	813.43	78.51	6.22
29	Cred Wtd Change (Bal)		0.3%	0.5%	1.5%	1.1%	-6.5%	-37.3%
	Selected Req Rate	901.00	1,186.02	819.46	1,999.49	813.43	78.51	6.22
	Selected Change	0.1%	0.3%	0.5%	-2.3%	1.1%	-6.5%	-37.3%

Figure RM- 13: Rating Year 2019/20 Major Classification Required Rate Changes – Breakeven Rates Including Net CMP

Line No.	Coverage	Overall	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	714.26	940.12	641.95	1,683.91	661.38	56.97	4.87
3	Claims Expense	114.54	150.76	102.95	270.04	106.06	9.14	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.14	83.42	83.42	83.42	83.42	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.69	39.03	26.98	68.76	26.85	2.58	0.20
8	Prem Tax: Vehicle	27.49	36.14	24.98	63.67	24.86	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.69	7.52	7.52	7.52	7.52	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.25	17.85	17.85	17.85	0.00	0.00	0.00
14	Anti-Theft Discount	2.00	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.03	79.31	79.31	79.31	79.31	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	916.22	1,204.75	832.66	2,122.17	828.58	79.59	6.02
19	Req Rate (Bal)	901.83	1,185.82	819.57	2,088.83	815.56	78.34	5.93
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	0.2%	0.3%	0.5%	2.1%	1.3%	-6.8%	-40.3%
24	Applied for Change	2.3%	2.4%	2.6%	4.2%	3.4%	-4.8%	-39.1%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		2.4%	2.5%	3.6%	3.1%	-4.6%	-36.0%
27	Cred Wtd Req Rate		1,210.34	836.26	2,119.84	830.10	80.12	6.35
28	Cred Wtd Req Rate (Bal)	920.48	1,210.52	836.38	2,120.15	830.23	80.14	6.35
29	Cred Wtd Change (Bal)		2.4%	2.6%	3.6%	3.2%	-4.6%	-36.0%
	Selected Req Rate	919.63	1,210.52	836.38	2,042.39	830.23	80.14	6.35
	Selected Change	2.2%	2.4%	2.6%	-0.2%	3.2%	-4.6%	-36.0%

RM.4.4 Vehicle Group Required Rates

The composition of vehicles in each major class was subdivided using the following rating variables:

- Territory
- Insurance use
- Rate group
- Gross vehicle weight (GVW) – trucks in the Commercial and Public major classes only
- Body style and engine displacement – Motorcycles major class only

MPI uses these rating variables to further differentiate the required rates for different vehicle groups. An explanation of the rate group relativities is contained in *Ratemaking RM.3*. The discussion below focuses on the relativity approach used to determine and apply the relativities for the other rating variables.

The concept of relativities is commonly used in the insurance industry. Simply put, if we chose a distinct group from an entire population, the relativity of the group is a measure of the risk of the group compared to the population. For example, a group, which on average costs twice as much to insure when compared to the population, will have a relativity of two. The use of relativities promotes equitable rates since riskier groups can expect to pay more than groups with lower risk.

To determine the relativities for the rating variables applicable to respective major classes, MPI ran the following three steps for each major class. MPI has assumed that the territory distribution for each major class is distinct and independent. For the major class:

(i) Determined the actual or raw relativities.

(ii) Determined the current relativities.

(iii) Based on the raw and current relativities, determined the new relativities.

In each of the above three steps, the relativities were balanced in order that the average relativity for each rating variable within the major class is one.

To determine the actual or raw relativities, the claims costs and earned units were first arranged by applicable rating variables. For higher accuracy and also to smooth out year-to-year fluctuations, data for the five most recent insurance years – 2013/14 to 2017/18 – were used. Data for the 10 most recent years – 2008/09 to 2017/18 – were used for PIPP claims costs resulting from Serious Loss incidents.

For claims costs, we started with the total claims costs for all coverages as presented in *Ratemaking Appendix 9 Table 10*. These claims costs were then adjusted. For each of the five insurance years, as applicable;

(i) Deducted the claims costs resulting from Serious Loss incidents as presented in *Ratemaking Appendix 9 Table 11*.

(ii) For the claims costs presented in *Ratemaking Appendix 9 Table 11*, calculated the 10-year average.

(iii) Added the 10-year average back into the claims costs calculated in (i) above.

The adjusted claims costs are presented in *Ratemaking Appendix 9 Table 12*. The earned units are presented in *Ratemaking Appendix 9 Table 13*. *Ratemaking Appendix 9 Table 14* presents the pure premiums, which are the adjusted claims costs per earned unit.

Using the pure premiums and earned units as discussed above, as well as the minimum-bias procedure[6], the raw relativities for the rating variables applicable to the major class were then calculated.

To determine the current relativities, a similar approach to the above was used. However, instead of using the pure premiums and earned units to determine the relativities, the current average rates and total units derived from the population of vehicles per the rate model were used instead. The current average rates reflect the

[6] Refer to https://www.casact.org/pubs/forum/02fforum/02ff591.pdf for a detailed discussion of the minimum bias procedure.

approved 2018/19 rates. Current relativities must be determined since current average rates are not based strictly on a relativity approach[7].

The new relativities were determined based on a credibility weighted average of the raw relativities and current relativities. In doing so, the methodology mitigates against large fluctuations that can occur in the raw relativities, a result of the individual groupings not being large enough to be statistically reliable. For each raw relativity, a credibility of $\frac{N}{N+K}$ was assigned. Here, N is the 5-year earned units used to determine the raw relativity and K is a constant. The constant, K, is equal to 60,000, and was judgmentally chosen in order that the largest insurance use – All Purpose Passenger Vehicle – was at least 95% credible. The complement of credibility, $1-\frac{N}{N+K}$, was assigned to the corresponding current relativity.

The credibility assigned to each raw relativity was subjected to a minimum of 10% (i.e. if $\frac{N}{N+K}$ <10%, the raw relativity was assigned a credibility of 10%) and the remaining 90% was assigned to the current relativity. Assigning a minimum credibility ensures that the new relativities for smaller groups partially reflected their historical claims costs.

The derived raw and current relativities, the assigned credibilities, and the new relativities for all major classes are presented in *Ratemaking Appendix 9 Table 15*.

[7] This is a due to various factors including balancing to the overall and major classes' rate requirements, capping of rate changes, changes in the composition of vehicles (especially for smaller vehicle groups), reclassification of vehicles, etc.

The new relativities were then used to determine the indicated rates for all distinct vehicle groups based on the following formula:

$$\left(RR_C - E_C\right) \times \prod RV_{C,I} + EX_C + \sum \left(E_{C,H} \times P_{C,H}\right)$$

For major class C; C = 1, 2, 3, 4, 5, and 6;

RR_C is the required rate

E_C is the per unit operating expense*

$RV_{C,I}$ is the relativity for the rating variable applicable to the vehicle group; I representing the number of distinct rating variables[8]

EX_C is the per unit operating expense* exclusive of all targeted initiatives

$E_{C,H}$ is the per unit operating expense* of targeted initiative H; H = 1 to # of targeted initiatives

$P_{C,H}$ is the indicator for targeted initiative H with a value of 1 if the initiative targets the combination or 0 otherwise

*Refers to the sum of operating expense, regulatory/appeal and road safety/loss prevention

We have assumed that the relativities interact multiplicatively, the common approach in the insurance industry.

There is no targeted initiative for the 2019/20 rating year. As such the per unit operating expense exclusive of all targeted initiatives, EX_C, is equal to $102.88 for C = 1, 2, 3, and 4, and $0.00 for C = 5 and 6.

Ratemaking Appendix 9 Table 16 presents the indicated rates for all distinct vehicle groups using the above formula.

The indicated rates were balanced back to the revenue requirements by major class as calculated in *RM.4.3*. The balanced indicated rates were then compared to the current

[8] For example, for all vehicles in the Private Passenger major class, I = 2 since only the territory and insurance use relativities (for the major class) are applicable.

average rates to determine the balance indicated rate changes. This approach assumes that the relative average rate group and discount levels do not vary between the experience period and the rating period.

RM.5 EXPERIENCE ADJUSTMENTS

Experience rate adjustments applied to each risk classification are presented in *Ratemaking Appendix 3*.

RM.5.1 Rules

1. If the indicated increase or decrease is 10% or less, set the initial estimate of the experience adjustment as the amount of the indicator.

2. If the indicated increase or decrease is greater than 10%, set the initial estimate of the experience adjustment as 10%, plus one-third the difference between the indicated increase or decrease and 10%, to a maximum of an additional 5%.

3. From adjustment (2) above, if the indicated decrease is 25% or more, the initial estimate of the experience adjustment is capped at –15%. Similarly, if the indicated increase is 25% or more, the adjustment is capped at 15%.

4. Since adjustment (2) above limits the maximum experience adjustment to 15%, the rate adjustment is balanced to arrive at the same overall revenue as if the indicated increase or decrease had been applied. The 15% maximum increase or decrease still applies.

5. The above rules apply with some exceptions to the Motorcycles major class. The above rules do not apply to the U-drive Moped insurance use in Territories 2, 3, and 4. A detailed explanation of the exceptions made to the above rules is contained in RM.5.2 below.

6. In response to Board Order 148/04, all 2019/20 rates are subject to a ± 20% cap from 2018/19 rates.

RM.5.2 Exceptions

For the Motorcycles major class, the following modifications were made:

- Mopeds and motorcycles with a Motorscooter body style and an engine displacement less than or equal to 500 cc's were rated together. The initial estimates of the experience adjustments, by territory and use (all purpose and pleasure), are based on the weighted averages of the indicated changes. The rules per *RM.5.1* above continue to apply. This maintains the synchronization of rates for these vehicles as in last year's rate application.
- The initial estimates of the experience adjustments for motorcycles in the middle engine displacement (ED) range (between 500 to 1000 cc's) and high-ED range (greater than 1000 cc's) were adjusted as follows:
  - If there are more motorcycles in the middle ED range than the high ED range (by territory, use, and body style) and the initial estimates of the experience adjustment for the high ED range is lower, then adjust the estimate for the high ED range to be equal to the estimate for the middle ED range.
  - If there are more motorcycles in the high ED range than the middle ED range (by territory, use, and body style) and the initial estimates of the experience adjustment for the middle ED range is higher, then adjust the estimate for the middle ED range to be equal to the estimate for the high ED range.

  This ensures that the rates for motorcycles in the high ED range will continue to be higher than the corresponding rates for motorcycles in the middle ED range.

For the U-Drive Moped insurance use in territories 2, 3, and 4, the indicated rate adjustments were not calculated due to a lack of experience. Consistent with last year, the rates for this insurance use, by territory and rate group, are set equal to the rates for the All-Purpose Moped insurance use.

RM.5.3 Special Adjustments and Capping

MPI uses relative ranking rules to ensure that less restrictive rating categories have higher rates than more restrictive ones, resulting in special rate adjustments. These adjustments are made to the rates after all classification and experience adjustments have been completed.

An example of a restriction is the rate for pleasure insurance use must be lower than the rate for all purpose insurance use (by territory and vehicle type). A special rate adjustment would be made if the rate for pleasure insurance use is higher than the rate for all purpose insurance use.

For 2019/20, the following insurance uses received special adjustments affecting 425 vehicles:

- Farming All Purpose Truck; Territory 5 – rates increased to be equal to the territory 2 rates (418 vehicles)
- Fishing All Purpose Truck; Territory 5 – rates increased to be equal to the territory 2 rates (6 vehicles)
- All Purpose Motorhome; Territory 3 – rates increased to be $2.00 more than Pleasure (1 vehicle)

In response to Board Order 148/04, all 2019/20 rates are subject to a ± 20% cap from 2018/19 rates. Special adjustments are applied after applying the ± 20% cap.

RM.5.4 Final Impact of Rate Changes

Transition from Experience Rate Requirement Indicators to Applied For Rate Adjustments

The steps taken to transition from the experience rate requirement indicators to the applied for rate adjustments by major class are outlined below. A table showing the average rate, the change from the original rate model, and the total premium for each of the steps is provided as *Ratemaking Appendix 4*.

A. **Original Rate Model Before Changes –** This section shows the base scenario prior to any required changes and adjustments. It is based on the population of vehicles as of November 1, 2017, with the exception of the following seasonally used vehicles:

- Snowmobiles and snow vehicles as of January 1, 2018
- Motorhomes, motorcycles, mopeds, trailers and off road vehicles (except for snowmobiles and snow vehicles) as of August 1, 2017

B. **After Classification Changes and CLEAR Adjustments –** This section shows the impact of applying all classification changes and CLEAR adjustments, as presented in *RM.3*.

C. ***Balanced Indicated Adjustments –*** This section shows the impact of applying the balanced indicated changes as presented in *RM.4 Appendix 9 Table 16*. The balanced indicated changes are derived based on the major classes' required rates and the relativities by major class as discussed in *RM.4.3* and *RM.4.4* respectively. The balanced indicated changes include balancing back to the revenue requirements by major class.

D. ***Capped Indicated Adjustments –*** This section shows the impact of applying the capped indicated changes. The capped indicated changes are obtained after applying the experience adjustment rules, as presented in *RM.5.1*, to the

balanced indicated changes. Any shortfall or excess generated by these rules are not adjusted for in this section.

E. ***Balanced Capped Indicated Adjustments*** **–** This section shows the impact of applying the balanced capped indicated changes. The capped indicated changes are balanced back to recover any shortfall or excess generated as a result of applying the experience adjustment rules.

F. ***Applied for Adjustment (Final Rate Model)*** **–** This section shows the Rate Model output after all changes are applied. Apart from the classification changes, CLEAR adjustments and experience adjustments discussed above, the Rate Model applies the following business rules:

(i) The final rates are all rounded to even dollars. The impact of this is particularly noticeable (on a percentage basis) in groups where there are a large number of vehicles with low rates.

(ii) The rates are checked to ensure that rate reversals, such as pleasure truck rates being greater than all-purpose truck rates, do not occur.

(iii) Based on Board Order 148/04, all 2019/20 final rates are subject to a ±20% maximum change from 2018/19 final rates.

RM.6 SUMMARY AND DISTRIBUTION REPORTS

By major class, the proposed rate changes differ slightly from experience rate changes due to capping rules. A 15% increase/decrease cap is applied to experience-based indicators and all final rates are capped at a 20% increase/decrease.

Figure RM- 14 Major Class Summary Report

Line No.	Major Class	Vehicle Count	Current Average Rate	Proposed Average Rate	Proposed Rate Change	Experience Rate Change*
1	**Private Passenger**	801,726	$1,111	$1,138	2.4%	2.4%
2	**Commercial**	46,246	$780	$798	2.4%	2.6%
3	**Public**	12,630	$2,003	$2,014	0.6%	-0.2%
4	**Motorcycles**	17,023	$797	$822	3.1%	3.2%
5	**Trailers**	200,677	$81	$78	-4.7%	-4.6%
6	**Off-Road Vehicles**	70,838	$10	$8	-20.0%	-36.0%
7	**Overall**	1,149,140	$855	$874	2.2%	2.2%
8	*Per Figure RM-12					

The following tables show the distribution of vehicles by dollar and percent changes after all adjustments. The proposed rate changes result in a rate decrease for 40.2% of vehicles, no change in rates for 7.5% of vehicles, and a rate increase for 52.3% of vehicles. 38.6% of vehicles experience a rate change of +/- $20 or less (including vehicles receiving a $0 change in rates) and 43.9% of vehicles experience a rate change of +/- 5% or less (including vehicles receiving no change in rates). More detailed tables can be found in *RM.6 Summary* and *RM.6 Dollar/Percentage Distribution*.

Figure RM- 15 Dollar Distribution Table

Line No.	$ Change	# of Vehicles	% of Vehicles
1	**Decrease $300 or more**	73	0.01%
2	**Decrease $200 to $299**	390	0.03%
3	**Decrease $150 to $199**	1,824	0.16%
4	**Decrease $100 to $149**	18,739	1.63%
5	**Decrease $50 to $99**	106,669	9.28%
6	**Decrease $20 to $49**	134,207	11.68%
7	**Decrease $1 to $19**	200,294	17.43%
8	**No Change**	85,620	7.45%
9	**Increase $1 to $19**	158,175	13.76%
10	**Increase $20 to $49**	111,974	9.74%
11	**Increase $50 to $99**	203,910	17.74%
12	**Increase $100 to $149**	98,298	8.55%
13	**Increase $150 to $199**	20,562	1.79%
14	**Increase $200 to $299**	8,081	0.70%
15	**Increase $300 or more**	*324	0.03%
16	**GRAND TOTAL**	**1,149,140**	**100%**
17	*Of those 324 units, 313 are Taxicab Vehicle-for-Hire 4 in Territory 1 & 3		

Figure RM- 16 Percent Distribution Table

Line No.	% Change	# of Vehicles	% of Vehicles
1	**Decrease 20% or more**	70,850	6.17%
2	**Decrease 15% to 20%**	324	0.03%
3	**Decrease 10% to 15%**	49,069	4.27%
4	**Decrease 5% to 10%**	158,593	13.80%
5	**Decrease less than 5%**	183,360	15.96%
6	**(No Change)**	85,620	7.45%
7	**Increase less than 5%**	235,366	20.48%
8	**Increase 5% to 10%**	289,618	25.20%
9	**Increase 10% to 15%**	40,524	3.53%
10	**Increase 15% to 20%**	35,787	3.11%
11	**Increase 20% or more**	29	0.00%
12	**GRAND TOTAL**	**1,149,140**	100%

1

Figure RM-15 6.0 SUMMARY OF PREMIUM INCREASES/DECREASES BY MAJOR CLASS, TERRITORY AND VEHICLE TYPE

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
MAJOR CLASS								
Private Passenger	801,726	1,111	1,138	890,827,584	911,984,421	21,156,837	2.37	90.79
Commercial	46,246	780	798	36,057,118	36,920,457	863,339	2.39	3.68
Public	12,630	2003	2014	25,298,788	25,442,573	143,785	0.57	2.53
Motorcycle	17,023	797	822	13,569,983	13,985,119	415,136	3.06	1.39
Trailer	200,677	81	78	16,323,142	15,562,871	-760,271	-4.66	1.55
Off-Road Vehicle	70,838	10	8	708,380	566,704	-141,676	-20.00	0.06
TOTAL - ALL MAJOR CLASSES	1,149,140	855	874	982,784,995	1,004,462,145	21,677,150	2.21	100.00

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
TERRITORY								
1	525,647	1,050	1,074	551,826,729	564,362,433	12,535,704	2.27	56.19
2	540,758	639	654	345,805,936	353,671,384	7,865,448	2.27	35.21
3	16,706	753	774	12,578,813	12,937,518	358,705	2.85	1.29
4	25,953	707	709	18,361,160	18,408,409	47,249	0.26	1.83
Commuter	40,076	1,353	1,374	54,212,357	55,082,401	870,044	1.60	5.48
TOTAL - ALL TERRITORIES	1,149,140	855	874	982,784,995	1,004,462,145	21,677,150	2.21	100.00

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
VEHICLE TYPE								
BUS	4,476	963	985	4,311,116	4,408,643	97,527	2.26	0.44
MCYCL	15,413	846	871	13,039,350	13,421,363	382,013	2.93	1.34
MHOME	4,813	688	727	3,312,616	3,499,311	186,695	5.64	0.35
MOPED	1,707	319	338	544,218	577,393	33,175	6.10	0.06
ORV	70,838	10	8	708,380	566,704	-141,676	-20.00	0.06
PASVE	592,527	1,183	1,210	701,007,083	717,122,949	16,115,866	2.30	71.39
SNOVE	49	261	256	12,812	12,564	-248	-1.94	0.00
TRAIL	200677	81	78	16,323,142	15,562,871	-760271	-4.66	1.55
TRUCK	252,002	937	959	236,124,290	241,642,984	5,518,694	2.34	24.06
VARIA	6,638	1,115	1,152	7,401,988	7,647,363	245,375	3.31	0.76
TOTAL - ALL VEHICLE TYPES	1,149,140	855	874	982,784,995	1,004,462,145	21,677,150	2.21	100.00

Figure RM -16 6.0 DOLLAR DISTRIBUTION - ALL CLASSIFICATION AND RATE ADJUSTMENTS

	All Vehicles - 2019			Private Passenger Vehicles - 2019			Commercial Vehicles - 2019			Public Vehicles - 2019		
	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
Decreasing												
$300 or more	73	0.01	0.01	0	0.00	0.00	4	0.01	0.01	65	0.51	0.51
$250 to $300	81	0.01	0.01	0	0.00	0.00	5	0.01	0.02	74	0.59	1.10
$200 to $250	309	0.03	0.04	53	0.01	0.01	16	0.03	0.05	236	1.87	2.97
$150 to $200	1,824	0.16	0.20	1,604	0.20	0.21	48	0.10	0.16	164	1.30	4.27
$100 to $150	18,739	1.63	1.83	17,936	2.24	2.44	184	0.40	0.56	602	4.77	9.03
$90 to $100	10,876	0.95	2.78	10,607	1.32	3.77	49	0.11	0.66	209	1.65	10.69
$80 to $90	13,214	1.15	3.93	13,075	1.63	5.40	67	0.14	0.81	57	0.45	11.14
$70 to $80	23,151	2.01	5.94	22,730	2.84	8.23	264	0.57	1.38	113	0.89	12.03
$60 to $70	26,735	2.33	8.27	26,502	3.31	11.54	114	0.25	1.62	75	0.59	12.63
$50 to $60	32,693	2.84	11.11	32,040	4.00	15.53	301	0.65	2.27	194	1.54	14.16
$40 to $50	34,104	2.97	14.08	33,481	4.18	19.71	147	0.32	2.59	348	2.76	16.92
$30 to $40	53,593	4.66	18.74	37,581	4.69	24.40	601	1.30	3.89	74	0.59	17.51
$20 to $30	46,510	4.05	22.79	35,776	4.46	28.86	1,963	4.24	8.14	139	1.10	18.61
$10 to $20	59,961	5.22	28.01	35,837	4.47	33.33	2,368	5.12	13.26	1,730	13.70	32.30
$1 to $10	140,333	12.21	40.22	37,977	4.74	38.07	7,035	15.21	28.47	616	4.88	37.18
Total Decreasing	***462,196***	***40.22***		***305,199***	***38.07***		***13,166***	***28.47***		***4,696***	***37.18***	
No change	85,620	***7.45***	***47.67***	3,260	***0.41***	***38.47***	1,435	***3.10***	***31.57***	18	***0.14***	***37.32***
Increasing												
$1 to $10	108,420	9.43	57.11	54,533	6.80	45.28	3,190	6.90	38.47	2,567	20.32	57.65
$10 to $20	49,755	4.33	61.44	38,256	4.77	50.05	2,698	5.83	44.30	1,817	14.39	72.03
$20 to $30	43,759	3.81	65.24	27,431	3.42	53.47	10,366	22.41	66.72	210	1.66	73.70
$30 to $40	36,474	3.17	68.42	27,134	3.38	56.85	6,679	14.44	81.16	245	1.94	75.64
$40 to $50	31,741	2.76	71.18	26,142	3.26	60.11	3,281	7.09	88.26	881	6.98	82.61
Decrease or less than $50	***817,965***	***71.18***		***481,955***	***60.11***		***40,815***	***88.26***		***10,434***	***82.61***	
$50 to $60	29,315	2.55	73.73	26,443	3.30	63.41	1,179	2.55	90.81	391	3.10	85.71
$60 to $70	38,315	3.33	77.07	34,395	4.29	67.70	2,768	5.99	96.79	77	0.61	86.32
$70 to $80	51,846	4.51	81.58	50,701	6.32	74.03	264	0.57	97.36	323	2.56	88.88
$80 to $90	42,551	3.70	85.28	41,783	5.21	79.24	202	0.44	97.80	102	0.81	89.68
$90 to $100	41,883	3.64	88.93	41,455	5.17	84.41	155	0.34	98.13	105	0.83	90.51
Decrease or less than $100	***1,021,875***	***88.93***		***676,732***	***84.41***		***45,383***	***98.13***		***11,432***	***90.51***	
$100 to $150	98,298	8.55	97.48	96,951	12.09	96.50	597	1.29	99.42	582	4.61	95.12
$150 to $200	20,562	1.79	99.27	20,270	2.53	99.03	226	0.49	99.91	39	0.31	95.43
Decrease or less than $200	***1,140,735***	***99.27***		***793,953***	***99.03***		***46,206***	***99.91***		***12,053***	***95.43***	
$200 to $250	7,803	0.68	99.95	7,772	0.97	100.00	24	0.05	99.97	1	0.01	95.44
$250 to $300	278	0.02	99.97	1	0.00	100.00	9	0.02	99.98	263	2.08	97.52
Decrease or less than $300	***1,148,816***	***99.97***		***801,726***	***100.00***		***46,239***	***99.98***		***12,317***	***97.52***	
$300 or more	324	0.03	100.00	0	0.00	100.00	7	0.02	100.00	313	2.48	100.00
Total Increasing	***601,324***	***52.33***		***493,267***	***61.53***		***31,645***	***68.43***		***7,916***	***62.68***	
Grand Total	**1,149,140**	**100.00**		**801,726**	**100.00**		**46,246**	**100.00**		**12,630**	**100.00**	

Figure RM -16 6.0 DOLLAR DISTRIBUTION - ALL CLASSIFICATION AND RATE ADJUSTMENTS

	Motorcycles - 2018			Trailers - 2018			Off-Road Vehicles - 2019		
	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
Decreasing									
$300 or more	4	0.02	0.02	0	0.00	0.00	0	0.00	0.00
$250 to $300	2	0.01	0.04	0	0.00	0.00	0	0.00	0.00
$200 to $250	4	0.02	0.06	0	0.00	0.00	0	0.00	0.00
$150 to $200	8	0.05	0.11	0	0.00	0.00	0	0.00	0.00
$100 to $150	17	0.10	0.21	0	0.00	0.00	0	0.00	0.00
$90 to $100	11	0.06	0.27	0	0.00	0.00	0	0.00	0.00
$80 to $90	15	0.09	0.36	0	0.00	0.00	0	0.00	0.00
$70 to $80	44	0.26	0.62	0	0.00	0.00	0	0.00	0.00
$60 to $70	44	0.26	0.88	0	0.00	0.00	0	0.00	0.00
$50 to $60	158	0.93	1.80	0	0.00	0.00	0	0.00	0.00
$40 to $50	128	0.75	2.56	0	0.00	0.00	0	0.00	0.00
$30 to $40	176	1.03	3.59	15,161	7.55	7.55	0	0.00	0.00
$20 to $30	438	2.57	6.16	8,194	4.08	11.64	0	0.00	0.00
$10 to $20	243	1.43	7.59	19,783	9.86	21.50	0	0.00	0.00
$1 to $10	1,321	7.76	15.35	22,546	11.23	32.73	70,838	100.00	100.00
Total Decreasing	***2,613***	***15.35***		***65,684***	***32.73***		***70,838***	***100.00***	
No change	72	***0.42***	***15.77***	80,835	***40.28***	***73.01***	0	***0.00***	***100.00***
Increasing									
$1 to $10	3,474	20.41	36.18	44,656	22.25	95.27	0	0.00	100.00
$10 to $20	2,183	12.82	49.00	4,801	2.39	97.66	0	0.00	100.00
$20 to $30	2,431	14.28	63.28	3,321	1.65	99.31	0	0.00	100.00
$30 to $40	1,036	6.09	69.37	1,380	0.69	100.00	0	0.00	100.00
$40 to $50	1,437	8.44	77.81	0	0.00	100.00	0	0.00	100.00
Decrease or less than $50	***13,246***	***77.81***		***200,677***	***100.00***		***70,838***	***100.00***	
$50 to $60	1,302	7.65	85.46	0	0.00	100.00	0	0.00	100.00
$60 to $70	1,075	6.31	91.78	0	0.00	100.00	0	0.00	100.00
$70 to $80	558	3.28	95.05	0	0.00	100.00	0	0.00	100.00
$80 to $90	464	2.73	97.78	0	0.00	100.00	0	0.00	100.00
$90 to $100	168	0.99	98.77	0	0.00	100.00	0	0.00	100.00
Decrease or less than $100	***16,813***	***98.77***		***200,677***	***100.00***		***70,838***	***100.00***	
$100 to $150	168	0.99	99.75	0	0.00	100.00	0	0.00	100.00
$150 to $200	27	0.16	99.91	0	0.00	100.00	0	0.00	100.00
Decrease or less than $200	***17,008***	***99.91***		***200,677***	***100.00***		***70,838***	***100.00***	
$200 to $250	6	0.04	99.95	0	0.00	100.00	0	0.00	100.00
$250 to $300	5	0.03	99.98	0	0.00	100.00	0	0.00	100.00
Decrease or less than $300	***17,019***	***99.98***		***200,677***	***100.00***		***70,838***	***100.00***	
$300 or more	4	0.02	100.00	0	0.00	100.00	0	0.00	100.00
Total Increasing	***14,338***	***84.23***		***54,158***	***26.99***		***0***	***0.00***	
Grand Total	**17,023**	**100.00**		**200,677**	**100.00**		**70,838**	**100.00**	

Figure RM -17 6.0 PERCENT DISTRIBUTION - ALL CLASSIFICATION AND RATE ADJUSTMENTS

	All Vehicles - 2019			Private Passenger Vehicles - 2019			Commercial Vehicles - 2019			Public Vehicles - 2019		
	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
Decreasing												
20% or more	70,850	6.17	6.17	0	0.00	0.00	4	0.01	0.01	2	0.02	0.02
19 to 20%	3	0.00	6.17	2	0.00	0.00	1	0.00	0.01	0	0.00	0.02
18 to 19%	47	0.00	6.17	1	0.00	0.00	4	0.01	0.02	42	0.33	0.35
17 to 18%	49	0.00	6.17	11	0.00	0.00	3	0.01	0.03	35	0.28	0.63
16 to 17%	134	0.01	6.19	106	0.01	0.01	10	0.02	0.05	18	0.14	0.77
15 to 16%	91	0.01	6.19	66	0.01	0.02	7	0.02	0.06	18	0.14	0.91
14 to 15%	329	0.03	6.22	278	0.03	0.06	15	0.03	0.10	36	0.29	1.20
13 to 14%	761	0.07	6.29	698	0.09	0.14	32	0.07	0.16	31	0.25	1.44
12 to 13%	1,999	0.17	6.46	1,913	0.24	0.38	27	0.06	0.22	51	0.40	1.84
11 to 12%	28,877	2.51	8.98	6,077	0.76	1.14	184	0.40	0.62	63	0.50	2.34
10 to 11%	17,103	1.49	10.46	5,290	0.66	1.80	210	0.45	1.07	133	1.05	3.40
9 to 10%	21,282	1.85	12.32	8,140	1.02	2.82	62	0.13	1.21	39	0.31	3.71
8 to 9%	38,808	3.38	15.69	23,583	2.94	5.76	46	0.10	1.31	98	0.78	4.48
7 to 8%	31,889	2.78	18.47	27,966	3.49	9.25	201	0.43	1.74	127	1.01	5.49
6 to 7%	30,233	2.63	21.10	29,740	3.71	12.96	257	0.56	2.30	216	1.71	7.20
5 to 6%	36,381	3.17	24.26	35,564	4.44	17.39	572	1.24	3.54	225	1.78	8.98
4 to 5%	39,099	3.40	27.67	37,289	4.65	22.04	866	1.87	5.41	600	4.75	13.73
3 to 4%	30,179	2.63	30.29	29,106	3.63	25.67	710	1.54	6.94	147	1.16	14.89
2 to 3%	33,368	2.90	33.20	31,661	3.95	29.62	1,145	2.48	9.42	242	1.92	16.81
1 to 2%	35,133	3.06	36.25	33,161	4.14	33.76	1,308	2.83	12.25	292	2.31	19.12
0 to 1%	45,581	3.97	40.22	34,547	4.31	38.07	7,502	16.22	28.47	2,281	18.06	37.18
Total Decreasing	***462,196***	***40.22***		***305,199***	***38.07***		***13,166***	***28.47***		***4,696***	***37.18***	
No change	85,620	***7.45***	***47.67***	3,260	***0.41***	***38.47***	1,435	***3.10***	***31.57***	18	***0.14***	***37.32***
Increasing												
0 to 1%	47,019	4.09	51.76	40,098	5.00	43.48	2,096	4.53	36.10	2,222	17.59	54.92
1 to 2%	58,687	5.11	56.87	52,711	6.57	50.05	2,415	5.22	41.33	1,716	13.59	68.50
2 to 3%	39,289	3.42	60.29	34,314	4.28	54.33	2,450	5.30	46.62	1,261	9.98	78.49
3 to 4%	45,713	3.98	64.27	37,076	4.62	58.96	5,840	12.63	59.25	1,259	9.97	88.46
4 to 5%	44,658	3.89	68.15	35,147	4.38	63.34	3,947	8.53	67.79	152	1.20	89.66
Decrease or less than + 5%	***783,182***	***68.15***		***507,805***	***63.34***		***31,349***	***67.79***		***11,324***	***89.66***	
5 to 6%	51,690	4.50	72.65	35,275	4.40	67.74	8,741	18.90	86.69	899	7.12	96.78
6 to 7%	78,574	6.84	79.49	69,505	8.67	76.41	1,217	2.63	89.32	278	2.20	98.98
7 to 8%	82,727	7.20	86.69	79,169	9.87	86.28	320	0.69	90.01	89	0.70	99.68
8 to 9%	52,894	4.60	91.29	51,555	6.43	92.71	185	0.40	90.41	7	0.06	99.74
9 to 10%	23,733	2.07	93.36	18,437	2.30	95.01	4,100	8.87	99.28	17	0.13	99.87
Decrease or less than +10%	***1,072,800***	***93.36***		***761,746***	***95.01***		***45,912***	***99.28***		***12,614***	***99.87***	
10 to 11%	1,130	0.10	93.46	759	0.09	95.11	187	0.40	99.68	5	0.04	99.91
11 to 12%	15,288	1.33	94.79	15,227	1.90	97.01	50	0.11	99.79	2	0.02	99.93
12 to 13%	5,571	0.48	95.27	5,524	0.69	97.70	21	0.05	99.84	0	0.00	99.93
13 to 14%	17,345	1.51	96.78	17,329	2.16	99.86	11	0.02	99.86	0	0.00	99.93
14 to 15%	1,190	0.10	96.88	1,135	0.14	100.00	50	0.11	99.97	3	0.02	99.95
Decrease or less than +15%	***1,113,324***	***96.88***		***801,720***	***100.00***		***46,231***	***99.97***		***12,624***	***99.95***	
15 to 16%	19	0.00	96.88	3	0.00	100.00	9	0.02	99.99	5	0.04	99.99
16 to 17%	35,760	3.11	100.00	2	0.00	100.00	0	0.00	99.99	0	0.00	99.99
17 to 18%	6	0.00	100.00	0	0.00	100.00	6	0.01	100.00	0	0.00	99.99
18 to 19%	0	0.00	100.00	0	0.00	100.00	0	0.00	100.00	0	0.00	99.99
19 to 20%	2	0.00	100.00	0	0.00	100.00	0	0.00	100.00	0	0.00	99.99
Decrease or less than +20%	***1,149,111***	***100.00***		***801,725***	***100.00***		***46,246***	***100.00***		***12,629***	***99.99***	
20% or more	29	0.00	100.00	1	0.00	100.00	0	0.00	100.00	1	0.00	100.00
Total Increasing	***601,324***	***52.33***		***493,267***	***61.53***		***31,645***	***68.43***		***7,916***	***62.68***	
Grand Total	**1,149,140**	**100.00**		**801,726**	**100.00**		**46,246**	**100.00**		**12,630**	**100.00**	

Figure RM -17 6.0 PERCENT DISTRIBUTION - ALL CLASSIFICATION AND RATE ADJUSTMENTS

	Motorcycles - 2019			Trailers - 2019			Off-Road Vehicles - 2019		
	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
Decreasing									
20% or more	6	0.04	0.04	0	0.00	0.00	70,838	100.00	100.00
19 to 20%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
18 to 19%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
17 to 18%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
16 to 17%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
15 to 16%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
14 to 15%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
13 to 14%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
12 to 13%	8	0.05	0.08	0	0.00	0.00	0	0.00	100.00
11 to 12%	7	0.04	0.12	22,546	11.23	11.23	0	0.00	100.00
10 to 11%	8	0.05	0.17	11,462	5.71	16.95	0	0.00	100.00
9 to 10%	12	0.07	0.24	13,029	6.49	23.44	0	0.00	100.00
8 to 9%	22	0.13	0.37	15,059	7.50	30.94	0	0.00	100.00
7 to 8%	7	0.04	0.41	3,588	1.79	32.73	0	0.00	100.00
6 to 7%	20	0.12	0.53	0	0.00	32.73	0	0.00	100.00
5 to 6%	20	0.12	0.65	0	0.00	32.73	0	0.00	100.00
4 to 5%	344	2.02	2.67	0	0.00	32.73	0	0.00	100.00
3 to 4%	216	1.27	3.94	0	0.00	32.73	0	0.00	100.00
2 to 3%	320	1.88	5.82	0	0.00	32.73	0	0.00	100.00
1 to 2%	372	2.19	8.00	0	0.00	32.73	0	0.00	100.00
0 to 1%	1,251	7.35	15.35	0	0.00	32.73	0	0.00	100.00
Total Decreasing	***2,613***	***15.35***		***65,684***	***32.73***		***70,838***	***100.00***	
No change	72	***0.42***	***15.77***	80,835	***40.28***	***73.01***	0	***0.00***	***100.00***
Increasing									
0 to 1%	2,603	15.29	31.06	0	0.00	73.01	0	0.00	100.00
1 to 2%	1,845	10.84	41.90	0	0.00	73.01	0	0.00	100.00
2 to 3%	1,264	7.43	49.33	0	0.00	73.01	0	0.00	100.00
3 to 4%	1,538	9.03	58.36	0	0.00	73.01	0	0.00	100.00
4 to 5%	365	2.14	60.51	5,047	2.51	75.53	0	0.00	100.00
Decrease or less than + 5%	***10,300***	***60.51***		***151,566***	***75.53***		***70,838***	***100.00***	
5 to 6%	1,600	9.40	69.91	5,175	2.58	78.11	0	0.00	100.00
6 to 7%	2,017	11.85	81.75	5,557	2.77	80.88	0	0.00	100.00
7 to 8%	1,278	7.51	89.26	1,871	0.93	81.81	0	0.00	100.00
8 to 9%	474	2.78	92.05	673	0.34	82.14	0	0.00	100.00
9 to 10%	1,101	6.47	98.51	78	0.04	82.18	0	0.00	100.00
Decrease or less than +10%	***16,770***	***98.51***		***164,920***	***82.18***		***70,838***	***100.00***	
10 to 11%	179	1.05	99.57	0	0.00	82.18	0	0.00	100.00
11 to 12%	9	0.05	99.62	0	0.00	82.18	0	0.00	100.00
12 to 13%	26	0.15	99.77	0	0.00	82.18	0	0.00	100.00
13 to 14%	5	0.03	99.80	0	0.00	82.18	0	0.00	100.00
14 to 15%	2	0.01	99.81	0	0.00	82.18	0	0.00	100.00
Decrease or less than +15%	***16,991***	***99.81***		***164,920***	***82.18***		***70,838***	***100.00***	
15 to 16%	2	0.01	99.82	0	0.00	82.18	0	0.00	100.00
16 to 17%	1	0.01	99.83	35,757	17.82	100.00	0	0.00	100.00
17 to 18%	0	0.00	99.83	0	0.00	100.00	0	0.00	100.00
18 to 19%	0	0.00	99.83	0	0.00	100.00	0	0.00	100.00
19 to 20%	2	0.01	99.84	0	0.00	100.00	0	0.00	100.00
Decrease or less than +20%	***16,996***	***99.84***		***200,677***	***100.00***		***70,838***	***100.00***	
20% or more	27	0.16	100.00	0	0.00	100.00	0	0.00	100.00
Total Increasing	***14,338***	***84.23***		***54,158***	***26.99***		***0***	***0.00***	
Grand Total	**17,023**	**100.00**		**200,677**	**100.00**		**70,838**	**100.00**	

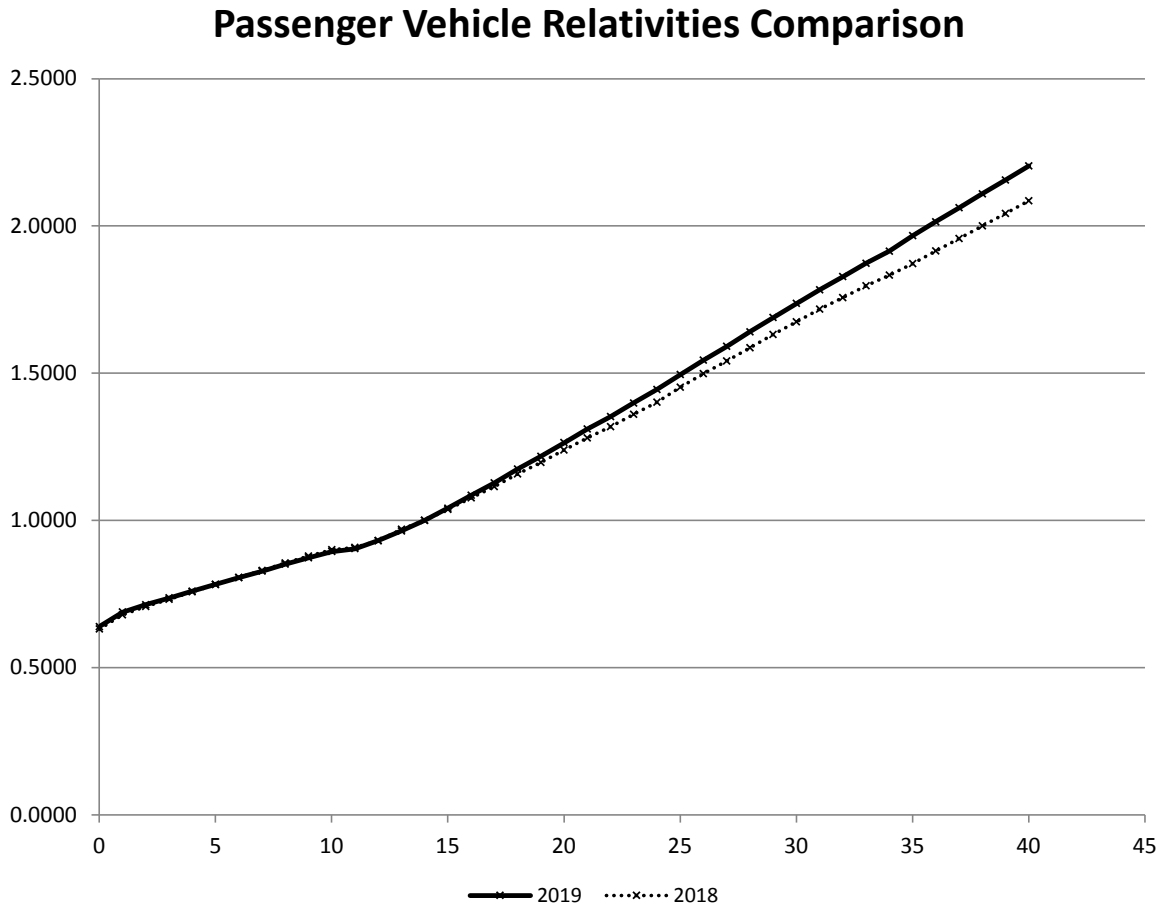
Rateline Relativities

Passenger Vehicle Relativity

(Credibility-Weighted)

Rate Group	For 2019 Rates	For 2018 Rates
0	0.6392	0.6305
1	0.6885	0.6794
2	0.7136	0.7076
3	0.7363	0.7322
4	0.7594	0.7569
5	0.7827	0.7815
6	0.8050	0.8059
7	0.8277	0.8300
8	0.8509	0.8547
9	0.8731	0.8783
10	0.8939	0.8997
11	0.9037	0.9081
12	0.9319	0.9306
13	0.9638	0.9696
14	1.0000	1.0000
15	1.0415	1.0376
16	1.0848	1.0764
17	1.1274	1.1149
18	1.1742	1.1571
19	1.2177	1.1966
20	1.2637	1.2385
21	1.3100	1.2803
22	1.3527	1.3182
23	1.3987	1.3599
24	1.4444	1.4012
25	1.4947	1.4522
26	1.5438	1.4976
27	1.5908	1.5415
28	1.6400	1.5863
29	1.6886	1.6310
30	1.7366	1.6738
31	1.7831	1.7170
32	1.8279	1.7566
33	1.8727	1.7962
34	1.9140	1.8325
35	1.9668	1.8719
36	2.0141	1.9146
37	2.0614	1.9573
38	2.1088	2.0000
39	2.1561	2.0427
40	2.2034	2.0854

Rateline Relativities
Passenger Vehicle Relativity



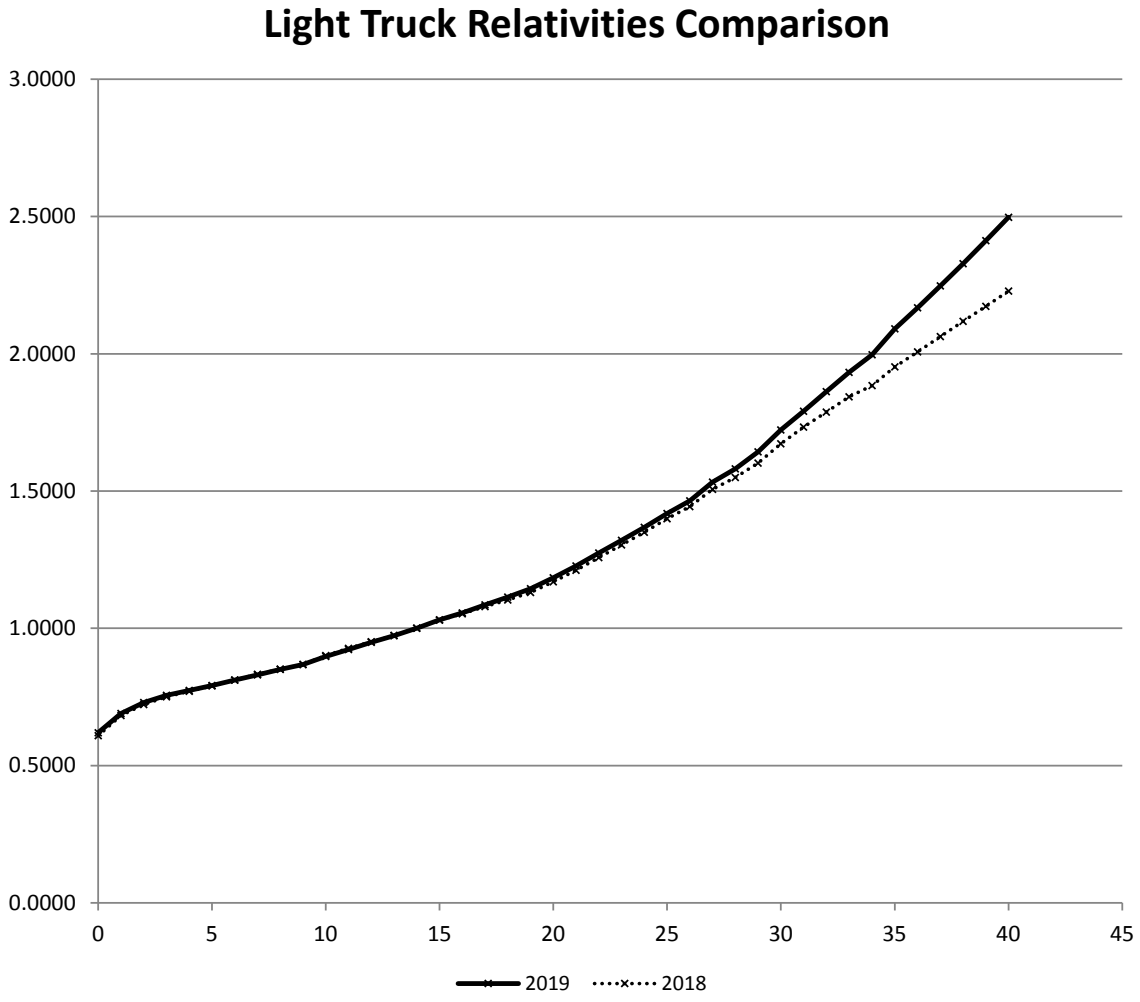
Rateline Relativities

Light Truck Relativity

(Credibility-Weighted)

Rate Group	For 2019 Rates	For 2018 Rates
0	0.6200	0.6087
1	0.6901	0.6826
2	0.7292	0.7219
3	0.7559	0.7504
4	0.7735	0.7708
5	0.7916	0.7906
6	0.8111	0.8116
7	0.8307	0.8322
8	0.8504	0.8518
9	0.8684	0.8687
10	0.8976	0.9010
11	0.9231	0.9271
12	0.9486	0.9514
13	0.9733	0.9743
14	1.0000	1.0000
15	1.0309	1.0300
16	1.0560	1.0526
17	1.0852	1.0790
18	1.1133	1.1032
19	1.1444	1.1307
20	1.1837	1.1693
21	1.2269	1.2116
22	1.2742	1.2577
23	1.3203	1.3037
24	1.3676	1.3494
25	1.4186	1.3992
26	1.4646	1.4432
27	1.5329	1.5058
28	1.5808	1.5490
29	1.6430	1.6022
30	1.7220	1.6718
31	1.7908	1.7331
32	1.8617	1.7879
33	1.9326	1.8427
34	1.9964	1.8845
35	2.0907	1.9521
36	2.1679	2.0073
37	2.2471	2.0625
38	2.3284	2.1177
39	2.4118	2.1729
40	2.4972	2.2281

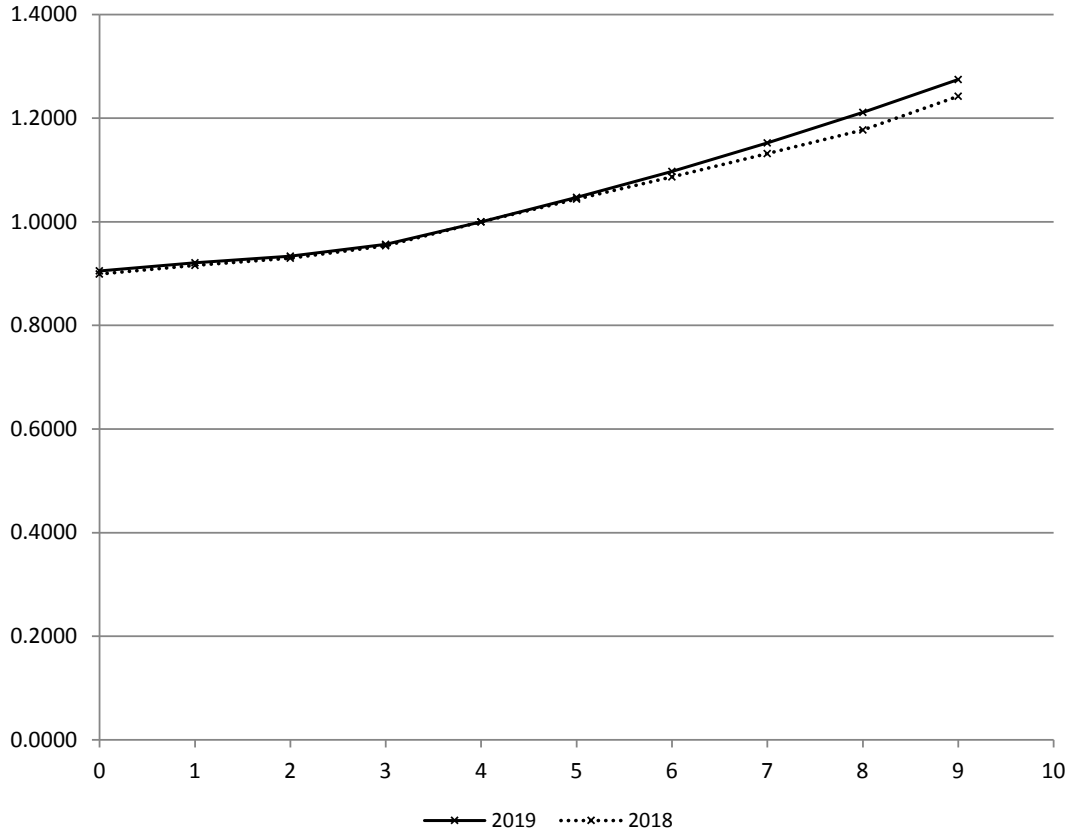
Rateline Relativities
Light Truck Relativity



Rateline Relativities
Motorcycle Relativity

Rate Group	(Credibility-Weighted) For 2019 Rates	For 2018 Rates
0	0.9051	0.8991
1	0.9207	0.9159
2	0.9336	0.9299
3	0.9562	0.9537
4	1.0000	1.0000
5	1.0473	1.0436
6	1.0974	1.0868
7	1.1520	1.1314
8	1.2110	1.1772
9	1.2746	1.2423

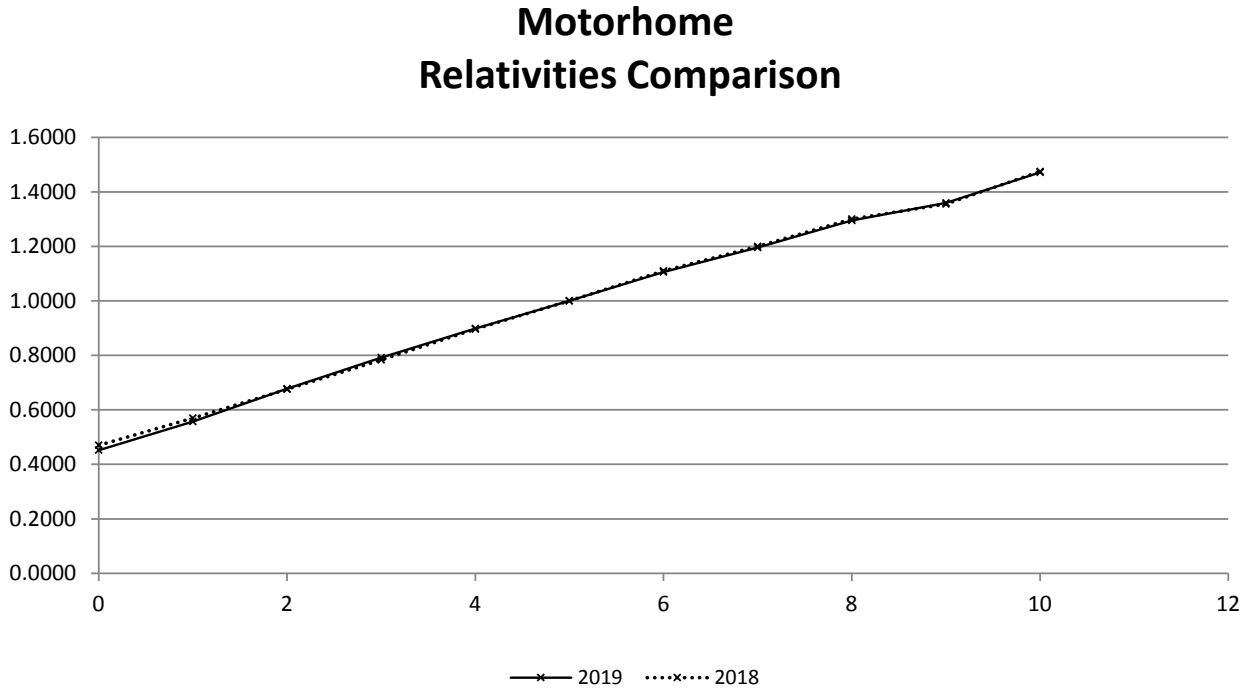
Motorcycle Relativities Comparison



Rateline Relativities
Motorhome Relativity

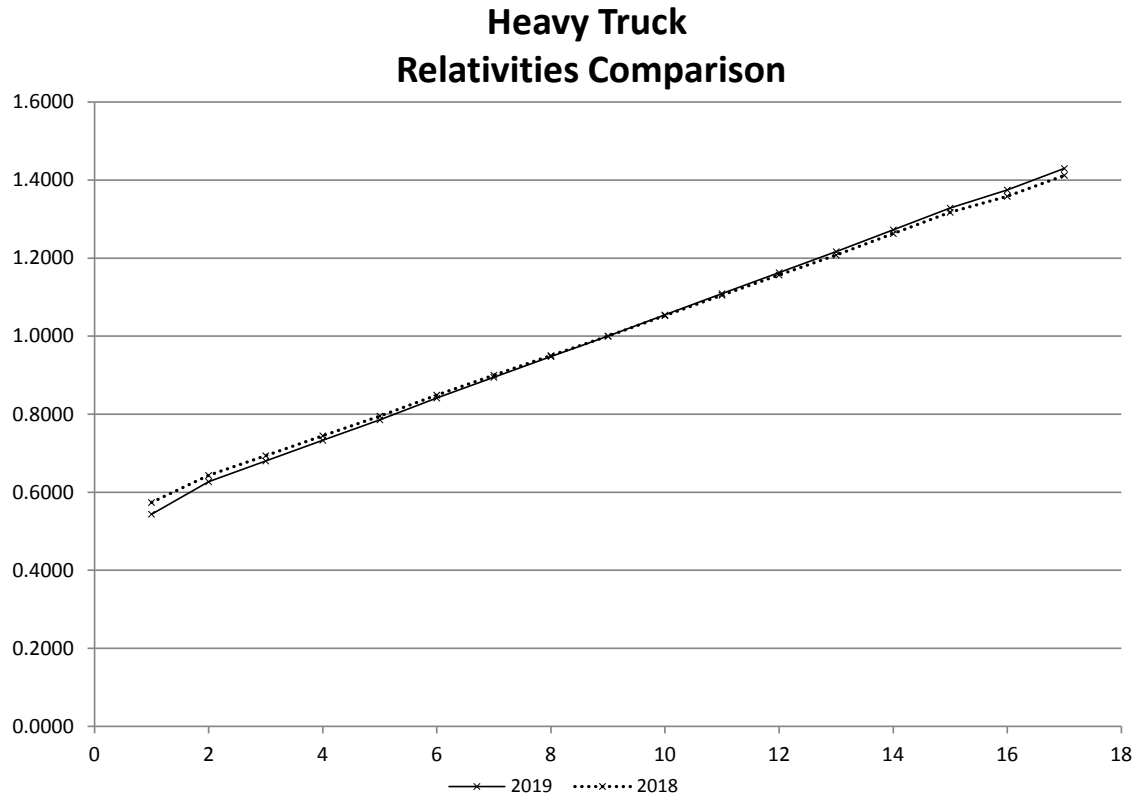
(Credibility-Weighted)

Rate Group	For 2019 Rates	For 2018 Rates
0	0.4518	0.4699
1	0.5569	0.5701
2	0.6776	0.6755
3	0.7912	0.7830
4	0.8990	0.8959
5	1.0000	1.0000
6	1.1057	1.1100
7	1.1960	1.1996
8	1.2947	1.3001
9	1.3591	1.3551
10	1.4714	1.4747



Rateline Relativities
Heavy Truck Relativity

Rate Group	(Credibility-Weighted) For 2019 Rates	For 2018 Rates
1	0.5437	0.5741
2	0.6268	0.6435
3	0.6798	0.6940
4	0.7329	0.7446
5	0.7858	0.7950
6	0.8415	0.8491
7	0.8948	0.9001
8	0.9476	0.9503
9	1.0000	1.0000
10	1.0544	1.0524
11	1.1090	1.1050
12	1.1632	1.1571
13	1.2166	1.2081
14	1.2729	1.2631
15	1.3287	1.3173
16	1.3748	1.3587
17	1.4299	1.4120

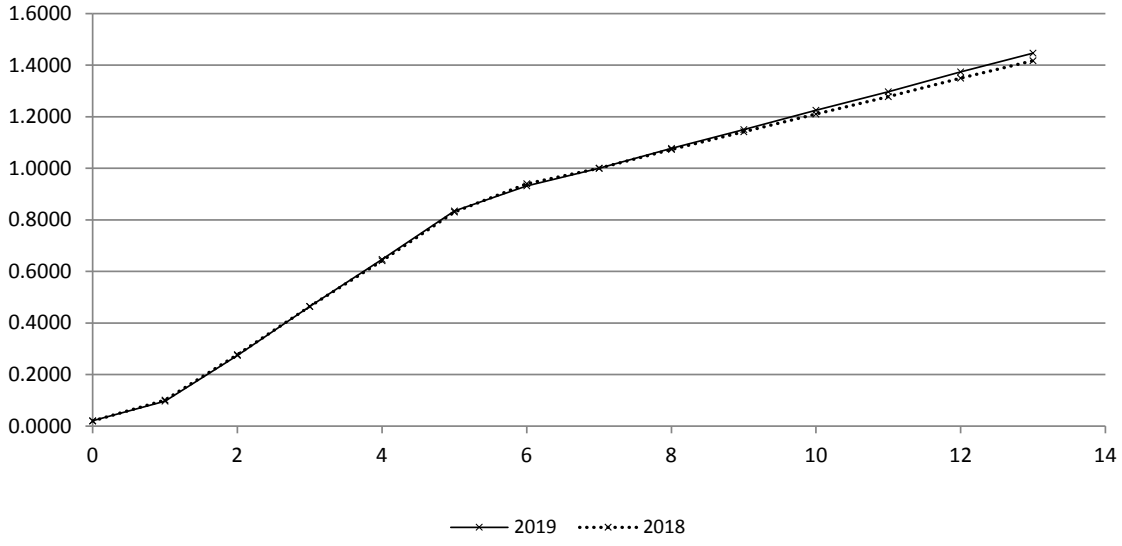


Rateline Relativities

Trailer Relativity

Rate Group	(Credibility-Weighted) For 2019 Rates	For 2018 Rates
0	0.0209	0.0199
1	0.0970	0.1009
2	0.2744	0.2775
3	0.4637	0.4645
4	0.6461	0.6417
5	0.8340	0.8306
6	0.9313	0.9397
7	1.0000	1.0000
8	1.0768	1.0735
9	1.1500	1.1412
10	1.2246	1.2106
11	1.2971	1.2776
12	1.3740	1.3497
13	1.4466	1.4173

Trailer
Relativities Comparison

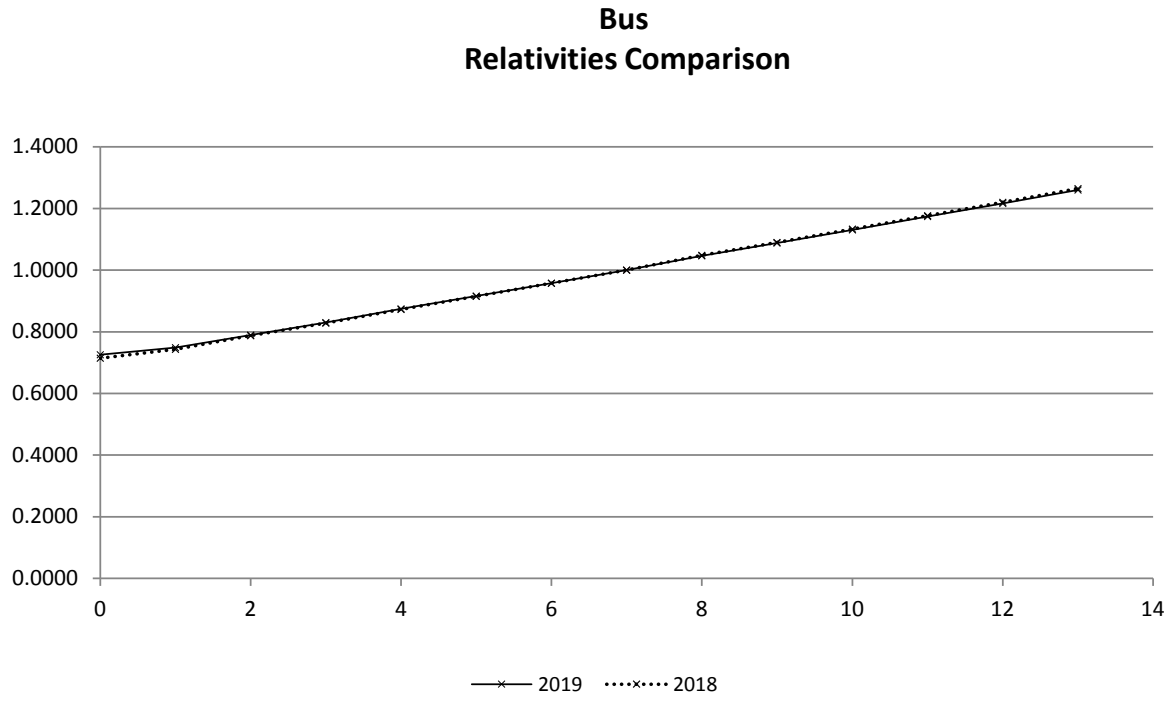


Rateline Relativities

Bus Relativity

(Credibility-Weighted)

Rate Group	For 2019 Rates	For 2018 Rates
0	0.7256	0.7142
1	0.7484	0.7435
2	0.7891	0.7871
3	0.8299	0.8279
4	0.8740	0.8730
5	0.9160	0.9154
6	0.9580	0.9577
7	1.0000	1.0000
8	1.0461	1.0478
9	1.0882	1.0902
10	1.1308	1.1334
11	1.1737	1.1769
12	1.2166	1.2205
13	1.2600	1.2647



CLASSIFICATION OFFSET ADJUSTMENTS

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: PRIVATE PASSENGER					
1	Pleasure Passenger Vehicle		116,550	1.62	-3.72	-2.09
1	All Purpose Passenger Vehicle		233,956	1.62	-3.72	-2.09
1	Collector Passenger Vehicle		1,328	1.62	-3.72	-2.09
1	Farm Passenger Vehicle		28	1.62	-3.72	-2.09
1	Farming All Purpose Truck	GW 0000000-0004540	273	2.46	-4.51	-2.18
1	Fishing All Purpose Truck	GW 0000000-0004540	5	2.46	-4.51	-2.18
1	Disabled Persons/Private/Business Bus		343		0.11	0.11
1	Pleasure Motorhome		1,574		0.19	0.19
1	All Purpose Motorhome		66		0.19	0.19
1	All Purpose Truck	GW 0000000-0004540	50,394	2.46	-4.51	-2.18
1	Antique Vehicle - Bus		10			
1	Antique Vehicle - Motorcycle		56			
1	Antique Vehicle - Passenger Vehicle		11			
1	Antique Vehicle - Truck		11			
1	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	112	2.46	-4.51	-2.18
1	Pleasure Truck	GW 0000000-0004540	16,860	2.46	-4.51	-2.18
2	Pleasure Passenger Vehicle		89,304	1.62	-3.72	-2.09
2	All Purpose Passenger Vehicle		94,415	1.62	-3.72	-2.09
2	Collector Passenger Vehicle		1,813	1.62	-3.72	-2.09
2	Farm Passenger Vehicle		6,322	1.62	-3.72	-2.09
2	Farming All Purpose Truck	GW 0000000-0004540	29,413	2.46	-4.51	-2.18
2	Fishing All Purpose Truck	GW 0000000-0004540	272	2.46	-4.51	-2.18
2	Disabled Persons/Private/Business Bus		583		0.11	0.11
2	Pleasure Motorhome		2,942		0.19	0.19
2	All Purpose Motorhome		61		0.19	0.19
2	All Purpose Truck	GW 0000000-0004540	50,970	2.46	-4.51	-2.18
2	Antique Vehicle - Motorcycle		39			
2	Antique Vehicle - Passenger Vehicle		21			
2	Antique Vehicle - Truck		25			
2	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	380	2.46	-4.51	-2.18
2	Pleasure Truck	GW 0000000-0004540	38,735	2.46	-4.51	-2.18
3	Pleasure Passenger Vehicle		1,409	1.62	-3.72	-2.09
3	All Purpose Passenger Vehicle		3,589	1.62	-3.72	-2.09
3	Collector Passenger Vehicle		14	1.62	-3.72	-2.09
3	Farming All Purpose Truck	GW 0000000-0004540	9	2.46	-4.51	-2.18
3	Fishing All Purpose Truck	GW 0000000-0004540	5	2.46	-4.51	-2.18
3	Disabled Persons/Private/Business Bus		93		0.11	0.11
3	Pleasure Motorhome		38		0.19	0.19

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: PRIVATE PASSENGER *(cont'd)*					
3	All Purpose Motorhome		1		0.19	0.19
3	All Purpose Truck	GW 0000000-0004540	3,807	2.46	-4.51	-2.18
3	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	4	2.46	-4.51	-2.18
3	Pleasure Truck	GW 0000000-0004540	1,295	2.46	-4.51	-2.18
4	Pleasure Passenger Vehicle		3,473	1.62	-3.72	-2.09
4	All Purpose Passenger Vehicle		4,484	1.62	-3.72	-2.09
4	Collector Passenger Vehicle		15	1.62	-3.72	-2.09
4	Farm Passenger Vehicle		13	1.62	-3.72	-2.09
4	Farming All Purpose Truck	GW 0000000-0004540	139	2.46	-4.51	-2.18
4	Fishing All Purpose Truck	GW 0000000-0004540	43	2.46	-4.51	-2.18
4	Disabled Persons/Private/Business Bus		58		0.11	0.11
4	Pleasure Motorhome		83		0.19	0.19
4	All Purpose Motorhome		2		0.19	0.19
4	All Purpose Truck	GW 0000000-0004540	4,584	2.46	-4.51	-2.18
4	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	4	2.46	-4.51	-2.18
4	Pleasure Truck	GW 0000000-0004540	2,741	2.46	-4.51	-2.18
Commuter	All Purpose Passenger Vehicle		26,850	1.62	-3.72	-2.09
Commuter	Farming All Purpose Truck	GW 0000000-0004540	418	2.46	-4.51	-2.18
Commuter	Fishing All Purpose Truck	GW 0000000-0004540	6	2.46	-4.51	-2.18
Commuter	All Purpose Motorhome		5		0.19	0.19
Commuter	All Purpose Truck	GW 0000000-0004540	11,672	2.46	-4.51	-2.18
	PRIVATE PASSENGER CLASS TOTAL		801,726			
	MAJOR CLASS: COMMERCIAL					
1	Farming All Purpose Truck	GW 0004541-0016330	42	3.52	2.44	6.36
1	Farming All Purpose Truck	GW 0016331-0099999	44	3.52	2.44	6.36
1	Artisan Truck	GW 0000000-0004540	7	2.46	-4.51	-2.18
1	Artisan Truck	GW 0004541-0016330	70	3.52	2.44	6.36
1	Artisan Truck	GW 0016331-0099999	7			
1	Sand/Gravel Truck	GW 0010891-0016330	92	3.52	2.44	6.36
1	Sand/Gravel Truck	GW 0016331-0099999	417			
1	Petroleum/Chemical Truck	GW 0000000-0004540	1	2.46	-4.51	-2.18
1	Petroleum/Chemical Truck	GW 0004541-0016330	37	3.52	2.44	6.36
1	Petroleum/Chemical Truck	GW 0016331-0099999	61			
1	Cement/Brick/Exploration Truck	GW 0010891-0016330	2	3.52	2.44	6.36
1	Cement/Brick/Exploration Truck	GW 0016331-0099999	154			
1	Tow Truck	GW 0000000-0004540	16	2.46	-4.51	-2.18
1	Tow Truck	GW 0004541-0016330	168	3.52	2.44	6.36
1	Tow Truck	GW 0016331-0099999	25			
1	Common Carrier Local Passenger Vehicle		787	1.62	-3.72	-2.09
1	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	220	2.46	-4.51	-2.18

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: COMMERCIAL *(cont'd)*					
1	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	276	3.52	2.44	6.36
1	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	212			
1	Common Carrier Passenger Vehicle Within 161km in MB		30	1.62	-3.72	-2.09
1	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	83	2.46	-4.51	-2.18
1	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	374	3.52	2.44	6.36
1	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	173			
1	Common Carrier Passenger Vehicle Over 161km in MB		4	1.62	-3.72	-2.09
1	Common Carrier Truck Over 161km in MB	GW 0000000-0004540	42	2.46	-4.51	-2.18
1	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	155	3.52	2.44	6.36
1	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	228			
1	All Purpose Snow Vehicle (HTA)		4			
1	Driveaway Over 161km outside MB		11			
1	Dealer Trailer		64			
1	Dealer All Uses except Motorcycles		2,353			
1	Repairer		657			
1	Dealer Motorcycle		158			
1	Other Truck	GW 0000000-0004540	52	2.46	-4.51	-2.18
1	Other Truck	GW 0004541-0016330	3,780	3.52	2.44	6.36
1	Other Truck	GW 0016331-0099999	1,784			
2	Farming All Purpose Truck	GW 0004541-0016330	4,125	3.52	2.44	6.36
2	Farming All Purpose Truck	GW 0016331-0099999	11,064	3.52	2.44	6.36
2	Fishing All Purpose Truck	GW 0004541-0016330	1	3.52	2.44	6.36
2	Fishing All Purpose Truck	GW 0016331-0099999	2	3.52	2.44	6.36
2	Artisan Truck	GW 0000000-0004540	9	2.46	-4.51	-2.18
2	Artisan Truck	GW 0004541-0016330	57	3.52	2.44	6.36
2	Artisan Truck	GW 0016331-0099999	4			
2	Sand/Gravel Truck	GW 0010891-0016330	138	3.52	2.44	6.36
2	Sand/Gravel Truck	GW 0016331-0099999	1,935			
2	Petroleum/Chemical Truck	GW 0000000-0004540	240	2.46	-4.51	-2.18
2	Petroleum/Chemical Truck	GW 0004541-0016330	133	3.52	2.44	6.36
2	Petroleum/Chemical Truck	GW 0016331-0099999	422			
2	Logging Truck	GW 0000000-0004540	2	2.46	-4.51	-2.18
2	Logging Truck	GW 0004541-0016330	6	3.52	2.44	6.36
2	Logging Truck	GW 0016331-0099999	126			
2	Cement/Brick/Exploration Truck	GW 0010891-0016330	3	3.52	2.44	6.36
2	Cement/Brick/Exploration Truck	GW 0016331-0099999	342			
2	Tow Truck	GW 0000000-0004540	24	2.46	-4.51	-2.18
2	Tow Truck	GW 0004541-0016330	269	3.52	2.44	6.36
2	Tow Truck	GW 0016331-0099999	28			
2	Common Carrier Local Passenger Vehicle		522	1.62	-3.72	-2.09

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: COMMERCIAL *(cont'd)*					
2	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	60	2.46	-4.51	-2.18
2	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	31	3.52	2.44	6.36
2	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	54			
2	Common Carrier Passenger Vehicle Within 161km in MB		15	1.62	-3.72	-2.09
2	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	105	2.46	-4.51	-2.18
2	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	113	3.52	2.44	6.36
2	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	320			
2	Common Carrier Passenger Vehicle Over 161km in MB		8	1.62	-3.72	-2.09
2	Common Carrier Truck Over 161km in MB	GW 0000000-0004540	48	2.46	-4.51	-2.18
2	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	95	3.52	2.44	6.36
2	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	330			
2	All Purpose Snow Vehicle (HTA)		32			
2	Driveaway Within MB		4			
2	Driveaway Over 161km outside MB		23			
2	Dealer Trailer		126			
2	Dealer Moped		2			
2	Dealer All Uses except Motorcycles		2,218			
2	Repairer		698			
2	Dealer Motorcycle		198			
2	Other Truck	GW 0000000-0004540	123	2.46	-4.51	-2.18
2	Other Truck	GW 0004541-0016330	4,258	3.52	2.44	6.36
2	Other Truck	GW 0016331-0099999	3,027			
3	Artisan Truck	GW 0004541-0016330	1	3.52	2.44	6.36
3	Sand/Gravel Truck	GW 0010891-0016330	2	3.52	2.44	6.36
3	Sand/Gravel Truck	GW 0016331-0099999	24			
3	Petroleum/Chemical Truck	GW 0004541-0016330	10	3.52	2.44	6.36
3	Petroleum/Chemical Truck	GW 0016331-0099999	16			
3	Cement/Brick/Exploration Truck	GW 0016331-0099999	14			
3	Tow Truck	GW 0000000-0004540	1	2.46	-4.51	-2.18
3	Tow Truck	GW 0004541-0016330	7	3.52	2.44	6.36
3	Tow Truck	GW 0016331-0099999	2			
3	Common Carrier Local Passenger Vehicle		21	1.62	-3.72	-2.09
3	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	7	2.46	-4.51	-2.18
3	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	1	3.52	2.44	6.36
3	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	1	3.52	2.44	6.36
3	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	10			
3	All Purpose Snow Vehicle (HTA)		2			
3	Dealer Trailer		5			
3	Dealer All Uses except Motorcycles		32			
3	Repairer		18			

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: COMMERCIAL *(cont'd)*					
3	Other Truck	GW 0000000-0004540	4	2.46	-4.51	-2.18
3	Other Truck	GW 0004541-0016330	281	3.52	2.44	6.36
3	Other Truck	GW 0016331-0099999	129			
4	Farming All Purpose Truck	GW 0004541-0016330	16	3.52	2.44	6.36
4	Farming All Purpose Truck	GW 0016331-0099999	38	3.52	2.44	6.36
4	Artisan Truck	GW 0000000-0004540	1	2.46	-4.51	-2.18
4	Artisan Truck	GW 0004541-0016330	1	3.52	2.44	6.36
4	Sand/Gravel Truck	GW 0010891-0016330	4	3.52	2.44	6.36
4	Sand/Gravel Truck	GW 0016331-0099999	67			
4	Petroleum/Chemical Truck	GW 0000000-0004540	1	2.46	-4.51	-2.18
4	Petroleum/Chemical Truck	GW 0004541-0016330	2	3.52	2.44	6.36
4	Petroleum/Chemical Truck	GW 0016331-0099999	18			
4	Logging Truck	GW 0004541-0016330	1	3.52	2.44	6.36
4	Logging Truck	GW 0016331-0099999	25			
4	Cement/Brick/Exploration Truck	GW 0016331-0099999	15			
4	Tow Truck	GW 0004541-0016330	12	3.52	2.44	6.36
4	Tow Truck	GW 0016331-0099999	1			
4	Common Carrier Local Passenger Vehicle		15	1.62	-3.72	-2.09
4	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	6	2.46	-4.51	-2.18
4	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	2	3.52	2.44	6.36
4	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	4			
4	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	2	2.46	-4.51	-2.18
4	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	2	3.52	2.44	6.36
4	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	11			
4	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	7	3.52	2.44	6.36
4	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	17			
4	All Purpose Snow Vehicle (HTA)		11			
4	Dealer Trailer		2			
4	Dealer All Uses except Motorcycles		49			
4	Repairer		18			
4	Dealer Motorcycle		2			
4	Other Truck	GW 0000000-0004540	1	2.46	-4.51	-2.18
4	Other Truck	GW 0004541-0016330	278	3.52	2.44	6.36
4	Other Truck	GW 0016331-0099999	141			
Commuter	Artisan Truck	GW 0004541-0016330	34	3.52	2.44	6.36
Commuter	Other Truck	GW 0000000-0004540	11	2.46	-4.51	-2.18
Commuter	Other Truck	GW 0004541-0016330	913	3.52	2.44	6.36
	COMMERCIAL CLASS TOTAL		46,246			

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: PUBLIC					
1	U Drive Bus		18			
1	U Drive Motorhome		18			
1	U Drive Passenger Vehicle		4,767	1.62	-3.72	-2.09
1	U Drive Moped		2		-0.72	-0.72
1	Transit Bus		643			
1	School Bus		654		0.11	0.11
1	Charter Bus Local		40		0.11	0.11
1	Police/Emergency Passenger Vehicle		383	1.62	-3.72	-2.09
1	Police/Emergency Truck	GW 0000000-0004540	33			
1	Police/Emergency Truck	GW 0004541-0016330	6			
1	Funeral Passenger Vehicle		53	1.62	-3.72	-2.09
1	Common Carrier Bus Within MB		55			
1	Taxicab Vehicle-for-Hire 4		526			
1	Limousine Vehicle-for-Hire 4		92			
1	Accessible Vehicle-for-Hire 4		52		0.11	0.11
1	U Drive Truck	GW 0000000-0004540	814	2.46	-4.51	-2.18
1	U Drive Truck	GW 0004541-0016330	304	3.52	2.44	6.36
1	U Drive Truck	GW 0016331-0099999	34			
1	Common Carrier Bus Over 161km outside MB		74			
2	U Drive Bus		18			
2	U Drive Motorhome		23			
2	U Drive Passenger Vehicle		822	1.62	-3.72	-2.09
2	Transit Bus		47		0.11	0.11
2	School Bus		1,607		0.11	0.11
2	Charter Bus Local		2		0.11	0.11
2	Police/Emergency Passenger Vehicle		269	1.62	-3.72	-2.09
2	Police/Emergency Truck	GW 0000000-0004540	46			
2	Police/Emergency Truck	GW 0016331-0099999	2			
2	Funeral Passenger Vehicle		77	1.62	-3.72	-2.09
2	Common Carrier Bus Within MB		26			
2	Taxicab Vehicle-for-Hire 4		148			
2	Limousine Vehicle-for-Hire 4		20			
2	U Drive Truck	GW 0000000-0004540	227	2.46	-4.51	-2.18
2	U Drive Truck	GW 0004541-0016330	23	3.52	2.44	6.36
2	U Drive Truck	GW 0016331-0099999	17			
2	Common Carrier Bus Over 161km outside MB		27			
3	U Drive Bus		1			
3	U Drive Passenger Vehicle		72	1.62	-3.72	-2.09
3	Transit Bus		2		0.11	0.11

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: PUBLIC *(cont'd)*					
3	School Bus		55		0.11	0.11
3	Police/Emergency Passenger Vehicle		16	1.62	-3.72	-2.09
3	Police/Emergency Truck	GW 0000000-0004540	14			
3	Police/Emergency Truck	GW 0004541-0016330	2			
3	Funeral Passenger Vehicle		1	1.62	-3.72	-2.09
3	Taxicab Vehicle-for-Hire 4		50			
3	Limousine Vehicle-for-Hire 4		1			
3	U Drive Truck	GW 0000000-0004540	104	2.46	-4.51	-2.18
3	U Drive Truck	GW 0004541-0016330	1	3.52	2.44	6.36
3	U Drive Truck	GW 0016331-0099999	1			
4	U Drive Passenger Vehicle		71	1.62	-3.72	-2.09
4	Transit Bus		3		0.11	0.11
4	School Bus		155		0.11	0.11
4	Charter Bus Local		6		0.11	0.11
4	Police/Emergency Passenger Vehicle		21	1.62	-3.72	-2.09
4	Police/Emergency Truck	GW 0000000-0004540	11			
4	Funeral Passenger Vehicle		5	1.62	-3.72	-2.09
4	Common Carrier Bus Within MB		9			
4	Taxicab Vehicle-for-Hire 4		26			
4	U Drive Truck	GW 0000000-0004540	28	2.46	-4.51	-2.18
4	U Drive Truck	GW 0004541-0016330	1	3.52	2.44	6.36
4	Common Carrier Bus Over 161km outside MB		5			
	PUBLIC CLASS TOTAL		12,630			
	MAJOR CLASS: MOTORCYCLE					
1	All Purpose Motorcycle - Motorscooter Rating		158		-0.72	-0.72
1	All Purpose Motorcycle - Other Rating		536		-0.72	-0.72
1	All Purpose Motorcycle - Sport Rating		119		-0.72	-0.72
1	All Purpose Motorcycle - Touring Rating		280		-0.72	-0.72
1	All Purpose Motorcycle - Sport-Touring Rating		59		-0.72	-0.72
1	Pleasure Motorcycle - Motorscooter Rating		233		-0.72	-0.72
1	Pleasure Motorcycle - Other Rating		2,786		-0.72	-0.72
1	Pleasure Motorcycle - Sport Rating		638		-0.72	-0.72
1	Pleasure Motorcycle - Touring Rating		1,479		-0.72	-0.72
1	Pleasure Motorcycle - Sport-Touring Rating		256		-0.72	-0.72
1	All Purpose Moped		445		-0.72	-0.72
1	Pleasure Moped		662		-0.72	-0.72
2	All Purpose Motorcycle - Motorscooter Rating		23		-0.72	-0.72
2	All Purpose Motorcycle - Other Rating		266		-0.72	-0.72
2	All Purpose Motorcycle - Sport Rating		40		-0.72	-0.72
2	All Purpose Motorcycle - Touring Rating		156		-0.72	-0.72
2	All Purpose Motorcycle - Sport-Touring Rating		21		-0.72	-0.72

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: MOTORCYCLE *(cont'd)*					
2	Pleasure Motorcycle - Motorscooter Rating		149		-0.72	-0.72
2	Pleasure Motorcycle - Other Rating		3,699		-0.72	-0.72
2	Pleasure Motorcycle - Sport Rating		452		-0.72	-0.72
2	Pleasure Motorcycle - Touring Rating		2,937		-0.72	-0.72
2	Pleasure Motorcycle - Sport-Touring Rating		279		-0.72	-0.72
2	All Purpose Moped		159		-0.72	-0.72
2	Pleasure Moped		414		-0.72	-0.72
3	All Purpose Motorcycle - Motorscooter Rating		2		-0.72	-0.72
3	All Purpose Motorcycle - Other Rating		33		-0.72	-0.72
3	All Purpose Motorcycle - Sport Rating		4		-0.72	-0.72
3	All Purpose Motorcycle - Touring Rating		15		-0.72	-0.72
3	Pleasure Motorcycle - Motorscooter Rating		4		-0.72	-0.72
3	Pleasure Motorcycle - Other Rating		103		-0.72	-0.72
3	Pleasure Motorcycle - Sport Rating		12		-0.72	-0.72
3	Pleasure Motorcycle - Touring Rating		93		-0.72	-0.72
3	Pleasure Motorcycle - Sport-Touring Rating		10		-0.72	-0.72
3	All Purpose Moped		7		-0.72	-0.72
3	Pleasure Moped		8		-0.72	-0.72
4	All Purpose Motorcycle - Motorscooter Rating		4		-0.72	-0.72
4	All Purpose Motorcycle - Other Rating		12		-0.72	-0.72
4	All Purpose Motorcycle - Touring Rating		12		-0.72	-0.72
4	All Purpose Motorcycle - Sport-Touring Rating		1		-0.72	-0.72
4	Pleasure Motorcycle - Motorscooter Rating		8		-0.72	-0.72
4	Pleasure Motorcycle - Other Rating		147		-0.72	-0.72
4	Pleasure Motorcycle - Sport Rating		13		-0.72	-0.72
4	Pleasure Motorcycle - Touring Rating		106		-0.72	-0.72
4	Pleasure Motorcycle - Sport-Touring Rating		6		-0.72	-0.72
4	All Purpose Moped		3		-0.72	-0.72
4	Pleasure Moped		7		-0.72	-0.72
Commuter	All Purpose Motorcycle - Motorscooter Rating		6		-0.72	-0.72
Commuter	All Purpose Motorcycle - Other Rating		84		-0.72	-0.72
Commuter	All Purpose Motorcycle - Sport Rating		16		-0.72	-0.72
Commuter	All Purpose Motorcycle - Touring Rating		49		-0.72	-0.72
Commuter	All Purpose Motorcycle - Sport-Touring Rating		12		-0.72	-0.72
	MOTORCYCLE CLASS TOTAL		17,023			
	MAJOR CLASS: TRAILER					
1	All Purpose Trailer $2500 or less		35,757		-0.46	-0.46
1	All Purpose Trailer $2501 or more		23,689		-0.46	-0.46

Territory	Insurance Use	Gross Vehicle Weight Range KG (Trucks Only)	No. of Vehicles	Rate Group Offset (%)	Rate Line Offset (%)	Combined Classification Offset (%)
	MAJOR CLASS: TRAILER *(cont'd)*					
2	All Purpose Trailer $2500 or less		65,877		-0.46	-0.46
2	All Purpose Trailer $2501 or more		65,684		-0.46	-0.46
3	All Purpose Trailer $2500 or less		2,059		-0.46	-0.46
3	All Purpose Trailer $2501 or more		1,429		-0.46	-0.46
4	All Purpose Trailer $2500 or less		3,785		-0.46	-0.46
4	All Purpose Trailer $2501 or more		2,397		-0.46	-0.46
	TRAILER CLASS TOTAL		200,677			
	MAJOR CLASS: OFF ROAD VEHICLE					
1	Off Road Vehicle - ATV		7,443			
1	Off Road Vehicle - Motorcycle		375			
1	Off Road Vehicle - Snowmobile		7,973			
1	Off Road Vehicle - Snow Vehicle		24			
2	Off Road Vehicle - ATV		27,756			
2	Off Road Vehicle - Motorcycle		579			
2	Off Road Vehicle - Snowmobile		22,165			
2	Off Road Vehicle - Snow Vehicle		66			
	MAJOR CLASS: TRAILER *(cont'd)*					
3	Off Road Vehicle - ATV		781			
3	Off Road Vehicle - Motorcycle		12			
3	Off Road Vehicle - Snowmobile		958			
3	Off Road Vehicle - Snow Vehicle		4			
4	Off Road Vehicle - ATV		1,279			
4	Off Road Vehicle - Motorcycle		5			
4	Off Road Vehicle - Snowmobile		1,409			
4	Off Road Vehicle - Snow Vehicle		9			
	OFF ROAD VEHICLE CLASS TOTAL		70,838			
	GRAND TOTAL		1,149,140			

2019 EXPERIENCE RATE ADJUSTMENTS

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: PRIVATE PASSENGER			
1	Pleasure Passenger Vehicle		116,550	3.06
1	All Purpose Passenger Vehicle		233,956	1.74
1	Collector Passenger Vehicle		1,328	-2.33
1	Farm Passenger Vehicle		28	-1.18
1	Farming All Purpose Truck	GW 0000000-0004540	273	2.86
1	Fishing All Purpose Truck	GW 0000000-0004540	5	15.00
1	Disabled Persons/Private/Business Bus		343	3.66
1	Pleasure Motorhome		1,574	6.05
1	All Purpose Motorhome		66	-0.80
1	All Purpose Truck	GW 0000000-0004540	50,394	2.64
1	Antique Vehicle - Bus		10	-2.08
1	Antique Vehicle - Motorcycle		56	-2.08
1	Antique Vehicle - Passenger Vehicle		11	-2.08
1	Antique Vehicle - Truck		11	-2.08
1	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	112	-4.71
1	Pleasure Truck	GW 0000000-0004540	16,860	3.07
2	Pleasure Passenger Vehicle		89,304	4.03
2	All Purpose Passenger Vehicle		94,415	2.93
2	Collector Passenger Vehicle		1,813	-0.30
2	Farm Passenger Vehicle		6,322	4.19
2	Farming All Purpose Truck	GW 0000000-0004540	29,413	2.62
2	Fishing All Purpose Truck	GW 0000000-0004540	272	1.52
2	Disabled Persons/Private/Business Bus		583	4.60
2	Pleasure Motorhome		2,942	5.72
2	All Purpose Motorhome		61	6.59
2	All Purpose Truck	GW 0000000-0004540	50,970	2.91
2	Antique Vehicle - Motorcycle		39	-0.52
2	Antique Vehicle - Passenger Vehicle		21	-0.52
2	Antique Vehicle - Truck		25	-0.52
2	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	380	-0.48
2	Pleasure Truck	GW 0000000-0004540	38,735	3.20
3	Pleasure Passenger Vehicle		1,409	3.30
3	All Purpose Passenger Vehicle		3,589	2.53
3	Collector Passenger Vehicle		14	0.56
3	Farming All Purpose Truck	GW 0000000-0004540	9	0.60
3	Fishing All Purpose Truck	GW 0000000-0004540	5	15.00
3	Disabled Persons/Private/Business Bus		93	4.07
3	Pleasure Motorhome		38	6.71
3	All Purpose Motorhome		1	-15.00
3	All Purpose Truck	GW 0000000-0004540	3,807	-0.47
3	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	4	10.59
3	Pleasure Truck	GW 0000000-0004540	1,295	-0.15
4	Pleasure Passenger Vehicle		3,473	0.41

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: PRIVATE PASSENGER *(cont'd)*			
4	All Purpose Passenger Vehicle		4,484	-0.39
4	Collector Passenger Vehicle		15	-2.44
4	Farm Passenger Vehicle		13	-2.16
4	Farming All Purpose Truck	GW 0000000-0004540	139	1.49
4	Fishing All Purpose Truck	GW 0000000-0004540	43	-5.28
4	Disabled Persons/Private/Business Bus		58	3.61
4	Pleasure Motorhome		83	2.12
4	All Purpose Motorhome		2	3.36
4	All Purpose Truck	GW 0000000-0004540	4,584	-3.21
4	Collector Truck 4,540 kg or less GVW	GW 0000000-0004540	4	1.45
4	Pleasure Truck	GW 0000000-0004540	2,741	-2.40
Commuter	All Purpose Passenger Vehicle		26,850	1.41
Commuter	Farming All Purpose Truck	GW 0000000-0004540	418	-0.96
Commuter	Fishing All Purpose Truck	GW 0000000-0004540	6	-6.12
Commuter	All Purpose Motorhome		5	15.00
Commuter	All Purpose Truck	GW 0000000-0004540	11,672	1.25
	PRIVATE PASSENGER CLASS TOTAL		**801,726**	
	MAJOR CLASS: COMMERCIAL:			
1	Farming All Purpose Truck	GW 0004541-0016330	42	9.31
1	Farming All Purpose Truck	GW 0016331-0099999	44	10.27
1	Artisan Truck	GW 0000000-0004540	7	-13.56
1	Artisan Truck	GW 0004541-0016330	70	3.88
1	Artisan Truck	GW 0016331-0099999	7	1.05
1	Sand/Gravel Truck	GW 0010891-0016330	92	9.19
1	Sand/Gravel Truck	GW 0016331-0099999	417	4.70
1	Petroleum/Chemical Truck	GW 0000000-0004540	1	-0.52
1	Petroleum/Chemical Truck	GW 0004541-0016330	37	3.94
1	Petroleum/Chemical Truck	GW 0016331-0099999	61	4.96
1	Cement/Brick/Exploration Truck	GW 0010891-0016330	2	-8.37
1	Cement/Brick/Exploration Truck	GW 0016331-0099999	154	-0.14
1	Tow Truck	GW 0000000-0004540	16	3.55
1	Tow Truck	GW 0004541-0016330	168	8.29
1	Tow Truck	GW 0016331-0099999	25	10.24
1	Common Carrier Local Passenger Vehicle		787	1.83
1	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	220	6.10
1	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	276	4.11
1	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	212	3.66
1	Common Carrier Passenger Vehicle Within 161km in MB		30	2.19
1	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	83	0.76
1	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	374	8.12
1	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	173	4.85
1	Common Carrier Passenger Vehicle Over 161km in MB		4	-0.68
1	Common Carrier Truck Over 161km in MB	GW 0000000-0004540	42	6.26
1	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	155	0.61
1	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	228	-0.73
1	All Purpose Snow Vehicle (HTA)		4	-1.64
1	Driveaway Over 161km outside MB		11	-4.73

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: COMMERCIAL *(cont'd)*			
1	Dealer Trailer		64	2.91
1	Dealer All Uses except Motorcycles		2,353	3.93
1	Repairer		657	1.99
1	Dealer Motorcycle		158	-1.56
1	Other Truck	GW 0000000-0004540	52	-0.53
1	Other Truck	GW 0004541-0016330	3,780	-0.67
1	Other Truck	GW 0016331-0099999	1,784	-0.37
2	Farming All Purpose Truck	GW 0004541-0016330	4,125	9.18
2	Farming All Purpose Truck	GW 0016331-0099999	11,064	4.75
2	Fishing All Purpose Truck	GW 0004541-0016330	1	-1.77
2	Fishing All Purpose Truck	GW 0016331-0099999	2	9.70
2	Artisan Truck	GW 0000000-0004540	9	4.16
2	Artisan Truck	GW 0004541-0016330	57	2.99
2	Artisan Truck	GW 0016331-0099999	4	0.90
2	Sand/Gravel Truck	GW 0010891-0016330	138	8.83
2	Sand/Gravel Truck	GW 0016331-0099999	1,935	4.44
2	Petroleum/Chemical Truck	GW 0000000-0004540	240	-3.60
2	Petroleum/Chemical Truck	GW 0004541-0016330	133	3.01
2	Petroleum/Chemical Truck	GW 0016331-0099999	422	4.52
2	Logging Truck	GW 0000000-0004540	2	-15.00
2	Logging Truck	GW 0004541-0016330	6	-3.20
2	Logging Truck	GW 0016331-0099999	126	3.64
2	Cement/Brick/Exploration Truck	GW 0010891-0016330	3	-3.10
2	Cement/Brick/Exploration Truck	GW 0016331-0099999	342	-0.15
2	Tow Truck	GW 0000000-0004540	24	15.00
2	Tow Truck	GW 0004541-0016330	269	5.96
2	Tow Truck	GW 0016331-0099999	28	15.00
2	Common Carrier Local Passenger Vehicle		522	1.82
2	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	60	3.91
2	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	31	-1.18
2	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	54	2.90
2	Common Carrier Passenger Vehicle Within 161km in MB		15	-5.17
2	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	105	3.72
2	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	113	3.98
2	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	320	6.52
2	Common Carrier Passenger Vehicle Over 161km in MB		8	-1.83
2	Common Carrier Truck Over 161km in MB	GW 0000000-0004540	48	-3.82
2	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	95	4.54
2	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	330	-0.73
2	All Purpose Snow Vehicle (HTA)		32	-1.27
2	Driveaway Within MB		4	-4.37
2	Driveaway Over 161km outside MB		23	-3.61
2	Dealer Trailer		126	2.74
2	Dealer Moped		2	-4.40
2	Dealer All Uses except Motorcycles		2,218	3.66
2	Repairer		698	2.02
2	Dealer Motorcycle		198	-1.67
2	Other Truck	GW 0000000-0004540	123	-5.04
2	Other Truck	GW 0004541-0016330	4,258	-0.36

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: COMMERCIAL *(cont'd)*			
2	Other Truck	GW 0016331-0099999	3,027	-0.49
3	Artisan Truck	GW 0004541-0016330	1	-11.16
3	Sand/Gravel Truck	GW 0010891-0016330	2	-12.02
3	Sand/Gravel Truck	GW 0016331-0099999	24	0.05
3	Petroleum/Chemical Truck	GW 0004541-0016330	10	1.43
3	Petroleum/Chemical Truck	GW 0016331-0099999	16	0.52
3	Cement/Brick/Exploration Truck	GW 0016331-0099999	14	-3.96
3	Tow Truck	GW 0000000-0004540	1	4.01
3	Tow Truck	GW 0004541-0016330	7	14.80
3	Tow Truck	GW 0016331-0099999	2	1.36
3	Common Carrier Local Passenger Vehicle		21	0.59
3	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	7	0.10
3	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	1	15.00
3	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	1	15.00
3	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	10	-0.73
3	All Purpose Snow Vehicle (HTA)		2	-4.35
3	Dealer Trailer		5	-1.58
3	Dealer All Uses except Motorcycles		32	-0.99
3	Repairer		18	-1.24
3	Other Truck	GW 0000000-0004540	4	-3.46
3	Other Truck	GW 0004541-0016330	281	-3.68
3	Other Truck	GW 0016331-0099999	129	-4.66
4	Farming All Purpose Truck	GW 0004541-0016330	16	5.66
4	Farming All Purpose Truck	GW 0016331-0099999	38	1.97
4	Artisan Truck	GW 0000000-0004540	1	15.00
4	Artisan Truck	GW 0004541-0016330	1	-14.78
4	Sand/Gravel Truck	GW 0010891-0016330	4	3.72
4	Sand/Gravel Truck	GW 0016331-0099999	67	0.43
4	Petroleum/Chemical Truck	GW 0000000-0004540	1	7.65
4	Petroleum/Chemical Truck	GW 0004541-0016330	2	3.27
4	Petroleum/Chemical Truck	GW 0016331-0099999	18	0.76
4	Logging Truck	GW 0004541-0016330	1	9.08
4	Logging Truck	GW 0016331-0099999	25	-0.41
4	Cement/Brick/Exploration Truck	GW 0016331-0099999	15	-3.72
4	Tow Truck	GW 0004541-0016330	12	10.02
4	Tow Truck	GW 0016331-0099999	1	12.60
4	Common Carrier Local Passenger Vehicle		15	-10.20
4	Common Carrier Truck Local Within City or Mun.	GW 0000000-0004540	6	-13.83
4	Common Carrier Truck Local Within City or Mun.	GW 0004541-0016330	2	-15.00
4	Common Carrier Truck Local Within City or Mun.	GW 0016331-0099999	4	6.93
4	Common Carrier Truck Within 161km in MB	GW 0000000-0004540	2	13.46
4	Common Carrier Truck Within 161km in MB	GW 0004541-0016330	2	-4.62
4	Common Carrier Truck Within 161km in MB	GW 0016331-0099999	11	-2.90
4	Common Carrier Truck Over 161km in MB	GW 0004541-0016330	7	-4.06
4	Common Carrier Truck Over 161km in MB > 16,330 kg	GW 0016331-0099999	17	-0.73
4	All Purpose Snow Vehicle (HTA)		11	-3.85
4	Dealer Trailer		2	-1.13

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: COMMERCIAL *(cont'd)*			
4	Dealer All Uses except Motorcycles		49	-0.51
4	Repairer		18	-0.70
4	Dealer Motorcycle		2	-5.51
4	Other Truck	GW 0000000-0004540	1	-12.13
4	Other Truck	GW 0004541-0016330	278	-2.94
4	Other Truck	GW 0016331-0099999	141	-4.16
Commuter	Artisan Truck	GW 0004541-0016330	34	7.19
Commuter	Other Truck	GW 0000000-0004540	11	-3.14
Commuter	Other Truck	GW 0004541-0016330	913	2.39
	COMMERCIAL CLASS TOTAL		**46,246**	
	MAJOR CLASS: PUBLIC			
1	U Drive Bus		18	1.67
1	U Drive Motorhome		18	2.22
1	U Drive Passenger Vehicle		4,767	-4.79
1	U Drive Moped		2	15.00
1	Transit Bus		643	1.65
1	School Bus		654	-0.46
1	Charter Bus Local		40	-0.75
1	Police/Emergency Passenger Vehicle		383	-3.60
1	Police/Emergency Truck	GW 0000000-0004540	33	-3.18
1	Police/Emergency Truck	GW 0004541-0016330	6	1.71
1	Funeral Passenger Vehicle		53	-5.10
1	Common Carrier Bus Within MB		55	1.08
1	Taxicab Vehicle-for-Hire 4		526	3.82
1	Limousine Vehicle-for-Hire 4		92	-0.33
1	Accessible Vehicle-for-Hire 4		52	5.28
1	U Drive Truck	GW 0000000-0004540	814	-4.41
1	U Drive Truck	GW 0004541-0016330	304	-0.92
1	U Drive Truck	GW 0016331-0099999	34	-9.97
1	Common Carrier Bus Over 161km outside MB		74	6.08
2	U Drive Bus		18	4.66
2	U Drive Motorhome		23	5.22
2	U Drive Passenger Vehicle		822	0.68
2	Transit Bus		47	5.18
2	School Bus		1,607	3.21
2	Charter Bus Local		2	11.19
2	Police/Emergency Passenger Vehicle		269	4.26
2	Police/Emergency Truck	GW 0000000-0004540	46	-0.16
2	Police/Emergency Truck	GW 0016331-0099999	2	-15.00
2	Funeral Passenger Vehicle		77	0.83
2	Common Carrier Bus Within MB		26	1.08
2	Taxicab Vehicle-for-Hire 4		148	-4.42
2	Limousine Vehicle-for-Hire 4		20	-7.64
2	U Drive Truck	GW 0000000-0004540	227	-4.62
2	U Drive Truck	GW 0004541-0016330	23	-8.39
2	U Drive Truck	GW 0016331-0099999	17	-6.61

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: PUBLIC *(cont'd)*			
2	Common Carrier Bus Over 161km outside MB		27	6.08
3	U Drive Bus		1	2.29
3	U Drive Passenger Vehicle		72	-3.52
3	Transit Bus		2	-1.80
3	School Bus		55	0.88
3	Police/Emergency Passenger Vehicle		16	7.02
3	Police/Emergency Truck	GW 0000000-0004540	14	-2.42
3	Police/Emergency Truck	GW 0004541-0016330	2	2.18
3	Funeral Passenger Vehicle		1	-5.05
3	Taxicab Vehicle-for-Hire 4		50	7.08
3	Limousine Vehicle-for-Hire 4		1	15.00
3	U Drive Truck	GW 0000000-0004540	104	-8.09
3	U Drive Truck	GW 0004541-0016330	1	-15.00
3	U Drive Truck	GW 0016331-0099999	1	-12.10
4	U Drive Passenger Vehicle		71	-2.20
4	Transit Bus		3	-5.03
4	School Bus		155	1.70
4	Charter Bus Local		6	15.00
4	Police/Emergency Passenger Vehicle		21	7.74
4	Police/Emergency Truck	GW 0000000-0004540	11	-1.27
4	Funeral Passenger Vehicle		5	-2.61
4	Common Carrier Bus Within MB		9	1.08
4	Taxicab Vehicle-for-Hire 4		26	2.66
4	U Drive Truck	GW 0000000-0004540	28	-2.99
4	U Drive Truck	GW 0004541-0016330	1	8.11
4	Common Carrier Bus Over 161km outside MB		5	6.08
	PUBLIC CLASS TOTAL		**12,630**	
	MAJOR CLASS: MOTORCYCLE			
1	All Purpose Motorcycle - Motorscooter Rating	ES 0000000-0000500	146	6.52
1	All Purpose Motorcycle - Motorscooter Rating	ES 0000501-0001000	12	-0.22
1	All Purpose Motorcycle - Other Rating	ES 0000000-0000500	166	4.72
1	All Purpose Motorcycle - Other Rating	ES 0000501-0001000	152	2.41
1	All Purpose Motorcycle - Other Rating	ES 0001001-0099999	218	2.41
1	All Purpose Motorcycle - Sport Rating	ES 0000000-0000500	71	9.18
1	All Purpose Motorcycle - Sport Rating	ES 0000501-0001000	45	-0.13
1	All Purpose Motorcycle - Sport Rating	ES 0001001-0099999	3	-0.13
1	All Purpose Motorcycle - Touring Rating	ES 0000000-0000500	7	3.95
1	All Purpose Motorcycle - Touring Rating	ES 0000501-0001000	37	2.58
1	All Purpose Motorcycle - Touring Rating	ES 0001001-0099999	236	2.58
1	All Purpose Motorcycle - Sport-Touring Rating	ES 0000000-0000500	7	10.65
1	All Purpose Motorcycle - Sport-Touring Rating	ES 0000501-0001000	33	4.55
1	All Purpose Motorcycle - Sport-Touring Rating	ES 0001001-0099999	19	4.55
1	Pleasure Motorcycle - Motorscooter Rating	ES 0000000-0000500	192	9.90
1	Pleasure Motorcycle - Motorscooter Rating	ES 0000501-0001000	41	7.32
1	Pleasure Motorcycle - Other Rating	ES 0000000-0000500	349	8.13
1	Pleasure Motorcycle - Other Rating	ES 0000501-0001000	873	6.40

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: MOTORCYCLE *(cont'd)*			
1	Pleasure Motorcycle - Other Rating	ES 0001001-0099999	1,564	6.40
1	Pleasure Motorcycle - Sport Rating	ES 0000000-0000500	185	10.33
1	Pleasure Motorcycle - Sport Rating	ES 0000501-0001000	387	6.22
1	Pleasure Motorcycle - Sport Rating	ES 0001001-0099999	66	6.22
1	Pleasure Motorcycle - Touring Rating	ES 0000000-0000500	25	2.73
1	Pleasure Motorcycle - Touring Rating	ES 0000501-0001000	165	7.42
1	Pleasure Motorcycle - Touring Rating	ES 0001001-0099999	1,289	7.42
1	Pleasure Motorcycle - Sport-Touring Rating	ES 0000000-0000500	14	1.98
1	Pleasure Motorcycle - Sport-Touring Rating	ES 0000501-0001000	126	5.53
1	Pleasure Motorcycle - Sport-Touring Rating	ES 0001001-0099999	116	7.91
1	All Purpose Moped		445	6.52
1	Pleasure Moped		662	9.90
2	All Purpose Motorcycle - Motorscooter Rating	ES 0000000-0000500	22	0.76
2	All Purpose Motorcycle - Motorscooter Rating	ES 0000501-0001000	1	8.32
2	All Purpose Motorcycle - Other Rating	ES 0000000-0000500	61	-4.16
2	All Purpose Motorcycle - Other Rating	ES 0000501-0001000	80	-3.85
2	All Purpose Motorcycle - Other Rating	ES 0001001-0099999	125	-3.85
2	All Purpose Motorcycle - Sport Rating	ES 0000000-0000500	20	-2.05
2	All Purpose Motorcycle - Sport Rating	ES 0000501-0001000	19	-0.28
2	All Purpose Motorcycle - Sport Rating	ES 0001001-0099999	1	-0.28
2	All Purpose Motorcycle - Touring Rating	ES 0000000-0000500	2	-0.94
2	All Purpose Motorcycle - Touring Rating	ES 0000501-0001000	23	-3.06
2	All Purpose Motorcycle - Touring Rating	ES 0001001-0099999	131	-3.06
2	All Purpose Motorcycle - Sport-Touring Rating	ES 0000000-0000500	5	-2.12
2	All Purpose Motorcycle - Sport-Touring Rating	ES 0000501-0001000	12	-3.58
2	All Purpose Motorcycle - Sport-Touring Rating	ES 0001001-0099999	4	-3.58
2	Pleasure Motorcycle - Motorscooter Rating	ES 0000000-0000500	124	3.70
2	Pleasure Motorcycle - Motorscooter Rating	ES 0000501-0001000	25	1.41
2	Pleasure Motorcycle - Other Rating	ES 0000000-0000500	347	4.09
2	Pleasure Motorcycle - Other Rating	ES 0000501-0001000	980	0.12
2	Pleasure Motorcycle - Other Rating	ES 0001001-0099999	2,372	1.05
2	Pleasure Motorcycle - Sport Rating	ES 0000000-0000500	105	4.62
2	Pleasure Motorcycle - Sport Rating	ES 0000501-0001000	296	-1.52
2	Pleasure Motorcycle - Sport Rating	ES 0001001-0099999	51	-1.52
2	Pleasure Motorcycle - Touring Rating	ES 0000000-0000500	29	7.05
2	Pleasure Motorcycle - Touring Rating	ES 0000501-0001000	236	1.32
2	Pleasure Motorcycle - Touring Rating	ES 0001001-0099999	2,672	1.32
2	Pleasure Motorcycle - Sport-Touring Rating	ES 0000000-0000500	15	0.25
2	Pleasure Motorcycle - Sport-Touring Rating	ES 0000501-0001000	148	-0.38
2	Pleasure Motorcycle - Sport-Touring Rating	ES 0001001-0099999	116	-0.38
2	All Purpose Moped		159	0.76
2	Pleasure Moped		414	3.70
3	All Purpose Motorcycle - Motorscooter Rating	ES 0000000-0000500	2	4.07
3	All Purpose Motorcycle - Other Rating	ES 0000000-0000500	7	3.78
3	All Purpose Motorcycle - Other Rating	ES 0000501-0001000	8	-8.82
3	All Purpose Motorcycle - Other Rating	ES 0001001-0099999	18	-7.94
3	All Purpose Motorcycle - Sport Rating	ES 0000000-0000500	2	-10.36
3	All Purpose Motorcycle - Sport Rating	ES 0000501-0001000	2	-5.56

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
	MAJOR CLASS: MOTORCYCLE *(cont'd)*			
3	All Purpose Motorcycle - Touring Rating	ES 0000501-0001000	5	-11.48
3	All Purpose Motorcycle - Touring Rating	ES 0001001-0099999	10	-11.48
3	Pleasure Motorcycle - Motorscooter Rating	ES 0000000-0000500	4	-2.09
3	Pleasure Motorcycle - Other Rating	ES 0000000-0000500	12	-1.79
3	Pleasure Motorcycle - Other Rating	ES 0000501-0001000	23	-3.61
3	Pleasure Motorcycle - Other Rating	ES 0001001-0099999	68	-3.61
3	Pleasure Motorcycle - Sport Rating	ES 0000000-0000500	5	-5.25
3	Pleasure Motorcycle - Sport Rating	ES 0000501-0001000	4	-11.94
3	Pleasure Motorcycle - Sport Rating	ES 0001001-0099999	3	-11.94
3	Pleasure Motorcycle - Touring Rating	ES 0000000-0000500	2	-8.56
3	Pleasure Motorcycle - Touring Rating	ES 0000501-0001000	9	-4.13
3	Pleasure Motorcycle - Touring Rating	ES 0001001-0099999	82	-4.13
3	Pleasure Motorcycle - Sport-Touring Rating	ES 0000501-0001000	4	-5.75
3	Pleasure Motorcycle - Sport-Touring Rating	ES 0001001-0099999	6	-5.75
3	All Purpose Moped		7	4.07
3	Pleasure Moped		8	-2.09
4	All Purpose Motorcycle - Motorscooter Rating	ES 0000000-0000500	4	1.80
4	All Purpose Motorcycle - Other Rating	ES 0000000-0000500	1	0.43
4	All Purpose Motorcycle - Other Rating	ES 0000501-0001000	2	-4.90
4	All Purpose Motorcycle - Other Rating	ES 0001001-0099999	9	-4.90
4	All Purpose Motorcycle - Touring Rating	ES 0000501-0001000	1	-7.44
4	All Purpose Motorcycle - Touring Rating	ES 0001001-0099999	11	-7.44
4	All Purpose Motorcycle - Sport-Touring Rating	ES 0000501-0001000	1	-10.88
4	Pleasure Motorcycle - Motorscooter Rating	ES 0000000-0000500	6	-3.03
4	Pleasure Motorcycle - Motorscooter Rating	ES 0000501-0001000	2	-3.31
4	Pleasure Motorcycle - Other Rating	ES 0000000-0000500	10	-3.95
4	Pleasure Motorcycle - Other Rating	ES 0000501-0001000	34	-0.51
4	Pleasure Motorcycle - Other Rating	ES 0001001-0099999	103	-0.51
4	Pleasure Motorcycle - Sport Rating	ES 0000000-0000500	5	1.03
4	Pleasure Motorcycle - Sport Rating	ES 0000501-0001000	6	-2.89
4	Pleasure Motorcycle - Sport Rating	ES 0001001-0099999	2	0.25
4	Pleasure Motorcycle - Touring Rating	ES 0000000-0000500	2	3.60
4	Pleasure Motorcycle - Touring Rating	ES 0000501-0001000	5	0.09
4	Pleasure Motorcycle - Touring Rating	ES 0001001-0099999	99	0.09
4	Pleasure Motorcycle - Sport-Touring Rating	ES 0000501-0001000	3	5.27
4	Pleasure Motorcycle - Sport-Touring Rating	ES 0001001-0099999	3	5.27
4	All Purpose Moped		3	1.80
4	Pleasure Moped		7	-3.03
Commuter	All Purpose Motorcycle - Motorscooter Rating	ES 0000000-0000500	5	0.19
Commuter	All Purpose Motorcycle - Motorscooter Rating	ES 0000501-0001000	1	-7.35
Commuter	All Purpose Motorcycle - Other Rating	ES 0000000-0000500	15	-3.11
Commuter	All Purpose Motorcycle - Other Rating	ES 0000501-0001000	27	-3.87
Commuter	All Purpose Motorcycle - Other Rating	ES 0001001-0099999	42	-3.87
Commuter	All Purpose Motorcycle - Sport Rating	ES 0000000-0000500	3	-4.17
Commuter	All Purpose Motorcycle - Sport Rating	ES 0000501-0001000	11	-8.11
Commuter	All Purpose Motorcycle - Sport Rating	ES 0001001-0099999	2	-8.11
Commuter	All Purpose Motorcycle - Touring Rating	ES 0000000-0000500	2	3.83
Commuter	All Purpose Motorcycle - Touring Rating	ES 0000501-0001000	2	-0.27

Territory	Insurance Use	Rating Factor	No. of Vehicles	Experience Adjustments %
Commuter	All Purpose Motorcycle - Touring Rating	ES 0001001-0099999	45	-0.27
Commuter	All Purpose Motorcycle - Sport-Touring Rating	ES 0000000-0000500	2	-10.48
Commuter	All Purpose Motorcycle - Sport-Touring Rating	ES 0000501-0001000	5	-3.33
Commuter	All Purpose Motorcycle - Sport-Touring Rating	ES 0001001-0099999	5	-3.33
	MOTORCYCLE CLASS TOTAL		**17,023**	
	MAJOR CLASS: TRAILER			
1	All Purpose Trailer $2500 or less		35,757	6.38
1	All Purpose Trailer $2501 or more		23,689	6.38
2	All Purpose Trailer $2500 or less		65,877	-8.76
2	All Purpose Trailer $2501 or more		65,684	-8.76
3	All Purpose Trailer $2500 or less		2,059	7.38
3	All Purpose Trailer $2501 or more		1,429	7.38
4	All Purpose Trailer $2500 or less		3,785	5.70
4	All Purpose Trailer $2501 or more		2,397	5.70
	TRAILER CLASS TOTAL		**200,677**	
	MAJOR CLASS: OFF ROAD VEHICLE			
1	Off Road Vehicle - ATV		7,443	-15.00
1	Off Road Vehicle - Motorcycle		375	-15.00
1	Off Road Vehicle - Snowmobile		7,973	-15.00
1	Off Road Vehicle - Snow Vehicle		24	-15.00
2	Off Road Vehicle - ATV		27,756	-15.00
2	Off Road Vehicle - Motorcycle		579	-15.00
2	Off Road Vehicle - Snowmobile		22,165	-15.00
2	Off Road Vehicle - Snow Vehicle		66	-15.00
3	Off Road Vehicle - ATV		781	-15.00
3	Off Road Vehicle - Motorcycle		12	-15.00
3	Off Road Vehicle - Snowmobile		958	-15.00
3	Off Road Vehicle - Snow Vehicle		4	-15.00
4	Off Road Vehicle - ATV		1,279	-15.00
4	Off Road Vehicle - Motorcycle		5	-15.00
4	Off Road Vehicle - Snowmobile		1,409	-15.00
4	Off Road Vehicle - Snow Vehicle		9	-15.00
	OFF ROAD VEHICLE CLASS TOTAL		**70,838**	
	GRAND TOTAL		**1,149,140**	

BASIC PROGRAM

Transition from Experience Rate Requirement Indicators to Applied For Rate Adjustment

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
1	Pleasure Passenger Vehicle	N/A	1	116,550	1,024.55	119,410,872	1,019.62	-0.48%	118,837,022	1,050.84	2.57%	122,475,804	1,050.84	2.57%	122,475,804	1,050.82	2.56%	122,472,970	1,050.84	2.57%	122,475,792
1	Pleasure Passenger Vehicle	N/A	2	89,304	903.39	80,676,088	895.68	-0.85%	79,988,043	931.82	3.15%	83,215,191	931.82	3.15%	83,215,191	931.80	3.14%	83,213,265	931.68	3.13%	83,202,398
1	Pleasure Passenger Vehicle	N/A	3	1,409	960.88	1,353,886	961.94	0.11%	1,355,375	993.74	3.42%	1,400,182	993.74	3.42%	1,400,182	993.72	3.42%	1,400,149	993.67	3.41%	1,400,074
1	Pleasure Passenger Vehicle	N/A	4	3,473	986.85	3,427,338	988.11	0.13%	3,431,699	992.22	0.54%	3,445,976	992.22	0.54%	3,445,976	992.20	0.54%	3,445,897	992.13	0.53%	3,445,659
1	All Purpose Passenger Vehicle	N/A	1	233,956	1,329.81	311,116,902	1,335.54	0.43%	312,458,710	1,358.84	2.18%	317,909,100	1,358.84	2.18%	317,909,100	1,358.81	2.18%	317,901,742	1,358.77	2.18%	317,892,901
1	All Purpose Passenger Vehicle	N/A	2	94,415	1,172.57	110,708,455	1,167.15	-0.46%	110,196,588	1,201.40	2.46%	113,430,134	1,201.40	2.46%	113,430,134	1,201.37	2.46%	113,427,508	1,201.43	2.46%	113,432,840
1	All Purpose Passenger Vehicle	N/A	3	3,589	1,239.88	4,449,944	1,251.57	0.94%	4,491,893	1,283.31	3.50%	4,605,794	1,283.31	3.50%	4,605,794	1,283.28	3.50%	4,605,687	1,283.26	3.50%	4,605,625
1	All Purpose Passenger Vehicle	N/A	4	4,484	1,275.61	5,719,839	1,286.27	0.84%	5,767,656	1,281.29	0.45%	5,745,324	1,281.29	0.45%	5,745,324	1,281.26	0.44%	5,745,191	1,281.26	0.44%	5,745,151
1	All Purpose Passenger Vehicle	N/A	5	26,850	1,418.00	38,073,291	1,418.18	0.01%	38,078,240	1,438.18	1.42%	38,615,102	1,438.18	1.42%	38,615,102	1,438.15	1.42%	38,614,208	1,438.19	1.42%	38,615,381
1	Collector Passenger Vehicle	N/A	1	1,328	217.24	288,501	211.25	-2.76%	280,546	206.35	-5.02%	274,027	206.35	-5.02%	274,027	206.34	-5.02%	274,020	206.19	-5.09%	273,820
1	Collector Passenger Vehicle	N/A	2	1,813	199.42	361,551	193.24	-3.10%	350,350	192.66	-3.39%	349,290	192.66	-3.39%	349,290	192.65	-3.39%	349,282	192.72	-3.36%	349,395
1	Collector Passenger Vehicle	N/A	3	14	205.50	2,877	198.66	-3.33%	2,781	199.78	-2.78%	2,797	199.78	-2.78%	2,797	199.77	-2.79%	2,797	199.64	-2.85%	2,795
1	Collector Passenger Vehicle	N/A	4	15	214.93	3,224	204.58	-4.82%	3,069	199.60	-7.13%	2,994	199.60	-7.13%	2,994	199.60	-7.13%	2,994	199.93	-6.98%	2,999
1	Farm Passenger Vehicle	N/A	1	28	987.64	27,654	982.27	-0.54%	27,504	970.66	-1.72%	27,179	970.66	-1.72%	27,179	970.64	-1.72%	27,178	970.61	-1.72%	27,177
1	Farm Passenger Vehicle	N/A	2	6,322	830.91	5,252,987	826.96	-0.47%	5,228,042	861.64	3.70%	5,447,298	861.64	3.70%	5,447,298	861.62	3.70%	5,447,172	861.59	3.69%	5,446,961
1	Farm Passenger Vehicle	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Farm Passenger Vehicle	N/A	4	13	967.69	12,580	937.17	-3.15%	12,183	916.97	-5.24%	11,921	916.97	-5.24%	11,921	916.94	-5.24%	11,920	916.69	-5.27%	11,917
1	Farming All Purpose Truck	N/A	1	273	869.71	237,430	864.37	-0.61%	235,973	889.14	2.23%	242,736	889.14	2.23%	242,736	889.12	2.23%	242,731	889.05	2.22%	242,711
1	Farming All Purpose Truck	N/A	2	29,413	768.91	22,616,086	770.13	0.16%	22,651,701	790.29	2.78%	23,244,769	790.29	2.78%	23,244,769	790.27	2.78%	23,244,231	790.30	2.78%	23,245,109
1	Farming All Purpose Truck	N/A	3	9	792.44	7,132	836.64	5.58%	7,530	841.72	6.22%	7,575	841.72	6.22%	7,575	841.70	6.22%	7,575	841.56	6.20%	7,574
1	Farming All Purpose Truck	N/A	4	139	818.92	113,830	828.12	1.12%	115,109	840.45	2.63%	116,823	840.45	2.63%	116,823	840.43	2.63%	116,820	840.40	2.62%	116,816
1	Farming All Purpose Truck	N/A	5	418	936.65	391,519	948.02	1.21%	396,274	938.96	0.25%	392,484	938.96	0.25%	392,484	938.94	0.24%	392,475	949.35	1.36%	396,828
1	Fishing All Purpose Truck	N/A	1	5	745.60	3,728	732.63	-1.74%	3,663	1,125.45	50.94%	5,627	842.52	13.00%	4,213	842.51	13.00%	4,213	839.40	12.58%	4,197
1	Fishing All Purpose Truck	N/A	2	272	987.21	268,522	982.21	-0.51%	267,160	997.12	1.00%	271,215	997.12	1.00%	271,215	997.09	1.00%	271,209	997.10	1.00%	271,212
1	Fishing All Purpose Truck	N/A	3	5	857.20	4,286	812.78	-5.18%	4,064	1,063.88	24.11%	5,319	934.69	9.04%	4,673	934.67	9.04%	4,673	934.60	9.03%	4,673
1	Fishing All Purpose Truck	N/A	4	43	1,124.98	48,374	1,121.38	-0.32%	48,219	1,062.24	-5.58%	45,676	1,062.24	-5.58%	45,676	1,062.21	-5.58%	45,675	1,062.30	-5.57%	45,679
1	Fishing All Purpose Truck	N/A	5	6	1,267.67	7,606	1,267.68	0.00%	7,606	1,190.11	-6.12%	7,141	1,190.11	-6.12%	7,141	1,190.08	-6.12%	7,141	1,286.83	1.51%	7,721
1	Disabled Persons/Private/Business Bus	N/A	1	343	790.55	271,159	946.23	19.69%	324,558	980.89	24.08%	336,445	980.89	24.08%	336,445	980.87	24.07%	336,437	980.93	24.08%	336,458
1	Disabled Persons/Private/Business Bus	N/A	2	583	831.75	484,909	832.26	0.06%	485,205	870.59	4.67%	507,554	870.59	4.67%	507,554	870.57	4.67%	507,543	870.56	4.67%	507,538
1	Disabled Persons/Private/Business Bus	N/A	3	93	892.02	82,958	891.67	-0.04%	82,925	927.97	4.03%	86,302	927.97	4.03%	86,302	927.95	4.03%	86,300	928.03	4.04%	86,307
1	Disabled Persons/Private/Business Bus	N/A	4	58	895.81	51,957	894.25	-0.17%	51,867	926.56	3.43%	53,741	926.56	3.43%	53,741	926.54	3.43%	53,739	926.71	3.45%	53,749
1	Pleasure Motorhome	N/A	1	1,574	730.02	1,149,058	729.87	-0.02%	1,148,816	774.08	6.03%	1,218,397	774.08	6.03%	1,218,397	774.06	6.03%	1,218,368	773.78	5.99%	1,217,931
1	Pleasure Motorhome	N/A	2	2,942	652.11	1,918,518	652.27	0.02%	1,918,985	689.57	5.74%	2,028,729	689.57	5.74%	2,028,729	689.56	5.74%	2,028,682	689.56	5.74%	2,028,684
1	Pleasure Motorhome	N/A	3	38	687.37	26,120	687.39	0.00%	26,121	733.54	6.72%	27,874	733.54	6.72%	27,874	733.52	6.71%	27,874	733.61	6.73%	27,877
1	Pleasure Motorhome	N/A	4	83	717.48	59,551	717.24	-0.03%	59,531	732.46	2.09%	60,794	732.46	2.09%	60,794	732.44	2.08%	60,792	732.41	2.08%	60,790
1	All Purpose Motorhome	N/A	1	66	855.79	56,482	854.21	-0.18%	56,378	847.44	-0.98%	55,931	847.44	-0.98%	55,931	847.42	-0.98%	55,930	847.35	-0.99%	55,925
1	All Purpose Motorhome	N/A	2	61	709.33	43,269	707.18	-0.30%	43,138	753.79	6.27%	45,981	753.79	6.27%	45,981	753.77	6.27%	45,980	753.59	6.24%	45,969
1	All Purpose Motorhome	N/A	3	1	1,388.00	1,388	1,388.82	0.06%	1,389	802.51	-42.18%	803	1,180.50	-14.95%	1,180	1,180.50	-14.95%	1,180	1,481.00	6.70%	1,481
1	All Purpose Motorhome	N/A	4	2	778.50	1,557	775.27	-0.41%	1,551	801.31	2.93%	1,603	801.31	2.93%	1,603	801.29	2.93%	1,603	801.00	2.89%	1,602
1	All Purpose Motorhome	N/A	5	5	656.20	3,281	655.30	-0.14%	3,277	894.63	36.34%	4,473	753.60	14.84%	3,768	753.58	14.84%	3,768	753.40	14.81%	3,767
1	All Purpose Truck	N/A	1	50,394	1,189.98	59,967,905	1,188.31	-0.14%	59,883,459	1,219.67	2.49%	61,464,080	1,219.67	2.49%	61,464,080	1,219.64	2.49%	61,462,658	1,219.74	2.50%	61,467,776
1	All Purpose Truck	N/A	2	50,970	1,046.84	53,357,466	1,049.07	0.21%	53,471,275	1,079.59	3.13%	55,026,600	1,079.59	3.13%	55,026,600	1,079.56	3.13%	55,025,327	1,079.64	3.13%	55,029,288
1	All Purpose Truck	N/A	3	3,807	1,119.51	4,261,986	1,157.92	3.43%	4,408,209	1,152.47	2.94%	4,387,437	1,152.47	2.94%	4,387,437	1,152.44	2.94%	4,387,335	1,152.35	2.93%	4,387,011
1	All Purpose Truck	N/A	4	4,584	1,148.35	5,264,041	1,188.86	3.53%	5,449,738	1,150.67	0.20%	5,274,689	1,150.67	0.20%	5,274,689	1,150.65	0.20%	5,274,567	1,150.58	0.19%	5,274,276
1	All Purpose Truck	N/A	5	11,672	1,263.86	14,751,752	1,274.24	0.82%	14,872,965	1,290.26	2.09%	15,059,920	1,290.26	2.09%	15,059,920	1,290.23	2.09%	15,059,571	1,290.15	2.08%	15,058,612
1	Antique Bus	N/A	1	10	129.00	1,290	129.00	0.00%	1,290	126.32	-2.08%	1,263	126.32	-2.08%	1,263	126.32	-2.08%	1,263	126.00	-2.33%	1,260
1	Antique Bus	N/A	2	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Bus	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Bus	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
1	Antique Motorcycle	N/A	1	56	129.00	7,224	129.00	0.00%	7,224	126.32	-2.08%	7,074	126.32	-2.08%	7,074	126.32	-2.08%	7,074	126.00	-2.33%	7,056
1	Antique Motorcycle	N/A	2	39	124.00	4,836	124.00	0.00%	4,836	123.36	-0.52%	4,811	123.36	-0.52%	4,811	123.36	-0.52%	4,811	123.00	-0.81%	4,797
1	Antique Motorcycle	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Motorcycle	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Passenger Vehicle	N/A	1	11	129.00	1,419	129.00	0.00%	1,419	126.32	-2.08%	1,390	126.32	-2.08%	1,390	126.32	-2.08%	1,389	126.00	-2.33%	1,386
1	Antique Passenger Vehicle	N/A	2	21	124.00	2,604	124.00	0.00%	2,604	123.36	-0.52%	2,591	123.36	-0.52%	2,591	123.36	-0.52%	2,590	123.00	-0.81%	2,583
1	Antique Passenger Vehicle	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Passenger Vehicle	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Truck	N/A	1	11	129.00	1,419	129.00	0.00%	1,419	126.32	-2.08%	1,390	126.32	-2.08%	1,390	126.32	-2.08%	1,389	126.00	-2.33%	1,386
1	Antique Truck	N/A	2	25	124.00	3,100	124.00	0.00%	3,100	123.36	-0.52%	3,084	123.36	-0.52%	3,084	123.36	-0.52%	3,084	123.00	-0.81%	3,075
1	Antique Truck	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Antique Truck	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1	Collector Truck	N/A	1	112	152.70	17,102	152.37	-0.21%	17,066	145.19	-4.91%	16,261	145.19	-4.91%	16,261	145.19	-4.92%	16,261	145.33	-4.82%	16,277
1	Collector Truck	N/A	2	380	140.39	53,347	139.79	-0.42%	53,122	139.13	-0.89%	52,871	139.13	-0.89%	52,871	139.13	-0.90%	52,869	138.97	-1.01%	52,808
1	Collector Truck	N/A	3	4	127.50	510	127.28	-0.17%	509	142.29	11.60%	569	140.77	10.41%	563	140.76	10.40%	563	140.25	10.00%	561
1	Collector Truck	N/A	4	4	141.00	564	140.18	-0.59%	561	142.21	0.86%	569	142.21	0.86%	569	142.20	0.85%	569	142.25	0.89%	569
1	Pleasure Truck	N/A	1	16,860	851.44	14,355,307	833.79	-2.07%	14,057,677	859.41	0.94%	14,489,606	859.41	0.94%	14,489,606	859.39	0.93%	14,489,271	859.36	0.93%	14,488,736
1	Pleasure Truck	N/A	2	38,735	751.69	29,116,893	740.55	-1.48%	28,685,389	764.26	1.67%	29,603,675	764.26	1.67%	29,603,675	764.24	1.67%	29,602,990	764.22	1.67%	29,602,149
1	Pleasure Truck	N/A	3	1,295	796.25	1,031,141	814.98	2.35%	1,055,400	813.76	2.20%	1,053,820	813.76	2.20%	1,053,820	813.74	2.20%	1,053,796	813.71	2.19%	1,053,749
1	Pleasure Truck	N/A	4	2,741	816.08	2,236,872	832.54	2.02%	2,281,995	812.54	-0.43%	2,227,183	812.54	-0.43%	2,227,183	812.53	-0.44%	2,227,131	812.54	-0.43%	2,227,183
Major Class Total				801,726	1,114.06	893,171,487	1,113.49	-0.05%	892,709,996	1,140.55	2.38%	914,404,986	1,140.54	2.38%	914,402,592	1,140.52	2.37%	914,381,429	1,140.52	2.37%	914,382,021

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
2	Farming All Purpose Truck	2	1	42	587.31	24,667	587.54	0.04%	24,677	642.24	9.35%	26,974	642.24	9.35%	26,974	642.23	9.35%	26,974	641.90	9.30%	26,960
2	Farming All Purpose Truck	2	2	4,125	422.13	1,741,279	422.05	-0.02%	1,740,958	460.79	9.16%	1,900,761	460.79	9.16%	1,900,761	460.78	9.16%	1,900,717	461.14	9.24%	1,902,203
2	Farming All Purpose Truck	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Farming All Purpose Truck	2	4	16	428.13	6,850	429.84	0.40%	6,877	454.19	6.09%	7,267	454.19	6.09%	7,267	454.18	6.09%	7,267	454.13	6.07%	7,266
2	Farming All Purpose Truck	3	1	44	595.91	26,220	596.01	0.02%	26,224	660.53	10.84%	29,063	657.25	10.29%	28,919	657.23	10.29%	28,918	657.57	10.35%	28,933
2	Farming All Purpose Truck	3	2	11,064	452.32	5,004,522	451.57	-0.17%	4,996,145	473.03	4.58%	5,233,568	473.03	4.58%	5,233,568	473.02	4.57%	5,233,447	473.32	4.64%	5,236,865
2	Farming All Purpose Truck	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Farming All Purpose Truck	3	4	38	456.05	17,330	457.18	0.25%	17,373	466.21	2.23%	17,716	466.21	2.23%	17,716	466.20	2.22%	17,716	466.45	2.28%	17,725
2	Fishing All Purpose Truck	2	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Fishing All Purpose Truck	2	2	1	414.00	414	415.50	0.36%	416	408.13	-1.42%	408	408.13	-1.42%	408	408.12	-1.42%	408	408.00	-1.45%	408
2	Fishing All Purpose Truck	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Fishing All Purpose Truck	2	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Fishing All Purpose Truck	3	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Fishing All Purpose Truck	3	2	2	379.00	758	381.59	0.68%	763	418.61	10.45%	837	418.61	10.45%	837	418.60	10.45%	837	419.00	10.55%	838
2	Fishing All Purpose Truck	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Fishing All Purpose Truck	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Artisan Truck	1	1	7	1,040.71	7,285	970.78	-6.72%	6,795	769.94	-26.02%	5,390	839.11	-19.37%	5,874	839.10	-19.37%	5,874	839.00	-19.38%	5,873
2	Artisan Truck	1	2	9	550.44	4,954	524.40	-4.73%	4,720	546.24	-0.76%	4,916	546.24	-0.76%	4,916	546.22	-0.77%	4,916	546.00	-0.81%	4,914
2	Artisan Truck	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Artisan Truck	1	4	1	368.00	368	359.84	-2.22%	360	538.10	46.22%	538	413.82	12.45%	414	413.81	12.45%	414	414.00	12.50%	414
2	Artisan Truck	1	5	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Artisan Truck	2	1	70	799.89	55,992	792.70	-0.90%	55,489	823.46	2.95%	57,642	823.46	2.95%	57,642	823.44	2.94%	57,641	823.31	2.93%	57,632
2	Artisan Truck	2	2	57	568.75	32,419	565.15	-0.63%	32,213	582.04	2.34%	33,177	582.04	2.34%	33,177	582.03	2.33%	33,176	582.09	2.34%	33,179
2	Artisan Truck	2	3	1	661.00	661	668.51	1.14%	669	578.36	-12.50%	578	593.89	-10.15%	594	593.88	-10.15%	594	594.00	-10.14%	594
2	Artisan Truck	2	4	1	772.00	772	757.64	-1.86%	758	573.27	-25.74%	573	645.67	-16.36%	646	645.66	-16.37%	646	646.00	-16.32%	646
2	Artisan Truck	2	5	34	825.18	28,056	815.23	-1.21%	27,718	873.90	5.90%	29,712	873.90	5.90%	29,712	873.88	5.90%	29,712	873.85	5.90%	29,711
2	Artisan Truck	3	1	7	839.00	5,873	839.00	0.00%	5,873	847.79	1.05%	5,935	847.79	1.05%	5,935	847.77	1.05%	5,934	848.00	1.07%	5,936
2	Artisan Truck	3	2	4	593.00	2,372	593.00	0.00%	2,372	598.32	0.90%	2,393	598.32	0.90%	2,393	598.31	0.90%	2,393	598.00	0.84%	2,392
2	Artisan Truck	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Artisan Truck	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Sand/Gravel Truck	2	1	92	901.29	82,919	895.45	-0.65%	82,381	977.73	8.48%	89,951	977.73	8.48%	89,951	977.71	8.48%	89,949	977.47	8.45%	89,927
2	Sand/Gravel Truck	2	2	138	632.59	87,298	629.65	-0.47%	86,892	685.27	8.33%	94,567	685.27	8.33%	94,567	685.25	8.32%	94,565	685.07	8.30%	94,540
2	Sand/Gravel Truck	2	3	2	794.00	1,588	810.94	2.13%	1,622	680.81	-14.26%	1,362	713.50	-10.14%	1,427	713.48	-10.14%	1,427	713.50	-10.14%	1,427
2	Sand/Gravel Truck	2	4	4	649.00	2,596	650.44	0.22%	2,602	674.64	3.95%	2,699	674.64	3.95%	2,699	674.62	3.95%	2,698	674.50	3.93%	2,698
2	Sand/Gravel Truck	3	1	417	962.00	401,154	962.00	0.00%	401,154	1,007.21	4.70%	420,005	1,007.21	4.70%	420,005	1,007.18	4.70%	419,996	1,007.00	4.68%	419,919
2	Sand/Gravel Truck	3	2	1,935	675.00	1,306,125	675.00	0.00%	1,306,125	704.99	4.44%	1,364,160	704.99	4.44%	1,364,160	704.98	4.44%	1,364,128	705.00	4.44%	1,364,175
2	Sand/Gravel Truck	3	3	24	700.00	16,800	700.00	0.00%	16,800	700.38	0.05%	16,809	700.38	0.05%	16,809	700.37	0.05%	16,809	700.00	0.00%	16,800
2	Sand/Gravel Truck	3	4	67	691.00	46,297	691.00	0.00%	46,297	694.00	0.43%	46,498	694.00	0.43%	46,498	693.99	0.43%	46,497	694.00	0.43%	46,498
2	Petroleum/Chemical Truck	1	1	1	618.00	618	597.34	-3.34%	597	594.22	-3.85%	594	594.22	-3.85%	594	594.21	-3.85%	594	594.00	-3.88%	594
2	Petroleum/Chemical Truck	1	2	240	437.02	104,885	444.65	1.75%	106,716	428.66	-1.91%	102,878	428.66	-1.91%	102,878	428.65	-1.92%	102,876	428.58	-1.93%	102,858
2	Petroleum/Chemical Truck	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Petroleum/Chemical Truck	1	4	1	426.00	426	392.58	-7.85%	393	422.64	-0.79%	423	422.64	-0.79%	423	422.63	-0.79%	423	423.00	-0.70%	423
2	Petroleum/Chemical Truck	2	1	37	606.51	22,441	609.77	0.54%	22,561	633.83	4.50%	23,452	633.83	4.50%	23,452	633.82	4.50%	23,451	633.54	4.46%	23,441
2	Petroleum/Chemical Truck	2	2	133	443.83	59,030	441.84	-0.45%	58,765	455.16	2.55%	60,536	455.16	2.55%	60,536	455.15	2.55%	60,535	454.92	2.50%	60,504
2	Petroleum/Chemical Truck	2	3	10	450.70	4,507	446.04	-1.03%	4,460	452.44	0.39%	4,524	452.44	0.39%	4,524	452.43	0.38%	4,524	452.40	0.38%	4,524
2	Petroleum/Chemical Truck	2	4	2	460.50	921	434.44	-5.66%	869	448.67	-2.57%	897	448.67	-2.57%	897	448.66	-2.57%	897	448.50	-2.61%	897
2	Petroleum/Chemical Truck	3	1	61	621.00	37,881	621.00	0.00%	37,881	651.84	4.97%	39,762	651.84	4.97%	39,762	651.82	4.96%	39,761	652.00	4.99%	39,772
2	Petroleum/Chemical Truck	3	2	422	447.00	188,634	447.00	0.00%	188,634	467.21	4.52%	197,163	467.21	4.52%	197,163	467.20	4.52%	197,158	467.00	4.47%	197,074
2	Petroleum/Chemical Truck	3	3	16	462.00	7,392	462.00	0.00%	7,392	464.40	0.52%	7,430	464.40	0.52%	7,430	464.38	0.52%	7,430	464.00	0.43%	7,424
2	Petroleum/Chemical Truck	3	4	18	457.00	8,226	457.00	0.00%	8,226	460.50	0.77%	8,289	460.50	0.77%	8,289	460.49	0.76%	8,289	460.00	0.66%	8,280
2	Logging Truck	1	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	1	2	2	1,036.00	2,072	1,018.38	-1.70%	2,037	742.09	-28.37%	1,484	865.62	-16.45%	1,731	865.62	-16.45%	1,731	865.50	-16.46%	1,731
2	Logging Truck	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	2	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	2	2	6	816.50	4,899	819.60	0.38%	4,918	793.40	-2.83%	4,760	793.40	-2.83%	4,760	793.38	-2.83%	4,760	793.67	-2.80%	4,762
2	Logging Truck	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	2	4	1	711.00	711	715.78	0.67%	716	780.82	9.82%	781	780.82	9.82%	781	780.81	9.82%	781	781.00	9.85%	781
2	Logging Truck	3	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	3	2	126	788.00	99,288	788.00	0.00%	99,288	816.73	3.65%	102,908	816.73	3.65%	102,908	816.71	3.64%	102,905	817.00	3.68%	102,942
2	Logging Truck	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Logging Truck	3	4	25	807.00	20,175	807.00	0.00%	20,175	803.73	-0.40%	20,093	803.73	-0.40%	20,093	803.71	-0.41%	20,093	804.00	-0.37%	20,100
2	Cement/Brick/Exploration Truck	2	1	2	670.50	1,341	660.35	-1.51%	1,321	605.08	-9.76%	1,210	605.08	-9.76%	1,210	605.06	-9.76%	1,210	605.00	-9.77%	1,210
2	Cement/Brick/Exploration Truck	2	2	3	461.33	1,384	449.86	-2.49%	1,350	435.92	-5.51%	1,308	435.92	-5.51%	1,308	435.91	-5.51%	1,308	436.00	-5.49%	1,308
2	Cement/Brick/Exploration Truck	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Cement/Brick/Exploration Truck	2	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Cement/Brick/Exploration Truck	3	1	154	623.00	95,942	623.00	0.00%	95,942	622.12	-0.14%	95,807	622.12	-0.14%	95,807	622.11	-0.14%	95,805	622.00	-0.16%	95,788
2	Cement/Brick/Exploration Truck	3	2	342	448.00	153,216	448.00	0.00%	153,216	447.33	-0.15%	152,986	447.33	-0.15%	152,986	447.32	-0.15%	152,983	447.00	-0.22%	152,874
2	Cement/Brick/Exploration Truck	3	3	14	463.00	6,482	463.00	0.00%	6,482	444.66	-3.96%	6,225	444.66	-3.96%	6,225	444.65	-3.96%	6,225	445.00	-3.89%	6,230
2	Cement/Brick/Exploration Truck	3	4	15	458.00	6,870	458.00	0.00%	6,870	440.97	-3.72%	6,615	440.97	-3.72%	6,615	440.96	-3.72%	6,614	441.00	-3.71%	6,615

					A		B			C			D			E			F		
				Rate	Original Rate Model		After Classification Changes			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced			Applied for Adjustment		
				Model	Before Changes		and CLEAR Adjustments									Capped Indicated Adjustment			(Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
2	Tow Truck	1	1	16	1,357.25	21,716	1,364.21	0.51%	21,827	1,412.60	4.08%	22,602	1,412.60	4.08%	22,602	1,412.57	4.08%	22,601	1,412.63	4.08%	22,602
2	Tow Truck	1	2	24	713.58	17,126	707.20	-0.89%	16,973	976.25	36.81%	23,430	813.28	13.97%	19,519	813.27	13.97%	19,518	813.46	14.00%	19,523
2	Tow Truck	1	3	1	943.00	943	932.18	-1.15%	932	969.59	2.82%	970	969.59	2.82%	970	969.57	2.82%	970	970.00	2.86%	970
2	Tow Truck	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Tow Truck	2	1	168	1,411.10	237,064	1,400.88	-0.72%	235,348	1,516.99	7.50%	254,854	1,516.99	7.50%	254,854	1,516.95	7.50%	254,848	1,517.02	7.51%	254,859
2	Tow Truck	2	2	269	990.63	266,479	987.26	-0.34%	265,574	1,046.09	5.60%	281,399	1,046.09	5.60%	281,399	1,046.07	5.60%	281,393	1,046.19	5.61%	281,426
2	Tow Truck	2	3	7	854.00	5,978	835.07	-2.22%	5,846	1,038.91	21.65%	7,272	958.69	12.26%	6,711	958.67	12.26%	6,711	953.29	11.63%	6,673
2	Tow Truck	2	4	12	945.17	11,342	934.79	-1.10%	11,218	1,028.97	8.87%	12,348	1,028.51	8.82%	12,342	1,028.48	8.81%	12,342	1,028.33	8.80%	12,340
2	Tow Truck	3	1	25	1,413.00	35,325	1,413.00	0.00%	35,325	1,564.45	10.72%	39,111	1,557.68	10.24%	38,942	1,557.65	10.24%	38,941	1,558.00	10.26%	38,950
2	Tow Truck	3	2	28	787.00	22,036	787.00	0.00%	22,036	1,077.85	36.96%	30,180	905.05	15.00%	25,341	905.03	15.00%	25,341	905.00	14.99%	25,340
2	Tow Truck	3	3	2	1,056.00	2,112	1,056.00	0.00%	2,112	1,070.43	1.37%	2,141	1,070.43	1.37%	2,141	1,070.40	1.36%	2,141	1,070.00	1.33%	2,140
2	Tow Truck	3	4	1	900.00	900	900.00	0.00%	900	1,060.16	17.80%	1,060	1,013.39	12.60%	1,013	1,013.36	12.60%	1,013	1,013.00	12.56%	1,013
2	Common Carrier Local Passenger Vehicle	N/A	1	787	2,012.58	1,583,903	2,014.76	0.11%	1,585,616	2,051.61	1.94%	1,614,617	2,051.61	1.94%	1,614,617	2,051.56	1.94%	1,614,579	2,051.57	1.94%	1,614,583
2	Common Carrier Local Passenger Vehicle	N/A	2	522	1,390.86	726,029	1,378.74	-0.87%	719,702	1,403.81	0.93%	732,791	1,403.81	0.93%	732,791	1,403.78	0.93%	732,774	1,403.78	0.93%	732,771
2	Common Carrier Local Passenger Vehicle	N/A	3	21	1,359.81	28,556	1,385.77	1.91%	29,101	1,393.94	2.51%	29,273	1,393.94	2.51%	29,273	1,393.91	2.51%	29,272	1,393.86	2.50%	29,271
2	Common Carrier Local Passenger Vehicle	N/A	4	15	1,569.40	23,541	1,544.06	-1.61%	23,161	1,380.26	-12.05%	20,704	1,386.52	-11.65%	20,798	1,386.49	-11.65%	20,797	1,386.80	-11.64%	20,802
2	Common Carrier Truck Local Within City or Mun.	1	1	220	1,294.05	284,691	1,229.72	-4.97%	270,538	1,304.75	0.83%	287,045	1,304.75	0.83%	287,045	1,304.72	0.82%	287,039	1,304.74	0.83%	287,042
2	Common Carrier Truck Local Within City or Mun.	1	2	60	906.93	54,416	870.02	-4.07%	52,201	904.08	-0.31%	54,245	904.08	-0.31%	54,245	904.06	-0.32%	54,244	903.90	-0.33%	54,234
2	Common Carrier Truck Local Within City or Mun.	1	3	7	951.14	6,658	897.04	-5.69%	6,279	897.97	-5.59%	6,286	897.97	-5.59%	6,286	897.95	-5.59%	6,286	897.86	-5.60%	6,285
2	Common Carrier Truck Local Within City or Mun.	1	4	6	1,149.33	6,896	1,132.92	-1.43%	6,798	889.51	-22.61%	5,337	976.26	-15.06%	5,858	976.23	-15.06%	5,857	976.33	-15.05%	5,858
2	Common Carrier Truck Local Within City or Mun.	2	1	276	1,357.77	374,744	1,345.26	-0.92%	371,292	1,400.60	3.15%	386,566	1,400.60	3.15%	386,566	1,400.57	3.15%	386,557	1,400.33	3.13%	386,490
2	Common Carrier Truck Local Within City or Mun.	2	2	31	995.45	30,859	979.72	-1.58%	30,371	968.22	-2.74%	30,015	968.22	-2.74%	30,015	968.19	-2.74%	30,014	968.23	-2.74%	30,015
2	Common Carrier Truck Local Within City or Mun.	2	3	1	749.00	749	727.10	-2.92%	727	961.62	28.39%	962	836.17	11.64%	836	836.15	11.63%	836	836.00	11.62%	836
2	Common Carrier Truck Local Within City or Mun.	2	4	2	1,278.50	2,557	1,288.53	0.78%	2,577	952.50	-25.50%	1,905	1,095.25	-14.33%	2,190	1,095.25	-14.33%	2,190	1,095.50	-14.31%	2,191
2	Common Carrier Truck Local Within City or Mun.	3	1	212	1,393.15	295,347	1,393.15	0.00%	295,347	1,444.18	3.66%	306,166	1,444.18	3.66%	306,166	1,444.14	3.66%	306,159	1,443.96	3.65%	306,120
2	Common Carrier Truck Local Within City or Mun.	3	2	54	969.22	52,338	969.22	0.00%	52,338	997.37	2.90%	53,858	997.37	2.90%	53,858	997.35	2.90%	53,857	996.91	2.86%	53,833
2	Common Carrier Truck Local Within City or Mun.	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Local Within City or Mun.	3	4	4	917.50	3,670	917.50	0.00%	3,670	981.13	6.94%	3,925	981.13	6.94%	3,925	981.11	6.93%	3,924	981.00	6.92%	3,924
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	1	30	1,850.23	55,507	1,833.28	-0.92%	54,998	1,873.48	1.26%	56,204	1,873.48	1.26%	56,204	1,873.43	1.25%	56,203	1,873.50	1.26%	56,205
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	2	15	1,350.60	20,259	1,354.70	0.30%	20,320	1,284.62	-4.89%	19,269	1,284.62	-4.89%	19,269	1,284.59	-4.89%	19,269	1,284.67	-4.88%	19,270
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Within 161K in MB	1	1	83	1,129.25	93,728	1,089.97	-3.48%	90,467	1,098.24	-2.75%	91,154	1,098.24	-2.75%	91,154	1,098.21	-2.75%	91,152	1,098.22	-2.75%	91,152
2	Common Carrier Truck Within 161K in MB	1	2	105	768.82	80,726	738.39	-3.96%	77,531	765.90	-0.38%	80,420	765.90	-0.38%	80,420	765.88	-0.38%	80,418	765.94	-0.37%	80,424
2	Common Carrier Truck Within 161K in MB	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Within 161K in MB	1	4	2	641.00	1,282	626.22	-2.31%	1,252	753.82	17.60%	1,508	710.50	10.84%	1,421	710.48	10.84%	1,421	710.00	10.76%	1,420
2	Common Carrier Truck Within 161K in MB	2	1	374	1,098.92	410,996	1,089.23	-0.88%	407,371	1,177.74	7.17%	440,475	1,177.74	7.17%	440,475	1,177.71	7.17%	440,465	1,177.65	7.16%	440,442
2	Common Carrier Truck Within 161K in MB	2	2	113	793.11	89,621	787.74	-0.68%	89,015	819.10	3.28%	92,558	819.10	3.28%	92,558	819.08	3.27%	92,556	818.96	3.26%	92,543
2	Common Carrier Truck Within 161K in MB	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Within 161K in MB	2	4	2	853.50	1,707	845.11	-0.98%	1,690	806.06	-5.56%	1,612	806.06	-5.56%	1,612	806.04	-5.56%	1,612	806.00	-5.57%	1,612
2	Common Carrier Truck Within 161K in MB	3	1	173	1,157.69	200,280	1,157.69	0.00%	200,280	1,213.89	4.85%	210,002	1,213.89	4.85%	210,002	1,213.86	4.85%	209,997	1,214.26	4.89%	210,067
2	Common Carrier Truck Within 161K in MB	3	2	320	791.65	253,328	791.65	0.00%	253,328	843.28	6.52%	269,850	843.28	6.52%	269,850	843.26	6.52%	269,844	843.64	6.57%	269,966
2	Common Carrier Truck Within 161K in MB	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Within 161K in MB	3	4	11	854.55	9,400	854.55	0.00%	9,400	829.81	-2.89%	9,128	829.81	-2.89%	9,128	829.79	-2.90%	9,128	829.36	-2.95%	9,123
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	1	4	3,038.25	12,153	3,119.01	2.66%	12,476	3,097.88	1.96%	12,392	3,097.88	1.96%	12,392	3,097.80	1.96%	12,391	3,097.75	1.96%	12,391
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	2	8	2,186.88	17,495	2,142.98	-2.01%	17,144	2,103.88	-3.80%	16,831	2,103.88	-3.80%	16,831	2,103.83	-3.80%	16,831	2,103.88	-3.80%	16,831
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Over 161K in MB	1	1	42	2,211.64	92,889	2,146.56	-2.94%	90,155	2,280.89	3.13%	95,798	2,280.89	3.13%	95,798	2,280.84	3.13%	95,795	2,281.10	3.14%	95,806
2	Common Carrier Truck Over 161K in MB	1	2	48	1,651.15	79,255	1,618.98	-1.95%	77,711	1,557.23	-5.69%	74,747	1,557.23	-5.69%	74,747	1,557.19	-5.69%	74,745	1,557.10	-5.70%	74,741
2	Common Carrier Truck Over 161K in MB	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Over 161K in MB	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Common Carrier Truck Over 161K in MB	2	1	155	2,438.14	377,911	2,439.14	0.04%	378,066	2,454.01	0.65%	380,372	2,454.01	0.65%	380,372	2,453.95	0.65%	380,363	2,453.83	0.64%	380,344
2	Common Carrier Truck Over 161K in MB	2	2	95	1,605.02	152,477	1,600.31	-0.29%	152,029	1,673.07	4.24%	158,941	1,673.07	4.24%	158,941	1,673.03	4.24%	158,938	1,673.12	4.24%	158,946
2	Common Carrier Truck Over 161K in MB	2	3	1	1,282.00	1,282	1,291.05	0.71%	1,291	1,661.16	29.58%	1,661	1,484.71	15.81%	1,485	1,484.67	15.81%	1,485	1,485.00	15.83%	1,485
2	Common Carrier Truck Over 161K in MB	2	4	7	1,756.29	12,294	1,714.17	-2.40%	11,999	1,644.67	-6.36%	11,513	1,644.67	-6.36%	11,513	1,644.63	-6.36%	11,512	1,644.71	-6.35%	11,513
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	1	228	2,085.00	475,380	2,085.00	0.00%	475,380	2,685.38	28.80%	612,267	2,397.75	15.00%	546,687	2,397.69	15.00%	546,674	2,070.00	-0.72%	471,960
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	2	330	2,085.00	688,050	2,085.00	0.00%	688,050	1,829.75	-12.24%	603,817	1,860.92	-10.75%	614,102	1,860.87	-10.75%	614,088	2,070.00	-0.72%	683,100
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	3	10	2,085.00	20,850	2,085.00	0.00%	20,850	1,816.70	-12.87%	18,167	1,856.57	-10.96%	18,566	1,856.53	-10.96%	18,565	2,070.00	-0.72%	20,700
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	4	17	2,085.00	35,445	2,085.00	0.00%	35,445	1,798.64	-13.73%	30,577	1,850.55	-11.24%	31,459	1,850.50	-11.25%	31,459	2,070.00	-0.72%	35,190
2	All Purpose Snow Vehicle (HTA)	N/A	1	4	331.00	1,324	331.00	0.00%	1,324	325.59	-1.64%	1,302	325.59	-1.64%	1,302	325.58	-1.64%	1,302	326.00	-1.51%	1,304
2	All Purpose Snow Vehicle (HTA)	N/A	2	32	254.00	8,128	254.00	0.00%	8,128	250.78	-1.27%	8,025	250.78	-1.27%	8,025	250.78	-1.27%	8,025	251.00	-1.18%	8,032
2	All Purpose Snow Vehicle (HTA)	N/A	3	2	261.00	522	261.00	0.00%	522	249.64	-4.35%	499	249.64	-4.35%	499	249.64	-4.35%	499	250.00	-4.21%	500
2	All Purpose Snow Vehicle (HTA)	N/A	4	11	258.00	2,838	258.00	0.00%	2,838	248.06	-3.85%	2,729	248.06	-3.85%	2,729	248.06	-3.85%	2,729	248.00	-3.88%	2,728
2	Driveaway Within MB	N/A	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Driveaway Within MB	N/A	2	4	389.00	1,556	389.00	0.00%	1,556	372.00	-4.37%	1,488	372.00	-4.37%	1,488	371.99	-4.37%	1,488	372.00	-4.37%	1,488
2	Driveaway Within MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Driveaway Within MB	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Driveaway >161K outside MB	N/A	1	11	216.00	2,376	216.00	0.00%	2,376	205.78	-4.73%	2,264	205.78	-4.73%	2,264	205.77	-4.73%	2,264	206.00	-4.63%	2,266
2	Driveaway >161K outside MB	N/A	2	23	177.00	4,071	177.00	0.00%	4,071	170.62	-3.60%	3,924	170.62	-3.60%	3,924	170.62	-3.61%	3,924	171.00	-3.39%	3,933

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
2	Driveaway >161K outside MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Driveaway >161K outside MB	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Dealer Trailer	N/A	1	64	916.00	58,624	916.00	0.00%	58,624	942.72	2.92%	60,334	942.72	2.92%	60,334	942.70	2.91%	60,333	943.00	2.95%	60,352
2	Dealer Trailer	N/A	2	126	646.00	81,396	646.00	0.00%	81,396	663.72	2.74%	83,628	663.72	2.74%	83,628	663.70	2.74%	83,626	664.00	2.79%	83,664
2	Dealer Trailer	N/A	3	5	670.00	3,350	670.00	0.00%	3,350	659.46	-1.57%	3,297	659.46	-1.57%	3,297	659.45	-1.58%	3,297	659.00	-1.64%	3,295
2	Dealer Trailer	N/A	4	2	661.00	1,322	661.00	0.00%	1,322	653.57	-1.12%	1,307	653.57	-1.12%	1,307	653.56	-1.13%	1,307	654.00	-1.06%	1,308
2	Dealer Moped	N/A	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Dealer Moped	N/A	2	2	427.00	854	427.00	0.00%	854	408.23	-4.40%	816	408.23	-4.40%	816	408.22	-4.40%	816	408.00	-4.45%	816
2	Dealer Moped	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Dealer Moped	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Dealer All Uses except Motorcycles	N/A	1	2,353	1,640.00	3,858,920	1,640.00	0.00%	3,858,920	1,704.51	3.93%	4,010,706	1,704.51	3.93%	4,010,706	1,704.47	3.93%	4,010,613	1,704.00	3.90%	4,009,512
2	Dealer All Uses except Motorcycles	N/A	2	2,218	1,132.00	2,510,776	1,132.00	0.00%	2,510,776	1,173.44	3.66%	2,602,681	1,173.44	3.66%	2,602,681	1,173.41	3.66%	2,602,620	1,173.00	3.62%	2,601,714
2	Dealer All Uses except Motorcycles	N/A	3	32	1,177.00	37,664	1,177.00	0.00%	37,664	1,165.34	-0.99%	37,291	1,165.34	-0.99%	37,291	1,165.31	-0.99%	37,290	1,165.00	-1.02%	37,280
2	Dealer All Uses except Motorcycles	N/A	4	49	1,160.00	56,840	1,160.00	0.00%	56,840	1,154.13	-0.51%	56,552	1,154.13	-0.51%	56,552	1,154.10	-0.51%	56,551	1,154.00	-0.52%	56,546
2	Repairer	N/A	1	657	321.00	210,897	321.00	0.00%	210,897	327.40	1.99%	215,101	327.40	1.99%	215,101	327.39	1.99%	215,096	327.00	1.87%	214,839
2	Repairer	N/A	2	698	247.00	172,406	247.00	0.00%	172,406	252.00	2.02%	175,893	252.00	2.02%	175,893	251.99	2.02%	175,889	252.00	2.02%	175,896
2	Repairer	N/A	3	18	254.00	4,572	254.00	0.00%	4,572	250.85	-1.24%	4,515	250.85	-1.24%	4,515	250.84	-1.24%	4,515	251.00	-1.18%	4,518
2	Repairer	N/A	4	18	251.00	4,518	251.00	0.00%	4,518	249.25	-0.70%	4,487	249.25	-0.70%	4,487	249.25	-0.70%	4,486	249.00	-0.80%	4,482
2	Dealer Motorcycle	N/A	1	158	1,319.00	208,402	1,319.00	0.00%	208,402	1,298.45	-1.56%	205,155	1,298.45	-1.56%	205,155	1,298.42	-1.56%	205,150	1,298.00	-1.59%	205,084
2	Dealer Motorcycle	N/A	2	198	917.00	181,566	917.00	0.00%	181,566	901.74	-1.66%	178,544	901.74	-1.66%	178,544	901.72	-1.67%	178,540	902.00	-1.64%	178,596
2	Dealer Motorcycle	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
2	Dealer Motorcycle	N/A	4	2	939.00	1,878	939.00	0.00%	1,878	887.31	-5.50%	1,775	887.31	-5.50%	1,775	887.29	-5.51%	1,775	887.00	-5.54%	1,774
2	Other Truck	1	1	52	920.63	47,873	872.91	-5.18%	45,391	868.32	-5.68%	45,153	868.32	-5.68%	45,153	868.30	-5.68%	45,151	868.25	-5.69%	45,149
2	Other Truck	1	2	123	644.88	79,320	644.55	-0.05%	79,280	612.06	-5.09%	75,283	612.06	-5.09%	75,283	612.05	-5.09%	75,282	611.98	-5.10%	75,274
2	Other Truck	1	3	4	643.00	2,572	629.96	-2.03%	2,520	608.15	-5.42%	2,433	608.15	-5.42%	2,433	608.14	-5.42%	2,433	608.25	-5.40%	2,433
2	Other Truck	1	4	1	781.00	781	720.85	-7.70%	721	602.74	-22.82%	603	633.42	-18.90%	633	633.41	-18.90%	633	633.00	-18.95%	633
2	Other Truck	1	5	11	980.45	10,785	951.70	-2.93%	10,469	921.86	-5.98%	10,140	921.86	-5.98%	10,140	921.83	-5.98%	10,140	921.73	-5.99%	10,139
2	Other Truck	2	1	3,780	933.19	3,527,443	935.86	0.29%	3,537,541	929.62	-0.38%	3,513,968	929.62	-0.38%	3,513,968	929.60	-0.38%	3,513,886	929.68	-0.38%	3,514,186
2	Other Truck	2	2	4,258	655.18	2,789,758	655.45	0.04%	2,790,891	653.08	-0.32%	2,780,807	653.08	-0.32%	2,780,807	653.06	-0.32%	2,780,742	653.07	-0.32%	2,780,784
2	Other Truck	2	3	281	670.65	188,452	673.62	0.44%	189,288	648.86	-3.25%	182,330	648.86	-3.25%	182,330	648.85	-3.25%	182,326	648.97	-3.23%	182,360
2	Other Truck	2	4	278	658.45	183,049	662.50	0.62%	184,176	643.02	-2.34%	178,761	643.02	-2.34%	178,761	643.01	-2.35%	178,756	643.06	-2.34%	178,772
2	Other Truck	2	5	913	965.04	881,086	964.30	-0.08%	880,404	987.40	2.32%	901,494	987.40	2.32%	901,494	987.37	2.31%	901,473	987.34	2.31%	901,437
2	Other Truck	3	1	1,784	961.00	1,714,424	961.00	0.00%	1,714,424	957.49	-0.37%	1,708,165	957.49	-0.37%	1,708,165	957.47	-0.37%	1,708,126	957.00	-0.42%	1,707,288
2	Other Truck	3	2	3,027	675.00	2,043,225	675.00	0.00%	2,043,225	671.73	-0.48%	2,033,317	671.73	-0.48%	2,033,317	671.71	-0.49%	2,033,270	672.00	-0.44%	2,034,144
2	Other Truck	3	3	129	700.00	90,300	700.00	0.00%	90,300	667.37	-4.66%	86,091	667.37	-4.66%	86,091	667.35	-4.66%	86,089	667.00	-4.71%	86,043
2	Other Truck	3	4	141	690.00	97,290	690.00	0.00%	97,290	661.34	-4.15%	93,249	661.34	-4.15%	93,249	661.32	-4.16%	93,246	661.00	-4.20%	93,201
Major Class Total				46,246	780.23	36,082,358	779.26	-0.12%	36,037,856	800.20	2.56%	37,006,055	798.85	2.39%	36,943,667	798.83	2.38%	36,942,812	798.89	2.39%	36,945,697

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				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
3	U Drive Bus	N/A	1	18	1,880.00	33,840	1,880.00	0.00%	33,840	1,911.35	1.67%	34,404	1,911.35	1.67%	34,404	1,911.31	1.67%	34,404	1,911.00	1.65%	34,398
3	U Drive Bus	N/A	2	18	1,020.00	18,360	1,020.00	0.00%	18,360	1,067.55	4.66%	19,216	1,067.55	4.66%	19,216	1,067.52	4.66%	19,215	1,068.00	4.71%	19,224
3	U Drive Bus	N/A	3	1	1,115.00	1,115	1,115.00	0.00%	1,115	1,140.53	2.29%	1,141	1,140.53	2.29%	1,141	1,140.50	2.29%	1,141	1,141.00	2.33%	1,141
3	U Drive Bus	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	U Drive Motorhome	N/A	1	18	1,807.00	32,526	1,807.00	0.00%	32,526	1,847.13	2.22%	33,248	1,847.13	2.22%	33,248	1,847.09	2.22%	33,248	1,847.00	2.21%	33,246
3	U Drive Motorhome	N/A	2	23	982.00	22,586	982.00	0.00%	22,586	1,033.25	5.22%	23,765	1,033.25	5.22%	23,765	1,033.23	5.22%	23,764	1,033.00	5.19%	23,759
3	U Drive Motorhome	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	U Drive Motorhome	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	U Drive Passenger Vehicle	N/A	1	4,767	2,076.50	9,898,660	2,152.28	3.65%	10,259,927	2,049.20	-1.31%	9,768,542	2,049.20	-1.31%	9,768,542	2,049.15	-1.32%	9,768,315	2,049.23	-1.31%	9,768,696
3	U Drive Passenger Vehicle	N/A	2	822	1,121.96	922,249	1,132.11	0.91%	930,596	1,139.86	1.60%	936,963	1,139.86	1.60%	936,963	1,139.83	1.59%	936,941	1,140.05	1.61%	937,121
3	U Drive Passenger Vehicle	N/A	3	72	1,227.92	88,410	1,262.93	2.85%	90,931	1,218.51	-0.77%	87,732	1,218.51	-0.77%	87,732	1,218.48	-0.77%	87,730	1,218.32	-0.78%	87,719
3	U Drive Passenger Vehicle	N/A	4	71	1,282.96	91,090	1,334.42	4.01%	94,744	1,305.16	1.73%	92,666	1,305.16	1.73%	92,666	1,305.13	1.73%	92,664	1,305.15	1.73%	92,666
3	U Drive Moped	N/A	1	2	762.50	1,525	799.14	4.80%	1,598	1,668.45	118.81%	3,337	919.01	20.53%	1,838	918.98	20.52%	1,838	892.00	16.98%	1,784
3	U Drive Moped	N/A	2	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	U Drive Moped	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	U Drive Moped	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Transit Bus	N/A	1	643	2,574.00	1,655,082	2,574.00	0.00%	1,655,082	2,616.56	1.65%	1,682,447	2,616.56	1.65%	1,682,447	2,616.50	1.65%	1,682,408	2,616.00	1.63%	1,682,088
3	Transit Bus	N/A	2	47	1,336.21	62,802	1,334.91	-0.10%	62,741	1,404.05	5.08%	65,990	1,404.05	5.08%	65,990	1,404.02	5.07%	65,989	1,403.94	5.07%	65,985
3	Transit Bus	N/A	3	2	1,534.00	3,068	1,530.09	-0.25%	3,060	1,502.64	-2.04%	3,005	1,502.64	-2.04%	3,005	1,502.60	-2.05%	3,005	1,503.00	-2.02%	3,006
3	Transit Bus	N/A	4	3	1,699.00	5,097	1,696.49	-0.15%	5,089	1,611.27	-5.16%	4,834	1,611.27	-5.16%	4,834	1,611.23	-5.17%	4,834	1,611.33	-5.16%	4,834
3	School Bus	N/A	1	654	785.57	513,760	787.99	0.31%	515,344	784.41	-0.15%	513,006	784.41	-0.15%	513,006	784.39	-0.15%	512,994	784.56	-0.13%	513,099
3	School Bus	N/A	2	1,607	450.86	724,528	450.01	-0.19%	723,170	464.47	3.02%	746,396	464.47	3.02%	746,396	464.45	3.02%	746,379	464.29	2.98%	746,113
3	School Bus	N/A	3	55	488.64	26,875	487.83	-0.16%	26,831	492.14	0.72%	27,068	492.14	0.72%	27,068	492.13	0.71%	27,067	491.95	0.68%	27,057
3	School Bus	N/A	4	155	515.04	79,831	513.86	-0.23%	79,648	522.63	1.47%	81,007	522.63	1.47%	81,007	522.61	1.47%	81,005	522.80	1.51%	81,034
3	Charter Bus Local	N/A	1	40	1,233.68	49,347	1,364.12	10.57%	54,565	1,353.95	9.75%	54,158	1,353.95	9.75%	54,158	1,353.92	9.75%	54,157	1,353.88	9.74%	54,155
3	Charter Bus Local	N/A	2	2	676.50	1,353	676.68	0.03%	1,353	768.60	13.61%	1,537	752.43	11.22%	1,505	752.41	11.22%	1,505	752.50	11.23%	1,505
3	Charter Bus Local	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Charter Bus Local	N/A	4	6	609.17	3,655	610.04	0.14%	3,660	875.01	43.64%	5,250	701.55	15.17%	4,209	701.53	15.16%	4,209	701.67	15.18%	4,210
3	Police/Emergency Passenger Vehicle	N/A	1	383	2,908.30	1,113,879	2,965.75	1.98%	1,135,882	2,859.14	-1.69%	1,095,049	2,859.14	-1.69%	1,095,049	2,859.07	-1.69%	1,095,024	2,858.82	-1.70%	1,094,928
3	Police/Emergency Passenger Vehicle	N/A	2	269	1,546.28	415,949	1,508.07	-2.47%	405,671	1,572.36	1.69%	422,965	1,572.36	1.69%	422,965	1,572.32	1.68%	422,955	1,572.40	1.69%	422,976
3	Police/Emergency Passenger Vehicle	N/A	3	16	1,638.25	26,212	1,573.17	-3.97%	25,171	1,683.65	2.77%	26,938	1,683.65	2.77%	26,938	1,683.61	2.77%	26,938	1,683.56	2.77%	26,937
3	Police/Emergency Passenger Vehicle	N/A	4	21	1,760.57	36,972	1,676.42	-4.78%	35,205	1,806.28	2.60%	37,932	1,806.28	2.60%	37,932	1,806.23	2.59%	37,931	1,806.33	2.60%	37,933
3	Police/Emergency Truck	1	1	33	1,655.00	54,615	1,655.00	0.00%	54,615	1,602.40	-3.18%	52,879	1,602.40	-3.18%	52,879	1,602.37	-3.18%	52,878	1,602.00	-3.20%	52,866
3	Police/Emergency Truck	1	2	46	904.00	41,584	904.00	0.00%	41,584	902.57	-0.16%	41,518	902.57	-0.16%	41,518	902.55	-0.16%	41,517	903.00	-0.11%	41,538
3	Police/Emergency Truck	1	3	14	987.00	13,818	987.00	0.00%	13,818	963.10	-2.42%	13,483	963.10	-2.42%	13,483	963.08	-2.42%	13,483	963.00	-2.43%	13,482
3	Police/Emergency Truck	1	4	11	1,043.00	11,473	1,043.00	0.00%	11,473	1,029.79	-1.27%	11,328	1,029.79	-1.27%	11,328	1,029.77	-1.27%	11,327	1,030.00	-1.25%	11,330
3	Police/Emergency Truck	2	1	6	936.00	5,616	936.00	0.00%	5,616	952.01	1.71%	5,712	952.01	1.71%	5,712	951.98	1.71%	5,712	952.00	1.71%	5,712
3	Police/Emergency Truck	2	2	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Police/Emergency Truck	2	3	2	577.00	1,154	577.00	0.00%	1,154	589.57	2.18%	1,179	589.57	2.18%	1,179	589.56	2.18%	1,179	590.00	2.25%	1,180
3	Police/Emergency Truck	2	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Police/Emergency Truck	3	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Police/Emergency Truck	3	2	2	593.00	1,186	593.00	0.00%	1,186	302.91	-48.92%	606	504.05	-15.00%	1,008	504.05	-15.00%	1,008	504.00	-15.01%	1,008
3	Police/Emergency Truck	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Police/Emergency Truck	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Limousine All Uses Passenger Vehicle	N/A	1	92	3,307.45	304,285	2,961.38	-10.46%	272,447	2,951.78	-10.75%	271,563	2,951.78	-10.75%	271,563	2,951.71	-10.76%	271,557	2,951.24	-10.77%	271,514
3	Limousine All Uses Passenger Vehicle	N/A	2	20	1,704.00	34,080	1,757.40	3.13%	35,148	1,623.13	-4.75%	32,463	1,623.13	-4.75%	32,463	1,623.09	-4.75%	32,462	1,623.40	-4.73%	32,468
3	Limousine All Uses Passenger Vehicle	N/A	3	1	1,871.00	1,871	1,341.00	-28.33%	1,341	1,738.04	-7.11%	1,738	1,542.15	-17.58%	1,542	1,542.11	-17.58%	1,542	1,542.00	-17.58%	1,542
3	Limousine All Uses Passenger Vehicle	N/A	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Funeral Passenger Vehicle	N/A	1	53	932.04	49,398	904.45	-2.96%	47,936	858.34	-7.91%	45,492	858.34	-7.91%	45,492	858.32	-7.91%	45,491	858.32	-7.91%	45,491
3	Funeral Passenger Vehicle	N/A	2	77	527.44	40,613	499.79	-5.24%	38,484	503.94	-4.46%	38,804	503.94	-4.46%	38,804	503.93	-4.46%	38,803	503.88	-4.47%	38,799
3	Funeral Passenger Vehicle	N/A	3	1	564.00	564	563.04	-0.17%	563	534.59	-5.21%	535	534.59	-5.21%	535	534.58	-5.22%	535	535.00	-5.14%	535
3	Funeral Passenger Vehicle	N/A	4	5	586.40	2,932	583.56	-0.48%	2,918	568.37	-3.08%	2,842	568.37	-3.08%	2,842	568.35	-3.08%	2,842	568.20	-3.10%	2,841
3	Taxi/Livery Passenger Vehicle	N/A	1	526	10,358.00	5,448,308	8,680.75	-16.19%	4,566,072	9,012.76	-12.99%	4,740,710	9,012.76	-12.99%	4,740,710	9,012.55	-12.99%	4,740,600	9,012.63	-12.99%	4,740,641
3	Taxi/Livery Passenger Vehicle	N/A	2	148	5,405.00	799,940	5,084.31	-5.93%	752,478	4,859.67	-10.09%	719,231	4,859.67	-10.09%	719,231	4,859.56	-10.09%	719,215	4,859.51	-10.09%	719,208
3	Taxi/Livery Passenger Vehicle	N/A	3	50	5,958.00	297,900	4,873.58	-18.20%	243,679	5,218.86	-12.41%	260,943	5,218.86	-12.41%	260,943	5,218.74	-12.41%	260,937	5,218.96	-12.40%	260,948
3	Taxi/Livery Passenger Vehicle	N/A	4	26	6,328.00	164,528	5,468.88	-13.58%	142,191	5,614.63	-11.27%	145,981	5,614.63	-11.27%	145,981	5,614.50	-11.28%	145,977	5,613.96	-11.28%	145,963
3	Common Carrier Bus Within MB	N/A	1	55	1,784.00	98,120	1,784.00	0.00%	98,120	2,033.13	13.96%	111,822	1,985.98	11.32%	109,229	1,985.93	11.32%	109,226	1,803.00	1.07%	99,165
3	Common Carrier Bus Within MB	N/A	2	26	1,784.00	46,384	1,784.00	0.00%	46,384	1,132.58	-36.51%	29,447	1,516.40	-15.00%	39,426	1,516.40	-15.00%	39,426	1,803.00	1.07%	46,878
3	Common Carrier Bus Within MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Common Carrier Bus Within MB	N/A	4	9	1,784.00	16,056	1,784.00	0.00%	16,056	1,296.28	-27.34%	11,667	1,516.40	-15.00%	13,648	1,516.40	-15.00%	13,648	1,803.00	1.07%	16,227
3	Wheelchair Livery Bus	N/A	1	52	4,253.44	221,179	2,042.77	-51.97%	106,224	2,150.71	-49.44%	111,837	2,150.71	-49.44%	111,837	2,150.66	-49.44%	111,834	2,150.71	-49.44%	111,837
3	U Drive Truck	1	1	814	2,361.42	1,922,199	2,526.89	7.01%	2,056,890	2,415.46	2.29%	1,966,188	2,415.46	2.29%	1,966,188	2,415.41	2.29%	1,966,142	2,415.21	2.28%	1,965,983
3	U Drive Truck	1	2	227	1,310.45	297,472	1,400.15	6.85%	317,835	1,335.44	1.91%	303,145	1,335.44	1.91%	303,145	1,335.41	1.90%	303,138	1,335.55	1.92%	303,169
3	U Drive Truck	1	3	104	1,460.54	151,896	1,554.54	6.44%	161,672	1,428.85	-2.17%	148,600	1,428.85	-2.17%	148,600	1,428.82	-2.17%	148,597	1,428.94	-2.16%	148,610
3	U Drive Truck	1	4	28	1,455.79	40,762	1,579.03	8.47%	44,213	1,531.77	5.22%	42,890	1,531.77	5.22%	42,890	1,531.74	5.22%	42,889	1,531.57	5.21%	42,884
3	U Drive Truck	2	1	304	1,393.94	423,759	1,424.83	2.22%	433,148	1,411.73	1.28%	429,166	1,411.73	1.28%	429,166	1,411.70	1.27%	429,156	1,411.88	1.29%	429,211
3	U Drive Truck	2	2	23	847.52	19,493	872.68	2.97%	20,072	799.45	-5.67%	18,387	799.45	-5.67%	18,387	799.43	-5.67%	18,387	799.35	-5.68%	18,385
3	U Drive Truck	2	3	1	1,375.00	1,375	1,411.84	2.68%	1,412	852.41	-38.01%	852	1,200.06	-12.72%	1,200	1,200.06	-12.72%	1,200	1,200.00	-12.73%	1,200
3	U Drive Truck	2	4	1	822.00	822	842.44	2.49%	842	910.75	10.80%	911	910.75	10.80%	911	910.73	10.79%	911	911.00	10.83%	911
3	U Drive Truck	3	1	34	758.00	25,772	758.00	0.00%	25,772	682.43	-9.97%	23,202	682.43	-9.97%	23,202	682.41	-9.97%	23,202	682.00	-10.03%	23,188

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
3	U Drive Truck	3	2	17	439.00	7,463	439.00	0.00%	7,463	410.00	-6.60%	6,970	410.00	-6.60%	6,970	410.00	-6.61%	6,970	410.00	-6.61%	6,970
3	U Drive Truck	3	3	1	518.00	518	518.00	0.00%	518	433.57	-16.30%	434	455.32	-12.10%	455	455.31	-12.10%	455	455.00	-12.16%	455
3	U Drive Truck	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Common Carrier Bus Over 161K outside MB	N/A	1	74	688.00	50,912	688.00	0.00%	50,912	868.31	26.21%	64,255	791.20	15.00%	58,549	791.18	15.00%	58,547	730.00	6.10%	54,020
3	Common Carrier Bus Over 161K outside MB	N/A	2	27	688.00	18,576	688.00	0.00%	18,576	510.57	-25.79%	13,785	584.80	-15.00%	15,790	584.80	-15.00%	15,790	730.00	6.10%	19,710
3	Common Carrier Bus Over 161K outside MB	N/A	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
3	Common Carrier Bus Over 161K outside MB	N/A	4	5	688.00	3,440	688.00	0.00%	3,440	575.60	-16.34%	2,878	604.67	-12.11%	3,023	604.65	-12.11%	3,023	730.00	6.10%	3,650
Major Class Total				12,630	2,094.13	26,448,834	2,047.58	-2.22%	25,860,949	2,014.41	-3.81%	25,442,040	2,014.72	-3.79%	25,445,854	2,014.67	-3.79%	25,445,267	2,014.66	-3.79%	25,445,133

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
4	All Purpose Motorcycle (Motorscooter Body Style)	1	1	146	432.86	63,197	430.93	-0.45%	62,915	445.22	2.86%	65,002	459.04	6.05%	67,020	459.03	6.05%	67,019	458.95	6.03%	67,006
4	All Purpose Motorcycle (Motorscooter Body Style)	1	2	22	395.82	8,708	394.37	-0.37%	8,676	394.79	-0.26%	8,685	397.39	0.40%	8,743	397.38	0.39%	8,742	397.27	0.37%	8,740
4	All Purpose Motorcycle (Motorscooter Body Style)	1	3	2	284.00	568	283.03	-0.34%	566	297.88	4.89%	596	294.55	3.71%	589	294.54	3.71%	589	294.50	3.70%	589
4	All Purpose Motorcycle (Motorscooter Body Style)	1	4	4	320.50	1,282	318.90	-0.50%	1,276	323.15	0.83%	1,293	324.65	1.29%	1,299	324.64	1.29%	1,299	324.50	1.25%	1,298
4	All Purpose Motorcycle (Motorscooter Body Style)	1	5	5	381.60	1,908	379.71	-0.49%	1,899	380.45	-0.30%	1,902	380.45	-0.30%	1,902	380.44	-0.30%	1,902	380.40	-0.31%	1,902
4	All Purpose Motorcycle (Motorscooter Body Style)	2	1	12	751.75	9,021	747.22	-0.60%	8,967	745.63	-0.81%	8,948	745.63	-0.81%	8,948	745.61	-0.82%	8,947	745.42	-0.84%	8,945
4	All Purpose Motorcycle (Motorscooter Body Style)	2	2	1	603.00	603	601.06	-0.32%	601	651.06	7.97%	651	651.06	7.97%	651	651.05	7.97%	651	651.00	7.96%	651
4	All Purpose Motorcycle (Motorscooter Body Style)	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	2	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	2	5	1	679.00	679	673.66	-0.79%	674	624.17	-8.07%	624	624.17	-8.07%	624	624.16	-8.08%	624	624.00	-8.10%	624
4	All Purpose Motorcycle (Motorscooter Body Style)	3	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	3	2	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	8.32%	0	0.00	8.32%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Motorscooter Body Style)	3	5	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Other Body Style)	1	1	166	753.99	125,162	750.09	-0.52%	124,514	785.52	4.18%	130,396	785.52	4.18%	130,396	785.50	4.18%	130,393	785.43	4.17%	130,381
4	All Purpose Motorcycle (Other Body Style)	1	2	61	717.82	43,787	714.84	-0.41%	43,606	685.10	-4.56%	41,791	685.10	-4.56%	41,791	685.08	-4.56%	41,790	685.26	-4.54%	41,801
4	All Purpose Motorcycle (Other Body Style)	1	3	7	477.14	3,340	474.17	-0.62%	3,319	492.11	3.14%	3,445	492.11	3.14%	3,445	492.09	3.13%	3,445	491.86	3.08%	3,443
4	All Purpose Motorcycle (Other Body Style)	1	4	1	544.00	544	540.09	-0.72%	540	542.42	-0.29%	542	542.42	-0.29%	542	542.41	-0.29%	542	543.00	-0.18%	543
4	All Purpose Motorcycle (Other Body Style)	1	5	15	680.60	10,209	677.59	-0.44%	10,164	656.54	-3.54%	9,848	656.54	-3.54%	9,848	656.53	-3.54%	9,848	656.20	-3.59%	9,843
4	All Purpose Motorcycle (Other Body Style)	2	1	152	1,377.55	209,387	1,323.15	-3.95%	201,119	1,383.76	0.45%	210,332	1,355.01	-1.64%	205,962	1,354.98	-1.64%	205,957	1,355.05	-1.63%	205,968
4	All Purpose Motorcycle (Other Body Style)	2	2	80	1,226.30	98,104	1,219.84	-0.53%	97,587	1,195.44	-2.52%	95,635	1,172.96	-4.35%	93,836	1,172.93	-4.35%	93,834	1,172.70	-4.37%	93,816
4	All Purpose Motorcycle (Other Body Style)	2	3	8	918.75	7,350	914.12	-0.50%	7,313	833.55	-9.27%	6,668	833.55	-9.27%	6,668	833.53	-9.28%	6,668	833.63	-9.27%	6,669
4	All Purpose Motorcycle (Other Body Style)	2	4	2	866.50	1,733	861.60	-0.57%	1,723	927.90	7.09%	1,856	819.44	-5.43%	1,639	819.42	-5.43%	1,639	819.00	-5.48%	1,638
4	All Purpose Motorcycle (Other Body Style)	2	5	27	1,184.52	31,982	1,139.61	-3.79%	30,769	1,141.90	-3.60%	30,831	1,095.54	-7.51%	29,580	1,095.51	-7.51%	29,579	1,095.52	-7.51%	29,579
4	All Purpose Motorcycle (Other Body Style)	3	1	218	1,614.18	351,892	1,561.21	-3.28%	340,344	1,598.81	-0.95%	348,540	1,598.81	-0.95%	348,540	1,598.77	-0.95%	348,531	1,598.98	-0.94%	348,577
4	All Purpose Motorcycle (Other Body Style)	3	2	125	1,468.15	183,519	1,434.01	-2.33%	179,251	1,378.89	-6.08%	172,362	1,378.89	-6.08%	172,362	1,378.86	-6.08%	172,358	1,378.67	-6.09%	172,334
4	All Purpose Motorcycle (Other Body Style)	3	3	18	1,033.50	18,603	1,038.78	0.51%	18,698	956.29	-7.47%	17,213	956.29	-7.47%	17,213	956.26	-7.47%	17,213	956.22	-7.48%	17,212
4	All Purpose Motorcycle (Other Body Style)	3	4	9	1,121.22	10,091	1,121.33	0.01%	10,092	1,066.47	-4.88%	9,598	1,066.47	-4.88%	9,598	1,066.44	-4.89%	9,598	1,066.44	-4.89%	9,598
4	All Purpose Motorcycle (Other Body Style)	3	5	42	1,428.62	60,002	1,369.32	-4.15%	57,511	1,316.36	-7.86%	55,287	1,316.36	-7.86%	55,287	1,316.33	-7.86%	55,286	1,316.24	-7.87%	55,282
4	All Purpose Motorcycle (Sport Body Style)	1	1	71	1,149.11	81,587	1,142.46	-0.58%	81,115	1,247.40	8.55%	88,565	1,247.40	8.55%	88,565	1,247.37	8.55%	88,563	1,247.14	8.53%	88,547
4	All Purpose Motorcycle (Sport Body Style)	1	2	20	1,106.45	22,129	1,101.71	-0.43%	22,034	1,079.11	-2.47%	21,582	1,079.11	-2.47%	21,582	1,079.09	-2.47%	21,582	1,079.20	-2.46%	21,584
4	All Purpose Motorcycle (Sport Body Style)	1	3	2	853.50	1,707	849.94	-0.42%	1,700	755.72	-11.46%	1,511	761.87	-10.74%	1,524	761.85	-10.74%	1,524	762.00	-10.72%	1,524
4	All Purpose Motorcycle (Sport Body Style)	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport Body Style)	1	5	3	1,083.00	3,249	1,076.15	-0.63%	3,228	1,031.26	-4.78%	3,094	1,031.26	-4.78%	3,094	1,031.24	-4.78%	3,094	1,031.33	-4.77%	3,094
4	All Purpose Motorcycle (Sport Body Style)	2	1	45	2,262.82	101,827	2,252.70	-0.45%	101,372	2,249.87	-0.57%	101,244	2,249.87	-0.57%	101,244	2,249.82	-0.57%	101,242	2,249.56	-0.59%	101,230
4	All Purpose Motorcycle (Sport Body Style)	2	2	19	1,948.89	37,029	1,939.71	-0.47%	36,855	1,934.30	-0.75%	36,752	1,934.30	-0.75%	36,752	1,934.26	-0.75%	36,751	1,934.26	-0.75%	36,751
4	All Purpose Motorcycle (Sport Body Style)	2	3	2	1,414.50	2,829	1,406.02	-0.60%	2,812	1,327.88	-6.12%	2,656	1,327.88	-6.12%	2,656	1,327.85	-6.13%	2,656	1,327.50	-6.15%	2,655
4	All Purpose Motorcycle (Sport Body Style)	2	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport Body Style)	2	5	11	2,018.36	22,202	2,007.26	-0.55%	22,080	1,844.58	-8.61%	20,290	1,844.58	-8.61%	20,290	1,844.53	-8.61%	20,290	1,844.73	-8.60%	20,292
4	All Purpose Motorcycle (Sport Body Style)	3	1	3	2,794.00	8,382	2,786.39	-0.27%	8,359	2,610.22	-6.58%	7,831	2,782.88	-0.40%	8,349	2,782.82	-0.40%	8,348	2,783.00	-0.39%	8,349
4	All Purpose Motorcycle (Sport Body Style)	3	2	1	2,688.00	2,688	2,677.70	-0.38%	2,678	2,241.71	-16.60%	2,242	2,670.23	-0.66%	2,670	2,670.17	-0.66%	2,670	2,670.00	-0.67%	2,670
4	All Purpose Motorcycle (Sport Body Style)	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport Body Style)	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport Body Style)	3	5	2	2,990.00	5,980	2,997.60	0.25%	5,995	2,136.93	-28.53%	4,274	2,754.66	-7.87%	5,509	2,754.59	-7.87%	5,509	2,754.50	-7.88%	5,509
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	1	7	746.57	5,226	741.66	-0.66%	5,192	830.40	11.23%	5,813	820.68	9.93%	5,745	820.66	9.92%	5,745	821.00	9.97%	5,747
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	2	5	741.80	3,709	739.00	-0.38%	3,695	723.38	-2.48%	3,617	723.38	-2.48%	3,617	723.36	-2.49%	3,617	723.40	-2.48%	3,617
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	5	2	787.00	1,574	782.41	-0.58%	1,565	692.95	-11.95%	1,386	700.43	-11.00%	1,401	700.41	-11.00%	1,401	700.00	-11.05%	1,400
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	1	33	1,180.03	38,941	1,403.96	18.98%	46,331	1,467.91	24.40%	48,441	1,467.91	24.40%	48,441	1,467.88	24.39%	48,440	1,467.61	24.37%	48,431
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	2	12	1,319.75	15,837	1,314.23	-0.42%	15,771	1,267.23	-3.98%	15,207	1,267.23	-3.98%	15,207	1,267.20	-3.98%	15,206	1,267.25	-3.98%	15,207
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	4	1	1,128.00	1,128	1,124.32	-0.33%	1,124	982.12	-12.93%	982	1,001.97	-11.17%	1,002	1,001.94	-11.18%	1,002	1,002.00	-11.17%	1,002
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	5	5	1,014.80	5,074	1,251.86	23.36%	6,259	1,210.17	19.25%	6,051	1,210.17	19.25%	6,051	1,210.14	19.25%	6,051	1,209.80	19.22%	6,049
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	1	19	1,006.95	19,132	1,653.93	64.25%	31,425	1,697.07	68.54%	32,244	1,729.27	71.73%	32,856	1,729.23	71.73%	32,855	1,729.21	71.73%	32,855
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	2	4	370.25	1,481	1,692.41	357.10%	6,770	1,462.72	295.06%	5,851	1,631.88	340.75%	6,528	1,631.84	340.74%	6,527	1,631.75	340.72%	6,527
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	5	5	849.20	4,246	1,461.08	72.05%	7,305	1,396.09	64.40%	6,980	1,412.43	66.32%	7,062	1,412.39	66.32%	7,062	1,412.60	66.34%	7,063
4	All Purpose Motorcycle (Touring Body Style)	1	1	7	719.14	5,034	726.69	1.05%	5,087	755.43	5.05%	5,288	755.43	5.05%	5,288	755.41	5.04%	5,288	755.43	5.05%	5,288
4	All Purpose Motorcycle (Touring Body Style)	1	2	2	656.00	1,312	665.69	1.48%	1,331	659.42	0.52%	1,319	659.42	0.52%	1,319	659.41	0.52%	1,319	659.50	0.53%	1,319
4	All Purpose Motorcycle (Touring Body Style)	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Touring Body Style)	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	All Purpose Motorcycle (Touring Body Style)	1	5	2	606.00	1,212	608.81	0.46%	1,218	632.12	4.31%	1,264	632.12	4.31%	1,264	632.11	4.31%	1,264	632.50	4.37%	1,265
4	All Purpose Motorcycle (Touring Body Style)	2	1	37	1,208.03	44,697	1,203.48	-0.38%	44,529	1,327.32	9.88%	49,111	1,234.51	2.19%	45,677	1,234.48	2.19%	45,676	1,234.32	2.18%	45,670
4	All Purpose Motorcycle (Touring Body Style)	2	2	23	1,078.70	24,810	1,075.51	-0.30%	24,737	1,147.30	6.36%	26,388	1,042.57	-3.35%	23,979	1,042.55	-3.35%	23,979	1,042.65	-3.34%	23,981
4	All Purpose Motorcycle (Touring Body Style)	2	3	5	775.20	3,876	772.12	-0.40%	3,861	801.34	3.37%	4,007	683.53	-11.82%	3,418	683.52	-11.83%	3,418	683.20	-11.87%	3,416
4	All Purpose Motorcycle (Touring Body Style)	2	4	1	922.00	922	932.61	1.15%	933	891.54	-3.30%	892	863.27	-6.37%	863	863.25	-6.37%	863	863.00	-6.40%	863
4	All Purpose Motorcycle (Touring Body Style)	2	5	2	965.00	1,930	959.50	-0.57%	1,919	1,096.11	13.59%	2,192	956.93	-0.84%	1,914	956.91	-0.84%	1,914	957.00	-0.83%	1,914

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
4	All Purpose Motorcycle (Touring Body Style)	3	1	236	1,483.86	350,192	1,494.38	0.71%	352,673	1,532.90	3.30%	361,765	1,532.90	3.30%	361,765	1,532.87	3.30%	361,756	1,532.82	3.30%	361,745
4	All Purpose Motorcycle (Touring Body Style)	3	2	131	1,357.39	177,818	1,364.46	0.52%	178,744	1,322.67	-2.56%	173,270	1,322.67	-2.56%	173,270	1,322.64	-2.56%	173,266	1,322.69	-2.56%	173,273
4	All Purpose Motorcycle (Touring Body Style)	3	3	10	1,058.80	10,588	1,073.45	1.38%	10,735	918.67	-13.23%	9,187	950.30	-10.25%	9,503	950.27	-10.25%	9,503	950.50	-10.23%	9,505
4	All Purpose Motorcycle (Touring Body Style)	3	4	11	1,093.09	12,024	1,106.25	1.20%	12,169	1,024.00	-6.32%	11,264	1,024.00	-6.32%	11,264	1,023.98	-6.32%	11,264	1,023.91	-6.33%	11,263
4	All Purpose Motorcycle (Touring Body Style)	3	5	45	1,257.20	56,574	1,266.29	0.72%	56,983	1,262.90	0.45%	56,830	1,262.90	0.45%	56,830	1,262.87	0.45%	56,829	1,262.87	0.45%	56,829
4	Pleasure Motorcycle (Motorscooter Body Style)	1	1	192	275.20	52,839	274.09	-0.40%	52,626	300.02	9.02%	57,604	301.23	9.46%	57,836	301.22	9.45%	57,835	301.30	9.48%	57,850
4	Pleasure Motorcycle (Motorscooter Body Style)	1	2	124	264.48	32,796	263.23	-0.48%	32,640	270.92	2.44%	33,595	272.97	3.21%	33,849	272.97	3.21%	33,848	273.10	3.26%	33,864
4	Pleasure Motorcycle (Motorscooter Body Style)	1	3	4	198.00	792	197.25	-0.38%	789	215.01	8.59%	860	193.13	-2.46%	773	193.12	-2.46%	772	193.25	-2.40%	773
4	Pleasure Motorcycle (Motorscooter Body Style)	1	4	6	249.00	1,494	248.38	-0.25%	1,490	229.59	-7.80%	1,378	240.86	-3.27%	1,445	240.85	-3.27%	1,445	240.83	-3.28%	1,445
4	Pleasure Motorcycle (Motorscooter Body Style)	2	1	41	443.22	18,172	441.05	-0.49%	18,083	473.35	6.80%	19,407	473.35	6.80%	19,407	473.34	6.80%	19,407	473.68	6.87%	19,421
4	Pleasure Motorcycle (Motorscooter Body Style)	2	2	25	415.40	10,385	412.97	-0.58%	10,324	418.79	0.82%	10,470	418.79	0.82%	10,470	418.78	0.81%	10,470	418.84	0.83%	10,471
4	Pleasure Motorcycle (Motorscooter Body Style)	2	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Motorscooter Body Style)	2	4	2	354.50	709	352.95	-0.44%	706	341.27	-3.73%	683	341.27	-3.73%	683	341.27	-3.73%	683	341.00	-3.81%	682
4	Pleasure Motorcycle (Motorscooter Body Style)	3	1	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	7.32%	0	0.00	7.32%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Motorscooter Body Style)	3	2	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	1.41%	0	0.00	1.41%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Motorscooter Body Style)	3	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Motorscooter Body Style)	3	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Other Body Style)	1	1	349	459.30	160,295	459.05	-0.05%	160,209	496.37	8.07%	173,234	496.37	8.07%	173,234	496.36	8.07%	173,230	496.15	8.02%	173,158
4	Pleasure Motorcycle (Other Body Style)	1	2	347	423.92	147,100	421.20	-0.64%	146,157	438.43	3.42%	152,134	438.43	3.42%	152,134	438.42	3.42%	152,131	438.27	3.38%	152,078
4	Pleasure Motorcycle (Other Body Style)	1	3	12	334.33	4,012	333.04	-0.39%	3,997	327.07	-2.17%	3,925	327.07	-2.17%	3,925	327.07	-2.17%	3,925	326.83	-2.24%	3,922
4	Pleasure Motorcycle (Other Body Style)	1	4	10	371.90	3,719	370.74	-0.31%	3,707	356.11	-4.25%	3,561	356.11	-4.25%	3,561	356.10	-4.25%	3,561	356.10	-4.25%	3,561
4	Pleasure Motorcycle (Other Body Style)	2	1	873	810.21	707,314	789.03	-2.61%	688,824	841.55	3.87%	734,672	839.56	3.62%	732,935	839.54	3.62%	732,918	839.67	3.64%	733,030
4	Pleasure Motorcycle (Other Body Style)	2	2	980	752.63	737,573	732.02	-2.74%	717,381	732.89	-2.62%	718,234	732.89	-2.62%	718,234	732.87	-2.62%	718,217	732.88	-2.62%	718,223
4	Pleasure Motorcycle (Other Body Style)	2	3	23	538.91	12,395	535.73	-0.59%	12,322	524.08	-2.75%	12,054	516.38	-4.18%	11,877	516.37	-4.18%	11,876	516.22	-4.21%	11,873
4	Pleasure Motorcycle (Other Body Style)	2	4	34	566.76	19,270	547.00	-3.49%	18,598	578.52	2.07%	19,670	544.22	-3.98%	18,504	544.21	-3.98%	18,503	544.35	-3.95%	18,508
4	Pleasure Motorcycle (Other Body Style)	3	1	1,564	919.02	1,437,353	907.51	-1.25%	1,419,349	965.63	5.07%	1,510,241	965.63	5.07%	1,510,241	965.61	5.07%	1,510,207	965.53	5.06%	1,510,096
4	Pleasure Motorcycle (Other Body Style)	3	2	2,372	839.72	1,991,814	830.02	-1.16%	1,968,805	838.74	-0.12%	1,989,494	838.74	-0.12%	1,989,494	838.72	-0.12%	1,989,448	838.57	-0.14%	1,989,091
4	Pleasure Motorcycle (Other Body Style)	3	3	68	627.47	42,668	617.19	-1.64%	41,969	594.90	-5.19%	40,453	594.90	-5.19%	40,453	594.89	-5.19%	40,452	594.96	-5.18%	40,457
4	Pleasure Motorcycle (Other Body Style)	3	4	103	660.95	68,078	661.84	0.13%	68,169	658.47	-0.37%	67,823	658.47	-0.37%	67,823	658.46	-0.38%	67,821	658.33	-0.40%	67,808
4	Pleasure Motorcycle (Sport Body Style)	1	1	185	695.72	128,708	687.37	-1.20%	127,163	762.87	9.65%	141,131	758.36	9.00%	140,297	758.34	9.00%	140,294	758.29	8.99%	140,283
4	Pleasure Motorcycle (Sport Body Style)	1	2	105	639.93	67,193	636.34	-0.56%	66,815	665.77	4.04%	69,906	665.77	4.04%	69,906	665.76	4.04%	69,904	665.73	4.03%	69,902
4	Pleasure Motorcycle (Sport Body Style)	1	3	5	508.20	2,541	505.72	-0.49%	2,529	479.18	-5.71%	2,396	479.18	-5.71%	2,396	479.17	-5.71%	2,396	479.20	-5.71%	2,396
4	Pleasure Motorcycle (Sport Body Style)	1	4	5	526.00	2,630	522.43	-0.68%	2,612	527.82	0.35%	2,639	527.82	0.35%	2,639	527.81	0.34%	2,639	527.80	0.34%	2,639
4	Pleasure Motorcycle (Sport Body Style)	2	1	387	1,263.98	489,162	1,262.69	-0.10%	488,662	1,341.28	6.12%	519,077	1,341.28	6.12%	519,077	1,341.25	6.11%	519,065	1,341.14	6.10%	519,021
4	Pleasure Motorcycle (Sport Body Style)	2	2	296	1,182.78	350,103	1,177.01	-0.49%	348,396	1,159.21	-1.99%	343,125	1,159.21	-1.99%	343,125	1,159.18	-2.00%	343,117	1,159.20	-1.99%	343,123
4	Pleasure Motorcycle (Sport Body Style)	2	3	4	966.50	3,866	961.36	-0.53%	3,845	809.31	-16.26%	3,237	846.58	-12.41%	3,386	846.56	-12.41%	3,386	846.25	-12.44%	3,385
4	Pleasure Motorcycle (Sport Body Style)	2	4	6	930.83	5,585	927.27	-0.38%	5,564	900.53	-3.26%	5,403	900.53	-3.26%	5,403	900.51	-3.26%	5,403	900.50	-3.26%	5,403
4	Pleasure Motorcycle (Sport Body Style)	3	1	66	1,595.42	105,298	1,554.27	-2.58%	102,582	1,549.20	-2.90%	102,247	1,651.01	3.48%	108,967	1,650.97	3.48%	108,964	1,650.73	3.47%	108,948
4	Pleasure Motorcycle (Sport Body Style)	3	2	51	1,432.16	73,040	1,376.49	-3.89%	70,201	1,336.58	-6.67%	68,166	1,355.66	-5.34%	69,139	1,355.63	-5.34%	69,137	1,355.57	-5.35%	69,134
4	Pleasure Motorcycle (Sport Body Style)	3	3	3	1,289.00	3,867	1,292.20	0.25%	3,877	927.98	-28.01%	2,784	1,137.93	-11.72%	3,414	1,137.90	-11.72%	3,414	1,137.67	-11.74%	3,413
4	Pleasure Motorcycle (Sport Body Style)	3	4	2	1,035.00	2,070	1,031.94	-0.30%	2,064	1,034.50	-0.05%	2,069	1,034.50	-0.05%	2,069	1,034.48	-0.05%	2,069	1,035.00	0.00%	2,070
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	1	14	515.43	7,216	512.13	-0.64%	7,170	522.26	1.33%	7,312	522.26	1.33%	7,312	522.25	1.32%	7,312	522.14	1.30%	7,310
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	2	15	432.60	6,489	459.35	6.18%	6,890	460.52	6.45%	6,908	460.52	6.45%	6,908	460.51	6.45%	6,908	460.27	6.40%	6,904
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	3	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	4	0	0.00	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	1	126	727.62	91,680	843.48	15.92%	106,278	890.10	22.33%	112,153	890.10	22.33%	112,153	890.08	22.33%	112,150	890.10	22.33%	112,153
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	2	148	662.16	97,999	777.25	17.38%	115,033	774.31	16.94%	114,598	774.31	16.94%	114,598	774.29	16.94%	114,595	774.13	16.91%	114,571
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	3	4	588.25	2,353	585.42	-0.48%	2,342	551.80	-6.20%	2,207	551.80	-6.20%	2,207	551.78	-6.20%	2,207	551.75	-6.20%	2,207
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	4	3	398.33	1,195	579.24	45.42%	1,738	609.81	53.09%	1,829	609.81	53.09%	1,829	609.79	53.09%	1,829	610.00	53.14%	1,830
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	1	116	757.97	87,925	947.33	24.98%	109,890	1,022.33	34.88%	118,590	1,022.33	34.88%	118,590	1,022.30	34.87%	118,587	1,022.35	34.88%	118,593
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	2	116	669.90	77,708	895.93	33.74%	103,928	887.11	32.42%	102,905	892.54	33.24%	103,535	892.52	33.23%	103,532	892.37	33.21%	103,515
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	3	6	657.33	3,944	829.17	26.14%	4,975	627.26	-4.57%	3,764	781.54	18.90%	4,689	781.52	18.89%	4,689	781.33	18.86%	4,688
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	4	3	801.33	2,404	801.14	-0.02%	2,403	695.01	-13.27%	2,085	843.42	5.25%	2,530	843.40	5.25%	2,530	843.33	5.24%	2,530
4	Pleasure Motorcycle (Touring Body Style)	1	1	25	464.00	11,600	466.27	0.49%	11,657	479.01	3.23%	11,975	479.01	3.23%	11,975	479.00	3.23%	11,975	478.92	3.22%	11,973
4	Pleasure Motorcycle (Touring Body Style)	1	2	29	392.28	11,376	395.71	0.87%	11,475	423.61	7.99%	12,285	423.61	7.99%	12,285	423.60	7.99%	12,285	423.66	8.00%	12,286
4	Pleasure Motorcycle (Touring Body Style)	1	3	2	345.00	690	346.84	0.53%	694	317.16	-8.07%	634	317.16	-8.07%	634	317.16	-8.07%	634	317.50	-7.97%	635
4	Pleasure Motorcycle (Touring Body Style)	1	4	2	330.50	661	332.93	0.73%	666	344.92	4.36%	690	344.92	4.36%	690	344.91	4.36%	690	344.50	4.24%	689
4	Pleasure Motorcycle (Touring Body Style)	2	1	165	730.74	120,572	728.81	-0.26%	120,254	808.99	10.71%	133,483	782.89	7.14%	129,177	782.87	7.13%	129,174	783.07	7.16%	129,206
4	Pleasure Motorcycle (Touring Body Style)	2	2	236	689.27	162,667	688.45	-0.12%	162,475	705.11	2.30%	166,407	697.58	1.21%	164,630	697.57	1.20%	164,626	697.44	1.19%	164,596
4	Pleasure Motorcycle (Touring Body Style)	2	3	9	481.67	4,335	480.56	-0.23%	4,325	505.50	4.95%	4,549	460.74	-4.35%	4,147	460.73	-4.35%	4,147	460.78	-4.34%	4,147
4	Pleasure Motorcycle (Touring Body Style)	2	4	5	555.80	2,779	556.60	0.14%	2,783	557.54	0.31%	2,788	557.13	0.24%	2,786	557.12	0.24%	2,786	557.00	0.22%	2,785
4	Pleasure Motorcycle (Touring Body Style)	3	1	1,289	858.67	1,106,830	863.53	0.57%	1,113,086	927.60	8.03%	1,195,679	927.60	8.03%	1,195,679	927.58	8.02%	1,195,651	927.72	8.04%	1,195,834
4	Pleasure Motorcycle (Touring Body Style)	3	2	2,672	791.38	2,114,574	795.75	0.55%	2,126,235	806.30	1.89%	2,154,439	806.30	1.89%	2,154,439	806.28	1.88%	2,154,389	806.28	1.88%	2,154,390
4	Pleasure Motorcycle (Touring Body Style)	3	3	82	593.13	48,637	597.86	0.80%	49,025	573.20	-3.36%	47,002	573.20	-3.36%	47,002	573.19	-3.36%	47,001	573.38	-3.33%	47,017
4	Pleasure Motorcycle (Touring Body Style)	3	4	99	628.26	62,198	633.36	0.81%	62,703	633.97	0.91%	62,763	633.97	0.91%	62,763	633.96	0.91%	62,762	633.84	0.89%	62,750
4	All Purpose Moped	N/A	1	445	415.20	184,763	413.69	-0.36%	184,093	445.22	7.23%	198,122	440.68	6.14%	196,104	440.67	6.14%	196,099	440.68	6.14%	196,104
4	All Purpose Moped	N/A	2	159	392.45	62,399	391.43	-0.26%	62,238	394.79	0.60%	62,772	394.43	0.51%	62,714	394.42	0.50%	62,713	394.52	0.53%	62,729
4	All Purpose Moped	N/A	3	7	288.00	2,016	287.14	-0.30%	2,010	297.88	3.43%	2,085	298.83	3.76%	2,092	298.82	3.76%	2,092	298.86	3.77%	2,092
4	All Purpose Moped	N/A	4	3	317.00	951	315.45	-0.49%	946	323.15	1.94%	969	321.14	1.31%	963	321.13	1.30%	963	321.00	1.26%	963
4	Pleasure Moped	N/A	1	662	273.19	180,854	272.67	-0.19%	180,511	300.02	9.82%	198,614	299.67	9.69%	198,382	299.66	9.69%	198,377	299.72	9.71%	198,415

					A		B			C			D			E			F		
				Rate Model	Original Rate Model Before Changes		After Classification Changes and CLEAR Adjustments			Balanced Indicated Adjustment			Capped Indicated Adjustment			Balanced Capped Indicated Adjustment			Applied for Adjustment (Final Rate Model)		
Major Class	Description	GVW Code	Terr	No. of Vehicles	Average Rate	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium	Average Rate	% Change	Premium
4	Pleasure Moped	N/A	2	414	261.50	108,263	260.66	-0.32%	107,912	270.92	3.60%	112,163	270.31	3.37%	111,909	270.30	3.36%	111,906	270.44	3.42%	111,961
4	Pleasure Moped	N/A	3	8	231.88	1,855	230.77	-0.48%	1,846	215.01	-7.27%	1,720	225.95	-2.56%	1,808	225.94	-2.56%	1,808	225.88	-2.59%	1,807
4	Pleasure Moped	N/A	4	7	227.43	1,592	226.79	-0.28%	1,588	229.59	0.95%	1,607	219.92	-3.30%	1,539	219.92	-3.30%	1,539	219.71	-3.39%	1,538
Major Class Total				17,023	797.16	13,569,983	797.65	0.06%	13,578,326	822.19	3.14%	13,996,203	821.58	3.06%	13,985,745	821.56	3.06%	13,985,421	821.54	3.06%	13,985,119
5	All Purpose Trailer	N/A	1	59,446	65.14	3,872,024	65.15	0.02%	3,872,826	69.31	6.41%	4,120,053	69.31	6.41%	4,120,053	69.31	6.40%	4,119,958	69.41	6.56%	4,125,870
5	All Purpose Trailer	N/A	2	131,561	91.81	12,078,669	91.81	0.00%	12,078,259	83.77	-8.76%	11,020,537	83.77	-8.76%	11,020,537	83.77	-8.76%	11,020,282	83.94	-8.58%	11,042,614
5	All Purpose Trailer	N/A	3	3,488	49.78	173,628	49.62	-0.32%	173,069	53.28	7.04%	185,845	53.28	7.04%	185,845	53.28	7.03%	185,841	53.26	6.99%	185,766
5	All Purpose Trailer	N/A	4	6,182	32.16	198,821	32.22	0.19%	199,205	34.06	5.91%	210,570	34.06	5.91%	210,570	34.06	5.91%	210,565	33.75	4.93%	208,621
Major Class Total				200,677	81.34	16,323,142	81.34	0.00%	16,323,359	77.42	-4.82%	15,537,006	77.42	-4.82%	15,537,006	77.42	-4.82%	15,536,646	77.55	-4.66%	15,562,871
6	Off Road Vehicle - ATV	N/A	1	7,443	10.00	74,430	10.00	0.00%	74,430	6.35	-36.48%	47,276	8.50	-15.00%	63,266	8.50	-15.00%	63,266	8.00	-20.00%	59,544
6	Off Road Vehicle - ATV	N/A	2	27,756	10.00	277,560	10.00	0.00%	277,560	6.35	-36.48%	176,299	8.50	-15.00%	235,926	8.50	-15.00%	235,926	8.00	-20.00%	222,048
6	Off Road Vehicle - ATV	N/A	3	781	10.00	7,810	10.00	0.00%	7,810	6.35	-36.48%	4,961	8.50	-15.00%	6,639	8.50	-15.00%	6,639	8.00	-20.00%	6,248
6	Off Road Vehicle - ATV	N/A	4	1,279	10.00	12,790	10.00	0.00%	12,790	6.35	-36.48%	8,124	8.50	-15.00%	10,872	8.50	-15.00%	10,872	8.00	-20.00%	10,232
6	Off Road Vehicle - Motorcycle	N/A	1	375	10.00	3,750	10.00	0.00%	3,750	6.35	-36.48%	2,382	8.50	-15.00%	3,188	8.50	-15.00%	3,188	8.00	-20.00%	3,000
6	Off Road Vehicle - Motorcycle	N/A	2	579	10.00	5,790	10.00	0.00%	5,790	6.35	-36.48%	3,678	8.50	-15.00%	4,922	8.50	-15.00%	4,922	8.00	-20.00%	4,632
6	Off Road Vehicle - Motorcycle	N/A	3	12	10.00	120	10.00	0.00%	120	6.35	-36.48%	76	8.50	-15.00%	102	8.50	-15.00%	102	8.00	-20.00%	96
6	Off Road Vehicle - Motorcycle	N/A	4	5	10.00	50	10.00	0.00%	50	6.35	-36.48%	32	8.50	-15.00%	43	8.50	-15.00%	43	8.00	-20.00%	40
6	Off Road Vehicle - Snowmobile	N/A	1	7,973	10.00	79,730	10.00	0.00%	79,730	6.35	-36.48%	50,643	8.50	-15.00%	67,771	8.50	-15.00%	67,771	8.00	-20.00%	63,784
6	Off Road Vehicle - Snowmobile	N/A	2	22,165	10.00	221,650	10.00	0.00%	221,650	6.35	-36.48%	140,787	8.50	-15.00%	188,403	8.50	-15.00%	188,403	8.00	-20.00%	177,320
6	Off Road Vehicle - Snowmobile	N/A	3	958	10.00	9,580	10.00	0.00%	9,580	6.35	-36.48%	6,085	8.50	-15.00%	8,143	8.50	-15.00%	8,143	8.00	-20.00%	7,664
6	Off Road Vehicle - Snowmobile	N/A	4	1,409	10.00	14,090	10.00	0.00%	14,090	6.35	-36.48%	8,950	8.50	-15.00%	11,977	8.50	-15.00%	11,977	8.00	-20.00%	11,272
6	Off Road Vehicle - Snow Vehicle	N/A	1	24	10.00	240	10.00	0.00%	240	6.35	-36.48%	152	8.50	-15.00%	204	8.50	-15.00%	204	8.00	-20.00%	192
6	Off Road Vehicle - Snow Vehicle	N/A	2	66	10.00	660	10.00	0.00%	660	6.35	-36.48%	419	8.50	-15.00%	561	8.50	-15.00%	561	8.00	-20.00%	528
6	Off Road Vehicle - Snow Vehicle	N/A	3	4	10.00	40	10.00	0.00%	40	6.35	-36.48%	25	8.50	-15.00%	34	8.50	-15.00%	34	8.00	-20.00%	32
6	Off Road Vehicle - Snow Vehicle	N/A	4	9	10.00	90	10.00	0.00%	90	6.35	-36.48%	57	8.50	-15.00%	77	8.50	-15.00%	77	8.00	-20.00%	72
Major Class Total				70,838	10.00	708,380	10.00	0.00%	708,380	6.35	-36.48%	449,946	8.50	-15.00%	602,123	8.50	-15.00%	602,123	8.00	-20.00%	566,704

TOP 50 VEHICLES IN PRIVATE PASSENGER CLASS WITH GREATEST DOLLAR INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	260	1	CHEVROLET	SILVERADO 1500 LS CREW CAB	2015	CRECA	GW 0000000-0004540	35	36	1	Fishing All Purpose Truck	10	1,111	1,233	1,206	1,371
2	232	1	CHEVROLET	EQUINOX PREMIER 2.0T	2018	SPUT4	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
3	232	2	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
4	232	1	CHEVROLET	SILVERADO 2500 HD LTZ CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
5	232	1	CHEVROLET	SILVERADO 2500 HD WT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
6	232	1	DODGE	RAM 1500 LONGHORN CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
7	232	2	DODGE	RAM 1500 SLT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
8	232	1	DODGE	RAM 1500 SPORT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
9	232	1	DODGE	RAM 1500 SPORT QUAD CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
10	232	1	DODGE	RAM 1500 ST QUAD CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
11	232	3	DODGE	RAM 2500 SLT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
12	232	2	FORD	F150 KING RANCH SUPERCREW	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
13	232	5	FORD	F150 LARIAT SUPERCREW	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
14	232	1	FORD	F150 PLATINUM SUPERCREW	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
15	232	1	FORD	F150 XL PICKUP	2018	LIGPU	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
16	232	13	FORD	F150 XL SUPERCREW	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
17	232	22	FORD	F150 XLT SUPERCREW	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
18	232	1	GMC	SIERRA 2500 HD DENALI CREW CAB	2018	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
19	232	1	GMC	SIERRA 2500 HD SLT CREW CAB	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
20	232	2	TOYOTA	TUNDRA PLATINUM V8 CREWMAX	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
21	232	1	TOYOTA	TUNDRA SR5 DOUBLE CAB V8	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
22	232	1	TOYOTA	TUNDRA SR5 V8 CREWMAX	2018	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
23	232	4	CHEVROLET	SILVERADO 1500 LS	2017	LIGPU	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
24	232	5	CHEVROLET	SILVERADO 1500 WT	2017	LIGPU	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
25	232	9	CHEVROLET	SILVERADO 2500 HD HC CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
26	232	1	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
27	232	24	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
28	232	1	CHEVROLET	SILVERADO 2500 HD LTZ CREW CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
29	232	1	CHEVROLET	SILVERADO 2500 HD WT	2017	LIGPU	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
30	232	1	CHEVROLET	SILVERADO 2500 HD WT	2017	SERTR	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
31	232	11	CHEVROLET	SILVERADO 2500 HD WT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
32	232	5	DODGE	RAM 1500 BIG HORN CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
33	232	13	DODGE	RAM 1500 LARAMIE CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
34	232	4	DODGE	RAM 1500 LARAMIE LONGHORN CREW	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
35	232	6	DODGE	RAM 1500 LARAMIE QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
36	232	2	DODGE	RAM 1500 LONGHORN CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
37	232	5	DODGE	RAM 1500 REBEL CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
38	232	1	DODGE	RAM 1500 SLT CREW CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
39	232	72	DODGE	RAM 1500 SLT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
40	232	23	DODGE	RAM 1500 SLT QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
41	232	30	DODGE	RAM 1500 SPORT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
42	232	6	DODGE	RAM 1500 SPORT QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
43	232	2	DODGE	RAM 1500 ST CREW CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
44	232	11	DODGE	RAM 1500 ST CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
45	232	1	DODGE	RAM 1500 ST QUAD CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
46	232	12	DODGE	RAM 1500 ST QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
47	232	4	DODGE	RAM 1500 SXT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
48	232	1	DODGE	RAM 1500 SXT QUAD CAB	2017	CRCST	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
49	232	7	DODGE	RAM 1500 SXT QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978
50	232	10	DODGE	RAM 2500 LARAMIE CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	1	All Purpose Truck	0	1,746	1,970	1,927	1,978

TOP 50 VEHICLES IN PRIVATE PASSENGER CLASS WITH GREATEST DOLLAR DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-234	1	FORD	F150 XL SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	4	All Purpose Truck	0	1,214	1,035	1,012	980
2	-228	1	HONDA	RIDGELINE EX-L	2008	CRECA	GW 0000000-0004540	32	28	4	All Purpose Truck	0	1,401	1,239	1,212	1,173
3	-225	1	FORD	FOCUS ZX5 SES	2006	4DRHB	NA	28	23	Commuter	All Purpose Passenger Vehicle	0	1,810	1,596	1,563	1,585
4	-224	1	CHEVROLET	MALIBU LS	2007	4DOOR	NA	29	24	Commuter	All Purpose Passenger Vehicle	0	1,861	1,648	1,614	1,637
5	-224	1	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	Commuter	All Purpose Passenger Vehicle	0	1,861	1,648	1,614	1,637
6	-224	1	PONTIAC	VIBE	2006	STAWA	NA	29	24	Commuter	All Purpose Passenger Vehicle	0	1,861	1,648	1,614	1,637
7	-223	1	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
8	-223	1	FORD	ESCAPE XLT V6	2010	SPUT4	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
9	-223	1	FORD	F250 SD SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,270	1,148	1,123	1,047
10	-223	1	TOYOTA	TACOMA V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
11	-220	1	CHEVROLET	SILVERADO 1500 CREW CAB	2006	CRECA	GW 0000000-0004540	31	27	4	All Purpose Truck	0	1,358	1,202	1,176	1,138
12	-220	1	CHEVROLET	SILVERADO 1500 HD LT CREW CAB	2006	CRECA	GW 0000000-0004540	31	27	4	All Purpose Truck	0	1,358	1,202	1,176	1,138
13	-220	1	HONDA	RIDGELINE LX	2008	CRECA	GW 0000000-0004540	31	27	4	All Purpose Truck	0	1,358	1,202	1,176	1,138
14	-218	2	DODGE	DAKOTA CLUB CAB	2005	EXTCA	GW 0000000-0004540	28	23	Commuter	All Purpose Truck	0	1,393	1,187	1,161	1,175
15	-218	1	DODGE	RAM 1500 SPORT QUAD CAB	2005	CRECA	GW 0000000-0004540	30	27	4	Fishing All Purpose Truck	0	1,449	1,329	1,300	1,231
16	-218	1	FORD	F150 STX SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	Commuter	All Purpose Truck	0	1,393	1,187	1,161	1,175
17	-218	1	FORD	F150 XLT SUPERCREW	2010	CRECA	GW 0000000-0004540	28	23	Commuter	All Purpose Truck	0	1,393	1,187	1,161	1,175
18	-213	1	PONTIAC	VIBE	2006	STAWA	NA	29	24	Commuter	All Purpose Passenger Vehicle	5	1,768	1,566	1,533	1,555
19	-211	1	FORD	F150 FX2 SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	4	All Purpose Truck	10	1,093	932	911	882
20	-211	1	TOYOTA	TACOMA SR5 V6 ACCESS CAB	2005	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	5	1,244	1,091	1,067	1,033
21	-206	1	FORD	F250 SD SUPERCAB	2001	EXTCA	GW 0000000-0004540	27	24	4	Fishing All Purpose Truck	0	1,305	1,186	1,160	1,099
22	-203	1	SUBARU	OUTBACK 2.5I	2011	STAWA	NA	28	23	Commuter	All Purpose Passenger Vehicle	10	1,629	1,436	1,406	1,426
23	-202	2	CHEVROLET	SILVERADO 2500 HD EXT CAB	2003	EXTCA	GW 0000000-0004540	29	25	4	All Purpose Truck	0	1,255	1,112	1,088	1,053
24	-202	1	FORD	F150 STX SUPERCAB	2012	EXTCA	GW 0000000-0004540	29	25	4	All Purpose Truck	0	1,255	1,112	1,088	1,053
25	-202	1	GMC	SIERRA 1500 HD SLE CREW CAB	2006	CRECA	GW 0000000-0004540	29	25	4	All Purpose Truck	0	1,255	1,112	1,088	1,053
26	-202	1	GMC	SIERRA 1500 SLE CREW CAB	2006	CRECA	GW 0000000-0004540	29	25	4	All Purpose Truck	0	1,255	1,112	1,088	1,053
27	-201	1	FORD	F250 SD XL PICKUP	2006	LIGPU	GW 0000000-0004540	32	28	Commuter	All Purpose Truck	0	1,568	1,421	1,390	1,367
28	-200	1	CHEVROLET	COLORADO WT EXT CAB	2015	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
29	-200	4	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
30	-200	1	CHEVROLET	SILVERADO 1500 LS CREW CAB	2011	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
31	-200	1	CHEVROLET	SILVERADO 1500 WT EXT CAB	2008	EXTCA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
32	-200	3	DODGE	RAM 1500 QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
33	-200	1	DODGE	RAM 1500 SLT QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
34	-200	1	DODGE	RAM 1500 ST QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
35	-200	1	FORD	F150 STX SUPERCAB	2014	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
36	-200	1	FORD	F150 XL PICKUP	2010	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
37	-200	1	FORD	F150 XLT SUPERCAB	2010	EXTCA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
38	-200	2	FORD	F250 SD SUPERCAB	2005	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,464	1,317	1,288	1,264
39	-200	1	FORD	F250 SD XL SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,464	1,317	1,288	1,264
40	-200	1	GMC	SIERRA 1500 WT PICKUP	2013	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
41	-200	1	GMC	SIERRA 2500 HD PICKUP	2005	LIGPU	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,464	1,317	1,288	1,264

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-200	1	GMC	SIERRA 2500 HD SLE PICKUP	2005	LIGPU	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,464	1,317	1,288	1,264
43	-200	1	TOYOTA	TACOMA SR5 V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
44	-200	1	TOYOTA	TACOMA SR5 V6 XTRACAB	2004	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
45	-200	1	TOYOTA	TACOMA V6 ACCESS CAB	2005	EXTCA	GW 0000000-0004540	30	26	Commuter	All Purpose Truck	0	1,504	1,317	1,288	1,304
46	-199	1	GMC	SIERRA 1500 SL EXT CAB	2006	EXTCA	GW 0000000-0004540	28	24	4	All Purpose Truck	0	1,174	1,072	1,049	975
47	-198	4	CHEVROLET	MALIBU LT	2006	4DOOR	NA	28	23	1	All Purpose Passenger Vehicle	0	1,629	1,437	1,407	1,431
48	-198	1	CHEVROLET	SILVERADO 1500 CHEYENNE CREW	2006	CRECA	GW 0000000-0004540	31	27	4	All Purpose Truck	10	1,222	1,082	1,058	1,024
49	-198	2	FORD	FOCUS ZX5	2006	4DRHB	NA	28	23	1	All Purpose Passenger Vehicle	0	1,629	1,437	1,407	1,431
50	-198	1	FORD	FOCUS ZX5 SES	2006	4DRHB	NA	28	23	1	All Purpose Passenger Vehicle	0	1,629	1,437	1,407	1,431

TOP 50 VEHICLES IN PRIVATE PASSENGER CLASS WITH GREATEST PERCENT INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	23.40	1	CHEVROLET	SILVERADO 1500 LS CREW CAB	2015	CRECA	GW 0000000-0004540	35	36	1	Fishing All Purpose Truck	10	1,111	1,233	1,206	1,371
2	16.60	1	-	-	1990		NA	3	3	Commuter	All Purpose Motorhome	26	747	756	757	871
3	16.54	1	-	-	2001		NA	3	3	Commuter	All Purpose Motorhome	33	677	684	686	789
4	15.58	1	-	-	1986		NA	2	2	Commuter	All Purpose Motorhome	33	584	586	587	675
5	15.56	1	CHEVROLET	K/V 10/1500 4+CAB	1992	EXTCA	GW 0000000-0004540	1	1	3	Fishing All Purpose Truck	30	302	346	338	349
6	15.38	1	FORD	F150 XLT SUPERCREW	2012	CRECA	GW 0000000-0004540	34	33	3	Fishing All Purpose Truck	33	904	927	907	1,043
7	14.07	1	DODGE	RAM 1500 LARAMIE CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
8	14.07	1	DODGE	RAM 1500 LARAMIE LONGHORN CREW	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
9	14.07	2	DODGE	RAM 1500 SLT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
10	14.07	1	DODGE	RAM 1500 SLT QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
11	14.07	3	DODGE	RAM 1500 SPORT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
12	14.07	1	DODGE	RAM 1500 ST CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
13	14.07	2	DODGE	RAM 1500 ST QUAD CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
14	14.07	4	FORD	F150 LARIAT SUPERCREW	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
15	14.07	1	FORD	F150 LIMITED SUPERCREW	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
16	14.07	10	FORD	F150 XLT SUPERCREW	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
17	14.07	1	FORD	F250 SD XLT CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
18	14.07	1	NISSAN	TITAN 5.6 SL CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
19	14.07	1	NISSAN	TITAN 5.6 SV CREW CAB	2017	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
20	14.07	1	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
21	14.07	1	DODGE	RAM 1500 LARAMIE CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
22	14.07	1	DODGE	RAM 1500 LONGHORN CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
23	14.07	2	DODGE	RAM 1500 REBEL CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
24	14.07	2	DODGE	RAM 1500 SLT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
25	14.07	4	DODGE	RAM 1500 SLT QUAD CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
26	14.07	3	DODGE	RAM 1500 SPORT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
27	14.07	1	DODGE	RAM 1500 SPORT QUAD CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
28	14.07	1	DODGE	RAM 1500 ST CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
29	14.07	1	DODGE	RAM 1500 ST QUAD CAB	2016	CRCST	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
30	14.07	1	DODGE	RAM 1500 ST QUAD CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
31	14.07	1	DODGE	RAM 1500 SXT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
32	14.07	1	FORD	F150 KING RANCH SUPERCREW	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
33	14.07	5	FORD	F150 LARIAT SUPERCREW	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
34	14.07	11	FORD	F150 XLT SUPERCREW	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
35	14.07	1	FORD	F250 SD XLT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
36	14.07	1	GMC	SIERRA 2500 HD SLE CREW CAB	2016	CRCST	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
37	14.07	1	GMC	SIERRA 2500 HD SLE CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
38	14.07	1	GMC	SIERRA 2500 HD SLT CREW CAB	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
39	14.07	1	TOYOTA	TUNDRA SR5 V8 CREWMAX	2016	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
40	14.07	1	DODGE	RAM 1500 LONGHORN CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
41	14.07	2	DODGE	RAM 1500 SLT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	14.07	3	DODGE	RAM 1500 SLT QUAD CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
43	14.07	1	DODGE	RAM 1500 SPORT CREW CAB	2015	CRCST	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
44	14.07	1	DODGE	RAM 1500 SPORT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
45	14.07	1	DODGE	RAM 1500 SPORT QUAD CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
46	14.07	2	DODGE	RAM 1500 ST CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
47	14.07	1	DODGE	RAM 1500 ST QUAD CAB	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
48	14.07	1	FORD	F150 LARIAT SUPERCREW	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
49	14.07	1	FORD	F150 XL SUPERCREW	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419
50	14.07	8	FORD	F150 XLT SUPERCREW	2015	CRECA	GW 0000000-0004540	37	38	2	Pleasure Truck	15	1,244	1,405	1,375	1,419

TOP 50 VEHICLES IN PRIVATE PASSENGER CLASS WITH GREATEST PERCENT DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-19.30	1	FORD	F150 FX2 SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	4	All Purpose Truck	10	1,093	932	911	882
2	-19.28	1	FORD	F150 XL SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	4	All Purpose Truck	0	1,214	1,035	1,012	980
3	-18.82	1	DODGE	DAKOTA SLT QUAD CAB	2007	CRECA	GW 0000000-0004540	26	21	4	Pleasure Truck	28	680	578	565	552
4	-17.90	1	FORD	F250 SD XLT SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	33	838	769	753	688
5	-17.56	1	FORD	F250 SD SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,270	1,148	1,123	1,047
6	-17.08	1	DODGE	DAKOTA ST CLUB CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	33	878	769	753	728
7	-17.08	1	FORD	F150 FX2 SUPERCAB	2014	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	33	878	769	753	728
8	-17.08	2	TOYOTA	TACOMA V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	33	878	769	753	728
9	-17.03	1	FORD	F150 XL SUPERCAB	2011	EXTCA	GW 0000000-0004540	28	23	3	All Purpose Truck	0	1,151	981	960	955
10	-17.02	1	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
11	-17.02	1	FORD	ESCAPE XLT V6	2010	SPUT4	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
12	-17.02	1	TOYOTA	TACOMA V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	0	1,310	1,148	1,123	1,087
13	-17.01	1	GMC	SIERRA 1500 HYBRID CREW CAB	2009	CRECA	GW 0000000-0004540	30	26	4	All Purpose Truck	25	982	861	842	815
14	-16.98	1	FORD	F150 FX2 SUPERCAB	2013	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	15	1,113	976	955	924
15	-16.96	1	CHEVROLET	SILVERADO 1500 LS CREW CAB	2009	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	27	861	756	739	715
16	-16.96	1	TOYOTA	TACOMA SR5 V6 ACCESS CAB	2005	EXTCA	GW 0000000-0004540	30	26	4	All Purpose Truck	5	1,244	1,091	1,067	1,033
17	-16.95	1	CHEVROLET	SILVERADO 1500 LS CREW CAB	2011	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
18	-16.95	1	CHEVROLET	SILVERADO 1500 LT EXT CAB	2009	EXTCA	GW 0000000-0004540	27	23	4	All Purpose Truck	25	885	776	759	735
19	-16.95	1	CHEVROLET	SILVERADO 1500 WT EXT CAB	2008	EXTCA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
20	-16.95	1	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	25	885	776	759	735
21	-16.95	1	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	30	826	725	709	686
22	-16.95	3	DODGE	RAM 1500 QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
23	-16.95	1	DODGE	RAM 1500 QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	29	838	735	719	696
24	-16.95	1	DODGE	RAM 1500 SLT QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
25	-16.95	1	DODGE	RAM 1500 ST QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
26	-16.95	1	FORD	F150 XL PICKUP	2010	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
27	-16.95	1	FORD	F150 XLT SUPERCAB	2010	EXTCA	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
28	-16.95	1	GMC	SIERRA 1500 SL EXT CAB	2006	EXTCA	GW 0000000-0004540	28	24	4	All Purpose Truck	0	1,174	1,072	1,049	975
29	-16.95	1	GMC	SIERRA 1500 WT PICKUP	2013	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	0	1,180	1,035	1,012	980
30	-16.94	1	CHEVROLET	COLORADO LT CREW CAB	2007	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	33	791	693	678	657
31	-16.94	2	DODGE	RAM 1500 QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	33	791	693	678	657
32	-16.94	1	DODGE	RAM 1500 ST QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	4	All Purpose Truck	33	791	693	678	657
33	-16.94	1	FORD	F150 STX PICKUP	2007	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	33	791	693	678	657
34	-16.94	1	FORD	F150 XLT PICKUP	2007	LIGPU	GW 0000000-0004540	27	23	4	All Purpose Truck	28	850	745	729	706
35	-16.89	1	FORD	F150 XL SUPERCAB	2007	EXTCA	GW 0000000-0004540	23	19	4	All Purpose Truck	20	817	718	702	679
36	-16.88	1	FORD	F150 XL SUPERCAB	2008	EXTCA	GW 0000000-0004540	25	21	4	All Purpose Truck	0	1,096	962	941	911
37	-16.85	1	CHEVROLET	COLORADO LS EXT CAB	2005	EXTCA	GW 0000000-0004540	23	19	4	All Purpose Truck	0	1,021	897	878	849
38	-16.85	1	FORD	F150 XLT SUPERCAB	2006	EXTCA	GW 0000000-0004540	23	19	4	All Purpose Truck	0	1,021	897	878	849
39	-16.85	1	GMC	SIERRA 1500 SLT CREW CAB	2006	CRECA	GW 0000000-0004540	29	25	4	All Purpose Truck	33	801	745	729	666
40	-16.84	1	FORD	F150 STX SUPERCAB	2008	EXTCA	GW 0000000-0004540	25	21	4	All Purpose Truck	10	986	866	847	820
41	-16.82	1	FORD	F150 XLT SUPERCAB	2006	EXTCA	GW 0000000-0004540	23	19	4	All Purpose Truck	15	868	763	746	722

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-16.81	1	FORD	F150 XL SUPERCAB	2006	EXTCA	GW 0000000-0004540	23	19	4	All Purpose Truck	33	684	601	588	569
43	-16.77	1	GMC	SIERRA 1500 SLE CREW CAB	2005	CRECA	GW 0000000-0004540	26	22	4	Pleasure Truck	25	668	625	611	556
44	-16.54	1	FORD	F150 XL SUPERCAB	2013	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	26	810	709	693	676
45	-16.54	1	TOYOTA	TACOMA V6 ACCESS CAB	2005	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	26	810	709	693	676
46	-16.52	1	TOYOTA	TACOMA XTRACAB V6	2004	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	27	799	699	684	667
47	-16.51	1	DODGE	DAKOTA ST CLUB CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	33	733	642	628	612
48	-16.51	1	FORD	F250 SD SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	33	733	642	628	612
49	-16.51	1	TOYOTA	TACOMA V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	33	733	642	628	612
50	-16.46	1	TOYOTA	TACOMA V6 ACCESS CAB	2006	EXTCA	GW 0000000-0004540	30	26	4	Pleasure Truck	25	820	718	703	685

TOP 50 VEHICLES IN COMMERCIAL CLASS WITH GREATEST DOLLAR INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	458	1	FORD	F450 SD XLT PICKUP	2008	TOW	GW 0000000-0004540	37	38	1	Tow Truck	0	3,200	3,611	3,533	3,658
2	353	1	FORD	F150 XLT SUPERCREW	2016	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
3	353	1	DODGE	RAM 1500 SXT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
4	353	1	DODGE	RAM 1500 SLT QUAD CAB	2014	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
5	353	1	FORD	F350 SD XLT PICKUP	2011	LIGPU	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
6	353	1	FORD	F350 SD XLT PICKUP	2008	LIGPU	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
7	318	1	DODGE	RAM 1500 SLT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	10	1,853	2,091	2,046	2,171
8	298	1	CHEVROLET	SILVERADO 1500 LTZ CREW CAB	2015	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	0	1,948	2,164	2,117	2,246
9	298	1	CHEVROLET	SILVERADO 1500 LT DOUBLE CAB	2014	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	0	1,948	2,164	2,117	2,246
10	269	1	FORD	F250 SD XL PICKUP	2015	LIGPU	GW 0000000-0004540	37	37	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,243	2,194	2,328
11	263	5	-	-	2017	TOW	GW 0004541-0016330	15	14	1	Tow Truck	0	2,313	2,236	2,379	2,576
12	253	1	CHEVROLET	SILVERADO 1500 LT DOUBLE CAB	2014	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	15	1,656	1,839	1,799	1,909
13	243	3	-	-	2016	TOW	GW 0004541-0016330	14	13	1	Tow Truck	0	2,218	2,137	2,273	2,461
14	232	4	-	-	2015	TOW	GW 0004541-0016330	13	12	1	Tow Truck	0	2,121	2,043	2,173	2,353
15	230	1	-	-	2018	CABCH	GW 0004541-0016330	16	15	1	Common Carrier Truck Within 161km in MB	0	1,840	1,800	1,915	2,070
16	230	1	-	-	2018	CBVAN	GW 0004541-0016330	16	15	1	Common Carrier Truck Within 161km in MB	0	1,840	1,800	1,915	2,070
17	230	1	-	-	2018	CBVAN	GW 0004541-0016330	16	15	2	Common Carrier Truck Over 161km in MB	0	2,598	2,543	2,705	2,828
18	230	1	-	-	2018	TRUTR	GW 0004541-0016330	16	15	1	Common Carrier Truck Within 161km in MB	0	1,840	1,800	1,915	2,070
19	230	1	-	-	2018	TRUTR	GW 0004541-0016330	16	15	2	Common Carrier Truck Over 161km in MB	0	2,598	2,543	2,705	2,828
20	223	1	CHEVROLET	SILVERADO 1500 HIGH COUNTRY CC	2016	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	25	1,461	1,623	1,587	1,684
21	218	1	FORD	F150 XLT SUPERCAB	2017	EXTCA	GW 0000000-0004540	35	35	1	Common Carrier Truck Local Within City or Mun.	0	1,948	2,087	2,041	2,166
22	218	1	-	-	2015	TOW	GW 0004541-0016330	13	12	3	Tow Truck	0	1,455	1,402	1,491	1,673
23	217	1	CHEVROLET	EQUINOX LT	2011	SPUT4	GW 0000000-0004540	32	33	1	Common Carrier Truck Local Within City or Mun.	0	1,785	1,929	1,887	2,002
24	212	4	-	-	2014	TOW	GW 0004541-0016330	12	11	1	Tow Truck	0	2,032	1,948	2,072	2,244
25	203	1	-	-	1997	TRUTR	GW 0004541-0016330	1	1	3	Common Carrier Truck Over 161km in MB	0	1,282	1,214	1,291	1,485
26	202	1	DODGE	RAM 2500 SLT CREW CAB	2011	CRECA	GW 0000000-0004540	37	37	1	Common Carrier Truck Local Within City or Mun.	25	1,544	1,682	1,645	1,746
27	200	1	-	-	2018	LIGDE	GW 0004541-0016330	16	15	1	Common Carrier Truck Local Within City or Mun.	0	2,382	2,332	2,480	2,582
28	200	1	-	-	2018	TRUTR	GW 0004541-0016330	16	15	1	Common Carrier Truck Local Within City or Mun.	0	2,382	2,332	2,480	2,582
29	199	3	-	-	2017	CBVAN	GW 0004541-0016330	15	14	1	Common Carrier Truck Within 161km in MB	0	1,784	1,724	1,834	1,983
30	199	1	-	-	2017	CRECA	GW 0004541-0016330	15	14	1	Common Carrier Truck Within 161km in MB	0	1,784	1,724	1,834	1,983
31	199	1	-	-	2017	DUMP	GW 0004541-0016330	15	14	1	Common Carrier Truck Within 161km in MB	0	1,784	1,724	1,834	1,983
32	199	2	-	-	2017	PLATF	GW 0004541-0016330	15	14	1	Common Carrier Truck Within 161km in MB	0	1,784	1,724	1,834	1,983
33	199	1	CADILLAC	ATS V6	2017	4DOOR	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
34	199	1	DODGE	DURANGO CITADEL	2017	SPUT4	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
35	199	1	CHEVROLET	EQUINOX LT	2015	SPUT4	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
36	199	1	FORD	FOCUS SE	2015	4DOOR	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
37	199	1	MITSUBISHI	RVR SE	2014	SPUT4	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
38	199	1	SUZUKI	GRAND VITARA JLX	2013	SPUT4	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
39	199	1	MERCEDES BEN	C250 4MATIC	2011	4DOOR	NA	37	38	1	Common Carrier Local Passenger Vehicle	0	2,694	2,902	2,841	2,893
40	197	1	-	-	2015	BOX	GW 0010891-0016330	13	12	1	Sand/Gravel Truck	0	1,657	1,596	1,698	1,854
41	193	1	NISSAN	SENTRA 1.8 S	2017	4DOOR	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	193	1	NISSAN	SENTRA 1.8 SV	2017	4DOOR	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
43	193	1	NISSAN	SENTRA 1.8 SV	2016	4DOOR	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
44	193	2	TOYOTA	COROLLA S	2016	4DOOR	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
45	193	1	JEEP	GRAND CHEROKEE LIMITED	2015	SPUT4	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
46	193	1	MAZDA	MAZDA3 GT SKY	2014	4DOOR	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
47	193	4	-	-	2013	TOW	GW 0004541-0016330	11	10	1	Tow Truck	0	1,940	1,852	1,970	2,133
48	193	3	TOYOTA	YARIS LE	2013	4DRHB	NA	36	37	1	Common Carrier Local Passenger Vehicle	0	2,635	2,837	2,778	2,828
49	192	1	-	-	2018		GW 0004541-0016330	16	15	2	Tow Truck	0	1,864	1,824	1,940	2,056
50	192	1	-	-	2018	TOW	GW 0004541-0016330	16	15	2	Tow Truck	0	1,864	1,824	1,940	2,056

TOP 50 VEHICLES IN COMMERCIAL CLASS WITH GREATEST DOLLAR DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-390	1	GMC	SAVANA G3500 CUTAWAY	2016	CBVAN	GW 0000000-0004540	30	27	1	Artisan Truck	0	1,730	1,585		
2	-357	1	CHRYSLER	PT CRUISER TOURING EDITION	2007	4DRHB	NA	28	24	4	Common Carrier Local Passenger Vehicle	0	1,791	1,631		
3	-339	1	FORD	E350 ECONOLINE SD CUTAWAY	2012	CBVAN	GW 0000000-0004540	26	23	1	Artisan Truck	0	1,493	1,365		
4	-309	1	GMC	YUKON DENALI	2006	SPUT4	NA	29	26	4	Common Carrier Local Passenger Vehicle	0	1,842	1,743		
5	-296	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	2	Common Carrier Truck Over 161km in MB	0	1,768	1,565		
6	-290	1	RAM	PROMASTER CITY SLT CARGO VAN	2015	PNVAN	GW 0000000-0004540	28	24	2	Common Carrier Truck Over 161km in MB	0	1,709	1,508		
7	-265	1	FORD	F150 XL PICKUP	2011	LIGPU	GW 0000000-0004540	28	25	4	Common Carrier Truck Local Within City or Mun.	0	1,162	1,064		
8	-263	1	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	1	Common Carrier Local Passenger Vehicle	0	2,245	1,988		
9	-255	1	RAM	C/V	2012	PNVAN	GW 0000000-0004540	30	28	4	Common Carrier Truck Local Within City or Mun.	0	1,254	1,186		
10	-242	1	FORD	E250 ECONOLINE CARGO	2014	PNVAN	GW 0000000-0004540	27	24	2	Common Carrier Truck Over 161km in MB	0	1,661	1,508		
11	-242	1	GMC	SAVANA 3500 CARGO VAN EXT	2013	PNVAN	GW 0000000-0004540	27	24	2	Common Carrier Truck Over 161km in MB	0	1,661	1,508		
12	-239	1	CHEVROLET	MALIBU LT	2006	4DOOR	NA	28	23	1	Common Carrier Local Passenger Vehicle	10	1,966	1,732		
13	-237	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2016	PNVAN	GW 0000000-0004540	28	25	2	Common Carrier Truck Over 161km in MB	0	1,709	1,565		
14	-234	1	-	-	2004	CBVAN	GW 0004541-0016330	2	1	4	Common Carrier Truck Over 161km in MB	0	1,701	1,437		
15	-222	1	FORD	TRANSIT 350 WB 148 EL CARGO	2016	PNVAN	GW 0000000-0004540	25	22	2	Common Carrier Truck Over 161km in MB	0	1,544	1,405		
16	-221	1	FORD	E450 ECONOLINE SD CUTAWAY	2005	CBVAN	GW 0000000-0004540	19	17	1	Artisan Truck	0	1,170	1,122		
17	-217	1	CHEVROLET	VENTURE EXT	2005	PASVA	NA	20	16	1	Common Carrier Local Passenger Vehicle	0	1,705	1,493		
18	-216	1	CHEVROLET	SONIC LS	2016	4DRHB	NA	34	32	4	Common Carrier Local Passenger Vehicle	15	1,759	1,754		
19	-213	1	JEEP	WRANGLER UNLIMITED SAHARA	2015	SPUT4	NA	33	32	4	Common Carrier Local Passenger Vehicle	0	2,028	2,064		
20	-208	1	CHEVROLET	SILVERADO 2500 HD LT EXT CAB	2008	EXTCA	GW 0000000-0004540	32	31	2	Logging Truck	0	1,235	1,236		
21	-205	1	RAM	PROMASTER 2500 CARGO VAN EXT	2017	PNVAN	GW 0000000-0004540	30	28	2	Common Carrier Truck Over 161km in MB	0	1,845	1,744		
22	-203	1	PONTIAC	MONTANA SV6	2008	PASVA	NA	24	22	4	Common Carrier Local Passenger Vehicle	15	1,345	1,298		
23	-201	1	DODGE	GRAND CARAVAN	2006	PASVA	NA	23	20	4	Common Carrier Local Passenger Vehicle	28	1,105	1,027		
24	-200	2	GMC	SAVANA G3500 CUTAWAY	2012	CBVAN	GW 0000000-0004540	28	24	1	Other Truck	0	1,420	1,254		
25	-199	1	CHEVROLET	EXPRESS 2500 CARGO VAN	2007	PNVAN	GW 0000000-0004540	22	19	2	Common Carrier Truck Over 161km in MB	0	1,387	1,262		
26	-199	1	FORD	E350 CUTAWAY SUPER DUTY	2009	CBVAN	GW 0000000-0004540	22	19	2	Common Carrier Truck Over 161km in MB	0	1,387	1,262		
27	-198	1	-	-	2016	TRUTR	GW 0004541-0016330	14	13	4	Common Carrier Truck Local Within City or Mun.	0	1,529	1,472		
28	-196	1	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	2	Common Carrier Local Passenger Vehicle	0	1,668	1,476		
29	-194	1	HYUNDAI	ACCENT	2008	2DRHB	NA	29	25	1	Common Carrier Local Passenger Vehicle	0	2,245	2,057		
30	-194	1	HYUNDAI	ACCENT L	2008	2DRHB	NA	29	25	1	Common Carrier Local Passenger Vehicle	0	2,245	2,057		
31	-194	1	HYUNDAI	ACCENT L	2009	2DRHB	NA	29	25	1	Common Carrier Local Passenger Vehicle	0	2,245	2,057		
32	-186	1	HONDA	ELEMENT Y PACKAGE	2006	SPUT4	NA	30	26	1	Common Carrier Local Passenger Vehicle	0	2,264	2,124		
33	-185	1	HYUNDAI	ACCENT GL	2008	2DRHB	NA	29	25	1	Common Carrier Local Passenger Vehicle	5	2,133	1,954		
34	-182	1	CHRYSLER	PT CRUISER	2007	4DRHB	NA	28	24	1	Common Carrier Local Passenger Vehicle	10	1,966	1,789		
35	-181	1	CHEVROLET	SONIC LS	2014	4DRHB	NA	33	32	4	Common Carrier Local Passenger Vehicle	15	1,724	1,754		
36	-177	1	FORD	E250 ECONOLINE CARGO VAN EXT	2010	PNVAN	GW 0000000-0004540	24	23	4	Common Carrier Truck Local Within City or Mun.	0	1,012	990		
37	-177	1	MAZDA	PROTEGE ES	2002	4DOOR	NA	14	12	1	Common Carrier Passenger Vehicle Over 161km in MB	0	1,891	1,762		
38	-176	1	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	1	Common Carrier Local Passenger Vehicle	33	1,504	1,332		
39	-176	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	1	Common Carrier Truck Within 161km in MB	0	1,377	1,218		
40	-175	1	HYUNDAI	ELANTRA	2006	4DOOR	NA	24	20	1	Common Carrier Local Passenger Vehicle	10	1,736	1,565		
41	-173	1	GMC	SAVANA 3500	2000	CBVAN	GW 0000000-0004540	10	9	1	Artisan Truck	0	932	898		

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-169	1	-	-	2004	BOX	GW 0004541-0016330	2	1	1	Common Carrier Truck Over 161km in MB	0	1,702	1,433		
43	-169	5	-	-	2004	CBVAN	GW 0004541-0016330	2	1	1	Common Carrier Truck Over 161km in MB	0	1,702	1,433		
44	-168	1	-	-	2008	CABCH	GW 0004541-0016330	6	5	4	Common Carrier Truck Local Within City or Mun.	0	1,028	951		
45	-167	1	DODGE	CARAVAN	2007	PASVA	NA	22	20	4	Common Carrier Local Passenger Vehicle	28	1,071	1,027		
46	-165	1	FORD	E350 ECONOLINE SD XLT EXT	2005	PNVAN	GW 0000000-0004540	23	21	2	Common Carrier Truck Over 161km in MB	0	1,438	1,353		
47	-165	1	GMC	SAVANA 3500	2007	CBVAN	GW 0000000-0004540	22	18	2	Other Truck	0	925	818		
48	-165	2	GMC	SAVANA G3500 CUTAWAY	2014	CBVAN	GW 0000000-0004540	30	27	1	Other Truck	0	1,533	1,406		
49	-165	1	GMC	SAVANA G3500 CUTAWAY	2015	CBVAN	GW 0000000-0004540	30	27	1	Other Truck	0	1,533	1,406		
50	-163	1	CHEVROLET	VENTURE EXT	2002	PASVA	NA	17	14	1	Common Carrier Local Passenger Vehicle	0	1,535	1,376		

TOP 50 VEHICLES IN COMMERCIAL CLASS WITH GREATEST PERCENT INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	17.16	1	DODGE	RAM 1500 SLT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	10	1,853	2,091	2,046	2,171
2	17.14	1	FORD	F150 XLT SUPERCREW	2016	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
3	17.14	1	DODGE	RAM 1500 SXT CREW CAB	2015	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
4	17.14	1	DODGE	RAM 1500 SLT QUAD CAB	2014	CRECA	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
5	17.14	1	FORD	F350 SD XLT PICKUP	2011	LIGPU	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
6	17.14	1	FORD	F350 SD XLT PICKUP	2008	LIGPU	GW 0000000-0004540	37	38	1	Common Carrier Truck Local Within City or Mun.	0	2,059	2,324	2,273	2,412
7	15.83	1	-	-	1997	TRUTR	GW 0004541-0016330	1	1	3	Common Carrier Truck Over 161km in MB	0	1,282	1,214	1,291	1,485
8	15.61	1	-	-	1990	TOW	GW 0004541-0016330	1	1	3	Tow Truck	0	692	655	697	800
9	15.61	1	-	-	1985	TOW	GW 0004541-0016330	1	1	3	Tow Truck	0	692	655	697	800
10	15.61	1	-	-	1983	TOW	GW 0004541-0016330	1	1	3	Tow Truck	0	692	655	697	800
11	15.45	1	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2011	CRECA	GW 0000000-0004540	32	32	4	Common Carrier Truck Within 161km in MB	25	809	842	824	934
12	15.30	1	CHEVROLET	SILVERADO 1500 LTZ CREW CAB	2015	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	0	1,948	2,164	2,117	2,246
13	15.30	1	CHEVROLET	SILVERADO 1500 LT DOUBLE CAB	2014	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	0	1,948	2,164	2,117	2,246
14	15.28	1	CHEVROLET	SILVERADO 1500 LT DOUBLE CAB	2014	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	15	1,656	1,839	1,799	1,909
15	15.26	1	CHEVROLET	SILVERADO 1500 HIGH COUNTRY CC	2016	CRECA	GW 0000000-0004540	35	36	1	Common Carrier Truck Local Within City or Mun.	25	1,461	1,623	1,587	1,684
16	14.99	2	-	-	2014	TOW	GW 0016331-0099999	12	11	2	Tow Truck	0	787	787	787	905
17	14.99	1	-	-	2010	TOW	GW 0016331-0099999	8	7	2	Tow Truck	0	787	787	787	905
18	14.99	1	-	-	2009	TOW	GW 0016331-0099999	7	6	2	Tow Truck	0	787	787	787	905
19	14.99	1	-	-	2006	TOW	GW 0016331-0099999	4	3	2	Tow Truck	0	787	787	787	905
20	14.99	2	-	-	2005	TOW	GW 0016331-0099999	3	2	2	Tow Truck	0	787	787	787	905
21	14.99	3	-	-	2004	TOW	GW 0016331-0099999	2	1	2	Tow Truck	0	787	787	787	905
22	14.99	1	-	-	2002	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
23	14.99	3	-	-	2001	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
24	14.99	1	-	-	1999	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
25	14.99	2	-	-	1997	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
26	14.99	2	-	-	1995	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
27	14.99	1	-	-	1994	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
28	14.99	1	-	-	1993	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
29	14.99	1	-	-	1990	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
30	14.99	2	-	-	1988	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
31	14.99	2	-	-	1987	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
32	14.99	1	-	-	1986	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
33	14.99	1	-	-	1981	TOW	GW 0016331-0099999	1	1	2	Tow Truck	0	787	787	787	905
34	14.98	1	-	-	2015	TOW	GW 0004541-0016330	13	12	3	Tow Truck	0	1,455	1,402	1,491	1,673
35	14.70	1	FORD	F250 SUPERCAB	1984	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
36	14.70	1	GMC	-	1984	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
37	14.70	1	GMC	C/R 3500 PICKUP	1984	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
38	14.70	1	GMC	-	1980	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
39	14.70	1	FORD	-	1979	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
40	14.70	1	CHEVROLET	-	1978	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
41	14.70	1	CHEVROLET	-	1977	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	14.70	1	CHEVROLET	K/V 20/2500 PICKUP	1976	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
43	14.70	1	DODGE	-	1974	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
44	14.70	1	FORD	-	1974	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
45	14.70	1	GMC	-	1973	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
46	14.70	1	FORD	-	1972	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
47	14.70	1	GMC	-	1967	TOW	GW 0000000-0004540	0	0	2	Tow Truck	0	660	673	658	757
48	14.69	1	FORD	F150 XLT SUPERCREW	2017	CRECA	GW 0000000-0004540	37	38	2	Common Carrier Truck Local Within City or Mun.	25	1,157	1,306	1,278	1,327
49	14.69	1	FORD	F350 SD XLT SUPERCAB	2016	EXTCA	GW 0000000-0004540	37	38	2	Common Carrier Truck Local Within City or Mun.	25	1,157	1,306	1,278	1,327
50	14.58	1	DODGE	RAM 2500 LARAMIE CREW CAB	2014	CRECA	GW 0000000-0004540	37	38	2	Common Carrier Truck Within 161km in MB	15	1,029	1,162	1,136	1,179

TOP 50 VEHICLES IN COMMERCIAL CLASS WITH GREATEST PERCENT DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-22.81	1	FORD	F150 XL PICKUP	2011	LIGPU	GW 0000000-0004540	28	25	4	Common Carrier Truck Local Within City or Mun.	0	1,162	1,064	1,041	897
2	-22.71	1	FORD	E350 ECONOLINE SD CUTAWAY	2012	CBVAN	GW 0000000-0004540	26	23	1	Artisan Truck	0	1,493	1,365	1,335	1,154
3	-22.54	1	GMC	SAVANA G3500 CUTAWAY	2016	CBVAN	GW 0000000-0004540	30	27	1	Artisan Truck	0	1,730	1,585	1,550	1,340
4	-20.33	1	RAM	C/V	2012	PNVAN	GW 0000000-0004540	30	28	4	Common Carrier Truck Local Within City or Mun.	0	1,254	1,186	1,160	999
5	-19.93	1	CHRYSLER	PT CRUISER TOURING EDITION	2007	4DRHB	NA	28	24	4	Common Carrier Local Passenger Vehicle	0	1,791	1,631	1,597	1,434
6	-18.95	1	DODGE	RAM 3500	2001	DUMP	GW 0000000-0004540	12	10	4	Other Truck	0	781	737	721	633
7	-18.89	1	FORD	E450 ECONOLINE SD CUTAWAY	2005	CBVAN	GW 0000000-0004540	19	17	1	Artisan Truck	0	1,170	1,122	1,098	949
8	-18.56	1	GMC	SAVANA 3500	2000	CBVAN	GW 0000000-0004540	10	9	1	Artisan Truck	0	932	898	878	759
9	-18.19	1	DODGE	GRAND CARAVAN	2006	PASVA	NA	23	20	4	Common Carrier Local Passenger Vehicle	28	1,105	1,027	1,006	904
10	-17.84	1	GMC	SAVANA 3500	2007	CBVAN	GW 0000000-0004540	22	18	2	Other Truck	0	925	818	800	760
11	-17.49	1	FORD	E250 ECONOLINE CARGO VAN EXT	2010	PNVAN	GW 0000000-0004540	24	23	4	Common Carrier Truck Local Within City or Mun.	0	1,012	990	969	835
12	-17.35	1	FORD	F250 SD LARIAT SUPERCAB	2004	EXTCA	GW 0000000-0004540	30	26	2	Petroleum/Chemical Truck	0	438	384	375	362
13	-16.97	1	RAM	PROMASTER CITY SLT CARGO VAN	2015	PNVAN	GW 0000000-0004540	28	24	2	Common Carrier Truck Over 161km in MB	0	1,709	1,508	1,475	1,419
14	-16.84	1	CHEVROLET	SILVERADO 2500 HD LT EXT CAB	2008	EXTCA	GW 0000000-0004540	32	31	2	Logging Truck	0	1,235	1,236	1,209	1,027
15	-16.78	1	GMC	YUKON DENALI	2006	SPUT4	NA	29	26	4	Common Carrier Local Passenger Vehicle	0	1,842	1,743	1,707	1,533
16	-16.75	3	CHEVROLET	SILVERADO 2500 HD EXT CAB	2004	EXTCA	GW 0000000-0004540	28	24	2	Petroleum/Chemical Truck	0	406	358	350	338
17	-16.74	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	2	Common Carrier Truck Over 161km in MB	0	1,768	1,565	1,530	1,472
18	-16.69	1	FORD	F350 SD PICKUP	2004	PLATF	GW 0000000-0004540	21	21	2	Logging Truck	0	797	847	828	664
19	-16.34	1	-	-	2008	CABCH	GW 0004541-0016330	6	5	4	Common Carrier Truck Local Within City or Mun.	0	1,028	951	1,011	860
20	-16.32	1	-	-	2007	PLATF	GW 0004541-0016330	5	4	4	Artisan Truck	0	772	712	758	646
21	-15.79	1	FORD	F350 SD XL PICKUP	1999	DUMP	GW 0000000-0004540	17	17	1	Artisan Truck	30	741	785	768	624
22	-15.59	1	DODGE	CARAVAN	2007	PASVA	NA	22	20	4	Common Carrier Local Passenger Vehicle	28	1,071	1,027	1,006	904
23	-15.26	1	CHEVROLET	SILVERADO 2500 HD EXT CAB	2006	EXTCA	GW 0000000-0004540	29	26	2	Petroleum/Chemical Truck	0	380	384	375	322
24	-15.26	1	CHEVROLET	SILVERADO 2500 HD EXT CAB	2007	EXCST	GW 0000000-0004540	29	26	2	Petroleum/Chemical Truck	0	380	384	375	322
25	-15.22	2	GMC	SIERRA 2500 HD PICKUP	2007	LIGPU	GW 0000000-0004540	31	28	2	Petroleum/Chemical Truck	0	414	414	405	351
26	-15.09	1	PONTIAC	MONTANA SV6	2008	PASVA	NA	24	22	4	Common Carrier Local Passenger Vehicle	15	1,345	1,298	1,271	1,142
27	-14.96	1	CHEVROLET	SILVERADO 1500 LT CREW CAB	2011	CRECA	GW 0000000-0004540	33	32	4	Common Carrier Truck Local Within City or Mun.	28	996	1,005	983	847
28	-14.59	1	CHEVROLET	C/R 30/3500 PICKUP	1986	STAKE	GW 0000000-0004540	1	1	1	Artisan Truck	0	706	714	698	603
29	-14.59	1	FORD	F250 PICKUP	1994	STAKE	GW 0000000-0004540	1	1	1	Artisan Truck	33	473	478	468	404
30	-14.57	1	FORD	E250 ECONOLINE CARGO	2014	PNVAN	GW 0000000-0004540	27	24	2	Common Carrier Truck Over 161km in MB	0	1,661	1,508	1,475	1,419
31	-14.57	1	GMC	SAVANA 3500 CARGO VAN EXT	2013	PNVAN	GW 0000000-0004540	27	24	2	Common Carrier Truck Over 161km in MB	0	1,661	1,508	1,475	1,419
32	-14.38	1	FORD	TRANSIT 350 WB 148 EL CARGO	2016	PNVAN	GW 0000000-0004540	25	22	2	Common Carrier Truck Over 161km in MB	0	1,544	1,405	1,375	1,322
33	-14.35	1	CHEVROLET	EXPRESS 2500 CARGO VAN	2007	PNVAN	GW 0000000-0004540	22	19	2	Common Carrier Truck Over 161km in MB	0	1,387	1,262	1,235	1,188
34	-14.35	1	FORD	E350 CUTAWAY SUPER DUTY	2009	CBVAN	GW 0000000-0004540	22	19	2	Common Carrier Truck Over 161km in MB	0	1,387	1,262	1,235	1,188
35	-14.21	1	CHEVROLET	SILVERADO 1500	2005	LIGPU	GW 0000000-0004540	27	24	2	Petroleum/Chemical Truck	0	394	358	350	338
36	-14.21	1	CHEVROLET	SILVERADO 1500	2007	LIGPU	GW 0000000-0004540	27	24	2	Petroleum/Chemical Truck	0	394	358	350	338
37	-14.21	1	GMC	SIERRA 1500 PICKUP	2007	LIGPU	GW 0000000-0004540	27	24	2	Petroleum/Chemical Truck	0	394	358	350	338
38	-14.16	1	CHEVROLET	SILVERADO 1500 EXT CAB	2005	EXTCA	GW 0000000-0004540	24	21	2	Petroleum/Chemical Truck	0	353	321	314	303
39	-14.16	1	CHEVROLET	SILVERADO 2500 HD	2003	LIGPU	GW 0000000-0004540	24	21	2	Petroleum/Chemical Truck	0	353	321	314	303
40	-14.08	2	GMC	SAVANA G3500 CUTAWAY	2012	CBVAN	GW 0000000-0004540	28	24	1	Other Truck	0	1,420	1,254	1,227	1,220
41	-13.98	1	CHEVROLET	SILVERADO 1500	2004	LIGPU	GW 0000000-0004540	22	19	2	Petroleum/Chemical Truck	0	329	300	293	283

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-13.98	1	GMC	SIERRA 2500 HD SL PICKUP	2003	LIGPU	GW 0000000-0004540	22	19	2	Petroleum/Chemical Truck	0	329	300	293	283
43	-13.93	1	FORD	F150 FX4 SUPERCAB	2004	EXTCA	GW 0000000-0004540	25	22	2	Petroleum/Chemical Truck	0	366	334	327	315
44	-13.93	1	GMC	SIERRA 1500 PICKUP	2005	LIGPU	GW 0000000-0004540	25	22	2	Petroleum/Chemical Truck	0	366	334	327	315
45	-13.88	2	GMC	SAVANA 3500	2007	CBVAN	GW 0000000-0004540	22	18	1	Other Truck	0	1,153	1,021	999	993
46	-13.88	1	GMC	SIERRA 2500 HD SL PICKUP	2007	LIGPU	GW 0000000-0004540	31	28	2	Petroleum/Chemical Truck	0	454	414	405	391
47	-13.88	2	GMC	SIERRA 2500 HD SLE PICKUP	2007	LIGPU	GW 0000000-0004540	31	28	2	Petroleum/Chemical Truck	0	454	414	405	391
48	-13.87	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2016	PNVAN	GW 0000000-0004540	28	25	2	Common Carrier Truck Over 161km in MB	0	1,709	1,565	1,530	1,472
49	-13.84	1	GMC	SAVANA 3500	2006	CBVAN	GW 0000000-0004540	20	17	2	Other Truck	0	860	798	780	741
50	-13.79	2	FORD	F150 XLT SUPERCAB	2007	EXTCA	GW 0000000-0004540	28	25	2	Petroleum/Chemical Truck	0	406	372	364	350

TOP 50 VEHICLES IN PUBLIC CLASS WITH GREATEST DOLLAR INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	422	1	-	-	2016	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
2	422	1	-	-	2015	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
3	422	1	-	-	2015	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
4	422	1	-	-	2012	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
5	422	1	-	-	2012	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
6	422	1	-	-	2011	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
7	422	1	-	-	2010	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
8	422	1	-	-	2009	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
9	422	2	-	-	2009	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
10	422	1	-	-	2008	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
11	422	1	-	-	2007	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	0	5,958	5,958	5,958	6,380
12	401	1	-	-	2014	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	5	5,660	5,660	5,660	6,061
13	401	1	-	-	2011	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	5	5,660	5,660	5,660	6,061
14	396	1	-	-	2017	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
15	396	4	-	-	2017	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
16	396	2	-	-	2016	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
17	396	2	-	-	2016	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
18	396	10	-	-	2015	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
19	396	2	-	-	2015	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
20	396	9	-	-	2014	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
21	396	2	-	-	2014	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
22	396	17	-	-	2013	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
23	396	4	-	-	2013	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
24	396	34	-	-	2012	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
25	396	1	-	-	2011	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
26	396	1	-	-	2011	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
27	396	4	-	-	2010	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
28	396	2	-	-	2010	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
29	396	17	-	-	2009	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
30	396	2	-	-	2009	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
31	396	29	-	-	2008	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
32	396	1	-	-	2008	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
33	396	1	-	-	2008	SPUT4	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
34	396	7	-	-	2007	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
35	396	3	-	-	2006	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
36	396	1	-	-	2006	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
37	396	7	-	-	2005	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
38	396	1	-	-	2005	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
39	396	3	-	-	2004	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	0	10,358	10,358	10,358	10,754
40	380	1	-	-	2016	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
41	380	1	-	-	2013	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	380	1	-	-	2013	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
43	380	1	-	-	2013	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
44	380	2	-	-	2010	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
45	380	1	-	-	2008	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
46	380	1	-	-	2008	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
47	376	1	-	-	2017	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	5	9,840	9,840	9,840	10,216
48	376	1	-	-	2016	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	5	9,840	9,840	9,840	10,216
49	376	1	-	-	2014	4DRHB	NA	0	0	1	Taxicab Vehicle-for-Hire 4	5	9,840	9,840	9,840	10,216
50	376	1	-	-	2014	PASVA	NA	0	0	1	Taxicab Vehicle-for-Hire 4	5	9,840	9,840	9,840	10,216

TOP 50 VEHICLES IN PUBLIC CLASS WITH GREATEST DOLLAR DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-382	1	GMC	SAVANA 2500 CARGO VAN EXT	2017	PNVAN	GW 0000000-0004540	27	22	1	U Drive Truck	0	1,829	1,548	1,514	1,447
2	-367	34	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	1	U Drive Truck	0	2,031	1,779	1,741	1,664
3	-359	1	FORD	E450 ECONOLINE SD CUTAWAY	2013	AMBUL	NA	27	23	1	Police/Emergency Passenger Vehicle	0	2,502	2,270	2,223	2,143
4	-358	1	FORD	E450 ECONOLINE SD CUTAWAY	2016	AMBUL	NA	29	25	1	Police/Emergency Passenger Vehicle	0	2,648	2,426	2,375	2,290
5	-336	11	FORD	TRANSIT 250 WB 130 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
6	-336	9	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
7	-336	1	FORD	TRANSIT 250 XL CUTAWAY	2017	CBVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
8	-328	1	GMC	SAVANA 3500 CARGO VAN EXT	2017	PNVAN	GW 0000000-0004540	28	24	1	U Drive Truck	0	1,882	1,661	1,625	1,554
9	-324	1	CHEVROLET	MALIBU LS	2007	4DOOR	NA	29	24	1	U Drive Passenger Vehicle	0	1,857	1,644	1,610	1,533
10	-324	2	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	1	U Drive Passenger Vehicle	0	1,857	1,644	1,610	1,533
11	-322	1	CHEVROLET	MALIBU LT	2006	4DOOR	NA	28	23	1	U Drive Passenger Vehicle	0	1,806	1,592	1,559	1,484
12	-319	1	CHEVROLET	EQUINOX LT V6	2005	SPUT4	NA	30	25	1	U Drive Passenger Vehicle	0	1,905	1,701	1,666	1,586
13	-310	1	TOYOTA	TUNDRA SR V8	2016	LIGPU	GW 0000000-0004540	31	28	1	U Drive Truck	0	2,106	1,921	1,879	1,796
14	-294	6	FORD	TRANSIT 150 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	24	20	1	U Drive Truck	0	1,639	1,438	1,407	1,345
15	-290	6	GMC	SAVANA G3500 CUTAWAY	2015	CBVAN	GW 0000000-0004540	30	27	1	U Drive Truck	0	2,031	1,862	1,822	1,741
16	-290	2	RAM	PROMASTER 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	27	1	U Drive Truck	0	2,031	1,862	1,822	1,741
17	-288	2	FORD	CROWN VICTORIA LX	2009	4DOOR	NA	26	23	1	Police/Emergency Passenger Vehicle	0	2,431	2,270	2,223	2,143
18	-288	1	FORD	EXPLORER XLT	2006	SPUT4	NA	26	23	1	Police/Emergency Passenger Vehicle	0	2,431	2,270	2,223	2,143
19	-285	1	CHEVROLET	IMPALA LTZ V6	2009	4DOOR	NA	28	25	1	Police/Emergency Passenger Vehicle	0	2,575	2,426	2,375	2,290
20	-284	1	FORD	E450 ECONOLINE SD CUTAWAY	2011	AMBUL	NA	25	22	1	Police/Emergency Passenger Vehicle	0	2,357	2,196	2,150	2,073
21	-283	6	CHEVROLET	IMPALA (INSPECTED)	2010	4DOOR	NA	29	26	1	Police/Emergency Passenger Vehicle	0	2,648	2,506	2,453	2,365
22	-283	5	FORD	CROWN VICTORIA (INSPECTED)	2010	4DOOR	NA	29	26	1	Police/Emergency Passenger Vehicle	0	2,648	2,506	2,453	2,365
23	-283	1	FORD	EXPLORER XLT	2007	SPUT4	NA	29	26	1	Police/Emergency Passenger Vehicle	0	2,648	2,506	2,453	2,365
24	-283	2	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	26	1	U Drive Truck	0	1,947	1,779	1,741	1,664
25	-283	7	GMC	SAVANA 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	26	1	U Drive Truck	0	1,947	1,779	1,741	1,664
26	-280	15	FORD	CROWN VICTORIA POLICE (INSPEC)	2011	4DOOR	NA	30	27	1	Police/Emergency Passenger Vehicle	0	2,717	2,582	2,528	2,437
27	-275	1	GMC	SIERRA 1500 PICKUP	2007	LIGPU	GW 0000000-0004540	27	24	1	U Drive Truck	0	1,789	1,661	1,625	1,514
28	-273	1	CHEVROLET	UPLANDER LT EXT	2006	PASVA	NA	28	24	1	U Drive Passenger Vehicle	0	1,806	1,644	1,610	1,533
29	-273	1	PONTIAC	GRAND PRIX	2008	4DOOR	NA	28	24	1	U Drive Passenger Vehicle	0	1,806	1,644	1,610	1,533
30	-272	2	CHEVROLET	G3500 EXPRESS CUTAWAY	2008	AMBUL	NA	23	20	1	Police/Emergency Passenger Vehicle	0	2,208	2,051	2,008	1,936
31	-272	2	FORD	E450 ECONOLINE SD CUTAWAY	2010	AMBUL	NA	23	20	1	Police/Emergency Passenger Vehicle	0	2,208	2,051	2,008	1,936
32	-271	1	CHEVROLET	MALIBU LT V6	2006	4DOOR	NA	27	23	1	U Drive Passenger Vehicle	0	1,755	1,592	1,559	1,484
33	-271	1	CHEVROLET	UPLANDER LS EXT	2009	PASVA	NA	29	25	1	U Drive Passenger Vehicle	0	1,857	1,701	1,666	1,586
34	-271	1	FORD	F150 SUPERCREW	2004	CRECA	GW 0000000-0004540	28	25	1	U Drive Truck	0	1,882	1,723	1,686	1,611
35	-271	1	FORD	TRANSIT 250 WB 148 CARGO VAN	2015	PNVAN	GW 0000000-0004540	28	25	1	U Drive Truck	0	1,882	1,723	1,686	1,611
36	-267	1	CHEVROLET	MALIBU LT	2009	4DOOR	NA	30	26	1	U Drive Passenger Vehicle	0	1,905	1,757	1,720	1,638
37	-261	1	HYUNDAI	ACCENT 5	2005	4DRHB	NA	21	17	1	U Drive Passenger Vehicle	0	1,457	1,283	1,256	1,196
38	-259	1	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	3	U Drive Truck	0	1,220	1,069	1,046	961
39	-257	1	FORD	F350 SD XLT CREW CAB	2017	CRECA	GW 0000000-0004540	35	32	1	U Drive Truck	0	2,372	2,262	2,213	2,115
40	-254	1	HYUNDAI	ELANTRA VE	2006	4DOOR	NA	24	20	1	U Drive Passenger Vehicle	0	1,595	1,438	1,408	1,341
41	-253	1	CHEVROLET	SILVERADO 1500 CHEYENNE CREW	2007	CRECA	GW 0000000-0004540	25	22	1	U Drive Truck	0	1,660	1,548	1,514	1,407

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-253	1	CHEVROLET	SILVERADO 1500 LS	2009	LIGPU	GW 0000000-0004540	26	23	1	U Drive Truck	0	1,753	1,604	1,569	1,500
43	-253	1	GMC	SIERRA 1500 SLT CREW CAB	2008	CRCST	GW 0000000-0004540	31	28	3	U Drive Truck	0	1,404	1,280	1,253	1,151
44	-245	1	CHEVROLET	SILVERADO 2500 HD	2003	SERTR	GW 0000000-0004540	24	21	1	U Drive Truck	0	1,599	1,491	1,458	1,354
45	-239	2	-	-	2001	PASVA	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,385	5,405	5,405	5,146
46	-239	1	-	-	2002	4DOOR	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,405	5,405	5,405	5,166
47	-239	1	-	-	2002	PASVA	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,405	5,405	5,405	5,166
48	-239	2	-	-	2003	4DOOR	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,405	5,405	5,405	5,166
49	-239	1	-	-	2003	PASVA	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,405	5,405	5,405	5,166
50	-239	1	-	-	2004	4DRHB	NA	0	0	2	Taxicab Vehicle-for-Hire 4	0	5,405	5,405	5,405	5,166

TOP 50 VEHICLES IN PUBLIC CLASS WITH GREATEST PERCENT INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	20.00	1	BENZHOU	QUEST 50	2015		NA	0	0	1	U Drive Moped	0	700	783	777	840
2	15.43	1	-	-	2007		SC 0000000-0000020	5	5	4	Charter Bus Local	0	564	565	566	651
3	15.43	1	-	-	2006		SC 0000000-0000020	5	5	4	Charter Bus Local	0	564	565	566	651
4	15.43	1	-	-	2005		SC 0000000-0000020	4	4	4	Charter Bus Local	0	538	539	540	621
5	15.07	1	-	-	2015		SC 0000000-0000020	7	7	4	Charter Bus Local	0	617	617	618	710
6	15.02	1	-	-	2012		SC 0000000-0000020	8	8	4	Charter Bus Local	0	646	645	646	743
7	14.99	1	-	-	2000	LIMOU	NA	0	0	3	Limousine Vehicle-for-Hire 4	33	1,341	1,341	1,341	1,542
8	14.88	1	-	-	2015		SC 0000000-0000020	11	11	4	Charter Bus Local	0	726	724	725	834
9	14.42	1	PIAGGIO (VESP/	FLY 50	2014		NA	3	3	1	U Drive Moped	0	825	827	821	944
10	11.37	1	-	-	1997		SC 0000021-0000035	6	6	2	Charter Bus Local	0	633	633	634	705
11	11.11	1	-	-	2003		SC 0000036-0000050	8	8	2	Charter Bus Local	0	720	719	719	800
12	10.83	1	-	-	2016	CRECA	GW 0004541-0016330	14	13	4	U Drive Truck	0	822	792	842	911
13	10.04	1	DODGE	CHARGER SXT	2016	4DOOR	NA	37	38	2	Police/Emergency Passenger Vehicle	0	1,943	2,094	2,051	2,138
14	10.04	2	FORD	TAURUS SHO	2015	4DOOR	NA	37	38	2	Police/Emergency Passenger Vehicle	0	1,943	2,094	2,051	2,138
15	10.04	1	DODGE	DURANGO SXT	2013	SPUT4	NA	37	38	2	Police/Emergency Passenger Vehicle	0	1,943	2,094	2,051	2,138
16	9.94	1	FORD	EXPLORER	2016	SPUT4	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
17	9.94	3	FORD	EXPLORER POLICE	2016	SPUT4	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
18	9.94	2	FORD	EXPLORER	2015	SPUT4	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
19	9.94	3	FORD	EXPLORER POLICE	2015	SPUT4	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
20	9.94	4	FORD	TAURUS POLICE	2015	4DOOR	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
21	9.94	2	FORD	TAURUS POLICE	2013	4DOOR	NA	36	37	2	Police/Emergency Passenger Vehicle	0	1,901	2,047	2,004	2,090
22	9.62	1	FORD	FUSION SE	2014	4DOOR	NA	34	35	2	Police/Emergency Passenger Vehicle	0	1,819	1,953	1,912	1,994
23	9.62	1	DODGE	CHARGER SE V8	2011	4DOOR	NA	34	35	2	Police/Emergency Passenger Vehicle	0	1,819	1,953	1,912	1,994
24	8.83	1	FORD	EXPLORER	2016	SPUT4	NA	32	33	2	Police/Emergency Passenger Vehicle	0	1,744	1,860	1,821	1,898
25	8.83	2	FORD	FLEX SEL	2015	SPUT4	NA	32	33	2	Police/Emergency Passenger Vehicle	0	1,744	1,860	1,821	1,898
26	8.81	1	TOYOTA	SIENNA CE V6	2015	PASVA	NA	33	34	2	Police/Emergency Passenger Vehicle	0	1,783	1,901	1,861	1,940
27	8.70	2	DODGE	JOURNEY CROSSROAD	2015	SPUT4	NA	28	29	2	Police/Emergency Passenger Vehicle	0	1,575	1,677	1,642	1,712
28	8.68	1	FORD	TAURUS SE	2015	4DOOR	NA	31	32	2	Police/Emergency Passenger Vehicle	0	1,705	1,815	1,777	1,853
29	7.57	3	FORD	EXPLORER	2017	SPUT4	NA	37	37	2	Police/Emergency Passenger Vehicle	0	1,943	2,047	2,004	2,090
30	7.57	4	FORD	EXPLORER XLT	2017	SPUT4	NA	37	37	2	Police/Emergency Passenger Vehicle	0	1,943	2,047	2,004	2,090
31	7.57	1	TOYOTA	RAV4 LE	2016	SPUT4	NA	37	37	2	Police/Emergency Passenger Vehicle	0	1,943	2,047	2,004	2,090
32	7.57	1	TOYOTA	RAV4 LE	2015	SPUT4	NA	37	37	2	Police/Emergency Passenger Vehicle	0	1,943	2,047	2,004	2,090
33	7.42	6	FORD	EXPLORER POLICE	2014	SPUT4	NA	36	36	2	Police/Emergency Passenger Vehicle	0	1,901	2,000	1,958	2,042
34	7.09	1	-	-	2016	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
35	7.09	1	-	-	2016	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	33	3,992	3,992	3,992	4,275
36	7.09	1	-	-	2015	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	25	4,468	4,468	4,468	4,785
37	7.09	1	-	-	2014	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	28	4,290	4,290	4,290	4,594
38	7.09	1	-	-	2014	STAWA	NA	0	0	3	Taxicab Vehicle-for-Hire 4	33	3,992	3,992	3,992	4,275
39	7.09	1	-	-	2013	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
40	7.09	1	-	-	2013	4DOOR	NA	0	0	3	Taxicab Vehicle-for-Hire 4	25	4,468	4,468	4,468	4,785
41	7.09	1	-	-	2013	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	7.09	1	-	-	2013	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	25	4,468	4,468	4,468	4,785
43	7.09	2	-	-	2013	PASVA	NA	0	0	3	Taxicab Vehicle-for-Hire 4	33	3,992	3,992	3,992	4,275
44	7.09	1	-	-	2013	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	10	5,362	5,362	5,362	5,742
45	7.09	1	-	-	2013	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	25	4,468	4,468	4,468	4,785
46	7.09	1	-	-	2012	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	25	4,468	4,468	4,468	4,785
47	7.09	1	-	-	2012	4DRHB	NA	0	0	3	Taxicab Vehicle-for-Hire 4	33	3,992	3,992	3,992	4,275
48	7.09	1	-	-	2012	PASVA	NA	0	0	3	Taxicab Vehicle-for-Hire 4	33	3,992	3,992	3,992	4,275
49	7.09	1	-	-	2012	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	29	4,230	4,230	4,230	4,530
50	7.09	1	-	-	2011	SPUT4	NA	0	0	3	Taxicab Vehicle-for-Hire 4	29	4,230	4,230	4,230	4,530

TOP 50 VEHICLES IN PUBLIC CLASS WITH GREATEST PERCENT DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-21.23	1	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	3	U Drive Truck	0	1,220	1,069	1,046	961
2	-20.89	1	GMC	SAVANA 2500 CARGO VAN EXT	2017	PNVAN	GW 0000000-0004540	27	22	1	U Drive Truck	0	1,829	1,548	1,514	1,447
3	-18.28	3	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	2	U Drive Truck	0	1,154	1,011	989	943
4	-18.22	1	CADILLAC	DEVILLE	1998	4DOOR	NA	21	17	1	Funeral Passenger Vehicle	0	752	662	648	615
5	-18.19	1	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	GW 0000000-0004540	27	23	2	U Drive Truck	0	1,039	911	891	850
6	-18.19	1	FORD	F150 XLT PICKUP	2010	SERTR	GW 0000000-0004540	27	23	2	U Drive Truck	0	1,039	911	891	850
7	-18.07	34	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	GW 0000000-0004540	30	26	1	U Drive Truck	0	2,031	1,779	1,741	1,664
8	-18.02	1	FORD	F150 XL SUPERCAB	2007	EXTCA	GW 0000000-0004540	23	19	2	U Drive Truck	0	899	790	772	737
9	-18.02	1	GMC	SIERRA 1500 SLT CREW CAB	2008	CRCST	GW 0000000-0004540	31	28	3	U Drive Truck	0	1,404	1,280	1,253	1,151
10	-17.94	6	FORD	TRANSIT 150 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	24	20	1	U Drive Truck	0	1,639	1,438	1,407	1,345
11	-17.91	1	HYUNDAI	ACCENT 5	2005	4DRHB	NA	21	17	1	U Drive Passenger Vehicle	0	1,457	1,283	1,256	1,196
12	-17.83	1	CHEVROLET	MALIBU LT	2006	4DOOR	NA	28	23	1	U Drive Passenger Vehicle	0	1,806	1,592	1,559	1,484
13	-17.79	1	CHEVROLET	SILVERADO 1500 WT	2010	LIGPU	GW 0000000-0004540	26	23	3	U Drive Truck	0	1,169	1,069	1,046	961
14	-17.64	1	CHEVROLET	SILVERADO 2500 HD CREW CAB	2005	CRECA	GW 0000000-0004540	30	27	3	U Drive Truck	0	1,355	1,242	1,214	1,116
15	-17.45	1	CHEVROLET	MALIBU LS	2007	4DOOR	NA	29	24	1	U Drive Passenger Vehicle	0	1,857	1,644	1,610	1,533
16	-17.45	2	CHEVROLET	MALIBU LT V6	2007	4DOOR	NA	29	24	1	U Drive Passenger Vehicle	0	1,857	1,644	1,610	1,533
17	-17.43	1	GMC	SAVANA 3500 CARGO VAN EXT	2017	PNVAN	GW 0000000-0004540	28	24	1	U Drive Truck	0	1,882	1,661	1,625	1,554
18	-17.26	11	FORD	TRANSIT 250 WB 130 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
19	-17.26	9	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
20	-17.26	1	FORD	TRANSIT 250 XL CUTAWAY	2017	CBVAN	GW 0000000-0004540	29	25	1	U Drive Truck	0	1,947	1,723	1,686	1,611
21	-16.75	1	CHEVROLET	EQUINOX LT V6	2005	SPUT4	NA	30	25	1	U Drive Passenger Vehicle	0	1,905	1,701	1,666	1,586
22	-16.58	1	CHEVROLET	SILVERADO 1500 LT EXT CAB	2003	EXTCA	GW 0000000-0004540	20	17	3	U Drive Truck	0	947	879	860	790
23	-16.58	2	FORD	F150 XL PICKUP	2006	LIGPU	GW 0000000-0004540	20	17	3	U Drive Truck	0	947	879	860	790
24	-16.58	1	GMC	SIERRA 1500 SL EXT CAB	2003	EXTCA	GW 0000000-0004540	20	17	3	U Drive Truck	0	947	879	860	790
25	-16.57	1	PONTIAC	MONTANA EXT	2002	PASVA	NA	16	13	1	U Drive Passenger Vehicle	0	1,225	1,097	1,074	1,022
26	-16.39	1	PONTIAC	MONTANA EXT	2003	PASVA	NA	17	14	1	U Drive Passenger Vehicle	0	1,269	1,138	1,114	1,061
27	-16.28	1	PONTIAC	BONNEVILLE SE	2005	4DOOR	NA	24	20	1	Funeral Passenger Vehicle	0	823	742	726	689
28	-16.18	1	CADILLAC	DEVILLE	2003	FUVEH	NA	25	21	1	Funeral Passenger Vehicle	0	853	769	753	715
29	-16.18	1	CADILLAC	DEVILLE DHS	2000	4DOOR	NA	25	21	1	Funeral Passenger Vehicle	0	853	769	753	715
30	-16.18	1	CADILLAC	EAGLE	2002	FUVEH	NA	25	21	1	Funeral Passenger Vehicle	0	853	769	753	715
31	-16.18	1	CADILLAC	SUPERIOR	2003	FUVEH	NA	25	21	1	Funeral Passenger Vehicle	0	853	769	753	715
32	-16.05	1	DODGE	DAKOTA SPORT QUAD CAB	2004	CRECA	GW 0000000-0004540	19	16	3	U Drive Truck	0	916	855	837	769
33	-16.05	3	FORD	F150 SUPERCREW	2001	CRECA	GW 0000000-0004540	19	16	3	U Drive Truck	0	916	855	837	769
34	-16.04	2	CADILLAC	DEVILLE	2004	FUVEH	NA	26	22	1	Funeral Passenger Vehicle	0	879	794	778	738
35	-16.00	2	FORD	F150 SUPERCAB	2002	EXTCA	GW 0000000-0004540	18	15	3	U Drive Truck	0	894	835	817	751
36	-15.95	1	GMC	SIERRA 1500 SLE EXT CAB	2004	EXTCA	GW 0000000-0004540	23	20	2	U Drive Truck	0	859	817	799	722
37	-15.92	1	HYUNDAI	ELANTRA VE	2006	4DOOR	NA	24	20	1	U Drive Passenger Vehicle	0	1,595	1,438	1,408	1,341
38	-15.69	1	LINCOLN	DIPLOMAT	2001	FUVEH	NA	27	23	1	Funeral Passenger Vehicle	0	905	821	804	763
39	-15.62	1	OLDSMOBILE	ALERO GL	2004	4DOOR	NA	20	17	1	U Drive Passenger Vehicle	0	1,370	1,283	1,256	1,156
40	-15.44	1	CHEVROLET	MALIBU LT V6	2006	4DOOR	NA	27	23	1	U Drive Passenger Vehicle	0	1,755	1,592	1,559	1,484
41	-15.41	1	CADILLAC	DEVILLE	1999	FUVEH	NA	20	17	1	Funeral Passenger Vehicle	0	727	662	648	615

RANKING	PERCENT CHANGE	NO. OF VEHICLES	MAKE	MODEL	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-15.37	1	GMC	SIERRA 1500 PICKUP	2007	LIGPU	GW 0000000-0004540	27	24	1	U Drive Truck	0	1,789	1,661	1,625	1,514
43	-15.32	1	CHEVROLET	SILVERADO 2500 HD	2003	SERTR	GW 0000000-0004540	24	21	1	U Drive Truck	0	1,599	1,491	1,458	1,354
44	-15.26	1	FORD	F150 SUPERCREW	2003	CRECA	GW 0000000-0004540	25	23	3	U Drive Truck	0	1,134	1,069	1,046	961
45	-15.24	1	CHEVROLET	SILVERADO 1500 CHEYENNE CREW	2007	CRECA	GW 0000000-0004540	25	22	1	U Drive Truck	0	1,660	1,548	1,514	1,407
46	-15.18	1	DODGE	CARAVAN	2006	PASVA	NA	20	17	1	U Drive Passenger Vehicle	0	1,410	1,283	1,256	1,196
47	-15.15	1	FORD	F150 XL PICKUP	2008	LIGPU	GW 0000000-0004540	24	21	2	U Drive Truck	0	931	847	828	790
48	-15.12	1	CHEVROLET	UPLANDER LT EXT	2006	PASVA	NA	28	24	1	U Drive Passenger Vehicle	0	1,806	1,644	1,610	1,533
49	-15.12	1	PONTIAC	GRAND PRIX	2008	4DOOR	NA	28	24	1	U Drive Passenger Vehicle	0	1,806	1,644	1,610	1,533
50	-15.01	1	-	-	2009	TANKE	GW 0016331-0099999	7	6	2	Police/Emergency Truck	0	593	593	593	504

TOP 50 VEHICLES IN MOTORCYCLE CLASS WITH GREATEST DOLLAR INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	661	1	MCYCL	2017	NAKSP	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport Rating	0	1132	1,700	1,688	1,793
2	489	1	MCYCL	2017	NAKSP	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport Rating	26	838	1,258	1,249	1,327
3	345	1	MCYCL	2016	ADVEN	ES 0001001-0099999	8	8	2	All Purpose Motorcycle - Sport-Touring Rating	25	1576	2,007	1,993	1,921
4	307	1	MCYCL	2014	ADVEN	ES 0001001-0099999	7	7	1	All Purpose Motorcycle - Sport-Touring Rating	5	2102	2,321	2,305	2,409
5	280	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	2	All Purpose Motorcycle - Sport-Touring Rating	33	1353	1,706	1,694	1,633
6	269	1	MCYCL	2011	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	0	1216	1,386	1,376	1,485
7	264	1	MCYCL	2003	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	0	2042	2,221	2,205	2,306
8	258	1	MCYCL	2015	ADVEN	ES 0001001-0099999	8	8	1	All Purpose Motorcycle - Sport-Touring Rating	29	1635	1,824	1,811	1,893
9	256	1	MCYCL	2010	ADVEN	ES 0001001-0099999	6	6	2	All Purpose Motorcycle - Sport-Touring Rating	33	1300	1,625	1,613	1,556
10	216	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	Commuter	All Purpose Motorcycle - Sport-Touring Rating	29	1350	1,632	1,620	1,566
11	216	1	MCYCL	2017	ADVEN	ES 0001001-0099999	8	8	1	Pleasure Motorcycle - Sport-Touring Rating	33	882	1,025	1,017	1,098
12	216	1	MCYCL	2016	ADVEN	ES 0001001-0099999	7	7	1	All Purpose Motorcycle - Sport-Touring Rating	33	1483	1,637	1,625	1,699
13	215	1	MCYCL	2009	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	27	923	1,062	1,055	1,138
14	211	1	MCYCL	2015	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	28	911	1,048	1,040	1,122
15	206	1	MCYCL	2014	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	30	885	1,019	1,011	1,091
16	199	1	MCYCL	2005	ADVEN	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Sport-Touring Rating	15	951	1,074	1,066	1,150
17	197	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
18	197	1	MCYCL	2015	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
19	197	1	MCYCL	2012	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
20	197	1	MCYCL	2009	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
21	191	1	MCYCL	2012	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	29	863	984	977	1,054
22	185	1	MCYCL	2015	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	26	864	979	972	1,049
23	185	1	MCYCL	2006	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	26	864	979	972	1,049
24	185	1	MCYCL	2006	ADVEN	ES 0001001-0099999	6	6	Commuter	All Purpose Motorcycle - Sport-Touring Rating	33	1223	1,467	1,456	1,408
25	180	1	MCYCL	2011	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	33	815	929	922	995
26	177	1	MCYCL	2011	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545
27	177	1	MCYCL	2009	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545
28	177	1	MCYCL	2006	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545
29	175	1	MCYCL	2007	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	30	817	926	919	992
30	175	1	MCYCL	2005	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	30	817	926	919	992
31	167	1	MCYCL	2008	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
32	167	3	MCYCL	2007	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
33	167	1	MCYCL	2005	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
34	163	1	MCYCL	2011	ADVEN	ES 0000501-0001000	6	6	1	All Purpose Motorcycle - Sport-Touring Rating	0	1964	2,049	2,034	2,127
35	159	1	MCYCL	2017	NAKSP	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport Rating	0	2148	2,188	2,172	2,307
36	159	1	MCYCL	2016	SPORT	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport Rating	0	2148	2,188	2,172	2,307
37	159	1	MCYCL	2012	ADVEN	ES 0001001-0099999	6	6	3	Pleasure Motorcycle - Sport-Touring Rating	0	803	1,028	1,021	962
38	157	1	MCYCL	2001	ADVEN	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Sport-Touring Rating	33	750	846	840	907
39	154	1	MCYCL	2017	SPORT	ES 0000501-0001000	8	8	1	Pleasure Motorcycle - Sport Rating	0	1824	1,876	1,862	1,978
40	152	1	MCYCL	1998	ADVEN	ES 0001001-0099999	3	3	1	Pleasure Motorcycle - Sport-Touring Rating	33	715	809	803	867
41	132	1	MCYCL	2014	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	10	1019	1,098	1,090	1,151

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	132	1	MCYCL	2010	ADVEN	ES 0001001-0099999	6	6	2	Pleasure Motorcycle - Sport-Touring Rating	0	1143	1,290	1,280	1,275
43	130	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	0	1429	1,455	1,445	1,559
44	130	1	MCYCL	2017	SPOTO	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	0	1429	1,455	1,445	1,559
45	129	1	MCYCL	2017	SPORT	ES 0000501-0001000	7	7	1	Pleasure Motorcycle - Sport Rating	0	1753	1,785	1,772	1,882
46	129	1	MCYCL	2015	SPORT	ES 0000501-0001000	7	7	1	Pleasure Motorcycle - Sport Rating	0	1753	1,785	1,772	1,882
47	127	1	MCYCL	2013	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	15	1011	1,151	1,142	1,138
48	125	2	MCYCL	2017	TOUR	ES 0001001-0099999	9	9	1	Pleasure Motorcycle - Touring Rating	0	1319	1,354	1,344	1,444
49	125	1	MCYCL	2015	NAKSP	ES 0000000-0000500	4	4	1	All Purpose Motorcycle - Sport Rating	0	1492	1,492	1,481	1,617
50	125	1	MCYCL	2015	TOUR	ES 0001001-0099999	9	9	1	Pleasure Motorcycle - Touring Rating	0	1319	1,354	1,344	1,444

TOP 50 VEHICLES IN MOTORCYCLE CLASS WITH GREATEST DOLLAR DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-570	1	MCYCL	1998	STAND	ES 0001001-0099999	4	4	2	Pleasure Motorcycle - Other Rating	26	1351	778	773	781
2	-563	1	MCYCL	2006	STAND	ES 0001001-0099999	4	4	2	Pleasure Motorcycle - Other Rating	27	1333	768	762	770
3	-480	1	MCYCL	1995	STAND	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Other Rating	33	1272	750	744	792
4	-456	1	MCYCL	1999	STAND	ES 0001001-0099999	3	3	1	Pleasure Motorcycle - Other Rating	33	1213	717	712	757
5	-282	1	MCYCL	2016	SPORT	ES 0001001-0099999	6	6	Commuter	All Purpose Motorcycle - Sport Rating	0	3581	3,616	3,590	3,299
6	-266	1	MCYCL	1980	OTHER	ES 0000501-0001000	0	0	1	Pleasure Motorcycle - Other Rating	33	933	632	627	667
7	-213	1	MCYCL	2004	NAKSP	ES 0000501-0001000	3	3	Commuter	All Purpose Motorcycle - Sport Rating	0	2504	2,511	2,493	2,291
8	-213	1	MCYCL	2004	SPORT	ES 0000501-0001000	3	3	Commuter	All Purpose Motorcycle - Sport Rating	0	2504	2,511	2,493	2,291
9	-207	1	MCYCL	2009	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	10	2363	2,363	2,346	2,156
10	-202	1	MCYCL	1991	OTHER	ES 0000000-0000500	3	3	1	Pleasure Motorcycle - Other Rating	0	832	587	583	630
11	-189	1	MCYCL	2008	SPORT	ES 0001001-0099999	6	6	Commuter	All Purpose Motorcycle - Sport Rating	33	2399	2,423	2,405	2,210
12	-173	1	MCYCL	2015	NAKSP	ES 0000501-0001000	5	5	Commuter	All Purpose Motorcycle - Sport Rating	25	2055	2,063	2,048	1,882
13	-172	1	MCYCL	2004	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	25	1969	1,969	1,955	1,797
14	-170	1	MCYCL	2014	NAKSP	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	26	1943	1,943	1,929	1,773
15	-165	1	MCYCL	2012	SPORT	ES 0001001-0099999	6	6	3	Pleasure Motorcycle - Sport Rating	25	1405	1,419	1,409	1,240
16	-161	1	MCYCL	2002	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	30	1838	1,838	1,825	1,677
17	-155	1	MCYCL	2017	NAKSP	ES 0000501-0001000	5	5	Commuter	All Purpose Motorcycle - Sport Rating	33	1836	1,843	1,829	1,681
18	-154	1	MCYCL	2015	NAKSP	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	33	1759	1,759	1,747	1,605
19	-149	1	MCYCL	1999	SPORT	ES 0000501-0001000	3	3	Commuter	All Purpose Motorcycle - Sport Rating	30	1753	1,758	1,745	1,604
20	-145	1	MCYCL	2011	SPORT	ES 0001001-0099999	4	4	3	Pleasure Motorcycle - Sport Rating	33	1155	1,155	1,147	1,010
21	-144	1	MCYCL	2014	SPORT	ES 0001001-0099999	7	7	3	Pleasure Motorcycle - Sport Rating	33	1307	1,331	1,321	1,163
22	-143	1	MCYCL	2014	NAKSP	ES 0000501-0001000	3	3	Commuter	All Purpose Motorcycle - Sport Rating	33	1678	1,682	1,670	1,535
23	-133	1	MCYCL	2003	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	0	1267	1,290	1,281	1,134
24	-133	1	MCYCL	2010	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	0	1267	1,290	1,281	1,134
25	-132	1	MCYCL	1999	SPORT	ES 0000501-0001000	3	3	3	Pleasure Motorcycle - Sport Rating	0	1062	1,064	1,057	930
26	-132	1	MCYCL	2005	SPORT	ES 0000501-0001000	3	3	3	Pleasure Motorcycle - Sport Rating	0	1062	1,064	1,057	930
27	-126	1	MCYCL	2016	ADVEN	ES 0000501-0001000	5	5	4	All Purpose Motorcycle - Sport-Touring Rating	33	1128	1,133	1,124	1,002
28	-119	1	MCYCL	2012	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	10	1140	1,161	1,153	1,021
29	-119	1	MCYCL	2013	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	10	1140	1,161	1,153	1,021
30	-116	1	MCYCL	2016	TOUR	ES 0001001-0099999	9	9	3	All Purpose Motorcycle - Touring Rating	15	1183	1,214	1,205	1,067
31	-115	1	MCYCL	2017	SPORT	ES 0000501-0001000	5	5	3	Pleasure Motorcycle - Sport Rating	20	930	933	926	815
32	-106	1	MCYCL	2016	SPORT	ES 0000000-0000500	5	5	3	All Purpose Motorcycle - Sport Rating	10	992	995	988	886
33	-102	1	MCYCL	2005	SPORT	ES 0000501-0001000	4	4	3	Pleasure Motorcycle - Sport Rating	27	812	812	807	710
34	-101	1	MCYCL	2013	TOUR	ES 0001001-0099999	8	8	3	All Purpose Motorcycle - Touring Rating	20	1055	1,085	1,077	954
35	-100	1	MCYCL	2008	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	27	818	818	812	718
36	-98	1	MCYCL	2009	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	28	806	806	801	708
37	-97	1	MCYCL	1984	STAND	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Other Rating	0	1046	1,048	1,040	949
38	-97	1	MCYCL	2017	3WHMO	ES 0001001-0099999	9	9	3	All Purpose Motorcycle - Touring Rating	29	988	1,014	1,006	891
39	-96	1	MCYCL	2012	CRUIS	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Other Rating	0	1387	1,413	1,402	1,291
40	-96	1	MCYCL	2016	CRUIS	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Other Rating	0	1387	1,413	1,402	1,291
41	-95	1	MCYCL	2016	CRUIS	ES 0000501-0001000	5	5	3	All Purpose Motorcycle - Other Rating	10	1030	1,033	1,026	935

RANKING	DOLLAR CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-93	1	MCYCL	2009	CRUIS	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Other Rating	10	986	986	979	893
43	-93	1	MCYCL	2013	ADVEN	ES 0000000-0000500	5	5	Commuter	All Purpose Motorcycle - Sport-Touring Rating	15	853	855	849	760
44	-91	1	MCYCL	2006	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	33	750	750	745	659
45	-91	1	MCYCL	2008	TOUR	ES 0001001-0099999	6	6	3	All Purpose Motorcycle - Touring Rating	33	815	824	818	724
46	-91	1	MCYCL	2012	STASI	ES 0000501-0001000	6	6	3	All Purpose Motorcycle - Touring Rating	33	815	824	818	724
47	-89	1	MCYCL	2006	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	33	849	865	858	760
48	-88	1	MCYCL	2008	NAKSP	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Sport Rating	25	1461	1,464	1,454	1,373
49	-87	1	MCYCL	2008	CRUIS	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Other Rating	10	941	943	936	854
50	-87	1	MCYCL	2015	CRUIS	ES 0001001-0099999	8	8	3	All Purpose Motorcycle - Other Rating	0	1444	1,485	1,474	1,357

TOP 50 VEHICLES IN MOTORCYCLE CLASS WITH GREATEST PERCENT INCREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	58.39	1	MCYCL	2017	NAKSP	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport Rating	0	1132	1,700	1,688	1,793
2	58.35	1	MCYCL	2017	NAKSP	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport Rating	26	838	1,258	1,249	1,327
3	24.49	1	MCYCL	2017	ADVEN	ES 0001001-0099999	8	8	1	Pleasure Motorcycle - Sport-Touring Rating	33	882	1,025	1,017	1,098
4	23.29	1	MCYCL	2009	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	27	923	1,062	1,055	1,138
5	23.28	1	MCYCL	2014	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	30	885	1,019	1,011	1,091
6	23.23	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
7	23.23	1	MCYCL	2015	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
8	23.23	1	MCYCL	2012	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
9	23.23	1	MCYCL	2009	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	33	848	975	968	1,045
10	23.16	1	MCYCL	2015	ADVEN	ES 0001001-0099999	7	7	1	Pleasure Motorcycle - Sport-Touring Rating	28	911	1,048	1,040	1,122
11	22.13	1	MCYCL	2012	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	29	863	984	977	1,054
12	22.12	1	MCYCL	2011	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	0	1216	1,386	1,376	1,485
13	22.09	1	MCYCL	2011	ADVEN	ES 0001001-0099999	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	33	815	929	922	995
14	21.89	1	MCYCL	2016	ADVEN	ES 0001001-0099999	8	8	2	All Purpose Motorcycle - Sport-Touring Rating	25	1576	2,007	1,993	1,921
15	21.42	1	MCYCL	2007	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	30	817	926	919	992
16	21.42	1	MCYCL	2005	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	30	817	926	919	992
17	21.41	1	MCYCL	2015	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	26	864	979	972	1,049
18	21.41	1	MCYCL	2006	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	26	864	979	972	1,049
19	21.36	1	MCYCL	2008	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
20	21.36	3	MCYCL	2007	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
21	21.36	1	MCYCL	2005	ADVEN	ES 0001001-0099999	5	5	1	Pleasure Motorcycle - Sport-Touring Rating	33	782	886	880	949
22	21.26	1	MCYCL	1998	ADVEN	ES 0001001-0099999	3	3	1	Pleasure Motorcycle - Sport-Touring Rating	33	715	809	803	867
23	20.93	1	MCYCL	2005	ADVEN	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Sport-Touring Rating	15	951	1,074	1,066	1,150
24	20.93	1	MCYCL	2001	ADVEN	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Sport-Touring Rating	33	750	846	840	907
25	20.69	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	2	All Purpose Motorcycle - Sport-Touring Rating	33	1353	1,706	1,694	1,633
26	19.8	1	MCYCL	2012	ADVEN	ES 0001001-0099999	6	6	3	Pleasure Motorcycle - Sport-Touring Rating	0	803	1,028	1,021	962
27	19.69	1	MCYCL	2010	ADVEN	ES 0001001-0099999	6	6	2	All Purpose Motorcycle - Sport-Touring Rating	33	1300	1,625	1,613	1,556
28	16	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	Commuter	All Purpose Motorcycle - Sport-Touring Rating	29	1350	1,632	1,620	1,566
29	15.78	1	MCYCL	2015	ADVEN	ES 0001001-0099999	8	8	1	All Purpose Motorcycle - Sport-Touring Rating	29	1635	1,824	1,811	1,893
30	15.13	1	MCYCL	2006	ADVEN	ES 0001001-0099999	6	6	Commuter	All Purpose Motorcycle - Sport-Touring Rating	33	1223	1,467	1,456	1,408
31	14.61	1	MCYCL	2014	ADVEN	ES 0001001-0099999	7	7	1	All Purpose Motorcycle - Sport-Touring Rating	5	2102	2,321	2,305	2,409
32	14.57	1	MCYCL	2016	ADVEN	ES 0001001-0099999	7	7	1	All Purpose Motorcycle - Sport-Touring Rating	33	1483	1,637	1,625	1,699
33	13.75	1	MCYCL	2016	ADVEN	ES 0001001-0099999	8	8	2	Pleasure Motorcycle - Sport-Touring Rating	33	829	953	947	943
34	13.61	1	MCYCL	2016	ADVEN	ES 0001001-0099999	8	8	2	Pleasure Motorcycle - Sport-Touring Rating	30	867	996	989	985
35	13.06	1	MCYCL	2017	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	33	758	818	812	857
36	13.06	1	MCYCL	2015	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	33	758	818	812	857
37	13.06	1	MCYCL	2013	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	33	758	818	812	857
38	12.99	1	MCYCL	2013	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	15	962	1,037	1,030	1,087
39	12.95	1	MCYCL	2014	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	10	1019	1,098	1,090	1,151
40	12.94	1	MCYCL	2011	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545
41	12.94	1	MCYCL	2009	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545

RANKING	PERCENT CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	12.94	1	MCYCL	2006	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	33	1368	1,488	1,478	1,545
43	12.93	1	MCYCL	2003	ADVEN	ES 0001001-0099999	5	5	1	All Purpose Motorcycle - Sport-Touring Rating	0	2042	2,221	2,205	2,306
44	12.91	1	MCYCL	2016	ADVEN	ES 0000501-0001000	6	6	1	Pleasure Motorcycle - Sport-Touring Rating	20	906	976	969	1,023
45	12.56	1	MCYCL	2013	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	15	1011	1,151	1,142	1,138
46	12.56	1	MCYCL	2009	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	25	892	1,015	1,008	1,004
47	12.55	1	MCYCL	2017	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	33	797	907	900	897
48	12.55	2	MCYCL	2016	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	33	797	907	900	897
49	12.55	1	MCYCL	2015	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	33	797	907	900	897
50	12.55	1	MCYCL	2014	ADVEN	ES 0001001-0099999	7	7	2	Pleasure Motorcycle - Sport-Touring Rating	33	797	907	900	897

TOP 50 VEHICLES IN MOTORCYCLE CLASS WITH GREATEST PERCENT DECREASE
VEHICLE PREMIUMS BY MAKE, MODEL AND MODEL YEAR

RANKING	PERCENT CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
1	-42.24	1	MCYCL	2006	STAND	ES 0001001-0099999	4	4	2	Pleasure Motorcycle - Other Rating	27	1333	768	762	770
2	-42.19	1	MCYCL	1998	STAND	ES 0001001-0099999	4	4	2	Pleasure Motorcycle - Other Rating	26	1351	778	773	781
3	-37.74	1	MCYCL	1995	STAND	ES 0001001-0099999	4	4	1	Pleasure Motorcycle - Other Rating	33	1272	750	744	792
4	-37.59	1	MCYCL	1999	STAND	ES 0001001-0099999	3	3	1	Pleasure Motorcycle - Other Rating	33	1213	717	712	757
5	-28.51	1	MCYCL	1980	OTHER	ES 0000501-0001000	0	0	1	Pleasure Motorcycle - Other Rating	33	933	632	627	667
6	-24.28	1	MCYCL	1991	OTHER	ES 0000000-0000500	3	3	1	Pleasure Motorcycle - Other Rating	0	832	587	583	630
7	-12.56	1	MCYCL	2005	SPORT	ES 0000501-0001000	4	4	3	Pleasure Motorcycle - Sport Rating	27	812	812	807	710
8	-12.55	1	MCYCL	2011	SPORT	ES 0001001-0099999	4	4	3	Pleasure Motorcycle - Sport Rating	33	1155	1,155	1,147	1,010
9	-12.43	1	MCYCL	1999	SPORT	ES 0000501-0001000	3	3	3	Pleasure Motorcycle - Sport Rating	0	1062	1,064	1,057	930
10	-12.43	1	MCYCL	2005	SPORT	ES 0000501-0001000	3	3	3	Pleasure Motorcycle - Sport Rating	0	1062	1,064	1,057	930
11	-12.37	1	MCYCL	2017	SPORT	ES 0000501-0001000	5	5	3	Pleasure Motorcycle - Sport Rating	20	930	933	926	815
12	-12.22	1	MCYCL	2008	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	27	818	818	812	718
13	-12.16	1	MCYCL	2009	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	28	806	806	801	708
14	-12.13	1	MCYCL	2006	TOUR	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Touring Rating	33	750	750	745	659
15	-11.74	1	MCYCL	2012	SPORT	ES 0001001-0099999	6	6	3	Pleasure Motorcycle - Sport Rating	25	1405	1,419	1,409	1,240
16	-11.64	1	MCYCL	1988	TOUR	ES 0000501-0001000	1	1	3	All Purpose Motorcycle - Touring Rating	33	687	691	686	607
17	-11.23	1	MCYCL	2014	ADVEN	ES 0000000-0000500	4	4	Commuter	All Purpose Motorcycle - Sport-Touring Rating	25	721	721	716	640
18	-11.17	1	MCYCL	2008	TOUR	ES 0001001-0099999	6	6	3	All Purpose Motorcycle - Touring Rating	33	815	824	818	724
19	-11.17	1	MCYCL	2012	STASI	ES 0000501-0001000	6	6	3	All Purpose Motorcycle - Touring Rating	33	815	824	818	724
20	-11.17	1	MCYCL	2016	ADVEN	ES 0000501-0001000	5	5	4	All Purpose Motorcycle - Sport-Touring Rating	33	1128	1,133	1,124	1,002
21	-11.02	1	MCYCL	2014	SPORT	ES 0001001-0099999	7	7	3	Pleasure Motorcycle - Sport Rating	33	1307	1,331	1,321	1,163
22	-10.9	1	MCYCL	2013	ADVEN	ES 0000000-0000500	5	5	Commuter	All Purpose Motorcycle - Sport-Touring Rating	15	853	855	849	760
23	-10.77	1	MCYCL	2014	NAKSP	ES 0000000-0000500	3	3	3	All Purpose Motorcycle - Sport Rating	29	715	717	712	638
24	-10.69	1	MCYCL	2016	SPORT	ES 0000000-0000500	5	5	3	All Purpose Motorcycle - Sport Rating	10	992	995	988	886
25	-10.5	1	MCYCL	2003	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	0	1267	1,290	1,281	1,134
26	-10.5	1	MCYCL	2010	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	0	1267	1,290	1,281	1,134
27	-10.48	1	MCYCL	2006	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	33	849	865	858	760
28	-10.44	1	MCYCL	2012	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	10	1140	1,161	1,153	1,021
29	-10.44	1	MCYCL	2013	TOUR	ES 0001001-0099999	7	7	3	All Purpose Motorcycle - Touring Rating	10	1140	1,161	1,153	1,021
30	-9.82	1	MCYCL	2017	3WHMO	ES 0001001-0099999	9	9	3	All Purpose Motorcycle - Touring Rating	29	988	1,014	1,006	891
31	-9.81	1	MCYCL	2016	TOUR	ES 0001001-0099999	9	9	3	All Purpose Motorcycle - Touring Rating	15	1183	1,214	1,205	1,067
32	-9.62	1	MCYCL	2014	TOUR	ES 0001001-0099999	8	8	3	All Purpose Motorcycle - Touring Rating	33	884	909	902	799
33	-9.57	1	MCYCL	2013	TOUR	ES 0001001-0099999	8	8	3	All Purpose Motorcycle - Touring Rating	20	1055	1,085	1,077	954
34	-9.43	1	MCYCL	2009	CRUIS	ES 0000501-0001000	4	4	3	All Purpose Motorcycle - Other Rating	10	986	986	979	893
35	-9.32	1	MCYCL	2010	CRUIS	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Other Rating	20	837	838	832	759
36	-9.27	1	MCYCL	1984	STAND	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Other Rating	0	1046	1,048	1,040	949
37	-9.25	1	MCYCL	2008	CRUIS	ES 0000501-0001000	3	3	3	All Purpose Motorcycle - Other Rating	10	941	943	936	854
38	-9.22	1	MCYCL	2016	CRUIS	ES 0000501-0001000	5	5	3	All Purpose Motorcycle - Other Rating	10	1030	1,033	1,026	935
39	-9.21	1	MCYCL	2014	CRUIS	ES 0000501-0001000	5	5	3	All Purpose Motorcycle - Other Rating	26	847	849	843	769
40	-9.21	1	MCYCL	2016	DUAPU	ES 0000501-0001000	5	5	3	All Purpose Motorcycle - Other Rating	26	847	849	843	769
41	-9.19	1	MCYCL	1980	STAND	ES 0000501-0001000	2	2	3	All Purpose Motorcycle - Other Rating	20	816	819	813	741

RANKING	PERCENT CHANGE	NO. OF VEHICLES	VEHICLE TYPE	MODEL YEAR	BODY STYLE	RATING FACTOR	2018 RATE GROUP	2019 RATE GROUP	TERR.	INSURANCE USE	DISC. %	2018 RATE	RATE WITH CLASSIFICATION CHANGES APPLIED	RATE WITH CLASSIFICATION CHANGES & OFFSETS APPLIED	2019 EXPERIENCE ADJUSTED RATE
42	-8.76	1	MCYCL	2002	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	30	1838	1,838	1,825	1,677
43	-8.76	1	MCYCL	2009	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	10	2363	2,363	2,346	2,156
44	-8.75	1	MCYCL	2014	NAKSP	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	26	1943	1,943	1,929	1,773
45	-8.75	1	MCYCL	2015	NAKSP	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	33	1759	1,759	1,747	1,605
46	-8.74	1	MCYCL	2004	SPORT	ES 0000501-0001000	4	4	Commuter	All Purpose Motorcycle - Sport Rating	25	1969	1,969	1,955	1,797
47	-8.66	1	MCYCL	2009	CRUIS	ES 0001001-0099999	4	4	3	All Purpose Motorcycle - Other Rating	20	981	981	974	896
48	-8.62	1	MCYCL	2005	CRUIS	ES 0001001-0099999	4	4	3	All Purpose Motorcycle - Other Rating	30	858	858	852	784
49	-8.6	1	MCYCL	1997	CRUIS	ES 0001001-0099999	4	4	3	All Purpose Motorcycle - Other Rating	26	907	907	901	829
50	-8.52	1	MCYCL	2014	NAKSP	ES 0000501-0001000	3	3	Commuter	All Purpose Motorcycle - Sport Rating	33	1678	1,682	1,670	1,535

TOP 5 VEHICLES WITH GREATEST DOLLAR DECREASES BY TERRITORY FOR 'CLEAR' RATED PASSENGER VEHICLES AND LIGHT TRUCKS

For Classification Changes including Rate Group & Rate Line and Experience Adjustments

RANKING	TERR.	DOLLAR CHANGE	INSURANCE USE	MAKE	MODEL	MODEL YEAR	BODY STYLE	2018 RATE GROUP	2018 RATE GROUP	DISC. %	NO. OF VEHICLES	2018 RATE	RATE WITH RATE GROUP CHANGE	RATE WITH RATE LINE CHANGE	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE	COMBINED % OFFSET FACTOR	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE AFTER OFFSET FACTORS	EXPERIENCE % ADJUSTMENT FACTOR	2019 EXPERIENCE ADJUSTED RATE
1	1	-390	Artisan Truck	GMC	SAVANA G3500 CUTAWAY	2016	CBVAN	30	27	0	1	1,730	1,558	1,781	1,585	-2.18	1,550	-13.56	1,340
2	1	-382	U Drive Truck	GMC	SAVANA 2500 CARGO VAN EXT	2017	PNVAN	27	22	0	1	1,829	1,528	1,862	1,548	-2.18	1,514	-4.41	1,447
3	1	-367	U Drive Truck	CHEVROLET	EXPRESS 2500 CARGO VAN	2017	PNVAN	30	26	0	34	2,031	1,753	2,092	1,779	-2.18	1,741	-4.41	1,664
4	1	-359	Police/Emergency Passenger Vehicle	FORD	E450 ECONOLINE SD CUTAWAY	2013	AMBUL	27	23	0	1	2,502	2,208	2,582	2,270	-2.09	2,223	-3.6	2,143
5	1	-358	Police/Emergency Passenger Vehicle	FORD	E450 ECONOLINE SD CUTAWAY	2016	AMBUL	29	25	0	1	2,648	2,357	2,741	2,426	-2.09	2,375	-3.6	2,290
1	2	-296	Common Carrier Truck Over 161km in MB	FORD	TRANSIT 250 WB 148 CARGO VAN	2017	PNVAN	29	25	0	1	1,768	1,544	1,812	1,565	-2.18	1,530	-3.82	1,472
2	2	-290	Common Carrier Truck Over 161km in MB	RAM	PROMASTER CITY SLT CARGO VAN	2015	PNVAN	28	24	0	1	1,709	1,489	1,744	1,508	-2.18	1,475	-3.82	1,419
3	2	-242	Common Carrier Truck Over 161km in MB	FORD	E250 ECONOLINE CARGO	2014	PNVAN	27	24	0	1	1,661	1,489	1,691	1,508	-2.18	1,475	-3.82	1,419
4	2	-242	Common Carrier Truck Over 161km in MB	GMC	SAVANA 3500 CARGO VAN EXT	2013	PNVAN	27	24	0	1	1,661	1,489	1,691	1,508	-2.18	1,475	-3.82	1,419
5	2	-237	Common Carrier Truck Over 161km in MB	FORD	TRANSIT 250 WB 148 CARGO VAN	2016	PNVAN	28	25	0	1	1,709	1,544	1,744	1,565	-2.18	1,530	-3.82	1,472
1	3	-259	U Drive Truck	DODGE	RAM 1500 LARAMIE QUAD CAB	2004	CRECA	27	23	0	1	1,220	1,056	1,242	1,069	-2.18	1,046	-8.09	961
2	3	-253	U Drive Truck	GMC	SIERRA 1500 SLT CREW CAB	2008	CRCST	31	28	0	1	1,404	1,255	1,451	1,280	-2.18	1,253	-8.09	1,151
3	3	-239	U Drive Truck	CHEVROLET	SILVERADO 2500 HD CREW CAB	2005	CRECA	30	27	0	1	1,355	1,220	1,395	1,242	-2.18	1,214	-8.09	1,116
4	3	-208	U Drive Truck	CHEVROLET	SILVERADO 1500 WT	2010	LIGPU	26	23	0	1	1,169	1,056	1,186	1,069	-2.18	1,046	-8.09	961
5	3	-196	All Purpose Truck	FORD	F150 XL SUPERCAB	2011	EXTCA	28	23	0	1	1,151	969	1,175	981	-2.18	960	-0.47	955
1	4	-357	Common Carrier Local Passenger Vehicle	CHRYSLER	PT CRUISER TOURING EDITION	2007	4DRHB	28	24	0	1	1,791	1,582	1,852	1,631	-2.09	1,597	-10.2	1,434
2	4	-309	Common Carrier Local Passenger Vehicle	GMC	YUKON DENALI	2006	SPUT4	29	26	0	1	1,842	1,691	1,906	1,743	-2.09	1,707	-10.2	1,533
3	4	-265	Common Carrier Truck Local Within City or Mun.	FORD	F150 XL PICKUP	2011	LIGPU	28	25	0	1	1,162	1,050	1,186	1,064	-2.18	1,041	-13.83	897
4	4	-255	Common Carrier Truck Local Within City or Mun.	RAM	C/V	2012	PNVAN	30	28	0	1	1,254	1,162	1,292	1,186	-2.18	1160	-13.83	999
5	4	-234	All Purpose Truck	FORD	F150 XL SUPERCAB	2011	EXTCA	28	23	0	1	1,214	1,021	1,239	1,035	-2.18	1,012	-3.21	980

RANKING	TERR.	DOLLAR CHANGE	INSURANCE USE	MAKE	MODEL	MODEL YEAR	BODY STYLE	2018 RATE GROUP	2018 RATE GROUP	DISC. %	NO. OF VEHICLES	2018 RATE	RATE WITH RATE GROUP CHANGE	RATE WITH RATE LINE CHANGE	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE	COMBINED % OFFSET FACTOR	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE AFTER OFFSET FACTORS	EXPERIENCE % ADJUSTMENT FACTOR	2019 EXPERIENCE ADJUSTED RATE
1	Commuter	-225	All Purpose Passenger Vehicle	FORD	FOCUS ZX5 SES	2006	4DRHB	28	23	0	1	1,810	1551	1,871	1,596	-2.09	1,563	1.41	1,585
2	Commuter	-224	All Purpose Passenger Vehicle	CHEVROLET	MALIBU LS	2007	4DOOR	29	24	0	1	1,861	1,598	1,927	1,648	-2.09	1,614	1.41	1,637
3	Commuter	-224	All Purpose Passenger Vehicle	CHEVROLET	MALIBU LT V6	2007	4DOOR	29	24	0	1	1,861	1,598	1,927	1,648	-2.09	1,614	1.41	1,637
4	Commuter	-224	All Purpose Passenger Vehicle	PONTIAC	VIBE	2006	STAWA	29	24	0	1	1,861	1,598	1,927	1,648	-2.09	1,614	1.41	1,637
5	Commuter	-218	All Purpose Truck	DODGE	DAKOTA CLUB CAB	2005	EXTCA	28	23	0	2	1,393	1,173	1,421	1,187	-2.18	1,161	1.25	1,175

TOP 5 VEHICLES WITH GREATEST DOLLAR INCREASES BY TERRITORY FOR 'CLEAR' RATED PASSENGER VEHICLES AND LIGHT TRUCKS

For Classification Changes including Rate Group & Rate Line and Experience Adjustments

RANKING	TERR.	DOLLAR CHANGE	INSURANCE USE	MAKE	MODEL	MODEL YEAR	BODY STYLE	2018 RATE GROUP	2018 RATE GROUP	DISC. %	NO. OF VEHICLES	2018 RATE	RATE WITH RATE GROUP CHANGE	RATE WITH RATE LINE CHANGE	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE	COMBINED % OFFSET FACTOR	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE AFTER OFFSET FACTORS	EXPERIENCE % ADJUSTMENT FACTOR	2019 EXPERIENCE ADJUSTED RATE
1	1	458	Tow Truck	FORD	F450 SD XLT PICKUP	2008	TOW	37	38	0	1	3,200	3,285	3,485	3,611	-2.18	3,533	3.55	3,658
2	1	353	Common Carrier Truck Local Within City or Mun.	DODGE	RAM 1500 SLT QUAD CAB	2014	CRECA	37	38	0	1	2,059	2,114	2,243	2,324	-2.18	2,273	6.1	2,412
3	1	353	Common Carrier Truck Local Within City or Mun.	DODGE	RAM 1500 SXT CREW CAB	2015	CRECA	37	38	0	1	2,059	2,114	2,243	2,324	-2.18	2,273	6.1	2,412
4	1	353	Common Carrier Truck Local Within City or Mun.	FORD	F150 XLT SUPERCREW	2016	CRECA	37	38	0	1	2,059	2,114	2,243	2,324	-2.18	2,273	6.1	2,412
5	1	353	Common Carrier Truck Local Within City or Mun.	FORD	F350 SD XLT PICKUP	2008	LIGPU	37	38	0	1	2,059	2,114	2,243	2,324	-2.18	2,273	6.1	2,412
1	2	227	All Purpose Truck	CHEVROLET	EQUINOX LT	2014	SPUT4	37	38	0	1	1,658	1,702	1,807	1,872	-2.18	1,831	2.91	1,885
2	2	227	All Purpose Truck	CHEVROLET	EQUINOX LT	2017	SPUT4	37	38	0	1	1,658	1,702	1,807	1,872	-2.18	1,831	2.91	1,885
3	2	227	All Purpose Truck	CHEVROLET	SILVERADO 1500 LS	2016	LIGPU	37	38	0	3	1,658	1,702	1,807	1,872	-2.18	1,831	2.91	1,885
4	2	227	All Purpose Truck	CHEVROLET	SILVERADO 1500 LS	2016	SERTR	37	38	0	1	1,658	1,702	1,807	1,872	-2.18	1,831	2.91	1,885
5	2	227	All Purpose Truck	CHEVROLET	SILVERADO 1500 LS	2017	LIGPU	37	38	0	2	1,658	1,702	1,807	1,872	-2.18	1,831	2.91	1,885
1	3	181	Fishing All Purpose Truck	GMC	SIERRA 2500 HD SLE CREW CAB	2009	CRECA	33	32	0	1	1,319	1,280	1,384	1,333	-2.18	1,304	15	1,500
2	3	156	Farming All Purpose Truck	DODGE	RAM 1500 LARAMIE QUAD CAB	2015	CRECA	37	38	0	1	1,411	1,449	1,537	1,593	-2.18	1,558	0.6	1,567
3	3	151	All Purpose Truck	CHEVROLET	SILVERADO 1500 LS	2015	LIGPU	37	38	0	1	1,533	1,574	1,670	1,730	-2.18	1,692	-0.47	1,684
4	3	151	All Purpose Truck	CHEVROLET	SILVERADO 2500 HD HC CREW CAB	2017	CRECA	37	38	0	1	1,533	1,574	1,670	1,730	-2.18	1,692	-0.47	1,684
5	3	151	All Purpose Truck	CHEVROLET	SILVERADO 2500 HD LT CREW CAB	2016	CRECA	37	38	0	1	1,533	1,574	1,670	1,730	-2.18	1,692	-0.47	1,684
1	4	185	Farming All Purpose Truck	DODGE	RAM 1500 LARAMIE CREW CAB	2014	CRECA	37	38	0	1	1,537	1,578	1,674	1,735	-2.18	1,697	1.49	1,722
2	4	185	Farming All Purpose Truck	DODGE	RAM 2500 LARAMIE MEGA CAB	2011	CRECA	37	38	0	1	1,537	1,578	1,674	1,735	-2.18	1,697	1.49	1,722
3	4	185	Farming All Purpose Truck	DODGE	RAM 2500 LARAMIE MEGA CAB	2017	CRECA	37	38	0	1	1,537	1,578	1,674	1,735	-2.18	1,697	1.49	1,722
4	4	185	Farming All Purpose Truck	FORD	F150 LARIAT SUPERCREW	2015	CRECA	37	38	0	1	1,537	1,578	1,674	1,735	-2.18	1697	1.49	1,722
5	4	166	Farming All Purpose Truck	GMC	SIERRA 2500 HD DENALI CREW CAB	2015	CRECA	36	37	0	1	1,496	1,537	1,615	1,674	-2.18	1,638	1.49	1,662

RANKING	TERR.	DOLLAR CHANGE	INSURANCE USE	MAKE	MODEL	MODEL YEAR	BODY STYLE	2018 RATE GROUP	2018 RATE GROUP	DISC. %	NO. OF VEHICLES	2018 RATE	RATE WITH RATE GROUP CHANGE	RATE WITH RATE LINE CHANGE	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE	COMBINED % OFFSET FACTOR	RATE WITH COMBINED RATE GROUP AND RATE LINE CHANGE AFTER OFFSET FACTORS	EXPERIENCE % ADJUSTMENT FACTOR	2019 EXPERIENCE ADJUSTED RATE
1	Commuter	218	All Purpose Truck	CHEVROLET	SILVERADO 1500 LT	2017	LIGPU	37	38	0	2	1,855	1905	2,020	2,093	-2.18	2,048	1.25	2,073
2	Commuter	218	All Purpose Truck	CHEVROLET	SILVERADO 1500 WT	2015	LIGPU	37	38	0	2	1,855	1,905	2,020	2,093	-2.18	2,048	1.25	2,073
3	Commuter	218	All Purpose Truck	CHEVROLET	SILVERADO 1500 WT	2016	LIGPU	37	38	0	1	1,855	1,905	2,020	2,093	-2.18	2,048	1.25	2,073
4	Commuter	218	All Purpose Truck	CHEVROLET	SILVERADO 1500 WT	2017	LIGPU	37	38	0	1	1,855	1,905	2,020	2,093	-2.18	2,048	1.25	2,073
5	Commuter	218	All Purpose Truck	CHEVROLET	SILVERADO 2500 HD HC CREW CAB	2017	CRECA	37	38	0	1	1,855	1,905	2,020	2,093	-2.18	2,048	1.25	2,073

Drift Calculation by Major Class

Row	Description	Notes	Overall	Major Class: Priv Pass	Comm	Public	Motorcycle	Trailer	ORV
[1]	2018/19 Written Premiums	[a]	986,304,184	893,171,487	36,082,358	26,448,834	13,569,983	16,323,142	708,380
[2]	Number of Vehicles	[a]	1,149,140	801,666	46,246	12,690	17,023	200,677	70,838
[3]	2018/19 Average Rate	[a]	858.30	1,114.14	780.23	2,084.23	797.16	81.34	10.00
[4]	Projected Volume Growth	[b]		3.51%	3.51%	3.51%	3.51%	7.43%	7.43%
[5]	2017/18 Actual Volume Growth	[c]		1.44%	1.44%	1.44%	1.44%	2.76%	2.76%
[6]	2018/19 Selected Volume Growth	[c]		1.50%	1.50%	1.50%	1.50%	3.19%	3.19%
[7]	2019/20 Selected Volume Growth	[c]		1.50%	1.50%	1.50%	1.50%	3.17%	3.17%
[8]	Number of Vehicles - Adjusted	[d]	1,200,163	829,842	47,871	13,136	17,621	215,591	76,102
[9]	Projected Drift	[e]	4.73%	5.98%	4.40%	-1.93%	0.85%	4.07%	0.00%
[10]	2017/18 Actual Drift	[f]		2.34%	1.92%	2.96%	0.13%	1.87%	0.00%
[11]	2018/19 Selected Drift	[f]		2.55%	1.85%	-3.27%	0.40%	1.70%	0.00%
[12]	2019/20 Selected Drift	[f]		2.55%	1.85%	0.40%	0.40%	1.70%	0.00%
[13]	2018/19 Average Rate - Adjusted	[g]	898.93	1,180.75	814.52	2,043.94	803.90	84.65	10.00
[14]	2018/19 Written Premiums - Adjusted	[h]	1,078,856,998	979,839,489	38,991,924	26,849,205	14,165,488	18,249,872	761,020
[15]	HTA Drift per Revenue Forecast	[i]	5.82%						
[16]	HTA Drift per Rate Model	[j]	5.63%						
[17]	2018/19 Average Rate	[k]	1,104.43						
[18]	2018/19 Average Rate - Adjusted	[l]	1,166.63						
[19]	Adjust to Revenue Forecast	[m]	1.0018						
[20]	Projected Drift - Adjusted	[n]	4.92%	6.17%	4.59%	-1.75%	1.03%	4.07%	0.00%
[21]	2018/19 Average Rate - Adjusted	[o]	900.53	1,182.90	816.00	2,047.66	805.36	84.65	10.00
[22]	2018/19 Written Premiums - Adjusted	[p]	1,080,784,052	981,621,072	39,062,821	26,898,023	14,191,244	18,249,872	761,020

Notes:

[a] From the Rate Model; based on the population of vehicles as at November 1, 2017; premiums reflect the approved 2018/19 rates

[b] = ((1 + [5]) ^ (4/12) * (1 + [6]) * (1 + [7]))- 1; trended from November 1, 2017 to March 1, 2020

[c] Selected based on historical volume growth for HTA and non-HTA vehicles; See Part V(i), Revenues

[d] = [2] * [4]; Overall = Sum of major classes

[e] = ((1 + [10]) ^ (4/12) * (1 + [11]) * (1 + [12]))- 1; trended from November 1, 2017 to March 1, 2020; Overall = [13] / [3] - 1

[f] Selected based on historical drift for each major class; 2018/19 Selected Drift for the Public major class adjusted to reflect VFH vehicles eligibility for DSR discounts

[g] = [3] * (1 + [9]); Overall = [14] / [8]

[h] = [8] * [13]; Overall = Sum of major classes

[i] = ((1 + 2.40%) ^ (4/12) * (1 + 2.39%) * (1 + 2.54%)) - 1; See Part V(i), Revenues

[j] = ([18] / [17]) - 1

[k] = Sum [1] / Sum [2] for HTA Units

[l] = Sum [14] / Sum [8] for HTA Units

[m] = (1 + [15]) / (1 + [16])

[n] = (1 + [9]) * [19] - 1 for HTA Units; [9] for non-HTA Units; Overall = [21] / [3] - 1

[o] = [3] * (1 + [20]); Overall = [22] / [8]

[p] = [8] * [21]; Overall = Sum of major classes

Appendix 8: SUMMARY OF METHODOLOGY AND ASSUMPTION CHANGES

There were no significant methodology or assumption changes made in the 2019 GRA (from the 2018 GRA).

Table 1
Rating Year 2019/20 Claims Costs
Summary of All Coverages
Figures in $'000

Coverage	Ultimate Claims Costs			Z-Files				Ult Costs incl Z-Files
	Before Discount	After Discount	Effect of Discount	Fiscal Year 2019/20	Fiscal Year 2020/21	Rating Yr 2019/20	Discounted	Discounted
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Income Replacement Indemnity	78,253	68,588	9,665	0	0	0	0	68,588
Normal	77,009	67,570	9,439	0	0	0	0	67,570
Enhancement	1,244	1,018	225	0	0	0	0	1,018
Accident Benefits - Other (Indexed)	70,245	63,702	6,543	35,697	38,053	36,875	36,881	100,583
Normal	64,944	59,037	5,907	35,697	38,053	36,875	36,881	95,919
Enhancement	5,300	4,664	636	0	0	0	0	4,664
Accident Benefits - Other (Non-Indexed)	32,594	30,878	1,715	0	0	0	0	30,878
Normal	31,541	29,908	1,633	0	0	0	0	29,908
Enhancement	1,053	970	82	0	0	0	0	970
Bodily Injury	5,187	4,634	553	0	0	0	0	4,634
Property Damage	49,132	48,524	609	0	0	0	0	48,524
Collision	482,512	479,833	2,680	16,674	16,868	16,771	16,774	496,607
Comprehensive	108,451	107,302	1,149	0	0	0	0	107,302
Total	**826,375**	**803,462**	**22,913**	**52,371**	**54,921**	**53,646**	**53,655**	**857,117**

Notes:
[1] From Table 2, Column 4 or 6, by respective coverage
[2] From Table 2, Column 7 or 9, by respective coverage
[3] = [2] - [1]
[4] & [5]: From Volume 2, Claims Incurred, Exhibit 8
[6] = ([4] + [5]) / 2
[7]: Uniform quarterly payments assumed over two years
[8] = [2] + [7]

Table 2
Rating Year 2019/20 Claims Costs
Income Replacement Indemnity
Figures in $'000

Devt	Undiscounted Paid									Undiscounted Reported		
	Accident Year		Indexation		Rating Year 2019/20		Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	2020/21	Excl Ind	Indexed	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
2019/20	9,754		0.00%		4,631	4,631			4,672	20,053		10,407
Q1	644		0.00%		74	74	3.21%	102.80%	76	2,807		393
Q2	2,078		0.00%		582	582	3.21%	101.99%	593	4,412		1,544
Q3	3,082		0.00%		1,467	1,467	3.21%	101.19%	1,485	6,417		3,786
Q4	3,950		0.00%		2,508	2,508	3.21%	100.40%	2,518	6,417		4,684
2020/21	8,924	9,900	2.00%	0.00%	11,233	11,353			11,184	14,938	20,454	18,801
Q1	3,382	653	2.00%	0.00%	2,997	3,045	3.21%	99.61%	3,033	3,734	2,864	4,703
Q2	2,276	2,109	2.00%	0.00%	3,043	3,073	3.21%	98.82%	3,037	3,734	4,500	5,166
Q3	1,763	3,128	2.00%	0.00%	2,767	2,790	3.21%	98.04%	2,735	3,734	6,545	4,924
Q4	1,504	4,009	2.00%	0.00%	2,426	2,445	3.21%	97.27%	2,378	3,734	6,545	4,008
2021/22	4,777	8,917	4.04%	2.00%	5,755	5,928			5,660	31,769	14,857	25,004
Q1	1,194	3,380	4.04%	2.00%	1,680	1,728	3.21%	96.51%	1,668	7,942	3,714	6,251
Q2	1,194	2,274	4.04%	2.00%	1,467	1,511	3.21%	95.75%	1,447	7,942	3,714	6,251
Q3	1,194	1,761	4.04%	2.00%	1,351	1,392	3.21%	95.00%	1,323	7,942	3,714	6,251
Q4	1,194	1,503	4.04%	2.00%	1,257	1,297	3.21%	94.25%	1,223	7,942	3,714	6,251
2022/23	3,758	4,773	6.12%	4.04%	4,164	4,380	3.21%	92.41%	4,047	3,025	31,598	14,454
2023/24	3,315	3,755	8.24%	6.12%	3,491	3,747	3.21%	89.53%	3,355	2,332	3,009	2,603
2024/25	2,917	3,312	10.41%	8.24%	3,075	3,366	3.21%	86.75%	2,920	1,601	2,319	1,888
2025/26	2,562	2,914	12.62%	10.41%	2,703	3,018	3.21%	84.05%	2,537	0	1,593	637
2026/27	2,331	2,560	14.87%	12.62%	2,423	2,760	3.21%	81.43%	2,247	0	0	0
2027/28	2,134	2,329	17.17%	14.87%	2,212	2,571	3.21%	78.90%	2,028	0	0	0
2028/29	1,982	2,133	19.51%	17.17%	2,043	2,421	3.21%	76.45%	1,851	-82	0	-49
2029/30	2,000	1,981	21.90%	19.51%	1,992	2,410	3.21%	74.07%	1,785	-245	-81	-179
2030/31	1,881	1,998	24.34%	21.90%	1,928	2,378	3.21%	71.77%	1,706	-244	-243	-244
2031/32	1,715	1,879	26.82%	24.34%	1,780	2,239	3.21%	69.53%	1,557	-122	-243	-170
2032/33	1,616	1,713	29.36%	26.82%	1,655	2,123	3.21%	67.37%	1,430	202	-121	73
2033/34	1,453	1,614	31.95%	29.36%	1,518	1,986	3.21%	65.28%	1,296	365	201	300
2034/35	1,472	1,452	34.59%	31.95%	1,464	1,955	3.21%	63.25%	1,237	489	363	439
2035/36	1,387	1,471	37.28%	34.59%	1,421	1,934	3.21%	61.28%	1,185	492	487	490
2036/37	1,372	1,386	40.02%	37.28%	1,378	1,914	3.21%	59.37%	1,136	413	489	443
2037/38	1,269	1,371	42.82%	40.02%	1,310	1,855	3.21%	57.53%	1,067	344	410	371
2038/39	1,170	1,268	45.68%	42.82%	1,209	1,747	3.21%	55.74%	974	287	342	309
Thereafter	19,164	20,318			19,625	36,690			13,695	1,334	1,612	1,445
Total	76,953	77,046			77,009	101,407		66.63%	67,570	76,953	77,046	77,023

Notes:

[2], [3], [11] & [12]: From Volume 2, Claims Incurred, Appendix 1:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	6.60%	21.30%	31.60%	40.50%
Reported	14.00%	22.00%	32.00%	32.00%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	37.90%	25.50%	19.75%	16.85%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4] & [5]: Indexed to the benefit level in the year payment is made

[6]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	11.50%	28.00%	47.60%	63.50%
Second FY	71.50%	67.00%	64.00%	64.00%
After		60.00%		

[7]: {C * [2] * (1 + [4])} + {(1 - C) * [3] * (1 + [5])}; C = Percent of Accident Year losses attributable to the same Rating Year per [6] above

[8]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[9]: Discount from the middle of the period to the end of Rating Year 2019/20

[10] = [7] * [9]

[13]: C * [11] + (1 - C) * [12]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	14.00%	35.00%	59.00%	73.00%
After		60.00%		

Table 2
Rating Year 2019/20 Claims Costs
Accident Benefits - Other (Indexed)
Figures in $'000

Devt	Undiscounted Paid									Undiscounted Reported		
	Accident Year		Indexation		Rating Year 2019/20		Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	2020/21	Excl Ind	Indexed	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
2019/20	15,248		0.00%		6,558	6,558			6,612	57,610		33,254
Q1	686		0.00%		57	57	3.21%	102.80%	58	11,090		1,608
Q2	3,202		0.00%		728	728	3.21%	101.99%	743	13,394		5,492
Q3	4,765		0.00%		1,882	1,882	3.21%	101.19%	1,905	16,275		10,904
Q4	6,595		0.00%		3,891	3,891	3.21%	100.40%	3,906	16,851		15,250
2020/21	12,213	15,786	2.00%	0.00%	17,663	17,837			17,569	2,941	58,977	26,699
Q1	5,191	710	2.00%	0.00%	4,415	4,490	3.21%	99.61%	4,472	735	11,353	10,148
Q2	3,481	3,315	2.00%	0.00%	5,084	5,135	3.21%	98.82%	5,074	735	13,712	8,531
Q3	2,015	4,933	2.00%	0.00%	4,365	4,393	3.21%	98.04%	4,307	735	16,661	5,939
Q4	1,527	6,827	2.00%	0.00%	3,799	3,819	3.21%	97.27%	3,715	735	17,251	2,080
2021/22	3,854	12,260	4.04%	2.00%	5,872	6,036			5,769	645	2,670	1,455
Q1	963	5,210	4.04%	2.00%	2,011	2,063	3.21%	96.51%	1,991	161	668	364
Q2	963	3,494	4.04%	2.00%	1,539	1,581	3.21%	95.75%	1,514	161	668	364
Q3	963	2,023	4.04%	2.00%	1,215	1,251	3.21%	95.00%	1,189	161	668	364
Q4	963	1,532	4.04%	2.00%	1,107	1,141	3.21%	94.25%	1,075	161	668	364
2022/23	2,185	3,868	6.12%	4.04%	2,858	3,001	3.21%	92.41%	2,773	331	586	433
2023/24	1,812	2,193	8.24%	6.12%	1,964	2,107	3.21%	89.53%	1,887	336	300	322
2024/25	1,555	1,819	10.41%	8.24%	1,661	1,818	3.21%	86.75%	1,577	307	305	306
2025/26	1,521	1,561	12.62%	10.41%	1,537	1,717	3.21%	84.05%	1,443	196	279	229
2026/27	1,474	1,527	14.87%	12.62%	1,495	1,703	3.21%	81.43%	1,387	93	178	127
2027/28	1,255	1,479	17.17%	14.87%	1,345	1,562	3.21%	78.90%	1,232	58	84	69
2028/29	1,153	1,260	19.51%	17.17%	1,196	1,417	3.21%	76.45%	1,083	58	53	56
2029/30	1,114	1,157	21.90%	19.51%	1,131	1,368	3.21%	74.07%	1,013	70	53	63
2030/31	1,050	1,118	24.34%	21.90%	1,077	1,328	3.21%	71.77%	953	118	64	96
2031/32	998	1,054	26.82%	24.34%	1,020	1,283	3.21%	69.53%	892	118	107	114
2032/33	798	1,002	29.36%	26.82%	879	1,128	3.21%	67.37%	760	119	107	114
2033/34	730	801	31.95%	29.36%	758	992	3.21%	65.28%	648	119	108	115
2034/35	743	733	34.59%	31.95%	739	987	3.21%	63.25%	624	120	108	115
2035/36	756	746	37.28%	34.59%	752	1,024	3.21%	61.28%	627	121	109	116
2036/37	769	759	40.02%	37.28%	765	1,063	3.21%	59.37%	631	121	109	116
2037/38	783	772	42.82%	40.02%	778	1,103	3.21%	57.53%	635	112	110	111
2038/39	796	786	45.68%	42.82%	792	1,145	3.21%	55.74%	638	104	102	103
Thereafter	13,763	14,615			14,104	24,231			10,284	870	884	876
Total	64,567	65,294			64,944	79,408		74.35%	59,037	64,567	65,294	64,889

Notes:

[2], [3], [11] & [12]: From Volume 2, Claims Incurred, Appendix 2:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	4.50%	21.00%	31.25%	43.25%
Reported	19.25%	23.25%	28.25%	29.25%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	42.50%	28.50%	16.50%	12.50%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4] & [5]: Indexed to the benefit level in the year payment is made

[6]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	8.25%	22.75%	39.50%	59.00%
Second FY	72.50%	72.50%	68.50%	65.50%
After		60.00%		

[7]: {C * [2] * (1 + [4])} + {(1 - C) * [3] * (1 + [5])}; C = Percent of Accident Year losses attributable to the same Rating Year per [6] above

[8]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[9]: Discount from the middle of the period to the end of Rating Year 2019/20

[10] = [7] * [9]

[13]: C * [11] + (1 - C) * [12]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	14.50%	41.00%	67.00%	90.50%
After		60.00%		

Table 2
Rating Year 2019/20 Claims Costs
PIPP Enhancements: Allocated to Income Replacement Indemnity*
Figures in $'000

	Undiscounted Paid									Undiscounted Reported		
Devt	Accident Year		Indexation		Rating Year 2019/20		Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	2020/21	Excl Ind	Indexed	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
2019/20	0		4.04%		0	0			0	0		0
Q1	0		4.04%		0	0	3.21%	102.80%	0	0		0
Q2	0		4.04%		0	0	3.21%	101.99%	0	0		0
Q3	0		4.04%		0	0	3.21%	101.19%	0	0		0
Q4	0		4.04%		0	0	3.21%	100.40%	0	0		0
2020/21	25	0	6.12%	6.12%	15	16			16	327	0	196
Q1	6	0	6.12%	6.12%	4	4	3.21%	99.61%	4	82	0	49
Q2	6	0	6.12%	6.12%	4	4	3.21%	98.82%	4	82	0	49
Q3	6	0	6.12%	6.12%	4	4	3.21%	98.04%	4	82	0	49
Q4	6	0	6.12%	6.12%	4	4	3.21%	97.27%	4	82	0	49
2021/22	25	25	8.24%	8.24%	25	27			26	694	327	547
Q1	6	6	8.24%	8.24%	6	7	3.21%	96.51%	6	174	82	137
Q2	6	6	8.24%	8.24%	6	7	3.21%	95.75%	6	174	82	137
Q3	6	6	8.24%	8.24%	6	7	3.21%	95.00%	6	174	82	137
Q4	6	6	8.24%	8.24%	6	7	3.21%	94.25%	6	174	82	137
2022/23	25	25	10.41%	10.41%	25	27	3.21%	92.41%	25	66	694	317
2023/24	25	25	12.62%	12.62%	25	28	3.21%	89.53%	25	51	66	57
2024/25	25	25	14.87%	14.87%	25	29	3.21%	86.75%	25	35	51	41
2025/26	25	25	17.17%	17.17%	25	29	3.21%	84.05%	24	0	35	14
2026/27	25	25	19.51%	19.51%	25	30	3.21%	81.43%	24	0	0	0
2027/28	25	25	21.90%	21.90%	25	30	3.21%	78.90%	24	0	0	0
2028/29	25	25	24.34%	24.34%	25	31	3.21%	76.45%	24	-2	0	-1
2029/30	26	25	26.82%	26.82%	26	33	3.21%	74.07%	24	-5	-2	-4
2030/31	28	26	29.36%	29.36%	27	35	3.21%	71.77%	25	-5	-5	-5
2031/32	29	28	31.95%	31.95%	29	38	3.21%	69.53%	26	-3	-5	-4
2032/33	30	29	34.59%	34.59%	30	40	3.21%	67.37%	27	4	-3	2
2033/34	31	30	37.28%	37.28%	31	42	3.21%	65.28%	28	8	4	7
2034/35	32	31	40.02%	40.02%	32	44	3.21%	63.25%	28	11	8	10
2035/36	33	32	42.82%	42.82%	33	47	3.21%	61.28%	29	11	11	11
2036/37	33	33	45.68%	45.68%	33	48	3.21%	59.37%	29	9	11	10
2037/38	34	33	48.59%	48.59%	34	50	3.21%	57.53%	29	8	9	8
2038/39	34	34	51.57%	51.57%	34	52	3.21%	55.74%	29	6	8	7
Thereafter	709	743			722	1,399			532	29	35	32
Total	1,244	1,244			1,244	2,075		49.08%	1,018	1,244	1,244	1,244

Notes:
*Include the following PIPP Enhancements - IAW Increase
[2], [3], [11] & [12]: From Volume 2, Claims Incurred, Appendix 1b; Losses for all Fiscal Years assumed uniformly distributed within the year
[4] & [5]: Indexed to the benefit level in the year payment is made
[6]: 60.00% * [2] + (1 - 60.00%) * [3];
Percent of Accident Year losses attributable to the same Rating Year: 60.00%
[7]: {60.00% * [2] * (1 + [4])} + {(1 - 60.00%) * [3] * (1 + [5])};
Percent of Accident Year losses attributable to the same Rating Year: 60.00%
[8]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019
[9]: Discount from the middle of the period to the end of Rating Year 2019/20
[10] = [7] * [9]
[13]: 60.00% * [11] + (1 - 60.00%) * [12];
Percent of Accident Year losses attributable to the same Rating Year: 60.00%

Table 2
Rating Year 2019/20 Claims Costs
PIPP Enhancements: Allocated to Accident Benefits - Other (Indexed)*
Figures in $'000

	Undiscounted Paid									Undiscounted Reported		
Devt	Accident Year		Indexation		Rating Year 2019/20		Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	2020/21	Excl Ind	Indexed	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
2019/20	0		4.04%		0	0			0	1,000		600
Q1	0		4.04%		0	0	3.21%	102.80%	0	250		150
Q2	0		4.04%		0	0	3.21%	101.99%	0	250		150
Q3	0		4.04%		0	0	3.21%	101.19%	0	250		150
Q4	0		4.04%		0	0	3.21%	100.40%	0	250		150
2020/21	248	0	6.12%	6.12%	149	158			155	1,623	1,000	1,374
Q1	62	0	6.12%	6.12%	37	39	3.21%	99.61%	39	406	250	343
Q2	62	0	6.12%	6.12%	37	39	3.21%	98.82%	39	406	250	343
Q3	62	0	6.12%	6.12%	37	39	3.21%	98.04%	39	406	250	343
Q4	62	0	6.12%	6.12%	37	39	3.21%	97.27%	38	406	250	343
2021/22	248	248	8.24%	8.24%	248	268			256	539	1,623	973
Q1	62	62	8.24%	8.24%	62	67	3.21%	96.51%	65	135	406	243
Q2	62	62	8.24%	8.24%	62	67	3.21%	95.75%	64	135	406	243
Q3	62	62	8.24%	8.24%	62	67	3.21%	95.00%	64	135	406	243
Q4	62	62	8.24%	8.24%	62	67	3.21%	94.25%	63	135	406	243
2022/23	248	248	10.41%	10.41%	248	274	3.21%	92.41%	253	232	539	354
2023/24	248	248	12.62%	12.62%	248	279	3.21%	89.53%	250	133	232	173
2024/25	248	248	14.87%	14.87%	248	285	3.21%	86.75%	247	123	133	127
2025/26	248	248	17.17%	17.17%	248	290	3.21%	84.05%	244	85	123	101
2026/27	248	248	19.51%	19.51%	248	296	3.21%	81.43%	241	50	85	64
2027/28	248	248	21.90%	21.90%	248	302	3.21%	78.90%	238	38	50	43
2028/29	248	248	24.34%	24.34%	248	308	3.21%	76.45%	236	38	38	38
2029/30	252	248	26.82%	26.82%	250	317	3.21%	74.07%	235	44	38	42
2030/31	255	252	29.36%	29.36%	254	329	3.21%	71.77%	236	61	44	54
2031/32	77	255	31.95%	31.95%	148	196	3.21%	69.53%	136	62	61	61
2032/33	80	77	34.59%	34.59%	79	106	3.21%	67.37%	71	63	62	63
2033/34	83	80	37.28%	37.28%	82	112	3.21%	65.28%	73	64	63	64
2034/35	85	83	40.02%	40.02%	84	118	3.21%	63.25%	75	65	64	64
2035/36	87	85	42.82%	42.82%	86	123	3.21%	61.28%	76	66	65	65
2036/37	89	87	45.68%	45.68%	88	129	3.21%	59.37%	76	66	66	66
2037/38	90	89	48.59%	48.59%	90	133	3.21%	57.53%	77	64	66	65
2038/39	91	90	51.57%	51.57%	91	138	3.21%	55.74%	77	61	64	62
Thereafter	1,880	1,971			1,917	3,712			1,413	824	884	848
Total	5,300	5,300			5,300	7,873		59.24%	4,664	5,300	5,300	5,300

Notes:
*Include the following PIPP Enhancements - Max PC Increase, Change to Vehicle Purchase Policy, Section 138 Enhancements, Annual Spending Allowance, Death Benefits and Caregiver Death Benefit
[2], [3], [11] & [12]: From Volume 2, Claims Incurred, Appendices 2b to 2g; Losses for all Fiscal Years assumed uniformly distributed within the year
[4] & [5]: Indexed to the benefit level in the year payment is made
[6]: 60.00% * [2] + (1 - 60.00%) * [3];
Percent of Accident Year losses attributable to the same Rating Year: 60.00%
[7]: {60.00% * [2] * (1 + [4])} + {(1 - 60.00%) * [3] * (1 + [5])};
Percent of Accident Year losses attributable to the same Rating Year: 60.00%
[8]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019
[9]: Discount from the middle of the period to the end of Rating Year 2019/20
[10] = [7] * [9]
[13]: 60.00% * [11] + (1 - 60.00%) * [12];
Percent of Accident Year losses attributable to the same Rating Year: 60.00%

Table 2
Rating Year 2019/20 Claims Costs
Accident Benefits - Other (Non-Indexed)
Figures in $'000

Devt	Undiscounted Paid						Undiscounted Reported		
	Accident Year		Rating Yr	Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	8,077		4,069			4,104	20,227		11,491
Q1	222		33	3.21%	102.80%	34	2,528		531
Q2	1,777		444	3.21%	101.99%	453	5,664		2,209
Q3	2,867		1,376	3.21%	101.19%	1,393	6,574		4,273
Q4	3,211		2,215	3.21%	100.40%	2,224	5,461		4,478
2020/21	10,038	8,198	10,157			9,994	6,568	20,632	12,786
Q1	2,811	225	2,089	3.21%	99.61%	2,081	1,642	2,579	3,006
Q2	2,409	1,804	2,750	3.21%	98.82%	2,718	1,642	5,777	4,493
Q3	2,409	2,910	2,911	3.21%	98.04%	2,854	1,642	6,705	3,316
Q4	2,409	3,259	2,408	3.21%	97.27%	2,342	1,642	5,571	1,972
2021/22	7,480	10,178	8,418			8,027	2,817	6,593	4,365
Q1	1,870	2,850	2,030	3.21%	96.51%	1,959	704	1,648	1,091
Q2	1,870	2,443	2,129	3.21%	95.75%	2,039	704	1,648	1,091
Q3	1,870	2,443	2,129	3.21%	95.00%	2,023	704	1,648	1,091
Q4	1,870	2,443	2,129	3.21%	94.25%	2,007	704	1,648	1,091
2022/23	2,235	7,585	4,429	3.21%	92.41%	4,092	689	2,828	1,566
2023/24	1,064	2,267	1,557	3.21%	89.53%	1,394	360	692	496
2024/25	560	1,079	773	3.21%	86.75%	671	127	362	223
2025/26	418	568	480	3.21%	84.05%	403	64	127	90
2026/27	368	424	391	3.21%	81.43%	319	64	64	64
2027/28	201	373	271	3.21%	78.90%	214	64	64	64
2028/29	144	204	169	3.21%	76.45%	129	64	64	64
2029/30	131	146	137	3.21%	74.07%	102	64	64	64
2030/31	117	132	123	3.21%	71.77%	88	64	64	64
2031/32	117	118	118	3.21%	69.53%	82	64	64	64
2032/33	118	119	118	3.21%	67.37%	80	65	65	65
2033/34	118	119	119	3.21%	65.28%	77	48	65	55
Thereafter	163	285	213			132	0	49	20
Total	31,350	31,796	31,541		94.82%	29,908	31,350	31,796	31,542

Notes:

[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 3:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	2.75%	22.00%	35.50%	39.75%
Reported	12.50%	28.00%	32.50%	27.00%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	28.00%	24.00%	24.00%	24.00%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	15.00%	25.00%	48.00%	69.00%
Second FY	67.50%	58.00%	58.00%	58.00%
After		59.00%		

[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[6]: Discount from the middle of the period to the end of Rating Year 2019/20

[7] = [4] * [6]

[10]: C * [8] + (1 - C) * [9]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	21.00%	39.00%	65.00%	82.00%
After		59.00%		

Table 2
Rating Year 2019/20 Claims Costs
Bodily Injury
Figures in $'000

Devt	Undiscounted Paid Accident Year		Rating Yr	Interest	Discount	Discounted	Undiscounted Reported Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	113		49			49	2,877		1,476
Q1	2		0	3.21%	102.80%	0	460		46
Q2	7		2	3.21%	101.99%	2	748		262
Q3	42		16	3.21%	101.19%	16	834		459
Q4	62		31	3.21%	100.40%	31	834		709
2020/21	744	115	512			502	436	2,916	1,682
Q1	89	2	56	3.21%	99.61%	55	109	467	485
Q2	208	7	131	3.21%	98.82%	129	109	758	558
Q3	197	42	145	3.21%	98.04%	142	109	846	446
Q4	249	63	181	3.21%	97.27%	176	109	846	192
2021/22	867	754	821			783	702	442	598
Q1	217	90	166	3.21%	96.51%	160	175	111	149
Q2	217	211	214	3.21%	95.75%	205	175	111	149
Q3	217	200	210	3.21%	95.00%	199	175	111	149
Q4	217	252	231	3.21%	94.25%	218	175	111	149
2022/23	930	878	909	3.21%	92.41%	840	384	711	515
2023/24	831	942	876	3.21%	89.53%	784	348	389	365
2024/25	575	842	682	3.21%	86.75%	592	231	353	280
2025/26	538	583	556	3.21%	84.05%	467	131	234	172
2026/27	278	545	385	3.21%	81.43%	313	40	133	77
2027/28	125	281	187	3.21%	78.90%	148	6	41	20
2028/29	77	126	96	3.21%	76.45%	74	3	6	4
2029/30	57	78	65	3.21%	74.07%	48		3	1
2030/31	13	58	31	3.21%	71.77%	22			0
2031/32	11	13	12	3.21%	69.53%	8			0
2032/33	3	11	6	3.21%	67.37%	4			0
2033/34		3	1	3.21%	65.28%	1			0
Thereafter	0	0	0			0	0	0	0
Total	5,159	5,229	5,187		89.34%	4,634	5,159	5,229	5,190

Notes:

[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 4:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	2.00%	6.50%	37.00%	54.50%
Reported	16.00%	26.00%	29.00%	29.00%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	12.00%	28.00%	26.50%	33.50%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	12.50%	25.00%	37.50%	50.00%
Second FY	60.00%	60.00%	60.00%	60.00%
After		60.00%		

[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[6]: Discount from the middle of the period to the end of Rating Year 2019/20

[7] = [4] * [6]

[10]: C * [8] + (1 - C) * [9]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	10.00%	35.00%	55.00%	85.00%
After		60.00%		

Table 2
Rating Year 2019/20 Claims Costs
Property Damage
Figures in $'000

Devt	Undiscounted Paid Accident Year		Rating Yr	Interest	Discount	Discounted	Undiscounted Reported Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	27,456		13,130			13,250	39,550		22,527
Q1	2,471		284	3.21%	102.80%	292	7,198		1,181
Q2	6,507		1,822	3.21%	101.99%	1,858	8,899		3,671
Q3	8,319		4,035	3.21%	101.19%	4,083	10,204		6,480
Q4	10,159		6,989	3.21%	100.40%	7,017	13,249		11,196
2020/21	17,855	28,411	29,043			28,677	7,539	40,926	22,177
Q1	10,713	2,557	11,074	3.21%	99.61%	11,031	1,885	7,448	7,367
Q2	3,928	6,733	7,912	3.21%	98.82%	7,819	1,885	9,208	6,550
Q3	1,964	8,609	5,877	3.21%	98.04%	5,762	1,885	10,559	4,994
Q4	1,250	10,512	4,180	3.21%	97.27%	4,066	1,885	13,710	3,265
2021/22	2,579	18,475	5,323			5,096	1,254	7,802	3,840
Q1	645	11,085	2,358	3.21%	96.51%	2,275	313	1,950	960
Q2	645	4,065	1,284	3.21%	95.75%	1,230	313	1,950	960
Q3	645	2,032	929	3.21%	95.00%	882	313	1,950	960
Q4	645	1,293	752	3.21%	94.25%	709	313	1,950	960
2022/23	406	2,668	1,300	3.21%	92.41%	1,201	145	1,298	600
2023/24	145	420	254	3.21%	89.53%	227	73	150	103
2024/25	24	150	74	3.21%	86.75%	64	0	75	30
2025/26		25	10	3.21%	84.05%	8	-24	0	-15
2026/27			0	3.21%	81.43%	0	-24	-25	-25
2027/28			0	3.21%	78.90%	0	-24	-25	-25
2028/29			0	3.21%	76.45%	0	-24	-25	-25
2029/30			0	3.21%	74.07%	0		-25	-10
2030/31			0	3.21%	71.77%	0			0
2031/32			0	3.21%	69.53%	0			0
2032/33			0	3.21%	67.37%	0			0
2033/34			0	3.21%	65.28%	0			0
Thereafter	0	0	0			0	0	0	0
Total	48,465	50,150	49,132		98.76%	48,524	48,465	50,150	49,179

Notes:

[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 7:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	9.00%	23.70%	30.30%	37.00%
Reported	18.20%	22.50%	25.80%	33.50%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	60.00%	22.00%	11.00%	7.00%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	11.50%	28.00%	48.50%	68.80%
Second FY	82.25%	78.00%	73.50%	72.00%
After		60.50%		

[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[6]: Discount from the middle of the period to the end of Rating Year 2019/20

[7] = [4] * [6]

[10]: C * [8] + (1 - C) * [9]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	16.40%	41.25%	63.50%	84.50%
After		60.50%		

Table 2
Rating Year 2019/20 Claims Costs
Collision
Figures in $'000

Devt	Undiscounted Paid Accident Year		Rating Yr	Interest	Discount	Discounted	Undiscounted Reported Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	356,366		186,294			188,009	447,472		265,681
Q1	43,120		5,282	3.21%	102.80%	5,430	91,732		15,136
Q2	82,855		25,892	3.21%	101.99%	26,409	93,969		41,346
Q3	100,139		54,826	3.21%	101.19%	55,479	115,224		79,505
Q4	130,252		100,294	3.21%	100.40%	100,691	146,547		129,694
2020/21	105,591	381,554	272,911			269,636	16,189	479,100	204,435
Q1	81,305	46,168	112,264	3.21%	99.61%	111,822	4,047	98,215	84,459
Q2	15,469	88,711	73,519	3.21%	98.82%	72,653	4,047	100,611	58,791
Q3	6,019	107,217	53,030	3.21%	98.04%	51,993	4,047	123,368	40,693
Q4	2,798	139,458	34,098	3.21%	97.27%	33,169	4,047	156,905	20,493
2021/22	5,680	113,054	19,252			18,474	4,178	17,334	9,375
Q1	1,420	87,052	11,088	3.21%	96.51%	10,700	1,045	4,333	2,344
Q2	1,420	16,562	4,006	3.21%	95.75%	3,836	1,045	4,333	2,344
Q3	1,420	6,444	2,470	3.21%	95.00%	2,346	1,045	4,333	2,344
Q4	1,420	2,996	1,689	3.21%	94.25%	1,592	1,045	4,333	2,344
2022/23	1,148	6,081	3,096	3.21%	92.41%	2,861	936	4,473	2,333
2023/24	460	1,229	764	3.21%	89.53%	684	469	1,002	679
2024/25		493	195	3.21%	86.75%	169		502	198
2025/26			0	3.21%	84.05%	0			0
2026/27			0	3.21%	81.43%	0			0
2027/28			0	3.21%	78.90%	0			0
2028/29			0	3.21%	76.45%	0			0
2029/30			0	3.21%	74.07%	0			0
2030/31			0	3.21%	71.77%	0			0
2031/32			0	3.21%	69.53%	0			0
2032/33			0	3.21%	67.37%	0			0
2033/34			0	3.21%	65.28%	0			0
Thereafter	0	0	0			0	0	0	0
Total	469,244	502,411	482,512		99.44%	479,833	469,244	502,411	482,701

Notes:

[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 5:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	12.10%	23.25%	28.10%	36.55%
Reported	20.50%	21.00%	25.75%	32.75%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	77.00%	14.65%	5.70%	2.65%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	12.25%	31.25%	54.75%	77.00%
Second FY	88.25%	81.00%	75.00%	72.30%
After		60.50%		

[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[6]: Discount from the middle of the period to the end of Rating Year 2019/20

[7] = [4] * [6]

[10]: C * [8] + (1 - C) * [9]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	16.50%	44.00%	69.00%	88.50%
After		60.50%		

Table 2
Rating Year 2019/20 Claims Costs
Comprehensive
Figures in $'000

Devt	Undiscounted Paid						Undiscounted Reported		
	Accident Year		Rating Yr	Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	78,246		35,498			35,888	96,355		46,008
Q1	6,338		840	3.21%	102.80%	863	13,249		2,252
Q2	21,752		7,015	3.21%	101.99%	7,155	43,601		17,222
Q3	30,203		14,724	3.21%	101.19%	14,899	28,184		16,910
Q4	19,953		12,919	3.21%	100.40%	12,970	11,322		9,623
2020/21	22,762	82,825	59,802			58,947	7,375	101,993	56,980
Q1	12,804	6,709	14,911	3.21%	99.61%	14,852	1,844	14,024	12,562
Q2	5,406	23,025	18,681	3.21%	98.82%	18,461	1,844	46,152	28,844
Q3	2,959	31,970	17,953	3.21%	98.04%	17,602	1,844	29,833	12,855
Q4	1,593	21,120	8,258	3.21%	97.27%	8,032	1,844	11,984	2,720
2021/22	3,360	24,095	10,370			9,929	1,455	7,807	4,631
Q1	840	13,553	4,350	3.21%	96.51%	4,199	364	1,952	1,158
Q2	840	5,722	2,881	3.21%	95.75%	2,758	364	1,952	1,158
Q3	840	3,132	1,892	3.21%	95.00%	1,798	364	1,952	1,158
Q4	840	1,687	1,246	3.21%	94.25%	1,175	364	1,952	1,158
2022/23	594	3,557	2,075	3.21%	92.41%	1,918	158	1,540	849
2023/24	217	629	423	3.21%	89.53%	379		167	84
2024/25	109	230	169	3.21%	86.75%	147			0
2025/26	54	115	85	3.21%	84.05%	71			0
2026/27		58	29	3.21%	81.43%	23			0
2027/28			0	3.21%	78.90%	0			0
2028/29			0	3.21%	76.45%	0			0
2029/30			0	3.21%	74.07%	0			0
2030/31			0	3.21%	71.77%	0			0
2031/32			0	3.21%	69.53%	0			0
2032/33			0	3.21%	67.37%	0			0
2033/34			0	3.21%	65.28%	0			0
Thereafter	0	0	0			0	0	0	0
Total	105,343	111,507	108,451		98.94%	107,302	105,343	111,507	108,552

Notes:

[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 6:

Proportion of first Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	8.10%	27.80%	38.60%	25.50%
Reported	13.75%	45.25%	29.25%	11.75%

Proportion of second Fiscal Year losses by Quarter:

	Q1	Q2	Q3	Q4
Paid	56.25%	23.75%	13.00%	7.00%

Losses for all other Fiscal Years assumed uniformly distributed within the year

[4]: C * [2] + (1 - C) * [3]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	13.25%	32.25%	48.75%	64.75%
Second FY	71.00%	57.00%	53.00%	51.00%
After		50.00%		

[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[6]: Discount from the middle of the period to the end of Rating Year 2019/20

[7] = [4] * [6]

[10]: C * [8] + (1 - C) * [9]; C = Percent of Accident Year losses attributable to the same Rating Year:

	Q1	Q2	Q3	Q4
First FY	17.00%	39.50%	60.00%	85.00%
After		50.00%		

Table 2
Rating Year 2019/20 Claims Costs
PIPP Enhancements: Allocated to Accident Benefits - Other (Non-Indexed)*
Figures in $'000

	Undiscounted Paid						Undiscounted Reported		
Devt	Accident Year		Rating Yr	Interest	Discount	Discounted	Accident Year		Rating Yr
Year	2019/20	2020/21	2019/20	Rate	Factor	Paid	2019/20	2020/21	2019/20
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2019/20	0		0			0	0		0
Q1	0		0	3.21%	102.80%	0	0		0
Q2	0		0	3.21%	101.99%	0	0		0
Q3	0		0	3.21%	101.19%	0	0		0
Q4	0		0	3.21%	100.40%	0	0		0
2020/21	263	0	155			153	263	0	155
Q1	66	0	39	3.21%	99.61%	39	66	0	39
Q2	66	0	39	3.21%	98.82%	38	66	0	39
Q3	66	0	39	3.21%	98.04%	38	66	0	39
Q4	66	0	39	3.21%	97.27%	38	66	0	39
2021/22	263	263	263			251	263	263	263
Q1	66	66	66	3.21%	96.51%	63	66	66	66
Q2	66	66	66	3.21%	95.75%	63	66	66	66
Q3	66	66	66	3.21%	95.00%	62	66	66	66
Q4	66	66	66	3.21%	94.25%	62	66	66	66
2022/23	263	263	263	3.21%	92.41%	243	263	263	263
2023/24	105	263	170	3.21%	89.53%	152	105	263	170
2024/25	105	105	105	3.21%	86.75%	91	105	105	105
2025/26	53	105	74	3.21%	84.05%	62	53	105	74
2026/27		53	22	3.21%	81.43%	18		53	22
2027/28			0	3.21%	78.90%	0			0
2028/29			0	3.21%	76.45%	0			0
2029/30			0	3.21%	74.07%	0			0
2030/31			0	3.21%	71.77%	0			0
2031/32			0	3.21%	69.53%	0			0
2032/33			0	3.21%	67.37%	0			0
2033/34			0	3.21%	65.28%	0			0
Thereafter	0	0	0			0	0	0	0
Total	1,053	1,053	1,053		92.19%	970	1,053	1,053	1,053

Notes:
*Include the following PIPP Enhancements - PI Increase
[2], [3], [8] & [9]: From Volume 2, Claims Incurred, Appendix 3b; Losses for all
Fiscal Years assumed uniformly distributed within the year
[4]: 59.00% * [2] + (1 - 59.00%) * [3];
Percent of Accident Year losses attributable to the same Rating Year: 59.00%
[5]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019
[6]: Discount from the middle of the period to the end of Rating Year 2019/20
[7] = [4] * [6]
[10]: 59.00% * [8] + (1 - 59.00%) * [9];
Percent of Accident Year losses attributable to the same Rating Year: 59.00%

Table 3
Rating Year 2019/20 Claims Expenses
Figures in $'000

Coverage	Paid Claims for Fiscal Year 2019/20	2020/21	2021/22	2022/23	Total
	[1]	[2]	[3]	[4]	[5]
Bodily Injury	4,820	5,019	5,071	5,137	20,047
Property Damage	47,486	49,249	51,002	52,806	200,543
Collision	461,018	493,782	528,769	566,291	2,049,859
Comprehensive	102,617	109,485	115,988	122,736	450,825
Income Replacement Indemnity [a]	63,105	64,001	64,952	65,915	257,973
Accident Benefits - Other (Indexed) [a]	55,673	56,915	58,522	60,196	231,306
Accident Benefits - Other (Non-Indexed) [a]	30,654	30,830	31,301	31,829	124,615
Total All Coverages	765,374	809,280	855,604	904,910	3,335,169
Claims Expenses [b]	135,428	139,258	144,385	146,834	565,905
Claims Expenses Ratio [c]	17.69%	17.21%	16.88%	16.23%	16.97%
Rating Year 2019/20 Undiscounted Paid [a, d]	250,230	401,321	55,810	111,417	818,778
Rating Year 2019/20 Undiscounted Claims Expense [e]	44,277	69,058	9,418	18,079	140,831
Implied Claims Expense Ratio					17.20%
Rating Year 2019/20 Undiscounted Paid [a, d]	250,230	401,321	55,810	111,417	818,778
Rating Year 2019/20 Undiscounted Incurred [a, f]	390,844	343,561	49,268	35,402	819,076
Rating Year 2019/20 Undiscounted Claims Expense [g]	56,717	64,088	8,866	11,912	141,583
Implied Claims Expense Ratio					17.29%
Selected Claims Expenses Ratio					17.25%
Rating Year 2019/20 Undiscounted Claims Expense [h]					141,239
Rating Year 2019/20 Discounted Paid [a, i]					796,809
Discount Factor [j]					97.32%
Rating Year 2019/20 Discounted Claims Expense [k]					137,449

Notes:
[1] to [4]: From Volume 2, Claims Incurred, Appendices 1 to 7; represents the total for all Accident Years
[a]: Exclude PIPP Enhancements
[b]: From Volume 2, Pro Formas
[c]: Claims Expenses / Total All Coverages
[d]: From Table 2, Column 6 for indexed coverages and Column 4 for non-indexed coverage; total all coverages; 2022/23: Includes all payments for 2022/23 and thereafter
[e]: Claims Expenses Ratio * Rating Year 2019/20 Undiscounted Paid by respective fiscal years; Total = Sum of all fiscal years
[f]: From Table 2, Column 13 for indexed coverages and Column 10 for non-indexed coverage; total all coverages; 2022/23: Includes all incurred for 2022/23 and thereafter
[g]: Claims Expenses Ratio * (Rating Year 2019/20 Undiscounted Paid + Rating Year 2019/20 Undiscounted Incurred) / 2 by respective fiscal years; Total = Sum of all fiscal years
[h]: Selected Claims Expenses Ratio * Rating Year 2019/20 Total Undiscounted Paid
[i]: From Table 1, Column 2
[j]: Rating Year 2019/20 Discounted Paid / Rating Year 2019/20 Undiscounted Paid
[k]: Rating Year 2019/20 Undiscounted Claims Expense * Discount Factor

Table 4
Rating Year 2019/20 Non-Claims Costs and Other Income Sources
Figures in $'000

Devt Year	Road Safety/ Loss Prevention	Operating Expenses	Regulatory/ Appeal	Commission Flat Fee	Reinsurance Casualty	Reinsurance Catastrophe
	[1]	[2]	[3]	[4]	[5]	[6]
2019/20	6,379	62,475	2,460	6,723	1,055	4,712
Q1	1,595	13,276	615	1,681	264	1,178
Q2	1,595	14,838	615	1,681	264	1,178
Q3	1,595	16,400	615	1,681	264	1,178
Q4	1,595	17,962	615	1,681	264	1,178
2020/21	6,379	12,495	2,460		1,055	4,712
Q1	1,595	5,467	615		264	1,178
Q2	1,595	3,905	615		264	1,178
Q3	1,595	2,343	615		264	1,178
Q4	1,595	781	615		264	1,178
Total	12,758	74,970	4,919	6,723	2,110	9,425
Total Disc [a]	12,760	75,770	4,920	6,830	2,110	9,426

Devt Year	Fleet Rebates	Anti-Theft Discount	Driver Premium	Service Fees & Other Rev	Interest Rate	Discount Factor
	[7]	[8]	[9]	[10]	[11]	[12]
2019/20		2,367	70,903	13,140		
Q1		592	17,726	821	3.21%	102.80%
Q2		592	17,726	2,464	3.21%	101.99%
Q3		592	17,726	4,106	3.21%	101.19%
Q4		592	17,726	5,749	3.21%	100.40%
2020/21	16,150			13,140		
Q1	4,038			5,749	3.21%	99.61%
Q2	4,038			4,106	3.21%	98.82%
Q3	4,038			2,464	3.21%	98.04%
Q4	4,038			821	3.21%	97.27%
Total	16,150	2,367	70,903	26,280		
Total Disc [a]	15,898	2,405	72,035	26,282		

Notes

[1], [3] to [6], [8], [9]: Total allocated uniformly by quarters

[2]: Total allocated as follows:

67% of Total allocated uniformly by quarters in Devt Year 2019/20

33% of Total allocated by quarters as follows - 1/32, 3/32, 5/32, 7/32, 7/32, 5/32, 3/32, 1/32

[7]: Total allocated uniformly by quarters in the subsequent Devt Year since rebates are evaluated only at the end of the policy period

[10]: Total allocated by quarters as follows - 1/32, 3/32, 5/32, 7/32, 7/32, 5/32, 3/32, 1/32

[11]: Based on the interest rate of the marketable bonds portfolio as at September 1, 2019

[12]: Discount from the middle of the period to the end of Rating Year 2019/20

[a]: Sumproduct of the respective column with [12]

TABLE 5
Basic Program
Ratio of Commisions to Vehicle Premium ('000)

Insurance Year	Basic Vehicle Direct Premium	Driver Premium	Commissions MPI	Commissions DVL	Commissions Total	Percent
03/04	526,927	0	24,328	5,178	29,506	5.60%
04/05	560,950	0	29,399	2,639	32,038	5.71%
05/06	594,995	0	33,747	0	33,747	5.67%
06/07	618,391	0	34,963	0	34,963	5.65%
07/08	642,661	0	36,702	0	36,702	5.71%
08/09	670,960	0	38,908	0	38,908	5.80%
09/10	702,641	37,240	44,584	0	44,584	6.03%
10/11	728,893	31,055	46,016	0	46,016	6.06%
11/12	748,948	24,037	41,033	0	41,033	5.31%
12/13	739,650	29,301	37,543	0	37,543	4.88%
13/14	741,077	37,015	32,058	0	32,058	4.12%
14/15	774,785	42,926	32,845	0	32,845	4.02%
15/16	827,701	45,787	33,862	0	33,862	3.88%
16/17	871,173	47,606	35,086	0	35,086	3.82%
17/18	922,617	48,819	37,378	0	37,378	3.85%
Total	**10,672,369**	**343,786**	**538,452**	**7,817**	**546,269**	**4.96%**

Commissions charged on both vehicle and driver premiums for 09/10 and after

TABLE 6
Basic Program
Operating Expense Per Premium Dollar & Per Unit

Insurance Year	Basic Vehicle Direct Premium	Number of Units	Operating Expenses*	Operating Expenses as a % of Premium	Cost per Unit
03/04	526,927,000	818,402	46,613,000	8.85%	56.96
04/05	560,950,000	834,575	44,962,000	8.02%	53.87
05/06	594,995,000	853,249	48,329,000	8.12%	56.64
06/07	618,391,000	870,765	49,621,000	8.02%	56.99
07/08	642,661,000	898,408	53,596,000	8.34%	59.66
08/09	670,960,000	930,077	53,972,000	8.04%	58.03
09/10	702,641,000	951,585	71,421,000	10.16%	75.05
10/11	728,893,000	974,710	73,405,000	10.07%	75.31
11/12	748,948,000	1,006,628	81,350,000	10.86%	80.81
12/13	739,650,000	1,041,452	81,913,000	11.07%	78.65
13/14	741,077,000	1,064,070	84,563,000	11.41%	79.47
14/15	774,785,000	1,083,485	89,577,000	11.56%	82.67
15/16	827,701,000	1,102,850	88,343,000	10.67%	80.10
16/17	871,173,000	1,125,119	90,204,000	10.35%	80.17
17/18	922,617,000	1,144,797	87,790,000	9.52%	76.69
Total	**10,672,369,000**	**14,700,172**	**1,045,659,000**	**9.80%**	**71.13**

*Include Operating Expenses, Road Safety/Loss Prevention & Regulatory/Appeal

TABLE 7
Basic Program
Fleet Rebates & Surcharges ('000)

Insurance Year	Rebate	Surcharge	Net Rebate
03/04	6,981	1,454	5,527
04/05	8,463	1,303	7,160
05/06	7,616	1,203	6,413
06/07	8,985	1,249	7,736
07/08	9,625	1,598	8,027
08/09	11,584	1,744	9,840
09/10	11,161	1,574	9,587
10/11	11,565	1,417	10,148
11/12	11,578	1,800	9,778
12/13	12,322	1,634	10,688
13/14	14,031	2,101	11,930
14/15	14,545	2,243	12,302
15/16	15,513	1,992	13,521
16/17	16,041	2,637	13,404
17/18	16,396	2,529	13,867
Total	**176,406**	**26,478**	**149,928**

TABLE 8
Pure Premium Trend - Other Than PIPP

Accident Year	Number of HTA Units	Ultimate Incurred Claims [a] Bodily Injury	Property Damage	Collision	Compre-hensive [b]	Pure Premium [c] Bodily Injury	Property Damage	Collision	Compre-hensive
03/04	694,822	3,948,825	29,560,254	193,942,241	53,146,625	5.68	42.54	279.13	76.49
04/05	703,612	5,196,113	29,615,902	201,613,487	62,357,193	7.38	42.09	286.54	88.62
05/06	713,135	4,228,384	30,292,461	203,057,140	70,855,677	5.93	42.48	284.74	99.36
06/07	721,357	3,565,354	33,573,906	224,450,981	74,850,455	4.94	46.54	311.15	103.76
07/08	735,221	3,750,571	34,290,412	233,082,532	68,179,230	5.10	46.64	317.02	92.73
08/09	751,933	2,431,307	36,015,471	241,749,701	49,808,681	3.23	47.90	321.50	66.24
09/10	763,245	3,478,656	34,936,505	242,510,330	48,350,895	4.56	45.77	317.74	63.35
10/11	774,765	4,444,334	37,336,977	271,183,893	74,821,225	5.74	48.19	350.02	96.57
11/12	791,384	2,593,131	37,474,834	273,138,888	60,256,735	3.28	47.35	345.14	76.14
12/13	811,247	3,803,988	41,769,959	310,634,003	72,605,783	4.69	51.49	382.91	89.50
13/14	822,677	4,099,560	45,594,487	349,214,518	74,802,353	4.98	55.42	424.49	90.93
14/15	834,238	5,951,555	41,004,426	317,797,427	70,978,525	7.13	49.15	380.94	85.08
15/16	847,108	5,054,343	41,202,917	352,355,400	120,098,845	5.97	48.64	415.95	141.78
16/17	860,978	5,555,168	43,651,870	386,122,861	119,093,086	6.45	50.70	448.47	138.32
17/18	873,374	5,623,864	46,444,585	414,398,063	73,677,505	6.44	53.18	474.48	84.36
Indicated Exponential Trend - All Years									
	1.72%	2.42%	3.28%	5.58%	3.58%	0.68%	1.54%	3.79%	1.83%
R-Squared Statistic - All Years									
	0.9969	0.1625	0.9175	0.9717	0.3623	0.0155	0.7208	0.9438	0.1299
Indicated Exponential Trend - Most Recent 10 Years									
	1.72%	8.88%	2.89%	6.24%	8.01%	7.04%	1.15%	4.45%	6.19%
R-Squared Statistic - Most Recent 10 Years									
	0.9950	0.6658	0.7605	0.9455	0.5823	0.5580	0.3589	0.9041	0.4588
Selected Trend - Prior Year						0.00%	1.75%	4.25%	3.00%
Selected Trend - Current Year [d, e]						**0.75%**	**1.75%**	**4.50%**	**2.00%**

[a] Per the Appointed Actuary's Report as at February 28, 2018

[b] Excludes the amounts for major catastrophes

[c] Ultimate Incurred Claims / Number of HTA Units by respective coverage

[d] Based on the 'Indicated Exponential Trend' by respective coverage rounded up to the nearest 0.25%; minimum 0.00%

[e] Based on the 'Indicated Exponential Trend - All Years' for Bodily Injury, Property Damage and Comprehensive; based on the 'Indicated Exponential Trend - Most Recent 10 Years' for Collision

TABLE 8
Pure Premium Trend - PIPP

Accident Year	Number of HTA Units	Ultimate Incurred Claims [a] IRI	ABO (Indexed)	ABO (Non-Ind)	Pure Premium [b] IRI	ABO (Indexed)	ABO (Non-Ind)
03/04	694,822	53,896,468	51,939,817	25,325,159	77.57	74.75	36.45
04/05	703,612	47,701,952	59,286,591	24,780,662	67.80	84.26	35.22
05/06	713,135	58,645,833	51,077,306	28,927,617	82.24	71.62	40.56
06/07	721,357	74,567,228	67,600,443	34,070,008	103.37	93.71	47.23
07/08	735,221	72,882,225	67,277,675	30,183,056	99.13	91.51	41.05
08/09	751,933	70,770,999	55,127,303	29,155,300	94.12	73.31	38.77
09/10	763,245	66,966,080	60,171,226	29,986,752	87.74	78.84	39.29
10/11	774,765	85,538,661	54,165,546	28,605,447	110.41	69.91	36.92
11/12	791,384	82,795,037	61,460,416	32,031,892	104.62	77.66	40.48
12/13	811,247	93,615,498	63,565,315	30,276,871	115.40	78.36	37.32
13/14	822,677	78,635,664	55,811,492	27,596,135	95.59	67.84	33.54
14/15	834,238	66,523,076	54,636,795	28,223,903	79.74	65.49	33.83
15/16	847,108	85,047,614	69,580,048	30,723,230	100.40	82.14	36.27
16/17	860,978	81,911,562	69,405,836	32,139,167	95.14	80.61	37.33
17/18	873,374	76,172,765	69,638,008	30,213,306	87.22	79.73	34.59
Indicated Exponential Trend - All Years							
	1.72%	2.92%	1.24%	0.79%	1.18%	-0.48%	-0.91%
R-Squared Statistic - All Years							
	0.9969	0.4821	0.2418	0.1756	0.1326	0.0446	0.2104
Indicated Exponential Trend - Most Recent 10 Years							
	1.72%	0.74%	2.37%	0.42%	-0.96%	0.65%	-1.28%
R-Squared Statistic - Most Recent 10 Years							
	0.9950	0.0392	0.4641	0.0620	0.0673	0.0603	0.3761
Selected Trend - Prior Year					0.75%	0.00%	0.00%
Selected Trend - Current Year [c, d]					**1.25%**	**0.00%**	**0.00%**

[a] Per the Appointed Actuary's Report as at February 28, 2018

[b] Ultimate Incurred Claims / Number of HTA Units by respective coverage

[c] Based on the 'Indicated Exponential Trend' by respective coverage rounded up to the nearest 0.25%; minimum 0.00%

[d] Based on the 'Indicated Exponential Trend - All Years' by respective coverage

TABLE 8

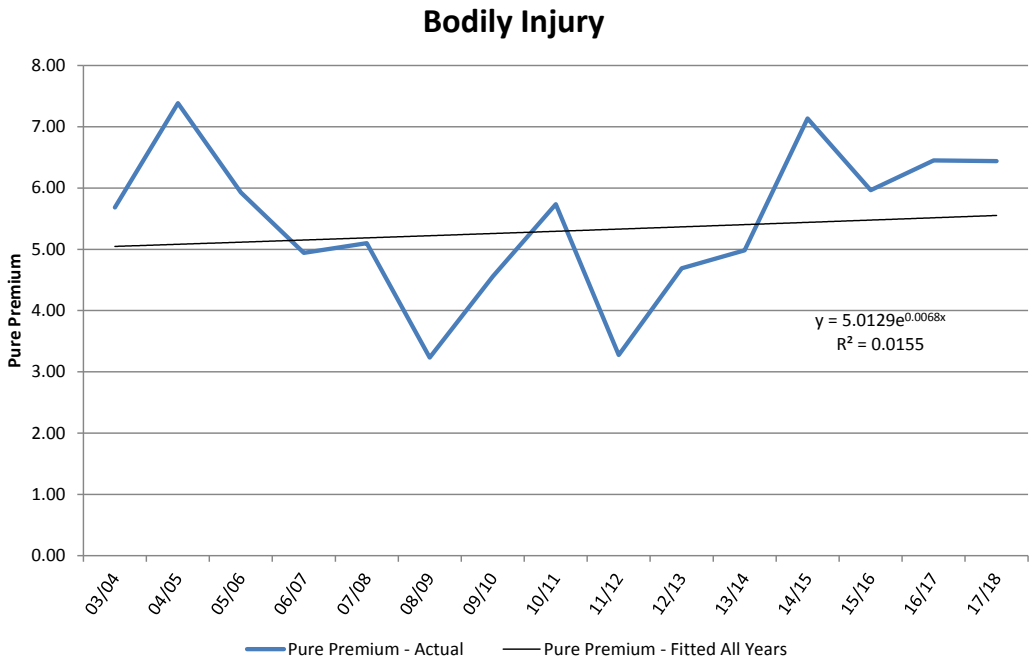
The following charts present the regression of the pure premiums by coverage. The charts show the actual pure premiums as well as the fitted line using the same number of years as was used to determine the selected trends.

A trend, by coverage, was selected based on the data available. For all coverages except Collision, we have selected the longer term trend i.e. the indicated exponential trend for pure premiums for all years. In general, these coverages exhibit low R-squared statistics regardless of whether the trend is calculated using all years or the 10 most recent years. Additionally, for Accident Benefits coverages – AB Other (Indexed), AB Other (Non-Indexed) and Income Replacement Indemnity – the longer term trend is a better representation of the actual trend given the significant fluctuations in claims costs.

For Collision, we have selected the indicated exponential trend for pure premiums for the 10 most recent years. The R-squared statistic for the 10 most recent years is high at 0.90, and the use of a more recent trend better reflects the trend going forward.

Further details of the selected trends are presented in RM.4.3 Major Classification Required Rates, consideration (vi).

TABLE 8


Bodily Injury
Pure Premium
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
03/04
04/05
05/06
06/07
07/08
08/09
09/10
10/11
11/12
12/13
13/14
14/15
15/16
16/17
17/18
y = 5.0129e0.0068x
R² = 0.0155
Pure Premium - Actual
Pure Premium - Fitted All Years

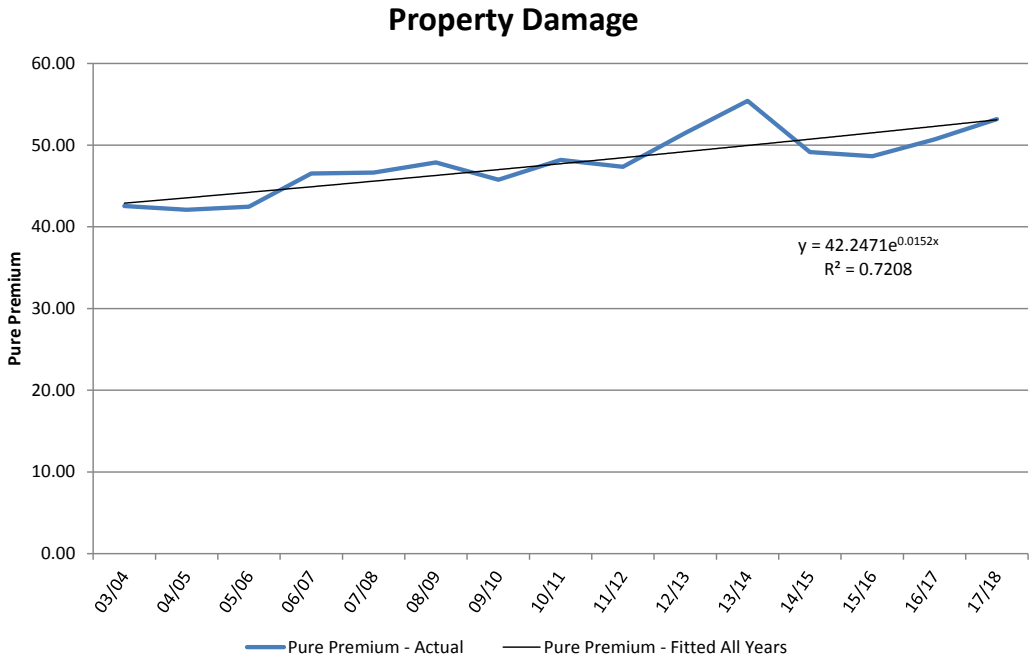
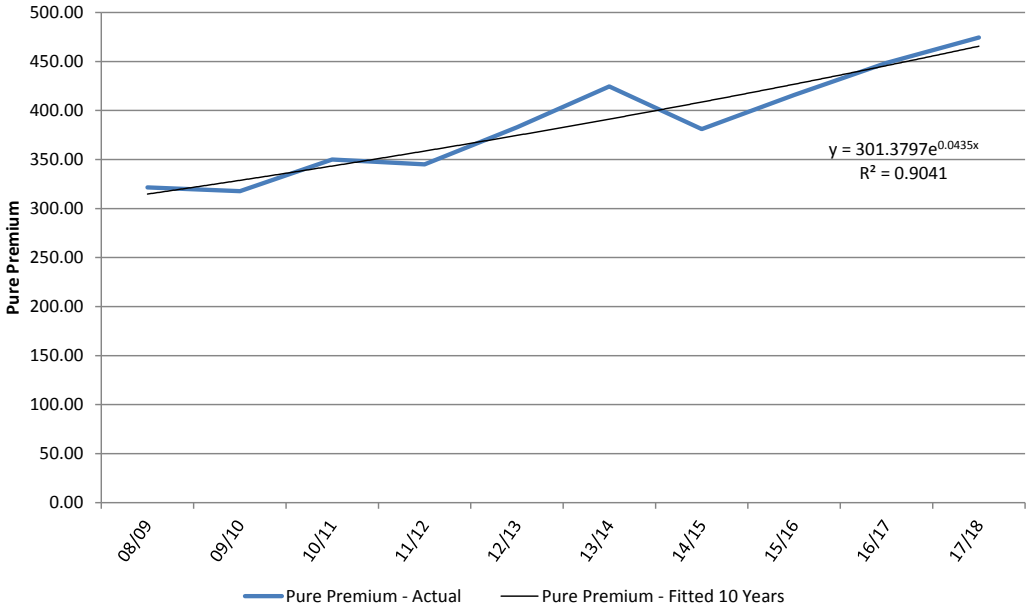

Property Damage
Pure Premium
60.00
50.00
40.00
30.00
20.00
10.00
0.00
03/04
04/05
05/06
06/07
07/08
08/09
09/10
10/11
11/12
12/13
13/14
14/15
15/16
16/17
17/18
y = 42.2471e0.0152x
R² = 0.7208
Pure Premium - Actual
Pure Premium - Fitted All Years

TABLE 8

Collision



Comprehensive

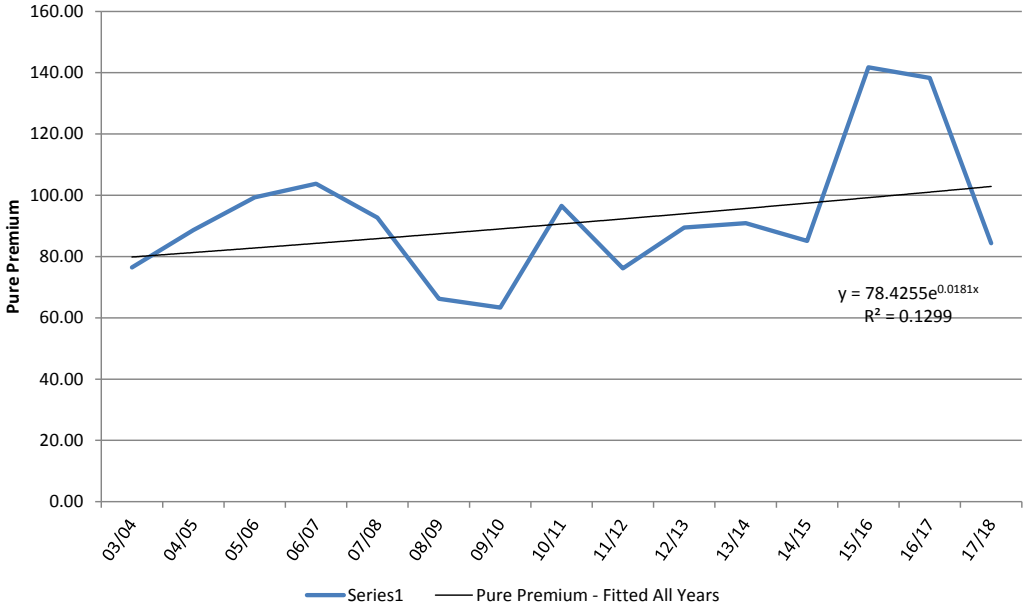
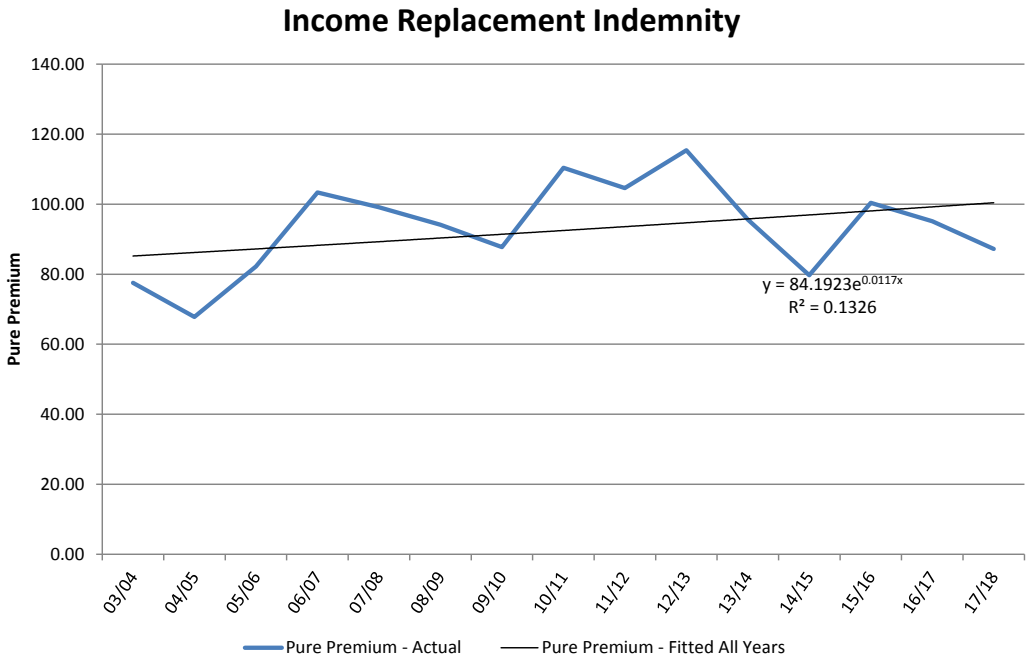


TABLE 8


Income Replacement Indemnity
Pure Premium
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
03/04
04/05
05/06
06/07
07/08
08/09
09/10
10/11
11/12
12/13
13/14
14/15
15/16
16/17
17/18
y = 84.1923e0.0117x
R² = 0.1326
Pure Premium - Actual
Pure Premium - Fitted All Years

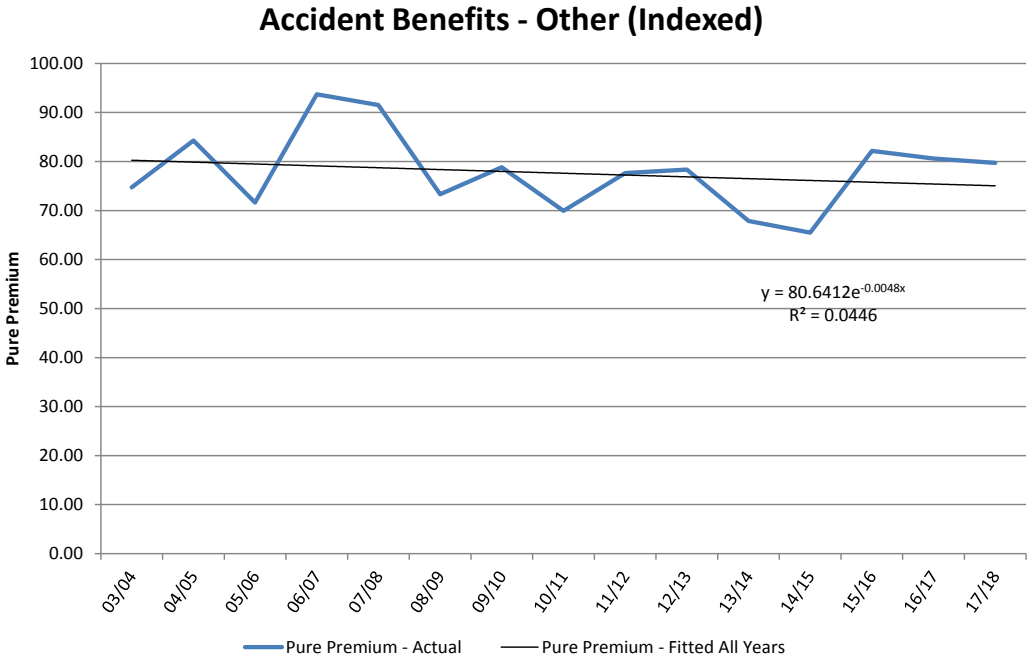

Accident Benefits - Other (Indexed)
Pure Premium
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
03/04
04/05
05/06
06/07
07/08
08/09
09/10
10/11
11/12
12/13
13/14
14/15
15/16
16/17
17/18
y = 80.6412e-0.0048x
R² = 0.0446
Pure Premium - Actual
Pure Premium - Fitted All Years

TABLE 8

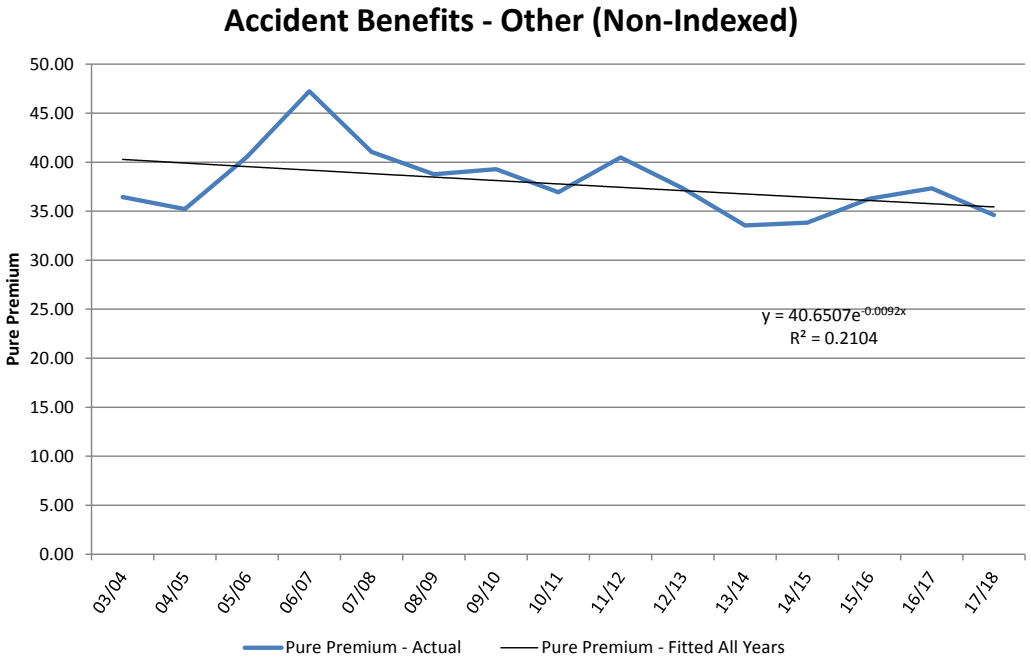

Accident Benefits - Other (Non-Indexed)
Pure Premium
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
y = 40.6507e-0.0092x
R² = 0.2104
03/04
04/05
05/06
06/07
07/08
08/09
09/10
10/11
11/12
12/13
13/14
14/15
15/16
16/17
17/18
Pure Premium - Actual
Pure Premium - Fitted All Years

TABLE 9
Basic Bodily Injury
Major Class 01 - Private Passenger

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	2,355	2,416	2,943	3,062	3,552	3,596	3,564	3,327	3,327	3,327	3,327	3,361	3,346	3,346	3,346
04/05	2,883	3,599	4,083	4,482	4,450	4,816	5,088	4,942	5,026	5,027	5,013	5,020	5,036	5,036	
05/06	2,401	2,397	2,688	2,996	3,248	3,402	3,386	3,450	3,410	3,412	3,416	3,396	3,402		
06/07	2,534	2,330	2,657	2,591	3,059	3,012	3,032	3,057	3,223	3,145	3,163	3,163			
07/08	1,701	2,517	2,730	3,020	3,020	3,169	3,299	3,332	3,294	3,299	3,311				
08/09	1,739	2,112	2,224	2,160	1,939	2,090	2,204	2,230	2,239	2,231					
09/10	3,092	2,861	3,012	3,001	3,003	3,276	3,327	3,158	3,160						
10/11	2,355	1,984	2,226	2,597	3,204	3,365	3,295	3,495							
11/12	1,383	1,155	1,426	1,462	1,753	1,836	1,878								
12/13	1,399	1,424	3,022	3,146	3,363	3,394									
13/14	2,867	2,351	3,182	3,464	3,476										
14/15	2,252	3,575	3,815	4,259											
15/16	2,460	3,467	3,877												
16/17	2,794	3,202													
17/18	3,194														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0258	1.2180	1.0405	1.1600	1.0123	0.9910	0.9335	1.0000	1.0000	1.0000	1.0102	0.9956	1.0000	1.0000
04/05	1.2486	1.1343	1.0979	0.9927	1.0823	1.0566	0.9712	1.0171	1.0002	0.9972	1.0013	1.0032	1.0000	
05/06	0.9984	1.1213	1.1145	1.0843	1.0473	0.9954	1.0188	0.9883	1.0007	1.0011	0.9943	1.0017		
06/07	0.9193	1.1404	0.9751	1.1807	0.9845	1.0068	1.0081	1.0546	0.9757	1.0057	1.0001			
07/08	1.4791	1.0849	1.1061	0.9999	1.0494	1.0411	1.0101	0.9885	1.0015	1.0037				
08/09	1.2145	1.0532	0.9711	0.8976	1.0783	1.0546	1.0117	1.0041	0.9963					
09/10	0.9253	1.0527	0.9965	1.0006	1.0911	1.0154	0.9492	1.0007						
10/11	0.8428	1.1217	1.1668	1.2336	1.0504	0.9791	1.0607							
11/12	0.8350	1.2349	1.0252	1.1993	1.0469	1.0230								
12/13	1.0181	2.1221	1.0408	1.0692	1.0091									
13/14	0.8202	1.3535	1.0885	1.0035										
14/15	1.5874	1.0671	1.1164											
15/16	1.4091	1.1182												
16/17	1.1460													
Average Last 9	1.0887	1.2453	1.0541	1.0743	1.0488	1.0181	0.9954	1.0076	0.9957	1.0015	1.0015	1.0002	1.0000	1.0000
Average Last 5	1.1962	1.3791	1.0876	1.1012	1.0551	1.0226	1.0080	1.0072	0.9949	1.0015	1.0015	1.0002	1.0000	1.0000
Average Last 3	1.3809	1.1796	1.0819	1.0907	1.0354	1.0058	1.0072	0.9978	0.9912	1.0035	0.9986	1.0002	1.0000	1.0000
Wtd. Ave. Last 9	1.0880	1.1897	1.0579	1.0667	1.0489	1.0179	0.9925	1.0078	0.9962	1.0011	1.0014	1.0006	1.0000	1.0000
Wtd. Ave. Last 5	1.1909	1.2798	1.0919	1.0826	1.0527	1.0194	1.0076	1.0065	0.9954	1.0011	1.0014	1.0006	1.0000	1.0000
Wtd. Ave. Last 3	1.3647	1.1576	1.0848	1.0646	1.0329	1.0026	1.0064	0.9969	0.9907	1.0034	0.9989	1.0006	1.0000	1.0000
Overall	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.6534	1.4697	1.2470	1.1514	1.0766	1.0322	1.0085	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Collision
Major Class 01 - Private Passenger

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	175,717	180,059	180,794	180,736	180,601	180,442	180,341	180,249	180,168	180,125	180,084	180,052	180,031	180,018	180,004
04/05	180,478	186,780	187,521	187,466	187,328	187,202	187,093	187,042	187,021	186,979	186,961	186,948	186,936	186,935	
05/06	187,546	189,500	190,029	189,963	189,848	189,714	189,610	189,553	189,513	189,502	189,479	189,470	189,477		
06/07	204,932	208,347	209,073	209,027	208,811	208,765	208,738	208,759	208,753	208,750	208,734	208,752			
07/08	209,923	215,097	216,306	216,163	216,163	216,225	216,181	216,146	216,140	216,124	216,113				
08/09	220,975	223,023	224,426	224,507	224,497	224,416	224,425	224,415	224,418	224,410					
09/10	221,723	224,368	226,104	226,042	226,049	226,066	226,082	226,073	226,065						
10/11	243,684	250,652	252,666	252,918	253,098	253,160	253,183	253,186							
11/12	248,237	252,175	253,887	254,329	254,413	254,522	254,564								
12/13	275,983	286,934	289,530	289,999	290,187	290,251									
13/14	304,036	322,202	325,474	326,222	326,496										
14/15	287,427	293,102	296,137	296,951											
15/16	315,677	326,051	328,835												
16/17	344,088	356,975													
17/18	369,229														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0247	1.0041	0.9997	0.9992	0.9991	0.9994	0.9995	0.9996	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999
04/05	1.0349	1.0040	0.9997	0.9993	0.9993	0.9994	0.9997	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	
05/06	1.0104	1.0028	0.9997	0.9994	0.9993	0.9995	0.9997	0.9998	0.9999	0.9999	1.0000	1.0000		
06/07	1.0167	1.0035	0.9998	0.9990	0.9998	0.9999	1.0001	1.0000	1.0000	0.9999	1.0001			
07/08	1.0246	1.0056	0.9993	1.0000	1.0003	0.9998	0.9998	1.0000	0.9999	0.9999				
08/09	1.0093	1.0063	1.0004	1.0000	0.9996	1.0000	1.0000	1.0000	1.0000					
09/10	1.0119	1.0077	0.9997	1.0000	1.0001	1.0001	1.0000	1.0000						
10/11	1.0286	1.0080	1.0010	1.0007	1.0002	1.0001	1.0000							
11/12	1.0159	1.0068	1.0017	1.0003	1.0004	1.0002								
12/13	1.0397	1.0090	1.0016	1.0007	1.0002									
13/14	1.0598	1.0102	1.0023	1.0008										
14/15	1.0197	1.0104	1.0027											
15/16	1.0329	1.0085												
16/17	1.0375													
Average Last 9	1.0283	1.0081	1.0010	1.0001	0.9999	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999
Average Last 5	1.0379	1.0090	1.0019	1.0005	1.0001	1.0000	1.0000	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999
Average Last 3	1.0300	1.0097	1.0022	1.0006	1.0003	1.0001	1.0000	1.0000	1.0000	0.9999	1.0000	1.0000	1.0000	0.9999
Wtd. Ave. Last 9	1.0299	1.0083	1.0011	1.0002	1.0000	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
Wtd. Ave. Last 5	1.0380	1.0090	1.0019	1.0005	1.0001	1.0000	1.0000	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
Wtd. Ave. Last 3	1.0305	1.0097	1.0022	1.0006	1.0003	1.0001	1.0000	1.0000	1.0000	0.9999	1.0000	1.0000	1.0000	0.9999
Overall	1.0362	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.0343	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.0468	1.0120	1.0030	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Comprehensive
Major Class 01 - Private Passenger

(Net of Hail Storm)

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	45,036	48,617	49,205	49,260	49,228	49,214	49,192	49,176	49,161	49,129	49,103	49,088	49,079	49,075	49,075
04/05	55,377	58,216	58,613	58,659	58,678	58,640	58,629	58,575	58,564	58,563	58,564	58,552	58,563	58,553	
05/06	60,205	64,101	65,018	65,116	65,158	65,142	65,139	65,143	65,138	65,078	65,066	65,057	65,055		
06/07	63,414	67,641	68,867	69,059	69,090	69,118	69,159	69,132	69,140	69,138	69,123	69,091			
07/08	55,822	59,597	61,121	61,286	61,312	61,323	61,311	61,315	61,324	61,330	61,326				
08/09	41,125	43,615	44,388	44,407	44,396	44,375	44,387	44,347	44,228	44,232					
09/10	40,392	42,311	42,716	42,797	42,789	42,766	42,742	42,789	42,787						
10/11	61,548	64,185	65,858	66,059	65,991	66,157	66,183	66,204							
11/12	60,129	63,913	64,667	64,850	64,445	64,465	64,489								
12/13	58,933	63,048	63,952	64,036	63,712	63,667									
13/14	59,083	63,026	64,005	64,001	63,077										
14/15	56,808	60,318	60,972	60,590											
15/16	99,411	104,713	105,481												
16/17	97,245	102,423													
17/18	58,931														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0795	1.0121	1.0011	0.9993	0.9997	0.9996	0.9997	0.9997	0.9994	0.9995	0.9997	0.9998	0.9999	1.0000
04/05	1.0513	1.0068	1.0008	1.0003	0.9994	0.9998	0.9991	0.9998	1.0000	1.0000	0.9998	1.0002	0.9998	
05/06	1.0647	1.0143	1.0015	1.0006	0.9997	1.0000	1.0001	0.9999	0.9991	0.9998	0.9999	1.0000		
06/07	1.0666	1.0181	1.0028	1.0005	1.0004	1.0006	0.9996	1.0001	1.0000	0.9998	0.9995			
07/08	1.0676	1.0256	1.0027	1.0004	1.0002	0.9998	1.0001	1.0002	1.0001	0.9999				
08/09	1.0606	1.0177	1.0004	0.9998	0.9995	1.0003	0.9991	0.9973	1.0001					
09/10	1.0475	1.0096	1.0019	0.9998	0.9995	0.9994	1.0011	0.9999						
10/11	1.0428	1.0261	1.0031	0.9990	1.0025	1.0004	1.0003							
11/12	1.0629	1.0118	1.0028	0.9938	1.0003	1.0004								
12/13	1.0698	1.0144	1.0013	0.9949	0.9993									
13/14	1.0667	1.0155	0.9999	0.9856										
14/15	1.0618	1.0108	0.9937											
15/16	1.0533	1.0073												
16/17	1.0532													
Average Last 9	1.0576	1.0154	1.0010	0.9971	1.0001	1.0000	0.9999	0.9996	0.9998	0.9998	0.9997	1.0000	0.9999	1.0000
Average Last 5	1.0610	1.0120	1.0002	0.9946	1.0002	1.0001	1.0000	0.9995	0.9998	0.9998	0.9997	1.0000	0.9999	1.0000
Average Last 3	1.0561	1.0112	0.9983	0.9914	1.0007	1.0001	1.0002	0.9991	1.0001	0.9998	0.9997	1.0000	0.9999	1.0000
Wtd. Ave. Last 9	1.0572	1.0149	1.0010	0.9970	1.0002	1.0001	0.9999	0.9997	0.9998	0.9998	0.9997	1.0000	0.9999	1.0000
Wtd. Ave. Last 5	1.0593	1.0114	1.0003	0.9943	1.0004	1.0001	1.0000	0.9996	0.9998	0.9998	0.9997	1.0000	0.9999	1.0000
Wtd. Ave. Last 3	1.0552	1.0105	0.9984	0.9914	1.0007	1.0001	1.0002	0.9992	1.0000	0.9998	0.9997	1.0000	0.9999	1.0000
Overall	1.0765	1.0140	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.0667	1.0140	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.0833	1.0155	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Property Damage
Major Class 01 - Private Passenger

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	23,829	25,591	25,918	25,864	25,839	25,812	25,772	25,762	25,749	25,743	25,755	25,749	25,749	25,747	25,744
04/05	23,710	25,787	26,060	26,058	26,035	26,002	25,995	25,991	25,986	25,981	25,980	25,977	25,969	25,967	
05/06	23,455	25,872	26,115	26,179	26,146	26,111	26,098	26,082	26,008	25,985	25,982	25,979	25,977		
06/07	26,707	28,757	29,481	29,435	29,399	29,393	29,390	29,375	29,374	29,373	29,371	29,365			
07/08	27,119	29,429	30,060	30,003	29,866	29,809	29,808	29,807	29,803	29,796	29,792				
08/09	27,704	31,121	31,794	31,798	31,691	31,668	31,753	31,598	31,597	31,613					
09/10	27,768	30,353	30,856	30,926	30,952	30,940	30,963	30,960	30,959						
10/11	28,434	32,065	32,687	32,742	32,789	32,731	32,767	32,766							
11/12	28,792	32,216	32,980	33,068	33,091	33,175	33,149								
12/13	31,252	35,459	36,323	36,515	36,636	36,705									
13/14	32,476	38,626	39,900	40,364	40,399										
14/15	29,450	34,469	35,385	35,481											
15/16	30,246	35,304	36,184												
16/17	31,004	37,372													
17/18	34,283														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0740	1.0128	0.9979	0.9990	0.9989	0.9985	0.9996	0.9995	0.9998	1.0005	0.9998	1.0000	0.9999	0.9999
04/05	1.0876	1.0106	0.9999	0.9991	0.9987	0.9997	0.9998	0.9998	0.9998	1.0000	0.9999	0.9997	1.0000	
05/06	1.1030	1.0094	1.0024	0.9987	0.9986	0.9995	0.9994	0.9972	0.9991	0.9999	0.9999	0.9999		
06/07	1.0767	1.0252	0.9984	0.9988	0.9998	0.9999	0.9995	1.0000	1.0000	0.9999	0.9998			
07/08	1.0852	1.0214	0.9981	0.9954	0.9981	1.0000	1.0000	0.9999	0.9997	0.9999				
08/09	1.1234	1.0216	1.0001	0.9967	0.9993	1.0027	0.9951	1.0000	1.0005					
09/10	1.0931	1.0166	1.0023	1.0009	0.9996	1.0007	0.9999	1.0000						
10/11	1.1277	1.0194	1.0017	1.0014	0.9982	1.0011	1.0000							
11/12	1.1189	1.0237	1.0027	1.0007	1.0026	0.9992								
12/13	1.1346	1.0244	1.0053	1.0033	1.0019									
13/14	1.1894	1.0330	1.0116	1.0009										
14/15	1.1704	1.0266	1.0027											
15/16	1.1672	1.0249												
16/17	1.2054													
Average Last 9	1.1478	1.0235	1.0025	0.9996	0.9996	1.0001	0.9992	0.9995	0.9998	1.0000	0.9998	0.9999	1.0000	0.9999
Average Last 5	1.1734	1.0265	1.0048	1.0014	1.0003	1.0007	0.9989	0.9994	0.9998	1.0000	0.9998	0.9999	1.0000	0.9999
Average Last 3	1.1810	1.0282	1.0065	1.0016	1.0009	1.0004	0.9983	0.9999	1.0001	0.9999	0.9999	0.9999	1.0000	0.9999
Wtd. Ave. Last 9	1.1492	1.0238	1.0029	0.9998	0.9997	1.0002	0.9991	0.9995	0.9998	1.0000	0.9998	0.9999	1.0000	0.9999
Wtd. Ave. Last 5	1.1735	1.0267	1.0050	1.0015	1.0004	1.0007	0.9989	0.9995	0.9999	1.0000	0.9998	0.9999	1.0000	0.9999
Wtd. Ave. Last 3	1.1813	1.0283	1.0067	1.0016	1.0009	1.0003	0.9983	0.9999	1.0001	0.9999	0.9999	0.9999	1.0000	0.9999
Overall	1.1906	1.0266	1.0030	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1800	1.0267	1.0036	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.2153	1.0299	1.0031	0.9995	0.9980	0.9980	0.9985	0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Accident Benefits - Other (Indexed)
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	644,629	43,310,436	26,531,214	16,779,222	1.0706	0.00%	1.0000	0.00%	0.00%	44.06	27.87	71.93	71.93
05/06	653,998	30,661,181	13,442,846	17,218,335	1.0745	0.00%	1.0000	0.00%	0.00%	22.09	28.29	50.38	50.38
06/07	661,445	44,452,908	26,060,764	18,392,144	1.0744	0.00%	1.0000	0.00%	0.00%	42.33	29.87	72.20	72.20
07/08	673,707	52,774,302	34,267,078	18,507,224	1.0793	0.00%	1.0000	0.00%	0.00%	54.90	29.65	84.54	84.54
08/09	689,022	35,477,585	16,112,530	19,365,055	1.0903	0.00%	1.0000	10.00%	0.00%	25.50	30.64	56.14	56.14
09/10	700,521	34,711,614	14,319,792	20,391,822	1.0923	0.00%	1.0000	10.00%	0.00%	22.33	31.80	54.13	54.13
10/11	711,929	35,771,688	15,748,855	20,022,833	1.0774	0.00%	1.0000	10.00%	0.00%	23.83	30.30	54.14	54.14
11/12	726,645	35,592,963	14,332,373	21,260,590	1.0878	0.00%	1.0000	10.00%	0.00%	21.46	31.83	53.28	53.28
12/13	744,066	38,216,032	15,699,897	22,516,135	1.0964	0.00%	1.0000	10.00%	0.00%	23.13	33.18	56.31	56.31
13/14	754,058	31,541,334	7,800,526	23,740,809	1.1266	0.00%	1.0000	10.00%	20.00%	11.65	35.47	47.12	47.12
14/15	763,887	33,060,136	11,238,561	21,821,574	1.1450	0.00%	1.0000	10.00%	20.00%	16.85	32.71	49.56	49.56
15/16	775,395	39,457,787	12,007,380	27,450,408	1.1369	0.00%	1.0000	10.00%	20.00%	17.60	40.25	57.85	57.85
16/17	787,943	45,341,406	10,681,001	34,660,405	1.0837	0.00%	1.0000	10.00%	20.00%	14.69	47.67	62.36	62.36
17/18	798,642	45,872,699	4,225,115	41,647,584	1.1729	0.00%	1.0000	10.00%	20.00%	6.21	61.16	67.37	67.37

Average Adjusted Pure Premium	$ 61.78
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 61.78
2018/2019 Insurance Year	$ 61.78

TABLE 9
Accident Benefits - IRI
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	644,629	31,975,396	17,526,647	14,448,749	1.0448	1.25%	1.2123	0.00%	0.00%	34.44	28.39	62.83	51.82
05/06	653,998	35,663,848	20,089,487	15,574,360	1.0452	1.25%	1.1974	0.00%	0.00%	38.44	29.80	68.25	57.00
06/07	661,445	51,442,355	35,729,040	15,713,315	1.0449	1.25%	1.1826	0.00%	0.00%	66.75	29.36	96.11	81.27
07/08	673,707	52,946,890	36,582,007	16,364,882	1.0388	1.25%	1.1680	0.00%	0.00%	65.88	29.47	95.36	81.64
08/09	689,022	48,392,657	31,292,385	17,100,272	1.0436	1.25%	1.1536	10.00%	0.00%	54.68	29.88	84.56	73.30
09/10	700,521	42,915,093	26,966,358	15,948,735	1.0444	1.25%	1.1393	10.00%	0.00%	45.81	27.09	72.90	63.98
10/11	711,929	58,479,306	40,544,846	17,934,460	1.0388	1.25%	1.1253	10.00%	0.00%	66.57	29.45	96.01	85.33
11/12	726,645	58,895,434	37,940,632	20,954,803	1.0399	1.25%	1.1114	10.00%	0.00%	60.35	33.33	93.68	84.29
12/13	744,066	62,045,352	41,812,164	20,233,188	1.0375	1.25%	1.0976	10.00%	0.00%	64.00	30.97	94.96	86.52
13/14	754,058	47,824,334	30,110,915	17,713,419	1.0713	1.25%	1.0841	10.00%	20.00%	46.38	27.28	73.66	67.95
14/15	763,887	42,308,915	26,039,065	16,269,850	1.1274	1.25%	1.0707	10.00%	20.00%	41.15	25.71	66.86	62.44
15/16	775,395	49,748,601	27,509,097	22,239,504	1.1395	1.25%	1.0575	10.00%	20.00%	42.75	34.56	77.31	73.11
16/17	787,943	21,623,685	5,007,180	16,616,505	2.6848	1.25%	1.0444	10.00%	20.00%	17.82	59.13	76.95	73.68
17/18	798,642	13,144,446	3,290,311	9,854,135	4.1410	1.25%	1.0315	10.00%	20.00%	17.60	52.71	70.30	68.16

Average Adjusted Pure Premium	$ 85.59
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 85.59
2018/2019 Insurance Year	$ 84.53

TABLE 9
Accident Benefits - Other (Non-Indexed)
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	644,629	16,849,611	1.0015	0.00%	1.0000	0.00%	26.18	26.18
05/06	653,998	18,536,564	1.0035	0.00%	1.0000	0.00%	28.44	28.44
06/07	661,445	21,483,511	1.0054	0.00%	1.0000	0.00%	32.66	32.66
07/08	673,707	18,670,715	1.0076	0.00%	1.0000	0.00%	27.92	27.92
08/09	689,022	18,093,000	1.0099	0.00%	1.0000	0.00%	26.52	26.52
09/10	700,521	18,194,461	1.0116	0.00%	1.0000	0.00%	26.27	26.27
10/11	711,929	19,160,300	1.0139	0.00%	1.0000	0.00%	27.29	27.29
11/12	726,645	17,666,565	1.0150	0.00%	1.0000	0.00%	24.68	24.68
12/13	744,066	17,649,206	1.0179	0.00%	1.0000	0.00%	24.14	24.14
13/14	754,058	16,244,427	1.0244	0.00%	1.0000	20.00%	22.07	22.07
14/15	763,887	17,110,048	1.0348	0.00%	1.0000	20.00%	23.18	23.18
15/16	775,395	18,721,307	1.0522	0.00%	1.0000	20.00%	25.40	25.40
16/17	787,943	17,156,958	1.1516	0.00%	1.0000	20.00%	25.08	25.08
17/18	798,642	12,741,543	1.5794	0.00%	1.0000	20.00%	25.20	25.20

Average Adjusted Pure Premium	$	24.18
Predicted Pure Premium :		
2019/2020 Insurance Year	$	24.18
2018/2019 Insurance Year	$	24.18

TABLE 9
Basic Bodily Injury
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	644,629	5,035,903	1.0000	0.75%	1.1228	0.00%	8.77	7.81
05/06	653,998	3,402,092	1.0000	0.75%	1.1144	0.00%	5.80	5.20
06/07	661,445	3,163,189	1.0000	0.75%	1.1061	0.00%	5.29	4.78
07/08	673,707	3,310,862	1.0000	0.75%	1.0979	0.00%	5.40	4.91
08/09	689,022	2,231,127	1.0000	0.75%	1.0897	0.00%	3.53	3.24
09/10	700,521	3,159,965	1.0005	0.75%	1.0816	0.00%	4.88	4.51
10/11	711,929	3,495,242	1.0015	0.75%	1.0736	0.00%	5.28	4.92
11/12	726,645	1,877,921	1.0085	0.75%	1.0656	0.00%	2.78	2.61
12/13	744,066	3,393,930	1.0322	0.75%	1.0576	0.00%	4.98	4.71
13/14	754,058	3,476,372	1.0766	0.75%	1.0498	20.00%	5.21	4.96
14/15	763,887	4,258,707	1.1514	0.75%	1.0420	20.00%	6.69	6.42
15/16	775,395	3,876,627	1.2470	0.75%	1.0342	20.00%	6.45	6.23
16/17	787,943	3,202,499	1.4697	0.75%	1.0265	20.00%	6.13	5.97
17/18	798,642	3,193,631	1.6534	0.75%	1.0189	20.00%	6.74	6.61

Average Adjusted Pure Premium	$	6.24
Predicted Pure Premium :		
2019/2020 Insurance Year	$	6.24
2018/2019 Insurance Year	$	6.20

TABLE 9
Basic Collision
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	644,629	186,934,899	1.0000	4.50%	1.9783	0.00%	573.70	289.99
05/06	653,998	189,477,038	1.0000	4.50%	1.8932	0.00%	548.49	289.72
06/07	661,445	208,751,939	1.0000	4.50%	1.8116	0.00%	571.75	315.60
07/08	673,707	216,112,997	1.0000	4.50%	1.7336	0.00%	556.11	320.78
08/09	689,022	224,410,003	1.0000	4.50%	1.6590	0.00%	540.31	325.69
09/10	700,521	226,065,079	1.0000	4.50%	1.5875	0.00%	512.31	322.71
10/11	711,929	253,185,770	1.0000	4.50%	1.5192	0.00%	540.27	355.63
11/12	726,645	254,563,916	1.0000	4.50%	1.4537	0.00%	509.29	350.33
12/13	744,066	290,251,458	1.0000	4.50%	1.3911	0.00%	542.67	390.09
13/14	754,058	326,496,473	1.0000	4.50%	1.3312	20.00%	576.41	432.99
14/15	763,887	296,951,362	1.0010	4.50%	1.2739	20.00%	495.71	389.13
15/16	775,395	328,834,672	1.0030	4.50%	1.2191	20.00%	518.54	425.36
16/17	787,943	356,974,598	1.0120	4.50%	1.1666	20.00%	534.87	458.50
17/18	798,642	369,228,865	1.0468	4.50%	1.1163	20.00%	540.23	483.94

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	3.97%	0.9408
10-Years Exponential Trend	4.55%	0.9084
All Major Classes Trend (per Table 8)	4.50%	
Selected Trend	4.50%	

Average Adjusted Pure Premium	$	533.15
Predicted Pure Premium :		
2019/2020 Insurance Year	$	533.15
2018/2019 Insurance Year	$	510.19

TABLE 9
Basic Comprehensive
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	644,629	58,552,536	1.0000	2.00%	1.3593	0.00%	123.46	90.83
05/06	653,998	65,055,070	1.0000	2.00%	1.3326	0.00%	132.56	99.47
06/07	661,445	69,091,232	1.0000	2.00%	1.3065	0.00%	136.47	104.46
07/08	673,707	61,326,128	1.0000	2.00%	1.2809	0.00%	116.59	91.03
08/09	689,022	44,232,371	1.0000	2.00%	1.2557	0.00%	80.61	64.20
09/10	700,521	42,787,093	1.0000	2.00%	1.2311	0.00%	75.20	61.08
10/11	711,929	66,204,381	1.0000	2.00%	1.2070	0.00%	112.24	92.99
11/12	726,645	51,308,068	1.0000	2.00%	1.1833	0.00%	83.55	70.61
12/13	744,066	63,667,499	1.0000	2.00%	1.1601	0.00%	99.27	85.57
13/14	754,058	63,076,953	1.0000	2.00%	1.1374	20.00%	95.14	83.65
14/15	763,887	60,589,706	1.0000	2.00%	1.1151	20.00%	88.44	79.32
15/16	775,395	105,481,315	1.0015	2.00%	1.0932	20.00%	148.94	136.24
16/17	787,943	102,422,768	1.0155	2.00%	1.0718	20.00%	141.48	132.01
17/18	798,642	58,931,471	1.0833	2.00%	1.0508	20.00%	83.99	79.93

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	1.09%	0.0378
10-Years Exponential Trend	5.99%	0.4265
All Major Classes Trend (per Table 8)	2.00%	
Selected Trend	2.00%	

Average Adjusted Pure Premium	$	111.60
Predicted Pure Premium :		
2019/2020 Insurance Year	$	111.60
2018/2019 Insurance Year	$	109.41

TABLE 9
Basic Property Damage
Major Class 01 - Private Passenger

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	644,629	25,967,452	1.0000	1.75%	1.3085	0.00%	52.71	40.28
05/06	653,998	25,976,768	1.0000	1.75%	1.2860	0.00%	51.08	39.72
06/07	661,445	29,364,760	1.0000	1.75%	1.2639	0.00%	56.11	44.39
07/08	673,707	29,792,266	1.0000	1.75%	1.2422	0.00%	54.93	44.22
08/09	689,022	31,612,949	1.0000	1.75%	1.2208	0.00%	56.01	45.88
09/10	700,521	30,959,066	0.9995	1.75%	1.1998	0.00%	53.00	44.17
10/11	711,929	32,766,012	0.9990	1.75%	1.1792	0.00%	54.22	45.98
11/12	726,645	33,149,028	0.9985	1.75%	1.1589	0.00%	52.79	45.55
12/13	744,066	36,704,647	0.9980	1.75%	1.1390	0.00%	56.07	49.23
13/14	754,058	40,399,490	0.9980	1.75%	1.1194	20.00%	59.85	53.47
14/15	763,887	35,481,121	0.9995	1.75%	1.1001	20.00%	51.07	46.42
15/16	775,395	36,183,593	1.0031	1.75%	1.0812	20.00%	50.61	46.81
16/17	787,943	37,372,289	1.0299	1.75%	1.0626	20.00%	51.91	48.85
17/18	798,642	34,283,039	1.2153	1.75%	1.0443	20.00%	54.48	52.17

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	1.67%	0.6873
10-Years Exponential Trend	1.27%	0.3825
All Major Classes Trend (per Table 8)	1.75%	
Selected Trend	1.75%	

Average Adjusted Pure Premium	$	53.58
Predicted Pure Premium :		
2019/2020 Insurance Year	$	53.58
2018/2019 Insurance Year	$	52.66

TABLE 9
Basic Bodily Injury
Major Class 02 - Commercial

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	40	83	94	114	207	197	197	197	197	199	199	199	199	199	199
04/05	34	56	76	44	44	44	44	44	44	44	44	44	44	44	
05/06	68	137	197	223	223	223	223	223	223	223	223	223	223		
06/07	15	15	37	76	76	76	76	76	76	76	76	76			
07/08	91	51	74	75	75	79	79	79	79	79	79				
08/09	76	79	85	71	72	74	64	64	64	64					
09/10	25	0	0	0	0	10	3	3	3						
10/11	65	24	24	24	24	24	24	24							
11/12	50	17	17	127	159	221	221								
12/13	-	-	1	1	1	1									
13/14	25	65	58	78	78										
14/15	6	40	40	40											
15/16	50	2	2												
16/17	20	40													
17/18	6														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	2.0849	1.1311	1.2120	1.8148	0.9507	1.0000	1.0000	1.0000	1.0101	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.6545	1.3685	0.5800	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	2.0001	1.4394	1.1319	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.0000	2.4415	2.0815	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	0.5589	1.4612	1.0067	1.0000	1.0662	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	1.0406	1.0868	0.8287	1.0142	1.0362	0.8664	1.0000	1.0000	1.0000					
09/10	0.0139	1.0000	1.0000	1.0000	29.8809	0.2619	1.0000	1.0000						
10/11	0.3615	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000							
11/12	0.3403	1.0000	7.4386	1.2545	1.3946	1.0000								
12/13	1.0000	1.0000	1.0000	1.0000	1.0000									
13/14	2.5821	0.8987	1.3447	1.0000										
14/15	7.0449	1.0000	1.0000											
15/16	0.0400	1.0000												
16/17	2.0000													
Average Last 9	1.6026	1.0496	1.8556	1.0299	4.2642	0.9031	1.0000	1.0000	1.0017	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	2.5334	0.9797	2.3567	1.0509	6.8623	0.8257	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	3.0283	0.9662	1.1149	1.0848	1.1315	0.7540	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	0.8410	1.0880	1.4619	1.0493	1.1191	0.9815	1.0000	1.0000	1.0029	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.4549	0.9527	1.9312	1.1406	1.2949	0.9570	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.0825	0.9386	1.2028	1.1569	1.3424	0.9701	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.6534	1.4697	1.2470	1.1514	1.0766	1.0322	1.0085	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Collision
Major Class 02 - Commercial

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	6,261	6,409	6,419	6,422	6,419	6,414	6,411	6,407	6,406	6,413	6,413	6,413	6,413	6,412	6,411
04/05	6,903	6,972	7,060	7,084	7,078	7,074	7,071	7,066	7,077	7,077	7,077	7,036	7,036	7,036	
05/06	6,142	6,179	6,199	6,191	6,180	6,180	6,177	6,178	6,171	6,171	6,171	6,171	6,171		
06/07	6,384	6,522	6,602	6,599	6,605	6,615	6,629	6,629	6,626	6,626	6,626	6,627			
07/08	6,771	6,965	6,991	6,967	6,978	6,977	6,977	6,966	6,966	6,965	6,965				
08/09	6,359	6,579	6,628	6,653	6,653	6,653	6,687	6,687	6,687	6,687					
09/10	6,179	6,399	6,487	6,468	6,471	6,472	6,472	6,471	6,471						
10/11	6,110	6,708	6,733	6,753	6,772	6,800	6,804	6,813							
11/12	6,363	6,747	6,847	6,853	6,847	6,854	6,859								
12/13	7,247	7,964	7,978	7,974	7,989	7,986									
13/14	8,023	9,091	9,188	9,215	9,241										
14/15	7,133	8,100	8,187	8,260											
15/16	8,556	9,068	9,133												
16/17	8,516	9,349													
17/18	9,984														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0236	1.0016	1.0005	0.9996	0.9991	0.9996	0.9993	1.0000	1.0010	1.0000	1.0000	1.0000	0.9998	0.9999
04/05	1.0101	1.0126	1.0034	0.9991	0.9995	0.9995	0.9994	1.0014	1.0000	1.0000	0.9943	1.0000	1.0000	
05/06	1.0061	1.0031	0.9987	0.9983	0.9999	0.9996	1.0002	0.9989	1.0000	1.0000	1.0000	1.0000		
06/07	1.0217	1.0122	0.9996	1.0010	1.0014	1.0022	1.0000	0.9995	1.0000	1.0000	1.0002			
07/08	1.0286	1.0038	0.9965	1.0015	1.0000	0.9999	0.9984	1.0000	0.9999	1.0000				
08/09	1.0346	1.0075	1.0037	0.9999	1.0001	1.0051	1.0000	1.0000	1.0000					
09/10	1.0356	1.0138	0.9970	1.0005	1.0000	1.0000	0.9999	1.0000						
10/11	1.0980	1.0037	1.0030	1.0027	1.0042	1.0005	1.0013							
11/12	1.0603	1.0148	1.0009	0.9992	1.0010	1.0008								
12/13	1.0989	1.0018	0.9995	1.0018	0.9997									
13/14	1.1331	1.0107	1.0030	1.0029										
14/15	1.1356	1.0107	1.0089											
15/16	1.0598	1.0071												
16/17	1.0979													
Average Last 9	1.0838	1.0082	1.0013	1.0009	1.0007	1.0008	0.9998	1.0000	1.0002	1.0000	0.9986	1.0000	0.9999	0.9999
Average Last 5	1.1050	1.0090	1.0030	1.0014	1.0010	1.0013	0.9999	0.9997	1.0000	1.0000	0.9986	1.0000	0.9999	0.9999
Average Last 3	1.0978	1.0095	1.0038	1.0013	1.0016	1.0004	1.0004	1.0000	1.0000	1.0000	0.9981	1.0000	0.9999	0.9999
Wtd. Ave. Last 9	1.0856	1.0082	1.0015	1.0010	1.0006	1.0008	0.9998	1.0000	1.0001	1.0000	0.9985	1.0000	0.9999	0.9999
Wtd. Ave. Last 5	1.1038	1.0089	1.0031	1.0015	1.0010	1.0013	0.9999	0.9997	1.0000	1.0000	0.9985	1.0000	0.9999	0.9999
Wtd. Ave. Last 3	1.0955	1.0095	1.0038	1.0015	1.0015	1.0004	1.0004	1.0000	1.0000	1.0000	0.9980	1.0000	0.9999	0.9999
Overall	1.0362	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1101	1.0095	1.0020	1.0010	1.0005	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.1251	1.0135	1.0040	1.0020	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Comprehensive
Major Class 02 - Commercial

(Net of Hail Storm)

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	1,667	1,769	1,775	1,765	1,773	1,773	1,771	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
04/05	1,525	1,615	1,649	1,650	1,650	1,649	1,649	1,649	1,649	1,649	1,649	1,649	1,649	1,649	
05/06	1,490	1,569	1,581	1,586	1,590	1,593	1,593	1,593	1,593	1,593	1,593	1,599	1,599		
06/07	1,326	1,583	1,586	1,598	1,601	1,601	1,599	1,599	1,599	1,600	1,600	1,600			
07/08	1,873	2,060	2,086	2,084	2,081	2,082	2,083	2,083	2,083	2,083	2,083				
08/09	1,599	1,804	1,814	1,796	1,779	1,779	1,746	1,746	1,748	1,748					
09/10	1,303	1,420	1,419	1,413	1,413	1,413	1,416	1,416	1,414						
10/11	1,970	2,223	2,241	2,242	2,235	2,236	2,236	2,236							
11/12	1,863	2,163	2,186	2,199	2,176	2,179	2,182								
12/13	2,060	2,202	2,198	2,209	2,204	2,203									
13/14	2,281	2,589	2,589	2,588	2,579										
14/15	2,075	2,287	2,324	2,307											
15/16	3,087	3,442	3,475												
16/17	3,005	3,449													
17/18	3,057														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0611	1.0034	0.9944	1.0044	1.0000	0.9992	1.0007	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.0588	1.0212	1.0004	1.0000	0.9999	1.0000	0.9998	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.0531	1.0077	1.0035	1.0021	1.0020	1.0000	1.0000	1.0000	1.0000	1.0000	1.0039	1.0000		
06/07	1.1933	1.0023	1.0075	1.0014	1.0000	0.9992	1.0000	1.0000	1.0005	1.0000	1.0000			
07/08	1.0996	1.0126	0.9993	0.9986	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	1.1283	1.0060	0.9897	0.9907	1.0000	0.9816	1.0000	1.0009	1.0000					
09/10	1.0901	0.9989	0.9959	0.9999	1.0000	1.0019	0.9999	0.9991						
10/11	1.1281	1.0083	1.0002	0.9972	1.0002	1.0001	1.0000							
11/12	1.1610	1.0109	1.0058	0.9896	1.0012	1.0012								
12/13	1.0689	0.9983	1.0048	0.9977	0.9994									
13/14	1.1347	1.0002	0.9994	0.9967										
14/15	1.1019	1.0163	0.9925											
15/16	1.1153	1.0096												
16/17	1.1478													
Average Last 9	1.1196	1.0068	0.9994	0.9971	1.0004	0.9981	1.0000	1.0000	1.0001	1.0000	1.0010	1.0000	1.0000	1.0000
Average Last 5	1.1137	1.0070	1.0005	0.9962	1.0002	0.9970	1.0000	1.0000	1.0001	1.0000	1.0010	1.0000	1.0000	1.0000
Average Last 3	1.1217	1.0087	0.9989	0.9947	1.0003	1.0011	1.0000	1.0000	1.0002	1.0000	1.0013	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.1214	1.0071	0.9995	0.9968	1.0004	0.9982	1.0001	1.0000	1.0001	1.0000	1.0009	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.1168	1.0071	1.0004	0.9960	1.0002	0.9972	1.0000	1.0000	1.0001	1.0000	1.0009	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.1238	1.0085	0.9988	0.9948	1.0003	1.0010	1.0000	1.0000	1.0002	1.0000	1.0013	1.0000	1.0000	1.0000
Overall	1.0765	1.0140	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1175	1.0069	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.1252	1.0069	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Property Damage
Major Class 02 - Commercial

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	1,858	2,343	2,385	2,368	2,366	2,365	2,365	2,362	2,352	2,351	2,351	2,351	2,351	2,350	2,350
04/05	2,088	2,395	2,401	2,401	2,401	2,400	2,400	2,399	2,397	2,397	2,396	2,396	2,396	2,395	
05/06	2,786	2,861	3,141	2,950	2,950	2,948	2,948	2,948	2,948	2,948	2,947	2,947	2,947		
06/07	2,502	2,788	2,798	2,819	2,818	2,818	2,819	2,819	2,819	2,819	2,820	2,820			
07/08	2,711	3,036	3,176	3,097	3,099	3,099	3,099	3,097	3,097	3,097	3,099				
08/09	2,243	2,774	2,781	2,763	2,763	2,764	2,760	2,760	2,760	2,778					
09/10	2,372	2,716	2,714	2,752	2,750	2,741	2,541	2,543	2,542						
10/11	2,145	2,554	2,821	2,823	2,820	2,820	2,820	2,829							
11/12	2,556	2,750	2,798	2,777	2,776	2,775	2,775								
12/13	2,392	2,907	2,943	2,959	2,967	2,961									
13/14	2,229	2,876	3,125	2,989	3,158										
14/15	2,969	3,807	3,835	3,806											
15/16	2,221	2,784	2,842												
16/17	2,354	3,086													
17/18	2,284														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.2613	1.0181	0.9928	0.9990	0.9998	1.0000	0.9984	0.9957	0.9998	0.9999	1.0000	1.0000	0.9997	1.0000
04/05	1.1470	1.0023	1.0001	1.0000	0.9997	1.0000	0.9995	0.9993	1.0000	0.9997	1.0000	0.9998	0.9998	
05/06	1.0271	1.0977	0.9393	1.0001	0.9994	0.9998	1.0000	1.0000	1.0000	0.9998	1.0000	0.9998		
06/07	1.1142	1.0035	1.0076	0.9998	1.0000	1.0002	1.0000	1.0000	1.0000	1.0002	1.0000			
07/08	1.1198	1.0462	0.9751	1.0006	0.9999	1.0000	0.9995	1.0000	1.0000	1.0006				
08/09	1.2366	1.0026	0.9934	1.0001	1.0001	0.9988	1.0000	1.0000	1.0064					
09/10	1.1447	0.9992	1.0141	0.9992	0.9967	0.9271	1.0008	0.9996						
10/11	1.1909	1.1044	1.0007	0.9990	0.9998	1.0000	1.0033							
11/12	1.0760	1.0175	0.9925	0.9994	0.9998	1.0002								
12/13	1.2154	1.0125	1.0054	1.0026	0.9980									
13/14	1.2901	1.0866	0.9567	1.0565										
14/15	1.2824	1.0073	0.9925											
15/16	1.2531	1.0210												
16/17	1.3110													
Average Last 9	1.2222	1.0330	0.9931	1.0064	0.9993	0.9918	1.0002	0.9992	1.0010	1.0000	1.0000	0.9999	0.9997	1.0000
Average Last 5	1.2704	1.0290	0.9895	1.0114	0.9989	0.9852	1.0007	0.9999	1.0013	1.0000	1.0000	0.9999	0.9997	1.0000
Average Last 3	1.2821	1.0383	0.9848	1.0195	0.9992	0.9758	1.0014	0.9999	1.0021	1.0002	1.0000	0.9999	0.9997	1.0000
Wtd. Ave. Last 9	1.2222	1.0317	0.9924	1.0066	0.9993	0.9918	1.0002	0.9993	1.0010	1.0001	1.0000	0.9999	0.9997	1.0000
Wtd. Ave. Last 5	1.2708	1.0278	0.9892	1.0119	0.9989	0.9858	1.0007	0.9999	1.0013	1.0001	1.0000	0.9999	0.9997	1.0000
Wtd. Ave. Last 3	1.2827	1.0354	0.9850	1.0201	0.9992	0.9761	1.0014	0.9999	1.0020	1.0002	1.0000	0.9999	0.9997	1.0000
Overall	1.1906	1.0266	1.0030	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.2600	1.0317	0.9949	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.2927	1.0259	0.9944	0.9995	0.9980	0.9980	0.9985	0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Accident Benefits - Other (Indexed)
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	40,502	2,444,365	1,638,506	805,860	1.0706	0.00%	1.0000	0.00%	0.00%	43.31	21.30	64.61	64.61
05/06	39,983	1,441,125	779,365	661,760	1.0745	0.00%	1.0000	0.00%	0.00%	20.95	17.78	38.73	38.73
06/07	39,564	793,576	261,112	532,464	1.0744	0.00%	1.0000	0.00%	0.00%	7.09	14.46	21.55	21.55
07/08	39,847	1,975,516	1,171,510	804,006	1.0793	0.00%	1.0000	0.00%	0.00%	31.73	21.78	53.51	53.51
08/09	40,334	3,577,779	2,844,275	733,504	1.0903	0.00%	1.0000	10.00%	0.00%	76.88	19.83	96.71	96.71
09/10	40,408	1,502,590	557,174	945,416	1.0923	0.00%	1.0000	10.00%	0.00%	15.06	25.56	40.62	40.62
10/11	40,668	769,467	67,427	702,040	1.0774	0.00%	1.0000	10.00%	0.00%	1.79	18.60	20.39	20.39
11/12	41,293	2,551,495	1,691,460	860,035	1.0878	0.00%	1.0000	10.00%	0.00%	44.56	22.66	67.21	67.21
12/13	42,567	1,584,337	587,142	997,195	1.0964	0.00%	1.0000	10.00%	0.00%	15.12	25.68	40.81	40.81
13/14	43,055	3,572,673	2,618,351	954,322	1.1266	0.00%	1.0000	10.00%	20.00%	68.51	24.97	93.48	93.48
14/15	43,823	3,585,567	2,748,333	837,234	1.1450	0.00%	1.0000	10.00%	20.00%	71.81	21.88	93.68	93.68
15/16	44,347	1,406,718	673,511	733,207	1.1369	0.00%	1.0000	10.00%	20.00%	17.27	18.80	36.06	36.06
16/17	44,629	1,796,646	728,913	1,067,732	1.0837	0.00%	1.0000	10.00%	20.00%	17.70	25.93	43.63	43.63
17/18	45,102	1,350,892	0	1,350,892	1.1729	0.00%	1.0000	10.00%	20.00%	0.00	35.13	35.13	35.13

Average Adjusted Pure Premium	$ 58.21
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 58.21
2018/2019 Insurance Year	$ 58.21

TABLE 9
Accident Benefits - IRI
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	40,502	3,103,870	1,761,534	1,342,337	1.0448	1.25%	1.2123	0.00%	0.00%	55.09	41.98	97.07	80.07
05/06	39,983	3,208,469	2,340,242	868,228	1.0452	1.25%	1.1974	0.00%	0.00%	73.25	27.18	100.43	83.87
06/07	39,564	2,830,731	2,169,255	661,476	1.0449	1.25%	1.1826	0.00%	0.00%	67.75	20.66	88.41	74.76
07/08	39,847	4,823,183	3,610,921	1,212,262	1.0388	1.25%	1.1680	0.00%	0.00%	109.95	36.91	146.87	125.74
08/09	40,334	3,947,377	2,044,951	1,902,427	1.0436	1.25%	1.1536	10.00%	0.00%	61.04	56.79	117.83	102.14
09/10	40,408	2,660,217	1,704,864	955,353	1.0444	1.25%	1.1393	10.00%	0.00%	50.21	28.13	78.34	68.76
10/11	40,668	1,814,647	866,717	947,929	1.0388	1.25%	1.1253	10.00%	0.00%	24.91	27.25	52.16	46.35
11/12	41,293	3,777,181	2,463,444	1,313,738	1.0399	1.25%	1.1114	10.00%	0.00%	68.95	36.77	105.72	95.13
12/13	42,567	4,305,463	2,424,199	1,881,264	1.0375	1.25%	1.0976	10.00%	0.00%	64.86	50.33	115.19	104.94
13/14	43,055	3,501,485	2,194,656	1,306,829	1.0713	1.25%	1.0841	10.00%	20.00%	59.20	35.25	94.45	87.12
14/15	43,823	4,169,347	3,139,232	1,030,115	1.1274	1.25%	1.0707	10.00%	20.00%	86.47	28.37	114.85	107.26
15/16	44,347	2,334,992	1,558,780	776,212	1.1395	1.25%	1.0575	10.00%	20.00%	42.36	21.09	63.45	60.00
16/17	44,629	1,083,636	293,396	790,240	2.6848	1.25%	1.0444	10.00%	20.00%	18.43	49.65	68.08	65.19
17/18	45,102	727,710	0	727,710	4.1410	1.25%	1.0315	10.00%	20.00%	0.00	68.92	68.92	66.81

Average Adjusted Pure Premium	$ 88.30
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 88.30
2018/2019 Insurance Year	$ 87.21

TABLE 9
Accident Benefits - Other (Non-Indexed)
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	40,502	1,187,504	1.0015	0.00%	1.0000	0.00%	29.36	29.36
05/06	39,983	1,345,055	1.0035	0.00%	1.0000	0.00%	33.76	33.76
06/07	39,564	885,007	1.0054	0.00%	1.0000	0.00%	22.49	22.49
07/08	39,847	1,288,043	1.0076	0.00%	1.0000	0.00%	32.57	32.57
08/09	40,334	1,154,261	1.0099	0.00%	1.0000	0.00%	28.90	28.90
09/10	40,408	1,463,258	1.0116	0.00%	1.0000	0.00%	36.63	36.63
10/11	40,668	897,172	1.0139	0.00%	1.0000	0.00%	22.37	22.37
11/12	41,293	1,669,362	1.0150	0.00%	1.0000	0.00%	41.03	41.03
12/13	42,567	1,639,411	1.0179	0.00%	1.0000	0.00%	39.20	39.20
13/14	43,055	1,307,740	1.0244	0.00%	1.0000	20.00%	31.11	31.11
14/15	43,823	1,584,410	1.0348	0.00%	1.0000	20.00%	37.41	37.41
15/16	44,347	967,542	1.0522	0.00%	1.0000	20.00%	22.96	22.96
16/17	44,629	1,730,728	1.1516	0.00%	1.0000	20.00%	44.66	44.66
17/18	45,102	669,929	1.5794	0.00%	1.0000	20.00%	23.46	23.46

Average Adjusted Pure Premium	$	31.92
Predicted Pure Premium :		
2019/2020 Insurance Year	$	31.92
2018/2019 Insurance Year	$	31.92

TABLE 9
Basic Bodily Injury
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	40,502	44,174	1.0000	0.75%	1.1228	0.00%	1.22	1.09
05/06	39,983	223,204	1.0000	0.75%	1.1144	0.00%	6.22	5.58
06/07	39,564	76,227	1.0000	0.75%	1.1061	0.00%	2.13	1.93
07/08	39,847	79,474	1.0000	0.75%	1.0979	0.00%	2.19	1.99
08/09	40,334	64,495	1.0000	0.75%	1.0897	0.00%	1.74	1.60
09/10	40,408	2,709	1.0005	0.75%	1.0816	0.00%	0.07	0.07
10/11	40,668	23,500	1.0015	0.75%	1.0736	0.00%	0.62	0.58
11/12	41,293	221,426	1.0085	0.75%	1.0656	0.00%	5.76	5.41
12/13	42,567	698	1.0322	0.75%	1.0576	0.00%	0.02	0.02
13/14	43,055	78,014	1.0766	0.75%	1.0498	20.00%	2.05	1.95
14/15	43,823	39,903	1.1514	0.75%	1.0420	20.00%	1.09	1.05
15/16	44,347	2,000	1.2470	0.75%	1.0342	20.00%	0.06	0.06
16/17	44,629	40,000	1.4697	0.75%	1.0265	20.00%	1.35	1.32
17/18	45,102	5,697	1.6534	0.75%	1.0189	20.00%	0.21	0.21

Average Adjusted Pure Premium	$	0.95
Predicted Pure Premium :		
2019/2020 Insurance Year	$	0.95
2018/2019 Insurance Year	$	0.95

TABLE 9
Basic Collision
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	40,502	7,036,292	1.0000	4.50%	1.9783	0.00%	343.69	173.73
05/06	39,983	6,171,166	1.0000	4.50%	1.8932	0.00%	292.20	154.34
06/07	39,564	6,626,749	1.0000	4.50%	1.8116	0.00%	303.44	167.49
07/08	39,847	6,965,180	1.0000	4.50%	1.7336	0.00%	303.04	174.80
08/09	40,334	6,686,698	1.0000	4.50%	1.6590	0.00%	275.03	165.79
09/10	40,408	6,471,156	1.0000	4.50%	1.5875	0.00%	254.24	160.15
10/11	40,668	6,812,705	1.0000	4.50%	1.5192	0.00%	254.49	167.52
11/12	41,293	6,859,381	1.0000	4.50%	1.4537	0.00%	241.49	166.11
12/13	42,567	7,986,453	1.0005	4.50%	1.3911	0.00%	261.14	187.71
13/14	43,055	9,241,416	1.0010	4.50%	1.3312	20.00%	286.03	214.86
14/15	43,823	8,259,764	1.0020	4.50%	1.2739	20.00%	240.59	188.86
15/16	44,347	9,132,962	1.0040	4.50%	1.2191	20.00%	252.06	206.77
16/17	44,629	9,349,036	1.0135	4.50%	1.1666	20.00%	247.68	212.32
17/18	45,102	9,984,139	1.1251	4.50%	1.1163	20.00%	278.04	249.07

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	2.76%	0.6868
10-Years Exponential Trend	4.47%	0.8300
All Major Classes Trend (per Table 8)	4.50%	
Selected Trend	4.50%	

Average Adjusted Pure Premium	$	260.88
Predicted Pure Premium :		
2019/2020 Insurance Year	$	260.88
2018/2019 Insurance Year	$	249.65

TABLE 9
Basic Comprehensive
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	40,502	1,649,312	1.0000	2.00%	1.3593	0.00%	55.35	40.72
05/06	39,983	1,599,012	1.0000	2.00%	1.3326	0.00%	53.29	39.99
06/07	39,564	1,600,219	1.0000	2.00%	1.3065	0.00%	52.84	40.45
07/08	39,847	2,082,571	1.0000	2.00%	1.2809	0.00%	66.94	52.26
08/09	40,334	1,747,631	1.0000	2.00%	1.2557	0.00%	54.41	43.33
09/10	40,408	1,414,326	1.0000	2.00%	1.2311	0.00%	43.09	35.00
10/11	40,668	2,236,343	1.0000	2.00%	1.2070	0.00%	66.37	54.99
11/12	41,293	2,039,422	1.0000	2.00%	1.1833	0.00%	58.44	49.39
12/13	42,567	2,202,783	1.0000	2.00%	1.1601	0.00%	60.03	51.75
13/14	43,055	2,579,133	1.0000	2.00%	1.1374	20.00%	68.13	59.90
14/15	43,823	2,306,692	1.0000	2.00%	1.1151	20.00%	58.69	52.64
15/16	44,347	3,475,242	1.0000	2.00%	1.0932	20.00%	85.67	78.37
16/17	44,629	3,448,964	1.0069	2.00%	1.0718	20.00%	83.40	77.81
17/18	45,102	3,056,645	1.1252	2.00%	1.0508	20.00%	80.13	76.26

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	5.45%	0.7250
10-Years Exponential Trend	8.06%	0.7820
All Major Classes Trend (per Table 8)	2.00%	
Selected Trend	2.00%	

Average Adjusted Pure Premium	$	75.20
Predicted Pure Premium :		
2019/2020 Insurance Year	$	75.20
2018/2019 Insurance Year	$	73.73

TABLE 9
Basic Property Damage
Major Class 02 - Commercial

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	40,502	2,395,425	1.0000	1.75%	1.3085	0.00%	77.39	59.14
05/06	39,983	2,946,772	1.0000	1.75%	1.2860	0.00%	94.78	73.70
06/07	39,564	2,819,503	1.0000	1.75%	1.2639	0.00%	90.07	71.26
07/08	39,847	3,099,141	1.0000	1.75%	1.2422	0.00%	96.61	77.78
08/09	40,334	2,778,118	1.0000	1.75%	1.2208	0.00%	84.09	68.88
09/10	40,408	2,541,891	0.9995	1.75%	1.1998	0.00%	75.44	62.87
10/11	40,668	2,829,237	0.9990	1.75%	1.1792	0.00%	81.95	69.50
11/12	41,293	2,775,377	0.9985	1.75%	1.1589	0.00%	77.77	67.11
12/13	42,567	2,960,842	0.9980	1.75%	1.1390	0.00%	79.06	69.42
13/14	43,055	3,158,360	0.9980	1.75%	1.1194	20.00%	81.95	73.21
14/15	43,823	3,805,962	0.9995	1.75%	1.1001	20.00%	95.50	86.81
15/16	44,347	2,842,112	0.9944	1.75%	1.0812	20.00%	68.90	63.73
16/17	44,629	3,085,711	1.0259	1.75%	1.0626	20.00%	75.37	70.93
17/18	45,102	2,284,305	1.2927	1.75%	1.0443	20.00%	68.37	65.47

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	0.27%	0.0141
10-Years Exponential Trend	0.47%	0.0245
All Major Classes Trend (per Table 8)	1.75%	
Selected Trend	1.75%	

Average Adjusted Pure Premium	$	78.02
Predicted Pure Premium :		
2019/2020 Insurance Year	$	78.02
2018/2019 Insurance Year	$	76.68

TABLE 9
Basic Bodily Injury
Major Class 03 - Public

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	137	107	132	102	133	111	277	292	292	292	292	292	292	292	292
04/05	15	0	10	10	10	10	10	10	10	10	10	10	10	10	
05/06	87	27	16	16	16	16	16	16	16	16	16	16	16		
06/07	-	-	-	-	-	-	-	-	-	-	-	-			
07/08	195	215	394	410	474	403	352	352	352	352	352				
08/09	-	-	-	-	-	-	-	-	-	-					
09/10	21	27	268	314	189	191	191	191	191						
10/11	50	10	10	10	10	10	10	10							
11/12	26	1	1	1	1	1	1								
12/13	51	28	38	122	122	145									
13/14	54	65	147	195	199										
14/15	57	77	202	202											
15/16	60	89	93												
16/17	95	78													
17/18	-														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	0.7821	1.2342	0.7749	1.3000	0.8358	2.4875	1.0533	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	0.0086	78.2738	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	0.3110	0.5804	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	1.1026	1.8343	1.0398	1.1557	0.8509	0.8728	1.0000	1.0000	1.0000	1.0000				
08/09	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	1.2871	9.8161	1.1691	0.6017	1.0115	1.0000	1.0000	1.0000						
10/11	0.2035	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000							
11/12	0.0440	1.0000	1.0000	1.0000	1.0000	1.0000								
12/13	0.5471	1.3620	3.2383	1.0042	1.1876									
13/14	1.2087	2.2583	1.3327	1.0162										
14/15	1.3713	2.6133	1.0000											
15/16	1.4851	1.0413												
16/17	0.8176													
Average Last 9	0.8849	2.4361	1.3089	0.9753	1.0056	1.1511	1.0067	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.0860	1.6550	1.5142	0.9244	1.0398	0.9746	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.2247	1.9710	1.8570	1.0068	1.0625	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	0.9089	2.2492	1.1830	0.9463	0.9446	1.1540	1.0173	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.0668	1.8466	1.3341	0.8112	1.0779	0.9153	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.1549	1.9086	1.3439	1.0115	1.1717	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.6534	1.4697	1.2470	1.1514	1.0766	1.0322	1.0085	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Collision
Major Class 03 - Public

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	5,701	5,733	5,691	5,674	5,674	5,670	5,664	5,656	5,647	5,644	5,640	5,639	5,639	5,639	5,639
04/05	5,883	6,032	5,978	5,911	5,901	5,889	5,880	5,869	5,868	5,868	5,867	5,867	5,862	5,863	
05/06	5,859	5,750	5,759	5,752	5,728	5,719	5,701	5,671	5,667	5,666	5,665	5,661	5,661		
06/07	6,635	6,714	6,709	6,690	6,683	6,674	6,668	6,662	6,659	6,655	6,649	6,649			
07/08	7,214	7,395	7,339	7,321	7,316	7,312	7,312	7,311	7,311	7,305	7,303				
08/09	7,753	7,758	7,725	7,705	7,706	7,701	7,700	7,700	7,694	7,694					
09/10	6,967	6,981	6,959	6,908	6,897	6,896	6,897	6,893	6,887						
10/11	7,669	7,813	7,800	7,784	7,786	7,781	7,776	7,775							
11/12	8,291	8,261	8,289	8,290	8,290	8,283	8,282								
12/13	8,711	9,026	9,079	9,092	9,101	9,077									
13/14	9,741	9,903	9,955	9,951	9,975										
14/15	8,798	8,839	8,881	8,946											
15/16	9,150	9,437	9,424												
16/17	10,754	11,025													
17/18	12,022														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0056	0.9926	0.9971	1.0000	0.9994	0.9989	0.9986	0.9983	0.9995	0.9993	0.9998	1.0000	1.0000	1.0000
04/05	1.0254	0.9911	0.9887	0.9984	0.9979	0.9986	0.9980	0.9999	0.9999	0.9999	1.0000	0.9992	1.0002	
05/06	0.9813	1.0016	0.9988	0.9958	0.9984	0.9969	0.9948	0.9992	0.9999	0.9997	0.9994	1.0000		
06/07	1.0119	0.9992	0.9971	0.9990	0.9987	0.9990	0.9991	0.9997	0.9994	0.9990	1.0000			
07/08	1.0251	0.9925	0.9975	0.9993	0.9994	1.0000	0.9998	1.0000	0.9993	0.9996				
08/09	1.0007	0.9957	0.9974	1.0001	0.9993	0.9999	1.0000	0.9992	1.0000					
09/10	1.0020	0.9969	0.9927	0.9983	1.0000	1.0001	0.9993	0.9992						
10/11	1.0188	0.9983	0.9979	1.0003	0.9993	0.9994	0.9999							
11/12	0.9964	1.0033	1.0002	1.0000	0.9991	0.9999								
12/13	1.0362	1.0058	1.0014	1.0010	0.9973									
13/14	1.0167	1.0053	0.9995	1.0025										
14/15	1.0047	1.0047	1.0074											
15/16	1.0315	0.9985												
16/17	1.0252													
Average Last 9	1.0147	1.0001	0.9990	0.9996	0.9988	0.9992	0.9987	0.9994	0.9997	0.9995	0.9998	0.9997	1.0001	1.0000
Average Last 5	1.0229	1.0035	1.0013	1.0004	0.9990	0.9999	0.9996	0.9995	0.9997	0.9995	0.9998	0.9997	1.0001	1.0000
Average Last 3	1.0205	1.0028	1.0028	1.0012	0.9986	0.9998	0.9997	0.9995	0.9996	0.9994	0.9998	0.9997	1.0001	1.0000
Wtd. Ave. Last 9	1.0156	1.0005	0.9993	0.9999	0.9988	0.9993	0.9989	0.9994	0.9997	0.9995	0.9998	0.9997	1.0001	1.0000
Wtd. Ave. Last 5	1.0229	1.0035	1.0014	1.0006	0.9989	0.9998	0.9996	0.9995	0.9997	0.9995	0.9998	0.9997	1.0001	1.0000
Wtd. Ave. Last 3	1.0209	1.0028	1.0026	1.0012	0.9985	0.9998	0.9997	0.9995	0.9996	0.9994	0.9998	0.9997	1.0001	1.0000
Overall	1.0362	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.0243	1.0050	1.0005	1.0005	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.0284	1.0040	0.9990	0.9985	0.9980	0.9985	0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Comprehensive
Major Class 03 - Public

(Net of Hail Storm)

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	517	519	520	520	514	500	498	497	497	495	494	495	495	495	495
04/05	795	725	730	728	728	728	728	728	723	723	723	724	724	724	
05/06	943	926	914	913	909	906	904	905	905	905	905	904	904		
06/07	1,030	1,082	1,051	1,054	1,047	1,047	1,047	1,045	1,045	1,045	1,044	1,044			
07/08	693	743	720	726	727	729	729	729	729	729	729				
08/09	571	609	635	635	635	636	637	638	638	638					
09/10	750	745	724	712	712	712	712	712	712						
10/11	991	985	988	988	982	982	982	982							
11/12	841	902	903	905	900	899	899								
12/13	780	809	818	820	812	812									
13/14	1,137	1,172	1,190	1,187	1,167										
14/15	985	1,092	1,100	1,099											
15/16	1,314	1,377	1,376												
16/17	1,417	1,403													
17/18	1,000														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0041	1.0006	0.9996	0.9904	0.9713	0.9966	0.9983	0.9990	0.9960	0.9977	1.0035	1.0000	1.0000	1.0000
04/05	0.9126	1.0071	0.9969	1.0000	1.0000	1.0000	1.0000	0.9925	1.0000	1.0000	1.0019	1.0000	1.0000	
05/06	0.9811	0.9871	0.9994	0.9952	0.9974	0.9973	1.0011	1.0000	1.0000	1.0000	0.9994	1.0000		
06/07	1.0503	0.9719	1.0024	0.9935	0.9998	1.0003	0.9977	1.0000	1.0000	0.9997	1.0000			
07/08	1.0733	0.9686	1.0082	1.0013	1.0034	0.9994	1.0000	1.0000	0.9997	1.0000				
08/09	1.0663	1.0438	1.0000	1.0000	1.0007	1.0027	1.0001	1.0000	1.0000					
09/10	0.9940	0.9710	0.9835	0.9997	1.0011	1.0000	1.0000	1.0000						
10/11	0.9939	1.0031	1.0001	0.9935	1.0006	0.9999	1.0000							
11/12	1.0723	1.0014	1.0025	0.9941	0.9994	1.0000								
12/13	1.0378	1.0102	1.0032	0.9902	1.0000									
13/14	1.0307	1.0151	0.9972	0.9839										
14/15	1.1078	1.0074	0.9994											
15/16	1.0480	0.9988												
16/17	0.9902													
Average Last 9	1.0379	1.0022	0.9996	0.9946	1.0003	0.9996	0.9997	0.9988	0.9993	0.9995	1.0012	1.0000	1.0000	1.0000
Average Last 5	1.0429	1.0066	1.0005	0.9923	1.0004	1.0004	0.9996	1.0000	0.9999	0.9995	1.0012	1.0000	1.0000	1.0000
Average Last 3	1.0487	1.0071	0.9999	0.9894	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	1.0004	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.0350	1.0022	0.9997	0.9938	1.0002	0.9996	0.9997	0.9989	0.9995	0.9996	1.0008	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.0390	1.0063	1.0002	0.9915	1.0003	1.0003	0.9994	1.0000	0.9999	0.9996	1.0008	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.0418	1.0066	0.9996	0.9888	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	1.0003	1.0000	1.0000	1.0000
Overall	1.0765	1.0140	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.0394	1.0063	1.0000	0.9970	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.0428	1.0033	0.9970	0.9970	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Property Damage
Major Class 03 - Public

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	799	979	976	976	975	976	975	975	975	974	974	974	974	974	973
04/05	716	815	852	841	841	841	841	840	841	840	840	840	840	840	
05/06	688	822	846	849	848	848	848	847	847	847	847	847	847		
06/07	707	830	859	860	849	849	849	849	848	848	848	848			
07/08	756	872	896	895	895	896	895	895	896	895	895				
08/09	665	800	816	821	821	822	822	821	821	821					
09/10	650	719	738	738	734	734	733	732	732						
10/11	779	962	987	988	987	987	986	986							
11/12	829	906	931	945	945	943	943								
12/13	1,129	1,302	1,319	1,328	1,346	1,346									
13/14	837	1,105	1,141	1,175	1,175										
14/15	883	1,004	1,014	1,017											
15/16	812	1,128	1,216												
16/17	778	999													
17/18	830														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.2254	0.9961	1.0003	0.9994	1.0004	0.9990	1.0000	1.0000	0.9990	1.0000	1.0000	1.0000	1.0000	0.9995
04/05	1.1375	1.0459	0.9869	1.0003	0.9994	0.9996	0.9992	1.0012	0.9995	1.0000	1.0000	1.0000	1.0000	
05/06	1.1954	1.0293	1.0026	0.9992	0.9997	1.0000	0.9994	0.9995	1.0000	1.0000	1.0000	1.0000		
06/07	1.1739	1.0353	1.0012	0.9869	0.9998	1.0000	1.0000	0.9994	1.0000	1.0000	1.0000			
07/08	1.1542	1.0266	0.9991	1.0007	1.0001	0.9996	1.0000	1.0003	0.9996	1.0000				
08/09	1.2027	1.0204	1.0060	1.0003	1.0003	1.0007	0.9990	0.9999	1.0000					
09/10	1.1070	1.0257	1.0005	0.9942	0.9993	0.9993	0.9981	1.0000						
10/11	1.2354	1.0254	1.0008	0.9990	0.9999	0.9999	0.9992							
11/12	1.0927	1.0277	1.0149	0.9998	0.9988	0.9994								
12/13	1.1532	1.0127	1.0074	1.0132	1.0000									
13/14	1.3202	1.0329	1.0297	1.0000										
14/15	1.1361	1.0107	1.0021											
15/16	1.3888	1.0775												
16/17	1.2849													
Average Last 9	1.2134	1.0288	1.0069	0.9993	0.9997	0.9997	0.9994	1.0001	0.9997	1.0000	1.0000	1.0000	1.0000	0.9995
Average Last 5	1.2567	1.0323	1.0110	1.0012	0.9997	0.9998	0.9993	0.9998	0.9998	1.0000	1.0000	1.0000	1.0000	0.9995
Average Last 3	1.2699	1.0404	1.0131	1.0043	0.9996	0.9996	0.9988	1.0001	0.9999	1.0000	1.0000	1.0000	1.0000	0.9995
Wtd. Ave. Last 9	1.2123	1.0294	1.0076	1.0001	0.9997	0.9997	0.9994	1.0001	0.9997	1.0000	1.0000	1.0000	1.0000	0.9995
Wtd. Ave. Last 5	1.2475	1.0323	1.0112	1.0023	0.9997	0.9998	0.9993	0.9998	0.9998	1.0000	1.0000	1.0000	1.0000	0.9995
Wtd. Ave. Last 3	1.2659	1.0416	1.0132	1.0050	0.9996	0.9996	0.9988	1.0001	0.9999	1.0000	1.0000	1.0000	1.0000	0.9995
Overall	1.1906	1.0266	1.0030	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.2475	1.0235	1.0079	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.2863	1.0311	1.0074	0.9995	0.9980	0.9980	0.9985	0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Accident Benefits - Other (Indexed)
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	9,900	567,415	8,966	558,449	1.0706	0.00%	1.0000	0.00%	0.00%	0.97	60.39	61.36	61.36
05/06	10,152	785,464	155,919	629,545	1.0745	0.00%	1.0000	0.00%	0.00%	16.50	66.63	83.13	83.13
06/07	10,355	591,669	55,833	535,836	1.0744	0.00%	1.0000	0.00%	0.00%	5.79	55.60	61.39	61.39
07/08	10,925	1,051,793	465,759	586,033	1.0793	0.00%	1.0000	0.00%	0.00%	46.01	57.90	103.91	103.91
08/09	10,889	621,502	33,093	588,409	1.0903	0.00%	1.0000	10.00%	0.00%	3.31	58.92	62.23	62.23
09/10	10,558	2,063,650	1,220,012	843,637	1.0923	0.00%	1.0000	10.00%	0.00%	126.22	87.28	213.50	213.50
10/11	10,307	889,356	224,919	664,437	1.0774	0.00%	1.0000	10.00%	0.00%	23.51	69.45	92.97	92.97
11/12	10,904	1,681,698	374,679	1,307,019	1.0878	0.00%	1.0000	10.00%	0.00%	37.38	130.39	167.77	167.77
12/13	11,054	2,227,030	1,462,296	764,733	1.0964	0.00%	1.0000	10.00%	0.00%	145.04	75.85	220.88	220.88
13/14	11,638	1,339,471	66,064	1,273,407	1.1266	0.00%	1.0000	10.00%	20.00%	6.40	123.27	129.67	129.67
14/15	12,242	1,687,560	776,961	910,599	1.1450	0.00%	1.0000	10.00%	20.00%	72.67	85.17	157.84	157.84
15/16	12,278	2,614,637	1,392,157	1,222,480	1.1369	0.00%	1.0000	10.00%	20.00%	128.90	113.19	242.09	242.09
16/17	12,304	1,484,798	271,211	1,213,587	1.0837	0.00%	1.0000	10.00%	20.00%	23.89	106.89	130.78	130.78
17/18	12,871	1,734,627	368,724	1,365,903	1.1729	0.00%	1.0000	10.00%	20.00%	33.60	124.47	158.07	158.07

Average Adjusted Pure Premium	$ 170.69
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 170.69
2018/2019 Insurance Year	$ 170.69

TABLE 9
Accident Benefits - IRI
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	9,900	1,271,607	360,778	910,829	1.0448	1.25%	1.2123	0.00%	0.00%	46.16	116.53	162.69	134.19
05/06	10,152	895,240	470,582	424,658	1.0452	1.25%	1.1974	0.00%	0.00%	58.01	52.35	110.36	92.17
06/07	10,355	513,548	240,479	273,069	1.0449	1.25%	1.1826	0.00%	0.00%	28.70	32.59	61.29	51.82
07/08	10,925	2,299,781	1,707,881	591,900	1.0388	1.25%	1.1680	0.00%	0.00%	189.68	65.74	255.42	218.69
08/09	10,889	1,264,677	602,615	662,062	1.0436	1.25%	1.1536	10.00%	0.00%	66.63	73.20	139.83	121.21
09/10	10,558	2,106,398	1,136,888	969,510	1.0444	1.25%	1.1393	10.00%	0.00%	128.13	109.27	237.40	208.37
10/11	10,307	1,029,470	406,416	623,054	1.0388	1.25%	1.1253	10.00%	0.00%	46.09	70.66	116.75	103.75
11/12	10,904	1,655,122	1,228,126	426,996	1.0399	1.25%	1.1114	10.00%	0.00%	130.17	45.26	175.43	157.85
12/13	11,054	2,709,340	2,076,176	633,164	1.0375	1.25%	1.0976	10.00%	0.00%	213.90	65.23	279.13	254.30
13/14	11,638	1,283,593	634,042	649,551	1.0713	1.25%	1.0841	10.00%	20.00%	63.28	64.82	128.10	118.16
14/15	12,242	913,668	547,417	366,252	1.1274	1.25%	1.0707	10.00%	20.00%	53.98	36.11	90.09	84.14
15/16	12,278	2,723,308	2,453,838	269,469	1.1395	1.25%	1.0575	10.00%	20.00%	240.83	26.45	267.27	252.74
16/17	12,304	630,168	70,817	559,351	2.6848	1.25%	1.0444	10.00%	20.00%	16.14	127.48	143.62	137.51
17/18	12,871	497,613	193,826	303,787	4.1410	1.25%	1.0315	10.00%	20.00%	64.33	100.82	165.15	160.10

Average Adjusted Pure Premium	$ 173.48
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 173.48
2018/2019 Insurance Year	$ 171.34

TABLE 9
Accident Benefits - Other (Non-Indexed)
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	9,900	548,782	1.0015	0.00%	1.0000	0.00%	55.52	55.52
05/06	10,152	567,392	1.0035	0.00%	1.0000	0.00%	56.08	56.08
06/07	10,355	1,077,152	1.0054	0.00%	1.0000	0.00%	104.59	104.59
07/08	10,925	727,974	1.0076	0.00%	1.0000	0.00%	67.14	67.14
08/09	10,889	415,460	1.0099	0.00%	1.0000	0.00%	38.53	38.53
09/10	10,558	712,818	1.0116	0.00%	1.0000	0.00%	68.29	68.29
10/11	10,307	465,944	1.0139	0.00%	1.0000	0.00%	45.84	45.84
11/12	10,904	1,481,256	1.0150	0.00%	1.0000	0.00%	137.88	137.88
12/13	11,054	806,440	1.0179	0.00%	1.0000	0.00%	74.26	74.26
13/14	11,638	468,664	1.0244	0.00%	1.0000	20.00%	41.25	41.25
14/15	12,242	514,023	1.0348	0.00%	1.0000	20.00%	43.45	43.45
15/16	12,278	590,018	1.0522	0.00%	1.0000	20.00%	50.56	50.56
16/17	12,304	418,409	1.1516	0.00%	1.0000	20.00%	39.16	39.16
17/18	12,871	426,518	1.5794	0.00%	1.0000	20.00%	52.34	52.34

Average Adjusted Pure Premium	$	45.35
Predicted Pure Premium :		
2019/2020 Insurance Year	$	45.35
2018/2019 Insurance Year	$	45.35

TABLE 9
Basic Bodily Injury
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	9,900	10,129	1.0000	0.75%	1.1228	0.00%	1.15	1.02
05/06	10,152	15,630	1.0000	0.75%	1.1144	0.00%	1.72	1.54
06/07	10,355	0	1.0000	0.75%	1.1061	0.00%	0.00	0.00
07/08	10,925	351,996	1.0000	0.75%	1.0979	0.00%	35.37	32.22
08/09	10,889	0	1.0000	0.75%	1.0897	0.00%	0.00	0.00
09/10	10,558	190,801	1.0005	0.75%	1.0816	0.00%	19.56	18.08
10/11	10,307	10,176	1.0015	0.75%	1.0736	0.00%	1.06	0.99
11/12	10,904	1,151	1.0085	0.75%	1.0656	0.00%	0.11	0.11
12/13	11,054	145,316	1.0322	0.75%	1.0576	0.00%	14.35	13.57
13/14	11,638	198,512	1.0766	0.75%	1.0498	20.00%	19.28	18.36
14/15	12,242	202,480	1.1514	0.75%	1.0420	20.00%	19.84	19.04
15/16	12,278	92,787	1.2470	0.75%	1.0342	20.00%	9.75	9.42
16/17	12,304	77,675	1.4697	0.75%	1.0265	20.00%	9.52	9.28
17/18	12,871	0	1.6534	0.75%	1.0189	20.00%	0.00	0.00

Average Adjusted Pure Premium	$	11.68
Predicted Pure Premium :		
2019/2020 Insurance Year	$	11.68
2018/2019 Insurance Year	$	11.59

TABLE 9
Basic Collision
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	9,900	5,863,497	1.0000	3.50%	1.7044	0.00%	1,009.47	592.27
05/06	10,152	5,661,230	1.0000	3.50%	1.6468	0.00%	918.29	557.63
06/07	10,355	6,648,802	1.0000	3.50%	1.5911	0.00%	1,021.63	642.09
07/08	10,925	7,302,605	1.0000	3.50%	1.5373	0.00%	1,027.60	668.45
08/09	10,889	7,693,760	1.0000	3.50%	1.4853	0.00%	1,049.47	706.57
09/10	10,558	6,887,164	1.0000	3.50%	1.4351	0.00%	936.09	652.29
10/11	10,307	7,774,899	0.9995	3.50%	1.3865	0.00%	1,045.37	753.94
11/12	10,904	8,282,296	0.9990	3.50%	1.3397	0.00%	1,016.53	758.80
12/13	11,054	9,076,661	0.9985	3.50%	1.2944	0.00%	1,061.22	819.89
13/14	11,638	9,975,369	0.9980	3.50%	1.2506	20.00%	1,069.81	855.45
14/15	12,242	8,946,334	0.9985	3.50%	1.2083	20.00%	881.66	729.68
15/16	12,278	9,423,601	0.9990	3.50%	1.1674	20.00%	895.10	766.72
16/17	12,304	11,025,468	1.0040	3.50%	1.1280	20.00%	1,014.79	899.68
17/18	12,871	12,022,120	1.0284	3.50%	1.0898	20.00%	1,046.82	960.55

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	3.44%	0.8236
10-Years Exponential Trend	3.09%	0.6235
All Major Classes Trend (per Table 8)	4.50%	
Selected Trend	3.50%	

Average Adjusted Pure Premium	$	981.64
Predicted Pure Premium :		
2019/2020 Insurance Year	$	981.64
2018/2019 Insurance Year	$	948.44

TABLE 9
Basic Comprehensive
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	9,900	724,065	1.0000	2.00%	1.3593	0.00%	99.41	73.14
05/06	10,152	904,478	1.0000	2.00%	1.3326	0.00%	118.72	89.09
06/07	10,355	1,044,161	1.0000	2.00%	1.3065	0.00%	131.74	100.84
07/08	10,925	728,767	1.0000	2.00%	1.2809	0.00%	85.44	66.71
08/09	10,889	637,557	1.0000	2.00%	1.2557	0.00%	73.53	58.55
09/10	10,558	712,384	1.0000	2.00%	1.2311	0.00%	83.07	67.47
10/11	10,307	982,305	1.0000	2.00%	1.2070	0.00%	115.03	95.30
11/12	10,904	772,226	1.0000	2.00%	1.1833	0.00%	83.80	70.82
12/13	11,054	812,108	1.0000	2.00%	1.1601	0.00%	85.23	73.47
13/14	11,638	1,167,445	1.0000	2.00%	1.1374	20.00%	114.10	100.32
14/15	12,242	1,099,076	0.9970	2.00%	1.1151	20.00%	99.81	89.51
15/16	12,278	1,375,861	0.9970	2.00%	1.0932	20.00%	122.13	111.72
16/17	12,304	1,403,104	1.0033	2.00%	1.0718	20.00%	122.62	114.41
17/18	12,871	1,000,150	1.0428	2.00%	1.0508	20.00%	85.14	81.03

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	2.16%	0.1840
10-Years Exponential Trend	5.24%	0.4735
All Major Classes Trend (per Table 8)	2.00%	
Selected Trend	2.00%	

Average Adjusted Pure Premium	$	108.76
Predicted Pure Premium :		
2019/2020 Insurance Year	$	108.76
2018/2019 Insurance Year	$	106.63

TABLE 9
Basic Property Damage
Major Class 03 - Public

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	9,900	840,451	1.0000	1.75%	1.3085	0.00%	111.09	84.89
05/06	10,152	846,758	1.0000	1.75%	1.2860	0.00%	107.26	83.41
06/07	10,355	848,414	1.0000	1.75%	1.2639	0.00%	103.56	81.93
07/08	10,925	895,206	1.0000	1.75%	1.2422	0.00%	101.79	81.94
08/09	10,889	821,254	1.0000	1.75%	1.2208	0.00%	92.07	75.42
09/10	10,558	731,648	0.9995	1.75%	1.1998	0.00%	83.10	69.26
10/11	10,307	985,741	0.9990	1.75%	1.1792	0.00%	112.66	95.54
11/12	10,904	942,910	0.9985	1.75%	1.1589	0.00%	100.06	86.34
12/13	11,054	1,345,903	0.9980	1.75%	1.1390	0.00%	138.40	121.51
13/14	11,638	1,175,304	0.9980	1.75%	1.1194	20.00%	112.82	100.79
14/15	12,242	1,016,532	0.9995	1.75%	1.1001	20.00%	91.30	82.99
15/16	12,278	1,215,722	1.0074	1.75%	1.0812	20.00%	107.84	99.74
16/17	12,304	999,402	1.0311	1.75%	1.0626	20.00%	88.99	83.75
17/18	12,871	829,702	1.2863	1.75%	1.0443	20.00%	86.59	82.91

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	1.02%	0.0948
10-Years Exponential Trend	1.28%	0.0564
All Major Classes Trend (per Table 8)	1.75%	
Selected Trend	1.75%	

Average Adjusted Pure Premium	$	97.51
Predicted Pure Premium :		
2019/2020 Insurance Year	$	97.51
2018/2019 Insurance Year	$	95.83

TABLE 9
Basic Bodily Injury
Major Class 04 - Motorcycles

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/05	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
05/06	0	0	0	0	0	0	0	0	0	0	0	0	0		
06/07	0	0	0	0	0	0	0	0	0	0	0	0			
07/08	-	-	-	-	-	-	-	-	-	-	-				
08/09	21	9	9	9	9	9	9	9	9	9					
09/10	103	3	153	121	121	121	121	121	121						
10/11	-	-	50	55	55	55	55	55							
11/12	-	10	10	21	76	76	76								
12/13	-	-	-	-	-	-									
13/14	-	-	-	-	-										
14/15	-	-	-	-											
15/16	-	-	-												
16/17	25	26													
17/18	5														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.0000	1.0000	0.0033	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	0.4119	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	0.0338	43.8856	0.7894	1.0000	1.0000	1.0000	1.0000	1.0000						
10/11	1.0000	1.0000	1.1000	1.0000	1.0000	1.0000	1.0000							
11/12	1.0000	1.0079	2.1190	3.5547	1.0005	1.0000								
12/13	1.0000	1.0000	1.0000	1.0000	1.0000									
13/14	1.0000	1.0000	1.0000	1.0000										
14/15	1.0000	1.0000	1.0000											
15/16	1.0000	1.0000												
16/17	1.0178													
Average Last 9	0.8293	5.7659	1.1121	1.2839	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.0036	1.0016	1.2438	1.5109	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.0059	1.0000	1.0000	1.8516	1.0002	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	0.3191	10.0429	0.9278	1.2646	1.0002	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.0178	1.0079	1.2710	1.2762	1.0002	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.0178	1.0000	1.0000	3.5547	1.0003	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.6534	1.4697	1.2470	1.1514	1.0766	1.0322	1.0085	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Collision
Major Class 04 - Motorcycles

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	1,163	1,237	1,247	1,247	1,247	1,247	1,246	1,245	1,244	1,244	1,244	1,244	1,244	1,244	1,244
04/05	907	968	967	960	961	961	961	961	961	961	961	961	961	961	
05/06	961	1,001	1,005	1,003	1,002	998	998	998	998	998	998	998	998		
06/07	1,069	1,178	1,195	1,214	1,215	1,215	1,213	1,213	1,213	1,213	1,213	1,213			
07/08	1,057	1,151	1,178	1,214	1,197	1,197	1,202	1,202	1,202	1,202	1,202				
08/09	1,200	1,327	1,333	1,335	1,335	1,335	1,335	1,335	1,335	1,335					
09/10	1,132	1,221	1,230	1,238	1,232	1,234	1,234	1,234	1,234						
10/11	1,191	1,383	1,385	1,386	1,389	1,390	1,371	1,371							
11/12	940	1,136	1,147	1,152	1,152	1,155	1,154								
12/13	947	1,081	1,099	1,093	1,095	1,095									
13/14	1,018	1,120	1,154	1,157	1,157										
14/15	1,042	1,181	1,190	1,196											
15/16	1,255	1,367	1,383												
16/17	1,462	1,567													
17/18	1,419														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0637	1.0079	1.0002	1.0006	0.9993	0.9993	0.9993	0.9993	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.0675	0.9990	0.9929	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.0423	1.0039	0.9979	0.9986	0.9964	1.0000	1.0000	1.0000	0.9998	1.0000	1.0000	1.0000		
06/07	1.1021	1.0146	1.0159	1.0006	1.0000	0.9980	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	1.0888	1.0241	1.0303	0.9861	0.9995	1.0041	1.0000	1.0000	1.0002	1.0000				
08/09	1.1055	1.0046	1.0017	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	1.0781	1.0076	1.0065	0.9952	1.0019	1.0000	0.9999	1.0000						
10/11	1.1616	1.0016	1.0006	1.0021	1.0004	0.9868	1.0000							
11/12	1.2085	1.0100	1.0040	1.0000	1.0025	0.9996								
12/13	1.1411	1.0170	0.9942	1.0016	1.0003									
13/14	1.1004	1.0305	1.0024	1.0000										
14/15	1.1328	1.0076	1.0051											
15/16	1.0895	1.0115												
16/17	1.0720													
Average Last 9	1.1211	1.0127	1.0067	0.9983	1.0001	0.9987	0.9999	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.1071	1.0153	1.0013	0.9998	1.0010	0.9981	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.0981	1.0165	1.0006	1.0005	1.0011	0.9955	1.0000	1.0000	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.1173	1.0122	1.0067	0.9983	1.0002	0.9984	0.9999	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.1034	1.0151	1.0013	0.9998	1.0010	0.9978	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.0947	1.0160	1.0007	1.0005	1.0010	0.9950	1.0000	1.0000	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.0362	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1064	1.0127	1.0022	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.1240	1.0159	1.0032	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Property Damage
Major Class 04 - Motorcycles

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	24	30	32	32	32	32	32	32	32	32	32	32	32	32	32
04/05	27	28	29	29	28	27	27	27	27	27	27	27	27	27	
05/06	27	26	25	25	25	25	25	25	25	25	25	25	25		
06/07	24	27	30	29	29	29	29	29	29	29	29	29			
07/08	25	34	34	34	34	34	34	34	34	34	34				
08/09	36	38	40	40	40	40	40	40	40	40					
09/10	40	37	37	37	37	37	37	37	37						
10/11	28	28	28	28	28	28	28	28							
11/12	18	28	29	29	29	29	29								
12/13	34	34	34	34	34	34									
13/14	53	54	57	57	57										
14/15	24	22	22	22											
15/16	52	90	91												
16/17	61	58													
17/18	42														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.2625	1.0495	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.0324	1.0191	0.9930	0.9888	0.9733	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	0.9635	0.9826	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.1342	1.0972	0.9916	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	1.3373	1.0046	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	1.0400	1.0498	1.0032	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	0.9223	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000						
10/11	1.0016	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000							
11/12	1.5606	1.0393	1.0000	1.0086	1.0000	1.0000								
12/13	0.9781	1.0292	1.0000	1.0000	1.0000									
13/14	1.0134	1.0609	0.9995	1.0000										
14/15	0.9281	0.9887	1.0045											
15/16	1.7214	1.0053												
16/17	0.9403													
Average Last 9	1.1229	1.0198	0.9999	1.0010	0.9970	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.1163	1.0247	1.0008	1.0017	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.1966	1.0183	1.0013	1.0029	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.1176	1.0210	0.9998	1.0008	0.9974	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.1438	1.0246	1.0004	1.0013	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.2356	1.0212	1.0006	1.0021	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1906	1.0266	1.0030	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1906	1.0266	1.0030	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.2278	1.0313	1.0045	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Accident Benefits - Other (Indexed)
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	8,581	429,058	98,246	330,811	1.0706	0.00%	1.0000	0.00%	0.00%	12.26	41.27	53.53	53.53
05/06	9,002	1,173,322	787,477	385,845	1.0745	0.00%	1.0000	0.00%	0.00%	94.00	46.06	140.06	140.06
06/07	9,993	4,602,693	4,073,399	529,294	1.0744	0.00%	1.0000	0.00%	0.00%	437.94	56.91	494.85	494.85
07/08	10,742	1,697,874	1,106,310	591,564	1.0793	0.00%	1.0000	0.00%	0.00%	111.15	59.43	170.59	170.59
08/09	11,688	1,144,865	524,295	620,569	1.0903	0.00%	1.0000	10.00%	10.00%	48.91	57.89	106.79	106.79
09/10	11,758	1,145,790	323,393	822,397	1.0923	0.00%	1.0000	10.00%	10.00%	30.04	76.40	106.45	106.45
10/11	11,860	4,139,893	3,030,106	1,109,787	1.0774	0.00%	1.0000	10.00%	10.00%	275.26	100.82	376.08	376.08
11/12	12,542	1,435,265	928,452	506,814	1.0878	0.00%	1.0000	10.00%	10.00%	80.53	43.96	124.49	124.49
12/13	13,559	1,498,469	811,332	687,137	1.0964	0.00%	1.0000	10.00%	10.00%	65.60	55.56	121.17	121.17
13/14	13,927	1,829,808	680,059	1,149,750	1.1266	0.00%	1.0000	10.00%	10.00%	55.01	93.01	148.02	148.02
14/15	14,285	1,343,055	52,730	1,290,325	1.1450	0.00%	1.0000	10.00%	10.00%	4.23	103.42	107.65	107.65
15/16	15,088	1,866,630	381,929	1,484,701	1.1369	0.00%	1.0000	10.00%	10.00%	28.78	111.87	140.65	140.65
16/17	16,103	2,533,658	429,907	2,103,752	1.0837	0.00%	1.0000	10.00%	10.00%	28.93	141.58	170.52	170.52
17/18	16,758	1,833,768	154,322	1,679,446	1.1729	0.00%	1.0000	10.00%	10.00%	10.80	117.55	128.35	128.35

Average Adjusted Pure Premium	$ 153.02
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 153.02
2018/2019 Insurance Year	$ 153.02

Note: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Accident Benefits - IRI
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Serious Incurred Claims	Other Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Serious Losses Weight	Other Losses Weight	Adjusted Pure Premium Serious Losses	Adjusted Pure Premium Other Losses	Adjusted Pure Premium Total	Pure Premium No Trend
04/05	8,581	2,380,040	2,004,690	375,350	1.0448	1.25%	1.2123	0.00%	0.00%	295.91	55.41	351.32	289.79
05/06	9,002	1,885,619	1,078,305	807,314	1.0452	1.25%	1.1974	0.00%	0.00%	149.91	112.24	262.15	218.94
06/07	9,993	4,528,957	3,632,469	896,487	1.0449	1.25%	1.1826	0.00%	0.00%	449.20	110.86	560.06	473.59
07/08	10,742	3,238,314	2,132,037	1,106,277	1.0388	1.25%	1.1680	0.00%	0.00%	240.81	124.95	365.77	313.16
08/09	11,688	5,172,069	3,868,000	1,304,070	1.0436	1.25%	1.1536	10.00%	10.00%	398.42	134.32	532.74	461.82
09/10	11,758	2,456,035	1,183,917	1,272,118	1.0444	1.25%	1.1393	10.00%	10.00%	119.82	128.75	248.57	218.18
10/11	11,860	5,461,224	3,872,682	1,588,542	1.0388	1.25%	1.1253	10.00%	10.00%	381.67	156.56	538.22	478.31
11/12	12,542	1,496,735	624,028	872,707	1.0399	1.25%	1.1114	10.00%	10.00%	57.51	80.42	137.93	124.11
12/13	13,559	2,758,618	1,641,900	1,116,718	1.0375	1.25%	1.0976	10.00%	10.00%	137.91	93.80	231.70	211.09
13/14	13,927	4,501,927	2,749,200	1,752,727	1.0713	1.25%	1.0841	10.00%	10.00%	229.27	146.17	375.43	346.31
14/15	14,285	1,674,129	475,647	1,198,481	1.1274	1.25%	1.0707	10.00%	10.00%	40.19	101.27	141.46	132.12
15/16	15,088	3,762,374	2,040,851	1,721,523	1.1395	1.25%	1.0575	10.00%	10.00%	163.00	137.49	300.49	284.15
16/17	16,103	1,804,737	283,678	1,521,059	2.6848	1.25%	1.0444	10.00%	10.00%	49.40	264.87	314.27	300.90
17/18	16,758	950,074	125,000	825,074	4.1410	1.25%	1.0315	10.00%	10.00%	31.86	210.31	242.18	234.77

Average Adjusted Pure Premium	$ 306.30
Predicted Pure Premium :	
2019/2020 Insurance Year	$ 306.30
2018/2019 Insurance Year	$ 302.52

Note: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Accident Benefits - Other (Non-Indexed)
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	8,581	905,876	1.0015	0.00%	1.0000	0.00%	105.73	105.73
05/06	9,002	2,199,554	1.0035	0.00%	1.0000	0.00%	245.20	245.20
06/07	9,993	2,252,434	1.0054	0.00%	1.0000	0.00%	226.62	226.62
07/08	10,742	1,882,027	1.0076	0.00%	1.0000	0.00%	176.53	176.53
08/09	11,688	1,448,896	1.0099	0.00%	1.0000	10.00%	125.19	125.19
09/10	11,758	1,846,551	1.0116	0.00%	1.0000	10.00%	158.87	158.87
10/11	11,860	2,520,549	1.0139	0.00%	1.0000	10.00%	215.48	215.48
11/12	12,542	1,558,294	1.0150	0.00%	1.0000	10.00%	126.11	126.11
12/13	13,559	1,555,677	1.0179	0.00%	1.0000	10.00%	116.79	116.79
13/14	13,927	2,190,993	1.0244	0.00%	1.0000	10.00%	161.16	161.16
14/15	14,285	1,456,448	1.0348	0.00%	1.0000	10.00%	105.50	105.50
15/16	15,088	1,733,395	1.0522	0.00%	1.0000	10.00%	120.88	120.88
16/17	16,103	1,854,332	1.1516	0.00%	1.0000	10.00%	132.61	132.61
17/18	16,758	1,434,503	1.5794	0.00%	1.0000	10.00%	135.20	135.20

Average Adjusted Pure Premium	$	139.78
Predicted Pure Premium :		
2019/2020 Insurance Year	$	139.78
2018/2019 Insurance Year	$	139.78

Note: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Basic Bodily Injury
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	8,581	336	1.0000	0.75%	1.1228	0.00%	0.04	0.04
05/06	9,002	12	1.0000	0.75%	1.1144	0.00%	0.00	0.00
06/07	9,993	2	1.0000	0.75%	1.1061	0.00%	0.00	0.00
07/08	10,742	0	1.0000	0.75%	1.0979	0.00%	0.00	0.00
08/09	11,688	8,628	1.0000	0.75%	1.0897	0.00%	0.80	0.74
09/10	11,758	121,173	1.0005	0.75%	1.0816	0.00%	11.15	10.31
10/11	11,860	55,000	1.0015	0.75%	1.0736	0.00%	4.99	4.64
11/12	12,542	75,961	1.0085	0.75%	1.0656	0.00%	6.51	6.11
12/13	13,559	0	1.0322	0.75%	1.0576	0.00%	0.00	0.00
13/14	13,927	0	1.0766	0.75%	1.0498	20.00%	0.00	0.00
14/15	14,285	0	1.1514	0.75%	1.0420	20.00%	0.00	0.00
15/16	15,088	0	1.2470	0.75%	1.0342	20.00%	0.00	0.00
16/17	16,103	25,587	1.4697	0.75%	1.0265	20.00%	2.40	2.34
17/18	16,758	5,000	1.6534	0.75%	1.0189	20.00%	0.50	0.49

Average Adjusted Pure Premium	$	0.58
Predicted Pure Premium :		
2019/2020 Insurance Year	$	0.58
2018/2019 Insurance Year	$	0.58

Note: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Basic Collision
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	8,581	960,541	1.0000	4.50%	1.9783	0.00%	221.46	111.94
05/06	9,002	997,832	1.0000	4.50%	1.8932	0.00%	209.85	110.85
06/07	9,993	1,212,749	1.0000	4.50%	1.8116	0.00%	219.86	121.36
07/08	10,742	1,201,867	1.0000	4.50%	1.7336	0.00%	193.96	111.88
08/09	11,688	1,335,127	1.0000	4.50%	1.6590	0.00%	189.50	114.23
09/10	11,758	1,234,356	1.0000	4.50%	1.5875	0.00%	166.67	104.98
10/11	11,860	1,371,421	1.0000	4.50%	1.5192	0.00%	175.66	115.63
11/12	12,542	1,154,177	1.0000	4.50%	1.4537	0.00%	133.79	92.03
12/13	13,559	1,094,998	1.0000	4.50%	1.3911	0.00%	112.35	80.76
13/14	13,927	1,156,809	1.0000	4.50%	1.3312	20.00%	110.58	83.06
14/15	14,285	1,195,750	1.0010	4.50%	1.2739	20.00%	106.74	83.79
15/16	15,088	1,383,080	1.0032	4.50%	1.2191	20.00%	112.10	91.96
16/17	16,103	1,566,877	1.0159	4.50%	1.1666	20.00%	115.32	98.86
17/18	16,758	1,418,549	1.1240	4.50%	1.1163	20.00%	106.22	95.15

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	-2.28%	0.5000
10-Years Exponential Trend	-2.08%	0.2486
All Major Classes Trend (per Table 8)	4.50%	
Selected Trend	4.50%	

Average Adjusted Pure Premium	$	110.19
Predicted Pure Premium :		
2019/2020 Insurance Year	$	110.19
2018/2019 Insurance Year	$	105.45

Notes: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Basic Property Damage
Major Class 04 - Motorcycles

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	8,581	27,481	1.0000	1.75%	1.3085	0.00%	4.19	3.20
05/06	9,002	25,353	1.0000	1.75%	1.2860	0.00%	3.62	2.82
06/07	9,993	29,486	1.0000	1.75%	1.2639	0.00%	3.73	2.95
07/08	10,742	33,737	1.0000	1.75%	1.2422	0.00%	3.90	3.14
08/09	11,688	39,776	1.0000	1.75%	1.2208	0.00%	4.15	3.40
09/10	11,758	37,131	1.0000	1.75%	1.1998	0.00%	3.79	3.16
10/11	11,860	27,572	1.0000	1.75%	1.1792	0.00%	2.74	2.32
11/12	12,542	29,451	1.0000	1.75%	1.1589	0.00%	2.72	2.35
12/13	13,559	34,485	1.0000	1.75%	1.1390	0.00%	2.90	2.54
13/14	13,927	57,465	1.0000	1.75%	1.1194	20.00%	4.62	4.13
14/15	14,285	21,917	1.0015	1.75%	1.1001	20.00%	1.69	1.54
15/16	15,088	90,747	1.0045	1.75%	1.0812	20.00%	6.53	6.04
16/17	16,103	57,806	1.0313	1.75%	1.0626	20.00%	3.93	3.70
17/18	16,758	41,656	1.2278	1.75%	1.0443	20.00%	3.19	3.05

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	0.92%	0.0150
10-Years Exponential Trend	2.53%	0.0410
All Major Classes Trend (per Table 8)	1.75%	
Selected Trend	1.75%	

Average Adjusted Pure Premium	$	3.99
Predicted Pure Premium :		
2019/2020 Insurance Year	$	3.99
2018/2019 Insurance Year	$	3.92

Note: The Number of Units were adjusted to reflect seasonal rating

TABLE 9
Basic Bodily Injury
Major Class 05 - Trailers

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
05/06	-	-	-	-	-	-	-	-	-	-	-	-	-		
06/07	-	-	-	-	-	-	-	-	-	-	-	-			
07/08	-	-	-	-	-	-	-	-	-	-	-				
08/09	-	-	-	-	-	-	-	-	-	-					
09/10	-	-	-	-	-	-	-	-	-						
10/11	-	-	-	-	-	-	-	-							
11/12	-	-	-	-	-	-	-								
12/13	-	-	-	-	-	-									
13/14	-	-	-	-	-										
14/15	-	-	-	-											
15/16	-	-	-												
16/17	-	-													
17/18	-														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000						
10/11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000							
11/12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000								
12/13	1.0000	1.0000	1.0000	1.0000	1.0000									
13/14	1.0000	1.0000	1.0000	1.0000										
14/15	1.0000	1.0000	1.0000											
15/16	1.0000	1.0000												
16/17	1.0000													
Average Last 9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1250	1.1786	1.0830	1.0695	1.0430	1.0235	1.0070	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.6534	1.4697	1.2470	1.1514	1.0766	1.0322	1.0085	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Collision
Major Class 05 - Trailers

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	462	489	498	511	507	508	508	508	508	508	509	509	509	509	509
04/05	464	527	529	529	529	529	529	529	529	529	529	529	529	529	
05/06	575	516	533	528	527	527	527	527	527	527	527	527	527		
06/07	627	720	726	726	726	726	726	726	726	726	726	726			
07/08	750	814	821	828	830	830	830	830	830	830	830				
08/09	718	766	784	790	790	790	790	790	790	790					
09/10	945	994	1,005	1,009	1,009	1,011	1,011	1,011	1,011						
10/11	763	870	904	904	906	906	906	906							
11/12	824	926	947	959	959	959	959								
12/13	1,004	1,063	1,094	1,094	1,095	1,096									
13/14	938	1,042	1,088	1,099	1,118										
14/15	954	1,088	1,104	1,106											
15/16	1,260	1,495	1,538												
16/17	995	1,144													
17/18	1,036														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.0567	1.0196	1.0259	0.9928	1.0005	1.0000	1.0000	1.0000	1.0000	1.0025	1.0000	1.0000	1.0000	1.0000
04/05	1.1373	1.0039	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	0.8980	1.0325	0.9907	0.9983	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	1.1479	1.0086	1.0005	1.0000	1.0000	1.0000	1.0000	0.9994	1.0000	1.0000	1.0000			
07/08	1.0849	1.0089	1.0074	1.0033	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	1.0667	1.0228	1.0082	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	1.0518	1.0108	1.0049	0.9994	1.0018	1.0000	1.0000	1.0000						
10/11	1.1400	1.0391	1.0008	1.0022	1.0000	1.0000	1.0000							
11/12	1.1244	1.0220	1.0130	1.0000	1.0000	1.0000								
12/13	1.0583	1.0295	0.9999	1.0008	1.0007									
13/14	1.1108	1.0438	1.0103	1.0174										
14/15	1.1403	1.0143	1.0015											
15/16	1.1867	1.0289												
16/17	1.1504													
Average Last 9	1.1144	1.0245	1.0052	1.0024	1.0003	1.0000	1.0000	0.9999	1.0000	1.0005	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.1293	1.0277	1.0051	1.0040	1.0005	1.0000	1.0000	0.9999	1.0000	1.0005	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.1591	1.0290	1.0039	1.0061	1.0002	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.1175	1.0249	1.0051	1.0029	1.0003	1.0000	1.0000	0.9999	1.0000	1.0004	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.1322	1.0278	1.0050	1.0042	1.0005	1.0000	1.0000	0.9999	1.0000	1.0004	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.1616	1.0288	1.0039	1.0063	1.0002	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.0362	1.0090	1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1342	1.0272	1.0050	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.1720	1.0334	1.0060	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Comprehensive
Major Class 05 - Trailers

(Net of Hail Storm)

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	1,447	1,737	1,762	1,777	1,783	1,789	1,788	1,788	1,788	1,788	1,788	1,788	1,788	1,788	1,788
04/05	1,151	1,346	1,361	1,361	1,363	1,367	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368	
05/06	2,378	3,052	3,203	3,237	3,231	3,232	3,235	3,237	3,237	3,239	3,240	3,239	3,239		
06/07	2,193	2,761	2,900	2,928	2,927	2,939	2,932	2,931	2,931	2,931	2,933	2,935			
07/08	2,970	3,550	3,787	3,802	3,811	3,824	3,819	3,821	3,821	3,821	3,821				
08/09	2,540	2,887	2,989	3,016	3,018	3,021	3,020	3,020	3,022	3,022					
09/10	2,406	2,999	3,103	3,108	3,083	3,107	3,113	3,113	3,113						
10/11	4,083	4,831	4,960	4,968	4,932	4,943	4,952	4,964							
11/12	5,999	6,983	7,079	7,083	7,045	7,048	7,042								
12/13	5,451	6,372	6,458	6,490	6,424	6,399									
13/14	6,402	7,657	7,827	7,816	7,713										
14/15	5,523	6,421	6,510	6,497											
15/16	9,514	10,962	11,047												
16/17	10,322	11,511													
17/18	4,063														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.2006	1.0142	1.0086	1.0035	1.0030	0.9999	1.0000	1.0000	0.9999	0.9999	1.0003	1.0000	1.0000	1.0000
04/05	1.1700	1.0108	1.0000	1.0017	1.0026	1.0006	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.2835	1.0494	1.0104	0.9983	1.0004	1.0008	1.0006	1.0000	1.0008	1.0002	0.9998	1.0000		
06/07	1.2592	1.0502	1.0097	0.9998	1.0040	0.9976	0.9999	1.0000	1.0000	1.0007	1.0004			
07/08	1.1955	1.0666	1.0041	1.0023	1.0035	0.9987	1.0005	1.0000	1.0000	1.0000				
08/09	1.1366	1.0353	1.0091	1.0006	1.0008	1.0000	0.9999	1.0005	1.0000					
09/10	1.2467	1.0346	1.0015	0.9922	1.0078	1.0019	1.0000	0.9999						
10/11	1.1831	1.0266	1.0016	0.9928	1.0023	1.0017	1.0026							
11/12	1.1639	1.0138	1.0005	0.9947	1.0005	0.9991								
12/13	1.1690	1.0134	1.0051	0.9897	0.9961									
13/14	1.1960	1.0222	0.9987	0.9868										
14/15	1.1626	1.0138	0.9980											
15/16	1.1522	1.0077												
16/17	1.1152													
Average Last 9	1.1695	1.0260	1.0031	0.9952	1.0020	1.0000	1.0004	1.0001	1.0001	1.0002	1.0001	1.0000	1.0000	1.0000
Average Last 5	1.1590	1.0142	1.0008	0.9912	1.0015	1.0003	1.0006	1.0001	1.0002	1.0002	1.0001	1.0000	1.0000	1.0000
Average Last 3	1.1433	1.0146	1.0006	0.9904	0.9996	1.0009	1.0008	1.0001	1.0000	1.0003	1.0001	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.1605	1.0208	1.0021	0.9938	1.0013	1.0000	1.0007	1.0001	1.0001	1.0002	1.0001	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.1535	1.0137	1.0006	0.9909	1.0007	1.0001	1.0008	1.0001	1.0002	1.0002	1.0001	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.1394	1.0137	1.0005	0.9903	0.9995	1.0006	1.0011	1.0001	1.0000	1.0003	1.0001	1.0000	1.0000	1.0000
Overall	1.0765	1.0140	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1595	1.0137	1.0005	0.9960	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.1724	1.0112	0.9975	0.9970	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Property Damage
Major Class 05 - Trailers

HISTORICAL INCURRED LOSS DEVELOPMENT ('000)

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
03/04	16	23	23	23	23	23	23	23	23	23	23	23	23	23	23
04/05	23	28	18	18	18	18	18	18	18	18	18	18	18	18	
05/06	23	23	24	24	24	24	24	24	24	24	24	24	24		
06/07	18	15	16	16	16	16	16	16	16	16	16	16			
07/08	18	18	19	19	19	19	19	19	19	19	19				
08/09	34	27	27	27	27	27	27	27	27	27					
09/10	18	19	18	18	19	19	19	19	19						
10/11	29	40	39	39	39	39	39	39							
11/12	17	29	29	29	29	29	29								
12/13	49	52	52	53	52	52									
13/14	26	20	20	20	20										
14/15	36	67	67	67											
15/16	30	58	58												
16/17	44	38													
17/18	19														

LOSS DEVELOPMENT FACTORS

	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180
03/04	1.4054	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
04/05	1.2054	0.6433	0.9921	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
05/06	1.0262	1.0214	1.0210	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
06/07	0.8454	1.0196	1.0321	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
07/08	0.9862	1.0361	1.0267	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
08/09	0.8034	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000					
09/10	1.0614	0.9708	1.0000	1.0332	1.0000	1.0000	1.0000	1.0000						
10/11	1.3852	0.9688	1.0000	1.0129	1.0000	1.0000	1.0000							
11/12	1.7081	1.0000	1.0000	1.0000	1.0000	1.0000								
12/13	1.0550	1.0107	1.0095	0.9905	1.0000									
13/14	0.7671	1.0251	1.0000	1.0000										
14/15	1.8608	0.9940	1.0090											
15/16	1.9519	0.9914												
16/17	0.8589													
Average Last 9	1.2724	0.9997	1.0086	1.0041	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 5	1.2987	1.0042	1.0037	1.0073	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Average Last 3	1.5572	1.0035	1.0062	0.9968	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 9	1.2401	0.9970	1.0073	1.0025	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 5	1.2705	1.0007	1.0053	1.0038	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Wtd. Ave. Last 3	1.4855	0.9972	1.0079	0.9951	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Overall	1.1906	1.0266	1.0030	1.0015	1.0000	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000
Selected	1.1906	1.0266	1.0030	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Selected to Ultimate	1.2278	1.0313	1.0045	1.0015	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE 9
Basic Bodily Injury
Major Class 05 - Trailers

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	99,293	0	1.0000	0.75%	1.1228	0.00%	0.00	0.00
05/06	105,514	0	1.0000	0.75%	1.1144	0.00%	0.00	0.00
06/07	112,469	0	1.0000	0.75%	1.1061	0.00%	0.00	0.00
07/08	121,607	0	1.0000	0.75%	1.0979	0.00%	0.00	0.00
08/09	131,505	0	1.0000	0.75%	1.0897	0.00%	0.00	0.00
09/10	138,190	0	1.0005	0.75%	1.0816	0.00%	0.00	0.00
10/11	146,679	0	1.0015	0.75%	1.0736	0.00%	0.00	0.00
11/12	157,989	0	1.0085	0.75%	1.0656	0.00%	0.00	0.00
12/13	170,127	0	1.0322	0.75%	1.0576	0.00%	0.00	0.00
13/14	176,479	0	1.0766	0.75%	1.0498	20.00%	0.00	0.00
14/15	182,213	0	1.1514	0.75%	1.0420	20.00%	0.00	0.00
15/16	187,934	0	1.2470	0.75%	1.0342	20.00%	0.00	0.00
16/17	193,548	0	1.4697	0.75%	1.0265	20.00%	0.00	0.00
17/18	198,513	0	1.6534	0.75%	1.0189	20.00%	0.00	0.00

Average Adjusted Pure Premium	$	-
Predicted Pure Premium :		
2019/2020 Insurance Year	$	-
2018/2019 Insurance Year	$	-

TABLE 9
Basic Collision
Major Class 05 - Trailers

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	99,293	529,041	1.0000	4.50%	1.9783	0.00%	10.54	5.33
05/06	105,514	526,996	1.0000	4.50%	1.8932	0.00%	9.46	4.99
06/07	112,469	725,756	1.0000	4.50%	1.8116	0.00%	11.69	6.45
07/08	121,607	830,257	1.0000	4.50%	1.7336	0.00%	11.84	6.83
08/09	131,505	789,993	1.0000	4.50%	1.6590	0.00%	9.97	6.01
09/10	138,190	1,010,625	1.0000	4.50%	1.5875	0.00%	11.61	7.31
10/11	146,679	906,249	1.0000	4.50%	1.5192	0.00%	9.39	6.18
11/12	157,989	958,817	1.0000	4.50%	1.4537	0.00%	8.82	6.07
12/13	170,127	1,095,593	1.0000	4.50%	1.3911	0.00%	8.96	6.44
13/14	176,479	1,118,082	1.0000	4.50%	1.3312	20.00%	8.43	6.34
14/15	182,213	1,105,543	1.0010	4.50%	1.2739	20.00%	7.74	6.07
15/16	187,934	1,538,437	1.0060	4.50%	1.2191	20.00%	10.04	8.24
16/17	193,548	1,144,248	1.0334	4.50%	1.1666	20.00%	7.13	6.11
17/18	198,513	1,036,296	1.1720	4.50%	1.1163	20.00%	6.83	6.12

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	1.16%	0.1594
10-Years Exponential Trend	0.20%	0.0034
All Major Classes Trend (per Table 8)	4.50%	
Selected Trend	4.50%	

Average Adjusted Pure Premium	$	8.03
Predicted Pure Premium :		
2019/2020 Insurance Year	$	8.03
2018/2019 Insurance Year	$	7.69

TABLE 9
Basic Comprehensive
Major Class 05 - Trailers

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	99,293	1,367,694	1.0000	2.00%	1.3593	0.00%	18.72	13.77
05/06	105,514	3,239,447	1.0000	2.00%	1.3326	0.00%	40.91	30.70
06/07	112,469	2,934,608	1.0000	2.00%	1.3065	0.00%	34.09	26.09
07/08	121,607	3,821,190	1.0000	2.00%	1.2809	0.00%	40.25	31.42
08/09	131,505	3,021,738	1.0000	2.00%	1.2557	0.00%	28.85	22.98
09/10	138,190	3,113,067	1.0000	2.00%	1.2311	0.00%	27.73	22.53
10/11	146,679	4,964,340	1.0000	2.00%	1.2070	0.00%	40.85	33.84
11/12	157,989	6,139,900	1.0000	2.00%	1.1833	0.00%	45.99	38.86
12/13	170,127	6,398,982	1.0000	2.00%	1.1601	0.00%	43.64	37.61
13/14	176,479	7,712,838	1.0010	2.00%	1.1374	20.00%	49.76	43.75
14/15	182,213	6,496,818	0.9970	2.00%	1.1151	20.00%	39.64	35.55
15/16	187,934	11,046,818	0.9975	2.00%	1.0932	20.00%	64.10	58.63
16/17	193,548	11,511,395	1.0112	2.00%	1.0718	20.00%	64.46	60.14
17/18	198,513	4,063,028	1.1724	2.00%	1.0508	20.00%	25.21	24.00

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	6.27%	0.4181
10-Years Exponential Trend	6.18%	0.2611
All Major Classes Trend (per Table 8)	2.00%	
Selected Trend	2.00%	

Average Adjusted Pure Premium	$	48.63
Predicted Pure Premium :		
2019/2020 Insurance Year	$	48.63
2018/2019 Insurance Year	$	47.68

TABLE 9
Basic Property Damage
Major Class 05 - Trailers

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	99,293	17,578	1.0000	1.75%	1.3085	0.00%	0.23	0.18
05/06	105,514	24,357	1.0000	1.75%	1.2860	0.00%	0.30	0.23
06/07	112,469	16,097	1.0000	1.75%	1.2639	0.00%	0.18	0.14
07/08	121,607	19,215	1.0000	1.75%	1.2422	0.00%	0.20	0.16
08/09	131,505	26,917	1.0000	1.75%	1.2208	0.00%	0.25	0.20
09/10	138,190	18,822	1.0000	1.75%	1.1998	0.00%	0.16	0.14
10/11	146,679	39,276	1.0000	1.75%	1.1792	0.00%	0.32	0.27
11/12	157,989	29,148	1.0000	1.75%	1.1589	0.00%	0.21	0.18
12/13	170,127	52,291	1.0000	1.75%	1.1390	0.00%	0.35	0.31
13/14	176,479	20,398	1.0000	1.75%	1.1194	20.00%	0.13	0.12
14/15	182,213	67,335	1.0015	1.75%	1.1001	20.00%	0.41	0.37
15/16	187,934	57,889	1.0045	1.75%	1.0812	20.00%	0.33	0.31
16/17	193,548	37,679	1.0313	1.75%	1.0626	20.00%	0.21	0.20
17/18	198,513	19,236	1.2278	1.75%	1.0443	20.00%	0.12	0.12

Pure Premium Trend	Trend	RSQ
All Years Exponential Trend	1.20%	0.0182
10-Years Exponential Trend	-0.20%	0.0002
All Major Classes Trend (per Table 8)	1.75%	
Selected Trend	1.75%	

Average Adjusted Pure Premium	$	0.24
Predicted Pure Premium :		
2019/2020 Insurance Year	$	0.24
2018/2019 Insurance Year	$	0.24

TABLE 9
Basic Bodily Injury
Major Class 06 - ORV

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	31,669	105,572	1.0000	0.75%	1.1228	0.00%	3.74	3.33
05/06	34,601	286,712	1.0000	0.75%	1.1144	0.00%	9.23	8.29
06/07	36,935	298,762	1.0000	0.75%	1.1061	0.00%	8.95	8.09
07/08	41,575	8,238	1.0000	0.75%	1.0979	0.00%	0.22	0.20
08/09	46,635	127,057	1.0000	0.75%	1.0897	10.00%	2.97	2.72
09/10	50,144	1,750	1.0005	0.75%	1.0816	10.00%	0.04	0.03
10/11	53,262	853,463	1.0015	0.75%	1.0736	10.00%	17.23	16.05
11/12	57,254	242,179	1.0085	0.75%	1.0656	10.00%	4.55	4.27
12/13	60,075	50,453	1.0322	0.75%	1.0576	10.00%	0.92	0.87
13/14	64,913	0	1.0766	0.75%	1.0498	10.00%	0.00	0.00
14/15	67,034	793,729	1.1514	0.75%	1.0420	10.00%	14.21	13.63
15/16	67,806	26,325	1.2470	0.75%	1.0342	10.00%	0.50	0.48
16/17	70,593	293,160	1.4697	0.75%	1.0265	10.00%	6.27	6.10
17/18	72,910	30,000	1.6534	0.75%	1.0189	10.00%	0.69	0.68

Average Adjusted Pure Premium	$	4.74
Predicted Pure Premium :		
2019/2020 Insurance Year	$	4.74
2018/2019 Insurance Year	$	4.70

TABLE 9
Basic Property Damage
Major Class 06 - ORV

Accident Year	Number of Units	Incurred Claims	Loss Devt Factor	Selected Trend	Trend Factor	Weight	Adjusted Pure Premium	Pure Premium No Trend
04/05	31,669	31,396	1.0000	1.75%	1.3085	0.00%	1.30	0.99
05/06	34,601	50,519	1.0000	1.75%	1.2860	0.00%	1.88	1.46
06/07	36,935	48,141	1.0000	1.75%	1.2639	0.00%	1.65	1.30
07/08	41,575	52,492	1.0000	1.75%	1.2422	0.00%	1.57	1.26
08/09	46,635	73,404	1.0000	1.75%	1.2208	10.00%	1.92	1.57
09/10	50,144	47,213	1.0000	1.75%	1.1998	10.00%	1.13	0.94
10/11	53,262	66,438	1.0000	1.75%	1.1792	10.00%	1.47	1.25
11/12	57,254	46,096	1.0000	1.75%	1.1589	10.00%	0.93	0.81
12/13	60,075	86,137	1.0000	1.75%	1.1390	10.00%	1.63	1.43
13/14	64,913	47,923	1.0000	1.75%	1.1194	10.00%	0.83	0.74
14/15	67,034	39,382	1.0015	1.75%	1.1001	10.00%	0.65	0.59
15/16	67,806	21,575	1.0045	1.75%	1.0812	10.00%	0.35	0.32
16/17	70,593	73,559	1.0313	1.75%	1.0626	10.00%	1.14	1.07
17/18	72,910	38,001	1.2375	1.75%	1.0443	10.00%	0.67	0.64

Average Adjusted Pure Premium	$	1.07
Predicted Pure Premium :		
2019/2020 Insurance Year	$	1.07
2018/2019 Insurance Year	$	1.05

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	All Purpose Motorhome	2013	20,079	66,016				86,095
1	All Purpose Motorhome	2014	22,727	4,131				26,857
1	All Purpose Motorhome	2015	35,659	64,335				99,994
1	All Purpose Motorhome	2016	29,121	6,725				35,846
1	All Purpose Motorhome	2017	29,452	10,520				39,972
1	All Purpose Motorhome	Total	137,038	151,726	0	0	0	288,764
1	All Purpose Passenger Vehicle	2013	196,476,799	60,308,038	3,025,504	2,651,504	25,796,502	288,258,346
1	All Purpose Passenger Vehicle	2014	171,508,326	53,345,324	1,971,298	4,039,433	21,063,642	251,928,023
1	All Purpose Passenger Vehicle	2015	196,580,617	79,066,997	2,470,453	3,003,320	26,731,117	307,852,503
1	All Purpose Passenger Vehicle	2016	199,452,952	74,815,031	2,600,341	3,515,633	22,647,281	303,031,238
1	All Purpose Passenger Vehicle	2017	201,312,271	63,426,467	2,900,916	3,281,427	20,898,002	291,819,083
1	All Purpose Passenger Vehicle	Total	965,330,965	330,961,857	12,968,512	16,491,315	117,136,542	1,442,889,192
1	All Purpose Truck 4540 kg or less	2013	35,948,283	29,852,608	2,086,332	2,334,806	7,941,194	78,163,222
1	All Purpose Truck 4540 kg or less	2014	38,354,348	32,598,839	2,368,794	2,664,456	8,685,758	84,672,194
1	All Purpose Truck 4540 kg or less	2015	37,437,077	38,035,632	2,670,430	2,781,523	10,178,552	91,103,213
1	All Purpose Truck 4540 kg or less	2016	38,494,150	38,521,600	3,008,056	2,623,937	9,730,823	92,378,565
1	All Purpose Truck 4540 kg or less	2017	36,193,605	26,969,266	2,435,687	2,450,797	8,403,719	76,453,074
1	All Purpose Truck 4540 kg or less	Total	186,427,462	165,977,945	12,569,298	12,855,518	44,940,046	422,770,269
1	Antique Vehicle	2013						0
1	Antique Vehicle	2014						0
1	Antique Vehicle	2015						0
1	Antique Vehicle	2016						0
1	Antique Vehicle	2017						0
1	Antique Vehicle	Total	0	0	0	0	0	0
1	Collector Passenger Vehicle	2013						0
1	Collector Passenger Vehicle	2014	15,061	51,088				66,149
1	Collector Passenger Vehicle	2015	74,997	44,585	3,238			122,821
1	Collector Passenger Vehicle	2016	49,013	148,310	54,379	4,664		256,366
1	Collector Passenger Vehicle	2017	98,939	101,363				200,301
1	Collector Passenger Vehicle	Total	238,010	345,346	57,617	4,664	0	645,637
1	Collector Truck 4540 kg or less	2013						0
1	Collector Truck 4540 kg or less	2014	1,016					1,016
1	Collector Truck 4540 kg or less	2015	2,313	7,592				9,905
1	Collector Truck 4540 kg or less	2016	16,234	24,693				40,927
1	Collector Truck 4540 kg or less	2017	8,038	2,152				10,190
1	Collector Truck 4540 kg or less	Total	27,600	34,438	0	0	0	62,038

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Disabled Persons/Private/Business Bus	2013	181,975	174,548	55,617	2,189		414,329
1	Disabled Persons/Private/Business Bus	2014	161,291	124,323	110,723	446,838		843,177
1	Disabled Persons/Private/Business Bus	2015	324,896	182,278	116,441	7,047		630,663
1	Disabled Persons/Private/Business Bus	2016	123,320	236,613	28,151	17,226		405,310
1	Disabled Persons/Private/Business Bus	2017	205,921	306,759	60,969	57,571		631,220
1	Disabled Persons/Private/Business Bus	Total	997,403	1,024,522	371,902	530,871	0	2,924,699
1	Farm Passenger Vehicle	2013	345,314	3,004,372		3,371		3,353,057
1	Farm Passenger Vehicle	2014	12,692	4,179,442		4,237		4,196,371
1	Farm Passenger Vehicle	2015	7,875	4,630,832		6,279		4,644,986
1	Farm Passenger Vehicle	2016	44,033	3,241,901		86,076		3,372,011
1	Farm Passenger Vehicle	2017	3,223	3,270,931				3,274,153
1	Farm Passenger Vehicle	Total	413,137	18,327,478	0	99,962	0	18,840,578
1	Farming All Purpose Truck 4540 kg or less	2013	143,894	10,840,796	4,876	72,628	893,273	11,955,468
1	Farming All Purpose Truck 4540 kg or less	2014	111,793	13,073,430	10,175	60,388	276,897	13,532,683
1	Farming All Purpose Truck 4540 kg or less	2015	73,703	14,519,067	4,937	94,593	194,997	14,887,297
1	Farming All Purpose Truck 4540 kg or less	2016	107,758	14,677,106		125,368	251,249	15,161,481
1	Farming All Purpose Truck 4540 kg or less	2017	93,873	13,584,612	7,192	69,957	237,356	13,992,990
1	Farming All Purpose Truck 4540 kg or less	Total	531,022	66,695,010	27,180	422,934	1,853,772	69,529,918
1	Fishing All Purpose Truck 4540 kg or less	2013		151,761	246	40,909		192,916
1	Fishing All Purpose Truck 4540 kg or less	2014	10,598	119,598		27,912	7,930	166,039
1	Fishing All Purpose Truck 4540 kg or less	2015		170,655		22,130	2,127	194,912
1	Fishing All Purpose Truck 4540 kg or less	2016		159,799	1,001	16,751	7,670	185,220
1	Fishing All Purpose Truck 4540 kg or less	2017	11,744	173,013	232	16,316	14,449	215,753
1	Fishing All Purpose Truck 4540 kg or less	Total	22,342	774,826	1,478	124,018	32,175	954,840
1	Pleasure Motorhome	2013	527,237	744,391	1,589	19,679		1,292,895
1	Pleasure Motorhome	2014	457,695	843,472	10,374	3,228		1,314,769
1	Pleasure Motorhome	2015	739,409	1,265,716	5,126	8,059		2,018,310
1	Pleasure Motorhome	2016	358,637	1,246,012	15,622	14,740		1,635,010
1	Pleasure Motorhome	2017	449,312	650,558				1,099,870
1	Pleasure Motorhome	Total	2,532,290	4,750,149	32,711	45,705	0	7,360,855
1	Pleasure Passenger Vehicle	2013	71,564,336	46,744,147	987,329	2,348,288		121,644,100
1	Pleasure Passenger Vehicle	2014	64,212,690	40,966,957	914,056	3,163,309		109,257,012
1	Pleasure Passenger Vehicle	2015	70,895,894	55,380,153	933,981	1,814,383		129,024,411
1	Pleasure Passenger Vehicle	2016	72,657,101	60,815,443	949,975	2,313,942		136,736,461
1	Pleasure Passenger Vehicle	2017	75,387,811	46,858,057	1,011,946	1,965,949		125,223,763
1	Pleasure Passenger Vehicle	Total	354,717,832	250,764,757	4,797,287	11,605,870	0	621,885,746

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Pleasure Truck	2013	8,619,908	13,265,486	836,466	977,095		23,698,955
1	Pleasure Truck	2014	8,174,536	13,856,245	753,771	971,153		23,755,705
1	Pleasure Truck	2015	9,616,374	19,540,716	790,090	1,767,709		31,714,889
1	Pleasure Truck	2016	9,703,383	18,727,636	819,697	1,605,054		30,855,769
1	Pleasure Truck	2017	7,578,027	14,746,420	773,733	1,337,145		24,435,324
1	Pleasure Truck	Total	43,692,228	80,136,502	3,973,756	6,658,155	0	134,460,642
1	Major Class Total	2013	313,827,825	165,152,162	6,997,958	8,450,468	34,630,969	529,059,383
1	Major Class Total	2014	283,042,775	159,162,850	6,139,191	11,380,953	30,034,227	489,759,996
1	Major Class Total	2015	315,788,815	212,908,558	6,994,696	9,505,041	37,106,793	582,303,903
1	Major Class Total	2016	321,035,702	212,620,869	7,477,221	10,323,389	32,637,022	584,094,203
1	Major Class Total	2017	321,372,215	170,100,118	7,190,675	9,179,161	29,553,525	537,395,694
1	Major Class Total	Total	1,555,067,331	919,944,557	34,799,742	48,839,013	163,962,537	2,722,613,178

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	All Purpose Snow Vehicle (HTA)	2013						0
2	All Purpose Snow Vehicle (HTA)	2014		6,794				6,794
2	All Purpose Snow Vehicle (HTA)	2015						0
2	All Purpose Snow Vehicle (HTA)	2016		2,911				2,911
2	All Purpose Snow Vehicle (HTA)	2017						0
2	All Purpose Snow Vehicle (HTA)	Total	0	9,705	0	0	0	9,705
2	Artisan Truck	2013	95,577	17,598	223		28,759	142,156
2	Artisan Truck	2014	35,117	5,912	3,406		9,951	54,385
2	Artisan Truck	2015	73,755	31,770	189		84,803	190,517
2	Artisan Truck	2016	89,217	32,711			17,847	139,774
2	Artisan Truck	2017	14,608	1,652			10,343	26,603
2	Artisan Truck	Total	308,273	89,642	3,818	0	151,702	553,435
2	Cement/Brick/Exploration Truck	2013	18,325	42,946				61,271
2	Cement/Brick/Exploration Truck	2014	56,324	244,774				301,097
2	Cement/Brick/Exploration Truck	2015	45,912	43,842				89,755
2	Cement/Brick/Exploration Truck	2016	3,854	27,644				31,498
2	Cement/Brick/Exploration Truck	2017	91,930	16,378				108,308
2	Cement/Brick/Exploration Truck	Total	216,345	375,584	0	0	0	591,929
2	Common Carrier Vehicle Local	2013	1,463,560	393,257	10,200	7,611		1,874,628
2	Common Carrier Vehicle Local	2014	846,694	498,191	2,012	11,421		1,358,318
2	Common Carrier Vehicle Local	2015	1,025,339	1,260,342	3,932	5,572		2,295,185
2	Common Carrier Vehicle Local	2016	1,099,298	592,500	26,708	25,213		1,743,719
2	Common Carrier Vehicle Local	2017	1,270,394	472,816	45,948	11,943		1,801,101
2	Common Carrier Vehicle Local	Total	5,705,285	3,217,107	88,799	61,759	0	9,072,951
2	Common Carrier Vehicle Within City or Mun.	2013	626,856	95,585	16,926	3,849		743,216
2	Common Carrier Vehicle Within City or Mun.	2014	965,896	59,643				1,025,539
2	Common Carrier Vehicle Within City or Mun.	2015	520,359	141,283	2,707			664,349
2	Common Carrier Vehicle Within City or Mun.	2016	703,021	207,048	500	4,425		914,993
2	Common Carrier Vehicle Within City or Mun.	2017	599,199	69,141		7,309		675,649
2	Common Carrier Vehicle Within City or Mun.	Total	3,415,330	572,700	20,132	15,583	0	4,023,746
2	Common Carrier Passenger Vehicle < 161 km in MB	2013	63,942	9,663				73,605
2	Common Carrier Passenger Vehicle < 161 km in MB	2014	20,283	4,303				24,586
2	Common Carrier Passenger Vehicle < 161 km in MB	2015	49,345	50,745				100,090
2	Common Carrier Passenger Vehicle < 161 km in MB	2016	20,956	12,997				33,953
2	Common Carrier Passenger Vehicle < 161 km in MB	2017	23,141	16,554				39,694
2	Common Carrier Passenger Vehicle < 161 km in MB	Total	177,666	94,262	0	0	0	271,928

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Common Carrier Truck < 161 km in MB	2013	635,515	295,628	14,867	5,085		951,095
2	Common Carrier Truck < 161 km in MB	2014	587,544	205,434		4,929		797,907
2	Common Carrier Truck < 161 km in MB	2015	552,345	163,517				715,861
2	Common Carrier Truck < 161 km in MB	2016	600,963	345,863	34			946,860
2	Common Carrier Truck < 161 km in MB	2017	520,234	260,412				780,646
2	Common Carrier Truck < 161 km in MB	Total	2,896,600	1,270,854	14,901	10,014	0	4,192,369
2	Common Carrier Passenger Vehicle > 161 km in MB	2013	6,104	1,003				7,108
2	Common Carrier Passenger Vehicle > 161 km in MB	2014	7,557	17,533				25,090
2	Common Carrier Passenger Vehicle > 161 km in MB	2015	870	3,861				4,732
2	Common Carrier Passenger Vehicle > 161 km in MB	2016						0
2	Common Carrier Passenger Vehicle > 161 km in MB	2017	7,354	9,050				16,404
2	Common Carrier Passenger Vehicle > 161 km in MB	Total	21,886	31,447	0	0	0	53,334
2	Common Carrier Truck > 161 km in MB	2013	212,911	237,054				449,965
2	Common Carrier Truck > 161 km in MB	2014	261,178	1,138,409	1,883	500		1,401,971
2	Common Carrier Truck > 161 km in MB	2015	187,233	281,167		500		468,900
2	Common Carrier Truck > 161 km in MB	2016	358,181	182,930		250		541,361
2	Common Carrier Truck > 161 km in MB	2017	407,931	413,101				821,033
2	Common Carrier Truck > 161 km in MB	Total	1,427,434	2,252,661	1,883	1,250	0	3,683,229
2	Dealer All Uses except Motorcycles	2013	4,447,267	1,126,805	4,436	54,418		5,632,926
2	Dealer All Uses except Motorcycles	2014	1,480,969	1,035,867	984	31,704		2,549,524
2	Dealer All Uses except Motorcycles	2015	2,545,701	1,328,308	500	7,344		3,881,853
2	Dealer All Uses except Motorcycles	2016	1,892,547	949,526		14,067		2,856,140
2	Dealer All Uses except Motorcycles	2017	1,929,398	830,065	10,088	7,667		2,777,218
2	Dealer All Uses except Motorcycles	Total	12,295,882	5,270,570	16,008	115,200	0	17,697,660
2	Dealer Moped	2013						0
2	Dealer Moped	2014						0
2	Dealer Moped	2015						0
2	Dealer Moped	2016						0
2	Dealer Moped	2017						0
2	Dealer Moped	Total	0	0	0	0	0	0
2	Dealer Motorcycle	2013		4,564				4,564
2	Dealer Motorcycle	2014	18,837	7,190				26,027
2	Dealer Motorcycle	2015	2,500	15,866				18,366
2	Dealer Motorcycle	2016	6,467	12,569				19,036
2	Dealer Motorcycle	2017	21,622	135,053				156,674
2	Dealer Motorcycle	Total	49,426	175,242	0	0	0	224,668

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Dealer Trailer	2013	16,520	27,924				44,444
2	Dealer Trailer	2014	31,382	9,162				40,544
2	Dealer Trailer	2015	13,899	14,368				28,266
2	Dealer Trailer	2016						0
2	Dealer Trailer	2017	3,430	4,682				8,112
2	Dealer Trailer	Total	65,230	56,136	0	0	0	121,367
2	Driveaway Within MB	2013						0
2	Driveaway Within MB	2014						0
2	Driveaway Within MB	2015						0
2	Driveaway Within MB	2016						0
2	Driveaway Within MB	2017						0
2	Driveaway Within MB	Total	0	0	0	0	0	0
2	Driveaway > 161 km Outside MB	2013						0
2	Driveaway > 161 km Outside MB	2014						0
2	Driveaway > 161 km Outside MB	2015						0
2	Driveaway > 161 km Outside MB	2016						0
2	Driveaway > 161 km Outside MB	2017						0
2	Driveaway > 161 km Outside MB	Total	0	0	0	0	0	0
2	Farming All Purpose Truck 4541 kg or more	2013	23,676	4,781,912		1,000		4,806,588
2	Farming All Purpose Truck 4541 kg or more	2014	11,951	4,769,743				4,781,694
2	Farming All Purpose Truck 4541 kg or more	2015	7,891	3,371,852		30,058		3,409,801
2	Farming All Purpose Truck 4541 kg or more	2016	1,911	3,759,337		6,666		3,767,913
2	Farming All Purpose Truck 4541 kg or more	2017	33,723	3,680,579		679		3,714,981
2	Farming All Purpose Truck 4541 kg or more	Total	79,152	20,363,422	0	38,403	0	20,480,977
2	Fishing All Purpose Truck 4541 kg or more	2013						0
2	Fishing All Purpose Truck 4541 kg or more	2014		13,202				13,202
2	Fishing All Purpose Truck 4541 kg or more	2015						0
2	Fishing All Purpose Truck 4541 kg or more	2016						0
2	Fishing All Purpose Truck 4541 kg or more	2017						0
2	Fishing All Purpose Truck 4541 kg or more	Total	0	13,202	0	0	0	13,202
2	Logging Truck	2013		10,388		500		10,888
2	Logging Truck	2014		1,982		1,945		3,928
2	Logging Truck	2015		87,245		500		87,745
2	Logging Truck	2016		403,991				403,991
2	Logging Truck	2017				500		500
2	Logging Truck	Total	0	503,606	0	3,445	0	507,051

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Other Truck	2013	2,796,312	2,436,707	119,704	56,516	543,663	5,952,902
2	Other Truck	2014	2,267,888	1,897,186	104,170	69,784	1,440,992	5,780,020
2	Other Truck	2015	2,562,894	2,326,363	162,642	137,636	600,354	5,789,890
2	Other Truck	2016	3,234,325	3,711,180	56,343	121,002	407,759	7,530,609
2	Other Truck	2017	2,380,858	2,439,939	64,742	174,165	623,086	5,682,790
2	Other Truck	Total	13,242,278	12,811,375	507,600	559,104	3,615,854	30,736,210
2	Petroleum/Chemical Truck	2013	25,394	180,029				205,424
2	Petroleum/Chemical Truck	2014	46,618	239,447	6,621	174		292,861
2	Petroleum/Chemical Truck	2015	14,819	127,205	377	500		142,900
2	Petroleum/Chemical Truck	2016	29,979	160,368	979			191,326
2	Petroleum/Chemical Truck	2017	6,528	269,251	35,650			311,429
2	Petroleum/Chemical Truck	Total	123,338	976,300	43,627	674	0	1,143,939
2	Repairer	2013	149,794	40,167		1,667		191,628
2	Repairer	2014	42,030	8,387				50,417
2	Repairer	2015	53,485	76,006				129,491
2	Repairer	2016	57,080	38,957	2,435			98,472
2	Repairer	2017	198,680	41,682				240,362
2	Repairer	Total	501,068	205,199	2,435	1,667	0	710,369
2	Sand/Gravel Truck	2013	125,738	743,150				868,888
2	Sand/Gravel Truck	2014	443,525	3,948,808	17,276			4,409,608
2	Sand/Gravel Truck	2015	928,954	716,686	500			1,646,139
2	Sand/Gravel Truck	2016	329,530	382,330				711,861
2	Sand/Gravel Truck	2017	265,990	237,933		4,280		508,203
2	Sand/Gravel Truck	Total	2,093,737	6,028,907	17,776	4,280	0	8,144,700
2	Tow Truck	2013	1,098,257	287,574	226	31,468		1,417,525
2	Tow Truck	2014	541,901	253,937	9,663	2,632		808,133
2	Tow Truck	2015	252,186	238,550	6,625	367		497,728
2	Tow Truck	2016	216,282	316,618	36,706	30,697		600,304
2	Tow Truck	2017	265,962	97,817	45,832			409,612
2	Tow Truck	Total	2,374,587	1,194,497	99,052	65,165	0	3,733,301
2	Major Class Total	2013	11,805,747	10,731,956	166,580	162,115	572,422	23,438,820
2	Major Class Total	2014	7,665,694	14,365,904	146,015	123,089	1,450,944	23,751,644
2	Major Class Total	2015	8,837,487	10,278,975	177,471	182,477	685,157	20,161,567
2	Major Class Total	2016	8,643,609	11,139,480	123,705	202,321	425,605	20,534,720
2	Major Class Total	2017	8,040,983	8,996,104	202,260	206,542	633,429	18,079,318
2	Major Class Total	Total	44,993,519	55,512,419	816,031	876,543	3,767,556	105,966,068

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Charter Bus Local	2013	10,828	16,308	322,022	687		349,845
3	Charter Bus Local	2014	15,356	2,828				18,184
3	Charter Bus Local	2015	44,423					44,423
3	Charter Bus Local	2016	22,582					22,582
3	Charter Bus Local	2017	10,505					10,505
3	Charter Bus Local	Total	103,694	19,136	322,022	687	0	445,540
3	Common Carrier Bus Within MB	2013	12,841	3,443				16,284
3	Common Carrier Bus Within MB	2014	4,498	1,187				5,685
3	Common Carrier Bus Within MB	2015	281,867	1,000		2,460		285,327
3	Common Carrier Bus Within MB	2016	11,366	500				11,866
3	Common Carrier Bus Within MB	2017	4,753	1,539				6,292
3	Common Carrier Bus Within MB	Total	315,326	7,669	0	2,460	0	325,454
3	Common Carrier Bus > 161 km Outside MB	2013						0
3	Common Carrier Bus > 161 km Outside MB	2014	9,220	59				9,279
3	Common Carrier Bus > 161 km Outside MB	2015	2,168					2,168
3	Common Carrier Bus > 161 km Outside MB	2016	475	515				990
3	Common Carrier Bus > 161 km Outside MB	2017	9,900					9,900
3	Common Carrier Bus > 161 km Outside MB	Total	21,763	573	0	0	0	22,336
3	Funeral Passenger Vehicle	2013	24,888	51,427				76,314
3	Funeral Passenger Vehicle	2014	5,385	12,406				17,791
3	Funeral Passenger Vehicle	2015	26,865	13,469				40,333
3	Funeral Passenger Vehicle	2016	23,220	25,425				48,645
3	Funeral Passenger Vehicle	2017	37,727	12,864		4,500		55,092
3	Funeral Passenger Vehicle	Total	118,085	115,590	0	4,500	0	238,175
3	Limousine All Uses Passenger Vehicle	2013	141,816	40,593				182,408
3	Limousine All Uses Passenger Vehicle	2014	212,787	75,113				287,900
3	Limousine All Uses Passenger Vehicle	2015	82,896	90,233				173,129
3	Limousine All Uses Passenger Vehicle	2016	111,920	25,553				137,474
3	Limousine All Uses Passenger Vehicle	2017	102,129	55,902				158,031
3	Limousine All Uses Passenger Vehicle	Total	651,548	287,393	0	0	0	938,942
3	Police/Emergency Passenger Vehicle	2013	605,918	611,779	668	21,448		1,239,813
3	Police/Emergency Passenger Vehicle	2014	575,718	205,078	15,568	24,696		821,059
3	Police/Emergency Passenger Vehicle	2015	736,415	1,051,200	255	3,795		1,791,665
3	Police/Emergency Passenger Vehicle	2016	784,397	309,670		10,754		1,104,821
3	Police/Emergency Passenger Vehicle	2017	850,214	261,017	10,121	29,721		1,151,073
3	Police/Emergency Passenger Vehicle	Total	3,552,663	2,438,743	26,612	90,413	0	6,108,431

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Police/Emergency Truck	2013	24,807	32,175	1,427	5,538		63,947
3	Police/Emergency Truck	2014	10,808	10,562	521	1,280		23,172
3	Police/Emergency Truck	2015	27,172	16,678	2,189	2,591		48,630
3	Police/Emergency Truck	2016	8,003	40,979	10,385	282		59,648
3	Police/Emergency Truck	2017	49,116	42,580	13,461	4,013		109,170
3	Police/Emergency Truck	Total	119,907	142,973	27,983	13,704	0	304,567
3	School Bus Local	2013	205,338	605,845	2,338	16,960		830,481
3	School Bus Local	2014	320,690	532,894	500	16,011		870,096
3	School Bus Local	2015	1,479,924	496,584	89,180	16,684		2,082,372
3	School Bus Local	2016	224,948	837,834	2,868	97,745		1,163,395
3	School Bus Local	2017	165,940	172,465	2,009	22,100		362,514
3	School Bus Local	Total	2,396,841	2,645,622	96,894	169,500	0	5,308,857
3	Taxi/Livery Passenger Vehicle	2013	3,592,317	446,645	108,774	22,963		4,170,699
3	Taxi/Livery Passenger Vehicle	2014	3,993,699	387,219	195,120	6,541		4,582,579
3	Taxi/Livery Passenger Vehicle	2015	2,999,266	170,875	100,691	20,365		3,291,196
3	Taxi/Livery Passenger Vehicle	2016	3,248,560	311,400	141,578	26,815		3,728,354
3	Taxi/Livery Passenger Vehicle	2017	3,357,654	316,801	143,209	48,026		3,865,690
3	Taxi/Livery Passenger Vehicle	Total	17,191,496	1,632,939	689,372	124,710	0	19,638,517
3	Transit Bus Local	2013	1,074,207	31,733	15,153			1,121,093
3	Transit Bus Local	2014	531,607	49,281		3,087		583,975
3	Transit Bus Local	2015	1,683,593	5,470				1,689,063
3	Transit Bus Local	2016	910,914	44,298	832	31,883		987,928
3	Transit Bus Local	2017	647,153	64,851	2,079			714,084
3	Transit Bus Local	Total	4,847,475	195,633	18,064	34,970	0	5,096,142
3	U-Drive Bus	2013		7,157				7,157
3	U-Drive Bus	2014	1,019	-1,285				-266
3	U-Drive Bus	2015		74,878				74,878
3	U-Drive Bus	2016	9,575					9,575
3	U-Drive Bus	2017	8,600	10,850				19,450
3	U-Drive Bus	Total	19,194	91,601	0	0	0	110,794
3	U-Drive Moped	2013						0
3	U-Drive Moped	2014						0
3	U-Drive Moped	2015						0
3	U-Drive Moped	2016	35,665					35,665
3	U-Drive Moped	2017						0
3	U-Drive Moped	Total	35,665	0	0	0	0	35,665

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	U-Drive Motorhome	2013	3,200	31,754	42,910			77,864
3	U-Drive Motorhome	2014	5,738	18,084				23,822
3	U-Drive Motorhome	2015	25,334	4,067				29,401
3	U-Drive Motorhome	2016	2,861	1,582				4,443
3	U-Drive Motorhome	2017	21,439	2,265				23,704
3	U-Drive Motorhome	Total	58,573	57,751	42,910	0	0	159,234
3	U-Drive Passenger Vehicle	2013	5,698,930	518,906	40,860	23,171		6,281,866
3	U-Drive Passenger Vehicle	2014	5,531,586	457,159	79,191	54,330		6,122,266
3	U-Drive Passenger Vehicle	2015	5,955,759	562,905	42,091	30,061		6,590,816
3	U-Drive Passenger Vehicle	2016	6,198,044	739,959	73,118	50,796		7,061,917
3	U-Drive Passenger Vehicle	2017	7,395,549	703,347	60,554	23,227		8,182,677
3	U-Drive Passenger Vehicle	Total	30,779,867	2,982,276	295,814	181,586	0	34,239,542
3	U-Drive Truck	2013	936,130	100,320	39,989	27,671		1,104,111
3	U-Drive Truck	2014	786,077	78,412	32,211	39,890		936,590
3	U-Drive Truck	2015	909,834	282,266	99,904	30,979		1,322,983
3	U-Drive Truck	2016	1,184,917	184,945	42,749	39,788		1,452,399
3	U-Drive Truck	2017	1,202,102	171,966	275,921	24,242		1,674,231
3	U-Drive Truck	Total	5,019,060	817,910	490,775	162,570	0	6,490,315
3	Wheelchair/Livery Bus (Terr 1 only)	2013	86,474					86,474
3	Wheelchair/Livery Bus (Terr 1 only)	2014	77,542					77,542
3	Wheelchair/Livery Bus (Terr 1 only)	2015	569,549					569,549
3	Wheelchair/Livery Bus (Terr 1 only)	2016	209,322					209,322
3	Wheelchair/Livery Bus (Terr 1 only)	2017	168,318					168,318
3	Wheelchair/Livery Bus (Terr 1 only)	Total	1,111,206	0	0	0	0	1,111,206
3	Major Class Total	2013	12,417,694	2,498,084	574,140	118,438		15,608,357
3	Major Class Total	2014	12,081,730	1,828,997	323,111	145,835		14,379,673
3	Major Class Total	2015	14,825,067	2,769,623	334,309	106,934		18,035,933
3	Major Class Total	2016	12,986,771	2,522,660	271,530	258,063		16,039,023
3	Major Class Total	2017	14,031,100	1,816,446	507,355	155,829		16,510,730
3	Major Class Total	Total	66,342,362	11,435,810	2,010,445	785,100	0	80,573,717

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	All Purpose Moped/Mobility Vehicle	2013	497,612	527				498,139
4	All Purpose Moped/Mobility Vehicle	2014	105,693					105,693
4	All Purpose Moped/Mobility Vehicle	2015	46,275	18,982				65,257
4	All Purpose Moped/Mobility Vehicle	2016	54,531					54,531
4	All Purpose Moped/Mobility Vehicle	2017	13,844	1,685				15,528
4	All Purpose Moped/Mobility Vehicle	Total	717,955	21,194	0	0	0	739,148
4	All Purpose Motorcycle (Motorscooter Body Style)	2013	74,951	34,641				109,593
4	All Purpose Motorcycle (Motorscooter Body Style)	2014	76,966					76,966
4	All Purpose Motorcycle (Motorscooter Body Style)	2015	39,142				2,321	41,464
4	All Purpose Motorcycle (Motorscooter Body Style)	2016	67,497					67,497
4	All Purpose Motorcycle (Motorscooter Body Style)	2017	11,517					11,517
4	All Purpose Motorcycle (Motorscooter Body Style)	Total	270,074	34,641	0	0	2,321	307,036
4	All Purpose Motorcycle (Other Body Style)	2013	631,861	187,883				819,745
4	All Purpose Motorcycle (Other Body Style)	2014	1,489,857	44,489			26,958	1,561,304
4	All Purpose Motorcycle (Other Body Style)	2015	382,453	705,015			859	1,088,327
4	All Purpose Motorcycle (Other Body Style)	2016	308,496	472,427			63,496	844,419
4	All Purpose Motorcycle (Other Body Style)	2017	308,330	9,434			39,618	357,382
4	All Purpose Motorcycle (Other Body Style)	Total	3,120,998	1,419,248	0	0	130,931	4,671,176
4	All Purpose Motorcycle (Sport Body Style)	2013	58,935				6,583	65,518
4	All Purpose Motorcycle (Sport Body Style)	2014	27,543	1,739			500	29,782
4	All Purpose Motorcycle (Sport Body Style)	2015	100,439	9,543	3,205			113,188
4	All Purpose Motorcycle (Sport Body Style)	2016	115,877	139,444			4,516	259,837
4	All Purpose Motorcycle (Sport Body Style)	2017	44,714				2,840	47,553
4	All Purpose Motorcycle (Sport Body Style)	Total	347,508	150,726	3,205	0	14,438	515,878
4	All Purpose Motorcycle (Sport-Touring Body Style)	2013	3,643	83,347				86,990
4	All Purpose Motorcycle (Sport-Touring Body Style)	2014		13,099				13,099
4	All Purpose Motorcycle (Sport-Touring Body Style)	2015	4,278	27,229				31,507
4	All Purpose Motorcycle (Sport-Touring Body Style)	2016	3,373					3,373
4	All Purpose Motorcycle (Sport-Touring Body Style)	2017					8,631	8,631
4	All Purpose Motorcycle (Sport-Touring Body Style)	Total	11,294	123,675	0	0	8,631	143,600
4	All Purpose Motorcycle (Touring Body Style)	2013	451,451	87,191				538,642
4	All Purpose Motorcycle (Touring Body Style)	2014	124,586	12,585			12,426	149,597
4	All Purpose Motorcycle (Touring Body Style)	2015	189,354			2,909		192,263
4	All Purpose Motorcycle (Touring Body Style)	2016	692,195	143,648			46,606	882,448
4	All Purpose Motorcycle (Touring Body Style)	2017	115,023	14,630			53,762	183,415
4	All Purpose Motorcycle (Touring Body Style)	Total	1,572,607	258,054	0	2,909	112,794	1,946,365

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Moped/Mobility Vehicle	2013	66,175	3,591				69,766
4	Pleasure Moped/Mobility Vehicle	2014	37,027	2,998				40,024
4	Pleasure Moped/Mobility Vehicle	2015	378,950	27,161				406,111
4	Pleasure Moped/Mobility Vehicle	2016	85,214	8,800				94,013
4	Pleasure Moped/Mobility Vehicle	2017	79,943	99,756				179,699
4	Pleasure Moped/Mobility Vehicle	Total	647,309	142,305	0	0	0	789,614
4	Pleasure Motorcycle (Motorscooter Body Style)	2013	2,514	577,540				580,054
4	Pleasure Motorcycle (Motorscooter Body Style)	2014	7,523					7,523
4	Pleasure Motorcycle (Motorscooter Body Style)	2015	4,469	248				4,717
4	Pleasure Motorcycle (Motorscooter Body Style)	2016	22,346	34,694				57,040
4	Pleasure Motorcycle (Motorscooter Body Style)	2017	4,686	42,575				47,261
4	Pleasure Motorcycle (Motorscooter Body Style)	Total	41,538	655,057	0	0	0	696,596
4	Pleasure Motorcycle (Other Body Style)	2013	817,430	2,488,434	22,701			3,328,565
4	Pleasure Motorcycle (Other Body Style)	2014	825,892	1,252,177		6,141		2,084,209
4	Pleasure Motorcycle (Other Body Style)	2015	1,900,801	1,321,635		573,106		3,795,542
4	Pleasure Motorcycle (Other Body Style)	2016	907,778	1,555,535	4,575	9,496		2,477,383
4	Pleasure Motorcycle (Other Body Style)	2017	1,147,608	614,811	6,181	2,096		1,770,695
4	Pleasure Motorcycle (Other Body Style)	Total	5,599,508	7,232,592	33,457	590,838	0	13,456,395
4	Pleasure Motorcycle (Sport Body Style)	2013	2,058,254	108,163	4,310			2,170,728
4	Pleasure Motorcycle (Sport Body Style)	2014	156,794	137,375				294,169
4	Pleasure Motorcycle (Sport Body Style)	2015	357,020	124,087				481,107
4	Pleasure Motorcycle (Sport Body Style)	2016	622,015	58,312				680,328
4	Pleasure Motorcycle (Sport Body Style)	2017	301,429	247,207		4,703		553,338
4	Pleasure Motorcycle (Sport Body Style)	Total	3,495,512	675,145	4,310	4,703	0	4,179,669
4	Pleasure Motorcycle (Sport-Touring Body Style)	2013	9,388	36,558				45,946
4	Pleasure Motorcycle (Sport-Touring Body Style)	2014	40,897	12,129				53,026
4	Pleasure Motorcycle (Sport-Touring Body Style)	2015	33,308	15,481				48,788
4	Pleasure Motorcycle (Sport-Touring Body Style)	2016	459,650	31,536				491,186
4	Pleasure Motorcycle (Sport-Touring Body Style)	2017	46,027	136,134				182,162
4	Pleasure Motorcycle (Sport-Touring Body Style)	Total	589,270	231,838	0	0	0	821,108
4	Pleasure Motorcycle (Touring Body Style)	2013	638,564	778,105		1,389		1,418,058
4	Pleasure Motorcycle (Touring Body Style)	2014	365,505	896,314		11,055		1,272,874
4	Pleasure Motorcycle (Touring Body Style)	2015	924,820	1,637,348				2,562,168
4	Pleasure Motorcycle (Touring Body Style)	2016	868,536	1,032,580		9,737		1,910,853
4	Pleasure Motorcycle (Touring Body Style)	2017	683,809	1,595,240		49,161		2,328,210
4	Pleasure Motorcycle (Touring Body Style)	Total	3,481,234	5,939,588	0	71,343	0	9,492,165

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Major Class Total	2013	5,310,778	4,385,982	27,011	1,389	6,583	9,731,743
4	Major Class Total	2014	3,258,282	2,372,905	0	17,196	39,884	5,688,267
4	Major Class Total	2015	4,361,309	3,886,730	3,205	576,015	3,180	8,830,440
4	Major Class Total	2016	4,207,506	3,476,975	4,575	19,233	114,618	7,822,908
4	Major Class Total	2017	2,756,930	2,761,472	6,181	55,960	104,850	5,685,392
4	Major Class Total	Total	19,894,806	16,884,063	40,972	669,793	269,115	37,758,750

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
5	All Purpose Trailer $2500 or less	2013	156,589	217,942	2,900	6,674		384,106
5	All Purpose Trailer $2500 or less	2014	133,165	246,762	795			380,722
5	All Purpose Trailer $2500 or less	2015	170,408	348,684	3,558	9,064		531,713
5	All Purpose Trailer $2500 or less	2016	221,004	324,408	2,517	2,128		550,057
5	All Purpose Trailer $2500 or less	2017	161,160	209,723	340	3,386		374,609
5	All Purpose Trailer $2500 or less	Total	842,326	1,347,519	10,110	21,253	0	2,221,207
5	All Purpose Trailer $2501 or more	2013	1,797,183	6,555,327	53,476	61,226		8,467,213
5	All Purpose Trailer $2501 or more	2014	1,617,299	5,471,844	152,576	47,256		7,288,974
5	All Purpose Trailer $2501 or more	2015	2,790,487	9,115,265	121,131	84,547		12,111,430
5	All Purpose Trailer $2501 or more	2016	2,872,658	9,021,462	134,981	114,163		12,143,265
5	All Purpose Trailer $2501 or more	2017	1,346,318	3,247,155	36,326	114,153		4,743,951
5	All Purpose Trailer $2501 or more	Total	10,423,944	33,411,053	498,490	421,346	0	44,754,834
5	Major Class Total	2013	1,953,773	6,773,270	56,376	67,901		8,851,319
5	Major Class Total	2014	1,750,464	5,718,606	153,371	47,256		7,669,697
5	Major Class Total	2015	2,960,894	9,463,949	124,689	93,612		12,643,143
5	Major Class Total	2016	3,093,662	9,345,870	137,498	116,292		12,693,322
5	Major Class Total	2017	1,507,478	3,456,878	36,666	117,538		5,118,561
5	Major Class Total	Total	11,266,270	34,758,572	508,600	442,599	0	46,976,041

TABLE 10
Reported Loss and ALAE with Hail and Actual Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
6	Off Road Vehicle All Purpose	2013	3,892	36,579	2,111	5,341		47,923
6	Off Road Vehicle All Purpose	2014	11,463	820,648	500	500		833,111
6	Off Road Vehicle All Purpose	2015	7,409	40,141		350		47,900
6	Off Road Vehicle All Purpose	2016	20,221	345,999	500			366,719
6	Off Road Vehicle All Purpose	2017	42,758	18,190	6,053	1,000		68,001
6	Off Road Vehicle All Purpose	Total	85,743	1,261,557	9,164	7,191	0	1,363,655
6	Major Class Total	2013	3,892	36,579	2,111	5,341		47,923
6	Major Class Total	2014	11,463	820,648	500	500		833,111
6	Major Class Total	2015	7,409	40,141	0	350		47,900
6	Major Class Total	2016	20,221	345,999	500	0		366,719
6	Major Class Total	2017	42,758	18,190	6,053	1,000		68,001
6	Major Class Total	Total	85,743	1,261,557	9,164	7,191	0	1,363,655

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	All Purpose Passenger Vehicle	2008	12,853,767	7,012,982	675,513	452,540	5,675,342	26,670,143
1	All Purpose Passenger Vehicle	2009	17,682,352	8,164,726		391,701		26,238,779
1	All Purpose Passenger Vehicle	2010	19,190,611	10,754,076		570,460	3,651,286	34,166,433
1	All Purpose Passenger Vehicle	2011	12,022,486	11,825,975			2,686,525	26,534,986
1	All Purpose Passenger Vehicle	2012	13,476,216	10,890,974		2,268,875	6,334,023	32,970,088
1	All Purpose Passenger Vehicle	2013	11,243,024	4,749,907	545,425		3,539,270	20,077,626
1	All Purpose Passenger Vehicle	2014	7,985,696	1,560,873		1,753,352	1,198,818	12,498,739
1	All Purpose Passenger Vehicle	2015	9,299,044	9,111,957		271,732	3,977,904	22,660,636
1	All Purpose Passenger Vehicle	2016	3,862,442	259,252				4,121,694
1	All Purpose Passenger Vehicle	2017	2,436,068	1,727,722				4,163,790
1	All Purpose Passenger Vehicle	Total	110,051,705	66,058,443	1,220,938	5,708,659	27,063,170	210,102,914
1	All Purpose Truck 4540 kg or less	2008	2,719,376	2,922,648				5,642,024
1	All Purpose Truck 4540 kg or less	2009	1,932,009	652,731		1,985,143	1,209,967	5,779,850
1	All Purpose Truck 4540 kg or less	2010	1,876,022	880,995		518,036	633,210	3,908,263
1	All Purpose Truck 4540 kg or less	2011	6,721,974	4,725,649			289,671	11,737,294
1	All Purpose Truck 4540 kg or less	2012	4,670,331	3,693,077			2,786,807	11,150,215
1	All Purpose Truck 4540 kg or less	2013	1,547,173	5,003,102		291,617	542,377	7,384,269
1	All Purpose Truck 4540 kg or less	2014	5,267,797	6,604,052			887,596	12,759,445
1	All Purpose Truck 4540 kg or less	2015	765,394	3,879,677	535,362	271,732	758,388	6,210,553
1	All Purpose Truck 4540 kg or less	2016	259,252	1,340,452				1,599,704
1	All Purpose Truck 4540 kg or less	2017	694,520					694,520
1	All Purpose Truck 4540 kg or less	Total	26,453,848	29,702,382	535,362	3,066,527	7,108,016	66,866,135
1	Farm Passenger Vehicle	2008		638,578				638,578
1	Farm Passenger Vehicle	2009						0
1	Farm Passenger Vehicle	2010		602,548				602,548
1	Farm Passenger Vehicle	2011						0
1	Farm Passenger Vehicle	2012						0
1	Farm Passenger Vehicle	2013						0
1	Farm Passenger Vehicle	2014		1,015,722				1,015,722
1	Farm Passenger Vehicle	2015		462,059				462,059
1	Farm Passenger Vehicle	2016						0
1	Farm Passenger Vehicle	2017						0
1	Farm Passenger Vehicle	Total	0	2,718,907	0	0	0	2,718,907

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Farming All Purpose Truck 4540 kg or less	2008		3,654,810				3,654,810
1	Farming All Purpose Truck 4540 kg or less	2009		2,722,409				2,722,409
1	Farming All Purpose Truck 4540 kg or less	2010		1,666,703				1,666,703
1	Farming All Purpose Truck 4540 kg or less	2011		364,156				364,156
1	Farming All Purpose Truck 4540 kg or less	2012		2,112,608				2,112,608
1	Farming All Purpose Truck 4540 kg or less	2013		508,397			683,032	1,191,429
1	Farming All Purpose Truck 4540 kg or less	2014		2,164,887				2,164,887
1	Farming All Purpose Truck 4540 kg or less	2015		1,233,163				1,233,163
1	Farming All Purpose Truck 4540 kg or less	2016						0
1	Farming All Purpose Truck 4540 kg or less	2017		689,950				689,950
1	Farming All Purpose Truck 4540 kg or less	Total	0	15,117,083	0	0	683,032	15,800,115
1	Pleasure Motorhome	2008						0
1	Pleasure Motorhome	2009						0
1	Pleasure Motorhome	2010	135,523					135,523
1	Pleasure Motorhome	2011						0
1	Pleasure Motorhome	2012	255,662					255,662
1	Pleasure Motorhome	2013						0
1	Pleasure Motorhome	2014						0
1	Pleasure Motorhome	2015						0
1	Pleasure Motorhome	2016						0
1	Pleasure Motorhome	2017						0
1	Pleasure Motorhome	Total	391,185	0	0	0	0	391,185
1	Pleasure Passenger Vehicle	2008	1,837,298	9,791,995	675,513	2,068,080		14,372,886
1	Pleasure Passenger Vehicle	2009	2,867,958	6,510,281				9,378,239
1	Pleasure Passenger Vehicle	2010	8,736,450	8,326,083		642,434		17,704,967
1	Pleasure Passenger Vehicle	2011	5,835,310	7,019,081				12,854,391
1	Pleasure Passenger Vehicle	2012	4,622,841	6,894,866				11,517,708
1	Pleasure Passenger Vehicle	2013	4,586,256	5,841,978		285,468		10,713,701
1	Pleasure Passenger Vehicle	2014	5,054,459	2,929,876		1,331,290		9,315,625
1	Pleasure Passenger Vehicle	2015	4,011,468	5,865,607				9,877,075
1	Pleasure Passenger Vehicle	2016	2,639,974	8,175,785				10,815,759
1	Pleasure Passenger Vehicle	2017	2,403,204	755,182				3,158,386
1	Pleasure Passenger Vehicle	Total	42,595,218	62,110,735	675,513	4,327,271	0	109,708,737

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Pleasure Truck	2008		331,613				331,613
1	Pleasure Truck	2009		344,671				344,671
1	Pleasure Truck	2010	1,381,811	2,305,122				3,686,933
1	Pleasure Truck	2011		1,559,770	1,801,328			3,361,097
1	Pleasure Truck	2012	704,698	1,756,201				2,460,899
1	Pleasure Truck	2013	856,185	994,303				1,850,488
1	Pleasure Truck	2014	1,378,881	1,266,929				2,645,810
1	Pleasure Truck	2015	1,296,002	1,427,762		690,621		3,414,385
1	Pleasure Truck	2016	458,970					458,970
1	Pleasure Truck	2017		670,783				670,783
1	Pleasure Truck	Total	6,076,547	10,657,154	1,801,328	690,621	0	19,225,650
1	Major Class Total	2008	17,410,441	24,352,626	1,351,025	2,520,619	5,675,342	51,310,054
1	Major Class Total	2009	22,482,319	18,394,817	0	2,376,844	1,209,967	44,463,947
1	Major Class Total	2010	31,320,417	24,535,528	0	1,730,929	4,284,496	61,871,370
1	Major Class Total	2011	24,579,770	25,494,630	1,801,328	0	2,976,196	54,851,924
1	Major Class Total	2012	23,729,748	25,347,726	0	2,268,875	9,120,830	60,467,179
1	Major Class Total	2013	18,232,637	17,097,687	545,425	577,084	4,764,680	41,217,514
1	Major Class Total	2014	19,686,833	15,542,338	0	3,084,642	2,086,414	40,400,227
1	Major Class Total	2015	15,371,908	21,980,223	535,362	1,234,084	4,736,292	43,857,870
1	Major Class Total	2016	7,220,638	9,775,490	0	0	0	16,996,127
1	Major Class Total	2017	5,533,792	3,843,637	0	0	0	9,377,429
1	Major Class Total	Total	185,568,503	186,364,704	4,233,140	13,793,078	34,854,217	424,813,643

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Common Carrier Vehicle Local	2008						0
2	Common Carrier Vehicle Local	2009						0
2	Common Carrier Vehicle Local	2010						0
2	Common Carrier Vehicle Local	2011						0
2	Common Carrier Vehicle Local	2012						0
2	Common Carrier Vehicle Local	2013	182,224					182,224
2	Common Carrier Vehicle Local	2014						0
2	Common Carrier Vehicle Local	2015		893,879				893,879
2	Common Carrier Vehicle Local	2016						0
2	Common Carrier Vehicle Local	2017						0
2	Common Carrier Vehicle Local	Total	182,224	893,879	0	0	0	1,076,103
2	Common Carrier Vehicle Within City or Mun.	2008						0
2	Common Carrier Vehicle Within City or Mun.	2009						0
2	Common Carrier Vehicle Within City or Mun.	2010						0
2	Common Carrier Vehicle Within City or Mun.	2011	695,181					695,181
2	Common Carrier Vehicle Within City or Mun.	2012						0
2	Common Carrier Vehicle Within City or Mun.	2013						0
2	Common Carrier Vehicle Within City or Mun.	2014	444,084					444,084
2	Common Carrier Vehicle Within City or Mun.	2015						0
2	Common Carrier Vehicle Within City or Mun.	2016						0
2	Common Carrier Vehicle Within City or Mun.	2017						0
2	Common Carrier Vehicle Within City or Mun.	Total	1,139,265	0	0	0	0	1,139,265
2	Common Carrier Truck > 161 km in MB	2008						0
2	Common Carrier Truck > 161 km in MB	2009						0
2	Common Carrier Truck > 161 km in MB	2010						0
2	Common Carrier Truck > 161 km in MB	2011						0
2	Common Carrier Truck > 161 km in MB	2012						0
2	Common Carrier Truck > 161 km in MB	2013						0
2	Common Carrier Truck > 161 km in MB	2014		701,072				701,072
2	Common Carrier Truck > 161 km in MB	2015						0
2	Common Carrier Truck > 161 km in MB	2016						0
2	Common Carrier Truck > 161 km in MB	2017						0
2	Common Carrier Truck > 161 km in MB	Total	0	701,072	0	0	0	701,072

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Dealer All Uses except Motorcycles	2008	584,876	761,870				1,346,747
2	Dealer All Uses except Motorcycles	2009	475,368					475,368
2	Dealer All Uses except Motorcycles	2010		441,083				441,083
2	Dealer All Uses except Motorcycles	2011	1,896,786					1,896,786
2	Dealer All Uses except Motorcycles	2012						0
2	Dealer All Uses except Motorcycles	2013	2,919,048					2,919,048
2	Dealer All Uses except Motorcycles	2014						0
2	Dealer All Uses except Motorcycles	2015	634,063					634,063
2	Dealer All Uses except Motorcycles	2016						0
2	Dealer All Uses except Motorcycles	2017						0
2	Dealer All Uses except Motorcycles	Total	6,510,141	1,202,953	0	0	0	7,713,094
2	Dealer Trailer	2008						0
2	Dealer Trailer	2009						0
2	Dealer Trailer	2010						0
2	Dealer Trailer	2011						0
2	Dealer Trailer	2012	353,509					353,509
2	Dealer Trailer	2013						0
2	Dealer Trailer	2014						0
2	Dealer Trailer	2015						0
2	Dealer Trailer	2016						0
2	Dealer Trailer	2017						0
2	Dealer Trailer	Total	353,509	0	0	0	0	353,509
2	Farming All Purpose Truck 4541 kg or more	2008						0
2	Farming All Purpose Truck 4541 kg or more	2009		915,730				915,730
2	Farming All Purpose Truck 4541 kg or more	2010						0
2	Farming All Purpose Truck 4541 kg or more	2011						0
2	Farming All Purpose Truck 4541 kg or more	2012		396,760				396,760
2	Farming All Purpose Truck 4541 kg or more	2013		646,256				646,256
2	Farming All Purpose Truck 4541 kg or more	2014		893,945				893,945
2	Farming All Purpose Truck 4541 kg or more	2015						0
2	Farming All Purpose Truck 4541 kg or more	2016						0
2	Farming All Purpose Truck 4541 kg or more	2017						0
2	Farming All Purpose Truck 4541 kg or more	Total	0	2,852,690	0	0	0	2,852,690

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Other Truck	2008	1,888,997	308,150				2,197,148
2	Other Truck	2009	524,601	423,610				948,211
2	Other Truck	2010		275,068				275,068
2	Other Truck	2011		607,938				607,938
2	Other Truck	2012		2,559,142				2,559,142
2	Other Truck	2013	318,834	377,828				696,661
2	Other Truck	2014					691,758	691,758
2	Other Truck	2015						0
2	Other Truck	2016		1,409,173				1,409,173
2	Other Truck	2017						0
2	Other Truck	Total	2,732,432	5,960,908	0	0	691,758	9,385,098
2	Petroleum/Chemical Truck	2008						0
2	Petroleum/Chemical Truck	2009						0
2	Petroleum/Chemical Truck	2010						0
2	Petroleum/Chemical Truck	2011		633,183				633,183
2	Petroleum/Chemical Truck	2012						0
2	Petroleum/Chemical Truck	2013						0
2	Petroleum/Chemical Truck	2014						0
2	Petroleum/Chemical Truck	2015						0
2	Petroleum/Chemical Truck	2016						0
2	Petroleum/Chemical Truck	2017						0
2	Petroleum/Chemical Truck	Total	0	633,183	0	0	0	633,183
2	Sand/Gravel Truck	2008		1,585,273				1,585,273
2	Sand/Gravel Truck	2009						0
2	Sand/Gravel Truck	2010						0
2	Sand/Gravel Truck	2011		532,482				532,482
2	Sand/Gravel Truck	2012						0
2	Sand/Gravel Truck	2013						0
2	Sand/Gravel Truck	2014		3,444,022				3,444,022
2	Sand/Gravel Truck	2015	445,341	379,121				824,463
2	Sand/Gravel Truck	2016						0
2	Sand/Gravel Truck	2017						0
2	Sand/Gravel Truck	Total	445,341	5,940,898	0	0	0	6,386,239

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Tow Truck	2008						0
2	Tow Truck	2009						0
2	Tow Truck	2010	257,016					257,016
2	Tow Truck	2011						0
2	Tow Truck	2012						0
2	Tow Truck	2013	626,208					626,208
2	Tow Truck	2014						0
2	Tow Truck	2015						0
2	Tow Truck	2016						0
2	Tow Truck	2017						0
2	Tow Truck	Total	883,223	0	0	0	0	883,223
2	Major Class Total	2008	2,473,874	2,655,293	0	0	0	5,129,167
2	Major Class Total	2009	999,968	1,339,340	0	0	0	2,339,308
2	Major Class Total	2010	257,016	716,150	0	0	0	973,166
2	Major Class Total	2011	2,591,967	1,773,602	0	0	0	4,365,569
2	Major Class Total	2012	353,509	2,955,902	0	0	0	3,309,411
2	Major Class Total	2013	4,046,314	1,024,083	0	0	0	5,070,397
2	Major Class Total	2014	444,084	5,039,039	0	0	691,758	6,174,880
2	Major Class Total	2015	1,079,404	1,273,000	0	0	0	2,352,405
2	Major Class Total	2016	0	1,409,173	0	0	0	1,409,173
2	Major Class Total	2017	0	0	0	0	0	0
2	Major Class Total	Total	12,246,135	18,185,583	0	0	691,758	31,123,476

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Common Carrier Bus Within Manitoba	2008						0
3	Common Carrier Bus Within Manitoba	2009						0
3	Common Carrier Bus Within Manitoba	2010						0
3	Common Carrier Bus Within Manitoba	2011						0
3	Common Carrier Bus Within Manitoba	2012						0
3	Common Carrier Bus Within Manitoba	2013						0
3	Common Carrier Bus Within Manitoba	2014						0
3	Common Carrier Bus Within Manitoba	2015	279,487					279,487
3	Common Carrier Bus Within Manitoba	2016						0
3	Common Carrier Bus Within Manitoba	2017						0
3	Common Carrier Bus Within Manitoba	Total	279,487	0	0	0	0	279,487
3	Common Carrier Bus > 161 km Outside MB	2008						0
3	Common Carrier Bus > 161 km Outside MB	2009	735,392					735,392
3	Common Carrier Bus > 161 km Outside MB	2010						0
3	Common Carrier Bus > 161 km Outside MB	2011						0
3	Common Carrier Bus > 161 km Outside MB	2012						0
3	Common Carrier Bus > 161 km Outside MB	2013						0
3	Common Carrier Bus > 161 km Outside MB	2014						0
3	Common Carrier Bus > 161 km Outside MB	2015						0
3	Common Carrier Bus > 161 km Outside MB	2016						0
3	Common Carrier Bus > 161 km Outside MB	2017						0
3	Common Carrier Bus > 161 km Outside MB	Total	735,392	0	0	0	0	735,392
3	Police/Emergency Passenger Vehicle	2008						0
3	Police/Emergency Passenger Vehicle	2009						0
3	Police/Emergency Passenger Vehicle	2010						0
3	Police/Emergency Passenger Vehicle	2011		337,197				337,197
3	Police/Emergency Passenger Vehicle	2012						0
3	Police/Emergency Passenger Vehicle	2013		287,233				287,233
3	Police/Emergency Passenger Vehicle	2014						0
3	Police/Emergency Passenger Vehicle	2015		924,478				924,478
3	Police/Emergency Passenger Vehicle	2016						0
3	Police/Emergency Passenger Vehicle	2017						0
3	Police/Emergency Passenger Vehicle	Total	0	1,548,908	0	0	0	1,548,908

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	School Bus Local	2008						0
3	School Bus Local	2009				366,697		366,697
3	School Bus Local	2010						0
3	School Bus Local	2011		299,807				299,807
3	School Bus Local	2012						0
3	School Bus Local	2013						0
3	School Bus Local	2014						0
3	School Bus Local	2015	1,261,881					1,261,881
3	School Bus Local	2016		439,111				439,111
3	School Bus Local	2017						0
3	School Bus Local	Total	1,261,881	738,918	0	366,697	0	2,367,496
3	Taxi/Livery Passenger Vehicle	2008	296,147					296,147
3	Taxi/Livery Passenger Vehicle	2009				1,394,995		1,394,995
3	Taxi/Livery Passenger Vehicle	2010	679,506					679,506
3	Taxi/Livery Passenger Vehicle	2011						0
3	Taxi/Livery Passenger Vehicle	2012	2,015,716					2,015,716
3	Taxi/Livery Passenger Vehicle	2013						0
3	Taxi/Livery Passenger Vehicle	2014	954,883					954,883
3	Taxi/Livery Passenger Vehicle	2015						0
3	Taxi/Livery Passenger Vehicle	2016						0
3	Taxi/Livery Passenger Vehicle	2017	187,705					187,705
3	Taxi/Livery Passenger Vehicle	Total	4,133,956	0	0	1,394,995	0	5,528,951
3	Transit Bus Local	2008						0
3	Transit Bus Local	2009						0
3	Transit Bus Local	2010						0
3	Transit Bus Local	2011	1,077,833					1,077,833
3	Transit Bus Local	2012	1,445,536					1,445,536
3	Transit Bus Local	2013						0
3	Transit Bus Local	2014						0
3	Transit Bus Local	2015	1,071,233					1,071,233
3	Transit Bus Local	2016						0
3	Transit Bus Local	2017						0
3	Transit Bus Local	Total	3,594,602	0	0	0	0	3,594,602

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	U-Drive Passenger Vehicle	2008		406,482				406,482
3	U-Drive Passenger Vehicle	2009						0
3	U-Drive Passenger Vehicle	2010						0
3	U-Drive Passenger Vehicle	2011		251,206				251,206
3	U-Drive Passenger Vehicle	2012						0
3	U-Drive Passenger Vehicle	2013	428,044					428,044
3	U-Drive Passenger Vehicle	2014	473,788					473,788
3	U-Drive Passenger Vehicle	2015	581,736					581,736
3	U-Drive Passenger Vehicle	2016						0
3	U-Drive Passenger Vehicle	2017	506,815					506,815
3	U-Drive Passenger Vehicle	Total	1,990,383	657,688	0	0	0	2,648,070
3	U-Drive Truck	2008						0
3	U-Drive Truck	2009						0
3	U-Drive Truck	2010						0
3	U-Drive Truck	2011						0
3	U-Drive Truck	2012	321,630					321,630
3	U-Drive Truck	2013						0
3	U-Drive Truck	2014						0
3	U-Drive Truck	2015						0
3	U-Drive Truck	2016						0
3	U-Drive Truck	2017						0
3	U-Drive Truck	Total	321,630	0	0	0	0	321,630
3	Major Class Total	2008	296,147	406,482	0	0		702,629
3	Major Class Total	2009	735,392	0	0	1,761,691		2,497,084
3	Major Class Total	2010	679,506	0	0	0		679,506
3	Major Class Total	2011	1,077,833	888,209	0	0		1,966,042
3	Major Class Total	2012	3,782,882	0	0	0		3,782,882
3	Major Class Total	2013	428,044	287,233	0	0		715,277
3	Major Class Total	2014	1,428,671	0	0	0		1,428,671
3	Major Class Total	2015	3,194,337	924,478	0	0		4,118,815
3	Major Class Total	2016	0	439,111	0	0		439,111
3	Major Class Total	2017	694,520	0	0	0		694,520
3	Major Class Total	Total	12,317,332	2,945,513	0	1,761,691	0	17,024,537

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	All Purpose Moped/Mobility Vehicle	2008	680,418					680,418
4	All Purpose Moped/Mobility Vehicle	2009						0
4	All Purpose Moped/Mobility Vehicle	2010	307,012					307,012
4	All Purpose Moped/Mobility Vehicle	2011						0
4	All Purpose Moped/Mobility Vehicle	2012						0
4	All Purpose Moped/Mobility Vehicle	2013						0
4	All Purpose Moped/Mobility Vehicle	2014						0
4	All Purpose Moped/Mobility Vehicle	2015						0
4	All Purpose Moped/Mobility Vehicle	2016						0
4	All Purpose Moped/Mobility Vehicle	2017						0
4	All Purpose Moped/Mobility Vehicle	Total	987,430	0	0	0	0	987,430
4	All Purpose Motorcycle (Other Body Style)	2008						0
4	All Purpose Motorcycle (Other Body Style)	2009		949,964				949,964
4	All Purpose Motorcycle (Other Body Style)	2010						0
4	All Purpose Motorcycle (Other Body Style)	2011						0
4	All Purpose Motorcycle (Other Body Style)	2012						0
4	All Purpose Motorcycle (Other Body Style)	2013						0
4	All Purpose Motorcycle (Other Body Style)	2014	546,098					546,098
4	All Purpose Motorcycle (Other Body Style)	2015		657,166				657,166
4	All Purpose Motorcycle (Other Body Style)	2016		418,452				418,452
4	All Purpose Motorcycle (Other Body Style)	2017						0
4	All Purpose Motorcycle (Other Body Style)	Total	546,098	2,025,582	0	0	0	2,571,680
4	All Purpose Motorcycle (Touring Body Style)	2008					418,309	418,309
4	All Purpose Motorcycle (Touring Body Style)	2009	178,768					178,768
4	All Purpose Motorcycle (Touring Body Style)	2010						0
4	All Purpose Motorcycle (Touring Body Style)	2011	335,474					335,474
4	All Purpose Motorcycle (Touring Body Style)	2012		1,528,488				1,528,488
4	All Purpose Motorcycle (Touring Body Style)	2013						0
4	All Purpose Motorcycle (Touring Body Style)	2014						0
4	All Purpose Motorcycle (Touring Body Style)	2015						0
4	All Purpose Motorcycle (Touring Body Style)	2016						0
4	All Purpose Motorcycle (Touring Body Style)	2017						0
4	All Purpose Motorcycle (Touring Body Style)	Total	514,242	1,528,488	0	0	418,309	2,461,038

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Moped/Mobility Vehicle	2008						0
4	Pleasure Moped/Mobility Vehicle	2009						0
4	Pleasure Moped/Mobility Vehicle	2010						0
4	Pleasure Moped/Mobility Vehicle	2011						0
4	Pleasure Moped/Mobility Vehicle	2012	592,610					592,610
4	Pleasure Moped/Mobility Vehicle	2013						0
4	Pleasure Moped/Mobility Vehicle	2014						0
4	Pleasure Moped/Mobility Vehicle	2015						0
4	Pleasure Moped/Mobility Vehicle	2016						0
4	Pleasure Moped/Mobility Vehicle	2017						0
4	Pleasure Moped/Mobility Vehicle	Total	592,610	0	0	0	0	592,610
4	Pleasure Motorcycle (Motorscooter Body Style)	2008						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2009						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2010						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2011						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2012						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2013		550,761				550,761
4	Pleasure Motorcycle (Motorscooter Body Style)	2014						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2015						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2016						0
4	Pleasure Motorcycle (Motorscooter Body Style)	2017						0
4	Pleasure Motorcycle (Motorscooter Body Style)	Total	0	550,761	0	0	0	550,761
4	Pleasure Motorcycle (Other Body Style)	2008	1,029,037	2,419,392				3,448,429
4	Pleasure Motorcycle (Other Body Style)	2009		469,437				469,437
4	Pleasure Motorcycle (Other Body Style)	2010	3,031,441	890,213				3,921,654
4	Pleasure Motorcycle (Other Body Style)	2011		541,664				541,664
4	Pleasure Motorcycle (Other Body Style)	2012		444,484				444,484
4	Pleasure Motorcycle (Other Body Style)	2013		1,563,588				1,563,588
4	Pleasure Motorcycle (Other Body Style)	2014						0
4	Pleasure Motorcycle (Other Body Style)	2015	841,351			515,348		1,356,699
4	Pleasure Motorcycle (Other Body Style)	2016		418,452				418,452
4	Pleasure Motorcycle (Other Body Style)	2017						0
4	Pleasure Motorcycle (Other Body Style)	Total	4,901,829	6,747,230	0	515,348	0	12,164,407

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Motorcycle (Sport Body Style)	2008						0
4	Pleasure Motorcycle (Sport Body Style)	2009						0
4	Pleasure Motorcycle (Sport Body Style)	2010		326,201				326,201
4	Pleasure Motorcycle (Sport Body Style)	2011						0
4	Pleasure Motorcycle (Sport Body Style)	2012						0
4	Pleasure Motorcycle (Sport Body Style)	2013	1,573,417					1,573,417
4	Pleasure Motorcycle (Sport Body Style)	2014						0
4	Pleasure Motorcycle (Sport Body Style)	2015						0
4	Pleasure Motorcycle (Sport Body Style)	2016						0
4	Pleasure Motorcycle (Sport Body Style)	2017						0
4	Pleasure Motorcycle (Sport Body Style)	Total	1,573,417	326,201	0	0	0	1,899,618
4	Pleasure Motorcycle (Sport-Touring Body Style)	2008						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2009						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2010	672,549					672,549
4	Pleasure Motorcycle (Sport-Touring Body Style)	2011						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2012						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2013						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2014						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2015						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2016						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	2017						0
4	Pleasure Motorcycle (Sport-Touring Body Style)	Total	672,549	0	0	0	0	672,549
4	Pleasure Motorcycle (Touring Body Style)	2008						0
4	Pleasure Motorcycle (Touring Body Style)	2009						0
4	Pleasure Motorcycle (Touring Body Style)	2010	394,829	2,001,809				2,396,638
4	Pleasure Motorcycle (Touring Body Style)	2011		774,686				774,686
4	Pleasure Motorcycle (Touring Body Style)	2012						0
4	Pleasure Motorcycle (Touring Body Style)	2013						0
4	Pleasure Motorcycle (Touring Body Style)	2014						0
4	Pleasure Motorcycle (Touring Body Style)	2015		537,481				537,481
4	Pleasure Motorcycle (Touring Body Style)	2016						0
4	Pleasure Motorcycle (Touring Body Style)	2017		542,329				542,329
4	Pleasure Motorcycle (Touring Body Style)	Total	394,829	3,856,305	0	0	0	4,251,135

TABLE 11
Reported Serious Losses and ALAE

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Major Class Total	2008	1,709,455	2,419,392	0	0	418,309	4,547,156
4	Major Class Total	2009	178,768	1,419,402	0	0	0	1,598,170
4	Major Class Total	2010	4,405,832	3,218,223	0	0	0	7,624,055
4	Major Class Total	2011	335,474	1,316,350	0	0	0	1,651,824
4	Major Class Total	2012	592,610	1,972,972	0	0	0	2,565,582
4	Major Class Total	2013	1,573,417	2,114,349	0	0	0	3,687,766
4	Major Class Total	2014	546,098	0	0	0	0	546,098
4	Major Class Total	2015	841,351	1,194,647	0	515,348	0	2,551,346
4	Major Class Total	2016	0	836,903	0	0	0	836,903
4	Major Class Total	2017	0	542,329	0	0	0	542,329
4	Major Class Total	Total	10,183,005	15,034,568	0	515,348	418,309	26,151,229

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	All Purpose Motorhome	2013	20,079	66,016	0	0	0	86,095
1	All Purpose Motorhome	2014	22,727	4,131	0	0	0	26,857
1	All Purpose Motorhome	2015	35,659	64,335	0	0	0	99,994
1	All Purpose Motorhome	2016	29,121	6,725	0	0	0	35,846
1	All Purpose Motorhome	2017	29,452	10,520	0	0	0	39,972
1	All Purpose Motorhome	Total	137,038	151,726	0	0	0	288,764
1	All Purpose Passenger Vehicle	2013	196,238,946	62,163,976	2,602,172	3,222,370	24,963,548	289,191,011
1	All Purpose Passenger Vehicle	2014	174,527,801	58,390,296	2,093,392	2,856,947	22,571,140	260,439,575
1	All Purpose Passenger Vehicle	2015	198,286,743	76,560,884	2,592,547	3,302,454	25,459,529	306,202,158
1	All Purpose Passenger Vehicle	2016	206,595,681	81,161,624	2,722,435	4,086,498	25,353,598	319,919,835
1	All Purpose Passenger Vehicle	2017	209,881,373	68,304,589	3,023,010	3,852,292	23,604,319	308,665,584
1	All Purpose Passenger Vehicle	Total	985,530,544	346,581,369	13,033,556	17,320,561	121,952,134	1,484,418,164
1	All Purpose Truck 4540 kg or less	2013	37,046,494	27,819,744	2,139,868	2,349,842	8,109,618	77,465,567
1	All Purpose Truck 4540 kg or less	2014	35,731,936	28,965,025	2,422,330	2,971,108	8,508,964	78,599,363
1	All Purpose Truck 4540 kg or less	2015	39,317,068	37,126,193	2,188,604	2,816,444	10,130,965	91,579,274
1	All Purpose Truck 4540 kg or less	2016	40,880,282	40,151,386	3,061,592	2,930,589	10,441,625	97,465,475
1	All Purpose Truck 4540 kg or less	2017	38,144,470	29,939,505	2,489,223	2,757,450	9,114,521	82,445,168
1	All Purpose Truck 4540 kg or less	Total	191,120,251	164,001,853	12,301,617	13,825,433	46,305,693	427,554,847
1	Antique Vehicle	2013	0	0	0	0		0
1	Antique Vehicle	2014	0	0	0	0		0
1	Antique Vehicle	2015	0	0	0	0		0
1	Antique Vehicle	2016	0	0	0	0		0
1	Antique Vehicle	2017	0	0	0	0		0
1	Antique Vehicle	Total	0	0	0	0	0	0
1	Collector Passenger Vehicle	2013	0	0	0	0		0
1	Collector Passenger Vehicle	2014	15,061	51,088	0	0		66,149
1	Collector Passenger Vehicle	2015	74,997	44,585	3,238	0		122,821
1	Collector Passenger Vehicle	2016	49,013	148,310	54,379	4,664		256,366
1	Collector Passenger Vehicle	2017	98,939	101,363	0	0		200,301
1	Collector Passenger Vehicle	Total	238,010	345,346	57,617	4,664	0	645,637
1	Collector Truck 4540 kg or less	2013	0	0	0	0		0
1	Collector Truck 4540 kg or less	2014	1,016	0	0	0		1,016
1	Collector Truck 4540 kg or less	2015	2,313	7,592	0	0		9,905
1	Collector Truck 4540 kg or less	2016	16,234	24,693	0	0		40,927
1	Collector Truck 4540 kg or less	2017	8,038	2,152	0	0		10,190
1	Collector Truck 4540 kg or less	Total	27,600	34,438	0	0	0	62,038

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Disabled Persons/Private/Business Bus	2013	181,975	174,548	55,617	2,189		414,329
1	Disabled Persons/Private/Business Bus	2014	161,291	124,323	110,723	446,838		843,177
1	Disabled Persons/Private/Business Bus	2015	324,896	182,278	116,441	7,047		630,663
1	Disabled Persons/Private/Business Bus	2016	123,320	236,613	28,151	17,226		405,310
1	Disabled Persons/Private/Business Bus	2017	205,921	306,759	60,969	57,571		631,220
1	Disabled Persons/Private/Business Bus	Total	997,403	1,024,522	371,902	530,871	0	2,924,699
1	Farm Passenger Vehicle	2013	345,314	3,276,263	0	3,371		3,624,948
1	Farm Passenger Vehicle	2014	12,692	3,435,611	0	4,237		3,452,540
1	Farm Passenger Vehicle	2015	7,875	4,440,664	0	6,279		4,454,818
1	Farm Passenger Vehicle	2016	44,033	3,513,792	0	86,076		3,643,902
1	Farm Passenger Vehicle	2017	3,223	3,542,821	0	0		3,546,044
1	Farm Passenger Vehicle	Total	413,137	18,209,151	0	99,962	0	18,722,251
1	Farming All Purpose Truck 4540 kg or less	2013	143,894	11,844,107	4,876	72,628	278,545	12,344,050
1	Farming All Purpose Truck 4540 kg or less	2014	111,793	12,420,251	10,175	60,388	345,200	12,947,807
1	Farming All Purpose Truck 4540 kg or less	2015	73,703	14,797,612	4,937	94,593	263,300	15,234,145
1	Farming All Purpose Truck 4540 kg or less	2016	107,758	16,188,814	0	125,368	319,552	16,741,492
1	Farming All Purpose Truck 4540 kg or less	2017	93,873	14,406,370	7,192	69,957	305,659	14,883,052
1	Farming All Purpose Truck 4540 kg or less	Total	531,022	69,657,154	27,180	422,934	1,512,256	72,150,546
1	Fishing All Purpose Truck 4540 kg or less	2013	0	151,761	246	40,909	0	192,916
1	Fishing All Purpose Truck 4540 kg or less	2014	10,598	119,598	0	27,912	7,930	166,039
1	Fishing All Purpose Truck 4540 kg or less	2015	0	170,655	0	22,130	2,127	194,912
1	Fishing All Purpose Truck 4540 kg or less	2016	0	159,799	1,001	16,751	7,670	185,220
1	Fishing All Purpose Truck 4540 kg or less	2017	11,744	173,013	232	16,316	14,449	215,753
1	Fishing All Purpose Truck 4540 kg or less	Total	22,342	774,826	1,478	124,018	32,175	954,840
1	Pleasure Motorhome	2013	566,355	744,391	1,589	19,679		1,332,013
1	Pleasure Motorhome	2014	496,814	843,472	10,374	3,228		1,353,888
1	Pleasure Motorhome	2015	778,528	1,265,716	5,126	8,059		2,057,429
1	Pleasure Motorhome	2016	397,755	1,246,012	15,622	14,740		1,674,129
1	Pleasure Motorhome	2017	488,430	650,558	0	0		1,138,989
1	Pleasure Motorhome	Total	2,727,883	4,750,149	32,711	45,705	0	7,556,448
1	Pleasure Passenger Vehicle	2013	71,237,602	47,113,242	1,054,881	2,495,547		121,901,272
1	Pleasure Passenger Vehicle	2014	63,417,753	44,248,154	981,608	2,264,746		110,912,261
1	Pleasure Passenger Vehicle	2015	71,143,948	55,725,620	1,001,532	2,247,110		130,118,210
1	Pleasure Passenger Vehicle	2016	74,276,649	58,850,731	1,017,526	2,746,669		136,891,575
1	Pleasure Passenger Vehicle	2017	77,244,129	52,313,949	1,079,497	2,398,676		133,036,250
1	Pleasure Passenger Vehicle	Total	357,320,081	258,251,696	5,135,043	12,152,748	0	632,859,568

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Pleasure Truck	2013	8,371,378	13,336,898	1,016,598	1,046,157		23,771,031
1	Pleasure Truck	2014	7,403,309	13,655,032	933,903	1,040,215		23,032,460
1	Pleasure Truck	2015	8,928,027	19,178,669	970,223	1,146,150		30,223,069
1	Pleasure Truck	2016	9,852,067	19,793,351	999,830	1,674,116		32,319,364
1	Pleasure Truck	2017	8,185,682	15,141,352	953,865	1,406,207		25,687,106
1	Pleasure Truck	Total	42,740,463	81,105,302	4,874,420	6,312,845	0	135,033,030
1	Major Class Total	2013	314,152,038	166,690,945	6,875,847	9,252,692	33,351,711	530,323,233
1	Major Class Total	2014	281,912,792	162,256,982	6,562,505	9,675,619	31,433,234	491,841,133
1	Major Class Total	2015	318,973,757	209,564,805	6,882,648	9,650,265	35,855,922	580,927,397
1	Major Class Total	2016	332,371,914	221,481,849	7,900,535	11,702,697	36,122,444	609,579,440
1	Major Class Total	2017	334,395,273	184,892,951	7,613,989	10,558,469	33,038,947	570,499,629
1	Major Class Total	Total	1,581,805,775	944,887,532	35,835,525	50,839,741	169,802,259	2,783,170,832

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	All Purpose Snow Vehicle (HTA)	2013	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	2014	0	6,794	0	0		6,794
2	All Purpose Snow Vehicle (HTA)	2015	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	2016	0	2,911	0	0		2,911
2	All Purpose Snow Vehicle (HTA)	2017	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	Total	0	9,705	0	0	0	9,705
2	Artisan Truck	2013	95,577	17,598	223	0	28,759	142,156
2	Artisan Truck	2014	35,117	5,912	3,406	0	9,951	54,385
2	Artisan Truck	2015	73,755	31,770	189	0	84,803	190,517
2	Artisan Truck	2016	89,217	32,711	0	0	17,847	139,774
2	Artisan Truck	2017	14,608	1,652	0	0	10,343	26,603
2	Artisan Truck	Total	308,273	89,642	3,818	0	151,702	553,435
2	Cement/Brick/Exploration Truck	2013	18,325	42,946	0	0		61,271
2	Cement/Brick/Exploration Truck	2014	56,324	244,774	0	0		301,097
2	Cement/Brick/Exploration Truck	2015	45,912	43,842	0	0		89,755
2	Cement/Brick/Exploration Truck	2016	3,854	27,644	0	0		31,498
2	Cement/Brick/Exploration Truck	2017	91,930	16,378	0	0		108,308
2	Cement/Brick/Exploration Truck	Total	216,345	375,584	0	0	0	591,929
2	Common Carrier Vehicle Local	2013	1,299,558	482,645	10,200	7,611		1,800,014
2	Common Carrier Vehicle Local	2014	864,917	587,579	2,012	11,421		1,465,929
2	Common Carrier Vehicle Local	2015	1,043,562	455,851	3,932	5,572		1,508,916
2	Common Carrier Vehicle Local	2016	1,117,520	681,888	26,708	25,213		1,851,329
2	Common Carrier Vehicle Local	2017	1,288,616	562,204	45,948	11,943		1,908,712
2	Common Carrier Vehicle Local	Total	5,614,173	2,770,168	88,799	61,759	0	8,534,900
2	Common Carrier Vehicle Within City or Mun.	2013	740,783	95,585	16,926	3,849		857,142
2	Common Carrier Vehicle Within City or Mun.	2014	635,738	59,643	0	0		695,381
2	Common Carrier Vehicle Within City or Mun.	2015	634,285	141,283	2,707	0		778,275
2	Common Carrier Vehicle Within City or Mun.	2016	816,947	207,048	500	4,425		1,028,920
2	Common Carrier Vehicle Within City or Mun.	2017	713,126	69,141	0	7,309		789,576
2	Common Carrier Vehicle Within City or Mun.	Total	3,540,879	572,700	20,132	15,583	0	4,149,294
2	Common Carrier Passenger Vehicle < 161 km in MB	2013	63,942	9,663	0	0		73,605
2	Common Carrier Passenger Vehicle < 161 km in MB	2014	20,283	4,303	0	0		24,586
2	Common Carrier Passenger Vehicle < 161 km in MB	2015	49,345	50,745	0	0		100,090
2	Common Carrier Passenger Vehicle < 161 km in MB	2016	20,956	12,997	0	0		33,953
2	Common Carrier Passenger Vehicle < 161 km in MB	2017	23,141	16,554	0	0		39,694
2	Common Carrier Passenger Vehicle < 161 km in MB	Total	177,666	94,262	0	0	0	271,928

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Common Carrier Truck < 161 km in MB	2013	635,515	295,628	14,867	5,085		951,095
2	Common Carrier Truck < 161 km in MB	2014	587,544	205,434	0	4,929		797,907
2	Common Carrier Truck < 161 km in MB	2015	552,345	163,517	0	0		715,861
2	Common Carrier Truck < 161 km in MB	2016	600,963	345,863	34	0		946,860
2	Common Carrier Truck < 161 km in MB	2017	520,234	260,412	0	0		780,646
2	Common Carrier Truck < 161 km in MB	Total	2,896,600	1,270,854	14,901	10,014	0	4,192,369
2	Common Carrier Passenger Vehicle > 161 km in MB	2013	6,104	1,003	0	0		7,108
2	Common Carrier Passenger Vehicle > 161 km in MB	2014	7,557	17,533	0	0		25,090
2	Common Carrier Passenger Vehicle > 161 km in MB	2015	870	3,861	0	0		4,732
2	Common Carrier Passenger Vehicle > 161 km in MB	2016	0	0	0	0		0
2	Common Carrier Passenger Vehicle > 161 km in MB	2017	7,354	9,050	0	0		16,404
2	Common Carrier Passenger Vehicle > 161 km in MB	Total	21,886	31,447	0	0	0	53,334
2	Common Carrier Truck > 161 km in MB	2013	212,911	307,161	0	0		520,072
2	Common Carrier Truck > 161 km in MB	2014	261,178	507,445	1,883	500		771,006
2	Common Carrier Truck > 161 km in MB	2015	187,233	351,274	0	500		539,007
2	Common Carrier Truck > 161 km in MB	2016	358,181	253,038	0	250		611,468
2	Common Carrier Truck > 161 km in MB	2017	407,931	483,209	0	0		891,140
2	Common Carrier Truck > 161 km in MB	Total	1,427,434	1,902,125	1,883	1,250	0	3,332,693
2	Dealer All Uses except Motorcycles	2013	2,179,233	1,247,100	4,436	54,418		3,485,187
2	Dealer All Uses except Motorcycles	2014	2,131,983	1,156,162	984	31,704		3,320,834
2	Dealer All Uses except Motorcycles	2015	2,562,652	1,448,604	500	7,344		4,019,100
2	Dealer All Uses except Motorcycles	2016	2,543,561	1,069,821	0	14,067		3,627,449
2	Dealer All Uses except Motorcycles	2017	2,580,412	950,360	10,088	7,667		3,548,527
2	Dealer All Uses except Motorcycles	Total	11,997,841	5,872,047	16,008	115,200	0	18,001,096
2	Dealer Moped	2013	0	0	0	0		0
2	Dealer Moped	2014	0	0	0	0		0
2	Dealer Moped	2015	0	0	0	0		0
2	Dealer Moped	2016	0	0	0	0		0
2	Dealer Moped	2017	0	0	0	0		0
2	Dealer Moped	Total	0	0	0	0	0	0
2	Dealer Motorcycle	2013	0	4,564	0	0		4,564
2	Dealer Motorcycle	2014	18,837	7,190	0	0		26,027
2	Dealer Motorcycle	2015	2,500	15,866	0	0		18,366
2	Dealer Motorcycle	2016	6,467	12,569	0	0		19,036
2	Dealer Motorcycle	2017	21,622	135,053	0	0		156,674
2	Dealer Motorcycle	Total	49,426	175,242	0	0	0	224,668

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Dealer Trailer	2013	51,871	27,924	0	0		79,795
2	Dealer Trailer	2014	66,733	9,162	0	0		75,895
2	Dealer Trailer	2015	49,250	14,368	0	0		63,617
2	Dealer Trailer	2016	35,351	0	0	0		35,351
2	Dealer Trailer	2017	38,780	4,682	0	0		43,463
2	Dealer Trailer	Total	241,985	56,136	0	0	0	298,121
2	Driveaway Within MB	2013	0	0	0	0		0
2	Driveaway Within MB	2014	0	0	0	0		0
2	Driveaway Within MB	2015	0	0	0	0		0
2	Driveaway Within MB	2016	0	0	0	0		0
2	Driveaway Within MB	2017	0	0	0	0		0
2	Driveaway Within MB	Total	0	0	0	0	0	0
2	Driveaway > 161 km Outside MB	2013	0	0	0	0		0
2	Driveaway > 161 km Outside MB	2014	0	0	0	0		0
2	Driveaway > 161 km Outside MB	2015	0	0	0	0		0
2	Driveaway > 161 km Outside MB	2016	0	0	0	0		0
2	Driveaway > 161 km Outside MB	2017	0	0	0	0		0
2	Driveaway > 161 km Outside MB	Total	0	0	0	0	0	0
2	Farming All Purpose Truck 4541 kg or more	2013	23,676	4,420,925	0	1,000		4,445,602
2	Farming All Purpose Truck 4541 kg or more	2014	11,951	4,161,067	0	0		4,173,018
2	Farming All Purpose Truck 4541 kg or more	2015	7,891	3,657,121	0	30,058		3,695,070
2	Farming All Purpose Truck 4541 kg or more	2016	1,911	4,044,606	0	6,666		4,053,182
2	Farming All Purpose Truck 4541 kg or more	2017	33,723	3,965,848	0	679		4,000,250
2	Farming All Purpose Truck 4541 kg or more	Total	79,152	20,249,566	0	38,403	0	20,367,121
2	Fishing All Purpose Truck 4541 kg or more	2013	0	0	0	0		0
2	Fishing All Purpose Truck 4541 kg or more	2014	0	13,202	0	0		13,202
2	Fishing All Purpose Truck 4541 kg or more	2015	0	0	0	0		0
2	Fishing All Purpose Truck 4541 kg or more	2016	0	0	0	0		0
2	Fishing All Purpose Truck 4541 kg or more	2017	0	0	0	0		0
2	Fishing All Purpose Truck 4541 kg or more	Total	0	13,202	0	0	0	13,202
2	Logging Truck	2013	0	10,388	0	500		10,888
2	Logging Truck	2014	0	1,982	0	1,945		3,928
2	Logging Truck	2015	0	87,245	0	500		87,745
2	Logging Truck	2016	0	403,991	0	0		403,991
2	Logging Truck	2017	0	0	0	500		500
2	Logging Truck	Total	0	503,606	0	3,445	0	507,051

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Other Truck	2013	2,750,721	2,654,970	119,704	56,516	612,839	6,194,750
2	Other Truck	2014	2,541,131	2,493,277	104,170	69,784	818,410	6,026,772
2	Other Truck	2015	2,836,137	2,922,454	162,642	137,636	669,530	6,728,399
2	Other Truck	2016	3,507,569	2,898,097	56,343	121,002	476,935	7,059,945
2	Other Truck	2017	2,654,102	3,036,030	64,742	174,165	692,261	6,621,300
2	Other Truck	Total	14,289,660	14,004,828	507,600	559,104	3,269,975	32,631,167
2	Petroleum/Chemical Truck	2013	25,394	243,347	0	0		268,742
2	Petroleum/Chemical Truck	2014	46,618	302,765	6,621	174		356,179
2	Petroleum/Chemical Truck	2015	14,819	190,523	377	500		206,219
2	Petroleum/Chemical Truck	2016	29,979	223,687	979	0		254,644
2	Petroleum/Chemical Truck	2017	6,528	332,569	35,650	0		374,747
2	Petroleum/Chemical Truck	Total	123,338	1,292,892	43,627	674	0	1,460,531
2	Repairer	2013	149,794	40,167	0	1,667		191,628
2	Repairer	2014	42,030	8,387	0	0		50,417
2	Repairer	2015	53,485	76,006	0	0		129,491
2	Repairer	2016	57,080	38,957	2,435	0		98,472
2	Repairer	2017	198,680	41,682	0	0		240,362
2	Repairer	Total	501,068	205,199	2,435	1,667	0	710,369
2	Sand/Gravel Truck	2013	170,272	1,337,240	0	0		1,507,512
2	Sand/Gravel Truck	2014	488,059	1,098,875	17,276	0		1,604,210
2	Sand/Gravel Truck	2015	528,147	931,654	500	0		1,460,300
2	Sand/Gravel Truck	2016	374,064	976,420	0	0		1,350,485
2	Sand/Gravel Truck	2017	310,524	832,023	0	4,280		1,146,827
2	Sand/Gravel Truck	Total	1,871,066	5,176,213	17,776	4,280	0	7,069,334
2	Tow Truck	2013	560,371	287,574	226	31,468		879,639
2	Tow Truck	2014	630,223	253,937	9,663	2,632		896,456
2	Tow Truck	2015	340,508	238,550	6,625	367		586,050
2	Tow Truck	2016	304,604	316,618	36,706	30,697		688,626
2	Tow Truck	2017	354,285	97,817	45,832	0		497,934
2	Tow Truck	Total	2,189,991	1,194,497	99,052	65,165	0	3,548,705
2	Major Class Total	2013	8,984,047	11,526,430	166,580	162,115	641,598	21,480,770
2	Major Class Total	2014	8,446,224	11,145,423	146,015	123,089	828,362	20,689,112
2	Major Class Total	2015	8,982,696	10,824,533	177,471	182,477	754,332	20,921,509
2	Major Class Total	2016	9,868,222	11,548,865	123,705	202,321	494,781	22,237,894
2	Major Class Total	2017	9,265,596	10,814,663	202,260	206,542	702,604	21,191,665
2	Major Class Total	Total	45,546,785	55,859,915	816,031	876,543	3,421,677	106,520,951

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Charter Bus Local	2013	10,828	16,308	322,022	687		349,845
3	Charter Bus Local	2014	15,356	2,828	0	0		18,184
3	Charter Bus Local	2015	44,423	0	0	0		44,423
3	Charter Bus Local	2016	22,582	0	0	0		22,582
3	Charter Bus Local	2017	10,505	0	0	0		10,505
3	Charter Bus Local	Total	103,694	19,136	322,022	687	0	445,540
3	Common Carrier Bus Within MB	2013	40,790	3,443	0	0		44,233
3	Common Carrier Bus Within MB	2014	32,447	1,187	0	0		33,634
3	Common Carrier Bus Within MB	2015	30,329	1,000	0	2,460		33,789
3	Common Carrier Bus Within MB	2016	39,315	500	0	0		39,815
3	Common Carrier Bus Within MB	2017	32,702	1,539	0	0		34,241
3	Common Carrier Bus Within MB	Total	175,582	7,669	0	2,460	0	185,711
3	Common Carrier Bus > 161 km Outside MB	2013	73,539	0	0	0		73,539
3	Common Carrier Bus > 161 km Outside MB	2014	82,759	59	0	0		82,818
3	Common Carrier Bus > 161 km Outside MB	2015	75,707	0	0	0		75,707
3	Common Carrier Bus > 161 km Outside MB	2016	74,014	515	0	0		74,529
3	Common Carrier Bus > 161 km Outside MB	2017	83,439	0	0	0		83,439
3	Common Carrier Bus > 161 km Outside MB	Total	389,459	573	0	0	0	390,032
3	Funeral Passenger Vehicle	2013	24,888	51,427	0	0		76,314
3	Funeral Passenger Vehicle	2014	5,385	12,406	0	0		17,791
3	Funeral Passenger Vehicle	2015	26,865	13,469	0	0		40,333
3	Funeral Passenger Vehicle	2016	23,220	25,425	0	0		48,645
3	Funeral Passenger Vehicle	2017	37,727	12,864	0	4,500		55,092
3	Funeral Passenger Vehicle	Total	118,085	115,590	0	4,500	0	238,175
3	Limousine All Uses Passenger Vehicle	2013	141,816	40,593	0	0		182,408
3	Limousine All Uses Passenger Vehicle	2014	212,787	75,113	0	0		287,900
3	Limousine All Uses Passenger Vehicle	2015	82,896	90,233	0	0		173,129
3	Limousine All Uses Passenger Vehicle	2016	111,920	25,553	0	0		137,474
3	Limousine All Uses Passenger Vehicle	2017	102,129	55,902	0	0		158,031
3	Limousine All Uses Passenger Vehicle	Total	651,548	287,393	0	0	0	938,942
3	Police/Emergency Passenger Vehicle	2013	605,918	479,437	668	21,448		1,107,470
3	Police/Emergency Passenger Vehicle	2014	575,718	359,969	15,568	24,696		975,950
3	Police/Emergency Passenger Vehicle	2015	736,415	281,613	255	3,795		1,022,077
3	Police/Emergency Passenger Vehicle	2016	784,397	464,561	0	10,754		1,259,712
3	Police/Emergency Passenger Vehicle	2017	850,214	415,907	10,121	29,721		1,305,963
3	Police/Emergency Passenger Vehicle	Total	3,552,663	2,001,486	26,612	90,413	0	5,671,174

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Police/Emergency Truck	2013	24,807	32,175	1,427	5,538		63,947
3	Police/Emergency Truck	2014	10,808	10,562	521	1,280		23,172
3	Police/Emergency Truck	2015	27,172	16,678	2,189	2,591		48,630
3	Police/Emergency Truck	2016	8,003	40,979	10,385	282		59,648
3	Police/Emergency Truck	2017	49,116	42,580	13,461	4,013		109,170
3	Police/Emergency Truck	Total	119,907	142,973	27,983	13,704	0	304,567
3	School Bus Local	2013	331,526	679,737	2,338	53,630		1,067,231
3	School Bus Local	2014	446,878	606,786	500	52,681		1,106,845
3	School Bus Local	2015	344,231	570,476	89,180	53,353		1,057,240
3	School Bus Local	2016	351,137	472,615	2,868	134,415		961,033
3	School Bus Local	2017	292,128	246,357	2,009	58,770		599,263
3	School Bus Local	Total	1,765,901	2,575,970	96,894	352,848	0	4,791,612
3	Taxi/Livery Passenger Vehicle	2013	4,005,713	446,645	108,774	162,463		4,723,594
3	Taxi/Livery Passenger Vehicle	2014	3,452,211	387,219	195,120	146,041		4,180,590
3	Taxi/Livery Passenger Vehicle	2015	3,412,661	170,875	100,691	159,864		3,844,091
3	Taxi/Livery Passenger Vehicle	2016	3,661,956	311,400	141,578	166,314		4,281,249
3	Taxi/Livery Passenger Vehicle	2017	3,583,345	316,801	143,209	187,525		4,230,880
3	Taxi/Livery Passenger Vehicle	Total	18,115,886	1,632,939	689,372	822,208	0	21,260,405
3	Transit Bus Local	2013	1,433,667	31,733	15,153	0		1,480,553
3	Transit Bus Local	2014	891,067	49,281	0	3,087		943,435
3	Transit Bus Local	2015	971,820	5,470	0	0		977,290
3	Transit Bus Local	2016	1,270,374	44,298	832	31,883		1,347,388
3	Transit Bus Local	2017	1,006,613	64,851	2,079	0		1,073,544
3	Transit Bus Local	Total	5,573,543	195,633	18,064	34,970	0	5,822,210
3	U-Drive Bus	2013	0	7,157	0	0		7,157
3	U-Drive Bus	2014	1,019	-1,285	0	0		-266
3	U-Drive Bus	2015	0	74,878	0	0		74,878
3	U-Drive Bus	2016	9,575	0	0	0		9,575
3	U-Drive Bus	2017	8,600	10,850	0	0		19,450
3	U-Drive Bus	Total	19,194	91,601	0	0	0	110,794
3	U-Drive Moped	2013	0	0	0	0		0
3	U-Drive Moped	2014	0	0	0	0		0
3	U-Drive Moped	2015	0	0	0	0		0
3	U-Drive Moped	2016	35,665	0	0	0		35,665
3	U-Drive Moped	2017	0	0	0	0		0
3	U-Drive Moped	Total	35,665	0	0	0	0	35,665

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	U-Drive Motorhome	2013	3,200	31,754	42,910	0		77,864
3	U-Drive Motorhome	2014	5,738	18,084	0	0		23,822
3	U-Drive Motorhome	2015	25,334	4,067	0	0		29,401
3	U-Drive Motorhome	2016	2,861	1,582	0	0		4,443
3	U-Drive Motorhome	2017	21,439	2,265	0	0		23,704
3	U-Drive Motorhome	Total	58,573	57,751	42,910	0	0	159,234
3	U-Drive Passenger Vehicle	2013	5,469,924	584,675	40,860	23,171		6,118,629
3	U-Drive Passenger Vehicle	2014	5,256,836	522,928	79,191	54,330		5,913,286
3	U-Drive Passenger Vehicle	2015	5,573,061	628,673	42,091	30,061		6,273,887
3	U-Drive Passenger Vehicle	2016	6,397,083	805,727	73,118	50,796		7,326,724
3	U-Drive Passenger Vehicle	2017	7,087,772	769,116	60,554	23,227		7,940,669
3	U-Drive Passenger Vehicle	Total	29,784,676	3,311,119	295,814	181,586	0	33,573,195
3	U-Drive Truck	2013	968,293	100,320	39,989	27,671		1,136,274
3	U-Drive Truck	2014	818,240	78,412	32,211	39,890		968,753
3	U-Drive Truck	2015	941,997	282,266	99,904	30,979		1,355,146
3	U-Drive Truck	2016	1,217,080	184,945	42,749	39,788		1,484,562
3	U-Drive Truck	2017	1,234,265	171,966	275,921	24,242		1,706,394
3	U-Drive Truck	Total	5,179,875	817,910	490,775	162,570	0	6,651,130
3	Wheelchair/Livery Bus (Terr 1 only)	2013	86,474					86,474
3	Wheelchair/Livery Bus (Terr 1 only)	2014	77,542					77,542
3	Wheelchair/Livery Bus (Terr 1 only)	2015	569,549					569,549
3	Wheelchair/Livery Bus (Terr 1 only)	2016	209,322					209,322
3	Wheelchair/Livery Bus (Terr 1 only)	2017	168,318					168,318
3	Wheelchair/Livery Bus (Terr 1 only)	Total	1,111,206	0	0	0	0	1,111,206
3	Major Class Total	2013	13,221,383	2,505,402	574,140	294,608		16,595,534
3	Major Class Total	2014	11,884,792	2,123,548	323,111	322,004		14,653,456
3	Major Class Total	2015	12,862,463	2,139,696	334,309	283,104		15,619,572
3	Major Class Total	2016	14,218,504	2,378,100	271,530	434,232		17,302,366
3	Major Class Total	2017	14,568,314	2,110,998	507,355	331,998		17,518,664
3	Major Class Total	Total	66,755,456	11,257,744	2,010,445	1,665,946	0	81,689,591

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	All Purpose Moped/Mobility Vehicle	2013	596,355	527	0	0		596,882
4	All Purpose Moped/Mobility Vehicle	2014	204,436	0	0	0		204,436
4	All Purpose Moped/Mobility Vehicle	2015	145,018	18,982	0	0		164,000
4	All Purpose Moped/Mobility Vehicle	2016	153,274	0	0	0		153,274
4	All Purpose Moped/Mobility Vehicle	2017	112,587	1,685	0	0		114,271
4	All Purpose Moped/Mobility Vehicle	Total	1,211,670	21,194	0	0	0	1,232,864
4	All Purpose Motorcycle (Motorscooter Body Style)	2013	74,951	34,641	0	0	0	109,593
4	All Purpose Motorcycle (Motorscooter Body Style)	2014	76,966	0	0	0	0	76,966
4	All Purpose Motorcycle (Motorscooter Body Style)	2015	39,142	0	0	0	2,321	41,464
4	All Purpose Motorcycle (Motorscooter Body Style)	2016	67,497	0	0	0	0	67,497
4	All Purpose Motorcycle (Motorscooter Body Style)	2017	11,517	0	0	0	0	11,517
4	All Purpose Motorcycle (Motorscooter Body Style)	Total	270,074	34,641	0	0	2,321	307,036
4	All Purpose Motorcycle (Other Body Style)	2013	686,471	390,442	0	0	0	1,076,913
4	All Purpose Motorcycle (Other Body Style)	2014	998,369	247,047	0	0	26,958	1,272,374
4	All Purpose Motorcycle (Other Body Style)	2015	437,063	250,407	0	0	859	688,329
4	All Purpose Motorcycle (Other Body Style)	2016	363,106	256,533	0	0	63,496	683,135
4	All Purpose Motorcycle (Other Body Style)	2017	362,940	211,992	0	0	39,618	614,550
4	All Purpose Motorcycle (Other Body Style)	Total	2,847,949	1,356,421	0	0	130,931	4,335,301
4	All Purpose Motorcycle (Sport Body Style)	2013	58,935	0	0	0	6,583	65,518
4	All Purpose Motorcycle (Sport Body Style)	2014	27,543	1,739	0	0	500	29,782
4	All Purpose Motorcycle (Sport Body Style)	2015	100,439	9,543	3,205	0	0	113,188
4	All Purpose Motorcycle (Sport Body Style)	2016	115,877	139,444	0	0	4,516	259,837
4	All Purpose Motorcycle (Sport Body Style)	2017	44,714	0	0	0	2,840	47,553
4	All Purpose Motorcycle (Sport Body Style)	Total	347,508	150,726	3,205	0	14,438	515,878
4	All Purpose Motorcycle (Sport-Touring Body Style)	2013	3,643	83,347	0	0	0	86,990
4	All Purpose Motorcycle (Sport-Touring Body Style)	2014	0	13,099	0	0	0	13,099
4	All Purpose Motorcycle (Sport-Touring Body Style)	2015	4,278	27,229	0	0	0	31,507
4	All Purpose Motorcycle (Sport-Touring Body Style)	2016	3,373	0	0	0	0	3,373
4	All Purpose Motorcycle (Sport-Touring Body Style)	2017	0	0	0	0	8,631	8,631
4	All Purpose Motorcycle (Sport-Touring Body Style)	Total	11,294	123,675	0	0	8,631	143,600
4	All Purpose Motorcycle (Touring Body Style)	2013	502,875	240,040	0	0	41,831	784,746
4	All Purpose Motorcycle (Touring Body Style)	2014	176,010	165,434	0	0	54,257	395,700
4	All Purpose Motorcycle (Touring Body Style)	2015	240,778	152,849	0	2,909	41,831	438,367
4	All Purpose Motorcycle (Touring Body Style)	2016	743,619	296,496	0	0	88,437	1,128,552
4	All Purpose Motorcycle (Touring Body Style)	2017	166,447	167,479	0	0	95,593	429,519
4	All Purpose Motorcycle (Touring Body Style)	Total	1,829,728	1,022,298	0	2,909	321,948	3,176,884

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Moped/Mobility Vehicle	2013	125,436	3,591	0	0		129,027
4	Pleasure Moped/Mobility Vehicle	2014	96,288	2,998	0	0		99,285
4	Pleasure Moped/Mobility Vehicle	2015	438,211	27,161	0	0		465,372
4	Pleasure Moped/Mobility Vehicle	2016	144,475	8,800	0	0		153,274
4	Pleasure Moped/Mobility Vehicle	2017	139,205	99,756	0	0		238,960
4	Pleasure Moped/Mobility Vehicle	Total	943,614	142,305	0	0	0	1,085,919
4	Pleasure Motorcycle (Motorscooter Body Style)	2013	2,514	81,855	0	0		84,369
4	Pleasure Motorcycle (Motorscooter Body Style)	2014	7,523	55,076	0	0		62,599
4	Pleasure Motorcycle (Motorscooter Body Style)	2015	4,469	55,324	0	0		59,794
4	Pleasure Motorcycle (Motorscooter Body Style)	2016	22,346	89,770	0	0		112,116
4	Pleasure Motorcycle (Motorscooter Body Style)	2017	4,686	97,651	0	0		102,337
4	Pleasure Motorcycle (Motorscooter Body Style)	Total	41,538	379,677	0	0	0	421,215
4	Pleasure Motorcycle (Other Body Style)	2013	1,307,613	1,599,569	22,701	51,535		2,981,417
4	Pleasure Motorcycle (Other Body Style)	2014	1,316,075	1,926,900	0	57,675		3,300,650
4	Pleasure Motorcycle (Other Body Style)	2015	1,549,633	1,996,358	0	109,293		3,655,284
4	Pleasure Motorcycle (Other Body Style)	2016	1,397,961	1,811,806	4,575	61,031		3,275,372
4	Pleasure Motorcycle (Other Body Style)	2017	1,637,790	1,289,534	6,181	53,630		2,987,136
4	Pleasure Motorcycle (Other Body Style)	Total	7,209,071	8,624,167	33,457	333,164	0	16,199,859
4	Pleasure Motorcycle (Sport Body Style)	2013	642,179	140,784	4,310	0		787,273
4	Pleasure Motorcycle (Sport Body Style)	2014	314,135	169,995	0	0		484,130
4	Pleasure Motorcycle (Sport Body Style)	2015	514,361	156,707	0	0		671,069
4	Pleasure Motorcycle (Sport Body Style)	2016	779,357	90,932	0	0		870,290
4	Pleasure Motorcycle (Sport Body Style)	2017	458,770	279,827	0	4,703		743,300
4	Pleasure Motorcycle (Sport Body Style)	Total	2,708,803	838,245	4,310	4,703	0	3,556,061
4	Pleasure Motorcycle (Sport-Touring Body Style)	2013	76,643	36,558	0	0		113,201
4	Pleasure Motorcycle (Sport-Touring Body Style)	2014	108,152	12,129	0	0		120,281
4	Pleasure Motorcycle (Sport-Touring Body Style)	2015	100,563	15,481	0	0		116,043
4	Pleasure Motorcycle (Sport-Touring Body Style)	2016	526,905	31,536	0	0		558,441
4	Pleasure Motorcycle (Sport-Touring Body Style)	2017	113,282	136,134	0	0		249,417
4	Pleasure Motorcycle (Sport-Touring Body Style)	Total	925,544	231,838	0	0	0	1,157,383
4	Pleasure Motorcycle (Touring Body Style)	2013	678,047	1,163,736	0	1,389		1,843,172
4	Pleasure Motorcycle (Touring Body Style)	2014	404,988	1,281,945	0	11,055		1,697,988
4	Pleasure Motorcycle (Touring Body Style)	2015	964,303	1,485,497	0	0		2,449,800
4	Pleasure Motorcycle (Touring Body Style)	2016	908,019	1,418,211	0	9,737		2,335,967
4	Pleasure Motorcycle (Touring Body Style)	2017	723,292	1,438,541	0	49,161		2,210,995
4	Pleasure Motorcycle (Touring Body Style)	Total	3,678,648	6,787,930	0	71,343	0	10,537,922

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Major Class Total	2013	4,755,662	3,775,090	27,011	52,924	48,414	8,659,100
4	Major Class Total	2014	3,730,485	3,876,362	0	68,731	81,714	7,757,292
4	Major Class Total	2015	4,538,258	4,195,539	3,205	112,202	45,011	8,894,216
4	Major Class Total	2016	5,225,807	4,143,528	4,575	70,768	156,449	9,601,127
4	Major Class Total	2017	3,775,231	3,722,599	6,181	107,494	146,681	7,758,186
4	Major Class Total	Total	22,025,442	19,713,118	40,972	412,120	478,269	42,669,922

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
5	All Purpose Trailer $2500 or less	2013	156,589	217,942	2,900	6,674		384,106
5	All Purpose Trailer $2500 or less	2014	133,165	246,762	795	0		380,722
5	All Purpose Trailer $2500 or less	2015	170,408	348,684	3,558	9,064		531,713
5	All Purpose Trailer $2500 or less	2016	221,004	324,408	2,517	2,128		550,057
5	All Purpose Trailer $2500 or less	2017	161,160	209,723	340	3,386		374,609
5	All Purpose Trailer $2500 or less	Total	842,326	1,347,519	10,110	21,253	0	2,221,207
5	All Purpose Trailer $2501 or more	2013	1,797,183	6,555,327	53,476	61,226		8,467,213
5	All Purpose Trailer $2501 or more	2014	1,617,299	5,471,844	152,576	47,256		7,288,974
5	All Purpose Trailer $2501 or more	2015	2,790,487	9,115,265	121,131	84,547		12,111,430
5	All Purpose Trailer $2501 or more	2016	2,872,658	9,021,462	134,981	114,163		12,143,265
5	All Purpose Trailer $2501 or more	2017	1,346,318	3,247,155	36,326	114,153		4,743,951
5	All Purpose Trailer $2501 or more	Total	10,423,944	33,411,053	498,490	421,346	0	44,754,834
5	Major Class Total	2013	1,953,773	6,773,270	56,376	67,901		8,851,319
5	Major Class Total	2014	1,750,464	5,718,606	153,371	47,256		7,669,697
5	Major Class Total	2015	2,960,894	9,463,949	124,689	93,612		12,643,143
5	Major Class Total	2016	3,093,662	9,345,870	137,498	116,292		12,693,322
5	Major Class Total	2017	1,507,478	3,456,878	36,666	117,538		5,118,561
5	Major Class Total	Total	11,266,270	34,758,572	508,600	442,599	0	46,976,041

TABLE 12
Reported Loss and ALAE without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
6	Off Road Vehicle All Purpose	2013	3,892	36,579	2,111	5,341		47,923
6	Off Road Vehicle All Purpose	2014	11,463	820,648	500	500		833,111
6	Off Road Vehicle All Purpose	2015	7,409	40,141	0	350		47,900
6	Off Road Vehicle All Purpose	2016	20,221	345,999	500	0		366,719
6	Off Road Vehicle All Purpose	2017	42,758	18,190	6,053	1,000		68,001
6	Off Road Vehicle All Purpose	Total	85,743	1,261,557	9,164	7,191	0	1,363,655
6	Major Class Total	2013	3,892	36,579	2,111	5,341		47,923
6	Major Class Total	2014	11,463	820,648	500	500		833,111
6	Major Class Total	2015	7,409	40,141	0	350		47,900
6	Major Class Total	2016	20,221	345,999	500	0		366,719
6	Major Class Total	2017	42,758	18,190	6,053	1,000		68,001
6	Major Class Total	Total	85,743	1,261,557	9,164	7,191	0	1,363,655

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	All Purpose Motorhome	2013	61	55	2	0	6	124
1	All Purpose Motorhome	2014	55	49	3		6	113
1	All Purpose Motorhome	2015	51	52	2		6	111
1	All Purpose Motorhome	2016	47	47	1	1	5	102
1	All Purpose Motorhome	2017	49	52	1	1	4	107
1	All Purpose Motorhome	Total	263	255	9	3	27	557
1	All Purpose Passenger Vehicle	2013	219,651	90,593	3,519	4,362	27,119	345,245
1	All Purpose Passenger Vehicle	2014	222,367	91,470	3,548	4,404	27,255	349,044
1	All Purpose Passenger Vehicle	2015	225,106	92,466	3,626	4,429	27,115	352,741
1	All Purpose Passenger Vehicle	2016	229,449	94,002	3,695	4,523	26,967	358,636
1	All Purpose Passenger Vehicle	2017	233,570	94,819	3,610	4,554	26,924	363,475
1	All Purpose Passenger Vehicle	Total	1,130,144	463,351	17,998	22,271	135,378	1,769,141
1	All Purpose Truck 4540 kg or less	2013	46,691	48,034	3,639	4,258	10,189	112,811
1	All Purpose Truck 4540 kg or less	2014	47,862	48,994	3,687	4,420	10,568	115,531
1	All Purpose Truck 4540 kg or less	2015	48,798	49,768	3,751	4,539	10,951	117,806
1	All Purpose Truck 4540 kg or less	2016	49,516	50,185	3,835	4,606	11,218	119,360
1	All Purpose Truck 4540 kg or less	2017	50,201	50,819	3,852	4,683	11,559	121,114
1	All Purpose Truck 4540 kg or less	Total	243,068	247,800	18,764	22,505	54,485	586,623
1	Antique Vehicle	2013	74	63				137
1	Antique Vehicle	2014	73	63				136
1	Antique Vehicle	2015	77	64				140
1	Antique Vehicle	2016	78	69				147
1	Antique Vehicle	2017	78	70				148
1	Antique Vehicle	Total	379	329	0	0	0	708
1	Collector Passenger Vehicle	2013						0
1	Collector Passenger Vehicle	2014	504	598	2	5		1,108
1	Collector Passenger Vehicle	2015	856	1,053	5	9		1,923
1	Collector Passenger Vehicle	2016	1,065	1,410	11	12		2,499
1	Collector Passenger Vehicle	2017	1,261	1,733	14	14		3,022
1	Collector Passenger Vehicle	Total	3,686	4,795	31	40	0	8,552
1	Collector Truck 4540 kg or less	2013						0
1	Collector Truck 4540 kg or less	2014	44	95	0	1		139
1	Collector Truck 4540 kg or less	2015	67	180	1	2		250
1	Collector Truck 4540 kg or less	2016	83	264	1	3		352
1	Collector Truck 4540 kg or less	2017	103	355	3	4		466
1	Collector Truck 4540 kg or less	Total	298	893	6	10	0	1,207

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Disabled Persons/Private/Business Bus	2013	282	477	67	60		887
1	Disabled Persons/Private/Business Bus	2014	290	489	62	56		898
1	Disabled Persons/Private/Business Bus	2015	242	468	62	53		826
1	Disabled Persons/Private/Business Bus	2016	253	493	61	51		858
1	Disabled Persons/Private/Business Bus	2017	272	570	72	54		968
1	Disabled Persons/Private/Business Bus	Total	1,340	2,498	324	275	0	4,437
1	Farm Passenger Vehicle	2013	50	7,535	0	15		7,601
1	Farm Passenger Vehicle	2014	45	7,191		14		7,250
1	Farm Passenger Vehicle	2015	41	6,882		13		6,937
1	Farm Passenger Vehicle	2016	31	6,677		12		6,719
1	Farm Passenger Vehicle	2017	29	6,364		13		6,405
1	Farm Passenger Vehicle	Total	195	34,649	0	67	0	34,912
1	Farming All Purpose Truck 4540 kg or less	2013	312	29,503	8	157	409	30,390
1	Farming All Purpose Truck 4540 kg or less	2014	290	29,411	9	157	411	30,276
1	Farming All Purpose Truck 4540 kg or less	2015	281	29,457	8	157	408	30,312
1	Farming All Purpose Truck 4540 kg or less	2016	271	29,444	7	153	405	30,281
1	Farming All Purpose Truck 4540 kg or less	2017	262	29,157	8	142	412	29,981
1	Farming All Purpose Truck 4540 kg or less	Total	1,416	146,972	40	767	2,045	151,240
1	Fishing All Purpose Truck 4540 kg or less	2013	2	321	6	43	2	373
1	Fishing All Purpose Truck 4540 kg or less	2014	1	304	6	42	3	356
1	Fishing All Purpose Truck 4540 kg or less	2015	2	293	6	41	5	348
1	Fishing All Purpose Truck 4540 kg or less	2016	3	281	5	36	6	331
1	Fishing All Purpose Truck 4540 kg or less	2017	4	275	5	39	6	329
1	Fishing All Purpose Truck 4540 kg or less	Total	13	1,474	27	201	22	1,737
1	Pleasure Motorhome	2013	1,179	1,906	36	55		3,176
1	Pleasure Motorhome	2014	1,102	1,880	31	50		3,062
1	Pleasure Motorhome	2015	1,075	1,916	34	50		3,075
1	Pleasure Motorhome	2016	1,040	1,910	25	56		3,031
1	Pleasure Motorhome	2017	1,012	1,905	23	54		2,994
1	Pleasure Motorhome	Total	5,409	9,517	149	265	0	15,340
1	Pleasure Passenger Vehicle	2013	110,546	84,020	1,565	3,643		199,774
1	Pleasure Passenger Vehicle	2014	111,082	84,886	1,472	3,501		200,941
1	Pleasure Passenger Vehicle	2015	112,716	86,661	1,465	3,468		204,309
1	Pleasure Passenger Vehicle	2016	114,626	87,982	1,481	3,493		207,582
1	Pleasure Passenger Vehicle	2017	116,221	89,369	1,433	3,519		210,542
1	Pleasure Passenger Vehicle	Total	565,189	432,917	7,417	17,624	0	1,023,148

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Pleasure Truck	2013	15,381	34,201	1,346	2,611		53,539
1	Pleasure Truck	2014	15,861	35,213	1,336	2,623		55,033
1	Pleasure Truck	2015	16,224	36,398	1,321	2,672		56,615
1	Pleasure Truck	2016	16,484	37,518	1,317	2,725		58,044
1	Pleasure Truck	2017	16,685	38,324	1,307	2,775		59,091
1	Pleasure Truck	Total	80,634	181,655	6,628	13,406	0	282,322
1	Major Class Total	2013	394,228	296,709	10,190	15,205	37,725	754,058
1	Major Class Total	2014	399,575	300,642	10,156	15,272	38,242	763,887
1	Major Class Total	2015	405,537	305,659	10,280	15,433	38,485	775,395
1	Major Class Total	2016	412,947	310,282	10,440	15,672	38,602	787,943
1	Major Class Total	2017	419,747	313,813	10,328	15,851	38,904	798,642
1	Major Class Total	Total	2,032,035	1,527,105	51,393	77,433	191,957	3,879,924

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	All Purpose Snow Vehicle (HTA)	2013	4	28	3	6		41
2	All Purpose Snow Vehicle (HTA)	2014	5	31	2	6		44
2	All Purpose Snow Vehicle (HTA)	2015	5	31	2	9		47
2	All Purpose Snow Vehicle (HTA)	2016	5	30	2	10		46
2	All Purpose Snow Vehicle (HTA)	2017	4	32	2	11		49
2	All Purpose Snow Vehicle (HTA)	Total	23	152	11	42	0	228
2	Artisan Truck	2013	147	112	2	4	38	302
2	Artisan Truck	2014	138	104	2	3	35	283
2	Artisan Truck	2015	128	98	1	3	35	264
2	Artisan Truck	2016	98	80	0	3	33	215
2	Artisan Truck	2017	80	68	1	3	34	186
2	Artisan Truck	Total	591	463	6	15	175	1,250
2	Cement/Brick/Exploration Truck	2013	139	327	14	14		493
2	Cement/Brick/Exploration Truck	2014	136	331	12	13		492
2	Cement/Brick/Exploration Truck	2015	129	320	10	14		473
2	Cement/Brick/Exploration Truck	2016	137	315	11	10		474
2	Cement/Brick/Exploration Truck	2017	138	323	11	13		485
2	Cement/Brick/Exploration Truck	Total	679	1,615	58	64	0	2,417
2	Common Carrier Vehicle Local	2013	808	445	14	21		1,288
2	Common Carrier Vehicle Local	2014	812	474	15	18		1,320
2	Common Carrier Vehicle Local	2015	815	494	18	17		1,344
2	Common Carrier Vehicle Local	2016	805	509	17	16		1,347
2	Common Carrier Vehicle Local	2017	801	518	21	14		1,353
2	Common Carrier Vehicle Local	Total	4,041	2,440	86	86	0	6,653
2	Common Carrier Vehicle Within City or Mun.	2013	767	162	16	9		954
2	Common Carrier Vehicle Within City or Mun.	2014	774	162	13	10		959
2	Common Carrier Vehicle Within City or Mun.	2015	775	144	11	12		942
2	Common Carrier Vehicle Within City or Mun.	2016	723	160	10	11		905
2	Common Carrier Vehicle Within City or Mun.	2017	724	143	9	11		887
2	Common Carrier Vehicle Within City or Mun.	Total	3,763	772	59	54	0	4,647
2	Common Carrier Passenger Vehicle < 161 km in MB	2013	48	19		1		67
2	Common Carrier Passenger Vehicle < 161 km in MB	2014	33	20				54
2	Common Carrier Passenger Vehicle < 161 km in MB	2015	29	21				50
2	Common Carrier Passenger Vehicle < 161 km in MB	2016	31	17				49
2	Common Carrier Passenger Vehicle < 161 km in MB	2017	29	16				45
2	Common Carrier Passenger Vehicle < 161 km in MB	Total	170	94	0	1	0	265

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Common Carrier Truck < 161 km in MB	2013	491	387	3	15		897
2	Common Carrier Truck < 161 km in MB	2014	492	431	3	12		938
2	Common Carrier Truck < 161 km in MB	2015	498	479	3	7		987
2	Common Carrier Truck < 161 km in MB	2016	587	510	2	11		1,110
2	Common Carrier Truck < 161 km in MB	2017	638	523	1	13		1,175
2	Common Carrier Truck < 161 km in MB	Total	2,706	2,330	11	58	0	5,106
2	Common Carrier Passenger Vehicle > 161 km in MB	2013	3	3				6
2	Common Carrier Passenger Vehicle > 161 km in MB	2014	2	3				5
2	Common Carrier Passenger Vehicle > 161 km in MB	2015	2	4				7
2	Common Carrier Passenger Vehicle > 161 km in MB	2016	5	4				9
2	Common Carrier Passenger Vehicle > 161 km in MB	2017	4	7				11
2	Common Carrier Passenger Vehicle > 161 km in MB	Total	17	21	0	0	0	38
2	Common Carrier Truck > 161 km in MB	2013	313	390	12	21		735
2	Common Carrier Truck > 161 km in MB	2014	332	417	7	19		775
2	Common Carrier Truck > 161 km in MB	2015	338	405	7	22		771
2	Common Carrier Truck > 161 km in MB	2016	391	440	11	21		863
2	Common Carrier Truck > 161 km in MB	2017	423	483	11	22		939
2	Common Carrier Truck > 161 km in MB	Total	1,797	2,135	47	105	0	4,084
2	Dealer All Uses except Motorcycles	2013	2,134	2,181	42	51		4,409
2	Dealer All Uses except Motorcycles	2014	2,202	2,199	39	57		4,497
2	Dealer All Uses except Motorcycles	2015	2,243	2,236	35	54		4,568
2	Dealer All Uses except Motorcycles	2016	2,316	2,221	33	54		4,624
2	Dealer All Uses except Motorcycles	2017	2,343	2,221	32	51		4,647
2	Dealer All Uses except Motorcycles	Total	11,237	11,058	181	268	0	22,745
2	Dealer Moped	2013	1	1				2
2	Dealer Moped	2014	1	1				2
2	Dealer Moped	2015		1				1
2	Dealer Moped	2016	0	1				1
2	Dealer Moped	2017	0	2				2
2	Dealer Moped	Total	2	5	0	0	0	8
2	Dealer Motorcycle	2013	135	155	0	3		294
2	Dealer Motorcycle	2014	135	151	0	2		288
2	Dealer Motorcycle	2015	127	156	0	2		286
2	Dealer Motorcycle	2016	151	163	0	3		316
2	Dealer Motorcycle	2017	129	163		2		294
2	Dealer Motorcycle	Total	677	787	1	13	0	1,478

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Dealer Trailer	2013	61	125	4	2		193
2	Dealer Trailer	2014	57	129	5	2		193
2	Dealer Trailer	2015	52	131	5	2		191
2	Dealer Trailer	2016	57	130	6	2		195
2	Dealer Trailer	2017	64	126	5	2		197
2	Dealer Trailer	Total	291	642	25	10	0	968
2	Driveaway Within MB	2013		4				4
2	Driveaway Within MB	2014		4				4
2	Driveaway Within MB	2015		4				4
2	Driveaway Within MB	2016		4				4
2	Driveaway Within MB	2017		4				4
2	Driveaway Within MB	Total	0	19	0	0	0	19
2	Driveaway > 161 km Outside MB	2013	94	14				108
2	Driveaway > 161 km Outside MB	2014	93	16				109
2	Driveaway > 161 km Outside MB	2015	91	18				108
2	Driveaway > 161 km Outside MB	2016	27	23				50
2	Driveaway > 161 km Outside MB	2017	11	23				34
2	Driveaway > 161 km Outside MB	Total	316	93	0	0	0	409
2	Farming All Purpose Truck 4541 kg or more	2013	103	14,216		61		14,379
2	Farming All Purpose Truck 4541 kg or more	2014	97	14,371		57		14,525
2	Farming All Purpose Truck 4541 kg or more	2015	89	14,520		64		14,673
2	Farming All Purpose Truck 4541 kg or more	2016	75	14,724		59		14,857
2	Farming All Purpose Truck 4541 kg or more	2017	78	14,685		50		14,813
2	Farming All Purpose Truck 4541 kg or more	Total	441	72,515	0	291	0	73,247
2	Fishing All Purpose Truck 4541 kg or more	2013		10		1		11
2	Fishing All Purpose Truck 4541 kg or more	2014		10		1		11
2	Fishing All Purpose Truck 4541 kg or more	2015		8				8
2	Fishing All Purpose Truck 4541 kg or more	2016		4				4
2	Fishing All Purpose Truck 4541 kg or more	2017		4				4
2	Fishing All Purpose Truck 4541 kg or more	Total	0	35	0	2	0	37
2	Logging Truck	2013		173	1	32		206
2	Logging Truck	2014	0	178		35		213
2	Logging Truck	2015	1	173		36		209
2	Logging Truck	2016	0	128		21		149
2	Logging Truck	2017	0	134		24		157
2	Logging Truck	Total	2	786	1	147	0	935

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Other Truck	2013	5,042	6,472	384	420	789	13,107
2	Other Truck	2014	5,091	6,680	395	413	858	13,437
2	Other Truck	2015	5,193	6,813	394	418	884	13,702
2	Other Truck	2016	5,334	6,955	410	429	882	14,010
2	Other Truck	2017	5,464	7,254	415	425	911	14,470
2	Other Truck	Total	26,124	34,174	1,999	2,106	4,324	68,726
2	Petroleum/Chemical Truck	2013	117	793	22	31		963
2	Petroleum/Chemical Truck	2014	111	770	26	28		935
2	Petroleum/Chemical Truck	2015	109	751	28	28		916
2	Petroleum/Chemical Truck	2016	101	763	25	25		915
2	Petroleum/Chemical Truck	2017	98	767	27	22		914
2	Petroleum/Chemical Truck	Total	537	3,845	129	134	0	4,644
2	Repairer	2013	610	657	14	20		1,300
2	Repairer	2014	630	678	14	21		1,343
2	Repairer	2015	625	686	15	22		1,348
2	Repairer	2016	634	696	17	20		1,366
2	Repairer	2017	656	699	18	18		1,391
2	Repairer	Total	3,155	3,416	77	101	0	6,749
2	Sand/Gravel Truck	2013	478	2,041	64	84		2,669
2	Sand/Gravel Truck	2014	496	2,117	65	84		2,761
2	Sand/Gravel Truck	2015	511	2,185	62	83		2,841
2	Sand/Gravel Truck	2016	473	1,972	49	64		2,558
2	Sand/Gravel Truck	2017	466	1,925	29	67		2,488
2	Sand/Gravel Truck	Total	2,425	10,241	269	383	0	13,317
2	Tow Truck	2013	224	375	10	18		627
2	Tow Truck	2014	230	374	13	18		635
2	Tow Truck	2015	222	356	13	17		607
2	Tow Truck	2016	201	336	10	15		562
2	Tow Truck	2017	207	324	10	15		556
2	Tow Truck	Total	1,083	1,766	56	83	0	2,987
2	Major Class Total	2013	11,717	29,091	606	814	827	43,055
2	Major Class Total	2014	11,867	29,651	611	800	893	43,823
2	Major Class Total	2015	11,983	30,033	602	810	919	44,347
2	Major Class Total	2016	12,152	30,186	602	773	915	44,629
2	Major Class Total	2017	12,358	30,443	593	763	945	45,102
2	Major Class Total	Total	60,078	149,405	3,014	3,961	4,499	220,957

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Charter Bus Local	2013	73	4	4	1		82
3	Charter Bus Local	2014	74	4	3	0		81
3	Charter Bus Local	2015	72	5	2	1		81
3	Charter Bus Local	2016	67	5		5		78
3	Charter Bus Local	2017	51	3		6		60
3	Charter Bus Local	Total	338	21	8	14	0	381
3	Common Carrier Bus Within MB	2013	56	23	0	2		82
3	Common Carrier Bus Within MB	2014	54	27		2		82
3	Common Carrier Bus Within MB	2015	53	28		2		83
3	Common Carrier Bus Within MB	2016	55	29		4		87
3	Common Carrier Bus Within MB	2017	55	30		8		93
3	Common Carrier Bus Within MB	Total	273	136	0	18	0	427
3	Common Carrier Bus > 161 km Outside MB	2013	44	25		6		74
3	Common Carrier Bus > 161 km Outside MB	2014	46	28		5		78
3	Common Carrier Bus > 161 km Outside MB	2015	57	32		3		93
3	Common Carrier Bus > 161 km Outside MB	2016	66	34		5		106
3	Common Carrier Bus > 161 km Outside MB	2017	70	31		5		106
3	Common Carrier Bus > 161 km Outside MB	Total	283	150	0	24	0	457
3	Funeral Passenger Vehicle	2013	45	87	1	3		136
3	Funeral Passenger Vehicle	2014	45	81	1	5		132
3	Funeral Passenger Vehicle	2015	47	81	1	5		135
3	Funeral Passenger Vehicle	2016	46	81	1	5		133
3	Funeral Passenger Vehicle	2017	52	82	1	5		140
3	Funeral Passenger Vehicle	Total	235	412	5	24	0	676
3	Limousine All Uses Passenger Vehicle	2013	113	25	1	1		141
3	Limousine All Uses Passenger Vehicle	2014	113	36	1	1		151
3	Limousine All Uses Passenger Vehicle	2015	111	33	1	0		145
3	Limousine All Uses Passenger Vehicle	2016	99	27	1			127
3	Limousine All Uses Passenger Vehicle	2017	98	23	1			122
3	Limousine All Uses Passenger Vehicle	Total	534	144	5	2	0	685
3	Police/Emergency Passenger Vehicle	2013	403	243	19	26		689
3	Police/Emergency Passenger Vehicle	2014	407	247	19	23		695
3	Police/Emergency Passenger Vehicle	2015	410	269	18	23		719
3	Police/Emergency Passenger Vehicle	2016	416	266	18	21		720
3	Police/Emergency Passenger Vehicle	2017	390	270	16	21		697
3	Police/Emergency Passenger Vehicle	Total	2,024	1,294	89	113	0	3,521

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Police/Emergency Truck	2013	39	45	18	13		116
3	Police/Emergency Truck	2014	44	42	15	14		115
3	Police/Emergency Truck	2015	45	42	15	15		117
3	Police/Emergency Truck	2016	44	43	15	12		115
3	Police/Emergency Truck	2017	41	46	16	11		115
3	Police/Emergency Truck	Total	214	219	80	65	0	577
3	School Bus Local	2013	616	1,594	47	143		2,401
3	School Bus Local	2014	652	1,618	47	151		2,468
3	School Bus Local	2015	658	1,596	45	156		2,454
3	School Bus Local	2016	640	1,579	47	157		2,423
3	School Bus Local	2017	654	1,589	51	159		2,453
3	School Bus Local	Total	3,219	7,977	236	766	0	12,199
3	Taxi/Livery Passenger Vehicle	2013	468	166	55	34		724
3	Taxi/Livery Passenger Vehicle	2014	478	171	54	32		736
3	Taxi/Livery Passenger Vehicle	2015	481	169	54	29		732
3	Taxi/Livery Passenger Vehicle	2016	491	158	52	26		728
3	Taxi/Livery Passenger Vehicle	2017	489	153	51	26		719
3	Taxi/Livery Passenger Vehicle	Total	2,408	817	266	148	0	3,639
3	Transit Bus Local	2013	580	35	3	4		622
3	Transit Bus Local	2014	590	29	2	4		625
3	Transit Bus Local	2015	612	36	2	4		653
3	Transit Bus Local	2016	641	47	3	3		693
3	Transit Bus Local	2017	644	47	2	3		696
3	Transit Bus Local	Total	3,067	193	12	17	0	3,289
3	U-Drive Bus	2013	3	13	1	1		18
3	U-Drive Bus	2014	5	17	1	2		25
3	U-Drive Bus	2015	4	17	0	1		22
3	U-Drive Bus	2016	6	12	1	0		18
3	U-Drive Bus	2017	15	18	1			33
3	U-Drive Bus	Total	33	76	3	4	0	116
3	U-Drive Moped	2013	2					2
3	U-Drive Moped	2014	1					1
3	U-Drive Moped	2015	1					1
3	U-Drive Moped	2016	1					1
3	U-Drive Moped	2017	1					1
3	U-Drive Moped	Total	5	0	0	0	0	5

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	U-Drive Motorhome	2013	22	22	0			44
3	U-Drive Motorhome	2014	16	17				33
3	U-Drive Motorhome	2015	12	13				24
3	U-Drive Motorhome	2016	9	11				20
3	U-Drive Motorhome	2017	11	13				24
3	U-Drive Motorhome	Total	70	75	0	0	0	145
3	U-Drive Passenger Vehicle	2013	4,360	788	73	73		5,294
3	U-Drive Passenger Vehicle	2014	4,700	839	70	79		5,689
3	U-Drive Passenger Vehicle	2015	4,647	867	72	82		5,669
3	U-Drive Passenger Vehicle	2016	4,677	866	71	75		5,689
3	U-Drive Passenger Vehicle	2017	4,932	853	74	73		5,931
3	U-Drive Passenger Vehicle	Total	23,316	4,214	360	382	0	28,272
3	U-Drive Truck	2013	837	182	69	39		1,127
3	U-Drive Truck	2014	916	211	65	50		1,242
3	U-Drive Truck	2015	922	216	80	42		1,259
3	U-Drive Truck	2016	957	209	75	27		1,268
3	U-Drive Truck	2017	1,210	236	97	29		1,573
3	U-Drive Truck	Total	4,842	1,053	387	187	0	6,469
3	Wheelchair/Livery Bus (Terr 1 only)	2013	88					88
3	Wheelchair/Livery Bus (Terr 1 only)	2014	88					88
3	Wheelchair/Livery Bus (Terr 1 only)	2015	92					92
3	Wheelchair/Livery Bus (Terr 1 only)	2016	97					97
3	Wheelchair/Livery Bus (Terr 1 only)	2017	108					108
3	Wheelchair/Livery Bus (Terr 1 only)	Total	474	0	0	0	0	474
3	Major Class Total	2013	7,749	3,252	290	346		11,638
3	Major Class Total	2014	8,229	3,367	277	369		12,242
3	Major Class Total	2015	8,224	3,402	290	362		12,278
3	Major Class Total	2016	8,312	3,367	285	340		12,304
3	Major Class Total	2017	8,822	3,393	310	347		12,871
3	Major Class Total	Total	41,336	16,782	1,452	1,764	0	61,333

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	All Purpose Moped/Mobility Vehicle	2013	814	284	7	4		1,109
4	All Purpose Moped/Mobility Vehicle	2014	713	248	2	4		968
4	All Purpose Moped/Mobility Vehicle	2015	622	216	2	4		843
4	All Purpose Moped/Mobility Vehicle	2016	521	179	4	5		709
4	All Purpose Moped/Mobility Vehicle	2017	441	158	6	3		609
4	All Purpose Moped/Mobility Vehicle	Total	3,111	1,085	21	21	0	4,238
4	All Purpose Motorcycle (Motorscooter Body Style)	2013	226	54	3	5	3	290
4	All Purpose Motorcycle (Motorscooter Body Style)	2014	215	47	3	5	5	275
4	All Purpose Motorcycle (Motorscooter Body Style)	2015	185	34	4	7	7	237
4	All Purpose Motorcycle (Motorscooter Body Style)	2016	166	33	4	6	6	215
4	All Purpose Motorcycle (Motorscooter Body Style)	2017	151	24	2	4	6	187
4	All Purpose Motorcycle (Motorscooter Body Style)	Total	942	192	16	26	27	1,203
4	All Purpose Motorcycle (Other Body Style)	2013	612	369	25	20	90	1,115
4	All Purpose Motorcycle (Other Body Style)	2014	631	345	32	22	88	1,119
4	All Purpose Motorcycle (Other Body Style)	2015	609	339	33	15	75	1,072
4	All Purpose Motorcycle (Other Body Style)	2016	570	312	35	16	84	1,017
4	All Purpose Motorcycle (Other Body Style)	2017	549	265	31	13	87	944
4	All Purpose Motorcycle (Other Body Style)	Total	2,970	1,629	156	86	424	5,266
4	All Purpose Motorcycle (Sport Body Style)	2013	137	57	2	1	15	212
4	All Purpose Motorcycle (Sport Body Style)	2014	129	54	2	1	11	197
4	All Purpose Motorcycle (Sport Body Style)	2015	127	45	3	0	14	189
4	All Purpose Motorcycle (Sport Body Style)	2016	134	48	2	1	14	199
4	All Purpose Motorcycle (Sport Body Style)	2017	120	37	3		12	173
4	All Purpose Motorcycle (Sport Body Style)	Total	647	242	12	3	67	970
4	All Purpose Motorcycle (Sport-Touring Body Style)	2013	40	19	1	1	9	69
4	All Purpose Motorcycle (Sport-Touring Body Style)	2014	48	23	1	1	10	83
4	All Purpose Motorcycle (Sport-Touring Body Style)	2015	50	26			9	85
4	All Purpose Motorcycle (Sport-Touring Body Style)	2016	54	20	0		9	83
4	All Purpose Motorcycle (Sport-Touring Body Style)	2017	49	19		1	9	77
4	All Purpose Motorcycle (Sport-Touring Body Style)	Total	241	107	2	2	46	398
4	All Purpose Motorcycle (Touring Body Style)	2013	299	185	16	9	54	563
4	All Purpose Motorcycle (Touring Body Style)	2014	300	173	18	12	54	557
4	All Purpose Motorcycle (Touring Body Style)	2015	302	173	15	12	59	561
4	All Purpose Motorcycle (Touring Body Style)	2016	301	165	18	12	50	546
4	All Purpose Motorcycle (Touring Body Style)	2017	282	154	16	12	48	512
4	All Purpose Motorcycle (Touring Body Style)	Total	1,484	850	82	57	264	2,738

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Moped/Mobility Vehicle	2013	671	409	6	8		1,094
4	Pleasure Moped/Mobility Vehicle	2014	671	392	6	7		1,076
4	Pleasure Moped/Mobility Vehicle	2015	655	416	8	7		1,086
4	Pleasure Moped/Mobility Vehicle	2016	656	431	6	7		1,099
4	Pleasure Moped/Mobility Vehicle	2017	647	391	7	5		1,051
4	Pleasure Moped/Mobility Vehicle	Total	3,300	2,039	33	34	0	5,406
4	Pleasure Motorcycle (Motorscooter Body Style)	2013	214	130		5		349
4	Pleasure Motorcycle (Motorscooter Body Style)	2014	212	145		7		363
4	Pleasure Motorcycle (Motorscooter Body Style)	2015	213	155		6		373
4	Pleasure Motorcycle (Motorscooter Body Style)	2016	216	144	0	6		366
4	Pleasure Motorcycle (Motorscooter Body Style)	2017	222	143	3	7		374
4	Pleasure Motorcycle (Motorscooter Body Style)	Total	1,076	717	3	30		1,827
4	Pleasure Motorcycle (Other Body Style)	2013	1,913	2,818	100	115		4,946
4	Pleasure Motorcycle (Other Body Style)	2014	2,050	2,893	106	126		5,175
4	Pleasure Motorcycle (Other Body Style)	2015	2,292	3,148	103	134		5,677
4	Pleasure Motorcycle (Other Body Style)	2016	2,520	3,473	109	142		6,244
4	Pleasure Motorcycle (Other Body Style)	2017	2,772	3,619	104	145		6,640
4	Pleasure Motorcycle (Other Body Style)	Total	11,547	15,951	522	662		28,682
4	Pleasure Motorcycle (Sport Body Style)	2013	396	321	10	12		738
4	Pleasure Motorcycle (Sport Body Style)	2014	415	329	10	7		761
4	Pleasure Motorcycle (Sport Body Style)	2015	450	367	13	10		840
4	Pleasure Motorcycle (Sport Body Style)	2016	555	426	13	12		1,005
4	Pleasure Motorcycle (Sport Body Style)	2017	647	452	13	12		1,124
4	Pleasure Motorcycle (Sport Body Style)	Total	2,463	1,894	59	52		4,468
4	Pleasure Motorcycle (Sport-Touring Body Style)	2013	116	128	5	6		255
4	Pleasure Motorcycle (Sport-Touring Body Style)	2014	133	146	5	6		290
4	Pleasure Motorcycle (Sport-Touring Body Style)	2015	155	163	7	6		331
4	Pleasure Motorcycle (Sport-Touring Body Style)	2016	188	183	8	7		386
4	Pleasure Motorcycle (Sport-Touring Body Style)	2017	215	218	7	6		447
4	Pleasure Motorcycle (Sport-Touring Body Style)	Total	808	838	32	30		1,709
4	Pleasure Motorcycle (Touring Body Style)	2013	964	2,027	59	93		3,142
4	Pleasure Motorcycle (Touring Body Style)	2014	1,062	2,179	67	93		3,400
4	Pleasure Motorcycle (Touring Body Style)	2015	1,182	2,439	72	89		3,782
4	Pleasure Motorcycle (Touring Body Style)	2016	1,351	2,675	73	103		4,202
4	Pleasure Motorcycle (Touring Body Style)	2017	1,470	2,896	84	104		4,554
4	Pleasure Motorcycle (Touring Body Style)	Total	6,029	12,215	355	482		19,081

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Major Class Total	2013	6,401	6,800	232	278	171	13,883
4	Major Class Total	2014	6,580	6,973	253	290	168	14,265
4	Major Class Total	2015	6,842	7,522	258	290	164	15,076
4	Major Class Total	2016	7,230	8,090	274	314	163	16,071
4	Major Class Total	2017	7,564	8,376	277	312	163	16,692
4	Major Class Total	Total	34,617	37,762	1,294	1,485	828	75,987

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
5	All Purpose Trailer $2500 or less	2013	34,846	59,811	2,049	3,611		100,317
5	All Purpose Trailer $2500 or less	2014	34,990	61,042	2,033	3,627		101,693
5	All Purpose Trailer $2500 or less	2015	35,202	62,576	2,032	3,631		103,441
5	All Purpose Trailer $2500 or less	2016	35,418	64,098	2,044	3,684		105,245
5	All Purpose Trailer $2500 or less	2017	35,449	65,108	2,020	3,689		106,266
5	All Purpose Trailer $2500 or less	Total	175,905	312,635	10,179	18,243	0	516,962
5	All Purpose Trailer $2501 or more	2013	20,194	52,920	1,191	1,858		76,162
5	All Purpose Trailer $2501 or more	2014	21,187	56,114	1,242	1,977		80,520
5	All Purpose Trailer $2501 or more	2015	21,971	59,125	1,295	2,103		84,493
5	All Purpose Trailer $2501 or more	2016	22,850	61,868	1,368	2,218		88,303
5	All Purpose Trailer $2501 or more	2017	23,758	64,727	1,407	2,356		92,247
5	All Purpose Trailer $2501 or more	Total	109,959	294,753	6,503	10,511	0	421,726
5	Major Class Total	2013	55,040	112,730	3,240	5,469		176,479
5	Major Class Total	2014	56,177	117,156	3,275	5,604		182,213
5	Major Class Total	2015	57,173	121,700	3,327	5,734		187,934
5	Major Class Total	2016	58,267	125,966	3,412	5,902		193,548
5	Major Class Total	2017	59,207	129,835	3,427	6,044		198,513
5	Major Class Total	Total	285,865	607,388	16,681	28,754	0	938,688

TABLE 13
Earned Units

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
6	Off Road Vehicle All Purpose	2013	15,244	45,389	1,826	2,454		64,913
6	Off Road Vehicle All Purpose	2014	15,530	47,128	1,848	2,528		67,034
6	Off Road Vehicle All Purpose	2015	15,395	47,992	1,802	2,617		67,806
6	Off Road Vehicle All Purpose	2016	15,760	50,363	1,760	2,710		70,593
6	Off Road Vehicle All Purpose	2017	16,116	52,312	1,765	2,718		72,910
6	Off Road Vehicle All Purpose	Total	78,044	243,184	9,001	13,028	0	343,256
6	Major Class Total	2013	15,244	45,389	1,826	2,454		64,913
6	Major Class Total	2014	15,530	47,128	1,848	2,528		67,034
6	Major Class Total	2015	15,395	47,992	1,802	2,617		67,806
6	Major Class Total	2016	15,760	50,363	1,760	2,710		70,593
6	Major Class Total	2017	16,116	52,312	1,765	2,718		72,910
6	Major Class Total	Total	78,044	243,184	9,001	13,028	0	343,256

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	All Purpose Motorhome	2013	330	1,195	0	0	0	693
1	All Purpose Motorhome	2014	412	85	0		0	239
1	All Purpose Motorhome	2015	697	1,236	0		0	903
1	All Purpose Motorhome	2016	616	143	0	0	0	352
1	All Purpose Motorhome	2017	602	202	0	0	0	373
1	All Purpose Motorhome	Total	520	595	0	0	0	519
1	All Purpose Passenger Vehicle	2013	893	686	739	739	921	838
1	All Purpose Passenger Vehicle	2014	785	638	590	649	828	746
1	All Purpose Passenger Vehicle	2015	881	828	715	746	939	868
1	All Purpose Passenger Vehicle	2016	900	863	737	904	940	892
1	All Purpose Passenger Vehicle	2017	899	720	838	846	877	849
1	All Purpose Passenger Vehicle	Total	872	748	724	778	901	839
1	All Purpose Truck 4540 kg or less	2013	793	579	588	552	796	687
1	All Purpose Truck 4540 kg or less	2014	747	591	657	672	805	680
1	All Purpose Truck 4540 kg or less	2015	806	746	583	621	925	777
1	All Purpose Truck 4540 kg or less	2016	826	800	798	636	931	817
1	All Purpose Truck 4540 kg or less	2017	760	589	646	589	789	681
1	All Purpose Truck 4540 kg or less	Total	786	662	656	614	850	729
1	Antique Vehicle	2013	0	0				0
1	Antique Vehicle	2014	0	0				0
1	Antique Vehicle	2015	0	0				0
1	Antique Vehicle	2016	0	0				0
1	Antique Vehicle	2017	0	0				0
1	Antique Vehicle	Total	0	0	0	0	0	0
1	Collector Passenger Vehicle	2013						
1	Collector Passenger Vehicle	2014	30	85	0	0		60
1	Collector Passenger Vehicle	2015	88	42	710	0		64
1	Collector Passenger Vehicle	2016	46	105	5,085	382		103
1	Collector Passenger Vehicle	2017	78	58	0	0		66
1	Collector Passenger Vehicle	Total	65	72	1,858	117	0	75
1	Collector Truck 4540 kg or less	2013						
1	Collector Truck 4540 kg or less	2014	23	0	0	0		7
1	Collector Truck 4540 kg or less	2015	34	42	0	0		40
1	Collector Truck 4540 kg or less	2016	195	94	0	0		116
1	Collector Truck 4540 kg or less	2017	78	6	0	0		22
1	Collector Truck 4540 kg or less	Total	93	39	0	0	0	51

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Disabled Persons/Private/Business Bus	2013	645	366	827	36		467
1	Disabled Persons/Private/Business Bus	2014	555	254	1,786	7,932		939
1	Disabled Persons/Private/Business Bus	2015	1,341	389	1,873	132		763
1	Disabled Persons/Private/Business Bus	2016	488	480	463	336		472
1	Disabled Persons/Private/Business Bus	2017	757	538	845	1,075		652
1	Disabled Persons/Private/Business Bus	Total	744	410	1,147	1,932	0	659
1	Farm Passenger Vehicle	2013	6,923	435	0	219		477
1	Farm Passenger Vehicle	2014	283	478		300		476
1	Farm Passenger Vehicle	2015	192	645		476		642
1	Farm Passenger Vehicle	2016	1,429	526		7,259		542
1	Farm Passenger Vehicle	2017	113	557		0		554
1	Farm Passenger Vehicle	Total	2,116	526	0	1,489	0	536
1	Farming All Purpose Truck 4540 kg or less	2013	461	401	589	462	681	406
1	Farming All Purpose Truck 4540 kg or less	2014	386	422	1,173	385	841	428
1	Farming All Purpose Truck 4540 kg or less	2015	262	502	595	601	645	503
1	Farming All Purpose Truck 4540 kg or less	2016	397	550	0	817	789	553
1	Farming All Purpose Truck 4540 kg or less	2017	358	494	914	493	742	496
1	Farming All Purpose Truck 4540 kg or less	Total	375	474	673	552	740	477
1	Fishing All Purpose Truck 4540 kg or less	2013	0	473	41	958	0	517
1	Fishing All Purpose Truck 4540 kg or less	2014	7,168	394	0	667	2,631	466
1	Fishing All Purpose Truck 4540 kg or less	2015	0	582	0	535	450	561
1	Fishing All Purpose Truck 4540 kg or less	2016	0	569	208	460	1,253	559
1	Fishing All Purpose Truck 4540 kg or less	2017	2,713	629	51	421	2,381	657
1	Fishing All Purpose Truck 4540 kg or less	Total	1,770	526	54	617	1,445	550
1	Pleasure Motorhome	2013	480	391	44	356		419
1	Pleasure Motorhome	2014	451	449	336	65		442
1	Pleasure Motorhome	2015	724	660	150	162		669
1	Pleasure Motorhome	2016	382	652	620	263		552
1	Pleasure Motorhome	2017	483	341	0	0		380
1	Pleasure Motorhome	Total	504	499	220	173	0	493
1	Pleasure Passenger Vehicle	2013	644	561	674	685		610
1	Pleasure Passenger Vehicle	2014	571	521	667	647		552
1	Pleasure Passenger Vehicle	2015	631	643	684	648		637
1	Pleasure Passenger Vehicle	2016	648	669	687	786		659
1	Pleasure Passenger Vehicle	2017	665	585	753	682		632
1	Pleasure Passenger Vehicle	Total	632	597	692	690	0	619

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
1	Pleasure Truck	2013	544	390	755	401		444
1	Pleasure Truck	2014	467	388	699	397		419
1	Pleasure Truck	2015	550	527	734	429		534
1	Pleasure Truck	2016	598	528	759	614		557
1	Pleasure Truck	2017	491	395	730	507		435
1	Pleasure Truck	Total	530	446	735	471	0	478
1	Major Class Total	2013	797	562	675	609	884	703
1	Major Class Total	2014	706	540	646	634	822	644
1	Major Class Total	2015	787	686	670	625	932	749
1	Major Class Total	2016	805	714	757	747	936	774
1	Major Class Total	2017	797	589	737	666	849	714
1	Major Class Total	Total	778	619	697	657	885	717

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	All Purpose Snow Vehicle (HTA)	2013	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	2014	0	220	0	0		154
2	All Purpose Snow Vehicle (HTA)	2015	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	2016	0	98	0	0		63
2	All Purpose Snow Vehicle (HTA)	2017	0	0	0	0		0
2	All Purpose Snow Vehicle (HTA)	Total	0	64	0	0	0	43
2	Artisan Truck	2013	652	157	111	0	766	471
2	Artisan Truck	2014	254	57	1,873	0	282	192
2	Artisan Truck	2015	576	323	366	0	2,427	720
2	Artisan Truck	2016	911	410	0	0	533	651
2	Artisan Truck	2017	182	24	0	0	305	143
2	Artisan Truck	Total	522	194	670	0	866	443
2	Cement/Brick/Exploration Truck	2013	132	131	0	0		124
2	Cement/Brick/Exploration Truck	2014	414	740	0	0		612
2	Cement/Brick/Exploration Truck	2015	356	137	0	0		190
2	Cement/Brick/Exploration Truck	2016	28	88	0	0		67
2	Cement/Brick/Exploration Truck	2017	666	51	0	0		223
2	Cement/Brick/Exploration Truck	Total	319	233	0	0	0	245
2	Common Carrier Vehicle Local	2013	1,609	1,084	739	355		1,397
2	Common Carrier Vehicle Local	2014	1,065	1,238	132	626		1,110
2	Common Carrier Vehicle Local	2015	1,281	923	216	323		1,122
2	Common Carrier Vehicle Local	2016	1,387	1,340	1,541	1,621		1,374
2	Common Carrier Vehicle Local	2017	1,609	1,086	2,172	883		1,410
2	Common Carrier Vehicle Local	Total	1,389	1,135	1,036	718	0	1,283
2	Common Carrier Vehicle Within City or Mun.	2013	966	590	1,058	439		898
2	Common Carrier Vehicle Within City or Mun.	2014	821	369	0	0		725
2	Common Carrier Vehicle Within City or Mun.	2015	819	980	253	0		827
2	Common Carrier Vehicle Within City or Mun.	2016	1,131	1,290	48	390		1,137
2	Common Carrier Vehicle Within City or Mun.	2017	985	482	0	641		890
2	Common Carrier Vehicle Within City or Mun.	Total	941	742	343	289	0	893
2	Common Carrier Passenger Vehicle < 161 km in MB	2013	1,344	508		0		1,097
2	Common Carrier Passenger Vehicle < 161 km in MB	2014	606	213				458
2	Common Carrier Passenger Vehicle < 161 km in MB	2015	1,692	2,431				2,000
2	Common Carrier Passenger Vehicle < 161 km in MB	2016	674	745				700
2	Common Carrier Passenger Vehicle < 161 km in MB	2017	800	1,009				875
2	Common Carrier Passenger Vehicle < 161 km in MB	Total	1,044	1,003	0	0	0	1,028

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Common Carrier Truck < 161 km in MB	2013	1,294	764	4,727	331		1,061
2	Common Carrier Truck < 161 km in MB	2014	1,193	477	0	413		851
2	Common Carrier Truck < 161 km in MB	2015	1,110	341	0	0		725
2	Common Carrier Truck < 161 km in MB	2016	1,023	678	22	0		853
2	Common Carrier Truck < 161 km in MB	2017	816	497	0	0		664
2	Common Carrier Truck < 161 km in MB	Total	1,070	545	1,356	172	0	821
2	Common Carrier Passenger Vehicle > 161 km in MB	2013	2,042	333				1,184
2	Common Carrier Passenger Vehicle > 161 km in MB	2014	3,519	5,558				4,732
2	Common Carrier Passenger Vehicle > 161 km in MB	2015	360	928				719
2	Common Carrier Passenger Vehicle > 161 km in MB	2016	0	0				0
2	Common Carrier Passenger Vehicle > 161 km in MB	2017	1,825	1,286				1,482
2	Common Carrier Passenger Vehicle > 161 km in MB	Total	1,311	1,479	0	0	0	1,405
2	Common Carrier Truck > 161 km in MB	2013	681	787	0	0		707
2	Common Carrier Truck > 161 km in MB	2014	787	1,216	278	26		995
2	Common Carrier Truck > 161 km in MB	2015	554	868	0	23		699
2	Common Carrier Truck > 161 km in MB	2016	915	575	0	12		708
2	Common Carrier Truck > 161 km in MB	2017	963	1,001	0	0		949
2	Common Carrier Truck > 161 km in MB	Total	794	891	40	12	0	816
2	Dealer All Uses except Motorcycles	2013	1,021	572	105	1,059		790
2	Dealer All Uses except Motorcycles	2014	968	526	25	558		738
2	Dealer All Uses except Motorcycles	2015	1,143	648	14	135		880
2	Dealer All Uses except Motorcycles	2016	1,098	482	0	260		785
2	Dealer All Uses except Motorcycles	2017	1,101	428	318	150		764
2	Dealer All Uses except Motorcycles	Total	1,068	531	88	430	0	791
2	Dealer Moped	2013	0	0				0
2	Dealer Moped	2014	0	0				0
2	Dealer Moped	2015		0				0
2	Dealer Moped	2016	0	0				0
2	Dealer Moped	2017	0	0				0
2	Dealer Moped	Total	0	0	0	0	0	0
2	Dealer Motorcycle	2013	0	29	0	0		16
2	Dealer Motorcycle	2014	140	48	0	0		90
2	Dealer Motorcycle	2015	20	102	0	0		64
2	Dealer Motorcycle	2016	43	77	0	0		60
2	Dealer Motorcycle	2017	167	830		0		532
2	Dealer Motorcycle	Total	73	223	0	0	0	152

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Dealer Trailer	2013	853	223	0	0		414
2	Dealer Trailer	2014	1,177	71	0	0		394
2	Dealer Trailer	2015	940	109	0	0		334
2	Dealer Trailer	2016	618	0	0	0		181
2	Dealer Trailer	2017	602	37	0	0		220
2	Dealer Trailer	Total	830	87	0	0	0	308
2	Driveaway Within MB	2013		0				0
2	Driveaway Within MB	2014		0				0
2	Driveaway Within MB	2015		0				0
2	Driveaway Within MB	2016		0				0
2	Driveaway Within MB	2017		0				0
2	Driveaway Within MB	Total	0	0	0	0	0	0
2	Driveaway > 161 km Outside MB	2013	0	0				0
2	Driveaway > 161 km Outside MB	2014	0	0				0
2	Driveaway > 161 km Outside MB	2015	0	0				0
2	Driveaway > 161 km Outside MB	2016	0	0				0
2	Driveaway > 161 km Outside MB	2017	0	0				0
2	Driveaway > 161 km Outside MB	Total	0	0	0	0	0	0
2	Farming All Purpose Truck 4541 kg or more	2013	231	311		17		309
2	Farming All Purpose Truck 4541 kg or more	2014	124	290		0		287
2	Farming All Purpose Truck 4541 kg or more	2015	89	252		469		252
2	Farming All Purpose Truck 4541 kg or more	2016	25	275		114		273
2	Farming All Purpose Truck 4541 kg or more	2017	432	270		14		270
2	Farming All Purpose Truck 4541 kg or more	Total	180	279	0	132	0	278
2	Fishing All Purpose Truck 4541 kg or more	2013		0		0		0
2	Fishing All Purpose Truck 4541 kg or more	2014		1,364		0		1,236
2	Fishing All Purpose Truck 4541 kg or more	2015		0				0
2	Fishing All Purpose Truck 4541 kg or more	2016		0				0
2	Fishing All Purpose Truck 4541 kg or more	2017		0				0
2	Fishing All Purpose Truck 4541 kg or more	Total	0	374	0	0	0	354
2	Logging Truck	2013		60	0	16		53
2	Logging Truck	2014	0	11		56		18
2	Logging Truck	2015	0	506		14		419
2	Logging Truck	2016	0	3,152		0		2,705
2	Logging Truck	2017	0	0		21		3
2	Logging Truck	Total	0	641	0	23	0	542

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
2	Other Truck	2013	546	410	312	134	776	473
2	Other Truck	2014	499	373	264	169	954	449
2	Other Truck	2015	546	429	413	329	758	491
2	Other Truck	2016	658	417	137	282	541	504
2	Other Truck	2017	486	419	156	409	760	458
2	Other Truck	Total	547	410	254	266	756	475
2	Petroleum/Chemical Truck	2013	217	307	0	0		279
2	Petroleum/Chemical Truck	2014	421	393	253	6		381
2	Petroleum/Chemical Truck	2015	135	254	14	18		225
2	Petroleum/Chemical Truck	2016	296	293	39	0		278
2	Petroleum/Chemical Truck	2017	67	433	1,306	0		410
2	Petroleum/Chemical Truck	Total	230	336	339	5	0	315
2	Repairer	2013	246	61	0	84		147
2	Repairer	2014	67	12	0	0		38
2	Repairer	2015	86	111	0	0		96
2	Repairer	2016	90	56	146	0		72
2	Repairer	2017	303	60	0	0		173
2	Repairer	Total	159	60	32	17	0	105
2	Sand/Gravel Truck	2013	356	655	0	0		565
2	Sand/Gravel Truck	2014	984	519	268	0		581
2	Sand/Gravel Truck	2015	1,033	426	8	0		514
2	Sand/Gravel Truck	2016	791	495	0	0		528
2	Sand/Gravel Truck	2017	666	432	0	64		461
2	Sand/Gravel Truck	Total	772	505	66	11	0	531
2	Tow Truck	2013	2,507	767	22	1,704		1,402
2	Tow Truck	2014	2,741	679	735	148		1,412
2	Tow Truck	2015	1,536	670	522	22		965
2	Tow Truck	2016	1,516	941	3,629	2,103		1,225
2	Tow Truck	2017	1,715	302	4,544	0		896
2	Tow Truck	Total	2,023	676	1,765	790	0	1,188
2	Major Class Total	2013	767	396	275	199	776	499
2	Major Class Total	2014	712	376	239	154	927	472
2	Major Class Total	2015	750	360	295	225	821	472
2	Major Class Total	2016	812	383	205	262	541	498
2	Major Class Total	2017	750	355	341	271	743	470
2	Major Class Total	Total	758	374	271	221	761	482

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Charter Bus Local	2013	148	4,197	90,400	825		4,287
3	Charter Bus Local	2014	209	686	0	0		225
3	Charter Bus Local	2015	613	0	0	0		550
3	Charter Bus Local	2016	336	0		0		289
3	Charter Bus Local	2017	204	0		0		174
3	Charter Bus Local	Total	307	899	40,214	49	0	1,168
3	Common Carrier Bus Within MB	2013	727	149	0	0		542
3	Common Carrier Bus Within MB	2014	606	44		0		408
3	Common Carrier Bus Within MB	2015	569	36		1,328		408
3	Common Carrier Bus Within MB	2016	717	17		0		456
3	Common Carrier Bus Within MB	2017	591	52		0		367
3	Common Carrier Bus Within MB	Total	643	56	0	139	0	435
3	Common Carrier Bus > 161 km Outside MB	2013	1,678	0		0		989
3	Common Carrier Bus > 161 km Outside MB	2014	1,809	2		0		1,055
3	Common Carrier Bus > 161 km Outside MB	2015	1,317	0		0		817
3	Common Carrier Bus > 161 km Outside MB	2016	1,117	15		0		706
3	Common Carrier Bus > 161 km Outside MB	2017	1,197	0		0		786
3	Common Carrier Bus > 161 km Outside MB	Total	1,376	4	0	0	0	853
3	Funeral Passenger Vehicle	2013	554	593	0	0		561
3	Funeral Passenger Vehicle	2014	120	153	0	0		134
3	Funeral Passenger Vehicle	2015	567	165	0	0		299
3	Funeral Passenger Vehicle	2016	501	316	0	0		365
3	Funeral Passenger Vehicle	2017	728	157	0	899		394
3	Funeral Passenger Vehicle	Total	502	281	0	186	0	352
3	Limousine All Uses Passenger Vehicle	2013	1,251	1,599	0	0		1,296
3	Limousine All Uses Passenger Vehicle	2014	1,883	2,092	0	0		1,907
3	Limousine All Uses Passenger Vehicle	2015	750	2,756	0	0		1,198
3	Limousine All Uses Passenger Vehicle	2016	1,125	962	0			1,082
3	Limousine All Uses Passenger Vehicle	2017	1,046	2,418	0			1,297
3	Limousine All Uses Passenger Vehicle	Total	1,220	2,000	0	0	0	1,371
3	Police/Emergency Passenger Vehicle	2013	1,505	1,977	35	839		1,606
3	Police/Emergency Passenger Vehicle	2014	1,416	1,459	825	1,079		1,404
3	Police/Emergency Passenger Vehicle	2015	1,798	1,048	14	166		1,422
3	Police/Emergency Passenger Vehicle	2016	1,888	1,745	0	520		1,749
3	Police/Emergency Passenger Vehicle	2017	2,179	1,542	638	1,414		1,874
3	Police/Emergency Passenger Vehicle	Total	1,755	1,547	298	800	0	1,611

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	Police/Emergency Truck	2013	635	708	79	425		553
3	Police/Emergency Truck	2014	243	251	35	94		202
3	Police/Emergency Truck	2015	605	399	143	176		416
3	Police/Emergency Truck	2016	182	946	677	23		518
3	Police/Emergency Truck	2017	1,189	924	836	364		953
3	Police/Emergency Truck	Total	561	654	352	211	0	528
3	School Bus Local	2013	538	426	50	374		445
3	School Bus Local	2014	685	375	11	348		448
3	School Bus Local	2015	523	357	1,984	343		431
3	School Bus Local	2016	549	299	61	855		397
3	School Bus Local	2017	447	155	40	369		244
3	School Bus Local	Total	549	323	410	460	0	393
3	Taxi/Livery Passenger Vehicle	2013	8,554	2,685	1,982	4,743		6,527
3	Taxi/Livery Passenger Vehicle	2014	7,218	2,266	3,600	4,500		5,682
3	Taxi/Livery Passenger Vehicle	2015	7,095	1,012	1,874	5,589		5,250
3	Taxi/Livery Passenger Vehicle	2016	7,452	1,966	2,705	6,399		5,880
3	Taxi/Livery Passenger Vehicle	2017	7,325	2,077	2,804	7,090		5,882
3	Taxi/Livery Passenger Vehicle	Total	7,523	1,999	2,589	5,565	0	5,842
3	Transit Bus Local	2013	2,471	912	5,046	0		2,380
3	Transit Bus Local	2014	1,510	1,715	0	770		1,510
3	Transit Bus Local	2015	1,589	153	0	0		1,496
3	Transit Bus Local	2016	1,982	950	276	10,968		1,943
3	Transit Bus Local	2017	1,562	1,392	1,039	0		1,543
3	Transit Bus Local	Total	1,817	1,016	1,479	2,030	0	1,770
3	U-Drive Bus	2013	0	540	0	0		399
3	U-Drive Bus	2014	185	-77	0	0		-11
3	U-Drive Bus	2015	0	4,461	0	0		3,461
3	U-Drive Bus	2016	1,635	0	0	0		520
3	U-Drive Bus	2017	571	612	0			581
3	U-Drive Bus	Total	579	1,201	0	0	0	953
3	U-Drive Moped	2013	0					0
3	U-Drive Moped	2014	0					0
3	U-Drive Moped	2015	0					0
3	U-Drive Moped	2016	40,017					40,017
3	U-Drive Moped	2017	0					0
3	U-Drive Moped	Total	6,727	0	0	0	0	6,727

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
3	U-Drive Motorhome	2013	146	1,444	205,891			1,765
3	U-Drive Motorhome	2014	360	1,068				725
3	U-Drive Motorhome	2015	2,177	319				1,206
3	U-Drive Motorhome	2016	321	148				227
3	U-Drive Motorhome	2017	1,895	174				974
3	U-Drive Motorhome	Total	840	766	205,891	0	0	1,096
3	U-Drive Passenger Vehicle	2013	1,255	742	558	319		1,156
3	U-Drive Passenger Vehicle	2014	1,118	623	1,128	684		1,039
3	U-Drive Passenger Vehicle	2015	1,199	725	585	365		1,107
3	U-Drive Passenger Vehicle	2016	1,368	930	1,033	678		1,288
3	U-Drive Passenger Vehicle	2017	1,437	901	823	319		1,339
3	U-Drive Passenger Vehicle	Total	1,277	786	822	475	0	1,188
3	U-Drive Truck	2013	1,157	552	581	707		1,008
3	U-Drive Truck	2014	894	371	494	801		780
3	U-Drive Truck	2015	1,022	1,309	1,246	742		1,076
3	U-Drive Truck	2016	1,272	886	567	1,501		1,171
3	U-Drive Truck	2017	1,020	730	2,832	823		1,085
3	U-Drive Truck	Total	1,070	777	1,268	871	0	1,028
3	Wheelchair/Livery Bus (Terr 1 only)	2013	981					981
3	Wheelchair/Livery Bus (Terr 1 only)	2014	876					876
3	Wheelchair/Livery Bus (Terr 1 only)	2015	6,157					6,157
3	Wheelchair/Livery Bus (Terr 1 only)	2016	2,169					2,169
3	Wheelchair/Livery Bus (Terr 1 only)	2017	1,555					1,555
3	Wheelchair/Livery Bus (Terr 1 only)	Total	2,345	0	0	0	0	2,345
3	Major Class Total	2013	1,706	770	1,977	851		1,426
3	Major Class Total	2014	1,444	631	1,165	874		1,197
3	Major Class Total	2015	1,564	629	1,153	781		1,272
3	Major Class Total	2016	1,711	706	954	1,276		1,406
3	Major Class Total	2017	1,651	622	1,639	958		1,361
3	Major Class Total	Total	1,615	671	1,385	944	0	1,332

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	All Purpose Moped/Mobility Vehicle	2013	733	2	0	0		538
4	All Purpose Moped/Mobility Vehicle	2014	287	0	0	0		211
4	All Purpose Moped/Mobility Vehicle	2015	233	88	0	0		194
4	All Purpose Moped/Mobility Vehicle	2016	294	0	0	0		216
4	All Purpose Moped/Mobility Vehicle	2017	255	11	0	0		188
4	All Purpose Moped/Mobility Vehicle	Total	389	20	0	0	0	291
4	All Purpose Motorcycle (Motorscooter Body Style)	2013	332	643	0	0	0	378
4	All Purpose Motorcycle (Motorscooter Body Style)	2014	358	0	0	0	0	280
4	All Purpose Motorcycle (Motorscooter Body Style)	2015	211	0	0	0	345	175
4	All Purpose Motorcycle (Motorscooter Body Style)	2016	407	0	0	0	0	314
4	All Purpose Motorcycle (Motorscooter Body Style)	2017	77	0	0	0	0	62
4	All Purpose Motorcycle (Motorscooter Body Style)	Total	287	180	0	0	86	255
4	All Purpose Motorcycle (Other Body Style)	2013	1,122	1,059	0	0	0	966
4	All Purpose Motorcycle (Other Body Style)	2014	1,581	716	0	0	305	1,137
4	All Purpose Motorcycle (Other Body Style)	2015	718	739	0	0	11	642
4	All Purpose Motorcycle (Other Body Style)	2016	637	822	0	0	760	672
4	All Purpose Motorcycle (Other Body Style)	2017	662	801	0	0	455	651
4	All Purpose Motorcycle (Other Body Style)	Total	959	833	0	0	308	823
4	All Purpose Motorcycle (Sport Body Style)	2013	430	0	0	0	428	308
4	All Purpose Motorcycle (Sport Body Style)	2014	213	32	0	0	46	151
4	All Purpose Motorcycle (Sport Body Style)	2015	789	212	1,242	0	0	598
4	All Purpose Motorcycle (Sport Body Style)	2016	868	2,880	0	0	325	1,306
4	All Purpose Motorcycle (Sport Body Style)	2017	373	0	0		229	275
4	All Purpose Motorcycle (Sport Body Style)	Total	537	623	266	0	217	532
4	All Purpose Motorcycle (Sport-Touring Body Style)	2013	92	4,396	0	0	0	1,260
4	All Purpose Motorcycle (Sport-Touring Body Style)	2014	0	562	0	0	0	157
4	All Purpose Motorcycle (Sport-Touring Body Style)	2015	86	1,041			0	372
4	All Purpose Motorcycle (Sport-Touring Body Style)	2016	62	0	0		0	41
4	All Purpose Motorcycle (Sport-Touring Body Style)	2017	0	0		0	928	111
4	All Purpose Motorcycle (Sport-Touring Body Style)	Total	47	1,156	0	0	189	361
4	All Purpose Motorcycle (Touring Body Style)	2013	1,683	1,296	0	0	777	1,395
4	All Purpose Motorcycle (Touring Body Style)	2014	586	955	0	0	1,000	710
4	All Purpose Motorcycle (Touring Body Style)	2015	797	886	0	239	715	782
4	All Purpose Motorcycle (Touring Body Style)	2016	2,470	1,796	0	0	1,767	2,068
4	All Purpose Motorcycle (Touring Body Style)	2017	591	1,085	0	0	2,010	839
4	All Purpose Motorcycle (Touring Body Style)	Total	1,233	1,202	0	51	1,219	1,160

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Pleasure Moped/Mobility Vehicle	2013	187	9	0	0		118
4	Pleasure Moped/Mobility Vehicle	2014	144	8	0	0		92
4	Pleasure Moped/Mobility Vehicle	2015	669	65	0	0		428
4	Pleasure Moped/Mobility Vehicle	2016	220	20	0	0		139
4	Pleasure Moped/Mobility Vehicle	2017	215	255	0	0		227
4	Pleasure Moped/Mobility Vehicle	Total	286	70	0	0	0	201
4	Pleasure Motorcycle (Motorscooter Body Style)	2013	12	629		0		241
4	Pleasure Motorcycle (Motorscooter Body Style)	2014	36	380		0		172
4	Pleasure Motorcycle (Motorscooter Body Style)	2015	21	356		0		160
4	Pleasure Motorcycle (Motorscooter Body Style)	2016	104	622	0	0		306
4	Pleasure Motorcycle (Motorscooter Body Style)	2017	21	685	0	0		273
4	Pleasure Motorcycle (Motorscooter Body Style)	Total	39	529	0	0	0	231
4	Pleasure Motorcycle (Other Body Style)	2013	684	568	227	446		603
4	Pleasure Motorcycle (Other Body Style)	2014	642	666	0	456		638
4	Pleasure Motorcycle (Other Body Style)	2015	676	634	0	819		644
4	Pleasure Motorcycle (Other Body Style)	2016	555	522	42	430		525
4	Pleasure Motorcycle (Other Body Style)	2017	591	356	60	371		450
4	Pleasure Motorcycle (Other Body Style)	Total	624	541	64	503	0	565
4	Pleasure Motorcycle (Sport Body Style)	2013	1,622	439	447	0		1,067
4	Pleasure Motorcycle (Sport Body Style)	2014	757	517	0	0		636
4	Pleasure Motorcycle (Sport Body Style)	2015	1,142	427	0	0		799
4	Pleasure Motorcycle (Sport Body Style)	2016	1,405	214	0	0		866
4	Pleasure Motorcycle (Sport Body Style)	2017	709	619	0	395		661
4	Pleasure Motorcycle (Sport Body Style)	Total	1,100	442	73	91	0	796
4	Pleasure Motorcycle (Sport-Touring Body Style)	2013	659	286	0	0		444
4	Pleasure Motorcycle (Sport-Touring Body Style)	2014	813	83	0	0		415
4	Pleasure Motorcycle (Sport-Touring Body Style)	2015	647	95	0	0		350
4	Pleasure Motorcycle (Sport-Touring Body Style)	2016	2,805	172	0	0		1,447
4	Pleasure Motorcycle (Sport-Touring Body Style)	2017	526	623	0	0		558
4	Pleasure Motorcycle (Sport-Touring Body Style)	Total	1,146	276	0	0	0	677
4	Pleasure Motorcycle (Touring Body Style)	2013	703	574	0	15		587
4	Pleasure Motorcycle (Touring Body Style)	2014	381	588	0	119		499
4	Pleasure Motorcycle (Touring Body Style)	2015	816	609	0	0		648
4	Pleasure Motorcycle (Touring Body Style)	2016	672	530	0	95		556
4	Pleasure Motorcycle (Touring Body Style)	2017	492	497	0	472		485
4	Pleasure Motorcycle (Touring Body Style)	Total	610	556	0	148	0	552

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
4	Major Class Total	2013	743	555	116	190	283	624
4	Major Class Total	2014	567	556	0	237	486	544
4	Major Class Total	2015	663	558	12	387	275	590
4	Major Class Total	2016	723	512	17	225	961	597
4	Major Class Total	2017	499	444	22	344	902	465
4	Major Class Total	Total	636	522	32	278	578	562

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
5	All Purpose Trailer $2500 or less	2013	4	4	1	2		4
5	All Purpose Trailer $2500 or less	2014	4	4	0	0		4
5	All Purpose Trailer $2500 or less	2015	5	6	2	2		5
5	All Purpose Trailer $2500 or less	2016	6	5	1	1		5
5	All Purpose Trailer $2500 or less	2017	5	3	0	1		4
5	All Purpose Trailer $2500 or less	Total	5	4	1	1	0	4
5	All Purpose Trailer $2501 or more	2013	89	124	45	33		111
5	All Purpose Trailer $2501 or more	2014	76	98	123	24		91
5	All Purpose Trailer $2501 or more	2015	127	154	94	40		143
5	All Purpose Trailer $2501 or more	2016	126	146	99	51		138
5	All Purpose Trailer $2501 or more	2017	57	50	26	48		51
5	All Purpose Trailer $2501 or more	Total	95	113	77	40	0	106
5	Major Class Total	2013	35	60	17	12		50
5	Major Class Total	2014	31	49	47	8		42
5	Major Class Total	2015	52	78	37	16		67
5	Major Class Total	2016	53	74	40	20		66
5	Major Class Total	2017	25	27	11	19		26
5	Major Class Total	Total	39	57	30	15	0	50

TABLE 14
Raw Pure Premiums without Hail and with 10-Year Average Expected Serious Losses

Major Class	Use	Loss Year	Territory 1	2	3	4	5	Total
6	Off Road Vehicle All Purpose	2013	0	1	1	2		1
6	Off Road Vehicle All Purpose	2014	1	17	0	0		12
6	Off Road Vehicle All Purpose	2015	0	1	0	0		1
6	Off Road Vehicle All Purpose	2016	1	7	0	0		5
6	Off Road Vehicle All Purpose	2017	3	0	3	0		1
6	Off Road Vehicle All Purpose	Total	1	5	1	1	0	4
6	Major Class Total	2013	0	1	1	2		1
6	Major Class Total	2014	1	17	0	0		12
6	Major Class Total	2015	0	1	0	0		1
6	Major Class Total	2016	1	7	0	0		5
6	Major Class Total	2017	3	0	3	0		1
6	Major Class Total	Total	1	5	1	1	0	4

TABLE 15
New Relativity Calculation
Major Class 1 - Private Passenger

	Historical Earned Units	Raw Relativity	Balanced Raw Relativity [a]	Current Units	Current Relativity	Balanced Current Relativity	Credibility	Credibility Weighted Relativity	New Relativity
Territory									
1	2,032,035	1.0538	1.0513	421,577	1.0555	1.0527	0.9713	1.0513	1.0504
2	1,527,105	0.9227	0.9205	315,295	0.9149	0.9124	0.9622	0.9202	0.9194
3	51,393	0.9761	0.9738	10,264	1.0036	1.0009	0.4614	0.9884	0.9875
4	77,433	0.9558	0.9534	15,639	1.0325	1.0297	0.5634	0.9867	0.9858
5	191,957	1.1173	1.1146	38,951	1.1294	1.1264	0.7619	1.1174	1.1164
Use									
All Purpose Motorhome	557	0.7269	0.7331	135	0.6769	0.6814	0.1000	0.6866	0.6872
All Purpose Passenger Vehicle	1,769,141	1.1441	1.1540	363,294	1.1538	1.1614	0.9672	1.1542	1.1553
All Purpose Truck 4540 kg or less	586,623	1.0180	1.0267	121,427	1.0225	1.0293	0.9072	1.0270	1.0279
Antique Vehicle	708	0.0000	0.0000	173	0.0226	0.0227	0.1000	0.0204	0.0205
Collector Passenger Vehicle	8,552	0.1074	0.1084	3,170	0.0985	0.0992	0.1248	0.1003	0.1004
Collector Truck 4540 kg or less	1,207	0.0750	0.0756	500	0.0407	0.0410	0.1000	0.0444	0.0445
Disabled Persons/Private/Business Bus	4,437	0.9490	0.9572	1,077	0.7869	0.7921	0.1000	0.8086	0.8093
Farm Passenger Vehicle	34,912	0.8095	0.8165	6,363	0.7840	0.7893	0.3678	0.7993	0.8000
Farming All Purpose Truck 4540 kg or less	151,240	0.7176	0.7238	30,252	0.7223	0.7271	0.7160	0.7247	0.7254
Fishing All Purpose Truck 4540 kg or less	1,737	0.8232	0.8303	331	0.9468	0.9531	0.1000	0.9408	0.9416
Pleasure Motorhome	15,340	0.7079	0.7140	4,637	0.5914	0.5953	0.2036	0.6195	0.6201
Pleasure Passenger Vehicle	1,023,148	0.8656	0.8731	210,736	0.8582	0.8639	0.9446	0.8726	0.8734
Pleasure Truck	282,322	0.6924	0.6983	59,631	0.6891	0.6937	0.8247	0.6975	0.6982

[a] Balanced based on Current Units

TABLE 15
New Relativity Calculation
Major Class 2 - Commercial

	Historical Earned Units	Raw Relativity	Balanced Raw Relativity [a]	Current Units	Current Relativity	Balanced Current Relativity	Credibility	Credibility Weighted Relativity	New Relativity
Territory									
1	60,078	1.3032	1.3205	12,590	1.2672	1.2881	0.5003	1.3043	1.3034
2	149,405	0.8594	0.8708	31,340	0.8633	0.8776	0.7135	0.8727	0.8721
3	3,014	0.5382	0.5453	588	0.8871	0.9018	0.1000	0.8662	0.8656
4	3,961	0.4365	0.4423	770	0.8884	0.9031	0.1000	0.8570	0.8565
5	4,499	1.7196	1.7424	958	1.3338	1.3558	0.1000	1.3945	1.3935
Use									
All Purpose Snow Vehicle (HTA)	228	0.0931	0.0947	49	0.2086	0.2133	0.1000	0.2014	0.2013
Artisan Truck	1,250	0.8173	0.8315	191	0.8785	0.8979	0.1000	0.8913	0.8908
Cement/Brick/Exploration Truck	2,417	0.5414	0.5508	530	0.6190	0.6327	0.1000	0.6245	0.6242
Common Carrier Vehicle Local	6,653	2.0359	2.0713	1,345	1.7851	1.8247	0.1000	1.8493	1.8484
Common Carrier Vehicle Within City or Mun.	4,647	1.6238	1.6521	873	1.5557	1.5901	0.1000	1.5963	1.5955
Common Carrier Passenger Vehicle < 161 km in Manitoba	265	1.5956	1.6234	45	1.6509	1.6875	0.1000	1.6811	1.6802
Common Carrier Truck < 161 km in Manitoba	5,106	1.6451	1.6737	1,183	1.2574	1.2852	0.1000	1.3241	1.3234
Common Carrier Passenger Vehicle > 161 km in Manitoba	38	2.3670	2.4082	12	2.8228	2.8854	0.1000	2.8377	2.8362
Common Carrier Truck > 161 km in Manitoba	4,084	1.6947	1.7242	933	2.9467	3.0120	0.1000	2.8832	2.8817
Dealer All Uses except Motorcycles	22,745	1.3127	1.3355	4,652	1.4339	1.4657	0.2749	1.4299	1.4292
Dealer Moped	8	0.0000	0.0000	2	0.4468	0.4567	0.1000	0.4111	0.4108
Dealer Motorcycle	1,478	0.2551	0.2595	358	1.1329	1.1580	0.1000	1.0682	1.0676
Dealer Trailer	968	0.5580	0.5677	197	0.7549	0.7716	0.1000	0.7512	0.7508
Driveaway Within Manitoba	19	0.0000	0.0000	4	0.3944	0.4031	0.1000	0.3628	0.3626
Driveaway > 161 km Outside Manitoba	409	0.0000	0.0000	34	0.1029	0.1052	0.1000	0.0947	0.0946
Farming All Purpose Truck 4541 kg or more	73,247	0.6938	0.7058	15,329	0.6125	0.6261	0.5497	0.6699	0.6696
Fishing All Purpose Truck 4541 kg or more	37	0.9112	0.9270	3	0.5229	0.5345	0.1000	0.5738	0.5735
Logging Truck	935	1.4593	1.4847	160	1.2269	1.2541	0.1000	1.2772	1.2765
Other Truck	68,726	0.9703	0.9872	14,782	1.0368	1.0597	0.5339	1.0210	1.0204
Petroleum/Chemical Truck	4,644	0.7717	0.7851	941	0.6317	0.6457	0.1000	0.6596	0.6593
Repairer	6,749	0.1769	0.1800	1,391	0.2012	0.2056	0.1011	0.2030	0.2029
Sand/Gravel Truck	13,317	1.2312	1.2526	2,679	1.0188	1.0414	0.1816	1.0798	1.0792
Tow Truck	2,987	2.5898	2.6349	553	1.6034	1.6389	0.1000	1.7385	1.7376
Gross Vehicle Weight									
<= 4540	5,278	0.8980	0.8998	1,066	0.8651	0.8689	0.1000	0.8720	0.8701
4541 to 16330	78,078	0.9523	0.9542	15,800	0.9197	0.9237	0.5655	0.9410	0.9390
> 16330	98,041	0.9724	0.9744	21,291	0.9648	0.9690	0.6204	0.9724	0.9703
Not Applicable	39,560	1.1676	1.1699	8,089	1.2425	1.2479	0.3973	1.2169	1.2144

[a] Balanced based on Current Units

TABLE 15
New Relativity Calculation
Major Class 3 - Public

	Historical Earned Units	Raw Relativity	Balanced Raw Relativity [a]	Current Units	Current Relativity	Balanced Current Relativity	Credibility	Credibility Weighted Relativity	New Relativity
Territory									
1	41,336	1.1583	1.1657	8,568	1.1616	1.1733	0.4079	1.1702	1.1717
2	16,782	0.6273	0.6313	3,401	0.6169	0.6231	0.2186	0.6249	0.6257
3	1,452	0.7337	0.7384	320	0.6581	0.6647	0.1000	0.6720	0.6729
4	1,764	0.7546	0.7595	341	0.7129	0.7201	0.1000	0.7240	0.7250
5	0	1.0000	1.0064	0	1.0000	1.0100	0.1000	1.0097	1.0110
Use									
Charter Bus Local	381	0.7832	0.7929	48	0.5402	0.5487	0.1000	0.5731	0.5773
Common Carrier Bus Within Manitoba	427	0.3312	0.3353	90	0.9011	0.9152	0.1000	0.8572	0.8635
Common Carrier Bus > 161 km Outside Manitoba	457	0.6563	0.6644	106	0.2998	0.3046	0.1000	0.3405	0.3430
Funeral Passenger Vehicle	676	0.3191	0.3231	136	0.3442	0.3496	0.1000	0.3470	0.3495
Limousine All Uses Passenger Vehicle	685	0.9738	0.9858	113	1.2757	1.2957	0.1000	1.2647	1.2740
Police/Emergency Passenger Vehicle	3,521	1.2700	1.2857	689	1.2375	1.2570	0.1000	1.2599	1.2691
Police/Emergency Truck	577	0.5185	0.5249	114	0.6248	0.6346	0.1000	0.6236	0.6282
School Bus Local	12,199	0.3742	0.3788	2,471	0.2953	0.2999	0.1690	0.3133	0.3156
Taxi/Livery Passenger Vehicle	3,639	4.3635	4.4175	750	3.8413	3.9018	0.1000	3.9533	3.9824
Transit Bus Local	3,289	1.1669	1.1814	695	1.0916	1.1088	0.1000	1.1160	1.1242
U-Drive Bus	116	0.8981	0.9093	37	0.7792	0.7914	0.1000	0.8032	0.8091
U-Drive Moped	5	4.3011	4.3544	2	0.3076	0.3124	0.1000	0.7166	0.7219
U-Drive Motorhome	145	0.9199	0.9313	41	0.7456	0.7573	0.1000	0.7747	0.7804
U-Drive Passenger Vehicle	28,272	0.8233	0.8335	5,732	0.9029	0.9171	0.3203	0.8903	0.8969
U-Drive Truck	6,469	0.8791	0.8900	1,554	0.9855	1.0010	0.1000	0.9899	0.9972
Wheelchair/Livery Bus (Terr 1 only)	474	1.4993	1.5179	52	0.8585	0.8720	0.1000	0.9366	0.9435
Gross Vehicle Weight									
<= 4540	5,393	0.9240	0.9304	1,277	1.0932	1.0980	0.1000	1.0813	1.0755
4541 to 16330	1,368	0.7352	0.7403	337	0.5962	0.5988	0.1000	0.6130	0.6097
> 16330	286	0.0366	0.0369	54	0.2976	0.2989	0.1000	0.2727	0.2713
Not Applicable	54,288	1.0138	1.0208	10,962	0.9999	1.0044	0.4750	1.0122	1.0068

[a] Balanced based on Current Units

TABLE 15
New Relativity Calculation
Major Class 4 - Motorcycles

	Historical Earned Units	Raw Relativity	Balanced Raw Relativity [a]	Current Units	Current Relativity	Balanced Current Relativity	Credibility	Credibility Weighted Relativity	New Relativity
Territory									
1	34,617	1.1785	1.1772	7,651	1.0606	1.0613	0.3659	1.1037	1.0989
2	37,762	0.9021	0.9011	8,595	0.9664	0.9670	0.3863	0.9415	0.9375
3	1,294	0.0501	0.0500	291	0.6939	0.6944	0.1000	0.6299	0.6272
4	1,485	0.4599	0.4594	319	0.7387	0.7391	0.1000	0.7112	0.7081
5	828	0.6589	0.6582	167	0.9212	0.9218	0.1000	0.8954	0.8916
Bodystyle									
Motorscooter [b]	12,674	0.5717	0.5664	2,292	0.5058	0.5082	0.1744	0.5184	0.5158
Other	33,949	1.0492	1.0396	7,666	1.0233	1.0281	0.3614	1.0323	1.0272
Sport	5,438	1.4128	1.3998	1,294	1.7582	1.7665	0.1000	1.7298	1.7212
Sport-Touring	2,106	1.0281	1.0187	644	1.1039	1.1091	0.1000	1.1000	1.0946
Touring	21,819	1.0408	1.0313	5,127	0.9661	0.9707	0.2667	0.9868	0.9819
Use									
All Purpose	14,814	1.3925	1.4152	2,522	1.6306	1.6179	0.1980	1.5777	1.5633
Pleasure	61,173	0.9129	0.9278	14,501	0.8996	0.8925	0.5048	0.9103	0.9020
Engine Displacement									
0 to 500 cc [c]	18,033	0.6032	0.6020	3,686	0.5111	0.5155	0.2311	0.5355	0.5373
501 to 1000 cc	16,574	1.0068	1.0048	3,846	0.9954	1.0041	0.2164	1.0042	1.0076
> 1000 cc	41,380	1.1549	1.1526	9,491	1.1763	1.1865	0.4082	1.1727	1.1766

[a] Balanced based on Current Units
[b] Includes Moped/Mobility Vehicle
[c] All Moped/Mobility Vehicle assumed less than or equal to 500 cc

TABLE 15
New Relativity Calculation
Major Class 5 - Trailers

Territory	Historical Earned Units	Raw Relativity	Balanced Raw Relativity [a]	Current Units	Current Relativity	Balanced Current Relativity	Credibility	Credibility Weighted Relativity	New Relativity
1	285,865	0.8946	0.8941	59,446	0.9100	0.9119	0.8265	0.8972	0.8952
2	607,388	1.0862	1.0856	131,561	1.0704	1.0727	0.9101	1.0844	1.0819
3	16,681	0.6997	0.6993	3,488	0.6857	0.6871	0.2175	0.6898	0.6882
4	28,754	0.3670	0.3668	6,182	0.4755	0.4765	0.3240	0.4409	0.4399
5	0	0.0000	0.0000	0	0.0000	0.0000	0.1000	0.0000	0.0000

[a] Balanced based on Current Units

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
1	Pleasure Passenger Vehicle	N/A	1	116,550	118,837,022	1,019.62	6.17%	1,210.52	102.88	0.9174	1,118.99	1,115.69	3.06%
1	Pleasure Passenger Vehicle	N/A	2	89,304	79,988,043	895.68	6.17%	1,210.52	102.88	0.8029	992.25	989.32	4.03%
1	Pleasure Passenger Vehicle	N/A	3	1,409	1,355,375	961.94	6.17%	1,210.52	102.88	0.8625	1,058.19	1,055.07	3.31%
1	Pleasure Passenger Vehicle	N/A	4	3,473	3,431,699	988.11	6.17%	1,210.52	102.88	0.8610	1,056.56	1,053.45	0.42%
1	All Purpose Passenger Vehicle	N/A	1	233,956	312,458,710	1,335.54	6.17%	1,210.52	102.88	1.2135	1,446.96	1,442.70	1.74%
1	All Purpose Passenger Vehicle	N/A	2	94,415	110,196,588	1,167.15	6.17%	1,210.52	102.88	1.0621	1,279.31	1,275.54	2.93%
1	All Purpose Passenger Vehicle	N/A	3	3,589	4,491,893	1,251.57	6.17%	1,210.52	102.88	1.1409	1,366.53	1,362.50	2.54%
1	All Purpose Passenger Vehicle	N/A	4	4,484	5,767,656	1,286.27	6.17%	1,210.52	102.88	1.1389	1,364.39	1,360.37	-0.39%
1	All Purpose Passenger Vehicle	N/A	5	26,850	38,078,240	1,418.18	6.17%	1,210.52	102.88	1.2897	1,531.45	1,526.93	1.41%
1	Collector Passenger Vehicle	N/A	1	1,328	280,546	211.25	6.17%	1,210.52	102.88	0.1055	219.73	219.08	-2.32%
1	Collector Passenger Vehicle	N/A	2	1,813	350,350	193.24	6.17%	1,210.52	102.88	0.0923	205.15	204.55	-0.30%
1	Collector Passenger Vehicle	N/A	3	14	2,781	198.66	6.17%	1,210.52	102.88	0.0992	212.73	212.11	0.56%
1	Collector Passenger Vehicle	N/A	4	15	3,069	204.58	6.17%	1,210.52	102.88	0.0990	212.55	211.92	-2.43%
1	Farm Passenger Vehicle	N/A	1	28	27,504	982.27	6.17%	1,210.52	102.88	0.8403	1,033.61	1,030.57	-1.18%
1	Farm Passenger Vehicle	N/A	2	6,322	5,228,042	826.96	6.17%	1,210.52	102.88	0.7355	917.52	914.82	4.19%
1	Farm Passenger Vehicle	N/A	3	0	0	0.00	6.17%	1,210.52	102.88	0.7900	0.00	0.00	0.00%
1	Farm Passenger Vehicle	N/A	4	13	12,183	937.17	6.17%	1,210.52	102.88	0.7887	976.43	973.55	-2.16%
1	Farming All Purpose Truck	N/A	1	273	235,973	864.37	6.17%	1,210.52	102.88	0.7619	946.81	944.02	2.87%
1	Farming All Purpose Truck	N/A	2	29,413	22,651,701	770.13	6.17%	1,210.52	102.88	0.6669	841.54	839.06	2.62%
1	Farming All Purpose Truck	N/A	3	9	7,530	836.64	6.17%	1,210.52	102.88	0.7163	896.30	893.66	0.61%
1	Farming All Purpose Truck	N/A	4	139	115,109	828.12	6.17%	1,210.52	102.88	0.7151	894.96	892.32	1.49%
1	Farming All Purpose Truck	N/A	5	418	396,274	948.02	6.17%	1,210.52	102.88	0.8098	999.85	996.90	-0.96%
1	Fishing All Purpose Truck	N/A	1	5	3,663	732.63	6.17%	1,210.52	102.88	0.9891	1,198.43	1,194.90	53.62%
1	Fishing All Purpose Truck	N/A	2	272	267,160	982.21	6.17%	1,210.52	102.88	0.8657	1,061.78	1,058.65	1.52%
1	Fishing All Purpose Truck	N/A	3	5	4,064	812.78	6.17%	1,210.52	102.88	0.9299	1,132.87	1,129.53	30.89%
1	Fishing All Purpose Truck	N/A	4	43	48,219	1,121.38	6.17%	1,210.52	102.88	0.9283	1,131.12	1,127.79	-5.27%
1	Fishing All Purpose Truck	N/A	5	6	7,606	1,267.68	6.17%	1,210.52	102.88	1.0513	1,267.29	1,263.56	-6.12%
1	Disabled Persons/Private/Business Bus	N/A	1	343	324,558	946.23	6.17%	1,210.52	102.88	0.8501	1,044.50	1,041.42	3.66%
1	Disabled Persons/Private/Business Bus	N/A	2	583	485,205	832.26	6.17%	1,210.52	102.88	0.7441	927.05	924.32	4.61%
1	Disabled Persons/Private/Business Bus	N/A	3	93	82,925	891.67	6.17%	1,210.52	102.88	0.7992	988.15	985.24	4.07%
1	Disabled Persons/Private/Business Bus	N/A	4	58	51,867	894.25	6.17%	1,210.52	102.88	0.7979	986.65	983.74	3.61%
1	Pleasure Motorhome	N/A	1	1,574	1,148,816	729.87	6.17%	1,210.52	102.88	0.6513	824.28	821.85	6.06%
1	Pleasure Motorhome	N/A	2	2,942	1,918,985	652.27	6.17%	1,210.52	102.88	0.5701	734.29	732.13	5.72%
1	Pleasure Motorhome	N/A	3	38	26,121	687.39	6.17%	1,210.52	102.88	0.6123	781.11	778.81	6.71%
1	Pleasure Motorhome	N/A	4	83	59,531	717.24	6.17%	1,210.52	102.88	0.6113	779.96	777.66	2.12%
1	All Purpose Motorhome	N/A	1	66	56,378	854.21	6.17%	1,210.52	102.88	0.7218	902.40	899.74	-0.79%
1	All Purpose Motorhome	N/A	2	61	43,138	707.18	6.17%	1,210.52	102.88	0.6318	802.67	800.30	6.59%
1	All Purpose Motorhome	N/A	3	1	1,389	1,388.82	6.17%	1,210.52	102.88	0.6786	854.55	852.03	-42.22%
1	All Purpose Motorhome	N/A	4	2	1,551	775.27	6.17%	1,210.52	102.88	0.6775	853.28	850.76	3.36%
1	All Purpose Motorhome	N/A	5	5	3,277	655.30	6.17%	1,210.52	102.88	0.7672	952.65	949.84	36.52%
1	All Purpose Truck	N/A	1	50,394	59,883,459	1,188.31	6.17%	1,210.52	102.88	1.0797	1,298.77	1,294.94	2.64%
1	All Purpose Truck	N/A	2	50,970	53,471,275	1,049.07	6.17%	1,210.52	102.88	0.9450	1,149.60	1,146.21	2.91%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
1	All Purpose Truck	N/A	3	3,807	4,408,209	1,157.92	6.17%	1,210.52	102.88	1.0151	1,227.20	1,223.59	-0.47%
1	All Purpose Truck	N/A	4	4,584	5,449,738	1,188.86	6.17%	1,210.52	102.88	1.0133	1,225.30	1,221.69	-3.21%
1	All Purpose Truck	N/A	5	11,672	14,872,965	1,274.24	6.17%	1,210.52	102.88	1.1475	1,373.93	1,369.89	1.26%
1	Antique Bus	N/A	1	10	1,290	129.00	0.00%	1,210.52	102.88	0.0215	126.69	126.32	-2.08%
1	Antique Bus	N/A	2	0	0	0.00	0.00%	1,210.52	102.88	0.0188	0.00	0.00	0.00%
1	Antique Bus	N/A	3	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Bus	N/A	4	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Motorcycle	N/A	1	56	7,224	129.00	0.00%	1,210.52	102.88	0.0215	126.69	126.32	-2.08%
1	Antique Motorcycle	N/A	2	39	4,836	124.00	0.00%	1,210.52	102.88	0.0188	123.72	123.36	-0.52%
1	Antique Motorcycle	N/A	3	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Motorcycle	N/A	4	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Passenger Vehicle	N/A	1	11	1,419	129.00	0.00%	1,210.52	102.88	0.0215	126.69	126.32	-2.08%
1	Antique Passenger Vehicle	N/A	2	21	2,604	124.00	0.00%	1,210.52	102.88	0.0188	123.72	123.36	-0.52%
1	Antique Passenger Vehicle	N/A	3	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Passenger Vehicle	N/A	4	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Truck	N/A	1	11	1,419	129.00	0.00%	1,210.52	102.88	0.0215	126.69	126.32	-2.08%
1	Antique Truck	N/A	2	25	3,100	124.00	0.00%	1,210.52	102.88	0.0188	123.72	123.36	-0.52%
1	Antique Truck	N/A	3	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Antique Truck	N/A	4	0	0	0.00	0.00%	1,210.52	102.88	0.0202	0.00	0.00	0.00%
1	Collector Truck	N/A	1	112	17,066	152.37	6.17%	1,210.52	102.88	0.0467	154.61	154.15	-4.71%
1	Collector Truck	N/A	2	380	53,122	139.79	6.17%	1,210.52	102.88	0.0409	148.16	147.72	-0.47%
1	Collector Truck	N/A	3	4	509	127.28	6.17%	1,210.52	102.88	0.0439	151.51	151.07	11.79%
1	Collector Truck	N/A	4	4	561	140.18	6.17%	1,210.52	102.88	0.0438	151.43	150.98	1.45%
1	Pleasure Truck	N/A	1	16,860	14,057,677	833.79	6.17%	1,210.52	102.88	0.7333	915.14	912.44	3.07%
1	Pleasure Truck	N/A	2	38,735	28,685,389	740.55	6.17%	1,210.52	102.88	0.6419	813.82	811.43	3.20%
1	Pleasure Truck	N/A	3	1,295	1,055,400	814.98	6.17%	1,210.52	102.88	0.6894	866.53	863.98	-0.15%
1	Pleasure Truck	N/A	4	2,741	2,281,995	832.54	6.17%	1,210.52	102.88	0.6883	865.24	862.69	-2.40%
2	Farming All Purpose Truck	2	1	42	24,677	587.54	6.03%	836.38	102.88	0.8195	703.98	680.96	9.31%
2	Farming All Purpose Truck	2	2	4,125	1,740,958	422.05	6.03%	836.38	102.88	0.5483	505.08	488.57	9.18%
2	Farming All Purpose Truck	2	3	0	0	0.00	6.03%	836.38	102.88	0.5442	0.00	0.00	0.00%
2	Farming All Purpose Truck	2	4	16	6,877	429.84	6.03%	836.38	102.88	0.5385	497.85	481.57	5.67%
2	Farming All Purpose Truck	3	1	44	26,224	596.01	6.03%	836.38	102.88	0.8468	724.02	700.35	10.83%
2	Farming All Purpose Truck	3	2	11,064	4,996,145	451.57	6.03%	836.38	102.88	0.5666	518.49	501.54	4.75%
2	Farming All Purpose Truck	3	3	0	0	0.00	6.03%	836.38	102.88	0.5623	0.00	0.00	0.00%
2	Farming All Purpose Truck	3	4	38	17,373	457.18	6.03%	836.38	102.88	0.5564	511.02	494.31	1.97%
2	Fishing All Purpose Truck	2	1	0	0	0.00	6.03%	836.38	102.88	0.7019	0.00	0.00	0.00%
2	Fishing All Purpose Truck	2	2	1	416	415.50	6.03%	836.38	102.88	0.4696	447.36	432.74	-1.77%
2	Fishing All Purpose Truck	2	3	0	0	0.00	6.03%	836.38	102.88	0.4661	0.00	0.00	0.00%
2	Fishing All Purpose Truck	2	4	0	0	0.00	6.03%	836.38	102.88	0.4612	0.00	0.00	0.00%
2	Fishing All Purpose Truck	3	1	0	0	0.00	6.03%	836.38	102.88	0.7253	0.00	0.00	0.00%
2	Fishing All Purpose Truck	3	2	2	763	381.59	6.03%	836.38	102.88	0.4853	458.85	443.85	9.70%
2	Fishing All Purpose Truck	3	3	0	0	0.00	6.03%	836.38	102.88	0.4816	0.00	0.00	0.00%
2	Fishing All Purpose Truck	3	4	0	0	0.00	6.03%	836.38	102.88	0.4766	0.00	0.00	0.00%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2	Artisan Truck	1	1	7	6,795	970.78	6.03%	836.38	102.88	1.0103	843.95	816.35	-20.69%
2	Artisan Truck	1	2	9	4,720	524.40	6.03%	836.38	102.88	0.6760	598.74	579.16	4.16%
2	Artisan Truck	1	3	0	0	0.00	6.03%	836.38	102.88	0.6709	0.00	0.00	0.00%
2	Artisan Truck	1	4	1	360	359.84	6.03%	836.38	102.88	0.6639	589.83	570.54	49.54%
2	Artisan Truck	1	5	0	0	0.00	6.03%	836.38	102.88	1.0802	0.00	0.00	0.00%
2	Artisan Truck	2	1	70	55,489	792.70	6.03%	836.38	102.88	1.0903	902.61	873.09	3.88%
2	Artisan Truck	2	2	57	32,213	565.15	6.03%	836.38	102.88	0.7295	637.99	617.13	2.99%
2	Artisan Truck	2	3	1	669	668.51	6.03%	836.38	102.88	0.7240	633.96	613.23	-13.48%
2	Artisan Truck	2	4	1	758	757.64	6.03%	836.38	102.88	0.7164	628.37	607.82	-24.34%
2	Artisan Truck	2	5	34	27,718	815.23	6.03%	836.38	102.88	1.1657	957.90	926.57	7.20%
2	Artisan Truck	3	1	7	5,873	839.00	6.03%	836.38	102.88	1.1266	929.28	898.89	1.05%
2	Artisan Truck	3	2	4	2,372	593.00	6.03%	836.38	102.88	0.7539	655.84	634.39	0.90%
2	Artisan Truck	3	3	0	0	0.00	6.03%	836.38	102.88	0.7482	0.00	0.00	0.00%
2	Artisan Truck	3	4	0	0	0.00	6.03%	836.38	102.88	0.7403	0.00	0.00	0.00%
2	Sand/Gravel Truck	2	1	92	82,381	895.45	6.03%	836.38	102.88	1.3208	1,071.71	1,036.67	9.19%
2	Sand/Gravel Truck	2	2	138	86,892	629.65	6.03%	836.38	102.88	0.8838	751.14	726.58	8.83%
2	Sand/Gravel Truck	2	3	2	1,622	810.94	6.03%	836.38	102.88	0.8771	746.25	721.85	-16.05%
2	Sand/Gravel Truck	2	4	4	2,602	650.44	6.03%	836.38	102.88	0.8679	739.48	715.30	3.72%
2	Sand/Gravel Truck	3	1	417	401,154	962.00	6.03%	836.38	102.88	1.3649	1,104.02	1,067.92	4.70%
2	Sand/Gravel Truck	3	2	1,935	1,306,125	675.00	6.03%	836.38	102.88	0.9133	772.76	747.49	4.44%
2	Sand/Gravel Truck	3	3	24	16,800	700.00	6.03%	836.38	102.88	0.9064	767.71	742.60	0.05%
2	Sand/Gravel Truck	3	4	67	46,297	691.00	6.03%	836.38	102.88	0.8968	760.71	735.84	0.43%
2	Petroleum/Chemical Truck	1	1	1	597	597.34	6.03%	836.38	102.88	0.7477	651.34	630.04	-0.52%
2	Petroleum/Chemical Truck	1	2	240	106,716	444.65	6.03%	836.38	102.88	0.5003	469.86	454.50	-3.60%
2	Petroleum/Chemical Truck	1	3	0	0	0.00	6.03%	836.38	102.88	0.4965	0.00	0.00	0.00%
2	Petroleum/Chemical Truck	1	4	1	393	392.58	6.03%	836.38	102.88	0.4913	463.27	448.12	7.66%
2	Petroleum/Chemical Truck	2	1	37	22,561	609.77	6.03%	836.38	102.88	0.8069	694.76	672.04	3.95%
2	Petroleum/Chemical Truck	2	2	133	58,765	441.84	6.03%	836.38	102.88	0.5399	498.91	482.60	3.02%
2	Petroleum/Chemical Truck	2	3	10	4,460	446.04	6.03%	836.38	102.88	0.5358	495.93	479.71	1.43%
2	Petroleum/Chemical Truck	2	4	2	869	434.44	6.03%	836.38	102.88	0.5302	491.79	475.71	3.28%
2	Petroleum/Chemical Truck	3	1	61	37,881	621.00	6.03%	836.38	102.88	0.8338	714.49	691.13	4.97%
2	Petroleum/Chemical Truck	3	2	422	188,634	447.00	6.03%	836.38	102.88	0.5579	512.12	495.37	4.52%
2	Petroleum/Chemical Truck	3	3	16	7,392	462.00	6.03%	836.38	102.88	0.5537	509.03	492.39	0.52%
2	Petroleum/Chemical Truck	3	4	18	8,226	457.00	6.03%	836.38	102.88	0.5479	504.76	488.25	0.77%
2	Logging Truck	1	1	0	0	0.00	6.03%	836.38	102.88	1.4477	0.00	0.00	0.00%
2	Logging Truck	1	2	2	2,037	1,018.38	6.03%	836.38	102.88	0.9687	813.42	786.82	-27.13%
2	Logging Truck	1	3	0	0	0.00	6.03%	836.38	102.88	0.9614	0.00	0.00	0.00%
2	Logging Truck	1	4	0	0	0.00	6.03%	836.38	102.88	0.9513	0.00	0.00	0.00%
2	Logging Truck	2	1	0	0	0.00	6.03%	836.38	102.88	1.5623	0.00	0.00	0.00%
2	Logging Truck	2	2	6	4,918	819.60	6.03%	836.38	102.88	1.0454	869.66	841.22	-3.20%
2	Logging Truck	2	3	0	0	0.00	6.03%	836.38	102.88	1.0375	0.00	0.00	0.00%
2	Logging Truck	2	4	1	716	715.78	6.03%	836.38	102.88	1.0266	855.88	827.89	9.09%
2	Logging Truck	3	1	0	0	0.00	6.03%	836.38	102.88	1.6144	0.00	0.00	0.00%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2	Logging Truck	3	2	126	99,288	788.00	6.03%	836.38	102.88	1.0802	895.23	865.96	3.65%
2	Logging Truck	3	3	0	0	0.00	6.03%	836.38	102.88	1.0721	0.00	0.00	0.00%
2	Logging Truck	3	4	25	20,175	807.00	6.03%	836.38	102.88	1.0608	880.99	852.18	-0.40%
2	Cement/Brick/Exploration Truck	2	1	2	1,321	660.35	6.03%	836.38	102.88	0.7639	663.24	641.55	-8.37%
2	Cement/Brick/Exploration Truck	2	2	3	1,350	449.86	6.03%	836.38	102.88	0.5112	477.82	462.20	-3.10%
2	Cement/Brick/Exploration Truck	2	3	0	0	0.00	6.03%	836.38	102.88	0.5073	0.00	0.00	0.00%
2	Cement/Brick/Exploration Truck	2	4	0	0	0.00	6.03%	836.38	102.88	0.5020	0.00	0.00	0.00%
2	Cement/Brick/Exploration Truck	3	1	154	95,942	623.00	6.03%	836.38	102.88	0.7894	681.92	659.62	-0.14%
2	Cement/Brick/Exploration Truck	3	2	342	153,216	448.00	6.03%	836.38	102.88	0.5282	490.33	474.29	-0.15%
2	Cement/Brick/Exploration Truck	3	3	14	6,482	463.00	6.03%	836.38	102.88	0.5242	487.41	471.47	-3.96%
2	Cement/Brick/Exploration Truck	3	4	15	6,870	458.00	6.03%	836.38	102.88	0.5187	483.36	467.55	-3.72%
2	Tow Truck	1	1	16	21,827	1,364.21	6.03%	836.38	102.88	1.9707	1,548.38	1,497.75	3.55%
2	Tow Truck	1	2	24	16,973	707.20	6.03%	836.38	102.88	1.3186	1,070.09	1,035.09	38.04%
2	Tow Truck	1	3	1	932	932.18	6.03%	836.38	102.88	1.3087	1,062.79	1,028.04	4.01%
2	Tow Truck	1	4	0	0	0.00	6.03%	836.38	102.88	1.2949	0.00	0.00	0.00%
2	Tow Truck	2	1	168	235,348	1,400.88	6.03%	836.38	102.88	2.1267	1,662.80	1,608.43	8.29%
2	Tow Truck	2	2	269	265,574	987.26	6.03%	836.38	102.88	1.4230	1,146.65	1,109.15	5.96%
2	Tow Truck	2	3	7	5,846	835.07	6.03%	836.38	102.88	1.4123	1,138.78	1,101.54	24.41%
2	Tow Truck	2	4	12	11,218	934.79	6.03%	836.38	102.88	1.3974	1,127.88	1,091.00	10.07%
2	Tow Truck	3	1	25	35,325	1,413.00	6.03%	836.38	102.88	2.1976	1,714.82	1,658.75	10.72%
2	Tow Truck	3	2	28	22,036	787.00	6.03%	836.38	102.88	1.4704	1,181.45	1,142.82	36.96%
2	Tow Truck	3	3	2	2,112	1,056.00	6.03%	836.38	102.88	1.4594	1,173.32	1,134.95	1.37%
2	Tow Truck	3	4	1	900	900.00	6.03%	836.38	102.88	1.4440	1,162.06	1,124.06	17.80%
2	Common Carrier Local Passenger Vehicle	N/A	1	787	1,585,616	2,014.76	6.03%	836.38	102.88	2.9256	2,248.81	2,175.27	1.83%
2	Common Carrier Local Passenger Vehicle	N/A	2	522	719,702	1,378.74	6.03%	836.38	102.88	1.9576	1,538.75	1,488.43	1.82%
2	Common Carrier Local Passenger Vehicle	N/A	3	21	29,101	1,385.77	6.03%	836.38	102.88	1.9428	1,527.92	1,477.96	0.59%
2	Common Carrier Local Passenger Vehicle	N/A	4	15	23,161	1,544.06	6.03%	836.38	102.88	1.9224	1,512.93	1,463.46	-10.61%
2	Common Carrier Truck Local Within City or Mun.	1	1	220	270,538	1,229.72	6.03%	836.38	102.88	1.8095	1,430.17	1,383.40	6.10%
2	Common Carrier Truck Local Within City or Mun.	1	2	60	52,201	870.02	6.03%	836.38	102.88	1.2108	990.98	958.58	3.92%
2	Common Carrier Truck Local Within City or Mun.	1	3	7	6,279	897.04	6.03%	836.38	102.88	1.2016	984.29	952.10	0.10%
2	Common Carrier Truck Local Within City or Mun.	1	4	6	6,798	1,132.92	6.03%	836.38	102.88	1.1890	975.02	943.13	-21.48%
2	Common Carrier Truck Local Within City or Mun.	2	1	276	371,292	1,345.26	6.03%	836.38	102.88	1.9528	1,535.23	1,485.02	4.11%
2	Common Carrier Truck Local Within City or Mun.	2	2	31	30,371	979.72	6.03%	836.38	102.88	1.3066	1,061.28	1,026.58	-1.17%
2	Common Carrier Truck Local Within City or Mun.	2	3	1	727	727.10	6.03%	836.38	102.88	1.2968	1,054.06	1,019.59	32.25%
2	Common Carrier Truck Local Within City or Mun.	2	4	2	2,577	1,288.53	6.03%	836.38	102.88	1.2831	1,044.05	1,009.91	-26.08%
2	Common Carrier Truck Local Within City or Mun.	3	1	212	295,347	1,393.15	6.03%	836.38	102.88	2.0179	1,582.99	1,531.23	3.66%
2	Common Carrier Truck Local Within City or Mun.	3	2	54	52,338	969.22	6.03%	836.38	102.88	1.3502	1,093.24	1,057.49	2.90%
2	Common Carrier Truck Local Within City or Mun.	3	3	0	0	0.00	6.03%	836.38	102.88	1.3400	0.00	0.00	0.00%
2	Common Carrier Truck Local Within City or Mun.	3	4	4	3,670	917.50	6.03%	836.38	102.88	1.3259	1,075.44	1,040.27	6.94%
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	1	30	54,998	1,833.28	6.03%	836.38	102.88	2.6594	2,053.56	1,986.40	2.19%
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	2	15	20,320	1,354.70	6.03%	836.38	102.88	1.7794	1,408.10	1,362.06	-5.17%
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	3	0	0	0.00	6.03%	836.38	102.88	1.7660	0.00	0.00	0.00%
2	Common Carrier Passenger Vehicle Within 161K in MB	N/A	4	0	0	0.00	6.03%	836.38	102.88	1.7474	0.00	0.00	0.00%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2	Common Carrier Truck Within 161K in MB	1	1	83	90,467	1,089.97	6.03%	836.38	102.88	1.5009	1,203.80	1,164.44	0.76%
2	Common Carrier Truck Within 161K in MB	1	2	105	77,531	738.39	6.03%	836.38	102.88	1.0043	839.52	812.07	3.73%
2	Common Carrier Truck Within 161K in MB	1	3	0	0	0.00	6.03%	836.38	102.88	0.9967	0.00	0.00	0.00%
2	Common Carrier Truck Within 161K in MB	1	4	2	1,252	626.22	6.03%	836.38	102.88	0.9862	826.28	799.26	20.38%
2	Common Carrier Truck Within 161K in MB	2	1	374	407,371	1,089.23	6.03%	836.38	102.88	1.6197	1,290.95	1,248.73	8.13%
2	Common Carrier Truck Within 161K in MB	2	2	113	89,015	787.74	6.03%	836.38	102.88	1.0838	897.83	868.47	3.98%
2	Common Carrier Truck Within 161K in MB	2	3	0	0	0.00	6.03%	836.38	102.88	1.0756	0.00	0.00	0.00%
2	Common Carrier Truck Within 161K in MB	2	4	2	1,690	845.11	6.03%	836.38	102.88	1.0643	883.54	854.64	-4.62%
2	Common Carrier Truck Within 161K in MB	3	1	173	200,280	1,157.69	6.03%	836.38	102.88	1.6737	1,330.57	1,287.05	4.85%
2	Common Carrier Truck Within 161K in MB	3	2	320	253,328	791.65	6.03%	836.38	102.88	1.1199	924.34	894.11	6.52%
2	Common Carrier Truck Within 161K in MB	3	3	0	0	0.00	6.03%	836.38	102.88	1.1115	0.00	0.00	0.00%
2	Common Carrier Truck Within 161K in MB	3	4	11	9,400	854.55	6.03%	836.38	102.88	1.0998	909.57	879.83	-2.89%
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	1	4	12,476	3,119.01	6.03%	836.38	102.88	4.4891	3,395.65	3,284.60	-0.68%
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	2	8	17,144	2,142.98	6.03%	836.38	102.88	3.0037	2,306.11	2,230.70	-1.82%
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	3	0	0	0.00	6.03%	836.38	102.88	2.9811	0.00	0.00	0.00%
2	Common Carrier Passenger Vehicle Over 161K in MB	N/A	4	0	0	0.00	6.03%	836.38	102.88	2.9497	0.00	0.00	0.00%
2	Common Carrier Truck Over 161K in MB	1	1	42	90,155	2,146.56	6.03%	836.38	102.88	3.2682	2,500.14	2,418.38	6.26%
2	Common Carrier Truck Over 161K in MB	1	2	48	77,711	1,618.98	6.03%	836.38	102.88	2.1868	1,706.91	1,651.10	-3.81%
2	Common Carrier Truck Over 161K in MB	1	3	0	0	0.00	6.03%	836.38	102.88	2.1703	0.00	0.00	0.00%
2	Common Carrier Truck Over 161K in MB	1	4	0	0	0.00	6.03%	836.38	102.88	2.1475	0.00	0.00	0.00%
2	Common Carrier Truck Over 161K in MB	2	1	155	378,066	2,439.14	6.03%	836.38	102.88	3.5269	2,689.89	2,601.93	0.61%
2	Common Carrier Truck Over 161K in MB	2	2	95	152,029	1,600.31	6.03%	836.38	102.88	2.3599	1,833.88	1,773.91	4.55%
2	Common Carrier Truck Over 161K in MB	2	3	1	1,291	1,291.05	6.03%	836.38	102.88	2.3421	1,820.83	1,761.29	28.67%
2	Common Carrier Truck Over 161K in MB	2	4	7	11,999	1,714.17	6.03%	836.38	102.88	2.3175	1,802.76	1,743.81	-4.05%
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	1	228	475,380	2,085.00	0.00%	836.38	102.88	3.6446	2,776.17	2,685.38	28.80%
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	2	330	688,050	2,085.00	0.00%	836.38	102.88	2.4386	1,891.61	1,829.75	-12.24%
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	3	10	20,850	2,085.00	0.00%	836.38	102.88	2.4202	1,878.12	1,816.70	-12.87%
2	Common Carrier Truck Over 161K in MB with GVW > 16330kg	3	4	17	35,445	2,085.00	0.00%	836.38	102.88	2.3948	1,859.45	1,798.64	-13.73%
2	All Purpose Snow Vehicle (HTA)	N/A	1	4	1,324	331.00	0.00%	836.38	102.88	0.3186	336.59	325.59	-1.64%
2	All Purpose Snow Vehicle (HTA)	N/A	2	32	8,128	254.00	0.00%	836.38	102.88	0.2132	259.26	250.78	-1.27%
2	All Purpose Snow Vehicle (HTA)	N/A	3	2	522	261.00	0.00%	836.38	102.88	0.2116	258.08	249.64	-4.35%
2	All Purpose Snow Vehicle (HTA)	N/A	4	11	2,838	258.00	0.00%	836.38	102.88	0.2094	256.45	248.06	-3.85%
2	Driveaway Within MB	N/A	1	0	0	0.00	0.00%	836.38	102.88	0.5740	0.00	0.00	0.00%
2	Driveaway Within MB	N/A	2	4	1,556	389.00	0.00%	836.38	102.88	0.3840	384.58	372.00	-4.37%
2	Driveaway Within MB	N/A	3	0	0	0.00	0.00%	836.38	102.88	0.3811	0.00	0.00	0.00%
2	Driveaway Within MB	N/A	4	0	0	0.00	0.00%	836.38	102.88	0.3771	0.00	0.00	0.00%
2	Driveaway >161K outside MB	N/A	1	11	2,376	216.00	0.00%	836.38	102.88	0.1498	212.74	205.78	-4.73%
2	Driveaway >161K outside MB	N/A	2	23	4,071	177.00	0.00%	836.38	102.88	0.1002	176.39	170.62	-3.60%
2	Driveaway >161K outside MB	N/A	3	0	0	0.00	0.00%	836.38	102.88	0.0995	0.00	0.00	0.00%
2	Driveaway >161K outside MB	N/A	4	0	0	0.00	0.00%	836.38	102.88	0.0984	0.00	0.00	0.00%
2	Dealer Trailer	N/A	1	64	58,624	916.00	0.00%	836.38	102.88	1.1884	974.59	942.72	2.92%
2	Dealer Trailer	N/A	2	126	81,396	646.00	0.00%	836.38	102.88	0.7952	686.15	663.72	2.74%
2	Dealer Trailer	N/A	3	5	3,350	670.00	0.00%	836.38	102.88	0.7892	681.76	659.46	-1.57%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
2	Dealer Trailer	N/A	4	2	1,322	661.00	0.00%	836.38	102.88	0.7809	675.67	653.57	-1.12%
2	Dealer Moped	N/A	1	0	0	0.00	0.00%	836.38	102.88	0.6503	0.00	0.00	0.00%
2	Dealer Moped	N/A	2	2	854	427.00	0.00%	836.38	102.88	0.4351	422.03	408.23	-4.40%
2	Dealer Moped	N/A	3	0	0	0.00	0.00%	836.38	102.88	0.4318	0.00	0.00	0.00%
2	Dealer Moped	N/A	4	0	0	0.00	0.00%	836.38	102.88	0.4273	0.00	0.00	0.00%
2	Dealer All Uses except Motorcycles	N/A	1	2,353	3,858,920	1,640.00	0.00%	836.38	102.88	2.2621	1,762.13	1,704.51	3.93%
2	Dealer All Uses except Motorcycles	N/A	2	2,218	2,510,776	1,132.00	0.00%	836.38	102.88	1.5136	1,213.11	1,173.44	3.66%
2	Dealer All Uses except Motorcycles	N/A	3	32	37,664	1,177.00	0.00%	836.38	102.88	1.5022	1,204.74	1,165.34	-0.99%
2	Dealer All Uses except Motorcycles	N/A	4	49	56,840	1,160.00	0.00%	836.38	102.88	1.4864	1,193.14	1,154.13	-0.51%
2	Repairer	N/A	1	657	210,897	321.00	0.00%	836.38	102.88	0.3212	338.47	327.40	1.99%
2	Repairer	N/A	2	698	172,406	247.00	0.00%	836.38	102.88	0.2149	260.52	252.00	2.02%
2	Repairer	N/A	3	18	4,572	254.00	0.00%	836.38	102.88	0.2133	259.33	250.85	-1.24%
2	Repairer	N/A	4	18	4,518	251.00	0.00%	836.38	102.88	0.2110	257.68	249.25	-0.70%
2	Dealer Motorcycle	N/A	1	158	208,402	1,319.00	0.00%	836.38	102.88	1.6898	1,342.34	1,298.45	-1.56%
2	Dealer Motorcycle	N/A	2	198	181,566	917.00	0.00%	836.38	102.88	1.1307	932.22	901.74	-1.66%
2	Dealer Motorcycle	N/A	3	0	0	0.00	0.00%	836.38	102.88	1.1221	0.00	0.00	0.00%
2	Dealer Motorcycle	N/A	4	2	1,878	939.00	0.00%	836.38	102.88	1.1103	917.31	887.31	-5.50%
2	Other Truck	1	1	52	45,391	872.91	6.03%	836.38	102.88	1.1573	951.78	920.66	-0.53%
2	Other Truck	1	2	123	79,280	644.55	6.03%	836.38	102.88	0.7744	670.89	648.95	-5.04%
2	Other Truck	1	3	4	2,520	629.96	6.03%	836.38	102.88	0.7685	666.61	644.81	-3.46%
2	Other Truck	1	4	1	721	720.85	6.03%	836.38	102.88	0.7605	660.68	639.07	-16.38%
2	Other Truck	1	5	11	10,469	951.70	6.03%	836.38	102.88	1.2373	1,010.47	977.42	-3.14%
2	Other Truck	2	1	3,780	3,537,541	935.86	6.03%	836.38	102.88	1.2489	1,018.98	985.66	-0.67%
2	Other Truck	2	2	4,258	2,790,891	655.45	6.03%	836.38	102.88	0.8357	715.85	692.44	-0.36%
2	Other Truck	2	3	281	189,288	673.62	6.03%	836.38	102.88	0.8294	711.23	687.97	-3.68%
2	Other Truck	2	4	278	184,176	662.50	6.03%	836.38	102.88	0.8207	704.83	681.78	-2.94%
2	Other Truck	2	5	913	880,404	964.30	6.03%	836.38	102.88	1.3353	1,082.31	1,046.91	2.40%
2	Other Truck	3	1	1,784	1,714,424	961.00	6.03%	836.38	102.88	1.2906	1,049.53	1,015.21	-0.37%
2	Other Truck	3	2	3,027	2,043,225	675.00	6.03%	836.38	102.88	0.8635	736.29	712.22	-0.48%
2	Other Truck	3	3	129	90,300	700.00	6.03%	836.38	102.88	0.8570	731.52	707.60	-4.66%
2	Other Truck	3	4	141	97,290	690.00	6.03%	836.38	102.88	0.8480	724.91	701.20	-4.15%
3	U Drive Bus	N/A	1	18	33,840	1,880.00	0.00%	2,042.39	102.88	0.9545	1,954.18	1,911.35	1.67%
3	U Drive Bus	N/A	2	18	18,360	1,020.00	0.00%	2,042.39	102.88	0.5097	1,091.47	1,067.55	4.66%
3	U Drive Bus	N/A	3	1	1,115	1,115.00	0.00%	2,042.39	102.88	0.5482	1,166.09	1,140.53	2.29%
3	U Drive Bus	N/A	4	0	0	0.00	0.00%	2,042.39	102.88	0.5906	0.00	0.00	0.00%
3	U Drive Motorhome	N/A	1	18	32,526	1,807.00	0.00%	2,042.39	102.88	0.9207	1,888.52	1,847.13	2.22%
3	U Drive Motorhome	N/A	2	23	22,586	982.00	0.00%	2,042.39	102.88	0.4916	1,056.41	1,033.25	5.22%
3	U Drive Motorhome	N/A	3	0	0	0.00	0.00%	2,042.39	102.88	0.5287	0.00	0.00	0.00%
3	U Drive Motorhome	N/A	4	0	0	0.00	0.00%	2,042.39	102.88	0.5696	0.00	0.00	0.00%
3	U Drive Passenger Vehicle	N/A	1	4,767	10,259,927	2,152.28	2.85%	2,042.39	102.88	1.0580	2,154.92	2,107.69	-4.79%
3	U Drive Passenger Vehicle	N/A	2	822	930,596	1,132.11	2.85%	2,042.39	102.88	0.5650	1,198.66	1,172.39	0.68%
3	U Drive Passenger Vehicle	N/A	3	72	90,931	1,262.93	2.85%	2,042.39	102.88	0.6076	1,281.37	1,253.28	-3.52%
3	U Drive Passenger Vehicle	N/A	4	71	94,744	1,334.42	2.85%	2,042.39	102.88	0.6546	1,372.50	1,342.41	-2.19%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
3	U Drive Moped	N/A	1	2	1,598	799.14	2.85%	2,042.39	102.88	0.8516	1,754.53	1,716.08	108.78%
3	U Drive Moped	N/A	2	0	0	0.00	2.85%	2,042.39	102.88	0.4547	0.00	0.00	0.00%
3	U Drive Moped	N/A	3	0	0	0.00	2.85%	2,042.39	102.88	0.4891	0.00	0.00	0.00%
3	U Drive Moped	N/A	4	0	0	0.00	2.85%	2,042.39	102.88	0.5269	0.00	0.00	0.00%
3	Transit Bus	N/A	1	643	1,655,082	2,574.00	0.00%	2,042.39	102.88	1.3263	2,675.19	2,616.56	1.65%
3	Transit Bus	N/A	2	47	62,741	1,334.91	2.85%	2,042.39	102.88	0.7082	1,476.49	1,444.13	5.18%
3	Transit Bus	N/A	3	2	3,060	1,530.09	2.85%	2,042.39	102.88	0.7617	1,580.16	1,545.53	-1.79%
3	Transit Bus	N/A	4	3	5,089	1,696.49	2.85%	2,042.39	102.88	0.8206	1,694.39	1,657.25	-5.02%
3	School Bus	N/A	1	654	515,344	787.99	2.85%	2,042.39	102.88	0.3723	824.88	806.80	-0.45%
3	School Bus	N/A	2	1,607	723,170	450.01	2.85%	2,042.39	102.88	0.1988	488.43	477.72	3.21%
3	School Bus	N/A	3	55	26,831	487.83	2.85%	2,042.39	102.88	0.2138	517.53	506.18	0.88%
3	School Bus	N/A	4	155	79,648	513.86	2.85%	2,042.39	102.88	0.2303	549.59	537.54	1.71%
3	Charter Bus Local	N/A	1	40	54,565	1,364.12	2.85%	2,042.39	102.88	0.6811	1,423.80	1,392.60	-0.75%
3	Charter Bus Local	N/A	2	2	1,353	676.68	2.85%	2,042.39	102.88	0.3637	808.25	790.54	13.58%
3	Charter Bus Local	N/A	3	0	0	0.00	2.85%	2,042.39	102.88	0.3911	0.00	0.00	0.00%
3	Charter Bus Local	N/A	4	6	3,660	610.04	2.85%	2,042.39	102.88	0.4214	920.15	899.98	43.43%
3	Police/Emergency Passenger Vehicle	N/A	1	383	1,135,882	2,965.75	2.85%	2,042.39	102.88	1.4972	3,006.64	2,940.74	-3.59%
3	Police/Emergency Passenger Vehicle	N/A	2	269	405,671	1,508.07	2.85%	2,042.39	102.88	0.7995	1,653.48	1,617.24	4.26%
3	Police/Emergency Passenger Vehicle	N/A	3	16	25,171	1,573.17	2.85%	2,042.39	102.88	0.8598	1,770.51	1,731.71	7.02%
3	Police/Emergency Passenger Vehicle	N/A	4	21	35,205	1,676.42	2.85%	2,042.39	102.88	0.9263	1,899.46	1,857.83	7.75%
3	Police/Emergency Truck	1	1	33	54,615	1,655.00	0.00%	2,042.39	102.88	0.7917	1,638.31	1,602.40	-3.18%
3	Police/Emergency Truck	1	2	46	41,584	904.00	0.00%	2,042.39	102.88	0.4227	922.80	902.57	-0.16%
3	Police/Emergency Truck	1	3	14	13,818	987.00	0.00%	2,042.39	102.88	0.4546	984.68	963.10	-2.42%
3	Police/Emergency Truck	1	4	11	11,473	1,043.00	0.00%	2,042.39	102.88	0.4898	1,052.87	1,029.79	-1.27%
3	Police/Emergency Truck	2	1	6	5,616	936.00	0.00%	2,042.39	102.88	0.4488	973.34	952.01	1.71%
3	Police/Emergency Truck	2	2	0	0	0.00	0.00%	2,042.39	102.88	0.2397	0.00	0.00	0.00%
3	Police/Emergency Truck	2	3	2	1,154	577.00	0.00%	2,042.39	102.88	0.2577	602.79	589.57	2.18%
3	Police/Emergency Truck	2	4	0	0	0.00	0.00%	2,042.39	102.88	0.2777	0.00	0.00	0.00%
3	Police/Emergency Truck	3	1	0	0	0.00	0.00%	2,042.39	102.88	0.1997	0.00	0.00	0.00%
3	Police/Emergency Truck	3	2	2	1,186	593.00	0.00%	2,042.39	102.88	0.1066	309.70	302.91	-48.92%
3	Police/Emergency Truck	3	3	0	0	0.00	0.00%	2,042.39	102.88	0.1147	0.00	0.00	0.00%
3	Police/Emergency Truck	3	4	0	0	0.00	0.00%	2,042.39	102.88	0.1235	0.00	0.00	0.00%
3	Limousine All Uses Passenger Vehicle	N/A	1	92	272,447	2,961.38	0.00%	2,042.39	102.88	1.5030	3,017.92	2,951.78	-0.32%
3	Limousine All Uses Passenger Vehicle	N/A	2	20	35,148	1,757.40	0.00%	2,042.39	102.88	0.8026	1,659.50	1,623.13	-7.64%
3	Limousine All Uses Passenger Vehicle	N/A	3	1	1,341	1,341.00	0.00%	2,042.39	102.88	0.8632	1,776.99	1,738.04	29.61%
3	Limousine All Uses Passenger Vehicle	N/A	4	0	0	0.00	0.00%	2,042.39	102.88	0.9299	0.00	0.00	0.00%
3	Funeral Passenger Vehicle	N/A	1	53	47,936	904.45	2.85%	2,042.39	102.88	0.4123	902.62	882.84	-5.10%
3	Funeral Passenger Vehicle	N/A	2	77	38,484	499.79	2.85%	2,042.39	102.88	0.2202	529.94	518.33	0.83%
3	Funeral Passenger Vehicle	N/A	3	1	563	563.04	2.85%	2,042.39	102.88	0.2368	562.17	549.85	-5.05%
3	Funeral Passenger Vehicle	N/A	4	5	2,918	583.56	2.85%	2,042.39	102.88	0.2551	597.69	584.59	-2.60%
3	Taxi/Livery Passenger Vehicle	N/A	1	526	4,566,072	8,680.75	0.00%	2,042.39	102.88	4.6980	9,214.72	9,012.76	3.82%
3	Taxi/Livery Passenger Vehicle	N/A	2	148	752,478	5,084.31	0.00%	2,042.39	102.88	2.5087	4,968.57	4,859.67	-4.42%
3	Taxi/Livery Passenger Vehicle	N/A	3	50	243,679	4,873.58	0.00%	2,042.39	102.88	2.6981	5,335.81	5,218.86	7.08%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
3	Taxi/Livery Passenger Vehicle	N/A	4	26	142,191	5,468.88	0.00%	2,042.39	102.88	2.9067	5,740.45	5,614.63	2.67%
3	Common Carrier Bus Within MB	N/A	1	55	98,120	1,784.00	0.00%	2,042.39	102.88	1.0187	2,078.69	2,033.13	13.96%
3	Common Carrier Bus Within MB	N/A	2	26	46,384	1,784.00	0.00%	2,042.39	102.88	0.5440	1,157.96	1,132.58	-36.51%
3	Common Carrier Bus Within MB	N/A	3	0	0	0.00	0.00%	2,042.39	102.88	0.5850	0.00	0.00	0.00%
3	Common Carrier Bus Within MB	N/A	4	9	16,056	1,784.00	0.00%	2,042.39	102.88	0.6303	1,325.33	1,296.28	-27.34%
3	Wheelchair Livery Bus	N/A	1	52	106,224	2,042.77	2.85%	2,042.39	102.88	1.1131	2,261.66	2,212.10	5.28%
3	U Drive Truck	1	1	814	2,056,890	2,526.89	2.85%	2,042.39	102.88	1.2566	2,540.08	2,484.41	-4.41%
3	U Drive Truck	1	2	227	317,835	1,400.15	2.85%	2,042.39	102.88	0.6710	1,404.34	1,373.56	-4.62%
3	U Drive Truck	1	3	104	161,672	1,554.54	2.85%	2,042.39	102.88	0.7217	1,502.57	1,469.63	-8.09%
3	U Drive Truck	1	4	28	44,213	1,579.03	2.85%	2,042.39	102.88	0.7775	1,610.80	1,575.49	-2.99%
3	U Drive Truck	2	1	304	433,148	1,424.83	2.85%	2,042.39	102.88	0.7124	1,484.56	1,452.03	-0.92%
3	U Drive Truck	2	2	23	20,072	872.68	2.85%	2,042.39	102.88	0.3804	840.70	822.27	-8.39%
3	U Drive Truck	2	3	1	1,412	1,411.84	2.85%	2,042.39	102.88	0.4091	896.38	876.74	-39.62%
3	U Drive Truck	2	4	1	842	842.44	2.85%	2,042.39	102.88	0.4408	957.74	936.75	8.11%
3	U Drive Truck	3	1	34	25,772	758.00	2.85%	2,042.39	102.88	0.3170	717.63	701.90	-9.97%
3	U Drive Truck	3	2	17	7,463	439.00	2.85%	2,042.39	102.88	0.1693	431.16	421.71	-6.60%
3	U Drive Truck	3	3	1	518	518.00	2.85%	2,042.39	102.88	0.1820	455.93	445.94	-16.30%
3	U Drive Truck	3	4	0	0	0.00	2.85%	2,042.39	102.88	0.1961	0.00	0.00	0.00%
3	Common Carrier Bus Over 161K outside MB	N/A	1	74	50,912	688.00	0.00%	2,042.39	102.88	0.4047	887.77	868.31	26.21%
3	Common Carrier Bus Over 161K outside MB	N/A	2	27	18,576	688.00	0.00%	2,042.39	102.88	0.2161	522.01	510.57	-25.79%
3	Common Carrier Bus Over 161K outside MB	N/A	3	0	0	0.00	0.00%	2,042.39	102.88	0.2324	0.00	0.00	0.00%
3	Common Carrier Bus Over 161K outside MB	N/A	4	5	3,440	688.00	0.00%	2,042.39	102.88	0.2504	588.50	575.60	-16.34%
4	All Purpose Motorcycle (Motorscooter Body Style)	1	1	146	62,915	430.93	1.03%	830.23	102.88	0.4761	449.20	449.80	3.32%
4	All Purpose Motorcycle (Motorscooter Body Style)	1	2	22	8,676	394.37	1.03%	830.23	102.88	0.4062	398.32	398.85	0.11%
4	All Purpose Motorcycle (Motorscooter Body Style)	1	3	2	566	283.03	1.03%	830.23	102.88	0.2718	300.54	300.95	5.25%
4	All Purpose Motorcycle (Motorscooter Body Style)	1	4	4	1,276	318.90	1.03%	830.23	102.88	0.3068	326.04	326.47	1.33%
4	All Purpose Motorcycle (Motorscooter Body Style)	1	5	5	1,899	379.71	1.03%	830.23	102.88	0.3863	383.85	384.37	0.19%
4	All Purpose Motorcycle (Motorscooter Body Style)	2	1	12	8,967	747.22	1.03%	830.23	102.88	0.8929	752.30	753.30	-0.21%
4	All Purpose Motorcycle (Motorscooter Body Style)	2	2	1	601	601.06	1.03%	830.23	102.88	0.7617	656.89	657.76	8.32%
4	All Purpose Motorcycle (Motorscooter Body Style)	2	3	0	0	0.00	1.03%	830.23	102.88	0.5096	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	2	4	0	0	0.00	1.03%	830.23	102.88	0.5753	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	2	5	1	674	673.66	1.03%	830.23	102.88	0.7244	629.76	630.60	-7.35%
4	All Purpose Motorcycle (Motorscooter Body Style)	3	1	0	0	0.00	1.03%	830.23	102.88	1.0426	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	3	2	0	0	0.00	1.03%	830.23	102.88	0.8895	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	3	3	0	0	0.00	1.03%	830.23	102.88	0.5951	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	3	4	0	0	0.00	1.03%	830.23	102.88	0.6718	0.00	0.00	0.00%
4	All Purpose Motorcycle (Motorscooter Body Style)	3	5	0	0	0.00	1.03%	830.23	102.88	0.8459	0.00	0.00	0.00%
4	All Purpose Motorcycle (Other Body Style)	1	1	166	124,514	750.09	1.03%	830.23	102.88	0.9482	792.55	793.61	4.72%
4	All Purpose Motorcycle (Other Body Style)	1	2	61	43,606	714.84	1.03%	830.23	102.88	0.8089	691.22	692.15	-4.16%
4	All Purpose Motorcycle (Other Body Style)	1	3	7	3,319	474.17	1.03%	830.23	102.88	0.5412	496.51	497.17	3.78%
4	All Purpose Motorcycle (Other Body Style)	1	4	1	540	540.09	1.03%	830.23	102.88	0.6110	547.27	548.00	0.43%
4	All Purpose Motorcycle (Other Body Style)	1	5	15	10,164	677.59	1.03%	830.23	102.88	0.7693	662.41	663.30	-3.11%
4	All Purpose Motorcycle (Other Body Style)	2	1	152	201,119	1,323.15	1.03%	830.23	102.88	1.7781	1,396.14	1,398.00	4.58%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
4	All Purpose Motorcycle (Other Body Style)	2	2	80	97,587	1,219.84	1.03%	830.23	102.88	1.5168	1,206.13	1,207.75	-2.00%
4	All Purpose Motorcycle (Other Body Style)	2	3	8	7,313	914.12	1.03%	830.23	102.88	1.0148	841.01	842.13	-8.81%
4	All Purpose Motorcycle (Other Body Style)	2	4	2	1,723	861.60	1.03%	830.23	102.88	1.1457	936.20	937.45	7.70%
4	All Purpose Motorcycle (Other Body Style)	2	5	27	30,769	1,139.61	1.03%	830.23	102.88	1.4425	1,152.11	1,153.65	0.20%
4	All Purpose Motorcycle (Other Body Style)	3	1	218	340,344	1,561.21	1.03%	830.23	102.88	2.0764	1,613.10	1,615.26	2.41%
4	All Purpose Motorcycle (Other Body Style)	3	2	125	179,251	1,434.01	1.03%	830.23	102.88	1.7713	1,391.23	1,393.08	-3.84%
4	All Purpose Motorcycle (Other Body Style)	3	3	18	18,698	1,038.78	1.03%	830.23	102.88	1.1851	964.84	966.13	-7.94%
4	All Purpose Motorcycle (Other Body Style)	3	4	9	10,092	1,121.33	1.03%	830.23	102.88	1.3379	1,076.00	1,077.44	-4.89%
4	All Purpose Motorcycle (Other Body Style)	3	5	42	57,511	1,369.32	1.03%	830.23	102.88	1.6846	1,328.14	1,329.91	-3.87%
4	All Purpose Motorcycle (Sport Body Style)	1	1	71	81,115	1,142.46	1.03%	830.23	102.88	1.5889	1,258.55	1,260.23	9.18%
4	All Purpose Motorcycle (Sport Body Style)	1	2	20	22,034	1,101.71	1.03%	830.23	102.88	1.3555	1,088.77	1,090.22	-2.05%
4	All Purpose Motorcycle (Sport Body Style)	1	3	2	1,700	849.94	1.03%	830.23	102.88	0.9069	762.48	763.50	-11.08%
4	All Purpose Motorcycle (Sport Body Style)	1	4	0	0	0.00	1.03%	830.23	102.88	1.0238	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport Body Style)	1	5	3	3,228	1,076.15	1.03%	830.23	102.88	1.2891	1,040.49	1,041.88	-4.17%
4	All Purpose Motorcycle (Sport Body Style)	2	1	45	101,372	2,252.70	1.03%	830.23	102.88	2.9795	2,269.99	2,273.02	-0.13%
4	All Purpose Motorcycle (Sport Body Style)	2	2	19	36,855	1,939.71	1.03%	830.23	102.88	2.5417	1,951.60	1,954.21	-0.28%
4	All Purpose Motorcycle (Sport Body Style)	2	3	2	2,812	1,406.02	1.03%	830.23	102.88	1.7005	1,339.76	1,341.55	-5.56%
4	All Purpose Motorcycle (Sport Body Style)	2	4	0	0	0.00	1.03%	830.23	102.88	1.9198	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport Body Style)	2	5	11	22,080	2,007.26	1.03%	830.23	102.88	2.4173	1,861.07	1,863.56	-8.10%
4	All Purpose Motorcycle (Sport Body Style)	3	1	3	8,359	2,786.39	1.03%	830.23	102.88	3.4794	2,633.57	2,637.08	-6.32%
4	All Purpose Motorcycle (Sport Body Style)	3	2	1	2,678	2,677.70	1.03%	830.23	102.88	2.9682	2,261.76	2,264.78	-16.28%
4	All Purpose Motorcycle (Sport Body Style)	3	3	0	0	0.00	1.03%	830.23	102.88	1.9858	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport Body Style)	3	4	0	0	0.00	1.03%	830.23	102.88	2.2419	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport Body Style)	3	5	2	5,995	2,997.60	1.03%	830.23	102.88	2.8228	2,156.05	2,158.93	-28.71%
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	1	7	5,192	741.66	1.03%	830.23	102.88	1.0104	837.82	838.94	11.96%
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	2	5	3,695	739.00	1.03%	830.23	102.88	0.8620	729.85	730.82	-2.11%
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	3	0	0	0.00	1.03%	830.23	102.88	0.5767	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	4	0	0	0.00	1.03%	830.23	102.88	0.6511	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport-Touring Body Style)	1	5	2	1,565	782.41	1.03%	830.23	102.88	0.8198	699.15	700.08	-11.43%
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	1	33	46,331	1,403.96	1.03%	830.23	102.88	1.8948	1,481.04	1,483.02	4.55%
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	2	12	15,771	1,314.23	1.03%	830.23	102.88	1.6164	1,278.56	1,280.27	-3.58%
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	3	0	0	0.00	1.03%	830.23	102.88	1.0814	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	4	1	1,124	1,124.32	1.03%	830.23	102.88	1.2209	990.91	992.23	-12.65%
4	All Purpose Motorcycle (Sport-Touring Body Style)	2	5	5	6,259	1,251.86	1.03%	830.23	102.88	1.5372	1,220.99	1,222.62	-3.33%
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	1	19	31,425	1,653.93	1.03%	830.23	102.88	2.2127	1,712.25	1,714.54	2.61%
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	2	4	6,770	1,692.41	1.03%	830.23	102.88	1.8876	1,475.81	1,477.78	-13.57%
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	3	0	0	0.00	1.03%	830.23	102.88	1.2629	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	4	0	0	0.00	1.03%	830.23	102.88	1.4257	0.00	0.00	0.00%
4	All Purpose Motorcycle (Sport-Touring Body Style)	3	5	5	7,305	1,461.08	1.03%	830.23	102.88	1.7952	1,408.58	1,410.46	-4.45%
4	All Purpose Motorcycle (Touring Body Style)	1	1	7	5,087	726.69	1.03%	830.23	102.88	0.9064	762.18	763.20	3.95%
4	All Purpose Motorcycle (Touring Body Style)	1	2	2	1,331	665.69	1.03%	830.23	102.88	0.7733	665.32	666.21	-0.94%
4	All Purpose Motorcycle (Touring Body Style)	1	3	0	0	0.00	1.03%	830.23	102.88	0.5174	0.00	0.00	0.00%
4	All Purpose Motorcycle (Touring Body Style)	1	4	0	0	0.00	1.03%	830.23	102.88	0.5841	0.00	0.00	0.00%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
4	All Purpose Motorcycle (Touring Body Style)	1	5	2	1,218	608.81	1.03%	830.23	102.88	0.7354	637.78	638.63	3.83%
4	All Purpose Motorcycle (Touring Body Style)	2	1	37	44,529	1,203.48	1.03%	830.23	102.88	1.6998	1,339.20	1,340.98	10.29%
4	All Purpose Motorcycle (Touring Body Style)	2	2	23	24,737	1,075.51	1.03%	830.23	102.88	1.4500	1,157.56	1,159.11	6.67%
4	All Purpose Motorcycle (Touring Body Style)	2	3	5	3,861	772.12	1.03%	830.23	102.88	0.9701	808.51	809.59	3.78%
4	All Purpose Motorcycle (Touring Body Style)	2	4	1	933	932.61	1.03%	830.23	102.88	1.0953	899.51	900.71	-4.40%
4	All Purpose Motorcycle (Touring Body Style)	2	5	2	1,919	959.50	1.03%	830.23	102.88	1.3790	1,105.91	1,107.39	14.24%
4	All Purpose Motorcycle (Touring Body Style)	3	1	236	352,673	1,494.38	1.03%	830.23	102.88	1.9849	1,546.61	1,548.68	2.58%
4	All Purpose Motorcycle (Touring Body Style)	3	2	131	178,744	1,364.46	1.03%	830.23	102.88	1.6933	1,334.50	1,336.28	-3.06%
4	All Purpose Motorcycle (Touring Body Style)	3	3	10	10,735	1,073.45	1.03%	830.23	102.88	1.1329	926.89	928.13	-14.42%
4	All Purpose Motorcycle (Touring Body Style)	3	4	11	12,169	1,106.25	1.03%	830.23	102.88	1.2790	1,033.16	1,034.54	-7.43%
4	All Purpose Motorcycle (Touring Body Style)	3	5	45	56,983	1,266.29	1.03%	830.23	102.88	1.6104	1,274.19	1,275.89	-0.27%
4	Pleasure Motorcycle (Motorscooter Body Style)	1	1	192	52,626	274.09	1.03%	830.23	102.88	0.2747	302.70	303.11	9.46%
4	Pleasure Motorcycle (Motorscooter Body Style)	1	2	124	32,640	263.23	1.03%	830.23	102.88	0.2344	273.35	273.71	2.92%
4	Pleasure Motorcycle (Motorscooter Body Style)	1	3	4	789	197.25	1.03%	830.23	102.88	0.1568	216.93	217.22	9.00%
4	Pleasure Motorcycle (Motorscooter Body Style)	1	4	6	1,490	248.38	1.03%	830.23	102.88	0.1770	231.64	231.95	-7.57%
4	Pleasure Motorcycle (Motorscooter Body Style)	2	1	41	18,083	441.05	1.03%	830.23	102.88	0.5152	477.59	478.22	7.32%
4	Pleasure Motorcycle (Motorscooter Body Style)	2	2	25	10,324	412.97	1.03%	830.23	102.88	0.4395	422.54	423.10	1.41%
4	Pleasure Motorcycle (Motorscooter Body Style)	2	3	0	0	0.00	1.03%	830.23	102.88	0.2940	0.00	0.00	0.00%
4	Pleasure Motorcycle (Motorscooter Body Style)	2	4	2	706	352.95	1.03%	830.23	102.88	0.3320	344.33	344.79	-3.31%
4	Pleasure Motorcycle (Motorscooter Body Style)	3	1	0	0	0.00	1.03%	830.23	102.88	0.6016	0.00	0.00	0.00%
4	Pleasure Motorcycle (Motorscooter Body Style)	3	2	0	0	0.00	1.03%	830.23	102.88	0.5132	0.00	0.00	0.00%
4	Pleasure Motorcycle (Motorscooter Body Style)	3	3	0	0	0.00	1.03%	830.23	102.88	0.3434	0.00	0.00	0.00%
4	Pleasure Motorcycle (Motorscooter Body Style)	3	4	0	0	0.00	1.03%	830.23	102.88	0.3876	0.00	0.00	0.00%
4	Pleasure Motorcycle (Other Body Style)	1	1	349	160,209	459.05	1.03%	830.23	102.88	0.5471	500.81	501.48	8.13%
4	Pleasure Motorcycle (Other Body Style)	1	2	347	146,157	421.20	1.03%	830.23	102.88	0.4667	442.35	442.94	4.09%
4	Pleasure Motorcycle (Other Body Style)	1	3	12	3,997	333.04	1.03%	830.23	102.88	0.3123	330.00	330.44	-1.79%
4	Pleasure Motorcycle (Other Body Style)	1	4	10	3,707	370.74	1.03%	830.23	102.88	0.3525	359.29	359.77	-3.95%
4	Pleasure Motorcycle (Other Body Style)	2	1	873	688,824	789.03	1.03%	830.23	102.88	1.0259	849.08	850.21	6.66%
4	Pleasure Motorcycle (Other Body Style)	2	2	980	717,381	732.02	1.03%	830.23	102.88	0.8752	739.45	740.43	0.12%
4	Pleasure Motorcycle (Other Body Style)	2	3	23	12,322	535.73	1.03%	830.23	102.88	0.5855	528.77	529.48	-2.17%
4	Pleasure Motorcycle (Other Body Style)	2	4	34	18,598	547.00	1.03%	830.23	102.88	0.6611	583.70	584.48	5.76%
4	Pleasure Motorcycle (Other Body Style)	3	1	1,564	1,419,349	907.51	1.03%	830.23	102.88	1.1980	974.26	975.57	6.40%
4	Pleasure Motorcycle (Other Body Style)	3	2	2,372	1,968,805	830.02	1.03%	830.23	102.88	1.0220	846.24	847.37	1.05%
4	Pleasure Motorcycle (Other Body Style)	3	3	68	41,969	617.19	1.03%	830.23	102.88	0.6838	600.22	601.02	-3.61%
4	Pleasure Motorcycle (Other Body Style)	3	4	103	68,169	661.84	1.03%	830.23	102.88	0.7720	664.36	665.25	-0.51%
4	Pleasure Motorcycle (Sport Body Style)	1	1	185	127,163	687.37	1.03%	830.23	102.88	0.9168	769.69	770.72	10.98%
4	Pleasure Motorcycle (Sport Body Style)	1	2	105	66,815	636.34	1.03%	830.23	102.88	0.7821	671.73	672.62	4.63%
4	Pleasure Motorcycle (Sport Body Style)	1	3	5	2,529	505.72	1.03%	830.23	102.88	0.5232	483.46	484.11	-5.25%
4	Pleasure Motorcycle (Sport Body Style)	1	4	5	2,612	522.43	1.03%	830.23	102.88	0.5907	532.55	533.26	1.03%
4	Pleasure Motorcycle (Sport Body Style)	2	1	387	488,662	1,262.69	1.03%	830.23	102.88	1.7191	1,353.28	1,355.09	6.22%
4	Pleasure Motorcycle (Sport Body Style)	2	2	296	348,396	1,177.01	1.03%	830.23	102.88	1.4666	1,169.57	1,171.14	-1.51%
4	Pleasure Motorcycle (Sport Body Style)	2	3	4	3,845	961.36	1.03%	830.23	102.88	0.9812	816.55	817.64	-15.82%
4	Pleasure Motorcycle (Sport Body Style)	2	4	6	5,564	927.27	1.03%	830.23	102.88	1.1077	908.58	909.80	-2.88%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
4	Pleasure Motorcycle (Sport Body Style)	3	1	66	102,582	1,554.27	1.03%	830.23	102.88	2.0075	1,563.06	1,565.15	-0.33%
4	Pleasure Motorcycle (Sport Body Style)	3	2	51	70,201	1,376.49	1.03%	830.23	102.88	1.7126	1,348.53	1,350.33	-2.90%
4	Pleasure Motorcycle (Sport Body Style)	3	3	3	3,877	1,292.20	1.03%	830.23	102.88	1.1458	936.28	937.53	-28.19%
4	Pleasure Motorcycle (Sport Body Style)	3	4	2	2,064	1,031.94	1.03%	830.23	102.88	1.2936	1,043.76	1,045.15	0.25%
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	1	14	7,170	512.13	1.03%	830.23	102.88	0.5830	526.94	527.64	1.98%
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	2	15	6,890	459.35	1.03%	830.23	102.88	0.4974	464.63	465.26	0.25%
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	3	0	0	0.00	1.03%	830.23	102.88	0.3328	0.00	0.00	0.00%
4	Pleasure Motorcycle (Sport-Touring Body Style)	1	4	0	0	0.00	1.03%	830.23	102.88	0.3757	0.00	0.00	0.00%
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	1	126	106,278	843.48	1.03%	830.23	102.88	1.0933	898.06	899.26	5.53%
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	2	148	115,033	777.25	1.03%	830.23	102.88	0.9326	781.24	782.28	-0.38%
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	3	4	2,342	585.42	1.03%	830.23	102.88	0.6240	556.73	557.47	-5.74%
4	Pleasure Motorcycle (Sport-Touring Body Style)	2	4	3	1,738	579.24	1.03%	830.23	102.88	0.7045	615.26	616.08	5.28%
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	1	116	109,890	947.33	1.03%	830.23	102.88	1.2767	1,031.47	1,032.85	7.92%
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	2	116	103,928	895.93	1.03%	830.23	102.88	1.0891	895.04	896.24	-0.98%
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	3	6	4,975	829.17	1.03%	830.23	102.88	0.7287	632.87	633.72	-24.35%
4	Pleasure Motorcycle (Sport-Touring Body Style)	3	4	3	2,403	801.14	1.03%	830.23	102.88	0.8226	701.22	702.16	-13.25%
4	Pleasure Motorcycle (Touring Body Style)	1	1	25	11,657	466.27	1.03%	830.23	102.88	0.5230	483.29	483.94	2.73%
4	Pleasure Motorcycle (Touring Body Style)	1	2	29	11,475	395.71	1.03%	830.23	102.88	0.4462	427.40	427.97	7.05%
4	Pleasure Motorcycle (Touring Body Style)	1	3	2	694	346.84	1.03%	830.23	102.88	0.2985	320.00	320.43	-8.56%
4	Pleasure Motorcycle (Touring Body Style)	1	4	2	666	332.93	1.03%	830.23	102.88	0.3370	348.00	348.47	3.60%
4	Pleasure Motorcycle (Touring Body Style)	2	1	165	120,254	728.81	1.03%	830.23	102.88	0.9807	816.22	817.31	11.00%
4	Pleasure Motorcycle (Touring Body Style)	2	2	236	162,475	688.45	1.03%	830.23	102.88	0.8367	711.42	712.37	2.42%
4	Pleasure Motorcycle (Touring Body Style)	2	3	9	4,325	480.56	1.03%	830.23	102.88	0.5598	510.02	510.70	5.19%
4	Pleasure Motorcycle (Touring Body Style)	2	4	5	2,783	556.60	1.03%	830.23	102.88	0.6319	562.53	563.28	0.17%
4	Pleasure Motorcycle (Touring Body Style)	3	1	1,289	1,113,086	863.53	1.03%	830.23	102.88	1.1453	935.90	937.15	7.42%
4	Pleasure Motorcycle (Touring Body Style)	3	2	2,672	2,126,235	795.75	1.03%	830.23	102.88	0.9770	813.51	814.60	1.33%
4	Pleasure Motorcycle (Touring Body Style)	3	3	82	49,025	597.86	1.03%	830.23	102.88	0.6537	578.33	579.10	-4.12%
4	Pleasure Motorcycle (Touring Body Style)	3	4	99	62,703	633.36	1.03%	830.23	102.88	0.7380	639.64	640.50	0.10%
4	All Purpose Moped	N/A	1	445	184,093	413.69	1.03%	830.23	102.88	0.4761	449.20	449.80	7.62%
4	All Purpose Moped	N/A	2	159	62,238	391.43	1.03%	830.23	102.88	0.4062	398.32	398.85	0.86%
4	All Purpose Moped	N/A	3	7	2,010	287.14	1.03%	830.23	102.88	0.2718	300.54	300.95	3.74%
4	All Purpose Moped	N/A	4	3	946	315.45	1.03%	830.23	102.88	0.3068	326.04	326.47	2.44%
4	Pleasure Moped	N/A	1	662	180,511	272.67	1.03%	830.23	102.88	0.2747	302.70	303.11	10.03%
4	Pleasure Moped	N/A	2	414	107,912	260.66	1.03%	830.23	102.88	0.2344	273.35	273.71	3.94%
4	Pleasure Moped	N/A	3	8	1,846	230.77	1.03%	830.23	102.88	0.1568	216.93	217.22	-6.83%
4	Pleasure Moped	N/A	4	7	1,588	226.79	1.03%	830.23	102.88	0.1770	231.64	231.95	1.23%
5	All Purpose Trailer	N/A	1	59,446	3,872,826	65.15	4.07%	80.14	0.00	0.8952	71.74	72.13	6.38%
5	All Purpose Trailer	N/A	2	131,561	12,078,259	91.81	4.07%	80.14	0.00	1.0819	86.70	87.18	-8.76%
5	All Purpose Trailer	N/A	3	3,488	173,069	49.62	4.07%	80.14	0.00	0.6882	55.15	55.45	7.38%
5	All Purpose Trailer	N/A	4	6,182	199,205	32.22	4.07%	80.14	0.00	0.4399	35.26	35.45	5.71%
6	Off Road Vehicle - ATV	N/A	1	7,443	74,430	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - ATV	N/A	2	27,756	277,560	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - ATV	N/A	3	781	7,810	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%

TABLE 16
Indicated Rate Calculation

Major Class	Description	Eng Disp Code	Territory	Rate Model No. of Vehicles	Rate Model Annual Premium	18/19 Average Rate	Expected Drift	Major Class Average	Major Class Op. Exp.	Combined Relativity	Indicated Rate	Balanced Indicated Rate	Balanced Indicated Change
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
6	Off Road Vehicle - ATV	N/A	4	1,279	12,790	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Motorcycle	N/A	1	375	3,750	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Motorcycle	N/A	2	579	5,790	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Motorcycle	N/A	3	12	120	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Motorcycle	N/A	4	5	50	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snowmobile	N/A	1	7,973	79,730	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snowmobile	N/A	2	22,165	221,650	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snowmobile	N/A	3	958	9,580	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snowmobile	N/A	4	1,409	14,090	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snow Vehicle	N/A	1	24	240	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snow Vehicle	N/A	2	66	660	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snow Vehicle	N/A	3	4	40	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%
6	Off Road Vehicle - Snow Vehicle	N/A	4	9	90	10.00	0.00%	6.35	0.00	1.0000	6.35	6.35	-36.48%

Notes:

[1] & [2]: Data per the Rate Model; refer to Volume II, Ratemaking, RM.2
[3] = [2] / [1]
[4] to [6] Refer to Volume II, Ratemaking, RM.4
[7] Refer to Volume II, Ratemaking, Table 15
[8] Details of the calculation of the Indicated Rate per Volume II, Ratemaking, RM.4
[9] Balanced to the revenue requirement by major class
[10] = ([9] / ([3] * (1 + [4]))) - 1

Appendix 10: REQUIRED RATE COMPARISON

Figure 1 presents the components of the required rate as filed for the 2019 GRA compared to the corresponding figures from the 2018 GRA based on PUB Order 130/17. Two sets of figures are presented for rating year 2019/20. The first set uses the same interest rate (of 3.82%) that was used to determine the required rate for rating year 2018/19 based on PUB Order 130/17. This allows for a comparison that is not influenced by changes in the interest rate. The second set uses the actual projected interest rate (of 3.21%) that was used to determine the required rate for rating year 2019/20 as filed in the 2019 GRA.

Figure 1: Comparison of the Components of the Required Rate

Line No.	Components	2018/19 [a]	2019/20 Prior I/R [b]	Variance	2019/20 Rev I/R [c]	I/R Impact
1	Claims					
2	Accident Benefits - Other (Indexed)	83.61	81.45	(2.16)	83.82	2.37
3	Accident Benefits - Other (Non-Ind)	25.19	25.49	0.29	25.73	0.24
4	Bodily Injury	3.41	3.78	0.37	3.86	0.08
5	Collision	392.23	413.44	21.21	413.84	0.40
6	Comprehensive	97.47	89.25	(8.23)	89.42	0.17
7	Property Damage	38.87	40.34	1.48	40.44	0.09
8	Income Replacement Indemnity	51.44	53.84	2.40	57.16	3.32
9	Total Claims	692.23	707.59	15.36	714.26	6.68
10	Expenditures					
11	Claims Expense	116.77	113.46	(3.31)	114.54	1.08
12	Road Safety/Loss Prevention	10.98	10.63	(0.35)	10.63	(0.00)
13	Operating Expense	64.25	63.27	(0.98)	63.14	(0.13)
14	Regulatory Appeal	3.53	4.10	0.57	4.10	(0.00)
15	Commission (Vehicle)	29.10	29.42	0.32	29.69	0.27
16	Premium Tax (Vehicle)	26.94	27.24	0.30	27.49	0.25
17	Commission & Premium Tax (Drivers)	3.72	3.76	0.04	3.75	(0.01)
18	Commission Flat Fee	5.77	5.71	(0.06)	5.69	(0.02)
19	Reinsurance (Casualty)	1.76	1.76	0.00	1.76	(0.00)
20	Reinsurance (Catastrophe)	8.08	7.86	(0.23)	7.86	(0.00)
21	Fleet Rebates	13.53	13.21	(0.32)	13.25	0.04
22	Anti-Theft Discount	2.40	2.01	(0.39)	2.00	(0.01)
23	Total Expenditures	286.83	282.41	(4.41)	283.89	1.48
24	Other Income Sources					
25	Driver Premium	59.61	60.21	0.60	60.03	(0.18)
26	Service Fees	21.41	21.90	0.49	21.90	(0.00)
27	Total Other Income Sources	81.02	82.11	1.09	81.93	(0.18)
28	Required Rate (= Claims + Expenditures - Other Income Sources)	898.04	907.89	9.85	916.22	8.33

29 Notes:
30 [a] Per PUB Order 130/17
31 [b] Based on interest rate of 3.82% i.e. the same interest rate used to derive
32 the 2018/19 required rate per PUB Order 130/17
33 [c] Based on interest rate of 3.21% i.e. the interest rate used to derive the
34 2019/20 required rate as filed in the 2019 GRA

1 The increase in claims costs is driven primarily by the increase in Collision claims costs
2 of $21.21 or 5.4%. This is offset partially by a decrease in Comprehensive claims
3 costs of $8.23 or 8.4%. Total PIPP claims costs (Accident Benefits - Other and Income
4 Replacement Indemnity) increased marginally by $0.53 or 0.3%.

5 Per *Part V(i) Claims Incurred, page 40*, Collision ultimate claims costs (by accident
6 year) are forecasted to increase by approximately 7.1% annually, implying a 5.5%

increase in the per unit cost (based on forecasted volume growth of 1.5%). The 5.5% increase is driven mainly by the projected increase in collision severity of 5.4% annually. Further details of the Collision claims costs forecast are provided in *Part V(i) Claims Incurred CI.9*.

For Comprehensive, per *Part V(i) Claims Incurred, page 66*, the forecasted ultimate claim costs (by accident year) for the current year is lower than last year by approximately 12.0%. This is driven primarily by lower expected severity for hail claims as a result of the Paintless Dent Repair program. Further details of the Comprehensive claims costs forecast are provided in *Part V(i) Claims Incurred, CI.10*.

Per unit costs for expenditures decreased by $4.41 or 1.5%, most of which is driven by decreases in claims and operating expense. Total per unit costs increased by $8.33 or 0.9% as a result of the change in projected interest rate from 3.82% to 3.21%.

RATE SETTING FRAMEWORK

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

RATE SETTING FRAMEWORK 3
RSF.1 CORPORATE GOALS 3
RSF.2 RATING APPROACHES 4
RSF.2.1 Actuarial Principles 4
RSF.2.2 Risk Classification 4
RSF.2.3 Consistent Techniques and Approaches 5
RSF.2.4 Allocation of Loss Costs 5
RSF.2.5 PUB Order 97/05 6
RSF.2.6 PUB Order 122/10 6
RSF.3 RATE SETTING PROCESS 6
RSF.3.1 Forecasting 7
RSF.3.1.1 Claims Forecast 7
RSF.3.1.2 Revenue Forecast 8
RSF.3.1.3 Expense Forecast 8
RSF.3.1.4 Investment Forecast 9
RSF.3.2 Financial Model 9
RSF.3.3 Ratemaking 10
RSF.3.3.1 Break-Even Rates 10
RSF.3.3.2 Net Capital Maintenance Provision 11
RSF.3.3.3 Allocate Overall Expected Costs 11
RSF.3.3.4 Required Rates and Experience Adjustments 12
RSF.3.4 Rate Modeling 12
RSF.3.5 Response to Orders 162/16 and 130/17: Total Return, Profit Provision, Capital Maintenance Provision 13

RATE SETTING FRAMEWORK

Manitoba Public Insurance (MPI or the Corporation) has developed this General Rate Application in accordance with a rate setting framework that reflects established corporate goals, Accepted Actuarial Practice (AAP), and directions from the Public Utilities Board (PUB). The application of this framework ensures that the overall rate indication is reasonable and appropriate.

RSF.1 CORPORATE GOALS

The following two corporate goals provide the framework with which Basic Autopac rates are established:

- Universally available mandatory protection against the cost of automobile accidents. Rates, on average, will be lower than those charged by private insurance companies for comparable coverage and service.
- Total Equity will be maintained within established target levels.

Having stable overall rates, using rating approaches that are based on actuarial principles, following accepted industry practice for risk classification, and applying these in a consistent fashion ensures that these goals, from a rate setting perspective, are met.

The measures and strategies for achieving these goals are located in *Part VIII AR Annual Report*.

RSF.2 RATING APPROACHES

This section describes the rating principles, techniques, and approaches used by MPI in the calculation of Basic rates, following AAP.

RSF.2.1 Actuarial Principles

MPI's rating approach is based on actuarial principles that:

- Tie rates directly to costs
- Minimize cross subsidization between customers
- Provide for rates that are responsive to changes in claim patterns
- Ensure complete enumeration of all expected costs
- Achieve a 'break-even profit' on newly issued policies
- Maintain capitalization within regulatory capital targets though the equitable collection from customers such that the Basic capital position as measured by the Minimum Capital Test (MCT) does not deteriorate from the beginning of the rating period to the end (i.e. the net capital maintenance provision)

RSF.2.2 Risk Classification

MPI's rating approach uses four easy to apply categories that are consistent with normal industry practices. These categories are:

- Location
- Use of the vehicle
- Type of vehicle
- Driving record

All these categories of risk classification, except the use of the vehicle, are populated directly by MPI. For example, MPI maintains a database containing all information

pertaining to the driving records of its customers. The only information required from customers is the vehicle use and any change in address.

Balancing this simplicity and ease of understanding is the need to ensure equity of rates paid. By utilizing different dimensions unique to the risk arising from location, use of the vehicle, type of vehicle and driving record, MPI is able to ensure that different risks pay different rates, and that similar risks pay similar rates.

Detailed information on risk classification can be found in *Part V(ii) Driver Classification System* and *Part V(ii) Vehicle Classification System*.

RSF.2.3 Consistent Techniques and Approaches

To ensure stability of rates, improvements are adopted on an incremental basis to the rate setting rules as necessary.

Complementing this is the use of underlying statistical data. MPI uses the data as reported in its claims database in a structured and consistent manner each year.

RSF.2.4 Allocation of Loss Costs

Collision and comprehensive (hail, vandalism etc.) claims are applied on a first party basis (100% of losses are allocated to the vehicle incurring the loss), with the exception of motorcycles.

As per PUB Order 156/06, for motorcycle collision claims, 100% of motorcycle loss costs from single vehicle claims and 50% of motorcycle loss costs from multi-vehicle claims are allocated to motorcycles. The balance of the motorcycle loss costs are allocated to all other *Highway Traffic Act* units.

There is no allocation for motorcycle comprehensive claims because comprehensive coverage is not included in the Basic plan.

The Personal Injury Protection Plan (PIPP) costs are allocated in accordance with PUB Order 97/05 and modifications thereto, which are included in PUB Order 122/10.

RSF.2.5 PUB Order 97/05

PUB Order 97/05 established the following loss allocation rules:

1. In any accident involving only MPI-insured vehicles (one or more) and no other injured party, total PIPP costs are to be allocated equally (per vehicle) across the rating categories to which those vehicles belong; and

2. In any accident involving one or more MPI-insured vehicles and (i) one or more unidentified hit-and-run offenders, or (ii) another injured party or parties (including cyclists, pedestrians, and occupant(s) of out-of-province vehicles), 50% of total PIPP costs are to be allocated equally (per MPI-insured vehicle) across the rating categories to which the MPI-insured vehicles belong, and 50% of total PIPP costs are to be effectively allocated across all vehicle rating categories.

RSF.2.6 PUB Order 122/10

PUB Order 122/10 varied the loss allocation rules established in PUB Order 97/05 for single vehicle accidents involving pedestrians and cyclists, to include wildlife/livestock related accidents.

RSF.3 RATE SETTING PROCESS

The rate setting process is a combination of forecasting, financial modeling, ratemaking, and rate modeling, as described below.

RSF.3.1 Forecasting

To determine the required rates for the 2019/20 policy year, MPI forecasts the expected costs and revenues from all sources.

RSF.3.1.1 Claims Forecast

The expected costs associated with settling claims that will occur in the rating period are forecasted.

Key indicators used to forecast claims costs include:

- Reported-to-date and estimated final (i.e. ultimate) settlement cost of claims
- Projected changes in claims frequency i.e. claims count per vehicle e.g. increases in hail frequency and reductions in theft frequency
- Projected changes in claims severity i.e. claims costs per claim e.g. inflation, average cost or number of parts, industrial average wage, and negotiated increases in labour rates
- Change in vehicle population:
    - Projected growth in the vehicle volume – increased claims count and claims costs due to a larger number of vehicles in the fleet
    - Projected vehicle upgrade – increased claims severity due to customers buying newer/more expensive vehicles
- The projected interest rates on MPI's Basic fixed income portfolio, which are used as the basis for discounting claims liabilities and for determination of new money rates for rate setting purposes.

Detailed information on the claims forecasting process can be found in *Part V(i) Claims Incurred*.

RSF.3.1.2 Revenue Forecast

Expected revenue forecasts over the rate setting period are based on historical information, field information, and external economic information including:

- Vehicle premium:
  - Vehicle volume – change in the number of vehicles
  - Vehicle upgrade – change in the average premium generated from customers buying newer higher rated vehicles or moving to different rating classifications
- Driver premium:
  - Driver volume – change in the number of drivers
  - Driver movement – movement of drivers on the Driver Safety Rating scale
- Service fees changes
- Fleet Program rebates and surcharges
- Reinsurance premiums
- Anti-theft discounts

Detailed information on the revenue forecasting process can be found in *Part V(i) Revenues*.

RSF.3.1.3 Expense Forecast

The expense forecast is based on the 2018/19 Forecast Base and adjusted for known contractual agreements, inflationary increases, cost containment strategies, and improvement initiatives or project costs.

Components of the expense forecast include:

- Claims expenses (cost of processing claims)
- Operating expenses
- Road safety expenditures

- Regulatory expenditures
- Commissions and premium taxes
- Improvement initiatives' implementation and ongoing expenditures

Detailed information on the expense forecast can be found in *Part V(i) Expenses*.

RSF.3.1.4 Investment Forecast

The financial model forecasts investment income from the investment portfolio. The investment income forecast incorporates:

- Forecasted interest rates
- Return assumptions for each asset class in the portfolio
- Accounting treatment for each asset class
- Investment portfolio rebalancing rules
- Investment management fees
- Pension expense

Detailed information on the investment income forecast can be found in *Part VI Investments*.

RSF.3.2 Financial Model

The Financial Model:

- Combines the outputs from the claims, revenue, expense, and investment income forecasts
- Allocates the forecasted expenses to each line of business and expense type (claims, operating, road safety and regulatory expenses)
- Creates the Basic pro forma statement of operations and statement of financial position

Updates to the financial modeling tool can be found in *Part VIII Financial Forecasting Model Update*.

The Basic pro forma financial statements can be found in *Part V(i) Pro Formas*.

Detailed information on cost allocation can be found in *Part V(i) Expenses*.

RSF.3.3 Ratemaking

The purpose of ratemaking is twofold:

- Determine the overall expected costs resulting from policies issued for policy year 2019/20; and
- Allocate the overall expected costs equitably to all insureds.

RSF.3.3.1 Break-Even Rates

MPI's mandate is to set rates on a break-even basis. Under AAP, MPI has interpreted this mandate as meaning that rates must not include a provision for profit. The rates presented in the 2019 General Rate Application for the 2019/20 policy year are in accordance with this mandate. Rates are determined such that the total premiums collected will be sufficient to cover the overall expected costs associated with the policies issued for the 2019/20 policy year with no provision for profit. Overall expected costs include the following:

- Claims costs (cost of settling claims)
- Non-claims costs (commissions, operating expenses, etc.)
- Other income sources (driver premiums, and service fees and other revenues), which offset overall expected costs

RSF.3.3.2 Net Capital Maintenance Provision

In this application, MPI has applied for a Net Capital Maintenance Provision (Net CMP), in addition to break-even rates based on AAP. The details of the Net CMP are provided in *Part VI RSR Rate Stabilization Reserve*, but the essential elements are as follows. Rates are determined including a Net CMP to maintain capital adequacy. Specifically, the Net CMP ensures that the MCT ratio, which compares capital available to capital required, at fiscal year-end 2019/20 does not deteriorate (decrease) from fiscal year-end 2018/19. The amount collected through the Net CMP is determined net of investment income earned on the Rate Stabilization Reserve (RSR). By combining the investment income on the RSR and the capital maintenance requirement into a single 'Net CMP', MPI has separated the rate requirement for break-even AAP rates from the rate requirement for capital factors (i.e. investment income on the RSR, CMP).

As in years prior, MPI's base forecast assumes no rate changes beyond the 2019/20 rating period. However, the break-even rate indication and net capital maintenance provision will be recalculated in each rate application.

RSF.3.3.3 Allocate Overall Expected Costs

Overall expected costs are segregated into expected costs by major classification based on the historical indications trended forward to the 2019/20 policy year. The six major classifications are:

- Private passenger vehicles
- Commercial vehicles
- Public service vehicles
- Motorcycles
- Trailers
- Off road vehicles

The expected costs for each major classification are then allocated to vehicle rating groups within the major classification based on claims costs relativities. Vehicles are placed into rating groups based on the following rating variables:

- Territory
- Insurance use
- Rate groups
- Gross vehicle weight (GVW) – Commercial and Public service vehicles
- Body style and engine displacement – Motorcycles

RSF.3.3.4 Required Rates and Experience Adjustments

Required rates refer to the expected costs per vehicle and are calculated at the overall, major classification, and vehicle rating group levels. Experience adjustments are calculated at the vehicle rating group level by comparing the required rate to the current average rate for the respective vehicle rating group.

Detailed information on MPI's vehicle classification system can be found in *Part V(ii) Vehicle Classification System*.

Detailed information on Ratemaking can be found in *Part V(ii) Ratemaking*.

RSF.3.4 Rate Modeling

The Rate Model analyzes the impact on the vehicle population resulting from rate and classification changes.

- Individual classification and relativity changes are applied to the model incrementally. An offset is applied to ensure the changes do not result in an increase or decrease in revenue (revenue neutral). For 2019/20 rates, changes include:
    - Rate group changes for passenger vehicles and light trucks
    - Rate group changes for heavy trucks and heavy rated as light trucks
    - Rate line changes
- Experience adjustments, determined as the end result of the ratemaking steps described in *RSF 3.3* above, are applied to each vehicle in the rate model. The

result is a change in premium revenue equal to the applied for overall required revenue change.

- Relative ranking rules are applied to ensure less restrictive rating categories do not have lower rates than more restrictive ones (e.g. pleasure use rates are not higher than all purpose use rates for the same territory and vehicle type).
- Capping rules are applied. If the combined result of the classification and experience adjustments above result in rates increasing above the percentages established by the PUB, the rates are reduced to the cap amount.
- New rates for each insurance use (e.g. all purpose passenger vehicle, artisan truck, pleasure motorcycle, etc.) are determined.
- Impact on the entire vehicle population is modeled.

Detailed information on Rate Modeling can be found in *Part V(ii) Ratemaking*.

RSF.3.5 Response to Orders 162/16 and 130/17: Total Return, Profit Provision, Capital Maintenance Provision

In prior hearings and technical conferences, MPI and PUB have made significant progress on the following ratemaking topics: (i) ratemaking per AAP, (ii) using a Total Return approach, (iii) the use of investment income on the RSR, and (iv) the need to maintain Basic capital. MPI believes this application reflects the successful outcome of this on-going collaboration on these important topics. MPI's proposed ratemaking approach now reflects the following considerations:

- Break-even rates based on AAP (ordered by PUB in Order 162/16, implemented by MPI in the 2018 GRA);
- Including the investment income earned on the RSR (ordered by the PUB in 130/17, implemented by MPI in the 2019 GRA)
- Adjusted to ensure that the capitalization of Basic is maintained (technical conference ordered by PUB in 130/17; implemented by MPI in the 2019 GRA).

VEHICLES FOR HIRE

2019 GRA APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

VEHICLES FOR HIRE 3
VFH.1 MPI APPLIED FOR INTERIM APPROVAL OF VFH RATES 3
VFH.2 PUB BOARD ORDER 11-18 APPROVES INTERIM APPLICATION 5
VFH.3 MPI APPLIES FOR FINAL VFH RATES FOR SERVICE 9
VFH.3.1 MPI's Automated Re-Rating Process 9
VFH.4 MPI's VFH RATING MODEL BEST MEETS SUCCESS CRITERIA 10
VFH.5 MPI ESTABLISHED VFH COVERAGE CONSISTENT WITH BASIC 12
VFH.6 MPI ESTABLISHES VFH RATE SETTING FRAMEWORK 13
VFH.6.1 Taxi VFH vs. Passenger VFH 14
VFH.7 DATA COLLECTION – RATE MAKING 15
VFH.8 MPI'S COMMUNICATION TO CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE 17
VFH.8.1 Communication with VFH Customers 17
VFH.8.2 Communication with "Outliers" 17
VFH.9 MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY 19
VFH.10 MPI CONTINUES STAKEHOLDER ENGAGEMENT 22

Appendix 1 Interim Vehicles for Hire Application
Appendix 2a Winnipeg Free Press
Appendix 2b Global News

1

VEHICLES FOR HIRE

VFH.1 MPI APPLIED FOR INTERIM APPROVAL OF VFH RATES

On December 15, 2017, Manitoba Public Insurance ("MPI" or "the Corporation") applied to the Manitoba Public Utilities Board ("PUB" or "Board") for interim approval of premiums charged with respect to compulsory vehicles for hire (VFH) insurance, in accordance with the provisions of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act.*

Bill 30, establishing *The Local Vehicles for Hire Act* ("the VFH Act"), received Royal Assent on November 10th, 2017. The VFH Act eliminates regulation of the taxi industry in Winnipeg through the Taxicab Board and transfers regulatory responsibilities for all VFHs to each municipality in the Province of Manitoba. The VFH Act came into force on February 28, 2018 and allowed for a new class of VFH in addition to the existing taxicab/livery service.

To offer compulsory insurance for VFH, MPI sought the Board's approval of premium rates both for this new class of VFH, and for new premium rates for the existing classes of VFH (taxicabs, limos and wheelchair accessible vehicles).

The Corporation requested interim approval of the following rates for service effective March 1st, 2018:

- The premiums charged with respect to compulsory VFH Rates for Service, effective March 1, 2018.
    - Interim VFH Rates for Service are being requested for both the 2017/18 and 2018/19 insurance year in this application, as reflected in Appendix 1 and Appendix 2 of the Interim Application, based on rates approved in PUB Orders 162/16 and 130/17 respectively.
- Changes to eligibility for vehicle premium discounts for VFHs, also as reflected in Appendix 1 and Appendix 2 of the Interim Application.

- Waiving of service fees for change of insurance for VFHs
- A mechanism for refunding/collecting any variance between interim and final approved VFH Rates for Service, as determined through the 2019 General Rate Application (GRA)

Further, MPI proposed:

- Other than as specified above, no change to service fees for changing coverage
- No change to Miscellaneous permits and certificates
- No change to driver license premiums
- No change to fleet rebates and surcharges

Rate tables for Interim VFH Rates for Service were included as Appendix 1 and Appendix 2 in the Vehicles for Hire 2018 Interim Application. The Interim Application can be found in Appendix 1.

VFH.2 PUB BOARD ORDER 11-18 APPROVES INTERIM APPLICATION

The PUB approved the Interim Application for interim 2017/18 and 2018/19 VFH premium rates. The Board found that Transportation Network Companies (TNCs) are a new business model in North America, and accordingly, there is a lack of experience upon which insurance rating models and rates can be developed. The Board took this into account in approving the rates applied for by the Corporation. However, the Board issued a number of directives to MPI (responses in bold font) including the following:

6.1 The Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years, as set out in Appendix 1 and Appendix 2 to the Vehicles for Hire 2018 Interim Application filed by Manitoba Public Insurance on December 15, 2017, BE AND HEREBY ARE APPROVED on an interim basis, effective March 1, 2018.

6.2 The Corporation shall apply for final Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years in the 2019 General Rate Application.

See VFH.3 – MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

6.3 The Corporation shall refund or collect any variance between interim Rates for Service hereby approved and the Rates for Service finally approved through the 2019 General Rate Application (GRA).

See VFH.3 – MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

6.4 Vehicles for hire in all categories of the vehicles for hire pool shall be eligible for Driver Safety Rating vehicle premium discounts if registered by individual customer.

6.5 The waiving of service fees for changes of insurance coverage for vehicles for hire BE AND HEREBY IS APPROVED.

6.6 The Corporation shall inform vehicles for hire customers, in advance of placement of coverage, of the possibility of a refund or the collection of additional premiums due to a re-rating resulting from the final approval of Rates for Service for vehicles for hire through the 2019 GRA.

See VFH.8 – MPI'S COMMUNICATION WITH CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE

6.7 The Corporation shall develop and report on a plan for the collection of data specific to the vehicles for hire pool and shall file the report in the 2019 GRA. The plan the Corporation is to develop will include collection of information as to:

6.7.1 A new vehicles for hire insurance use pool so that experience suitable for ratemaking can be tracked separately from other Basic vehicle classes;

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.2 Tracking of ratemaking experience (e.g., exposures, premiums, and claim counts and amounts) within the vehicles for hire pool, separated by each sub-category within the vehicles for hire pool (e.g., use category, number of time bands, territory), as well as separated by each time band;

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.3 Forecasting of claims incurred for the vehicles for hire pool; and a means of allocating to the appropriate time band those claims occurring during any overlap of time bands in which the customer has selected both of the overlapping time bands.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.4 The Corporation shall gather data on the number and frequency of changes made to insurance policies for vehicles for hire and provide a report in that regard in the 2019 GRA.

See VFH.7 – DATA COLLECTION – RATE MAKING

6.8 In the 2019 GRA, the Corporation shall provide information as to the total cost resulting from the vehicles for hire rating model. The total cost information shall include, but will be not be limited to:

6.8.1 The financial impact of changes on the Corporation's pro forma financial forecast;

6.8.2 Driver safety rating premium discounts;

6.8.3 Reduced deductible from $600.00 to $500.00 for taxicabs, limousines and accessible vehicles for hire;

6.8.4 One-time and ongoing information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire; and

6.8.5 Broker commission and service fees relating to transactions associated with vehicle for hire registration and time band selection.

See Part V (i) Expense Appendix 20

6.9 In the 2019 GRA, the issue of Passenger VFH insurance rates as compared to the Taxicab VFH insurance rates be reviewed.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.10 In the 2019 GRA, the Corporation shall examine the issue of whether, for insurance purposes, the Taxicab vehicles for hire category should be

eliminated such that Taxicabs would fall within another vehicles for hire use category.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.11 The Corporation shall monitor best practices and standards of the TNC industry and present the results of its monitoring in the 2019 GRA.

See VFH.9 – MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY

6.12 In the 2019 GRA, the Corporation shall file a report on engagement that it has conducted relating to vehicles for hire with any stakeholders such as the City of Winnipeg, other municipalities, TNCs, consumer groups, representatives of the taxicab industry and disability groups.

See VFH.10 – MPI CONTINUES WITH STAKEHOLDER ENGAGEMENT

6.13 Included among the issues to be examined in the 2019 Road Safety Technical Conference directed in Order 130/7 shall be:

6.13.1 Safety for drivers and clients of VFH:

6.13.2 Safety and training standards for all VFH drivers; and

6.13.3 Safety issues relating to persons with disabilities and VFH

6.14 The road safety information filed by the Corporation in the 2019 GRA include information regarding emerging road safety issues as a result of the introduction of TNCs in Manitoba

See Part VII – Working towards Safer Roads through Effective Public Insurance of 2019 GRA

VFH.3 MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

As part of the 2019 GRA, MPI is applying for final approval of 2017/18 and 2018/19 VFH Rates for Service, as well as 2019/20 VFH Rates for Service. For the 2019/20 rates for VFH vehicles, the Corporation utilized the same methodology as was used for setting the 2018/19 rates as presented in *Part V(ii) Vehicles for Hire Appendix 1 Interim VFH Application*.

Should the Board's final determination on 2017/18 and 2018/19 VFH rates in the 2019 GRA Order have any variance to the interim approved VFH rates, any difference in rates will be rebated or collected on a customer by customer basis by the process explained in the following section.

VFH.3.1 MPI's Automated Re-Rating Process

MPI currently has an automated process to trigger a "re-rating" of an insurance policy without requiring a customer visit to a broker or service centre. If the PUB approves final VFH Rates for Service for the 2017/18 and 2018/19 insurance years that differ from the approved interim rates, MPI will identify all VFH customers and initiate a re-rating of the insurance policy. This will complete a new insurance rating calculation process and the new approved rates will be used to determine the appropriate insurance premium that should have been collected. In the event of either an increase or reduction in premium, the associated balance will be applied to the respective customer account and a letter will be sent to each customer with an explanation. This avoids the risk of customers paying higher than required rates and MPI charging inadequate rates.

VFH.4 MPI's VFH RATING MODEL BEST MEETS SUCCESS CRITERIA

MPI initially examined nine insurance solution models/options. They were evaluated at a conceptual level using nine criteria and from these nine options, the top three models were selected for further evaluation and rated based on the following three success criteria:

1. That the rating model is fair and equitable
2. That the rating model is actuarially-based
3. That the rating model is flexible enough to accommodate different regulatory frameworks throughout the province as a result of Bill 30

MPI selected the Time Restriction (Time Band) model because it complies with the existing regulatory process and it best satisfied the three success criteria overall.

Under the Time Band model, the VFHs pool consists of four 4 categories:

1. Taxicab VFH
2. Limousine VFH
3. Accessible VFH
4. Passenger VFH

The insurance policies are based on time bands permitting VFH operation. Each of the 4 categories have the same 4 time bands available to them. Customers can self-select any combination of 4 time bands and premiums are based on the number of time bands selected. Customers have the option to purchase 1, 2, 3, or all 4 time bands. At 4 time bands, a vehicle for hire has the flexibility to operate 24 hours a day, seven days a week.

Figure VFH - 1: Time Bands for Insured VFH Commercial Operation

Line No.	Time Bands	Time of Insured Commercial Operation
1	**A**	Monday through Friday 10:00 am to 3:00 pm and Sunday through Thursday from 7:00 pm to 11:00 pm
2	**B**	Nightly 11:00 pm to 7:00 am
3	**C**	Monday through Friday 7:00 am to 10:00 am and 3:00 pm to 7:00 pm
4	**D**	Friday 6:00 pm through Sunday 11:00 pm

Outside of the time bands, VFHs are insured for non-commercial operation. If a vehicle for hire fare originates during the selected time band, but extends beyond the time band and completes during a non-commercial operation time period, insurance coverage for VFHs operation will extend to cover the duration of that fare.

The insured times of each time band were designed to accommodate the hours of operation that VFHs drivers might prefer, such as weekends, or evenings, while balancing the increased level of exposure from operation between the four time bands. As the selection of time bands is flexible, customers can tailor their operating periods and related insurance costs to fit their availability and desired part-time or full-time VFH participation level. The designed overlap in time between the Overnight and Weekends time bands also provides further flexibility for customers who may not want to select more than one time band. The time bands are intended to provide TNC operators more options but for those operators who want complete flexibility they can purchase all four time bands.

As data accumulates for the various VFH insurance uses, MPI will monitor the trends. If any of the time bands deviate too far from the ~25% of overall claims incurred, MPI will determine the action necessary (i.e. possibly adjusting the time bands).

VFH.5 MPI ESTABLISHED VFH COVERAGE CONSISTENT WITH BASIC

In keeping with the intent of the VFH Act, all VFH will have the following Basic insurance coverage consistent with Basic's all-purpose passenger vehicle coverage:

- $200,000 Third Party Liability
- $50,000 Maximum Insured Value
- $500 deductible

As a result of this change, taxicabs, limousines and livery vehicles (former 'x-plate' vehicles) will see Basic deductible reduced by $100. MPI is not proposing to increase VFHs Basic insurance rates due to the decrease in deductible level from $600 (deductible level for previously 'x-plate' vehicles) to $500 (VFHs deductible level). The policy decision to lower the deductible level is meant to align VFHs with the rest of Basic, and is justified based on an expectation of reduced risk exposure in these classes.

Comprehensive no-fault bodily injury coverage will continue to apply to Manitobans injured in motor vehicle accidents including VFH accidents.

VFH.6 MPI ESTABLISHES VFH RATE SETTING FRAMEWORK

The Corporation set different rates for the four categories of VFHs (Passenger VFH, Taxi VFH, Limousine VFH, and Accessible VFH). Since many customers would still have had rates from the 2017/18 policy year in effect at the time that the VFH insurance uses came into effect, the Corporation prepared 2017/18 equivalent rates for each of the new insurance uses. The methodology utilized for those rates was identical to the methodology used to calculate the 2018/19 rates but using 2017/18 Board-approved rates.

The interim rates for Taxicab, Limousine, and Accessible VFH classes were based on the existing rates for these classes with an adjustment to account for the introduction of time bands, Driver Safety Rating (DSR), and competition from Passenger VFH. MPI believes the rates for these classes, on an overall basis, are reasonably close to the eventual experienced based rates under the new VFH model.

For Passenger VFH, MPI recognized that there were no historical claims experience for this rating classification. Given the lack of MPI data on Passenger vehicles for hire loss experience, the proposed initial rates for Passenger vehicle for hire were set based on the percentage difference between All Purpose and Passenger vehicles for hire rates used in other jurisdictions (8% to 24%). Therefore, the interim rates were calculated based on modifications to the existing PUB approved, Major Class 1, All-Purpose Insurance Use rates by rate group. MPI judgmentally applied a “load” to these actuarially-based rates to account for the assumed increase in exposure from varying levels of VFH exposure. The percentage premium increase is based on the number of time bands selected with each time band selected resulting in a premium increase of 5% (i.e. selecting all 4 time bands results in a premium increase of 20%). The ‘percentage increase’ method was assumed to best reflect the difference in coverage and loss experience in Manitoba.

Going forward, as experience data becomes available (i.e. in the 2020 GRA), the proposed rates for all VFH categories will be adjusted based on actual claims experience utilizing the existing PUB approved rate making methodology. MPI will then perform a separate relativity calculation within each of these VFH uses to determine

the relative rates by Level (1, 2, 3, 4). By setting rates based on the overall VFH experience in each VFH use (rather than for each level separately) there will be more credible data from which to modify rates.

Please see page 13 of *Part V(ii) Vehicles for Hire Appendix 1 - Interim VFH Application* for a detailed explanation of the VFH Rate Setting Framework.

VFH.6.1 Taxi VFH vs. Passenger VFH

The Corporation acknowledges that there is a significant difference in rates between the Passenger VFH category and the Taxi VFH category. However, MPI believes that offering DSR incentives, when combined with the industry's public comments about focusing on safety, and the loss prevention strategies MPI is working collaboratively with the taxi industry on will have a positive effect on loss experience.

The VFH framework is such that loss experience for each of the VFH categories will be tracked separately. As experience data becomes available, the Corporation will continue to ensure that the rates assigned to each VFH group is reflective of the risk and actuarially supported. The Corporation will also be in a better position to determine if Taxicabs should fall within another VFH category. However, at this time there is no basis for the Corporation to make a change to the current rating model.

VFH.7 DATA COLLECTION – RATE MAKING

The primary means of limiting cross subsidization between VFH, and the rest of Basic, is through the creation of a new pool to track the VFH claims experience. MPI is collecting the same information on VFH policy claims as it does for all other policies. The claims experience for VFH classes will be tracked separately, through the use of an additional field in MPI's system. These separately tracked claims will form the 'VFH pool' that will be used to set actuarially sound rates for VFH policies. Once a customer is a VFH policy holder, all claims under that policy will fall into the VFH pool. For example, a collision occurring outside the VFH time bands will still be tracked within the VFH pool. Also, since rates are determined based on the number of time bands purchased, not the specific time bands, there is no consequence of having overlapping time bands for actuarially sound rates.

Apart from establishing a separate pool, as outlined above, MPI will continue to employ its processes to ensure that claimants are correctly insured at the time of a claim, for example, ensuring that VFH drivers are correctly insured under a VFH policy, and under the appropriate sub category (passenger, taxi, limo, accessible).

These processes are similar to those already in place for detecting and ensuring coverage for the date/time of loss, and adherence to all conditions (such as vehicle use for purposes not intended under the policy).

As of April 30, 2018 the number of insured VFH vehicles (all territories) are as follows:

Figure VFH - 2: Insured VFH vehicles (all territories)

	Number of Time Bands				
VFH Category	1	2	3	4	**Total**
Accessible	1	1	5	28	**35**
Limo	3	0	0	33	**36**
Passenger	12	12	4	276	**304**
Taxi	5	3	4	485	**497**
Total	**21**	**16**	**13**	**822**	**872**

As of May 22, 2018 there have been a total of 191 VFH related claims. The breakdown is as follows:

Figure VFH - 3: VFH related claims

	Number of Time Bands				
VFH Category	1	2	3	4	**Total**
Accessible	0	0	0	5	**5**
Limo	0	0	0	3	**3**
Passenger	0	0	4	43	**47**
Taxi	0	0	0	136	**136**
Total	**0**	**0**	**4**	**187**	**191**

The number of customers who changed their VFH insurance (as of April 30, 2018) (i.e. changed the number of time bands or VFH category) is as follows:

- Increased the number of time bands (same VFH category) – 20
- Decreased the number of time bands (same VFH category) – 9
- Changed the VFH category – 5

VFH.8 MPI'S COMMUNICATION TO CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE

VFH.8.1 Communication with VFH Customers

Also, with the issuance of new VFH insurance uses, MPI created a custom training program for MPI agents such as insurance brokers and frontline staff involved in the sale of VFH insurance policies. Training was mandatory and, in compliance with the PUB order 6.6, all MPI agents are required to advise customers in advance of purchasing VFH insurance policies the possibility exists that a refund or the collection of additional premiums due to a re-rating resulting from the final approval of Rates for Service for VFHs through the 2019 GRA. MPI agents are required to leave a comment on the Policy Application, which is signed by the customer, indicating that they have informed the customer.

VFH.8.2 Communication with "Outliers"

The dissolution of the Taxicab Board and the VFH Act definition of 'vehicle for hire' resulted in certain outliers. Previously 'x-plated' taxi/livery vehicles with seating capacity of 11 or more were not captured under the VFH Act, and did not qualify for VFH insurance policies. However these vehicles must still change registration class and insurance use due to the discontinuance of the 'x-plated' registration class. Based on the customer's declared use of the vehicle, existing registration classes such as Regulated Passenger Vehicle (AR) and Public Service Vehicle (PSV) and existing insurance uses such as Common Carrier, Charter Bus – Local, Disabled Persons Bus, and Private/Business Bus will be used for vehicles that fall outside of the VFH Act definition of 'vehicle for hire' . There were fewer than 100 policies affected and though there may be changes in premiums charged, in the vast majority of cases it is expected that there will not be a negative financial impact to these customers. MPI worked in coordination with the Province of Manitoba to communicate the changes to existing taxi/livery policy holders. MPI mailed letters to all existing taxi and livery customers (x-plated vehicles) informing them of the changes. Information provided to

customers that met the VFH definition detailed the availability of new VFH insurance post March 1st 2018, changes to deductibles and the eligibility for DSR discounts for individuals. For taxis and livery vehicles that did not meet the VFH definition, MPI advised customers by letter of their registration and insurance options.

VFH.9 MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY

Rating models used in other Canadian jurisdictions were not considered suitable with Manitoba's public insurance environment given the compulsory nature of Basic and as of the time of this application's preparation, British Columbia and Saskatchewan have not permitted the operation of TNCs. As such, the ongoing review of existing VFH frameworks does not include any public insurers comparable to MPI. Figures 4 and 5 present the results of the updated scan as per Order 6.11.

Figure VFH - 4: TNC – Jurisdictional Insurance Comparison / Availability (Ontario)

	Ontario				
Insurance Provider	**Intact**	**Aviva**		**Northbridge Insurance**	**Pembridge Insurance**
TNC Companies	**Uber**	**All Rideshare**	**Lyft**	**Ride co, InstaRyde, Facedrive, ecoRides, DriveHER, Uride**	**All Rideshare**
Policy Type	Blanket	Individual (Endorsement)	Blanket endorsement for Lyft drivers (Commercial)	Blanket	Individual (Endorsement)
Coverage Period	From login to passenger delivery	From login to passenger delivery	From login to passenger delivery	From login to passenger delivery	N/A
Contact for Claim	Uber	Aviva	Lyft	Northbridge Insurance	N/A
Policy	• Policy	• NPCF 6TN Endorsement Transportation Network endorsement (NPCF 6TN - Permission to Carry Paying Passengers for a Transportation Network)	• Aviva Lyft Commercial Policy	• Policy	
Details	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect	• Maximum of 20 hours per week • Contracted with a transportation network company • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • No commercial use, such as delivery of goods, including food or courier services • Not registered as a taxi or limousine or other public transportation	• No maximum on ridesharing hours. • If operating less than 20 hours per week, and purchased the NPCF-6TN Endorsement, any enhanced coverage on personal policy will extend to Lyft policy if insured with an Aviva underwriter • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • Not registered as a taxi or limousine or other public transportation. • No commercial use, such as delivery of goods, including food or courier services.	• Automatic coverage but personal policy must allow for rideshare usage.	N/A
Coverage	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • Family protection	• This coverage is an endorsement that permits the vehicle to be used to carry paying passengers. • Extends all policy coverage available to the vehicle	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • If NPCF-6TN endorsement purchased, personal auto policy enhancements are extended to ridesharing policy	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • $1,500 Loss of use (post acceptance) • No depreciation on new vehicle (post acceptance)	N/A

Figure VFH - 5: TNC – Jurisdictional Insurance Comparison / Availability (Alberta)

	Alberta				Quebec
Insurance Provider	**Intact**	**Northbridge Insurance**	**Pembridge Insurance**	**Aviva**	**Intact**
TNC Companies	**Uber**	**TappCar**	**All Rideshare**	**All Rideshare**	**Uber**
Policy Type	Blanket	Blanket	Individual (Endorsement)	Individual (Endorsement)	Blanket
Coverage Period	From login to passenger delivery	From login to passenger delivery	N/A	From login to passenger delivery	From login to passenger delivery
Contact for Claim	Uber	Northbridge Insurance	N/A	Aviva	Uber
Policy	• Policy	• Policy	Provincial government requires Alberta Standard Automobile Form – Transportation Network S.P.F. No. 9 (SPF9)	• NPCF 6TN Endorsement • Transportation Network endorsement (NPCF 6TN - Permission to Carry Paying Passengers for a Transportation Network)	• Policy
Details	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect	N/A	N/A	• Maximum of 20 hours per week • Contracted with a transportation network company • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • No commercial use, such as delivery of goods, including food or courier services • Not registered as a taxi or limousine or other public transportation	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect
Coverage	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • Family protection	• Up to $5M TPL • $1,500 deductible All perils • Loss of Use • Family Protection • Limited Waiver of Depreciation	N/A	• This coverage is an endorsement that permits the vehicle to be used to carry paying passengers. • Extends all policy coverage available to the vehicle	• Up to $1M TPL • Coverage is provided for collision and upset, comprehensive, etc., if the driver has the coverage on his/her own personal auto policy. The coverage and deductible payable by the driver are those included in his/her personal auto policy.

Currently in Canada, only Alberta, Ontario and Quebec allow ridesharing (vehicle for hire) for compensation. Insurance for ridesharing vehicles in these jurisdictions is provided by either individual endorsement or a blanket policy with the particular TNC. In all three jurisdictions, automobile insurance is sold privately and subject to limited accident benefits[1] (injury), third party liability coverage and tort action. First party physical damage coverage is optional in all three jurisdictions.

The legislative scheme in Manitoba requires residents who wish to operate a motor vehicle in Manitoba to register that vehicle and purchase universal compulsory automobile insurance (Basic Insurance) which is primary to any other insurance that may apply. This includes mandatory first party coverage. Basic Insurance also provides Personal Injury Protection Plan benefits as well as third party liability and all perils physical damage coverage.

Alternative insurance models used in other jurisdictions would, if adopted in Manitoba, result in coverage outside of Basic Insurance. A consequence of which would be that the premiums charged for VFH insurance would be outside the jurisdiction of the Public Utilities Board. The Corporation submits that it would not be in the public interest to intentionally design compulsory insurance coverage for passenger vehicle operations that is outside of Basic and therefore outside of regulatory oversight.

The universal compulsory nature of the program does not contemplate, nor does the legislation permit, that Basic compulsory insurance coverage become secondary, based on temporary (or part time) change in vehicle use from a passenger vehicle to a VHF. Across the Basic compulsory program, the rates charged for the vehicle are based upon the type of vehicle, its use, and its location (territory). Basic coverage remains constant in all cases, and the only change is in the rate charged, reflecting the use, type and territory of the vehicle. VFH is a new use and it is appropriate that Basic rates be set for that type/use.

Use of an umbrella policy with a TNC or individual endorsement is not appropriate for providing compulsory coverage under the Basic program. Providing Basic insurance to

[1] With exception of Quebec, which has pure no-fault injury coverage

TNCs through an umbrella policy also creates the risk that individual operators would not incur their true incremental cost of insurance; as they will under MPI's proposed model that accounts for vehicle type and driver safety. In addition, the use of an umbrella policy would not be fair and equitable to existing VFHs, such as taxis and limos.

In summary, a VFH is required to have Basic Insurance. The requirement to hold the coverage and the obligation of the Basic coverage to respond as primary in the event of a loss does not change based upon the use, type, or territory of the vehicle.

VFH.10 MPI CONTINUES STAKEHOLDER ENGAGEMENT

MPI conducted initial discussions with a number of stakeholders including:

- The Winnipeg Community Taxi Coalition
- Uber
- Lyft
- City of Winnipeg
- Manitoba Infrastructure
- Manitoba Crown Services
- Indigenous and Municipal Relations
- Motor Transport Board
- Taxicab Board

At these discussions, MPI reviewed a number of topics including:

- The overall VFH rating model
- Relevant legislation related to the basic, compulsory insurance program in Manitoba, including first-party coverage extended to all Manitoba residents and occupants of Manitoba-registered vehicles injured in motor vehicle collisions.
- The rate-making and regulatory framework in Manitoba, including the role of the PUB in approving basic insurance rates
- Creation of a separate insurance use for VFH and sub-categories within that classification to ensure rates charged are actuarially sound and to prevent no cross-subsidization within the pool or by other vehicle classes
- The time bands framework
- Changes to the vehicle registration model and plating requirements for VFH
- Adjustments to DSR eligibility and vehicle premium discounts
- Service fees

Although discussions between MPI and stakeholders have been substantial to date, they remain ongoing, particularly with those in the taxi and TNC industries.

As reported in the media, feedback from operating TNCs has been positive. Please see *Part V(ii) Vehicles for Hire Appendix 2*.

VEHICLES FOR HIRE

2018 INTERIM APPLICATION

December 15, 2017

Manitoba Public Insurance

Table of Contents

VEHICLES FOR HIRE APPLICATION 3
VFH.1 LEGAL APPLICATION 3
VFH.2 INTRODUCTION AND OVERVIEW 4
VFH.2.1 Legislative Context for the Application 5
VFH.2.2 Principles for the Rating Model 6
VFH.2.3 Vehicles Eligible for Vehicles for Hire Insurance 7
VFH.2.3.1 Discontinued 'X Plate' Registration Class 9
VFH.2.4 Vehicle for Hire Rating Model 10
VFH.2.4.1 Service Fees 11
VFH.2.5 Vehicle for Hire Basic Coverage 12
VFH.3 RATE SETTING FRAMEWORK 13
VFH.3.1 Passenger VFH 13
VFH.3.2 Taxicab Vehicles for Hire 15
VFH.3.3 Limousine Vehicles for Hire 17
VFH.3.4 Accessible VFH 20
VFH.3.5 How Rates will be set in future GRAs 22
VFH.3.6 Vehicles for Hire 2017/18 Rates 22
VFH.3.7 Eligibility for Driver Safety Rating Vehicle Premium Discounts 23
VFH.3.8 Impacts Taxi/Livery Policies Outside the VFH Framework 23
VFH.4 CUSTOMER SERVICE 24
VFH.4.1 Implementation Plan 24
VFH.4.2 Rating Model Enforceability 25
VFH.5 FINAL APPROVAL OF VFH RATES 26
VFH.5.1 Refund/Collection Mechanism for Final Approved Rates 26

VEHICLES FOR HIRE APPLICATION

VFH.1 LEGAL APPLICATION

Manitoba Public Insurance ("MPI" or "the Corporation") applies to the Manitoba Public Utilities Board ("PUB" or "Board") for interim approval of premiums charged with respect to compulsory vehicles for hire insurance, in accordance with the provisions of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act*.

Bill 30, establishing *The Local Vehicles for Hire Act* ("the VFH Act"), received Royal Assent on November 10th, 2017. The VFH Act eliminates regulation of the taxi industry in Winnipeg through the Taxicab Board and transfers regulatory responsibilities for all vehicles for hire to each municipality in the Province of Manitoba. The VFH Act comes into force on February 28, 2018 and allows for a new class of vehicles for hire in addition to the existing taxicab/livery service.

To offer compulsory insurance for vehicles for hire, MPI must seek and obtain the Board's approval of premium rates both for this new class of vehicles for hire, and for new premium rates for the existing classes of vehicles for hire (taxicabs, limos and wheelchair accessible vehicles).

The Corporation is requesting interim approval of the following rates for service effective March 1st, 2018:

- The premiums charged with respect to compulsory vehicles for hire Rates for Service, effective March 1, 2018.
    - Interim vehicles for hire Rates for Service are being requested for both the 2017/18 and 2018/19 insurance year in this application, as reflected in Appendix 1 and Appendix 2 to this Application, based on rates approved in PUB Orders 162/16 and 130/17 respectively.

- Changes to eligibility for vehicle premium discounts for vehicles for hire, also as reflected in Appendix 1 and Appendix 2.
- Waiving of service fees for change of insurance for vehicles for hire
- A mechanism for refunding/collecting any variance between interim and final approved vehicles for hire Rates for Service, as determined through the 2019 General Rate Application (GRA)

Further, MPI proposes:

- Other than as specified above, no change to service fees for changing coverage
- No change to Miscellaneous permits and certificates
- No change to driver license premiums
- No change to fleet rebates and surcharges

Rate tables for Interim vehicles for hire rates for service are included as Appendix 1 and Appendix 2 to this Application.

VFH.2 INTRODUCTION AND OVERVIEW

The VFH Act introduced significant changes to the transportation service industry in Manitoba, and with this interim application, MPI proposes a consistent and responsive insurance framework for all vehicles for hire anticipating that a range of regulatory frameworks may be adopted at the municipal level.

The proposed insurance framework will offer increased flexibility of insurance coverage to existing taxi/livery service vehicles, as well as new vehicles for hire customers. Time bands for coverage of vehicles for hire operation will allow operators to select desired times of coverage, tailoring their insurance costs to meet their operating needs.

Where possible, pricing of policies has been based on known experience, and the price of future policies will incorporate claims experience to ensure that customers are paying appropriate premiums. Vehicles for hire insurance policies will also be tracked in a separate pool, ensuring there is no impact on the rest of Basic's customers.

MPI seeks interim approval of vehicles for hire premiums, effective March 1, 2018, to coincide with the VFH Act coming into force. This interim application is meant to reflect the will of the Manitoba Legislature to enable the new form of commerce contemplated under the Act, and to prevent the obvious harm that will result if there is no appropriate insurance product available when the VFH Act comes into force.

MPI will seek final approval of vehicles for hire Rates for Service through its usual GRA process, expected to be filed in June of 2018. Through the GRA process, MPI anticipates that parties granted standing will be afforded the opportunity to fully test the justness and reasonableness of the proposed Rates for Service. MPI will refund or collect any variance between the Board's interim and final determination of Rates for Service a customer by customer basis.

MPI anticipates that this interim application and the 2019 GRA will focus substantively on testing the pricing of the policies, consistent with the intent of section 25 of the *Crown Corporations Governance and Accountability Act*. However, to provide the Board and interveners a thorough understanding of MPI's proposed pricing, this application also includes details of the overall vehicles for hire framework, such as impacts to vehicle registration, customer and implementation timelines.

VFH.2.1 Legislative Context for the Application

The VFH Act received royal assent on November 10, 2017, and will come into force on February 28, 2018.

The VFH Act removes the references to 'taxicab' from *The Highway Traffic Act* and *The Drivers and Vehicles Act*, and creates a new definition for a 'vehicle for hire'. The VFH Act also dissolves the Taxicab Board (which currently regulates taxicabs operating within the City of Winnipeg), transfers responsibility for the regulation of vehicles for hire to municipalities, and specifically requires the City of Winnipeg to establish a by-law to regulate the vehicles for hire industry.

Under the VFH Act, the new definition of 'vehicle for hire' – any vehicle designed for 10 or fewer occupants (including the driver) that is hired by a passenger for a single trip, where the passenger controls the route or destination – will include existing taxicabs, limousines and executive cars, as well as vehicles hired via online ridesharing platforms.

As per reports, the City of Winnipeg intends to have a by-law in force on March 1, 2018 to regulate all vehicles for hire in Winnipeg, and authorize ridesharing operations in the city.[1] Other municipalities may also make changes to their by-laws to allow ridesharing or otherwise regulate vehicles for hire.

VFH.2.2 Principles for the Rating Model

Transportation Network Companies (TNCs) are a relatively new business model in North America, and in Canada in particular. Based on MPI's analysis of TNC by-laws and insurance rates in Canada, no industry standard has developed on insurance rating models within or across jurisdictions that currently permit operation of TNCs. Further, coverage and pricing varies by insurance company within and across jurisdictions.

As at the time of this application's preparation, British Columbia and Saskatchewan had not permitted the operation of TNCs. As such, the review of existing vehicles for hire frameworks did not include any public insurers comparable to MPI.

MPI developed and evaluated several rating models within the context of the compulsory nature of Basic, and MPI's intent to limit cross-subsidization between vehicles for hire and the rest of Basic. MPI selected the rating model that best satisfied the following success criteria overall:

[1] Nick Martin, "Uber ready, waiting for Winnipeg," *Winnipeg Free Press*, posted online October 23, 2017

1. **Is the rating model fair and equitable?**
   The proposed rate model is fair and equitable in that it applies consistently to taxis, TNCs, and other vehicles for hire. All vehicles for hire operators will have the flexibility to select up to four time bands depending on when and how frequently they intend to offer vehicle for hire services. The declared time bands uses will be priced for risks based on current claims data. All vehicles for hire operators will also have the same Basic.

2. **Is the rating model actuarially-based?**
   MPI established vehicles for hire Rates for Service in accordance with existing Basic rates to accommodate vehicles for hire insurance use in a way that is consistent and equitable based on prior rates experience. Experience-based rate adjustments will be used to maintain rates that are equitable as experience is gained with vehicles for hire insurance use. A new vehicles for hire insurance use will be created so that claims experience can be tracked separately from the private passenger vehicle pool.

3. **Is the rating model flexible enough to accommodate different regulatory frameworks throughout the province as a result of Bill 30?**
   MPI established a broad range of vehicles for hire insurance uses anticipated to accommodate different municipal regulatory frameworks.

VFH.2.3 Vehicles Eligible for Vehicles for Hire Insurance

To register and insure vehicles for hire operated in Manitoba, MPI has deemed two vehicle types as eligible for the new insurance uses:

1. Passenger Vehicles (passenger cars, limousines, SUVs, mini-vans, etc.), and

2. Light Trucks[2] (eligible for A5 registration with a Gross Vehicle Weight that is less than 4,500 kg)

The passenger vehicle type will capture existing taxicabs, limousines (seating of 10 or fewer), and accessible taxicabs, as well as the vehicles hired via online ridesharing platforms.

Light trucks eligible to be registered in the A5 registration class are included in order to keep the option of ridesharing open to a broad section of Manitoba's population, including rural or northern regions which may currently be underserved by vehicles for hire, and where ownership of a personal truck may be more common than a passenger vehicle.

Heavy trucks with a Gross Vehicle Weight of 4,500 kg and over are not eligible for vehicles for hire insurance coverage. Trucks over 4,500 kgs are generally vehicles registered and insured for business or commercial purposes, and are subject to a range of regulatory requirements for heavy trucks, such as the provincial Periodic Mandatory Vehicle Inspection and the Safety Fitness Certificate. Due to differences in use and loss profile, these heavy trucks were not considered appropriate for inclusion in the vehicle for hire rating pool with personally-owned passenger vehicles and light trucks.

Similarly, motorcycles are not eligible for vehicle for hire insurance as their risk exposure and loss experience is substantively different from other vehicles in the vehicle for hire pool. Further, the vehicles for hire marketplace in North America has not adopted motorcycles or mopeds as eligible vehicles associated with the service. As the vehicles for hire service continues to mature, MPI will monitor the experience of other North American jurisdictions. If motorcycles and mopeds become more prevalent in this marketplace, MPI will re-evaluate the local market needs and options.

[2] Light trucks will be eligible for passenger vehicles for hire insurance use only.

Vehicles with seating for 11 or more (including the driver) are not included in the VFH Act definition of a 'vehicle for hire' and so will not be eligible for vehicle for hire insurance.

VFH.2.3.1 Discontinued 'X Plate' Registration Class

To provide context for the Board's understanding of the rate application, changes to the vehicle registration classes are explained below.

In keeping with the intent of the VFH Act, vehicles for hire passenger vehicles and light trucks will be registered in the respective passenger vehicle or light truck registration class with regular plates. No new registration class, stickers, or plates will be created for vehicles for hire.

To streamline the registration process and system, MPI will discontinue the registration classes used for existing taxis, limousines and liveries. At present, the 'X-plate' registration class is comprised of four classes which are issued licence plates beginning with "X":

- X1 – Taxicabs
- X2 – City Liveries
- X3 – Limousines Liveries
- X4 – Country Liveries

The 'X-plate' registration classes will be expired and those registration classes will no longer be issued after April 30, 2018. The use of 'x-plates' will be discontinued and, all VFH vehicles will be issued standard plates.

Vehicles for hire will be registered in either the A1- Passenger Vehicles or A5- Trucks registration class, and will be eligible for Specialty Plates and Personalized Licence Plates.

Further details are discussed in section VFH.4.1 - Implementation plan.

VFH.2.4 Vehicle for Hire Rating Model

The Vehicles for Hire pool will consist of four 4 sub-categories:

1. Taxicab VFH
2. Limousine VFH
3. Accessible VFH
4. Passenger VFH

Premiums for each category have been established separately, which is discussed further section VFH.3.

The insurance policies will be based on time bands permitting vehicles for hire operation. Each of the 4 sub-categories (passenger, taxi, etc.) will have the same 4 time bands available to them. Customers can self-select any combination of 4 time bands and premiums will be based on the number of time bands selected. Customers will have the option to purchase 1, 2, 3, or all 4 time bands. At 4 time bands, a vehicle for hire has the flexibility to operate 24 hours a day, seven days a week.

Figure 1: Time Bands for Insured VFH Commercial Operation

Line No.	Time Bands	Time of Insured Commercial Operation
1	**A**	Monday through Friday 10:00 am to 3:00 pm and Sunday through Thursday from 7:00 pm to 11:00 pm
2	**B**	Nightly 11:00 pm to 7:00 am
3	**C**	Monday through Friday 7:00 am to 10:00 am and 3:00 pm to 7:00 pm
4	**D**	Friday 6:00 pm through Sunday 11:00 pm

Outside of the time bands, vehicles for hire will be insured for non-commercial operation. If a vehicle for hire fare originates during the selected time band, but

extends beyond the time band and completes during a non-commercial operation time period, insurance coverage for vehicles for hire operation will extend to cover the duration of that fare.

The insured times of each time band were designed to accommodate the hours of operation that vehicles for hire drivers might prefer, such as weekends, or evenings, while balancing the increased level of exposure from operation between the four time bands. As the selection of time bands is flexible, customers can tailor their operating periods and related insurance costs to fit their availability and desired part-time or full-time vehicles for hire participation level. The designed overlap in time between the Overnight and Weekends time bands also provides further flexibility for customers who may not want to select more than one time band.

VFH.2.4.1 Service Fees

To facilitate the transition to this new vehicle for hire insurance framework, there will be no charge when changing the insurance on a passenger vehicle or light truck to vehicle for hire. MPI may reevaluate this approach in future GRAs.

In most cases, when changing a vehicle registration class, a $15 vehicle registration class change fee applies. However, the ‘X-plate’ class policies moving to A1/VFH will be cancelled pro rata and then reactivated, therefore no vehicle registration class fee will apply.

There will be no charge associated with changing the vehicle for hire operating time bands meaning customers can add or drop time bands as needed. For example:

- Increasing or decreasing the number of time bands
- Changing the selected time band

A $15 vehicles registration class change applies in most cases, however, insurance use changes will not be charged a fee. ‘X-plate’ class policies moving to A1/VFH will be

cancelled pro rata and then reactivated, therefore no fee for registration class change will apply.

MPI collects service and transaction fees to offset the costs associated with Basic Insurance. The proposed fee is consistent with the Basic Autopac Service and Transaction fees currently approved by the PUB. All service fees are currently being reviewed in compliance with Directive 11.6 to PUB Order 130/17.

VFH.2.5 Vehicle for Hire Basic Coverage

In keeping with the intent of the VFH Act, all vehicles for hire will have the following Basic insurance coverage consistent with Basic's all-purpose passenger vehicle coverage:

- $200,000 Third Party Liability
- $50,000 Minimum Insured Value
- $500 deductible

As a result of this change, taxicabs, limousines and livery vehicles (former 'x-plate' vehicles) will see Basic deductible reduced by $100. MPI is not proposing to increase vehicles for hire Basic insurance rates due to the decrease in deductible level from $600 (current deductible level for 'x-plate' vehicles) to $500 (vehicles for hire deductible level). The policy decision to lower the deductible level is meant to align vehicles for hire with the rest of Basic, and is justified based on an expectation of reduced risk exposure in these classes (see section VFH.3 for further details).

Comprehensive no-fault bodily injury coverage will continue to apply to Manitobans injured in motor vehicle accidents including vehicles for hire accidents.

VFH.3 RATE SETTING FRAMEWORK

The following sections describe the rate setting framework for each of the sub-categories of vehicles for hire rates. The rate tables for 2018/19 premiums are provided in Appendix 1 to this Application, while rate tables for 2017/18 premiums are provided in Appendix 2.

Definitions provided in the following sections are the working definitions to enable customers to select the correct insurance product, but the specific wording of these definitions may be amended when incorporated into the *Automobile Insurance Certificates and Rates Regulation*, M.R. 23/2017.

VFH.3.1 Passenger VFH

Definition: Passenger vehicles for hire has two sub categories, one for passenger vehicles and one for trucks. Each are defined as follows:

- **"passenger vehicle-for-hire (passenger vehicle)"** means a vehicle for hire, which is a passenger vehicle and is not a taxicab vehicle for hire, a limousine vehicle for hire, an accessible vehicle for hire, or a vehicle owned or operated by or on behalf of a municipality to provide public transportation services;
- **"passenger vehicle-for-hire (truck with 4,499 kg GVW or less)"** means a vehicle for hire that is a truck with a gross vehicle weight of 4,499 kg or less and a body style as described in Schedule AA of the *Automobile Insurance Certificates and Rates Regulation*, M.R. 23/2017 under *The Manitoba Public Insurance Act*

What is changing from a ratemaking perspective? Passenger vehicles and light trucks are eligible to operate as vehicles for hire.

Current Rates: This rating class does not currently exist.

Ratemaking Assumptions: It is assumed that the characteristics of this group are as follows:

- The operation of the vehicle does not fall within the definition of Taxi vehicles for hire, Limo vehicles for hire, or Accessible vehicles for hire, which are described in the following sections.
- Loss exposure is greater than the Private Passenger All Purpose insurance use, but less than a taxi[3].

Internal data to support ratemaking: None. Passenger vehicles for hire has never existed in the province. The current Taxi/Livery Passenger Vehicle insurance use is not believed to be a good representation of the loss exposure for this rating classification.

External data to support ratemaking: The figure below provides a jurisdictional scan of vehicles for hire rates in other jurisdictions. As shown in the figure, the average vehicles for hire rate is approximately 8% to 25% higher than the all-purpose rate.

Figure 2: Summary of Jurisdictional Review of VFH premiums

Line No.	City	Base Rate	TNC Endorsement (per year)	% Over Base Rate
1	Calgary	$3,251	$500-$800	15%-25%
2	Edmonton	$3,410	$500-$800	15%-23%
3	Toronto	$6,593	$1,000 - $1,600	15%-24%
4	Montreal	$2,267	$190	8%

Proposed 2018/19 Passenger Vehicles for Hire Rates: Given the lack of MPI data on Passenger vehicles for hire loss experience, the proposed initial rates for Passenger vehicles for hire have been set based on the *percentage* difference between All Purpose and Passenger vehicles for hire rates used in other jurisdictions (as shown above). This 'percentage increase' method was assumed to best reflect the difference in coverage and loss experience in Manitoba. The Level 4 (i.e. 24/7) Passenger VFH was judgmentally set at 20% above the current Private Passenger All Purpose rate for

[3] Based on MPI's analysis of literature, other jurisdictions, and discussions with the industry

corresponding vehicle type and rate group. The rates for Levels 1, 2, and 3 Passenger vehicles for hire were uniformly decreased on the assumption that the additional risk from Passenger vehicles for hire approaches the Private Passenger All Purpose rate as the number of time bands decreases. The rates are shown in the figure below:

Figure 3: Percentage Premium Increase by Number of Time Bands

Line No.	Number of Time Bands	Rate
1	**1**	All Purpose + 5%
2	**2**	All Purpose + 10%
3	**3**	All Purpose + 15%
4	**4**	All Purpose + 20%

VFH.3.2 Taxicab Vehicles for Hire

Definition: Taxicab vehicles for hire means a vehicle for hire that is a passenger vehicle that is equipped with a taximeter.

What is changing from a ratemaking perspective? Taxis will now be able to select time bands based on when they operate (i.e. Levels 1, 2, 3, and 4). Taxis will now be able to receive Driver Safety Rating (DSR) vehicle premium discounts, if registered as an individual customer. The deductible for Taxis will decrease from $600 to $500.

Current Rates: Taxi/Livery Passenger Vehicles (i.e. Taxis) are currently flat rated by territory based on their historical loss experience. DSR vehicle premium discounts are not available.

Ratemaking Assumptions:

- There will be an as yet undetermined reduction in loss exposure for taxis as a result of competition from Passenger vehicles for hire.
- The exposure for taxis is always greater than the All Purpose Passenger Vehicle use for the same vehicle, even for taxis selecting the lowest level i.e. Level 1.

Internal data to support ratemaking: MPI has several decades of taxi claims experience that is currently used to set Taxi/Livery Passenger Vehicle rates.

External data to support ratemaking: None.

Proposed 2018/19 Taxicab Vehicles for Hire Rates:

MPI set the Taxicab vehicles for hire Level 4 (i.e. 24/7) base rate equal to the PUB approved 2018 Taxi/Livery Passenger Vehicle base rate. To determine the base rates for Taxicab vehicles for hire Levels 1, 2, and 3, MPI first performed a percentage weighting between (i) the 2018 approved Taxi/Livery Passenger Vehicle base rate and (ii) the average All Purpose Passenger Vehicle base rate for the four most recent model years. This calculation is shown in the figure below for Territory 1:

Figure 4: Taxicab VFH Blended Rate for Territory 1

Line No.	# of Levels Purchased	Territory 1 Taxi Base Rate	Taxi Weight	Territory 1, All Purpose, Newest 4 Model Years, Average Base Rate	All Purpose Weight	Blended Rate
1	4	$10,358	100%	$1,882	0%	$10,358
2	3	$10,358	75%	$1,882	25%	$8,239
3	2	$10,358	50%	$1,882	50%	$6,120
4	1	$10,358	25%	$1,882	75%	$4,001

MPI then compared the blended rates for Levels 1, 2 and 3, to the blended rate for Level 4 to determine the percentage reduction for the lower levels. This calculation is shown in the figure below for Territory 1:

Figure 5: Taxicab VFH Reduction by Level for Territory 1

Line No.	# of Levels Purchased	Blended Rate	Reduction from Level 4 Blended Rate	Selected Reduction from Level 4 Blended Rate
1	4	$10,358	0.00%	0.00%
2	3	$8,239	-20.50%	-20.00%
3	2	$6,120	-40.90%	-40.00%
4	1	$4,001	-61.40%	-60.00%

The figure below shows the selected percentage reduction for Taxicab vehicles for hire by territory and vehicles for hire level:

Figure 6: Selected Percentage Reduction for Taxicab VFH by Territory and VFH Level

Line No.	# of Levels Purchased	Territory 1	Territory 2	Territory 3	Territory 4
1	4	0.00%	0.00%	0.00%	0.00%
2	3	-20.00%	-17.00%	-18.00%	-18.00%
3	2	-40.00%	-34.00%	-36.00%	-36.00%
4	1	-60.00%	-51.00%	-54.00%	-54.00%

To recognize that the Taxicab vehicles for hire use may have lower loss exposure than the current Taxi use, it was judgmentally assumed that the availability of DSR vehicle premium discounts and the reduction in the Basic deductible would offset this reduced loss exposure. MPI is also optimistic that using DSR will encourage safer driving and potentially reduce loss exposure going forward.

VFH.3.3 Limousine Vehicles for Hire

Definition: Limousine (Limo) vehicles for hire means a vehicle for hire that is passenger vehicle having an extended wheelbase or is designed by the manufacturer as a luxury or specialized passenger vehicle that is not equipped with a taximeter and is operated for hire by a limousine or private car service, including sightseeing tours.

What is changing from a ratemaking perspective? Limousines will now be able to select time bands based on when they operate (i.e. Levels 1, 2, 3, and 4). Limousines will now be able to receive DSR vehicle premium discounts, if registered as an individual customer. The deductible for Limousines will decrease from $600 to $500.

Current Rates: Limousine All Uses (i.e. Limos) are currently flat rated by territory based on their historical loss experience. DSR vehicle premium discounts are not available.

Ratemaking Assumptions: Similar to Taxis, MPI has assumed that there will be some loss of market share (particularly in Winnipeg) as a result of the introduction of Passenger vehicles for hire.

Internal data to support ratemaking: MPI has several decades of limousine claims experience that is currently used to set Limousine All Uses rates.

External data to support ratemaking: None

Proposed 2018/19 Limousine VFH Rates:

Territory 1:

For territory 1, MPI set the Limousine vehicles for hire Level 4 (i.e. 24/7) base rate equal to the PUB approved 2018 Limousine All Uses base rate. To determine the base rates for Limousine vehicles for hire Levels 1, 2, and 3, MPI first performed a percentage weighting between (i) the 2018 approved Limousine All Uses base rate and (ii) the average All Purpose Passenger Vehicle base rate for the four most recent model years. This calculation is shown in the figure below:

Figure 7: Limousine VFH Blended Rate for Territory 1

Line No.	# of Levels Purchased	Territory 1 Limo Base Rate	Limo Weight	Territory 1, All Purpose, Newest 4 Model Years, Average Base Rate	All Purpose Weight	Blended Base Rate
1	4	$3,203	100%	$1,882	0%	$3,203
2	3	$3,203	75%	$1,882	25%	$2,873
3	2	$3,203	50%	$1,882	50%	$2,543
4	1	$3,203	25%	$1,882	75%	$2,212

MPI then compared the blended rates for Levels 1, 2 and 3, to the blended rate for Level 4 to determine the percentage reduction for the lower levels. This calculation is shown in the figure below:

Figure 8: Limousine VFH Reduction by Level for Territory 1

Line No.	# of Levels Purchased	Blended Rate	Reduction from Level 4 Blended Rate	Selected Reduction from Level 4 Blended Rate
1	4	$3,203	0.00%	0.00%
2	3	$2,873	-10.30%	-10.00%
3	2	$2,543	-20.60%	-20.00%
4	1	$2,212	-30.90%	-30.00%

To recognize that the Limousine vehicles for hire use may have lower exposure than the current Limousine All Uses insurance use, we judgmentally assumed that the availability of DSR vehicle premium discounts and the reduction in the Basic deductible would offset the reduced loss exposure. MPI is also optimistic that using DSR will encourage safer driving and potentially reduce loss exposure going forward.

All Other Territories:

There are currently fewer than 30 limos in the rural territories. MPI has assumed that overall loss exposure will not change. To determine rates, MPI judgmentally assumed that a 5% rate reduction from the Limousine vehicles for hire Level 4 rate was appropriate for each decrease in Limousine vehicles for hire level. For example, the rate for Limousine vehicles for hire Level 2 will be 10% lower than the rate for Limousine vehicles for hire Level 4. Based on this assumption, MPI then set the Limousine vehicles for hire base rates at each level as a percentage of the current Limousine All Uses base rate such that the *average* of the four levels was equal to the Limousine All Uses base rate. The figure below shows the percentage of the current Limousine All Uses base rate by Limousine vehicles for hire levels.

Figure 9: All Other Territories Limousine VFH

Line No.	**# of Levels Purchased**	**Proposed Percentage of Limos Base Rate**
1	**4**	107%
2	**3**	102%
3	**2**	98%
4	**1**	93%
5	**Average**	100%

MPI judgmentally assumed that the higher rates for Limousine vehicles for hire at Level 3 and Level 4, combined with the loss prevention incentives of DSR, would offset the loss in revenue from the availability of DSR vehicle premium discounts and the decrease in the Basic deductible for limousines.

VFH.3.4 Accessible VFH

Definition: Accessible vehicles for hire means a passenger vehicle that is equipped with a wheelchair ramp, or lift and is operated for the transportation of persons who use a wheelchair or mobility aid, motorized or otherwise, and their escorts, but does not include vehicles owned or operated by or on behalf of a municipality to provide public transportation services.

What is changing from a ratemaking perspective? Accessible vehicles will now be able to select time bands based on when they operate (i.e. Levels 1, 2, 3, and 4). Accessible vehicles will now be able to receive DSR vehicle premium discounts. The deductible for Accessible vehicles will decrease from $600 to $500. The Accessible vehicle insurance use (currently Wheelchair Livery Bus) will now be available in rural territories.

Current Rates: Wheelchair Livery Bus are currently flat rated by declared value based on their historical loss experience. DSR vehicle premium discounts are currently not available. The Wheelchair Livery Bus insurance use is only applicable to accessible vehicles in territory 1.

Ratemaking Assumptions: MPI has assumed there will only be very minor changes in loss exposure for Accessible vehicles for hire because of the unique nature of this insurance use.

Internal data to support ratemaking: MPI has several decades of accessible vehicles claims experience that is used to set Wheelchair Livery Bus rates.

External data to support ratemaking: None.

Proposed 2018/19 Accessible VFH Rates:

Territory 1:

MPI has assumed that overall loss exposure will not change. To determine rates, MPI judgmentally assumed that a 5% rate reduction from the Accessible vehicles for hire Level 4 rate was appropriate for each decrease in Accessible vehicles for hire level. For example, the rate for Accessible vehicles for hire Level 2 will be 10% lower than the rate for Accessible vehicles for hire Level 4. Based on this assumption, MPI then set the Accessible vehicles for hire base rates at each level as a percentage of the current Wheelchair Livery Bus base rate (by declared value) such that the *average* of the four levels was equal to the Wheelchair Livery Bus base rate. The figure below shows the percentage of the current Wheelchair Livery Bus base rate by Accessible VFH levels.

Figure 10: Territory 1 Accessible VFH

Line No.	# of Levels Purchased	Proposed Percentage of Wheelchair Livery Bus base rate
1	**4**	107%
2	**3**	102%
3	**2**	98%
4	**1**	93%
5	**Average**	100%

MPI judgmentally assumed that the higher rates for Accessible vehicles for hire at Level 3 and Level 4, combined with the loss prevention incentives of DSR, would offset the loss in revenue from the availability of DSR vehicle premium discounts and the decrease in the deductible for Accessible VFH.

All Other Territories:

Given that rates are currently not available for Wheelchair Livery Bus for Territories 2, 3, and 4, in order to set rates for Accessible vehicles for hire for these territories, MPI applied the territory relativities for the Public Major Class as presented in the 2018 GRA, Volume II, Ratemaking, Appendix 9. The figure below shows the territory

relativities and the percentage of Territory 1 Accessible vehicles for hire rates applicable to Territories 2, 3 and 4.

Figure 11: Accessible VFH for Territories 2, 3 and 4

Line No.	Territory	Public Major Class Territory Relativity	Percentage of Territory 1 Accessible VFH Rate
1	**1**	1.1857	100.00%
2	**2**	0.6133	52.00%
3	**3**	0.6772	57.00%
4	**4**	0.7199	61.00%

VFH.3.5 How Rates will be set in future GRAs

MPI will use the currently approved PUB ratemaking methodology to adjust the required rates for each of the vehicles for hire uses (i.e. Passenger, Taxi, Limo, and Accessible). MPI will then perform a separate relativity calculation within each of these vehicles for hire to determine the relative rates by Level (i.e. 1, 2, 3, 4). By setting rates based on the overall vehicles for hire experience in each VFH use (rather than for each level separately) there will be more credible data for which to modify rates.

VFH.3.6 Vehicles for Hire 2017/18 Rates

As a result of staggered renewals, many customers will still have rates from the 2017/18 policy year in effect at the time the vehicles for hire insurance uses come into effect. As a result, MPI has prepared the 2017/18 equivalent rates for each of the new insurance uses described above. The methodology utilized to calculate the 2017/18 vehicles for hire rates is identical to the methodology used to calculate 2018/19 rates, except using 2017/18 PUB approved rates. These rates are presented in Appendix 2 to this Application.

VFH.3.7 Eligibility for Driver Safety Rating Vehicle Premium Discounts

All individual vehicles for hire customers will be eligible for a DSR discount. Therefore, individual customers who choose to be vehicles for hire drivers will not lose their DSR discount as a result of changing their vehicle insurance use to vehicles for hire. Eliminating the DSR discount for these customers would be unfair and create a barrier to entry into the vehicles for hire market. Further, allowing the DSR discount for all individual vehicles for hire customers is consistent with the goal of establishing fair and equitable rates across the vehicles for hire pool, and expands the availability of DSR vehicle premium discounts to formerly 'x-plated' vehicles, enhancing the incentive to drive safely, move up the DSR scale, and increase their vehicle premium discount.

The DSR vehicle premium discount remains unavailable to corporate customers.

VFH.3.8 Impacts Taxi/Livery Policies Outside the VFH Framework

The dissolution of the Taxicab Board and the VFH Act vehicle-for-hire definition results in certain outliers. Previously 'x-plated' taxi/livery vehicles with seating capacity of 11 or more are not captured under the VFH Act, and do not qualify for vehicles for hire insurance policies. However these vehicles must still change registration class and insurance use due to the discontinuance of the 'x-plated' registration class. Based on the customer's declared use of the vehicle, existing registration classes such as Regulated Passenger Vehicle (AR) and Public Service Vehicle (PSV) and existing insurance uses such as Common Carrier, Charter Bus – Local, Disabled Persons Bus, and Private/Business Bus will be used for vehicles that fall outside of the Act vehicle for hire definition. It is anticipated that fewer than 100 policies will be affected and though there may be changes in premiums charged, in the vast majority of cases it is expected that there will not be a negative financial impact to these customers. MPI will work in coordination with the Province of Manitoba to communicate the changes to existing taxi/livery policy holders.

VFH.4 CUSTOMER SERVICE

Vehicles for hire insurance will be available for purchase at brokers and MPI service centers. Previously taxi/livery insurance was only available at MPI service centers, and these customers were required to provide proof of Taxicab business licence (including seasonal licenses/permits and bill of sale for the licence) and Certificate of Inspection or Periodic Mandatory Vehicle Inspection certificate. Under the new vehicles for hire insurance offering these supporting documents will no longer be required to receive vehicle for hire insurance. Customers will still be required to sign a policy declaration to confirm their intended use and provide documentation consistent with registering an A1/A5 vehicle. These changes will improve access for customers and allow for the casual uptake of vehicle for hire operation.

VFH.4.1 Implementation Plan

Currently there are less than 1000 taxi, limousine and wheelchair/accessible vehicles with 'X-plate' class registration on the road today. Vehicles that fall under the definition of vehicle-for-hire, as set out in the VFH Act, are eligible to purchase a new vehicles for hire insurance use policy and self-select their desired operating time band(s). This includes vehicles with a seating capacity of 10 or fewer occupants (including the driver), hired on a single trip basis where the passenger controls the destination/route. These vehicles will transition to A1 passenger vehicle registration class and the applicable vehicles for hire insurance.

Currently, the Taxicab Board regulates taxicabs, wheelchair vans and limousines operating in the City of Winnipeg as outlined in The Taxicab Act. These vehicles fall within the X1 Taxicab, X2 Livery City or X3 Limousine City registration classes and are insured as one of the following insurance uses; Taxi / Livery, Wheel Chair Livery or Limousine All Uses.

The Motor Transport Board regulates the taxicabs operating in Manitoba outside the City of Winnipeg as outlined in The Highway Traffic Act (section 23). These vehicles

fall within the A1 Passenger Vehicle or X4 Livery Country registration class and are insured as one of Taxi / Livery or Limousine All Uses insurance uses.

Currently, X1 Taxicab, X2 Livery City, X3 Limousine City and X4 Livery Country vehicles must be registered at a MPI Commercial Vehicle Registration location. There is no restriction on a taxi/livery vehicle's designed seating capacity. These vehicles are issued Livery plates ('x-plates') and must be renewed annually.

The 'x-plate' registration classes and associated insurance uses (Taxi/livery, Limousine All-Use, and Wheelchair Livery) will be expired in coordination with the Government of Manitoba. All vehicles in these categories will need to transition into one of the new vehicle for hire insurance uses (unless the vehicle is an outlier, as explained in section VFH.3.8). The 'x-plate' registration classes and taxi/livery insurance uses will no longer be available for sale as of April 30th 2018. This date was selected to allow for the run off of policy renewals.

Effective March 1, 2018, existing taxi/livery vehicle customers as well as regular Manitobans can visit a broker or MPI service centre and purchase vehicles for hire insurance. The transition from taxi/livery vehicle to VFH will be forced at the customer's next vehicle renewal. Therefore it may take up to 1 year after March 1, 2018 for the transition to complete. Taxi/livery vehicle customers can visit a MPI agent prior to their renewal date to change to vehicles for hire insurance. MPI believes that existing taxi/livery vehicle customers will recognize the advantage of transitioning their insurance to one of the new vehicles for hire subcategories. For example, individual customers purchasing vehicles for hire insurance use are eligible for a DSR discount, and a $500 Basic deductible.

VFH.4.2 Rating Model Enforceability

The customer selected 'time band(s)' will be depicted in an addendum to the current vehicle registration and insurance certificate which is used by the customer to provide evidence of valid vehicle registration, insurance and where applicable, confirmation of valid vehicle for hire insurance based on the time of day. The time band information

will also be available to MPI's claims administration staff for instances whereby a vehicle for hire automobile experiences a claim. The vehicle insurance information as well as the time of day of the incident, witness/passenger statements as well as data available via Manitoba municipalities will be utilized by MPI claims administration staff in order to confirm valid insurance coverage on the vehicle.

VFH.5 FINAL APPROVAL OF VFH RATES

MPI proposes that the final determination of VFH rates will take place as part of the 2019 GRA. MPI will bring an application for 2017/18 and 2018/19 rates for service, as contained in this interim application, as well as 2019/20 vehicles for hire rates for service, consistent with the rest of the GRA. The PUB's final determination on 2017/18 and 2018/19 rates would be contained in the 2019 GRA Order, and any variance between interim and final approval of rates would be rebated or collected, as explained further in section VFH.5.1 below.

All interveners, interested parties and the public at large will be able to adequately challenge the rates for service during the 2019 GRA. Parties with standing will be able to test the evidence and bring their case to the PUB for determination of final vehicles for hire Rates for Service. Any potential prejudice to intervenors or interested parties, as a result of this interim application and its expedited process, is alleviated by adequate alternative remedy in the 2019 GRA.

VFH.5.1 Refund/Collection Mechanism for Final Approved Rates

Further, parties to the proceeding can have confidence that any variance between interim and final rates will be accurately refunded or rebated to affected ratepayers.

MPI currently has an automated process to trigger a 're-rating' of an insurance policy without requiring a customer visit to a broker or service centre. If the PUB approves final vehicles for hire Rates for Service for the 2017/18 and 2018/19 insurance years that differ from those approved on an interim basis, MPI will identify all vehicles for

hire customers and initiate a re-rating of the insurance policy. This will complete a new insurance rating calculation process and the new approved rates will be used to determine the appropriate insurance premium that should have been collected.

In the event of either an increase or reduction in premium, the associated balance will be applied to the respective customer account and a letter will be sent to each customer explaining the amount due or credit on the customer account will be produced and sent to the customer for follow-up action.

2018 BASIC RATE TABLE

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	0	Accessible Vehicle-for-Hire 1	1220	1269	1344	1414	1491	1563	1636	1707	1789	1862	1935	2010	2084	2159																													
1	5	Accessible Vehicle-for-Hire 1	1159	1206	1277	1343	1416	1485	1554	1622	1700	1769	1838	1909	1980	2051																													
1	10	Accessible Vehicle-for-Hire 1	1098	1142	1210	1273	1342	1407	1472	1536	1610	1676	1741	1809	1876	1943																													
1	15	Accessible Vehicle-for-Hire 1	1037	1079	1142	1202	1267	1329	1391	1451	1521	1583	1645	1708	1771	1835																													
1	20	Accessible Vehicle-for-Hire 1	976	1015	1075	1131	1193	1250	1309	1366	1431	1490	1548	1608	1667	1727																													
1	25	Accessible Vehicle-for-Hire 1	915	952	1008	1060	1118	1172	1227	1280	1342	1396	1451	1507	1563	1619																													
1	26	Accessible Vehicle-for-Hire 1	903	939	995	1046	1103	1157	1211	1263	1324	1378	1432	1487	1542	1598																													
1	27	Accessible Vehicle-for-Hire 1	891	926	981	1032	1088	1141	1194	1246	1306	1359	1413	1467	1521	1576																													
1	28	Accessible Vehicle-for-Hire 1	878	914	968	1018	1074	1125	1178	1229	1288	1341	1393	1447	1500	1554																													
1	29	Accessible Vehicle-for-Hire 1	866	901	954	1004	1059	1110	1162	1212	1270	1322	1374	1427	1480	1533																													
1	30	Accessible Vehicle-for-Hire 1	854	888	941	990	1044	1094	1145	1195	1252	1303	1354	1407	1459	1511																													
1	33	Accessible Vehicle-for-Hire 1	817	850	900	947	999	1047	1096	1144	1199	1248	1296	1347	1396	1447																													
1	0	Accessible Vehicle-for-Hire 2	1286	1338	1416	1490	1571	1647	1724	1799	1886	1962	2039	2118	2196	2276																													
1	5	Accessible Vehicle-for-Hire 2	1222	1271	1345	1415	1492	1565	1638	1709	1792	1864	1937	2012	2086	2162																													
1	10	Accessible Vehicle-for-Hire 2	1157	1204	1274	1341	1414	1482	1552	1619	1697	1766	1835	1906	1976	2048																													
1	15	Accessible Vehicle-for-Hire 2	1093	1137	1204	1266	1335	1400	1465	1529	1603	1668	1733	1800	1867	1935																													
1	20	Accessible Vehicle-for-Hire 2	1029	1070	1133	1192	1257	1318	1379	1439	1509	1570	1631	1694	1757	1821																													
1	25	Accessible Vehicle-for-Hire 2	964	1003	1062	1117	1178	1235	1293	1349	1414	1471	1529	1588	1647	1707																													
1	26	Accessible Vehicle-for-Hire 2	952	990	1048	1103	1163	1219	1276	1331	1396	1452	1509	1567	1625	1684																													
1	27	Accessible Vehicle-for-Hire 2	939	977	1034	1088	1147	1202	1259	1313	1377	1432	1488	1546	1603	1661																													
1	28	Accessible Vehicle-for-Hire 2	926	963	1020	1073	1131	1186	1241	1295	1358	1413	1468	1525	1581	1639																													
1	29	Accessible Vehicle-for-Hire 2	913	950	1005	1058	1115	1169	1224	1277	1339	1393	1448	1504	1559	1616																													
1	30	Accessible Vehicle-for-Hire 2	900	937	991	1043	1100	1153	1207	1259	1320	1373	1427	1483	1537	1593																													
1	33	Accessible Vehicle-for-Hire 2	862	896	949	998	1053	1103	1155	1205	1264	1315	1366	1419	1471	1525																													
1	0	Accessible Vehicle-for-Hire 3	1338	1392	1474	1550	1635	1715	1794	1873	1962	2042	2123	2204	2286	2368																													
1	5	Accessible Vehicle-for-Hire 3	1271	1322	1400	1472	1553	1629	1704	1779	1864	1940	2017	2094	2172	2250																													
1	10	Accessible Vehicle-for-Hire 3	1204	1253	1327	1395	1471	1543	1615	1686	1766	1838	1911	1984	2057	2131																													
1	15	Accessible Vehicle-for-Hire 3	1137	1183	1253	1317	1390	1458	1525	1592	1668	1736	1805	1873	1943	2013																													
1	20	Accessible Vehicle-for-Hire 3	1070	1114	1179	1240	1308	1372	1435	1498	1570	1634	1698	1763	1829	1894																													
1	25	Accessible Vehicle-for-Hire 3	1003	1044	1105	1162	1226	1286	1345	1405	1471	1531	1592	1653	1714	1776																													
1	26	Accessible Vehicle-for-Hire 3	990	1030	1091	1147	1210	1269	1328	1386	1452	1511	1571	1631	1692	1752																													
1	27	Accessible Vehicle-for-Hire 3	977	1016	1076	1131	1194	1252	1310	1367	1432	1491	1550	1609	1669	1729																													
1	28	Accessible Vehicle-for-Hire 3	963	1002	1061	1116	1177	1235	1292	1349	1413	1470	1529	1587	1646	1705																													
1	29	Accessible Vehicle-for-Hire 3	950	988	1047	1100	1161	1218	1274	1330	1393	1450	1507	1565	1623	1681																													
1	30	Accessible Vehicle-for-Hire 3	937	974	1032	1085	1144	1200	1256	1311	1373	1429	1486	1543	1600	1658																													
1	33	Accessible Vehicle-for-Hire 3	896	933	988	1038	1095	1149	1202	1255	1315	1368	1422	1477	1532	1587																													
1	0	Accessible Vehicle-for-Hire 4	1404	1461	1546	1626	1715	1799	1882	1965	2059	2142	2227	2312	2398	2485																													
1	5	Accessible Vehicle-for-Hire 4	1334	1388	1469	1545	1629	1709	1788	1867	1956	2035	2116	2196	2278	2361																													
1	10	Accessible Vehicle-for-Hire 4	1264	1315	1391	1463	1543	1619	1694	1768	1853	1928	2004	2081	2158	2236																													
1	15	Accessible Vehicle-for-Hire 4	1193	1242	1314	1382	1458	1529	1600	1670	1750	1821	1893	1965	2038	2112																													
1	20	Accessible Vehicle-for-Hire 4	1123	1169	1237	1301	1372	1439	1506	1572	1647	1714	1782	1850	1918	1988																													
1	25	Accessible Vehicle-for-Hire 4	1053	1096	1159	1219	1286	1349	1411	1474	1544	1606	1670	1734	1798	1864																													
1	26	Accessible Vehicle-for-Hire 4	1039	1081	1144	1203	1269	1331	1393	1454	1524	1585	1648	1711	1775	1839																													
1	27	Accessible Vehicle-for-Hire 4	1025	1067	1129	1187	1252	1313	1374	1434	1503	1564	1626	1688	1751	1814																													
1	28	Accessible Vehicle-for-Hire 4	1011	1052	1113	1171	1235	1295	1355	1415	1482	1542	1603	1665	1727	1789																													
1	29	Accessible Vehicle-for-Hire 4	997	1037	1098	1154	1218	1277	1336	1395	1462	1521	1581	1642	1703	1764																													
1	30	Accessible Vehicle-for-Hire 4	983	1023	1082	1138	1200	1259	1317	1375	1441	1499	1559	1618	1679	1739																													
1	33	Accessible Vehicle-for-Hire 4	941	979	1036	1089	1149	1205	1261	1317	1380	1435	1492	1549	1607	1665																													
1	0	Limousine Vehicle-for-Hire 1	2242																																									
1	5	Limousine Vehicle-for-Hire 1	2130																																									
1	10	Limousine Vehicle-for-Hire 1	2018																																									
1	15	Limousine Vehicle-for-Hire 1	1906																																									
1	20	Limousine Vehicle-for-Hire 1	1794																																									
1	25	Limousine Vehicle-for-Hire 1	1681																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	26	Limousine Vehicle-for-Hire 1	1659																																								
1	27	Limousine Vehicle-for-Hire 1	1637																																								
1	28	Limousine Vehicle-for-Hire 1	1614																																								
1	29	Limousine Vehicle-for-Hire 1	1592																																								
1	30	Limousine Vehicle-for-Hire 1	1569																																								
1	33	Limousine Vehicle-for-Hire 1	1502																																								
1	0	Limousine Vehicle-for-Hire 2	2562																																								
1	5	Limousine Vehicle-for-Hire 2	2434																																								
1	10	Limousine Vehicle-for-Hire 2	2306																																								
1	15	Limousine Vehicle-for-Hire 2	2178																																								
1	20	Limousine Vehicle-for-Hire 2	2050																																								
1	25	Limousine Vehicle-for-Hire 2	1921																																								
1	26	Limousine Vehicle-for-Hire 2	1896																																								
1	27	Limousine Vehicle-for-Hire 2	1870																																								
1	28	Limousine Vehicle-for-Hire 2	1845																																								
1	29	Limousine Vehicle-for-Hire 2	1819																																								
1	30	Limousine Vehicle-for-Hire 2	1793																																								
1	33	Limousine Vehicle-for-Hire 2	1717																																								
1	0	Limousine Vehicle-for-Hire 3	2883																																								
1	5	Limousine Vehicle-for-Hire 3	2739																																								
1	10	Limousine Vehicle-for-Hire 3	2595																																								
1	15	Limousine Vehicle-for-Hire 3	2451																																								
1	20	Limousine Vehicle-for-Hire 3	2306																																								
1	25	Limousine Vehicle-for-Hire 3	2162																																								
1	26	Limousine Vehicle-for-Hire 3	2133																																								
1	27	Limousine Vehicle-for-Hire 3	2105																																								
1	28	Limousine Vehicle-for-Hire 3	2076																																								
1	29	Limousine Vehicle-for-Hire 3	2047																																								
1	30	Limousine Vehicle-for-Hire 3	2018																																								
1	33	Limousine Vehicle-for-Hire 3	1932																																								
1	0	Limousine Vehicle-for-Hire 4	3203																																								
1	5	Limousine Vehicle-for-Hire 4	3043																																								
1	10	Limousine Vehicle-for-Hire 4	2883																																								
1	15	Limousine Vehicle-for-Hire 4	2723																																								
1	20	Limousine Vehicle-for-Hire 4	2562																																								
1	25	Limousine Vehicle-for-Hire 4	2402																																								
1	26	Limousine Vehicle-for-Hire 4	2370																																								
1	27	Limousine Vehicle-for-Hire 4	2338																																								
1	28	Limousine Vehicle-for-Hire 4	2306																																								
1	29	Limousine Vehicle-for-Hire 4	2274																																								
1	30	Limousine Vehicle-for-Hire 4	2242																																								
1	33	Limousine Vehicle-for-Hire 4	2146																																								
1	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	679	733	763	790	816	842	868	895	922	947	970	979	1004	1046	1078	1118	1160	1202	1247	1290	1336	1381	1422	1466	1511	1566	1615	1662	1710	1759	1805	1851	1894	1936	1976	2018	2064	2110	2157	2202	2248
1	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	645	696	725	750	775	800	825	850	876	900	921	930	954	994	1024	1062	1102	1142	1185	1225	1269	1312	1351	1393	1435	1488	1534	1579	1624	1671	1715	1758	1799	1839	1877	1917	1961	2004	2049	2092	2136
1	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	611	660	687	711	734	758	781	805	830	852	873	881	904	941	970	1006	1044	1082	1122	1161	1202	1243	1280	1319	1360	1409	1453	1496	1539	1583	1624	1666	1705	1742	1778	1816	1858	1899	1941	1982	2023
1	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	577	623	649	671	694	716	738	761	784	805	824	832	853	889	916	950	986	1022	1060	1096	1136	1174	1209	1246	1284	1331	1373	1413	1453	1495	1534	1573	1610	1646	1680	1715	1754	1793	1833	1872	1911
1	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	543	586	610	632	653	674	694	716	738	758	776	783	803	837	862	894	928	962	998	1032	1069	1105	1138	1173	1209	1253	1292	1330	1368	1407	1444	1481	1515	1549	1581	1614	1651	1688	1726	1762	1798
1	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	509	550	572	592	612	631	651	671	691	710	727	734	753	784	808	838	870	901	935	967	1002	1036	1066	1099	1133	1174	1211	1246	1282	1319	1354	1388	1420	1452	1482	1513	1548	1582	1618	1651	1686
1	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	502	542	565	585	604	623	642	662	682	701	718	724	743	774	798	827	858	889	923	955	989	1022	1052	1085	1118	1159	1195	1230	1265	1302	1336	1370	1402	1433	1462	1493	1527	1561	1596	1629	1664
1	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	496	535	557	577	596	615	634	653	673	691	708	715	733	764	787	816	847	877	910	942	975	1008	1038	1070	1103	1143	1179	1213	1248	1284	1318	1351	1383	1413	1442	1473	1507	1540	1575	1607	1641
1	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	489	528	549	569	588	606	625	644	664	682	698	705	723	753	776	805	835	865	898	929	962	994	1024	1056	1088	1128	1163	1197	1231	1266	1300	1333	1364	1394	1423	1453	1486	1519	1553	1585	1619
1	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	482	520	542	561	579	598	616	635	655	672	689	695	713	743	765	794	824	853	885	916	949	981	1010	1041	1073	1112	1147	1180	1214	1249	1282	1314	1345	1375	1403	1433	1465	1498	1531	1563	1596
1	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	475	513	534	553	571	589	608	626	645	663	679	685	703	732	755	783	812	841	873	903	935	967	995	1026	1058	1096	1130	1163	1197	1231	1263	1296	1326	1355	1383	1413	1445	1477	1510	1541	1574
1	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	455	491	511	529	547	564	582	600	618	634	650	656	673	701	722	749	777	805	835	864	895	925	953	982	1012	1049	1082	1114	1146	1179	1209	1240	1269	1297	1324	1352	1383	1414	1445	1475	1506
1	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	712	768	800	827	855	882	910	937	966	992	1016	1025	1052	1096	1130	1171	1215	1259	1307	1352	1399	1446	1489	1536	1583	1640	1692	1741	1792	1842	1891	1939	1984	2028	2070	2114	2163	2211	2259	2307	2355
1	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	676	730	760	786	812	838	864	890	918	942	965	974	999	1041	1073	1112	1154	1196	1242	1284	1329	1374	1415	1459	1504	1558	1607	1654	1702	1750	1796	1842	1885	1927	1966	2008	2055	2100	2146	2192	2237

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	641	691	720	744	769	794	819	843	869	893	914	922	947	986	1017	1054	1093	1133	1176	1217	1259	1301	1340	1382	1425	1476	1523	1567	1613	1658	1702	1745	1786	1825	1863	1903	1947	1990	2033	2076	2119
1	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	605	653	680	703	727	750	773	796	821	843	864	871	894	932	960	995	1033	1070	1111	1149	1189	1229	1266	1306	1346	1394	1438	1480	1523	1566	1607	1648	1686	1724	1759	1797	1839	1879	1920	1961	2002
1	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	570	614	640	662	684	706	728	750	773	794	813	820	842	877	904	937	972	1007	1046	1082	1119	1157	1191	1229	1266	1312	1354	1393	1434	1474	1513	1551	1587	1622	1656	1691	1730	1769	1807	1846	1884
1	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	534	576	600	620	641	661	682	703	724	744	762	769	789	822	847	878	911	944	980	1014	1049	1084	1117	1152	1187	1230	1269	1306	1344	1381	1418	1454	1488	1521	1552	1585	1622	1658	1694	1730	1766
1	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	527	568	592	612	633	653	673	693	715	734	752	758	778	811	836	867	899	932	967	1000	1035	1070	1102	1137	1171	1214	1252	1288	1326	1363	1399	1435	1468	1501	1532	1564	1601	1636	1672	1707	1743
1	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	520	561	584	604	624	644	664	684	705	724	742	748	768	800	825	855	887	919	954	987	1021	1056	1087	1121	1156	1197	1235	1271	1308	1345	1380	1415	1448	1480	1511	1543	1579	1614	1649	1684	1719
1	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	513	553	576	595	616	635	655	675	696	714	732	738	757	789	814	843	875	906	941	973	1007	1041	1072	1106	1140	1181	1218	1254	1290	1326	1362	1396	1428	1460	1490	1522	1557	1592	1626	1661	1696
1	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	506	545	568	587	607	626	646	665	686	704	721	728	747	778	802	831	863	894	928	960	993	1027	1057	1091	1124	1164	1201	1236	1272	1308	1343	1377	1409	1440	1470	1501	1536	1570	1604	1638	1672
1	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	498	538	560	579	598	617	637	656	676	694	711	717	736	767	791	820	850	881	915	946	979	1012	1042	1075	1108	1148	1184	1219	1254	1289	1324	1357	1389	1420	1449	1480	1514	1548	1581	1615	1648
1	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	477	515	536	554	573	591	610	628	647	665	681	687	705	734	757	785	814	844	876	906	937	969	998	1029	1061	1099	1134	1166	1201	1234	1267	1299	1329	1359	1387	1416	1449	1481	1514	1546	1578
1	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	744	803	836	865	894	922	951	980	1010	1037	1063	1072	1099	1145	1181	1225	1271	1317	1366	1413	1463	1512	1557	1605	1655	1715	1769	1820	1873	1926	1977	2027	2075	2121	2164	2210	2261	2311	2362	2412	2462
1	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	707	763	794	822	849	876	903	931	959	985	1010	1018	1044	1088	1122	1164	1207	1251	1298	1342	1390	1436	1479	1525	1572	1629	1681	1729	1779	1830	1878	1926	1971	2015	2056	2099	2148	2195	2244	2291	2339
1	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	670	723	752	778	805	830	856	882	909	933	957	965	989	1030	1063	1102	1144	1185	1229	1272	1317	1361	1401	1444	1489	1543	1592	1638	1686	1733	1779	1824	1867	1909	1948	1989	2035	2080	2126	2171	2216
1	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	632	683	711	735	760	784	808	833	858	881	904	911	934	973	1004	1041	1080	1119	1161	1201	1244	1285	1323	1364	1407	1458	1504	1547	1592	1637	1680	1723	1764	1803	1839	1878	1922	1964	2008	2050	2093
1	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	595	642	669	692	715	738	761	784	808	830	850	858	879	916	945	980	1017	1054	1093	1130	1170	1210	1246	1284	1324	1372	1415	1456	1498	1541	1582	1622	1660	1697	1731	1768	1809	1849	1890	1930	1970
1	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	558	602	627	649	670	691	713	735	757	778	797	804	824	859	886	919	953	988	1024	1060	1097	1134	1168	1204	1241	1286	1327	1365	1405	1444	1483	1520	1556	1591	1623	1657	1696	1733	1771	1809	1846
1	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	551	594	619	640	662	682	704	725	747	767	787	793	813	847	874	906	941	975	1011	1046	1083	1119	1152	1188	1225	1269	1309	1347	1386	1425	1463	1500	1535	1570	1601	1635	1673	1710	1748	1785	1822
1	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	543	586	610	631	653	673	694	715	737	757	776	783	802	836	862	894	928	961	997	1031	1068	1104	1137	1172	1208	1252	1291	1329	1367	1406	1443	1480	1515	1548	1580	1613	1651	1687	1724	1761	1797
1	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	536	578	602	623	644	664	685	706	727	747	765	772	791	824	850	882	915	948	984	1017	1053	1089	1121	1156	1192	1235	1274	1310	1349	1387	1423	1459	1494	1527	1558	1591	1628	1664	1701	1737	1773
1	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	528	570	594	614	635	655	675	696	717	736	755	761	780	813	839	870	902	935	970	1003	1039	1074	1105	1140	1175	1218	1256	1292	1330	1367	1404	1439	1473	1506	1536	1569	1605	1641	1677	1713	1748
1	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	521	562	585	605	626	645	666	686	707	726	744	750	769	801	827	857	890	922	956	989	1024	1058	1090	1123	1158	1200	1238	1274	1311	1348	1384	1419	1452	1485	1515	1547	1583	1618	1653	1688	1723
1	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	498	538	560	580	599	618	637	657	677	695	712	718	736	767	791	821	852	882	915	947	980	1013	1043	1075	1109	1149	1185	1219	1255	1290	1325	1358	1390	1421	1450	1481	1515	1548	1583	1616	1650
1	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	776	838	872	902	932	962	992	1022	1054	1082	1109	1118	1147	1195	1232	1278	1326	1374	1426	1475	1526	1578	1625	1675	1727	1789	1846	1900	1955	2010	2063	2116	2165	2213	2258	2306	2359	2412	2465	2516	2569
1	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	737	796	828	857	885	914	942	971	1001	1028	1054	1062	1090	1135	1170	1214	1260	1305	1355	1401	1450	1499	1544	1591	1641	1700	1754	1805	1857	1909	1960	2010	2057	2102	2145	2191	2241	2291	2342	2390	2441
1	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	698	754	785	812	839	866	893	920	949	974	998	1006	1032	1075	1109	1150	1193	1237	1283	1327	1373	1420	1462	1507	1554	1610	1661	1710	1759	1809	1857	1904	1948	1992	2032	2075	2123	2171	2218	2264	2312
1	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	660	712	741	767	792	818	843	869	896	920	943	950	975	1016	1047	1086	1127	1168	1212	1254	1297	1341	1381	1424	1468	1521	1569	1615	1662	1708	1754	1799	1840	1881	1919	1960	2005	2050	2095	2139	2184
1	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	621	670	698	722	746	770	794	818	843	866	887	894	918	956	986	1022	1061	1099	1141	1180	1221	1262	1300	1340	1382	1431	1477	1520	1564	1608	1650	1693	1732	1770	1806	1845	1887	1930	1972	2013	2055
1	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	582	628	654	676	699	721	744	766	790	811	832	838	860	896	924	958	994	1030	1069	1106	1144	1183	1219	1256	1295	1342	1384	1425	1466	1507	1547	1587	1624	1660	1693	1729	1769	1809	1849	1887	1927
1	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	574	620	645	667	690	712	734	756	780	801	821	827	849	884	912	946	981	1017	1055	1091	1129	1168	1202	1239	1278	1324	1366	1406	1447	1487	1527	1566	1602	1638	1671	1706	1746	1785	1824	1862	1901
1	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	566	612	637	658	680	702	724	746	769	790	810	816	837	872	899	933	968	1003	1041	1077	1114	1152	1186	1223	1261	1306	1348	1387	1427	1467	1506	1545	1580	1615	1648	1683	1722	1761	1799	1837	1875
1	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	559	603	628	649	671	693	714	736	759	779	798	805	826	860	887	920	955	989	1027	1062	1099	1136	1170	1206	1243	1288	1329	1368	1408	1447	1485	1524	1559	1593	1626	1660	1698	1737	1775	1812	1850
1	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	551	595	619	640	662	683	704	726	748	768	787	794	814	848	875	907	941	976	1012	1047	1083	1120	1154	1189	1226	1270	1311	1349	1388	1427	1465	1502	1537	1571	1603	1637	1675	1713	1750	1786	1824
1	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	543	587	610	631	652	673	694	715	738	757	776	783	803	836	862	895	928	962	998	1032	1068	1105	1137	1172	1209	1252	1292	1330	1368	1407	1444	1481	1515	1549	1581	1614	1651	1688	1725	1761	1798
1	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	520	561	584	604	624	645	665	685	706	725	743	749	768	801	825	856	888	921	955	988	1022	1057	1089	1122	1157	1199	1237	1273	1310	1347	1382	1418	1451	1483	1513	1545	1581	1616	1652	1686	1721
1	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	541	607	642	667	685	702	721	739	757	772	800	824	845	865	888	916	936	959	981	1005	1039	1076	1117	1158	1199	1243	1282	1338	1377	1424	1486	1540	1589	1637	1675	1735	1784	1833	1882	1931	1980
1	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	514	577	610	634	651	667	685	702	719	733	760	783	803	822	844	870	889	911	932	955	987	1022	1061	1100	1139	1181	1218	1271	1308	1353	1412	1463	1510	1555	1591	1648	1695	1741	1788	1834	1881
1	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	487	546	578	600	616	632	649	665	681	695	720	742	760	778	799	824	842	863	883	904	935	968	1005	1042	1079	1119	1154	1204	1239	1282	1337	1386	1430	1473	1507	1561	1606	1650	1694	1738	1782
1	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	460	516	546	567	582	597	613	628	643	656	680	700	718	735	755	779	796	815	834	854	883	915	949	984	1019	1057	1090	1137	1170	1210	1263	1309	1351	1391	1424	1475	1516	1558	1600	1641	1683
1	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	433	486	514	534	548	562	577	591	606	618	640	659	676	692	710	733	749	767	785	804	831	861	894	926	959	994	1026	1070	1102	1139	1189	1232	1271	1310	1340	1388	1427	1466	1506	1545	1584
1	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	406	455	481	500	514	526	541	554	568	579	600	618	634	649	666	687	702	719	736	754	779	807	838	868	899	932	961	1003	1033	1068	1114	1155	1192	1228	1256	1301	1338	1375	1411	1448	1485
1	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	400	449	475	494	507	519	534	547	560	571	592	610	625	640	657	678	693	710	726	744	769	796	827	857	887	920	949	990	1019	1054	1100	1140	1176	1211	1239	1284	1320	1356	1393	1429	1465
1	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	395	443	469	487	500	512	526	539	553	564	584	602	617	631	648	669	683	700	716	734	758	785	815	845	875	907	936	977	1005	1040	1085	1124	1160	1195	1223	1267	1302	1338	1374	1410	1445
1	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	390	437	462	480	493	505	519	532	545	556	576	593	608	623	639	660	674	690	706	724	748	775	804	834	863	895	923	963	991	1025	1070	1109	1144	1179	1206	1249	1284	1320	1355	1390	1426
1	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	384	431	456	474	486	498	512	525	537	548	568	585	600	614	630	650	665	681	697	714	738	764	793	822	851	883	910	950	978	1011	1055	1093	1128	1162	1189	1232	1267	1301	1336	1371	1406
1	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	379	425	449	467	479	491	505	517	530	540	560	577	591	605	622	641	655	671	687	703	727	753	782	811	839	870	897	937	964	997	1040	1078	1112	1146	1172	1214	1249	1283	1317	1352	1386
1	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	362	407	430	447	459	470	483	495	507	517	536	552	566	580	595	614	627	643	657	673	696	721	748	776	803	833	859	896	923	954	996	1032	1065	1097	1122	1162	1195	1228	1261	1294	1327
1	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	566	636	672	698	717	736	756	774	793	808	838	863	885	906	931	959	980	1004	1027	1053	1089	1127	1170	1213	1256	1302	1343	1401	1442	1492	1556	1614	1664	1715	1754	1817	1869	1921	1971	2023	2075
1	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	538	604	638	663	681	699	718	735	753	768	796	820	841	861	884	911	931	954	976	1000	1035	1071	1111	1152	1193	1237	1276	1331	1370	1417	1478	1533	1581	1629	1666	1726	1776	1825	1872	1922	1971
1	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	509	572	605	628	645	662	680	697	714	727	754	777	796	815	838	863	882	904	924	948	980	1014	1053	1092	1130	1172	1209	1261	1298	1343	1400	1453	1498	1543	1579	1635	1682	1729	1774	1821	1867
1	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	481	541	571	593	609	626	643	658	674	687	712	734	752	770	791	815	833	853	873	895	926	958	994	1031	1068	1107	1142	1191	1226	1268	1323	1372	1414	1458	1491	1544	1589	1633	1675	1720	1764
1	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	453	509	538	558	574	589	605	619	634	646	670	690	708	725	745	767	784	803	822	842	871	902	936	970	1005	1042	1074	1121	1154	1194	1245	1291	1331	1372	1403	1454	1495	1537	1577	1618	1660
1	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	424	477	504	523	538	552	567	580	595	606	628	647	664	679	698	719	735	753	770	790	817	845	877	910	942	976	1007	1051	1081	1119	1167	1210	1248	1286	1315	1363	1402	1441	1478	1517	1556
1	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	419	471	497	517	531	545	559	573	587	598	620	639	655	670	689	710	725	743	760	779	806	834	866	898	929	963	994	1037	1067	1104	1151	1194	1231	1269	1298	1345	1383	1422	1459	1497	1535
1	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	413	464	491	510	523	537	552	565	579	590	612	630	646	661	680	700	715	733	750	769	795	823	854	885	917	950	980	1023	1053	1089	1136	1178	1215	1252	1280	1326	1364	1402	1439	1477	1515
1	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	408	458	484	503	516	530	544	557	571	582	603	621	637	652	670	690	706	723	739	758	784	811	842	873	904	937	967	1009	1038	1074	1120	1162	1198	1235	1263	1308	1346	1383	1419	1457	1494
1	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	402	452	477	496	509	523	537	550	563	574	595	613	628	643	661	681	696	713	729	748	773	800	831	861	892	924	954	995	1024	1059	1105	1146	1181	1218	1245	1290	1327	1364	1399	1436	1473

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	396	445	470	489	502	515	529	542	555	566	587	604	619	634	652	671	686	703	719	737	762	789	819	849	879	911	940	981	1009	1044	1089	1130	1165	1200	1228	1272	1308	1345	1380	1416	1452
1	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	379	426	450	468	480	493	507	519	531	541	561	578	593	607	624	643	657	673	688	706	730	755	784	813	842	872	900	939	966	1000	1043	1081	1115	1149	1175	1217	1252	1287	1321	1355	1390
1	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	592	665	703	730	750	769	790	810	829	845	876	903	926	948	973	1003	1025	1050	1074	1101	1138	1179	1224	1268	1313	1362	1404	1465	1508	1559	1627	1687	1740	1793	1834	1900	1954	2008	2061	2115	2169
1	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	562	632	668	693	712	731	750	769	788	803	832	858	880	901	924	953	974	997	1020	1046	1081	1120	1163	1205	1247	1294	1334	1392	1433	1481	1546	1603	1653	1703	1742	1805	1856	1908	1958	2009	2061
1	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	533	598	633	657	675	692	711	729	746	760	788	813	833	853	876	903	922	945	967	991	1024	1061	1102	1141	1182	1226	1264	1318	1357	1403	1464	1518	1566	1614	1651	1710	1759	1807	1855	1903	1952
1	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	503	565	598	620	637	654	671	688	705	718	745	768	787	806	827	853	871	892	913	936	967	1002	1040	1078	1116	1158	1193	1245	1282	1325	1383	1434	1479	1524	1559	1615	1661	1707	1752	1798	1844
1	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	474	532	562	584	600	615	632	648	663	676	701	722	741	758	778	802	820	840	859	881	910	943	979	1014	1050	1090	1123	1172	1206	1247	1302	1350	1392	1434	1467	1520	1563	1606	1649	1692	1735
1	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	444	499	527	547	562	577	592	607	622	634	657	677	694	711	730	752	769	787	805	826	853	884	918	951	985	1021	1053	1099	1131	1169	1220	1265	1305	1345	1375	1425	1465	1506	1546	1586	1627
1	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	438	492	520	540	555	569	585	599	613	625	648	668	685	702	720	742	758	777	795	815	842	872	906	938	972	1008	1039	1084	1116	1154	1204	1248	1288	1327	1357	1406	1446	1486	1525	1565	1605
1	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	432	485	513	533	547	561	577	591	605	617	639	659	676	692	710	732	748	766	784	804	831	861	894	926	958	994	1025	1069	1101	1138	1188	1232	1270	1309	1339	1387	1426	1466	1505	1544	1583
1	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	426	479	506	526	540	554	569	583	597	608	631	650	667	683	701	722	738	756	773	793	819	849	881	913	945	981	1011	1055	1086	1122	1171	1215	1253	1291	1320	1368	1407	1446	1484	1523	1562
1	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	420	472	499	518	532	546	561	575	589	600	622	641	657	673	691	712	728	745	763	782	808	837	869	900	932	967	997	1040	1071	1107	1155	1198	1235	1273	1302	1349	1387	1426	1463	1502	1540
1	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	414	465	492	511	525	538	553	567	580	591	613	632	648	664	681	702	717	735	752	771	797	825	857	888	919	953	983	1025	1056	1091	1139	1181	1218	1255	1284	1330	1368	1406	1443	1480	1518
1	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	397	446	471	489	502	515	529	543	555	566	587	605	620	635	652	672	687	703	720	738	762	790	820	850	880	913	941	982	1010	1045	1090	1130	1166	1201	1229	1273	1309	1345	1381	1417	1453
1	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	618	694	733	762	782	803	824	845	865	882	914	942	966	989	1015	1046	1069	1096	1121	1148	1188	1230	1277	1324	1370	1421	1465	1529	1573	1627	1698	1760	1816	1871	1914	1982	2039	2095	2150	2207	2263
1	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	587	659	696	724	743	763	783	803	822	838	868	895	918	940	964	994	1016	1041	1065	1091	1129	1168	1213	1258	1301	1350	1392	1453	1494	1546	1613	1672	1725	1777	1818	1883	1937	1990	2042	2097	2150
1	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	556	625	660	686	704	723	742	760	778	794	823	848	869	890	913	941	962	986	1009	1033	1069	1107	1149	1192	1233	1279	1318	1376	1416	1464	1528	1584	1634	1684	1723	1784	1835	1885	1935	1986	2037
1	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	525	590	623	648	665	683	700	718	735	750	777	801	821	841	863	889	909	932	953	976	1010	1045	1085	1125	1164	1208	1245	1300	1337	1383	1443	1496	1544	1590	1627	1685	1733	1781	1827	1876	1924
1	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	494	555	586	610	626	642	659	676	692	706	731	754	773	791	812	837	855	877	897	918	950	984	1022	1059	1096	1137	1172	1223	1258	1302	1358	1408	1453	1497	1531	1586	1631	1676	1720	1766	1810
1	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	463	520	550	571	586	602	618	634	649	661	685	706	724	742	761	784	802	822	841	861	891	922	958	993	1027	1066	1099	1147	1180	1220	1273	1320	1362	1403	1435	1486	1529	1571	1612	1655	1697
1	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	457	514	542	564	579	594	610	625	640	653	676	697	715	732	751	774	791	811	830	850	879	910	945	980	1014	1052	1084	1131	1164	1204	1257	1302	1344	1385	1416	1467	1509	1550	1591	1633	1675
1	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	451	507	535	556	571	586	602	617	631	644	667	688	705	722	741	764	780	800	818	838	867	898	932	967	1000	1037	1069	1116	1148	1188	1240	1285	1326	1366	1397	1447	1488	1529	1569	1611	1652
1	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	445	500	528	549	563	578	593	608	623	635	658	678	696	712	731	753	770	789	807	827	855	886	919	953	986	1023	1055	1101	1133	1171	1223	1267	1308	1347	1378	1427	1468	1508	1548	1589	1629
1	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	439	493	520	541	555	570	585	600	614	626	649	669	686	702	721	743	759	778	796	815	843	873	907	940	973	1009	1040	1086	1117	1155	1206	1250	1289	1328	1359	1407	1448	1487	1526	1567	1607
1	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	433	486	513	533	547	562	577	591	605	617	640	659	676	692	710	732	748	767	785	804	832	861	894	927	959	995	1025	1070	1101	1139	1189	1232	1271	1310	1340	1387	1427	1466	1505	1545	1584
1	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	414	465	491	511	524	538	552	566	580	591	612	631	647	663	680	701	716	734	751	769	796	824	856	887	918	952	982	1024	1054	1090	1138	1179	1217	1254	1282	1328	1366	1404	1440	1479	1516
1	0	Taxicab Vehicle-for-Hire 1	4143																																								
1	5	Taxicab Vehicle-for-Hire 1	3936																																								
1	10	Taxicab Vehicle-for-Hire 1	3729																																								
1	15	Taxicab Vehicle-for-Hire 1	3522																																								
1	20	Taxicab Vehicle-for-Hire 1	3314																																								
1	25	Taxicab Vehicle-for-Hire 1	3107																																								
1	26	Taxicab Vehicle-for-Hire 1	3066																																								
1	27	Taxicab Vehicle-for-Hire 1	3024																																								
1	28	Taxicab Vehicle-for-Hire 1	2983																																								
1	29	Taxicab Vehicle-for-Hire 1	2942																																								
1	30	Taxicab Vehicle-for-Hire 1	2900																																								
1	33	Taxicab Vehicle-for-Hire 1	2776																																								
1	0	Taxicab Vehicle-for-Hire 2	6215																																								
1	5	Taxicab Vehicle-for-Hire 2	5904																																								
1	10	Taxicab Vehicle-for-Hire 2	5593																																								
1	15	Taxicab Vehicle-for-Hire 2	5283																																								
1	20	Taxicab Vehicle-for-Hire 2	4972																																								
1	25	Taxicab Vehicle-for-Hire 2	4661																																								
1	26	Taxicab Vehicle-for-Hire 2	4599																																								
1	27	Taxicab Vehicle-for-Hire 2	4537																																								
1	28	Taxicab Vehicle-for-Hire 2	4475																																								
1	29	Taxicab Vehicle-for-Hire 2	4413																																								
1	30	Taxicab Vehicle-for-Hire 2	4350																																								
1	33	Taxicab Vehicle-for-Hire 2	4164																																								
1	0	Taxicab Vehicle-for-Hire 3	8286																																								
1	5	Taxicab Vehicle-for-Hire 3	7872																																								
1	10	Taxicab Vehicle-for-Hire 3	7457																																								
1	15	Taxicab Vehicle-for-Hire 3	7043																																								
1	20	Taxicab Vehicle-for-Hire 3	6629																																								
1	25	Taxicab Vehicle-for-Hire 3	6214																																								

December 15, 2017

2018 INTERIM APPLICATION
Vehicles for Hire Appendix 1

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	26	Taxicab Vehicle-for-Hire 3	6132																																								
1	27	Taxicab Vehicle-for-Hire 3	6049																																								
1	28	Taxicab Vehicle-for-Hire 3	5966																																								
1	29	Taxicab Vehicle-for-Hire 3	5883																																								
1	30	Taxicab Vehicle-for-Hire 3	5800																																								
1	33	Taxicab Vehicle-for-Hire 3	5552																																								
1	0	Taxicab Vehicle-for-Hire 4	10358																																								
1	5	Taxicab Vehicle-for-Hire 4	9840																																								
1	10	Taxicab Vehicle-for-Hire 4	9322																																								
1	15	Taxicab Vehicle-for-Hire 4	8804																																								
1	20	Taxicab Vehicle-for-Hire 4	8286																																								
1	25	Taxicab Vehicle-for-Hire 4	7768																																								
1	26	Taxicab Vehicle-for-Hire 4	7665																																								
1	27	Taxicab Vehicle-for-Hire 4	7561																																								
1	28	Taxicab Vehicle-for-Hire 4	7458																																								
1	29	Taxicab Vehicle-for-Hire 4	7354																																								
1	30	Taxicab Vehicle-for-Hire 4	7251																																								
1	33	Taxicab Vehicle-for-Hire 4	6940																																								
2	0	Accessible Vehicle-for-Hire 1	634	660	699	735	775	813	851	888	930	968	1006	1045	1084	1123																												
2	5	Accessible Vehicle-for-Hire 1	602	627	664	698	736	772	808	844	883	920	956	993	1030	1067																												
2	10	Accessible Vehicle-for-Hire 1	571	594	629	661	697	732	766	799	837	871	905	940	976	1011																												
2	15	Accessible Vehicle-for-Hire 1	539	561	594	625	659	691	723	755	790	823	855	888	921	955																												
2	20	Accessible Vehicle-for-Hire 1	507	528	559	588	620	650	681	710	744	774	805	836	867	898																												
2	25	Accessible Vehicle-for-Hire 1	475	495	524	551	581	610	638	666	697	726	754	784	813	842																												
2	26	Accessible Vehicle-for-Hire 1	469	488	517	544	573	602	630	657	688	716	744	773	802	831																												
2	27	Accessible Vehicle-for-Hire 1	463	482	510	537	566	593	621	648	679	707	734	763	791	820																												
2	28	Accessible Vehicle-for-Hire 1	456	475	503	529	558	585	613	639	670	697	724	752	780	809																												
2	29	Accessible Vehicle-for-Hire 1	450	469	496	522	550	577	604	630	660	687	714	742	770	797																												
2	30	Accessible Vehicle-for-Hire 1	444	462	489	514	542	569	596	622	651	678	704	731	759	786																												
2	33	Accessible Vehicle-for-Hire 1	425	442	468	492	519	545	570	595	623	649	674	700	726	752																												
2	0	Accessible Vehicle-for-Hire 2	669	696	736	775	817	857	896	936	980	1020	1060	1101	1142	1183																												
2	5	Accessible Vehicle-for-Hire 2	636	661	699	736	776	814	851	889	931	969	1007	1046	1085	1124																												
2	10	Accessible Vehicle-for-Hire 2	602	626	662	697	735	771	806	842	882	918	954	991	1028	1065																												
2	15	Accessible Vehicle-for-Hire 2	569	592	626	659	694	728	762	796	833	867	901	936	971	1006																												
2	20	Accessible Vehicle-for-Hire 2	535	557	589	620	654	686	717	749	784	816	848	881	914	946																												
2	25	Accessible Vehicle-for-Hire 2	502	522	552	581	613	643	672	702	735	765	795	826	856	887																												
2	26	Accessible Vehicle-for-Hire 2	495	515	545	573	605	634	663	693	725	755	784	815	845	875																												
2	27	Accessible Vehicle-for-Hire 2	488	508	537	566	596	626	654	683	715	745	774	804	834	864																												
2	28	Accessible Vehicle-for-Hire 2	482	501	530	558	588	617	645	674	706	734	763	793	822	852																												
2	29	Accessible Vehicle-for-Hire 2	475	494	523	550	580	608	636	665	696	724	753	782	811	840																												
2	30	Accessible Vehicle-for-Hire 2	468	487	515	542	572	600	627	655	686	714	742	771	799	828																												
2	33	Accessible Vehicle-for-Hire 2	448	466	493	519	547	574	600	627	657	683	710	738	765	793																												
2	0	Accessible Vehicle-for-Hire 3	696	724	766	806	850	892	933	974	1020	1062	1104	1146	1189	1232																												
2	5	Accessible Vehicle-for-Hire 3	661	688	728	766	807	847	886	925	969	1009	1049	1089	1130	1170																												
2	10	Accessible Vehicle-for-Hire 3	626	652	689	725	765	803	840	877	918	956	994	1031	1070	1109																												
2	15	Accessible Vehicle-for-Hire 3	592	615	651	685	722	758	793	828	867	903	938	974	1011	1047																												
2	20	Accessible Vehicle-for-Hire 3	557	579	613	645	680	714	746	779	816	850	883	917	951	986																												
2	25	Accessible Vehicle-for-Hire 3	522	543	574	604	637	669	700	730	765	796	828	859	892	924																												
2	26	Accessible Vehicle-for-Hire 3	515	536	567	596	629	660	690	721	755	786	817	848	880	912																												
2	27	Accessible Vehicle-for-Hire 3	508	529	559	588	620	651	681	711	745	775	806	837	868	899																												
2	28	Accessible Vehicle-for-Hire 3	501	521	552	580	612	642	672	701	734	765	795	825	856	887																												
2	29	Accessible Vehicle-for-Hire 3	494	514	544	572	603	633	662	692	724	754	784	814	844	875																												
2	30	Accessible Vehicle-for-Hire 3	487	507	536	564	595	624	653	682	714	743	773	802	832	862																												
2	33	Accessible Vehicle-for-Hire 3	466	485	513	540	569	598	625	653	683	712	740	768	797	825																												
2	0	Accessible Vehicle-for-Hire 4	730	759	804	846	892	935	979	1022	1071	1114	1158	1202	1247	1292																												
2	5	Accessible Vehicle-for-Hire 4	693	721	764	804	847	888	930	971	1017	1058	1100	1142	1185	1227																												

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	10	Accessible Vehicle-for-Hire 4	657	683	724	761	803	841	881	920	964	1003	1042	1082	1122	1163																												
2	15	Accessible Vehicle-for-Hire 4	620	645	683	719	758	795	832	869	910	947	984	1022	1060	1098																												
2	20	Accessible Vehicle-for-Hire 4	584	607	643	677	714	748	783	818	857	891	926	962	998	1034																												
2	25	Accessible Vehicle-for-Hire 4	547	569	603	634	669	701	734	766	803	835	868	901	935	969																												
2	26	Accessible Vehicle-for-Hire 4	540	562	595	626	660	692	724	756	793	824	857	889	923	956																												
2	27	Accessible Vehicle-for-Hire 4	533	554	587	618	651	683	715	746	782	813	845	877	910	943																												
2	28	Accessible Vehicle-for-Hire 4	526	546	579	609	642	673	705	736	771	802	834	865	898	930																												
2	29	Accessible Vehicle-for-Hire 4	518	539	571	601	633	664	695	726	760	791	822	853	885	917																												
2	30	Accessible Vehicle-for-Hire 4	511	531	563	592	624	654	685	715	750	780	811	841	873	904																												
2	33	Accessible Vehicle-for-Hire 4	489	509	539	567	598	626	656	685	718	746	776	805	835	866																												
2	0	Limousine Vehicle-for-Hire 1	1585																																								
2	5	Limousine Vehicle-for-Hire 1	1506																																								
2	10	Limousine Vehicle-for-Hire 1	1426																																								
2	15	Limousine Vehicle-for-Hire 1	1347																																								
2	20	Limousine Vehicle-for-Hire 1	1268																																								
2	25	Limousine Vehicle-for-Hire 1	1189																																								
2	26	Limousine Vehicle-for-Hire 1	1173																																								
2	27	Limousine Vehicle-for-Hire 1	1157																																								
2	28	Limousine Vehicle-for-Hire 1	1141																																								
2	29	Limousine Vehicle-for-Hire 1	1125																																								
2	30	Limousine Vehicle-for-Hire 1	1109																																								
2	33	Limousine Vehicle-for-Hire 1	1062																																								
2	0	Limousine Vehicle-for-Hire 2	1670																																								
2	5	Limousine Vehicle-for-Hire 2	1586																																								
2	10	Limousine Vehicle-for-Hire 2	1503																																								
2	15	Limousine Vehicle-for-Hire 2	1419																																								
2	20	Limousine Vehicle-for-Hire 2	1336																																								
2	25	Limousine Vehicle-for-Hire 2	1252																																								
2	26	Limousine Vehicle-for-Hire 2	1236																																								
2	27	Limousine Vehicle-for-Hire 2	1219																																								
2	28	Limousine Vehicle-for-Hire 2	1202																																								
2	29	Limousine Vehicle-for-Hire 2	1186																																								
2	30	Limousine Vehicle-for-Hire 2	1169																																								
2	33	Limousine Vehicle-for-Hire 2	1119																																								
2	0	Limousine Vehicle-for-Hire 3	1738																																								
2	5	Limousine Vehicle-for-Hire 3	1651																																								
2	10	Limousine Vehicle-for-Hire 3	1564																																								
2	15	Limousine Vehicle-for-Hire 3	1477																																								
2	20	Limousine Vehicle-for-Hire 3	1390																																								
2	25	Limousine Vehicle-for-Hire 3	1303																																								
2	26	Limousine Vehicle-for-Hire 3	1286																																								
2	27	Limousine Vehicle-for-Hire 3	1269																																								
2	28	Limousine Vehicle-for-Hire 3	1251																																								
2	29	Limousine Vehicle-for-Hire 3	1234																																								
2	30	Limousine Vehicle-for-Hire 3	1217																																								
2	33	Limousine Vehicle-for-Hire 3	1164																																								
2	0	Limousine Vehicle-for-Hire 4	1823																																								
2	5	Limousine Vehicle-for-Hire 4	1732																																								
2	10	Limousine Vehicle-for-Hire 4	1641																																								
2	15	Limousine Vehicle-for-Hire 4	1550																																								
2	20	Limousine Vehicle-for-Hire 4	1458																																								
2	25	Limousine Vehicle-for-Hire 4	1367																																								
2	26	Limousine Vehicle-for-Hire 4	1349																																								
2	27	Limousine Vehicle-for-Hire 4	1331																																								
2	28	Limousine Vehicle-for-Hire 4	1313																																								
2	29	Limousine Vehicle-for-Hire 4	1294																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	30	Limousine Vehicle-for-Hire 4	1276																																								
2	33	Limousine Vehicle-for-Hire 4	1221																																								
2	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	637	687	715	739	764	790	814	838	863	887	909	918	940	980	1010	1048	1088	1127	1169	1209	1252	1294	1331	1373	1415	1467	1513	1557	1602	1647	1690	1735	1774	1814	1851	1891	1934	1977	2020	2063	2106
2	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	605	653	679	702	726	750	773	796	820	843	864	872	893	931	959	996	1034	1071	1111	1149	1189	1229	1264	1304	1344	1394	1437	1479	1522	1565	1605	1648	1685	1723	1758	1796	1837	1878	1919	1960	2001
2	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	573	618	643	665	688	711	733	754	777	798	818	826	846	882	909	943	979	1014	1052	1088	1127	1165	1198	1236	1273	1320	1362	1401	1442	1482	1521	1561	1597	1633	1666	1702	1741	1779	1818	1857	1895
2	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	541	584	608	628	649	671	692	712	734	754	773	780	799	833	858	891	925	958	994	1028	1064	1100	1131	1167	1203	1247	1286	1323	1362	1400	1436	1475	1508	1542	1573	1607	1644	1680	1717	1754	1790
2	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	510	550	572	591	611	632	651	670	690	710	727	734	752	784	808	838	870	902	935	967	1002	1035	1065	1098	1132	1174	1210	1246	1282	1318	1352	1388	1419	1451	1481	1513	1547	1582	1616	1650	1685
2	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	478	515	536	554	573	592	610	628	647	665	682	688	705	735	757	786	816	845	877	907	939	970	998	1030	1061	1100	1135	1168	1201	1235	1267	1301	1330	1360	1388	1418	1450	1483	1515	1547	1579
2	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	471	508	529	547	565	585	602	620	639	656	673	679	696	725	747	776	805	834	865	895	926	958	985	1016	1047	1086	1120	1152	1185	1219	1251	1284	1313	1342	1370	1399	1431	1463	1495	1527	1558
2	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	465	502	522	539	558	577	594	612	630	648	664	670	686	715	737	765	794	823	853	883	914	945	972	1002	1033	1071	1104	1137	1169	1202	1234	1267	1295	1324	1351	1380	1412	1443	1475	1506	1537
2	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	459	495	515	532	550	569	586	603	621	639	654	661	677	706	727	755	783	811	842	870	901	932	958	989	1019	1056	1089	1121	1153	1186	1217	1249	1277	1306	1333	1362	1392	1423	1454	1485	1516
2	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	452	488	508	525	542	561	578	595	613	630	645	652	667	696	717	744	772	800	830	858	889	919	945	975	1005	1042	1074	1105	1137	1169	1200	1232	1260	1288	1314	1343	1373	1404	1434	1465	1495
2	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	446	481	500	517	535	553	570	587	604	621	636	643	658	686	707	734	762	789	818	846	876	906	932	961	990	1027	1059	1090	1121	1153	1183	1214	1242	1270	1296	1324	1354	1384	1414	1444	1474
2	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	427	460	479	495	512	529	545	561	578	594	609	615	630	657	677	702	729	755	783	810	839	867	892	920	948	983	1014	1043	1073	1103	1132	1162	1189	1215	1240	1267	1296	1325	1353	1382	1411
2	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	668	719	749	774	801	827	852	878	904	929	953	961	984	1026	1058	1098	1140	1180	1224	1266	1311	1355	1395	1439	1483	1537	1585	1631	1679	1726	1771	1817	1859	1901	1939	1981	2026	2071	2116	2161	2207
2	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	635	683	712	735	761	786	809	834	859	883	905	913	935	975	1005	1043	1083	1121	1163	1203	1245	1287	1325	1367	1409	1460	1506	1549	1595	1640	1682	1726	1766	1806	1842	1882	1925	1967	2010	2053	2097
2	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	601	647	674	697	721	744	767	790	814	836	858	865	886	923	952	988	1026	1062	1102	1139	1180	1219	1255	1295	1335	1383	1426	1468	1511	1553	1594	1635	1673	1711	1745	1783	1823	1864	1904	1945	1986
2	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	568	611	637	658	681	703	724	746	768	790	810	817	836	872	899	933	969	1003	1040	1076	1114	1152	1186	1223	1261	1306	1347	1386	1427	1467	1505	1544	1580	1616	1648	1684	1722	1760	1799	1837	1876
2	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	534	575	599	619	641	662	682	702	723	743	762	769	787	821	846	878	912	944	979	1013	1049	1084	1116	1151	1186	1230	1268	1305	1343	1381	1417	1454	1487	1521	1551	1585	1621	1657	1693	1729	1766
2	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	501	539	562	580	601	620	639	658	678	697	715	721	738	769	793	823	855	885	918	949	983	1016	1046	1079	1112	1153	1189	1223	1259	1294	1328	1363	1394	1426	1454	1486	1519	1553	1587	1621	1655
2	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	494	532	554	573	593	612	630	650	669	687	705	711	728	759	783	813	844	873	906	937	970	1003	1032	1065	1097	1137	1173	1207	1242	1277	1311	1345	1376	1407	1435	1466	1499	1533	1566	1599	1633
2	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	488	525	547	565	585	604	622	641	660	678	696	702	718	749	772	802	832	861	894	924	957	989	1018	1050	1083	1122	1157	1191	1226	1260	1293	1326	1357	1388	1415	1446	1479	1512	1545	1578	1611
2	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	481	518	539	557	577	595	613	632	651	669	686	692	708	739	762	791	821	850	881	912	944	976	1004	1036	1068	1107	1141	1174	1209	1243	1275	1308	1338	1369	1396	1426	1459	1491	1524	1556	1589
2	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	474	510	532	550	569	587	605	623	642	660	677	682	699	728	751	780	809	838	869	899	931	962	990	1022	1053	1091	1125	1158	1192	1225	1257	1290	1320	1350	1377	1407	1438	1470	1502	1534	1567
2	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	468	503	524	542	561	579	596	615	633	650	667	673	689	718	741	769	798	826	857	886	918	948	976	1007	1038	1076	1109	1142	1175	1208	1240	1272	1301	1331	1357	1387	1418	1450	1481	1513	1545
2	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	448	482	502	519	537	554	571	588	606	622	639	644	659	687	709	736	764	791	820	848	878	908	935	964	994	1030	1062	1093	1125	1156	1187	1217	1246	1274	1299	1327	1357	1388	1418	1448	1479
2	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	698	752	783	810	837	865	891	918	945	972	996	1005	1029	1073	1106	1148	1191	1234	1280	1324	1371	1417	1458	1504	1550	1607	1657	1705	1755	1804	1851	1900	1943	1987	2027	2071	2118	2165	2213	2260	2307
2	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	663	714	744	769	795	822	846	872	898	923	946	955	978	1019	1051	1091	1131	1172	1216	1258	1302	1346	1385	1429	1472	1527	1574	1620	1667	1714	1758	1805	1846	1888	1926	1967	2012	2057	2102	2147	2192
2	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	628	677	705	729	753	778	802	826	850	875	896	904	926	966	995	1033	1072	1111	1152	1192	1234	1275	1312	1354	1395	1446	1491	1534	1579	1624	1666	1710	1749	1788	1824	1864	1906	1948	1992	2034	2076
2	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	593	639	666	688	711	735	757	780	803	826	847	854	875	912	940	976	1012	1049	1088	1125	1165	1204	1239	1278	1317	1366	1408	1449	1492	1533	1573	1615	1652	1689	1723	1760	1800	1840	1881	1921	1961
2	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	558	602	626	648	670	692	713	734	756	778	797	804	823	858	885	918	953	987	1024	1059	1097	1134	1166	1203	1240	1286	1326	1364	1404	1443	1481	1520	1554	1590	1622	1657	1694	1732	1770	1808	1846
2	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	523	564	587	607	628	649	668	688	709	729	747	754	772	805	829	861	893	925	960	993	1028	1063	1093	1128	1162	1205	1243	1279	1316	1353	1388	1425	1457	1490	1520	1553	1588	1624	1660	1695	1730
2	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	517	556	579	599	619	640	659	679	699	719	737	744	761	794	818	850	881	913	947	980	1015	1049	1079	1113	1147	1189	1226	1262	1299	1335	1370	1406	1438	1470	1500	1533	1567	1602	1638	1672	1707
2	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	510	549	572	591	611	631	650	670	690	710	727	734	751	783	807	838	869	901	934	967	1001	1034	1064	1098	1131	1173	1210	1245	1281	1317	1351	1387	1418	1451	1480	1512	1546	1580	1615	1650	1684
2	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	503	541	564	583	603	623	642	661	680	700	717	724	741	773	796	827	858	888	922	953	987	1020	1050	1083	1116	1157	1193	1228	1264	1299	1333	1368	1399	1431	1459	1491	1525	1559	1593	1627	1661
2	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	496	534	556	575	594	614	633	652	671	690	707	714	731	762	785	815	846	876	909	940	973	1006	1035	1068	1100	1141	1176	1211	1246	1281	1314	1349	1380	1411	1439	1470	1504	1537	1571	1605	1638
2	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	489	526	548	567	586	605	624	643	661	680	697	703	720	751	774	804	834	864	896	927	960	992	1021	1053	1085	1125	1160	1193	1228	1263	1296	1330	1360	1391	1419	1450	1483	1515	1549	1582	1615
2	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	468	504	525	543	561	580	597	615	633	651	667	673	689	719	741	769	798	827	858	887	919	949	977	1008	1038	1077	1110	1142	1176	1209	1240	1273	1302	1331	1358	1388	1419	1451	1483	1514	1546
2	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	728	785	817	845	874	902	930	958	986	1014	1039	1049	1074	1120	1154	1198	1243	1288	1336	1381	1430	1478	1522	1570	1618	1676	1729	1780	1831	1883	1932	1982	2028	2074	2116	2161	2210	2260	2309	2358	2407
2	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	692	746	776	803	830	857	883	910	937	963	987	997	1020	1064	1096	1138	1181	1224	1269	1312	1358	1404	1446	1491	1537	1592	1643	1691	1739	1789	1835	1883	1927	1970	2010	2053	2099	2147	2194	2240	2287
2	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	655	706	735	760	787	812	837	862	887	913	935	944	967	1008	1039	1078	1119	1159	1202	1243	1287	1330	1370	1413	1456	1508	1556	1602	1648	1695	1739	1784	1825	1867	1904	1945	1989	2034	2078	2122	2166
2	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	619	667	694	718	743	767	790	814	838	862	883	892	913	952	981	1018	1057	1095	1136	1174	1215	1256	1294	1334	1375	1425	1470	1513	1556	1601	1642	1685	1724	1763	1799	1837	1878	1921	1963	2004	2046
2	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	582	628	654	676	699	722	744	766	789	811	831	839	859	896	923	958	994	1030	1069	1105	1144	1182	1218	1256	1294	1341	1383	1424	1465	1506	1546	1586	1622	1659	1693	1729	1768	1808	1847	1886	1926
2	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	546	589	613	634	655	676	697	718	739	760	779	787	805	840	865	898	932	966	1002	1036	1072	1108	1141	1177	1213	1257	1297	1335	1373	1412	1449	1486	1521	1555	1587	1621	1657	1695	1732	1768	1805
2	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	539	581	605	625	647	667	688	709	730	750	769	776	795	829	854	887	920	953	989	1022	1058	1094	1126	1162	1197	1240	1279	1317	1355	1393	1430	1467	1501	1535	1566	1599	1635	1672	1709	1745	1781
2	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	531	573	596	617	638	658	679	699	720	740	758	766	784	818	842	875	907	940	975	1008	1044	1079	1111	1146	1181	1223	1262	1299	1337	1375	1410	1447	1480	1514	1545	1578	1613	1650	1686	1721	1757
2	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	524	565	588	608	629	649	670	690	710	730	748	755	773	806	831	863	895	927	962	994	1030	1064	1096	1130	1165	1207	1245	1282	1318	1356	1391	1427	1460	1493	1524	1556	1591	1627	1662	1698	1733
2	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	517	557	580	600	621	640	660	680	700	720	738	745	763	795	819	851	883	914	949	981	1015	1049	1081	1115	1149	1190	1228	1264	1300	1337	1372	1407	1440	1473	1502	1534	1569	1605	1639	1674	1709
2	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	510	549	572	591	612	631	651	671	690	710	727	734	752	784	808	839	870	902	935	967	1001	1035	1065	1099	1133	1173	1210	1246	1282	1318	1352	1387	1420	1452	1481	1513	1547	1582	1616	1651	1685
2	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	488	526	547	566	586	604	623	642	661	679	696	703	720	750	773	803	833	863	895	925	958	990	1020	1052	1084	1123	1158	1193	1227	1262	1294	1328	1359	1390	1418	1448	1481	1514	1547	1580	1613
2	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	513	576	609	633	651	667	685	702	719	733	760	782	803	822	844	869	888	910	931	954	987	1023	1062	1100	1139	1181	1218	1270	1307	1352	1411	1463	1509	1555	1591	1647	1695	1741	1787	1834	1881
2	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	487	547	579	601	618	634	651	667	683	696	722	743	763	781	802	826	844	864	884	906	938	972	1009	1045	1082	1122	1157	1206	1242	1284	1340	1390	1434	1477	1511	1565	1610	1654	1698	1742	1787
2	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	462	518	548	570	586	600	616	632	647	660	684	704	723	740	760	782	799	819	838	859	888	921	956	990	1025	1063	1096	1143	1176	1217	1270	1317	1358	1399	1432	1482	1525	1567	1608	1651	1693
2	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	436	490	518	538	553	567	582	597	611	623	646	665	683	699	717	739	755	773	791	811	839	870	903	935	968	1004	1035	1079	1111	1149	1199	1244	1283	1322	1352	1400	1441	1480	1519	1559	1599
2	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	410	461	487	506	521	534	548	562	575	586	608	626	642	658	675	695	710	728	745	763	790	818	850	880	911	945	974	1016	1046	1082	1129	1170	1207	1244	1273	1318	1356	1393	1430	1467	1505
2	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	385	432	457	475	488	500	514	526	539	550	570	586	602	616	633	652	666	682	698	715	740	767	796	825	854	886	913	952	980	1014	1058	1097	1132	1166	1193	1235	1271	1306	1340	1375	1411

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	380	426	451	468	482	494	507	519	532	542	562	579	594	608	625	643	657	673	689	706	730	757	786	814	843	874	901	940	967	1000	1044	1083	1117	1151	1177	1219	1254	1288	1322	1357	1392
2	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	374	420	445	462	475	487	500	512	525	535	555	571	586	600	616	634	648	664	680	696	721	747	775	803	831	862	889	927	954	987	1030	1068	1102	1135	1161	1202	1237	1271	1305	1339	1373
2	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	369	415	438	456	469	480	493	505	518	528	547	563	578	592	608	626	639	655	670	687	711	737	765	792	820	850	877	914	941	973	1016	1053	1086	1120	1146	1186	1220	1254	1287	1320	1354
2	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	364	409	432	449	462	474	486	498	510	520	540	555	570	584	599	617	630	646	661	677	701	726	754	781	809	839	865	902	928	960	1002	1039	1071	1104	1130	1169	1203	1236	1269	1302	1336
2	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	359	403	426	443	456	467	479	491	503	513	532	547	562	575	591	608	622	637	652	668	691	716	743	770	797	827	853	889	915	946	988	1024	1056	1088	1114	1153	1186	1219	1251	1284	1317
2	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	344	386	408	424	436	447	459	470	482	491	509	524	538	551	565	582	595	610	624	639	661	685	712	737	763	791	816	851	876	906	945	980	1011	1042	1066	1103	1136	1166	1197	1229	1260
2	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	538	604	638	663	682	698	717	736	753	768	796	819	841	861	884	911	931	954	976	1000	1034	1071	1112	1153	1193	1237	1276	1331	1369	1417	1478	1532	1581	1629	1666	1726	1775	1824	1872	1922	1970
2	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	511	574	606	630	648	663	681	699	715	730	756	778	799	818	840	865	884	906	927	950	982	1017	1056	1095	1133	1175	1212	1264	1301	1346	1404	1455	1502	1548	1583	1640	1686	1733	1778	1826	1871
2	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	484	544	574	597	614	628	645	662	678	691	716	737	757	775	796	820	838	859	878	900	931	964	1001	1038	1074	1113	1148	1198	1232	1275	1330	1379	1423	1466	1499	1553	1597	1642	1685	1730	1773
2	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	457	513	542	564	580	593	609	626	640	653	677	696	715	732	751	774	791	811	830	850	879	910	945	980	1014	1051	1085	1131	1164	1204	1256	1302	1344	1385	1416	1467	1509	1550	1591	1634	1674
2	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	430	483	510	530	546	558	574	589	602	614	637	655	673	689	707	729	745	763	781	800	827	857	890	922	954	990	1021	1065	1095	1134	1182	1226	1265	1303	1333	1381	1420	1459	1498	1538	1576
2	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	403	453	478	497	511	523	538	552	565	576	597	614	631	646	663	683	698	715	732	750	775	803	834	865	895	928	957	998	1027	1063	1108	1149	1186	1222	1249	1294	1331	1368	1404	1441	1477
2	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	398	447	472	491	505	517	531	545	557	568	589	606	622	637	654	674	689	706	722	740	765	793	823	853	883	915	944	985	1013	1049	1094	1134	1170	1205	1233	1277	1313	1350	1385	1422	1458
2	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	393	441	466	484	498	510	523	537	550	561	581	598	614	629	645	665	680	696	712	730	755	782	812	842	871	903	931	972	999	1034	1079	1118	1154	1189	1216	1260	1296	1332	1367	1403	1438
2	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	387	435	459	477	491	503	516	530	542	553	573	590	606	620	636	656	670	687	703	720	744	771	801	830	859	891	919	958	986	1020	1064	1103	1138	1173	1200	1243	1278	1313	1348	1384	1418
2	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	382	429	453	471	484	496	509	523	535	545	565	581	597	611	628	647	661	677	693	710	734	760	790	819	847	878	906	945	972	1006	1049	1088	1123	1157	1183	1225	1260	1295	1329	1365	1399
2	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	377	423	447	464	477	489	502	515	527	538	557	573	589	603	619	638	652	668	683	700	724	750	778	807	835	866	893	932	958	992	1035	1072	1107	1140	1166	1208	1242	1277	1310	1345	1379
2	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	360	405	427	444	457	468	480	493	505	515	533	549	563	577	592	610	624	639	654	670	693	718	745	773	799	829	855	892	917	949	990	1026	1059	1091	1116	1156	1189	1222	1254	1288	1320
2	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	562	631	667	693	713	730	750	769	788	803	833	857	880	900	925	952	973	997	1020	1045	1081	1120	1163	1205	1248	1294	1334	1391	1432	1481	1546	1602	1653	1703	1742	1804	1856	1907	1957	2009	2060
2	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	534	599	634	658	677	693	712	731	749	763	791	814	836	855	879	904	924	947	969	993	1027	1064	1105	1145	1186	1229	1267	1321	1360	1407	1469	1522	1570	1618	1655	1714	1763	1812	1859	1909	1957
2	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	506	568	600	624	642	657	675	692	709	723	750	771	792	810	832	857	876	897	918	940	973	1008	1047	1084	1123	1165	1201	1252	1289	1333	1391	1442	1488	1533	1568	1624	1670	1716	1761	1808	1854
2	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	478	536	567	589	606	620	637	654	670	683	708	728	748	765	786	809	827	847	867	888	919	952	989	1024	1061	1100	1134	1182	1217	1259	1314	1362	1405	1448	1481	1533	1578	1621	1663	1708	1751
2	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	450	505	534	554	570	584	600	615	630	642	666	686	704	720	740	762	778	798	816	836	865	896	930	964	998	1035	1067	1113	1146	1185	1237	1282	1322	1362	1394	1443	1485	1526	1566	1607	1648
2	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	421	473	500	520	535	547	562	577	591	602	625	643	660	675	694	714	730	748	765	784	811	840	872	904	936	970	1000	1043	1074	1111	1159	1201	1240	1277	1306	1353	1392	1430	1468	1507	1545
2	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	416	467	494	513	528	540	555	569	583	594	616	634	651	666	684	704	720	738	755	773	800	829	861	892	924	958	987	1029	1060	1096	1144	1185	1223	1260	1289	1335	1373	1411	1448	1487	1524
2	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	410	461	487	506	520	533	547	561	575	586	608	626	642	657	675	695	710	728	745	763	789	818	849	880	911	945	974	1015	1045	1081	1129	1169	1207	1243	1272	1317	1355	1392	1429	1467	1504
2	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	405	454	480	499	513	526	540	554	567	578	600	617	634	648	666	685	701	718	734	752	778	806	837	868	899	932	960	1002	1031	1066	1113	1153	1190	1226	1254	1299	1336	1373	1409	1446	1483
2	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	399	448	474	492	506	518	532	546	559	570	591	608	625	639	657	676	691	708	724	742	768	795	826	856	886	919	947	988	1017	1052	1098	1137	1174	1209	1237	1281	1318	1354	1389	1426	1463
2	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	393	442	467	485	499	511	525	538	552	562	583	600	616	630	647	666	681	698	714	731	757	784	814	843	874	906	934	974	1002	1037	1082	1121	1157	1192	1219	1263	1299	1335	1370	1406	1442
2	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	377	423	447	464	478	489	502	515	528	538	558	574	590	603	620	638	652	668	683	700	724	750	779	807	836	867	894	932	959	992	1036	1073	1108	1141	1167	1209	1244	1278	1311	1346	1380
2	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	587	659	696	724	744	762	782	803	822	838	869	894	918	940	965	994	1015	1040	1064	1091	1128	1169	1213	1258	1302	1350	1392	1452	1494	1546	1613	1672	1724	1777	1818	1883	1937	1990	2042	2096	2149
2	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	558	626	661	688	707	724	743	763	781	796	826	849	872	893	917	944	964	988	1011	1036	1072	1111	1152	1195	1237	1282	1322	1379	1419	1469	1532	1588	1638	1688	1727	1789	1840	1890	1940	1991	2042
2	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	528	593	626	652	670	686	704	723	740	754	782	805	826	846	868	895	913	936	958	982	1015	1052	1092	1132	1172	1215	1253	1307	1345	1391	1452	1505	1552	1599	1636	1695	1743	1791	1838	1886	1934
2	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	499	560	592	615	632	648	665	683	699	712	739	760	780	799	820	845	863	884	904	927	959	994	1031	1069	1107	1147	1183	1234	1270	1314	1371	1421	1465	1510	1545	1601	1646	1691	1736	1782	1827
2	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	470	527	557	579	595	610	626	642	658	670	695	715	734	752	772	795	812	832	851	873	902	935	970	1006	1042	1080	1114	1162	1195	1237	1290	1338	1379	1422	1454	1506	1550	1592	1634	1677	1719
2	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	440	494	522	543	558	571	586	602	616	628	652	670	688	705	724	745	761	780	798	818	846	877	910	943	976	1012	1044	1089	1120	1159	1210	1254	1293	1333	1363	1412	1453	1492	1531	1572	1612
2	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	434	488	515	536	551	564	579	594	608	620	643	662	679	696	714	736	751	770	787	807	835	865	898	931	963	999	1030	1074	1106	1144	1194	1237	1276	1315	1345	1393	1433	1473	1511	1551	1590
2	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	429	481	508	529	543	556	571	586	600	612	634	653	670	686	704	726	741	759	777	796	823	853	885	918	950	985	1016	1060	1091	1129	1177	1221	1259	1297	1327	1375	1414	1453	1491	1530	1569
2	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	423	474	501	521	536	549	563	578	592	603	626	644	661	677	695	716	731	749	766	786	812	842	873	906	937	972	1002	1045	1076	1113	1161	1204	1241	1279	1309	1356	1395	1433	1470	1509	1547
2	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	417	468	494	514	528	541	555	570	584	595	617	635	652	667	685	706	721	738	755	775	801	830	861	893	924	958	988	1031	1061	1098	1145	1187	1224	1262	1291	1337	1375	1413	1450	1488	1526
2	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	411	461	487	507	521	533	547	562	575	587	608	626	643	658	675	696	710	728	745	764	790	818	849	881	911	945	974	1016	1046	1082	1129	1170	1207	1244	1273	1318	1356	1393	1429	1467	1504
2	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	393	442	466	485	498	511	524	538	551	561	582	599	615	630	647	666	680	697	713	731	756	783	813	843	872	904	933	973	1001	1036	1081	1120	1155	1191	1218	1262	1298	1333	1368	1404	1440
2	0	Taxicab Vehicle-for-Hire 1	2648																																									
2	5	Taxicab Vehicle-for-Hire 1	2516																																								
2	10	Taxicab Vehicle-for-Hire 1	2383																																								
2	15	Taxicab Vehicle-for-Hire 1	2251																																								
2	20	Taxicab Vehicle-for-Hire 1	2118																																								
2	25	Taxicab Vehicle-for-Hire 1	1986																																								
2	26	Taxicab Vehicle-for-Hire 1	1960																																								
2	27	Taxicab Vehicle-for-Hire 1	1933																																								
2	28	Taxicab Vehicle-for-Hire 1	1907																																								
2	29	Taxicab Vehicle-for-Hire 1	1880																																								
2	30	Taxicab Vehicle-for-Hire 1	1854																																								
2	33	Taxicab Vehicle-for-Hire 1	1774																																								
2	0	Taxicab Vehicle-for-Hire 2	3567																																								
2	5	Taxicab Vehicle-for-Hire 2	3389																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	10	Taxicab Vehicle-for-Hire 2	3210																																								
2	15	Taxicab Vehicle-for-Hire 2	3032																																								
2	20	Taxicab Vehicle-for-Hire 2	2854																																								
2	25	Taxicab Vehicle-for-Hire 2	2675																																								
2	26	Taxicab Vehicle-for-Hire 2	2640																																								
2	27	Taxicab Vehicle-for-Hire 2	2604																																								
2	28	Taxicab Vehicle-for-Hire 2	2568																																								
2	29	Taxicab Vehicle-for-Hire 2	2533																																								
2	30	Taxicab Vehicle-for-Hire 2	2497																																								
2	33	Taxicab Vehicle-for-Hire 2	2390																																								
2	0	Taxicab Vehicle-for-Hire 3	4486																																								
2	5	Taxicab Vehicle-for-Hire 3	4262																																								
2	10	Taxicab Vehicle-for-Hire 3	4037																																								
2	15	Taxicab Vehicle-for-Hire 3	3813																																								
2	20	Taxicab Vehicle-for-Hire 3	3589																																								
2	25	Taxicab Vehicle-for-Hire 3	3364																																								
2	26	Taxicab Vehicle-for-Hire 3	3320																																								
2	27	Taxicab Vehicle-for-Hire 3	3275																																								
2	28	Taxicab Vehicle-for-Hire 3	3230																																								
2	29	Taxicab Vehicle-for-Hire 3	3185																																								
2	30	Taxicab Vehicle-for-Hire 3	3140																																								
2	33	Taxicab Vehicle-for-Hire 3	3006																																								
2	0	Taxicab Vehicle-for-Hire 4	5405																																								
2	5	Taxicab Vehicle-for-Hire 4	5135																																								
2	10	Taxicab Vehicle-for-Hire 4	4864																																								
2	15	Taxicab Vehicle-for-Hire 4	4594																																								
2	20	Taxicab Vehicle-for-Hire 4	4324																																								
2	25	Taxicab Vehicle-for-Hire 4	4054																																								
2	26	Taxicab Vehicle-for-Hire 4	4000																																								
2	27	Taxicab Vehicle-for-Hire 4	3946																																								
2	28	Taxicab Vehicle-for-Hire 4	3892																																								
2	29	Taxicab Vehicle-for-Hire 4	3838																																								
2	30	Taxicab Vehicle-for-Hire 4	3783																																								
2	33	Taxicab Vehicle-for-Hire 4	3621																																								
3	0	Accessible Vehicle-for-Hire 1	695	724	766	806	850	891	932	973	1020	1061	1103	1146	1188	1231																												
3	5	Accessible Vehicle-for-Hire 1	660	688	728	766	807	846	885	924	969	1008	1048	1089	1129	1169																												
3	10	Accessible Vehicle-for-Hire 1	625	652	689	725	765	802	839	876	918	955	993	1031	1069	1108																												
3	15	Accessible Vehicle-for-Hire 1	591	615	651	685	722	757	792	827	867	902	938	974	1010	1046																												
3	20	Accessible Vehicle-for-Hire 1	556	579	613	645	680	713	746	778	816	849	882	917	950	985																												
3	25	Accessible Vehicle-for-Hire 1	521	543	574	604	637	668	699	730	765	796	827	859	891	923																												
3	26	Accessible Vehicle-for-Hire 1	514	536	567	596	629	659	690	720	755	785	816	848	879	911																												
3	27	Accessible Vehicle-for-Hire 1	507	529	559	588	620	650	680	710	745	775	805	837	867	899																												
3	28	Accessible Vehicle-for-Hire 1	500	521	552	580	612	642	671	701	734	764	794	825	855	886																												
3	29	Accessible Vehicle-for-Hire 1	493	514	544	572	603	633	662	691	724	753	783	814	843	874																												
3	30	Accessible Vehicle-for-Hire 1	486	507	536	564	595	624	652	681	714	743	772	802	832	862																												
3	33	Accessible Vehicle-for-Hire 1	466	485	513	540	569	597	624	652	683	711	739	768	796	825																												
3	0	Accessible Vehicle-for-Hire 2	733	762	807	849	895	939	983	1026	1075	1118	1162	1207	1252	1297																												
3	5	Accessible Vehicle-for-Hire 2	696	724	767	807	850	892	934	975	1021	1062	1104	1147	1189	1232																												
3	10	Accessible Vehicle-for-Hire 2	660	686	726	764	805	845	885	923	967	1006	1046	1086	1127	1167																												
3	15	Accessible Vehicle-for-Hire 2	623	648	686	722	761	798	836	872	914	950	988	1026	1064	1102																												
3	20	Accessible Vehicle-for-Hire 2	586	610	646	679	716	751	786	821	860	894	930	966	1002	1038																												
3	25	Accessible Vehicle-for-Hire 2	550	571	605	637	671	704	737	769	806	838	871	905	939	973																												
3	26	Accessible Vehicle-for-Hire 2	542	564	597	628	662	695	727	759	795	827	860	893	926	960																												
3	27	Accessible Vehicle-for-Hire 2	535	556	589	620	653	685	718	749	785	816	848	881	914	947																												
3	28	Accessible Vehicle-for-Hire 2	528	549	581	611	644	676	708	739	774	805	837	869	901	934																												
3	29	Accessible Vehicle-for-Hire 2	520	541	573	603	635	667	698	728	763	794	825	857	889	921																												

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	30	Accessible Vehicle-for-Hire 2	513	533	565	594	626	657	688	718	752	783	813	845	876	908																													
3	33	Accessible Vehicle-for-Hire 2	491	511	541	569	600	629	659	687	720	749	779	809	839	869																													
3	0	Accessible Vehicle-for-Hire 3	763	794	840	884	932	977	1023	1067	1119	1164	1210	1256	1303	1350																													
3	5	Accessible Vehicle-for-Hire 3	725	754	798	840	885	928	972	1014	1063	1106	1149	1193	1238	1282																													
3	10	Accessible Vehicle-for-Hire 3	687	715	756	796	839	879	921	960	1007	1048	1089	1130	1173	1215																													
3	15	Accessible Vehicle-for-Hire 3	649	675	714	751	792	830	870	907	951	989	1028	1068	1108	1147																													
3	20	Accessible Vehicle-for-Hire 3	610	635	672	707	746	782	818	854	895	931	968	1005	1042	1080																													
3	25	Accessible Vehicle-for-Hire 3	572	595	630	663	699	733	767	800	839	873	907	942	977	1012																													
3	26	Accessible Vehicle-for-Hire 3	565	588	622	654	690	723	757	790	828	861	895	929	964	999																													
3	27	Accessible Vehicle-for-Hire 3	557	580	613	645	680	713	747	779	817	850	883	917	951	985																													
3	28	Accessible Vehicle-for-Hire 3	549	572	605	636	671	703	737	768	806	838	871	904	938	972																													
3	29	Accessible Vehicle-for-Hire 3	542	564	596	628	662	694	726	758	794	826	859	892	925	958																													
3	30	Accessible Vehicle-for-Hire 3	534	556	588	619	652	684	716	747	783	815	847	879	912	945																													
3	33	Accessible Vehicle-for-Hire 3	511	532	563	592	624	655	685	715	750	780	811	842	873	904																													
3	0	Accessible Vehicle-for-Hire 4	800	833	881	927	978	1025	1073	1120	1173	1221	1269	1318	1367	1416																													
3	5	Accessible Vehicle-for-Hire 4	760	791	837	881	929	974	1019	1064	1114	1160	1206	1252	1299	1345																													
3	10	Accessible Vehicle-for-Hire 4	720	750	793	834	880	922	966	1008	1056	1099	1142	1186	1230	1274																													
3	15	Accessible Vehicle-for-Hire 4	680	708	749	788	831	871	912	952	997	1038	1079	1120	1162	1204																													
3	20	Accessible Vehicle-for-Hire 4	640	666	705	742	782	820	858	896	938	977	1015	1054	1094	1133																													
3	25	Accessible Vehicle-for-Hire 4	600	625	661	695	733	769	805	840	880	916	952	988	1025	1062																													
3	26	Accessible Vehicle-for-Hire 4	592	616	652	686	724	758	794	829	868	904	939	975	1012	1048																													
3	27	Accessible Vehicle-for-Hire 4	584	608	643	677	714	748	783	818	856	891	926	962	998	1034																													
3	28	Accessible Vehicle-for-Hire 4	576	600	634	667	704	738	773	806	845	879	914	949	984	1020																													
3	29	Accessible Vehicle-for-Hire 4	568	591	626	658	694	728	762	795	833	867	901	936	971	1005																													
3	30	Accessible Vehicle-for-Hire 4	560	583	617	649	685	717	751	784	821	855	888	923	957	991																													
3	33	Accessible Vehicle-for-Hire 4	536	558	590	621	655	687	719	750	786	818	850	883	916	949																													
3	0	Limousine Vehicle-for-Hire 1	1740																																									
3	5	Limousine Vehicle-for-Hire 1	1653																																									
3	10	Limousine Vehicle-for-Hire 1	1566																																									
3	15	Limousine Vehicle-for-Hire 1	1479																																									
3	20	Limousine Vehicle-for-Hire 1	1392																																									
3	25	Limousine Vehicle-for-Hire 1	1305																																									
3	26	Limousine Vehicle-for-Hire 1	1288																																									
3	27	Limousine Vehicle-for-Hire 1	1270																																									
3	28	Limousine Vehicle-for-Hire 1	1253																																									
3	29	Limousine Vehicle-for-Hire 1	1235																																									
3	30	Limousine Vehicle-for-Hire 1	1218																																									
3	33	Limousine Vehicle-for-Hire 1	1166																																									
3	0	Limousine Vehicle-for-Hire 2	1834																																									
3	5	Limousine Vehicle-for-Hire 2	1742																																									
3	10	Limousine Vehicle-for-Hire 2	1651																																									
3	15	Limousine Vehicle-for-Hire 2	1559																																									
3	20	Limousine Vehicle-for-Hire 2	1467																																									
3	25	Limousine Vehicle-for-Hire 2	1375																																									
3	26	Limousine Vehicle-for-Hire 2	1357																																									
3	27	Limousine Vehicle-for-Hire 2	1339																																									
3	28	Limousine Vehicle-for-Hire 2	1320																																									
3	29	Limousine Vehicle-for-Hire 2	1302																																									
3	30	Limousine Vehicle-for-Hire 2	1284																																									
3	33	Limousine Vehicle-for-Hire 2	1229																																									
3	0	Limousine Vehicle-for-Hire 3	1908																																									
3	5	Limousine Vehicle-for-Hire 3	1813																																									
3	10	Limousine Vehicle-for-Hire 3	1717																																									
3	15	Limousine Vehicle-for-Hire 3	1622																																									
3	20	Limousine Vehicle-for-Hire 3	1526																																									
3	25	Limousine Vehicle-for-Hire 3	1431																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	26	Limousine Vehicle-for-Hire 3	1412																																								
3	27	Limousine Vehicle-for-Hire 3	1393																																								
3	28	Limousine Vehicle-for-Hire 3	1374																																								
3	29	Limousine Vehicle-for-Hire 3	1355																																								
3	30	Limousine Vehicle-for-Hire 3	1336																																								
3	33	Limousine Vehicle-for-Hire 3	1278																																								
3	0	Limousine Vehicle-for-Hire 4	2002																																								
3	5	Limousine Vehicle-for-Hire 4	1902																																								
3	10	Limousine Vehicle-for-Hire 4	1802																																								
3	15	Limousine Vehicle-for-Hire 4	1702																																								
3	20	Limousine Vehicle-for-Hire 4	1602																																								
3	25	Limousine Vehicle-for-Hire 4	1501																																								
3	26	Limousine Vehicle-for-Hire 4	1481																																								
3	27	Limousine Vehicle-for-Hire 4	1461																																								
3	28	Limousine Vehicle-for-Hire 4	1441																																								
3	29	Limousine Vehicle-for-Hire 4	1421																																								
3	30	Limousine Vehicle-for-Hire 4	1401																																								
3	33	Limousine Vehicle-for-Hire 4	1341																																								
3	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	603	649	676	699	722	747	770	793	816	839	859	867	888	926	955	991	1028	1065	1106	1143	1183	1223	1259	1299	1339	1387	1430	1472	1515	1558	1599	1640	1678	1716	1750	1788	1829	1870	1910	1951	1992
3	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	573	617	642	664	686	710	731	753	775	797	816	824	844	880	907	941	977	1012	1051	1086	1124	1162	1196	1234	1272	1318	1358	1398	1439	1480	1519	1558	1594	1630	1662	1699	1738	1776	1814	1853	1892
3	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	543	584	608	629	650	672	693	714	734	755	773	780	799	833	859	892	925	958	995	1029	1065	1101	1133	1169	1205	1248	1287	1325	1363	1402	1439	1476	1510	1544	1575	1609	1646	1683	1719	1756	1793
3	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	513	552	575	594	614	635	654	674	694	713	730	737	755	787	812	842	874	905	940	972	1006	1040	1070	1104	1138	1179	1215	1251	1288	1324	1359	1394	1426	1459	1487	1520	1555	1589	1623	1658	1693
3	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	482	519	541	559	578	598	616	634	653	671	687	694	710	741	764	793	822	852	885	914	946	978	1007	1039	1071	1110	1144	1178	1212	1246	1279	1312	1342	1373	1400	1430	1463	1496	1528	1561	1594
3	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	452	487	507	524	541	560	577	595	612	629	644	650	666	694	716	743	771	799	829	857	887	917	944	974	1004	1040	1072	1104	1136	1168	1199	1230	1258	1287	1312	1341	1372	1402	1432	1463	1494
3	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	446	480	500	517	534	553	570	587	604	621	636	642	657	685	707	733	761	788	818	846	875	905	932	961	991	1026	1058	1089	1121	1153	1183	1214	1242	1270	1295	1323	1353	1384	1413	1444	1474
3	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	440	474	493	510	527	545	562	579	596	612	627	633	648	676	697	723	750	777	807	834	864	893	919	948	977	1013	1044	1075	1106	1137	1167	1197	1225	1253	1277	1305	1335	1365	1394	1424	1454
3	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	434	467	487	503	520	538	554	571	588	604	618	624	639	667	688	714	740	767	796	823	852	881	906	935	964	999	1030	1060	1091	1122	1151	1181	1208	1236	1260	1287	1317	1346	1375	1405	1434
3	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	428	461	480	496	513	530	547	563	579	596	610	616	630	657	678	704	730	756	785	812	840	868	894	922	951	985	1015	1045	1076	1106	1135	1164	1191	1218	1242	1269	1299	1328	1356	1385	1414
3	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	422	454	473	489	505	523	539	555	571	587	601	607	622	648	668	694	720	745	774	800	828	856	881	909	937	971	1001	1030	1060	1091	1119	1148	1175	1201	1225	1252	1280	1309	1337	1366	1394
3	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	404	435	453	468	484	500	516	531	547	562	576	581	595	620	640	664	689	714	741	766	793	819	844	870	897	929	958	986	1015	1044	1071	1099	1124	1150	1172	1198	1225	1253	1280	1307	1335
3	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	631	680	708	733	757	782	806	830	855	879	900	909	931	970	1001	1038	1077	1115	1158	1198	1240	1281	1319	1361	1402	1453	1498	1542	1587	1632	1675	1718	1758	1797	1834	1873	1916	1959	2001	2044	2087
3	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	599	646	673	696	719	743	766	788	812	835	855	864	884	921	951	986	1023	1059	1100	1138	1178	1217	1253	1293	1332	1380	1423	1465	1508	1550	1591	1632	1670	1707	1742	1779	1820	1861	1901	1942	1983
3	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	568	612	637	660	681	704	725	747	769	791	810	818	838	873	901	934	969	1003	1042	1078	1116	1153	1187	1225	1262	1308	1348	1388	1428	1469	1507	1546	1582	1617	1651	1686	1724	1763	1801	1840	1878
3	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	536	578	602	623	643	665	685	705	727	747	765	773	791	824	851	882	915	948	984	1018	1054	1089	1121	1157	1192	1235	1273	1311	1349	1387	1424	1460	1494	1527	1559	1592	1629	1665	1701	1737	1774
3	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	505	544	566	586	606	626	645	664	684	703	720	727	745	776	801	830	862	892	926	958	992	1025	1055	1089	1122	1162	1198	1234	1270	1306	1340	1374	1406	1438	1467	1498	1533	1567	1601	1635	1670
3	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	473	510	531	550	568	586	604	622	641	659	675	682	698	727	751	778	808	836	868	898	930	961	989	1021	1051	1090	1123	1156	1190	1224	1256	1288	1318	1348	1375	1405	1437	1469	1501	1533	1565
3	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	467	503	524	542	560	579	596	614	633	650	666	673	689	718	741	768	797	825	857	887	918	948	976	1007	1037	1075	1109	1141	1174	1208	1239	1271	1301	1330	1357	1386	1418	1450	1481	1513	1544
3	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	461	496	517	535	553	571	588	606	624	642	657	664	680	708	731	758	786	814	845	875	905	935	963	994	1023	1061	1094	1126	1159	1191	1223	1254	1283	1312	1339	1367	1399	1430	1461	1492	1524
3	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	454	490	510	528	545	563	580	598	616	633	648	654	670	698	721	747	775	803	834	863	893	922	950	980	1009	1046	1079	1110	1143	1175	1206	1237	1266	1294	1320	1349	1380	1410	1441	1472	1503
3	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	448	483	503	520	537	555	572	589	607	624	639	645	661	689	711	737	765	792	822	851	880	910	936	966	995	1032	1064	1095	1127	1159	1189	1220	1248	1276	1302	1330	1360	1391	1421	1451	1482
3	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	442	476	496	513	530	547	564	581	598	615	630	636	652	679	701	727	754	780	811	839	868	897	923	953	981	1017	1049	1079	1111	1142	1172	1203	1231	1258	1284	1311	1341	1371	1401	1431	1461
3	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	423	456	474	491	507	524	540	556	573	589	603	609	624	650	671	695	722	747	776	803	831	858	884	912	939	974	1004	1033	1063	1093	1122	1151	1178	1204	1229	1255	1284	1313	1341	1369	1398
3	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	660	711	741	766	791	818	843	868	894	919	941	950	973	1014	1046	1086	1126	1166	1211	1252	1296	1340	1379	1423	1466	1519	1566	1612	1659	1707	1751	1796	1838	1879	1917	1958	2003	2048	2092	2137	2182
3	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	627	675	704	728	751	777	801	825	849	873	894	902	924	963	994	1032	1070	1108	1150	1189	1231	1273	1310	1352	1393	1443	1488	1531	1576	1622	1663	1706	1746	1785	1821	1860	1903	1946	1987	2030	2073
3	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	594	640	667	689	712	736	759	781	805	827	847	855	876	913	941	977	1013	1049	1090	1127	1166	1206	1241	1281	1319	1367	1409	1451	1493	1536	1576	1616	1654	1691	1725	1762	1803	1843	1883	1923	1964
3	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	561	604	630	651	672	695	717	738	760	781	800	807	827	862	889	923	957	991	1029	1064	1102	1139	1172	1210	1246	1291	1331	1370	1410	1451	1488	1527	1562	1597	1629	1664	1703	1741	1778	1816	1855
3	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	528	569	593	613	633	654	674	694	715	735	753	760	778	811	837	869	901	933	969	1002	1037	1072	1103	1138	1173	1215	1253	1290	1327	1366	1401	1437	1470	1503	1534	1566	1602	1638	1674	1710	1746
3	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	495	533	556	574	593	613	632	651	670	689	706	712	730	760	784	814	844	874	908	939	972	1005	1034	1067	1099	1139	1174	1209	1244	1280	1313	1347	1378	1409	1438	1468	1502	1536	1569	1603	1636
3	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	488	526	548	567	585	605	624	642	662	680	696	703	720	750	774	804	833	863	896	926	959	992	1020	1053	1085	1124	1159	1193	1228	1263	1296	1329	1360	1390	1419	1449	1482	1516	1548	1581	1615
3	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	482	519	541	559	577	597	615	634	653	671	687	693	710	740	764	793	822	851	884	914	946	978	1007	1039	1070	1109	1143	1177	1211	1246	1278	1311	1342	1372	1399	1429	1462	1495	1527	1560	1593
3	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	475	512	534	552	570	589	607	625	644	662	678	684	701	730	753	782	811	840	872	901	933	965	993	1025	1056	1094	1128	1161	1194	1229	1261	1293	1323	1353	1380	1410	1442	1475	1506	1539	1571
3	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	469	505	526	544	562	581	599	616	635	652	668	674	691	720	743	771	799	828	860	889	920	951	979	1010	1041	1078	1112	1145	1178	1212	1243	1275	1305	1334	1361	1390	1422	1454	1485	1517	1549
3	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	462	498	519	536	554	573	590	608	626	643	659	665	681	710	732	760	788	816	848	876	907	938	965	996	1026	1063	1096	1128	1161	1195	1226	1257	1287	1315	1342	1371	1402	1434	1464	1496	1527
3	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	442	476	496	513	530	548	565	582	599	616	630	636	652	679	701	728	754	781	811	839	868	898	924	953	982	1018	1049	1080	1112	1144	1173	1203	1231	1259	1284	1312	1342	1372	1402	1432	1462
3	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	689	742	773	799	826	853	880	906	932	959	982	991	1015	1058	1092	1133	1175	1217	1264	1307	1352	1398	1439	1484	1530	1585	1634	1682	1732	1781	1828	1874	1918	1961	2000	2044	2090	2137	2183	2230	2276
3	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	655	705	734	759	785	810	836	861	885	911	933	941	964	1005	1037	1076	1116	1156	1201	1242	1284	1328	1367	1410	1453	1506	1552	1598	1645	1692	1737	1780	1822	1863	1900	1942	1985	2030	2074	2118	2162

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	620	668	696	719	743	768	792	815	839	863	884	892	913	952	983	1020	1057	1095	1138	1176	1217	1258	1295	1336	1377	1426	1471	1514	1559	1603	1645	1687	1726	1765	1800	1840	1881	1923	1965	2007	2048
3	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	586	631	657	679	702	725	748	770	792	815	835	842	863	899	928	963	999	1034	1074	1111	1149	1188	1223	1261	1300	1347	1389	1430	1472	1514	1554	1593	1630	1667	1700	1737	1776	1816	1856	1895	1935
3	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	551	594	618	639	661	682	704	725	746	767	786	793	812	846	874	906	940	974	1011	1046	1082	1118	1151	1187	1224	1268	1307	1346	1386	1425	1462	1499	1534	1569	1600	1635	1672	1710	1746	1784	1821
3	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	517	556	580	599	619	640	660	679	699	719	736	743	761	793	819	850	881	913	948	980	1014	1048	1079	1113	1147	1189	1225	1261	1299	1336	1371	1405	1438	1471	1500	1533	1567	1603	1637	1672	1707
3	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	510	549	572	591	611	631	651	670	690	710	727	733	751	783	808	838	869	901	935	967	1000	1035	1065	1098	1132	1173	1209	1245	1282	1318	1353	1387	1419	1451	1480	1513	1547	1581	1615	1650	1684
3	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	503	542	564	583	603	623	642	661	680	700	717	723	741	772	797	827	858	888	923	954	987	1021	1050	1083	1117	1157	1193	1228	1264	1300	1334	1368	1400	1432	1460	1492	1526	1560	1594	1628	1661
3	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	496	534	557	575	595	614	634	652	671	690	707	714	731	762	786	816	846	876	910	941	973	1007	1036	1068	1102	1141	1176	1211	1247	1282	1316	1349	1381	1412	1440	1472	1505	1539	1572	1606	1639
3	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	489	527	549	567	586	606	625	643	662	681	697	704	721	751	775	804	834	864	897	928	960	993	1022	1054	1086	1125	1160	1194	1230	1265	1298	1331	1362	1392	1420	1451	1484	1517	1550	1583	1616
3	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	482	519	541	559	578	597	616	634	652	671	687	694	710	741	764	793	822	852	885	915	946	979	1007	1039	1071	1109	1144	1177	1212	1247	1280	1312	1343	1373	1400	1431	1463	1496	1528	1561	1593
3	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	462	497	518	535	553	572	590	607	624	643	658	664	680	709	732	759	787	815	847	876	906	937	964	994	1025	1062	1095	1127	1160	1193	1225	1256	1285	1314	1340	1369	1400	1432	1463	1494	1525
3	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	476	532	564	586	602	617	633	650	665	678	703	723	742	760	780	804	821	842	861	883	912	946	982	1017	1053	1092	1127	1175	1209	1251	1305	1352	1395	1438	1471	1524	1567	1610	1653	1697	1740
3	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	452	505	536	557	572	586	601	617	632	644	668	687	705	722	741	764	780	800	818	839	866	899	933	966	1000	1037	1071	1116	1149	1188	1240	1284	1325	1366	1397	1448	1489	1529	1570	1612	1653
3	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	428	479	508	527	542	555	570	585	598	610	633	651	668	684	702	724	739	758	775	795	821	851	884	915	948	983	1014	1057	1088	1126	1174	1217	1255	1294	1324	1372	1410	1449	1488	1527	1566
3	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	405	452	479	498	512	524	538	552	565	576	598	615	631	646	663	683	698	716	732	751	775	804	835	864	895	928	958	999	1028	1063	1109	1149	1186	1222	1250	1295	1332	1368	1405	1442	1479
3	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	381	426	451	469	482	494	506	520	532	542	562	578	594	608	624	643	657	674	689	706	730	757	786	814	842	874	902	940	967	1001	1044	1082	1116	1150	1177	1219	1254	1288	1322	1358	1392
3	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	357	399	423	439	451	463	475	487	499	508	527	542	556	570	585	603	616	631	646	662	684	709	736	763	790	819	845	881	907	938	979	1014	1046	1078	1103	1143	1175	1207	1240	1273	1305
3	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	352	394	417	434	445	457	468	481	492	502	520	535	549	562	577	595	608	623	637	653	675	700	727	753	779	808	834	869	895	926	966	1000	1032	1064	1089	1128	1160	1191	1223	1256	1288
3	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	347	388	412	428	439	450	462	474	485	495	513	528	542	555	569	587	599	615	629	645	666	691	717	742	769	797	823	858	883	913	953	987	1018	1050	1074	1113	1144	1175	1207	1239	1270
3	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	343	383	406	422	433	444	456	468	479	488	506	521	534	547	562	579	591	606	620	636	657	681	707	732	758	786	811	846	870	901	940	973	1004	1035	1059	1097	1128	1159	1190	1222	1253
3	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	338	378	400	416	427	438	449	461	472	481	499	513	527	540	554	571	583	598	611	627	648	672	697	722	748	775	800	834	858	888	927	960	990	1021	1044	1082	1113	1143	1174	1205	1235
3	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	333	372	395	410	421	432	443	455	465	475	492	506	519	532	546	563	575	589	603	618	638	662	687	712	737	764	789	822	846	876	913	946	976	1007	1030	1067	1097	1127	1157	1188	1218
3	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	319	356	378	393	403	413	424	435	446	454	471	484	497	509	523	539	550	564	577	592	611	634	658	681	706	732	755	787	810	838	874	906	935	963	986	1021	1050	1079	1108	1137	1166
3	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	498	558	591	614	630	647	663	681	696	711	737	758	778	796	817	843	860	882	902	925	956	991	1028	1066	1103	1144	1180	1231	1266	1310	1367	1417	1462	1507	1541	1596	1641	1686	1731	1778	1823
3	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	473	530	561	583	598	615	630	647	661	675	700	720	739	756	776	801	817	838	857	879	908	941	977	1013	1048	1087	1121	1169	1203	1244	1299	1346	1389	1432	1464	1516	1559	1602	1644	1689	1732
3	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	448	502	532	553	567	582	597	613	626	640	663	682	700	716	735	759	774	794	812	832	860	892	925	959	993	1030	1062	1108	1139	1179	1230	1275	1316	1356	1387	1436	1477	1517	1558	1600	1641
3	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	423	474	502	522	535	550	564	579	592	604	626	644	661	677	694	717	731	750	767	786	813	842	874	906	938	972	1003	1046	1076	1113	1162	1204	1243	1281	1310	1357	1395	1433	1471	1511	1550
3	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	398	446	473	491	504	518	530	545	557	569	590	606	622	637	654	674	688	706	722	740	765	793	822	853	882	915	944	985	1013	1048	1094	1134	1170	1206	1233	1277	1313	1349	1385	1422	1458
3	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	373	418	443	460	472	485	497	511	522	533	553	568	583	597	613	632	645	661	676	694	717	743	771	799	827	858	885	923	949	982	1025	1063	1096	1130	1156	1197	1231	1264	1298	1333	1367
3	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	369	413	437	454	466	479	491	504	515	526	545	561	576	589	605	624	636	653	667	684	707	733	761	789	816	847	873	911	937	969	1012	1049	1082	1115	1140	1181	1214	1248	1281	1316	1349
3	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	364	407	431	448	460	472	484	497	508	519	538	553	568	581	596	615	628	644	658	675	698	723	750	778	805	835	861	899	924	956	998	1034	1067	1100	1125	1165	1198	1231	1264	1298	1331
3	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	359	402	426	442	454	466	477	490	501	512	531	546	560	573	588	607	619	635	649	666	688	714	740	768	794	824	850	886	912	943	984	1020	1053	1085	1110	1149	1182	1214	1246	1280	1313
3	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	354	396	420	436	447	459	471	484	494	505	523	538	552	565	580	599	611	626	640	657	679	704	730	757	783	812	838	874	899	930	971	1006	1038	1070	1094	1133	1165	1197	1229	1262	1294
3	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	349	391	414	430	441	453	464	477	487	498	516	531	545	557	572	590	602	617	631	647	669	694	720	746	772	801	826	862	886	917	957	992	1023	1055	1079	1117	1149	1180	1212	1245	1276
3	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	334	374	396	411	422	433	444	456	466	476	494	508	521	533	547	565	576	591	604	620	641	664	689	714	739	766	791	825	848	878	916	949	980	1010	1032	1069	1099	1130	1160	1191	1221
3	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	521	583	618	642	659	676	693	712	728	743	770	792	813	833	854	881	899	922	943	967	999	1036	1075	1114	1153	1196	1234	1287	1324	1370	1429	1481	1528	1575	1611	1669	1716	1763	1810	1858	1906
3	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	495	554	587	610	626	642	658	676	692	706	731	752	772	791	811	837	854	876	896	919	949	984	1021	1058	1095	1136	1172	1223	1258	1301	1358	1407	1452	1496	1530	1586	1630	1675	1719	1765	1811
3	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	469	525	556	578	593	608	624	641	655	669	693	713	732	750	769	793	809	830	849	870	899	932	967	1003	1038	1076	1111	1158	1192	1233	1286	1333	1375	1417	1450	1502	1544	1587	1629	1672	1715
3	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	443	496	525	546	560	575	589	605	619	632	654	673	691	708	726	749	764	784	802	822	849	881	914	947	980	1017	1049	1094	1125	1164	1215	1259	1299	1339	1369	1419	1459	1499	1538	1579	1620
3	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	417	466	494	514	527	541	554	570	582	594	616	634	650	666	683	705	719	738	754	774	799	829	860	891	922	957	987	1030	1059	1096	1143	1185	1222	1260	1289	1335	1373	1410	1448	1486	1525
3	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	391	437	463	481	494	507	520	534	546	557	577	594	610	625	640	661	674	691	707	725	749	777	806	835	865	897	925	965	993	1027	1072	1111	1146	1181	1208	1252	1287	1322	1357	1393	1429
3	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	386	431	457	475	488	500	513	527	539	550	570	586	602	616	632	652	665	682	698	716	739	767	795	824	853	885	913	952	980	1014	1057	1096	1131	1165	1192	1235	1270	1305	1339	1375	1410
3	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	380	426	451	469	481	493	506	520	531	542	562	578	593	608	623	643	656	673	688	706	729	756	785	813	842	873	901	940	967	1000	1043	1081	1115	1150	1176	1218	1253	1287	1321	1356	1391
3	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	375	420	445	462	474	487	499	513	524	535	554	570	585	600	615	634	647	664	679	696	719	746	774	802	830	861	888	927	953	986	1029	1066	1100	1134	1160	1202	1236	1269	1303	1338	1372
3	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	370	414	439	456	468	480	492	506	517	528	547	562	577	591	606	626	638	655	670	687	709	736	763	791	819	849	876	914	940	973	1015	1052	1085	1118	1144	1185	1218	1252	1285	1319	1353
3	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	365	408	433	449	461	473	485	498	510	520	539	554	569	583	598	617	629	645	660	677	699	725	752	780	807	837	864	901	927	959	1000	1037	1070	1102	1128	1168	1201	1234	1267	1301	1334
3	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	349	391	414	430	442	453	464	477	488	498	516	531	545	558	572	590	602	618	632	648	669	694	720	746	773	801	827	862	887	918	957	992	1024	1055	1079	1118	1150	1181	1213	1245	1277
3	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	544	608	644	670	688	706	724	743	760	775	804	827	848	869	892	919	938	962	984	1009	1043	1081	1122	1163	1204	1248	1288	1343	1381	1429	1492	1546	1595	1644	1681	1741	1790	1840	1889	1939	1988
3	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	517	578	612	636	654	671	688	706	722	736	764	786	806	826	847	873	891	914	935	959	991	1027	1066	1105	1144	1186	1224	1276	1312	1358	1417	1469	1515	1562	1597	1654	1700	1748	1795	1842	1889
3	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	490	547	580	603	619	635	652	669	684	697	724	744	763	782	803	827	844	866	886	908	939	973	1010	1047	1084	1123	1159	1209	1243	1286	1343	1391	1435	1480	1513	1567	1611	1656	1700	1745	1789
3	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	462	517	547	569	585	600	615	632	646	659	683	703	721	739	758	781	797	818	836	858	887	919	954	989	1023	1061	1095	1142	1174	1215	1268	1314	1356	1397	1429	1480	1521	1564	1606	1648	1690
3	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	435	486	515	536	550	565	579	594	608	620	643	662	678	695	714	735	750	770	787	807	834	865	898	930	963	998	1030	1074	1105	1143	1194	1237	1276	1315	1345	1393	1432	1472	1511	1551	1590
3	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	408	456	483	502	516	529	543	557	570	581	603	620	636	652	669	689	703	721	738	757	782	811	841	872	903	936	966	1007	1036	1072	1119	1159	1196	1233	1261	1306	1342	1380	1417	1454	1491
3	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	403	450	477	496	509	522	536	550	562	573	595	612	628	643	660	680	694	712	728	747	772	800	830	861	891	924	953	994	1022	1057	1104	1144	1180	1217	1244	1288	1325	1362	1398	1435	1471
3	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	397	444	470	489	502	515	529	542	555	566	587	604	619	634	651	671	685	702	718	737	761	789	819	849	879	911	940	980	1008	1043	1089	1129	1164	1200	1227	1271	1307	1343	1379	1415	1451
3	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	392	438	464	482	495	508	521	535	547	558	579	595	611	626	642	662	675	693	708	726	751	778	808	837	867	899	927	967	994	1029	1074	1113	1148	1184	1210	1254	1289	1325	1360	1396	1431
3	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	386	432	457	476	488	501	514	528	540	550	571	587	602	617	633	652	666	683	699	716	741	768	797	826	855	886	914	954	981	1015	1059	1098	1132	1167	1194	1236	1271	1306	1341	1377	1411

December 15, 2017

2018 INTERIM APPLICATION
Vehicles for Hire Appendix 1

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	381	426	451	469	482	494	507	520	532	542	563	579	594	608	624	643	657	673	689	706	730	757	785	814	843	874	902	940	967	1000	1044	1082	1116	1151	1177	1219	1253	1288	1322	1357	1392
3	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	364	407	431	449	461	473	485	498	509	519	539	554	568	582	598	616	628	645	659	676	699	724	752	779	807	836	863	900	925	957	1000	1036	1069	1101	1126	1166	1199	1233	1266	1299	1332
3	0	Taxicab Vehicle-for-Hire 1	2741																																									
3	5	Taxicab Vehicle-for-Hire 1	2604																																								
3	10	Taxicab Vehicle-for-Hire 1	2467																																								
3	15	Taxicab Vehicle-for-Hire 1	2330																																								
3	20	Taxicab Vehicle-for-Hire 1	2193																																								
3	25	Taxicab Vehicle-for-Hire 1	2056																																								
3	26	Taxicab Vehicle-for-Hire 1	2028																																								
3	27	Taxicab Vehicle-for-Hire 1	2001																																								
3	28	Taxicab Vehicle-for-Hire 1	1974																																								
3	29	Taxicab Vehicle-for-Hire 1	1946																																								
3	30	Taxicab Vehicle-for-Hire 1	1919																																								
3	33	Taxicab Vehicle-for-Hire 1	1836																																								
3	0	Taxicab Vehicle-for-Hire 2	3813																																								
3	5	Taxicab Vehicle-for-Hire 2	3622																																								
3	10	Taxicab Vehicle-for-Hire 2	3432																																								
3	15	Taxicab Vehicle-for-Hire 2	3241																																								
3	20	Taxicab Vehicle-for-Hire 2	3050																																								
3	25	Taxicab Vehicle-for-Hire 2	2860																																								
3	26	Taxicab Vehicle-for-Hire 2	2822																																								
3	27	Taxicab Vehicle-for-Hire 2	2783																																								
3	28	Taxicab Vehicle-for-Hire 2	2745																																								
3	29	Taxicab Vehicle-for-Hire 2	2707																																								
3	30	Taxicab Vehicle-for-Hire 2	2669																																								
3	33	Taxicab Vehicle-for-Hire 2	2555																																								
3	0	Taxicab Vehicle-for-Hire 3	4886																																								
3	5	Taxicab Vehicle-for-Hire 3	4642																																								
3	10	Taxicab Vehicle-for-Hire 3	4397																																								
3	15	Taxicab Vehicle-for-Hire 3	4153																																								
3	20	Taxicab Vehicle-for-Hire 3	3909																																								
3	25	Taxicab Vehicle-for-Hire 3	3664																																								
3	26	Taxicab Vehicle-for-Hire 3	3616																																								
3	27	Taxicab Vehicle-for-Hire 3	3567																																								
3	28	Taxicab Vehicle-for-Hire 3	3518																																								
3	29	Taxicab Vehicle-for-Hire 3	3469																																								
3	30	Taxicab Vehicle-for-Hire 3	3420																																								
3	33	Taxicab Vehicle-for-Hire 3	3274																																								
3	0	Taxicab Vehicle-for-Hire 4	5958																																								
3	5	Taxicab Vehicle-for-Hire 4	5660																																								
3	10	Taxicab Vehicle-for-Hire 4	5362																																								
3	15	Taxicab Vehicle-for-Hire 4	5064																																								
3	20	Taxicab Vehicle-for-Hire 4	4766																																								
3	25	Taxicab Vehicle-for-Hire 4	4468																																								
3	26	Taxicab Vehicle-for-Hire 4	4409																																								
3	27	Taxicab Vehicle-for-Hire 4	4349																																								
3	28	Taxicab Vehicle-for-Hire 4	4290																																								
3	29	Taxicab Vehicle-for-Hire 4	4230																																								
3	30	Taxicab Vehicle-for-Hire 4	4171																																								
3	33	Taxicab Vehicle-for-Hire 4	3992																																								
4	0	Accessible Vehicle-for-Hire 1	744	774	820	862	909	954	998	1042	1091	1136	1181	1226	1271	1317																												
4	5	Accessible Vehicle-for-Hire 1	707	735	779	819	864	906	948	990	1036	1079	1122	1165	1207	1251																												
4	10	Accessible Vehicle-for-Hire 1	670	697	738	776	818	859	898	938	982	1022	1063	1103	1144	1185																												
4	15	Accessible Vehicle-for-Hire 1	632	658	697	733	773	811	848	886	927	966	1004	1042	1080	1119																												
4	20	Accessible Vehicle-for-Hire 1	595	619	656	690	727	763	798	834	873	909	945	981	1017	1054																												
4	25	Accessible Vehicle-for-Hire 1	558	580	615	646	682	715	748	781	818	852	886	919	953	988																												

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	26	Accessible Vehicle-for-Hire 1	551	573	607	638	673	706	739	771	807	841	874	907	941	975																													
4	27	Accessible Vehicle-for-Hire 1	543	565	599	629	664	696	729	761	796	829	862	895	928	961																													
4	28	Accessible Vehicle-for-Hire 1	536	557	590	621	654	687	719	750	786	818	850	883	915	948																													
4	29	Accessible Vehicle-for-Hire 1	528	550	582	612	645	677	709	740	775	807	839	870	902	935																													
4	30	Accessible Vehicle-for-Hire 1	521	542	574	603	636	668	699	729	764	795	827	858	890	922																													
4	33	Accessible Vehicle-for-Hire 1	498	519	549	578	609	639	669	698	731	761	791	821	852	882																													
4	0	Accessible Vehicle-for-Hire 2	784	816	864	909	958	1005	1052	1098	1150	1197	1244	1292	1340	1388																													
4	5	Accessible Vehicle-for-Hire 2	745	775	821	864	910	955	999	1043	1092	1137	1182	1227	1273	1319																													
4	10	Accessible Vehicle-for-Hire 2	706	734	778	818	862	904	947	988	1035	1077	1120	1163	1206	1249																													
4	15	Accessible Vehicle-for-Hire 2	666	694	734	773	814	854	894	933	977	1017	1057	1098	1139	1180																													
4	20	Accessible Vehicle-for-Hire 2	627	653	691	727	766	804	842	878	920	958	995	1034	1072	1110																													
4	25	Accessible Vehicle-for-Hire 2	588	612	648	682	718	754	789	823	862	898	933	969	1005	1041																													
4	26	Accessible Vehicle-for-Hire 2	580	604	639	673	709	744	778	813	851	886	921	956	992	1027																													
4	27	Accessible Vehicle-for-Hire 2	572	596	631	664	699	734	768	802	839	874	908	943	978	1013																													
4	28	Accessible Vehicle-for-Hire 2	564	588	622	654	690	724	757	791	828	862	896	930	965	999																													
4	29	Accessible Vehicle-for-Hire 2	557	579	613	645	680	714	747	780	816	850	883	917	951	985																													
4	30	Accessible Vehicle-for-Hire 2	549	571	605	636	671	703	736	769	805	838	871	904	938	972																													
4	33	Accessible Vehicle-for-Hire 2	525	547	579	609	642	673	705	736	770	802	833	866	898	930																													
4	0	Accessible Vehicle-for-Hire 3	816	849	899	946	997	1046	1094	1142	1197	1246	1295	1345	1394	1445																													
4	5	Accessible Vehicle-for-Hire 3	775	807	854	899	947	994	1039	1085	1137	1184	1230	1278	1324	1373																													
4	10	Accessible Vehicle-for-Hire 3	734	764	809	851	897	941	985	1028	1077	1121	1165	1210	1255	1300																													
4	15	Accessible Vehicle-for-Hire 3	694	722	764	804	847	889	930	971	1017	1059	1101	1143	1185	1228																													
4	20	Accessible Vehicle-for-Hire 3	653	679	719	757	798	837	875	914	958	997	1036	1076	1115	1156																													
4	25	Accessible Vehicle-for-Hire 3	612	637	674	709	748	784	820	856	898	934	971	1009	1045	1084																													
4	26	Accessible Vehicle-for-Hire 3	604	628	665	700	738	774	810	845	886	922	958	995	1032	1069																													
4	27	Accessible Vehicle-for-Hire 3	596	620	656	691	728	764	799	834	874	910	945	982	1018	1055																													
4	28	Accessible Vehicle-for-Hire 3	588	611	647	681	718	753	788	822	862	897	932	968	1004	1040																													
4	29	Accessible Vehicle-for-Hire 3	579	603	638	672	708	743	777	811	850	885	919	955	990	1026																													
4	30	Accessible Vehicle-for-Hire 3	571	594	629	662	698	732	766	799	838	872	906	941	976	1011																													
4	33	Accessible Vehicle-for-Hire 3	547	569	602	634	668	701	733	765	802	835	868	901	934	968																													
4	0	Accessible Vehicle-for-Hire 4	856	891	943	992	1046	1097	1148	1198	1256	1307	1358	1410	1463	1516																													
4	5	Accessible Vehicle-for-Hire 4	813	846	896	942	994	1042	1091	1138	1193	1242	1290	1339	1390	1440																													
4	10	Accessible Vehicle-for-Hire 4	770	802	849	893	941	987	1033	1078	1130	1176	1222	1269	1317	1364																													
4	15	Accessible Vehicle-for-Hire 4	728	757	802	843	889	932	976	1018	1068	1111	1154	1198	1244	1289																													
4	20	Accessible Vehicle-for-Hire 4	685	713	754	794	837	878	918	958	1005	1046	1086	1128	1170	1213																													
4	25	Accessible Vehicle-for-Hire 4	642	668	707	744	784	823	861	898	942	980	1018	1057	1097	1137																													
4	26	Accessible Vehicle-for-Hire 4	633	659	698	734	774	812	850	887	929	967	1005	1043	1083	1122																													
4	27	Accessible Vehicle-for-Hire 4	625	650	688	724	764	801	838	875	917	954	991	1029	1068	1107																													
4	28	Accessible Vehicle-for-Hire 4	616	642	679	714	753	790	827	863	904	941	978	1015	1053	1092																													
4	29	Accessible Vehicle-for-Hire 4	608	633	670	704	743	779	815	851	892	928	964	1001	1039	1076																													
4	30	Accessible Vehicle-for-Hire 4	599	624	660	694	732	768	804	839	879	915	951	987	1024	1061																													
4	33	Accessible Vehicle-for-Hire 4	574	597	632	665	701	735	769	803	842	876	910	945	980	1016																													
4	0	Limousine Vehicle-for-Hire 1	1732																																									
4	5	Limousine Vehicle-for-Hire 1	1645																																									
4	10	Limousine Vehicle-for-Hire 1	1559																																									
4	15	Limousine Vehicle-for-Hire 1	1472																																									
4	20	Limousine Vehicle-for-Hire 1	1386																																									
4	25	Limousine Vehicle-for-Hire 1	1299																																									
4	26	Limousine Vehicle-for-Hire 1	1282																																									
4	27	Limousine Vehicle-for-Hire 1	1264																																									
4	28	Limousine Vehicle-for-Hire 1	1247																																									
4	29	Limousine Vehicle-for-Hire 1	1230																																									
4	30	Limousine Vehicle-for-Hire 1	1212																																									
4	33	Limousine Vehicle-for-Hire 1	1160																																									
4	0	Limousine Vehicle-for-Hire 2	1825																																									
4	5	Limousine Vehicle-for-Hire 2	1734																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	10	Limousine Vehicle-for-Hire 2	1642																																								
4	15	Limousine Vehicle-for-Hire 2	1551																																								
4	20	Limousine Vehicle-for-Hire 2	1460																																								
4	25	Limousine Vehicle-for-Hire 2	1369																																								
4	26	Limousine Vehicle-for-Hire 2	1350																																								
4	27	Limousine Vehicle-for-Hire 2	1332																																								
4	28	Limousine Vehicle-for-Hire 2	1314																																								
4	29	Limousine Vehicle-for-Hire 2	1296																																								
4	30	Limousine Vehicle-for-Hire 2	1277																																								
4	33	Limousine Vehicle-for-Hire 2	1223																																								
4	0	Limousine Vehicle-for-Hire 3	1899																																								
4	5	Limousine Vehicle-for-Hire 3	1804																																								
4	10	Limousine Vehicle-for-Hire 3	1709																																								
4	15	Limousine Vehicle-for-Hire 3	1614																																								
4	20	Limousine Vehicle-for-Hire 3	1519																																								
4	25	Limousine Vehicle-for-Hire 3	1424																																								
4	26	Limousine Vehicle-for-Hire 3	1405																																								
4	27	Limousine Vehicle-for-Hire 3	1386																																								
4	28	Limousine Vehicle-for-Hire 3	1367																																								
4	29	Limousine Vehicle-for-Hire 3	1348																																								
4	30	Limousine Vehicle-for-Hire 3	1329																																								
4	33	Limousine Vehicle-for-Hire 3	1272																																								
4	0	Limousine Vehicle-for-Hire 4	1992																																								
4	5	Limousine Vehicle-for-Hire 4	1892																																								
4	10	Limousine Vehicle-for-Hire 4	1793																																								
4	15	Limousine Vehicle-for-Hire 4	1693																																								
4	20	Limousine Vehicle-for-Hire 4	1594																																								
4	25	Limousine Vehicle-for-Hire 4	1494																																								
4	26	Limousine Vehicle-for-Hire 4	1474																																								
4	27	Limousine Vehicle-for-Hire 4	1454																																								
4	28	Limousine Vehicle-for-Hire 4	1434																																								
4	29	Limousine Vehicle-for-Hire 4	1414																																								
4	30	Limousine Vehicle-for-Hire 4	1394																																								
4	33	Limousine Vehicle-for-Hire 4	1335																																								
4	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	636	686	714	739	763	789	813	838	862	886	908	917	939	979	1009	1047	1087	1126	1168	1207	1249	1293	1330	1372	1414	1466	1511	1556	1601	1646	1689	1732	1772	1812	1849	1889	1932	1975	2018	2061	2104
4	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	604	652	678	702	725	750	772	796	819	842	863	871	892	930	959	995	1033	1070	1110	1147	1187	1228	1263	1303	1343	1393	1435	1478	1521	1564	1605	1645	1683	1721	1757	1795	1835	1876	1917	1958	1999
4	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	572	617	643	665	687	710	732	754	776	797	817	825	845	881	908	942	978	1013	1051	1086	1124	1164	1197	1235	1273	1319	1360	1400	1441	1481	1520	1559	1595	1631	1664	1700	1739	1777	1816	1855	1894
4	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	541	583	607	628	649	671	691	712	733	753	772	779	798	832	858	890	924	957	993	1026	1062	1099	1130	1166	1202	1246	1284	1323	1361	1399	1436	1472	1506	1540	1572	1606	1642	1679	1715	1752	1788
4	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	509	549	571	591	610	631	650	670	690	709	726	734	751	783	807	838	870	901	934	966	999	1034	1064	1098	1131	1173	1209	1245	1281	1317	1351	1386	1418	1450	1479	1511	1546	1580	1614	1649	1683
4	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	477	514	535	554	572	592	610	628	646	664	681	688	704	734	757	785	815	844	876	905	937	970	997	1029	1060	1099	1133	1167	1201	1234	1267	1299	1329	1359	1387	1417	1449	1481	1513	1546	1578
4	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	471	508	528	547	565	584	602	620	638	656	672	679	695	724	747	775	804	833	864	893	924	957	984	1015	1046	1085	1118	1151	1185	1218	1250	1282	1311	1341	1368	1398	1430	1461	1493	1525	1557
4	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	464	501	521	539	557	576	593	612	629	647	663	669	685	715	737	764	794	822	853	881	912	944	971	1002	1032	1070	1103	1136	1169	1202	1233	1264	1294	1323	1350	1379	1410	1442	1473	1505	1536
4	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	458	494	514	532	549	568	585	603	621	638	654	660	676	705	726	754	783	811	841	869	899	931	958	988	1018	1056	1088	1120	1153	1185	1216	1247	1276	1305	1331	1360	1391	1422	1453	1484	1515
4	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	452	487	507	525	542	560	577	595	612	629	645	651	667	695	716	743	772	799	829	857	887	918	944	974	1004	1041	1073	1105	1137	1169	1199	1230	1258	1287	1313	1341	1372	1402	1433	1463	1494
4	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	445	480	500	517	534	552	569	587	603	620	636	642	657	685	706	733	761	788	818	845	874	905	931	960	990	1026	1058	1089	1121	1152	1182	1212	1240	1268	1294	1322	1352	1382	1413	1443	1473
4	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	426	460	478	495	511	529	545	561	578	594	608	614	629	656	676	701	728	754	783	809	837	866	891	919	947	982	1012	1043	1073	1103	1132	1160	1187	1214	1239	1266	1294	1323	1352	1381	1410
4	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	667	718	748	774	800	826	851	878	903	928	951	960	983	1025	1057	1097	1138	1179	1223	1265	1309	1354	1394	1438	1482	1536	1583	1630	1677	1725	1770	1815	1857	1899	1937	1979	2024	2069	2114	2159	2204
4	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	634	682	711	735	760	785	808	834	858	882	903	912	934	974	1004	1042	1081	1120	1162	1202	1244	1286	1324	1366	1408	1459	1504	1548	1593	1639	1681	1724	1764	1804	1840	1880	1923	1966	2008	2051	2094
4	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	600	646	673	697	720	743	766	790	813	835	856	864	885	922	951	987	1024	1061	1101	1138	1178	1219	1255	1294	1334	1382	1425	1467	1509	1552	1593	1633	1671	1709	1743	1781	1822	1862	1903	1943	1984
4	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	567	610	636	658	680	702	723	746	768	789	808	816	836	871	898	932	967	1002	1040	1075	1113	1151	1185	1222	1260	1306	1346	1385	1425	1466	1504	1543	1578	1614	1646	1682	1720	1759	1797	1835	1873
4	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	534	574	598	619	640	661	681	702	722	742	761	768	786	820	846	878	910	943	978	1012	1047	1083	1115	1150	1186	1229	1266	1304	1342	1380	1416	1452	1486	1519	1550	1583	1619	1655	1691	1727	1763
4	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	500	538	561	580	600	619	638	658	677	696	713	720	737	769	793	823	853	884	917	949	982	1015	1045	1078	1111	1152	1187	1222	1258	1294	1327	1361	1393	1424	1453	1484	1518	1552	1585	1619	1653
4	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	494	531	554	573	592	611	630	650	668	687	704	710	727	758	782	812	842	872	905	936	969	1002	1032	1064	1097	1137	1171	1206	1241	1276	1310	1343	1374	1405	1433	1464	1498	1531	1564	1598	1631
4	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	487	524	546	565	584	603	621	641	659	677	694	701	718	748	772	801	831	861	893	923	956	988	1018	1050	1082	1121	1156	1190	1224	1259	1292	1325	1356	1386	1414	1445	1478	1510	1543	1576	1609
4	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	480	517	539	557	576	595	613	632	650	668	685	691	708	738	761	790	819	849	881	911	942	975	1004	1035	1067	1106	1140	1174	1207	1242	1274	1307	1337	1367	1395	1425	1457	1490	1522	1554	1587
4	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	474	510	531	550	568	586	604	623	641	659	675	682	698	728	750	779	808	837	868	898	929	961	990	1021	1052	1091	1124	1157	1191	1225	1257	1289	1318	1348	1375	1405	1437	1469	1501	1533	1565

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	467	503	524	542	560	578	596	615	632	650	666	672	688	717	740	768	797	825	856	885	916	948	976	1007	1037	1075	1108	1141	1174	1207	1239	1270	1300	1329	1356	1385	1417	1448	1480	1511	1543
4	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	447	481	501	519	536	553	570	588	605	622	637	643	659	687	708	735	762	790	819	848	877	907	934	963	993	1029	1061	1092	1124	1156	1186	1216	1244	1272	1298	1326	1356	1386	1416	1447	1477
4	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	697	751	782	810	836	864	890	918	944	971	995	1004	1028	1072	1105	1147	1190	1233	1279	1322	1368	1416	1457	1503	1549	1605	1655	1704	1754	1803	1850	1897	1941	1985	2025	2069	2116	2163	2210	2257	2305
4	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	662	713	743	769	794	821	845	872	897	922	945	954	977	1018	1050	1090	1130	1171	1215	1256	1300	1345	1384	1428	1472	1525	1572	1619	1666	1713	1757	1802	1844	1886	1924	1966	2010	2055	2099	2144	2190
4	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	627	676	704	729	752	778	801	826	850	874	895	904	925	965	994	1032	1071	1110	1151	1190	1231	1274	1311	1353	1394	1444	1489	1534	1579	1623	1665	1707	1747	1786	1822	1862	1904	1947	1989	2031	2074
4	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	592	638	665	688	711	734	756	780	802	825	846	853	874	911	939	975	1011	1048	1087	1124	1163	1204	1238	1278	1317	1364	1407	1448	1491	1533	1572	1612	1650	1687	1721	1759	1799	1839	1878	1918	1959
4	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	558	601	626	648	669	691	712	734	755	777	796	803	822	858	884	918	952	986	1023	1058	1094	1133	1166	1202	1239	1284	1324	1363	1403	1442	1480	1518	1553	1588	1620	1655	1693	1730	1768	1806	1844
4	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	523	563	586	607	627	648	667	688	708	728	746	753	771	804	829	860	892	925	959	991	1026	1062	1093	1127	1162	1204	1241	1278	1315	1352	1387	1423	1456	1489	1519	1552	1587	1622	1657	1693	1729
4	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	516	556	579	599	619	639	659	679	699	719	736	743	761	793	818	849	881	912	946	978	1012	1048	1078	1112	1146	1188	1225	1261	1298	1334	1369	1404	1436	1469	1498	1531	1566	1601	1635	1670	1706
4	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	509	548	571	591	610	631	650	670	689	709	726	733	750	783	807	837	869	900	934	965	999	1034	1064	1097	1131	1172	1208	1244	1280	1316	1350	1385	1417	1449	1478	1510	1545	1579	1613	1648	1683
4	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	502	541	563	583	602	622	641	661	680	699	716	723	740	772	796	826	857	888	921	952	985	1020	1049	1082	1115	1156	1192	1227	1263	1298	1332	1366	1398	1429	1458	1490	1524	1557	1591	1625	1660
4	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	495	533	555	575	594	613	632	652	670	689	706	713	730	761	785	814	845	875	908	939	971	1005	1034	1067	1100	1140	1175	1210	1245	1280	1313	1347	1378	1409	1438	1469	1502	1536	1569	1602	1637
4	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	488	526	547	567	585	605	623	643	661	680	696	703	720	750	773	803	833	863	895	925	958	991	1020	1052	1084	1123	1158	1193	1228	1262	1295	1328	1359	1389	1417	1448	1481	1514	1547	1580	1613
4	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	467	503	524	543	560	579	596	615	632	651	667	673	689	718	740	768	797	826	857	886	917	949	976	1007	1038	1075	1109	1142	1175	1208	1239	1271	1300	1330	1357	1386	1418	1449	1481	1512	1544
4	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	727	784	816	845	872	901	929	958	985	1013	1038	1048	1073	1118	1153	1196	1242	1286	1334	1380	1428	1477	1520	1568	1616	1675	1727	1778	1830	1882	1931	1980	2026	2071	2113	2159	2208	2257	2306	2356	2405
4	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	691	745	775	803	828	856	883	910	936	962	986	996	1019	1062	1095	1136	1180	1222	1267	1311	1357	1403	1444	1490	1535	1591	1641	1689	1738	1788	1834	1881	1925	1967	2007	2051	2098	2144	2191	2238	2285
4	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	654	706	734	760	785	811	836	862	886	912	934	943	966	1006	1038	1076	1118	1157	1201	1242	1285	1329	1368	1411	1454	1507	1554	1600	1647	1694	1738	1782	1823	1864	1902	1943	1987	2031	2075	2120	2164
4	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	618	666	694	718	741	766	790	814	837	861	882	891	912	950	980	1017	1056	1093	1134	1173	1214	1255	1292	1333	1374	1424	1468	1511	1555	1600	1641	1683	1722	1760	1796	1835	1877	1918	1960	2003	2044
4	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	582	627	653	676	698	721	743	766	788	810	830	838	858	894	922	957	994	1029	1067	1104	1142	1182	1216	1254	1293	1340	1382	1422	1464	1506	1545	1584	1621	1657	1690	1727	1766	1806	1845	1885	1924
4	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	545	588	612	634	654	676	697	718	739	760	778	786	805	838	865	897	931	964	1000	1035	1071	1108	1140	1176	1212	1256	1295	1333	1372	1411	1448	1485	1519	1553	1585	1619	1656	1693	1729	1767	1804
4	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	538	580	604	625	645	667	687	709	729	750	768	776	794	827	853	885	919	952	987	1021	1057	1093	1125	1160	1196	1239	1278	1316	1354	1393	1429	1465	1499	1533	1564	1598	1634	1670	1706	1743	1780
4	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	531	572	596	617	637	658	678	699	719	739	758	765	783	816	842	873	907	939	974	1007	1042	1078	1110	1145	1180	1223	1261	1298	1336	1374	1410	1445	1479	1512	1542	1576	1612	1648	1683	1720	1756
4	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	523	564	588	608	628	649	669	690	709	729	747	755	773	805	830	861	894	926	960	994	1028	1063	1094	1129	1164	1206	1243	1280	1318	1355	1390	1426	1459	1491	1521	1554	1590	1625	1660	1696	1732
4	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	516	557	579	600	619	640	660	680	699	719	737	744	762	794	819	849	882	913	947	980	1014	1049	1079	1113	1147	1189	1226	1262	1299	1336	1371	1406	1438	1470	1500	1533	1568	1602	1637	1673	1708
4	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	509	549	571	591	610	631	650	671	689	709	727	734	751	783	807	837	869	900	934	966	1000	1034	1064	1098	1131	1172	1209	1245	1281	1317	1352	1386	1418	1450	1479	1511	1546	1580	1614	1649	1683
4	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	487	525	547	566	584	604	622	642	660	679	695	702	719	749	773	801	832	862	894	925	957	990	1018	1051	1083	1122	1157	1191	1226	1261	1294	1327	1357	1388	1416	1447	1479	1512	1545	1579	1611
4	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	501	562	594	617	634	651	668	685	700	715	741	762	782	801	823	847	866	887	907	930	962	996	1034	1072	1110	1151	1188	1239	1275	1318	1375	1426	1471	1516	1551	1606	1652	1697	1743	1788	1833
4	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	476	534	564	586	602	618	635	651	665	679	704	724	743	761	782	805	823	843	862	883	914	946	982	1018	1054	1093	1129	1177	1211	1252	1306	1355	1397	1440	1473	1526	1569	1612	1656	1699	1741
4	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	451	506	535	555	571	586	601	616	630	643	667	686	704	721	741	762	779	798	816	837	866	896	931	965	999	1036	1069	1115	1147	1186	1237	1283	1324	1364	1396	1445	1487	1527	1569	1609	1650
4	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	426	478	505	524	539	553	568	582	595	608	630	648	665	681	700	720	736	754	771	790	818	847	879	911	943	978	1010	1053	1084	1120	1169	1212	1250	1289	1318	1365	1404	1442	1482	1520	1558
4	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	401	450	475	494	507	521	534	548	560	572	593	610	626	641	658	678	693	710	726	744	770	797	827	858	888	921	950	991	1020	1054	1100	1141	1177	1213	1241	1285	1322	1358	1394	1430	1466
4	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	376	421	445	463	475	488	501	514	525	536	556	571	586	601	617	635	649	665	680	697	721	747	775	804	832	863	891	929	956	988	1031	1069	1103	1137	1163	1204	1239	1273	1307	1341	1375
4	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	371	416	440	457	469	482	494	507	518	529	548	564	579	593	609	627	641	656	671	688	712	737	765	793	821	852	879	917	943	975	1017	1055	1089	1122	1148	1188	1222	1256	1290	1323	1356
4	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	366	410	434	450	463	475	488	500	511	522	541	556	571	585	601	618	632	648	662	679	702	727	755	783	810	840	867	904	931	962	1004	1041	1074	1107	1132	1172	1206	1239	1272	1305	1338
4	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	361	405	428	444	456	469	481	493	504	515	534	549	563	577	593	610	624	639	653	670	693	717	744	772	799	829	855	892	918	949	990	1027	1059	1092	1117	1156	1189	1222	1255	1287	1320
4	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	356	399	422	438	450	462	474	486	497	508	526	541	555	569	584	601	615	630	644	660	683	707	734	761	788	817	843	880	905	936	976	1012	1044	1076	1101	1140	1173	1205	1238	1269	1301
4	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	351	393	416	432	444	456	468	479	490	500	519	533	547	561	576	593	606	621	635	651	673	697	724	750	777	806	832	867	892	923	962	998	1030	1061	1086	1124	1156	1188	1220	1252	1283
4	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	336	377	398	413	425	436	448	459	469	479	496	511	524	537	551	567	580	594	608	623	645	667	693	718	744	771	796	830	854	883	921	955	986	1016	1039	1076	1107	1137	1168	1198	1228
4	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	525	588	623	647	664	682	700	717	734	749	777	799	819	839	862	888	907	929	950	975	1008	1044	1083	1123	1163	1206	1244	1298	1335	1380	1441	1494	1541	1588	1625	1683	1730	1778	1826	1873	1921
4	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	499	559	592	615	631	648	665	681	697	712	738	759	778	797	819	844	862	883	902	926	958	992	1029	1067	1105	1146	1182	1233	1268	1311	1369	1419	1464	1509	1544	1599	1643	1689	1735	1779	1825
4	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	472	529	561	582	598	614	630	645	661	674	699	719	737	755	776	799	816	836	855	877	907	940	975	1011	1047	1085	1120	1168	1201	1242	1297	1345	1387	1429	1462	1515	1557	1600	1643	1686	1729
4	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	446	500	530	550	564	580	595	609	624	637	660	679	696	713	733	755	771	790	807	829	857	887	921	955	989	1025	1057	1103	1135	1173	1225	1270	1310	1350	1381	1431	1470	1511	1552	1592	1633
4	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	420	470	498	518	531	546	560	574	587	599	622	639	655	671	690	710	726	743	760	780	806	835	866	898	930	965	995	1038	1068	1104	1153	1195	1233	1270	1300	1346	1384	1422	1461	1498	1537
4	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	394	441	467	485	498	511	525	538	550	562	583	599	614	629	646	666	680	697	712	731	756	783	812	842	872	904	933	973	1001	1035	1081	1120	1156	1191	1219	1262	1297	1333	1369	1405	1441
4	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	388	435	461	479	491	505	518	531	543	554	575	591	606	621	638	657	671	687	703	721	746	773	801	831	861	892	921	961	988	1021	1066	1106	1140	1175	1202	1245	1280	1316	1351	1386	1422
4	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	383	429	455	472	485	498	511	523	536	547	567	583	598	612	629	648	662	678	693	712	736	762	791	820	849	880	908	948	975	1007	1052	1091	1125	1159	1186	1229	1263	1298	1333	1367	1402
4	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	378	423	449	466	478	491	504	516	528	539	559	575	590	604	621	639	653	669	684	702	726	752	780	809	837	868	896	935	961	994	1038	1076	1110	1143	1170	1212	1246	1280	1315	1349	1383
4	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	373	417	442	459	471	484	497	509	521	532	552	567	581	596	612	630	644	660	674	692	716	741	769	797	826	856	883	922	948	980	1023	1061	1094	1127	1154	1195	1228	1262	1296	1330	1364
4	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	367	412	436	453	465	477	490	502	514	524	544	559	573	587	603	622	635	650	665	682	706	731	758	786	814	844	871	909	934	966	1009	1046	1079	1112	1137	1178	1211	1245	1278	1311	1345
4	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	352	394	417	433	445	457	469	480	492	502	521	535	549	562	578	595	608	622	636	653	675	699	726	752	779	808	833	870	894	925	965	1001	1032	1064	1089	1128	1159	1191	1223	1255	1287
4	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	549	615	651	676	695	713	731	750	767	783	812	835	857	877	902	928	949	972	994	1019	1053	1091	1133	1174	1216	1260	1301	1357	1396	1443	1506	1562	1611	1661	1699	1759	1809	1858	1909	1958	2008
4	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	522	584	618	642	660	677	694	712	729	744	771	793	814	833	857	882	902	923	944	968	1000	1036	1076	1115	1155	1197	1236	1289	1326	1371	1431	1484	1530	1578	1614	1671	1719	1765	1814	1860	1908
4	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	494	553	586	608	625	642	658	675	690	705	731	751	771	789	812	835	854	875	895	917	948	982	1020	1057	1094	1134	1171	1221	1256	1299	1355	1406	1450	1495	1529	1583	1628	1672	1718	1762	1807
4	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	467	523	553	575	591	606	621	637	652	666	690	710	728	745	767	789	807	826	845	866	895	927	963	998	1034	1071	1106	1153	1187	1227	1280	1328	1369	1412	1444	1495	1538	1579	1623	1664	1707
4	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	439	492	521	541	556	570	585	600	614	626	650	668	686	702	722	742	759	778	795	815	842	873	906	939	973	1008	1041	1086	1117	1154	1205	1250	1289	1329	1359	1407	1447	1486	1527	1566	1606
4	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	412	461	488	507	521	535	548	562	575	587	609	626	643	658	676	696	712	729	745	764	790	818	850	880	912	945	976	1018	1047	1082	1129	1171	1208	1246	1274	1319	1357	1393	1432	1468	1506

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	406	455	482	500	514	528	541	555	568	579	601	618	634	649	667	687	702	719	736	754	779	807	838	869	900	932	963	1004	1033	1068	1114	1156	1192	1229	1257	1302	1339	1375	1413	1449	1486
4	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	401	449	475	493	507	520	534	547	560	572	593	610	626	640	658	677	693	710	726	744	769	796	827	857	888	920	950	991	1019	1053	1099	1140	1176	1213	1240	1284	1321	1356	1394	1429	1466
4	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	395	443	469	487	500	513	526	540	552	564	585	601	617	631	649	668	683	700	716	734	758	786	816	845	876	907	937	977	1005	1039	1084	1125	1160	1196	1223	1266	1302	1338	1374	1410	1446
4	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	390	437	462	480	493	506	519	532	545	556	577	593	608	623	640	659	674	690	706	723	748	775	804	834	863	895	924	963	991	1025	1069	1109	1144	1179	1206	1249	1284	1319	1355	1390	1426
4	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	384	430	456	473	486	499	512	525	537	548	568	584	600	614	631	650	664	680	696	713	737	764	793	822	851	882	911	950	977	1010	1054	1093	1128	1163	1189	1231	1266	1301	1336	1371	1406
4	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	368	412	436	453	466	478	490	502	514	525	544	559	574	588	604	622	636	651	666	683	706	731	759	787	815	844	872	909	935	967	1009	1047	1079	1113	1138	1179	1212	1245	1279	1312	1345
4	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	572	642	679	706	725	744	763	782	800	817	847	871	894	916	941	968	990	1014	1037	1063	1099	1139	1182	1225	1268	1315	1357	1416	1457	1506	1572	1630	1681	1733	1772	1836	1888	1939	1992	2044	2095
4	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	543	610	645	671	689	707	725	743	760	776	805	827	849	870	894	920	940	963	985	1010	1044	1082	1123	1164	1205	1249	1289	1345	1384	1431	1493	1548	1597	1646	1683	1744	1794	1842	1892	1942	1990
4	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	515	578	611	635	652	670	687	704	720	735	762	784	805	824	847	871	891	913	933	957	989	1025	1064	1102	1141	1183	1221	1274	1311	1355	1415	1467	1513	1560	1595	1652	1699	1745	1793	1840	1885
4	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	486	546	577	600	616	632	649	665	680	694	720	740	760	779	800	823	841	862	881	904	934	968	1005	1041	1078	1118	1153	1204	1238	1280	1336	1385	1429	1473	1506	1561	1605	1648	1693	1737	1781
4	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	458	514	543	565	580	595	610	626	640	654	678	697	715	733	753	774	792	811	830	850	879	911	946	980	1014	1052	1086	1133	1166	1205	1258	1304	1345	1386	1418	1469	1510	1551	1594	1635	1676
4	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	429	481	509	529	544	558	572	586	600	613	635	653	670	687	706	726	742	760	778	797	824	854	886	919	951	986	1018	1062	1093	1129	1179	1222	1261	1300	1329	1377	1416	1454	1494	1533	1571
4	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	423	475	502	522	536	551	565	579	592	605	627	645	662	678	696	716	733	750	767	787	813	843	875	906	938	973	1004	1048	1078	1114	1163	1206	1244	1282	1311	1359	1397	1435	1474	1513	1550
4	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	418	469	496	515	529	543	557	571	584	596	618	636	653	669	687	707	723	740	757	776	802	831	863	894	926	960	991	1034	1064	1099	1148	1190	1227	1265	1294	1340	1378	1415	1454	1492	1529
4	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	412	462	489	508	522	536	549	563	576	588	610	627	644	660	678	697	713	730	747	765	791	820	851	882	913	947	977	1020	1049	1084	1132	1174	1210	1248	1276	1322	1359	1396	1434	1472	1508
4	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	406	456	482	501	515	528	542	555	568	580	601	618	635	650	668	687	703	720	736	755	780	809	839	870	900	934	963	1005	1034	1069	1116	1157	1194	1230	1258	1304	1340	1377	1414	1451	1487
4	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	400	449	475	494	507	521	534	547	560	572	593	610	626	641	659	678	693	710	726	744	769	797	827	857	888	920	950	991	1020	1054	1100	1141	1177	1213	1240	1285	1322	1357	1394	1431	1466
4	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	383	430	455	473	486	498	511	524	536	547	567	584	599	614	630	649	663	679	695	712	736	763	792	821	850	881	909	949	976	1009	1053	1092	1126	1161	1187	1230	1265	1299	1335	1369	1404
4	0	Taxicab Vehicle-for-Hire 1	2911																																									
4	5	Taxicab Vehicle-for-Hire 1	2765																																								
4	10	Taxicab Vehicle-for-Hire 1	2620																																								
4	15	Taxicab Vehicle-for-Hire 1	2474																																								
4	20	Taxicab Vehicle-for-Hire 1	2329																																								
4	25	Taxicab Vehicle-for-Hire 1	2183																																								
4	26	Taxicab Vehicle-for-Hire 1	2154																																								
4	27	Taxicab Vehicle-for-Hire 1	2125																																								
4	28	Taxicab Vehicle-for-Hire 1	2096																																								
4	29	Taxicab Vehicle-for-Hire 1	2067																																								
4	30	Taxicab Vehicle-for-Hire 1	2038																																								
4	33	Taxicab Vehicle-for-Hire 1	1950																																								
4	0	Taxicab Vehicle-for-Hire 2	4050																																								
4	5	Taxicab Vehicle-for-Hire 2	3847																																								
4	10	Taxicab Vehicle-for-Hire 2	3645																																								
4	15	Taxicab Vehicle-for-Hire 2	3442																																								
4	20	Taxicab Vehicle-for-Hire 2	3240																																								
4	25	Taxicab Vehicle-for-Hire 2	3037																																								
4	26	Taxicab Vehicle-for-Hire 2	2997																																								
4	27	Taxicab Vehicle-for-Hire 2	2956																																								
4	28	Taxicab Vehicle-for-Hire 2	2916																																								
4	29	Taxicab Vehicle-for-Hire 2	2875																																								
4	30	Taxicab Vehicle-for-Hire 2	2835																																								
4	33	Taxicab Vehicle-for-Hire 2	2713																																								
4	0	Taxicab Vehicle-for-Hire 3	5189																																								
4	5	Taxicab Vehicle-for-Hire 3	4930																																								
4	10	Taxicab Vehicle-for-Hire 3	4670																																								
4	15	Taxicab Vehicle-for-Hire 3	4411																																								
4	20	Taxicab Vehicle-for-Hire 3	4151																																								
4	25	Taxicab Vehicle-for-Hire 3	3892																																								
4	26	Taxicab Vehicle-for-Hire 3	3840																																								
4	27	Taxicab Vehicle-for-Hire 3	3788																																								
4	28	Taxicab Vehicle-for-Hire 3	3736																																								
4	29	Taxicab Vehicle-for-Hire 3	3684																																								
4	30	Taxicab Vehicle-for-Hire 3	3632																																								
4	33	Taxicab Vehicle-for-Hire 3	3477																																								
4	0	Taxicab Vehicle-for-Hire 4	6328																																								
4	5	Taxicab Vehicle-for-Hire 4	6012																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	10	Taxicab Vehicle-for-Hire 4	5695																																								
4	15	Taxicab Vehicle-for-Hire 4	5379																																								
4	20	Taxicab Vehicle-for-Hire 4	5062																																								
4	25	Taxicab Vehicle-for-Hire 4	4746																																								
4	26	Taxicab Vehicle-for-Hire 4	4683																																								
4	27	Taxicab Vehicle-for-Hire 4	4619																																								
4	28	Taxicab Vehicle-for-Hire 4	4556																																								
4	29	Taxicab Vehicle-for-Hire 4	4493																																								
4	30	Taxicab Vehicle-for-Hire 4	4430																																								
4	33	Taxicab Vehicle-for-Hire 4	4240																																								
Commuter	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	755	814	847	877	906	936	965	994	1024	1052	1077	1088	1114	1161	1198	1243	1289	1336	1386	1433	1484	1533	1579	1629	1678	1740	1793	1846	1900	1954	2004	2057	2104	2151	2194	2242	2293	2345	2395	2446	2498
Commuter	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	717	773	805	833	861	889	917	944	973	999	1023	1034	1058	1103	1138	1181	1225	1269	1317	1361	1410	1456	1500	1548	1594	1653	1703	1754	1805	1856	1904	1954	1999	2043	2084	2130	2178	2228	2275	2324	2373
Commuter	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	679	733	762	789	815	842	868	895	922	947	969	979	1003	1045	1078	1119	1160	1202	1247	1290	1336	1380	1421	1466	1510	1566	1614	1661	1710	1759	1804	1851	1894	1936	1975	2018	2064	2110	2155	2201	2248
Commuter	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	642	692	720	745	770	796	820	845	870	894	915	925	947	987	1018	1057	1096	1136	1178	1218	1261	1303	1342	1385	1426	1479	1524	1569	1615	1661	1703	1748	1788	1828	1865	1906	1949	1993	2036	2079	2123
Commuter	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	604	651	678	702	725	749	772	795	819	842	862	870	891	929	958	994	1031	1069	1109	1146	1187	1226	1263	1303	1342	1392	1434	1477	1520	1563	1603	1646	1683	1721	1755	1794	1834	1876	1916	1957	1998
Commuter	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	566	610	635	658	679	702	724	745	768	789	808	816	835	871	898	932	967	1002	1039	1075	1113	1150	1184	1222	1258	1305	1345	1384	1425	1465	1503	1543	1578	1613	1645	1681	1720	1759	1796	1834	1873
Commuter	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	559	602	627	649	670	693	714	736	758	778	797	805	824	859	887	920	954	989	1026	1060	1098	1134	1168	1205	1242	1288	1327	1366	1406	1446	1483	1522	1557	1592	1624	1659	1697	1735	1772	1810	1849
Commuter	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	551	594	618	640	661	683	704	726	748	768	786	794	813	848	875	907	941	975	1012	1046	1083	1119	1153	1189	1225	1270	1309	1348	1387	1426	1463	1502	1536	1570	1602	1637	1674	1712	1748	1786	1824
Commuter	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	544	586	610	631	652	674	695	716	737	757	775	783	802	836	863	895	928	962	998	1032	1068	1104	1137	1173	1208	1253	1291	1329	1368	1407	1443	1481	1515	1549	1580	1614	1651	1688	1724	1761	1799
Commuter	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	536	578	601	623	643	665	685	706	727	747	765	772	791	824	851	883	915	949	984	1017	1054	1088	1121	1157	1191	1235	1273	1311	1349	1387	1423	1460	1494	1527	1558	1592	1628	1665	1700	1737	1774
Commuter	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	528	570	593	614	634	655	675	696	717	736	754	762	780	813	839	870	902	935	970	1003	1039	1073	1105	1140	1175	1218	1255	1292	1330	1368	1403	1440	1473	1506	1536	1569	1605	1641	1676	1712	1749
Commuter	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	506	545	567	588	607	627	647	666	686	705	722	729	746	778	803	833	864	895	929	960	994	1027	1058	1091	1124	1166	1201	1237	1273	1309	1343	1378	1410	1441	1470	1502	1536	1571	1605	1639	1674
Commuter	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	791	852	888	918	949	980	1011	1042	1072	1102	1129	1140	1167	1217	1255	1302	1351	1399	1452	1501	1554	1606	1654	1706	1758	1823	1879	1934	1991	2047	2100	2155	2204	2254	2299	2348	2402	2456	2509	2563	2617
Commuter	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	751	809	844	872	902	931	960	990	1018	1047	1073	1083	1109	1156	1192	1237	1283	1329	1379	1426	1476	1526	1571	1621	1670	1732	1785	1837	1891	1945	1995	2047	2094	2141	2184	2231	2282	2333	2384	2435	2486
Commuter	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	712	767	799	826	854	882	910	938	965	992	1016	1026	1050	1095	1129	1172	1216	1259	1307	1351	1399	1445	1489	1535	1582	1641	1691	1741	1792	1842	1890	1939	1984	2029	2069	2113	2162	2210	2258	2307	2355
Commuter	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	672	724	755	780	807	833	859	886	911	937	960	969	992	1034	1067	1107	1148	1189	1234	1276	1321	1365	1406	1450	1494	1550	1597	1644	1692	1740	1785	1832	1873	1916	1954	1996	2042	2088	2133	2179	2224
Commuter	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	633	682	710	734	759	784	809	834	858	882	903	912	934	974	1004	1042	1081	1119	1162	1201	1243	1285	1323	1365	1406	1458	1503	1547	1593	1638	1680	1724	1763	1803	1839	1878	1922	1965	2007	2050	2094
Commuter	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	593	639	666	688	712	735	758	781	804	826	847	855	875	913	941	976	1013	1049	1089	1126	1165	1204	1240	1279	1318	1367	1409	1450	1493	1535	1575	1616	1653	1690	1724	1761	1801	1842	1882	1922	1963
Commuter	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	585	630	657	679	702	725	748	771	793	815	835	844	864	901	929	963	1000	1035	1074	1111	1150	1188	1224	1262	1301	1349	1390	1431	1473	1515	1554	1595	1631	1668	1701	1738	1777	1817	1857	1897	1937
Commuter	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	577	622	648	670	693	715	738	761	783	804	824	832	852	888	916	950	986	1021	1060	1096	1134	1172	1207	1245	1283	1331	1372	1412	1453	1494	1533	1573	1609	1645	1678	1714	1753	1793	1832	1871	1910
Commuter	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	570	613	639	661	683	706	728	750	772	793	813	821	840	876	904	937	973	1007	1045	1081	1119	1156	1191	1228	1266	1313	1353	1392	1434	1474	1512	1552	1587	1623	1655	1691	1729	1768	1806	1845	1884
Commuter	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	562	605	630	652	674	696	718	740	761	782	802	809	829	864	891	924	959	993	1031	1066	1103	1140	1174	1211	1248	1294	1334	1373	1414	1453	1491	1530	1565	1600	1632	1667	1705	1744	1781	1820	1858
Commuter	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	554	596	622	643	664	686	708	729	750	771	790	798	817	852	878	911	946	979	1016	1051	1088	1124	1158	1194	1231	1276	1315	1354	1394	1433	1470	1508	1543	1578	1609	1644	1681	1719	1756	1794	1832
Commuter	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	530	571	595	615	636	657	677	698	718	738	756	764	782	815	841	872	905	937	973	1006	1041	1076	1108	1143	1178	1221	1259	1296	1334	1371	1407	1444	1477	1510	1540	1573	1609	1646	1681	1717	1753
Commuter	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	827	891	928	960	992	1025	1057	1089	1121	1152	1180	1191	1220	1272	1312	1362	1412	1463	1518	1570	1625	1679	1730	1784	1838	1906	1964	2022	2081	2140	2195	2253	2305	2356	2403	2455	2512	2568	2623	2679	2736
Commuter	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	786	846	882	912	942	974	1004	1035	1065	1094	1121	1131	1159	1208	1246	1294	1341	1390	1442	1491	1544	1595	1643	1695	1746	1811	1866	1921	1977	2033	2085	2140	2190	2238	2283	2332	2386	2440	2492	2545	2599
Commuter	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	744	802	835	864	893	922	951	980	1009	1037	1062	1072	1098	1145	1181	1226	1271	1317	1366	1413	1462	1511	1557	1606	1654	1715	1768	1820	1873	1926	1975	2028	2074	2120	2163	2209	2261	2311	2361	2411	2462
Commuter	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	703	757	789	816	843	871	898	926	953	979	1003	1012	1037	1081	1115	1158	1200	1244	1290	1334	1381	1427	1470	1516	1562	1620	1669	1719	1769	1819	1866	1915	1959	2003	2043	2087	2135	2183	2230	2277	2326
Commuter	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	662	713	742	768	794	820	846	871	897	922	944	953	976	1018	1050	1090	1130	1170	1214	1256	1300	1343	1384	1427	1470	1525	1571	1618	1665	1712	1756	1802	1844	1885	1922	1964	2010	2054	2098	2143	2189
Commuter	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	620	668	696	720	744	769	793	817	841	864	885	893	915	954	984	1021	1059	1097	1138	1177	1219	1259	1297	1338	1378	1429	1473	1516	1561	1605	1646	1690	1729	1767	1802	1841	1884	1926	1967	2009	2052
Commuter	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	612	659	687	710	734	758	782	806	830	852	873	881	903	941	971	1008	1045	1083	1123	1162	1202	1242	1280	1320	1360	1410	1453	1496	1540	1584	1624	1667	1706	1743	1778	1817	1859	1900	1941	1982	2025
Commuter	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	604	650	677	701	724	748	772	795	818	841	861	869	891	929	958	994	1031	1068	1108	1146	1186	1226	1263	1302	1342	1391	1434	1476	1519	1562	1602	1645	1683	1720	1754	1792	1834	1875	1915	1956	1997
Commuter	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	595	642	668	691	714	738	761	784	807	829	850	858	878	916	945	981	1017	1053	1093	1130	1170	1209	1246	1284	1323	1372	1414	1456	1498	1541	1580	1622	1660	1696	1730	1768	1809	1849	1889	1929	1970
Commuter	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	587	633	659	682	704	728	750	773	796	818	838	846	866	903	932	967	1003	1039	1078	1115	1154	1192	1228	1267	1305	1353	1394	1436	1478	1519	1558	1600	1637	1673	1706	1743	1784	1823	1862	1902	1943
Commuter	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	579	624	650	672	694	717	740	762	785	806	826	834	854	890	918	953	988	1024	1063	1099	1137	1175	1211	1249	1287	1334	1375	1415	1457	1498	1536	1577	1613	1649	1682	1718	1758	1798	1836	1875	1915
Commuter	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	554	597	622	643	665	687	708	730	751	772	791	798	817	852	879	913	946	980	1017	1052	1089	1125	1159	1195	1231	1277	1316	1355	1394	1434	1471	1510	1544	1579	1610	1645	1683	1721	1757	1795	1833
Commuter	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	863	930	968	1002	1036	1069	1103	1136	1170	1202	1231	1243	1273	1327	1369	1421	1474	1526	1584	1638	1696	1752	1805	1861	1918	1988	2050	2110	2172	2233	2291	2351	2405	2459	2508	2562	2621	2680	2737	2796	2855
Commuter	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	820	883	920	952	984	1016	1048	1079	1111	1142	1169	1181	1209	1261	1301	1350	1400	1450	1505	1556	1611	1664	1715	1768	1822	1889	1947	2004	2063	2121	2176	2233	2285	2336	2383	2434	2490	2546	2600	2656	2712
Commuter	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	777	837	871	902	932	962	993	1022	1053	1082	1108	1119	1146	1194	1232	1279	1327	1373	1426	1474	1526	1577	1624	1675	1726	1789	1845	1899	1955	2010	2062	2116	2164	2213	2257	2306	2359	2412	2463	2516	2569
Commuter	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	734	790	823	852	881	909	938	966	994	1022	1046	1057	1082	1128	1164	1208	1253	1297	1346	1392	1442	1489	1534	1582	1630	1690	1742	1793	1846	1898	1947	1998	2044	2090	2132	2178	2228	2278	2326	2377	2427
Commuter	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	690	744	774	802	829	855	882	909	936	962	985	994	1018	1062	1095	1137	1179	1221	1267	1310	1357	1402	1444	1489	1534	1590	1640	1688	1738	1786	1833	1881	1924	1967	2006	2050	2097	2144	2190	2237	2284
Commuter	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	647	697	726	751	777	802	827	852	877	901	923	932	955	995	1027	1066	1105	1144	1188	1228	1272	1314	1354	1396	1438	1491	1537	1582	1629	1675	1718	1763	1804	1844	1881	1921	1966	2010	2053	2097	2141
Commuter	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	639	688	716	741	767	791	816	841	866	889	911	920	942	982	1013	1052	1091	1129	1172	1212	1255	1296	1336	1377	1419	1471	1517	1561	1607	1652	1695	1740	1780	1820	1856	1896	1940	1983	2025	2069	2113
Commuter	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	630	679	707	731	756	780	805	829	854	877	899	907	929	969	999	1037	1076	1114	1156	1196	1238	1279	1318	1359	1400	1451	1496	1540	1586	1630	1672	1716	1756	1795	1831	1870	1913	1956	1998	2041	2084
Commuter	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	621	670	697	721	746	770	794	818	842	865	886	895	917	955	986	1023	1061	1099	1140	1179	1221	1261	1300	1340	1381	1431	1476	1519	1564	1608	1650	1693	1732	1770	1806	1845	1887	1930	1971	2013	2056
Commuter	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	613	660	687	711	736	759	783	807	831	853	874	883	904	942	972	1009	1047	1083	1125	1163	1204	1244	1282	1321	1362	1411	1455	1498	1542	1585	1627	1669	1708	1746	1781	1819	1861	1903	1943	1985	2027

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Commuter	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	604	651	678	701	725	748	772	795	819	841	862	870	891	929	958	995	1032	1068	1109	1147	1187	1226	1263	1303	1343	1392	1435	1477	1520	1563	1604	1646	1683	1721	1756	1793	1835	1876	1916	1957	1998
Commuter	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	578	623	649	671	694	716	739	761	784	805	825	833	853	889	917	952	988	1022	1061	1097	1136	1174	1209	1247	1285	1332	1373	1414	1455	1496	1535	1575	1611	1648	1680	1717	1756	1796	1834	1873	1913
Commuter	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	575	645	681	709	728	747	766	786	804	820	850	876	899	920	944	972	994	1018	1042	1068	1105	1144	1188	1232	1275	1321	1363	1422	1463	1513	1579	1637	1688	1741	1780	1844	1896	1948	2000	2053	2104
Commuter	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	546	613	647	674	692	710	728	747	764	779	807	832	854	874	897	923	944	967	990	1015	1050	1087	1129	1170	1211	1255	1295	1351	1390	1437	1500	1555	1604	1654	1691	1752	1801	1851	1900	1950	1999
Commuter	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	517	580	613	638	655	672	689	707	724	738	765	788	809	828	850	875	895	916	938	961	994	1030	1069	1109	1147	1189	1227	1280	1317	1362	1421	1473	1519	1567	1602	1660	1706	1753	1800	1848	1894
Commuter	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	489	548	579	603	619	635	651	668	683	697	722	745	764	782	802	826	845	865	886	908	939	972	1010	1047	1084	1123	1159	1209	1244	1286	1342	1391	1435	1480	1513	1567	1612	1656	1700	1745	1788
Commuter	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	460	516	545	567	582	598	613	629	643	656	680	701	719	736	755	778	795	814	834	854	884	915	950	986	1020	1057	1090	1138	1170	1210	1263	1310	1350	1393	1424	1475	1517	1558	1600	1642	1683
Commuter	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	431	484	511	532	546	560	574	589	603	615	637	657	674	690	708	729	745	763	781	801	829	858	891	924	956	991	1022	1066	1097	1135	1184	1228	1266	1306	1335	1383	1422	1461	1500	1540	1578
Commuter	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	425	477	504	525	539	553	567	582	595	607	629	648	665	681	699	719	736	753	771	790	818	847	879	912	943	978	1009	1052	1083	1120	1168	1211	1249	1288	1317	1365	1403	1442	1480	1519	1557
Commuter	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	420	471	497	518	531	545	559	574	587	599	620	639	656	672	689	710	726	743	761	780	807	835	867	899	931	964	995	1038	1068	1104	1153	1195	1232	1271	1299	1346	1384	1422	1460	1499	1536
Commuter	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	414	464	490	510	524	538	552	566	579	590	612	631	647	662	680	700	716	733	750	769	796	824	855	887	918	951	981	1024	1053	1089	1137	1179	1215	1254	1282	1328	1365	1403	1440	1478	1515
Commuter	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	408	458	484	503	517	530	544	558	571	582	603	622	638	653	670	690	706	723	740	758	785	812	843	875	905	938	968	1010	1039	1074	1121	1162	1198	1236	1264	1309	1346	1383	1420	1458	1494
Commuter	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	402	451	477	496	510	523	536	550	563	574	595	613	629	644	661	680	696	713	729	748	773	801	832	862	892	925	954	995	1024	1059	1105	1146	1182	1219	1246	1291	1327	1364	1400	1437	1473
Commuter	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	385	432	456	475	488	500	513	527	539	549	569	587	602	616	632	651	666	682	698	716	740	766	796	825	854	885	913	953	980	1014	1058	1097	1131	1166	1193	1235	1270	1305	1340	1376	1410
Commuter	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	603	675	714	742	762	782	803	824	843	859	891	917	942	964	989	1019	1042	1067	1091	1119	1157	1199	1244	1290	1335	1384	1428	1489	1532	1585	1654	1715	1769	1824	1864	1932	1987	2040	2095	2150	2204
Commuter	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	573	641	678	705	724	743	763	783	801	816	846	871	895	916	940	968	990	1014	1036	1063	1099	1139	1182	1225	1268	1315	1357	1415	1455	1506	1571	1629	1681	1733	1771	1835	1888	1938	1990	2042	2094
Commuter	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	543	607	643	668	686	704	723	742	759	773	802	825	848	868	890	917	938	960	982	1007	1041	1079	1120	1161	1201	1246	1285	1340	1379	1426	1489	1543	1592	1642	1678	1739	1788	1836	1885	1935	1984
Commuter	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	513	574	607	631	648	665	683	700	717	730	757	779	801	819	841	866	886	907	927	951	983	1019	1057	1096	1135	1176	1214	1266	1302	1347	1406	1458	1504	1550	1584	1642	1689	1734	1781	1827	1873
Commuter	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	482	540	571	594	610	626	642	659	674	687	713	734	754	771	791	815	834	854	873	895	926	959	995	1032	1068	1107	1142	1191	1226	1268	1323	1372	1415	1459	1491	1546	1590	1632	1676	1720	1763
Commuter	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	452	506	535	556	571	586	602	618	632	644	668	688	706	723	742	764	781	800	818	839	868	899	933	967	1001	1038	1071	1117	1149	1189	1240	1286	1327	1368	1398	1449	1490	1530	1571	1612	1653
Commuter	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	446	499	528	549	564	579	594	610	624	636	659	679	697	713	732	754	771	790	807	828	856	887	921	955	988	1024	1057	1102	1134	1173	1224	1269	1309	1350	1379	1430	1470	1510	1550	1591	1631
Commuter	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	440	493	521	542	556	571	586	602	615	627	650	669	688	704	722	744	761	779	796	817	845	875	908	942	975	1010	1042	1087	1118	1157	1207	1252	1291	1332	1361	1410	1451	1489	1529	1569	1609
Commuter	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	434	486	514	534	549	563	578	593	607	618	642	660	678	694	712	734	750	768	786	806	833	863	896	929	961	996	1028	1072	1103	1141	1191	1235	1274	1313	1342	1391	1431	1469	1508	1548	1587
Commuter	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	428	479	507	527	541	555	570	585	599	610	633	651	669	684	702	723	740	758	775	794	821	851	883	916	948	983	1014	1057	1088	1125	1174	1218	1256	1295	1323	1372	1411	1448	1487	1526	1565
Commuter	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	422	472	500	519	533	547	562	577	590	601	624	642	659	675	692	713	729	747	764	783	810	839	871	903	934	969	1000	1042	1072	1109	1158	1200	1238	1277	1305	1352	1391	1428	1466	1505	1543
Commuter	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	404	452	478	497	511	524	538	552	565	576	597	614	631	646	663	683	698	715	731	750	775	803	833	864	894	927	957	998	1026	1062	1108	1149	1185	1222	1249	1294	1331	1367	1404	1440	1477
Commuter	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	630	706	746	776	797	818	839	861	881	898	931	959	984	1007	1034	1065	1089	1115	1141	1170	1210	1253	1301	1349	1396	1447	1493	1557	1602	1657	1730	1793	1849	1907	1949	2019	2077	2133	2191	2248	2305
Commuter	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	598	671	709	737	757	777	797	818	837	853	884	911	935	957	982	1012	1035	1059	1084	1111	1149	1190	1236	1282	1326	1375	1418	1479	1522	1574	1643	1703	1757	1812	1852	1918	1973	2026	2081	2136	2190
Commuter	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	567	635	671	698	717	736	755	775	793	808	838	863	886	906	931	958	980	1003	1027	1053	1089	1128	1171	1214	1256	1302	1344	1401	1442	1491	1557	1614	1664	1716	1754	1817	1869	1920	1972	2023	2074
Commuter	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	535	600	634	660	677	695	713	732	749	763	791	815	836	856	879	905	926	948	970	994	1028	1065	1106	1147	1187	1230	1269	1323	1362	1408	1470	1524	1572	1621	1657	1716	1765	1813	1862	1911	1959
Commuter	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	504	565	597	621	638	654	671	689	705	718	745	767	787	806	827	852	871	892	913	936	968	1002	1041	1079	1117	1158	1194	1246	1282	1326	1384	1434	1479	1526	1559	1615	1662	1706	1753	1798	1844
Commuter	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	472	529	559	582	598	613	629	646	661	673	698	719	738	755	775	799	817	836	856	877	907	940	976	1012	1047	1085	1120	1168	1201	1243	1297	1345	1387	1430	1462	1514	1558	1600	1643	1686	1729
Commuter	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	466	522	552	574	590	605	621	637	652	665	689	710	728	745	765	788	806	825	844	866	895	927	963	998	1033	1071	1105	1152	1185	1226	1280	1327	1368	1411	1442	1494	1537	1578	1621	1664	1706
Commuter	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	460	515	545	566	582	597	612	629	643	656	680	700	718	735	755	777	795	814	833	854	883	915	950	985	1019	1056	1090	1137	1169	1210	1263	1309	1350	1392	1423	1474	1516	1557	1599	1641	1683
Commuter	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	454	508	537	559	574	589	604	620	634	647	670	690	708	725	744	767	784	803	822	842	871	902	937	971	1005	1042	1075	1121	1153	1193	1246	1291	1331	1373	1403	1454	1495	1536	1578	1619	1660
Commuter	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	447	501	530	551	566	581	596	611	626	638	661	681	699	715	734	756	773	792	810	831	859	890	924	958	991	1027	1060	1105	1137	1176	1228	1273	1313	1354	1384	1433	1475	1514	1556	1596	1637
Commuter	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	441	494	522	543	558	573	587	603	617	629	652	671	689	705	724	745	762	780	799	819	847	877	911	944	977	1013	1045	1090	1121	1160	1211	1255	1294	1335	1364	1413	1454	1493	1534	1574	1613
Commuter	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	422	473	500	520	534	548	562	577	590	602	624	643	659	675	693	714	730	747	764	784	811	840	872	904	935	969	1000	1043	1073	1110	1159	1201	1239	1278	1306	1353	1392	1429	1468	1506	1544
Commuter	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	658	737	779	810	832	853	876	899	919	937	972	1001	1027	1051	1079	1111	1136	1164	1190	1220	1262	1308	1357	1408	1457	1510	1558	1625	1672	1729	1805	1871	1930	1990	2034	2107	2167	2226	2286	2346	2405
Commuter	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	625	700	740	769	790	810	832	854	873	890	923	951	976	998	1025	1055	1079	1106	1130	1159	1199	1243	1289	1338	1384	1434	1480	1544	1588	1643	1715	1777	1833	1890	1932	2002	2059	2115	2172	2229	2285
Commuter	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	592	663	701	729	749	768	788	809	827	843	875	901	924	946	971	1000	1022	1048	1071	1098	1136	1177	1221	1267	1311	1359	1402	1462	1505	1556	1624	1684	1737	1791	1831	1896	1950	2003	2057	2111	2164
Commuter	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	559	626	662	688	707	725	745	764	781	796	826	851	873	893	917	944	966	989	1011	1037	1073	1112	1153	1197	1238	1283	1324	1381	1421	1470	1534	1590	1640	1691	1729	1791	1842	1892	1943	1994	2044
Commuter	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	526	590	623	648	666	682	701	719	735	750	778	801	822	841	863	889	909	931	952	976	1010	1046	1086	1126	1166	1208	1246	1300	1338	1383	1444	1497	1544	1592	1627	1686	1734	1781	1829	1877	1924
Commuter	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	493	553	584	607	624	640	657	674	689	703	729	751	770	788	809	833	852	873	892	915	946	981	1018	1056	1093	1132	1168	1219	1254	1297	1354	1403	1447	1492	1525	1580	1625	1669	1714	1759	1804
Commuter	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	487	545	576	599	616	631	648	665	680	693	719	741	760	778	798	822	841	861	881	903	934	968	1004	1042	1078	1117	1153	1202	1237	1279	1336	1385	1428	1473	1505	1559	1604	1647	1692	1736	1780
Commuter	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	480	538	569	591	607	623	639	656	671	684	710	731	750	767	788	811	829	850	869	891	921	955	991	1028	1064	1102	1137	1186	1221	1262	1318	1366	1409	1453	1485	1538	1582	1625	1669	1713	1756
Commuter	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	474	531	561	583	599	614	631	647	662	675	700	721	739	757	777	800	818	838	857	878	909	942	977	1014	1049	1087	1122	1170	1204	1245	1300	1347	1390	1433	1464	1517	1560	1603	1646	1689	1732
Commuter	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	467	523	553	575	591	606	622	638	652	665	690	711	729	746	766	789	807	826	845	866	896	929	963	1000	1034	1072	1106	1154	1187	1228	1282	1328	1370	1413	1444	1496	1539	1580	1623	1666	1708
Commuter	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	461	516	545	567	582	597	613	629	643	656	680	701	719	736	755	778	795	815	833	854	883	916	950	986	1020	1057	1091	1137	1170	1210	1263	1310	1351	1393	1424	1475	1517	1558	1600	1642	1683
Commuter	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	441	494	522	543	557	572	587	602	616	628	651	671	688	704	723	744	761	780	797	817	846	876	909	943	976	1012	1044	1089	1120	1158	1209	1254	1293	1333	1363	1412	1452	1491	1532	1572	1611

2017 BASIC RATE TABLE

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	0	Accessible Vehicle-for-Hire 1	1176	1229	1303	1371	1448	1520	1590	1662	1745	1816	1890	1963	2037	2112																													
1	5	Accessible Vehicle-for-Hire 1	1117	1168	1238	1302	1376	1444	1510	1579	1658	1725	1795	1865	1935	2006																													
1	10	Accessible Vehicle-for-Hire 1	1058	1106	1173	1234	1303	1368	1431	1496	1570	1634	1701	1767	1833	1901																													
1	15	Accessible Vehicle-for-Hire 1	1000	1045	1108	1165	1231	1292	1351	1413	1483	1544	1606	1669	1731	1795																													
1	20	Accessible Vehicle-for-Hire 1	941	983	1042	1097	1158	1216	1272	1330	1396	1453	1512	1570	1630	1690																													
1	25	Accessible Vehicle-for-Hire 1	882	922	977	1028	1086	1140	1192	1246	1309	1362	1417	1472	1528	1584																													
1	26	Accessible Vehicle-for-Hire 1	870	909	964	1015	1072	1125	1177	1230	1291	1344	1399	1453	1507	1563																													
1	27	Accessible Vehicle-for-Hire 1	858	897	951	1001	1057	1110	1161	1213	1274	1326	1380	1433	1487	1542																													
1	28	Accessible Vehicle-for-Hire 1	847	885	938	987	1043	1094	1145	1197	1256	1308	1361	1413	1467	1521																													
1	29	Accessible Vehicle-for-Hire 1	835	873	925	973	1028	1079	1129	1180	1239	1289	1342	1394	1446	1500																													
1	30	Accessible Vehicle-for-Hire 1	823	860	912	960	1014	1064	1113	1163	1221	1271	1323	1374	1426	1478																													
1	33	Accessible Vehicle-for-Hire 1	788	823	873	919	970	1018	1065	1114	1169	1217	1266	1315	1365	1415																													
1	0	Accessible Vehicle-for-Hire 2	1239	1295	1373	1445	1526	1601	1676	1751	1838	1914	1991	2069	2146	2226																													
1	5	Accessible Vehicle-for-Hire 2	1177	1230	1304	1373	1450	1521	1592	1663	1746	1818	1891	1966	2039	2115																													
1	10	Accessible Vehicle-for-Hire 2	1115	1165	1236	1300	1373	1441	1508	1576	1654	1723	1792	1862	1931	2003																													
1	15	Accessible Vehicle-for-Hire 2	1053	1101	1167	1228	1297	1361	1425	1488	1562	1627	1692	1759	1824	1892																													
1	20	Accessible Vehicle-for-Hire 2	991	1036	1098	1156	1221	1281	1341	1401	1470	1531	1593	1655	1717	1781																													
1	25	Accessible Vehicle-for-Hire 2	929	971	1030	1084	1144	1201	1257	1313	1378	1435	1493	1552	1609	1669																													
1	26	Accessible Vehicle-for-Hire 2	917	958	1016	1069	1129	1185	1240	1296	1360	1416	1473	1531	1588	1647																													
1	27	Accessible Vehicle-for-Hire 2	904	945	1002	1055	1114	1169	1223	1278	1342	1397	1453	1510	1567	1625																													
1	28	Accessible Vehicle-for-Hire 2	892	932	989	1040	1099	1153	1207	1261	1323	1378	1434	1490	1545	1603																													
1	29	Accessible Vehicle-for-Hire 2	880	919	975	1026	1083	1137	1190	1243	1305	1359	1414	1469	1524	1580																													
1	30	Accessible Vehicle-for-Hire 2	867	906	961	1011	1068	1121	1173	1226	1287	1340	1394	1448	1502	1558																													
1	33	Accessible Vehicle-for-Hire 2	830	868	920	968	1022	1073	1123	1173	1231	1282	1334	1386	1438	1491																													
1	0	Accessible Vehicle-for-Hire 3	1289	1347	1429	1503	1588	1667	1744	1823	1914	1992	2073	2153	2234	2316																													
1	5	Accessible Vehicle-for-Hire 3	1225	1280	1358	1428	1509	1584	1657	1732	1818	1892	1969	2045	2122	2200																													
1	10	Accessible Vehicle-for-Hire 3	1160	1212	1286	1353	1429	1500	1570	1641	1723	1793	1866	1938	2011	2084																													
1	15	Accessible Vehicle-for-Hire 3	1096	1145	1215	1278	1350	1417	1482	1550	1627	1693	1762	1830	1899	1969																													
1	20	Accessible Vehicle-for-Hire 3	1031	1078	1143	1202	1270	1334	1395	1458	1531	1594	1658	1722	1787	1853																													
1	25	Accessible Vehicle-for-Hire 3	967	1010	1072	1127	1191	1250	1308	1367	1435	1494	1555	1615	1675	1737																													
1	26	Accessible Vehicle-for-Hire 3	954	997	1057	1112	1175	1234	1291	1349	1416	1474	1534	1593	1653	1714																													
1	27	Accessible Vehicle-for-Hire 3	941	983	1043	1097	1159	1217	1273	1331	1397	1454	1513	1572	1631	1691																													
1	28	Accessible Vehicle-for-Hire 3	928	970	1029	1082	1143	1200	1256	1313	1378	1434	1493	1550	1608	1668																													
1	29	Accessible Vehicle-for-Hire 3	915	956	1015	1067	1127	1184	1238	1294	1359	1414	1472	1529	1586	1644																													
1	30	Accessible Vehicle-for-Hire 3	902	943	1000	1052	1112	1167	1221	1276	1340	1394	1451	1507	1564	1621																													
1	33	Accessible Vehicle-for-Hire 3	864	902	957	1007	1064	1117	1168	1221	1282	1335	1389	1443	1497	1552																													
1	0	Accessible Vehicle-for-Hire 4	1352	1413	1499	1577	1666	1748	1830	1912	2007	2090	2174	2259	2343	2430																													
1	5	Accessible Vehicle-for-Hire 4	1284	1342	1424	1498	1583	1661	1738	1816	1907	1985	2065	2146	2226	2308																													
1	10	Accessible Vehicle-for-Hire 4	1217	1272	1349	1419	1499	1573	1647	1721	1806	1881	1957	2033	2109	2187																													
1	15	Accessible Vehicle-for-Hire 4	1149	1201	1274	1340	1416	1486	1555	1625	1706	1776	1848	1920	1992	2065																													
1	20	Accessible Vehicle-for-Hire 4	1082	1130	1199	1262	1333	1398	1464	1530	1606	1672	1739	1807	1874	1944																													
1	25	Accessible Vehicle-for-Hire 4	1014	1060	1124	1183	1249	1311	1372	1434	1505	1567	1630	1694	1757	1822																													
1	26	Accessible Vehicle-for-Hire 4	1000	1046	1109	1167	1233	1294	1354	1415	1485	1547	1609	1672	1734	1798																													
1	27	Accessible Vehicle-for-Hire 4	987	1031	1094	1151	1216	1276	1336	1396	1465	1526	1587	1649	1710	1774																													
1	28	Accessible Vehicle-for-Hire 4	973	1017	1079	1135	1200	1259	1318	1377	1445	1505	1565	1626	1687	1750																													
1	29	Accessible Vehicle-for-Hire 4	960	1003	1064	1120	1183	1241	1299	1358	1425	1484	1544	1604	1664	1725																													
1	30	Accessible Vehicle-for-Hire 4	946	989	1049	1104	1166	1224	1281	1338	1405	1463	1522	1581	1640	1701																													
1	33	Accessible Vehicle-for-Hire 4	906	947	1004	1057	1116	1171	1226	1281	1345	1400	1457	1514	1570	1628																													
1	0	Limousine Vehicle-for-Hire 1	2240																																									
1	5	Limousine Vehicle-for-Hire 1	2128																																									
1	10	Limousine Vehicle-for-Hire 1	2016																																									
1	15	Limousine Vehicle-for-Hire 1	1904																																									
1	20	Limousine Vehicle-for-Hire 1	1792																																									
1	25	Limousine Vehicle-for-Hire 1	1680																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	26	Limousine Vehicle-for-Hire 1	1658																																								
1	27	Limousine Vehicle-for-Hire 1	1635																																								
1	28	Limousine Vehicle-for-Hire 1	1613																																								
1	29	Limousine Vehicle-for-Hire 1	1590																																								
1	30	Limousine Vehicle-for-Hire 1	1568																																								
1	33	Limousine Vehicle-for-Hire 1	1501																																								
1	0	Limousine Vehicle-for-Hire 2	2560																																								
1	5	Limousine Vehicle-for-Hire 2	2432																																								
1	10	Limousine Vehicle-for-Hire 2	2304																																								
1	15	Limousine Vehicle-for-Hire 2	2176																																								
1	20	Limousine Vehicle-for-Hire 2	2048																																								
1	25	Limousine Vehicle-for-Hire 2	1920																																								
1	26	Limousine Vehicle-for-Hire 2	1894																																								
1	27	Limousine Vehicle-for-Hire 2	1869																																								
1	28	Limousine Vehicle-for-Hire 2	1843																																								
1	29	Limousine Vehicle-for-Hire 2	1818																																								
1	30	Limousine Vehicle-for-Hire 2	1792																																								
1	33	Limousine Vehicle-for-Hire 2	1715																																								
1	0	Limousine Vehicle-for-Hire 3	2880																																								
1	5	Limousine Vehicle-for-Hire 3	2736																																								
1	10	Limousine Vehicle-for-Hire 3	2592																																								
1	15	Limousine Vehicle-for-Hire 3	2448																																								
1	20	Limousine Vehicle-for-Hire 3	2304																																								
1	25	Limousine Vehicle-for-Hire 3	2160																																								
1	26	Limousine Vehicle-for-Hire 3	2131																																								
1	27	Limousine Vehicle-for-Hire 3	2102																																								
1	28	Limousine Vehicle-for-Hire 3	2074																																								
1	29	Limousine Vehicle-for-Hire 3	2045																																								
1	30	Limousine Vehicle-for-Hire 3	2016																																								
1	33	Limousine Vehicle-for-Hire 3	1930																																								
1	0	Limousine Vehicle-for-Hire 4	3200																																								
1	5	Limousine Vehicle-for-Hire 4	3040																																								
1	10	Limousine Vehicle-for-Hire 4	2880																																								
1	15	Limousine Vehicle-for-Hire 4	2720																																								
1	20	Limousine Vehicle-for-Hire 4	2560																																								
1	25	Limousine Vehicle-for-Hire 4	2400																																								
1	26	Limousine Vehicle-for-Hire 4	2368																																								
1	27	Limousine Vehicle-for-Hire 4	2336																																								
1	28	Limousine Vehicle-for-Hire 4	2304																																								
1	29	Limousine Vehicle-for-Hire 4	2272																																								
1	30	Limousine Vehicle-for-Hire 4	2240																																								
1	33	Limousine Vehicle-for-Hire 4	2144																																								
1	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	661	711	749	777	805	834	862	889	918	945	969	974	1001	1047	1072	1108	1144	1182	1222	1260	1300	1340	1375	1416	1455	1521	1572	1620	1671	1720	1767	1814	1853	1892	1925	1947	1970	1992	2015	2038	2060
1	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	628	675	712	738	765	792	819	845	872	898	921	925	951	995	1018	1053	1087	1123	1161	1197	1235	1273	1306	1345	1382	1445	1493	1539	1587	1634	1679	1723	1760	1797	1829	1850	1871	1892	1914	1936	1957
1	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	595	640	674	699	724	751	776	800	826	850	872	877	901	942	965	997	1030	1064	1100	1134	1170	1206	1237	1274	1309	1369	1415	1458	1504	1548	1590	1633	1668	1703	1732	1752	1773	1793	1813	1834	1854
1	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	562	604	637	660	684	709	733	756	780	803	824	828	851	890	911	942	972	1005	1039	1071	1105	1139	1169	1204	1237	1293	1336	1377	1420	1462	1502	1542	1575	1608	1636	1655	1674	1693	1713	1732	1751
1	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	529	569	599	622	644	667	690	711	734	756	775	779	801	838	858	886	915	946	978	1008	1040	1072	1100	1133	1164	1217	1258	1296	1337	1376	1414	1451	1482	1514	1540	1558	1576	1594	1612	1630	1648
1	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	496	533	562	583	604	625	646	667	688	709	727	730	751	785	804	831	858	886	916	945	975	1005	1031	1062	1091	1141	1179	1215	1253	1290	1325	1360	1390	1419	1444	1460	1477	1494	1511	1528	1545
1	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	489	526	554	575	596	617	638	658	679	699	717	721	741	775	793	820	847	875	904	932	962	992	1017	1048	1077	1126	1163	1199	1237	1273	1308	1342	1371	1400	1424	1441	1458	1474	1491	1508	1524
1	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	483	519	547	567	588	609	629	649	670	690	707	711	731	764	783	809	835	863	892	920	949	978	1004	1034	1062	1110	1148	1183	1220	1256	1290	1324	1353	1381	1405	1421	1438	1454	1471	1488	1504
1	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	476	512	539	559	580	600	621	640	661	680	698	701	721	754	772	798	824	851	880	907	936	965	990	1020	1048	1095	1132	1166	1203	1238	1272	1306	1334	1362	1386	1402	1418	1434	1451	1467	1483
1	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	469	505	532	552	572	592	612	631	652	671	688	692	711	743	761	787	812	839	868	895	923	951	976	1005	1033	1080	1116	1150	1186	1221	1255	1288	1316	1343	1367	1382	1399	1414	1431	1447	1463
1	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	463	498	524	544	563	584	603	622	643	661	678	682	701	733	750	776	801	827	855	882	910	938	962	991	1018	1065	1100	1134	1170	1204	1237	1270	1297	1324	1347	1363	1379	1394	1410	1427	1442
1	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	443	476	502	521	539	559	578	596	615	633	649	653	671	701	718	742	766	792	819	844	871	898	921	949	975	1019	1053	1085	1120	1152	1184	1215	1242	1268	1290	1304	1320	1335	1350	1365	1380
1	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	693	745	784	814	844	873	903	932	961	990	1015	1021	1048	1097	1123	1160	1199	1239	1280	1320	1362	1404	1441	1484	1525	1594	1647	1697	1750	1802	1851	1901	1941	1982	2016	2039	2064	2087	2111	2135	2158
1	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	658	708	745	773	802	829	858	885	913	940	964	970	996	1042	1067	1102	1139	1177	1216	1254	1294	1334	1369	1410	1449	1514	1565	1612	1662	1712	1758	1806	1844	1883	1915	1937	1961	1983	2005	2028	2050

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	624	670	706	733	760	786	813	839	865	891	913	919	943	987	1011	1044	1079	1115	1152	1188	1226	1264	1297	1336	1372	1435	1482	1527	1575	1622	1666	1711	1747	1784	1814	1835	1858	1878	1900	1921	1942
1	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	589	633	666	692	717	742	768	792	817	841	863	868	891	932	955	986	1019	1053	1088	1122	1158	1193	1225	1261	1296	1355	1400	1442	1487	1532	1573	1616	1650	1685	1714	1733	1754	1774	1794	1815	1834
1	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	554	596	627	651	675	698	722	746	769	792	812	817	838	878	898	928	959	991	1024	1056	1090	1123	1153	1187	1220	1275	1318	1358	1400	1442	1481	1521	1553	1586	1613	1631	1651	1670	1689	1708	1726
1	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	520	559	588	610	633	655	677	699	721	742	761	766	786	823	842	870	899	929	960	990	1021	1053	1081	1113	1144	1195	1235	1273	1312	1351	1388	1426	1456	1486	1512	1529	1548	1565	1583	1601	1618
1	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	513	551	580	602	625	646	668	690	711	733	751	756	776	812	831	858	887	917	947	977	1008	1039	1066	1098	1128	1180	1219	1256	1295	1333	1370	1407	1436	1467	1492	1509	1527	1544	1562	1580	1597
1	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	506	544	572	594	616	637	659	680	702	723	741	745	765	801	820	847	875	904	934	964	994	1025	1052	1083	1113	1164	1202	1239	1277	1315	1351	1388	1417	1447	1472	1488	1507	1524	1541	1559	1575
1	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	499	536	564	586	608	629	650	671	692	713	731	735	755	790	809	835	863	892	922	950	981	1011	1038	1068	1098	1148	1186	1222	1260	1297	1333	1369	1398	1427	1452	1468	1486	1503	1520	1537	1554
1	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	492	529	557	578	599	620	641	662	682	703	721	725	744	779	797	824	851	880	909	937	967	997	1023	1054	1083	1132	1169	1205	1242	1279	1314	1350	1378	1407	1431	1448	1465	1482	1499	1516	1532
1	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	485	521	549	570	591	611	632	652	673	693	710	715	734	768	786	812	839	867	896	924	953	983	1009	1039	1067	1116	1153	1188	1225	1261	1296	1331	1359	1387	1411	1427	1445	1461	1478	1494	1511
1	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	464	499	525	545	565	585	605	624	644	663	680	684	702	735	752	777	803	830	858	884	913	941	965	994	1022	1068	1103	1137	1172	1207	1240	1274	1300	1328	1351	1366	1383	1398	1414	1430	1446
1	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	724	779	820	851	882	913	944	974	1005	1035	1061	1067	1096	1147	1174	1213	1253	1295	1339	1380	1424	1467	1506	1551	1594	1666	1722	1774	1830	1884	1935	1987	2030	2072	2108	2132	2157	2182	2207	2232	2256
1	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	688	740	779	808	838	867	897	925	955	983	1008	1014	1041	1090	1115	1152	1190	1230	1272	1311	1353	1394	1431	1473	1514	1583	1636	1685	1738	1790	1838	1888	1928	1968	2003	2025	2049	2073	2097	2120	2143
1	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	652	701	738	766	794	822	850	877	904	931	955	960	986	1032	1057	1092	1128	1165	1205	1242	1282	1320	1355	1396	1435	1499	1550	1597	1647	1696	1741	1788	1827	1865	1897	1919	1941	1964	1986	2009	2030
1	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	615	662	697	723	750	776	802	828	854	880	902	907	932	975	998	1031	1065	1101	1138	1173	1210	1247	1280	1318	1355	1416	1464	1508	1555	1601	1645	1689	1725	1761	1792	1812	1833	1855	1876	1897	1918
1	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	579	623	656	681	706	730	755	779	804	828	849	854	877	918	939	970	1002	1036	1071	1104	1139	1174	1205	1241	1275	1333	1378	1419	1464	1507	1548	1590	1624	1658	1686	1706	1726	1746	1766	1786	1805
1	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	543	584	615	638	661	685	708	730	754	776	796	800	822	860	880	910	940	971	1004	1035	1068	1100	1129	1163	1195	1249	1291	1330	1372	1413	1451	1490	1522	1554	1581	1599	1618	1636	1655	1674	1692
1	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	536	576	607	630	653	676	699	721	744	766	785	790	811	849	869	898	927	958	991	1021	1054	1086	1114	1148	1180	1233	1274	1313	1354	1394	1432	1470	1502	1533	1560	1578	1596	1615	1633	1652	1669
1	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	529	569	599	621	644	666	689	711	734	756	775	779	800	837	857	885	915	945	977	1007	1040	1071	1099	1132	1164	1216	1257	1295	1336	1375	1413	1451	1482	1513	1539	1556	1575	1593	1611	1629	1647
1	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	521	561	590	613	635	657	680	701	724	745	764	768	789	826	845	873	902	932	964	994	1025	1056	1084	1117	1148	1200	1240	1277	1318	1356	1393	1431	1462	1492	1518	1535	1553	1571	1589	1607	1624
1	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	514	553	582	604	626	648	670	692	714	735	753	758	778	814	834	861	890	919	951	980	1011	1042	1069	1101	1132	1183	1223	1260	1299	1338	1374	1411	1441	1471	1497	1514	1531	1549	1567	1585	1602
1	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	507	545	574	596	617	639	661	682	703	724	743	747	767	803	822	849	877	906	937	966	997	1027	1054	1086	1116	1166	1205	1242	1281	1319	1354	1391	1421	1450	1476	1492	1510	1527	1545	1562	1579
1	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	485	522	549	570	591	612	632	653	673	693	711	715	734	768	787	813	840	868	897	925	954	983	1009	1039	1068	1116	1154	1189	1226	1262	1296	1331	1360	1388	1412	1428	1445	1462	1479	1495	1512
1	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	756	812	856	888	920	953	985	1016	1049	1080	1108	1114	1144	1196	1225	1266	1308	1351	1397	1440	1486	1531	1572	1619	1663	1739	1796	1852	1909	1966	2020	2074	2118	2162	2200	2225	2251	2276	2303	2329	2354
1	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	718	771	813	844	874	905	936	965	997	1026	1053	1058	1087	1136	1164	1203	1243	1283	1327	1368	1412	1454	1493	1538	1580	1652	1706	1759	1814	1868	1919	1970	2012	2054	2090	2114	2138	2162	2188	2213	2236
1	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	680	731	770	799	828	858	886	914	944	972	997	1003	1030	1076	1102	1139	1177	1216	1257	1296	1337	1378	1415	1457	1497	1565	1616	1667	1718	1769	1818	1867	1906	1946	1980	2002	2026	2048	2073	2096	2119
1	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	643	690	728	755	782	810	837	864	892	918	942	947	972	1017	1041	1076	1112	1148	1187	1224	1263	1301	1336	1376	1414	1478	1527	1574	1623	1671	1717	1763	1800	1838	1870	1891	1913	1935	1958	1980	2001
1	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	605	650	685	710	736	762	788	813	839	864	886	891	915	957	980	1013	1046	1081	1118	1152	1189	1225	1258	1295	1330	1391	1437	1482	1527	1573	1616	1659	1694	1730	1760	1780	1801	1821	1842	1863	1883
1	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	567	609	642	666	690	715	739	762	787	810	831	835	858	897	919	949	981	1013	1048	1080	1114	1148	1179	1214	1247	1304	1347	1389	1432	1474	1515	1555	1588	1621	1650	1669	1688	1707	1727	1747	1765
1	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	559	601	633	657	681	705	729	752	776	799	820	824	847	885	906	937	968	1000	1034	1066	1100	1133	1163	1198	1231	1287	1329	1370	1413	1455	1495	1535	1567	1600	1628	1646	1666	1684	1704	1723	1742
1	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	552	593	625	648	672	696	719	742	766	788	809	813	835	873	894	924	955	986	1020	1051	1085	1118	1148	1182	1214	1269	1311	1352	1394	1435	1475	1514	1546	1578	1606	1624	1643	1661	1681	1700	1718
1	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	544	585	616	639	662	686	709	732	755	778	798	802	824	861	882	912	942	973	1006	1037	1070	1102	1132	1166	1197	1252	1293	1333	1374	1416	1454	1493	1525	1557	1584	1602	1621	1639	1658	1677	1695
1	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	537	577	608	630	653	677	699	721	745	767	787	791	812	849	870	899	929	959	992	1022	1055	1087	1116	1149	1181	1235	1275	1315	1355	1396	1434	1473	1504	1535	1562	1580	1598	1616	1635	1654	1671
1	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	529	568	599	622	644	667	689	711	734	756	776	780	801	837	857	886	916	946	978	1008	1040	1072	1100	1133	1164	1217	1257	1296	1336	1376	1414	1452	1483	1513	1540	1557	1576	1593	1612	1630	1648
1	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	507	544	574	595	616	639	660	681	703	724	742	746	766	801	821	848	876	905	936	965	996	1026	1053	1085	1114	1165	1203	1241	1279	1317	1353	1390	1419	1449	1474	1491	1508	1525	1543	1560	1577
1	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	526	591	627	657	679	699	716	733	750	761	792	816	837	857	880	907	927	950	972	997	1035	1069	1108	1146	1182	1224	1260	1314	1348	1391	1454	1510	1553	1594	1617	1674	1703	1732	1763	1792	1823
1	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	500	561	596	624	645	664	680	696	712	723	752	775	795	814	836	862	881	902	923	947	983	1016	1053	1089	1123	1163	1197	1248	1281	1321	1381	1434	1475	1514	1536	1590	1618	1645	1675	1702	1732
1	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	473	532	564	591	611	629	644	660	675	685	713	734	753	771	792	816	834	855	875	897	931	962	997	1031	1064	1102	1134	1183	1213	1252	1309	1359	1398	1435	1455	1507	1533	1559	1587	1613	1641
1	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	447	502	533	558	577	594	609	623	637	647	673	694	711	728	748	771	788	807	826	847	880	909	942	974	1005	1040	1071	1117	1146	1182	1236	1283	1320	1355	1374	1423	1448	1472	1499	1523	1550
1	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	421	473	502	526	543	559	573	586	600	609	634	653	670	686	704	726	742	760	778	798	828	855	886	917	946	979	1008	1051	1078	1113	1163	1208	1242	1275	1294	1339	1362	1386	1410	1434	1458
1	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	394	443	470	493	509	524	537	550	562	571	594	612	628	643	660	680	695	712	729	748	776	802	831	859	886	918	945	985	1011	1043	1090	1132	1165	1195	1213	1255	1277	1299	1322	1344	1367
1	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	389	437	464	486	502	517	530	542	555	563	586	604	619	634	651	671	686	703	719	738	766	791	820	848	875	906	932	972	998	1029	1076	1117	1149	1180	1197	1239	1260	1282	1305	1326	1349
1	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	384	431	458	480	496	510	523	535	547	556	578	596	611	626	642	662	677	693	710	728	756	780	809	837	863	894	920	959	984	1015	1061	1102	1134	1164	1180	1222	1243	1264	1287	1308	1331
1	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	379	426	451	473	489	503	516	528	540	548	570	588	603	617	634	653	667	684	700	718	745	770	798	825	851	881	907	946	971	1002	1047	1087	1118	1148	1164	1205	1226	1247	1269	1290	1313
1	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	373	420	445	466	482	496	508	520	532	540	562	579	594	608	625	644	658	674	690	708	735	759	787	814	839	869	895	933	957	988	1032	1072	1103	1132	1148	1189	1209	1230	1252	1272	1294
1	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	368	414	439	460	475	489	501	513	525	533	554	571	586	600	616	635	649	665	680	698	724	748	776	802	827	857	882	920	944	974	1018	1057	1087	1116	1132	1172	1192	1212	1234	1254	1276
1	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	352	396	420	440	455	468	480	491	502	510	531	547	561	574	590	608	621	636	651	668	693	716	742	768	792	820	844	880	903	932	974	1012	1041	1068	1083	1122	1141	1160	1181	1201	1221
1	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	551	619	657	689	712	733	750	768	785	797	829	855	877	898	922	950	971	995	1019	1045	1085	1120	1160	1200	1239	1283	1320	1376	1412	1457	1523	1582	1627	1670	1694	1753	1784	1815	1847	1878	1910
1	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	523	588	624	655	676	696	712	730	746	757	788	812	833	853	876	902	922	945	968	993	1031	1064	1102	1140	1177	1219	1254	1307	1341	1384	1447	1503	1546	1586	1609	1665	1695	1724	1755	1784	1814
1	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	496	557	591	620	641	660	675	691	706	717	746	769	789	808	830	855	874	895	917	940	976	1008	1044	1080	1115	1155	1188	1238	1271	1311	1371	1424	1464	1503	1525	1578	1606	1633	1662	1690	1719
1	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	468	526	558	586	605	623	637	653	667	677	705	727	745	763	784	807	825	846	866	888	922	952	986	1020	1053	1091	1122	1170	1200	1238	1295	1345	1383	1419	1440	1490	1516	1543	1570	1596	1623
1	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	441	495	526	551	570	586	600	614	628	638	663	684	702	718	738	760	777	796	815	836	868	896	928	960	991	1026	1056	1101	1130	1166	1218	1266	1302	1336	1355	1402	1427	1452	1478	1502	1528
1	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	413	464	493	517	534	550	562	576	589	598	622	641	658	673	691	712	728	746	764	784	814	840	870	900	929	962	990	1032	1059	1093	1142	1186	1220	1252	1270	1315	1338	1361	1385	1408	1432
1	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	408	458	486	510	527	542	555	568	581	590	613	633	649	665	682	703	719	736	754	773	803	829	858	888	917	949	977	1018	1045	1078	1127	1171	1204	1236	1254	1297	1320	1343	1367	1390	1413
1	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	402	452	480	503	520	535	547	561	573	582	605	624	640	656	673	693	709	726	744	763	792	818	847	876	904	937	964	1004	1031	1064	1112	1155	1188	1219	1237	1280	1302	1325	1348	1371	1394
1	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	397	446	473	496	513	528	540	553	565	574	597	616	631	647	664	684	699	716	734	752	781	806	835	864	892	924	950	991	1017	1049	1097	1139	1171	1202	1220	1262	1284	1307	1330	1352	1375
1	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	391	439	466	489	506	520	532	545	557	566	589	607	623	638	655	674	689	706	723	742	770	795	824	852	880	911	937	977	1003	1034	1081	1123	1155	1186	1203	1245	1267	1289	1311	1333	1356

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	386	433	460	482	498	513	525	538	549	558	580	598	614	629	645	665	680	696	713	731	759	784	812	840	867	898	924	963	988	1020	1066	1107	1139	1169	1186	1227	1249	1270	1293	1315	1337
1	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	369	415	440	462	477	491	502	515	526	534	555	573	588	602	618	636	651	667	683	700	727	750	777	804	830	860	884	922	946	976	1020	1060	1090	1119	1135	1175	1195	1216	1237	1258	1280
1	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	576	647	687	720	744	766	784	803	821	834	867	894	917	938	964	994	1015	1041	1065	1092	1134	1171	1213	1255	1295	1341	1380	1439	1477	1524	1593	1654	1701	1746	1771	1833	1865	1897	1931	1963	1996
1	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	547	615	653	684	707	728	745	763	780	792	824	849	871	891	916	944	964	989	1012	1037	1077	1112	1152	1192	1230	1274	1311	1367	1403	1448	1513	1571	1616	1659	1682	1741	1772	1802	1834	1865	1896
1	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	518	582	618	648	670	689	706	723	739	751	780	805	825	844	868	895	913	937	958	983	1021	1054	1092	1129	1165	1207	1242	1295	1329	1372	1434	1489	1531	1571	1594	1650	1678	1707	1738	1767	1796
1	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	490	550	584	612	632	651	666	683	698	709	737	760	779	797	819	845	863	885	905	928	964	995	1031	1067	1101	1140	1173	1223	1255	1295	1354	1406	1446	1484	1505	1558	1585	1612	1641	1669	1697
1	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	461	518	550	576	595	613	627	642	657	667	694	715	734	750	771	795	812	833	852	874	907	937	970	1004	1036	1073	1104	1151	1182	1219	1274	1323	1361	1397	1417	1466	1492	1518	1545	1570	1597
1	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	432	485	515	540	558	574	588	602	616	625	650	670	688	703	723	745	761	781	799	819	850	878	910	941	971	1006	1035	1079	1108	1143	1195	1240	1276	1309	1328	1375	1399	1423	1448	1472	1497
1	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	426	479	508	533	551	567	580	594	608	617	642	662	679	694	713	736	751	770	788	808	839	867	898	929	958	992	1021	1065	1093	1128	1179	1224	1259	1292	1311	1356	1380	1404	1429	1453	1477
1	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	420	472	502	526	543	559	572	586	599	609	633	653	669	685	704	726	741	760	777	797	828	855	885	916	945	979	1007	1050	1078	1113	1163	1207	1242	1275	1293	1338	1361	1385	1410	1433	1457
1	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	415	466	495	518	536	552	564	578	591	600	624	644	660	675	694	716	731	750	767	786	816	843	873	904	932	966	994	1036	1063	1097	1147	1191	1225	1257	1275	1320	1343	1366	1390	1413	1437
1	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	409	459	488	511	528	544	557	570	583	592	616	635	651	666	684	706	721	739	756	775	805	831	861	891	919	952	980	1022	1049	1082	1131	1174	1208	1240	1257	1301	1324	1347	1371	1394	1417
1	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	403	453	481	504	521	536	549	562	575	584	607	626	642	657	675	696	710	729	745	764	794	820	849	878	906	939	966	1007	1034	1067	1115	1158	1191	1222	1240	1283	1305	1328	1352	1374	1397
1	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	386	433	460	482	498	513	525	538	550	559	581	599	614	628	646	666	680	697	714	732	760	785	813	841	868	898	925	964	990	1021	1067	1108	1140	1170	1187	1228	1250	1271	1294	1315	1337
1	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	601	676	716	751	776	799	818	838	857	870	905	932	956	979	1006	1037	1060	1086	1111	1140	1183	1222	1266	1309	1351	1399	1440	1501	1541	1590	1662	1726	1775	1822	1848	1913	1946	1980	2015	2048	2083
1	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	571	642	680	713	737	759	777	796	814	826	860	885	908	930	956	985	1007	1032	1055	1083	1124	1161	1203	1244	1283	1329	1368	1426	1464	1510	1579	1640	1686	1731	1756	1817	1849	1881	1914	1946	1979
1	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	541	608	644	676	698	719	736	754	771	783	814	839	860	881	905	933	954	977	1000	1026	1065	1100	1139	1178	1216	1259	1296	1351	1387	1431	1496	1553	1597	1640	1663	1722	1751	1782	1813	1843	1875
1	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	511	575	609	638	660	679	695	712	728	739	769	792	813	832	855	881	901	923	944	969	1006	1039	1076	1113	1148	1189	1224	1276	1310	1351	1413	1467	1509	1549	1571	1626	1654	1683	1713	1741	1771
1	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	481	541	573	601	621	639	654	670	686	696	724	746	765	783	805	830	848	869	889	912	946	978	1013	1047	1081	1119	1152	1201	1233	1272	1330	1381	1420	1458	1478	1530	1557	1584	1612	1638	1666
1	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	451	507	537	563	582	599	613	628	643	652	679	699	717	734	754	778	795	814	833	855	887	916	949	982	1013	1049	1080	1126	1156	1192	1246	1294	1331	1366	1386	1435	1459	1485	1511	1536	1562
1	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	445	500	530	556	574	591	605	620	634	644	670	690	707	724	744	767	784	804	822	844	875	904	937	969	1000	1035	1066	1111	1140	1177	1230	1277	1313	1348	1368	1416	1440	1465	1491	1516	1541
1	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	439	493	523	548	566	583	597	612	626	635	661	680	698	715	734	757	774	793	811	832	864	892	924	956	986	1021	1051	1096	1125	1161	1213	1260	1296	1330	1349	1396	1421	1445	1471	1495	1521
1	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	433	487	516	541	559	575	589	603	617	626	652	671	688	705	724	747	763	782	800	821	852	880	912	942	973	1007	1037	1081	1110	1145	1197	1243	1278	1312	1331	1377	1401	1426	1451	1475	1500
1	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	427	480	508	533	551	567	581	595	608	618	643	662	679	695	714	736	753	771	789	809	840	868	899	929	959	993	1022	1066	1094	1129	1180	1225	1260	1294	1312	1358	1382	1406	1431	1454	1479
1	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	421	473	501	526	543	559	573	587	600	609	633	652	669	685	704	726	742	760	778	798	828	855	886	916	946	979	1008	1051	1079	1113	1163	1208	1242	1275	1294	1339	1362	1386	1410	1434	1458
1	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	403	453	480	503	520	535	548	561	574	583	606	624	641	656	674	695	710	728	744	764	793	819	848	877	905	937	965	1006	1032	1065	1114	1156	1189	1221	1238	1282	1304	1327	1350	1372	1396
1	0	Taxicab Vehicle-for-Hire 1	4004																																								
1	5	Taxicab Vehicle-for-Hire 1	3804																																								
1	10	Taxicab Vehicle-for-Hire 1	3604																																								
1	15	Taxicab Vehicle-for-Hire 1	3403																																								
1	20	Taxicab Vehicle-for-Hire 1	3203																																								
1	25	Taxicab Vehicle-for-Hire 1	3003																																								
1	26	Taxicab Vehicle-for-Hire 1	2963																																								
1	27	Taxicab Vehicle-for-Hire 1	2923																																								
1	28	Taxicab Vehicle-for-Hire 1	2883																																								
1	29	Taxicab Vehicle-for-Hire 1	2843																																								
1	30	Taxicab Vehicle-for-Hire 1	2803																																								
1	33	Taxicab Vehicle-for-Hire 1	2683																																								
1	0	Taxicab Vehicle-for-Hire 2	6007																																								
1	5	Taxicab Vehicle-for-Hire 2	5707																																								
1	10	Taxicab Vehicle-for-Hire 2	5406																																								
1	15	Taxicab Vehicle-for-Hire 2	5106																																								
1	20	Taxicab Vehicle-for-Hire 2	4806																																								
1	25	Taxicab Vehicle-for-Hire 2	4505																																								
1	26	Taxicab Vehicle-for-Hire 2	4445																																								
1	27	Taxicab Vehicle-for-Hire 2	4385																																								
1	28	Taxicab Vehicle-for-Hire 2	4325																																								
1	29	Taxicab Vehicle-for-Hire 2	4265																																								
1	30	Taxicab Vehicle-for-Hire 2	4205																																								
1	33	Taxicab Vehicle-for-Hire 2	4025																																								
1	0	Taxicab Vehicle-for-Hire 3	8009																																								
1	5	Taxicab Vehicle-for-Hire 3	7609																																								
1	10	Taxicab Vehicle-for-Hire 3	7208																																								
1	15	Taxicab Vehicle-for-Hire 3	6808																																								
1	20	Taxicab Vehicle-for-Hire 3	6407																																								
1	25	Taxicab Vehicle-for-Hire 3	6007																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	26	Taxicab Vehicle-for-Hire 3	5927																																									
1	27	Taxicab Vehicle-for-Hire 3	5847																																									
1	28	Taxicab Vehicle-for-Hire 3	5766																																									
1	29	Taxicab Vehicle-for-Hire 3	5686																																									
1	30	Taxicab Vehicle-for-Hire 3	5606																																									
1	33	Taxicab Vehicle-for-Hire 3	5366																																									
1	0	Taxicab Vehicle-for-Hire 4	####																																									
1	5	Taxicab Vehicle-for-Hire 4	9510																																									
1	10	Taxicab Vehicle-for-Hire 4	9010																																									
1	15	Taxicab Vehicle-for-Hire 4	8509																																									
1	20	Taxicab Vehicle-for-Hire 4	8009																																									
1	25	Taxicab Vehicle-for-Hire 4	7508																																									
1	26	Taxicab Vehicle-for-Hire 4	7408																																									
1	27	Taxicab Vehicle-for-Hire 4	7308																																									
1	28	Taxicab Vehicle-for-Hire 4	7208																																									
1	29	Taxicab Vehicle-for-Hire 4	7108																																									
1	30	Taxicab Vehicle-for-Hire 4	7008																																									
1	33	Taxicab Vehicle-for-Hire 4	6707																																									
2	0	Accessible Vehicle-for-Hire 1	611	639	678	713	753	790	827	864	907	944	983	1021	1059	1098																													
2	5	Accessible Vehicle-for-Hire 1	580	607	644	677	715	750	786	821	862	897	934	970	1006	1043																													
2	10	Accessible Vehicle-for-Hire 1	550	575	610	642	678	711	744	778	816	850	885	919	953	988																													
2	15	Accessible Vehicle-for-Hire 1	519	543	576	606	640	671	703	734	771	802	836	868	900	933																													
2	20	Accessible Vehicle-for-Hire 1	489	511	542	570	602	632	662	691	726	755	786	817	847	878																													
2	25	Accessible Vehicle-for-Hire 1	458	479	508	535	565	592	620	648	680	708	737	766	794	823																													
2	26	Accessible Vehicle-for-Hire 1	452	473	502	528	557	585	612	639	671	699	727	756	784	813																													
2	27	Accessible Vehicle-for-Hire 1	446	466	495	520	550	577	604	631	662	689	718	745	773	802																													
2	28	Accessible Vehicle-for-Hire 1	440	460	488	513	542	569	595	622	653	680	708	735	762	791																													
2	29	Accessible Vehicle-for-Hire 1	434	454	481	506	535	561	587	613	644	670	698	725	752	780																													
2	30	Accessible Vehicle-for-Hire 1	428	447	475	499	527	553	579	605	635	661	688	715	741	769																													
2	33	Accessible Vehicle-for-Hire 1	409	428	454	478	505	529	554	579	608	632	659	684	710	736																													
2	0	Accessible Vehicle-for-Hire 2	644	673	714	751	793	833	871	911	956	995	1036	1076	1116	1157																													
2	5	Accessible Vehicle-for-Hire 2	612	639	678	713	753	791	827	865	908	945	984	1022	1060	1099																													
2	10	Accessible Vehicle-for-Hire 2	580	606	643	676	714	750	784	820	860	895	932	968	1004	1041																													
2	15	Accessible Vehicle-for-Hire 2	547	572	607	638	674	708	740	774	813	846	881	915	949	983																													
2	20	Accessible Vehicle-for-Hire 2	515	538	571	601	634	666	697	729	765	796	829	861	893	926																													
2	25	Accessible Vehicle-for-Hire 2	483	505	535	563	595	625	653	683	717	746	777	807	837	868																													
2	26	Accessible Vehicle-for-Hire 2	477	498	528	556	587	616	645	674	707	736	767	796	826	856																													
2	27	Accessible Vehicle-for-Hire 2	470	491	521	548	579	608	636	665	698	726	756	785	815	845																													
2	28	Accessible Vehicle-for-Hire 2	464	485	514	541	571	600	627	656	688	716	746	775	804	833																													
2	29	Accessible Vehicle-for-Hire 2	457	478	507	533	563	591	618	647	679	706	736	764	792	821																													
2	30	Accessible Vehicle-for-Hire 2	451	471	500	526	555	583	610	638	669	696	725	753	781	810																													
2	33	Accessible Vehicle-for-Hire 2	431	451	478	503	531	558	584	610	641	667	694	721	748	775																													
2	0	Accessible Vehicle-for-Hire 3	670	701	743	782	826	867	907	948	995	1036	1078	1120	1162	1205																													
2	5	Accessible Vehicle-for-Hire 3	636	666	706	743	785	824	862	901	945	984	1024	1064	1104	1145																													
2	10	Accessible Vehicle-for-Hire 3	603	631	669	704	743	780	816	853	895	932	970	1008	1046	1084																													
2	15	Accessible Vehicle-for-Hire 3	569	596	632	665	702	737	771	806	846	881	916	952	988	1024																													
2	20	Accessible Vehicle-for-Hire 3	536	561	594	626	661	694	726	758	796	829	862	896	930	964																													
2	25	Accessible Vehicle-for-Hire 3	502	526	557	586	619	650	680	711	746	777	808	840	871	904																													
2	26	Accessible Vehicle-for-Hire 3	496	519	550	579	611	642	671	702	736	767	798	829	860	892																													
2	27	Accessible Vehicle-for-Hire 3	489	512	542	571	603	633	662	692	726	756	787	818	848	880																													
2	28	Accessible Vehicle-for-Hire 3	482	505	535	563	595	624	653	683	716	746	776	806	837	868																													
2	29	Accessible Vehicle-for-Hire 3	476	498	528	555	586	616	644	673	706	736	765	795	825	856																													
2	30	Accessible Vehicle-for-Hire 3	469	491	520	547	578	607	635	664	696	725	755	784	813	843																													
2	33	Accessible Vehicle-for-Hire 3	449	470	498	524	553	581	608	635	667	694	722	750	779	807																													
2	0	Accessible Vehicle-for-Hire 4	703	735	780	820	866	909	951	994	1044	1087	1131	1175	1219	1264																													
2	5	Accessible Vehicle-for-Hire 4	668	698	741	779	823	864	903	944	992	1033	1074	1116	1158	1201																													

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	10	Accessible Vehicle-for-Hire 4	633	661	702	738	779	818	856	895	940	978	1018	1057	1097	1138																													
2	15	Accessible Vehicle-for-Hire 4	598	625	663	697	736	773	808	845	887	924	961	999	1036	1074																													
2	20	Accessible Vehicle-for-Hire 4	562	588	624	656	693	727	761	795	835	870	905	940	975	1011																													
2	25	Accessible Vehicle-for-Hire 4	527	551	585	615	649	682	713	745	783	815	848	881	914	948																													
2	26	Accessible Vehicle-for-Hire 4	520	544	577	607	641	673	704	736	773	804	837	869	902	935																													
2	27	Accessible Vehicle-for-Hire 4	513	537	569	599	632	664	694	726	762	794	826	858	890	923																													
2	28	Accessible Vehicle-for-Hire 4	506	529	562	590	624	654	685	716	752	783	814	846	878	910																													
2	29	Accessible Vehicle-for-Hire 4	499	522	554	582	615	645	675	706	741	772	803	834	865	897																													
2	30	Accessible Vehicle-for-Hire 4	492	514	546	574	606	636	666	696	731	761	792	822	853	885																													
2	33	Accessible Vehicle-for-Hire 4	471	492	523	549	580	609	637	666	699	728	758	787	817	847																													
2	0	Limousine Vehicle-for-Hire 1	1611																																									
2	5	Limousine Vehicle-for-Hire 1	1530																																									
2	10	Limousine Vehicle-for-Hire 1	1450																																									
2	15	Limousine Vehicle-for-Hire 1	1369																																									
2	20	Limousine Vehicle-for-Hire 1	1289																																									
2	25	Limousine Vehicle-for-Hire 1	1208																																									
2	26	Limousine Vehicle-for-Hire 1	1192																																									
2	27	Limousine Vehicle-for-Hire 1	1176																																									
2	28	Limousine Vehicle-for-Hire 1	1160																																									
2	29	Limousine Vehicle-for-Hire 1	1144																																									
2	30	Limousine Vehicle-for-Hire 1	1128																																									
2	33	Limousine Vehicle-for-Hire 1	1079																																									
2	0	Limousine Vehicle-for-Hire 2	1697																																									
2	5	Limousine Vehicle-for-Hire 2	1612																																									
2	10	Limousine Vehicle-for-Hire 2	1527																																									
2	15	Limousine Vehicle-for-Hire 2	1442																																									
2	20	Limousine Vehicle-for-Hire 2	1358																																									
2	25	Limousine Vehicle-for-Hire 2	1273																																									
2	26	Limousine Vehicle-for-Hire 2	1256																																									
2	27	Limousine Vehicle-for-Hire 2	1239																																									
2	28	Limousine Vehicle-for-Hire 2	1222																																									
2	29	Limousine Vehicle-for-Hire 2	1205																																									
2	30	Limousine Vehicle-for-Hire 2	1188																																									
2	33	Limousine Vehicle-for-Hire 2	1137																																									
2	0	Limousine Vehicle-for-Hire 3	1767																																									
2	5	Limousine Vehicle-for-Hire 3	1679																																									
2	10	Limousine Vehicle-for-Hire 3	1590																																									
2	15	Limousine Vehicle-for-Hire 3	1502																																									
2	20	Limousine Vehicle-for-Hire 3	1414																																									
2	25	Limousine Vehicle-for-Hire 3	1325																																									
2	26	Limousine Vehicle-for-Hire 3	1308																																									
2	27	Limousine Vehicle-for-Hire 3	1290																																									
2	28	Limousine Vehicle-for-Hire 3	1272																																									
2	29	Limousine Vehicle-for-Hire 3	1255																																									
2	30	Limousine Vehicle-for-Hire 3	1237																																									
2	33	Limousine Vehicle-for-Hire 3	1184																																									
2	0	Limousine Vehicle-for-Hire 4	1853																																									
2	5	Limousine Vehicle-for-Hire 4	1760																																									
2	10	Limousine Vehicle-for-Hire 4	1668																																									
2	15	Limousine Vehicle-for-Hire 4	1575																																									
2	20	Limousine Vehicle-for-Hire 4	1482																																									
2	25	Limousine Vehicle-for-Hire 4	1390																																									
2	26	Limousine Vehicle-for-Hire 4	1371																																									
2	27	Limousine Vehicle-for-Hire 4	1353																																									
2	28	Limousine Vehicle-for-Hire 4	1334																																									
2	29	Limousine Vehicle-for-Hire 4	1316																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	30	Limousine Vehicle-for-Hire 4	1297																																								
2	33	Limousine Vehicle-for-Hire 4	1242																																								
2	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	621	668	702	729	756	782	808	835	861	886	909	915	939	983	1006	1039	1074	1110	1147	1182	1220	1258	1291	1329	1366	1428	1475	1520	1568	1614	1658	1703	1740	1776	1806	1827	1848	1870	1891	1912	1934
2	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	590	635	667	693	718	743	768	793	818	842	864	869	892	934	956	987	1020	1054	1090	1123	1159	1195	1226	1263	1298	1357	1401	1444	1490	1533	1575	1618	1653	1687	1716	1736	1756	1776	1796	1816	1837
2	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	559	601	632	656	680	704	727	751	775	797	818	823	845	885	905	935	967	999	1032	1064	1098	1132	1162	1196	1229	1285	1327	1368	1411	1453	1492	1533	1566	1598	1625	1644	1663	1683	1702	1721	1741
2	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	528	568	597	620	643	665	687	710	732	753	773	778	798	836	855	883	913	943	975	1005	1037	1069	1097	1130	1161	1214	1254	1292	1333	1372	1409	1448	1479	1510	1535	1553	1571	1589	1607	1625	1644
2	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	497	534	562	583	605	626	646	668	689	709	727	732	751	786	805	831	859	888	918	946	976	1006	1033	1063	1093	1142	1180	1216	1254	1291	1326	1362	1392	1421	1445	1462	1478	1496	1513	1530	1547
2	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	466	501	526	547	567	586	606	626	646	664	682	686	704	737	754	779	805	832	860	886	915	943	968	997	1024	1071	1106	1140	1176	1210	1243	1277	1305	1332	1354	1370	1386	1402	1418	1434	1450
2	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	460	494	519	539	559	579	598	618	637	656	673	677	695	727	744	769	795	821	849	875	903	931	955	983	1011	1057	1091	1125	1160	1194	1227	1260	1288	1314	1336	1352	1368	1384	1399	1415	1431
2	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	453	488	512	532	552	571	590	610	629	647	664	668	685	718	734	758	784	810	837	863	891	918	942	970	997	1042	1077	1110	1145	1178	1210	1243	1270	1296	1318	1334	1349	1365	1380	1396	1412
2	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	447	481	505	525	544	563	582	601	620	638	654	659	676	708	724	748	773	799	826	851	878	906	930	957	984	1028	1062	1094	1129	1162	1194	1226	1253	1279	1300	1315	1331	1346	1362	1377	1392
2	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	441	474	498	518	537	555	574	593	611	629	645	650	667	698	714	738	763	788	814	839	866	893	917	944	970	1014	1047	1079	1113	1146	1177	1209	1235	1261	1282	1297	1312	1328	1343	1358	1373
2	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	435	468	491	510	529	547	566	584	603	620	636	640	657	688	704	727	752	777	803	827	854	881	904	930	956	1000	1032	1064	1098	1130	1161	1192	1218	1243	1264	1279	1294	1309	1324	1338	1354
2	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	416	448	470	488	507	524	541	559	577	594	609	613	629	659	674	696	720	744	768	792	817	843	865	890	915	957	988	1018	1051	1081	1111	1141	1166	1190	1210	1224	1238	1253	1267	1281	1296
2	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	650	700	736	763	792	819	847	874	902	928	953	958	983	1030	1054	1089	1125	1163	1201	1239	1278	1318	1353	1393	1431	1496	1545	1593	1642	1691	1737	1784	1823	1860	1892	1914	1936	1959	1981	2003	2026
2	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	617	665	699	725	752	778	805	830	857	882	905	910	934	978	1001	1035	1069	1105	1141	1177	1214	1252	1285	1323	1359	1421	1468	1513	1560	1606	1650	1695	1732	1767	1797	1818	1839	1861	1882	1903	1925
2	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	585	630	662	687	713	737	762	787	812	835	858	862	885	927	949	980	1012	1047	1081	1115	1150	1186	1218	1254	1288	1346	1390	1434	1478	1522	1563	1606	1641	1674	1703	1723	1742	1763	1783	1803	1823
2	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	552	595	626	649	673	696	720	743	767	789	810	814	836	875	896	926	956	989	1021	1053	1086	1120	1150	1184	1216	1272	1313	1354	1396	1437	1476	1516	1550	1581	1608	1627	1646	1665	1684	1703	1722
2	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	520	560	589	610	634	655	678	699	722	742	762	766	786	824	843	871	900	930	961	991	1022	1054	1082	1114	1145	1197	1236	1274	1314	1353	1390	1427	1458	1488	1514	1531	1549	1567	1585	1602	1621
2	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	487	525	552	572	594	614	635	655	676	696	715	718	737	772	790	817	844	872	901	929	958	988	1015	1045	1073	1122	1159	1195	1231	1268	1303	1338	1367	1395	1419	1435	1452	1469	1486	1502	1519
2	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	481	518	545	565	586	606	627	647	667	687	705	709	727	762	780	806	832	861	889	917	946	975	1001	1031	1059	1107	1143	1179	1215	1251	1285	1320	1349	1376	1400	1416	1433	1450	1466	1482	1499
2	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	474	511	537	557	578	598	618	638	658	677	696	699	718	752	769	795	821	849	877	904	933	962	988	1017	1045	1092	1128	1163	1199	1234	1268	1302	1331	1358	1381	1397	1413	1430	1446	1462	1479
2	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	468	504	530	549	570	590	610	629	649	668	686	690	708	742	759	784	810	837	865	892	920	949	974	1003	1030	1077	1112	1147	1182	1218	1251	1284	1313	1339	1362	1378	1394	1410	1426	1442	1459
2	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	461	497	523	542	562	581	601	621	640	659	677	680	698	731	748	773	799	826	853	880	907	936	961	989	1016	1062	1097	1131	1166	1201	1233	1267	1294	1321	1343	1359	1375	1391	1407	1422	1438
2	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	455	490	515	534	554	573	593	612	631	650	667	671	688	721	738	762	787	814	841	867	895	923	947	975	1002	1047	1081	1115	1149	1184	1216	1249	1276	1302	1324	1340	1355	1371	1387	1402	1418
2	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	435	469	493	511	531	549	567	586	604	622	639	642	659	690	706	730	754	779	805	830	856	883	907	933	959	1002	1035	1067	1100	1133	1164	1195	1221	1246	1268	1282	1297	1313	1327	1342	1357
2	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	680	731	769	798	828	857	885	914	943	971	996	1002	1028	1076	1102	1138	1176	1216	1256	1295	1336	1378	1414	1456	1496	1564	1616	1665	1717	1768	1816	1865	1906	1945	1978	2001	2024	2048	2071	2094	2118
2	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	646	694	731	758	787	814	841	868	896	922	946	952	977	1022	1047	1081	1117	1155	1193	1230	1269	1309	1343	1383	1421	1486	1535	1582	1631	1680	1725	1772	1811	1848	1879	1901	1923	1946	1967	1989	2012
2	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	612	658	692	718	745	771	796	823	849	874	896	902	925	968	992	1024	1058	1094	1130	1165	1202	1240	1273	1310	1346	1408	1454	1498	1545	1591	1634	1678	1715	1750	1780	1801	1822	1843	1864	1885	1906
2	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	578	621	654	678	704	728	752	777	802	825	847	852	874	915	937	967	1000	1034	1068	1101	1136	1171	1202	1238	1272	1329	1374	1415	1459	1503	1544	1585	1620	1653	1681	1701	1720	1741	1760	1780	1800
2	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	544	585	615	638	662	686	708	731	754	777	797	802	822	861	882	910	941	973	1005	1036	1069	1102	1131	1165	1197	1251	1293	1332	1374	1414	1453	1492	1525	1556	1582	1601	1619	1638	1657	1675	1694
2	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	510	548	577	598	621	643	664	685	707	728	747	751	771	807	826	853	882	912	942	971	1002	1033	1060	1092	1122	1173	1212	1249	1288	1326	1362	1399	1429	1459	1483	1501	1518	1536	1553	1570	1588
2	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	503	541	569	591	613	634	655	676	698	719	737	741	761	796	815	842	870	900	929	958	989	1020	1046	1077	1107	1157	1196	1232	1271	1308	1344	1380	1410	1439	1464	1481	1498	1516	1533	1550	1567
2	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	496	534	561	583	604	626	646	667	688	709	727	731	750	785	804	831	858	888	917	945	975	1006	1032	1063	1092	1142	1180	1215	1253	1291	1326	1361	1391	1420	1444	1461	1478	1495	1512	1529	1546
2	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	490	526	554	575	596	617	637	658	679	699	717	721	740	775	793	819	847	876	904	932	962	992	1018	1048	1077	1126	1164	1199	1236	1273	1308	1343	1372	1400	1424	1441	1457	1475	1491	1508	1525
2	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	483	519	546	567	588	608	628	649	670	689	707	711	730	764	782	808	835	863	892	919	949	978	1004	1034	1062	1110	1147	1182	1219	1255	1289	1324	1353	1381	1404	1421	1437	1454	1470	1487	1504
2	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	476	512	538	559	580	600	619	640	660	680	697	701	720	753	771	797	823	851	879	906	935	965	990	1019	1047	1095	1131	1165	1202	1238	1271	1305	1334	1361	1385	1401	1417	1434	1450	1466	1483
2	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	456	490	515	535	555	574	593	612	632	651	667	671	689	721	738	762	788	815	842	868	895	923	947	976	1002	1048	1083	1116	1150	1185	1217	1250	1277	1303	1325	1341	1356	1372	1388	1403	1419
2	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	709	763	803	833	864	894	924	954	984	1013	1039	1045	1073	1123	1150	1188	1228	1268	1310	1351	1394	1438	1476	1519	1561	1632	1686	1738	1792	1844	1895	1946	1988	2029	2064	2088	2112	2137	2161	2185	2210
2	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	674	725	763	791	821	849	878	906	935	962	987	993	1019	1067	1092	1129	1167	1205	1244	1283	1324	1366	1402	1443	1483	1550	1602	1651	1702	1752	1800	1849	1889	1928	1961	1984	2006	2030	2053	2076	2099
2	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	638	687	723	750	778	805	832	859	886	912	935	940	966	1011	1035	1069	1105	1141	1179	1216	1255	1294	1328	1367	1405	1469	1517	1564	1613	1660	1705	1751	1789	1826	1858	1879	1901	1923	1945	1966	1989
2	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	603	649	683	708	734	760	785	811	836	861	883	888	912	955	977	1010	1044	1078	1113	1148	1185	1222	1255	1291	1327	1387	1433	1477	1523	1567	1611	1654	1690	1725	1754	1775	1795	1816	1837	1857	1878
2	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	567	610	642	666	691	715	739	763	787	810	831	836	858	898	920	950	982	1014	1048	1081	1115	1150	1181	1215	1249	1306	1349	1390	1434	1475	1516	1557	1590	1623	1651	1670	1690	1710	1729	1748	1768
2	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	532	572	602	625	648	670	693	715	738	760	779	784	805	842	862	891	921	951	982	1013	1045	1078	1107	1139	1171	1224	1264	1303	1344	1383	1421	1459	1491	1522	1548	1566	1584	1603	1621	1639	1657
2	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	525	565	594	616	639	662	684	706	728	750	769	773	794	831	851	879	909	938	969	1000	1032	1064	1092	1124	1155	1208	1248	1286	1326	1365	1402	1440	1471	1501	1527	1545	1563	1581	1599	1617	1635
2	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	518	557	586	608	631	653	675	696	718	739	758	763	783	820	839	867	896	926	956	986	1018	1050	1077	1109	1140	1191	1231	1269	1308	1346	1383	1421	1451	1481	1507	1524	1542	1560	1578	1595	1613
2	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	510	549	578	600	622	644	665	687	708	729	748	752	773	809	828	855	884	913	943	973	1004	1035	1063	1094	1124	1175	1214	1251	1290	1328	1364	1401	1431	1461	1486	1503	1521	1539	1556	1573	1591
2	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	503	542	570	591	613	635	656	677	699	719	738	742	762	797	816	843	872	900	930	959	990	1021	1048	1078	1108	1159	1197	1234	1272	1309	1345	1382	1411	1441	1465	1482	1500	1517	1534	1551	1569
2	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	496	534	562	583	605	626	647	668	689	709	727	731	751	786	805	832	860	888	917	946	976	1007	1033	1063	1093	1142	1180	1217	1254	1291	1326	1362	1392	1420	1445	1462	1478	1496	1513	1529	1547
2	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	475	511	538	558	579	599	619	639	659	679	696	700	719	752	770	796	823	850	878	905	934	963	989	1018	1046	1093	1130	1164	1201	1235	1270	1304	1332	1359	1383	1399	1415	1432	1448	1464	1481
2	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	501	563	596	626	647	665	681	697	713	724	754	776	797	815	837	863	882	904	925	949	985	1017	1053	1090	1125	1164	1199	1249	1282	1323	1384	1436	1477	1516	1538	1592	1620	1648	1677	1705	1734
2	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	476	535	566	595	615	632	647	662	677	688	716	737	757	774	795	820	838	859	879	902	936	966	1000	1035	1069	1106	1139	1187	1218	1257	1315	1364	1403	1440	1461	1512	1539	1566	1593	1620	1647
2	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	451	507	536	563	582	598	613	627	642	652	679	698	717	733	753	777	794	814	832	854	886	915	948	981	1012	1048	1079	1124	1154	1191	1246	1292	1329	1364	1384	1433	1458	1483	1509	1534	1561
2	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	426	479	507	532	550	565	579	592	606	615	641	660	677	693	711	734	750	768	786	807	837	864	895	926	956	989	1019	1062	1090	1125	1176	1221	1255	1289	1307	1353	1377	1401	1425	1449	1474
2	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	401	450	477	501	518	532	545	558	570	579	603	621	638	652	670	690	706	723	740	759	788	814	842	872	900	931	959	999	1026	1058	1107	1149	1182	1213	1230	1274	1296	1318	1342	1364	1387
2	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	376	422	447	469	485	499	511	523	535	543	565	582	598	611	628	647	661	678	694	712	739	763	790	817	844	873	899	937	961	992	1038	1077	1108	1137	1153	1194	1215	1236	1258	1279	1300

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	371	417	441	463	479	492	504	516	528	536	558	574	590	603	619	639	653	669	684	702	729	753	779	807	832	861	887	924	949	979	1024	1063	1093	1122	1138	1178	1199	1220	1241	1262	1283
2	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	366	411	435	457	472	485	497	509	520	529	550	566	582	595	611	630	644	660	675	693	719	742	769	796	821	850	875	912	936	966	1010	1048	1078	1107	1123	1162	1183	1203	1224	1245	1266
2	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	361	405	429	451	466	479	490	502	513	521	543	559	574	587	603	621	635	651	666	683	709	732	758	785	810	838	863	899	923	953	996	1034	1063	1092	1107	1146	1166	1187	1207	1228	1248
2	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	356	400	423	444	459	472	484	495	506	514	535	551	566	579	594	613	626	642	657	674	699	722	748	774	799	826	851	887	910	939	983	1020	1049	1076	1092	1130	1150	1170	1191	1211	1231
2	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	351	394	417	438	453	465	477	488	499	507	528	543	558	570	586	604	617	633	647	664	689	712	737	763	787	815	839	874	897	926	969	1005	1034	1061	1077	1114	1134	1154	1174	1193	1214
2	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	336	377	399	419	433	446	456	467	478	485	505	520	534	546	561	578	591	606	620	636	660	681	706	730	754	780	803	837	859	886	927	962	990	1016	1030	1067	1085	1104	1124	1142	1162
2	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	525	590	625	656	678	696	714	730	747	759	790	813	835	854	877	904	924	947	969	994	1032	1066	1103	1142	1178	1220	1256	1309	1343	1386	1450	1505	1548	1588	1611	1668	1697	1727	1757	1786	1816
2	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	499	560	594	623	644	661	678	693	710	721	750	772	793	811	833	859	878	900	921	944	980	1013	1048	1085	1119	1159	1193	1244	1276	1317	1377	1430	1471	1509	1530	1585	1612	1641	1669	1697	1725
2	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	472	531	562	590	610	626	643	657	672	683	711	732	751	769	789	814	832	852	872	895	929	959	993	1028	1060	1098	1130	1178	1209	1247	1305	1354	1393	1429	1450	1501	1527	1554	1581	1607	1634
2	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	446	501	531	558	576	592	607	620	635	645	671	691	710	726	745	768	785	805	824	845	877	906	938	971	1001	1037	1068	1113	1142	1178	1232	1279	1316	1350	1369	1418	1442	1468	1493	1518	1544
2	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	420	472	500	525	542	557	571	584	598	607	632	650	668	683	702	723	739	758	775	795	826	853	882	914	942	976	1005	1047	1074	1109	1160	1204	1238	1270	1289	1334	1358	1382	1406	1429	1453
2	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	394	442	469	492	508	522	535	547	560	569	592	610	626	640	658	678	693	710	727	745	774	799	827	856	883	915	942	982	1007	1039	1087	1129	1161	1191	1208	1251	1273	1295	1318	1339	1362
2	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	388	437	462	485	502	515	528	540	553	562	585	602	618	632	649	669	684	701	717	736	764	789	816	845	872	903	929	969	994	1026	1073	1114	1146	1175	1192	1234	1256	1278	1300	1322	1344
2	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	383	431	456	479	495	508	521	533	545	554	577	593	610	623	640	660	675	691	707	726	753	778	805	834	860	891	917	956	980	1012	1058	1099	1130	1159	1176	1218	1239	1261	1283	1304	1326
2	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	378	425	450	472	488	501	514	526	538	546	569	585	601	615	631	651	665	682	698	716	743	768	794	822	848	878	904	942	967	998	1044	1084	1115	1143	1160	1201	1222	1243	1265	1286	1308
2	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	373	419	444	466	481	494	507	518	530	539	561	577	593	606	623	642	656	672	688	706	733	757	783	811	836	866	892	929	954	984	1029	1069	1099	1127	1144	1184	1205	1226	1247	1268	1289
2	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	367	413	437	459	475	487	500	511	523	531	553	569	584	598	614	633	647	663	678	696	722	746	772	799	825	854	879	916	940	970	1015	1053	1084	1112	1128	1168	1188	1209	1230	1250	1271
2	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	352	395	419	440	454	466	478	489	500	509	529	545	559	572	588	606	619	634	649	666	691	714	739	765	789	817	842	877	900	929	971	1008	1037	1064	1079	1118	1137	1157	1177	1197	1217
2	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	549	616	653	685	708	728	746	764	781	793	826	850	873	892	917	945	966	990	1013	1040	1079	1114	1153	1194	1232	1275	1313	1368	1404	1449	1516	1573	1618	1661	1685	1743	1774	1805	1837	1868	1899
2	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	522	585	620	651	673	692	709	726	742	753	785	807	829	847	871	898	918	940	962	988	1025	1058	1095	1134	1170	1211	1247	1300	1334	1377	1440	1494	1537	1578	1601	1656	1685	1715	1745	1775	1804
2	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	494	554	588	616	637	655	671	688	703	714	743	765	786	803	825	850	869	891	912	936	971	1003	1038	1075	1109	1147	1182	1231	1264	1304	1364	1416	1456	1495	1516	1569	1597	1624	1653	1681	1709
2	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	467	524	555	582	602	619	634	649	664	674	702	722	742	758	779	803	821	841	861	884	917	947	980	1015	1047	1084	1116	1163	1193	1232	1289	1337	1375	1412	1432	1482	1508	1534	1561	1588	1614
2	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	439	493	522	548	566	582	597	611	625	634	661	680	698	714	734	756	773	792	810	832	863	891	922	955	986	1020	1050	1094	1123	1159	1213	1258	1294	1329	1348	1394	1419	1444	1470	1494	1519
2	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	412	462	490	514	531	546	559	573	586	595	619	637	655	669	688	709	724	742	760	780	809	835	865	895	924	956	985	1026	1053	1087	1137	1180	1213	1246	1264	1307	1330	1354	1378	1401	1424
2	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	406	456	483	507	524	539	552	565	578	587	611	629	646	660	679	699	715	733	750	770	798	824	853	884	912	943	972	1012	1039	1072	1122	1164	1197	1229	1247	1290	1313	1336	1359	1382	1405
2	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	401	450	477	500	517	531	545	558	570	579	603	620	637	651	669	690	705	723	739	759	788	813	842	872	899	931	958	999	1025	1058	1107	1148	1181	1213	1230	1272	1295	1318	1341	1364	1386
2	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	395	444	470	493	510	524	537	550	562	571	595	612	629	642	660	680	696	713	729	749	777	802	830	860	887	918	945	985	1011	1043	1092	1133	1165	1196	1213	1255	1277	1300	1323	1345	1367
2	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	390	437	464	486	503	517	530	542	555	563	586	603	620	633	651	671	686	703	719	738	766	791	819	848	875	905	932	971	997	1029	1076	1117	1149	1179	1196	1238	1260	1282	1304	1326	1348
2	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	384	431	457	479	496	510	522	535	547	555	578	595	611	624	642	661	676	693	709	728	755	780	807	836	862	892	919	958	983	1014	1061	1101	1133	1163	1179	1220	1242	1263	1286	1308	1329
2	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	368	413	438	459	474	488	500	512	523	531	553	569	585	598	614	633	647	663	679	697	723	746	773	800	825	854	880	917	941	971	1016	1054	1084	1113	1129	1168	1189	1209	1231	1252	1272
2	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	572	643	682	715	739	760	779	797	815	828	862	887	911	931	956	986	1008	1033	1057	1085	1126	1163	1204	1246	1285	1331	1370	1428	1465	1512	1582	1642	1688	1733	1758	1819	1852	1884	1916	1949	1981
2	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	543	611	648	679	702	722	740	757	774	787	819	843	865	884	908	937	958	981	1004	1031	1070	1105	1144	1184	1221	1264	1301	1357	1392	1436	1503	1560	1604	1646	1670	1728	1759	1790	1820	1852	1882
2	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	515	579	614	643	665	684	701	717	733	745	776	798	820	838	860	887	907	930	951	976	1013	1047	1084	1121	1156	1198	1233	1285	1318	1361	1424	1478	1519	1560	1582	1637	1667	1696	1724	1754	1783
2	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	486	547	580	608	628	646	662	677	693	704	733	754	774	791	813	838	857	878	898	922	957	989	1023	1059	1092	1131	1164	1214	1245	1285	1345	1396	1435	1473	1494	1546	1574	1601	1629	1657	1684
2	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	458	514	546	572	591	608	623	638	652	662	690	710	729	745	765	789	806	826	846	868	901	930	963	997	1028	1065	1096	1142	1172	1210	1266	1314	1350	1386	1406	1455	1482	1507	1533	1559	1585
2	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	429	482	511	536	554	570	584	598	611	621	646	665	683	698	717	739	756	775	793	814	844	872	903	934	964	998	1027	1071	1099	1134	1186	1231	1266	1300	1318	1364	1389	1413	1437	1462	1486
2	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	423	476	505	529	547	562	576	590	603	613	638	656	674	689	707	730	746	764	782	803	833	861	891	922	951	985	1014	1057	1084	1119	1171	1215	1249	1282	1301	1346	1370	1394	1418	1442	1466
2	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	418	469	498	522	539	555	569	582	595	604	629	648	665	680	698	720	736	754	772	792	822	849	879	910	938	972	1000	1042	1069	1104	1155	1199	1232	1265	1283	1328	1352	1375	1399	1423	1446
2	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	412	463	491	515	532	547	561	574	587	596	621	639	656	670	688	710	726	744	761	781	811	837	867	897	925	958	986	1028	1055	1089	1139	1182	1215	1248	1266	1310	1333	1356	1380	1403	1426
2	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	406	457	484	508	525	540	553	566	579	588	612	630	647	661	679	700	716	733	750	770	799	826	855	885	912	945	973	1014	1040	1074	1123	1166	1198	1230	1248	1291	1315	1338	1360	1384	1407
2	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	400	450	477	500	517	532	545	558	570	580	603	621	638	652	669	690	706	723	740	759	788	814	843	872	899	932	959	1000	1025	1058	1107	1149	1182	1213	1231	1273	1296	1319	1341	1364	1387
2	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	383	431	457	479	495	509	522	534	546	555	578	594	610	624	641	661	675	692	708	727	754	779	807	835	861	892	918	957	982	1013	1060	1100	1131	1161	1178	1219	1241	1262	1284	1306	1327
2	0	Taxicab Vehicle-for-Hire 1	2595																																									
2	5	Taxicab Vehicle-for-Hire 1	2465																																								
2	10	Taxicab Vehicle-for-Hire 1	2335																																								
2	15	Taxicab Vehicle-for-Hire 1	2206																																								
2	20	Taxicab Vehicle-for-Hire 1	2076																																								
2	25	Taxicab Vehicle-for-Hire 1	1946																																								
2	26	Taxicab Vehicle-for-Hire 1	1920																																								
2	27	Taxicab Vehicle-for-Hire 1	1894																																								
2	28	Taxicab Vehicle-for-Hire 1	1868																																								
2	29	Taxicab Vehicle-for-Hire 1	1842																																								
2	30	Taxicab Vehicle-for-Hire 1	1816																																								
2	33	Taxicab Vehicle-for-Hire 1	1739																																								
2	0	Taxicab Vehicle-for-Hire 2	3495																																								
2	5	Taxicab Vehicle-for-Hire 2	3320																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	10	Taxicab Vehicle-for-Hire 2	3145																																								
2	15	Taxicab Vehicle-for-Hire 2	2971																																								
2	20	Taxicab Vehicle-for-Hire 2	2796																																								
2	25	Taxicab Vehicle-for-Hire 2	2621																																								
2	26	Taxicab Vehicle-for-Hire 2	2586																																								
2	27	Taxicab Vehicle-for-Hire 2	2551																																								
2	28	Taxicab Vehicle-for-Hire 2	2516																																								
2	29	Taxicab Vehicle-for-Hire 2	2481																																								
2	30	Taxicab Vehicle-for-Hire 2	2446																																								
2	33	Taxicab Vehicle-for-Hire 2	2342																																								
2	0	Taxicab Vehicle-for-Hire 3	4396																																								
2	5	Taxicab Vehicle-for-Hire 3	4176																																								
2	10	Taxicab Vehicle-for-Hire 3	3956																																								
2	15	Taxicab Vehicle-for-Hire 3	3737																																								
2	20	Taxicab Vehicle-for-Hire 3	3517																																								
2	25	Taxicab Vehicle-for-Hire 3	3297																																								
2	26	Taxicab Vehicle-for-Hire 3	3253																																								
2	27	Taxicab Vehicle-for-Hire 3	3209																																								
2	28	Taxicab Vehicle-for-Hire 3	3165																																								
2	29	Taxicab Vehicle-for-Hire 3	3121																																								
2	30	Taxicab Vehicle-for-Hire 3	3077																																								
2	33	Taxicab Vehicle-for-Hire 3	2945																																								
2	0	Taxicab Vehicle-for-Hire 4	5296																																								
2	5	Taxicab Vehicle-for-Hire 4	5031																																								
2	10	Taxicab Vehicle-for-Hire 4	4766																																								
2	15	Taxicab Vehicle-for-Hire 4	4502																																								
2	20	Taxicab Vehicle-for-Hire 4	4237																																								
2	25	Taxicab Vehicle-for-Hire 4	3972																																								
2	26	Taxicab Vehicle-for-Hire 4	3919																																								
2	27	Taxicab Vehicle-for-Hire 4	3866																																								
2	28	Taxicab Vehicle-for-Hire 4	3813																																								
2	29	Taxicab Vehicle-for-Hire 4	3760																																								
2	30	Taxicab Vehicle-for-Hire 4	3707																																								
2	33	Taxicab Vehicle-for-Hire 4	3548																																								
3	0	Accessible Vehicle-for-Hire 1	670	700	743	781	825	866	906	947	994	1035	1077	1119	1161	1204																												
3	5	Accessible Vehicle-for-Hire 1	636	665	706	742	784	823	861	900	944	983	1023	1063	1103	1144																												
3	10	Accessible Vehicle-for-Hire 1	603	630	669	703	742	779	815	852	895	931	969	1007	1045	1084																												
3	15	Accessible Vehicle-for-Hire 1	569	595	632	664	701	736	770	805	845	880	915	951	987	1023																												
3	20	Accessible Vehicle-for-Hire 1	536	560	594	625	660	693	725	758	795	828	862	895	929	963																												
3	25	Accessible Vehicle-for-Hire 1	502	525	557	586	619	649	679	710	745	776	808	839	871	903																												
3	26	Accessible Vehicle-for-Hire 1	496	518	550	578	610	641	670	701	736	766	797	828	859	891																												
3	27	Accessible Vehicle-for-Hire 1	489	511	542	570	602	632	661	691	726	756	786	817	848	879																												
3	28	Accessible Vehicle-for-Hire 1	482	504	535	562	594	624	652	682	716	745	775	806	836	867																												
3	29	Accessible Vehicle-for-Hire 1	476	497	528	555	586	615	643	672	706	735	765	794	824	855																												
3	30	Accessible Vehicle-for-Hire 1	469	490	520	547	577	606	634	663	696	724	754	783	813	843																												
3	33	Accessible Vehicle-for-Hire 1	449	469	498	523	553	580	607	634	666	693	722	750	778	807																												
3	0	Accessible Vehicle-for-Hire 2	706	738	783	823	870	913	955	998	1048	1091	1135	1179	1223	1269																												
3	5	Accessible Vehicle-for-Hire 2	671	701	744	782	826	867	907	948	996	1036	1078	1120	1162	1206																												
3	10	Accessible Vehicle-for-Hire 2	635	664	705	741	783	822	859	898	943	982	1021	1061	1101	1142																												
3	15	Accessible Vehicle-for-Hire 2	600	627	666	700	739	776	812	848	891	927	965	1002	1040	1079																												
3	20	Accessible Vehicle-for-Hire 2	565	590	626	658	696	730	764	798	838	873	908	943	978	1015																												
3	25	Accessible Vehicle-for-Hire 2	529	553	587	617	652	685	716	748	786	818	851	884	917	952																												
3	26	Accessible Vehicle-for-Hire 2	522	546	579	609	644	676	707	739	776	807	840	872	905	939																												
3	27	Accessible Vehicle-for-Hire 2	515	539	572	601	635	666	697	729	765	796	829	861	893	926																												
3	28	Accessible Vehicle-for-Hire 2	508	531	564	593	626	657	688	719	755	786	817	849	881	914																												
3	29	Accessible Vehicle-for-Hire 2	501	524	556	584	618	648	678	709	744	775	806	837	868	901																												

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	30	Accessible Vehicle-for-Hire 2	494	517	548	576	609	639	668	699	734	764	794	825	856	888																													
3	33	Accessible Vehicle-for-Hire 2	473	494	525	551	583	612	640	669	702	731	760	790	819	850																											
3	0	Accessible Vehicle-for-Hire 3	735	768	815	857	905	950	994	1039	1091	1135	1181	1227	1273	1320																											
3	5	Accessible Vehicle-for-Hire 3	698	730	774	814	860	902	944	987	1036	1078	1122	1166	1209	1254																											
3	10	Accessible Vehicle-for-Hire 3	661	691	733	771	814	855	895	935	982	1021	1063	1104	1146	1188																											
3	15	Accessible Vehicle-for-Hire 3	625	653	693	728	769	807	845	883	927	965	1004	1043	1082	1122																											
3	20	Accessible Vehicle-for-Hire 3	588	614	652	686	724	760	795	831	873	908	945	982	1018	1056																											
3	25	Accessible Vehicle-for-Hire 3	551	576	611	643	679	712	745	779	818	851	886	920	955	990																											
3	26	Accessible Vehicle-for-Hire 3	544	568	603	634	670	703	736	769	807	840	874	908	942	977																											
3	27	Accessible Vehicle-for-Hire 3	537	561	595	626	661	693	726	758	796	829	862	896	929	964																											
3	28	Accessible Vehicle-for-Hire 3	529	553	587	617	652	684	716	748	786	817	850	883	917	950																											
3	29	Accessible Vehicle-for-Hire 3	522	545	579	608	643	674	706	738	775	806	839	871	904	937																											
3	30	Accessible Vehicle-for-Hire 3	514	538	570	600	633	665	696	727	764	794	827	859	891	924																											
3	33	Accessible Vehicle-for-Hire 3	492	515	546	574	606	636	666	696	731	760	791	822	853	884																											
3	0	Accessible Vehicle-for-Hire 4	771	806	854	899	950	997	1043	1090	1144	1191	1239	1287	1336	1385																											
3	5	Accessible Vehicle-for-Hire 4	732	766	811	854	902	947	991	1035	1087	1131	1177	1223	1269	1316																											
3	10	Accessible Vehicle-for-Hire 4	694	725	769	809	855	897	939	981	1030	1072	1115	1158	1202	1246																											
3	15	Accessible Vehicle-for-Hire 4	655	685	726	764	807	847	887	926	972	1012	1053	1094	1136	1177																											
3	20	Accessible Vehicle-for-Hire 4	617	645	683	719	760	798	834	872	915	953	991	1030	1069	1108																											
3	25	Accessible Vehicle-for-Hire 4	578	604	640	674	712	748	782	817	858	893	929	965	1002	1039																											
3	26	Accessible Vehicle-for-Hire 4	571	596	632	665	703	738	772	807	847	881	917	952	989	1025																											
3	27	Accessible Vehicle-for-Hire 4	563	588	623	656	693	728	761	796	835	869	904	940	975	1011																											
3	28	Accessible Vehicle-for-Hire 4	555	580	615	647	684	718	751	785	824	858	892	927	962	997																											
3	29	Accessible Vehicle-for-Hire 4	547	572	606	638	674	708	741	774	812	846	880	914	949	983																											
3	30	Accessible Vehicle-for-Hire 4	540	564	598	629	665	698	730	763	801	834	867	901	935	969																											
3	33	Accessible Vehicle-for-Hire 4	517	540	572	602	636	668	699	730	766	798	830	862	895	928																											
3	0	Limousine Vehicle-for-Hire 1	1787																																							
3	5	Limousine Vehicle-for-Hire 1	1698																																							
3	10	Limousine Vehicle-for-Hire 1	1608																																							
3	15	Limousine Vehicle-for-Hire 1	1519																																							
3	20	Limousine Vehicle-for-Hire 1	1430																																							
3	25	Limousine Vehicle-for-Hire 1	1340																																							
3	26	Limousine Vehicle-for-Hire 1	1322																																							
3	27	Limousine Vehicle-for-Hire 1	1305																																							
3	28	Limousine Vehicle-for-Hire 1	1287																																							
3	29	Limousine Vehicle-for-Hire 1	1269																																							
3	30	Limousine Vehicle-for-Hire 1	1251																																							
3	33	Limousine Vehicle-for-Hire 1	1197																																							
3	0	Limousine Vehicle-for-Hire 2	1883																																							
3	5	Limousine Vehicle-for-Hire 2	1789																																							
3	10	Limousine Vehicle-for-Hire 2	1695																																							
3	15	Limousine Vehicle-for-Hire 2	1601																																							
3	20	Limousine Vehicle-for-Hire 2	1506																																							
3	25	Limousine Vehicle-for-Hire 2	1412																																							
3	26	Limousine Vehicle-for-Hire 2	1393																																							
3	27	Limousine Vehicle-for-Hire 2	1375																																							
3	28	Limousine Vehicle-for-Hire 2	1356																																							
3	29	Limousine Vehicle-for-Hire 2	1337																																							
3	30	Limousine Vehicle-for-Hire 2	1318																																							
3	33	Limousine Vehicle-for-Hire 2	1262																																							
3	0	Limousine Vehicle-for-Hire 3	1959																																							
3	5	Limousine Vehicle-for-Hire 3	1861																																							
3	10	Limousine Vehicle-for-Hire 3	1763																																							
3	15	Limousine Vehicle-for-Hire 3	1665																																							
3	20	Limousine Vehicle-for-Hire 3	1567																																							
3	25	Limousine Vehicle-for-Hire 3	1469																																							

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	26	Limousine Vehicle-for-Hire 3	1450																																								
3	27	Limousine Vehicle-for-Hire 3	1430																																								
3	28	Limousine Vehicle-for-Hire 3	1410																																								
3	29	Limousine Vehicle-for-Hire 3	1391																																								
3	30	Limousine Vehicle-for-Hire 3	1371																																								
3	33	Limousine Vehicle-for-Hire 3	1313																																								
3	0	Limousine Vehicle-for-Hire 4	2055																																								
3	5	Limousine Vehicle-for-Hire 4	1952																																								
3	10	Limousine Vehicle-for-Hire 4	1849																																								
3	15	Limousine Vehicle-for-Hire 4	1747																																								
3	20	Limousine Vehicle-for-Hire 4	1644																																								
3	25	Limousine Vehicle-for-Hire 4	1541																																								
3	26	Limousine Vehicle-for-Hire 4	1521																																								
3	27	Limousine Vehicle-for-Hire 4	1500																																								
3	28	Limousine Vehicle-for-Hire 4	1480																																								
3	29	Limousine Vehicle-for-Hire 4	1459																																								
3	30	Limousine Vehicle-for-Hire 4	1438																																								
3	33	Limousine Vehicle-for-Hire 4	1377																																								
3	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	589	633	667	692	717	742	768	792	817	841	862	867	890	932	954	986	1020	1052	1088	1122	1158	1193	1225	1261	1296	1354	1400	1443	1488	1531	1573	1616	1651	1685	1714	1734	1753	1773	1794	1814	1834
3	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	560	601	634	657	681	705	730	752	776	799	819	824	845	885	906	937	969	999	1034	1066	1100	1133	1164	1198	1231	1286	1330	1371	1414	1454	1494	1535	1568	1601	1628	1647	1665	1684	1704	1723	1742
3	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	530	570	600	623	645	668	691	713	735	757	776	780	801	839	859	887	918	947	979	1010	1042	1074	1102	1135	1166	1219	1260	1299	1339	1378	1416	1454	1486	1516	1543	1561	1578	1596	1615	1633	1651
3	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	501	538	567	588	609	631	653	673	694	715	733	737	756	792	811	838	867	894	925	954	984	1014	1041	1072	1102	1151	1190	1227	1265	1301	1337	1374	1403	1432	1457	1474	1490	1507	1525	1542	1559
3	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	471	506	534	554	574	594	614	634	654	673	690	694	712	746	763	789	816	842	870	898	926	954	980	1009	1037	1083	1120	1154	1190	1225	1258	1293	1321	1348	1371	1387	1402	1418	1435	1451	1467
3	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	442	475	500	519	538	556	576	594	613	631	646	650	667	699	715	739	765	789	816	841	868	895	919	946	972	1015	1050	1082	1116	1148	1180	1212	1238	1264	1285	1300	1315	1330	1345	1360	1375
3	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	436	468	494	512	531	549	568	586	605	622	638	642	659	690	706	730	755	778	805	830	857	883	906	933	959	1002	1036	1068	1101	1133	1164	1196	1222	1247	1268	1283	1297	1312	1328	1342	1357
3	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	430	462	487	505	523	542	561	578	596	614	629	633	650	680	696	720	745	768	794	819	845	871	894	921	946	988	1022	1053	1086	1118	1148	1180	1205	1230	1251	1266	1280	1294	1310	1324	1339
3	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	424	456	480	498	516	534	553	570	588	606	621	624	641	671	687	710	734	757	783	808	834	859	882	908	933	975	1008	1039	1071	1102	1133	1164	1189	1213	1234	1248	1262	1277	1292	1306	1320
3	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	418	449	474	491	509	527	545	562	580	597	612	616	632	662	677	700	724	747	772	797	822	847	870	895	920	961	994	1025	1056	1087	1117	1147	1172	1196	1217	1231	1245	1259	1274	1288	1302
3	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	412	443	467	484	502	519	538	554	572	589	603	607	623	652	668	690	714	736	762	785	811	835	857	883	907	948	980	1010	1042	1072	1101	1131	1156	1179	1200	1214	1227	1241	1256	1270	1284
3	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	395	424	447	464	480	497	515	531	547	563	578	581	596	624	639	661	683	705	729	752	776	799	821	845	868	907	938	967	997	1026	1054	1083	1106	1129	1148	1162	1175	1188	1202	1215	1229
3	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	617	663	698	725	751	778	804	829	856	881	903	909	933	977	1000	1033	1068	1102	1140	1176	1213	1250	1284	1321	1357	1419	1466	1511	1559	1604	1648	1693	1729	1765	1795	1816	1837	1858	1880	1901	1922
3	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	586	630	663	689	713	739	764	788	813	837	858	864	886	928	950	981	1015	1047	1083	1117	1152	1187	1220	1255	1289	1348	1393	1435	1481	1524	1566	1608	1643	1677	1705	1725	1745	1765	1786	1806	1826
3	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	555	597	628	652	676	700	724	746	770	793	813	818	840	879	900	930	961	992	1026	1058	1092	1125	1156	1189	1221	1277	1319	1360	1403	1444	1483	1524	1556	1588	1615	1634	1653	1672	1692	1711	1730
3	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	524	564	593	616	638	661	683	705	728	749	768	773	793	830	850	878	908	937	969	1000	1031	1062	1091	1123	1153	1206	1246	1284	1325	1363	1401	1439	1470	1500	1526	1544	1561	1579	1598	1616	1634
3	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	494	530	558	580	601	622	643	663	685	705	722	727	746	782	800	826	854	882	912	941	970	1000	1027	1057	1086	1135	1173	1209	1247	1283	1318	1354	1383	1412	1436	1453	1470	1486	1504	1521	1538
3	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	463	497	523	544	563	583	603	622	642	661	677	682	700	733	750	775	801	826	855	882	910	937	963	991	1018	1064	1099	1133	1169	1203	1236	1270	1297	1324	1346	1362	1378	1393	1410	1426	1441
3	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	457	491	517	536	556	576	595	613	633	652	668	673	690	723	740	764	790	815	844	870	898	925	950	978	1004	1050	1085	1118	1154	1187	1220	1253	1279	1306	1328	1344	1359	1375	1391	1407	1422
3	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	450	484	510	529	548	568	587	605	625	643	659	664	681	713	730	754	780	804	832	858	885	912	937	964	991	1036	1070	1103	1138	1171	1203	1236	1262	1288	1310	1326	1341	1356	1372	1388	1403
3	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	444	477	503	522	541	560	579	597	616	634	650	654	672	703	720	744	769	793	821	847	873	900	924	951	977	1022	1056	1088	1122	1155	1187	1219	1245	1271	1292	1308	1323	1338	1354	1369	1384
3	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	438	471	496	515	533	552	571	589	608	626	641	645	662	694	710	733	758	782	809	835	861	887	912	938	963	1007	1041	1073	1107	1139	1170	1202	1228	1253	1274	1289	1304	1319	1335	1350	1365
3	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	432	464	489	507	526	545	563	580	599	617	632	636	653	684	700	723	748	771	798	823	849	875	899	925	950	993	1026	1058	1091	1123	1154	1185	1210	1235	1256	1271	1286	1301	1316	1331	1345
3	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	413	444	468	486	503	521	539	555	574	590	605	609	625	655	670	692	716	738	764	788	813	837	860	885	909	951	982	1012	1045	1075	1104	1134	1158	1183	1203	1217	1231	1245	1260	1274	1288
3	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	645	693	730	758	785	813	841	867	895	921	944	950	975	1021	1045	1080	1117	1152	1191	1229	1268	1306	1342	1381	1419	1483	1533	1580	1630	1677	1723	1770	1808	1846	1877	1899	1920	1942	1965	1987	2009
3	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	613	658	693	720	746	772	799	824	850	875	897	902	926	970	993	1026	1061	1094	1131	1168	1205	1241	1275	1312	1348	1409	1456	1501	1548	1593	1637	1681	1718	1754	1783	1804	1824	1845	1867	1888	1909
3	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	580	624	657	682	706	732	757	780	805	829	850	855	877	919	940	972	1005	1037	1072	1106	1141	1175	1208	1243	1277	1335	1380	1422	1467	1509	1551	1593	1627	1661	1689	1709	1728	1748	1768	1788	1808
3	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	548	589	620	644	667	691	715	737	761	783	802	807	829	868	888	918	949	979	1012	1045	1078	1110	1141	1174	1206	1261	1303	1343	1385	1425	1465	1504	1537	1569	1595	1614	1632	1651	1670	1689	1708
3	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	516	554	584	606	628	650	673	694	716	737	755	760	780	817	836	864	894	922	953	983	1014	1045	1074	1105	1135	1186	1226	1264	1304	1342	1378	1416	1446	1477	1502	1519	1536	1554	1572	1590	1607
3	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	484	520	547	568	589	610	631	650	671	691	708	712	731	766	784	810	838	864	893	922	951	979	1006	1036	1064	1112	1150	1185	1222	1258	1292	1327	1356	1384	1408	1424	1440	1456	1474	1490	1507
3	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	477	513	540	561	581	602	622	642	662	682	699	703	721	756	773	799	827	852	881	909	938	966	993	1022	1050	1097	1134	1169	1206	1241	1275	1310	1338	1366	1389	1405	1421	1437	1454	1470	1487
3	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	471	506	533	553	573	593	614	633	653	672	689	693	712	745	763	788	815	841	869	897	926	953	980	1008	1036	1083	1119	1153	1190	1224	1258	1292	1320	1348	1370	1386	1402	1418	1434	1451	1467
3	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	464	499	526	546	565	585	606	624	644	663	680	684	702	735	752	778	804	829	858	885	913	940	966	994	1022	1068	1104	1138	1174	1207	1241	1274	1302	1329	1351	1367	1382	1398	1415	1431	1446
3	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	458	492	518	538	557	577	597	616	635	654	670	674	692	725	742	767	793	818	846	873	900	927	953	981	1007	1053	1088	1122	1157	1191	1223	1257	1284	1311	1333	1348	1363	1379	1395	1411	1426
3	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	451	485	511	531	549	569	589	607	626	645	661	665	682	715	731	756	782	806	834	860	888	914	939	967	993	1038	1073	1106	1141	1174	1206	1239	1266	1292	1314	1329	1344	1359	1375	1391	1406
3	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	432	464	489	508	526	545	563	581	600	617	632	636	653	684	700	724	748	772	798	823	850	875	899	925	951	994	1027	1059	1092	1124	1154	1186	1211	1237	1258	1272	1286	1301	1317	1331	1346
3	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	673	724	762	791	820	848	877	905	934	961	985	991	1018	1066	1091	1127	1165	1202	1243	1283	1324	1363	1400	1441	1481	1548	1600	1649	1700	1750	1798	1847	1886	1926	1958	1981	2004	2027	2051	2074	2096
3	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	639	688	724	751	779	806	833	860	887	913	936	941	967	1013	1036	1071	1107	1142	1181	1219	1258	1295	1330	1369	1407	1471	1520	1567	1615	1662	1708	1755	1792	1830	1860	1882	1904	1926	1948	1970	1991

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	606	652	686	712	738	763	789	814	841	865	886	892	916	959	982	1014	1048	1082	1119	1155	1192	1227	1260	1297	1333	1393	1440	1484	1530	1575	1618	1662	1697	1733	1762	1783	1804	1824	1846	1867	1886
3	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	572	615	648	672	697	721	745	769	794	817	837	842	865	906	927	958	990	1022	1057	1091	1125	1159	1190	1225	1259	1316	1360	1402	1445	1487	1528	1570	1603	1637	1664	1684	1703	1723	1743	1763	1782
3	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	538	579	610	633	656	678	702	724	747	769	788	793	814	853	873	902	932	962	994	1026	1059	1090	1120	1153	1185	1238	1280	1319	1360	1400	1438	1478	1509	1541	1566	1585	1603	1622	1641	1659	1677
3	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	505	543	571	593	615	636	658	679	700	721	739	743	763	799	818	845	874	901	932	962	993	1022	1050	1081	1111	1161	1200	1237	1275	1312	1348	1385	1414	1444	1468	1486	1503	1520	1538	1555	1572
3	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	498	536	564	585	607	628	649	670	691	711	729	733	753	789	807	834	862	889	920	949	980	1009	1036	1066	1096	1146	1184	1220	1258	1295	1331	1367	1396	1425	1449	1466	1483	1500	1518	1535	1551
3	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	491	529	556	577	599	619	640	661	682	702	719	723	743	778	796	823	850	877	907	937	967	995	1022	1052	1081	1130	1168	1204	1241	1277	1313	1348	1377	1406	1429	1446	1463	1480	1497	1514	1530
3	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	485	521	549	570	590	611	631	652	672	692	709	714	733	768	786	811	839	865	895	924	953	981	1008	1038	1066	1115	1152	1187	1224	1260	1295	1330	1358	1387	1410	1426	1443	1459	1477	1493	1509
3	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	478	514	541	562	582	602	623	643	663	682	699	704	723	757	775	800	827	853	883	911	940	968	994	1023	1052	1099	1136	1171	1207	1242	1277	1311	1339	1367	1390	1407	1423	1439	1456	1473	1488
3	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	471	507	533	554	574	594	614	633	654	673	689	694	713	746	764	789	815	841	870	898	927	954	980	1009	1037	1084	1120	1154	1190	1225	1259	1293	1320	1348	1371	1387	1403	1419	1436	1452	1467
3	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	451	485	511	530	549	568	588	606	626	644	660	664	682	714	731	755	781	805	833	860	887	913	938	965	992	1037	1072	1105	1139	1172	1205	1237	1264	1290	1312	1327	1343	1358	1374	1390	1404
3	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	471	530	563	590	610	627	643	657	673	684	711	732	751	769	790	815	832	853	873	895	928	960	993	1028	1060	1098	1131	1178	1210	1247	1305	1354	1393	1430	1451	1501	1528	1555	1581	1609	1635
3	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	447	503	535	560	579	596	611	624	639	650	675	695	713	731	750	774	790	810	829	850	882	912	943	977	1007	1043	1074	1119	1149	1185	1240	1286	1323	1358	1378	1426	1452	1477	1502	1529	1553
3	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	424	477	507	531	549	564	579	591	606	616	640	659	676	692	711	733	749	768	786	805	835	864	894	925	954	988	1018	1060	1089	1122	1174	1219	1254	1287	1306	1351	1375	1399	1423	1448	1471
3	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	400	450	479	501	518	533	547	558	572	581	604	622	638	654	671	693	707	725	742	761	789	816	844	874	901	933	961	1001	1028	1060	1109	1151	1184	1215	1233	1276	1299	1322	1344	1368	1390
3	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	377	424	450	472	488	502	514	526	538	547	569	586	601	615	632	652	666	682	698	716	742	768	794	822	848	878	905	942	968	998	1044	1083	1114	1144	1161	1201	1222	1244	1265	1287	1308
3	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	353	397	422	442	457	470	482	493	505	513	533	549	563	577	592	611	624	640	655	671	696	720	745	771	795	823	848	883	907	935	979	1015	1045	1072	1088	1126	1146	1166	1186	1207	1226
3	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	349	392	417	437	451	464	476	486	498	506	526	542	556	569	585	603	616	631	646	662	687	710	735	761	784	813	837	872	895	923	966	1002	1031	1058	1074	1111	1131	1151	1170	1191	1210
3	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	344	387	411	431	445	458	469	480	491	499	519	534	548	561	577	595	607	623	637	653	677	701	725	750	774	802	826	860	883	910	953	988	1017	1044	1059	1096	1115	1135	1154	1175	1194
3	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	339	382	405	425	439	451	463	473	485	492	512	527	541	554	569	587	599	614	629	644	668	691	715	740	763	791	814	848	871	898	940	975	1003	1030	1045	1081	1100	1120	1138	1158	1177
3	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	334	376	400	419	433	445	457	466	478	486	505	520	533	546	561	579	591	606	620	635	659	682	705	730	753	780	803	836	859	885	927	961	989	1015	1030	1066	1085	1104	1123	1142	1161
3	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	330	371	394	413	427	439	450	460	471	479	498	512	526	538	553	570	582	597	611	626	650	672	695	720	742	769	792	825	847	873	913	948	975	1001	1016	1051	1070	1088	1107	1126	1144
3	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	316	355	377	395	409	420	431	440	451	458	476	490	503	515	529	546	557	572	585	600	622	643	665	689	710	736	758	789	811	835	874	907	933	958	972	1006	1024	1042	1059	1078	1095
3	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	494	555	590	618	639	657	673	689	705	716	745	767	786	805	827	854	871	893	914	937	972	1005	1041	1077	1111	1151	1185	1234	1267	1307	1367	1419	1460	1498	1520	1573	1600	1629	1657	1685	1713
3	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	469	527	560	587	607	624	639	655	670	680	708	729	747	765	786	811	827	848	868	890	923	955	989	1023	1055	1093	1126	1172	1204	1242	1299	1348	1387	1423	1444	1494	1520	1548	1574	1601	1627
3	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	445	499	531	556	575	591	606	620	634	644	670	690	707	724	744	769	784	804	823	843	875	904	937	969	1000	1036	1066	1111	1140	1176	1230	1277	1314	1348	1368	1416	1440	1466	1491	1516	1542
3	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	420	472	501	525	543	558	572	586	599	609	633	652	668	684	703	726	740	759	777	796	826	854	885	915	944	978	1007	1049	1077	1111	1162	1206	1241	1273	1292	1337	1360	1385	1408	1432	1456
3	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	395	444	472	494	511	526	538	551	564	573	596	614	629	644	662	683	697	714	731	750	778	804	833	862	889	921	948	987	1014	1046	1094	1135	1168	1198	1216	1258	1280	1303	1326	1348	1370
3	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	370	416	442	463	479	493	505	517	529	537	559	575	589	604	620	640	653	670	685	703	729	754	781	808	833	863	889	925	950	980	1025	1064	1095	1123	1140	1180	1200	1222	1243	1264	1285
3	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	366	411	437	457	473	486	498	510	522	530	551	568	582	596	612	632	645	661	676	693	719	744	770	797	822	852	877	913	938	967	1012	1050	1080	1109	1125	1164	1184	1205	1226	1247	1268
3	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	361	405	431	451	466	480	491	503	515	523	544	560	574	588	604	623	636	652	667	684	710	734	760	786	811	840	865	901	925	954	998	1036	1066	1094	1110	1148	1168	1189	1210	1230	1250
3	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	356	400	425	445	460	473	485	496	508	516	536	552	566	580	595	615	627	643	658	675	700	724	750	775	800	829	853	888	912	941	984	1022	1051	1079	1094	1133	1152	1173	1193	1213	1233
3	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	351	394	419	439	454	466	478	489	501	508	529	545	558	572	587	606	618	634	649	665	690	714	739	765	789	817	841	876	900	928	971	1007	1037	1064	1079	1117	1136	1157	1176	1196	1216
3	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	346	388	413	433	447	460	471	482	493	501	521	537	550	563	579	598	610	625	640	656	680	703	729	754	778	806	829	864	887	915	957	993	1022	1049	1064	1101	1120	1140	1160	1179	1199
3	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	331	372	395	414	428	440	451	462	472	480	499	514	527	539	554	572	584	598	612	628	651	673	697	722	744	771	794	827	849	876	916	951	978	1004	1018	1054	1072	1091	1110	1129	1148
3	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	516	581	616	646	668	687	704	720	737	749	779	802	822	842	865	892	911	934	956	980	1017	1051	1088	1126	1161	1203	1239	1290	1325	1366	1429	1483	1526	1566	1589	1644	1673	1703	1732	1762	1791
3	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	490	552	585	614	635	653	669	684	700	712	740	762	781	800	822	847	865	887	908	931	966	998	1034	1070	1103	1143	1177	1225	1259	1298	1358	1409	1450	1488	1510	1562	1589	1618	1645	1674	1701
3	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	464	523	554	581	601	618	634	648	663	674	701	722	740	758	778	803	820	841	860	882	915	946	979	1013	1045	1083	1115	1161	1192	1229	1286	1335	1373	1409	1430	1480	1506	1533	1559	1586	1612
3	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	439	494	524	549	568	584	598	612	626	637	662	682	699	716	735	758	774	794	813	833	864	893	925	957	987	1023	1053	1096	1126	1161	1215	1261	1297	1331	1351	1397	1422	1448	1472	1498	1522
3	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	413	465	493	517	534	550	563	576	590	599	623	642	658	674	692	714	729	747	765	784	814	841	870	901	929	962	991	1032	1060	1093	1143	1186	1221	1253	1271	1315	1338	1362	1386	1410	1433
3	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	387	436	462	484	501	515	528	540	553	562	584	601	616	631	649	669	683	700	717	735	763	788	816	844	871	902	929	967	994	1024	1072	1112	1144	1174	1192	1233	1255	1277	1299	1321	1343
3	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	382	430	456	478	494	508	521	533	545	554	576	593	608	623	640	660	674	691	707	725	753	778	805	833	859	890	917	955	980	1011	1057	1097	1129	1159	1176	1217	1238	1260	1282	1304	1325
3	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	377	424	450	472	488	502	514	526	538	547	569	585	600	615	631	651	665	682	698	715	742	767	794	822	848	878	904	942	967	997	1043	1083	1114	1143	1160	1200	1221	1243	1264	1286	1307
3	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	372	418	444	465	481	495	507	518	531	539	561	577	592	606	623	642	656	672	688	706	732	757	783	811	836	866	892	929	954	984	1029	1068	1099	1128	1144	1184	1205	1226	1247	1269	1290
3	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	366	413	437	459	474	488	500	511	523	532	553	569	584	598	614	633	647	663	679	696	722	746	772	799	824	854	880	916	941	970	1015	1053	1083	1112	1128	1167	1188	1209	1230	1251	1272
3	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	361	407	431	452	468	481	493	504	516	524	545	561	575	589	605	624	638	654	669	686	712	736	762	788	813	842	867	903	927	956	1000	1038	1068	1096	1112	1151	1171	1192	1212	1233	1254
3	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	346	389	413	433	448	460	472	482	494	502	522	537	551	564	580	598	610	626	641	657	681	704	729	754	778	806	830	864	888	915	957	994	1022	1049	1065	1101	1121	1141	1160	1181	1200
3	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	539	606	643	674	697	716	734	751	769	781	812	836	858	878	902	931	950	974	997	1022	1061	1097	1135	1175	1212	1255	1292	1346	1382	1426	1492	1548	1592	1634	1658	1716	1746	1777	1807	1838	1868
3	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	512	576	611	640	662	680	697	713	731	742	771	794	815	834	857	884	902	925	947	971	1008	1042	1078	1116	1151	1192	1227	1279	1313	1355	1417	1471	1512	1552	1575	1630	1659	1688	1717	1746	1775
3	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	485	545	579	607	627	644	661	676	692	703	731	752	772	790	812	838	855	877	897	920	955	987	1021	1057	1091	1129	1163	1211	1244	1283	1343	1393	1433	1471	1492	1544	1571	1599	1626	1654	1681
3	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	458	515	547	573	592	609	624	638	654	664	690	711	729	746	767	791	807	828	847	869	902	932	965	999	1030	1067	1098	1144	1175	1212	1268	1316	1353	1389	1409	1459	1484	1510	1536	1562	1588
3	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	431	485	514	539	558	573	587	601	615	625	650	669	686	702	722	745	760	779	798	818	849	878	908	940	970	1004	1034	1077	1106	1141	1194	1238	1274	1307	1326	1373	1397	1422	1446	1470	1494
3	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	404	454	482	505	523	537	550	563	577	586	609	627	643	658	676	698	712	730	748	766	796	823	851	881	909	941	969	1009	1036	1069	1119	1161	1194	1225	1243	1287	1309	1333	1355	1378	1401
3	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	399	448	476	499	516	530	543	556	569	578	601	619	635	650	667	689	703	721	738	756	785	812	840	869	897	929	956	996	1023	1055	1104	1146	1178	1209	1227	1270	1292	1315	1337	1360	1382
3	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	393	442	469	492	509	523	536	548	561	570	593	610	626	641	658	680	693	711	728	746	775	801	829	858	885	916	943	983	1009	1041	1089	1130	1162	1193	1210	1253	1275	1297	1319	1342	1364
3	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	388	436	463	485	502	516	528	541	554	562	585	602	618	632	649	670	684	701	718	736	764	790	817	846	873	904	930	969	995	1027	1074	1115	1146	1176	1194	1236	1257	1279	1301	1323	1345
3	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	383	430	457	479	495	508	521	533	546	555	577	594	609	623	640	661	674	692	708	726	753	779	806	834	861	891	917	956	981	1012	1059	1099	1130	1160	1177	1218	1240	1262	1283	1305	1326

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	377	424	450	472	488	501	514	526	538	547	568	585	601	615	631	652	665	682	698	715	743	768	794	822	848	878	904	942	967	998	1044	1084	1114	1144	1161	1201	1222	1244	1265	1287	1308
3	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	361	406	431	452	467	480	492	503	515	523	544	560	575	588	604	624	636	653	668	685	711	735	760	787	812	841	866	902	926	955	1000	1037	1067	1095	1111	1150	1170	1191	1211	1231	1252
3	0	Taxicab Vehicle-for-Hire 1	2722																																								
3	5	Taxicab Vehicle-for-Hire 1	2586																																								
3	10	Taxicab Vehicle-for-Hire 1	2450																																								
3	15	Taxicab Vehicle-for-Hire 1	2314																																								
3	20	Taxicab Vehicle-for-Hire 1	2178																																								
3	25	Taxicab Vehicle-for-Hire 1	2041																																								
3	26	Taxicab Vehicle-for-Hire 1	2014																																								
3	27	Taxicab Vehicle-for-Hire 1	1987																																								
3	28	Taxicab Vehicle-for-Hire 1	1960																																								
3	29	Taxicab Vehicle-for-Hire 1	1933																																								
3	30	Taxicab Vehicle-for-Hire 1	1905																																								
3	33	Taxicab Vehicle-for-Hire 1	1824																																								
3	0	Taxicab Vehicle-for-Hire 2	3787																																								
3	5	Taxicab Vehicle-for-Hire 2	3598																																								
3	10	Taxicab Vehicle-for-Hire 2	3408																																								
3	15	Taxicab Vehicle-for-Hire 2	3219																																								
3	20	Taxicab Vehicle-for-Hire 2	3030																																								
3	25	Taxicab Vehicle-for-Hire 2	2840																																								
3	26	Taxicab Vehicle-for-Hire 2	2802																																								
3	27	Taxicab Vehicle-for-Hire 2	2765																																								
3	28	Taxicab Vehicle-for-Hire 2	2727																																								
3	29	Taxicab Vehicle-for-Hire 2	2689																																								
3	30	Taxicab Vehicle-for-Hire 2	2651																																								
3	33	Taxicab Vehicle-for-Hire 2	2537																																								
3	0	Taxicab Vehicle-for-Hire 3	4852																																								
3	5	Taxicab Vehicle-for-Hire 3	4609																																								
3	10	Taxicab Vehicle-for-Hire 3	4367																																								
3	15	Taxicab Vehicle-for-Hire 3	4124																																								
3	20	Taxicab Vehicle-for-Hire 3	3882																																								
3	25	Taxicab Vehicle-for-Hire 3	3639																																								
3	26	Taxicab Vehicle-for-Hire 3	3590																																								
3	27	Taxicab Vehicle-for-Hire 3	3542																																								
3	28	Taxicab Vehicle-for-Hire 3	3493																																								
3	29	Taxicab Vehicle-for-Hire 3	3445																																								
3	30	Taxicab Vehicle-for-Hire 3	3396																																								
3	33	Taxicab Vehicle-for-Hire 3	3251																																								
3	0	Taxicab Vehicle-for-Hire 4	5917																																								
3	5	Taxicab Vehicle-for-Hire 4	5621																																								
3	10	Taxicab Vehicle-for-Hire 4	5325																																								
3	15	Taxicab Vehicle-for-Hire 4	5029																																								
3	20	Taxicab Vehicle-for-Hire 4	4734																																								
3	25	Taxicab Vehicle-for-Hire 4	4438																																								
3	26	Taxicab Vehicle-for-Hire 4	4379																																								
3	27	Taxicab Vehicle-for-Hire 4	4319																																								
3	28	Taxicab Vehicle-for-Hire 4	4260																																								
3	29	Taxicab Vehicle-for-Hire 4	4201																																								
3	30	Taxicab Vehicle-for-Hire 4	4142																																								
3	33	Taxicab Vehicle-for-Hire 4	3964																																								
4	0	Accessible Vehicle-for-Hire 1	717	749	795	836	883	927	970	1014	1064	1108	1153	1198	1242	1288																												
4	5	Accessible Vehicle-for-Hire 1	681	712	755	794	839	881	921	963	1011	1053	1095	1138	1180	1224																												
4	10	Accessible Vehicle-for-Hire 1	645	674	715	752	795	834	873	913	958	997	1038	1078	1118	1159																												
4	15	Accessible Vehicle-for-Hire 1	609	637	676	711	751	788	824	862	904	942	980	1018	1056	1095																												
4	20	Accessible Vehicle-for-Hire 1	574	599	636	669	706	742	776	811	851	886	922	958	994	1030																												
4	25	Accessible Vehicle-for-Hire 1	538	562	596	627	662	695	727	760	798	831	865	898	931	966																												

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	26	Accessible Vehicle-for-Hire 1	531	554	588	619	653	686	718	750	787	820	853	887	919	953																													
4	27	Accessible Vehicle-for-Hire 1	523	547	580	610	645	677	708	740	777	809	842	875	907	940																											
4	28	Accessible Vehicle-for-Hire 1	516	539	572	602	636	667	698	730	766	798	830	863	894	927																											
4	29	Accessible Vehicle-for-Hire 1	509	532	564	594	627	658	689	720	755	787	819	851	882	914																											
4	30	Accessible Vehicle-for-Hire 1	502	524	556	585	618	649	679	710	745	776	807	839	869	902																											
4	33	Accessible Vehicle-for-Hire 1	480	502	533	560	592	621	650	679	713	742	773	803	832	863																											
4	0	Accessible Vehicle-for-Hire 2	756	790	838	881	931	977	1022	1068	1121	1167	1215	1262	1309	1358																											
4	5	Accessible Vehicle-for-Hire 2	718	750	796	837	884	928	971	1015	1065	1109	1154	1199	1244	1290																											
4	10	Accessible Vehicle-for-Hire 2	680	711	754	793	838	879	920	961	1009	1050	1093	1136	1178	1222																											
4	15	Accessible Vehicle-for-Hire 2	643	671	712	749	791	830	869	908	953	992	1033	1073	1113	1154																											
4	20	Accessible Vehicle-for-Hire 2	605	632	670	705	745	782	818	854	897	934	972	1010	1047	1086																											
4	25	Accessible Vehicle-for-Hire 2	567	592	628	661	698	733	766	801	841	875	911	946	982	1018																											
4	26	Accessible Vehicle-for-Hire 2	559	585	620	652	689	723	756	790	830	864	899	934	969	1005																											
4	27	Accessible Vehicle-for-Hire 2	552	577	612	643	680	713	746	780	818	852	887	921	956	991																											
4	28	Accessible Vehicle-for-Hire 2	544	569	603	634	670	703	736	769	807	840	875	909	942	978																											
4	29	Accessible Vehicle-for-Hire 2	537	561	595	626	661	694	726	758	796	829	863	896	929	964																											
4	30	Accessible Vehicle-for-Hire 2	529	553	587	617	652	684	715	748	785	817	850	883	916	951																											
4	33	Accessible Vehicle-for-Hire 2	507	529	561	590	624	655	685	716	751	782	814	846	877	910																											
4	0	Accessible Vehicle-for-Hire 3	786	822	872	917	969	1017	1064	1112	1167	1215	1264	1313	1363	1413																											
4	5	Accessible Vehicle-for-Hire 3	747	781	828	871	921	966	1011	1056	1109	1154	1201	1247	1295	1342																											
4	10	Accessible Vehicle-for-Hire 3	707	740	785	825	872	915	958	1001	1050	1093	1138	1182	1227	1272																											
4	15	Accessible Vehicle-for-Hire 3	668	699	741	779	824	864	904	945	992	1033	1074	1116	1159	1201																											
4	20	Accessible Vehicle-for-Hire 3	629	658	698	734	775	814	851	890	934	972	1011	1050	1090	1130																											
4	25	Accessible Vehicle-for-Hire 3	589	616	654	688	727	763	798	834	875	911	948	985	1022	1060																											
4	26	Accessible Vehicle-for-Hire 3	582	608	645	679	717	753	787	823	864	899	935	972	1009	1046																											
4	27	Accessible Vehicle-for-Hire 3	574	600	637	669	707	742	777	812	852	887	923	958	995	1031																											
4	28	Accessible Vehicle-for-Hire 3	566	592	628	660	698	732	766	801	840	875	910	945	981	1017																											
4	29	Accessible Vehicle-for-Hire 3	558	584	619	651	688	722	755	790	829	863	897	932	968	1003																											
4	30	Accessible Vehicle-for-Hire 3	550	575	610	642	678	712	745	778	817	850	885	919	954	989																											
4	33	Accessible Vehicle-for-Hire 3	527	551	584	614	649	681	713	745	782	814	847	880	913	947																											
4	0	Accessible Vehicle-for-Hire 4	825	862	914	962	1016	1067	1116	1166	1224	1275	1326	1378	1429	1482																											
4	5	Accessible Vehicle-for-Hire 4	784	819	868	914	965	1014	1060	1108	1163	1211	1260	1309	1358	1408																											
4	10	Accessible Vehicle-for-Hire 4	742	776	823	866	914	960	1004	1049	1102	1147	1193	1240	1286	1334																											
4	15	Accessible Vehicle-for-Hire 4	701	733	777	818	864	907	949	991	1040	1084	1127	1171	1215	1260																											
4	20	Accessible Vehicle-for-Hire 4	660	690	731	770	813	854	893	933	979	1020	1061	1102	1143	1186																											
4	25	Accessible Vehicle-for-Hire 4	619	646	685	721	762	800	837	874	918	956	994	1033	1072	1111																											
4	26	Accessible Vehicle-for-Hire 4	610	638	676	712	752	790	826	863	906	943	981	1020	1057	1097																											
4	27	Accessible Vehicle-for-Hire 4	602	629	667	702	742	779	815	851	894	931	968	1006	1043	1082																											
4	28	Accessible Vehicle-for-Hire 4	594	621	658	693	732	768	804	840	881	918	955	992	1029	1067																											
4	29	Accessible Vehicle-for-Hire 4	586	612	649	683	721	758	792	828	869	905	941	978	1015	1052																											
4	30	Accessible Vehicle-for-Hire 4	577	603	640	673	711	747	781	816	857	892	928	965	1000	1037																											
4	33	Accessible Vehicle-for-Hire 4	553	578	612	645	681	715	748	781	820	854	888	923	957	993																											
4	0	Limousine Vehicle-for-Hire 1	1732																																							
4	5	Limousine Vehicle-for-Hire 1	1645																																							
4	10	Limousine Vehicle-for-Hire 1	1559																																							
4	15	Limousine Vehicle-for-Hire 1	1472																																							
4	20	Limousine Vehicle-for-Hire 1	1386																																							
4	25	Limousine Vehicle-for-Hire 1	1299																																							
4	26	Limousine Vehicle-for-Hire 1	1282																																							
4	27	Limousine Vehicle-for-Hire 1	1264																																							
4	28	Limousine Vehicle-for-Hire 1	1247																																							
4	29	Limousine Vehicle-for-Hire 1	1230																																							
4	30	Limousine Vehicle-for-Hire 1	1212																																							
4	33	Limousine Vehicle-for-Hire 1	1160																																							
4	0	Limousine Vehicle-for-Hire 2	1825																																							
4	5	Limousine Vehicle-for-Hire 2	1734																																							

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	10	Limousine Vehicle-for-Hire 2	1642																																								
4	15	Limousine Vehicle-for-Hire 2	1551																																								
4	20	Limousine Vehicle-for-Hire 2	1460																																								
4	25	Limousine Vehicle-for-Hire 2	1369																																								
4	26	Limousine Vehicle-for-Hire 2	1350																																								
4	27	Limousine Vehicle-for-Hire 2	1332																																								
4	28	Limousine Vehicle-for-Hire 2	1314																																								
4	29	Limousine Vehicle-for-Hire 2	1296																																								
4	30	Limousine Vehicle-for-Hire 2	1277																																								
4	33	Limousine Vehicle-for-Hire 2	1223																																								
4	0	Limousine Vehicle-for-Hire 3	1899																																								
4	5	Limousine Vehicle-for-Hire 3	1804																																								
4	10	Limousine Vehicle-for-Hire 3	1709																																								
4	15	Limousine Vehicle-for-Hire 3	1614																																								
4	20	Limousine Vehicle-for-Hire 3	1519																																								
4	25	Limousine Vehicle-for-Hire 3	1424																																								
4	26	Limousine Vehicle-for-Hire 3	1405																																								
4	27	Limousine Vehicle-for-Hire 3	1386																																								
4	28	Limousine Vehicle-for-Hire 3	1367																																								
4	29	Limousine Vehicle-for-Hire 3	1348																																								
4	30	Limousine Vehicle-for-Hire 3	1329																																								
4	33	Limousine Vehicle-for-Hire 3	1272																																								
4	0	Limousine Vehicle-for-Hire 4	1992																																								
4	5	Limousine Vehicle-for-Hire 4	1892																																								
4	10	Limousine Vehicle-for-Hire 4	1793																																								
4	15	Limousine Vehicle-for-Hire 4	1693																																								
4	20	Limousine Vehicle-for-Hire 4	1594																																								
4	25	Limousine Vehicle-for-Hire 4	1494																																								
4	26	Limousine Vehicle-for-Hire 4	1474																																								
4	27	Limousine Vehicle-for-Hire 4	1454																																								
4	28	Limousine Vehicle-for-Hire 4	1434																																								
4	29	Limousine Vehicle-for-Hire 4	1414																																								
4	30	Limousine Vehicle-for-Hire 4	1394																																								
4	33	Limousine Vehicle-for-Hire 4	1335																																								
4	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	624	671	707	733	759	786	813	839	866	891	913	919	944	988	1011	1045	1080	1115	1153	1189	1226	1264	1298	1336	1372	1435	1483	1529	1576	1622	1667	1711	1748	1785	1815	1836	1858	1879	1900	1923	1944
4	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	593	637	672	696	721	747	772	797	823	846	867	873	897	939	960	993	1026	1059	1095	1130	1165	1201	1233	1269	1303	1363	1409	1453	1497	1541	1584	1625	1661	1696	1724	1744	1765	1785	1805	1827	1847
4	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	562	604	636	660	683	707	732	755	779	802	822	827	850	889	910	940	972	1003	1038	1070	1103	1138	1168	1202	1235	1291	1335	1376	1418	1460	1500	1540	1573	1606	1633	1652	1672	1691	1710	1731	1750
4	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	530	570	601	623	645	668	691	713	736	757	776	781	802	840	859	888	918	948	980	1011	1042	1074	1103	1136	1166	1220	1261	1300	1340	1379	1417	1454	1486	1517	1543	1561	1579	1597	1615	1635	1652
4	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	499	537	566	586	607	629	650	671	693	713	730	735	755	790	809	836	864	892	922	951	981	1011	1038	1069	1098	1148	1186	1223	1261	1298	1334	1369	1398	1428	1452	1469	1486	1503	1520	1538	1555
4	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	468	503	530	550	569	589	610	629	649	668	685	689	708	741	758	784	810	836	865	892	919	948	973	1002	1029	1076	1112	1147	1182	1216	1250	1283	1311	1339	1361	1377	1393	1409	1425	1442	1458
4	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	462	497	523	542	562	582	602	621	641	659	676	680	699	731	748	773	799	825	853	880	907	935	961	989	1015	1062	1097	1131	1166	1200	1234	1266	1294	1321	1343	1359	1375	1390	1406	1423	1439
4	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	456	490	516	535	554	574	593	612	632	650	666	671	689	721	738	763	788	814	842	868	895	923	948	975	1002	1048	1083	1116	1150	1184	1217	1249	1276	1303	1325	1340	1356	1372	1387	1404	1419
4	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	449	483	509	528	546	566	585	604	624	642	657	662	680	711	728	752	778	803	830	856	883	910	935	962	988	1033	1068	1101	1135	1168	1200	1232	1259	1285	1307	1322	1338	1353	1368	1385	1400
4	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	443	476	502	520	539	558	577	596	615	633	648	652	670	701	718	742	767	792	819	844	870	897	922	949	974	1019	1053	1086	1119	1152	1184	1215	1241	1267	1289	1304	1319	1334	1349	1365	1380
4	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	437	470	495	513	531	550	569	587	606	624	639	643	661	692	708	731	756	780	807	832	858	885	909	935	960	1004	1038	1070	1103	1135	1167	1198	1224	1249	1270	1285	1301	1315	1330	1346	1361
4	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	418	450	474	491	509	527	545	562	580	597	612	616	632	662	677	700	724	747	773	797	821	847	870	895	919	961	994	1024	1056	1087	1117	1146	1171	1196	1216	1230	1245	1259	1273	1288	1302
4	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	653	703	740	768	795	824	851	879	907	934	957	962	989	1035	1059	1094	1132	1168	1208	1245	1285	1324	1360	1399	1438	1504	1553	1602	1651	1699	1747	1793	1831	1870	1902	1924	1947	1969	1991	2014	2036
4	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	620	668	703	730	755	783	808	835	862	887	909	914	940	983	1006	1039	1075	1110	1148	1183	1221	1258	1292	1329	1366	1429	1475	1522	1568	1614	1660	1703	1739	1776	1807	1828	1850	1871	1891	1913	1934
4	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	588	633	666	691	715	742	766	791	816	841	861	866	890	931	953	985	1019	1051	1087	1120	1156	1192	1224	1259	1294	1354	1398	1442	1486	1529	1572	1614	1648	1683	1712	1732	1752	1772	1792	1813	1832
4	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	555	598	629	653	676	700	723	747	771	794	813	818	841	880	900	930	962	993	1027	1058	1092	1125	1156	1189	1222	1278	1320	1362	1403	1444	1485	1524	1556	1589	1617	1635	1655	1674	1692	1712	1731
4	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	522	562	592	614	636	659	681	703	726	747	766	770	791	828	847	875	906	934	966	996	1028	1059	1088	1119	1150	1203	1242	1282	1321	1359	1398	1434	1465	1496	1522	1539	1558	1575	1593	1611	1629
4	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	490	527	555	576	596	618	638	659	680	700	718	721	742	776	794	820	849	876	906	934	964	993	1020	1049	1078	1128	1165	1201	1238	1274	1310	1345	1373	1402	1426	1443	1460	1477	1493	1510	1527
4	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	483	520	548	568	588	610	630	650	671	691	708	712	732	766	784	810	838	864	894	921	951	980	1006	1035	1064	1113	1149	1185	1222	1257	1293	1327	1355	1384	1407	1424	1441	1457	1473	1490	1507
4	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	477	513	540	561	580	602	621	642	662	682	699	702	722	756	773	799	826	853	882	909	938	967	993	1021	1050	1098	1134	1169	1205	1240	1275	1309	1337	1365	1388	1405	1421	1437	1453	1470	1486
4	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	470	506	533	553	572	593	613	633	653	672	689	693	712	745	762	788	815	841	870	896	925	953	979	1007	1035	1083	1118	1153	1189	1223	1258	1291	1318	1346	1369	1385	1402	1418	1434	1450	1466
4	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	464	499	525	545	564	585	604	624	644	663	679	683	702	735	752	777	804	829	858	884	912	940	966	993	1021	1068	1103	1137	1172	1206	1240	1273	1300	1328	1350	1366	1382	1398	1414	1430	1446

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	457	492	518	538	556	577	596	615	635	654	670	673	692	724	741	766	792	818	846	871	899	927	952	979	1007	1053	1087	1121	1156	1189	1223	1255	1282	1309	1331	1347	1363	1378	1394	1410	1425
4	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	438	471	496	515	533	552	570	589	608	626	641	645	663	693	710	733	758	783	809	834	861	887	911	937	963	1008	1041	1073	1106	1138	1170	1201	1227	1253	1274	1289	1304	1319	1334	1349	1364
4	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	683	735	774	803	831	861	890	919	949	976	1000	1006	1034	1082	1107	1144	1183	1221	1263	1302	1343	1385	1421	1463	1503	1572	1624	1674	1726	1777	1826	1874	1915	1955	1988	2011	2035	2058	2081	2106	2129
4	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	649	698	735	763	789	818	845	873	902	927	950	956	982	1028	1052	1087	1124	1160	1200	1237	1276	1316	1350	1390	1428	1493	1543	1590	1640	1688	1735	1780	1819	1857	1889	1910	1933	1955	1977	2001	2023
4	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	615	661	697	723	748	775	801	827	854	878	900	905	931	974	996	1030	1065	1099	1137	1172	1209	1246	1279	1317	1353	1415	1462	1507	1553	1599	1643	1687	1723	1759	1789	1810	1831	1852	1873	1895	1916
4	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	581	625	658	683	706	732	756	781	807	830	850	855	879	920	941	972	1006	1038	1074	1107	1142	1177	1208	1244	1278	1336	1380	1423	1467	1510	1552	1593	1628	1662	1690	1709	1730	1749	1769	1790	1810
4	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	546	588	619	642	665	689	712	735	759	781	800	805	827	866	886	915	946	977	1010	1042	1074	1108	1137	1170	1202	1258	1299	1339	1381	1422	1461	1499	1532	1564	1590	1609	1628	1646	1665	1685	1703
4	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	512	551	580	602	623	646	667	689	712	732	750	754	775	811	830	858	887	916	947	976	1007	1039	1066	1097	1127	1179	1218	1255	1294	1333	1369	1405	1436	1466	1491	1508	1526	1543	1561	1579	1597
4	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	505	544	573	594	615	637	659	680	702	722	740	744	765	801	819	847	875	904	935	963	994	1025	1052	1083	1112	1163	1202	1239	1277	1315	1351	1387	1417	1447	1471	1488	1506	1523	1540	1558	1575
4	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	499	537	565	586	607	629	650	671	693	712	730	734	755	790	808	835	864	891	922	950	980	1011	1037	1068	1097	1148	1186	1222	1260	1297	1333	1368	1398	1427	1451	1468	1486	1502	1519	1537	1554
4	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	492	529	557	578	598	620	641	662	683	703	720	724	744	779	797	824	852	879	909	937	967	997	1023	1053	1082	1132	1169	1205	1243	1279	1315	1349	1379	1408	1431	1448	1465	1482	1498	1516	1533
4	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	485	522	550	570	590	611	632	652	674	693	710	714	734	768	786	812	840	867	897	924	954	983	1009	1039	1067	1116	1153	1189	1225	1262	1296	1331	1360	1388	1411	1428	1445	1461	1478	1495	1512
4	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	478	514	542	562	582	603	623	643	664	683	700	704	724	757	775	801	828	855	884	911	940	969	995	1024	1052	1100	1137	1172	1208	1244	1278	1312	1340	1368	1392	1408	1424	1441	1457	1474	1490
4	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	458	492	519	538	557	577	596	616	636	654	670	674	693	725	742	766	793	818	846	872	900	928	952	980	1007	1053	1088	1122	1156	1191	1223	1256	1283	1310	1332	1347	1363	1379	1394	1411	1426
4	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	713	767	808	838	868	899	929	959	990	1019	1044	1050	1079	1129	1156	1194	1235	1274	1318	1358	1402	1445	1483	1526	1568	1640	1694	1747	1801	1854	1906	1956	1998	2040	2075	2099	2124	2148	2172	2197	2221
4	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	677	729	768	796	825	854	883	911	940	968	992	997	1025	1073	1098	1134	1173	1210	1252	1290	1332	1373	1409	1450	1490	1558	1609	1660	1711	1761	1811	1858	1898	1938	1971	1994	2018	2041	2063	2087	2110
4	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	642	690	727	754	781	809	836	863	891	917	940	945	971	1016	1040	1075	1111	1147	1186	1222	1262	1300	1335	1373	1411	1476	1525	1572	1621	1669	1715	1760	1798	1836	1867	1889	1912	1933	1955	1977	1999
4	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	606	652	687	712	738	764	790	815	841	866	887	892	917	960	983	1015	1050	1083	1120	1154	1192	1228	1261	1297	1333	1394	1440	1485	1531	1576	1620	1663	1698	1734	1764	1784	1805	1826	1846	1867	1888
4	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	570	614	646	670	694	719	743	767	792	815	835	840	863	903	925	955	988	1019	1054	1086	1122	1156	1186	1221	1254	1312	1355	1398	1441	1483	1525	1565	1598	1632	1660	1679	1699	1718	1738	1758	1777
4	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	535	575	606	628	651	674	697	719	742	764	783	787	809	847	867	895	926	955	988	1018	1051	1084	1112	1144	1176	1230	1270	1310	1351	1390	1429	1467	1498	1530	1556	1574	1593	1611	1629	1648	1666
4	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	528	568	598	620	642	665	687	710	733	754	773	777	798	835	855	884	914	943	975	1005	1037	1069	1097	1129	1160	1214	1254	1293	1333	1372	1410	1447	1479	1510	1535	1553	1572	1590	1607	1626	1644
4	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	520	560	590	612	634	656	678	700	723	744	762	766	788	824	844	872	902	930	962	991	1023	1055	1083	1114	1145	1197	1237	1275	1315	1353	1391	1428	1459	1489	1515	1532	1551	1568	1586	1604	1621
4	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	513	552	582	603	625	647	669	690	713	734	752	756	777	813	832	860	889	917	949	978	1009	1040	1068	1099	1129	1181	1220	1258	1297	1335	1372	1408	1439	1469	1494	1511	1529	1547	1564	1582	1599
4	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	506	545	574	595	616	638	660	681	703	723	741	745	766	802	821	848	877	905	936	964	995	1026	1053	1083	1113	1164	1203	1240	1279	1316	1353	1389	1419	1448	1473	1490	1508	1525	1542	1560	1577
4	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	499	537	566	587	608	629	650	671	693	713	731	735	755	790	809	836	864	892	923	951	981	1011	1038	1068	1098	1148	1186	1223	1261	1298	1334	1369	1399	1428	1452	1469	1487	1504	1520	1538	1555
4	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	478	514	541	561	582	602	622	643	663	683	699	703	723	756	775	800	827	854	883	910	939	968	994	1022	1051	1099	1135	1170	1207	1242	1277	1311	1339	1367	1390	1406	1423	1439	1455	1472	1488
4	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	496	556	591	619	639	658	674	690	706	717	745	769	789	806	828	855	873	895	915	939	974	1007	1043	1078	1113	1153	1186	1237	1269	1309	1369	1421	1463	1500	1522	1576	1603	1632	1660	1687	1716
4	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	471	528	561	588	607	625	640	655	671	681	708	731	750	766	787	812	829	850	869	892	925	957	991	1024	1057	1095	1127	1175	1206	1244	1301	1350	1390	1425	1446	1497	1523	1550	1577	1603	1630
4	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	446	500	532	557	575	592	607	621	635	645	670	692	710	725	745	769	786	805	823	845	877	906	939	970	1002	1038	1067	1113	1142	1178	1232	1279	1317	1350	1370	1418	1443	1469	1494	1518	1544
4	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	422	473	502	526	543	559	573	586	600	609	633	654	671	685	704	727	742	761	778	798	828	856	887	916	946	980	1008	1051	1079	1113	1164	1208	1244	1275	1294	1340	1363	1387	1411	1434	1459
4	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	397	445	473	495	511	526	539	552	565	574	596	615	631	645	662	684	698	716	732	751	779	806	834	862	890	922	949	990	1015	1047	1095	1137	1170	1200	1218	1261	1282	1306	1328	1350	1373
4	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	372	417	443	464	479	493	505	517	529	538	559	577	592	604	621	641	655	671	686	704	730	755	782	808	835	865	889	928	952	982	1027	1066	1097	1125	1141	1182	1202	1224	1245	1265	1287
4	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	367	411	437	458	473	487	499	511	522	531	551	569	584	596	613	633	646	662	677	695	721	745	772	798	824	853	878	915	939	969	1013	1052	1083	1110	1126	1166	1186	1208	1228	1248	1270
4	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	362	406	431	452	466	480	492	504	515	523	544	561	576	588	604	624	637	653	668	685	711	735	761	787	812	842	866	903	926	956	999	1037	1068	1095	1111	1150	1170	1191	1212	1232	1253
4	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	357	400	426	446	460	474	485	497	508	516	536	554	568	580	596	616	629	644	659	676	701	725	751	776	801	830	854	891	914	942	986	1023	1053	1080	1096	1135	1154	1175	1195	1215	1236
4	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	352	395	420	439	454	467	479	490	501	509	529	546	560	572	588	607	620	635	650	667	692	715	741	765	790	819	842	878	901	929	972	1009	1039	1065	1081	1119	1138	1159	1179	1198	1218
4	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	347	389	414	433	447	461	472	483	494	502	521	538	552	564	580	598	611	626	640	657	682	705	730	755	779	807	830	866	888	916	958	995	1024	1050	1065	1103	1122	1142	1162	1181	1201
4	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	332	373	396	415	428	441	452	462	473	480	499	515	529	540	555	573	585	600	613	629	653	675	699	722	746	773	795	829	850	877	917	952	980	1005	1020	1056	1074	1093	1112	1130	1150
4	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	519	583	619	649	670	690	706	723	739	751	781	805	826	845	868	895	914	937	958	983	1021	1055	1092	1130	1166	1208	1243	1296	1330	1372	1434	1488	1532	1572	1595	1651	1680	1709	1739	1768	1797
4	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	493	554	588	617	636	655	671	687	702	713	742	765	785	803	825	850	868	890	910	934	970	1002	1037	1073	1108	1148	1181	1231	1263	1303	1362	1414	1455	1493	1515	1568	1596	1624	1652	1680	1707
4	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	467	525	557	584	603	621	635	651	665	676	703	724	743	760	781	805	823	843	862	885	919	949	983	1017	1049	1087	1119	1166	1197	1235	1291	1339	1379	1415	1435	1486	1512	1538	1565	1591	1617
4	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	441	496	526	552	569	586	600	615	628	638	664	684	702	718	738	761	777	796	814	836	868	897	928	960	991	1027	1057	1102	1130	1166	1219	1265	1302	1336	1356	1403	1428	1453	1478	1503	1527
4	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	415	466	495	519	536	552	565	578	591	601	625	644	661	676	694	716	731	750	766	786	817	844	874	904	933	966	994	1037	1064	1098	1147	1190	1226	1258	1276	1321	1344	1367	1391	1414	1438
4	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	389	437	464	487	502	517	529	542	554	563	586	604	619	634	651	671	685	703	718	737	766	791	819	847	874	906	932	972	997	1029	1075	1116	1149	1179	1196	1238	1260	1282	1304	1326	1348
4	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	384	431	458	480	496	511	522	535	547	556	578	596	611	625	642	662	676	693	709	727	756	781	808	836	863	894	920	959	984	1015	1061	1101	1134	1163	1180	1222	1243	1265	1287	1308	1330
4	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	379	426	452	474	489	504	515	528	539	548	570	588	603	617	634	653	667	684	699	718	745	770	797	825	851	882	907	946	971	1002	1047	1086	1118	1148	1164	1205	1226	1248	1269	1291	1312
4	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	374	420	446	467	482	497	508	521	532	541	562	580	595	608	625	644	658	675	690	708	735	760	786	814	840	870	895	933	958	988	1032	1071	1103	1132	1148	1189	1210	1230	1252	1273	1294
4	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	368	414	439	461	476	490	501	513	525	533	555	572	586	600	616	635	649	665	680	698	725	749	775	802	828	858	883	920	944	974	1018	1056	1088	1116	1132	1172	1193	1213	1235	1255	1276
4	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	363	408	433	454	469	483	494	506	517	526	547	563	578	591	608	626	640	656	671	688	715	738	764	791	816	846	870	907	931	960	1004	1042	1072	1100	1116	1156	1176	1196	1217	1238	1258
4	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	348	391	415	435	449	462	473	484	495	503	523	539	553	566	582	600	612	628	642	659	684	707	732	757	781	809	833	868	891	919	961	997	1026	1053	1069	1106	1126	1145	1165	1185	1204
4	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	543	609	647	678	700	721	738	756	773	785	816	842	864	883	907	936	956	980	1002	1028	1067	1103	1142	1181	1219	1263	1299	1355	1390	1434	1500	1556	1602	1643	1667	1726	1756	1787	1818	1848	1879
4	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	516	579	615	644	665	685	701	718	734	746	775	800	821	839	862	889	908	931	952	977	1014	1048	1085	1122	1158	1200	1234	1287	1320	1362	1425	1478	1522	1561	1584	1640	1668	1698	1727	1756	1785
4	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	489	548	582	610	630	649	664	680	696	706	734	758	778	795	816	842	860	882	902	925	960	993	1028	1063	1097	1137	1169	1219	1251	1291	1350	1400	1442	1479	1500	1553	1580	1608	1636	1663	1691
4	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	462	518	550	576	595	613	627	643	657	667	694	716	734	751	771	796	813	833	852	874	907	938	971	1004	1036	1074	1104	1152	1181	1219	1275	1323	1362	1397	1417	1467	1493	1519	1545	1571	1597
4	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	434	487	518	542	560	577	590	605	618	628	653	674	691	706	726	749	765	784	802	822	854	882	914	945	975	1010	1039	1084	1112	1147	1200	1245	1282	1314	1334	1381	1405	1430	1454	1478	1503
4	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	407	457	485	508	525	541	553	567	580	589	612	631	648	662	680	702	717	735	751	771	800	827	856	886	914	947	974	1016	1042	1075	1125	1167	1201	1232	1250	1294	1317	1340	1363	1386	1409

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	402	451	479	502	518	534	546	559	572	581	604	623	639	653	671	693	707	725	741	761	790	816	845	874	902	935	961	1003	1029	1061	1110	1151	1185	1216	1234	1277	1299	1322	1345	1368	1390
4	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	396	445	472	495	511	526	539	552	564	573	596	615	631	645	662	683	698	715	731	750	779	805	834	862	890	922	948	989	1015	1047	1095	1136	1169	1199	1217	1260	1282	1305	1327	1349	1372
4	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	391	438	466	488	504	519	531	544	557	565	588	606	622	636	653	674	688	706	721	740	768	794	822	850	878	909	935	976	1001	1032	1080	1120	1153	1183	1200	1243	1264	1287	1309	1331	1353
4	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	386	432	459	481	497	512	524	537	549	557	579	598	613	627	644	665	679	696	711	730	758	783	811	839	865	897	922	962	987	1018	1065	1105	1137	1167	1184	1225	1247	1269	1291	1312	1334
4	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	380	426	453	475	490	505	517	529	541	549	571	589	605	618	635	655	669	686	701	720	747	772	799	827	853	884	909	948	973	1004	1050	1089	1121	1150	1167	1208	1229	1251	1273	1294	1315
4	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	364	408	433	454	469	483	494	507	518	526	547	564	579	592	608	627	641	657	671	689	715	739	765	791	817	846	870	908	931	961	1005	1043	1073	1101	1117	1156	1177	1197	1218	1238	1259
4	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	566	636	676	708	731	752	770	788	806	820	852	878	901	922	947	977	997	1022	1045	1073	1114	1151	1192	1232	1272	1318	1356	1414	1451	1496	1565	1624	1672	1715	1740	1801	1832	1865	1897	1928	1961
4	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	538	604	642	673	694	714	731	749	766	779	809	834	856	876	900	928	947	971	993	1019	1058	1093	1132	1170	1208	1252	1288	1343	1378	1421	1487	1543	1588	1629	1653	1711	1740	1772	1802	1832	1863
4	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	509	572	608	637	658	677	693	709	725	738	767	790	811	830	852	879	897	920	940	966	1003	1036	1073	1109	1145	1186	1220	1273	1306	1346	1408	1462	1505	1543	1566	1621	1649	1678	1707	1735	1765
4	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	481	541	575	602	621	639	654	670	685	697	724	746	766	784	805	830	847	869	888	912	947	978	1013	1047	1081	1120	1153	1202	1233	1272	1330	1380	1421	1458	1479	1531	1557	1585	1612	1639	1667
4	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	453	509	541	566	585	602	616	630	645	656	682	702	721	738	758	782	798	818	836	858	891	921	954	986	1018	1054	1085	1131	1161	1197	1252	1299	1338	1372	1392	1441	1466	1492	1518	1542	1569
4	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	424	477	507	531	548	564	577	591	604	615	639	658	676	691	710	733	748	766	784	805	835	863	894	924	954	988	1017	1060	1088	1122	1174	1218	1254	1286	1305	1351	1374	1399	1423	1446	1471
4	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	419	471	500	524	541	556	570	583	596	607	630	650	667	682	701	723	738	756	773	794	824	852	882	912	941	975	1003	1046	1074	1107	1158	1202	1237	1269	1288	1333	1356	1380	1404	1427	1451
4	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	413	464	493	517	534	549	562	575	588	599	622	641	658	673	691	713	728	746	763	783	813	840	870	899	929	962	990	1032	1059	1092	1142	1186	1221	1252	1270	1315	1337	1361	1385	1407	1432
4	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	408	458	487	510	526	541	554	567	580	590	613	632	649	664	682	703	718	736	752	773	802	829	858	887	916	949	976	1018	1045	1077	1127	1169	1204	1235	1253	1297	1319	1343	1366	1388	1412
4	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	402	452	480	503	519	534	547	559	572	582	605	623	640	655	672	694	708	726	742	762	791	817	846	875	903	936	963	1004	1030	1062	1111	1153	1187	1218	1235	1279	1301	1324	1347	1369	1392
4	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	396	445	473	496	512	526	539	552	564	574	596	615	631	645	663	684	698	715	731	751	780	806	834	862	890	923	949	990	1016	1047	1095	1137	1170	1200	1218	1261	1282	1305	1328	1350	1373
4	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	379	426	453	474	490	504	516	528	540	549	571	588	604	618	634	655	668	685	700	719	746	771	799	825	852	883	909	947	972	1002	1049	1088	1120	1149	1166	1207	1227	1250	1271	1292	1314
4	0	Taxicab Vehicle-for-Hire 1	2807																																									
4	5	Taxicab Vehicle-for-Hire 1	2667																																								
4	10	Taxicab Vehicle-for-Hire 1	2526																																								
4	15	Taxicab Vehicle-for-Hire 1	2386																																								
4	20	Taxicab Vehicle-for-Hire 1	2246																																								
4	25	Taxicab Vehicle-for-Hire 1	2105																																								
4	26	Taxicab Vehicle-for-Hire 1	2077																																								
4	27	Taxicab Vehicle-for-Hire 1	2049																																								
4	28	Taxicab Vehicle-for-Hire 1	2021																																								
4	29	Taxicab Vehicle-for-Hire 1	1993																																								
4	30	Taxicab Vehicle-for-Hire 1	1965																																								
4	33	Taxicab Vehicle-for-Hire 1	1881																																								
4	0	Taxicab Vehicle-for-Hire 2	3906																																								
4	5	Taxicab Vehicle-for-Hire 2	3711																																								
4	10	Taxicab Vehicle-for-Hire 2	3515																																								
4	15	Taxicab Vehicle-for-Hire 2	3320																																								
4	20	Taxicab Vehicle-for-Hire 2	3125																																								
4	25	Taxicab Vehicle-for-Hire 2	2929																																								
4	26	Taxicab Vehicle-for-Hire 2	2890																																								
4	27	Taxicab Vehicle-for-Hire 2	2851																																								
4	28	Taxicab Vehicle-for-Hire 2	2812																																								
4	29	Taxicab Vehicle-for-Hire 2	2773																																								
4	30	Taxicab Vehicle-for-Hire 2	2734																																								
4	33	Taxicab Vehicle-for-Hire 2	2617																																								
4	0	Taxicab Vehicle-for-Hire 3	5004																																								
4	5	Taxicab Vehicle-for-Hire 3	4754																																								
4	10	Taxicab Vehicle-for-Hire 3	4504																																								
4	15	Taxicab Vehicle-for-Hire 3	4253																																								
4	20	Taxicab Vehicle-for-Hire 3	4003																																								
4	25	Taxicab Vehicle-for-Hire 3	3753																																								
4	26	Taxicab Vehicle-for-Hire 3	3703																																								
4	27	Taxicab Vehicle-for-Hire 3	3653																																								
4	28	Taxicab Vehicle-for-Hire 3	3603																																								
4	29	Taxicab Vehicle-for-Hire 3	3553																																								
4	30	Taxicab Vehicle-for-Hire 3	3503																																								
4	33	Taxicab Vehicle-for-Hire 3	3353																																								
4	0	Taxicab Vehicle-for-Hire 4	6103																																								
4	5	Taxicab Vehicle-for-Hire 4	5798																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	10	Taxicab Vehicle-for-Hire 4	5493																																								
4	15	Taxicab Vehicle-for-Hire 4	5188																																								
4	20	Taxicab Vehicle-for-Hire 4	4882																																								
4	25	Taxicab Vehicle-for-Hire 4	4577																																								
4	26	Taxicab Vehicle-for-Hire 4	4516																																								
4	27	Taxicab Vehicle-for-Hire 4	4455																																								
4	28	Taxicab Vehicle-for-Hire 4	4394																																								
4	29	Taxicab Vehicle-for-Hire 4	4333																																								
4	30	Taxicab Vehicle-for-Hire 4	4272																																								
4	33	Taxicab Vehicle-for-Hire 4	4089																																								
Commuter	0	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	740	796	838	869	902	933	965	996	1028	1057	1085	1091	1120	1172	1200	1240	1282	1323	1368	1411	1455	1500	1540	1585	1630	1703	1760	1813	1870	1926	1978	2032	2075	2119	2155	2180	2205	2230	2256	2282	2307
Commuter	5	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	703	756	796	826	857	886	917	946	977	1004	1031	1036	1064	1113	1140	1178	1218	1257	1300	1340	1382	1425	1463	1506	1548	1618	1672	1722	1776	1830	1879	1930	1971	2013	2047	2071	2095	2118	2143	2168	2192
Commuter	10	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	666	716	754	782	812	840	868	896	925	951	976	982	1008	1055	1080	1116	1154	1191	1231	1270	1309	1350	1386	1426	1467	1533	1584	1632	1683	1733	1780	1829	1867	1907	1939	1962	1984	2007	2030	2054	2076
Commuter	15	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	629	677	712	739	767	793	820	847	874	898	922	927	952	996	1020	1054	1090	1125	1163	1199	1237	1275	1309	1347	1385	1448	1496	1541	1589	1637	1681	1727	1764	1801	1832	1853	1874	1895	1918	1940	1961
Commuter	20	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	592	637	670	695	722	746	772	797	822	846	868	873	896	938	960	992	1026	1058	1094	1129	1164	1200	1232	1268	1304	1362	1408	1450	1496	1541	1582	1626	1660	1695	1724	1744	1764	1784	1805	1826	1846
Commuter	25	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	555	597	628	652	676	700	724	747	771	793	814	818	840	879	900	930	961	992	1026	1058	1091	1125	1155	1189	1222	1277	1320	1360	1402	1444	1483	1524	1556	1589	1616	1635	1654	1672	1692	1711	1730
Commuter	26	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	548	589	620	643	667	690	714	737	761	782	803	807	829	867	888	918	949	979	1012	1044	1077	1110	1140	1173	1206	1260	1302	1342	1384	1425	1464	1504	1535	1568	1595	1613	1632	1650	1669	1689	1707
Commuter	27	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	540	581	612	634	658	681	704	727	750	772	792	796	818	856	876	905	936	966	999	1030	1062	1095	1124	1157	1190	1243	1285	1323	1365	1406	1444	1483	1515	1547	1573	1591	1610	1628	1647	1666	1684
Commuter	28	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	533	573	603	626	649	672	695	717	740	761	781	786	806	844	864	893	923	953	985	1016	1048	1080	1109	1141	1174	1226	1267	1305	1346	1387	1424	1463	1494	1526	1552	1570	1588	1606	1624	1643	1661
Commuter	29	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	525	565	595	617	640	662	685	707	730	750	770	775	795	832	852	880	910	939	971	1002	1033	1065	1093	1125	1157	1209	1250	1287	1328	1367	1404	1443	1473	1504	1530	1548	1566	1583	1602	1620	1638
Commuter	30	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	518	557	587	608	631	653	675	697	720	740	759	764	784	820	840	868	897	926	958	988	1018	1050	1078	1109	1141	1192	1232	1269	1309	1348	1385	1422	1452	1483	1508	1526	1543	1561	1579	1597	1615
Commuter	33	Passenger Vehicle-for-Hire 1 (Passenger Vehicle)	496	533	561	582	604	625	647	667	689	708	727	731	750	785	804	831	859	886	917	945	975	1005	1032	1062	1092	1141	1179	1215	1253	1290	1325	1361	1390	1420	1444	1461	1477	1494	1512	1529	1546
Commuter	0	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	775	834	878	911	945	978	1011	1044	1077	1108	1136	1143	1174	1228	1257	1299	1343	1386	1433	1478	1525	1572	1614	1661	1707	1784	1844	1900	1959	2017	2072	2128	2174	2220	2257	2284	2310	2336	2364	2390	2417
Commuter	5	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	736	792	834	865	898	929	960	992	1023	1053	1079	1086	1115	1167	1194	1234	1276	1317	1361	1404	1449	1493	1533	1578	1622	1695	1752	1805	1861	1916	1968	2022	2065	2109	2144	2170	2194	2219	2246	2270	2296
Commuter	10	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	697	751	790	820	850	880	910	940	969	997	1022	1029	1057	1105	1131	1169	1209	1247	1290	1330	1372	1415	1453	1495	1536	1606	1660	1710	1763	1815	1865	1915	1957	1998	2031	2056	2079	2102	2128	2151	2175
Commuter	15	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	659	709	746	774	803	831	859	887	915	942	966	972	998	1044	1068	1104	1142	1178	1218	1256	1296	1336	1372	1412	1451	1516	1567	1615	1665	1714	1761	1809	1848	1887	1918	1941	1963	1986	2009	2031	2054
Commuter	20	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	620	667	702	729	756	782	809	835	862	886	909	914	939	982	1006	1039	1074	1109	1146	1182	1220	1258	1291	1329	1366	1427	1475	1520	1567	1614	1658	1702	1739	1776	1806	1827	1848	1869	1891	1912	1934
Commuter	25	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	581	625	658	683	709	733	758	783	808	831	852	857	880	921	943	974	1007	1039	1075	1108	1144	1179	1210	1246	1280	1338	1383	1425	1469	1513	1554	1596	1630	1665	1693	1713	1732	1752	1773	1792	1813
Commuter	26	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	573	617	650	674	699	724	748	773	797	820	841	846	869	909	930	961	994	1026	1060	1094	1128	1163	1194	1229	1263	1320	1365	1406	1450	1493	1533	1575	1609	1643	1670	1690	1709	1729	1749	1769	1789
Commuter	27	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	566	609	641	665	690	714	738	762	786	809	829	834	857	896	918	948	980	1012	1046	1079	1113	1148	1178	1213	1246	1302	1346	1387	1430	1472	1513	1553	1587	1621	1648	1667	1686	1705	1726	1745	1764
Commuter	28	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	558	600	632	656	680	704	728	752	775	798	818	823	845	884	905	935	967	998	1032	1064	1098	1132	1162	1196	1229	1284	1328	1368	1410	1452	1492	1532	1565	1598	1625	1644	1663	1682	1702	1721	1740
Commuter	29	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	550	592	623	647	671	694	718	741	765	787	807	812	834	872	892	922	954	984	1017	1049	1083	1116	1146	1179	1212	1267	1309	1349	1391	1432	1471	1511	1544	1576	1602	1622	1640	1659	1678	1697	1716
Commuter	30	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	542	584	615	638	661	685	708	731	754	776	795	800	822	860	880	909	940	970	1003	1035	1067	1100	1130	1163	1195	1249	1291	1330	1371	1412	1450	1490	1522	1554	1580	1599	1617	1635	1655	1673	1692
Commuter	33	Passenger Vehicle-for-Hire 2 (Passenger Vehicle)	519	559	588	610	633	655	677	699	722	742	761	766	787	823	842	870	900	929	960	990	1022	1053	1081	1113	1144	1195	1235	1273	1313	1351	1388	1426	1457	1487	1512	1530	1548	1565	1584	1601	1619
Commuter	0	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	811	872	918	952	988	1022	1057	1091	1126	1158	1188	1195	1227	1283	1314	1358	1404	1449	1498	1546	1594	1643	1687	1736	1785	1865	1927	1986	2048	2109	2167	2225	2272	2321	2360	2387	2415	2443	2471	2499	2527
Commuter	5	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	770	828	872	904	939	971	1004	1036	1070	1100	1129	1135	1166	1219	1248	1290	1334	1377	1423	1469	1514	1561	1603	1649	1696	1772	1831	1887	1946	2004	2059	2114	2158	2205	2242	2268	2294	2321	2347	2374	2401
Commuter	10	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	730	785	826	857	889	920	951	982	1013	1042	1069	1075	1104	1155	1183	1222	1264	1304	1348	1391	1435	1479	1518	1562	1606	1678	1734	1787	1843	1898	1950	2002	2045	2089	2124	2148	2173	2199	2224	2249	2274
Commuter	15	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	689	741	780	809	840	869	898	927	957	984	1010	1016	1043	1091	1117	1154	1193	1232	1273	1314	1355	1397	1434	1476	1517	1585	1638	1688	1741	1793	1842	1891	1931	1973	2006	2029	2053	2077	2100	2124	2148
Commuter	20	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	649	698	734	762	790	818	846	873	901	926	950	956	982	1026	1051	1086	1123	1159	1198	1237	1275	1314	1350	1389	1428	1492	1542	1589	1638	1687	1734	1780	1818	1857	1888	1910	1932	1954	1977	1999	2022
Commuter	25	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	608	654	688	714	741	766	793	818	844	868	891	896	920	962	985	1018	1053	1087	1123	1159	1195	1232	1265	1302	1339	1399	1445	1489	1536	1582	1625	1669	1704	1741	1770	1790	1811	1832	1853	1874	1895
Commuter	26	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	600	645	679	704	731	756	782	807	833	857	879	884	908	949	972	1005	1039	1072	1109	1144	1180	1216	1248	1285	1321	1380	1426	1470	1516	1561	1604	1646	1681	1718	1746	1766	1787	1808	1829	1849	1870
Commuter	27	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	592	637	670	695	721	746	772	796	822	845	867	872	896	937	959	991	1025	1058	1094	1129	1164	1199	1232	1267	1303	1361	1407	1450	1495	1540	1582	1624	1659	1694	1723	1743	1763	1783	1804	1824	1845
Commuter	28	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	584	628	661	685	711	736	761	786	811	834	855	860	883	924	946	978	1011	1043	1079	1113	1148	1183	1215	1250	1285	1343	1387	1430	1475	1518	1560	1602	1636	1671	1699	1719	1739	1759	1779	1799	1819
Commuter	29	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	576	619	652	676	701	726	750	775	799	822	843	848	871	911	933	964	997	1029	1064	1098	1132	1167	1198	1233	1267	1324	1368	1410	1454	1497	1539	1580	1613	1648	1676	1695	1715	1735	1754	1774	1794
Commuter	30	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	568	610	643	666	692	715	740	764	788	811	832	836	859	898	920	951	983	1014	1049	1082	1116	1150	1181	1215	1249	1305	1349	1390	1434	1476	1517	1557	1590	1625	1652	1671	1690	1710	1730	1749	1769
Commuter	33	Passenger Vehicle-for-Hire 3 (Passenger Vehicle)	543	584	615	638	662	685	708	731	754	776	796	801	822	860	880	910	941	971	1004	1036	1068	1101	1130	1163	1196	1250	1291	1331	1372	1413	1452	1491	1522	1555	1581	1599	1618	1637	1656	1674	1693
Commuter	0	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	846	910	958	994	1031	1067	1103	1139	1175	1208	1240	1247	1280	1339	1372	1417	1465	1512	1564	1613	1663	1715	1760	1812	1862	1946	2011	2072	2137	2201	2261	2322	2371	2422	2462	2491	2520	2549	2579	2608	2636
Commuter	5	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	804	864	910	944	979	1014	1048	1082	1116	1148	1178	1185	1216	1272	1303	1346	1392	1436	1486	1532	1580	1629	1672	1721	1769	1849	1910	1968	2030	2091	2148	2206	2252	2301	2339	2366	2394	2422	2450	2478	2504
Commuter	10	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	761	819	862	895	928	960	993	1025	1057	1087	1116	1122	1152	1205	1235	1275	1318	1361	1408	1452	1497	1543	1584	1631	1676	1751	1810	1865	1923	1981	2035	2090	2134	2180	2216	2242	2268	2294	2321	2347	2372
Commuter	15	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	719	773	814	845	876	907	938	968	999	1027	1054	1060	1088	1138	1166	1204	1245	1285	1329	1371	1414	1458	1496	1540	1583	1654	1709	1761	1816	1871	1922	1974	2015	2059	2093	2117	2142	2167	2192	2217	2241
Commuter	20	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	677	728	766	795	825	854	882	911	940	966	992	998	1024	1071	1098	1134	1172	1210	1251	1290	1330	1372	1408	1450	1490	1557	1609	1658	1710	1761	1809	1858	1897	1938	1970	1993	2016	2039	2063	2086	2109
Commuter	25	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	634	682	718	745	773	800	827	854	881	906	930	935	960	1004	1029	1063	1099	1134	1173	1210	1247	1286	1320	1359	1396	1459	1508	1554	1603	1651	1696	1741	1778	1816	1846	1868	1890	1912	1934	1956	1977
Commuter	26	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	626	673	709	736	763	790	816	843	869	894	918	923	947	991	1015	1049	1084	1119	1157	1194	1231	1269	1302	1341	1378	1440	1488	1533	1581	1629	1673	1718	1755	1792	1822	1843	1865	1886	1908	1930	1951
Commuter	27	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	618	664	699	726	753	779	805	831	858	882	905	910	934	977	1002	1034	1069	1104	1142	1177	1214	1252	1285	1323	1359	1421	1468	1513	1560	1607	1651	1695	1731	1768	1797	1818	1840	1861	1883	1904	1924
Commuter	28	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	609	655	690	716	742	768	794	820	846	870	893	898	922	964	988	1020	1055	1089	1126	1161	1197	1235	1267	1305	1341	1401	1448	1492	1539	1585	1628	1672	1707	1744	1773	1794	1814	1835	1857	1878	1898
Commuter	29	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	601	646	680	706	732	758	783	809	834	858	880	885	909	951	974	1006	1040	1074	1110	1145	1181	1218	1250	1287	1322	1382	1428	1471	1517	1563	1605	1649	1683	1720	1748	1769	1789	1810	1831	1852	1872

TERR	DISC %	INSURANCE USE DESCRIPTION	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Commuter	30	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	592	637	671	696	722	747	772	797	822	846	868	873	896	937	960	992	1025	1058	1095	1129	1164	1200	1232	1268	1303	1362	1408	1450	1496	1541	1583	1625	1660	1695	1723	1744	1764	1784	1805	1826	1845
Commuter	33	Passenger Vehicle-for-Hire 4 (Passenger Vehicle)	567	610	642	666	691	715	739	763	787	809	831	835	858	897	919	949	982	1013	1048	1081	1114	1149	1179	1214	1248	1304	1347	1388	1432	1475	1515	1556	1589	1623	1650	1669	1688	1708	1728	1747	1766
Commuter	0	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	565	635	673	706	730	751	770	787	804	818	850	876	899	920	945	974	995	1021	1044	1071	1111	1148	1189	1230	1269	1315	1353	1410	1447	1493	1561	1620	1667	1711	1737	1797	1829	1861	1893	1925	1956
Commuter	5	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	537	603	639	671	693	713	731	748	764	777	807	832	854	874	898	925	945	970	992	1017	1055	1091	1130	1168	1206	1249	1285	1339	1375	1418	1483	1539	1584	1625	1650	1707	1738	1768	1798	1829	1858
Commuter	10	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	508	571	606	635	657	676	693	708	724	736	765	788	809	828	850	877	895	919	940	964	1000	1033	1070	1107	1142	1183	1218	1269	1302	1344	1405	1458	1500	1540	1563	1617	1646	1675	1704	1732	1760
Commuter	15	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	480	540	572	600	620	638	654	669	683	695	722	745	764	782	803	828	846	868	887	910	944	976	1011	1045	1079	1118	1150	1198	1230	1269	1327	1377	1417	1454	1476	1527	1555	1582	1609	1636	1663
Commuter	20	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	452	508	538	565	584	601	616	630	643	654	680	701	719	736	756	779	796	817	835	857	889	918	951	984	1015	1052	1082	1128	1158	1194	1249	1296	1334	1369	1390	1438	1463	1489	1514	1540	1565
Commuter	25	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	424	476	505	529	547	563	577	590	603	613	637	657	674	690	709	730	746	766	783	803	833	861	892	922	952	986	1015	1057	1085	1120	1171	1215	1250	1283	1303	1348	1372	1396	1420	1444	1467
Commuter	26	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	418	470	498	522	540	556	570	582	595	605	629	648	665	681	699	721	736	756	773	793	822	850	880	910	939	973	1001	1043	1071	1105	1155	1199	1234	1266	1285	1330	1353	1377	1401	1424	1447
Commuter	27	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	412	464	491	515	533	548	562	575	587	597	620	639	656	672	690	711	726	745	762	782	811	838	868	898	926	960	988	1029	1056	1090	1140	1183	1217	1249	1268	1312	1335	1359	1382	1405	1428
Commuter	28	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	407	457	485	508	526	541	554	567	579	589	612	631	647	662	680	701	716	735	752	771	800	827	856	886	914	947	974	1015	1042	1075	1124	1166	1200	1232	1251	1294	1317	1340	1363	1386	1408
Commuter	29	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	401	451	478	501	518	533	547	559	571	581	603	622	638	653	671	692	706	725	741	760	789	815	844	873	901	934	961	1001	1027	1060	1108	1150	1184	1215	1233	1276	1299	1321	1344	1367	1389
Commuter	30	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	395	444	471	494	511	526	539	551	563	573	595	613	629	644	661	682	696	715	731	750	778	804	832	861	888	920	947	987	1013	1045	1093	1134	1167	1198	1216	1258	1280	1303	1325	1347	1369
Commuter	33	Passenger Vehicle-for-Hire 1 (Truck 4,499 kg or less GVW)	379	425	451	473	489	503	516	527	539	548	569	587	602	616	633	653	667	684	699	718	744	769	797	824	850	881	907	945	969	1000	1046	1085	1117	1146	1164	1204	1225	1247	1268	1290	1311
Commuter	0	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	592	665	705	739	764	786	806	825	843	857	891	917	942	964	990	1021	1043	1069	1093	1122	1164	1202	1245	1288	1330	1377	1418	1477	1516	1564	1636	1697	1747	1793	1819	1882	1916	1949	1983	2016	2049
Commuter	5	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	562	632	670	702	726	747	766	784	801	814	846	871	895	916	940	970	991	1016	1038	1066	1106	1142	1183	1224	1263	1308	1347	1403	1440	1486	1554	1612	1660	1703	1728	1788	1820	1852	1884	1915	1947
Commuter	10	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	533	598	634	665	688	707	725	742	759	771	802	825	848	868	891	919	939	962	984	1010	1048	1082	1120	1159	1197	1239	1276	1329	1364	1408	1472	1527	1572	1614	1637	1694	1724	1754	1785	1814	1844
Commuter	15	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	503	565	599	628	649	668	685	701	717	728	757	779	801	819	841	868	887	909	929	954	989	1022	1058	1095	1130	1170	1205	1255	1289	1329	1391	1442	1485	1524	1546	1600	1629	1657	1686	1714	1742
Commuter	20	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	474	532	564	591	611	629	645	660	674	686	713	734	754	771	792	817	834	855	874	898	931	962	996	1030	1064	1102	1134	1182	1213	1251	1309	1358	1398	1434	1455	1506	1533	1559	1586	1613	1639
Commuter	25	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	444	499	529	554	573	589	604	619	632	643	668	688	706	723	742	766	782	802	820	841	873	901	934	966	997	1033	1063	1108	1137	1173	1227	1273	1310	1345	1364	1411	1437	1462	1487	1512	1537
Commuter	26	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	438	492	522	547	565	582	596	610	624	634	659	679	697	713	733	756	772	791	809	830	861	889	921	953	984	1019	1049	1093	1122	1157	1211	1256	1293	1327	1346	1393	1418	1442	1467	1492	1516
Commuter	27	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	432	485	515	539	558	574	588	602	615	626	650	669	688	704	723	745	761	780	798	819	850	877	909	940	971	1005	1035	1078	1107	1142	1194	1239	1275	1309	1328	1374	1399	1423	1448	1472	1496
Commuter	28	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	426	479	508	532	550	566	580	594	607	617	642	660	678	694	713	735	751	770	787	808	838	865	896	927	958	991	1021	1063	1092	1126	1178	1222	1258	1291	1310	1355	1380	1403	1428	1452	1475
Commuter	29	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	420	472	501	525	542	558	572	586	599	608	633	651	669	684	703	725	741	759	776	797	826	853	884	914	944	978	1007	1049	1076	1110	1162	1205	1240	1273	1291	1336	1360	1384	1408	1431	1455
Commuter	30	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	414	465	493	517	535	550	564	577	590	600	624	642	659	675	693	715	730	748	765	785	815	841	871	902	931	964	993	1034	1061	1095	1145	1188	1223	1255	1273	1317	1341	1364	1388	1411	1434
Commuter	33	Passenger Vehicle-for-Hire 2 (Truck 4,499 kg or less GVW)	397	446	472	495	512	527	540	553	565	574	597	614	631	646	663	684	699	716	732	752	780	805	834	863	891	923	950	990	1016	1048	1096	1137	1170	1201	1219	1261	1284	1306	1329	1351	1373
Commuter	0	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	619	696	737	773	799	822	843	862	881	896	931	959	984	1007	1035	1067	1090	1118	1143	1173	1217	1257	1302	1347	1390	1440	1482	1544	1585	1635	1710	1774	1826	1874	1902	1968	2003	2038	2073	2108	2142
Commuter	5	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	588	661	700	734	759	781	801	819	837	851	884	911	935	957	983	1014	1035	1062	1086	1114	1156	1194	1237	1280	1320	1368	1408	1467	1506	1553	1624	1685	1735	1780	1807	1870	1903	1936	1969	2003	2035
Commuter	10	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	557	626	663	696	719	740	759	776	793	806	838	863	886	906	931	960	981	1006	1029	1056	1095	1131	1172	1212	1251	1296	1334	1390	1426	1471	1539	1597	1643	1687	1712	1771	1803	1834	1866	1897	1928
Commuter	15	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	526	592	626	657	679	699	717	733	749	762	791	815	836	856	880	907	926	950	972	997	1034	1068	1107	1145	1181	1224	1260	1312	1347	1390	1453	1508	1552	1593	1617	1673	1703	1732	1762	1792	1821
Commuter	20	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	495	557	590	618	639	658	674	690	705	717	745	767	787	806	828	854	872	894	914	938	974	1006	1042	1078	1112	1152	1186	1235	1268	1308	1368	1419	1461	1499	1522	1574	1602	1630	1658	1686	1714
Commuter	25	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	464	522	553	580	599	616	632	646	661	672	698	719	738	755	776	800	817	838	857	880	913	943	976	1010	1042	1080	1111	1158	1189	1226	1282	1330	1369	1405	1426	1476	1502	1528	1555	1581	1606
Commuter	26	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	458	515	545	572	591	608	624	638	652	663	689	710	728	745	766	790	807	827	846	868	901	930	963	997	1029	1066	1097	1143	1173	1210	1265	1313	1351	1387	1407	1456	1482	1508	1534	1560	1585
Commuter	27	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	452	508	538	564	583	600	615	629	643	654	680	700	718	735	756	779	796	816	834	856	888	918	950	983	1015	1051	1082	1127	1157	1194	1248	1295	1333	1368	1388	1437	1462	1488	1513	1539	1564
Commuter	28	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	446	501	531	557	575	592	607	621	634	645	670	690	708	725	745	768	785	805	823	845	876	905	937	970	1001	1037	1067	1112	1141	1177	1231	1277	1315	1349	1369	1417	1442	1467	1493	1518	1542
Commuter	29	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	439	494	523	549	567	584	599	612	626	636	661	681	699	715	735	758	774	794	812	833	864	892	924	956	987	1022	1052	1096	1125	1161	1214	1260	1296	1331	1350	1397	1422	1447	1472	1497	1521
Commuter	30	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	433	487	516	541	559	575	590	603	617	627	652	671	689	705	724	747	763	783	800	821	852	880	911	943	973	1008	1037	1081	1109	1144	1197	1242	1278	1312	1331	1378	1402	1427	1451	1476	1499
Commuter	33	Passenger Vehicle-for-Hire 3 (Truck 4,499 kg or less GVW)	415	466	494	518	535	551	565	578	590	600	624	643	659	675	693	715	730	749	766	786	815	842	872	902	931	965	993	1034	1062	1095	1146	1189	1223	1256	1274	1319	1342	1365	1389	1412	1435
Commuter	0	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	646	726	769	806	834	858	880	900	919	935	972	1001	1027	1051	1080	1114	1138	1166	1193	1224	1270	1312	1358	1405	1451	1502	1547	1612	1654	1706	1784	1852	1906	1956	1985	2053	2090	2126	2164	2200	2236
Commuter	5	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	614	690	731	766	792	815	836	855	873	888	923	951	976	998	1026	1058	1081	1108	1133	1163	1206	1246	1290	1335	1378	1427	1470	1531	1571	1621	1695	1759	1811	1858	1886	1950	1985	2020	2056	2090	2124
Commuter	10	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	581	653	692	725	751	772	792	810	827	841	875	901	924	946	972	1003	1024	1049	1074	1102	1143	1181	1222	1264	1306	1352	1392	1451	1489	1535	1606	1667	1715	1760	1786	1848	1881	1913	1948	1980	2012
Commuter	15	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	549	617	654	685	709	729	748	765	781	795	826	851	873	893	918	947	967	991	1014	1040	1079	1115	1154	1194	1233	1277	1315	1370	1406	1450	1516	1574	1620	1663	1687	1745	1776	1807	1839	1870	1901
Commuter	20	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	517	581	615	645	667	686	704	720	735	748	778	801	822	841	864	891	910	933	954	979	1016	1050	1086	1124	1161	1202	1238	1290	1323	1365	1427	1482	1525	1565	1588	1642	1672	1701	1731	1760	1789
Commuter	25	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	484	544	577	604	625	643	660	675	689	701	729	751	770	788	810	835	853	874	895	918	952	984	1018	1054	1088	1126	1160	1209	1240	1279	1338	1389	1429	1467	1489	1540	1567	1594	1623	1650	1677
Commuter	26	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	478	537	569	596	617	635	651	666	680	692	719	741	760	778	799	824	842	863	883	906	940	971	1005	1040	1074	1111	1145	1193	1224	1262	1320	1370	1410	1447	1469	1519	1547	1573	1601	1628	1655
Commuter	27	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	472	530	561	588	609	626	642	657	671	683	710	731	750	767	788	813	831	851	871	894	927	958	991	1026	1059	1096	1129	1177	1207	1245	1302	1352	1391	1428	1449	1499	1526	1552	1580	1606	1632
Commuter	28	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	465	523	554	580	600	618	634	648	662	673	700	721	739	757	778	802	819	840	859	881	914	945	978	1012	1045	1081	1114	1161	1191	1228	1284	1333	1372	1408	1429	1478	1505	1531	1558	1584	1610
Commuter	29	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	459	515	546	572	592	609	625	639	652	664	690	711	729	746	767	791	808	828	847	869	902	932	964	998	1030	1066	1098	1145	1174	1211	1267	1315	1353	1389	1409	1458	1484	1509	1536	1562	1588
Commuter	30	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	452	508	538	564	584	601	616	630	643	654	680	701	719	736	756	780	797	816	835	857	889	918	951	983	1016	1051	1083	1128	1158	1194	1249	1296	1334	1369	1389	1437	1463	1488	1515	1540	1565
Commuter	33	Passenger Vehicle-for-Hire 4 (Truck 4,499 kg or less GVW)	433	486	515	540	559	575	590	603	616	626	651	671	688	704	724	746	762	781	799	820	851	879	910	941	972	1006	1036	1080	1108	1143	1195	1241	1277	1311	1330	1376	1400	1424	1450	1474	1498

⚡ SPECIAL WEATHER STATEMENT IN EFFECT

Winnipeg Free Press

Business booming for local ride-hailing companies

TAXI INDUSTRY IN UPSET DUE TO INDUSTRY RESTRICTIONS

By: Ryan Thorpe
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BORIS MINKEVICH / WINNIPEG FREE PRESS

Taxi drivers protest at City Hall about working conditions and abuse on the job.

Two months after their drivers first hit the road, local ride-hailing companies say business is good in Winnipeg and, if anything, is getting even better.

"I would say things have been anything but quiet. The market has been growing from the beginning of us getting our services on the road. Our top day for rides fell on a (Winnipeg) Jets (NHL playoff) game. We saw almost 3,000 rides that day," said TappCar Inc. spokesman John Morris.

"We're experiencing a high volume of demand with people attending the game, the Whiteout street parties, or just the downtown in general. The deeper the Jets go in the playoffs, the better the business is for TappCar."

Ride-hailing services were officially introduced in the province March 1. Since then, two — Edmonton-based TappCar and Calgary-based Cowboy Taxi Ltd. — have rolled out their Winnipeg operations. TappCar has roughly 250 drivers on Manitoba's roads, while Cowboy Taxi has 34 active drivers, according to spokesmen for the companies.

Two other ride-hailing services — local startup U2Go and Toronto-based Instaryde — had previously indicated they're looking to break into the Winnipeg market, but have yet to get operations up and running. According to its website, U2Go is eyeing a May launch date.



MIKAELA MACKENZIE / WINNIPEG FREE PRESS
Ride hailing company TappCar began operating in Winnipeg in early March. The company is now up to about 100 drivers.

The rise of the ride-hailing services in Manitoba comes in the midst of some chaos in the traditional taxi industry.

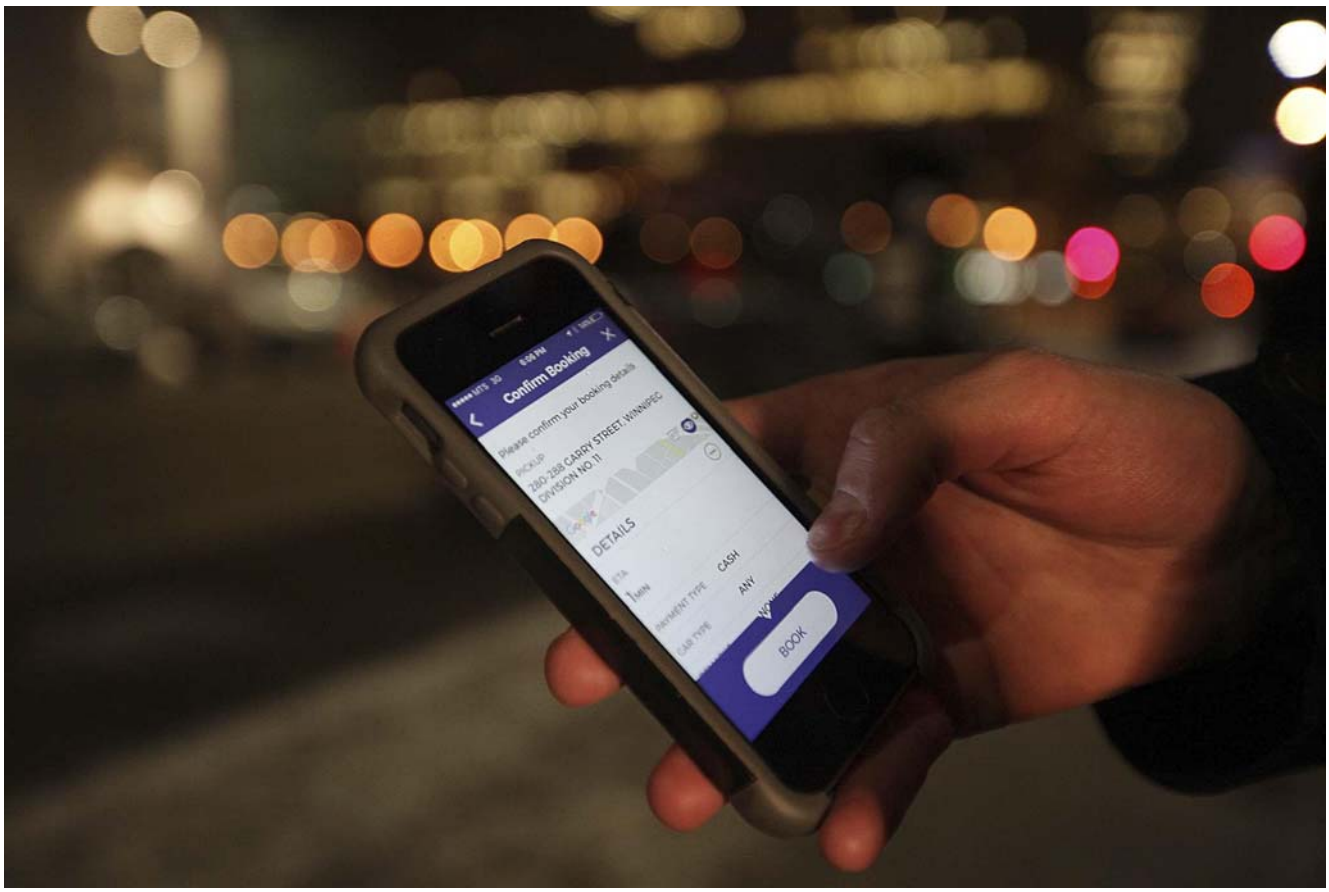
On Thursday, hundreds of Winnipeg cab drivers demonstrated at Polo Park shopping centre, before gathering again Friday afternoon at city hall, to protest — in part — restrictions from taxi industry owners who don't want them picking up part-time work with local ride-hailing services.

Cowboy Taxi has received more than 500 driver applications, according to owner Mo Benini (although it remains unclear how many of them are also employed with one of the city's taxi companies). When asked why Cowboy Taxi only has 34 drivers when it has received hundreds of applications, Benini cited selectiveness on his part, as well as a lack of paperwork by many of the applicants.

"We want to make sure we get the right drivers. They also have to have all of the right documents. We know there are some drivers who think they can work because they've been approved elsewhere, but that don't actually have the right documents," Benini said.

"But, overall, things have been good. We think Winnipeg is more driver-friendly and business-friendly than other (jurisdictions). There's a level playing field here. We're looking to bring on more drivers. We're activating drivers by the day or by the week, and deactivating others who aren't doing what they're supposed to."

As it currently stands, industry big shots Uber Technologies Inc. and Lyft Inc. remain on the outside looking in two months after Manitoba's Local Vehicles for Hire Act went into effect. The industry giants have rebuffed Manitoba Public Insurance's plan for ride-hailing service drivers, saying it makes operating in the province economically unfeasible.



RUTH BONNEVILLE / WINNIPEG FREE PRESS FILES
Local ride-hailing services feel a deep playoff run by the Winnipeg Jets is good for business.

That stance has left a market vacuum lesser-known outfits are happy to try and fill.

Benini counters Uber and Lyft's claims, saying rather than getting it wrong, MPI got its insurance policy right. The fact MPI didn't bend over backwards for Uber and Lyft is why those companies have, so far, refused to come to Manitoba, he said.

"They made the fairest insurance product in Canada, compared to what each of the other provinces did," Benini said.

However, Cowboy Taxi's owner does have one complaint about the rules governing ride-hailing in Winnipeg: under the city's vehicle-for-hire bylaw, ride-hailing companies are allowed to accept bookings online or through their apps, but not over the phone. Benini said phone booking shouldn't be the exclusive right of taxi cab companies and he'd like to see that restriction lifted.

"Someone should be able to book with us through their phone, whether they want to call, use the app, or book online. We've had lots of people who've tried to call to make a booking, but we can't take phone bookings," he said.

"We ask them to download the app, but some of them don't. They prefer calling... I think that rule is the only disadvantage to business in Winnipeg, because in other areas, we're allowed phone bookings."

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‘We need more drivers’: Rideshare company looking to add more cars to Winnipeg roads



By Brittany Greenslade
Senior Reporter/Anchor Global News



TappCar officially launched in Winnipeg.

Global News

It’s been two months since new ride sharing services rolled out in Winnipeg.

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Winnipeg currently has two different options: Calgary-based Cowboy Taxi and Edmonton-based TappCar.

READ MORE: Winnipeg ridesharing: TappCar Vs. Traditional cab

TappCar said its drivers are so busy they need to look at getting more on the road.

> “It’s been going fantastic,” Spokesperson John Morris said. “Since March 2 we’ve had over 30,000 rides provided. We started with less than 50 drivers and now we are up to about 250 drivers. We need more drivers.”

Morris said the company hit a milestone this month during the playoffs.

"Those Jets nights have been fantastic in terms of rides provided," Morris said. We had at a peak 3,000 rides in one evening because of a Jets game."

WATCH: Winnipeg taxis make changes ahead of ride sharing competition

Cowboy Taxi Ltd. CEO Mo Benini said his company currently has nearly 50 drivers on the road in Winnipeg.

Benini said businesses was slow at the start as many users were mistakenly downloading the Calgary app and were unable to book rides.

"It was a bit of a hiccup," he said. "We're taking baby steps."

But the company said when business speeds up they will be ready to go.

> "We have close to 50 drivers," Benini said. "We have around 70 that are pre-approved but we haven't activated them yet because we don't have enough business to add those drivers on."

Legislation was passed in November to make ride sharing legal in Manitoba, with March 1 being the date when companies could put their drivers on the road.

According to a new survey released by Prairie Research Association Wednesday, 83 per cent of Winnipeggers reported being aware of the services but only 1 per cent had used them.

The survey also stated that younger adults, aged 18 to 29, are the least likely to be aware of the services.

READ MORE: TappCar takes advantage after Uber and Lyft snub Winnipeg

View the full survey here:



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DRIVER SAFETY RATING

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

DRIVER SAFETY RATING....3
DSR.1 INTRODUCTION....3
DSR.2 PUBLIC UTILTIES BOARD ORDER NO. 130/17....3
DSR.3 PUBLIC UTILTIES BOARD ORDER NO. 29/18 (APPLICATION FOR REVIEW AND VARIANCE OF ORDER NO. 130/17)....5
DSR.4 DSR TECHNICAL CONFERENCE....6
DSR.4.1 DSR-based Vehicle Premium Discounts....7
DSR.4.2 DSR-based Driver Premium....7
DSR.4.3 Alternatives....8
DSR.5 DSR STRATEGY....10
DSR.5.1 Public Consultation....11
DSR.6 DATA COLLECTION COSTS....12
DSR.7 DSR IMPLEMENTATION COSTS....13
DSR.8 DSR STATISTICAL FRAMEWORK....13
DSR.9 CONCLUSIONS AND NEXT STEPS....15

DRIVER SAFETY RATING

DSR.1 INTRODUCTION

Manitoba Public Insurance (MPI or the Corporation) introduced the Driver Safety Rating (DSR) system in 2010 to replace the Merit Discount Program (bonus/malus). The DSR system was made possible by the merger between the provincial Department of Driver and Vehicle Licensing (DDVL) and MPI in 2004 and the resultant integration of licensing with vehicle registration and insurance. The *Driver Safety Rating System Regulation* is prescribed in Manitoba Regulation 13/2009 and was registered on January 21, 2009. Several changes designed to improve the DSR system, mainly to charge more appropriate rates based on driver risk, have been implemented over the years. The Corporation continues to monitor the experience of drivers at various DSR levels, and provide adjustments to the system as necessary to ensure that risk is reflected in driver and vehicle premiums under the DSR scale. Adjustments to the DSR will continue to be considered to allow for stable and predictable rates into the future.

DSR.2 PUBLIC UTILTIES BOARD ORDER NO. 130/17

In the 2018 GRA, MPI applied for an increase in driver premium revenues of $17.5 million, equivalent to an overall premium revenue increase of 1.8%[1]. The proposed changes applied only to driver premiums on the demerit side of the DSR scale.

Although the proposed premiums were determined on a policy basis rather than on an actuarial basis, they are guided by the statistical information available. MPI expected this policy decision to:

1. Reduce the rate indication for Basic vehicle premiums

[1] Manitoba Public Insurance 2018 Rate Application Volume 1, June 16, 2017, page 3 of Legal Application

2. Reduce the largest negative discrepancy between premiums paid per driver (both vehicle and driver premiums) and the claims costs per driver at each DSR level

3. Further incentivize better driver behaviour, thereby improving the road safety and loss prevention strategies

The Public Utilities Board (the Board) recognized the importance of providing disincentives for engaging in high-risk driving behaviour and maintaining public confidence in the fact that riskier drivers will pay more than safe drivers. The Board agreed in principle that there should be a change to the DSR Scale and that drivers on the merit side should not be assessed an increase in premiums. However, the Board also expressed its concern regarding the lack of actuarial evidence supporting MPI's evaluation of driver risk and set out its expectation that MPI will use robust analytical tools and provide statistically driven, performance-based evaluations to support requests for changes to driver premiums and vehicle premium discounts in future Rate Applications.

Consequently, the Board issued the following directives related to the DSR:

11.7 There shall be a Technical Conference, facilitated by the Board, on the availability and practicality of other analytical tools and ratemaking methodologies to better determine DSR rates and vehicle premium discounts based on principal driver rating rather than simply registered driver rating. The date of the Technical Conference is to be mutually agreed upon as between the Board and MPI, but shall be sufficiently early such that the information shared in the Technical Conference will be included in the 2019 GRA.

11.8 In the 2019 GRA, the Corporation shall file proposed driver premium rates that are more statistically consistent with the estimated average claims cost per driver for each level on the demerit side of the DSR scale.

11.9 In the 2021 GRA, the Corporation shall file proposed vehicle premium discounts that are actuarially indicated based on principal driver performance evaluation

DSR.3 PUBLIC UTILTIES BOARD ORDER NO. 29/18 (APPLICATION FOR REVIEW AND VARIANCE OF ORDER NO. 130/17)

MPI believed that the Board did not fully consider in the 2018 GRA, the implications of requiring the DSR Scale to be based on actuarial evidence as well as on the principal driver rating as opposed to the registered owner rating. The Corporation took the position that, while changes to the framework of the DSR Scale may ultimately be appropriate; changes should only be made after considering all of the evidence. Accordingly, MPI sought a review of Board Order No. 130/17 and proposed a variance by replacing Directives 11.7 to 11.9 with the following:

1. A Technical Conference be held prior to the filing of the 2019 GRA which will explore:

    a) The mechanics of the current Driver Safety Rating program, including information related to using the registered owner's driving rating, as opposed to primary driver, to establish vehicle premium discounts; and

    b) The availability and practicality of other analytical tools and ratemaking methodologies to determine DSR rates and vehicle premium discounts based on principal driver rating rather than registered driver rating.

2. In the 2019 GRA, MPI will file a review of the existing Driver Safety Rating program and an assessment of available and practical analytical tools and ratemaking methodologies, incorporating information and positions identified at the Technical Conference, so that the Board can be updated on the matter and make any inquiries it deems necessary;

3. Prior to the 2020 GRA there shall be a second Technical Conference to consider the extent of possible changes, if any, to the Driver Safety Rating program, and a timeline for implementation.

The Board considered the Application for a Review and Variance of Order No. 103/17 and concluded in Order 29/18 that, although MPI did not provide any information in its application that persuaded the Board that MPI is prevented from moving to driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and eventually to vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation.

However, the Board noted that these issues have yet to be fully assessed. As a result, the Board allowed the Application and varied Directives 11.8 and 11.9 (Order No. 29/18), holding them in abeyance pending further examination in the 2019 GRA.

DSR.4 DSR TECHNICAL CONFERENCE

The DSR Technical Conference was held on March 20, 2018.

MPI interpreted the essence of PUB Order No. 130/17 as follows:

- *MPI's Interpretation*: MPI needs to improve the actuarial soundness of the DSR-based driver premiums and vehicle premium discounts calculations, which are currently set by policy.

  MPI's Position: MPI agrees that actuarially sound rates (possibly with some policy-based adjustments/considerations) should be the objective for ratemaking.

- *MPI's Interpretation*: Any rating variable that is used in the determination of rates should be fully supported by MPI with a strong statistical framework.

MPI's Position: MPI agrees that DSR rating variables should be supported with a strong statistical framework similar to that used for the rating of territory, insurance use, rate group, etc.

- *MPI's interpretation*: This improved DSR-based ratemaking methodology should be based on 'principal driver performance evaluation'.

  MPI's position: The Corporation understands the rationale for this request, but does not yet fully support this concept.

DSR.4.1 DSR-based Vehicle Premium Discounts

A vehicle's premium discount on the policy, under the current model, is based on the DSR level of the registered owner regardless of how many other drivers drive the vehicle. Assuming that the highest rated DSR driver in a household will insure all vehicles, the "registered owner" model underestimates driver risk for all other driver/vehicle scenarios as the remaining drivers in the household will, by definition, have the same or higher risk as the registered owner.

However, similar to other rating variables such as insurance use, territory, and rate group, DSR is a rating variable that can form the basis of an actuarially sound rate calculation. The relative risk by DSR level has been very stable since the implementation of DSR and this rating variable is reliable from a statistical perspective. DSR vehicle premium discounts could be part of a relativity calculation similar to what the Corporation uses for rate groups.

DSR.4.2 DSR-based Driver Premium

The collection of driver premiums as part of an actuarially sound ratemaking methodology is largely unique to MPI since private insurers cannot collect these premiums. MPI has to consider whether it wants the ratemaking methodology to align closer with private sector practices (e.g. list drivers on the vehicle policy) or whether it

wants a more unique to Manitoba solution (e.g. collecting more premiums on the driver license).

The DSR driver premiums are not priced to be 'penalties '. A customer's DSR-level is a rating indicator and the Corporation does not intend to charge any more than necessary to cover the expected risk.

Depending on the DSR-based vehicle premium discount system implemented, the driver premiums would in theory be used to collect any 'residual risk' premium amounts that are not adequately collected from the vehicle premium system. This residual risk calculation could be part of an actuarially sound ratemaking methodology. Residual risk arises because, under the current model, some drivers have vehicles registered to them while others do not and, depending on the rating system used, it may be appropriate to charge different driver premiums based on whether or not the customer registers a vehicle.

DSR.4.3 Alternatives

Several alternatives to the Registered Owner Model were presented and discussed at a high level in the Technical Conference. For each of these alternatives, further detailed analysis would be required before a recommendation can be made. It is also anticipated that there would be a significant rate change, regardless of the model, if DSR was used as a rating variable and the model followed accepted actuarial practice. Therefore, for any of the proposed models, a phase-in strategy would be necessary.

1. Primary Driver Model

   Under the Registered Owner Model, MPI does not require policyholders to identify the primary driver of the vehicle and, as a result, MPI does not have any current or historical driver data. MPI cannot analyze the merits of a Primary Driver Model at this time because it requires primary driver information to perform the analysis. Standardized address data would also aid in the analysis by showing the cost/benefit of a Primary Driver Model.

However, while MPI is currently unable to assess the effectiveness of the Primary Driver Model at this time, the larger concern is that using the Primary Driver Model is unlikely to provide any significant benefits relative to the Registered Owner Model. This is because MPI expects that customers may simply declare the best-rated driver as the primary driver for all vehicles in the household and thereby undermine the effectiveness of the Model.

2. Forced Assignment Model

Under the Registered Owner Model, MPI lacks the ability at present to easily and accurately identify all the licensed drivers in a given household. This is because the address field in MPI's data warehouse is manually entered as free-form text. If MPI could better identify these drivers, it could conduct modeling on the risks of drivers in a given household based on their combined/average DSR level and the assumption that all vehicles in the household are being equally driven. This type of modelling, although not perfect, would provide a more accurate prediction of risk than the modelling available in a Primary Driver or Registered Owner Model.

Alternatively, having better licensed driver by household data would allow MPI to assign vehicles to specific drivers. For example, the highest rated vehicle could be assigned to the driver with the highest vehicle discount; the second highest rated vehicle could then be assigned to the driver with the second highest vehicle discount and so forth. The Forced Assignment Model therefore prevents all household vehicles from being registered to the driver with the highest premium discount.

Since MPI does not currently have a comprehensive and reliable household view on any current or historical data basis, the data would need to be captured and stored before it can perform any meaningful analysis of this Model.

3. Declared Driver(s) Model

Under the Registered Owner Model, MPI does not require the policyholder to identify the regular drivers on their vehicle policy. Having a list of regular drivers could allow MPI to determine vehicle discounts based on the average DSR level of the listed drivers, based on the DSR level of the lowest rated driver or based on some other variable. As MPI has not asked customers to list the regular drivers of their vehicle, there is no historical data to analyze. This data would need to be captured and stored before any analysis of the effectiveness of the Declared Driver(s) Model could be performed.

As a result, while the Declared Driver(s) Model is more actuarially sound than the Registered Owner or the Primary Driver models, it may be the most complicated model to employ and MPI does not have the capability at this time to assess its effectiveness.

4. Residual Risk Model

Although not explicitly identified as an option at the Technical Conference, MPI discussed how improved rating of 'residual risk' in the current DSR model could make the current system more equitable. This method would ensure that drivers who do not register vehicles pay an actuarially determined driver premium based on their historic risk. The driver premium collected from these "non-owners" would then be used to lower vehicle premiums and/or improve the actuarial soundness of the vehicle premium discounts. This method also allows for the retention of the Registered Owner Model and the existing DSR framework and avoids the costs associated with implementing a new model.

DSR.5 DSR STRATEGY

MPI can improve the actuarial soundness of the DSR-based driver and vehicle premium discount calculations and agrees that any rating variable that is used in the determination of rates should be fully supported by a strong statistical framework.

MPI can also improve the DSR model is ensure that risk is better reflected in driver premiums and vehicle premium discounts under the DSR scale. These improvements will result in further disincentives for engaging in high-risk driving behaviour and customers at the top and bottom of the DSR scale will pay rates that more align to their driving behaviour.

However, MPI believes that all options should be thoroughly considered and analyzed prior to transitioning from the current Registered Owner Model to a Primary Driver or to some other type of model.

DSR.5.1 Public Consultation

The initial phase of MPI's DSR strategy is to develop a public consultation plan to invite Manitobans to share their views on the proposed changes to the driver and vehicle rating models.

The public consultation plan will identify the variety of mediums to inform and educate Manitobans, and the qualitative and quantitative research methodologies used to gather and tabulate feedback. The mediums used may include the following:

- Media Relations
- Advertising
    - Print ads
    - Radio ads
- Discussion Paper
- Website
- Quantitative Survey
    - Telephone survey
- Public Outreach

The objectives of the public consultation will include:

- To measure customer's awareness of the current Registered Owner Model

- To measure overall support of changing the current model
- To measure customer's overall acceptance/desire for a model that more closely aligns driver risk and driver/vehicle premiums (this would include improving the actuarial soundness of the existing model)
- To gain insight into potential issues or concerns of changing to an alternative model including the collection of household and driver data that will be required to conduct the analysis

The cost of the public consultation is estimated to be $50,000-$125,000. This high level estimate is based on previous consultation costs. The actual cost of the public consultation will be determined by the mediums used to gather feedback and the extent of the public consultation. MPI expects to plan and undertake this work through the balance of 2018, and tentatively plans to provide the Board with an update or results in the 2020 General Rate Application.

DSR.6 DATA COLLECTION COSTS

As previously indicated, MPI does not presently have the ability to capture the data necessary to analyze the effectiveness and the costs/benefits of the alternative DSR models discussed above. Initial estimates of the costs to gain this ability are as follows:

Primary Driver Model - $217,000

- This estimated cost is only to modify MPI's system to support the capture and maintenance of the Primary Driver data and does not include any cost associated with business or system effort to change rates or rating processes within MPI's IT system

Forced Assignment Model - $1,117,400

- This estimated cost is only to modify MPI's system to support the capture and maintenance of residence data (associated with drivers and policies) and does

not include any cost associated with business or system effort to change rates or rating processes within MPI's system

Declared Driver(s) Model - $1,160,400

- This estimated cost is to modify MPI's system to support the capture and maintenance of residence data (associated with drivers and policies) and includes adding a "role" to define the primary and secondary drivers but does not include any cost associated with business or system effort to change rates or rating processes within MPI's system

Improved Existing Model (Residual Risk) - $0

- The 'residual risk' model would not require any data collection costs

DSR.7 DSR IMPLEMENTATION COSTS

The current DSR program was implemented in 2010 at a cost of $6.8 million; based on the Bank of Canada's monthly Consumer Price Index (CPI), the $6.8 million cost would equate to $7.8 million today. The actual implementation cost of changing the current Registered Owner Model will not necessarily be $7.8 million as the cost will depend on the alternative model selected. However, the $7.8 million figure does provide an indication as to the possible implementation costs.

DSR.8 DSR STATISTICAL FRAMEWORK

The driver premiums and vehicle premium discounts on the DSR scale are currently set by policy. Recent increases to driver premiums on the demerit side of the DSR scale have been supported by an MPI analysis showing that the average claims costs for demerit drivers are the same or greater than the average premiums collected from demerit drivers. Although MPI supports the findings of this analysis, it has also informed the Board that this analysis (i) is not part of an actuarially sound ratemaking

methodology, and (ii) that the statistical data used to conduct this analysis is not subject to the same statistical framework used in the calculation of vehicle base rates.

MPI has not provided analytical support for the driver premiums on the merit side of the DSR scale or for the DSR vehicle premium discounts. The MPI analysis discussed above indicates that the driver premiums and vehicle premium discounts are 'directionally consistent' (i.e. average claims costs per driver and average premiums per driver decrease as the DSR level increases); however, MPI has not used this information as a means to apply for rate changes for drivers on the merit side of the DSR scale.

As confirmed at the DSR Technical Conference, MPI agrees with the Board that Basic rates should be actuarially sound (or at least moving toward actuarial soundness) and that any rating variable used in the calculation of rates should be supported by a strong statistical framework. At this time, MPI is conducting research on potential alternative DSR-based rating models, which research may require the collection of new statistical data (e.g. primary driver; listed drivers as discussed above) or using existing statistical data in new ways (e.g. household data). As a result, MPI cannot provide a fully developed statistical framework in the 2019 GRA. However, MPI has created the following list of general principles for the statistical framework that would be applicable to any DSR-based rating model:

1. **The DSR rating variable should be included in the Basic relativity analysis used to determine Basic rates.** The output from this change would be a DSR-based relativity analysis similar to the rate-line output for vehicle rate groups.

2. **Statistical data used for DSR-based ratemaking should be adjusted 'for ratemaking purposes' in the same manner as the statistical data used for all other Basic rating variables.** E.g. 10-year average serious losses; PIPP Cost Allocation; etc.

3. **The presentation of DSR-based statistical data to the Public Utilities Board should be at the same level of detail as that provided for other**

rating variables. The output from this change would be historical data in the appendices of the Ratemaking section.

4. **The statistical data used to produce DSR-based rate indications should be subject to appropriate credibility and rate capping rules consistent with the existing rules used for other rating variables.** DSR-based rate indications should be subject to the same data credibility and rate shock considerations that apply to other rating adjustments.

DSR.9 CONCLUSIONS AND NEXT STEPS

MPI has begun to engage in work on a number of fronts stemming from the DSR Technical Conference. MPI expects to investigate and analyze the rating models having limited or no IT costs while it engages in public consultation to assess the appetite of Manitobans for changes to the driver and vehicle rating models.

Some of the alternatives discussed above could significantly impact customers (through rate dislocation, increased IT costs, and expanded reach of data collection) as well as MPI and broker business practices. Given that impacts could be material, MPI must also consider the benefits of any change, and weigh them against the relevant costs.

MPI presently anticipates that, by the 2020 GRA, it will be in a position to report on the results of its public consultation efforts, its preliminary research on the no or low cost options as well as on its decision on whether to proceed with data collection for the higher cost options.

DRIVER CLASSIFICATION SYSTEM

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

DRIVER CLASSIFICATION SYSTEM 3
DCS.1 Driver Premiums 5
DCS.2 Vehicle Premium Discount 7

DRIVER CLASSIFICATION SYSTEM

Effective March 1, 2010, Manitoba Public Insurance (MPI, or the Corporation) implemented the Driver Safety Rating (DSR) program as a method of classifying driver risk. The DSR program is prescribed by regulation under *The Manitoba Public Insurance Corporation Act* and replaces the previous "bonus/malus" plan.

The goals of the DSR program are to:

- Strengthen the ability to reward the safest drivers
- Encourage poor drivers to improve their driving behavior
- Enhance drivers' overall understanding of how their driving behaviour can affect how much they pay for auto insurance.

The DSR Scale runs from a maximum of +15 merits to -20 demerits, with a neutral "0" point between the two. Each year, at their renewal date, drivers either move up the scale or down the scale based on their driving history during the last year. Drivers in the DSR merit zone move up the scale by one level whenever they complete a full year of driving without any at-fault claims and eligible traffic violations.

As an incentive to improve, drivers in the DSR demerit zone are able to move up faster if they maintain a valid driver's licence for a minimum of 335 days and demonstrate a change in driving behavior. For example, a driver with 20 DSR demerits moves up 7 levels if he/she goes a full year without any at-fault claims and eligible traffic violations. If the driver continues to drive incident-free, he/she can return to DSR 0 level within five years. The following table shows the upward movement for a full year of incident-free driving.

Figure DCS-1: DSR Movement Table

Line No.	DSR Level	Movement with clean year with active licence	DSR Level	Movement with clean year with active licence
1	1 to 15 merits	1 level up	-10	4 levels up
2	0	1 level up	-11	4 levels up
3	-1	1 level up	-12	5 levels up
4	-2	2 levels up	-13	5 levels up
5	-3	3 levels up	-14	5 levels up
6	-4	3 levels up	-15	5 levels up
7	-5	3 levels up	-16	6 levels up
8	-6	3 levels up	-17	6 levels up
9	-7	3 levels up	-18	6 levels up
10	-8	4 levels up	-19	7 levels up
11	-9	4 levels up	-20	7 levels up

Drivers move down the scale if they have had one or more eligible traffic violations or at-fault claims. For traffic violations, the number of levels they move down depends on the severity of the violation (2 to 15 levels down). An at-fault claim moves a driver five levels down the DSR scale.

There are no changes in 2019/20 to the number of DSR levels or the manner in which drivers move up and down the DSR scale.

Full details of the DSR program can be found in the *Driver Safety Rating System Regulation*, at http://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=13/2009

DCS.1 DRIVER PREMIUMS

A basic insurance premium is charged on every Manitoba driver licence to ensure that all Manitoba drivers share the costs of compensating victims of accidents. Drivers on the merit side of the DSR scale pay a lower Driver Premium than drivers on the demerit side of the scale. Driver Premiums for the DSR demerit levels followed the phased-in approach presented to the Public Utilities Board (PUB) in April 2009, which was completed with the 2013/14 Rate Application. From 2013/14 to the 2017/18 Rate Application, Driver Premiums were unchanged. In the 2018/19 Rate Application, the PUB approved the Corporation's recommended increases to the Driver Premiums on the demerit side of the DSR scale.

In the 2019/20 Rate Application, the Corporation is not proposing any changes to the Driver Premiums.

The following table shows the Driver Premiums since the implementation of DSR.

Figure DCS- 2: Driver premiums approved since the implementation of DSR

Line No.	DSR Level	2010/11	2011/12	2012/13	2013/14 to 2017/18	2018/19	Proposed 2019/20
1	15	$15	$15	$15	$15	$15	$15
2	14	n/a	$20	$20	$20	$20	$20
3	13	n/a	$20	$20	$20	$20	$20
4	12	n/a	$20	$20	$20	$20	$20
5	11	n/a	$20	$20	$20	$20	$20
6	10	$20	$20	$20	$20	$20	$20
7	9	$25	$25	$25	$25	$25	$25
8	8	$30	$30	$30	$30	$30	$30
9	7	$30	$30	$30	$30	$30	$30
10	6	$30	$30	$30	$30	$30	$30
11	5	$30	$30	$30	$30	$30	$30
12	4	$30	$30	$30	$30	$30	$30
13	3	$35	$35	$35	$35	$35	$35
14	2	$35	$35	$35	$35	$35	$35
15	1	$40	$40	$40	$40	$40	$40
16	0	$45	$45	$45	$45	$45	$45
17	-1	$45	$45	$45	$100	$200	$200
18	-2	$45	$45	$75	$100	$200	$200
19	-3	$45	$45	$150	$200	$300	$300
20	-4	$45	$100	$150	$200	$400	$400
21	-5	$45	$100	$200	$300	$450	$450
22	-6	$245	$250	$300	$300	$500	$500
23	-7	$270	$300	$350	$400	$650	$650
24	-8	$295	$300	$350	$400	$800	$800
25	-9	$320	$350	$400	$500	$900	$900
26	-10	$345	$400	$450	$500	$1,000	$1,000
27	-11	$395	$500	$600	$700	$1,200	$1,200
28	-12	$445	$500	$700	$900	$1,400	$1,400
29	-13	$495	$600	$800	$1,100	$1,600	$1,600
30	-14	$545	$700	$1,000	$1,300	$1,800	$1,800
31	-15	$595	$800	$1,200	$1,500	$2,000	$2,000
32	-16	$670	$1,000	$1,300	$1,700	$2,200	$2,200
33	-17	$745	$1,200	$1,500	$1,900	$2,400	$2,400
34	-18	$820	$1,200	$1,600	$2,100	$2,600	$2,600
35	-19	$895	$1,300	$1,800	$2,300	$2,800	$2,800
36	-20	$1,044	$1,500	$2,000	$2,500	$3,000	$3,000

DCS.2 VEHICLE PREMIUM DISCOUNT

The Vehicle Premium Discount (VPD) is another reward given to Manitoba drivers in the DSR merit zone. The Corporation is not proposing any changes to VPDs in the 2019/20 application. VPDs by DSR level are shown in the table below.

Figure DCS- 3 Vehicle Premium Discount

Line No.	DSR Level	2019 Vehicle Premium Discount	DSR Level	2019 Vehicle Premium Discount
1	15	33%	6	20%
2	14	30%	5	15%
3	13	29%	4	15%
4	12	28%	3	10%
5	11	27%	2	10%
6	10	26%	1	5%
7	9	25%	0	0%
8	8	25%	-1 to -20	0%
9	7	25%		

VEHICLE CLASSIFICATION SYSTEM

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

VEHICLE CLASSIFICATION SYSTEM 3

VCS.1 INTRODUCTION 3
VCS.2 RATING TERRITORIES 4
VCS.3 INSURANCE USES 5
VCS.4 VEHICLE RATING FACTORS 6
VCS.4.1 Rate Groups 6
VCS.4.1.1 Passenger Vehicles and Light Rated Trucks 6
VCS.4.1.2 Heavy Trucks 9
VCS.4.1.3 Buses 10
VCS.4.1.4 Motorcycles, Mopeds and Mobility Vehicles 11
VCS.4.1.5 Motorhomes 11
VCS.4.1.6 Trailers (excluding semi-trailers) 11
VCS.4.2 Other Vehicle Rating Factors 11
VCS.5 DRIVING RECORD 14
VCS.5.1 Vehicle Premium Discount 14
VCS.5.2 Fleet Rebates and Surcharges 15

Appendix 1: Vehicle Classification System Territories
Appendix 2: Vehicle Classification System Insurance Use Definitions by Name
Appendix 3: Vehicle Classification System Major Insurance Classes
Appendix 4: Motorcycle Body Style Definitions

VEHICLE CLASSIFICATION SYSTEM

VCS.1 INTRODUCTION

Standard insurance industry practice uses a classification plan to assign individual insurance risk, which is the vehicle unit, into groups sharing similar risk characteristics. The classifications used are prescribed in Regulation under *The Manitoba Public Insurance Act*.

A risk classification plan is needed because a meaningful statistical measure of risk cannot be derived on a per vehicle unit basis. It is necessary to combine units that are expected to have the same risk together, in order to derive a statistically valid measure of the risk, its cost, and subsequently the rate that should be charged. The same rate is then applied to all units in that group. In this manner, the rate paid as a group accommodates the costs incurred as a group.

A risk classification plan is designed based on statistical, operational, social and legal criteria. Statistically, a classification system must be stable and allow for history to reflect expected costs. Operationally, a classification must be practical and easily identifiable. For example, insurance use is easily determined since it relates to how the vehicle will be primarily used. Social and legal considerations include factors such as evolving legislation and social norms around fairness.

For Basic Autopac, the vehicle classification plan closely follows normal industry practice. Vehicle units are grouped together using the following classifications; rating territories, insurance uses, vehicle rating factors and driving records.

Details on classification adjustments for 2019/20 and their impact on customer rates can be found in *Part V(ii) RM Ratemaking*.

VCS.2 RATING TERRITORIES

The province is divided into four geographical rating territories. An additional rating territory, commuter, is based on an individual living in Territory 2 (outside Winnipeg) and driving regularly into Territory 1 (Winnipeg) for work, school or some business purposes.

Each of these territories has distinctive rates which reflect differences in patterns of loss experience. This means motorists pay premiums which relate to the risk associated with insuring a vehicle in a particular geographic area of the province.

There are no proposed changes to the rating territories or their boundaries for 2019/20. The definitions of the rating territories are provided in *Part V(ii) VCS Vehicle Classification System Appendix 1*.

VCS.3 INSURANCE USES

Motorists are required to insure their vehicles in various insurance use categories. These categories take into consideration the varying degrees of risk associated with the different purposes for which these vehicles are used. Insurance uses with high claims costs will be rated higher than uses experiencing lower claims costs.

There are no proposed changes to insurance uses for 2019/20. However, with the introduction of Vehicle for Hire insurance uses effective March 1, 2018, the Corporation expired the Limousine All Uses, Taxi/Livery Passenger Vehicle, and Wheelchair Livery Bus uses as of May 1, 2018. Additional information on Vehicle-for-Hire can be found in *Part V(ii) Vehicles for Hire*.

Insurance use definitions are located in *Part V(ii) VCS Vehicle Classification Systems Appendix 2* and insurance uses by major class are located in *Part V(ii) VCS Vehicle Classification Systems Appendix 3*.

VCS.4 VEHICLE RATING FACTORS

VCS.4.1 Rate Groups

The rate groups into which vehicles are assigned reflect factors such as: vehicle make, model, model year, gross vehicle weight, engine size, declared value and Canadian Loss Experience Automobile Rating (CLEAR). These factors have a bearing on the cost of claims for particular types of vehicles. In general, vehicles in higher rate groups pay higher rates than vehicles in lower rate groups, to reflect the higher expected claims costs.

VCS.4.1.1 Passenger Vehicles and Light Rated Trucks

The CLEAR system is used for the assignment of rate groups to passenger vehicles (cars, passenger vans and sport utility vehicles) and light trucks. The CLEAR system, produced by the Insurance Bureau of Canada (IBC), uses actual loss experience data from across Canada to determine relative loss cost indices for specific vehicle descriptions (make, model and model year). These indices take into account the varying costs of collision, comprehensive, and injury claims associated with these vehicle descriptions. The expected claims costs for each vehicle description are used to establish CLEAR rate groups. CLEAR rate groups are one of the vehicle rating factors used to establish premiums for passenger vehicles and light trucks.

The CLEAR system provides incentives, in the form of lower premiums, to consumers who purchase safer, less damage-prone or more theft resistant vehicles. Increased consumer demand for vehicles with new safety features, such as electronic stability control and accident avoidance systems, should encourage manufacturers to include these safety features. The CLEAR system is thus a loss prevention initiative, as well as a method of achieving equity in the vehicle rating system.

IBC annually updates CLEAR rate groups to account for changes in claims costs for vehicles. Generally three factors cause the CLEAR recommendations to be adjusted:

- Actual experience for new vehicles is developed
- Loss costs change as vehicles age
- New trends emerge such as higher theft rates for a particular make and model.

CLEAR provides separate rate group recommendations for collision, comprehensive and injury coverages. Since the Basic Autopac product combines these coverages, the CLEAR recommendations must be combined to obtain the MPI rate group applicable in Manitoba.

For collision and comprehensive coverages, the CLEAR recommendations range from rate groups 1 to 99. These CLEAR recommendations are weighted together to obtain the MPI collision and comprehensive combined rate group.

The Corporation's weighting allocation in 2018/19 assigned 83% to the CLEAR collision recommendation and 17% to the CLEAR comprehensive recommendation based on the ratio of collision to comprehensive claims costs in Manitoba. For 2019/20, upon reevaluation, the weighting allocation remains at 83% to collision and 17% to comprehensive.

For injury coverage, starting in the 2015/16 insurance year, IBC began providing two separate recommendations, one for Ontario and one for Alberta/Atlantic provinces. The Ontario table uses injury rate groups ranging from 0 to 50, while the Alberta/Atlantic provinces table uses injury rate groups ranging from 1 to 15.

As Manitoba injury relativities between rate groups are relatively flat (i.e. the relativities do not vary significantly across rate groups), the Corporation decided to use the recommendation for Alberta/Atlantic provinces due to the smaller injury rate group range. Further, the Corporation converted the IBC's 1 to 15 range into a 1 to 5 range for Manitoba.

The matrix below compares IBC's injury rate groups for Alberta/Atlantic provinces with the Corporation's injury rate groups for the 2015/16 to 2019/20 insurance years.

Figure VCS-1: Injury Rate Group Table

Line No.	2015 IBC Rate Group	2015 MPI Rate Group	2016 IBC Rate Group	2016 MPI Rate Group	2017 IBC Rate Group	2017 MPI Rate Group	2018 & 2019 IBC Rate Group	2018 & 2019 MPI Rate Group
1	7	1	6 & 7	1	6 & 7	1	1 - 6	1
2	8	2	8	2	8	2	7	2
3	9	3	9	3	9	3	8 - 9	3
4	10	4	10	4	10	4	10	4
5	11	5	11 & 12	5	11 & 12	5	11- 15	5

6 Note: The most recent IBC Injury Rating goes from rate groups 1 to 15

The MPI injury rate group is then added to the MPI collision and comprehensive combined rate group to obtain the final MPI rate group applicable in Manitoba.

Rate group adjustments were then applied to passenger vehicles and light trucks to update the existing 2018/19 MPI rate groups to the revised 2019/20 MPI rate groups. These adjustments were applied as follows:

- If the 2018/19 rate group is higher than the 2019/20 rate group, the 2018/19 rate group is adjusted down to the 2019/20 rate group.
- If the 2018/19 rate group is lower than the 2019/20 rate group, the 2018/19 rate group is adjusted up to the 2019/20 rate group, up to a maximum of one rate group.

For 2019/20, the Corporation has 41 rate groups (rate groups 0 to 40). New vehicle descriptions are assigned MPI rate groups as they enter the local market. These rate groups are based on CLEAR recommendations as they become available.

Rate groups assigned to passenger vehicles for 2019/20 are contained in *Part V(ii) VRG Vehicle Rate Groups Part 1A* & *Part V(ii) VRG Vehicle Rate Groups Part 1C*. The change in rate group from 2018/19 is contained in *Part V(ii) VRG Vehicle Rate Groups Part 1B* & *Part V(ii) VRG Vehicle Rate Groups Part 1D*.

The rate groups assigned to light trucks for 2019/20 are contained in *Part V(ii) VRG Vehicle Rate Groups Part 2A* & *Part V(ii) VRG Vehicle Rate Groups Part*

2C. The change in rate group from 2018/19 is contained in *Part V(ii) VRG Vehicle Rate Groups Part 2B* & *Part V(ii) VRG Vehicle Rate Groups Part 2D*.

The 'Heavy Trucks Rated as Light Trucks' Rate Group Table, contained in *Part V(ii) VRG Vehicle Rate Groups Part 03*, is used to rate farm and fishing trucks with a gross vehicle weight (GVW) in excess of 4,540 kg and with a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility vehicle. The rate groups in this table are determined by utilizing the current heavy-rated-as-light truck population from the rate model. The most current CLEAR rated recommendations are applied to this population of vehicles and then averaged for each model year. This establishes a rate group table based on a realistic representation of the annual mix of vehicles in the heavy-rated-as-light truck population.

VCS.4.1.2 Heavy Trucks

Heavy trucks are trucks with a GVW of more than 4,540 kg (with the exception of heavy-rated-as-light trucks).

There are three broad classes of heavy trucks that have different physical damage coverage:

- Trucks (excluding farm and fishing trucks) weighing between 4,541 kg and 16,330 kg GVW, which carry physical damage coverage.
- Trucks (excluding farm and fishing trucks) weighing more than 16,330 kg GVW, which do not carry physical damage coverage.
- Farm and fishing trucks with body styles *other than* chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility vehicle, which carry physical damage coverage.

As in previous years, heavy truck rate groups are adjusted down one rate group per model year. This allows for the newest model year vehicles to be assigned the highest rate group while vintaging the remaining model year vehicles.

The structures of the Heavy Truck Rate Group Table for 2019/20 and 2018/19 are as follows:

Figure VCS- 2: Heavy Truck Rate Group Table

Line No.	Model Year	2019/20	2018/19
1	**2020 and later**	17	
2	**2019**	16	17
3	**2018**	15	16
4	**2017**	14	15
5	**2016**	13	14
6	**2015**	12	13
7	**2014**	11	12
8	**2013**	10	11
9	**2012**	9	10
10	**2011**	8	9
11	**2010**	7	8
12	**2009**	6	7
13	**2008**	5	6
14	**2007**	4	5
15	**2006**	3	4
16	**2005**	2	3
17	**2004**	1	2
18	**2003 and prior**	1	1

VCS.4.1.3 Buses

Buses are assigned rate groups based on owner declared values up to $50,000. There are no changes to the rate groups assigned to buses.

The rate groups assigned to buses are shown in *Part V(ii) VRG Vehicle Rate Groups Part 04*.

VCS.4.1.4 Motorcycles, Mopeds and Mobility Vehicles

Motorcycles, mopeds and mobility vehicles are assigned rate groups based on owner declared values up to $50,000. There are no changes to the rate groups assigned to motorcycles, mopeds and mobility vehicles.

The rate groups assigned to motorcycles, mopeds and mobility vehicles are shown in *Part V(ii) VRG Vehicle Rate Groups Part 04*.

VCS.4.1.5 Motorhomes

Motorhomes are assigned rate groups based on owner declared values, up to $50,000. There are no changes to the rate groups assigned to motorhomes.

The rate groups assigned to motorhomes are shown in *Part V(ii) VRG Vehicle Rate Groups Part 04*.

VCS.4.1.6 Trailers (excluding semi-trailers)

Trailers are divided into two categories: those with a declared value of $2,500 and lower, and those with declared values between $2,501 and $50,000. Trailers valued over $2,500 are assigned rate groups based on owner declared value. There are no changes to the rate groups assigned to trailers.

The rate groups assigned to trailers are shown in *Part V(ii) VRG Vehicle Rate Groups Part 04*.

VCS.4.2 Other Vehicle Rating Factors

In addition to rate groups, some vehicle types are also rated using additional vehicle rating factors. Trucks use gross vehicle weight ranges, buses use seating capacity

ranges, and motorcycles use engine displacement ranges as well as body styles. These additional vehicle rating factors account for differences in risk characteristics attributable to these factors.

There are no changes to these other vehicle rating factors for 2019/20.

Trucks are classified into three gross vehicle weight (GVW) categories:

- 4,540 kg or less
- 4,541 to 16,330 kg
- 16,331 kg or more

Buses are classified by seating capacity:

- 20 seats or less
- 21 to 35 seats
- 36 to 50 seats
- 51 seats or more

Motorcycles are classified into three engine size categories:

- 500 cc or less
- 501 to 1,000 cc
- 1,001 cc or more

Motorcycles are also classified based on their body styles. Motorcycles are grouped into five body style categories, for rating purposes, depending on their body style as determined by IBC. The sixteen IBC body styles are grouped into the five MPI body style rating categories as follows:

- Motorscooter Rating: includes Motorscooter and 3-Wheel Scooter body styles
- Other Rating: includes Cruiser, Dual Purpose, Motard, Enduro, Other and Standard body styles
- Sport Rating: includes Sport and Naked Sport body styles

- Sport Touring Rating: includes Sport Touring and Adventure body styles
- Touring Rating: includes Touring, Trike, 3-Wheel Motorcycle and Standard Sidecar body styles

The motorcycle body style definitions can be found in *Part V(ii) VCS Vehicle Classification Systems Appendix 4*.

IBC periodically makes changes to the body styles for existing models. The Corporation monitors these changes and, on an annual basis, updates body styles to match IBC's.

As established in 2007/08, motorcycles with a Sport Rating, 1994 and older, and with a horsepower to weight ratio of 0.355 or lower will continue to be reclassified as Other Rating.

VCS.5 DRIVING RECORD

The driving record component of the classification plan is designed to adjust rates based on the driving convictions and claims history of the customer. Customers with a prior history of claims, or poor driving records, are a higher risk and consequently pay higher rates.

The driving record portion of the vehicle classification plan has two components:

- Vehicle Premium Discount
- Fleet Safety Program

VCS.5.1 Vehicle Premium Discount

The Corporation implemented the Driver Safety Rating (DSR) program, as prescribed in legislation, on March 1, 2010. The DSR Scale ranges from a high of 15 merits to a low of 20 demerits. Registered owners with merits receive a vehicle premium discount when they insure their vehicles. In order to receive a vehicle premium discount, the vehicle must be insured in one of the following use categories:

- Accessible Vehicle-for-Hire - (all time bands)
- All Purpose Mobility Vehicle
- All Purpose Moped
- All Purpose Motorcycle - (all body style rating categories)
- All Purpose Motorhome
- All Purpose Passenger Vehicle
- All Purpose Truck
- Artisan Truck (GVW less than 16,331 kg)
- Collector Passenger Vehicle
- Collector Truck
- Common Carrier Local Passenger Vehicle
- Common Carrier Passenger Vehicle within 161 km in Manitoba
- Common Carrier Truck within 161 km in Manitoba

- Common Carrier Truck within city or municipality
- Farm or Fishing All Purpose Truck (GVW less than 4,541 kg or a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility vehicle)
- Farm Passenger Vehicle
- Limousine Vehicle-for-Hire - (all time bands)
- Passenger Vehicle-for-Hire (Passenger Vehicle) - (all time bands)
- Passenger Vehicle-for-Hire (Truck 4,499 kg or less GVW) - (all time bands)
- Pleasure Moped
- Pleasure Motorcycle - (all body style rating categories)
- Pleasure Motorhome
- Pleasure Passenger Vehicle
- Pleasure Truck
- Taxicab Vehicle-for-Hire - (all time bands)

As initially applied for in the 2018 Interim Vehicles for Hire application, in this application MPI proposes that all Vehicles for Hire, including taxicabs not previously eligible, will now be eligible for vehicle premium discounts.

Further information on the DSR program and the vehicle premium discount scale can be found in *Part V(ii) DSR Driver Safety Rating*.

VCS.5.2 Fleet Rebates and Surcharges

The Corporation's fleet rebate/surcharge program applies where an owner has 10 or more vehicles registered on the first day of any customer month, and the number of days the fleet vehicles are insured meets or exceeds the minimum number of days. All vehicles can be included in a fleet except:

- Insurance exempt vehicles
- Vehicle-for-Hire - (all time bands)
- Motorcycles, Mopeds, and Mobility Vehicles

- Trailers
- Vehicles with PIPP coverage only
- Off-road vehicles
- Vehicles under a Lay-up policy or a Rental Car Insurance policy

Fleet rebates and surcharges are determined by the loss ratio of the fleet. Loss ratio is the ratio between all losses paid by MPI, and the fleet premiums paid to MPI. Except for comprehensive claims, which are fully included in the calculation of the loss ratio, claims are included according to the degree of responsibility. For example, if the fleet vehicle is held 40 percent responsible for a claim, only 40 percent of the cost of the claim (including all costs for which the fleet driver is responsible) is assessed to the fleet. The maximum amount used for any one loss is $25,000.

Fleet assessments may be adjusted based on increases or decreases to claims amounts, which were not included in the previous year's fleet assessment.

Fleet rebates and surcharges vary, depending on the loss ratio. The current fleet rebate scale ranges from a 1 percent rebate (69 percent loss ratio) to a maximum 33 percent rebate (37 percent or lower loss ratio), and the fleet surcharge scale ranges from a 1 percent surcharge (80 percent loss ratio) to a maximum 50 percent surcharge (129 percent or more loss ratio).

For 2019/2020, there are no changes proposed to the existing fleet rebate or surcharge scales. The rebate and surcharge scales can be found in *Part V(ii) RM Ratemaking Appendix 9 Table 7*.

Appendix 1: VEHICLE CLASSIFICATION SYSTEM TERRITORIES

Territory 1

Territory 1 includes the City of Winnipeg, including the following areas and municipalities: East Kildonan, West Kildonan, St. Boniface, St. James-Assiniboia, Transcona, St. Vital, Headingley, Tuxedo, Charleswood, North Kildonan, Old Kildonan, Fort Garry, St. Norbert, East St. Paul, West St. Paul.

Territory 2

Territory 2 includes the cities of Brandon, Portage la Prairie, and the remainder of Manitoba south of the 53rd parallel that is, not included in Territory 1, including the following municipalities which border Territory 1: Springfield, Rockwood, Cartier, Tache, Rosser, Macdonald, St. Clements, Ritchot, St. Andrews, St. Francois Xavier.

Territory 3

Territory 3 includes all of Manitoba north of the 55th parallel; e.g., Thompson, Lynn Lake, Churchill, Gillam.

Territory 4

Territory 4 is the area of Manitoba between the 53rd and 55th parallels; e.g., The Pas, Flin Flon, Grand Rapids, Oxford House.

Commuter (Territory 5)

The Commuter group is applied to a vehicle where the registered owner's permanent address is in Territory 2, and the vehicle is used to drive to work or school, or part way to work or school, in Territory 1. The vehicle is used for this purpose more than four days a month. A commuter rate is charged, provided the vehicle is insured for any of the following insurance uses:

- All Purpose Motorcycle
  - Motorscooter Rating
  - Other Rating
  - Sport Rating
  - Touring Rating
  - Sport Touring Rating
- All Purpose Motorhome
- All Purpose Passenger Vehicle
- All Purpose Truck
- Artisan Truck (up to 16,330 kg)
- Farming All Purpose Truck (up to 4,540 kg GVW) *
- Fishing All Purpose Truck (up to 4,540 kg GVW) *
- Other Truck (up to 16,330 kg)
- Passenger Vehicle-for-Hire (Passenger Vehicle)
- Passenger Vehicle-for-Hire (Truck 4,499 kg or less GVW)

* 4,540 kg GVW or less; or a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, sport utility or service truck, regardless of weight.

Appendix 2: VEHICLE CLASSIFICATION SYSTEM INSURANCE USE DEFINITIONS BY NAME

Insurance Use	Description
Accessible Vehicle-for-Hire	A vehicle for hire that is a passenger vehicle which is equipped with a wheelchair ramp or lift and operated for the transportation of persons who use a wheelchair or mobility aid, motorized or otherwise, and their escorts, but does not include vehicles owned or operated by or on behalf of a municipality to provide public transportation services.
All Purpose Mobility Vehicle	A mobility vehicle manufactured or modified for operation by a physically disabled person with a speed capability between 15 and 50 km/hour. Eligible for vehicle premium discount.
All Purpose Moped	A moped as defined in *The Highway Traffic Act* (an engine displacement of 50 cc or less or an electric motor, neither of which is capable of attaining a speed greater than 50 km/hour) that is used for driving to or from or part way to or from work or school, or is used in connection with a business, trade, or occupation. Eligible for vehicle premium discount.
All Purpose Motorcycle (Refer to the motorcycle body style definitions in Attachment 4)	A motorcycle as defined in *The Highway Traffic Act* (capable of attaining a speed of 50 km/hour or more) that is used for driving to or from or part way to or from work or school, or is used in connection with a business, trade, or occupation. Eligible for vehicle premium discount.

Insurance Use	Description
All Purpose Motorhome	A motorhome as defined in *The Highway Traffic Act* used for driving to or from or part way to or from work or school, or used in connection with a business, trade, or occupation. Eligible for vehicle premium discount.
All Purpose Passenger Vehicle	A private passenger vehicle used for driving to or from or part way to or from work or school, or used in connection with a business, trade, or occupation (Excludes Common Carrier Local Passenger Vehicle). Eligible for vehicle premium discount.
All Purpose Snow Vehicle	A snow vehicle (not a snowmobile) operated under the Highway Traffic Act.
All Purpose Trailer $2,500 or less	A trailer with a declared value of not more than $2,500. All uses allowed.
All Purpose Trailer $2,501 or more	A trailer with a declared value of more than $2,500. All uses allowed.
All Purpose Truck	A truck with a gross vehicle weight (GVW) of not more than 4,540 kg that (a) is driven to or from or part way to or from school or work; or (b) is used as an artisan truck (tradesperson, gardener, greenhouse operator, horticulturist) or as an Other Truck (no other specified insurance use) and has a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck, or sport utility; or (c) is used for business purposes other than specified in (b) above for no more than 1,609 km during a rating term. Eligible for vehicle premium discount.

Insurance Use	Description
Antique Vehicle	A vehicle not less than 30 years old. Can only be driven when taking it to be repaired or serviced; or taking it to or from or displaying it in a parade, procession, or rally authorized by the Registrar.
Artisan Truck	A truck with a GVW in excess of 4,540 kg or with a body style other than chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck, or sport utility that is used by a tradesperson, gardener, greenhouse operator or horticulturist for carrying tools, materials, and equipment used in their trade. Eligible for vehicle premium discount if GVW less than 16,331 kg.
Cement/Brick/Exploration Truck	A truck with a GVW of 10,891 kg or more used to carry cement, building blocks, bricks, or drilling/exploration/seismographic equipment.
Charter Bus – Local	A bus hired by a group on a flat fee basis for their collective transportation to, from, or to and from any locality.
Collector Passenger Vehicle	A private passenger vehicle that has a value of at least $5,000, is a model year at least 25 years less the current model year for private passenger vehicles, and (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used for a business,trade or occupation. Eligible for vehicle premium discount.

Insurance Use	Description
Collector Truck	A truck with a GVW of 4,540 kg or less that has a value of at least $5,000, is a model year at least 25 years less the current model year for trucks, and (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used for a business, trade or occupation. Eligible for vehicle premium discount.
Common Carrier Bus – Over 161 km outside MB	A bus used for regular schedules and charters extra-provincially. Personal Injury Protection Plan only with coverage subject to non-residency restrictions.
Common Carrier Bus - Within MB	A bus used for regular schedules and charters within Manitoba.
Common Carrier Local Passenger Vehicle	A passenger vehicle used more than four days in one month or more than 1,609 km during a rating term by a courier or common carrier within a city or municipality, or for any other delivery purpose in connection with a business, trade or occupation, but does not include a public service vehicle. Eligible for vehicle discount.
Common Carrier Passenger Vehicle - Over 161 km in MB	A passenger vehicle registered as a public service vehicle used to carry the goods of others, over 161 km in Manitoba only.
Common Carrier Passenger Vehicle - Within 161 km in MB	A passenger vehicle registered as a public service vehicle used to carry the goods of others, within 161 km in Manitoba only. Eligible for vehicle premium discount.

Insurance Use	Description
Common Carrier Truck (Local – Within City or Municipality)	A truck used to carry the goods of more than one contractee within city or municipal limits. Eligible for vehicle premium discount.
Common Carrier Truck - Over 161 km in MB	A truck registered as a public service vehicle used to carry the goods of others, over 161 km in Manitoba only.
Common Carrier Truck - Within 161 km in MB	A truck registered as a public service vehicle used to carry the goods of others, within 161 km in Manitoba only. Eligible for vehicle premium discount.
Common/Private/Contract Passenger Vehicle - Over 161 km outside MB	A passenger vehicle registered as a public service vehicle operating extra-provincially in excess of 161 km of the Manitoba border. Personal Injury Protection Plan only with coverage subject to non-residency restrictions.
Common/Private/Contract Truck - Over 161 km outside MB	A truck registered as a public service vehicle operating extra-provincially in excess of 161 km of the Manitoba border. Personal Injury Protection Plan only with coverage subject to non-residency restrictions.
Dealer All Uses Except Motorcycles	A passenger vehicle, truck, motorhome or bus owned or in the possession of a Dealer. Includes mopeds, mobility vehicles and trailers but excludes motorcycles.
Dealer Moped	A moped or mobility vehicle owned or in the possession of a Dealer. Excludes motorcycles.
Dealer Motorcycle	A motorcycle owned or in the possession of a Dealer.

Insurance Use	Description
Dealer Trailer	A trailer owned or in the possession of a Dealer.
Disabled Persons/Private/ Business Bus	A bus (passenger vans used to carry disabled persons are considered buses regardless of seating capacity) that is (a) used for the transportation of disabled persons, except those required to operate under the jurisdiction of the Taxicab Board; or (b) a private bus or one used in connection with a business, trade or occupation without direct compensation; except Charter Bus, Common Carrier Bus, Transit Bus, School Bus or U-Drive Bus.
Driveaway Over 161 km outside Manitoba	A vehicle operated as a Driveaway extra-provincially in excess of 161 km of the Manitoba border. Personal Injury Protection Plan only with coverage subject to non-residency restrictions.
Driveaway Within Manitoba	A vehicle operated as a Driveaway within Manitoba.
Farm Passenger Vehicle	A private passenger vehicle that (a) is used by a person who lives on a farm; and (b) is used by a person engaged in farming operations for not less than 720 hours cumulative in each rating term or is retired from farming; and (c) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (d) is not used for a business, trade or occupation other than farming for more than four days in one month or more than 1,609 km during a rating term. Eligible for vehicle premium discount.

Insurance Use	Description
Farming All Purpose Truck	A truck registered to a farmer as defined in *The Highway Traffic Act* and used for farming operations. Eligible for vehicle premium discount if GVW is less than 4,541 kg or if a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility, regardless of weight.
Fishing All Purpose Truck	A truck used primarily for the purpose of commercial fishing. Eligible for vehicle premium discount if GVW is less than 4,541 kg or if a body style of chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility, regardless of weight.
Funeral Passenger Vehicle	A passenger vehicle or hearse with operations restricted to funeral use.
Limousine Vehicle-for-Hire	A vehicle for hire that is a passenger vehicle having an extended wheelbase or is designed by the manufacturer as a luxury or specialized passenger vehicle and is operated for hire by a limousine or private car service, including sightseeing tours, but is not equipped with a taximeter.
Logging Truck	A truck used to transport logs, pulpwood, shavings, rough lumber and ties.
Off-Road Vehicle All Purpose All Terrain Vehicle	An off-road all terrain vehicle. All uses allowed. Third party liability and underinsured motorist coverage only.

Insurance Use	Description
Off-Road Vehicle All Purpose Motorcycle	An off-road motorcycle. All uses allowed. Third party liability and underinsured motorist coverage only.
Off-Road Vehicle All Purpose Snow Vehicle	An off-road snow vehicle. All uses allowed. Third party liability and underinsured motorist coverage only.
Off-Road Vehicle All Purpose Snowmobile	An off-road snowmobile. All uses allowed. Third party liability and underinsured motorist coverage only.
Other Truck	A truck used for a business for which there is no other specified insurance use and (a) has a GVW of 4,540 kg or less and is **not** one of the following body styles: chassis mounted camper, crew cab, crew cab service truck, extended cab, extended cab service truck, light delivery, light pickup, panel van, service truck or sport utility; or (b) has a GVW of 4,541 kg or more. Or a non-business truck with a GVW of 4,541 kg or more.
Passenger Vehicle-for-Hire (Passenger Vehicle)	A vehicle for hire that is a passenger vehicle and is not an accessible vehicle-for-hire, a limousine vehicle-for-hire or a taxicab vehicle-for-hire or a vehicle owned or operated by or on behalf of a municipality to provide public transportation services.
Passenger Vehicle-for-Hire (Truck with 4,499 kg or less GVW)	A vehicle-for-hire that is a truck with gross vehicle weight of 4,499 kg or less and a body style as described in Schedule AA of the Manitoba Public Insurance Corporation Act.

Insurance Use	Description
Petroleum/Chemical Truck	A truck used to transport gasoline, oil, propane or other petroleum or chemical products or used to transport explosives or radioactive material.
Pleasure Moped	A moped as defined in *The Highway Traffic Act* (an engine displacement of 50 cc or less or an electric motor neither of which is capable of attaining a speed greater than 50 km/hour) that (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used in connection with a business, trade or occupation. Eligible for vehicle discount.
Pleasure Motorcycle (Refer to the motorcycle body style definitions in Attachment 4)	A motorcycle as defined in *The Highway Traffic Act* (capable of attaining a speed of 50 km/hour or more) that (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used in connection with a business, trade or occupation. Eligible for vehicle premium discount.
Pleasure Motorhome	A motorhome as defined under *The Highway Traffic Act* that (a) is not driven to or from or part way to or from work or school, more than four days in one month or more than 1,609 km during a rating term; and (b) is not used for a business, trade or occupation. Eligible for vehicle premium discount.

Insurance Use	Description
Pleasure Passenger Vehicle	A private passenger vehicle that (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used for a business, trade or occupation. Eligible for vehicle premium discount.
Pleasure Truck	A truck with a GVW of 4,540 kg or less that (a) is not driven to or from or part way to or from work or school more than four days in one month or more than 1,609 km during a rating term; and (b) is not used for a business, trade or occupation. Eligible for vehicle premium discount.
Police/Emergency Passenger Vehicle (includes Ambulance)	A passenger vehicle used by a police force, fire department or ambulance service or used as an authorized emergency vehicle as defined under *The Highway Traffic Act*.
Police/Emergency Truck	A truck used by a police force, fire department or ambulance service or used as an authorized emergency vehicle as defined under *The Highway Traffic Act*.
Repairer	A vehicle in the custody of a repairer for the purpose of testing or servicing.
Sand/Gravel Truck	A truck with a GVW of 10,891 or more used to transport sand, gravel, stone, asphalt or reduced minerals.
School Bus	A bus used by a school, hospital, institution or non-profit organization.
Taxicab Vehicle-for-Hire	A vehicle-for-hire that is a passenger vehicle equipped with a taximeter.

Insurance Use	Description
Tow Truck	A vehicle with body style tow, excluding such vehicles used extra-provincially.
Transit Bus	A public transit bus.
U-Drive Bus	A bus leased for 30 days or less or operated as a U-Drive.
U-Drive Moped	A moped leased for 30 days or less or operated as a U-Drive.
U-Drive Motorhome	A motorhome leased for 30 days or less or operated as a U-Drive.
U-Drive Passenger Vehicle	A passenger vehicle leased for 30 days or less or operated as a U-Drive. Includes a courtesy vehicle supplied by a body shop or garage for a rental fee.
U-Drive Truck	A truck leased for 30 days or less or operated as a U-Drive. Includes a courtesy truck supplied by a body shop or garage for a rental fee.

Appendix 3: VEHICLE CLASSIFICATION SYSTEM MAJOR INSURANCE CLASSES

MAJOR CLASS: PRIVATE PASSENGER VEHICLES

- All Purpose Motorhome
- All Purpose Passenger Vehicle
- All Purpose Truck
- Antique Vehicle
- Collector Passenger Vehicle
- Collector Truck
- Disabled Persons/Private/Business Bus
- Farm Passenger Vehicle
- Farming All Purpose Truck - 4,540 kg or less
- Fishing All Purpose Truck - 4,540 kg or less
- Passenger Vehicle-for-Hire (Passenger Vehicle)
- Passenger Vehicle-for-Hire (Truck 4,499 kg or less GVW)
- Pleasure Motorhome
- Pleasure Passenger Vehicle
- Pleasure Truck

MAJOR CLASS: COMMERCIAL VEHICLES

- All Purpose Snow Vehicle
- Artisan Truck
- Cement/Brick/Exploration Truck
- Common/Private/Contract Passenger Vehicle - Over 161 km outside Manitoba
- Common/Private/Contract Truck - Over 161 km outside Manitoba
- Common Carrier Local Passenger Vehicle

MAJOR CLASS: COMMERCIAL VEHICLES (*cont'd)*

- Common Carrier Passenger Vehicle - Within 161 km in Manitoba
- Common Carrier Passenger Vehicle - Over 161 km in Manitoba
- Common Carrier Truck (Local – Within city or municipality)
- Common Carrier Truck - Over 161 km in Manitoba
- Common Carrier Truck - Within 161 km in Manitoba
- Dealer All Uses - Except Motorcycle
- Dealer Moped
- Dealer Motorcycle
- Dealer Trailer
- Driveaway - Over 161 km outside Manitoba
- Driveaway - Within Manitoba
- Farming All Purpose Truck Over 4,540 kg
- Fishing All Purpose Truck Over 4,540 kg
- Logging Truck
- Other Truck
- Petroleum/Chemical Truck
- Repairer All Uses
- Sand/Gravel Truck
- Tow Truck

MAJOR CLASS: PUBLIC VEHICLES

- Accessible Vehicle-for-Hire
- Charter Bus – Local
- Common Carrier Bus Over 161 km outside Manitoba
- Common Carrier Bus Within Manitoba
- Funeral Passenger Vehicle
- Limousine Vehicle-for-Hire

MAJOR CLASS: PUBLIC VEHICLES *(cont'd)*

- Police/Emergency Passenger Vehicle (includes Ambulance)
- Police/Emergency Truck
- School Bus
- Taxi Vehicle-for-Hire
- Transit Bus
- U-Drive Bus
- U-Drive Moped
- U-Drive Motorhome
- U-Drive Passenger Vehicle
- U-Drive Truck

MAJOR CLASS: MOTORCYCLES

- All Purpose Mobility Vehicle
- All Purpose Moped
- All Purpose Motorcycle
  - Motorscooter Rating
  - Other Rating
  - Sport Rating
  - Sport Touring Rating
  - Touring Rating
- Pleasure Moped
- Pleasure Motorcycle
  - Motorscooter Rating
  - Other Rating
  - Sport Rating
  - Sport Touring Rating
  - Touring Rating

MAJOR CLASS: TRAILERS

- All Purpose Trailer – Value up to $2,500
- All Purpose Trailer – Value $2,501 – $50,000

MAJOR CLASS: OFF-ROAD VEHICLES

- Off-Road Vehicle – All-Terrain Vehicle
- Off-Road Vehicle – Motorcycle
- Off-Road Vehicle – Snow Vehicle
- Off-Road Vehicle – Snowmobile

Appendix 4: MOTORCYCLE BODY STYLE DEFINITIONS

Body Style Rating Category	Body Style	Description of Body Style
Touring Rating	Touring	A motorcycle that is designed and marketed for long distance travel that includes such things as a large engine, high amounts of storage, including top trunks and saddlebags, reverse gears, onboard air compressors, large fairings and windshields and includes amenities like cruise control, stereo audio entertainment systems, citizen band communication systems, and heated seats and grips.
	Trike	A motorcycle that is similar to a touring motorcycle but that is equipped with two wheels at the back and one at the front. The usual layout of a trike is for the power to be delivered to one or both rear wheels, while the front is used for steering.
	3-Wheel Motorcycle	A motorcycle that is designed with a "Y" shaped chassis featuring two wheels at the front and one at the rear.
	Standard Sidecar	A motorcycle that has attached to it a one wheeled sidecar.
Sport Rating	Sport	A fast, light, sleek motorcycle that is designed for maximum performance and maneuverability. It is distinguishable from other motorcycles by its full fairing and the rider's tipped-forward seating position.

Body Style Rating Category	Body Style	Description of Body Style
Sport Rating *(cont'd)*	Naked Sport	A motorcycle with a design that is reduced to its basic form and stripped down to its fundamental parts. The front wheel is visible from the rider's position and the emphasis of the design is on functionality, performance and ergonomics, rather than on body panels and exaggerated riding positions that are emphasized for sport bikes. These motorcycles may also be marketed as "naked" or "street" bikes.
Sport Touring Rating	Sport Touring	A motorcycle that is designed and marketed as a hybrid between a sport and a touring motorcycle, that allows long-distance riding with more emphasis on sport-like performance in both handling and speed than a touring motorcycle.
	Adventure	A motorcycle that is designed and marketed as a combination sport, touring and off-road motorcycle. This body style is designed with the features of a on-road motorcycle capable of cruising on paved roads but also includes big tires, large fuel tanks and comfortable seats as well as high ground clearance in order that rough terrain may be traversed without difficulty.
Motorscooter Rating	Motorscooter	A motorscooter is a motorcycle with a step-through frame that generally has smaller wheels than those of a standard motorcycle. A person can ride a scooter without straddling any part of it.
	3-Wheel Scooter	A scooter that is designed to include a second independent front wheel that is used to increase ride stability.

Body Style Rating Category	Body Style	Description of Body Style
Other Rating	Cruiser	A motorcycle that is designed with a low seat height, wider rear tire, raked front forks, and forward controls with the foot pegs way out in front as opposed to being straight down. The design emphasizes comfort and appearance with a relaxed upright seating position, and often includes an abundance of chrome.
	Dual Purpose	A motorcycle for both highway and off-road use, its design includes fenders and tires suitable for some off-road uses coupled with street safety requirements such as mirrors and turn signal indicators. An off-road motorcycle that has been modified to meet the requirements to be registered under *The Highway Traffic Act* is included in this body style.
	Motard	A motorcycle design that combines the design of a motocross and an enduro motorcycle, it is fitted with road racing tires while keeping the other features synonymous with off-road machines. These motorcycles are designed and marketed to compete over a race course that mixes road racing on tarmac with off-road sections.
	Enduro	A motocross motorcycle that may be registered under *The Highway Traffic Act* that features high ground clearance and copious suspension combined with minimal rider comforts. It is differentiated from a motocross motorcycle by the presence of silencers, flywheel weights and the features necessary for the on-road portion of enduro racing.

Body Style Rating Category	Body Style	Description of Body Style
Other Rating ***(cont'd)***	Other	A motorcycle that can be registered under *The Highway Traffic Act* and does not have a body style that is included in the rating categories of Touring, Sport, Sport Touring, Motorscooter, and Other.
	Standard	A motorcycle that is designed with a small rake and trail, and generally does not include accessories such as a windshield, saddlebags, trunk, or audio entertainment system.

VEHICLE RATE GROUPS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

VEHICLE RATE GROUP 3
VRG.1 PASSENGER VEHICLE RATE GROUPS 3
VRG.2 LIGHT TRUCK VEHICLE RATE GROUPS 3
VRG.3 HEAVY TRUCKS VEHICLE RATE GROUPS 3
VRG.4 BUSES, MOTORCYCLES, MOTORHOMES AND TRAILERS VEHICLE RATE GROUPS 4

VEHICLE RATE GROUP

As discussed in *Part V(ii) Vehicle Classification System VCS.4.1*, rate groups are assigned for the following vehicle types: passenger vehicles, trucks, buses, motorcycles, mopeds, mobility vehicles, motor homes, and trailers. The Vehicle Rate Group tables present the assigned rate groups by vehicle type, and the changes to the assigned rate groups for passenger vehicles and light trucks.

For the 2019 GRA, the Vehicle Rate Group Tables have been provided in Excel format, as an attachment to the Application PDF. The Excel workbook can be accessed either through the Attachments pane in a PDF viewer, or by clicking *Part V(ii) VRG Vehicle Rate Group Tables*.

VRG.1 PASSENGER VEHICLE RATE GROUPS

- Part 1A 2019 Rate Groups (1999 to 2019) [provided electronically]
- Part 1B 2019 Rate Group Changes (1999 to 2019) [provided electronically]
- Part 1C 2019 Rate Groups (1998 and Prior) [provided electronically]
- Part 1D 2019 Rate Group Changes (1998 and Prior) [provided electronically]

VRG.2 LIGHT TRUCK VEHICLE RATE GROUPS

- Part 2A 2019 Rate Groups (1999 to 2019) [provided electronically]
- Part 2B 2019 Rate Group Changes (1999 to 2019) [provided electronically]
- Part 2C 2019 Rate Groups (1998 and Prior) [provided electronically]
- Part 2D 2019 Rate Group Changes (1998 and Prior) [provided electronically]

VRG.3 HEAVY TRUCKS VEHICLE RATE GROUPS

- Part 3 Heavy Trucks

VRG.4 BUSES, MOTORCYCLES, MOTORHOMES AND TRAILERS VEHICLE RATE GROUPS

- Part 4 Buses, Motorcycles, Mopeds, Mobility Vehicles, Motorhomes, and Trailers

PART VI:
MANAGING BASIC'S RISK AND EXPOSURE FOR THE BENEFIT OF MANITOBANS

INV – INVESTMENTS
RSR – RATE STABILIZATION RESERVE
DCAT – DYNAMIC CAPITAL ADEQUACY TESTING
RMF – RISK MANAGEMENT FRAMEWORK

Manitoba Public Insurance

INVESTMENTS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

INVESTMENTS **6**
INV.1 EXECUTIVE SUMMARY **6**
INV.1.1 Current Year Investment Themes - Summary 6
INV.1.2 Investment Income Forecast - Summary 9
INV.2 CURRENT YEAR INVESTMENT THEMES **15**
INV.2.1 ALM Study 15
INV.2.1.1 ALM Study Outcomes 16
INV.2.1.2 Commentary from Mercer and MPI on the CAC's 18 Recommendations 17
INV.2.1.3 Use of Duration Matching instead of Hybrid/Bucket Approach 20
INV.2.1.4 ALM Technical Conference 21
INV.2.2 ALM Transition Plan 22
INV.2.2.1 Pre-ALM vs Post-ALM Financial Impact 24
INV.2.2.2 Reduction in Basic Interest Rate Risk 25
INV.2.3 Naive Interest Rate Forecast 26
INV.2.3.1 Historical Analysis of the Naive, 50 50 and SIRF Forecasts 27
INV.2.3.2 Rate Indication under 50/50 and SIRF Interest Rate Scenarios 30
INV.3 CASH / SHORT TERM **30**
INV.3.1 Summary Table 30
INV.3.2 Definition and Accounting Treatment 30
INV.3.3 Return Assumption 30
INV.4 MARKETABLE BONDS **31**
INV.4.1 Summary Tables 31
INV.4.2 Definition and Accounting Treatment 32
INV.4.3 Interest and Capital Return Assumptions 33
INV.4.3.1 Interest Income 33
INV.4.3.2 Weighted Average Coupon for Existing Bonds 33
INV.4.3.3 Turnover 33
INV.4.3.4 Yield to Maturity Calculation for 2018/19 35
INV.4.3.5 Yield to Maturity Calculation for 2019/20 and Thereafter 37
INV.4.3.6 Capital Return 39
INV.4.3.7 Duration 39
INV.4.3.8 Convexity 40

INV.5 NON-MARKETABLE BONDS (MUSH) AND PRIVATE DEBT 41
INV.5.1 Summary Table 41
INV.5.2 Definition and Accounting Treatment 41
INV.5.3 Interest Income Assumption 42
INV.5.4 MUSH Book Value and Yield Forecasting 43
INV.5.5 Private Debt Capital Returns 43
INV.6 CANADIAN EQUITIES 44
INV.6.1 Summary Table 44
INV.6.2 Definition and Accounting Treatment 44
INV.6.3 Total Return Assumption 45
INV.6.4 Dividend Yield 45
INV.6.5 Capital Return 45
INV.6.6 Turnover 46
INV.7 U.S. EQUITIES / GLOBAL EQUITIES AND GLOBAL LOW VOL 47
INV.7.1 Summary Table 47
INV.7.2 Definition and Accounting Treatment 48
INV.7.3 Total Return Assumption 48
INV.7.4 Dividend Yield 49
INV.7.5 Capital Return 50
INV.7.6 Turnover Ratio 50
INV.8 REAL ESTATE 51
INV.8.1 Real Estate Summary Table 51
INV.8.2 Accounting Treatment of the Pooled Fund 52
INV.8.3 Real Estate Pooled Fund Return Assumption 52
INV.8.4 Cityplace Accounting Treatment 52
INV.8.5 Cityplace Return Assumption 53
INV.9 INFRASTRUCTURE 53
INV.9.1 Summary Table 53
INV.9.2 Definition and Accounting Treatment 54
INV.9.3 Return Assumption 54
INV.10 OTHER INVESTMENT INCOME IMPACTS 54
INV.10.1 Investment Management Fees 55
INV.10.1.1 Department of Finance 55
INV.10.1.2 Corporate Bond Manager 55
INV.10.1.3 Growth Assets 56
INV.10.1.4 Canadian Equities 56
INV.10.1.5 U.S. Equities/Global Equities/Global Low Volatility 56
INV.10.1.6 Real Estate Pooled Fund 56

INV.10.1.7 Infrastructure 56
INV.10.2 Pension Expense 57
INV.10.3 Amortization of Bond Premium/Discount 58
INV.10.4 Venture Capital 58
INV.10.5 Allocation of Investment Income to Lines of Business 58
INV.11 REBALANCING 60
INV.11.1 Corporate Rebalancing in 2018/19 60
INV.11.2 Basic Portfolio supporting Basic Claims Liabilities Rebalancing for 2019/20 and Thereafter 63
INV.11.3 RSR and Employee Future Benefits Rebalancing Assumptions 64
INV.12 COMPARISON OF FORECAST 66
INV.12.1 Explanation of Major Differences in 2017/18 Actual vs. Forecast 70
INV.12.2 Explanation of Major Differences between 2019 GRA and 2018 GRA Forecasted Years (2018/19 to 2021/22) 70
INV.13 CHANGES TO THE INVESTMENT INCOME MODEL 72
INV.14 INTEREST RATE FORECASTS AND CPI FORECAST DETAIL 73
INV.14.1 Interest Rate Forecast 73
INV.14.2 Canadian and Manitoba CPI Forecast 75
INV.14.2.1 Canadian CPI Forecast 76
INV.15 ACCOUNTING BY ASSET CLASS 77
INV.16 ASSET LIABILITY MANAGEMENT (ALM) PROGRAM 78
INV.16.1 Background on ALM Program 78
INV.16.2 Interest Rate Risk Definitions 79
INV.16.2.1 Basic Interest Rate Risk with Naive Forecast 79
INV.16.2.2 Reduction in Basic Interest Rate Risk from Last Year 80
INV.16.3 Historical Fixed Income Duration and Claims Duration 81
INV.17 INVESTMENT POLICY STATEMENT 81
INV.18 INVESTMENT RETURN COMPARISON (MFR 2019 GRA C.5) 82
INV.19 BASIC CLAIMS, RSR AND EMPLOYEE FUTURE BENEFITS PORTFOLIO INFORMATION 84

Appendix 1	Investment Policy Statement
Appendix 2	Operational ALM policy
Appendix 3	Rebalancing Policy
Appendix 4	Equity Manager and Termination Policy
Appendix 5	Trading Approval Policy
Appendix 6	Equity Holdings February 2018
Appendix 7	Impaired Securities February 2018
Appendix 8	Investment Committee Terms of Reference
Appendix 9	Line of Business Calculation Detail
Appendix 10	Benchmark Returns
Appendix 11	Interest Rate Scenario Pro Formas
Appendix 12	ALM Phase 1 Report
Appendix 13	ALM Phase 2 Report
Appendix 14	ALM Phase 3 Report
Appendix 15	ALM Phase 3 Report – Response to CAC
Appendix 16	ALM Implementation Plan
Appendix 17	ALM Tech Conference Responses

INVESTMENTS

INV.1 EXECUTIVE SUMMARY

With over $2.7 billion in investment assets, the Investment Income forecast is a major component of the financial condition of Manitoba Public Insurance (MPI or the Corporation). In fiscal 2017/18, investment income allocated to Basic was $116.3 million. This document provides an explanation of how the Basic line of business investment income is forecasted for the next five fiscal years from 2018/19 to 2022/23.

INV.1.1 Current Year Investment Themes - Summary

Asset Liability Management (ALM) Study Update

The ALM study was completed in late 2017. The benefits of implementing the outcomes of the ALM study are:

1. Separation of the commingled investment portfolio into five unique portfolios that back the corporation's liabilities and surplus. The five portfolios are Basic Claims, Basic Rate Stabilization Reserve (RSR), Pension, Extension and Special Risk Extension (SRE), and each will have unique asset allocations at the end of fiscal 2018/19. This will allow MPI to develop investment portfolios that better reflect the associated liabilities (where there are liabilities) and the investment goals of each portfolio.

2. De-risking the Basic Claims portfolio by eliminating exposure to growth assets. Interest rate risk associated with the Basic line of business is expected to be significantly reduced from the separating of investment assets into unique portfolios.

3. Optimizing the Basic Claims portfolio by increasing the exposure to corporate bonds and changing the allocation from government bonds to provincial bonds.

The Consumers' Association of Canada (CAC) provided 18 recommendations for MPI's Investment Portfolio presented in the 2017 General Rate Application (GRA) by Mr. Valter Viola. These 18 Recommendations have been addressed by Mercer in the ALM Phase 3 report. Further commentary by MPI on some of these recommendations have also been provided. The Corporation considers its responses to the CAC's 18 recommendations completed in full.

ALM Transition Plan

The transition from the consolidated portfolio into five unique portfolios is assumed to occur in the financial model at the end of Q4 2018/19, with the exception of funding private debt in 2019/20. The allocation to growth assets (equities, real estate, and infrastructure) will be reduced in order to fund the purchase of additional fixed income assets. The complete transition is expected to be completed by Q4 2019/20 as illiquid asset classes such as real estate and infrastructure must be partially sold and private debt must be purchased. The target weights for Basic Claims, RSR, and Employee Future Benefits are shown in the figure below.

Figure INV- 1: Asset Mix to be Implemented End of Q4 2018/19

Line No.	Target Weights	Basic Claims	RSR	Employee Future Benefits
1	**Fixed Income**			
2	**Provincial Bonds**	60.0%	20.0%	0.0%
3	**Corporate Bonds**	20.0%	10.0%	20.0%
4	**MUSH**	20.0%	5.0%	0.0%
	Private Debt	0.0%	15.0%	20.0%
5	**Total Fixed Income**	**100.0%**	**50.0%**	**40.0%**
6	**Public Equities**			
7	**Canadian Equities**	0.0%	12.0%	10.0%
8	**Global Equities**	0.0%	13.0%	18.0%
9	**Global Low Volatility**	0.0%	10.0%	7.0%
10	**Total Equities**	**0.0%**	**35.0%**	**35.0%**
11	**Alternatives**			
12	**Canadian Real Estate**	0.0%	10.0%	15.0%
13	**Infrastructure**	0.0%	5.0%	10.0%
14	**Total Alternatives**	**0.0%**	**15.0%**	**25.0%**

Basic net income is forecasted to increase by $95 million in 2018/19. This increase is primarily a result of the realization of Accumulated Other Comprehensive Income (AOCI) on equity assets. This is forecasted to occur with the separation of assets into unique portfolios at the end of 2018/19. Total equity is forecasted to be lower because investment asset returns are forecasted to be lower with fewer growth assets after ALM implementation.

The Minimum Capital Test (MCT) ratio will increase by 16% at the end of 2018/19 from 54% to 69% because of lower capital requirements on the Basic line of business investment assets. Interest income is forecasted to increase by approximately $18.5 million on average from 2019/20 to 2021/22 as there will be more fixed income assets in the portfolio supporting the Basic line of business. These projections are based on a Naive interest rate forecast.

The impact to the rate indication as a result of the ALM study is minimal. The break-even rate indication using the naive interest rate forecast and the assumed ALM implementation changes is 0.1%; with the capital maintenance provision included the

rate indication is 2.2%. Without the ALM changes, the break-even rate indication using the naive interest rate forecast is -0.1% and 1.9% with the capital maintenance provision (CMP).

Interest Rate Forecasting

MPI's Board of Directors (BoD) and Management have adopted a naive interest rate forecast. The naive forecast holds the Government of Canada (GoC) 10 year bond yield as of February 28, 2018 constant for the entire five year forecast. A naive interest rate forecast is superior to the 50/50 forecast because it has less standard error. The Naïve forecast is also endorsed by MPI's appointed actuary, Mr. Joe Cheng, who indicated that his firm reviews over 30 Dynamic Capital Adequacy Testing (DCAT) reports annually, and a naive forecast is the most common for the base scenario (see 2018 GRA PUB (MPI) 2-7 Attachment A). Mr. Cheng's October 2017 DCAT Peer Review Report (see *Part VI DCAT Attachment A*) also states:

> *In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naïve interest rate as a base case.*

INV.1.2 Investment Income Forecast - Summary

Ten asset classes are forecasted in the financial model. These asset classes include: cash, government bonds, corporate bonds, non-marketable bonds (MUSH), Canadian equities, U.S. equities/global equities, global low volatility, real estate (split into two components), infrastructure and private debt. The forecast also includes the impact of investment fees and pension expense. The accounting treatment, capital and income return, turnover, and funding assumptions are detailed in this document under each asset class. Finally, a comparison of this year's investment income forecast to the 2018 GRA forecast is provided.

- *Figure INV- 2* provides an investment income summary for the Basic Line of Business over a 10 year period, with 5 years of historical data, and 5 forecasted years. See INV.19 for the investment income summary and asset allocation for Basic Claims, RSR and Employee Future Benefits.
- *Figure INV- 3* provides the asset values and percentage of the total combined Basic Line of Business portfolio (Basic Claims and RSR) for each asset class over the same 10 year period.
- *Figure INV- 4* shows this year's naive interest rate forecast based on the GoC 10 year bond rate as of February 28, 2018, compared to last year's naive interest rate forecast used in the 2018 GRA.
- *Figure INV- 5* provides a summary of the major assumptions used in last year's application and this year's application, and the corresponding section in this document where the current assumptions are supported.

Figure INV- 2: Summary of Basic Line of Business Investment Income

Line No.		Reference Section #	2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Actual	2017/18 Actual	2018/19 FB	2019/20 Forecast	2020/21 Forecast	2021/22 Forecast	2022/23 Forecast
	(C$000s, except where noted)											
1	Interest Income During Period											
2	Cash/Short Term Investments	INV.3	924	629	309	314	565	219	90	(0)	0	(0)
3	Marketable/Provincial Bonds	INV.4	26,243	27,471	31,257	30,910	34,147	37,892	48,661	53,402	58,032	62,571
4	MUSH	INV.5	25,155	25,790	26,290	25,222	25,349	22,948	23,699	21,465	19,312	17,212
5	Private Debt	INV.5							986	2,630	2,630	2,629
6	Total		52,321	53,890	57,856	56,447	60,060	61,059	73,436	77,497	79,974	82,413
7	Dividend and other Income											
8	Canadian Equities	INV.6	10,678	21,219	9,711	9,441	7,774	8,282	1,690	1,422	1,523	1,632
9	US Equities/Global Equities	INV.7	1,150	2,503	3,508	3,216	2,619	3,617	1,423	1,271	1,361	1,458
10	Global Low Volatility	INV.7							869	961	1,023	1,089
11	Investment Properties (CityPlace)	INV.8	2,133	1,540	2,736	2,621	2,972	4,236	642	837	817	771
12	Infrastructure	INV.9	2,171	5,456	1,164	1,341	1,731	1,262	239	249	263	278
13	Total		16,132	30,718	17,119	16,618	15,096	17,398	4,863	4,740	4,987	5,226
14	Gains During Period - Profit & Loss											
15	Marketable Bonds Unrealized Gains/(Loss)	INV.4	(13,322)	63,073	(65,498)	(20,489)	8,079	(17,462)	(28,831)	(421)	(441)	(449)
16	Marketable Bonds Realized Gains/(Loss)	INV.4	(6,098)	22,574	12,950	1,708	(3,490)	17,462	28,831	421	441	449
17	Canadian Equities Realized Gains	INV.6	49,185	24,006	(333)	19,644	20,060	59,363	683	-	-	-
18	US/Global Equities Realized Gains	INV.7	49,014	68	12	14,995	4,928	56,873	649	-	-	-
19	Global Low Volatility	INV.7					-	-	-	-	-	-
20	Real Estate	INV.8	16,803	9,939	14,616	14,112	25,058	13,985	1,162	1,213	1,286	1,363
21	Infrastructure	INV.9	-	-	5,441	(1,420)	5,376	4,944	936	975	1,030	1,088
22	Total		95,583	119,660	(32,812)	28,551	60,011	135,165	3,431	2,188	2,316	2,450
23	Other											
24	Investment Fees Paid	INV.10	(3,437)	(3,435)	(3,653)	(3,962)	(3,641)	(4,464)	(2,121)	(2,153)	(2,214)	(2,254)
25	Amortization of Bond Premium/Discount	INV.10	(9,879)	(10,290)	(10,890)	(11,735)	(3,069)	(11,527)	2,538	2,591	2,711	2,763
26	Pension Expense	INV.10	(2,199)	(1,506)	(3,204)	(3,021)	(11,619)	(5,816)	-	-	-	-
27	Venture Capital Income	INV.10	221	106	30	-	412					
28	Investment Write-Down		(1,007)	(692)	(28,484)	-	(930)					
29	Total		(16,301)	(15,816)	(46,201)	(18,718)	(18,847)	(21,807)	417	438	497	509
30	Total Basic LOB Investment Income		147,735	188,451	(4,038)	82,897	116,320	191,814	82,147	84,863	87,773	90,599

Figure INV- 3: Investment Portfolio Asset Values for the Basic Line of Business

Line No.	Reference Section #	2013/14 Actual*	2014/15 Actual*	2015/16 Actual*	2016/17 Actual*	2017/18 Actual*	2018/19 FB	2019/20 Forecast	2020/21 Forecast	2021/22 Forecast	2022/23 Forecast
	Ending Asset Values (C$ 000,000's)										
1	**Cash/Short Term Investments**	144	57	32	65	76	0	0	0	0	0
2	**Government Bonds**	675	911	898	972	984	1,059	1,080	1,180	1,281	1,383
3	**Corporate Bonds**					99	403	449	482	515	549
4	**MUSH**	464	503	530	569	527	554	509	464	421	376
5	**Private Debt**					0	0	49	49	49	49
6	**Canadian Equities**	337	287	256	282	226	40	41	44	47	51
7	**US Equities/Global Equities**	136	144	142	138	124	43	45	48	51	55
8	**Global LV Equities**	0	0	0	0	0	33	35	37	40	42
9	**Real Estate Investments**	176	205	225	244	259	33	34	35	36	39
10	**Infrastructure & Venture Capital**	22	48	73	86	87	16	17	18	19	21
11	**Total Assets**	1,954	2,155	2,155	2,357	2,381	2,181	2,259	2,358	2,460	2,565
12	**Ending Rebalanced Allocations (%)**										
13	**Cash/Short Term Investments**	7.4%	2.7%	1.5%	2.8%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%
14	**Government Bonds**	34.6%	42.3%	41.6%	41.3%	41.3%	48.6%	47.8%	50.0%	52.1%	53.9%
15	**Corporate Bonds**	0.0%	0.0%	0.0%	0.0%	4.2%	18.5%	19.9%	20.4%	20.9%	21.4%
16	**MUSH**	23.7%	23.3%	24.6%	24.2%	22.1%	25.4%	22.5%	19.7%	17.1%	14.7%
17	**Private Debt**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	2.1%	2.0%	1.9%
18	**Canadian Equities**	17.2%	13.3%	11.9%	12.0%	9.5%	1.8%	1.8%	1.9%	1.9%	2.0%
19	**US Equities/Global Equities**	7.0%	6.7%	6.6%	5.9%	5.2%	2.0%	2.0%	2.0%	2.1%	2.1%
20	**Global LV Equities**	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	1.6%	1.6%	1.6%	1.7%
21	**Real Estate Investments**	9.0%	9.5%	10.4%	10.4%	10.9%	1.5%	1.5%	1.5%	1.5%	1.5%
22	**Infrastructure & Venture Capital**	1.1%	2.2%	3.4%	3.6%	3.6%	0.8%	0.8%	0.8%	0.8%	0.8%
23	**Total Assets**	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

24 * Actual based on long-term basic line of business allocation applied to the entire portfolio

Figure INV- 4: Interest Rate Forecast

Line No.	*Calendar Year/ Quarter*	Fiscal Year/ Quarter	91-Day T.Bill Rate 2019 GRA	GoC 10 Yr Rate 2019 GRA	Mrk. Bond Yield 2019 GRA	MUSH Yield 2019 GRA	Claims Discount Rate 2019 GRA	91-Day T.Bill Rate 2018 GRA	GoC 10 Yr Rate 2018 GRA	Mrk. Bond Yield 2018 GRA	MUSH Yield 2018 GRA	Claims Discount Rate 2018 GRA	91-Day T.Bill Rate Difference	GoC 10 Yr Rate Difference	Mrk. Bond Yield Difference	MUSH Yield Difference	Claims Discount Rate Difference
1	18:01	2018/19 Q1	1.15%	2.24%	3.12%	4.56%	3.44%	0.51%	1.64%	2.91%	4.59%	3.39%	0.64%	0.60%	0.21%	-0.03%	0.06%
2	18:02	2018/19 Q2	1.15%	2.24%	3.13%	4.55%	3.43%	0.51%	1.64%	2.95%	4.57%	3.39%	0.64%	0.60%	0.18%	-0.03%	0.04%
3	18:03	2018/19 Q3	1.15%	2.24%	3.19%	4.53%	3.49%	0.51%	1.64%	2.93%	4.56%	3.38%	0.64%	0.60%	0.26%	-0.02%	0.11%
4	18:04	2018/19 Q4	1.15%	2.24%	3.20%	4.52%	3.56%	0.51%	1.64%	3.42%	4.54%	3.78%	0.64%	0.60%	-0.22%	-0.02%	-0.22%
5	19:01	2019/20 Q1	1.15%	2.24%	3.21%	4.51%	3.52%	0.51%	1.64%	3.37%	4.48%	3.74%	0.64%	0.60%	-0.15%	0.03%	-0.23%
6	19:02	2019/20 Q2	1.15%	2.24%	3.21%	4.49%	3.50%	0.51%	1.64%	3.37%	4.46%	3.74%	0.64%	0.60%	-0.16%	0.03%	-0.24%
7	19:03	2019/20 Q3	1.15%	2.24%	3.21%	4.48%	3.49%	0.51%	1.64%	3.38%	4.45%	3.74%	0.64%	0.60%	-0.16%	0.04%	-0.25%
8	19:04	2019/20 Q4	1.15%	2.24%	3.21%	4.47%	3.47%	0.51%	1.64%	3.37%	4.43%	3.74%	0.64%	0.60%	-0.16%	0.04%	-0.27%
9	20:01	2020/21 Q1	1.15%	2.24%	3.21%	4.46%	3.45%	0.51%	1.64%	3.36%	4.37%	3.73%	0.64%	0.60%	-0.15%	0.08%	-0.28%
10	20:02	2020/21 Q2	1.15%	2.24%	3.21%	4.44%	3.44%	0.51%	1.64%	3.36%	4.36%	3.73%	0.64%	0.60%	-0.15%	0.09%	-0.29%
11	20:03	2020/21 Q3	1.15%	2.24%	3.21%	4.43%	3.43%	0.51%	1.64%	3.36%	4.34%	3.73%	0.64%	0.60%	-0.15%	0.09%	-0.30%
12	20:04	2020/21 Q4	1.15%	2.24%	3.21%	4.42%	3.42%	0.51%	1.64%	3.35%	4.33%	3.73%	0.64%	0.60%	-0.15%	0.09%	-0.32%
13	21:01	2021/22 Q1	1.15%	2.24%	3.21%	4.40%	3.40%	0.51%	1.64%	3.34%	4.27%	3.73%	0.64%	0.60%	-0.14%	0.13%	-0.32%
14	21:02	2021/22 Q2	1.15%	2.24%	3.21%	4.39%	3.39%	0.51%	1.64%	3.34%	4.26%	3.73%	0.64%	0.60%	-0.13%	0.13%	-0.34%
15	21:03	2021/22 Q3	1.15%	2.24%	3.21%	4.38%	3.38%	0.51%	1.64%	3.33%	4.24%	3.73%	0.64%	0.60%	-0.13%	0.13%	-0.35%
16	21:04	2021/22 Q4	1.15%	2.24%	3.21%	4.36%	3.37%	0.51%	1.64%	3.33%	4.23%	3.73%	0.64%	0.60%	-0.13%	0.13%	-0.36%
17	22:01	2022/23 Q1	1.15%	2.24%	3.20%	4.35%	3.35%	0.51%	1.64%	3.32%	4.17%	3.72%	0.64%	0.60%	-0.12%	0.18%	-0.37%
18	22:02	2022/23 Q2	1.15%	2.24%	3.20%	4.34%	3.34%	0.51%	1.64%	3.32%	4.16%	3.73%	0.64%	0.60%	-0.11%	0.18%	-0.38%
19	22:03	2022/23 Q3	1.15%	2.24%	3.20%	4.33%	3.34%	0.51%	1.64%	3.31%	4.15%	3.73%	0.64%	0.60%	-0.11%	0.18%	-0.39%
20	22:04	2022/23 Q4	1.15%	2.24%	3.20%	4.31%	3.32%	0.51%	1.64%	3.31%	4.13%	3.73%	0.64%	0.60%	-0.11%	0.18%	-0.41%

21 * 2018 GRA is based on the February 2017 Naïve Interest Rate Forecast. The five years of data shown for 2018 GRA starts from Q1 2017/18 and ends Q4 2021/22.

Figure INV- 5: Major Asset Class Summary

Line No.		2018 GRA	2019 GRA with ALM
1	**Marketable Bonds (Government, Corporate, Provincial)**		
2	Turnover	65%	65%
3	Marketable Bonds	Dynamic Table	Dynamic Table
4	Overall Duration Gap	0.0 years	0.0 years
5	**MUSH**		
6	MUSH Spread on New Purchases	1.88%	No new MUSH purchases forecasted
7	New MUSH Purchases	$10 million per quarter	$0
8	**Private Debt**		
9	Private Debt Spread	n/a	1.42%
10	Private Debt Purchases	n/a	Funding occurs in 2019/20
11	**Canadian Equities**		
12	Total Return	7.2%	7.0%
13	Dividend Yield	2.9% 2017/18, 3.2% 2018/19, 3.3% 20/19 and thereafter	3.1% 2018/19, 3.2% 2019/20, 3.4% 2020/21 and thereafter
14	Capital Return	Total Return - Dividend Yield = Capital Return	Total Return - Dividend Yield = Capital Return
15	Turnover Ratio (Annual)	0.2	0.2 for 2018/19, 0.0 for 2019/20 and thereafter
16	**US Equities 2018/19**		
17	Total Return	7.2%	7.0%
18	Dividend Yield	2.3% 2017/18, 2.5% 2018/19, 2.6% 2019/20 and thereafter	2.5% 2018/19
19	Capital Return	Total Return - Dividend Yield = Capital Return	Total Return - Dividend Yield = Capital Return
20	Turnover Ratio (Annual)	0	0
21	**Global Equities and Global Low Vol 2019/20 and thereafter**		
22	Total Return	n/a	7% for Global Equities, 6.4% for Global Low Vol
23	Dividend Yield	n/a	2.7% 2019/20, 2.8% thereafter
24	Capital Return	n/a	Total Return - Dividend Yield = Capital Return
25	Turnover Ratio (Annual)	na/	0
26	**Global Low Vol 2019/20 and thereafter**		
27	Total Return		7.0%
28	Dividend Yield		2.7% 2019/20, 2.8% thereafter
29	Capital Return		Total Return - Dividend Yield = Capital Return
30	Turnover Ratio (Annual)		0
31	**Real Estate Pooled Fund**		
32	Return	CPI + 4%: 6.2% in 2017/18, 6.1% in 2018/19 and 6.0% thereafter	CPI + 4%: 6.2% in 2018/19, 6.1% in 2019/20 and 6.0% thereafter
33	Funding	$0 funding over the five year forecast	$0 funding over the five year forecast
34	**Investment Properties (Cityplace)**		
35	Investment Property Income	Based on manager's projections	Based on manager's projections
36	**Infrastructure**		
37	Return	CPI + 5%: 7.2% in 2017/18, 7.1% in 2018/19 and 7.0% thereafter	CPI + 5%: 7.2% in 2018/19, 7.1% in 2019/20 and 7.0% thereafter
38	Funding	$6.5 M per quarter starting in Q1 2017/18 and ending in Q2 2018/19 (Total: $39 M)	No additional funding for infrastructure forecasted

INV.2 CURRENT YEAR INVESTMENT THEMES

This section summarizes the current year investment themes which include the ALM Study, ALM implementation timeline, and interest rate forecasting.

INV.2.1 ALM Study

Mercer was hired to assist with conducting an ALM Study through a Request For Proposal (RFP) process. Phase 1 and Phase 2 were completed by December 2017. Phase 3 was completed in January 2018. Here is a description of each Phase:

Phase One: Analyze merits of adopting unique asset allocation and Investment Policy Statement for Basic, Extension, SRE, RSR, and pension. Examine merits of adding exposure to various types of fixed income. Study the Corporation's interest rate risk management strategy (duration matching) relative to the alternatives (cash flow matching, bucketing/hybrid approach). Initial optimizations were also completed.

See *INV Appendix 12* for the Phase 1 report.

Phase Two: A discussion of new asset classes along with rationale for inclusion and exclusion, proposed asset allocations for each portfolio including estimates of risk and return, and implementation considerations were addressed in Phase Two.

See *INV Appendix 13* for the Phase 2 report.

Phase Three: Finalize responses to CAC's 18 recommendations, which are discussed in *INV.2.1.2 Commentary from Mercer* and MPI on the CAC's 18 Recommendation.

See *INV Appendix 14* for the Phase 3 report.

INV.2.1.1 ALM Study Outcomes

The Corporation currently has a single commingled investment portfolio that backs all Corporate liabilities and surplus, which includes liabilities from:

1. Basic claims
2. Extension
3. SRE
4. RSR
5. Employee Future Benefits (EFB), which is primarily pension

As a result of the recently completed ALM study, MPI will develop five unique investment portfolios backing the liabilities listed above, each with unique asset allocations at the end of fiscal 2018/19. This will allow the Corporation to develop investment portfolios that better reflect the associated liabilities (where there are liabilities) and the investment goals of each portfolio.

Segmenting the portfolios by line of business will provide a better understanding of changes in the value of the liabilities and the associated assets. This will enable MPI to optimize each investment portfolio to best match the associated liability.

The portfolio backing the Basic claims will consist of 100% fixed income, the portfolios backing Extension, SRE and RSR will be balanced (50% growth assets/50% fixed income assets), and the portfolio backing EFB will have a slightly higher allocation to growth assets at 60%. Currently, the portfolios recommended for RSR, Extension and SRE have the same asset allocations (50/50 growth/fixed income), but because the portfolios are unique (i.e. no assets shared between them) the asset allocations can be changed in the future if necessary.

Summary of ALM Outcomes

- Separation of commingled portfolio into unique portfolios in order to better reflect the underlying liabilities and investment goals of the portfolio.
- De-risking the basic claims liabilities portfolio by reducing interest rate risk and eliminating exposure to growth assets.
- Higher marketable bond yield due to more corporate bonds.

INV.2.1.2 Commentary from Mercer and MPI on the CAC's 18 Recommendations

Mercer's responses to the CAC's 18 recommendations are summarized in the response below. MPI's response is provided where appropriate. For a full discussion from Mercer, see the Phase 3 Report (*INV Appendix 14*). CAC's recommendation #15 on duration matching is discussed in the next section.

CAC Recommendation #1, #2 and #3

1. Clarity of Accounting Choices

2. Adoption of More Comparable Accounting Principles

3. Available For Sale (AFS) and Held to Maturity (HTM) Accounting

Mercer's Response: "From Mercer's perspective, each of these items are accounting specific decisions which should be decided in consultation with its auditors."

MPI's Response: Key consideration compliance with International Financial Reporting Standards (IFRS) accounting principles. Policies should be chosen that align with the nature of the assets and liabilities.

CAC Recommendation #4: Re-measurement of Employee Benefits

Mercer's Response: Re-measurement of employee benefits continue to be recognized in Other Comprehensive Income (OCI) and not reclassified to income.

MPI's Response: This recommendation is a contravention of current IFRS standards and would result in a qualified opinion by our external auditors.

CAC Recommendation #5: Return/Risk based on market values

Mercer's Response: 2017 ALM Study is based on market values.

CAC Recommendation #6: De-linking discount rates for the purpose of long-term asset allocation decision making.

Mercer's Response: Current economic assumptions for each asset class were determined independently of MPI's current asset holdings.

CAC Recommendation #7- Min/Max Constraints to be relaxed

Mercer's Response: The ALM study had minimally constrained and practical implementation constraints.

CAC Recommendation #8: Evolved Risk Framework, and
CAC Recommendation #9: Explicit Risk Management Goals

Mercer's Response: Beyond the scope of the study, framework takes significant time to develop

MPI's Response: Assets have been segmented and unique investment strategies developed that better match the underlying liabilities. Once mapped, MPI will understand its appetite per asset class to ensure pragmatic coverage of liabilities.

CAC Recommendation #10: A Minimum Risk Portfolio should be clearly defined.

Mercer's Response: Minimum risk portfolio for MPI's Basic Liabilities assuming 2% inflation on a go-forward basis consists of: Federal Short-Term Bonds 28%, Federal Mid-Term Bonds 18%, Federal Long-Term Bonds 54%.

CAC Recommendation #11: Canadian Equities 10% Minimum Allocation be reconsidered; and
CAC Recommendation #12: Exposure to International Equities to be reconsidered

Mercer's Response: Proposed consolidated portfolio has 3% exposure to Canadian equities, and 7% total to Global and Global Low Vol Equities.

CAC Recommendation #13: No Over-Reliance on Quantitative Modeling

Mercer's Response: Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.

CAC Recommendation #14: The use of Real Return Bonds (RRBs) in effectively managing risks

Mercer and MPI's Response: Given low current inflation expectations Mercer and MPI agreed to hedge nominal, not real interest rate risk. Prior discussions with intervenors identified high inflation scenarios as a relatively low risk.

CAC Recommendation 16: Use of Leverage for Real Estate and Infrastructure

Mercer's Response: ALM study considered use of leverage, but it is not material or worth hedging.

CAC Recommendation 17: Removal of 105% Rule in Investment Policy Statement

Mercer's Response: Support its removal.

MPI's Response: MPI has already removed this rule from the Investment Policy Statement (IPS).

CAC Recommendation 18: Pension Fund

Mercer's Response: The objectives, risk tolerances, and characteristics of each liability, including pension liabilities, were assessed separately in the study. Mercer's study recommended individual target asset mixes for the pension liabilities and other lines of business. Once implemented, the assets backing the pension obligations will no longer be commingled with the assets backing MPI's other obligations.

INV.2.1.3 Use of Duration Matching instead of Hybrid/Bucket Approach

CAC Recommendation #15 says:

> *"The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations."*

Hybrid/Bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) and cash flow matching. A hybrid/bucket approach is more costly to implement and administer than duration matching. A hybrid/bucket approach matches convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve.

Mercer states that a hybrid/bucket approach is appropriate for investors with very limited risk tolerance over the short term, and who have the capability to implement a sophisticated matching program. For investors who can tolerate modest levels of risk over the short term, and target excess returns from active management, Mercer recommended a duration matching approach. A duration matching approach allows for more efficient implementation and a broader opportunity set.

A hybrid/bucket strategy is more expensive than duration matching, but does reduce convexity risk, which is the risk of non-parallel shifts in the yield curve. However, convexity risk is generally equally likely to result in a gain or loss and, therefore, over time this risk is expected to even out.

Cash flow matching and a hybrid of duration and cash flow matching (a "hybrid/bucket approach") were considered, but rejected. Duration matching provides the greatest flexibility to the fixed income manager as there are an infinite number of portfolios that can be constructed that will provide a duration that matches the duration of the Basic claims liabilities.

Cash flow matching is costly and difficult to implement, particularly when future liability cash flows far in the future are uncertain. Cash flow matching is more common for short-term liabilities where the timing and amount of the liability cash flows are known with absolute certainty. This is not the case for MPI's claims liabilities.

The Corporation will continue to monitor its assets and liabilities in appropriate time buckets and stress test alternate non-parallel interest rate scenarios to ensure sensitivities to various market movements are understood and within management's risk tolerance.

INV.2.1.4 ALM Technical Conference

On March 14th, 2018 the Public Utilities Board (PUB) facilitated a technical conference on the ALM study. The concepts and details of the ALM study were discussed by those

in attendance. The Corporation received a list of 32 questions from the PUB subsequent to the technical conference. Responses are provided in *INV Appendix 17*.

INV.2.2 ALM Transition Plan

For the purposes of the financial model, the transition to the new investment strategy developed during the ALM Study is expected to occur in Q4 2018/19.

The detailed ALM transition plan is in *INV Appendix 15*. The Implementation Plan discusses the rationale for changes to the asset allocation, including the rationale for each of the new asset classes, recommended asset allocations, implementation plan for 2018/19 and 2019/20, accounting changes, and financial impacts. Figure INV- 6 shows the current asset target mix as of April 30, 2018.

Figure INV- 6: April 30, 2018 Asset Target Mix

Line No.	Asset Class Group	Target
1	**Cash and short-term**	0.0%
2	**Fixed Income**	
3	**Government Bonds**	45.0%
	Corporate Bonds	5.0%
4	**Non-Marketable Bonds**	20.0%
5	**Total Debt**	70.0%
6	**Public Equities**	
7	**Canadian**	10.0%
8	**U.S.**	5.0%
9	**Total Public Equities**	15.0%
10	**Alternatives**	
11	**Real Estate**	10.0%
12	**Infrastructure**	5.0%
13	**Total Alternatives**	15.0%

The transition will require selling growth assets (equities, real estate and infrastructure) in order to purchase additional fixed income assets. The transition is

expected to be completed by Q4 2019/20 as illiquid asset classes such as real estate and infrastructure must be partially sold. The proceeds of MUSH maturities will be used to fund the purchase of asset classes such as corporate bonds, private debt, global equities and global low volatility equities. Manager searches must be conducted and accounting systems and processes must be redesigned to accommodate the separation of the commingled portfolio.

Figure INV- 7 shows the new asset target mixes for Basic Claims, RSR and Employee Future Benefits.

Figure INV- 7: Asset Mix to be Implemented End of Q4 2018/19

Line No.	Target Weights	Basic Claims	RSR	Employee Future Benefits
1	**Fixed Income**			
2	**Provincial Bonds**	60.0%	20.0%	0.0%
3	**Corporate Bonds**	20.0%	10.0%	20.0%
4	**MUSH**	20.0%	5.0%	0.0%
	Private Debt	0.0%	15.0%	20.0%
5	**Total Fixed Income**	**100.0%**	**50.0%**	**40.0%**
6	**Public Equities**			
7	**Canadian Equities**	0.0%	12.0%	10.0%
8	**Global Equities**	0.0%	13.0%	18.0%
9	**Global Low Volatility**	0.0%	10.0%	7.0%
10	**Total Equities**	**0.0%**	**35.0%**	**35.0%**
11	**Alternatives**			
12	**Canadian Real Estate**	0.0%	10.0%	15.0%
13	**Infrastructure**	0.0%	5.0%	10.0%
14	**Total Alternatives**	**0.0%**	**15.0%**	**25.0%**

INV.2.2.1 Pre-ALM vs Post-ALM Financial Impact

For Basic there was $100.0 million in unrealized equity gains at February 28, 2018 and the financial model is forecasting the unrealized gains on equities to grow to $116.2M at the end of 2018/19 based on the expected return of the asset class.

Figure INV- 8: Financial Impact to Basic Line of Business

Line No	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
	Ending Asset Values (C$ 000,000's)					
1	**Basic Net Income**					
2	**GRA Forecast - ALM**	135,556	17,901	17,675	1,605	(9,795)
3	**GRA Forecast - No ALM**	40,309	19,944	22,503	16,678	2,558
4	**Difference**	95,247	(2,043)	(4,828)	(15,073)	(12,353)
5	**Basic Investment Income**					
6	**GRA Forecast - ALM**	191,814	82,148	84,863	87,773	90,599
7	**GRA Forecast - No ALM**	85,886	86,935	90,781	94,064	98,158
8	**Difference**	105,928	(4,787)	(5,918)	(6,291)	(7,559)
9	**Basic Total Equity**					
10	**GRA Forecast - ALM**	254,420	280,173	306,951	318,291	319,069
11	**GRA Forecast - No ALM**	257,449	285,668	315,890	340,406	351,259
12	**Difference**	(3,029)	(5,495)	(8,939)	(22,115)	(32,190)
13	**Basic MCT Ratio**					
14	**GRA Forecast - ALM**	69%	70%	70%	70%	66%
15	**GRA Forecast - No ALM**	54%	54%	56%	59%	59%
16	**Difference**	16%	15%	14%	11%	7%

- Basic net income is forecasted to increase by $95 million in 2018/19. This increase is primarily a result of the realization of AOCI on equity assets. This is forecasted to occur with the separation of assets into unique portfolios at the end of 2018/19.

- Total equity is forecasted to be lower because investment asset returns are forecasted to be lower with fewer growth assets after ALM implementation.

- The MCT ratio will increase by ~16% at the end of 2018/19 from 54% to 69% because of lower capital requirements on the Basic line of business investment assets. Interest income is forecasted to increase by approximately $18.5

million on average from 2019/20 to 2021/22 as there will be more fixed income assets in the portfolio supporting the Basic line of business. These projections are based on a naive interest rate forecast.

The impact to the rate indication from the ALM implementation are minimal. The break-even rate indication using the naive interest rate forecast and the impact of the ALM changes is 0.1%; when the capital maintenance provision is included the rate indication is 2.2%. Without the ALM changes, the break-even rate indication using the naive interest rate forecast is -0.1% and 1.9% with the capital maintenance provision.

INV.2.2.2 Reduction in Basic Interest Rate Risk

With a commingled investment portfolio, interest rate risk was managed on a Corporate basis by matching the Corporate assets to Corporate claims liabilities. However, this caused a dollar mismatch between Basic assets and Basic claims. By separating Basic assets to match the Basic claims liabilities, interest rate risk has been significantly reduced for the Basic line of business.

To illustrate, for each year from 2019/20 to 2021/22, the GoC 10 year bond rate was increased by 100 basis points on the last day of each fiscal year. The figure below shows the net impact when the Basic line of business is segregated in the 2019 GRA and compares the impact to last year's rate application (using the results shown in the response to the 2018 GRA PUB 1-43). The decrease in interest rate risk from the changes is a result of separating the Basic Claims portfolio from the commingled corporate portfolio.

Figure INV- 9: +100 Bps GoC 10 Year Bond Impact Comparison – 2018 GRA and 2019 GRA

Line No.		2019/20	2020/21	2021/22
1	**2018 GRA**			
2	Marketable Bond G/L	(113.0)	(117.1)	(120.1)
3	Claims Interest Rate Impact	(145.9)	(153.0)	(158.2)
4	Net Impact	32.9	35.9	38.1
5	**2019 GRA**			
6	Marketable Bond G/L	(131.6)	(144.5)	(154.8)
7	Claims Interest Rate Impact	(134.1)	(142.2)	(153.8)
8	Net Impact	2.5	(2.3)	(1.0)

On average the net impact shown in the 2019 GRA was ($0.3M) compared to $35.6M in the 2018 GRA. Further discussion on interest rate risk can be found in *INV.16*.

INV.2.3 Naive Interest Rate Forecast

Interest rate forecasting risk is a significant concern for MPI as inaccurate forecasts have had material impacts on the financial results of the Basic line of business. For example the net impact of changes in interest rates for Basic was a loss of $35.8M in 2014/15 and a gain of $23.7M in 2015/16. Interest rate forecasting risk, for the purpose of this application, is the uncertainty related to setting premium rates based on forecasted interest rates rather than based on future actual interest rates, and the impact of the difference between those interest rates.

PUB Order 130/17 Directive 11.19 stated that:

> *"The 50/50 interest rate forecast shall be used for rate-setting and target capital purposes." The Corporation complied with this directive in its compliance filing to Order 130/17.*

MPI is required to base its rate application on best estimates, and for the 2019 GRA, MPI's management and Board of Directors continue to maintain that the naïve forecast is the best estimate. This position is supported by the analysis below, and the opinion

of MPI's external actuary, Mr. Joe Cheng who stated in his August 30, 2017 letter (2018 GRA PUB(MPI) 2-7 Attachment A) that he reviews over 30 DCAT reports annually, and a naive forecast is the most common for the base scenario. Further Mr. Cheng states that the naive interest rate forecast is a reasonable base forecast because:

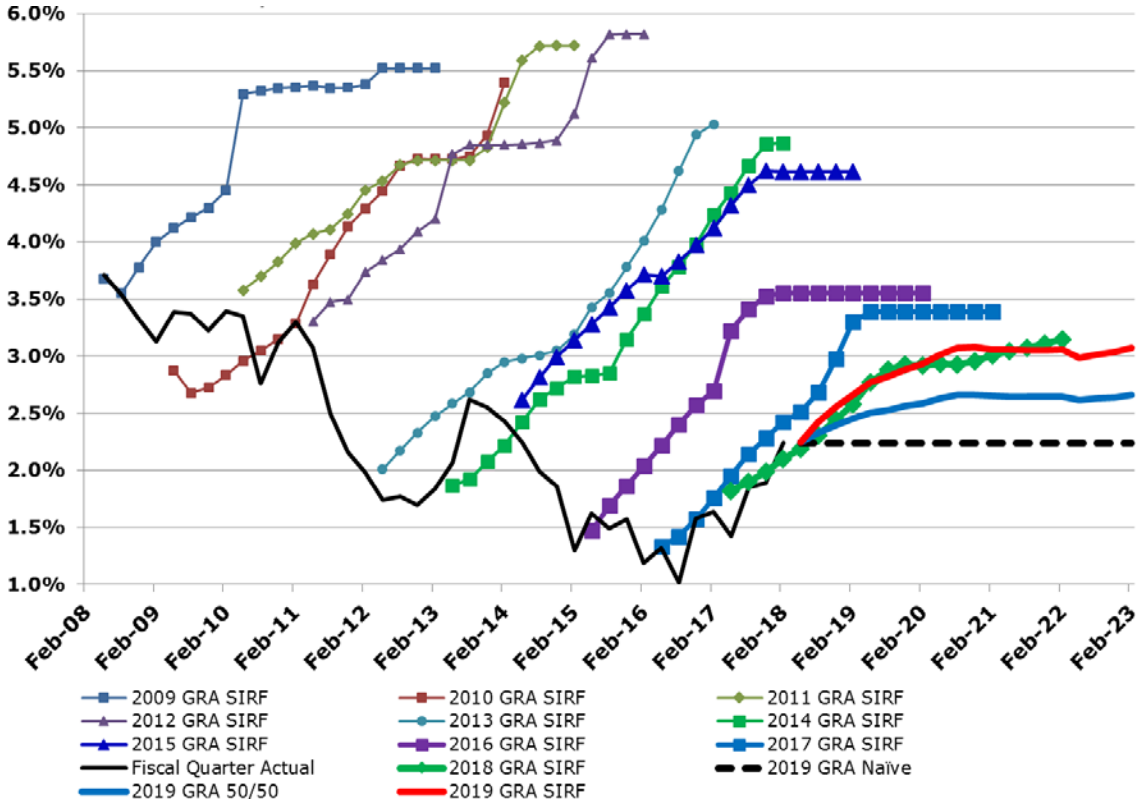
> *"1) nobody can forecast interest rates (especially long term bonds) accurately and consistently; and 2) the bond market is efficient and the current market yield reflects the expectation of the investors of that date."*

Pro forma financial statements using the 50/50 interest rate forecast are shown in *INV Appendix 10*.

INV.2.3.1 Historical Analysis of the Naive, 50 50 and SIRF Forecasts

For graphical representation, the historical forecasts of the GoC 10-year bond yield from 2009 GRA to 2019 GRA are shown in Figure INV- 10, as represented by the coloured lines with markers. This year's interest rate forecast using the standard interest rate forecast (SIRF) methodology (thick red line), the 50/50 forecast (thick light blue line) and the naive forecast (dotted black line) are included in this chart. The thick black line represents the actual GoC 10-year bond rate. The SIRF has performed poorly over the period depicted, a fact that is apparent on simple visual inspection.

Figure INV- 10: GoC 10 Year Forecasted Rates from 2009 to 2019 GRA and Actual



The naive and SIRF forecasts from the 2005 GRA to the 2018 GRA were compared to the actual GoC 10 year bond yields after 12 months. See *Figure INV- 11* for the analysis. Over 12 months, the naive forecast had a lower standard error compared to the 50/50 forecast and the SIRF.

Figure INV- 11: Historical Analysis of SIRF, 50/50 and Naïve Forecast from 2005 to 2018 GRA

Line No.		SIRF Forecast	Actual	Difference	50/50 Forecast	Actual	Difference	Naïve Forecast	Actual	Difference
1	**2005 GRA**	4.86%	4.27%	0.58%	4.62%	4.27%	0.34%	4.38%	4.27%	0.11%
2	**2006 GRA**	4.41%	4.13%	0.28%	4.34%	4.13%	0.22%	4.27%	4.13%	0.15%
3	**2007 GRA**	4.49%	4.03%	0.46%	4.31%	4.03%	0.28%	4.13%	4.03%	0.10%
4	**2008 GRA**	4.19%	3.64%	0.55%	4.11%	3.64%	0.47%	4.03%	3.64%	0.39%
5	**2009 GRA**	3.73%	3.13%	0.60%	3.69%	3.13%	0.55%	3.64%	3.13%	0.51%
6	**2010 GRA**	2.87%	3.39%	-0.52%	3.00%	3.39%	-0.39%	3.13%	3.39%	-0.26%
7	**2011 GRA**	4.00%	3.30%	0.70%	3.69%	3.30%	0.39%	3.39%	3.30%	0.09%
8	**2012 GRA**	3.73%	1.99%	1.74%	3.51%	1.99%	1.53%	3.30%	1.99%	1.31%
9	**2013 GRA**	2.48%	1.84%	0.64%	2.23%	1.84%	0.40%	1.99%	1.84%	0.15%
10	**2014 GRA**	2.22%	2.43%	-0.21%	2.03%	2.43%	-0.40%	1.84%	2.43%	-0.59%
11	**2015 GRA**	3.14%	1.30%	1.84%	2.78%	1.30%	1.48%	2.43%	1.30%	1.13%
12	**2016 GRA**	2.04%	1.19%	0.85%	1.67%	1.19%	0.48%	1.30%	1.19%	0.11%
13	**2017 GRA**	1.76%	1.64%	0.12%	1.48%	1.64%	-0.17%	1.19%	1.64%	-0.45%
14	**2018 GRA**	2.10%	2.24%	-0.14%	1.87%	2.24%	-0.37%	1.64%	2.24%	-0.60%
15	**Average**			0.54%			0.34%			0.15%
16	**Min**			-0.52%			-0.40%			-0.60%
17	**Max**			1.84%			1.53%			1.31%
18	**Standard Deviation**			0.66%			0.60%			0.56%
19	**Standard Error**			0.18%			0.16%			0.15%

INV.2.3.2 Rate Indication under 50/50 and SIRF Interest Rate Scenarios

Figure INV- 12 shows the rate indication with and without the capital maintenance provision under the naive, 50/50 and SIRF scenarios. The breakeven rate indication varies from 0.1% using the Naive interest rate forecast, -0.5% using the 50/50 forecast and -1.0% using SIRF.

Figure INV- 12: Rate Indication Table

Line No	Scenario	New Money Yield	Breakeven Rate Indication	Breakeven Rate Indication with Net CMP	18/19 MCT	19/20 MCT Before Net CMP	19/20 MCT After Net CMP
1	**Naïve**	3.21%	0.1%	2.2%	69.5%	63.6%	69.5%
2	**50/50**	3.50%	-0.5%	1.2%	72.7%	67.8%	72.7%
3	**SIRF**	3.79%	-1.0%	0.4%	75.8%	71.7%	75.8%

The interest rate forecasting methodology impacts the 2019 GRA rate setting by impacting the marketable bond yield at September 1, 2019. The marketable bond yield is referred to as the new money yield, as shown in the previous figure. Further discussion on new money yield can be found in *Part V (ii) Ratemaking*.

INV.3 CASH/SHORT TERM

As of February 28, 2018 cash represented 3.2% of the total portfolio. Cash has a target weight of 0%, and a 0% forecasted weight throughout the 5 forecast years.

INV.3.1 Summary Table

Figure INV- 13: Short Term Summary

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Ending Market Value**	-	-	-	-	-
2	**Total Investment Income**	219	90	0	0	0
3	**Forecasted Yield**	1.15%	1.15%	1.15%	1.15%	1.15%
4	**% of the Portfolio**	0.0%	0.0%	0.0%	0.0%	0.0%

INV.3.2 Definition and Accounting Treatment

Definition: Cash and Short-Term holdings are defined as cash and fixed income investments having a maturity of less than one year at the time of purchase. All fixed income securities are managed by the Department of Finance.

Accounting: Cash is reported at face value on the financial statements. Interest income flows through the Profit and Loss statement.

INV.3.3 Return Assumption

The five year forecasted cash returns are based on the Generic Canadian Government Bonds 3 Month Bill value from Bloomberg as of February 28, 2017. Please see *Figure INV- 43* for 91-day Treasury-bill forecast on a quarterly basis.

INV.4 MARKETABLE BONDS

Marketable bonds make up 45.5% of the total portfolio as of February 28, 2018, which consists of 41.3% government bonds and 4.2% corporate bonds. Government bonds are reclassified as Provincial bonds at the end of Q4 2018/19.

After investment assets are separated into unique portfolios at the end of 2018/19, the target weights for Provincial bonds will change to a target weight of 60% for Basic Claims, 20% for RSR and 0% for Employee Future Benefits. For corporate bonds, the target weights will change to 20% for Basic Claims, 10% for RSR and 20% for Employee Future Benefits.

INV.4.1 Summary Tables

Figure INV- 14: Total Marketable Bond Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Interest**	37,892	48,661	53,402	58,032	62,571
2	**Unrealized Gains / (Losses)**	(17,462)	(28,831)	(421)	(441)	(449)
3	**Realized Gains / (Losses)**	17,462	28,831	421	441	449
4	**Total Investment Income**	**37,892**	**48,661**	**53,402**	**58,032**	**62,572**
5	**Market Value**	1,462,046	1,528,599	1,661,827	1,796,278	1,931,698
6	**% of Portfolio**	67.0%	67.7%	70.5%	73.0%	75.3%
10	**GoC 10 Year Rate end of year forecast**	2.24%	2.24%	2.24%	2.24%	2.24%
11	**Change in Rate from Previous Year**	0.60%	0.00%	0.00%	0.00%	0.00%
12	**Marketable Bond Yield (GoC 10 Yr Bond Rate + Spread)**	3.20%	3.21%	3.21%	3.21%	3.20%

Figure INV- 15: Government/Provincial Bond Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Interest**	30,505	30,286	33,170	36,313	39,357
2	**Unrealized Gains/(Losses)**	(15,930)	(28,827)	(417)	(436)	(444)
3	**Realized Gains/(Losses)**	15,930	28,827	417	436	444
4	**Total Investment Income**	**30,505**	**30,285**	**33,170**	**36,313**	**39,357**
5	**Market Value**	1,058,866	1,080,033	1,179,994	1,280,896	1,382,641
6	**% of Portfolio**	48.6%	47.8%	50.0%	52.1%	53.9%
10	**GoC 10 Year Rate end of year forecast**	2.24%	2.24%	2.24%	2.24%	2.24%
11	**Government/Provincial Bond Yield (GoC 10 Yr Bond Rate + Spread)**	2.92%	2.95%	2.95%	2.94%	2.94%

Figure INV- 16: Corporate Bond Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Interest**	7,387	18,375	20,233	21,720	23,214
2	**Unrealized Gains/(Losses)**	(1,532)	(4)	(4)	(4)	(4)
3	**Realized Gains/(Losses)**	1,532	4	4	4	5
4	**Total Investment Income**	**7,387**	**18,376**	**20,233**	**21,720**	**23,214**
5	**Market Value**	403,180	448,566	481,834	515,382	549,057
6	**% of Portfolio**	18.5%	19.9%	20.4%	20.9%	21.4%
10	**GoC 10 Year Rate end of year forecast**	2.24%	2.24%	2.24%	2.24%	2.24%
11	**Corporate Bond Yield (GoC 10 Yr Bond Rate + Spread)**	3.90%	3.90%	3.90%	3.90%	3.90%

INV.4.2 Definition and Accounting Treatment

Definition: Marketable bonds include all fixed income securities with a maturity of one year or more at the time of purchase and include Canada, Manitoba, other provincial, municipal and corporate bonds, floating rate notes, and debentures that are tradable in the fixed income market. All fixed income securities are managed by the Department of Finance.

Accounting: Unrealized and realized gains/losses, amortization and interest income flow through the Profit and Loss statement.

INV.4.3 Interest and Capital Return Assumptions

Income from the marketable bond portfolio is separated into two components. The first component is interest income and the second component is the capital return (both realized and unrealized gains/losses).

INV.4.3.1 Interest Income

Marketable bond interest income is calculated on a quarterly basis using the weighted average coupon rate for bonds currently within the portfolio, the yield for newly purchased bonds, and the forecasted bond turnover rate. In each quarter, the previous quarter's weighted average coupon yield is adjusted by: (1) the marketable bond turnover rate; and (2) the forecasted marketable bond yield in order to calculate the new weighted average coupon yield for the entire marketable bond portfolio for that quarter. These components are discussed in further detail below. The interest income calculation is the same for both government/provincial and corporate bonds.

INV.4.3.2 Weighted Average Coupon for Existing Bonds

The weighted average coupon is used to calculate the interest from the marketable bond portfolio (government/provincial bonds, corporate bonds). To illustrate the concept of the weighted average coupon, a theoretical $1 billion dollar bond held at par value with a weighted average coupon of 5.0% will generate $50 million dollars in interest within one year. The actual weighted average coupon as of February 28, 2018 was 3.68% for government bonds and 4.16% for corporate bonds. These coupon rates were used as the initial coupon rate in the model in Q4 2018/19.

INV.4.3.3 Turnover

The weighted average coupon of the marketable bond portfolio (government/provincial bonds, corporate bonds) for each successive quarter is

calculated by adjusting the previous quarter's weighted average coupon for the impact of turnover (i.e. buying and selling bonds) in the current quarter. If new bonds are purchased at a lower (higher) yield than the weighted average coupon in the model, then the weighted average coupon of the marketable bond will decrease (increase).

Turnover indicates how often marketable bond holdings are sold in the portfolio. Turnover can be reported in two ways: the percentage of the portfolio holdings sold in one year (turnover ratio) or the number of years to turn over the entire portfolio (which is the inverse of the turnover ratio).

Since February 2008, the historical turnover for the fixed income portfolio has been 0.65 on average. At this level of turnover, the entire marketable bond portfolio would be replaced with new bonds at the forecasted rates within 1.71 years. The range for annual marketable bond turnover varies from 0.36 to 0.96. If the highest and lowest turnover ratios are removed, the average turnover ratio remains at 0.65. *Figure INV-18* shows the sensitivity of marketable bond turnover on Basic investment income.

Figure INV- 17: Marketable Bond Turnover

Line No.	Date	Beginning	End Period	Average	Minimum Buys/Sells	Ratio	Years to Turnover the Portfolio
	(C$000s, except where noted)						
1	**Feb 2018**	1,107,933,784	1,269,489,679	1,188,711,732	752,221,082	63%	1.58
2	**Feb 2017**	1,067,201,814	1,107,933,784	1,087,567,799	609,455,422	56%	1.78
3	**Feb 2016**	1,110,022,483	1,067,201,814	1,088,612,149	868,892,752	80%	1.25
4	**Feb 2015**	979,807,562	1,110,022,483	1,044,915,023	732,088,811	70%	1.43
5	**Feb 2014**	813,192,982	979,807,562	896,500,272	863,726,811	96%	1.04
6	**Feb 2013**	808,369,579	813,192,982	810,781,281	739,117,359	91%	1.10
7	**Feb 2012**	1,010,482,044	808,369,579	909,425,812	746,419,741	82%	1.22
8	**Feb 2011**	1,093,426,863	1,010,482,044	1,051,954,454	416,614,451	40%	2.53
9	**Feb 2010**	827,775,251	1,093,426,863	960,601,057	367,487,397	38%	2.61
10	**Feb 2009**	929,249,136	827,775,251	878,512,194	574,268,999	65%	1.53
11	**Feb 2008**	864,468,944	929,249,136	896,859,040	322,266,021	36%	2.78
12							
13					**Average:**	65%	1.71
14					Max	96%	
15					Min	36%	
16				Average minus highest and lowest outliers		65%	1.67

Figure INV- 18: Marketable Bond Turnover Sensitivity on Basic Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**-**	193,192	80,872	82,990	85,274	87,656
2	**0.20**	192,775	81,389	83,870	86,685	89,429
3	**0.40**	192,317	81,770	84,449	87,405	90,210
4	**0.60**	191,904	82,079	84,793	87,715	90,543
5	**0.65**	191,814	82,148	84,863	87,773	90,599
6	**0.80**	191,546	82,291	85,021	87,891	90,677
7	**1.00**	191,210	82,463	85,154	87,969	90,718

Assumption: The turnover ratio for the marketable bond portfolio is forecasted to be 0.65 over the five year forecast.

INV.4.3.4 Yield to Maturity Calculation for 2018/19

The yield to maturity for government bonds and corporate bonds in 2018/19 was calculated based on a spread over the forecasted GoC 10 year bond yield. The spread varies according to the duration of the relevant marketable bond portfolio for the forecasted quarter. This spread is referred to as the duration spread.

Government Bond Spread

The government duration spread is calculated using the historical spread of provincial bonds over the GoC 10-year bond rate as of February 28, 2018 at various levels of duration and applying this spread to the forecasted GoC 10-year bond rate. The spread of Provincial bonds over GoC 10-year bonds was used as a proxy for the marketable bond portfolio yield, and the data source is Bloomberg.

Given the sensitivity of the claims duration to changes in interest rates, marketable bonds that have duration between 9.0 years and 15.0 years are linearly interpolated by the model.

Provincial bonds with a 9-year duration had a spread of 67 basis points over the GoC 10-year bond rate as of February 28, 2018. Provincial AA rated bonds with a 15-year duration had a spread of 87 basis points over the GoC 10-year rate. Based on this information, the spread between a 9-year duration bond and a 15-year duration bond was 20 basis points.

Figure INV- 19 applies this 20 basis points spread for durations between 9 and 15 years used in the model, increasing on a linear basis for each additional year of duration. As of February 28, 2018, the marketable bond portfolio had a duration of 11.7 years and a spread of 77 basis points over the GoC 10-year bond rate (3.01% compared to 2.24% GoC 10 year bond yield). This data point was used as the starting point in the table below to determine the duration yield spread on a linear basis.

Figure INV- 19: Government Bond Yield Spread

Line No.	Year Ending	Marketable Bond Duration
1	**9.0 years**	67 bps
2	**10.0 years**	70 bps
3	**11.0 years**	74 bps
4	**12.0 years**	77 bps
5	**13.0 years**	80 bps
6	**14.0 years**	84 bps
7	**15.0 years**	87 bps

Corporate Bond Spread

The corporate bond yield was 3.35% as at February 28, 2018, which was a 1.11% duration spread over the GoC 10 year bond yield of 2.24%. It is assumed when BBB rated bonds are added to the corporate portfolio in 2018/19, the duration spread will increase to 1.66% in order for the corporate bond yield (to maturity) to match the FTSE Corporate long term index yield of 3.90% as at February 28, 2018. By Q4 2018/19 the corporate bond yield to maturity is 3.90% with the naive forecast (2.24% GoC 10 year bond yield plus 1.66% duration spread).

INV.4.3.5 Yield to Maturity Calculation for 2019/20 and Thereafter

The consolidated marketable bond portfolio is separated into separate unique portfolios at the end of Q4 2018/19 when the ALM transition occurs. There are four fixed income portfolios that are modeled for the Basic Claims portfolio and the RSR portfolio: 1) provincial bonds for Basic Claims, 2) provincial bonds for RSR, 3) corporate bonds for Basic Claims 4) corporate bonds for RSR.

Provincial Bond Spread

The provincial bond spread uses the same duration spread as government bonds in 2018/19. To illustrate using the naive interest rate forecast:

- The duration of the provincial bond portfolio is 10.1 years as Q4 2019/20. The duration spread over the GoC 10 year bond is 71 basis points. The provincial bond yield to maturity for the quarter is 2.95% (2.24% GoC 10 year bond rate plus 0.71%).
- By 2022/23, the duration of the provincial bond portfolio falls to 9.9 years, causing the duration spread to equal 70 basis points for a provincial bond yield to maturity of 2.94% (2.24% GoC 10 year bond rate plus 0.70%)

Provincial Bond Spread for RSR

The duration for provincial bonds in the RSR portfolio is based on 50% of the short-term provincial index (2.85 years) and 50% of the mid-term provincial index (4.65 years) for a combined assumed duration of 4.65 years as at February 28, 2018. The provincial spread over GoC 10 year bonds is assumed to be 0.09% based on the provincial spread as at February 28, 2018. As a result, the yield to maturity for provincial bonds in the RSR portfolio with the naive forecast is 2.33% (2.24% GoC 10 year bond yield plus 0.09% duration spread).

Corporate Bond Spread for Basic Claims

The corporate bond spread over the GoC 10 year bonds is forecasted to match the FTSE Corporate long term index yield of 3.90%, which is the yield of the index as of February 28, 2018.

Corporate bonds for Basic Claims are assumed to have a duration of 9.9 years. The corporate bond duration spread is forecasted to be 166 basis points. The naive Government of Canada 10 year bond yield was 2.24% plus 1.66% duration spread for a forecasted corporate bond yield of 3.90%.

Corporate Bond Spread for RSR

The duration for corporate bonds in the RSR portfolio is based on FTSE Mid-Term Corporate bond index, which was 6.2 years. The spread for a corporate bond with a duration of 6.2 years was assumed to be 1.09%. This spread was based on the historical spread of corporate bonds over the GoC 10-year bond rate as of February 28, 2018 (source: Bloomberg). The yield to maturity for corporate bonds in the RSR portfolio with the naive forecast is 3.33% (2.24% GoC 10 year bond yield plus 1.09%).

INV.4.3.6 Capital Return

Rising interest rates result in unrealized losses in the marketable bond portfolio, and falling interest rates result in unrealized gains. The model uses the forecasted GoC 10-year bond rate to calculate the change in interest rates on a quarterly basis. The marketable bond duration, convexity and change in interest rate are used to calculate the capital return.

INV.4.3.7 Duration

Duration measures the impact of changes in interest rates on the market values of fixed income assets. The marketable bond duration as of February 28, 2018 was 11.7 years.

As per Section 8.4 of the Investment Policy Statement (*INV Appendix 1*), the marketable bond duration is matched to the claims duration to minimize the interest rate risk of MPI. In last year's rate application, the total fixed income portfolio including MUSH bonds was matched to the claims duration. The duration matching policy has been changed this year to exclude MUSH bonds due to a change in the calculation methodology for the claims discount rate, which is now based upon the dollar weighted yield of the fixed income portfolio rather than the duration weighted yield of the fixed income portfolio.

As a result, the duration of the marketable bond portfolio will decrease by approximately 2 years. The decrease in the marketable bond duration is forecasted to occur at the end of Q1 2018/19.

Within the model the government/provincial bond duration changed so that the total marketable bond portfolio duration (government/provincial and corporate bonds) is matched to the previous quarter's claims duration. This one quarter lag between matching the government/provincial bond duration and claims liability duration reflects the reality that the claims liability number must be known before the fixed income duration can be changed to match. Corporate bond duration is assumed to be static at 9.9 years for the entire 5 year forecast.

Figure INV- 20 provides the forecasted marketable bond duration, the claims duration and the duration gap that is calculated by the model at each year end.

Figure INV- 20: Duration Assumption in Model

Line No.	Year Ending	Marketable Bond Duration	Claims Duration with PfAD (prior quarter)	Duration Gap
2	**Feb 19**	9.5	9.6	(0.0)
3	**Feb 20**	10.1	10.1	-
4	**Feb 21**	10.0	10.0	-
5	**Feb 22**	10.0	10.0	-
6	**Feb 23**	9.9	9.9	-

Figure INV.11 (rebalancing) discusses the dollar matching of the fixed income portfolio to MPI's claims liabilities on an annual basis. Please see *INV Appendix 2* for more detailed information on the Investment Committee Working Group's Operational ALM Policy. Finally, please see *INV.16* for a discussion of interest rate risk and further detail on the ALM program.

Assumption: A duration gap target of 0.0 years is assumed for the entire forecast period.

INV.4.3.8 Convexity

Convexity[1] measures the changes in bond prices that are not explained by duration.

- The convexity of the Corporation's marketable bond portfolio was 2.31 as of February 28, 2018, as calculated by Bloomberg. This convexity was assumed for government bonds (2018/19) and for provincial bonds and corporate bonds in the Basic Claims portfolio (2019/20 and thereafter).
- Convexity for provincial bonds for RSR was 0.3, based on 50% of the short-term provincial index (0.11) and 50% of the mid-term provincial index (0.49) as at February 28, 2018.
- Convexity for corporate bonds for RSR was 0.47, based on the mid-term corporate bond index convexity as at February 28, 2018

[1] Convexity accounts for the non-linearity of changes in bond prices due to changes in interest rates. It is the second derivative of the change in bond price.

INV.5 NON-MARKETABLE BONDS (MUSH) AND PRIVATE DEBT

Non-marketable bonds make up 22.1% of the total portfolio as of February 28, 2018. No further MUSH purchases are forecasted. As a result, MUSH bonds are forecasted to be 14.7% of the Basic Line of Business portfolio by the end of 2022/23.

Private debt is a new asset class, and is forecasted to be funded from Q1 to Q4 2019/20. Private debt has a target weight of 0% for Basic claims, 15% for RSR and 20% for EFB.

INV.5.1 Summary Table

Figure INV- 21: MUSH Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**MUSH Book Value**	553,852	508,594	464,014	420,506	375,775
2	**Total Investment Income**	22,948	23,699	21,465	19,312	17,212
3	**End of Period MUSH Yield**	4.52%	4.47%	4.42%	4.36%	4.31%
4	**% of Portfolio**	25.4%	22.5%	19.7%	17.1%	14.7%

Figure INV- 22: Private Debt Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Market Value**	0	49,437	49,437	49,437	49,437
2	**Total Investment Income**	0	986	2,630	2,630	2,629
3	**End of Period Yield**	0.00%	5.32%	5.32%	5.32%	5.32%
4	**% of Portfolio**	0.0%	2.2%	2.1%	2.0%	1.9%

INV.5.2 Definition and Accounting Treatment

Definition: Non-Marketable Bonds (MUSH bonds) are bonds and debentures issued by Manitoba rural municipalities, school divisions and health care

facilities which are not tradable in the fixed income market. All fixed income securities are managed by the Department of Finance.

Private debt is privately held debt that is not traded publicly in the market. It is forecasted that private debt will be investment grade and managed by an external pooled fund manager.

Accounting: MUSH bonds are held at book value on the financial statements. Interest payments flow through the Profit and Loss statement. Private debt will be classified as Fair Value through Profit and Loss. Unrealized and realized gains/losses and interest income will flow through the Profit and Loss statement.

INV.5.3 Interest Income Assumption

Non-marketable bonds (MUSH bonds) provide additional yield over a GoC 10-year bond and the yield on the existing portfolio was forecasted for the next five years. There are no MUSH purchases forecasted over the 5 year forecast since the availability of new MUSH issuance has decreased.

Private debt is forecasted to have a spread of 142 basis points over the forecasted corporate bond yield. However, based on conversations with private debt managers, the spread could be as low as 75 basis points to 100 basis points. Since this is a new asset class, this forecasted spread is subject to change in next year's rate application as further information is gathered on the asset class. The variance in forecasted spread assumption has minimal impact on investment income for the Basic line of business since private debt is not fully invested until the end of Q4 2019/20. The yield earned on private debt does not impact the new money yield used for rate setting purposes.

INV.5.4 MUSH Book Value and Yield Forecasting

MUSH book values and forecasted MUSH yields were calculated over the five-year forecast and entered into the financial model. The ending book values were based on using the forecasted principal repayments of the existing MUSH holdings as of Q4 2017/18.

INV.5.5 Private Debt Capital Returns

Private debt has an assumed duration of 9.5 years. Changes in the forecasted Government of Canada 10 year bond yield impact private debt capital returns using the forecasted 9.5 year duration, which indicates the level of interest rate sensitivity to changes in interest rates on the market value of private debt.

INV.6 CANADIAN EQUITIES

Canadian equities have a 10% target allocation, with a range of 7% to 13%. Canadian equities had a 9.5% actual weight as of February 28, 2018. After the transition to separation of assets into unique portfolios that is forecasted to occur at the end of 2018/19, the target weights for Canadian equities will change to a target weight of 0% for Basic Claims, 12% for RSR, and 10% for pension.

INV.6.1 Summary Table

Figure INV- 23: Canadian Equity Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Dividend Income**	8,282	1,690	1,422	1,523	1,632
2	**Realized Gains/(Losses) (P&L)**	59,363	683	0	0	0
3	**Total Investment Income**	**67,645**	**2,373**	**1,422**	**1,523**	**1,632**
4	**Forecasted Dividend Yield**	3.10%	3.20%	3.40%	3.40%	3.40%
5	**Ending Market Value**	39,550	41,262	44,188	47,322	50,774
6	**% of Portfolio**	1.8%	1.8%	1.9%	1.9%	2.0%

INV.6.2 Definition and Accounting Treatment

Definition: The Canadian equity portfolio includes publicly traded common stocks and preferred shares which are listed on a Canadian stock exchange. The Canadian equity portfolio is managed by three active managers under contract with the Department of Finance.

Accounting: Realized gains/losses and dividend income flow through the Profit and Loss statement. Unrealized gains/losses are located in the Other Comprehensive Income statement.

INV.6.3 Total Return Assumption

As directed by PUB Order 157/12, the annual equity return is forecasted to be 7.0% over the five-year forecast period. The 7.0% return is based on the 5th percentile 20-year Canadian equity return using index data starting in 1956 to February 28, 2018.

The model splits up total return into dividend yield and capital return:
total return = dividend yield + capital return.

INV.6.4 Dividend Yield

The dividend yield is used to calculate the dividend income in the model. Dividend income for each quarter is calculated using the quarterly market value of the Canadian equity portfolio multiplied by the quarterly dividend yield. All dividends are re-invested back into the Canadian equity portfolio.

The dividend yield for Canadian equities is based upon a forecast from Bloomberg. Bloomberg only forecasts three years into the future. The forecasted dividend yield for the S&P/TSX for the next three fiscal years is as follows:

- 2018/19: 3.1%
- 2019/20: 3.2%
- 2020/21 and thereafter: 3.4%

Assumption: The Canadian equity dividend yield is forecasted to be 3.1%, 3.2% and 3.4% in 2018/19, 2019/20 and 2020/21 respectively. 3.4% is used for 2021/22 and 2022/23.

INV.6.5 Capital Return

The capital return determines the Canadian equity portfolio's increase in market value over each period. Increases in market value from the capital return are held as

unrealized gains, which are held in AOCI. Therefore, the capital return component does not impact net income unless there are sales (turnover) of holdings within the portfolio. The capital return for each forecasted year is determined by subtracting the dividend yield from the total rate of return of 7.0%.

INV.6.6 Turnover

The turnover ratio, as programmed in the model, indicates how often equity holdings are sold. When equities are sold, the corresponding unrealized gains in AOCI are then realized and flow through net income. The average mid-point of the range for the manager's expected future turnover was 20%. Based on this information, a 20% turnover ratio was used in the model for 2018/19. However, after separation of asset classes in the financial model occurs in at the end of Q4 2018/19, the forecasted turnover rate thereafter will be 0% because it is expected that equity holdings will be held in pooled funds.

Assumption: The forecasted equity turnover ratio used is 20% in 2018/19. For 2019/20 and thereafter the forecasted turnover is 0%.

INV.7 U.S. EQUITIES/GLOBAL EQUITIES AND GLOBAL LOW VOL

For 2018/19, U.S. equities have a target weight of 5% and had a 5.2% actual weight as of February 28, 2018.

After the transition to separation of assets into unique portfolios that is forecasted to occur at the end of 2018/19, the target weights for Global equities will be 0% for Basic Claims, 13% for RSR and 18% for EFB. For Global Low Volatility the target weights will be 0% for Basic Claims, 10% for RSR and 7% for EFB.

INV.7.1 Summary Table

Figure INV- 24: U.S. / Global Equities Summary Table

Line No.		2018/19*	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Dividend Income**	3,617	1,423	1,271	1,361	1,458
2	**Realized Gains/(Losses) (P&L)**	56,873	649	0	0	0
3	**Total Investment Income**	**60,490**	**2,072**	**1,271**	**1,361**	**1,458**
4	**Forecasted Dividend Yield**	2.50%	2.70%	2.80%	2.80%	2.80%
5	**Ending Market Value**	42,846	44,701	47,869	51,262	54,895
6	**% of Portfolio**	2.0%	2.0%	2.0%	2.1%	2.1%
7	*** US equities in 2018/19, Global Equities thereafter.**					

Figure INV- 25: Global Low Vol Equities Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Dividend Income**	0	869	961	1,023	1,089
2	**Realized Gains/(Losses) (P&L)**	0	0	0	0	0
3	**Total Investment Income**	**0**	**869**	**961**	**1,023**	**1,089**
4	**Forecasted Dividend Yield**	2.40%	2.60%	2.70%	2.70%	2.70%
5	**Ending Market Value**	32,958	35,092	37,364	39,783	42,359
6	**% of Portfolio**	1.5%	1.6%	1.6%	1.6%	1.7%

INV.7.2 Definition and Accounting Treatment

Definition: U.S. equities are publicly traded stocks which are listed on a recognized stock exchange in the United States.

Global equities are publicly traded stocks, which are listed on a recognized stock exchange in the U.S., Europe or Asia (developed markets only).

Global low volatility stocks are publicly traded stocks in the same markets as Global equities. Low volatility stocks have less volatility than other stocks in their parent index.

Accounting: Realized gains/losses and dividends flow through the Profit and Loss statement. Unrealized gains/losses flow through Other Comprehensive Income.

INV.7.3 Total Return Assumption

The total return on the U.S. and Global equity portfolio is forecasted to be 7.0%, which matches the Canadian equity total return. The forecasted total return for Global low volatility stocks is 6.4%, which is 0.6% lower. This difference was based on

Mercer's capital market assumption difference in return for global equities and global low volatility.

INV.7.4 Dividend Yield

The dividend yield is used to calculate the U.S./Global Equity/Global Low Volatility dividend income in the model. Dividend income for each quarter is calculated by using the quarterly market value of the equity portfolio multiplied by the quarterly dividend yield. All dividends are re-invested back into the equity portfolio.

The dividend yield for the U.S./Global Equity/Global Low Volatility equity portfolio is based upon a forecast from Bloomberg. Bloomberg only forecasts 3-years into the future.

Using the same methodology as last year, the forecasted dividend yields for the Russell 1000 Value and Russell 2000 Value indices from Bloomberg are used as the dividend yield forecast for 2018/19. The Russell 1000 Value and Russell 2000 Value dividend yields were combined with an 80%/20% weighting, which mirrors the target index weighting of the actual U.S. equity portfolio.

For the Global equity and Global low volatility, the MSCI World index forecasted dividend yield was used for 2019/20 and thereafter.

Figure INV- 26: Bloomberg Expected Dividend Yield Forecast

Line No.	Index	Russell 1000 Value and Russell 2000 Value (80% / 20%)	MSCI World
1	**2018/19**	2.3%	
2	**2019/20**		2.7%
3	**2020/21**		2.8%
4	**Thereafter**		2.8%

Assumption: The U.S equity dividend yield is forecasted to be 2.3% for 2018/19. For global equity and global low volatility a 2.7% dividend yield was used for 2019/20 and 2.8% thereafter.

INV.7.5 Capital Return

The capital return determines the U.S./Global Equity/Global Low Volatility equity portfolio's increase in market value over each quarter. Increases in market value from the capital return create unrealized gains, which are held in AOCI. Therefore, the capital return component does not impact net income unless there are sales (turnover) in the portfolio. The capital return for each year is determined by subtracting the dividend yield (section *INV.7.4*) for each forecasted year from the total U.S./Global Equity/Global Low Volatility equity return of 7.0% (section *INV.7.3*).

INV.7.6 Turnover Ratio

The turnover ratio for U.S. equity is forecasted to be 100% in 2018/19. In Q4 2018/19, all U.S. equity holdings will be liquidated in order to fund the purchase of Global Equities and Global Low Volatility equities. Once purchased, the turnover ratio of Global Equities and Global Low Volatility equities is forecasted to be 0%.

Assumption: The turnover ratio for U.S. equities in 2018/19 is expected to be 100%. Turnover for Global Equity/Global Low Volatility equities for 2019/20 and beyond is forecasted to be 0.

INV.8 REAL ESTATE

As of February 28, 2018, the real estate portfolio in the investment portfolio had a 10% target allocation and had an actual weight of 10.9% in the total portfolio. There are two main components to the real estate portfolio. The first are holdings in a real estate pooled fund, which had a weight of 8.8%. The second is the investment portion of Cityplace (MPI-owned office and retail complex), which had a weight of 1.6%.

After the transition to separating assets into unique portfolios that is forecasted to occur in the financial model at the end of 2018/19, the target weights for real estate will be 0% for Basic Claims, 10% for RSR, and 15% for EFB.

INV.8.1 Real Estate Summary Table

Figure INV- 27: Real Estate Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
	Real Estate Pooled Fund					
1	**Ending Market Value**	19,053	20,215	21,428	22,713	24,076
2	**% of Portfolio**	0.9%	0.9%	0.9%	0.9%	0.9%
3	**Forecasted Return**	6.2%	6.1%	6.0%	6.0%	6.0%
4	**Real Estate Gains (P&L)**	13,984	1,162	1,213	1,286	1,363
5	**Investment Properties (Cityplace)**					
6	**Ending Market Value**	13,906	13,548	13,553	13,760	15,246
7	**% of Portfolio**	0.6%	0.6%	0.6%	0.6%	0.6%
8	**Investment Property Income**	4,236	642	837	817	771

INV.8.2 Accounting Treatment of the Pooled Fund

The assets in the real estate portfolio are separated into two categories, the Real Estate Pooled Fund and the Investment Properties, since they have different accounting treatments. Investment Properties (Cityplace) will be discussed in section *INV.8.5*.

Definition: As of February 28, 2018, approximately $224.4 million was invested in a diversified Canadian real estate pooled fund (for the Basic line of business), which is managed by an external asset manager under contract with the Department of Finance.

Accounting: All unrealized and realized gains/losses flow through the Profit and Loss statement. Realized gains/losses would only arise if fund units were sold.

INV.8.3 Real Estate Pooled Fund Return Assumption

The return on MPI's Real Estate portfolio is based on the forecast for the Canadian Consumer Price Index (CPI) plus a spread of 4%. This assumption for real estate has been unchanged since MPI's first investment in the asset class in 2009. Please see section *INV.14.2.1* for this year's Canadian CPI forecast.

INV.8.4 Cityplace Accounting Treatment

Definition: Investment Property includes approximately $34.7 million investment in the Cityplace building and the surrounding parking lots with improvements (for the Basic line of business).

Accounting: The value of the investment property is measured at amortized cost; as such, changes in market value are not reflected in investment income or other comprehensive income. Income from investment property is in the

form of rental income from the portion of the property rented to commercial tenants. All rental income from Cityplace is net of rental expenses and amortization and flows through the Profit and Loss statement.

INV.8.5 Cityplace Return Assumption

This year's forecast is based on projections provided by the property manager less capital improvements and associated depreciation.

INV.9 INFRASTRUCTURE

Infrastructure has a 5% target allocation in the total portfolio, and had a 3.6% actual allocation as of February 28, 2018. After separating assets into unique portfolios at the end of Q4 2018/19, the target allocation for infrastructure is 0% for Basic Claims, 5% for RSR, and 10% for EFB. Like real estate, infrastructure is privately held and is not considered to be a liquid asset class.

INV.9.1 Summary Table

Figure INV- 28: Infrastructure Summary Table

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s, except where noted)					
1	**Income**	1,262	239	249	263	278
2	**Infrastructure Gains (P&L)**	4,944	936	975	1,030	1,088
3	**Total**	6,206	1,175	1,224	1,293	1,365
4	**Forecasted Return**	7.2%	7.1%	7.0%	7.0%	7.0%
5	**MV**	16,479	17,415	18,390	19,420	20,508
6	**% of Portfolio**	0.8%	0.8%	0.8%	0.8%	0.8%

INV.9.2 Definition and Accounting Treatment

Definition: Infrastructure is defined as an essential service with high barriers to entry that often operate in a monopolistic and regulated environment. Infrastructure investment contracts are held with the Department of Finance.

Accounting: Income and unrealized gains/losses flow through the Profit and Loss statement. Realized gains or losses were not included in the model since sales of infrastructure are not forecasted during the five year forecast period.

INV.9.3 Return Assumption

Infrastructure is expected to provide a total return of 7.2% for 2018/19, and 7.1% for 2019/20 and 7.0% thereafter. This forecasted return is based on the Canadian CPI forecast plus a spread of 5%. Please see section *INV.14.2.1* for this year's CPI forecast.

This year, total infrastructure return is made of up two components - yield and capital return. Yield was given a 20% allocation, and capital return was given an 80% allocation of the total infrastructure return, unchanged from last year's assumption.

INV.10 OTHER INVESTMENT INCOME IMPACTS

This section discusses the other investment income impacts: investment management fees, pension expense; bond amortization; venture capital; and line of business allocations.

INV.10.1 Investment Management Fees

In order to forecast fees, investment management fees were split into three categories by type of manager. The first category includes the fees paid to the Department of Finance. The second category includes the fees paid to the Corporate bond manager. The third categories includes fees paid to all other managers (equities, real estate and infrastructure managers). Fees drop in 2019/20 because there are now significantly less growth assets in the Basic line of business portfolio, which generally incur higher fees.

Figure INV- 29: Investment Manager Fees

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
	(C$000s)					
1	**Fees to the Department of Finance**	1,134	1,012	1,054	1,050	1,021
2	**Fees to the Corporate Bond Manager**	194	413	460	496	528
3	**Fees to the Growth Assets**	3,136	696	639	668	705
4	**Total**	**4,464**	**2,121**	**2,153**	**2,214**	**2,254**

INV.10.1.1 Department of Finance

The fixed income portfolio is managed by the Department of Finance. The Department of Finance charges a management fee of 7.5 basis points on the first $2 billion for fixed income plus 3.0 basis points for all other asset classes.

INV.10.1.2 Corporate Bond Manager

The Corporate bond portfolio will be managed by an external bond manager. The corporate bond manager is forecasted to charge a management fee of 10 basis points.

INV.10.1.3 Growth Assets

The investment management fees are based on assets under management for public equities and real estate.

INV.10.1.4 Canadian Equities

A flat average of 0.295% was used based on the weighted average fees for all of the Canadian equity managers.

INV.10.1.5 U.S. Equities/Global Equities/Global Low Volatility

The two Exchange Traded Fund holdings in the U.S. equity portfolio have fees imbedded in their structure. Therefore, no fees are paid directly to any U.S. equity managers. The fees assumed for global equities and global low volatility are 0.45% (this assumes active management).

INV.10.1.6 Real Estate Pooled Fund

The sliding fee schedule for the real estate pooled fund was used to forecast investment fees. For the first $35 million the fee is 0.86%. For the following $65 million the fee is 0.60%. For amounts greater than $100 million the fee is 0.50%.

INV.10.1.7 Infrastructure

The infrastructure portfolio consists of assets held in a fund or through direct investment. The weighted average investment fee is forecasted to be 0.74%.

INV.10.2 Pension Expense

The pension expense line, in investment income, is calculated by applying the pension discount rate to the opening pension liability. The pension discount rate has been agreed upon with our external pension actuary and used in the February 2018 actuarial analysis of the provision for employee future benefits. The pension discount rate was determined by applying the pension liabilities duration to Fiera Capital's Canadian Institute of Actuaries Method Accounting Discount Rate Curve; the rate was set at 3.43%.

For 2018/19, the pension plan expense is the reallocation of investment income to the provision for employee future benefits. This represents the expected earnings on the investment assets related to the provision for employee future benefits during the year (pension liability).

For 2019/20 and thereafter, investment assets and the underlying income have been segregated and are calculated independently from Basic and Non-Basic investment portfolios. For the purposes of financial statement reporting, employee future benefit assets are included within the Basic Investment Asset portfolio as reported on the Statement of Financial Position.

The figure below represents the forecasted investment income earned on the employee future benefit investment asset portfolio, net of the pension expense (or interest cost) requirement. Investment income is accounted for in Provision for EFB within the Statement of Financial Position.

Figure INV- 30: Investment Income on Employee Future Benefits

Line No.	Investment Summary During Period (C$000s)	2018/19	2019/20	2022/23	2023/24
1	Interest Income During Period	3,237	3,020	2,787	2,534
2	Dividend and Other Income During Period	10,078	10,427	10,800	11,202
3	Gains During Period - Profit & Loss	7,144	7,562	8,004	8,472
4	Investment Fees Paid	-1,538	-1,578	-1,628	-1,695
5	Amortization/Accretion During Period	-9	-7	-6	-5
6	Pension Expense	-14,313	-14,757	-15,207	-15,666
7	**Investment Income**	**4,599**	**4,667**	**4,750**	**4,842**

INV.10.3 Amortization of Bond Premium/Discount

The financial model calculates the amortization of the bond premium/discount for government/provincial and corporate bonds. The premium or discount is calculated as the difference between the face value of the bond and the actual purchase price. A bond purchased at a higher (lower) price than its face value will have a premium (discount) that is amortized over the remaining time to maturity of the bond. The amortization of this premium (discount) effectively reduces (increases) the interest income received based on the coupon rate of the bond.

INV.10.4 Venture Capital

As of February 28, 2018, Venture Capital was 0.05% of the total portfolio. Given the limited allocation to venture capital, investment income from venture capital is not forecasted in the model. Please see the summary investment table *Figure INV-2* to see the historical investment income from venture capital.

INV.10.5 Allocation of Investment Income to Lines of Business

All allocation formulas have been reviewed and approved by MPI's BoD for the 2018-2019 fiscal year and are based on the asset allocation methodology presented to, and

approved by, the PUB in the 2011 General Rate Application. MPI has traditionally pooled its investment portfolio and as such, investment income was allocated between the lines of business based on a formula. Please see the Figure below for the Investment Allocation Weightings calculation for 2017/18.

Figure INV- 31: Line of Business Allocation

Line No.	*(C$000s, except where noted)*	Basic	Other Lines	Total
1	**YEAR TO DATE**			
2	**FEBRUARY, 2018**			
3	**Weighted Balances**	Basic	Other Lines	Total
4	*Direct Liabilities & Equities*			
5	Unearned premiums	481,125	114,624	595,749
6	Unpaid claims	1,827,169	104,518	1,931,687
7	Retained Earnings	118,205	198,246	316,451
8	Accumulated Other Comprehensive Income	64,492	10,223	74,715
		2,490,991	427,611	2,918,602
9	*Direct Assets*			
10	Deferred Premium Acquisition Costs	948	24,702	25,650
11	Reinsurers' share of unearned premiums	5,175	1,866	7,041
12	Reinsurers' share of unpaid claims	988	1,335	2,323
13	Deferred Development Costs - direct	0	0	0
		7,111	27,903	35,014
14	Directly attributed to Line of Business	2,483,880	399,708	2,883,588
15	Allocated to Line of Business	(116,993)	(23,409)	(140,402)
16		2,366,887	376,299	2,743,186
17	%	86.28%	13.72%	100.00%
18	Investment Income (Loss) to be Allocated	116,320	18,493	134,813
19	Direct Investment Income - Note 1		(5)	(5)
20	Total Investment Income (Loss)	116,320	18,488	134,808

21 ***Note 1*** *- SRE directly attributable investment income and gains on foreign exchange for U.S. fronting deposits*

The allocation of investment income throughout the forecast period has been reviewed and approved by MPI's BoD. The 2018-2019 fiscal year applies a methodology consistent to prior year's forecast; i.e. a net equity allocation formula. The 2019-2020 and subsequent forecast period applies investment income based on the direct proportion of investment assets available to each line of business.

Basic's share of investment income throughout the forecast period has been summarized below with detailed calculations provided in *INV Appendix 9*.

Figure INV- 32: Basic's Share of Corporate Investment Income (%)

Line No.	*(000's)*	2018/19	2019/20	2020/21	2021/22	2022/23
1	**Basic**	85.8%	87.3%	86.1%	84.1%	82.4%
2	**Non-Basic**	14.2%	12.7%	13.9%	15.9%	17.6%
3	**Total**	100.0%	100.0%	100.0%	100.0%	100.0%

INV.11 REBALANCING

Rebalancing is a major component of the Investment model, and ensures that the asset classes stay within the tolerance ranges defined in the Investment Policy Statement. This section discusses the rebalancing assumptions in the model for:

- 2018/19;
- Basic portfolio supporting the claims liabilities;
- RSR and Employee Future Benefits

INV.11.1 Corporate Rebalancing in 2018/19

A summary of the asset allocation tolerance ranges in 2018/19 for each asset class is in *Figure INV- 33* on a corporate basis. The unique asset allocations for 2019/20 and thereafter are discussed in the next section.

Figure INV- 33: Corporate Asset Allocation in 2018/19

Line No.		Minimum	Target	Max
1	**Fixed Income**			
2	**Provincial Bonds**	40.0%	45.0%	60.0%
3	**Corporate Bonds**	0.0%	5.0%	10.0%
4	**MUSH**	15.0%	20.0%	25.0%
5	**Total Fixed Income**	**60.0%**	**70.0%**	**80.0%**
6	**Public Equities**			
7	**Canadian Equities**	7.0%	10.0%	13.0%
8	**US Equities**	3.0%	5.0%	7.0%
9	**Total Equities**	**10.0%**	**15.0%**	**20.0%**
10	**Alternatives**			
11	**Canadian Real Estate**	7.0%	10.0%	13.0%
12	**Infrastructure**	2.0%	5.0%	8.0%
13	**Total Alternatives**	**9.0%**	**15.0%**	**21.5%**

With the duration matching program, interest rate risk will be managed by: (1) matching the duration of the marketable bond portfolio with the duration of MPI's claims liabilities; and (2) matching the dollar value of the total fixed income portfolio to the present value of MPI's claims liabilities. A description of the rebalancing assumptions for 2018/19 is listed below:

Duration and Dollar Matching

The dollar amount of MPI's fixed income assets is rebalanced to match the present value of claims liabilities on an annual basis. The fixed income duration is matched to the previous quarter's claims duration. This one quarter lag between matching the fixed income and claims liabilities reflects the reality that the previous quarter's claims duration must be known before the fixed income portfolio can be rebalanced to match the claims duration in the current quarter. As a result, dollar matching occurs in Q1 2018/19 based on the claim duration at the previous fiscal year-end. Dollar matching rebalancing occurs in the model only once a year if the dollar difference between assets and liabilities exceeds +/- $20 million.

Rebalancing of Equities

To facilitate dollar matching within the model, any surplus (or deficit) between the fixed income portfolio and claims liabilities is transferred to (or funded from) Canadian and U.S. equities. Canadian equities receive 66% of the inflows or outflows from the rebalancing. U.S. equities receive 33% of the inflows or outflows from the rebalancing. This ratio is consistent with the target allocation of 10% for Canadian equities and 5% for U.S. equities.

If either of the Canadian or U.S asset classes are outside of the tolerance range in any quarter, the relevant asset class is rebalanced back to the maximum or minimum weight (whichever is closer) in the same quarter.

Marketable bonds are the only suitable asset class to receive the funds. All other non-cash asset classes in the portfolio are illiquid and are not suitable to receive the excess funds (i.e. MUSH bonds, real estate and infrastructure). Therefore, to ensure the marketable bond portfolio does not hold excess funds while there is room in the U.S. equity portfolio (or Canadian equity portfolio), the U.S equity asset class is rebalanced back to the maximum weight of 7% instead of the target weight of 5%.

If Equities are at their Maximum Allocation

If there is a large surplus of funds in the fixed income portfolio relative to claims, and Canadian and U.S. equities are at their maximum weight, the surplus money is held in the marketable bond portfolio instead of cash in order to maximize the income earned. As discussed earlier, all other non-cash asset classes are illiquid and not suitable to receive the excess funds (i.e. MUSH bonds, real estate and infrastructure).

Real Estate and Infrastructure Rebalancing Assumptions

Real estate and infrastructure assets are not liquid and are not automatically rebalanced in the model. The forecasted real estate and infrastructure values do not fall outside of their respective tolerance ranges during the five year forecast.

INV.11.2 Basic Portfolio supporting Basic Claims Liabilities Rebalancing for 2019/20 and Thereafter

Starting in 2019/20, the Basic Claims, RSR and EFB portfolios have separate rebalancing rules. The portfolio supporting claims liabilities has similar rebalancing rules for the marketable bond portfolio.

- The dollar amount of the total fixed income portfolio is rebalanced to match the present value of Basic claims liabilities on an annual basis.
- The marketable bond duration is matched to the previous quarter's claims duration. Duration matching occurs in the first quarter of each fiscal year based on the claim duration at the previous fiscal year-end.
- Dollar matching rebalancing occurs in the model only once a year if the dollar difference between assets and liabilities exceeds +/- $20 million.

Figure INV- 34: Basic Claims Portfolio Asset Allocation

Line No.	Basic Claims Asset Allocation	Minimum	Target	Max
1	**Fixed Income**			
2	**Provincial Bonds**	50.0%	60.0%	70.0%
3	**Corporate Bonds**	15.0%	20.0%	25.0%
4	**MUSH**	15.0%	20.0%	25.0%
5	**Total Fixed Income**		**100.0%**	
6	**Public Equities**			
7	**Canadian Equities**		0.0%	
8	**Global Equities**		0.0%	
9	**Global Low Volatility**		0.0%	
10	**Total Equities**		**0.0%**	
11	**Alternatives**			
12	**Canadian Real Estate**		0.0%	
13	**Infrastructure**		0.0%	
14	**Total Alternatives**		**0.0%**	

Rebalancing

When dollar matching is required within the model, any surplus (or deficit) between the fixed income portfolio and claims liabilities is transferred to (or funded from) the liquid asset classes within the RSR portfolio. The allocation ratios are shown in the table below.

Figure INV- 35: Allocation Ratio

Line No.		Target Weight	Allocation Ratio
1	**Basic Line of Business Portfolio**		
2	**Government Bonds**	60.0%	75.0%
3	**Corporate Bonds**	20.0%	25.0%
4	**Total**	**80.0%**	**100.0%**
5	**RSR Asset Classes**		
6	**Government Bonds**	20.0%	30.8%
7	**Corporate Bonds**	10.0%	15.4%
8	**Canadian Equities**	12.0%	18.5%
9	**Global Equities**	13.0%	20.0%
10	**Global Low Volatility**	10.0%	15.4%
11	**Total**	**65.0%**	**100.0%**

To illustrate using a hypothetical $100 million dollar shortfall in Q1 between the fixed income portfolio and the claims liabilities. The model will transfer $30.8M, $15.4M, $18.5M, $20.0M and $15.4M from the government, corporate, Canadian equity, global equity and global low volatility asset classes, respectively. This money will be transferred into the government/corporate bond portfolios in a 75%/25% ratio.

INV.11.3 RSR and Employee Future Benefits Rebalancing Assumptions

The next two figures show the RSR and pension asset allocations. Note that the minimum and maximum allocations have not been approved in the Investment Policy Statement and are subject to change.

Figure INV- 36: RSR Asset Allocation

Line No.		Minimum	Target	Max
1	**Fixed Income**			
2	**Provincial Bonds**	10.0%	20.0%	30.0%
3	**Corporate Bonds**	5.0%	10.0%	15.0%
4	**MUSH**	0.0%	5.0%	10.0%
	Private Debt	0.0%	15.0%	20.0%
5	**Total Fixed Income**	**40.0%**	**50.0%**	**60.0%**
6	**Public Equities**			
7	**Canadian Equities**	9.0%	12.0%	15.0%
8	**Global Equities**	10.0%	13.0%	16.0%
9	**Global Low Volatility**	7.0%	10.0%	13.0%
10	**Total Equities**	**25.0%**	**35.0%**	**45.0%**
11	**Alternatives**			
12	**Canadian Real Estate**	7.0%	10.0%	13.0%
13	**Infrastructure**	2.0%	5.0%	8.0%
14	**Total Alternatives**	**10.0%**	**15.0%**	**20.0%**

Figure INV- 37: Employee Future Benefits Asset Allocation

Line No.		Minimum	Target	Max
1	**Fixed Income**			
2	**Corporate Bonds**	10.0%	20.0%	30.0%
3	**Private Debt**	0.0%	20.0%	25.0%
4	**Total Fixed Income**	**30.0%**	**40.0%**	**50.0%**
5	**Public Equities**			
6	**Canadian Equities**	5.0%	10.0%	15.0%
7	**Global Equities**	13.0%	18.0%	23.0%
8	**Global Low Volatility**	4.0%	7.0%	10.0%
9	**Total Equities**	**25.0%**	**35.0%**	**45.0%**
10	**Alternatives**			
11	**Canadian Real Estate**	12.0%	15.0%	18.0%
12	**Infrastructure**	7.0%	10.0%	13.0%
13	**Total Alternatives**	**20.0%**	**25.0%**	**30.0%**

The rebalancing rules for the RSR and EFB are summarized below.

1. **Marketable Bonds (Provincial and Corporate Bonds)**

If Provincial and corporate bonds remain outside their tolerance ranges for two consecutive quarters, the asset class will be adjusted to the target weight in the following quarter. The total portfolio reallocation requirements will be sourced from or reallocated from the equities portfolio.

2. **Equities**

For Canadian equities, Global equities and Global Low Volatility, when the asset class remains outside the maximum or minimum allocation limit for two consecutive quarters, then the asset class will be adjusted to the target weight in the following quarter. Inflows or outflows required for rebalancing will come from marketable bonds.

3. **Illiquid Asset Classes (MUSH, Private Debt, Real Estate, Infrastructure)**

MUSH, private debt, real estate and infrastructure are illiquid and are not automatically rebalanced in the model. The forecasted MUSH, private debt, real estate and infrastructure values do not fall outside of their respective tolerance ranges during the five year forecast period.

INV.12 COMPARISON OF FORECAST

This section compares this year's forecast to last year's forecast.

Figure INV- 38 provides detailed investment income information from the 2019 GRA interest rate forecast scenario. *Figure INV- 39* provides information from the 2018 GRA as presented in the 2018 Investment Income INV.11. *Figure INV- 40* compares the difference between *Figure INV- 38* and *Figure INV- 39*.

Figure INV- 38: 2019 GRA Investment Income (Basic Line of Business)

Line No.	Category	2017/18	2018/19FB	2019/20F	2020/21F	2021/22F
	('000s)					
1	**Short Term Interest**	*565*	*219*	*90*	*0*	*0*
2	***Marketable Bonds***	*34,147*	*37,892*	*48,661*	*53,402*	*58,032*
3	***MUSH***	*25,349*	*22,948*	*23,699*	*21,465*	*19,312*
4	**Long-Term Bond Income**	59,495	60,840	72,360	74,867	77,344
5	***Marketable Unrealized Gains/(Loss)***	*8,079*	*(17,462)*	*(28,831)*	*(421)*	*(441)*
6	***Marketable Realized Gains/(Loss)***	*(3,490)*	*17,462*	*28,831*	*421*	*441*
7	**Total Marketable Gain/Loss**	4,589	(0)	1	0	(0)
8	*Income*	*0*	*0*	*986*	*2,630*	*2,630*
9	*Gain/Loss*	*0*	*0*	*0*	*0*	*0*
10	**Private Debt**	0	0	986	2,630	2,630
11	**Total Fixed Income**	**64,649**	**61,059**	**73,437**	**77,497**	**79,974**
12	***Canadian Equities***	*7,774*	*8,282*	*1,690*	*1,422*	*1,523*
13	***US Equities/Global Equities***	*2,619*	*3,617*	*1,423*	*1,271*	*1,361*
14	***Global Low Vol***	*0*	*0*	*869*	*961*	*1,023*
15	**Equity Dividends**	10,393	11,899	3,982	3,653	3,906
16	***Canadian Equities***	*20,060*	*59,363*	*683*	*0*	*0*
17	***US Equities/Global Equities***	*4,928*	*56,873*	*649*	*0*	*0*
18	***Global Low Vol***	*0*	*0*	*0*	*0*	*0*
19	**Equity Realized Gain/Loss**	24,989	116,236	1,332	0	0
20	**Total Equities**	**35,382**	**128,135**	**5,314**	**3,653**	**3,906**
21	**Real Estate (Pooled Fund)**	25,058	13,985	1,162	1,213	1,286
22	**Real Estate (CityPlace)**	2,972	4,236	642	837	817
23	**Infrastructure**	7,107	6,206	1,175	1,224	1,293
24	**Venture Capital**	412				
25	**Total Alternatives**	**35,549**	**24,427**	**2,979**	**3,274**	**3,396**
26	**Management Fees**	(3,641)	(4,464)	(2,121)	(2,153)	(2,214)
27	**Pension Fund Transfer**	(11,619)	(5,816)	0	0	0
28	**Bond Amortization**	(3,069)	(11,527)	2,538	2,591	2,711
29	**Write-down**	(930)				
30	**Total Other**	**(19,259)**	**(21,807)**	**417**	**438**	**497**
31	**Basic LOB Total**	**116,320**	**191,814**	**82,147**	**84,863**	**87,773**

Figure INV- 39: 2018 GRA Investment Income (Basic Line of Business)

Line No.	Category	2017/18	2018/19FB	2019/20F	2020/21F	2021/22F
	('000s)					
1	**Short Term Interest**	*79*	*0*	*0*	*0*	*29*
2	***Marketable Bonds***	*34,120*	*32,868*	*33,509*	*35,416*	*37,206*
3	***MUSH***	*24,477*	*23,391*	*22,198*	*21,000*	*19,786*
4	**Long-Term Bond Income**	58,596	56,259	55,707	56,415	56,993
5	***Marketable Unrealized Gains/(Loss)***	*222*	*1,059*	*1,002*	*1,036*	*1,080*
6	***Marketable Realized Gains/(Loss)***	*(222)*	*(1,059)*	*(1,002)*	*(1,036)*	*(1,080)*
7	**Total Marketable Gain/Loss**	(0)	(0)	(0)	0	(0)
8	*Income*	*0*	*0*	*0*	*0*	*0*
9	*Gain/Loss*	*0*	*0*	*0*	*0*	*0*
10	**Private Debt**	0	0	0	0	0
11	**Total Fixed Income**	**58,676**	**56,259**	**55,707**	**56,415**	**57,022**
12	***Canadian Equities***	*6,891*	*8,565*	*9,975*	*10,626*	*11,174*
13	***US Equities/Global Equities***	*2,678*	*3,284*	*3,863*	*4,115*	*4,503*
14	***Global Low Vol***	*0*	*0*	*0*	*0*	*0*
15	**Equity Dividends**	9,569	11,850	13,838	14,741	15,678
16	***Canadian Equities***	*22,919*	*10,140*	*10,240*	*12,117*	*11,274*
17	***US Equities/Global Equities***	*10,865*	*0*	*0*	*2,266*	*0*
18	***Global Low Vol***	*0*	*0*	*0*	*0*	*0*
19	**Equity Realized Gain/Loss**	33,784	10,140	10,240	14,383	11,274
20	**Total Equities**	**43,353**	**21,989**	**24,078**	**29,124**	**26,952**
21	**Real Estate (Pooled Fund)**	12,338	12,727	13,069	13,617	14,181
22	**Real Estate (CityPlace)**	2,368	2,257	2,132	2,037	1,953
23	**Infrastructure**	6,437	8,082	8,566	8,882	9,207
24	**Venture Capital**				0	
25	**Total Alternatives**	**21,142**	**23,066**	**23,767**	**24,536**	**25,340**
26	**Management Fees**	(4,069)	(4,943)	(5,103)	(5,308)	(5,484)
27	**Pension Fund Transfer**	(5,590)	(6,271)	(6,167)	(6,374)	(6,646)
28	**Bond Amortization**	(11,685)	(11,992)	(12,265)	(12,530)	(12,793)
29	**Write-down**				0	
30	**Total Other**	**(21,344)**	**(23,205)**	**(23,535)**	**(24,213)**	**(24,924)**
31	**Basic LOB Total**	**101,827**	**78,109**	**80,017**	**85,863**	**84,391**

Figure INV- 40: This Year vs Last Year Basic Line of Business Investment Income

Line No.	Category	2017/18	2018/19FB	2019/20F	2020/21F	2021/22F
	('000s)					
1	**Short Term Interest**	*485*	*219*	*90*	*(0)*	*(29)*
2	***Marketable Bonds***	*25,376*	*5,024*	*15,151*	*17,987*	*20,826*
3	***MUSH***	*(24,477)*	*(443)*	*1,501*	*465*	*(474)*
4	**Long-Term Bond Income**	899	4,581	16,652	18,452	20,352
5	***Marketable Unrealized Gains/(Loss)***	*7,857*	*(18,521)*	*(29,833)*	*(1,457)*	*(1,521)*
6	***Marketable Realized Gains/(Loss)***	*(3,268)*	*18,521*	*29,833*	*1,457*	*1,521*
7	**Total Marketable Gain/Loss**	4,589	(0)	1	0	(0)
8	*Income*	*0*	*0*	*986*	*2,630*	*2,630*
9	*Gain/Loss*	*0*	*0*	*0*	*0*	*0*
10	**Private Debt**	0	0	986	2,630	2,630
11	**Total Fixed Income**	**5,973**	**4,800**	**17,729**	**21,082**	**22,952**
12	***Canadian Equities***	*883*	*(284)*	*(8,285)*	*(9,204)*	*(9,652)*
13	***US Equities/Global Equities***	*(59)*	*333*	*(2,440)*	*(2,844)*	*(3,142)*
14	***Global Low Vol***	*0*	*0*	*869*	*961*	*1,023*
15	**Equity Dividends**	824	49	(9,855)	(11,088)	(11,771)
16	***Canadian Equities***	*(2,859)*	*49,224*	*(9,557)*	*(12,117)*	*(11,274)*
17	***US Equities/Global Equities***	*(5,937)*	*56,873*	*649*	*(2,266)*	*0*
18	***Global Low Vol***	*0*	*0*	*0*	*0*	*0*
19	**Equity Realized Gain/Loss**	(8,795)	106,097	(8,908)	(14,383)	(11,274)
20	**Total Equities**	**(7,971)**	**106,146**	**(18,763)**	**(25,471)**	**(23,045)**
21	**Real Estate (Pooled Fund)**	12,720	1,258	(11,907)	(12,404)	(12,895)
22	**Real Estate (CityPlace)**	605	1,979	(1,490)	(1,199)	(1,136)
23	**Infrastructure**	670	(1,876)	(7,391)	(7,658)	(7,914)
24	**Venture Capital**	412				
25	**Total Alternatives**	**14,406**	**1,361**	**(20,788)**	**(21,262)**	**(21,945)**
26	**Management Fees**	428	479	2,982	3,155	3,270
27	**Pension Fund Transfer**	(6,029)	455	6,167	6,374	6,646
28	**Bond Amortization**	8,616	465	14,802	15,120	15,504
29	**Write-down**	(930)	0	0	0	0
30	**Total Other**	**2,084**	**1,398**	**23,951**	**24,650**	**25,421**
31	**Basic LOB Total**	**14,493**	**113,705**	**2,130**	**(1,001)**	**3,383**

INV.12.1 Explanation of Major Differences in 2017/18 Actual vs. Forecast

Last year (2017/18), total Basic MPI investment income was forecasted to be $101.8 million. Actual investment income for 2017/18 was $116.3 million, which was $14.5 million higher than forecast. This difference can be primarily attributed to higher than expected real estate pooled fund returns. See the previous figure for the detailed breakdown – highlights are provided below.

- Total capital gains/losses for marketable bonds were slightly higher than forecast by $4.6 million.
- Canadian and U.S. equity investment income from dividends and realized gains were $0.8 million higher than forecasted.
- Realized gains on Canadian and U.S. equities were $8.8 million lower than forecasted in 2017/18. The S&P/TSX Composite index return was 3.2% in 2016/17 compared to the forecasted return of 7.2%. The U.S. equity return was 4.2% in CAD compared to the U.S. equity forecasted return of 7.2%.
- Real estate investment income was $12.7 million higher than forecasted. This variance was driven by a 12.4% return in the real estate pooled fund in 2017/18 compared to the forecasted return of 6.2%
- Infrastructure investment income was $0.7 million lower than forecast.

INV.12.2 Explanation of Major Differences between 2019 GRA and 2018 GRA Forecasted Years (2018/19 to 2021/22)

Long Term Bond Income

- There will be a larger dollar amount in fixed income assets compared to last year's forecast once the ALM is fully implemented in 2019/20. As a result, long term interest income is forecasted to be $18.5M higher on average from 2019/20 to 2021/22 compared to last year's forecast.

Marketable Bonds Gains and Losses

- A naive forecast was used in this year's rate application and last year's application, so there is no difference in gain/loss over the forecasted years.

Canadian and U.S. Equities

- After ALM implementation in 2019/20, dividends are forecasted to be lower on average by $10.9M compared to last year's forecast due to lower invested assets in equities.
- For 2019/20 and thereafter, realized gains are forecasted to be lower on average by $11.5M due to lower invested assets in equities and a zero percent turnover assumption for equities after the separation of assets occurs.

Other

- Management fees are forecasted to be lower after separation of assets into unique portfolios since there will be significantly less growth assets in the Basic line of business portfolio compared to last year's forecast.
- Pension transfer is zero in 2019/20 and subsequent years because income earned on employee future benefit assets have been separated into a unique portfolio and are calculated independently of the Basic claims portfolio.
- There is a significant difference in bond amortization this year versus last year. Separation of assets at the end of Q4 2018/19 causes the entire provincial and corporate bond portfolios to turn over at market value. Bonds are subsequently repurchased at the new market value.

INV.13 CHANGES TO THE INVESTMENT INCOME MODEL

Based on the requirements listed above, the model's investment portfolio is separated into 5 categories, these are:

1. Basic
2. Basic RSR
3. Extension
4. SRE
5. EFB

The following three asset classes have been added to the model:

1. Corporate Bonds
2. Global Low Volatility Equities
3. Private Debt

The following two asset classes have been renamed within the model:

1. Government bonds has been renamed to Provincial bonds
2. US Equities has been renamed to Global Equities

Further detail on Financial Model changes is available in *Part VIII Financial Forecasting Model*.

INV.14 INTEREST RATE FORECASTS AND CPI FORECAST DETAIL

This section shows detail on the interest rate forecasts and the CPI forecast. For the naive interest rate forecast used in the 2019 rate application, see *Figure INV-3* for the 10 year GoC bond yield, the marketable bond yield, MUSH yield and claims discount rate.

INV.14.1 Interest Rate Forecast

The naïve interest rate forecast is based on the February 28, 2018 Government of Canada 10 year bond yield, which was 2.24%. This naïve interest rate of 2.24% is used throughout the entire five year forecast for the 2019 GRA.

For information, Pro forma financial statements using the 50/50 and SIRF interest rate forecast are shown in *INV Appendix 10*.

The 50/50 forecast is based on the average between the naïve and SIRF forecast for each forecasted quarter. The methodology for SIRF is the same as last year. The short-term (years 1-2) interest rate forecast includes forecasts that are updated monthly. Conference Board of Canada (CBOC) and Laurentian do not provide monthly updated forecasts and are not included in the list.

Short Term (Years 1-2)

1. BMO, Average Period
2. CIBC, End of Period
3. RBC, End of Period
4. Scotia, End of Period
5. TD, End of Period

6. Global Insight, Average Period

7. Desjardins, End of Period

8. National Bank, End of Period

Long Term (Years 3-5)

The long-term (years 3-5) forecasters are taken from the short-term forecaster list. Three forecasts from the short-term forecast were not included. BMO and RBC's long term forecasts are not used because they prohibit public disclosure. Scotia was rejected because their forecast is not updated regularly on a quarterly basis.

Figure INV- 41: Source and Dates for Interest Rate Forecast

Line No.	Sources	Short Term Date	Short Term Type	Long Term Date	Short Term Type
1	**BMO NM**	March 16, 2018	Average of Period	March 2018	Average of Period
2	**CIBC**	February 15, 2018	End of Period	March 19, 2018	Annual Average
3	**Desjardins**	February 23, 2018	End of Period	March 19, 2018	End of Period
4	**Global Insigl**	March 1, 2018	Average of Period	March 2018	Average of Period
5	**National**	February 1, 2018	End of Period	March 2018	Annual Average
6	**RBC**	March 9, 2018	End of Period	March 19, 2018	n/a
7	**Scotia**	March 6, 2018	End of Period		n/a
8	**TD**	March 15, 2018	End of Period	March 15, 2018	Annual End of Period

Figure INV- 42: SIRF, Naive and 50/50 GoC 10 Year Bond Forecast

Line No.		BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	**2018 Q1**	2.30%	2.27%	2.25%	2.24%	2.38%	2.20%	2.20%	2.16%	2.25%	2.24%	2.25%
2	**Q2**	2.40%	2.35%	2.40%	2.42%	2.51%	2.50%	2.45%	2.35%	2.42%	2.24%	2.33%
3	**Q3**	2.55%	2.35%	2.60%	2.60%	2.63%	2.75%	2.50%	2.45%	2.55%	2.24%	2.40%
4	**Q4**	2.65%	2.35%	2.75%	2.75%	2.68%	2.95%	2.60%	2.55%	2.66%	2.24%	2.45%
5	**2019 Q1**	2.80%	2.45%	2.80%	2.88%	2.87%	3.10%	2.65%	2.60%	2.77%	2.24%	2.50%
6	**Q2**	2.95%	2.40%	2.85%	2.97%	2.94%	3.10%	2.70%	2.65%	2.82%	2.24%	2.53%
7	**Q3**	3.05%	2.55%	2.90%	3.03%	3.02%	3.05%	2.75%	2.70%	2.88%	2.24%	2.56%
8	**Q4**	3.20%	2.60%	2.90%	3.08%	3.05%	3.05%	2.85%	2.75%	2.94%	2.24%	2.59%
9	**2020 Q1**	X.XX%	2.68%	2.95%	3.12%	3.17%	X.XX%		2.78%	3.01%	2.24%	2.63%
10	**Q2**	X.XX%	2.75%	2.95%	3.16%	3.25%	X.XX%		2.80%	3.07%	2.24%	2.66%
11	**Q3**	X.XX%	2.80%	2.75%	3.19%	3.26%	X.XX%		2.83%	3.08%	2.24%	2.66%
12	**Q4**	X.XX%	2.85%	2.50%	3.20%	3.27%	X.XX%		2.85%	3.06%	2.24%	2.65%
13	**2021 Q1**	X.XX%	2.90%	2.30%	3.20%	3.28%	X.XX%		2.85%	3.06%	2.24%	2.65%
14	**Q2**	X.XX%	2.95%	2.20%	3.20%	3.29%	X.XX%		2.85%	3.05%	2.24%	2.65%
15	**Q3**	X.XX%	2.96%	2.15%	3.20%	3.33%	X.XX%		2.85%	3.05%	2.24%	2.64%
16	**Q4**	X.XX%	2.98%	2.15%	3.19%	3.37%	X.XX%		2.85%	3.05%	2.24%	2.65%
17	**2022 Q1**			2.15%	3.18%	3.40%	X.XX%		2.85%	2.99%	2.24%	2.61%
18	**Q2**			2.20%	3.18%	3.44%	X.XX%		2.85%	3.01%	2.24%	2.63%
19	**Q3**			2.30%	3.17%	3.48%	X.XX%		2.85%	3.04%	2.24%	2.64%
20	**Q4**			2.40%	3.16%	3.52%	X.XX%		2.85%	3.08%	2.24%	2.66%

Figure INV- 43: SIRF, Naive, 50/50 90-Day T-Bill Forecast

Line No.		BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	2018 Q1	1.15%	1.20%	1.20%	1.17%	1.30%	1.20%	1.20%	1.08%	1.19%	1.15%	1.17%
2	Q2	1.20%	1.25%	1.30%	1.38%	1.46%	1.45%	1.50%	1.38%	1.37%	1.15%	1.26%
3	Q3	1.45%	1.50%	1.55%	1.55%	1.65%	1.70%	1.55%	1.50%	1.56%	1.15%	1.35%
4	Q4	1.70%	1.50%	1.75%	1.72%	1.88%	2.05%	1.75%	1.63%	1.75%	1.15%	1.45%
5	2019 Q1	1.90%	1.65%	1.80%	1.97%	2.01%	2.25%	2.05%	1.76%	1.93%	1.15%	1.54%
6	Q2	2.15%	1.78%	2.05%	2.22%	2.13%	2.15%	2.30%	1.88%	2.08%	1.15%	1.62%
7	Q3	2.35%	1.89%	2.25%	2.47%	2.21%	2.15%	2.30%	2.01%	2.22%	1.15%	1.68%
8	Q4	2.35%	1.99%	2.25%	2.72%	2.29%	2.15%	2.50%	2.13%	2.29%	1.15%	1.72%
9	2020 Q1	X.XX%	2.10%	2.25%	3.03%	2.37%			2.22%	2.42%	1.15%	1.79%
10	Q2	X.XX%	2.20%	2.25%	3.03%	2.45%			2.32%	2.51%	1.15%	1.83%
11	Q3	X.XX%	2.21%	2.20%	3.03%	2.39%			2.41%	2.49%	1.15%	1.82%
12	Q4	X.XX%	2.23%	1.90%	3.03%	2.34%			2.50%	2.42%	1.15%	1.78%
13	2021 Q1		2.24%	1.40%	3.03%	2.28%			2.50%	2.24%	1.15%	1.69%
14	Q2		2.25%	1.25%	3.03%	2.22%			2.50%	2.19%	1.15%	1.67%
15	Q3		2.26%	1.25%	3.03%	2.22%			2.50%	2.19%	1.15%	1.67%
16	Q4		2.28%	1.25%	3.03%	2.22%			2.50%	2.19%	1.15%	1.67%
17	2022 Q1			1.25%	3.03%	2.26%			2.50%	2.18%	1.15%	1.66%
18	Q2			1.25%	3.03%	2.30%			2.50%	2.19%	1.15%	1.67%
19	Q3			1.25%	3.03%	2.33%			2.50%	2.20%	1.15%	1.68%
20	Q4			1.25%	3.03%	2.37%			2.50%	2.22%	1.15%	1.68%

INV.14.2 Canadian and Manitoba CPI Forecast

The Canadian CPI forecast is used in the calculation of real estate and infrastructure returns. The Manitoba CPI forecast is used in the calculation of projected indexation rates for Personal Injury Protection Plan benefits.

INV.14.2.1 Canadian CPI Forecast

Figure INV- 44: Canadian CPI Forecast

Line No.	Quarterly	Scotia	CIBC	RBC	TD	BMO NB	Global	Average
1	**2018 Q1**	1.9%	1.8%	1.9%	1.3%	3.6%	1.6%	2.0%
2	**Q2**	2.0%	2.0%	2.2%	1.8%	1.3%	1.9%	1.9%
3	**Q3**	2.2%	2.4%	2.3%	2.0%	1.8%	2.4%	2.2%
4	**Q4**	2.2%	2.4%	2.0%	2.0%	2.2%	2.1%	2.2%
5	**2019 Q1**	2.3%	2.3%	1.7%	2.0%	2.5%	1.9%	2.1%
6	**Q2**	2.3%	2.2%	2.0%	2.1%	1.9%	1.9%	2.1%
7	**Q3**	2.3%		2.1%	2.0%	2.0%	2.0%	2.1%
8	**Q4**	2.3%		2.0%	2.1%	2.1%	2.1%	2.1%
9								
9	**Annual**							
10	**2018**	2.2%	2.2%	2.1%	2.2%	2.2%	2.0%	2.2%
11	**2019**	2.3%	2.1%	1.8%	2.1%	2.1%	2.0%	2.1%
12	**2020**				2.0%		2.0%	2.0%
13	**2021**				2.0%		2.0%	2.0%
14	**2022**				2.0%		2.0%	2.0%

15 Scotiabank, "Global Economics", March 6 , 2018
16 CIBC, "Economic Insights", February 15, 2018
17 RBC, "Economic Forecast Detail", March 2018
18 TD Economics, "Quarterly Economic Forecast", December 14, 2017
19 BMO, "Canadian Economic Outlook", March 9, 2018
20 Global Insight, March 2018
21 Global Insight, March 2017

1 **Assumption:** Canadian CPI is forecasted to be 2.2% in 2018/19, 2.1% in 2019/20
2 and 2.0% thereafter.

Figure INV- 45: Manitoba CPI Forecast

Line No.		2018	2019	2020	2021	2022
1	**Global Insight**	1.9	1.9	2.0	2.0	2.0
2	**TD Bank Financial Group**	1.8	2.1			
3	**RBC Royal Bank**	1.8	2.0			
4	**BMO Capital Market Economics**	2.3	2.1			
5	**Average**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**

6 **Sources:**
7 Global Insight, "Canadian Provincial Forecast and Analysis", January 2018
8 TD Economics, "Provincial Economic Forecast", December 2017
9 RBC Economics, "Provincial Outlook", March 2018
10 BMO Financial Group, "Provincial Economic Outlook", March 9, 2018

Assumption: Manitoba CPI is forecasted to be 2.0% over the five year forecast.

INV.15 ACCOUNTING BY ASSET CLASS

The table below summarizes the accounting treatment for each asset class.

Figure INV- 46: Accounting by Asset Class

Line No.	ASSET CLASS	DESIGNATION	MEASUREMENT	INCOME TYPE	ACCOUNTING TREATMENT PROFIT/LOSS ("P & L") OR OTHER COMPREHENSIVE INCOME ("OCI")
1	**Cash/Short Term**		fair value	interest	P & L
2	**Marketable Bonds (Government / Provincial /**	FVTPL	fair value-calc monthly	interest	P & L
3	**Corporate) + Private Debt**		fair value-calc monthly	amortization	P & L
4			fair value-calc monthly	unrealized gain/loss	P & L
5			fair value-calc monthly	realized gain/loss	P & L
6	**Non-marketable Bonds**	HTM	amortized cost	interest	P & L
7	**Canadian Equity**	AFS	fair value-calc monthly	dividend	P & L
8			fair value-calc monthly	unrealized gain/loss	OCI
9			fair value-calc monthly	realized gain/loss	P & L
10	**US Equity / Global Equities / Global Low Vol**	AFS	fair value-calc monthy	dividend	P & L
11			fair value-calc monthy	unrealized gain/loss	OCI
12			fair value-calc monthy	realized gain/loss	P & L
13	**Real Estate-Pooled Fund**	FVTPL	fair value-calc monthly	unrealized gain/loss	P & L
14	**Investment Property**	Cost	amortized cost	net rental income	P & L
15	**Infrastructure**	FVTPL	fair value-calc annually	income	P & L
16				unrealized gain/loss	P & L
17	**Other-private equity/**	AFS	fair value-calc fiscal YE	income	P & L
18	**venture capital**		(calc with DoF)	unrealized gain/loss	OCI

INV.16 ASSET LIABILITY MANAGEMENT (ALM) PROGRAM

INV.16.1 Background on ALM Program

MPI uses duration and dollar matching, referred to as the ALM program, in order to manage the interest rate risk associated with MPI's assets and liabilities. Section 8.4 of MPI's Investment Policy Statement (*INV Appendix 1*) states the following:

> *"Interest rate risk is managed by matching the combined duration of the marketable bonds, which includes floating rate notes, with the actuarially determined duration of the Corporation's claims liabilities."*

Reducing interest rate risk has been a focus of MPI since 2014.

- In 2014, the duration bandwidth was changed from +/- 2.0 years to +/- 1.0 year. This reduction was an intermediate step designed to reduce the interest rate, forecasting, and rate-setting risks of MPI until the ALM Study was completed.
- In 2015, the ALM Study from Aon was completed, and the fixed income portfolio duration was fully matched to the corporate claims liability duration.
- In late 2017, the ALM Study from Mercer was completed, which recommended the separation of the commingled investment portfolio into five unique portfolios that back the corporation's liabilities and surplus. By the end of Q4 2018/19, Basic claims liabilities will be supported by 100% fixed income assets. This will significantly reduce the interest rate risk in the Basic line of business.
- In 2018, the duration of the marketable bond portfolio (i.e. excluding MUSH bonds) will be matched to the duration of the claims liabilities. This change is due to the change in the calculation methodology for the claims discount rate, which is now based upon the dollar weighted yield of the fixed income portfolio rather than the duration weighted yield of the fixed income portfolio. The net result is that the duration of the marketable bond portfolio will decrease by approximately 2 years. This transition to a lower duration marketable bond portfolio is forecasted to occur at the end of Q1 2018/19 in the new financial model.

INV.16.2 Interest Rate Risk Definitions

Interest rate risk, for the purpose of this application, is the net impact of changes in interest rates on claims liabilities and the gain or loss for marketable bonds. Interest rate risk can be shown on a Basic basis, as in *INV.16.2.1* and *INV.16.2.2*.

Interest rate forecasting risk, for the purpose of this application, is the uncertainty related to setting premium rates based on forecasted interest rates rather than future actual interest rates and the impact of the difference between the two.

INV.16.2.1 Basic Interest Rate Risk with Naive Forecast

Figure INV- 47 Basic Investment and Claims Net Interest Rate Impact with Naive Forecast

Line No.		2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Actual	2017/18 Actual	2018/19 FB	2019/20 Forecast	2020/21 Forecast	2021/22 Forecast	2022/23 Forecast
	(in Millions of Dollars)										
1	Marketable Bond Yield	2.80%	2.27%	2.85%	2.91%	3.04%	0.00%	0.00%	0.00%	0.00%	0.00%
2	YoY Change	0.05%	-0.53%	0.58%	0.06%	0.13%	-3.04%	0.00%	0.00%	0.00%	0.00%
3	Claims Discount Rate	3.68%	2.92%	3.28%	3.39%	3.47%	3.56%	3.47%	3.42%	3.37%	3.32%
4	YoY Change	0.13%	-0.76%	0.36%	0.11%	0.08%	0.09%	-0.09%	-0.05%	-0.05%	-0.04%
5	Duration Gap (Years)*	(1.4)	(0.7)	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
6	Investments										
7	Investment Income	147.7	188.5	(4.0)	82.9	116.3	191.8	82.1	84.9	87.8	90.6
8	(1) Marketable Bond Gain/(Loss)	(19.4)	85.6	(52.5)	(18.8)	4.6	-	-	-	-	-
9	Investment Income excluding Marketable Bond G/L	167.2	102.8	48.5	101.7	111.7	191.8	82.1	84.9	87.8	90.6
10	Claims										
11	'Net Claims Incurred	747.4	745.8	666.4	806.0	783.0	825.3	891.6	939.3	996.5	1,052.6
12	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	(8.2)	8.6	11.5	10.1	10.1
13	Claims Excluding Interest Rate Impact	773.5	623.4	742.6	815.0	798.8	833.5	883.0	927.8	986.3	1,042.5
14	Net Interest Rate Impact										
15	(1) Marketable Bond Gain/Loss	(19.4)	85.6	(52.5)	(18.8)	4.6	-	-	-	-	-
16	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	(8.2)	8.6	11.5	10.1	10.1
17	Net Impact of Changes in Interest Rates [(1) - (2)]	6.7	(36.8)	23.7	9.0	75.6	8.2	(8.6)	(11.5)	(10.1)	(10.1)

The net impact of changes in interest rates is on average ($10.1 million) per year with the naive forecast. The net impact decline in 2019/20 to 2022/23 is primarily due to the declining MUSH yield and declining allocation to MUSH bonds. MUSH yield declines from 4.57% at the beginning of the forecast period to 4.28% by the end of the

forecast period as older higher yielding MUSH bonds mature. Further, MUSH falls from 21.0% of the total portfolio as of February 2018 to 12.2% of the total Basic Line of Business portfolio as of Q4 2022/23. Both of these factors negatively impact the claims discount rate and the present value of the claims liabilities with no offsetting impact from the fixed income portfolio.

INV.16.2.2 Reduction in Basic Interest Rate Risk from Last Year

Interest rate risk is significantly reduced by creating a unique asset allocation for Basic Claims. To illustrate, for each year from 2019/20 to 2021/22, the Government of Canada 10 year bond rate was increased by 100 basis points on the last day of each fiscal year. The figure below shows the net impact from the basic line of business in the 2019 GRA compared to the 2018 GRA (found in 2018 GRA response to PUB(MPI) 1-43). The decrease in interest rate risk from the changes made as a result of the ALM study is significant. On average the net impact in the 2019 GRA was ($0.3M) compared to $35.6M in the 2018 GRA.

Figure INV- 48 +100 Bps GoC 10 Year Bond Comparison from 2019 GRA to 2018 GRA

Line No.		2019/20	2020/21	2021/22
1	**2018 GRA**			
2	Marketable Bond G/L	(113.0)	(117.1)	(120.1)
3	Claims Interest Rate Impact	(145.9)	(153.0)	(158.2)
4	Net Impact	32.9	35.9	38.1
5	**2019 GRA**			
6	Marketable Bond G/L	(131.6)	(144.5)	(154.8)
7	Claims Interest Rate Impact	(134.1)	(142.2)	(153.8)
8	Net Impact	2.5	(2.3)	(1.0)

INV.16.3 Historical Fixed Income Duration and Claims Duration

The table below shows the quarterly fixed income duration and the quarterly claim liability duration communicated to the bond manager each month to maintain a duration matching strategy in compliance with MPI's ALM program.

Figure INV- 49: Fixed Income Duration and Claims Duration

Line No.	Date	Fixed Income Duration	Claims Duration*	Difference (Fixed Income Duration - Claims Duration)
1	May-16	9.96	9.89	0.07
2	Aug-16	10.12	10.27	-0.15
3	Nov-16	10.18	10.23	-0.05
4	Feb-17	9.81	9.73	0.08
5	May-17	9.97	9.94	0.03
6	Aug-17	9.92	9.96	-0.04
7	Nov-17	10.06	9.92	0.14
8	Feb-18	9.72	9.68	0.04

9 * Claims Duration is one month lagged

INV.17 INVESTMENT POLICY STATEMENT

The Investment Policy Statement is reviewed on an annual basis (at a minimum). The policy was last updated on April 30, 2018. Revisions to the Investment Policy Statement to reflect decisions related to implementing the ALM plan will be brought to the Investment Committee at its next scheduled meeting on July 31, 2018. The MPI Board of Directors will consider recommendations of the Investment Committee the following week. It is anticipated that the revised Investment Policy Statement will be provided as part of the answers to the first round of Information Requests.

The Investment Policy Statement and associated governance documents attached to this application are current to the time of filing and material changes to the current Investment Policy Statement from the documents previously filed are explained below.

Fixed Income Portfolio (Section 8.4)

For interest rate risk management purposes the duration of the marketable bond portfolio (excluding MUSH bonds) will be matched to the duration of the claims liabilities.

Rationale: This change is required because of the change in the calculation methodology of the claims discount rate (from duration weighted to dollar weighted) as discussed in INV.16.1.

Minimum Credit Rating (Section 8.6)

The minimum credit rating was changed from “A (low)” to “BBB”.

Rationale: To conform to the standard definition of Investment Grade securities. This change was approved at the December 8, 2017 Investment Committee meeting.

INV.18 INVESTMENT RETURN COMPARISON (MFR 2019 GRA C.5)

Minimum Filing Requirement (MFR) 2018-1

Please provide a 5-year comparison of the Corporation's total annual investment return rates with the corresponding annual return rates of:

a) the Workers' Compensation Board (WCB),

b) the Teachers' Retirement Allowances Fund (TRAF),

c) the Civil Service Superannuation Board of Manitoba (CSSB),

d) Insurance Corporation of British Columbia (ICBC), and

e) Saskatchewan Government Insurance- Saskatchewan Auto Fund (SGI),

and please provide commentary on any significant differences.

Response:

SGI and ICBC's fiscal 2017 returns have not yet been published. MPI will provide those returns when they are available.

The following table shows the returns of WCB, TRAF, CSSB and MPI for the last five calendar years.

Figure INV- 50: Return Comparison

Line No.	Year	CSSB	TRAF	WCB	Average	MPI
1	**2013**	14.7%	14.0%	13.6%	14.1%	8.0%
2	**2014**	9.2%	10.8%	10.0%	10.0%	9.6%
3	**2015**	7.6%	8.3%	7.9%	7.9%	2.7%
4	**2016**	5.7%	7.3%	3.5%	5.5%	6.5%
5	**2017**	10.8%	9.2%	8.3%	9.4%	6.3%
6	**Annualized Return over 5 Years**	9.6%	9.9%	8.6%	9.4%	6.6%
7	**MPI Value Added**	-3.0%	-3.3%	-2.0%	-2.8%	
8	**Asset Allocation Adjusted Returns**					
9	**2016**	4.2%	5.5%	2.4%	4.0%	6.5%
10	**2017**	6.4%	6.5%	4.9%	5.9%	6.3%
11	**MPI Value Added (Asset Allocation Adjusted Returns)**					
12	**2016**	2.3%	1.0%	4.1%	2.5%	
13	**2017**	-0.1%	-0.2%	1.4%	0.4%	

MPI underperformed the average returns for CSSB, TRAF and WCB in 2017 by 3.1%, and underperformed by 2.8% over the full five year period. However, the asset allocation of these funds is very different than the asset allocation of MPI's fund as these funds have much larger allocations to growth assets. In order to make a direct and accurate comparison the asset allocations of the funds were adjusted so that they are on the same basis.

When the asset allocations of other funds were adjusted to match MPI's, their average return fell to 4.0% in 2016 and 5.9% in 2017, underperforming MPI by 2.5% and 0.4%, respectively. MPI does not have detailed returns by asset class for the other funds for the full five year period so it is not possible to provide adjusted returns prior to 2016.

The most relevant performance comparison is to MPI's custom benchmark and peer universe, both of which are calculated by Ellement Consulting and reflect MPI's asset allocation. In 2017 MPI outperformed the custom benchmark by 0.3% and the custom peer universe by 1.4%. See *INV Appendix 10* for the comparison of MPI's fiscal year asset class returns relative to their respective benchmarks.

INV.19 BASIC CLAIMS, RSR AND EMPLOYEE FUTURE BENEFITS PORTFOLIO INFORMATION

The investment income and asset allocation for Basic Claims, RSR and Employee Future Benefits for 2019/20 to 2022/23 is located in this section.

Figure INV- 51: Basic Claims Investment Income

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
	(C$000s)				
1	Interest Income During Period	69,012	71,316	73,682	76,030
2	Dividend and Other Income During Period	-	-	-	-
3	Gains During Period - Profit & Loss	-	-	-	-
4	Investment Fees Paid	(1,237)	(1,302)	(1,330)	(1,336)
5	Amortization/Accretion During Period	2,541	2,595	2,715	2,768
7	**Investment Income**	**70,316**	**72,609**	**75,067**	**77,462**

Figure INV- 52: Basic Claims Asset Allocation

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
1	Cash/Short Term Investments	-	-	-	-
2	Government Bonds	1,024,980	1,120,283	1,216,491	1,314,377
3	Corporate Bonds	396,570	427,513	458,719	490,467
4	MUSH	493,462	450,208	407,995	364,594
5	**Total Assets**	**1,915,011**	**1,998,004**	**2,083,204**	**2,169,438**
6	**Percentage Allocation**				
7	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%
8	Government Bonds	53.5%	56.1%	58.4%	60.6%
9	Corporate Bonds	20.7%	21.4%	22.0%	22.6%
10	MUSH	25.8%	22.5%	19.6%	16.8%
11	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Figure INV- 53: RSR Investment Income

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
	(C$000s)				
1	Interest Income During Period	3,438	3,552	3,662	3,753
2	Dividend and Other Income During Period	5,850	7,369	7,616	7,856
3	Gains During Period - Profit & Loss	3,431	2,188	2,316	2,450
4	Investment Fees Paid	(884)	(851)	(884)	(918)
5	Amortization/Accretion During Period	(4)	(5)	(4)	(5)
7	**Investment Income**	**11,830**	**12,254**	**12,706**	**13,136**

Figure INV- 54: RSR Asset Allocation

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
1	Cash/Short Term Investments	-	-	-	-
2	Government Bonds	55,053	59,711	64,405	68,264
3	Corporate Bonds	51,997	54,321	56,664	58,590
4	MUSH	15,133	13,806	12,512	11,181
5	Private Debt	49,437	49,437	49,437	49,437
6	**Total Fixed Income**	**171,620**	**177,275**	**183,018**	**187,472**
7	Canadian Equities	41,262	44,188	47,322	50,774
8	US Equities	44,701	47,869	51,262	54,895
9	Global LV Equities	35,092	37,364	39,783	42,359
10	Real Estate Investments	33,763	34,980	36,473	39,322
11	Infrastructure & Venture Capital	17,415	18,390	19,420	20,508
12	**Total Growth Assets**	**172,233**	**182,792**	**194,259**	**207,857**
13	**Total Assets**	**343,852**	**360,066**	**377,277**	**395,329**
14	**Percentage Allocation**				
15	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%
16	Government Bonds	16.0%	16.6%	17.1%	17.3%
17	Corporate Bonds	15.1%	15.1%	15.0%	14.8%
18	MUSH	4.4%	3.8%	3.3%	2.8%
19	Private Debt	14.4%	13.7%	13.1%	12.5%
20	**Total Fixed Income**	**49.9%**	**49.2%**	**48.5%**	**47.4%**
21	Canadian Equities	12.0%	12.3%	12.5%	12.8%
22	US Equities	13.0%	13.3%	13.6%	13.9%
23	Global LV Equities	10.2%	10.4%	10.5%	10.7%
24	Real Estate Investment	9.8%	9.7%	9.7%	9.9%
25	Infrastructure & Venture Capital	5.1%	5.1%	5.1%	5.2%
26	**Total Growth Assets**	**50.1%**	**50.8%**	**51.5%**	**52.6%**
27	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Figure INV- 55: Employee Future Benefits Investment Income

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
	(C$000s)				
1	Interest Income During Period	3,237	3,020	2,787	2,534
2	Dividend and Other Income During Period	10,078	10,427	10,800	11,202
3	Gains During Period - Profit & Loss	7,144	7,562	8,004	8,472
4	Investment Fees Paid	(1,538)	(1,578)	(1,628)	(1,695)
5	Amortization/Accretion During Period	(9)	(7)	(6)	(5)
6	Pension Expense	(14,313)	(14,757)	(15,207)	(15,666)
7	**Investment Income**	**4,599**	**4,666**	**4,751**	**4,842**

Figure INV- 56: Employee Future Benefit Asset Allocation

Line No.	Investment Summary During Period	2019/20	2020/21	2021/22	2022/23
1	Cash/Short Term Investments				
2	Government Bonds				
3	Corporate Bonds	110,907	103,384	95,879	87,690
4	MUSH	-	-	-	-
5	Private Debt	92,384	92,384	92,384	92,384
6	**Total Fixed Income**	**203,291**	**195,768**	**188,263**	**180,075**
7	Canadian Equities	39,971	42,805	45,840	49,185
8	US Equities	71,947	77,046	82,507	88,354
9	Global LV Equities	38,092	40,558	43,184	45,980
10	Real Estate Investments	73,515	77,926	82,601	87,557
11	Infrastructure & Venture Capital	48,816	51,550	54,436	57,485
12	Total Growth Assets	272,340	289,884	308,568	328,560
13	**Total Assets**	**475,631**	**485,652**	**496,831**	**508,635**
14	**Percentage Allocation**				
15	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%
16	Government Bonds	0.0%	0.0%	0.0%	0.0%
17	Corporate Bonds	23.3%	21.3%	19.3%	17.2%
18	MUSH	0.0%	0.0%	0.0%	0.0%
19	Private Debt	19.4%	19.0%	18.6%	18.2%
20	**Total Fixed Income**	**42.7%**	**40.3%**	**37.9%**	**35.4%**
21	Canadian Equities	8.4%	8.8%	9.2%	9.7%
22	US Equities	15.1%	15.9%	16.6%	17.4%
23	Global LV Equities	8.0%	8.4%	8.7%	9.0%
24	Real Estate Investment	15.5%	16.0%	16.6%	17.2%
25	Infrastructure & Venture Capital	10.3%	10.6%	11.0%	11.3%
26	**Total Growth Assets**	**57.3%**	**59.7%**	**62.1%**	**64.6%**
27	**Total**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

13. INVESTMENT POLICY STATEMENT

Table of Contents

POLICY STATEMENT - GOVERNANCE 35
SECTION I – OVERVIEW 38
SECTION II – RESPONSIBILITIES 39
SECTION III – CONFLICT OF INTEREST 41
SECTION IV – LIABILITY CHARACTERISTICS 42
SECTION V – INVESTMENT OBJECTIVES 43
SECTION VI – PERMITTED INVESTMENTS 44
SECTION VII – ASSET ALLOCATION 47
SECTION VIII – INVESTMENT RISK 48
SECTION IX – VOTING RIGHTS 49
SECTION X – MONITORING 50
SECTION XI – WITHDRAWAL POLICY 53
SECTION XII – REVIEW 54
APPENDIX A - DEFINITIONS 55

Purpose

The purpose of this Policy is to provide comprehensive guidelines to the Investment Committee on considerations to be made in dealing with the Corporation's investments.

Effective Date

The Investment Policy Statement applies to investment activity on or after April 27~~30~~, 201~~7~~8.

Review

To be reviewed annually by the Investment Committee. The next scheduled review will occur in April 201~~8~~9. The Investment Committee will be required to provide a written report on the results of its review, including assessment of the effectiveness of this Policy and recommendations for revisions.

Approval

The Investment Committee of the Board authorizes Management to recommend approval to the Minister of Finance.

General Policy Statement

The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

The Corporation must maintain significant long and short-term investment funds (the "Fund") to ensure satisfaction of its obligations to claimants. These assets must be managed in a manner which will maximize return while minimizing risk in an overall portfolio context. The Fund must also have sufficient liquidity to address all funding needs of the Corporation as they arise.

Total Return includes both the change in the price of a financial asset, over a set period of time, as well as any income or dividends paid by the asset. In a portfolio context, it is the weighted average of the change in price of the various asset classes.

Risk is the uncertainty of future outcomes. In a portfolio context, there is unsystematic risk which can be diversified away and systematic risk which cannot be eliminated. Systematic risk is essentially the risk inherent in securities markets. The minimum acceptable level of risk for the Corporation occurs when its assets have been sufficiently diversified so as to effectively eliminate unsystematic risk. Systematic risk may be controlled by investing in authorized asset classes and through the use of hedging strategies.

The Corporation considers the short-term volatility of premiums to be a primary concern. As such, mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations. The mismatch in the changes in assets and liabilities, as a result of changes in interest rates, is expected to be minimized by defining a narrow bandwidth around the actuarially determined duration of the Corporation's claim liabilities.

It is a statutory requirement that the Corporation, pursuant to the requirements of the Act, pay to the Minister of Finance (the "Minister"), all moneys in any reserves established under Section 18 of the Act and such additional moneys as are not immediately required for the purposes of the Corporation as are available for investment. The moneys paid will be invested in accordance with *The Financial Administration Act.* The Minister has charged the Department of Finance (the "Department") with the operational management of the Fund.

Any investment counsel, advisors or custodians that may be required to advise on the Corporation's investments will be engaged on a basis satisfactory to the Minister where applicable, subject to authorization by the Lieutenant Governor in Council.

The Minister and the Department recognize the need for participation and direction from the Corporation in determining the appropriate policies and strategies and parameters for investment of the Fund including the use of derivatives to mitigate investment risk or create a desired return (where no margin or borrowing is used). Derivatives are not to be used for speculative purposes.

The Investment Committee Working Group prepares an annual work plan for the Investment Fund and annually reviews the Investment Policy Statement. The Corporation also reviews the duties of the Board, the Investment Committee and the joint Working Group (the **"**Investment Committee Working Group" or "Working Group"), which is comprised of representatives of the Department and the Corporation.

Statement of Investment Beliefs

The administrators of the Fund believe that:

i. Asset allocation is the most important factor in determining the performance of the Fund.

ii. Market timing at the strategic asset allocation level is generally not an effective strategy for consistently increasing returns.

iii. Identifying, measuring and monitoring risks within the portfolio are important.

iv. The success of active management varies on the efficiency of capital markets.

   a. In inefficient markets, active managers can add value net of fees over the long term.

   b. In efficient markets, it is believed that active managers will tend to underperform net of fees over the long term.

v. Passive management may be appropriate to reduce active management risk and cost in both efficient and some inefficient markets.

vi. A liability sensitive approach to investing reduces the Fund's interest rate risk by matching the size and duration of the Corporation's liabilities with fixed income securities.

vii. Over the long-term, equities are expected to provide a return premium over bonds, with higher expected volatility.

viii. MUSH bonds benefit the Corporation without degrading the quality and return of the Fund's investment portfolio, while also benefiting Manitoba residents.

ix. Alternative asset classes such as real estate and infrastructure provide income and potential capital growth, and are suited to offset inflation sensitive liabilities.

x. Cash provides the lowest expected long-term return, and should be held in minimal amounts where possible.

Investment Fund Strategy Statement

The asset allocation contained in the Investment Policy Statement shall be adopted for investments of the Fund.

Equities

Equities include securities from Canada and the U.S.

The Working Group shall annually review the risk, return and diversification of the equity holdings in the Fund, and will report the results to the Investment Committee.

Alternative Investments

Alternative Investments include Canadian Real Estate, Private Equity and Infrastructure.

The Working Group shall annually review the risk, return and diversification of the Canadian Real Estate, Private Equity and Infrastructure holdings in the Fund, and will report the results to the Investment Committee.

Fixed Income

The Working Group shall annually review the risk, return and diversification of the fixed income holdings in the Fund, and will report the results to the Investment Committee.

The Fund's fixed income assets shall be primarily managed in a "buy and hold" strategy subject to changes in the duration of the claims liabilities. When it is advantageous, the Department may trade bonds to take advantage of various bonds that appear undervalued and to take advantage of the changing shape of the yield curve. The Department should

not be taking significant actions based on views regarding the future direction of interest rates. Fixed income management will be governed by the accepted duration ranges as defined in section 8.4 of this Investment Policy Statement. The fixed income portfolio shall be diversified amongst federal, Manitoba, other provincial, municipal and corporate issues and also amongst a variety of maturities.

Gains and Losses

The Corporation will account for gains and losses in accordance with International Financial Reporting Standards (IFRS).

Section I – Overview

1.1 This Investment Policy Statement ("the Statement") applies to the assets held in the Fund ("the Fund") in respect of the liabilities of the Manitoba Public Insurance Corporation ("the Corporation") under the Manitoba Public Insurance Corporation Act ("the Act"). The Statement contains investment objectives, investment guidelines, and monitoring procedures.

1.2 The Fund will be managed in accordance with all applicable legal requirements notwithstanding any indication to the contrary which might be construed from the Statement. The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

1.3 With respect to any portion of the Fund invested in pooled funds, provisions of the Investment Policy Statement of such pooled fund shall prevail over those of the Statement to the extent that they are in conflict.

1.4 Any investment counsel or other agent or advisor providing services in connection with the investment of the Fund shall accept and adhere to this Statement.

Section II – Responsibilities

2.1 The purpose of the Investment Committee ("the Committee"), as appointed by the Board of Directors of the Corporation ("the Board") shall be to assist the Board in:

i) recommending investment policies and strategies to the Board for subsequent consideration by the Minister;

ii) review matters relating to investment activities of the Fund;

iii) providing oversight and monitoring performance of the Fund;

iv) monitor the implementation of investment decisions consistent with policies and strategies approved by the Board and the Minister through direction to the joint working group (the "Working Group") established between the Department of Finance (the "Department") and the Corporation; and

v) provide suggestions for consideration by the Working Group.

2.2 In accordance with the Section 12 of the Act, The Minister of Finance is responsible for the investments of the Corporation. Specifically, the Act provides:

INVESTMENTS
12(1) The corporation shall pay to the minister charged with the administration of The Financial Administration Act, for investment for the corporation, moneys in any reserve established under section 18 and such additional moneys as are not immediately required for the purposes of the corporation and are available for investment.

MONEYS TO BE CREDITED TO CORPORATION
12(2) Moneys paid under subsection (1) for investment shall form part of the trust and special division of the Consolidated Fund and may be invested in accordance with The Financial Administration Act, and the interest earnings thereon shall be credited to the account of the corporation in the trust and special division of the Consolidated Fund.

PAYMENT OF EARNINGS
12(3) Any earnings, whether alone or with the principal sum invested for the corporation under this section, or any part thereof, shall be paid over to the corporation by the minister charged with the administration of The Financial Administration Act on the request of the corporation."

RESERVES

18 The corporation shall establish and maintain reserves in such amounts that, at all times, it has sufficient funds to meet all the payments as may come payable under this Act and regulations.

2.3 Investment counsels, advisers and custodians may be hired by the Minister of Finance subject to authorization by the Lieutenant Governor in Council under The Executive Government Organization Act, Section 16 and 16(d) as follows:

AGREEMENTS WITH OTHER AUTHORITIES

16 The Lieutenant Governor in Council may authorize a minister, for and on behalf of the government, or an agency of the government, to enter into an agreement with

(d) any person or group of persons; for the benefit or purposes of the residents of Manitoba or any part thereof."

The Department is charged by the Minister with the operational management of the fund. Duties include establishing legal contracts with investment counsel, providing the Corporation with short term cash and treasury management services, managing the fixed income portfolio and providing input into the Investment Committee Working Group.

The Investment Committee Working Group is a joint committee of the Department and the Corporation. The role of the Investment Committee Working Group is:

a) Act as liaison between the Department and the Investment Committee;

b) Develop strategies for investment exposure for consideration by the Investment Committee and the Department;

c) Support the Assistant Deputy Minister in reviewing, screening and selecting investment managers;

d) Monitor performance of investment managers;

e) Prepare draft investment policies and annual strategies and draft parameters for the Fund for review and approval by the Investment Committee and the Department;

f) Implement investment policies and direction with the prior approval and concurrence of the Department;

g) Provide regular reports to the Investment Committee and the Department, as they shall require.

MPI's Financial Services Department manages the treasury function of the Corporation in conjunction with the Department of Finance. This department is also responsible for all the accounting requirements of the Fund.

MPI's Investment Department monitors the outside investment counsel for compliance with the Statement and their contracts, works with any outside

consultant for investment counsel searches, provides research and analysis on issues discussed by the Working Group, and develops and maintains relationships with members of the investment community and other provincial Crown insurance companies.

Section III – Conflict of Interest

3.1 A conflict of interest, whether actual, potential or perceived, is defined for the purposes of this Statement as any event in which the Corporation, an employee of the Corporation, an employee of the Department performing duties on behalf of the Corporation, any member of the Board or the Committee, any investment counsel or delegate, the Custodian, or any person or company directly related to any of the foregoing, may benefit materially from knowledge of, participation in, or by virtue of, an investment decision or holding of the Fund.

3.2 The Board shall satisfy itself that an appropriate policy regarding conflicts of interest exists and is followed by any investment counsel appointed. As a minimum, The Code of Ethics and The Standards of Professional Conduct adopted by the CFA Institute (formerly the Association of Investment Management Research or AIMR) shall be applied to such investment counsel.

3.3 A fiduciary, according to the CFA Institute, is one who holds a position of trust or confidence. A conflict of interest is deemed to exist when a fiduciary has an interest of sufficient substance and proximity to its duties and powers with respect to the Fund to impair its ability to render unbiased advice or to make unbiased decisions affecting the Fund.

3.4 A fiduciary, as described in section 3.3, must immediately disclose any conflict of interest in writing along with all relevant details to the chairperson of the Committee who, in turn, discloses it to all Committee members at the appropriate time.

3.5 No part of the Fund shall be loaned to any member of the Board, the Committee, an employee of the Department performing duties on behalf of the Corporation, or employee of the Corporation or any legal entity owned or controlled by any of the aforementioned. In addition, the Fund may not enter into a transaction with a related party unless:

a. The transaction is required for the operation or administration of the Fund and the terms and conditions of the transaction are not less favourable to the Fund than market terms and conditions; or
b. The securities of the related party are acquired through a public exchange, with the exception of MUSH bonds as noted in section 6.5.

Related party includes any officer, director or employee of the Corporation. It also includes the investment counsels and their employees, a union representing employees of the Corporation, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others.

Section IV – Liability Characteristics

4.1 The Corporation is a Manitoba Crown Corporation and is not subject to provincial or federal income taxes.

4.2 The Corporation's liabilities include both short-term and long-term liabilities arising from its insurance business as well as pension liabilities. In its insurance business, short-term liabilities are a result of all perils coverage, which have a short time frame between claim reporting and claim settlement while long-term liabilities are a result of both PIPP coverage and tort coverage. The long-term nature of PIPP coverage arises mainly from lifetime benefits payable to eligible claimants. Tort coverage has a long-term nature mainly due to long settlement periods, which is a result of the more complicated nature of these claims.

4.3 The Corporation's cash needs are significant due to the uncertainties in the timing and amount of claims payments. This is offset by the high certainty of future premium income.

4.4 Benefits of the Personal Injury Protection Plan (PIPP) paid by the Corporation are indexed to inflation through the Manitoba consumer price index.

4.5 The assets supporting the Corporation's liability for the employer's portion of the employee's pension liability are co-mingled with other investments.

4.6 The duration of current liabilities of the Corporation are reviewed and calculated annually by MPI's Pricing and Economics Department.

Section V – Investment Objectives

5.1 To meet the Corporation's liability commitments, both short-term and long-term.

5.2 To maximize investment returns for an appropriate level of risk. Risk can be defined by the standard deviation of returns, the Sharpe Ratio, Value at Risk and other commonly used risk measures for the total MPI portfolio, or any component of the total portfolio, which are compared to the same measures for the relevant index. For more specific information on risk tolerances please see "Schedule B" of the relevant equity manager's contract.

5.3 Risk is also defined as the duration gap (or mismatch) between fixed income assets and claims liabilities. Duration is a measure of the sensitivity of the market value of fixed income assets and liabilities to changes in interest rates. Section 8.4 describes the duration bandwidth that the Corporation applies to manage its interest rate risk.

5.4 To have investment returns minimize premiums payable by policyholders.

5.5 To protect the portfolio from loss of principal (book value).

5.6 To achieve a time weighted total return, before all investment management fees, at least equal to the following indices and according to the target allocation defined in section 7.1. Passive management strategies are not expected to earn a return above their respective benchmarks. The investment returns achieved by the investment managers will be measured and monitored on rolling four-year and ten-year periods.

Asset Class	Annual Expected Return
Cash and Short-term	FTSE TMX 91-Day Treasury Bill Index
Canadian Bonds	
Fixed Income Portfolio	
Marketable Bonds	
Non-marketable Bonds	Return on the present value of the Corporations claim liability cash flows over the measurement period
Canadian Equities	
Large Market Capitalization Equities	S&P/TSX Capped Composite Total Return Index plus 150 basis points over a rolling four year period annualized
Small to Mid Market Capitalization Equities	BMO Small Cap (Unweighted) Blended Index plus 150 basis points over a rolling four year period annualized[a]
U.S. Equities	
Large Capitalization Equities	Russell 1000 Value Total Return Index
Small Capitalization Equities	Russell 2000 Value Total Return Index
Alternative Investments	
Canadian Real Estate	ICREIM/IPD Canadian Property Index
Infrastructure	CPI + 5%

[a] The unweighted index is an equally weighted average of the price of each member. The Blended index includes both equities and income trusts.

Section VI – Permitted Investments

6.1 The Investment Committee supports the Fund's annual commitment to new Manitoba School, Hospital and Municipal bonds and debentures. The Fund's annual commitment will be determined by the Department and reported to the Investment Committee.

6.2 The Investment Committee is committed to support Manitoba enterprise where, on the advice of the Minister of Finance, no degradation in investment yield or grade is evident. This mandate reflects the Investment Committee's commitment for the Fund investments to be socially responsible to Manitoba residents. The benchmark against which no degradation in yield or grade is allowed is defined as the ten-year Government of Canada bond at the time of the investment.

6.3 After meeting the commitments of 6.1 and 6.2, the Fund may only be invested in the following asset categories:

a) cash;

b) demand or term deposits, or similar instruments issued or unconditionally guaranteed by trust companies or banks;

c) short-term notes;

d) treasury bills;

e) bankers' acceptances;

f) commercial paper;

g) bonds and debentures or other debt instruments of government, government agencies, or corporations;

h) Canadian and U.S. publicly traded equities;

i) private equity and venture capital

j) real estate

k) infrastructure

l) pooled funds consisting of assets listed in a) through k) above.

6.4 Short-term investments include cash and fixed income investments having a maturity of less than one year at the time of purchase.

6.5 Bonds include all fixed income securities having a maturity of one year or more at the time of purchase and include Canada, Manitoba, provincial, municipal, corporate bonds, floating rate notes, and debentures that are tradable in the fixed income market and Manitoba rural municipality, school division and health care facility bonds and debentures (MUSH bonds) which are not tradable in the fixed income market.

6.6 Canadian equities include securities traded on the TSX or common stocks, preferred stocks and convertible securities of Canadian issuers.

6.7 U.S. equities include common stocks, preferred stocks and convertible securities of U.S. issuers.

6.8 Canadian Real Estate includes pooled funds and direct holdings of real estate.

6.9 Infrastructure includes pooled funds, segregated funds, direct holdings and co-investments.

6.10 Private Equity is an investment in an unlisted company, which is typically long-term and unregulated. Venture capital is a form of private equity which focuses on small to medium sized business with strong growth potential. Venture capital is designed to help entrepreneurs start up or develop a new business where a high degree of risk is involved. The Corporation has capped its investments in Private Equity and will make no new investments in this asset class.

6.11 The Fund may purchase derivative financial, commodity or currency related instruments such as forward contracts, options, futures or swaps provided that such participation is not for speculative purposes and are not purchased with the use of leverage. Use of derivatives should be consistent with the overall asset allocation and risk management of the Corporation. Use of a derivative is permitted only after the Working Group has reviewed the application of the derivative and determined that it meets or exceeds the defined investment objectives of this document. Derivative strategies also require the prior approval of the Committee.

6.12 Investment counsels shall not borrow money, pledge or otherwise encumber any of the Fund's assets except to the extent that a temporary overdraft may occur in the normal course of day to day portfolio management. The use of leverage associated with real estate pooled funds and infrastructure investments is acceptable and will be defined in the investment manager's contract.

6.13 The Investment Counsel shall assess the financial strength of borrowers by reference to published credit ratings and by their own analysis. The investment counsel's analysis should include all material factors relevant to assess the ability of the borrower to repay the debt instrument, to discharge interest obligations on the specified payment dates and to survive periods of financial adversity. New investments may not be made in debt obligations that are in default of principal or interest.

6.14 The Minister may enter into a written agreement with the Custodian for securities lending provided that readily marketable securities having a market value of at least 105%, of the market value of the securities lent, are maintained on at least a daily basis.

6.15 Investment counsels may use soft dollars (directed commissions) to pay for research related goods and services in accordance with the CFA Institute Soft Dollar Standards. Investment counsels shall disclose to the Corporation at least annually the total amount of commissions and the products and services obtained through soft dollar arrangements from the Corporation's account.

Section VII – Asset Allocation

7.1 The Fund's target asset allocation is the following:

Asset Class (Group)	Minimum	Normal	Maximum	Accounting Class**
Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
-Government Bonds	40.0%	45.0%	60.0%	FVTPL
-Corporate Bonds	0.0%	5.0%	10.0%	FVTPL
-Non-Marketable Bonds	15.0%	20.0%	25.0%	HTM
Total Debt	**60.0%**	**70.0%**	**80.0%**	
Public Equities				
-Canadian	7.0%	10.0%	13.0%	AFS
-U.S.	3.0%	5.0%	7.0%	AFS
Total Public Equities	**10.0%**	**15.0%**	**20.0%**	
Alternative Investments				
-Canadian Real Estate	7.0%	10.0%	13.0%	FVTPL
-Private Equity*	0.0%	0.0%	0.5%	AFS
-Infrastructure	2.0%	5.0%	8.0%	FVTPL
Total Alternative Investments	**9.0%**	**15.0%**	**21.5%**	

*represents net committed capital

**AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

7.2 The target asset allocation has been determined in order to meet Fund objectives. It reflects a risk/return tradeoff that was selected by the Committee.

7.3 The Working Group, at its discretion, can allocate up to 20.0% from the Canadian equity asset class to the Canadian Small to Mid Cap equity asset class.

7.4 The Working Group, at its discretion, can allocate up to 30.0% from the U.S. equity asset class to the U.S. Small to Mid Cap equity asset class.

7.5 The target allocation to illiquid growth assets (Real Estate and Infrastructure) as a proportion of total growth assets (Canadian and U.S. equity, Real Estate and Infrastructure) should not exceed 50%.

7.6 The actual allocation to MUSH bonds should not exceed 25% of the total fund.

7.7 The Working Group will monitor the target asset allocation of the fund on a quarterly basis, at a minimum, and rebalance if necessary in accordance with the Working Group's rebalancing policy.

7.8 Securities held in a pooled fund are classified on the basis of the assets comprising the major portion of such pooled funds.

7.9 Derivative instruments along with any collateral held thereon are included in the asset class comprising the securities whose return or price serves as the basis for the pricing of such derivative instruments.

Section VIII – Investment Risk

8.1 Diversification between asset classes is provided through the asset allocation guidelines set forth in the Statement.

8.2 Diversification within each asset class is provided by limiting to 5% or less the percentage of the book value of Fund assets invested in a single security not issued or guaranteed by the Government of Canada, charged against the Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. Minimum and/or maximum percentage weight targets may be developed and implemented for corporate and provincial bond issuers (Province of Manitoba excluded) to assist in the diversification of the fixed income portfolio.

8.3 Diversification in equity investments is achieved by contracting with investment counsels that concentrate on specific equity market segments (large cap and small/mid cap) as well as investment style (value, growth and core). Managers will be selected based on their investment philosophy and internal investment policies.

8.4 Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds~~,~~ and floating rate notes~~, and non-marketable bonds~~ to the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.

8.5 When the Corporation invests outside of Canada to gain exposure to the relevant market, the Corporation will consider limiting its exposure to foreign exchange risk by hedging.

8.6 Quality is ensured by requiring that 100% of the market value of short-term securities have a minimum credit rating of R-1 (low) as assigned by Dominion Bond Rating Service Limited (DBRS), or its equivalent, and that 100% of other fixed income securities have a minimum credit rating of BBB~~A~~ (low), or its equivalent, as assigned by Standard & Poor's or Moody's Investors Service, or is a security issued or guaranteed by the Government of Canada, charged against the

Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. If a security has a split credit rating from the credit rating agencies the lower rating will be accepted.

8.7 In the event of a downgrade in the credit rating of a fixed income security by a recognized bond rating agency to a credit rating below the minimum as defined in Section 8.6, the Fixed Income Manager will follow the course of action set out below:

a) The Working Group will be notified of the downgrade at the earliest possible opportunity;

b) Within five business days of the downgrade, the Investment Counsel will advise the Working Group in writing of the course of action taken or to be taken by the Investment Counsel along with the rationales; and

c) The Investment Counsel will provide regular reporting to the Working Group on the status of the asset until such time as it matures, is sold, or is upgraded to a rating consistent with the minimum rating standards as defined in Section 8.6.

8.8 Trading and execution of the Fund will be done through the investment counsels who shall utilize their best efforts to obtain best execution of orders at the most favorable prices and competitive commission rates.

Section IX – Voting Rights

9.1 The responsibility of exercising and directing voting rights acquired through Fund investments is delegated to the investment counsels, who shall at all times act prudently and in the best interests of the Fund.

9.2 In case of doubt as to the best interests of the Fund, the investment counsel must request instructions from the Working Group and act in accordance with such instructions.

9.3 Investment counsels shall maintain a record of how Fund voting rights have been exercised.

9.4 Investment counsels shall advise the Working Group and provide details when:

a) the results of the vote are contrary to the investment counsel's recommendations;

b) the vote is related to anti-takeover charter and bylaw amendments or shareholder rights;

c) the voting rights have not been exercised.

9.5 Investment counsels shall not delegate voting rights unless the policy and procedures to be used when voting has been filed with the Minister of Finance and written approval of those policies and procedures have been granted.

Section X – Monitoring

10.1 Each quarter, investment counsels shall provide a letter indicating compliance with the Statement and the investment counsel's mandate and indicating all instances where the Statement and mandate were violated.

10.2 At the end of each quarter, the market value of each Fund investment is calculated. Investments that are not regularly traded are valued by the Custodian according to a methodology acceptable to the Committee. Any such investment that may represent more than 1% of the market value of the Fund is valued by a qualified independent appraiser or by the Committee through a resolution at least every three (3) years, except for non-marketable bonds as they are reported at book value.

10.3 Fund performance is evaluated at least quarterly in accordance with current Performance Presentation Standards established by the CFA Institute. Such evaluation is focused on objectives set in this document for the Fund and for the investment counsels.

10.4 Investment counsels report to the Minister of Finance and the Committee at least annually in order to:

a) provide information concerning new developments affecting the firm and its services;

b) review the transactions in the latest period and the assets held at the end of the period and explain how they relate to the strategy advocated;

c) explain the latest performance;

d) provide an economic outlook along with a strategy under such circumstances.

10.5 The following indices should be utilized for performance comparison purposes:

Asset Class	Comparative Benchmark
Cash and Short-term Bonds	FTSE/TMX 91-Day Treasury Bill Index
Fixed Income Portfolio	
Marketable Bonds Non-Marketable Bonds	Return on the present value of the Corporations claim liability cash flows over the measurement period
Canadian Equities	
Large Capitalization Equities	S&P/TSX Capped Composite Total Return Index
Small to Mid Capitalization Equities	BMO Small Cap (Unweighted) Blended Index[b]
U.S. Equities	
Large Capitalization Equities	Russell 1000 Value Total Return Index
Small Capitalization Equities	Russell 2000 Value Total Return Index
Alternative Investments	
Canadian Real Estate	ICREIM/IPD Canadian Property Index
Infrastructure	CPI + 5%

b The unweighted index is an equally weighted average of the price of each member. The Blended index includes both equities and income trusts

10.6 The Corporation has a graduated investment manager compliance policy in accordance with this Investment Policy Statement with escalating action based upon the degree of non-compliance. The Corporation monitors the compliance of its active equity managers with their internal Investment Policy Statements on a monthly basis and reports to the Investment Committee Working Group on a quarterly basis. In addition, the Corporation evaluates the compliance with the defined duration bandwidth as defined in Section 8.4 on a monthly basis and reports to the Working Group on a quarterly basis.

COMPLIANCE RULES:

1. Maximum concentration in an individual holding
2. Sector weight limits (linked to index)

3. Market capitalization limits (min & max)
4. Minimum and maximum number of holdings
5. Cash restrictions:
    a. Less than 10% of each managers portfolio
    b. Holdings rated A1 or better
    c. Short-term (less than 1 year)

DEFINITIONS:

Non-compliance is defined as minor if the manager is less than 10% out of compliance, for compliance rules 1, 2, 3 and 5(c). All breaches of compliance rules 4, 5(a) and 5(b) are considered major.

ACTION:

For minor instances of non-compliance the relevant external manager is notified of the non-compliance with the Investment Policy Statement. For major issues of non-compliance the relevant manager is contacted and requested to rectify the non-compliance within 30 days. Minor issues of non-compliance will be addressed internally by the Corporation. Major issues of non-compliance will be brought to the attention of the Investment Committee Working Group at its next meeting.

REPORTING

All major and minor cases of non-compliance with the Investment Policy Statement, and any related action taken, will be reported to the Investment Committee and the Investment Committee Working Group. Compliance reports will be completed at the end of each calendar month by the Investment Department.

The Investment Committee Working Group has the authority to provide exemptions to these rules and will report to the Investment Committee whenever it exercises this authority.

Section XI – Withdrawal Policy

11.1 In order to support the financial health of the Fund, ensure necessary liquidity levels are maintained and adequate diversification by asset class and by manager is adhered to, the Corporation has established the following guidelines for cash withdrawals.

11.2 Withdrawals of corporate funds to fund corporate operations are permissible, provided that pension plan assets are not affected by the withdrawals. Cash management is the joint responsibility of the Investment Department and the Risk Control and Financial Forecasting Department. The withdrawals will be reported to the Investment Committee Working Group at the Committee's next scheduled meeting. Withdrawals shall be reported to the Investment Committee at the Committee's next scheduled meeting.

11.3 The cash withdrawal guidelines are intended to assist in managing the Fund and maintaining adherence to the target policy weights, to the extent possible. The dollar amount of each withdrawal will be calculated by the Risk Control and Financial Forecasting Department and implemented by the Investment Department, which shall exercise judgment in withdrawing cash based on the following factors:

1. withdrawals are to be from retained earnings only, which represent corporate assets;
2. the market value of the fixed income portfolio (excluding cash) must match (or exceed) the present value of the claim liabilities;
3. withdrawals from each asset class/ manager will be in order of greatest variance from the target, until the withdrawal amount is satisfied;
4. each asset class must remain within its min/max range as established in Section 7.1;
5. availability of liquidity within the portfolio;
6. current market conditions; and
7. future Fund strategies, and Corporate needs.

11.4 In order to reduce cost, the number of asset classes/managers involved in the transaction should be the fewest possible to raise the necessary amount. Illiquid asset classes such as real estate, infrastructure and private equity are generally exempt from normal course withdrawals.

11.5 The Working Group is required to advise the Investment Committee of any exceptions to this policy and state the reason(s) for the exception (s).

Section XII – Review

12.1 This Statement may be changed or modified at any time by action of the Committee of the Corporation in consultation with the Minister of Finance.

12.2 This Statement shall be reviewed at least annually. Such review may be caused by:

a) a fundamental change in the business of the Corporation;

b) significant revisions to the expected long-term trade-off between risk and reward on key asset classes;

c) a major change in liabilities;

d) a significant shift in the financial risk tolerance of the Corporation;

e) shortcomings of the Statement that emerge in its practical application, or substantive modifications that are recommended to the Committee by a investment counsel;

f) applicable change in legislation.

Appendix A - Definitions

Alternative Asset Classes:
There are three primary asset classes: equities, bonds, and cash. Alternative asset classes refer to any other types of investments or collections of investment strategies that can be used to diversify investment portfolios. These investment strategies are generally aimed to provide meaningful growth, low correlation and lower volatility with equity markets. Some examples of alternative investments include: hedge funds, private equity, private debt, currencies, commodities, infrastructure and real estate.

Duration:
Duration is the weighted average time until the repayment of a fixed income instrument. In addition, it is also used to measure the price sensitivity of those instruments to changes in bond yields.

Fixed Income Securities:
An investment that provides a return in the form of fixed periodic payments and the return of the principal at maturity. Unlike a variable-income security, the payment amounts and dates of a fixed-income security are known in advance.

Investment Counsel:
Investment counsels are appointed by the Province of Manitoba to invest certain funds of the Corporation in accordance with and subject to the terms of an agreement with the Provincial government.

MUSH Bonds:
MUSH bonds are Manitoba rural municipality, school division and health-care facility bonds which are not tradable in the fixed income market and are managed by the Department of Finance at the Province of Manitoba.

Operational Asset Liability Management Policy

ICWG Policy #1
Effective April 13, 2018~~March 21, 2017~~

I. Background

The Corporation uses duration matching in order to manage the interest rate risk of the Corporation. Section 8.4 of MPI's Investment Policy Statement states the following:

"Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds and floating rate notes to the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.~~*"Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds, floating rate notes, and non-marketable bonds to the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation."*~~
"

Interest rate risk is the risk of economic loss resulting from market changes in interest rates and the impact on interest rate sensitive assets and liabilities. Interest rate risk arises due to the volatility and uncertainty of future interest rates.

II. Objective

In order to minimize the Corporation's interest rate risk, the duration matching portfolio will closely match the claims liabilities in both dollar amount and duration.

III. Definitions

The duration matching portfolio includes marketable bonds and floating rate notes~~ non-marketable bonds (MUSH bonds).~~.

The present value and duration of the claims liabilities will be determined by the actuarial department.

IV. Dollar Matching

The market value of the duration matching portfolio for the current month shall be maintained by the fixed income manager within +/- $100 million of the present value of the claims liabilities at the previous month-end unless another value is provided by the ICWG.

V. Duration

The fixed income manager is to match the duration of the duration matching portfolio to the duration of claims liabilities as per Section 8.4 of the Investment Policy Statement. In practice it is difficult to maintain a 0.0 year duration gap when matching fixed income assets

to claims liabilities. Therefore, the duration of duration matching portfolio shall be maintained by the fixed income manager within +/- 0.25 years of the duration of the claims liabilities.

The claims duration target for the fixed income manager for the current quarter will be based on the duration of the claims liabilities at the end of the previous fiscal quarter unless another duration target is provided by the ICWG. The fixed income manager will have until the end of the current fiscal quarter to reach the new duration target.

VI. Measurement

Modified duration will be used to determine the duration of the duration matching portfolio unless effective duration is a more appropriate measure.

The claims liability duration will be updated by the actuarial department on a monthly basis using the latest discount rate including the Margin for Adverse Deviation (MfAD)/Provision for Adverse Deviation (PfAD).

VII. Reporting

The duration and present value of the claims liability will be communicated to the fixed income manager (DOF) on a monthly basis.

The duration gap and dollar gap between the duration matching portfolio and the claims liabilities will be reported to the Investment Committee and Investment Committee Working Group every fiscal quarter.

VIII. Review

This policy will be reviewed by the ICWG annually in conjunction with the annual review of the IPS. This Policy may be changed or modified at any time by action of the ICWG.

If there is an inconsistency between this policy and MPI's IPS, then the terms of the IPS shall prevail. Further, nothing in this policy shall override or neutralize MPI's obligation to comply with all applicable legislation.

Rebalancing Policy
ICWG Policy #2
Effective April 13, 2018~~March 21, 2017~~

The Investment Committee Working Group (Working Group) has the responsibility to rebalance the portfolio according to the asset class weights outlined in the Investment Policy Statement (IPS).

The asset class rebalancing ranges, as defined in Section 7.1 of the IPS, are as follows:

Asset Class Group	Minimum	Target	Maximum
Cash and short-term	0.0%	0.0%	5.0%
Fixed Income			
Government Bonds	40.0%	45.0%	60.0%
Corporate Bonds	0.0%	5.0%	10.0%
Non-Marketable Bonds	15.0%	20.0%	25.0%
Total Debt	60.0%	70.0%	80.0%
Public Equities			
Canadian	7.0%	10.0%	13.0%
U.S.	3.0%	5.0%	7.0%
Total Public Equities	10.0%	15.0%	20.0%
Alternative Investments			
Canadian Real Estate	7.0%	10.0%	15.0%
Private Equity*	0.0%	0.0%	0.5%
Infrastructure	2.0%	5.0%	8.0%
Total Alternative Investments	9.0%	15.0%	21.5%

*represents net committed capital

The Working Group will monitor the target asset allocation of the fund, at a minimum, on a fiscal quarterly basis.

Whenever an asset class is outside of its target range, it will be reported to the Investment Committee during the Investment Activity and Performance Report. If the weight of any asset class falls outside the allowable range, then that asset class will be rebalanced back into the target range for that asset class within six (6) months.

If the Working Group wishes to maintain an asset class outside of its specified minimum-maximum range for more than six months it must report the reasons for such variance to the Investment Committee and seek the Committee's approval. The Investment Committee may approve an asset class to remain outside of the rebalancing range for a limited period of time, to be defined by the Working Group at the time of the request, after the initial six (6) month period.

Alternative asset classes, which includes real estate, private equity and infrastructure, can be highly illiquid and costly to rebalance. Therefore, special consideration will be given to

rebalancing alternative asset classes. These asset classes will be rebalanced on a best efforts basis based upon available liquidity in the relevant fund and the liquidity policy of the relevant fund.

This policy will be reviewed by the ICWG annually in conjunction with the annual review of the IPS.

If there is an inconsistency between this policy and MPI's IPS, then the terms of the IPS shall prevail. Further, nothing in this policy shall override or neutralize MPI's obligation to comply with all applicable legislation.

Equity Manager Monitoring and Termination Policy
ICWG Policy #3
Effective April 13, 2018~~March 27, 2017~~

I. Policy Objectives and Manager Expectations

The decision to retain or terminate an investment manager can be a difficult and subjective process. Retaining an unskilled manager that consistently underperforms the benchmark or terminating a skilled manager that underperformed only in the short term can have a detrimental effect on the returns of the fund. The purpose of this policy is to provide a systematic framework for equity manager retention, monitoring and termination.

This policy is intended to act as an operational guideline for the Investment Committee Working Group (ICWG). The process outlined in this policy takes into account both qualitative and quantitative factors to ensure that such decisions are made fairly and as objectively as possible when evaluating managers.

The guidelines in this document apply to all public equity portfolios and are designed to:

i. Foster a long-term approach to manager evaluations that is forward looking.
ii. Provide a systematic quantitative and qualitative framework to assess the factors relevant to future performance.
iii. Improve client/manager communication by informing each manager of the standards by which they will be evaluated and the consequences of failing to meet these standards.
iv. Promote timely and appropriate responses to actual and potential performance issues.

This policy will be reviewed by the ICWG annually in conjunction with the annual review of the Investment Policy Statement (IPS). If there is an inconsistency between this policy and the IPS, then the terms of the IPS shall prevail. Further, nothing in this policy shall negate MPI's obligation to comply with all applicable legislation.

Active Equity Manager Expectations

Active managers may have a value or growth investment style that may occasionally fall out of favour for a period of time. Therefore, active managers, especially those managers that have high conviction in their process, can be expected to underperform from time to time over the short term as their style goes out of favour. However, over the long term, active equity managers must add value net of fees over their contractual benchmark index in order to justify their higher fees relative to a passive strategy.

Passive Manager Expectations

Passive equity managers are expected to have minimal tracking error relative to the contractual benchmark, and to match the benchmark's return gross of fees.

II. Monitoring

The IPS states (page 5) that all asset classes will be reviewed on an annual basis. A written report will be prepared for all equity managers on an annual basis, at minimum, that will analyze the return and risk of the managers and discuss any major organizational changes within the firm. For additional oversight, a portfolio summary report will be prepared on a monthly basis and will be sent to the Investment Committee Working Group to provide equity manager investment return updates.

Watchlist Status
If an equity manager is not meeting performance expectations, or has undergone change(s) that may affect its performance going forward, the manager may be placed on "Watchlist" status. The purpose of placing a manager on the Watchlist is twofold. First, the action communicates to the manager the ICWG's concern about any issues. Second, the ICWG will begin a process to formally evaluate the continued retention of the investment manager. Placing a manager on the Watchlist is an intermediate step toward either resolving the problem or terminating the manager.

The ICWG may place an equity manager on Watchlist status at its discretion at any time. An active equity manager will be automatically placed on the Watchlist if the manager meets any one of the following qualitative or quantitative factors:

Qualitative

a. A change in ownership, or a change in the CEO, CIO or relevant portfolio manager
b. Change to an investment manager's philosophy or process it uses to implement the investment mandate;
c. Material litigation or fraud allegations involving the investment manager;
d. Significant account losses of more than 25%, or account growth of more than 50% within the most recent 12 month period available.

Quantitative:

a. Active equity manager underperforms the contractual benchmark net of fees over four years.

Equity managers will typically remain on Watchlist status for qualitative reasons for one year to ensure that outstanding issues have been resolved. When the manager is placed on Watchlist status, the Watchlist Timeline will be used for guidance.

Watchlist Timeline

Initial Annual Review

1. Calculate the manager's annualized performance (including absolute, relative, risk adjusted and other risk measures) over the most recent four year period and since inception and compare the manager's performance to their benchmark;
2. If the manager falls short of expectations and is placed on the Watchlist:
    a. the manager will be formally notified, a copy of this policy will be provided to the manager for added transparency, and the ICWG will seek an explanation from the manager;
    b. A written report with the reasons why the manager was placed on Watchlist status will be provided to the Investment Committee.

12 Month Review

3. The ICWG will re-evaluate the manager's performance to determine if it has improved over the most recent 12 month period;
4. If the manager's underperformance is ongoing and material, or if there continues to be concern about the organization, the manager will remain on Watchlist status;
5. The manager will be notified of the result. If the manager remains on the Watchlist, the manager will be requested to present to the ICWG to discuss what action the manager plans to take to address their underperformance;
6. A written report will be provided to the Investment Committee that recommends either removing the manager from the Watchlist, or keeping the manager on the Watchlist.

18 Months (if required)

7. The ICWG will re-evaluate the manager's performance and any ongoing organization issues;
8. If the issue(s) have not improved, the manager will remain on Watchlist status;
9. A portion of the manager's assets under management may be removed;
10. A written report will be provided to the Investment Committee that recommends either removing the manager from the Watchlist, or keeping the manager on the Watchlist.

24 months (if required)

11. Re-evaluate the manager's performance;
12. If the ICWG has:
    a. lost confidence in the manager, and performance has not improved, the ICWG may recommend in a written report to the Investment Committee that the manager be terminated;
    b. confidence in the manager, the ICWG will recommend to the Investment Committee in a written report to keep the manager on the Watchlist.
        i. the manager will be reviewed on an ongoing semi-annual basis until the issue is resolved. A written report will be provided to the Investment Committee at each subsequent six month interval that recommends either removing the manager from the Watchlist, or keeping the manager on the Watchlist.

This process can be accelerated if the manager's performance deteriorates materially, if the manger makes significant organizational changes, experiences sizable

redemptions or any other developments occur that cause the ICWG to lose confidence in the manager.

III. Termination

The following two broad questions are designed to help guide the decision to retain or terminate an equity manager:

1. Does the ICWG accept the manager's rationale for underperformance; and,
2. Does the ICWG have continued confidence in the manager's ability to outperform the benchmark?

This policy provides guidance to the ICWG in reviewing the performance of the equity managers. The active equity manager contracts allow the Department of Finance to terminate any manager, with or without cause, after 30 days notice, whether or not the manager is on the Watchlist.

Trading Approval Policy
ICWG Policy #4
Effective April 13, 2018

I. Objective

The Trading Approval Policy sets out authority for approving trading within the fund.

II. Definitions

Public market asset classes include government bonds, corporate bonds, Canadian equities and U.S. equities.

Private market asset classes include real estate, infrastructure, and private equity.

III. Types of Public Market Trading

This policy is to define authority regarding the following types of trading:

1. Rebalancing between asset managers;

2. Asset liability management (ALM) trading for controlling the duration of the fixed income assets or the dollar gap between fixed income assets & claim liabilities, or;

3. Reinvestment of equity dividends.

All external investment counsel for public market investments have discretion to make trades within their contracted mandate.

IV. Public Market Trading Authority

All public market trading must be approved by either 1) the Investment Committee Working Group (ICWG), or 2) both MPI's Chief Financial Officer and the Assistant Deputy Minister from the Department of Finance, or their respective designates in their absence.

The Operational Asset Liability Management Policy requires dollar and duration matching to be completed on a monthly basis. Therefore, ALM trades required by this policy up to $50 million ($CAD) can be approved by the Chief Actuary (MPI) or MPI's Chief Financial Officer or their respective designates in their absence. In these cases, the Chief Actuary will notify MPI's Chief Financial Officer and the Assistant Deputy Minister from the Department of Finance.

Reinvestment of equity dividends can be approved by the Manager of Investments, up to $10 million dollars.

V. Private Market Trading Authority

All private market trading must be approved by either: 1) the ICWG, or 2) both MPI's Chief Financial Officer and the Assistant Deputy Minister from the Department of Finance, or their respective designates in their absence.

VI. Review

This policy will be reviewed by the ICWG annually in conjunction with the annual review of the Investment Policy Statement (IPS). This Policy may be changed or modified at any time by action of the ICWG.

If there is an inconsistency between this policy and MPI's IPS, then the terms of the IPS shall prevail. Further, nothing in this policy shall override or neutralize MPI's obligation to comply with all applicable legislation.

MANITOBA PUBLIC INSURANCE INVESTMENT HOLDINGS AS OF February 28, 2018

Holding's Name	Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10 Canadian Equities		*Available for Sale*		
AKITA DRILLING LTD	85,140.00	511,691.41	660,686.41	148,995.00
ALIMENTATION COUCHE-TARD INC	60,000.00	4,013,442.00	3,743,400.00	-270,042.00
ALTAGAS LTD SUB RECPT	97,185.00	2,551,106.38	2,551,106.38	0.00
ALTAGAS LTD SUB RECPT	21,100.00	560,205.00	560,205.00	0.00
ARITZIA INC	122,820.00	1,536,478.20	1,536,478.20	0.00
BADGER DAYLIGHTING LTD.	44,805.00	1,021,033.58	1,071,287.55	50,253.97
BANK OF MONTREAL	40,000.00	2,358,387.30	3,897,599.98	1,539,212.68
BANK OF NOVA SCOTIA	167,473.00	9,135,935.51	13,314,103.69	4,178,168.18
BLACK DIAMOND GROUP LTD	98,010.00	277,368.32	277,368.32	0.00
CAN IMP BANK OF COMMERCE	78,774.00	6,282,640.74	9,232,312.79	2,949,672.05
CANADA TREASURY BILL	500,000.00	497,785.00	500,000.00	2,215.00
CANADA TREASURY BILL	2,000,000.00	1,992,960.00	2,000,000.00	7,040.00
CANADA TREASURY BILL	1,000,000.00	994,920.00	1,000,000.00	5,080.00
CANADA TREASURY BILL	2,410,000.00	2,397,664.70	2,410,000.00	12,335.30
CANADA TREASURY BILL	2,140,000.00	2,132,655.49	2,140,000.00	7,344.51
CANADIAN NATIONAL RAILWAY CO C	41,000.00	3,170,750.65	4,066,380.01	895,629.36
CANADIAN TIRE CORP LTD CLASS A	27,210.00	2,514,137.43	4,735,356.31	2,221,218.88
CANADIAN WESTERN BANK	93,270.00	1,926,609.96	3,526,538.69	1,599,928.73
CANFOR CORPORATION	92,261.00	1,353,772.81	2,795,508.31	1,441,735.50
CANFOR CORPORATION	94,543.00	981,969.07	1,465,416.50	483,447.43
CDN NATURAL RESOURCES LTD	260,578.00	8,677,470.63	10,357,975.61	1,680,504.98
CERVUS EQUIPMENT CORP	16,530.00	194,062.25	236,048.40	41,986.15
CGI GROUP INC CL A SUB VTG	38,632.00	1,031,492.96	2,891,605.20	1,860,112.24
CI FINANCIAL INC	116,319.00	3,092,150.43	3,310,438.74	218,288.31
COMINAR REAL ESTATE INVESTMENT	83,320.00	1,137,252.26	1,149,816.00	12,563.74
CORUS ENTERTAINMENT	60,434.00	628,157.21	483,472.00	-144,685.21
E-L FINANCIAL CORP LTD	3,365.00	1,493,352.41	2,678,540.00	1,185,187.59
EMERA INC	85,000.00	3,974,282.78	3,519,850.00	-454,432.78
ENBRIDGE INC COM	90,000.00	4,403,560.12	3,672,900.01	-730,660.11
ENERCARE INC.	90,400.00	1,740,003.95	1,657,032.00	-82,971.95
ENSIGN ENERGY SERVICES INC.	208,851.00	1,163,294.67	1,367,974.08	204,679.41
EVERTZ TECHNOLOGIES LTD	69,235.00	1,090,585.99	1,204,688.99	114,103.00
FAIRFAX FINANCIAL HOLDINGS LTD	4,399.00	2,195,946.08	2,750,386.77	554,440.69
FINNING INTERNATIONAL INC	80,442.00	1,776,284.67	2,739,050.11	962,765.44
FORTIS INC.	90,000.00	2,837,741.65	3,768,300.00	930,558.35
FRESHII INC CL A SUB	132,340.00	1,369,657.88	923,733.20	-445,924.68
GDI INTEGRATED FACILITY SVCS	40,645.00	652,977.18	630,403.95	-22,573.23
GILDAN ACTIVE WEAR INC.	103,000.00	3,830,396.66	3,822,329.99	-8,066.67
GREAT WEST LIFECO INC.	71,490.00	2,043,972.99	2,413,502.42	369,529.43

Holding's Name	Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10 Canadian Equities		*Available for Sale*		
GUARDIAN CAP GRP CL A	98,110.00	1,739,096.25	2,496,899.50	757,803.25
HUSKY ENERGY INC	290,797.00	4,378,914.08	4,926,101.17	547,187.09
IMPERIAL OIL LTD	148,174.00	6,168,397.48	5,143,119.58	-1,025,277.90
INDUSTRIAL-ALLIANCE LIFE INSUR	101,486.00	4,285,056.60	5,515,764.14	1,230,707.54
INFORMATION SVCS CORP CLS	42,820.00	665,681.54	725,798.96	60,117.42
INTACT FINANCIAL CORP COMMON	40,000.00	3,755,506.26	3,966,000.00	210,493.74
JEAN COUTU GRP	28,720.00	345,095.92	697,608.78	352,512.86
KNIGHT THERAPEUTICS INC	146,945.00	1,166,371.85	1,137,354.29	-29,017.56
LABRADOR IRON ORE	45,105.00	564,255.84	1,129,880.26	565,624.42
LASSONDE INDS INC SUBD COM	11,475.00	732,679.33	2,774,081.26	2,041,401.93
LAURENTIAN BANK OF CANADA	17,055.00	725,633.34	866,393.99	140,760.65
LEONS FURNITURE	108,465.00	1,236,199.17	1,920,915.09	684,715.92
LOBLAW COS LTD	27,666.00	1,236,284.85	1,819,039.58	582,754.73
LOGISTEC CORP CL B	20,460.00	706,279.20	884,895.00	178,615.80
MAGNA INTL INC CL A SVS	126,772.00	5,625,445.66	8,938,693.73	3,313,248.07
MAJOR DRILLING GROUP INC	100,545.00	632,428.05	645,498.91	13,070.86
MANULIFE FINANCIAL CORP TR REC	185,450.00	3,775,061.51	4,524,980.03	749,918.52
MAXAR TECHNOLOGIES LTD	73,830.00	5,039,937.23	4,429,800.00	-610,137.23
MELCOR DEVS LTD	83,810.00	1,151,671.35	1,164,959.06	13,287.71
MULLEN GROUP LTD.	102,460.00	1,482,645.40	1,511,285.12	28,639.72
NATIONAL BANK OF CANADA	75,000.00	2,539,275.78	4,666,500.00	2,127,224.22
NUTRIEN LTD	88,114.00	4,192,373.65	5,555,587.70	1,363,214.05
OPEN TEXT CORP.	71,708.00	2,017,520.78	3,224,708.75	1,207,187.97
PARKLAND FUEL CORP	100,355.00	2,342,701.69	2,901,263.02	558,561.33
PASON SYSTEMS INC.	51,075.00	740,644.57	902,495.26	161,850.69
PEYTO EXPLORATION & DEVELOPMEN	72,790.00	1,016,410.82	739,546.40	-276,864.42
POWER CORP CDA SVS	118,906.00	3,299,430.44	3,615,931.46	316,501.02
PRECISION DRILLING CORP	290,605.00	1,166,438.34	1,171,138.18	4,699.84
RICHELIEU HARDWARE LTD.	19,505.00	162,052.66	604,850.07	442,797.41
RITCHIE BROTHERS AUCTIONEERS	39,166.00	1,508,052.81	1,625,780.65	117,727.84
ROGERS COMMUNICATIONS INC.	80,458.00	3,155,003.07	4,650,472.42	1,495,469.35
ROYAL BANK OF CANADA	135,725.00	7,808,241.25	13,720,440.23	5,912,198.98
SECURE ENERGY SERVICES INC	227,163.00	1,707,697.77	1,844,563.59	136,865.82
SHAW COMMUNICATIONS INC CLASS	112,329.00	2,524,957.43	2,785,759.19	260,801.76
SHAWCOR LTD COMMON NEW	97,776.00	3,089,401.82	2,568,575.54	-520,826.28
SHERRITT INTERNATIONAL LTD	491,945.00	388,678.75	590,334.00	201,655.25
SNC - LAVALIN GROUP INC	45,556.00	1,848,979.83	2,530,635.79	681,655.96
SOLIUM CAPITAL INC.	99,434.00	738,980.02	1,082,836.26	343,856.24
STANTEC INC.	49,540.00	1,623,151.06	1,593,206.40	-29,944.66
SUN LIFE FINANCIAL	80,000.00	3,367,710.41	4,217,600.01	849,889.60
SUNCOR ENERGY INC NEW COMM	260,496.00	9,632,560.42	10,998,141.16	1,365,580.74
SUPERIOR PLUS CORP COMMO	184,720.00	2,061,818.95	2,327,472.02	265,653.07
TECK RESOURCES LIMITED	31,950.00	284,479.39	1,171,286.98	886,807.59
TELUS CORP COM	90,000.00	3,806,297.37	4,168,800.00	362,502.63
THOMSON REUTERS CORP	30,693.00	978,116.22	1,550,303.42	572,187.20
TOROMONT INDUSTRIES LTD.	10,715.00	309,612.27	614,933.83	305,321.56

Holding's Name		Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10	*Canadian Equities*		*Available for Sale*		
TORONTO DOMINION BANK		156,460.00	5,434,720.40	11,578,040.00	6,143,319.60
TRANSCANADA CORPORATION		70,000.00	3,735,197.42	3,878,000.01	142,802.59
WINPAK LTD		9,835.00	93,723.82	479,554.61	385,830.79
Total	Canadian Equities	15,850,735.00	206,531,026.44	263,639,621.01	57,108,594.57
Count	88				
15	*U.S. Equities*		*Available for Sale*		
Blackrock		743,490.00	68,547,628.29	116,527,875.01	47,980,246.72
Blackrock		181,960.00	17,384,644.69	28,185,465.17	10,800,820.48
Total	U.S. Equities	925,450.00	85,932,272.98	144,713,340.18	58,781,067.20
Count	2				
Total MPI		16,776,185.00	292,463,299.42	408,352,961.19	115,889,661.77

MPI annually reviews its securities to determine whether any holdings have experienced a permanent loss of value and therefor must be written down. The following investments were determined to be impaired.

2017-18 Impaired Investments
as at February 28, 2018

	as at February 28, 2018		
	Original Book Value	Revised Book Value	Impairment
Canadian Equites:	6,003,125	4,925,158	1,077,967
Total Impairment	6,003,125	4,925,158	1,077,967

Attachment
Agenda D.2
January 31, 2018

20. INVESTMENT COMMITTEE TERMS OF REFERENCE

Mandate

The Corporation recognizes that the Manitoba Public Insurance Act requires that the Minister of Finance (the "Minister") manage the Corporation's investment assets (the "Fund") and as such retains the ultimate responsibility for the prudent investment and management of the Fund. The Corporation also acknowledges that the Minister, as represented by the Department of Finance (the "Department") desires to work closely and cooperatively with the Corporation in ensuring that the Fund's investment strategies and policies address both the need and objectives of the Corporation and the Minister, respectively.

1. Composition of Committee

1.1 The Investment Committee will be comprised of at least three directors determined by the Board, provided that the Chair of the Board and in the Chair's absence, the Vice-Chair of the Board, shall be a member of the Investment Committee.

1.2 The Board shall fill vacancies, which arise from time to time to ensure the minimum membership is maintained and will appoint additional members to the Committee as required.

1.3 Any Board Member not assigned to the Committee is welcome to attend meetings in a non-voting capacity.

1.4 The Chief Financial Officer and Manager of Investments are required to attend meetings of the Committee.

2. Chair of Committee

2.1. The Chair and Vice-Chair of the Committee shall be appointed by the Board of the Corporation.

3. Governance of Committee

3.1. Meetings shall be held at the call of the Chair of the Committee or by the requisition of at least two members of the Committee, on not less than 72 hours' notice provided that at the sole determination of the Chair of the Committee, where exceptional circumstances warrant, a meeting of the Investment Committee may be held on less than 72 hours notice. Meetings of the Committee shall be held at least quarterly. Additional meetings may be held as deemed necessary.

3.2. A quorum for meetings shall be not less than a majority of the members of the Committee.

3.3. Decisions at meetings of the Committee shall be determined by a vote of the majority of those present and eligible to vote. The Chair of the meeting shall have a casting vote in the event of a tie.

3.4. The Corporate Secretary or their designate shall prepare and maintain minutes of each meeting.

4. Role of the Committee

4.1 The purpose of the Committee shall be to assist the Board of the Corporation in:

4.1.1 Recommending investment policies and strategies to the Board for subsequent consideration by the Minister of Finance;

4.1.2 Reviewing matters relating to investment activities of the Fund;

4.1.3 Providing oversight and monitoring performance of the Fund.

4.1.4 Monitor the implementation of investment decisions consistent with policies and strategies approved by the Board and the Minister through direction to the joint working group (the "Working Group") established between the Department of Finance (the "Department") and the Corporation.

4.1.5 Provide suggestions for consideration by the Working Group.

5. Role of the Department

5.1 The role of the Department has been determined by the Act and the Minister as follows:

5.1.1 Manage the investment of the Fund and implement investment direction and decisions consistent with approved investment policies and strategies;

5.1.2 Through participation on the Working Group, develop proposed investment policies and strategies and the parameters for the Fund for recommendation to the Board and approval by the Minister and;

5.1.3 Appoint up to three persons as representatives to the Working Group.

6. Role of the Working Group

6.1 The Working Group will be comprised of up to three persons appointed by the Department of Finance and the following MPI representatives:

- Vice President, Finance & Chief Financial Officer
- Corporate Controller

- Manager, Investments
- Manager, Risk Control & Financial Forecasting

The Vice President, Finance and CFO and the Assistant Deputy Minister of the Treasury Division of Finance will co-chair the Working Group.

6.2 The role of the Working Group is to:

6.2.1 Act as liaison between the Department and the Investment Committee;

6.2.2 Develop strategies for investment exposure for consideration by the Investment Committee and the Department;

6.2.3 Support the Assistant Deputy Minister in reviewing, screening and selecting investment managers;

6.2.4 Monitor performance of investment managers;

6.2.5 Prepare draft investment policies and annual strategies and draft parameters for the Fund for review by the Investment Committee and the Department;

6.2.6 Implement investment policies and direction; and

6.2.7 Provide regular reports to the Investment Committee and the Department, as they shall require.

7. Authority of the Committee

7.1 The Investment Committee shall make assessments and determinations and recommend investment policy to the Minister of Finance. The Investment Committee will establish the actual criteria and mechanisms for assessing the effectiveness of investment policy, including investment strategies and parameters. The Investment Committee shall have the authority to appoint representatives to the Working Group.

7.2 The Investment Committee will report to the next meeting of the Board of the Corporation.

7.3 The Investment Committee has specific and primary responsibility for the implementation of and adherence by the Corporation to the Investment Policy Statement.

These Terms of Reference are to be reviewed annually by the Investment Committee, and then, as part of the review of the Corporate Governance Manual, by the Governance & Human Resources Committee, followed by the Board.

Line of Business Calculation Detail
YEAR TO DATE FEBRUARY,2019

(C$ 000s, except where noted)

End of period Balances	Basic	Other Lines	Total
Direct Liabilities & Equities			
Unearned Premium	547,303	124,008	671,311
Unpaid Claims	1,851,107	110,901	1,962,007
Retained Earnings	307,713	241,680	549,393
Accumulated Other Comprehensive Income	(59,956)	(9,529)	(69,485)
	2,646,168	**467,058**	**3,113,227**
Direct Assets			
Deferred Premium Acquisition Costs	17,110	22,135	39,244
Reinsurers' Share of Unearned Premiums	-	133	133
Reinsurers' Share of Unpaid Claims	-	-	-
Deferred Development Costs - Direct	-	-	-
	17,110	**22,268**	**39,378**
Directly attributed to Line of Business	2,629,058	444,790	3,073,849
Allocated to Line of Business	(85,058)	(22,269)	(107,327)
	2,544,001	**422,521**	**2,966,522**
%	85.8%	14.2%	100%
Total Investment Income to be Allocated	**191,814**	**31,858**	**223,672**

Benchmark Returns

Actual vs. Benchmark Returns

Asset Class	MPI Annual Return ending February 28, 2018	Annual Expected Return Benchmark ending February 28, 2018	MPI Annual Return ending February 28, 2017	Annual Expected Return Benchmark ending February 28, 2017	MPI Annual Return ending February 29, 2016	Annual Expected Return Benchmark ending February 29, 2016	MPI Annual Return ending February 28, 2015	Annual Expected Return Benchmark ending February 28, 2015	MPI Annual Return ending February 28, 2014	Annual Expected Return Benchmark ending February 28, 2014
MPI Total Fund	5.1%	4.2%	7.1%	6.6%	-0.5%	-1.2%	10.3%	12.2%	8.7%	5.7%
Fixed Income										
Cash	0.9%	0.7%	0.5%	0.5%	0.6%	0.5%	0.9%	0.9%	0.9%	1.0%
Fixed Income Portfolio	3.9%	3.9%	2.5%	2.5%	0.2%	-1.0%	10.8%	13.4%	2.4%	1.2%
Marketable Bonds	3.6%	n/a	1.5%	n/a	-2.5%	n/a	14.5%	12.8%	0.4%	1.1%
Non Marketable Bonds - BV	4.6%	n/a	4.8%	n/a	4.9%	n/a	5.0%	14.5%	5.2%	1.3%
Canadian Equities										
Large Capitalization Equities	5.1%	4.7%	27.7%	24.7%	-15.1%	-11.4%	8.9%	11.8%	19.5%	15.8%
Small to Mid Cap Equities	4.1%	-1.6%	28.3%	45.8%	-4.2%	-18.6%	1.8%	-7.4%	41.4%	14.6%
US Equities (CAD$)										
Large Capitalization Equities	4.1%	4.2%	26.4%	29.1%	-2.3%	-9.4%	27.9%	13.5%	32.4%	33.5%
Small to Mid Cap Equities	-0.4%	-0.4%	38.3%	41.3%	-13.4%	-13.4%	3.9%	4.0%		
Alternative Investments										
Canadian Real Estate	11.2%	7.1%	7.1%	6.4%	8.5%	7.6%	8.1%	7.6%	12.9%	11.1%
Private Equity	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Infrastructure	9.8%	6.8%	3.9%	7.3%	7.2%	7.2%	7.4%	6.0%	13.4%	6.6%

Source: Ellement Consultants (since February 29, 2016, prior was API Asset Performance Management) except for infrastructure, which is based on the IRR method and is internally calculated.

Fixed Income Portfolio is composed of Marketable and Non-Marketable Bonds.

Actively managed large cap and small cap CAD equities include an alpha target of 150 bps.

Data for U.S. Equity Strategy in CAD for the year ending February 28, 2014 was available for the entire U.S. equity strategy only

PF.1 STATEMENT OF OPERATIONS

Manitoba Public Insurance
Multi-year - Statement of Operations

Line No.	*50 50 Interest Rate Forecast with 2.2% RI*							
	(C$ 000s, rounding may affect totals)	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,144,565	1,191,358	1,239,068	1,288,938
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
12	Service Fees & Other Revenues	22,849	23,322	23,845	25,915	27,787	29,814	32,039
13	Total Earned Revenues	982,991	1,059,512	1,063,253	1,139,034	1,197,313	1,246,629	1,297,723
14	Claims Incurred	783,040	870,564	853,862	896,143	942,167	990,961	1,043,152
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(30,306)	(6,883)	(3,712)	2,549	7,509
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(37,865)	(12,710)	(296)	7,196	5,336
17	Total Claims Incurred	767,239	831,017	785,691	876,550	938,159	1,000,706	1,055,997
18	Claims Expense	143,337	136,975	137,168	135,286	138,962	144,038	146,501
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,679	12,792	12,973	13,250
20	Total Claims Costs	923,722	981,835	936,465	1,024,515	1,089,913	1,157,717	1,215,748
21	Expenses							
22	Operating	70,201	73,799	75,060	73,539	76,188	79,852	82,767
23	Commissions	37,378	40,407	40,338	42,690	44,835	46,610	48,443
24	Premium Taxes	29,143	31,445	31,518	33,736	35,435	36,861	38,334
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,585	154,804	161,456	168,437	174,777
27	Underwriting Income (Loss)	(81,896)	(72,640)	(24,797)	(40,285)	(54,056)	(79,525)	(92,802)
28	Investment Income	111,731	82,203	192,405	86,465	91,437	95,843	99,484
29	(b) Investment Income - Interest Rate Impact	4,589	-	(23,026)	(19,127)	(8,895)	297	(1,886)
30	Net Investment Income	116,320	82,203	169,379	67,338	82,542	96,140	97,598
31	Net Income (Loss)	34,424	9,563	144,582	27,053	28,486	16,615	4,796
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	14,839	(6,417)	(8,599)	(6,899)	(7,222)

PF.2 STATEMENT OF FINANCIAL POSITION

Manitoba Public Insurance
Multi-year - Statement of Financial Position

Line No.	*50 50 Interest Rate Forecast with 2.2% RI* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	28,822	65,199	79,676	89,126	85,483
5	Investments	2,272,545	2,451,402	2,485,514	2,558,019	2,661,510	2,781,149	2,900,977
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,900	357,114	354,564	375,397	390,253	405,447	421,338
9	Prepaid expenses	-	-	-	-	-	-	-
10	Deferred policy acquisition costs	-	9,628	18,894	27,681	32,696	31,480	25,368
11	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-
12	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
13	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
14	Deferred development costs	55,423	72,551	43,654	47,118	59,181	61,201	63,236
15		2,916,137	3,025,250	3,035,209	3,178,012	3,325,865	3,470,498	3,601,875
16	Liabilities							
17	Due to other insurance companies	141	2,642	144	144	144	144	144
18	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
19	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
20	Unearned premiums and fees	508,089	548,406	547,303	582,126	607,614	633,826	661,368
21	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
22	Provision for employee future benefits	331,910	316,773	341,796	357,172	372,687	388,935	405,346
23	Provision for unpaid claims	1,806,067	1,920,634	1,821,445	1,878,834	1,946,325	2,019,351	2,088,878
24		2,705,292	2,840,245	2,771,764	2,879,586	2,989,774	3,107,556	3,222,482
25	Equity							
26	Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
27	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
28	Total Equity	210,845	185,005	263,445	298,426	336,090	362,943	379,394
29	Total Liabilities & Equity	2,916,137	3,025,250	3,035,209	3,178,012	3,325,864	3,470,499	3,601,876

PF.3 STATEMENT OF CHANGES IN EQUITY

Manitoba Public Insurance
Multi-year - Statement of Changes in Equity

Line No.	*50 50 Interest Rate Forecast with 2.2% RI* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,* 2018A	2019B	2019FB	2020F	2021F	2022F	2023F
1								
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	315,556	342,609	371,095	387,711
6	Net Income (Loss) from annual operations	34,424	9,563	144,581	27,053	28,486	16,615	4,797
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,748	49,148	39,870	(52,111)	(44,183)	(35,005)	(24,768)
11	Other Comprehensive Income for the Year	(41,878)	1,123	(91,981)	7,928	9,178	10,237	11,655
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
13	Total Equity Balance	210,845	185,005	263,445	298,426	336,090	362,943	379,394
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
18	Total Rate Stabilization Reserve	210,845	185,005	263,445	298,426	336,090	362,943	379,394
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	263,445	298,426	336,090	362,943	379,394
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	MCT RATIO	44%	28%	73%	75%	79%	82%	82%

PF.1 STATEMENT OF OPERATIONS

Manitoba Public Insurance
Multi-year - Statement of Operations

Line *SIRF with 2.2% RI*

June 15, 2018 2019 GENERAL RATE APPLICATION
PF Pro Formas

No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,144,565	1,191,358	1,239,068	1,288,938
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
12	Service Fees & Other Revenues	22,849	23,322	23,857	25,989	27,962	30,104	32,466
13	Total Earned Revenues	982,991	1,059,512	1,063,265	1,139,108	1,197,488	1,246,919	1,298,150
14	Claims Incurred	783,040	870,564	853,862	895,338	940,902	989,542	1,041,785
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(32,018)	(8,273)	(610)	-	5,719
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(66,159)	(32,210)	(10,766)	4,862	1,176
17	Total Claims Incurred	767,239	831,017	755,685	854,855	929,526	994,404	1,048,680
18	Claims Expense	143,337	136,975	137,168	135,146	138,722	143,771	146,236
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,665	12,769	12,946	13,223
20	Total Claims Costs	923,722	981,835	906,459	1,002,666	1,081,017	1,151,121	1,208,139
21	Expenses							
22	Operating	70,201	73,799	75,060	73,471	76,070	79,719	82,632
23	Commissions	37,378	40,407	40,338	42,690	44,835	46,610	48,443
24	Premium Taxes	29,143	31,445	31,518	33,736	35,435	36,861	38,334
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,113	5,233
26	Total Expenses	141,165	150,317	151,585	154,736	161,338	168,303	174,642
27	Underwriting Income (Loss)	(81,896)	(72,640)	5,221	(18,294)	(44,867)	(72,505)	(84,631)
28	Investment Income	111,731	82,203	192,950	90,466	98,020	103,949	108,279
29	(b) Investment Income - Interest Rate Impact	4,589	-	(45,215)	(36,622)	(16,812)	563	(3,533)
30	Net Investment Income	116,320	82,203	147,735	53,844	81,208	104,512	104,746
31	Net Income (Loss)	34,424	9,563	152,956	35,550	36,341	32,007	20,115
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	20,943	(4,413)	(6,046)	(4,299)	(4,709)

PF.2 STATEMENT OF FINANCIAL POSITION

Manitoba Public Insurance
Multi-year - Statement of Financial Position

Line No.	SIRF with 2.2% RI (C$ 000s, rounding may affect totals)		For the Years Ended February,						
1			2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC		2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets								
4		Cash and cash equivalents	72,998	11,929	29,445	66,723	82,215	92,420	89,608
5		Investments	2,272,545	2,451,402	2,463,258	2,520,905	2,622,254	2,750,873	2,878,737
6		Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7		Due from other insurance companies	2	-	-	-	-	-	-
8		Accounts receivable	389,900	357,114	354,564	375,397	390,253	405,447	421,338
9		Prepaid expenses	-	-	-	-	-	-	-
10		Deferred policy acquisition costs	-	9,628	20,607	30,783	32,696	34,029	29,706
11		Reinsurers' share of unearned premiums	-	-	-	-	-	-	-
12		Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
13		Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
14		Deferred development costs	55,423	72,551	43,654	47,130	59,209	61,240	63,279
15			2,916,137	3,025,250	3,015,289	3,145,536	3,289,176	3,446,104	3,588,141
16	Liabilities								
17		Due to other insurance companies	141	2,642	144	144	144	144	144
18		Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
19		Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
20		Unearned premiums and fees	508,089	548,406	547,303	582,126	607,614	633,826	661,368
21		Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
22		Provision for employee future benefits	331,910	316,773	341,796	356,358	371,474	388,022	404,574
23		Provision for unpaid claims	1,806,067	1,920,634	1,793,150	1,830,234	1,885,991	1,955,264	2,019,264
24			2,705,292	2,840,245	2,743,469	2,830,172	2,928,227	3,042,556	3,152,096
25	Equity								
26		Retained Earnings	170,975	134,734	323,930	359,480	395,820	427,826	447,940
27		Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,115)	(34,870)	(24,277)	(11,893)
28	Total Equity		210,845	185,005	271,819	315,365	360,950	403,549	436,047
29	Total Liabilities & Equity		2,916,137	3,025,250	3,015,288	3,145,537	3,289,177	3,446,105	3,588,143

PF.3 STATEMENT OF CHANGES IN EQUITY

Manitoba Public Insurance
Multi-year - Statement of Changes in Equity

Line No.	*SIRF with 2.2% RI* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,* 2018A	2019B	2019FB	2020F	2021F	2022F	2023F
1								
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	323,930	359,480	395,820	427,826
6	Net Income (Loss) from annual operations	34,424	9,563	152,955	35,550	36,340	32,006	20,114
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	323,930	359,480	395,820	427,826	447,940
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,748	49,148	39,870	(52,111)	(44,115)	(34,870)	(24,277)
11	Other Comprehensive Income for the Year	(41,878)	1,123	(91,981)	7,996	9,245	10,593	12,384
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,115)	(34,870)	(24,277)	(11,893)
13	Total Equity Balance	210,845	185,005	271,819	315,365	360,950	403,549	436,047
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	323,930	359,480	395,820	404,277	398,893
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,115)	(34,870)	(24,277)	(11,893)
18	Total Rate Stabilization Reserve	210,845	185,005	271,819	315,365	360,950	380,000	387,000
19	Retained Earnings	-	-	-	-	-	23,549	49,047
20	Total Equity Balance	210,845	185,005	271,819	315,365	360,950	403,549	436,047
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	MCT RATIO	44%	28%	76%	81%	87%	93%	96%

HEALTH WEALTH CAREER

ASSET LIABILITY STUDY MAJOR PROJECTS

PHASE ONE

UPDATED TO DECEMBER 21, 2017

Manitoba Public Insurance

CONTENTS

1. Merits of Unique Asset Allocations 1

2. Merits of New Fixed Income Exposure 5

3. Assess Interest Rate Risk Management Strategy 12

4. Address Phase One CAC Recommendations 19

1
MERITS OF UNIQUE ASSET ALLOCATIONS

5.02 (a) An analysis of the merits of adopting a unique asset allocation and Investment Policy Statement (i.e. segregating the assets) for each of the Corporation's three lines of business (Basic, Extension, SRE), excess capital/retained earnings/Rate Stabilization Reserve (RSR) and its pension assets.

BACKGROUND

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan ("Pension") (together the "components"). Our analysis considers the advantages and disadvantages of the current commingled asset approach versus an approach that would segregate the assets of each component and develop a distinct asset allocation policy for each based on its goals and characteristics. Developing optimal asset allocation policies for each component does not preclude MPI from commingling certain components with similar goals and characteristics.

Reviewing whether each component is best served by common or separate asset mix policies is part of good due diligence. Mercer analysed and compared the liability characteristics of each component to assess whether there were sufficient similarities across components to support a common asset allocation policy. This analysis considered the appetite for risk that can be borne by MPI across the various components and other requirements such as liquidity needs.

In PUB Order No. 162/16 (December 15, 2016), Mr. Valter Viola made recommendations that are addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Mr. Viola made the following recommendation #18:

"The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund."

ANALYSIS

The primary distinguishing characteristic of the components are:

Item	Basic	Extension	SRE	RSR	Pension
Purpose	Pay Basic Claims	Pay Extension Claims	Pay SRE Claims	Stabilization of Insurance Rates	Pay Employee Pension Benefits
Investment Goals (from MPI Investment Policy Statement at April 27, 2017)	The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.				
Liquidity needs	Sufficient liquid assets for Basic claims	Sufficient liquid assets for Extension claims	Sufficient liquid assets for SRE claims	Sufficient liquid assets to dampen shocks in rates	Sufficient liquid assets for pension payments
Assets[1] ($ Millions at 02/28/2017)	$2,189	$134	$172	$99	$353
Sensitivity to Interest Rate Changes (Duration[2])	10.5[3]	1.1[3]	2.7[3]	0.0	15.6[4]
Sensitivity to Inflation Rate Changes (Duration[2])	10.4[3]	0.0[3]	0.0[3]	0.0	12.6[4]

1. Source: MPI Financial Statements as at Feb 28 2017.

2. Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

3. Based on MPI duration calculations including Provision for Adverse Deviation ("PfAD") and Internal Loss Expense Adjustment ("ILEA").

4. Based on financial statements' disclosures and additional sensitivity tests provided by the actuary.

Approach	Advantages	Disadvantages
❑ Comingled	• Single set of documentation and oversight. • Some cost savings and efficiencies.	• Investment performance of the comingled assets may not necessarily align with the component's liability/risk profile and may create unintended financial results when the component is examined in isolation. • Impractical to meet a common investment objective with a single asset allocation when components have significantly different sensitivities to interest rate and inflation changes.
☑ Unique **MERCER RECOMMENDED**	• A unique asset allocation for each component would permit the reflection of each component's: - Duration and liability/risk profile - Liquidity needs/constraints - Goals and objectives - Minimum return considerations • Investment performance of segregated assets could be accounted by component. • The assets for each line can be monitored and re-allocated, as needed • Investment managers' fees may still be calculated on aggregated assets. • Investment manager performance reviews can continue to be reviewed in aggregate	• Requires a significant change to MPI internal accounting system • Relatively minor charge for additional accounts from manager and custodian. • Increased documentation • Oversight and review of each component's asset allocation and performance could add to the review process.

IMPLEMENTATION CONSIDERATIONS

The conclusions and recommendations of the Asset Liability Study will help develop the rationale for changing the structure from a comingled asset basis to some degree of asset segregation. That is, the study may reveal that it is prudent to have some components comingled; whereas other components should be segregated.

Currently, the MPI internal accounting system is designed to accommodate a commingled asset approach. In order to more fully understand the implementation implications of segregating assets, MPI should investigate the following:

1. Board approval process to accommodate the transition.
2. Cost of elected transition. These costs should consider both internal and external costs (e.g., custodial, legal, audit)
3. Transition timeline that allows for sufficient time to develop and test the new accounting system and to obtain the appropriate level of input from external providers involved in the transition.

RECOMMENDATION

This preliminary review strongly supports the consideration of unique asset allocations by component for the following reasons:

1. Better alignment of the asset allocation policy with characteristics and needs of each component.
2. Better alignment with respective metrics to assist in accountability and pricing.
3. Better visibility of each component's portfolio while maintaining the ability to re-allocate assets between components, as each component's obligations evolve.

Once the Asset Liability Study is complete (November 30, 2017), the study will have provided the rationale on which components should be comingled. MPI should consider the implementation considerations noted above before it proceeds with the transition to the new structure.

2
MERITS OF NEW FIXED INCOME EXPOSURE

5.02 (b) Examine the merits of adding exposure to types of fixed income not currently included in the portfolio (e.g. mortgages, private debt, foreign debt, etc.).

BACKGROUND

Currently, MPI has a target weight of 70% to fixed income investments. Within this allocation, there is a 50% target weight to Marketable Bonds and a 20% target weight to Non-Marketable Bonds. MPI's current fixed income structure is dominated by Manitoba Schools ("MUSH") bonds and Non-Manitoba Provincial bonds. Approximately 4% resides in Federal and Corporate bonds. There is currently no allocation to real return bonds within the portfolio. There is currently no allocation outside of Canada.

The Canadian bond market is represented by the FTSE TMX Canada Universe Index. As at September 30, 2017, the Canadian bond market was composed of:

SECTOR	WEIGHT (%)
Federal	37.00
Provincial	33.71
Municipal	1.92
Corporate	27.37
Total	**100.00**

The decision to explore exposure to types of fixed income not currently included in the portfolio will be reviewed, as part of the Asset Liability Study commissioned in early October 2017. The review will consider the advantages and disadvantages of various fixed income asset classes and investment strategies.

REVIEWING FUNDAMENTAL OBJECTIVES

Given current bond yield levels and the uncertainty surrounding fixed income markets, there are valid reasons to question the key fundamental objectives that have traditionally lead investors toward fixed income:

- **For Capital Preservation:** The risk of negative returns over the short/medium term is perhaps higher than ever before (since yields are so low)
- **For Income and Real Return:** Given current yields and inflation expectations, it is difficult to foresee significant real returns from traditional core fixed income portfolios
- **For Liquidity:** While domestic government bond liquidity remains likely, many portfolios have migrated toward more active positions with higher allocations to corporate bonds
- **To Provide Hedge on Interest Rate Risk Exposure:** Fixed income represents a matching asset that aligns with the nature of liabilities (insurance, pension and other fixed liabilities).

It is good governance practice to take a step back and re-confirm investment strategy and the implementation approach to fixed income in consideration of the challenges and opportunities in the current market environment.

ASSET CLASSES TO CONSIDER

We believe the following types of liquid and illiquid products may have a valuable role to play as part of MPI's allocation and are worth modelling as part of the Asset Liability Study. However, the appropriateness of different strategies will depend on MPI's return objectives, risk tolerance, overlap with existing asset exposure, tolerance for illiquidity and complexity, desire for liability matching characteristics, and governance arrangements. Our discussion assumes that MPI's current objectives are as follows from the April 27, 2017 Investment Policy Statement: "The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

To aid in assessing each option, we provide general guidance on the relative ability of each asset class to fulfil these objectives.

ASSET CLASS	ABILITY TO MATCH DURATION	ABILITY TO ENHANCE INVESTMENT RETURNS	ABILITY TO PROTECT PRINCIPAL
Federal/Provincial Bonds	Very strong. Diverse set of duration and terms to choose from.	Weak. Modest real return expectations at best.	Excellent, particularly for shorter-duration federal bonds.
Real Return Bonds	Strong for MPI's inflation linked liabilities.	Weak. Will only perform well if Canadian inflation is high.	Principal may erode as interest rates rise and/or inflation expectations change.
Private Debt (Investment Grade)	Modest. Limited issuances available.	Strong.	Weak. Interest rate sensitive.
Commercial Mortgages	Modest.	Modest	Moderate. Interest rate sensitive.
Levered Bonds (Generally 3 times exposure. Available for Canadian Long Bonds and RRBs)	Very Strong Capital efficient approach.	Depends on underlying bonds. RRBs have a greater ability than long bonds.	Weak. Interest rate sensitive.
Growth Fixed Income (includes Global Bonds, US High Yield, and Emerging Markets Debt)	Very Weak	Strong	Variable (vehicle dependent).

FEDERAL/PROVINCIAL BONDS

A diversified portfolio of nominal bonds issued by the Government of Canada and the Provinces constitutes 70% of the Canadian bond universe and forms the backbone of most institutional investors fixed income portfolios. Federal issues are extremely liquid, provide significant flexibility to match duration, and are of the highest quality. Provincial issues currently deliver higher returns than federal issues (with yields varying by credit quality of each province).

From our perspective, while real yields from federals and provincials are modest, we still believe that these bonds should form the foundation of a fixed income portfolio. A strong foundation allows investors to more confidently pursue excess returns in other areas of the sector.

REAL RETURN BONDS

Real Return Bonds ("RRBs") have the components of a conventional bond, coupon payments and return of principal at maturity. The distinguishing feature of the RRB is that both the periodic coupon payments and the return of principal at maturity are linked to the consumer price index ("CPI") over the respective term. The real yield (i.e., the yield in excess of CPI) is known at date of issue. The coupon payments and adjusted principal repayment depend on future inflation. This makes RRBs an explicit hedge against inflation risk.

The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.

RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns (except when used in an overlay approach where the long term credit spread between federal and provincial bonds is included). Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical[1] real estate, physical infrastructure).

PRIVATE DEBT

Private Debt (also known as Direct lending or Private Credit) is a broad term that refers to any investment in privately negotiated debt. Private debt is similar to a loan in that it is capital provided (as an investment) to an entity in exchange for interest (and possibly other payments) and the return of the original principal at a defined point in the future.

Private debt encompasses corporate debt, real estate debt, and infrastructure debt, as well as some opportunistic credit strategies. For each form of debt, exposure can be via senior loans or subordinated/mezzanine loans. Issuers may be investment grade, but on the whole, the private debt market is sub investment grade and similar in some regards to the syndicated/bank loan and high-yield markets, though typically with higher yields, additional return sources, and different market dynamics.

The debt is also not widely held, and is customized to the borrower's requirements, thus rendering it illiquid. We note that private debt investments have existed for a number of years, but were, for a long time, the preserve of a minority of investors, of which banks were the most significant. Today, private debt is an asset class increasingly considered by a broad range of institutional investors.

[1] Physical real estate investment means actually investing in a physical property that produces income and capital gains or losses. This should not be confused with real estate investments that invest in the stocks of real estate companies.

Borrowers often choose private debt financing because it can be customised to their specific needs or when public debt is not available to them. Given the illiquidity of the underlying asset, investors may choose to access private debt through their private market allocation.

The attractiveness of the private debt market is often linked to the aftermath of the global financial crisis, overleveraged banks, shrinking balance sheets, and the impact of international banking regulation on banks' lending activity. Although there's a positive tailwind from the changed market dynamics (particularly in Europe), we believe there's a strategic role for private debt in institutional portfolios. With the long-term nature of liabilities, pension funds and other institutional investors are in a position to offer liquidity to the market and thereby realize an illiquidity premium. Considering the attractive return potential of private debt, it's one manner in which investors can diversify from equities and yet maintain a similar level of expected return.

COMMERCIAL MORTGAGES

A commercial mortgage is a mortgage loan secured by commercial property, such as an office building, shopping centre, industrial warehouse, or apartment complex. The proceeds from a commercial mortgage are typically used to acquire, refinance, or redevelop commercial property.

Commercial mortgages are structured to meet the needs of the borrower and the lender and generally subject to extensive underwriting and due diligence prior to closing.

Canada's institutional commercial mortgage market has seen remarkable growth, keeping pace with the expansion of the directly held real estate sector. The player pool is also growing. Mortgage lending and investing has been dominated by chartered banks, credit unions and life insurance companies, but recently, non-bank mortgage lending companies have increased their market share.

In light of stable real estate market conditions, commercial mortgages should continue to serve as an effective alternative investment within Canadian institutional fixed income portfolios. Institutional investors have earned higher risk-adjusted spreads with minimal volatility. For investors seeking long-duration assets to meet long-tail liabilities, commercial mortgages can also offer better relative value than comparable fixed-income instruments with a similar duration. Added to these benefits is the higher degree of control investors exert over the structure and underlying credit risk of commercial mortgages versus corporate bonds, allowing investors to potentially manage the downside risk throughout the cycle.

OVERLAY BONDS

Implementing an interest rate hedging strategy does not always require a reduction in the allocation to return seeking assets, as it is possible to synthetically increase exposure to bonds through borrowing. Funding can be obtained through various mechanisms through the derivatives market. Pooled funds offering this type of strategy typically focus on the:

1. FTSE TMX Long Term Provincial Index (duration around 15 years) or

2. FTSE TMX Real Return Bond Index.

Canadian bond managers offer pooled funds that typically provide a 3 times leveraged approach (i.e., one dollar invested provides three dollars of exposure to the underlying bonds less borrowing costs).

By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.

Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds. When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

GROWTH FIXED INCOME

We define Growth-oriented fixed income as fixed-income assets and strategies expected to generate returns in excess of government bonds and investment-grade credit, but do not have effective interest rate risk hedging properties when MPI liabilities are considered.

Growth Fixed Income generally refers to mandates that take long, strategic, and tactical positions in government bonds, corporate bonds, high yield, currencies and a number of other asset classes within developed and emerging markets. Approaches are generally unconstrained in approach and can allocate to areas of the global fixed income marketplace that a manager believes to be most attractive.

HIGH YIELD

High yield bonds refers to bonds that are rated below investment grade (i.e., have a credit rating that is lower than BBB- or equivalent). These bonds have a higher chance of failing than investment grade bonds and therefore are subject to more default risk. Although these bonds are publicly traded, they are generally less liquid than investment grade corporate bonds.

In terms of risk and return profile, High Yield falls between equity and investment grade bond investing. High yield bonds tend to outperform other fixed income assets in the recovery phase of the economic cycle, and should be expected to underperform when an economy moves into recession. Relative to equity investments, high yield bonds provide superior downside protection under negative economic scenarios. Over time we would expect the asset class will produce positive returns without adding excessive risk to a well-diversified portfolio.

High yield bond are typically issued by:

- Emerging companies raising capital for expansion

- More mature companies with relatively weak balance sheets
- Companies taking on debt for acquisitions or leveraged buyouts

The asset class has traditionally been centered in the US where the market remains more developed. The European market has made considerable progress over the last ten years and now represents around 20% of the global market. Mercer's preference is to pursue a global allocation within High yield bonds.

EMERGING MARKET DEBT

Emerging Market Debt ("EMD") generally refers to bonds issued by the governments of less developed countries. Debt can be issued in the currency of the country ("local currency") or in a "hard currency", historically US Dollars, but now also in the Euro and occasionally Japanese Yen.

The risk premium available to investors is the compensation for being exposed to credit risk and for the unhedged investor, currency (for debt denominated in local currency) risk.

Advantages of local-currency EMD:

- Appreciation of emerging market currencies as emerging market economies mature;
- A "deeper" market and a higher average credit quality;
- Structural real yield advantage ("positive carry").

However, emerging market countries are more vulnerable to crises with numerous examples of currency devaluations and inflation, so some investors may prefer the perceived security of hard-currency debt. As such, we can also see some advantages to appointing a manager who has expertise in both and allowing them discretion to set the local / hard allocation.

3

ASSESS INTEREST RATE RISK MANAGEMENT STRATEGY

5.02 (c) Study the Corporation's current interest rate risk management strategy (duration matching) relative to the alternatives (including a cash flow matching strategy and a hybrid/bucketed approach in respect of claim liabilities). Provide the pros and cons of changing our strategy, practical implementation issues to consider, etc.

BACKGROUND

MPI's business lines' (i.e., Basic, Extension and Special Risk Extension) liabilities and pension liabilities are sensitive to changes in interest rates, which is summarized as follows:

Item	Basic	Extension	SRE	RSR	Pension
Assets[1] ($ Millions at 02/28/2017)	$2,189	$134	$172	$99	$353
Sensitivity to Interest Rate Changes (Duration[2])	10.5[3]	1.1[3]	2.7[3]	0.0	15.6[4]
Sensitivity to Inflation Rate Changes (Duration[2])	10.4[3]	0.0[3]	0.0[3]	0.0	12.6[4]

Source: MPI Financial Statements as at Feb 28 2017.

2. Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

3. Based on MPI duration calculations including Provision for Adverse Deviation ("PfAD") and Internal Loss Expense Adjustment ("ILEA").

4. Based on financial statements' disclosures and additional sensitivity tests provided by the actuary.

Short-term volatility of premiums is a primary concern therefore mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations. As a result, MPI has historically maintained a well-structured approach to interest rate risk management.

MPI's current interest rate risk management policy is summarized as follows:

- Duration[2] matching fixed income portfolio strategy to closely match claims liabilities in both dollar amount and duration.
- Fixed income manager will have *market value* of duration matching portfolio within *+/- $100M* of the *present value of claims liabilities*[3] in the previous month end.
- Duration matching portfolio will be within +/- 0.25 years of claims liability duration including the Provision for Adverse Deviation ("PfAD").
- Claims liability duration is based on previous fiscal quarter.
- Modified duration used unless effective duration is a more appropriate measure.

Interest rate risk management can be categorized into 3 approaches:

1. Duration matching (i.e., matching bond and liabilities within a specified tolerance)
2. Cash flow matching (i.e., matching bond cash flows to claims/benefits cash flows)
3. Hybrid bucket matching (i.e., hybrid of 1. and 2.)

The decision to elect a particular interest rate risk management strategy will depend upon the impact of each approach on security, affordability and efficiency. Each of the three options have varying levels of precision to hedging interest rate risk. Analysis was conducted to develop reasonable rationale on the go forward approach.

In discussions with investment managers that have a significant number of P&C general asset mandates, we understand that most mandates are based on duration matching without dollar matching constraints. Some mandates are based on hybrid bucket matching. In rare cases, the mandate is to follow a cash flow matching approach. The reasons for not adopting a cash flow matching approach are 1. the liability cash flows are projected expectations and actual experience can be materially different, and 2. cash flow matching has an opportunity cost as matching cash flows takes priority over maximizing yield given credit rating, liquidity and concentration constraints.

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[2] Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

[3] $1.9 Billion as at February 28, 2017. Source is MPI Financial Statements as at February 28, 2017.

On December 15, 2016 at a meeting of the Public Utilities Board, Mr. Valter Viola made recommendations, which are addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Mr. Viola made the following recommendation #15:

"Effectiveness of Duration Policy: The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations."

ANALYSIS

In general, there are 3 approaches that institutional investors use to manage interest rate risk, as summarized below:

Approach	Pros	Cons
Duration Matching	Cost effective approach. Protects against parallel shift in yield curve. Provides more flexibility with regard to investment vehicles, particularly if return enhancement is a priority.	Does not protect as well against non-parallel shifts in comparison to other approaches.
Cash Flow Matching	Higher resolution matching Protects against reinvestment risk, including non-parallel yield curve shifts	Precision of claims/benefits projections may not merit high resolution matching, as projected cash flows can be materially different from actual. Generally, most costly approach from return and fees trade-off viewpoint.
Hybrid/ Bucket Approach	Cheaper than cash flow match Some protection against non-parallel yield curve shifts	Less protection against interest rate risk than cash flow matching approach. In terms of return and fees trade off, in between duration matching and cash flow matching.

A hybrid/bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) with cashflow matching. It 'buckets' obligations into various tranches and builds an asset portfolio that has expected cashflows that are substantively similar to each 'bucket'. Relative to duration matching, it improves the robustness of the interest rate matching, but is not as precise as a cashflow matching approach.

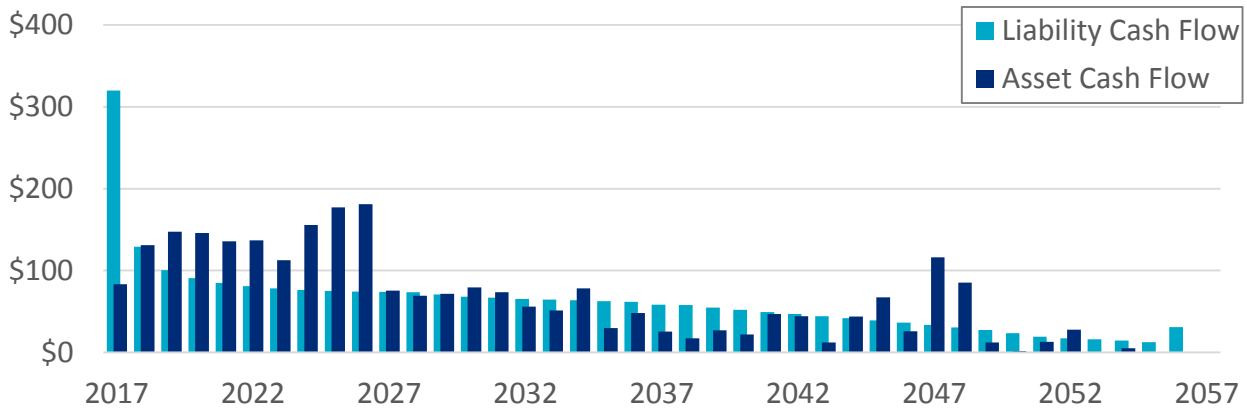
A hybrid/bucket approach is generally more costly to implement and administer than duration matching approaches, but has the added benefit of matching convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve and is most pronounced when unusual changes in yields happen. While we acknowledge that a hybrid/bucket approach more precisely immunizes convexity risk, we also observe that:

1. Convexity risk is generally equally likely to result in a gain or a loss to an investor, and
2. Gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time.

For investors with very limited tolerance for risk over the short term and sufficient scale to warrant a sophisticated matching program, we support a hybrid/bucket approach and/or a cashflow matching approach. But for investors who can tolerate modest levels of risk over the short term and target excess returns from active management, we are comfortable recommending a duration matching approach which allows for more efficient implementation and a broader opportunity set.

PROJECTED CASHFLOWS: CURRENT ASSET ALLOCATION

Assuming future inflation will match the 2% annual target, the current interest rate risk management approach provides relatively good coverage of the expected claim payments. The following chart compares the expected liability cash flows (claim payments) to the cash flows from the current bond portfolio:

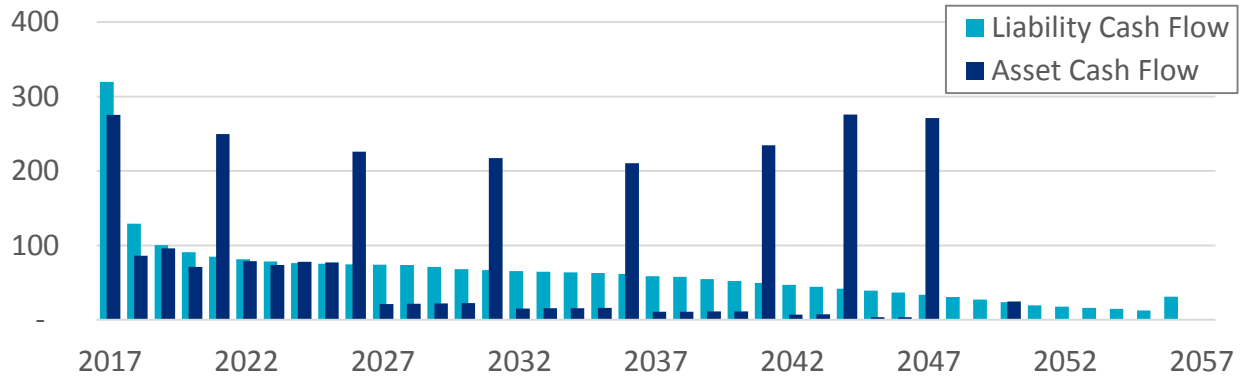


Dollars in millions.

THE CHALLENGES OF ELIMINATING INFLATION RISK

The current strategy exposes MPI to the risk of inflation increases in excess of 2% per annum. Unfortunately, it is virtually impossible to construct a portfolio that would match the expected claim payments in any future inflation scenario. This is in part due to the limited issuance of Real Return Bonds (RRBs). Although the RRB market is fairly large and liquid, there are currently only about 15 bonds. Eight were issued by the Government of Canada (good liquidity) and 7 are provincial bonds (poor liquidity). One could argue that the task of cash flow matching with RRBs could be made easier if the RRB bonds were stripped. (Stripping bonds is the process of breaking down a bond into individual coupons and a maturity payment). RRB stripping would allow for better matching as the breaking down the RRB bond into smaller pieces makes fitting the cash flows easier; however, RRB stripping is a rare occurrence as most investors prefer to buy the entire bond and pricing of the components can be very difficult given the unknown of actual inflation at various points in the future.

The following chart shows cash flows from a portfolio consisting of 34% nominal short and mid-term bonds and 66%[4] RRBs (roughly reflecting the discount rate and inflation sensitivity of the claim payments stream) compared to the expected liability cash flows. The chart illustrates the challenge of achieving inflation-sensitive cash flow matching due to the limited number of RRB issues and their specific maturity dates.



Dollars in millions.

IMPLEMENTATION CONSIDERATIONS

Given the circumstances outlined in the analysis, it is reasonable to take a measured approach to including RRBs rather than trying to hedge all of the inflation risk. Depending on whether MPI decides to assign the RRB mandate internally or externally the implementation approach may differ. If the mandate were handled externally, the most efficient and affordable approach would be to invest in a passively managed RRB fund or a levered RRB fund for better capital efficiency and return potential. If the mandate is managed internally, MPI's investment bond team could consider an RRB portfolio approach that would fit the liability cash flows better than the first method.

RECOMMENDATION

One of MPI's key investment objectives is to match interest rate risk:

> *Short-term volatility of premiums is a primary concern therefore mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations.*

[4] FTSE TMX RRB Index has a duration of about 15; whereas the MPI Basic liabilities have a real duration of about 10. This means a 66% RRB allocation would provide a real duration of 10 (i.e., 66% x 15 = 10).

MPI's current approach is a duration matching approach with a dollar matching constraint. From our perspective, Duration matching is the most cost effective and flexible approach to mitigating interest rate risk. Given MPI's willingness to accept modest levels of credit and liquidity risk, we recommend continuing with duration matching. While cash flow matching, or a hybrid/bucketed approach may be more precise, the incremental costs and complexity ought to be considered carefully, since often times the convexity risk (which these approaches help mitigate) tend to work themselves out naturally over time.

4

ADDRESS PHASE ONE[5] CAC RECOMMENDATIONS

5.03 (h) Address the recommendations made by the Consumer's Association of Canada (CAC) as per Schedule G of the RFP. The following eight (8) recommendations shall be addressed in Phase One:

5. Risk/Return Definitions for Asset Mix Decisions
7. Min/Max Asset Class Constraints
11. Canadian Equities Minimum Asset Allocation
12. No International Equities
14. Exclusion of Real Return Bonds
15. Effectiveness of Duration Policy[6]
16. Integration of real estate/infrastructure liabilities in duration management
18. Pension Fund[7]

On December 15, 2016 at a meeting of the Public Utilities Board, Mr. Valter Viola made recommendations to be addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Phase One of the study answers CAC recommendations # 5, 7, 11, 12, 14, 16 and 18.

[5] This was originally slated for Phase Two as described in the *"Request for Proposal #2785 for Asset Liability Study"*. By mutual agreement between MPI and Mercer, it was moved to Phase One for greater project efficiency.

[6] See this report's section entitled: *"Assess Interest Rate Risk Management Strategy"*.

[7] See this report's section entitled: "Merits of Unique Asset Allocations".

5. RISK/RETURN DEFINITIONS FOR ASSET MIX DECISIONS

BACKGROUND

The CAC recommendation was:

"MPI should re-define return/risk used to inform its long-term asset mix decisions to be based on valuations that reflect market values, rather than accounting ones (which may be materially different). At a minimum, net income should be replaced by comprehensive income in the numerator (return) and retained earnings should be expanded to include accumulated other comprehensive income (AOCI) in the denominator (risk). In the long term, market returns and market risks will determine average long-term premium rates, regardless of how assets and liabilities are accounted for under GAAP."

RESPONSE

We agree that asset mix decisions should be based on market values. The 2017 asset liability study is based on market values.

7. MIN/MAX ASSET CLASS CONSTRAINTS BACKGROUND

BACKGROUND

The CAC recommendation was:

"The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit."

The 2017 Asset Liability Study will develop optimal asset allocations on both a minimally constrained and constrained basis. The minimally constrained basis considers the fact that MPI requires a reasonable level of investment liquidity to ensure cash is available to pay claims or pension benefits. The constrained basis will employ practical implementation considerations that cannot be modelled without constraints. Each of these constraints will be clearly documented and explained. For example MUSH bonds will have a minimum constraint as these bonds are not liquid and over the foreseeable future an allocation to MUSH will remain even if the study's results were to conclude that MUSH bonds should be eliminated.

RECOMMENDATION

The Asset Liability Study will review both minimally constrained and practical implementation constraints that will be well documented and explained.

11. CANADIAN EQUITIES' 10% MINIMUM ASSET ALLOCATION

BACKGROUND

The CAC recommendation was:

"The appropriateness and prudence of having a 10% minimum weight to Canadian Equities ("to retain a meaningful exposure to home markets") should be reconsidered, given the different interests of different stakeholders (e.g., employees through the pension plan), the concentrated nature of Canada's equity market, and other such relevant considerations."

ANALYSIS

Based on the MPI investment policy statement effective April 27, 2017, the asset allocation for Canadian equity has a policy weight of 10%, which is 67% of the 15% total policy allocation to public equities. Most institutional investors have significantly diversified their public equity portfolios such that allocations to Canadian equities are typically between 25% to 33% of total public equities. Such allocations still represent a modest home country bias (since Canadian equities are ~ 4-5% of total global equities), but are much more diversified than the current MPI allocation. Some Canadian institutional investors have completely eliminated any home country bias.

Investors who choose to maintain a healthy home country bias typically do so because of inertia, lower investment management fees, to reduce currency risks, or since correlation with Canadian inflation is slightly higher than for non-Canadian equities. Overall, we view the diversification benefits of a globally diversified public equity portfolio to be compelling.

IMPLEMENTATION CONSIDERATIONS

The 2017 Asset Liability Study will review the expansion of the equity portfolio to consider:

1. EAFE[8] Equities (often referred to as International Equities) which represents approximately 36% of the developed world's capital markets.

2. Global Low Volatility Equities which are global equity mandates that target between 20% - 30% reduction in return volatility as compared to the MSCI Global Equity Index.

RECOMMENDATION

We expect our recommendation will be to reduce the allocation of Canadian equities to be 25-33%[9] of total public equities.

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[8] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

[9] Based on no constraints on allocations to Canadian equity.

12. NO INTERNATIONAL EQUITIES

BACKGROUND

The CAC recommendation was:

"The appropriateness and prudence of having no exposure to International Equities should be reconsidered, given the large size of non-US foreign markets, the return opportunities that are potentially available from those missed opportunities and the effects of increased international diversification on long-term market risks."

ANALYSIS

As part of the Asset Liability Study conducted by Mercer in late 2017, the asset allocation policy is being revisited. To date, the review has discussed the relatively concentrated nature of Canada's equity market. The aim of the asset allocation policy review is to develop an asset allocation policy that is optimal in light of the appropriate level of risk. EAFE[10] Equities (often referred to as International Equities) represents approximately 36% of the developed world's capital markets. We fully support reviewing the diversification of the equity portfolio by including International Equities.

IMPLEMENTATION CONSIDERATIONS

Transitioning to a non-Canadian equity portfolio is relatively straightforward, particularly if suitable pooled funds are available

The alternative to optimizing allocations to US Equity and EAFE Equity is to bundle these two mandates into one mandate (typically referred to as 'global equities' and typically benchmarked to the MSCI World index). This is supported by the fact the lines are blurred when it comes to categorizing a stock as US Equity or EAFE Equity when you consider the level of corporate globalization. For example, categorizing Microsoft as US Equity and ignoring it's non-US operations does not make sense. At the same time, combining the mandates into one mandate allows the investment manager to select a best in class stock regardless of questionable geographical classification. This in turn, provides the manager with an additional lever to outperform market returns. An extension of this idea is to combine US Equity, EAFE Equity and Emerging Markets equity into a single mandate known as an All Country mandate, which is typically benchmarked to the All Country World Index ("ACWI"). ACWI mandates are currently composed of about 52% US, 32% EAFE, and 12% Emerging Markets Equities. Note that the decomposition of ACWI into geographical regions is considered irrelevant to many ACWI investment managers, given the level globalization present in the world. Also, note that Emerging Markets Equities include companies such as Samsung, TenCent and Alibaba (all of which have a market cap of over $200Billion).

[10] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

RECOMMENDATION

We expect our recommendation to include an allocation to international equities. Note that the 2017 Asset Liability Study will not constrain the allocation to international equities.

14. EXCLUSION OF REAL RETURN BONDS

BACKGROUND

The CAC recommendation was:

"The role that RRBs can play in effectively managing relevant risks should be discussed, with consensus achieved regarding the effectiveness of RRBs from a risk management perspective (i.e., independent of the cost of any "insurance" as measured by RRB yields and their expected returns)."

Real Return Bonds ("RRBs") have the components of a conventional bond, coupon payments and return of principal at maturity. The distinguishing feature of the RRB is that both the periodic coupon payments and the return of principal at maturity are linked to the consumer price index ("CPI") over the respective term. The real yield (i.e., the yield in excess of CPI) is known at date of issue. The coupon payments and adjusted principal repayment depend on future inflation. This makes RRBs an explicit hedge against inflation risk.

The inflation sensitivities of MPI's three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan ("MPI components") measured by duration are summarized in the table below:

Item	Basic	Extension	SRE	RSR	Pension
Sensitivity to Inflation Rate Changes (Duration[3])	10.4[2]	0.0[2]	0.0[2]	0.0[2]	12.6[1]

Duration is a measure of interest rate sensitivity. A real duration of 10 means a 1% decrease (increase) in the real interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability. The duration of Canadian RRB market is currently approximately 15. Hedging a duration of 10 would simply mean having a 66%[11] allocation to RRBs.

[11] FTSE TMX RRB Index has a duration of about 15; whereas the MPI Basic liabilities have a real duration of about 10. This means a 66% RRB allocation would provide a real duration of 10 (i.e., 66% x 15 = 10).

ANALYSIS

RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns. Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical[12] real estate, physical infrastructure).

The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.

RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.

IMPLEMENTATION CONSIDERATIONS

Typically, RRB investment mandates are best handled by a passive manager with significant assets in RRBs relative to peer managers as this could aid in sourcing the less liquid RRB issues. These passive managers provide broad RRB market exposure at fee levels significantly lower than conventional bond mandates.

Due to the limited number of RRB issues and their specific maturity dates, developing a portfolio to match the inflation risk in the MPI components can be challenging. The challenge arises from trying to achieve a closely matching inflation-sensitive cash flow between assets and the respective component's projected claims or pension payments.

RECOMMENDATION

We agree that RRBs can provide an effective hedge against CPI linked obligations MPI has approved the inclusion of RRBs in the 2017 Asset Liability Study.

16. INTEGRATION OF REAL ESTATE/INFRASTRUCTURE LIABILITIES IN DURATION MANAGEMENT

BACKGROUND

The CAC recommendation was:

"MPI should consider the liabilities arising from all sources (i.e., including real estate and infrastructure) in its interest rate risk management practices (duration), to be consistent with its management of risks arising from insurance, pension and other liabilities. The financial leverage assumptions used in Asset-Liability Studies that support long-term asset mix decisions should be

[12] Physical real estate investment means actually investing in a physical property that produces income and capital gains or losses. This should not be confused with real estate investments that invest in the stocks of real estate companies.

made consistent with the leverage actually used in the portfolio, removing the ~ 4% difference related to real estate debt."

MPI's real estate investment is a direct investment in property, as opposed to an investment in real estate corporation stocks. Similarly, MPI's infrastructure investment is direct rather than investing in infrastructure corporations.

ANALYSIS

While it is true that interest rate risk exists in Real Estate and Infrastructure, we suspect that the duration will be relatively short when compared to MPI liabilities as debt terms in these investments can be short in term and interest rates can be floating. As such, it is extremely rare to consider duration risk of the underlying liability in these investments.

The following illustration provides a sense of the level of materiality:

Target Allocation to Real Estate	10%
Leverage used in Greystone real estate fund	25%
Assumed Duration of Debt	4*
Duration of Real Estate as a portion of overall MPI portfolio	0.10

*** Provided by Greystone on October 27, 2017.**

Analysis as at June 30, 2017

RECOMMENDATION

The Asset Liability Study will consider the use of leverage in the Real Estate and Infrastructure and how it may influence the overall duration of the portfolio. At this point, we do not expect it to be material nor worthy of hedging.

18. PENSION FUND

BACKGROUND

The CAC recommendation was:

> *"The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund."*

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan (the "components").

As per the Actuarial Valuation Report as at December 31, 2016 – Pension Liabilities of Manitoba Public Insurance (As a result of participation of its employees in the Civil Service Superannuation Act):

> *"At present, MPI is contributing to the CSSF[13] based on the pay-as-you-go method of funding. Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF. MPI has, however, established a reserve against general assets which is being increased to match the increase in its pension liabilities."*

As per Note 16 of MPI's Annual Financial Statements for the Fiscal Year Ended February 28, 2017 ("MPI 2017 Annual Report"):

> *"The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities."*

The current approach to Pension Fund assets is as follows:

1. The accounting basis liability for MPI's pension obligations is calculated by an independent actuary in accordance with International Financial Reporting Standards – International Accounting Standard 19.

2. An amount equal to 1. is carved out of the commingled assets and is assigned as pension assets supporting the liability determined in 1.

Under the current approach, where the performance of commingled assets differs from the change in pension liabilities, a gain (or loss) is incurred by the commingled fund and impacts the assets remaining for other Components. The primary economic drivers of changes in pension liabilities are changes in long-term interest rates and inflation expectations. For example:

- a decrease in applicable interest rates will increase the size of the pension liabilities, which in turn will increase the size of the provision against general assets; and
- an increase in applicable interest rates will decrease the size of the pension liabilities, which in turn will decrease the size of the provision against general assets.

OBSERVATIONS

The characteristics of the pension liabilities are different than MPI's three lines of business (Basic, Extension and SRE) and the RSR liabilities. The following is a non-exhaustive list of differences:

[13] CSSF is the Civil Service Superannuation Fund.

- Sensitivity to interest rates and which interest rates are used to determine the liability, and therefore the provision against general assets
- Sensitivity to rates of inflation and pensionable earnings
- Longevity of current and future retirees (but impractical to hedge using financial assets)
- Rates of retirement, termination of employment and disability of employees participating in the pension plan (but impractical to hedge using financial assets)

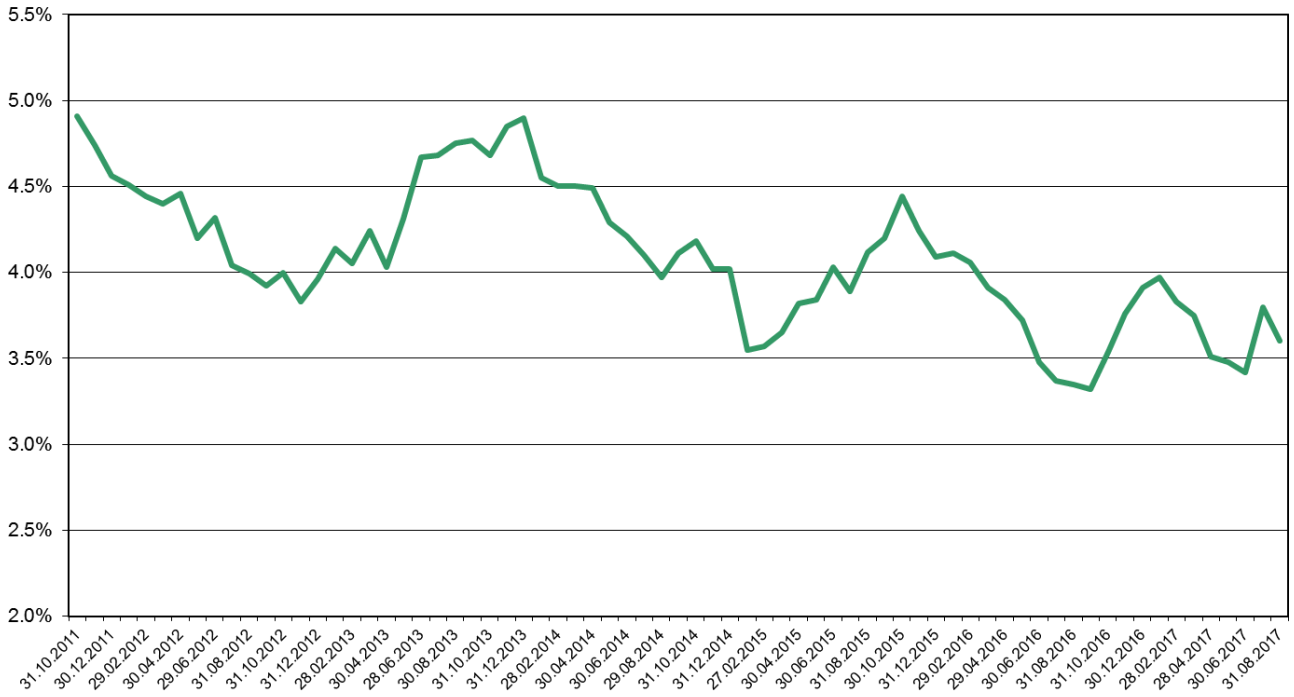
The following table summarizes certain sensitivities disclosed in the MPI 2017 Annual Report.

	Results in '000s			% Change Relative to the Defined Benefit Obligation at 3.89%		
February 28, 2017	Pension	Other Benefits	Total	Pension	Other Benefits	Total
Defined benefit obligation at 3.89%	$353,052	$52,006	$405,058			
Discount rate sensitivities						
• Defined benefit obligation at 4.89%	$298,855	$47,836	$346,691	(15.4%)	(8.0%)	(14.4%)
• Defined benefit obligation at 2.89%	$423,887	$56,120	$480,009	20.0%	7.9%	18.5%
Other sensitivities						
• Defined benefit obligation with +1 year to life expectancy	$358,699	$52,485	$411,184	1.6%	0.9%	1.5%
• Inflation indexing (2/3rds COLA) +1%	$384,071	$52,006	$436,077	8.8%	-	7.7%
• Inflation indexing (2/3rds COLA) -1%	$325,547	$52,006	$377,553	(7.8%)	-	(6.8%)
• Health care cost inflation +1%	$353,052	$57,461	$410,513	-	10.5%	1.3%
• Health care cost inflation -1%	$353,052	$47,823	$400,875	-	(8.0%)	(1.0%)

As per the above results, the defined benefit obligation for pension is most sensitive to changes in the applicable discount rate and the duration of MPI's pension obligations is in the range of 15.5-18. It is our understanding that the discount rate used is a single rate that approximates the present value of MPI's pension benefit obligation cash flows to the present value of those cash flows using the Canadian Institute of Actuaries' ("CIA") model yield curve for financial reporting purposes.

The following is a chart that displays the evolution of CIA discount rates since October 31, 2011 to September 29, 2017 for a sample pension plan with duration of 16.

Evolution CIA Discount Rates Over Time for Sample Plan with Duration of 16
(new CIA model (CIA 2.0) starting on November 30, 2016)



The following table is a summary of MPI's defined benefit obligations at each fiscal year end from February 28, 2011 to February 28, 2017:

Fiscal year ending	Duration	Discount rate	Change in discount rate	Defined benefit obligation (Results in '000s)		
				Pension	Other benefits	Total
Feb. 28, 2011	Not disclosed	4.85%		$218,872	$38,940	$257,812
Feb. 28, 2012	Not disclosed	4.20%	(0.65%)	$260,415	$40,847	$301,262
Feb. 28, 2013	Not disclosed	3.90%	(0.30%)	$285,360	$46,475	$331,835
Feb. 28, 2014	16.0	4.20%	0.30%	$285,326	$47,812	$333,138
Feb. 27, 2015	17.15	3.60%	(0.60%)	$339,334	$51,785	$391,119
Feb. 29, 2016	16.29	4.05%	0.45%	$328,390	$49,727	$378,117
Feb. 28, 2017	15.6	3.89%	(0.16%)	$353,052	$52,006	$405,058

As can be seen from the previous chart and the above table, the discount rate used to determine MPI's pension obligations is volatile and therefore the provision against general assets for pension is correspondingly volatile. Over the past 7 fiscal year ends, the average discount rate is 4.10%, the minimum discount rate is 3.6% and the maximum discount rate is 4.85%. We estimate that the impact of the 60 basis point decrease in discount rate from 4.2% to 3.6% at February 27, 2015 was an increase in pension obligations, or a loss, of approximately $33-$35 million (assuming all else being equal).

RECOMMENDATION

Given the above observations and assuming that MPI will continue with its current policy with respect to the pay-as-you-go method of funding, MPI should consider segregating its pension assets from its insurance related assets. This will allow for:

- An asset allocation that considers the characteristics of the pension liabilities in isolation and the risk appetite of MPI;
- Enhanced transparency with respect to MPI's pension portfolio and possible re-allocations to or from MPI's three lines of business (Basic, Extension and SRE) and the RSR, if applicable;
- MPI's three lines of business (Basic, Extension and SRE) to have metrics that could be independent of the pension portfolio and can assist in accountability.

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ASSET LIABILITY STUDY

PHASE TWO

DECEMBER 8 2017

Manitoba Public Insurance

CONTENTS

1. Introduction 2
- Background on the fund 2
- Purpose of Study 2
- Overview of MPI's obligations 3

2. Key Recommendations 5
- Consolidation vs. segregation 5
- New asset classes 5
- Excluded asset classes 7
- New asset allocations 8

3. Implementation Considerations 10
- Consolidation vs Segregation 10
- Recommended asset allocations 10

Appendix A: RFP Items 12

Appendix B: 10-Year forward looking Capital Market Assumptions 13
- Asset Class Returns and volatility 13

Appendix C: Summary of Phase One 15

Appendix D: Supporting Analysis 17

1 INTRODUCTION

BACKGROUND ON THE FUND

Manitoba Public Insurance ("MPI") maintains investment funds (the "Fund") in respect of the liabilities of MPI in accordance with the Manitoba Public Insurance Corporate Act (the "Act"). As of August 31, 2017, assets of the Fund totaled $2,695Million as summarized below:

Fixed Income		Equities		Alternatives	
$1,852.2M	68.7%	$434.9M	16.1%	$408.7M	15.2%
Cash	0.5%	Canadian	11.2%	Real Estate	11.6%
Federal Bonds	4.5%	US	4.9%	Infrastructure	3.5%
Provincial Bonds	34.2%			Private Equity	0.1%
Corporate Bonds	6.0%				
MUSH Bonds	24.1%				

The Fund's asset allocation policy (the "Policy") is the most important factor driving Fund performance. The Policy has been determined in light of the Fund objectives. The Policy reflects the characteristics of the underlying obligations and a risk/return tradeoff selected by the MPI Investment Committee ("Committee"). The Policy aims to maximize return while minimizing risk in an overall portfolio context, while considering practical investment implementation implications.

PURPOSE OF STUDY

In September 2017, MPI undertook a Policy review (the "Study") following an order by the Public Utilities Board ("PUB"). The current Policy was last set approximately 3 years ago. The primary purpose of the Study was to identify and recommend Policy allocations that reflect MPI's risk and return objectives, asset size, and governance structure. In addition, the Study was to respond to a number of recommendations submitted by the Consumers' Association of Canada.

MPI retained Mercer to assist in this Study. Mercer provides expertise in the development of an asset allocation policy through asset liability studies. Mercer worked with the staff and management of MPI throughout the study and authored this report. All figures related to MPI in this report were provided to Mercer by MPI.

OVERVIEW OF MPI'S OBLIGATIONS

For the purpose of the Study, obligations of MPI were segmented amongst the following 5 components ("Components"):

	BASIC	EXT	SRE	RSR	PENSION
What's included	Compulsory: auto insurance claims	Optional: auto insurance claims	Competitive: fleet insurance claims & Provincial Facilities	Retained earnings from Basic	Employee Benefits
Size[1]	$1,790M	$106M	$147M	$97M	$405M
Purpose	Pay claims as they come due			Stabilize rates	Fund pension benefits
Return Expectation/ Risk Tolerance	Very low risk tolerance. Could grow in future.	Moderate	Moderate	Moderate	Moderate
Interest Rate Sensitivity (Duration)	High (10.5)	Low (1.1)	Low (2.7)	Not applicable	Very high (15.6)

Basic Claims Liabilities are subject to significant interest rate risk and require a high level of liquidity to pay claims. Given that the Basic insurance business:

1. comprises approximately 88% of the total business based on net claims incurred, and

2. that no new rates or fees for Basic services can be introduced without the approval of the PUB,

the risk tolerance for assets supporting Basic is very low. To meet these objectives and reflect the nature of Basic, MPI's proposed Policy for Basic is to attempt to hedge substantially all of its nominal interest rate risk by investing in bonds with nominal interest rate duration that matches[2] the

[1] Source: Financial Statement at February 28, 2017.

[2] Most Basic liabilities are subject to inflation risk. After considering the cost of hedging inflation risks and the likelihood of future increases in inflation, MPI decided to hedge the nominal interest rate risk of Basic liabilities assuming that inflation linked obligations increase at 2% per annum. By matching the duration of assets to the duration of liabilities, MPI will be able to efficiently construct portfolios that allow for return enhancement. A fully cash flow matched asset portfolio would mitigate both duration and convexity risk, but would require MPI to sacrifice opportunities to diversify its fixed income portfolio and enhance yields. We are supportive of MPI's strategy decision in the regard.

duration of Basic liabilities. Given MPI's low tolerance for risk, the proposed Policy for Basic will not include equities or alternative investments.

SRE and Extension Claims Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims. The risk tolerance for SRE and Extension Claims Liabilities are moderate. Given the moderate tolerance for risk, MPI's proposed Policy for these lines reflects a balanced portfolio of bonds, equities and alternative investments. MPI's proposed Policy for SRE and Extension Claim bonds includes modestly higher allocations to non-government bonds than the more conservative Basic Policy.

The RSR is essentially surplus assets excluding accumulated other comprehensive income ("AOCI"). The intent of the RSR is to protect motorists from rate increases made necessary by unexpected events and losses arising from non-recurring events or factors. There is no underlying obligation therefore there is no targeted interest rate risk hedge. The size of the RSR dictates the capacity to stabilize rate increases. Currently, MPI's risk tolerance for RSR is moderate. Given the moderate tolerance for risk, MPI's proposed Policy for these lines reflects a balanced portfolio of bonds, equities and alternative investments. MPI's proposed Policy for SRE and Extension Claim bonds includes modestly higher allocations to non-government bonds than the more conservative Basic Policy.

Pension assets support MPI employee pension liabilities in conjunction with MPI's unfunded portion of the Civil Service Superannuation Board of Manitoba ("CSSB") pension obligations. Pension liabilities are subject to interest rate risk tied to high quality long-term corporate bond yields. Risk tolerance is moderate. CSSB has an asset allocation policy that allocates approximately 30% to bonds and 70% to equities and alternative asset classes. MPI's proposed Policy for these pension assets is an allocation slightly less aggressive than that of CSSB (40% to bonds and 60% to equities and alternative asset classes).

2
KEY RECOMMENDATIONS

CONSOLIDATION VS. SEGREGATION

Currently, MPI commingles the assets of the Components with the same Policy mix applying to each. This Study recommends the identification and segregation of unique asset allocations by Component for the following reasons:

1. Better alignment of the Policy with characteristics and needs of each Component.
2. Better attribution of investment income and gains/losses across each Component to assist in accountability and pricing.
3. Better visibility of each Component's portfolio while maintaining the ability to re-allocate assets between components as their obligations evolve.

MPI has recommended unique Policy allocations for the Basic and Pension Components, along with a consistent Policy allocation for each of RSR/SRE/Extension. Segregation of the assets of each Component will likely take some time to fully implement as MPI makes necessary changes to internal accounting and attribution systems.

NEW ASSET CLASSES

As part of the overall review of MPI's risk and return objectives, several new asset classes were considered to assess the extent to which they would be expected to improve the risk/reward trade-off of the Fund relative to the underlying obligations. The following two tables summarize the new asset classes included, and excluded, from MPI's recommended Policy and a brief discussion of the rationale for each:

ASSET CLASS	RATIONALE FOR INCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Corporate Bonds	Investment grade Canadian corporate bonds. Corporate bonds generally increase yields over Provincial bonds; however, the credit spread varies by issuer (some Corporates are higher quality than some Provinces) and over time. Corporate bonds are available in various maturities to help hedge interest rate risk of underlying obligations, which vary in duration. Careful due diligence of corporate bond issuers and diversification of credit risks are key to delivering excess returns, as over the last 5 years, the median Canadian corporate manager has significantly outperformed the passive index by 39 basis points.
Private Debt	Investment grade North American debt covering private corporate debt, infrastructure debt, power & energy debt and other forms of private debt. Typically, fully hedges US currency risk and yield curve changes. Since private debt is less liquid than public debt, it generally results in an increased yield over a comparable Canadian bond index[3] of about 0.75%. An allocation to North American private debt further diversifies credit risk beyond those of Canadian provinces and Canadian publicly traded bonds
All Country World Index Equities (ACWI)	Includes developed world market equities and emerging market equities to improve portfolio diversification. Allows an active investment manager the ability to select best in class stocks regardless of the relevant stock exchange geography. The standard ACWI benchmark is composed of approximately 52% US, 32% EAFE[4], and 12% Emerging Markets Equities.
Global Equity (Low Volatility)	Well-diversified developed world equities with return volatility of about 25% less than the standard global equity benchmark index. Offsets some of the ACWI equity volatility.

[3] Currently FTSE/TMX Canada Universe Bond Index yield is 2.3%

[4] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

EXCLUDED ASSET CLASSES

These asset classes were considered as part of the Study, but excluded from the Policy recommendation:

ASSET CLASS	RATIONALE FOR EXCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Real Return Bonds	Real return bonds ('RRBs') are inflation-linked bonds that are typically used to hedge inflation risk. While basic claim liabilities and pension liabilities are indexed to inflation; a number of factors contributed to the exclusion of RRBs from the Policy recommendation, including: 1. RRB real yields are relatively low, averaging ~0.6% through November 2017. 2. MPI's Basic liabilities assume a 2% inflation rate. If future inflation is near this rate, these obligations can be most efficiently hedged with traditional bonds. RRBs will only be worth their cost if inflation is well in excess of 2%, but will cause MPI to incur losses if inflation is flat. 3. Duration and dollar matching liabilities is challenging with RRBs. The Canadian RRB market consists of 15 issues of which only 7 are liquid and all are government issued. 4. RRBs are traditionally indexed to the Canadian Consumer Price Index, while Basic Liabilities are indexed to other drivers.
Levered Bonds	Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). Levered bonds can be implemented directly or via institutional pooled funds which helps to diversify their counterparty risks. Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio. Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.
Diversified Growth Funds	Diversified Growth Funds come in a variety of forms, but generally combine a diversified set of return drivers in an attempt to provide a more efficient return than traditional balanced funds. They typically use a combination of derivative positions as well as direct holdings. While many diversified growth funds are less expensive than traditional hedge funds, they can be more expensive than direct holdings. Given MPI's desire to reduce, rather than increase, exposure to growth assets, they are not included in the Policy recommendation.

ASSET CLASS	RATIONALE FOR EXCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Private Equity	Private equity can provide institutional investors opportunities to enhance long-term returns by committing capital for longer periods to entities that are not subject to public market reporting requirements and/or are smaller with respect to market capitalization. Given MPI's desire to reduce, rather than increase exposure to growth assets, they are not included in the Policy recommendation.

NEW ASSET ALLOCATIONS

Following a thorough review of the relative merits of the asset classes noted above and after considering the purpose of each business line and MPI's risk tolerance and return requirements, Mercer modeled multiple combinations of asset classes utilizing efficient frontier concepts as well as stochastic projections of both assets and MPI's obligations utilizing the economic assumptions outlined in Appendix B.

Based on this analysis, MPI management recommended the following Policy portfolios for each business line and Pension obligations:

	CURRENT	PROPOSED BASIC	PROPOSED SRE/EXT RSR	PROPOSED PENSION
Fixed Income	**70%**	**100%**	**50%**	**40%**
Short-term Bonds (Prov.)	6.5%	0%	10%	0%
Mid-term Bonds (Prov.)	12%	28%	10%	0%
Long-term Bonds (Prov.)	29.5%	32%	0%	0%
Short-term Bonds (Corp.)	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0%	9%	10%	0%
Long-term Bonds (Corp.)	2%	11%	0%	20%
MUSH Bonds	20%	20%	5%	0%
Private Debt - Universe	0%	0%	15%	0%
Private Debt - Long	0%	0%	0%	20%
Public Equities	**15%**	**0%**	**35%**	**35%**
Canadian Equity	10%	0%	12%	10%
U.S. Equity	5%	0%	0%	0%
All Country World Equity	0%	0%	13%	18%
Global Equity (Low Volatility)	0%	0%	10%	7%
Alternatives	**15%**	**0%**	**15%**	**25%**
Real Estate	10.%	0%	10%	15%
Infrastructure	5%	0%	5%	10%

The recommended asset allocation policies have the following overall impact:

RETURN

	CURRENT	PROPOSED	IMPACT
Expected Annual Total Return	4.3%	3.9%	$11M p.a. reduction in expected return
Non-MUSH Yield – ALL	2.75%	3.02%	$6M p.a. increase
Non-MUSH Yield – Basic	2.75%	2.92%	Liability decrease of $40M

RISK

	CURRENT	PROPOSED	IMPACT
1 in 20 year downside event impact on surplus	-$142M	-$75M	Improved by $67M
Interest Rate Risk Hedged	73%	87% (100% for Basic)	Significant reduction in interest rate risk.

3
IMPLEMENTATION CONSIDERATIONS

CONSOLIDATION VS SEGREGATION

The Study recommends segregation of Component assets; however, the MPI internal accounting system is designed to accommodate a consolidated asset approach. MPI is considering the implications of moving to a segregated assets model.

In the meantime, we recommend that MPI roll-up the new asset allocation policies for each Component into a consolidated policy as follows:

ASSET CLASS (GROUP)	MINIMUM	NORMAL	MAXIMUM	ACCOUNTING CLASS[5]
Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
Provincial Bonds	35%	45%	55%	FVTPL
Corporate Bonds	6%	19%	23%	FVTPL
Non-Marketable Bonds[6]	10%	20%	25%	HTM, FVTPL
Total Fixed Income	**70%**	**84%**	**90%**	
Public Equities				
Canadian Equity	0%	3%	10%	AFS
Global Equity[7]	0%	5%	10%	AFS
Global Low Volatility Equity	0%	2%	5%	AFS
Total Public Equity	**0%**	**10%**	**20%**	
Alternative Investments				
Canadian Real Estate	0%	4%	12%	FVTPL
Infrastructure	0%	2%	5%	FVTPL
Total Alternative Investments	**0%**	**6%**	**12%**	

RECOMMENDED ASSET ALLOCATIONS

As at February 28, 2017, MPI's investment assets totalled $2,547Million. Based on this amount, the recommended asset allocations are as follows:

	FIXED INCOME		EQUITIES		ALTERNATIVES		TOTAL
Basic	$ 1,790M	100%	$ -	0%	$ -	0%	$ 1,790M
SRE	74M	50%	52M	35%	$ 22M	15%	$ 148M

[5] AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.
[6] Consists of Municipal University Schools Hospital ("MUSH") Bonds and Private Debt.
[7] Includes U.S., EAFE and to a lesser extent Emerging Market Equities.

	FIXED INCOME		EQUITIES		ALTERNATIVES		TOTAL
RSR	49M	50%	34M	35%	$ 15M	15%	$ 98M
Extension	53M	50%	37M	35%	$ 16M	15%	$ 106M
Pension	162M	40%	142M	35%	$ 101M	25%	$ 405M
Total Target	**$ 2,128M**	**84%**	**$ 265M**	**10%**	**$ 154M**	**6%**	**$ 2,547M**

Implementation of the asset class changes are expected to be phased in over a 2-year period. Assuming no change in asset values, implementation of the recommended asset allocations would require the following changes relative to the current overall asset allocation:

	FIXED INCOME		EQUITIES		ALTERNATIVES	
MPI Balance as at Aug 31 2017	$1,732M	68%	$428M	17%	$387M	15%
Change	+$396M	+15%	-$163M	-6%	-$233M	-9%

A summary of the proposed changes to the portfolio and anticipated timing are summarized as follows:

	PROPOSED	TIMING
Provincials	Duration shifting	Q1 2018
Corporate Bonds	Add 1-2 mandates	by Feb. 28, 2019
Private Debt	Add 1-2 mandate	2019
MUSH Bonds	Manage liquidity	Gradually over 24 months
Equities	Add 2 mandates	2018

APPENDIX A

RFP ITEMS

On September 12, 2017, MPI issued a Request for Proposal #2785 For Asset Liability Study. Section 5.03 list items to be addressed in the Study during Phase Two. The table below lists these items and indicates where the item is discussed in this report.

SECTION	DESCRIPTION	ADDRESSED IN
5.03(a)	Analyse risks of liabilities in context of corporate goals	Section 1. Overview of MPI's obligations.
5.03(b)	Quantification of risk/return parameters	Section 2. New Allocations.
5.03(c)	Investment characteristics of new asset classes and impact of new asset classes	Section 2. New Asset Classes, Excluded Asset Classes.
5.03(d)	Evaluation of probability of meeting expectations under various scenarios	Appendix D
5.03(e)	Asset class optimization	Section 2. New Asset Classes, Excluded Asset Classes.
5.03(f)	Recommend asset allocation	Section 2. New Allocations.
5.03(g)	Recommend allocation to corporate bonds	Section 2. New Allocations.

APPENDIX B

10-YEAR FORWARD LOOKING CAPITAL MARKET ASSUMPTIONS

ASSET CLASS RETURNS AND VOLATILITY

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.4%	1.5%
2	Federal short-term bonds	1.9%	3.5%
3	Federal mid-term bonds	2.1%	6.5%
4	Federal long-term bonds	2.0%	8.5%
5	Real return bonds	2.7%	7.5%
6	Provincial short-term bonds	2.3%	3.5%
7	Provincial mid-term bonds	2.8%	6.5%
8	Provincial long-term bonds	3.0%	8.5%
9	Corporate short-term bonds	2.8%	3.5%
10	Corporate mid-term bonds	3.5%	6.5%
11	Corporate long-term bonds	3.8%	8.5%
12	Global bonds	0.8%	8.6%
13	High yield bonds	3.9%	9.5%
14	Emerging debt	6.8%	12.0%
15	Canadian equity (large cap.)	6.7%	19.5%
16	U.S. equity (large cap.)	6.7%	17.0%
17	Int'l equity (large cap.)	6.7%	17.1%
18	Global equity (large cap.)	6.7%	16.1%
19	Global low vol equity	6.1%	13.0%
20	Emerging equity	8.7%	25.0%
21	Private equity	10.1%	25.0%
22	Real estate	5.4%	13.0%
23	Diversified Growth Fund	4.9%	9.8%
24	Direct Infrastructure	6.2%	13.0%
25	MUSH Bonds	3.0%	6.5%
26	Commercial Mortgages	2.7%	3.5%
27	Long Commercial Mortgages	2.5%	5.3%
28	Private Debt - Universe	3.3%	5.4%
29	Private Debt - Long	3.5%	8.5%

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

Inflation: 2.0%

Fixed income returns based on projected yields implied by the current forward yield curve.

Asset Class Correlations

	Correlations																											
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

APPENDIX C

SUMMARY OF PHASE ONE

TOPIC	ANALYSIS/DISCUSSION	MPI CONCLUSION
Should each business have a unique asset allocation?	The profile of the obligations and risk of each of the 3 lines of business, RSR and Pension is unique. At a minimum, each business should be assessed individually. Preliminary recommendation is to adopt unique asset allocations.	Decision on whether to aggregate or segregate assets depends on dispersion of objectives.
What are MPI's Investment Goals?	The current IPS emphasizes mitigating risk resulting from interest rate variations and mitigating the risk of short-term premium volatility. It also indicates that minimizing premium levels is an objective. Clarifying investment goals for each business line is recommended.	Will define the purpose and objectives for each business line.
Inflation linkage of liabilities	Much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation.	Given low inflation expectations, hedge nominal, but not real, interest rate risk.[8]
Merits of New Fixed Income Exposure	Reviewed the relative merits of Federal Bonds, Real Return Bonds, Private Debt, Corporate Bonds Commercial Mortgages, Levered Bonds, and Growth Fixed Income. Analysis considered historical and expected risk and returns, duration matching potential, cost, and implementation considerations.	Consider private debt and corporate bonds as new asset classes.
Interest Rate Risk Management Strategy	Discussed the merits of duration matching, cashflow matching, and a hybrid approach.	Focus on duration matching for 100% of Basic liabilities.

[8] See "Excluded Asset Classes" for a fuller discussion on this item.

TOPIC	ANALYSIS/DISCUSSION	MPI CONCLUSION
Economic Assumptions	Mercer's long-term assumptions assume a gradual rise in interest rates to a long-term equilibrium state. Alternatively, we are comfortable assuming shifts in future yields implied by current forward rates.	Projections and analysis will be based on implied forward rates.
Merits of New Growth Portfolio Exposure	Reviewed the relative merits of International Equities, Global Equities, Low Volatility Global Equities, Emerging Markets, Private Equity, and Diversified Growth Funds.	Consider allocations to Global Equities (including Emerging Markets), Low Volatility Global Equities, and Private Equities.

APPENDIX D

SUPPORTING ANALYSIS

The MPI Investment Committee selected the following portfolios for each line and Pension, in order to reduce investment risk for Basic claims, and develop balanced portfolios for SRE/Extension, RSR and Pension.

The following tables summarizes the Current and Recommended asset allocations and provides the risk and return metrics for each:

	CURRENT	RECOMMENDED			
	CONSOLIDATED	CONSOLIDATED	BASIC	SRE, EXT, RSR	PENSION
Fixed Income	**70%**	**84%**	**100%**	**50%**	**40%**
Public Equities	**15%**	**10%**	**0%**	**35%**	**35%**
Alternatives	**15%**	**6%**	**0%**	**15%**	**25%**
Risk/Return Metrics					
Expected Annual Total Return	4.29%	3.9%	3.12%	5.15%	5.69%
Non-MUSH Yield	2.75%	3.02%	2.92%	2.73%	3.72%
1 in 20 year downside event impact on surplus	-$142M	-$75M	-$38M	-$36M	-$54M
Interest Rate Risk Hedged	73%	86%	100%	Not applicable	36%
Probability of positive real return in 5yrs	80%	74%	64%	83%	83%
Probability of surplus in 5 years	76%	82%	71%	84%	62%

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HEALTH WEALTH CAREER

ASSET LIABILITY MANAGEMENT STUDY

PHASE THREE

16 JANUARY 2018

Manitoba Public Insurance

CONTENTS

1. Fixed Income Benchmark and Attribution Recommendations 1
2. Unique Asset Allocation and IPS.....7
3. PUB order 11.17 8
4. PUB order 11.21 10

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1 FIXED INCOME BENCHMARK AND ATTRIBUTION RECOMMENDATIONS

(a) A review of the benchmark for the Corporation's fixed income portfolio with particular focus on ways to implement fixed income attribution analysis. The current benchmark is liability based. Provide the considerations related to switching to a market based benchmark.

BACKGROUND

MPI's fixed income portfolio is geared towards matching the interest rate sensitivity (i.e. duration) of liabilities. MPI's current interest rate risk management policy, which drives the construction of the fixed income portfolio, is outlined in MPI's Asset Liability Management policy and is summarized as follows:

- Duration[1] matching fixed income portfolio strategy to closely match claims liabilities in both dollar amount and duration.
- Fixed income manager will have *market value* of duration matching portfolio within *+/- $100M* of the *present value of claims liabilities*[2] in the previous month end.
- Duration matching portfolio will be within +/- 0.25 years of claims liability duration including the Provision for Adverse Deviation ("PfAD").

The duration of MPI's liabilities can be summarized as follows:

Duration Measure	Basic	Extension	SRE	RSR	Pension
Sensitivity to Interest Rate Changes	10.5	1.1	2.7	0.0	15.6
Sensitivity to Inflation Rate Changes	10.4	0.0	0.0	0.0	12.6

[1] Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

[2] $1.9 Billion as at February 28, 2017 for all insurance lines. Source is MPI Financial Statements as at February 28, 2017.

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The annual expected return of the fixed income portfolio and its benchmark is outlined in the Investment Policy Statement (IPS), is as follows:

– Return on the present value of the Corporation's claim liability cash flows over the measurement period.

MPI's current fixed income portfolio is benchmarked against the present value of cashflow obligations. Given the dynamic nature of its obligations, this makes attribution very challenging.

Why establish benchmarks?

An effective benchmark serves two primary purposes:

1. Provide the investment manager with an appropriate investment management objective for managing the investment portfolio.
2. Acts as a standard against which the performance of the investment manager can be measured.

In order to effectively fulfill these two purposes, a benchmark should be:

1. **Specified in advance**. The benchmark is specified at the start of the mandate or evaluation period and is known to both the investment manager and the investor.
2. **Appropriate**. The benchmark is consistent with the investor's desired approach and style, as well as with the approach, style, knowledge and expertise of the appointed investment manager.
3. **Unambiguous**. The benchmark's composition (i.e. its constituents and their weights) is clearly defined.
4. **Measurable**. The benchmark's composition and return can be determined on a reasonably frequent basis.
5. **Accountable**. The investment manager accepts the applicability of the benchmark and agrees to accept that differences in performance between the portfolio and the benchmark are caused only by their active management.
6. **Investable**. It is possible to forgo active management and instead passively replicate the benchmark.

In terms of performance measurement, in addition to being used as a reference against which portfolio performance can be compared, a benchmark can also be used to help identify and quantify the sources of the portfolio's return through attribution analysis.

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When it comes to conducting performance attribution analysis for a fixed income portfolio there is no single standard method. As a result, approaches taken to dissect fixed income returns can vary in terms of the number of factors looked at and the degree of precision.

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Here is an example of attribution for diversified bond portfolio over a 1 year period:

Factor	Measure Impact of…	Numerical Example
Beta (Asset Allocation Decisions)		
Expected Interest Rate Effect	Market performance due only to interest rate movements had interest rates moved as predicted by the forward curve	0.44%
Unexpected Interest Rate Effect	Performance during the period due to interest rates that was not predicted by the forward curve	0.54%
Alpha (Investment Manager Decisions)		
Interest Rate Management Effect	Manager's portfolio positioning with respect to interest rates (e.g. duration, convexity)	0.17%
Sector/Quality Management Effect	Manager's portfolio positioning with respect to spreads	-0.11%
Security Selection	Actual securities selected by the manager	0.05%
Trading Activity	Any additional unexplained portion of the portfolio's return; which is attributed to the manager's trading activity	-0.02%
Total		**1.07%**

When conducting fixed income performance attribution, a benchmark portfolio of securities is required in order to calculate the investment manager's relative positioning with respect to, and assess the movement coming from, certain sources of return. One of these sources of return is the effect of interest rate movements (i.e. changes to the yield curve) on the investor's fixed income portfolio. A benchmark portfolio allows for the assessment of the investment manager's success in positioning the portfolio not only for parallel shifts in the yield curve, but also for steepening,

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flattening or other changes in shape of the yield curve. A valid and relevant benchmark portfolio is therefore a key input for performance attribution.

The two most intuitive ways to build a benchmark portfolio are by using broad market indices (e.g. FTSE TMX Canada Universe Bond Index) or by using custom securities aligned with the mandate. The tradeoffs between these two approaches are outlined as follows:

Approach	Pros	Cons
Broad Market Indices	Well recognized and easy to understand and implement Unambiguous, measurable, usually investible, and can be specified in advance	May not be appropriate or accountable if the available broad market indices do not align perfectly with the investor's objective for their fixed income portfolio or if forcing a manager to use them as a reference point would in some way hinder their ability to achieve their objective
Custom Securities	Can allow for a benchmark to meet all of the benchmark validity criteria (i.e. unambiguous, measurable, investible, specified in advance, appropriate and accountable)	Can be difficult and expensive to construct and maintain

Given the above, the more common approach to constructing a benchmark portfolio, primarily on account of simplicity and cost, is to use broad market indices, but to tailor the portfolio as much as possible to the particular investment objective.

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ANALYSIS & IMPLEMENTATION CONSIDERATIONS

For a benchmark to be appropriate and accountable, it must be in-line with the objective of the investment portfolio. Given that the overall objective of MPI's fixed income portfolio is to match the duration and dollars of liabilities within specified allowable ranges[3], the portfolio's benchmark should have a link to liabilities and reflect the asset class restrictions imposed on the manager.

To link the benchmark to liabilities, we recommend a benchmark portfolio that is consistent with the duration of liabilities. If the mandate is specifically constrained to a certain sector (i.e. Provincial bonds), it would be appropriate to construct the benchmark from indices within this sector.

RECOMMENDATION

We recommend MPI transition to a market-based benchmark for its fixed income portfolio, with unique market-based benchmarks for each component of the allocation:

	RECOMMENDED BENCHMARK
Fixed Income	
Short-term Bonds (Prov.)	FTSE TMX Short Term Provincial Bond Index
Mid-term Bonds (Prov.)	FTSE TMX Mid Term Provincial Bond Index
Long-term Bonds (Prov.)	FTSE TMX Long Term Provincial Bond Index
Short-term Bonds (Corp.)	FTSE TMX Short Term Corporate Bond Index
Mid-term Bonds (Corp.)	FTSE TMX Mid Term Corporate Bond Index
Long-term Bonds (Corp.)	FTSE TMX Long Term Corporate Bond Index
MUSH Bonds	FTSE TMIX Provincial Bond Indices matching liabilities in accordance with the ALM Policy
Private Debt - Universe	FTSE TMX Universe Bond Index
Private Debt - Long	FTSE TMX Long Term Bond Index

[3] See the MPI ALM Policy for further details.

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2
UNIQUE ASSET ALLOCATION AND IPS

(b) If the Corporation decides to adopt a unique asset allocation for the three (3) lines of business, excess capital/retained earnings/Rate Stabilization Reserve (RSR) and pension assets, the Successful Vendor shall provide assistance in developing new Investment Policy Statements for each unique asset allocation.

A revised Investment Policy Statement identifying the unique asset allocations is provided under separate cover.

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4
PUB ORDER 11.17

11.17 Add additional analysis/discussion of the bucket matching approach.

In Phase 1 of our analysis, we contrasted 3 approaches that institutional investment managers utilize to manage interest rate risk:

Approach	Pros	Cons
Duration Matching	Cost effective approach. Protects against parallel shift in yield curve. Provides more flexibility with regard to investment vehicles, particularly if return enhancement is a priority.	Does not protect as well against non-parallel shifts in comparison to other approaches.
Cash Flow Matching	Higher resolution matching Protects against reinvestment risk, including non-parallel yield curve shifts	Precision of claims/benefits projections may not merit high resolution matching, as projected cash flows can be materially different from actual. Generally, most costly approach from return and fees trade-off viewpoint.
Hybrid/ Bucket Approach	Cheaper than cash flow match Some protection against non-parallel yield curve shifts	Less protection against interest rate risk than cash flow matching approach. In terms of return and fees trade off, in between duration matching and cash flow matching.

A hybrid/bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) with cashflow matching. It 'buckets' obligations into various tranches and builds an asset portfolio that has expected cashflows that are substantively similar to each 'bucket'. Relative to duration matching, it improves the robustness of the interest rate matching, but is not as precise as a cashflow matching approach.

A hybrid/bucket approach is generally more costly to implement and administer than duration matching approaches, but has the added benefit of matching convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve and is most

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pronounced when unusual changes in yields happen. While we acknowledge that a hybrid/bucket approach more precisely immunizes convexity risk, we also observe that:

1. Convexity risk is generally equally likely to result in a gain or a loss to an investor, and
2. Gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time.

For investors with very limited tolerance for risk over the short term and sufficient scale to warrant a sophisticated matching program, we support a hybrid/bucket approach and/or a cashflow matching approach. But for investors who can tolerate modest levels of risk over the short term and target excess returns from active management, we are comfortable recommending a duration matching approach which allows for more efficient implementation and a broader opportunity set.

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5
PUB ORDER 11.21

11.21 Would our modelling and recommendation for the asset mix backing RSR have differed if the upper limit for the RSR was reduced from $438Million to $325Million, as per PUB order 130-17?

Our analysis and eventual recommendation for the assets backing RSR obligations holds so long as MPI's risk tolerance is moderate and the total assets of MPI are in the $2-4Billion range. In other words, our recommended asset mix for RSR would have been the same whether the RSR maximum limit was $438Million or $325Million.

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PHASE THREE

CAC RECOMMENDATIONS

18 JANUARY 2018

Manitoba Public Insurance

CONTENTS

1. Address Phase Three CAC Recommendations.....1

2. IMPORTANT NOTICES.....16

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3

ADDRESS PHASE THREE CAC RECOMMENDATIONS

Provide responses to the recommendations made by the CAC as per Schedule G of the RFP.

1. Clarify of Accounting Choices
2. Adoption of More Comparable Accounting Principles
3. AFS and HTM Accounting
4. Pension Liability Accounting
5. Risk/Return Definitions for Asset Mix Decisions
6. De-Linking Discount Rates
7. Min/Max Asset Class Constraints
8. Evolved Risk Framework
9. Explicit Risk Management Goals
10. Minimum Risk Portfolio
11. Canadian Equities Minimum Asset Allocation
12. No International Equities
13. No Over-Reliance on Quantitative Modeling
14. Exclusion of Real Return Bonds
15. Effectiveness of Duration Policy
16. Integration of real estate/infrastructure liabilities in duration management
17. Remove of 105% Rule in Investment Policies
18. Pension Fund

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CAC RECOMMENDATIONS 1, 2 AND 3:

1. ***Clarity of Accounting Choices****: MPI should clarify what flexibility it has regarding the accounting for assets and liabilities, while remaining GAAP-compliant, and the factors it takes into account in electing to use one method/assumption over others.*

2. ***Adoption of More Comparable Accounting Principles****: In measuring its investment portfolio and liabilities, MPI should consider adopting accounting principles, where GAAP allows MPI to make such elections, that reduce the discrepancy between net income and comprehensive income (as these terms are currently defined by MPI), to improve comparability across all assets as well as liabilities. Comparability would be improved, for example, by accounting for more assets in a way that is consistent with the treatment of financial assets and liabilities at fair value through profit or loss ("FVTPL").*

3. ***AFS and HTM Accounting****: Unrealized gains and losses for AFS assets (~ 20% of assets), for example, are reported as "other comprehensive income (OCI)" and are excluded from net income until realized, making the net income recognition for unrealized gains on equities (~ 18% of assets) inconsistent with FVTPL assets. The treatment of HTM Bonds (25%), recorded at amortized cost, should also be reconsidered.*

From Mercer's perspective, each of these items are accounting specific decisions which should be decided by MPI in consultation with its auditors. We support the utilization of accounting principles that improve transparency and comparability.

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CAC RECOMMENDATION # 4

4. *Reconsideration should also include the re-measurement of employee benefits (~ 15% of liabilities and equities) which is considered OCI. The re-measurement of employee benefits is large (given the long duration of pension liabilities), but OCI arising from changing interest rates that impact the value of pension liabilities is not recognized through transfers to net income under current practices.*

Background

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan (the "components").

As per the Actuarial Valuation Report as at December 31, 2016 – Pension Liabilities of Manitoba Public Insurance (As a result of participation of its employees in the Civil Service Superannuation Act):

> *"At present, MPI is contributing to the CSSF based on the pay-as-you-go method of funding. Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF. MPI has, however, established a reserve against general assets which is being increased to match the increase in its pension liabilities."*

As per Note 16 of MPI's Annual Financial Statements for the Fiscal Year Ended February 28, 2017 ("MPI 2017 Annual Report"):

> "*The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities."*

The current approach to Pension Fund assets is as follows:

1. The accounting basis liability for MPI's pension obligations is calculated by an independent actuary in accordance with International Financial Reporting Standards – International Accounting Standard 19 ("IAS 19").

2. An amount equal to 1. is carved out of the commingled assets and is assigned as pension assets supporting the liability determined in 1.

MPI's pension obligations increase with service cost and interest cost, decrease by benefits paid, and are re-measured to reflect membership experience and changes in economic and demographic assumptions. In accordance with IAS 19, MPI recognizes:

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- service cost and interest cost in a fiscal year as an expense in its Statement of Operations (i.e., profit and loss); and

- the impact of re-measurement of the its pension obligations in Other Comprehensive Income ("OCI").

As per Note 21 of MPI's Annual Financial Statements for the Fiscal Year Ended February 28, 2017 ("MPI 2017 Annual Report"), re-measurement of employee future benefits will not be reclassified to income.

Observations

As per the Basis for Conclusions BC90 of IAS 19 – Employee benefits (revised 2011),

> *"In finalizing the amendment made in 2011, the Board confirmed that the proposal made in the 2010 ED that an entity should recognize remeasurements in other comprehensive income. The Board acknowledged that the Conceptual Framework and IAS 1 do not describe a principle that would identify the items an entity should recognize in other comprehensive income rather than in profit and loss. However, the Board concluded that the most informative way to disaggregate the components of defined benefit cost with different predictive values is to recognize the remeasurements component in other comprehensive income."*

MPI's current process for recognizing changes in its pension obligation is consistent with IAS 19. Service cost represents the present value of the defined benefit obligation resulting from employee service in the fiscal period and interest cost represents the interest earned in the fiscal period on the present value of the defined benefit obligation for accumulated employee service at the beginning of the fiscal period. Service cost and interest cost together can be viewed as representing costs associated with the pension obligation during a fiscal period.

However, pension obligations are long-term in nature, and the valuation of those obligations depends on many assumptions (e.g., interest rates used to determine the liability, rates of inflation and pensionable earnings, longevity of current and future retirees, rates of retirement, termination of employment and disability). Some of the assumptions used to determine the liability can experience short-term fluctuations (e.g., discount rate) that may result in significant short-term gains or losses. In addition, membership experience may be different than expected and result in gains and losses. The effects of re-measurements on the pension obligations are not within the direct control of MPI.

Regardless of MPI's practice to not reclassify the re-measurement of employee future benefits as income, MPI's current process still results in a provision against general assets that is reset to match the total re-measured defined benefit obligations.

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Recommendation

Given the above observations and assuming that MPI will continue to maintain its pension obligations indefinitely and will continue with its current policy with respect to the pay-as-you-go method of funding, our recommendation is that re-measurement of employee benefits continue to be recognized in OCI and not reclassified to income.

CAC RECOMMENDATION # 5

5. "MPI should re-define return/risk used to inform its long-term asset mix decisions to be based on valuations that reflect market values, rather than accounting ones (which may be materially different). At a minimum, net income should be replaced by comprehensive income in the numerator (return) and retained earnings should be expanded to include accumulated other comprehensive income (AOCI) in the denominator (risk). In the long term, market returns and market risks will determine average long-term premium rates, regardless of how assets and liabilities are accounted for under GAAP."

RESPONSE

We agree that asset mix decisions should be based on market values. The 2017 asset liability study is based on market values.

CAC RECOMMENDATION # 6

6. ***De-Linking Discount Rates****: For purposes of long-term asset allocation decision making, MPI should consider "breaking the link" (recursive) between liability valuations and the yield on some of its assets. Economic theory suggests this approach is more appropriate.*

We agree with the CAC recommendation for the purpose of long-term asset allocation decision making. Further, the asset/liability study, which we understand will be used by MPI in connection with its long-term asset allocation decision making, was performed in a manner where current economic assumptions for each asset class (e.g., rates of return, standard deviations, correlations, etc.) were determined independently of MPI's current asset holdings. The asset/liability study did consider a liability benchmark portfolio for each of MPI's lines of business and other metrics.

CAC RECOMMENDATION #7

7. *"The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit."*

The 2017 Asset Liability Study will develop optimal asset allocations on both a minimally constrained and constrained basis. The minimally constrained basis considers the fact that MPI requires a reasonable level of investment liquidity to ensure cash is available to pay claims or

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pension benefits. The constrained basis will employ practical implementation considerations that cannot be modelled without constraints. Each of these constraints will be clearly documented and explained. For example MUSH bonds will have a minimum constraint as these bonds are not liquid and over the foreseeable future an allocation to MUSH will remain even if the study's results were to conclude that MUSH bonds should be eliminated.

RECOMMENDATION

The Asset Liability Study will review both minimally constrained and practical implementation constraints that will be well documented and explained.

CAC RECOMMENDATION # 8

8. ***Evolved Risk Framework****: An evolved risk framework should be considered to improve portfolio/risk measurement, management and/or governance.*

We agree that well thought-out risk frameworks can contribute significantly to better risk management, risk management, and governance decisions. The asset/liability study, and the proposed segregation of assets by business line, further allows a risk management framework to add value. From our perspective, it is important that a risk management framework focus on metrics that matter and emphasize process, reporting, and accountability. We would be pleased to provide further guidance on an appropriate risk framework for MPI in the future.

CAC RECOMMENDATION # 9

9. ***Explicit Risk Management Goals****: Among other things, the risk framework could include explicit goals related to market risk management (as well as goals related to other types of risk if those require enhancement). One goal might be to avoid "undue risk", which is risk that is taken:*

    - *unknowingly, not having been identified (unaware); or*
    - *knowingly, but which:*
        - *cannot be managed prudently, given current capacities (ineffective);*
        - *exceeds risk tolerances (prohibited);*
        - *is higher than it needs to be (inefficient); or*
        - *is not understood (uninformed).*

    Another goal might be to get paid better/well for those risks that are desired, with incentive systems that encourage desired behaviours that achieve desired outcomes and controls that monitor compliance with limits that discourage/prevent undesired behaviours and prevent undesired outcomes.

We agree that explicit goals related to market risks are desirable. The asset liability study helped clarify the amount of credit, equity, and other risks that MPI was willing to take for each business.

The exploration and articulation of undue risks was beyond the scope of the asset liability study, and often extends to a discussion of operational and non-market risks. From our experience, such frameworks take significant time to develop, and are not always implemented effectively. We would be pleased to discuss further in the future.

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CAC RECOMMENDATION # 10

10. ***Minimum Risk Portfolio**: A minimum risk portfolio (for market risk) should be clearly defined. It should be aligned with the interests of relevant stakeholders, with clarity regarding the short-term and long-term factors that impact rate sustainability and other important outcomes.*

The minimum risk portfolio (for market risk) is a portfolio of federal Canadian bonds with a duration that is similar to that of MPI's market liabilities. A laddered portfolio of federal Canadian bonds is assumed to have 'minimum risk' since there is assumed to be no default risk and no convexity risk (dollar matched) and limited amounts of liquidity risk. Provincial bonds, corporate bonds, MUSH bonds, and Private Debt all include various levels of credit risk and liquidity risk.

The minimum risk portfolio for MPI's Basic Liabilities assuming 2% inflation on a go-forward basis consists of:

CATEGORY	% ALLOCATION
Federal Long Term Bonds	54%
Federal Mid-Term Bonds	18%
Federal Short-Term Bonds	28%

A minimum risk portfolio that hedges inflation risk would also include an allocation to federal Real Return Bonds.

CAC RECOMMENDATION # 11

11. "*The appropriateness and prudence of having a 10% minimum weight to Canadian Equities ("to retain a meaningful exposure to home markets") should be reconsidered, given the different interests of different stakeholders (e.g., employees through the pension plan), the concentrated nature of Canada's equity market, and other such relevant considerations."*

ANALYSIS

Based on the MPI investment policy statement effective April 27, 2017, the asset allocation for Canadian equity has a policy weight of 10%, which is 67% of the 15% total policy allocation to public equities. Most institutional investors have significantly diversified their public equity portfolios such that allocations to Canadian equities are typically between 25% to 33% of total public equities. Such allocations still represent a modest home country bias (since Canadian equities are ~ 4-5% of total global equities), but are much more diversified than the current MPI allocation. Some Canadian institutional investors have completely eliminated any home country bias.

Investors who choose to maintain a healthy home country bias typically do so because of inertia, lower investment management fees, to reduce currency risks, or since correlation with Canadian

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inflation is slightly higher than for non-Canadian equities. Overall, we view the diversification benefits of a globally diversified public equity portfolio to be compelling.

IMPLEMENTATION CONSIDERATIONS

The 2017 Asset Liability Study will review the expansion of the equity portfolio to consider:

1. EAFE[1] Equities (often referred to as International Equities) which represents approximately 36% of the developed world's capital markets.

2. Global Low Volatility Equities which are global equity mandates that target between 20% - 30% reduction in return volatility as compared to the MSCI Global Equity Index.

RECOMMENDATION

We expect our recommendation will be to reduce the allocation of Canadian equities to be 25-33%[2] of total public equities.

CAC RECOMMENDATION # 12

12. *"The appropriateness and prudence of having no exposure to International Equities should be reconsidered, given the large size of non-US foreign markets, the return opportunities that are potentially available from those missed opportunities and the effects of increased international diversification on long-term market risks."*

ANALYSIS

As part of the Asset Liability Study conducted by Mercer in late 2017, the asset allocation policy is being revisited. To date, the review has discussed the relatively concentrated nature of Canada's equity market. The aim of the asset allocation policy review is to develop an asset allocation policy that is optimal in light of the appropriate level of risk. EAFE[3] Equities (often referred to as International Equities) represents approximately 36% of the developed world's capital markets. We fully support reviewing the diversification of the equity portfolio by including International Equities.

IMPLEMENTATION CONSIDERATIONS

Transitioning to a non-Canadian equity portfolio is relatively straightforward, particularly if suitable pooled funds are available

The alternative to optimizing allocations to US Equity and EAFE Equity is to bundle these two mandates into one mandate (typically referred to as 'global equities' and typically benchmarked to

---

[1] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

[2] Based on no constraints on allocations to Canadian equity.

[3] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

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the MSCI World index). This is supported by the fact the lines are blurred when it comes to categorizing a stock as US Equity or EAFE Equity when you consider the level of corporate globalization. For example, categorizing Microsoft as US Equity and ignoring it's non-US operations does not make sense. At the same time, combining the mandates into one mandate allows the investment manager to select a best in class stock regardless of questionable geographical classification. This in turn, provides the manager with an additional lever to outperform market returns. An extension of this idea is to combine US Equity, EAFE Equity and Emerging Markets equity into a single mandate known as an All Country mandate, which is typically benchmarked to the All Country World Index ("ACWI"). ACWI mandates are currently composed of about 52% US, 32% EAFE, and 12% Emerging Markets Equities. Note that the decomposition of ACWI into geographical regions is considered irrelevant to many ACWI investment managers, given the level globalization present in the world. Also, note that Emerging Markets Equities include companies such as Samsung, TenCent and Alibaba (all of which have a market cap of over $200Billion).

RECOMMENDATION

We expect our recommendation to include an allocation to international equities. Note that the 2017 Asset Liability Study will not constrain the allocation to international equities.

CAC RECOMMENDATION # 13

13. ***No Over-Reliance on Quantitative Modeling****: MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.*

While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling for the reasons noted. While our Asset Liability process began with projections of a variety of asset classes and assumption sets, it concluded with a thorough discussion of practical considerations and observations regarding the current market environment.

CAC RECOMMENDATION # 14

14. *"The role that RRBs can play in effectively managing relevant risks should be discussed, with consensus achieved regarding the effectiveness of RRBs from a risk management perspective (i.e., independent of the cost of any "insurance" as measured by RRB yields and their expected returns)."*

Real Return Bonds ("RRBs") have the components of a conventional bond, coupon payments and return of principal at maturity. The distinguishing feature of the RRB is that both the periodic coupon payments and the return of principal at maturity are linked to the consumer price index ("CPI") over the respective term. The real yield (i.e., the yield in excess of CPI) is known at date of issue. The

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coupon payments and adjusted principal repayment depend on future inflation. This makes RRBs an explicit hedge against inflation risk.

The inflation sensitivities of MPI's three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan ("MPI components") measured by duration are summarized in the table below:

Item	Basic	Extension	SRE	RSR	Pension
Sensitivity to Inflation Rate Changes (Duration[3])	10.4[2]	0.0[2]	0.0[2]	0.0[2]	12.6[1]

Duration is a measure of interest rate sensitivity. A real duration of 10 means a 1% decrease (increase) in the real interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability. The duration of Canadian RRB market is currently approximately 15. Hedging a duration of 10 would simply mean having a 66%[4] allocation to RRBs.

ANALYSIS

RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns. Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical[5] real estate, physical infrastructure).

The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.

RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.

IMPLEMENTATION CONSIDERATIONS

Typically, RRB investment mandates are best handled by a passive manager with significant assets in RRBs relative to peer managers as this could aid in sourcing the less liquid RRB issues. These

[4] FTSE TMX RRB Index has a duration of about 15; whereas the MPI Basic liabilities have a real duration of about 10. This means a 66% RRB allocation would provide a real duration of 10 (i.e., 66% x 15 = 10).

[5] Physical real estate investment means actually investing in a physical property that produces income and capital gains or losses. This should not be confused with real estate investments that invest in the stocks of real estate companies.

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passive managers provide broad RRB market exposure at fee levels significantly lower than conventional bond mandates.

Due to the limited number of RRB issues and their specific maturity dates, developing a portfolio to match the inflation risk in the MPI components can be challenging. The challenge arises from trying to achieve a closely matching inflation-sensitive cash flow between assets and the respective component's projected claims or pension payments.

RECOMMENDATION

We agree that RRBs can provide an effective hedge against CPI linked obligations. MPI approved the inclusion of RRBs in the 2017 Asset Liability Study. However, given low current inflation expectations it was decided to assume that CPI linked obligations grow at 2% per annum and hedge nominal, but not real, interest rate risk. Accordingly, RRBs were not included in the recommended portfolio.

CAC RECOMMENDATION # 15

15. *"The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations."*

In Phase 1 of our analysis, we contrasted 3 approaches that institutional investment managers utilize to manage interest rate risk:

Approach	Pros	Cons
Duration Matching	Cost effective approach. Protects against parallel shift in yield curve. Provides more flexibility with regard to investment vehicles, particularly if return enhancement is a priority.	Does not protect as well against non-parallel shifts in comparison to other approaches.
Cash Flow Matching	Higher resolution matching Protects against reinvestment risk, including non-parallel yield curve shifts	Precision of claims/benefits projections may not merit high resolution matching, as projected cash flows can be materially different from actual. Generally, most costly approach from return and fees trade-off viewpoint.

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Hybrid/ Bucket Approach	Cheaper than cash flow match Some protection against non-parallel yield curve shifts	Less protection against interest rate risk than cash flow matching approach. In terms of return and fees trade off, in between duration matching and cash flow matching.

A hybrid/bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) with cashflow matching. It 'buckets' obligations into various tranches and builds an asset portfolio that has expected cashflows that are substantively similar to each 'bucket'. Relative to duration matching, it improves the robustness of the interest rate matching, but is not as precise as a cashflow matching approach.

A hybrid/bucket approach is generally more costly to implement and administer than duration matching approaches, but has the added benefit of matching convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve and is most pronounced when unusual changes in yields happen. While we acknowledge that a hybrid/bucket approach more precisely immunizes convexity risk, we also observe that:

1. Convexity risk is generally equally likely to result in a gain or a loss to an investor, and
2. Gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time.

For investors with very limited tolerance for risk over the short term and sufficient scale to warrant a sophisticated matching program, we support a hybrid/bucket approach and/or a cashflow matching approach. But for investors who can tolerate modest levels of risk over the short term and target excess returns from active management, we are comfortable recommending a duration matching approach which allows for more efficient implementation and a broader opportunity set.

CAC RECOMMENDATION # 16

16. *"MPI should consider the liabilities arising from all sources (i.e., including real estate and infrastructure) in its interest rate risk management practices (duration), to be consistent with its management of risks arising from insurance, pension and other liabilities. The financial leverage assumptions used in Asset-Liability Studies that support long-term asset mix decisions should be made consistent with the leverage actually used in the portfolio, removing the ~ 4% difference related to real estate debt."*

MPI's real estate investment is a direct investment in property, as opposed to an investment in real estate corporation stocks. Similarly, MPI's infrastructure investment is direct rather than investing in infrastructure corporations.

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ANALYSIS

While it is true that interest rate risk exists in Real Estate and Infrastructure, we suspect that the duration will be relatively short when compared to MPI liabilities as debt terms in these investments can be short in term and interest rates can be floating. As such, it is extremely rare to consider duration risk of the underlying liability in these investments.

The following illustration provides a sense of the level of materiality:

Target Allocation to Real Estate	10%
Leverage used in Greystone real estate fund	25%
Assumed Duration of Debt	4*
Duration of Real Estate as a portion of overall MPI portfolio	0.10

*** Provided by Greystone on October 27, 2017.**

Analysis as at June 30, 2017

RECOMMENDATION

The Asset Liability Study will consider the use of leverage in the Real Estate and Infrastructure and how it may influence the overall duration of the portfolio. At this point, we do not expect it to be material nor worthy of hedging.

CAC RECOMMENDATION # 17

17. *Removal of 105% Rule in Investment Policies: MPI should remove from its Investment Policies the ability to request external managers to realize gains (losses) ("105% Rule"), which MPI says "is no longer relevant". This would remove an ability by MPI to cause a manager to realize gains (losses) for the sole purpose of having an impact on net income, without yielding any economic value, reducing risk or otherwise conferring another benefit on MPI.*

We generally support investment policies that are in the long term best interest of the ultimate beneficiary. Unless this rule mitigates taxation or other undesirable consequences, we support its removal.

CAC RECOMMENDATION # 18

18. *"The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund."*

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan (the "components").

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As per the Actuarial Valuation Report as at December 31, 2016 – Pension Liabilities of Manitoba Public Insurance (As a result of participation of its employees in the Civil Service Superannuation Act):

> *"At present, MPI is contributing to the CSSF[6] based on the pay-as-you-go method of funding. Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF. MPI has, however, established a reserve against general assets which is being increased to match the increase in its pension liabilities."*

As per Note 16 of MPI's Annual Financial Statements for the Fiscal Year Ended February 28, 2017 ("MPI 2017 Annual Report"):

> *"The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities."*

The current approach to Pension Fund assets is as follows:

1. The accounting basis liability for MPI's pension obligations is calculated by an independent actuary in accordance with International Financial Reporting Standards – International Accounting Standard 19.

2. An amount equal to 1. is carved out of the commingled assets and is assigned as pension assets supporting the liability determined in 1.

Under the current approach, where the performance of commingled assets differs from the change in pension liabilities, a gain (or loss) is incurred by the commingled fund and impacts the assets remaining for other Components. The primary economic drivers of changes in pension liabilities are changes in long-term interest rates and inflation expectations. For example:

- a decrease in applicable interest rates will increase the size of the pension liabilities, which in turn will increase the size of the provision against general assets; and
- an increase in applicable interest rates will decrease the size of the pension liabilities, which in turn will decrease the size of the provision against general assets.

As part of the Asset Liability Management Study conducted by Mercer in late 2017, the objectives, risk tolerances, and characteristics of each liability, including pension liabilities, were assessed separately. The study recommended a shift away from commingled assets to individual target asset

[6] CSSF is the Civil Service Superannuation Fund.

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mixes for the pension liabilities and other lines of business. Once implemented, assets backing pension obligations will no longer be commingled with the assets backing MPI's other obligations.

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Attachment A
Agenda B.1
April 30, 2018

Manitoba Public Insurance

ALM Implementation Plan

April 30, 2018

Presented to the Investment Committee on April 30, 2018

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Contents

Introduction 1
1) Number of Unique Portfolios 3
2) Changes to Asset Classes 3
New Asset Classes 3
1) Private Debt 4
2) Global Equities 4
3) Global Low Volatility Equities 5
Changed Asset Classes 5
1) Provincial Bonds 5
2) Corporate Bonds 6
3) Overview of Liabilities and Risk Tolerance 7
4) Recommended Asset Allocations 8
Current Asset Allocation 8
Recommended Asset Allocation 10
Considerations for Determining the Asset Allocations 10
Interest Rate Risk Mitigation Strategy 11
5) Implementation Plan 12
Asset Class Vehicles 12
Manager Searches 13
Implementation Plan for 2018/19 and 2019/20 14
Corporate Asset Class Actual vs Target Weights 17
Recommended Actions 18
6) Internal vs. External Management of Corporate Bonds 23
Duration Matching with Two Bond Managers 23
7) Accounting Changes 25
8) Financial Impacts 27
Impact to Basic Line of Business 27
9) Outstanding Items 29
10) Recommendations 30
Appendix A: Private Debt 31
I. Overview of Private Debt 31
II. Reasons to Invest in Private Debt: 33

III. Risks Related to Investing in Private Debt 34
IV. Manager Selection 36
V. Recommendation 37
Appendix B: Global Equities 38
I. What is Global Equity? 38
II. Rationale to Exclude Emerging Markets 38
III. Why a Global Equity Mandate? 39
IV. Returns, Risk, Risk-Adjusted Returns, and Correlations 40
V. What are others doing? 41
VI. Currency Risk 41
VII. Overlap of Canadian equities 41
VIII. Recommendation 42
Appendix C: Global Low Vol 43
I. What is Low Volatility? 43
Advantages and Disadvantages of Global Low Vol 44
Risk and Return 44
Recommendation 46
Appendix D: Corporate Bonds 47
Appendix E: Internal vs. External Management of Corporate Bonds 48
Appendix F - Efficient Frontiers 50
Basic Claims 50
Rate Stabilization Reserve (RSR) 51
Employee Future Benefits (primarily Pension) 52
Appendix G – MUSH Principal Balance and Interest 54
Appendix H – Custodial Fee Schedule 55
Appendix I – Gantt Chart 56

Introduction

The Corporation currently has a single commingled investment portfolio that backs all Corporate liabilities and surplus, which includes liabilities from Basic claims, Extension, SRE, RSR, and Employee Future Benefits (EFB, which is primarily pension). As a result of the ALM study that was recently completed the corporation will develop five segregated investment portfolios backing the various liabilities, each with unique asset allocations. This will allow the corporation to develop investment portfolios that better match the associated liabilities. Segmenting the portfolios by line of business will provide a better understanding of changes in the value of the liabilities and the associated assets. This will enable MPI to optimize each investment portfolio to best match the associated liability.

The portfolio backing the Basic claims will consist of 100% fixed income while the portfolios backing Extension, SRE & RSR will be balanced (50% growth assets/50% fixed income assets) and the portfolio backing EFB will have a slightly higher allocation to growth assets at 60%. Currently, the portfolios recommended for RSR, Extension & SRE have the same asset allocations (50/50 growth/fixed income), but because the portfolios are unique (ie: no assets shared between them) the asset allocations can be changed in the future if necessary. On a consolidated basis the portfolio will have an 84%/16% split between fixed income and growth assets as compared to the current 70%/30% split.

From an overall perspective, this will require selling growth assets (equities, real estate & infrastructure) in order to purchase additional fixed income assets. The transition is expected to be completed by Q4 2019/20 as illiquid asset classes such as real estate and infrastructure must be partially sold, and the proceeds of MUSH maturities will be used to fund the purchase of asset classes such as corporate bonds, private debt, global equities and global low volatility equities. Manager searches must be conducted and accounting systems and processes must be redesigned to accommodate segregation.

Process

The ICWG worked closely with the team from Mercer throughout the ALM study. Several in person meetings and conference calls were held with Mercer to provide them with direction. In addition, the Investment Department had weekly project management calls to track progress of the work and was in regular contact with key members of Mercer's team.

The following meetings were held:

1. Reviewed project plan on October 2, 2017
2. Kick-off call on October 11, 2017
3. Discussion of Phase One Report on October 31, 2017
4. Mercer presented to the Investment Committee on November 16, 2017 and
5. Phase Three Report presented November 27, 2017 to IC & ICWG
6. Mercer presented to the Investment Committee on December 8, 2017.

The topics discussed in Phase One were:

1. Merits of adopting unique asset allocations,
2. Merits of new fixed income exposure,
3. Assessment of interest rate risk management strategy,
4. Address certain CAC recommendations.

After Phase One, MPI management decided to adopt a unique portfolio for each liability and classes to include. In Phase Two, Mercer began developing efficient frontiers for each portfolio which identified the optimal asset allocation at each level of risk. The current asset allocation was plotted relative to the efficient frontier and portfolios with the same risk and same return as the current portfolio were identified as starting points. Then the risk appetite of the corporation was used to guide the selection of the most appropriate portfolio.

A key decision was that the nominal interest rate risk associated with the Basic claims liabilities must be fully hedged. This lead to the decision to eliminate all growth assets from the portfolio backing the Basic claims liabilities. The result was a portfolio consisting of only fixed income assets.

Benefits to MPI

The proposed changes to the Corporate investment portfolio, segregation by lines of business, and the changes to accounting systems are significant. However, if the proposed implementation plan outlined in this document is approved, by the end of 2019/20 the overall risk of the Corporation's consolidated investment portfolio will be reduced with improved interest rate matching for Basic and increased transparency for all lines of business.

Technical Conference

On March 14th, 2018 the Public Utilities Board (PUB) facilitated a technical conference on the ALM study. The concepts and details of the ALM study were generally well received by those in attendance. The primary concern of the PUB advisors and interveners related to the level of detail and analysis that was included in the three ALM reports. The PUB expects to see the details of the assumptions supporting the analysis, the efficient frontiers, and options considered along the frontiers, and additional justification for the duration matching approach.

The Consumers' Association of Canada (CAC) was also focused on the assumptions adopted by Mercer, particularly the interest rate forecast, and inflation correlations, as well as the risks associated with a heavy emphasis on fixed income, and that the foregone returns to ratepayers are balanced with the resulting reduction of risks. MPI will file additional material supporting the conclusions of the ALM study in the 2019 GRA.

1) Number of Unique Portfolios

The decision to segregate the portfolio into unique asset allocations was approved at the December 2017 Investment Committee meeting.

MPI management recommends five unique portfolios, each supporting a single liability. Segregating the portfolios will allow investment strategies to be tailored to each individual line of business based upon their own characteristics and risk profiles and will reduce the need for allocations. The rationale behind the recommendation to have five unique portfolios is to find a balance between maximizing transparency for the major lines of business without unnecessarily increasing management and custodial costs[1] and administrative work with a more complicated portfolio structure.

The five portfolios will support the following liabilities:

1. Basic Claims
2. Basic RSR (no actual liability)
3. Employee Future Benefits (primarily pension)
4. Extension (claims and retained earnings)
5. SRE (claims and retained earnings)

2) Changes to Asset Classes

New Asset Classes

The following three asset classes are recommended to be added to the consolidated portfolio.

1. Private Debt
2. Global Equities
3. Low Volatility Global Equities

The addition of these asset classes will improve diversification which will increase return and reduce risk. Additional information on each is provided in the appendices to this document.

[1] RBC Investor Services indicated that there would not be any additional charges to set-up the new custody accounts. The same safekeeping & transaction fee's that are currently being paid would apply to the new accounts, and the fee would be allocated accordingly based the assets and activities in each account. The only changes to the annual cost would result from a change in asset level or account activity. See Appendix H for the fee schedule.

1) Private Debt

See Appendix A for the complete recommendation on Private Debt.

Mercer's recommendation is for North American investment grade private debt with a proposed target allocation of 15% private debt for Extension, SRE, and RSR. Employee Future Benefits (EFB) has a 20% proposed allocation. MPI management supports this recommendation because private debt provides yield enhancement and diversifies the credit risk of the current fixed income portfolio. Drawbacks are that the asset class is illiquid, issues are generally unrated and Canadian based funds are relatively new, indicating that this is a new asset class.

MPI management recommends investing in an open ended pooled funds rather than through closed ended limited partnerships. Open ended pooled funds provide easier access to the asset class, with diversification after initial investment. Most open ended private debt funds provide daily Net Asset Values and monthly liquidity

2) Global Equities

See Appendix B for the complete recommendation on Global equities.

Mercer recommended a Global Equity strategy that includes emerging markets to replace the U.S. equity portfolio. Investing in Global equities is a reflection of an integrated global economy and it increases the opportunity set.

However, MPI management recommends a global equity strategy that excludes exposure to emerging markets. Historical returns for the MSCI All Country World Index (MSCI ACWI) (which includes exposure to emerging markets) and MSCI Global indices showed that adding exposure to emerging markets does not improve risk adjusted returns. Further, there are potential concerns about investing in the emerging market countries.[2]

The S&P 500 had better historical performance relative to the MSCI World Index over the last 20 years. Therefore, the recommendation to replace the U.S. equity mandate with an international equity mandate is not based on historical performance, but instead is based on theory. Investing in international equities will improve diversification of the existing equity portfolio and increase the available opportunity set.

According to the Pension Investment Association of Canada (PIAC), within Canadian pension plans the average allocation to Global Equities is 19.9% while Canadian equities have an average allocation of 7.2%. U.S. equities has an average allocation of 3.3% and emerging markets have an average allocation of 3.0%. Based on this information, Canadian pension plans have significant exposure to global equities and minimal exposure to U.S. and emerging market equities.

[2] The emerging markets are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates.

Exchange rate volatility does not add significant risk to a global equity portfolio over the long-term[3] (table below) as there is expected to be offset between the various currencies over time. Currency exposure actually provides diversification benefits to a global equity portfolio as the underlying equity returns are generally much more volatile than the exchange rates. U.S. and domestic companies are not without risk as they have indirect currency exposure that is difficult to measure and hedge.

Figure 1: EAFE Unhedged vs Hedged

Jan. 1990 – May 2015

	EAFE Unhedged	EAFE Hedged
Average Annualized Return	6.34%	5.65%
Compound Annualized Return	4.95%	4.57%
Standard Deviation	17.21%	15.18%
Sharpe Ratio	0.20	0.18

Sources: MSCI, Gerstein Fisher Research

3) Global Low Volatility Equities

See Appendix C for the complete recommendation on Global Low Volatility equities.

Low volatility strategies are designed to have less volatility than comparable market capitalization weighted strategies. These strategies are based on historical volatility. Volatility and other risk measures are used to determine the weighting of individual stocks in the portfolio.

MPI Management recommends a global equity low volatility strategy that excludes emerging markets. Based on historical data, combined exposure to both Global equities and Global Low Vol provides diversification benefits, higher risk-adjusted returns and lower volatility compared to a core Global Equity mandate only.

Changed Asset Classes

1) Provincial Bonds

Mercer recommended investing the marketable bond portfolio primarily in provincial bonds in order to increase the yield of the fixed income portfolio relative to holding federal bonds. This recommendation is an attempt to optimize the fixed income yield, and MPI management agrees with this recommendation.

Changing the asset category from government bonds to provincial bonds does not mean that the bond manager may not hold federal or municipal bonds, but the benchmark will be Provincial

[3] *To Hedge or Not to Hedge: Currency Hedging and International Investing, Gerstein Fisher, 2015 and Currency Hedging over long horizons*, Kenneth A. Froot, National Bureau of Economic Research, 1993

bonds. The manager will have some discretion to deviate from the benchmark in order to add value, while ensuring that the portfolio is dollar and duration matched to the Basic claims liabilities in order to ensure that nominal interest rate risk is minimized.

2) Corporate Bonds

Mercer recommended 18.6% total portfolio exposure to corporate bonds, which is approximately 22% of the total fixed income portfolio. Mercer recommended a 20% allocation to corporate bonds for the portfolio supporting the Basic Claims liabilities, a 10% allocation for Extension, SRE and RSR, and a 20% allocation for Employee Future Benefits.

These asset allocations were the result of the stochastic modeling completed by Mercer and the optimal portfolios identified for each line of business, employee future benefits and RSR. Mercer's consolidated portfolio allocation of 18.6% was unrelated to the forecasted 18% target weight for corporate bonds in the 2018 GRA. With the universe for public fixed income restricted to Canadian investment grade debt, corporate bonds (along with provincial bonds) were one of the few opportunities to increase the yield of the fixed income portfolio supporting the Basic claims liabilities.

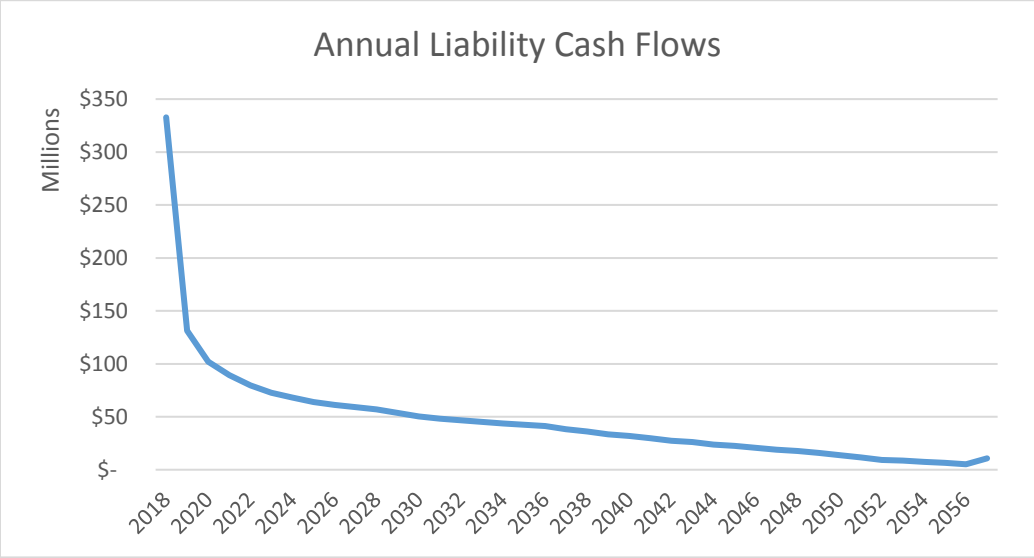
Corporate bonds were recommended in the last two ALM studies by both Aon Hewitt and Mercer. This recommendation is comparable to corporate bond allocations by both SGI and ICBC and in-line with other Canadian P&C insurance companies, as well as the FTSE TMX Universe Bond Index (see Appendix D for more information). The risks related to corporate bonds and how to manage those risks were discussed at length in submissions to the Investment Committee on June 1, July 27 and November 16, 2017. See Appendix D for more information.

3) Overview of Liabilities and Risk Tolerance

The ICWG worked with assistance from Mercer to determine the risk tolerance of each line of business with direction from the Investment Committee.

Basic Claims Liabilities
Basic Claims Liabilities are subject to significant interest rate risk as the duration of the liabilities is long (9.7 years) and require a high level of liquidity to pay claims. Given that the Basic insurance business comprises approximately 88% of the total business based on net claims incurred, and that no new rates or fees for Basic services can be introduced without the approval of the Public Utilities Board, the risk tolerance for assets supporting Basic is low.

The obligations are a mix of long-term payments (disability claims indexed to inflation) and short-term payments (typically physical damage repairs). The total value of these claims liabilities is approximately $1.8 billion. Claims Liability cashflows by year are depicted in the following chart:



Claims liability estimates have risk from mortality, asset and liability mismatch, investment returns, technological improvements. The actuarial valuation includes an 18.1% ($273 million) risk load to account for these risks.

To meet these objectives and reflect the nature of the Basic claims liabilities, the proposed asset allocation for the assets backing the Basic claims liabilities is to attempt to hedge substantially all nominal interest rate risk by investing in bonds with nominal interest rate duration that matches the duration of Basic liabilities. Given the low tolerance for risk, the proposed asset allocation for the Basic claims liabilities does not include equities or alternative investments.

Rate Stabilization Reserve (RSR)
The RSR is essentially surplus assets including accumulated other comprehensive income (“AOCI”). The intent of the RSR is to protect motorists from rate increases made necessary by unexpected events and

losses arising from non-recurring events or factors. There is no underlying obligation therefore there is no targeted interest rate risk hedge. The size of the RSR dictates the capacity to stabilize rate increases.

While there are no specific underlying liabilities, the RSR is susceptible to volatility in earnings primarily caused by adverse weather such as hail or winter storms; therefore the risk tolerance for RSR is moderate. Given the moderate tolerance for risk, the proposed Policy for these lines reflects a balanced portfolio of bonds, equities and alternative investments. The proposed Policy for RSR includes an allocation to Private Debt which is not included in the more conservative portfolio for the Basic claims liabilities.

Employee Future Benefits

Employee Future Benefits (EFB) support MPI employee pension liabilities in conjunction with MPI's unfunded portion of the Civil Service Superannuation Board of Manitoba ("CSSB") pension obligations, post-retirement benefits and retiring allowance/severance provision. EFB are subject to interest rate risk tied to high quality long-term corporate bond yields (the discount rate for pension liabilities is a function of these yields). The duration of the EFB is long at 15.6 years. Risk tolerance is moderate. CSSB has an asset allocation policy that allocates approximately 30% to bonds and 70% to equities and alternative asset classes. MPI's proposed Policy for the EFB assets is an allocation slightly less aggressive than that of CSSB (40% to bonds and 60% to equities and alternative asset classes).

Employee Future Benefits includes the following items:

Item	Amount (millions)
Pension obligations	$392.7
Post-retirement benefits	$26.8
Retiring allowance/severance provision	$26.9
Total	$446.5

The In-scope post-retirement benefits provide a health spending account. Out of scope post-retirement provides a health benefit plan.

Employees of the Corporation are entitled to severance pay in accordance with the Collective Agreement and Corporate policy. The provision for severance pay is actuarially determined on an annual basis using the projected benefit method prorated on services, without salary projection, which includes the Corporation's best estimates based on assumptions relating to the proportion of employees that will ultimately retire.

4) Recommended Asset Allocations

Current Asset Allocation

The consolidated portfolio asset allocation approved by the Investment Committee on April 27, 2017 is shown below.

Figure 2: Current Asset Allocation in Section 7 of the Investment Policy Statement

Asset Class (Group)	Minimum	Normal	Maximum	Accounting Class**

Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
-Government Bonds	40.0%	45.0%	60.0%	FVTPL
-Corporate Bonds	0.0%	5.0%	10.0%	FVTPL
-Non-Marketable Bonds	15.0%	20.0%	25.0%	HTM
Total Debt	60.0%	70.0%	80.0%	
Public Equities				
-Canadian	7.0%	10.0%	13.0%	AFS
-U.S.	3.0%	5.0%	7.0%	AFS
Total Public Equities	10.0%	15.0%	20.0%	
Alternative Investments				
-Canadian Real Estate	7.0%	10.0%	13.0%	FVTPL
-Private Equity*	0.0%	0.0%	0.5%	AFS
-Infrastructure	2.0%	5.0%	8.0%	FVTPL
Total Alternative Investments	9.0%	15.0%	21.5%	

*represents net committed capital

**AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Recommended Asset Allocation

MPI management recommends the following asset allocation for each portfolio:

Figure 3: Recommended Target Asset Allocations

	Basic Claims	EXT	SRE	RSR*	EFB	Total
Fixed Income						
Corporate Bonds	20.0%	10.0%	10.0%	10.0%	20.0%	18.6%
Provincial Bonds	60.0%	20.0%	20.0%	20.0%	0.0%	45.0%
MUSH Bonds	20.0%	5.0%	5.0%	5.0%	0.0%	14.8%
Private Debt	0.0%	15.0%	15.0%	15.0%	20.0%	5.2%
Total	100.0%	50.0%	50.0%	50.0%	40.0%	83.6%
Public Equities						
Canadian Equity	0.0%	12.0%	12.0%	12.0%	10.0%	3.2%
Global Equity (Low Volatility)	0.0%	10.0%	10.0%	10.0%	7.0%	2.5%
Global Equity	0.0%	13.0%	13.0%	13.0%	18.0%	4.6%
Total	0.0%	35.0%	35.0%	35.0%	35.0%	10.4%
Alternatives						
Real Estate	0.0%	10.0%	10.0%	10.0%	15.0%	3.8%
Private Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Infrastructure	0.0%	5.0%	5.0%	5.0%	10.0%	2.3%
Total	0.0%	15.0%	15.0%	15.0%	25.0%	6.0%

*Total equity and net assets

Considerations for Determining the Asset Allocations

Appendix F shows efficient frontiers from Mercer's Phase Two report, which helped determine the asset allocations for the five segregated portfolios.

MUSH and Private Debt Allocations

MUSH bonds are illiquid and provide a yield premium over listed Province of Manitoba bonds. However, going forward the new issuance of MUSH bonds will be severely limited and therefore new purchases will be minimal. Therefore, private debt was viewed as a partial substitute for MUSH bonds within the non-Basic portfolios as private debt can provide higher yields than government debt.

Private debt was not included in the Basic Claims portfolio in order to limit risk within the portfolio and because including private debt could complicate the duration matching strategy. A significant allocation to MUSH bonds within the bond portfolio supporting the Basic claims liability was made in order to maximize the yield of the portfolio.

Basic Line of Business
The Basic Line of Business will include 100% of the Basic claims and RSR portfolios and approximately 85% of the EFB portfolio. When these portfolios are aggregated for financial reporting purposes the fixed income/growth split for the Basic line of business will be approximately 89%/11%.

Inflation Protection
MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target. Real Return Bonds (RRBs) were not considered for this reason and also because the real yields on RRB's are currently very low. In addition, the Dynamic Capital Adequacy Test (DCAT) report does not include a high inflation scenario as a significant risk.

Interest Rate Risk Mitigation Strategy

It is recommended that the Corporation continue to employ duration matching to mitigate its nominal interest rate risk. Cash flow matching and a hybrid of duration and cash flow matching (a "hybrid/bucket approach") were considered but rejected. Duration matching provides the greatest flexibility to the fixed income manager as there are an infinite number of portfolios that can be constructed that will provide a duration that matches the duration of the Basic claims liabilities.

Cash flow matching is costly and difficult to implement, particularly when future liability cash flows far in the future are uncertain. Cash flow matching is more common for short-term liabilities where the timing and amount of the liability cash flows are known with absolute certainty. This is not the case for MPI's claims liabilities.

A hybrid/bucket strategy is more expensive than duration matching, but does reduce convexity risk, which is the risk of non-parallel shifts in the yield curve. However, convexity risk is generally equally likely to result in a gain or loss and therefore over time this risk is expected to even out.

Nonetheless, the Corporation will monitor its assets and liabilities in appropriate time buckets and stress test alternate non-parallel interest rate scenarios to ensure sensitivities to various market movements are understood and within management's risk tolerance.

5) Implementation Plan

Asset Class Vehicles

The majority of the assets will be uniquely matched to specific liabilities, but certain assets (CityPlace and infrastructure) will need to be allocated as they cannot be unitized and assigned to specific liabilities.

Fixed Income

The Department of Finance (DOF) at the Province of Manitoba will manage Government/Provincial bonds supporting all portfolios. Corporate bonds will likely be managed through a segregated mandate so that we can have maximum control over the strategy from a duration, turnover and yield perspective (at least for those backing Basic Claims Liability – those backing non-Basic claims could be in pooled funds).

The Department of Finance is able to deliver the dollar and duration matching strategy that the Corporation requires. There is limited value that an external manager can provide with a universe restricted to Federal and Provincial bonds. In order to limit the amount of change occurring within the portfolio, MPI management recommends that DOF continues to manage the Government bond portfolio.

Private Debt

It is recommended that investment occurs in an open ended pooled fund. See Appendix A for more discussion on this topic.

Equities

It is recommended that investment occurs in pooled funds so that each portfolio has assets that are dedicated to it (no allocations required).

Real Estate:

The Greystone Real Estate Fund (GREF) is a pooled fund so units can be assigned to each portfolio. CityPlace will need to be allocated as it continues to be held in the portfolio. GREF is a highly diversified fund[4] with 325 properties located across the country while CityPlace is a single urban mixed use property. Strictly from an investment diversification perspective it would be preferable to eliminate CityPlace and continue to hold only units in GREF; however MPI is in a unique situation with CityPlace being the owner and largest tenant.

Infrastructure

Infrastructure investments are unitized and therefore units from each asset can be assigned to each portfolio in order to ensure adequate diversification. We will review how the units from each investment assigned can be assigned.

[4] GREF has a gross asset value of $12 billion and exposure to retail, office, industrial and multi-family residential real estate covering a total of 33.8 million square feet.

Manager Searches

Searches must be conducted to select new managers for the following asset classes:

1. Corporate Bonds

2. Private Debt (non-Basic only)

3. Global Equities and Global Low Volatility Equities (non-Basic only)

MPI management recommends hiring a consultant to assist with the search for each asset class at an approximate cost of $20,000 to $35,000 per search (could be less if the same consultant was hired for more than one search). This will ensure that the broadest possible universe of managers is considered during the search. Search consultants also meet with managers on a regular basis and maintain a current database of qualitative and quantitative facts about each manager (ie: returns, risk, drawdowns, growth of AUM, stability of the team and other important metrics).

Implementation Plan for 2018/19 and 2019/20

I. 2018/19

Partially re-allocate assets towards asset allocation targets on a consolidated basis. No major changes to fixed income/growth asset mix of 70%/30% to occur prior to allocation policy change. The allocation policy will be changed on March 1, 2019.

The majority of the transition of assets to reach the 84%/16% mix on a consolidated basis will occur in Q1 2019/20. Therefore, the due diligence, manager search and due diligence work will occur in the latter half of 2018.

Figure 4: Investment Steps for 2018/19

Asset Class	Action	Timing	2019 GRA Consolidated Net Income Impact (Naïve Forecast)
Provincial Bonds	Sell government bonds and purchase Provincial bonds	Q1 2018/19	($8.0M)
Real Estate	Advise Greystone of need to remove money from GREF	Q1 2018/19	
Infrastructure	Begin process to liquidate some infrastructure assets	Q1 2018/19	
Corporate Bonds	Add 1-2 Mandates	Start manager search Q1/Q2 2018/19. Corporate bond allocation no longer managed by DOF by Q4 2018/2019.	($3.1M)
Equities	Complete manager search for Global Equities and Global Low Vol	By Q4 2018/19	$123.7M
MUSH	MUSH bonds mature and proceeds are used to fund other asset classes	Ongoing	
Private Debt	Begin Manager Search Process	Q4 2018/19	
		Total	**$112.6M**

The net income impact on the consolidated portfolio is shown in the last column. Moving to the new provincial and corporate bonds weights is forecasted to have a ($11.1M) impact due to the change to the claims discount rate and its impact on the value of the claims liabilities.[5]

[5] In the ALM scenario, the funds required to purchase private debt are temporarily held in Provincial bonds, which are more liquid than corporate bonds. This increases the Provincial bond allocation relative to the corporate bond allocation, causing a decrease in the claims discount rate and an increase in the value of the claims liabilities, which decreases net income. By Q4 2019/20 in the 2019 GRA forecast private debt is assumed to be fully funded. As a

Equity holdings that are not sold will be transferred from segregated accounts to pooled accounts; this is a practical step given the relatively small allocations (in dollars) to equities in the non-Basic portfolios and it will also cause the associated gains to be realized. The forecasted realization of equity gains is $123.7M (based on the actual gains at Feb. 28, 2018 which will grow by the forecasted return for the asset class during the year). There is no expected impact to net income from reducing exposure to real estate and infrastructure because the accounting classification for these asset classes is "Fair Value Through Profit and Loss". There is no expected impact to MUSH because the accounting classification for MUSH bonds is "Held To Maturity".

II. March 1, 2019

Allocation policy changes to account for segregation of portfolio by line of business.

III. 2019/20

Complete reallocation of investment portfolio to new targets. Overall portfolio composition will move from 70%/30% fixed income/growth assets to 84%/16%. The majority of transition will occur in Q1 2019/20. Private debt will be the last asset class that is funded.

Figure 5 includes the investment income impact, net income impact, and 2019 GRA rating impact for each asset class. The net income impact is provided for Provincials and Corporate bonds, which includes the impact on the claims discount rate. The 2019 GRA rating impact for each asset class is shown for each asset class in the last column.

result, the corporate bond allocation increases relative to Provincial bonds, increasing the claims discount rate, increasing net income by $5.4M as shown in Figure 5.

- In other words, the negative impact of holding additional Provincial bonds at the end of 2018/19 to fund private debt is partially reversed in 2019/20.

Figure 5: Investment Steps for 2019/20

Asset Class	Action	Timing	Consolidated Investment Income Impact/ Net Income Impact	2019 GRA Rating Impact (Naïve)
Provincial Bonds	Increase allocation on a proportionate basis	Q1 2019/20	$6.0M/ $9.9M	0.1%
Corporate Bonds	Increase allocation on a proportionate basis	Q1 2019/20	$1.5M/ $3.0M	
Equities	Liquidate U.S. equities and a portion of CDN equities to fund Global Equities and Global Low Vol	Q1 2019/20	($9.6M)	0.3% (Reflects investment income from assets supporting RSR)
Real Estate	Liquidate a portion of the Greystone Real Estate Fund to reach 4% consolidated target weight	Q1 2019/20	($12.1M)	
Infrastructure	Liquidate a portion of infrastructure to get to 2% consolidated target weight	Q1 2019/20	($4.0M)	
MUSH	MUSH bonds mature and proceeds are used to fund other asset classes	Ongoing	$0M	n/a
Private Debt	Complete search and fund private debt over a period of time	Substantially complete by the end of Q4 2019/20 (based upon available cash from MUSH portfolio)	+$3.8M	n/a
		Total	**($14.4M)/ ($9.0M)**	**+0.4%**

These tables describe the steps outlined in the Gantt Chart in Appendix I.

Accounting Steps

Account for new allocation methodology and investment portfolio. Investigate results to ensure design working as intended.

Corporate Asset Class Actual vs Target Weights

At a high level and from a corporate perspective, the target allocation to fixed income will increase by 14% and will be funded by a reduction in growth assets. The following table shows the actual asset allocations at February 28, 2018, the future corporate target weights for each asset class and the required changes

Figure 6

Actual vs Proposed Target Asset Allocations at February 28, 2018 - Corporate

	Actual		Target		Difference	
	Millions	Percent	Millions	Percent	Millions	Percent
Fixed Income						
Provincials	$ 1,154	41.3%	$ 1,254	44.9%	$ 100	3.6%
Corporates	$ 116	4.2%	$ 520	18.6%	$ 404	14.5%
MUSH	$ 618	22.1%	$ 411	14.7%	$ (207)	-7.4%
Private Debt	$ -	0.0%	$ 147	5.3%	$ 147	5.3%
Cash	$ 89	3.2%	$ -		$ (89)	-3.2%
Sub-Total	$ 1,977	70.8%	$ 2,332	83.56%	$ 355	12.7%
Equities						
Canadian	$ 265	9.5%	$ 91	3.3%	$ (174)	-6.2%
U.S.	$ 144	5.2%	$ -		$ (144)	-5.2%
Global	$ -	0.0%	$ 130	4.7%	$ 130	4.7%
Global Low Vol	$ -	0.0%	$ 69	2.5%	$ 69	2.5%
Sub-Total	$ 409	14.7%	$ 290	10.40%	$ (119)	-4.3%
Alternatives						
Real Estate	$ 304	10.9%	$ 105	3.8%	$ (199)	-7.1%
Infrastructure	$ 100	3.6%	$ 64	2.3%	$ (36)	-1.3%
Private Equity	$ 1	0.0%	$ -		$ (1)	0.0%
Sub-Total	$ 405	14.5%	$ 169	6.04%	$ (236)	-8.5%
Total	$ 2,791	100.0%	$ 2,791	100.0%	$ -	0.0%

Recommended Actions

Purchases
The following purchases will need to occur to get to the new consolidated asset allocation:

Corporate Bonds
Real estate, infrastructure and Canadian equities will be required to be partially liquidated to fund the purchase of corporate bonds. As soon as the search for a corporate bond manager is complete funding of the purchases can begin by selling equities (which can be completed in 1-2 weeks). The funding will be completed when the withdrawal from our pooled real estate fund (GREF) is finished; this could take 12 months or longer depending upon available liquidity within the fund.

Provincial Bonds and Private Debt
MUSH maturities will be used to fund the purchase of private debt and Provincial bonds (it will take about two years of maturities[6] to obtain the necessary funds from the MUSH portfolio). See Appendix G for more detailed information about MUSH maturities.

Global and Global Low Volatility Equities
U.S. equities and some Canadian equities will be liquidated to fund the purchase of global equities and global low volatility equities.

Sales
The following sales are recommended to reach the new proposed allocation:

1. Terminate Cardinal (a Canadian equity fund) due to ongoing performance issues
2. Remove money as required from Foyston and QV Investors, keeping intact the large cap/small cap split.
3. Remove approximately $200M from Greystone Real Estate Fund.
4. Remove approximately $30M from infrastructure[7].
5. Sell U.S. equity ETFs.

Transition Manager
MPI management recommends hiring a transition manager to oversee all trading required during the process. Transition managers provide an estimate of the costs related to a transition and the actual costs after the transition is complete. The transition manager works toward minimizing the trading costs and their interests are fully aligned with the client's interests.

Hiring a transition manager is a best practice within the investment management industry and MPI has previously employed a transition manager for major transitions. The cost is expected to be minimal as the implementation manager charges no fees other than a commission on all trades with the charge varying by the liquidity of the relevant market (1 cent/share or less for developed equity markets such as Canada or the U.S.). This is not an increment cost as commissions are payable regardless of who is doing the

[6] Principle and interest payments from MUSH bonds for each of the next three fiscal years are $164.5M, $72.5M and $69.5M. See Appendix G for more details.
[7] Ideally funds will be withdrawn from ICLP; if that is not possible prior to the end of the lock-up period for ICLP (Dec. 31, 2021) then the Sonnet & First Gas co-investments will be sold in order to maximize diversification within the infrastructure portfolio.

trading (ie: the outgoing or incoming portfolio managers). The implementation shortfall reporting is essentially a free benefit of using a transition manager rather than simply asking the outgoing or incoming manager to complete the trades.

The transition manager provides an estimate of the "implementation shortfall", which is comprised of the following costs: commissions, bid-ask spread, market impact, taxes/fees and opportunity cost. In the past multiple transition managers have been invited to provide an estimate of the expected "implementation shortfall" of a desired transition and the manager with the lowest "implementation shortfall" was selected. State Street Global Markets (SSGM) was hired for transitions in 2008 and 2010 and Pavilion was hired in 2013 and 2015.

The table below shows the expected time required for the purchases, sales and manager searches.

Figure 7: Time Required for Purchases, Sales and Manager Searches

Type	Search	Sell	Purchase	Total	When to Start
Fixed Income					
Provincials			1 Week	1 Week	Immediately
Corporates	3 Months		3 Months	6 Months	Start search Immediately
MUSH		2 Years		2 Years	As MUSH matures
Private Debt	3 Months		2 Years	2.25 Years	Q4 2018/19 Start Search
Equities					
Canadian Equities: Cardinal		1 Week		1 Week	Immediately
Canadian Equities: Foyston/QV					When Corporate Bond Manager is Selected
U.S. Equities		1 Day		1 Day	When Global Equity Manager is Selected
Global Equities	3 Months		1 Week	3 Months	2018/19 Q3 Start Search
Global Low Vol	3 Months		1 Week	3 Months	2018/19 Q3 Start Search
Alternatives					
Real Estate		12 Months		12 Months	Immediately
Infrastructure		3 Months		3 Months	Immediately

Inter-Dependencies

Several steps in the implementation plan are dependent upon the completion of other items. The inter-dependent activities are as follows:

1. U.S. equities cannot be sold until the global equity search is complete.
2. Canadian equities cannot be sold until the search for global equity and corporate bond managers are complete.
3. Corporate bonds cannot be fully funded until money is withdrawn from the Greystone Real Estate Fund (GREF).
4. Private debt cannot be fully funded until sufficient interest and principle payments are collected from the MUSH bond portfolio.

The table below shows the dollar values for all growth assets at February 28, 2018 and the recommended target weights for each manager and asset class, as well as the changes.

Figure 8

Reducing Growth Assets - Actual vs Proposed Targets at February 28, 2018

	Actuals ($M) 28-Feb-18	New Target ($M)	change ($M)	current weights	future weights	Percentage of fund sold
Canadian Equity						
Cardinal	$ 80.9	$ -	$ (80.9)	30.5%		**-100%**
Foyston	$ 125.3	$ 72.7	$ (52.6)	47.3%	80.0%	**-42%**
QV	$ 58.9	$ 18.2	$ (40.7)	22.2%	20.0%	**-69%**
Sub-Total	$ 265.1	$ 90.9	$ (174.2)	100.0%	100.0%	**-66%**
Real Estate						
GREF	$ 263.0	$ 64.2	$ (198.8)	86.5%	61.0%	**-76%**
CityPlace	$ 41.0	$ 41.0		13.5%	39.0%	**0%**
Sub-Total	$ 304.0	$ 105.2	$ (198.8)	100.0%	100.0%	**-65%**
Infrastructure						
ICP	$ 32.1	$ -	$ (32.1)	33.2%	0.0%	**-100%**
GDIF	$ 20.3	$ 20.3	$ -	21.0%	31.4%	**0%**
Voyager	$ 17.6	$ 17.6	$ -	18.2%	27.2%	**0%**
Sonnet	$ 15.3	$ 15.3		15.8%	23.7%	**0%**
First Gas	$ 11.4	$ 11.4		11.8%	17.6%	**0%**
Sub-Total	$ 96.7	$ 64.6	$ (32.1)	100.0%	100.0%	**-33%**
US Equity						
R1000	$ 117.0	$ -	$ (117.0)	80.6%	0.0%	**-100%**
R2000	$ 28.2	$ -	$ (28.2)	19.4%	0.0%	**-100%**
Sub-Total	$ 145.2	$ -	$ (145.2)	100.0%	0.0%	**-100%**
Total	$ 811.0	$ 260.7	$ (550.3)			

Timing of Realizing Gains

It is recommended that unrealized gains on equities should be realized in 2018/19 prior to changes in the allocation policy. There were $115.9 million in unrealized equity gains at February 28, 2018 and the financial model is forecasting the unrealized gains on equities to grow to $123.7 million at the end of 2018/19 based on the expected return of the asset class.

Rationale:

- There is a risk that equity markets could decline, reducing or eliminating the current gains. This risk increases over time.
- It is cleaner and more transparent to realize the gains in 2018/19 prior to the change in the allocation policy and the creation of the new portfolios. This will ensure that the gains will be realized and allocated to the lines of business that are currently holding the equities and therefore earned the gains.

Risks:

- Realizing gains in 2018/19 will significantly increase net income and create a variance to the budgeted net income for 2018/19. The impact of this change must be discussed with the Government of Manitoba.

If this plan is not approved gains can be realized in 2019/20. However, the Basic line of business will have a significantly reduced allocation to equities (7% vs 15%) and therefore the gains attributable to the Basic line of business will be reduced by a similar amount. Retained earnings can be transferred to the Basic line of business as necessary in order to ensure that Basic is made whole and the RSR continues to be adequately funded. The transfer cannot occur until the equity trades are complete.

Equities are the only asset class that is classified as “Available for Sale” and therefore is the only asset class that could impact Net Income as the result of sales.

6) Internal vs. External Management of Corporate Bonds

A paper was provided to the Investment Committee in August 2017 on the decision to use an internal or external manager of Corporate bonds. This paper is summarized below – see Appendix E for the full paper.

MPI management recommends that the corporate bond portfolio be managed externally for the following reasons:

For external:

1. Cost effectiveness
2. Faster and easier to implement
3. Access to a highly skilled and broad team of investment professionals
4. Better pricing and access to new issues due to greater scale
5. Only one local peer (CSSB) manages bonds internally
6. Compensation challenges attracting and retaining a highly skilled portfolio manager
7. There are fixed income managers that specialize in managing assets for insurance companies who understand the unique complexities involved[8]

For internal:

1. Greater control
2. Build a deeper team

Cost

TD Asset Management quoted a fee of 10 basis points, which should be considered as the benchmark for the cost of internal management. On a $500 million portfolio the fee would be $500,000 annually. This is the upper limit for the cost of internal management as a portfolio of less than $500 million would incur a smaller fee.

Staffing

It is expected that at least three additional staff would be needed in order to manage corporate bonds internally: 1) portfolio manager, 2) credit analyst, 3) back-office (for operations/ settlement/ reporting). Total compensation (including all benefits) for these individuals would likely be a minimum of $425,000. This would provide minimal back-up and support to the Portfolio Manager during absences and would involve significant “key man” risk. In addition, it is not clear if the Corporation will be able to compete with private sector employers in order to attract sufficiently talented staff.

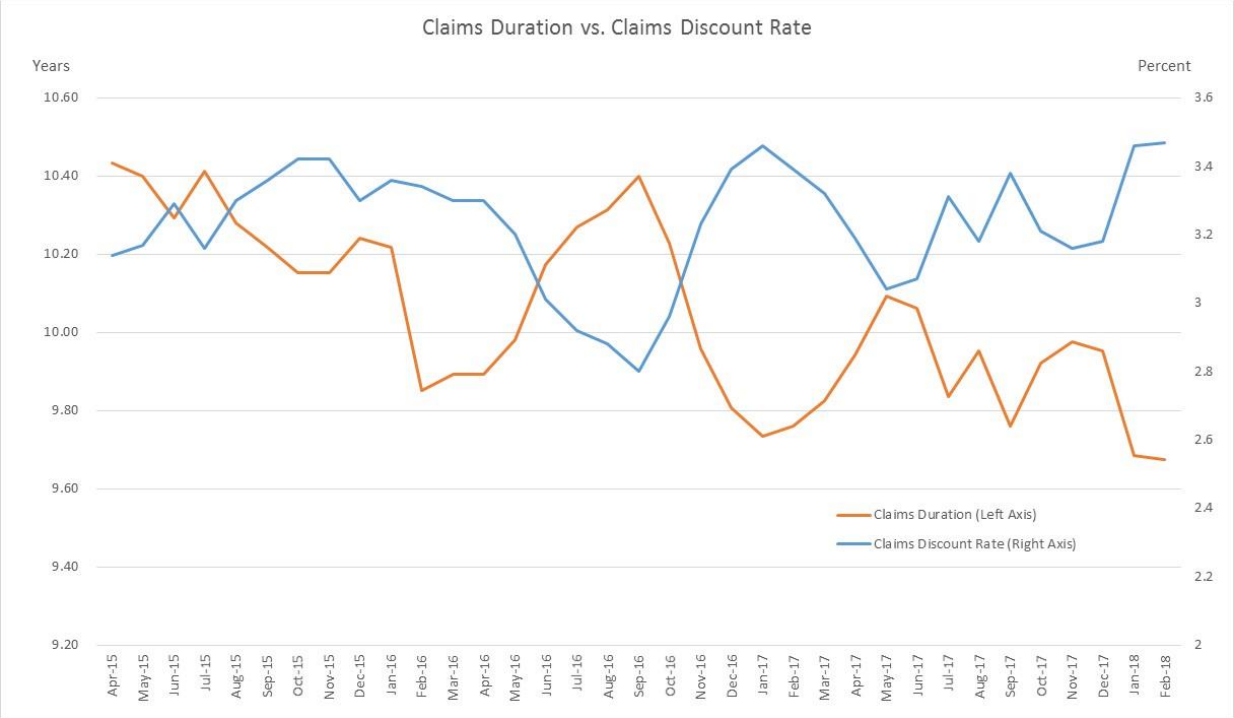
Duration Matching with Two Bond Managers

At the December 8, 2017 Investment Committee meeting, a concern was raised regarding duration matching with two bond managers.

The duration of the claims liability is relatively stable, with changes driven primarily by changes in the discount rate (see the chart below) and annual reviews of the liabilities and subsequent adjustments. The month to month changes are driven by interest rates, which also affect the asset values.

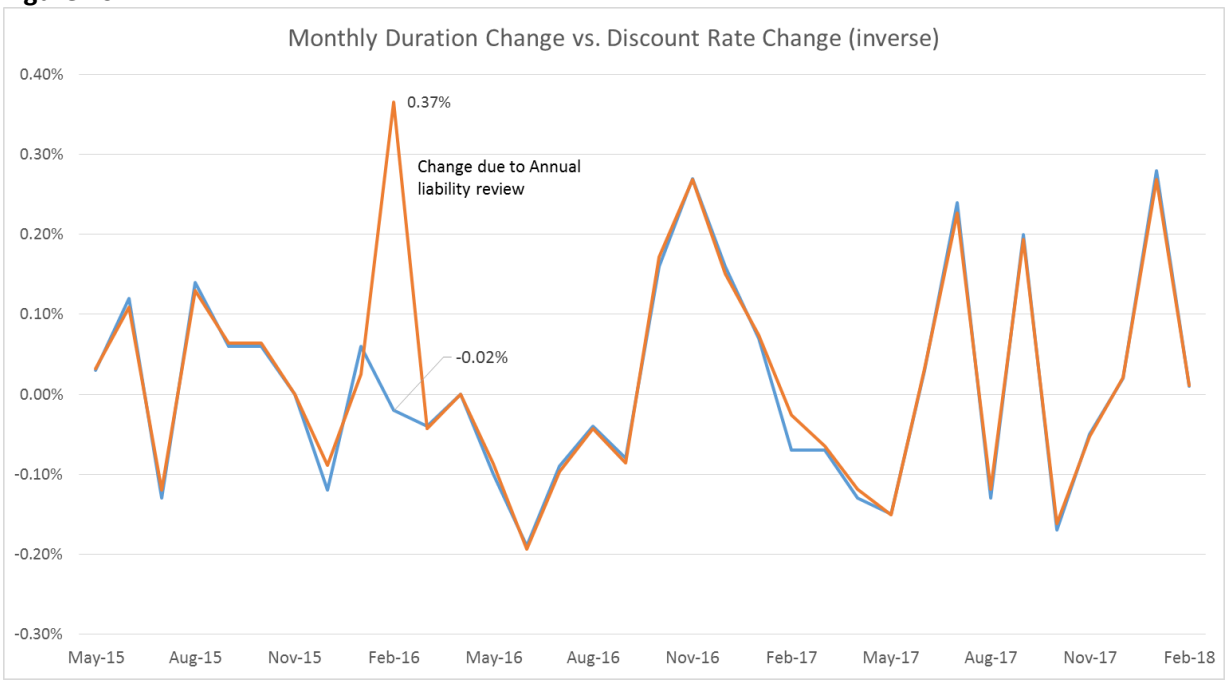
[8] AberdeenStandard ($956 billion AUM), Addenda Capital ($28 billion AUM), Baker Gilmore ($3 billion AUM)

Figure 9



The chart below shows that changes in the duration of the claims liability are directly correlated with changes in the discount rate (which is determined by the yield of the marketable bond portfolio).

Figure 10



Therefore, matching duration with two fixed income managers is not impossible, in fact it is quite feasible. The corporate bond manager would be given a duration target and a range (+/- 0.5 years) and DOF would

adjust the duration of the government bond portfolio in order to maintain the duration of the total fixed income portfolio within 0.25 years of the duration of the claims liability.

7) Accounting Changes

The following outlines the key steps to implement the change in accounting relating to the ALM Transition. There are several outstanding fundamental details that need to be addressed which may impact these estimated time lines. As well, there are some requirements in order to be able to complete (such as securing a test environment to test interfaces and securing PAM resources).

1. Review existing allocation in relation to accommodating subaccounts

   In order to accommodate the need to establish multiple portfolios with different allocations, review and update (if necessary) the existing allocations to ensure that the allocation will still perform as they do currently once new subaccounts are created. (to be completed by April, 2018)

2. Determine new allocation methodology for balance sheet and investment income

   The current balance sheet and investment income allocations are complex and will need to be rebuilt to accommodate the new Asset Liability Matching requirements. This change is anticipated to impact allocation of other accounts within each line of business. (methodology to be solidified by June/July, 2018; building & implementing new allocations to be completed by January/February, 2019)

3. Determine changes required to current portfolios in Princeton Asset Management (PAM)

   In collaboration with the Investment Department and Department of Finance, determine which investments will be part of each of the new portfolios. (to be completed early to mid-June, 2018 – using investments as at the end of May, 2018)

4. Build new portfolios in PAM

   Building new portfolios in the PAM systems is expected to require input from a consultant. Once team has been trained on building individual portfolios, build the portfolios that are necessary. (training to occur in late May, 2018 – once PAM resources are secured; testing of transferring investments, interfaces & minimal allocation testing to occur during June)

5. Create new accounts in Lawson

   New accounts (both balance sheet & income) to be created to accommodate the different ways that the investments are being distributed. These individual accounts will be set up to follow the specific traits of the liabilities they are backing. (to occur in conjunction with creation of new portfolios & transferring of investments (#4 & #7) – beginning mid June)

6. Update detailed mapping of balance sheet account allocations (whether direct or allocated)

   Although this change is in relation to Investments, we need to have a clear understanding of all balance sheet items that are allocated using the same methodology as Investments. Any accounts that are 100% for a specific line of business will need to be allocated to those lines of business prior

to the Investment income allocations. Any balance sheet accounts that are not direct to a specific line of business will be allocated after the Investment Income Allocation using a new allocation. (will begin now and will continue throughout the ALM accounting transition)

7. Move investments to new portfolios

   Move all investment from the existing portfolios to the new segregated & non-segregated portfolios. Ensure that this is done without triggering gains/losses. At this time, it is assumed that this task will be manual, moving each investment individually. (to begin mid June, 2018 and could take 3-6 months depending on level of automation available within PAM)

8. Map assets & income in PAM to Lawson

   As PAM is interfaced to the Lawson system, we need to ensure that all investments in the new portfolios are mapped to the correct new GL accounts in Lawson. This will need to be tested as part of the process to ensure accurate financial reporting corporately and by line of business. (to begin mid June, 2018 and could take 3-6 months depending on level of automation available within PAM)

9. Create allocation check file (similar to what is created for expenses)

   As we do not have detailed allocations records within Lawson (posted at summary level not detailed level), need to create an allocation check file in Excel that will mimic what we are expecting the Lawson allocations to do. This will also allow monitoring of the differences between the current allocations (as defined in Lawson) against the new allocations resulting from the Mercer ALM study. (to begin mid June, 2018 & will continue to be revised as we proceed through the ALM accounting transition; to be complete by January/February, 2019)

10. Update financial asset classifications

    Review accounting classifications and designations for all existing and new asset classes in the context of each portfolio that the financial assets support

11. Test allocations in parallel for a minimum of 6 months (preferably 12 months)

    As transactions may not occur every month, it would be ideal to test the new allocations & provide comparison against the old allocations for a minimum of a six month period and preferably for the full 2019/20 fiscal year. As this time frame is significant, a parallel test is not feasible, so will test retroactively using the allocation check file in #9 above. Testing of allocations should be able to begin in July or August, 2018 (as investments are transferred to new portfolios in #7) and would continue until January/February, 2019.

12. Update accounting policies

    The following policies have been identified that will likely be required to be updated as part of the transition:
    - Policy for Allocation of Balance Sheet Items – Assets, Liabilities, Retaining Earnings and Accumulated Other Comprehensive Income (Loss)
    - Policy for Allocation of Investment Income and Other Comprehensive Income (Loss)
    - Policy for Writing Down Investments

- Policy for Valuation of Private Equity, Venture Capital and Infrastructure Investments.

(to occur by December, 2018 for approval by Board of Directors in January, 2019)

13. Activate new allocation policy – effective March 1, 2019

8) Financial Impacts

The financial model has been updated to reflect the five recommended portfolios and asset allocations. An internal document is available upon request outlining the changes to the financial model.

The results below were produced by the revised financial model.

Impact to Basic Line of Business

Figure 11: Financial Impact to the Basic Line of Business

Basic Net Income ($millions)	**17/18**	**18/19**	**19/20**	**20/21**
GRA Forecast - ALM	34,425	136,292	(5,332)	(4,487)
GRA Forecast - No ALM	34,425	40,348	(3,101)	(490)
Difference	-	95,944	(2,231)	(3,997)
Basic Total Equity ($millions)	**17/18**	**18/19**	**19/20**	**20/21**
GRA Forecast - ALM	211,000	255,869	259,972	265,119
GRA Forecast - No ALM	211,000	257,410	262,363	268,725
Difference	-	(1,541)	(2,391)	(3,607)
Basic MCT Ratio (%)	**17/18**	**18/19**	**19/20**	**20/21**
GRA Forecast - ALM	45%*	71%	62%	59%
GRA Forecast - No ALM	45%	54%	50%	46%
Difference	-	17%	13%	13%

*Represents Modeled Actual

Basic net income is forecasted to increase by approximately $95 million in 2018/19 as significant gains will be realized on equities. Total equity is forecasted to be marginally lower. The MCT ratio will increase by about 15% at the end of 2018/19 because of a lower capital requirements on the Basic line of business investment assets. Interest income is forecasted to increase by approximately $15 million in 2019/20 as there will be more fixed income assets in the portfolio supporting the Basic line of business. These projections are based on a Naïve interest rate forecast.

As per the April 19 presentation to the Board of Directors, the Basic rating impact of these changes is minimal, with a forecasted rate increase of 0.4% using the naïve interest rate forecast, and a rate increase of 0.5% using the 50/50 interest rate forecast.

Value at Risk

The following table shows the 95th percentile Value at Risk for the each of the new portfolios relative to the current portfolio. For each portfolio, the current is defined as the 70% fixed income/30% growth asset class split, except for Basic Claims #2, which is compared to the current fixed income portfolio only. The risk of the consolidated and the Basic claims portfolios are expected to fall substantially. The risk of the portfolio backing RSR is expected to increase modestly.

Figure 15 – Value at Risk

Portfolio	Current	Proposed	Change
Consolidated	-$142 M	-$75 M	+$67 M
Basic claims #1 – vs 70/30	-$122 M	-$38 M	+$84 M
Basic claims #2 – vs. bonds only	-$16 M	-$38 M	-$22 M
RSR	-$8 M	-$9 M	-$1 M

9) Outstanding Items

2019 GRA
If this implementation plan is approved on April 30, 2018 the final rate indication will be provided to the Board of Directors on May 17, 2018.

Investment Policy Statement
An updated Investment Policy Statement will be presented at the July 31, 2018 Investment Committee meeting reflecting the asset allocation approved on April 30, 2018.

Employee Future Benefits (EFB) Funding Policy
This will be presented at a later date to the Audit, Finance & Risk (AFR) Committee.

10) Recommendations

That the Investment Committee members approve the following:

1. All new asset classes including private debt, global equity and global low volatility equities;
2. The creation of five segregated portfolios for Basic Claims Liabilities, Extension, SRE, Employee Future Benefits and RSR;
3. Asset allocations for each portfolio as shown in Figure 2;
4. Implementation plan as described in Section 5;
5. Realization of gains in Canadian and U.S. equity portfolios in 2018/19 (subject to discussion with the shareholder);
6. Hire an external manager for corporate bonds;
7. Hire a consultant to assist with all manager searches;
8. Hire a consultant to manage the transitions between public market asset classes as necessary (purchases and sales).

Appendix A: Private Debt

Mercer recommended a target allocation to investment grade private debt of 15% for Extension, SRE, and RSR and 20% for the EFB portfolio. MPI management supports this recommendation because private debt provides yield enhancement and diversifies the credit risk of the current fixed income portfolio. The asset class is illiquid and Canadian based funds are relatively new while the U.S. market is much more mature and liquid.

I. Overview of Private Debt

Private debt consists of strategies in which a manager sources debt investment opportunities directly from a company (sponsorless) or through a private equity firm that is acquiring the company (sponsored). The focus of this document will be on investment grade private debt.

History

Private debt is not a new business. The traditional core competency of the banking sector has been to borrow money from deposit holders. Since 2008, instead of banks lending this capital to companies, non-traditional lenders are stepping into this role. This opportunity exists because there are businesses that are growing and need financing, while at the same time banks have shrunk their lending balance sheets.

Evolving global banking regulations have restricted the traditional source of capital for borrowers. The unmet need has driven recent growth in the private debt market. Investors view direct lending as an alternative investment or a supplement to fixed income and their interest in the private debt market is partly due to their search for yield.

Market for the Asset Class

The asset class has grown in popularity since the Global Financial Crisis in 2008 as increasing regulations have made lending more difficult for banks. Borrowers often prefer the private credit market as it is more flexible and provides greater privacy than issuing public debt. Issues can be more customized to meet the needs of the borrower with longer terms and other important features.

In the current low interest rate environment institutional investors are searching for positive real yields and diversification opportunities. The result has been the significant growth of the private debt market, which has met the financing needs of mid-market companies as banks have pulled back in order to repair their balance sheets. Non-bank lending now represents 75% of total corporate lending in the U.S[9].

Longer maturities make private debt attractive to investors with long-term liabilities. Terms are usually 7-10 years but can be as long as 30 years.

[9] The Rise of Private Debt as an Asset Class, by Amin Rajan, Create Research/ICG. Sep. 2015, page 11

There is limited information available on private debt, particularly performance, as it is a relatively new private market for institutional investors.

There is ample supply of private debt. Annual issuance of private debt according to Bloomberg Finance was C$8.5 billion in Canada and USD$73 billion in the U.S in 2017. [10]

Types of Private Debt
The following are some of the more common types of investment grade private debt:

1. Infrastructure
2. Real Estate: commercial mortgages, construction financing, etc.
3. Corporate: (sponsored vs. non-sponsored debt)
4. Power and Energy
5. Private Securitization

Demand from Institutional Investors
According to a Preqin survey of investors, 54% of institutional investors have made allocations to private debt and 13% are considering doing so. In addition, the asset class has been adopted by 11 segments of the institutional space including insurance companies and pension funds.

According to a recent survey[11], 45% of the respondents expect to increase significantly the allocation to this asset class.

Three of MPI's local peers are investing in private debt through a combination of Canadian and U.S. based managers.

[10] Estimate from TDAM using Bloomberg Finance data
[11] The Rise of Private Debt as an Asset Class, by Amin Rajan, Create Research/ICG. Sep. 2015

II. Reasons to Invest in Private Debt:

1. Recommended by Mercer

Mercer recommended including investment grade North American debt covering private corporate debt, infrastructure debt, power & energy debt and other forms of private debt. Mercer stated:

- Typically, fully hedges U.S. currency risk and yield curve changes.
- Since private debt is less liquid than public debt, it generally results in an increased yield over a comparable Canadian bond index of about 0.75%.
- An allocation to North American private debt further diversifies credit risk beyond those of Canadian Provinces and Canadian publicly traded bonds.

2. Yield Enhancement

Yields are significantly higher than those offered by similarly rated public debt to compensate for illiquidity

The table below shows the benchmark yields for CIBC, Sun Life and TDAM.

Figure 1: Benchmark Yields of Canadian Based Private Debt Pooled Funds

Firm	Mid	Long
CIBC	n/a	FTSE TMX Canada Long-Term Overall Bond Index
Sun Life	FTSE TMX Canada All Corporate Bond Index + 100 bps	FTSE TMX Canada Long Term Overall Bond Index +75 to 100 bps
TDAM	FTSE TXM Canada Universe Bond Index +125 to 175 bps	FTSE TMX Canada Long Term Overall Bond Index +100 to 125 bps

Private debt offers more protection than listed debt with equity-like returns[12]. Fixed income portfolio returns are largely driven by three factors: duration, credit and private premiums. While duration and credit premiums can be accessed through traditional fixed income securities, such as government and corporate bonds, private premiums are obtained by investing in private debt, generally not traded daily in public markets. Investors in private markets demand a higher premium for similar levels of risk given infrequent trading and complexity of access. This additional yield is the private debt premium over duration and credit.

[12] The Rise of Private Debt as an Asset Class, by Amin Rajan, Create Research/ICG. Sep. 2015

3. Improves Diversification of MPI's Portfolio

Fixed Income
Allocation to investment grade private debt can improve market and geographic diversification relative to MPI's exposure to Canadian public debt. Private debt can provide access to previously inaccessible issuers (those owned by private equity firms, or in the infrastructure or real estate sectors).

Total Portfolio Diversification
Private debt can provide diversification benefits based on low correlations with traditional assets. The asset class provides uncorrelated absolute returns in all market environments.

The recent high volatility in return seeking asset classes and contraction in the issuance of AAA-rated bonds have increased the search for substitutes and private debt can fill that role. The low correlation of private debt with traditional asset classes is one reason to favor an allocation to this asset class.

Private debt tends to be negatively correlated to equities, enhancing the diversification benefits and reducing the volatility of a balanced portfolio.

Private debt offers a compelling source of risk-adjusted returns. Private premiums tend to be less correlated with traditional public markets and integrating them into a traditional fixed income portfolio can enhance the yield premium across a desired duration profile.

III. Risks Related to Investing in Private Debt

1. Interest rate risk

Similar to publicly traded fixed income, the value of private debt is impacted by changes in interest rates. However, this can be partially managed by matching to liabilities with similar durations.

2. Credit risk

Private debt is not rated. As a result, significant reliance on the manager's internal risk rating is required. The strength of the private manager's internal rating mechanisms and team will be an important consideration when selecting a manager.

Private debt generally has similar credit risk to publicly traded corporate bonds because strong covenants, tight legal documentation and asset guarantees allow the lender to monitor the borrower's financial health and limit the issuance of additional debt, reducing the risk of default or bankruptcy. According to the Canadian Institute of Actuaries Asset Default Provision Study[13], it shows that private debt has similar default risk compared to corporate bonds.

[13] Report on the CIA Survey of C-1 Provisions of Life and Health Insurance Organizations in Canada. 2014 Fiscal Year-End. Westbay Research. Exhibit 2.5c for Term-to-Maturity equal to or greater than 10 years. Mean is shown in the table.

Figure 2: 2014 CIA Asset Default Provision Study – Annual Best Estimate (Basis Points)

Rating Category	Provincial Bonds	Municipal Bonds	Corporate Bonds	Private Debt
AA	4	10	13	12
A	6	13	20	18
BBB	16	32	38	40

3. Liquidity

Private debt is a relatively illiquid asset class because each transaction is unique and not publicly traded. However, pooled funds provide some liquidity.

4. Foreign exchange risk

There is a limited private debt market in Canada, while the U.S. market is the most mature and liquid private debt market in the world. As a result, a significant allocation to U.S. private debt must be considered as part of any well diversified strategy. A manager may be required to hedge the foreign exchange risk.

5. Counterparty risk

As with any fixed income portfolio, counterparty risk is managed through effective diversification by issuer, sector, industry, region, rating, vintage, etc.

6. Benchmark tracking risk

There are very few benchmarks for private debt. Therefore, it is impossible to invest passively and difficult to judge the performance of managers.

IV. Manager Selection

The following investment strategy for private debt is recommended:

1. Credit Rating: Investment Grade
2. Structure: Open ended pooled fund
3. Geography: Global mandate that includes exposure to Canada

Investment Vehicle
An open ended pooled fund is the preferred approach compared to a limited partnership. There are many advantages to using a pooled fund structure.

I. Subscription and redemption process is significantly easier compared to short deadlines and extensive legal documentation associated with a closed-end limited partnership.
II. An open ended structure provides vintage diversification, where credit risk, benchmark yields and credit spreads will be diversified across economic cycles.
III. Larger and more diversified pool of assets once initial money is accepted by pool compared to closed-end limited funds.
IV. Less blind pool risk with established funds

Canadian Private Debt Pooled Funds
There are three pooled fund managers in Canada that MPI's Investment Department is aware of – TD Asset Management (TDAM), Sun Life and CIBC. All three funds are relatively new. Note that there are other private debt managers that are U.S. based that the Investment Department has not gathered information from. This is not a complete sample of all available investment grade private debt managers.

- TDAM started their mid and long-term pooled fund in Q2 2016 and has $833M invested and $541M in remaining commitments for a total of $1.4B in commitments.
- Sun Life's mid-term pooled fund was launched in March 2014 and it has a net asset value (NAV) of $1.5B. Sun Life's long-term pooled fund was launched in April 2016, and has a NAV of $500M.
- CIBC is a newer entrant into the private debt space with a long-term pooled fund that received money from its first investor in early 2018.

Manager Search Consultant Recommended
There are many other private debt managers, which should be reviewed during the manager search. A consultant should be hired to conduct a thorough search of available managers in order to identify the best available manager.

Lack of Data
When selecting a manager, investors should be careful about relying on track record data. The success of a private credit manager is based on its capacity to recover capital invested and to generate returns. There is no reliable benchmark data available. Some popular databases produce track records for the private credit universe but it is difficult to understand individual managers'

key levels for risks taken by simply looking at their absolute returns. The most reliable track record of a manager is the track record of their fully realized funds.

A key consideration for manager selection should be whether the manager has maintained a stable strategy over the long term. This demonstrates the ability to continually source transactions.

Fees
For information Sun Life, TDAM and CIBC have sliding fee scales starting at 0.40% - 0.45%.

Figure 3: Canadian Based Private Debt Pooled Fund Fees

Fee Scale	Sun Life	Fee Scale	TDAM	Fee Scale	CIBC
$0	0.45%	First $20M	0.45%	First $50M	0.40%
$50M	0.42%	Next $80M	0.35%	Next $50M	0.35%
$100M	0.37%	Balance over $100M	0.30%	Thereafter	0.30%
$200M	0.33%				

Geographic Exposure
North America is by far the largest market for private debt, accounting for an average of 63% of the market over the last six years[14]. Europe is the next largest market, accounting for approximately 30% of capital raised to invest in private debt.

The Canadian private debt market is too small to achieve adequate diversification with a significant allocation solely to the Canadian market. As mentioned earlier in the document, annual issuance of private debt[15] was C$8.5 billion in Canada and USD$73 billion in the U.S in 2017.

With respect to the three firms that the Investment Department met with:

- Up to 30% of TDAM's fund can be invested outside of North America.
- Non-Canadian dollar assets are limited to less than 30% of CIBC and Sun Life's fund.

Currency Risk
The funds listed above hedge substantially all currency risk. Sun Life's fund is at least 90% hedged, TDAM's fund is at least 95% hedged and CIBC's fund is 100% currency hedged.

V. Recommendation

MPI management recommends using private debt for the non-Basic portfolios. Private debt can provide yield enhancement over comparable benchmarks[16] of 75 bps or higher. Private debt provides additional diversification and has similar credit risk compared to corporate bonds.

[14] 2018 Preqin Global Private Debt Report
[15] Estimate from TDAM using Bloomberg Finance data
[16] See page 3 in the section on yield enhancements for a list of comparable benchmarks.

Appendix B: Global Equities

Mercer recommended that MPI consider a single global equity mandate to replace the U.S. equity mandate in the 2017 Asset-Liability Management Study. Aon Hewitt also recommended an allocation to global equities during the previous ALM study in 2008. The purpose of this paper is to provide background information on whether changing the current U.S. equity allocation to a global equity mandate would be appropriate for MPI's portfolio.

I. What is Global Equity?

In Aon's previous analysis[17], the MSCI EAFE index and MSCI World index were used for the EAFE and Global equity indices respectively. Both indices consist of equities from developed market countries and have no exposure to emerging market countries.

- The MSCI World index includes all of the countries included in the MSCI EAFE index plus the United States and Canada.[18]
- A more comprehensive index of global equities is the MSCI ACWI index that represents the performance of large and mid-cap stocks across 23 developed and 24 emerging markets.[19]

II. Rationale to Exclude Emerging Markets

Historical return, risk and Sharpe ratios for the MSCI ACWI (which includes emerging markets) and MSCI World (excludes emerging markets) indices are shown in Figure 1.

Figure 1: Impact of Emerging Markets

Index	Annualized Returns (%)			Annualized Std Dev (%)		Sharpe Ratio		
	5 yr	10 Yr	Since Dec 31, 1987	5 yr	10 Yr	5 yr	10 Yr	Since Dec 31, 1987
MSCI ACWI	9.8%	6.2%	7.9%	10.4%	16.7%	0.91	0.41	0.36
MSCI World	10.3%	6.5%	7.9%	10.2%	16.3%	0.97	0.43	0.36

Source: MSCI ACWI Index Factsheet March 2018

MSCI World had better returns over 5 and 10 years with lower risk and a higher sharp ratio compared to MSCI ACWI. Since December 31, 1987, the return and Sharpe ratio was the same, with slightly lower risk.

[17] Aon recommended that MPI consider a single global equity mandate to replace the U.S. and EAFE equity mandates in their July 23, 2008 presentation to the ICWG.

[18] The 24 developed markets in the MSCI World index are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the U.K. and the U.S.

[19] The MSCI ACWI Index includes the MSCI World index (23 developed countries) and 24 emerging markets. The emerging markets are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey and the United Arab Emirates.

According to the Pension Investment Association of Canada (PIAC), the average allocation to Global Equities is 19.9% while Canadian equities have an average allocation of 7.2%. U.S. equities has an allocation of 3.3% and emerging markets have an allocation of 3.0%. Based on this information, Canadian pension plans have significant exposure to global equities and minimal exposure to U.S. and emerging market equities.

Based on historical performance and the potential volatility of investing in emerging countries, it is recommended that MPI does not invest in emerging markets. For the purpose of the rest of this paper, it is assumed that Global equity excludes emerging markets. This is different than Mercer's recommendation for Global equity, which included emerging markets.

III. Why a Global Equity Mandate?

Mercer's recommendation in support of a global mandate was based upon both theory and an analysis of historical returns. The Investment Department conducted further research into Mercer's recommendation for a single global equity mandate and our findings are presented in this section.

The case for global equities over U.S. equities:

1. Improves diversification;
2. Gives the equity manager a larger opportunity set;
3. Better reflects market capitalization as it does not structurally overweight U.S. equities, but rather gives the manager the discretion to over or underweight regions based upon changing valuations;
4. Supported by extensive academic research and long standing best practice within the investment management industry;
5. U.S. companies are not without currency risk as they have indirect currency exposure from revenues earned outside their home country.

The world is not split in two types of firms: "local" and "multi-national". Rather, it is a matter of degree with a seemingly intuitive progressive relationship. The more international a firm, the more it is exposed to international factors.

According to Bruno Solnik[20], it is increasingly difficult to justify a "nationalistic" approach to equity investing for the following reasons:

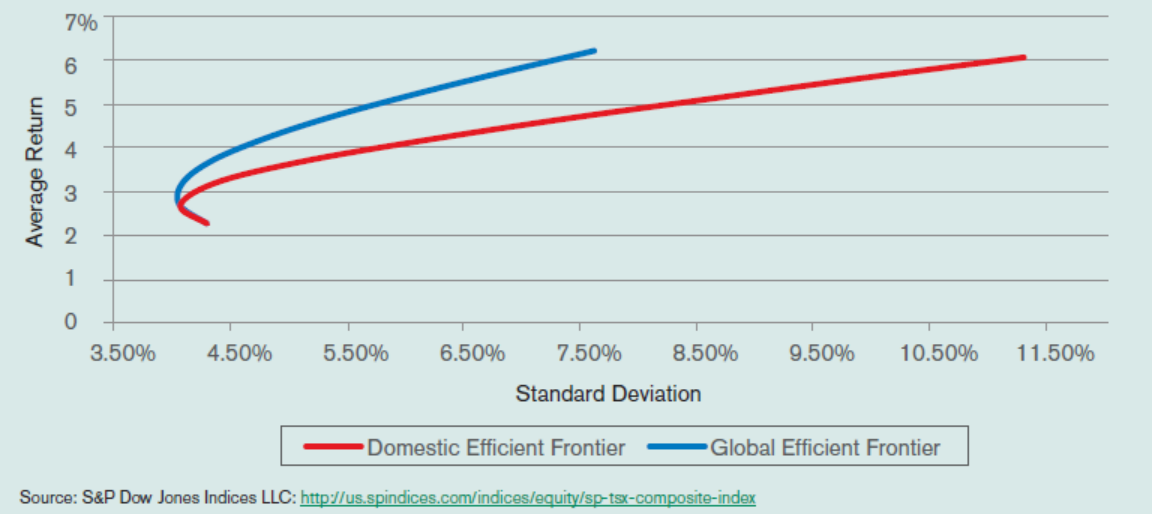
- Global financial markets are integrated;
- Companies pursue global strategies;
- Industries cut across national boundaries;
- Factors that affect stock pricing are global.

[20] The Global Investment Process, Bruno Solnik, February 2002.

One of the important ways for a Global equity manager to add value is to dynamically alter their allocation to the U.S. vs. EAFE nations based upon their view of the various regions. In addition, the manager should view the companies by sector and select the best ones in each sector regardless of where they are located.

More recently, in August 2013, the case for global equities[21] was supported by the fact that global equities expand the efficient frontier beyond the domestic efficient frontier by providing better risk-adjusted returns than the ones available to a domestic-only investor (chart below).

Figure 2: Efficient Frontier for Domestic and Global Equities



IV. Returns, Risk, Risk-Adjusted Returns, and Correlations

The returns, standard deviation and Sharpe ratio for the S&P 500 and the MSCI World index were calculated for the 20 year period ended in March 2018. The table below shows the results of that analysis.

Figure 3: Global vs US Equity Returns

	SPTR Index (USD)	MSCI World (USD)
20 year Returns (Annualized)	6.5%	5.8%
20 year Standard Deviation	14.9%	15.2%
20 year Sharpe Ratio	0.28	0.23

Figure 3 shows the comparison between the MSCI World index and the S&P 500 index (SPTR Index). During the period, the S&P 500 index had a better return, risk and Sharpe ratio returns than the MSCI World index. Therefore, the recommendation to invest in Global equities is not based on historical performance relative to the U.S. equities, but is instead based on theory. By investing in Global equities, it will improve diversification of the existing equity portfolio and reduce correlation to the rest of the portfolio.

[21] The case for Global Equities: Investment Insight, Segal Rogerscasey Canada, August 2013

V. What are others doing?

According to the Pension Investment Association of Canada (PIAC), which represents pension plans with total assets of $1.8 trillion, at December 31, 2016 the average allocation to major equity markets was:

- Global equity: 19.9%
- Canadian equity: 7.2%
- U.S. equity: 3.3%
- Emerging Markets: 3.0%

VI. Currency Risk

Investing in global equities will expose the Corporation to the risks and returns generated from a basket of foreign equities and currencies. This currency exposure can be reduced or eliminated by hedging the portfolio against fluctuating exchange rates. However, doing so that can eliminate the diversification benefits provided by foreign currencies.

Currency hedging of a global equity portfolio does not meaningfully reduce the volatility, given the significant size of the variance of the local return when compared to that of the currency return. While the local return on assets varies substantially depending on market conditions, currency returns exhibit much less volatility. Given that the market volatility associated with investments in equities is relatively large by itself, hedging currency exposures does not necessarily lead to a meaningful reduction in the overall global equity portfolio volatility[22].

Foreign currency exposure moderately increases volatility during some periods and reduces it during others. Depending on the period considered, exchange rates have actually reduced risk. However, over the long term (1990 – 2015), exchange rate volatility does not add significant risk to a global equity portfolio.

VII. Overlap of Canadian equities

Because the MSCI World Index includes Canadian equities there could be some overlap with the holdings of our existing Canadian equity managers. However, the overlap would be minimal as the allocation to Canadian equities within a global manager's portfolio would likely be very small, possibly even zero, given that Canadian equity markets represent approximately 3.6%[23] of the global equity markets. In order to eliminate the possibility of such overlap, the global equity manager could be restricted from having any Canadian exposure, but this would require hiring the manager on a segregated account basis rather than purchasing pooled fund units.

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[22] *To Hedge or Not to Hedge: Currency Hedging and International Investing,* Gerstein Fisher, 2015 and *Currency Hedging over long horizons*, Kenneth A. Froot, National Bureau of Economic Research, 1993
[23] *Global Equities: balancing home bias and diversification*, Vanguard Research, July 2014

VIII. Recommendation

It is recommended that a Global equity allocation replaces the current U.S. equity mandate. This recommendation is supported by extensive academic research and long standing best practice within the investment management industry. Key points:

- Based on historical performance and potential volatility related to investing in emerging countries, it is recommended that MPI does not invest in emerging markets.
- The S&P 500 had better historical performance relative to the MSCI World Index. Therefore, the recommendation to replace the U.S. equity mandate with an international equity mandate is not based on historical performance, but instead is based on theory. By investing in international equities, it will improve diversification of the existing equity portfolio and increase the available opportunity set.
- Exchange rate volatility does not add significant risk to a global equity portfolio.
- Both domestic and U.S. equities are not without risk and have indirect currency exposure that is difficult to measure and hedge.
- The recommendation is supported by what other Canadian institutional funds are doing as the average allocation to Global equities is 19.9%.

Appendix C: Global Low Vol

Background
Equities are a significant source of volatility within MPI's investment portfolio. Equity volatility represents a large source of financial and rate-setting risk to the Corporation. The volatility of the Corporation's equity portfolio was identified as one of the key risks in recent DCAT reports.

Mercer recommended an allocation of 2.5% to Global Low Vol on a consolidated basis in the 2017 ALM study. The ICWG is familiar with low volatility strategies, and has considered adding exposure to low volatility strategies in the past. In 2012 the Investment Department brought forward three papers discussing ways to reduce equity risk within the portfolio, with low volatility strategies as the primary strategy that was considered at that time.[24] Exposure to low volatility was recommended in the U.S. equity strategy discussion paper, which was presented to the ICWG on September 16, 2015.

I. What is Low Volatility?

A large number of studies over the last two decades have shown that over the long term low risk stocks deliver higher returns than high-risk stocks. Put simply, invest in stocks with lower price fluctuations over the long term. This anomaly goes against the long-held financial belief that investors in high volatility stocks will receive additional return to compensate for the additional risk.[25]

Low-volatility strategies (also called minimum volatility strategies) are portfolios that are built to capture this market anomaly. Research[26] conducted on the performance of equity markets found that the typical expectation that high-risk stocks will provide superior returns did not materialize over long time horizons. This market anomaly is in sharp contrast with the assumption that most asset allocation models are built upon.

Low volatility strategies are designed to have less volatility than comparable market capitalization weighted strategies. These strategies are based on historical volatility. Volatility and other risk measures are used to determine the weighting of individual stocks in the portfolio. Managers of low volatility strategies invest in equities on a long-only basis and do not use derivatives.

This market anomaly was discussed in a recent study[27] that analyzed the performance of low and high volatility U.S. stocks from 1968 to 2011. The study documented a market anomaly where high volatility stocks (high deciles) provide inferior returns when compared to low volatility stocks (low deciles), as shown in Figure 1.

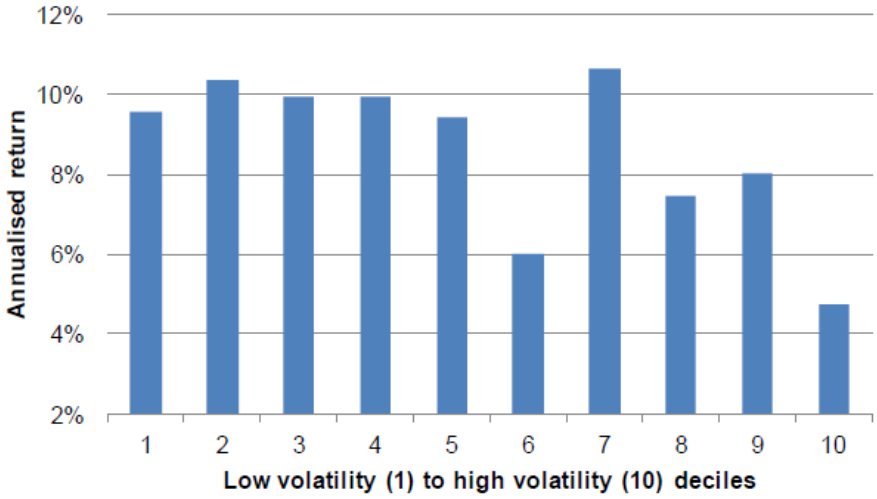
[24] Low Volatility Equity Strategies (ICWG Paper April 2012), Passive Equity Educational Paper (ICWG Paper September 2012), Reducing Equity Volatility (ICWG Paper November 2015)

[25] One explanation for this anomaly is that asset managers purchase high risk stocks because they care about outperforming benchmarks. These managers ignore absolute risk in the hope of outperforming their benchmarks. Managers may also hug the benchmark avoiding low volatility stocks (Baker, Bradley and Wurgler, 2011 and Brennan, Cheng, Li 2012).

[26] Ang, Hodrick, Xing and Zhang research in the U.S. (2006) and internationally (2009), including Canada, demonstrated that riskier stocks underperformed less volatile stocks. Journal of Finance, Vol. 61, No. 1

[27] Cass Consulting, An evaluation of alternative equity indices, March 2013

Figure 1: Performance of Low and High Volatility US Stocks from 1968 to 2011



The objective of low-volatility equity strategies is to outperform the equity market index with less risk than a comparative index portfolio. They seek to provide an asymmetrical risk profile by protecting the portfolio in falling markets, tracking the market index in moderately rising markets while lagging in steeply rising markets. Overall, low volatility strategies seek to simultaneously pursue growth and manage equity risk.

Advantages and Disadvantages of Global Low Vol

Figure 2: Advantages and Disadvantages of Global Low Vol

Low Volatility Strategies	
Advantages	**Disadavantages**
Superior risk-adjusted returns	High tracking error vs. cap weighted indices
Equity downside protection	Underperformance in strong up equity markets
Complementary to traditional equity strategies	

Risk and Return

According to a recent study[28], the comparison of traditional indices (full volatility parent indices) with their low volatility counterparts has shown that low volatility indices had better risk adjusted returns, lower maximum drawdown as well as lower beta than their full volatility parent indices in the U.S. (table below). The better risk-adjusted returns of the low volatility indices relative to their full volatility parent indices was the result of a combination of higher returns and lower annual volatility.

[28] Low volatility equity investing: Structural vs. Statistical, Neuberger and Berman, March 2017

Figure 3: Comparison of US Indices

RETURN & RISK STATISTICS
December 1990 – January 2017

	S&P 500 Index	S&P 500 Low Volatility Index	MSCI USA Index	MSCI USA Minimum Volatility Index
Annual Total Return	10.0%	11.0%	10.1%	10.4%
Annual Volatility	14.2%	10.9%	14.3%	11.2%
Risk-Adjusted	0.70	1.00	0.71	0.93
Beta to Index	1.00	0.58	1.00	0.72
Median 30-Day Return	1.3%	1.2%	1.3%	1.2%
Up-Market Capture	100%	72%	100%	79%
Down-Market Capture	100%	48%	100%	64%
Max Drawdown	-51%	-35%	-51%	-41%

Source: Bloomberg LP.

A recent study[29] assessed the impact of currency hedging when investing in low volatility equity strategies. The study showed that for a Canadian based investor, a 100% currency hedged portfolio invested in the MSCI World Minimum Volatility Index does not improve the Sharpe ratio relative to an unhedged investment in the MSCI World Minimum Volatility Index for a 10 year period ended in June 2015.

The returns, risk-adjusted returns and risk metrics for the MSCI World equity index and the MSCI World Min Vol index were calculated for the 20 year period ended in March 2018. In addition, a blended index based on 65% MSCI World index and 35% MSCI Minimum Volatility index was also determined. The table below shows the results. This blended rate is based on the proposed consolidated target allocations of 4.6% in Global Equities and 2.5% in Global Equity Low Vol.

Figure 4: Benefit of Blended exposure in Global Equities and Global Low Vol

	MSCI World (*)	MSCI Min Vol (*)	65% MSCI World + 35% MSCI Min Vol
20 year Returns (Annualized)	5.8%	4.4%	5.3%
20 year Standard Deviation	15.2%	10.8%	13.4%
20 year Sharpe Ratio	0.23	0.19	0.23

(*) Returns in USD

According to the table above, the blended 65% World, 35% Minimum Volatility had lower returns, lower volatility and the same Sharpe ratio than the standard global equity benchmark index (MSCI World). The low volatility index (MSCI Min Vol) had 29% less volatility than the standard global equity benchmark (MSCI World). This observation aligns with Mercer's Phase 2 report that indicates that a low volatility index will have a return volatility of about 25% less than the standard global equity index.

The table above also indicates that the composite index (65% MSCI World index/35% MSCI Min Vol index) provides diversification benefits as it has the same risk-adjusted returns and lower volatility than the standard global equity index (MSCI World) offsetting some of the MSCI World index volatility.

[29] Minimum Volatility Strategies & Currency Impact, State Street Global Advisors, 2015

Recommendation

Global Low volatility strategies are a good complement to traditional market capitalization weighted equity strategies. This strategy is expected to provide superior risk-adjusted returns, equity downside protection with relatively high tracking error when compared to traditional market capitalization weighted benchmarks. Based upon prior research completed, Mercer's recommendation, and academic research, a low volatility equity strategy is recommended by MPI management to reduce the volatility of the equity portfolio.

Appendix D: Corporate Bonds

June 1, 2017 Board Submission:

"The Corporation has been contemplating the conservative risk profile of its investment portfolio allocated to fixed income securities and specifically the long-term benefits of increasing its allocation to corporate bonds since 2015. AON Hewitt provided their opinion on the level of corporate bonds in MPI's portfolio in Phase 2 of the Asset Liability Management (ALM) study published in December 2014. AON recommended adding a specific allocation to corporate bonds to the asset allocation located in the Investment Policy Statement. AON Hewitt wrote a second report in May 2016 on MPI's exposure to Municipalities, Universities, Schools and Hospitals (MUSH) and Corporate bonds in their Fixed Income Analysis report. AON's recommendations to be neither over nor underweight in this security class were unchanged from their 2014 ALM report."

- SGI and ICBC have 17% and 26% of their total portfolios in corporate bonds, respectively. In that context, the proposed target of 18% is reasonable.
- The average P&C insurance company has a 41% allocation to corporate bonds as a percentage of the total portfolio.
- This 27% total bond portfolio weight in corporate bonds is similar to the FTSE/TMX Long Term Bond Index weight of 23%.

July 27, 2017 Board Submission:

"The rationale to increase the allocation to corporate bonds was presented to the Board on June 1, 2017. In summary, Aon Hewitt was asked to review this issue in the 2015 ALM study and a follow up report in May 2016. Aon's recommendation was that a tactical allocation to corporate bonds can add value.

MPI is currently underweight in corporate bonds relative to the FTSE/TMX Canada Universe Bond index and also relative to SGI & ICBC. An increased allocation to corporate bonds will better diversify the fixed income portfolio and increase the overall yield of the fixed income portfolio."

Appendix E: Internal vs. External Management of Corporate Bonds

Corporate Bonds: External vs. Internal Management

August 8, 2017

External Management

External Management Fees

TD Asset Management quoted a fee of 10 basis points. This is the benchmark for the cost of internal management. On a $500 million portfolio the fee would be $500,000. This is the upper limit for the cost of internal management as a portfolio of less than $500 million would incur a smaller fee. A 5% allocation to corporate bonds would represent $135 million, and a fee of $185,000 (higher than 10 bps due to TDAM's sliding scale).

Local Peers

Of the five largest local pension plans/asset managers in Winnipeg (TRAF, CSSB, HEB, WCB, City of Winnipeg), only one, CSSB, manages fixed income internally. HEB considered managing fixed income internally but was unable to find a qualified manager at a reasonable cost and abandoned the idea. The City of Winnipeg's fixed income portfolio was managed internally until about 2010, but is now managed externally (the current CIO is a former bond manager and therefore has direct knowledge of the pros & cons of managing fixed income assets internally).

Other benefits of external management: the time required to become fully invested is much less than for internal management.

Internal Management

Additional Staff Required

The Investment Department currently has 3.6 FTEs. These staff currently do the following: forecasting investment income (interest rates, equities and other asset classes); monitoring & oversight of external investment managers (performance, risk & compliance); monthly reporting on manager/fund performance and compliance with the terms of the IPS; return calculations; impairment analysis; preparing presentations for the IC; research into various topics as directed by the IC/ICWG/management.; working with external consultants on manager searches, Asset-Liability Management studies, etc.; preparing investment section of the GRA and responding to all investment related questions from the regulator.

It is expected that at least three additional staff would be needed in order to manage corporate bonds internally: 1) portfolio manager, 2) credit analyst, 3) back-office (for operations/ settlement/ reporting). Total compensation (including all benefits) for these individuals would likely be a minimum of $425,000. This would provide minimal back-up and support to the Portfolio Manager during absences and would involve significant "key man" risk. However, it is not clear if the Corporation will be able to compete with private sector employers in order to attract sufficiently talented staff, as was discovered by HEB.

Economies of Scale

The cost to set up the proper facilities to support an internal bond management team is high. Economies of scale are limited with a mandate of $500 million (or less) with respect to bond pricing, access to expertise, and software.

1) **Bond Pricing**: The bond market is an over-the-counter market where prices are largely quoted verbally. As a result the market is very opaque with varying bid-ask spreads. Larger clients generally enjoy preferential pricing and access to new issues. A $500 million account is relatively small in the institutional bond market and therefore MPI's internal bond management team would be unlikely to receive tight bid-ask spreads from bond dealers. This cost is hard to measure and it is indirect (ie: it is not an explicit fee which is clearly communicated to the client).

2) **Expertise Required:** This proposal assumes that MPI would hire two investment professionals to manage its corporate bond portfolio. External fixed income asset managers employ teams of investment professionals, including: economists, strategists, quantitative analysts (Phds), credit analysts, equity analysts, etc. It is highly unlikely that MPI could replicate the depth or breadth of such a team internally. For 10 basis points we can gain access to the entire team, analytics and reporting that an external manager offers.

3) **Software:**
   - An order management system would be necessary to record & report trades. Bloomberg's AIM order management system has an annual fee of USD$205,000, but we could likely start with Bloomberg's Vcon & PORT systems, which are free but require additional manual data entry and reconciliation, etc.
   - Investment accounting system: upgrades to PAM may be necessary. Cost is TBD.
   - Benchmarking: if we decided to use a market based benchmark such as the FTSE/TMX Universe Index licensing fees would be applicable in order to obtain the complete list of all constituents and their weights on a daily basis. Cost is TBD.

Governance

When funds are managed internally there is an inherent conflict of interest between the portfolio manager and the compliance officer responsible for oversight and performance evaluation. If the strategy does not meet performance expectations responsibility must lie with the architects of the strategy (IC/ICWG/investment department, etc) and those responsible for implementation and execution (the portfolio manager). It is much more difficult to replace an internal employee than to replace an external investment management firm.

Performance

Can an internal team at least match the performance of the benchmark? Can they effectively compete with external managers and place in the top two quartiles of investment managers? If not then any fees saved are irrelevant.

Control

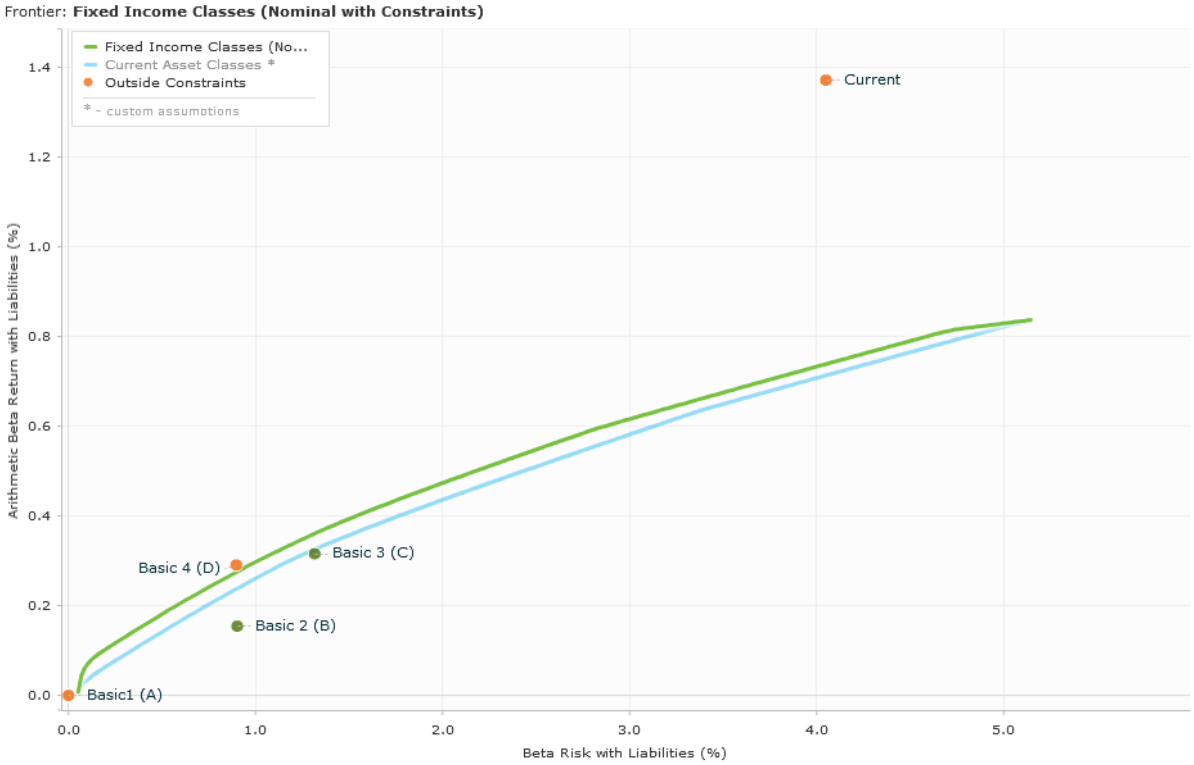
Internal management of fixed income would provide full control of the strategy, which would be beneficial from an Asset-Liability Management perspective.

Time

It will take a significant amount of time to get the necessary systems, data, reporting and people in place.

Appendix F - Efficient Frontiers

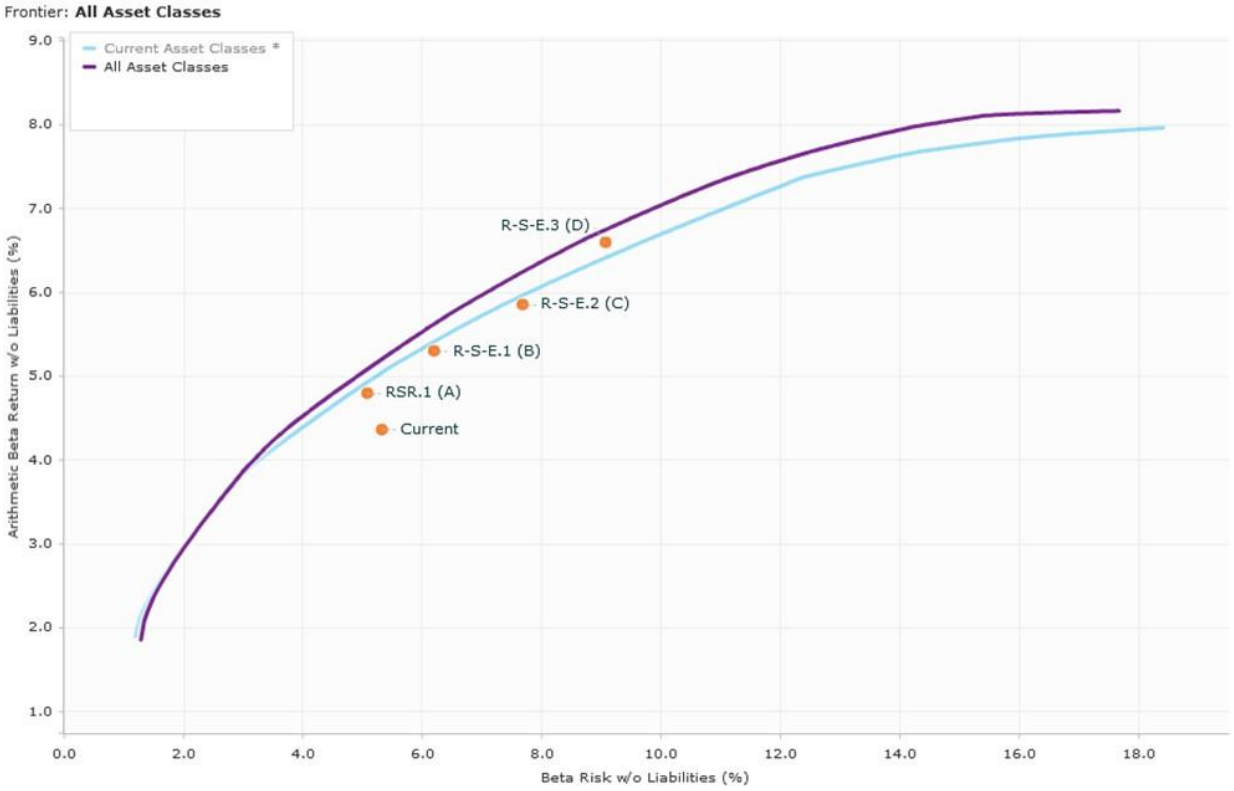
Basic Claims



	Current	Basic.1	Basic.2	Basic.3	Basic.4
	Commingled	Min. Risk Portfolio (No MUSH)	80% Provis, 20% MUSH	60% Provis 20% Corps 20% MUSH	60% Provis 10% Corps 20% MUSH 10% Prv Dbt
Fixed Income	70%	100%	100%	100%	100%
Short-term Bonds (Prov.)	6.5%	28%	0%	0%	0.0%
Mid-term Bonds (Prov.)	12.0%	18%	40%	28%	28%
Long-term Bonds (Prov.)	29.5%	54%	40%	32%	32%
Short-term Bonds (Corp.)	0.0%	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0.0%	0%	0%	9%	0%
Long-term Bonds (Corp.)	2.0%	0%	0%	11%	10%
MUSH Bonds	20.0%	0%	20%	20%	20%
Private Debt - Universe	0%	0%	0%	0%	10%
Public Equities	15%	0%	0%	0%	0%
Alternatives	15%	0%	0%	0%	0%

Recommended portfolio: Basic.3

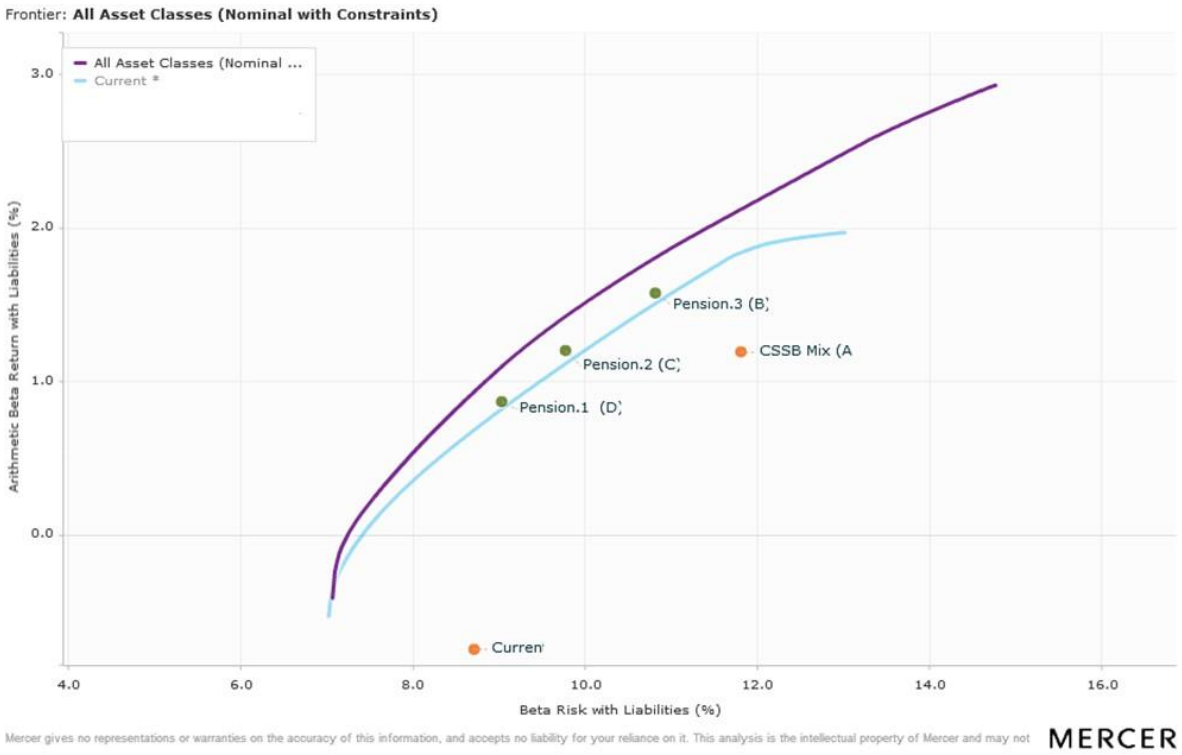
Rate Stabilization Reserve (RSR)



	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
	Commingled	Conservative	Moderate	Balanced	Growth
Fixed Income	70%	60%	50%	40%	30%
Mid-term Bonds (Corp.)	0.0%	10%	10%	10%	5%
Long-term Bonds (Corp.)	2.0%	0%	0%	0%	0%
Short-term Bonds (Prov.)	6.5%	15%	10%	5%	5%
Mid-term Bonds (Prov.)	12.0%	15%	10%	5%	0%
Long-term Bonds (Prov.)	29.5%	0%	0%	0%	0%
MUSH Bonds	20.0%	5%	5%	5%	5%
Private Debt – Universe	0.0%	15%	15%	15%	15%
Public Equities	15.0%	25%	35%	45%	50%
Canadian Equity	10.0%	8%	12%	15%	17%
U.S. Equity	5.0%	0%	0%	0%	0%
Global Equity (Low Volatility)	0.0%	8%	10%	10%	10%
All Country World Equity	0.0%	9%	13%	20%	23%
Alternatives	15.0%	15%	15%	15%	20%
Real Estate	10.0%	10%	10%	10%	10%
Private Equity	0.0%	0%	0%	0%	5%
Infrastructure	5.0%	5%	5%	5%	5%

Recommended portfolio: RSE.1

Employee Future Benefits (primarily Pension)



	Current	CSSB	Pension.1	Pension.2	Pension.3
		For reference	Balanced	Growth	Aggressive
Fixed Income	70%	27%	40%	30%	20%
T-Bills	0%	1%	-	-	-
Mid-term Bonds (Corp.)	2%	-	-	-	-
Long-term Bonds (Corp.)	0%	-	20%	20%	20%
Short-term Bonds (Prov.)	6.5%	-	-	-	-
Mid-term Bonds (Prov.)	12%	-	-	-	-
Long-term Bonds (Prov.)	29.5%	-	-	-	-
MUSH Bonds	20%	-	-	-	-
Private Debt – Long	0%	-	20%	10%	0%
Overall – Universe	0%	17.5%	-	-	-
Overall – Long	0%	8.5%	-	-	-
Public Equities	15%	55%	35%	46%	55%
Canadian Equity	10%	19%	10%	13%	18%
U.S. Equity	5%	15%	-	-	-
EAFE Equity	0%	21%	-	-	-
All-Country World Equity	0%	-	18%	18%	20%
Global Equity (Low Volatility)	0%	-	7%	14%	17%
Alternatives	15%	18%	25%	25%	25%
Private Equity	0%	4%	0%	0%	0%
Real Estate	10%	10%	15%	15%	15%
Infrastructure	5%	4%	10%	10%	10%

Recommended portfolio: Pension.1

Each table above shows the portfolios that were identified on the efficient frontier for the relevant liability, from which the recommended portfolio was selected.

Basic portfolio #3 was selected because it had the highest yield but did not include private debt. Private debt was not included in the Basic Claims portfolio in order to limit risk within the portfolio and because including private debt could complicate the duration matching strategy. A significant allocation to MUSH bonds within the bond portfolio supporting the Basic claims liability was made in order to maximize the yield of the portfolio.

The 50/50 portfolios were selected for Extension, SRE and RSR because they provide a reasonable balance of income and growth asset classes.

The 60/40 portfolio was selected for the Employee Future Benefits portfolio because it provides additional exposure to growth assets and is similar to the portfolio that the CSSB employs in managing the employees portion of the pension.

Rejected Asset Classes:

The following asset classes were rejected from consideration:

1. Real Return Bonds
2. Diversified Growth Funds
3. Leveraged bond funds (RRBs & Provincial bonds)
4. Private equity

These above asset classes were rejected because they were either deemed too risky or the expected returns were too low.

The following asset classes were considered in the study but did not make the efficient frontier:

5. Global bonds
6. High yield bonds
7. Emerging market debt
8. Commercial mortgages

Appendix G – MUSH Principal Balance and Interest

MUSH Bond Portfolio

Fiscal Qtrs	Principal balance before payment	Principal	Interest
2018-Q1	$ 708,665,431	$ 105,017,646	$ 4,874,799
2018-Q2	$ 603,647,785	$ 8,901,144	$ 5,422,521
2018-Q3	$ 594,746,641	$ 15,947,696	$ 8,902,105
2018-Q4	$ 578,798,946	$ 9,558,944	$ 5,912,298
2019-Q1	$ 569,240,002	$ 12,356,043	$ 7,655,624
2019-Q2	$ 556,883,959	$ 8,830,327	$ 4,949,770
2019-Q3	$ 548,053,632	$ 15,542,524	$ 8,065,908
2019-Q4	$ 532,511,108	$ 9,706,439	$ 5,384,396
2020-Q1	$ 522,804,670	$ 12,565,730	$ 7,041,866
2020-Q2	$ 510,238,939	$ 8,990,843	$ 4,484,546
2020-Q3	$ 501,248,096	$ 15,094,152	$ 7,259,416
2020-Q4	$ 486,153,944	$ 9,175,358	$ 4,882,736
2021-Q1	$ 476,978,585	$ 12,741,661	$ 6,420,506
2021-Q2	$ 464,236,925	$ 8,713,077	$ 4,012,835
2021-Q3	$ 455,523,848	$ 14,717,704	$ 6,494,458
2021-Q4	$ 440,806,144	$ 9,550,448	$ 4,427,997
2022-Q1	$ 431,255,695	$ 12,477,531	$ 5,797,330
2022-Q2	$ 418,778,164	$ 8,507,846	$ 3,567,327
2022-Q3	$ 410,270,318	$ 14,220,021	$ 5,766,998
2022-Q4	$ 396,050,297	$ 9,840,888	$ 3,955,850
2023-Q1	$ 386,209,409	$ 11,941,065	$ 5,202,002
2023-Q2	$ 374,268,344	$ 8,357,241	$ 3,143,538
2023-Q3	$ 365,911,103	$ 14,482,288	$ 5,085,797
2023-Q4	$ 351,428,815	$ 10,294,074	$ 3,466,306
2024-Q4	$ 307,612,628	$ 10,405,669	$ 2,954,197
2025-Q4	$ 264,092,696	$ 9,468,082	$ 2,440,651
2026-Q4	$ 221,996,302	$ 8,666,598	$ 1,987,065
2027-Q4	$ 183,749,059	$ 7,353,580	$ 1,573,502
2028-Q4	$ 149,018,679	$ 6,674,435	$ 1,221,637
2029-Q4	$ 115,759,894	$ 6,054,229	$ 905,789
2030-Q4	$ 85,201,714	$ 4,117,320	$ 631,001
2031-Q4	$ 58,842,083	$ 2,559,358	$ 460,904
2032-Q4	$ 37,778,562	$ 2,351,518	$ 362,052
2033-Q4	$ 21,505,033	$ 2,225,109	$ 272,012
2034-Q4	$ 9,293,662	$ 2,310,310	$ 186,811
2035-Q4	$ 2,579,792	$ 2,005,485	$ 98,341
2036-Q4	$ 512,592	$ 405,643	$ 21,226
2037-Q4	$ 106,948	$ 106,948	$ 4,309
Total	$ 0	$ 708,665,431	$ 203,797,204

Appendix H – Custodial Fee Schedule

RBC Investor Services Custodial Charges
For the Province of Manitoba/MPI
Effective December 1, 2005

Transaction Charges
Transaction fees are calculated and collected monthly.
A transaction is defined as a security received, delivered, substituted or matured, free or against payment, book based or physical for one CUSIP.

	STP* Transaction	Non STP Transaction
Canadian Transactions	CAD 8.00 per transaction (Book-based & Physical)	CAD 15.00 per transaction (Book-based & Physical)
US Transactions	CAD 20.00 per transaction (Book-based)	CAD 25.00 per transaction (Book-based)
Euroclear Transactions	CAD 45.00 per transaction (Book-based)	CAD 55.00 per transaction (Book-based)
Cancellation	CAD 5.00 per transaction	CAD 5.00 per transaction

Safekeeping Fees
Calculated on the daily average market value of equities and par value of debt instruments (including money market) and collected monthly on the following basis:

Portfolio Holdings	0.25 basis point

Where market values are not available, a charge of CAD $10.00 per CUSIP per month will apply.

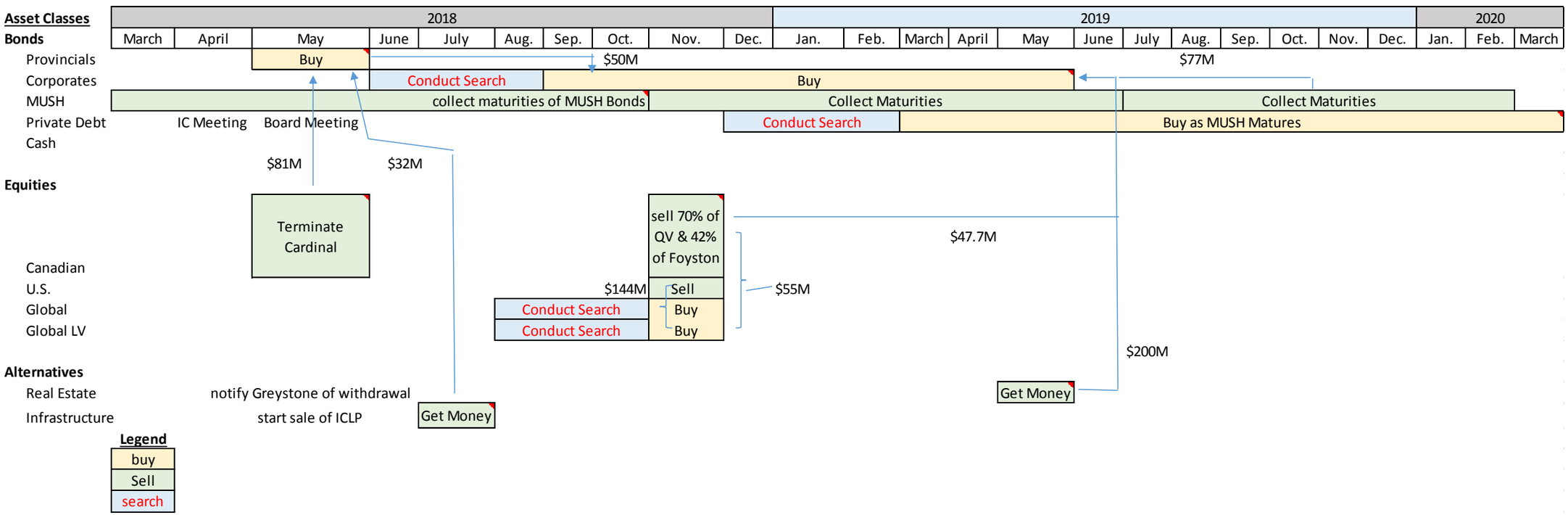
*Straight through processing

Appendix I – Gantt Chart

The chart below sets out the various steps in the implementation plan and the approximate timing of each.

The following steps are inter-dependent:

1. U.S. equities cannot be sold until the global equity search is complete.
2. Canadian equities cannot be sold until the searches for a global equity manager and a corporate bond manager are complete.
3. Corporate bonds cannot be fully funded until money is withdrawn from the Greystone Real Estate Fund (GREF).
4. Private debt cannot be fully funded until sufficient interest and principle payments are collected from the MUSH bond portfolio.



Appendix 17: ALM TECHNICAL CONFERENCE RESPONSES

Following the ALM Technical Conference, the Public Utilities Board prepared a list of 32 requests for additional information. These requests, and MPI's responses (in italics) are provided below.

MPI Technical Conference ALM March 14, 2018

List of Requests

1. MPI to provide additional detail where possible on the discussions that took place between MPI and Mercer to get a sense of the different alternatives. [T22-23]

Mercer provided efficient frontiers that identified optimal portfolios by starting with our current asset classes only and added new asset classes incrementally. Various points were identified on the efficient frontier, including the current portfolio, portfolios with the same risk as the current portfolio, and same return as the current portfolio. Various risk stats were provided for each portfolio, including: expected 10 year return, anticipated surplus, volatility, information ratio, duration and hedge ratio, as well as the asset allocation. This occurred in late October 2017. [See Attachment A: Basic Efficient Frontiers – Forward Curve, pg. 13]

It was determined that the risk tolerance of MPI's Board of Directors for the assets backing the Basic claims liabilities was very low and that mitigating risk was more important that maximizing returns. The focus was on further reducing interest rate risk, with a willingness to take on modest credit risk (as long as it is diversified and cost effective).

Based on this risk tolerance, it was determined that the best way to mitigate the interest rate risk associated with the Basic claims liability was to develop an investment portfolio with 100% fixed income assets (i.e. no growth assets) and dollar and duration matching those assets to the claims liabilities.

Several portfolio options were presented, including the minimum risk portfolio (MRP), a portfolio with mostly Provincial bonds, a portfolio adding corporate bonds and a portfolio adding private debt. See Attachment B: ALM Phase 2 Summary Report, pg. 20. Ultimately, management recommended the portfolio with Provincial, corporate & MUSH bonds.

2. MPI to provide additional detail on "initial" findings made by Mercer, as well as "final" findings made by Mercer, including [T18, 134, 135]:

a) MPI to provide the independent set of capital market assumptions (correlation matrix, expected returns to the nearest basis point, volatility, initial interest rate forecast) – set of capital market assumptions for all asset classes that were considered. [T130]

Attachment C contains a detailed explanation of the methodology that Mercer uses to develop its capital market assumptions. This material is commercially sensitive and is the subject of a motion for confidential treatment. This document includes projected returns based upon Mercer's standard interest rate forecast (see Appendix B to Mercer's Phase Two Report for returns based upon the forward curve). See Attachment D for a complete correlation matrix including inflation and minimum risk portfolios.

i. Also, if possible, how these would have changed from the start of the project to the final ones that were actually used in optimization. [T23]

The only change was to the interest rate forecast, which is explained in the response to question #4.

b) Min/Max Asset Allocation constraints and other constraints: A brief rationale for each minimum and each maximum constraint would minimize questions in future information requests. (e.g., 0% minimum for all asset classes to prohibit "shorting" or selling securities that are not owned) [T93]

There were no caps on Canadian equity or other foreign equity.

MUSH bonds had a minimum weight of 10% because there is no active secondary market for them. Therefore, liquidating these

bonds is not an option (reductions are achieved through maturities). As a group MUSH bonds, private debt and commercial mortgages had a maximum weight of 25% of the total portfolio due to the illiquid nature of these asset classes. Real estate, infrastructure, private equity and growth fixed income was not allowed to exceed the allocation to equities in order to limit the allocation to illiquid asset classes.

See *Attachment A: Basic Efficient Frontiers – Forward Curve, pg. 8*

c) Liability Benchmark Portfolio composition: Minimum Risk Portfolios are requested for all lines of business where optimizations were performed (e.g., Basic, Pensions, etc.), and all sets of assumptions (e.g., MRP including RRBs, and excluding RRBs) [T131]

The Minimum Risk Portfolios are shown in the figure below:

Figure 1: Minimum Risk Portfolios

Line No.	Asset Classes	Basic (Nominal)	Basic (Real)	Pension (Nominal)	Pension (Real)
1	**Treasury Bills**		26.0%	-17.0%	-11.0%
2	**Short-Term Provincial Bonds**	28.0%	8.0%		
3	**Mid-Term Provincial Bonds**	18.0%			
4	**Long-Term Provincial Bonds**	54.0%			30.0%
5	**Long-Term Corporate Bonds**			117.0%	
6	**Real Return Bonds**		66.0%		81.0%

d) Asset Allocations (e.g. along Efficient Frontiers, Alternatives) [T70, 88, 89, 90, 104]

See the response to question 1.

3. MPI to provide what the inflation volatility assumption assumed in the model is. [T25-27]

The inflation volatility assumption was 2.6%.

4. MPI to provide Mercer's standard forecast vs. the implied forward rates used. [T28]

Mercer's interest rate forecasts are shown below.

Figure 2: Mercer Interest Rate Forecast – Standard

Line No.	Year	Federal T-Bills	Short Term	Mid Term	Long Term	Overall RRB
1	**0**	0.76%	1.42%	1.87%	2.25%	0.60%
2	**1**	1.80%	1.58%	2.04%	2.34%	0.65%
3	**2**	1.08%	1.59%	2.11%	2.36%	0.66%
4	**3**	1.24%	1.79%	2.24%	2.40%	0.68%
5	**4**	1.41%	1.96%	2.42%	2.59%	0.79%
6	**5**	1.58%	2.13%	2.60%	2.78%	0.90%
7	**6**	1.75%	2.30%	2.78%	2.97%	1.01%
8	**7**	1.91%	2.47%	2.96%	3.16%	1.11%
9	**8**	2.08%	2.64%	3.14%	3.35%	1.22%
10	**9**	2.25%	2.81%	3.32%	3.54%	1.33%
11	**10**	2.41%	2.98%	3.50%	3.73%	1.44%

Figure 3: Mercer Interest Rate Forecast – Forward Curve

Line No.	Year	Federal T-Bills	Short Term	Mid Term	Long Term	Overall RRB
1	**0**	0.76%	1.42%	1.87%	2.25%	0.60%
2	**1**	0.99%	1.56%	1.96%	2.29%	0.60%
3	**2**	1.18%	1.67%	2.04%	2.32%	0.59%
4	**3**	1.34%	1.77%	2.11%	2.35%	0.59%
5	**4**	1.47%	1.86%	2.17%	2.38%	0.59%
6	**5**	1.56%	1.93%	2.23%	2.41%	0.58%
7	**6**	1.63%	1.99%	2.28%	2.43%	0.58%
8	**7**	1.68%	2.03%	2.32%	2.46%	0.58%
9	**8**	1.72%	2.07%	2.36%	2.48%	0.58%
10	**9**	1.75%	2.11%	2.40%	2.50%	0.57%
11	**10**	1.77%	2.13%	2.43%	2.52%	0.57%

5. MPI to review materials that were provided to them in order to determine the portfolio that came out of the initial interest rate forecast (potentially provide this at a later date). [T28]

The portfolios based upon Mercer's standard interest rate forecast had 66% to 78% bond allocations with durations of 4.4 to 7.1 years; these portfolios had relatively low hedge ratios (43% to 69%). See Attachment E: Basic Efficient Frontiers – Std Curve, pg. 13

The portfolios based upon the forward curve all had durations of 10.3 years and 100% hedge ratios. See Attachment A: Basic Efficient Frontiers – Forward Curve, pg. 13.

6. MPI to provide the calculations to show how the 3 items roll up to get to the 89/11 percent point fixed income allocation (the dollar amounts and show how the total is arrived at). [T33-34]

The financial model estimated a total growth allocation of 7.6% for the Basic line of business, which excludes the pension portfolio. This was calculated by multiplying the total value of the Basic Claims portfolio and the RSR portfolio by their respective asset allocations, summing and calculating the combined weights for each asset class. Our financial model projects balances of $1,851 million in the Basic Claims portfolio and $330 million in RSR portfolio at February 28, 2019. The asset allocation for Basic Claims portfolio is 100% fixed income. For RSR the asset allocation is 50% fixed income, 35% equities and 15 % alternative assets. The math is as follows: (50% x $330) / (1,851 + 330) = 7.6%*

**Pension assets are not included in the Basic line of business for financial reporting purposes.*

7. MPI to review the Mercer material and determine what can be shared in regards to the pensions and the particular trade-offs leading to the 40/60 and elaborate on what considerations lead to that.

a) MPI to confirm if the kind of review of the universe of pension plans and their allocations is something MPI has readily available. [T34]

A formal review of the asset allocations of the complete universe of Canadian pension plans was not completed. Instead Mercer provided general advice that Canadian pension plans employ a wide range of asset allocations. There is no universally correct asset allocation. This decision is based upon a number of factors, including whether the plan is open or closed, the funded status of the plan, the ratio of retirees to working members, the stability of the plan sponsor, and other factors.

Harry Markowitz, the pioneer of Modern Portfolio Theory, conducted research into asset allocation and recommended a 60/40 split between growth assets and fixed income assets, which was taken into consideration. This was the most common asset allocation for pension plans for many years. Also taken into consideration was the asset allocation of the Civil Service Superannuation Board (CSSB),

which is approximately 70/30. The CSSB manages the employees' portion of the pension assets and is a viable option to manage the employer's portion of the pension assets.

8. MPI to provide at a future date terms and description of the methodology by which Mercer estimated the initial interest rate forecast and the implied forecast rate. [T51]

See the response to Question 1a.

9. MPI to provide more information and detail on minimum and practical constrained with examples of each that were used in the modelling (in the future in the GRA or IRs). [T100]

Practical and reasonable modelling approaches and constraints are necessary. Mercer recommendations on modelling were as follows:

I. U.S./EAFE/Emerging Markets Equity should be bundled into a single MSCI All Country World Index (ACWI) equity mandate

Rationale: A single ACWI mandate provides greater mandate efficiency and affordability; expands equities to include Emerging Markets Equity; allows the manager to select best in class stocks without artificial geographic boundaries.

II. Global Bonds/High Yield Bonds/Emerging Market Debt (one-third each), bundled together and referred to as Growth Fixed Income.

Rationale: Diversified package of liquid bonds which diversifies return and risk sources; allows the manager to tactically re-align the exposures to capitalize on market trends.

III. MUSH Bonds/Private Debt/Commercial Mortgages (referred to as Illiquid Debt) limited to 25% of the total portfolio.

Rationale: Need to diversify sources of return; avoid over-reliance on illiquid credit risk.

IV. Real Estate/Infrastructure/Private Equity as a group not exceed the allocation to public equities.

Rationale: Need to diversify sources of return; avoid over-reliance on illiquid assets; allow some flexibility in implementation).

Other constraints:

i. MUSH Bonds minimum allocation of 10% of total portfolio to recognize the illiquid nature of this asset class and to plan for an orderly wind down of the position.

ii. Private Equity maximum allocation of 10% of total portfolio to control risk.

10. MPI to contact Mercer to determine if their RFP response is confidential and if MPI is able to release it (RFP describes model in some detail). [T105]

Mercer's response to the Corporation's RFP is commercially sensitive and is the subject of a motion for confidential treatment.

11. MPI to review the working papers received from Mercer that provided the various efficient frontiers and determine what they are able to release that might be helpful in the understanding of the process. [T105]

See Attachment B: "ALM Phase2 Summary Report" pages 52 – 57 for efficient frontiers.

12. MPI to review documents and determine what would be helpful to provide (i.e. any other Mercer reports, presentations by Mercer to MPI working group / Board / Investment Committee, Aon report – if similar detail could be provided as Aon did – significant modelling appendices with Aon, Mercer would have had to have done similar work as in the Aon appendices for Mercer to provide their recommendations). [T22, 106, 109, 110]

See Attachments A & B.

13. MPI to provide a list of what documents have been chosen not to be provided with explanation or basis for each not being provided.[T107]

The document from the Kick-Off meeting has not been provided as this was used by Mercer to gather information. This document formed the basis of the Phase One Report. Final versions of all other documents have been provided.

14. MPI to provide an index of what documents could not be provided with Mercer's concerns, if any, for each as support for the document not being provided. [T107, 109]

Mercer raised no concerns about providing any documents, other than their Capital Markets Assumptions and their response to our RFP, both of which will be provided on a confidential basis.

15. MPI to provide a detailed table of forecast assumptions for the major asset classes relative to Mercer. [T114-115]

Figure 4: MPI 2019 GRA Return Assumption 2019/20 to 2022/23 versus Mercer 10 Year Return Assumption

Line No.	Asset Class	MPI 2019 GRA Assumption	Mercer 10 Year Return	Difference
1	***1. Cash****	1.2%	1.4%	-0.2%
2	**2A. Provincial (50% Short, 50% Mid-Term)***	2.3%	2.6%	-0.3%
3	**2B. Provincial (Long-Term)***	2.9%	3.0%	-0.1%
4	**2C. Corporate (Mid-Term)***	3.0%	3.5%	-0.5%
5	**2D. Corporate (Long-Term)***	3.9%	3.8%	0.1%
6	**3. MUSH****	4.4%	3.0%	1.4%
7	**4. Private Debt - Long*****	5.3%	3.5%	1.8%
8	**5. Canadian Equity**	7.0%	6.7%	0.3%
9	**6. Global Equity**	7.0%	6.7%	0.3%
10	**7. Global Low Volatility**	6.4%	6.1%	0.3%
11	**8. Real Estate**	6.0%	5.4%	0.6%
12	**9. Infrastructure**	7.0%	6.2%	0.8%
13				
14	* MPI assumption for cash and marketable bonds is with a naïve forecast, Mercer's assumption uses forward rates (see Appendix B - ALM Phase 2 Report)			
15	** MPI assumption for MUSH is based on book yield, Mercer uses the market value.			
16	*** MPI assumption for private debt will need to be revisited for next year's rate application as more information is gathered on the new asset class			

16. MPI to confirm and provide after the hearing if a floor was used in the modelling of interest rate risk decline risks in the Mercer analysis. [T115]

No floor was used in the modelling of interest rates in the Mercer analysis.

17. MPI to review working papers and models that Mercer provided and determine what can be made available (specifically in regards to risk stats - calculating the median surplus, probability of surplus, and probability of a positive real return all over 5 years – and if MPI would be reporting on these broader results). [T122-123]

See Attachments A & B.

18. MPI to contact Mercer to confirm if any additional information can be provided in regards to Appendix B (i.e. nothing shown currently about how forecast of expected values might be changed through the forecast period, how to measure volatility around those forecasted levels, etc.) [T128]

See Attachment B: "ALM Phase 2 Summary Report", pgs. 22 & 23.

19. MPI to obtain and provide interest rate forecasts, both for standard and implied forward rates. [T129]

See the response to Question 4.

20. MPI to confirm understanding of total returns (and provide detailed information in the future if statement is not correct) [T129-130]:

a) "these are the returns for the outlook period and that, you know, the standard deviation tells you about the volatility of those returns and in their forecasting, they would use those two (2) pieces of information to -- to develop a normal curve for each. So, I'll conf -- I'll reach out to them to confirm that understanding and if it's incorrect we'll provide that information in the future."

Mercer forecasts total returns.

21. MPI to provide from the correlation matrix, the correlation of inflation and the model with respect to each asset class. (i.e. appendix has asset class correlations, but does not have a line item or column in the matrix for inflation) [T130-131]

See the response to Question 2a.

22. MPI to review materials to see if information/details can be provided, specifically in regards to better understanding of the ALM process, identification and selection of options based on investment committee and Board's risk appetite, etc. [T135-136]

Private debt was excluded from the Basic Claims portfolio as it was deemed to be incompatible with the Investment Committee's low appetite for risk for the Basic Claims portfolio. Similarly, leveraged bond funds and diversified growth funds (DGF) were excluded from consideration from all portfolios.

23. MPI to provide more information on how return expectations were derived and in more decimal points (i.e. in terms of expected return assumptions for Canadian, US, and global equity, it would be helpful to know if the assumptions were identical – 6.7 vs. 6.71 can result in differences for modelling purposes). [T188]

See the response to Question 2a for how return expectations were derived, and Appendix C for the Capital Market Assumptions. Mercer does not forecast returns beyond one decimal point.

24. MPI to confirm if there were any caps on the Canadian equity, or the other foreign equity that were binding. [T93]

See the response to Question 2b.

25. MPI to review working papers and see if information can be made available in regards to the results for the value at risk for the 90, 95, and 97.5 percentiles. [T97]

This information is included in Appendix B: "ALM Phase2 Summary Report" on page 21.

26. MPI to provide some of the other metrics and insight into what role the metrics played as compared to the deliberative process (CAC requested and stated this might be something to explore at a later date). [T97]

The following metrics were provide by Mercer:

- *Expected Return*
- *Excess return over liability benchmark*
- *1 year Surplus volatility*
- *Excess return/surplus volatility*
- *1 year median surplus*
- *1 year 90th percentile VaR*
- *1 year 95th percentile VaR*
- *1 year 97.5th percentile VaR*
- *Interest rate risk hedge ratio*
- *Median surplus in 5 years*
- *Probability of surplus in 5 years*
- *Probability of 5 year positive real return*
- *Non-MUSH yield*

The metrics informed the selection of the preferred portfolio as they quantified the risk and reward of each portfolio that was identified on the efficient frontier. The metrics also facilitated comparison with the current portfolio.

See: "Appendix B: ALM Phase2 Summary Report", pg. 21 for the specific metrics for the various portfolios considered for the Basic Claims portfolio.

27. MPI to reach out to Mercer to ask about the possibility of revising the table to show each of the liability benchmark or the minimum risk portfolio for Basic and pension, nominal and real, included in the correlation matrix with the other asset classes. [T132]

See the response to Question 2a.

28. MPI to provide a more detailed allocation for each portfolio. [T137]

MPI sought further detail and clarification from the PUB on May 17th, 2018, and received the following reply on May 29th.

"if MPI can provide the results of the modelling by asset classes of what was tested, including alternative portfolio compositions, that should be sufficient"

Based on that clarification, MPI believes this request has been answered in response to question 1 and question 5.

29. MPI to confirm the statement made during the conference [T40-41]:

a) "And I believe -- I'll have to check, but I believe it's 10 percent for the RSR, and 15 percent for pension. So it rolls up to -- again, I –I have to check, but it's -- it's zero for the Basic claims' liability, and 10 to 15 percent for the other portfolios."

Private debt has the following allocations:

- *15% for Extension, SRE & RSR*
- *20% for Employee Future Benefits (Pension)*

30. MPI to confirm if any constraints were given to Mercer in the modelling, or if it was left open for the model to determine what was optimal. [T171-172]

See response to Question 2b.

31. MPI to report at the GRA in regards to looking at showing Basic consolidated, taking into account Basic liabilities, the RSR, and the allocation to pensions. [T70-71]

This information will be included in the General Rate Application in Part VI Investments.

32. MPI to provide a discussion regarding the implications of the ALM study on the Dynamic Capital Adequacy Testing (DCAT) Report. [T57, 64, 208, 209]

The Corporation's base forecast (before rate changes or capital maintenance fees) in the 2019 General Rate Application and the Dynamic Capital Adequacy Testing report includes the assumed implementation of the new Asset and Liability Management (ALM) program.

As discussed in Rate Stabilization Reserve (RSR) section of the 2019 GRA, the implementation of the ALM program reduces the required capital under both the DCAT analysis and the Minimum Capital Test. In the 2017 DCAT (2018 GRA), the Corporation indicated that it required a lower RSR target of $201 million or 37% MCT and an upper RSR target of $438 million or 100% MCT. Using the same methodology as the 2018 GRA, in the 2018 DCAT (2019 GRA) the Corporation determined that it requires a lower RSR target of $143 million or 34% MCT and an upper target of $370 million or 103% MCT.

However, the Corporation has agreed with the PUB (Order 130/17) that it is reasonable to calculate the range of the RSR based on a 2 year scenario, 1-in-40 scenario rather than a 3 year, 1-in-40 scenario. As a result, the Corporation determined that it requires an upper RSR target of $305 million or 85% MCT. For more information, see the RSR section of the 2019 GRA.

Attachments

MPI has provided the following attachments, with reference to the specific request for more information

A. Basic Efficient Frontiers – Forward Curve (Q1, 2b & 5)

B. ALM Phase 2 Summary Report (Q1, 11, 18, 25 & 26)

C. Mercer's capital market assumptions (Q2a)

D. Correlation matrix (Q2a)

E. Basic Efficient Frontiers – Std Curve (Q5)

HEALTH WEALTH CAREER

Not Peer Reviewed

DRAFT

ASSET LIABILITY STUDY

PRELIMINARY EFFICIENT FRONTIER ANALYSIS FOR BASIC INSURANCE COMPONENT

ASSUMPTIONS BASED ON FORWARD YIELD CURVE

Manitoba Public Insurance

NOVEMBER 8, 2017

Angelo DiNoto
Pawel Piesowicz
Dave Makarchuk

TODAY'S MEETING AGENDA

- Summary of discussions to date:
  - Proposed asset classes
  - Proposed constraints
- Review results of the efficient frontier analysis
- Key goals:
  - Generate discussion on the direction of potential asset mix changes
  - Confirm range of asset mixes to include in the analysis
  - Possibly identify 4 to 5 strategic target asset mixes for further analysis
- Discussion and next steps
- Appendix
  - Capital Market Assumptions

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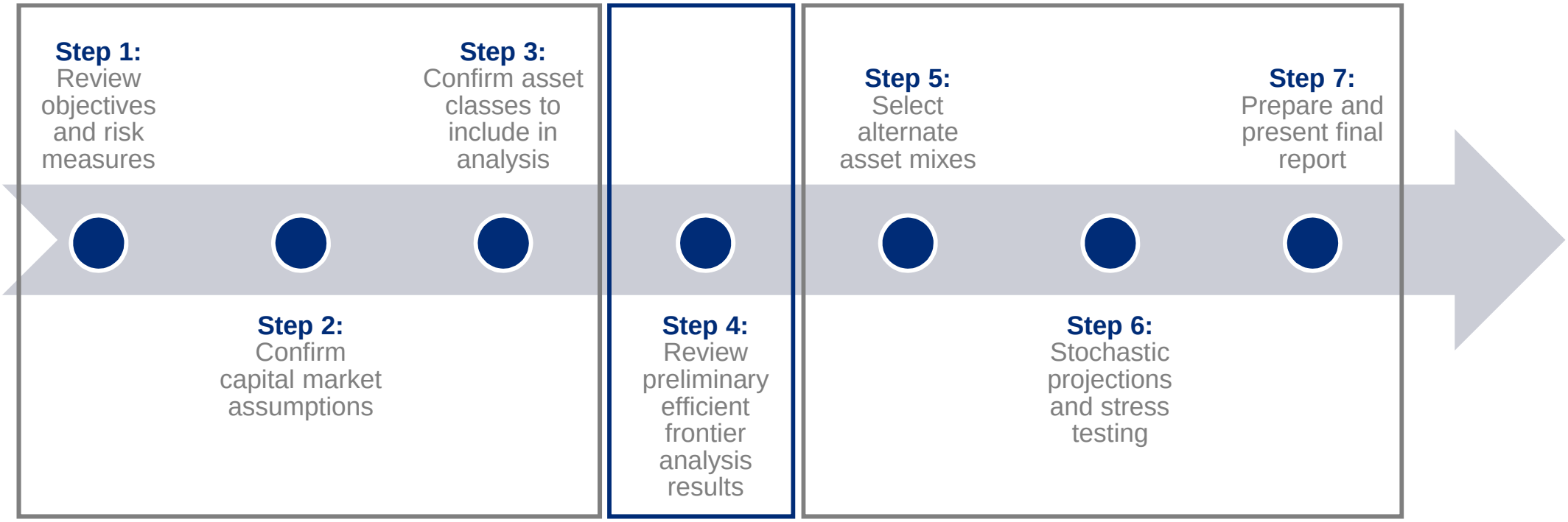
ASSET LIABILITY STUDIES PROCESS



Kick-Off Meeting
Risk metrics
Asset classes to include in analysis
Capital market assumptions
(Oct. 13th Meeting)

Preliminary Analysis
Efficient Frontiers
(Today)

Final Analysis (By Nov. 30th)

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SUMMARY OF DISCUSSIONS TO DATE
ASSET CLASSES



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ASSET CLASSES CONSIDERED
BASIC, EXTENSION, SRE, RSR, PENSION

	Return Seeking	Inflation Sensitive	Interest Rate Sensitive
Broad Markets	**Canadian Equity** US Equity **EAFE Equity**	Real Return Bonds 3x Real Return Bonds	Cash MUSH Bonds Provincial Bonds Federal Bonds Canadian Corporate Bonds 3X Long Provincial Bonds
Other Markets	Emerging Markets Equity Global Low Volatility Equity		Global Bonds High Yield Bonds Emerging Market Debt
Alternative Investments	Private Equity Diversified Growth Fund	Infrastructure – Direct Global Real Estate - Direct Cdn	Private Debt – Universe Private Debt – Long Commercial Mortgages Long Comm. Mortgages

Asset Class descriptions along with pros/cons are in the Appendix.

Asset classes already included in the target asset mix

Additional asset classes included in the analysis as suggested by Mercer (approved by MPI Investment Committee)

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ASSET CLASSES TO CONSIDER CONSTRAINTS

- Practical and reasonable modelling approaches and constraints are necessary. Mercer recommendations on modelling are as follows:

  ü U.S./EAFE/Emerging Markets Equity should be bundled into a single ACWI[1] equity mandate
  - Single ACWI mandate provides greater mandate efficiency, affordability
  - Expands equities to include Emerging Markets Equity (note: Samsung is an example)
  - Allows the manager to select best in class stocks without artificial geographic boundaries (i.e., attaching a multinational company to a single country)

  ü Global Bonds/High Yield Bonds/Emerging Market Debt (one-third each), hereafter referred to as Growth Fixed Income
  - Diversified package of liquid bonds which diversifies return and risk sources of the Growth Portfolio

ACWI is All Country World Index. MSCI ACWI is currently about 52% US, 32% EAFE, 12% Emerging Markets Equity

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ASSET CLASSES TO CONSIDER
MINIMALLY CONSTRAINED APPROACH - PARAMETERS

Current

Asset Class	Single	Group
MUSH Bonds	Max. 25% of total portfolio	
Real Estate and Infrastructure		Not exceed 50% of U.S. Equity, Real Estate, Infrastructure

Proposed by Mercer

Asset Class	Single	Group
MUSH Bonds Private Debt Commercial Mortgages	Min. 10% of total portfolio	Max. 25% of total portfolio
Real Estate Infrastructure Private Equity Growth Fixed Income		Not exceed Equity portfolio

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PRELIMINARY ANALYSIS
EFFICIENT FRONTIERS
BASIC INSURANCE – NOMINAL LIABILITY BENCHMARK



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EFFICIENT FRONTIERS
OVERVIEW

- Characteristics of the efficient frontier tool:
  - One year time horizon
  - Incorporates liabilities through use of a “liability benchmark”
  - Uses optimization techniques to determine asset mixes with optimal risk/return characteristics
  - Flexible tool that can be used to quickly consider many asset mixes
  - Outputs include expected returns and surplus volatility
- Useful for identifying portfolios that:
  - Minimize surplus volatility for a specified level of expected growth; or
  - Maximize expected growth for a specified level of surplus volatility

Note:

- Surplus volatility (i.e., standard deviation) is a measure of the expected volatility of financial position and is expressed on an annualized basis as a percentage of assets
- Surplus volatility of 10% means that there is, roughly, a 1 in 6 chance that the financial position will be:
  - Worse than expected by more than 10% of the starting asset value
  - Better than expected by more than 10% of the starting asset value

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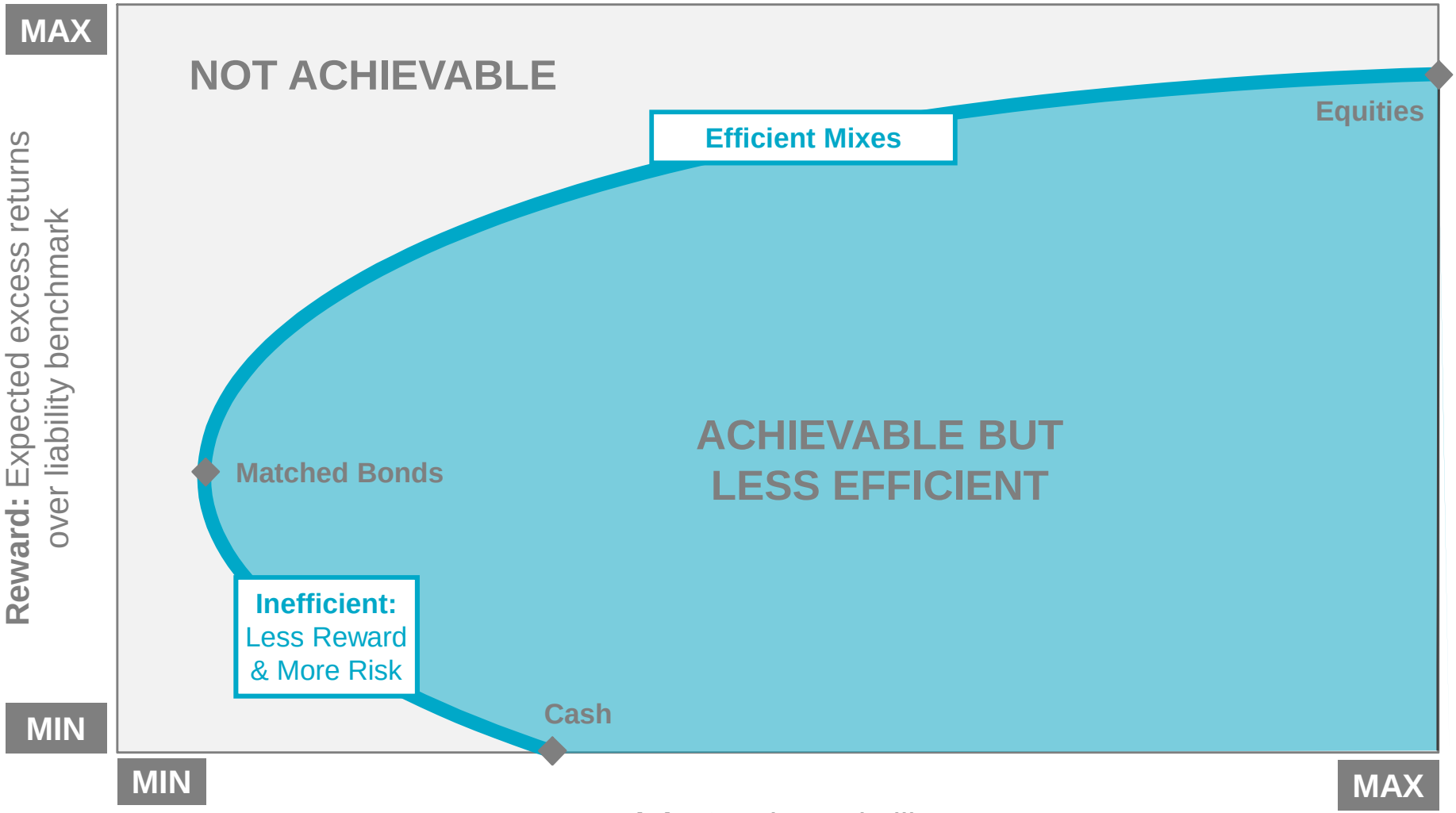
EFFICIENT FRONTIERS
ASSET-LIABILITY EFFICIENT FRONTIER



INTEREST RATE RISK
LIABILITY BENCHMARK

- In order to evaluate financial risks and to find portfolios that will minimize them, we develop a fixed income portfolio that reproduces the fluctuations of the liabilities (called the Liability Benchmark)
- Based on information provided by Manitoba Public Insurance, the duration and the liability benchmark portfolios for Basic Insurance liabilities (unpaid claims) are summarized below:

	Nominal[1]	Real[2]
Duration	10.3 years	10.3 years
Liability Benchmark		
• Treasury Bills	--	26%
• Short Provincial Bonds	28%	8%
• Mid Provincial Bonds	18%	--
• Long Provincial Bonds	54%	--
• Real Return Bonds	--	66%

Note: These figures are preliminary and may be refined as part of the study.

[1] Nominal considers fixed future inflation at 2% p.a.
[2] Real reflects sensitivity to future inflation rates

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INTEREST RATE RISK
DURATION AND HEDGE RATIO

- Interest rate and inflation risk arise from the fact that a change in market interest rates and/or inflation rates may change liabilities differently than assets
  - A commonly used measure of interest rate sensitivity, “duration”, measures the percentage change in assets and liabilities for each 1% change in market interest rates
  - As an example, a liability “duration” of 10 years means that for each 1% rise (fall) in interest rates, the liabilities are expected to decrease (increase) by approximately 10%
- The interest rate hedge ratio, which measures how much of interest rate risk is hedged, depends on three factors:
  - Ratio of assets to liabilities
  - Percentage of assets allocated to the liability matching portfolio
  - Duration of the matching portfolio relative to that of the liabilities

How much interest rate risk is currently hedged for the Basic Insurance component (assuming assets are equal to liabilities)?

70%
assets allocated to matching portfolio

✖

10.2 years
duration of matching portfolio

÷

10.3 years
duration of liabilities

=

69%

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RISK MANAGEMENT
INVESTMENT LEVERS

Lever 1

- Allocation between growth and hedging assets
- Perhaps most important decision, which is often determined by ability and willingness to accept risk

		Target Mix
Hedging	Marketable Bonds	50%
	Non-Marketable Bonds	20%
	Predominately Manitoba Schools and Non-Manitoba Provincial bonds	
	Approximately 2% each to Federal bonds and Corporate bonds	
	Subtotal	**70%**
Growth	Canadian Equity	10%
	US Equity	5%
	EAFE Equity	0%
	Canadian Real Estate	10%
	Infrastructure	5%
	Private Equity	0%
	Subtotal	**30%**
Total		**100%**

Lever 2 (Hedging portfolio structure)

- Structure of the fixed income portfolio affects interest rate risk (not all bonds are created equal)
- e.g., real return bonds can offset inflation risk

Lever 3 (Growth portfolio structure)

- Diversifying the growth portfolio can improve its risks / reward characteristics

Other Levers

- Currency hedging, leverage, alpha transport, tactical asset allocation, etc.

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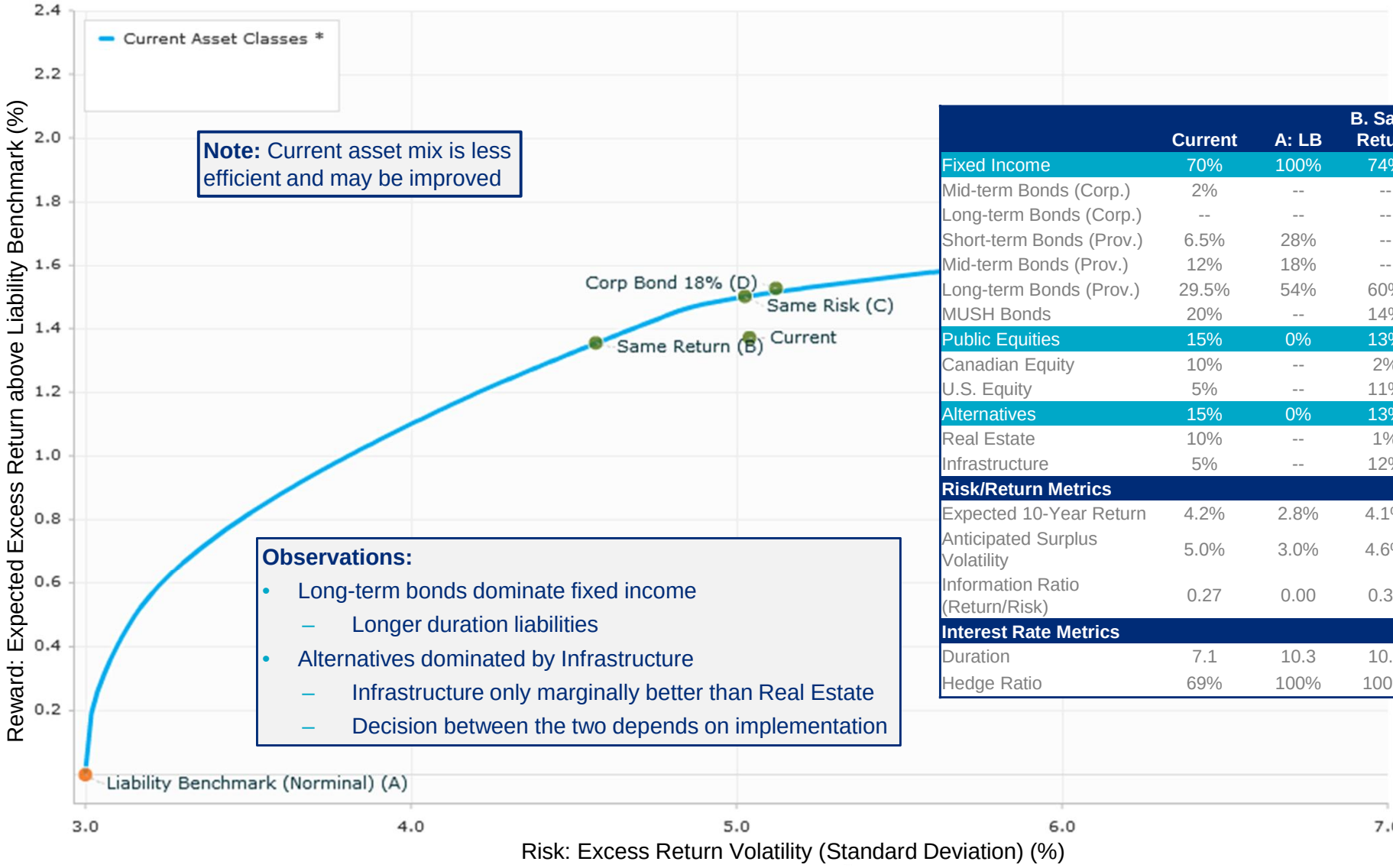
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY



Observations:

- Long-term bonds dominate fixed income
  - Longer duration liabilities
- Alternatives dominated by Infrastructure
  - Infrastructure only marginally better than Real Estate
  - Decision between the two depends on implementation

	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.8%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

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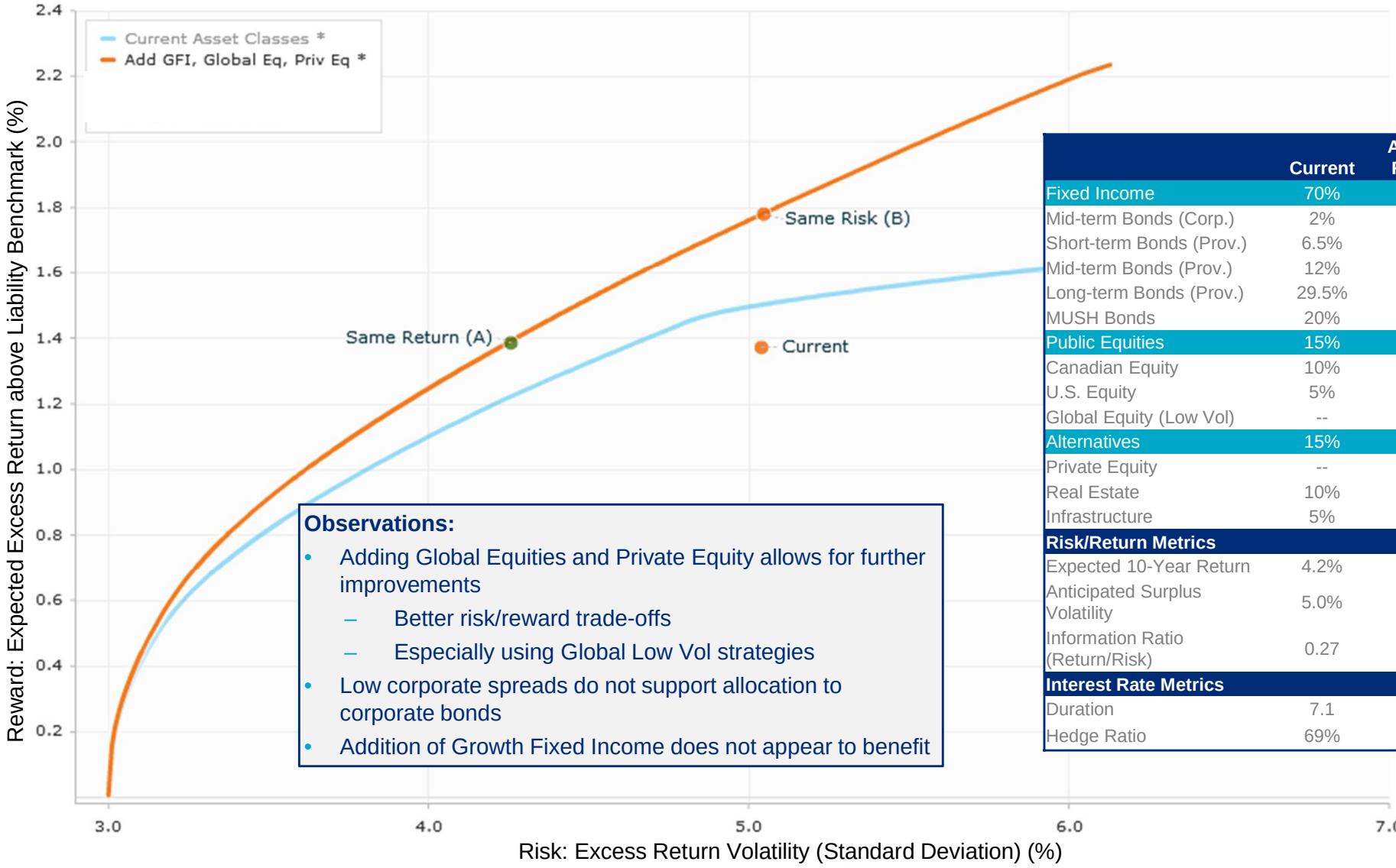
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EOUITY



Observations:

- Adding Global Equities and Private Equity allows for further improvements
  - Better risk/reward trade-offs
  - Especially using Global Low Vol strategies
- Low corporate spreads do not support allocation to corporate bonds
- Addition of Growth Fixed Income does not appear to benefit

	Current	A:Same Return	B. Same Risk
Fixed Income	70%	81%	76%
Mid-term Bonds (Corp.)	2%	--	--
Short-term Bonds (Prov.)	6.5%	--	--
Mid-term Bonds (Prov.)	12%	7%	--
Long-term Bonds (Prov.)	29.5%	54%	59%
MUSH Bonds	20%	20%	17%
Public Equities	15%	10%	12%
Canadian Equity	10%	4%	4%
U.S. Equity	5%	--	--
Global Equity (Low Vol)	--	6%	8%
Alternatives	15%	9%	12%
Private Equity	--	7%	10%
Real Estate	10%	--	--
Infrastructure	5%	2%	2%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.5%
Anticipated Surplus Volatility	5.0%	4.3%	5.0%
Information Ratio (Return/Risk)	0.27	0.33	0.35
Interest Rate Metrics			
Duration	7.1	10.3	10.3
Hedge Ratio	69%	100%	100%

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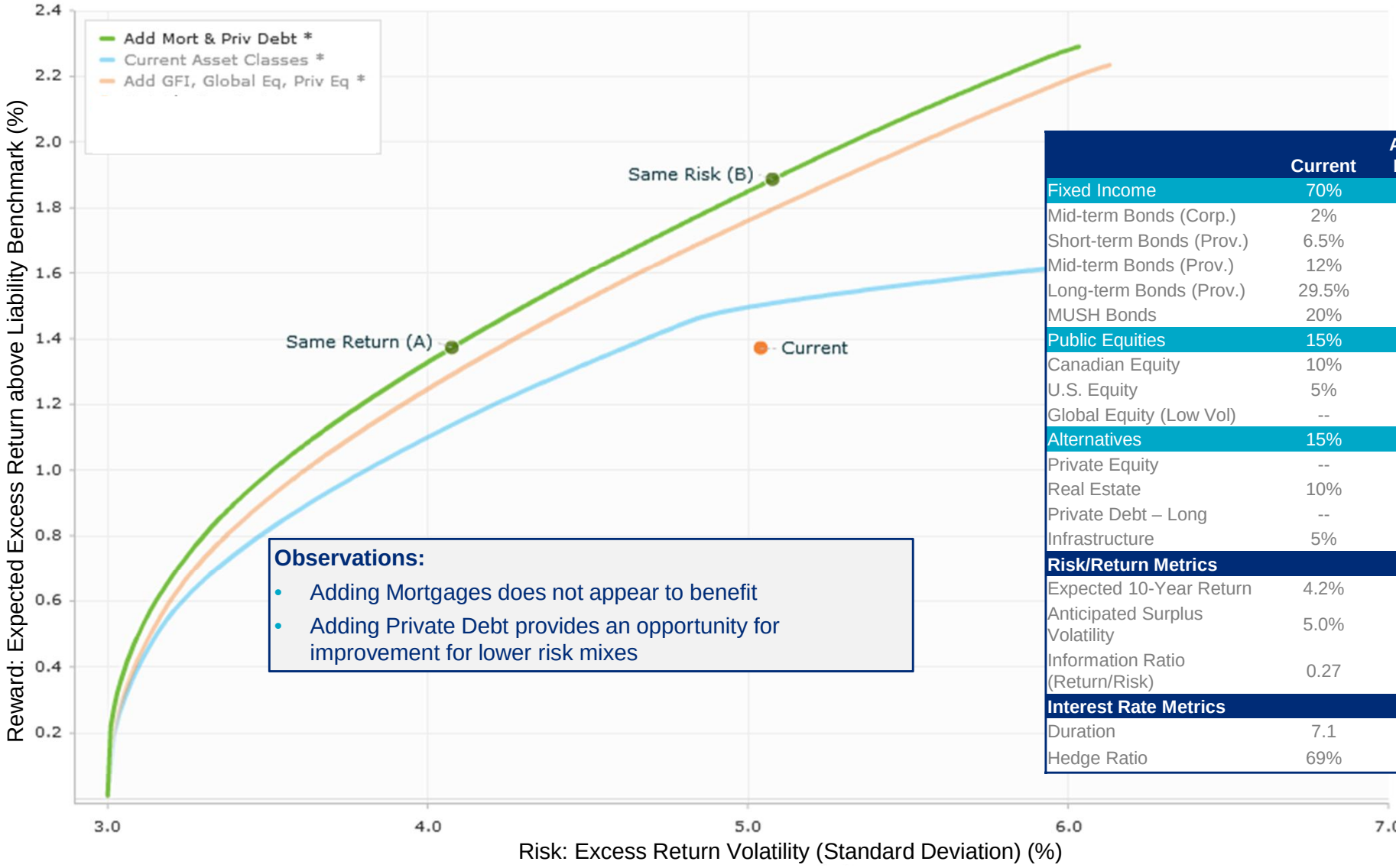
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT



Observations:

- Adding Mortgages does not appear to benefit
- Adding Private Debt provides an opportunity for improvement for lower risk mixes

	Current	A:Same Return	B. Same Risk
Fixed Income	70%	67%	59%
Mid-term Bonds (Corp.)	2%	--	--
Short-term Bonds (Prov.)	6.5%	--	--
Mid-term Bonds (Prov.)	12%	17%	3%
Long-term Bonds (Prov.)	29.5%	40%	46%
MUSH Bonds	20%	10%	10%
Public Equities	15%	9%	13%
Canadian Equity	10%	3%	5%
U.S. Equity	5%	--	--
Global Equity (Low Vol)	--	8%	8%
Alternatives	15%	24%	28%
Private Equity	--	6%	9%
Real Estate	10%	--	--
Private Debt – Long	--	15%	15%
Infrastructure	5%	3%	4%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.1%	4.6%
Anticipated Surplus Volatility	5.0%	4.0%	5.0%
Information Ratio (Return/Risk)	0.27	0.33	0.37
Interest Rate Metrics			
Duration	7.1	10.3	10.3
Hedge Ratio	69%	100%	100%

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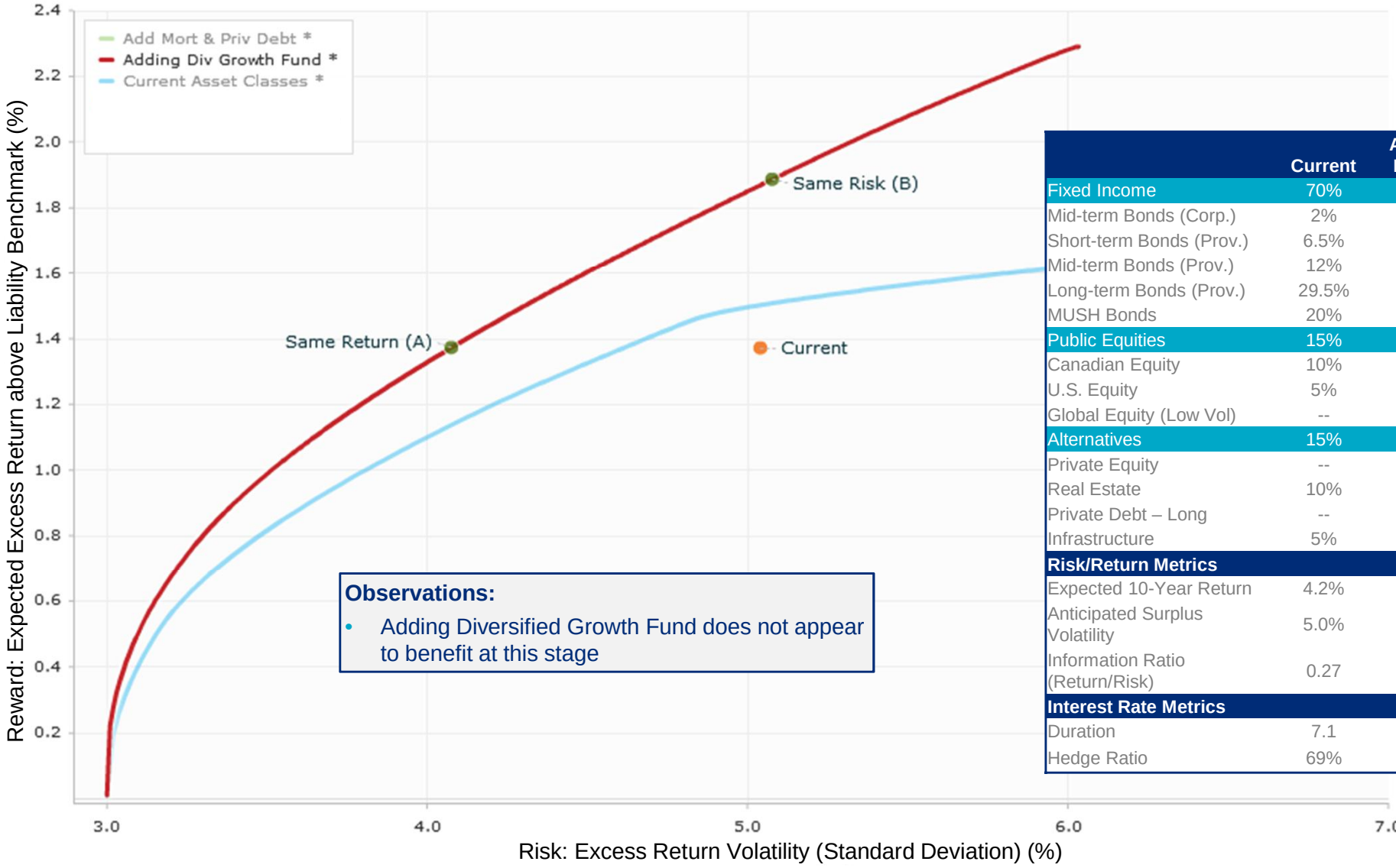
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND



Observations:

- Adding Diversified Growth Fund does not appear to benefit at this stage

	Current	A:Same Return	B. Same Risk
Fixed Income	70%	67%	59%
Mid-term Bonds (Corp.)	2%	--	--
Short-term Bonds (Prov.)	6.5%	--	--
Mid-term Bonds (Prov.)	12%	17%	3%
Long-term Bonds (Prov.)	29.5%	40%	46%
MUSH Bonds	20%	10%	10%
Public Equities	15%	9%	13%
Canadian Equity	10%	3%	5%
U.S. Equity	5%	--	--
Global Equity (Low Vol)	--	8%	8%
Alternatives	15%	24%	28%
Private Equity	--	6%	9%
Real Estate	10%	--	--
Private Debt – Long	--	15%	15%
Infrastructure	5%	3%	4%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.1%	4.6%
Anticipated Surplus Volatility	5.0%	4.0%	5.0%
Information Ratio (Return/Risk)	0.27	0.33	0.37
Interest Rate Metrics			
Duration	7.1	10.3	10.3
Hedge Ratio	69%	100%	100%

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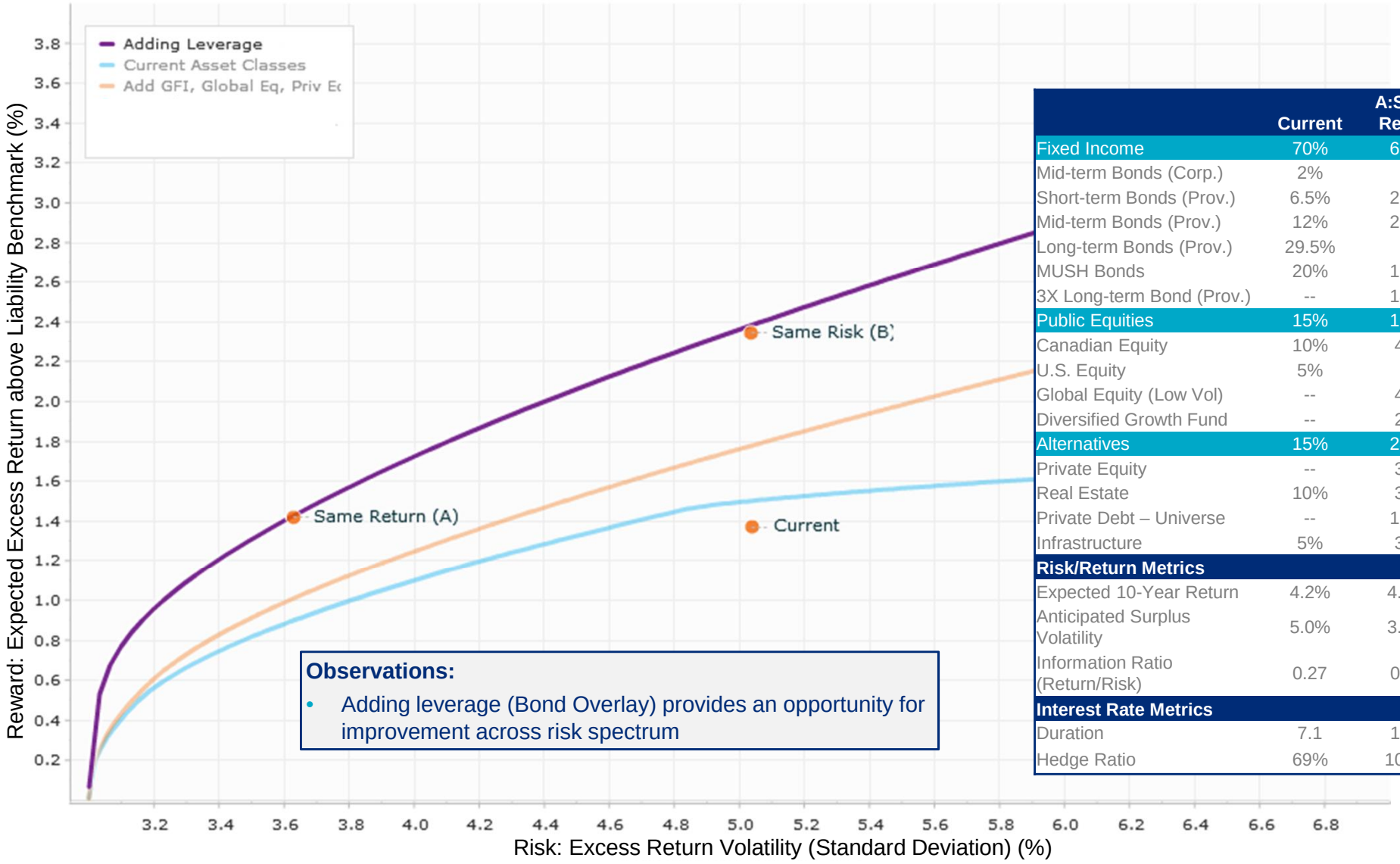
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)



Observations:

- Adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum

	Current	A:Same Return	B. Same Risk
Fixed Income	70%	66%	51%
Mid-term Bonds (Corp.)	2%	--	--
Short-term Bonds (Prov.)	6.5%	20%	--
Mid-term Bonds (Prov.)	12%	22%	26.5%
Long-term Bonds (Prov.)	29.5%	--	--
MUSH Bonds	20%	10%	10%
3X Long-term Bond (Prov.)	--	14%	14.5%
Public Equities	15%	10%	18%
Canadian Equity	10%	4%	5%
U.S. Equity	5%	--	--
Global Equity (Low Vol)	--	4%	10%
Diversified Growth Fund	--	2%	3%
Alternatives	15%	24%	31%
Private Equity	--	3%	7%
Real Estate	10%	3%	4%
Private Debt – Universe	--	15%	15%
Infrastructure	5%	3%	5%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	5.0%
Anticipated Surplus Volatility	5.0%	3.6%	5.0%
Information Ratio (Return/Risk)	0.27	0.39	0.46
Interest Rate Metrics			
Duration	7.1	10.3	10.2
Hedge Ratio	69%	100%	99%

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PRELIMINARY ANALYSIS
EFFICIENT FRONTIERS
BASIC INSURANCE – REAL LIABILITY BENCHMARK



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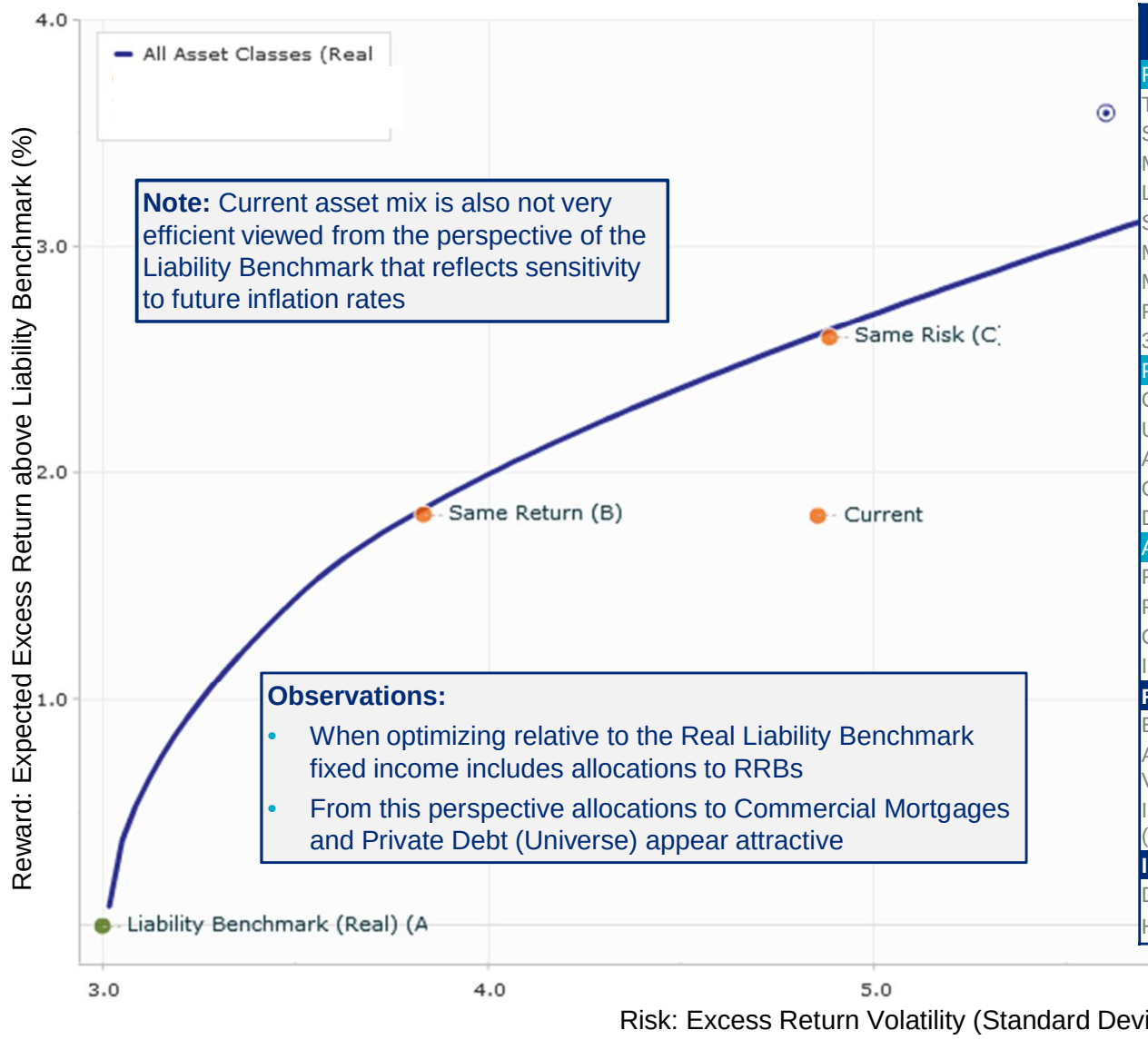
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



Note: Current asset mix is also not very efficient viewed from the perspective of the Liability Benchmark that reflects sensitivity to future inflation rates

Observations:

- When optimizing relative to the Real Liability Benchmark fixed income includes allocations to RRBs
- From this perspective allocations to Commercial Mortgages and Private Debt (Universe) appear attractive

	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	--	26%	--	--
Short-term Bonds (Prov.)	6.5%	8%	27%	--
Mid-term Bonds (Prov.)	12%	--	--	--
Long-term Bonds (Prov.)	29.5%	--	--	--
Short-term Bonds (Corp.)	--	--	3%	15%
Mid-term Bonds (Corp.)	2%	--	--	--
MUSH Bonds	20%	--	10%	10%
Real Return Bonds	--	66%	--	--
3X Real Return Bonds	--	--	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	--	4%	6%
U.S. Equity	5%	--	--	--
All-Country World Equity	--	--	4%	5%
Global Equity (low vol)	--	--	4%	7%
Diversified Growth Fund	--	--	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	--	8%	8%
Private Debt - Universe	--	--	3%	13%
Commercial Mortgage	--	--	13%	3%
Infrastructure	5%	--	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

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ADDITIONAL COMMENTS
REAL RETURN BONDS

- Currently, RRBs offer relatively attractive inflation protection.
- This is best understood by calculating the total expected yield of an RRB and then comparing it to a conventional bond with the same quality and maturity. Below we consider 30-year Government of Canada Bonds:

RRB Real Yield	**0.6%**
30-year BEIR[1]	**1.6%**
Total Yield	**2.2%**
30-year conventional bond yield	**2.3%**

- The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.
- RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.
- Finally, it is worth noticing that despite RRBs offering attractive inflation protections, the expected return on RRBs is below its long-term historical levels with a current real yield of 0.60%.

[1] BEIR is the Break Even Inflation Rate which is calculated as the difference between a conventional bond and an RRB. The BEIR can be interpreted as the capital markets expectation on future inflation.

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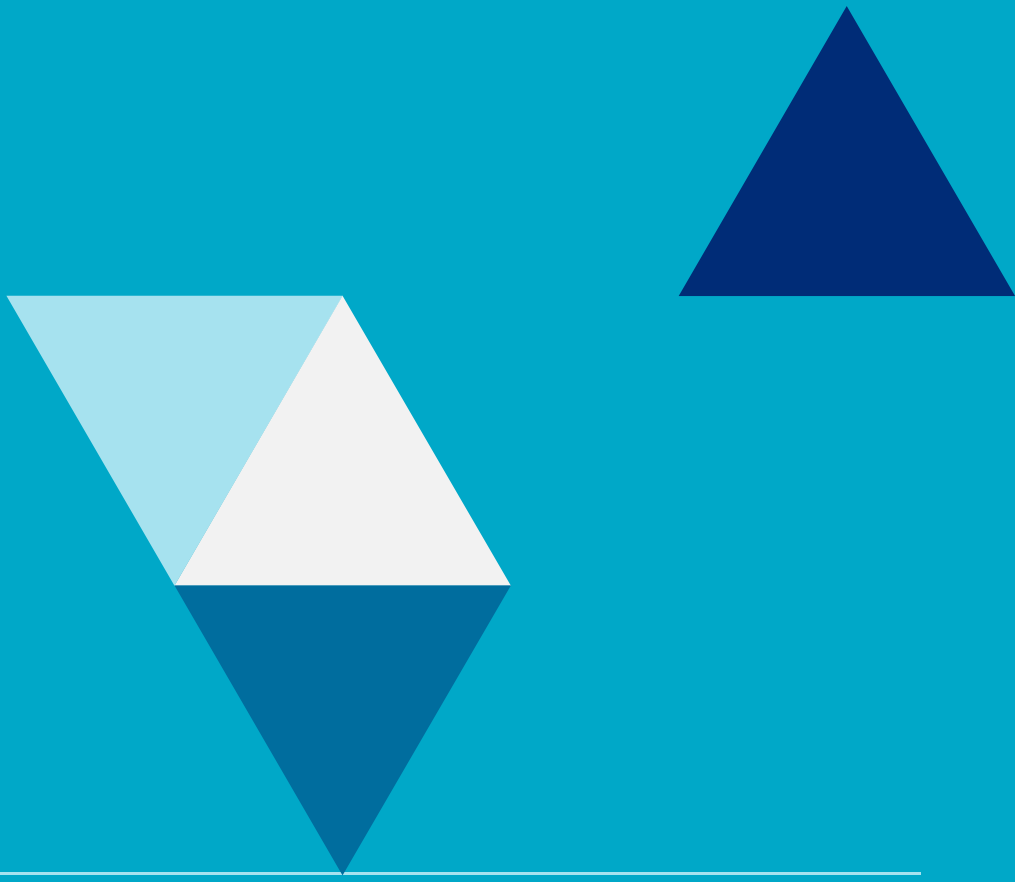
NEXT STEPS



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NEXT STEPS
KEY DECISIONS

- Risk or reward: where feasible, is the preference to:
  - Reduce risk (keeping expected return at current level)?
  - Increase expected return (keeping risk at current level)?
  - Something in between?
  - Increase risk and expected return?

- Degree of comfort with:
  - With changes to current portfolios
  - Interest rate hedging

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NEXT STEPS

- Identify direction of further analysis, or if possible 4 to 5 target asset mixes for stochastic projections and stress testing
- Confirm stress test scenarios:
  - Market Correction: 33% decline in equity return, decline in yields
  - Inflation Shock: High inflation, higher yields and higher P/E Ratios
  - Inflationary Growth: higher yields, lower spreads
  - 1% Parallel Shift Up: Lower P/E Ratios, higher inflation
  - 1% Parallel Shift Down: Higher P/E Ratios, lower inflation
  - Deflation
- Mercer to prepare additional analysis, stochastic projections and stress testing
- Meeting to present and discuss results as well as recommendations for target asset mix going forward

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NEXT STEPS

POTENTIAL ASSET MIXES FOR FURTHER ANALYSIS

	Nominal Liability Benchmark			Real Liability Benchmark		
	Current	Same Return	Same Risk	Current	Same Return	Same Risk
Fixed Income	70%	66%	51%	70%	59%	43%
T-Bills	--	--	--	--	--	--
Short-term Bonds (Provincial)	6.5%	20%	--	6.5%	27%	--
Mid-term Bonds (Provincial)	12%	22%	26.5%	12%	--	--
Long Bonds (Provincial)	29.5%	--	--	29.5%	--	--
Short-term Bonds (Corporate)	--	--	--	--	3%	15%
Mid-term Bonds (Corporate)	2%	--	--	2%	--	--
MUSH Bonds	20%	10%	10%	20%	10%	10%
3x Long Bonds (Provincial)	--	14%	14.5%	--	--	--
3x Real Return Bonds	--	--	--	--	19%	18%
Public Equities	15%	10%	18%	15%	15%	26%
Canadian Equity	10%	4%	5%	10%	4%	6%
U.S. Equity Large Cap	5%	--	--	5%	--	--
All-Country World Equity	--	--	10%	--	4%	5%
Global Equity (low vol)	--	4%	--	--	4%	7%
Diversified Growth Fund	--	2%	3%	--	3%	8%
Alternatives	15%	24%	31%	15%	26%	33%
Private Equity	--	3%	7%	--	--	--
Private Debt (Universe)	--	15%	15%	--	3%	13%
Real Estate	10%	3%	4%	10%	8%	8%
Commercial Mortgages	--	--	--	--	13%	3%
Infrastructure	5%	3%	5%	5%	2%	7%
Risk/Return Metrics						
Expected 10-Year Return	4.2%	4.2%	5.0%	4.2%	4.2%	4.9%
Anticipated Surplus Volatility	5.0%	3.6%	5.0%	4.9%	3.8%	4.9%
Information Ratio (Return/Risk)	0.27	0.39	0.46	0.37	0.48	0.53
Interest Rate Metrics						
Duration	7.1	10.3	10.2	7.1	10.3	10.2
Hedge Ratio	69%	100%	99%	69%	100%	99%
Current Yield	2.1%	2.6%	2.4	2.1%	0.9%	1.0%

Note: Portfolio statistics shown are based on capital market assumptions outlined in the enclosed appendix. Nominal liability benchmark portfolio consists of 28% short provincial bonds, 18% mid-term provincial bonds and 54% long provincial bonds. Real liability benchmark portfolio comprised consists of 26% T-bills, 8% short provincial bonds and 66% real return bonds. Surplus volatility considers interest rate risk, market risk, and liability risk (assumed to be 3%) and assumes assets are equal to liabilities. Some figures may not add up due to rounding.

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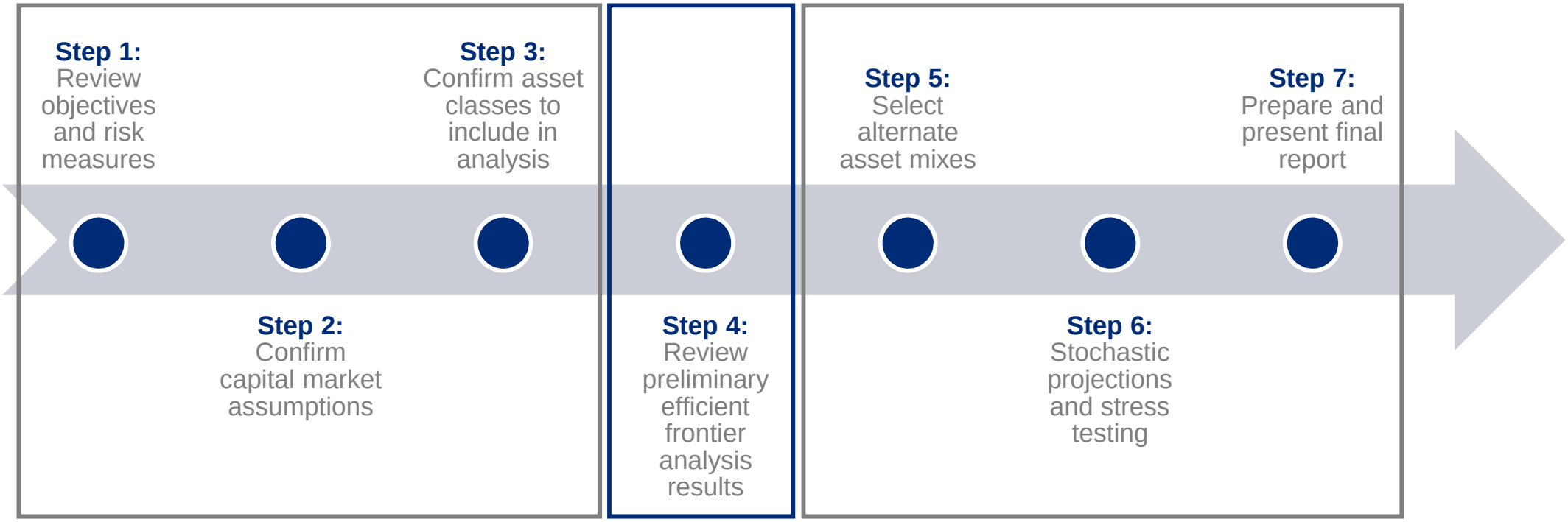
ASSET LIABILITY STUDIES PROCESS



Kick-Off Meeting
Risk metrics
Asset classes to include in analysis
Capital market assumptions
(Oct. 13th Meeting)

Preliminary Analysis
Efficient Frontiers
(Today)

Final Analysis (By Nov. 30th)

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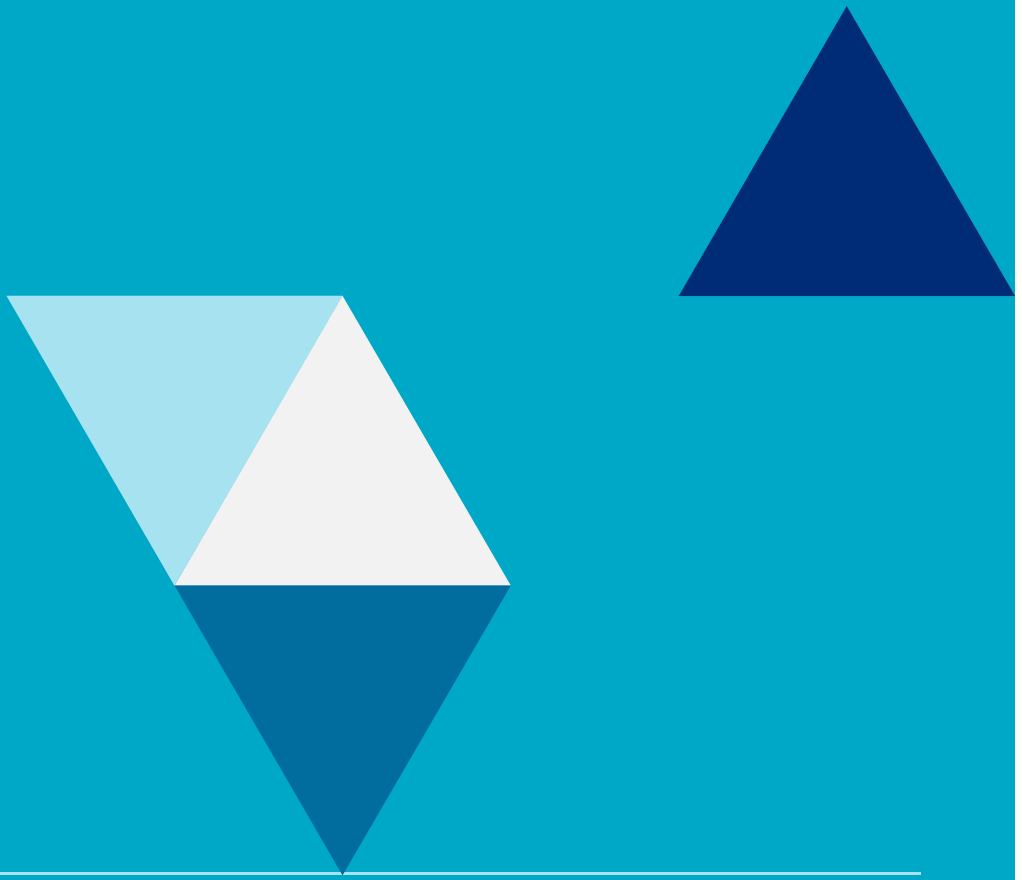
APPENDIX
CAPITAL MARKET ASSUMPTIONS



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CAPITAL MARKET ASSUMPTIONS
10-YEAR ASSUMPTIONS

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.5%	1.5%
2	Federal short-term bonds	2.0%	3.5%
3	Federal mid-term bonds	2.3%	6.5%
4	Federal long-term bonds	2.4%	8.5%
5	Real return bonds	3.0%	7.5%
6	Provincial short-term bonds	2.4%	3.5%
7	Provincial mid-term bonds	3.0%	6.5%
8	Provincial long-term bonds	3.3%	8.5%
9	Corporate short-term bonds	2.9%	3.5%
10	Corporate mid-term bonds	3.7%	6.5%
11	Corporate long-term bonds	4.2%	8.5%
12	Global bonds	2.2%	8.6%
13	High yield bonds	3.8%	9.5%
14	Emerging debt	7.1%	12.0%
15	Canadian equity (large cap.)	8.2%	19.5%
16	U.S. equity (large cap.)	7.8%	17.0%
17	Int'l equity (large cap.)	7.8%	17.1%
18	Global equity (large cap.)	7.7%	16.1%
19	Global low vol equity	6.7%	13.0%
20	Emerging equity	11.2%	25.0%
21	Private equity	12.2%	25.0%
22	Real estate	6.2%	13.0%
23	Diversified Growth Fund	5.4%	9.8%
24	Direct Infrastructure	7.0%	13.0%
25	MUSH Bonds	3.1%	6.5%
26	Commercial Mortgages	2.8%	3.5%
27	Long Commercial Mortgages	2.7%	5.3%
28	Private Debt - Universe	3.5%	5.4%
29	Private Debt - Long	3.9%	8.5%

Inflation: 2.0%

Fixed income returns based on projected yields implied by the current yield curve.

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

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CAPITAL MARKET ASSUMPTIONS
STANDARD MERCER CORRELATIONS

	Correlations																												
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Mercer's capital market assumptions are intended to represent reasonable expectations for the next 10 to 20 years and incorporate a wide range of considerations including:
  - Historical return, risk and correlation statistics of broad indices
  - Fixed income returns based on projected yields implied by the current yield curve
  - Estimation of component returns to develop total equity returns, using as starting points such items as
    - Current level of equity earnings yield
    - Inflation expectations
    - Expected economic growth
  - Expected relative relationships between asset classes
  - Some forward-looking judgment
- In general, we assume that future returns will be consistent with assumed risk levels
- Our assumptions have not been developed in the sense of an economic forecast, but rather, to the extent possible, a reading of the market

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Note that:
  - All foreign asset class return, risk and correlation assumptions are based on unhedged foreign currency exposures
  - Publicly traded asset class returns are assumed to be index returns
  - Alternative asset class returns are assumed to be inclusive of median alpha (i.e., active management value-added) and net of median fees

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CAPITAL MARKET ASSUMPTIONS
SUMMARY OF MERCER'S VIEWS

Mercer's capital market assumptions are intended to represent reasonable long-term expectations given current market conditions

Assumptions are what we believe to be the median of the distribution of possible future long-term returns

Perceived mispricing in current financial market conditions should generally not be incorporated into long-term strategic allocation frameworks

Market inefficiencies should be exploited through the skill of specialist investment managers on a short-term basis and asset allocation tilts on a medium-term basis

In general, we assume that future returns will be consistent with assumed risk levels: riskier asset classes should be expected to provided higher returns

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HEALTH WEALTH CAREER

ASSET LIABILITY STUDY

PHASE 2 SUMMARY DISCUSSION CORRECTED

Manitoba Public Insurance

Nov. 28, 2017

Angelo DiNoto
Dave Makarchuk
Pawel Piesowicz

AGENDA

- Recap of Phase 1
- Outline of Phase 2
- A Recommended Framework for Assessing Investment Decisions
- Analysis and Discussion for each Business Line
  - Overview of the Liabilities
  - Asset Class Objectives
  - Asset Class Options, Analysis and Recommendation
- Summary and Next Steps
- Appendix:
  - Efficient Frontiers
  - Capital Market Assumptions

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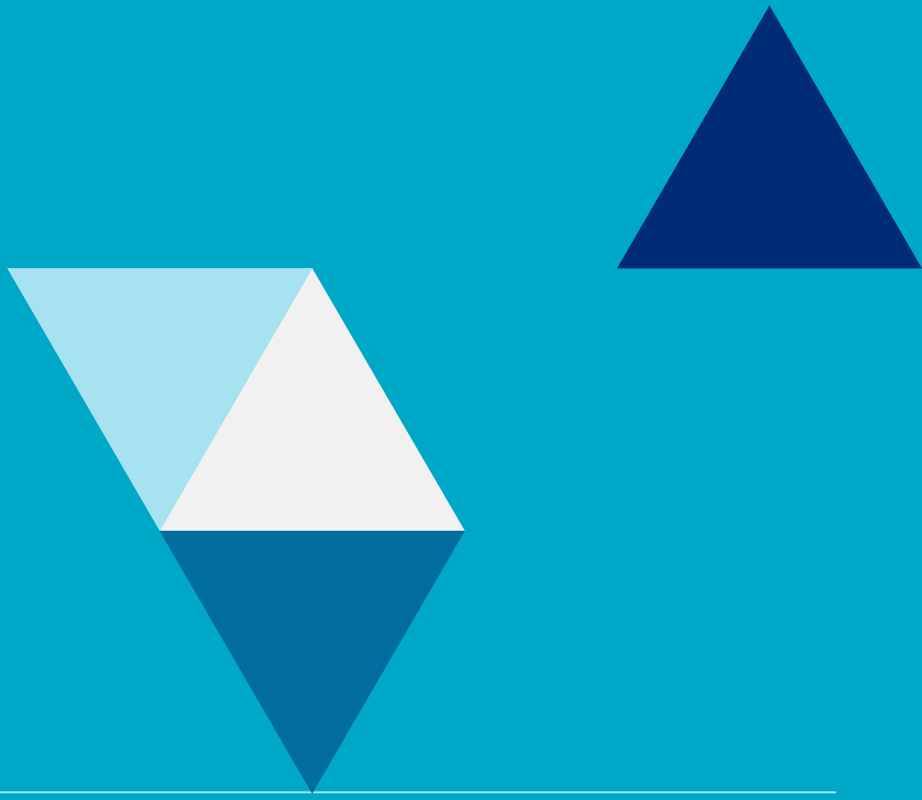
RECAP OF PHASE 1



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RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Should each business have a unique asset allocation?	The profile of the obligations and risk of each of the 5 businesses is unique. At a minimum, each business should be assessed individually. Preliminary recommendation is to adopt unique asset allocations.	Decision on whether to aggregate or segregate assets depends on dispersion of objectives.
What are MPI's Investment Goals?	The current IPS emphasizes mitigating risk resulting from interest rate variations and mitigating the risk of short-term premium volatility. It also indicates that minimizing premium levels is an objective. Clarifying investment goals for each business line is recommended.	Will define the purpose and objectives for each business line.
Inflation linkage of liabilities	Much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation.	Given low inflation expectations, hedge nominal, but not real, interest rate risk.

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RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Merits of New Fixed Income Exposure	Reviewed the relative merits of Federal Bonds, Real Return Bonds, Private Debt, Corporate Bonds Commercial Mortgages, Levered Bonds, Growth Fixed Income. Analysis considered historical and expected risk and returns, duration matching potential, cost, implementation considerations.	Consider private debt and corporate bonds as new asset classes.
Interest Rate Risk Management Strategy	Discussed the merits of duration matching, cashflow matching, and a hybrid approach.	Focus on duration matching for 100% of Basic liabilities.
Economic Assumptions	Mercer's long-term assumptions assume a gradual rise in interest rates to a long-term equilibrium state. Alternatively, we are comfortable assuming shifts in future yields implied by current forward rates.	Projections and analysis will be based on implied forward rates.

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RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Merits of New Growth Portfolio Exposure	Reviewed the relative merits of International Equities, Global Equities, Low Volatility Global Equities, Emerging Markets, Private Equity, and Diversified Growth Funds.	Consider allocations to Global Equities (including Emerging Markets), Low Volatility Global Equities, and Private Equities.

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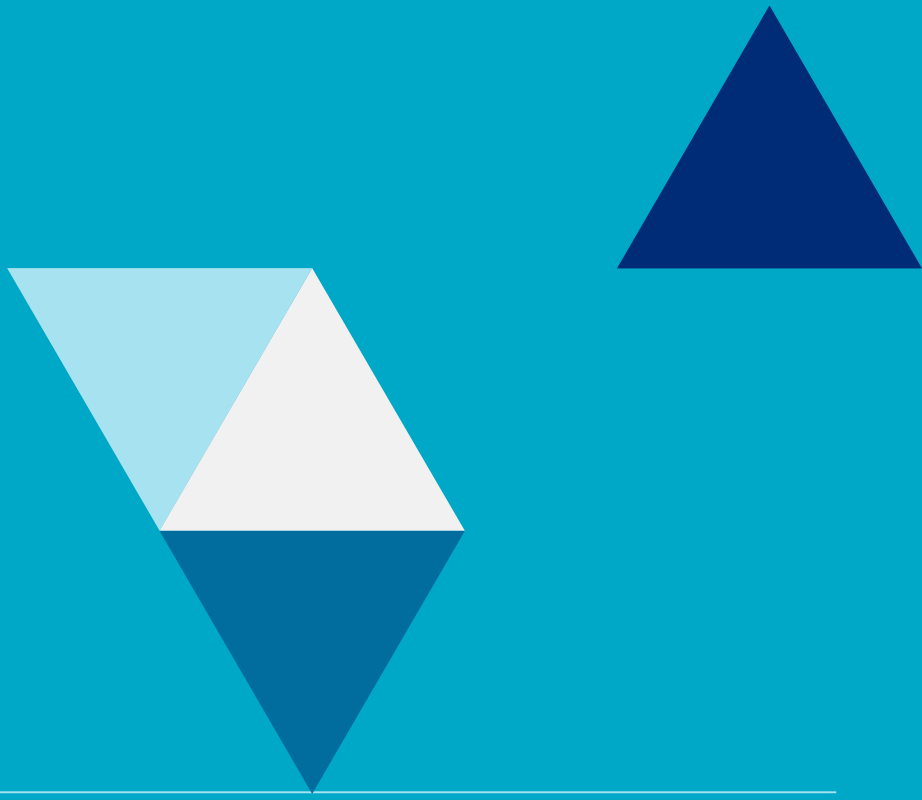
PHASE 2 OBJECTIVES



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PHASE 2 OBJECTIVES

Objective	Comments
1.Analyze characteristics and risks of claim liabilities, pension liabilities, equities.	See phase 1 for initial analysis discussion. Further analysis/discussion herein.
2. Quantify risk and return under current and alternative mixes.	Included in this report.
3. Assess available asset classes and impact of adding those new asset classes.	Available asset classes assessed in Phase 1. Impact of new asset classes assessed in this report.
4.Evaluate probability of meeting expected returns under various economic scenarios.	Included in this report.

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PHASE 2 OBJECTIVES

Objective	Comments
5. Assess asset class optimization with 1). Minimal constraints and 2). Practical implementation considerations.	Assessment with minimal constraints preceded this report. This report focuses on practical alternatives.
6. Recommend normal, minimum, and maximum allocations to each asset class.	This report focusses on normal allocations. Recommend +/- 3-5% for minimums/maximum's alongside rebalancing.
7. Recommend asset allocations that maximize the probability of achieving corporate goals within stated constraints.	Included in this report.
8. Recommend an allocation to Corporate Bonds	Included in this report.

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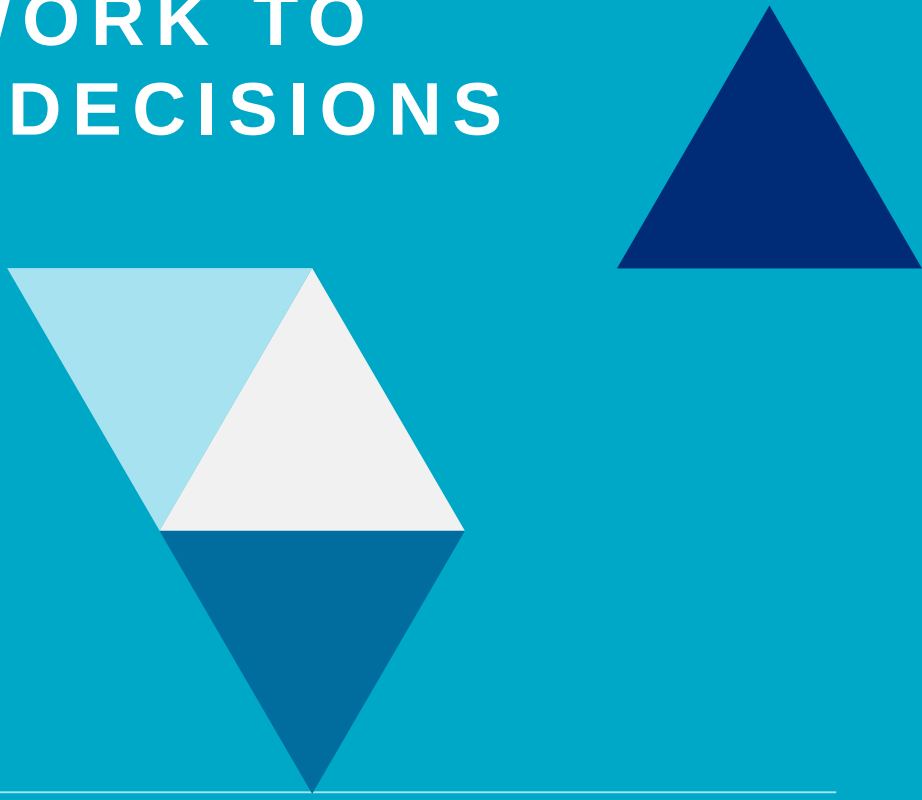
A PROPOSED FRAMEWORK TO ASSESS INVESTMENT DECISIONS



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Deciding when, and how, to innovate and change is an ongoing challenge for investment fiduciaries.

Adopting a structured, but simple, decision making framework can help investment fiduciaries prioritize their Investment Innovation Budget … and improve outcomes.

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WHY DO WE MAKE INVESTMENT DECISIONS?

We make investment decisions to deliver better outcomes

One's perception of a 'Better Outcome' can vary significantly

Identifying, and articulating, desired outcomes is a crucial fiduciary responsibility

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EVERY INVESTMENT DECISION WE DO (OR DO NOT) MAKE IS DRIVEN BY 4 KEY FACTORS…

Return

Risk

Cost

Time

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THESE 4 FACTORS FORM THE FOUNDATION OF A LEVERAGABLE DECISION MAKING FRAMEWORK



Return

How does this change impact expected returns?



Risk

How does this change impact expected risk?



Cost

How much does this change cost?



Time

How much time will this change take?

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A SAMPLE USE OF THE FRAMEWORK TO ASSESS THE MERITS OF AN OVERALL ASSET MIX RECOMMENDATION HELPS ILLUSTRATE KEY DECISIONS

	Asset Mix A	Asset Mix B
Return 	Expected Return increases by $35Million/annum	Expected Return increases by $5Million/annum
Risk 	Value at Risk increases by $10Million	Value at Risk decreases by $10Million
Cost 	Expected Implementation and Oversight costs increase by $5Million/annum	Expected Implementation and Oversight costs increase by $1Million/annum
Time 	2 years to implement 1 additional staff member 2 additional committee meetings	6 months to implement No change in staff

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CONFIRMING PURPOSE IS IMPORTANT!

HOW SHOULD MPI PRIORITIZE ITS INVESTMENT INNOVATION BUDGET? WHY?



Return

To improve returns?



Risk

To embrace, mitigate, or eliminate risk?



Cost

To reduce (optimize) cost?



Time

To make better use of time?

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ARTICULATING MPI'S OBJECTIVES FOR EACH BUSINESS LINE HELPS CLARIFY THE 'PURPOSE' AND PRIORITIES … FOR INVESTMENT INNOVATION

	Basic	Extension	SRE	RSR	Pension
Return 					
Risk 					
Cost 					
Time 					

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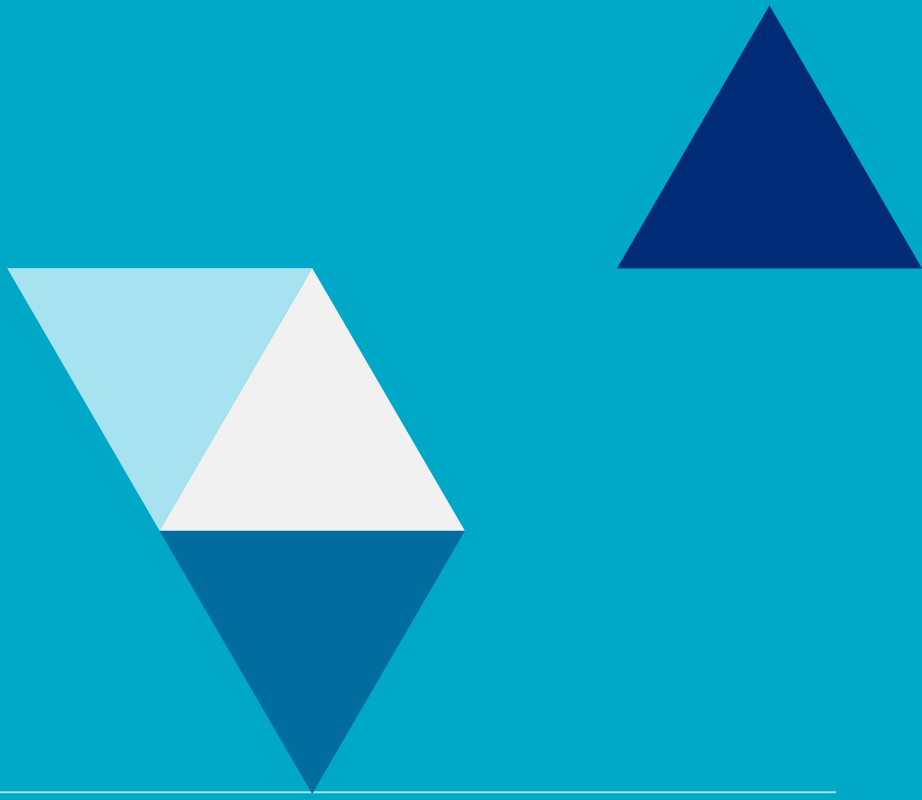
BASIC
LIABILITIES, ASSET ALLOCATION ALTERNATIVES, AND RECOMMENDATION



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A SNAPSHOT OF MPI'S BASIC LIABILITIES

Liability Overview

- Basic universal compulsory automobile insurance for Manitoban drivers
- Rates are approved by the Public Utilities Board of Manitoba
- Obligations are a mix of:
  - Long-term payments (typically disability claims indexed to inflation), and
  - Short-term payments (typically damage repairs)

Key Statistics

Liability: $1.79Billion

Duration: 10.5 years

Liability Benchmark

- Short Provincial Bonds 28%
- Mid Provincial Bonds 18%
- Long Provincial Bonds 54%

Asset Purpose:

Ensure that MPI's claim liabilities are paid to the rate payer as they come due

Risk Tolerance

Very low. If RSR grows in future, risk tolerance could increase.

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ASSET CLASS OBJECTIVES
BASIC

Return



- Mitigating risk is more important than maximizing returns
- Willing to pursue modest incremental returns through diversified credit decisions
- Avoiding federal treasuries (no credit reward)
- Return target : ___ %/annum ($___ Million on $1.79Bilion)
-

Risk



- Mitigating risk is more important than maximizing returns
- Matching $ duration is key … no willingness to take interest rate risk
- Willing to take modest credit risk (so long as its diversified and cost effective)
- Unacceptable 1 year investment loss: $___Million on $1.79Billion

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ASSET MIX OPTIONS
BASIC

	Current	Basic.1	Basic.2	Basic.3	Basic.4
	Commingled	Min. Risk Portfolio (No MUSH)	80% Provis, 20% MUSH	60% Provis 20% Corps 20% MUSH	60% Provis 10% Corps 20% MUSH 10% Prv Dbt
Fixed Income	**70%**	**100%**	**100%**	**100%**	**100%**
Short-term Bonds (Prov.)	6.5%	28%	0%	0%	0.0%
Mid-term Bonds (Prov.)	12.0%	18%	40%	28%	28%
Long-term Bonds (Prov.)	29.5%	54%	40%	32%	32%
Short-term Bonds (Corp.)	0.0%	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0.0%	0%	0%	9%	0%
Long-term Bonds (Corp.)	2.0%	0%	0%	11%	10%
MUSH Bonds	20.0%	0%	20%	20%	20%
Private Debt - Universe	0%	0%	0%	0%	10%
Public Equities	15%	0%	0%	0%	0%
Alternatives	15%	0%	0%	0%	0%

100% Fixed Income to fully match interest rate risk.

All options match Basic liability duration (i.e. minimal nominal interest rate risk).

No Growth Assets proposed to Basic

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ASSET MIX ANALYSIS – SUMMARY RESULTS

BASIC.3 OPTIMIZES RETURN, BUT WITH HIGHER RISK

BASIC.4 BALANCES RETURN IMPROVEMENT WITH DOWNSIDE PROTECTION

	Current Mix	Alternative Asset Mixes			
		Basic.1	Basic.2	Basic.3	Basic .4
		No MUSH	Add MUSH	Add Corps	Add PD
Expected return	4.29%	2.80%	2.93%	3.12%	3.09%
Excess return over liability benchmark	1.49%	0.00%	0.13%	0.32%	0.29%
1-Year Surplus volatility	4.06%	0.00%	0.90%	1.32%	0.90%
Excess return/Surplus volatility	0.37	N/A	0.15	0.24	0.32
1-year Median Surplus	$27.1 M	0.0 M	2.0 M	6.4 M	5.9 M
1-year 90th Percentile VaR	-95 M	0 M	-19 M	-30 M	-20 M
1-year 95th Percentile VaR	-$122 M	0 M	-24 M	-38 M	-25 M
1-year 97.5th Percentile VaR	-$147 M	0 M	-28 M	-45 M	-30 M
Interest Rate Risk Hedge Ratio	85%	**100%**	**100%**	**100%**	**100%**
Median Surplus in 5 years	$152 M	0 M	11 M	32 M	30 M
5-Year Surplus volatility	10.35%	0.00%	2.39%	3.42%	2.38%
Prob. of Surplus in 5 years	79%	50%	61%	71%	77%
Prob. of 5-year positive real return	83%	60%	61%	64%	63%
Non-MUSH Yield	2.75%	2.55%	2.71%	2.92%	2.91%

Return Metrics

Risk Metrics

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Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

EXPECTED SURPLUS GROWTH
BASIC- 1 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	143.8 M	0.0 M	30.9 M	46.3 M	33.6 M
75th	75.4 M	0.0 M	13.2 M	22.4 M	16.9 M
50th	27.1 M	0.0 M	2.0 M	6.4 M	5.9 M
25th	-22.2 M	0.0 M	-8.5 M	-9.3 M	-4.7 M
5th	-95.2 M	0.0 M	-22.3 M	-31.4 M	-19.3 M
2.5th	-119.5 M	0.0 M	-26.5 M	-38.5 M	-23.9 M

Median

Downside

Assets are modelled to equal liabilities at the start of the projection period.

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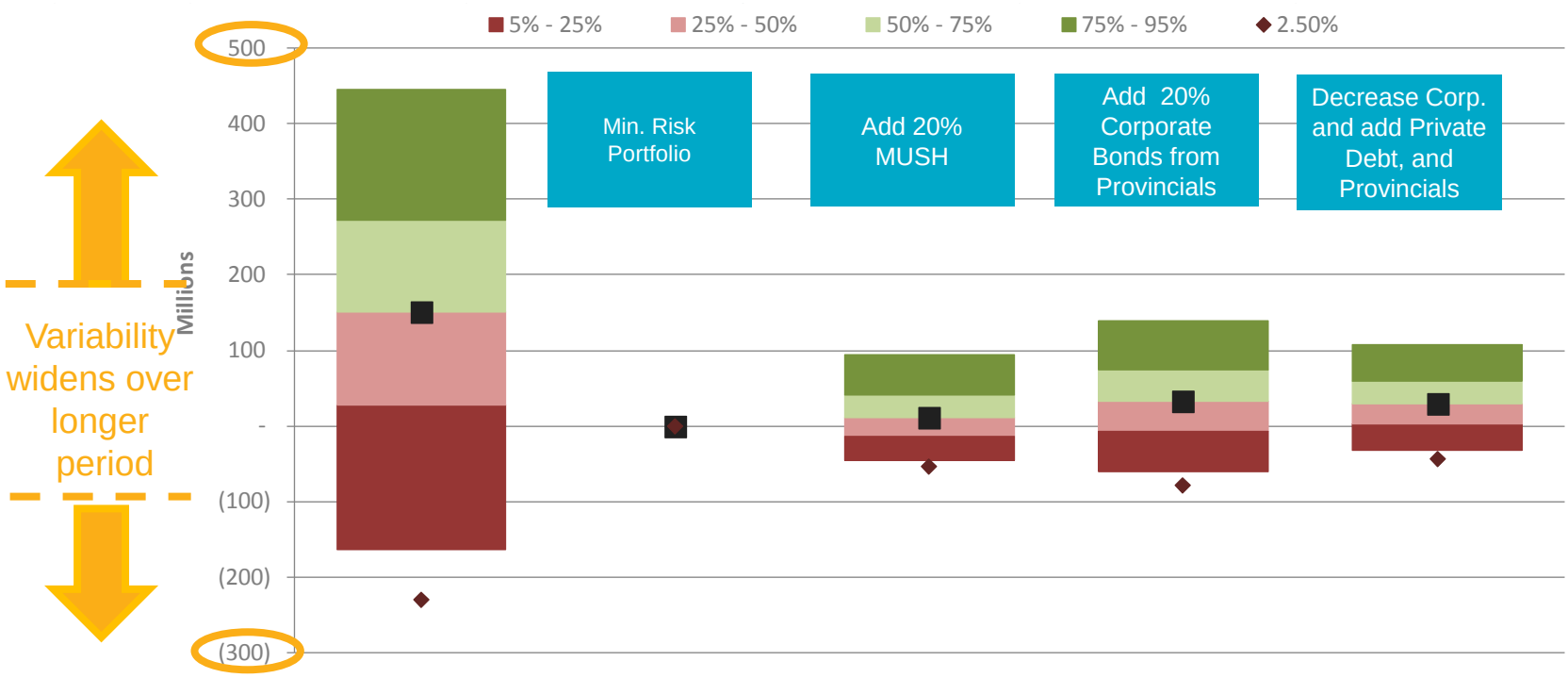
EXPECTED SURPLUS GROWTH
BASIC- 5 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	444.5 M	0.0 M	94.2 M	139.7 M	107.4 M
75th	272.3 M	0.0 M	41.5 M	73.7 M	58.9 M
50th	151.5 M	0.0 M	11.5 M	32.3 M	29.6 M
25th	27.2 M	0.0 M	-14.1 M	-6.8 M	2.9 M
5th	-163.2 M	0.0 M	-44.7 M	-60.8 M	-32.3 M
2.5th	-229.3 M	0.0 M	-53.2 M	-78.3 M	-43.1 M

Median

Downside

Assets are modelled to equal liabilities at the start of the projection period.

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• ASSET CLASS RECOMMENDATION
BASIC: MPI RECOMMENDATION IS BASIC.3

- Assuming:
  - Matching interest rate risk remains the priority for Basic,
  - MPI will accept some credit risk in pursuit of modest levels of excess returns,
- We would support allocating to Basic.3 or Basic.4, with a preference for Basic.4
  - Basic.4: 60% Provincials, 20% MUSH, 10% Corporates, 10% Private Debt
    1. High excess return to surplus volatility ratio (risk-adjusted return)
    2. High probability of surplus and positive real return
    3. High non-MUSH yield
    4. Low surplus volatility
    5. More diversified fixed income portfolio

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ABOUT THE BASIC PROJECTIONS

- The starting point of this analysis is based on:
  - Assets of $1,790M
  - Liabilities of $1,790M
- **Liability growth rate** is assumed to be at Liability Benchmark growth rate. The future discount rate is assumed to be changing in line with the yield on the Liability Benchmark.
- **Surplus volatility** reflects volatility of the Liability Benchmark, volatility of assets, as well as correlation between the two.
- The projection assumes **no future underwriting losses or gains**
- The projection assumes that over the 5-year period new business premiums will be roughly equal to overall claim payments, so the **inflows will offset the outflows**
- Hedge ratio for alternative asset mixes reflects modelling of pure basic component, **assuming assets equal liabilities**.
- Capital market assumptions are outlined in the Appendix.

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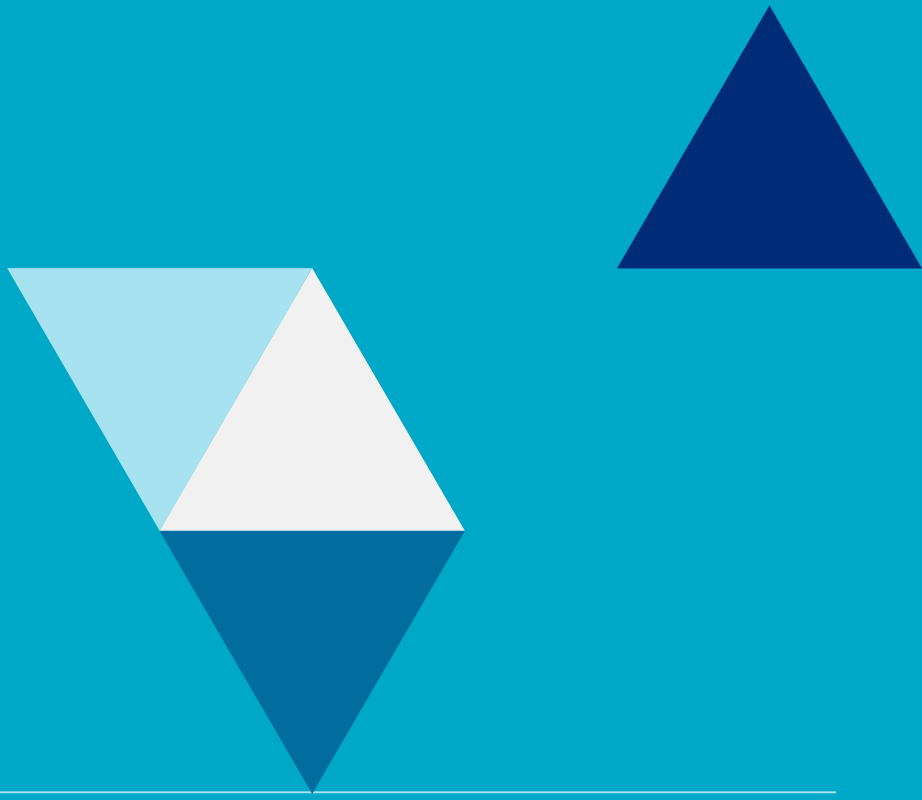
RSR
LIABILITIES, ASSET ALLOCATION ALTERNATIVES, AND RECOMMENDATION



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A SNAPSHOT OF MPI'S RATE STABILIZATION RESERVE (RSR)

Liability Overview

- RSR is essentially surplus assets and excludes AOCI
- RSR transfers to become a claim liability if claim experience (investment or otherwise) is unfavorable
-

Key Statistics

Assets: $97.8Million

Duration: 0 years

Liability Benchmark

- Not Applicable

Asset Purpose:

Stabilize insurance rates by covering losses when they emerge

Risk Tolerance

Minimal if RSR is below DCAT minimum.

Moderate when within optimal range

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ASSET CLASS OBJECTIVES
RSR

Return



- Generating real returns helps stabilize premium rates and grow surplus
- Return objectives are more conservative when surplus is less than DCAT minimum

Risk



- No specific obligations exist, allowing for more flexibility with regard to fixed income duration, growth assets, and liquidity
- Risk aversion increases when surplus is less than DCAT minimum

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ASSET CLASS OPTIONS
RSR

GROWTH ASSETS INCREASE

	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
	Commingled	Conservative	Moderate	Balanced	Growth
Fixed Income	70%	60%	50%	40%	30%
Mid-term Bonds (Corp.)	0.0%	10%	10%	10%	5%
Long-term Bonds (Corp.)	2.0%	0%	0%	0%	0%
Short-term Bonds (Prov.)	6.5%	15%	10%	5%	5%
Mid-term Bonds (Prov.)	12.0%	15%	10%	5%	0%
Long-term Bonds (Prov.)	29.5%	0%	0%	0%	0%
MUSH Bonds	20.0%	5%	5%	5%	5%
Private Debt – Universe	0.0%	15%	15%	15%	15%
Public Equities	15.0%	25%	35%	45%	50%
Canadian Equity	10.0%	8%	12%	15%	17%
U.S. Equity	5.0%	0%	0%	0%	0%
Global Equity (Low Volatility)	0.0%	8%	10%	10%	10%
All Country World Equity	0.0%	9%	13%	20%	23%
Alternatives	15.0%	15%	15%	15%	20%
Real Estate	10.0%	10%	10%	10%	10%
Private Equity	0.0%	0%	0%	0%	5%
Infrastructure	5.0%	5%	5%	5%	5%

Introduce Corporate Bonds and Private Debt to enhance returns.

Reduce MUSH.

Diversify Equities.

Introduce Private Equity, if Growth is important.

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ASSET MIX ANALYSIS – SUMMARY RESULTS

RSR

Metric	Current Mix	Alternative Approaches			
		RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
		Conservative	Moderate	Balanced	Growth
Expected return	4.3%	4.6%	5.1%	5.5%	6.1%
Return volatility	5.4%	5.0%	6.1%	7.6%	8.8%
Sharpe ratio	0.53	0.64	0.60	0.54	0.53
1 Year Median Gain	$4.0 M	4.3 M	4.8 M	5.3 M	5.9 M
90th Percentile VaR	-6 M	-6 M	-7 M	-9 M	-10 M
95th Percentile VaR	-$8 M	-8 M	-9 M	-11 M	-13 M
97.5th Percentile VaR	-$10 M	-9 M	-11 M	-13 M	-16 M
Median Gain in 5 years	$22 M	24 M	27 M	30 M	33 M
5-Year Surplus volatility	14.1%	13.1%	16.3%	20.6%	24.6%
Prob. of 5-year positive real return	83%	88%	88%	86%	86%
Non-MUSH Yield	2.75%	2.60%	2.73%	2.93%	3.04%

Return Metrics

Risk Metrics

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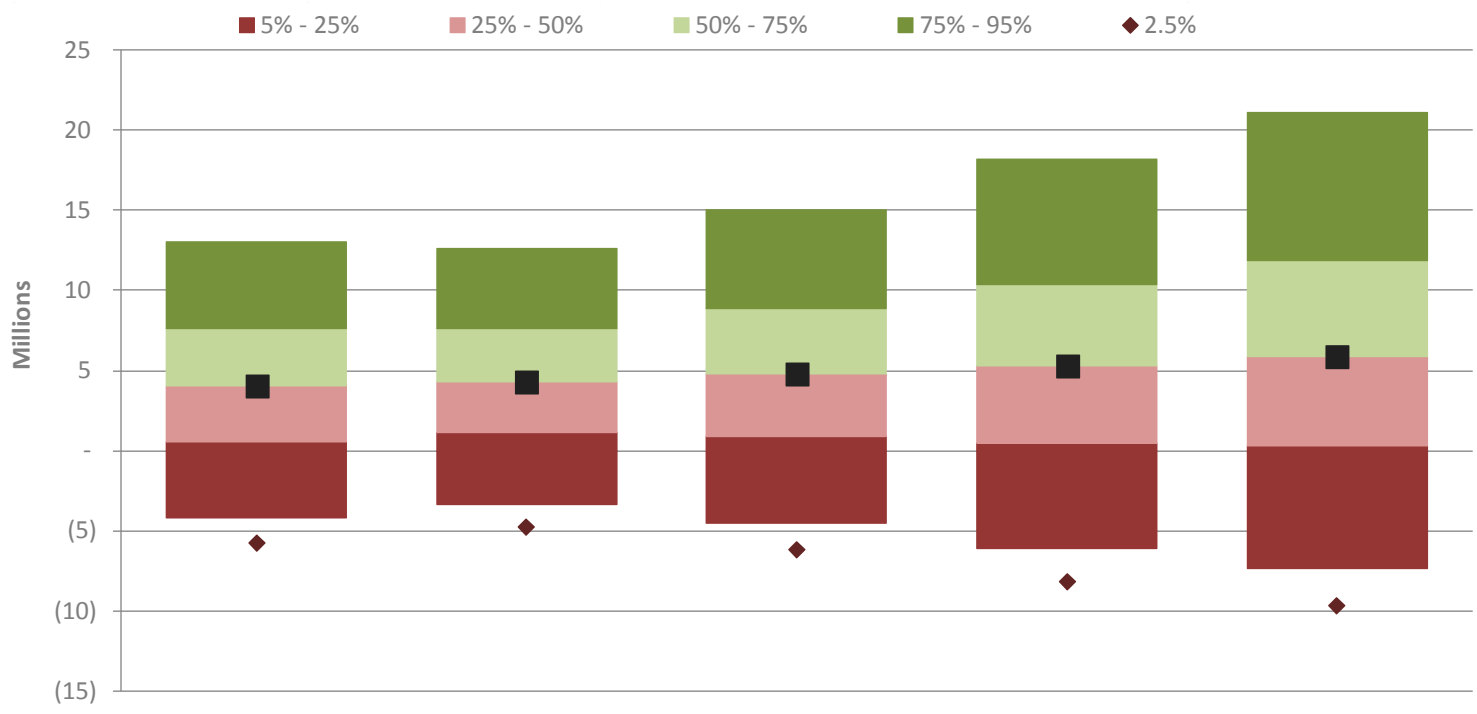
Sharpe Ratio = (Expected Return – Risk Free Return)/(Return Volatility) where Risk Free Rate is T-Bill Rate.

ASSET MIX ANALYSIS
RSR- 1 YEAR PROJECTIONS OF INCREMENTAL RETURN



Percentile	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
95th	13.0 M	12.6 M	15.1 M	18.1 M	21.1 M
75th	7.6 M	7.6 M	8.9 M	10.4 M	11.8 M
50th	4.0 M	4.3 M	4.8 M	5.3 M	5.9 M
25th	0.6 M	1.1 M	0.9 M	0.5 M	0.3 M
5th	-4.2 M	-3.3 M	-4.5 M	-6.1 M	-7.3 M
2.5th	-5.7 M	-4.7 M	-6.2 M	-8.2 M	-9.7 M

Median

Downside

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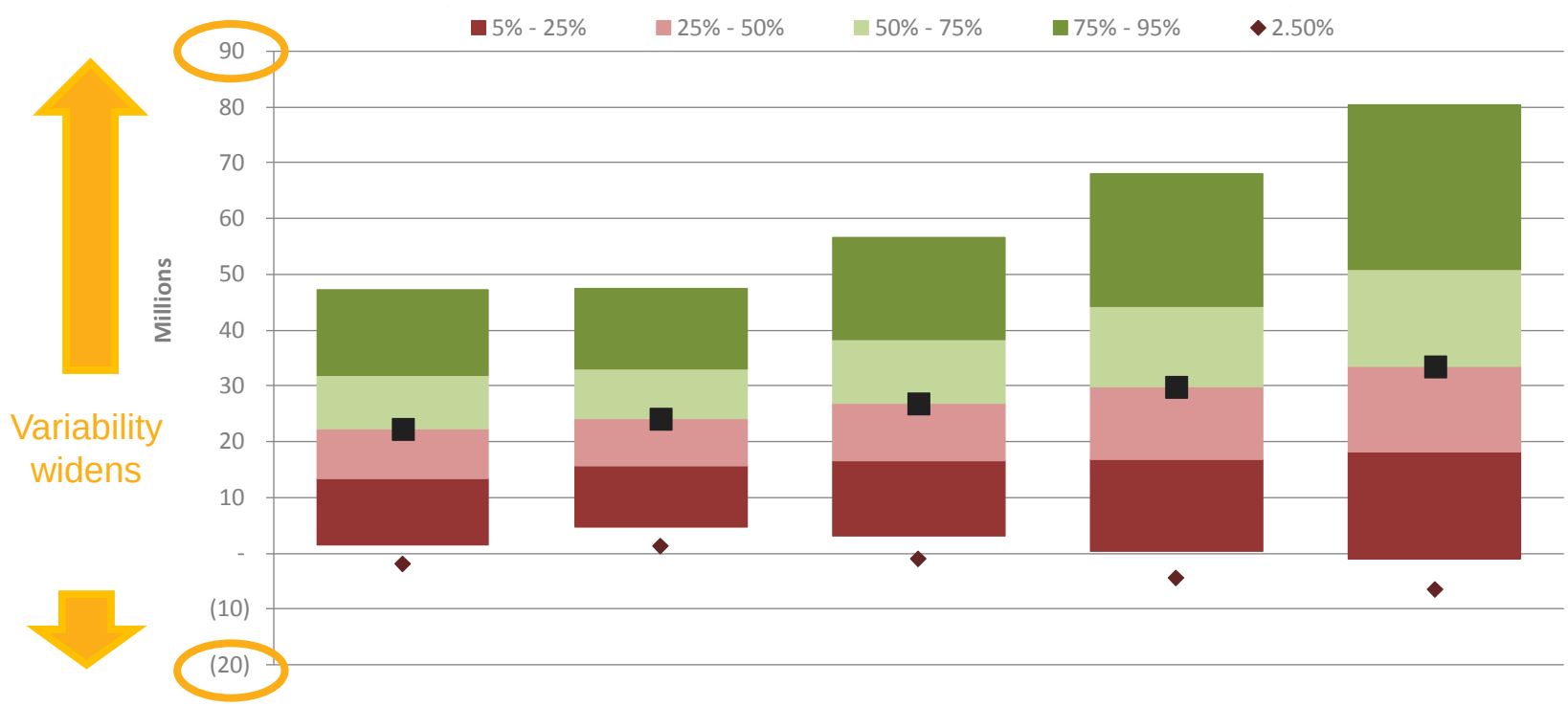
ASSET MIX ANALYSIS
RSR- 5 YEAR PROJECTIONS OF INCREMENTAL RETURNS



Percentile	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
95th	47.2 M	47.4 M	56.6 M	68.1 M	80.4 M
75th	31.8 M	33.1 M	38.3 M	44.2 M	50.9 M
50th	22.2 M	24.1 M	27.0 M	29.8 M	33.5 M
25th	13.3 M	15.8 M	16.6 M	16.8 M	18.1 M
5th	1.5 M	4.6 M	3.0 M	0.3 M	-1.1 M
2.5th	-2.0 M	1.3 M	-1.0 M	-4.5 M	-6.6 M

Median

Downside

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ASSET CLASS RECOMMENDATION
RSR: MPI RECOMMENATION IS R-S-E.1

- It is our understanding that the RSR is currently less than the DCAT minimum, suggesting consideration of the more conservative mixes RSR.1 and R-S-E.1
- We would support allocating to either, with a preference for R-S-E.1 (50% Fixed Income, 50% Growth)
    1. High Sharpe ratio (risk-adjusted return)
    2. High probability of positive real return
    3. Relative to RSR.1's 5-year projection, materially more upside than downside

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ABOUT THE RSR PROJECTIONS

- The starting point of this analysis is based on:
  - Assets of $97.8M
  - No liabilities
- **Portfolio growth rate** is assumed to be portfolio's expected return.
- **Return volatility** is based on portfolio composition.
- Capital market assumptions are outlined in the Appendix.

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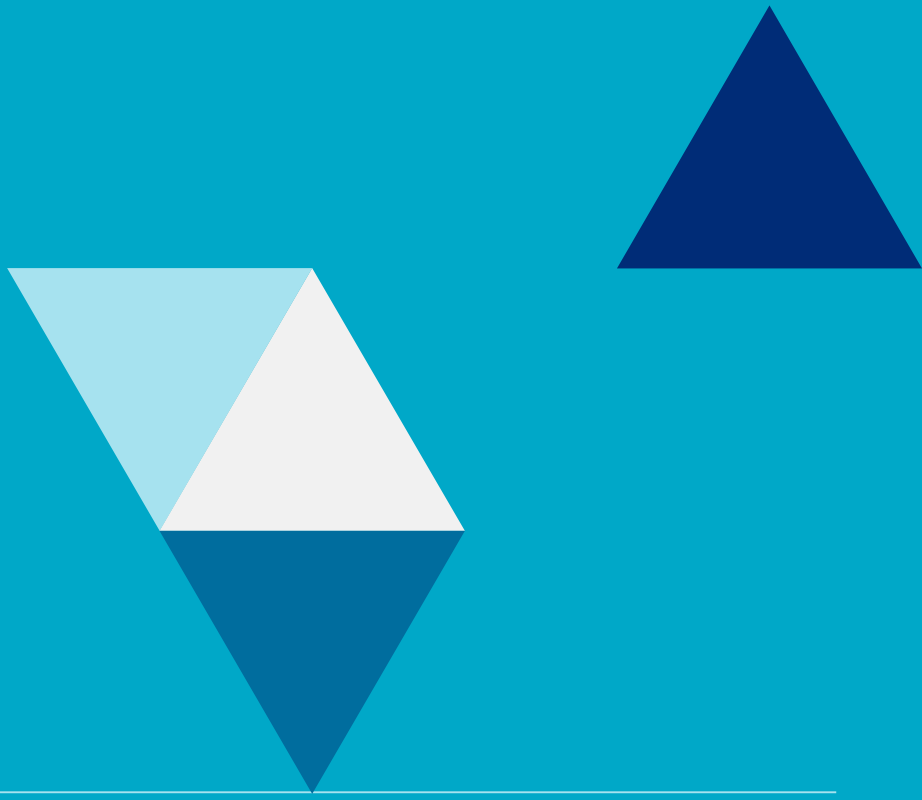
PENSION



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A SNAPSHOT OF MPI'S PENSION LIABILITIES

Liability Overview

- Employer share of pension plan liabilities are funded on a pay as you go basis
- Liability represents amounts that have been accrued but not paid

Key Statistics

Liability: $405 Million

Duration: 15.6 years

Liability Benchmark

- Treasury Bills -17%
- Long Corporates Bonds 117%

Asset Purpose:

Ensure that MPI's pension obligations are paid as they become due

Risk Tolerance

Moderate

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ASSET CLASS OBJECTIVES
PENSION

Return



- Consider CSSB asset mix as a starting point (if MPI didn't fund PAYGO, this is how assets would be invested)

Risk



- Changes in pension liability (often driven by long corporate yields) requires 'truing up' ... When long corporate rates fall/(rise), the businesses must fund/(release) reserves

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ASSET CLASS OPTIONS
PENSION

GROWTH ASSETS INCREASE

	Current	CSSB	Pension.1	Pension.2	Pension.3
		For reference	Balanced	Growth	Aggressive
Fixed Income	70%	27%	40%	30%	20%
T-Bills	0%	1%	-	-	-
Mid-term Bonds (Corp.)	2%	-	-	-	-
Long-term Bonds (Corp.)	0%	-	20%	20%	20%
Short-term Bonds (Prov.)	6.5%	-	-	-	-
Mid-term Bonds (Prov.)	12%	-	-	-	-
Long-term Bonds (Prov.)	29.5%	-	-	-	-
MUSH Bonds	20%	-	-	-	-
Private Debt – Long	0%	-	20%	10%	0%
Overall – Universe	0%	17.5%	-	-	-
Overall – Long	0%	8.5%	-	-	-
Public Equities	15%	55%	35%	46%	55%
Canadian Equity	10%	19%	10%	13%	18%
U.S. Equity	5%	15%	-	-	-
EAFE Equity	0%	21%	-	-	-
All-Country World Equity	0%	-	18%	18%	20%
Global Equity (Low Volatility)	0%	-	7%	14%	17%
Alternatives	15%	18%	25%	25%	25%
Private Equity	0%	4%	0%	0%	0%
Real Estate	10%	10%	15%	15%	15%
Infrastructure	5%	4%	10%	10%	10%

Emphasize Corporate Bonds and Private Debt to enhance returns.

Remove MUSH.

Diversify Equities.

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ASSET MIX ANALYSIS – SUMMARY RESULTS

PENSION

Metric	Current Mix	Alternative Approaches			
		Reference CSSB	Balanced Pension.1	Growth Pension.2	Aggressive Pension.3
Expected return	4.3%	6.1%	5.7%	5.9%	6.2%
Excess return over liability benchmark	0.1%	2.0%	1.5%	1.8%	2.1%
Surplus volatility	7.2%	10.6%	7.9%	8.7%	9.9%
Excess Return / Surplus Volatility	0.01	0.18	0.19	0.21	0.21
1 Year Median Surplus	-$1.1 M	6.8 M	5.8 M	6.7 M	7.6 M
90th Percentile VaR	-39 M	-55 M	-42 M	-46 M	-51 M
95th Percentile VaR	-51 M	-70 M	-54 M	-59 M	-66 M
97.5th Percentile VaR	-62 M	-84 M	-65 M	-71 M	-79 M
Interest Rate Risk Hedge Ratio	47%	17%	36%	27%	17%
Median Surplus in 5 years	$4 M	50 M	41 M	48 M	55 M
5-Year Surplus volatility	19.3%	29.7%	21.4%	24.1%	27.9%
Prob. of surplus in 5 years	52%	67%	69%	69%	70%
Prob. of 5-year positive real return	83%	84%	87%	86%	85%
Non-MUSH Yield	2.75%	2.48%	3.72%	3.77%	3.86%

Return Metrics

Risk Metrics

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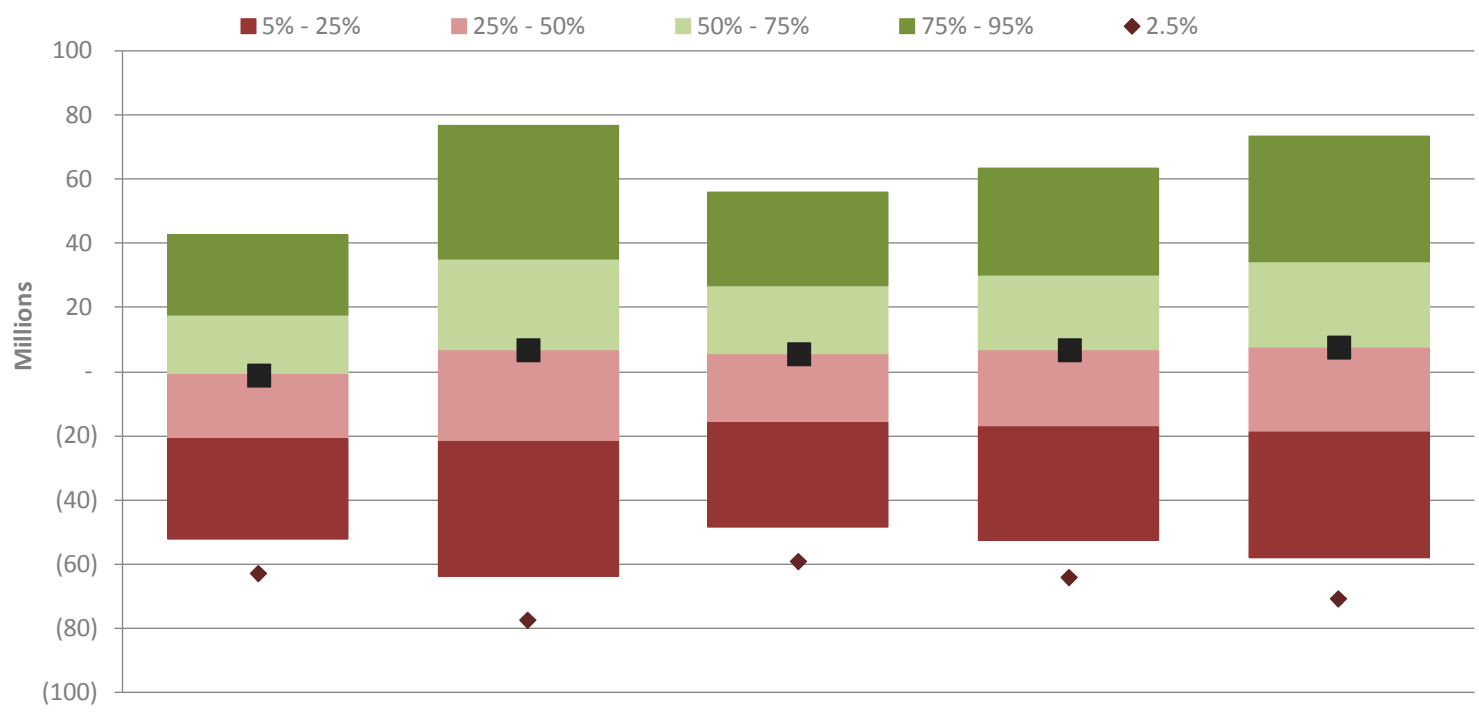
Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

ASSET MIX ANALYSIS
PENSION- 1 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3	
95th	42.6 M	76.8 M	55.9 M	63.3 M	73.2 M	
75th	17.6 M	35.3 M	26.7 M	30.0 M	34.3 M	
50th	-1.1 M	6.8 M	5.8 M	6.7 M	7.6 M	Median
25th	-21.1 M	-21.8 M	-15.8 M	-17.1 M	-19.1 M	
5th	-52.3 M	-63.7 M	-48.3 M	-52.4 M	-58.1 M	
2.5th	-63.1 M	-77.6 M	-59.4 M	-64.3 M	-71.0 M	Downside

Assets are modelled to equal liabilities at the start of the projection period.

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ASSET MIX ANALYSIS
PENSION- 5 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	109.1 M	250.0 M	174.0 M	203.5 M	243.6 M
75th	51.0 M	128.4 M	96.0 M	110.1 M	128.0 M
50th	4.1 M	50.4 M	41.5 M	47.7 M	54.5 M
25th	-50.1 M	-26.5 M	-16.1 M	-15.9 M	-17.5 M
5th	-144.6 M	-143.3 M	-109.5 M	-115.9 M	-126.0 M
2.5th	-180.3 M	-184.4 M	-143.8 M	-151.9 M	-164.1 M

Median

Downside

Assets are modelled to equal liabilities at the start of the projection period.

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ASSET CLASS RECOMMENDATION
PENSION: MPI RECOMMENDATION IS PENSION.1

- If hedging interest rate risk is important, we would support allocating to Pension.1
    1. Highest interest rate risk hedge
    2. Probability of surplus and positive real return doesn't improve in Pension.2 or 3
    3. Relative to CSSB's 5-year projection, less volatility with similar return

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ABOUT THE PENSION PROJECTIONS

- The starting point of this analysis is based on:
  - Assets of $405M
  - Liabilities of $405M (based on MPI discount rate of 3.89%)
- **Liability growth rate** is assumed to be 3.89%. The future discount rate is assumed to be changing in line with the yield on the Liability Benchmark.
- **Surplus volatility** reflects volatility of the Liability Benchmark, volatility of assets, as well as correlation between the two.
- The projection assumes that over the 5-year period the **inflows will offset the outflows.**
- Capital market assumptions are outlined in the Appendix.

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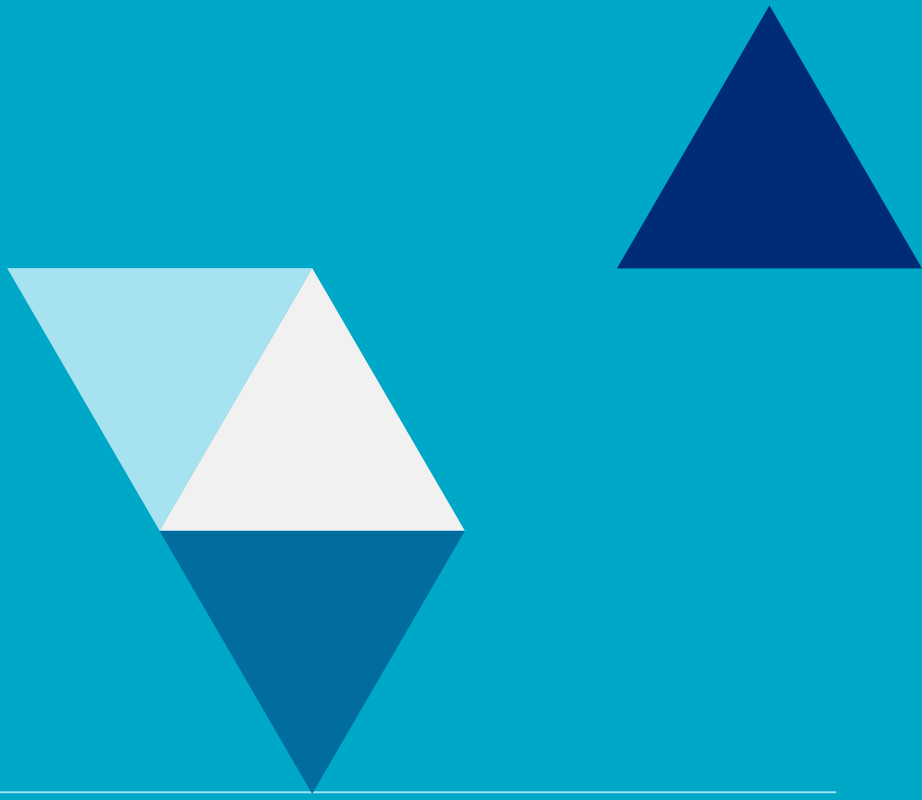
IMPLEMENTATION CONSIDERATIONS



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FIXED INCOME ALLOCATIONS WOULD BE AS FOLLOWS:

	Provincials		Corporates		MUSH		Private Debt	
Basic	$ 1,074M	60%	$ 358M	10%	$358M	20%	$ - M	0%
SRE	$ 30M	20%	$ 15M	10%	$ 7M	5%	$ 22M	15%
RSR	$ 20M	20%	$ 10M	10%	$ 5M	5%	$ 15M	15%
Extension	$ 32M	20%	$ 11M	10%	$ 5M	5%	$ 16M	15%
Pension	$ -	0%	$ 81M	20%	$ 0M	0%	$ 81M	20%
Total Target	**$ 1,145M**	**45%**	**$ 468M**	**18%**	**$ 378M**	**15%**	**$ 134M**	**5%**

	Federals		Provincials		Corporates		MUSH		Private Debt	
Aug 31, 2017	$121M	5%	$921M	36%	$6M	0%	$648M	25%	$0M	0%
Change	-$121M	-5%	+$223M	+9%	+$462M	+18%	-$272M	-11%	+$134M	+5%

Modest additions to Provincials
Introduction of Corporates and Private Debt
MUSH bonds will take time to mature

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EQUITY ALLOCATIONS WOULD BE AS FOLLOWS:

	Canadian		Global		Global Low Volatility	
Basic	$ 0M	0%	$ 0M	0%	$ 0M	0%
SRE	$ 18M	12%	$ 19M	13%	$ 15M	10%
RSR	$ 12M	12%	$ 13M	13%	$ 10M	10%
Extension	$ 13M	12%	$ 14M	13%	$11M	10%
Pension	$ 41M	10%	$ 73M	18%	$ 28M	7%
Total Target	**$ 83M**	**3%**	**$ 119M**	**5%**	**$ 63M**	**2%**

	Canadian		US		Global		Global LV	
Aug 31, 2017	**$287M**	**11%**	**$144M**	**6%**	**0**	**0%**	**0**	**0%**
Change	**-$204M**	**-8%**	**-$144M**	**-6%**	**+$119M**	**+5%**	**+63M**	**+2%**

Significant reductions to Canadian and US Equity
Introduction of Global Equities, Low Volatility Global Equities

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ALTERNATIVE ALLOCATIONS WOULD BE AS FOLLOWS:

	Real Estate		Infrastructure	
Basic	$ 0M	0%	$ 0M	0%
SRE	$ 15M	10%	$ 7M	5%
RSR	$ 10M	10%	$ 5M	5%
Extension	$ 11M	10%	$ 5M	5%
Pension	$ 61M	15%	$ 41M	10%
Total Target	**$ 96M**	**4%**	**$ 58M**	**2%**

	Real Estate		Private Equity		Infrastructure	
Aug 31, 2017	**$297M**	**12%**	**$3M**	**0.1%**	**$89M**	**3%**
Change	**-$191M**	**-8%**	**-$3M**	**-0.1%**	**-$31M**	**-1%**

Will take some time to reduce the allocations to Real Estate and Infrastructure

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REVISITING OUR FRAMEWORK TO HELP CLARIFY THE RATIONALE FOR THE RECOMMENDATIONS



Return

How does this change impact expected returns?



Risk

How does this change impact expected risk?



Cost

How much does this change cost?



Time

How much time will this change take?

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COMPARING RETURN AND RISK
ALL BUSINESSES



Return

	Current	Proposed
Expected Annual Total Return	4.3%	3.9% (-$11M)
Non-MUSH Yield – ALL	2.75%	3.02%
Non-MUSH Yield – Basic	2.75%	2.92%



Risk

	Current	Proposed
Expected Annual Surplus Volatility	3.4%	1.8% (-1.6%)
95th % ile Value at Risk (surplus)	-$142M	-$75M (+$67M)
Duration	7.27	8.70
Interest Rate Hedge Ratio	73%	87%

**Shift to more bonds reduces expected annual return,
but is offset by increased non-MUSH yield.
Risk reduced significantly and greater amount of interest rate risk is hedged.**

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DRIVERS OF COST AND TIME
FURTHER ANALYSIS



Cost



Time

	Proposed	Implementation Cost	Timing
Provincials	Duration shifting	Minimal	Q1 2018
Corporate Bonds	Add 1-2 mandates	Manager Search Inv Mgmt Fees	H2 2018
Private Debt	Add 1-2 mandate	Manager Search Inv Mgmt Fees	2019
MUSH	Manage liquidity	N/a	Slow over 24 months
Equities	Add 2 mandates	Manager Search Inv Mgmt Fees	2018

Implementation will be phased over 24 months

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APPENDIX
EFFICIENT FRONTIERS



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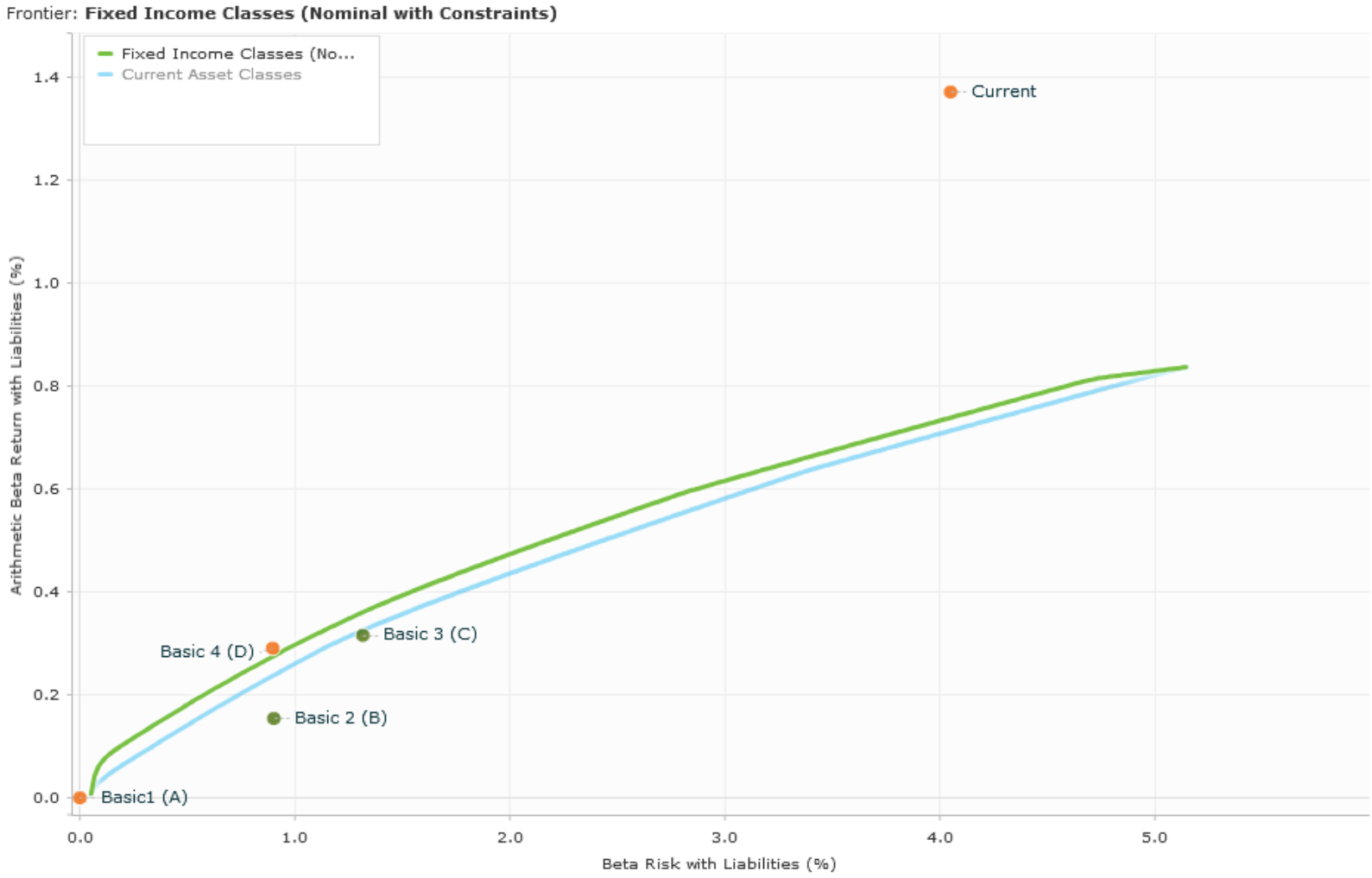
EFFICIENT FRONTIER
BASIC INSURANCE



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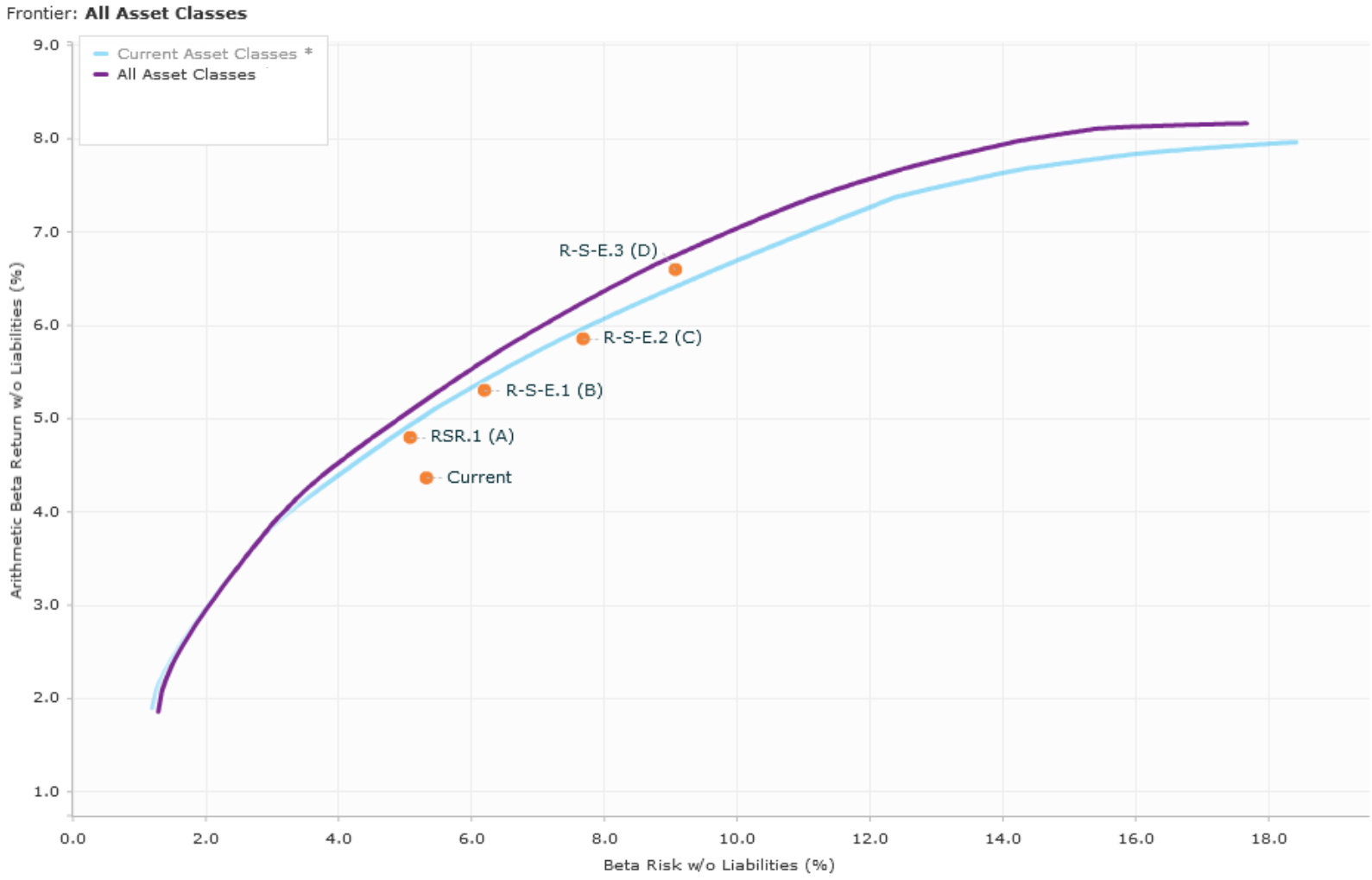
EFFICIENT FRONTIER
RSR



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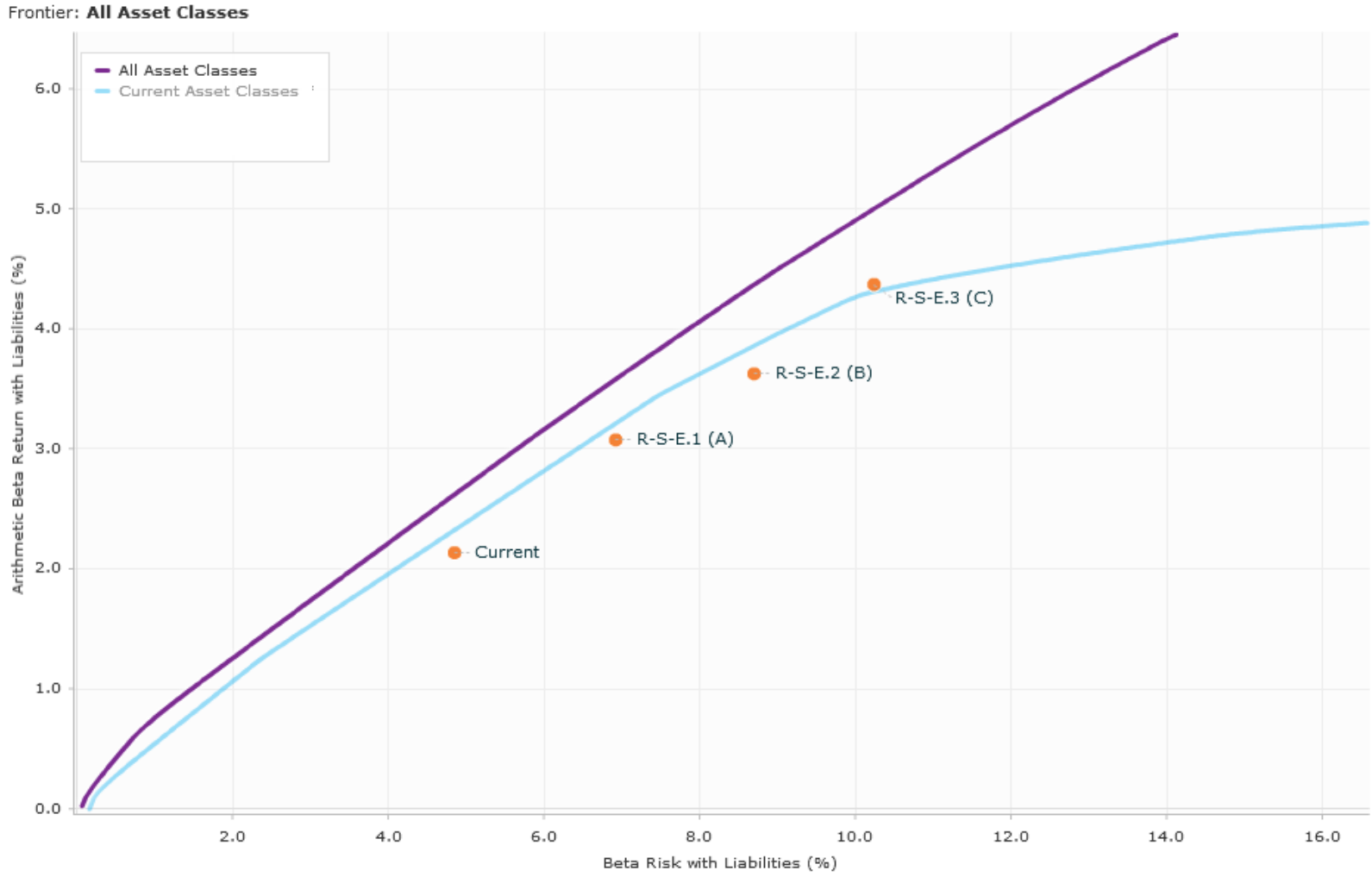

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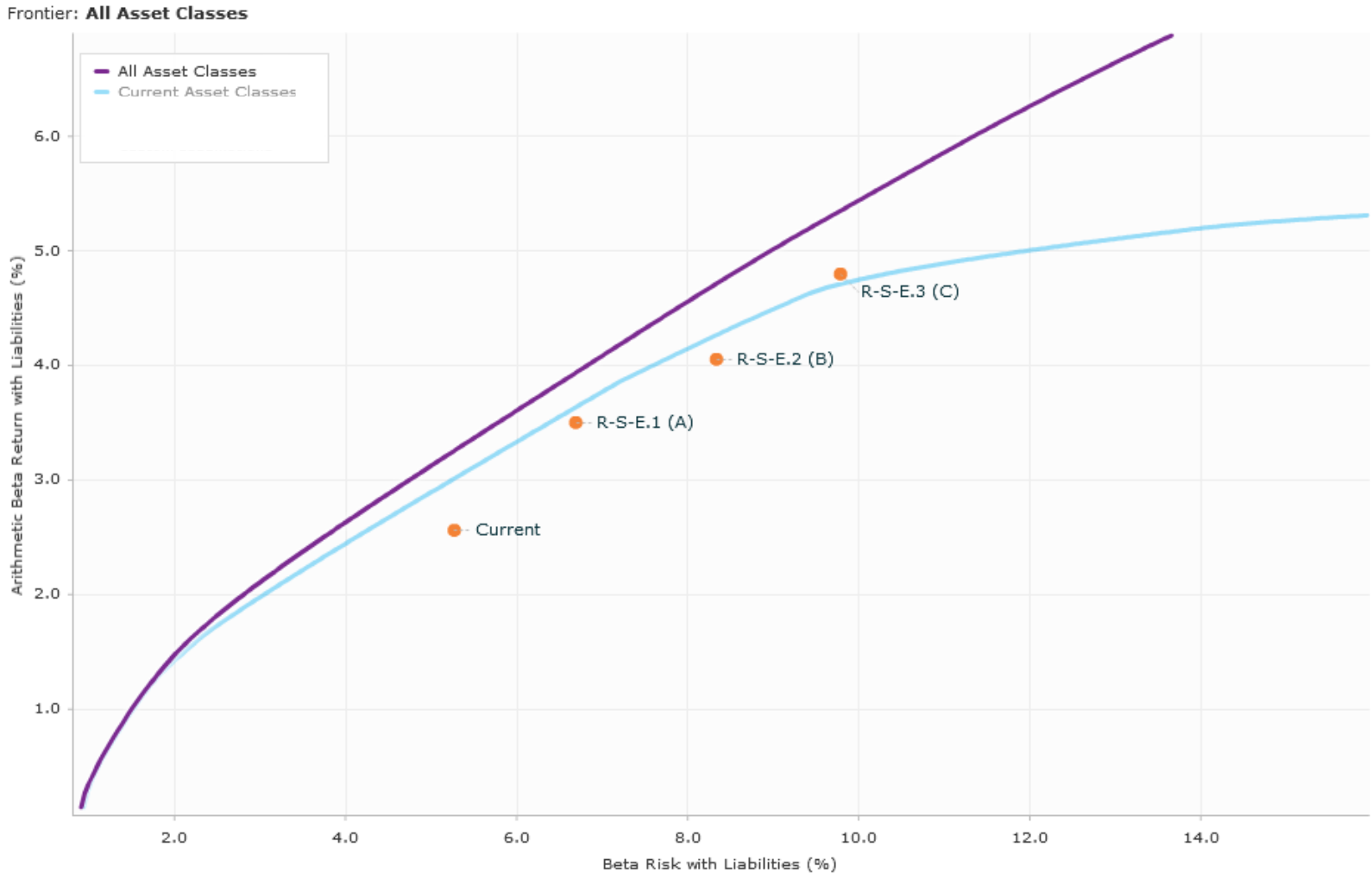
EXT



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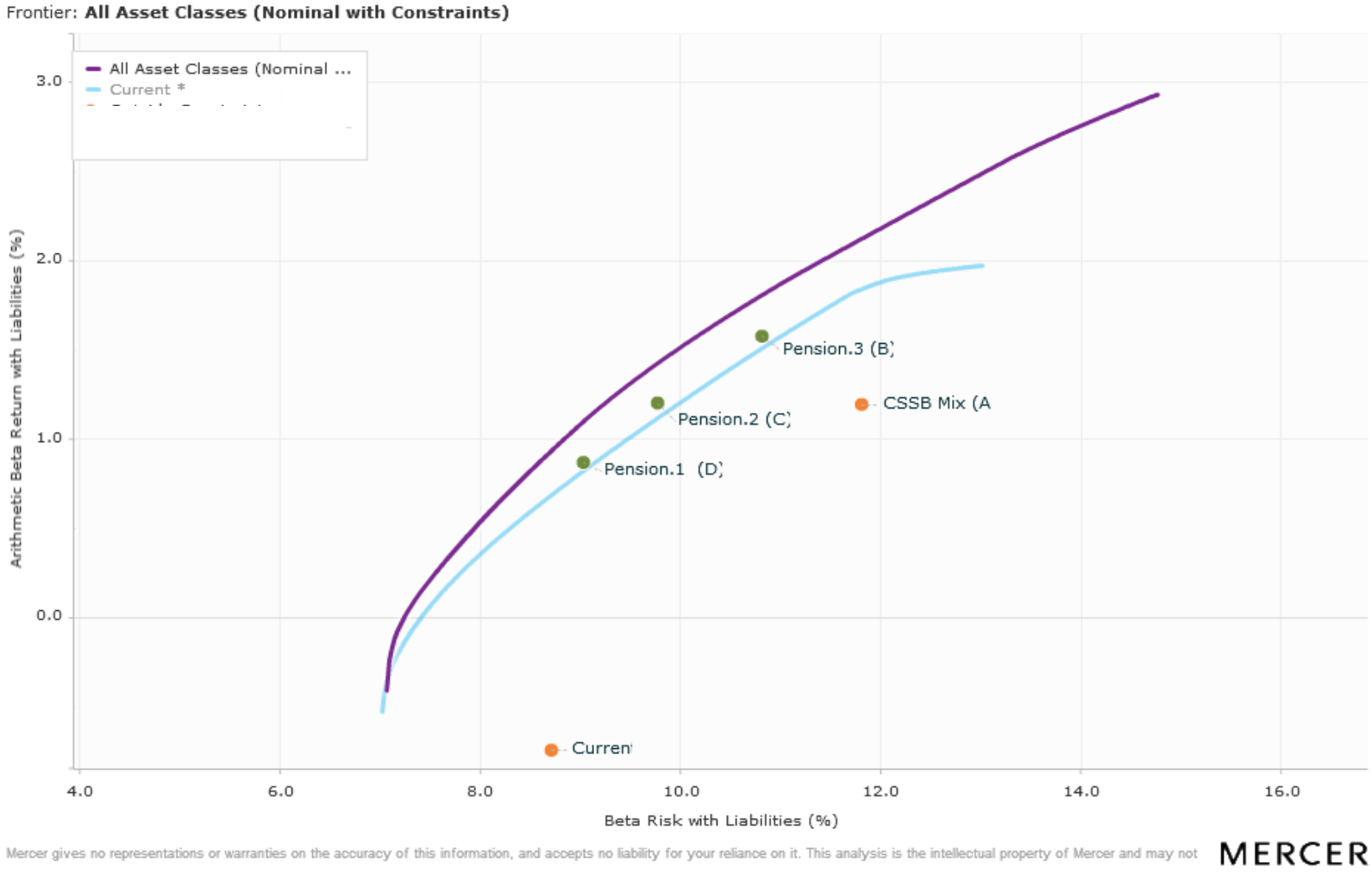
PENSION PLAN



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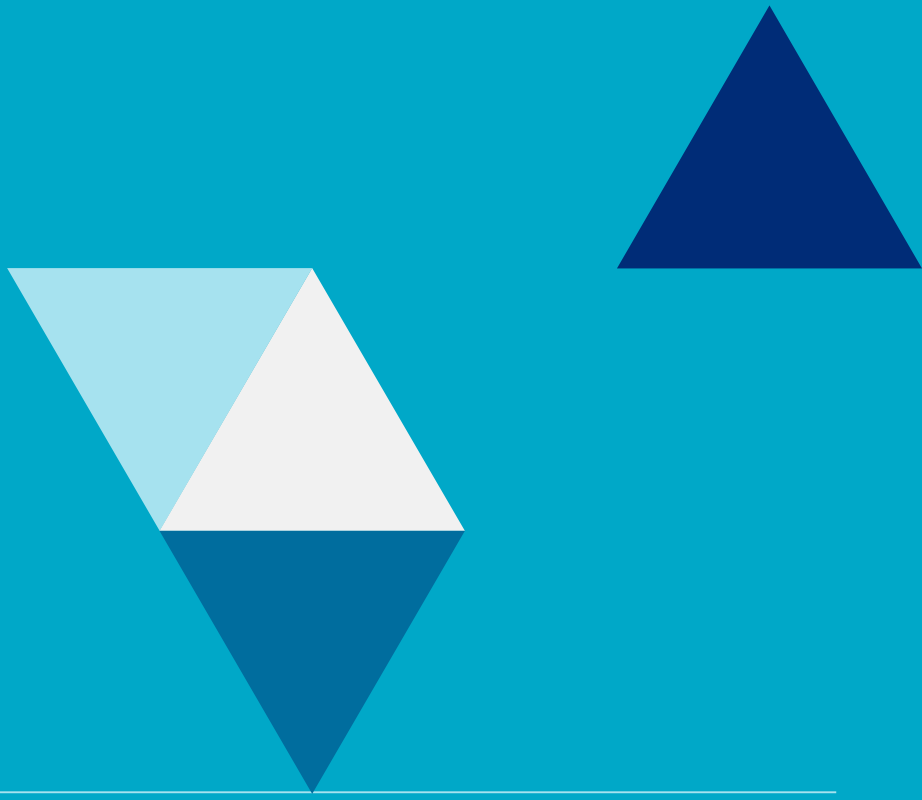
APPENDIX
CAPITAL MARKET ASSUMPTIONS



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CAPITAL MARKET ASSUMPTIONS
10-YEAR ASSUMPTIONS

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.4%	1.5%
2	Federal short-term bonds	1.9%	3.5%
3	Federal mid-term bonds	2.1%	6.5%
4	Federal long-term bonds	2.0%	8.5%
5	Real return bonds	2.7%	7.5%
6	Provincial short-term bonds	2.3%	3.5%
7	Provincial mid-term bonds	2.8%	6.5%
8	Provincial long-term bonds	3.0%	8.5%
9	Corporate short-term bonds	2.8%	3.5%
10	Corporate mid-term bonds	3.5%	6.5%
11	Corporate long-term bonds	3.8%	8.5%
12	Global bonds	0.8%	8.6%
13	High yield bonds	3.9%	9.5%
14	Emerging debt	6.8%	12.0%
15	Canadian equity (large cap.)	6.7%	19.5%
16	U.S. equity (large cap.)	6.7%	17.0%
17	Int'l equity (large cap.)	6.7%	17.1%
18	Global equity (large cap.)	6.7%	16.1%
19	Global low vol equity	6.1%	13.0%
20	Emerging equity	8.7%	25.0%
21	Private equity	10.1%	25.0%
22	Real estate	5.4%	13.0%
23	Diversified Growth Fund	4.9%	9.8%
24	Direct Infrastructure	6.2%	13.0%
25	MUSH Bonds	3.0%	6.5%
26	Commercial Mortgages	2.7%	3.5%
27	Long Commercial Mortgages	2.5%	5.3%
28	Private Debt - Universe	3.3%	5.4%
29	Private Debt - Long	3.5%	8.5%

Inflation: 2.0%

Fixed income returns based on projected yields implied by the current forward yield curve.

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

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CAPITAL MARKET ASSUMPTIONS
STANDARD MERCER CORRELATIONS

	Correlations																												
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Mercer's capital market assumptions are intended to represent reasonable expectations for the next 10 to 20 years and incorporate a wide range of considerations including:
  - Historical return, risk and correlation statistics of broad indices
  - Fixed income returns based on projected yields implied by the current yield curve
  - Estimation of component returns to develop total equity returns, using as starting points such items as
    - Current level of equity earnings yield
    - Inflation expectations
    - Expected economic growth
  - Expected relative relationships between asset classes
  - Some forward-looking judgment
- In general, we assume that future returns will be consistent with assumed risk levels
- Our assumptions have not been developed in the sense of an economic forecast, but rather, to the extent possible, a reading of the market

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Note that:
  - All foreign asset class return, risk and correlation assumptions are based on unhedged foreign currency exposures
  - Publicly traded asset class returns are assumed to be index returns
  - Alternative asset class returns are assumed to be inclusive of median alpha (i.e., active management value-added) and net of median fees

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CAPITAL MARKET ASSUMPTIONS
SUMMARY OF MERCER'S VIEWS

Mercer's capital market assumptions are intended to represent reasonable long-term expectations given current market conditions

Assumptions are what we believe to be the median of the distribution of possible future long-term returns

Perceived mispricing in current financial market conditions should generally not be incorporated into long-term strategic allocation frameworks

Market inefficiencies should be exploited through the skill of specialist investment managers on a short-term basis and asset allocation tilts on a medium-term basis

In general, we assume that future returns will be consistent with assumed risk levels: riskier asset classes should be expected to provided higher returns

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Appendix 17 Attachment C: MERCER CMAs

This material is the subject of a confidential motion.

Line No	Asset Class	Correlations 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	(0.14)	0.10	0.10	0.00	(0.15)	(0.04)	(0.05)	(0.09)	(0.15)	(0.21)
2	Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.52	0.41	0.41	0.75	0.54	(0.54)	0.67	0.33	0.51	0.34
3	Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.75	0.33	0.33	0.90	0.78	(0.43)	0.85	0.52	0.74	0.57
4	Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.89	0.26	0.26	0.93	0.91	(0.38)	0.93	0.61	0.89	0.71
5	Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.70	0.48	0.48	0.66	0.70	(0.02)	0.68	0.99	0.70	0.97
6	Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.61	0.50	0.50	0.84	0.63	(0.49)	0.75	0.46	0.61	0.47
7	Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	0.89	0.41	0.41	0.98	0.91	(0.42)	0.96	0.69	0.89	0.77
8	Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	1.00	0.26	0.26	0.92	0.99	(0.31)	0.98	0.72	1.00	0.84
9	Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.53	0.63	0.63	0.69	0.55	(0.35)	0.60	0.56	0.53	0.56
10	Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.60	0.41	0.41	0.60	0.62	(0.13)	0.57	0.61	0.60	0.66
11	Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.69	0.21	0.21	0.58	0.69	(0.03)	0.61	0.59	0.69	0.69
12	Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.48	0.37	0.37	0.67	0.52	(0.55)	0.60	0.18	0.47	0.24
13	High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.24	0.31	0.31	0.20	0.26	(0.17)	0.19	0.30	0.25	0.35
14	Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.26	0.42	0.42	0.34	0.28	(0.17)	0.29	0.25	0.26	0.25
15	Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.12)	0.00	0.00	(0.30)	(0.17)	0.28	(0.23)	0.17	(0.12)	0.13
16	U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	0.00	(0.21)	(0.21)	(0.19)	(0.05)	(0.06)	(0.10)	(0.09)	0.01	(0.01)
17	Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	0.03	(0.02)	(0.02)	(0.11)	(0.01)	(0.03)	(0.05)	0.01	0.03	0.05
18	Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	0.02	(0.12)	(0.12)	(0.16)	(0.03)	(0.05)	(0.08)	(0.04)	0.02	0.02
19	Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.32	(0.13)	(0.13)	0.19	0.29	(0.11)	0.25	0.06	0.33	0.17
20	Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	0.04	0.14	0.14	(0.10)	0.00	(0.04)	(0.05)	0.18	0.04	0.17
21	Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	0.04	(0.22)	(0.22)	(0.05)	0.04	(0.16)	(0.01)	(0.02)	0.04	0.01
22	Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.07)	(0.36)	(0.36)	(0.23)	(0.11)	0.03	(0.14)	(0.08)	(0.08)	(0.09)
23	Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.15	0.13	0.13	0.18	0.19	(0.43)	0.15	0.03	0.15	0.08
24	Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.23	(0.36)	(0.36)	0.17	0.19	0.14	0.21	0.48	0.23	0.42
25	MUSH Bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	1.00	0.26	0.26	0.92	0.99	(0.31)	0.98	0.72	1.00	0.84
26	Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.26	1.00	1.00	0.41	0.27	(0.27)	0.34	0.51	0.26	0.44
27	Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.26	1.00	1.00	0.41	0.27	(0.27)	0.34	0.51	0.26	0.44
28	Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.92	0.41	0.41	1.00	0.95	(0.43)	0.98	0.70	0.92	0.79
29	Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.99	0.27	0.27	0.95	1.00	(0.32)	0.98	0.71	0.99	0.84
30	Inflation	(0.04)	(0.54)	(0.43)	(0.38)	(0.02)	(0.49)	(0.42)	(0.31)	(0.35)	(0.13)	(0.03)	(0.55)	(0.17)	(0.17)	0.28	(0.06)	(0.03)	(0.05)	(0.11)	(0.04)	(0.16)	0.03	(0.43)	0.14	(0.31)	(0.27)	(0.27)	(0.43)	(0.32)	1.00	(0.38)	(0.05)	(0.31)	(0.11)
31	Basic Nominal	(0.05)	0.67	0.85	0.93	0.68	0.75	0.96	0.98	0.60	0.57	0.61	0.60	0.19	0.29	(0.23)	(0.10)	(0.05)	(0.08)	0.25	(0.05)	(0.01)	(0.14)	0.15	0.21	0.98	0.34	0.34	0.98	0.98	(0.38)	1.00	0.71	0.98	0.82
32	Basic Real	(0.09)	0.33	0.52	0.61	0.99	0.46	0.69	0.72	0.56	0.61	0.59	0.18	0.30	0.25	0.17	(0.09)	0.01	(0.04)	0.06	0.18	(0.02)	(0.08)	0.03	0.48	0.72	0.51	0.51	0.70	0.71	(0.05)	0.71	1.00	0.72	0.97
33	Pension Nominal	(0.15)	0.51	0.74	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.47	0.25	0.26	(0.12)	0.01	0.03	0.02	0.33	0.04	0.04	(0.08)	0.15	0.23	1.00	0.26	0.26	0.92	0.99	(0.31)	0.98	0.72	1.00	0.84
34	Pension Real	(0.21)	0.34	0.57	0.71	0.97	0.47	0.77	0.84	0.56	0.66	0.69	0.24	0.35	0.25	0.13	(0.01)	0.05	0.02	0.17	0.17	0.01	(0.09)	0.08	0.42	0.84	0.44	0.44	0.79	0.84	(0.11)	0.82	0.97	0.84	1.00

ASSET LIABILITY STUDY

PRELIMINARY EFFICIENT FRONTIER ANALYSIS FOR BASIC INSURANCE COMPONENT

DISCUSSION DRAFT

Manitoba Public Insurance

OCTOBER 30, 2017

Angelo DiNoto
Pawel Piesowicz
Jared Mickall
Dave Makarchuk

Updated Nov. 8, 2017

TODAY'S MEETING AGENDA

- Summary of discussions to date:
  - Proposed asset classes
  - Proposed constraints
- Review results of the efficient frontier analysis
- Key goals:
  - Generate discussion on the direction of potential asset mix changes
  - Confirm range of asset mixes to include in the analysis
  - Possibly identify 4 to 5 strategic target asset mixes for further analysis
- Discussion and next steps
- Appendices
  - Comparison to other financial institutions
  - Capital Market Assumptions

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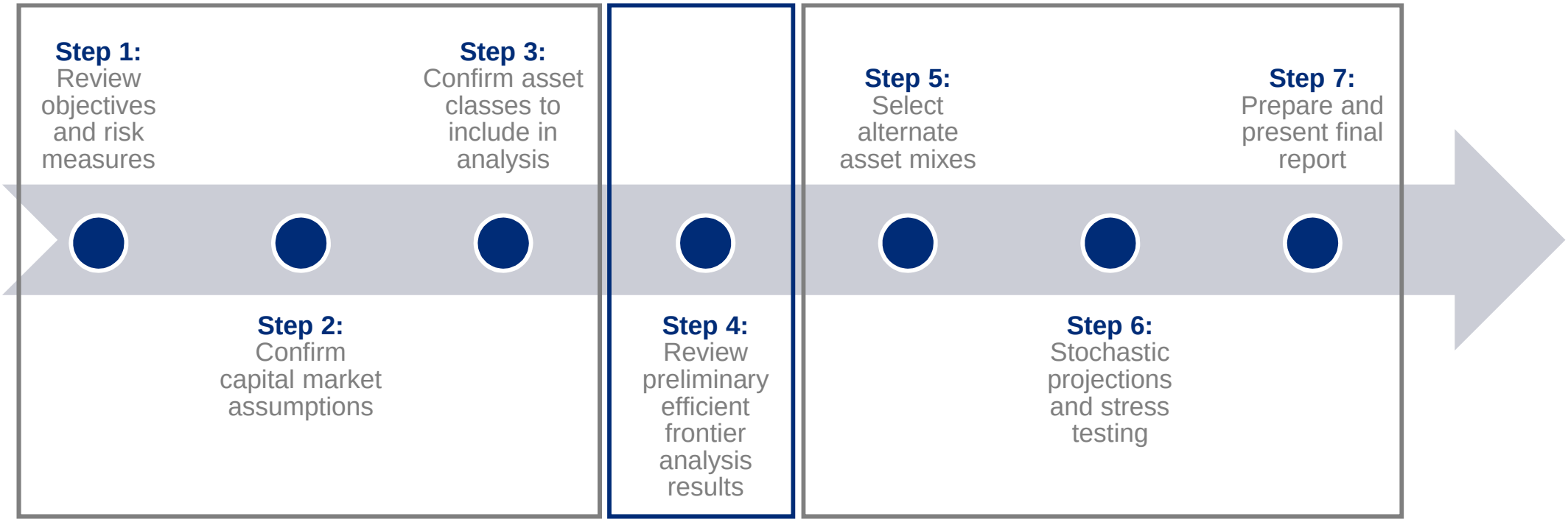
ASSET LIABILITY STUDIES PROCESS



Kick-Off Meeting
Risk metrics
Asset classes to include in analysis
Capital market assumptions
(Oct. 13th Meeting)

Preliminary Analysis
Efficient Frontiers
(Today's Meeting)

Final Analysis (By Nov. 30th)

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SUMMARY OF DISCUSSIONS TO DATE
ASSET CLASSES



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ASSET CLASSES CONSIDERED
BASIC, EXTENSION, SRE, RSR, PENSION

	Return Seeking	Inflation Sensitive	Interest Rate Sensitive
Broad Markets	**Canadian Equity** US Equity **EAFE Equity**	Real Return Bonds 3x Real Return Bonds	Cash MUSH Bonds Provincial Bonds Federal Bonds Canadian Corporate Bonds 3X Long Provincial Bonds
Other Markets	Emerging Markets Equity Global Low Volatility Equity		Global Bonds High Yield Bonds Emerging Market Debt
Alternative Investments	Private Equity Diversified Growth Fund	Infrastructure – Direct Global Real Estate - Direct Cdn	Private Debt – Universe Private Debt – Long Commercial Mortgages Long Comm. Mortgages

Asset Class descriptions along with pros/cons are in the Appendix.

Asset classes already included in the target asset mix

Additional asset classes included in the analysis as suggested by Mercer (approved by MPI Investment Committee)

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ASSET CLASSES TO CONSIDER CONSTRAINTS

- Practical and reasonable modelling approaches and constraints are necessary. Mercer recommendations on modelling are as follows:

  ü U.S./EAFE/Emerging Markets Equity should be bundled into a single ACWI[1] equity mandate
  - Single ACWI mandate provides greater mandate efficiency, affordability
  - Expands equities to include Emerging Markets Equity (note: Samsung is an example)
  - Allows the manager to select best in class stocks without artificial geographic boundaries (i.e., attaching a multinational company to a single country)

  ü Global Bonds/High Yield Bonds/Emerging Market Debt (one-third each), hereafter referred to as Growth Fixed Income
  - Diversified package of liquid bonds which diversifies return and risk sources of the Growth Portfolio

ACWI is All Country World Index. MSCI ACWI is currently about 52% US, 32% EAFE, 12% Emerging Markets Equity

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ASSET CLASSES TO CONSIDER
MINIMALLY CONSTRAINED APPROACH - PARAMETERS

Current

Asset Class	Single	Group
MUSH Bonds	Max. 25% of total portfolio	
Real Estate and Infrastructure		Not exceed 50% of U.S. Equity, Real Estate, Infrastructure

Proposed by Mercer

Asset Class	Single	Group
MUSH Bonds Private Debt Commercial Mortgages	Min. 10% of total portfolio	Max. 25% of total portfolio
Real Estate Infrastructure Private Equity Growth Fixed Income		Not exceed Equity portfolio

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PRELIMINARY ANALYSIS
EFFICIENT FRONTIERS
BASIC INSURANCE – NOMINAL LB



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EFFICIENT FRONTIERS
OVERVIEW

- Characteristics of the efficient frontier tool:
  - One year time horizon
  - Incorporates liabilities through use of a “liability benchmark”
  - Uses optimization techniques to determine asset mixes with optimal risk/return characteristics
  - Flexible tool that can be used to quickly consider many asset mixes
  - Outputs include expected returns and surplus volatility
- Useful for identifying portfolios that:
  - Minimize surplus volatility for a specified level of expected growth; or
  - Maximize expected growth for a specified level of surplus volatility

Note:

- Surplus volatility (i.e., standard deviation) is a measure of the expected volatility of financial position and is expressed on an annualized basis as a percentage of assets
- Surplus volatility of 10% means that there is, roughly, a 1 in 6 chance that the financial position will be:
  - Worse than expected by more than 10% of the starting asset value
  - Better than expected by more than 10% of the starting asset value

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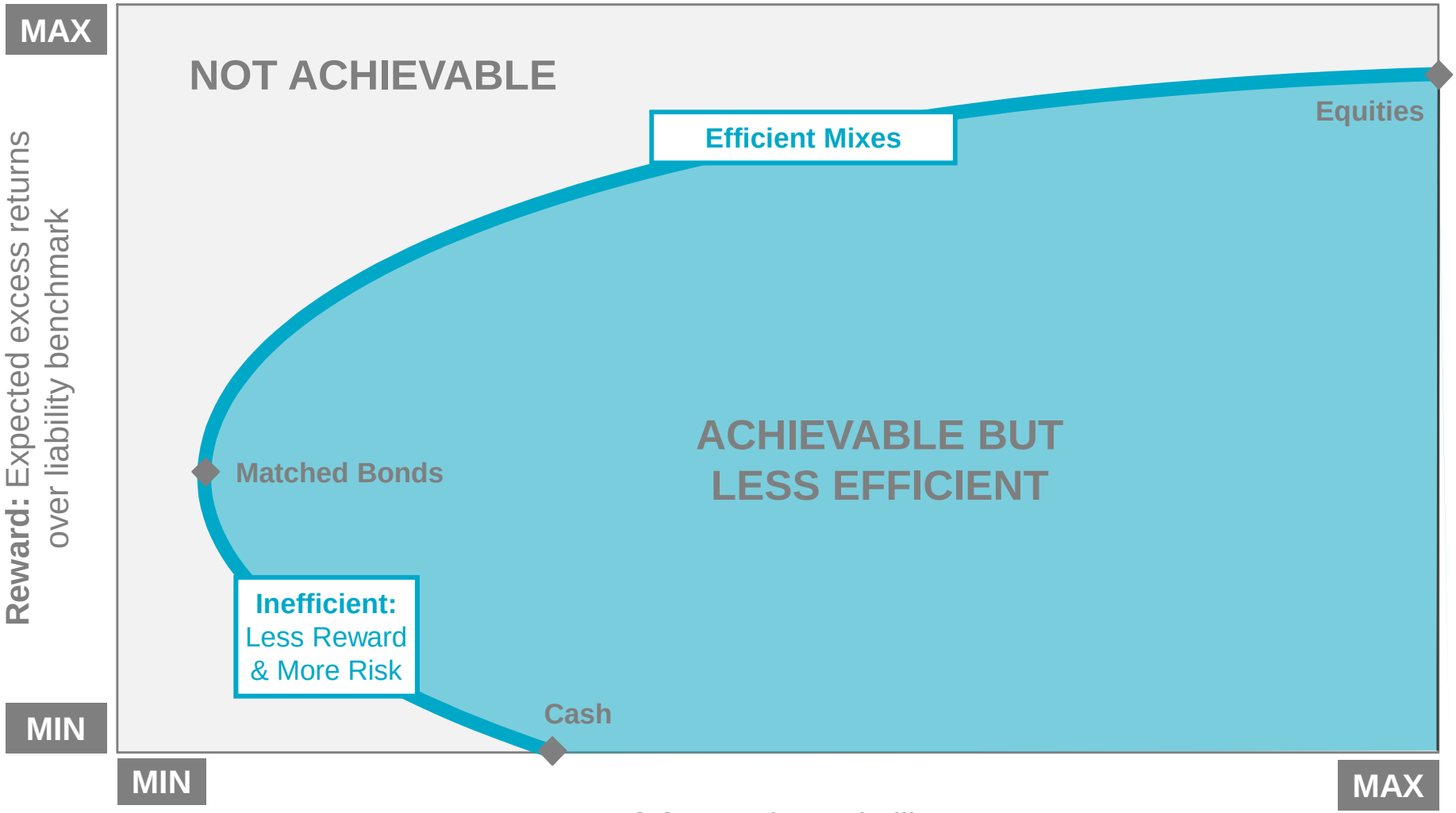
EFFICIENT FRONTIERS

ASSET-LIABILITY EFFICIENT FRONTIER



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INTEREST RATE RISK
LIABILITY BENCHMARK

- In order to evaluate financial risks and to find portfolios that will minimize them, we develop a fixed income portfolio that reproduces the fluctuations of the liabilities (called the Liability Benchmark)
- Based on information provided by Manitoba Public Insurance, the duration and the liability benchmark portfolios for Basic Insurance liabilities (unpaid claims) are summarized below:

	Nominal[1]	Real[2]
Duration	10.3 years	10.3 years
Liability Benchmark		
• Treasury Bills	--	26%
• Short Provincial Bonds	28%	8%
• Mid Provincial Bonds	18%	--
• Long Provincial Bonds	54%	--
• Real Return Bonds	--	66%

Note: These figures are preliminary and may be refined as part of the study.

[1] Nominal considers fixed future inflation at 2% p.a.
[2] Real reflects sensitivity to future inflation rates

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INTEREST RATE RISK
DURATION AND HEDGE RATIO

- Interest rate and inflation risk arise from the fact that a change in market interest rates and/or inflation rates may change liabilities differently than assets
  - A commonly used measure of interest rate sensitivity, “duration”, measures the percentage change in assets and liabilities for each 1% change in market interest rates
  - As an example, a liability “duration” of 10 years means that for each 1% rise (fall) in interest rates, the liabilities are expected to decrease (increase) by approximately 10%
- The interest rate hedge ratio, which measures how much of interest rate risk is hedged, depends on three factors:
  - Ratio of assets to liabilities
  - Percentage of assets allocated to the liability matching portfolio
  - Duration of the matching portfolio relative to that of the liabilities

How much interest rate risk is currently hedged for the Basic Insurance component (assuming assets are equal to liabilities)?

70%
assets allocated to matching portfolio

✖

10.2 years
duration of matching portfolio

÷

10.3 years
duration of liabilities

=

69%

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RISK MANAGEMENT
INVESTMENT LEVERS

Lever 1

- Allocation between growth and hedging assets
- Perhaps most important decision, which is often determined by ability and willingness to accept risk

		Target Mix
Hedging	Marketable Bonds	50%
	Non-Marketable Bonds	20%
	Predominately Manitoba Schools and Non-Manitoba Provincial bonds	
	Approximately 2% each to Federal bonds and Corporate bonds	
	Subtotal	**70%**
Growth	Canadian Equity	10%
	US Equity	5%
	EAFE Equity	0%
	Canadian Real Estate	10%
	Infrastructure	5%
	Private Equity	0%
	Subtotal	**30%**
Total		**100%**

Lever 2 (Hedging portfolio structure)

- Structure of the fixed income portfolio affects interest rate risk (not all bonds are created equal)
- e.g., real return bonds can offset inflation risk

Lever 3 (Growth portfolio structure)

- Diversifying the growth portfolio can improve its risks / reward characteristics

Other Levers

- Currency hedging, leverage, alpha transport, tactical asset allocation, etc.

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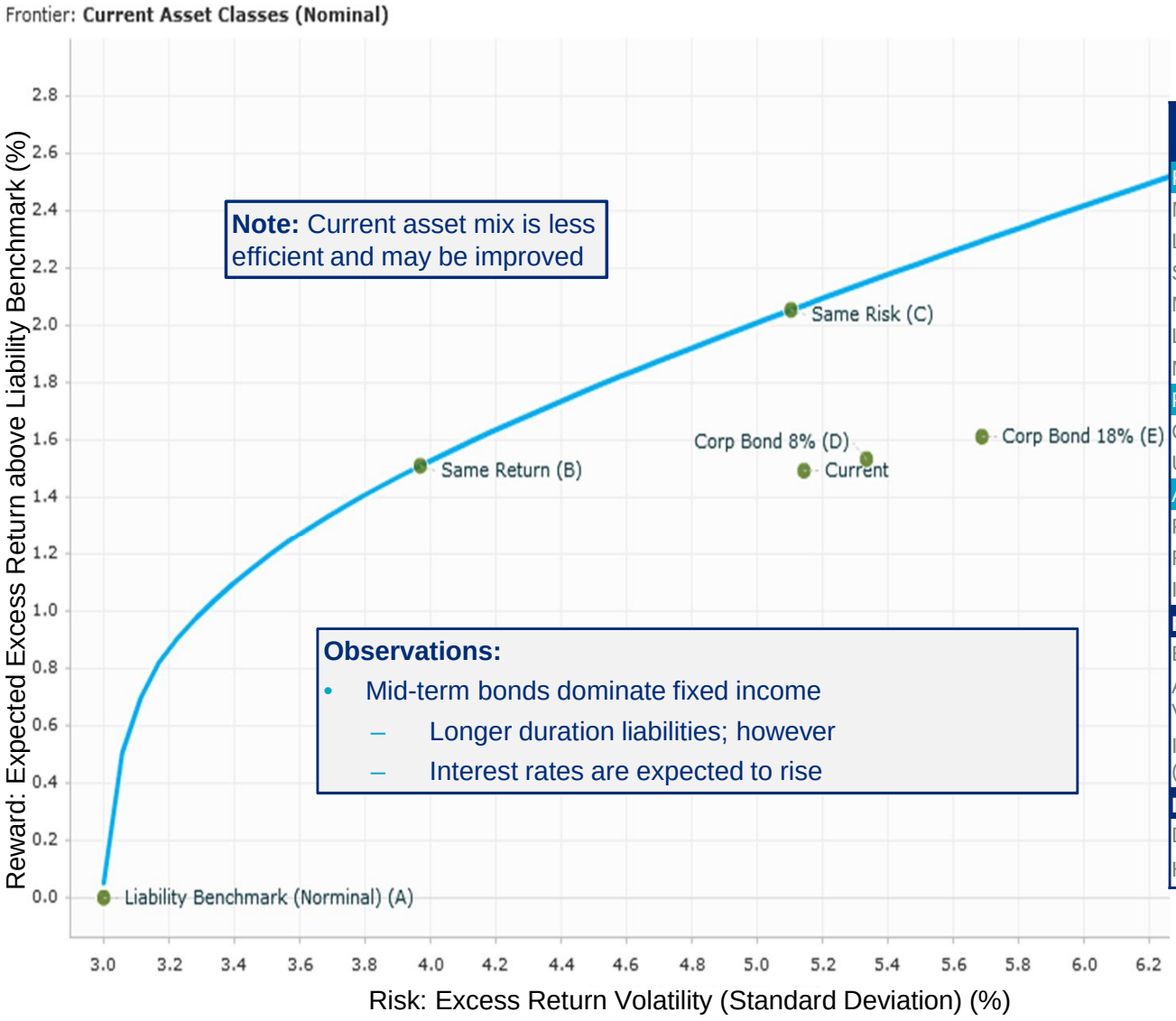
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY (NOMINAL LB)



	Current	A. LB	B:Same Return	C:Same Risk	D. Corp 8%	E. Corp 18%
Fixed Income	70%	100%	78%	66%	70%	70%
Mid-term Bonds (Corp.)	2%	--	--	--	8%	14%
Long-term Bonds (Corp.)	--	--	--	--	--	4%
Short-term Bonds (Prov.)	6.5%	28%	--	--	6.5%	5.5%
Mid-term Bonds (Prov.)	12%	18%	68%	56%	6%	--
Long-term Bonds (Prov.)	29.5%	54%	--	--	29.5%	26.5%
MUSH Bonds	20%	--	10%	10%	20%	20%
Public Equities	15%	0%	11%	17%	15%	15%
Canadian Equity	10%	--	1%	2%	10%	10%
U.S. Equity	5%	--	10%	15%	5%	5%
Alternatives	15%	0%	11%	17%	15%	15%
Private Equity	--	--	--	--	--	--
Real Estate	10%	--	1%	1%	10%	10%
Infrastructure	5%	--	10%	16%	5%	5%
Risk/Return Metrics						
Expected 10-Year Return	3.6%	2.1%	3.7%	4.2%	3.7%	3.7%
Anticipated Surplus Volatility	5.1%	3.0%	4.0%	5.1%	5.3%	5.7%
Information Ratio (Return/Risk)	0.29	0.00	0.38	0.40	0.29	0.28
Interest Rate Metrics						
Duration	7.1	10.3	5.2	4.4	7.1	7.1
Hedge Ratio	69%	100%	50%	43%	69%	69%

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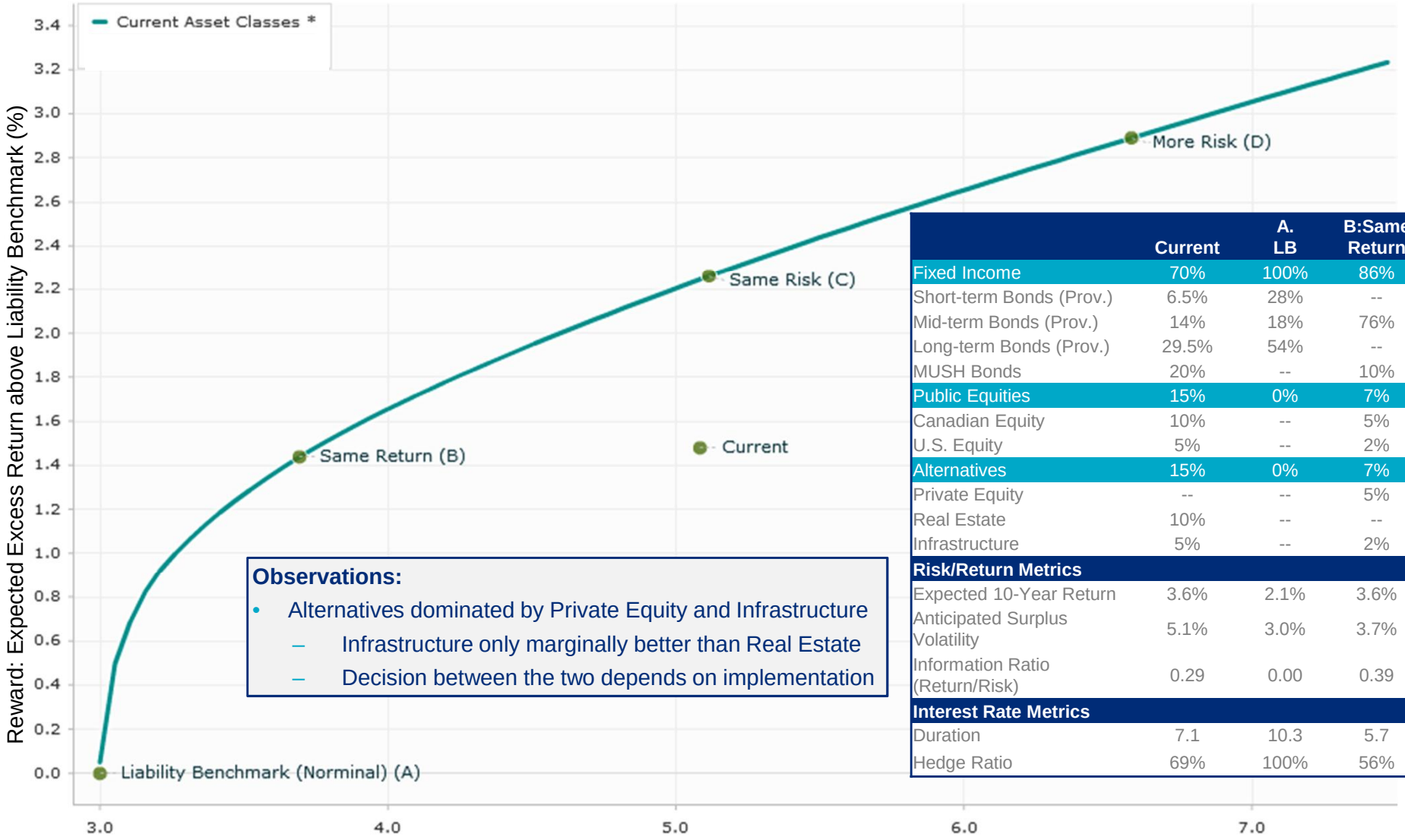
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING PRIVATE EQUITY



Observations:

- Alternatives dominated by Private Equity and Infrastructure
  - Infrastructure only marginally better than Real Estate
  - Decision between the two depends on implementation

	Current	A. LB	B:Same Return	C:Same Risk	D. More Risk
Fixed Income	70%	100%	86%	74%	65%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	14%	18%	76%	64%	55%
Long-term Bonds (Prov.)	29.5%	54%	--	--	--
MUSH Bonds	20%	--	10%	10%	10%
Public Equities	15%	0%	7%	13%	18%
Canadian Equity	10%	--	5%	10%	10%
U.S. Equity	5%	--	2%	3%	8%
Alternatives	15%	0%	7%	13%	17%
Private Equity	--	--	5%	10%	14.5%
Real Estate	10%	--	--	--	--
Infrastructure	5%	--	2%	3%	2.5%
Risk/Return Metrics					
Expected 10-Year Return	3.6%	2.1%	3.6%	4.4%	5.0%
Anticipated Surplus Volatility	5.1%	3.0%	3.7%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.00	0.39	0.44	0.44
Interest Rate Metrics					
Duration	7.1	10.3	5.7	4.9	4.3
Hedge Ratio	69%	100%	56%	48%	42%

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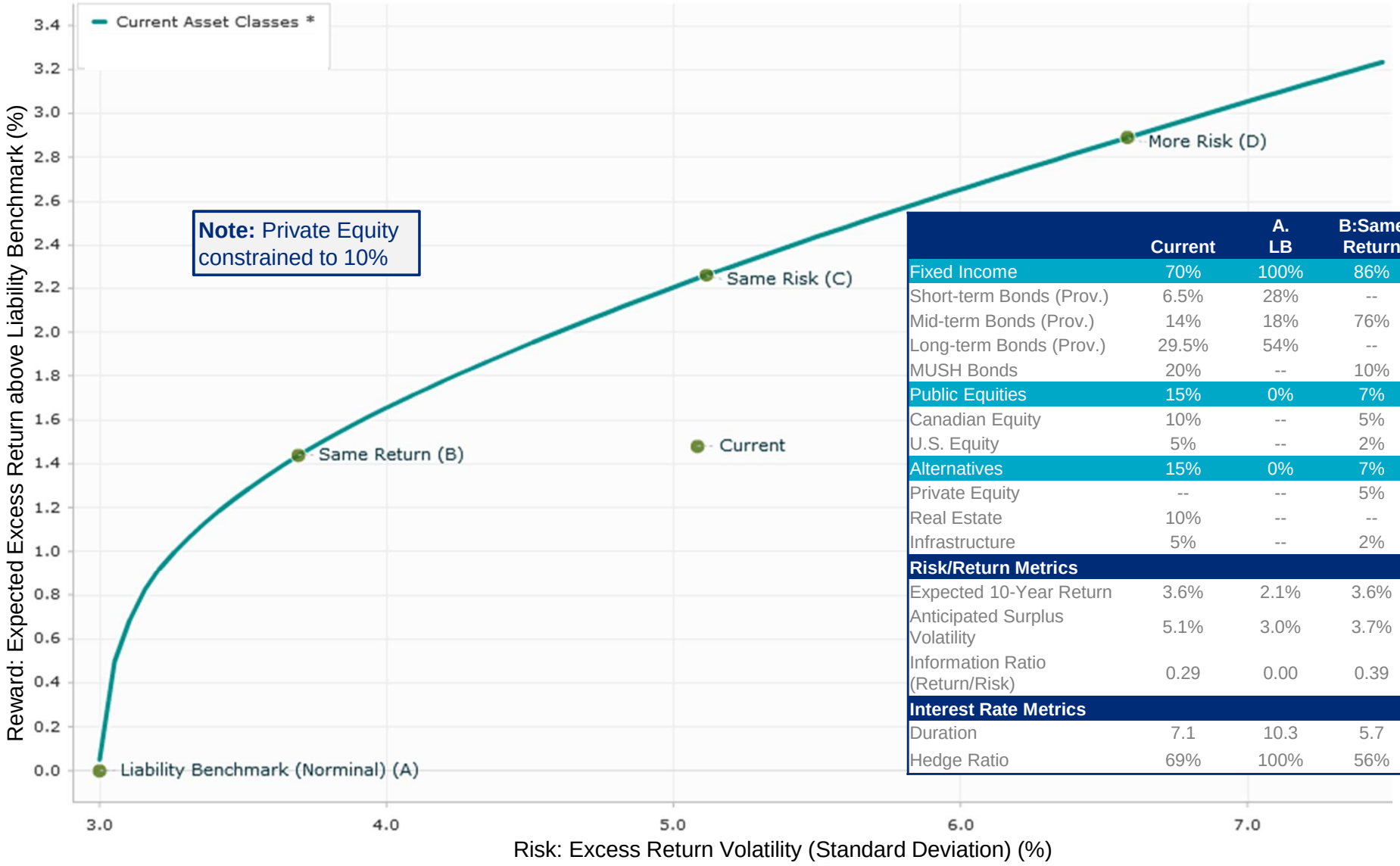
EFFICIENT FRONTIERS (CONSTRAINED)
ADDING PRIVATE EQUITY



Note: Private Equity constrained to 10%

	Current	A. LB	B:Same Return	C:Same Risk	D. More Risk
Fixed Income	70%	100%	86%	74%	60%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	14%	18%	76%	64%	50%
Long-term Bonds (Prov.)	29.5%	54%	--	--	--
MUSH Bonds	20%	--	10%	10%	10%
Public Equities	15%	0%	7%	13%	20%
Canadian Equity	10%	--	5%	10%	10%
U.S. Equity	5%	--	2%	3%	10%
Alternatives	15%	0%	7%	13%	20%
Private Equity	--	--	5%	10%	10%
Real Estate	10%	--	--	--	--
Infrastructure	5%	--	2%	3%	10%
Risk/Return Metrics					
Expected 10-Year Return	3.6%	2.1%	3.6%	4.4%	5.0%
Anticipated Surplus Volatility	5.1%	3.0%	3.7%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.00	0.39	0.44	0.44
Interest Rate Metrics					
Duration	7.1	10.3	5.7	4.9	4.0
Hedge Ratio	69%	100%	56%	48%	39%

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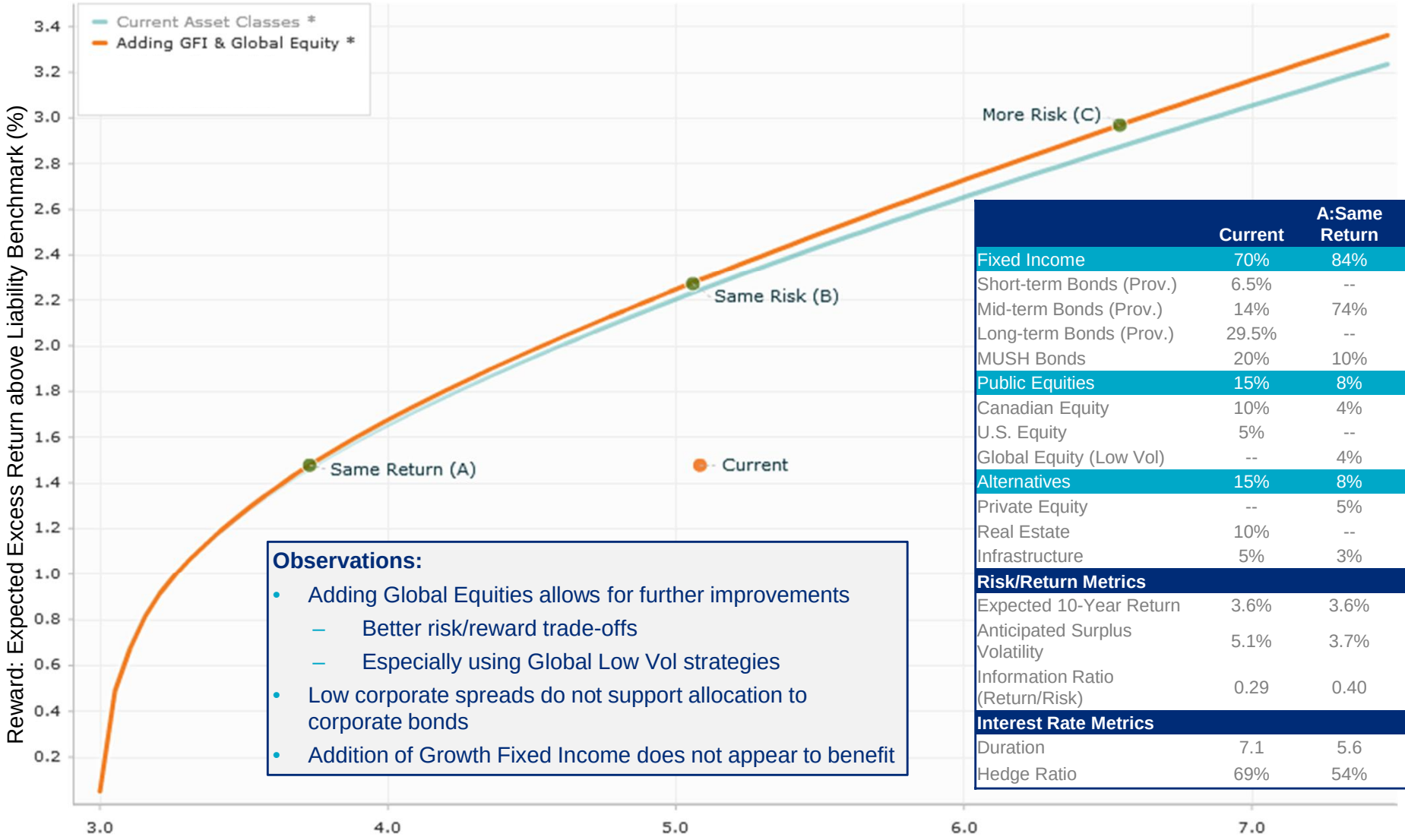
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING GROWTH FIXED INCOME & GLOBAL EQUITIES



Observations:

- Adding Global Equities allows for further improvements
  - Better risk/reward trade-offs
  - Especially using Global Low Vol strategies
- Low corporate spreads do not support allocation to corporate bonds
- Addition of Growth Fixed Income does not appear to benefit

	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	84%	69%	56%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	74%	59%	46%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	22%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	15%
Alternatives	15%	8%	15%	22%
Private Equity	--	5%	8%	12%
Real Estate	10%	--	--	--
Infrastructure	5%	3%	7%	10%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.7%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.40	0.45	0.45
Interest Rate Metrics				
Duration	7.1	5.6	4.6	3.8
Hedge Ratio	69%	54%	45%	36%

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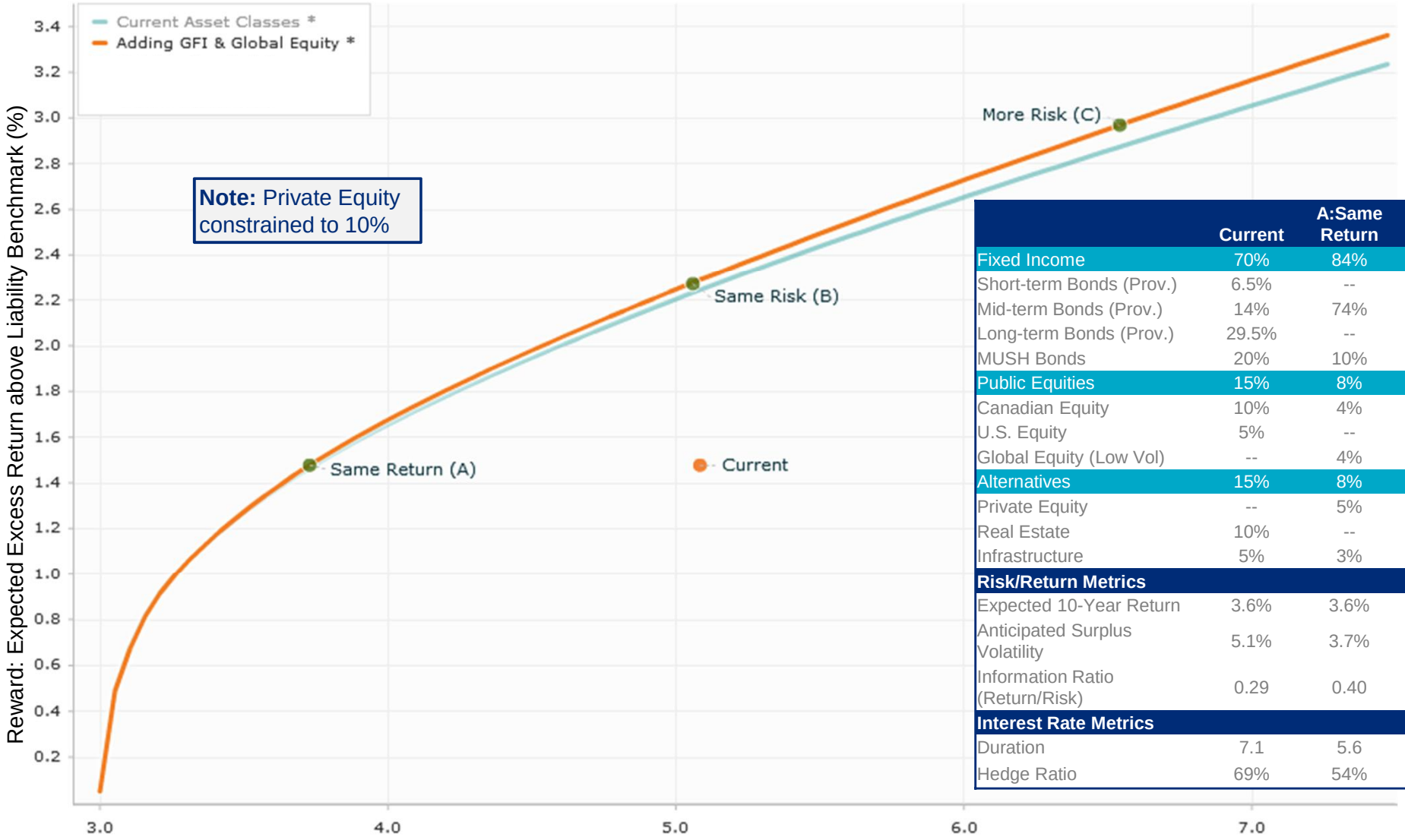
EFFICIENT FRONTIERS (CONSTRAINED)
ADDING GROWTH FIXED INCOME & GLOBAL EQUITIES



	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	84%	69%	54%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	74%	59%	44%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	23%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	16%
Alternatives	15%	8%	15%	23%
Private Equity	--	5%	8%	10%
Real Estate	10%	--	--	--
Infrastructure	5%	3%	7%	13%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.7%	5.1%	6.5%
Information Ratio (Return/Risk)	0.29	0.40	0.45	0.45
Interest Rate Metrics				
Duration	7.1	5.6	4.6	3.6
Hedge Ratio	69%	54%	45%	35%

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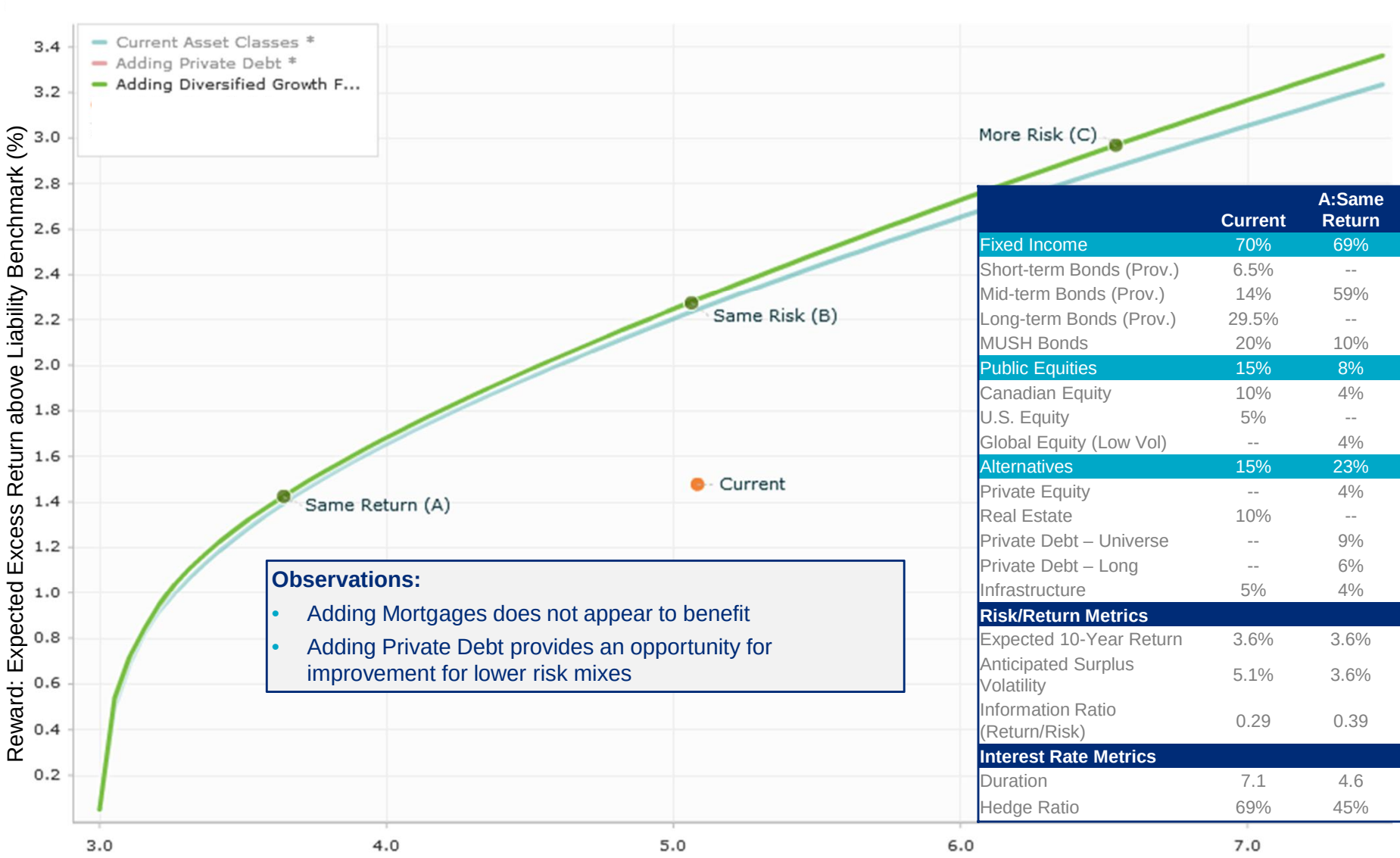
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT



Observations:

- Adding Mortgages does not appear to benefit
- Adding Private Debt provides an opportunity for improvement for lower risk mixes

	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	69%	68%	56%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	59%	58%	46%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	22%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	15%
Alternatives	15%	23%	16%	22%
Private Equity	--	4%	8%	12%
Real Estate	10%	--	--	--
Private Debt – Universe	--	9%	1%	--
Private Debt – Long	--	6%	--	--
Infrastructure	5%	4%	7%	10%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.6%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.39	0.45	0.45
Interest Rate Metrics				
Duration	7.1	4.6	4.5	3.8
Hedge Ratio	69%	45%	44%	36%

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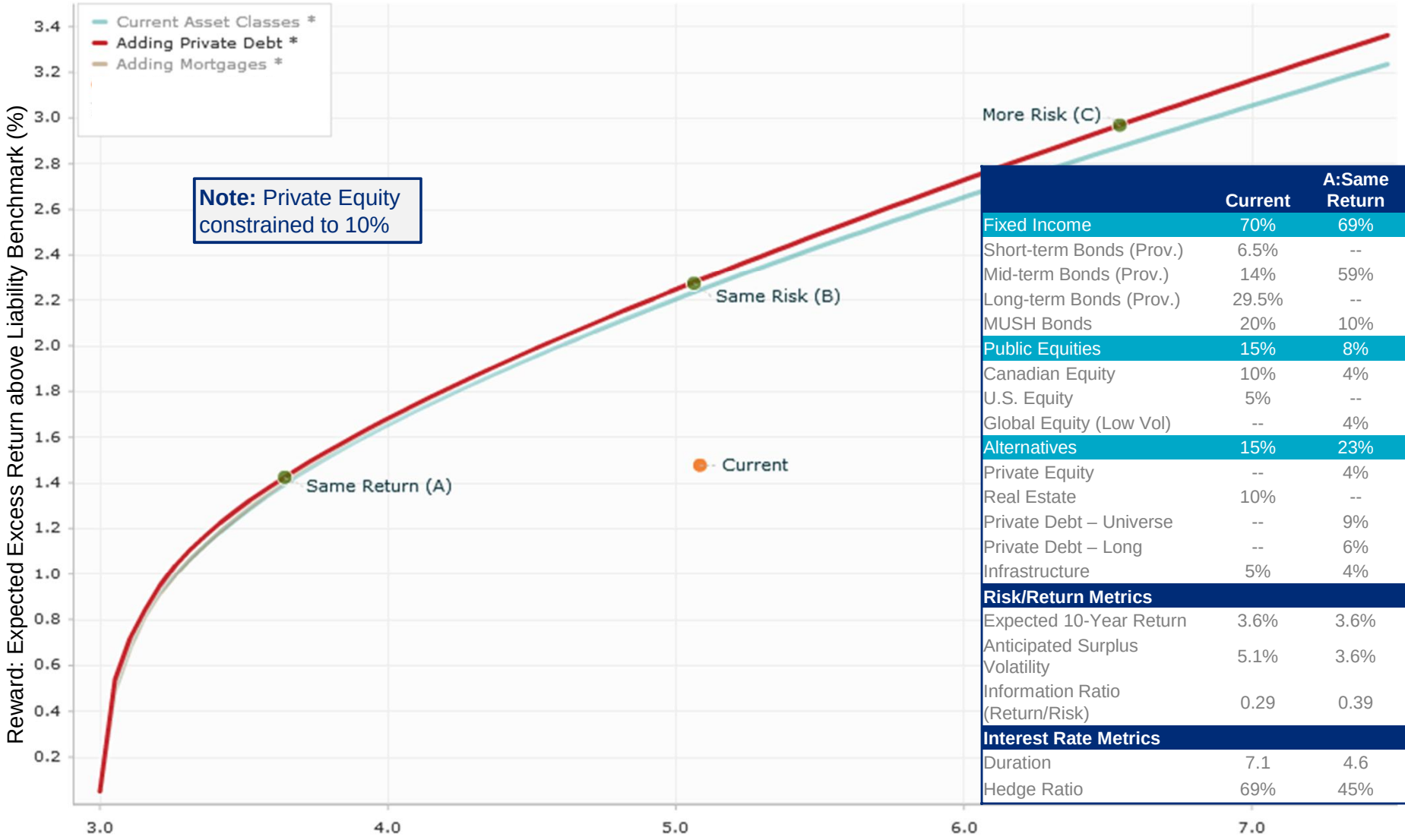
EFFICIENT FRONTIERS (CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT



	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	69%	68%	54%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	59%	58%	44%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	23%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	16%
Alternatives	15%	23%	16%	23%
Private Equity	--	4%	8%	10%
Real Estate	10%	--	--	--
Private Debt – Universe	--	9%	1%	--
Private Debt – Long	--	6%	--	--
Infrastructure	5%	4%	7%	13%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.6%	5.1%	6.5%
Information Ratio (Return/Risk)	0.29	0.39	0.45	0.45
Interest Rate Metrics				
Duration	7.1	4.6	4.5	3.6
Hedge Ratio	69%	45%	44%	35%

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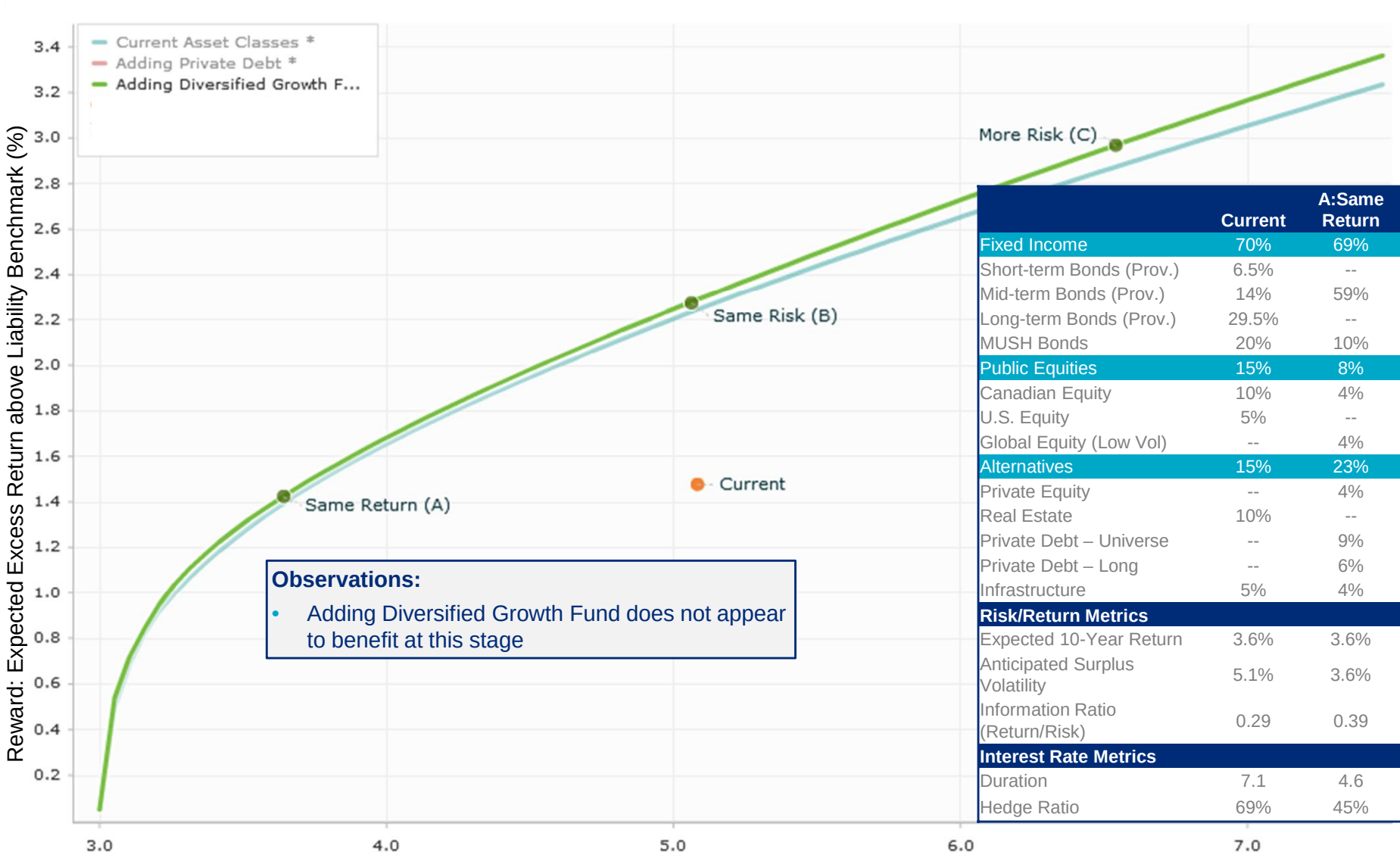
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND



Observations:

- Adding Diversified Growth Fund does not appear to benefit at this stage

	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	69%	68%	56%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	59%	58%	46%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	22%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	15%
Alternatives	15%	23%	16%	22%
Private Equity	--	4%	8%	12%
Real Estate	10%	--	--	--
Private Debt – Universe	--	9%	1%	--
Private Debt – Long	--	6%	--	--
Infrastructure	5%	4%	7%	10%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.6%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.39	0.45	0.45
Interest Rate Metrics				
Duration	7.1	4.6	4.5	3.8
Hedge Ratio	69%	45%	44%	36%

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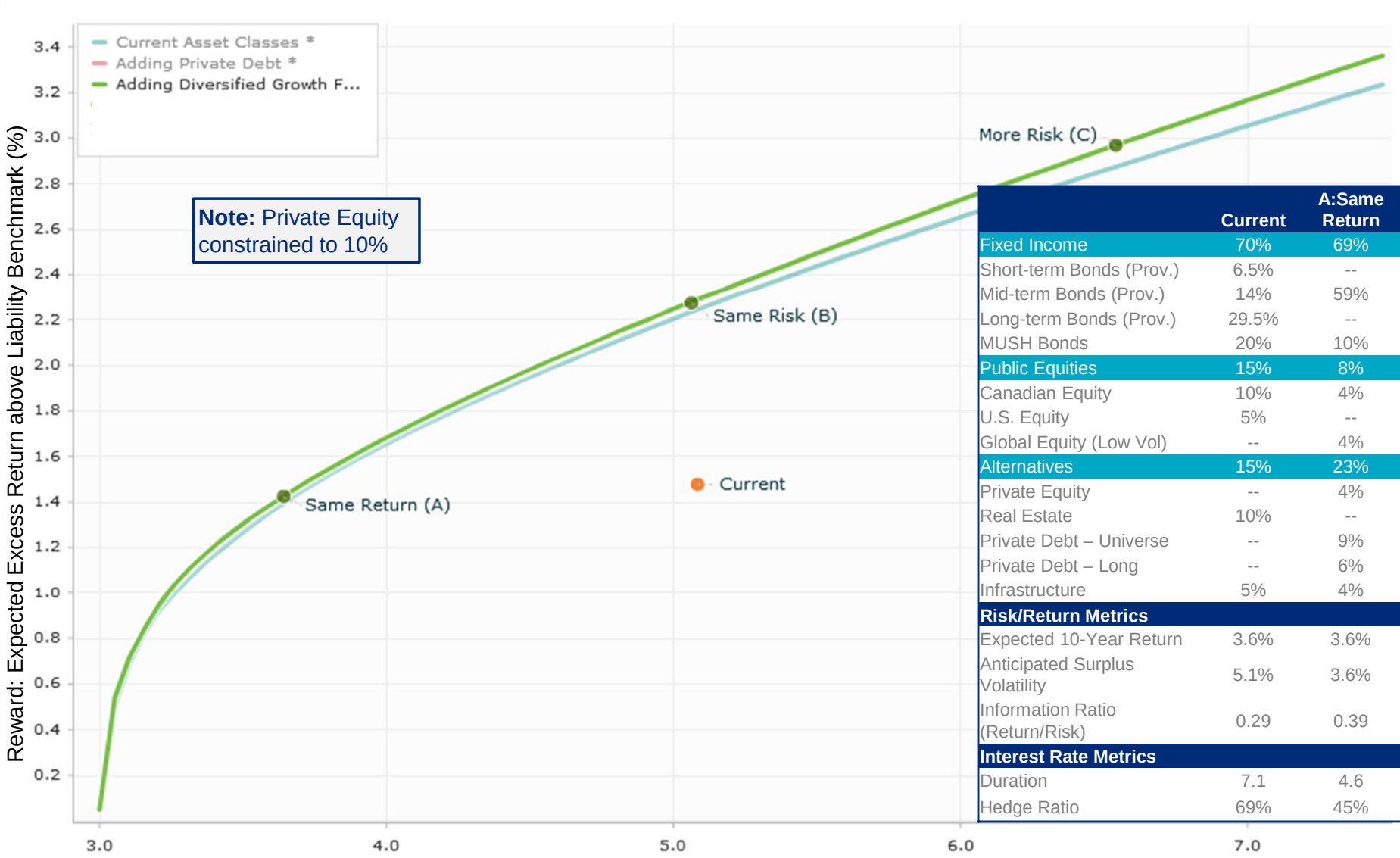
EFFICIENT FRONTIERS (CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND



	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	69%	68%	54%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	59%	58%	44%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
Public Equities	15%	8%	16%	23%
Canadian Equity	10%	4%	7%	7%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	4%	9%	16%
Alternatives	15%	23%	16%	23%
Private Equity	--	4%	8%	10%
Real Estate	10%	--	--	--
Private Debt – Universe	--	9%	1%	--
Private Debt – Long	--	6%	--	--
Infrastructure	5%	4%	7%	13%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.6%	5.1%	6.5%
Information Ratio (Return/Risk)	0.29	0.39	0.45	0.45
Interest Rate Metrics				
Duration	7.1	4.6	4.5	3.6
Hedge Ratio	69%	45%	44%	35%

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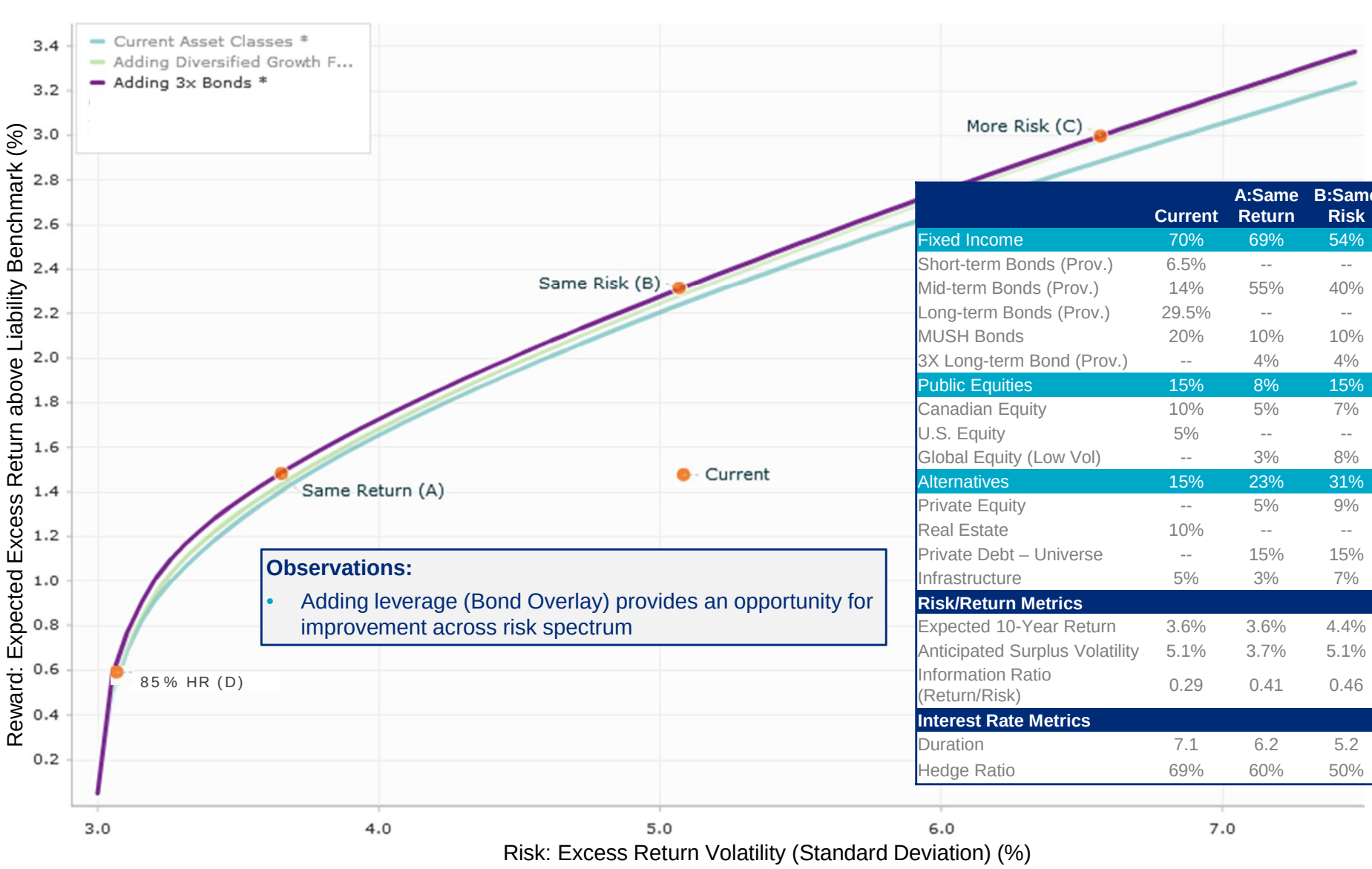
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)



Observations:

- Adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum

	Current	A:Same Return	B:Same Risk	C. More Risk	D: 85% HR
Fixed Income	70%	69%	54%	50%	79%
Short-term Bonds (Prov.)	6.5%	--	--	--	--
Mid-term Bonds (Prov.)	14%	55%	40%	36%	32%
Long-term Bonds (Prov.)	29.5%	--	--	--	25%
MUSH Bonds	20%	10%	10%	10%	10%
3X Long-term Bond (Prov.)	--	4%	4%	4%	8%
Public Equities	15%	8%	15%	23%	4%
Canadian Equity	10%	5%	7%	8%	2%
U.S. Equity	5%	--	--	--	--
Global Equity (Low Vol)	--	3%	8%	15%	2%
Alternatives	15%	23%	31%	27%	17%
Private Equity	--	5%	9%	12%	--
Real Estate	10%	--	--	--	2%
Private Debt – Universe	--	15%	15%	5%	15%
Infrastructure	5%	3%	7%	10%	--
Risk/Return Metrics					
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%	2.7%
Anticipated Surplus Volatility	5.1%	3.7%	5.1%	6.6%	3.0%
Information Ratio (Return/Risk)	0.29	0.41	0.46	0.46	0.20
Interest Rate Metrics					--
Duration	7.1	6.2	5.2	4.9	8.7
Hedge Ratio	69%	60%	50%	48%	84%

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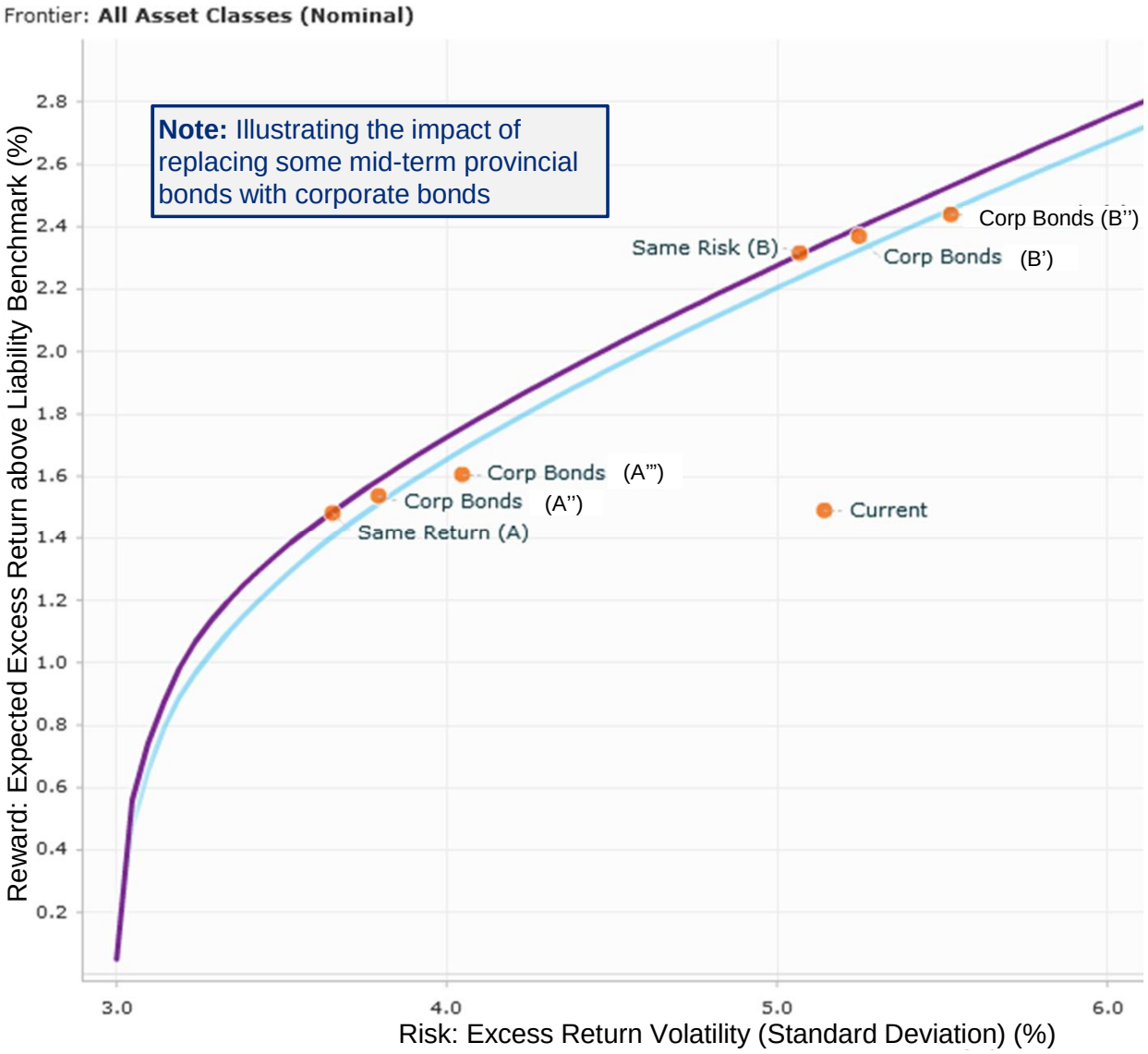
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)



	Current	A Same Return	A' 8% Corp	A'' 18% Corp	B Same Risk	B' 8% Corp	B'' 18% Corp
Fixed Income	70%	69%	69%	69%	54%	54%	54%
Mid-term Bond (Corp)	2%	--	8%	18%	--	8%	18%
Short-term Bond (Prov)	6.5%	--	--	--	--	--	--
Mid-term Bond (Prov)	12%	55%	47%	37%	40%	32%	22%
Long-term Bond (Prov)	29.5%	--	--	--	--	--	--
MUSH Bond	20%	10%	10%	10%	10%	10%	10%
3X Long-term Bond (Prov)	--	4%	4%	4%	4%	4%	4%
Public Equities	15%	8%	8%	8%	15%	15%	15%
Canadian Equity	10%	5%	5%	5%	7%	7%	7%
U.S. Equity	5%	--	--	--	--	--	--
Global Equity (Low Vol)	--	3%	3%	3%	8%	8%	8%
Alternatives	15%	23%	23%	23%	31%	31%	31%
Private Equity	--	5%	5%	5%	9%	9%	9%
Private Debt - Universe	--	15%	15%	15%	15%	15%	15%
Real Estate	10%	--	--	--	--	--	--
Infrastructure	5%	3%	3%	3%	7%	7%	7%
Risk/Return Metrics							
Expected 10-Year Return	3.6%	3.6%	3.7%	3.7%	4.4%	4.5%	4.5%
Anticipated Surplus Volatility	5.1%	3.7%	3.8%	4.1%	5.1%	5.3%	5.5%
Information Ratio (Return/Risk)	0.29	0.41	0.41	0.40	0.46	0.45	0.44
Interest Rate Metrics							
Duration	7.1	6.2	6.2	6.1	5.2	5.2	5.1
Hedge Ratio	69%	60%	60%	60%	50%	50%	50%

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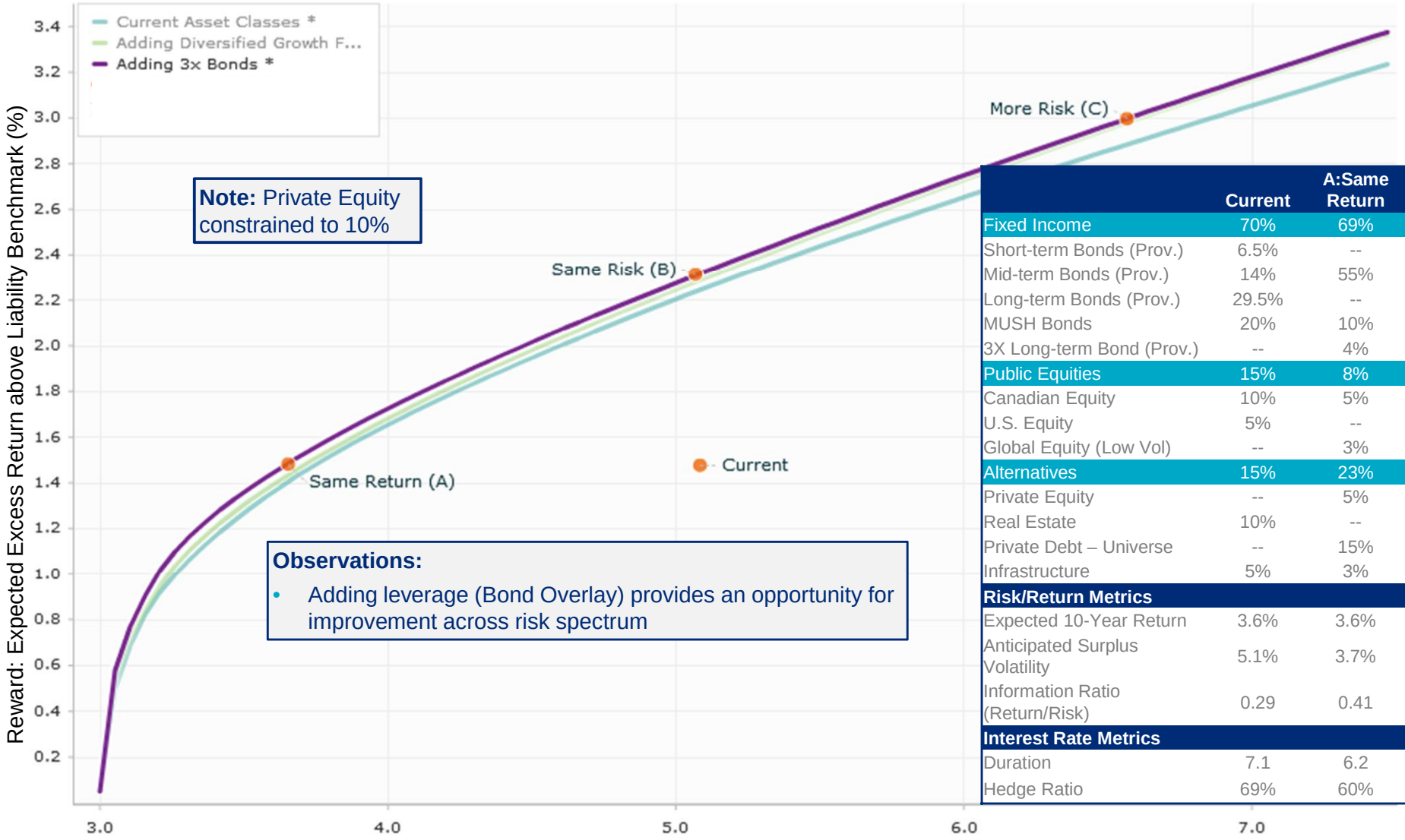
EFFICIENT FRONTIERS (CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)



Note: Private Equity constrained to 10%

Observations:

- Adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum

	Current	A:Same Return	B:Same Risk	C. More Risk
Fixed Income	70%	69%	54%	47%
Short-term Bonds (Prov.)	6.5%	--	--	
Mid-term Bonds (Prov.)	14%	55%	40%	33%
Long-term Bonds (Prov.)	29.5%	--	--	--
MUSH Bonds	20%	10%	10%	10%
3X Long-term Bond (Prov.)	--	4%	4%	4%
Public Equities	15%	8%	15%	23%
Canadian Equity	10%	5%	7%	8%
U.S. Equity	5%	--	--	--
Global Equity (Low Vol)	--	3%	8%	15%
Alternatives	15%	23%	31%	30%
Private Equity	--	5%	9%	10%
Real Estate	10%	--	--	--
Private Debt – Universe	--	15%	15%	6%
Infrastructure	5%	3%	7%	14%
Risk/Return Metrics				
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%
Anticipated Surplus Volatility	5.1%	3.7%	5.1%	6.6%
Information Ratio (Return/Risk)	0.29	0.41	0.46	0.46
Interest Rate Metrics				
Duration	7.1	6.2	5.2	4.7
Hedge Ratio	69%	60%	50%	46%

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PRELIMINARY ANALYSIS
EFFICIENT FRONTIERS
REAL LB



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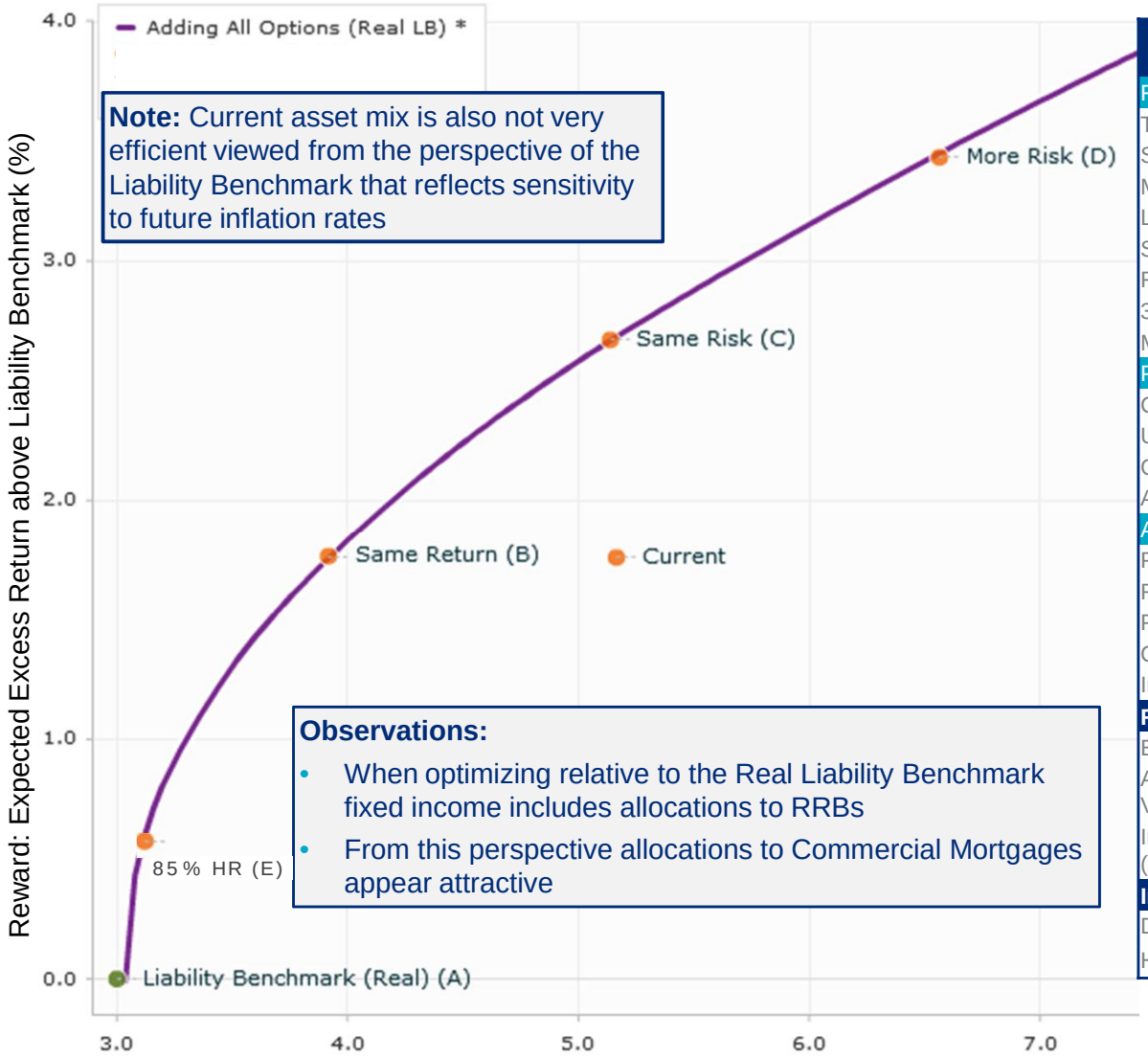
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



	Current	A. Real LB	B:Same Return	C:Same Risk	D. More Risk	E. 85% HR
Fixed Income	70%	100%	61%	49%	38%	79%
Treasury Bills	--	26%	--	--	--	9%
Short-term Bonds (Prov.)	6.5%	8%	15%	--	--	9%
Mid-term Bonds (Prov.)	14%	--	16%	34%	25%	--
Long-term Bonds (Prov.)	29.5%	--	--	--	--	--
Short-term Bonds (Corp.)	--	--	10%	--	--	--
Real Return Bonds	--	66%	--	--	--	51%
3X Real Return Bonds	--	--	10%	5%	3%	--
MUSH Bonds	20%	--	10%	10%	10%	10%
Public Equities	15%	0%	12%	18%	24%	3%
Canadian Equity	10%	--	4%	7%	9%	1.5%
U.S. Equity	5%	--	--	--	--	--
Global Equity Low Vol	--	--	1%	--	--	--
ACWI	--	--	7%	11%	15%	1.5%
Alternatives	15%	0%	27%	33%	38%	18%
Private Equity	--	--	1%	5%	8%	--
Real Estate	10%	--	3%	--	--	--
Private Debt - Universe	--	--	--	--	15%	--
Commercial Mortgage	--	--	15%	15%	--	15%
Infrastructure	5%	--	8%	13%	15%	3%
Risk/Return Metrics						
Expected 10-Year Return	3.6%	1.9%	3.7%	4.7%	5.5%	2.4%
Anticipated Surplus Volatility	5.2%	3.0%	3.8%	5.1%	6.6%	3.1%
Information Ratio (Return/Risk)	0.34	0.00	0.48	0.56	0.55	0.16
Interest Rate Metrics						
Duration	7.1	10.3	6.7	5.2	3.7	8.7
Hedge Ratio	69%	100%	65%	50%	36%	84%

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ADDITIONAL COMMENTS
REAL RETURN BONDS

- Currently, RRBs offer relatively attractive inflation protection.
- This is best understood by calculating the total expected yield of an RRB and then comparing it to a conventional bond with the same quality and maturity. Below we consider 30-year Government of Canada Bonds:

RRB Real Yield	0.6%
30-year BEIR[1]	1.6%
Total Yield	2.2%
30-year conventional bond yield	2.3%

- The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.
- RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.
- Finally, it is worth noticing that despite RRBs offering attractive inflation protections, the expected return on RRBs is below its long-term historical levels with a current real yield of 0.60%.

[1] BEIR is the Break Even Inflation Rate which is calculated as the difference between a conventional bond and an RRB. The BEIR can be interpreted as the capital markets expectation on future inflation.

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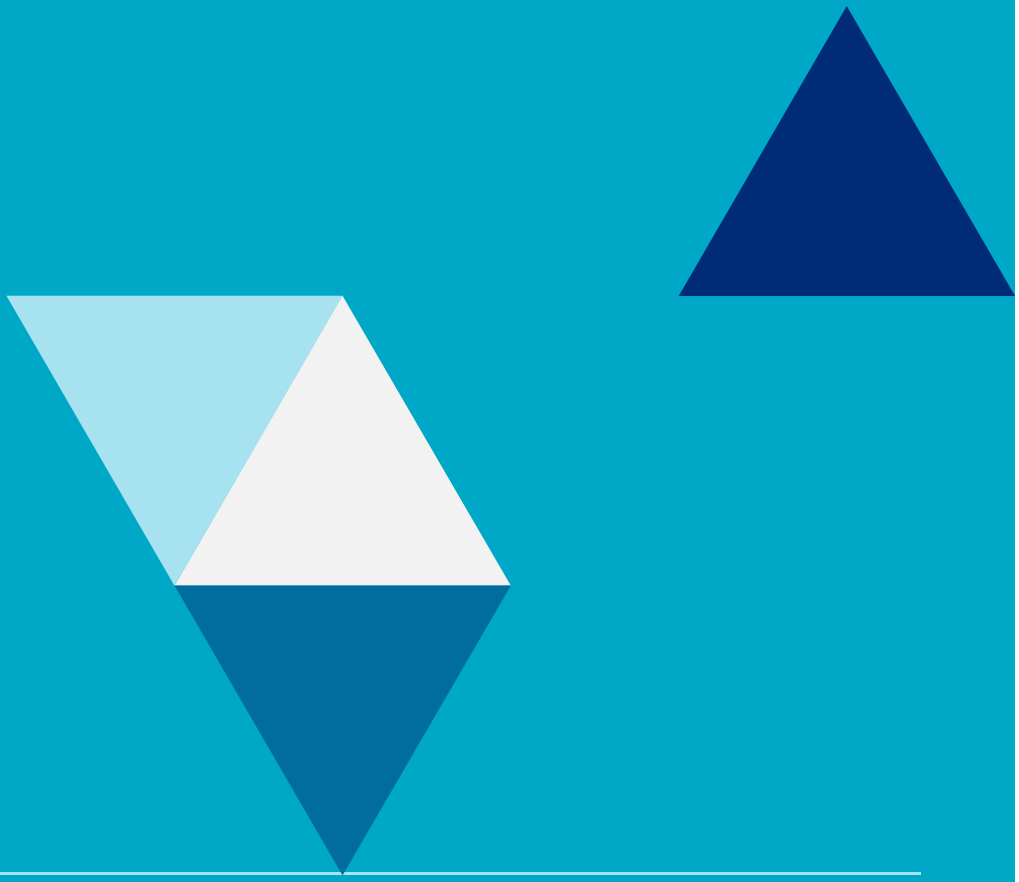
NEXT STEPS



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NEXT STEPS
KEY DECISIONS

- Risk or reward: where feasible, is the preference to:
  - Reduce risk (keeping expected return at current level)?
  - Increase expected return (keeping risk at current level)?
  - Something in between?
  - Increase risk and expected return?

- Degree of comfort with:
  - With changes to current portfolios
  - Interest rate hedging

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NEXT STEPS

- Identify direction of further analysis, or if possible 4 to 5 target asset mixes for stochastic projections and stress testing
- Confirm stress test scenarios:
  - Market Correction: 33% decline in equity return, decline in yields
  - Inflation Shock: High inflation, higher yields and higher P/E Ratios
  - Inflationary Growth: higher yields, lower spreads
  - 1% Parallel Shift Up: Lower P/E Ratios, higher inflation
  - 1% Parallel Shift Down: Higher P/E Ratios, lower inflation
  - Deflation
- Mercer to prepare additional analysis, stochastic projections and stress testing
- Meeting to present and discuss results as well as recommendations for target asset mix going forward

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NEXT STEPS

POTENTIAL ASSET MIXES FOR FURTHER ANALYSIS

	Nominal Liability Benchmark				Real Liability Benchmark				Saskatchewan Auto Fund
	Current	Same Return	Same Risk	More Risk	Current	Same Return	Same Risk	More Risk	
Fixed Income	70%	69%	54%	47%	70%	61%	49%	38%	43%
T-Bills	--	--	--	--	--	--	--	--	1%
Short-term Bonds (Provincial)	6.5%	--	--	--	6.5%	15%	--	--	--
Mid-term Bonds (Provincial)	14%	55%	40%	33%	14%	16%	34%	25%	22%
Long Bonds (Provincial)	29.5%	--	--	--	29.5%	--	--	--	20%
Short-term Bonds (Corporate)	--	--	--	--	--	10%	--	--	--
MUSH Bonds	20%	10%	10%	10%	20%	10%	10%	10%	--
3x Long Bonds (Provincial)	--	4%	4%	4%	--	--	--	--	--
3x Real Return Bonds	--	--	--	--	--	10%	5%	3%	--
Public Equities	15%	8%	15%	23%	15%	12%	18%	24%	39%
Canadian Equity	10%	5%	7%	8%	10%	4%	7%	9%	10.5%
U.S. Equity Large Cap	5%	--	--	--	5%	--	--	--	--
Global Equity Low Vol	--	3%	8%	15%	--	1%	--	--	--
ACWI	--	--	--	--	--	7%	11%	15%	28.5%
Alternatives	15%	23%	31%	30%	15%	27%	33%	38%	18%
Private Equity	--	5%	9%	10%	--	1%	5%	8%	--
Private Debt (Universe)	--	15%	15%	6%	--	--	--	15%	--
Real Estate	10%	--	--	--	10%	3%	--	--	7.5%
Commercial Mortgages	--	--	--	--	--	15%	15%	--	8%
Infrastructure	5%	3%	7%	14%	5%	8%	13%	15%	2.5%
Risk/Return Metrics									
Expected 10-Year Return	3.6%	3.6%	4.4%	5.1%	3.6%	3.7%	4.7%	5.5%	4.8%
Anticipated Surplus Volatility	5.1%	3.7%	5.1%	6.6%	5.2%	3.8%	5.1%	6.6%	7.6%
Information Ratio (Return/Risk)	0.29	0.41	0.46	0.46	0.34	0.48	0.56	0.55	0.40
Interest Rate Metrics									
Duration	7.1	6.2	5.2	4.7	7.1	6.7	5.2	3.7	4.5
Hedge Ratio	69%	60%	50%	46%	69%	65%	50%	36%	44%

Note: Portfolio statistics shown are based on capital market assumptions outlined in the enclosed appendix. Nominal liability benchmark portfolio consists of 28% short provincial bonds, 18% mid-term provincial bonds and 54% long provincial bonds. Real liability benchmark portfolio comprised consists of 26% T-bills, 8% short provincial bonds and 66% real return bonds. Surplus volatility considers interest rate risk, market risk, and liability risk (assumed to be 3%) and assumes assets are equal to liabilities. Showed allocation of Saskatchewan Auto Fund for comparison only and using the MPI real liability benchmark. Some figures may not add up due to rounding.

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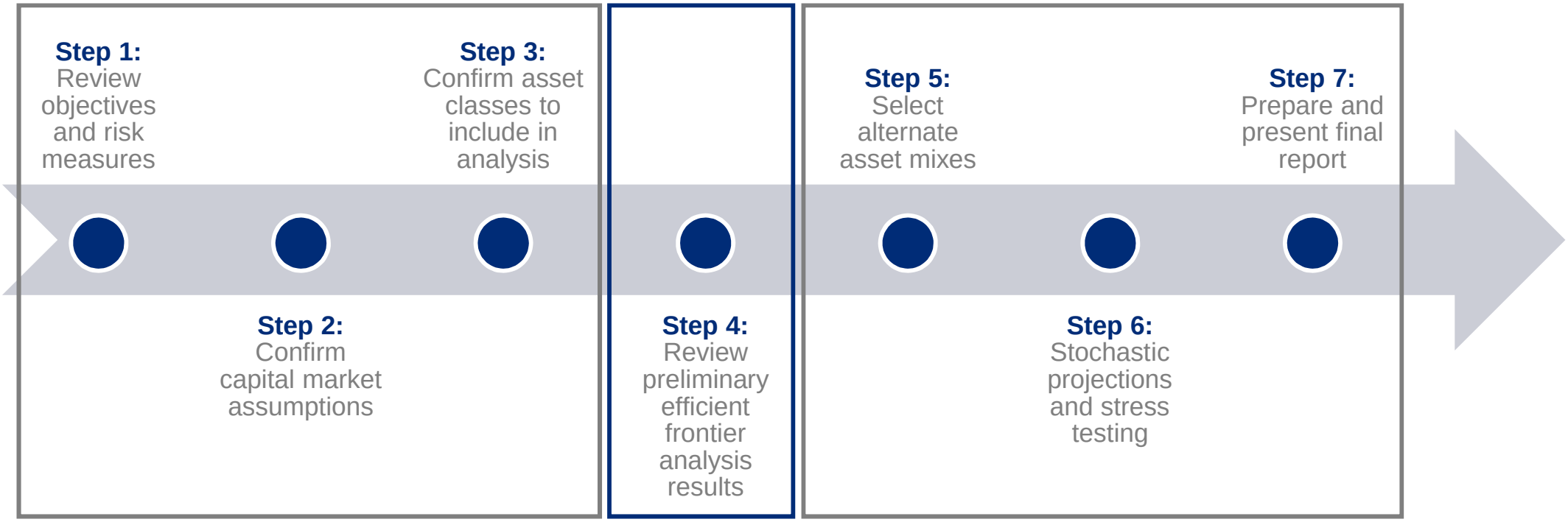
ASSET LIABILITY STUDIES PROCESS



Kick-Off Meeting
Risk metrics
Asset classes to include in analysis
Capital market assumptions
(Oct. 13th Meeting)

Preliminary Analysis
Efficient Frontiers
(Today's Meeting)

Final Analysis (By Nov. 30th)

IMPORTANT NOTICES

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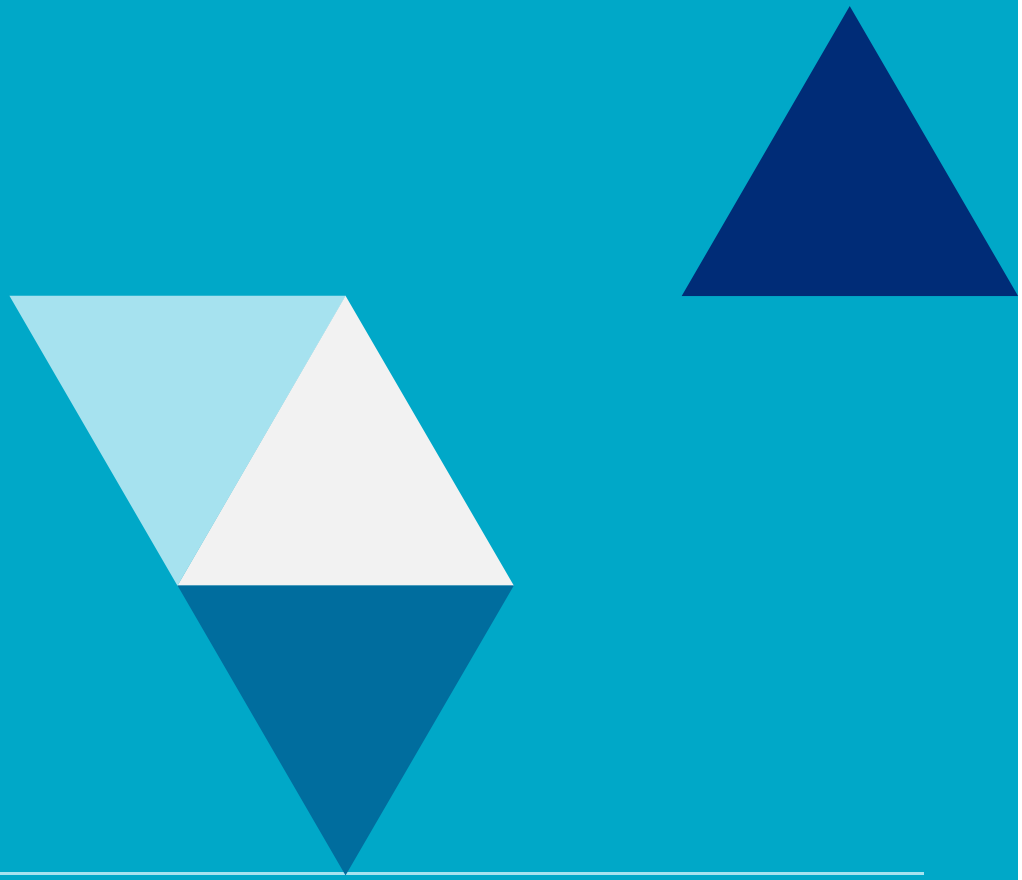
APPENDIX
FUTURE ANALYSIS



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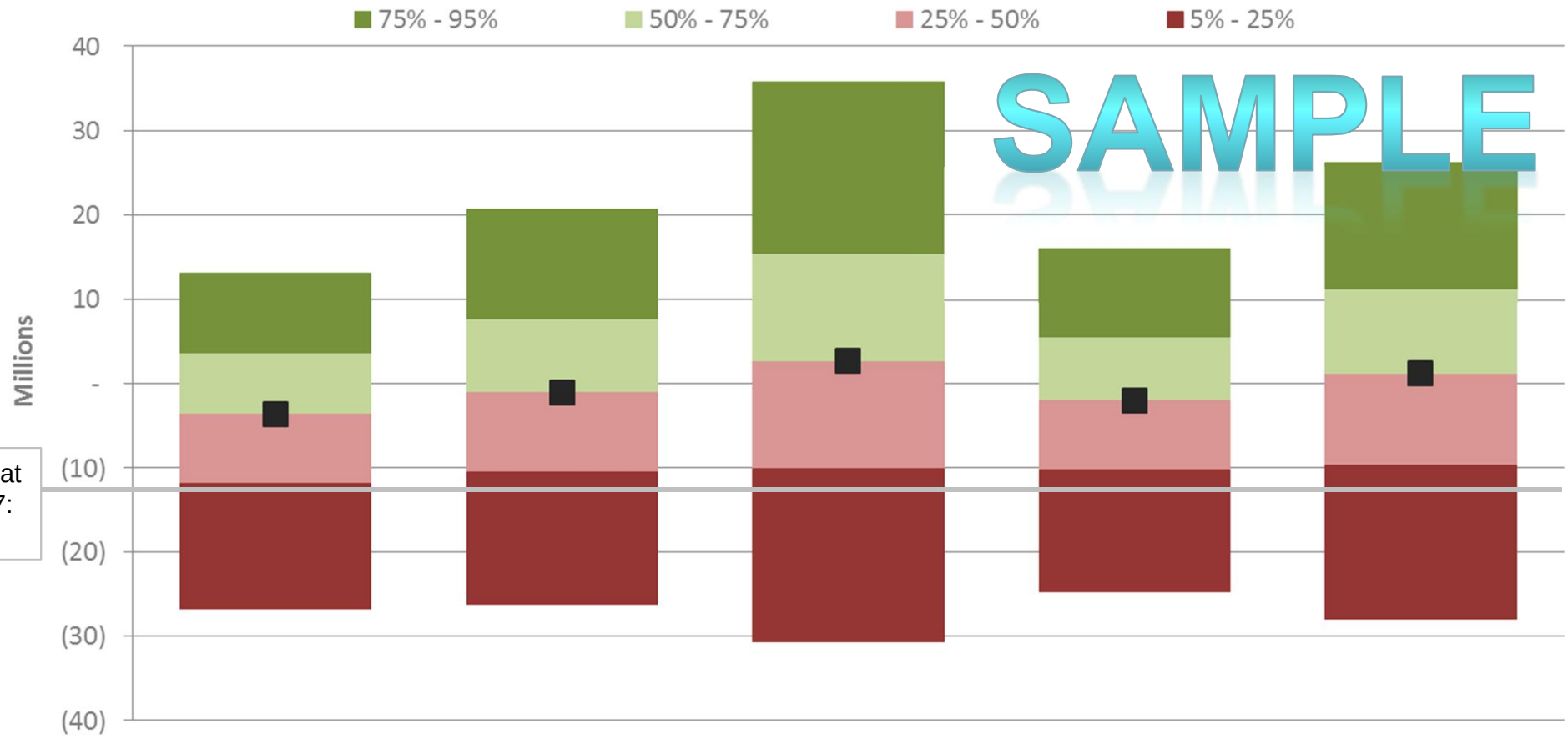
5-YEAR SURPLUS PROJECTIONS



Surplus (deficit) at January 1, 2017: $10.9 million

Percentile	Current	35% Growth	50% Growth	35% Growth w/ Real Estate	50% Growth w/ Real Estate
95th	13.0 M	20.6 M	35.7 M	16.0 M	26.2 M
75th	3.6 M	7.6 M	15.5 M	5.5 M	11.4 M
50th	-3.6 M	-1.1 M	2.7 M	-2.0 M	1.2 M
25th	-11.9 M	-10.5 M	-10.2 M	-10.3 M	-9.7 M
5th	-26.7 M	-26.2 M	-30.7 M	-24.7 M	-28.0 M

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SUMMARY OF RESULTS

CAC Recommendation

Metric	Current Mix	Alternative Approaches				
		A	B	C	D	E
Expected return	A%					
Funded status or Return volatility	B%					
Sharpe Ratio	C					
95th Percentile VaR or SaR	$D					
97.5th Percentile VaR or SaR	$E					
Interest Rate Risk Hedge Ratio	F%					
Median 2022 Surplus	$G					
Probability of:						
2022 Surplus	H%					
2022 Positive Real Return	I%					
2022 Ability to Pay Projected Claims	J%					

SAMPLE

Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

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APPENDIX
COMPARISON TO OTHER FINANCIAL INSTITUTIONS



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COMPARISON TO OTHER INSTITUTIONS
SASKATCHEWAN AND BC INSURANCE CORPORATIONS

2Q17	March 31, 2017		
	ICBC	SGI Canada	SGI Auto Fund
Assets ($ Millions):			
Cash and Cash Equivalents	$27	$26	$26
Investment Income Due and Accrued	$76	$3	$3
Assets held for sale	$26	n/a	n/a
Investments	$14,400	$900	$2,300
Investments (%):			
Short Term Investments	1%	2%	15%
Bonds and Debentures	69%	42%	47%
Mortgage Loans	12%	8%	12%
Preferred Shares	0%	0%	0%
Common Shares	18%	39%	22%
Investment Properties	0%	7%	4%
Other Loans and Invested Assets	0%	2%	0%
Preferred Shares as % of Total Investments	0%	0%	0%
Common Shares as % of Total Investments	18%	39%	22%

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COMPARISON TO OTHER INSTITUTIONS
CANADIAN P&C COMPANIES

2Q17	June 30, 2017								
	AIG	ALLSTATE	CHUBB	CO-OP	DOMINION	INTACT	NORTH-BRIDGE	RSA	Wawanesa
Assets ($ Millions):									
Cash and Cash Equivalents	$98	$111	$15	$41	$30	$56	$632	$221	$915
Investment Income Due and Accrued	$16	$12	$13	$20	$10	$1	$7	$9	$21
Assets held for sale	$0	$0	$0	$94	$0	$0	$0	$0	$0
Investments	$1,900	$2,800	$2,400	$4,300	$2,700	$7,900	$2,600	$2,500	$5,400
Investments (%):									
Short Term Investments	0%	0%	0%	1%	0%	0%	13%	0%	0%
Bonds and Debentures	94%	71%	100%	53%	98%	1%	41%	84%	76%
Mortgage Loans	2%	0%	0%	11%	0%	0%	0%	9%	0%
Preferred Shares	0%	6%	0%	9%	2%	2%	1%	7%	0%
Common Shares	0%	23%	0%	18%	0%	4%	42%	0%	15%
Investment Properties	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Loans and Invested Assets	4%	0%	0%	6%	0%	94%	2%	0%	8%
Preferred Shares as % of Total Investments	0%	6%	0%	9%	2%	2%	1%	7%	0%
Common Shares as % of Total Investments	0%	23%	0%	18%	0%	4%	42%	0%	15%

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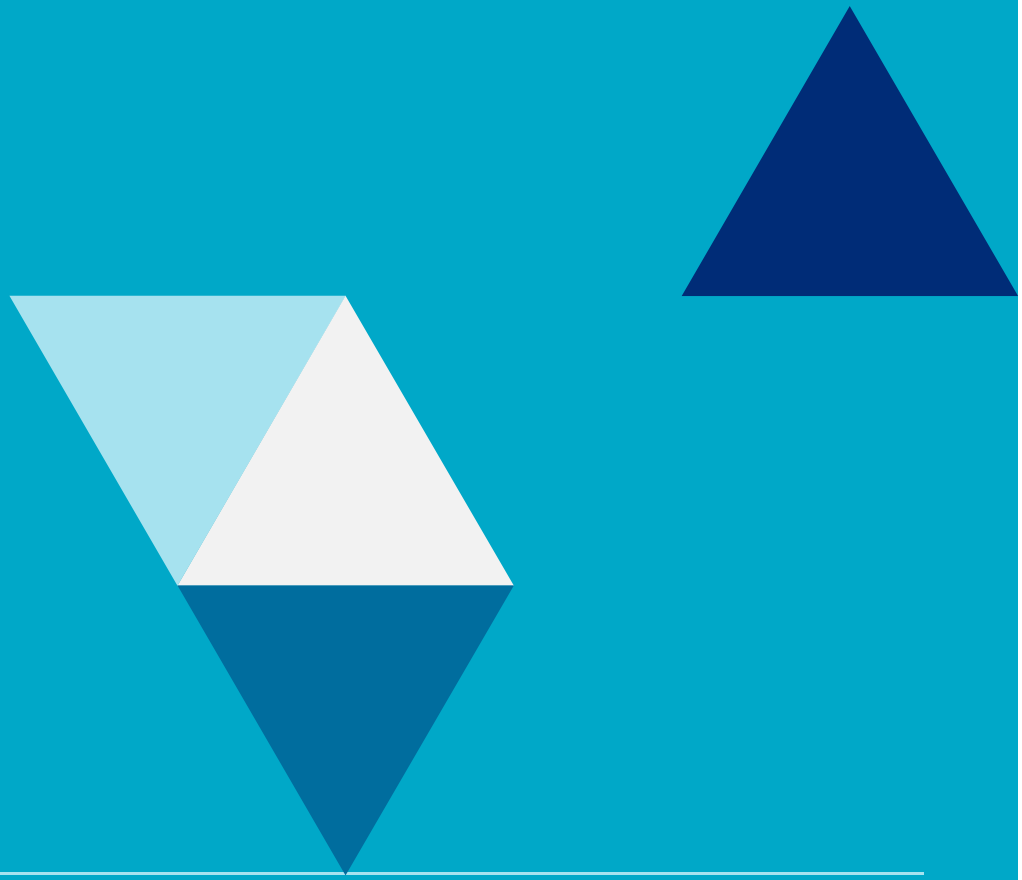
APPENDIX
CAPITAL MARKET ASSUMPTIONS



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CAPITAL MARKET ASSUMPTIONS

STANDARD MERCER 10-YEAR ASSUMPTIONS

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.6%	1.5%
2	Federal short-term bonds	2.0%	3.5%
3	Federal mid-term bonds	2.0%	6.5%
4	Federal long-term bonds	0.7%	8.5%
5	Real return bonds	1.8%	7.5%
6	Provincial short-term bonds	2.4%	3.5%
7	Provincial mid-term bonds	2.7%	6.5%
8	Provincial long-term bonds	1.6%	8.5%
9	Corporate short-term bonds	3.0%	3.5%
10	Corporate mid-term bonds	3.4%	6.5%
11	Corporate long-term bonds	2.7%	8.5%
12	Global bonds	1.8%	8.6%
13	High yield bonds	3.4%	9.5%
14	Emerging debt	6.5%	12.0%
15	Canadian equity (large cap.)	6.5%	19.5%
16	U.S. equity (large cap.)	6.5%	17.0%
17	Int'l equity (large cap.)	6.5%	17.1%
18	Global equity (large cap.)	6.5%	16.1%
19	Global low vol equity	5.9%	13.0%
20	Emerging equity	8.5%	25.0%
21	Private equity	9.6%	25.0%
22	Real estate	5.4%	13.0%
23	Diversified Growth Fund	4.9%	9.8%
24	Direct Infrastructure	6.2%	13.0%
25	MUSH Bonds	1.8%	8.5%
26	Commercial Mortgages	2.6%	3.5%
27	Long Commercial Mortgages	1.2%	5.3%
28	Private Debt - Universe	2.9%	5.4%
29	Private Debt - Long	2.2%	8.5%

Inflation: 2.0%

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

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CAPITAL MARKET ASSUMPTIONS
STANDARD MERCER 10-YEAR ASSUMPTIONS

	Correlations																												
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	(0.14)	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.52	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.75	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.89	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.70	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.61	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	0.89	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	1.00	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.53	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.60	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.69	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.48	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.24	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.26	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.12)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	0.00	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	0.03	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	0.02	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.32	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	0.04	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	0.04	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.07)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.15	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.23	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	1.00	0.26	0.26	0.92	0.99
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.26	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.26	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.92	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.99	0.27	0.27	0.95	1.00

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Mercer's capital market assumptions are intended to represent reasonable expectations for the next 10 to 20 years and incorporate a wide range of considerations including:
  - Historical return, risk and correlation statistics of broad indices
  - Estimation of expected future bond yields and returns, based on:
    - Convergence to the equilibrium yield curve (EYC), with
    - 10-year maturity of the EYC set to 90% of assumed long-term nominal GDP growth
    - Remainder of the EYC established using long-term average term premia for other maturities
  - Estimation of component returns to develop total equity returns, using as starting points such items as
    - Current level of equity earnings yield
    - Inflation expectations
    - Expected economic growth
  - Expected relative relationships between asset classes
  - Some forward-looking judgment
- In general, we assume that future returns will be consistent with assumed risk levels

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Note that:
  - All foreign asset class return, risk and correlation assumptions are based on unhedged foreign currency exposures
  - Publicly traded asset class returns are assumed to be index returns
  - Alternative asset class returns are assumed to be inclusive of median alpha (i.e., active management value-added) and net of median fees

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CAPITAL MARKET ASSUMPTIONS
SUMMARY OF MERCER'S VIEWS

Mercer's capital market assumptions are intended to represent reasonable long-term expectations given current market conditions

Assumptions are what we believe to be the median of the distribution of possible future long-term returns

Perceived mispricing in current financial market conditions should generally not be incorporated into long-term strategic allocation frameworks

Market inefficiencies should be exploited through the skill of specialist investment managers on a short-term basis and asset allocation tilts on a medium-term basis

In general, we assume that future returns will be consistent with assumed risk levels: riskier asset classes should be expected to provided higher returns

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Appendix 17 Attachment F: MERCER RESPONSE TO RFP

This material is the subject of a confidential motion.

RATE STABILIZATION RESERVE

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

RATE STABILIZATION RESERVE....3
RSR.1 INTRODUCTION....3
RSR.2 APPLICATION....3
RSR.3 PURPOSE OF THE RSR....3
RSR.4 MPI'S POSITION ON CERTAIN MATTERS RELATED TO THE RSR....4
RSR.4.1 Financial Condition of Basic Insurance....5
RSR.4.2 Transfer to the Basic RSR....6
RSR.4.3 Board Order 130/17....6
RSR.4.4 RSR Targets Applying the 2018 GRA PUB Methodology....7
RSR.4.5 RSR Methodology....9
RSR.4.5.1 Dynamic Capital Adequacy Test (DCAT)....9
RSR.4.5.1.1 DCAT Modified Base Scenario and Treatment of Capital Maintenance Provision (CMP)....10
RSR.4.5.1.2 DCAT Results....12
RSR.4.5.1.3 Minimum (Lower) RSR Target....13
RSR.4.5.1.4 Maximum (Upper) RSR Target....14
RSR.4.5.1.5 DCAT Peer Review....15
RSR.4.5.2 Minimum Capital Testing (MCT)....15
RSR.4.5.2.1 MCT is an Evidence Based Approach to Capital Adequacy accepted by Canadian Regulators....15
RSR.4.5.2.2 MCT Measures Risks that are faced by MPI....16
RSR.4.5.3 2017 MCT Guideline....18
RSR.4.5.3.1 2017/18 MCT Calculation....18
RSR.4.5.4 Forecasted MCT Ratio....19
RSR.4.6 Impact of the Asset and Liability Management (ALM) Study on the DCAT and MCT Results....19

Appendix 1: Minimum Capital Test

RATE STABILIZATION RESERVE

RSR.1 INTRODUCTION

This chapter explains the following:

- Manitoba Public Insurance's (MPI or the Corporation) application for the minimum (lower) and maximum (upper) Rate Stabilization Reserve (RSR) targets.
- The purpose of the RSR
- MPI's position on certain matters related to the RSR
- The methodology for the calculation of an appropriate RSR range, applied for in this Application

RSR.2 APPLICATION

1. A minimum (lower) RSR target of 34% Minimum Capital Test (MCT), equivalent to a forecasted Total Equity balance of $143 million as at February 28, 2019, based on a 1-in-40 probability Dynamic Capital Adequacy Test (DCAT) scenario.

2. A maximum (upper) RSR target of 85% MCT, equivalent to a forecasted Total Equity balance of $305 million as at February 28, 2019, based on a 2 year, 1-in-40 DCAT scenario with no management action.

RSR.3 PURPOSE OF THE RSR

The purpose of the RSR is:

> *To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors*

This definition is consistent with the 2018 General Rate Application (GRA) filing.

RSR.4 MPI'S POSITION ON CERTAIN MATTERS RELATED TO THE RSR

Since 2010, MPI and the Manitoba Public Utilities Board (PUB) have been working collaboratively on the Dynamic Capital Adequacy Test (DCAT) as a means to determine appropriate RSR targets. MPI has been very open to PUB feedback on the DCAT and has responded to PUB orders and recommendations on many topics including: (i) utilizing a 1-in-40 risk tolerance, (ii) adjusting the assumptions of adverse scenarios (e.g. inflation, equity returns), (iii) using the PUB's iterative methodology, and (iv) building, modifying, and sharing the Corporation's stochastic and financial models. Based on the 2018 PUB Order, MPI is optimistic that both parties are close to reaching a consensus on a permanent and stable RSR methodology. From MPI's perspective, there remains a few unresolved issues on the RSR methodology. These issue are as follows:

The Lower RSR Target must be greater or equal to the minimum capital required to achieve satisfactory financial condition. MPI cannot support any methodology that produces an RSR target that is lower than the amount required for satisfactory future financial condition. The methodology ordered by PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million, which is below the amount of $143 million required for satisfactory financial condition. For this reason, the Corporation will not be using the 2018 PUB Order methodology. MPI is applying for a lower RSR target of $143 million based on the minimum amount for satisfactory future financial condition.

Any RSR target methodology must be based on best estimates. MPI puts forward a best estimate forecast in each rate application. In the 2018 Order, the PUB ordered a RSR methodology that it acknowledged was not a best estimate. Further, the PUB ordered a 50/50 interest rate forecasting methodology which the Corporation cannot demonstrate to be a best estimate (based on the evidence observed to date). The Corporation cannot support any RSR methodology that is based on biased forecasting assumptions. As a result, the Corporation has not used this methodology;

and instead is opting to apply for a lower and upper RSR target based on the DCAT modeling using best estimate assumptions.

The RSR range calculation must reflect an appropriate time horizon for which the Corporation can respond to adverse financial events. In the 2018 GRA, the Corporation proposed a time horizon of three years for the modeling of the appropriate RSR range above the minimum RSR. In their 2018 Order, the PUB directed MPI to use a two year time horizon. Although the Corporation would prefer a three year time horizon (equivalent to the length of a full PUB ratemaking cycle), the Corporation agrees that a two year time period should be a viable amount of time to respond to adverse events. The Corporation has calculated the RSR range based on a two year time horizon per the PUB directive.

The lower and upper RSR targets are calculated before the inclusion of capital maintenance or capital build/release provisions. To ensure the consistency and stability of the RSR range calculation, MPI has calculated the lower and upper RSR targets based on modeling *before* the inclusion of the proposed capital maintenance provision (CMP). The CMP, along with potential capital build/release provisions in future years, are intended to maintain or adjust capital *within* the calculated range. Including the capital adjustments in the RSR calculation would distort the calculation of the RSR targets and reduce their consistency and stability.

In order for the RSR to be effective, and reduce the incidence of RSR rebuilding fees, the total equity balance of the RSR cannot be at or about the minimum RSR target for a material period of time. Accordingly, MPI is developing a proposal for a Capital Build and Release provision to complement the Net CMP applied for in this Application. MPI anticipates applying for a Capital Build and Release provision/methodology in the 2020 GRA, pending the anticipated approval of the Net CMP and the development of the Corporation's Capital Management Plan.

RSR.4.1 Financial Condition of Basic Insurance

Including plausible management and regulatory action, there are no adverse scenarios at the selected 1-in-40 year probability level that cause Basic Total Equity to fall below

zero during the four-year forecast period. Under the base scenario, the Basic MCT ratio remains above the assumed minimum regulatory capital target of 34% MCT (and the minimum regulatory capital target of 27% MCT based on the 2018 GRA PUB methodology) throughout the forecast period. Based on these finding, the future financial condition of Basic is satisfactory.

RSR.4.2 Transfer to the Basic RSR

MPI's Board of Directors directed that $37.3 million be transferred from the Extension line of business to the Basic RSR as at February 28, 2018. This transfer was made to ensure that Basic Total Equity was above the amount required for Basic to be in satisfactory financial condition ($201 million) as per the 2017 DCAT report.

Although only a $27.5 million transfer was required to achieve an RSR balance of $201 million, the Board decided to transfer $37.3 million so the RSR balance would not be at the absolute minimum amount required for satisfactory financial condition. This is the fourth consecutive year in which the Board of Directors have directed a transfer to Basic RSR in order for Basic to meet a satisfactory financial condition. Between 2013/14 and 2016/17 the Basic line of business suffered net income losses totaling $250 million.

The total amount transferred these past four years is $214 million, which is significantly larger than the $143 million lower RSR target applied for in this application.

RSR.4.3 Board Order 130/17

The PUB decision on the 2018 GRA is Order 130/17. In preparing the 2019 GRA, MPI considered the applicability of the Order 130/17 to the current application. For the purposes of determining the range of the RSR, MPI determined there were three directives that were not appropriate for use in the 2019 Application. The directives and reasons for not following are specified below:

11.19. The 50/50 interest rate forecast shall be used for rate-setting and target capital purposes.

Reason not adopted: The approach is not a best estimate forecast. Historical evidence does not support this as an accurate indicator of interest rate forecast. MPI's external appointed actuary has advised that the naïve forecast is the most commonly used approach in the DCAT reports that they have reviewed.

11.20. For fiscal year 2017/18, the lower threshold for the Basic Total Equity will be $180 million, based on the iterative modelling approach over a two-year time horizon at a 1-in-40 year (97.5th percentile) outcome level after routine management / regulatory actions.

Reason not adopted: (i) the application of the methodology produces a RSR target below the amount required for satisfactory future financial condition, (ii) it is not based on best estimate forecasting assumptions.

11.21. For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modelling of a 1-in-40 scenario over a two-year time horizon after routine management / regulatory actions.

Reason for partial adoption: The methodology is not based on best estimate forecasting assumptions; however, MPI is willing to use the two-year time horizon as it should be a viable amount of time to respond to adverse events.

RSR.4.4 RSR Targets Applying the 2018 GRA PUB Methodology

Basic Total Equity, net of any special appropriations, is referred to as the RSR. The PUB capital targets and the capital target methodology can change at any time by a PUB Order.

As described in DCAT.1.4 and RSR.4.5.1.3, application of the PUB methodology from the 2018 Order would require MPI to set the *lower RSR target* using:

(i) A DCAT-based iterative modelling approach

(ii) Over a two-year time horizon

(iii) At a 1-in-40 year (97.5th percentile) outcome level

(iv) Using a 50/50 interest rate forecast, and

(v) After routine management / regulatory actions.

This methodology produces a lower RSR target of $120 million (27% MCT) for the 2019/20 year. For reasons outlined above, MPI has not adopted this methodology. The methodology applied for by MPI (described below in *RSR.4.5.1.2*) produces a lower RSR target of $143 million (34% MCT) for the 2019/20 year. MPI has also proposed that this lower RSR target be converted to an MCT ratio of 34% rather than a dollar amount.

For the *upper RSR target*, applying the methodology from the 2018 Order would require using:

(i) A DCAT-based iterative modeling approach

(ii) over a two-year time horizon

(iii) at a 1-in-40 year (97.5th percentile) outcome level

(iv) Using a 50/50 interest rate forecast

(v) after routine management / regulatory actions

This methodology produces an upper RSR target of $251 million (69% MCT) for the 2019/20 year. For reasons outlined above, MPI has not adopted this methodology. The methodology applied for by MPI (described below in *RSR.4.5.1.3*) produces an upper RSR target of $305 million (85% MCT) for the 2019/20 year. MPI has also proposed that this upper RSR target be converted to an MCT ratio of 85% rather than a dollar amount.

RSR.4.5 RSR Methodology

This section describes the methodologies used to calculate the minimum (lower) and maximum (upper) RSR Targets.

RSR.4.5.1 Dynamic Capital Adequacy Test (DCAT)

The DCAT is used to determine the minimum RSR target. The DCAT is a test that involves customization specific to a particular insurer's risks. The purpose of the DCAT is to identify plausible threats to satisfactory financial condition, actions that would lessen the likelihood of those threats, and actions that would mitigate a threat if it materialized.

The lower RSR target of $143 million is calculated to reflect the minimum Total Equity balance as of the beginning of the 2019/20 fiscal year such that all 1-in-40 year adverse scenarios maintain a positive Total Equity balance over the forecast period. This calculated minimum Total Equity balance is then converted to a Minimum Capital Test ratio of 34% for the purposes of establishing a dynamic RSR target. The selected 1-in-40 year risk tolerance is supported by MPI and the PUB based on Board Order 128/15. The DCAT analysis includes assumed management and regulatory response to any adverse scenarios that are tested. This calculation has been exhaustively tested in past hearings and throughout several (and on-going) collaborative processes.

RSR.4.5.1.1 DCAT Modified Base Scenario and Treatment of Capital Maintenance Provision (CMP)

The base scenario represents a realistic set of assumptions that are used to forecast the insurer's financial position over the forecast period. The modified base scenario used in this DCAT analysis is the same base scenario that the Corporation filed on June 15, 2018 in 2018/19 General Rate Application *with the exception of* the assumed CMP. The Corporation has proposed a CMP in their 2019 GRA. However, the methodology and the proposed amount of this provision (+2.1%) have not yet been approved by the PUB. For the purposes of the DCAT analysis, MPI has assessed the satisfactory financial condition of Basic insurance *excluding* the CMP.

If the CMP is included in the base forecast this increases Basic net income (all else equal) and improves the projected financial position of Basic. As a result, if Basic has satisfactory financial condition *without* a CMP, then it should also have satisfactory future financial condition with a CMP in the forecast. However, the inclusion of the CMP would also change the assumed management and regulatory actions that occur in response to adverse scenarios. As described in *Part VI DCAT.5.2 Management and Regulatory Action*, the DCAT modeling assumption is that the maximum RSR rebuilding fee in response to an adverse event is 2.0% per year; however, this assumption would likely be eliminated (or reduced significantly) if the CMP was included in the base forecast.

The Corporation is also in the process of developing a Capital Management Plan, which *may* result in Capital Build and Release adjustments to the assumed base forecast in future year. Until this plan is put forward by the Corporation and approved by the PUB, MPI believes it is appropriate to exclude any assumed capital adjustments in the best estimate DCAT base forecast.

Lastly, it is MPI's position that including the CMP in the calculation of the PUB's lower and upper RSR targets is not appropriate. The determination of the appropriate RSR targets needs to occur *before* making the decision on how to maintain, build, or release capital within those target. The inclusion of the CMP, or a future capital build and release provision, should not impact the calculation of the actual RSR targets. The

CMP is designed to maintain capital at the existing MCT ratio in the rating year, preferably at a level that is within the lower and upper regulatory capital targets.

The exclusion of any proposed capital adjustments in the calculation of the required RSR targets will also result in more consistent year-to-year assessments of the capital targets. For example, if the Corporation is significantly undercapitalized, it would not be appropriate for an assumed capital maintenance and/or capital build proposal to reduce the calculated lower and upper RSR targets. Nor would it be appropriate to assume that Basic needs more capital when the forecast includes a planned capital release provision.

For the reasons stated above, the base scenario used in the DCAT analysis does not include the CMP. If the Corporation obtains more certainty on its Capital Management Plan in the 2020 GRA, then the specifics of the DCAT analysis can be revised accordingly. The modified base scenario used in this DCAT report assumes a 0.1% break-even rate increase in 2019/20, which is based on the PUB-approved rate setting methodology and the existing break-even mandate for Basic.

As shown in the table below, the Basic MCT Ratio is expected to deteriorate over the forecast period from 69.49% to 42.50% under the modified base scenario (i.e. in the absence of the CMP). Although the absolute amount of capital (Total Equity) does not deteriorate significantly over this time period, the amount of capital required relative to the size and risk level of the business is declining.

Figure RSR- 1: Base Scenario: Includes proposed 0.1% rate increase in 2019/20

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Net Income	$136	($4)	($5)	($22)	($35)
3	Retained Earnings	$254	$258	$262	$250	$226
4	AOCI[1]	($52)	($44)	($35)	($25)	($15)
5	Total Equity[2]	$254	$258	$262	$250	$226
6	MCT Ratio[3]	69.49%	63.51%	58.30%	51.72%	42.50%

1. Accumulated Other Comprehensive Income
2. Total Equity = Retained Earnings + AOCI
3. Minimum Capital Test Ratio based on the 2017 MCT Guideline

RSR.4.5.1.2 DCAT Results

The tables below summarize the most adverse scenarios tested in the DCAT analysis before applying assumed management and regulatory action for each of the four main risk categories.

Figure RSR- 2: Adverse Scenarios before applying Management Action: Total Equity

Line No.	Adverse Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Combined Scenario	$254	$187	$150	$103	($36)
3	High Loss Ratio	$254	$194	$137	$66	$4
4	Interest Rate Decline	$254	$243	$211	$170	$116
5	Equity Decline	$254	$242	$234	$206	$165

Figure RSR- 3: Adverse Scenarios before applying Management Action: Minimum Capital Test Ratio

Line No.	Adverse Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	Combined Scenario	69.49%	41.27%	25.33%	11.10%	-25.54%
2	High Loss Ratio	69.49%	44.06%	22.50%	1.29%	-15.76%
3	Interest Rate Decline	69.49%	56.98%	41.32%	28.94%	13.68%
4	Equity Decline	69.49%	58.20%	50.46%	40.23%	27.25%

Based on the above results, the most adverse scenario before management action was the four-year Combined Scenario. The actuary must also determine the most adverse scenario at each return period (1, 2, 3, and 4 years) because assumed management action *may* result in a change to the most adverse scenario. In all cases the Combined Scenario was the most adverse scenario before assumed management action. The table below shows the results of the Combined Scenario for each return period before and after assumed management action.

Figure RSR- 4: Combined Scenario: Basic Total Equity before Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$254	$147			
3	2 year	$254	$207	$100		
4	3 year	$254	$197	$111	$39	
5	4 year	$254	$187	$150	$103	($36)

Figure RSR- 5: Combined Scenario: Basic Total Equity after Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$254	$147			
3	2 year	$254	$207	$122		
4	3 year	$254	$197	$133	$130	
5	4 year	$254	$187	$172	$206	$208

As shown in the table above, MPI Basic maintains a positive Total Equity balance for all 1-in-40 year adverse scenarios tested in the DCAT analysis.

RSR.4.5.1.3 Minimum (Lower) RSR Target

As part of the DCAT collaboration with the PUB, this DCAT report also provides the minimum Total Equity balance as at the beginning of the 2019/20 fiscal year such that all 1-in-40 year adverse scenarios after management action will maintain a Total Equity balance above zero over each return period. As shown in the table below, the minimum Total Equity balance required, such that all of Combined Scenarios after assumed management action remain above zero, is $143 million. MPI then converted the $143 million to an MCT ratio of 34% for the proposed lower RSR target.

Figure RSR- 6: Minimum Total Equity Balance as of the end of Fiscal 2018/19. Combined Scenario Basic Total Equity after Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$103	$0			
3	2 year	$143	$90	$0		
4	3 year	$140	$78	$9	$0	
5	4 year	$100	$24	$0	$25	$20

RSR.4.5.1.4 Maximum (Upper) RSR Target

As part of the DCAT collaboration with the PUB, the DCAT report also provides a recommended maximum capital target as at the beginning of the 2019/20 fiscal year such that Basic has an appropriate operating range for the RSR above the minimum capital target. The tables below show the DCAT modeling output at selected time horizons and probability levels before management action. The Corporation has proposed a maximum RSR target based on a two-year, 1-in-40, DCAT scenario before management action resulting in a maximum RSR target of $305 million (i.e. $162 million above the lower RSR target of $143 million). MPI then converted the $305 million to an MCT ratio of 85% for the proposed upper RSR target. See *DCAT.6* for more information.

Figure RSR- 7: Dollar Deviations from Best Estimate Forecast by Forecast Period and Percentile

Line No.		Forecast Period (Years)	
	Percentile	2	3
1	*(in millions)*		
2	2.5th	($162)	($211)
3	5th	($136)	($176)

Figure RSR- 8: Implied RSR Range by Forecast Period and Percentile

Line No.	Percentile	Forecast Period (Years) 2	3
1	*(in millions)*		
2	2.5th	$305	$354
3	5th	$279	$318

RSR.4.5.1.5 DCAT Peer Review

The external peer review of the 2017 DCAT Report by Joe S. Cheng F.C.I.A. is filed as *DCAT Attachment A*. Due to the timing of the DCAT process for the 2018 GRA, the external review was not released until October 17, 2017. There were no material changes required to the 2018 DCAT report as a result of the external review.

RSR.4.5.2 Minimum Capital Testing (MCT)

RSR.4.5.2.1 MCT is an Evidence Based Approach to Capital Adequacy accepted by Canadian Regulators

The MCT is a standardized test that is used by the Property and Casualty insurance industry and its regulators. The MCT was developed to assess the key risks faced by the industry and to harmonize capital requirements across jurisdictions in Canada. It is a risk-based approach that reflects the riskiness of individual Property and Casualty insurers and is consistent with approaches in other financial sectors. It assesses the riskiness of assets, policy liabilities, and off-balance sheet exposures, by applying various factors.

The MCT provides objective information about the risk level of the Basic program and how that risk level compares to other automobile insurers (both public and private). Using MCT in this manner provides a comparator of the RSR relative to the risk levels established for other regulated insurers.

The MCT is used by federally regulated insurers in Canada to determine their minimum capital requirements. The test is also used by the regulatory bodies in Saskatchewan and British Columbia to determine the minimum capital requirements for Saskatchewan Government Insurance (SGI) and the Insurance Corporation of British Columbia (ICBC).

Federally regulated insurers must maintain a minimum MCT ratio above 100% and a minimum supervisory MCT ratio of 150%. The supervisory ratio is intended to provide a cushion above the minimum requirement for risk factors that are not easily quantifiable (e.g. operational, strategic, economic risks). Most insurers maintain an actual MCT ratio in excess of 200%, with the overall industry of OSFI accountable insurers having a consolidated MCT of 219% as at December 31, 2017.

SGI targets an MCT score of 100% for its Auto Fund program, while ICBC targets a minimum 100% MCT for its Basic program.

RSR.4.5.2.2 MCT Measures Risks that are faced by MPI

MPI holds a monopoly position over compulsory insurance in Manitoba; however the risks being measured by the MCT are also applicable to MPI. The MCT guideline outlines the five risk categories that underpin the MCT:

1. Insurance Risk
2. Market Risk
3. Credit Risk
4. Operational Risk
5. (Less) Diversification Credit

The MCT Guideline explains these risks and their measurement in detail, which are summarized below.

The Office of the Superintendent of Financial Institutions (OSFI) defines[1] "insurance risk" as the risk arising from the potential for claims or payouts to be made to policyholders. Uncertainties exist around the ultimate amount of net cash flows, and the timing of these cash flows.

OSFI defines[2] "market risk" as the risk that arises from changing rates or prices in various markets such as interest rates, foreign exchange and real estate. Trading, investing and related business activities create exposure to these risks.

OSFI defines[3] "credit risk" as the risk of loss arising from counterparty's inability or unwillingness to fully meet a contractual obligation owed to an insurer. OSFI describes this risk materializing any time funds are extended through contractual agreements.

OSFI defines[4] "operational risk" as the risk of loss resulting from inadequate or failed internal processes, people, and system, or from external events. An insurer is exposed to operational risk through day-to-day operations, or specific external events.

Finally, OSFI defines[5] a diversification credit to account for the fact that not all risks are perfectly correlated, and that an insurer is unlikely to incur the maximum possible loss from each risk type simultaneously.

MPI's status as a Crown Corporation and its monopoly over the compulsory insurance do not mitigate these risks. This fact is underscored by two points:

1. MPI can, and does, measure these risks, in accordance with the OSFI guidelines. These calculations are presented in *RSR Appendix 1*

[1] MCT Guidelines 2016, p.29 (http://www.osfi-bsif.gc.ca/Eng/fi-if/rg-ro/gdn-ort/gl-ld/Pages/mct2016-let.aspx)
[2] MCT Guidelines 2016, p.46
[3] MCT Guidelines 2016, p.60
[4] MCT Guidelines 2016, p.75
[5] MCT Guidelines 2016, p.79

2. Other monopoly crown insurers, namely ICBC and SGI, employ the MCT as the appropriate test of Capital Adequacy.

RSR.4.5.3 2017 MCT Guideline

MPI has utilized the latest available and complete MCT Guideline (i.e. the 2017 MCT Guideline) in the calculation of both the actual MCT results for 2017/18 and the modeled MCT results over the 2018/19 to 2022/23 forecast period. There were no revisions from the 2016 MCT Guideline that would materially impact the financial results of MPI's actual or modeled financial results. As such, a reconciliation between the 2017 and 2016 Guidelines has not been provided. In addition, while OSFI has not yet released a final 2018 Guideline, they have indicated that there are currently no significant draft revisions for 2018.

RSR.4.5.3.1 2017/18 MCT Calculation

As of February 28, 2018, MPI's actual MCT ratio was 44%. The updated MCT calculation can be found in *RSR Appendix 1*.

The 2017/18 MCT calculation indicates that there is $156 million in Capital Available for Basic, despite Basic having a Total Equity balance of $211 million at year end 2017/18. The difference between Total Equity and Capital Available is a result of the MCT calculation requirement that certain assets (namely deferred development and receivables from unregistered insurers) are to be deducted from Total Equity in the establishment of Capital Available.

Figure RSR- 9: Actual MCT Ratio % for February 28, 2018

Line No.		2017/18
1	***(in millions)***	
2	Minimum Capital Required	$352
3	Actual Total Equity	$211
4	Less: Assets requiring 100% Capital	$55
5	Capital Available	$156
6	**Actual MCT Ratio %** (Line 5) / (Line 2)	**44%**

RSR.4.5.4 Forecasted MCT Ratio

The table below shows the MCT calculations at each year fiscal year end over the forecast period

Figure RSR- 10: Forecast MCT Ratio % for the Base Forecast

Line No.		Fiscal Year ending February 28, 20XX			
		2019	2020	2021	2022
1	***(in millions)***				
2	Minimum Capital Required	$303	$335	$352	$369
3	Total Equity: Base Forecast	$254	$280	$307	$318
4	Less: Assets requiring 100% Capital	$44	$47	$59	$61
5	Capital Available	$210	$233	$248	$257
6	**Forecast MCT Ratio %** (Line 5) / Line 2)	**70%**	**70%**	**70%**	**70%**

RSR.4.6 Impact of the Asset and Liability Management (ALM) Study on the DCAT and MCT Results

As described in *Part VI INV.2.1 ALM Study*, the DCAT modeling and the MCT results for 2019/20 and thereafter reflect the assumed implementation of the Corporation's new Asset and Liability Management (ALM) program. The ALM strategy results in a significant decrease in net interest rate risk and investment risk for Basic insurance. As a result, the indicated Total Equity requirement for the DCAT and the Total Equity requirement to achieve a 100% MCT ratio have also decreased to reflect this new risk level. The table below shows how the indicated DCAT-based lower and upper RSR

targets (using the Corporation's proposed methodology) and the 100% MCT Total Equity amount have changed as a result of the ALM strategy.

Figure RSR- 11: Lower / Upper Target Comparison

Line No.	Target	2018 GRA Total Equity	2018 GRA MCT Ratio	2019 GRA Total Equity	2019 GRA MCT Ratio
	(C$millions, unless otherwise noted)				
1	Lower RSR Target (MPI)	$201	37%	$143	34%
2	Upper RSR Target (MPI)	$438	100%	$305*	85%*
3	Lower RSR Target (PUB)	$180	31%	$120	27%
4	Upper RSR Target (PUB)	$325	72%	$251	69%
5	100% MCT	$438	100%	$358	100%

* Would have been $354M and 99% MCT without methodology change

As shown in the above table, the indicated DCAT targets in dollar terms have declined to reflect the new risk level for Basic; however, the MCT ratios have only experienced minor changes. These results demonstrate that the risk measurement in the DCAT analysis is very consistent with that of the MCT test. The capital requirements to achieve a 100% MCT ratio reflect risk levels in excess of 1-in-100, while MPI's DCAT is based on a 1-in-40 risk level.

Given the alignment between the DCAT results and the MCT ratios, the most straightforward method for explaining the risk reduction from the change brought about under the new ALM program is by comparing last year's 100% MCT capital requirement to this year's 100% MCT capital requirement. The capital required for 100% MCT declined by $80 million (-18.3%) relative to last year's 100% MCT amount. The reduction can be summarized as follows:

- Growth in the business: $32 million increase
- Lower Assets Requiring 100% Capital: $25 million decrease
- Change in ALM strategy: $87 million decrease:
    - Greater percentage of fixed income assets: $7 million increase
    - Lower % of Equity and Real Estate assets: $87 million decrease
    - Lower operational risk: $7 million decrease

Appendix 1: Minimum Capital Test

Minimum Capital Test: Capital Available

Line No.	(All figures in $000s, unless otherwise noted)		2017 - 2018 Current Year	2018 - 2019 Forecast Base Year	2019 - 2020 Forecast Year	2020 - 2021 Forecast Year	2021 - 2022 Forecast Year
1	Capital Available						
2	Qualifying category A common shares	01					
3	Contributed surplus	02					
4	Retained earnings	03	170,975	306,532	324,433	342,107	343,713
5	Less: Accumulated net after-tax fair value gains (losses) due to changes in the company's own credit risk	04					
6	Unrealized net after-tax fair value gains (losses) on own use properties at conversion to IFRS - cost model	05					
7	Add:	06					
8	Subtotal: Retained earnings net of adjustments	09	170,975	306,532	324,433	342,107	343,713
9	Earthquake reserves	10					
10	Less: Earthquake EPR not used as part of financial resources to cover exposure	11					
11	Nuclear reserves	12					
12	General and contingency reserves	13					
13	Accumulated other comprehensive income (loss)	14	39,870	(52,111)	(44,259)	(35,155)	(25,421)
14	Less:Accumulated net after-tax fair value gains (losses) on of cash flow hedges that	15					
15	Accumulated net after-tax fair value gains (losses) due to changes in the company's own credit risk	16					
16	Accumulated net after-tax unrealized gains on own-use properties - revaluation surplus	17					
17	Accumulated net after-tax impact of shadow accounting	18					
18	Subtotal: AOCI net of adjustments	19	39,870	(52,111)	(44,259)	(35,155)	(25,421)
19	Qualifying category B instruments - Non-cumulative perpetual preferred shares	20					
20	Qualifying category B instruments - Other	21					
21	Qualifying category C instruments - Preferred shares	22					
22	Qualifying category C instruments - Subordinated debt	23					
23	Less: Accumulated amortization of category C instruments for capital adequacy purposes	24					
24	Net qualifying category C instruments	25					
25	Non-controlling interests	26					
26	(Specify)	27					
27	Subtotal: capital available gross of deductions	29	210,845	254,421	280,175	306,952	318,292
28	Deductions:						
29	Interests in non-qualifying subsidiaries	30					
30	Interests in associates	31					
31	Interests in joint ventures with more than 10% ownership	32					
32	Loans considered as capital to non-qualifying subsidiaries	33					
33	Loans considered as capital to associates	34					
34	Loans considered as capital to joint ventures with more than 10% ownership	35					
35	Receivables and recoverables from unregistered insurers not covered by acceptable collateral	36	245				
36	Self-insured retentions, where OSFI requires collateral and no collateral has been received	37					
37	DPAE other for A&S business	38					
38	Goodwill (net of eligible deferred tax liability)	40					
39	Intangible assets, including computer software (net of eligible deferred tax liability)	41	55,423	43,654	47,106	59,150	61,159
40	Deferred tax assets excluding those arising from temporary differences (net of eligible deferred tax liability)	42					
41	Net defined benefit pension plan surplus asset, net of available refunds (net of eligible deferred tax liability)	43					
42	Investments in own capital instruments not derecognized for accounting purposes	44					
43	Reciprocal cross holdings in the capital of financial entities	45					
44	(Specify)	46					
45	Subtotal: total deductions from capital available	49	55,668	43,654	47,106	59,150	61,159
46	Total Capital Available	59	155,177	210,766	233,068	247,802	257,133

Minimum Capital Test: Capital (Margin) Required

Line No.	(All figures in $000s, unless otherwise noted)		2017 - 2018 Current Year	2018 - 2019 Forecast Base Year	2019 - 2020 Forecast Year	2020 - 2021 Forecast Year	2021 - 2022 Forecast Year
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	155,177	210,766	233,068	247,802	257,133
3	Phase-in of capital available	03					
4	Total Capital Available	09	155,177	210,766	233,068	247,802	257,133
5							
6	Assets Available:						
7	Net Assets Available (from page 30.92 - net assets available)	11					
8	Phase-in of net assets available	13					
9	Total Net Assets Available	19	155,177	210,766	233,068	247,802	257,133
10							
11	Capital (Margin) Required at Target:						
12	Insurance Risk:						
13	*Premium liabilities*	20	87,632	94,659	100,540	104,621	108,783
14	*Unpaid claims*	22	188,083	194,866	203,523	212,261	220,725
15	*Catastrophes*	24					
16	*Margin required for reinsurance ceded to unregistered insurers*	26	55				
17	Subtotal: Insurance risk margin	29	275,771	289,525	304,063	316,882	329,508
18	Market Risk:						
19	Interest rate risk	30	21,238	4,990	19,917	23,797	28,216
20	Foreign exchange risk	32	13,085	15,503	15,147	16,141	17,201
21	Equity risk	34	130,544	68,628	66,694	71,182	75,976
22	Real estate risk	36	63,806	25,831	26,737	27,428	28,352
23	Other market risk exposures	38	421	0	0	0	0
24	Subtotal: Market risk margin	39	229,094	114,952	128,495	138,548	149,745
25	Credit Risk:						
26	Counterparty default risk for balance sheet assets	40	18,935	39,415	62,046	64,368	65,897
27	Counterparty default risk for off-balance sheet exposures	42	1285				
28	Counterparty default risk for unregistered reinsurance collateral and SIRs	44					
29	Subtotal: Credit risk margin	49	20,220	39,415	62,046	64,368	65,897
30	Operational risk margin	50	70,061	64,656	70,656	73,967	77,315
31	Less: Diversification credit	52	70,747	53,576	62,520	66,048	69,616
32	Total Capital (Margin) Required at Target	59	524,400	454,972	502,740	527,717	552,849
33	Minimum Capital (Margin) Required (line 59 / 1.5)	60	349,600	303,315	335,160	351,812	368,566
34	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
35	Total Minimum Capital (Margin) Required	69	349,600	303,315	335,160	351,812	368,566
36	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	-194,423	-92,549	-102,092	-104,010	-111,433
37	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	44.39%	69.49%	69.54%	70.44%	69.77%

DYNAMIC CAPITAL ADEQUACY TESTING

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

DYNAMIC CAPITAL ADEQUACY TESTING 4
DCAT.1 SUMMARY OF FINDINGS 4
DCAT.1.1 Satisfactory Expected Future Financial Condition 6
DCAT.1.2 Modified Base Scenario 6
DCAT.1.3 Adverse Scenarios 8
DCAT.1.4 Minimum Capital Required for Satisfactory Financial Condition (Minimum Rate Stabilization Reserve) 10
DCAT.1.5 Maximum Rate Stabilization Reserve Target 11
DCAT.1.6 Rationale for Actuarial Opinion 12
DCAT.1.7 Review of Events Since the Previous DCAT Report 12
DCAT.1.7.1 Asset and Liability Management (ALM) Study 12
DCAT.1.7.2 Transfer of Capital 15
DCAT.1.7.3 PUB Order 130/17 15
DCAT.1.7.4 2017 DCAT Peer Review 16
DCAT.1.8 Recommendations 17
DCAT.2 INTRODUCTION 19
DCAT.2.1 Role of the Appointed Actuary 19
DCAT.2.2 Purpose 19
DCAT.2.3 Scope 20
DCAT.2.4 Use and Distribution 20
DCAT.2.5 Process 20
DCAT.2.6 Method 21
DCAT.2.7 Data Sources 22
DCAT.3 CAPITAL ADEQUACY MANAGEMENT 22
DCAT.3.1 Regulatory Capital Requirements 22
DCAT.3.2 Materiality 24
DCAT.4 BACKGROUND DISCUSSIONS 25
DCAT.4.1 Description of Basic 25
DCAT.4.2 Recent and Current Financial Position 25
DCAT.4.3 Base Scenario 26
DCAT.4.4 Description of Economic Assumptions in the Base Scenario 26
DCAT.4.5 Discussion of Prior Year's DCAT Results, Recommendations, and Management Actions 30

DCAT.5 ADVERSE SCENARIOS 31
DCAT.5.1 Summary of Results 31
DCAT.5.2 Management and Regulatory Action 33
DCAT.5.3 Decline in Equity Markets 34
DCAT.5.4 High Loss Ratio 40
DCAT.5.5 Interest Rate Decline Scenario 43
DCAT.5.6 Combined Scenario: Equity Returns, Interest Rates, and High Loss Ratio 50
DCAT.5.7 Selection of Most Adverse Scenarios after Management and Regulatory Action 57
DCAT.5.8 Analysis of All Property and Casualty Insurer Risk Categories 64
DCAT.6 MAXIMUM CAPITAL TARGET 72

Appendix 1: Base Forecast
Appendix 2: Decline in Equity Markets Scenario
Appendix 3: High Loss Ratio Scenario
Appendix 4: Interest Rate Decline Scenario
Appendix 5: Combined Scenario
Appendix 6: Stochastic Modeling

Attachment A: 2017 DCAT Peer Review by Joe S. Cheng F.C.I.A.

1

DYNAMIC CAPITAL ADEQUACY TESTING

DCAT.1 SUMMARY OF FINDINGS

I have completed the annual investigation of the future financial condition of Basic Compulsory Autopac Insurance (Basic) as at February 28, 2018 in accordance with accepted actuarial practice in Canada. I have analyzed the forecasted financial positions of the company during the five year forecast period under a series of scenarios. A description of these scenarios and their impact on the company is included within this report.

The most significant assumptions are described within this report. The investigation incorporates assumptions relating to business growth, investments, claims frequency and severity, transfer of capital between lines of business, and other internal and external conditions during the forecast period. My report includes the identification of key risk exposures and the corrective management and regulatory actions that could be taken to mitigate the effect of plausible adverse scenarios.

In my opinion, the future financial condition of Basic is satisfactory because (i) Basic exceeds the Manitoba Public Utility Board's (PUB) assumed minimum capital target under the base scenario during the forecast period and (ii) Basic Total Equity remains positive in all adverse scenarios at the 1-in-40 probability level as set by the Public Utilities Board.

In my assessment of the reasonableness of the base scenario, I have noted that the forecast assumes a significant change in the overall risk level of Basic in the 2019/20 fiscal year as a result of the assumed implementation of Manitoba Public Insurance's (MPI or the Corporation) new Asset and Liability Management (ALM) program. Although I consider these assumption to be reasonable, the base forecast is highly sensitive to the successful implementation of the program. However, given the current and projected Total Equity balance for MPI, my opinion is that the future financial

condition of Basic will remain satisfactory even if there are moderate delays or minor changes to the assumed implementation of the program.

Winnipeg, Manitoba
June 10, 2018



Luke Johnston
Fellow, Canadian Institute of Actuaries

DCAT.1.1 Satisfactory Expected Future Financial Condition

The insurer's financial condition would be satisfactory if throughout the forecast period:

- Under the base scenario, the insurer meets the PUB's assumed minimum Rate Stabilization Reserve (RSR) target (as described in Section 3 of this report).
- Under the base scenario and all plausible adverse scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities.

DCAT.1.2 Modified Base Scenario

The base scenario represents a realistic set of assumptions that are used to forecast the insurer's financial position over the forecast period. The modified base scenario used in this Dynamic Capital Adequacy Testing (DCAT) analysis is the same base scenario that the Corporation filed on June 15, 2018 in the 2018/19 General Rate Application (GRA) *with the exception of* the assumed Capital Maintenance Provision (CMP). The Corporation has proposed a CMP in their 2019 GRA. However, the methodology and the proposed amount of this provision (+2.1%) have not yet been approved by the Public Utilities Board. For the purposes of the DCAT analysis, the Corporation has assessed the satisfactory financial condition of Basic insurance *excluding* the CMP.

If the CMP is included in the base forecast this increases Basic net income (all else being equal) and improves the projected financial position of Basic. As a result, if Basic has satisfactory financial condition *without* a CMP, then it should also have satisfactory future financial condition with a CMP in the forecast. However, the inclusion of the CMP provision would also change the assumed management and regulatory actions that occur in response to adverse scenarios. As described in *DCAT.5.2 Management and Regulatory Action*, we have assumed that the maximum Rate Stabilization Reserve rebuilding fee in response to an adverse event is 2.0% per

year, but this assumption would likely be eliminated (or reduced) if the CMP was included in the base forecast.

The Corporation is also in the process of developing a Capital Management Plan, which *may* result in Capital Build and Release adjustments to the assumed base forecast. Until this plan is put forward by the Corporation and approved by the PUB, MPI believes it is appropriate to exclude any assumed capital adjustments in the best estimate DCAT base forecast.

Lastly, it is the Corporation's position that including the Capital Maintenance Provision in the calculation of the PUB's lower and upper RSR targets is not appropriate. The determination of the appropriate RSR targets needs to occur *before* making the decision on how to maintain, build, or release capital within those target. The inclusion of the CMP, or a future capital build and release provision, should not impact the calculation of the RSR targets themselves. The CMP is designed to maintain capital at the existing Minimum Capital Test (MCT) ratio in the rating year, preferably at a level that is within the lower and upper regulatory capital targets.

The exclusion of any proposed capital adjustments in the calculation of the required RSR targets will also result in more consistent year-to-year assessments of the capital targets. For example, if the Corporation is significantly undercapitalized, it would not be appropriate for an assumed capital maintenance and/or capital build proposal to reduce the calculated lower and upper RSR targets. Nor would it be appropriate to assume that Basic needs more capital when the forecast includes a planned capital release provision.

For the reasons stated above, the base scenario used in the DCAT analysis does not include the Capital Maintenance Provision. If the Corporation obtains more certainty on its Capital Management Plan in the 2020 GRA, then the specifics of the DCAT analysis can be revised accordingly. The modified base scenario used in this DCAT report assumes a 0.1% break-even rate increase in 2019/20, which is based on the PUB-approved rate setting methodology and the existing break-even mandate for Basic.

Modified Base Scenario – Financial Forecast

As shown in the table below, the Basic MCT Ratio is expected to deteriorate over the forecast period from 69.49% to 42.50% under the modified base scenario (i.e. in the absence of the CMP). Although the absolute amount of capital (Total Equity) does not deteriorate significantly over this time period, the amount of capital required relative to the size and risk level of the business is declining. The estimated minimum capital requirement from the PUB is 27% MCT (see *DCAT.3.1*).

Figure DCAT- 1: Base Scenario: Includes proposed 0.1% rate increase in 2019/20

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Net Income	$136	($4)	($5)	($22)	($35)
3	Retained Earnings	$254	$258	$262	$250	$226
4	AOCI[1]	($52)	($44)	($35)	($25)	($15)
5	Total Equity[2]	$254	$258	$262	$250	$226
6	MCT Ratio[3]	69.49%	63.51%	58.30%	51.72%	42.50%

7 1. Accumulated Other Comprehensive Income
8 2. Total Equity = Retained Earnings + AOCI
9 3. Minimum Capital Test Ratio based on the 2017 MCT Guideline

DCAT.1.3 Adverse Scenarios

An adverse scenario is a scenario with an adverse outcome developed by stress testing the assumptions used in the base scenario with regards to risk factors that may trigger potential threats to the insurer's financial condition. An adverse scenario would be characterized as a plausible adverse scenario if it is credible and has a non-trivial probability of occurring. In this DCAT report, the selected adverse scenarios are at the 1-in-40 year probability level.

Actuarial standards of practice require the actuary to test and report on a minimum of three plausible adverse scenarios posing the greatest threat to the insurer. In addition, the actuary must also report on all adverse scenarios that would cause MPI

Basic to fall below the PUB's target capital requirement (see section *Part VI Rate Stabilization Reserve RSR.3*).

The table below summarizes the most adverse scenarios tested in this report before applying assumed management and regulatory action for each of the four main risk categories.

Figure DCAT- 2: Adverse Scenarios before applying Management Action: Total Equity

Line No.	Adverse Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Combined Scenario	$254	$187	$150	$103	($36)
3	High Loss Ratio	$254	$194	$137	$66	$4
4	Interest Rate Decline	$254	$243	$211	$170	$116
5	Equity Decline	$254	$242	$234	$206	$165

Figure DCAT- 3: Adverse Scenarios before applying Management Action: Minimum Capital Test Ratio

Line No.	Adverse Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	Combined Scenario	69.49%	41.27%	25.33%	11.10%	-25.54%
2	High Loss Ratio	69.49%	44.06%	22.50%	1.29%	-15.76%
3	Interest Rate Decline	69.49%	56.98%	41.32%	28.94%	13.68%
4	Equity Decline	69.49%	58.20%	50.46%	40.23%	27.25%

Based on the above results, the most adverse scenario before management action was the four-year Combined Scenario. The actuary must also determine the most adverse scenario at each return period (1, 2, 3, and 4 years) because assumed management action may result in a change to the most adverse scenario. In all cases the Combined Scenario was the most adverse scenario before assumed management action. The table below shows the results of the Combined Scenario for each return period before and after assumed management action.

Figure DCAT- 4: Combined Scenario: Basic Total Equity before Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$254	$147			
3	2 year	$254	$207	$100		
4	3 year	$254	$197	$111	$39	
5	4 year	$254	$187	$150	$103	($36)

Figure DCAT- 5: Combined Scenario: Basic Total Equity after Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$254	$147			
3	2 year	$254	$207	$122		
4	3 year	$254	$197	$133	$130	
5	4 year	$254	$187	$172	$206	$208

As shown in the table above, MPI Basic maintains a positive Total Equity balance for all 1-in-40 year adverse scenarios tested in this report.

DCAT.1.4 Minimum Capital Required for Satisfactory Financial Condition (Minimum Rate Stabilization Reserve)

As part of the DCAT collaboration with the PUB, this report also provides the minimum Total Equity (i.e. Rate Stabilization Reserve) balance as at the beginning of the 2019/20 fiscal year such that all 1-in-40 year adverse scenarios after management action will maintain a Total Equity balance above zero over each return period. As shown in the table below, the minimum Total Equity balance such that all of Combined Scenarios after assumed management action remain above zero is $143 million.

Figure DCAT- 6: Minimum Total Equity Balance as of the end of Fiscal 2018/19. Combined Scenario Basic Total Equity after Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$103	$0			
3	2 year	$143	$90	$0		
4	3 year	$140	$78	$9	$0	
5	4 year	$100	$24	$0	$25	$20

DCAT.1.5 Maximum Rate Stabilization Reserve Target

As part of the DCAT collaboration with the PUB, this report also provides a recommended maximum capital target as at the beginning of the 2019/20 fiscal year such that Basic has an appropriate operating range for the Rate Stabilization Reserve above the minimum RSR target.

The table below shows the DCAT modeling output at selected time horizons and probability levels that could be considered reasonable for the selection of an RSR range. The modeling results are before management action. The Corporation has proposed that the maximum capital target be selected based on a 2 year, 1-in-40, DCAT scenario before management action, which results in a maximum capital target of $305 million. In my opinion, the calculated RSR range ($143 and $305) is reasonable given the stated purpose of the Rate Stabilization Reserve. See *DCAT.6* for more information.

Figure DCAT- 7: Dollar Deviations from Best Estimate Forecast by Forecast Period and Percentile

Line No.		Forecast Period (Years)	
	Percentile	2	3
1	*(in millions)*		
2	2.5th	($162)	($211)
3	5th	($136)	($176)

Figure DCAT- 8: Implied RSR Range by Forecast Period and Percentile

Line No.	Percentile	Forecast Period (Years) 2	3
1	*(in millions)*		
2	2.5th	$305	$354
3	5th	$279	$318

DCAT.1.6 Rationale for Actuarial Opinion

Including plausible management and regulatory action, there are no adverse scenarios at the selected 1-in-40 year probability level that cause Basic Total Equity to fall below zero during the four-year forecast period. Under the base scenario, Basic maintains a Total Equity balance above the projected minimum regulatory capital target. As a result, the financial condition of Basic is satisfactory.

DCAT.1.7 Review of Events Since the Previous DCAT Report

DCAT.1.7.1 Asset and Liability Management (ALM) Study

The DCAT modeling and the MCT results for 2019/20 and thereafter reflect the assumed implementation of the Corporation's new ALM program. The ALM program results in a significant decrease in net interest rate risk and investment risk for Basic insurance. The table below reflects the target asset allocations before and after the assumed ALM implementation.

Figure DCAT- 9: Pre-ALM and Post-ALM Asset Allocation

Line No.	Asset Class	Post-ALM Allocations: Basic Claims Target Weight	Post-ALM Allocations: RSR Target Weight	Post-ALM Allocations: Basic Line of Business Average Weight*	Pre-ALM (Current) Allocation: Basic Line of Business Target Weight
1	Fixed Income				
2	Provincial Bonds	60.0%	20.0%	50.5%	45.0%
3	Corporate Bonds	20.0%	10.0%	20.2%	5.0%
4	MUSH	20.0%	5.0%	19.9%	20.0%
5	Private Debt	0.0%	15.0%	1.6%	0.0%
6	Total Fixed Income	100.0%	50.0%	92.2%	70.0%
7	Public Equities				
8	Canadian Equities	0.0%	12.0%	1.9%	10.0%
9	U.S. Equities	0.0%	0.0%	0.0%	5.0%
10	Global Equities	0.0%	13.0%	2.0%	0.0%
11	Global Low Volatility	0.0%	10.0%	1.6%	0.0%
12	Total Equities	0.0%	35.0%	5.5%	15.0%
13	Alternatives				
14	Canadian Real Estate	0.0%	10.0%	1.5%	10.0%
15	Infrastructure	0.0%	5.0%	0.8%	5.0%
16	Total Alternatives	0.0%	15.0%	2.3%	15.0%

17 * Based on average asset class weight from 2018/19 to 2022/23 (year-end values)

The indicated Total Equity requirement for the DCAT and the Total Equity required to achieve a 100% MCT ratio have decreased to reflect the new post-ALM risk level. The table below shows how the indicated DCAT-based lower and upper RSR targets (using the Corporation's proposed methodology) and the 100% MCT Total Equity amount have changed as a result of the ALM strategy.

Figure DCAT- 10: Lower/Upper Target Comparison

Line No.	Target	2018 GRA Total Equity	2018 GRA MCT Ratio	2019 GRA Total Equity	2019 GRA MCT Ratio
1	*(C$millions, unless otherwise noted)*				
2	Lower RSR Target (MPI)	$201	37%	$143	34%
3	Upper RSR Target (MPI)	$438	100%	$305*	85%*
4	Lower RSR Target (PUB)	$180	31%	$120	27%
5	Upper RSR Target (PUB)	$325	72%	$251	69%
6	100% MCT	$438	100%	$358	100%

7 * Would have been $354M and 99% MCT without methodology change

As shown in the above table, the indicated DCAT targets in dollar terms have declined to reflect the new risk level for Basic; however, the MCT ratios have only experienced minor changes. These results demonstrate that the risk measurement in the DCAT analysis is proportionally consistent with that of the MCT test. The indicated DCAT MCT-based targets are lower because a 100% MCT ratio reflect risk levels in excess of 1-in-100, while MPI's DCAT is based on a 1-in-40 risk level including management and regulatory actions.

Given the alignment between the DCAT results and the MCT ratios, the most straightforward method for explaining the risk reduction from the change in ALM strategy is by comparing last year's 100% MCT capital requirement to this year's 100% MCT capital requirement. The capital required for 100% MCT declined by $80 million (-18.3%) relative to last year's 100% MCT amount. The reduction can be summarized as follows:

- Growth in the business: $32 million increase
- Assets requiring 100% capital: $25 million decrease
- Change in ALM strategy: $87 million decrease:
    - Greater percentage of fixed income assets: $7 million increase
    - Lower percentage of equity and real estate assets: $87 million decrease
    - Lower operational risk: $7 million decrease

DCAT.1.7.2 Transfer of Capital

The Corporation transferred $37.3 million in capital from its Extension line of business to Basic at the end of the 2017/18 fiscal year. The transfer was made to bring the year end 2017/18 Basic Total Equity balance above the $201 million target proposed by the Corporation in the 2018 Rate Application.

As noted in *Figure DCAT-10*, this is the fourth consecutive year in which the Corporation's Board of Directors has transferred funds from Extension to restore the Rate Stabilization Reserve to at least the minimum requirement for satisfactory financial condition. Without these $214 million in transfers, Basic Total Equity would be close to zero (all else equal).

DCAT.1.7.3 PUB Order 130/17

The PUB decision on the 2018 GRA is Order 130/17. In preparing the 2019 GRA, MPI considered the applicability of the Order 130/17 to the current application. For the purposes of determining the range of the RSR, MPI determined there were three directives that were not appropriate to be used in this application. The directives and reasons for not following are specified below:

> *11.19 The 50/50 interest rate forecast shall be used for rate-setting and target capital purposes.*
> **Reason not adopted: The approach is not a best estimate forecast. Historical evidence does not support this as an accurate indicator of interest rate forecast. MPI's external appointed actuary also advised that the naïve forecast is the commonly used approach in the DCAT reports that they have reviewed.**

> *11.20. For fiscal year 2017/18, the lower threshold for the Basic Total Equity will be $180 million, based on the iterative modelling approach over a two-year time horizon at a 1-in-40 year (97.5th percentile)*

outcome level after routine management / regulatory actions. **Reason not adopted: (i) the application of the methodology produces an RSR target below the amount required for satisfactory future financial condition, (ii) it is not based on best estimate forecasting assumptions.**

11.21. For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modelling of a 1-in-40 scenario over a two-year time horizon after routine management / regulatory actions.
Reason for partial adoption: The methodology is not based on best estimate forecasting assumptions; however, MPI is willing to use the two-year time horizon as it should be a viable amount of time to respond to adverse events.

DCAT.1.7.4 2017 DCAT Peer Review

The 2017 DCAT report was peer reviewed by Joe S. Cheng, F.C.I.A. from J.S. Cheng & Partners. In Joe Cheng's report, released October 17, 2017, he had the following major finding and recommendation (MPI's response in **bold**):

- This report introduces a naïve interest rate assumption throughout the forecast period. Previous increasing rate assumptions have proved to be incorrect, compounding forecasting errors. In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada (BoC), I do not see any material risk in assuming a naïve interest rate as a base case. My initial guess is an increase in interest rates should strengthen the financial position of Basic.
  Response: MPI agrees with this assessment.

- The report concludes that Basic's future financial condition is not satisfactory as total equity does not meet the PUB's assumed minimum capital target throughout the forecast period in the base scenario. This is due to a 0% profit

target, no RSR rebuilding fees, and approved rate increases lower than indicated rate increases.

Response: MPI agrees that these reasons, combined with an already low RSR balance at the time of the 2018 GRA filing, are the main contributors to the 'not satisfactory' opinion in the 2017 DCAT report.

- While the strategy to increase asset allocation in corporate bonds makes economic sense, it is not without risk. The assumption will increase MPI's discount rate and decrease claim liabilities by about $80 million in the short run. However, when the International Financial Reporting Standards (IFRS) 17 is implemented in 2021, the discount rate will no longer be tied to the actual portfolio; it will be a risk-free rate plus a liquidity premium. I think this will result in a drop in discount rate and a substantial increase in claim liabilities unless Government of Canada (GoC) bond yields increase significantly between now and 2021.

  Response: MPI agrees with this assessment; however, the Corporation also anticipates that the required interest rate risk margin will fall on the implementation of IFRS 17 as a result of moving to a risk-free rate plus liquidity premium, offsetting some of this impact. MPI continues to monitor the potential transitional impacts of IFRS 17.

DCAT.1.8 Recommendations

1. Set the minimum Total Equity target at $143 million (or 34% MCT) for Basic. This amount represents the amount of Total Equity required at the beginning of the 2019/20 fiscal year such that the base scenario and all adverse scenarios at a 1-in-40 year probability level maintain a positive Total Equity balance over the forecast period.

2. Establish a range above the recommended minimum capital target such that Basic (i) can withstand a reasonable level of variability in its financial results without falling below the minimum capital target; and (ii) would not issue rebates to customers within this range A range would also protect the Basic

program from other risk factors that are not easily quantifiable. The Corporation has proposed an upper capital target of $305 million (or 85% MCT) based on analysis conducted in *DCAT.6* of this report. I believe the proposed upper target is reasonable for this purpose.

3. The Corporation should convert their proposed dollar-based RSR targets into MCT-based RSR targets. MCT-based targets create a dynamic RSR target that responds to changes in risk level and can be more directly compared with other insurers.

4. If the Total Equity balance falls below the recommended minimum target, management should implement a plan to restore Total Equity to above the target.

5. Management should conduct an analysis of the expected impacts from IFRS 17, specifically in terms of the discount rate used in the valuation of policy liabilities. These impacts should be well understood by the October 2018 valuation (if possible).

6. If there is a significant increase in projected claims costs, management should be prepared to increase rates as quickly as possible.

7. Management should continue to monitor loss cost and premium trends to determine if there are any threats to the financial condition of Basic.

8. Management should continue to monitor its reinsurance coverage as the severity of the modeled adverse scenarios could increase substantially if this coverage is reduced.

9. Management should continue to monitor the level of interest rate risk included in the setting of Basic rates and from the net impacts to assets and liabilities caused by changes in interest rates.

10. Management should continue to monitor other important risk factors such as inflation, policy liability risk, and changes to International Financial Reporting Standards (IFRS).

DCAT.2 INTRODUCTION

DCAT.2.1 Role of the Appointed Actuary

As per Subsection 2520 of the Canadian Institute of Actuaries Standards of Practice:

> *The appointed actuary should make an investigation at least once during each financial year of the insurer's recent and current financial position and financial condition, as revealed by dynamic capital adequacy testing for selected scenarios.*
>
> *The appointed actuary should make a report of each investigation in writing to the insurer's board of directors (or to their audit committee if they so delegate) or its chief agent for Canada. The report should identify possible actions for dealing with any threats to satisfactory financial condition that the investigation reveals.*
>
> *The appointed actuary should ensure that the investigation is current. The investigation should take into consideration recent events and recent financial operating results of the insurer.*

DCAT.2.2 Purpose

The purpose of DCAT is to identify (i) plausible threats to satisfactory financial condition, (ii) actions that would lessen the likelihood of those threats, and (iii) actions that would mitigate a threat if it materialized.

DCAT.2.3 Scope

The DCAT report contains the key assumptions of the base scenario and the plausible adverse scenarios posing the greatest risk to the satisfactory financial condition of MPI Basic. This report discloses each of the risk categories considered in undertaking the DCAT analysis, including those identified in the CIA Standards of Practice.

If the investigation identifies any plausible threat to the satisfactory financial condition of MPI Basic, then the actuary would identify corrective management action that would lessen or mitigate that threat if it materialized. For each adverse scenario reported upon, the actuary would report the results both with and without the effect of corrective management action. (See *section 2520.34 of CIA Standards of Practice*).

The DCAT analysis was performed by Luke Johnston, FCIA, FCAS, and Chief Actuary and Vice President, Product and Risk Management. Mr. Johnston is available to answer any questions in regards to this report and can be reached at the following address:

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DCAT.2.4 Use and Distribution

The DCAT report was prepared for the internal use of MPI. A copy of this report may be provided to the Company's external auditors and to the PUB.

DCAT.2.5 Process

DCAT has the following key elements:

- Development of a base scenario;

- Analysis of the impact of adverse scenarios;
- Identification and analysis of the effectiveness of various strategies to mitigate risks;
- A report on the results of the analysis and recommendations to the insurer's management and the Board of Directors; and
- An opinion signed by the actuary and included in the report on the financial condition of the insurer.

DCAT.2.6 Method

The Corporation's internal financial model was used to perform the 2018 DCAT analysis. Detailed output from the financial model is provided in the supporting Appendices for the base scenario and for each adverse scenario tested in this report.

The Corporation's base scenario was generated through the combined effort of several departments and committees, including:

- Actuarial Services Unit
- Investments Unit
- Financial Forecasting and Reinsurance Unit
- Forecasting Committee
- Executive Committee

The assumptions and forecasts generated by the above units and committees are the inputs for the Corporation's financial model. A written summary of the base scenario assumptions are contained in *DCAT.4* of this report, while detailed model output for the base scenario with 0.1% rate change is contained in *DCAT Appendix 1*.

The modeling of plausible adverse scenarios involves reviewing all of the assumptions (or inputs) of the base scenario and determining how they are impacted by the event. A new set of assumptions and forecasts are then generated based on the assumed plausible adverse scenario. These assumptions are then input into the financial model and the results are compared to the base scenario.

DCAT.2.7 Data Sources

To perform this valuation, I have used information provided by:

- Glenn Bunston, Manager, Investments
- Wes Sprenger, Senior Investment Forecasting Specialist, Investments
- Dean Dunstone, Assistant Manager, Financial Forecasting and Reinsurance
- Tyler Clearwater, Actuarial Analyst, Actuarial Services
- Mark Russo, Accountant 2, Financial Forecasting and Reinsurance

DCAT.3 CAPITAL ADEQUACY MANAGEMENT

DCAT.3.1 Regulatory Capital Requirements

Basic Total Equity, net of any special appropriations, is referred to as the RSR. The PUB capital targets and the capital target methodology can change at any time by a PUB Order.

As described in DCAT.1.4, application of the PUB methodology from the 2018 Order would require MPI to set the *lower RSR target* using:

i. A DCAT-based iterative modelling approach

ii. Over a two-year time horizon

iii. At a 1-in-40 year (97.5th percentile) outcome level

iv. Using a 50/50 interest rate forecast, and

v. After routine management / regulatory actions.

This methodology produces a lower RSR target of $120 million (27% MCT) for the 2019/20 year. For reasons outlined in DCAT.1.7.3, MPI has not adopted this

methodology. The MPI applied for methodology produces a lower RSR target of $143 million (34% MCT) for the 2019/20 year. MPI has also proposed that this lower RSR target be converted to an MCT ratio of 34% rather than a dollar amount.

For the *upper RSR target*, applying the methodology from the 2018 Order would require using:

1. A DCAT-based iterative modeling approach
2. over a two-year time horizon
3. at a 1-in-40 year (97.5th percentile) outcome level
4. Using a 50/50 interest rate forecast
5. after routine management / regulatory actions

This methodology produces an upper RSR target of $251 million (69% MCT) for the 2019/20 year. For reasons outlined in DCAT.1.7.3, MPI has not adopted this methodology. The MPI applied for methodology produces an upper RSR target of $305 million (85% MCT) for the 2019/20 year. MPI has also proposed that this upper RSR target be converted to an MCT ratio of 85% rather than a dollar amount.

Based on the above, the MPI applied for DCAT-based minimum $143 million capital target represents an MCT score of 34%, while the proposed maximum capital target of $305 million represents an MCT score of 85%. Assuming the DCAT analysis would produce a similar MCT score in future years, the table below shows the projected minimum and maximum RSR targets at 34% MCT and 85% MCT ratios over the forecast period. The 100% MCT target is also provided. The calculations assume that the Corporation's proposed RSR targets in 2019/20 will be approved by the PUB.

Figure DCAT- 11: Projected Regulatory Capital Targets

Line No.	Fiscal Year Beginning	Minimum RSR	Maximum RSR	100% MCT
1	*(in millions)*			
2	2019/20	$143	$305	$358
3	2020/21	$155	$337	$396
4	2021/22	$173	$363	$426
5	2022/23	$180	$380	$445

Note: The Corporation's Total Equity (RSR) balance is not equivalent to Capital Available in the MCT calculation. As a result of certain deductions that are included in the MCT calculation, the required Total Equity balance to achieve a 100% ratio will be higher than MCT Capital Available. The calculations above reflect the amount of Total Equity required for Basic to achieve a 100% MCT ratio in the given fiscal year. The MCT calculations for the base scenario and the selected adverse scenarios are provided in the appendices of this DCAT report.

DCAT.3.2 Materiality

As per Canadian actuarial standards of practice, an omission, understatement or overstatement is material if the actuary expects it to materially affect either the user's decision making or the user's reasonable expectations. We have judgmentally selected a materiality standard of $10 million, which is twice the materiality standard used in the *Part VIII EAR Attachment A - February 2018 Basic Appointed Actuary's Report*. The higher standard reflects the much greater uncertainty associated with the DCAT projections relative to the uncertainty of the base forecast. The materiality standard is approximately equal to 0.9% of projected net earned revenues for Basic in 2019/20.

Note: The materiality level is not intended to represent the range of reasonable values or the inherent uncertainty in an actuarial estimate.

DCAT.4 BACKGROUND DISCUSSIONS

DCAT.4.1 Description of Basic

MPI Basic is the Corporation's compulsory automobile insurance product. The Corporation has a monopoly on the sale of Basic products. The Basic coverages are as follows:

- All perils coverage with a $500 deductible
- No-fault accident benefits - Personal Injury Protection Plan (PIPP)
- Third Party Liability with a $200,000 limit.

DCAT.4.2 Recent and Current Financial Position

The table below provides the historical financial results for Basic over the previous five fiscal years.

Figure DCAT- 12: Historical Results

Line No.		2013/14	2014/15	2015/16	2016/17	2017/18
1	*(in millions)*					
2	Earned Revenues	$785	$823	$881	$928	$983
3	Total Claims Costs	$875	$874	$798	$994	$924
4	Expenses	$127	$136	$135	$140	$141
5	Investment Income	$148	$188	($4)	$83	$116
6	Net Income	($69)	($2)	($56)	($123)	$34
7	Rebates	$0	$0	$0	$0	$0
8	Transfers from Competitive Lines	$0	$76	$73	$28	$37
9	Retained Earnings	$100	$178	$194	$99	$211
10	AOCI[1]	$70	$35	$37	$82	$40
11	Total Equity[2]	$170	$213	$231	$181	$211
12	MCT Ratio[3]	41.60%	53.40%	48.61%	29.71%	44.11%

1. Accumulated Other Comprehensive Income
2. Total Equity = Retained Earnings + AOCI
3. Minimum Capital Test (MCT) Ratio. The 2017/18 MCT ratio is calculated based on the 2017 Guideline.

DCAT.4.3 Base Scenario

As per Canadian actuarial standards of practice (section 2520.17):

> *The base scenario would be a realistic set of assumptions used to forecast the insurer's financial position over the forecast period. Normally, the base scenario would be consistent with the insurer's business plan. The actuary would accept the business plan's assumptions for use in the base scenario unless these assumptions are so inconsistent or unrealistic that the resulting report would be misleading. The actuary would report any material inconsistency between the base scenario and the business plan.*

Details of the Corporation's base scenario are provided in the following sections.

DCAT.4.4 Description of Economic Assumptions in the Base Scenario

Volume growth: The number of insured units (excluding trailers and ORVs) is assumed to increase 1.50% per year over the forecast period, which is consistent with the historical averages. Trailers and ORVs have higher growth rates, but represent less than 1% of annual loss costs.

Vehicle Upgrade Factor: The average premium can increase or decrease without rate changes as customers' change their vehicle preferences (e.g. SUV's versus cars), where they live (e.g. Winnipeg versus rural), or how they use their vehicle (e.g. all purpose versus pleasure). The vehicle upgrade factor (excluding trailers and ORVs) is assumed to be 2.45% per year over the entire forecast period, which is equal to the most recent five year average. For more information see *Part V REV.1.2*.

Inflation: Projected Canadian Consumer Price Inflation (CPI) is forecasted to be 2.2% in 2018/19, 2.1% in 2019/20, and 2.0% thereafter. Projected Manitoba Consumer Price Inflation (CPI) is forecasted to be 2.0% over the five year forecast. Therefore, both CPI forecasts are projected at 2.0% per year. These rates are based on the

consensus forecast from various banks and economic forecasting firms rounded to the nearest 10 basis points. For more information see *Part VI INV.14.2*.

Interest rates and yields: The projected interest rates and yields for the investment portfolio are shown in the table below. The GoC 10 year bond rate forecast and the Canadian 91 Day T-Bill forecast was calculated using the naïve forecast[1]. The returns for MUSH (i.e. non-marketable provincial bonds), equities, real estate, and infrastructure are the Corporation's internal forecasts.

Figure DCAT- 13: Assumed Interest Rates and Yields

Line No.	Fiscal Year	CDN 91 Day T-Bill	Government of Canada 10 Year	Marketable Bond Yield	MUSH Rate	CDN/US/ Global Equities	Global Low Volatility Equities	Real Estate	Infrastructure
1	2018/19	1.15%	2.24%	3.20%	4.52%	7.00%	6.40%	6.20%	7.20%
2	2019/20	1.15%	2.24%	3.21%	4.47%	7.00%	6.40%	6.10%	7.10%
3	2020/21	1.15%	2.24%	3.21%	4.42%	7.00%	6.40%	6.00%	7.00%
4	2021/22	1.15%	2.24%	3.21%	4.36%	7.00%	6.40%	6.00%	7.00%
5	2022/23	1.15%	2.24%	3.20%	4.31%	7.00%	6.40%	6.00%	7.00%

*The interest rates and yields in the above table are for the fourth quarter of each fiscal year. The Corporation creates forecasts for each quarter (not shown).

Claims Liability Discount Rate: The present value of Basic claim liabilities is calculated using a discount rate based on the current average yields on the Corporation's fixed income portfolio. The assumed claim liability discount rates over the forecast period are shown in the table below.

Figure DCAT- 14: Assumed Claims Liability Discount Rate

Line No.	Fiscal Year End	Nominal	Real
1	2018/19	3.51%	1.48%
2	2019/20	3.47%	1.44%
3	2020/21	3.42%	1.39%
4	2021/22	3.37%	1.34%
5	2022/23	3.32%	1.30%

[1] The naïve forecast is the existing interest rate held constant for the entire interest rate forecast. The GoC 10 year bond rate forecast was 2.24%, which is based on the rate as of February 28, 2018.

Rate changes and Capital Build, Maintain, or Release

Vehicle premiums: The base forecast includes the following rate change and RSR rebuilding fee assumptions over the forecast period.

Figure DCAT- 15: Assumed Rate Changes, RSR Rebuilding Fees, and Capital Maintenance Provisions

Line No.	Policy Year	Rate Change	RSR Rebuilding Fee	Capital Maintence Provision
1	2018/19	2.6% (approved)	0.0% (approved)	0.0% (approved)
2	2019/20	0.1% (proposed)	0.0% (proposed)	2.1% (proposed)
3	2020/21	0.0% (assumed)	0.0% (assumed)	0.0% (assumed)
4	2021/22	0.0% (assumed)	0.0% (assumed)	0.0% (assumed)
5	2022/23	0.0% (assumed)	0.0% (assumed)	0.0% (assumed)

Per the above table, the Corporation has applied for a 0.1% rate increase, no RSR rebuilding fee, and a 2.1% capital maintenance provision in the 2019/20 policy year. The base forecast assumes the Corporation's rate increase proposal will be approved by the Regulator. For the reasons described in DCAT.1.2, the Corporation has not included the applied for CMP in the base scenario. In the 2020/21 to the 2022/23 policy years the base forecast assumes that there will be no additional rate changes, RSR rebuilding fees, or capital maintenance provisions.

Driver premiums: The Corporation has not proposed any changes to driver premiums in the 2019/20 policy year. The number of drivers is expected to grow at 1.50% per year based on historical trends.

Rebates: The base forecast assumes that no rebates will be ordered by the Public Utilities Board over the forecast period.

Reinsurance

The Corporation's reinsurance structure is as follows:

- Catastrophe program in excess of $15 million with a limit of $265 million.
- Casualty program with retention of $5 million and a limit of $50 million.

No changes in coverage are anticipated for the reinsurance program over the projection period.

Deferred Policy Acquisition Costs (DPAC) Write-Down and Premium Deficiencies

As of February 28, 2018, MPI Basic had a premium deficiency of $8.8 million and a $32.1 million deferred policy acquisition cost (DPAC) write-down. The table below shows the assumed changes in the premium deficiency and DPAC write-down over the forecast period. These amounts are included in the base forecast.

Figure DCAT- 16: Change in the Premium Deficiency or DPAC Write Down

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Change in Premium Deficiency/DPAC	($29)	($5)	($4)	$4	$8

Base Forecast

The table below shows the Corporation's base forecast used in the DCAT report.

Figure DCAT- 17: Base Scenario – Includes 0.1% Rate Increase in 2018/19 and No Rate Changes, RSR Rebuilding Fees, or Capital Maintenance Provisions thereafter

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$1,063	$1,126	$1,174	$1,222	$1,272
3	Total Claims Costs	$968	$1,058	$1,103	$1,164	$1,223
4	Expenses	$152	$154	$160	$167	$173
5	Investment Income	$192	$82	$85	$88	$90
6	Net Income	$136	($4)	($5)	($22)	($35)
7	Retained Earnings/RSR	$254	$258	$262	$250	$226
8	AOCI	($52)	($44)	($35)	($25)	($15)
9	Total Equity	$254	$258	$262	$250	$226
10	MCT Ratio	69.49%	63.51%	58.30%	51.72%	42.50%

DCAT.4.5 Discussion of Prior Year's DCAT Results, Recommendations, and Management Actions

Last year's DCAT report dated July 13, 2017 found that the future financial condition of Basic was not satisfactory because Basic did not meet the PUB's assumed minimum capital target under the base scenario during the forecast period. The estimated PUB minimum capital target for 2018/19 was $201 million, which equated to a MCT ratio of 37%. Despite the Corporation's proposed 2.7% rate increase on 2018/19 vehicle policies and $17.5 million increase in driver vehicle premiums, the Corporation's base forecast projected that the MCT ratio would fall below 37% in the 2018/19 year. If no further management actions were taken, the MCT ratio was projected to fall to 26% by the 2021/22 year.

It was also noted in the report that Basic was currently operating at very low capital levels and does not earn a profit. As a result, there was no natural means by which to rebuild capital levels. The PUB responded to these concerns in Order 130/17 by directing MPI to attend a Technical Conference to discuss options for a CMP.

DCAT.5 ADVERSE SCENARIOS

DCAT.5.1 Summary of Results

A summary of the projected Total Equity and MCT scores for the selected 1-in-40 year adverse scenarios (before management and regulatory action) are shown in the table below. The adverse scenarios listed below are considered to have the most significant financial impact to the Corporation's financial position. All other risk categories are discussed in the 'Analysis of All Property and Casualty Insurer Risk Categories' section of this report.

Figure DCAT- 18: Total Equity – Adverse Scenarios before Management Action

Line No.	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Base	$254	$258	$262	$250	$226
3	Combined Scenario	$254	$187	$150	$103	($36)
4	High Loss Ratio	$254	$194	$137	$66	$4
5	Interest Rate Decline	$254	$243	$211	$170	$116
6	Equity Decline	$254	$242	$234	$206	$165

Figure DCAT- 19: Minimum Capital Test Ratios – Adverse Scenarios before Management Action

Line No.	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	Base	69.49%	63.51%	58.30%	51.72%	42.50%
2	Combined Scenario	69.49%	41.27%	25.33%	11.10%	-25.54%
3	High Loss Ratio	69.49%	44.06%	22.50%	1.29%	-15.76%
4	Interest Rate Decline	69.49%	56.98%	41.32%	28.94%	13.68%
5	Equity Decline	69.49%	58.20%	50.46%	40.23%	27.25%

1. The MCT ratio can be negative even when Total Equity is positive because deferred development costs now require 100% capital. Therefore, it is possible for Total Equity to be positive while the MCT ratio is negative as long as the deferred development costs exceed the available capital.

Relative to the base forecast, the largest reductions in Total Equity (before management and regulatory action) for each return period and probability level are for

the Combined Scenarios. As a result, the Combined Scenarios at the 1-in-40 year probability level were used to apply assumed management and regulatory action, which are shown in the table below. The information in the table can be interpreted as follows: "Rate" means a rate increase for that policy year; "RSR" means an *additional* RSR rebuilding fee is applied in that policy year. E.g. For the 4 year Combined Scenario there is a total RSR rebuilding fee of 6% by the 2022/23 policy year.

Figure DCAT- 20: Assumed Management and Regulatory Action for Combined Scenarios

Line No.	Combined Scenarios	2019/20	2020/21	2021/22	2022/23
1	Base	0.1% Rate / 0% RSR			
2	1 year	0.1% Rate / 0% RSR	n/a	n/a	n/a
3	2 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	n/a	n/a
4	3 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	2% Rate / 2% RSR	n/a
5	4 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	3% Rate / 2% RSR	3% Rate / 2% RSR

The Combined Scenarios *including* the above management and regulatory action assumptions are shown in the table below.

Figure DCAT- 21: Total Equity – Combined Scenarios including Management Action

Line No.	Combined Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Base	$254	$258	$262	$250	$226
3	1 year	$254	$147	n/a	n/a	n/a
4	2 year	$254	$207	$122	n/a	n/a
5	3 year	$254	$197	$133	$130	n/a
6	4 year	$254	$187	$172	$206	$208

Figure DCAT- 22: Minimum Capital Test Ratios – Combined Scenarios including Management Action

Line No.	Combined Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	Base	69.49%	63.51%	58.30%	51.72%	42.50%
2	1 year	69.49%	30.06%	n/a	n/a	n/a
3	2 year	69.49%	46.82%	17.40%	n/a	n/a
4	3 year	69.49%	44.14%	20.64%	17.89%	n/a
5	4 year	69.49%	41.27%	31.14%	37.35%	35.73%

Despite the significant reductions from the base forecast *before* application of management and regulatory actions, the Total Equity forecasts for all Combined Scenarios remains positive throughout the forecast period after management and regulatory action.

DCAT.5.2 Management and Regulatory Action

The following management and regulatory action assumptions were used for all adverse scenarios:

- Per discussions with management, we have assumed that the maximum combined rate increase and/or additional RSR rebuilding fee in a given rate application is 5.0%. In prior year's rate applications, the maximum additional RSR rebuilding fee approved by the PUB in a given year was 2.0%. The maximum rate increase approved by the PUB in the past 20 years was 4.1% in 1996. We believe this assumption is reasonable in light of the historical experience.
- Per discussions with management, we have assumed that there are no capital transfers between lines of business. Although transfers from the Corporation's competitive lines of business have occurred in the recent past, as of February 28, 2018 there were minimal amounts of excess capital in the competitive lines of business due to the magnitude of previous transfers to Basic. It is also the desire of the Executive that the indicated DCAT-based targets reflect the 'stand alone' result for the Basic line of business.
- 2019/20 Rate Application: Since the adverse scenarios do not occur until the 2019/20 fiscal year, we have assumed that none of the adverse scenarios would change the 0.1% break-even rate increase for in the 2019/20 rate application.
- 2020/21 Rate Application: Since the adverse scenarios are assumed to begin in the 2019/20 fiscal year and thereafter, it was assumed that the 2020/21 rate application *could* be impacted by the results of adverse scenarios if the impacts of these scenarios were apparent by the time the Corporation released its second quarter financial statements (or before the end of the October rate

hearings). Otherwise, it was assumed that the Corporation would not have full knowledge of the 2019/20 adverse scenarios at the time they put forward their 2020/21 rate application, and therefore, the adverse scenario would not impact the applied for rate change or RSR rebuilding fee.

- 2021/22 and 2022/23 Rate Applications:
  - The adverse scenarios will impact the rate and RSR rebuilding fee proposals in the 2021/22 and 2022/23 rate applications.
  - At each fiscal year end the break-even rate requirement for MPI Basic will be reassessed for the given rating period, and if necessary, rates will be assumed to increase to produce break even rates. The methodology for determining the revised forecasts, rate changes, and RSR rebuilding fees will be described with each adverse scenario (in the sections that follow).

DCAT.5.3 Decline in Equity Markets

Scenario Description

The Corporation's equity assets experience a decline beginning in the 2019/20 fiscal year.

Ripple Effects

None identified – other than those impacts already incorporated into the Corporation's financial model.

Changes from Last Year's DCAT Report

None.

Scenario Justification

The S&P/TSX Composite Total Return Index is used to model this scenario. The table below shows the actual total returns at the 0.5th, 1st, 2.5th, and 5th percentiles for the S&P/TSX Composite from 1956 to present (April 30, 2018).

Figure DCAT- 23: Historical Total Returns on the S&P/TSX by Percentile and Return Period (Cumulative)

Line No.			Return Period (Years)			
1	Time Period	Percentile	1	2	3	4
2	1956-present	0.5th	-33.18%	-33.42%	-26.32%	-11.14%
3	1956-present	1st	-32.19%	-29.04%	-24.25%	-9.18%
4	1956-present	2.5th	-25.84%	-23.19%	-11.37%	-2.81%
5	1956-present	5th	-17.22%	-15.32%	-5.90%	0.85%

Based on the historical results above, the Corporation's selected equity decline scenarios are based on fitted distributions that best represent the historical data. The assumptions are shown as total return in the table below.

Figure DCAT- 24: Selected Adverse Scenarios by Percentile and Return Period (Cumulative)

Line No.		Return Period (Years)			
1	Percentile	1	2	3	4
2	0.5th	-42.39%	-35.39%	-25.42%	-11.62%
3	1st	-35.44%	-29.81%	-20.82%	-8.83%
4	2.5th	-26.16%	-21.70%	-13.74%	-4.13%
5	5th	-19.01%	-14.87%	-7.41%	0.58%

Dividend Yield

The dividend yield used in the Equity Decline scenarios is the same dividend yield as the base forecast – see table below.

Figure DCAT- 25: Dividend Yield

Line No.	Index	Canadian Equities	U.S/Global/Global Low Vol Equities
1	2018/19	3.1%	2.4%
2	2019/20	3.2%	2.6%
3	2020/21	3.4%	2.7%
4	Thereafter	3.4%	2.7%

Dividend income is calculated based on the market value of the portfolio multiplied by the dividend yield. When the market value of the equity portfolio declines in the scenario analysis, dividends received as investment income also decline on a proportionate basis.

Realized Losses

Equity turnover indicates the rate at which gains or losses are realized in the equity portfolio on an annual basis. For Canadian equities, last year it was assumed that 20% of the unrealized losses were realized each year. For this year's report, Canadian equity turnover is assumed to be 0% for 2019/20 and thereafter. The turnover assumption changed because Canadian equity holdings are forecasted to be transferred into a pooled fund at the end of Q4 2018/19.

It is forecasted that the entire U.S. equity portfolio is assumed to be sold, and exposure is added to Global equity and Global low volatility equities at the end of Q4 2018/19. See *Part VI INV.2.2* for more information on this transition. Global equity and Global low U.S. equity portfolio are assumed to have a 0% turnover rate, which is the same turnover assumption in last year's report for the U.S. equity portfolio.

Rebalancing Assumptions

The Basic Claims asset allocation tolerance ranges for each asset class are summarized in the table below:

Figure DCAT- 26: Asset Allocation Tolerance Ranges (Basic Claims)

Line No.	Asset Class Group	Minimum	Target	Maximum
1	Fixed Income			
2	Provincial Bonds	50.0%	60.0%	70.0%
3	Corporate Bonds	15.0%	20.0%	25.0%
4	MUSH	15.0%	20.0%	25.0%
5	Total Fixed Income		100.0%	

The RSR asset allocation tolerance ranges for each asset class are summarized in the table below:

Figure DCAT- 27: Asset Allocation Tolerance Ranges (RSR)

Line No.	Asset Class Group	Minimum	Target	Maximum
1	Fixed Income			
2	Provincial Bonds	10.00%	20.00%	30.00%
3	Corporate Bonds	5.00%	10.00%	15.00%
4	MUSH	0.00%	5.00%	10.00%
5	Private Debt	0.00%	15.00%	20.00%
6	Total Fixed Income	40.00%	50.00%	60.00%
7	Public Equities			
8	Canadian Equities	9.00%	12.00%	15.00%
9	Global Equities	10.00%	13.00%	16.00%
10	Global Low Volatility	7.00%	10.00%	13.00%
11	Total Equities	25.00%	35.00%	45.00%
12	Alternatives			
13	Canadian Real Estate	7.00%	10.00%	13.00%
14	Infrastructure	2.00%	5.00%	8.00%
15	Total Alternatives	10.00%	15.00%	20.00%

Impairments

MPI's Impairment Policy is consistent with the IFRS Standards. Equities are held at market value on the financial statements. Therefore modeled losses are fully reflected in Total Equity at all times. When equities are impaired, the impairment reclassifies the loss from Accumulated Other Comprehensive Income to Net Income. This impairment reclassification does not have any impact on the reported Total Equity.

Impairments are recognized in the model based on the following conditions:

- If the market value falls below 80% of book value at a fiscal year end, impairment is recognized.
- If market value remains below 100% of the book value for a period longer than a year, then at the following fiscal year-end an impairment is recognized.

When the impairment occurs, the book value of the equity portfolio is adjusted to equal the market value.

Results before Management and Regulatory Action

The tables below show the projected Total Equity for each of the Equity Decline scenarios described above. The results are shown without management or regulatory action.

The highlighted cells indicate where the base forecast equity assumptions were used. The Corporation has identified these cells because the historical data indicates that equity returns are not independent from year-to-year (especially after large declines), and therefore, these results may not be plausible beyond the return period tested. The highlighted results are for information only and will not be used in the selection of the most adverse equity decline scenario.

Figure DCAT- 28: Decline in Equity Markets Scenario, Total Equity

Line No.	Probability	Return Period	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1-in-200	1 year + base	$194	$203	$197	$179
3	1-in-100	1 year + base	$198	$213	$208	$190
4	1-in-40	1 year + base	$198	$218	$209	$188
5	1-in-20	1 year + base	$211	$227	$220	$199
6	1-in-200	2 year + base	$210	$190	$178	$155
7	1-in-100	2 year + base	$215	$198	$187	$165
8	1-in-40	2 year + base	$224	$209	$200	$177
9	1-in-20	2 year + base	$230	$218	$209	$187
10	1-in-200	3 year + base	$228	$214	$176	$154
11	1-in-100	3 year + base	$231	$218	$183	$161
12	1-in-40	3 year + base	$236	$225	$192	$172
13	1-in-20	3 year + base	$240	$230	$200	$180
14	1-in-200	4 year + base	$239	$229	$198	$155
15	1-in-100	4 year + base	$240	$231	$201	$159
16	1-in-40	4 year + base	$242	$234	$206	$165
17	1-in-20	4 year + base	$244	$237	$211	$171
18	Base		$258	$262	$250	$226
19	Difference from Base					
20	1-in-40, 1 year		($60)			
21	1-in-40, 2 year		($35)	($54)		
22	1-in-40, 3 year		($23)	($38)	($58)	
23	1-in-40, 4 year		($16)	($28)	($44)	($61)

Of the 1-in-40 probability scenarios, the largest overall decline in Total Equity relative to the base forecast (highlighted cells excluded) occurs for the four-year scenario ($61 million lower than the base forecast). The results for this scenario are shown in the table below and in *DCAT Appendix 2*.

Figure DCAT- 29: Decline in Equity Markets Scenario

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$1,063	$1,126	$1,174	$1,222	$1,272
3	Total Claims Costs	$968	$1,058	$1,103	$1,165	$1,223
4	Expenses	$152	$154	$160	$167	$173
5	Investment Income	$192	$80	$76	$82	$84
6	Net Income	$136	($6)	($14)	($28)	($41)
7	Retained Earnings	$307	$300	$286	$258	$217
8	Total Equity	$254	$242	$234	$206	$165
9	MCT Ratio	69.49%	58.20%	50.46%	40.23%	27.25%

Figure DCAT- 30: Decline in Equity Markets Scenario - Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$0	$0	$0
3	Total Claims Costs	$0	($0)	$0	$0	$0
4	Expenses	$0	$0	$0	$0	$0
5	Investment Income	$0	($2)	($9)	($6)	($6)
6	Net Income	$0	($2)	($9)	($6)	($6)
7	Retained Earnings	$0	($2)	($12)	($18)	($24)
8	Total Equity	$0	($16)	($28)	($44)	($61)
9	MCT Ratio	0.00%	-5.31%	-7.84%	-11.49%	-15.25%

DCAT.5.4 High Loss Ratio

Scenario Description

The Corporation experiences a significant increase in its loss ratio beginning in the 2019/20 fiscal year.

Changes from Last Year's DCAT Report

None.

Ripple Effects

Claims Expenses: The claims expenses, including internal claims adjustment costs (ICAC), were adjusted based on the increased level of claims costs. Claims expenses were restated using the cost allocation rules in the Corporation's financial model. ICAC was adjusted based on the estimated level of unpaid losses and incurred-but-not-reported (IBNR) at each fiscal year end.

Actuarial Adjustments: The claims impacts were estimated by simulating ultimate loss costs. The most adverse ultimate loss scenarios were then selected for input into the financial model (it is not practical to run every simulation through the financial model), which discounts and adjusts the ultimate losses for actuarial provisions for adverse deviation (per actuarial standards of practice).

Reinsurance: The adverse scenario was assumed to have no impact on future reinsurance premiums.

Premium Deficiency and/or Deferred Policy Acquisition Cost (DPAC) Write-Down: A significant increase in the loss ratio could result in unearned premiums being insufficient to cover expected claims costs and expenses. The impact of a premium deficiency/DPAC write-down is included in the simulated results.

Scenario Justification

Simulation of Ultimate Losses

The details of the simulation model are provided in *DCAT Appendix 6*.

Results before Management and Regulatory Action

The table below shows the results of the incurred simulations by probability level and return period along with a comparison to the base forecast. For each scenario, the results are shown assuming the simulated impact for the given return period and the

base forecast thereafter. We have assumed that claims costs deviations from the base forecast are independent from the previous year's deviations.

Figure DCAT- 31: High Loss Ratio Scenario, Total Equity

Line No.	Probability	Return Period	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1-in-200	1 year + base	$123	$130	$125	$99
3	1-in-100	1 year + base	$146	$151	$146	$119
4	1-in-40	1 year + base	$167	$173	$166	$140
5	1-in-20	1 year + base	$182	$188	$181	$155
6	1-in-200	2 year + base	$100	$58	$54	$28
7	1-in-100	2 year + base	$140	$92	$88	$62
8	1-in-40	2 year + base	$169	$123	$118	$91
9	1-in-20	2 year + base	$195	$148	$141	$115
10	1-in-200	3 year + base	$130	$90	($2)	($29)
11	1-in-100	3 year + base	$137	$117	$30	$4
12	1-in-40	3 year + base	$181	$149	$74	$48
13	1-in-20	3 year + base	$210	$157	$106	$81
14	1-in-200	4 year + base	$247	$222	$123	($78)
15	1-in-100	4 year + base	$181	$122	$14	($39)
16	1-in-40	4 year + base	$194	$137	$66	$4
17	1-in-20	4 year + base	$242	$187	$129	$46
18	Base		$258	$262	$250	$226
19	Difference from Base					
20	1-in-40, 1 year		($91)			
21	1-in-40, 2 year		($89)	($139)		
22	1-in-40, 3 year		($77)	($113)	($176)	
23	1-in-40, 4 year		($65)	($125)	($184)	($222)

Based on the above results, the most significant adverse scenarios (relative to the base forecast) are the four year scenarios. We selected the four-year scenario (before management and regulatory action) at the 1-in-40 probability level for modeling purposes. The results for this scenario are shown in the table below and in *DCAT Appendix 3.*

Figure DCAT- 32: High Loss Ratio Scenario

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$1,063	$1,126	$1,174	$1,222	$1,272
3	Total Claims Costs	$968	$1,123	$1,163	$1,222	$1,259
4	Expenses	$152	$154	$160	$167	$174
5	Investment Income	$192	$82	$86	$89	$91
6	Net Income	$136	($69)	($64)	($79)	($70)
7	Retained Earnings	$307	$238	$173	$95	$24
8	Total Equity	$254	$194	$137	$66	$4
9	MCT Ratio	69.49%	44.06%	22.50%	1.29%	-15.76%

Figure DCAT- 33: High Loss Ratio Scenario - Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$0	$0	$0
3	Total Claims Costs	$0	$65	$60	$58	$36
4	Expenses	$0	$0	$0	$0	$0
5	Investment Income	$0	($0)	$1	$1	$1
6	Net Income	$0	($65)	($59)	($57)	($35)
7	Retained Earnings	$0	($65)	($124)	($181)	($216)
8	Total Equity	$0	($65)	($125)	($184)	($222)
9	MCT Ratio	0.00%	-19.45%	-35.80%	-50.43%	-58.26%

DCAT.5.5 Interest Rate Decline Scenario

Scenario Description

Interest rates decline or remain at sustained low levels over the forecast period.

Ripple Effects

The impacts from interest rate changes are incorporated into the Corporation's financial model.

Changes from Last Year's DCAT Report

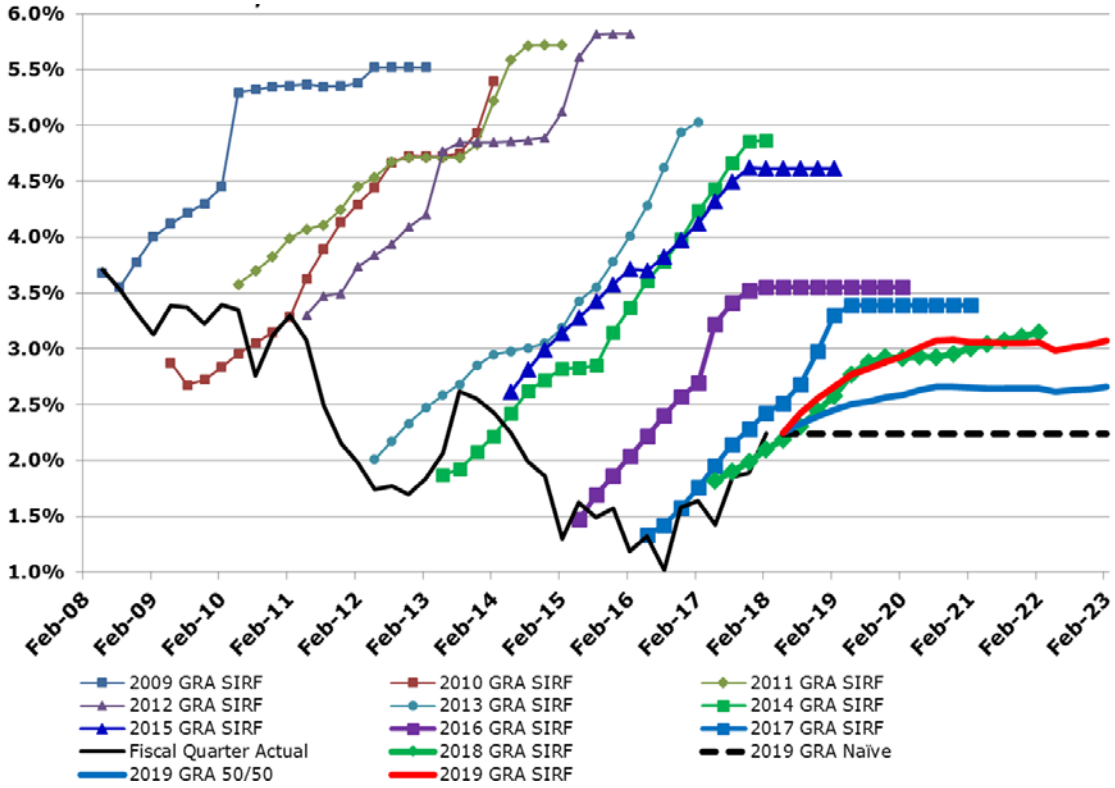
None

Scenario Justification

Based on the projected composition of the Corporation's assets and liabilities over the forecast period, a rising interest rate environment is expected to increase net income relative to the base forecast, while a declining interest rate environment is expected to decrease net income relative to the base forecast. Therefore, this adverse scenario assesses the risk that interest rates will decline from current levels as at February 28, 2018.

The table below shows the actual GOC 10 Year interest rates compared to the average forecasts from the 5 major Canadian Banks and Global Insight since 2008. In previous year's, the Corporation forecasted increasing interest rates based fully (i.e. standard interest rate forecast (SIRF) or partially (e.g. 50/50 interest rate forecast) on the bank forecasts. However, based on the poor performance of these forecasts (shown in the table below), the Corporation has moved to a naïve interest rate forecast (i.e. no change in interest rates).

Figure DCAT- 34: GoC 10 Year Forecasted Rates from 2009 to 2019 GRA and Actual



The Corporation's base forecast assumes the following GOC 10 Year interest rates.

Figure DCAT- 35: Assumed Bond Rates

Line No.	Fiscal Year	Government of Canada 10 Year	Corporate	Government/ Provincial	Marketable
1	2018/19	2.24%	3.90%	2.92%	3.20%
2	2019/20	2.24%	3.90%	2.95%	3.21%
3	2020/21	2.24%	3.90%	2.95%	3.21%
4	2021/22	2.24%	3.90%	2.94%	3.21%
5	2022/23	2.24%	3.90%	2.94%	3.20%

Assumptions

Changes in the GoC 10 year bond rates impact both the fixed income portfolio and the claims liabilities valuation (which uses the fixed income portfolio yield to calculate the present value of the liabilities). In particular, changes in the GoC 10 year bond rates impact the gains/losses on marketable bonds and the yield on new MUSH purchases.

Changes in the marketable bond yield, which consists of the forecasted GoC 10 year bond rate plus a spread based on the marketable bond duration, impacts the claims liability discount rate.

The dataset used in this scenario is the historical long-term bond yield series from the Bank of Canada (BoC) from 1956 to April 2018.[2] Long-term bond yields include bonds with a term of 10 years or longer (i.e. 10+ years). The entire dataset for BoC long-term bond yields is available from January 1949 to present. However, since the equity return history used in this DCAT analysis is from 1956 to present, the data from 1949 to 1955 was removed from the dataset for consistency. Also, based on prior year's discussions at the PUB hearings and the DCAT collaborative process, the observed interest rates in the period between 1976 and 1985 (referred to as the "stagflation period") were not included in the modeling of interest rate movements.

Long-term bond yields were used instead of the GoC 10 year bond yields because the GoC 10 year bond yield dataset is only available from June 1989. Applying the historical change in long-term bond yields (10+ years) instead of applying the historical change in the GoC 10 year bond rate is a reasonable assumption for this analysis. This assumption holds true if there is a parallel shift in the yield curve when interest rates decline. Therefore, it is assumed in this scenario that there is a parallel yield curve shift when interest rates change. The table below shows the actual decline in long-term bond yields by percentile.

Figure DCAT- 36: Historical Declines in Long-Term Bond Yields (1956 to April 2018 excluding Stagflation Period)

Line No.			Period (Years)			
1	Time Period	Percentile	1	2	3	4
2	1956-present	0.5th	-2.06%	-2.83%	-3.54%	-3.96%
3	1956-present	1st	-1.93%	-2.58%	-3.40%	-3.87%
4	1956-present	2.5th	-1.55%	-2.39%	-3.04%	-3.08%
5	1956-present	5th	-1.30%	-1.98%	-2.57%	-2.35%

[2] V122487 series from the BoC.

Based on the historical results above, the Corporation selected interest rate decline scenarios based on fitted distributions selected to best represent the historical data. The assumptions are shown in the table below.

Figure DCAT- 37: Selected Adverse Scenarios by Percentile and Period (Cumulative)

Line No.		Period (Years)			
1	Percentile	1	2	3	4
2	0.5th	-2.28%	-2.92%	-4.48%	-3.87%
3	1st	-1.99%	-2.66%	-3.84%	-3.53%
4	2.5th	-1.60%	-2.25%	-3.00%	-3.03%
5	5th	-1.30%	-1.89%	-2.36%	-2.60%

In addition to using the long-term bond yield dataset, for DCAT purposes we have made the following assumptions:

- The decline in interest rates starting in 2019/20 is based off of the Q4 2018/19 forecasted rate of 2.24%.
- For the one year scenario, the entire interest rate decline occurs in Q1 2019/20. For the two year scenario, half of the modeled interest rate decline occurs in Q1 2019/20 and half in Q1 2020/21. For the three and four year scenarios, the modeled interest rate decline occurs in Q1 of each year on a linear basis similar to the two year scenario.
- An interest rate floor of 1.00% is applied to the interest rate scenarios if the forecasted interest rate falls below this level. The interest rate floor of 1.00% is based on the lowest monthly GoC 10 year bond yield from 1989 to present.

To illustrate the modeled interest rates and the application of the interest rate floor, below are two charts showing the 1-in-40 year interest rate decline scenarios over 1, 2, 3, and 4 years. The first chart shows the modeled interest rate decline without the 1.00% floor. The second chart shows the modeled interest rate decline with the 1.00% floor.

Figure DCAT- 38: Interest Rate Decline Scenario, 1-in-40 Year Scenarios (Without 1.00% Floor)

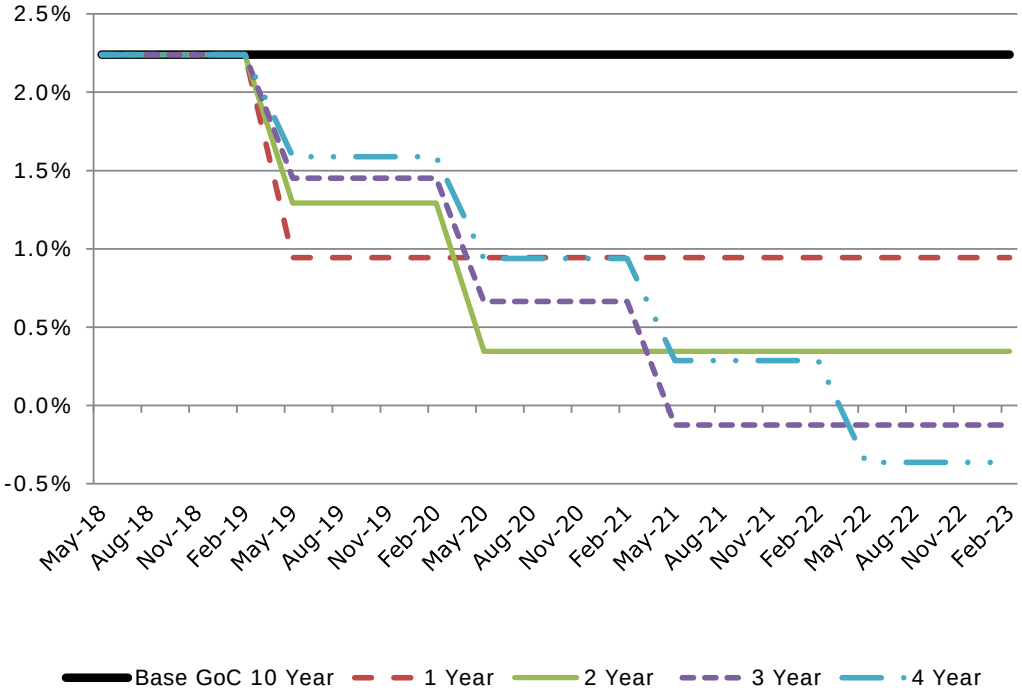
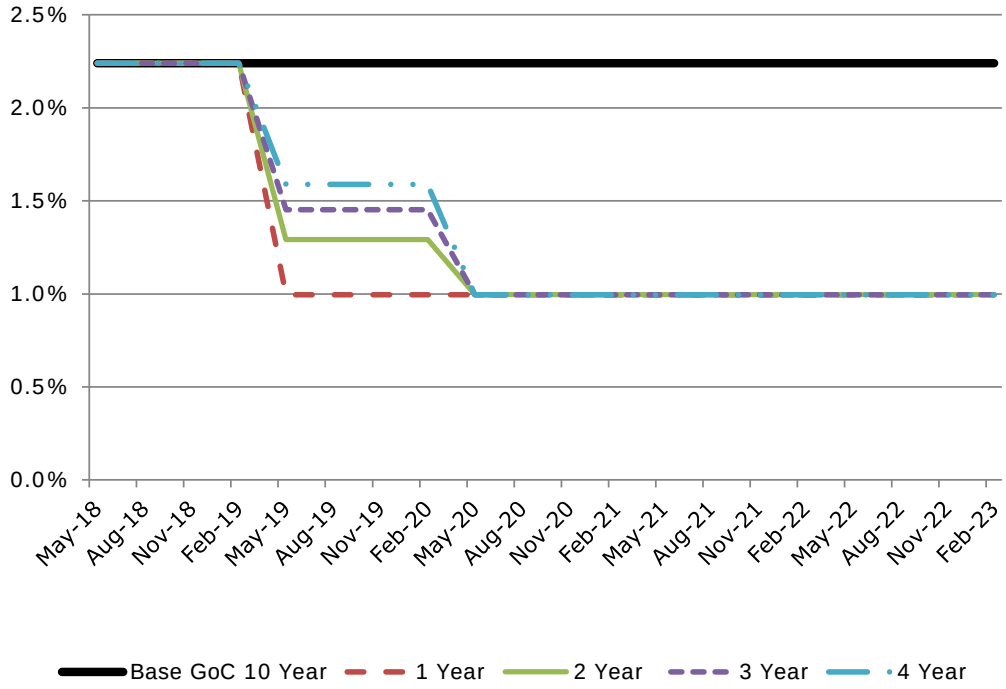


Figure DCAT- 39: Interest Rate Decline Scenario, 1-in-40 Year Scenarios (With 1.00% Floor)



The table below shows the projected Total Equity for each of the Interest Rate Decline scenarios described above. The results are shown without management or regulatory action.

The highlighted cells indicate where the interest rate forecast was assumed to return to the annual growth rates assumed in the base forecast. We have identified these cells because these years were not modeled based on historical data, and therefore, the results may not be plausible beyond the return period tested. The highlighted results are for information only and will not be used in the selection of the most adverse interest rate scenario.

Figure DCAT- 40: Interest Rate Decline Scenario, Total Equity

Line No.	Probability	Return Period	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1-in-200	1 year + base	$235	$200	$159	$103
3	1-in-100	1 year + base	$235	$200	$159	$103
4	1-in-40	1 year + base	$235	$200	$159	$103
5	1-in-20	1 year + base	$235	$200	$159	$103
6	1-in-200	2 year + base	$235	$200	$159	$103
7	1-in-100	2 year + base	$235	$200	$159	$103
8	1-in-40	2 year + base	$237	$202	$161	$106
9	1-in-20	2 year + base	$240	$206	$165	$110
10	1-in-200	3 year + base	$235	$200	$159	$103
11	1-in-100	3 year + base	$235	$200	$159	$103
12	1-in-40	3 year + base	$239	$204	$164	$109
13	1-in-20	3 year + base	$243	$210	$169	$115
14	1-in-200	4 year + base	$240	$205	$164	$110
15	1-in-100	4 year + base	$241	$207	$167	$112
16	1-in-40	4 year + base	$243	$211	$170	$116
17	1-in-20	4 year + base	$245	$213	$173	$119
18	Base		$258	$262	$250	$226
19	Difference from Base					
20	1-in-40, 1 year		($23)			
21	1-in-40, 2 year		($21)	($61)		
22	1-in-40, 3 year		($19)	($58)	($86)	
23	1-in-40, 4 year		($15)	($52)	($80)	($109)

For modeling purposes, we selected the four-year scenario at the 1-in-40 probability level. The results are shown in the table below and in *DCAT Appendix 4*.

Figure DCAT- 41: Interest Rate Decline Scenario

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$1,063	$1,126	$1,174	$1,222	$1,272
3	Total Claims Costs	$968	$1,182	$1,204	$1,166	$1,223
4	Expenses	$152	$154	$160	$168	$174
5	Investment Income	$192	$189	$148	$65	$60
6	Net Income	$136	($21)	($43)	($47)	($65)
7	Retained Earnings	$307	$286	$243	$197	$132
8	Total Equity	$254	$243	$211	$170	$116
9	MCT Ratio	69.49%	56.98%	41.32%	28.94%	13.68%

Figure DCAT- 42: Difference from Base Forecast - Interest Rate Decline Scenario

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$0	$0	$0
3	Total Claims Costs	$0	$124	$101	$1	($1)
4	Expenses	$0	$0	$0	$0	$0
5	Investment Income	$0	$107	$64	($23)	($30)
6	Net Income	$0	($17)	($38)	($24)	($30)
7	Retained Earnings	$0	($17)	($54)	($79)	($109)
8	Total Equity	$0	($15)	($52)	($80)	($109)
9	MCT Ratio	0.00%	-6.53%	-16.98%	-22.78%	-28.82%

DCAT.5.6 Combined Scenario: Equity Returns, Interest Rates, and High Loss Ratio

Scenario Description

The Corporation experiences a significant deterioration in its financial condition as a result of the combined impacts of equity returns, interest rates, and claims experience.

Ripple Effects

The ripple effects are as described in the Decline in Equities scenario, the High Loss Ratio scenario, and the Interest Rate Decline scenario.

Changes from Last Year's DCAT Report

None

Scenario Justification

Integrated Scenario

An integrated scenario is a type of adverse scenario that results when two or more adverse scenarios are combined. The adverse scenarios to be combined may be based on correlated or uncorrelated risk factors but the resulting integrated scenario would be realistic and plausible at the same 1% to 5% probability levels of the single-risk adverse scenarios.

Our simulation assumes that undiscounted claims costs are independent of interest rates and equity returns. Therefore, for claims costs the methodology used is as described in the High Loss Ratio scenario and in *DCAT Appendix 6* on stochastic modeling.

For interest rates and equity returns, the correlation coefficients between these two variables from 1956-present are shown in the table below. Based on the historical data, we have assumed that equity returns and interest rate movements have zero correlation in our modeling.

Figure DCAT- 43: Correlation between Equity Returns and Interest Rate Movements

Line No.	Return Period	1956 to Present
1	1-Year	(0.11)
2	2-Year	0.04
3	3-Year	0.05
4	4-Year	0.06

5 The figures in bold are significantly different from 0 with Type-1 error of 5%.

1 The interest rate 'floor' methodology (as described in the Interest Rate Decline
2 section) was again used when modeling interest rates.

3 *Corporate Bonds*

4 The Corporation used 25 years of Moody's data from 1989 to 2013 to model Canada
5 Corporate Bond default rates. The table below outlines the default rates by Corporate
6 Bond level.

Figure DCAT- 44: Canadian Corporate Bond Default Rate Analysis

Line No.	Year	Aa	A	Baa	Ba	B
1	1989	0.00%	0.00%	0.00%	0.00%	33.33%
2	1990	0.00%	0.00%	0.00%	0.00%	100.00%
3	1991	0.00%	0.00%	0.00%	0.00%	n.a.
4	1992	0.00%	0.00%	0.00%	0.00%	0.00%
5	1993	0.00%	0.00%	0.00%	0.00%	n.a.
6	1994	0.00%	0.00%	0.00%	0.00%	0.00%
7	1995	0.00%	0.00%	0.00%	10.00%	0.00%
8	1996	0.00%	0.00%	0.00%	0.00%	0.00%
9	1997	0.00%	0.00%	0.00%	0.00%	0.00%
10	1998	0.00%	0.00%	0.00%	4.35%	5.99%
11	1999	0.00%	0.00%	0.00%	3.85%	0.00%
12	2000	0.00%	0.00%	2.56%	0.00%	2.70%
13	2001	0.00%	0.00%	0.00%	0.00%	8.57%
14	2002	0.00%	0.00%	4.37%	0.00%	0.00%
15	2003	0.00%	0.00%	0.00%	0.00%	3.70%
16	2004	0.00%	0.00%	0.00%	0.00%	0.00%
17	2005	0.00%	0.00%	0.00%	0.00%	0.00%
18	2006	0.00%	0.00%	0.00%	0.00%	0.00%
19	2007	0.00%	0.00%	0.00%	0.00%	0.00%
20	2008	0.00%	0.00%	0.00%	5.26%	10.91%
21	2009	0.00%	0.00%	0.00%	0.00%	16.76%
22	2010	0.00%	0.00%	0.00%	0.00%	0.00%
23	2011	0.00%	0.00%	0.00%	0.00%	0.00%
24	2012	0.00%	0.00%	0.00%	0.00%	0.00%
25	2013	0.00%	0.00%	0.00%	0.00%	0.00%
26	minimum	0.00%	0.00%	0.00%	0.00%	0.00%
27	maximum	0.00%	0.00%	4.37%	10.00%	100.00%
28	average	0.00%	0.00%	0.28%	0.94%	7.91%

Modeling Process

To model the financial impact of defaulting Canadian Corporate Bonds, the Corporation used a fitted distribution to the percentiles of the historical data plus a 99th percentile from the MCT.

Figure DCAT- 45: Fitted Canadian Corporate Bond Default Rates

Line No.	Percentile	Fitted	Actual
1	92nd	2.58%	2.60%
2	96th	4.38%	4.40%
3	99th	5.29%	5.30%

Overall Results

To produce the combined equity return, interest rates, claims incurred, corporate bond model, 5,000 simulations were conducted for each return period using the following process:

- Simulate undiscounted claims costs for the given return period.
- Simulate the combined equity returns, corporate bond default impacts, and interest rates for the given return period.
- Run the simulated scenarios through the financial model to determine the full financial impact including all applicable financial adjustments.
- Calculate the financial impact (relative to base) over the return period for Total Equity.
- Order the scenarios from most unfavourable to most favourable financial impacts and select the 0.5th, 1st, 2.5th, and 5th percentiles.

Results without Management or Regulatory Action

The table below summarizes the Total Equity projections for the Combined Scenarios. As discussed in the Decline in Equity Markets and Interest Rate Decline scenarios, the highlighted cells indicate where the base forecast was assumed for equity returns and

interest rates, which is not reflective of actual historical experience. These results are for information only and will not be used in the selection of the most adverse Combined Scenarios.

Figure DCAT- 46: Combined Scenario, Total Equity

Line No.	Probability	Return Period	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1-in-200	1 year + base	$95	$82	$57	$11
3	1-in-100	1 year + base	$117	$120	$97	$52
4	1-in-40	1 year + base	$147	$153	$141	$108
5	1-in-20	1 year + base	$167	$171	$152	$113
6	1-in-200	2 year + base	$160	$42	$5	($51)
7	1-in-100	2 year + base	$135	$59	$24	($34)
8	1-in-40	2 year + base	$207	$100	$65	$7
9	1-in-20	2 year + base	$232	$126	$87	$33
10	1-in-200	3 year + base	$142	$31	($46)	($103)
11	1-in-100	3 year + base	$181	$103	$3	($54)
12	1-in-40	3 year + base	$197	$111	$39	($13)
13	1-in-20	3 year + base	$227	$139	$75	$23
14	1-in-200	4 year + base	$185	$117	($39)	($122)
15	1-in-100	4 year + base	$193	$126	($5)	($63)
16	1-in-40	4 year + base	$187	$150	$103	($36)
17	1-in-20	4 year + base	$180	$139	$89	$5
18	Base		$258	$262	$250	$226
19	Difference from Base					
20	1-in-40, 1 year		($111)			
21	1-in-40, 2 year		($51)	($162)		
22	1-in-40, 3 year		($61)	($151)	($211)	
23	1-in-40, 4 year		($71)	($112)	($147)	($262)

Based on the above, we selected the four-year, 1-in-40 scenario for financial modeling purposes. This scenario, one of many possible combinations of claims, equity returns, interest rates, and corporate bonds that produce the same result, uses the following assumptions over the forecast period (2019/20 to 2022/23):

- Ultimate claims cost are over budget by a cumulative $126 million (or an average of $32 million over budget per year).

- The four-year (cumulative) Total Equity return is 6.45% relative to the four-year base forecast return of 31.3%.
- Corporate bonds default resulting in a 3.17% default (over the 4 year period).
- The GoC 10-year bond rates are assumed to be as follows at each year-end:
  - 2018/19: 2.24% (base forecast)
  - 2019/20: 1.00%
  - 2020/21: 1.00%
  - 2021/22: 1.00%
  - 2022/23: 1.00%

The results for the selected Combined Scenario are shown in the table below.

Figure DCAT- 47: Combined Scenario

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$1,063	$1,126	$1,174	$1,222	$1,272
3	Total Claims Costs	$968	$1,188	$1,204	$1,239	$1,307
4	Expenses	$152	$154	$160	$168	$174
5	Investment Income	$192	$143	$146	$129	$65
6	Net Income	$136	($72)	($45)	($55)	($144)
7	Retained Earnings	$307	$235	$190	$135	($9)
8	Total Equity	$254	$187	$150	$103	($36)
9	MCT Ratio	69.49%	41.27%	25.33%	11.10%	-25.54%

Figure DCAT- 48: Combined Scenario: Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$0	$0	$0
3	Total Claims Costs	$0	$129	$101	$74	$84
4	Expenses	$0	$0	$0	$0	$1
5	Investment Income	$0	$61	$62	$42	($25)
6	Net Income	$0	($68)	($40)	($33)	($109)
7	Retained Earnings	$0	($68)	($108)	($141)	($250)
8	Total Equity	$0	($71)	($112)	($147)	($262)
9	MCT Ratio	0.00%	-22.24%	-32.97%	-40.62%	-68.04%

DCAT.5.7 Selection of Most Adverse Scenarios after Management and Regulatory Action

At the selected 1-in-40 year risk tolerance level, the most adverse scenarios at each return period are the Combined Scenarios. As a result, we have selected the Combined Scenarios for application of management and regulatory action assumptions.

Per the Management and Regulatory Action section of this report, we have assumed that the maximum *additional* RSR rebuilding fee in a given policy year is 2.0% and that the maximum combined rate increase and additional RSR rebuilding fee in a given policy year is 5.0%. In general we have assumed that adverse scenarios with shorter return periods (e.g. 2 year) will require a more immediate management response than adverse scenarios with longer return period (e.g. 4 years). The reason being that for longer term adverse scenarios the ultimate severity of the situation may not be apparent in year one or two of the scenario, while for shorter term adverse scenarios it will be very apparent that the Corporation requires management action. The management and regulatory action assumptions for each Combined Scenario are described below.

1-year, 1-in-40 Combined Scenario

Figure DCAT- 49: 1-year, 1-in-40 Combined Scenario before Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Total Equity	$254	$147	$153	$141	$108
3	Difference from Base	$0	($111)	($109)	($110)	($118)
4	MCT Ratio	69.49%	30.06%	27.65%	22.14%	12.01%

The entire impact of this adverse scenario occurs in the 2019/20 fiscal year. There is no management and regulatory action that can reduce the severity of this scenario in 2019/20 since the rates for that year will already be applied at the time the adverse scenario is occurring.

2-year, 1-in-40 Combined Scenario

Figure DCAT- 50: 2-year, 1-in-40 Combined Scenario before Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Total Equity	$254	$207	$100	$65	$7
3	Difference from Base	$0	($51)	($162)	($185)	($219)
4	MCT Ratio	69.49%	46.82%	11.46%	1.08%	-14.55%

We have assumed that the PUB will approve a cumulative 2.0% rate increase and/or RSR rebuilding fee in the 2020/21 application in response to this adverse scenario. The timing of this adverse scenario impacts the management action. For example, if the majority of the adverse impact occurs in 2019/20, then there will likely be a more significant management and regulatory response. For consistency, we have applied a 2.0% management action per previous years. The results for this scenario including management action assumptions are provided below.

Figure DCAT- 51: 2-year, 1-in-40 Combined Scenario including Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Rate Changes	2.60%	0.10%	0.00%	0.00%	0.00%
3	Additional RSR Rebuilding Fee	0.00%	0.00%	2.00%	0.00%	0.00%
4	Capital Maintenance Provision	0.00%	0.00%	0.00%	0.00%	0.00%
5	Earned Revenues	$1,063	$1,126	$1,186	$1,245	$1,296
6	Total Claims Costs	$968	$1,216	$1,246	$1,158	$1,223
7	Expenses	$152	$154	$161	$169	$175
8	Investment Income	$192	$197	$136	$61	$59
9	Net Income	$136	($47)	($85)	($21)	($43)
10	Retained Earnings	$307	$260	$174	$153	$110
11	Total Equity	$254	$207	$122	$109	$75
12	MCT Ratio	69.49%	46.82%	17.40%	12.97%	3.15%

Figure DCAT- 52: 2-year, 1-in-40 Combined Scenario: Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$13	$23	$24
3	Total Claims Costs	$0	$157	$143	($6)	($0)
4	Expenses	$0	$0	$1	$2	$2
5	Investment Income	$0	$114	$51	($27)	($31)
6	Net Income	$0	($43)	($81)	$1	($8)
7	Retained Earnings	$0	($43)	($123)	($122)	($130)
8	Total Equity	$0	($51)	($140)	($141)	($151)
9	MCT Ratio	0.00%	-16.69%	-40.90%	-38.75%	-39.35%

3-year, 1-in-40 Combined Scenario

Figure DCAT- 53: 3-year, 1-in-40 Combined Scenario before Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Total Equity	$254	$197	$111	$39	($13)
3	Difference from Base	$0	($61)	($151)	($211)	($239)
4	MCT Ratio	69.5%	44.1%	14.7%	-6.0%	-19.6%

We have assumed that the severity of this adverse scenario will be apparent at the time of the 2020 GRA hearings in October 2019. We have a cumulative rate increase and/or RSR rebuilding fee of 2.0% in the 2020 application.

In the 2020/21 fiscal year the severity of this adverse scenario will be very apparent to the Corporation and the Regulator. Even with the approved RSR rebuilding fee in the 2020 rate application, the Corporation will likely be projecting a Total Equity balance and an MCT ratio below the target for satisfactory future financial condition. We have assumed that continued low interest rates, poor claims experience, and underperforming equity returns will result in the approval of a 2.0% rate increase on 2021 rates; while the low RSR balance will result in the approval of an additional 2.0% RSR rebuilding fee.

The results for this scenario including management action assumptions are provided below.

Figure DCAT- 54: 3-year, 1-in-40 Combined Scenario including Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Rate Changes	2.60%	0.10%	0.00%	2.00%	0.00%
3	Additional RSR Rebuilding Fee	0.00%	0.00%	2.00%	2.00%	0.00%
4	Capital Maintenance Provision	0.00%	0.00%	0.00%	0.00%	0.00%
5	Earned Revenues	$1,063	$1,126	$1,186	$1,272	$1,346
6	Total Claims Costs	$968	$1,160	$1,221	$1,240	$1,222
7	Expenses	$152	$154	$161	$170	$178
8	Investment Income	$192	$130	$132	$134	$65
9	Net Income	$136	($58)	($64)	($4)	$11
10	Retained Earnings	$307	$249	$185	$180	$191
11	Total Equity	$254	$197	$133	$130	$150
12	MCT Ratio	69.49%	44.14%	20.64%	17.89%	21.90%

Figure DCAT- 55: 3-year, 1-in-40 Combined Scenario: Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$13	$50	$75
3	Total Claims Costs	$0	$101	$118	$75	($1)
4	Expenses	$0	$0	$1	$3	$5
5	Investment Income	$0	$48	$47	$47	($25)
6	Net Income	$0	($54)	($59)	$18	$46
7	Retained Earnings	$0	($54)	($113)	($95)	($49)
8	Total Equity	$0	($61)	($129)	($120)	($76)
9	MCT Ratio	0.00%	-19.37%	-37.66%	-33.83%	-20.60%

4-year, 1-in-40 Combined Scenario

Figure DCAT- 56: 4-year, 1-in-40 Combined Scenario before Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Total Equity	$254	$187	$150	$103	($36)
3	Difference from Base	$0	($71)	($112)	($147)	($262)
4	MCT Ratio	69.49%	41.27%	25.33%	11.10%	-25.54%

We have assumed that the PUB would approve a 2.0% RSR rebuilding fee on 2020 rates. In the 2020/21 and 2021/22 fiscal years we assumed that the severity of this scenario would be apparent at the time of the 2021 and 2022 rate hearings. We assumed a full management response of the maximum 5.0% combined rate increase and RSR rebuilding fees on 2021 and 2022 rates. The management and regulatory actions will depend on the specifics of each scenario. We have kept our assumed actions consistent with prior year's DCATs.

The results for this scenario including management action assumptions are provided below.

Figure DCAT- 57: 4-year, 1-in-40 Combined Scenario including Management Action

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Rate Changes	2.60%	0.10%	0.00%	3.00%	3.00%
3	Additional RSR Rebuilding Fee	0.00%	0.00%	2.00%	2.00%	2.00%
4	Capital Maintenance Provision	0.00%	0.00%	0.00%	0.00%	0.00%
5	Earned Revenues	$1,063	$1,126	$1,186	$1,279	$1,396
6	Total Claims Costs	$968	$1,188	$1,194	$1,212	$1,282
7	Expenses	$152	$154	$161	$171	$181
8	Investment Income	$192	$143	$146	$129	$65
9	Net Income	$136	($72)	($23)	$26	($3)
10	Retained Earnings	$307	$235	$212	$237	$235
11	Total Equity	$254	$187	$172	$206	$208
12	MCT Ratio	69.49%	41.27%	31.14%	37.35%	35.73%

Figure DCAT- 58: 4-year, 1-in-40 Combined Scenario: Difference from Base Forecast

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Earned Revenues	$0	$0	$13	$57	$124
3	Total Claims Costs	$0	$129	$91	$47	$59
4	Expenses	$0	$0	$1	$4	$8
5	Investment Income	$0	$61	$62	$42	($25)
6	Net Income	$0	($68)	($18)	$48	$32
7	Retained Earnings	$0	($68)	($86)	($38)	($6)
8	Total Equity	$0	($71)	($90)	($44)	($17)
9	MCT Ratio	0.00%	-22.24%	-27.16%	-14.37%	-6.77%

Summary of Combined Scenarios after Management and Regulatory Action

A summary of the Combined Scenarios including management action is provided below.

Figure DCAT- 59: Total Equity – Combined Scenarios including Management Action

Line No.	Combined Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Base	$254	$258	$262	$250	$226
3	1 year	$254	$147	$153	$141	$108
4	2 year	$254	$207	$122	$109	$75
5	3 year	$254	$197	$133	$130	$150
6	4 year	$254	$187	$172	$206	$208

Figure DCAT- 60: Total Equity difference from Base, Combined Scenarios including Management Action

Line No.	Combined Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Base	$254	$258	$262	$250	$226
3	1 year	$0	($111)	($109)	($110)	($118)
4	2 year	$0	($51)	($140)	($141)	($151)
5	3 year	$0	($61)	($129)	($120)	($76)
6	4 year	$0	($71)	($90)	($44)	($17)

Figure DCAT- 61: Minimum Capital Test Ratios – Combined Scenarios including Management Action

Line No.	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Base	69.49%	63.51%	58.30%	51.72%	42.50%
3	1 year	69.49%	30.06%	27.65%	22.14%	12.01%
4	2 year	69.49%	46.82%	17.40%	12.97%	3.15%
5	3 year	69.49%	44.14%	20.64%	17.89%	21.90%
6	4 year	69.49%	41.27%	31.14%	37.35%	35.73%

As shown in the table above, MPI Basic maintains a positive Total Equity balance for all 1-in-40 year adverse scenarios tested in this report. The next step is to determine the adverse scenario that requires the largest starting Total Equity balance as of the beginning of the 2019/20 fiscal year such that all 1-in-40 year adverse scenarios maintain a positive Total Equity balance above zero over the assumed return period. As shown in the table below, the minimum Total Equity balance such that all of Combined Scenarios after assumed management action remain above zero is $143 million. Similar to last year, the most adverse scenario is the two-year, 1-in-40 Combined Scenario.

Figure DCAT- 62: Minimum Total Equity Balance as of the end of Fiscal 2018/19. Combined Scenario Basic Total Equity after Management Action

Line No.	Combined Scenarios	2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	1 year	$103	$0	($1)	($21)	($61)
3	2 year	$143	$90	$0	($18)	($58)
4	3 year	$140	$78	$9	$0	$14
5	4 year	$100	$24	$0	$25	$20

Recommendation

Basic currently has sufficient Total Equity to withstand all adverse scenarios (including management and regulatory action) at the 1-in-40 year probability level.

Reconciliation

DCAT Appendix 5 provide detailed financial model results for the two-year, 1-in-40 Combined Scenario with and without management action.

DCAT.5.8 Analysis of All Property and Casualty Insurer Risk Categories

Catastrophe

The Corporation's major catastrophe exposure is from hail storms. The modeling of hail losses is included as part of the High Loss Ratio (Claims Incurred) scenario.

Loss Ratio

The detailed assumptions and results of this scenario are presented in *DCAT.5.4*.

Underestimation of Policy Liabilities Risk

Modeling a policy liability scenario based on the Corporation's historical runoff behaviour is likely not a good predictor of future experience, as the most significant changes that occurred in previous valuations may legitimately be one-time events (e.g. changes to a mortality table). Also, a portion of what is included in the historical runoff may already be partially accounted for in either the loss ratio adverse scenario and/or the interest rate adverse scenario, so adjustments would have to be made to isolate the specific impacts.

The Corporation has very consistent paid loss development experience in the tail of long duration PIPP claims, and there does not appear to be any significant changes to the paid loss development patterns or to the mortality experience of lifetime claimants (see sections below). The Corporation compared its long-tail development experience and forecasted development patterns to Société de l'assurance Automobile du Québec (SAAQ) and Saskatchewan Government Insurance (SGI) and found that MPI's results

are highly correlated with the actual and projected data of these jurisdictions (see below).

Finally, the most significant unfavourable runoff experience from prior year was still significantly lower than the minimum DCAT targets proposed by the Corporation.

Despite the above, the risk of unfavourable variations in policy liabilities does exist. The Corporation will conduct further research on this topic for the 2019 DCAT.

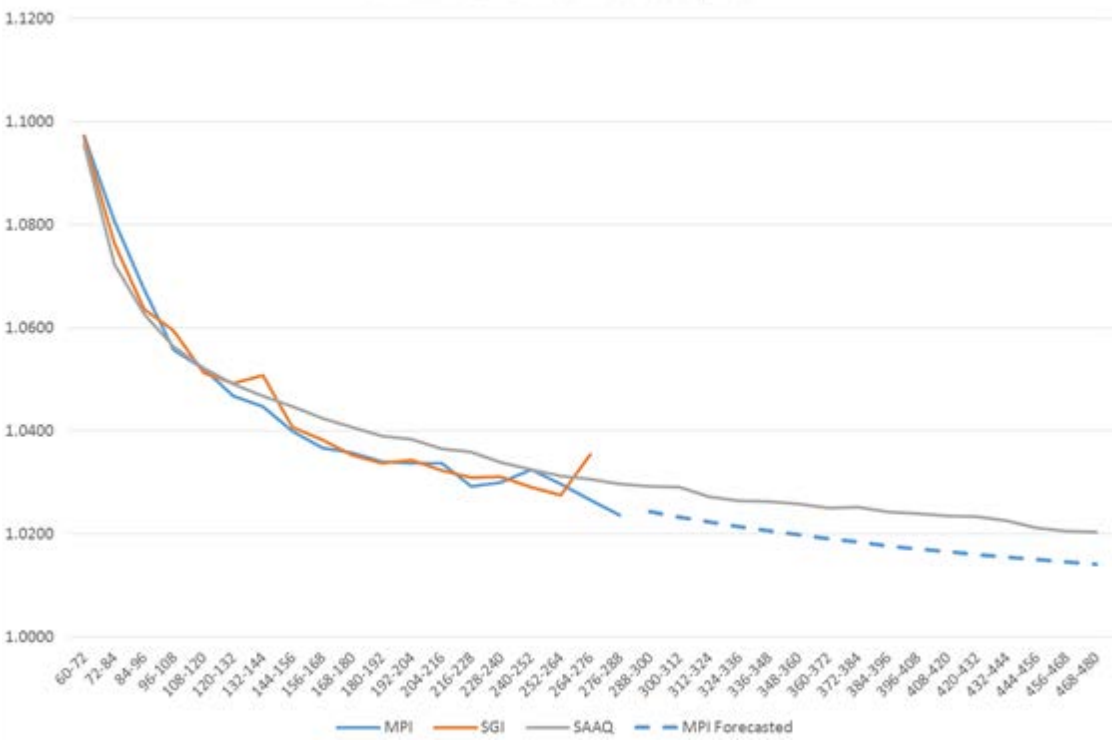
Variability of Paid Losses: The table below provides the observed average and standard deviation of paid loss development factors (LDFs) from 60 months (5 years) to 180 months (15 years) for Weekly Indemnity coverage. Although there has been an increase in the number of injury claims remaining open beyond 60 months, the variability of historical paid development on this coverage continues to be very low beyond 60 months.

Figure DCAT- 63: Variability in Weekly Indemnity Paid LDFs

Line No.	Development Months	Weekly Indemnity Average	Weekly Indemnity Stdev
1	60-72	1.0888	0.0136
2	72-84	1.0724	0.0142
3	84-96	1.0613	0.0124
4	96-108	1.0506	0.0087
5	108-120	1.0475	0.0107
6	120-132	1.0431	0.0097
7	132-144	1.0417	0.0076
8	144-156	1.0361	0.0056
9	156-168	1.0344	0.0051
10	168-180	1.0306	0.0047

The Corporation also conducted a comparison of long-tail development experience for income replacement benefits between SGI and SAAQ. The table below shows the actual and projected paid development factors for MPI relative to SGI and SAAQ. The Corporation believes its development projections are almost perfectly aligned with the long-tail experience of SAAQ, which has significantly more development history than MPI.

Figure DCAT- 64: Income Replacement Paid Loss Development Factors by Company – 60 months to 480 months of development



Mortality Improvements

The Corporation uses a disabled mortality table based on the Canadian Institute of Actuaries July 1992 research paper "Accident Benefits Long-Term Disability Losses". The historical experience of the Corporation's actual versus expected claim closure rates for long-term (i.e. open more than 10 years) claimants is shown in the table below. Based on these results, we do not believe there is significant risk that the Corporation's mortality assumptions are understating the lifetimes of long-term claimants. Note: The observed favourable or unfavourable claim closure rates are reflected in the selected loss development factors for PIPP coverages in the Appointed Actuary's report (where at least five years of loss development experience is available).

In the table below, the "number of claimants at the start of the year" represents the number of claimants that received a claim payment of any amount in the previous 12 months. A claim is then considered "closed" if there are no payments made in a given

calendar year. A "relapse" means that a claimant started receiving payments in the current year after not having received payment in the prior year(s).

Figure DCAT- 65: For PIPP Claims Open More than 10 years

Line No.	Calendar Year	Actual Terminations	Current Table Expected Terminations	Actual Termination Rate	Expected Termination Rate	Difference	Relapses	Relapse Rate
1	2009	24	12	8.00%	4.00%	4.00%	3	1.00%
2	2010	16	13	4.73%	3.85%	0.89%	2	0.59%
3	2011	25	15	6.44%	3.87%	2.58%	3	0.77%
4	2012	15	17	3.44%	3.90%	-0.46%	2	0.46%
5	2013	30	20	6.00%	4.00%	2.00%	4	0.80%
6	2014	22	23	4.01%	4.19%	-0.18%	5	0.91%
7	2015	21	26	3.55%	4.39%	-0.84%	3	0.51%
8	2016	33	30	4.89%	4.44%	0.44%	5	0.74%
9	2017	16	33	2.16%	4.45%	-2.29%	7	0.94%
10	Total	202	189	4.47%	4.18%	0.29%	34	0.75%

Interest Rate Adjustments

The impact of interest rate adjustments on the value of claims liabilities is included in the Interest Rate Decline scenario and the Combined scenario.

Claim Liabilities Stress Tests

As of February 28, 2018, MPI Basic net claim liabilities were $1,806 million. A 10% increase in net claim liabilities over the five year forecast period that is unrelated to changes in interest rates would result in a $181 million impact to net income. An increase in claim liabilities of over $100 million (excluding the impact of interest rates) would be required to make this risk a top three adverse scenario. Based on the discussions above regarding changes in claims persistency, historical paid loss development, and mortality assumptions, we do not believe that such an increase is plausible at the 1-in-40 year level.

Government and Political Action

We assumed that it was very unlikely that government action (e.g. retroactive increase in benefits) that resulted in a significant impact to existing and/or future claim liabilities would be made without advance notice to the Corporation.

Inflation Risk

We reviewed the Canada All-Items Consumer Price Index (Canadian CPI) from the BoC website for two different historical periods: (i) 1914 to 1991 and (ii) 1992 to 2017 (the BoC inflation targeting era). As shown in the table below, the means and standard deviations of year-over-year changes in Canadian CPI are significantly different in these two periods.

Figure DCAT- 66: Canadian CPI

Line No.	Period	Mean	Standard Deviation
1	1915-1991	3.60%	5.40%
2	1992-2017	1.80%	0.70%

The observed 97.5th percentile of 1915-1991 Canadian CPI over a four year period is 11.1%. We did not believe it was reasonable to consider these results in light of the very stable inflation experience observed since 1991. We based our assessment of inflation risk on the recent period (1992-present).

We tested a sustained increase in inflation of 2.8% from 2019/20 to 2022/23, which was estimated as a 1-in-40 year event based on the 1992 to present Canadian CPI figures. We assumed that (i) the severity of all new claims in these periods would increase by the additional (compounded) inflation amount, (ii) PIPP claims from prior years would be indexed at the observed inflation, and (iii) the long term inflation projection of 2.0% would not change. The impact of these assumptions did not represent a top three adverse scenario. The assumption that the long-run inflation expectation of 2.0% would not change significantly reduces the potential impact of this scenario to the value of assets, claim liabilities, and pension liabilities.

Premium Risk

MPI Basic is a monopoly insurance provider of compulsory automobile insurance. Premium risk is not a significant risk factor.

Reinsurance Risk

As of February 28, 2018 MPI Basic had approximately $1.3 million in ceded claim liabilities. The impact of any reinsurance risk scenario is not a top three adverse scenario for the Corporation.

Investment Risk

Equities: This risk was analyzed in *DCAT.5.3*.

Fixed Income: The Interest Rate Decline scenario was analyzed in Section 6. The Corporation has an ALM strategy that requires (i) the average duration of the corporate fixed income portfolio be equal to the average duration of corporate claim liabilities, and (ii) the dollar value of the corporate fixed income portfolio be equal to the corporate claim liabilities. This strategy is designed to minimize net interest rate risk between assets and liabilities.

Corporate Bonds: This risk was discussed in *DCAT.5.6*.

Private Debt: This risk was included in *DCAT.5.5*.

Other Asset Categories: There are several other asset categories included in the base forecast that were not discussed as part of an adverse scenario, such as real estate, non-marketable bonds, and infrastructure. The most significant asset class not included was real estate, which represented 10.9% of the total portfolio at the end of 2017/18. As a result of the recommendations from the 2017 ALM study, the Basic line of business exposure to real estate was a forecasted average allocation of 1.5% from 2019/20 to 2022/23. This asset class is included to provide diversification to the fixed income and equity asset classes. Based on available historical institutional real estate

and equity data, there were no combined equity and real estate scenarios that were determined to be a top three adverse scenario.

Non-marketable bonds represented 22.1% of the total portfolio at the end of 2017/18. The financial impact of non-marketable bonds is limited since the asset class is held at book value on the financial statements.

Infrastructure was 3.6% of the total portfolio at the end of 2017/18. The Basic line of business exposure to infrastructure declined to a forecasted average allocation of 0.8% from 2019/20 to 2022/23 as a result of the recommendations from the 2017 ALM study. This asset class, similar to real estate, is expected to provide diversification to the total portfolio and has limited exposure in the total portfolio.

Off-Balance Sheet Risk

None of the following off-balance sheet items were determined to be significant risk factors for MPI Basic:

- Structured settlements
- Contingent liabilities or losses
- Derivative instruments
- Pension underfunding

Related Company Risk

We had discussions with management about the plausibility of MPI Basic transferring Retained Earnings to the Corporation's Extension or Special Risk Extension lines of business. This scenario was not seen as plausible.

International Financial Reporting Standards (IFRS)

In May 2017, the IASB issued IFRS 17 on the accounting for insurance contracts. The changes under IFRS 17 would come into effect in 2021/22, but could potentially be implemented earlier by the Corporation.

From a DCAT perspective, the most significant financial risk from IFRS is from changes in the discounting of policy liabilities. Currently, the policy liabilities are discounted based on the assets backing the liabilities (MPI uses fixed income assets) plus a provision for adverse deviation (PfAD) on the assumed investment return. However, under IFRS 17 the liabilities will be discounted using a risk-free rate plus a liquidity premium. The provision for adverse deviation will be removed or reduced under IFRS 17.

As of May 31, 2018, if the yield on the Corporation's government bond portfolio was used as a proxy for the 'risk free rate', then the discount rate used in the valuation of Basic claims liabilities would decrease by approximately 50 basis points. However, the actuarial PfAD (which is being eliminated under IFRS) is currently set at 50 basis points, so the two amounts would largely offset (in theory). A liquidity premium would then increase the discount rate, which would decrease the present value of the claims liabilities with no offsetting impact from the fixed income portfolio, causing a favourable impact to net income. If the Corporation increases its allocation to higher yielding bonds, then there is greater risk that these amounts will not offset.

More research is required on this topic over the next fiscal year; however, the Corporation appears to be well positioned financially to make this transition, especially relative to insurance companies that are discounting their liabilities using assets with much higher assumed returns.

DCAT.6 MAXIMUM CAPITAL TARGET

The DCAT-based minimum capital target utilized by the PUB is, by definition, calculated to be the absolute minimum amount of capital *including* management action that Basic can hold to withstand all 1-in-40 adverse scenarios. This minimum amount should never be considered an optimal capital level for a financially prudent entity. A capital range above the minimum amount is needed for the Corporation to be fiscally responsible and to allow the Rate Stabilization Reserve to achieve its purpose.

The Corporation has calculated the appropriate size of the RSR range by using the DCAT analysis and the following assumptions:

(i) Risk tolerance: 1-in-40
(ii) Time Horizon: 2 years
(iii) Assumed Management Action: None
(iv) Scenario: Combined Scenario

The calculated RSR range based on these parameters was assumed to be added to the minimum RSR target to produce the maximum RSR target. The calculated ranges and implied RSR upper targets using the above parameters are shown in the tables below. For information, we have also provided the size of the RSR range at a 1-in-20 probability level (5th percentile) and over a 3-year forecast period.

Figure DCAT- 67: Dollar Deviations from Best Estimate Forecast by Forecast Period and Percentile

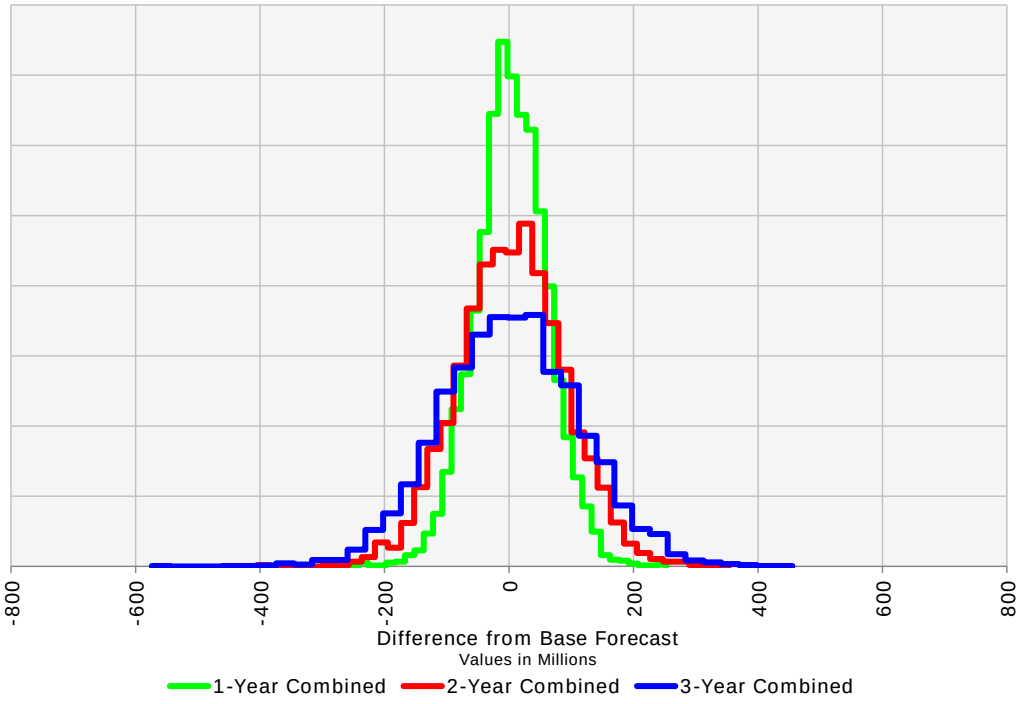
Line No.	Percentile	Forecast Period (Years) 2	3
1	*(in millions)*		
2	2.5th	($162)	($211)
3	5th	($136)	($176)

Figure DCAT- 68: Implied RSR Range by Forecast Period and Percentile

Line No.	Percentile	Forecast Period (Years) 2	3
1	*(in millions)*		
2	2.5th	$305	$354
3	5th	$279	$318

The graph below shows the full modeled results for the Combined Scenario before management action over 1, 2, and 3 year forecast periods.

Figure DCAT- 69: Combined Simulations of Total Equity



The Corporation's proposed approach results in a lower RSR target of $143 million and an upper RSR target of $305 million. Provided the Corporation is operating within this range there would be an expectation of no rebuilding fees and no premium rebates.

Appendix 1a
Base Scenario with 0.10% Rate Change
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,167	29,037	31,084
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,173,528	1,221,742	1,271,678
Net Claims Incurred	742,604	869,023	783,040	825,342	901,616	939,457	996,948	1,053,046
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	8,550	11,468	10,036	10,133
Total Claims Incurred	666,404	860,035	767,239	817,139	910,165	950,924	1,006,984	1,063,179
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,258	144,372	146,834
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,822	13,007	13,285
Total Claims Costs	798,045	993,537	923,722	967,913	1,058,286	1,103,004	1,164,363	1,223,298
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,334	80,019	82,936
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	160,156	167,099	173,381
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(86,107)	(89,633)	(109,720)	(125,001)
Investment Income	48,476	101,645	111,731	191,814	82,119	84,740	87,515	90,191
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	(0)	(0)	(0)	0
Net Investment Income	(4,038)	82,897	116,320	191,814	82,119	84,740	87,515	90,191
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(3,989)	(4,893)	(22,205)	(34,810)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	(8,550)	(11,468)	(10,036)	(10,133)

Appendix 1b
Base Scenario with 0.10% Rate Change
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	302,542	297,649	275,444
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(3,989)	(4,893)	(22,205)	(34,810)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	302,542	297,649	275,444	240,634
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,259)	(35,155)	(25,421)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,853	9,103	9,734	10,573
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
Total Equity Balance	231,002	181,000	210,845	254,420	258,284	262,494	250,023	225,786
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	302,542	297,649	275,444	240,634
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	258,284	262,494	250,023	225,786
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	258,284	262,494	250,023	225,786

Appendix 1c
Base Scenario with 0.10% Rate Change
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	49,915	44,275	33,093	7,918
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,595,239	2,698,424	2,805,196	2,912,735
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	13,725	19,044	15,870	8,801
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,147	61,155	63,184
	2,683,473	2,805,484	2,916,137	3,055,846	3,179,968	3,307,435	3,416,343	3,512,673
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	1,930,595	2,011,184	2,088,557	2,164,337
	2,452,472	2,624,484	2,705,292	2,801,426	2,921,684	3,044,941	3,166,320	3,286,887
Equity								
Retained earnings	194,499	99,251	170,975	306,531	302,542	297,649	275,444	240,634
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(35,155)	(25,421)	(14,847)
Total Equity	231,003	181,000	210,845	254,420	258,284	262,494	250,023	225,786
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,179,968	3,307,435	3,416,343	3,512,673

Appendix 1d
Base Scenario with 0.10% Rate Change
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	211,178	203,347	188,868	162,602
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	211,178	203,347	188,868	162,602
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	110,921
Unpaid claims	22	194,866	203,517	212,256	220,712	229,053
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	302,096	314,837	327,372	339,974
Market Risk:						
Interest rate risk	30	4,990	19,667	23,109	27,085	30,957
Foreign exchange risk	32	15,503	15,147	16,141	17,201	19,537
Equity risk	34	68,628	66,694	71,182	75,976	81,145
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	128,245	137,860	148,614	161,484
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	60,660	62,915	64,346	65,406
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	60,660	62,915	64,346	65,406
Operational risk margin	50	64,656	69,783	73,021	76,291	79,768
Less: Diversification credit	52	53,576	62,032	65,452	68,907	72,700
Total Capital (Margin) Required at Target	59	454,972	498,752	523,181	547,716	573,932
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	332,501	348,788	365,144	382,621
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	332,501	348,788	365,144	382,621
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(121,323)	(145,441)	(176,276)	(220,019)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	63.51%	58.30%	51.72%	42.50%

Appendix 1e
Base Scenario with 0.10% Rate Change
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	469,734	502,938	538,554	576,775
Comprehensive	69,497	99,974	105,494	111,624	118,151	125,002
Property Damage	48,647	46,869	48,499	50,185	51,943	53,779
Public Liability - BI	4,680	5,096	5,214	5,271	5,340	5,411
PIPP	187,022	199,985	217,241	222,698	223,958	226,601
Total	726,240	790,845	846,182	892,716	937,945	987,568
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	6,979	7,331	7,022	6,964
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	4,633	(4,044)	4,480	8,437
Total Net Claims Incurred	767,240	817,138	910,165	950,925	1,006,984	1,063,179

Appendix 1f
Base Scenario with 0.10% Rate Change
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	79.17%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	78.56%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	79.18%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	80.32%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.21%	8.23%	8.18%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.74%	2.73%
	Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.73%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	412,721	426,273	446,811	471,533
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	14,914	15,463	16,053
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	75,941	78,434	82,213	86,762
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	13,725	19,044	15,870	8,801
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	17,012	12,969	17,449	25,885
	Change	2,363	(19,676)	4,633	(4,044)	4,480	8,437
18.	Premium Deficiency [c]	8,845	-	-	-	-	-
	Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 1g
Base Scenario with 0.10% Rate Change
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	90	0	0	(0)
Marketable Bonds	44,186	54,120	60,064	64,939	70,131
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	78,572	82,129	84,790	87,824
Dividend and other Income					
Canadian Equities	9,657	5,674	4,546	5,186	5,641
Global	4,218	5,959	4,879	5,509	5,903
Global LV	-	2,881	3,215	3,633	3,909
Private Debt	-	3,755	10,014	10,013	10,012
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	21,329	26,346	28,038	29,094
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	(28,827)	(418)	(436)	(441)
Marketable Bonds Realized Gains/(Loss)	20,362	28,827	418	436	441
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	2,645	0	0	815
Global Equities Realized Gains	66,318	3,740	0	0	963
Global LV Realized Gains	-	458	-	-	846
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	16,862	10,448	11,057	14,325
Other					
Investment Fees Paid	(5,206)	(4,724)	(4,593)	(4,864)	(5,049)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	2,524	2,570	2,686	2,720
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(16,072)	(16,336)	(16,935)	(17,536)
Total Corporate Investment Income	223,672	100,691	102,588	106,951	113,706
Total Basic Investment Income	191,814	82,119	84,740	87,515	90,191
% - Basic to Total Investment Income	85.76%	82%	83%	82%	79%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	6,724	4,810	5,487	6,296
US Equities Unrealized Gains/(Losses)	7,537	9,291	7,282	8,221	8,809
Global LV Unrealized Gains/(Losses)	-	4,192	4,389	4,960	5,337
Total Corporate Unrealized Gains/(Losses)	19,651	16,014	12,092	13,708	15,105
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,763.2	1,908.7	2,054.4	2,205.1
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	128.6	147.3	166.9	182.6
Global Equities	166.2	168.0	190.2	213.7	233.4
Global LV Equities	96.2	114.7	130.0	146.1	157.4
Private Debt	-	188.2	188.2	188.2	188.2
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,105.7	3,272.3	3,444.1	3,611.6
Total Basic Assets	2,550.7	2,658.7	2,756.3	2,852.0	2,935.9
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.8%	58.3%	59.7%	61.1%
MUSH	19.3%	16.8%	14.6%	12.6%	10.7%
Canadian Equities	4.2%	4.1%	4.5%	4.8%	5.1%
US Equities	5.6%	5.4%	5.8%	6.2%	6.5%
Global LV	3.3%	3.7%	4.0%	4.2%	4.4%
Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
Real Estate	4.5%	4.4%	4.4%	4.4%	4.5%
Infrastructure & Venture Capital	2.6%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 2a
Equity Decline Scenario
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,167	29,037	31,084
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,173,528	1,221,742	1,271,678
Net Claims Incurred	742,604	869,023	783,040	825,342	901,612	939,462	996,958	1,053,055
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	8,471	11,604	10,190	10,210
Total Claims Incurred	666,404	860,035	767,239	817,139	910,084	951,065	1,007,148	1,063,265
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,258	144,385	146,834
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,822	13,009	13,285
Total Claims Costs	798,045	993,537	923,722	967,913	1,058,205	1,103,145	1,164,542	1,223,384
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,334	80,026	82,936
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	160,156	167,106	173,381
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(86,026)	(89,774)	(109,906)	(125,087)
Investment Income	48,476	101,645	111,731	191,814	79,751	75,578	81,680	84,088
(b) Investment Income - Interest Rate Impac	(52,515)	(18,748)	4,589	(0)	(1)	0	(0)	(0)
Net Investment Income	(4,038)	82,897	116,320	191,814	79,750	75,578	81,680	84,088
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(6,275)	(14,196)	(28,227)	(40,999)
Total net Impact due to interest rate change (b)	23,685	(9,760)	20,390	8,203	(8,472)	(11,604)	(10,190)	(10,210)

Appendix 2b
Equity Decline Scenario
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	300,256	286,060	257,833
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(6,275)	(14,196)	(28,227)	(40,999)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	300,256	286,060	257,833	216,834
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(58,000)	(51,925)	(51,925)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(5,889)	6,075	-	-
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(58,000)	(51,925)	(51,925)	(51,925)
Total Equity Balance	231,002	181,000	210,845	254,420	242,256	234,135	205,908	164,909
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	300,256	286,060	257,833	216,834
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(58,000)	(51,925)	(51,925)	(51,925)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	242,256	234,135	205,908	164,909
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	242,256	234,135	205,908	164,909

Appendix 2c
Equity Decline Scenario
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	50,930	46,772	36,629	12,568
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,572,914	2,654,139	2,739,019	2,823,297
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	13,728	19,042	15,860	8,786
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,147	61,154	63,184
	2,683,473	2,805,484	2,916,137	3,055,846	3,158,663	3,265,644	3,353,691	3,427,869
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	352,795	360,424	371,104	381,893
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	1,930,516	2,011,239	2,088,768	2,164,630
	2,452,472	2,624,484	2,705,292	2,801,426	2,916,407	3,031,510	3,147,784	3,262,960
Equity								
Retained earnings	194,499	99,251	170,975	306,531	300,256	286,060	257,833	216,834
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(58,000)	(51,925)	(51,925)	(51,925)
Total Equity	231,003	181,000	210,845	254,420	242,256	234,135	205,908	164,909
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,158,663	3,265,644	3,353,691	3,427,869

Appendix 2d
Equity Decline Scenario
Minimum Capital Test

(All figures in $000s)

		2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
		Current Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (04)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	195,149	174,987	144,753	101,725
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	195,149	174,987	144,753	101,725
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	110,921
Unpaid claims	22	194,866	203,509	212,262	220,733	229,083
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	302,088	314,843	327,393	340,004
Market Risk:						
Interest rate risk	30	4,990	14,198	19,282	22,964	26,545
Foreign exchange risk	32	15,503	17,515	16,729	16,920	17,520
Equity risk	34	68,628	75,951	71,729	72,053	72,437
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	134,401	135,168	140,289	146,347
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	59,260	62,146	63,544	64,571
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	59,260	62,146	63,544	64,571
Operational risk margin	50	64,656	70,187	72,727	75,517	78,413
Less: Diversification credit	52	53,576	63,008	64,740	67,041	69,464
Total Capital (Margin) Required at Target	59	454,972	502,928	520,144	539,702	559,871
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	335,285	346,762	359,801	373,247
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	335,285	346,762	359,801	373,247
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(140,136)	(171,775)	(215,048)	(271,522)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	58.20%	50.46%	40.23%	27.25%

Appendix 2e
Equity Decline Scenario
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	469,734	502,939	538,554	576,775
Comprehensive	69,497	99,974	105,494	111,624	118,151	125,002
Property Damage	48,647	46,869	48,499	50,185	51,943	53,779
Public Liability - BI	4,680	5,096	5,213	5,271	5,340	5,411
PIPP	187,022	199,985	217,174	222,811	224,090	226,670
Total	726,240	790,845	846,115	892,831	938,078	987,638
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	6,968	7,350	7,044	6,976
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	4,630	(4,038)	4,488	8,441
Total Net Claims Incurred	767,240	817,138	910,083	951,065	1,007,148	1,063,265

Appendix 2f
Equity Decline Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	79.17%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	78.56%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	79.18%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	80.32%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.21%	8.23%	8.18%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.74%	2.73%
	Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.73%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	412,718	426,275	446,819	471,545
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	14,914	15,464	16,054
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	75,940	78,435	82,215	86,764
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	13,728	19,042	15,860	8,786
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	17,009	12,971	17,459	25,901
	Change	2,363	(19,676)	4,630	(4,038)	4,488	8,441
18.	Premium Deficiency [c]	8,845	-	-	-	-	-
	Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 2g
Equity Decline Scenario
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	82	(0)	0	(1)
Marketable Bonds	44,186	53,976	58,504	63,168	67,699
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	78,420	80,569	83,020	85,392
Dividend and other Income					
Canadian Equities	9,657	5,533	4,428	4,651	4,830
Global	4,218	5,788	5,133	5,285	5,433
Global LV	-	2,773	2,776	2,934	3,055
Private Debt	-	3,755	10,014	10,013	10,012
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	20,907	26,042	26,582	26,959
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	(30,721)	(417)	(436)	(443)
Marketable Bonds Realized Gains/(Loss)	20,362	30,721	417	436	443
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	(4,302)	(6,991)	(6,167)	(6,446)
Global Equities Realized Gains	66,318	(1,060)	(12,658)	(7,361)	(7,605)
Global LV Realized Gains	-	(264)	(7,242)	(4,102)	(4,301)
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	4,392	(16,442)	(6,573)	(6,651)
Other					
Investment Fees Paid	(5,206)	(4,689)	(4,582)	(4,735)	(4,840)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	2,524	2,570	2,683	2,728
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(16,037)	(16,325)	(16,809)	(17,319)
Total Corporate Investment Income	223,672	87,682	73,844	86,220	88,380
Total Basic Investment Income	191,814	79,750	75,578	81,680	84,088
% - Basic to Total Investment Income	85.76%	91%	102%	95%	95%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	(5,221)	(6,072)	(6,167)	(6,446)
US Equities Unrealized Gains/(Losses)	7,537	(6,232)	(7,486)	(7,361)	(7,605)
Global LV Unrealized Gains/(Losses)	-	(3,512)	(3,994)	(4,102)	(4,301)
Total Corporate Unrealized Gains/(Losses)	19,651	(11,453)	(13,558)	(13,528)	(14,051)
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,694.2	1,847.6	1,988.1	2,122.9
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	136.5	138.6	144.9	149.2
Global Equities	166.2	194.5	191.2	197.6	201.8
Global LV Equities	96.2	106.5	109.4	114.7	118.4
Private Debt	-	188.2	188.2	188.2	188.2
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,063.0	3,182.9	3,308.2	3,425.4
Total Basic Assets	2,550.7	2,637.4	2,714.5	2,789.4	2,851.1

Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	55.3%	58.0%	60.1%	62.0%
MUSH	19.3%	17.1%	15.0%	13.1%	11.3%
Canadian Equities	4.2%	4.5%	4.4%	4.4%	4.4%
US Equities	5.6%	6.3%	6.0%	6.0%	5.9%
Global LV	3.3%	3.5%	3.4%	3.5%	3.5%
Private Debt	0.0%	6.1%	5.9%	5.7%	5.5%
Real Estate	4.5%	4.5%	4.5%	4.5%	4.7%
Infrastructure & Venture Capital	2.6%	2.7%	2.7%	2.8%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3a
High Loss Ratio Scenario
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,168	29,040	31,088
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,173,529	1,221,745	1,271,682
Net Claims Incurred	742,604	869,023	783,040	825,342	1,133,904	998,311	1,059,659	1,092,448
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	817,139	974,861	1,010,701	1,063,883	1,098,483
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,552	144,929	147,554
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,851	13,064	13,361
Total Claims Costs	798,045	993,537	923,722	967,913	1,122,982	1,163,104	1,221,876	1,259,398
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,479	80,298	83,303
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	160,302	167,378	173,748
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(150,803)	(149,878)	(167,509)	(161,464)
Investment Income	48,476	101,645	111,731	191,814	82,067	85,520	88,586	91,404
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	(0)	(0)	(0)	(0)
Net Investment Income	(4,038)	82,897	116,320	191,814	82,067	85,519	88,586	91,404
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(68,737)	(64,358)	(78,924)	(70,060)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	159,042	(12,390)	(4,224)	(6,035)

Appendix 3b
High Loss Ratio Scenario
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	237,794	173,436	94,512
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(68,737)	(64,358)	(78,924)	(70,060)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	237,794	173,436	94,512	24,452
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,259)	(36,378)	(28,723)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,853	7,880	7,656	7,774
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(36,378)	(28,723)	(20,948)
Total Equity Balance	231,002	181,000	210,845	254,420	193,536	137,058	65,789	3,504
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	237,794	173,436	94,512	24,452
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(36,378)	(28,723)	(20,948)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	193,536	137,058	65,789	3,504
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	193,536	137,058	65,789	3,504

Appendix 3c
High Loss Ratio Scenario
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	29,418	-	-	-
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,591,597	2,684,228	2,738,405	2,795,025
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	1,854	-	-	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,127	61,112	63,130
	2,683,473	2,805,484	2,916,137	3,055,846	3,143,959	3,229,898	3,300,547	3,378,190
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,993	373,903	389,822	406,060
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	1,959,334	2,059,091	2,157,024	2,252,189
	2,452,472	2,624,484	2,705,292	2,801,426	2,950,423	3,092,840	3,234,757	3,374,686
Equity								
Retained earnings	194,499	99,251	170,975	306,531	237,794	173,436	94,512	24,452
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,259)	(36,378)	(28,723)	(20,948)
Total Equity	231,003	181,000	210,845	254,420	193,536	137,058	65,789	3,504
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,143,959	3,229,898	3,300,547	3,378,190

Appendix 3d
High Loss Ratio Scenario
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	146,429	77,931	4,677	(59,627)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	146,429	77,931	4,677	(59,627)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	103,359	109,178	116,126
Unpaid claims	22	194,866	206,785	217,039	226,780	235,213
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	305,364	320,398	335,958	351,339
Market Risk:						
Interest rate risk	30	4,990	16,895	18,914	20,674	23,383
Foreign exchange risk	32	15,503	15,147	15,477	15,978	17,680
Equity risk	34	68,628	66,693	67,351	68,920	71,130
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	125,472	129,170	133,924	142,038
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	59,439	61,044	62,829	64,642
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	59,439	61,044	62,829	64,642
Operational risk margin	50	64,656	69,721	72,596	75,643	79,017
Less: Diversification credit	52	53,576	61,434	63,644	66,149	69,377
Total Capital (Margin) Required at Target	59	454,972	498,562	519,564	542,205	567,659
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	332,375	346,376	361,470	378,439
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	332,375	346,376	361,470	378,439
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(185,946)	(268,445)	(356,793)	(438,066)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	44.06%	22.50%	1.29%	-15.76%

Appendix 3e
High Loss Ratio Scenario
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	498,336	518,226	555,990	579,258
Comprehensive	69,497	99,974	103,783	121,682	132,768	128,820
Property Damage	48,647	46,869	49,404	50,720	54,206	53,311
Public Liability - BI	4,680	5,096	7,209	4,044	5,729	5,979
PIPP	187,022	199,985	236,994	244,830	239,051	248,117
Total	726,240	790,845	895,726	939,501	987,745	1,015,484
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	10,260	8,991	7,981	7,060
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	16,504	7,288	10,619	15,729
Total Net Claims Incurred	767,240	817,138	974,861	1,010,701	1,063,883	1,098,483

Appendix 3f
High Loss Ratio Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	77.24%	77.53%	78.62%	77.70%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9481	0.9551	0.9667	1.0006	1.0135					
	2020				0.9667	0.9768	1.0096	1.0210	1.0150				
	2021					0.9977	1.0281	1.0366	1.0275	1.0177			
	2022						1.0397	1.0480	1.0385	1.0282	1.0178		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			77.53%	77.69%	72.10%	73.30%	78.28%				76.17%	81.09%
	2020				78.63%	72.86%	73.96%	78.86%	78.70%			77.10%	82.17%
	2021					74.42%	75.31%	80.07%	79.67%	80.01%		78.33%	83.56%
	2022						76.16%	80.95%	80.52%	80.84%	79.08%	80.15%	85.58%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.23%	8.26%	8.21%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.75%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	422,747	445,859	471,559	502,421
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	14,928	15,504	16,115
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	77,786	82,038	86,767	92,446
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	1,854	(4,159)	(13,472)	(27,833)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	28,883	32,013	33,319	34,687
	Change	2,363	(19,676)	16,504	3,130	1,306	1,367
18.	Premium Deficiency [c]	8,845	-	-	4,159	13,472	27,833
	Change	2,001	(8,845)	-	4,159	9,313	14,361

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 3g
High Loss Ratio Scenario
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	90	0	(0)	(1)
Marketable Bonds	44,186	53,965	60,005	64,926	69,601
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	78,416	82,070	84,778	87,294
Dividend and other Income					
Canadian Equities	9,657	5,646	4,211	4,465	4,747
Global	4,218	5,924	4,580	4,864	5,175
Global LV	-	2,850	2,983	3,146	3,325
Private Debt	-	3,755	10,014	10,013	10,012
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	21,234	25,479	26,187	26,888
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	(28,827)	(3,958)	(2,929)	(2,352)
Marketable Bonds Realized Gains/(Loss)	20,362	28,827	3,958	2,929	2,352
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	2,693	234	321	377
Global Equities Realized Gains	66,318	3,785	282	396	466
Global LV Realized Gains	-	458	216	287	333
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	16,955	11,180	12,061	12,877
Other					
Investment Fees Paid	(5,206)	(4,719)	(4,521)	(4,697)	(4,833)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	2,522	2,648	2,784	2,812
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(16,069)	(16,186)	(16,670)	(17,228)
Total Corporate Investment Income	223,672	100,536	102,543	106,356	109,831
Total Basic Investment Income	191,814	82,067	85,519	88,586	91,404
% - Basic to Total Investment Income	85.76%	82%	83%	83%	83%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	6,689	4,456	4,724	5,298
US Equities Unrealized Gains/(Losses)	7,537	9,236	6,835	7,259	7,723
Global LV Unrealized Gains/(Losses)	-	4,147	4,073	4,296	4,540
Total Corporate Unrealized Gains/(Losses)	19,651	15,926	11,290	11,984	13,022
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,749.2	1,893.8	2,031.6	2,170.9
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	125.2	132.0	139.4	149.1
Global Equities	166.2	164.2	173.7	183.9	196.4
Global LV Equities	96.2	111.4	117.0	122.9	130.5
Private Debt	-	188.2	188.2	188.2	188.2
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,081.3	3,212.5	3,340.8	3,480.1
Total Basic Assets	2,550.7	2,634.6	2,697.8	2,752.2	2,810.3
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.8%	59.0%	60.8%	62.4%
MUSH	19.3%	17.0%	14.8%	12.9%	11.1%
Canadian Equities	4.2%	4.1%	4.1%	4.2%	4.3%
US Equities	5.6%	5.3%	5.4%	5.5%	5.6%
Global LV	3.3%	3.6%	3.6%	3.7%	3.8%
Private Debt	0.0%	6.1%	5.9%	5.6%	5.4%
Real Estate	4.5%	4.5%	4.5%	4.5%	4.6%
Infrastructure & Venture Capital	2.6%	2.7%	2.7%	2.8%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 4a
Interest Rate Decline Scenario
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,169	29,041	31,088
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,173,530	1,221,746	1,271,682
Net Claims Incurred	742,604	869,023	783,040	825,342	907,117	947,670	1,003,106	1,058,531
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	126,615	103,617	4,138	3,055
Total Claims Incurred	666,404	860,035	767,239	817,139	1,033,732	1,051,287	1,007,244	1,061,587
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,779	145,268	147,640
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,874	13,099	13,370
Total Claims Costs	798,045	993,537	923,722	967,913	1,181,853	1,203,940	1,165,611	1,222,597
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,590	80,465	83,346
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	160,413	167,545	173,791
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(209,674)	(190,824)	(111,410)	(124,705)
Investment Income	48,476	101,645	111,731	191,814	67,881	65,655	64,791	59,887
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	120,930	82,667	(26)	(46)
Net Investment Income	(4,038)	82,897	116,320	191,814	188,811	148,322	64,765	59,841
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(20,864)	(42,502)	(46,645)	(64,864)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	(5,685)	(20,951)	(4,164)	(3,101)

Appendix 4b
Interest Rate Decline Scenario
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	285,667	243,166	196,521
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(20,864)	(42,502)	(46,645)	(64,864)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	285,667	243,166	196,521	131,657
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(42,480)	(32,623)	(26,181)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	9,631	9,858	6,441	10,814
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(42,480)	(32,623)	(26,181)	(15,367)
Total Equity Balance	231,002	181,000	210,845	254,420	243,187	210,543	170,340	116,290
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	285,667	243,166	196,521	131,657
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(42,480)	(32,623)	(26,181)	(15,367)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	243,187	210,543	170,340	116,290
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	243,187	210,543	170,340	116,290

Appendix 4c
Interest Rate Decline Scenario
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	46,809	30,079	16,997	-
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,713,488	2,896,105	2,976,753	3,044,259
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	8,223	8,325	3,823	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,110	61,082	63,099
	2,683,473	2,805,484	2,916,137	3,055,846	3,289,610	3,480,163	3,559,684	3,627,392
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	364,668	385,380	400,734	416,532
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	2,048,660	2,224,393	2,300,698	2,378,132
	2,452,472	2,624,484	2,705,292	2,801,426	3,046,423	3,269,620	3,389,344	3,511,102
Equity								
Retained earnings	194,499	99,251	170,975	306,531	285,667	243,166	196,521	131,657
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(42,480)	(32,623)	(26,181)	(15,367)
Total Equity	231,003	181,000	210,845	254,420	243,187	210,543	170,340	116,290
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,289,610	3,480,163	3,559,684	3,627,392

Appendix 4d
Interest Rate Decline Scenario
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	196,081	151,433	109,258	53,191
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	196,081	151,433	109,258	53,191
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	111,740
Unpaid claims	22	194,866	215,361	233,649	242,003	250,080
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	313,940	336,230	348,663	361,820
Market Risk:						
Interest rate risk	30	4,990	8,766	10,123	20,457	18,457
Foreign exchange risk	32	15,503	17,854	19,016	17,838	14,528
Equity risk	34	68,628	81,046	86,411	78,203	83,531
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	134,403	142,978	144,850	146,361
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	60,792	63,449	64,902	66,003
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	60,792	63,449	64,902	66,003
Operational risk margin	50	64,656	71,324	75,320	77,828	80,391
Less: Diversification credit	52	53,576	64,232	68,242	69,851	71,342
Total Capital (Margin) Required at Target	59	454,972	516,227	549,735	566,392	583,233
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	344,151	366,490	377,595	388,822
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	344,151	366,490	377,595	388,822
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(148,070)	(215,057)	(268,337)	(335,631)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	56.98%	41.32%	28.94%	13.68%

Appendix 4e
Interest Rate Decline Scenario
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	470,138	503,303	538,652	576,858
Comprehensive	69,497	99,974	105,627	111,743	118,180	125,026
Property Damage	48,647	46,869	48,592	50,264	51,958	53,791
Public Liability - BI	4,680	5,096	5,476	5,483	5,371	5,430
PIPP	187,022	199,985	317,472	302,684	221,590	223,157
Total	726,240	790,845	947,305	973,477	935,752	984,261
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	23,921	21,715	8,147	7,548
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	10,135	1,174	5,808	9,568
Total Net Claims Incurred	767,240	817,138	1,033,732	1,051,287	1,007,244	1,061,586

Appendix 4f
Interest Rate Decline Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	80.06%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	80.22%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	80.97%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	82.20%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.24%	8.27%	8.22%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.76%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	417,368	435,307	456,929	482,594
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	14,938	15,531	16,136
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	76,796	80,096	84,075	88,797
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	8,223	8,325	3,823	(4,378)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	22,514	23,688	29,496	34,687
	Change	2,363	(19,676)	10,135	1,174	5,808	5,190
18.	Premium Deficiency [c]	8,845	-	-	-	-	4,378
	Change	2,001	(8,845)	-	-	-	4,378

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 4g
Interest Rate Decline Scenario
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	120	(0)	0	(1)
Marketable Bonds	44,186	50,153	51,108	51,280	52,957
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	74,635	73,173	71,132	70,649
Dividend and other Income					
Canadian Equities	9,657	6,408	5,280	5,703	5,829
Global	4,218	6,744	5,711	6,159	6,246
Global LV	-	3,353	3,547	3,809	3,954
Private Debt	-	3,515	9,420	9,469	9,511
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	23,079	27,649	28,839	29,167
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	84,084	69,566	(8,479)	2,404
Marketable Bonds Realized Gains/(Loss)	20,362	44,593	17,459	8,479	(2,404)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	2,799	380	1,317	1,587
Global Equities Realized Gains	66,318	3,927	448	1,608	1,882
Global LV Realized Gains	-	825	336	1,173	918
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	146,246	98,637	15,155	16,088
Other					
Investment Fees Paid	(5,206)	(4,906)	(4,855)	(5,083)	(5,178)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	(3,849)	(12,878)	(14,774)	(14,480)
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(22,627)	(32,046)	(34,614)	(34,865)
Total Corporate Investment Income	223,672	221,332	176,100	80,512	81,039
Total Basic Investment Income	191,814	188,811	148,322	64,765	59,841
% - Basic to Total Investment Income	85.76%	85%	84%	80%	74%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	7,593	5,586	6,034	6,505
US Equities Unrealized Gains/(Losses)	7,537	10,500	8,522	9,192	9,321
Global LV Unrealized Gains/(Losses)	-	4,879	4,843	5,200	5,399
Total Corporate Unrealized Gains/(Losses)	19,651	18,093	14,108	15,226	15,826
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,823.7	2,033.3	2,210.5	2,342.2
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	153.5	178.3	177.3	186.1
Global Equities	166.2	201.1	230.5	232.0	244.6
Global LV Equities	96.2	129.8	149.8	148.2	159.1
Private Debt	-	188.2	196.9	196.9	196.9
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,239.4	3,496.7	3,639.7	3,773.7
Total Basic Assets	2,550.7	2,773.8	2,939.7	3,007.5	3,059.5
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.3%	58.2%	60.7%	62.1%
MUSH	19.3%	16.1%	13.6%	11.9%	10.2%
Canadian Equities	4.2%	4.7%	5.1%	4.9%	4.9%
US Equities	5.6%	6.2%	6.6%	6.4%	6.5%
Global LV	3.3%	4.0%	4.3%	4.1%	4.2%
Private Debt	0.0%	5.8%	5.6%	5.4%	5.2%
Real Estate	4.5%	4.3%	4.1%	4.1%	4.3%
Infrastructure & Venture Capital	2.6%	2.5%	2.5%	2.5%	2.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5a
Combined Scenario
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,170	29,043	31,090
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,173,531	1,221,748	1,271,684
Net Claims Incurred	742,604	869,023	783,040	825,342	1,226,509	1,090,740	995,336	1,056,252
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	817,139	1,067,466	1,103,130	999,561	1,062,286
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,919	145,614	147,931
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,888	13,134	13,400
Total Claims Costs	798,045	993,537	923,722	967,913	1,215,587	1,255,937	1,158,309	1,223,617
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,659	80,639	83,494
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	160,483	167,720	173,939
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(243,408)	(242,889)	(104,280)	(125,873)
Investment Income	48,476	101,645	111,731	191,814	65,290	63,086	60,942	59,311
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	131,240	72,508	(18)	(42)
Net Investment Income	(4,038)	82,897	116,320	191,814	196,530	135,595	60,923	59,269
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(46,879)	(107,294)	(43,357)	(66,603)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	290,282	60,118	(4,243)	(6,076)

Appendix 5b
Combined Scenario
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	259,652	152,358	109,001
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(46,879)	(107,294)	(43,357)	(66,603)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	259,652	152,358	109,001	42,397
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,362)	(51,885)	(43,931)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(251)	476	7,955	8,664
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,931)	(35,267)
Total Equity Balance	231,002	181,000	210,845	254,420	207,291	100,473	65,070	7,131
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	259,652	152,358	109,001	42,397
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,931)	(35,267)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	207,291	100,473	65,070	7,131
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	207,291	100,473	65,070	7,131

Appendix 5c
Combined Scenario
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	43,669	736	-	-
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,707,292	2,860,827	2,918,203	2,965,644
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	3,508	-	-	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,101	61,059	63,071
	2,683,473	2,805,484	2,916,137	3,055,846	3,275,559	3,407,207	3,480,292	3,548,749
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	2,077,179	2,272,977	2,337,459	2,419,069
	2,452,472	2,624,484	2,705,292	2,801,426	3,068,268	3,306,734	3,415,222	3,541,619
Equity								
Retained earnings	194,499	99,251	170,975	306,531	259,652	152,358	109,001	42,397
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,931)	(35,267)
Total Equity	231,003	181,000	210,845	254,420	207,291	100,473	65,070	7,131
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,275,559	3,407,207	3,480,292	3,548,749

Appendix 5d
Combined Scenario
Minimum Capital Test

(All figures in $000s)		2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
		Current Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (04)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	160,184	41,372	4,011	(55,940)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	160,184	41,372	4,011	(55,940)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	103,731	107,527	113,493
Unpaid claims	22	194,866	218,156	238,433	245,243	253,242
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	316,735	342,164	352,770	366,735
Market Risk:						
Interest rate risk	30	4,990	3,141	4,736	16,974	15,586
Foreign exchange risk	32	15,503	17,761	17,515	15,722	16,692
Equity risk	34	68,628	80,642	78,179	66,446	70,929
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	128,281	127,858	127,494	133,052
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	60,183	62,372	64,350	65,835
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	60,183	62,372	64,350	65,835
Operational risk margin	50	64,656	70,990	74,447	76,655	79,663
Less: Diversification credit	52	53,576	63,008	65,111	66,150	68,642
Total Capital (Margin) Required at Target	59	454,972	513,181	541,730	555,119	576,643
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	342,121	361,153	370,079	384,428
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	342,121	361,153	370,079	384,428
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(181,937)	(319,781)	(366,068)	(440,368)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	46.82%	11.46%	1.08%	-14.55%

Appendix 5e
Combined Scenario
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	471,193	549,050	538,014	576,824
Comprehensive	69,497	99,974	103,865	99,924	118,337	125,048
Property Damage	48,647	46,869	46,706	53,950	51,914	53,784
Public Liability - BI	4,680	5,096	2,805	4,534	5,391	5,472
PIPP	187,022	199,985	347,624	306,540	222,298	223,698
Total	726,240	790,845	972,193	1,013,998	935,955	984,826
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	28,052	23,277	6,274	6,771
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	14,850	10,934	(205)	10,480
Total Net Claims Incurred	767,240	817,138	1,067,466	1,103,129	999,560	1,062,286

Appendix 5f
Combined Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.19%	77.58%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9400	0.9486	0.9618	0.9975	1.0121					
	2020				0.9601	0.9716	1.0057	1.0184	1.0139				
	2021					0.9811	1.0146	1.0266	1.0212	1.0150			
	2022						1.0205	1.0327	1.0274	1.0212	1.0148		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.86%	77.16%	71.74%	73.07%	75.09%				75.00%	80.82%
	2020				78.10%	72.47%	73.67%	75.56%	78.66%			75.77%	82.48%
	2021					73.18%	74.32%	76.17%	79.22%	75.62%		75.37%	82.23%
	2022						74.76%	76.62%	79.70%	76.08%	76.63%	76.45%	83.54%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.25%	8.29%	8.23%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.76%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.76%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	421,350	447,526	464,056	490,484
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	14,945	15,554	16,167
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	77,528	82,345	85,386	90,249
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	3,508	(6,150)	(4,638)	(13,751)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	27,229	32,013	33,319	34,687
	Change	2,363	(19,676)	14,850	4,784	1,306	1,367
18.	Premium Deficiency [c]	8,845	-	-	6,150	4,638	13,751
	Change	2,001	(8,845)	-	6,150	(1,512)	9,113

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 5g
Combined Scenario
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	116	0	0	(2)
Marketable Bonds	44,186	49,822	50,603	51,124	52,462
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	74,299	72,668	70,976	70,154
Dividend and other Income					
Canadian Equities	9,657	6,373	4,829	4,772	5,128
Global	4,218	6,696	5,285	5,267	5,532
Global LV	-	3,331	3,231	3,179	3,395
Private Debt	-	3,496	9,370	9,419	9,460
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	22,955	26,407	26,335	27,143
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	92,728	56,091	(10,824)	2,257
Marketable Bonds Realized Gains/(Loss)	20,362	46,883	20,010	10,824	(2,257)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	(160)	(1,366)	226	1,133
Global Equities Realized Gains	66,318	184	(126)	285	1,073
Global LV Realized Gains	-	49	21	219	-
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	149,704	85,078	11,787	13,906
Other					
Investment Fees Paid	(5,206)	(4,895)	(4,750)	(4,859)	(4,973)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	(4,319)	(12,689)	(14,174)	(13,778)
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(23,086)	(31,752)	(33,790)	(33,958)
Total Corporate Investment Income	223,672	223,872	160,019	75,308	77,246
Total Basic Investment Income	191,814	196,530	135,595	60,923	59,269
% - Basic to Total Investment Income	85.76%	88%	85%	81%	77%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	(550)	(976)	5,049	5,723
US Equities Unrealized Gains/(Losses)	7,537	87	(94)	7,861	8,256
Global LV Unrealized Gains/(Losses)	-	147	66	4,341	4,635
Total Corporate Unrealized Gains/(Losses)	19,651	(462)	(1,070)	12,910	13,980
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,810.8	2,013.6	2,200.2	2,343.0
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	150.8	155.1	146.4	146.2
Global Equities	166.2	197.5	203.2	196.3	200.0
Global LV Equities	96.2	126.3	130.0	122.1	135.8
Private Debt	-	188.2	195.9	195.9	195.9
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,216.7	3,405.5	3,535.6	3,665.8
Total Basic Assets	2,550.7	2,764.5	2,875.1	2,932.0	2,980.9
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.3%	59.1%	62.2%	63.9%
MUSH	19.3%	16.3%	14.0%	12.2%	10.5%
Canadian Equities	4.2%	4.7%	4.6%	4.1%	4.0%
US Equities	5.6%	6.1%	6.0%	5.6%	5.5%
Global LV	3.3%	3.9%	3.8%	3.5%	3.7%
Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
Real Estate	4.5%	4.3%	4.2%	4.3%	4.4%
Infrastructure & Venture Capital	2.6%	2.6%	2.6%	2.6%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5h
Combined Scenario with Management Action
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,594	29,506	31,597
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,186,043	1,245,196	1,296,110
Net Claims Incurred	742,604	869,023	783,040	825,342	1,226,509	1,080,777	995,092	1,055,804
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	817,139	1,067,466	1,093,167	999,316	1,061,839
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,919	145,572	147,889
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,888	13,130	13,396
Total Claims Costs	798,045	993,537	923,722	967,913	1,215,587	1,245,974	1,158,018	1,223,124
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,659	80,618	83,473
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	161,156	169,133	175,410
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(243,408)	(221,086)	(81,955)	(102,424)
Investment Income	48,476	101,645	111,731	191,814	65,290	63,110	60,968	59,454
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	131,240	72,499	(31)	(51)
Net Investment Income	(4,038)	82,897	116,320	191,814	196,530	135,608	60,937	59,403
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(46,879)	(85,478)	(21,018)	(43,021)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	290,282	60,109	(4,255)	(6,086)

Appendix 5i
Combined Scenario with Management Action
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	306,531	259,652	174,175	153,156
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(46,879)	(85,478)	(21,018)	(43,021)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	306,531	259,652	174,175	153,156	110,135
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,362)	(51,885)	(43,743)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(251)	476	8,142	8,867
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,743)	(34,876)
Total Equity Balance	231,002	181,000	210,845	254,420	207,291	122,289	109,413	75,260
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	306,531	259,652	174,175	153,156	110,135
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,743)	(34,876)
Total Rate Stabilization Reserve	231,002	181,000	210,845	254,420	207,291	122,289	109,413	75,260
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	254,420	207,291	122,289	109,413	75,260

Appendix 5j
Combined Scenario with Management Action
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	43,669	14,373	13,230	5,766
Equity investments	2,083,349	2,189,534	2,272,545	2,508,579	2,707,292	2,862,832	2,943,050	3,021,453
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	3,508	4,470	6,190	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,101	61,061	63,074
	2,683,473	2,805,484	2,916,137	3,055,846	3,275,559	3,433,286	3,530,768	3,616,787
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	2,077,179	2,266,833	2,332,764	2,407,709
	2,452,472	2,624,484	2,705,292	2,801,426	3,068,268	3,310,996	3,421,355	3,541,528
Equity								
Retained earnings	194,499	99,251	170,975	306,531	259,652	174,175	153,156	110,135
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,362)	(51,885)	(43,743)	(34,876)
Total Equity	231,003	181,000	210,845	254,420	207,291	122,289	109,413	75,260
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,055,846	3,275,559	3,433,286	3,530,768	3,616,787

Appendix 5k
Combined Scenario with Management Action
Minimum Capital Test

(All figures in $000s)		2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
		Current Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (04)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	160,184	63,189	48,353	12,186
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	160,184	63,189	48,353	12,186
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	104,527	108,684	113,480
Unpaid claims	22	194,866	218,156	238,434	245,238	253,240
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	316,735	342,961	353,922	366,720
Market Risk:						
Interest rate risk	30	4,990	3,141	5,773	17,601	17,575
Foreign exchange risk	32	15,503	17,761	17,527	15,912	16,269
Equity risk	34	68,628	80,642	78,243	67,544	72,106
Real estate risk	36	25,831	26,737	27,428	28,352	29,845
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	128,281	128,971	129,409	135,795
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	60,183	63,133	65,296	66,206
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	60,183	63,133	65,296	66,206
Operational risk margin	50	64,656	70,990	75,238	77,581	80,535
Less: Diversification credit	52	53,576	63,008	65,586	66,879	69,356
Total Capital (Margin) Required at Target	59	454,972	513,181	544,717	559,329	579,900
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	342,121	363,145	372,886	386,600
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	342,121	363,145	372,886	386,600
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(181,937)	(299,956)	(324,533)	(374,414)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.49%	46.82%	17.40%	12.97%	3.15%

Appendix 5l
Combined Scenario with Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	471,193	549,050	538,013	576,825
Comprehensive	69,497	99,974	103,865	99,924	118,337	125,048
Property Damage	48,647	46,869	46,706	53,950	51,914	53,784
Public Liability - BI	4,680	5,096	2,805	4,534	5,390	5,472
PIPP	187,022	199,985	347,624	306,543	222,266	223,713
Total	726,240	790,845	972,193	1,014,001	935,920	984,843
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	28,052	23,279	6,246	6,784
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	14,850	965	(388)	10,002
Total Net Claims Incurred	767,240	817,138	1,067,466	1,093,166	999,316	1,061,838

Appendix 5m
Combined Scenario with Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.19%	76.77%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9400	0.9486	0.9618	0.9975	1.0121					
	2020				0.9413	0.9526	0.9859	0.9985	1.0045				
	2021					0.9625	0.9954	1.0072	1.0124	1.0150			
	2022						1.0012	1.0132	1.0185	1.0212	1.0148		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.86%	77.16%	71.74%	73.07%	75.09%				75.00%	80.82%
	2020				76.57%	71.05%	72.22%	74.08%	77.12%			74.29%	80.86%
	2021					71.80%	72.92%	74.73%	77.72%	74.19%		73.95%	80.68%
	2022						73.34%	75.17%	78.19%	74.65%	75.18%	75.00%	81.96%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.16%	8.13%	8.07%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.71%	2.69%
	Selected					3.16%	2.99%	2.88%	2.74%	2.72%	2.70%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	421,350	447,171	464,001	490,433
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	15,152	15,618	16,162
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	77,528	82,279	85,376	90,240
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	3,508	4,470	6,190	(2,417)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	27,229	28,194	27,806	35,391
	Change	2,363	(19,676)	14,850	965	(388)	7,585
18.	Premium Deficiency [c]	8,845	-	-	-	-	2,417
	Change	2,001	(8,845)	-	-	-	2,417

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 5n
Combined Scenario with Management Action
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
	Forecasted				
Interest Income During Period					
Cash/Short Term Investments	255	116	0	0	(2)
Marketable Bonds	44,186	49,822	50,654	51,251	52,845
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	74,299	72,719	71,103	70,536
Dividend and other Income					
Canadian Equities	9,657	6,373	4,858	4,933	5,336
Global	4,218	6,696	5,311	5,411	5,789
Global LV	-	3,331	3,250	3,285	3,598
Private Debt	-	3,496	9,370	9,419	9,460
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	22,955	26,481	26,746	27,811
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	92,728	56,148	(10,008)	2,298
Marketable Bonds Realized Gains/(Loss)	20,362	46,883	19,952	10,008	(2,298)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	(160)	(1,366)	212	1,077
Global Equities Realized Gains	66,318	184	(126)	268	1,159
Global LV Realized Gains	-	49	21	206	-
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	149,704	85,078	11,742	13,937
Other					
Investment Fees Paid	(5,206)	(4,895)	(4,757)	(4,900)	(5,043)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	(4,319)	(12,726)	(14,316)	(14,033)
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(23,086)	(31,796)	(33,973)	(34,283)
Total Corporate Investment Income	223,672	223,872	160,099	75,618	78,001
Total Basic Investment Income	191,814	196,530	135,608	60,937	59,403
% - Basic to Total Investment Income	85.76%	88%	85%	81%	76%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	(550)	(976)	5,219	5,955
US Equities Unrealized Gains/(Losses)	7,537	87	(94)	8,075	8,640
Global LV Unrealized Gains/(Losses)	-	147	66	4,486	4,912
Total Corporate Unrealized Gains/(Losses)	19,651	(462)	(1,070)	13,294	14,595
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,786.1	1,810.8	2,020.5	2,214.4	2,373.4
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	150.8	157.3	154.0	156.6
Global Equities	166.2	197.5	205.6	204.5	210.2
Global LV Equities	96.2	126.3	131.8	128.4	145.6
Private Debt	-	188.2	195.9	195.9	195.9
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,216.7	3,418.9	3,571.9	3,726.6
Total Basic Assets	2,550.7	2,764.5	2,890.8	2,970.0	3,042.5
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.3%	59.1%	62.0%	63.7%
MUSH	19.3%	16.3%	14.0%	12.1%	10.4%
Canadian Equities	4.2%	4.7%	4.6%	4.3%	4.2%
US Equities	5.6%	6.1%	6.0%	5.7%	5.6%
Global LV	3.3%	3.9%	3.9%	3.6%	3.9%
Private Debt	0.0%	5.9%	5.7%	5.5%	5.3%
Real Estate	4.5%	4.3%	4.2%	4.2%	4.3%
Infrastructure & Venture Capital	2.6%	2.6%	2.6%	2.6%	2.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5o
Combined Scenario with Management Action - Minimum Total Equity
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,433	27,594	29,506	31,597
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,372	1,186,043	1,245,196	1,296,110
Net Claims Incurred	742,604	869,023	783,040	825,342	1,226,510	1,080,786	995,072	1,055,803
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	817,139	1,067,467	1,093,176	999,296	1,061,838
Claims Expense	118,614	120,972	143,337	137,168	135,428	139,922	145,584	147,889
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,693	12,888	13,131	13,396
Total Claims Costs	798,045	993,537	923,722	967,913	1,215,588	1,245,986	1,158,011	1,223,123
Expenses								
Operating	71,641	72,785	70,201	75,060	73,606	76,659	80,625	83,473
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,840	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,193	161,156	169,140	175,410
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(56,258)	(243,409)	(221,099)	(81,955)	(102,423)
Investment Income	48,476	101,645	111,731	191,814	61,820	59,191	57,469	57,372
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(0)	129,130	71,646	(67)	28
Net Investment Income	(4,038)	82,897	116,320	191,814	190,950	130,837	57,402	57,400
Net Income (Loss)	(56,049)	(123,071)	34,424	135,556	(52,459)	(90,261)	(24,554)	(45,023)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	8,203	288,173	59,256	(4,292)	(6,007)

Appendix 5p
Combined Scenario with Management Action - Minimum Total Equity
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	194,627	142,168	51,906	27,353
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	135,556	(52,459)	(90,261)	(24,554)	(45,023)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(111,904)	-	-	-	-
Total Retained Earnings	194,498	99,251	170,975	194,627	142,168	51,906	27,353	(17,670)
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,242)	(51,906)	(45,651)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(131)	336	6,255	5,714
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,242)	(51,906)	(45,651)	(39,937)
Total Equity Balance	231,002	181,000	210,845	142,516	89,925	(0)	(18,299)	(57,607)
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	194,627	142,168	51,906	27,353	(17,670)
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,242)	(51,906)	(45,651)	(39,937)
Total Rate Stabilization Reserve	231,002	181,000	210,845	142,516	89,925	(0)	(18,299)	(57,607)
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	142,516	89,925	(0)	(18,299)	(57,607)

Appendix 5q
Combined Scenario with Management Action - Minimum Total Equity
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,178	43,315	15,888	14,738	10,446
Equity investments	2,083,349	2,189,534	2,272,545	2,396,675	2,590,282	2,739,039	2,813,822	2,885,205
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	17,110	3,508	4,467	6,192	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,106	59,100	61,060	63,073
	2,683,473	2,805,484	2,916,137	2,943,941	3,158,195	3,311,005	3,403,048	3,485,219
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,851,107	2,077,180	2,266,841	2,332,757	2,407,699
	2,452,472	2,624,484	2,705,292	2,801,426	3,068,269	3,311,005	3,421,347	3,541,518
Equity								
Retained earnings	194,499	99,251	170,975	194,627	142,168	51,906	27,353	(17,670)
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,242)	(51,906)	(45,651)	(39,937)
Total Equity	231,003	181,000	210,845	142,516	89,925	(0)	(18,299)	(57,607)
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,943,941	3,158,195	3,311,005	3,403,048	3,483,911

Appendix 5r
Combined Scenario with Management Action - Minimum Total Equity
Minimum Capital Test

(All figures in $000s)		2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
		Current Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (04)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	98,861	42,819	(59,100)	(79,359)	(120,680)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	98,861	42,819	(59,100)	(79,359)	(120,680)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	104,527	108,684	113,480
Unpaid claims	22	194,866	218,156	238,435	245,237	253,239
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	316,735	342,962	353,921	366,719
Market Risk:						
Interest rate risk	30	915	3,675	1,185	8,194	11,252
Foreign exchange risk	32	13,488	15,648	15,092	14,230	14,406
Equity risk	34	58,556	70,092	65,925	59,684	56,177
Real estate risk	36	23,592	24,362	24,911	25,684	27,017
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	96,551	113,777	107,113	107,792	108,852
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,001	56,496	59,506	61,431	62,701
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,001	56,496	59,506	61,431	62,701
Operational risk margin	50	63,057	69,444	73,071	75,415	77,947
Less: Diversification credit	52	48,986	58,936	59,549	60,772	62,010
Total Capital (Margin) Required at Target	59	439,148	497,516	523,103	537,787	554,209
Minimum Capital (Margin) Required (line 59 / 1.5)	60	292,766	331,677	348,735	358,525	369,473
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	292,766	331,677	348,735	358,525	369,473
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(193,905)	(288,858)	(407,835)	(437,884)	(490,153)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	33.77%	12.91%	-16.95%	-22.13%	-32.66%

Appendix 5s
Combined Scenario with Management Action - Minimum Total Equity
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,921	471,193	549,050	538,013	576,825
Comprehensive	69,497	99,974	103,865	99,924	118,336	125,048
Property Damage	48,647	46,869	46,706	53,950	51,914	53,784
Public Liability - BI	4,680	5,096	2,805	4,534	5,390	5,472
PIPP	187,022	199,985	347,625	306,546	222,258	223,713
Total	726,240	790,845	972,194	1,014,005	935,912	984,842
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	4,679	28,052	23,283	6,239	6,784
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(28,521)	14,850	967	(392)	10,002
Total Net Claims Incurred	767,240	817,138	1,067,467	1,093,176	999,296	1,061,838

Appendix 5t
Combined Scenario with Management Action - Minimum Total Equity Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.19%	76.77%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9400	0.9486	0.9618	0.9975	1.0121					
	2020				0.9413	0.9526	0.9859	0.9985	1.0045				
	2021					0.9625	0.9954	1.0072	1.0124	1.0150			
	2022						1.0012	1.0132	1.0185	1.0212	1.0148		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
	2019			76.86%	77.16%	71.74%	73.07%	75.09%				75.00%	80.82%
	2020				76.57%	71.05%	72.22%	74.08%	77.12%			74.29%	80.86%
	2021					71.80%	72.92%	74.73%	77.72%	74.19%		73.95%	80.68%
	2022						73.34%	75.17%	78.19%	74.65%	75.18%	75.00%	81.96%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.16%	8.13%	8.07%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.71%	2.69%
	Selected					3.16%	2.99%	2.88%	2.74%	2.72%	2.70%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	421,350	447,173	463,999	490,431
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,995	15,152	15,619	16,163
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	77,528	82,280	85,376	90,239
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	3,508	4,467	6,192	(2,415)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	27,229	28,196	27,805	35,391
	Change	2,363	(19,676)	14,850	967	(392)	7,587
18.	Premium Deficiency [c]	8,845	-	-	-	-	2,415
	Change	2,001	(8,845)	-	-	-	2,415

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 5u
Combined Scenario with Management Action - Minimum Total Equity
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	86	0	0	(9)
Marketable Bonds	44,186	49,758	50,678	51,370	52,656
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,200	74,205	72,743	71,221	70,340
Dividend and other Income					
Canadian Equities	9,657	6,506	4,846	4,875	5,555
Global	4,218	6,729	5,300	5,359	6,027
Global LV	-	3,333	3,246	3,250	3,548
Private Debt	-	3,496	9,370	9,419	9,460
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,133	1,180	1,246	1,316
Total	20,287	23,122	26,454	26,600	28,218
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(20,362)	99,960	57,450	(11,089)	2,266
Marketable Bonds Realized Gains/(Loss)	20,362	39,651	18,645	11,089	(2,266)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,223	(272)	(1,255)	212	1,309
Global Equities Realized Gains	66,318	160	(94)	268	1,065
Global LV Realized Gains	-	49	19	203	211
Real Estate (Pooled Fund)	16,307	5,580	5,824	6,173	6,543
Infrastructure	5,765	4,439	4,625	4,884	5,157
Total	157,613	149,567	85,214	11,740	14,286
Other					
Investment Fees Paid	(5,206)	(4,910)	(4,757)	(4,888)	(5,094)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,782)	(4,296)	(12,719)	(14,311)	(13,834)
Investment Write-Down	-	-	-	-	-
Total	(25,429)	(23,078)	(31,789)	(33,956)	(34,135)
Total Corporate Investment Income	223,672	223,817	160,239	75,606	78,708
Total Basic Investment Income	191,814	190,950	130,837	57,402	57,400
% - Basic to Total Investment Income	85.76%	85%	82%	76%	73%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,114	(550)	(977)	5,157	6,199
US Equities Unrealized Gains/(Losses)	7,537	87	(94)	7,997	8,994
Global LV Unrealized Gains/(Losses)	-	147	66	4,438	4,844
Total Corporate Unrealized Gains/(Losses)	19,651	(462)	(1,070)	13,154	15,194
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	(1.3)
Canadian Fixed Income	1,786.1	1,810.6	2,023.8	2,199.1	2,358.4
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	122.9	150.9	155.5	161.0	161.3
Global Equities	166.2	197.6	203.6	212.0	221.8
Global LV Equities	96.2	126.5	130.4	127.2	141.5
Private Debt	-	188.2	195.9	195.9	195.9
Real Estate	133.2	137.7	143.5	150.3	161.3
Infrastructure & Venture Capital	78.1	82.6	87.2	92.1	97.3
Total Ending Asset Values	2,952.1	3,216.9	3,417.0	3,569.8	3,722.4
Total Basic Assets	2,438.8	2,647.1	2,768.5	2,842.3	2,910.9
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.5%	56.3%	59.2%	61.6%	63.4%
MUSH	19.3%	16.3%	14.0%	12.1%	10.4%
Canadian Equities	4.2%	4.7%	4.6%	4.5%	4.3%
US Equities	5.6%	6.1%	6.0%	5.9%	6.0%
Global LV	3.3%	3.9%	3.8%	3.6%	3.8%
Private Debt	0.0%	5.9%	5.7%	5.5%	5.3%
Real Estate	4.5%	4.3%	4.2%	4.2%	4.3%
Infrastructure & Venture Capital	2.6%	2.6%	2.6%	2.6%	2.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 6: STOCHASTIC MODELING

PUB Order 122/10

In PUB Order 122/10 the Public Utilities Board ordered the following:

> *"MPI shall use stochastic modeling of claims incurred for rate-setting purposes".*

The Corporation created the Stochastic Modeling section in the DCAT report in response to the above PUB Order.

What is Stochastic Modeling?

A stochastic model is a model that estimates the probability distribution for a given outcome by allowing certain inputs to be random variables rather than fixed estimates. A random variable is allowed to take on a range of values based on the assumed distribution of that variable. The stochastic model creates a distribution of outcomes by running a large number of simulations using the random inputs.

Stochastic Modeling of Claims Incurred

For stochastic modeling of claims incurred the distribution being estimated is the claims incurred by coverage. The random variables in the simulation could include factors such as:

- Frequency
- Severity
- Volume growth

The stochastic claims incurred model would then be repeatedly simulated to provide information on the following:

- Expected (average) outcome
- Variability of outcomes
- Probability of various outcomes
- Shape of the distribution (e.g. Normal versus skewed).

Stochastic modeling of claims incurred cannot be used 'for rate setting purposes' as the Corporation still requires a fixed best estimate forecast for setting rates. However, the output from the model can assist the rate setting process by:

- Determining the reasonability of the Corporation's best estimates
- Determining if past forecast errors are due to chance
- Determining the source of forecasting errors
- Improve the forecasting process by better understanding the key inputs

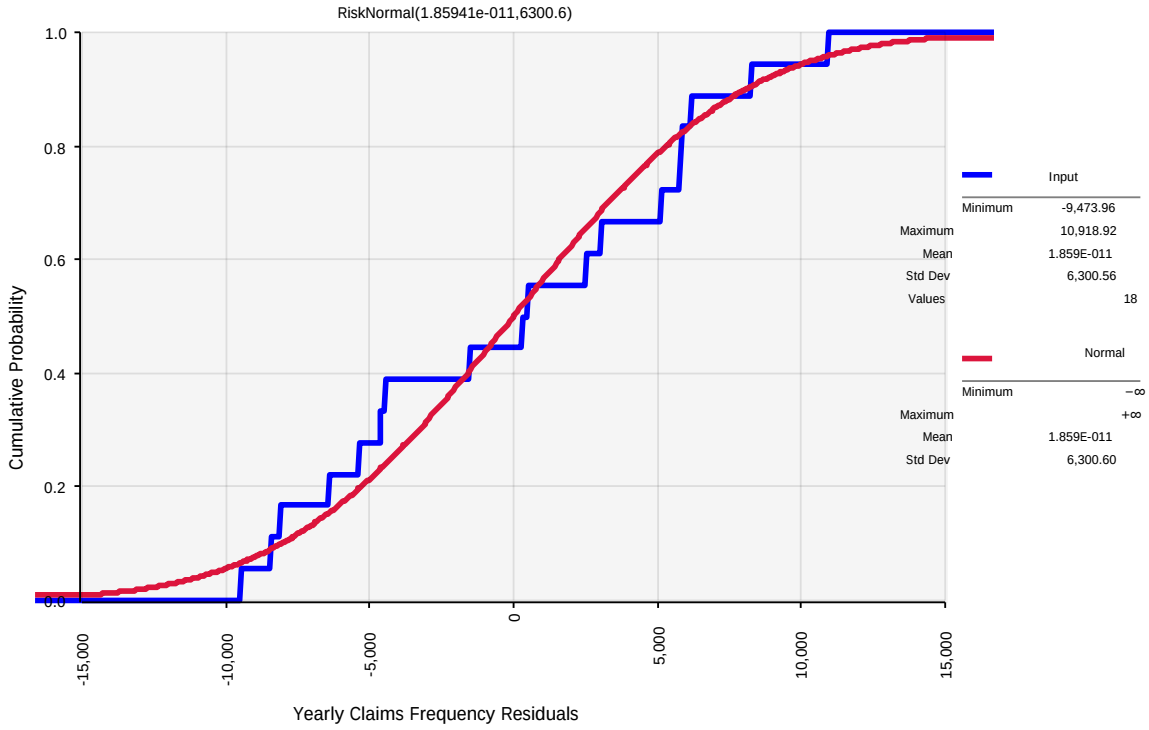
Methodology

Claim Frequency Simulation

Claim frequency was broken down by year to provide the best fit to the true distribution of claim frequencies. Yearly claim frequencies since 2000 were used and adjusted to current levels to provide an accurate estimate of the true number of claims for the given year. These numbers were then used with @RISK[1] statistical software and judgment to select the appropriate distribution for each year that would best represent the data. Actual correlations between coverages were recognized and used in the simulation. For example, the graph below is a fit of the empirical distribution for Collision frequency residuals taken from the regression line.

[1] @RISK is a Microsoft Excel add-on developed by Palisade Corporation to assist in fitting a large number of distributions with large data sets and to simulate numbers generated from these distributions.

Figure DCAT App 6- 1: Fit Comparison for Collision Frequency Residuals



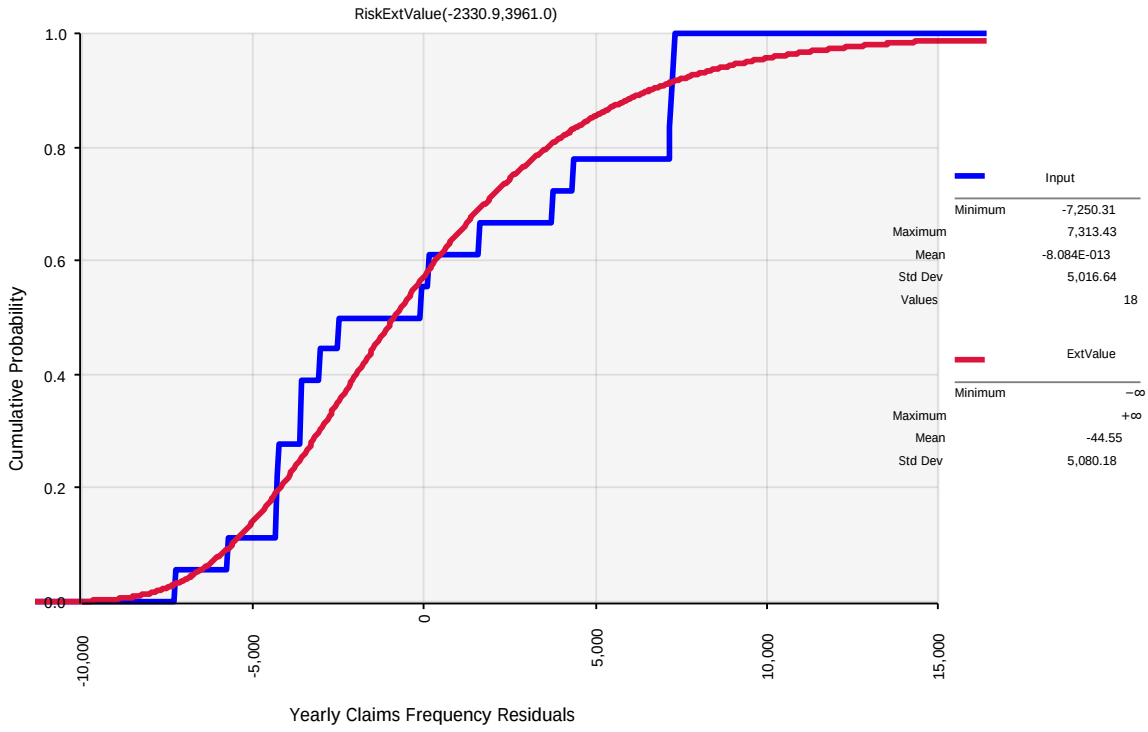
Several discrete distributions were used to fit the data from each year. The best fitting distribution was then selected. In some cases a discretized continuous distribution was needed. To discretize a distribution, the numbers that are generated from the continuous distribution are rounded to the nearest whole number.

The same methodology was used for simulating Comprehensive claim frequency with the following exception:

- Comprehensive claims were split into Hail and Non-Hail categories for simulation purposes.

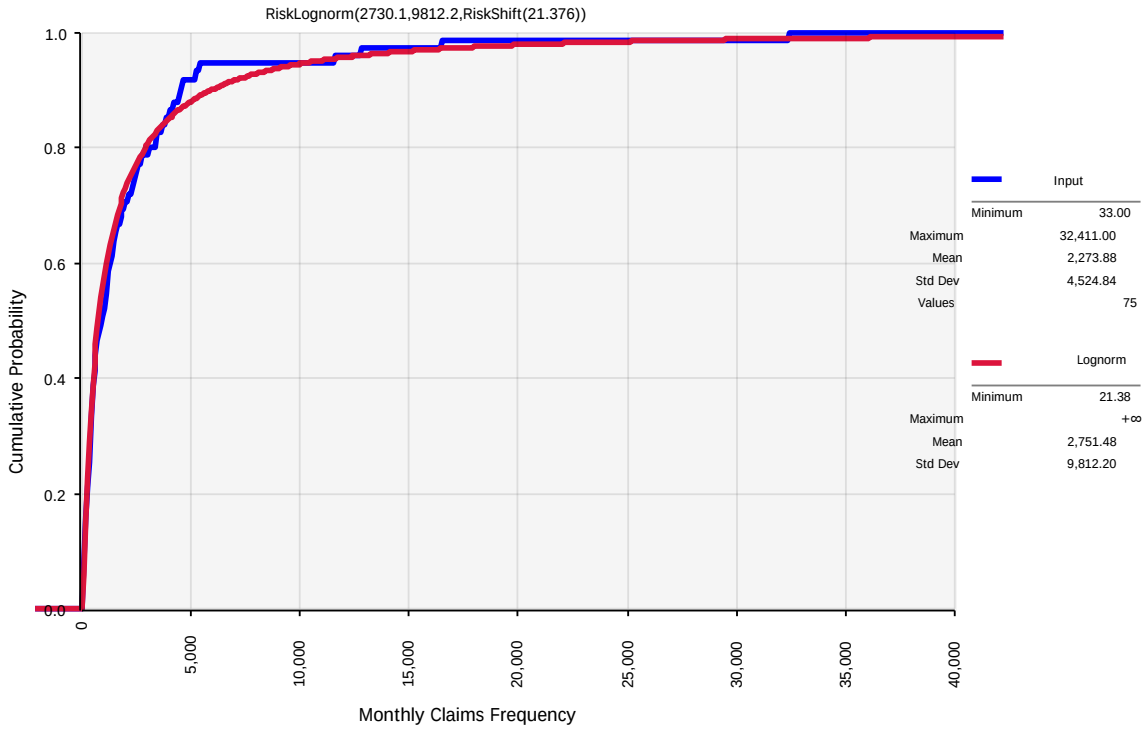
For example, the graph below shows the actual and assumed Non-Hail frequency distribution.

Figure DCAT App 6- 2: Fit Comparison for Comprehensive (Non-Hail) Residuals



For Hail, daily claim frequencies are not practical, so monthly Hail frequencies were used for modeling. For example, the graph below shows the actual versus assumed distribution for Hail claims in the month of June. For Hail frequency we used the last 25 years of data to best represent the variability of Hail. Similar months when combined together provided a better fit than if they were fitted separately. For example, June, July and August all use the same distribution based on June, July, and August actual claim frequency.

Figure DCAT App 6- 3: Fit Comparison for June-August Comprehensive (Hail) Frequency



Claim Severity Simulation

A claim severity model was built to simulate the claim severities of the claims counts. The simulation model splits accident severity into separate coverages: Collision, Property Damage, Hail, Non-Hail, Public Liability, Weekly Indemnity, Accident Benefits Other Indexed and Non-Indexed.

Physical damage severities are very consistent, while injury severities are highly variable. The following table shows the assumed distributions of the coverages at ultimate. The assumed distributions are based on historical data adjusted to current cost levels.

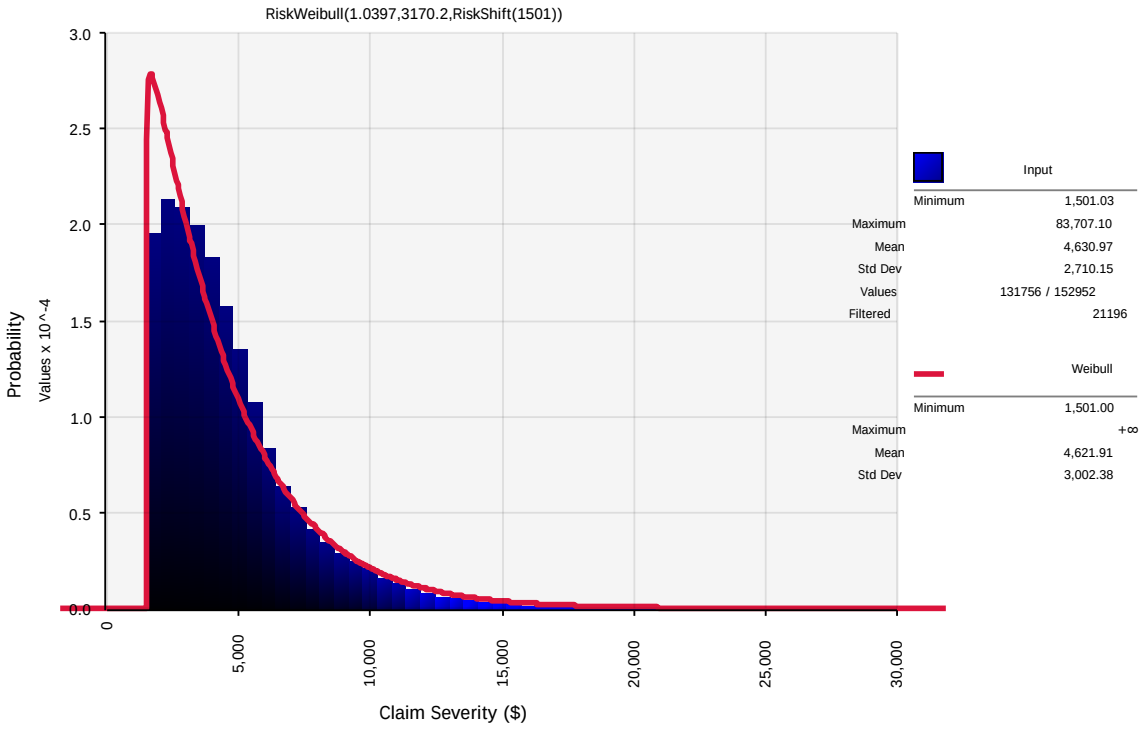
Figure DCAT App 6- 4: Historical Distribution of Claims by Coverage (at Ultimate)

Line No.	Range	Collision	Property Damage	Weekly Indemnity	ABO-Indexed	ABO-NonIndexed	Non-Hail Comp	Public Liability
1	0-10K	92.24%	99.10%	64.38%	94.06%	53.14%	98.13%	44.42%
2	10K-50K	7.73%	0.82%	24.02%	4.84%	37.62%	1.84%	32.34%
3	50K-100K	0.03%	0.05%	4.12%	0.63%	5.87%	0.03%	10.36%
4	100K-250K	0.00%	0.02%	2.84%	0.25%	2.62%	0.00%	10.36%
5	250K-500K	0.00%	0.00%	1.95%	0.12%	0.67%	0.00%	2.40%
6	500K-1M	0.00%	0.00%	2.10%	0.05%	0.07%	0.00%	0.11%
7	1M - 2M	0.00%	0.00%	0.58%	0.02%	0.00%	0.00%	0.00%
8	2M - 3M	0.00%	0.00%	0.01%	0.02%	0.00%	0.00%	0.00%
9	3M - 5M	0.00%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%
10	Average	$3,895	$1,135	$44,102	$5,347	$21,589	$1,353	$41,443
11	Standard Dev.	$4,586	$3,460	$154,796	$54,064	$41,355	$3,085	$67,803

*The discrete ranges in the above table are used for summarization purposes; the actual severity simulations use continuous distributions.

Severities were simulated on a claim by claim basis. Fitted distributions were used for all claims greater than $1,500 while the empirical distribution was used for claims less than or equal to $1,500. However, in some coverages like Public Liability a different cut off was used to provide a better representation of the distribution of claims. This splitting of the severities was to provide a better fit in the tail of the distribution while still maintaining the average and distribution of the claim severities. For example, the assumed Hail severity distribution is shown below for claims greater than $1,500.

Figure DCAT App 6- 5: Fit Comparison for Comprehensive (Hail) Severity



WEEKLY INDEMNITY

The base forecast and cumulative base forecast for Weekly Indemnity ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 6: Weekly Indemnity Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$76,840	$76,953	$77,046	$77,119	$77,171
3	Cumulative	$76,840	$153,793	$230,840	$307,959	$385,130

The cumulative simulated ultimate losses for Weekly Indemnity at selected percentile levels are shown in the following table.

Figure DCAT App 6- 7: Cumulative Simulated Ultimate Losses – Weekly Indemnity

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$57,595	$126,368	$196,698	$268,032	$340,723
3	5%	$60,384	$130,500	$202,178	$274,641	$348,018
4	10%	$63,830	$135,462	$208,390	$282,126	$356,382
5	25%	$69,765	$144,108	$219,130	$294,744	$370,600
6	50%	$76,865	$154,105	$231,560	$309,321	$386,802
7	75%	$84,207	$164,737	$244,517	$324,384	$403,718
8	90%	$91,278	$174,462	$256,626	$338,106	$419,319
9	95%	$95,667	$180,493	$263,934	$346,949	$428,881
10	97.5%	$99,639	$186,075	$270,484	$354,341	$437,275

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 8: Cumulative Simulated Ultimate Losses minus Base Forecast – Weekly Indemnity

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($19,245)	($27,425)	($34,141)	($39,927)	($44,407)
3	5%	($16,456)	($23,293)	($28,662)	($33,318)	($37,112)
4	10%	($13,011)	($18,332)	($22,450)	($25,833)	($28,748)
5	25%	($7,076)	($9,685)	($11,709)	($13,215)	($14,530)
6	50%	$24	$312	$720	$1,362	$1,672
7	75%	$7,367	$10,943	$13,677	$16,425	$18,588
8	90%	$14,438	$20,668	$25,786	$30,147	$34,189
9	95%	$18,827	$26,699	$33,094	$38,990	$43,751
10	97.5%	$22,799	$32,282	$39,644	$46,382	$52,145

Figure DCAT App 6- 9: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Weekly Indemnity

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-25.0%	-17.8%	-14.8%	-13.0%	-11.5%
2	5%	-21.4%	-15.1%	-12.4%	-10.8%	-9.6%
3	10%	-16.9%	-11.9%	-9.7%	-8.4%	-7.5%
4	25%	-9.2%	-6.3%	-5.1%	-4.3%	-3.8%
5	50%	0.0%	0.2%	0.3%	0.4%	0.4%
6	75%	9.6%	7.1%	5.9%	5.3%	4.8%
7	90%	18.8%	13.4%	11.2%	9.8%	8.9%
8	95%	24.5%	17.4%	14.3%	12.7%	11.4%
9	97.5%	29.7%	21.0%	17.2%	15.1%	13.5%

Based on the simulation, single year losses for Weekly Indemnity have a 50% confidence interval of $69.8 million to $84.2 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $370.6 million to $403.7 million.

ACCIDENT BENEFITS OTHER - INDEXED

The base forecast and cumulative base forecast for Accident Benefits Other – Indexed ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 10: Accident Benefits Other – Indexed Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$63,849	$64,567	$65,294	$66,028	$66,770
3	Cumulative	$63,849	$128,416	$193,710	$259,738	$326,508

The cumulative simulated ultimate losses for Accident Benefits Other – Indexed at selected percentile levels are shown below.

Figure DCAT App 6- 11: Cumulative Simulated Ultimate Losses – Accident Benefits Other - Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$50,843	$109,850	$170,733	$232,971	$296,619
3	5%	$52,743	$112,708	$174,247	$237,281	$301,415
4	10%	$54,974	$116,019	$178,658	$242,377	$307,079
5	25%	$58,919	$121,897	$185,964	$251,000	$316,925
6	50%	$63,852	$128,908	$194,662	$261,027	$328,274
7	75%	$69,151	$136,330	$203,660	$271,592	$340,237
8	90%	$74,138	$143,321	$212,216	$281,447	$351,256
9	95%	$77,326	$147,738	$217,370	$287,438	$358,021
10	97.5%	$80,118	$151,445	$221,964	$292,972	$364,025

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 12: Cumulative Simulated Ultimate Losses minus Base Forecast – Accident Benefits Other - Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($13,006)	($18,566)	($22,977)	($26,767)	($29,889)
3	5%	($11,106)	($15,708)	($19,463)	($22,457)	($25,093)
4	10%	($8,875)	($12,398)	($15,052)	($17,361)	($19,430)
5	25%	($4,930)	($6,520)	($7,746)	($8,738)	($9,583)
6	50%	$3	$492	$952	$1,289	$1,765
7	75%	$5,302	$7,914	$9,950	$11,854	$13,728
8	90%	$10,289	$14,905	$18,505	$21,709	$24,748
9	95%	$13,478	$19,321	$23,660	$27,700	$31,513
10	97.5%	$16,269	$23,029	$28,254	$33,234	$37,516

Figure DCAT App 6- 13: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Accident Benefits Other - Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-20.4%	-14.5%	-11.9%	-10.3%	-9.2%
2	5%	-17.4%	-12.2%	-10.0%	-8.6%	-7.7%
3	10%	-13.9%	-9.7%	-7.8%	-6.7%	-6.0%
4	25%	-7.7%	-5.1%	-4.0%	-3.4%	-2.9%
5	50%	0.0%	0.4%	0.5%	0.5%	0.5%
6	75%	8.3%	6.2%	5.1%	4.6%	4.2%
7	90%	16.1%	11.6%	9.6%	8.4%	7.6%
8	95%	21.1%	15.0%	12.2%	10.7%	9.7%
9	97.5%	25.5%	17.9%	14.6%	12.8%	11.5%

Based on the simulation, single year losses for Accident Benefits Other - Indexed have a 50% confidence interval of $58.9 million to $69.2 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $316.9 million to $340.2 million.

ACCIDENTS BENEFITS OTHER – NON-INDEXED

The base forecast and cumulative base forecast for Accident Benefits Other - Non-Indexed ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 14: Accident Benefits Other Non-Indexed Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$30,911	$31,350	$31,796	$32,249	$32,707
3	Cumulative	$30,911	$62,261	$94,058	$126,306	$159,014

The cumulative simulated ultimate losses for Accident Benefits Other Non-Indexed at selected percentile levels are shown below.

Figure DCAT App 6- 15: Cumulative Simulated Ultimate Losses – Accident Benefits Other - Non-Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$24,692	$53,333	$83,027	$113,530	$144,684
3	5%	$25,694	$54,767	$84,776	$115,539	$147,004
4	10%	$26,805	$56,401	$86,853	$117,959	$149,572
5	25%	$28,716	$59,164	$90,268	$121,909	$154,086
6	50%	$30,900	$62,290	$94,108	$126,388	$159,177
7	75%	$33,115	$65,476	$98,011	$130,924	$164,246
8	90%	$35,167	$68,357	$101,619	$135,057	$168,899
9	95%	$36,450	$70,143	$103,734	$137,610	$171,697
10	97.5%	$37,554	$71,693	$105,615	$139,775	$174,096

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown in the following table.

Figure DCAT App 6- 16: Cumulative Simulated Ultimate Losses minus Base Forecast – Accident Benefits Other - Non-Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($6,219)	($8,928)	($11,030)	($12,777)	($14,329)
3	5%	($5,217)	($7,495)	($9,281)	($10,767)	($12,010)
4	10%	($4,106)	($5,860)	($7,204)	($8,347)	($9,442)
5	25%	($2,195)	($3,098)	($3,789)	($4,398)	($4,928)
6	50%	($10)	$29	$51	$82	$163
7	75%	$2,204	$3,215	$3,953	$4,618	$5,232
8	90%	$4,257	$6,096	$7,562	$8,751	$9,886
9	95%	$5,539	$7,881	$9,677	$11,304	$12,684
10	97.5%	$6,643	$9,432	$11,558	$13,469	$15,082

Figure DCAT App 6- 17: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Accident Benefits Other - Non-Indexed

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-20.1%	-14.3%	-11.7%	-10.1%	-9.0%
2	5%	-16.9%	-12.0%	-9.9%	-8.5%	-7.6%
3	10%	-13.3%	-9.4%	-7.7%	-6.6%	-5.9%
4	25%	-7.1%	-5.0%	-4.0%	-3.5%	-3.1%
5	50%	0.0%	0.0%	0.1%	0.1%	0.1%
6	75%	7.1%	5.2%	4.2%	3.7%	3.3%
7	90%	13.8%	9.8%	8.0%	6.9%	6.2%
8	95%	17.9%	12.7%	10.3%	8.9%	8.0%
9	97.5%	21.5%	15.1%	12.3%	10.7%	9.5%

Based on the simulation, single year losses for Accident Benefits Other - Non-Indexed have a 50% confidence interval of $28.7 million to $33.1 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $154.1 million to $164.2 million.

PUBLIC LIABILITY

The base forecast and cumulative base forecast for Public Liability ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 18: Public Liability Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$5,090	$5,159	$5,229	$5,299	$5,371
3	Cumulative	$5,090	$10,249	$15,478	$20,777	$26,148

The cumulative simulated ultimate losses for Public Liability at selected percentile levels are shown below.

Figure DCAT App 6- 19: Cumulative Simulated Ultimate Losses – Public Liability

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$2,497	$6,659	$11,058	$15,669	$20,378
3	5%	$3,016	$7,313	$11,810	$16,513	$21,356
4	10%	$3,523	$8,002	$12,657	$17,478	$22,428
5	25%	$4,297	$9,083	$14,017	$19,063	$24,187
6	50%	$5,094	$10,243	$15,441	$20,727	$26,076
7	75%	$5,884	$11,371	$16,852	$22,369	$27,928
8	90%	$6,595	$12,397	$18,113	$23,832	$29,588
9	95%	$7,021	$12,998	$18,858	$24,677	$30,557
10	97.5%	$7,396	$13,508	$19,509	$25,447	$31,375

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 20: Cumulative Simulated Ultimate Losses minus Base Forecast – Public Liability

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($2,593)	($3,590)	($4,420)	($5,108)	($5,770)
3	5%	($2,074)	($2,936)	($3,668)	($4,264)	($4,792)
4	10%	($1,567)	($2,247)	($2,821)	($3,299)	($3,720)
5	25%	($793)	($1,166)	($1,460)	($1,713)	($1,960)
6	50%	$3	($6)	($36)	($50)	($72)
7	75%	$794	$1,122	$1,374	$1,592	$1,780
8	90%	$1,505	$2,148	$2,636	$3,055	$3,441
9	95%	$1,931	$2,749	$3,381	$3,900	$4,410
10	97.5%	$2,306	$3,259	$4,031	$4,670	$5,228

Figure DCAT App 6- 21: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Public Liability

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-50.9%	-35.0%	-28.6%	-24.6%	-22.1%
2	5%	-40.7%	-28.6%	-23.7%	-20.5%	-18.3%
3	10%	-30.8%	-21.9%	-18.2%	-15.9%	-14.2%
4	25%	-15.6%	-11.4%	-9.4%	-8.2%	-7.5%
5	50%	0.1%	-0.1%	-0.2%	-0.2%	-0.3%
6	75%	15.6%	11.0%	8.9%	7.7%	6.8%
7	90%	29.6%	21.0%	17.0%	14.7%	13.2%
8	95%	37.9%	26.8%	21.8%	18.8%	16.9%
9	97.5%	45.3%	31.8%	26.0%	22.5%	20.0%

Based on the simulation, single year losses for Public Liability have a 50% confidence interval of $4.3 million to $5.9 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $24.2 million to $27.9 million.

COLLISION

The base forecast and cumulative base forecast for Collision ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 22: Collision Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$438,325	$469,244	$502,411	$537,993	$576,172
3	Cumulative	$438,325	$907,569	$1,409,979	$1,947,972	$2,524,144

The cumulative simulated ultimate losses for Collision at selected percentile levels are shown below.

Figure DCAT App 6- 23: Cumulative Simulated Ultimate Losses – Collision

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$390,190	$837,320	$1,320,829	$1,840,654	$2,401,683
3	5%	$397,548	$848,008	$1,334,878	$1,857,811	$2,421,106
4	10%	$406,462	$860,672	$1,351,266	$1,877,828	$2,443,500
5	25%	$421,486	$882,730	$1,378,503	$1,910,461	$2,481,476
6	50%	$438,333	$907,055	$1,409,345	$1,947,063	$2,522,864
7	75%	$455,165	$931,713	$1,440,207	$1,983,481	$2,564,548
8	90%	$470,421	$954,072	$1,467,728	$2,016,090	$2,602,541
9	95%	$479,787	$967,374	$1,484,090	$2,035,644	$2,625,566
10	97.5%	$487,524	$978,391	$1,498,652	$2,052,422	$2,644,776

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 24: Cumulative Simulated Ultimate Losses minus Base Forecast – Collision

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($48,135)	($70,249)	($89,151)	($107,318)	($122,462)
3	5%	($40,777)	($59,561)	($75,101)	($90,161)	($103,038)
4	10%	($31,863)	($46,897)	($58,714)	($70,144)	($80,645)
5	25%	($16,839)	($24,839)	($31,477)	($37,511)	($42,668)
6	50%	$8	($514)	($634)	($909)	($1,280)
7	75%	$16,841	$24,144	$30,227	$35,509	$40,404
8	90%	$32,096	$46,503	$57,749	$68,118	$78,397
9	95%	$41,462	$59,805	$74,110	$87,672	$101,422
10	97.5%	$49,199	$70,822	$88,672	$104,450	$120,632

Figure DCAT App 6- 25: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Collision

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-11.0%	-7.7%	-6.3%	-5.5%	-4.9%
2	5%	-9.3%	-6.6%	-5.3%	-4.6%	-4.1%
3	10%	-7.3%	-5.2%	-4.2%	-3.6%	-3.2%
4	25%	-3.8%	-2.7%	-2.2%	-1.9%	-1.7%
5	50%	0.0%	-0.1%	0.0%	0.0%	-0.1%
6	75%	3.8%	2.7%	2.1%	1.8%	1.6%
7	90%	7.3%	5.1%	4.1%	3.5%	3.1%
8	95%	9.5%	6.6%	5.3%	4.5%	4.0%
9	97.5%	11.2%	7.8%	6.3%	5.4%	4.8%

Based on the simulation, single year losses for Collision have a 50% confidence interval of $421.5 million to $455.2 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $2,481.5 million to $2,564.5 million. The simulation is skewed to the right as the potential for more severe frequency and severity scenarios is not matched by potential favourable scenarios of the same magnitude.

COMPREHENSIVE

Non-Hail Comprehensive Losses

The base forecast and cumulative base forecast for Non-Hail Comprehensive ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 26: Non-Hail Comprehensive Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$75,812	$80,697	$85,901	$91,430	$97,237
3	Cumulative	$75,812	$156,509	$242,410	$333,839	$431,077

The cumulative simulated ultimate losses for Non-Hail Comprehensive at selected percentile levels are shown below.

Figure DCAT App 6- 27: Cumulative Simulated Ultimate Losses – Non-Hail Comprehensive

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$67,386	$143,789	$226,773	$316,044	$412,189
3	5%	$68,325	$145,462	$229,118	$318,924	$415,392
4	10%	$69,502	$147,490	$231,791	$322,251	$419,277
5	25%	$71,831	$151,269	$236,710	$328,385	$426,312
6	50%	$75,009	$156,173	$243,112	$335,899	$435,039
7	75%	$79,004	$161,997	$250,377	$344,528	$444,943
8	90%	$83,630	$168,248	$257,984	$353,383	$454,874
9	95%	$86,792	$172,712	$263,011	$359,080	$461,062
10	97.5%	$89,918	$176,712	$267,738	$364,435	$467,131

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown in the following table.

Figure DCAT App 6- 28: Cumulative Simulated Ultimate Losses minus Base Forecast – Non-Hail Comprehensive

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($8,426)	($12,720)	($15,637)	($17,796)	($18,888)
3	5%	($7,487)	($11,047)	($13,292)	($14,916)	($15,684)
4	10%	($6,310)	($9,018)	($10,619)	($11,588)	($11,800)
5	25%	($3,981)	($5,239)	($5,699)	($5,454)	($4,764)
6	50%	($803)	($336)	$702	$2,059	$3,962
7	75%	$3,192	$5,488	$7,967	$10,689	$13,866
8	90%	$7,818	$11,740	$15,574	$19,543	$23,798
9	95%	$10,980	$16,203	$20,601	$25,240	$29,985
10	97.5%	$14,106	$20,204	$25,328	$30,596	$36,054

Figure DCAT App 6- 29: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Non-Hail Comp

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-11.1%	-8.1%	-6.5%	-5.3%	-4.4%
2	5%	-9.9%	-7.1%	-5.5%	-4.5%	-3.6%
3	10%	-8.3%	-5.8%	-4.4%	-3.5%	-2.7%
4	25%	-5.3%	-3.3%	-2.4%	-1.6%	-1.1%
5	50%	-1.1%	-0.2%	0.3%	0.6%	0.9%
6	75%	4.2%	3.5%	3.3%	3.2%	3.2%
7	90%	10.3%	7.5%	6.4%	5.9%	5.5%
8	95%	14.5%	10.4%	8.5%	7.6%	7.0%
9	97.5%	18.6%	12.9%	10.4%	9.2%	8.4%

Based on the simulation, single year losses for Non-Hail Comprehensive have a 50% confidence interval of $71.8 million to $79.0 million for 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $426.3 million to $444.9 million.

Hail Losses

The base forecast and cumulative base forecast for Hail ultimate incurred from 2018/19 to 2022/23 are shown in the table below. Note: The base forecast was made using assumptions net of reinsurance.

Figure DCAT App 6- 30: Hail Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$23,722	$24,646	$25,606	$26,603	$27,640
3	Cumulative	$23,722	$48,368	$73,974	$100,578	$128,217

Gross Hail Losses

The cumulative gross (i.e. before reinsurance recoveries) simulated ultimate losses for Hail at selected percentile levels are shown below.

Figure DCAT App 6- 31: Cumulative Simulated Ultimate Losses – Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$9,500	$28,036	$52,137	$80,811	$112,830
3	5%	$11,055	$32,346	$59,511	$91,132	$126,381
4	10%	$13,520	$38,613	$69,895	$105,760	$144,787
5	25%	$20,153	$53,684	$93,238	$136,726	$184,319
6	50%	$33,730	$81,090	$133,406	$189,072	$247,786
7	75%	$60,695	$128,804	$198,116	$268,641	$341,780
8	90%	$108,743	$203,102	$291,454	$378,266	$463,274
9	95%	$156,937	$270,863	$368,494	$460,330	$551,823
10	97.5%	$214,360	$339,957	$438,189	$535,666	$629,993

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown in the following tables.

Figure DCAT App 6- 32: Cumulative Simulated Ultimate Losses minus Base Forecast – Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($14,222)	($20,332)	($21,837)	($19,767)	($15,388)
3	5%	($12,667)	($16,023)	($14,463)	($9,445)	($1,836)
4	10%	($10,202)	($9,755)	($4,080)	$5,183	$16,570
5	25%	($3,569)	$5,315	$19,263	$36,149	$56,101
6	50%	$10,008	$32,722	$59,432	$88,494	$119,569
7	75%	$36,973	$80,436	$124,141	$168,063	$213,563
8	90%	$85,021	$154,734	$217,480	$277,688	$335,057
9	95%	$133,215	$222,494	$294,520	$359,752	$423,606
10	97.5%	$190,638	$291,589	$364,215	$435,089	$501,776

Figure DCAT App 6- 33: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-60.0%	-42.0%	-29.5%	-19.7%	-12.0%
2	5%	-53.4%	-33.1%	-19.6%	-9.4%	-1.4%
3	10%	-43.0%	-20.2%	-5.5%	5.2%	12.9%
4	25%	-15.0%	11.0%	26.0%	35.9%	43.8%
5	50%	42.2%	67.7%	80.3%	88.0%	93.3%
6	75%	155.9%	166.3%	167.8%	167.1%	166.6%
7	90%	358.4%	319.9%	294.0%	276.1%	261.3%
8	95%	561.6%	460.0%	398.1%	357.7%	330.4%
9	97.5%	803.6%	602.9%	492.4%	432.6%	391.3%

Over a five year period, the difference between the 25th percentile and the 75th percentile for Hail losses is about $157.5 million. Similarly, the percentage deviation from the base forecast between the 25th and 75th percentile is 122.8%. Hail is by far the most variable coverage.

Net Hail Losses

The cumulative net (i.e. after reinsurance recoveries) simulated ultimate losses for Hail at selected percentile levels are shown below.

Figure DCAT App 6- 34: Cumulative Simulated Ultimate Losses – Net Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$9,500	$27,731	$47,911	$69,906	$92,808
3	5%	$11,055	$30,894	$52,307	$74,901	$98,525
4	10%	$13,520	$34,772	$57,338	$80,771	$105,341
5	25%	$19,103	$41,871	$66,017	$91,079	$116,960
6	50%	$24,473	$50,145	$76,157	$103,023	$130,262
7	75%	$30,858	$58,841	$86,925	$115,556	$144,795
8	90%	$36,436	$67,342	$97,931	$129,216	$161,627
9	95%	$40,857	$73,452	$107,347	$143,201	$183,625
10	97.5%	$43,247	$82,243	$133,149	$187,795	$245,384

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 35: Cumulative Simulated Ultimate Losses minus Base Forecast – Net Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($14,222)	($20,637)	($26,063)	($30,671)	($35,410)
3	5%	($12,667)	($17,475)	($21,667)	($25,676)	($29,692)
4	10%	($10,202)	($13,596)	($16,637)	($19,807)	($22,876)
5	25%	($4,619)	($6,498)	($7,957)	($9,499)	($11,257)
6	50%	$751	$1,776	$2,182	$2,445	$2,045
7	75%	$7,136	$10,473	$12,950	$14,978	$16,577
8	90%	$12,714	$18,974	$23,956	$28,638	$33,410
9	95%	$17,135	$25,084	$33,372	$42,623	$55,408
10	97.5%	$19,524	$33,874	$59,175	$87,217	$117,167

Figure DCAT App 6- 36: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Net Hail

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-60.0%	-42.7%	-35.2%	-30.5%	-27.6%
2	5%	-53.4%	-36.1%	-29.3%	-25.5%	-23.2%
3	10%	-43.0%	-28.1%	-22.5%	-19.7%	-17.8%
4	25%	-19.5%	-13.4%	-10.8%	-9.4%	-8.8%
5	50%	3.2%	3.7%	3.0%	2.4%	1.6%
6	75%	30.1%	21.7%	17.5%	14.9%	12.9%
7	90%	53.6%	39.2%	32.4%	28.5%	26.1%
8	95%	72.2%	51.9%	45.1%	42.4%	43.2%
9	97.5%	82.3%	70.0%	80.0%	86.7%	91.4%

Compared to gross Hail losses, the net Hail loss distribution has significantly lower upper percentile values. For example, over a five year period the 75th percentile for gross Hail is $341.8 million compared to the 75th percentile for net Hail of $144.8 million.

Over a five year period, the difference between the 25th percentile and the 75th percentile for net Hail losses is about $27.8 million (compared to $157.5 million on a gross basis). Similarly, the percentage deviation from the base forecast between the 25th and 75th percentile is 21.7% (compared to 122.8% on a gross basis).

PROPERTY DAMAGE

The base forecast and cumulative base forecast for Property Damage ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 37: Property Damage Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$46,849	$48,465	$50,150	$51,908	$53,743
3	Cumulative	$46,849	$95,314	$145,464	$197,372	$251,115

The cumulative simulated ultimate losses for Property Damage at selected percentile levels are shown below.

Figure DCAT App 6- 38: Cumulative Simulated Ultimate Losses – Property Damage

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$42,366	$88,959	$137,473	$188,118	$240,566
3	5%	$43,049	$89,932	$138,777	$189,568	$242,233
4	10%	$43,916	$91,096	$140,263	$191,262	$244,248
5	25%	$45,264	$93,058	$142,657	$194,138	$247,461
6	50%	$46,809	$95,244	$145,409	$197,338	$251,085
7	75%	$48,373	$97,512	$148,207	$200,536	$254,687
8	90%	$49,785	$99,527	$150,645	$203,432	$257,940
9	95%	$50,654	$100,763	$152,124	$205,159	$259,916
10	97.5%	$51,384	$101,758	$153,388	$206,613	$261,638

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown in the following tables.

Figure DCAT App 6- 39: Cumulative Simulated Ultimate Losses minus Base Forecast – Property Damage

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($4,483)	($6,356)	($7,991)	($9,254)	($10,549)
3	5%	($3,801)	($5,382)	($6,687)	($7,804)	($8,882)
4	10%	($2,933)	($4,219)	($5,201)	($6,110)	($6,868)
5	25%	($1,585)	($2,256)	($2,807)	($3,234)	($3,654)
6	50%	($41)	($70)	($55)	($33)	($31)
7	75%	$1,524	$2,198	$2,743	$3,164	$3,572
8	90%	$2,935	$4,213	$5,181	$6,060	$6,825
9	95%	$3,804	$5,449	$6,661	$7,787	$8,801
10	97.5%	$4,535	$6,444	$7,924	$9,241	$10,523

Figure DCAT App 6- 40: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – Property Damage

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-9.6%	-6.7%	-5.5%	-4.7%	-4.2%
2	5%	-8.1%	-5.6%	-4.6%	-4.0%	-3.5%
3	10%	-6.3%	-4.4%	-3.6%	-3.1%	-2.7%
4	25%	-3.4%	-2.4%	-1.9%	-1.6%	-1.5%
5	50%	-0.1%	-0.1%	0.0%	0.0%	0.0%
6	75%	3.3%	2.3%	1.9%	1.6%	1.4%
7	90%	6.3%	4.4%	3.6%	3.1%	2.7%
8	95%	8.1%	5.7%	4.6%	3.9%	3.5%
9	97.5%	9.7%	6.8%	5.4%	4.7%	4.2%

Based on the simulation, single year losses for Property Damage have a 50% confidence interval of $45.3 million to $48.4 million in 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $247.5 million to $254.7 million.

OVERALL RESULTS

The base forecast and cumulative base forecast for all Basic coverages ultimate incurred from 2018/19 to 2022/23 are shown in the table below.

Figure DCAT App 6- 41: All Basic Coverages Ultimate Incurred – Base Forecast

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$768,995	$808,678	$851,029	$896,226	$944,409
3	Cumulative	$768,995	$1,577,673	$2,428,702	$3,324,928	$4,269,337

The cumulative simulated ultimate losses for all Basic coverages at selected percentile levels are shown in the following table. Note: Hail losses are included on a net of reinsurance basis.

Figure DCAT App 6- 42: Cumulative Simulated Ultimate Losses – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	$709,369	$1,492,587	$2,323,123	$3,200,848	$4,128,767
3	5%	$719,101	$1,506,751	$2,340,218	$3,222,388	$4,153,951
4	10%	$730,603	$1,523,759	$2,361,284	$3,246,638	$4,182,159
5	25%	$749,689	$1,551,207	$2,396,710	$3,288,473	$4,229,526
6	50%	$771,403	$1,582,356	$2,436,170	$3,335,459	$4,283,196
7	75%	$793,244	$1,614,420	$2,476,807	$3,383,432	$4,338,419
8	90%	$813,588	$1,644,794	$2,514,025	$3,428,526	$4,390,752
9	95%	$826,330	$1,663,910	$2,538,530	$3,458,056	$4,424,730
10	97.5%	$838,893	$1,682,953	$2,562,337	$3,486,208	$4,455,645

The simulated results compared to the base forecast on a dollar and percentage deviation basis are shown below.

Figure DCAT App 6- 43: Cumulative Simulated Ultimate Losses minus Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	2.5%	($59,627)	($85,087)	($105,580)	($124,080)	($140,569)
3	5%	($49,894)	($70,922)	($88,484)	($102,541)	($115,386)
4	10%	($38,392)	($53,914)	($67,418)	($78,290)	($87,178)
5	25%	($19,306)	($26,467)	($31,993)	($36,456)	($39,810)
6	50%	$2,408	$4,683	$7,468	$10,531	$13,859
7	75%	$24,249	$36,747	$48,105	$58,504	$69,083
8	90%	$44,593	$67,120	$85,322	$103,598	$121,415
9	95%	$57,335	$86,236	$109,828	$133,128	$155,393
10	97.5%	$69,898	$105,280	$133,634	$161,280	$186,309

Figure DCAT App 6- 44: Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	2.5%	-7.8%	-5.4%	-4.3%	-3.7%	-3.3%
2	5%	-6.5%	-4.5%	-3.6%	-3.1%	-2.7%
3	10%	-5.0%	-3.4%	-2.8%	-2.4%	-2.0%
4	25%	-2.5%	-1.7%	-1.3%	-1.1%	-0.9%
5	50%	0.3%	0.3%	0.3%	0.3%	0.3%
6	75%	3.2%	2.3%	2.0%	1.8%	1.6%
7	90%	5.8%	4.3%	3.5%	3.1%	2.8%
8	95%	7.5%	5.5%	4.5%	4.0%	3.6%
9	97.5%	9.1%	6.7%	5.5%	4.9%	4.4%

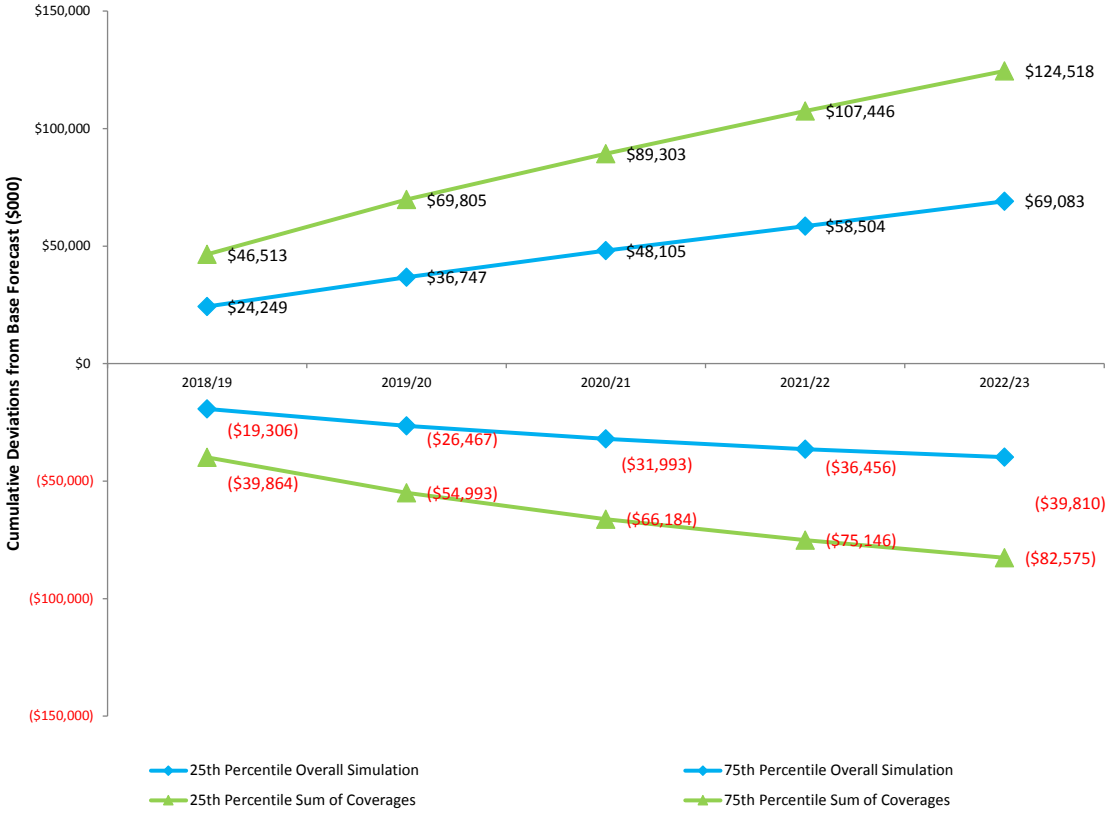
Based on the simulation, single year losses for all Basic coverages have a 50% confidence interval of $749.7 million to $793.2 million in 2018/19. After five years, cumulative simulated ultimate losses have a 50% confidence interval of $4,229.5 million to $4,338.4 million. At an 80% confidence interval, the range over the five year outlook period is approximately +/-$104.3 million or +/-2.3%.

The variability of the overall simulation is significantly less than the sum of the percentiles for the various coverages. Although some of the coverages are positively correlated (e.g. more collisions = more injuries) the correlations are often much less than 1.0 (e.g. an increase in minor winter collisions does not necessarily result in more serious injury claims). Certain coverages are also assumed to be completely

independent (e.g. Hail claims and Collision claims). Similarly, each accident year is assumed to be independent of previous or future accident years, which is why the expected percentage deviations from the base forecast decline over time.

The graph below shows the difference between the variability around the base forecast for the overall simulation (i.e. all coverages combined) compared to the variability around the base forecast if percentiles for each of the coverages were summed up separately.

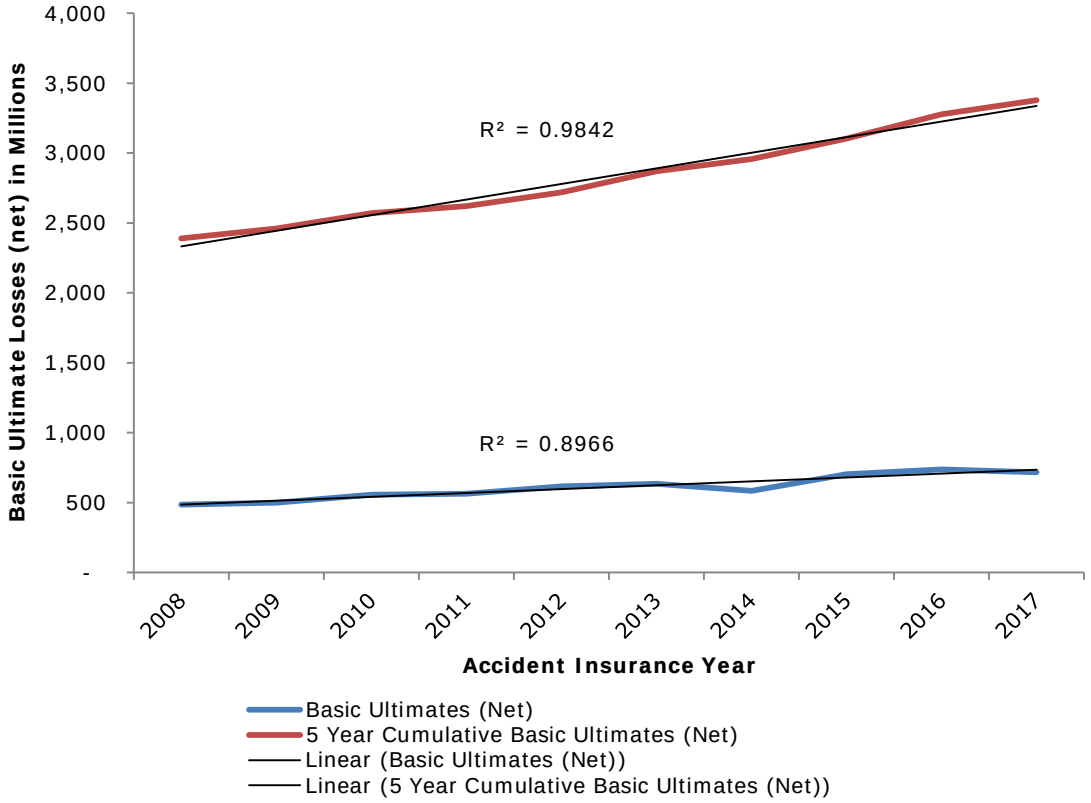
Figure DCAT App 6- 45: Cumulative Deviations from the Base Forecast. Overall Simulation (all coverages) versus Sum of Individual Coverages



The following graph shows the actual variability of the overall Basic ultimate losses net of reinsurance over the past 10 years. The results are shown on a year-to-year basis and a 5-year cumulative ultimate basis. Consistent with the above simulation, overall Basic loss costs (net) are very consistent around the historical trend line (i.e. base

forecast). The variability of results also decreases over multiple years (R^2 of 0.8966 for single year ultimates versus R^2 of 0.9842 for 5-year cumulative).

Figure DCAT App 6- 46: Basic Ultimate Losses (Net) in Millions. 1-year Ultimates versus 5-year Cumulative Ultimates



A percentile comparison of the historical deviations from the trend line (over the past 10 years) relative to the simulation results is shown in the table below. The historical results are very consistent with the actual observed experience around the long term trend line.

Figure DCAT App 6- 47: Comparison of Historical Variability

Line. No.	Percentile	Simulation 1 Year	Historical Variability 1 Year	Simulation 5 Year	Historical Variability 5 Year
1	10%	-5.0%	-3.5%	-2.0%	-1.8%
2	25%	-2.5%	-2.1%	-0.9%	-1.3%
3	50%	0.3%	1.0%	0.3%	0.1%
4	75%	3.2%	3.3%	1.6%	1.1%
5	90%	5.8%	3.7%	2.8%	1.7%

EXTERNAL REVIEW REPORT OF THE DCAT REPORT

ON

BASIC COMPULSORY AUTOMOBILE INSURANCE

OF THE

MANITOBA PUBLIC INSURANCE CORPORATION

AS OF FEBRUARY 28, 2017

Prepared by: Joe S. Cheng, F.C.I.A.

Date of Opinion: September 29, 2017

Date of Release: October 17, 2017

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TABLE OF CONTENTS

Page

PURPOSE OF THE REPORT 5

RELATIONSHIP WITH CHIEF ACTUARY TO SUPPORT OBJECTIVES 5

TIMING OF THE REPORT 5

SCOPE OF THE REPORT 6

FINDINGS AND RECOMMENDATIONS.....7

OPINION.....8

DATA AND RELIANCE.....9

DISTRIBUTION AND USE 10

LIMITATIONS.....11

MATERIALITY.....12

DEFINITION OF SATISFACTORY FUTURE FINANCIAL CONDITION 12

BASE SCENARIO 13

ADVERSE SCENARIOS 13

DESCRIPTION OF ASSUMPTIONS AND METHODOLOGY 15

DCAT MODEL.....15

ADEQUACY OF PROCEDURES, SYSTEMS AND THE WORK OF OTHERS RELIED ON BY THE CHIEF ACTUARY 15

CONCLUSION.....15

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Purpose of the Report

Manitoba Public Insurance Corporation (hereafter referred to as "MPI" or "the Corporation") is a Crown Corporation. MPI provides basic compulsory automobile insurance to Manitoba motorists. The purpose of this engagement is to conduct an external actuarial review of its Chief Actuary's Dynamic Capital Adequacy Testing ("2017 DCAT") report for Basic Compulsory Automobile Insurance ("Basic") for the fiscal year ending February 28, 2017 in accordance with standards published by the Actuarial Standards Board ("ASB") in Canada. For the purpose of this report, "Basic" is considered as an entity that has its own balance sheet and income statement.

The Corporation engaged J. S. Cheng & Partners Inc. ("JSCP") to conduct the aforementioned external actuarial review. Mr. Joe S. Cheng, a Fellow of the Canadian Institute of Actuaries ("CIA") is the appointed reviewer for this External Review Report.

Relationship with Chief Actuary to Support Objectives

Mr. Joe Cheng, FCIA, is the appointed actuary of MPI but he has no relationship with the Company or the Chief Actuary that would in any way impair objectivity of this review. Additional data requests, initial findings and clarifications were communicated to the Chief Actuary via email correspondence during the course of the review.

Timing of the Report

The DCAT report was released to the reviewer on August 28, 2017.

This document constitutes the External Review Report. Any questions regarding this report should be directed to:

Mr. Joe S. Cheng, F.C.I.A.
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Scope of the Report

The scope of this External Review Report includes a review of the Chief Actuary's DCAT Report for Basic Compulsory Automobile Insurance of the Corporation prepared by Mr. Luke Johnston, for the fiscal year ending February 28, 2017. The scope of this report is to:

1. Ascertain that the work of the Chief Actuary is within the range of accepted actuarial practice in Canada, as established by the Actuarial Standards Board (ASB) and the CIA.

2. Review the appropriateness of the assumptions made and the methods employed.

3. Determine whether the DCAT Report accurately describes the assumptions and methodology employed by the Chief Actuary.

4. Review the adequacy of procedures, systems and the work of others relied on by the Chief Actuary. This includes checks on data integrity and checks on procedures and methodologies used to validate the calculations and results.

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Findings And Recommendations

The DCAT report is very comprehensive containing many supporting exhibits. It is easy to follow and many of the assumptions are documented. All findings were reported to Mr. Luke Johnston in correspondence dated September 19, 2017. My major findings and recommendations are:

1. This report introduces a naïve interest rate assumption throughout the forecast period. Previous increasing rate assumptions have proved to be incorrect, compounding forecasting errors. In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naïve interest rate as a base case. My initial guess is an increase in interest rates should strengthen the financial position of Basic.
2. The report concludes that Basic's future financial condition is not satisfactory as total equity does not meet the Public Utility Board's assumed minimum capital target throughout the forecast period in the base scenario. This is due to a 0% profit target, no Rate Stabilization Reserve (RSR) rebuilding fees and approved rate increases lower than indicated rate increases.
3. While the strategy to increase asset allocation in corporate bonds makes economic sense, it is not without risk. The assumption will increase MPI's discount rate and decrease claim liabilities by about $80 million in the short run. However, when the International Financial Reporting Standards (IFRS) 17 is implemented in 2021, the discount rate will no longer be tied to the actual portfolio; it will be a risk-free rate plus a liquidity premium. I think this will result in a drop in discount rate and a substantial increase in claim liabilities unless Government of Canada bond yields increase significantly between now and 2021.

I have no more recommendations or comments.

Consequently, I issued an unqualified opinion of the Peer Review Report.

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Opinion

I have reviewed the 2017 DCAT Report for the Basic Compulsory Automobile Insurance of Manitoba Public Insurance Corporation as prepared by the Chief Actuary, Mr. Luke Johnston, in accordance with accepted actuarial standards of practice in Canada.

In my opinion:

1. The work of the Chief Actuary is within the range of accepted actuarial standards of practice in Canada.

2. The assumptions and methods employed are appropriate.

3. The DCAT Report accurately describes the assumptions and methodology employed by the Chief Actuary.

4. The procedures and systems relied on by the Chief Actuary are adequate and sufficient to ensure an appropriate level of data integrity and the accuracy of calculations and results.

Joe S. Cheng, F.C.I.A.

September 29, 2017
Date of Report

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Data and Reliance

In the preparation of this report, I worked with Mr. Raul Martin, FCIA in our office.

In the preparation of this report, we have used the Corporation's annual financial statement and the DCAT Report for the fiscal year ending February 28, 2017 without an independent audit or verification.

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Distribution and Use

This report is intended for the Management of the Corporation and its Regulator. Its sole purpose is to provide an external review of the work of the Chief Actuary's DCAT Report for Basic Compulsory Automobile Insurance as at February 28, 2017. This report should be read in conjunction with the aforementioned DCAT Report.

This report may be distributed to any regulator in a jurisdiction where the Corporation operates or intends to obtain a license. Furthermore, the Corporation may distribute this report to its external auditor. Anyone else should be considered as a third party.

This report is neither intended nor necessarily suitable for any other use. Distribution beyond the parties mentioned in paragraph two is permitted provided that prior written consent is given by the Corporation.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. JSCP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Limitations

In evaluating whether the future financial condition of an insurance enterprise is satisfactory, it is necessary to project future losses, operating expenses and investment income. It is certain that actual future losses, expenses and investment income will not develop exactly as projected and may, in fact, vary significantly from the projections.

Since actuarial estimates are subject to uncertainty with respect to future events, actual results may vary from the amount projected in the Statement of Financial Position. No warranty is expressed or implied that such variance will not occur.

It should be noted that forecasts deal with the inherent uncertainty of future contingent events. While I believe the actuarial projections made by the Chief Actuary represent a reasonable forecast based on the appropriate application of actuarial techniques to the available data, there can be no guarantee that the actual future results will not differ from the forecast stated in the DCAT Report.

My report was limited to a review of assumptions and methodologies underlying the DCAT Report of the Corporation as of February 28, 2017 including any tests of the calculations, as I considered necessary. I did not analyze the validity of any assets used to derive investment income on the income statement.

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Materiality

The standard of materiality is discussed in the DCAT Report. The Chief Actuary has selected a standard of materiality of $10 million based on 2 times the Basic Appointed Actuary's Report materiality and the greater uncertainty associated with the DCAT projections. I believe this is a reasonable selection.

Definition of Satisfactory Future Financial Condition

Basic total equity, net of any special appropriations is referred to as the Rate Stabilization Reserve (RSR). For the purpose of this report, Basic total equity and RSR are used interchangeably because there are no special appropriations currently. The Public Utilities Board (PUB) in Manitoba sets the minimum and maximum RSR targets (capital targets) for the Corporation.

The PUB currently uses the DCAT analysis at a 1-in-40 year probability level with management action to determine the minimum capital target, but no methodology has been approved for the maximum capital target after Order 162/16 was released.

The Corporation has a satisfactory future financial condition if:

1. Under the base scenario, the insurer meets the Manitoba Public Utilities Board's minimum Rate Stabilization Reserve (RSR) target.
2. Under the base scenario and all plausible adverse scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities.

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Base Scenario

The base scenario assumptions are documented in supporting exhibits that are part of the DCAT Report. The base scenario reflects a $27.8 million capital transfer from its Extension line of business to Basic at the end of the 2016/2017 fiscal year and the Corporation's filed rate increase of 2.7% in 2018/2019. The Corporation's base scenario is consistent with its experience and is reasonable. However, in the base scenario, the total equity does not meet the Public Utility Board's minimum capital target in all forecast years.

Adverse Scenarios

The DCAT Report identifies four scenarios posing the greatest risk to satisfactory financial condition. The one- to four-year cumulative impacts were reviewed for each of the 99.5th, 99th, 97.5th and 95th percentile (1-in-200, 1-in-100, 1-in-40 and 1-in-20 year respectively) events before selecting the highest equity impact (one, two, three or four year scenarios) at the 97.5th percentile as the testing event. This year's report ranks the scenarios based on total equity (same as last report). In addition, the report indicates that there are no scenarios (after management action) at the testing level (97.5th percentile) that would cause the Corporation's total equity to fall below zero. The four scenarios identified as posing the greatest risk to satisfactory financial condition are:

1. **Decline in Equity Markets**

   This scenario tests a decline in the one-to-four year equity valuations based on the historical S&P/TSX returns by percentile and return period. Dividend yields remain the same as the base scenario, however, are applied to a reduced market value. It is assumed that 20% of the unrealized losses are realized each year (same assumption as last year). If the market value remains below 100% of the book value for a period of longer than a year, then at the following fiscal year-end, an impairment is recognized (same assumption as last year). The U.S. equity portfolio is also subject to the same impairment rules. The largest decline (at 97.5th percentile level) in total equity is $150 million in 2020/21 for the three-year scenario which is a combination of increases in realized losses (investment income) and unrealized losses (accumulated other comprehensive income). This scenario is reasonable.

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2. Combined Scenario (Interest Rate, Equity Decline and High Loss Ratio)

This scenario assumes a naive interest rate environment will continue throughout the forecast period (new assumption this year) and Basic experiences adverse equity and claims experience. Equity returns are assumed to have no correlation with interest rates. Undiscounted claim costs are assumed to be independent of interest rates and equity returns. A floor is applied to ensure interest rates do not fall below 1.00% (down from 1.02% last year). The selected four-year scenario at the 97.5th percentile level reduces total equity $275 million in 2021/22 when compared to the base scenario. The reduction of interest rates increases claim reserves estimates through a reduction in discount rate. This scenario is reasonable.

3. High Loss Ratio Scenario

This year's scenario adjusted severity and frequency parameters by coverage to better match the simulated median with the forecasted values. The largest impact on equity is the four year scenarios. At the 97.5th percentile level, the increase in claim costs reduced total equity by $181 million over the forecast period when compared to the base scenario. Claim frequencies and claim severities were simulated with actual correlations between coverages recognized in the simulation. The estimated impact of premium deficiency or write-down of deferred policy acquisition costs was included in the simulated results. This scenario is reasonable.

4. Interest Rate Decline Scenario

The base forecast incorporates naive interest rate forecast (new assumption this year). This scenario assumes a sustained decline in interest rates by modeling historical changes in interest rates over 1,2,3 and 4 years. The largest decline (at 97.5th percentile level) in total equity is $82 million in 2021/22 for the four-year scenario. The reduction of interest rates increases claims liabilities through a reduction in MPI's discount rate. A floor is applied to ensure interest rates do not fall below 1.00% (down from 1.02% last year). This scenario is reasonable.

The methodology and assumptions employed by the Chief Actuary are appropriate.

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Description Of Assumptions And Methodology

The DCAT Report accurately describes the assumptions and methodology employed by the Chief Actuary.

DCAT Model

The DCAT Report relies on a model to do the required DCAT investigation. The model is very detailed. The scope of my work excludes a detailed validation of the financial model. However, I did some testing of the model and believe the model is producing reasonable results.

Adequacy Of Procedures, Systems And The Work Of Others Relied On By The Chief Actuary

I have detected no material issues to be reported on.

Conclusion

The report is prepared in accordance with accepted actuarial standards of practice in Canada, as established by the ASB.

RISK MANAGEMENT FRAMEWORK

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

RISK MANAGEMENT FRAMEWORK

MPI is in the process of developing a new Enterprise Risk Management Framework, which will be filed in the 2020 General Rate Application. The Corporation's Audit, Finance and Risk Committee determined that the discussions and decisions on the future form of an Enterprise Risk Management framework would be deferred until such time as the new Chief Executive Officer (Ben Graham) assumes his post, and has had opportunity to discuss with the Audit Committee Chair and Chief Financial Officer.

On May 1, 2018, Luke Johnston was appointed to the position of Chief Actuary and Vice President, Actuarial and Risk Management. This position reports to the CEO, but also has a matrix reporting line to the Audit, Finance, and Risk Committee. The new division will bring together Actuarial, Investments, Financial Forecasting, Risk Management, Product (Insurance and Underwriting), and oversight of the PIPP Centralized Reserving Process into a single division. The development of the Enterprise Risk Management Framework, in conjunction with the CEO and the MPI Board, is a key corporate priority for the Actuarial and Risk Management division in fiscal 2018/19.

Although MPI does not currently have a formal and holistic Enterprise Risk Management Framework in place, risk management functions are applied throughout the Corporation in various forms. However, these existing functions are at various stages of development. The Risk Management Framework will fully develop, document, and embed a centralized risk management operation and oversight in the Corporation. MPI's existing risk management functions include, but are not limited to, the following risk categories:

- Strategic (e.g. political changes, societal trends, competition, corporate direction)
- Business Interruption (e.g. business continuity management, disaster recovery, hazard specific)
- Information Technology (e.g. privacy, access, emerging technologies, information security)

- Compliance (e.g. agreements, contracts, legislation, regulations, professional standards, governance)
- Legal (e.g. reviewing procurement agreements, assessing litigation risk including corporate exposure on insurance defence files and bodily injury appeals)
- Claims Control (e.g. trend analytics, reinsurance, Special Investigations Unit, climate change)
- Capital Management (e.g. Dynamic Capital Adequacy Testing, MCT)
- Investments / Market (e.g. Asset and Liability Management program)
- Other Financial Risks (e.g. corporate insurance, auditing, credit rating)
- Workplace Resilience (e.g. safety, health, physical security)
- Stakeholder Relations (e.g. tracking public / stakeholder support)
- Workforce Management (e.g. wellness, retention, succession planning, labour interruption)
- Reputational (e.g. media relations, Crisis Communications Team)
- Project (e.g. planning, schedule, quality, risk register integration)

The focus in the next 6-12 months will be to develop the framework that clearly articulates the appetite for risks across the organization with greater emphasis on the quantification of those risks for which we are exposed through frequency and/or severity of each event. This framework will be approved by the Board of Directors and be led and owned by the senior management of MPI.

PART VII:
WORKING TOWARDS SAFER ROADS THROUGH EFFECTIVE PUBLIC AUTO INSURANCE

LP – LOSS PREVENTION

Manitoba Public Insurance

LOSS PREVENTION

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

LOSS PREVENTION 3
LP.1 LOSS PREVENTION AT MANITOBA PUBLIC INSURANCE 6
LP.2 LOSS PREVENTION HIGHLIGHTS 7
LP.2.1 Driver Safety Programs *7*
LP.2.1.1 Driver Testing *7*
LP.2.1.2 Traffic Safety Culture *7*
LP.2.1.3 Driver Assistive Technology - Consumer Awareness *8*
LP.2.1.4 Forward Collision Warning Pilot for Taxis *9*
LP.2.1.5 Drugs and Driving *9*
LP.2.1.6 Auto Theft *10*
LP.2.2 Vehicular Programs *10*
LP.2.3 Loss Cost Reduction Programs *11*
LP.3 BOARD ORDER 11.22 12
LP.4 BOARD ORDER 6.14 13
LP.5 CLOSING REMARKS FOR THE LOSS PREVENTION CHAPTER 16

Appendix 1 Proposed Strategy for Collisions with Animals Programming and Research (2018-2019) Draft

LOSS PREVENTION

In PUB Order 130/17 dated December 4, 2017, the Board found that, for the purposes of future GRAs, road safety and loss prevention would be best addressed by devoting a Technical Conference to the many issues involved in reviewing road safety and loss prevention. Further, as the legalization of the recreational use of cannabis is anticipated in the summer of 2018, following the anticipated filing of the 2019 GRA, the Board expects that the Technical Conference will take place in early 2019, so that the information generated from the Technical Conference can be filed in the 2020 GRA. As such, the issue of road safety will not need to be reviewed in the same level of detail in the 2019 GRA as it was in the 2018 GRA.

Manitoba Public Insurance was ordered to do the following with respect to Loss Prevention and Road Safety:

11.22 MPI shall enter into discussions with Coalition of Manitoba Motorcycle Groups (CMMG) regarding a proposal for a pilot program for wildlife collision prevention initiatives and shall advise the Board of the discussions as they develop.

11.23 A Technical Conference shall be held on road safety and loss prevention in early 2019, which shall be initiated by the Board but on such dates as are mutually agreed as between the Board and MPI. Included within the Technical Conference shall be the following:

- Progress on the implementation of the Loss Prevention Strategy and Framework;
- Reports on the activities of the External Stakeholder Committee on Loss Prevention and the Provincial Road Safety Committee;
- Progress on the 2017-2020 Road Safety Operational Plan;
- Progress on the Provincial Road Safety Plan - Road to Zero;
- Reports on MPI's priorities for road safety and loss prevention;

- Reports on the success of the Drug Impaired Driving Communication Strategy and any other efforts undertaken by MPI to address drug-impaired driving;
- Reports on MPI's efforts to address speed and distracted driving;
- Progress on the High School Driver Education Program Redevelopment;
- An update on MPI's rural road strategy;
- A discussion / review of the incorporation of the social costs of collisions in MPI's road safety efforts;
- An effort to obtain feedback from members of the External Stakeholder Committee on Loss Prevention on the effectiveness of that committee; and
- A jurisdictional scan conducted by the Corporation of road safety measures, including wildlife collision prevention initiatives.

In PUB Order 11/18, dated January 15, 2018, the PUB further ordered that:

6.13 Included among the issues to be examined in the 2019 Road Safety Technical Conference directed in Order 130/17 shall be:

6.13.1 Safety for drivers and clients of Vehicles For Hire (VFH);

6.13.2 Safety and training standards for all VFH drivers; and

6.13.3 Safety issues relating to persons with disabilities and VFH.

6.14 The road safety information filed by the Corporation in the 2019 GRA include information regarding emerging road safety issues as a result of the introduction of Transportation Network Companies in Manitoba.

The Corporation welcomes the opportunity to have a robust exchange on the issues, initiatives, plans, strategies, and programming developments at the Technical Conference and will defer all discussion on these matters to that venue in early 2019. In addition to the information identified in the Order above, the Corporation also

intends to make available the following information to the PUB and intervenors at the Technical Conference:

- All fatality and injury statistics that have been provided in previous GRAs;
- Collision maps for Winnipeg and Brandon for pedestrian, cyclist, and motorcyclist collisions;
- Information on new programming initiatives planned for the 2019 fiscal year and the outcomes of pilot evaluations and research initiatives; and
- Updates on partnership initiatives, including enhanced enforcement.

It is also the intent of the Corporation to leverage the ongoing meetings of the External Stakeholder Committee on Loss Prevention in the interim to share information on matters of mutual interest, continue discussion on loss prevention issues and approaches, and hear presentations and/or receive the viewpoint of stakeholders to inform decision making on loss prevention and road safety priorities and programming. The Corporation will also continue to be an active participant on the Provincial Road Safety Committee as it works to identify specific strategies and initiatives to address the priority areas identified in the *Road to Zero: Manitoba Road Safety Plan* 2017-2020.

For the 2019 GRA filing, in addition to providing the information ordered by the PUB, the Corporation has included the emergent strategy developed in response to Order 11.22. The road safety financial summary is provided in *Part V(i) Expenses Appendix 15,* as well as new loss prevention program and activity highlights and developments that may be of interest to the Board in advance of the 2019 Technical Conference.

LP.1 LOSS PREVENTION AT MANITOBA PUBLIC INSURANCE

MPI maintains the view that loss prevention programs and activities contribute to safer roads, fewer claims, and lower claims costs. The commitment to loss prevention is realized through key strategies and operational plans that prioritize investment to address the primary causes of loss, and employs tactics and measures that are proven (or promising) in the national and international communities of practice to raise awareness, alter belief and behaviour, and/or reduce loss – both human and financial. Efforts are driven by evidence and evaluated for their effectiveness in achieving stated objectives.

In short, the Corporation's structural foundation for loss prevention is divided into two central themes:

1. Prevent collisions and claims from ever occurring (discretionary and regulatory activities to promote and/or ensure safety on the road and prevent auto theft), and

2. Reduce the cost of those collisions and claims if they do occur (activities that reduce claims cost and leakage).

The Corporation also has a role within the provincial Safe Systems model to support the shared vision for safe roads, safe vehicles, safe speeds and safe road users. MPI co-chairs the Provincial Road Safety Committee and has committed to the priorities established to advance the *Road to Zero: Provincial Road Safety Plan 2017-2020* which includes the gradual downward trend toward zero injuries and death on our roadways (Toward Zero approach).

LP.2 LOSS PREVENTION HIGHLIGHTS

Acknowledging that loss prevention programming will be discussed in detail at the 2019 Technical Conference, MPI wishes to highlight key program and business initiatives that have either launched since the 2018 GRA or will launch prior to the 2019 Technical Conference for information.

LP.2.1 Driver Safety Programs

MPI continues to progress on its Operational Plan for Road Safety 2017-2020 (filed in the 2018 GRA) and the Loss Prevention Strategy. The Operational Plan continues to establish the priorities, produce concepts for development, and evaluate existing program portfolios to refine and enhance existing interventions or provide evidence to support new initiatives. Evaluation also identifies programming that no longer serves to advance and achieve the Corporation's road safety agenda.

LP.2.1.1 Driver Testing

The Driver Testing program has implemented a new knowledge test application, providing an improved customer experience and better data to help MPI understand and address the strength and weakness of testing candidates which will be used to inform the question set in 2018/19. As suggested in the Loss Prevention Strategy, MPI is now leveraging data from the knowledge test application to understand potential education and training gaps within the High School Driver Education Program. This information is deployed in the curriculum redevelopment efforts currently underway in the High School Driver Education Redevelopment Project.

LP.2.1.2 Traffic Safety Culture

MPI will launch a new and innovative traffic safety culture campaign in Fall 2018 which will introduce Manitobans to a new vision for road safety and a call to shared action

and responsibility in eliminating human injury and death on Manitoba roads. The campaign will appeal to Manitobans to:

1. See and acknowledge the problem of road fatalities in our province

2. Understand that each person is important, has a story, and can be saved; and

3. Make a personal change to become active ambassadors, rather than passive observers, in our transportation system to reduce human toll.

This major campaign, which includes a wide range of media platforms, will set the foundation, tone, and unifying call to action for future segmented road safety awareness efforts which will provide targeted and meaningful messages to different demographic audiences at risk for various unsafe behaviours, using media and communication styles that are most likely to reach and influence them. This initiative represents a fundamental component of the *Road to Zero: Manitoba Road Safety Plan*, which provides a vision for our provincial culture with respect to safe roads, safe speeds, safe vehicles and safe road users.

LP.2.1.3 Driver Assistive Technology - Consumer Awareness

MPI has initiated a new campaign to raise consumer awareness about the benefits of driver assistive technology as tools in collision avoidance. Micro-ads on social media platforms, supported by detailed information on MPI's website will help Manitobans understand what driver assistive technologies are available, how they work, and how drivers can benefit from their use. Driver assist technologies showcased include: forward collision avoidance and emergency braking, blind spot detection, lane departure warning and lane keeping assist, adaptive cruise control, back-up cameras/warnings, adaptive headlights, and electronic stability control systems. These technologies are increasingly proving to reduce injury and property damage claims, as reported by the Insurance Institute for Highway Safety / Highway Loss Data Institute. In addition to MPI's objective to reduce human error-related claims and

claims costs, this campaign also supports the provincial *Road to Zero* priority to escalate adoption of these technologies to reduce human injuries and fatalities.

LP.2.1.4 Forward Collision Warning Pilot for Taxis

Beginning in summer 2018, the Corporation will commence an aftermarket forward collision warning pilot program with Winnipeg taxicab companies. This pilot program is a result of ongoing collaboration with the taxi cab industry to pursue strategies to improve loss experience, which drives claims costs and the premiums charged to taxi cab owners to cover these claims costs.

The Corporation will equip 100 taxis with aftermarket forward collision warning technology, which has been shown to be effective in reducing overall claims experiences in other fleets, and is particularly effective at reducing rear end collisions.

The program pilot will last for one year, and will compare claims frequency and costs of taxis that have the technology installed, against those that do not. The pilot program will also compare the claims experience of the taxis with the technology against their previous claims experience prior to the system installation.

LP.2.1.5 Drugs and Driving

MPI continues to execute against its comprehensive public awareness and education campaign to address the dangers and consequences of drug-impaired driving in anticipation of the legalization of recreational use of cannabis in 2018. Targeted audiences include young novice drivers and their parents (via the High School Driver Education program), youth in general, the general population, and physicians and patients who are prescribed cannabis for medical conditions. The campaign strategy (filed with the 2018 GRA) is focused on informing Manitobans about how cannabis can affect driving ability, correcting misperceptions about cannabis and driving and putting Manitobans in a position to make informed choices about driving after consuming cannabis once it becomes more readily accessible.

A component of MPI's broader drug-impaired awareness strategy focuses on use of a range of prescription medications and raising awareness about the extent to which these can impair driving. MPI is partnering with a researcher in the Department of Medicine and Community Health Sciences at Seven Oaks General Hospital on a project that will combine health and claims data to link prescription opioid use as a risk factor in motor vehicle injuries. The research intends to determine if drivers with an active prescription for opioids analgesics are at an increased risk of being involved in a motor vehicle collision associated with injury, and if the risk varies with dosage and duration of treatment.

LP.2.1.6 Auto Theft

MPI is working with the province to address emerging trends in auto theft, recognizing that program solutions for this issue must evolve with the changing modus operandi of vehicle thieves. Past programming focused on solving the auto theft problem in vulnerable vehicles with after-market immobilizers. Currently 99 percent of most at risk older vehicles are now immobilized and all new vehicles manufactured since 2007 are equipped with factory immobilizers. Despite this, vehicle theft persists and thieves are using vehicle keys to commit their crime. Future efforts to reduce theft will focus on vehicle owners and their need to protect their keys.

LP.2.2 Vehicular Programs

The new research and training centre located in the J.W. Zacharias Physical Damage Research Centre opened in October 2017, which will enable qualified technicians to work in collaboration with Manitoba's repair industry as it adapts repair methods related to vehicles now being constructed of complex materials, including aluminum, carbon fiber, high strength and ultra-high strength steels. Training and research centre technicians work closely with Manitoba's repair industry and Red River College to offer access to training on new and emerging vehicle repair techniques and equipment, resulting in significant savings for local collision repair shops. A highly skilled repair industry in Manitoba will also reduce costs to MPI in the long term by

ensuring repairs can occur in the province and vehicles are repaired safely back to manufacturer standards.

LP.2.3 Loss Cost Reduction Programs

The Special Investigations Unit operationalized the use of predictive analytics into claims triage and investigation operations, flagging potential fraudulent claims at first notice of loss. Predictive analytics uses techniques including data mining and modeling to analyze current data to make predictions about fraudulent claims. This has enabled stronger investigation referrals, a higher success rate, and shorter investigation time cycles. Predictive analytics is projected to increase fraud detection and savings to the Corporation, beginning in fiscal 2018.

LP.3 BOARD ORDER 11.22

MPI, with the consent and support of CMMG, entered into discussions with all Loss Prevention stakeholders on the issue of wildlife collision prevention initiatives, given the broader interest in reducing the costs associated with these claims. The External Stakeholder Committee on Loss Prevention quarterly meeting in February 2018 was utilized as a forum to share current collision and claim statistics, highlight previous research completed by MPI, share best practices in wildlife collision mitigation tactics, discuss promising technology and public perceptions of it, and MPI's current approach to address the issue.

Stakeholders provided written and verbal feedback which was then incorporated into a draft *Proposed Strategy for Collisions with Animals – Programming and Research* (2018-2019). The strategy was subsequently provided to CMMG for review and feedback and an individual consultation between MPI and CMMG was held in April 2018. CMMG provided written comments and suggestions which have been considered and, where deemed appropriate by MPI, incorporated into the strategy document. Please refer to Appendix 1 for the draft strategy document.

LP.4 BOARD ORDER 6.14

The Board has ordered that MPI provide with this filing, information regarding emerging road safety issues as a result of the introduction of Transportation Network Companies (TNCs) in Manitoba. It should be noted that current legislation delegates authority over TNCs to the municipalities; therefore, MPI is reporting on information as per the City of Winnipeg's bylaw. Under this legislation these safety considerations are not the responsibility of MPI; however, the Corporation is consulted and actively provides input where there is opportunity to do so.

The availability of convenient and reliable transportation options can contribute to safer decisions and outcomes for all. Expanding vehicles for hire provides more options for people who should not drive and makes this option more attractive than less safe alternatives. It is anticipated that the instances of impaired driving will decline as a result of the introduction of transportation network companies (all else remaining the same).

Driver and passenger safety considerations that have been addressed or may be emergent in future include the following issues. This is not considered an exhaustive listing at present, and MPI will continue to monitor and respond to issues as they come to light in the new vehicle for hire environment.

1. **Vehicle condition (mechanical) and empowering passengers through transparency and accountability when they request or provide a ride**

   With The Local Vehicles for Hire Act now in force, Winnipeg and other municipalities are responsible for ensuring Vehicles for Hire are safe to operate through their municipal by-laws. For example, Winnipeg's Vehicle for Hire By-law requires that TNC vehicles be inspected within 30 days of being registered with a licensed dispatcher, and that vehicle inspections are conducted on an annual basis thereafter. Driver criteria and screening including historical information regarding criminal driving infractions and operator's fitness to drive.

The Local Vehicles for Hire Act also allows municipalities to establish requirements for the character and fitness of TNC drivers. For example, Winnipeg's Vehicle for Hire By-law requires that TNC drivers hold a valid driver's licence applicable to the vehicle being driven; and in addition to providing driver background checks (a full driver's abstract containing any information regarding traffic collisions or driving infractions), they must also provide mandatory criminal record and vulnerable sector checks. A TNC operating in Winnipeg would not be able to register a driver charged with a criminal code offence or major driving infractions within the past 10 years.

2. Information disclosure to ensure identification, permits or licences are on display or available to passengers

The Local Vehicles for Hire Act also allows municipalities to establish requirements for the collection and provision of information. Winnipeg's Vehicle for Hire By-law requires that TNC companies provide the following driver and vehicle information through the TNC app (or digital platform used to dispatch the vehicle) to the customer: driver and vehicle information (e.g., driver name and photo, vehicle make, model, and estimated time of arrival of the vehicle providing the ride service); complaint mechanisms for driver and passenger rating; and electronic receipts which provide details regarding the fare paid. Further, drivers for TNC companies are not permitted to solicit or accept street hails as all transactions must be initiated and completed through the TNC app.

3. Proper use of occupant restraints, particularly passengers

The use of occupant restraints is mandatory in Manitoba. However, as permitted by regulation, a driver of a taxicab is exempt from this requirement and far too often taxi passengers follow suit. TNC drivers would be more accustomed to wearing their seatbelt, and as a result, would likely see greater occupant restraint use with passengers.

MPI is currently working with the taxi industry to refresh decaling in the passenger cabin to alert passengers of their legal requirement to wear a seatbelt. Options are under consideration to expand this initiative to vehicles of TNCs, recognizing the issue of failing to use occupant restraints in taxi cabs is likely to also be demonstrated by some users of vehicles for hire. Raising public awareness is a critical step in shaping the behaviour of the ride hailing public.

LP.5 CLOSING REMARKS FOR THE LOSS PREVENTION CHAPTER

MPI maintains its commitment and progressive effort to ensure that loss prevention programming and activities are grounded in evidence and demonstrate value to Manitoba rate payers. The Corporation is increasingly leveraging data and analytics to find new opportunities and maximize benefits that can be realized through new interventions. MPI will continue to invest when proven or promising initiatives can contribute to a reduction in collisions or claims costs. In addition, the Corporation is actively engaged with the province and external stakeholders to seek opportunities to improve road safety outcomes for all Manitobans.



Proposed Strategy for Collisions with Animals:

Programming and Research (2018-2019)

Draft

May 24, 2018

Manitoba Public Insurance

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Table of Contents

EXECUTIVE SUMMARY 5
A. BACKGROUND: 7
1. Collision Statistics 7
2. Human Toll 8
3. Cost to MPI 9
4. Location of Collisions 9
B. POTENTIAL MITIGATIONS: WHAT WE HAVE LEARNED 11
1. Highly Effective Mitigations: 11
2. Seasonal Roadside Signs: 11
3. New Vehicle Safety Technologies: 13
4. Speed Reduction Options: 13
5. Other Key Mitigation Options: 14
6. Better Crash Location Detail: 14
C. PROPOSED STRATEGY FOR 2018/2019: 15
1. GENERAL PUBLIC AWARENESS AND EDUCATION: 15
2. ADDITIONAL AWARENESS IN HIGHER COLLISION AREAS: 16
3. GREATER DETAIL IN COLLISION DATA: 18
4. STAKEHOLDER COLLABORATION: 19
5. RESEARCH TO SUPPORT PROVEN / PROMISING INTERVENTIONS IN MANITOBA: 20
D. SUMMARY OF PROPOSED STRATEGY, ACTION ITEMS AND BUDGET (2018/2019): 22

APPENDICES: 24
APPENDIX 1: Summary of External Loss Prevention Stakeholder Consultation 26
APPENDIX 2: Paper Form Used for Recording Wildlife Carcasses in B.C. 32
APPENDIX 3: Alberta Online Form for Roadside Maintenance Staff 34
APPENDIX 4: Cost Estimate Details for Enhanced Crossing Sign Research 35

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EXECUTIVE SUMMARY

Collisions with wildlife continue to be a very frequent contributing factor for claims in Manitoba and are widespread. The following pages provide the proposed strategy of Manitoba Public Insurance (MPI or the Corporation) for addressing this challenging issue for this fiscal year, 2018-2019. This strategy document provides a brief review of key collision statistics, identifies potential mitigation techniques and what we have learned, and recommends specific action items.

MPI's strategy also follows a consultation with external stakeholders, who it invited to provide comments and ideas for future initiatives. The results of that consultation are enclosed in Appendix 1 of this document. The Corporation wishes to thank the members for their interest and attention to this task.

In summary:

- Collisions with animals continue to be high, and are largely dependent on animal populations (mortality rate in the face of severe or mild winters) and on the relative volume of traffic as drivers commute farther and transport goods on new highways. Even the price of gas, and the corresponding reduction in vehicle volume, can impact collisions.
- Highly effective mitigation tools are extremely expensive. Areas assessed in MPI cost-benefit analyses have many access points or gaps to address (adding cost to fencing) and would simply move the collision sites to the end of the fencing; some of these areas are too hilly to allow for active detection systems.
- External stakeholder committee members recognize the impact of speed on a driver's ability to stop for an animal. The suggestion for seasonal variable speed limits, while effective for hazardous road conditions, are not likely appropriate for wildlife in Manitoba as they are not consistently visible. Further, while public awareness campaigns will continue to raise awareness of speed as a factor in collisions with wildlife, enforcement of the law can be difficult.
- Awareness and education encourages drivers to slow down and reminds them what to look for and how to stay in control, and will increasingly emphasize focus on the road.
- Seasonal roadside signs fall within the category of being modestly effective. They do improve awareness in higher collision areas and reduce speed slightly; however, evaluations are seldom conclusive given fluctuations of wildlife populations. MPI will continue to support Variable Message Signs (VMS), but our suggested approach (for better cost efficiency) is to purchase, as opposed to rent them, on behalf of one partner this year. MPI also proposes to shift budget in 2018 to test a less costly option – programmable LED lights on select crossing signs.
- Finally, emerging vehicle technology is very promising, and may lead to reductions in the number and severity of collisions. MPI will continue to monitor advancements in emerging vehicle safety technology and promote their use as they become more mainstream.

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A. BACKGROUND:

1. Collision Statistics

A large proportion of the many collisions with animals processed by MPI involves deer (about two-thirds). Deer are widely dispersed across Manitoba, as our roads intersect their habitat. Collisions with deer (avg. 6,000+/year, 2012-2016) occur mostly on rural roads but also alongside urban green spaces.



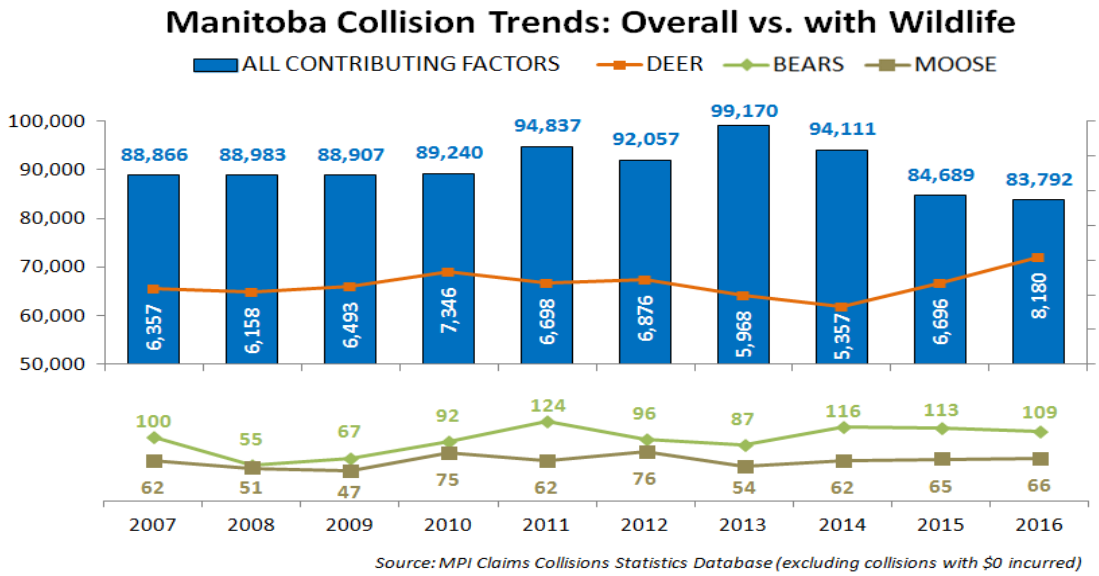
Collisions with moose are relatively few in Manitoba (~60 per year) but are a concern in some areas as risk of fatality can be high to passengers. Collisions with bears (~100 per year) also cause significant vehicle damage but crashes with moose are more dangerous to passengers.

Collisions with animals are classified as an environmental factor and are difficult to avoid. However, driver preparation is critical, as slight adjustments in driving behaviour can prevent a more severe crash, if not avoid it altogether. This includes being extra alert during peak times in known crossing areas, driving slower to allow more time to stop, and avoiding swerving for animals.

Collisions with animals may fluctuate from year to year for natural reasons. In particular, excessive snow and cold in winter will lead to a higher mortality rate for deer, and consequently fewer deer-vehicle collisions. Figure 1 illustrates how collisions with deer in Manitoba were impacted by two very snowy winters (2012/2013 and 2013/2014). More than any other issue, evaluations of interventions aimed at collisions with wildlife need to consider this natural fluctuation.

Manitoba Sustainable Development recently concluded that the deer population has rebounded somewhat, contributing to a rebound in the number of collisions with deer, but the population has not quite reached 'normal levels'. The department observes additional likely reasons for recent increases in collisions with deer: the increasingly high volume of commuters travelling to Winnipeg from distant bedroom communities, at high speeds, across prime deer territory (e.g. Interlake, Highway 1, etc.).

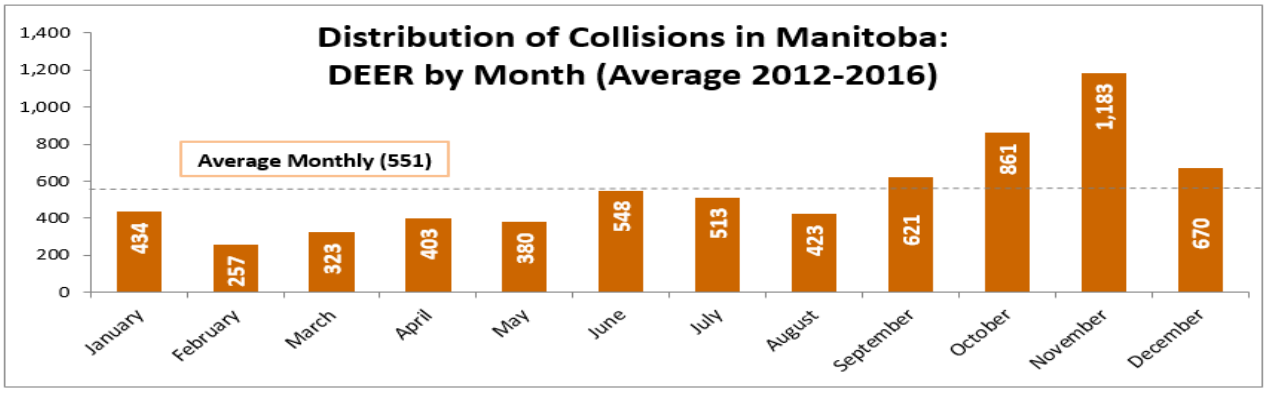
Figure 1



Source: MPI Claims Collisions Statistics Database (excluding collisions with $0 incurred)

Peak time for risk is important to know for the deployment of interventions. The frequency of collisions with deer begins to significantly exceed the average in October. (See Figure 2, below) By November the incidence is predictably present. Peak time is dusk to midnight, then again near dawn. Peak risk for bears is late summer / early fall; for moose it is less defined, and includes winter months.

Figure 2



Source: MPI Claims Collisions Statistics Database (excluding collisions with $0 incurred)

Collisions with animals are experienced by drivers of all types of vehicles, including some motorcyclists.

Figure 3

Average Number Wildlife-Vehicle Collisions per Year: By Species/Vehicle Type (2012-2016)

Vehicle Type:	Passenger Vehicles	Trucks	Motorcycles	TOTAL*
Species of Animal:				
BEAR	79	33	0.2	115
BIRD	266	240	0.8	510
DEER	4,672	2,280	13.2	7,038
MOOSE	43	58	0.2	105
Not Applicable	228	66	0.8	298
Other	1,981	803	4.8	2,822
TOTAL	7,269	3,479	20	10,888

**Total may include some incidents where vehicle type is not noted.*
Source: Claims collision data, extracted May 2017. Excludes collisions with $0 financial transaction.

2. Human Toll

Injuries from crashes with deer are relatively few: 472 in 2016 (vs. 361 in 2015, 289 in 2014, and 288 in 2013). Injuries involving moose or bears are even fewer (average of 11 each per year). Fatalities are rare (1 involving deer in each of 2014 and 2015, 1 involving moose in 2012). Though less frequent, wildlife-motorcyclist collisions are important to mitigate as motorcyclists are more vulnerable to injury in any collision.



3. Cost to MPI

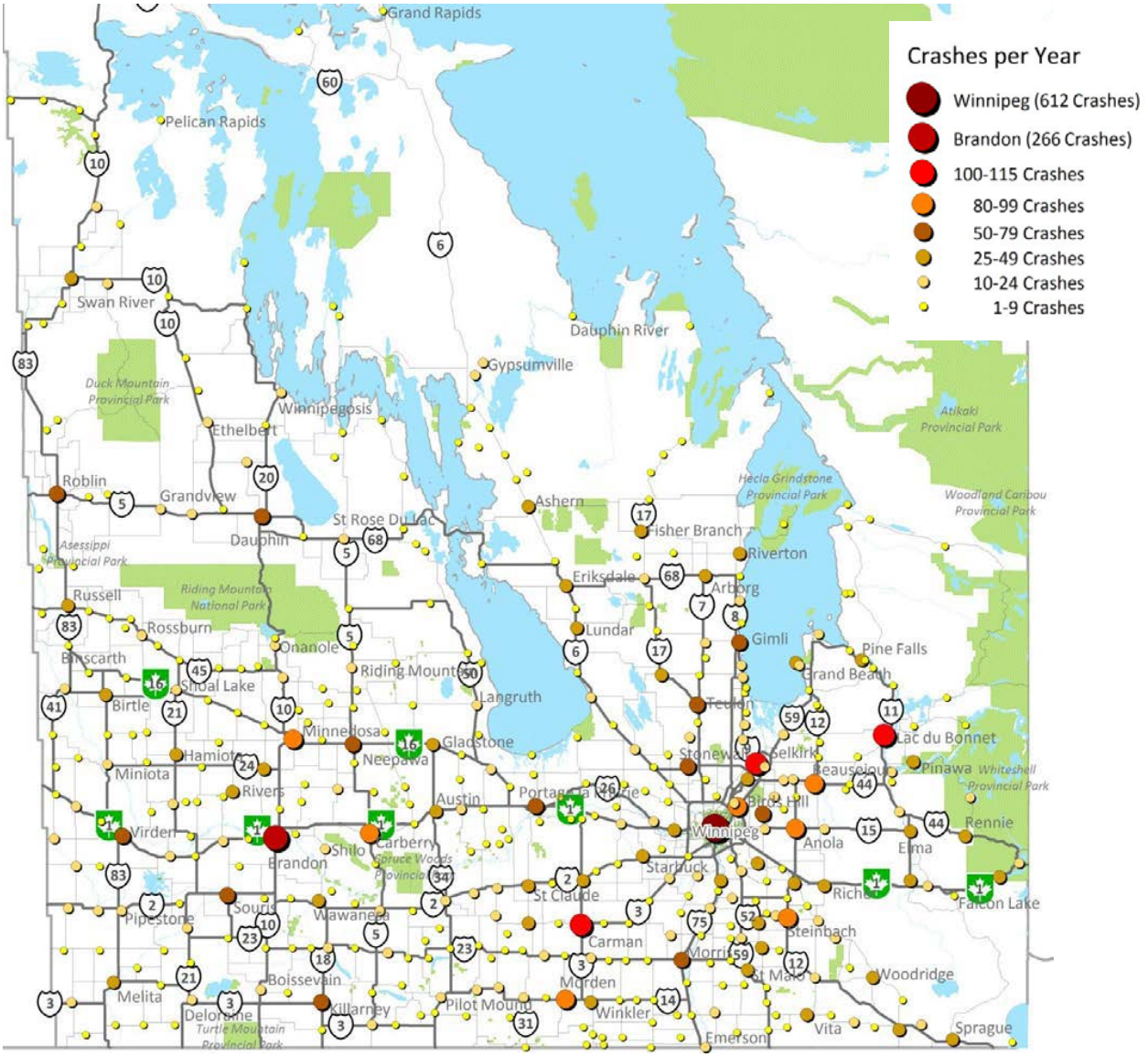
The average cost to MPI per year (2011-2016) for all collisions with animals, as documented in the annual Claims Collisions Statistics Report is over ~ ***$46M per year.***[i] The average cost for a single deer collision involving a passenger vehicle is close to $5,000; when involving motorcycles it is over $36,000.

4. Location of Collisions

Crashes with deer paid out by the Corporation occur mainly in Manitoba (~6% are outside of Manitoba where customers travel). In Manitoba, these crashes are widespread, occurring in virtually every corner of the province. Concentrations of crashes are in part driven by municipal population size and traffic flow along nearby highways, as well as due to the natural concentration of deer in particular areas.

Figure 4

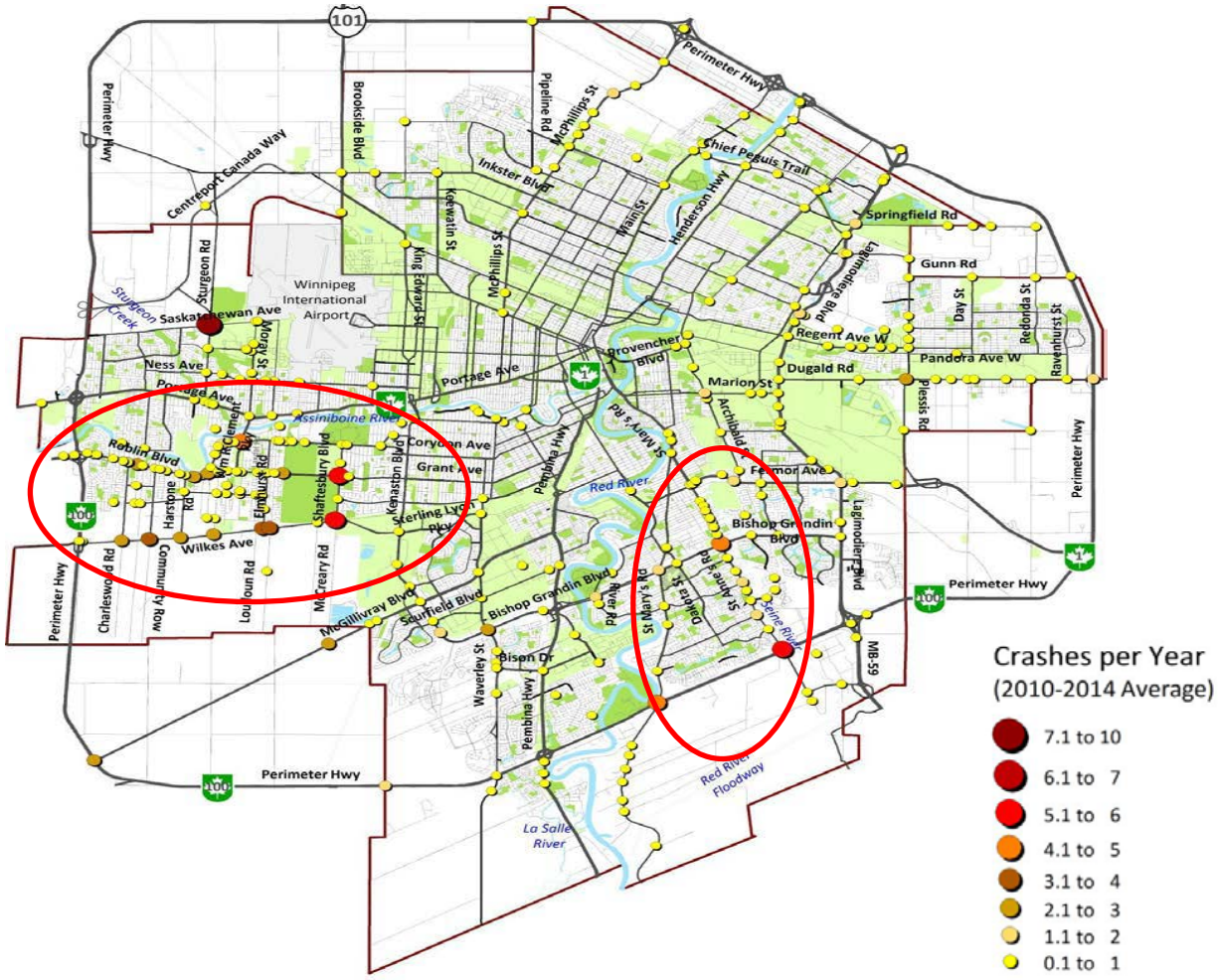
Manitoba: Deer-Vehicle Crashes (2010-2014)
Average Number of Annual Crashes by Nearest Municipality



Similarly, collisions with deer in the Winnipeg area can happen in any section of the City, although there is a larger concentration in the west and southeast sections of the City.

Figure 5

Winnipeg: Deer-Vehicle Crashes (2010-2014)
Average Number of Annual Crashes by Nearest Intersection



B. POTENTIAL MITIGATIONS: WHAT WE HAVE LEARNED

1. Highly Effective Mitigations: (fencing with crossings, roadside detection / warning systems)

Mitigation literature continues to list these two tools as highly effective in preventing collisions (80% +). The disadvantage is primarily cost and, unless there is a detailed knowledge of the exact location of collisions with wildlife, indeterminate lengths of mitigation will prevent a predicted return on investment (ROI). It is also much less costly to install fencing/crossing systems on new vs. existing highways. The loss of protected or endangered species, or serious injury from colliding with a moose, can also over-ride ROI.

- The widespread distribution of deer/vehicle collisions in Manitoba, continues to prevent MPI from benefiting from these solutions.
- For well-known problem areas where MPI has conducted cost-benefit analyses (***Birds Hill Park***, ***Whiteshell Park***), complex landscape and/or too many entrances/exits (access to residents, visitors and small businesses) made fencing solutions particularly costly (a full barrier must be maintained), even before adding the cost of crossing structures (a 'must' for sustainability). Though these treatments are effective where they are placed, without additional costly infrastructure (bridge or tunnel), collision sites are simply moved to the fence ends. Deer entering private/business yards/farming fields as they follow a fence line was another risk. Active detection systems were also costly due to undefined lengths required and are unsuitable for hilly terrain.

➢ External loss prevention stakeholders understand the widespread distribution of collisions, as well as the challenges of our geography, makes costly mitigation tools (such as fencing) non-viable.

2. Seasonal Roadside Signs: (VMS signs, temporarily lit crossing signs, etc.)

Mitigation literature continues to list seasonal roadside signs are 'partly' effective and useful where it is not cost effective to use fencing or active detection warning signs. Such signs deliver a well-timed, noticeable message, when and where it is needed the most (as forest fire danger signs do). These signs work by increasing driver attention to the road, and by reducing a driver speed (a little). This improves a driver's chance of stopping in time when animal unexpectedly crosses or appears by the side of the road; or may minimize a collision. A major disadvantage is that their very modest levels of effectiveness prevent their 'real life' evaluation in terms of reducing collisions, given that the population of deer naturally fluctuates from year to year and is only occasionally counted. Reduction in driver speed is the typical alternative and observable outcome used by researchers to demonstrate increased care and attention.

➢ External loss prevention stakeholders are in favour of awareness efforts, and interventions which reduce driver speed, however stakeholders would prefer interventions with proven outcomes.

(a) Variable Message Signs (VMS): Local traffic engineers have so far favoured VMS boards as they draw significant driver attention, and is a reason why MPI has been renting VMS boards on behalf of interested stakeholders. Collaborative research between MPI and City of Winnipeg in 2008 revealed small reductions in speed, consistent with literature. In another MPI-City of Winnipeg project in 2011, citizens in the piloted neighbourhoods identified VMS boards as their primary source of increased awareness of wildlife on their roads. More recently in 2017, collaborative research between MPI and Manitoba Infrastructure revealed slight temporary reductions in driver speed, to varying degrees depending on the research site.[1]



Major disadvantages of VMS are their relative cost, and time required to manage and move them from location to location (maximum recommended time per location 2 weeks). City of Winnipeg (who already own and operate 2 boards) have said they do not have the time to rotate additional boards.

Purchasing a board on behalf of other interested municipalities/parks who do have resources to move the boards around may be more economical than the rental approach used by MPI up to now:

Purchase = approximately $25K *(municipality would move sign themselves between locations)*
Rental Example = $16K for 2 weeks per each of 3 locations *(including labour to move signs)*

If a VMS was purchased for <u>one stakeholder</u>, this would provide the stakeholder with the opportunity to use the VMS in many locations, and to repeat the initiative in the spring (a smaller peak period for wildlife collisions), as well as for other traffic safety messaging.

If a VMS was made available to a <u>different</u> municipality / stakeholder <u>each year</u>, this would enable municipalities to self-identify themselves as having a serious wildlife crossing issue at a specific location.[2] Local experience may help to identify hot spots which would not otherwise be identified. The opportunity to try out a VMS may even result in a municipality's future purchase of VMS board.

(b) Programmable LED Animal Crossing Signs: A simple alteration to a 'standard' wildlife crossing sign is available, featuring solar powered, programmable LED lights, which can be activated periodically, on-site or remotely during peak seasons and times of day (dusk to dawn).



The use of LED wildlife signs continues to be used in B.C. (in select areas, when other mitigations are not possible or cost effective), with indications of good results. This was one of the four key recommendations listed in the B.C. Ministry of Transportation and Infrastructure's 2014 report "Rural Highway Safety and Speed Review", intended to reduce wildlife crashes on B.C. highways:

> "Implement LED wildlife signs in specific high wildlife crash locations and flash the LEDs based on seasonal information."

[1] A draft report of the 2017 VMS-Wildlife Awareness Research project will be available mid-April, 2018.
[2] The Association of Manitoba Municipalities would be asked to assist.

The cost of LED crossing signs is much less than for a VMS board (about $5-6K vs. $25K). The proposed Manitoba Traffic and Transportation Modernization Act would streamline and shift the approval of "non-government highway signage" from the Highway Traffic Board to Manitoba Infrastructure, providing a potentially swift approval to pilot this type of sign in Manitoba.

3. New Vehicle Safety Technologies:



Driver assist features specifically designed to detect and warn drivers of wildlife at night are currently available in luxury vehicles, but are expected to be available in non-luxury vehicles in the near future.

In the meantime, drivers are more likely to recover from a sudden wildlife encounter by:

- choosing a newer vehicle with features that improve stability and braking performance, and
- focusing all of their attention to the road and minimizing distraction.

➢ There was general support for monitoring the promising advances in vehicle technologies and efforts to raise more awareness of vehicle safety features in consumber buying decision; with some caution on how these technologies may encourage higher-risk drving behaviour by giving drivers a false sense of security.

4. Speed Reduction Options:

(a) Traditional Speed Enforcement: Exceeding the speed limit does occur in areas with considerable wildlife movement, and hot spots for wildlife collisions, despite the presence of traditional animal crossing signs (as drivers become habituated to those signs). Though highly visible speed enforcement would aid in reducing driver speeds, the ad hoc and widespread nature of vehicle-wildlife collisions makes allocating enforcement resources for the sole purposes of wildlife collision reduction very difficult.

(b) 'Point-to-point' (PTP) Automated Speed Enforcement. While police agencies may not have the ability to continually patrol hot spots for wildlife, PTP may be an affordable solution in the future - should traffic safety culture result in a greater acceptance of automated speed enforcement.

(c) Variable Speed Limits: Variable speed limits are used when a hazard will be visible (e.g. icy road, rocks) or scheduled over a defined period (road construction). In other provinces, variable speed limits may be used for wildlife when a species is migrating across a defined path, or when webcams or highway officials have received word of an injured animal up ahead on the roadway (as in B.C.). The presence of deer on Manitoba roads is unpredictable and may not be a consistently visible hazard for use with a variable speed sign. If this approach were used in Manitoba, motorists would in all likelihood continue to drive to the speed they feel is safe and not reduce their speed, unless enforcement was present or perceived to be present.

(d) Temporary Speed Bumps or Rumble Strips: Temporary rubber speed bumps or rumble strips have sometimes been used in other jurisdictions for various issues. Manitoba Infrastructure may wish to reconsider this option as a seasonal speed reduction during wildlife season, where safe.

- External loss prevention stakeholders were in favour of interventions which reduce driver speed. Suggestions included variable speed limits in wildlife hot spots.

5. Other Key Mitigation Options:

- Neither deer whistles nor reflectors on highway posts have proven to be effective. Similarly, no additional mitigations have been identified to reduce the vulnerability of motorcyclists (thankfully, the majority of wildlife collisions occur in October and November when deer (and moose) are most active and there are less motorcycles on the roads).
- Culling the population of wildlife can be an effective tool for communities which deem the concentration of deer too high for the community. Sterilization is very expensive and short-term.

6. Better Crash Location Detail:

Major stakeholders, including Manitoba Infrastructure recognize a need for more detail on wildlife-vehicle collision (WVC) locations. A better system is needed for identifying concentrated collision hot spots. One potential solution includes a carcass location recording app. At least two other provinces (B.C., Alberta) operate a roadside (large) animal carcass reporting system, operated by maintenance and animal conservation staff.



In 2017, MPI proposed to help pilot this solution, and remains willing to help fund any required devices, as needed. MPI awaits Manitoba Infrastructure decision on further planning and participation.

C. PROPOSED STRATEGY FOR 2018/2019:

1. GENERAL PUBLIC AWARENESS AND EDUCATION:

(a) Repeat the annual seasonal public awareness campaign *(Included within existing Communications budget).* New: Highlight how distracted driving can also impact collisions with wildlife.

Summary:

Since it is proven that drivers become habituated to wildlife crossing signs, and that the primary hazard (deer) is particularly present in the fall, MPI will continue to lead Manitoba's annual fall campaign, reminding Manitobans to be alert for the increased risk of wildlife on the road. Messaging will focus on the random location of deer (deer are everywhere), and for vehicle drivers/motorists to be alert at all times. Messaging will be updated as necessary, in paid advertising spots (radio, digital billboards, newspaper and 60-Second Driver TV featured tips, social media and ATM spots), quick radio tips ('PSA'), a prepared community newspaper column ('The Manitoba Driver') and media relations activities (news release).

Objectives:

- Remind Manitoba drivers of the increased risk of collisions with deer in October and November.
- Remind drivers and riders to scan ditches on both sides of the road, during the day and night.
- Call for increased attention at all times, and wherever there are wildlife signs, during peak times (dusk to dawn). Note: reminder that dusk occurs earlier in the day as move into fall season, so drivers and riders are not caught off-guard as visibility decreases and wildlife movement increases.
- Maintain awareness of tips for reducing risk of collision and injury: most importantly - reduce speed – as faster speed reduces reaction time, know what to watch for, and how to stay in control (avoid swerving).
- Highlight how tips for preventing distracted driving can further prevent collisions with wildlife:
  - Never use hand-held devices;
  - adjust in-vehicle climate controls, GPS and infotainment options before you drive;
  - try not to focus too long on any one spot; encourage passengers to also scan the road while talking with you.

(b) Update maps for deer collision hot spots (website) *(Included within existing budget)*

Summary:

The currently posted maps illustrating deer collision 'hot spots' in Manitoba and Winnipeg will be updated, based on 2013-2017 data.

Objectives:

- Provide a resource for identifying areas with the highest frequency of collisions with deer.

(c) Introduce new vehicle technologies which may benefit this issue (website) ***(Included within existing budget)***

Summary:

MPI's corporate website 'Road Safety' section includes a sub-section on wildlife collisions. These pages are a ready resource for the public, stakeholders, media and educators who similarly seek to share information, with more detail and links than in MPI advertising materials.

New information will be presented on these pages (and other places where possible, such as articles prepared for community newspapers) introducing the benefits of new and emerging in-vehicle safety technologies. Some technologies are specifically designed to help detect animals and warn drivers, and quickly slow a vehicle down as a result). Others improve stability and braking performance, also critical to this issue.



In addition to new vehicle technologies, information on the benefit of replacing headlights and driving lights on motorcycles with modern brighter LED or similar lights would help riders to not over-drive their lights and reduce collisions.

Objectives:

- Begin to create positive perceptions of new in-vehicle technologies specifically designed to minimize the severity of collisions with animals, as well as for other newer safety technologies aimed at improving vehicle stability and braking performance which can also help deal with sudden animals.

2. ADDITIONAL AWARENESS IN HIGHER COLLISION AREAS:

(a) Purchase a VMS for permanent use in Riding Mountain National Park (RMNP) for the purposes of wildlife awareness. ***(Approx. $25,000)***

Summary:



RMNP staff have been very supportive of wildlife messaging within the park over the last few years, through MPI's rental of VMS board on their behalf. This year, MPI would purchase a single VMS board (approximate cost of $25,000) and loan it to the Park. The vendor will provide full training on the operation and the safe transport of VMS units.

The benefits of a purchase (vs. rental) approach include: greater cost efficiency, as well as unlimited usage by Park staff, for both wildlife messaging and other park safety or traveler information.

- The existing rental program ($16K) provides for 2 weeks per 3 locations. (vendor moves VMS)
- The purchase of one board ($25K) would allow RMNP to move a board throughout fall, winter, and spring for all animal movement including moose. (RMNP would provide labour to move VMS)

VMS locations are set according to crash statistics and Park staff experience (carcass pickup) for positioning of boards. This effort recognizes that although the number of collisions may not be extremely high in the Park, the intervention will prevent severe collisions, particularly involving moose, as well as involving deer.

Objectives:

- Provide site-specific seasonal reminders to be alert for deer
- Cause drivers to slow down, providing additional time to stop for animals on the road and/or reduce the severity of the crash

Messaging:

Messaging will be consistent with Parks Canada approved messages. Two messages will rotate on each board, with the approved appropriate length of time and interval.

- 'BE ALERT FOR WILDLIFE' / 'ATTN. A LA FAUNE' *(a French message is required for Parks Canada)*

Program Alternative:

- Road Safety Programming could continue to rent VMS signs on behalf of RMNP.
- Should staff be uncomfortable with moving the VMS themselves, Road Safety Programming may seek additional budget as necessary for the vendor to move the VMS a number of times. The cost of purchasing a unit will still be lower than renting the unit over the course of two years.
- Road Safety Programming could also rent the VMS to another self-identified municipality with a serious wildlife-traffic issue, with the help of the Association of Manitoba Municipalities.

3. GREATER DETAIL IN COLLISION DATA:

(a) Work with Manitoba Infrastructure (MI) maintenance staff to pilot an app for the recording of GPS locations of animal carcasses along Manitoba highways. ***($50,000)***

Summary:

A roadside (large) animal carcass reporting app would be operated by Manitoba Infrastructure's road maintenance and animal conservation staff. The Government of Alberta's smartphone app is recognized as a model approach. The app would not only allow onsite recording of GPS detail; optional software could then assess the landscape and distribution of collisions to suggest the optimal combination of mitigation approaches required to achieve a desired reduction and return on investment. MPI would help fund required devices and the app itself, and to provide other assistance, as needed, including overseeing an evaluation. MPI awaits Manitoba Infrastructure decision to proceed.



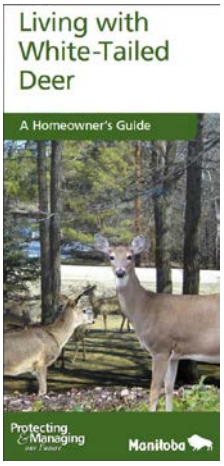
Objectives:

- Collaborate on creating and maintaining a system which is: a) Simple and quick to use, b) reliable and defensible, c) provides infometrics to meet long-term needs of key stakeholders who will benefit from data collected, and d) includes menu choices which will ease interpretation and filtering of subsequent periodic reports. Other potential considerations: e) features for uploading and managing of supporting photos, f) scalable mapped visualization, and g) easy data-sharing.
- Encourage continued observations/data collection: Periodic encouragement of staff is essential, such as: importance of initiative, project goals and updates, incentives (small draws) and media stories.
- Conduct a 12-month evaluation of the pilot: Identify any operational issues which may compromise the integrity of the resulting data. Identify whether any sufficiently concentrated hot spots exist for highly effective mitigations (fencing or active detection systems), or modestly effective mitigations.

4. STAKEHOLDER COLLABORATION:

(a) Provide one-time support to Manitoba Sustainable Development, for the printing of a revised wildlife 'fact sheet.' ***(Approx. $5,000)***

Summary:



An educational leaflet was created a number of years ago by Manitoba Conservation (now Manitoba Sustainable Development), in partnership with MPI. The leaflet included a variety of tips for Winnipeg residents on how to reduce conflicts (incl. traffic collisions) with white-tailed deer while still enjoying the natural beauty of wildlife.

Sustainable Development Manitoba is now amalgamating all of its wildlife communications into one fact sheet (including BearSmart with collision prevention tips), and must pay for the cost for redesigning the material. Consistent with its past support, MPI would contribute by funding the printing of this new fact sheet, allowing it to be distributed at presentations made by Sustainable Development Manitoba.

Objectives:

- Leverage an additional opportunity for increasing awareness of wildlife collision prevention tips.

(b) Continue to Support to the City of Winnipeg-Owned VMS-Wildlife Awareness program. ***(No additional cost to the Corporation)***

Summary:

The members of the Manitoba Wildlife Collision Stakeholders Committee (including MPI) correspond with each other throughout the year, sharing collision data, other data and issue insights, collaborating where possible on related projects.

One particular on-going project includes MPI's review of the latest Winnipeg collision data, and collaboration with a member of the Traffic Management Department within Public Works at the City of Winnipeg, to identify the best locations where VMS boards may be rotated to remind or create awareness about the higher likelihood of encountering deer along particular corridors. The City of Winnipeg agreed in 2009, to reserve their two VMS boards each fall, for this purpose.



Variable Message Board (VMS) Placements – Winnipeg (Fall 2017)

Objectives:

- Facilitate the exchange of sources of information for the mutual goal of reducing wildlife collisions.
- Provide site-specific seasonal reminders to be alert for deer.

(c) Encourage Municipalities and Manitoba Infrastructure to conduct more brush clearing and grass mowing along highway shoulders and ditches in rural 'hot spot' areas. ***(Included within existing budget)***

Summary:

Long grass and brush adjacent to highway shoulders provide ideal hiding spots for wildlife and casts a high shadow across ditches making animals less visible. The close proximity to the roadway reduces reaction times for drivers and riders, especially in low light situations. Clearing this area immediately next to highway would discourage wildlife from seeking shelter in these areas, thereby removing them further from the roadway.



MPI will encourage maintenance crews in rural hot spot locations to maintain these areas.

Objectives:

- Foster communication between rural municipalities and local residents in identifying areas where high frequency of collisions with deer result from unmaintained road shoulders or ditches.

5. RESEARCH TO SUPPORT PROVEN / PROMISING INTERVENTIONS IN MANITOBA:

(a) Examine the effectiveness of wildlife crossing signs which feature a programmable, seasonal, LED mini-light surround. *(REQUIRES MANITOBA INFRASTRUCTURE APPROVAL)* ***(Approx. $50,000)***

Summary:



This research will test and confirm the effectiveness of LED-lit crossing signs, at three well known hot spots (identified by stakeholders including Manitoba Infrastructure) on a provincial trunk highway or provincial road, during peak times for deer-vehicle collisions (from dusk to dawn in October, before snow and ice are likely to appear on the road). LEDs are highly visible, more so than standard signs which motorists may have become habituated to. Because they are programmable, they can be set for lowlight hours, the exact times when deer are more likely to be about.

The signs should make drivers more alert; a local resident phone survey will measure perceived alertness due to the signs. The signs will also ideally lower driver speed, in which case the driver is better prepared to take potential action, reducing severity if not avoiding a collision. An acceptable traffic data measuring device (e.g. VMS trailer-display screen turned down) will collect speed data.

Explore including a message sign below LED mini-light surround sign that relays a safety message – such as 'Wildlife Area – Reduce Speed' – when LED lights are lit.

Objectives:

- Provide site-specific seasonal reminders to be alert for deer.
- Measure the amount by which drivers slow down, by time of day, compared with periods of time before the LED surrounds were installed.
- Seek feedback from citizens who drive in these areas, to confirm the perceived usefulness of these signs, and the degree to which they believe they were more alert as a result of these signs.

Alternative:
A driver simulation study (participating students recruited on campus), where outcomes include vehicle speed and braking in time for wildlife. (REQUIRES SEEKING UNIVERSITY INTEREST AND APPROVAL)

D. SUMMARY OF PROPOSED STRATEGY, ACTION ITEMS AND BUDGET (2018/2019):

The following is the recommended strategy in a nutshell, for addressing wildlife collisions in 2018/2019. Additional details are found in the subsequent pages.

Action Items	Timing	Budget
General public awareness and education:		
Repeat the annual seasonal public awareness campaign with usual tips to help avoid or minimize these types of collisions (speed, alertness, staying in control) • Highlight how distracted driving can impact collisions with wildlife • Introduce new vehicle technologies which may benefit this issue (website)	Fall Fall TBD	NO Additional Cost **(NAC)**
Update maps for deer collision hot spots	Summer	NAC
Additional awareness efforts in higher collision areas:		
Purchase a VMS on behalf of Riding Mountain National Park (RMNP). *Benefit:* Existing rental program ($16K) provides for 2 weeks per 3 locations. The purchase of one board ($25K) would allow RMNP to move a board throughout fall, winter, and spring for all animal movement including moose. *Alternative*: Continue to rent VMS signs on behalf of RMNP, or another self-identified municipality with a serious wildlife-traffic issue.	Fall / Winter	$25,000 (estimate)
Greater detail in collision location data, to identify locations for cost effective mitigation:		
Work with Manitoba Infrastructure (MI) maintenance staff to pilot an app for the recording of GPS locations of animal carcasses along Manitoba highways. Funding provides for smartphones and app as required *(awaiting MI agreement)*	On-going	$50,000
Stakeholder Collaboration:		
Re-direct current funding for VMS rentals in Winnipeg in favour of research to help assess the effectiveness of less costly roadside signs. (See Research). Continue to support the City's own 2-VMS program by assessing collision data.	On-going	NAC
Provide one-time support to Manitoba Sustainable Development, for the printing of revised wildlife 'fact sheets' used at presentations, containing key tips for preventing collisions.	TBD 2018	$ 5,000
Share crash location information and issue knowledge with members of the Manitoba Wildlife Collision Stakeholders Committee to support initiatives.	On-going	NAC
Encourage more brush clearing and grass mowing along highway shoulders and ditches in rural 'hot spot' areas with Municipalities and Manitoba Infrastructure	TBD 2018	NAC
Research to support proven and promising interventions in Manitoba:		
Examine the effectiveness of wildlife crossing signs with a programmable, seasonal, LED mini-light surround. Potential approaches currently include: 1. A driver simulation study (participating students recruited on campus), where outcomes include vehicle speed and braking in time for wildlife. *(REQUIRES UNIVERSITY INTEREST AND APPROVAL)* 2. An on-road trial in three locations (identified by stakeholders as problem areas), where outcomes include vehicle speed and a local resident survey. *(REQUIRES MANITOBA INFRASTRUCTURE APPROVAL)*	Oct. / Nov.	$50,000
TOTAL:		$130,000

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APPENDICES:

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APPENDIX 1: Summary of External Loss Prevention Stakeholder Consultation

The Public Utilities Board asked MPI to commence discussions with Coalition of Manitoba Motorcycle Groups regarding wildlife collision prevention initiatives. As a precursor, MPI sought to gain the views and input from all of its loss prevention stakeholders to obtain feedback on current interventions and potential strategies to reduce wildlife collisions.

Prior to the meeting, a briefing document on wildlife collisions was circulated that outlined yearly collision statistics, claims costs, collision location information from "hot spot" maps, an article on potential collision avoidance utilizing emerging vehicle technology, and a list of questions regarding the issue of wildlife collisions. This information was provided prior to the presentation to help facilitate discussion.

Wildlife presentation highlights:

- MPI's focus has been on raising awareness during peak wildlife collision season (Oct-Dec) through media channels and placing variable message boards in collision hot spots.
- Working with the City of Winnipeg and national park service, MPI has expanded VMS warning signage in recent years.
- MPI has fully explored wildlife fencing in the past decade and results of cost benefit analyses were also shared.
- Mitigation studies have shown fencing to be very effective in eliminating collisions within the fenced zone, but collision frequency typically increases at either end of a fencing application. The high cost and limited benefit has not enabled a successful business case for application in Manitoba.
- MPI has and continues to pursue research on wildlife hotspots and driver behaviour in response to public awareness campaigns and temporary signage.
- Information on promising automated collision avoidance technologies and the current rates of adoption and public perceptions about the technology was also presented.
- MPI is prepared to look at new strategies provided they are cost effective and have the potential make a difference in claims and/or road safety.

The following was discussed:

- How do wildlife collisions compare to other road safety priorities established by MPI and under the Provincial Road Safety Action Plan. It is important to keep this issue in perspective when determining how best to utilize resources and funding.
- The importance of data collection and use was stressed. Hot spot mapping should continue along with work to better pinpoint where collisions are occurring within those hotspot regions. Other statistical data such as time of day, age of drivers, vehicle speed at time of collision, road and weather conditions are also relevant.

- Public awareness continues to be important and led to discussion about the effectiveness of permanent versus temporary and variable signage. Signage should display 'action-based' messaging (i.e. reduce speed). Opportunities to use social media to enhance public awareness and education and more targeted messaging based on geography and demographic data for drivers involved in wildlife collisions could be considered.
- Opportunities for joint and coordinated awareness efforts among committee member organizations were discussed to maximize impact and reach.
- The effectiveness of deer whistles, roadside reflectors and other strategies were discussed, have been examined, and found to have little impact.
- Collisions by year tend to vary with the size of the deer population. There was discussion about how the population is monitored, by whom, how the population is affected by climate and the availability of food sources, and strategies used in other jurisdictions to control the deer population.
- Infrastructure-related solutions were discussed, including the concept of variable speed limits and the associated challenges with enforcement. The cost/effectiveness of roadside fencing was also discussed and whether prior business cases would at some point have a more positive return on investment as the collision counts increase. The challenge in achieving a positive cost/benefit analysis for roadside fencing was discussed as relating more to the dispersion of collisions throughout Manitoba, the cost to install and maintain fencing on an ongoing basis, infrastructure/geographic-related challenges, and the fact that collision hotspots generally move to fence end points rather than eliminate collisions completely (Saskatchewan pilot project).
- There was general support for monitoring the promising advances in vehicle technologies and efforts to raise more awareness of vehicle safety features in consumer buying decisions; with some caution on how these technologies may encourage higher-risk driving behaviour by giving drivers a false sense of security.

Further, Committee members were asked to submit any additional comments or suggestions by email.

Comments from Manitoba Trucking Association (MTA):

- Manitoba grain facilities typically do not allow grain haulers to clean out their trucks on-site, leading many operators to clean out their vehicle at roadside, rather than travel to a more "friendly facility".
- They believe it is, or certainly may be, contributing to roadside collisions with wildlife who are attracted to the dumped grain.

Comments from Consumer's Association of Canada (CAC) Manitoba:

- Collisions with animals on Manitoba Highways and City streets continue to be a cause for concern. However, this must be kept in perspective, relative to all the other issues that are causing deaths and injuries in Manitoba. Wildlife Vehicle Collisions were not identified as a priority issue by the MPI road safety programming group when they presented their 2017/2018

plan. Neither is there any reference to it in the most recent "Manitoba Road Safety Plan – 2017-2020: Road to Zero.

Responses to pre-meeting package questions:

Question 1: What are your thoughts on our approach?

- *General Public Messaging*: Mass media and online reminders would be a good idea if they could be specifically aired/available during the times when wildlife vehicle collisions are most prevalent, such as between September and December. TIRF's Road Safety Monitor 2016 recommends that "*drivers require more education on proper responses and need to practice visualizing the proper responses in order to avoid automatic avoidance behaviours*". It is reassuring that more than half of the respondents to the TIRF Road Safety Monitor in 2016, think they should perform what is commonly regarded as the best road safety response, at least in most situations, which is ***to slow down and drive straight***. This allows drivers to stay in control of the vehicle as well as increases the chances that the situation can be assessed and proper action continues to be taken. As an aside, honking the horn, similar to flashing the headlights, should not be done as the unpredictable behaviour of animals means that the animals may run towards the vehicle, into the pathway of other road users.
- *Awareness efforts in higher collision areas*: Variable message signs (VMS) could be challenging in Manitoba, since MPI recognizes that collisions with wildlife are very widespread and random throughout the province.
- Wor*king with partners to improve location data*: This is always a key requirement, challenging as it may be. Is it possible that data is available through other departments of government or the highway maintenance contractors? (In BC the highway maintenance contractors clear animal carcasses from the highways).
- *Working with partners to test effectiveness of promising interventions*: The key program here is Speed Management, linked to enforcement. Variable Speed Limits (signs) could be used to have lower speeds during the time of high numbers of crashes. These must be backed up with effective enforcement. This also includes the potential for lower speed limits on municipal roads that may experience high numbers of animal collisions.
- *New vehicle technology*: There are areas of promise here. Transport Canada reports the evolving improvement of safety measures in vehicles. This is a brief summary of relevant measures:

Measure	Pros	Cons
Infrared sensors	Increases drive response time. Suitable outside urban areas. Increases vision. Promising technology.	Available on high-end vehicles only. May become distracting. Complaints about size and resolution.
Enhanced headlights	Increases drive response time. Suitable outside urban areas. Increases vision 2X to 3V. Longer life. Enhances peripheral vision.	May blind other drivers if lights are nor adjusted or cleaned.
Adaptive front lighting system	Dynamic bending of light, enhances vision up to 4 degrees in curves. Improved driver comfort and safety. Reduces glare on wet road.	
Electronic Stability Control (ESC)	Helps in evaluation of lateral stability of vehicle. Enables better vehicle comparison. Showing great promise in Europe and North America.	
Collision warning systems	Increases drive response time. Suitable outside urban areas. Very promising technology.	

Question 2: What do you think the approach should be?

- Integrated Speed Management.
- Promotion of the use of vehicle safety devices and the purchase of vehicles that have these features.
- Any messaging should focus on "telling the driver WHAT to do, i.e. slow down and drive straight, and NOT on what not to do, i.e. swerve, brake hard.
- Try to get more data from other partners.

Question 3: What do you believe will be the barriers to adopting new and emerging vehicle safety technology?

- *Barriers to adopting new and emerging vehicle technology*: The cost of repairing vehicles with these new technologies is much greater than older vehicles. Bumpers, windows and mirrors that contain sensors or cameras are much more costly to replace. It used to be that only "high-end" vehicles had these features, but now more lower-priced vehicles are on the market with these safety devices.
- Wildlife Vehicle Collisions is a problem globally, to which no-one has found the ultimate "silver bullet". Even European countries that have installed miles of fencing have not solved the problem since even this initiative (fencing) has the potential for negative effects or unintentional consequences.

Question 4: What do you think is the public's perception of the available technology?

- *Public perception of technology*: As far as we have been able to determine, no-one has undertaken such a study. This is an area, however, where some research should be done. Research from the public's perspective is vital as a tool for making sound decisions in the marketplace.

Question 5: Are there other possible solutions we should be considering?

- A*re there any other possible solutions*? – The TIRF Road Safety Monitor 2016 revealed that generally speaking, as one ages the odds of hitting wildlife decreases over time. This may suggest that more experienced drivers are better able to avoid colliding with wildlife. Despite controlling for factors such as kilometres driven and urban versus rural areas it is also possible that as drivers age, they may not drive as much as younger drivers, they may not drive as frequently in areas where wildlife are present, or they may use other modes of transportation to reach destinations. However, as age increased among those who hit or almost hit wildlife, their likelihood for slowing down and steering straight decreased. This begs the question – Is this topic covered in the High School Driver Education Program in Manitoba?

CONCLUDING REMARKS - CAC

- Due to the environment, geography and habitat of local wildlife, Vehicle Wildlife Collisions will be an ongoing issue – but we should ask ourselves one important question: when weighed against other issues causing death and injury on Manitoba highways, what amount of human and/or financial resources should be dedicated to this issue, with a view to putting resources where they can be used most efficiently to save lives on Manitoba highways?

Comments from Automotive Trades Association (ATA) of Manitoba:

Suggested Questions for Discussion

1 & 2. What are your thoughts on our approach?

- *General public messaging*: Radio advertising likely reaches more audience as younger populations are moving away from cable TV to streaming.
- *Awareness efforts in higher collision areas:* At first new signage if lit appears to work; however, over time their impact lessens as drivers become immune to the visual cues. For example, when the high collision signage was posted on Leila at McPhillips, the temporary lit signage attracted attention. Once replace with permanent signage it blended into the streetscape and doesn't have the same impact. It's more visual noise. So, in my view, any signage needs to "rise" above the surrounding visual noise. Example – Colorful, High Impact Media Boards
- *Working with partners to help test the effectiveness of promising interventions*: MPI's data from post implementation reviews of its previous high collision signage efforts is likely a suitable proxy for effectiveness of signage in general. I don't know if there would be a significant change with wildlife signage.
- *New vehicle technology:* This is likely the best tool for preventing wildlife-related collisions for a set period of time (like the immobilizer program).

3. What do you believe will be the barriers to adopting new and emerging vehicle safety technology?
    - Probably buy-in; i.e. will the public believe it will make a difference to their safety. Overcoming "it won't happen to me" until it does and then you care especially if it was.
    - If wildlife claims have risen to the top of the priority list, then it's not too early. MPI knows what its priorities and finances are and if dollars are spent over too many prevention initiatives then this may dilute potential effectiveness

4. What do you think is the public's perception of the available technology?
    - Nice to have; not necessarily something I would go out to spend my disposable income on unless I was purchasing a new vehicle.

5. Are there other possible solutions we should be considering?
    - Tips on avoiding wildlife collisions; how and where to look for the animal when in high population areas

APPENDIX 2: Paper Form Used for Recording Wildlife Carcasses in B.C.

The following paper form is used by B.C. road maintenance staff for the mandatory logging of details concerning wildlife carcasses on the road. **A mobile app is currently being considered,** serving multiple purposes, which would no longer necessitate the use of highway markers (LKI).

BRITISH COLUMBIA | Ministry of Transportation and Infrastructure

WILDLIFE ACCIDENT REPORT REPORTING SYSTEM (WARS)
MONTHLY WILDLIFE ACCIDENT REPORT

This form is used to report wildlife carcasses found on Ministry roads and highways for the Wildlife Accident Reporting System (WARS). The information is used to support Ministry efforts to protect motorists and wildlife. If your service area has no wildlife carcasses to report this month, please check the "Nil Report" box below and submit the form.

MONTH *(Please Circle)* **Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec** **YEAR** .....

Enter the day of the month (e.g. 1, 2, 3, ... etc.) in the "Date" column below.

REGION *(Please Circle)* **1 2 3** **DISTRICT** ..... **SERVICE AREA:** .....

☐ **Nil Report - No wildlife carcasses to report**

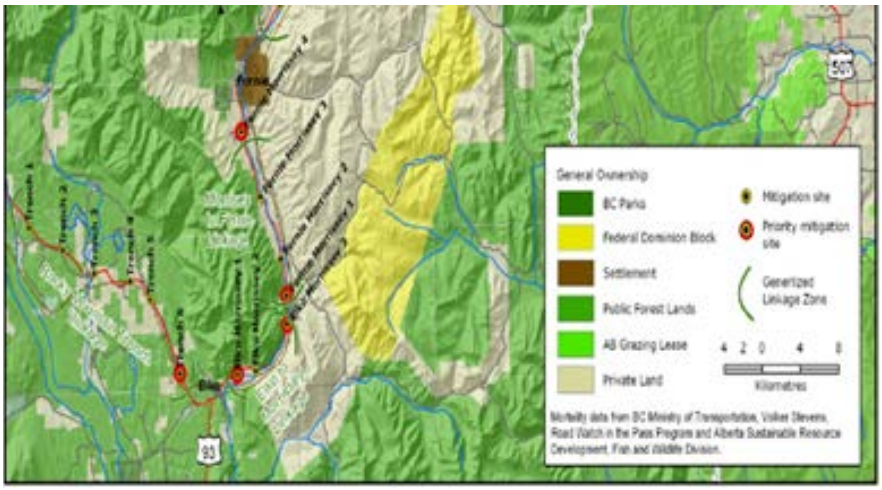
Date of Pickup	Time of Kill (1 = Dawn, 2 = Day, 3 = Dusk, 4 = Dark)	Location of Killed Animal (RFI = Road Features Inventory (optional); LKI = Landmark Kilometre Index (must be completed))						Deer Sign within 100m	Deer Rfletr	# Killed	Animal Type (Please Specify Sex (Male / Female / Unknown); Please Use "Y" to indicate if Yearling or Younger; (Other: Sheep, Caribou, Coyote, Porcupine, etc))												Comments
		Hwy	RFI		LKI		Nearest				Deer			Moose			Elk			Bear			Other	
		No.	Landmark	Offset	Segment	Km	Town	Y/N	Y/N		M	F	U	M	F	U	M	F	U	M	F	U	(please specify)	

Please provide the following information to assist in report follow-ups:

Maintenance Contractor Contact (Please Print) ..... Telephone .....

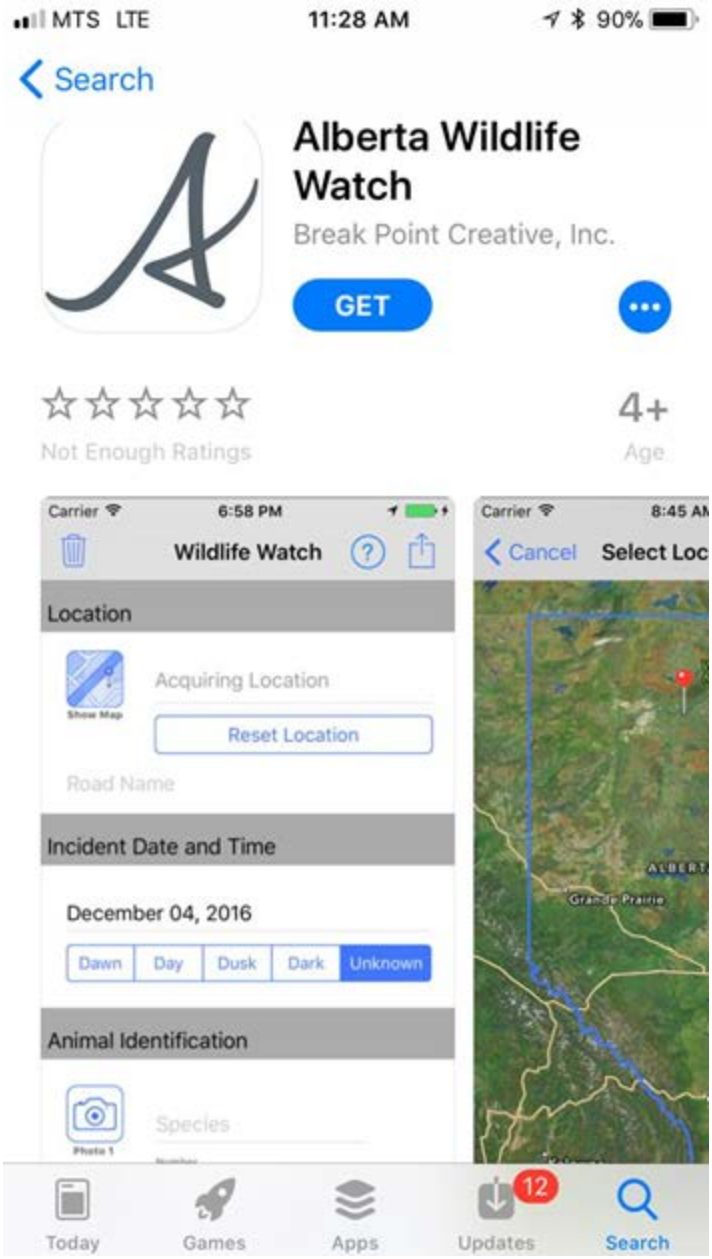
Within 30 days of completion, please send this form to:

Highway 3 - British Columbia: Mitigation Emphasis Site	Average Collision Rates: Species/Kilometer/Year				Total Annual Average Ungulate Collision Rate
	Deer	Elk	Moose	Bighorn	
Trench 1	0.8	0.4	0	0	1.2
Trench 2	1.4	0.1	0	0	1.5
Trench 3	2.9	0.1	0.1	0	3.1
Trench 4	2	0.7	0	0	2.7
Trench 5	1.1	0.8	0	0	1.9
Trench 6	2.2	0.2	0	0	2.4
Elko-Morrissey 1	0.9	0.1	0.1	0.1	1.2
Elko-Morrissey 2	1.2	0	0	0	1.2
Elko-Morrissey 3	0.6	0.1	0	0.05	0.75
Fernie-Morrisey 1	1.2	0.1	0.1	0.1	1.5
Fernie-Morrisey 2	1.05	0.2	0.1	0	1.35
Fernie-Morrisey 3	0.5	0.1	0.3	0	0.9
Fernie-Morrisey 4	0.9	0.4	0.5	0	1.8
Hartley Creek	0.9	1.1	0	0	2
Hosmer	0.4	0.1	0	0	0.5
Hosmer-Sparwood 1	0.8	0.2	0.1	0	1.1
Hosmer-Sparwood 2	0.4	1.1	0	0	1.5
Hosmer- Sparwood 3	0.8	0.6	0	0	1.4
Michel Creek	0.6	0.1	0	0	0.7
Carbon Creek Bridge	0.1	0	0	0.5	0.6
Alexander-Michel 1	0.8	0.9	0.2	0	1.9
Alexander-Michel 2	0.2	0	0	0	0.2



Example of wildlife-vehicle collision segment data for Highway 3 from the Columbia River to Fernie, B.C.

APPENDIX 3: Alberta Online Form for Roadside Maintenance Staff



APPENDIX 4: Cost Estimate Details for Enhanced Crossing Sign Research

Impact of Enhanced Widlife Crossing Signs on Driver Speed and Ability to Avoid a Wildlife Collision, as Determined by Driver Simulation				
COST ITEM:	Number	Rate	Hours	Cost
Software Designer (adapting existing B.C. program)	1	$100	50	$5,000
University Researcher - Project Management/Report	1	$60	70	$4,200
Assistant Researcher - Test Time*	1	$20	38	$760
Assistant Researcher - Data Compilation Time	1	$20	25	$500
Recruiting: University Students (on-campus posters, etc.)	0	$0	0	$0
Participants: Control Group (regular wildlife crossing signs)	150	$50	1	$7,500
Participants: Test Group (signs w. LED surround / amber	150	$50	1	$7,500
TOTAL COSTS:				$25,460
ASSUMPTIONS REGARDING TEST TIME:				
▪ 4 computer stations available at same time				
▪ 12-minute drive simulation				
▪ 3 drives per hour per station / 8 min. in between:				
min.				
▪ Per hour: 3 drives x 4 stations = 12 participants				
▪ Total Test Time: 300 participants / 12 = 25 hours*				
Hinges on university interest and approval.				
Hinges on B.C. researcher interest in adapting simulation used in previous wildlife signage research.				

Impact of Enhanced Wildlife Crossing Signs on Driver Speed and Alertness, as Determined by On-Site Traffic Information, and Local Resident Survey						
COST ITEM:	**Rate**	Number	Days	Hours	Number of Locations	Cost
Purchase of Enhanced Crossing Signs*						
▪ 1 per direction on 1 identified road per municipality	$5,000	2			3	$30,000
▪ Potential transport fees per unit from vendor	$150	2			3	$900
Speed Measurement Device						
▪ Daily rental for 1 VMS trailer (display turned down)	$100		21		3	$6,300
▪ Labour to transport 1 VMS trailer to site	$75			4	3	$900
▪ Labour to transport 1 VMS trailer from site	$75			4	3	$900
Local Resident Survey						
▪ 5-min. phone survey, assessing self behaviour (single location)	$10,000				1	$10,000
TOTAL COST:						$49,000
Hinges on Manitoba Infrastructure input:						
▪ approval to test new sign						
▪ input from maintenance staff on known hot spot						
**Rentals are not possible.*						
**Purchase price estimated only based on past notes; further details are expected soon.*						
NOTE: Contact in B.C. for almost all wildlife collision prevention questions is Len Silecki, however due to holiday period confirmation of costing may arrive sooner from the B.C. signage department, as arranged by Marc Traverso, 1-250-952-6588.						

[i] **Manitoba Public Insurance.** Collision Claims Statistics Report. July 2016.

PART VIII:
GENERAL APPENDICES

ART – APPLICATION RATE TABLES
AR – ANNUAL REPORTS
EAR – EXTERNAL ACTUARIAL REVIEW OF POLICY LIABILITIES
MP – MEDIA PACKAGE
FFM – FINANCIAL FORECAST MODEL UPDATE

Manitoba Public Insurance

APPLICATION RATE TABLES

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

APPLICATION RATE TABLES....3
ART.1 MISCELLANEOUS PERMITS AND CERTIFICATES....3
ART.2 DRIVER LICENCE PREMIUMS AND VEHICLE PREMIUM DISCOUNTS....4
ART.3 BASIC AUTOPAC SERVICE AND TRANSACTION FEES....6
ART.4 FLEET REBATES AND SURCHARGES....8
ART.5 BASIC RATE TABLES....10

APPLICATION RATE TABLES

ART.1 MISCELLANEOUS PERMITS AND CERTIFICATES

The ART.1 table displays the 2019/20 rate associated on Miscellaneous Permits and Certificates. For 2019/20, no changes are proposed to Permits and Certificates.

Figure ART-1: 2019/20 Miscellaneous Permits and Certificates

Insurance Use	Purpose	Premium
1. Interim Registration Permit[1]	7-Day Permit (issued by Dealers)	$29
2. Temporary Registration (30 day maximum)[2]	1 to 5 Days Each Additional Day	$29 $5

[1] A permit issued by a Dealer to the purchaser or lessee of a motor vehicle permitting it to be operated for a period of up to seven days.

[2] Provides insurance and registration for 1 to 30 days, for the purpose of moving a vehicle into, out of, within or through Manitoba. Available to Manitoba and non-Manitoba residents.

ART.2 DRIVER LICENCE PREMIUMS and VEHICLE PREMIUM DISCOUNTS

Effective March 1, 2010, Manitoba Public Insurance implemented the Driver Safety Rating (DSR) program as a method of measuring and classifying driver risk. The ART.2 table displays the 2019/20 Driver License Premiums and Vehicle Premium Discounts. For the 2019/20 Application, the Corporation is not proposing any changes to the DSR program. Additional information on Driver License Premiums and Vehicle Premium Discounts are contained in *Part V(ii) DCS Driver Classification System*.

Figure ART-2: 2019/20 Driver License Premiums and Vehicle Premium Discounts

Drivers License Premium and Vehicle Premium Discount Table	DSR Level	2019 Driver License Premium	2019 Vehicle Premium Discount
Merits	15	$15	33%
	14	$20	30%
	13	$20	29%
	12	$20	28%
	11	$20	27%
	10	$20	26%
	9	$25	25%
	8	$30	25%
	7	$30	25%
	6	$30	20%
	5	$30	15%
	4	$30	15%
	3	$35	10%
	2	$35	10%
	1	$40	5%
Base	**0**	**$45**	**0%**
Demerits	-1	$200	0%
	-2	$200	0%
	-3	$300	0%
	-4	$400	0%
	-5	$450	0%
	-6	$500	0%
	-7	$650	0%
	-8	$800	0%
	-9	$900	0%
	-10	$1,000	0%
	-11	$1,200	0%
	-12	$1,400	0%
	-13	$1,600	0%
	-14	$1,800	0%
	-15	$2,000	0%
	-16	$2,200	0%
	-17	$2,400	0%
	-18	$2,600	0%
	-19	$2,800	0%
	-20	$3,000	0%

ART.3 BASIC AUTOPAC SERVICE AND TRANSACTION FEES

The ART.3 table displays the 2019/20 Basic Autopac Service and Transaction Fees. For 2019/20, no changes are proposed to Service and Transaction fees. For more information on the Sevice Fee Review, please see *Part V(i) REV Revenues Appendix 3*

Figure ART-3: 2019/20 Basic Autopac Service and Transaction Fees

Name	Fee
Dishonoured Cheque	$20
Dishonoured Cheque (Electronic)	$20
Late Payment	$20
4 Payment Financing	$4 Plus Financing at Prime Plus 2%
12 Pre-Authorized Payment Financing	$4 Plus Financing at Prime Plus 2%
Mid-Term Change 4 Payment to 12 Pre-Authorized Payment Financing	$4 Plus Interest Adjustment
Ownership Document	$9
Transfer	$9
Load Increase/Decrease	$9
Vehicle Class Change	$9
Estate-to-Spouse Transfer	$9
Sticker Replacement	$9
Plate Replacement includes sticker (except Semi-trailer)	$9
Plate Replacement - Semi-trailer	$4

Name	Fee
Registration Card Replacement	$9
Coverage Reduction, except in the case of a reduction of excess value coverage	$15
Claims Record Request	$15
Request for Proof of Insurance	$15
Historical Document Request	$15
Change of Insurance Use from or to Collector passenger vehicle or truck	$15
Prorating:	
New Applications	Daily
Cancellations:	
Annual policy except motorcycle, moped, mobility vehicle, trailer less than $2,500, snow vehicle (DVA), off-road vehicle, collector vehicle	Short rate subject to minimum retained premium of $25
Short term policy except motorcycle, moped, mobility vehicle, collector vehicle	Short rate subject to minimum retained premium of $25 or 30 days written premium, whichever is greater
Motorcycle, moped, mobility vehicle, snow vehicle (DVA), collector vehicle	Seasonally prorated
Off-road vehicle, trailer $2,500 or less	No refund

ART.4 FLEET REBATES AND SURCHARGES

The ART.4 scale displays the 2019/20 Fleet Rebates and Surcharges. For 2019/20, no changes are proposed to Fleet Rebates or Surcharges. Additional information on the Fleet Rebates and Surcharges can be located in *Part V(ii) VCS Vehicle Classification Systems.*

The Fleet Rebate Scale is shown in the following table.

Figure ART-4: 2019/20 Fleet Rebates Scale

Loss Ratio (%)	Fleet Rebate (%)	Loss Ratio (%)	Fleet Rebate (%)
37% or lower	33%	54%	16%
38%	32%	55%	15%
39%	31%	56%	14%
40%	30%	57%	13%
41%	29%	58%	12%
42%	28%	59%	11%
43%	27%	60%	10%
44%	26%	61%	9%
45%	25%	62%	8%
46%	24%	63%	7%
47%	23%	64%	6%
48%	22%	65%	5%
49%	21%	66%	4%
50%	20%	67%	3%
51%	19%	68%	2%
52%	18%	69%	1%
53%	17%		

1 The Fleet Surcharge Scale is shown in the following table.

Figure ART-5: 2019/20 Fleet Surcharge Scale

Loss Ratio (%)	Fleet Surcharge (%)	Loss Ratio (%)	Fleet Surcharge (%)
70 - 79	Nil	105	26
80	1	106	27
81	2	107	28
82	3	108	29
83	4	109	30
84	5	110	31
85	6	111	32
86	7	112	33
87	8	113	34
88	9	114	35
89	10	115	36
90	11	116	37
91	12	117	38
92	13	118	39
93	14	119	40
94	15	120	41
95	16	121	42
96	17	122	43
97	18	123	44
98	19	124	45
99	20	125	46
100	21	126	47
101	22	127	48
102	23	128	49
103	24	129 or more	50
104	25		

ART.5 BASIC RATE TABLES

For the 2019 GRA, ART.5 Basic Rate Tables have been provided in Excel format, as an attachment to the Application PDF. The Excel Workbook can be accessed either through the Attachments pane in a PDF viewer, or by clicking *Part VIII ART Application Rate Tables*.

ANNUAL REPORTS

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

ANNUAL REPORTS

The Annual Reports section contains the audited Financial Statements for Universal Compulsory Automobile Insurance for the year ending February 28, 2018, a link to the Annual Audited Corporate Financial Statements, the 2017 Annual Report and the 2017-2021 Corporate Strategic Plan. The Quarterly Financial Report – Q1 is not available at the time of filing, and will be filed in July 2018.

UNIVERSAL COMPULSORY AUTOMOBILE INSURANCE AUDITED ANNUAL FINANCIAL STATEMENTS

Please see Appendix 1.

CORPORATE QUARTERLY FINANCIAL REPORT 1ST QUARTER

Appendix 2. The Quarterly Financial Report –Q1 will be filed in July 2018.

2017 ANNUAL REPORT

Please see Appendix 3.

CORPORATE AUDITED ANNUAL FINANCIAL STATEMENTS.

https://www.mpi.mb.ca/en/Newsroom/Pages/annualreports.aspx

2018-2019 MANITOBA PUBLIC INSURANCE ANNUAL BUSINESS PLAN

Please see Appendix 4.

MANITOBA PUBLIC INSURANCE

2017/18

UNIVERSAL COMPULSORY AUTOMOBILE INSURANCE

ANNUAL FINANCIAL STATEMENTS



FOR THE FISCAL YEAR ENDED FEBRUARY 28, 2018

RESPONSIBILITY FOR FINANCIAL STATEMENTS

The Universal Compulsory Automobile Insurance Financial Statements are derived from the Manitoba Public Insurance Corporation's (the Corporation) Annual Financial Statements and are considered by management to fairly represent the financial position, results of operations and changes in cash flow for the Universal Compulsory Automobile Insurance line of business (Basic Insurance line of business).

The financial statements are the responsibility of management and are prepared in accordance with International Financial Reporting Standards. The financial information contained in the annual report is consistent with that in the financial statements. The financial statements necessarily include amounts that are based on management's best estimate and judgments which have been reached based on careful assessment of data available through the Corporation's information systems. In the opinion of management, the accounting practices utilized are appropriate in the circumstances and the financial statements fairly reflect the financial position and results of operations of the Corporation.

In carrying out its responsibilities, management maintains appropriate systems of internal and administrative controls designed to ensure that transactions are accurately recorded on a timely basis, are properly approved and result in reliable financial statements. The adequacy and operation of the control systems are monitored on an ongoing basis by the Internal Audit Department.

The financial statements were approved by the Board of Directors, which has overall responsibility for their contents. The Board of Directors is assisted with this responsibility by its Audit, Finance and Risk Committee (the "Committee"), which consists primarily of Directors not involved in the daily operations of the Corporation.

The general responsibilities of the Committee are categorized into the following: review of financial reporting, review of internal controls and processes, review of actuarial functions, monitoring of corporate integrity, compliance with authorities and review of performance reporting. The Committee's role is that of oversight in these areas in order to ensure management processes are in place and functioning so as to identify and minimize risks to the business operations.

In carrying out the above responsibilities, this Committee meets regularly with management, and with both the Corporation's external and internal auditors to approve the scope and timing of their respective audits, to review their findings and to satisfy itself that their responsibilities have been properly discharged. The Committee is readily accessible to the external and internal auditors.

The Committee is responsible for the review of the actuarial function. As well, the Committee recommends, for approval, the appointment of the external actuary and their fee arrangements to the Board of Directors. The Appointed Actuary is responsible for ensuring that the assumptions and methods used in the valuation of policy and claims liabilities are in accordance with accepted actuarial practice, applicable legislation and associated regulations or directives. In addition, the Appointed Actuary provides an opinion regarding the valuation of policy and claims liabilities at the balance sheet date to meet all policyholder obligations of the Corporation. Examination of supporting data for accuracy and completeness of assets and their ability to meet the policy and claims liabilities are important elements in forming the Appointed Actuary's opinion.

PricewaterhouseCoopers LLP, the Corporation's appointed external auditors, have audited the Basic Insurance financial statements. Their Independent Auditors' Report is included herein. Their opinion is based upon an examination conducted in accordance with Canadian generally accepted auditing standards, performing such tests and other procedures as they consider necessary in order to obtain reasonable assurance that the financial statements are free of material misstatement and present fairly the financial position of the Basic Insurance line of business in accordance with International Financial Reporting Standards.

Benjamin Graham
President and Chief Executive Officer

Mark Giesbrecht, CPA, CGA
Vice-President, Finance and Chief Financial Officer

May 17, 2018



May 17, 2018

Independent Auditor's Report

To the Board of Directors of
Manitoba Public Insurance Corporation

We have audited the accompanying financial statements of Manitoba Public Insurance Corporation's Universal Compulsory Automobile Insurance line of business (the financial statements) which comprise the statement of financial position as at February 28, 2018 and the statements of operations, comprehensive loss, changes in equity and cash flows for the year then ended, and the related notes, which comprise a summary of significant accounting policies and other explanatory information.

Management's responsibility for the financial statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with International Financial Reporting Standards and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of Manitoba Public Insurance Corporation's Universal Compulsory Automobile Insurance line of business as at February 28, 2018 and the results of its operations and its cash flows for the year then ended in accordance with International Financial Reporting Standards.

PricewaterhouseCoopers LLP

Chartered Professional Accountants

PricewaterhouseCoopers LLP
Richardson Building, One Lombard Place, Suite 2300, Winnipeg, Manitoba, Canada R3B 0X6
T: +1 (204) 926 2400, F: +1 (204) 944 1020

"PwC" refers to PricewaterhouseCoopers LLP, an Ontario limited liability partnership.

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J. S. CHENG & PARTNERS INC

ACTUARY'S REPORT

To the Board of Directors of Manitoba Public Insurance Corporation:

I have valued the Universal Compulsory Automobile Insurance policy liabilities and reinsurance recoverables of Manitoba Public Insurance Corporation for its statements of financial position at February 28, 2018 and their change in the statement of operations for the year then ended in accordance with accepted actuarial practice in Canada including selection of appropriate assumptions and methods.

In my opinion, the amount of policy liabilities net of reinsurance recoverables makes appropriate provision for all policy obligations and the financial statements fairly present the results of the valuation.



_____

Joe S. Cheng
Fellow, Canadian Institute of Actuaries

Winnipeg, Manitoba

May 17, 2018

Financial Statements
Manitoba Public Insurance
Universal Compulsory Automobile Insurance

Statement of Financial Position

As at February 28 (in thousands of Canadian dollars)	*Notes*	**2018**	2017
Assets			
Cash and cash equivalents	*3*	**72,998**	61,606
Investments	*3*	**2,272,545**	2,189,534
Investment property	*3&4*	**34,720**	35,615
Due from other insurance companies	*5*	**2**	16
Accounts receivable	*24*	**389,186**	353,523
Prepaid expenses		**714**	1,866
Reinsurers' share of unpaid claims	*16&17*	**1,269**	611
Property and equipment	*7*	**89,280**	89,847
Deferred development costs	*8*	**55,423**	72,866
		2,916,137	2,805,484
Liabilities			
Due to other insurance companies	9	**141**	147
Accounts payable and accrued liabilities	*10*	**39,327**	40,443
Financing lease obligation	*11*	**3,125**	3,239
Unearned premiums and fees	*13*	**508,089**	472,041
Provision for employee current benefits	*14*	**16,633**	16,919
Provision for employee future benefits	*15*	**331,910**	301,245
Provision for unpaid claims	*16&17*	**1,806,067**	1,790,450
		2,705,292	2,624,484
Equity			
Retained Earnings	*19*	**170,975**	99,251
Accumulated Other Comprehensive Income	*20*	**39,870**	81,749
Total Equity		**210,845**	181,000
		2,916,137	2,805,484

Contingent Liabilities (note 28)

The accompanying notes are an integral part of these financial statements.

Approved by the Board of Directors:

Brent VanKoughnet
Chair

Domenic Grestoni, CPA, CGA
Chair, Audit, Finance and Risk Committee

Manitoba Public Insurance
Universal Compulsory Automobile Insurance

Statement of Operations

For the years ended February 28 (in thousands of Canadian dollars)	*Notes*	**2018**	2017
Earned Revenues			
Gross premiums written		**1,005,887**	935,424
Premiums ceded to reinsurers		**(11,294)**	(11,635)
Net premiums written		**994,593**	923,789
Increase (decrease) in gross unearned premiums		**(34,451)**	(16,644)
Net premiums earned		**960,142**	907,145
Service fees & other revenue	*21*	**22,849**	20,748
Total Earned Revenues		**982,991**	927,893
Claims Costs			
Direct claims incurred – gross		**767,915**	859,248
Claims (recovered) incurred ceded to reinsurers		**(676)**	787
Net claims incurred		**767,239**	860,035
Claims expense		**143,337**	120,972
Loss prevention/Road safety		**13,146**	12,530
Total Claims Costs		**923,722**	993,537
Expenses			
Operating		**70,201**	72,785
Commissions		**37,378**	35,086
Premium taxes		**29,143**	27,563
Regulatory/Appeal		**4,443**	4,889
Total Expenses		**141,165**	140,323
Underwriting loss		**(81,896)**	(205,967)
Investment income	3	**116,320**	82,897
Net income (loss) from operations		**34,424**	(123,070)

Statement of Comprehensive Income (Loss)

For the years ended February 28 (in thousands of Canadian dollars)	*Notes*	**2018**	2017
Net income (loss) from operations		**34,424**	(123,070)
Other Comprehensive Income (Loss)	*15&20*		
Items that will not be reclassified to income			
Remeasurement of Employee Future Benefits		**(24,538)**	(8,965)
Items that will be reclassified to income			
Unrealized gains on Available for Sale assets		**6,693**	88,547
Reclassification of net realized gains related to Available for Sale assets		**(24,034)**	(34,336)
Net unrealized gains (losses) on Available for Sale assets		**(17,341)**	54,211
Other Comprehensive Income (Loss) for the year		**(41,879)**	45,246
Total Comprehensive Loss		**(7,455)**	(77,824)

The accompanying notes are an integral part of these financial statements.

Manitoba Public Insurance
Universal Compulsory Automobile Insurance

Statement of Changes in Equity

(in thousands of Canadian dollars)	Rate Stabilization Reserve (RSR)	Accumulated Other Comprehensive Income	Equity
Balance as at March 1, 2016	194,497	36,503	231,000
Net loss from operations for the year	(123,070)	-	(123,070)
Other comprehensive income for the year	-	45,246	45,246
Transfer between Non-Basic Retained Earnings & RSR (Note19)	27,824	-	27,824
Balance as at February 28, 2017	**99,251**	**81,749**	**181,000**
Net income from operations for the year	**34,424**	**-**	**34,424**
Other comprehensive loss for the year	**-**	**(41,879)**	**(41,879)**
Transfer between Non-Basic Retained Earnings & RSR (Note19)	**37,300**	**-**	**37,300**
Balance as at February 28, 2018	**170,975**	**39,870**	**210,845**

The accompanying notes are an integral part of these financial statements.

Manitoba Public Insurance
Universal Compulsory Automobile Insurance

Statement of Cash Flows

For the years ended February 28 (in thousands of Canadian dollars)	*Notes*	**2018**	2017
Cash Flows from (to) Operating Activities:			
Net income (loss) from operations		**34,424**	(123,070)
Non-cash items:			
Depreciation of property and equipment		**3,860**	4,023
Amortization of deferred development costs		**17,099**	14,157
Amortization of bond discount and premium		**3,069**	3,016
Gain on sale of investments		**(21,609)**	(36,041)
Unrealized (gain) loss on Fair Value Through Profit or Loss bonds		**(8,079)**	20,453
Unrealized gain on pooled real estate		**(25,057)**	(14,087)
Unrealized (gain) loss on infrastructure investments		**(5,345)**	1,272
Impairment of Available for Sale investments		**930**	-
Impairment of deferred development costs		**18,449**	-
		17,741	(130,277)
Net change in non-cash balances:			
Due from other insurance companies		**14**	9
Accounts receivable and prepaid expenses		**(34,511)**	19,873
Deferred policy acquisition costs		**-**	4,782
Reinsurers' share of unearned premiums and unpaid claims		**(658)**	387
Due to other insurance companies		**(6)**	(5)
Accounts payable and accrued liabilities		**(1,116)**	1,582
Unearned premiums and fees		**36,048**	18,652
Provision for employee current benefits		**(286)**	48
Provision for employee future benefits		**6,127**	11,071
Provision for unpaid claims		**15,617**	131,737
		21,229	188,136
		38,970	57,859
Cash Flows from (to) Investment Activities:			
Purchase of investments		**(687,246)**	(739,707)
Proceeds from sale of investments		**643,879**	713,294
Acquisition of property and equipment net of proceeds from disposals		**(3,293)**	(5,130)
Financing lease obligation		**(114)**	(39)
Deferred development costs incurred		**(18,104)**	(21,609)
		(67,878)	(53,191)
Cash Flows from (to) Financing Activities:			
Transfer from Non-Basic Retained Earnings		**37,300**	27,824
Increase (Decrease) in Cash and Cash Equivalents		**11,392**	32,492
Cash and cash equivalents beginning of year		**61,606**	29,114
Cash and Cash Equivalents end of year	*3*	**72,998**	61,606
Supplemental cash flow information:			
Interest received		**45,127**	42,105
Dividends received		**12,580**	13,790

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

February 28, 2018

1. Basis of Reporting

Under the provisions of *The Manitoba Public Insurance Corporation Act* and regulations, the Manitoba Public Insurance Corporation (the Corporation) operates an automobile insurance division and a discontinued general insurance division. The lines of business for the automobiles insurance division includes the Basic Universal Compulsory Automobile Insurance (Basic Insurance line of business), extension and special risk coverages. These financial statements represent the Basic Insurance line of business only.

Under *The Drivers and Vehicles Act* (DVA), the Corporation is responsible for DVA operations pertaining to driver safety, vehicle registration and driver licensing, including all related financial, administrative and data processing services.

The Non-Basic lines of business consist of extension, special risk coverages and *The Drivers and Vehicles Act* operations.

The Basic Insurance line of business rates are approved by the Public Utilities Board of Manitoba (Note 26).

The address of the Corporation's registered office is 234 Donald Street, Winnipeg, Manitoba.

Statement of Compliance

The financial statements of the Basic Insurance line of business are presented in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

The financial statements were authorized for issue by the Board of Directors on May 17, 2018.

The allocation formulas approved by the Corporation's Board of Directors are as follows:

Allocation of Assets, Liabilities and Basic Insurance Retained Earnings
Assets and liabilities are allocated to the Basic Insurance line of business on the following basis:

i. Identifiable direct assets and liabilities are allocated directly to the Basic Insurance line of business.
ii. Other assets and liabilities are allocated to the Basic Insurance line of business bases on factors such as premiums written ratios, expense ratios and claims incurred ratios.

Allocation of Revenue, Claims Incurred and Expenses
Premiums written, premiums earned and claims incurred are allocated directly to the division writing the insurance risk.

Service fees and other revenue are allocated to the Basic Insurance line of business on factors such as premiums written ratios, expense allocation ratios and investment income allocation ratios. The formulas developed for the allocation of service fees and other revenue are approved by the Board of Directors.

Investment income is allocated to the Basic Insurance line of business based on a monthly averaging of the funds available within each division.

Expenses, including claims expense, are allocated to the Basic Insurance line of business on the following basis:

i. Identifiable direct expenses are charged to each line of business.
ii. Where direct allocation is not possible, expenses are prorated to Basic Insurance line of business based mainly on factors such as space, number of employees, time usage, Contact Centre statistics, premiums written ratios and net claims incurred ratios. The basis for allocation of indirect shared expenses is approved by the Board of Directors.
iii. The allocation of improvement initiative costs is based on a review of each project to determine which line of business will benefit from the project. The allocation basis for each project is approved by the Board of Directors.

Appointment of External Actuary
The external actuary is appointed by the Board of Directors of the Corporation. With respect to preparation of these financial statements, the Appointed Actuary is required to carry out a valuation of the insurance contract liabilities and to report thereon to the Corporation's Board of Directors. Insurance contract liabilities include unearned premiums and unpaid claims and adjustment expenses.

The Appointed Actuary also uses the work of the external auditors in their verification of the information prepared by the Corporation used in the valuation of the insurance contract liabilities.

Appointment of External Auditors
The external auditors are appointed by the Lieutenant Governor in Council to conduct an independent and objective audit of the financial statements of the Corporation in accordance with Canadian generally accepted auditing standards. In carrying out their audit, the external auditors also make use of the work of the Appointed Actuary and their report on the Corporation's insurance contract liabilities. The external auditors' report outlines the scope of their audit and their opinion.

Basis of Presentation

The Basic Insurance line of business presents its Statement of Financial Position in order of liquidity.

The following balances are generally classified as current: cash and cash equivalents, investments, due to/from other insurance companies, accounts receivable, prepaid expenses, reinsurers' share of unpaid claims, accounts payable and accrued liabilities, unearned premiums and fees and provision for employee current benefits.

The following balances are generally classified as non-current: investment property, property and equipment, deferred development costs, financing lease obligation, provision for employee future benefits and provision for unpaid claims.

These statements are presented in thousands of Canadian dollars which is the Corporation's functional and presentational currency except as otherwise specified.

Seasonality

The automobile insurance business, which reflects the primary business of the Basic Insurance line of business, is seasonal in nature. While net premiums earned are generally stable from quarter to quarter, underwriting income is typically highest in the first and second quarter of each fiscal year and lowest in the fourth quarter of each fiscal year. This is driven mainly by weather conditions which may vary significantly between quarters.

Basis of Measurement

The Corporation prepares its financial statements as a going concern, using the historical cost basis, except for financial instruments and insurance contract liabilities and reinsurers' share of unpaid claims. Measurement of the financial instruments is detailed in Note 2. Insurance contract liabilities and reinsurers' share of unpaid claims are measured on a discounted basis in accordance with accepted actuarial practice (which in the absence of an active market provides a reasonable proxy for fair value) as explained in Note 2.

Estimates and Judgments

The preparation of financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from these estimates.

2. Summary of Significant Accounting Policies

This summary outlines those accounting policies followed by the Corporation that have a significant effect on the financial statements.

Adoption of New and Amended Accounting Standards

Effective March 1, 2017, the Corporation adopted the following new and amended accounting standards:

IAS 7 – Statement of Cash Flows
In January, 2016, IAS 7 was amended to clarify that entities shall provide disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash changes. The Corporation has adopted these amendments on March 1, 2017 and has determined that there were no significant impacts to the financial statements.

Annual Improvement Cycles
The annual improvements cycle for 2014–2016 was issued in December 2016 by the IASB and included minor amendments to IFRS 12 *Disclosure of interests in other entities*. The Corporation has adopted these amendments on March 1, 2017, and has determined that there were no significant impacts to the financial statements.

Investments

Funds available for investments are managed by the Manitoba Department of Finance, on behalf of the Corporation, in accordance with Section 12(1) of *The Manitoba Public Insurance Corporation Act*.

The Corporation's directly held real estate investments are recorded at cost and are being depreciated over their estimated useful life.

The Corporation has classified or designated its financial assets and liabilities in the following categories:
- available for sale (AFS)
- held to maturity (HTM)
- financial assets and liabilities at fair value through profit or loss (FVTPL)
- loans and receivables
- other financial liabilities

The Corporation accounts for the purchase and sale of securities using settlement date accounting.

i) AFS Financial Assets
AFS financial assets are initially measured at fair value on the Statement of Financial Position starting on the settlement date. Subsequent to initial recognition, AFS assets are carried at fair value with changes in fair value recorded in OCI until the asset is disposed of, or has become impaired. As long as an AFS asset is held and not impaired, the gains and losses are not recognized in the Statement of Operations. When the asset is disposed of, or has become impaired, the gain or loss is recognized in the Statement of Operations and the amount is deducted from OCI.

Transaction costs related to AFS financial assets are capitalized on initial recognition.

ii) HTM Financial Assets
HTM financial assets are carried at amortized cost on the Statement of Financial Position starting on the settlement date.

Transaction costs related to financial assets and liabilities classified as HTM are capitalized on initial recognition, when applicable.

iii) FVTPL Financial Assets

FVTPL financial assets are carried at fair value on the Statement of Financial Position starting on the settlement date and the changes in fair value are recorded in the Statement of Operations.

The fair values of FVTPL bonds including federal, provincial, certain municipal, certain hospitals, other provinces and corporations are estimated based on bid prices of these or similar investments.

Transaction costs related to FVTPL financial assets are recognized in the Statement of Operations on initial recognition.

Loans and Receivables

Accounts receivable and due from other insurance companies are designated as loans and receivables and are carried at amortized cost using the effective interest method. These receivables include financing plans for customers using interest rates set at the prime rate of the Corporation's principal banker plus 2.0 per cent and updated at each fiscal quarter. The interest rate for a customer remains unchanged throughout the term of the policy.

Cash and Cash Equivalents

Cash and cash equivalents are comprised of cash, current operating accounts, provincial short term deposits (less than 90 days at the time of purchase) and funds held in trust on behalf of other insurance companies and are designated as AFS.

Impairment of Financial Assets

Financial assets, other than those at FVTPL, are assessed for indicators of impairment at the end of each reporting period. Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been affected.

For equity investments classified as AFS, a significant or prolonged decline in the fair value of the security below its cost is considered to be objective evidence of impairment.

For all other financial assets, objective evidence of impairment could include:

- Significant financial difficulty of the issuer or counterparty; or
- Default or delinquency in interest or principal payments; or
- The lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider; or
- It is becoming probable that the borrower will enter bankruptcy or financial reorganization; or
- The disappearance of an active market for that financial asset because of financial difficulties; or
- Observable data indicating that there is a measurable decrease in the estimated future cash flows from a group of financial assets since the initial recognition of those assets, although the decrease cannot yet be identified with the individual financial assets in the group.

For financial assets carried at amortized cost, the amount of the impairment loss recognized is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate.

When an AFS asset is considered to be impaired, cumulative gains or losses previously recognized in OCI are reclassified to profit or loss in the period. Subsequent declines in value continue to be recorded through profit and loss.

With the exception of AFS equity instruments, if, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed through profit or loss to the extent that the carrying amount of the investment at the date the impairment is reversed does not exceed what the amortized cost would have been had the impairment not been recognized.

In respect of AFS equity securities, impairment losses previously recognized in profit or loss are not reversed through profit or loss. Any increase in fair value subsequent to an impairment loss is recognized in OCI.

Derecognition of Financial Assets
The Corporation derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Corporation neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Corporation recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Corporation retains substantially all the risks and rewards of ownership of a transferred financial asset, the Corporation continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

Financial Liabilities
All financial liabilities are designated as other financial liabilities and are recorded in the Statement of Financial Position at amortized cost. Financial liabilities include:

- Due to other insurance companies and Accounts payable and accrued liabilities which are all current liabilities; and
- Financing lease obligation which is a non-current liability, payable over the life of the lease.

The carrying value of the Corporation's financial liabilities approximates their fair value.

Derivatives
The Corporation uses currency swaps to manage the currency risk on specific foreign exchange denominated assets. Any gains or losses are recorded in the Statement of Operations under the heading "Investment income," on a fair value basis.

A currency swap is a contractual agreement for specified parties to exchange the cash flow of one currency for a fixed cash flow of another currency.

Fair Value Determination
The fair values of financial instruments are obtained from external pricing services and are based on bid prices for financial assets. Cash equivalent investments comprise investments due to mature within 90 days from the date of purchase and are carried at fair value. Refer to Note 3 for further information on the fair value of financial instruments.

Deferred Policy Acquisition Costs

To the extent premium acquisition costs such as commissions and premium taxes are recoverable from unearned premiums, they are deferred and amortized to income over the term of the related policies.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Replacement costs are capitalized when incurred and if it is probable that future economic benefits associated with the item will flow to the Corporation and the cost of the item can be measured reliably. All repairs and maintenance costs are recognized in net income (loss) during the period in which they occur.

Depreciation is provided on a straight-line basis which will depreciate the cost of each asset to its residual value over its estimated useful life:

Land & Building

• HVAC systems	20 years
• land improvements	25 years
• roofing systems	30 years
• elevators/escalators	30 years
• buildings	40 years

Furniture & Equipment

• computer equipment	3 years
• vehicles	5 years
• furniture and equipment	10 years
• demountable wall systems	10 years

Buildings held under a long-term lease arrangement are depreciated on a straight-line basis over 40 years. Leasehold improvements are carried at cost and are depreciated over the term of the lease plus the first renewal period. Depreciation of construction in progress will begin, in accordance with the above policy, when construction has been completed. Land is not subject to depreciation and is carried at cost.

Investment Property

In the determination of what constitutes investment property relative to property and equipment, the Corporation has considered the intended use of the property, the ability to sell the property, and the ability of the Corporation to lease the property or a portion of the property under a finance lease.

The Corporation's investment property, which is property held to earn rentals and/or capital appreciation, is measured initially at its cost, including transaction costs. The Corporation has elected to use the cost model to subsequently value its investment property. Therefore, the investment property's carrying amount is valued at cost less accumulated depreciation and impairment losses. Depreciation is based on the useful life of each component of the investment property along with the property's residual value. The Corporation assesses its investment property for impairment on an annual basis in accordance with the impairment test guidance set forth in IAS 36, *Impairment of Assets*.

Depreciation is provided on a straight-line basis which will depreciate the cost of each asset to its residual value over its estimated useful life:

- HVAC systems 20 years
- roofing systems 30 years
- elevators/escalators 30 years
- buildings 40 years

Tenant improvements are carried at cost and are depreciated over the term of the lease plus the first renewal period. Depreciation of construction in progress will begin, in accordance with the above policy, when construction has been completed and the investment property is deemed available for use. Land is not subject to depreciation and is carried at cost.

Deferred Development Costs (Intangible Assets)

The costs of developing major information systems that are expected to provide an economic benefit to the Corporation are deferred to future periods. These information system expenditures are stated at cost net of accumulated amortization and accumulated impairment losses and are amortized on a straight-line basis over five years.

An internally-generated intangible asset arising from development (or from the development phase of an internal project) is recognized if, and only if, all of the following have been demonstrated:

- the technical feasibility of completing the intangible asset so that it will be available for use or sale;
- the intention to complete the intangible asset and use or sell it;
- the ability to use or sell the intangible asset;
- how the intangible asset will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- the ability to measure reliably the expenditure attributable to the intangible asset during its development.

The amount initially recognized for internally-generated intangible assets is the sum of the expenditure incurred, including directly assigned employee costs, from the date when the intangible asset first meets the recognition criteria listed above. Where no internally-generated intangible asset can be recognized, development expenditures are recognized in income or loss in the period in which they are incurred. Subsequent to initial recognition, internally-generated intangible assets are reported at cost less accumulated amortization and accumulated impairment losses.

Impairment of Tangible and Intangible Assets (Other Than Financial Assets)
When specific events or circumstances arise, the Corporation reviews the carrying amount of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where the asset does not generate cash flows that are independent from other assets, the Corporation estimates the recoverable amount of the cash generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset is estimated to be less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount. An impairment loss is recognized as an expense immediately.

Where an impairment loss subsequently reverses, the carrying amount of the asset or cash generating unit is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior years. A reversal of an impairment loss is recognized as income immediately.

Leasing

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Manitoba Public Insurance as a Lessee
Assets held under finance leases are initially recognized as assets of the Corporation at their fair value at the commencement of the lease or, if lower, at the present value of the minimum lease payments. The corresponding liability to the lessor is included in the Statement of Financial Position as a finance lease liability.

Lease payments are apportioned between finance expenses and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability.

Operating lease payments are recognized as an expense on a straight-line basis over the lease term, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

Manitoba Public Insurance as a Lessor
Manitoba Public Insurance leases retail, office and parking space in cityplace properties, a building and parking facilities owned by Manitoba Public Insurance. All of these leases are considered operating leases.

Revenue

Premiums
Written premiums comprise the premiums on contracts commencing in the fiscal year. Earned premiums represent the portion of written premiums earned through the year on a prorata basis by way of insurance coverage. Written and earned premiums are stated gross of commissions and premium taxes payable and are reported on a gross basis and net of amounts ceded to reinsurance companies.

Unearned Premiums
The liability for unearned premiums is the portion of premiums that relate to the unexpired term of each insurance contract.

Interest Revenue
Interest revenue is recognized when it is probable that the economic benefits will flow to the Corporation and the amount of revenue can be measured reliably. Interest revenue is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount on initial recognition.

Investment Income
Investment income is recorded as it accrues. Dividend income from investments is recognized when the Corporation's rights to receive payments is established. Dividend income on common and preferred shares is recorded on the ex-dividend date. Distributions on pooled funds are recorded on the income distribution date. Gains and losses are determined and recorded as at the trade date, and are calculated on the basis of average cost. The effective interest rate method is used to amortize premiums or discounts on the purchase of bonds.

Realized Gains and Losses
The realized gain or loss on disposal of an investment is the difference between the proceeds received, net of transaction costs, and its original cost or amortized cost as appropriate.

The realized gain or loss on disposal of property and equipment is the difference between the proceeds received, net of transaction costs, and its original cost or depreciated cost as appropriate.

Unrealized Gains and Losses
Unrealized gains or losses represent the difference between the carrying value at the year-end and the carrying value at the previous year-end or purchase value during the year, less the reversal of previously recognized unrealized gains or losses in respect of disposals during the year.

Provisions

Provisions are recognized when the Corporation has a present obligation (legal or constructive) as a result of a past event, it is probable that the Corporation will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably.

Provision for Employee Current Benefits
The provision for employee current benefits includes accruals for vacation pay and sick pay determined in accordance with the Collective Agreement and Corporate policy.

Provision for Employee Future Benefits

Included in the provision for employee future benefits are the pension benefit plan and other benefit plans.

i. Pension Benefit Plan

The employees of the Corporation are members of a defined benefit pension plan administered under *The Civil Service Superannuation Act.* Included in the accounts is a provision for the employer's future pension liability calculated on an indexed basis. The provision for pension is actuarially determined on an annual basis using the projected benefit method prorated on services. The actuarial present value of the accrued pension benefits is measured using the Corporation's best estimates based on assumptions relating to market interest rates at the measurement date based on high quality debt instruments, salary changes, withdrawals and mortality rates. Changes in experience gains and losses are recognized in the current period. Current service costs and interest costs are recognized in net income in the current period. Actuarial gains and losses are recognized in OCI in the current period.

The Corporation values its pension benefit plan annually, the most recent valuation is at December 31, 2017. Roll-forward procedures are performed to ensure that the December 31, 2017 valuation is a reliable estimate of the valuation at February 28, 2018.

ii. Other Benefit Plans

Other benefit plans consist of two post-retirement extended health plans and severance pay benefits.

The provision for post-retirement extended health benefits is actuarially determined on an annual basis using the projected benefit method prorated on services, which includes the Corporation's best estimates based on assumptions relating to retirement ages of employees and expected health costs. Changes in experience gains and losses are recognized in the current period. Current service costs and interest costs are recognized in net income in the current period. Actuarial gains and losses are recognized in OCI in the current period.

Employees of the Corporation are entitled to severance pay in accordance with the Collective Agreement and Corporate policy. The provision for severance pay is actuarially determined on an annual basis using the projected benefit method prorated on services, without salary projection, which includes the Corporation's best estimates based on assumptions relating to the proportion of employees that will ultimately retire.

Provision for Unpaid Claims

IFRS 4, *Insurance Contracts* permits the continued use of insurance liability valuation methods previously used under pre-IFRS Canadian Generally Accepted Accounting Principles (GAAP). The Corporation establishes reserves for payment of claims and adjustment expenses that arise from the Corporation’s insurance products. The reserve balance represents the expected ultimate cost to settle claims occurring prior to, but still outstanding as of, the reporting date. There are two categories of loss reserves: (1) reserves for reported losses and (2) reserves for incurred but not yet reported (IBNR) losses. In addition, reserves are set up for internal loss adjustment expenses, which include estimated internal costs and other expenses that are expected to be incurred to finalize the settlement of the losses. The Corporation discounts its liabilities for unpaid claims and includes a provision for adverse deviations. Liabilities for unpaid claims are estimated using the input of assessment for individual cases reported to the Corporation and statistical analyses for the claims IBNR. Claims and adjustment expenses are charged to income as incurred.

All of the Corporation's insurance policies meet the definition of an insurance contract and have been accounted for in accordance with IFRS 4.

Reinsurers’ share of unpaid claims are recognized when the related gross insurance claim is recognized according to the terms of the relevant reinsurance contracts.

Liability Adequacy Test

At each reporting period, insurance liability adequacy tests are performed to ensure the adequacy of the contract liabilities, net of related Deferred Policy Acquisition Costs (DPAC) and Reinsurers' Share of Unpaid Claims. In performing these tests, current best estimates of future contractual cash flows and claims handling and administration expenses, as well as investment income from the assets backing such liabilities, are used. A premium deficiency exists when estimated future claims and related expenses exceed unearned premiums. Any resulting deficiency is recognized first by writing down the DPAC with any remainder recognized as a premium deficiency in unpaid claims.

Salvage and Subrogation

Recoveries from salvage and subrogation are recorded as an offset to claims costs. Expected future subrogation recoveries are included in the provision for unpaid claims.

Structured Settlements

In the normal course of tort claims adjudication, the Corporation settles certain long-term claims losses through the purchase of annuities under structured settlement arrangements with life insurance companies. As the Corporation does not retain any interest in the related insurance contract and obtains a legal release from the claimant, any gain or loss on the purchase of the annuity is recognized in the Statement of Operations at the date of purchase and the related claims liabilities are derecognized. While, the Corporation remains exposed to the credit risk that the life insurance companies may fail to fulfill their obligations, management believes this risk to be remote.

Reinsurance Ceded

Premiums, claims and expenses are reported gross and net of amounts due to and recoverable from reinsurers. Estimates of amounts recoverable from reinsurers on unpaid claims are recorded separately from estimated amounts payable to policyholders.

The reinsurers' share of unearned premiums is recognized as an asset in a manner which is consistent with the method used in determining the unearned premium liability.

Foreign Currency

Monetary items denominated in foreign currencies are adjusted to reflect the exchange rate in effect at the year-end. Revenue and expense items in foreign currencies are translated at the exchange rate in effect at the transaction date. Unrealized gains or losses arising on translation are charged to operations in the current year.

Changes in unrealized foreign exchange currency translation amounts for AFS equity investments are recorded in OCI, and included in accumulated other comprehensive income (AOCI) until recognized in the Statement of Operations.

Comprehensive Income

Comprehensive income consists of net income (loss) from operations and other comprehensive income (loss). Changes in unrealized gains and losses on financial assets classified as AFS are recorded in OCI, and included in AOCI until recognized in the Statement of Operations. Actuarial gains and losses on employee future benefits amounts are recorded in OCI and included in AOCI. AOCI is included on the Statement of Financial Position as a separate component.

Critical Accounting Judgments and Key Sources of Estimation Uncertainty

In the application of the Corporation's accounting policies, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period; or in the period of the revision and future periods if the revision affects both current and future periods.

Allowance for Doubtful Accounts

The Corporation must make an assessment of whether accounts receivable are collectible from customers. Accordingly, management establishes an allowance for estimated losses arising from non-payment of accounts receivable.

Deferred Development Costs (Intangible Assets)

Deferred development costs represent a significant portion of ongoing expenditures related to information systems development. Management estimates the expected period of benefit over which capitalized costs will be amortized. The considerations which form the basis of the assumptions for these estimated useful lives include the timing of technological obsolescence and customer service requirements, as well as historical experience and internal plans for the projected use of the information systems.

Provision for Unpaid Claims

With respect to preparation of these financial statements, the Appointed Actuary is required to carry out a valuation of the insurance contract liabilities and to provide an opinion to the Corporation's Board of Directors regarding their appropriateness at the reporting date. The factors and techniques used in the valuation are in accordance with accepted actuarial practice, applicable legislation and associated regulations.

Provisions for unpaid claims and adjustment expenses are valued based on Canadian accepted actuarial practice, which are designed to ensure the Corporation establishes an appropriate reserve on the Statement of Financial Position to cover insured losses with respect to the reported and unreported claims incurred as of the end of each accounting period. The insurance contract liabilities include a provision for unpaid claims and adjustment expenses on the expired portion of policies and of future obligations on the unexpired portion of policies. In performing the valuation of the liabilities for these contingent future events, the Appointed Actuary makes assumptions as to future loss ratios, trends, reinsurance recoveries, investment rates of return, expenses and other contingencies, taking into consideration the circumstances of the Corporation and the nature of the insurance policies.

The assumptions underlying the valuation of provisions for unpaid claims and adjustment expenses are reviewed and updated by the Corporation on an ongoing basis to reflect recent and emerging trends in experience. Sensitivity of these assumptions and the impact on net insurance contract liabilities and equity are fully disclosed in Note 17.

Provision for Employee Future Benefits

The Corporation has a defined benefit pension plan, severance benefit plan and post retirement extended health benefit plans. The determination of expenses and liabilities associated with employee future benefits requires the use of critical assumptions such as discount rates, expected mortality rate, inflation rates, expected salary increases and expected health care cost increases. Due to the nature of the estimates used in the valuation process there is inherent measurement uncertainty within the employee future benefit assumptions. See Note 15 for further details of the significant estimates and changes impacting the current period financial statements.

Fair Value of Level Three AFS and FVTPL Investments

Level 3 assets and liabilities would include financial instruments whose values are determined using internal pricing models, discounted cash flow methodologies, or similar techniques that are not based on observable market data, as well as instruments for which the determination of estimated fair value requires significant management judgment or estimation. See Note 3 for further details of valuation methods and assumptions.

Future Changes in Accounting Policy and Disclosure

Certain new standards, interpretations, amendments and improvements to existing standards were issued by The International Accounting Standards Board (IASB) or International Financial Reporting Interpretations Committee (IFRIC) that are mandatory for annual reporting periods beginning on January 1, 2017 or later periods. The standards that may have an impact to the Corporation are:

IFRS 4 – Insurance Contracts

In September 2016, IFRS 4 *Insurance Contracts* was amended to address concerns regarding the different effective dates of IFRS 9 *Financial Instruments* and the new insurance contracts standard IFRS 17 *Insurance Contracts*. The amendment provides a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Alternatively, the amendment provides an option to permit entities that issue insurance contracts to reclassify, from profit or loss to OCI, the volatility arising from financial assets reclassified as FVTPL under IFRS 9 that were not FVTPL under IAS 39 *Financial Instruments: Recognition and Measurement*.

This amendment is effective for annual periods beginning on or after January 1, 2018. Based on the amendments to IFRS 4, the Corporation meets the criteria to defer IFRS 9 and is currently evaluating the impact that this standard will have on its financial statements.

IFRS 7 – Financial Instruments: Disclosures

In December 2011, IFRS 7 *Financial Instruments: Disclosures* was amended to require additional financial instrument disclosures upon transition from IAS 39 *Financial Instruments: Recognition and Measurement* to IFRS 9 *Financial Instruments*. The amendments are effective upon adoption of IFRS 9, which is effective for annual periods beginning on or after January 1, 2018. However, in September 2016, IFRS 4 *Insurance Contracts* was amended to provide an option of a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Therefore, qualifying entities will have the option to adopt IFRS 9 upon the adoption of IFRS 17 *Insurance Contracts*. The Corporation will qualify for a temporary exemption; thus, the amended IFRS 7 is effective for annual periods beginning on or after January 1, 2021. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

IFRS 9 – Financial Instruments

IFRS 9 *Financial Instruments* was issued in July 2014 and is intended to replace IAS 39 *Financial Instruments: Recognition and Measurement*. IFRS 9 is a three part standard aimed at reducing complexity in reporting financial instruments. The project has been divided into three phases: Phase 1 *Classification and measurement*, Phase 2 *Impairment* and Phase 3 *Hedge accounting*. Phase 1 was issued in November 2009 and amended in October 2010. It requires financial assets to be recorded at amortized cost or fair value depending on the entity's business model for managing the assets and their associated cash flow characteristics. All financial assets are to be measured at fair value on the balance sheet if they are not measured at amortized cost. At initial recognition, an entity may irrevocably designate a financial asset as measured at FVTPL if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases.

Phase 2 was completed in July 2014 and introduced a new expected loss impairment methodology that will result in more timely recognition of impairment losses. Phase 3 was completed in November 2013. This phase replaces the rule-based hedge accounting requirements in IAS 39 to more closely align the accounting with risk management activities.

The standard is effective for annual periods beginning on or after January 1, 2018. However, in September 2016, IFRS 4 *Insurance Contracts* was amended to provide an option of a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Therefore, qualifying entities will have the option to adopt IFRS 9 upon the adoption of IFRS 17 *Insurance Contracts*. The Corporation will qualify for a temporary exemption; thus, IFRS 9 is effective for annual periods beginning on or after January 1, 2021. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

Note disclosures that both explain how an entity qualified for the temporary exemption and allow for comparison with other entities applying IFRS 9 will be required during the deferral period. The Corporation is evaluating the impact this will have on the financial statements.

IFRS 15 – Revenue from Contracts with Customers

IFRS 15 *Revenue from Contracts with Customers* was issued in May 2014 and is intended to replace IAS 18 *Revenue*, IAS 11 *Construction Contracts* and related IFRICs. The standard was issued as a result of an ongoing project to align revenue recognition between IFRS and U.S. Generally Accepted Accounting Principles. The standard provides a single, principles based five-step model to be applied to all contracts with customers. The standard is effective for annual periods beginning on or after January 1, 2018. IFRS 15 contains a scope exception which excludes insurance contracts within the scope of IFRS 4 *Insurance Contracts* and financial instruments within the scope of IFRS 9 *Financial Instruments*; therefore, this standard will have a limited impact on the Corporation.

IFRS 16 – Leases

IFRS 16 *Leases* was issued in January, 2016 and is intended to replace IAS 17, *Leases* and related IFRICs. This standard was issued as a result of a joint project with the U.S. Financial Accounting Standards Board. This standard provides a single lessee accounting model whereby a lessee recognizes a right-of-use asset and a lease liability for all leases. A lessee may elect to apply an exemption to the standard for: leases with a term of 12 months or less that contain no purchase options; or leases where the underlying asset has a low value. This standard is effective for annual periods beginning on or after January 1, 2019. Early application is permitted if IFRS 15 *Revenue from Contracts with Customers* has also been adopted.

IFRS 17 – Insurance Contracts

IFRS 17 *Insurance Contracts* was issued in May 2017 and will replace IFRS 4 *Insurance Contracts*. The intent of the standard is to establish consistent recognition, measurement, presentation and disclosure principles to provide relevant and comparable reporting of insurance contracts across jurisdictions.

The standard requires entities to measure insurance contract liabilities as the risk-adjusted present value of the cash flows plus the contractual service margin, which represents the unearned profit the entity will recognize as future service is provided. This is referred to as the general model. Expedients are specified, provided the insurance contracts meet certain conditions. If, at initial recognition or subsequently, the contractual service margin becomes negative, the contract is considered onerous and the excess is recognized immediately in the statement of operations. The standard also includes significant changes to the presentation and disclosure of insurance contracts within entities' financial statements.

IFRS 17 is effective for annual reporting periods beginning on or after January 1, 2021. The standard is to be applied retrospectively unless impracticable, in which case a modified retrospective approach or fair value approach is to be used for transition. Early application is permitted where entities have also adopted IFRS 15 *Revenue from Contracts with Customers* and IFRS 9 *Financial Instruments*. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

IAS 40 – Investment Property

In December 2016, IAS 40 *Investment Property* was amended to state that an entity shall transfer a property to, or from, investment property when, and only when, there is evidence of a change in use. A change of use occurs if property meets, or ceases to meet, the definition of investment property. A change in management's intentions for the use of a property by itself does not constitute evidence of a change in use. The amendments are effective for annual periods beginning on or after January 1, 2018. The Corporation does not expect this amendment to impact the financial statements.

Annual Improvements

The annual improvements process is used to make necessary but non-urgent changes to IFRSs that are not included in other projects.

The annual improvement cycle for 2014-2016 was issued in December 2016 by the IASB and included minor amendments to IFRS 1 *First-time Adoption of International Financial Reporting Standards*, and IAS 28 *Investments in Associates and Joint Ventures*. The amendments to IFRS 1 and IAS 28 are effective for annual periods beginning on or after January 1, 2018. The Corporation does not expect these amendments to significantly impact the financial statements.

In December 2017, the IASB issued Annual Improvements Cycle 2015-2017, and included minor amendments to IFRS 3, *Business Combinations,* IFRS 11, *Joint Arrangements,* IAS 12, *Income Taxes,* and IAS 23, *Borrowing Costs.* The annual improvements process is used to make necessary but non-urgent changes to IFRS that are not included in other projects. The amendments issued are all effective for annual periods beginning on or after January 1, 2019. The Corporation is evaluating the impact these amendments will have on the consolidated financial statements.

3. Investments

Cash consists of cash net of cheques issued in excess of amounts on deposit.

Cash equivalent investments have a total principal amount of $71.0 million (February 28, 2017 – $54.5 million) comprised of provincial short-term deposits with effective interest rates of 1.10 per cent (February 28, 2017 – 0.55 per cent), with interest receivable at varying dates.

The Corporation has an unsecured operating line of credit with its principal banker in the amount of $5.0 million (February 28, 2017 - $5.0 million). The unsecured operating line of credit remained unutilized at February 28, 2018 (February 28, 2017 – nil).

Cash and Investments

	Financial Instruments				Total
As at February 28, 2018 (in thousands of Canadian dollars)	**Classified as AFS**	**Classified as HTM**	**Classified as FVTPL**	**Non-Financial Instruments**	**Carrying Value**
Cash and cash equivalents	**72,998**	**-**	**-**	**-**	**72,998**
Bonds					
Federal	**-**	**-**	**24,031**	**-**	**24,031**
Manitoba:					
Provincial	**-**	**-**	**109,027**	**-**	**109,027**
Municipal	**-**	**23,384**	**27,723**	**-**	**51,107**
Schools	**-**	**504,139**	**-**	**-**	**504,139**
Other provinces:					
Provincial	**-**	**-**	**764,781**	**-**	**764,781**
Municipal	**-**	**-**	**59,858**	**-**	**59,858**
Corporations	**-**	**-**	**98,974**	**-**	**98,974**
	-	**527,523**	**1,084,394**	**-**	**1,611,917**
Other investments	**1,154**	**-**	**-**	**-**	**1,154**
Infrastructure	**-**	**-**	**85,492**	**-**	**85,492**
Equity investments	**349,309**	**-**	**-**	**-**	**349,309**
Pooled Real Estate Fund	**-**	**-**	**224,673**	**-**	**224,673**
Investments	**350,463**	**527,523**	**1,394,559**	**-**	**2,272,545**
Investment property	**-**	**-**	**-**	**34,720**	**34,720**
Total	**423,461**	**527,523**	**1,394,559**	**34,720**	**2,380,263**

As at February 28, 2017 (in thousands of Canadian dollars)	Financial Instruments Classified as AFS	Classified as HTM	Classified as FVTPL	Non-Financial Instruments	Total Carrying Value
Cash and cash equivalents	61,606	-	-	-	61,606
Bonds					
Federal	-	-	50,672	-	50,672
Manitoba:					
Provincial	-	-	121,794	-	121,794
Municipal	-	9,139	27,118	-	36,257
Schools	-	539,885	-	-	539,885
Other provinces:					
Provincial	-	-	631,050	-	631,050
Municipal	-	-	55,989	-	55,989
Corporations	-	-	50,942	-	50,942
	-	549,024	937,565	-	1,486,589
Other investments	1,276	-	-	-	1,276
Infrastructure	-	-	81,173	-	81,173
Equity investments	420,592	-	-	-	420,592
Pooled Real Estate Fund	-	-	199,904	-	199,904
Investments	421,868	549,024	1,218,642	-	2,189,534
Investment property	-	-	-	35,615	35,615
Total	483,474	549,024	1,218,642	35,615	2,286,755

Gross unrealized gains and gross unrealized losses included in AOCI on AFS equity and other investments are comprised as follows:

As at February 28, 2018 (in thousands of Canadian dollars)	**Book Value**	**Unrealized Gains/(Losses)**	**Fair Value**
Equity Investments			
With unrealized gains	**217,375**	**102,864**	**320,239**
With unrealized losses	**33,039**	**(3,969)**	**29,070**
Subtotal – Equity Investments	**250,414**	**98,895**	**349,309**
Other Investments			
With unrealized gains	**292**	**826**	**1,118**
With unrealized losses	**50**	**(14)**	**36**
Allocation adjustment*	**(13)**	**13**	**-**
Subtotal – Other Investments	**329**	**825**	**1,154**
Total AFS Equity and Other Investments	**250,743**	**99,720**	**350,463**

As at February 28, 2017 (in thousands of Canadian dollars)	Book Value	Unrealized Gains/(Losses)	Fair Value
Equity Investments			
With unrealized gains	276,801	122,157	398,958
With unrealized losses	22,907	(1,273)	21,634
Subtotal – Equity Investments	299,708	120,884	420,592
Other Investments			
With unrealized gains	24	962	986
With unrealized losses	318	(28)	290
Allocation adjustment*	(9)	9	-
Subtotal – Other Investments	333	943	1,276
Total AFS Equity and Other Investments	300,041	121,827	421,868

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

AFS financial assets where the investment's underlying cost is greater than the fair value, the loss has not been recognized in net income either because:

- there is not objective evidence of impairment, or
- the loss is not considered to be significant or prolonged.

Fair Value Measurement

Financial assets that are measured at fair value are classified by their level within the fair value hierarchy. The fair value hierarchy consists of three levels that are defined on the basis of the type of inputs used to measure fair value. The classification cannot be higher than the lowest level of input that is significant to the measurement:

Level 1 – Fair value is determined based on unadjusted quoted prices of identical assets in active markets. Inputs include prices from exchanges where equity and debt securities are actively traded.

Level 2 – Level 2 valuations utilize inputs other than quoted market prices included in Level 1 that are observable, directly or indirectly, for the asset. These inputs include quoted prices for similar assets in active markets and observable inputs other than quoted prices, such as interest rates and yield curves. The fair values for some Level 2 securities were obtained from a pricing service. Pricing service inputs may include benchmark yields, reported trades, broker/dealer quotes and bid/ask spreads.

Level 3 – Fair value measurements using significant inputs that are not based on observable market data are Level 3. This mainly consists of derivatives and private equity investments. In these cases prices may be determined by internal pricing models utilizing all available financial information, including direct comparison and industry sector data. For some investments, valuations are obtained annually. For periods between valuations, management assesses the validity of the valuation for current reporting purposes.

No investments were transferred between levels in 2018 or 2017.

The following table presents financial instruments measured at fair value in the Statement of Financial Position, classified by level within the fair value hierarchy.

As at February 28, 2018 (in thousands of Canadian dollars)	**Level 1**	**Level 2**	**Level 3**
FVTPL financial assets			
Bonds	**-**	**1,072,126**	**12,268**
Infrastructure	**-**	**-**	**85,492**
Pooled real estate	**-**	**224,673**	**-**
Total FVTPL financial assets	**-**	**1,296,799**	**97,760**
AFS financial assets			
Cash and cash equivalents	**72,998**	**-**	**-**
Other investments	**-**	**-**	**1,154**
Equity investments	**349,309**	**-**	**-**
Total AFS financial assets	**422,307**	**-**	**1,154**
Total assets measure at fair value	**422,307**	**1,296,799**	**98,914**

As at February 28, 2017 (in thousands of Canadian dollars)	Level 1	Level 2	Level 3
FVTPL financial assets			
Bonds	24,969	899,686	12,910
Infrastructure	-	-	81,173
Pooled real estate	-	199,904	-
Total FVTPL financial assets	24,969	1,099,590	94,083
AFS financial assets			
Cash and cash equivalents	61,606	-	-
Other investments	-	-	1,276
Equity investments	420,592	-	-
Total AFS financial assets	482,198	-	1,276
Total assets measure at fair value	507,167	1,099,590	95,359

Fair value measurement of instruments included in Level 3

	FVTPL		AFS	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Balance at March 1	**94,083**	87,034	**1,276**	1,793
Total gains/(losses)				
Included in net income (loss)	**4,699**	(973)	**-**	144
Included in OCI	**-**	-	**(123)**	(173)
Purchases	**-**	11,334	**-**	-
Sales	**-**	(3,971)	**-**	(502)
Return of capital	**(966)**	-	**-**	-
Allocation adjustment*	**(56)**	659	**1**	14
Balance at February 28	**97,760**	94,083	**1,154**	1,276

The fair value of HTM bonds, which include schools and certain municipalities, is based on their carrying value, which approximates fair value. As of February 28, 2018, the fair value of municipal, utilities, schools and hospital bonds held to maturity is $527.5 million (February 28, 2017 - $549.0 million).

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

Impairment

Impairment losses were based on management's best estimate of whether objective evidence of impairment exists, using available market data and other observable data. Impairment investments included in the Corporation's portfolio include the following:

As at February 28, 2018 (in thousands of Canadian dollars)	**Gross**	**Impaired**	**Net**
By investment type			
AFS	**5,150**	**(930)**	**4,220**
Total	**5,150**	**(930)**	**4,220**

As at February 28, 2017 (in thousands of Canadian dollars)	Gross	Impaired	Net
By investment type			
AFS	-	-	-
Total	-	-	-

Investment Income (Loss)

(in thousands of Canadian dollars)	**2018**	2017
Interest income	**45,372**	41,618
Gain (loss) on sale of FVTPL bonds	**(3,490)**	1,705
Unrealized gain (loss) on FVTPL bonds	**8,079**	(20,453)
Unrealized gain on pooled real estate	**25,057**	14,087
Dividends on infrastructure investments	**1,731**	1,338
Unrealized gain (loss) on infrastructure investments	**5,345**	(1,272)
Foreign exchange gain on infrastructure investments	**30**	**-**
Dividend income	**10,806**	12,490
Gain on sale of equities and other investments	**25,068**	34,366
Gain (loss) on foreign exchange	**(79)**	387
Income from investment property	**2,972**	2,616
Impairment of AFS investments	**(930)**	-
Investment management fees	(**3,641**)	(3,955)
Total	**116,320**	82,897

Investment income is net of investment management fees paid to the Department of Finance in the amount of $3.6 million (February 28, 2017 - $4.0 million). This includes $2.4 million (February 28, 2017 - $2.4 million) of fees the Province paid to outside managers on the Corporation's behalf.

4. Investment Property – Non-Financial Instruments

(in thousands of Canadian dollars)	**cityplace Building****	**Surface Parking Lots**	**Parkade**	**Investment Property Under Construction**	**Total**
Cost					
Balance at March 1, 2016	27,385	882	9,177	3,825	41,269
Additions	-	-	-	567	567
Allocation adjustments*	207	7	69	29	312
Balance at February 28, 2017	27,592	889	9,246	4,421	42,148
Additions	-	-	-	161	161
Disposals	-	-	-	-	-
Transfers from Property Under Construction	-	-	4,582	(4,582)	-
Allocation adjustment*	(3)	(1)	(2)	-	(6)
Balance at February 28, 2018	**27,589**	**888**	**13,826**	**-**	**42,303**
Accumulated Depreciation					
Balance at March 1, 2016	4,189	-	1,291	-	5,480
Depreciation	823	-	189	-	1,012
Allocation adjustment*	31	-	10	-	41
Balance at February 28, 2017	5,043	-	1,490	-	6,533
Depreciation	822	-	228	-	1,050
Allocation adjustment*	-	-	-	-	-
Balance at February 28, 2018	**5,865**	**-**	**1,718**	**-**	**7,583**
Carrying Amounts					
At February 28, 2017	22,549	889	7,756	4,421	35,615
At February 28, 2018	**21,724**	**888**	**12,108**	**-**	**34,720**
Fair Value at February 28, 2018	**33,491**	**3,417**	**22,363**	**-**	**59,271**

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

**Includes the portion of the cityplace building not used for administrative purposes as well as tenant improvements.

5. Due From Other Insurance Companies

(in thousands of Canadian dollars)	**2018**	2017
Balance at March 1	**16**	25
Claims paid ceded to reinsurers	**18**	3,303
Less: recovery from reinsurers	**(32)**	(3,312)
Balance at February 28	**2**	16

6. Deferred Policy Acquisition Costs

(in thousands of Canadian dollars)	**2018**	2017
Balance at March 1	**-**	4,782
Deferred during the year	**68,435**	63,995
Expensed during the year	(**66,072**)	(62,650)
Write-down	**(2,363)**	(6,127)
Balance at February 28	**-**	-

Premium deficiencies are recognized first by writing down deferred policy acquisition costs with any remainder recognized as a liability within the claims provision. Refer to Note 2 for more information.

7. Property and Equipment

(in thousands of Canadian dollars)	**Land & Buildings[1]**	**Furniture & Equipment[2]**	**Buildings under Finance Lease[3]**	**Property Under Construction[4]**	**Total**
Cost					
Balance at March 1, 2016	101,566	24,379	10,326	418	136,689
Additions	-	957	-	3,313	4,270
Disposals	-	(869)	-	-	(869)
Allocation adjustment*	1,010	201	97	4	1,312
Balance at February 28, 2017	**102,576**	**24,668**	**10,423**	**3,735**	**141,402**
Additions	**83**	**1,282**	**-**	**3,119**	**4,484**
Disposals	**(1,512)**	**(1,608)**	**-**	**-**	**(3,120)**
Transfers from Property Under Construction	**5,321**	**-**	**-**	**(5,321)**	**-**
Allocation adjustment*	**(1,205)**	**(119)**	**(153)**	**(54)**	**(1,531)**
Balance at February 28, 2018	**105,263**	**24,223**	**10,270**	**1,479**	**141,235**
Accumulated Depreciation					
Balance at March 1, 2016	25,643	20,779	1,527	-	47,949
Disposals	-	(847)	-	-	(847)
Depreciation	2,414	1,348	261	-	4,023
Allocation adjustment*	229	188	13	-	430
Balance at February 28, 2017	**28,286**	**21,468**	**1,801**	**-**	**51,555**
Disposals	**(1,284)**	**(1,579)**	**-**	**-**	**(2,863)**
Depreciation	**2,402**	**1,197**	**261**	**-**	**3,860**
Allocation adjustment*	**(428)**	**(139)**	**(30)**	**-**	**(597)**
Balance at February 28, 2018	**28,976**	**20,947**	**2,032**	**-**	**51,955**
Carrying Amounts					
At February 28, 2017	74,290	3,200	8,622	3,735	89,847
At February 28, 2018	**76,287**	**3,276**	**8,238**	**1,479**	**89,280**

(1) Includes land, land improvements, leasehold improvements, buildings and building components: elevators, escalators, HVAC systems, roofing systems.
(2) Includes furniture, equipment, computer equipment, vehicles and demountable wall systems.
(3) Includes property located at 1284 Main Street in Winnipeg held under a financing lease. Refer to Note 11 for financing lease obligations.
(4) The Corporation is in the process of modifying Plessis Road, Pembina and Brandon locations which began in 2015/16.

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

8. Deferred Development Costs

(in thousands of Canadian dollars)	Internally Developed Intangible Assets
Cost	
Balance at March 1, 2016	139,338
Additions	21,609
Allocation adjustment*	171
Balance at February 28, 2017	161,118
Additions	18,104
Impairment	(18,678)
Allocation adjustment*	(20)
Balance at February 28, 2018	**160,524**
Accumulated Depreciation	
Balance at March 1, 2016	73,924
Amortization	14,157
Allocation adjustment*	171
Balance at February 28, 2017	88,252
Amortization	17,099
Impairment	(229)
Allocation adjustment*	(21)
Balance at February 28, 2018	**105,101**
Carrying Amounts	
At February 28, 2017	72,866
At February 28, 2018	**55,423**

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

Deferred development costs of $16.2 million (February 28, 2017 - $38.1 million) have not yet been put into use and are currently not being amortized. Impairments of $18.7 million (February 28, 2017 – nil) were recognized during the year and have been recorded in claims expense, loss prevention/road safety expense and operating expense on the Statement of Operations.

9. Due to Other Insurance Companies

(in thousands of Canadian dollars)	**2018**	2017
Balance at March 1	**147**	152
Change in amounts received as collateral for reinsurers' share of unpaid claims	**(6)**	(5)
Balance at February 28	**141**	147

10. Accounts Payable and Accrued Liabilities

Accounts payable and accrued liabilities are comprised of the following:

(in thousands of Canadian dollars)	**2018**	2017
Due to the Province of Manitoba	**533**	291
Payroll	**2,978**	2,904
Broker commissions	**2,913**	2,899
Provision for fleet rebates	**14,927**	15,048
Other payables and accrued liabilities	**17,976**	19,301
Balance at February 28	**39,327**	40,443

11. Financing Lease Obligation

The Service Centre built on land in Winnipeg at 1284 Main Street and the land on which it is built are owned by a third-party and are leased to the Corporation. The provisions of the lease include an initial term of 25 years and, at the Corporation's option, three further terms of five years each. In accordance with IAS 17, *Leases*, the land portion has been recorded as an operating lease and the building portion as a financing lease. The details of the financing lease are as follows:

(in thousands of Canadian dollars with the exception of interest rates)	**2018**	2017
Interest rate	**6.70%**	6.70%
Interest rate expense for the year	**215**	221
Financing lease obligations at February 28	**3,125**	3,239

The minimum lease payments are as follows:

	Minimum Lease Payments		Present Value of Minimum Lease Payments	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Not later than one year	**290**	292	**280**	282
Later than one year and not later than five years	**1,203**	1,196	**1,052**	1,045
Later than five years	**3,909**	4,239	**2,655**	2,794
Total	**5,402**	5,727	**3,987**	4,121

12. Operating Leases

As A Lessee:

The Corporation leases offices in Winnipeg and Killarney. These leases are classified as operating leases in accordance with IAS 17, *Leases*. The lease terms for the offices are all under ten years. Also classified as an operating lease is the land portion of the Service Centre located at 1284 Main Street in Winnipeg. None of the leases are subleased and no contingent rent is payable for any of the lease arrangements.

Non-cancellable operating lease rentals are payable as follows:

(in thousands of Canadian dollars)	**2018**	2017
Not later than one year	**303**	489
Later than one year and not later than five years	**529**	746
Later than five years	**999**	1,166
Total	**1,831**	2,401

During the year ended February 28, 2018, $485 thousand was recognized as an expense for operating leases (February 28, 2017 - $580 thousand) in the Statement of Operations.

As A Lessor:

The Corporation owns the cityplace property located in downtown Winnipeg including the cityplace building, one adjacent parking lot and one adjacent parkade. The cityplace building includes five floors of office space, three floors of parking and two floors of retail space. The Corporation uses approximately 60 per cent of the building for administrative purposes and leases out the remaining 40 per cent. Tenant improvements are 100 per cent investment property and therefore do not factor into the calculation. The leases are all classified as operating leases.

Future minimum lease payments under non-cancellable leases to be received are:

(in thousands of Canadian dollars)	**2018**	2017
Not later than one year	**3,434**	3,231
Later than one year and not later than five years	**6,257**	6,949
Later than five years	**5,421**	5,878
Total	**15,112**	16,058

During the year ended February 28, 2018, income from investment property includes gross rental income from operating leases of $12.3 million (February 28, 2017 - $11.9 million) and gross rental expenses pertaining to operating leases of $9.4 million (February 28, 2017 - $9.2 million). Included in rental income is income contingent on retail sales of $190 thousand (February 28, 2017 - $174 thousand).

13. Unearned Premiums and Fees

(in thousands of Canadian dollars)	**Gross**	**2018 Reinsurers' Share**	**Net**
Unearned premiums			
Balance at March 1	**434,162**	**-**	**434,162**
Premiums written	**1,005,887**	**11,294**	**994,593**
Premiums earned	**(971,436)**	**(11,294)**	**(960,142)**
Balance at February 28	**468,613**	**-**	**468,613**
Prepaid premiums	**35,190**	**-**	**35,190**
Unearned fees	**4,286**	**-**	**4,286**
Balance at February 28	**508,089**	**-**	**508,089**

(in thousands of Canadian dollars)	Gross	2017 Reinsurers' Share	Net
Unearned premiums			
Balance at March 1	417,518	-	417,518
Premiums written	935,424	11,635	923,789
Premiums earned	(918,780)	(11,635)	(907,145)
Balance at February 28	434,162	-	434,162
Prepaid premiums	34,251	-	34,251
Unearned fees	3,628	-	3,628
Balance at February 28	472,041	-	472,041

14. Provision for Employee Current Benefits

The provision for employee current benefits includes accrued vacation and sick leave liabilities.

(in thousands of Canadian dollars)	**2018**	2017
Balance at March 1	**16,919**	16,871
Provisions incurred	**11,638**	11,403
Payments	**(11,918)**	(11,355)
Allocation adjustment*	**(6)**	-
Balance at February 28	**16,633**	16,919

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

15. Provision for Employee Future Benefits

The Corporation has a defined benefit pension plan, severance benefit plan and post-retirement extended health benefit plan available to eligible employees. The defined benefit pension plan is based on years of service and final average salary whereas the severance benefit plan is based on years of service and final salary.

The Corporation uses an actuarial valuation, on an annual basis, to measure the accrued provision for its benefit plans. The most recent actuarial valuation was conducted by an external actuary as at December 31, 2017, with the next scheduled actuarial valuation being December 31, 2018.

The actuarial valuation is based on the Corporation's best estimate of various economic assumptions. With respect to the demographic assumptions, the Corporation relies on and uses the assumptions adopted by the Civil Service Superannuation Board. The weighted average duration of the defined benefit obligation is 15.4 years (February 28, 2017 – 15.6 years). Results from the most recent actuarial valuations, projected to February 28, 2018 and the corresponding economic assumptions are as follows:

Assumptions:

	Pension Benefit Plan		Other Benefit Plans	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Discount rate	**3.43%**	3.89%	**3.43%**	3.89%
Inflation rate	**2.00%**	2.20%		
Expected salary increase	**1.50%**	2.00%		
Expected health care cost increase (out of scope)			**5.00%**	4.90%
Expected health care cost increase (in scope)			**2.00%**	2.20%

Change in benefit obligations:

	Pension Benefit Plan		Other Benefit Plans	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Balance at March 1	**262,568**	244,227	**38,677**	36,982
Current service cost	**10,580**	9,972	**3,569**	3,629
Interest cost	**10,011**	10,156	**703**	678
Benefits paid	**(11,637)**	(9,588)	**(3,676)**	(2,613)
Remeasurement losses recognized in OCI	**23,716**	8,965	**822**	-
Allocation adjustment*	**(3,297)**	(1,164)	**(126)**	1
Balance at February 28	**291,941**	262,568	**39,969**	38,677
Employee contribution for the year	**7,610**	7,587	**-**	-

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

Plan Assets

The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, equal to the obligation, which is increased to match the increase in its benefit plan liabilities. The interest cost associated with the various benefit plans is based on market interest rates at the most recent valuation date.

Benefit Plan Expenses

	Pension Benefit Plan		Other Benefit Plans	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Current service cost	**10,580**	9,972	**3,569**	3,629
Interest cost	**10,011**	10,156	**703**	678
Total	**20,591**	20,128	**4,272**	4,307

Sensitivity Analysis

Based on the December 31, 2017 actuarial valuation, changes to the actuarial assumptions would change the benefit obligation as follows:

Pension Benefit Plan

Gain due to discount rate increasing from 3.43% to 4.43% (plus 1.00%)	(46,630)
Loss due to discount rate decreasing from 3.43% to 2.43% (minus 1.00%)	61,137
Loss due to mortality life expectancy at age 65 up one year	5,160
Loss due to inflation indexing (2/3rd COLA) increasing 1.00%	26,646
Gain due to inflation indexing (2/3rd COLA) decreasing 1.00%	(23,573)

Other Benefit Plans

Gain due to discount rate increasing from 3.43% to 4.43% (plus 1.00%)	(3,489)
Loss due to discount rate decreasing from 3.43% to 2.43% (minus 1.00%)	4,665
Loss due to mortality life expectancy at age 65 up one year	446
Loss due to heath care cost inflation indexing increasing 1.00%	4,556
Gain due to heath care cost inflation indexing decreasing 1.00%	(3,485)

Expected maturity analysis of undiscounted pension benefit and other benefit plans:

(in thousands of Canadian dollars)	**Less than a year**	**Between 1 & 2 years**	**Between 2 & 5 years**	**Over 5 years**	**Total**
Pension benefit plan	**8,267**	**9,224**	**33,414**	**472,254**	**523,159**
Other benefit plans	**365**	**412**	**1,518**	**36,336**	**38,631**
At December 31, 2017	**8,632**	**9,636**	**34,932**	**508,590**	**561,790**

(in thousands of Canadian dollars)	Less than a year	Between 1 & 2 years	Between 2 & 5 years	Over 5 years	Total
Pension benefit plan	7,566	8,506	31,153	463,232	510,457
Other benefit plans	333	380	1,422	36,257	38,392
At December 31, 2016	7,899	8,886	32,575	499,489	548,849

16. Insurance Contracts

The following is a summary of the insurance contract provisions and related reinsurance assets as at February 28, 2017 and 2018.

	2018		
(in thousands of Canadian dollars)	**Gross**	**Reinsurance Ceded**	**Net**
Insurance Contract Provisions			
Outstanding case reserves	**1,253,610**	**1,209**	**1,252,401**
Provision for incurred but not reported claims	**384,492**	**-**	**384,492**
Provision for internal loss adjusting expenses	**171,454**	**-**	**171,454**
Effect of discounting	**(237,905)**	**(6)**	**(237,899)**
Provision for adverse deviation	**225,571**	**66**	**225,505**
Premium deficiency	**8,845**	**-**	**8,845**
Provision for Unpaid Claims	**1,806,067**	**1,269**	**1,804,798**
Provision for Unearned Premiums (Note 13)	**468,613**	**-**	**468,613**
Total Insurance Contract Provisions	**2,274,680**	**1,269**	**2,273,411**

	2017		
(in thousands of Canadian dollars)	Gross	Reinsurance Ceded	Net
Insurance Contract Provisions			
Outstanding case reserves	1,161,803	611	1,161,192
Provision for incurred but not reported claims	419,700	-	419,700
Provision for internal loss adjusting expenses	173,673	-	173,673
Effect of discounting	(217,391)	(47)	(217,344)
Provision for adverse deviation	245,821	47	245,774
Premium deficiency	6,844	-	6,844
Provision for Unpaid Claims	1,790,450	611	1,789,839
Provision for Unearned Premiums (Note 13)	434,162	-	434,162
Total Insurance Contract Provisions	2,224,612	611	2,224,001

17. Claims Liabilities

Methodology and Assumptions

The best estimates of claim liabilities are determined based on a review of the projected ultimate claim liabilities using various standard actuarial techniques. In particular, the techniques used to project ultimate claim liabilities include the incurred loss development method, the paid loss development method, the incurred Bornheutter-Ferguson method, and the paid Bornheutter-Ferguson method. The projected ultimate claim liabilities are then determined by selection of the most appropriate technique by line of business, coverage, and maturity of the accident year.

Loss Development Method

The loss development method projects ultimate claims for each accident year using the reported/paid losses as at the valuation date, and assuming that future development on these losses is similar to prior accident years' development. The underlying assumption of the method is that the reported/paid-to-date losses will continue to develop in a similar manner in the future.

Bornheutter-Ferguson Method

The Bornheutter-Ferguson Method projects ultimate claims for each accident year by adding the expected unreported/unpaid losses to the reported/paid losses as at the valuation date. The expected unreported/unpaid losses are determined as the product of the expected loss ratio and the per cent unreported/unpaid, the latter based on the maturity of the accident year. An implicit assumption of this method is that the reported/paid-to-date losses contain no informational value as to the amount of losses yet to be reported/paid.

Claim liabilities are initially determined on an undiscounted gross basis. Ceded claim liabilities are then deducted to determine the claim liabilities on an undiscounted net basis.

By line of business and coverage, losses paid and incurred for the last 19 accident years, on a gross basis, are organized in a triangular form by accident year and development period. Adjustments are made to the triangles for comprehensive coverage and indexed coverages:

- For comprehensive coverage, catastrophic losses are removed from the triangles. For the purpose of the valuation, catastrophic losses are defined as losses from a single catastrophic event whereby the incurred losses from the event exceed the Corporation's catastrophe retention level for the applicable accident year. The claim liabilities for these catastrophic losses are evaluated separately.
- For indexed coverages, prior years' losses are brought to current benefit levels so that the loss development factors are unaffected by indexation.

Ratios of loss amounts at successive development years are calculated to build loss development factor triangles. Loss development factors are selected based on observed historical development pattern. Judgment is used whenever there is significant variability in the observed historical development pattern, which happens with coverages with a small number of claims. Judgment is also used, in the absence of available supporting data, to determine tail factors for long-tailed coverages.

The loss data does not include internal loss adjustment expenses (ILAE). As such, a provision for ILAE is determined based on the observed historical ratios of paid ILAE to paid losses. The method assumes that half of the ILAE is paid when the claim is first set up, with the remaining half being paid to maintain the claim. An ILAE ratio is selected based on the observed historical ratios. Half of the selected ratio is applied to case reserves. The full ratio is applied to IBNR losses.

The loss data includes salvage and subrogation. As such, a separate analysis is not performed.

Ceded claim liabilities and net claim liabilities are determined as follows:

- For catastrophe reinsurance, estimates of gross claim liabilities are determined for each catastrophic loss. The net claim liabilities are then determined as the gross claim liabilities less the applicable recovery. The ceded claim liabilities are the applicable recovery.
- For casualty reinsurance, aggregate ceded claim liabilities by insurance year are determined taking into consideration discounting, retention levels, and other contract provisions. These liabilities are deducted from gross claim liabilities to determine net claim liabilities.

The undiscounted claim liabilities are adjusted to determine the discounted claim liabilities on an actuarial present value basis. Two adjustments are made to conform to the Actuarial Standards of Practice of the Canadian Institute of Actuaries:

- The undiscounted claim liabilities are discounted based on a selected discount rate, which is determined based on the market value weighted yield for the Corporation's bond portfolio as at the end of the fiscal year; and
- Provisions for adverse deviation are added to the discounted claim liabilities to obtain the discounted claim liabilities on an actuarial present value basis.

The estimates for unearned premium liabilities are also tested to ensure that they are sufficient to pay for future claims and expenses in servicing the unexpired policies as of the valuation date.

Changes in Assumptions

Change in Discount Rate

The previously selected discount rate, determined based on the average duration weighted yield for the Corporation's bond portfolio, decreased by 7 basis points, from 3.39 per cent to 3.32 per cent, between the February 28, 2017 valuation and the February 28, 2018 valuation. The decrease in the discount rate increased the discounted net claim liabilities by $12.9 million and ILAE provision by $1.4 million.

Change in Loss Development Factors

The loss development factors for all coverages are reviewed and revised to reflect an additional year of actual losses. The aggregate effect of all revisions to the loss development factors is a decrease in the discounted net claim liabilities of $37.8 million and ILAE provision of $6.9 million.

Change in Selected Incurred But Not Reported

In the February 28, 2017 valuation, for both Basic Accident Benefits Weekly Indemnity and Accident Benefits Other (Indexed), the IBNR for the four most recent years were selected as the higher of the indicated IBNR using the incurred Bornheutter-Ferguson method and the paid Bornheuttter-Ferguson method. For the February, 28, 2018 valuation, this "higher of" method was applied to only the three most recent years. This change was made to recognize the change in reserving process for long-term Personal Injury Protection Plan (PIPP) claims, which increased the adequacy of case reserves for these claims, specifically for claims older than 24 months.

The change in the selected IBNR decreased the discounted net claim liabilities by $25.2 million and ILAE provision by $4.6 million.

Change in Claims Margin for Adverse Deviation

The claims margin for adverse deviation (MFAD) are reduced for Basic Accident Benefits Weekly Indemnity and Basic Accident Benefits Other (Indexed). This change was made to recognize the change in reserving process for long-term PIPP claims, which increased the adequacy of case reserves for these claims and decreased the risk of being under reserved.

The change in the claims MFAD decreased the discounted net claims liabilities by $26.9 million and ILAE provision by $2.9 million.

Change in the Basis for Determining the Discount Rate

The discount rate, previously determined based on the average duration weighted yield for the Corporation's bond portfolio, is now determined based on the market value weighted yield for the Corporation's bond portfolio. The change in the basis for determining the discount rate increased the discount rate by 15 basis points from 3.32 per cent to 3.47 per cent as of the February 28, 2018 valuation. This change was made to reduce the mismatch between changes in the Corporation's assets and liabilities resulting from the change in market yields. The change in the basis for determining the discount rate decreased the discounted net claim liabilities by $25.8 million and ILAE provision by $2.7 million.

The provision for unpaid claims, including adjustment expenses, by major claims category includes:

Balance at February 28, 2018

(in thousands of Canadian dollars)	**Gross**	**Reinsurers' Share**	**Net**
Liability	**1,636,309**	**926**	**1,635,383**
Physical Damage	**169,758**	**343**	**169,415**
Total	**1,806,067**	**1,269**	**1,804,798**

Balance at February 28, 2017

(in thousands of Canadian dollars)	Gross	Reinsurers' Share	Net
Liability	1,608,344	286	1,608,058
Physical Damage	182,106	325	181,781
Total	1,790,450	611	1,789,839

Changes in Unpaid Claims and ILAE Provision

Gross

(in thousands of Canadian dollars)	**2018**	**2017**
Discounted unpaid claims at March 1	**1,609,933**	1,495,208
Effect of discounting and Provision for Adverse Deviation	**(28,430)**	(33,271)
Undiscounted unpaid claims at March 1	**1,581,503**	1,461,937
Ultimate claims for current accident year	**724,819**	725,741
Payment on current accident year claims	**(437,931)**	(442,161)
Change in ultimate claims from prior accident years	**42,483**	77,836
Payments on prior accident year claims	**(272,772)**	(241,850)
Undiscounted unpaid claims at February 28	**1,638,102**	1,581,503
Effect of discounting and Provision for Adverse Deviation	**(12,334)**	28,430
Premium deficiency	**8,845**	6,844
Discounted unpaid claims at February 28	**1,634,613**	1,616,777
ILAE provision	**171,454**	173,673
Total unpaid claims provision	**1,806,067**	1,790,450

Reinsurance Ceded

(in thousands of Canadian dollars)	**2018**	2017
Discounted unpaid claims at March 1	**611**	998
Effect of discounting and Provision for Adverse Deviation	**-**	(333)
Undiscounted unpaid claims at March 1	**611**	665
Ultimate claims for current accident year	**1**	-
Change in ultimate claims from prior accident years	**614**	3,249
Payments on prior accident year claims	**(17)**	(3,303)
Undiscounted unpaid claims at February 28	**1,209**	611
Effect of discounting and Provision for Adverse Deviation	**60**	-
Discounted unpaid claims at February 28	**1,269**	611
Total unpaid claims provision	**1,269**	611

Net of Reinsurance Ceded

(in thousands of Canadian dollars)	**2018**	2017
Discounted unpaid claims at March 1	**1,609,322**	1,494,210
Effect of discounting and Provision for Adverse Deviation	**(28,430)**	(32,938)
Undiscounted unpaid claims at March 1	**1,580,892**	1,461,272
Ultimate claims for current accident year	**724,818**	725,741
Payment on current accident year claims	**(437,931)**	(442,161)
Change in ultimate claims from prior accident years	**41,869**	74,587
Payments on prior accident year claims	**(272,755)**	(238,547)
Undiscounted unpaid claims at February 28	**1,636,893**	1,580,892
Effect of discounting and Provision for Adverse Deviation	**(12,394)**	28,430
Premium deficiency	**8,845**	6,844
Discounted unpaid claims at February 28	**1,633,344**	1,616,166
ILAE provision	**171,454**	173,673
Total unpaid claims provision	**1,804,798**	1,789,839

According to accepted actuarial practice, the discounted net claim liabilities include a provision for adverse deviation (PfAD) of $225.6 million (February 28, 2017 – $245.8 million). This is comprised of a claims development PfAD of $152.8 million (February 28, 2017 – $174.9 million), an interest rate PfAD of $72.7 million (February 28, 2017 – $70.9 million), and a reinsurance PfAD of $0.1 million (February 28, 2017 - nil).

Net claims incurred and adjustment expenses included no losses from catastrophes in the current fiscal year (February 28, 2017 – nil). Catastrophes are an inherent risk to the Corporation and may contribute materially to the year-to-year fluctuations in the Corporation's results of operations and financial condition when they occur.

Unpaid claim liabilities are carried at values that reflect their remaining estimated ultimate costs for all accident years.

Development of Ultimate Claims

The following table represents the development of claims on the gross basis as of February 28, 2018.

Gross	Accident Year										
(in thousands of Canadian dollars)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 Year Total
Estimate of ultimate claims costs for the most recent ten years:											
At end of accident year	509,767	538,042	534,691	530,058	565,938	634,333	589,243	681,244	725,741	724,819	
One year later	495,637	510,960	530,076	535,899	593,100	638,464	598,444	693,483	747,403		
Two years later	483,090	512,171	540,951	552,896	599,571	646,880	606,559	710,476			
Three years later	466,398	516,849	537,233	547,124	593,288	654,820	589,796				
Four years later	485,637	510,186	547,441	557,045	600,882	640,172					
Five years later	487,797	513,398	552,856	563,151	621,488						
Six years later	490,271	516,244	560,234	569,366							
Seven years later	490,270	519,186	560,168								
Eight years later	489,486	522,900									
Nine years later	491,197										
Current estimate of cumulative claims cost	491,197	522,900	560,168	569,366	621,488	640,172	589,796	710,476	747,403	724,819	6,177,785
Cumulative payments to date	436,830	462,774	493,552	494,281	535,713	567,409	513,941	596,472	607,052	437,931	5,145,955
Effect of discounting and PfAD on above	(946)	(1,122)	(1,659)	(1,905)	(2,398)	(2,003)	(1,685)	(1,983)	1,626	10,615	(1,460)
Discounted gross unpaid claims in respect of years prior to 2009											595,398
ILAE provision											171,454
Premium deficiency											8,845
Total gross unpaid claims											1,806,067
Current estimate of surplus (deficiency)	18,570	15,142	(25,477)	(39,308)	(55,550)	(5,839)	(553)	(29,232)	(21,662)	-	
Percentage surplus (deficiency) of initial gross reserve	3.6%	2.8%	(4.8%)	(7.4%)	(9.8%)	(0.9%)	(0.1%)	(4.3%)	(3.0%)	0.0%	

The following table represents the development of claims on the net of reinsurance basis as of February 28, 2018.

Net of Reinsurance Ceded	Accident Year										
(in thousands of Canadian dollars)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 Year Total
Estimate of ultimate claims costs for the most recent ten years:											
At end of accident year	509,767	518,205	534,691	530,059	565,938	634,333	589,242	681,244	725,741	724,818	
One year later	495,637	491,982	530,076	535,899	593,101	638,203	598,444	693,483	747,403		
Two years later	483,090	492,624	540,951	552,897	599,571	646,435	606,559	710,476			
Three years later	466,398	498,703	537,233	547,124	593,287	654,397	589,796				
Four years later	485,638	492,099	547,440	556,532	600,882	639,793					
Five years later	487,798	495,172	552,856	562,623	621,488						
Six years later	490,270	498,019	560,234	568,847							
Seven years later	490,270	500,960	559,935								
Eight years later	489,486	504,674									
Nine years later	491,195										
Current estimate of cumulative claims cost	491,195	504,674	559,935	568,847	621,488	639,793	589,796	710,476	747,403	724,818	6,158,425
Cumulative payments to date	436,830	444,548	493,552	494,094	535,713	567,229	513,941	596,472	607,052	437,931	5,127,362
Effect of discounting and PfAD on above	(946)	(1,122)	(1,674)	(1,917)	(2,398)	(2,015)	(1,685)	(1,983)	1,626	10,615	(1,499)
Discounted net unpaid claims in respect of years prior to 2009											594,935
ILAE provision											171,454
Premium deficiency											8,845
Total net unpaid claims											1,804,798
Current estimate of surplus (deficiency)	18,572	13,531	(25,244)	(38,788)	(55,550)	(5,460)	(554)	(29,232)	(21,663)	-	
Percentage surplus (deficiency) of initial gross reserve	3.6%	2.6%	(4.7%)	(7.3%)	(9.8%)	(0.9%)	(0.1%)	(4.3%)	(3.0%)	0.0%	

There is uncertainty inherent in the estimation process. The actual amount of ultimate claims can only be ascertained once all claims are closed. The unpaid claim liabilities for PIPP benefits represent the majority of the Corporation's claim liabilities. PIPP claim liabilities are also the most uncertain because of the long term nature of these benefits. A 5.00 per cent increase in net PIPP claim liabilities is equal to approximately $60.5 million (February 28, 2017 - $58.2 million). Such a change could occur if the actual future development of lifetime PIPP claimants was higher than expected.

The discount rate for the Corporation's claim liabilities is calculated based on the yield of the Corporation's fixed income portfolio. Approximately two thirds of the fixed income portfolio is composed of marketable bonds and the changes in the marketable bond yield have a direct impact on the estimated value of the Corporation's unpaid claim liabilities. A 1.00 per cent decrease in marketable bond interest rates would increase claim liabilities by approximately $142.6 million (February 28, 2017 - $159.6 million), while a 1.00 per cent decrease in the claim liabilities discount rate (equivalent to approximately 1.35 per cent decrease in marketable bond interest rates) would increase claim liabilities by approximately $194.3 million (February 28, 2017 - $178.3 million). However, this impact would be largely offset by gains on the Corporation's fixed income portfolio as described in the Interest Rate Risk section of Note 24.

18. Reinsurance

The Corporation follows the practice of obtaining reinsurance to limit its exposure to losses. Under agreements in effect at February 28, 2018, these reinsurance agreements limit the Corporation's exposure on a casualty basis to a maximum amount of $5.0 million (February 28, 2017 – $5.0 million) on any one occurrence.

The reinsurance arrangements also limit the Corporation's liability in respect to a series of claims arising out of a single occurrence, including catastrophic claims, to a retained maximum of $15.0 million (February 28, 2017 – $15.0 million). These arrangements protect the Corporation against losses up to $266.7 million (February 28, 2017 – $266.7 million).

19. Capital Management

The Corporation's Board of Directors has approved risk-based capital adequacy target levels by line of business to maintain financial stability.

The Basic Rate Stabilization Reserve (RSR) relates to the basic universal compulsory automobile insurance and is intended to protect motorists from rate increases made necessary by unexpected events and losses arising from non-recurring events or factors.

The Corporation's Board of Directors' current minimum target level for total equity (which includes Basic retained earnings and the Basic portion of AOCI) is $201.0 million (February 28, 2017 - $181.0 million) based on the 2017 Basic Insurance Dynamic Capital Adequacy Test (DCAT) report. In this report, the Corporation's Chief Actuary concluded that a minimum total equity of $201.0 million would be required for Basic to achieve a satisfactory future financial condition. A total equity level lower than $201.0 million results in a "not satisfactory" opinion because there were plausible adverse scenarios at the 1-in-40 year probability level where liabilities exceed assets.

In Order No. 130/17, the Public Utilities Board approved a lower DCAT-based RSR target (for total equity) of $180.0 million and the continued use of the DCAT methodology for this purpose. However, the Corporation's Board of Directors continues to rely on the Chief Actuary's minimum target of $201.0 million as the Public Utilities Board estimate does "not reflect best estimate expectations", as noted on page 78 of Order No. 130/17. Further, a target of $180.0 million is not sufficient to achieve satisfactory financial conditions as calculated by the Corporation's Chief Actuary.

For the upper (maximum) RSR target for total equity, the Corporation proposed the continued use of the 100 per cent Minimum Capital Test (MCT) ratio in the 2018 General Rate Application. The MCT is a capital adequacy test used by nearly all property and casualty insurers in Canada, and at the 100 per cent level, capital available is equal to capital required. The Corporation is the only insurer in Canada that has proposed the use of 100 per cent MCT as a maximum capital target. Other public insurers have utilized 100 per cent MCT as a target capital amount or a minimum capital amount, while federally regulated private insurers have a target capital ratio (supervisory target) of 150 per cent MCT, and a minimum internal target which would be set greater than the 150 per cent supervisory target. In 2017, the Public Utilities Board set the maximum RSR target for total equity at $325 million, which is equivalent to an MCT ratio of approximately 70 per cent.

The below chart depicts the components of the Basic Insurance line of business Retained Earnings.

(in thousands of Canadian dollars)	**Rate Stabilization Reserve (RSR)**	**Retained Earnings (RE)**	**Total Retained Earnings**
Retained earnings as at March 1, 2016	194,497	-	194,497
Net loss from operations for the year	-	(123,070)	(123,070)
Transfer between RSR & RE	(123,070)	123,070	-
Transfer between Non-Basic Retained Earnings & RSR	27,824	-	27,824
Balance as at February 28, 2017	**99,251**	**-**	**99,251**
Net income from operations for the year	**-**	**34,424**	**34,424**
Transfer between RSR & B-RE	**34,424**	**(34,424)**	**-**
Transfer between Non-Basic Retained Earnings & RSR	**37,300**	**-**	**37,300**
Balance as at February 28, 2018	**170,975**	**-**	**170,975**

(in thousands of Canadian dollars)	**2018**	2017
RSR before transfer from Non-Basic Retained Earnings	**133,675**	71,427
AOCI-Basic (Note 20)	**39,870**	81,749
	173,545	153,176
Transfer from Non-Basic Retained Earnings to RSR	**37,300**	27,824
Basic Target based on total equity	**210,845**	181,000

20. Accumulated Other Comprehensive Income

AOCI reflects the net unrealized gain or loss on financial assets classified as AFS and net actuarial gain (loss) on employee future benefits. Changes in AOCI by type of asset are presented below.

(in thousands of Canadian dollars)	**Equity Investments**	**Other Investments**	**Total AOCI**
Balance at March 1, 2016	61,688	(25,185)	36,503
Items that will not be reclassified to income			
Remeasurement of employee future benefits	-	(8,965)	(8,965)
Items that will be reclassified to income			
Unrealized gains (losses) on AFS assets	89,111	(240)	88,871
Reclassification of net realized losses related to AFS assets	(34,193)	(143)	(34,336)
Allocation adjustment*	1	(325)	(324)
Balance at February 28, 2017	**116,607**	**(34,858)**	**81,749**
Items that will not be reclassified to income			
Remeasurement of employee future benefits	**-**	**(24,538)**	**(24,538)**
Items that will be reclassified to income			
Unrealized gains (losses) on AFS assets	**6,993**	**(118)**	**6,875**
Reclassification of net realized losses related to AFS assets	**(24,034)**	**-**	**(24,034)**
Allocation adjustment*	**-**	**(182)**	**(182)**
Balance at February 28, 2018	**99,566**	**(59,696)**	**39,870**

* In accordance with approved allocation formulas, items included in the Statement of Operations and Comprehensive Income, are allocated to the Basic Insurance line of business utilizing monthly allocation percentages and the ending asset balances are allocated at the end of the fiscal year. The allocation variance is the amounts required to adjust monthly allocations to the annual balances.

21. Service Fees and Other Revenue

(in thousands of Canadian dollars)	**2018**	2017
Transaction fees	**6,365**	6,165
Time payment fees	**2,228**	2,116
Time payment interest	**11,402**	10,439
Late payment fees	**710**	627
Dishonoured payment fees	**512**	523
Other miscellaneous revenue	**1,632**	878
Total	**22,849**	20,748

22. Commitments

As of February 28, 2018, the Corporation has no material commitments.

23. Related-Party Transactions

Key Management Personnel

Key management personnel are comprised of all members of the Board of Directors and the named Executive management team. The summary of compensation of key management personnel for the year is as follows:

(in thousands of Canadian dollars)	**2018**	2017
Short term benefits	**1,586**	1,661
Post-employment benefits	**220**	36
Other long-term benefits	**20**	20
Termination benefits	**31**	43
Total	**1,857**	1,760

Key management personnel and their close relatives may have insurance policies with the Corporation as required by *The Manitoba Public Insurance Corporation Act*. The terms and conditions of such transactions are the same as those available to clients and employees of the Corporation.

Province of Manitoba

Investment management fees paid to the Department of Finance are disclosed in Note 3.

Accounts Payable and Accrued Liabilities includes $533 thousand (February 28, 2017 - $291 thousand) due to the Province of Manitoba.

24. Insurance and Financial Risk Management

Insurance Risk

The Corporation is exposed to insurance risk in that the risk under any one insurance contract creates the possibility that the insured event occurs and there is uncertainty regarding the amounts of the resulting claim. By the very nature of an insurance contract, this risk is random and therefore, unpredictable.

Financial Risk

Investments carry certain financial risks including market risk, credit risk and liquidity risk. In accordance with Section 12(1) of *The Manitoba Public Insurance Corporation Act*, the Minister of Finance is responsible for the investments of the Corporation. The Minister has charged the Department of Finance with the operational management of the fund. The Corporation, through the Investment Committee of the Board, and the Department jointly determine appropriate policies and strategies to mitigate risk. The investment objectives and goals of the Corporation are embodied in an Investment Policy document, which sets target asset allocation and portfolio concentration limits as well as defining the credit quality of the counterparties and the percentage of highly liquid investments required to meet cash flow needs.

Market Risk

Market risk is the risk that changes in foreign exchange rates, market interest rates and other changes in market prices will result in fluctuation of the fair value or future cash flows of a financial instrument.

Currency Risk

Currency risk is the risk that changes in foreign exchange rates will result in fluctuation of the fair value or future cash flows of a financial instrument. The Corporation has low exposure to currency risk because the Corporation has limited non-Canadian financial instruments. As of February 28, 2018, total foreign denominated financial instruments was approximately 7.3 per cent (February 28, 2017 – 7.9 per cent) of the Corporation's investment portfolio and had carrying values noted below.

2018	**2018**	2017	2017
$111.6 million U.S.	**$143.0 million Cdn**	$118.3 million U.S.	$157.1 million Cdn
£7.0 million GBP	**$12.4 million Cdn**	£6.2 million GBP	$10.2 million Cdn
$12.1 million NZD	**$11.2 million Cdn**	$12.0 million NZD	$11.5 million Cdn

The Corporation has entered into a currency swap relating to a Province of Quebec provincial bond denominated in U.S. dollars for $10.0 million. The currency swap provides a fixed 5.76 per cent return in Canadian dollars. The agreement also provides that at predetermined future dates, the Corporation pays a fixed 7.5 per cent rate based on the U.S. $10.0 million par value of the bond and receives 5.76 per cent return based on a Canadian dollar notional value of $13.4 million. As of February 28, 2018 the fair value of the swap was $14.4 million (February 28, 2017 - $15.1 million). The maturity date of the currency swap and the bond is July 15, 2023.

Interest Rate Risk

Interest rate risk is the risk that changes in market interest rates will result in fluctuation of the fair value or future cash flows of a financial instrument.

The market valuation of the Corporation’s fixed income portfolio is directly impacted by fluctuations in interest rates and will have a larger impact on instruments with a long duration.

Bonds	Average Effective Rate - %	
	2018	2017
Federal	**3.13**	2.15
Provincial	**3.00**	2.94
Municipal	**3.30**	3.28
Schools	**4.58**	4.61
Corporations	**3.35**	2.87

The Corporation monitors interest rate risk by calculating the duration of the fixed income portfolio and the duration of unpaid claims liabilities. The duration is an indicator of the sensitivity of the assets and liabilities to changes in current interest rates. The duration of the liabilities is determined by projecting expected cash flows from the contracts using best estimates of morbidity and mortality primarily relating to PIPP claims. The duration of the assets is calculated in a consistent manner. Any gap between the duration of the assets and the duration of the liabilities is minimized by purchasing and selling fixed interest securities in order to adjust the duration of the assets appropriately. As at February 28, 2018, the Corporation’s duration gap was 0.0 years (February 28, 2017 – 0.1 years).

As at February 28, 2018, a 100 basis point increase in interest rates would result in a decrease in the fair value of the Corporation's fixed income portfolio of approximately $114.3 million (February 28, 2017 - $102.6 million), whereas a 100 basis point decrease in interest rates would result in an increase in the fair value of the Corporation’s fixed income portfolio of approximately $137.9 million (February 28, 2017 - $124.8 million). As all of the Corporation’s marketable fixed income assets are classified as FVTPL, all changes would affect net income.

Fluctuations in interest rates would also have an impact on the Corporation's unpaid claims. The Corporation's duration of its fixed income portfolio approximates the duration of its unpaid claims liability and therefore, any change in interest rates related to these investments is largely mitigated by an offsetting impact on the unpaid claims liability. As at February 28, 2018, a 100 basis point increase in interest rates would result in a decrease in the Corporation's unpaid claim liabilities of approximately $118.7 million (February 28, 2017 - $131.2 million), whereas a 100 basis point decrease in interest rates would result in an increase in the Corporation's unpaid claim liabilities of approximately $142.6 million (February 28, 2017 - $159.6 million).

The resulting impact on net income of a 100 basis point increase in interest rates would be an increase of $4.4 million (February 28, 2017 – $28.6 million) whereas a 100 basis point decrease in interest rates would result in a decrease in the net income of $4.7 million (February 28, 2017 – $34.8 million).

Equity Price Risk

The fair value of equity securities held by the Corporation can be affected by changes in market prices, other than currency and interest rate risks, which may be caused by factors specific to the individual financial instrument or factors affecting all similar financial instruments. General economic conditions, political conditions and other factors affect the equity market. As at February 28, 2018, a 10.0 per cent change in the fair value of the Corporation's equity portfolio would result in a $34.9 million (February 28, 2017 - $42.1 million) change in OCI.

As all equities are classified as AFS, all changes in prices are recorded as OCI and do not directly impact the Statement of Operations until such time as an investment is sold or has become impaired (Note 2). The Corporation has policies in place to limit and monitor its exposure to individual issuers and classes of issuers of equity securities.

Credit Risk

Credit risk is the potential for the Corporation to incur a financial loss due to the failure of the other party to discharge an obligation. Financial instruments that give rise to potential credit risk for the Corporation include fixed income securities, accounts receivable, reinsurance receivables and structured settlements.

The following table summarizes the Corporation's maximum exposure to credit risk on the Statement of Financial Position. The maximum credit exposure is the carrying value of the asset net of any allowance for loss.

(in thousands of Canadian dollars)	**2018**	2017
Cash and cash equivalents	**72,998**	61,606
Bonds	**1,611,917**	1,486,589
Due from other insurance companies	**2**	16
Accounts receivable	**389,186**	353,523
Reinsurance receivable	**1,190**	522
Maximum credit risk exposure on the Statement of Financial Position	**2,075,293**	1,902,256

Fixed Income Securities Credit Risk

The Corporation mitigates its exposure to credit risk by placing fixed income securities with high-quality institutions with investment grade ratings. The credit quality of financial assets that are neither past due nor impaired can be assessed by reference to external credit ratings, where available, or to historical information about counterparty default rates. The following table highlights the fixed income securities by credit quality according primarily to Moody's Investors Service at February 28. All Manitoba municipal, schools and hospitals bonds are backed by the Province of Manitoba and, as such, have been assigned the credit rating of the Province of Manitoba Bonds.

	2018		2017	
	Carrying Value (in thousands of Canadian dollars)	**Percentage of Portfolio**	Carrying Value (in thousands of Canadian dollars)	Percentage of Portfolio
AAA	**160,050**	**9.9**	203,759	13.7
AA	**1,341,173**	**83.2**	1,259,967	84.8
A	**110,694**	**6.9**	22,863	1.5
Total	**1,611,917**	**100.0**	1,486,589	100.0

Accounts Receivable Credit Risk
The Corporation's accounts receivable are comprised of customers with varying financial conditions as the Corporation is required to provide basic insurance to all vehicle owners and drivers in the Province of Manitoba. All significant past due receivables, including subrogation receivables, are fully provided for due to the uncertainty of collection. Substantially all remaining receivables are deemed to be collectible within 12 months. The credit risk pertaining to premiums receivable is mitigated as a customer's policy may be cancelled for default of payment.

The following table highlights the Corporation's accounts receivable by major category.

(in thousands of Canadian dollars)	**2018**	2017
Policy and time payments	**312,213**	287,287
Accrued interest	**22,646**	22,072
Subrogation and other receivables	**73,195**	64,018
Allowance for doubtful accounts	**(18,868)**	(19,854)
Balance at February 28	**389,186**	353,523

Details of the allowance for doubtful accounts are as follows:

(in thousands of Canadian dollars)	**2018**	2017
Balance at March 1	**19,854**	16,994
Accounts written off	**(4,259)**	(1,790)
Current period provision	**3,273**	4,650
Balance at February 28	**18,868**	19,854

Reinsurance Receivable Credit Risk
The Corporation evaluates the financial condition of its reinsurers to minimize the exposure to significant losses from reinsurer insolvency. The Corporation holds collateral in regards to unregistered reinsurance in the form of amounts on deposit and letters of credit of which there were $0.2 million outstanding as of February 28, 2018 (February 28, 2017 – $0.2 million). Furthermore, a corporate guideline requiring reinsurers to have a minimum credit rating of A- from A.M. Best and BBB+ credit rating from Standard & Poors is in place.

For the 2017/18 fiscal year, twelve reinsurers share the Corporation's casualty reinsurance coverage, ranging from 2.5 per cent to 35.0 per cent on any one layer. The reinsurer exposed to 35.0 per cent of the losses is licensed in Canada by the Office of the Superintendent of Financial Institutions and, therefore, subject to minimum capital requirements.

For the 2017/18 fiscal year, eighteen reinsurers share the Corporation's catastrophe reinsurance coverage, none holding more than 28.25 per cent of the reinsurance exposure on any one layer.

No material amount due from reinsurers was considered uncollectible during 2017/18 and no allowance for doubtful accounts has been established as at February 28, 2018.

Structured Settlements Credit Risk
The Corporation has settled some insurance claims by purchasing structured settlements from life insurers. As of the Statement of Financial Position date, the present value of expected payments totals $129.5 million (February 28, 2017 – $131.9 million) based on various dates of purchase. The Corporation guarantees the future annuity payments to claimants and is thus exposed to a credit risk to the extent any of the life insurers fail to fulfill their obligations. The net risk to the Corporation is the credit risk related to the life insurance companies that the annuities are purchased from. This risk is reduced to the extent of coverage provided by Assuris, the life insurance compensation insurance plan.

Liquidity Risk
A significant risk of the insurance industry is the ability to match the cash inflows of the investment portfolio with the cash requirements of the policy liabilities and operating expenses. The Corporation has taken the overall historical liability settlement pattern as a basis to define diversification and duration characteristics of the investment portfolio. To meet the cash requirements for claims and operating expenses, the Corporation has policies to ensure that assets and liabilities are broadly matched in terms of their duration.

Cash and cash equivalents are essential components of the Corporation's financial liquidity management. Cash flows are monitored to ensure sufficient resources are available to meet our current operating requirements. Excess funds not needed to meet current operating requirements are invested in long-term instruments to generate additional revenue for future obligations.

Bonds - maturity profile

	2018			
(in thousands of Canadian dollars)	**Within One Year**	**One Year to Five Years**	**After Five Years**	**Total Fair Value**
Federal	**-**	**-**	**24,031**	**24,031**
Manitoba				
Provincial	**-**	**9,034**	**99,993**	**109,027**
Municipal	**391**	**1,652**	**49,064**	**51,107**
Schools	**1,433**	**24,640**	**478,066**	**504,139**
Other Provinces				
Provincial	**-**	**54,242**	**710,539**	**764,781**
Municipal	**4,373**	**18,723**	**36,762**	**59,858**
Corporations	**-**	**25,840**	**73,134**	**98,974**
Total	**6,197**	**134,131**	**1,471,589**	**1,611,917**

	2017			
(in thousands of Canadian dollars)	Within One Year	One Year to Five Years	After Five Years	Total Fair Value
Federal	-	15,871	34,801	50,672
Manitoba				
Provincial	-	8,983	112,811	121,794
Municipal	1,529	2,115	32,613	36,257
Schools	-	25,046	514,839	539,885
Other Provinces				
Provincial	7,036	68,720	555,294	631,050
Municipal	-	23,939	32,050	55,989
Corporations	-	13,392	37,550	50,942
Total	8,565	158,066	1,319,958	1,486,589

Liability Liquidity

	2018			
(in thousands of Canadian dollars)	**Within One Year**	**One Year to Five Years**	**After Five Years**	**Total Fair Value**
Provision for unpaid claims				
Cash Flows – non-discounted, non-indexed	**288,904**	**284,812**	**1,228,488**	**1,802,204**

	2017			
(in thousands of Canadian dollars)	Within One Year	One Year to Five Years	After Five Years	Total Fair Value
Provision for unpaid claims				
Cash Flows – non-discounted, non-indexed	291,040	275,104	1,179,241	1,745,385

25. Non-Current Assets and Liabilities

The following table presents financial assets and liabilities valued on the Corporation's Statement of Financial Position that the Corporation expects to recover or settle in 12 months or greater at February 28, 2018 and February 28, 2017.

(in thousands of Canadian dollars)	**2018**	2017
Financial Assets		
Bonds	**1,605,720**	1,478,024
Equity investments	**349,300**	420,569
Pooled real estate	**224,673**	199,904
Infrastructure and other investments	**86,646**	82,446
Reinsurers' share of unpaid claims	**793**	591
	2,267,132	2,181,534
Financial Liabilities		
Financing lease obligation	**3,045**	3,164
Provision for unpaid claims - net	**1,516,776**	1,499,390
	1,519,821	1,502,554
Net asset due after one year	**747,311**	678,980

26. Rate Regulation

Under the provisions of *The Crown Corporations Governance and Accountability Act*, the Public Utilities Board has the authority to review and approve Basic Insurance rates, premiums and service fees charged with respect to compulsory driver and vehicle insurance provided by the Corporation. No new rates or fees for services can be introduced without the approval of the Public Utilities Board. This business comprises approximately 87 per cent (February 28, 2017 - 88 per cent) of the total business based on net claims incurred.

Annually the Corporation prepares its Basic Insurance general rate application and files it with the Public Utilities Board in the month of June for implementation the following fiscal year commencing on March 1. The general rate application includes the prospective rate requirements based on historical and forecasted financial and other information as well as the application of actuarial, accounting and statistical principles and practices.

The Corporation is required to pay a portion of the Public Utilities Board's operating costs relating to the Corporation's share of the overall Public Utilities Board budget. In addition, the Public Utilities Board can also order the Corporation to reimburse other proceeding participants for specified costs such as their time, legal and expert witness fees.

27. Subsequent Events

On March 30, 2018, the Corporation sold and transferred possession of surplus property at 1103 Pacific Avenue in Winnipeg. The property sold for $1.9 million, resulting in a gain of $1.3 million. Decommission of the property resulted from ongoing efforts by the Corporation to reduce its physical footprint by consolidating services to better meet customer service expectations.

28. Contingent Liabilities

The Corporation is subject to litigation arising in the normal course of conducting its insurance business. The Corporation is of the opinion that this litigation will not have a significant effect on the financial position, financial performance or cash flows of the Corporation.

Quarterly Financial Report

1st QUARTER

Three months ended
May 31, 2018

Manitoba Public Insurance

Management Discussion and Analysis

Management's discussion and analysis provides a review of the financial results and future outlook of Manitoba Public Insurance. It should be read in conjunction with the unaudited condensed interim financial statements and supporting notes for the first quarter ended May 31, 2018 included herein and the annual audited financial statements and supporting notes and the Corporation's 2017 Annual Report available at mpi.mb.ca. Certain information in this report may consist of forward-looking statements. These statements are based on various techniques and assumptions including predictions about future events which may not occur. Actual results could deviate significantly from the forward-looking statements.

Q1 Corporate Performance Measures and Targets

First quarter results / March 1, 2018–May 31, 2018

MANITOBA PUBLIC INSURANCE

FINANCIAL PERFORMANCE

Net Premiums Earned

In millions

$313.6	$312.1	$290.2	$1,276.5
ACTUAL Q1 18/19	TARGET Q1 18/19	PAST Q1 17/18	ANNUAL TARGET 18/19

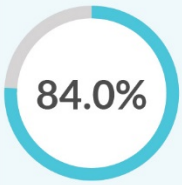
Net Claims Incurred

In millions

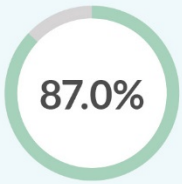
$223.9	$228.7	$254.1	$959.0
ACTUAL Q1 18/19	TARGET Q1 18/19	PAST Q1 17/18	ANNUAL TARGET 18/19

Corporate Claims Cost Ratio

(Total Claims Cost / Net Premiums Earned)



ACTUAL Q1 18/19

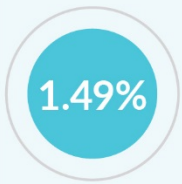


TARGET Q1 18/19

101.3%
PAST Q1 17/18

88.5%
ANNUAL TARGET 18/19

Total Return — Investments



ACTUAL Q1 18/19



TARGET Q1 18/19

2.77%
PAST Q1 17/18

4.62%
ANNUAL TARGET 18/19

OPERATIONAL EXCELLENCE

Total Full-Time Equivalent (Average)

1,762	1,878	1,913	1,884
ACTUAL Q1 18/19	TARGET Q1 18/19	PAST Q1 17/18	ANNUAL TARGET 18/19

Operating Expense Ratio

(Operating Expenses / Net Premiums Earned)



ACTUAL Q1 18/19



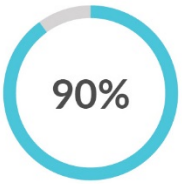
TARGET Q1 18/19

10.5%
PAST Q1 17/18

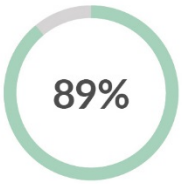
9.7%
ANNUAL TARGET 18/19

CUSTOMER SERVICE

Customer Satisfaction Index



ACTUAL Q1 18/19



TARGET Q1 18/19

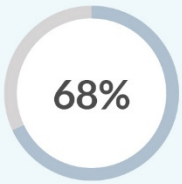
89%
PAST Q1 17/18

89%
ANNUAL TARGET 18/19

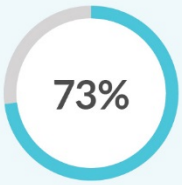
Note: Manitoba Public Insurance will conduct a review of our customer satisfaction metrics during the 2018/19 year.

ORGANIZATIONAL HEALTH

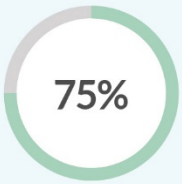
Employee Engagement



ACTUAL 2015



ACTUAL 2016



TARGET 2018

Capital Adequacy (Minimum Capital Test)

Basic



ACTUAL Q1 18/19



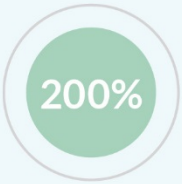
TARGET Q1 18/19

75–100%
ANNUAL TARGET 18/19

Extension



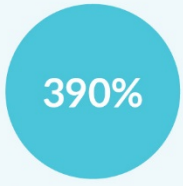
ACTUAL Q1 18/19



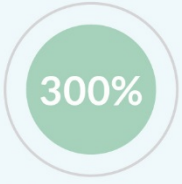
TARGET Q1 18/19

200%
ANNUAL TARGET 18/19

Special Risk Extension



ACTUAL Q1 18/19



TARGET Q1 18/19

300%
ANNUAL TARGET 18/19

Results of Operations

Manitoba Public Insurance reported net income of $33.7 million for the three months ended May 31, 2018 compared to net income of $38.9 million for the same period last year. This includes net income of $14.9 million (2017 – net income of $15.4 million) from the Basic insurance line of business. Corporate net income decreased from the previous year by $5.2 million due to:

i) an increase in earned revenues of $23.2 million, offset by a increase in total expenses of $3.7 million;
ii) a decrease in claims cost of $30.6 million;
iii) a decrease in investment income of $57.0 million mainly due to the decrease of unrealized gains on Fair Value Through Profit or Loss bonds of $47.3 million and decrease gains on the sale of equities and other investments of $9.7 million.

Current Year and Last Year

Total earned revenues for the three months ended May increased from the previous year by $23.2 million. This increase is primarily attributed to motor vehicle earned revenues which increased by $19.2 million or 6.8%. The increase in earned revenues is primarily due to the growth in the number of vehicles on the road in Manitoba, and the value of these vehicles and movement of drivers down the Drivers Safety Rating scale resulted in higher premiums.

Claims costs for the three months ended May 31, 2018 decreased by $30.6 million or 11.6% compared to last year due primarily to a decrease of $26.1 million or 22.9% in bodily injury claims incurred and a decrease of $4.3 million or 3.1% in physical damage claims incurred. The $26.1 million increase in bodily injury claims was impacted by a decrease of $51.3 million due to the interest rate adjustment on unpaid claims. Claims expense increased by $0.2 million or 0.5% from the previous year, offset by a decrease in road safety and loss prevention expenses of $0.4 million or $15.5%.

Total expenses increased by $3.7 million compared to last year due primarily to an increase of $1.2 million or 5.8% in commission expenses, an increase of $700 thousand or 7.4% in premium taxes and an increase of $1.8 million or 5.6% in operating expenses.

Retained Earnings

Net income of $33.7 million for the first three months ending May 31, 2018 increased retained earnings from $352.6 million to $386.3 million (May 31, 2017 – $300.4 million). Retained earnings are comprised of $185.9 million for Basic insurance (May 31, 2017 - $114.7 million) and $200.4 million for non-Basic lines (May 31, 2017 - $185.7 million).

Total Equity

Total equity of $442.0 million (May 31, 2017 – $379.5 million) are comprised of $386.3 million retained earnings and $55.7 million accumulated other comprehensive income (May 31, 2017 - $79.1 million).

The Corporation's Chief Actuary concluded that a minimum total equity level of $201.0 million would be required for Basic to achieve satisfactory future financial condition. At the end of the first quarter, Basic insurance reported total equity of $234.0 million (May 31, 2017 – $183.4 million). Extension's current capital target level for total equity is $64.0 million based on the Corporation's most recent Dynamic Capital Adequacy Test (DCAT) analysis. At the end of the first quarter, Extension insurance reported total equity of $116.9 million (May 31, 2017 - $111.3 million). Special Risk Extension's current capital target level for total equity is $65.0 million based on the Corporation's most recent DCAT analysis. At the end of the first quarter, Special Risk Extension insurance reported total equity of $91.7 million (May 31, 2017 - $84.9 million).

Outlook

The Corporation remains committed to achieving its Corporate goals. Actual results will be monitored, and corrective actions taken when necessary, to ensure that expected outcomes are realized.

As approved by the Public Utilities Board (PUB), effective March 1, 2018, there was a 2.6 per cent overall rate increase to average Basic insurance rates for the 2018/19 insurance year and the equivalent of a 1.8 per cent increase for demerit drivers.

For the 2019/20 insurance year, Manitoba Public Insurance is requesting a 2.2 per cent overall rate increase in its general rate application. All insurance companies hold funds to pay claims, as well as to maintain a buffer of capital to endure unexpected adverse circumstances. Manitoba Public Insurance's 'buffer' is known as the Rate Stabilization Reserve and to remain effective it must grow with the business. For the 2019/20 insurance year, the Corporation is proposing a Capital Maintenance Provision which accounts for 2.1 per cent of the overall 2.2 per cent increase.

Overall:

- 547,166 vehicles (excluding trailers and off-road vehicles) will receive increases in their Basic premium next year, with 39.5 per cent of these vehicles increasing by less than $50 per year.
- Approximately 37.7 per cent of all vehicle owners (excluding trailers and off-road vehicles) will see no change or a decrease in premium over 2018/19 rates.
- The average vehicle premium for Private Passenger Vehicle Class will be $1,138 if the 2019 rate application is approved
- Motorcycle rates (including moped and motor scooters) will increase 3.1 per cent
- If approved, rate changes will take effect March 1, 2019

Manitoba Public Insurance is committed to keeping rates stable over the long term. Manitoba Public Insurance continues to have one of the lowest rates of year-over-year premium increases of all Canadian provinces.

Condensed Interim Financial Statements

Condensed Interim Statement of Financial Position

(Unaudited - in thousands of Canadian dollars)	*Notes*	May 31, 2018	February 28, 2018
Assets			
Cash and cash equivalents	*5*	**131,072**	89,006
Investments	*5*	**2,673,308**	2,660,850
Investment property	*5*	**40,317**	40,646
Due from other insurance companies		**4**	3
Accounts receivable		**490,082**	477,908
Prepaid expenses		**5,444**	1,227
Deferred policy acquisition costs		**25,942**	24,727
Reinsurers' share of unearned premiums		**11,408**	133
Reinsurers' share of unpaid claims		**2,555**	2,452
Property and equipment		**114,825**	116,754
Deferred development costs		**67,752**	69,191
		3,562,709	3,482,897
Liabilities			
Due to other insurance companies		**7,706**	171
Accounts payable and accrued liabilities		**75,443**	69,217
Financing lease obligation		**4,067**	4,092
Unearned premiums		**640,655**	628,837
Provision for employee current benefits		**23,232**	22,373
Provision for employee future benefits		**449,392**	446,458
Provision for unpaid claims	*4*	**1,920,185**	1,912,734
		3,120,680	3,083,882
Equity			
Retained Earnings		**386,335**	352,608
Accumulated Other Comprehensive Income		**55,694**	46,407
Total Equity		**442,029**	399,015
		3,562,709	3,482,897

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Operations

(Unaudited - in thousands of Canadian dollars)	*Notes*	Three Months Ended May 31, 2018	May 31, 2017
Earned Revenues			
Gross premiums written		**357,209**	332,517
Premiums ceded to reinsurers		**(15,107)**	(15,179)
Net premiums written		**342,102**	317,338
(Increase) decrease in gross unearned premiums		**(39,788)**	(38,428)
Increase (decrease) in reinsurers' share of unearned premiums		**11,274**	11,340
Net premiums earned		**313,588**	290,250
Service fees & other revenue		**8,817**	9,061
The Drivers and Vehicles Act operations recovery		**7,563**	7,491
Total Earned Revenues		**329,968**	306,802
Claims Costs			
Direct claims incurred – gross		**223,963**	254,312
Claims (recovered) incurred ceded to reinsurers		**(106)**	(173)
Net claims incurred		**223,857**	254,139
Claims Expense		**37,364**	37,246
Loss prevention/Road safety		**2,172**	2,582
Total Claims Costs		**263,393**	293,967
Expenses			
Operating		**32,151**	30,392
Commissions		**20,790**	19,608
Premium taxes		**9,523**	8,823
Regulatory/Appeal		**905**	931
Total Expenses		**63,369**	59,754
Underwriting income (loss)		**3,206**	(46,919)
Investment income (loss)	*6*	**28,761**	85,785
Gain on disposal of property		**1,760**	-
Net income from operations		**33,727**	38,866

Condensed Interim Statement of Comprehensive Income (Loss)

(Unaudited - in thousands of Canadian dollars)	Three Months Ended May 31, 2018	May 31, 2017
Net income from operations	**33,727**	38,866
Other Comprehensive Income (Loss)		
Items that will be reclassified to income		
Unrealized gains (losses) on Available for Sale assets	**9,884**	(2,985)
Reclassification of net realized (gains) losses related to Available for Sale assets	**(596)**	(13,526)
Total Available for Sale assets	**9,288**	(16,511)
Other Comprehensive Income (Loss) for the period	**9,288**	(16,511)
Total Comprehensive Income (Loss)	**43,015**	22,355

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Changes in Equity

(Unaudited - in thousands of Canadian dollars)	Retained Earnings	Accumulated Other Comprehensive Income	Equity
Balance as at March 1, 2017	261,532	95,637	357,169
Net income from operations for the period (restated)	38,866	-	38,866
Other comprehensive income for the period	-	(16,511)	(16,511)
Balance as at May 31, 2017	300,398	79,126	379,524
Balance as at March 1, 2018	352,608	46,507	399,015
Net income from operations for the period	33,727	-	33,727
Other comprehensive income for the period	-	9,287	9,287
Balance as at May 31, 2018	**386,335**	**55,694**	**442,029**

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Cash Flows

(Unaudited - in thousands of Canadian dollars)	*Notes*	Three months ended May 31, 2018	May 31, 2017
Cash Flows from (to) Operating Activities:			
Net income (loss) from operations		**33,727**	38,866
Non-cash items:			
Depreciation of property and equipment		**1,168**	1,307
Amortization of deferred development costs		**5,811**	4,947
Amortization of bond discount and premium		**877**	865
(Gain) loss on sale of investments		**(8,934)**	(4,675)
Unrealized (gain) loss on Fair Value Through Profit or Loss bonds		**2,822**	(12,835)
Unrealized (gain) loss on investment in real estate		**(6,391)**	(3,779)
Unrealized (gain) loss on investment in infrastructure		**1,113**	520
Impairment of deferred development costs		**858**	-
		31,051	(6,160)
Net change in non-cash balances:			
Due from other insurance companies		**(1)**	21
Accounts receivable and prepaid expenses		**(16,391)**	(2,974)
Deferred policy acquisition costs		**(1,215)**	(1,266)
Reinsurers' share of unearned premiums and unpaid claims		**(11,378)**	(11,504)
Due to other insurance companies		**7,535**	7,579
Accounts payable and accrued liabilities		**6,226**	(7,838)
Unearned premiums		**11,818**	10,072
Provision for employee current benefits		**859**	538
Provision for employee future benefits		**2,934**	3,060
Provision for unpaid claims		**7,451**	26,749
		7,838	24,437
		38,889	1,749
Cash Flows from (to) Investing Activities:			
Purchase of investments		**(326,952)**	(170,243)
Proceeds from sale of investments		**334,623**	170,732
Acquisition of property and equipment net of proceeds from disposals		**761**	(1,365)
Financing lease obligation		**(25)**	(23)
Deferred development costs incurred		**(5,230)**	(4,749)
		3,177	(5,648)
Increase (decrease) in Cash and Cash Equivalents		**42,066**	(3,899)
Cash and short-term investments beginning of period		**89,006**	73,434
Cash and Cash Equivalents end of period	*5*	**131,072**	69,535

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

1) Status of the Corporation

The Manitoba Public Insurance Corporation (the "Corporation") was incorporated as a Crown Corporation under The Automobile Insurance Act in 1970. In 1974, The Automobile Insurance Act was revised and became The Manitoba Public Insurance Corporation Act (Chapter A180 of the continuing consolidation of the Statutes of Manitoba). In 1988, the Act was re-enacted in both official languages as Chapter P215 of the Statutes of Manitoba. The address of the Corporation's registered office is 234 Donald Street, Winnipeg, Manitoba.

Under the provisions of its Act and regulations, the Corporation operates an automobile insurance division and a discontinued general insurance division. The lines of business for the automobile insurance division provide for basic universal compulsory automobile insurance, extension and special risk coverages. For financial accounting purposes, the lines of business for the automobile insurance division and the discontinued general insurance division are regarded as separate operations and their revenues and expenses are allocated on a basis described in the summary of significant accounting policies. For financial reporting purposes, due to the immateriality of the financial results of the discontinued general insurance operations, the operations are reported as part of the Special Risk Extension line of business. The basic universal compulsory automobile insurance line of business rates are approved by the Public Utilities Board of Manitoba.

Under The Drivers and Vehicles Act (DVA), the Corporation is responsible for DVA operations pertaining to driver safety, vehicle registration and driver licensing, including all related financial, administrative and data processing services.

2) Basis of Reporting

Statement of Compliance

The financial statements of the Corporation are in such form as prescribed by Section 43(1) of The Manitoba Public Insurance Corporation Act and are presented in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

Basis of Presentation

The Corporation presents its Statement of Financial Position broadly in order of liquidity.

These statements are presented in thousands of Canadian dollars which is the Corporation's functional and presentational currency except as otherwise specified.

Seasonality

The automobile insurance business, which reflects the primary business of the Corporation, is seasonal in nature. While net premiums earned are generally stable from quarter to quarter, underwriting income is typically highest in the first and second quarter of each year and lowest in the fourth quarter of each year. This is driven mainly by weather conditions which may vary significantly between quarters.

Basis of Measurement

The Corporation prepares its financial statements as a going concern, using the historical cost basis, except for financial instruments and insurance contract liabilities and reinsurers' share of unpaid claims. Measurement of the financial instruments is detailed in Note 3 of the 2017 Annual Report. Insurance contract liabilities and reinsurers' share of unpaid claims are measured on a discounted basis in accordance with accepted actuarial practice (which in the absence of an active market provides a reasonable proxy for fair value).

Estimates and Judgments

The preparation of financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from these estimates.

3) Summary of Significant Accounting Policies

Refer to the 2017/18 Annual Audited Financial Statements for a summary outlining those accounting policies followed by the Corporation that have a significant effect on the condensed interim financial statements.

4) Provision for Unpaid Claims

The provision for unpaid claims, including adjustment expenses, represents an estimate for the full amount of all costs and the projected final settlement of claims incurred.

The provision for unpaid claims, including adjustment expenses, is subject to variability. This variability is related to future events that arise from the date the loss was reported to the ultimate settlement of the claims. Accordingly, short-tail claims such as physical damage claims tend to be more reasonably predictable than long-tail claims such as Personal Injury Protection Plan (PIPP) and public liability claims. Factors such as the receipt of additional claims information during the claims settlement process, changes in severity and frequencies of claims from historical trends, and effects of inflationary trends contribute to this variability.

The determination of the provision for unpaid claims, including adjustment expenses, relies on judgment, analysis of historical claim trends, investment rates of return and expectation on the future development of claims. The process of establishing this provision necessarily involves risks which could cause the actual results to deviate, perhaps substantially, from the best determinable estimate.

5) Cash and Investments

Cash consists of cash net of cheques issued in excess of amounts on deposit.

Cash equivalent investments have a total principal amount of $133.4 million (2017 – $74.1 million) comprised of provincial short-term deposits with effective interest rates of 1.10% (2017 – 0.55%), with interest receivable at varying dates.

The Corporation has an unsecured operating line of credit with its principal banker in the amount of $5.0 million (2017 - $5.0 million). The unsecured operating line of credit remained unutilized at May 31, 2018 (2017 – nil).

Cash and Investments

As at May 31, 2018 (in thousands of Canadian dollars)	Financial Instruments			Non-Financial Instruments	Total Carry Value
	Classified as AFS	Classified as HTM	Classified as FVTPL		
Cash and cash equivalents	**131,072**	**-**	**-**	**-**	**131,072**
Bonds					
Federal	**-**	**-**	**28,389**	**-**	**28,389**
Manitoba:					
Provincial	**-**	**-**	**127,521**	**-**	**127,521**
Municipal	**-**	**27,375**	**32,758**	**-**	**60,133**
Schools	**-**	**578,293**	**-**	**-**	**578,293**
Other provinces:					
Provincial	**-**	**-**	**900,146**	**-**	**900,146**
Municipal	**-**	**-**	**70,007**	**-**	**70,007**
Corporations	**-**	**-**	**115,295**	**-**	**115,295**
	-	**605,668**	**1,274,116**	**-**	**1,879,784**
Other investments	**1,308**	**-**	**-**	**-**	**1,308**
Infrastructure	**-**	**-**	**100,743**	**-**	**100,743**
Equity investments	**422,060**	**-**	**-**	**-**	**422,060**
Pooled Real Estate Fund	**-**	**-**	**269,413**	**-**	**269,413**
Investments	**423,368**	**605,668**	**1,644,272**	**-**	**2,673,308**
Investment property	**-**	**-**	**-**	**40,317**	**40,317**
	554,440	**605,668**	**1,644,272**	**40,317**	**2,844,697**

As at May 31, 2017 (in thousands of Canadian dollars)	Financial Instruments			Non-Financial Instruments	Total Carry Value
	Classified as AFS	Classified as HTM	Classified as FVTPL		
Cash and cash equivalents	69,535	-	-	-	69,535
Bonds					
Federal	-	-	92,853	-	92,853
Manitoba:					
Provincial	-	-	142,761	-	142,761
Municipal	-	16,684	33,729	-	50,413
Schools	-	620,580	-	-	620,580
Other provinces:					
Provincial	-	-	776,881	-	776,881
Municipal	-	-	67,373	-	67,373
Corporations	-	-	67,968	-	67,968
	-	637,264	1,181,565	-	1,818,829
Other investments	1,493	-	-	-	1,493
Infrastructure	-	-	96,011	-	96,011
Equity investments	440,046	-	-	-	440,046
Pooled Real Estate Fund	-	-	240,046	-	240,046
Investments	441,539	637,264	1,517,622	-	2,596,425
Investment property	-	-	-	41,398	41,398
	511,074	637,264	1,517,622	41,398	2,707,358

Gross unrealized gains and gross unrealized losses included in accumulated other comprehensive income on available for sale equity and other investments are comprised as follows:

As at May 31, 2018 (in thousands of Canadian dollars)	**Book Value**	**Unrealized Gains/(Losses)**	**Fair Value**
Equity Investments			
With unrealized gains	**263,850**	**129,536**	**393,386**
With unrealized (losses)	**33,049**	**(4,375)**	**28,674**
Subtotal – Equity Investments	**296,899**	**125,161**	**422,060**
Other Investments			
With unrealized gains	**341**	**967**	**1,308**
With unrealized (losses)	**-**	**-**	**-**
Subtotal – Other Investments	**341**	**967**	**1,308**
Total AFS Equity and Other Investments	**297,240**	**126,128**	**423,368**

As at May 31, 2017 (in thousands of Canadian dollars)	Book Value	Unrealized Gains/(Losses)	Fair Value
Equity Investments			
With unrealized gains	294,357	122,426	416,783
With unrealized (losses)	25,783	(2,520)	23,263
Subtotal – Equity Investments	320,140	119,906	440,046
Other Investments			
With unrealized gains	28	1,126	1,154
With unrealized (losses)	371	(32)	339
Subtotal – Other Investments	399	1,094	1,493
Total AFS Equity and Other Investments	320,539	121,000	441,539

AFS financial assets where the investment's underlying cost is greater than the fair value, the loss has not been recognized in net income either because:

- there is not objective evidence of impairment, or
- the loss is not considered to be significant or prolonged.

Fair Value Measurement

Financial assets that are measured at fair value are classified by their level within the fair value hierarchy. The fair value hierarchy consists of three levels that are defined on the basis of the type of inputs used to measure fair value. The classification cannot be higher than the lowest level of input that is significant to the measurement:

Level 1 – Fair value is determined based on unadjusted quoted prices of identical assets in active markets. Inputs include prices from exchanges where equity and debt securities are actively traded.

Level 2 – Level 2 valuations utilize inputs other than quoted market prices included in Level 1 that are observable, directly or indirectly, for the asset. These inputs include quoted prices for similar assets in active markets and observable inputs other than quoted prices, such as interest rates and yield curves. The fair values for some Level 2 securities were obtained from a pricing service. Pricing service inputs may include benchmark yields, reported trades, broker/dealer quotes and bid/ask spreads.

Level 3 – Fair value measurements using significant inputs that are not based on observable market data are Level 3. This mainly consists of derivatives and private equity investments. In these cases prices may be determined by internal pricing models utilizing all available financial information, including direct comparison

and industry sector data. For some investments, valuations are obtained annually. For periods between valuations, management assesses the validity of the valuation for current reporting purposes.

The following table presents financial instruments measured at fair value in the Statement of Financial Position, classified by level within the fair value hierarchy.

As at May 31, 2018 (in thousands of Canadian dollars)	**Level 1**	**Level 2**	**Level 3**
FVTPL financial assets			
Bonds	**-**	**1,259,754**	**14,362**
Infrastructure	**-**	**-**	**100,743**
Pooled real estate	**-**	**269,413**	**-**
Total FVTPL financial assets	**-**	**1,529,167**	**115,105**
AFS financial assets			
Cash and cash equivalents	**131,072**	**-**	**-**
Other investments	**-**	**-**	**1,308**
Equity investments	**422,060**	**-**	**-**
Total AFS financial assets	**553,132**	**-**	**1,308**
Total assets measured at fair value	**553,132**	**1,529,167**	**116,413**

As at May 31, 2017 (in thousands of Canadian dollars)	Level 1	Level 2	Level 3
FVTPL financial assets			
Bonds	61,500	1,104,954	15,111
Infrastructure	-	-	96,011
Pooled real estate	-	240,046	-
Total FVTPL financial assets	61,500	1,345,000	111,122
AFS financial assets			
Cash and short term investments	69,535	-	-
Other investments	-	-	1,493
Equity investments	440,046	-	-
Total AFS financial assets	509,581	-	1,493
Total assets measured at fair value	571,081	1,345,000	112,615

Fair value measurement of instruments included in Level 3	FVTPL		AFS	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Balance at March 1	**114,447**	110,121	**1,351**	1,493
Total gains/(losses)				
Included in net income	**(1,114)**	1,001	**-**	-
Included in other comprehensive income	**-**	-	**15**	-
Purchases	**30,635**	-	**-**	-
Sales	**(28,863)**	-	**(58)**	-
Balance at May 31	**115,105**	111,122	**1,308**	1,493

The fair value of HTM bonds, which include schools and certain municipalities, is based on their carrying value, which approximates fair value.

6) Investment Income

(in thousands of Canadian dollars)	**May 31, 2018**	May 31, 2017
Interest income	**14,108**	12,981
Gain (loss) on sale of FVTPL bonds	**6,566**	3,942
Unrealized gain (loss) on FVTPL bonds	**(2,822)**	44,441
Unrealized gain (loss) on pooled real estate	**6,391**	6,065
Dividends on infrastructure investments	**265**	523
Realized gain (loss) on infrastructure investments	**1,771**	-
Unrealized gain (loss) on infrastructure investments	**(1,113)**	1,001
Dividend income	**3,006**	3,446
Gain (loss) on sale of equities and other investments	**597**	13,526
Gain (loss) on foreign exchange	**(20)**	(9)
Income from investment property	**981**	774
Investment management fees	**(969)**	(905)
Total Investment income (loss)	**28,761**	85,785

7) Employee Future Benefits Expense

The total benefits costs included in expenses are as follows:

(in thousands of Canadian dollars)	**May 31, 2018**	May 31, 2017
Pension benefits	**6,989**	6,938
Other post-employment benefits	**536**	467
Total	**7,525**	7,405

8) Depreciation and Amortization

The total depreciation and amortization included in expenses are as follows:

(in thousands of Canadian dollars)	**May 31, 2018**	May 31, 2017
Amortization – Deferred Development	**5,811**	5,195
Depreciation – Property and equipment	**1,168**	1,258
Total	**6,979**	6,453

For more information contact:

Manitoba Public Insurance
Communications & Community Relations
Room 820, 234 Donald Street
P.O. Box 6300
Winnipeg, MB R3C 4A4

Manitoba Public Insurance

MANITOBA PUBLIC INSURANCE

2017

ANNUAL REPORT



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Contents



P//2 Letters of Transmittal
P//3 2017/18 Year-End Summary
P//4 Message from the Chairperson
P//6 Message from the President and Chief Executive Officer
P//8 Report on Performance
P//10 Strategic Direction
P//13 Management Discussion & Analysis
P//29 Condensed Financial Statements
P//33 Notes to Condensed Financial Statements
P//39 Manitoba Public Insurance Locations

Manitoba Public Insurance is a provincial Crown corporation that has provided automobile insurance coverage since 1971. We assumed a broader spectrum of services in 2004, when we merged driver and vehicle licensing into our operations. The Corporation is governed by *The Manitoba Public Insurance Corporation Act* and *The Drivers and Vehicles Act*.

This annual report is available in French at mpi.mb.ca.

Le rapport annuel est disponible en français sur le site Web mpi.mb.ca.

Letters of Transmittal

Manitoba Public Insurance

May 31, 2018

The Honourable Cliff Cullen
Minister of Crown Services
Room 314, Legislative Building
Winnipeg, MB R3C 0V8

Dear Minister,

In accordance with Section 43(1) of *The Manitoba Public Insurance Corporation Act*, I am pleased to submit the Annual Report of the Manitoba Public Insurance Corporation for the fiscal year ended February 28, 2018.

Respectfully submitted,



Brent VanKoughnet
CHAIRPERSON OF THE BOARD

Manitoba

May 31, 2018

Her Honour The Honourable
Janice C. Filmon, C.M., O.M.
Lieutenant Governor of Manitoba
Room 235, Legislative Building
Winnipeg, MB R3C 0V8

May it please your Honour,

I am pleased to present the Annual Report for the Manitoba Public Insurance Corporation for the fiscal year ended February 28, 2018.

Respectfully submitted,



Cliff Cullen
MINISTER OF CROWN SERVICES

2017/18 Year–End Summary

Dollars and Cents

Approximate Autopac claims paid per working day	$3.1 million
Total Autopac claims paid for injuries occurring in 2017/18 (before expenses)	$167.0 million
Total Autopac claims paid for property damage occurring in 2017/18 (before expenses)	$611.6 million
Amounts paid by Manitoba Public Insurance to Manitoba medical practitioners on behalf of customers	$34.6 million
Commissions paid by Manitoba Public Insurance to independent insurance brokers for product sales	$83.0 million
Grants-in-lieu of taxes paid to Manitoba municipalities by Manitoba Public Insurance	$1.9 million
Provincial premium taxes paid by Manitoba Public Insurance	$36.9 million
Dollars invested in road safety programs	$15.3 million
Potential savings to policyholders through use of recycled parts made available for use in claims repairs	$12.5 million
Estimated direct savings to policyholders through subrogation	$12.5 million

Significant Numbers

Average number of Autopac claims reported to Manitoba Public Insurance per working day	1,203
Total Autopac claims reported	299,518
Bodily injury claims reported	17,734
Property damage claims reported	281,784
Total theft claims reported in Winnipeg	2,439
Total theft claims reported elsewhere in province	772
Number of Autopac policies in force (average)	1,150,486

Corporate Five-Year Statistics

	2017/18	2016/17	2015/16	2014/15	2013/14
Premiums written ($000)	1,232,350	1,153,420	1,103,185	1,026,555	977,992
Claims incurred ($000)	883,813	981,298	770,624	844,875	861,137
Number of claims	299,518	303,878	297,957	273,244	287,741
Average cost per claim ($)	2,951	3,229	2,586	3,092	2,993
Claim expenses ($000)	161,583	137,102	134,511	134,247	132,563
Other expenses ($000)	254,460	254,274	205,510	247,217	239,219
Net income (loss) ($000)	91,076	(85,204)	(31,314)	57,578	(44,846)
Investments at year-end ($000)	2,784,706	2,648,305	2,523,111	2,599,971	2,443,390
Total assets ($000)	3,482,897	3,349,799	3,190,917	3,215,049	3,028,171

Message from the Chairperson



During the 2017/18 fiscal year, we placed a strong, clear focus on our core business, and we developed key priorities to keep us on track well into the future.

Manitoba Public Insurance is committed to delivering value to Manitobans through affordable rates, exceptional coverage and service, and safer roads.

This commitment is rooted in the promises to provide ratepayers with adequate compensation for loss, and to continuously evaluate policies and procedures, streamline operations, reduce operating costs, and implement loss-prevention programs to control claims frequency and severity.

As a public auto insurer, the Corporation is entrusted by Manitobans with the exclusive authority to provide Basic automobile insurance coverage. The Board of Directors firmly believes that, in turn, the Board has an obligation to ensure Manitoba Public Insurance is adhering to best practices in insurance and demonstrating disciplined management that will provide exceptional value to Manitobans.

During the 2017/18 fiscal year, we placed a strong, clear focus on our core business, and we developed key priorities to keep us on track well into the future.

The Board is committed to keeping Basic rates as stable, predictable and affordable as possible. The Basic program must be operated on a self-sustaining basis; with a capital reserve that is sufficient to absorb unforeseen variations in revenues, claims costs and investment income; and with rates that are actuarially sound. To ensure we accomplish this, the Corporation will continue to demonstrate fiscal prudence and sound financial management with a focus on driving cost containment, streamlining operations and eliminating unnecessary operational expenses. Key performance measures have been re-established and will be benchmarked against best disciplines of other public and private insurance organizations to ensure the continued pursuit of operational effectiveness, financial prudence and optimum investment-management practices.

Over the next year, a thorough product and service review will be conducted to inform and guide the continued adaptation of Manitoba Public Insurance to meet the evolving needs of Manitobans, including those in rural, northern and remote communities. We will investigate online customer self-service options to address and enhance customer service and convenience, while ensuring capital projects and technological initiatives are directly linked to supporting and optimizing core business functions and meeting the priorities of Manitobans.

Vehicle manufacture and repair is undergoing a dramatic shift due to increased use of lightweight complex materials and advanced electronic systems. There are significant cost and repair implications that will need to be managed thoughtfully. In response, we enhanced our claims process, including the launch of our increasingly popular Direct Repair program. Manitoba Public Insurance will continue to collaborate with the repair industry to ensure vehicles damaged in collisions are properly repaired, and we will continue to be proactive in preparing for structural change in the auto industry, including the anticipated introduction of fully autonomous vehicles.

The Board also recognizes the importance the Corporation plays in the broader provincial economy. We will strive to be good corporate citizens in each of the communities we operate in. We will commit to be fair and ethical partners with the many different strategic partners and stakeholders we depend on, and who depend on us to deliver service to Manitobans. We will continue to aspire to create a rewarding and high performance workplace where we hire and train employees with a commitment to excellent service. We also commit to financial management of the Corporation in a manner that will not impair the consolidated financial statements of the Province of Manitoba.

In February, Manitoba Public Insurance welcomed our new President and Chief Executive Officer, Benjamin Graham, who joins us following the retirement of Dan Guimond. Benjamin will be leading our executive, management and employees to focus on key priorities and objectives and to ensure public automobile insurance continues to provide exceptional value to Manitobans.

Lastly, my sincere thanks to my colleagues on the Board for their dedication and professional guidance, and to Manitoba Public Insurance executive, management and staff for their commitment to a journey of renewal, continuous improvement and the pursuit of exceptional value.



Brent VanKoughnet
CHAIRPERSON OF THE BOARD

Board of Directors

BRENT VANKOUGHNET,
Chairperson

DAN BUBIS

RICHARD CHALE

DOMENIC GRESTONI

EDNA NABESS

TAMMY SCHOCK

VALERIE WOWRYK

BENJAMIN GRAHAM
Ex-Officio

Message from the President and Chief Executive Officer



We are constantly refining and adapting our products, services and initiatives to meet the diverse needs and service expectations of our customers—no matter where they live in Manitoba.

Our role at Manitoba Public Insurance can be summed up in three phrases: Exceptional coverage. Affordable rates. Safer roads.

To this end, Manitoba Public Insurance is committed to providing guaranteed access to comprehensive automobile insurance coverage at rates that are stable, predictable and affordable. At the same time, we are constantly refining and adapting our products, services and initiatives to meet the diverse needs and service expectations of our customers—no matter where they live in Manitoba.

I joined Manitoba Public Insurance as its President and Chief Executive Officer as we concluded the 2017/18 fiscal year. I enter a company that is demonstrably successful in many areas of our business, but I have been tasked to apply international experience to further improve Manitoba Public Insurance. Simply put, we will refocus on being a fiscally strong insurance company that prides itself on informed underwriting and diligent claims management supported through a prudent investment strategy.

First and foremost, our public auto insurance model provides among the most affordable rates and most comprehensive coverage in Canada. In Winnipeg, insuring a 2016 Ford F150 XLT SuperCrew would cost $1,260, as compared to $4,655 in Calgary and $5,164 in Toronto, for a 40-year-old couple and their 16-year-old son, all with clean driving records.

Our partnership in the *Manitoba Road Safety Plan 2017-2020: Road to Zero* will reduce risk and create safer roads. In the 2017 calendar year, Manitoba saw the second lowest number of roadway fatalities in 35 years. However, the fact that there were still 73 deaths in vehicle collisions highlights just how much further we must go to improve our traffic safety culture.

Customer satisfaction continues to be strong—90 per cent are satisfied with the service they receive. Nevertheless, we must continue to strive for improvement and ensure that we continue to satisfy the evolving needs of customers. To this end, we will be emphasizing enhancements to customer service, including the creation of additional online self-service options, and the creation of a new product road map. This will inform a new customer service framework in 2019 that will evolve our customer-centric focus.

We will be continuing to address the speed of change in the design and manufacture of automobiles, to work collaboratively with the Public Utilities Board, to build on positive relationships with our business partners, and to streamline operations and contain costs to position ourselves for long-term financial stability.

At a high level, this will all be achieved through a framework of three key overriding objectives: product and service leadership; operational excellence; and high functioning relationships with customers, stakeholders and partners at all levels. We recognize that as we prepare for the future, we must continue to provide clear value—low cost, outstanding service, comprehensive coverage and universal access—to all Manitobans.

I would like to extend my sincere appreciation to the Board of Directors for the opportunity to guide the Corporation through this period of focused evolution. I look forward to the Board's guidance and collaboration as we continue the Corporation's long tradition of adding value to Manitoba. I am proud to be working with my executive team, with all of our employees, our business partners, and our industry stakeholders on our mission to provide value and exceptional insurance to Manitobans.



Benjamin Graham
PRESIDENT AND CHIEF EXECUTIVE OFFICER

Executive Team

BENJAMIN GRAHAM
President and Chief Executive Officer

BRAD BUNKO
Vice-President, Information Technology & Business Transformation and Chief Information Officer

MARK GIESBRECHT
Vice-President, Finance and Chief Financial Officer

LUKE JOHNSTON
Chief Actuary and Vice President, Risk Management

WARD KEITH
Vice-President, Business Development & Communications and Chief Administrative Officer

SATVIR TKACHUK
Vice-President, Human Resources and Chief Human Resources Officer

MIKE TRIGGS
General Counsel and Corporate Secretary

CURTIS WENNBERG
Vice-President, Customer Service and Chief Operating Officer

Report on Performance



During the 2017/18 insurance year, Manitoba Public Insurance maintained a focus on our core business and our corporate strategic objectives.

Key successes throughout the year included working collaboratively with the collision repair industry to facilitate proper and accountable repair, creating operational efficiencies to both contain costs and better serve customers, and undertaking loss prevention initiatives to positively influence driving behaviour with a view to reducing collisions, claims and claim costs.

At the outset of the year, we launched our Direct Repair program. Direct Repair enables customers with eligible claims to proceed directly to a participating repair shop for a vehicle damage estimate, after reporting the claim to Manitoba Public Insurance, instead of visiting a Service or Claim Centre. This program creates a streamlined process that provides increased convenience and flexibility for customers, and greater recognition, visibility and workflow management for participating repair shops.

As part of a long-term strategy to keep pace with rapid changes in the design, manufacture and repairability of motor vehicles, Manitoba Public Insurance opened a state-of-the-art centre for automotive research and training at our J.W. Zacharias Physical Damage Research Centre. The centre enables technicians to work closely with the repair industry to provide training on new and emerging repair techniques and equipment. This has already resulted in improved access to training and cost savings for the repair industry and helps ensure Manitoba vehicles are repaired to manufacturer specifications, protecting the safety of all road users.

The Corporation was also proud to host the 2017 Research Council for Automotive Repair (RCAR) conference. This international body exchanges research strategies and findings into repairability and safety, with the overall goal of reducing the human and economic cost of motor vehicle losses.

Physical damage claim efficiencies were also found through the introduction of paintless dent repair, an industry-standard method of removing dents from vehicle body panels. This cost-effective repair method is particularly suited to damage from hail claims. In addition, a change in the initial eradication and disinfection of rodent claims is reducing claims costs, while increasing options and simplifying the claim process for customers.

New Vehicle for Hire insurance coverage was developed, providing a made-in-Manitoba approach for vehicle owners offering ride-share services in accordance with municipal bylaws.

Throughout the year, several successful loss prevention initiatives were undertaken to promote road safety for many key issues, including distracted driving, speeding and impaired driving. This included the Corporation's first broad awareness and education campaign about the dangers of drug-impaired driving in partnership with MADD Canada.

A virtual reality experience, DRIVR-X, was created to tackle critical road safety issues affecting young drivers. DRIVR-X allows participants to explore a realistic, three-dimensional environment with multiple storylines requiring them to make important, life-changing decisions.

Loss prevention efforts culminated in the creation of *Manitoba Road Safety Plan 2017-2020: Road to Zero*. This is the first plan of its kind in our province—it provides the vision for Manitoba to have the safest roads in Canada and commits to one day achieving zero traffic fatalities on our roadways.

In the coming year, we look forward to continuing to build upon the strong foundations that were established in 2017/18 as we implement our strategic objectives going forward.

Better coverage.
Lower rates.
Safer roads.

Strategic Direction

At Manitoba Public Insurance, we are constantly evolving to meet the diverse needs and service expectations of our customers while providing guaranteed access to automobile insurance at cost.

We provide value to Manitobans through low and stable rates, ease-of-access to benefits, superior service, and the convenience of one-stop shopping for licensing, insurance and registration. The Corporation is committed to providing peace of mind for Manitobans through exceptional injury and damage coverage. Our road safety partnerships and initiatives will reduce risk on the road, save lives and reduce suffering for Manitoba families.

All of this speaks to the value that Manitoba Public Insurance provides as we look to the future—value that is achieved through a framework of three key objectives:

1) Product and service leadership.

2) Operational excellence and outstanding customer service.

3) High-functioning relationships with our key stakeholders and partners.

In the upcoming year, our internal evolution will focus on building a performance culture, and on assessing customer service and product offerings. We will develop a product road map to review and examine opportunities, and we will create a new customer experience framework to evolve our customer-centric focus. We recognize the demand for greater online service for customers, partners and staff, and we will work towards robust self-service options. In addition, a review of legacy computer systems will be undertaken as the first phase of a multi-year modernization project.

Our fast-changing external environment includes strengthening key relationships with the public, customers, government, the Public Utilities Board, and partners in road safety and service delivery. In the upcoming year, we will be emphasizing the development of new agreements with key partners and providers to continue to provide service and claims excellence for Manitobans.

The design and manufacture of vehicles is undergoing a dramatic shift, due to greater use of lightweight, complex materials, and increased adoption of electronic collision-avoidance and vehicle-control systems. The rapid pace of change will continue to evolve, and we will continue to work with our partners in the collision repair industry to ensure vehicles are repaired properly and cost effectively, in the best interest of all Manitobans.

The Corporation is committed to evolving the traffic safety culture of Manitoba, and fully supports the goals of the *Manitoba Road Safety Plan 2017-2020: Road to Zero*. We are dedicated to renewing our High School Driver Education program, which provides approximately 12,000 new teen drivers with access to professional training each year. Overall, safety and awareness priorities will remain focused on key



contributing factors to collisions, such as distracted driving, impaired driving and speed. We also recognize priorities around cycling, pedestrian and motorcycle safety, and the need to prepare for the legalization of recreational use of cannabis expected in 2018. We remain committed to working with road safety partners to influence driving behaviour with a view to reducing collisions, claims and their associated costs, and making our roads the safest in Canada.

Overall, through product and service leadership, operational excellence, and high-functioning relationships, our strategic direction will position us to continue to provide exceptional value for Manitobans, based on affordable insurance, comprehensive protection, outstanding service and universal access to coverage.



Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

Management Discussion & Analysis

Corporate Profile

Corporate Mission

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

Corporate Vision

Manitoba Public Insurance will be a leader in automobile insurance and driver services, providing Manitobans with guaranteed access to superior products, coverage and value. We will anticipate and meet the evolving needs of Manitobans. We are dedicated to offering province-wide accessibility and, in co-operation with our business partners, will perform at the highest attainable levels of economy, efficiency and effectiveness

Manitoba Public Insurance will make our roadways and communities safer by enforcing standards fordrivers and vehicles, by raising awareness of the inherent risk of driving and by investing in lasting solutions. We will develop education and awareness programs andcontrols that help and encourage Manitobans to acquire the knowledge and skills to avoid collisions.

Our people will deliver knowledgeable service with care, efficiency and justifiable pride, and will be appropriately recognized for their contributions in helping the Corporation achieve its goals. Manitoba Public Insurance will be one of the best and most inclusive places in the province to work and pursue a career, where people will deliver knowledgeable and caring services in new and innovative ways.

We will ensure Manitobans understand and support the unique contribution Manitoba Public Insurance makes to the province of Manitoba.

This report provides a review of financial performance and operational outcomes for the 2017/18 fiscal year. For this reason, 2017/18 goals, strategies and performance measures have been retained for retrospective reporting purposes. Moving forward, we will report on new financial and operational performance measures consistent with strategic direction provided by the Corporation's Board of Directors, and as referenced in Manitoba Public Insurance's Annual Business Plan for the 2018/19 fiscal year.

Corporate Values

As a public auto insurer, we hold ourselves accountable to all Manitobans to deliver value by fostering a culture of excellence. We achieve this through our four core values:

Striving for Excellence
We provide exceptional coverage and service. We adapt to meet evolving customer and industry needs, focusing on continuous improvement.

Providing Value to Manitobans
We maintain affordable rates and ensure accessible coverage. As a public auto insurer, fiscal responsibility is at the forefront of everything we do.

Doing What's Right
We act with integrity and accountability. We strive to be open and transparent.

Investing in People
We empower our employees to provide excellent service. We work together with business, community and road safety partners to fulfil our mission.



Corporate Governance

Responsibilities of the Board

Manitoba Public Insurance was created by an act of the Legislature to achieve the Corporation's founding principles. The Corporation's Board of Directors, appointed by the Government of Manitoba, ensures that corporate policies are consistent with its mandate and the laws of the Province of Manitoba. The Board is also responsible for policy development and approval, and provides oversight and monitoring. Currently, the Board has eight members. The president and chief executive officer is an ex-officio, non-voting member of the Board and the Board Committees. Further duties, obligations and responsibilities of the Board of Directors are prescribed by *The Crown Corporations Governance and Accountability Act*.

The Corporation is responsible for preparing an annual business plan which must be approved by the Board and submitted to the Minister of Crown Services.

Under the provisions of T*he Manitoba Public Insurance Corporation Act*, the Board chairperson is required to provide the Minister of Crown Services with an annual report, which is subsequently reviewed by the Standing Committee of the Legislature. With the approval of the Lieutenant Governor in Council, the Minister of Crown Services has the legislative authority to issue directives related to matters of policy, accounting, advertising standards and organizational reviews. The Public Utilities Board approves changes to Basic Autopac insurance rates.

Whistleblower Report

The Corporation established an anonymous and confidential Whistleblower Hotline system for the receipt, retention and treatment of complaints about activities that are potentially unlawful or injurious to the public interest, including suspected fraud or financial mismanagement by employees. It is fully compliant with *The Public Interest Disclosure (Whistleblower Protection) Act*.

As these matters are of paramount concern to the Board of Directors and senior management, the Corporation has retained the services of an independent third party to administer the Whistleblower Hotline, receive complaints and provide reports directly to the chair of the Audit Committee, the corporate General Counsel and the manager of Internal Audit—recognizing that employees will be more likely to submit reports if they have a direct channel open to them with which they are comfortable.

Furthermore, it is the policy of the Corporation to ensure there are no reprisals against any employee for accessing the Whistleblower Hotline and making a report, should the identity of the reporting employee become known despite stringent provisions for confidentiality. The purpose of the policy is to discipline those responsible, not to discipline those who report such abuses.

During the fiscal period March 1, 2017, to February 28, 2018, the Whistleblower Hotline received no inquiries.

Fair Practices Office

Our public auto insurance system strives for continuous improvement in all aspects of its operation, particularly those aimed at ensuring fair and appropriate service to customers. With that goal in mind, the Fair Practices Office (FPO) was created in 1999. The FPO is a means for customers and other interested parties to bring issues of a systemic nature to the attention of the Corporation.

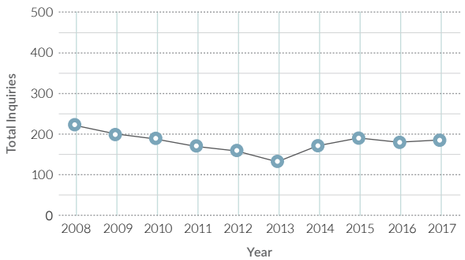
The FPO generally deals with concerns related to corporate policy, or issues involving complex or unusual situations where the correct interpretation of policy may seem unclear. The FPO may initiate its own investigations or respond to inquiries referred by others. It is free to scrutinize the Corporation's policies and procedures in an objective and constructive manner. As required, it can make recommendations about an operational decision on a specific case and alert senior management of any systemic concerns or policies that should be addressed.

Many of these matters are referred to the FPO by the provincial ombudsman, staff and customers. Inquiries of a systemic or policy nature may also be referred by the Customer Relations unit, which deals primarily with individual customers.

2017 Fair Practices Office Results

In the 2017/18 fiscal year, the FPO received 196 documented inquiries from the following referral sources:

Customer	/ 44
Formal Ombudsman inquiries	/ 3
Informal Ombudsman inquiries	/ 106
Internal referrals	/ 1
Executive referrals	/ 16
Ministerial inquiries	/ 26



Over the same period, the FPO investigated a total of 181 inquiries. Of the inquiries investigated, FPO recommended the Corporation revise its decision in 26 situations, or about 14 per cent of the cases reviewed.

Compliance to Legislative Authority: Sustainable Development Act

In accordance with Section 14 of *The Manitoba Sustainable Development Act* (1997), the Corporation did not experience any environmental incidents between March 1, 2017, and February 28, 2018.

The Corporation has a sustainable development program including policies and guidelines to reduce the environmental impact of the Corporation and its business partners.

Corporate Goals, Strategies and Measures

Manitoba Public Insurance's Goals, Strategies and Measures are as follows:

Goal 1

Universally available mandatory protection against the cost of automobile collisions. Rates, on average, will be lower than those charged by private insurance companies for comparable coverage and service.

Strategies

1.1 Basic automobile insurance — to ensure that the Basic, compulsory program meets the needs of Manitoba motorists for affordable, accessible and comprehensive coverage.

1.2 To keep all controllable costs at their lowest possible level through loss prevention and cost containment strategies.

1.3 To improve the efficiency and convenience of Manitoba Public Insurance's distribution and service network by reducing or eliminating low value transactions.

1.4 To the maximum extent possible, leverage synergies offered by strategic partners that are mutually beneficial, improve customer service and reduce costs.

1.5 To make prudent investments within acceptable risk profiles.

1.6 To maintain an information technology environment that is efficient, adaptable and designed to meet customer needs.

1.7 To maintain the Basic Insurance Rate Stabilization Reserve to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events and factors.

Rate Comparison Chart

2018 rates based on: 2016 Ford F150 XLT SuperCrew, $500 all-perils deductible, $2 million third-party liability	**21-Year-Old Male** Claims and conviction free	**35-Year-Old Couple** Both claims and conviction free	**40-Year-Old Couple** Both claims and conviction free **16-Year-Old Son** Claims and conviction free
Winnipeg, MB	**$1,534**	**$1,215**	**$1,260**
Calgary, AB	$6,728	$2,188	$4,655
Toronto, ON	$7,706	$2,318	$5,164

Notes: 1. The 2016 Ford F150 XLT SuperCrew is the most common passenger vehicle registered in Manitoba.
2. Manitobans will pay less for their automobile insurance in 2018 than most major Canadian cities.

Goal 2

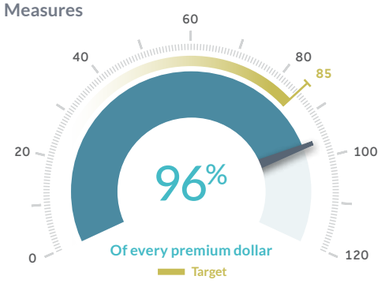
The Basic plan will return at least 85 per cent of premium revenue to Manitobans in the form of claims benefits.

Strategies

2.1 To maintain claims expense per reported claim at a maximum of 50 per cent of industry average.

2.2 To break even over the long term on Basic automobile insurance.

Measures



PREMIUM RETURNED FOR EACH DOLLAR EARNED

Goal 3

Manitoba Public Insurance will be a leader in automobile insurance and vehicle and driver licensing, providing Manitobans with superior products, coverage and service. The Corporation will utilize technology to provide products and services that will enhance the value it delivers to Manitobans.

Strategies

3.1 To ensure Manitobans receive understandable information on Manitoba Public Insurance products, entitlements, services and service standards. The Corporation will adopt a strategy that ensures information reaches the appropriate target groups at appropriate times.

3.2 Autopac Extension — to be profitable by providing products and services that continue to recognize the changing needs of our customers and continue to successfully achieve high levels of customer satisfaction through strategic pricing, accessibility and convenience. To mitigate risk through appropriate product design and automated underwriting techniques.

3.3 Special Risk Extension — to be profitable by responding to the variable and specialized needs of our commercial customers and providing personalized auto-related insurance products that cannot be met by the universal compulsory program or by the automobile extension program. To partner with customers in pursuing fleet safety and loss prevention initiatives. To provide Manitobans with a stable market choice that promotes long-term partnerships.

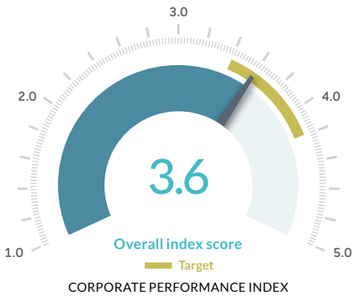
3.4 To use our economies of scale to help ensure safe, quality, reliable repairs for Manitobans by providing support for skilled trades through the development and delivery of cost-effective training.

3.5 To leverage our service delivery model to meet customer expectations, increasing accessibility and convenience.

3.6 To expand the value that the Corporation provides Manitobans by capitalizing on the effectiveness of its technology and distribution channels to develop innovative solutions that benefit its customers in a cost-effective manner.

3.7 To improve the service relationship between drivers and vehicle owners and the Corporation by modernizing business processes and ensuring all aspects of driver risk rating are consistent, clear and fair.

Measures



CORPORATE PERFORMANCE INDEX

Goal 4

Manitoba Public Insurance will provide service that is responsive, fair, courteous and convenient. Manitoba Public Insurance will meet corporate customer service standards that are based on customer expectations.

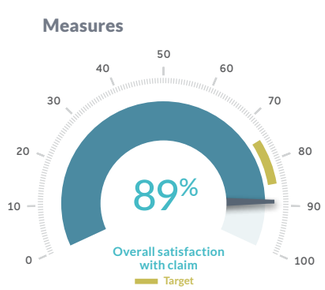
Strategies

4.1 To enhance a customer-centric service philosophy.

4.2 To create, publish and comply with comprehensive customer service standards for ourselves, brokers, business associates and service providers who are in contact with our customers.

4.3 To promptly address and respond to legitimate concerns expressed by our customers. To provide internal and external appeal mechanisms.

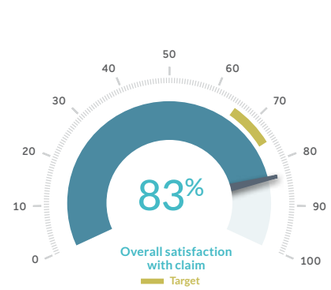
Measures



PHYSICAL DAMAGE CLAIMS



OVERALL CUSTOMER SATISFACTION



BODILY INJURY CLAIMS



INSURANCE OPERATIONS
POLICYHOLDER TRANSACTIONS



DRIVER AND VEHICLE LICENSING

Goal 5

Total equity will be maintained within established target levels.

Strategies

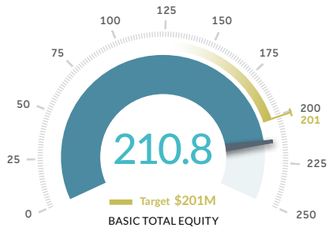
5.1 To maintain financial stability by setting appropriate premium rates, strengthening investments, and maintaining total equity within established target levels.

5.2 To continuously identify and assess the likelihood and magnitude of potential risks and act explicitly to avoid and mitigate such risks.

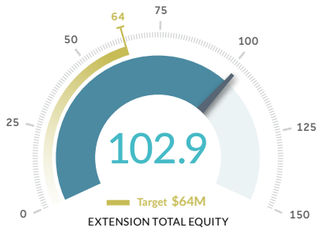
5.3 To develop business strategies to ensure competitive lines of business are profitable and contribute to the benefit of all Manitobans.

5.4 To assess corporate financial risk in keeping with industry standards and establish appropriate total equity target levels for each line of business.

Measures



BASIC TOTAL EQUITY



EXTENSION TOTAL EQUITY



SRE TOTAL EQUITY

Goal 6

Manitoba Public Insurance will offer an environment and career opportunities that will encourage employees to strive for excellence. Our people will be treated with respect and fairness and their contributions will be recognized.

Strategies

6.1 To build a culture of greater collaboration, accountability and innovation.

6.2 To foster a culture that attracts and retains a diverse workforce.

6.3 To continue to provide clear direction and foster a management style that reflects our values and supports employee commitment to the organization.

6.4 To use change management strategies that ensure communication, education and employee training support and facilitate business change.

6.5 To ensure employees are provided with effective, informative and timely two-way communication.

Measures



EMPLOYEE ENGAGEMENT

Goal 7

Manitoba Public Insurance will lead driver and vehicle safety initiatives that reduce risk and protect Manitobans on our streets and in their neighbourhoods. Manitobans will recognize the Corporation is living its mission.

Strategies

7.1 To develop an evidence-based road safety strategy with an aim to reduce automobile collisions, using a multi-faceted approach.

7.2 To ensure Manitoba drivers meet and continue to maintain established standards of knowledge, skill and behaviour to gain access to Manitoba roads.

7.3 To reduce risk on the road by working with and supporting the vehicle repair industry to ensure safe, quality and reliable repairs for Manitobans.

7.4 To ensure vehicles and vehicle repairs meet provincial mechanical standards and repairs are made according to the latest best practices.

7.5 To develop strategies and initiatives that support continuous vehicle and driver performance monitoring to ensure Manitoba roads remain safe for everyone.

7.6 To continue to provide a clear and understandable Driver Safety Rating program, which rewards safe drivers and motivates higher-risk drivers to improve their driving behaviour through insurance rates that reflect the risk they represent on the road.

7.7 To enhance road safety research and awareness activities, fine-tune and target advertising campaigns, and explore innovative ways to reach Manitobans with road safety messaging by leveraging the latest technologies.

7.8 To partner with community groups across Manitoba supporting community-based initiatives that increase road safety awareness and education opportunities.

Measures



PUBLIC SUPPORT FOR ROAD SAFETY

Results of Operations

Corporate

During the reporting period, for every dollar of revenue earned, the Corporation provided Manitobans with 84 cents in claims benefits. Operating expenses, including regulatory and appeal expenses, accounted for 10 cents of every dollar of revenue earned while broker commissions and premium taxes cost 9 cents. This resulted in an underwriting loss of 3 cents. Investment income added 11 cents for every dollar of revenue earned, resulting in the Corporation's net income being 8 cents for every dollar of revenue earned during the year.

Current Year and Last Year

In 2017/18, the Corporation had net income of $91.1 million, $176.3 million better than the previous year. The underwriting results were better than 2016/17, due primarily to a decrease of claims costs of $72.5 million largely resulting from favourable claims experience as well as actuarial adjustments and the change in interest rates which positively affected the claims reserves. Additionally, earned revenues rose by $65.3 million and investment income was $38.1 million better compared to last year.

Revenue

Total earned revenues in 2017/18 increased $65.3 million or 5.2 per cent to $1.3 billion because of the Public Utilities Board-approved 3.7 per cent overall rate increase for March 1, 2017; the growth in the number of vehicles on the road in Manitoba; the value of these vehicles; and movement of drivers down the Driver Safety Rating scale, all of which resulted in higher premiums. Total earned revenues include $30.2 million received from the Province of Manitoba as part of the agreement for providing services related to *The Drivers and Vehicles Act* operations.

Claims Costs

Beginning in 2005, a new reserving method was implemented for older open Personal Injury Protection Plan (PIPP) claims files. There are now 12 years of development observations under this process of reserving for open claims with continuing periodic payments. These observations have shown relative consistency in the periodic claim development patterns since the introduction of the new process in 2005.

In 2017/18, the Corporation's overall claims costs decreased by $72.5 million to remain at $1.1 billion compared to 2016/17. The decrease was mostly driven by claims incurred of $883.8 million, which is $97.5 million lower than last year. Of this amount, injury claims incurred decreased by $67.7 million while physical damage claims decreased by $29.8 million. The total number of claims filed decreased by 4,360 from 303,878 in 2016/17 to 299,518 in 2017/18.

The $67.7 million decrease in injury claims incurred compared to last year is mainly due to the significant unfavourable actuarial adjustment made in 2016/17. The decrease of $29.8 million in physical damage claims was attributed to a decrease in comprehensive claims incurred of $55.0 million primarily due to a $36.8 million improvement in hail offset by higher collision of $17.6 million and higher property damage of $7.6 million. Collision claims increased by 2,218 claims or 1.4 per cent from 159,373 claims last year to 161,591. Total severity of physical damage claims decreased $29.8 million in 2017/18.

Where Your Premium Dollar Has Gone

Total Claims Costs	$ 0.84
Operating & Regulatory / Appeal Expense	$ 0.10
Broker Commissions	$ 0.06
Premium Taxes	$ 0.03

	Total earned revenues	**$ 1.00**
–	**Total claims and expenses**	**$ 1.03**
=	Underwriting loss	$ (0.03)
+	Investment income	$ 0.11
=	Net income	$ 0.08

Climate Change

For Manitoba, climate change has become synonymous with increasing and unpredictable levels of flooding, fires and severe weather conditions, including snowstorms and hailstorms.

From 1971 to 1996, the Corporation did not experience any significant claims costs related to hail damage requiring reinsurance recovery. However, since 1996, the once stable and consistent weather pattern has changed, resulting in the Corporation making four reinsurance claims following severe hailstorms.

In 2017/18, we did not see any one significant hailstorm requiring reinsurance recovery, but claims resulting from hailstorms contributed $8.3 million to the Corporation's overall claims costs.

The impact to the Corporation's overall claims costs resulting from hailstorms for the last five years is:

2017/18	**$8.3 million**
2016/17	$45.1 million
2015/16	$52.6 million
2014/15	$13.8 million
2013/14	$23.5 million

We will continue to monitor carefully and respond to future projections, which call for a continued trend in unpredictable and variable weather patterns.

Expenses

Total corporate expenses of $239.0 million, are $0.4 million better than last year. This decrease was due primarily to Operating and Regulatory/Appeal expense decrease of $5.0 million offset by an increase in Premium Taxes of $4.6 million as they are reflective of the increase in Premiums.

Operating costs are allocated to Basic, Extension, Special Risk Extension and *The Drivers and Vehicles Act* operations (lines of business) representing their share of common costs such as compensation of common departments (Human Resources, Finance, Fair Practices Office, Enterprise Systems Support and IT Support) that support the four lines of business. Costs are allocated through a formal and structured allocation policy developed in 2011. The external auditors have accepted the policy and, for Basic Autopac rate-setting purposes, the Public Utilities Board has approved its use. Effectively, the Corporation's integrated service delivery model ensures that the cost of providing these services is lower than if each were operated on a stand-alone basis.

Investment Income

Total investment income including investment management fees, increased to $134.8 million compared to $96.6 million last year, an increase of $38.2 million. The $38.2 million increase is primarily due to higher unrealized gains on held for trading bonds of $33.2 million. There were impairment losses of $1.1 million to the equity portfolio compared to no impairment last year. Please refer to Note 6 of the Condensed Financial Statements for a breakdown of investment income by type of investment.

The Minister of Finance is responsible for investing the money that Manitoba Public Insurance sets aside for future claims payments and other liabilities. The total fair value of the Corporation's investment portfolio was $2.8 billion at February 28, 2018, an increase of 4.7 per cent or $130.3 million from the previous year. The bond portfolio, which accounts for 67.6 per cent of the investment portfolio, is primarily invested in two types of bonds:

- Marketable bonds, mainly issued by the governments of Manitoba and other provinces, including floating rate notes (45.5 per cent of the total portfolio market value).
- Non-marketable bonds, issued by Manitoba municipalities, hospitals and school divisions, purchased through the Manitoba Department of Finance (22.1 per cent of the total portfolio).

The Minister of Finance through his government department has selected three external investment managers to administer Manitoba Public Insurance's Canadian equity portfolio, which represents 9.5 per cent of the total investment portfolio. The Corporation also has 5.2 per cent of its portfolio in United States equities with exposure to the U.S. equity market through two exchange traded funds. Cash and cash equivalents account for 3.2 per cent of the investment fund; investment in five infrastructure holdings accounts for 3.6 per cent of investments and pooled real estate funds account for 9.4 per cent while directly held real estate investments account for 1.5 per cent of the investment portfolio.

The total portfolio, on a market value basis, had a positive 5.0 per cent return during the fiscal year. Marketable bonds returned positive 3.6 per cent while non-marketable bonds returned 4.6 per cent. The total Canadian equity portfolio earned positive 4.7 per cent, while large cap Canadian equities returned positive 5.0 per cent and small cap Canadian equities returned positive 4.1 per cent. U.S. equities returned positive 3.2 per cent in Canadian dollars. The real estate portfolio returned 11.2 per cent while the infrastructure portfolio grew by 9.8 per cent in fiscal 2018. Over a four-year period, the investment portfolio has achieved an annualized return of 4.4 per cent.

Basic

Years Ended February 28/29

Basic Autopac — Five-Year Statistics ($000)	2018	2017	2016	2015	2014
Premiums written	**994,593**	923,789	888,365	824,865	784,741
Claims incurred	**767,239**	860,035	666,404	745,837	747,435
Claims expense	**143,337**	120,972	118,614	116,578	114,552
Other expenses	**154,310**	152,853	148,410	146,953	139,964
Net income (loss)	**34,424**	(123,070)	(56,050)	2,440	(69,162)

Current Year and Last Year

In 2017/18, Basic insurance had net income from annual operations of $34.4 million, $157.5 million better than last year. Underwriting results increased by $124.1 million and Basic's share of investment income by $33.4 million. The $124.1 million increase in underwriting results was primarily resulting from a $69.8 million decrease in total claims costs due to the change in interest rates which positively affected the claims reserves and the actuarial adjustment and a $55.1 million increase in earned revenues offset by an increase in total expenses of $0.9 million.

Revenue

The number of policies in force at year end increased to 1,124,731 from 1,107,011. Total earned revenues increased from $927.9 million last year to $983.0 million.

Claims Costs

Total claims costs decreased to $923.7 million, $69.8 million lower compared to last year. The change in claims costs is comprised of a $65.5 million decrease in injury claims incurred and a $27.3 million decrease in physical damage claims incurred offset by a $23.0 million increase in claims expense. The increase in claims expense was mainly due to a one-time write-off of $16.5 million due predominately to the discontinuation of an automated claims adjudication platform.

Injury claims incurred decreased by $65.5 million due to the year-over-year change in the actuarial adjustment which positively impacted the injury claims liabilities by $126.0 million. This was offset by an increase in direct claims incurred of $65.4 million. The number of injury claims increased by 2.6 per cent from 17,273 to 17,734.

Physical damage claims incurred were lower compared to last year, decreasing by $27.3 million. Hail decreased comprehensive claims incurred by $36.8 million compared to last year. Total severity for Basic physical damage claims decreased by $20.8 million in 2017/18.

Injury Claims

Years Ended February 28/29

Type of Claim	2018	2017	2016	2015	2014
Fatal*	**106**	142	116	92	118
Brain Injury	**26**	35	48	55	47
Concussion	**122**	104	94	116	131
Quadriplegic	**–**	–	–	4	1
Paraplegic	**1**	2	3	4	2
Broken Bones	**848**	821	876	686	707
Sprains and Strains	**8,396**	7,858	7,749	7,177	5,669
Whiplash**	**6,808**	6,655	6,237	6,170	9,018
Bruising/Lacerations	**907**	980	958	1,161	953
Other	**520**	676	715	728	721
Total	**17,734**	17,273	16,796	16,193	17,367

** Fatal includes PIPP, non-PIPP and those still under investigation as at February 28/29. Years prior to 2015 have been restated.*
*** 2015 has been restated to be consistent with prior years.*

Expenses

Basic expenses increased from $140.3 million last year to $141.2 million. The increase was due to higher commissions and premium taxes of $4.0 million related to the increase in premiums offset by lower operating expenses and regulatory appeal expenses of $3.1 million.

Investment Income

Basic's share of corporate investment income was $116.3 million, net of investment management fees. This was an increase of $33.4 million, attributable mainly to unrealized gains on held for trading bonds.

Total Equity

Net income for the Basic line of business for 2017/18 increased retained earnings from $99.3 million to $133.7 million. Combined with Accumulated Other Comprehensive Income, the Basic total equity was $173.5 million. As per the Risk Management section, the Corporation's Chief Actuary concluded that a minimum total equity level of $201.0 million would be required for Basic to achieve a satisfactory future financial condition. The Corporation transferred $37.3 million to Basic retained earnings from the Extension line of business. This transfer results in an ending retained earnings of $171.0 million and total equity of $210.8 million to support rate stabilization.

Extension

Years Ended February 28/29

Extension — Five Year Statistics ($000)	2018	2017	2016	2015	2014
Premiums written	**156,947**	151,303	144,299	138,667	134,470
Claims incurred	**66,144**	67,195	65,967	56,443	60,052
Claims expense	**11,852**	10,236	9,757	11,749	11,974
Other expenses	**48,404**	48,063	49,248	51,363	50,843
Net income	**44,921**	37,988	26,644	43,134	31,125

Current Year and Last Year

Extension insurance reported net income of $44.9 million compared to $38.0 million the previous year. The $6.9 million increase in net income was due to a $5.8 million increase in underwriting results and a $1.1 million increase in Extension's share of investment income.

Revenue

Earned revenues from the sale of Extension products increased by $6.6 million to $164.9 million compared to last year. All products, including the sale of coverage for deductible buy down and third party liability, contributed to the increase.

Claims Costs
Total claims costs — including claims benefits, claims handling, loss prevention and road safety expenses — increased $0.5 million to $78.9 million. Physical damage claims incurred decreased by $4.4 million or 7.0 per cent. Injury claims incurred increased $3.3 million, due primarily to increased severity and volume of claims. Claims expenses were higher than last year by $1.6 million.

Expenses
Expenses related to the sale of Extension products was $47.4 million, an increase of $0.3 million from the previous year. This increase was due to higher commissions of $0.1 million and premium taxes of $0.2 million.

Investment Income
Extension's share of corporate investment income of $6.3 million, including investment management fees, was $1.1 million higher than last year.

Retained Earnings
Extension's total retained earnings are comprised of retained earnings from the sale of Extension products. As at February 28, 2018, Extension retained earnings totaled $102.5 million compared to $94.9 million the previous year. Extension retained earnings decreased by $37.3 million as a result of the transfer to Basic retained earnings. Extension's current capital target level for total equity is $64.0 million based on the 2017 Extension Dynamic Capital Adequacy Test (DCAT) report.

Special Risk Extension
Years Ended February 28/29

SRE — Five Year Statistics ($000)	2018	2017	2016	2015	2014
Premiums written	**80,810**	78,328	70,521	63,022	58,781
Claims incurred	**50,460**	54,068	38,253	42,596	53,650
Claims expense	**6,393**	5,895	6,140	5,920	6,037
Other expenses	**18,679**	17,961	17,692	16,645	14,199
Net income (loss)	**10,886**	3,193	4,650	10,768	(6,928)

Current Year and Last Year
Special Risk Extension (SRE) insurance reported a net income of $10.9 million, an increase of $7.7 million from the previous year. Underwriting results increased by $4.9 million and SRE's share of investment income increased by $2.8 million.

Revenue
Total earned revenues in 2017/18 were $77.0 million compared to $74.5 million the previous year. The sale of SRE products, which include large trucking companies' liability, cargo and physical damage coverage, showed a growth of 3.4 per cent compared to last year.

Claims Costs
Total claims costs decreased from $61.2 million in 2016/17 to $58.1 million in 2017/18. Injury claims decreased $5.5 million. Physical damage claims incurred increased by 6.5 per cent compared to the previous year, a change of $1.9 million. Claims expense and loss prevention and road safety costs increased by $0.4 million from the previous year.

Expenses
SRE's expenses increased to $17.4 million from $16.7 million, primarily due to an increase in commissions of $0.7 million.

Investment Income
SRE's share of corporate investment income, including investment management fees, was $9.4 million, an increase of $2.8 million compared to last year.

Retained Earnings
SRE's retained earnings are derived from the annual operations of the SRE line of business. SRE's retained earnings were $81.7 million as at February 28, 2018, compared to $70.8 million last year. SRE's current capital target level for total equity is $65.0 million based on the 2017 SRE DCAT report.

The Drivers and Vehicles Act Operations
Current Year and Last Year
The Drivers and Vehicles Act (DVA) operations experienced net income of $0.9 million in 2017/18 compared to a net loss of $3.3 million last year.

Revenue
The government provides funding to the Corporation that covers the cost of the DVA administrative operation. In 2017/18, the Corporation received $30.2 million from the Province of Manitoba and reported $1.0 million in service fees and other revenue, resulting in overall revenue being $1.1 million higher than the previous year.

Expenses
DVA operations' expenses of $33.0 million were down $2.4 million from last year's expenses of $35.4 million primarily due to reduced operating expenses of $2.0 million and commissions of $0.4 million.

Investment Income
DVA operations' portion of corporate investment income, including investment management fees, increased to $2.7 million, $0.8 million higher compared to last year.

Retained Earnings
Extension and SRE retained earnings were transferred to create the Extension Development Fund (EDF) which was primarily set up to support the projects undertaken to maximize the opportunities presented by the 2004 merger of the Corporation and the Division of Driver and Vehicle Licensing. From EDF funding, DVA operations benefited by $79.5 million including $14.0 million for the implementation of the Manitoba Enhanced Identification Card, Manitoba Enhanced Driver's Licence and Manitoba Identification Card. DVA operations has subsequently repaid $6.1 million to offset the costs associated with these projects and funding.

Risk Management
Like any enterprise, Manitoba Public Insurance assumes risks in its operations that must be handled effectively in order to achieve its goals.

The Audit, Finance & Risk Committee of the Board of Directors ensures that enterprise-wide risk assessment processes and controls are in place to identify and mitigate these risks. The Audit, Finance & Risk Committee also monitors the Corporation's risks on an ongoing basis.

Management is responsible for developing, updating and enforcing the Corporation's Risk Management Framework (the Framework), which includes:

- Risk identification and assessment of impact if there were no risk mitigation actions in place.
- Risk monitoring procedures.
- Processes and controls to manage and mitigate risks.
- The residual risk after consideration of management action.

The Framework ensures a consistent approach for addressing risks and a common understanding of risk and its mitigation throughout the Corporation. The risks are categorized based on the Corporation's seven overall corporate goals.

Much of the risk management process is focused on Goal 1: Rates, on average, will be lower than those charged by private insurance companies for comparable coverage and service.

The key risk mitigation areas are:

- Maintaining adequate unpaid claims reserve.
- Maintaining an adequate Rate Stabilization Reserve.
- Governance of investments.
- Claims control strategies.
- Information technology processes.
- Loss prevention strategies.

Unpaid Claims
Manitoba Public Insurance maintains provisions for unpaid claims on a discounted basis to cover its future claims commitments. The Corporation makes provisions for future development on claims that have been made, and an estimate for those that may have occurred but have not yet been reported.

In the case of major injuries, only a small portion of the total benefit is paid in the first year. As time passes and more information is available, the estimates are revised to reflect the most current forecast of claims costs.

Because the total amount paid on any single claim may be different from its initial reserve, Manitoba Public Insurance reviews the adequacy of these reserves quarterly. Adjustments, if needed, are calculated by the Corporation's Chief Actuary. An independent assessment of the reserves is also conducted twice a year by the Corporation's external Appointed Actuary. The external auditor performs procedures to assess the reasonability of the reserves as part of its annual audit of the Corporation's financial statements. This process serves to mitigate risk of misstatement of unpaid claims reserves.

For Manitoba Public Insurance, long-lasting injury claims are the largest source of year-to-year variability in the estimate of ultimate costs. This variability and volatility is related to future events that arise from the date of loss to the ultimate settlement of the claims. Accordingly, short-tail claims, such as physical damage claims, tend to be more reasonably predictable than long-tail claims such as Personal Injury Protection Plan (PIPP) and public liability claims. For Manitoba Public Insurance, factors such as the effects of inflationary trends and changing interest rates contribute to this variability. Investment portfolio management techniques help to reduce this potential volatility.

The determination of the provision for unpaid claims, including adjustment expenses, relies on analysis of historical claim trends, investment rates of return, expectation on the future development of claims and judgement. The process of establishing this provision necessarily involves risks which could cause the actual results to deviate, perhaps substantially, from the best determinable estimate.

Rate Stabilization Reserve
The Corporation establishes and maintains a Rate Stabilization Reserve (RSR) to protect motorists from rate increases made necessary by unexpected losses arising from non-recurring events or factors.

The Corporation's Board of Directors' current minimum target level for total equity (which includes Basic retained earnings and the Basic portion of AOCI) is $201.0 million (February 28, 2017 - $181.0 million) based on the 2017 Basic Insurance Dynamic Capital Adequacy Test (DCAT) report. In this report, the Corporation's Chief Actuary concluded that a minimum total equity of $201.0 million would be required for Basic to achieve a satisfactory future financial condition. A total equity level lower than $201.0 million results in a "not satisfactory" opinion because there were plausible adverse scenarios at the 1-in-40 year probability level where liabilities exceed assets.

In Order No. 130/17, the Public Utilities Board approved a lower DCAT-based RSR target (for total equity) of $180.0 million and the continued use of the DCAT methodology for this purpose. However, the Corporation's Board of Directors continues to rely on the Chief Actuary's minimum target of $201.0 million as the Public Utilities Board estimate does "not reflect best estimate expectations", as noted on page 78 of Order No. 130/17. Further, a target of $180.0 million is not sufficient to achieve satisfactory financial conditions as calculated by the Corporation's Chief Actuary.

For the upper (maximum) RSR target for total equity, the Corporation proposed the continued use of the 100 per cent Minimum Capital Test (MCT) ratio in the 2018 General Rate Application. The MCT is a capital adequacy test used by nearly all property and casualty insurers in Canada, and at the 100 per cent level, capital available is equal to capital required. The Corporation is the only insurer in Canada that has proposed the use of 100 per cent MCT as a maximum capital target. Other public insurers have utilized 100 per cent MCT as a target capital amount or a minimum capital amount, while federally regulated private insurers have a target capital ratio (supervisory target) of 150 per cent MCT, and a minimum internal target which would be set greater than the 150 per cent supervisory target. In 2017, the Public Utilities Board set the maximum RSR target for total equity at $325 million, which is equivalent to an MCT ratio of approximately 70 per cent.

Investments

In accordance with Section 12(1) of *The Manitoba Public Insurance Corporation Act*, the Minister of Finance is responsible for the investments of the Corporation. The Minister has charged the Department of Finance with the operational management of the fund. The Corporation, through the Investment Committee of the Board, works collaboratively with the Department of Finance and makes recommendations to the Minister regarding appropriate policies and strategies to maximize return, minimize volatility and mitigate risk. The Investment Committee has completed asset liability management studies to ensure that the asset mix chosen is compatible with the Corporation's liability profile. A complete description of these risks and risk mitigation strategies is outlined in Note 28 of the 2017/18 audited financial statements located on the Corporation's website, mpi.mb.ca.

Claims Control Strategies

Our cost-control measures with respect to claims management include:

- Management of an accreditation program for the collision repair industry to ensure proper, quality and safe repairs at a reasonable cost. This requires shops and the technicians within shops to meet standards for facilities, equipment and annual training of technicians.
- Delivery of high-quality training programs to the collision repair industry to ensure repairs are performed by highly trained technicians to original equipment manufacturer's standards using current technologies.
- Use of estimatics software, along with Manitoba Public Insurance estimating standards, to ensure all repair estimates are prepared accurately and consistently, ensuring that only required repairs are performed.
- Use of industry-recognized valuation tools to determine actual cash value of vehicles when settling total loss claims.
- Use of aftermarket, re-manufactured and recycled parts in vehicle repairs.
- Discounted pricing on glass parts used in vehicle repairs.
- Maximizing recovery of claims costs from other insurers and at-fault parties (subrogation).
- Sale of autos through salvage and tenders.
- A goal oriented and team-based approach to managing Personal Injury Protection Plan claims that helps individuals realize their full recovery potential.

Each year, these initiatives significantly contain costs and generate revenue, which results in lower insurance premiums for our customers. For example, salvage auto sales and tenders yielded $43.6 million in the 2017/18 fiscal year.

Information Technology Processes

Information Technology Optimization

The Corporation depends on highly integrated, quality systems to serve customers and fulfill its legislated mandate. It is imperative that we continue to ensure that the Corporation's systems infrastructure is operating in the most secure, effective and efficient manner. Applications and supporting infrastructure must also be secure and well-supported.

With respect to protecting our ongoing ability to serve customers, we are continuing investment in these technologies, as well as the related processes and capabilities. This reduces the risk of business interruption, and thus provides better customer service via highly reliable and available systems.

Business Continuity

The objective of our Business Continuity Management Program (BCMP) is to create corporate plans and responses that ensure continued customer service in the event of a business disruption. BCMP includes emergency response, crisis management, business recovery, IT service continuity, catastrophe, contingency and pandemic responses, and the processes used to ensure ongoing readiness. The program is focused on creating and implementing a Corporate Business Continuity Plan through a strong understanding of our products and services, people, delivery processes and technology.

Business continuity includes planning, prevention, preparedness and a proactive program approach to crisis responses and business delivery. The practice of business continuity recognizes the need for continuity in contrast to recovery. This approach leverages the prevention and proactive aspects of business continuity that provide continuous service during business disruptions as opposed to suspension and recovery.

Outlook

The Corporation remains committed to achieving its seven corporate goals. Actual results are monitored quarterly by the Board of Directors and may deviate from forecasts prepared in the previous year for rate setting purposes.

Basic Autopac Rates

Under *The Crown Corporations Governance and Accountability Act*, Manitoba Public Insurance is required to submit Basic Autopac rates to the Public Utilities Board for approval. The Corporation generally files its rate application in June of each year for the fiscal year beginning the following March.

On June 16, 2017, Manitoba Public Insurance filed its 2018/19 General Rate Application for Basic insurance with the Public Utilities Board. The application sought approval of a 2.7 per cent overall rate increase for vehicle premiums and a 1.8 per cent rate increase through driver premiums from demerit drivers on the Driver Safety Rating scale. On December 4, 2017, the Public Utilities Board ordered a 2.6 per cent overall rate increase for vehicle premiums and approved the Corporation's request for a 1.8 per cent rate increase from demerit drivers.

Basic Autopac Net Income

Basic had net income of $34.4 million in 2017/18, which was $80.0 million better than budget. The majority of the favourable variance came from total claims incurred, including interest rate impacts of $76.2 million and better than budget investment income of $9.4 million.

The Corporation had favourable hail experience with Basic hail claims that occurred in 2017/18 coming in at an estimated $28.2 million better than budget. While there was less hail frequency in 2017/18, the Corporation also introduced a paintless dent repair strategy, which helped lower hail claim repair severity by 32.0 per cent from 2016/17 severity levels. The Corporation forecasts hail claims frequency based on longer term averages given the volatility of hail claims experience.

The Corporation also implemented the rodent claims strategy in March 2017 to address the ten-fold increase in rodent claims frequency since 2007/08. The strategy resulted in a $9.8 million improvement from the 2017/18 budget of $13.3 million. This strategy is expected to permanently reduce rodent claims on a go-forward basis with minimal customer complaints. In fact, clients are seeing much faster remediation times on these claims.

The 2017/18 year experienced another relatively mild winter with minimal snowfall, which resulted in Basic collision claims being $8.4 million under budget. Collision claim frequency continues to decline as a result of a combination of factors including favourable winter driving conditions, increased safety features on new vehicles, and improved incentives from the Corporation's Driver Safety Rating program. On the flip side, the Corporation anticipates upward pressure on severity in future years as a result of increased complexity of vehicles. Collision severity was close to budget in 2017/18.

Basic investment income, excluding the impact of interest rates, was $9.4 million better than budget in 2017/18 primarily as a result of higher than anticipated returns from the Corporation's investment in the pooled real estate fund.

The net impact of interest rates from the Corporation's Basic Asset and Liability Management (ALM) strategy resulted in a $21.9 million favourable impact to net income in 2017/18. The ALM strategy would normally result in a close to zero impact to net income; however, in 2017/18 the Corporation made a change to its discount rate methodology in the actuarial valuation which resulted in a $28.7 million favourable adjustment. Excluding this change in methodology, the net impact of interest rates on assets and liabilities was a $6.8 million decrease in net income.

Other Lines of Business Net Income

Extension and Special Risk Extension are expected to realize profits, while ongoing operations related to the administration of *The Drivers and Vehicles Act* are expected to generate some limited net income. Non-Basic lines of business had a net income of $56.7 million in 2017/18, which was $5.5 million better than budget.

Loss Prevention

Loss prevention programs and activities contribute to our overall goal of reduced claims and lower claims costs, which contribute to lower insurance premiums for rate payers. As the mandatory provider of basic auto insurance and the administrator of drivers and vehicles, Manitoba Public Insurance is uniquely positioned to leverage driver and vehicle data in Manitoba to deliver programs that teach, influence and incent safe driving behaviour and intervene to reduce risk associated with driver readiness and fitness, vehicle condition, or fraudulent and ineligible claims.

As our environment evolves, we recognize the need to adopt new approaches to prevent loss. Manitoba Public Insurance interventions are selected strategically, are evidence-based, proven effective, and evaluated to demonstrate value to Manitobans where it matters—in their personal safety and in their pocketbooks.



Condensed Financial Statements

These financial statements are not audited. The February 28, 2018, audited financial statements are available at mpi.mb.ca or upon request.

Condensed Statement of Financial Position

As at February 28 (Unaudited – in thousands of Canadian dollars)	Notes	2018	2017
Assets			
Cash and cash equivalents	5	**89,006**	73,434
Investments	5	**2,660,850**	2,545,130
Investment property	5	**40,646**	41,686
Due from other insurance companies		**3**	29
Accounts receivable		**477,908**	455,239
Prepaid expenses		**1,227**	2,483
Deferred policy acquisition costs		**24,727**	24,155
Reinsurers' share of unearned premiums		**133**	117
Reinsurers' share of unpaid claims		**2,452**	1,971
Property and equipment		**116,754**	116,059
Deferred development costs		**69,191**	89,496
		3,482,897	3,349,799
Liabilities			
Due to other insurance companies		**171**	173
Accounts payable and accrued liabilities		**69,217**	73,051
Financing lease obligation		**4,092**	4,189
Unearned premiums and fees		**628,837**	586,626
Provision for employee current benefits		**22,373**	22,750
Provision for employee future benefits		**446,458**	405,058
Provision for unpaid claims	4	**1,912,734**	1,900,783
		3,083,882	2,992,630
Equity			
Retained Earnings		**352,608**	261,532
Accumulated Other Comprehensive Income		**46,407**	95,637
Total Equity		**399,015**	357,169
		3,482,897	3,349,799

The accompanying notes are an integral part of these financial statements.

Condensed Statement of Operations

For the years ended February 28 (Unaudited – in thousands of Canadian dollars)	*Notes*	**2018**	2017
Earned Revenues			
Gross premiums written		**1,247,731**	1,169,044
Premiums ceded to reinsurers		**(15,381)**	(15,624)
Net premiums written		**1,232,350**	1,153,420
Increase in gross unearned premiums		**(40,608)**	(23,406)
Increase in reinsurers' share of unearned premiums		**16**	2
Net premiums earned		**1,191,758**	1,130,016
Service fees & other revenue		**34,187**	31,547
The Drivers and Vehicles Act operations recovery		**30,179**	29,272
Total Earned Revenues		**1,256,124**	1,190,835
Claims Costs			
Direct claims incurred — gross		**884,327**	980,398
Claims (recovered) incurred ceded to reinsurers		**(514)**	900
Net claims incurred		**883,813**	981,298
Claims expense		**161,583**	137,102
Loss prevention/Road safety		**15,345**	14,801
Total Claims Costs		**1,060,741**	1,133,201
Expenses			
Operating		**117,778**	122,313
Commissions		**80,665**	77,880
Premium taxes		**36,214**	34,369
Regulatory/Appeal		**4,458**	4,911
Total Expenses		**239,115**	239,473
Underwriting loss		**(43,732)**	(181,839)
Investment income	*6*	**134,808**	96,635
Net income (loss) from operations		**91,076**	(85,204)

Condensed Statement of Comprehensive Income (Loss)

For the years ended February 28 (Unaudited – in thousands of Canadian dollars)	*Notes*	**2018**	2017
Net income (loss) from operations		**91,076**	(85,204)
Other Comprehensive Income (Loss)			
Items that will not be reclassified to income			
Remeasurement of Employee Future Benefits		**(28,560)**	(10,489)
Items that will be reclassified to income			
Unrealized gains on Available for Sale assets		**73,304**	103,068
Reclassification of net realized gains related to Available for Sale assets		**(27,974)**	(40,169)
Net unrealized gains (losses) on Available for Sale assets		**(20,670)**	62,899
Other Comprehensive Income (Loss) for the year		**(49,230)**	52,410
Total Comprehensive Income (Loss)		**41,846**	(32,794)

The accompanying notes are an integral part of these financial statements.

Condensed Statement of Changes in Equity

(Unaudited – in thousands of Canadian dollars)	Retained Earnings	Accumulated Other Comprehensive Income	Equity
Balance as at March 1, 2016	346,736	43,227	389,963
Net loss from operations for the year	(85,204)	-	(85,204)
Other comprehensive income for the year	-	52,410	52,410
Balance as at February 28, 2017	**261,532**	**95,637**	**357,169**
Net income from operations for the year	**91,076**	**-**	**91,076**
Other comprehensive loss for the year	**-**	**(49,230)**	**(49,230)**
Balance as at February 28, 2018	**352,608**	**46,407**	**399,015**

The accompanying notes are an integral part of these financial statements.

Condensed Statement of Cash Flows

For the years ended February 28 (Unaudited – in thousands of Canadian dollars)	*Notes*	**2018**	2017
Cash Flows from (to) Operating Activities			
Net income (loss) from operations		**91,076**	(85,204)
Non-cash items			
Depreciation of property and equipment		**4,973**	5,193
Amortization of deferred development costs		**20,757**	16,859
Amortization of bond discount and premium		**3,557**	3,516
Gain on sale of investments		**(25,043)**	(42,157)
Unrealized (gain) loss on Fair Value Through Profit or Loss bonds		**(9,363)**	23,843
Unrealized gain on pooled real estate		**(29,040)**	(16,422)
Unrealized (gain) loss on infrastructure investments		**(6,195)**	1,483
Impairment of Available for Sale investments		**1,078**	-
Impairment of deferred development cost		**20,258**	-
		72,058	(92,889)
Net change in non-cash balances			
Due from other insurance companies		**26**	16
Accounts receivable and prepaid expenses		**(21,413)**	(31,486)
Deferred policy acquisition costs		**(572)**	4,689
Reinsurers' share of unearned premiums and unpaid claims		**(497)**	4,472
Due to other insurance companies		**(2)**	(5)
Accounts payable and accrued liabilities		**(3,834)**	7,016
Unearned premiums and fees		**42,211**	26,078
Provision for employee current benefits		**(377)**	65
Provision for employee future benefits		**12,840**	16,452
Provision for unpaid claims		**11,951**	131,673
		40,333	158,970
		112,391	66,081
Cash Flows from (to) Investing Activities			
Purchase of investments		**(824,124)**	(831,239)
Proceeds from sale of investments		**753,780**	834,887
Acquisition of property and equipment net of proceeds from disposals		**(5,668)**	(5,600)
Financing lease obligation		**(97)**	(92)
Deferred development costs incurred		**(20,710)**	(27,925)
		(96,819)	(29,969)
Increase (decrease) in Cash and Cash Equivalents		**15,572**	36,112
Cash and cash equivalents beginning of year		**73,434**	37,322
Cash and Cash Equivalents end of year	5	**89,006**	73,434
Supplemental cash flow information			
Interest received		**52,300**	49,083
Dividends received		**14,579**	16,075

The accompanying notes are an integral part of these financial statements.

Notes to Condensed Financial Statements

February 28, 2018

1. Status of Corporation

The Manitoba Public Insurance Corporation (the "Corporation") was incorporated as a Crown Corporation under *The Automobile Insurance Act* in 1970. The Corporation is owned by the Province of Manitoba and the financial results of the Corporation are included in the consolidated financial statements of the Province of Manitoba. In 1974, *The Automobile Insurance Act* was revised and became *The Manitoba Public Insurance Corporation Act* (Chapter A180 of the continuing consolidation of the Statutes of Manitoba). In 1988, the Act was re-enacted in both official languages as Chapter P215 of the Statutes of Manitoba. The address of the Corporation's registered office is 234 Donald Street, Winnipeg, Manitoba.

Under the provisions of its Act and regulations, the Corporation operates an automobile insurance division and a discontinued general insurance division. The lines of business for the automobile insurance division provide for Basic Universal Compulsory Automobile Insurance, extension and special risk coverages. For financial accounting purposes, the lines of business for the automobile insurance division and the discontinued general insurance division are regarded as separate operations and their revenues and expenses are allocated on a basis described in the summary of significant accounting policies. For financial reporting purposes, due to the immateriality of the financial results of the discontinued general insurance operations, the operations are reported as part of the Special Risk Extension line of business. The Basic Universal Compulsory Automobile Insurance line of business rates are approved by the Public Utilities Board of Manitoba.

Under *The Drivers and Vehicles Act* (DVA), the Corporation is responsible for DVA operations pertaining to driver safety, vehicle registration and driver licensing, including all related financial, administrative and data processing services.

2. Basis of Reporting

Statement of Compliance

The financial statements of the Corporation are in such form as prescribed by Section 43(1) of *The Manitoba Public Insurance Corporation Act* and are presented in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

The financial statements were authorized for issue by the Board of Directors on May 17, 2018.

The external actuary is appointed by the Board of Directors of the Corporation. With respect to preparation of these financial statements, the Appointed Actuary is required to carry out a valuation of the insurance contract liabilities and to report thereon to the Corporation's Board of Directors. Insurance contract liabilities include unearned premiums and fees, and unpaid claims and adjustment expenses.

The Appointed Actuary also uses the work of the external auditors in their verification of the information prepared by the Corporation used in the valuation of the insurance contract liabilities.

The external auditors are appointed by the Lieutenant Governor in Council to conduct an independent and objective audit of the financial statements of the Corporation in accordance with Canadian generally accepted auditing standards. In carrying out their audit, the external auditors also make use of the work of the Appointed Actuary and their report on the Corporation's insurance contract liabilities. The external auditors' report outlines the scope of their audit and their opinion.

Basis of Presentation

The Corporation presents its Statement of Financial Position broadly in order of liquidity.

The following balances are generally classified as current: cash and cash equivalents, investments, due to/from other insurance companies, accounts receivable, prepaid expenses, deferred policy acquisition costs, reinsurers' share of unearned premiums and unpaid claims, accounts payable and accrued liabilities, unearned premiums and fees, and provision for employee current benefits.

The following balances are generally classified as non-current: investment property, property and equipment, deferred development costs, financing lease obligation, provision for employee future benefits and provision for unpaid claims.

These statements are presented in thousands of Canadian dollars which is the Corporation's functional and presentational currency except as otherwise specified.

Seasonality

The automobile insurance business, which reflects the primary business of the Corporation, is seasonal in nature. While net premiums earned are generally stable from quarter to quarter, underwriting income is typically highest in the first and second quarter of each year and lowest in the fourth quarter of each year. This is driven mainly by weather conditions which may vary significantly between quarters.

Basis of Measurement

The Corporation prepares its financial statements as a going concern, using the historical cost basis, except for financial instruments and insurance contract liabilities and reinsurers' share of unpaid claims. Measurement of the financial instruments is detailed in Note 3. Insurance contract liabilities and reinsurers' share of unpaid claims are measured on a discounted basis in accordance with accepted actuarial practice (which in the absence of an active market provides a reasonable proxy for fair value) as explained in Note 3.

Estimates and Judgments

The preparation of financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from these estimates.

3. Summary of Significant Accounting Policies

For a complete listing of significant accounting policies, please refer to the February 28, 2018, audited financial statements available at mpi.mb.ca.

The following are excerpts from the summary of significant accounting policies contained in the audited financial statements and do not represent full disclosure of significant accounting policies.

Investments

Funds available for investments are managed by the Manitoba Department of Finance, on behalf of the Corporation in accordance with Section 12(1) of *The Manitoba Public Insurance Corporation Act*.

The Corporation's directly held real estate investments are recorded at cost and are being depreciated over their estimated useful life.

The Corporation has classified or designated its financial assets and liabilities in the following categories:

- available for sale (AFS)
- held to maturity (HTM)
- financial assets and liabilities at fair value through profit or loss (FVTPL)
- loans and receivables
- other financial liabilities

Financial assets, other than those at FVTPL, are assessed for indicators of impairment at the end of each reporting period. Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been affected.

Investments that are determined to be impaired are written down to their expected recoverable amount. For equity investments classified as AFS, a significant or prolonged decline in the fair value of the security below its cost is considered to be objective evidence of impairment.

Fair Value Determination

The fair values of financial instruments are obtained from external pricing services and are based on bid prices for financial assets. Cash equivalent investments comprise investments due to mature within 90 days from the date of purchase and are carried at fair value.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Replacement costs are capitalized when incurred and if it is probable that future economic benefits associated with the item will flow to the Corporation and the cost of the item can be measured reliably. All repairs and maintenance costs are recognized in net income (loss) during the period in which they occur.

Depreciation is provided on a straight-line basis which will depreciate the cost of each asset to its residual value over its estimated useful life:

Land & Building	
• HVAC systems	20 years
• land improvements	25 years
• roofing systems	30 years
• elevators/escalators	30 years
• buildings	40 years
Furniture & Equipment	
• computer equipment	3 years
• vehicles	5 years
• furniture and equipment	10 years
• demountable wall systems	10 years

Buildings held under a long-term lease arrangement are depreciated on a straight-line basis over 40 years. Leasehold improvements are carried at cost and are depreciated over the term of the lease plus the first renewal period. Depreciation of construction in progress will begin, in accordance with the above policy, when construction has been completed. Land is not subject to depreciation and is carried at cost.

Revenue

Premiums

Written premiums comprise the premiums on contracts commencing in the fiscal year. Earned premiums represent the portion of written premiums earned through the year on a prorata basis by way of insurance coverage. Written and earned premiums are stated gross of commissions and premium taxes payable and are reported on a gross basis and net of amounts ceded to reinsurance companies.

Unearned Premiums

The liability for unearned premiums is the portion of premiums that relate to the unexpired term of each insurance contract.

Interest Revenue

Interest revenue is recognized when it is probable that the economic benefits will flow to the Corporation and the amount of revenue can be measured reliably. Interest revenue is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount on initial recognition.

Investment Income

Investment income is recorded as it accrues. Dividend income from investments is recognized when the Corporation's rights to receive payments is established. Dividend income on common and preferred shares is recorded on the ex-dividend date. Distributions on pooled funds are recorded on the income distribution date. Gains and losses are determined and recorded as at the trade date, and are calculated on the basis of average cost. The effective interest rate method is used to amortize premiums or discounts on the purchase of bonds.

Realized Gains and Losses

The realized gain or loss on disposal of an investment is the difference between the proceeds received, net of transaction costs, and its original cost or amortized cost as appropriate.

The realized gain or loss on disposal of property and equipment is the difference between the proceeds received, net of transaction costs, and its original cost or depreciated cost as appropriate.

Unrealized Gains and Losses

Unrealized gains or losses represent the difference between the carrying value at the year-end and the carrying value at the previous year-end or purchase value during the year, less the reversal of previously recognized unrealized gains or losses in respect of disposals during the year.

Provisions

Provisions are recognized when the Corporation has a present obligation (legal or constructive) as a result of a past event, it is probable that the Corporation will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably.

Provision for Employee Current Benefits

The provision for employee current benefits includes accruals for vacation pay and sick pay determined in accordance with the Collective Agreement and Corporate policy.

Provision for Employee Future Benefits

Included in the provision for employee future benefits are the pension benefit plan and other benefit plans.

i. Pension Benefit Plan

The employees of the Corporation are members of a defined benefit pension plan administered under *The Civil Service Superannuation Act*. Included in the accounts is a provision for the employer's future pension liability calculated on an indexed basis. The provision for pension is actuarially determined on an annual basis using the projected benefit method prorated on services. The actuarial present value of the accrued pension benefits is measured using the Corporation's best estimates based on assumptions relating to market interest rates at the measurement date based on high quality debt instruments, salary changes, withdrawals and mortality rates. Changes in experience gains and losses are recognized in the current period. Current service costs and interest costs are recognized in net income in the current period. Actuarial gains and losses are recognized in Other Comprehensive Income (OCI) in the current period.

The Corporation values its pension benefit plan annually, the most recent valuation is at December 31, 2017. Roll-forward procedures are performed to ensure that the December 31, 2017, valuation is a reliable estimate of the valuation at February 28, 2018.

ii. Other Benefit Plans

Other benefit plans consist of two post-retirement extended health plans and severance pay benefits.

The provision for post-retirement extended health benefits is actuarially determined on an annual basis using the projected benefit method prorated on services, which includes the Corporation's best estimates based on assumptions relating to retirement ages of employees and expected health costs. Changes in experience gains and losses are recognized in the current period. Current service costs and interest costs are recognized in net income in the current period. Actuarial gains and losses are recognized in OCI in the current period.

Employees of the Corporation are entitled to severance pay in accordance with the Collective Agreement and Corporate policy. The provision for severance pay is actuarially determined on an annual basis using the projected benefit method prorated on services, without salary projection, which includes the Corporation's best estimates based on assumptions relating to the proportion of employees that will ultimately retire.

Provision for Unpaid Claims

IFRS 4, Insurance Contracts permits the continued use of insurance liability valuation methods previously used under pre-IFRS Canadian Generally Accepted Accounting Principles (GAAP). The Corporation establishes reserves for payment of claims and adjustment expenses that arise from the Corporation's insurance products. The reserve balance represents the expected ultimate cost to settle claims occurring prior to, but still outstanding as of, the reporting date. There are two categories of

loss reserves: (1) reserves for reported losses and (2) reserves for incurred but not yet reported (IBNR) losses. In addition, reserves are set up for internal loss adjustment expenses, which include estimated internal costs and other expenses that are expected to be incurred to finalize the settlement of the losses. The Corporation discounts its liabilities for unpaid claims and includes a provision for adverse deviations. Liabilities for unpaid claims are estimated using the input of assessment for individual cases reported to the Corporation and statistical analyses for the claims incurred but not reported. Claims and adjustment expenses are charged to income as incurred.

All of the Corporation's insurance policies meet the definition of an insurance contract and have been accounted for in accordance with IFRS 4.

Reinsurers' share of unpaid claims are recognized when the related gross insurance claim is recognized according to the terms of the relevant reinsurance contracts.

Liability Adequacy Test

At each reporting period, insurance liability adequacy tests are performed to ensure the adequacy of the contract liabilities, net of related Deferred Policy Acquisition Costs (DPAC) and Reinsurers' Share of Unpaid Claims. In performing these tests, current best estimates of future contractual cash flows and claims handling and administration expenses, as well as investment income from the assets backing such liabilities, are used. A premium deficiency exists when estimated future claims and related expenses exceed unearned premiums. Any resulting deficiency is recognized first by writing down the DPAC with any remainder recognized as a premium deficiency in unpaid claims.

Allocation of Revenue, Claims Incurred and Expenses

Premiums written, premiums earned and claims incurred are allocated directly to the division writing the insurance risk.

Service fees and other revenue are allocated to the automobile insurance division lines of business and *The Drivers and Vehicles Act* operations on the following basis:

i. Identifiable direct service fees and other revenue are allocated to each line of business.

ii. Where direct allocation is not possible, service fees and other revenue are prorated to each line of business based mainly on factors such as premiums written ratios, expense allocation ratios and investment income allocation ratios. The formulas developed for the allocation of service fees and other revenue are approved by the Board of Directors.

Investment income is allocated to the automobile insurance division lines of business, *The Drivers and Vehicles Act* operations and the discontinued general insurance division based on a monthly averaging of the funds available within each division.

Expenses, including claims expense, are allocated to the automobile insurance division lines of business and *The Drivers and Vehicles Act* operations on the following basis:

i. Identifiable direct expenses are charged to each line of business.

ii. Where direct allocation is not possible, expenses are prorated to each line of business based mainly on factors such as space, number of employees, time usage, Contact Centre statistics, premiums written ratios and net claims incurred ratios. The basis for allocation of indirect shared expenses is approved by the Board of Directors.

iii. The allocation of improvement initiative costs is based on a review of each project to determine which line of business will benefit from the project. The allocation basis for each project is approved by the Board of Directors.

Reinsurance Ceded

Premiums, claims and expenses are reported gross and net of amounts due to and recoverable from reinsurers. Estimates of amounts recoverable from reinsurers on unpaid claims are recorded separately from estimated amounts payable to policyholders.

The reinsurers' share of unearned premiums is recognized as an asset in a manner which is consistent with the method used in determining the unearned premium liability.

4. Provision for Unpaid Claims

The provision for unpaid claims, including adjustment expenses, represents an estimate for the full amount of all costs and the projected final settlement of claims incurred.

The provision for unpaid claims, including adjustment expenses, is subject to variability. This variability is related to future events that arise from the date the loss was reported to the ultimate settlement of the claims. Accordingly, short-tail claims such as physical damage claims tend to be more reasonably predictable than long-tail claims such as Personal Injury Protection Plan (PIPP) and public liability claims. Factors such as the receipt of additional claims information during the claims settlement process, changes in severity and frequencies of claims from historical trends, and effects of inflationary trends contribute to this variability.

The determination of the provision for unpaid claims, including adjustment expenses, relies on judgment, analysis of historical claim trends, investment rates of return and expectation on the future development of claims. The process of establishing this provision necessarily involves risks which could cause the actual results to deviate, perhaps substantially, from the best determinable estimate.

5. Investments

Cash consists of cash net of cheques issued in excess of amounts on deposit.

Cash equivalent investments have a total principal amount of $83.2 million (February 28, 2017 – $61.5 million) comprised of provincial short-term deposits with effective interest rates of 1.10 per cent (February 28, 2017 – 0.55 per cent), with interest receivable at varying dates.

The Corporation has an unsecured operating line of credit with its principal banker in the amount of $5.0 million (February 28, 2017 - $5.0 million). The unsecured operating line of credit remained unutilized at February 28, 2018 (February 28, 2017 – nil).

Cash and Investments

As at February 28, 2018 (Unaudited – in thousands of Canadian dollars)	Financial Instruments: Classified as AFS	Financial Instruments: Classified as HTM	Financial Instruments: Classified as FVTPL	Non-Financial Instruments	Total Carrying Value
Cash and cash equivalents	**89,006**	–	–	–	**89,006**
Bonds					
Federal	–	–	**28,133**	–	**28,133**
Manitoba:					
Provincial	–	–	**127,637**	–	**127,637**
Municipal	–	**27,375**	**32,455**	–	**59,830**
Schools	–	**590,193**	–	–	**590,193**
Other provinces:					
Provincial	–	–	**895,322**	–	**895,322**
Municipal	–	–	**70,075**	–	**70,075**
Corporations	–	–	**115,868**	–	**115,868**
	–	**617,568**	**1,269,490**	–	**1,887,058**
Other investments	**1,351**	–	–	–	**1,351**
Infrastructure	–	–	**100,085**	–	**100,085**
Equity investments	**409,334**	–	–	–	**409,334**
Pooled Real Estate Fund	–	–	**263,022**	–	**263,022**
Investments	**410,685**	**617,568**	**1,632,597**	–	**2,660,850**
Investment property	–	–	–	**40,646**	**40,646**
Total	**499,691**	**617,568**	**1,632,597**	**40,646**	**2,790,502**

As at February 28, 2017 (Unaudited – in thousands of Canadian dollars)	Financial Instruments: Classified as AFS	Financial Instruments: Classified as HTM	Financial Instruments: Classified as FVTPL	Non-Financial Instruments	Total Carrying Value
Cash and cash equivalents	73,434	–	–	–	73,434
Bonds					
Federal	–	–	59,310	–	59,310
Manitoba:					
Provincial	–	–	142,566	–	142,556
Municipal	–	10,697	31,741	–	42,438
Schools	–	631,919	–	–	631,919
Other provinces:					
Provincial	–	–	738,625	–	738,625
Municipal	–	–	65,262	–	65,533
Corporations	–	–	59,626	–	59,626
	–	642,616	1,097,391	–	1,740,007
Other investments	1,493	–	–	–	1,493
Infrastructure	–	–	95,010	–	95,010
Equity investments	474,639	–	–	–	474,639
Pooled Real Estate Fund	–	–	233,981	–	233,981
Investments	476,132	642,616	1,426,382	–	2,545,130
Investment property	-	-	-	41,686	41,686
Total	549,566	642,616	1,426,382	41,686	2,660,250

6. Investment Income (Loss)

(Unaudited – in thousands of Canadian dollars)	2018	2017
Interest income	**52,584**	48,514
Gain (loss) on sale of FVTPL bonds	**(4,045)**	1,988
Unrealized gain (loss) on FVTPL bonds	**9,363**	(23,843)
Unrealized gain on pooled real estate	**29,040**	16,422
Dividends on infrastructure investments	**2,006**	1,560
Unrealized gain (loss) on infrastructure investments	**6,195**	(1,483)
Foreign exchange gain on infrastructure investments	**35**	-
Dividend income	**12,523**	14,560
Gain on sale of equities and other investments	**29,052**	40,169
Gain (loss) on foreign exchange	**(92)**	308
Income from investment property	**3,445**	3,050
Impairment of AFS investments	**(1,078)**	-
Investment management fees	**(4,220)**	(4,610)
Total	**134,808**	96,635

7. Employee Future Benefits Expense

(Unaudited – in thousands of Canadian dollars)	2018	2017
Pension benefits	**27,698**	27,065
Other post-employment benefits	**5,747**	5,792
Total	**24,727**	32,857

8. Depreciation and Amortization

(Unaudited – in thousands of Canadian dollars)	2018	2017
Amortization – deferred development	**20,757**	16,859
Depreciation – property and equipment	**4,973**	5,193

Manitoba Public Insurance Locations

Customer Service

Winnipeg
T: 204-985-7000

Outside Winnipeg
(Toll-Free)
T: 800-665-2410

Deaf Access TTY/TDD
T: 204-985-8832

Out-of-Province Claims
T: 800-661-6051

Administrative Offices

Winnipeg
234 Donald Street
Box 6300
R3C 4A4

Brandon
731 1st Street
R7A 6C3

Service Locations

Winnipeg
Service Centres
15 Barnes Street
40 Lexington Park
1284 Main Street
930 St. Mary's Road
125 King Edward Street East

cityplace
234 Donald Street
Service Centre, Main Floor
ID Verification and Data Integrity
Rehabilitation Management Centre
Serious and Long-Term Case Management Centre
Bodily Injury Centre

Physical Damage Centre
1981 Plessis Road
Holding Compound/ Receiving
Salvage
Commercial Claims

Arborg
Service Centre
323 Sunset Boulevard

Beausejour
Service Centre
848 Park Avenue

Brandon
Service Centre
731 1st Street

Dauphin
Service Centre
217 Industrial Road

Portage La Prairie
Service Centre
2007 Saskatchewan Avenue West

Selkirk
Service Centre
1008 Manitoba Avenue

Steinbach
Service Centre
91 North Front Drive

Swan River
Claim Centre
125 4th Avenue North

The Pas
Claim Centre
424 Fischer Avenue

Thompson
Service Centre
53 Commercial Place

Winkler
Service Centre
355 Boundary Trail



MANITOBA PUBLIC INSURANCE ANNUAL BUSINESS PLAN

2018-2019

TABLE OF CONTENTS

1.0 Mandate & Strategic Direction 4
1.1 Corporation's Mandate, Objects or Purposes as set out in *The Manitoba Public Insurance Corporation Act* 4
1.2 Key Priorities (subject to adjustment based on Ministerial Mandate Letter) 4
1.3 New Corporate Mission (draft to be confirmed in 2018) 5
1.4 Vision and Values 5
2.0 Operating Environment 6
2.1 Internal Environment 6
2.1.1 Products and Services 6
2.1.2 Customer Experience Framework 6
2.1.3 Online and Systems Technology 7
2.1.4 Creating a Culture of Excellence 7
2.1.5 Other Efforts 7
2.2 External Environment 7
2.2.1 New Light Vehicle Accreditation Agreement for March 2019 7
2.2.2 Changing Vehicle Industry 8
2.2.3 New Broker Accord for March 2019 8
2.2.4 Traffic Safety Culture 8
2.2.5 Other Efforts 9
2.3 Risks 9
2.3.1 Financial Losses from Weather or Investments 9
2.3.2 Public Support 9
2.3.3 Insurance Business Risk 9
2.3.4 Cyber Security 10
3.0 Performance Measures & Targets 11
4.0 Financial Budgets & Forecasts 12
4.1 Statement of Operations 12
4.2 Key Planning Assumptions 12
4.3 Sensitivity Analysis 13
5.0 Human Resources 14
5.1 Full-Time Employees 14
5.2 Organization Chart (as at February 2018) 14

5.3 Factors That May Affect Compensation and Staffing 15

6.0 Capital Plans 16

1.0 Mandate & Strategic Direction

The Roles and Responsibilities Record for the Manitoba Public Insurance Corporation sets out the Corporation's mandate and responsibilities.

1.1 Corporation's Mandate, Objects or Purposes as set out in *The Manitoba Public Insurance Corporation Act*

It is the function of the Corporation to engage in and carry out the activity of all classes of automobile insurance, to administer the universal, compulsory automobile insurance as well as Extension insurance as prescribed by regulation. It may also carry out, both within and outside of Manitoba the business of insurance and re-insurance in all classes. In carrying out these responsibilities the Corporation may also repair, salvage and dispose of any property insured by it. The Corporation also has the responsibility to administer *The Drivers and Vehicle Act*.

1.2 Key Priorities (subject to adjustment based on Ministerial Mandate Letter)

- The Corporation will continue to demonstrate fiscal prudence and sound financial management practices while driving cost-containment, streamlining of operations and elimination of unnecessary operational expenses.
- The Basic compulsory insurance program must be operated on a self-sustaining basis with a sufficient capital reserve to absorb unforeseen variations in revenues, claims costs and investment revenues, and with insurance rates that are actuarially supported and established in accordance with Accepted Actuarial Principles.
- The Basic compulsory insurance rates will be kept as stable, predictable and affordable as possible.
- Capital projects and major technological initiatives will focus on supporting and optimizing core business functions, including ensuring the Corporation's ability to adapt appropriately to changes in the auto insurance and registration environment.
- Suitable operational and financial performance measures will be established and will be benchmarked against best practices in the auto insurance industry to demonstrate operational effectiveness and strong financial and investment management practices.
- Products and services will continue to evolve to address the evolving needs of Manitobans, including services to Manitobans in rural, northern and remote communities.
- The Corporation will continue to be proactive in preparing for structural changes in the automobile industry and collaborating with Manitoba's vehicle collision repair industry to ensure that vehicles damaged in motor vehicle collisions are properly repaired to original manufacturer specifications. The Corporation is also expected to evolve its business model to prepare for the anticipated introduction

of both partially-automated and fully-automated vehicles into the Manitoba market.

- The Corporation will continue to invest in Manitoba where prudent, recognizing that doing so provides jobs to Manitobans and results in broader contributions to the provincial economy through the Corporation's relationships with strategic partners.
- The Corporation will continue to hire and train employees predominantly in Manitoba with a commitment to excellent service.
- The financial affairs of the Corporation will be managed in a manner that will not impair the consolidated financial statements of the Province of Manitoba.

1.3 New Corporate Mission

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

1.4 Vision and Values

A new MPI vision statement and values will be developed to support the new corporate mission and direction of the company. These will be completed during 2018/19.

2.0 Operating Environment

The Corporation is constantly evolving to meet the diverse needs and service expectations of our customers, while providing guaranteed access to automobile insurance at cost effective rates. The Corporation takes a long-term view of providing sustainable and predictable Basic insurance to Manitobans at affordable rates, without compromising coverage or service. Given the growth and increasing diversity of Manitoba's population, the continuous advances in technology and the changing automobile industry, the Corporation continues to refine and adapt our products and services with our customers and business partners in mind.

2.1 Internal Environment

The Corporation's internal operating environment is extremely dynamic. The 2018-19 year will see an emphasis on building a culture of excellence, customer service and product assessment, with an ongoing focus on core business and building value.

2.1.1 Products and Services

Our product roadmap will review opportunities in a number of product or service areas. The Corporation will work with the Public Utilities Board on various technical conferences regarding MPI product evolution, including principal driver underwriting. Other product and service efforts in 2018-19:

- Basic deductibles will be reviewed and assessed to determine if they have kept pace with cost of repair and industry best practices.
- Extension products will be assessed to determine appropriate profit margins, and to determine impact of any potential change to Basic deductibles.
- Special Risk Extension products will be reviewed for potential growth opportunities.
- The Corporation is examining areas of opportunity related to PIPP coverage and claims.
- A redevelopment of the High School Driver Education Program continues, with the implementation of a curriculum redesign.

2.1.2 Customer Experience Framework

The Corporation's current customer satisfaction system was developed in 1998. A new Customer Experience Framework is required to evolve the Corporation's customer-centric focus. Elements of the framework include new channel choice and service delivery options (including enhanced self-service options), new and evolved customer experience metrics, and point-of-service data capture to collect customer feedback in real-time.

2.1.3 Online and Systems Technology

The Corporation is moving towards greater online service for customers, partners and staff. Online service enhancements include:

- a new corporate learning management system to provide a central location for all training and development
- introduction and expansion of customer and partner internet self-serve options such as booking appointments

A review of the Corporation's over 20 year old legacy systems is required. A multi-year legacy systems modernization project will be initiated, with a first year objective of assessing the current systems and establishing a strategy and roadmap.

2.1.4 Creating a Culture of Excellence

Manitoba Public Insurance is striving to create and renew a culture of excellence in an effort to attract, retain and motivate top talent. The company is focused on promoting, recognizing, managing performance and adopting industry best practices in linking performance to pay and rewards. This will be further enabled by building organizational capacity in developing leaders to set clear expectations, measuring performance and a reward mechanism that recognizes an individual's contribution while managing corporate fiscal responsibility.

2.1.5 Other Efforts

There are additional initiatives for 2018/19 such as:

- Accessibility Action Plan
- French Language Services Action Plan
- Compliance to New West Partnership Trade Agreement (procurement)

2.2 External Environment

Manitoba Public Insurance operates in a challenging and fast-changing external environment. Key relationships in this environment include the public and customers, government, the Public Utilities Board and our delivery partners (e.g. healthcare providers, brokers, repair shops and others).

2.2.1 New Light Vehicle Accreditation Agreement for March 2019

The Corporation will be negotiating a new agreement with Manitoba's collision repair industry, with the current agreement set to expire February 28, 2019. At over $300 million in claims per year, vehicle repair is a significant cost driver for MPI customers.

Major recent developments in physical damage claims include:

- Major changes to estimating under the Direct Repair program will continue in 2018, with a larger percentage of repair estimates to be conducted in repair shops in future.
- An administrative premium of $81 per job payable to qualifying Direct Repair shops will be in place from March 1, 2018 to February 28, 2019. Also in 2018, repair shops must have attained, or be substantially in process of attaining, their I-CAR Gold Class Professionals designation.
- Continuation of Paintless Dent Repair, an industry-standard method of removing dents from vehicle body panels. This cost-effective repair is particularly suited to damage seen in hail claims, and will continue in future.
- The Corporation's rodent strategy is proving successful and the reduction in rodent claims costs will continue.

2.2.2 Changing Vehicle Industry

The manufacture of automobiles is undergoing a dramatic shift, resulting in major changes to the repair industry. Lighter materials, such as aluminum, advanced high-strength steels, magnesium and carbon fibre, are increasingly being used in vehicle construction to reduce vehicle weight and improve fuel efficiency.

Vehicles routinely incorporate collision-avoidance and vehicle-control technologies to meet growing customer demand. Partially-autonomous driver-assistance technology is currently available in some vehicles on the market, and research and testing into fully autonomous vehicles continues to ramp up at several vehicle and technology companies.

The rapid pace of change will continue to evolve as more and more vehicles with complex materials and advanced electronic systems enter the market. We will continue to work with our collision repair industry partners in the best interests of Manitobans to ensure these vehicles are repaired properly and the anticipated cost increases are kept at industry averages.

2.2.3 New Broker Accord for March 2019

Negotiations for a new agreement to take effect in 2019 with Manitoba insurance brokers will present another key impact on the Corporation's operating environment. Known items to discuss include commission rates and increased online services from MPI.

2.2.4 Traffic Safety Culture

The Province's *Manitoba Road Safety Plan 2017-2020: Road to Zero* envisions Manitoba having the safest roads in Canada, and commits to one day achieving

zero traffic fatalities on our roadways. The Corporation fully supports the Road Safety Plan and its goals, and commits to working to change the traffic safety culture of Manitobans. We co-chair this plan with Manitoba Infrastructure and will design and deliver road safety education initiatives to complement the goals and objectives of the provincial plan.

2.2.5 Other Efforts

There are additional initiatives for 2018/19 such as:

- Development and continued refinement of an insurance rating framework for Transportation Network Companies and other authorized ride-share services
- Service and accessibility enhancements to northern and remote communities
- Prepare for legalization of recreational use of cannabis through proactive education and awareness campaigns to mitigate the potential impact to impaired driving-related collision, fatalities and injuries

2.3 Risks

2.3.1 Financial Losses from Weather or Investments

A key risk is the potential for financial loss, generally arising from weather-driven increases in claims from hail or winter accidents. An additional related risk is the depletion of financial reserves, which is possible from two years of bad losses in the investment portfolio or increases in claims as described above. To mitigate volatility, MPI will continue to incorporate reinsurance where appropriate and ensure reserves are adequate at the corporate level and the basic insurance product level. In regards to this risk, MPI is pleased with the recent PUB order regarding an upper and lower limit for MPI reserves.

2.3.2 Public Support

Another risk is a loss of public support. Causes could include increased rates as outlined above, and a lack of customer-centricity in MPI products or services (including a perceived lack of appeal options for unsatisfied customers). Mitigation includes renewing customer satisfaction measures within the Customer Experience Framework, settling claims in a fair and reasonable way, and ensuring appeal options are fair and are available within a reasonable timeframe.

2.3.3 Insurance Business Risk

The Corporation keeps watch on insurance technology developments and auto maker self-insurance models to mitigate potential risks from these areas.

2.3.4 Cyber Security

The risk of cyber-attack is also present, and the Corporation mitigates this risk by continuing IT security plans to defend from attack, including agreement on a new information security maturity level.

3.0 Performance Measures & Targets

These performance metrics have been newly established for MPI and will be evolving over 2018/19 as we change from the previous dials used for various public financial reporting.

MPI Performance Metrics					
Category	**Measure**	**Description**	**Actual 2016/17**	**Forecast 2017/18**	**Target 2018/19**
Customer	Customer Satisfaction Index	Track customer satisfaction over time	89%	89%	89%[1]
Financial	Net Premiums Earned	Net premiums earned	$1,130M	$1,194M	$1,276M
	Claims Incurred	Net claims incurred	$981M	$926M	$959M
	Corporate Claims Costs Ratio	Tracks claims costs from all lines of business as % of NPE	100.3%	91.4%	88.5%
	Investment Management	Net investment yield	6.9%	7.4%	5.0%
Operational Excellence	Expenses Excluding Claims Costs	Tracks operating expenses as % of NPE	10.8%	10.1%	9.7%
	Total FTE	Tracks all non-consultant FTE in MPI	1,923	1,917	1,903
Organization Health	Employee Engagement	Engagement score	73%	73%	75%
	Capital Adequacy	Minimum Capital Test:			
		- Basic	30%	30%	75-100%[2]
		- Extension	311%	498%	200%[3]
		- Special Risk Extension	349%	366%	300%[3]

Notes:

[1]MPI will conduct a review of our customer satisfaction metrics during the 2018/19 year.

[2]Target range of 75-100% is not anticipated to be reached by 2018/19; however, 100% is the appropriate target for MPI in a reasonable time.

[3]Minimum capital test for Extension and Special Risk Extension insurance lines are currently in excess of the minimum but within an acceptable range given overall MPI reserves and risks at this time. Therefore, MPI will not simply deploy this capital during 2018/19 to meet these minimum targets.

4.0 Financial Budgets & Forecasts

4.1 Statement of Operations

In thousands of Canadian dollars ($000's)	Actual for the year ended February 28, 2017	Budget for the year ending February 28, 2018	Forecast for the year ending February 28, 2018	Budget for the year ending February 28, 2019
Earned Revenues				
Gross premiums written	1,169,044	1,252,170	1,245,167	1,338,041
Premiums ceded to reinsurers	(15,624)	(15,153)	(15,239)	(16,013)
Net premiums written	1,153,420	1,237,017	1,229,928	1,322,028
Net premiums earned	1,130,016	1,199,434	1,193,536	1,276,477
Service fees & other revenue	31,547	33,874	34,067	35,764
The Drivers and Vehicles Act operations recovery	29,272	30,179	30,179	30,860
Total Earned Revenues	**1,190,835**	**1,263,487**	**1,257,782**	**1,343,101**
Claims Costs				
Net claims incurred	981,298	968,250	926,324	958,951
Claims expense	137,102	152,116	149,401	155,115
Loss prevention/Road safety	14,801	15,688	14,678	15,836
Total Claims Costs	**1,133,201**	**1,136,054**	**1,090,403**	**1,129,902**
Expenses				
Operating	122,313	121,577	120,497	123,865
Commissions	77,880	80,317	80,249	84,492
Premium taxes	34,369	36,438	36,263	38,775
Regulatory/Appeal	4,911	4,083	4,103	4,687
Total Expenses	**239,473**	**242,415**	**241,112**	**251,819**
Underwriting income (loss)	(181,839)	(114,982)	(73,733)	(38,620)
Investment income (loss)	96,635	120,600	149,627	97,605
Net income (loss) from operations	**(85,204)**	**5,618**	**75,894**	**58,985**

Note: for additional information on the financials of MPI, please refer to the 2016/17 Annual Report, found at www.mpi.mb.ca/en/PDFs/2016-Annual-Report.pdf

4.2 Key Planning Assumptions

Key assumptions include:

- Forecasts based upon data up to and including October 2017 month end
- The 2018/19 PUB Order
- The results of the October 31 Valuation of Policy Liabilities

- Flat interest rates over the entire forecast period based on October 2017 actuals
- MPI's current investment portfolio with one assumption change which is an increased allocation to corporate bonds from 4% to 18% in the final three quarters of 2018/19
- No significant changes to operations that would impact long term fleet growth, vehicle upgrade, or claims trends over the outlook period.

4.3 Sensitivity Analysis

Due to the nature of its business, MPI's primary risks relate to trends in claiming experience on its insured book of business and impacts on investment income stemming from fluctuations in the marketplace.

The following table depicts MPI's sensitivity to various scenarios stated on the basis of impact to net income.

Scenario Analysis - 2018/19 Budget Base to Scenario
Summary - CORPORATE
($000's)

Scenario	2018/19 Net Income	$ Change from Base Scenario	% Change from Base Scenario
1. 2018-19 Budget Base	58,985	0	0%
2. Collision Frequency +1%	54,443	-4,542	-8%
3. Collision Severity +1%	54,662	-4,323	-7%
4. Interest Rates +50 bps	54,050	-4,935	-8%
5. Interest Rates -50 bps	64,887	5,902	10%
6. 1-in-40 Adverse Winter Collision Frequency	18,527	-40,458	-69%
7. 1-in-40 Favourable Winter Collision Frequency	138,103	79,118	134%
8. 1-in-40 Adverse Hail [1]	30,551	-28,434	-48%
9. 1-in-40 Favourable Hail	75,392	16,407	28%
10. 1-in-40 Adverse Loss Ratio	-12,211	-71,196	-121%
11. 1-in-40 Favourable Loss Ratio	151,218	92,233	156%
12. 1-in-40 Decreasing Interest Rates [2]	54,546	-4,439	-8%
13. 1-in-40 Increasing Interest Rates [2]	65,273	6,288	11%
14. 1-in-40 Adverse Equities [3]	38,862	-20,123	-34%
15. 1-in-40 Favourable Equities [3]	85,119	26,134	44%

1. Hail: Assumed $15M retention and fully placed reinsurance coverage up to $267M based on current structure. Probable maximum loss (PML) as per Aon Benfield's use of RMS RiskLink 2017 modelling is $184M at a 1-in-50 year interval and $300M at a 1-in-100 year interval.

2. Interest Rates: +147 bps increase and -94 bps decrease to GOC 10 Year Bond. Assumed interest rate floor of 1.00%.

3. Equities: The results only include realized gains/losses. Adverse Scenario: -24.6% return and $131M in unrealized losses, Favourable Scenario: 45.5% return and $160M in unrealized gains.

5.0 Human Resources

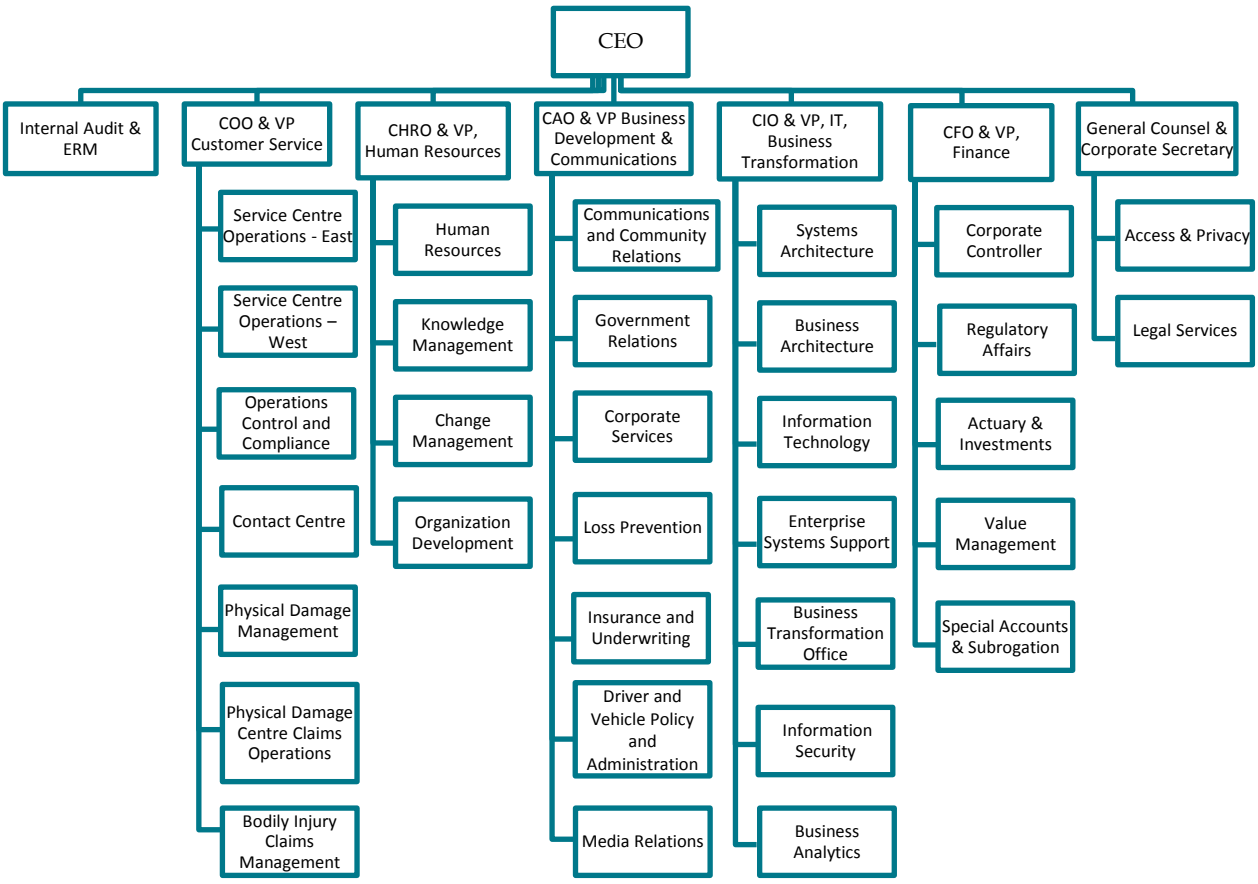
5.1 Full-Time Employees

	Actuals as at February 28, 2017	Revised Budget	Budget
	2016/17	2017/18	2018/19
Senior Management (1)	40.0	34.0	32.0
Management (2)	125.0	101.0	100.0
Employees (3)	1,757.9	1,781.9	1,770.5
Total	1,922.9	1,916.9	1,902.5

1. Senior Management - Executives & Directors
2. Management - Managers & Assistant Managers
3. Employees - Remaining employees not included in above

- 1,902 includes 1,874 from normal operations and 28 from improvement initiative and specialty programs

5.2 Organization Chart (as at February 2018)



5.3 Factors That May Affect Compensation and Staffing

The proposed 2018/19 plan includes 1,902 full-time employees (FTEs) with a total compensation budget of $173.9 million. The budget includes management reductions of 15 per cent from 2016/17 and staff reduction through improvement initiative efficiencies. Management continues to manage its FTE counts with a focus on operational efficiencies and vacancy management to ensure proper workforce composition to meet operational demands. This year's plan also includes a contractual obligation of 1.5 per cent general wage increase for the workforce.

6.0 Capital Plans

2018/2019 Capital Projects

(spend beyond 2018/19 is currently under review by MPI)

($000's)

	LTD Spend to February 28 2018	Budget 2018/19	Remaining Spend for Future Years	Total Forecast at Completion
Technology Risk Management	4,082	4,500	18,000	26,582

The goal of the Technology Risk Management is to implement projects that will keep existing technology in a stable and supported state and address other technology risk through process and technology improvements. Return on investment will be realized through risk reduction.

Finance Re-Engineering	343	500	13,117	13,960

The strategic objectives of the Finance Re-Engineering Project are:

- Provide timely access to accurate financial information
- Increase efficiency and effectiveness of financial processes and system integration
- Provide appropriate support to other Divisions within the Corporation to guide decision making

Customer Claims Reporting System (PDR Spinoff)	15,269	7,200	750	23,219

This project will introduce a new online claims first notice of loss (FNOL) customer self-service tool that is highly intuitive and user friendly. To ensure that a customer has a consistent customer service experience, the MPI contact centre process will also be modified to align to the customer self-service experience. These processes will be complemented by automated claims adjudication processing for common claim situations as well as eligible repair shop determination and shop appointment scheduling.

Legacy Systems Modernization Project	-	2,000	TBD	TBD

The first year objective of this project is to complete a multi-faceted assessment of our current legacy systems to determine if these systems can meet our future business objectives, capabilities and operational needs. The FY 18/19 assessment will then be utilized to establish a strategy, business case, financial analysis, and implementation roadmap and plan for Board of Directors review and approval in December 2018 prior to initiating the Legacy System Modernization program implementation.

Aggregate of all other IT Projects	9,206	7,957	13,199	30,362
Sub-Total IT Projects	28,901	22,157	TBD	TBD
Administrative Capital	20,746	6,595	26,036	53,377
Investment Capital	10,424	1,532	4,814	16,770
Grand Total	60,072	30,283	NA	NA

EXTERNAL ACTUARY REVIEW OF POLICY LIABILITIES

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

EXTERNAL ACTUARY REVIEW OF POLICY LIABILITIES 3
EAR.1 REVIEW OF POLICY LIABILITIES 3
EAR.2 ANALYSIS OF RUNOFF 4
EAR.2.1 Changes in Experience 4
EAR.2.2 Changes to the Valuation Methodology 5
EAR.2.3 Changes to the Valuation Assumptions 5
EAR.2.4 Restating to Current Benefit Levels 6
EAR.2.5 Net Runoff for Fiscal Year 2016/17 8
EAR.3 REGRESSION ANALYSIS OF THE ULTIMATE LOSSES USED FOR TREND SELECTION PER THE ACTUARY'S REPORT AS AT FEBRUARY 28, 2017 10

Appendix 1: Long Tail Experience of PIPP Claimants

Provided Electronically

Attachment A: Actuary's Report as at October 31, 2017
Attachment B: Actuary's Report as at February 28, 2018
Attachment C: PWC Actuarial Support

EXTERNAL ACTUARY REVIEW OF POLICY LIABILITIES

This section presents the results of the review of policy liabilities for Basic as completed by the Corporation's Appointed Actuary. The Appointed Actuary signs off on two reviews annually – one as at October 31 and the other as at February 28/29.

This section is divided into three subsections. The first subsection presents the two Appointed Actuary reports for Basic for fiscal year 2017/18, as well as the review of these reports by the external auditors. The second subsection presents an analysis of the runoff. The third subsection presents the regression analysis by coverage for the selected trends used in the Actuary's Report as at February 28, 2018.

EAR.1 REVIEW OF POLICY LIABILITIES

The following three reports are provided electronically as:

- Attachment A: Actuary's Report as at October 31, 2017
- Attachment B: Actuary's Report as at February 28, 2018
- Attachment C: PWC Actuarial Support

EAR.2 ANALYSIS OF RUNOFF

Figure EAR- 5 shows the Basic total net runoff for fiscal year 2017/18 by coverage and insurance year. In total, Basic saw an unfavourable runoff of $33.7 million attributable to the following factors:

Figure EAR- 1: Sources of Runoff

Line No.	Changes	Favourable (Unfavourable) Runoff
1	Experience	(103,910,000)
2	Valuation Methodology	0
3	Valuation Assumptions	70,202,000
4	Total	(33,708,000)

EAR.2.1 Changes in Experience

Figure EAR- 6 shows the net runoff from changes in experience only for fiscal year 2017/18 by coverage and insurance year. The unfavourable runoff of $103.9 million was determined by undoing all changes made to the valuation methodology and valuation assumptions.

Figure EAR- 6 indicates significant unfavourable runoff for Accident Benefits – Weekly Indemnity and significant favourable runoff for Accident Benefits – Other (Indexed). This is driven primarily by the introduction of centralized reserving. A dedicated team was set up specifically to ensure proper reserving for long-term PIPP claims. The team was tasked with regularly updating PIPP reserves based on established reserving guidelines.

The team completed a review of all PIPP claims older than 24 months to ensure that case reserves for these claims were adequate to cover claimants' long-term entitlement to PIPP benefits based on established reserving guidelines. As a result, the case reserves were increased significantly for Accident Benefits – Weekly Indemnity, and reduced significantly for Accident Benefits – Other (Indexed).

The following table compares actual reported to expected reported for fiscal year 2016/17 for insurance years 2000/01 to 2016/17.

Figure EAR- 2: Comparison of Actual Reported to Expected Reported

Line No.	Coverage	Actual Reported	Expected Reported	Variance
1	Accident Benefits – Weekly Indemnity	$150,271,000	$63,211,000	$87,060,000
2	Accident Benefits – Other (Indexed)	($2,715,000)	$19,728,000	($22,443,000)

Accident Benefits – Other (Non-Indexed) shows unfavorable runoff attributable mainly to 2015/16 and 2016/17. Actual reported losses for these years came in higher than expected.

Figure EAR- 6 also indicates favourable runoff for Comprehensive attributable mainly to the favourable runoff for 2016/17. Actual reported losses for this year came in better than expected. The favourable runoff for PIPP Enhancement is attributable to lower than expected number of catastrophic claimants.

EAR.2.2 Changes to the Valuation Methodology

There were no changes made to the valuation methodology for fiscal year 2017/18.

EAR.2.3 Changes to the Valuation Assumptions

Changes made to the valuation assumptions which contributed to the runoff are as provided in the following table. The runoff presented in the following table are based on the February 28, 2018 Actuarial Report.

Figure EAR- 3: Impact on Runoff from Changes in Valuation Assumptions

Line No.	Change	Rationale	Favourable (Unfavourable) Runoff
1	Changes to the loss development factors:		
2	• Accident Benefits – Weekly Indemnity		$27,266,000
3	• Accident Benefits – Other (Indexed)	Note 1	($829,000)
4	• All other coverage		($1,700,000)
5	Change in the "Selected IBNR" for insurance year 2013/14		
6	• Accident Benefits – Weekly Indemnity	Note 2	$8,910,000
7	• Accident Benefits – Other (Indexed)		$11,855,000
8	Change in the "Selected IBNR"		
9	• Accident Benefits – Weekly Indemnity	Note 3	$14,967,000
10	• Accident Benefits – Other (Indexed)		$9,734,000
11	Total Valuation Assumptions		$70,202,000
12	Note 1: Changes to the loss development factors by coverage are documented in the respective appendices in the February 28, 2018 Actuarial Report. Loss development factors are revised annually to reflect recent experience. Refer also to the October 31, 2017 Actuarial Report, Pages 6 and 7		
13	Note 2: The "Selected IBNR" was revised from the higher of the Incurred Bornheutter-Ferguson (BF) Method or Paid BF Method to the Incurred BF Method. This is a normal transition based on the prior methodology.		
14	Note 3: Refer to the October 31, 2017 Actuarial Report, Page 7		

EAR.2.4 Restating to Current Benefit Levels

The runoff figures for the two indexed coverages, namely Accident Benefits - Weekly Indemnity and Accident Benefits - Other (Indexed), were derived based on estimated ultimate losses restated to current benefit levels.

For Accident Benefits - Weekly Indemnity, paid losses restated to current benefit levels, as presented in *Attachment B Actuarial Report as at February 28, 2018 Appendix E, page 12*, were added to the unpaid losses from prior year-end valuations restated to current benefit levels. The following table presents an example of this calculation. Estimated ultimate losses restated to current benefit levels, for the six most recent year-end valuations, are presented in *Attachment B Actuarial Report as at February 28, 2018 Exhibit 3, Sheet 11*.

Figure EAR- 4: Estimated Ultimate Losses – February 2017 Valuation

Line No.	Insurance Year	Paid Losses Restated	Estimated Unpaid Losses	Unpaid Losses Restated	Estimated Ultimate Losses
1	*($000)*				
2	**[a]**	[b]	[c]	[d]	[e]
3	**2012**	36,285	39,223	39,733	76,018
4	**2013 [f]**	28,685	52,274	52,954	81,639
5	**2014**	20,118	53,372	54,066	74,184
6	**2015**	19,673	51,139	51,804	71,476
7	**2016**	9,597	55,492	56,213	65,811
8	[b] Actuarial Report as at February 28, 2018 Appendix E, Page 12				
9	[c] Actuarial Report as at February 28, 2017, Exhibit 2, Sheet 5				
10	[d] = [c] * 1.0130				
11	[e] = [b] + [d]				
12	[f] Paid Losses Restated was reduced by ceded paid of 103				

A similar calculation was done for Accident Benefits - Other (Indexed), using paid losses restated to current benefit levels, as presented in *Attachment B Actuarial Report as at February 28, 2018 Appendix F, page 17*, added to the unpaid losses from prior year-end valuations restated to current benefit levels. Estimated ultimate losses restated to current benefit levels, for the six most recent year-end valuations, are presented in *Attachment B Actuarial Report as at February 28, 2018 Exhibit 3, Sheet 12*.

EAR.2.5 Net Runoff for Fiscal Year 2017/18

Figure EAR- 5: Net Runoff for Fiscal Year 2017/18 by Coverage and Insurance Year [a]

Line No.	Insurance Year	Bodily Injury	Property Damage	Collision	Compre-hensive	Acc Ben - Weekly Indemnity	Acc Ben - Other (Indexed)	Acc Ben - Other (Non-Ind)	PIPP Enhance-ment [b]	TOTAL BASIC
1	*($000)*									
2	**2000**	(123)	2	15	(6)	(628)	2,469	0	280	**2,008**
3	**2001**	0	0	3	1	471	737	(28)	(59)	**1,126**
4	**2002**	0	3	11	0	(1,256)	(475)	(66)	(603)	**(2,385)**
5	**2003**	0	4	14	(0)	532	1,098	87	404	**2,138**
6	**2004**	0	2	0	8	(1,537)	133	5	73	**(1,316)**
7	**2005**	(6)	3	(7)	2	(1,323)	521	56	(223)	**(976)**
8	**2006**	(0)	6	(19)	30	(2,975)	1,977	(3)	96	**(888)**
9	**2007**	(12)	2	14	(35)	(406)	(1,797)	25	(909)	**(3,118)**
10	**2008**	11	(51)	8	(31)	(1,209)	518	(166)	(124)	**(1,044)**
11	**2009**	10	(15)	13	(30)	(2,691)	(294)	71	(65)	**(3,002)**
12	**2010**	(162)	(23)	(10)	(73)	(5,037)	5,597	(102)	968	**1,158**
13	**2011**	10	13	(46)	(98)	(5,673)	781	(210)	(109)	**(5,332)**
14	**2012**	155	(81)	117	(137)	(19,538)	(786)	96	412	**(19,762)**
15	**2013**	301	(223)	(0)	(167)	2,087	13,894	(46)	(123)	**15,723**
16	**2014**	(68)	(76)	(484)	(47)	7,074	11,068	(323)	782	**17,926**
17	**2015**	468	(53)	73	(265)	(13,934)	(530)	(3,577)	1,987	**(15,830)**
18	**2016**	298	(1,655)	(954)	3,949	(16,224)	(3,469)	(2,394)	171	**(20,277)**
20	**TOTAL**	881	(2,142)	(1,252)	3,100	(62,267)	31,444	(6,573)	2,958	**(33,851)**
21										
22									Net Runoff - Quality of Life [c]:	143
23									**Total Basic:**	**(33,708)**

24 [a] Positive figures indicate favourable runoff
25 [b] Excludes Quality of Life Enhancements
26 [c] The figures per the February 2018 valuation were not broken down by insurance year

Figure EAR- 6: Net Runoff for Fiscal Year 2017/18 - Changes in Experience Only By Coverage and Insurance Year [a]

Line No.	Insurance Year	Bodily Injury	Property Damage	Collision	Compre-hensive	Acc Ben - Weekly Indemnity	Acc Ben - Other (Indexed)	Acc Ben - Other (Non-Ind)	PIPP Enhance-ment [b]	TOTAL BASIC
1	*($000)*									
2	**2000**	(123)	2	15	(6)	(400)	2,639	0	280	**2,406**
3	**2001**	0	0	3	1	723	920	(28)	(59)	**1,561**
4	**2002**	0	3	11	0	(904)	(278)	(66)	(603)	**(1,837)**
5	**2003**	0	4	14	(0)	861	1,280	87	404	**2,649**
6	**2004**	0	2	0	8	(1,018)	334	5	73	**(597)**
7	**2005**	(6)	3	(7)	2	(345)	695	56	(223)	**175**
8	**2006**	(0)	6	(19)	30	(1,636)	2,198	(3)	96	**672**
9	**2007**	(12)	2	14	(35)	897	(1,579)	25	(909)	**(1,597)**
10	**2008**	11	(51)	8	(6)	(1,224)	678	(166)	(124)	**(875)**
11	**2009**	10	(15)	13	(6)	(2,963)	(123)	71	(65)	**(3,079)**
12	**2010**	(169)	(23)	(10)	(36)	(5,754)	5,757	(102)	968	**631**
13	**2011**	(2)	13	(46)	(60)	(6,798)	735	(210)	(109)	**(6,477)**
14	**2012**	145	(81)	117	(65)	(22,585)	(924)	96	412	**(22,884)**
15	**2013**	291	(202)	(175)	(54)	(7,484)	1,923	(46)	(123)	**(5,871)**
16	**2014**	(79)	14	(484)	59	(9,791)	1,095	(323)	782	**(8,729)**
17	**2015**	456	83	249	(85)	(29,933)	(844)	(3,511)	1,987	**(31,598)**
18	**2016**	218	(1,464)	(761)	4,068	(25,054)	(3,819)	(1,962)	171	**(28,604)**
20	**TOTAL**	739	(1,705)	(1,058)	3,814	(113,409)	10,684	(6,076)	2,958	**(104,053)**
21										
22									Net Runoff - Quality of Life [c]:	143
23									**Total Basic:**	**(103,910)**

24 [a] Positive figures indicate favourable runoff
25 [b] Excludes Quality of Life Enhancements
26 [c] The figures per the February 2018 valuation were not broken down by insurance year

EAR.3 REGRESSION ANALYSIS OF THE ULTIMATE LOSSES USED FOR TREND SELECTION PER THE ACTUARY'S REPORT AS AT FEBRUARY 28, 2018

Figure EAR- 7: Bodily Injury

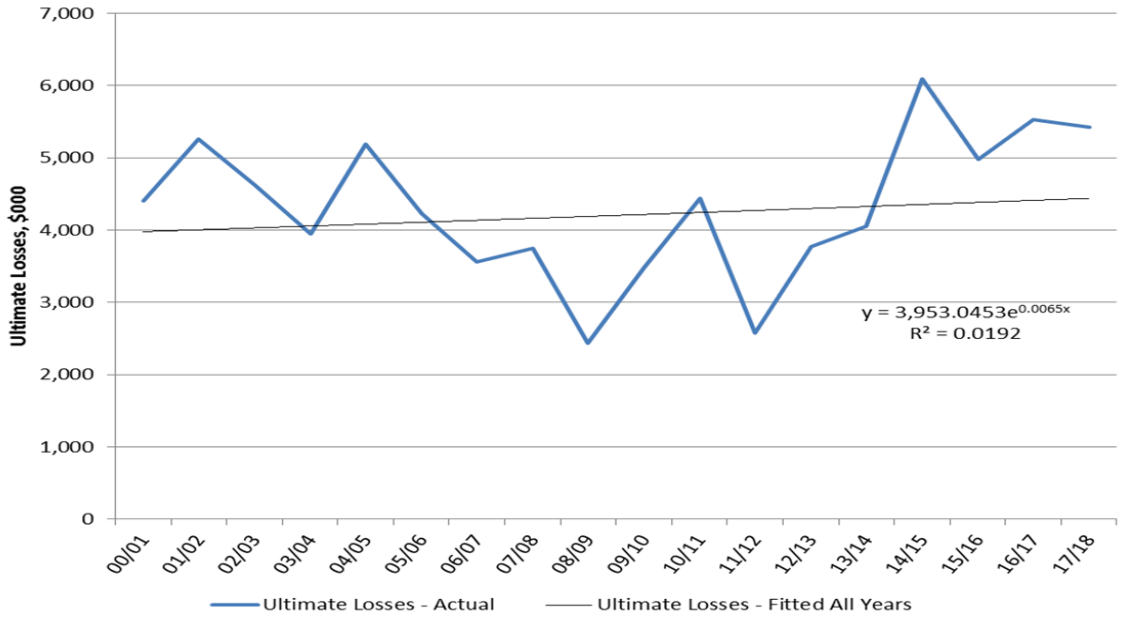


Figure EAR- 8: Property Damage

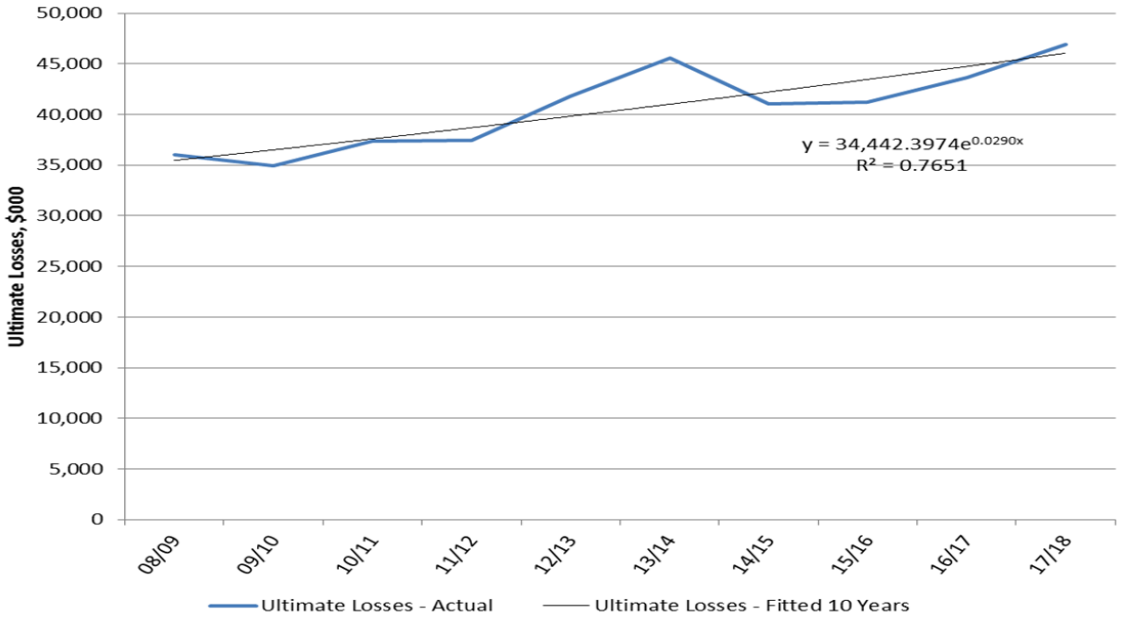


Figure EAR- 9: Collision

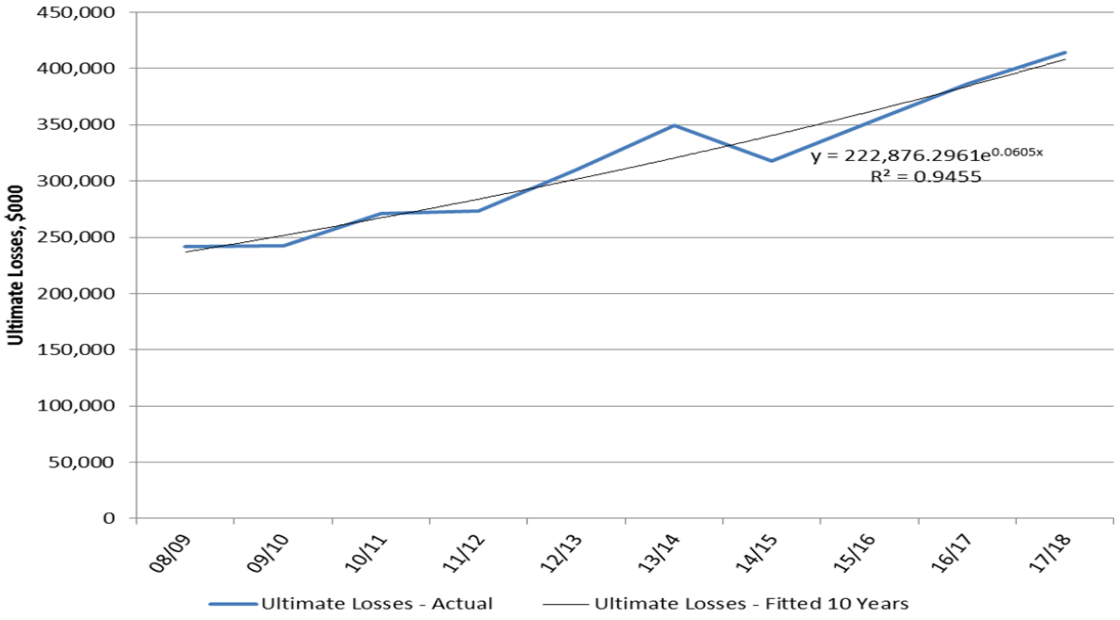


Figure EAR- 10: Comprehensive

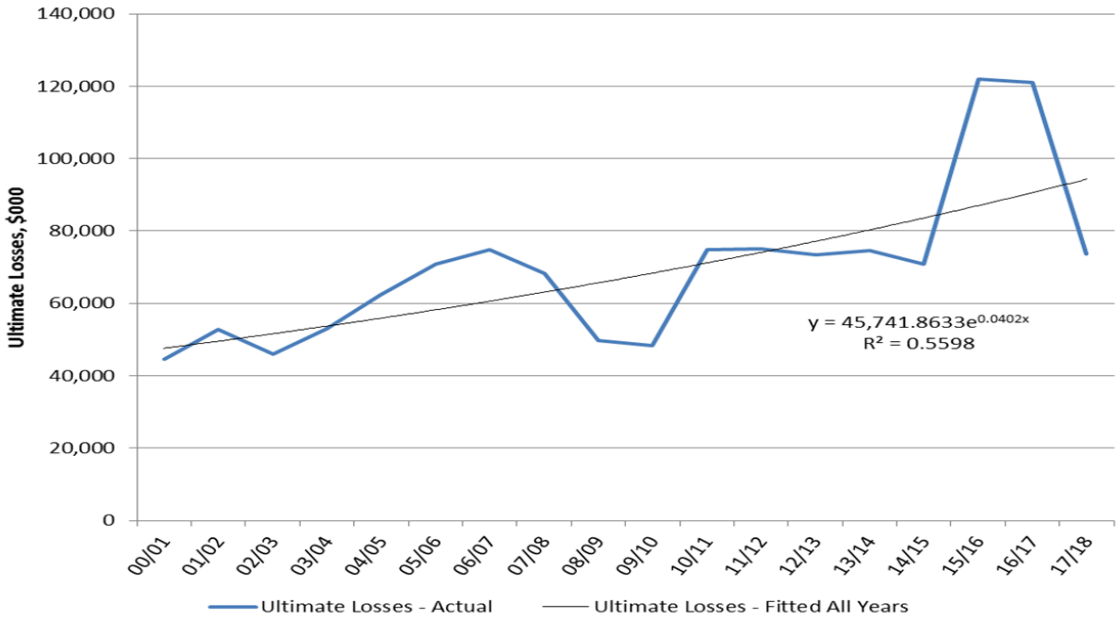


Figure EAR- 11: Income Replacement Indemnity

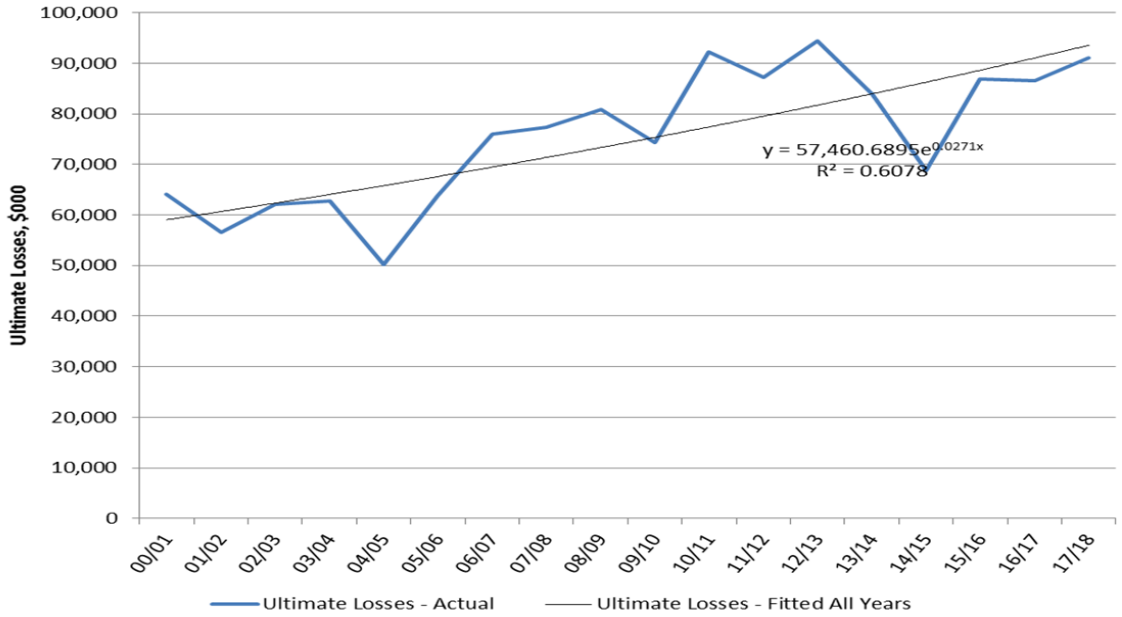


Figure EAR- 12: Accident Benefits – Other (Indexed)

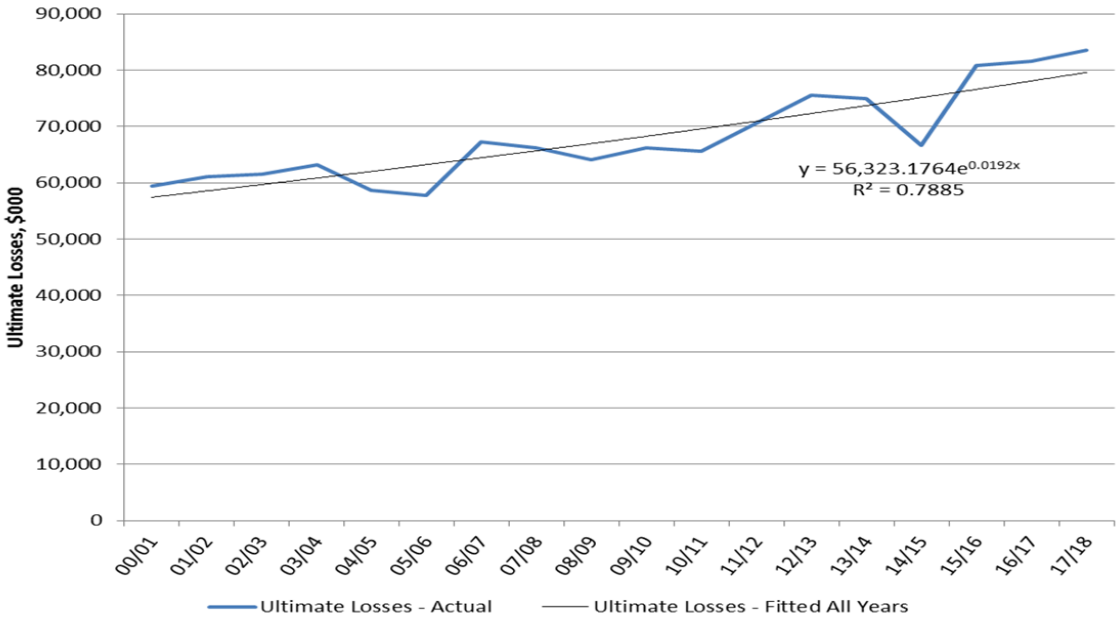
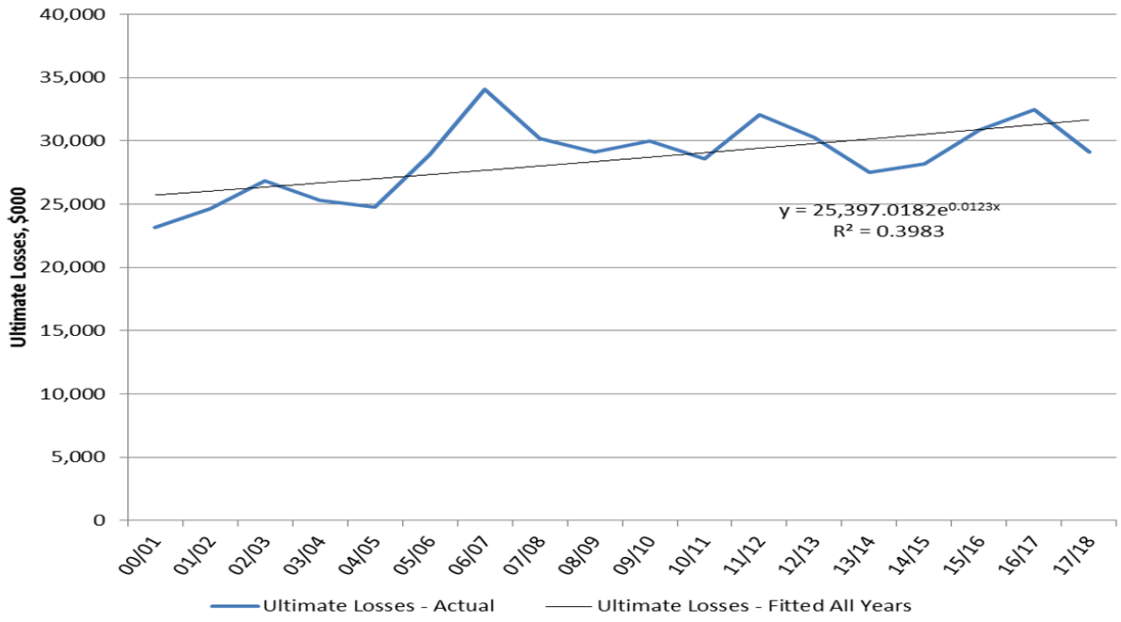


Figure EAR- 13: Accident Benefits - Other (Non-Indexed)



Appendix 1: LONG TAIL EXPERIENCE OF PIPP CLAIMANTS

1 PUB Order

The PUB stated the following in Order 130/17, directive 11.10:

> *In the 2019 GRA, MPI shall report back on its efforts to seek insight on longer tail experience from other jurisdictions, and in particular from the Société de l'assurance automobile du Québec.*

In response to this order, MPI contacted both Saskatchewan Government Insurance (SGI) and the Société de l'assurance automobile du Québec (SAAQ) and requested their paid loss triangles for Income Replacement benefits for the entire history of their public insurance programs. Both jurisdictions kindly provided the requested information and gave MPI permission to share this information with the Manitoba Public Utilities Board.

2 MPI's Current Forecasting Methodology for Long Tail Income Replacement Claims

MPI uses the methodology described below for forecasting the payment patterns on long-tail income replacement claims. MPI defines long-tail claims as those claims that remain active beyond 10 years of development. MPI firmly stands behind this methodology as the most appropriate way to ensure the valuation reflects best estimate assumptions while also being responsive to trends in termination rates or claimant behavior.

Forecasting Methodology for Long Tail Income Replacement Claims

1. Book lifetime tabular case reserves for all active income replacement claims (i.e. claims currently receiving payments) beyond 60 months of development. If a claimant is not receiving income replacement benefits after 60 months, there is no lifetime case reserve.

2. For all development periods where there are at least 5 observations, select the best estimate loss development factor based on the observed experience.

3. Adjust the tabular reserve estimates based on the actual observed development of the tail experience.

4. Annually monitor the performance of the mortality assumptions to ensure that the tabular reserving assumptions continue to be appropriate, while recognizing the adjustments that have been made to the tabular assumptions based on observed experience.

How does the current MPI methodology handle retirement income benefits?

The tabular reserving methodology assumes that all lifetime claimants will receive full retirement income benefits. However, the reality is that claimants (on average) will receive less than this amount because of other sources of income (e.g. pension income). This reserving assumption would appear to be a source of conservatism, but it is not. If there is a favourable development bias in the case reserving methodology then the income replacement forecast should see favourable development over time as claimants convert to receiving retirement income benefits. The long-tail forecasting methodology correctly handles this reality by actively adjusting the tabular reserving estimates based on the actual development experience of claimants. If there is a favourable development bias in the tail estimates, then the methodology will automatically adjust the tabular estimates over time to reflect the expectation of favourable development.

How does the current MPI methodology handle relapse claims?

The tabular reserving methodology assumes that no case reserve is required beyond 10 years of development if the claim is closed or not actively receiving benefit payments. This reserving assumption would appear to be a source of under-estimation because the reality is that MPI does have relapse claimants. However, this is not the case. If there is an unfavourable development bias in the reserving methodology (i.e. understating the impact of relapse claims) then the income replacement forecast

should see unfavourable development over time. The long-tail forecasting methodology automatically adjusts the tabular estimates over time to reflect the expectation of unfavourable development.

How has the current MPI methodology played out so far?

The table below shows the average observed incurred development factors for income replacement claims beyond 10 years of development. If MPI forecasting assumptions were perfectly accurate, then the expectation would be a loss development factor of 1.000 (i.e. estimated ultimate incurred remains the same as the previous year); if there is a net favourable bias from mortality or retirement income benefits then the development factors will be less than 1.000; if there is a net unfavourable bias from mortality or relapse claims then the development factors will be greater than 1.000.

Figure EAR App 1- 1: Weekly Indemnity Incurred Development Factors 120 months and after

Line No.	Accident Year	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288
1	1994			0.987	0.977	0.967	1.006	1.017	1.020	1.010	1.019	0.984	1.021	0.998	1.007
2	1995		0.998	1.005	1.016	0.991	0.981	1.002	1.011	1.017	1.009	1.001	1.016	1.006	
3	1996	0.991	0.982	0.965	1.000	0.998	1.003	1.008	1.000	1.007	1.010	1.005	1.025		
4	1997	0.998	1.012	0.974	1.013	0.947	1.001	1.027	0.997	0.999	1.013	1.004			
5	1998	0.998	0.982	0.955	0.990	1.027	1.012	1.019	0.998	1.011	1.003				
6	1999	0.995	1.005	1.007	0.987	1.003	1.013	0.995	0.999	1.004					
7	2000	1.000	0.988	1.000	0.974	0.996	1.029	1.007	1.024						
8	2001	1.005	1.009	1.021	0.991	1.036	1.014	1.009							
9	2002	1.007	1.007	0.967	1.029	1.015	1.023								
10	2003	1.041	0.977	1.002	1.021	0.994									
11	2004	0.981	1.007	1.000	1.023										
12	2005	1.000	1.028	0.993											
13	2006	1.008	1.020												
14	2007	1.010													
15	Average	0.986	0.984	0.990	1.002	0.997	1.009	1.010	1.007	1.008	1.011	0.998	1.021	1.002	1.007
16	Average of all Observed-to-Date Factors					1.003									

As shown in the table above, the experience to-date has tracked very closely to 1.000 (actual = 1.003). This means that on-average the observed development of long term income replacement claims has been unfavourable by an average of 0.3% per year relative to the tabular reserving estimates. However, MPI has responded to this observed experience by reflecting the unfavourable development in the selection of its tail loss development factors and tabular reserving estimates. Based on the MPI observed experience, there is no evidence that MPI is overstating or understating its

tail loss development experience. MPI continues to modify its assumptions to reflect best estimates in each valuation.

3 Income Replacement Data from SAAQ and SGI

Income replacement valuation data was requested from SAAQ and SGI due to the assumed consistency of income replacement data between jurisdictions. Each of the public programs has a variety of injury benefits, and income replacement was seen as a standard coverage that could be easily compared between jurisdictions, specifically in the tail of the development patterns (i.e. 120 months of development or longer). Although very similar, the income replacement benefits in each jurisdiction, and their treatment in the associated actuarial valuations, are not identical. MPI has not conducted an analysis of the coverage, reserving, claims handling, or claims composition differences in each jurisdiction as part of this review.

4 Analysis

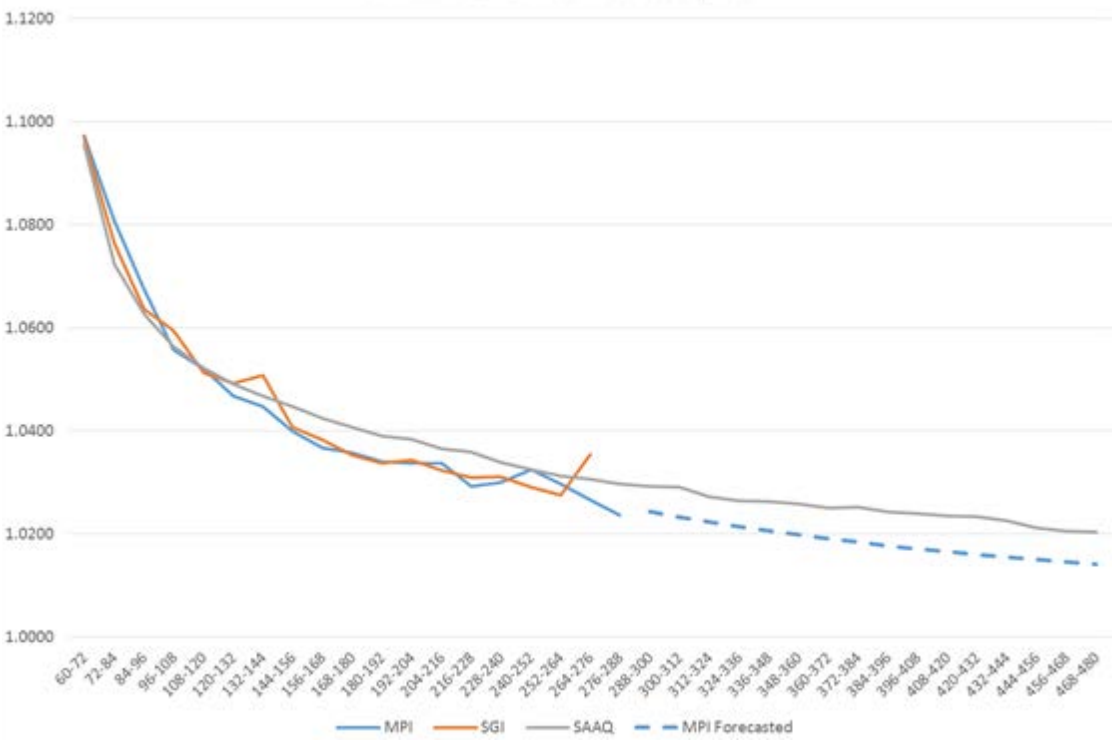
4.1 Comparison of observed paid development factors

Due to the differences between each jurisdiction, it would be incorrect to draw conclusions about tail development by simply comparing the paid development factors between the three jurisdictions. That said, we will start by comparing the observed paid loss development factors to determine the differences that exist between the actual experience in each jurisdiction. The table below shows the paid development factors in 12 month intervals in table and graphical form. The gray cells are MPI's current forecasted paid development factors based on the February 2018 valuation.

Figure EAR App 1- 2: Paid Development Factors – All Years Averages
Uses the adjusted paid loses

Line No.		MPI	SGI	SAAQ	Correlations	
1	60-72	1.0973	1.0968	1.0955	MPI/SAAQ (60-288 months)	0.99
2	72-84	1.0807	1.0764	1.0723	MPI/SGI (60-276 months)	0.99
3	84-96	1.0674	1.0636	1.0626		
4	96-108	1.0557	1.0595	1.0563		
5	108-120	1.0520	1.0513	1.0521		
6	120-132	1.0468	1.0492	1.0491		
7	132-144	1.0448	1.0508	1.0467		
8	144-156	1.0400	1.0407	1.0448		
9	156-168	1.0366	1.0382	1.0424		
10	168-180	1.0357	1.0352	1.0407		
11	180-192	1.0340	1.0337	1.0390		
12	192-204	1.0337	1.0342	1.0383		
13	204-216	1.0336	1.0323	1.0365		
14	216-228	1.0292	1.0309	1.0359		
15	228-240	1.0299	1.0310	1.0339		
16	240-252	1.0324	1.0291	1.0324		
17	252-264	1.0297	1.0274	1.0313		
18	264-276	1.0265	1.0355	1.0306		
20	276-288	1.0235		1.0297		
21	288-300	1.0242		1.0292		
22	300-312	1.0232		1.0290		
23	312-324	1.0223		1.0272		
24	324-336	1.0214		1.0263		
25	336-348	1.0206		1.0263		
26	348-360	1.0198		1.0258		
27	360-372	1.0190		1.0251		
28	372-384	1.0184		1.0252		
29	384-396	1.0177		1.0243		
30	396-408	1.0171		1.0239		
31	408-420	1.0165		1.0234		
32	420-432	1.0159		1.0232		
33	432-444	1.0154		1.0225		
34	444-456	1.0149		1.0212		
35	456-468	1.0145		1.0205		
36	468-480	1.0140		1.0204		

Figure EAR App 1- 3: Income Replacement Paid Loss Development Factors by Company – 60 months to 480 months of development



4.2 Findings

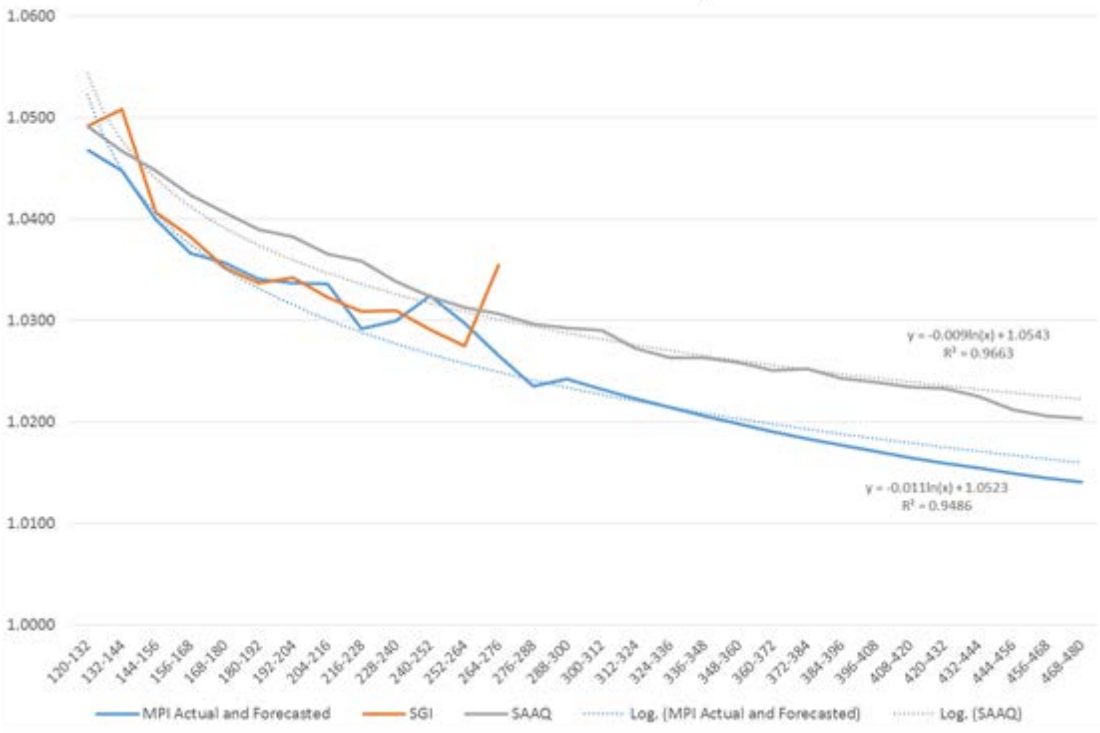
The observed paid development factors between jurisdictions are highly consistent as the correlation between MPI/SAAQ and MPI/SGI data sets are both over 0.98. On average, MPI has consistently lower observed tail development factors than SAAQ and has almost identical tail development factors as SGI.

Each jurisdiction selects their paid development factors based on their own experience. Simply comparing selected tail development factors is not instructive. Based on the above table, all of MPI's development factors for 120 months and after, determined based on actual experience, are lower than the corresponding factors for SAAQ. As a result, MPI's forecasted tail development factors will naturally be lower than SAAQ. It would be incorrect to say that MPI is understating its future tail

development risk because SAAQ has higher paid loss development factors in the tail period than MPI.

The more relevant comparison between MPI and SAAQ paid development experience is the trend in the paid development beyond MPI's observed experience. The graph below has been updated to reflect MPI's actual and projected paid development experience beyond 120 months. As shown in the graph, MPI is currently projecting a paid development trend line that is almost identical to SAAQ, despite not having shared any valuation data.

Figure EAR App 1- 4: Income Replacement Paid Loss Development Factors by Company – 120 months to 480 months of development



5 Conclusions

Based on this analysis, MPI has concluded the following:

- MPI has a well-established, effective, and transparent methodology for selecting its tail factors for Income Replacement coverage.
- MPI's long-tail experience cannot be directly compared to the long tail experience at SGI or SAAQ in absolute terms because of differences in coverage, reserving practices, and other potential unknown factors (e.g. environmental, claims handing, claims composition, etc.). However, after consideration of the observed-to-date differences in the data, MPI's experience behaves very similar to SGI and SAAQ. The observed correlations between the data sets are very high (>.98) and the trends in MPI's paid development assumptions are almost identical to that of SAAQ.
- While a jurisdictional comparison is informative, MPI does not see any value in changing its current long-tail reserving process. A more beneficial use of the jurisdictional comparison would be to use this information to model policy liability misestimation risk as part of the DCAT exercise.

ACTUARIAL REPORT

ON

MANITOBA PUBLIC INSURANCE CORPORATION

UNIVERSAL COMPULSORY AUTOMOBILE INSURANCE

AS OF FEBRUARY 28, 2018

Prepared by: Joe S. Cheng, F.C.I.A.

Date of Report: May 17, 2018

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TABLE OF CONTENTS

Page

INTRODUCTION 4
EXPRESSION OF OPINION 7
DISTRIBUTION AND USE 9
VARIABILITY OF ACTUARIAL ESTIMATES 10
SCOPE OF THE REPORT 11
DATA AND RELIANCE 12
STANDARD OF MATERIALITY 13
INDEX TO EXHIBITS 15
INDEX TO APPENDICES 17
EXHIBIT 1 SUMMARY OF POLICY LIABILITIES 19
EXHIBIT 2 CLAIM LIABILITIES 23
EXHIBIT 3 CLAIM RUN-OFF 39
EXHIBIT 4 IBNR ESTIMATES 55
EXHIBIT 5 INTERNAL LOSS ADJUSTMENT EXPENSES 67
EXHIBIT 6 DPAC CALCULATION 69
EXHIBIT 7 ACTUARIAL PRESENT VALUE CALCULATIONS 79
EXHIBIT 8 APV CALCULATIONS BY INSURANCE YEAR 91
APPENDIX A BODILY INJURY 107
APPENDIX B PROPERTY DAMAGE 125
APPENDIX C COLLISION 143
APPENDIX D COMPREHENSIVE 161
APPENDIX E ACCIDENT BENEFITS – WEEKLY INDEMNITY 179
APPENDIX F ACCIDENT BENEFITS – OTHER INDEXED 203
APPENDIX G ACCIDENT BENEFITS – OTHER NON-INDEXED 229
APPENDIX H RECONCILIATION 247
APPENDIX PE PIPP ENHANCEMENT BENEFITS 249

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INTRODUCTION

Corporation:	Manitoba Public Insurance Corporation ("MPI" or "the Corporation")
Purpose:	To provide an opinion on the policy provision for the Universal Compulsory Automobile Insurance (Basic Insurance).
Valuation Date:	February 28, 2018
Author:	Joe S. Cheng, F.C.I.A.
Address:	1500 Don Mills Road, Suite 706, Toronto, Ontario, Canada M3B 3K4
Telephone:	(416) 510-8360
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E-mail Address:	jscp@jscp.com
Position:	Appointed Actuary of Manitoba Public Insurance Corporation

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May 17, 2018

Mr. Mark Giesbrecht
Chief Financial Officer
Manitoba Public Insurance Corporation
912 – 234 Donald St.
Winnipeg, Manitoba R3C 4A4

Re: Manitoba Public Insurance – Universal Compulsory Automobile Insurance Policy Liabilities as of February 28, 2018

Dear Mr. Giesbrecht,

This letter, opinion and attached exhibits provide an update to our Appointed Actuary Report as of October 31, 2017 using data as of February 28, 2018 for Manitoba Public Insurance – Universal Compulsory Automobile Insurance. All comments, caveats, limitations and explanations contained in our October 31, 2017 report continue to apply unless noted in this letter.

This update to our previous report adds four additional months experience. We reviewed our methodologies and assumptions used in our October 31, 2017 report. For claim liabilities, our discount rate has changed from 3.35% to 3.47% (1.32% to 1.44% for indexed benefits). For premium liabilities, our discount rate has changed from 0.97% to 1.10% (1.32% to 1.44% for indexed benefits). These changes were made to reflect an increase in the portfolio yield from October 31, 2017 to February 28, 2018.

All other previous methodologies and assumptions used to estimate the policy liabilities remain appropriate.

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Based on the results of this valuation, the net claims development, excluding ILAE, from February 28, 2017 is as follows:

BASIC ($000)	Unpaid claims @ 2/28/2017*	Paid in fiscal year 2017/18	Unpaid claims @ 2/28/2018	Favourable development (adverse development)
Undiscounted	1,591,404	272,554	1,343,280	(24,430)
Actuarial Present Value	1,620,081	272,554	1,320,283	27,244

*Unpaid claims as of February 28, 2017 are indexed to the current benefit levels.

The updated Expression of Opinion follows this letter.

We are not aware of any event subsequent to February 28, 2018 which would have a significant impact on the claims liabilities.

If you have any questions, please do not hesitate to call me.

Yours truly,

Joe S. Cheng

JSC/pl

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EXPRESSION OF OPINION

To the Directors of Manitoba Public Insurance Corporation:

I have valued the Automobile Insurance Division – Universal Compulsory Automobile Insurance policy liabilities and reinsurance recoverables of Manitoba Public Insurance Corporation for its statement of financial position at February 28, 2018 and their change in the statement of income for the year then ended in accordance with accepted actuarial practice in Canada including selection of appropriate assumptions and methods.

In my opinion, the amount of policy liabilities net of reinsurance recoverables makes appropriate provision for all policy obligations and the financial statements fairly present the results of the valuation.

The results of my valuation are as follows:

Claims Liabilities	Appointed Actuary's Estimate $000's
(1) Direct unpaid claims and adjustment expenses:	1,796,730
(2) Assumed unpaid claims and adjustment expenses:	0
(3) Gross unpaid claims and adjustment expenses:	1,796,730
(4) Ceded unpaid claims and adjustment expenses:	1,270
(5) Net unpaid claims and adjustment expenses (3)-(4):	1,795,460

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Premium Liabilities	Appointed Actuary's Estimate $000's
(1) Gross policy liabilities in connection with unearned premiums:	472,051
(2) Net policy liabilities in connection with unearned premiums:	477,458
(3) Gross unearned premiums carried by the Corporation:	468,613
(4) Net unearned premiums carried by the Corporation:	468,613
(5) Premium deficiency:	8,845
(6) Deferred policy acquisition expenses carried by the Corporation:	0
(7) Maximum policy acquisition expenses deferrable [(4)+(5)] – (2) :	0

Signature of Appointed Actuary

May 17, 2018
Date opinion was rendered

JOE S. CHENG, FCIA
Printed name of Appointed Actuary

Winnipeg, Manitoba

Copy # _____

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DISTRIBUTION AND USE

This report contains confidential information about MPI. It does not deal with the future financial condition or rate adequacy of MPI. Its sole purpose is to provide an opinion on the appropriateness of the Automobile Insurance Division – Universal Compulsory Automobile Insurance policy provisions for Manitoba Public Insurance Corporation as at February 28, 2018. The report is neither intended nor necessarily suitable for any other use.

This report may be distributed to the regulator in the jurisdiction where the Corporation operates. Furthermore, the Corporation may distribute this report to its external auditor.

It is our understanding that this report is also filed annually with MPI's General Rate Application, which is a public document. Nevertheless, any party other than the ones named in paragraph two should be considered as a third party.

Where the report is disclosed, it should be provided in its entirety.

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VARIABILITY OF ACTUARIAL ESTIMATES

There is a limitation upon the accuracy of claim liabilities as there is an inherent uncertainty in any estimate of claim liabilities. This inherent uncertainty is present because future events could affect the ultimate claim settlement. Some examples of future events are:

1. High/low inflation
2. High/low investment return
3. High/low termination rate
4. Increase/decrease in benefit levels (other than regular indexation)
5. Introduction of new benefits applicable to all insurance years

Therefore, one must acknowledge that the actual ultimate claim amount may differ materially from our estimates. We have employed standard actuarial techniques and appropriate assumptions. In our judgment, the conclusions presented in this report are best estimates, given the information available while performing the valuation.

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SCOPE OF THE REPORT

The scope of this report is limited to the Universal Compulsory Automobile Insurance (Basic Insurance). We were asked to:

1. Estimate the unpaid claims on a gross, ceded and net basis as of the valuation date.
2. Estimate the premium liabilities on the unearned premium as of the valuation date.
3. Determine the maximum allowable deferred policy acquisition expense.

All valuations were done as of February 28, 2018.

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DATA AND RELIANCE

We relied on the gross and net case incurred (loss and allocated loss adjustment expense paid plus case reserve), and loss and allocated loss adjustment expense payments by insurance year as provided by MPI.

Premium figures were provided by MPI. They included both earned premium and unearned premium.

All data is as at February 28, 2018. We have used the work of PricewaterhouseCoopers LLP ("PwC"), the external auditor for MPI, to verify the valuation data against the Corporation's records.

We did not audit the claims and premium data, but a reconciliation was performed to ensure that no material data was omitted (see Appendix H).

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STANDARD OF MATERIALITY

The Corporation's financial statement items for Basic Insurance are as follows:

Item	Amount $000	%	Threshold $000
2017/18 Net Unpaid Claims	1,795,460	0.5	8,977
Selected materiality for October 31, 2017 valuation			5,000
Auditor's materiality for MPI			14,400
Basic Insurance unpaid claims / Total MPI's unpaid claims			94.5%
This year's selected materiality			5,000

For the purpose of this valuation, an omission or inexplicable difference of $5,000,000 or about 0.3% of the net unpaid claims would be considered as material.

However, this does not imply that the actuary's provision is accurate within 0.3%. In fact, the future claim payment could be significantly different from the actuary's provision due to adverse/favourable claim development as noted in the Variability of Actuarial Estimates section.

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INDEX TO EXHIBITS

EXHIBIT 1 Summary of Policy Liabilities

EXHIBIT 2 Claim Liabilities

EXHIBIT 3 Claim Run-Off

EXHIBIT 4 IBNR Estimates

EXHIBIT 5 Internal Loss Adjustment Expenses

EXHIBIT 6 DPAC Calculation

EXHIBIT 7 Actuarial Present Value Calculations

EXHIBIT 8 Actuarial Present Value Calculations by Insurance Year

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INDEX TO APPENDICES

APPENDIX A	BI - Undiscounted Gross IBNR Calculations
APPENDIX B	PD - Undiscounted Gross IBNR Calculations
APPENDIX C	Collision - Undiscounted Gross IBNR Calculations
APPENDIX D	Comprehensive - Undiscounted Gross IBNR Calculations
APPENDIX E	AB – Weekly Indemnity - Undiscounted Gross IBNR Calculations
APPENDIX F	AB – Other Indexed - Undiscounted Gross IBNR Calculations
APPENDIX G	AB – Other Non-Indexed - Undiscounted Gross IBNR Calculations
APPENDIX H	Reconciliation
APPENDIX PE	PIPP Enhancement Benefits

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EXHIBIT 1 SUMMARY OF POLICY LIABILITIES

Manitoba Public Insurance
Automobile Insurance Division
Summary of Policy Claim Liabilities
As of February 28, 2018
($000)

Exhibit 1
Sheet 1

1. Selected IBNR (Including External Adjustment Expenses) [a]	Direct & Agency	Ceded	Net	Carried Before Review
Bodily Injury - Basic	6,385	-	6,385	
Property Damage - Basic	9,186	-	9,186	
Collision - Basic	25,193	-	25,193	
Comprehensive - Basic	3,495	-	3,495	
Accident Benefits - Weekly Indemnity	173,875	-	173,875	
Accident Benefits - Other (Indexed)	100,575	-	100,575	
Accident Benefits - Other (Non-Indexed)	21,019	-	21,019	
Total	339,728	-	339,728	
Internal Loss Adjustment Expense (ILAE) Provision [b]	172,385	-	172,385	
Total Including ILAE Provision	512,114	-	512,114	
2. CIA Rules Adjustments [c]				
i. Discount Amount - Excluding ILAE Provision	(218,557)	(6)	(218,551)	
ii. Discount Amount - ILAE Provision	(24,666)	-	(24,666)	
iii. Provision for Adverse Deviation - Excluding ILAE Provision	210,305	66	210,239	
iv. Provision for Adverse Deviation - ILAE Provision	23,735	-	23,735	
	(9,183)	61	(9,244)	
3. Adjusted IBNR (Including External Adjustment Expense) (1+2i+2iii)	331,477	61	331,416	333,867
4. Adjusted ILAE Provision (1+2ii+2iv)	171,454	-	171,454	174,247
5. Adjusted IBNR - PIPP Enhancement [d]	40,682	-	40,682	42,286
6. Total Actuarial Liabilities (3+4+5)	543,612	61	543,551	550,400
7. Case Reserve Outstanding — Hail Catastrophe	401	332	69	
PIPP Enhancement [e]	58,824	-	58,824	
Other than Hail & Enh	1,193,893	877	1,193,016	
Total [f]	1,253,118	1,209	1,251,909	1,251,909
8. Total - Claim Liabilities (6+7)	1,796,730	1,270	1,795,460	1,802,309

Notes:
[a] From Exhibit 2, Column 6 for the respective coverage
[b] From Exhibit 5, Row 12; Net equal to Direct & Agency
[c] From Exhibit 7, Sheet 1 for Direct & Agency and Exhibit 7, Sheet 2 for Net
[d] PE Exhibit 2, Sheet 8, Column 12 + PE Exhibit 4, Required IBNR
[e] PE Exhibit 1, Sheet 8, Column 4 + PE Exhibit 4, Case Reserves
[f] From MPI - Difference from Actuarial Database (Exh 2, Sheet 9 + PE Exh 1, Sheet 8 + PE Exhibit 4): 6,582

Manitoba Public Insurance
Automobile Insurance Division
Summary of Policy Premium Liabilities
As of February 28, 2018
($000)

Exhibit 1
Sheet 2

	Direct & Agency	Ceded	Net
1. Unearned Premium [a]	468,613	-	468,613
2. Equity in Unearned Premium [b]	(3,438)	5,407	(8,845)
3. Carried Deferred Policy Acquisition Expense [a]	32,055	-	32,055
4. Write Down Deferred Policy Acquisition Expense [c]	32,055	-	32,055
5. Maximum Permissible Deferred Policy Acquisition Expense [d]	-	-	-
6. Deferred Policy Acquisition Expense After Review [e]	-	-	-
7. Premium Deficiency [f]	3,438	(5,407)	8,845

Notes:
[a] From MPI
[b] From Exhibit 6, Sheet 1 for Direct & Agency and Exhibit 6, Sheet 5 for Net
[c] Min((3) - (2), (3)) if greater than 0, otherwise 0
[d] Max((2), (3) - (4))
[e] Min((3), (5))
[f] Negative of (2) if greater than 0, otherwise 0

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EXHIBIT 2 CLAIM LIABILITIES

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 1

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Bodily Injury - Basic								
1999 & Prior			-					-
2000	475,277	4,251	150	4,401	-	4,401	0.93%	150
2001	497,121	5,255	-	5,255	-	5,255	1.06%	-
2002	532,307	4,629	-	4,629	-	4,629	0.87%	-
2003	560,857	3,949	-	3,949	-	3,949	0.70%	-
2004	596,045	5,196	-	5,196	-	5,196	0.87%	-
2005	630,367	4,228	-	4,228	-	4,228	0.67%	-
2006	654,863	3,520	45	3,565	-	3,565	0.54%	45
2007	677,464	3,721	30	3,751	-	3,751	0.55%	30
2008	707,051	2,346	85	2,431	-	2,431	0.34%	85
2009	739,881	3,426	50	3,476	2	3,479	0.47%	52
2010	759,948	3,802	635	4,437	7	4,444	0.58%	642
2011	772,985	1,994	559	2,553	40	2,593	0.34%	599
2012	768,953	3,521	136	3,657	147	3,804	0.49%	283
2013	778,092	2,749	1,013	3,761	338	4,100	0.53%	1,351
2014	817,710	3,717	1,578	5,295	657	5,952	0.73%	2,235
2015	873,488	1,979	2,018	3,998	1,057	5,054	0.58%	3,075
2016	918,780	1,402	2,360	3,762	1,793	5,555	0.60%	4,153
2017	971,436	62	3,218	3,279	2,345	5,624	0.58%	5,563
Total	12,732,625	59,749	11,877	71,626	6,385	78,011	0.61%	18,262

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 2

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Property Damage - Basic								
1999 & Prior			(1)					(1)
2000	475,277	25,751	(1)	25,750	-	25,750	5.42%	(1)
2001	497,121	25,722	1	25,723	-	25,723	5.17%	1
2002	532,307	28,057	-	28,057	-	28,057	5.27%	-
2003	560,857	29,561	-	29,560	-	29,560	5.27%	-
2004	596,045	29,615	1	29,616	-	29,616	4.97%	1
2005	630,367	30,292	-	30,292	-	30,292	4.81%	-
2006	654,863	33,574	-	33,574	-	33,574	5.13%	-
2007	677,464	34,238	52	34,290	-	34,290	5.06%	52
2008	707,051	35,880	136	36,015	-	36,015	5.09%	136
2009	739,881	34,944	10	34,954	(17)	34,937	4.72%	(7)
2010	759,948	37,167	208	37,374	(37)	37,337	4.91%	171
2011	772,985	37,475	56	37,531	(56)	37,475	4.85%	(0)
2012	768,953	41,615	237	41,851	(82)	41,770	5.43%	155
2013	778,092	45,404	277	45,681	(86)	45,594	5.86%	191
2014	817,710	40,757	270	41,027	(22)	41,004	5.01%	248
2015	873,488	40,787	303	41,090	113	41,203	4.72%	416
2016	918,780	41,369	1,064	42,433	1,219	43,652	4.75%	2,283
2017	971,436	27,412	10,877	38,289	8,156	46,445	4.78%	19,033
Total	12,732,625	619,619	13,490	633,108	9,186	642,294	5.04%	22,676

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 3

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Collision - Basic								
1999 & Prior			6					6
2000	475,277	152,393	(1)	152,392	-	152,392	32.06%	(1)
2001	497,121	161,277	(5)	161,272	-	161,272	32.44%	(5)
2002	532,307	179,589	-	179,589	-	179,589	33.74%	-
2003	560,857	193,942	1	193,942	-	193,942	34.58%	1
2004	596,045	201,613	1	201,613	-	201,613	33.83%	1
2005	630,367	203,058	(1)	203,057	-	203,057	32.21%	(1)
2006	654,863	224,444	7	224,451	-	224,451	34.27%	7
2007	677,464	233,085	(2)	233,083	-	233,083	34.41%	(2)
2008	707,051	241,750	-	241,750	-	241,750	34.19%	-
2009	739,881	242,510	-	242,510	-	242,510	32.78%	-
2010	759,948	271,180	4	271,184	-	271,184	35.68%	4
2011	772,985	273,138	1	273,139	-	273,139	35.34%	1
2012	768,953	310,628	6	310,634	-	310,634	40.40%	6
2013	778,092	349,189	26	349,215	-	349,215	44.88%	26
2014	817,710	317,432	48	317,480	317	317,797	38.86%	365
2015	873,488	351,192	108	351,301	1,055	352,355	40.34%	1,163
2016	918,780	380,288	1,241	381,529	4,594	386,123	42.03%	5,835
2017	971,436	319,674	75,497	395,171	19,227	414,398	42.66%	94,724
Total	12,732,625	4,606,380	76,937	4,683,312	25,193	4,708,505	36.98%	102,130

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 4

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Comprehensive - Basic								
1999 & Prior			(1)					(1)
2000	475,277	44,522	1	44,523	(1)	44,522	9.37%	-
2001	497,121	71,216	(1)	71,215	1	71,216	14.33%	-
2002	532,307	46,113	-	46,113	-	46,113	8.66%	-
2003	560,857	53,147	-	53,147	-	53,147	9.48%	-
2004	596,045	62,357	-	62,357	-	62,357	10.46%	-
2005	630,367	70,856	-	70,856	-	70,856	11.24%	-
2006	654,863	74,850	-	74,850	-	74,850	11.43%	-
2007	677,464	113,323	-	113,323	-	113,323	16.73%	-
2008	707,051	49,809	50	49,859	(50)	49,809	7.04%	-
2009	739,881	78,618	(5)	78,613	5	78,618	10.63%	-
2010	759,948	74,821	58	74,879	(58)	74,821	9.85%	-
2011	772,985	74,634	401	75,035	(401)	74,634	9.66%	-
2012	768,953	72,569	825	73,394	(789)	72,606	9.44%	36
2013	778,092	74,691	5	74,695	107	74,802	9.61%	112
2014	817,710	70,731	39	70,770	209	70,979	8.68%	248
2015	873,488	119,025	2,780	121,805	(1,706)	120,099	13.75%	1,074
2016	918,780	114,355	4,847	119,202	(109)	119,093	12.96%	4,738
2017	971,436	58,631	8,760	67,391	6,286	73,678	7.58%	15,046
Total	12,732,625	1,324,269	17,759	1,342,027	3,495	1,345,522	10.57%	21,254

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 5

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Weekly Indemnity								
1999 & Prior			104,786		10,813			115,599
2000	475,277	36,971	18,545	55,517	914	56,430	11.87%	19,459
2001	497,121	32,307	16,170	48,477	676	49,153	9.89%	16,846
2002	532,307	35,407	20,604	56,010	1,454	57,465	10.80%	22,058
2003	560,857	35,096	17,208	52,305	1,592	53,896	9.61%	18,800
2004	596,045	27,464	18,194	45,658	2,044	47,702	8.00%	20,238
2005	630,367	34,395	21,713	56,109	2,537	58,646	9.30%	24,250
2006	654,863	40,265	31,095	71,360	3,207	74,567	11.39%	34,302
2007	677,464	39,682	30,477	70,158	2,724	72,882	10.76%	33,201
2008	707,051	39,934	27,877	67,811	2,960	70,771	10.01%	30,837
2009	739,881	35,294	28,822	64,116	2,850	66,966	9.05%	31,672
2010	759,948	41,908	40,438	82,346	3,192	85,539	11.26%	43,630
2011	772,985	37,539	42,075	79,614	3,181	82,795	10.71%	45,256
2012	768,953	38,237	51,992	90,229	3,387	93,615	12.17%	55,379
2013	778,092	31,224	42,177	73,402	5,234	78,636	10.11%	47,411
2014	817,710	23,019	35,987	59,006	7,517	66,523	8.14%	43,504
2015	873,488	25,159	49,476	74,634	10,413	85,048	9.74%	59,889
2016	918,780	19,812	10,697	30,510	51,402	81,912	8.92%	62,099
2017	971,436	10,268	8,126	18,395	57,778	76,173	7.84%	65,904
Total	12,732,625	583,981	616,459	1,095,657	173,875	1,258,719	9.89%	790,334

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 6

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Indexed)								
1999 & Prior			65,268		11,013			76,281
2000	475,277	34,741	9,022	43,763	2,219	45,982	9.67%	11,241
2001	497,121	36,006	12,187	48,194	2,679	50,873	10.23%	14,866
2002	532,307	36,588	16,800	53,388	3,149	56,537	10.62%	19,949
2003	560,857	37,142	11,640	48,782	3,157	51,940	9.26%	14,797
2004	596,045	34,687	20,690	55,377	3,910	59,287	9.95%	24,600
2005	630,367	33,888	13,646	47,535	3,542	51,077	8.10%	17,188
2006	654,863	39,358	23,564	62,922	4,679	67,600	10.32%	28,243
2007	677,464	38,214	24,122	62,336	4,942	67,278	9.93%	29,064
2008	707,051	36,366	14,197	50,563	4,564	55,127	7.80%	18,761
2009	739,881	36,857	18,229	55,086	5,086	60,171	8.13%	23,315
2010	759,948	35,399	14,874	50,273	3,892	54,166	7.13%	18,766
2011	772,985	37,041	19,459	56,500	4,960	61,460	7.95%	24,419
2012	768,953	38,432	19,545	57,977	5,588	63,565	8.27%	25,133
2013	778,092	36,866	12,674	49,540	6,272	55,811	7.17%	18,946
2014	817,710	31,345	16,372	47,717	6,920	54,637	6.68%	23,292
2015	873,488	35,549	25,655	61,204	8,376	69,580	7.97%	34,031
2016	918,780	30,990	33,055	64,045	5,361	69,406	7.55%	38,416
2017	971,436	14,924	44,448	59,372	10,266	69,638	7.17%	54,714
Total	12,732,625	624,394	415,447	974,573	100,575	1,064,136	8.36%	516,022

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 7

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Non-Indexed)								
1999 & Prior			3,177		-			3,177
2000	475,277	23,158	-	23,158	-	23,158	4.87%	-
2001	497,121	24,641	1	24,642	-	24,642	4.96%	1
2002	532,307	26,823	1	26,824	-	26,824	5.04%	1
2003	560,857	25,286	39	25,325	-	25,325	4.52%	39
2004	596,045	24,694	50	24,744	37	24,781	4.16%	87
2005	630,367	28,803	24	28,827	101	28,928	4.59%	125
2006	654,863	33,849	38	33,887	183	34,070	5.20%	221
2007	677,464	29,829	126	29,955	228	30,183	4.46%	354
2008	707,051	28,432	437	28,870	286	29,155	4.12%	723
2009	739,881	29,578	66	29,643	344	29,987	4.05%	410
2010	759,948	28,111	101	28,212	393	28,605	3.76%	494
2011	772,985	31,181	378	31,560	472	32,032	4.14%	850
2012	768,953	29,316	429	29,745	532	30,277	3.94%	961
2013	778,092	26,465	475	26,939	657	27,596	3.55%	1,132
2014	817,710	25,826	1,449	27,275	949	28,224	3.45%	2,398
2015	873,488	22,044	7,156	29,200	1,523	30,723	3.52%	8,679
2016	918,780	17,942	9,967	27,909	4,230	32,139	3.50%	14,197
2017	971,436	7,300	11,829	19,130	11,084	30,213	3.11%	22,913
Total	12,732,625	463,278	35,743	495,844	21,019	516,863	4.06%	56,762

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 8

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Total								
1999 & Prior			173,231		21,826			195,057
2000	475,277	94,869	27,567	122,437	3,133	125,570	26.42%	30,700
2001	497,121	92,954	28,358	121,313	3,355	124,669	25.08%	31,713
2002	532,307	98,818	37,405	136,222	4,603	140,826	26.46%	42,008
2003	560,857	97,525	28,887	126,412	4,749	131,161	23.39%	33,636
2004	596,045	86,845	38,934	125,778	5,991	131,769	22.11%	44,925
2005	630,367	97,087	35,383	132,470	6,181	138,651	22.00%	41,564
2006	654,863	113,472	54,697	168,168	8,069	176,238	26.91%	62,766
2007	677,464	107,725	54,725	162,449	7,893	170,343	25.14%	62,618
2008	707,051	104,733	42,511	147,245	7,809	155,054	21.93%	50,320
2009	739,881	101,729	47,117	148,845	8,279	157,124	21.24%	55,396
2010	759,948	105,418	55,413	160,832	7,478	168,310	22.15%	62,891
2011	772,985	105,762	61,912	167,674	8,613	176,287	22.81%	70,525
2012	768,953	105,985	71,966	177,951	9,507	187,458	24.38%	81,473
2013	778,092	94,555	55,326	149,881	12,162	162,043	20.83%	67,488
2014	817,710	80,189	53,808	133,997	15,386	149,384	18.27%	69,194
2015	873,488	82,752	82,287	165,038	20,313	185,351	21.22%	102,600
2016	918,780	68,744	53,719	122,463	60,994	183,457	19.97%	114,713
2017	971,436	32,492	64,403	96,897	79,128	176,024	18.12%	143,531
Total	12,732,625	1,671,653	1,067,649	2,566,074	295,470	2,839,717	22.30%	1,363,119

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 9

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Basic - Total All Coverage*								
1999 & Prior			173,235		21,826			195,061
2000	475,277	321,787	27,716	349,503	3,132	352,635	74.20%	30,848
2001	497,121	356,425	28,353	384,779	3,356	388,135	78.08%	31,709
2002	532,307	357,206	37,405	394,610	4,603	399,213	75.00%	42,008
2003	560,857	378,122	28,888	407,010	4,749	411,759	73.42%	33,637
2004	596,045	385,627	38,936	424,561	5,991	430,552	72.23%	44,927
2005	630,367	405,521	35,382	440,904	6,181	447,084	70.92%	41,563
2006	654,863	449,860	54,749	504,609	8,069	512,678	78.29%	62,818
2007	677,464	492,092	54,805	546,896	7,893	554,790	81.89%	62,698
2008	707,051	434,518	42,782	477,300	7,759	485,059	68.60%	50,541
2009	739,881	461,227	47,172	508,399	8,269	516,667	69.83%	55,441
2010	759,948	492,389	56,318	548,707	7,390	556,096	73.18%	63,708
2011	772,985	493,002	62,929	555,933	8,195	564,128	72.98%	71,124
2012	768,953	534,318	73,170	607,488	8,783	616,271	80.14%	81,953
2013	778,092	566,587	56,647	623,233	12,521	635,754	81.71%	69,168
2014	817,710	512,826	55,743	568,569	16,547	585,116	71.56%	72,290
2015	873,488	595,735	87,496	683,232	20,831	704,062	80.60%	108,327
2016	918,780	606,158	63,231	669,389	68,491	737,880	80.31%	131,722
2017	971,436	438,270	162,755	601,027	115,142	716,168	73.72%	277,897
Total	12,732,625	8,281,670	1,187,712	9,296,147	339,728	9,614,049	75.51%	1,527,440

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4
*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 10

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Comprehensive - Basic								
1999 & Prior			(1)					(1)
2000	465,488	44,522	1	44,523	(1)	44,522	9.56%	-
2001	485,406	56,560	(1)	56,559	1	56,560	11.65%	-
2002	523,812	46,113	-	46,113	-	46,113	8.80%	-
2003	549,473	53,147	-	53,147	-	53,147	9.67%	-
2004	583,916	62,357	-	62,357	-	62,357	10.68%	-
2005	619,077	70,856	-	70,856	-	70,856	11.45%	-
2006	646,124	74,850	-	74,850	-	74,850	11.58%	-
2007	665,011	77,196	-	77,196	-	77,196	11.61%	-
2008	697,151	49,809	50	49,859	(50)	49,809	7.14%	-
2009	727,088	60,392	(5)	60,387	5	60,392	8.31%	-
2010	749,534	74,821	58	74,879	(58)	74,821	9.98%	-
2011	761,677	74,447	69	74,516	(401)	74,115	9.73%	(332)
2012	756,751	72,569	825	73,394	(789)	72,606	9.59%	36
2013	764,671	74,691	5	74,695	107	74,802	9.78%	112
2014	803,881	70,731	39	70,770	209	70,979	8.83%	248
2015	861,065	119,025	2,780	121,805	(1,706)	120,099	13.95%	1,074
2016	907,145	114,355	4,847	119,202	(109)	119,093	13.13%	4,738
2017	960,142	58,631	8,760	67,391	6,286	73,678	7.67%	15,046
Total	12,527,412	1,255,073	17,427	1,272,499	3,495	1,275,994	10.19%	20,922

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 11

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Weekly Indemnity								
1999 & Prior			104,786		10,813			115,599
2000	465,488	30,746	18,545	49,291	914	50,205	10.79%	19,459
2001	485,406	23,934	16,170	40,104	676	40,780	8.40%	16,846
2002	523,812	34,816	20,604	55,420	1,454	56,874	10.86%	22,058
2003	549,473	32,470	17,208	49,678	1,592	51,270	9.33%	18,800
2004	583,916	25,366	18,194	43,560	2,044	45,604	7.81%	20,238
2005	619,077	34,171	21,589	55,760	2,537	58,297	9.42%	24,126
2006	646,124	40,265	31,095	71,360	3,207	74,567	11.54%	34,302
2007	665,011	39,682	30,341	70,023	2,724	72,747	10.94%	33,065
2008	697,151	39,934	27,877	67,811	2,960	70,771	10.15%	30,837
2009	727,088	35,294	28,822	64,116	2,850	66,966	9.21%	31,672
2010	749,534	41,908	40,268	82,176	3,192	85,368	11.39%	43,460
2011	761,677	37,539	42,075	79,614	3,181	82,795	10.87%	45,256
2012	756,751	38,237	51,992	90,229	3,387	93,615	12.37%	55,379
2013	764,671	31,086	42,024	73,110	5,234	78,344	10.25%	47,258
2014	803,881	23,019	35,987	59,006	7,517	66,523	8.28%	43,504
2015	861,065	25,159	49,476	74,635	10,413	85,048	9.88%	59,889
2016	907,145	19,812	10,697	30,509	51,402	81,911	9.03%	62,099
2017	960,142	10,268	8,126	18,394	57,778	76,172	7.93%	65,904
Total	12,527,412	563,706	615,876	1,074,796	173,875	1,237,859	9.88%	789,751

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 12

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Indexed)								
1999 & Prior			65,268		11,013			76,281
2000	465,488	31,712	9,022	40,734	2,219	42,953	9.23%	11,241
2001	485,406	29,696	12,187	41,883	2,679	44,563	9.18%	14,866
2002	523,812	36,106	16,800	52,906	3,149	56,055	10.70%	19,949
2003	549,473	35,365	11,640	47,005	3,157	50,163	9.13%	14,797
2004	583,916	32,301	20,690	52,991	3,910	56,901	9.74%	24,600
2005	619,077	33,748	13,568	47,316	3,542	50,859	8.22%	17,110
2006	646,124	39,358	23,564	62,922	4,679	67,601	10.46%	28,243
2007	665,011	38,214	24,015	62,229	4,942	67,170	10.10%	28,957
2008	697,151	36,366	14,197	50,563	4,564	55,127	7.91%	18,761
2009	727,088	36,857	18,229	55,086	5,086	60,172	8.28%	23,315
2010	749,534	35,399	14,811	50,210	3,892	54,102	7.22%	18,703
2011	761,677	37,041	19,459	56,500	4,960	61,460	8.07%	24,419
2012	756,751	38,432	19,545	57,977	5,588	63,565	8.40%	25,133
2013	764,671	36,824	12,628	49,452	6,272	55,724	7.29%	18,900
2014	803,881	31,345	16,372	47,717	6,920	54,637	6.80%	23,292
2015	861,065	35,549	25,655	61,204	8,376	69,580	8.08%	34,031
2016	907,145	30,990	33,055	64,045	5,361	69,406	7.65%	38,416
2017	960,142	14,924	44,448	59,372	10,266	69,638	7.25%	54,714
Total	12,527,412	610,228	415,153	960,113	100,575	1,049,675	8.38%	515,728

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 13

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Total								
1999 & Prior			173,231		21,826			195,057
2000	465,488	85,615	27,567	113,182	3,133	116,316	24.99%	30,700
2001	485,406	78,271	28,358	106,630	3,355	109,985	22.66%	31,713
2002	523,812	97,745	37,405	135,150	4,603	139,753	26.68%	42,008
2003	549,473	93,122	28,887	122,009	4,749	126,758	23.07%	33,636
2004	583,916	82,361	38,934	121,295	5,991	127,286	21.80%	44,925
2005	619,077	96,723	35,181	131,903	6,181	138,084	22.30%	41,362
2006	646,124	113,472	54,697	168,168	8,069	176,238	27.28%	62,766
2007	665,011	107,725	54,482	162,207	7,893	170,100	25.58%	62,375
2008	697,151	104,733	42,511	147,244	7,809	155,053	22.24%	50,320
2009	727,088	101,729	47,117	148,845	8,279	157,124	21.61%	55,396
2010	749,534	105,418	55,180	160,598	7,478	168,076	22.42%	62,658
2011	761,677	105,762	61,912	167,674	8,613	176,287	23.14%	70,525
2012	756,751	105,985	71,966	177,951	9,507	187,457	24.77%	81,473
2013	764,671	94,375	55,127	149,502	12,162	161,664	21.14%	67,289
2014	803,881	80,189	53,808	133,997	15,386	149,384	18.58%	69,194
2015	861,065	82,752	82,287	165,039	20,313	185,352	21.53%	102,600
2016	907,145	68,744	53,719	122,463	60,994	183,456	20.22%	114,713
2017	960,142	32,492	64,403	96,896	79,128	176,023	18.33%	143,531
Total	12,527,412	1,637,212	1,066,772	2,530,753	295,470	2,804,396	22.39%	1,362,242

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 2
Sheet 14

Insurance Year	Earned Premium	Actual Claims @ 28/02/2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Basic - Total All Coverage*								
1999 & Prior			173,235		21,826			195,061
2000	465,488	312,533	27,716	340,249	3,132	343,381	73.77%	30,848
2001	485,406	327,086	28,353	355,439	3,356	358,795	73.92%	31,709
2002	523,812	356,133	37,405	393,538	4,603	398,141	76.01%	42,008
2003	549,473	373,719	28,888	402,607	4,749	407,356	74.14%	33,637
2004	583,916	381,143	38,936	420,078	5,991	426,069	72.97%	44,927
2005	619,077	405,157	35,180	440,337	6,181	446,518	72.13%	41,361
2006	646,124	449,860	54,749	504,609	8,069	512,678	79.35%	62,818
2007	665,011	455,965	54,562	510,526	7,893	518,420	77.96%	62,455
2008	697,151	434,518	42,782	477,299	7,759	485,058	69.58%	50,541
2009	727,088	443,001	47,172	490,173	8,269	498,442	68.55%	55,441
2010	749,534	492,389	56,085	548,473	7,390	555,863	74.16%	63,475
2011	761,677	492,815	62,597	555,413	8,195	563,609	74.00%	70,792
2012	756,751	534,318	73,170	607,488	8,783	616,271	81.44%	81,953
2013	764,671	566,407	56,448	622,854	12,521	635,375	83.09%	68,969
2014	803,881	512,826	55,743	568,569	16,547	585,116	72.79%	72,290
2015	861,065	595,735	87,496	683,233	20,831	704,063	81.77%	108,327
2016	907,145	606,158	63,231	669,389	68,491	737,879	81.34%	131,722
2017	960,142	438,270	162,755	601,026	115,142	716,167	74.59%	277,897
Total	12,527,412	8,178,033	1,186,503	9,191,298	339,728	9,509,200	75.91%	1,526,231

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4
*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

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EXHIBIT 3 CLAIM RUN-OFF

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 1

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bodily Injury - Basic							
2000	475,277	4,401	4,278	4,277	4,249	4,249	4,232
2001	497,121	5,255	5,255	5,255	5,255	5,255	5,256
2002	532,307	4,629	4,629	4,629	4,629	4,622	4,623
2003	560,857	3,949	3,949	3,949	3,964	3,930	3,930
2004	596,045	5,196	5,196	5,180	5,238	5,176	5,180
2005	630,367	4,228	4,223	4,242	4,238	4,240	4,289
2006	654,863	3,565	3,565	3,547	3,628	3,471	3,482
2007	677,464	3,751	3,738	3,736	3,785	3,786	4,011
2008	707,051	2,431	2,442	2,444	2,471	2,467	2,456
2009	739,881	3,479	3,488	3,695	3,757	3,604	4,024
2010	759,948	4,444	4,283	4,462	4,492	4,100	4,489
2011	772,985	2,593	2,603	2,783	2,693	2,823	3,397
2012	768,953	3,804	3,959	4,067	4,150	3,130	4,119
2013	778,092	4,100	4,400	4,383	4,194	5,189	
2014	817,710	5,952	5,883	6,321	5,121		
2015	873,488	5,054	5,523	4,810			
2016	918,780	5,555	5,853				
2017	971,436	5,624					
Total	12,732,625	78,011					
Total Excl. 2017	11,761,189	72,387	73,268				
Total Excl. 2016 to 2017	10,842,409	66,832	67,414	67,781			
Total Excl. 2015 to 2017	9,968,921	61,777	61,892	62,971	61,864		
Total Excl. 2014 to 2017	9,151,211	55,826	56,008	56,650	56,743	56,040	
Total Excl. 2013 to 2017	8,373,119	51,726	51,608	52,266	52,549	50,852	53,488

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 2
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Property Damage - Basic							
2000	475,277	25,750	25,752	25,755	25,751	25,756	25,761
2001	497,121	25,723	25,723	25,723	25,726	25,729	25,732
2002	532,307	28,057	28,059	28,061	28,064	28,076	28,080
2003	560,857	29,560	29,564	29,566	29,568	29,575	29,564
2004	596,045	29,616	29,618	29,626	29,630	29,655	29,660
2005	630,367	30,292	30,296	30,298	30,302	30,327	30,387
2006	654,863	33,574	33,580	33,582	33,586	33,570	33,572
2007	677,464	34,290	34,292	34,284	34,288	34,274	34,259
2008	707,051	36,015	35,965	35,949	36,098	35,999	36,004
2009	739,881	34,937	34,921	34,905	35,082	35,089	35,039
2010	759,948	37,337	37,314	37,260	37,315	37,237	37,054
2011	772,985	37,475	37,488	37,401	37,361	37,226	37,254
2012	768,953	41,770	41,689	41,545	41,275	41,250	40,524
2013	778,092	45,594	45,371	45,092	44,366	45,057	
2014	817,710	41,004	40,929	41,064	39,985		
2015	873,488	41,203	41,150	40,799			
2016	918,780	43,652	41,997				
2017	971,436	46,445					
Total	12,732,625	642,294					
Total Excl. 2017	11,761,189	595,850	593,708				
Total Excl. 2016 to 2017	10,842,409	552,198	551,711	550,911			
Total Excl. 2015 to 2017	9,968,921	510,995	510,561	510,111	508,398		
Total Excl. 2014 to 2017	9,151,211	469,991	469,632	469,047	468,413	468,819	
Total Excl. 2013 to 2017	8,373,119	424,396	424,261	423,955	424,047	423,763	422,890

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 3
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision - Basic							
2000	475,277	152,392	152,407	152,408	152,411	152,433	152,451
2001	497,121	161,272	161,275	161,284	161,290	161,302	161,325
2002	532,307	179,589	179,601	179,609	179,614	179,638	179,688
2003	560,857	193,942	193,956	193,970	193,991	194,025	194,069
2004	596,045	201,613	201,614	201,630	201,684	201,703	201,745
2005	630,367	203,057	203,050	203,062	203,087	203,099	203,150
2006	654,863	224,451	224,432	224,455	224,461	224,474	224,346
2007	677,464	233,083	233,097	233,118	233,125	233,055	232,978
2008	707,051	241,750	241,758	241,640	241,650	241,487	241,452
2009	739,881	242,510	242,523	242,417	242,278	242,137	242,021
2010	759,948	271,184	271,174	271,034	270,677	270,336	269,932
2011	772,985	273,139	273,093	272,845	272,363	271,756	272,042
2012	768,953	310,634	310,751	310,225	309,292	308,566	303,443
2013	778,092	349,215	349,214	348,258	346,295	347,122	
2014	817,710	317,797	317,313	316,130	315,862		
2015	873,488	352,355	352,428	349,069			
2016	918,780	386,123	385,169				
2017	971,436	414,398					
Total	12,732,625	4,708,505					
Total Excl. 2017	11,761,189	4,294,107	4,292,855				
Total Excl. 2016 to 2017	10,842,409	3,907,984	3,907,686	3,901,156			
Total Excl. 2015 to 2017	9,968,921	3,555,629	3,555,258	3,552,086	3,548,081		
Total Excl. 2014 to 2017	9,151,211	3,237,831	3,237,944	3,235,957	3,232,219	3,231,134	
Total Excl. 2013 to 2017	8,373,119	2,888,617	2,888,730	2,887,699	2,885,924	2,884,012	2,878,641

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 4
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Comprehensive - Basic							
2000	475,277	44,522	44,516	44,516	44,529	44,532	44,538
2001	497,121	71,216	71,218	71,219	71,222	71,225	71,246
2002	532,307	46,113	46,113	46,113	46,115	46,117	46,128
2003	560,857	53,147	53,146	53,151	53,160	53,164	53,192
2004	596,045	62,357	62,365	62,355	62,366	62,365	62,335
2005	630,367	70,856	70,857	70,861	70,858	70,831	70,835
2006	654,863	74,850	74,881	74,852	74,858	74,850	74,879
2007	677,464	113,323	113,288	113,283	113,262	113,240	113,286
2008	707,051	49,809	49,778	49,890	49,929	49,937	49,969
2009	739,881	78,618	78,588	78,538	78,510	78,487	78,452
2010	759,948	74,821	74,748	74,678	74,511	74,468	74,349
2011	772,985	74,634	74,545	74,488	74,356	74,116	73,327
2012	768,953	72,606	72,469	72,412	72,192	71,472	73,833
2013	778,092	74,802	74,636	74,477	74,116	75,439	
2014	817,710	70,979	70,931	71,616	72,352		
2015	873,488	120,099	119,834	125,330			
2016	918,780	119,093	123,042				
2017	971,436	73,678					
Total	12,732,625	1,345,522					
Total Excl. 2017	11,761,189	1,271,845	1,274,954				
Total Excl. 2016 to 2017	10,842,409	1,152,751	1,151,912	1,157,779			
Total Excl. 2015 to 2017	9,968,921	1,032,653	1,032,078	1,032,449	1,032,337		
Total Excl. 2014 to 2017	9,151,211	961,674	961,147	960,834	959,985	960,241	
Total Excl. 2013 to 2017	8,373,119	886,872	886,511	886,357	885,869	884,802	886,369

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 5
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Weekly Indemnity							
2000	475,277	65,254	63,848	63,731	61,273	61,277	62,851
2001	497,121	56,271	56,264	55,856	53,857	53,804	52,717
2002	532,307	64,202	62,935	62,042	58,873	60,515	60,618
2003	560,857	60,153	60,613	59,316	57,973	58,935	56,478
2004	596,045	52,300	50,685	49,919	48,179	50,320	49,388
2005	630,367	63,630	62,188	60,247	60,330	60,234	58,792
2006	654,863	79,526	76,551	76,283	75,803	74,358	67,727
2007	677,464	77,382	76,840	74,501	71,869	70,311	66,818
2008	707,051	74,841	73,632	72,677	73,275	70,494	68,285
2009	739,881	70,196	67,505	65,807	63,696	60,676	65,530
2010	759,948	88,863	83,656	78,099	73,710	65,523	66,885
2011	772,985	85,303	79,629	70,607	63,592	70,469	59,284
2012	768,953	95,557	76,018	69,898	72,886	68,414	53,187
2013	778,092	79,843	81,893	74,870	67,937	64,802	
2014	817,710	67,110	74,184	66,371	58,369		
2015	873,488	85,410	71,476	61,632			
2016	918,780	82,034	65,811				
2017	971,436	76,172					
Total	12,732,625	1,324,048					
Total Excl. 2017	11,761,189	1,247,876	1,183,728				
Total Excl. 2016 to 2017	10,842,409	1,165,841	1,117,918	1,061,855			
Total Excl. 2015 to 2017	9,968,921	1,080,431	1,046,442	1,000,224	961,622		
Total Excl. 2014 to 2017	9,151,211	1,013,321	972,258	933,853	903,252	890,133	
Total Excl. 2013 to 2017	8,373,119	933,478	890,365	858,983	835,315	825,331	788,559

Notes:
(2) - From MPI
(3) = Appendix E, Page 12, Accumulated-to-Date + Exhibit 2, Column 9
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 6
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Indexed)							
2000	475,277	55,445	58,693	58,148	58,197	57,652	57,707
2001	497,121	59,523	60,739	60,437	59,096	59,794	59,083
2002	532,307	64,224	63,760	62,564	60,910	61,443	60,803
2003	560,857	59,443	60,614	61,282	60,623	60,363	59,180
2004	596,045	65,375	65,587	64,751	63,874	64,143	62,330
2005	630,367	56,559	57,008	57,234	57,810	57,736	58,752
2006	654,863	72,920	74,897	73,204	72,873	73,080	70,678
2007	677,464	71,886	69,983	68,406	69,862	71,701	69,725
2008	707,051	59,057	59,574	61,781	61,960	63,813	64,970
2009	739,881	63,701	63,406	62,901	62,600	63,511	66,138
2010	759,948	57,361	62,895	61,670	62,172	62,107	66,040
2011	772,985	64,217	64,997	68,328	68,041	69,622	65,186
2012	768,953	65,794	65,008	65,524	71,107	73,128	65,746
2013	778,092	57,398	71,377	71,519	72,602	70,946	
2014	817,710	55,488	66,556	66,933	69,727		
2015	873,488	70,118	69,588	66,003			
2016	918,780	69,581	66,112				
2017	971,436	69,638					
Total	12,732,625	1,137,727					
Total Excl. 2017	11,761,189	1,068,089	1,100,793				
Total Excl. 2016 to 2017	10,842,409	998,508	1,034,681	1,030,684			
Total Excl. 2015 to 2017	9,968,921	928,390	965,093	964,681	971,455		
Total Excl. 2014 to 2017	9,151,211	872,902	898,537	897,748	901,728	909,040	
Total Excl. 2013 to 2017	8,373,119	815,504	827,160	826,229	829,126	838,094	826,340

Notes:
(2) - From MPI
(3) = Appendix F, Page 17, Accumulated-to-Date + Exhibit 2, Column 9
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 7
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Non-Indexed)							
2000	475,277	23,158	23,158	23,153	23,121	23,093	22,799
2001	497,121	24,642	24,615	24,644	24,625	24,591	24,487
2002	532,307	26,824	26,758	26,690	26,707	26,813	26,839
2003	560,857	25,325	25,412	25,225	25,131	25,187	25,158
2004	596,045	24,781	24,786	24,711	24,681	24,705	24,819
2005	630,367	28,928	28,984	28,836	28,832	28,980	29,107
2006	654,863	34,070	34,067	34,023	33,997	34,024	33,807
2007	677,464	30,183	30,208	30,137	30,112	30,287	30,126
2008	707,051	29,155	28,989	28,490	28,390	28,518	28,304
2009	739,881	29,987	30,058	29,781	30,075	29,843	29,435
2010	759,948	28,605	28,504	28,453	28,358	28,228	27,643
2011	772,985	32,032	31,822	31,732	31,685	31,404	29,033
2012	768,953	30,277	30,373	30,199	30,413	29,857	26,503
2013	778,092	27,596	27,550	27,723	29,351	26,911	
2014	817,710	28,224	27,901	27,379	25,723		
2015	873,488	30,723	27,146	27,066			
2016	918,780	32,139	29,745				
2017	971,436	30,213					
Total	12,732,625	516,863					
Total Excl. 2017	11,761,189	486,649	480,076				
Total Excl. 2016 to 2017	10,842,409	454,510	450,330	448,243			
Total Excl. 2015 to 2017	9,968,921	423,787	423,184	421,177	421,200		
Total Excl. 2014 to 2017	9,151,211	395,563	395,283	393,798	395,477	392,442	
Total Excl. 2013 to 2017	8,373,119	367,967	367,733	366,075	366,126	365,531	358,060

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 8
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Total							
2000	475,277	143,857	145,698	145,032	142,591	142,022	143,358
2001	497,121	140,437	141,617	140,937	137,578	138,188	136,287
2002	532,307	155,249	153,453	151,296	146,490	148,772	148,260
2003	560,857	144,922	146,639	145,823	143,727	144,486	140,816
2004	596,045	142,456	141,058	139,381	136,735	139,169	136,536
2005	630,367	149,116	148,179	146,317	146,972	146,949	146,651
2006	654,863	186,516	185,515	183,511	182,673	181,463	172,212
2007	677,464	179,452	177,031	173,044	171,843	172,299	166,670
2008	707,051	163,052	162,195	162,948	163,624	162,826	161,559
2009	739,881	163,884	160,970	158,489	156,371	154,030	161,104
2010	759,948	174,830	175,054	168,221	164,240	155,858	160,568
2011	772,985	181,551	176,448	170,667	163,318	171,496	153,502
2012	768,953	191,628	171,400	165,622	174,406	171,399	145,436
2013	778,092	164,837	180,819	174,112	169,890	162,658	
2014	817,710	150,822	168,641	160,683	153,819		
2015	873,488	186,251	168,211	154,700			
2016	918,780	183,755	161,668				
2017	971,436	176,023					
Total	12,732,625	2,978,637					
Total Excl. 2017	11,761,189	2,802,614	2,764,597				
Total Excl. 2016 to 2017	10,842,409	2,618,859	2,602,929	2,540,782			
Total Excl. 2015 to 2017	9,968,921	2,432,608	2,434,719	2,386,082	2,354,277		
Total Excl. 2014 to 2017	9,151,211	2,281,786	2,266,078	2,225,400	2,200,458	2,191,614	
Total Excl. 2013 to 2017	8,373,119	2,116,950	2,085,258	2,051,287	2,030,568	2,028,956	1,972,958

Notes: (2) - From MPI
(3) to (8) - Total of Sheets 5 to 7

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 9

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Basic - Total All Coverage*							
2000	475,277	370,922	372,650	371,988	369,531	368,992	370,339
2001	497,121	403,903	405,088	404,418	401,070	401,699	399,845
2002	532,307	413,637	411,855	409,708	404,913	407,226	406,778
2003	560,857	425,520	427,254	426,458	424,410	425,179	421,570
2004	596,045	441,239	439,850	438,173	435,653	438,067	435,456
2005	630,367	457,550	456,605	454,780	455,458	455,446	455,312
2006	654,863	522,957	521,973	519,946	519,207	517,827	508,493
2007	677,464	563,899	561,447	557,466	556,303	556,653	551,204
2008	707,051	493,058	492,137	492,870	493,772	492,716	491,440
2009	739,881	523,427	520,490	518,045	515,998	513,346	520,639
2010	759,948	562,616	562,573	555,655	551,236	541,998	546,390
2011	772,985	569,392	564,178	558,185	550,091	557,417	539,523
2012	768,953	620,441	600,268	593,870	601,315	595,818	567,355
2013	778,092	638,548	654,441	646,322	638,861	635,464	
2014	817,710	586,554	603,697	595,814	587,139		
2015	873,488	704,963	687,145	674,708			
2016	918,780	738,178	717,730				
2017	971,436	716,167					
Total	12,732,625	9,752,969					
Total Excl. 2017	11,761,189	9,036,802	8,999,382				
Total Excl. 2016 to 2017	10,842,409	8,298,624	8,281,652	8,218,409			
Total Excl. 2015 to 2017	9,968,921	7,593,662	7,594,506	7,543,700	7,504,956		
Total Excl. 2014 to 2017	9,151,211	7,007,108	6,990,809	6,947,887	6,917,817	6,907,849	
Total Excl. 2013 to 2017	8,373,119	6,368,560	6,336,368	6,301,564	6,278,956	6,272,384	6,214,346

Notes:
(2) - From MPI
(3) to (8) - Total of Sheets 1 to 4, & Sheet 8
*Not including PIPP Enhancements

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 10

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Comprehensive - Basic							
2000	465,488	44,522	44,516	44,516	44,529	44,532	44,538
2001	485,406	56,560	56,562	56,563	56,566	56,569	56,590
2002	523,812	46,113	46,113	46,113	46,115	46,117	46,128
2003	549,473	53,147	53,146	53,151	53,160	53,164	53,192
2004	583,916	62,357	62,365	62,355	62,366	62,365	62,335
2005	619,077	70,856	70,857	70,861	70,858	70,831	70,835
2006	646,124	74,850	74,881	74,852	74,858	74,850	74,879
2007	665,011	77,196	77,161	77,156	77,135	77,153	77,149
2008	697,151	49,809	49,778	49,890	49,929	49,937	49,969
2009	727,088	60,392	60,362	60,312	60,284	60,400	60,306
2010	749,534	74,821	74,748	74,678	74,511	74,468	74,349
2011	761,677	74,115	74,017	73,976	74,356	74,116	73,327
2012	756,751	72,606	72,469	72,412	72,192	71,472	73,833
2013	764,671	74,802	74,636	74,477	74,116	75,439	
2014	803,881	70,979	70,931	71,616	72,352		
2015	861,065	120,099	119,834	125,330			
2016	907,145	119,093	123,042				
2017	960,142	73,678					
Total	12,527,412	1,275,994					
Total Excl. 2017	11,567,270	1,202,317	1,205,417				
Total Excl. 2016 to 2017	10,660,125	1,083,223	1,082,375	1,088,258			
Total Excl. 2015 to 2017	9,799,060	963,125	962,541	962,928	963,328		
Total Excl. 2014 to 2017	8,995,179	892,146	891,610	891,313	890,976	891,411	
Total Excl. 2013 to 2017	8,230,508	817,344	816,974	816,836	816,860	815,972	817,430

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 11

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Weekly Indemnity							
2000	465,488	59,029	58,402	58,200	55,920	56,302	57,909
2001	485,406	47,938	48,409	48,055	46,079	45,964	45,484
2002	523,812	63,611	62,355	61,459	58,286	59,933	60,106
2003	549,473	57,527	58,059	56,868	55,487	56,460	54,374
2004	583,916	50,202	48,665	47,591	45,987	48,144	47,495
2005	619,077	63,282	61,959	60,031	60,118	60,022	58,588
2006	646,124	79,526	76,551	76,283	75,803	74,358	67,727
2007	665,011	77,246	76,840	74,501	71,869	70,311	66,818
2008	697,151	74,841	73,632	72,677	73,275	70,494	68,285
2009	727,088	70,196	67,505	65,807	63,696	60,676	65,530
2010	749,534	88,693	83,656	78,099	73,710	65,523	66,885
2011	761,677	85,303	79,629	70,607	63,592	70,469	59,284
2012	756,751	95,557	76,018	69,898	72,886	68,414	53,187
2013	764,671	79,551	81,639	74,635	67,839	64,802	
2014	803,881	67,110	74,184	66,371	58,369		
2015	861,065	85,410	71,476	61,632			
2016	907,145	82,034	65,811				
2017	960,142	76,172					
Total	12,527,412	1,303,230					
Total Excl. 2017	11,567,270	1,227,057	1,164,790				
Total Excl. 2016 to 2017	10,660,125	1,145,023	1,098,980	1,042,713			
Total Excl. 2015 to 2017	9,799,060	1,059,613	1,027,504	981,082	942,915		
Total Excl. 2014 to 2017	8,995,179	992,503	953,319	914,711	884,546	871,873	
Total Excl. 2013 to 2017	8,230,508	912,951	871,681	840,076	816,707	807,072	771,672

Notes:
(2) - From MPI
(3) = Appendix E, Page 12, Accumulated-to-Date + Exhibit 2, Column 9 - Ceded Paid
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 12

Insurance Year	Earned Premium	Estimated Ultimate Losses Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Indexed)							
2000	465,488	52,416	54,885	54,425	54,296	54,272	54,528
2001	485,406	53,243	53,981	53,625	52,261	52,718	52,231
2002	523,812	63,742	63,267	62,074	60,424	60,975	60,396
2003	549,473	57,666	58,765	59,327	58,681	58,557	57,542
2004	583,916	62,989	63,123	61,992	61,334	61,709	60,298
2005	619,077	56,341	56,863	57,086	57,658	57,584	58,592
2006	646,124	72,920	74,897	73,204	72,873	73,080	70,678
2007	665,011	71,779	69,983	68,406	69,862	71,701	69,725
2008	697,151	59,057	59,574	61,781	61,960	63,813	64,970
2009	727,088	63,701	63,406	62,901	62,600	63,511	66,138
2010	749,534	57,298	62,895	61,670	62,172	62,107	66,040
2011	761,677	64,217	64,997	68,328	68,041	69,622	65,186
2012	756,751	65,794	65,008	65,524	71,107	73,128	65,746
2013	764,671	57,310	71,204	71,303	72,432	70,946	
2014	803,881	55,488	66,556	66,933	69,727		
2015	861,065	70,118	69,588	66,003			
2016	907,145	69,581	66,112				
2017	960,142	69,638					
Total	12,527,412	1,123,297					
Total Excl. 2017	11,567,270	1,053,660	1,085,104				
Total Excl. 2016 to 2017	10,660,125	984,078	1,018,992	1,014,581			
Total Excl. 2015 to 2017	9,799,060	913,960	949,404	948,578	955,430		
Total Excl. 2014 to 2017	8,995,179	858,473	882,848	881,645	885,703	893,723	
Total Excl. 2013 to 2017	8,230,508	801,162	811,643	810,342	813,270	822,777	812,071

Notes:
(2) - From MPI
(3) = Appendix F, Page 17, Accumulated-to-Date + Exhibit 2, Column 9 - Ceded Paid
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 13

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Total							
2000	465,488	134,603	136,444	135,778	133,337	133,668	135,237
2001	485,406	125,824	127,004	126,324	122,965	123,273	122,202
2002	523,812	154,176	152,380	150,223	145,417	147,721	147,341
2003	549,473	140,519	142,236	141,420	139,300	140,205	137,074
2004	583,916	137,972	136,574	134,294	132,002	134,558	132,611
2005	619,077	148,550	147,805	145,953	146,608	146,585	146,287
2006	646,124	186,516	185,515	183,511	182,673	181,463	172,212
2007	665,011	179,209	177,031	173,044	171,843	172,299	166,670
2008	697,151	163,052	162,195	162,948	163,624	162,826	161,559
2009	727,088	163,884	160,970	158,489	156,371	154,030	161,104
2010	749,534	174,597	175,054	168,221	164,240	155,858	160,568
2011	761,677	181,551	176,448	170,667	163,318	171,496	153,502
2012	756,751	191,628	171,400	165,622	174,406	171,399	145,436
2013	764,671	164,458	180,393	173,661	169,622	162,658	
2014	803,881	150,822	168,641	160,683	153,819		
2015	861,065	186,251	168,211	154,700			
2016	907,145	183,755	161,668				
2017	960,142	176,023					
Total	12,527,412	2,943,389					
Total Excl. 2017	11,567,270	2,767,366	2,729,970				
Total Excl. 2016 to 2017	10,660,125	2,583,611	2,568,302	2,505,537			
Total Excl. 2015 to 2017	9,799,060	2,397,360	2,400,091	2,350,837	2,319,545		
Total Excl. 2014 to 2017	8,995,179	2,246,538	2,231,450	2,190,154	2,165,726	2,158,037	
Total Excl. 2013 to 2017	8,230,508	2,082,081	2,051,057	2,016,493	1,996,103	1,995,379	1,941,803

Notes: (2) - From MPI
(3) to (8) - Total of Sheets 7, 11 & 12

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Exhibit 3
Sheet 14

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Feb 2018 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Basic - Total All Coverage*							
2000	465,488	361,668	363,396	362,734	360,277	360,637	362,218
2001	485,406	374,634	375,819	375,149	371,801	372,128	371,104
2002	523,812	412,564	410,782	408,635	403,840	406,175	405,859
2003	549,473	421,117	422,851	422,055	419,982	420,898	417,828
2004	583,916	436,755	435,366	433,086	430,920	433,457	431,531
2005	619,077	456,984	456,230	454,416	455,094	455,082	454,948
2006	646,124	522,957	521,973	519,946	519,207	517,827	508,493
2007	665,011	527,529	525,320	521,339	520,176	520,566	515,067
2008	697,151	493,058	492,137	492,870	493,772	492,716	491,440
2009	727,088	505,201	502,264	499,819	497,772	495,259	502,493
2010	749,534	562,383	562,573	555,655	551,236	541,998	546,390
2011	761,677	568,873	563,650	557,673	550,091	557,417	539,523
2012	756,751	620,441	600,268	593,870	601,315	595,818	567,355
2013	764,671	638,169	654,015	645,871	638,593	635,464	
2014	803,881	586,554	603,697	595,814	587,139		
2015	861,065	704,963	687,145	674,708			
2016	907,145	738,178	717,730				
2017	960,142	716,167					
Total	12,527,412	9,648,193					
Total Excl. 2017	11,567,270	8,932,026	8,895,217				
Total Excl. 2016 to 2017	10,660,125	8,193,848	8,177,487	8,113,643			
Total Excl. 2015 to 2017	9,799,060	7,488,886	7,490,342	7,438,934	7,401,215		
Total Excl. 2014 to 2017	8,995,179	6,902,332	6,886,645	6,843,120	6,814,076	6,805,442	
Total Excl. 2013 to 2017	8,230,508	6,264,163	6,232,630	6,197,250	6,175,483	6,169,978	6,114,251

Notes: (2) - From MPI
(3) to (8) - Total of Sheets 1 to 3, Sheet 10, & Sheet 13
*Not including PIPP Enhancements

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EXHIBIT 4 IBNR ESTIMATES

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 1

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Bodily Injury - Basic					
1999 & Prior					
2000	-	-	(150)	(150)	-
2001	-	-	-	-	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	2	2	-
2006	-	-	(36)	(35)	-
2007	-	-	(11)	(9)	-
2008	-	-	(47)	(17)	-
2009	2	2	57	87	2
2010	7	7	(418)	(384)	7
2011	22	40	(321)	(55)	40
2012	118	147	793	844	147
2013	288	338	268	498	338
2014	802	657	1,794	798	657
2015	987	1,057	1,694	1,461	1,057
2016	1,767	1,793	3,888	2,223	1,793
2017	2,143	2,345	(1,818)	2,465	2,345
Total	6,135	6,385	5,695	7,727	6,385

Notes: (2) to (5) - Per Appendix A
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 2

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Property Damage - Basic					
1999 & Prior					
2000	-	-	1	1	-
2001	-	-	(1)	(1)	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	(1)	(1)	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	(52)	(52)	-
2008	-	-	(136)	(136)	-
2009	(17)	(17)	(10)	(10)	(17)
2010	(37)	(37)	(208)	(208)	(37)
2011	(56)	(56)	(56)	(56)	(56)
2012	(84)	(82)	(237)	(237)	(82)
2013	(91)	(86)	(254)	(255)	(86)
2014	(21)	(22)	(127)	(114)	(22)
2015	103	113	188	236	113
2016	1,239	1,219	1,821	1,737	1,219
2017	8,630	8,156	10,164	8,379	8,156
Total	9,665	9,186	11,091	9,282	9,186

Notes: (2) to (5) - Per Appendix B
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 3

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Collision - Basic					
1999 & Prior					
2000	-	-	1	1	-
2001	-	-	5	5	-
2002	-	-	-	-	-
2003	-	-	(1)	(1)	-
2004	-	-	(1)	(1)	-
2005	-	-	1	1	-
2006	-	-	(7)	(7)	-
2007	-	-	2	2	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	(4)	(4)	-
2011	-	-	(1)	(1)	-
2012	-	-	(6)	(6)	-
2013	-	-	(26)	(26)	-
2014	317	352	269	304	317
2015	1,055	1,095	1,122	1,169	1,055
2016	4,594	4,361	4,871	4,557	4,594
2017	19,227	18,746	28,235	23,485	19,227
Total	25,193	24,554	34,461	29,478	25,193

Notes: (2) to (5) - Per Appendix C
(6) - Incurred Development Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 4

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Comprehensive - Basic					
1999 & Prior					
2000	-	-	(1)	(1)	(1)
2001	-	-	1	1	1
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	(50)	(50)	(50)
2009	-	-	5	5	5
2010	-	-	(58)	(58)	(58)
2011	-	-	(401)	(401)	(401)
2012	-	-	(789)	(787)	(789)
2013	-	-	107	111	107
2014	-	-	209	231	209
2015	183	116	(1,706)	(2,087)	(1,706)
2016	1,853	1,562	(109)	(787)	(109)
2017	6,286	11,039	10,652	23,423	6,286
Total	8,322	12,717	7,860	19,599	3,495

Notes: (2) to (5) - Per Appendix D
(6) - Incurred Development Method for current year; Paid Development Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 5

Insurance Year	Tabular Reserve Method	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Accident Benefits - Weekly Indemnity						
1999 & Prior	10,813					10,813
2000	914	1,525	1,525	(268)	244	914
2001	676	1,602	1,602	999	1,182	676
2002	1,454	2,196	2,196	(618)	287	1,454
2003	1,592	2,413	2,413	4,202	3,592	1,592
2004	2,044	2,306	2,306	(135)	745	2,044
2005	2,537	2,963	2,963	2,592	2,733	2,537
2006	3,207	3,582	3,503	(404)	503	3,207
2007	2,724	3,269	3,194	2,733	2,189	2,724
2008	2,923	2,922	2,960	8,938	6,631	2,960
2009		2,668	2,850	6,981	7,201	2,850
2010		3,394	3,192	6,618	2,277	3,192
2011		3,253	3,181	5,061	3,051	3,181
2012		3,651	3,387	2,251	(933)	3,387
2013		4,507	5,234	9,192	14,144	5,234
2014		5,496	7,517	9,180	22,484	7,517
2015		10,234	10,180	11,919	10,413	10,413
2016		29,942	39,892	55,838	51,402	51,402
2017		37,389	49,784	72,700	57,778	57,778
Total	28,884	123,311	147,878	197,777	185,921	173,875

Notes: (2) to (6) - Per Appendix E
(7) - Tabular Reserve Method for 2007 & prior; greater of Incurred Born/Ferg Method or Paid Born/Ferg Method for 2015 & after; Incurred Born/Ferg Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 6

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Accident Benefits - Other (Indexed)					
1999 & Prior					11,013
2000	2,219	2,219	6,144	5,142	2,219
2001	2,679	2,679	4,184	3,781	2,679
2002	3,149	3,149	490	1,237	3,149
2003	3,157	3,157	6,882	5,790	3,157
2004	3,910	3,910	(2,764)	(726)	3,910
2005	3,542	3,542	4,767	4,377	3,542
2006	4,750	4,679	(1,030)	571	4,679
2007	5,008	4,942	(784)	949	4,942
2008	4,306	4,564	9,601	8,858	4,564
2009	4,850	5,086	7,645	7,694	5,086
2010	3,457	3,892	12,100	10,704	3,892
2011	5,073	4,960	11,297	8,017	4,960
2012	5,710	5,588	15,267	10,261	5,588
2013	5,578	6,272	23,851	18,127	6,272
2014	5,786	6,920	18,134	16,654	6,920
2015	6,694	5,770	19,114	8,376	8,376
2016	5,383	4,210	17,334	5,361	5,361
2017	10,310	9,474	24,104	10,266	10,266
Total	85,562	85,013	176,337	125,437	100,575

Notes: (2) to (5) - Per Appendix F
(6) - Greater of Incurred Born/Ferg Method or Paid Born/Ferg Method for 2015 & after; Incurred Born/Ferg Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 7

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Accident Benefits - Other (Non-Indexed)					
1999 & Prior					
2000	-	-	-	-	-
2001	-	-	(1)	(1)	-
2002	-	-	53	53	-
2003	-	-	100	100	-
2004	37	37	185	184	37
2005	101	101	367	363	101
2006	187	183	558	540	183
2007	225	228	521	523	228
2008	275	286	310	337	286
2009	343	344	863	850	344
2010	383	393	985	991	393
2011	493	472	1,248	1,145	472
2012	525	532	1,562	1,524	532
2013	585	657	1,902	2,072	657
2014	913	949	2,010	2,015	949
2015	1,656	1,523	(1,878)	(1,674)	1,523
2016	4,569	4,230	4,375	3,391	4,230
2017	10,013	11,084	14,236	13,371	11,084
Total	20,304	21,019	27,398	25,784	21,019

Notes: (2) to (5) - Per Appendix G
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 8

Insurance Year	Selected IBNR
(1)	(2)
Accident Benefits - Total	
1999 & Prior	21,826
2000	3,133
2001	3,355
2002	4,603
2003	4,749
2004	5,991
2005	6,181
2006	8,069
2007	7,893
2008	7,809
2009	8,279
2010	7,478
2011	8,613
2012	9,507
2013	12,162
2014	15,386
2015	20,313
2016	60,994
2017	79,128
Total	295,470

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 9

Insurance Year	Selected IBNR
(1)	(2)
Basic - Total All Coverage*	
1999 & Prior	21,826
2000	3,132
2001	3,356
2002	4,603
2003	4,749
2004	5,991
2005	6,181
2006	8,069
2007	7,893
2008	7,759
2009	8,269
2010	7,390
2011	8,195
2012	8,783
2013	12,521
2014	16,547
2015	20,831
2016	68,491
2017	115,142
Total	339,728

*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Summary of Net IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 10

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Comprehensive - Basic					
1999 & Prior					
2000	-	-	(1)	(1)	(1)
2001	-	-	1	1	1
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	(50)	(50)	(50)
2009	-	-	5	5	5
2010	-	-	(58)	(58)	(58)
2011	-	-	(401)	(401)	(401)
2012	-	-	(789)	(787)	(789)
2013	-	-	107	111	107
2014	-	-	209	231	209
2015	183	116	(1,706)	(2,087)	(1,706)
2016	1,853	1,562	(109)	(787)	(109)
2017	6,286	11,039	10,652	23,423	6,286
Total	8,322	12,717	7,860	19,599	3,495

Notes: (2) to (5) - Per Appendix D
(6) - Incurred Development Method for current year; Paid Development Method for all other years

Manitoba Public Insurance
Summary of Net IBNR Estimates
(Including External Adjustment Expenses)
As of February 28, 2018
($000)

Exhibit 4
Sheet 11

Insurance Year	Selected IBNR
(1)	(2)
Basic - Total All Coverage*	
1999 & Prior	21,826
2000	3,132
2001	3,356
2002	4,603
2003	4,749
2004	5,991
2005	6,181
2006	8,069
2007	7,893
2008	7,759
2009	8,269
2010	7,390
2011	8,195
2012	8,783
2013	12,521
2014	16,547
2015	20,831
2016	68,491
2017	115,142
Total	339,728

*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

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EXHIBIT 5 INTERNAL LOSS ADJUSTMENT EXPENSES

Manitoba Public Insurance
Automobile Insurance Division
Internal Loss Adjustment Expense (ILAE) Provision
As of February 28, 2018
($000)

Exhibit 5
Sheet 1

A. Calculation of Claims Base

	Valuation as at		
	Feb 2018	Feb 2017	Change
1. Direct & Agency Unpaid Claims [a, b]	1,534,023	1,478,491	55,532
2. Direct & Agency Paid Claims in Fiscal Year 2017 as of February 28, 2018 [b, c]			706,777
3. Direct & Agency Incurred Claims in Fiscal Year 2017 as of February 28, 2018 [(2)+Change in (1)]			762,309
4a. Direct & Agency Claims Base: Kittel's Paid ILAE to Paid Plus Incurred Claims Method [(2)+(3)]			1,469,086
4b. Direct & Agency Claims Base: Traditional Paid ILAE to Paid Claims Method [(2)*2]			1,413,554

B. Calculation of Internal Loss Adjustment Expense Provision:

	Valuation as at				
	Feb 2014	Feb 2015	Feb 2016	Feb 2017	Feb 2018
5a. Direct & Agency Claims Base: Kittel's Method [d]	1,282,687	1,235,277	1,379,954	1,478,536	1,469,086
5b. Direct & Agency Claims Base: Traditional Method [d]	1,157,178	1,235,748	1,288,422	1,362,226	1,413,554
6. Internal Loss Adjustment Expenses Paid [c]	114,552	116,578	118,614	120,972	116,509
7a. Ratio of ILAE Paid To Direct & Agency Claims Base: Kittel [(6)/(5a)]	8.93%	9.44%	8.60%	8.18%	7.93%
7b. Ratio of ILAE Paid To Direct & Agency Claims Base: Trad [(6)/(5b)]	9.90%	9.43%	9.21%	8.88%	8.24%
8. Selected Ratio of ILAE Paid To Direct & Agency Claims Base	10.00%	9.75%	9.50%	9.20%	9.20%
9. Direct & Agency Unpaid Claims (1)					1,534,023
10. Direct & Agency IBNR [b, e]					339,728
11. Direct & Agency Reserve Base: Unpaid Claims Plus IBNR [(9)+(10)]					1,873,751
12. Ultimate Direct & Agency ILAE Provision [(8)x(11)] [f]					172,385
13. CIA Rules Direct & Agency ILAE Provision [g]					171,454
14. MPI Carried Before Review [c]					174,247

Notes:
[a] Feb 2018: From Exhibit 1, Total Selected IBNR plus Case Reserve Outstanding;
Feb 2017: From respective year-end valuation
[b] Not including PIPP Enhancements
[c] From MPI
[d] Feb 2018: From Line 4; Other Years: From respective year-end valuations
[e] From Exhibit 1, Total Selected IBNR
[f] Selected Ratio applied twice to IBNR
[g] From Exhibit 7, Sheet 1

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EXHIBIT 6 DPAC CALCULATION

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Unearned Premium - Direct & Agency
As of February 28, 2018
($000)

Exhibit 6
Sheet 1

A. Claims (Including External Adjustment Expense) Data

		Estimated Ultimate Loss Ratio For Insurance Year [a]					Selected	Selected
		2013	2014	2015	2016	2017	Undisc	Disc [b]
1a.	Bodily Injury	0.53%	0.73%	0.58%	0.60%	0.58%		
1b.	Property Damage	5.86%	5.01%	4.72%	4.75%	4.78%		
1c.	Collision	44.88%	38.86%	40.34%	42.03%	42.66%		
1d.	Comprehensive	9.61%	8.68%	13.75%	12.96%	7.58%		
1e.	Accident Benefits - Weekly Indemnity	10.11%	8.14%	9.74%	8.92%	7.84%		
1f.	Accident Benefits - Other (Indexed)	7.17%	6.68%	7.97%	7.55%	7.17%		
1g.	Accident Benefits - Other (Non-Indexed)	3.55%	3.45%	3.52%	3.50%	3.11%		
1.	Total All Coverage	81.71%	71.56%	80.60%	80.31%	73.72%		
2.	Trend/Rate Adjustment [Sheet 2]	0.9543	0.9606	0.9829	0.9903	1.0029		
3.	Adjusted Loss Ratio [(1) x (2)]	77.97%	68.74%	79.22%	79.53%	73.94%	77.04%	81.87%

B. Actual Data Other Than Losses

		2013	2014	2015	2016	2017	Selected
4.	Direct & Agency Earned Premium [c]	778,092	817,710	873,488	918,780	971,436	
5.	Operating Expenses as Percentage of Earned Premium [c]	10.87%	10.95%	10.11%	9.81%	7.95%	8.88%
6.	Maintenance Expense Rate [(5) x 1/3]	3.62%	3.65%	3.37%	3.27%	2.65%	2.96%
7.	Internal Loss Adjustment Expense Ratio to Losses [d]	20.00%	19.50%	19.00%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

		Discounted
8.	Direct & Agency Unearned Premium as of February 28, 2018 [c]	468,613
9.	Expected Claims (Including Ext Adj Expenses) [Max(Sheet 5, Row 10, (8) x (3))]	383,669
10.	Maintenance Expense [Sheet 5, Row 12]	13,837
11.	Internal Loss Adjustment Expense [(7) x (9)]	70,595
12.	Expected Claims (Including Ext Adj Expenses) for PIPP Enhancement [e]	3,950
13.	Equity in Unearned Premium [(8) - Sum((9) to (12))]	(3,438)
14.	Carried Deferred Policy Acquisition Expenses [c]	32,055
15.	Write Down Deferred Policy Acquisition Expenses [f]	32,055
16.	Premium Deficiency [g]	3,438

Notes:

[a] [Exhibit 2, Column 7] / (4)
[b] From Sheet 3
[c] From MPI
[d] [Exhibit 5, Row 8] x 2
[e] From PE Exhibit 3
[f] Min((14) - (13), (14)) if greater than 0, otherwise 0
[g] Negative of (13) if greater than 0, otherwise 0

Manitoba Public Insurance
Automobile Insurance Division
Trend/Rate Adjustment - Direct & Agency
As of February 28, 2018
($000)

Exhibit 6
Sheet 2

Insurance Year	Earned Premium	Earned Premium Increase	Ultimate Claims	Ultimate Claims Increase
(1)	(2)	(3)	(4)	(5)
2007	677,464		509,646	
2008	707,051	4.37%	485,059	-4.82%
2009	739,881	4.64%	486,400	0.28%
2010	759,948	2.71%	556,096	14.33%
2011	772,985	1.72%	549,751	-1.14%
2012	768,953	-0.52%	616,271	12.10%
2013	778,092	1.19%	635,754	3.16%
2014	817,710	5.09%	585,116	-7.97%
2015	873,488	6.82%	704,062	20.33%
2016	918,780	5.19%	737,880	4.80%
2017	971,436	5.73%	716,168	-2.94%

(6) Average Claims Increase	3.81%
(7) Selected Claims Increase	4.40%
(8) 3-Year Average Premium Increase	5.91%
(9) Selected Premium Increase	4.00%
(10) 2017 Trend/Rate Adjustment	1.0029
(11) 2016 Trend/Rate Adjustment	0.9903
(12) 2015 Trend/Rate Adjustment	0.9829
(13) 2014 Trend/Rate Adjustment	0.9606
(14) 2013 Trend/Rate Adjustment	0.9543

Notes:
(2) From MPI
(4) From Exhibit 2, Sheet 9, Column 7; Removed impact of Hai
(7) Selected based on the indicated exponential trend for Ultimate Claims
(10) = [[1+(7)]/[1+(9)]]^[9/12]; Trended from the average accident date for the current year to the average accident date of the unearned premium (per Sheet 3)
(11) = (10)*[1+(7)]/[(1+(3) for 2017]
(12) = (11)*[1+(7)]/[(1+(3) for 2016]
(13) = (12)*[1+(7)]/[(1+(3) for 2015]
(14) = (13)*[1+(7)]/[(1+(3) for 2014]

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Direct & Agency
As of February 28, 2018
($000)

Exhibit 6
Sheet 3

Selected Undiscounted Loss Ratio [a] 77.04%

	12	24	36	48	60	72	84	96
Cumulative % Paid								
ABWI	11.27%	23.05%	29.36%	34.32%	38.70%	42.55%	45.93%	49.01%
ABO (Indexed)	17.88%	38.21%	44.63%	48.27%	51.29%	53.88%	56.41%	58.86%
ABO (Non-Indexed)	21.88%	55.57%	80.68%	88.19%	91.76%	93.64%	95.04%	96.28%
TPL-BI	4.21%	18.33%	34.78%	52.43%	68.21%	79.12%	89.33%	94.60%
TPL-PD	56.57%	93.48%	98.81%	99.65%	99.95%	100.00%	100.00%	100.00%
Collision	75.50%	98.42%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%
Comprehensive	75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%
Discount to Valuation Date [b]								
Without Margin (1) [c]	99.64%	98.23%	96.83%	95.46%	94.10%	92.77%	91.45%	90.15%
Without Margin (2) [d]	99.73%	98.64%	97.57%	96.51%	95.46%	94.42%	93.39%	92.37%
With Margin (1) [c & e]	99.77%	98.84%	97.92%	97.01%	96.10%	95.21%	94.32%	93.44%
With Margin (2) [d & e]	99.85%	99.26%	98.66%	98.07%	97.49%	96.91%	96.33%	95.76%
Discounted % Paid; Includes Discount Rate Margin and Claims Development Margin [f								
ABWI [g]	12.93%	13.38%	7.09%	5.52%	4.82%	4.20%	3.65%	3.29%
ABO (Indexed) [g]	20.51%	23.10%	7.22%	4.05%	3.33%	2.83%	2.74%	2.62%
ABO (Non-Indexed) [h]	24.03%	36.77%	27.22%	8.08%	3.82%	2.00%	1.48%	1.30%
TPL-BI [h]	4.84%	16.10%	18.64%	19.87%	17.64%	12.12%	11.26%	5.78%
TPL-PD [h]	59.31%	38.45%	5.52%	0.86%	0.31%	0.05%	0.00%	0.00%
Collision [h]	81.03%	24.44%	1.31%	0.26%	0.10%	0.00%	0.00%	0.00%
Comprehensive [h]	80.63%	22.28%	3.27%	0.57%	0.21%	0.10%	0.05%	0.00%

	Estimated Ultimate Claims [i]				% by Cvrg	% by Cvrg
	2015	2016	2017	3-yr Total	3-yr Total	Disc [j]
ABWI	85,048	81,912	76,173	243,132	11.27%	11.49%
ABO (Indexed)	69,580	69,406	69,638	208,624	9.67%	10.13%
ABO (Non-Indexed)	30,723	32,139	30,213	93,076	4.31%	4.68%
TPL-BI	5,054	5,555	5,624	16,233	0.75%	0.84%
TPL-PD	41,203	43,652	46,445	131,299	6.08%	6.36%
Collision	352,355	386,123	414,398	1,152,876	53.42%	57.24%
Comprehensive	120,099	119,093	73,678	312,869	14.50%	15.53%
Total All Coverage	704,062	737,880	716,168	2,158,110	100.00%	106.27%
Selected Discounted Loss Ratio with Margins [k]						81.87%

Notes:
[a] From Sheet 1
[b] Accounts for Investable Assets
Months from Valuation Date to Average Accident Date 3
Percent in Non-Investable Assets 0.00%
[c] Year Ending Feb 28, 2019 & After - 1.44%
[d] Year Ending Feb 28, 2019 & After - 1.10%
[e] Discount Rate Margin - 50 bps
[f] Claims Development Margin - From Exhibit 7, Sheet 1
[g] Discounted Using (1)
[h] Discounted Using (2)
[i] From Exhibit 2, Column 7
[j] % by Cvrg 3-yr Total x Cumulative Discounted % Paid
[k] Selected Undiscounted Loss Ratio x Total All Coverage % Disc

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Direct & Agency
As of February 28, 2018
($000)

Exhibit 6
Sheet 4

108	120	132	144	156	168	180	192	204	216	
51.83%	54.45%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
60.95%	62.87%	64.73%	66.47%	68.13%	69.46%	70.68%	71.92%	73.17%	100.00%	
96.95%	97.44%	97.88%	98.27%	98.66%	99.06%	99.45%	99.80%	100.00%	100.00%	
96.96%	98.42%	99.50%	99.75%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
88.87%	87.61%	86.37%	85.14%	83.93%	82.74%	81.57%	80.41%	79.27%	78.14%	
91.37%	90.38%	89.39%	88.42%	87.46%	86.51%	85.56%	84.63%	83.71%	82.80%	
92.57%	91.71%	90.86%	90.01%	89.17%	88.34%	87.52%	86.70%	85.90%	85.10%	
95.18%	94.62%	94.05%	93.49%	92.93%	92.38%	91.83%	91.28%	90.74%	90.20%	
										Cumulative
2.98%	2.74%	41.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	102.01%
2.21%	2.01%	1.93%	1.80%	1.69%	1.34%	1.21%	1.22%	1.23%	23.73%	104.75%
0.70%	0.50%	0.45%	0.40%	0.40%	0.40%	0.40%	0.35%	0.20%	0.00%	108.51%
2.58%	1.57%	1.16%	0.27%	0.21%	0.05%	0.00%	0.00%	0.00%	0.00%	112.09%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	104.50%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.15%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.13%

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Unearned Premium - Net
As of February 28, 2018
($000)

Exhibit 6
Sheet 5

A. Claims (Including External Adjustment Expense) Data

		Estimated Ultimate Loss Ratio For Insurance Year [a]					Selected	Selected
		2013	2014	2015	2016	2017	Undisc	Disc [b]
1a.	Bodily Injury	0.54%	0.74%	0.59%	0.61%	0.59%		
1b.	Property Damage	5.96%	5.10%	4.79%	4.81%	4.84%		
1c.	Collision	45.67%	39.53%	40.92%	42.56%	43.16%		
1d.	Comprehensive	9.78%	8.83%	13.95%	13.13%	7.67%		
1e.	Accident Benefits - Weekly Indemnity	10.25%	8.28%	9.88%	9.03%	7.93%		
1f.	Accident Benefits - Other (Indexed)	7.29%	6.80%	8.08%	7.65%	7.25%		
1g.	Accident Benefits - Other (Non-Indexed)	3.61%	3.51%	3.57%	3.54%	3.15%		
1.	Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%		
2.	Trend/Rate Adjustment [Sheet 2]	0.9488	0.9555	0.9803	0.9892	1.0029		
3.	Adjusted Loss Ratio [(1) x (2)]	78.84%	69.54%	80.15%	80.46%	74.80%	77.93%	82.82%

B. Actual Data Other Than Losses

		2013	2014	2015	2016	2017	Selected
4.	Net Earned Premium [c]	764,671	803,881	861,065	907,145	960,142	
5.	Operating Expenses as Percentage of Earned Premium [c]	11.06%	11.14%	10.26%	9.94%	8.04%	8.99%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	2.68%	3.00%
7.	Internal Loss Adjustment Expense Ratio to Losses [d]	20.00%	19.50%	19.00%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

		Discounted
8.	Net Unearned Premium as of February 28, 2018 [c]	468,613
9.	Additional Expected Cost of Non-Proportional Reinsurance [e]	5,598
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468
11.	Reinsurance PFAD [f]	10
12.	Maintenance Expense [g]	13,837
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement [h]	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)
16.	Carried Deferred Policy Acquisition Expenses [c]	32,055
17.	Write Down Deferred Policy Acquisition Expenses [i]	32,055
18.	Premium Deficiency [j]	8,845

Notes:
[a] [Exhibit 2, Column 7] / (4)
[b] From Sheet 7
[c] From MPI
[d] [Exhibit 5, Row 8] x 2
[e] Ceded Unearned Premium x (-1) + (11,196 X (6/12));
11,196: Annual premium on reinsurance effective Mar 1, 2018
[f] (Sheet 1, Row 9 - (10)) x 5.00%
[g] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin
[h] From PE Exhibit 3
[i] Min((16) - (15), (16)) if greater than 0, otherwise 0
[j] Negative of (15) if greater than 0, otherwise 0

Manitoba Public Insurance
Automobile Insurance Division
Trend/Rate Adjustment - Net
As of February 28, 2018
($000)

Exhibit 6
Sheet 6

Insurance Year	Earned Premium	Earned Premium Increase	Ultimate Claims	Ultimate Claims Increase
(1)	(2)	(3)	(4)	(5)
2007	665,011		509,403	
2008	697,151	4.83%	485,058	-4.78%
2009	727,088	4.29%	486,401	0.28%
2010	749,534	3.09%	555,863	14.28%
2011	761,677	1.62%	549,751	-1.10%
2012	756,751	-0.65%	616,271	12.10%
2013	764,671	1.05%	635,375	3.10%
2014	803,881	5.13%	585,116	-7.91%
2015	861,065	7.11%	704,063	20.33%
2016	907,145	5.35%	737,879	4.80%
2017	960,142	5.84%	716,167	-2.94%

(6) Average Claims Increase	3.82%
(7) Selected Claims Increase	4.40%
(8) 3-Year Average Premium Increase	6.10%
(9) Selected Premium Increase	4.00%
(10) 2017 Trend/Rate Adjustment	1.0029
(11) 2016 Trend/Rate Adjustment	0.9892
(12) 2015 Trend/Rate Adjustment	0.9803
(13) 2014 Trend/Rate Adjustment	0.9555
(14) 2013 Trend/Rate Adjustment	0.9488

Notes:
(2) From MPI
(4) From Exhibit 2, Sheet 14, Column 7; Removed impact of Hail
(7) Sheet 2, Row 7
(9) Sheet 2, Row 9
(10) = [[1+(7)]/[1+(9)]]^[9/12]; Trended from the average accident date for the current year to the average accident date of the unearned premium (per Sheet 7)
(11) = (10)*[1+(7)]/[(1+(3) for 2017]
(12) = (11)*[1+(7)]/[(1+(3) for 2016]
(13) = (12)*[1+(7)]/[(1+(3) for 2015]
(14) = (13)*[1+(7)]/[(1+(3) for 2014]

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Net
As of February 28, 2018
($000)

Exhibit 6
Sheet 7

Selected Undiscounted Loss Ratio [a] 77.93%

	12	24	36	48	60	72	84	96
Cumulative % Paid								
ABWI	11.27%	23.05%	29.36%	34.32%	38.70%	42.55%	45.93%	49.01%
ABO (Indexed)	17.88%	38.21%	44.63%	48.27%	51.29%	53.88%	56.41%	58.86%
ABO (Non-Indexed)	21.88%	55.57%	80.68%	88.19%	91.76%	93.64%	95.04%	96.28%
TPL-BI	4.21%	18.33%	34.78%	52.43%	68.21%	79.12%	89.33%	94.60%
TPL-PD	56.57%	93.48%	98.81%	99.65%	99.95%	100.00%	100.00%	100.00%
Collision	75.50%	98.42%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%
Comprehensive	75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%
Discount to Valuation Date [b]								
Without Margin (1) [c]	99.64%	98.23%	96.83%	95.46%	94.10%	92.77%	91.45%	90.15%
Without Margin (2) [d]	99.73%	98.64%	97.57%	96.51%	95.46%	94.42%	93.39%	92.37%
With Margin (1) [c & e]	99.77%	98.84%	97.92%	97.01%	96.10%	95.21%	94.32%	93.44%
With Margin (2) [d & e]	99.85%	99.26%	98.66%	98.07%	97.49%	96.91%	96.33%	95.76%
Discounted % Paid; Includes Discount Rate Margin and Claims Development Margin [f								
ABWI [g]	12.93%	13.38%	7.09%	5.52%	4.82%	4.20%	3.65%	3.29%
ABO (Indexed) [g]	20.51%	23.10%	7.22%	4.05%	3.33%	2.83%	2.74%	2.62%
ABO (Non-Indexed) [h]	24.03%	36.77%	27.22%	8.08%	3.82%	2.00%	1.48%	1.30%
TPL-BI [h]	4.84%	16.10%	18.64%	19.87%	17.64%	12.12%	11.26%	5.78%
TPL-PD [h]	59.31%	38.45%	5.52%	0.86%	0.31%	0.05%	0.00%	0.00%
Collision [h]	81.03%	24.44%	1.31%	0.26%	0.10%	0.00%	0.00%	0.00%
Comprehensive [h]	80.63%	22.28%	3.27%	0.57%	0.21%	0.10%	0.05%	0.00%

	Estimated Ultimate Claims [i]				% by Cvrg	% by Cvrg
	2015	2016	2017	3-yr Total	3-yr Total	Disc [j]
ABWI	85,048	81,911	76,172	243,132	11.27%	11.49%
ABO (Indexed)	69,580	69,406	69,638	208,624	9.67%	10.13%
ABO (Non-Indexed)	30,723	32,139	30,213	93,076	4.31%	4.68%
TPL-BI	5,054	5,555	5,624	16,233	0.75%	0.84%
TPL-PD	41,203	43,652	46,445	131,299	6.08%	6.36%
Collision	352,355	386,123	414,398	1,152,876	53.42%	57.24%
Comprehensive	120,099	119,093	73,678	312,869	14.50%	15.53%
Total All Coverage	704,063	737,879	716,167	2,158,110	100.00%	106.27%
Selected Discounted Loss Ratio with Margins [k]						82.82%

Notes:
[a] From Sheet 5
[b] Accounts for Investable Assets
Months from Valuation Date to Average Accident Date 3
Percent in Non-Investable Assets 0.00%
[c] Year Ending Feb 28, 2019 & After - 1.44%
[d] Year Ending Feb 28, 2019 & After - 1.10%
[e] Discount Rate Margin - 50 bps
[f] Claims Development Margin - From Exhibit 7, Sheet 2
[g] Discounted Using (1)
[h] Discounted Using (2)
[i] From Exhibit 2, Column 7
[j] % by Cvrg 3-yr Total x Cumulative Discounted % Paid
[k] Selected Undiscounted Loss Ratio x Total All Coverage % Disc

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Net
As of February 28, 2018
($000)

Exhibit 6
Sheet 8

108	120	132	144	156	168	180	192	204	216	
51.83%	54.45%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
60.95%	62.87%	64.73%	66.47%	68.13%	69.46%	70.68%	71.92%	73.17%	100.00%	
96.95%	97.44%	97.88%	98.27%	98.66%	99.06%	99.45%	99.80%	100.00%	100.00%	
96.96%	98.42%	99.50%	99.75%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
88.87%	87.61%	86.37%	85.14%	83.93%	82.74%	81.57%	80.41%	79.27%	78.14%	
91.37%	90.38%	89.39%	88.42%	87.46%	86.51%	85.56%	84.63%	83.71%	82.80%	
92.57%	91.71%	90.86%	90.01%	89.17%	88.34%	87.52%	86.70%	85.90%	85.10%	
95.18%	94.62%	94.05%	93.49%	92.93%	92.38%	91.83%	91.28%	90.74%	90.20%	
										Cumulative
2.98%	2.74%	41.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	102.01%
2.21%	2.01%	1.93%	1.80%	1.69%	1.34%	1.21%	1.22%	1.23%	23.73%	104.75%
0.70%	0.50%	0.45%	0.40%	0.40%	0.40%	0.40%	0.35%	0.20%	0.00%	108.51%
2.58%	1.57%	1.16%	0.27%	0.21%	0.05%	0.00%	0.00%	0.00%	0.00%	112.09%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	104.50%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.15%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.13%

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EXHIBIT 7 ACTUARIAL PRESENT VALUE CALCULATIONS

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities - Direct and Agency
As of February 28, 2018

Exhibit 7
Sheet 1

Coverage	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid Claims With Margin [a]	Discounted Unpaid Claims Without Margin [a]	Discount Amount With Margin	Discount Amount Without Margin	Interest Rate PFAD
	(1)	(2)=(4)/(1)	(3)=(5)/(1)	(4)	(5)	(6)=(1)-(4)	(7)=(1)-(5)	(8)=(7)-(6)
Bodily Injury - Basic	18,262	92.91%	91.81%	16,967	16,767	1,295	1,495	200
Pre-PIPP	-	0.00%	0.00%	-	-	-	-	-
Accident Benefits:								
Weekly Indemnity (2016 & After)	128,003	88.30%	83.13%	113,027	106,405	14,976	21,598	6,622
Weekly Indemnity (Prior to 2016)	639,998	88.19%	82.88%	564,397	530,434	75,601	109,564	33,963
Pre-PIPP	22,333	91.55%	87.56%	20,447	19,556	1,887	2,777	890
Other (Indexed) (2008 & After)	279,793	88.69%	83.52%	248,160	233,670	31,632	46,123	14,490
Other (Indexed) (Prior to 2008)	236,230	91.44%	87.33%	216,018	206,305	20,212	29,924	9,712
Other (Non-Indexed)	53,633	93.68%	92.72%	50,242	49,731	3,390	3,902	511
Pre-PIPP	3,129	98.55%	98.31%	3,084	3,076	45	53	7
Collision - Basic	102,130	98.28%	97.99%	100,369	100,081	1,761	2,049	287
Comprehensive - Basic	21,254	97.78%	97.42%	20,781	20,705	473	549	76
Property Damage - Basic	22,676	98.01%	97.69%	22,226	22,153	450	524	73
ILAE Provision [d]	172,385	90.07%	85.69%	155,262	147,719	17,123	24,666	7,543
Total	1,699,826	90.07%	85.69%	1,530,979	1,456,602	168,846	243,223	74,377

Coverage	Claims Development Margin	Claims Development PFAD	Reinsurance Margin	Reinsurance PFAD	CIA Rules Unpaid Claims [b]	Selected IBNR	Required IBNR [c]
	(9)	(10)=(5)x(9)	(11)	(12)	(13)	(14)	(15)
Bodily Injury - Basic	15.00%	2,515			19,482	6,385	7,605
Pre-PIPP	12.50%	-			-	-	-
Accident Benefits:							
Weekly Indemnity (2016 & After)	15.00%	15,961			128,988	109,180	110,165
Weekly Indemnity (Prior to 2016)	10.00%	53,043			617,440	55,791	33,233
Pre-PIPP	5.00%	978			21,425	8,904	7,996
Other (Indexed) (2008 & After)	15.00%	35,050			283,211	61,285	64,703
Other (Indexed) (Prior to 2008)	10.00%	20,631			236,648	39,291	39,709
Other (Non-Indexed)	10.00%	4,973			55,216	21,019	22,602
Pre-PIPP	5.00%	154			3,237	-	108
Collision - Basic	7.50%	7,506			107,875	25,193	30,938
Comprehensive - Basic	7.50%	1,553			22,334	3,495	4,575
Property Damage - Basic	5.00%	1,108			23,333	9,186	9,843
ILAE Provision [d]	10.96%	16,192			171,454	172,385	171,454
Total	10.96%	159,664			1,690,643	512,114	502,931

Notes:
[a] Summarized from the respective Exhibit 7 sheets
[b] (5) + (8) + (10) + (12)
[c] ((13) - (1)) + (14)
[d] Internal Loss Adjustment Expense (ILAE) Provision:
(1) From Exhibit 5, Row 12
(4) [Sum (4) all other coverage] / [Sum (1) all other coverage] * (1)
(5) [Sum (5) all other coverage] / [Sum (1) all other coverage] * (1)
(9) [Sum (9) all other coverage] / [Sum (5) all other coverage]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities - Net
As of February 28, 2018

Exhibit 7
Sheet 2

Coverage	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid Claims With Margin [a]	Discounted Unpaid Claims Without Margin [a]	Discount Amount With Margin	Discount Amount Without Margin	Interest Rate PFAD
	(1)	(2)=(4)/(1)	(3)=(5)/(1)	(4)	(5)	(6)=(1)-(4)	(7)=(1)-(5)	(8)=(7)-(6)
Bodily Injury - Basic	18,262	92.91%	91.81%	16,967	16,767	1,295	1,495	200
Pre-PIPP	-	0.00%	0.00%	-	-	-	-	-
Accident Benefits:								
Weekly Indemnity (2016 & After)	128,003	88.30%	83.13%	113,027	106,405	14,976	21,598	6,622
Weekly Indemnity (Prior to 2016)	639,415	88.18%	82.86%	563,814	529,851	75,601	109,564	33,963
Pre-PIPP	22,333	91.55%	87.56%	20,447	19,556	1,887	2,777	890
Other (Indexed) (2008 & After)	279,684	88.69%	83.51%	248,051	233,561	31,632	46,123	14,490
Other (Indexed) (Prior to 2008)	236,045	91.44%	87.32%	215,833	206,120	20,212	29,924	9,712
Other (Non-Indexed)	53,633	93.68%	92.72%	50,242	49,731	3,390	3,902	511
Pre-PIPP	3,129	98.55%	98.31%	3,084	3,076	45	53	7
Collision - Basic	102,130	98.28%	97.99%	100,369	100,081	1,761	2,049	287
Comprehensive - Basic	20,922	97.76%	97.40%	20,454	20,378	468	543	76
Property Damage - Basic	22,676	98.01%	97.69%	22,226	22,153	450	524	73
ILAE Provision [e]	172,385	90.07%	85.69%	155,262	147,719	17,123	24,666	7,543
Total	1,698,617	90.06%	85.68%	1,529,775	1,455,399	168,842	243,218	74,376

Coverage	Claims Development Margin	Claims Development PFAD	Reinsurance Margin	Reinsurance PFAD [b]	CIA Rules Unpaid Claims [c]	Selected IBNR	Required IBNR [d]
	(9)	(10)=(5)x(9)	(11)	(12)	(13)	(14)	(15)
Bodily Injury - Basic	15.00%	2,515			19,482	6,385	7,605
Pre-PIPP	12.50%	-			-	-	-
Accident Benefits:							
Weekly Indemnity (2016 & After)	15.00%	15,961	5.00%	-	128,988	109,180	110,165
Weekly Indemnity (Prior to 2016)	10.00%	52,985	5.00%	29	616,828	55,791	33,204
Pre-PIPP	5.00%	978			21,425	8,904	7,996
Other (Indexed) (2008 & After)	15.00%	35,034	5.00%	5	283,091	61,285	64,692
Other (Indexed) (Prior to 2008)	10.00%	20,612	5.00%	9	236,454	39,291	39,700
Other (Non-Indexed)	10.00%	4,973			55,216	21,019	22,602
Pre-PIPP	5.00%	154			3,237	-	108
Collision - Basic	7.50%	7,506			107,875	25,193	30,938
Comprehensive - Basic	7.50%	1,528	2.50%	8	21,991	3,495	4,564
Property Damage - Basic	5.00%	1,108			23,333	9,186	9,843
ILAE Provision [e]	10.96%	16,192			171,454	172,385	171,454
Total	10.96%	159,546		52	1,689,373	512,114	502,870

Notes:
[a] Summarized from the respective Exhibit 7 sheets:
Other than Accident Benefits - Weekly indemnity, Accident Benefits - Other (Indexed), and Comprehensive - Basic, Net amounts are equal to Direct & Agency
Accident Benefits - Weekly Indemnity reduced by ceded unpaid claims of 583
Accident Benefits - Other (Indexed) reduced by ceded unpaid claims of 294
[b] [Exhibit 7, Sheet 1, Column 5 less corresponding amount from above] * (11)
[c] (5) + (8) + (10) + (12)
[d] ((13) - (1)) + (14)
[e] Internal Loss Adjustment Expense (ILAE) Provision per Exhibit 7, Sheet 1

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Accident Benefits - Weekly Indemnity
($000)

Exhibit 7
Sheet 3

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%
Without Margin	1.44%	1.44%	1.44%	1.44%	1.44%	1.44%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28									
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2007 & Prior	278,792	25,962	304,754	304,754									
2008	27,877	2,960	30,837	30,837									
2009	28,822	2,850	31,672	1,721	29,951								
2010	40,438	3,192	43,630	2,412	2,240	38,979							
2011	42,075	3,181	45,256	2,576	2,359	2,191	38,130						
2012	51,992	3,387	55,379	3,261	2,967	2,717	2,523	43,911					
2013	42,177	5,234	47,411	2,978	2,616	2,380	2,180	2,024	35,232				
2014	35,987	7,517	43,504	2,899	2,551	2,241	2,039	1,867	1,734	30,174			
2015	49,476	10,413	59,889	4,207	3,710	3,265	2,868	2,609	2,389	2,219	38,621		
2016	10,697	51,402	62,099	5,091	4,005	3,532	3,108	2,730	2,484	2,274	2,112	36,763	
2017	8,126	57,778	65,904	8,752	4,685	3,686	3,251	2,860	2,513	2,286	2,093	1,944	33,835
Total	616,459	173,875	790,334	369,487	55,084	58,990	54,098	56,002	44,352	36,954	42,827	38,707	33,835
Total Payments				33,897	25,133	20,011	15,968	12,091	9,120	6,780	4,206	1,944	-
Total Commuted Reserve				335,590	29,951	38,979	38,130	43,911	35,232	30,174	38,621	36,763	33,835
Discounted with Margin [b]				298,581	26,345	34,287	33,539	38,625	30,990	26,542	33,972	32,337	29,761
Discounted without Margin [b]				281,748	24,725	32,178	31,477	36,250	29,085	24,910	31,883	30,349	27,931
Paid Factor to Ultimate [c]			8.8715	4.3375	3.4057	2.9134	2.5839	2.3501	2.1770	2.0403	1.9294	1.8366	1.0000
Cumulative % Paid [c]			11.27%	23.05%	29.36%	34.32%	38.70%	42.55%	45.93%	49.01%	51.83%	54.45%	100.00%
Discount Factor for Payments [d]													
With Margin				99.53%	98.61%	97.69%	96.78%	95.88%	94.98%	94.10%	93.22%	92.36%	91.50%
Without Margin				99.29%	97.88%	96.49%	95.12%	93.77%	92.44%	91.13%	89.83%	88.56%	87.30%
Discount Factor for Commuted Reserve [d]													
With Margin				100.00%	99.07%	98.15%	97.23%	96.33%	95.43%	94.54%	93.66%	92.79%	91.92%
Without Margin				100.00%	98.58%	97.18%	95.80%	94.44%	93.10%	91.78%	90.48%	89.19%	87.93%
Discounted Unpaid [d]		Discount Factor [f]	Total [e]										
With Margin		88.30%	697,871	332,319	50,883	53,200	48,065	48,799	38,236	31,472	35,739	31,801	27,358
Without Margin		83.05%	656,396	315,403	48,974	50,580	45,344	45,573	35,508	29,040	32,624	28,790	24,559

Notes:
[a] From Exhibit 2
[b] Discounted to the beginning of the development year
[c] Per Appendix E
[d] Discounted to Feb 28, 2018
[e] Sum of Row
[f] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Accident Benefits - Other (Indexed)
($000)

Exhibit 7
Sheet 4

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%
Without Margin	1.44%	1.44%	1.44%	1.44%	1.44%	1.44%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28																
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
1999 & Prior	65,268	11,013	76,281	76,281																
2000	9,022	2,219	11,241	11,241																
2001	12,187	2,679	14,866	710	14,157															
2002	16,800	3,149	19,949	894	910	18,145														
2003	11,640	3,157	14,797	624	635	646	12,892													
2004	20,690	3,910	24,600	979	996	1,014	1,032	20,579												
2005	13,646	3,542	17,188	717	656	667	679	691	13,779											
2006	23,564	4,679	28,243	1,400	1,119	1,024	1,042	1,060	1,079	21,519										
2007	24,122	4,942	29,064	1,440	1,369	1,095	1,002	1,019	1,037	1,055	21,047									
2008	14,197	4,564	18,761	937	883	840	671	614	625	636	647	12,908								
2009	18,229	5,086	23,315	1,146	1,107	1,043	992	793	726	738	751	765	15,252							
2010	14,874	3,892	18,766	953	876	846	797	758	606	555	564	574	584	11,653						
2011	19,459	4,960	24,419	1,374	1,170	1,075	1,039	979	931	744	681	693	705	717	14,310					
2012	19,545	5,588	25,133	1,380	1,337	1,139	1,046	1,011	952	905	724	662	674	686	698	13,919				
2013	12,674	6,272	18,946	1,007	985	954	813	747	721	680	646	517	473	481	489	498	9,935				
2014	16,372	6,920	23,292	1,358	1,166	1,140	1,105	941	864	835	787	748	598	547	557	567	577	11,502			
2015	25,655	8,376	34,031	2,236	1,854	1,592	1,556	1,508	1,284	1,180	1,140	1,074	1,021	817	747	760	774	787	15,701		
2016	33,055	5,361	38,416	3,990	2,262	1,876	1,610	1,574	1,526	1,299	1,194	1,153	1,087	1,033	826	756	769	783	796	15,883	
2017	44,448	10,266	54,714	13,549	4,275	2,423	2,010	1,726	1,687	1,635	1,392	1,279	1,236	1,164	1,107	885	810	824	838	853	17,020
Total	415,447	100,575	516,022	122,217	35,757	35,520	28,286	33,999	25,818	31,781	29,574	20,373	21,630	17,099	18,734	17,385	12,864	13,895	17,335	16,736	17,020
Total Payments				34,694	21,601	17,374	15,394	13,421	12,038	10,262	8,527	7,465	6,378	5,446	4,425	3,466	2,929	2,394	1,635	853	-
Total Commuted Reserve				87,523	14,157	18,145	12,892	20,579	13,779	21,519	21,047	12,908	15,252	11,653	14,310	13,919	9,935	11,502	15,701	15,883	17,020
Discounted with Margin [b]				81,930	13,037	16,711	11,873	18,951	12,690	19,817	19,383	11,887	14,046	10,732	13,178	12,819	9,149	10,592	14,459	14,627	15,674
Discounted without Margin [b]				79,169	12,493	16,013	11,377	18,160	12,160	18,990	18,574	11,391	13,459	10,283	12,628	12,283	8,767	10,150	13,856	14,017	15,019
Paid Factor to Ultimate [c]			5.5934	2.6168	2.2406	2.0718	1.9499	1.8561	1.7728	1.6989	1.6407	1.5906	1.5450	1.5044	1.4677	1.4396	1.4149	1.3905	1.3666	1.3431	1.0000
Cumulative % Paid [c]			17.88%	38.21%	44.63%	48.27%	51.29%	53.88%	56.41%	58.86%	60.95%	62.87%	64.73%	66.47%	68.13%	69.46%	70.68%	71.92%	73.17%	74.45%	100.00%
Discount Factor for Payments [d]																					
With Margin				99.53%	98.61%	97.69%	96.78%	95.88%	94.98%	94.10%	93.22%	92.36%	91.50%	90.64%	89.80%	88.96%	88.13%	87.31%	86.50%	85.70%	84.90%
Without Margin				99.29%	97.88%	96.49%	95.12%	93.77%	92.44%	91.13%	89.83%	88.56%	87.30%	86.06%	84.84%	83.63%	82.45%	81.28%	80.12%	78.99%	77.86%
Discount Factor for Commuted Reserve [d]																					
With Margin				100.00%	99.07%	98.15%	97.23%	96.33%	95.43%	94.54%	93.66%	92.79%	91.92%	91.07%	90.22%	89.38%	88.55%	87.72%	86.91%	86.10%	85.30%
Without Margin				100.00%	98.58%	97.18%	95.80%	94.44%	93.10%	91.78%	90.48%	89.19%	87.93%	86.68%	85.45%	84.23%	83.04%	81.86%	80.70%	79.55%	78.42%
Discounted Unpaid [d]			Discount Factor [f]	Total [e]																	
With Margin			89.95%	464,178	116,462	34,216	33,374	26,442	31,123	23,544	28,393	26,103	17,924	18,747	14,709	15,863	14,541	10,683	11,382	13,980	13,325	13,369
Without Margin			85.26%	439,975	113,616	33,458	32,326	25,541	29,735	22,449	26,781	24,464	16,771	17,402	13,600	14,544	13,246	9,695	10,254	12,491	11,824	11,779

Notes:
[a] From Exhibit 2 [b] Discounted to the beginning of the development year [c] Per Appendix F [d] Discounted to Feb 28, 2018
[e] Sum of Row [f] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Accident Benefits - Other (Non-Indexed)
($000)

Exhibit 7
Sheet 5

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
1999 & Prior	3,177	-	3,177	3,177																	
2000	-	-	-	-																	
2001	1	-	1	1																	
2002	1	-	1	1	-	-															
2003	39	-	39	25	14	-	-														
2004	50	37	87	37	32	18	-	-													
2005	24	101	125	37	37	33	19	-	-												
2006	38	183	221	50	50	51	44	25	-	-											
2007	126	228	354	65	66	66	66	58	33	-	-										
2008	437	286	723	124	110	111	111	112	98	56	-	-									
2009	66	344	410	65	59	53	53	53	53	47	27	-	-								
2010	101	393	494	90	64	58	52	52	52	53	46	27	-	-							
2011	378	472	850	212	116	83	75	67	67	68	68	60	34	-	-						
2012	429	532	961	212	187	102	73	66	59	59	60	60	53	30	-	-					
2013	475	657	1,132	258	193	170	93	67	60	54	54	54	54	48	27	-	-				
2014	1,449	949	2,398	725	382	285	251	137	98	89	79	80	80	80	71	41	-	-			
2015	7,156	1,523	8,679	3,371	1,605	845	631	555	303	218	197	176	177	177	178	156	90	-	-		
2016	9,967	4,230	14,197	8,024	2,398	1,141	601	449	395	215	155	140	125	126	126	127	111	64	-	-	
2017	11,829	11,084	22,913	9,883	7,364	2,201	1,048	552	412	362	198	142	129	115	115	116	116	102	59	-	-
Total	35,743	21,019	56,762	26,357	12,677	5,216	3,117	2,193	1,632	1,221	884	738	652	576	518	439	317	166	59	-	-
Paid Factor to Ultimate [b]			4.5704	1.7994	1.2394	1.1340	1.0898	1.0679	1.0521	1.0386	1.0314	1.0263	1.0217	1.0176	1.0136	1.0095	1.0055	1.0020	1.0000	1.0000	1.0000
Cumulative % Paid [b]			21.88%	55.57%	80.68%	88.19%	91.76%	93.64%	95.04%	96.28%	96.95%	97.44%	97.88%	98.27%	98.66%	99.06%	99.45%	99.80%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																					
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%	61.70%	59.92%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%	56.96%	55.05%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																			
With Margin	93.95%	53,326	25,974	12,133	4,848	2,813	1,922	1,389	1,010	710	576	494	424	370	305	214	109	37	-	-
Without Margin	93.03%	52,807	25,911	12,045	4,790	2,766	1,881	1,353	978	684	552	471	403	350	287	200	101	35	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix G [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Bodily Injury - Basic
($000)

Exhibit 7
Sheet 6

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
1999 & Prior	-	-	-	-																	
2000	150	-	150	150																	
2001	-	-	-	-																	
2002	-	-	-	-																	
2003	-	-	-	-																	
2004	-	-	-	-																	
2005	-	-	-	-	-	-	-	-	-												
2006	45	-	45	36	9	-	-	-	-	-											
2007	30	-	30	15	12	3	-	-	-	-	-										
2008	85	-	85	58	13	11	3	-	-	-	-	-									
2009	50	2	52	25	19	4	3	1	-	-	-	-	-								
2010	635	7	642	281	173	129	30	24	6	-	-	-	-	-							
2011	559	40	599	296	133	82	61	14	11	3	-	-	-	-	-						
2012	136	147	283	138	71	32	20	15	3	3	1	-	-	-	-	-					
2013	1,013	338	1,351	464	434	224	101	62	46	11	8	2	-	-	-	-	-				
2014	1,578	657	2,235	741	513	479	248	111	68	51	12	9	2	-	-	-	-	-			
2015	2,018	1,057	3,075	832	744	514	481	248	111	69	51	12	9	2	-	-	-	-	-		
2016	2,360	1,793	4,153	837	898	803	555	519	268	120	74	55	13	10	3	-	-	-	-	-	
2017	3,218	2,345	5,563	820	955	1,025	916	634	593	306	137	84	63	14	12	3	-	-	-	-	-
Total	11,877	6,385	18,262	4,693	3,973	3,306	2,417	1,627	1,107	562	283	163	87	27	14	3	-	-	-	-	-
Paid Factor to Ultimate [b]			23.7445	5.4560	2.8754	1.9074	1.4661	1.2639	1.1195	1.0571	1.0313	1.0161	1.0050	1.0025	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			4.21%	18.33%	34.78%	52.43%	68.21%	79.12%	89.33%	94.60%	96.96%	98.42%	99.50%	99.75%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																					
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%	61.70%	59.92%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%	56.96%	55.05%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																			
With Margin	92.91%	16,967	4,625	3,803	3,072	2,181	1,427	942	464	227	127	66	20	10	2	-	-	-	-	-
Without Margin	91.81%	16,767	4,613	3,775	3,036	2,145	1,396	918	450	219	122	63	19	10	2	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix A [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Property Damage - Basic
($000)

Exhibit 7
Sheet 7

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28														
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1999 & Prior	(1)	-	(1)	(1)															
2000	(1)	-	(1)	(1)															
2001	1	-	1	1															
2002	-	-	-	-															
2003	-	-	-	-															
2004	1	-	1	1															
2005	-	-	-	-															
2006	-	-	-	-															
2007	52	-	52	52															
2008	136	-	136	136															
2009	10	(17)	(7)	(7)															
2010	208	(37)	171	171															
2011	56	(56)	(0)	(0)															
2012	237	(82)	155	155															
2013	277	(86)	191	191	-	-	-	-	-	-	-	-	-	-	-				
2014	270	(22)	248	212	35	-	-	-	-	-	-	-	-	-	-	-			
2015	303	113	416	294	105	17	-	-	-	-	-	-	-	-	-	-	-		
2016	1,064	1,219	2,283	1,866	294	105	17	-	-	-	-	-	-	-	-	-	-	-	
2017	10,877	8,156	19,033	16,176	2,336	368	131	22	-	-	-	-	-	-	-	-	-	-	-
Total	13,490	9,186	22,676	19,245	2,770	490	149	22	-	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			1.7676	1.0697	1.0120	1.0035	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			56.57%	93.48%	98.81%	99.65%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	98.01%	22,226	18,966	2,651	456	134	19	-	-	-	-	-	-	-	-	-	-	-	-
Without Margin	97.69%	22,153	18,920	2,632	450	132	19	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix B [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Collision - Basic
($000)

Exhibit 7
Sheet 8

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28															
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1999 & Prior	6	-	6	6															
2000	(1)	-	(1)	(1)															
2001	(5)	-	(5)	(5)															
2002	-	-	-	-															
2003	1	-	1	1															
2004	1	-	1	1															
2005	(1)	-	(1)	(1)															
2006	7	-	7	7															
2007	(2)	-	(2)	(2)															
2008	-	-	-	-															
2009	-	-	-	-															
2010	4	-	4	4															
2011	1	-	1	1															
2012	6	-	6	6															
2013	26	-	26	26															
2014	48	317	365	365	-	-	-	-	-	-	-	-	-	-	-	-			
2015	108	1,055	1,163	830	333	-	-	-	-	-	-	-	-	-	-	-	-		
2016	1,241	4,594	5,835	4,547	919	369	-	-	-	-	-	-	-	-	-	-	-	-	
2017	75,497	19,227	94,724	88,609	4,766	963	386	-	-	-	-	-	-	-	-	-	-	-	-
Total	76,937	25,193	102,130	94,394	6,018	1,332	386	-	-	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			1.3245	1.0161	1.0035	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			75.50%	98.42%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%
Discounted Unpaid [c]		Discount Factor [e]	Total [d]																
With Margin		98.28%	100,369	93,023	5,759	1,238	349	-	-	-	-	-	-	-	-	-	-	-	-
Without Margin		97.99%	100,081	92,798	5,718	1,223	343	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix C [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of February 28, 2018
Comprehensive - Basic
($000)

Exhibit 7
Sheet 9

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28															
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1999 & Prior	(1)	-	(1)	(1)															
2000	1	(1)	-	-															
2001	(1)	1	-	-															
2002	-	-	-	-															
2003	-	-	-	-															
2004	-	-	-	-															
2005	-	-	-	-															
2006	-	-	-	-															
2007	-	-	-	-															
2008	50	(50)	-	-															
2009	(5)	5	-	-															
2010	58	(58)	-	-															
2011	401	(401)	-	-															
2012	825	(789)	36	36	-	-	-	-	-	-	-	-	-	-					
2013	5	107	112	75	37	-	-	-	-	-	-	-	-	-	-				
2014	39	209	248	141	71	35	-	-	-	-	-	-	-	-	-	-			
2015	2,780	(1,706)	1,074	655	239	120	60	-	-	-	-	-	-	-	-	-	-		
2016	4,847	(109)	4,738	3,674	649	237	119	60	-	-	-	-	-	-	-	-	-	-	
2017	8,760	6,286	15,046	12,639	1,866	330	121	60	30	-	-	-	-	-	-	-	-	-	-
Total	17,759	3,495	21,254	17,219	2,863	722	299	120	30	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			1.3311	1.0414	1.0090	1.0035	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	97.78%	20,781	16,969	2,740	671	270	105	26	-	-	-	-	-	-	-	-	-	-	-
Without Margin	97.42%	20,705	16,928	2,720	663	266	103	25	-	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix D [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Net Unpaid Claims
As of February 28, 2018
Comprehensive - Basic
($000)

Exhibit 7
Sheet 10

	Year Ending Feb 28					
Discount Rates	2019	2020	2021	2022	2023	After 23
With Margin	2.97%	2.97%	2.97%	2.97%	2.97%	2.97%
Without Margin	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Feb 28															
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
1999 & Prior	(1)	-	(1)	(1)															
2000	1	(1)	-	-															
2001	(1)	1	-	-															
2002	-	-	-	-															
2003	-	-	-	-															
2004	-	-	-	-															
2005	-	-	-	-															
2006	-	-	-	-															
2007	-	-	-	-															
2008	50	(50)	-	-															
2009	(5)	5	-	-															
2010	58	(58)	-	-															
2011	69	(401)	(332)	(332)															
2012	825	(789)	36	36	-	-	-	-	-	-	-	-	-	-					
2013	5	107	112	75	37	-	-	-	-	-	-	-	-	-	-				
2014	39	209	248	141	71	35	-	-	-	-	-	-	-	-	-	-			
2015	2,780	(1,706)	1,074	655	239	120	60	-	-	-	-	-	-	-	-	-	-		
2016	4,847	(109)	4,738	3,674	649	237	119	60	-	-	-	-	-	-	-	-	-	-	
2017	8,760	6,286	15,046	12,639	1,866	330	121	60	30	-	-	-	-	-	-	-	-	-	-
Total	17,427	3,495	20,922	16,887	2,863	722	299	120	30	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			1.3311	1.0414	1.0090	1.0035	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.55%	95.70%	92.94%	90.26%	87.66%	85.13%	82.68%	80.29%	77.98%	75.73%	73.54%	71.42%	69.36%	67.36%	65.42%	63.53%
Without Margin				98.31%	95.01%	91.83%	88.75%	85.77%	82.89%	80.11%	77.43%	74.83%	72.32%	69.90%	67.55%	65.29%	63.10%	60.98%	58.94%
Discounted Unpaid [c]		Discount Factor [e]	Total [d]																
With Margin		97.76%	20,454	16,642	2,740	671	270	105	26	-	-	-	-	-	-	-	-	-	-
Without Margin		97.40%	20,378	16,601	2,720	663	266	103	25	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix D [c] Discounted to Feb 28, 2018 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

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EXHIBIT 8 APV CALCULATIONS BY INSURANCE YEAR

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 1

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Bodily Injury - Basic											
1999 & Prior	-	100.00%	100.00%	-	-	-	0.00%	-	-	-	-
2000	150	98.55%	98.31%	148	147	0	15.00%	22	170	-	20
2001	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2002	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2006	45	97.98%	97.65%	44	44	0	15.00%	7	51	-	6
2007	30	96.85%	96.34%	29	29	0	15.00%	4	33	-	3
2008	85	97.13%	96.67%	83	82	0	15.00%	12	95	-	10
2009	52	96.35%	95.77%	50	50	0	15.00%	8	58	2	8
2010	642	95.75%	95.07%	615	610	4	15.00%	92	706	7	71
2011	599	95.73%	95.06%	573	569	4	15.00%	85	659	40	100
2012	283	95.70%	95.02%	270	268	2	15.00%	40	311	147	175
2013	1,351	94.86%	94.06%	1,282	1,271	11	15.00%	191	1,472	338	459
2014	2,235	94.26%	93.36%	2,106	2,086	20	15.00%	313	2,419	657	841
2015	3,075	93.44%	92.41%	2,873	2,841	31	15.00%	426	3,299	1,057	1,281
2016	4,153	92.31%	91.13%	3,834	3,785	49	15.00%	568	4,402	1,793	2,042
2017	5,563	90.96%	89.58%	5,060	4,983	77	15.00%	747	5,807	2,345	2,589
Total	18,262	92.91%	91.81%	16,967	16,767	200	15.00%	2,515	19,482	6,385	7,605

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 2

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Property Damage - Basic											
1999 & Prior	(1)	98.55%	98.31%	(1)	(1)	(0)	5.00%	(0)	(1)	-	(0)
2000	(1)	98.55%	98.31%	(1)	(1)	(0)	5.00%	(0)	(1)	-	(0)
2001	1	98.55%	98.31%	1	1	0	5.00%	0	1	-	0
2002	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2004	1	98.55%	98.31%	1	1	0	5.00%	0	1	-	0
2005	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2007	52	98.55%	98.31%	51	51	0	5.00%	3	54	-	2
2008	136	98.55%	98.31%	134	134	0	5.00%	7	141	-	5
2009	(7)	98.55%	98.31%	(7)	(7)	(0)	5.00%	(0)	(8)	(17)	(18)
2010	171	98.55%	98.31%	168	168	0	5.00%	8	177	(37)	(31)
2011	(0)	98.55%	98.31%	(0)	(0)	(0)	5.00%	(0)	(0)	(56)	(56)
2012	155	98.55%	98.31%	153	153	0	5.00%	8	161	(82)	(76)
2013	191	98.55%	98.31%	188	188	0	5.00%	9	197	(86)	(80)
2014	248	98.14%	97.84%	243	242	1	5.00%	12	255	(22)	(15)
2015	416	97.60%	97.21%	406	404	2	5.00%	20	426	113	123
2016	2,283	97.86%	97.51%	2,234	2,226	8	5.00%	111	2,345	1,219	1,281
2017	19,033	98.02%	97.70%	18,656	18,595	61	5.00%	930	19,586	8,156	8,709
Total	22,676	98.01%	97.69%	22,226	22,153	73	5.00%	1,108	23,333	9,186	9,843

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 3

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Collision - Basic											
1999 & Prior	6	98.55%	98.31%	6	6	0	7.50%	0	6	-	0
2000	(1)	98.55%	98.31%	(1)	(1)	(0)	7.50%	(0)	(1)	-	(0)
2001	(5)	98.55%	98.31%	(5)	(5)	(0)	7.50%	(0)	(5)	-	(0)
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2003	1	98.55%	98.31%	1	1	0	7.50%	0	1	-	0
2004	1	98.55%	98.31%	1	1	0	7.50%	0	1	-	0
2005	(1)	98.55%	98.31%	(1)	(1)	(0)	7.50%	(0)	(1)	-	(0)
2006	7	98.55%	98.31%	7	7	0	7.50%	1	7	-	0
2007	(2)	98.55%	98.31%	(2)	(2)	(0)	7.50%	(0)	(2)	-	(0)
2008	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2010	4	98.55%	98.31%	4	4	0	7.50%	0	4	-	0
2011	1	98.55%	98.31%	1	1	0	7.50%	0	1	-	0
2012	6	98.55%	98.31%	6	6	0	7.50%	0	6	-	0
2013	26	98.55%	98.31%	26	26	0	7.50%	2	28	-	2
2014	365	98.55%	98.31%	360	359	1	7.50%	27	387	317	339
2015	1,163	97.73%	97.37%	1,136	1,132	4	7.50%	85	1,221	1,055	1,113
2016	5,835	97.75%	97.38%	5,703	5,682	21	7.50%	426	6,129	4,594	4,888
2017	94,724	98.31%	98.04%	93,127	92,866	261	7.50%	6,965	100,092	19,227	24,595
Total	102,130	98.28%	97.99%	100,369	100,081	287	7.50%	7,506	107,875	25,193	30,938

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 4

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Comprehensive - Basic											
1999 & Prior	(1)	98.55%	98.31%	(1)	(1)	(0)	7.50%	(0)	(1)	-	(0)
2000	-	100.00%	100.00%	-	-	-	7.50%	-	-	(1)	(1)
2001	-	100.00%	100.00%	-	-	-	7.50%	-	-	1	1
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2008	-	100.00%	100.00%	-	-	-	7.50%	-	-	(50)	(50)
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	5	5
2010	-	100.00%	100.00%	-	-	-	7.50%	-	-	(58)	(58)
2011	-	100.00%	100.00%	-	-	-	7.50%	-	-	(401)	(401)
2012	36	98.55%	98.31%	36	36	0	7.50%	3	38	(789)	(787)
2013	112	97.60%	97.21%	109	109	0	7.50%	8	118	107	113
2014	248	96.93%	96.44%	240	239	1	7.50%	18	258	209	219
2015	1,074	96.83%	96.32%	1,040	1,034	5	7.50%	78	1,117	(1,706)	(1,663)
2016	4,738	97.53%	97.13%	4,622	4,603	19	7.50%	345	4,967	(109)	120
2017	15,046	97.93%	97.60%	14,735	14,685	50	7.50%	1,101	15,837	6,286	7,077
Total	21,254	97.78%	97.42%	20,781	20,705	76	7.50%	1,553	22,334	3,495	4,575

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 5

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Weekly Indemnity											
1999 & Prior	115,599	89.62%	84.86%	103,604	98,098	5,506	9.00%	8,832	112,436	10,813	7,650
2000	19,459	88.51%	83.29%	17,222	16,206	1,016	10.00%	1,621	18,843	914	298
2001	16,846	88.90%	83.84%	14,977	14,124	852	10.00%	1,412	16,389	676	219
2002	22,058	89.38%	84.52%	19,715	18,644	1,070	10.00%	1,864	21,579	1,454	975
2003	18,800	89.90%	85.26%	16,902	16,029	873	10.00%	1,603	18,505	1,592	1,297
2004	20,238	88.00%	82.60%	17,809	16,716	1,092	10.00%	1,672	19,481	2,044	1,287
2005	24,250	89.43%	84.61%	21,688	20,518	1,170	10.00%	2,052	23,740	2,537	2,027
2006	34,302	88.19%	82.86%	30,251	28,423	1,828	10.00%	2,842	33,093	3,207	1,998
2007	33,201	88.22%	82.93%	29,289	27,532	1,757	10.00%	2,753	32,042	2,724	1,565
2008	30,837	87.96%	82.55%	27,124	25,456	1,668	10.00%	2,546	29,670	2,960	1,793
2009	31,672	87.82%	82.35%	27,813	26,083	1,730	10.00%	2,608	30,421	2,850	1,599
2010	43,630	87.69%	82.19%	38,260	35,858	2,402	10.00%	3,586	41,846	3,192	1,408
2011	45,256	87.59%	82.06%	39,642	37,136	2,505	10.00%	3,714	43,355	3,181	1,280
2012	55,379	87.53%	81.98%	48,473	45,398	3,075	10.00%	4,540	53,013	3,387	1,021
2013	47,411	87.52%	81.97%	41,494	38,865	2,630	10.00%	3,886	45,381	5,234	3,204
2014	43,504	87.56%	82.04%	38,092	35,691	2,401	10.00%	3,569	41,661	7,517	5,674
2015	59,889	87.64%	82.17%	52,489	49,211	3,278	10.00%	4,921	57,410	10,413	7,934
2016	62,099	87.87%	82.50%	54,565	51,233	3,332	15.00%	7,685	62,250	51,402	51,553
2017	65,904	88.71%	83.72%	58,462	55,172	3,290	15.00%	8,276	66,738	57,778	58,612
Total	790,334	88.30%	83.05%	697,871	656,396	41,475	10.66%	69,982	767,853	173,875	151,394

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 6

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Other (Indexed)											
1999 & Prior	76,281	93.83%	90.78%	71,577	69,249	2,328	10.00%	6,925	78,502	11,013	13,234
2000	11,241	92.09%	88.25%	10,353	9,920	432	10.00%	992	11,345	2,219	2,323
2001	14,866	91.63%	87.58%	13,622	13,020	602	10.00%	1,302	14,924	2,679	2,737
2002	19,949	91.17%	86.92%	18,187	17,339	848	10.00%	1,734	19,921	3,149	3,121
2003	14,797	90.71%	86.26%	13,423	12,764	659	10.00%	1,276	14,699	3,157	3,059
2004	24,600	90.25%	85.60%	22,201	21,058	1,144	10.00%	2,106	24,307	3,910	3,617
2005	17,188	89.83%	85.01%	15,441	14,611	829	10.00%	1,461	16,902	3,542	3,256
2006	28,243	89.52%	84.57%	25,282	23,885	1,398	10.00%	2,388	27,671	4,679	4,107
2007	29,064	89.22%	84.16%	25,931	24,459	1,472	10.00%	2,446	28,377	4,942	4,255
2008	18,761	88.95%	83.78%	16,687	15,717	970	15.00%	2,358	19,045	4,564	4,848
2009	23,315	88.68%	83.41%	20,675	19,447	1,229	15.00%	2,917	23,592	5,086	5,363
2010	18,766	88.45%	83.09%	16,598	15,593	1,005	15.00%	2,339	18,937	3,892	4,063
2011	24,419	88.29%	82.89%	21,561	20,241	1,320	15.00%	3,036	24,597	4,960	5,138
2012	25,133	88.13%	82.68%	22,151	20,779	1,371	15.00%	3,117	25,268	5,588	5,723
2013	18,946	87.96%	82.45%	16,665	15,621	1,044	15.00%	2,343	19,008	6,272	6,334
2014	23,292	87.87%	82.33%	20,466	19,176	1,290	15.00%	2,876	23,342	6,920	6,970
2015	34,031	87.87%	82.35%	29,903	28,025	1,877	15.00%	4,204	34,106	8,376	8,451
2016	38,416	88.35%	83.06%	33,939	31,910	2,030	15.00%	4,786	38,726	5,361	5,671
2017	54,714	90.50%	86.19%	49,515	47,160	2,355	15.00%	7,074	56,589	10,266	12,141
Total	516,022	89.95%	85.26%	464,178	439,975	24,203	12.66%	55,681	519,859	100,575	104,412

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 7

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Other (Non-Indexed)											
1999 & Prior	3,177	98.55%	98.31%	3,131	3,123	8	5.08%	159	3,289	-	112
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	1	98.55%	98.31%	1	1	0	10.00%	0	1	-	0
2002	1	98.55%	98.31%	1	1	0	10.00%	0	1	-	0
2003	39	97.51%	97.11%	38	38	0	10.00%	4	42	-	3
2004	87	96.31%	95.72%	84	83	1	10.00%	8	92	37	42
2005	125	95.01%	94.22%	119	118	1	10.00%	12	131	101	107
2006	221	93.70%	92.71%	207	205	2	10.00%	20	228	183	190
2007	354	92.39%	91.20%	327	323	4	10.00%	32	359	228	233
2008	723	91.23%	89.88%	659	649	10	10.00%	65	724	286	287
2009	410	90.18%	88.69%	369	363	6	10.00%	36	406	344	340
2010	494	89.57%	88.00%	443	435	8	10.00%	43	486	393	385
2011	850	89.87%	88.35%	764	751	13	10.00%	75	839	472	461
2012	961	89.77%	88.24%	863	848	15	10.00%	85	947	532	518
2013	1,132	89.77%	88.26%	1,016	999	17	10.00%	100	1,116	657	641
2014	2,398	90.62%	89.23%	2,173	2,140	33	10.00%	214	2,387	949	938
2015	8,679	92.10%	90.93%	7,993	7,892	102	10.00%	789	8,782	1,523	1,626
2016	14,197	94.59%	93.77%	13,429	13,313	116	10.00%	1,331	14,761	4,230	4,794
2017	22,913	94.74%	93.94%	21,708	21,524	184	10.00%	2,152	23,861	11,084	12,032
Total	56,762	93.95%	93.03%	53,326	52,807	519	9.71%	5,127	58,453	21,019	22,710

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 8

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
Accident Benefits - Total											
1999 & Prior	195,057	91.42%	87.39%	178,312	170,470	7,842	9.34%	15,915	194,228	21,826	20,997
2000	30,700	89.82%	85.10%	27,575	26,127	1,448	10.00%	2,613	30,187	3,133	2,620
2001	31,713	90.18%	85.60%	28,600	27,146	1,454	10.00%	2,715	31,315	3,355	2,957
2002	42,008	90.23%	85.66%	37,903	35,985	1,919	10.00%	3,598	41,502	4,603	4,097
2003	33,636	90.27%	85.71%	30,363	28,831	1,532	10.00%	2,883	33,246	4,749	4,359
2004	44,925	89.25%	84.27%	40,094	37,857	2,237	10.00%	3,786	43,880	5,991	4,946
2005	41,564	89.62%	84.80%	37,247	35,247	2,001	10.00%	3,525	40,772	6,181	5,389
2006	62,766	88.81%	83.66%	55,741	52,513	3,228	10.00%	5,251	60,992	8,069	6,295
2007	62,618	88.71%	83.54%	55,547	52,314	3,233	10.00%	5,231	60,778	7,893	6,053
2008	50,320	88.38%	83.11%	44,471	41,823	2,648	11.88%	4,968	49,439	7,809	6,928
2009	55,396	88.20%	82.84%	48,858	45,893	2,965	12.12%	5,562	54,419	8,279	7,302
2010	62,891	87.93%	82.50%	55,301	51,886	3,415	11.50%	5,968	61,269	7,478	5,856
2011	70,525	87.86%	82.42%	61,966	58,128	3,838	11.74%	6,825	68,791	8,613	6,879
2012	81,473	87.74%	82.27%	71,486	67,025	4,461	11.55%	7,742	79,228	9,507	7,262
2013	67,488	87.68%	82.21%	59,175	55,484	3,691	11.41%	6,329	65,505	12,162	10,179
2014	69,194	87.77%	82.39%	60,731	57,008	3,724	11.68%	6,660	67,391	15,386	13,583
2015	102,600	88.09%	82.97%	90,385	85,128	5,257	11.65%	9,914	100,299	20,313	18,012
2016	114,713	88.86%	84.09%	101,934	96,456	5,478	14.31%	13,803	115,737	60,994	62,018
2017	143,531	90.35%	86.29%	129,685	123,857	5,829	14.13%	17,502	147,188	79,128	82,785
Total	1,363,119	89.16%	84.31%	1,215,375	1,149,178	66,197	11.38%	130,790	1,346,165	295,470	278,516

Notes: (2) - Exhibit 2, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

Exhibit 8
Sheet 9

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
Basic - Total All Coverage*											
1999 & Prior	195,061	91.42%	87.40%	178,316	170,474	7,842	9.34%	15,916	194,232	21,826	20,997
2000	30,848	89.86%	85.17%	27,721	26,272	1,448	10.03%	2,635	30,355	3,132	2,639
2001	31,709	90.18%	85.60%	28,596	27,142	1,454	10.00%	2,714	31,310	3,356	2,957
2002	42,008	90.23%	85.66%	37,903	35,985	1,919	10.00%	3,598	41,502	4,603	4,097
2003	33,637	90.27%	85.71%	30,364	28,832	1,532	10.00%	2,883	33,247	4,749	4,359
2004	44,927	89.25%	84.27%	40,096	37,859	2,237	10.00%	3,786	43,882	5,991	4,946
2005	41,563	89.62%	84.80%	37,246	35,246	2,001	10.00%	3,525	40,771	6,181	5,389
2006	62,818	88.81%	83.68%	55,791	52,563	3,228	10.00%	5,258	61,050	8,069	6,301
2007	62,698	88.72%	83.56%	55,625	52,392	3,233	10.00%	5,238	60,863	7,893	6,058
2008	50,541	88.42%	83.18%	44,687	42,039	2,648	11.86%	4,987	49,675	7,759	6,893
2009	55,441	88.20%	82.86%	48,901	45,935	2,965	12.12%	5,569	54,469	8,269	7,297
2010	63,708	88.04%	82.67%	56,088	52,668	3,420	11.52%	6,069	62,156	7,390	5,838
2011	71,124	87.93%	82.53%	62,540	58,698	3,842	11.77%	6,910	69,450	8,195	6,521
2012	81,953	87.80%	82.35%	71,952	67,488	4,463	11.55%	7,793	79,744	8,783	6,574
2013	69,168	87.87%	82.52%	60,780	57,077	3,703	11.46%	6,540	67,320	12,521	10,673
2014	72,290	88.09%	82.91%	63,681	59,934	3,747	11.73%	7,030	70,711	16,547	14,968
2015	108,327	88.47%	83.58%	95,839	90,540	5,299	11.62%	10,523	106,362	20,831	18,866
2016	131,722	89.83%	85.60%	118,326	112,752	5,575	13.53%	15,253	133,580	68,491	70,349
2017	277,897	94.01%	91.76%	261,264	254,985	6,278	10.69%	27,246	288,509	115,142	125,754
Total	1,527,440	90.07%	85.69%	1,375,717	1,308,883	66,834	10.96%	143,472	1,519,189	339,728	331,477

Notes: (2) - Exhibit 2, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]
*Not including PIPP Enhancements (see PE Exhibit 2, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of February 28, 2018
($000)

Exhibit 8
Sheet 10

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Comprehensive - Basic												
1999 & Prior	(1)	98.55%	98.31%	(1)	(1)	(0)	7.50%	(0)	-	(1)	-	(0)
2000	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(1)	(1)
2001	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	1	1
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2008	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(50)	(50)
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	5	5
2010	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(58)	(58)
2011	(332)	98.55%	98.31%	(327)	(326)	(1)	7.50%	(24)	8	(343)	(401)	(412)
2012	36	98.55%	98.31%	36	36	0	7.50%	3	-	38	(789)	(787)
2013	112	97.60%	97.21%	109	109	0	7.50%	8	-	118	107	113
2014	248	96.93%	96.44%	240	239	1	7.50%	18	-	258	209	219
2015	1,074	96.83%	96.32%	1,040	1,034	5	7.50%	78	-	1,117	(1,706)	(1,663)
2016	4,738	97.53%	97.13%	4,622	4,603	19	7.50%	345	-	4,967	(109)	120
2017	15,046	97.93%	97.60%	14,735	14,685	50	7.50%	1,101	-	15,837	6,286	7,077
Total	20,922	97.76%	97.40%	20,454	20,378	76	7.50%	1,528	8	21,991	3,495	4,564

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 4 less corresponding amount from above] * 2.50%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of February 28, 2018
($000)

Exhibit 8
Sheet 11

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Accident Benefits - Weekly Indemnity												
1999 & Prior	115,599	89.62%	84.86%	103,604	98,098	5,506	9.00%	8,832	-	112,436	10,813	7,650
2000	19,459	88.51%	83.29%	17,222	16,206	1,016	10.00%	1,621	-	18,843	914	298
2001	16,846	88.90%	83.84%	14,977	14,124	852	10.00%	1,412	-	16,389	676	219
2002	22,058	89.38%	84.52%	19,715	18,644	1,070	10.00%	1,864	-	21,579	1,454	975
2003	18,800	89.90%	85.26%	16,902	16,029	873	10.00%	1,603	-	18,505	1,592	1,297
2004	20,238	88.00%	82.60%	17,809	16,716	1,092	10.00%	1,672	-	19,481	2,044	1,287
2005	24,126	89.38%	84.53%	21,564	20,394	1,170	10.00%	2,039	6	23,610	2,537	2,021
2006	34,302	88.19%	82.86%	30,251	28,423	1,828	10.00%	2,842	-	33,093	3,207	1,998
2007	33,065	88.17%	82.86%	29,153	27,396	1,757	10.00%	2,740	7	31,899	2,724	1,558
2008	30,837	87.96%	82.55%	27,124	25,456	1,668	10.00%	2,546	-	29,670	2,960	1,793
2009	31,672	87.82%	82.35%	27,813	26,083	1,730	10.00%	2,608	-	30,421	2,850	1,599
2010	43,460	87.64%	82.12%	38,090	35,688	2,402	10.00%	3,569	9	41,667	3,192	1,399
2011	45,256	87.59%	82.06%	39,642	37,136	2,505	10.00%	3,714	-	43,355	3,181	1,280
2012	55,379	87.53%	81.98%	48,473	45,398	3,075	10.00%	4,540	-	53,013	3,387	1,021
2013	47,258	87.48%	81.92%	41,341	38,712	2,630	10.00%	3,871	8	45,220	5,234	3,196
2014	43,504	87.56%	82.04%	38,092	35,691	2,401	10.00%	3,569	-	41,661	7,517	5,674
2015	59,889	87.64%	82.17%	52,489	49,211	3,278	10.00%	4,921	-	57,410	10,413	7,934
2016	62,099	87.87%	82.50%	54,565	51,233	3,332	15.00%	7,685	-	62,250	51,402	51,553
2017	65,904	88.71%	83.72%	58,462	55,172	3,290	15.00%	8,276	-	66,738	57,778	58,612
Total	789,751	88.29%	83.04%	697,288	655,813	41,475	10.66%	69,924	29	767,241	173,875	151,365

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 5 less corresponding amount from above] * 5.00%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of February 28, 2018
($000)

Exhibit 8
Sheet 12

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Accident Benefits - Other (Indexed)												
1999 & Prior	76,281	93.83%	90.78%	71,577	69,249	2,328	10.00%	6,925	-	78,502	11,013	13,234
2000	11,241	92.09%	88.25%	10,353	9,920	432	10.00%	992	-	11,345	2,219	2,323
2001	14,866	91.63%	87.58%	13,622	13,020	602	10.00%	1,302	-	14,924	2,679	2,737
2002	19,949	91.17%	86.92%	18,187	17,339	848	10.00%	1,734	-	19,921	3,149	3,121
2003	14,797	90.71%	86.26%	13,423	12,764	659	10.00%	1,276	-	14,699	3,157	3,059
2004	24,600	90.25%	85.60%	22,201	21,058	1,144	10.00%	2,106	-	24,307	3,910	3,617
2005	17,110	89.79%	84.94%	15,363	14,533	829	10.00%	1,453	4	16,820	3,542	3,252
2006	28,243	89.52%	84.57%	25,282	23,885	1,398	10.00%	2,388	-	27,671	4,679	4,107
2007	28,957	89.18%	84.10%	25,824	24,352	1,472	10.00%	2,435	5	28,265	4,942	4,250
2008	18,761	88.95%	83.78%	16,687	15,717	970	15.00%	2,358	-	19,045	4,564	4,848
2009	23,315	88.68%	83.41%	20,675	19,447	1,229	15.00%	2,917	-	23,592	5,086	5,363
2010	18,703	88.41%	83.03%	16,535	15,530	1,005	15.00%	2,330	3	18,868	3,892	4,057
2011	24,419	88.29%	82.89%	21,561	20,241	1,320	15.00%	3,036	-	24,597	4,960	5,138
2012	25,133	88.13%	82.68%	22,151	20,779	1,371	15.00%	3,117	-	25,268	5,588	5,723
2013	18,900	87.93%	82.41%	16,619	15,575	1,044	15.00%	2,336	2	18,958	6,272	6,330
2014	23,292	87.87%	82.33%	20,466	19,176	1,290	15.00%	2,876	-	23,342	6,920	6,970
2015	34,031	87.87%	82.35%	29,903	28,025	1,877	15.00%	4,204	-	34,106	8,376	8,451
2016	38,416	88.35%	83.06%	33,939	31,910	2,030	15.00%	4,786	-	38,726	5,361	5,671
2017	54,714	90.50%	86.19%	49,515	47,160	2,355	15.00%	7,074	-	56,589	10,266	12,141
Total	515,728	89.95%	85.25%	463,884	439,681	24,203	12.66%	55,646	15	519,545	100,575	104,392

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 6 less corresponding amount from above] * 5.00%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of February 28, 2018
($000)

Exhibit 8
Sheet 13

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)	(13)
Accident Benefits - Total												
1999 & Prior	195,057	91.42%	87.39%	178,312	170,470	7,842	9.34%	15,915	-	194,228	21,826	20,997
2000	30,700	89.82%	85.10%	27,575	26,127	1,448	10.00%	2,613	-	30,187	3,133	2,620
2001	31,713	90.18%	85.60%	28,600	27,146	1,454	10.00%	2,715	-	31,315	3,355	2,957
2002	42,008	90.23%	85.66%	37,903	35,985	1,919	10.00%	3,598	-	41,502	4,603	4,097
2003	33,636	90.27%	85.71%	30,363	28,831	1,532	10.00%	2,883	-	33,246	4,749	4,359
2004	44,925	89.25%	84.27%	40,094	37,857	2,237	10.00%	3,786	-	43,880	5,991	4,946
2005	41,362	89.56%	84.73%	37,045	35,045	2,001	10.00%	3,504	10	40,560	6,181	5,379
2006	62,766	88.81%	83.66%	55,741	52,513	3,228	10.00%	5,251	-	60,992	8,069	6,295
2007	62,375	88.66%	83.48%	55,304	52,071	3,233	10.00%	5,207	12	60,523	7,893	6,041
2008	50,320	88.38%	83.11%	44,471	41,823	2,648	11.88%	4,968	-	49,439	7,809	6,928
2009	55,396	88.20%	82.84%	48,858	45,893	2,965	12.12%	5,562	-	54,419	8,279	7,302
2010	62,658	87.89%	82.44%	55,068	51,653	3,415	11.50%	5,942	12	61,021	7,478	5,841
2011	70,525	87.86%	82.42%	61,966	58,128	3,838	11.74%	6,825	-	68,791	8,613	6,879
2012	81,473	87.74%	82.27%	71,486	67,025	4,461	11.55%	7,742	-	79,228	9,507	7,262
2013	67,289	87.65%	82.16%	58,976	55,285	3,691	11.41%	6,307	10	65,294	12,162	10,167
2014	69,194	87.77%	82.39%	60,731	57,008	3,724	11.68%	6,660	-	67,391	15,386	13,583
2015	102,600	88.09%	82.97%	90,385	85,128	5,257	11.65%	9,914	-	100,299	20,313	18,012
2016	114,713	88.86%	84.09%	101,934	96,456	5,478	14.31%	13,803	-	115,737	60,994	62,018
2017	143,531	90.35%	86.29%	129,685	123,857	5,829	14.13%	17,502	-	147,188	79,128	82,785
Total	1,362,242	89.15%	84.29%	1,214,498	1,148,301	66,197	11.38%	130,697	44	1,345,238	295,470	278,466

Notes: (2) - Exhibit 2, Column 9
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of February 28, 2018
($000)

Exhibit 8
Sheet 14

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)	(13)
Basic - Total All Coverage*												
1999 & Prior	195,061	91.42%	87.40%	178,316	170,474	7,842	9.34%	15,916	-	194,232	21,826	20,997
2000	30,848	89.86%	85.17%	27,721	26,272	1,448	10.03%	2,635	-	30,355	3,132	2,639
2001	31,709	90.18%	85.60%	28,596	27,142	1,454	10.00%	2,714	-	31,310	3,356	2,957
2002	42,008	90.23%	85.66%	37,903	35,985	1,919	10.00%	3,598	-	41,502	4,603	4,097
2003	33,637	90.27%	85.71%	30,364	28,832	1,532	10.00%	2,883	-	33,247	4,749	4,359
2004	44,927	89.25%	84.27%	40,096	37,859	2,237	10.00%	3,786	-	43,882	5,991	4,946
2005	41,361	89.56%	84.73%	37,044	35,044	2,001	10.00%	3,504	10	40,559	6,181	5,379
2006	62,818	88.81%	83.68%	55,791	52,563	3,228	10.00%	5,258	-	61,050	8,069	6,301
2007	62,455	88.67%	83.50%	55,382	52,149	3,233	10.00%	5,214	12	60,608	7,893	6,046
2008	50,541	88.42%	83.18%	44,687	42,039	2,648	11.86%	4,987	-	49,675	7,759	6,893
2009	55,441	88.20%	82.86%	48,901	45,935	2,965	12.12%	5,569	-	54,469	8,269	7,297
2010	63,475	88.00%	82.61%	55,855	52,435	3,420	11.52%	6,042	12	61,908	7,390	5,823
2011	70,792	87.88%	82.46%	62,213	58,372	3,841	11.80%	6,886	8	69,107	8,195	6,510
2012	81,953	87.80%	82.35%	71,952	67,488	4,463	11.55%	7,793	-	79,744	8,783	6,574
2013	68,969	87.84%	82.47%	60,581	56,878	3,703	11.46%	6,517	10	67,108	12,521	10,660
2014	72,290	88.09%	82.91%	63,681	59,934	3,747	11.73%	7,030	-	70,711	16,547	14,968
2015	108,327	88.47%	83.58%	95,839	90,540	5,299	11.62%	10,523	-	106,362	20,831	18,866
2016	131,722	89.83%	85.60%	118,326	112,752	5,575	13.53%	15,253	-	133,580	68,491	70,349
2017	277,897	94.01%	91.76%	261,264	254,985	6,278	10.69%	27,246	-	288,509	115,142	125,754
Total	1,526,231	90.06%	85.68%	1,374,513	1,307,680	66,833	10.96%	143,354	52	1,517,919	339,728	331,416

Notes: (2) - Exhibit 2, Column 9
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]
*Not including PIPP Enhancements (see PE Exhibit 2, Sheet 8 & PE Exhibit 4)

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APPENDIX A BODILY INJURY

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - With Z-Files
February 28, 2018

Appendix A
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	2,705,888	3,693,959	4,025,174	4,370,282	4,681,746	4,481,466	4,284,507	4,383,206	4,321,555	4,200,711	4,207,555	4,187,823	4,192,721	4,205,005	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700
2000	2,014,071	2,511,093	2,988,290	3,268,317	3,420,821	3,499,721	3,768,850	3,861,149	3,992,830	4,091,972	4,208,884	4,160,487	4,219,267	4,234,548	4,230,187	4,231,824	4,248,631	4,249,216	4,276,621	4,277,651	4,401,127	
2001	1,980,272	3,242,568	4,344,804	4,572,472	5,076,073	5,056,268	5,158,110	5,031,354	5,150,471	5,237,390	5,240,113	5,254,398	5,253,600	5,257,084	5,255,884	5,255,184	5,255,184	5,255,184	5,255,184	5,255,184		
2002	1,681,436	2,920,568	3,256,610	3,307,958	3,386,982	3,637,259	4,081,845	4,384,503	4,466,306	4,470,867	4,510,803	4,676,753	4,638,322	4,623,104	4,621,904	4,629,260	4,629,260	4,629,260	4,629,260			
2003	1,634,038	2,677,312	2,715,223	2,729,468	2,878,449	3,283,104	3,392,570	4,006,465	4,016,440	4,149,870	3,927,657	3,927,657	3,929,649	3,929,649	3,963,651	3,948,825	3,948,825	3,948,825				
2004	1,991,456	3,057,356	3,876,234	3,831,597	4,092,450	4,336,207	4,604,115	4,572,291	4,939,828	5,237,544	5,090,938	5,175,648	5,176,448	5,237,617	5,180,077	5,196,113	5,196,113					
2005	1,560,443	2,751,740	2,813,003	2,817,404	3,181,513	3,225,080	3,540,898	4,007,941	4,256,764	4,212,523	4,276,272	4,235,889	4,238,179	4,242,021	4,222,594	4,228,384						
2006	1,574,003	2,912,504	2,688,474	2,666,067	2,930,672	3,057,929	2,972,954	3,456,227	3,408,738	3,434,286	3,458,865	3,625,616	3,547,190	3,565,041	3,565,354							
2007	1,535,111	2,010,165	2,576,878	2,824,452	2,935,254	3,206,827	3,512,707	3,775,679	3,859,080	3,738,498	3,771,839	3,733,379	3,738,380	3,750,571								
2008	1,062,518	1,915,331	2,329,910	2,323,080	2,458,422	2,437,288	2,383,312	2,163,349	2,317,839	2,422,029	2,430,318	2,439,645	2,431,307									
2009	2,361,009	3,281,707	3,029,745	2,893,984	3,427,690	3,435,516	3,438,151	3,314,955	3,600,552	3,643,289	3,474,181	3,476,397										
2010	1,716,663	3,165,681	3,552,805	3,237,864	3,425,570	3,505,334	3,532,446	4,139,257	4,300,663	4,230,311	4,437,380											
2011	1,324,735	2,159,736	2,188,911	1,923,920	1,772,625	1,880,286	2,037,077	2,421,587	2,440,884	2,553,291												
2012	1,257,711	1,860,130	1,836,556	1,747,660	3,055,744	3,172,759	3,409,996	3,603,997	3,657,440													
2013	1,715,498	3,030,588	2,552,387	2,545,765	3,143,178	3,387,073	3,744,599	3,761,474														
2014	2,022,124	3,073,131	4,137,201	4,576,540	4,575,827	4,850,642	5,294,820															
2015	1,639,069	2,605,981	3,783,103	3,684,422	3,905,234	3,997,739																
2016	2,005,904	3,494,842	3,758,234	3,761,932																		
2017	1,517,052	3,279,328																				

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	2,706	3,694	4,025	4,370	4,682	4,481	4,285	4,383	4,322
2000	2,014	2,511	2,988	3,268	3,421	3,500	3,769	3,861	3,993	4,092
2001	1,980	3,243	4,345	4,572	5,076	5,056	5,158	5,031	5,150	5,237
2002	1,681	2,921	3,257	3,308	3,387	3,637	4,082	4,385	4,466	4,471
2003	1,634	2,677	2,715	2,729	2,878	3,283	3,393	4,006	4,016	4,150
2004	1,991	3,057	3,876	3,832	4,092	4,336	4,604	4,572	4,940	5,238
2005	1,560	2,752	2,813	2,817	3,182	3,225	3,541	4,008	4,257	4,213
2006	1,574	2,913	2,688	2,666	2,931	3,058	2,973	3,456	3,409	3,434
2007	1,535	2,010	2,577	2,824	2,935	3,207	3,513	3,776	3,859	3,738
2008	1,063	1,915	2,330	2,323	2,458	2,437	2,383	2,163	2,318	2,422
2009	2,361	3,282	3,030	2,894	3,428	3,436	3,438	3,315	3,601	3,643
2010	1,717	3,166	3,553	3,238	3,426	3,505	3,532	4,139	4,301	4,230
2011	1,325	2,160	2,189	1,924	1,773	1,880	2,037	2,422	2,441	2,553
2012	1,258	1,860	1,837	1,748	3,056	3,173	3,410	3,604	3,657	
2013	1,715	3,031	2,552	2,546	3,143	3,387	3,745	3,761		
2014	2,022	3,073	4,137	4,577	4,576	4,851	5,295			
2015	1,639	2,606	3,783	3,684	3,905	3,998				
2016	2,006	3,495	3,758	3,762						
2017	1,517	3,279								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.3652	1.0897	1.0857	1.0713	0.9572	0.9561	1.0230	0.9859	0.9720
2000	1.2468	1.1900	1.0937	1.0467	1.0231	1.0769	1.0245	1.0341	1.0248	1.0286
2001	1.6374	1.3399	1.0524	1.1101	0.9961	1.0201	0.9754	1.0237	1.0169	1.0005
2002	1.7369	1.1151	1.0158	1.0239	1.0739	1.1222	1.0741	1.0187	1.0010	1.0089
2003	1.6385	1.0142	1.0052	1.0546	1.1406	1.0333	1.1810	1.0025	1.0332	0.9465
2004	1.5352	1.2678	0.9885	1.0681	1.0596	1.0618	0.9931	1.0804	1.0603	0.9720
2005	1.7634	1.0223	1.0016	1.1292	1.0137	1.0979	1.1319	1.0621	0.9896	1.0151
2006	1.8504	0.9231	0.9917	1.0992	1.0434	0.9722	1.1626	0.9863	1.0075	1.0072
2007	1.3095	1.2819	1.0961	1.0392	1.0925	1.0954	1.0749	1.0221	0.9688	1.0089
2008	1.8026	1.2165	0.9971	1.0583	0.9914	0.9779	0.9077	1.0714	1.0450	1.0034
2009	1.3900	0.9232	0.9552	1.1844	1.0023	1.0008	0.9642	1.0862	1.0119	0.9536
2010	1.8441	1.1223	0.9114	1.0580	1.0233	1.0077	1.1718	1.0390	0.9836	1.0489
2011	1.6303	1.0135	0.8789	0.9214	1.0607	1.0834	1.1888	1.0080	1.0461	
2012	1.4790	0.9873	0.9516	1.7485	1.0383	1.0748	1.0569	1.0148		
2013	1.7666	0.8422	0.9974	1.2347	1.0776	1.1056	1.0045			
2014	1.5198	1.3462	1.1062	0.9998	1.0601	1.0916				
2015	1.5899	1.4517	0.9739	1.0599	1.0237					
2016	1.7423	1.0754	1.0010							
Latest 9 Volume Weighted	1.6678	1.1050	0.9826	1.1142	1.0409	1.0481	1.0725	1.0422	1.0145	0.9955
Latest 6 Volume Weighted	1.7075	1.1252	0.9991	1.1220	1.0461	1.0606	1.0463	1.0390	1.0047	1.0077
Latest 3 Volume Weighted	1.8171	1.2730	1.0295	1.0756	1.0526	1.0911	1.0648	1.0230	1.0082	1.0045
Simple Average of Middle 4 of Last 6	1.6206	1.1056	0.9810	1.0881	1.0457	1.0644	1.0493	1.0368	1.0120	1.0087
Simple Average of Middle 3 of Last 5	1.6173	1.1363	0.9908	1.0981	1.0530	1.0832	1.0777	1.0417	1.0135	1.0065
Selected Feb 17	1.6500	1.1250	1.0000	1.1500	1.0430	1.0830	1.0695	1.0430	1.0230	1.0080
Selected Oct 17	1.6500	1.1250	1.0000	1.1300	1.0430	1.0830	1.0695	1.0430	1.0235	1.0070
Selected Factors	1.6500	1.1250	1.0000	1.1300	1.0430	1.0830	1.0695	1.0430	1.0235	1.0070
Selected Ultimate	2.7281	1.6534	1.4697	1.4697	1.3006	1.2470	1.1514	1.0766	1.0322	1.0085

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Appendix A
Page 4

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
4,201	4,208	4,188	4,193	4,205	4,041	4,041	4,041	4,041	4,041	4,041	4,041
4,209	4,160	4,219	4,235	4,230	4,232	4,249	4,249	4,277	4,278	4,401	
5,240	5,254	5,254	5,257	5,256	5,255	5,255	5,255	5,255	5,255		
4,511	4,677	4,638	4,623	4,622	4,629	4,629	4,629	4,629			
3,928	3,928	3,930	3,930	3,964	3,949	3,949	3,949				
5,091	5,176	5,176	5,238	5,180	5,196	5,196					
4,276	4,236	4,238	4,242	4,223	4,228						
3,459	3,626	3,547	3,565	3,565							
3,772	3,733	3,738	3,751								
2,430	2,440	2,431									
3,474	3,476										
4,437											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
1.0016	0.9953	1.0012	1.0029	0.9609	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9885	1.0141	1.0036	0.9990	1.0004	1.0040	1.0001	1.0064	1.0002	1.0289	
1.0027	0.9998	1.0007	0.9998	0.9999	1.0000	1.0000	1.0000	1.0000		
1.0368	0.9918	0.9967	0.9997	1.0016	1.0000	1.0000	1.0000			
1.0000	1.0005	1.0000	1.0087	0.9963	1.0000	1.0000				
1.0166	1.0002	1.0118	0.9890	1.0031	1.0000					
0.9906	1.0005	1.0009	0.9954	1.0014						
1.0482	0.9784	1.0050	1.0001							
0.9898	1.0013	1.0033								
1.0038	0.9966									
1.0006										
1.0101	0.9985	1.0027	0.9989	0.9953	1.0006	1.0000	1.0015	1.0001	1.0148	1.0000
1.0082	0.9967	1.0032	0.9983	1.0006	1.0006	1.0000	1.0015	1.0001	1.0148	1.0000
0.9972	0.9917	1.0029	0.9941	1.0005	1.0000	1.0000	1.0019	1.0001	1.0148	1.0000
1.0029	0.9994	1.0023	0.9988	1.0008	1.0000	1.0000	1.0000	1.0000	1.0144	1.0000
0.9983	0.9991	1.0031	0.9984	1.0009	1.0000	1.0000	1.0000	1.0000	1.0144	1.0000
1.0025	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.5410	2.6938	3.2555	2.4082	2.6494	2.7820	2.7281	2.7281
12	1.5235	1.5776	1.7916	1.4860	1.6382	1.6860	1.6534	1.6534
20	1.3787	1.4020	1.4073	1.3441	1.4417	1.4987	1.4697	1.4697
24	1.4032	1.4032	1.3670	1.3701	1.4551	1.4987	1.4697	1.4697
32	1.2594	1.2506	1.2709	1.2592	1.3250	1.3032	1.3006	1.3006
36	1.2099	1.1955	1.2074	1.2042	1.2583	1.2495	1.2470	1.2470
48	1.1543	1.1273	1.1066	1.1313	1.1616	1.1537	1.1514	1.1514
60	1.0763	1.0774	1.0393	1.0782	1.0778	1.0788	1.0766	1.0766
72	1.0327	1.0369	1.0159	1.0399	1.0346	1.0343	1.0322	1.0322
84	1.0180	1.0320	1.0077	1.0275	1.0209	1.0110	1.0085	1.0085
96	1.0226	1.0241	1.0032	1.0187	1.0143	1.0030	1.0015	1.0015
108	1.0124	1.0158	1.0060	1.0158	1.0160	1.0005	1.0005	1.0005
120	1.0139	1.0192	1.0144	1.0163	1.0169	1.0000	1.0000	1.0000
132	1.0113	1.0160	1.0114	1.0140	1.0138	1.0000	1.0000	1.0000
144	1.0123	1.0177	1.0174	1.0152	1.0154	1.0000	1.0000	1.0000
156	1.0171	1.0171	1.0169	1.0144	1.0144	1.0000	1.0000	1.0000
168	1.0165	1.0165	1.0169	1.0144	1.0144	1.0000	1.0000	1.0000
180	1.0165	1.0165	1.0169	1.0144	1.0144	1.0000	1.0000	1.0000
192	1.0149	1.0149	1.0149	1.0144	1.0144	1.0000	1.0000	1.0000
204	1.0148	1.0148	1.0148	1.0144	1.0144	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6500	2.7283	36.65%	8		2.7283	1.6500	1.6500	2.7281
12	1.1250	1.6535		12	60.48%	1.6535	1.1250	1.1250	1.6534
20	1.0000	1.4698	68.04%	20		1.4698	1.0000	1.0000	1.4697
24	1.1300	1.4698		24	68.04%	1.4698	1.1300	1.1300	1.4697
32	1.0430	1.3007	76.88%	32		1.3007	1.0430	1.0430	1.3006
36	1.0550	1.2471		36	80.19%	1.2471	1.0831	1.0830	1.2470
44	1.0800	1.1821	84.60%	48	86.85%	1.1514	1.0695	1.0695	1.1514
56	1.0500	1.0945	91.37%	60	92.89%	1.0766	1.0431	1.0430	1.0766
68	1.0300	1.0424	95.93%	72	96.89%	1.0321	1.0232	1.0235	1.0322
80	1.0100	1.0120	98.81%	84	99.14%	1.0087	1.0070	1.0070	1.0085
92	1.0010	1.0020	99.80%	96	99.83%	1.0017	1.0010	1.0010	1.0015
104	1.0010	1.0010	99.90%	108	99.93%	1.0007	1.0007	1.0005	1.0005
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	4,401	1.0000	4,401	-	150	0.93%
2001	497,121	5,255	1.0000	5,255	-	-	1.06%
2002	532,307	4,629	1.0000	4,629	-	-	0.87%
2003	560,857	3,949	1.0000	3,949	-	-	0.70%
2004	596,045	5,196	1.0000	5,196	-	-	0.87%
2005	630,367	4,228	1.0000	4,228	-	-	0.67%
2006	654,863	3,565	1.0000	3,565	-	45	0.54%
2007	677,464	3,751	1.0000	3,751	-	30	0.55%
2008	707,051	2,431	1.0000	2,431	-	85	0.34%
2009	739,881	3,476	1.0005	3,478	2	50	0.47%
2010	759,948	4,437	1.0015	4,444	7	635	0.58%
2011	772,985	2,553	1.0085	2,575	22	559	0.33%
2012	768,953	3,657	1.0322	3,775	118	136	0.49%
2013	778,092	3,761	1.0766	4,050	288	1,013	0.52%
2014	817,710	5,295	1.1514	6,097	802	1,578	0.75%
2015	873,488	3,998	1.2470	4,985	987	2,018	0.57%
2016	918,780	3,762	1.4697	5,529	1,767	2,360	0.60%
2017	971,436	3,279	1.6534	5,422	2,143	3,218	0.56%
	12,732,625	71,626		77,761	6,135	11,877	0.61%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4,401			4,401	0.93%	0.93%	100.00%	0.93%	0.61%
2001	497,121	5,255	4,434		4,434	0.89%	1.06%	100.00%	1.06%	0.61%
2002	532,307	4,629	5,295	4,467	4,881	0.92%	0.87%	100.00%	0.87%	0.61%
2003	560,857	3,949	4,664	5,334	4,999	0.89%	0.70%	100.00%	0.70%	0.61%
2004	596,045	5,196	3,978	4,699	4,339	0.73%	0.87%	100.00%	0.87%	0.61%
2005	630,367	4,228	5,235	4,008	4,622	0.73%	0.67%	100.00%	0.67%	0.61%
2006	654,863	3,565	4,260	5,274	4,767	0.73%	0.54%	90.00%	0.56%	0.61%
2007	677,464	3,751	3,592	4,292	3,942	0.58%	0.55%	80.00%	0.56%	0.61%
2008	707,051	2,431	3,779	3,619	3,699	0.52%	0.34%	70.00%	0.40%	0.61%
2009	739,881	3,478	2,450	3,807	3,128	0.42%	0.47%	60.00%	0.45%	0.61%
2010	759,948	4,444	3,504	2,468	2,986	0.39%	0.58%	50.00%	0.49%	0.61%
2011	772,985	2,575	4,477	3,531	4,004	0.52%	0.33%	40.00%	0.44%	0.61%
2012	768,953	3,775	2,594	4,511	3,553	0.46%	0.49%	30.00%	0.47%	0.61%
2013	778,092	4,050	3,804	2,614	3,209	0.41%	0.52%	20.00%	0.43%	0.61%
2014	817,710	6,097	4,080	3,832	3,956	0.48%	0.75%	10.00%	0.51%	0.61%
2015	873,488	4,985	6,142	4,111	5,126	0.59%	0.57%	0.00%	0.59%	0.61%
2016	918,780	5,529	5,023	6,188	5,605	0.61%	0.60%	0.00%	0.61%	0.61%
2017	971,436	5,422	5,570	5,060	5,315	0.55%	0.56%	0.00%	0.55%	0.61%
	12,732,625	77,761	72,881	67,816	76,967					

Trend in Losses Based on Exponential Regression (a):
0.65%
Selected Trend (b):
0.75%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) = Sum [Column (3)] / Sum [Column (2)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	0.61%	2,903	100.00%	0.00%	2,903	4,401	-	4,401	0.93%
2001	497,121	0.61%	3,036	100.00%	0.00%	3,036	5,255	-	5,255	1.06%
2002	532,307	0.61%	3,251	100.00%	0.00%	3,251	4,629	-	4,629	0.87%
2003	560,857	0.61%	3,425	100.00%	0.00%	3,425	3,949	-	3,949	0.70%
2004	596,045	0.61%	3,640	100.00%	0.00%	3,640	5,196	-	5,196	0.87%
2005	630,367	0.61%	3,850	100.00%	0.00%	3,850	4,228	-	4,228	0.67%
2006	654,863	0.61%	3,999	100.00%	0.00%	3,999	3,565	-	3,565	0.54%
2007	677,464	0.61%	4,137	100.00%	0.00%	4,137	3,751	-	3,751	0.55%
2008	707,051	0.61%	4,318	100.00%	0.00%	4,318	2,431	-	2,431	0.34%
2009	739,881	0.61%	4,519	99.95%	0.05%	4,516	3,476	2	3,479	0.47%
2010	759,948	0.61%	4,641	99.85%	0.15%	4,634	4,437	7	4,444	0.58%
2011	772,985	0.61%	4,721	99.16%	0.84%	4,681	2,553	40	2,593	0.34%
2012	768,953	0.61%	4,696	96.88%	3.12%	4,550	3,657	147	3,804	0.49%
2013	778,092	0.61%	4,752	92.89%	7.11%	4,414	3,761	338	4,100	0.53%
2014	817,710	0.61%	4,994	86.85%	13.15%	4,337	5,295	657	5,952	0.73%
2015	873,488	0.61%	5,335	80.19%	19.81%	4,278	3,998	1,057	5,054	0.58%
2016	918,780	0.61%	5,611	68.04%	31.96%	3,818	3,762	1,793	5,555	0.60%
2017	971,436	0.61%	5,933	60.48%	39.52%	3,588	3,279	2,345	5,624	0.58%
	12,732,625		77,761			71,376	71,626	6,385	78,011	0.61%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	200,641	625,190	908,815	1,626,209	2,249,665	2,959,939	3,627,278	3,825,977	3,899,555	3,975,711	3,982,555	3,962,823	3,967,721	3,980,005	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700
2000	113,030	351,579	1,266,895	1,384,315	1,734,631	1,891,099	2,509,542	3,300,149	3,511,830	3,557,472	3,754,386	3,960,487	4,169,267	4,184,548	4,180,187	4,181,824	4,198,631	4,199,216	4,206,621	4,207,651	4,251,127	
2001	114,007	663,589	950,739	1,558,680	2,238,555	3,154,817	3,625,556	4,022,872	4,454,989	4,779,490	5,032,213	5,046,498	5,250,700	5,257,084	5,255,884	5,255,184	5,255,184	5,255,184	5,255,184	5,255,184		
2002	75,436	301,960	556,835	713,209	1,433,417	1,645,797	2,192,565	2,607,335	3,240,478	3,859,941	4,294,691	4,596,753	4,608,322	4,623,104	4,621,904	4,629,260	4,629,260	4,629,260	4,629,260			
2003	27,573	195,916	820,696	960,154	1,307,629	1,504,285	1,873,729	2,356,465	2,970,021	3,408,569	3,927,657	3,927,657	3,929,649	3,929,649	3,948,825	3,948,825	3,948,825	3,948,825				
2004	65,714	135,405	522,925	616,905	1,091,948	1,404,567	2,574,708	3,040,227	3,470,713	4,551,324	4,824,649	5,009,359	5,030,158	5,037,617	5,130,077	5,196,113	5,196,113					
2005	35,051	344,964	858,754	966,976	1,262,269	1,628,336	2,461,744	2,802,000	3,301,608	3,549,875	3,777,118	4,016,735	4,019,025	4,222,021	4,222,594	4,228,384						
2006	26,270	87,803	436,303	579,038	1,272,974	1,458,538	2,090,556	2,865,989	3,043,738	3,119,286	3,213,865	3,247,462	3,302,190	3,520,041	3,520,354							
2007	53,336	281,517	517,159	797,362	1,229,990	1,254,059	1,759,766	2,826,907	3,242,180	3,678,498	3,711,470	3,713,379	3,718,380	3,720,571								
2008	30,518	132,136	362,871	507,664	1,091,321	1,220,187	1,553,312	1,728,349	1,965,839	2,183,563	2,245,318	2,289,645	2,346,307									
2009	18,009	126,443	395,212	594,585	1,107,633	1,222,590	1,892,256	2,397,401	2,962,345	3,393,289	3,424,181	3,426,397										
2010	17,095	179,390	890,937	993,996	1,370,318	1,428,682	2,174,499	2,692,951	3,123,781	3,577,876	3,802,380											
2011	19,785	243,636	347,311	427,729	610,894	693,555	970,346	1,737,387	1,966,684	1,994,091												
2012	24,711	88,130	269,056	489,160	1,195,318	1,512,518	2,448,383	2,858,336	3,521,390													
2013	23,498	83,588	605,536	806,568	1,113,765	1,310,701	1,895,017	2,748,661														
2014	56,413	619,593	992,548	1,371,260	2,171,067	2,715,386	3,716,542															
2015	25,569	106,112	773,050	986,369	1,680,027	1,979,306																
2016	28,679	201,321	1,172,666	1,402,172																		
2017	49,315	61,553																				

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	201	625	909	1,626	2,250	2,960	3,627	3,826	3,900
2000	113	352	1,267	1,384	1,735	1,891	2,510	3,300	3,512	3,557
2001	114	664	951	1,559	2,239	3,155	3,626	4,023	4,455	4,779
2002	75	302	557	713	1,433	1,646	2,193	2,607	3,240	3,860
2003	28	196	821	960	1,308	1,504	1,874	2,356	2,970	3,409
2004	66	135	523	617	1,092	1,405	2,575	3,040	3,471	4,551
2005	35	345	859	967	1,262	1,628	2,462	2,802	3,302	3,550
2006	26	88	436	579	1,273	1,459	2,091	2,866	3,044	3,119
2007	53	282	517	797	1,230	1,254	1,760	2,827	3,242	3,678
2008	31	132	363	508	1,091	1,220	1,553	1,728	1,966	2,184
2009	18	126	395	595	1,108	1,223	1,892	2,397	2,962	3,393
2010	17	179	891	994	1,370	1,429	2,174	2,693	3,124	3,578
2011	20	244	347	428	611	694	970	1,737	1,967	1,994
2012	25	88	269	489	1,195	1,513	2,448	2,858	3,521	
2013	23	84	606	807	1,114	1,311	1,895	2,749		
2014	56	620	993	1,371	2,171	2,715	3,717			
2015	26	106	773	986	1,680	1,979				
2016	29	201	1,173	1,402						
2017	49	62								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		3.1160	1.4537	1.7894	1.3834	1.3157	1.2255	1.0548	1.0192	1.0195
2000	3.1105	3.6034	1.0927	1.2531	1.0902	1.3270	1.3150	1.0641	1.0130	1.0554
2001	5.8206	1.4327	1.6394	1.4362	1.4093	1.1492	1.1096	1.1074	1.0728	1.0529
2002	4.0029	1.8441	1.2808	2.0098	1.1482	1.3322	1.1892	1.2428	1.1912	1.1126
2003	7.1053	4.1890	1.1699	1.3619	1.1504	1.2456	1.2576	1.2604	1.1477	1.1523
2004	2.0605	3.8619	1.1797	1.7700	1.2863	1.8331	1.1808	1.1416	1.3114	1.0601
2005	9.8418	2.4894	1.1260	1.3054	1.2900	1.5118	1.1382	1.1783	1.0752	1.0640
2006	3.3423	4.9691	1.3271	2.1984	1.1458	1.4333	1.3709	1.0620	1.0248	1.0303
2007	5.2782	1.8370	1.5418	1.5426	1.0196	1.4033	1.6064	1.1469	1.1346	1.0090
2008	4.3298	2.7462	1.3990	2.1497	1.1181	1.2730	1.1127	1.1374	1.1108	1.0283
2009	7.0211	3.1256	1.5045	1.8629	1.1038	1.5477	1.2670	1.2356	1.1455	1.0091
2010	10.4935	4.9665	1.1157	1.3786	1.0426	1.5220	1.2384	1.1600	1.1454	1.0627
2011	12.3143	1.4255	1.2315	1.4282	1.1353	1.3991	1.7905	1.1320	1.0139	
2012	3.5664	3.0530	1.8181	2.4436	1.2654	1.6187	1.1674	1.2320		
2013	3.5572	7.2443	1.3320	1.3809	1.1768	1.4458	1.4505			
2014	10.9831	1.6019	1.3816	1.5833	1.2507	1.3687				
2015	4.1500	7.2852	1.2759	1.7032	1.1781					
2016	7.0199	5.8249	1.1957							
Latest 9 Volume Weighted	6.4992	3.2629	1.3047	1.6589	1.1527	1.4435	1.3138	1.1590	1.1309	1.0606
Latest 6 Volume Weighted	5.5734	3.0991	1.3180	1.6042	1.1841	1.4743	1.2953	1.1784	1.1007	1.0345
Latest 3 Volume Weighted	3.5629	3.1696	1.2796	1.5691	1.2096	1.4552	1.3821	1.1815	1.1133	1.0346
Simple Average of Middle 4 of Last 6	6.4299	4.4310	1.3053	1.5239	1.1852	1.4787	1.2808	1.1691	1.1039	1.0326
Simple Average of Middle 3 of Last 5	4.9121	5.3741	1.3298	1.5716	1.2019	1.4556	1.3186	1.1765	1.1302	1.0226
Selected Feb 17	8.0000	3.2000	1.3600	1.7000	1.1500	1.5075	1.3010	1.1600	1.1290	1.0610
Selected Oct 17	8.0000	3.2000	1.3600	1.6500	1.1500	1.5075	1.3010	1.1600	1.1290	1.0590
Selected Factors	8.0000	3.2000	1.3600	1.6500	1.1500	1.5075	1.3010	1.1600	1.1290	1.0590
Selected Ultimate	189.9562	23.7445	7.4202	5.4560	3.3067	2.8754	1.9074	1.4661	1.2639	1.1195

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
3,976	3,983	3,963	3,968	3,980	4,041	4,041	4,041	4,041	4,041	4,041	4,041
3,754	3,960	4,169	4,185	4,180	4,182	4,199	4,199	4,207	4,208	4,251	
5,032	5,046	5,251	5,257	5,256	5,255	5,255	5,255	5,255	5,255		
4,295	4,597	4,608	4,623	4,622	4,629	4,629	4,629	4,629			
3,928	3,928	3,930	3,930	3,949	3,949	3,949	3,949				
4,825	5,009	5,030	5,038	5,130	5,196	5,196					
3,777	4,017	4,019	4,222	4,223	4,228						
3,214	3,247	3,302	3,520	3,520							
3,711	3,713	3,718	3,721								
2,245	2,290	2,346									
3,424	3,426										
3,802											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
1.0017	0.9950	1.0012	1.0031	1.0152	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0549	1.0527	1.0037	0.9990	1.0004	1.0040	1.0001	1.0018	1.0002	1.0103	
1.0028	1.0405	1.0012	0.9998	0.9999	1.0000	1.0000	1.0000	1.0000		
1.0703	1.0025	1.0032	0.9997	1.0016	1.0000	1.0000	1.0000			
1.0000	1.0005	1.0000	1.0049	1.0000	1.0000	1.0000				
1.0383	1.0042	1.0015	1.0184	1.0129	1.0000					
1.0634	1.0006	1.0505	1.0001	1.0014						
1.0105	1.0169	1.0660	1.0001							
1.0005	1.0013	1.0006								
1.0197	1.0247									
1.0006										
1.0239	1.0158	1.0124	1.0034	1.0045	1.0006	1.0000	1.0004	1.0001	1.0053	1.0000
1.0239	1.0064	1.0181	1.0041	1.0029	1.0006	1.0000	1.0004	1.0001	1.0053	1.0000
1.0052	1.0126	1.0383	1.0073	1.0054	1.0000	1.0000	1.0005	1.0001	1.0053	1.0000
1.0173	1.0057	1.0139	1.0012	1.0008	1.0000	1.0000	1.0000	1.0000	1.0052	1.0000
1.0103	1.0075	1.0175	1.0017	1.0010	1.0000	1.0000	1.0000	1.0000	1.0052	1.0000
1.0280	1.0150	1.0110	1.0025	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
1.0250	1.0150	1.0110	1.0025	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
1.0250	1.0150	1.0110	1.0025	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000
1.0571	1.0313	1.0161	1.0050	1.0025	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	148.9953	117.8214	80.8243	177.1309	180.6309	196.6559	189.9562	189.9562
12	22.9252	21.1399	22.6848	27.5482	36.7726	24.5820	23.7445	23.7445
20	7.0259	6.8213	7.1571	6.2171	6.8426	7.6819	7.4202	7.4202
24	5.3849	5.1754	5.5932	4.7631	5.1455	5.6484	5.4560	5.4560
32	3.2461	3.2262	3.5647	3.1256	3.2741	3.3226	3.3067	3.3067
36	2.8161	2.7246	2.9470	2.6371	2.7241	2.8892	2.8754	2.8754
48	1.9508	1.8480	2.0251	1.7834	1.8714	1.9166	1.9074	1.9074
60	1.4848	1.4267	1.4652	1.3924	1.4192	1.4731	1.4661	1.4661
72	1.2812	1.2107	1.2401	1.1910	1.2064	1.2700	1.2639	1.2639
84	1.1329	1.0999	1.1139	1.0790	1.0674	1.1249	1.1195	1.1195
96	1.0681	1.0633	1.0766	1.0449	1.0438	1.0602	1.0571	1.0571
108	1.0432	1.0384	1.0710	1.0271	1.0332	1.0313	1.0313	1.0313
120	1.0270	1.0319	1.0577	1.0213	1.0255	1.0161	1.0161	1.0161
132	1.0144	1.0135	1.0187	1.0072	1.0079	1.0050	1.0050	1.0050
144	1.0109	1.0094	1.0113	1.0060	1.0062	1.0025	1.0025	1.0025
156	1.0064	1.0064	1.0059	1.0052	1.0052	1.0005	1.0005	1.0005
168	1.0058	1.0058	1.0059	1.0052	1.0052	1.0000	1.0000	1.0000
180	1.0058	1.0058	1.0059	1.0052	1.0052	1.0000	1.0000	1.0000
192	1.0053	1.0053	1.0053	1.0052	1.0052	1.0000	1.0000	1.0000
204	1.0053	1.0053	1.0053	1.0052	1.0052	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	8.0000	189.9490	0.53%	8		189.9490	8.0000	8.0000	189.9562
12	3.2000	23.7436		12	4.21%	23.7436	3.2000	3.2000	23.7445
20	1.3600	7.4199	13.48%	20		7.4199	1.3600	1.3600	7.4202
24	1.6500	5.4558		24	18.33%	5.4558	1.6500	1.6500	5.4560
32	1.1500	3.3065	30.24%	32		3.3065	1.1500	1.1500	3.3067
36	1.3300	2.8753		36	34.78%	2.8753	1.5073	1.5075	2.8754
44	1.4000	2.1618	46.26%	48	52.42%	1.9075	1.3012	1.3010	1.9074
56	1.1600	1.5442	64.76%	60	68.21%	1.4660	1.1600	1.1600	1.4661
68	1.1600	1.3312	75.12%	72	79.13%	1.2638	1.1288	1.1290	1.2639
80	1.0750	1.1476	87.14%	84	89.32%	1.1196	1.0593	1.0590	1.1195
92	1.0300	1.0675	93.68%	96	94.61%	1.0569	1.0249	1.0250	1.0571
104	1.0150	1.0364	96.49%	108	96.97%	1.0313	1.0150	1.0150	1.0313
116	1.0150	1.0211	97.93%	120	98.42%	1.0160	1.0108	1.0110	1.0161
128	1.0025	1.0060	99.40%	132	99.49%	1.0052	1.0025	1.0025	1.0050
140	1.0025	1.0035	99.65%	144	99.73%	1.0027	1.0020	1.0020	1.0025
152	1.0010	1.0010	99.90%	156	99.93%	1.0007	1.0007	1.0005	1.0005
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	4,251	1.0000	4,251	-	150	(150)	0.89%
2001	497,121	5,255	1.0000	5,255	-	-	-	1.06%
2002	532,307	4,629	1.0000	4,629	-	-	-	0.87%
2003	560,857	3,949	1.0000	3,949	-	-	-	0.70%
2004	596,045	5,196	1.0000	5,196	-	-	-	0.87%
2005	630,367	4,228	1.0005	4,230	2	-	2	0.67%
2006	654,863	3,520	1.0025	3,529	9	45	(36)	0.54%
2007	677,464	3,721	1.0050	3,739	19	30	(11)	0.55%
2008	707,051	2,346	1.0161	2,384	38	85	(47)	0.34%
2009	739,881	3,426	1.0313	3,534	107	50	57	0.48%
2010	759,948	3,802	1.0571	4,019	217	635	(418)	0.53%
2011	772,985	1,994	1.1195	2,232	238	559	(321)	0.29%
2012	768,953	3,521	1.2639	4,451	929	136	793	0.58%
2013	778,092	2,749	1.4661	4,030	1,281	1,013	268	0.52%
2014	817,710	3,717	1.9074	7,089	3,372	1,578	1,794	0.87%
2015	873,488	1,979	2.8754	5,691	3,712	2,018	1,694	0.65%
2016	918,780	1,402	5.4560	7,650	6,248	2,360	3,888	0.83%
2017	971,436	62	23.7445	1,462	1,400	3,218	(1,818)	0.15%
	12,732,625	59,749		77,321	17,572	11,877	5,695	0.61%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4,251			4,251	0.89%	0.89%	100.00%	0.89%	0.61%
2001	497,121	5,255	4,283		4,283	0.86%	1.06%	100.00%	1.06%	0.61%
2002	532,307	4,629	5,295	4,315	4,805	0.90%	0.87%	100.00%	0.87%	0.61%
2003	560,857	3,949	4,664	5,334	4,999	0.89%	0.70%	100.00%	0.70%	0.61%
2004	596,045	5,196	3,978	4,699	4,339	0.73%	0.87%	100.00%	0.87%	0.61%
2005	630,367	4,230	5,235	4,008	4,622	0.73%	0.67%	100.00%	0.67%	0.61%
2006	654,863	3,529	4,262	5,274	4,768	0.73%	0.54%	90.00%	0.56%	0.61%
2007	677,464	3,739	3,556	4,294	3,925	0.58%	0.55%	80.00%	0.56%	0.61%
2008	707,051	2,384	3,767	3,582	3,675	0.52%	0.34%	70.00%	0.39%	0.61%
2009	739,881	3,534	2,402	3,795	3,099	0.42%	0.48%	60.00%	0.45%	0.61%
2010	759,948	4,019	3,560	2,420	2,990	0.39%	0.53%	50.00%	0.46%	0.61%
2011	772,985	2,232	4,050	3,587	3,818	0.49%	0.29%	40.00%	0.41%	0.61%
2012	768,953	4,451	2,249	4,080	3,164	0.41%	0.58%	30.00%	0.46%	0.61%
2013	778,092	4,030	4,484	2,266	3,375	0.43%	0.52%	20.00%	0.45%	0.61%
2014	817,710	7,089	4,060	4,518	4,289	0.52%	0.87%	10.00%	0.56%	0.61%
2015	873,488	5,691	7,142	4,090	5,616	0.64%	0.65%	0.00%	0.64%	0.61%
2016	918,780	7,650	5,734	7,196	6,465	0.70%	0.83%	0.00%	0.70%	0.61%
2017	971,436	1,462	7,708	5,777	6,742	0.69%	0.15%	0.00%	0.69%	0.61%
	12,732,625	77,321	76,428	69,236	79,225					

Trend in Losses Based on Exponential Regression (a):
-0.72%
Selected Trend (b):
0.75%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	0.61%	2,903	100.00%	0.00%	2,903	4,251	-	4,251	(150)	0.89%
2001	497,121	0.61%	3,036	100.00%	0.00%	3,036	5,255	-	5,255	-	1.06%
2002	532,307	0.61%	3,251	100.00%	0.00%	3,251	4,629	-	4,629	-	0.87%
2003	560,857	0.61%	3,425	100.00%	0.00%	3,425	3,949	-	3,949	-	0.70%
2004	596,045	0.61%	3,640	100.00%	0.00%	3,640	5,196	-	5,196	-	0.87%
2005	630,367	0.61%	3,850	99.95%	0.05%	3,848	4,228	2	4,230	2	0.67%
2006	654,863	0.61%	3,999	99.75%	0.25%	3,989	3,520	10	3,530	(35)	0.54%
2007	677,464	0.61%	4,137	99.50%	0.50%	4,117	3,721	21	3,741	(9)	0.55%
2008	707,051	0.61%	4,318	98.42%	1.58%	4,250	2,346	68	2,415	(17)	0.34%
2009	739,881	0.61%	4,519	96.96%	3.04%	4,381	3,426	137	3,564	87	0.48%
2010	759,948	0.61%	4,641	94.60%	5.40%	4,391	3,802	251	4,053	(384)	0.53%
2011	772,985	0.61%	4,721	89.33%	10.67%	4,217	1,994	504	2,498	(55)	0.32%
2012	768,953	0.61%	4,696	79.12%	20.88%	3,716	3,521	980	4,502	844	0.59%
2013	778,092	0.61%	4,752	68.21%	31.79%	3,241	2,749	1,511	4,259	498	0.55%
2014	817,710	0.61%	4,994	52.43%	47.57%	2,618	3,717	2,376	6,092	798	0.75%
2015	873,488	0.61%	5,335	34.78%	65.22%	1,855	1,979	3,479	5,459	1,461	0.62%
2016	918,780	0.61%	5,611	18.33%	81.67%	1,028	1,402	4,583	5,985	2,223	0.65%
2017	971,436	0.61%	5,933	4.21%	95.79%	250	62	5,683	5,744	2,465	0.59%
	12,732,625		77,761			58,157	59,749	19,604	79,353	7,727	0.62%

Notes:
(10) = (8) + (9)

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APPENDIX B PROPERTY DAMAGE

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - With Z-Files
February 28, 2018

Appendix B
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	21,829,291	22,214,859	22,315,595	22,443,896	22,570,803	22,521,909	22,483,214	22,396,100	22,391,938	22,368,137	22,352,365	22,349,779	22,337,851	22,315,141	22,307,607	22,304,151	22,297,969	22,297,469	22,296,969	22,296,626	22,294,526
2000	12,788,977	24,201,850	25,604,567	25,987,645	26,015,185	26,090,631	26,035,376	25,852,750	25,826,075	25,805,086	25,794,605	25,790,651	25,784,391	25,776,790	25,763,775	25,760,785	25,755,787	25,750,655	25,755,267	25,751,562	25,749,982	
2001	13,514,186	23,330,120	25,612,049	25,874,125	25,984,742	26,091,015	25,928,262	25,890,607	25,885,323	25,880,174	25,763,979	25,756,635	25,751,382	25,736,224	25,731,848	25,728,567	25,725,758	25,722,925	25,722,754	25,722,754		
2002	15,546,056	26,506,813	28,027,422	28,210,532	28,372,843	28,376,769	28,291,747	28,176,122	28,154,651	28,133,102	28,115,441	28,100,140	28,082,983	28,079,527	28,076,494	28,064,083	28,061,211	28,059,458	28,056,619			
2003	15,076,399	26,875,012	29,085,435	29,370,861	29,721,723	29,802,040	29,720,791	29,691,140	29,661,298	29,615,178	29,597,523	29,573,362	29,563,909	29,574,827	29,568,169	29,565,610	29,563,951	29,560,254				
2004	14,512,645	26,870,328	28,867,824	29,464,025	29,792,692	29,777,670	29,753,562	29,724,388	29,683,960	29,675,477	29,666,965	29,659,803	29,654,562	29,630,101	29,626,483	29,617,708	29,615,902					
2005	16,083,412	27,295,660	29,786,024	30,009,137	30,510,641	30,568,106	30,461,360	30,461,701	30,422,288	30,420,203	30,402,355	30,327,075	30,302,353	30,298,361	30,295,670	30,292,461						
2006	16,806,045	30,353,079	32,221,733	32,949,645	33,607,049	33,712,675	33,682,832	33,628,840	33,616,465	33,605,542	33,586,572	33,585,562	33,581,840	33,579,863	33,573,906							
2007	17,253,986	31,000,779	33,310,425	33,885,293	34,659,200	34,662,954	34,513,948	34,368,890	34,310,033	34,308,045	34,305,175	34,301,517	34,292,450	34,290,412								
2008	17,401,208	31,312,769	34,671,608	35,493,766	36,197,544	36,386,099	36,171,795	36,075,996	36,053,333	36,134,094	35,984,623	35,982,778	36,015,471									
2009	18,735,277	31,416,572	33,936,908	34,547,474	34,798,331	35,051,147	35,149,012	35,161,749	35,136,295	34,958,295	34,956,082	34,953,982										
2010	18,115,608	31,919,673	35,361,977	36,416,408	37,167,752	37,297,943	37,349,741	37,390,353	37,334,268	37,369,807	37,374,342											
2011	19,234,149	32,719,528	36,001,526	36,567,021	37,318,322	37,398,436	37,475,483	37,495,002	37,563,426	37,531,188												
2012	21,104,666	35,554,794	39,519,708	40,460,066	41,092,569	41,413,191	41,643,604	41,789,399	41,851,466													
2013	19,012,329	36,054,767	42,085,066	43,494,266	44,680,909	45,112,420	45,476,598	45,680,733														
2014	18,585,718	33,872,504	39,700,090	39,978,471	40,686,248	40,951,348	41,026,859															
2015	19,417,052	33,904,039	39,071,452	40,070,976	40,856,982	41,090,082																
2016	20,705,663	34,756,815	41,704,786	42,433,122																		
2017	21,091,193	38,288,714																				

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	21,829	22,215	22,316	22,444	22,571	22,522	22,483	22,396	22,392
2000	12,789	24,202	25,605	25,988	26,015	26,091	26,035	25,853	25,826	25,805
2001	13,514	23,330	25,612	25,874	25,985	26,091	25,928	25,891	25,885	25,880
2002	15,546	26,507	28,027	28,211	28,373	28,377	28,292	28,176	28,155	28,133
2003	15,076	26,875	29,085	29,371	29,722	29,802	29,721	29,691	29,661	29,615
2004	14,513	26,870	28,868	29,464	29,793	29,778	29,754	29,724	29,684	29,675
2005	16,083	27,296	29,786	30,009	30,511	30,568	30,461	30,462	30,422	30,420
2006	16,806	30,353	32,222	32,950	33,607	33,713	33,683	33,629	33,616	33,606
2007	17,254	31,001	33,310	33,885	34,659	34,663	34,514	34,369	34,310	34,308
2008	17,401	31,313	34,672	35,494	36,198	36,386	36,172	36,076	36,053	36,134
2009	18,735	31,417	33,937	34,547	34,798	35,051	35,149	35,162	35,136	34,958
2010	18,116	31,920	35,362	36,416	37,168	37,298	37,350	37,390	37,334	37,370
2011	19,234	32,720	36,002	36,567	37,318	37,398	37,475	37,495	37,563	37,531
2012	21,105	35,555	39,520	40,460	41,093	41,413	41,644	41,789	41,851	
2013	19,012	36,055	42,085	43,494	44,681	45,112	45,477	45,681		
2014	18,586	33,873	39,700	39,978	40,686	40,951	41,027			
2015	19,417	33,904	39,071	40,071	40,857	41,090				
2016	20,706	34,757	41,705	42,433						
2017	21,091	38,289								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.0177	1.0045	1.0057	1.0057	0.9978	0.9983	0.9961	0.9998	0.9989
2000	1.8924	1.0580	1.0150	1.0011	1.0029	0.9979	0.9930	0.9990	0.9992	0.9996
2001	1.7263	1.0978	1.0102	1.0043	1.0041	0.9938	0.9985	0.9998	0.9998	0.9955
2002	1.7051	1.0574	1.0065	1.0058	1.0001	0.9970	0.9959	0.9992	0.9992	0.9994
2003	1.7826	1.0822	1.0098	1.0119	1.0027	0.9973	0.9990	0.9990	0.9984	0.9994
2004	1.8515	1.0743	1.0207	1.0112	0.9995	0.9992	0.9990	0.9986	0.9997	0.9997
2005	1.6971	1.0912	1.0075	1.0167	1.0019	0.9965	1.0000	0.9987	0.9999	0.9994
2006	1.8061	1.0616	1.0226	1.0200	1.0031	0.9991	0.9984	0.9996	0.9997	0.9994
2007	1.7967	1.0745	1.0173	1.0228	1.0001	0.9957	0.9958	0.9983	0.9999	0.9999
2008	1.7995	1.1073	1.0237	1.0198	1.0052	0.9941	0.9974	0.9994	1.0022	0.9959
2009	1.6769	1.0802	1.0180	1.0073	1.0073	1.0028	1.0004	0.9993	0.9949	0.9999
2010	1.7620	1.1078	1.0298	1.0206	1.0035	1.0014	1.0011	0.9985	1.0010	1.0001
2011	1.7011	1.1003	1.0157	1.0205	1.0021	1.0021	1.0005	1.0018	0.9991	
2012	1.6847	1.1115	1.0238	1.0156	1.0078	1.0056	1.0035	1.0015		
2013	1.8964	1.1673	1.0335	1.0273	1.0097	1.0081	1.0045			
2014	1.8225	1.1720	1.0070	1.0177	1.0065	1.0018				
2015	1.7461	1.1524	1.0256	1.0196	1.0057					
2016	1.6786	1.1999	1.0175							
Latest 9 Volume Weighted	1.7528	1.1345	1.0217	1.0192	1.0055	1.0015	1.0004	0.9996	0.9995	0.9992
Latest 6 Volume Weighted	1.7715	1.1509	1.0207	1.0203	1.0060	1.0038	1.0014	0.9999	0.9995	0.9991
Latest 3 Volume Weighted	1.7471	1.1750	1.0167	1.0217	1.0074	1.0053	1.0030	1.0006	0.9984	0.9986
Simple Average of Middle 4 of Last 6	1.7386	1.1508	1.0206	1.0196	1.0059	1.0031	1.0014	0.9997	0.9999	0.9997
Simple Average of Middle 3 of Last 5	1.7511	1.1639	1.0223	1.0193	1.0067	1.0032	1.0017	1.0000	1.0000	0.9998
Selected Feb 17	1.7500	1.1500	1.0220	1.0200	1.0050	1.0020	1.0000	0.9995	0.9995	0.9995
Selected Oct 17	1.7500	1.1650	1.0220	1.0200	1.0065	1.0030	1.0015	1.0000	0.9995	0.9995
Selected Factors	1.7500	1.1650	1.0220	1.0200	1.0065	1.0030	1.0015	1.0000	0.9995	0.9995
Selected Ultimate	2.1444	1.2254	1.0518	1.0292	1.0090	1.0025	0.9995	0.9980	0.9980	0.9985

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
22,368	22,352	22,350	22,338	22,315	22,308	22,304	22,298	22,297	22,297	22,297	22,295
25,795	25,791	25,784	25,777	25,764	25,761	25,756	25,751	25,755	25,752	25,750	
25,764	25,757	25,751	25,736	25,732	25,729	25,726	25,723	25,723	25,723		
28,115	28,100	28,083	28,080	28,076	28,064	28,061	28,059	28,057			
29,598	29,573	29,564	29,575	29,568	29,566	29,564	29,560				
29,667	29,660	29,655	29,630	29,626	29,618	29,616					
30,402	30,327	30,302	30,298	30,296	30,292						
33,587	33,586	33,582	33,580	33,574							
34,305	34,302	34,292	34,290								
35,985	35,983	36,015									
34,956	34,954										
37,374											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9993	0.9999	0.9995	0.9990	0.9997	0.9998	0.9997	1.0000	1.0000	1.0000	0.9999
0.9998	0.9998	0.9997	0.9995	0.9999	0.9998	0.9998	1.0002	0.9999	0.9999	
0.9997	0.9998	0.9994	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000		
0.9995	0.9994	0.9999	0.9999	0.9996	0.9999	0.9999	0.9999			
0.9992	0.9997	1.0004	0.9998	0.9999	0.9999	0.9999				
0.9998	0.9998	0.9992	0.9999	0.9997	0.9999					
0.9975	0.9992	0.9999	0.9999	0.9999						
1.0000	0.9999	0.9999	0.9998							
0.9999	0.9997	0.9999								
0.9999	1.0009									
0.9999										
0.9995	0.9998	0.9998	0.9997	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9995	0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9999	1.0002	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9999	0.9998	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
0.9999	0.9998	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.0784	2.1407	2.1595	2.0997	2.1456	2.1073	2.1444	2.1444
12	1.1858	1.2084	1.2360	1.2077	1.2253	1.2042	1.2254	1.2254
20	1.0452	1.0500	1.0519	1.0494	1.0528	1.0471	1.0518	1.0518
24	1.0231	1.0287	1.0347	1.0282	1.0298	1.0246	1.0292	1.0292
32	1.0038	1.0082	1.0127	1.0084	1.0103	1.0045	1.0090	1.0090
36	0.9983	1.0021	1.0053	1.0025	1.0036	0.9995	1.0025	1.0025
48	0.9969	0.9984	1.0001	0.9995	1.0005	0.9975	0.9995	0.9995
60	0.9965	0.9970	0.9971	0.9981	0.9988	0.9975	0.9980	0.9980
72	0.9969	0.9971	0.9965	0.9985	0.9987	0.9980	0.9980	0.9980
84	0.9974	0.9976	0.9980	0.9985	0.9987	0.9985	0.9985	0.9985
96	0.9982	0.9985	0.9994	0.9988	0.9989	0.9990	0.9990	0.9990
108	0.9987	0.9990	0.9995	0.9990	0.9990	0.9995	0.9995	0.9995
120	0.9988	0.9991	0.9993	0.9992	0.9992	1.0000	1.0000	1.0000
132	0.9991	0.9992	0.9994	0.9993	0.9993	1.0000	1.0000	1.0000
144	0.9993	0.9994	0.9995	0.9994	0.9994	1.0000	1.0000	1.0000
156	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
168	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
180	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
192	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
204	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
216	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7500	2.1444	46.63%	8		2.1444	1.7500	1.7500	2.1444
12	1.1650	1.2254		12	81.61%	1.2254	1.1650	1.1650	1.2254
20	1.0220	1.0518	95.07%	20		1.0518	1.0220	1.0220	1.0518
24	1.0200	1.0292		24	97.16%	1.0292	1.0200	1.0200	1.0292
32	1.0065	1.0090	99.11%	32		1.0090	1.0065	1.0065	1.0090
36	1.0020	1.0025		36	99.75%	1.0025	1.0028	1.0030	1.0025
44	1.0025	1.0005	99.95%	48	100.03%	0.9997	1.0017	1.0015	0.9995
56	1.0000	0.9980	100.20%	60	100.20%	0.9980	0.9998	1.0000	0.9980
68	0.9995	0.9980	100.20%	72	100.18%	0.9982	0.9995	0.9995	0.9980
80	0.9995	0.9985	100.15%	84	100.13%	0.9987	0.9995	0.9995	0.9985
92	0.9995	0.9990	100.10%	96	100.08%	0.9992	0.9995	0.9995	0.9990
104	0.9995	0.9995	100.05%	108	100.03%	0.9997	0.9997	0.9995	0.9995
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	25,750	1.0000	25,750	-	(1)	5.42%
2001	497,121	25,723	1.0000	25,723	-	1	5.17%
2002	532,307	28,057	1.0000	28,057	-	-	5.27%
2003	560,857	29,560	1.0000	29,560	-	-	5.27%
2004	596,045	29,616	1.0000	29,616	-	1	4.97%
2005	630,367	30,292	1.0000	30,292	-	-	4.81%
2006	654,863	33,574	1.0000	33,574	-	-	5.13%
2007	677,464	34,290	1.0000	34,290	-	52	5.06%
2008	707,051	36,015	1.0000	36,015	-	136	5.09%
2009	739,881	34,954	0.9995	34,937	(17)	10	4.72%
2010	759,948	37,374	0.9990	37,337	(37)	208	4.91%
2011	772,985	37,531	0.9985	37,475	(56)	56	4.85%
2012	768,953	41,851	0.9980	41,768	(84)	237	5.43%
2013	778,092	45,681	0.9980	45,589	(91)	277	5.86%
2014	817,710	41,027	0.9995	41,006	(21)	270	5.01%
2015	873,488	41,090	1.0025	41,193	103	303	4.72%
2016	918,780	42,433	1.0292	43,672	1,239	1,064	4.75%
2017	971,436	38,289	1.2254	46,919	8,630	10,877	4.83%
	12,732,625	633,108		642,773	9,665	13,491	5.05%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	25,750			25,750	5.42%	5.42%	100.00%	5.42%	5.42%
2001	497,121	25,723	26,522		26,522	5.34%	5.17%	100.00%	5.17%	5.17%
2002	532,307	28,057	26,494	27,318	26,906	5.05%	5.27%	100.00%	5.27%	5.27%
2003	560,857	29,560	28,898	27,289	28,094	5.01%	5.27%	100.00%	5.27%	5.27%
2004	596,045	29,616	30,447	29,765	30,106	5.05%	4.97%	100.00%	4.97%	4.97%
2005	630,367	30,292	30,504	31,360	30,932	4.91%	4.81%	100.00%	4.81%	4.81%
2006	654,863	33,574	31,201	31,420	31,310	4.78%	5.13%	100.00%	5.13%	5.13%
2007	677,464	34,290	34,581	32,137	33,359	4.92%	5.06%	100.00%	5.06%	5.06%
2008	707,051	36,015	35,319	35,619	35,469	5.02%	5.09%	100.00%	5.09%	5.09%
2009	739,881	34,937	37,096	36,379	36,737	4.97%	4.72%	100.00%	4.72%	4.72%
2010	759,948	37,337	35,985	38,209	37,097	4.88%	4.91%	100.00%	4.91%	4.91%
2011	772,985	37,475	38,457	37,064	37,761	4.89%	4.85%	80.00%	4.86%	4.86%
2012	768,953	41,768	38,599	39,611	39,105	5.09%	5.43%	60.00%	5.29%	5.29%
2013	778,092	45,589	43,021	39,757	41,389	5.32%	5.86%	40.00%	5.54%	5.54%
2014	817,710	41,006	46,957	44,311	45,634	5.58%	5.01%	20.00%	5.47%	5.47%
2015	873,488	41,193	42,236	48,366	45,301	5.19%	4.72%	0.00%	5.19%	5.19%
2016	918,780	43,672	42,428	43,504	42,966	4.68%	4.75%	0.00%	4.68%	4.68%
2017	971,436	46,919	44,982	43,701	44,342	4.56%	4.83%	0.00%	4.56%	4.56%
	12,732,625	642,773	613,730	585,810	638,781					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
2.95%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	5.42%	25,750	100.00%	0.00%	25,750	25,750	-	25,750	5.42%
2001	497,121	5.17%	25,723	100.00%	0.00%	25,723	25,723	-	25,723	5.17%
2002	532,307	5.27%	28,057	100.00%	0.00%	28,057	28,057	-	28,057	5.27%
2003	560,857	5.27%	29,560	100.00%	0.00%	29,560	29,560	-	29,560	5.27%
2004	596,045	4.97%	29,616	100.00%	0.00%	29,616	29,616	-	29,616	4.97%
2005	630,367	4.81%	30,292	100.00%	0.00%	30,292	30,292	-	30,292	4.81%
2006	654,863	5.13%	33,574	100.00%	0.00%	33,574	33,574	-	33,574	5.13%
2007	677,464	5.06%	34,290	100.00%	0.00%	34,290	34,290	-	34,290	5.06%
2008	707,051	5.09%	36,015	100.00%	0.00%	36,015	36,015	-	36,015	5.09%
2009	739,881	4.72%	34,937	100.05%	-0.05%	34,954	34,954	(17)	34,937	4.72%
2010	759,948	4.91%	37,337	100.10%	-0.10%	37,374	37,374	(37)	37,337	4.91%
2011	772,985	4.86%	37,532	100.15%	-0.15%	37,588	37,531	(56)	37,475	4.85%
2012	768,953	5.29%	40,703	100.20%	-0.20%	40,784	41,851	(82)	41,770	5.43%
2013	778,092	5.54%	43,069	100.20%	-0.20%	43,155	45,681	(86)	45,594	5.86%
2014	817,710	5.47%	44,709	100.05%	-0.05%	44,731	41,027	(22)	41,004	5.01%
2015	873,488	5.19%	45,301	99.75%	0.25%	45,188	41,090	113	41,203	4.72%
2016	918,780	4.68%	42,966	97.16%	2.84%	41,747	42,433	1,219	43,652	4.75%
2017	971,436	4.56%	44,342	81.61%	18.39%	36,186	38,289	8,156	46,445	4.78%
	12,732,625		643,773			634,587	633,108	9,186	642,294	5.04%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	15,892,209	21,559,643	21,972,131	22,285,760	22,364,181	22,407,863	22,391,165	22,391,518	22,387,857	22,364,055	22,349,783	22,347,197	22,335,769	22,313,059	22,306,525	22,303,069	22,296,887	22,296,887	22,296,387	22,296,044	22,293,944
2000	7,834,330	16,519,136	24,246,830	24,929,447	25,416,440	25,772,285	25,837,964	25,846,488	25,819,946	25,803,958	25,793,476	25,789,523	25,783,559	25,776,758	25,763,743	25,760,753	25,755,754	25,751,845	25,756,457	25,752,952	25,751,372	
2001	8,723,365	16,546,010	24,636,601	25,206,949	25,541,432	25,598,800	25,779,612	25,772,637	25,772,853	25,768,704	25,752,509	25,745,935	25,740,882	25,735,724	25,731,348	25,728,067	25,725,258	25,722,425	25,722,254	25,722,254		
2002	10,181,100	18,730,168	26,942,803	27,597,171	28,041,283	28,091,814	28,084,867	28,132,742	28,117,921	28,108,522	28,092,061	28,079,890	28,073,483	28,070,027	28,066,994	28,063,583	28,061,211	28,059,458	28,056,619			
2003	10,488,212	18,993,183	28,040,690	28,812,908	29,444,594	29,622,075	29,634,664	29,619,572	29,614,730	29,602,562	29,584,907	29,571,862	29,563,409	29,574,327	29,568,169	29,565,610	29,563,951	29,560,754				
2004	9,740,251	18,241,960	27,611,388	28,445,159	29,255,292	29,509,719	29,580,819	29,601,482	29,661,054	29,652,571	29,644,465	29,637,303	29,632,062	29,624,601	29,620,983	29,617,208	29,615,402					
2005	9,884,226	18,707,466	27,818,773	28,552,997	29,390,059	29,581,493	30,335,510	30,358,251	30,335,038	30,333,153	30,315,305	30,306,225	30,302,353	30,298,361	30,295,670	30,292,461						
2006	10,413,815	20,008,636	30,502,393	31,897,331	32,981,327	33,425,730	33,607,174	33,610,713	33,598,838	33,590,591	33,585,672	33,584,662	33,580,940	33,578,963	33,573,506							
2007	9,872,245	19,426,077	31,159,767	32,210,176	33,442,533	33,604,270	33,784,499	34,041,292	34,057,533	34,055,545	34,253,175	34,249,517	34,240,450	34,238,412								
2008	10,851,779	20,381,646	32,642,644	33,764,219	35,133,005	35,384,454	35,673,902	35,782,303	35,840,083	35,841,094	35,849,123	35,847,278	35,879,971									
2009	11,779,357	21,931,621	31,943,685	33,088,788	34,148,421	34,461,835	34,913,087	34,930,850	34,924,427	34,947,120	34,945,407	34,943,807										
2010	10,963,061	21,420,350	33,725,335	35,388,132	36,550,782	36,991,380	37,079,820	37,107,582	37,076,822	37,162,107	37,166,642											
2011	11,794,741	23,155,009	34,365,947	35,292,298	36,553,739	36,904,577	37,370,483	37,416,352	37,457,226	37,474,988												
2012	12,808,936	23,572,363	37,061,990	38,611,007	40,227,881	40,890,323	41,096,765	41,540,640	41,614,708													
2013	12,092,548	23,092,538	39,736,734	42,106,181	44,458,564	44,849,597	45,363,989	45,403,812														
2014	11,585,663	23,110,136	36,704,201	38,120,665	40,038,054	40,560,547	40,756,695															
2015	12,296,312	24,288,615	37,443,495	38,931,303	40,273,728	40,786,851																
2016	12,962,983	24,886,526	39,861,231	41,369,420																		
2017	13,489,896	27,411,678																				

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	15,892	21,560	21,972	22,286	22,364	22,408	22,391	22,392	22,388
2000	7,834	16,519	24,247	24,929	25,416	25,772	25,838	25,846	25,820	25,804
2001	8,723	16,546	24,637	25,207	25,541	25,599	25,780	25,773	25,773	25,769
2002	10,181	18,730	26,943	27,597	28,041	28,092	28,085	28,133	28,118	28,109
2003	10,488	18,993	28,041	28,813	29,445	29,622	29,635	29,620	29,615	29,603
2004	9,740	18,242	27,611	28,445	29,255	29,510	29,581	29,601	29,661	29,653
2005	9,884	18,707	27,819	28,553	29,390	29,581	30,336	30,358	30,335	30,333
2006	10,414	20,009	30,502	31,897	32,981	33,426	33,607	33,611	33,599	33,591
2007	9,872	19,426	31,160	32,210	33,443	33,604	33,784	34,041	34,058	34,056
2008	10,852	20,382	32,643	33,764	35,133	35,384	35,674	35,782	35,840	35,841
2009	11,779	21,932	31,944	33,089	34,148	34,462	34,913	34,931	34,924	34,947
2010	10,963	21,420	33,725	35,388	36,551	36,991	37,080	37,108	37,077	37,162
2011	11,795	23,155	34,366	35,292	36,554	36,905	37,370	37,416	37,457	37,475
2012	12,809	23,572	37,062	38,611	40,228	40,890	41,097	41,541	41,615	
2013	12,093	23,093	39,737	42,106	44,459	44,850	45,364	45,404		
2014	11,586	23,110	36,704	38,121	40,038	40,561	40,757			
2015	12,296	24,289	37,443	38,931	40,274	40,787				
2016	12,963	24,887	39,861	41,369						
2017	13,490	27,412								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.3566	1.0191	1.0143	1.0035	1.0020	0.9993	1.0000	0.9998	0.9989
2000	2.1086	1.4678	1.0282	1.0195	1.0140	1.0025	1.0003	0.9990	0.9994	0.9996
2001	1.8967	1.4890	1.0232	1.0133	1.0022	1.0071	0.9997	1.0000	0.9998	0.9994
2002	1.8397	1.4385	1.0243	1.0161	1.0018	0.9998	1.0017	0.9995	0.9997	0.9994
2003	1.8109	1.4764	1.0275	1.0219	1.0060	1.0004	0.9995	0.9998	0.9996	0.9994
2004	1.8728	1.5136	1.0302	1.0285	1.0087	1.0024	1.0007	1.0020	0.9997	0.9997
2005	1.8927	1.4870	1.0264	1.0293	1.0065	1.0255	1.0007	0.9992	0.9999	0.9994
2006	1.9214	1.5245	1.0457	1.0340	1.0135	1.0054	1.0001	0.9996	0.9998	0.9999
2007	1.9677	1.6040	1.0337	1.0383	1.0048	1.0054	1.0076	1.0005	0.9999	1.0058
2008	1.8782	1.6016	1.0344	1.0405	1.0072	1.0082	1.0030	1.0016	1.0000	1.0002
2009	1.8619	1.4565	1.0358	1.0320	1.0092	1.0131	1.0005	0.9998	1.0006	1.0000
2010	1.9539	1.5745	1.0493	1.0329	1.0121	1.0024	1.0007	0.9992	1.0023	1.0001
2011	1.9632	1.4842	1.0270	1.0357	1.0096	1.0126	1.0012	1.0011	1.0005	
2012	1.8403	1.5723	1.0418	1.0419	1.0165	1.0050	1.0108	1.0018		
2013	1.9097	1.7208	1.0596	1.0559	1.0088	1.0115	1.0009			
2014	1.9947	1.5882	1.0386	1.0503	1.0130	1.0048				
2015	1.9753	1.5416	1.0397	1.0345	1.0127					
2016	1.9198	1.6017	1.0378							
Latest 9 Volume Weighted	1.9392	1.5715	1.0408	1.0407	1.0106	1.0076	1.0029	1.0006	1.0003	1.0005
Latest 6 Volume Weighted	1.9454	1.5846	1.0411	1.0423	1.0121	1.0082	1.0030	1.0007	1.0005	1.0009
Latest 3 Volume Weighted	1.9765	1.5772	1.0387	1.0471	1.0114	1.0073	1.0043	1.0007	1.0011	1.0001
Simple Average of Middle 4 of Last 6	1.9420	1.5760	1.0395	1.0406	1.0119	1.0085	1.0015	1.0008	1.0003	1.0000
Simple Average of Middle 3 of Last 5	1.9349	1.5874	1.0400	1.0426	1.0118	1.0071	1.0010	1.0008	1.0004	1.0001
Selected Feb 17	1.9500	1.5700	1.0425	1.0450	1.0100	1.0085	1.0035	1.0005	1.0005	1.0000
Selected Oct 17	1.9400	1.5850	1.0425	1.0450	1.0115	1.0085	1.0030	1.0005	1.0000	1.0000
Selected Factors	1.9400	1.5850	1.0425	1.0450	1.0115	1.0085	1.0030	1.0005	1.0000	1.0000
Selected Ultimate	3.4291	1.7676	1.1152	1.0697	1.0237	1.0120	1.0035	1.0005	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
22,364	22,350	22,347	22,336	22,313	22,307	22,303	22,297	22,297	22,296	22,296	22,294
25,793	25,790	25,784	25,777	25,764	25,761	25,756	25,752	25,756	25,753	25,751	
25,753	25,746	25,741	25,736	25,731	25,728	25,725	25,722	25,722	25,722		
28,092	28,080	28,073	28,070	28,067	28,064	28,061	28,059	28,057			
29,585	29,572	29,563	29,574	29,568	29,566	29,564	29,561				
29,644	29,637	29,632	29,625	29,621	29,617	29,615					
30,315	30,306	30,302	30,298	30,296	30,292						
33,586	33,585	33,581	33,579	33,574							
34,253	34,250	34,240	34,238								
35,849	35,847	35,880									
34,945	34,944										
37,167											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9994	0.9999	0.9995	0.9990	0.9997	0.9998	0.9997	1.0000	1.0000	1.0000	0.9999
0.9998	0.9998	0.9997	0.9995	0.9999	0.9998	0.9998	1.0002	0.9999	0.9999	
0.9997	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000		
0.9996	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999			
0.9996	0.9997	1.0004	0.9998	0.9999	0.9999	0.9999				
0.9998	0.9998	0.9997	0.9999	0.9999	0.9999					
0.9997	0.9999	0.9999	0.9999	0.9999						
1.0000	0.9999	0.9999	0.9998							
0.9999	0.9997	0.9999								
0.9999	1.0009									
1.0000										
0.9998	0.9999	0.9999	0.9997	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9999	1.0000	1.0000	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9999	1.0002	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999
0.9999	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	3.3715	3.4276	3.4740	3.3833	3.3986	3.4125	3.4291	3.4291
12	1.7386	1.7620	1.7577	1.7422	1.7565	1.7500	1.7676	1.7676
20	1.1063	1.1120	1.1144	1.1055	1.1065	1.1147	1.1152	1.1152
24	1.0630	1.0680	1.0729	1.0635	1.0639	1.0692	1.0697	1.0697
32	1.0215	1.0247	1.0246	1.0220	1.0204	1.0232	1.0237	1.0237
36	1.0108	1.0125	1.0130	1.0100	1.0085	1.0130	1.0120	1.0120
48	1.0031	1.0043	1.0057	1.0015	1.0014	1.0045	1.0035	1.0035
60	1.0002	1.0013	1.0015	1.0000	1.0004	1.0010	1.0005	1.0005
72	0.9996	1.0006	1.0007	0.9993	0.9996	1.0005	1.0000	1.0000
84	0.9993	1.0001	0.9996	0.9990	0.9992	1.0000	1.0000	1.0000
96	0.9988	0.9992	0.9995	0.9990	0.9991	1.0000	1.0000	1.0000
108	0.9990	0.9993	0.9995	0.9991	0.9992	1.0000	1.0000	1.0000
120	0.9991	0.9993	0.9994	0.9993	0.9993	1.0000	1.0000	1.0000
132	0.9992	0.9993	0.9994	0.9994	0.9994	1.0000	1.0000	1.0000
144	0.9995	0.9995	0.9996	0.9995	0.9995	1.0000	1.0000	1.0000
156	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
168	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
180	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
192	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
204	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
216	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.9400	3.4292	29.16%	8		3.4292	1.9400	1.9400	3.4291
12	1.5850	1.7676		12	56.57%	1.7676	1.5850	1.5850	1.7676
20	1.0425	1.1152	89.67%	20		1.1152	1.0425	1.0425	1.1152
24	1.0450	1.0697		24	93.48%	1.0697	1.0450	1.0450	1.0697
32	1.0115	1.0237	97.69%	32		1.0237	1.0115	1.0115	1.0237
36	1.0070	1.0120		36	98.81%	1.0120	1.0083	1.0085	1.0120
44	1.0040	1.0050	99.50%	48	99.63%	1.0037	1.0028	1.0030	1.0035
56	1.0005	1.0010	99.90%	60	99.92%	1.0008	1.0005	1.0005	1.0005
68	1.0005	1.0005	99.95%	72	99.97%	1.0003	1.0003	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	25,751	1.0000	25,751	-	(1)	1	5.42%
2001	497,121	25,722	1.0000	25,722	-	1	(1)	5.17%
2002	532,307	28,057	1.0000	28,057	-	-	-	5.27%
2003	560,857	29,561	1.0000	29,561	-	-	-	5.27%
2004	596,045	29,615	1.0000	29,615	-	1	(1)	4.97%
2005	630,367	30,292	1.0000	30,292	-	-	-	4.81%
2006	654,863	33,574	1.0000	33,574	-	-	-	5.13%
2007	677,464	34,238	1.0000	34,238	-	52	(52)	5.05%
2008	707,051	35,880	1.0000	35,880	-	136	(136)	5.07%
2009	739,881	34,944	1.0000	34,944	-	10	(10)	4.72%
2010	759,948	37,167	1.0000	37,167	-	208	(208)	4.89%
2011	772,985	37,475	1.0000	37,475	-	56	(56)	4.85%
2012	768,953	41,615	1.0000	41,615	-	237	(237)	5.41%
2013	778,092	45,404	1.0005	45,427	23	277	(254)	5.84%
2014	817,710	40,757	1.0035	40,899	143	270	(127)	5.00%
2015	873,488	40,787	1.0120	41,278	491	303	188	4.73%
2016	918,780	41,369	1.0697	44,254	2,885	1,064	1,821	4.82%
2017	971,436	27,412	1.7676	48,453	21,041	10,877	10,164	4.99%
	12,732,625	619,619		644,201	24,582	13,491	11,091	5.06%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	25,751			25,751	5.42%	5.42%	100.00%	5.42%	5.42%
2001	497,121	25,722	26,524		26,524	5.34%	5.17%	100.00%	5.17%	5.17%
2002	532,307	28,057	26,494	27,320	26,907	5.05%	5.27%	100.00%	5.27%	5.27%
2003	560,857	29,561	28,898	27,289	28,094	5.01%	5.27%	100.00%	5.27%	5.27%
2004	596,045	29,615	30,448	29,765	30,106	5.05%	4.97%	100.00%	4.97%	4.97%
2005	630,367	30,292	30,504	31,361	30,932	4.91%	4.81%	100.00%	4.81%	4.81%
2006	654,863	33,574	31,201	31,419	31,310	4.78%	5.13%	100.00%	5.13%	5.13%
2007	677,464	34,238	34,581	32,137	33,359	4.92%	5.05%	100.00%	5.05%	5.06%
2008	707,051	35,880	35,266	35,618	35,442	5.01%	5.07%	100.00%	5.07%	5.09%
2009	739,881	34,944	36,956	36,324	36,640	4.95%	4.72%	100.00%	4.72%	4.72%
2010	759,948	37,167	35,992	38,065	37,029	4.87%	4.89%	100.00%	4.89%	4.91%
2011	772,985	37,475	38,282	37,072	37,677	4.87%	4.85%	80.00%	4.85%	4.86%
2012	768,953	41,615	38,599	39,430	39,015	5.07%	5.41%	60.00%	5.28%	5.29%
2013	778,092	45,427	42,863	39,757	41,310	5.31%	5.84%	40.00%	5.52%	5.54%
2014	817,710	40,899	46,789	44,149	45,469	5.56%	5.00%	20.00%	5.45%	5.47%
2015	873,488	41,278	42,126	48,193	45,160	5.17%	4.73%	0.00%	5.17%	5.19%
2016	918,780	44,254	42,516	43,390	42,953	4.68%	4.82%	0.00%	4.68%	4.68%
2017	971,436	48,453	45,582	43,791	44,687	4.60%	4.99%	0.00%	4.60%	4.56%
	12,732,625	644,201	613,621	585,080	638,364					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
3.22%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	5.42%	25,750	100.00%	0.00%	25,750	25,751	-	25,751	1	5.42%
2001	497,121	5.17%	25,723	100.00%	0.00%	25,723	25,722	-	25,722	(1)	5.17%
2002	532,307	5.27%	28,057	100.00%	0.00%	28,057	28,057	-	28,057	-	5.27%
2003	560,857	5.27%	29,560	100.00%	0.00%	29,560	29,561	-	29,561	-	5.27%
2004	596,045	4.97%	29,616	100.00%	0.00%	29,616	29,615	-	29,615	(1)	4.97%
2005	630,367	4.81%	30,292	100.00%	0.00%	30,292	30,292	-	30,292	-	4.81%
2006	654,863	5.13%	33,574	100.00%	0.00%	33,574	33,574	-	33,574	-	5.13%
2007	677,464	5.06%	34,290	100.00%	0.00%	34,290	34,238	-	34,238	(52)	5.05%
2008	707,051	5.09%	36,015	100.00%	0.00%	36,015	35,880	-	35,880	(136)	5.07%
2009	739,881	4.72%	34,937	100.00%	0.00%	34,937	34,944	-	34,944	(10)	4.72%
2010	759,948	4.91%	37,337	100.00%	0.00%	37,337	37,167	-	37,167	(208)	4.89%
2011	772,985	4.86%	37,532	100.00%	0.00%	37,532	37,475	-	37,475	(56)	4.85%
2012	768,953	5.29%	40,703	100.00%	0.00%	40,703	41,615	-	41,615	(237)	5.41%
2013	778,092	5.54%	43,069	99.95%	0.05%	43,048	45,404	22	45,425	(255)	5.84%
2014	817,710	5.47%	44,709	99.65%	0.35%	44,553	40,757	156	40,913	(114)	5.00%
2015	873,488	5.19%	45,301	98.81%	1.19%	44,763	40,787	539	41,325	236	4.73%
2016	918,780	4.68%	42,966	93.48%	6.52%	40,165	41,369	2,801	44,170	1,737	4.81%
2017	971,436	4.56%	44,342	56.57%	43.43%	25,086	27,412	19,256	46,667	8,379	4.80%
	12,732,625		643,773			621,000	619,619	22,773	642,392	9,282	5.05%

Notes:
(10) = (8) + (9)

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APPENDIX C COLLISION

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - With Z-Files
February 28, 2018

Appendix C
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	136,699,685	137,759,060	137,904,002	138,119,827	138,142,562	138,072,774	137,955,034	137,902,905	137,832,521	137,782,305	137,707,759	137,641,582	137,587,602	137,545,405	137,500,709	137,479,471	137,465,557	137,464,703	137,458,603	137,457,500	137,457,500
2000	82,533,768	149,982,883	152,664,162	152,902,612	153,148,304	153,212,402	153,073,402	152,986,191	152,863,190	152,767,872	152,676,999	152,619,320	152,561,161	152,510,375	152,478,047	152,450,583	152,433,039	152,410,907	152,407,745	152,406,540	152,391,963	
2001	91,097,413	158,514,396	161,442,208	161,823,854	162,099,628	162,209,462	162,066,514	161,874,969	161,766,189	161,634,456	161,534,065	161,453,832	161,410,589	161,379,280	161,324,576	161,301,865	161,289,582	161,284,086	161,274,918	161,272,100		
2002	103,759,369	177,244,055	179,604,406	180,063,987	180,314,973	180,456,898	180,327,512	180,234,650	180,102,437	179,957,802	179,849,661	179,786,774	179,731,631	179,687,617	179,638,391	179,614,378	179,609,348	179,600,600	179,589,413			
2003	107,074,976	189,453,876	193,604,633	194,070,181	194,726,233	194,795,472	194,737,689	194,590,439	194,419,057	194,305,067	194,199,700	194,108,358	194,068,954	194,025,243	193,991,192	193,970,476	193,956,404	193,942,241				
2004	110,043,980	194,940,010	201,086,143	201,573,774	202,205,891	202,353,059	202,239,777	202,085,391	201,943,831	201,822,684	201,756,378	201,745,077	201,702,789	201,684,401	201,630,317	201,613,536	201,613,487					
2005	115,949,067	201,283,469	202,801,195	203,163,930	203,709,655	203,745,816	203,658,636	203,506,964	203,360,434	203,235,552	203,150,278	203,099,117	203,086,991	203,062,003	203,050,086	203,057,140						
2006	127,793,361	220,074,950	223,457,094	223,942,793	224,727,120	224,774,810	224,726,045	224,525,443	224,480,298	224,458,561	224,473,912	224,461,494	224,454,616	224,431,975	224,450,981							
2007	129,951,665	226,357,690	231,296,109	232,077,147	233,164,070	233,299,958	233,164,202	233,154,585	233,211,424	233,171,620	233,124,580	233,118,229	233,096,687	233,082,532								
2008	130,770,912	237,889,733	239,494,991	240,293,484	241,476,549	241,745,055	241,825,047	241,814,974	241,728,863	241,771,251	241,761,222	241,757,739	241,749,701									
2009	145,159,357	237,782,918	239,720,445	240,772,910	242,269,932	242,617,070	242,505,266	242,500,701	242,520,841	242,538,104	242,523,407	242,510,330										
2010	145,893,736	260,480,317	266,714,496	268,555,127	270,368,813	270,607,381	270,877,071	271,083,558	271,169,614	271,173,948	271,183,893											
2011	157,354,493	266,004,739	269,113,168	270,556,437	272,049,582	272,436,714	272,908,555	272,981,875	273,093,181	273,138,888												
2012	168,431,806	294,979,704	305,010,977	307,186,845	309,443,869	309,910,871	310,380,511	310,595,828	310,634,003													
2013	178,013,472	324,802,040	342,064,379	344,574,213	347,573,732	348,084,125	348,865,374	349,214,518														
2014	176,617,118	306,292,103	311,734,490	313,305,396	315,901,183	316,521,243	317,479,947															
2015	194,624,394	336,809,963	346,723,575	348,409,231	350,890,004	351,300,795																
2016	215,249,182	367,116,090	380,033,131	381,529,135																		
2017	227,336,522	395,170,670																				

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Z-Files
February 28, 2018

Appendix C
Page 2

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	136,700	137,759	137,904	138,120	138,143	138,073	137,955	137,903	137,833
2000	82,534	149,983	152,664	152,903	153,148	153,212	153,073	152,986	152,863	152,768
2001	91,097	158,514	161,442	161,824	162,100	162,209	162,067	161,875	161,766	161,634
2002	103,759	177,244	179,604	180,064	180,315	180,457	180,328	180,235	180,102	179,958
2003	107,075	189,454	193,605	194,070	194,726	194,795	194,738	194,590	194,419	194,305
2004	110,044	194,940	201,086	201,574	202,206	202,353	202,240	202,085	201,944	201,823
2005	115,949	201,283	202,801	203,164	203,710	203,746	203,659	203,507	203,360	203,236
2006	127,793	220,075	223,457	223,943	224,727	224,775	224,726	224,525	224,480	224,459
2007	129,952	226,358	231,296	232,077	233,164	233,300	233,164	233,155	233,211	233,172
2008	130,771	237,890	239,495	240,293	241,477	241,745	241,825	241,815	241,729	241,771
2009	145,159	237,783	239,720	240,773	242,270	242,617	242,505	242,501	242,521	242,538
2010	145,894	260,480	266,714	268,555	270,369	270,607	270,877	271,084	271,170	271,174
2011	157,354	266,005	269,113	270,556	272,050	272,437	272,909	272,982	273,093	273,139
2012	168,432	294,980	305,011	307,187	309,444	309,911	310,381	310,596	310,634	
2013	178,013	324,802	342,064	344,574	347,574	348,084	348,865	349,215		
2014	176,617	306,292	311,734	313,305	315,901	316,521	317,480			
2015	194,624	336,810	346,724	348,409	350,890	351,301				
2016	215,249	367,116	380,033	381,529						
2017	227,337	395,171								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.0077	1.0011	1.0016	1.0002	0.9995	0.9991	0.9996	0.9995	0.9996
2000	1.8172	1.0179	1.0016	1.0016	1.0004	0.9991	0.9994	0.9992	0.9994	0.9994
2001	1.7401	1.0185	1.0024	1.0017	1.0007	0.9991	0.9988	0.9993	0.9992	0.9994
2002	1.7082	1.0133	1.0026	1.0014	1.0008	0.9993	0.9995	0.9993	0.9992	0.9994
2003	1.7694	1.0219	1.0024	1.0034	1.0004	0.9997	0.9992	0.9991	0.9994	0.9995
2004	1.7715	1.0315	1.0024	1.0031	1.0007	0.9994	0.9992	0.9993	0.9994	0.9997
2005	1.7360	1.0075	1.0018	1.0027	1.0002	0.9996	0.9993	0.9993	0.9994	0.9996
2006	1.7221	1.0154	1.0022	1.0035	1.0002	0.9998	0.9991	0.9998	0.9999	1.0001
2007	1.7419	1.0218	1.0034	1.0047	1.0006	0.9994	1.0000	1.0002	0.9998	0.9998
2008	1.8191	1.0067	1.0033	1.0049	1.0011	1.0003	1.0000	0.9996	1.0002	1.0000
2009	1.6381	1.0081	1.0044	1.0062	1.0014	0.9995	1.0000	1.0001	1.0001	0.9999
2010	1.7854	1.0239	1.0069	1.0068	1.0009	1.0010	1.0008	1.0003	1.0000	1.0000
2011	1.6905	1.0117	1.0054	1.0055	1.0014	1.0017	1.0003	1.0004	1.0002	
2012	1.7513	1.0340	1.0071	1.0073	1.0015	1.0015	1.0007	1.0001		
2013	1.8246	1.0531	1.0073	1.0087	1.0015	1.0022	1.0010			
2014	1.7342	1.0178	1.0050	1.0083	1.0020	1.0030				
2015	1.7306	1.0294	1.0049	1.0071	1.0012					
2016	1.7055	1.0352	1.0039							
Latest 9 Volume Weighted	1.7340	1.0260	1.0054	1.0068	1.0013	1.0011	1.0002	1.0000	0.9999	0.9998
Latest 6 Volume Weighted	1.7454	1.0309	1.0056	1.0074	1.0014	1.0016	1.0005	1.0001	1.0000	0.9999
Latest 3 Volume Weighted	1.7249	1.0280	1.0046	1.0080	1.0015	1.0023	1.0007	1.0003	1.0001	1.0000
Simple Average of Middle 4 of Last 6	1.7304	1.0291	1.0056	1.0074	1.0014	1.0016	1.0004	1.0002	1.0000	0.9999
Simple Average of Middle 3 of Last 5	1.7387	1.0329	1.0057	1.0076	1.0015	1.0018	1.0006	1.0002	1.0001	1.0000
Selected Feb 17	1.7425	1.0300	1.0070	1.0075	1.0015	1.0015	1.0005	1.0005	1.0000	1.0000
Selected Oct 17	1.7350	1.0300	1.0060	1.0075	1.0015	1.0020	1.0010	1.0000	1.0000	1.0000
Selected Factors	1.7350	1.0300	1.0060	1.0075	1.0015	1.0020	1.0010	1.0000	1.0000	1.0000
Selected Ultimate	1.8194	1.0487	1.0181	1.0120	1.0045	1.0030	1.0010	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
137,782	137,708	137,642	137,588	137,545	137,501	137,479	137,466	137,465	137,459	137,458	137,458
152,677	152,619	152,561	152,510	152,478	152,451	152,433	152,411	152,408	152,407	152,392	
161,534	161,454	161,411	161,379	161,325	161,302	161,290	161,284	161,275	161,272		
179,850	179,787	179,732	179,688	179,638	179,614	179,609	179,601	179,589			
194,200	194,108	194,069	194,025	193,991	193,970	193,956	193,942				
201,756	201,745	201,703	201,684	201,630	201,614	201,613					
203,150	203,099	203,087	203,062	203,050	203,057						
224,474	224,461	224,455	224,432	224,451							
233,125	233,118	233,097	233,083								
241,761	241,758	241,750									
242,523	242,510										
271,184											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9995	0.9995	0.9996	0.9997	0.9997	0.9998	0.9999	1.0000	1.0000	1.0000	1.0000
0.9996	0.9996	0.9997	0.9998	0.9998	0.9999	0.9999	1.0000	1.0000	0.9999	
0.9995	0.9997	0.9998	0.9997	0.9999	0.9999	1.0000	0.9999	1.0000		
0.9997	0.9997	0.9998	0.9997	0.9999	1.0000	1.0000	0.9999			
0.9995	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999				
0.9999	0.9998	0.9999	0.9997	0.9999	1.0000					
0.9997	0.9999	0.9999	0.9999	1.0000						
0.9999	1.0000	0.9999	1.0001							
1.0000	0.9999	0.9999								
1.0000	1.0000									
0.9999										
0.9998	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.8029	1.8278	1.8033	1.8089	1.8259	1.8282	1.8194	1.8194
12	1.0397	1.0472	1.0455	1.0454	1.0502	1.0492	1.0487	1.0487
20	1.0134	1.0158	1.0170	1.0158	1.0167	1.0186	1.0181	1.0181
24	1.0079	1.0102	1.0124	1.0102	1.0110	1.0115	1.0120	1.0120
32	1.0011	1.0028	1.0043	1.0028	1.0034	1.0040	1.0045	1.0045
36	0.9998	1.0014	1.0028	1.0014	1.0019	1.0025	1.0030	1.0030
48	0.9987	0.9997	1.0005	0.9997	1.0001	1.0010	1.0010	1.0010
60	0.9985	0.9993	0.9998	0.9993	0.9995	1.0005	1.0000	1.0000
72	0.9986	0.9991	0.9996	0.9991	0.9993	1.0000	1.0000	1.0000
84	0.9987	0.9991	0.9995	0.9991	0.9992	1.0000	1.0000	1.0000
96	0.9989	0.9992	0.9995	0.9992	0.9993	1.0000	1.0000	1.0000
108	0.9991	0.9992	0.9995	0.9992	0.9993	1.0000	1.0000	1.0000
120	0.9993	0.9993	0.9996	0.9993	0.9994	1.0000	1.0000	1.0000
132	0.9994	0.9995	0.9997	0.9994	0.9995	1.0000	1.0000	1.0000
144	0.9996	0.9996	0.9997	0.9996	0.9997	1.0000	1.0000	1.0000
156	0.9997	0.9997	0.9998	0.9997	0.9998	1.0000	1.0000	1.0000
168	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
180	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
192	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
204	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7350	1.8194	54.96%	8		1.8194	1.7350	1.7350	1.8194
12	1.0300	1.0487		12	95.36%	1.0487	1.0300	1.0300	1.0487
20	1.0060	1.0181	98.22%	20		1.0181	1.0060	1.0060	1.0181
24	1.0075	1.0120		24	98.81%	1.0120	1.0075	1.0075	1.0120
32	1.0015	1.0045	99.55%	32		1.0045	1.0015	1.0015	1.0045
36	1.0015	1.0030		36	99.70%	1.0030	1.0018	1.0020	1.0030
44	1.0010	1.0015	99.85%	48	99.88%	1.0012	1.0008	1.0010	1.0010
56	1.0005	1.0005	99.95%	60	99.97%	1.0003	1.0003	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	152,392	1.0000	152,392	-	(1)	32.06%
2001	497,121	161,272	1.0000	161,272	-	(5)	32.44%
2002	532,307	179,589	1.0000	179,589	-	-	33.74%
2003	560,857	193,942	1.0000	193,942	-	1	34.58%
2004	596,045	201,613	1.0000	201,613	-	1	33.83%
2005	630,367	203,057	1.0000	203,057	-	(1)	32.21%
2006	654,863	224,451	1.0000	224,451	-	7	34.27%
2007	677,464	233,083	1.0000	233,083	-	(2)	34.41%
2008	707,051	241,750	1.0000	241,750	-	-	34.19%
2009	739,881	242,510	1.0000	242,510	-	-	32.78%
2010	759,948	271,184	1.0000	271,184	-	4	35.68%
2011	772,985	273,139	1.0000	273,139	-	1	35.34%
2012	768,953	310,634	1.0000	310,634	-	6	40.40%
2013	778,092	349,215	1.0000	349,215	-	26	44.88%
2014	817,710	317,480	1.0010	317,797	317	48	38.86%
2015	873,488	351,301	1.0030	352,355	1,055	108	40.34%
2016	918,780	381,529	1.0120	386,123	4,594	1,241	42.03%
2017	971,436	395,171	1.0487	414,398	19,227	75,497	42.66%
	12,732,625	4,683,312		4,708,505	25,193	76,931	36.98%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	152,392			152,392	32.06%	32.06%	100.00%	32.06%	32.06%
2001	497,121	161,272	161,916		161,916	32.57%	32.44%	100.00%	32.44%	32.44%
2002	532,307	179,589	171,352	172,036	171,694	32.25%	33.74%	100.00%	33.74%	33.74%
2003	560,857	193,942	190,814	182,061	186,437	33.24%	34.58%	100.00%	34.58%	34.58%
2004	596,045	201,613	206,064	202,740	204,402	34.29%	33.83%	100.00%	33.83%	33.83%
2005	630,367	203,057	214,214	218,943	216,578	34.36%	32.21%	100.00%	32.21%	32.21%
2006	654,863	224,451	215,748	227,603	221,675	33.85%	34.27%	100.00%	34.27%	34.27%
2007	677,464	233,083	238,479	229,232	233,856	34.52%	34.41%	100.00%	34.41%	34.41%
2008	707,051	241,750	247,650	253,384	250,517	35.43%	34.19%	100.00%	34.19%	34.19%
2009	739,881	242,510	256,859	263,128	259,994	35.14%	32.78%	100.00%	32.78%	32.78%
2010	759,948	271,184	257,667	272,913	265,290	34.91%	35.68%	100.00%	35.68%	35.68%
2011	772,985	273,139	288,133	273,771	280,952	36.35%	35.34%	80.00%	35.54%	35.54%
2012	768,953	310,634	290,210	306,141	298,176	38.78%	40.40%	60.00%	39.75%	39.75%
2013	778,092	349,215	330,049	308,348	319,198	41.02%	44.88%	40.00%	42.57%	42.57%
2014	817,710	317,797	371,040	350,677	360,859	44.13%	38.86%	20.00%	43.08%	43.08%
2015	873,488	352,355	337,660	394,230	365,945	41.89%	40.34%	0.00%	41.89%	41.89%
2016	918,780	386,123	374,378	358,764	366,571	39.90%	42.03%	0.00%	39.90%	39.90%
2017	971,436	414,398	410,256	397,776	404,016	41.59%	42.66%	0.00%	41.59%	41.59%
	12,732,625	4,708,505	4,562,489	4,411,748	4,720,468					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
6.24%
Selected Trend (b):
6.25%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	32.06%	152,392	100.00%	0.00%	152,392	152,392	-	152,392	32.06%
2001	497,121	32.44%	161,272	100.00%	0.00%	161,272	161,272	-	161,272	32.44%
2002	532,307	33.74%	179,589	100.00%	0.00%	179,589	179,589	-	179,589	33.74%
2003	560,857	34.58%	193,942	100.00%	0.00%	193,942	193,942	-	193,942	34.58%
2004	596,045	33.83%	201,613	100.00%	0.00%	201,613	201,613	-	201,613	33.83%
2005	630,367	32.21%	203,057	100.00%	0.00%	203,057	203,057	-	203,057	32.21%
2006	654,863	34.27%	224,451	100.00%	0.00%	224,451	224,451	-	224,451	34.27%
2007	677,464	34.41%	233,083	100.00%	0.00%	233,083	233,083	-	233,083	34.41%
2008	707,051	34.19%	241,750	100.00%	0.00%	241,750	241,750	-	241,750	34.19%
2009	739,881	32.78%	242,510	100.00%	0.00%	242,510	242,510	-	242,510	32.78%
2010	759,948	35.68%	271,184	100.00%	0.00%	271,184	271,184	-	271,184	35.68%
2011	772,985	35.54%	274,702	100.00%	0.00%	274,702	273,139	-	273,139	35.34%
2012	768,953	39.75%	305,651	100.00%	0.00%	305,651	310,634	-	310,634	40.40%
2013	778,092	42.57%	331,205	100.00%	0.00%	331,205	349,215	-	349,215	44.88%
2014	817,710	43.08%	352,246	99.90%	0.10%	351,894	317,480	352	317,832	38.87%
2015	873,488	41.89%	365,945	99.70%	0.30%	364,850	351,301	1,095	352,396	40.34%
2016	918,780	39.90%	366,571	98.81%	1.19%	362,209	381,529	4,361	385,890	42.00%
2017	971,436	41.59%	404,016	95.36%	4.64%	385,270	395,171	18,746	413,916	42.61%
	12,732,625		4,705,179			4,680,625	4,683,312	24,554	4,707,866	36.97%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	116,997,479	137,222,879	137,601,938	137,945,112	138,074,035	138,047,031	137,948,296	137,866,191	137,825,808	137,775,592	137,701,045	137,638,069	137,584,089	137,541,892	137,500,214	137,478,977	137,465,063	137,464,208	137,458,108	137,457,006	137,457,006
2000	64,609,092	123,402,303	152,007,773	152,555,858	152,969,791	153,088,544	153,016,358	152,974,831	152,856,529	152,761,211	152,670,589	152,613,539	152,555,951	152,511,214	152,478,887	152,446,072	152,428,528	152,411,747	152,408,585	152,407,379	152,392,802	
2001	71,781,560	131,944,586	160,750,947	161,488,237	162,019,758	162,160,820	162,043,342	161,873,738	161,766,881	161,635,474	161,535,083	161,455,349	161,412,306	161,384,010	161,329,306	161,306,595	161,294,337	161,288,841	161,279,673	161,276,855		
2002	80,502,895	146,830,534	178,895,059	179,713,662	180,201,830	180,387,120	180,297,603	180,210,241	180,080,978	179,956,593	179,849,661	179,786,774	179,731,631	179,687,617	179,638,391	179,614,378	179,609,348	179,600,600	179,589,413			
2003	83,869,118	154,635,959	192,759,932	193,717,269	194,589,538	194,747,596	194,716,881	194,580,578	194,415,699	194,299,809	194,196,942	194,107,658	194,068,254	194,024,543	193,990,492	193,969,776	193,955,704	193,941,541				
2004	84,873,186	155,775,432	200,041,279	201,098,412	201,987,749	202,177,682	202,138,462	202,004,660	201,872,916	201,771,144	201,705,228	201,693,927	201,651,639	201,633,251	201,628,667	201,611,886	201,612,562					
2005	87,513,435	161,519,168	201,548,431	202,622,709	203,540,386	203,686,457	203,651,023	203,501,938	203,358,757	203,234,786	203,149,702	203,098,541	203,086,416	203,061,428	203,049,511	203,058,065						
2006	92,390,124	170,894,880	221,792,131	223,188,908	224,542,557	224,688,584	224,701,461	224,509,670	224,465,649	224,446,587	224,466,753	224,454,635	224,447,757	224,425,925	224,444,406							
2007	91,547,272	171,130,359	229,847,395	231,439,108	232,939,104	233,171,376	233,131,677	233,148,338	233,212,032	233,171,828	233,126,788	233,120,537	233,099,086	233,085,006								
2008	96,708,611	181,664,230	237,934,688	239,566,313	241,232,926	241,627,829	241,777,461	241,778,860	241,720,249	241,769,025	241,760,050	241,757,095	241,749,557									
2009	106,051,290	190,538,538	238,344,631	240,059,488	241,893,133	242,341,488	242,470,436	242,488,126	242,486,640	242,527,236	242,520,669	242,509,892										
2010	104,676,907	199,399,996	264,855,637	267,787,080	270,143,358	270,479,026	270,823,964	271,055,596	271,154,790	271,164,304	271,180,218											
2011	113,327,086	214,271,883	267,656,717	269,800,694	271,845,012	272,304,338	272,876,253	272,971,728	273,089,235	273,137,677												
2012	121,386,400	225,089,218	302,686,734	306,035,030	308,959,333	309,623,871	310,271,238	310,526,324	310,627,588													
2013	127,883,858	241,768,772	339,052,751	343,166,959	346,927,399	347,848,509	348,806,999	349,188,938														
2014	128,898,999	246,200,295	309,178,709	312,217,840	315,558,527	316,333,904	317,432,046															
2015	146,066,575	275,030,091	344,277,463	347,393,947	350,543,744	351,192,324																
2016	162,739,879	295,257,539	377,197,334	380,287,717																		
2017	170,868,981	319,673,721																				

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Appendix C
Page 11

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	116,997	137,223	137,602	137,945	138,074	138,047	137,948	137,866	137,826
2000	64,609	123,402	152,008	152,556	152,970	153,089	153,016	152,975	152,857	152,761
2001	71,782	131,945	160,751	161,488	162,020	162,161	162,043	161,874	161,767	161,635
2002	80,503	146,831	178,895	179,714	180,202	180,387	180,298	180,210	180,081	179,957
2003	83,869	154,636	192,760	193,717	194,590	194,748	194,717	194,581	194,416	194,300
2004	84,873	155,775	200,041	201,098	201,988	202,178	202,138	202,005	201,873	201,771
2005	87,513	161,519	201,548	202,623	203,540	203,686	203,651	203,502	203,359	203,235
2006	92,390	170,895	221,792	223,189	224,543	224,689	224,701	224,510	224,466	224,447
2007	91,547	171,130	229,847	231,439	232,939	233,171	233,132	233,148	233,212	233,172
2008	96,709	181,664	237,935	239,566	241,233	241,628	241,777	241,779	241,720	241,769
2009	106,051	190,539	238,345	240,059	241,893	242,341	242,470	242,488	242,487	242,527
2010	104,677	199,400	264,856	267,787	270,143	270,479	270,824	271,056	271,155	271,164
2011	113,327	214,272	267,657	269,801	271,845	272,304	272,876	272,972	273,089	273,138
2012	121,386	225,089	302,687	306,035	308,959	309,624	310,271	310,526	310,628	
2013	127,884	241,769	339,053	343,167	346,927	347,849	348,807	349,189		
2014	128,899	246,200	309,179	312,218	315,559	316,334	317,432			
2015	146,067	275,030	344,277	347,394	350,544	351,192				
2016	162,740	295,258	377,197	380,288						
2017	170,869	319,674								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.1729	1.0028	1.0025	1.0009	0.9998	0.9993	0.9994	0.9997	0.9996
2000	1.9100	1.2318	1.0036	1.0027	1.0008	0.9995	0.9997	0.9992	0.9994	0.9994
2001	1.8381	1.2183	1.0046	1.0033	1.0009	0.9993	0.9990	0.9993	0.9992	0.9994
2002	1.8239	1.2184	1.0046	1.0027	1.0010	0.9995	0.9995	0.9993	0.9993	0.9994
2003	1.8438	1.2465	1.0050	1.0045	1.0008	0.9998	0.9993	0.9992	0.9994	0.9995
2004	1.8354	1.2842	1.0053	1.0044	1.0009	0.9998	0.9993	0.9993	0.9995	0.9997
2005	1.8456	1.2478	1.0053	1.0045	1.0007	0.9998	0.9993	0.9993	0.9994	0.9996
2006	1.8497	1.2978	1.0063	1.0061	1.0007	1.0001	0.9991	0.9998	0.9999	1.0001
2007	1.8693	1.3431	1.0069	1.0065	1.0010	0.9998	1.0001	1.0003	0.9998	0.9998
2008	1.8785	1.3097	1.0069	1.0070	1.0016	1.0006	1.0000	0.9998	1.0002	1.0000
2009	1.7967	1.2509	1.0072	1.0076	1.0019	1.0005	1.0001	1.0000	1.0002	1.0000
2010	1.9049	1.3283	1.0111	1.0088	1.0012	1.0013	1.0009	1.0004	1.0000	1.0001
2011	1.8907	1.2491	1.0080	1.0076	1.0017	1.0021	1.0003	1.0004	1.0002	
2012	1.8543	1.3447	1.0111	1.0096	1.0022	1.0021	1.0008	1.0003		
2013	1.8905	1.4024	1.0121	1.0110	1.0027	1.0028	1.0011			
2014	1.9100	1.2558	1.0098	1.0107	1.0025	1.0035				
2015	1.8829	1.2518	1.0091	1.0091	1.0019					
2016	1.8143	1.2775	1.0082							
Latest 9 Volume Weighted	1.8675	1.2957	1.0094	1.0088	1.0019	1.0016	1.0003	1.0000	0.9999	0.9998
Latest 6 Volume Weighted	1.8687	1.2954	1.0097	1.0095	1.0020	1.0021	1.0006	1.0002	1.0001	0.9999
Latest 3 Volume Weighted	1.8553	1.2623	1.0090	1.0102	1.0023	1.0028	1.0008	1.0004	1.0001	1.0000
Simple Average of Middle 4 of Last 6	1.8796	1.2825	1.0095	1.0095	1.0020	1.0021	1.0005	1.0002	1.0001	1.0000
Simple Average of Middle 3 of Last 5	1.8759	1.2927	1.0100	1.0098	1.0022	1.0023	1.0007	1.0002	1.0001	1.0000
Selected Feb 17	1.8950	1.3050	1.0110	1.0100	1.0020	1.0020	1.0005	1.0005	1.0000	1.0000
Selected Oct 17	1.8800	1.2900	1.0105	1.0100	1.0025	1.0025	1.0010	1.0000	1.0000	1.0000
Selected Factors	1.8800	1.2900	1.0105	1.0100	1.0025	1.0025	1.0010	1.0000	1.0000	1.0000
Selected Ultimate	2.4901	1.3245	1.0267	1.0161	1.0060	1.0035	1.0010	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
137,776	137,701	137,638	137,584	137,542	137,500	137,479	137,465	137,464	137,458	137,457	137,457
152,671	152,614	152,556	152,511	152,479	152,446	152,429	152,412	152,409	152,407	152,393	
161,535	161,455	161,412	161,384	161,329	161,307	161,294	161,289	161,280	161,277		
179,850	179,787	179,732	179,688	179,638	179,614	179,609	179,601	179,589			
194,197	194,108	194,068	194,025	193,990	193,970	193,956	193,942				
201,705	201,694	201,652	201,633	201,629	201,612	201,613					
203,150	203,099	203,086	203,061	203,050	203,058						
224,467	224,455	224,448	224,426	224,444							
233,127	233,121	233,099	233,085								
241,760	241,757	241,750									
242,521	242,510										
271,180											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9995	0.9995	0.9996	0.9997	0.9997	0.9998	0.9999	1.0000	1.0000	1.0000	1.0000
0.9996	0.9996	0.9997	0.9998	0.9998	0.9999	0.9999	1.0000	1.0000	0.9999	
0.9995	0.9997	0.9998	0.9997	0.9999	0.9999	1.0000	0.9999	1.0000		
0.9997	0.9997	0.9998	0.9997	0.9999	1.0000	1.0000	0.9999			
0.9995	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999				
0.9999	0.9998	0.9999	1.0000	0.9999	1.0000					
0.9997	0.9999	0.9999	0.9999	1.0000						
0.9999	1.0000	0.9999	1.0001							
1.0000	0.9999	0.9999								
1.0000	1.0000									
1.0000										
0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	1.0000	1.0000	1.0000	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.4700	2.4778	2.4014	2.4668	2.4851	2.5378	2.4901	2.4901
12	1.3226	1.3260	1.2943	1.3124	1.3248	1.3392	1.3245	1.3245
20	1.0207	1.0236	1.0254	1.0233	1.0248	1.0262	1.0267	1.0267
24	1.0113	1.0137	1.0162	1.0137	1.0147	1.0151	1.0161	1.0161
32	1.0024	1.0042	1.0060	1.0041	1.0049	1.0050	1.0060	1.0060
36	1.0005	1.0021	1.0036	1.0021	1.0027	1.0030	1.0035	1.0035
48	0.9989	1.0000	1.0009	1.0000	1.0004	1.0010	1.0010	1.0010
60	0.9987	0.9994	1.0001	0.9995	0.9997	1.0005	1.0000	1.0000
72	0.9987	0.9992	0.9997	0.9992	0.9995	1.0000	1.0000	1.0000
84	0.9988	0.9991	0.9996	0.9992	0.9994	1.0000	1.0000	1.0000
96	0.9990	0.9992	0.9996	0.9992	0.9994	1.0000	1.0000	1.0000
108	0.9991	0.9993	0.9996	0.9993	0.9994	1.0000	1.0000	1.0000
120	0.9993	0.9994	0.9997	0.9994	0.9995	1.0000	1.0000	1.0000
132	0.9995	0.9995	0.9997	0.9995	0.9996	1.0000	1.0000	1.0000
144	0.9996	0.9996	0.9997	0.9996	0.9997	1.0000	1.0000	1.0000
156	0.9997	0.9997	0.9998	0.9997	0.9998	1.0000	1.0000	1.0000
168	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
180	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
192	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
204	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.8800	2.4901	40.16%	8		2.4901	1.8800	1.8800	2.4901
12	1.2900	1.3245		12	75.50%	1.3245	1.2900	1.2900	1.3245
20	1.0105	1.0267	97.40%	20		1.0267	1.0105	1.0105	1.0267
24	1.0100	1.0161		24	98.42%	1.0161	1.0100	1.0100	1.0161
32	1.0025	1.0060	99.40%	32		1.0060	1.0025	1.0025	1.0060
36	1.0020	1.0035		36	99.65%	1.0035	1.0023	1.0025	1.0035
44	1.0010	1.0015	99.85%	48	99.88%	1.0012	1.0008	1.0010	1.0010
56	1.0005	1.0005	99.95%	60	99.97%	1.0003	1.0003	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	152,393	1.0000	152,393	-	(1)	1	32.06%
2001	497,121	161,277	1.0000	161,277	-	(5)	5	32.44%
2002	532,307	179,589	1.0000	179,589	-	-	-	33.74%
2003	560,857	193,942	1.0000	193,942	-	1	(1)	34.58%
2004	596,045	201,613	1.0000	201,613	-	1	(1)	33.83%
2005	630,367	203,058	1.0000	203,058	-	(1)	1	32.21%
2006	654,863	224,444	1.0000	224,444	-	7	(7)	34.27%
2007	677,464	233,085	1.0000	233,085	-	(2)	2	34.41%
2008	707,051	241,750	1.0000	241,750	-	-	-	34.19%
2009	739,881	242,510	1.0000	242,510	-	-	-	32.78%
2010	759,948	271,180	1.0000	271,180	-	4	(4)	35.68%
2011	772,985	273,138	1.0000	273,138	-	1	(1)	35.34%
2012	768,953	310,628	1.0000	310,628	-	6	(6)	40.40%
2013	778,092	349,189	1.0000	349,189	-	26	(26)	44.88%
2014	817,710	317,432	1.0010	317,749	317	48	269	38.86%
2015	873,488	351,192	1.0035	352,422	1,230	108	1,122	40.35%
2016	918,780	380,288	1.0161	386,399	6,112	1,241	4,871	42.06%
2017	971,436	319,674	1.3245	423,406	103,732	75,497	28,235	43.59%
	12,732,625	4,606,380		4,717,772	111,392	76,931	34,461	37.05%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	152,393			152,393	32.06%	32.06%	100.00%	32.06%	32.06%
2001	497,121	161,277	161,917		161,917	32.57%	32.44%	100.00%	32.44%	32.44%
2002	532,307	179,589	171,357	172,037	171,697	32.26%	33.74%	100.00%	33.74%	33.74%
2003	560,857	193,942	190,814	182,066	186,440	33.24%	34.58%	100.00%	34.58%	34.58%
2004	596,045	201,613	206,063	202,740	204,401	34.29%	33.83%	100.00%	33.83%	33.83%
2005	630,367	203,058	214,213	218,942	216,578	34.36%	32.21%	100.00%	32.21%	32.21%
2006	654,863	224,444	215,749	227,602	221,675	33.85%	34.27%	100.00%	34.27%	34.27%
2007	677,464	233,085	238,472	229,234	233,853	34.52%	34.41%	100.00%	34.41%	34.41%
2008	707,051	241,750	247,653	253,377	250,515	35.43%	34.19%	100.00%	34.19%	34.19%
2009	739,881	242,510	256,859	263,131	259,995	35.14%	32.78%	100.00%	32.78%	32.78%
2010	759,948	271,180	257,667	272,913	265,290	34.91%	35.68%	100.00%	35.68%	35.68%
2011	772,985	273,138	288,129	273,771	280,950	36.35%	35.34%	80.00%	35.54%	35.54%
2012	768,953	310,628	290,209	306,137	298,173	38.78%	40.40%	60.00%	39.75%	39.75%
2013	778,092	349,189	330,042	308,347	319,194	41.02%	44.88%	40.00%	42.56%	42.57%
2014	817,710	317,749	371,013	350,669	360,841	44.13%	38.86%	20.00%	43.07%	43.08%
2015	873,488	352,422	337,609	394,202	365,905	41.89%	40.35%	0.00%	41.89%	41.89%
2016	918,780	386,399	374,449	358,709	366,579	39.90%	42.06%	0.00%	39.90%	39.90%
2017	971,436	423,406	410,549	397,852	404,201	41.61%	43.59%	0.00%	41.61%	41.59%
	12,732,625	4,717,772	4,562,764	4,411,728	4,720,597					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
6.37%
Selected Trend (b):
6.25%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	32.06%	152,392	100.00%	0.00%	152,392	152,393	-	152,393	1	32.06%
2001	497,121	32.44%	161,272	100.00%	0.00%	161,272	161,277	-	161,277	5	32.44%
2002	532,307	33.74%	179,589	100.00%	0.00%	179,589	179,589	-	179,589	-	33.74%
2003	560,857	34.58%	193,942	100.00%	0.00%	193,942	193,942	-	193,942	(1)	34.58%
2004	596,045	33.83%	201,613	100.00%	0.00%	201,613	201,613	-	201,613	(1)	33.83%
2005	630,367	32.21%	203,057	100.00%	0.00%	203,057	203,058	-	203,058	1	32.21%
2006	654,863	34.27%	224,451	100.00%	0.00%	224,451	224,444	-	224,444	(7)	34.27%
2007	677,464	34.41%	233,083	100.00%	0.00%	233,083	233,085	-	233,085	2	34.41%
2008	707,051	34.19%	241,750	100.00%	0.00%	241,750	241,750	-	241,750	-	34.19%
2009	739,881	32.78%	242,510	100.00%	0.00%	242,510	242,510	-	242,510	-	32.78%
2010	759,948	35.68%	271,184	100.00%	0.00%	271,184	271,180	-	271,180	(4)	35.68%
2011	772,985	35.54%	274,702	100.00%	0.00%	274,702	273,138	-	273,138	(1)	35.34%
2012	768,953	39.75%	305,651	100.00%	0.00%	305,651	310,628	-	310,628	(6)	40.40%
2013	778,092	42.57%	331,205	100.00%	0.00%	331,205	349,189	-	349,189	(26)	44.88%
2014	817,710	43.08%	352,246	99.90%	0.10%	351,894	317,432	352	317,784	304	38.86%
2015	873,488	41.89%	365,945	99.65%	0.35%	364,668	351,192	1,277	352,470	1,169	40.35%
2016	918,780	39.90%	366,571	98.42%	1.58%	360,772	380,288	5,798	386,086	4,557	42.02%
2017	971,436	41.59%	404,016	75.50%	24.50%	305,034	319,674	98,982	418,656	23,485	43.10%
	12,732,625		4,705,179			4,598,770	4,606,380	106,409	4,712,789	29,478	37.01%

Notes:
(10) = (8) + (9)

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APPENDIX D COMPREHENSIVE

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - With Z-Files & Hailstorm Losses
February 28, 2018

Appendix D
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	35,221,308	38,111,511	38,411,525	39,069,678	39,134,275	39,189,230	39,155,730	39,137,878	39,103,033	39,081,871	39,069,227	39,045,778	39,030,079	39,002,582	38,988,270	38,962,702	38,945,020	38,934,066	38,923,951	38,922,487	38,922,397
2000	26,941,730	39,018,204	43,884,912	44,381,448	44,858,616	44,946,102	44,955,228	44,922,681	44,941,950	44,934,463	44,668,432	44,643,963	44,623,213	44,596,000	44,546,120	44,539,370	44,533,243	44,529,713	44,517,360	44,517,170	44,523,323	
2001	50,497,280	66,219,894	70,806,886	71,374,521	72,622,768	72,841,955	72,819,888	72,788,070	72,776,373	71,292,619	71,298,281	71,280,224	71,274,770	71,255,369	71,245,023	71,224,424	71,220,929	71,219,397	71,216,572	71,215,273		
2002	31,395,202	43,217,155	45,727,055	45,945,377	46,389,011	46,427,747	46,320,648	46,261,365	46,210,666	46,188,742	46,182,005	46,159,901	46,142,889	46,127,711	46,116,894	46,115,082	46,113,105	46,112,761	46,112,601			
2003	36,357,454	48,701,885	52,246,493	52,659,868	53,201,442	53,280,329	53,340,828	53,317,439	53,294,157	53,266,701	53,250,702	53,234,210	53,200,041	53,171,878	53,159,545	53,150,667	53,146,354	53,146,625				
2004	38,091,641	58,889,715	61,702,023	61,969,236	62,372,239	62,416,498	62,461,317	62,482,885	62,448,123	62,437,496	62,383,547	62,367,482	62,365,815	62,367,216	62,356,216	62,368,009	62,357,193					
2005	49,842,164	65,072,980	69,213,769	69,704,603	70,670,642	70,773,309	70,909,731	70,945,191	70,930,874	70,928,649	70,935,388	70,929,975	70,872,827	70,861,709	70,857,189	70,855,677						
2006	52,101,532	68,118,260	72,467,991	73,243,420	74,429,481	74,584,253	74,818,447	74,844,834	74,884,048	74,916,783	74,887,047	74,895,754	74,894,238	74,880,909	74,850,455							
2007	91,973,523	103,722,682	110,320,996	111,438,275	114,591,463	114,762,851	114,400,894	114,337,176	113,326,016	113,277,016	113,312,281	113,321,583	113,327,385	113,323,230								
2008	35,440,880	46,052,774	48,754,702	49,142,182	49,711,990	50,045,105	50,073,261	50,047,653	50,029,504	50,010,754	49,970,661	49,854,521	49,858,681									
2009	61,823,210	74,497,706	78,098,193	78,712,342	79,741,920	79,824,834	78,457,482	78,486,637	78,572,987	78,557,595	78,618,774	78,612,895										
2010	58,164,754	69,029,786	71,692,910	72,718,517	74,414,506	74,536,708	74,745,385	74,631,773	74,810,417	74,845,215	74,879,225											
2011	57,733,077	69,284,587	74,042,512	74,386,482	75,014,786	75,257,237	75,459,345	74,988,281	75,014,355	75,034,735												
2012	56,286,008	67,506,838	72,071,742	72,748,391	73,699,726	73,739,936	73,869,065	73,465,591	73,394,498													
2013	55,824,151	69,043,443	73,786,455	74,600,216	75,693,452	75,766,496	75,750,837	74,695,280														
2014	50,745,439	65,631,219	70,139,971	70,390,581	71,015,442	71,180,442	70,769,718															
2015	92,252,087	113,688,033	120,270,142	120,912,082	121,794,348	121,804,911																
2016	90,833,072	112,377,508	119,180,765	119,201,626																		
2017	50,152,638	67,391,316																				

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Z-Files
February 28, 2018

Appendix D
Page 2

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	35,221	38,112	38,412	39,070	39,134	39,189	39,156	39,138	39,103
2000	26,942	39,018	43,885	44,381	44,859	44,946	44,955	44,923	44,942	44,934
2001	33,444	48,454	51,768	52,179	52,872	52,934	52,881	52,846	52,832	52,851
2002	31,395	43,217	45,727	45,945	46,389	46,428	46,321	46,261	46,211	46,189
2003	36,357	48,702	52,246	52,660	53,201	53,280	53,341	53,317	53,294	53,267
2004	38,092	58,890	61,702	61,969	62,372	62,416	62,461	62,483	62,448	62,437
2005	49,842	65,073	69,214	69,705	70,671	70,773	70,910	70,945	70,931	70,929
2006	52,102	68,118	72,468	73,243	74,429	74,584	74,818	74,845	74,884	74,917
2007	50,630	61,535	65,483	66,167	67,742	67,932	68,120	68,152	68,180	68,162
2008	35,441	46,053	48,755	49,142	49,712	50,045	50,073	50,048	50,030	50,011
2009	33,975	45,142	47,388	47,773	48,273	48,268	48,336	48,304	48,306	48,291
2010	58,165	69,030	71,693	72,719	74,415	74,537	74,745	74,632	74,810	74,845
2011	57,733	69,285	74,043	74,386	75,015	75,257	75,459	74,988	75,014	75,035
2012	56,286	67,507	72,072	72,748	73,700	73,740	73,869	73,466	73,394	
2013	55,824	69,043	73,786	74,600	75,693	75,766	75,751	74,695		
2014	50,745	65,631	70,140	70,391	71,015	71,180	70,770			
2015	92,252	113,688	120,270	120,912	121,794	121,805				
2016	90,833	112,378	119,181	119,202						
2017	50,153	67,391								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.0821	1.0079	1.0171	1.0017	1.0014	0.9991	0.9995	0.9991	0.9995
2000	1.4482	1.1247	1.0113	1.0108	1.0020	1.0002	0.9993	1.0004	0.9998	0.9941
2001	1.4488	1.0684	1.0079	1.0133	1.0012	0.9990	0.9993	0.9997	1.0003	1.0001
2002	1.3766	1.0581	1.0048	1.0097	1.0008	0.9977	0.9987	0.9989	0.9995	0.9999
2003	1.3395	1.0728	1.0079	1.0103	1.0015	1.0011	0.9996	0.9996	0.9995	0.9997
2004	1.5460	1.0478	1.0043	1.0065	1.0007	1.0007	1.0003	0.9994	0.9998	0.9991
2005	1.3056	1.0636	1.0071	1.0139	1.0015	1.0019	1.0005	0.9998	1.0000	1.0001
2006	1.3074	1.0639	1.0107	1.0162	1.0021	1.0031	1.0004	1.0005	1.0004	0.9996
2007	1.2154	1.0642	1.0104	1.0238	1.0028	1.0028	1.0005	1.0004	0.9997	1.0001
2008	1.2994	1.0587	1.0079	1.0116	1.0067	1.0006	0.9995	0.9996	0.9996	0.9992
2009	1.3287	1.0498	1.0081	1.0105	0.9999	1.0014	0.9993	1.0000	0.9997	1.0013
2010	1.1868	1.0386	1.0143	1.0233	1.0016	1.0028	0.9985	1.0024	1.0005	1.0005
2011	1.2001	1.0687	1.0046	1.0084	1.0032	1.0027	0.9938	1.0003	1.0003	
2012	1.1994	1.0676	1.0094	1.0131	1.0005	1.0018	0.9945	0.9990		
2013	1.2368	1.0687	1.0110	1.0147	1.0010	0.9998	0.9861			
2014	1.2933	1.0687	1.0036	1.0089	1.0023	0.9942				
2015	1.2324	1.0579	1.0053	1.0073	1.0001					
2016	1.2372	1.0605	1.0002							
Latest 9 Volume Weighted	1.2438	1.0602	1.0065	1.0131	1.0018	1.0010	0.9967	1.0002	1.0000	0.9999
Latest 6 Volume Weighted	1.2513	1.0642	1.0052	1.0121	1.0013	1.0004	0.9947	1.0004	1.0001	1.0001
Latest 3 Volume Weighted	1.2582	1.0613	1.0030	1.0098	1.0009	0.9987	0.9914	1.0006	1.0002	1.0003
Simple Average of Middle 4 of Last 6	1.2266	1.0664	1.0057	1.0113	1.0014	1.0014	0.9965	1.0001	1.0000	1.0001
Simple Average of Middle 3 of Last 5	1.2355	1.0656	1.0061	1.0101	1.0013	1.0014	0.9956	1.0000	0.9999	1.0000
Selected Feb 17	1.2300	1.0680	1.0085	1.0130	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
Selected Oct 17	1.2800	1.0680	1.0080	1.0120	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
Selected Factors	1.2800	1.0680	1.0080	1.0120	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
Selected Ultimate	1.3994	1.0933	1.0237	1.0155	1.0035	1.0015	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
39,082	39,069	39,046	39,030	39,003	38,988	38,963	38,945	38,934	38,924	38,922	38,922
44,668	44,644	44,623	44,596	44,546	44,539	44,533	44,530	44,517	44,517	44,523	
52,856	52,838	52,833	52,813	52,803	52,782	52,779	52,777	52,775	52,773		
46,182	46,160	46,143	46,128	46,117	46,115	46,113	46,113	46,113			
53,251	53,234	53,200	53,172	53,160	53,151	53,146	53,147				
62,384	62,367	62,366	62,367	62,356	62,368	62,357					
70,935	70,930	70,873	70,862	70,857	70,856						
74,887	74,896	74,894	74,881	74,850							
68,168	68,178	68,183	68,179								
49,971	49,855	49,859									
48,352	48,346										
74,879											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9997	0.9994	0.9996	0.9993	0.9996	0.9993	0.9995	0.9997	0.9997	1.0000	1.0000
0.9995	0.9995	0.9994	0.9989	0.9998	0.9999	0.9999	0.9997	1.0000	1.0001	
0.9997	0.9999	0.9996	0.9998	0.9996	0.9999	1.0000	0.9999	1.0000		
0.9995	0.9996	0.9997	0.9998	1.0000	1.0000	1.0000	1.0000			
0.9997	0.9994	0.9995	0.9998	0.9998	0.9999	1.0000				
0.9997	1.0000	1.0000	0.9998	1.0002	0.9998					
0.9999	0.9992	0.9998	0.9999	1.0000						
1.0001	1.0000	0.9998	0.9996							
1.0001	1.0001	0.9999								
0.9977	1.0001									
0.9999										
0.9997	0.9998	0.9997	0.9996	0.9999	0.9998	0.9999	0.9999	0.9999	1.0001	1.0000
0.9997	0.9998	0.9998	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0001	1.0000
0.9993	1.0000	0.9999	0.9998	1.0000	0.9999	1.0000	0.9999	0.9999	1.0001	1.0000
0.9999	0.9998	0.9998	0.9998	0.9999	0.9999	1.0000	0.9998	1.0000	1.0001	1.0000
1.0000	1.0000	0.9999	0.9998	0.9999	0.9999	1.0000	0.9998	1.0000	1.0001	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.3419	1.3488	1.3401	1.3283	1.3346	1.3467	1.3994	1.3994
12	1.0788	1.0779	1.0651	1.0829	1.0803	1.0949	1.0933	1.0933
20	1.0176	1.0128	1.0035	1.0155	1.0138	1.0252	1.0237	1.0237
24	1.0110	1.0076	1.0006	1.0097	1.0076	1.0165	1.0155	1.0155
32	0.9979	0.9955	0.9909	0.9985	0.9975	1.0035	1.0035	1.0035
36	0.9961	0.9942	0.9900	0.9971	0.9962	1.0015	1.0015	1.0015
48	0.9951	0.9938	0.9913	0.9957	0.9948	0.9995	1.0000	1.0000
60	0.9984	0.9991	0.9999	0.9992	0.9992	0.9995	1.0000	1.0000
72	0.9982	0.9987	0.9993	0.9991	0.9992	0.9995	1.0000	1.0000
84	0.9982	0.9986	0.9991	0.9990	0.9993	0.9995	1.0000	1.0000
96	0.9982	0.9985	0.9988	0.9990	0.9993	0.9995	1.0000	1.0000
108	0.9986	0.9988	0.9994	0.9991	0.9993	0.9995	1.0000	1.0000
120	0.9988	0.9991	0.9994	0.9992	0.9993	0.9995	1.0000	1.0000
132	0.9991	0.9992	0.9995	0.9994	0.9994	1.0000	1.0000	1.0000
144	0.9994	0.9995	0.9998	0.9996	0.9996	1.0000	1.0000	1.0000
156	0.9996	0.9996	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
168	0.9997	0.9997	0.9999	0.9998	0.9998	1.0000	1.0000	1.0000
180	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
192	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
204	1.0001	1.0001	1.0001	1.0000	1.0000	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.2800	1.3994	71.46%	8		1.3994	1.2800	1.2800	1.3994
12	1.0680	1.0933		12	91.47%	1.0933	1.0680	1.0680	1.0933
20	1.0080	1.0237	97.69%	20		1.0237	1.0080	1.0080	1.0237
24	1.0120	1.0155		24	98.47%	1.0155	1.0120	1.0120	1.0155
32	1.0020	1.0035	99.65%	32		1.0035	1.0020	1.0020	1.0035
36	1.0015	1.0015		36	99.85%	1.0015	1.0015	1.0015	1.0015
44	1.0000	1.0000	100.00%	48	100.00%	1.0000	1.0000	1.0000	1.0000
56	1.0000	1.0000	100.00%	60	100.00%	1.0000	1.0000	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	44,523	1.0000	44,523	-	1	9.37%
2001	497,121	52,773	1.0000	52,773	-	(1)	10.62%
2002	532,307	46,113	1.0000	46,113	-	-	8.66%
2003	560,857	53,147	1.0000	53,147	-	-	9.48%
2004	596,045	62,357	1.0000	62,357	-	-	10.46%
2005	630,367	70,856	1.0000	70,856	-	-	11.24%
2006	654,863	74,850	1.0000	74,850	-	-	11.43%
2007	677,464	68,179	1.0000	68,179	-	-	10.06%
2008	707,051	49,859	1.0000	49,859	-	50	7.05%
2009	739,881	48,346	1.0000	48,346	-	(5)	6.53%
2010	759,948	74,879	1.0000	74,879	-	58	9.85%
2011	772,985	75,035	1.0000	75,035	-	401	9.71%
2012	768,953	73,394	1.0000	73,394	-	825	9.54%
2013	778,092	74,695	1.0000	74,695	-	5	9.60%
2014	817,710	70,770	1.0000	70,770	-	39	8.65%
2015	873,488	121,805	1.0015	121,988	183	2,780	13.97%
2016	918,780	119,202	1.0155	121,055	1,853	4,847	13.18%
2017	971,436	67,391	1.0933	73,678	6,286	8,760	7.58%
	12,732,625	1,248,174		1,256,496	8,322	17,760	9.87%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	44,523			44,523	9.37%	9.37%	100.00%	9.37%	9.37%
2001	497,121	52,773	46,416		46,416	9.34%	10.62%	100.00%	10.62%	10.62%
2002	532,307	46,113	55,016	48,388	51,702	9.71%	8.66%	100.00%	8.66%	8.66%
2003	560,857	53,147	48,072	57,354	52,713	9.40%	9.48%	100.00%	9.48%	9.48%
2004	596,045	62,357	55,405	50,115	52,760	8.85%	10.46%	100.00%	10.46%	10.46%
2005	630,367	70,856	65,007	57,760	61,384	9.74%	11.24%	100.00%	11.24%	11.24%
2006	654,863	74,850	73,867	67,770	70,819	10.81%	11.43%	100.00%	11.43%	11.43%
2007	677,464	68,179	78,032	77,006	77,519	11.44%	10.06%	100.00%	10.06%	10.06%
2008	707,051	49,859	71,077	81,348	76,212	10.78%	7.05%	100.00%	7.05%	7.05%
2009	739,881	48,346	51,978	74,098	63,038	8.52%	6.53%	100.00%	6.53%	6.53%
2010	759,948	74,879	50,401	54,187	52,294	6.88%	9.85%	100.00%	9.85%	9.85%
2011	772,985	75,035	78,062	52,543	65,302	8.45%	9.71%	80.00%	9.46%	9.46%
2012	768,953	73,394	78,224	81,379	79,801	10.38%	9.54%	60.00%	9.88%	9.88%
2013	778,092	74,695	76,514	81,548	79,031	10.16%	9.60%	40.00%	9.93%	9.93%
2014	817,710	70,770	77,870	79,766	78,818	9.64%	8.65%	20.00%	9.44%	9.44%
2015	873,488	121,988	73,777	81,179	77,478	8.87%	13.97%	0.00%	8.87%	8.87%
2016	918,780	121,055	127,172	76,913	102,043	11.11%	13.18%	0.00%	11.11%	11.11%
2017	971,436	73,678	126,199	132,577	129,388	13.32%	7.58%	0.00%	13.32%	13.32%
	12,732,625	1,256,496	1,233,088	1,153,932	1,261,241					

Trend in Losses Based on Exponential Regression (a):
4.10%
Selected Trend (b):
4.25%

Notes:
(3) Ultimate Losses from Page 8
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	9.37%	44,523	100.00%	0.00%	44,523	44,523	-	44,523	9.37%
2001	497,121	10.62%	52,773	100.00%	0.00%	52,773	52,773	-	52,773	10.62%
2002	532,307	8.66%	46,113	100.00%	0.00%	46,113	46,113	-	46,113	8.66%
2003	560,857	9.48%	53,147	100.00%	0.00%	53,147	53,147	-	53,147	9.48%
2004	596,045	10.46%	62,357	100.00%	0.00%	62,357	62,357	-	62,357	10.46%
2005	630,367	11.24%	70,856	100.00%	0.00%	70,856	70,856	-	70,856	11.24%
2006	654,863	11.43%	74,850	100.00%	0.00%	74,850	74,850	-	74,850	11.43%
2007	677,464	10.06%	68,179	100.00%	0.00%	68,179	68,179	-	68,179	10.06%
2008	707,051	7.05%	49,859	100.00%	0.00%	49,859	49,859	-	49,859	7.05%
2009	739,881	6.53%	48,346	100.00%	0.00%	48,346	48,346	-	48,346	6.53%
2010	759,948	9.85%	74,879	100.00%	0.00%	74,879	74,879	-	74,879	9.85%
2011	772,985	9.46%	73,088	100.00%	0.00%	73,088	75,035	-	75,035	9.71%
2012	768,953	9.88%	75,957	100.00%	0.00%	75,957	73,394	-	73,394	9.54%
2013	778,092	9.93%	77,297	100.00%	0.00%	77,297	74,695	-	74,695	9.60%
2014	817,710	9.44%	77,208	100.00%	0.00%	77,208	70,770	-	70,770	8.65%
2015	873,488	8.87%	77,478	99.85%	0.15%	77,362	121,805	116	121,921	13.96%
2016	918,780	11.11%	102,043	98.47%	1.53%	100,481	119,202	1,562	120,764	13.14%
2017	971,436	13.32%	129,388	91.47%	8.53%	118,349	67,391	11,039	78,431	8.07%
	12,732,625		1,258,342			1,245,624	1,248,174	12,717	1,260,892	9.90%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - With Z-Files & Hailstorm Losses
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	32,057,827	37,889,397	38,314,109	38,985,431	39,072,912	39,166,232	39,151,582	39,134,681	39,099,836	39,078,674	39,066,030	39,042,581	39,027,082	38,999,585	38,987,770	38,962,202	38,944,520	38,933,565	38,923,451	38,922,587	38,922,497
2000	20,872,081	34,666,923	43,565,086	44,195,508	44,786,022	44,903,677	44,933,276	44,908,624	44,929,878	44,925,301	44,661,223	44,636,755	44,616,004	44,593,792	44,545,220	44,538,470	44,532,343	44,528,813	44,516,460	44,516,270	44,522,423	
2001	29,785,031	52,778,448	65,682,243	67,288,935	70,656,800	71,094,785	71,274,686	71,298,257	71,295,508	71,290,244	71,293,931	71,280,744	71,262,320	71,253,569	71,245,623	71,225,024	71,221,529	71,219,703	71,217,172	71,215,873		
2002	24,684,143	39,188,523	45,428,270	45,849,267	46,336,293	46,396,488	46,300,293	46,248,051	46,201,171	46,182,272	46,176,132	46,156,601	46,142,589	46,127,285	46,116,594	46,114,782	46,112,805	46,112,761	46,112,601			
2003	26,934,876	43,541,714	51,912,666	52,490,015	53,134,006	53,247,203	53,325,290	53,316,368	53,285,910	53,259,179	53,243,179	53,226,710	53,192,541	53,164,378	53,159,545	53,150,667	53,146,354	53,146,625				
2004	29,940,606	52,047,598	61,210,439	61,740,346	62,286,145	62,360,422	62,443,408	62,450,080	62,436,363	62,431,446	62,382,472	62,366,407	62,364,740	62,366,641	62,355,641	62,364,684	62,357,193					
2005	34,569,620	56,060,288	68,420,923	69,322,694	70,463,185	70,615,519	70,838,191	70,878,218	70,864,901	70,864,212	70,870,731	70,865,950	70,857,677	70,861,109	70,857,189	70,855,677						
2006	36,728,636	58,687,716	71,826,569	72,866,384	74,263,729	74,475,932	74,786,763	74,827,798	74,867,146	74,916,783	74,887,047	74,895,754	74,889,388	74,880,909	74,850,455							
2007	50,453,630	79,527,365	102,857,910	105,875,979	111,093,781	111,977,999	112,904,159	113,112,419	113,270,021	113,274,089	113,296,084	113,317,983	113,322,060	113,323,230								
2008	25,122,831	39,099,240	47,993,667	48,700,920	49,518,483	49,805,886	49,949,794	49,969,028	49,961,579	49,954,036	49,914,961	49,802,496	49,808,981									
2009	32,147,266	57,052,680	72,132,417	74,255,877	77,171,325	77,776,985	78,329,392	78,471,229	78,534,211	78,562,138	78,612,007	78,618,245										
2010	33,888,756	55,591,554	69,671,015	71,578,131	73,765,588	74,052,874	74,393,846	74,548,412	74,715,763	74,785,289	74,821,369											
2011	34,216,831	55,711,692	69,741,479	71,317,950	73,341,130	73,819,993	74,319,411	74,488,048	74,582,792	74,633,586												
2012	36,219,839	54,939,832	67,767,305	69,343,588	71,503,096	71,869,413	72,302,760	72,468,911	72,569,421													
2013	33,317,924	54,230,212	69,606,908	71,556,590	73,676,695	73,995,846	74,486,515	74,690,760														
2014	34,213,299	55,649,630	67,734,916	68,736,088	70,115,814	70,402,652	70,731,128															
2015	53,849,301	90,408,089	112,793,219	115,181,400	118,383,304	119,024,952																
2016	56,621,753	88,747,401	112,068,073	114,355,109																		
2017	36,227,115	58,631,119																				

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	32,058	37,889	38,314	38,985	39,073	39,166	39,152	39,135	39,100
2000	20,872	34,667	43,565	44,196	44,786	44,904	44,933	44,909	44,930	44,925
2001	25,574	43,877	51,345	51,858	52,790	52,874	52,892	52,866	52,854	52,848
2002	24,684	39,189	45,428	45,849	46,336	46,396	46,300	46,248	46,201	46,182
2003	26,935	43,542	51,913	52,490	53,134	53,247	53,325	53,316	53,286	53,259
2004	29,941	52,048	61,210	61,740	62,286	62,360	62,443	62,450	62,436	62,431
2005	34,570	56,060	68,421	69,323	70,463	70,616	70,838	70,878	70,865	70,864
2006	36,729	58,688	71,827	72,866	74,264	74,476	74,787	74,828	74,867	74,917
2007	33,696	52,912	64,658	65,782	67,443	67,824	68,081	68,118	68,174	68,159
2008	25,123	39,099	47,994	48,701	49,518	49,806	49,950	49,969	49,962	49,954
2009	23,420	38,661	46,525	47,206	48,035	48,165	48,282	48,303	48,267	48,295
2010	33,889	55,592	69,671	71,578	73,766	74,053	74,394	74,548	74,716	74,785
2011	34,217	55,712	69,741	71,318	73,341	73,820	74,319	74,488	74,583	74,634
2012	36,220	54,940	67,767	69,344	71,503	71,869	72,303	72,469	72,569	
2013	33,318	54,230	69,607	71,557	73,677	73,996	74,487	74,691		
2014	34,213	55,650	67,735	68,736	70,116	70,403	70,731			
2015	53,849	90,408	112,793	115,181	118,383	119,025				
2016	56,622	88,747	112,068	114,355						
2017	36,227	58,631								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.1819	1.0112	1.0175	1.0022	1.0024	0.9996	0.9996	0.9991	0.9995
2000	1.6609	1.2567	1.0145	1.0134	1.0026	1.0007	0.9995	1.0005	0.9999	0.9941
2001	1.7157	1.1702	1.0100	1.0180	1.0016	1.0003	0.9995	0.9998	0.9999	1.0001
2002	1.5876	1.1592	1.0093	1.0106	1.0013	0.9979	0.9989	0.9990	0.9996	0.9999
2003	1.6166	1.1923	1.0111	1.0123	1.0021	1.0015	0.9998	0.9994	0.9995	0.9997
2004	1.7384	1.1760	1.0087	1.0088	1.0012	1.0013	1.0001	0.9998	0.9999	0.9992
2005	1.6217	1.2205	1.0132	1.0165	1.0022	1.0032	1.0006	0.9998	1.0000	1.0001
2006	1.5979	1.2239	1.0145	1.0192	1.0029	1.0042	1.0005	1.0005	1.0007	0.9996
2007	1.5703	1.2220	1.0174	1.0252	1.0057	1.0038	1.0005	1.0008	0.9998	0.9999
2008	1.5563	1.2275	1.0147	1.0168	1.0058	1.0029	1.0004	0.9999	0.9998	0.9992
2009	1.6507	1.2034	1.0146	1.0176	1.0027	1.0024	1.0004	0.9993	1.0006	1.0010
2010	1.6404	1.2533	1.0274	1.0306	1.0039	1.0046	1.0021	1.0022	1.0009	1.0005
2011	1.6282	1.2518	1.0226	1.0284	1.0065	1.0068	1.0023	1.0013	1.0007	
2012	1.5168	1.2335	1.0233	1.0311	1.0051	1.0060	1.0023	1.0014		
2013	1.6277	1.2835	1.0280	1.0296	1.0043	1.0066	1.0027			
2014	1.6265	1.2172	1.0148	1.0201	1.0041	1.0047				
2015	1.6789	1.2476	1.0212	1.0278	1.0054					
2016	1.5674	1.2628	1.0204							
Latest 9 Volume Weighted	1.6158	1.2455	1.0212	1.0260	1.0049	1.0048	1.0014	1.0006	1.0002	0.9999
Latest 6 Volume Weighted	1.6075	1.2503	1.0216	1.0279	1.0050	1.0054	1.0019	1.0010	1.0004	1.0000
Latest 3 Volume Weighted	1.6209	1.2461	1.0194	1.0262	1.0048	1.0058	1.0024	1.0016	1.0008	1.0003
Simple Average of Middle 4 of Last 6	1.6124	1.2489	1.0219	1.0291	1.0047	1.0055	1.0018	1.0008	1.0004	1.0000
Simple Average of Middle 3 of Last 5	1.6072	1.2480	1.0216	1.0286	1.0050	1.0058	1.0022	1.0008	1.0004	1.0000
Selected Feb 17	1.6300	1.2475	1.0225	1.0275	1.0050	1.0055	1.0020	1.0005	1.0000	1.0000
Selected Oct 17	1.6300	1.2500	1.0225	1.0275	1.0045	1.0055	1.0020	1.0010	1.0005	1.0000
Selected Factors	1.6300	1.2500	1.0225	1.0275	1.0045	1.0055	1.0020	1.0010	1.0005	1.0000
Selected Ultimate	2.1697	1.3311	1.0649	1.0414	1.0136	1.0090	1.0035	1.0015	1.0005	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
39,079	39,066	39,043	39,027	39,000	38,988	38,962	38,945	38,934	38,923	38,923	38,922
44,661	44,637	44,616	44,594	44,545	44,538	44,532	44,529	44,516	44,516	44,522	
52,852	52,839	52,820	52,812	52,804	52,783	52,780	52,778	52,775	52,774		
46,176	46,157	46,143	46,127	46,117	46,115	46,113	46,113	46,113			
53,243	53,227	53,193	53,164	53,160	53,151	53,146	53,147				
62,382	62,366	62,365	62,367	62,356	62,365	62,357					
70,871	70,866	70,858	70,861	70,857	70,856						
74,887	74,896	74,889	74,881	74,850							
68,152	68,174	68,178	68,179								
49,915	49,802	49,809									
48,345	48,351										
74,821											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9997	0.9994	0.9996	0.9993	0.9997	0.9993	0.9995	0.9997	0.9997	1.0000	1.0000
0.9995	0.9995	0.9995	0.9989	0.9998	0.9999	0.9999	0.9997	1.0000	1.0001	
0.9998	0.9997	0.9998	0.9998	0.9996	0.9999	1.0000	1.0000	1.0000		
0.9996	0.9997	0.9997	0.9998	1.0000	1.0000	1.0000	1.0000			
0.9997	0.9994	0.9995	0.9999	0.9998	0.9999	1.0000				
0.9997	1.0000	1.0000	0.9998	1.0001	0.9999					
0.9999	0.9999	1.0000	0.9999	1.0000						
1.0001	0.9999	0.9999	0.9996							
1.0003	1.0001	1.0000								
0.9977	1.0001									
1.0001										
0.9997	0.9998	0.9998	0.9997	0.9999	0.9998	0.9999	0.9999	0.9999	1.0001	1.0000
0.9997	0.9999	0.9999	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0001	1.0000
0.9995	1.0000	1.0000	0.9998	1.0000	0.9999	1.0000	0.9999	0.9999	1.0001	1.0000
1.0000	1.0000	0.9999	0.9998	0.9999	0.9999	1.0000	0.9998	1.0000	1.0001	1.0000
1.0001	1.0000	1.0000	0.9998	0.9999	0.9999	1.0000	0.9998	1.0000	1.0001	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.1308	2.1369	2.1443	2.1445	2.1366	2.1632	2.1697	2.1697
12	1.3187	1.3293	1.3229	1.3300	1.3294	1.3271	1.3311	1.3311
20	1.0588	1.0632	1.0616	1.0649	1.0653	1.0638	1.0649	1.0649
24	1.0368	1.0408	1.0414	1.0421	1.0427	1.0404	1.0414	1.0414
32	1.0105	1.0125	1.0148	1.0126	1.0137	1.0125	1.0136	1.0136
36	1.0055	1.0075	1.0100	1.0079	1.0087	1.0075	1.0090	1.0090
48	1.0007	1.0021	1.0041	1.0024	1.0029	1.0020	1.0035	1.0035
60	0.9993	1.0003	1.0017	1.0006	1.0007	1.0000	1.0015	1.0015
72	0.9986	0.9993	1.0001	0.9998	0.9999	0.9995	1.0005	1.0005
84	0.9984	0.9988	0.9993	0.9993	0.9995	0.9995	1.0000	1.0000
96	0.9985	0.9988	0.9990	0.9993	0.9995	0.9995	1.0000	1.0000
108	0.9988	0.9991	0.9996	0.9993	0.9995	0.9995	1.0000	1.0000
120	0.9990	0.9992	0.9995	0.9994	0.9995	0.9995	1.0000	1.0000
132	0.9991	0.9993	0.9996	0.9995	0.9995	1.0000	1.0000	1.0000
144	0.9995	0.9995	0.9998	0.9996	0.9997	1.0000	1.0000	1.0000
156	0.9996	0.9996	0.9998	0.9997	0.9997	1.0000	1.0000	1.0000
168	0.9997	0.9997	0.9999	0.9998	0.9998	1.0000	1.0000	1.0000
180	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
192	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
204	1.0001	1.0001	1.0001	1.0001	1.0001	1.0000	1.0000	1.0000
216	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6300	2.1697	46.09%	8		2.1697	1.6300	1.6300	2.1697
12	1.2500	1.3311		12	75.13%	1.3311	1.2500	1.2500	1.3311
20	1.0225	1.0649	93.91%	20		1.0649	1.0225	1.0225	1.0649
24	1.0275	1.0414		24	96.02%	1.0414	1.0275	1.0275	1.0414
32	1.0045	1.0136	98.66%	32		1.0136	1.0045	1.0045	1.0136
36	1.0045	1.0090		36	99.11%	1.0090	1.0053	1.0055	1.0090
44	1.0025	1.0045	99.55%	48	99.63%	1.0037	1.0022	1.0020	1.0035
56	1.0015	1.0020	99.80%	60	99.85%	1.0015	1.0012	1.0010	1.0015
68	1.0005	1.0005	99.95%	72	99.97%	1.0003	1.0003	1.0005	1.0005
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	44,522	1.0000	44,522	-	1	(1)	9.37%
2001	497,121	52,774	1.0000	52,774	-	(1)	1	10.62%
2002	532,307	46,113	1.0000	46,113	-	-	-	8.66%
2003	560,857	53,147	1.0000	53,147	-	-	-	9.48%
2004	596,045	62,357	1.0000	62,357	-	-	-	10.46%
2005	630,367	70,856	1.0000	70,856	-	-	-	11.24%
2006	654,863	74,850	1.0000	74,850	-	-	-	11.43%
2007	677,464	68,179	1.0000	68,179	-	-	-	10.06%
2008	707,051	49,809	1.0000	49,809	-	50	(50)	7.04%
2009	739,881	48,351	1.0000	48,351	-	(5)	5	6.54%
2010	759,948	74,821	1.0000	74,821	-	58	(58)	9.85%
2011	772,985	74,634	1.0000	74,634	-	401	(401)	9.66%
2012	768,953	72,569	1.0005	72,606	36	825	(789)	9.44%
2013	778,092	74,691	1.0015	74,803	112	5	107	9.61%
2014	817,710	70,731	1.0035	70,979	248	39	209	8.68%
2015	873,488	119,025	1.0090	120,099	1,074	2,780	(1,706)	13.75%
2016	918,780	114,355	1.0414	119,094	4,738	4,847	(109)	12.96%
2017	971,436	58,631	1.3311	78,043	19,412	8,760	10,652	8.03%
	12,732,625	1,230,416		1,256,036	25,620	17,760	7,860	9.86%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	44,522			44,522	9.37%	9.37%	100.00%	9.37%	9.37%
2001	497,121	52,774	46,415		46,415	9.34%	10.62%	100.00%	10.62%	10.62%
2002	532,307	46,113	55,017	48,387	51,702	9.71%	8.66%	100.00%	8.66%	8.66%
2003	560,857	53,147	48,072	57,355	52,714	9.40%	9.48%	100.00%	9.48%	9.48%
2004	596,045	62,357	55,405	50,115	52,760	8.85%	10.46%	100.00%	10.46%	10.46%
2005	630,367	70,856	65,007	57,760	61,384	9.74%	11.24%	100.00%	11.24%	11.24%
2006	654,863	74,850	73,867	67,770	70,819	10.81%	11.43%	100.00%	11.43%	11.43%
2007	677,464	68,179	78,032	77,006	77,519	11.44%	10.06%	100.00%	10.06%	10.06%
2008	707,051	49,809	71,077	81,348	76,212	10.78%	7.04%	100.00%	7.04%	7.05%
2009	739,881	48,351	51,926	74,098	63,012	8.52%	6.54%	100.00%	6.54%	6.53%
2010	759,948	74,821	50,406	54,133	52,269	6.88%	9.85%	100.00%	9.85%	9.85%
2011	772,985	74,634	78,001	52,548	65,275	8.44%	9.66%	80.00%	9.41%	9.46%
2012	768,953	72,606	77,806	81,316	79,561	10.35%	9.44%	60.00%	9.80%	9.88%
2013	778,092	74,803	75,691	81,112	78,402	10.08%	9.61%	40.00%	9.89%	9.93%
2014	817,710	70,979	77,982	78,908	78,445	9.59%	8.68%	20.00%	9.41%	9.44%
2015	873,488	120,099	73,996	81,296	77,646	8.89%	13.75%	0.00%	8.89%	8.87%
2016	918,780	119,094	125,203	77,140	101,172	11.01%	12.96%	0.00%	11.01%	11.11%
2017	971,436	78,043	124,155	130,524	127,340	13.11%	8.03%	0.00%	13.11%	13.32%
	12,732,625	1,256,036	1,228,058	1,150,819	1,257,168					

Trend in Losses Based on Exponential Regression (a):
4.15%
Selected Trend (b):
4.25%

Notes:
(3) Ultimate Losses from Page 16
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 9
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 9

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	9.37%	44,523	100.00%	0.00%	44,523	44,522	-	44,522	(1)	9.37%
2001	497,121	10.62%	52,773	100.00%	0.00%	52,773	52,774	-	52,774	1	10.62%
2002	532,307	8.66%	46,113	100.00%	0.00%	46,113	46,113	-	46,113	-	8.66%
2003	560,857	9.48%	53,147	100.00%	0.00%	53,147	53,147	-	53,147	-	9.48%
2004	596,045	10.46%	62,357	100.00%	0.00%	62,357	62,357	-	62,357	-	10.46%
2005	630,367	11.24%	70,856	100.00%	0.00%	70,856	70,856	-	70,856	-	11.24%
2006	654,863	11.43%	74,850	100.00%	0.00%	74,850	74,850	-	74,850	-	11.43%
2007	677,464	10.06%	68,179	100.00%	0.00%	68,179	68,179	-	68,179	-	10.06%
2008	707,051	7.05%	49,859	100.00%	0.00%	49,859	49,809	-	49,809	(50)	7.04%
2009	739,881	6.53%	48,346	100.00%	0.00%	48,346	48,351	-	48,351	5	6.54%
2010	759,948	9.85%	74,879	100.00%	0.00%	74,879	74,821	-	74,821	(58)	9.85%
2011	772,985	9.46%	73,088	100.00%	0.00%	73,088	74,634	-	74,634	(401)	9.66%
2012	768,953	9.88%	75,957	99.95%	0.05%	75,919	72,569	38	72,607	(787)	9.44%
2013	778,092	9.93%	77,297	99.85%	0.15%	77,181	74,691	116	74,807	111	9.61%
2014	817,710	9.44%	77,208	99.65%	0.35%	76,939	70,731	270	71,001	231	8.68%
2015	873,488	8.87%	77,478	99.11%	0.89%	76,786	119,025	693	119,718	(2,087)	13.71%
2016	918,780	11.11%	102,043	96.02%	3.98%	97,982	114,355	4,060	118,415	(787)	12.89%
2017	971,436	13.32%	129,388	75.13%	24.87%	97,205	58,631	32,183	90,814	23,423	9.35%
	12,732,625		1,258,342			1,220,982	1,230,416	37,359	1,267,775	19,599	9.96%

Notes:
(10) = (8) + (9)

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APPENDIX E ACCIDENT BENEFITS – WEEKLY INDEMNITY

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - With Z-Files
February 28, 2018

Appendix E
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	15,235,845	25,208,320	26,139,526	31,793,373	34,441,189	45,667,952	57,795,927	70,763,953	51,400,847	51,271,990	49,776,343	49,385,033	49,596,465	50,014,735	50,591,596	50,427,125	50,910,425	52,048,324	52,098,444	52,258,694	52,723,437
2000	14,086,697	24,933,704	30,470,187	33,137,885	38,368,881	43,002,703	52,447,510	61,570,469	51,020,411	52,669,463	52,573,954	51,146,305	51,756,093	51,903,579	51,424,754	52,069,033	50,900,073	51,073,479	53,143,934	53,776,912	55,516,657	
2001	9,407,461	20,835,313	30,328,819	34,273,099	41,225,070	47,114,823	52,109,270	44,869,630	42,997,432	43,978,132	42,305,016	40,853,779	42,148,315	42,508,877	43,451,547	44,725,613	44,635,536	46,778,271	47,750,645	48,477,353		
2002	10,167,998	23,160,675	37,542,529	41,413,716	45,761,890	47,127,403	45,964,489	46,142,312	48,568,977	48,683,934	49,649,294	49,231,942	50,694,513	51,778,159	52,533,286	51,137,728	53,156,938	54,314,347	56,010,443			
2003	19,289,238	37,318,612	58,077,420	59,397,527	49,740,133	49,781,923	45,269,057	45,396,832	45,343,463	45,469,887	45,358,580	45,573,560	48,830,820	51,352,218	50,551,766	51,029,188	52,423,533	52,304,561				
2004	14,633,633	23,877,016	30,777,436	33,928,422	38,104,302	41,417,822	42,880,727	43,513,119	44,524,077	45,093,289	44,294,530	43,205,452	43,808,313	43,362,949	44,038,846	44,279,535	45,657,775					
2005	18,609,271	34,015,637	43,791,978	46,654,107	53,268,514	58,093,848	52,777,194	53,312,725	53,024,739	53,846,475	51,672,405	52,931,085	53,798,468	54,263,700	56,219,242	56,108,693						
2006	20,842,804	35,586,858	52,015,348	53,852,233	57,128,092	57,078,101	57,432,145	58,901,773	57,501,057	59,962,537	66,075,733	68,659,903	68,486,066	69,480,158	71,359,794							
2007	17,458,524	25,923,666	35,175,260	36,879,097	45,832,090	48,964,542	51,885,869	56,170,290	59,036,437	62,396,654	65,016,401	67,109,316	69,020,523	70,158,460								
2008	13,687,566	21,964,066	30,630,533	32,332,352	38,685,490	42,215,425	47,058,310	53,867,200	61,946,713	66,382,779	65,359,147	66,076,681	67,811,428									
2009	14,654,951	21,267,539	29,816,338	32,272,253	37,088,117	39,242,848	44,421,030	51,977,857	56,848,183	59,060,585	60,499,723	64,116,357										
2010	13,041,174	26,773,966	29,848,848	32,131,717	37,666,550	39,708,805	55,028,879	65,029,009	69,548,106	75,787,949	82,346,334											
2011	14,276,249	23,600,141	28,854,067	32,386,870	44,847,852	48,832,683	54,088,876	59,523,473	71,032,417	79,614,446												
2012	16,340,779	26,131,765	35,645,806	39,445,893	44,500,413	47,739,504	54,684,258	64,096,880	90,228,690													
2013	14,345,155	24,290,326	32,610,409	34,472,791	40,559,323	43,383,359	50,791,159	73,401,592														
2014	9,360,725	16,647,887	26,498,582	28,317,182	34,229,467	36,518,540	59,005,916															
2015	10,767,083	18,822,548	32,115,461	35,786,665	66,017,989	74,634,163																
2016	10,510,628	19,136,173	27,672,490	30,509,737																		
2017	10,998,883	18,394,665																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	5,028,720	9,506,550	11,027,935	13,588,045	14,674,852	17,513,823	19,895,258	21,922,969	23,520,555	24,991,610	26,217,970	27,198,820	28,136,015	29,061,231	30,478,778	31,641,456	32,887,295	33,981,130	34,971,678	35,995,333	36,965,056
2000	2,647,746	5,820,713	10,794,763	12,384,576	14,956,119	15,952,844	18,806,379	21,188,751	23,205,638	24,839,184	26,216,410	27,380,142	28,419,553	29,472,718	30,539,694	31,499,961	32,572,798	33,607,368	34,780,256	35,868,884	36,971,297	
2001	2,948,695	6,063,918	10,832,828	12,380,909	14,683,036	15,532,935	17,565,480	19,225,969	20,607,192	21,715,617	22,781,318	23,856,644	24,775,476	25,663,862	27,096,693	28,196,775	29,387,413	30,318,855	31,321,660	32,307,184		
2002	2,869,701	5,974,104	10,904,711	12,557,721	14,336,593	15,282,252	17,665,958	19,546,712	21,021,646	22,499,218	23,909,755	25,179,548	26,713,754	28,215,829	29,713,737	30,984,921	32,589,599	34,042,375	35,406,801			
2003	3,005,630	6,170,169	10,986,579	12,440,789	14,712,792	15,890,336	18,323,380	20,031,744	21,922,859	23,613,398	24,977,457	26,381,308	28,048,629	29,655,034	31,162,065	32,587,812	33,871,346	35,096,181				
2004	2,576,774	5,575,687	9,715,931	10,857,997	12,645,570	13,400,601	15,330,262	17,161,651	18,430,051	19,745,885	20,854,862	21,817,189	22,967,312	24,132,077	25,478,697	26,425,364	27,464,142					
2005	3,043,779	6,426,413	11,404,751	12,911,811	15,372,480	16,495,654	19,011,123	20,986,025	22,822,254	24,338,957	26,103,496	27,799,718	29,689,628	31,267,624	32,797,014	34,395,285						
2006	3,181,846	6,926,859	12,631,579	14,251,835	16,839,421	17,851,785	20,963,800	23,658,595	25,917,367	28,895,722	31,537,937	33,780,332	35,992,061	38,302,604	40,264,527							
2007	3,330,358	7,403,373	13,467,624	15,117,740	18,207,792	19,428,313	22,270,432	25,429,036	28,406,679	31,000,301	33,541,045	35,791,173	37,718,960	39,681,840								
2008	3,829,663	7,726,704	14,261,055	16,108,593	19,140,391	20,534,825	24,497,103	28,208,603	31,171,641	33,561,669	35,821,216	37,815,677	39,934,164									
2009	4,043,694	7,997,379	14,141,334	15,920,885	18,815,508	20,048,291	23,352,310	26,386,464	29,023,378	31,228,599	33,203,122	35,293,980										
2010	4,432,354	9,016,774	16,588,395	19,104,142	22,775,355	24,227,052	28,398,141	32,028,538	35,405,668	38,610,480	41,908,154											
2011	4,031,494	8,604,360	15,930,161	18,165,138	21,923,349	23,452,802	28,014,212	31,618,076	34,519,021	37,539,239												
2012	4,978,237	9,883,485	17,689,284	20,040,313	23,897,208	25,644,619	30,101,189	34,343,802	38,236,508													
2013	4,478,913	9,077,008	16,243,504	18,265,738	21,882,664	23,404,237	27,580,796	31,224,369														
2014	3,355,670	7,526,522	13,749,357	15,374,215	18,301,259	19,530,697	23,018,587															
2015	4,314,277	9,116,114	16,883,352	19,310,678	23,421,077	25,158,561																
2016	4,460,384	9,473,948	17,343,392	19,812,431																		
2017	4,732,370	10,268,176																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - With Z-Files - Adjusted
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	21,435,192	34,799,988	36,079,388	43,151,458	46,700,612	60,656,872	75,657,970	91,161,445	65,997,758	64,935,723	62,577,324	61,577,720	61,239,141	61,565,177	62,022,388	61,189,497	61,384,582	62,159,063	61,858,532	61,812,672	62,065,992
2000	19,353,969	34,256,870	41,037,536	44,613,340	50,709,334	56,757,252	68,334,211	79,082,345	65,031,094	66,112,918	65,374,907	63,109,311	63,180,874	63,189,283	62,453,836	62,473,065	60,873,707	60,633,656	62,415,991	62,833,968	64,340,910	
2001	12,609,836	27,927,821	39,797,908	44,945,858	53,426,494	60,992,556	66,577,694	56,766,397	53,677,026	54,333,469	51,878,300	49,725,407	51,068,432	51,315,990	51,790,349	52,871,191	52,397,228	54,296,864	55,081,798	55,594,929		
2002	13,270,950	30,228,583	48,350,473	53,323,457	58,154,979	59,878,120	57,651,462	56,945,262	59,216,625	58,711,316	59,122,698	58,478,762	59,897,825	60,292,898	60,696,594	58,714,310	60,391,779	61,314,219	62,746,779			
2003	24,779,238	47,940,035	73,428,072	75,093,916	61,984,343	62,036,043	55,497,373	55,043,192	54,393,379	53,926,328	53,653,290	53,711,310	56,619,918	58,956,805	57,621,982	57,733,743	58,922,041	58,561,890				
2004	18,466,188	30,130,417	38,214,489	42,112,755	46,392,787	50,384,360	51,484,462	51,578,783	52,037,479	52,502,194	51,383,237	49,439,168	49,717,440	48,773,231	49,091,552	49,109,753	50,255,889					
2005	23,022,596	42,082,693	52,962,247	56,410,060	63,471,525	69,175,895	62,049,702	61,776,564	61,233,807	61,881,936	58,563,525	59,470,547	59,799,077	59,806,422	61,507,846	61,092,807						
2006	25,107,913	42,869,075	61,646,620	63,818,132	66,696,894	66,638,954	66,017,924	67,426,566	65,546,631	67,188,830	73,184,697	75,090,463	74,232,870	74,844,888	76,319,216							
2007	20,638,960	30,646,205	40,939,424	42,914,156	52,490,257	56,039,118	59,129,469	63,651,490	65,760,044	68,824,252	70,839,380	72,371,868	73,927,217	74,658,234								
2008	15,863,768	25,456,158	34,903,701	36,831,748	43,876,879	47,852,209	53,069,088	59,720,514	67,908,034	71,834,828	70,146,157	70,513,956	71,881,309									
2009	16,603,088	24,094,711	33,632,501	36,398,295	41,632,618	44,039,967	49,032,121	56,740,016	61,239,584	62,965,671	64,085,192	67,346,971										
2010	14,686,665	30,152,214	33,428,880	35,979,388	41,559,080	43,774,310	59,865,807	69,700,257	73,690,255	79,596,180	85,671,258											
2011	15,949,978	26,366,991	31,577,936	35,409,960	48,470,569	52,724,838	57,632,356	62,695,784	74,015,126	82,122,482												
2012	17,724,807	28,345,067	38,224,858	42,281,891	47,116,036	50,499,701	57,188,794	66,424,948	92,169,968													
2013	15,315,116	25,932,738	34,274,548	36,220,055	42,144,020	45,039,097	52,300,332	74,609,031														
2014	9,778,531	17,390,948	27,311,782	29,176,131	35,007,941	37,326,771	59,593,306															
2015	11,037,940	19,296,048	32,643,777	36,362,707	66,379,843	74,996,017																
2016	10,647,266	19,384,943	27,795,651	30,632,899																		
2017	10,998,883	18,394,665																				

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	21,435	34,800	36,079	43,151	46,701	60,657	75,658	91,161	65,998
2000	19,354	34,257	41,038	44,613	50,709	56,757	68,334	79,082	65,031	66,113
2001	12,610	27,928	39,798	44,946	53,426	60,993	66,578	56,766	53,677	54,333
2002	13,271	30,229	48,350	53,323	58,155	59,878	57,651	56,945	59,217	58,711
2003	24,779	47,940	73,428	75,094	61,984	62,036	55,497	55,043	54,393	53,926
2004	18,466	30,130	38,214	42,113	46,393	50,384	51,484	51,579	52,037	52,502
2005	23,023	42,083	52,962	56,410	63,472	69,176	62,050	61,777	61,234	61,882
2006	25,108	42,869	61,647	63,818	66,697	66,639	66,018	67,427	65,547	67,189
2007	20,639	30,646	40,939	42,914	52,490	56,039	59,129	63,651	65,760	68,824
2008	15,864	25,456	34,904	36,832	43,877	47,852	53,069	59,721	67,908	71,835
2009	16,603	24,095	33,633	36,398	41,633	44,040	49,032	56,740	61,240	62,966
2010	14,687	30,152	33,429	35,979	41,559	43,774	59,866	69,700	73,690	79,596
2011	15,950	26,367	31,578	35,410	48,471	52,725	57,632	62,696	74,015	82,122
2012	17,725	28,345	38,225	42,282	47,116	50,500	57,189	66,425	92,170	
2013	15,315	25,933	34,275	36,220	42,144	45,039	52,300	74,609		
2014	9,779	17,391	27,312	29,176	35,008	37,327	59,593			
2015	11,038	19,296	32,644	36,363	66,380	74,996				
2016	10,647	19,385	27,796	30,633						
2017	10,999	18,395								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.6235	1.0368	1.1960	1.0822	1.2988	1.2473	1.2049	0.7240	0.9839
2000	1.7700	1.1979	1.0871	1.1366	1.1193	1.2040	1.1573	0.8223	1.0166	0.9888
2001	2.2148	1.4250	1.1294	1.1887	1.1416	1.0916	0.8526	0.9456	1.0122	0.9548
2002	2.2778	1.5995	1.1029	1.0906	1.0296	0.9628	0.9878	1.0399	0.9915	1.0070
2003	1.9347	1.5317	1.0227	0.8254	1.0008	0.8946	0.9918	0.9882	0.9914	0.9949
2004	1.6317	1.2683	1.1020	1.1016	1.0860	1.0218	1.0018	1.0089	1.0089	0.9787
2005	1.8279	1.2585	1.0651	1.1252	1.0899	0.8970	0.9956	0.9912	1.0106	0.9464
2006	1.7074	1.4380	1.0352	1.0451	0.9991	0.9907	1.0213	0.9721	1.0251	1.0892
2007	1.4849	1.3359	1.0482	1.2231	1.0676	1.0551	1.0765	1.0331	1.0466	1.0293
2008	1.6047	1.3711	1.0552	1.1913	1.0906	1.1090	1.1253	1.1371	1.0578	0.9765
2009	1.4512	1.3958	1.0822	1.1438	1.0578	1.1134	1.1572	1.0793	1.0282	1.0178
2010	2.0530	1.1087	1.0763	1.1551	1.0533	1.3676	1.1643	1.0572	1.0801	1.0763
2011	1.6531	1.1976	1.1214	1.3688	1.0878	1.0931	1.0879	1.1805	1.1095	
2012	1.5992	1.3486	1.1061	1.1143	1.0718	1.1325	1.1615	1.3876		
2013	1.6933	1.3217	1.0568	1.1636	1.0687	1.1612	1.4265			
2014	1.7785	1.5705	1.0683	1.1999	1.0662	1.5965				
2015	1.7482	1.6917	1.1139	1.8255	1.1298					
2016	1.8206	1.4339	1.1021							
Latest 9 Volume Weighted	1.7057	1.3575	1.0868	1.2627	1.0803	1.1574	1.1287	1.0963	1.0434	1.0160
Latest 6 Volume Weighted	1.7052	1.4031	1.0952	1.3029	1.0844	1.2275	1.1848	1.1474	1.0597	1.0247
Latest 3 Volume Weighted	1.7463	1.5650	1.0960	1.4105	1.0964	1.2726	1.2191	1.2065	1.0753	1.0257
Simple Average of Middle 4 of Last 6	1.7183	1.4186	1.0976	1.2218	1.0736	1.1937	1.1521	1.1135	1.0532	1.0250
Simple Average of Middle 3 of Last 5	1.7400	1.4510	1.0922	1.2441	1.0761	1.2204	1.1610	1.1323	1.0615	1.0411
Selected Feb 17	1.7200	1.3600	1.0800	1.1600	1.0720	1.1265	1.0990	1.0560	1.0215	1.0050
Selected Oct 17	1.7200	1.4200	1.0800	1.4500	1.2000	1.0405	1.0300	1.0200	1.0000	1.0000
Selected Factors*	1.7200	1.4200	1.0800	1.4500	1.2000	1.0405	1.0300	1.0200	1.0000	1.0000
Selected Ultimate	5.2161	3.0326	2.1356	1.9774	1.3637	1.1365	1.0922	1.0604	1.0396	1.0396

*216-Ult Factor = [Tab Rsv 120-Ult] / Product [120-132 Factor to 204-216 Factor]

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
64,936	62,577	61,578	61,239	61,565	62,022	61,189	61,385	62,159	61,859	61,813	62,066
65,375	63,109	63,181	63,189	62,454	62,473	60,874	60,634	62,416	62,834	64,341	
51,878	49,725	51,068	51,316	51,790	52,871	52,397	54,297	55,082	55,595		
59,123	58,479	59,898	60,293	60,697	58,714	60,392	61,314	62,747			
53,653	53,711	56,620	58,957	57,622	57,734	58,922	58,562				
51,383	49,439	49,717	48,773	49,092	49,110	50,256					
58,564	59,471	59,799	59,806	61,508	61,093						
73,185	75,090	74,233	74,845	76,319							
70,839	72,372	73,927	74,658								
70,146	70,514	71,881									
64,085	67,347										
85,671											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult	Tab Rsv 120-Ult
0.9637	0.9840	0.9945	1.0053	1.0074	0.9866	1.0032	1.0126	0.9952	0.9993	1.0041	1.0153
0.9653	1.0011	1.0001	0.9884	1.0003	0.9744	0.9961	1.0294	1.0067	1.0240		1.0328
0.9585	1.0270	1.0048	1.0092	1.0209	0.9910	1.0363	1.0145	1.0093			1.1019
0.9891	1.0243	1.0066	1.0067	0.9673	1.0286	1.0153	1.0234				1.0719
1.0011	1.0542	1.0413	0.9774	1.0019	1.0206	0.9939					1.0624
0.9622	1.0056	0.9810	1.0065	1.0004	1.0233						1.0520
1.0155	1.0055	1.0001	1.0284	0.9933							1.0641
1.0260	0.9886	1.0082	1.0197								1.0713
1.0216	1.0215	1.0099									1.0467
1.0052	1.0194										
1.0509											
1.0060	1.0152	1.0056	1.0055	0.9982	1.0032	1.0082	1.0201	1.0035	1.0117	1.0041	1.0568
1.0155	1.0147	1.0084	1.0086	0.9966	1.0032	1.0082	1.0201	1.0035	1.0117	1.0041	1.0615
1.0252	1.0095	1.0065	1.0190	0.9983	1.0242	1.0143	1.0227	1.0035	1.0117	1.0041	1.0605
1.0171	1.0130	1.0062	1.0105	0.9990	1.0054	1.0048	1.0189	1.0067	1.0116	1.0041	1.0624
1.0211	1.0102	1.0061	1.0110	0.9985	1.0117	1.0048	1.0189	1.0067	1.0116	1.0041	1.0595
1.0050	1.0025	0.9970	0.9970	0.9970	0.9970	1.0000	1.0060	1.0050	1.0040	1.0378	1.0409
1.0000	0.9990	0.9970	0.9970	0.9985	1.0025	1.0045	1.0060	1.0060	1.0050	1.0237	1.0407
1.0000	0.9990	0.9970	0.9970	0.9985	1.0025	1.0045	1.0060	1.0060	1.0050	1.0237	1.0407
1.0396	1.0396	1.0407	1.0438	1.0469	1.0485	1.0459	1.0412	1.0350	1.0288	1.0237	

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	5.6508	7.3692	10.9742	6.3913	7.2621	4.4216	5.2161	5.2161
12	3.3129	4.3217	6.2843	3.7196	4.1737	2.5707	3.0326	3.0326
20	2.4404	3.0801	4.0156	2.6220	2.8765	1.8902	2.1356	2.1356
24	2.2455	2.8124	3.6640	2.3888	2.6338	1.7502	1.9774	1.9774
32	1.7784	2.1586	2.5977	1.9551	2.1170	1.5088	1.3637	1.3637
36	1.6462	1.9907	2.3694	1.8210	1.9673	1.4075	1.1365	1.1365
48	1.4223	1.6217	1.8618	1.5256	1.6120	1.2494	1.0922	1.0922
60	1.2601	1.3688	1.5273	1.3242	1.3885	1.1369	1.0604	1.0604
72	1.1494	1.1930	1.2659	1.1892	1.2262	1.0766	1.0396	1.0396
84	1.1015	1.1257	1.1772	1.1291	1.1552	1.0539	1.0396	1.0396
96	1.0842	1.0986	1.1477	1.1016	1.1095	1.0487	1.0396	1.0396
108	1.0778	1.0818	1.1196	1.0831	1.0866	1.0435	1.0396	1.0396
120	1.0616	1.0661	1.1091	1.0692	1.0757	1.0409	1.0407	1.0407
132	1.0558	1.0573	1.1019	1.0626	1.0692	1.0440	1.0438	1.0438
144	1.0500	1.0483	1.0813	1.0515	1.0576	1.0471	1.0469	1.0469
156	1.0518	1.0518	1.0831	1.0526	1.0591	1.0503	1.0485	1.0485
168	1.0485	1.0485	1.0575	1.0469	1.0469	1.0534	1.0459	1.0459
180	1.0399	1.0399	1.0426	1.0419	1.0419	1.0534	1.0412	1.0412
192	1.0194	1.0194	1.0194	1.0226	1.0226	1.0472	1.0350	1.0350
204	1.0159	1.0159	1.0159	1.0158	1.0158	1.0420	1.0288	1.0288
216	1.0041	1.0041	1.0041	1.0041	1.0041	1.0378	1.0237	1.0237

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7200	5.2160	19.17%	8		5.2160	1.7200	1.7200	5.2161
12	1.4200	3.0326		12	32.98%	3.0326	1.4200	1.4200	3.0326
20	1.0800	2.1356	46.83%	20		2.1356	1.0800	1.0800	2.1356
24	1.4500	1.9774		24	50.57%	1.9774	1.4500	1.4500	1.9774
32	1.2000	1.3637	73.33%	32		1.3637	1.2000	1.2000	1.3637
36	1.0300	1.1364		36	87.99%	1.1364	1.0403	1.0405	1.1365
44	1.0300	1.1033	90.63%	48	91.54%	1.0924	1.0300	1.0300	1.0922
56	1.0300	1.0712	93.35%	60	94.29%	1.0606	1.0198	1.0200	1.0604
68	1.0000	1.0400	96.15%	72	96.15%	1.0400	1.0000	1.0000	1.0396
80	1.0000	1.0400	96.15%	84	96.15%	1.0400	1.0000	1.0000	1.0396
92	1.0000	1.0400	96.15%	96	96.15%	1.0400	1.0000	1.0000	1.0396
104	1.0000	1.0400	96.15%	108	96.15%	1.0400	0.9990	0.9990	1.0396
116	0.9970	1.0400	96.15%	120	96.06%	1.0410	0.9970	0.9970	1.0407
128	0.9970	1.0431	95.86%	132	95.77%	1.0442	0.9970	0.9970	1.0438
140	0.9970	1.0463	95.58%	144	95.48%	1.0473	0.9987	0.9985	1.0469
152	1.0020	1.0494	95.29%	156	95.35%	1.0487	1.0027	1.0025	1.0485
164	1.0040	1.0473	95.48%	168	95.61%	1.0459	1.0047	1.0045	1.0459
176	1.0060	1.0432	95.86%	180	96.05%	1.0411	1.0060	1.0060	1.0412
188	1.0060	1.0369	96.44%	192	96.63%	1.0349	1.0060	1.0060	1.0350
200	1.0060	1.0307	97.02%	204	97.21%	1.0287	1.0040	1.0050	1.0288
Tail	1.0246	1.0246	97.60%	Tail	97.60%	1.0246	1.0246	1.0237	1.0237

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	652,992	64,341	1.0237	65,866	1,525	18,545	10.09%
2001	497,121	666,345	55,595	1.0288	57,197	1,602	16,170	8.58%
2002	532,307	694,750	62,747	1.0350	64,942	2,196	20,604	9.35%
2003	560,857	720,485	58,562	1.0412	60,975	2,413	17,208	8.46%
2004	596,045	752,149	50,256	1.0459	52,562	2,306	18,194	6.99%
2005	630,367	779,863	61,093	1.0485	64,056	2,963	21,713	8.21%
2006	654,863	788,869	76,319	1.0469	79,901	3,582	31,095	10.13%
2007	677,464	800,878	74,658	1.0438	77,927	3,269	30,477	9.73%
2008	707,051	819,466	71,881	1.0407	74,804	2,922	27,877	9.13%
2009	739,881	838,236	67,347	1.0396	70,015	2,668	28,822	8.35%
2010	759,948	855,836	85,671	1.0396	89,065	3,394	40,438	10.41%
2011	772,985	863,609	82,122	1.0396	85,376	3,253	42,075	9.89%
2012	768,953	834,082	92,170	1.0396	95,821	3,651	51,992	11.49%
2013	778,092	830,703	74,609	1.0604	79,116	4,507	42,177	9.52%
2014	817,710	854,208	59,593	1.0922	65,089	5,496	35,987	7.62%
2015	873,488	895,461	74,996	1.1365	85,230	10,234	49,476	9.52%
2016	918,780	930,724	30,633	1.9774	60,574	29,942	10,697	6.51%
2017	971,436	971,436	18,395	3.0326	55,783	37,389	8,126	5.74%
	12,732,625	14,550,093	1,160,989		1,284,300	123,311	511,673	8.83%

Notes:
(3) Indexed to match the indexing done on losses
(9) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	65,866				65,866	10.09%	10.09%	100.00%	10.09%	10.09%
2001	666,345	57,197	67,677			67,677	10.16%	8.58%	100.00%	8.58%	8.58%
2002	694,750	64,942	58,770	69,538		64,154	9.23%	9.35%	100.00%	9.35%	9.35%
2003	720,485	60,975	66,728	60,386	71,451	66,188	9.19%	8.46%	100.00%	8.46%	8.46%
2004	752,149	52,562	62,652	68,563	62,047	64,421	8.56%	6.99%	100.00%	6.99%	6.99%
2005	779,863	64,056	54,007	64,374	70,449	62,944	8.07%	8.21%	100.00%	8.21%	8.21%
2006	788,869	79,901	65,817	55,493	66,145	62,485	7.92%	10.13%	90.00%	9.91%	9.91%
2007	800,878	77,927	82,098	67,627	57,019	68,915	8.60%	9.73%	80.00%	9.51%	9.51%
2008	819,466	74,804	80,070	84,356	69,487	77,971	9.51%	9.13%	70.00%	9.24%	9.24%
2009	838,236	70,015	76,861	82,272	86,676	81,936	9.77%	8.35%	60.00%	8.92%	8.92%
2010	855,836	89,065	71,940	78,975	84,535	78,483	9.17%	10.41%	50.00%	9.79%	9.79%
2011	863,609	85,376	91,514	73,919	81,146	82,193	9.52%	9.89%	40.00%	9.66%	9.66%
2012	834,082	95,821	87,724	94,031	75,952	85,902	10.30%	11.49%	30.00%	10.66%	10.66%
2013	830,703	79,116	98,456	90,136	96,617	95,070	11.44%	9.52%	20.00%	11.06%	11.06%
2014	854,208	65,089	81,292	101,164	92,615	91,690	10.73%	7.62%	10.00%	10.42%	10.42%
2015	895,461	85,230	66,879	83,527	103,946	84,784	9.47%	9.52%	0.00%	9.47%	9.47%
2016	930,724	60,574	87,573	68,718	85,824	80,705	8.67%	6.51%	0.00%	8.67%	8.67%
2017	971,436	55,783	62,240	89,982	70,608	74,277	7.65%	5.74%	0.00%	7.65%	7.65%
	14,550,093	1,284,300	1,262,301	1,233,062	1,174,515	1,355,661					

Trend in Losses Based on Exponential Regression (a):
0.98%
Selected Trend (b):
2.75%

Notes:
(3) Ultimate Losses from Page 9
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 18

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	652,992	10.09%	65,866	97.68%	2.32%	64,341	64,341	1,525	65,866	10.09%
2001	666,345	8.58%	57,197	97.20%	2.80%	55,595	55,595	1,602	57,197	8.58%
2002	694,750	9.35%	64,942	96.62%	3.38%	62,747	62,747	2,196	64,942	9.35%
2003	720,485	8.46%	60,975	96.04%	3.96%	58,562	58,562	2,413	60,975	8.46%
2004	752,149	6.99%	52,562	95.61%	4.39%	50,256	50,256	2,306	52,562	6.99%
2005	779,863	8.21%	64,056	95.37%	4.63%	61,093	61,093	2,963	64,056	8.21%
2006	788,869	9.91%	78,159	95.52%	4.48%	74,656	76,319	3,503	79,823	10.12%
2007	800,878	9.51%	76,125	95.80%	4.20%	72,931	74,658	3,194	77,852	9.72%
2008	819,466	9.24%	75,754	96.09%	3.91%	72,794	71,881	2,960	74,841	9.13%
2009	838,236	8.92%	74,783	96.19%	3.81%	71,934	67,347	2,850	70,197	8.37%
2010	855,836	9.79%	83,774	96.19%	3.81%	80,582	85,671	3,192	88,864	10.38%
2011	863,609	9.66%	83,466	96.19%	3.81%	80,286	82,122	3,181	85,303	9.88%
2012	834,082	10.66%	88,878	96.19%	3.81%	85,491	92,170	3,387	95,557	11.46%
2013	830,703	11.06%	91,879	94.30%	5.70%	86,645	74,609	5,234	79,843	9.61%
2014	854,208	10.42%	89,030	91.56%	8.44%	81,513	59,593	7,517	67,110	7.86%
2015	895,461	9.47%	84,784	87.99%	12.01%	74,604	74,996	10,180	85,176	9.51%
2016	930,724	8.67%	80,705	50.57%	49.43%	40,813	30,633	39,892	70,525	7.58%
2017	971,436	7.65%	74,277	32.98%	67.02%	24,493	18,395	49,784	68,178	7.02%
	14,550,093		1,347,213			1,199,335	1,160,989	147,878	1,308,867	9.00%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - With Z-Files - Adjusted
February 28, 2018

Appendix E
Page 12

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	7,074,867	13,227,040	15,317,298	18,748,890	20,205,655	23,910,990	26,970,217	29,528,986	31,505,451	33,277,532	34,727,299	35,864,095	36,925,875	37,967,832	39,551,570	40,812,724	42,142,801	43,285,459	44,300,925	45,337,887	46,307,611
2000	3,637,787	7,997,184	14,664,441	16,795,438	20,151,735	21,452,629	25,118,322	28,124,639	30,619,845	32,587,666	34,215,783	35,564,539	36,742,122	37,928,172	39,120,239	40,161,838	41,307,216	42,387,963	43,590,356	44,693,137	45,795,549	
2001	3,952,455	8,128,124	14,352,355	16,372,861	19,330,208	20,422,001	22,986,870	25,041,156	26,705,022	28,015,370	29,250,508	30,468,781	31,503,547	32,496,087	34,050,276	35,224,741	36,468,521	37,423,394	38,439,236	39,424,761		
2002	3,745,444	7,797,213	14,131,142	16,254,624	18,499,382	19,692,709	22,641,729	24,907,345	26,650,970	28,363,463	29,961,508	31,391,518	33,105,593	34,734,890	36,334,081	37,662,003	39,307,048	40,778,710	42,143,137			
2003	3,861,076	7,926,289	14,004,119	15,839,188	18,650,013	20,106,820	23,037,743	25,057,321	27,249,107	29,164,375	30,700,546	32,268,983	34,077,523	35,792,546	37,366,842	38,828,455	40,128,675	41,353,510				
2004	3,251,633	7,035,962	12,158,095	13,571,010	15,724,378	16,633,913	18,915,102	21,037,665	22,474,679	23,956,540	25,195,532	26,239,366	27,467,256	28,684,009	30,064,505	31,023,478	32,062,256					
2005	3,765,633	7,950,483	13,947,550	15,763,004	18,671,935	19,999,718	22,915,125	25,152,557	27,220,475	28,914,995	30,828,986	32,639,900	34,614,164	36,231,857	37,781,128	39,379,399						
2006	3,832,954	8,344,317	15,088,272	17,003,692	20,002,681	21,176,002	24,701,708	27,736,523	30,260,111	33,490,726	36,311,596	38,654,078	40,921,445	43,262,025	45,223,949							
2007	3,937,052	8,752,053	15,780,465	17,692,936	21,193,760	22,576,529	25,777,257	29,306,172	32,536,014	35,305,007	37,959,154	40,265,886	42,218,734	44,181,614								
2008	4,438,545	8,955,181	16,358,168	18,451,306	21,865,645	23,436,024	27,862,835	31,888,690	35,052,078	37,548,782	39,865,170	41,885,559	44,004,046									
2009	4,581,238	9,060,500	15,979,679	17,983,767	21,217,751	22,595,065	26,178,927	29,418,238	32,172,848	34,433,544	36,433,735	38,524,593										
2010	4,991,613	10,154,480	18,613,788	21,424,478	25,406,635	26,981,287	31,434,408	35,226,844	38,688,929	41,935,404	45,233,077											
2011	4,504,141	9,613,124	17,559,404	19,983,678	23,996,004	25,628,873	30,393,876	34,088,399	37,027,057	40,047,274												
2012	5,399,882	10,720,594	19,054,189	21,564,185	25,593,229	27,418,634	31,987,313	36,285,080	40,177,786													
2013	4,781,758	9,690,758	17,177,123	19,289,617	22,997,531	24,557,381	28,788,235	32,431,808														
2014	3,505,447	7,862,460	14,241,837	15,907,570	18,872,666	20,118,086	23,605,976															
2015	4,422,807	9,345,439	17,213,651	19,672,532	23,782,931	25,520,415																
2016	4,518,369	9,597,109	17,466,554	19,935,593																		
2017	4,732,370	10,268,176																				

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	7,075	13,227	15,317	18,749	20,206	23,911	26,970	29,529	31,505
2000	3,638	7,997	14,664	16,795	20,152	21,453	25,118	28,125	30,620	32,588
2001	3,952	8,128	14,352	16,373	19,330	20,422	22,987	25,041	26,705	28,015
2002	3,745	7,797	14,131	16,255	18,499	19,693	22,642	24,907	26,651	28,363
2003	3,861	7,926	14,004	15,839	18,650	20,107	23,038	25,057	27,249	29,164
2004	3,252	7,036	12,158	13,571	15,724	16,634	18,915	21,038	22,475	23,957
2005	3,766	7,950	13,948	15,763	18,672	20,000	22,915	25,153	27,220	28,915
2006	3,833	8,344	15,088	17,004	20,003	21,176	24,702	27,737	30,260	33,491
2007	3,937	8,752	15,780	17,693	21,194	22,577	25,777	29,306	32,536	35,305
2008	4,439	8,955	16,358	18,451	21,866	23,436	27,863	31,889	35,052	37,549
2009	4,581	9,060	15,980	17,984	21,218	22,595	26,179	29,418	32,173	34,434
2010	4,992	10,154	18,614	21,424	25,407	26,981	31,434	35,227	38,689	41,935
2011	4,504	9,613	17,559	19,984	23,996	25,629	30,394	34,088	37,027	40,047
2012	5,400	10,721	19,054	21,564	25,593	27,419	31,987	36,285	40,178	
2013	4,782	9,691	17,177	19,290	22,998	24,557	28,788	32,432		
2014	3,505	7,862	14,242	15,908	18,873	20,118	23,606			
2015	4,423	9,345	17,214	19,673	23,783	25,520				
2016	4,518	9,597	17,467	19,936						
2017	4,732	10,268								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.8696	1.1580	1.2240	1.0777	1.1834	1.1279	1.0949	1.0669	1.0562
2000	2.1984	1.8337	1.1453	1.1998	1.0646	1.1709	1.1197	1.0887	1.0643	1.0500
2001	2.0565	1.7658	1.1408	1.1806	1.0565	1.1256	1.0894	1.0664	1.0491	1.0441
2002	2.0818	1.8123	1.1503	1.1381	1.0645	1.1498	1.1001	1.0700	1.0643	1.0563
2003	2.0529	1.7668	1.1310	1.1775	1.0781	1.1458	1.0877	1.0875	1.0703	1.0527
2004	2.1638	1.7280	1.1162	1.1587	1.0578	1.1371	1.1122	1.0683	1.0659	1.0517
2005	2.1113	1.7543	1.1302	1.1845	1.0711	1.1458	1.0976	1.0822	1.0623	1.0662
2006	2.1770	1.8082	1.1269	1.1764	1.0587	1.1665	1.1229	1.0910	1.1068	1.0842
2007	2.2230	1.8031	1.1212	1.1979	1.0652	1.1418	1.1369	1.1102	1.0851	1.0752
2008	2.0176	1.8267	1.1280	1.1850	1.0718	1.1889	1.1445	1.0992	1.0712	1.0617
2009	1.9777	1.7637	1.1254	1.1798	1.0649	1.1586	1.1237	1.0936	1.0703	1.0581
2010	2.0343	1.8331	1.1510	1.1859	1.0620	1.1650	1.1206	1.0983	1.0839	1.0786
2011	2.1343	1.8266	1.1381	1.2008	1.0680	1.1859	1.1216	1.0862	1.0816	
2012	1.9853	1.7773	1.1317	1.1868	1.0713	1.1666	1.1344	1.1073		
2013	2.0266	1.7725	1.1230	1.1922	1.0678	1.1723	1.1266			
2014	2.2429	1.8114	1.1170	1.1864	1.0660	1.1734				
2015	2.1130	1.8419	1.1428	1.2089	1.0731					
2016	2.1240	1.8200	1.1414							
Latest 9 Volume Weighted	2.0830	1.8078	1.1337	1.1916	1.0679	1.1690	1.1260	1.0943	1.0782	1.0661
Latest 6 Volume Weighted	2.1010	1.8074	1.1328	1.1935	1.0681	1.1703	1.1285	1.0991	1.0827	1.0709
Latest 3 Volume Weighted	2.1363	1.8251	1.1348	1.1965	1.0692	1.1704	1.1276	1.0975	1.0790	1.0668
Simple Average of Middle 4 of Last 6	2.0995	1.8088	1.1335	1.1916	1.0683	1.1693	1.1266	1.0996	1.0805	1.0704
Simple Average of Middle 3 of Last 5	2.0879	1.8029	1.1320	1.1933	1.0691	1.1708	1.1240	1.0970	1.0789	1.0718
Selected Feb 17	2.0750	1.8100	1.1300	1.1875	1.0680	1.1690	1.1275	1.0995	1.0780	1.0630
Selected Oct 17	2.1000	1.8100	1.1300	1.1925	1.0680	1.1690	1.1275	1.0995	1.0795	1.0670
Selected Factors*	2.1000	1.8100	1.1300	1.1925	1.0680	1.1690	1.1275	1.0995	1.0795	1.0670
Selected Ultimate	18.6301	8.8715	4.9014	4.3375	3.6373	3.4057	2.9134	2.5839	2.3501	2.1770

*216-Ult Factor = [Tab Rsv 120-Ult] / Product [120-132 Factor to 204-216 Factor]

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
33,278	34,727	35,864	36,926	37,968	39,552	40,813	42,143	43,285	44,301	45,338	46,308
34,216	35,565	36,742	37,928	39,120	40,162	41,307	42,388	43,590	44,693	45,796	
29,251	30,469	31,504	32,496	34,050	35,225	36,469	37,423	38,439	39,425		
29,962	31,392	33,106	34,735	36,334	37,662	39,307	40,779	42,143			
30,701	32,269	34,078	35,793	37,367	38,828	40,129	41,354				
25,196	26,239	27,467	28,684	30,065	31,023	32,062					
30,829	32,640	34,614	36,232	37,781	39,379						
36,312	38,654	40,921	43,262	45,224							
37,959	40,266	42,219	44,182								
39,865	41,886	44,004									
36,434	38,525										
45,233											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult	Tab Rsv 120-Ult
1.0436	1.0327	1.0296	1.0282	1.0417	1.0319	1.0326	1.0271	1.0235	1.0234	1.0214	1.7433
1.0394	1.0331	1.0323	1.0314	1.0266	1.0285	1.0262	1.0284	1.0253	1.0247		1.7760
1.0416	1.0340	1.0315	1.0478	1.0345	1.0353	1.0262	1.0271	1.0256			1.7862
1.0477	1.0546	1.0492	1.0460	1.0365	1.0437	1.0374	1.0335				1.9393
1.0511	1.0560	1.0503	1.0440	1.0391	1.0335	1.0305					1.7652
1.0414	1.0468	1.0443	1.0481	1.0319	1.0335						1.9041
1.0587	1.0605	1.0467	1.0428	1.0423							1.8383
1.0645	1.0587	1.0572	1.0453								1.9434
1.0608	1.0485	1.0465									1.8329
1.0507	1.0506										
1.0574											
1.0534	1.0494	1.0434	1.0414	1.0362	1.0343	1.0306	1.0290	1.0248	1.0240	1.0214	1.8364
1.0562	1.0535	1.0494	1.0455	1.0352	1.0343	1.0306	1.0290	1.0248	1.0240	1.0214	1.8700
1.0562	1.0525	1.0503	1.0452	1.0382	1.0371	1.0315	1.0297	1.0248	1.0240	1.0214	1.8729
1.0569	1.0534	1.0482	1.0458	1.0355	1.0335	1.0298	1.0278	1.0253	1.0240	1.0214	1.8786
1.0590	1.0526	1.0479	1.0451	1.0367	1.0341	1.0298	1.0278	1.0253	1.0240	1.0214	1.8584
1.0570	1.0505	1.0475	1.0410	1.0370	1.0345	1.0290	1.0275	1.0270	1.0260	1.3813	1.8002
1.0575	1.0505	1.0485	1.0435	1.0380	1.0345	1.0300	1.0295	1.0270	1.0260	1.3991	1.8366
1.0575	1.0505	1.0485	1.0435	1.0380	1.0345	1.0300	1.0295	1.0270	1.0260	1.3991	1.8366
2.0403	1.9294	1.8366	1.7517	1.6786	1.6172	1.5633	1.5177	1.4742	1.4355	1.3991	

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	13.1618	13.7149	14.1170	13.6094	13.4784	17.8668	18.6301	18.6301
12	6.3188	6.5278	6.6082	6.4823	6.4555	8.6105	8.8715	8.8715
20	3.4953	3.6117	3.6207	3.5837	3.5806	4.7572	4.9014	4.9014
24	3.0830	3.1883	3.1907	3.1615	3.1630	4.2099	4.3375	4.3375
32	2.5872	2.6713	2.6666	2.6533	2.6507	3.5452	3.6373	3.6373
36	2.4228	2.5010	2.4940	2.4836	2.4795	3.3195	3.4057	3.4057
48	2.0726	2.1370	2.1309	2.1240	2.1178	2.8396	2.9134	2.9134
60	1.8407	1.8938	1.8897	1.8854	1.8843	2.5185	2.5839	2.5839
72	1.6821	1.7230	1.7218	1.7146	1.7176	2.2906	2.3501	2.3501
84	1.5601	1.5914	1.5957	1.5869	1.5920	2.1248	2.1770	2.1770
96	1.4633	1.4860	1.4957	1.4825	1.4853	1.9989	2.0403	2.0403
108	1.3892	1.4069	1.4162	1.4027	1.4026	1.8911	1.9294	1.9294
120	1.3238	1.3354	1.3456	1.3316	1.3325	1.8002	1.8366	1.8366
132	1.2688	1.2726	1.2812	1.2703	1.2717	1.7186	1.7517	1.7517
144	1.2183	1.2172	1.2257	1.2147	1.2168	1.6509	1.6786	1.6786
156	1.1757	1.1757	1.1806	1.1730	1.1737	1.5920	1.6172	1.6172
168	1.1367	1.1367	1.1385	1.1350	1.1350	1.5389	1.5633	1.5633
180	1.1030	1.1030	1.1037	1.1022	1.1022	1.4955	1.5177	1.5177
192	1.0718	1.0718	1.0718	1.0724	1.0724	1.4555	1.4742	1.4742
204	1.0459	1.0459	1.0459	1.0459	1.0459	1.4172	1.4355	1.4355
216	1.0214	1.0214	1.0214	1.0214	1.0214	1.3813	1.3991	1.3991

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.1000	18.6304	5.37%	8		18.6304	2.1000	2.1000	18.6301
12	1.8100	8.8716		12	11.27%	8.8716	1.8100	1.8100	8.8715
20	1.1300	4.9014	20.40%	20		4.9014	1.1300	1.1300	4.9014
24	1.1925	4.3376		24	23.05%	4.3376	1.1925	1.1925	4.3375
32	1.0680	3.6374	27.49%	32		3.6374	1.0680	1.0680	3.6373
36	1.1175	3.4058		36	29.36%	3.4058	1.1691	1.1690	3.4057
44	1.1385	3.0477	32.81%	48	34.33%	2.9132	1.1273	1.1275	2.9134
56	1.1075	2.6769	37.36%	60	38.70%	2.5843	1.0995	1.0995	2.5839
68	1.0850	2.4171	41.37%	72	42.54%	2.3505	1.0797	1.0795	2.3501
80	1.0700	2.2277	44.89%	84	45.94%	2.1769	1.0669	1.0670	2.1770
92	1.0610	2.0820	48.03%	96	49.01%	2.0405	1.0575	1.0575	2.0403
104	1.0510	1.9623	50.96%	108	51.83%	1.9295	1.0507	1.0505	1.9294
116	1.0500	1.8671	53.56%	120	54.45%	1.8365	1.0486	1.0485	1.8366
128	1.0460	1.7782	56.24%	132	57.10%	1.7513	1.0436	1.0435	1.7517
140	1.0390	1.7000	58.82%	144	59.59%	1.6781	1.0381	1.0380	1.6786
152	1.0365	1.6361	61.12%	156	61.86%	1.6165	1.0343	1.0345	1.6172
164	1.0300	1.5785	63.35%	168	63.98%	1.5629	1.0300	1.0300	1.5633
176	1.0300	1.5326	65.25%	180	65.90%	1.5174	1.0292	1.0295	1.5177
188	1.0275	1.4879	67.21%	192	67.82%	1.4744	1.0270	1.0270	1.4742
200	1.0260	1.4481	69.06%	204	69.65%	1.4357	1.0172	1.0260	1.4355
Tail	1.4114	1.4114	70.85%	Tail	70.85%	1.4114	1.4114	1.3991	1.3991

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2000	475,277	652,992	45,796	1.3991	64,073	18,277	18,545	(268)	9.81%
2001	497,121	666,345	39,425	1.4355	56,593	17,169	16,170	999	8.49%
2002	532,307	694,750	42,143	1.4742	62,129	19,986	20,604	(618)	8.94%
2003	560,857	720,485	41,354	1.5177	62,763	21,410	17,208	4,202	8.71%
2004	596,045	752,149	32,062	1.5633	50,122	18,059	18,194	(135)	6.66%
2005	630,367	779,863	39,379	1.6172	63,684	24,305	21,713	2,592	8.17%
2006	654,863	788,869	45,224	1.6786	75,915	30,691	31,095	(404)	9.62%
2007	677,464	800,878	44,182	1.7517	77,391	33,210	30,477	2,733	9.66%
2008	707,051	819,466	44,004	1.8366	80,819	36,815	27,877	8,938	9.86%
2009	739,881	838,236	38,525	1.9294	74,328	35,803	28,822	6,981	8.87%
2010	759,948	855,836	45,233	2.0403	92,289	47,056	40,438	6,618	10.78%
2011	772,985	863,609	40,047	2.1770	87,183	47,136	42,075	5,061	10.10%
2012	768,953	834,082	40,178	2.3501	94,421	54,243	51,992	2,251	11.32%
2013	778,092	830,703	32,432	2.5839	83,801	51,369	42,177	9,192	10.09%
2014	817,710	854,208	23,606	2.9134	68,773	45,167	35,987	9,180	8.05%
2015	873,488	895,461	25,520	3.4057	86,915	61,395	49,476	11,919	9.71%
2016	918,780	930,724	19,936	4.3375	86,470	66,535	10,697	55,838	9.29%
2017	971,436	971,436	10,268	8.8715	91,094	80,826	8,126	72,700	9.38%
	12,732,625	14,550,093	649,313		1,358,763	709,450	511,673	197,777	9.34%

Notes:
(3) Indexed to match the indexing done on losses
(10) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	64,073				64,073	9.81%	9.81%	100.00%	9.81%	10.09%
2001	666,345	56,593	65,835			65,835	9.88%	8.49%	100.00%	8.49%	8.58%
2002	694,750	62,129	58,150	67,645		62,897	9.05%	8.94%	100.00%	8.94%	9.35%
2003	720,485	62,763	63,837	59,749	69,505	64,364	8.93%	8.71%	100.00%	8.71%	8.46%
2004	752,149	50,122	64,489	65,593	61,392	63,825	8.49%	6.66%	100.00%	6.66%	6.99%
2005	779,863	63,684	51,500	66,263	67,397	61,720	7.91%	8.17%	100.00%	8.17%	8.21%
2006	788,869	75,915	65,435	52,916	68,085	62,145	7.88%	9.62%	90.00%	9.45%	9.91%
2007	800,878	77,391	78,002	67,235	54,371	66,536	8.31%	9.66%	80.00%	9.39%	9.51%
2008	819,466	80,819	79,520	80,148	69,084	76,250	9.30%	9.86%	70.00%	9.70%	9.24%
2009	838,236	74,328	83,041	81,706	82,352	82,366	9.83%	8.87%	60.00%	9.25%	8.92%
2010	855,836	92,289	76,372	85,325	83,953	81,883	9.57%	10.78%	50.00%	10.18%	9.79%
2011	863,609	87,183	94,827	78,472	87,671	86,990	10.07%	10.10%	40.00%	10.08%	9.66%
2012	834,082	94,421	89,581	97,435	80,630	89,215	10.70%	11.32%	30.00%	10.88%	10.66%
2013	830,703	83,801	97,018	92,044	100,114	96,392	11.60%	10.09%	20.00%	11.30%	11.06%
2014	854,208	68,773	86,105	99,686	94,575	93,455	10.94%	8.05%	10.00%	10.65%	10.42%
2015	895,461	86,915	70,664	88,473	102,427	87,188	9.74%	9.71%	0.00%	9.74%	9.47%
2016	930,724	86,470	89,306	72,607	90,906	84,273	9.05%	9.29%	0.00%	9.05%	8.67%
2017	971,436	91,094	88,848	91,761	74,604	85,071	8.76%	9.38%	0.00%	8.76%	7.65%
	14,550,093	1,358,763	1,302,530	1,247,058	1,187,067	1,374,480					

Trend in Losses Based on Exponential Regression (a):
2.74%
Selected Trend (b):
2.75%

Notes:
(3) Ultimate Losses from Page 17
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(12) Selected Initial Ult Loss Ratio from Page 10
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	10.09%	65,866	71.47%	28.53%	47,077	45,796	18,789	64,584	244	9.89%
2001	666,345	8.58%	57,197	69.66%	30.34%	39,845	39,425	17,352	56,776	1,182	8.52%
2002	694,750	9.35%	64,942	67.83%	32.17%	44,052	42,143	20,891	63,034	287	9.07%
2003	720,485	8.46%	60,975	65.89%	34.11%	40,175	41,354	20,800	62,153	3,592	8.63%
2004	752,149	6.99%	52,562	63.97%	36.03%	33,623	32,062	18,939	51,001	745	6.78%
2005	779,863	8.21%	64,056	61.84%	38.16%	39,609	39,379	24,446	63,826	2,733	8.18%
2006	788,869	9.91%	78,159	59.57%	40.43%	46,561	45,224	31,598	76,822	503	9.74%
2007	800,878	9.51%	76,125	57.09%	42.91%	43,459	44,182	32,666	76,848	2,189	9.60%
2008	819,466	9.24%	75,754	54.45%	45.55%	41,246	44,004	34,508	78,512	6,631	9.58%
2009	838,236	8.92%	74,783	51.83%	48.17%	38,761	38,525	36,023	74,547	7,201	8.89%
2010	855,836	9.79%	83,774	49.01%	50.99%	41,060	45,233	42,715	87,948	2,277	10.28%
2011	863,609	9.66%	83,466	45.93%	54.07%	38,340	40,047	45,126	85,174	3,051	9.86%
2012	834,082	10.66%	88,878	42.55%	57.45%	37,819	40,178	51,059	91,237	(933)	10.94%
2013	830,703	11.06%	91,879	38.70%	61.30%	35,558	32,432	56,321	88,753	14,144	10.68%
2014	854,208	10.42%	89,030	34.32%	65.68%	30,559	23,606	58,471	82,077	22,484	9.61%
2015	895,461	9.47%	84,784	29.36%	70.64%	24,895	25,520	59,889	85,410	10,413	9.54%
2016	930,724	8.67%	80,705	23.05%	76.95%	18,606	19,936	62,099	82,034	51,402	8.81%
2017	971,436	7.65%	74,277	11.27%	88.73%	8,373	10,268	65,904	76,172	57,778	7.84%
	14,550,093		1,347,213			649,618	649,313	697,594	1,346,907	185,921	9.26%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving
February 28, 2018

Appendix E
Page 20

Insurance Year	(1) Paid-to-Date Disc to 120 Months Undisc 0.00%	With Margin 0.94%	No Margin 1.44%	(2) Tabular Reserves at Valuation Undisc 0.00%	With Margin 0.94%	No Margin 1.44%	Ultimate Adjustment [a] Incremental	Accumulated
1997	40,350,811	39,849,257	39,597,959	11,707,664	10,432,612	9,850,874	1.0000	1.0000
1998	49,493,646	48,845,530	48,518,643	17,621,429	15,826,062	15,000,743	1.0000	1.0000
1999	46,307,611	45,894,425	45,684,960	16,119,716	14,405,708	13,621,373	1.0015	1.0015
2000	45,795,549	45,467,783	45,301,098	19,230,867	17,020,549	16,016,628	1.0020	1.0035
2001	39,424,761	39,182,779	39,058,988	16,370,520	14,554,071	13,725,753	1.0050	1.0085
2002	42,143,137	41,900,440	41,775,797	21,136,359	18,890,722	17,865,058	1.0060	1.0146
2003	41,353,510	41,197,389	41,116,786	17,582,346	15,807,377	14,990,947	1.0060	1.0207
2004	32,062,256	31,981,703	31,939,925	18,950,014	16,675,345	15,652,415	1.0045	1.0253
2005	39,379,399	39,313,308	39,278,886	22,528,171	20,147,949	19,060,671	1.0025	1.0278
2006	45,223,949	45,185,684	45,165,649	32,266,494	28,455,598	26,736,124	0.9985	1.0263
2007	44,181,614	44,172,453	44,167,632	31,446,597	27,741,355	26,077,645	0.9970	1.0232
2008	44,004,046	44,004,046	44,004,046	29,323,827	26,163,649	24,721,979	0.9970	1.0201

Insurance Year	(3) Tab Rsv at Valuation Adjusted [b] Undisc 0.00%	With Margin 0.94%	No Margin 1.44%	(4) Ultimate Disc to 120 Months [c] Undisc 0.00%	With Margin 0.94%	No Margin 1.44%	Disc Factor for Tab Rsv [d] With Margin 0.94%	No Margin 1.44%
1997	11,707,664	10,432,612	9,850,874	52,058,476	49,261,578	48,015,265	90.22%	85.45%
1998	17,621,429	15,826,062	15,000,743	67,115,075	63,258,048	61,520,948	91.07%	86.68%
1999	16,213,357	14,489,392	13,700,501	62,520,967	59,213,696	57,731,249	91.92%	87.93%
2000	19,458,654	17,222,155	16,206,343	65,254,204	61,447,942	59,755,866	92.79%	89.19%
2001	16,845,924	14,976,725	14,124,352	56,270,685	53,210,069	51,838,193	93.66%	90.48%
2002	22,058,445	19,714,841	18,644,431	64,201,582	60,539,047	58,887,518	94.54%	91.78%
2003	18,799,906	16,902,022	16,029,055	60,153,416	57,326,936	56,039,978	95.43%	93.10%
2004	20,238,178	17,808,883	16,716,418	52,300,434	49,136,417	47,727,166	96.33%	94.44%
2005	24,250,140	21,687,983	20,517,598	63,629,539	60,401,011	58,935,051	97.23%	95.80%
2006	34,302,434	30,251,080	28,423,111	79,526,383	74,875,963	72,787,523	98.15%	97.18%
2007	33,200,765	29,288,835	27,532,319	77,382,379	73,188,537	71,309,114	99.07%	98.58%
2008	30,799,553	27,480,339	25,966,116	74,803,599	71,484,384	69,970,162	100.00%	100.00%

Insurance Year	(5) 120-Ult Paid Development Factor [e] Undisc 0.00%	With Margin 0.94%	No Margin 1.44%	Paid to 120 Months
1997	1.7337	1.6405	1.5990	30,027,821
1998	1.9276	1.8168	1.7669	34,818,569
1999	1.7433	1.6511	1.6097	35,864,095
2000	1.7760	1.6724	1.6264	36,742,122
2001	1.7862	1.6890	1.6455	31,503,547
2002	1.9393	1.8287	1.7788	33,105,593
2003	1.7652	1.6823	1.6445	34,077,523
2004	1.9041	1.7889	1.7376	27,467,256
2005	1.8383	1.7450	1.7026	34,614,164
2006	1.9434	1.8297	1.7787	40,921,445
2007	1.8329	1.7336	1.6890	42,218,734
2008	1.6999	1.6245	1.5901	44,004,046
Simple Average of Middle 4 of Last 6 [f]	1.8786	1.7740	1.7270	
Simple Average of Middle 3 of Last 5 [f]	1.8584	1.7558	1.7098	
Latest 10 Volume Weighted [f]	1.8454	1.7436	1.6979	
Selected	1.8454	1.7436	1.6979	
Commuted Rsv Factor [g]		0.8796	0.8255	

Notes:
[a] Incremental Factors per the Selected Incurred Loss Development Factors for 120 months and thereafter
[b] Undiscounted = [(1) Undiscounted + (2) Undiscounted) * Ultimate Adjustment Accumulated - (1) Undiscounted;
Discounted = (3) Undiscounted / (2) Undiscounted * (2) Discounted
[c] (1) + (3) * Discount Factor for Tab Rsv
[d] Discount from Valuation Date to 120 Months
[e] (4) / Paid to 120 Months
[f] Not including 2008
[g] (Selected 120-Ult Paid Development Factor - 1) / (Selected 120-Ult Paid Development Factor @ 0.00% - 1)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving
February 28, 2018

Insurance Year	Tabular Reserve [a]	Case Reserves	IBNR
1999 & Prior	93,266	91,357	1,909
2000	19,459	18,545	914
2001	16,846	16,170	676
2002	22,058	20,604	1,454
2003	18,800	17,208	1,592
2004	20,238	18,194	2,044
2005	24,250	21,713	2,537
2006	34,302	31,095	3,207
2007	33,201	30,477	2,724
2008	30,800	27,877	2,923
	313,220	293,240	19,980

Notes:
[a] Tabular Reserves at Valuation Adjusted at 0.00% from Page 20

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving - Pre-PIPP
February 28, 2018

Appendix E
Page 22

Insurance Year	Tabular Reserves at Valuation 0.00%	With Margin 0.94%	No Margin 1.44%
1972	121,419	114,959	111,770
1973	280,873	263,884	255,576
1974	158,097	147,631	142,544
1975	309,281	289,241	279,485
1976	259,771	242,792	234,587
1977	636,931	593,906	573,051
1978	249,126	230,760	221,913
1979	280,677	258,686	248,153
1980	1,000,320	897,104	849,535
1981	1,355,305	1,258,333	1,211,543
1982	890,628	825,928	794,908
1983	1,722,515	1,580,514	1,513,214
1984	985,842	917,613	884,733
1985	365,712	328,297	310,874
1986	730,393	659,995	627,058
1987	2,043,233	1,865,992	1,782,193
1988	1,989,834	1,819,929	1,739,983
1989	1,433,367	1,295,294	1,230,956
1990	2,461,371	2,255,644	2,158,382
1991	1,920,568	1,746,247	1,664,341
1992	1,513,804	1,374,476	1,309,806
1993	1,624,433	1,479,556	1,411,678
Total Tabular Reserves	22,333,498	20,446,781	19,556,282
Total Case Reserves	13,429,000		
Total IBNR	8,904,498		

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APPENDIX F ACCIDENT BENEFITS – OTHER INDEXED

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - With Z-Files
February 28, 2018

Appendix F
Page 1

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	32,626,365	41,340,394	38,961,436	39,903,898	39,815,808	43,012,193	43,833,666	44,431,476	40,443,976	42,395,124	41,753,226	42,255,984	42,393,480	42,166,046	43,382,812	43,739,826	43,488,910	43,901,089	44,728,941	44,792,618	43,326,225
2000	28,261,976	54,823,367	53,914,698	56,052,926	55,652,341	54,669,423	49,200,272	49,681,173	42,739,228	43,775,067	42,558,097	42,966,773	42,393,342	41,703,699	44,084,371	45,095,915	44,984,400	45,849,709	46,035,126	46,749,888	43,762,718	
2001	29,566,663	50,923,207	49,841,246	52,069,872	53,532,306	56,137,576	51,801,089	43,742,419	44,445,529	45,363,838	44,132,467	43,687,815	45,235,557	45,088,340	47,394,787	48,056,000	47,210,553	48,935,470	49,374,954	48,193,567		
2002	25,543,959	46,419,639	57,837,199	58,851,534	58,236,647	56,873,279	47,540,702	47,287,222	47,405,083	46,792,696	49,071,273	48,478,598	49,216,829	49,672,635	50,345,886	49,749,353	51,442,306	52,796,879	53,387,799			
2003	27,961,476	54,454,375	58,510,690	56,503,865	48,875,921	45,410,512	43,723,993	45,301,402	45,122,900	46,273,525	46,554,638	47,186,854	48,874,107	49,498,756	49,827,027	50,342,843	49,795,974	48,782,349				
2004	20,967,651	38,683,614	51,761,096	49,807,016	48,339,870	48,595,221	48,610,395	49,193,569	49,722,094	52,002,949	50,636,646	52,221,828	53,899,029	53,913,091	54,614,076	55,439,307	55,376,945					
2005	25,651,887	42,493,526	49,005,400	47,693,995	45,893,985	46,910,689	44,208,506	44,618,187	45,578,337	48,175,931	49,320,381	48,388,483	48,599,199	47,985,779	47,821,849	47,534,908						
2006	34,785,270	51,170,226	63,024,563	60,202,805	59,289,484	59,196,515	59,250,547	58,686,260	59,355,105	60,403,314	62,998,426	63,091,389	63,378,641	64,712,486	62,921,634							
2007	30,002,803	46,676,975	53,408,509	51,248,472	51,366,747	51,687,152	53,786,259	56,863,311	59,522,836	61,642,144	60,409,648	59,241,754	60,429,922	62,336,093								
2008	23,055,983	38,809,976	43,168,746	44,187,986	46,466,697	49,966,804	50,387,617	52,291,128	54,488,983	53,270,671	53,542,669	51,045,362	50,563,319									
2009	25,660,963	39,833,588	48,484,183	50,508,585	52,035,218	51,321,871	52,311,189	53,350,731	53,527,543	54,356,421	54,862,794	55,085,568										
2010	32,000,814	57,904,014	51,205,742	53,924,174	52,209,908	50,621,131	51,726,141	52,697,730	53,379,966	55,421,010	50,273,197											
2011	38,717,667	64,185,780	51,324,986	52,444,461	55,496,551	58,872,478	58,032,532	59,390,563	56,653,187	56,500,302												
2012	34,985,658	52,254,973	61,241,198	63,109,286	62,205,802	59,240,712	56,548,804	56,510,945	57,977,489													
2013	30,715,269	53,358,841	60,190,333	56,896,981	56,052,276	51,427,567	51,135,514	49,539,843														
2014	30,023,876	47,518,395	49,421,661	49,361,820	50,255,068	49,739,614	47,716,884															
2015	31,604,666	54,437,802	59,869,916	59,946,627	60,147,504	61,203,897																
2016	35,731,765	55,479,940	65,481,413	64,044,618																		
2017	36,597,028	59,372,157																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	8,566,340	15,904,973	17,951,038	20,534,912	21,577,859	23,871,225	25,343,013	26,520,726	27,406,133	28,124,582	28,752,260	29,336,299	29,821,218	30,258,481	31,586,997	32,140,839	32,701,219	33,188,518	33,748,239	34,261,602	34,774,325
2000	4,070,704	9,576,045	17,845,031	19,897,532	22,491,182	23,303,778	24,930,917	26,153,738	27,015,239	27,734,740	28,409,138	28,981,809	29,512,861	30,223,255	31,147,525	31,864,670	32,533,094	33,122,037	33,676,375	34,225,884	34,740,605	
2001	5,071,638	10,434,961	18,944,166	20,707,608	22,931,198	23,639,220	25,145,676	26,184,131	26,885,299	27,573,582	28,249,144	28,844,150	29,913,236	30,766,414	31,900,114	33,136,286	33,811,379	34,564,202	35,241,217	36,006,188		
2002	4,877,639	10,631,634	18,193,383	19,879,204	21,262,508	22,117,161	23,628,421	24,815,686	25,779,439	26,634,621	27,478,698	28,585,746	29,757,667	30,893,917	32,003,497	33,044,463	34,180,367	35,573,943	36,588,143			
2003	5,406,907	10,954,017	19,106,277	20,777,072	23,179,421	23,983,506	25,836,577	27,126,790	28,234,055	29,286,474	30,479,103	31,610,312	32,700,393	33,669,134	34,692,280	35,619,249	36,358,842	37,142,327				
2004	4,663,058	9,869,752	16,745,837	18,114,424	20,220,967	21,017,692	22,912,368	24,443,710	25,639,837	26,924,025	28,166,526	29,264,777	30,586,939	31,620,316	32,615,820	33,662,345	34,687,318					
2005	4,417,412	9,593,187	17,309,490	19,052,835	21,236,452	21,984,126	23,569,076	25,019,493	26,401,393	27,682,830	29,279,550	30,345,952	31,304,274	32,164,907	32,967,538	33,888,425						
2006	4,611,164	9,869,288	18,754,432	20,389,635	23,120,198	23,966,498	26,708,132	28,644,574	30,373,495	31,960,048	33,494,169	34,957,347	36,430,675	37,700,601	39,357,870							
2007	4,741,839	9,907,116	19,288,620	21,107,901	23,908,910	24,911,790	27,428,733	29,304,004	31,099,583	32,808,001	34,588,027	35,814,076	36,896,175	38,213,756								
2008	4,595,571	9,606,309	19,053,302	21,284,252	24,481,957	25,532,372	27,848,478	30,085,488	31,646,341	33,146,701	34,677,737	35,540,631	36,366,086									
2009	4,908,413	11,000,884	19,955,544	22,095,667	24,847,910	25,939,180	28,823,332	30,781,206	32,357,287	34,063,689	35,508,928	36,857,034										
2010	4,599,456	10,309,143	20,686,542	23,220,158	26,343,522	27,388,234	29,873,673	31,720,882	33,318,021	34,470,045	35,399,014											
2011	5,007,916	11,556,812	22,398,792	24,889,750	28,253,545	29,564,650	32,295,734	34,438,664	35,315,058	37,041,119												
2012	6,664,647	13,541,378	25,254,653	27,601,526	31,089,073	32,441,782	35,055,367	36,752,652	38,432,325													
2013	5,591,152	12,137,110	26,108,128	28,633,861	32,013,410	33,116,527	35,443,939	36,865,853														
2014	4,965,057	11,366,059	22,497,090	25,302,123	28,184,139	29,156,286	31,345,028															
2015	6,193,868	14,704,361	27,538,650	30,178,127	34,107,778	35,549,217																
2016	6,770,263	14,187,216	27,772,703	30,989,851																		
2017	6,594,689	14,923,857																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Travel Only
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	3,107,850	2,891,413	2,765,206	2,898,419	3,042,103	3,540,482	3,657,184	3,772,874	3,679,650	3,529,585	3,344,350	3,314,645	3,343,919	3,276,651	3,320,565	3,334,486	3,385,036	3,370,240	3,379,451	3,368,123	3,022,052
2000	2,112,156	3,809,055	3,221,693	3,254,544	2,979,852	3,139,699	3,198,858	3,329,530	3,041,856	3,040,812	2,958,893	2,914,479	2,847,890	2,807,305	2,842,147	2,977,157	3,025,745	3,056,817	3,054,125	3,047,886	2,872,435	
2001	2,962,689	4,629,581	3,487,497	3,302,767	3,315,552	3,376,600	3,427,547	3,628,062	3,439,965	3,319,729	3,282,261	3,335,487	3,315,662	3,439,162	3,449,005	3,541,957	3,412,014	3,509,085	3,592,974	3,511,328		
2002	3,210,429	4,951,401	3,563,574	3,479,360	3,402,380	3,392,669	3,170,316	3,039,296	2,934,838	2,810,375	2,692,989	2,673,711	2,673,558	2,664,516	2,702,862	2,689,565	2,691,176	2,685,262	2,584,036			
2003	3,422,894	5,295,336	3,357,783	3,262,822	3,083,625	3,091,847	3,017,380	3,001,387	2,969,413	3,031,730	2,987,513	3,000,472	3,071,583	3,150,727	3,075,099	3,045,183	3,074,207	2,984,482				
2004	3,092,217	4,273,568	3,167,685	2,797,556	2,676,819	2,778,395	2,738,720	2,703,454	2,560,515	2,594,123	2,588,164	2,631,144	2,719,219	2,687,298	2,722,083	2,740,768	2,650,667					
2005	3,001,826	4,459,235	3,034,345	2,793,508	2,689,622	2,711,281	2,605,884	2,508,731	2,443,592	2,465,173	2,413,138	2,394,529	2,375,335	2,359,885	2,412,821	2,339,603						
2006	3,618,926	5,392,776	4,022,479	3,490,283	3,319,977	3,282,597	3,090,874	2,963,862	3,021,403	2,917,212	3,178,619	3,058,998	2,916,959	2,964,842	2,787,397							
2007	3,515,837	5,307,743	3,732,229	3,199,050	2,983,327	2,958,248	3,005,932	3,327,038	3,531,346	3,434,980	3,405,935	3,706,015	3,707,787	3,522,412								
2008	3,179,196	4,648,573	3,410,039	3,020,356	3,002,943	3,055,186	3,162,311	3,228,194	3,373,161	3,395,277	3,268,902	3,405,726	3,121,575									
2009	2,960,066	4,432,972	3,885,623	3,210,262	2,842,232	2,810,156	2,767,534	2,839,864	2,861,361	2,857,928	2,900,978	2,797,824										
2010	3,262,631	5,183,437	3,881,732	3,792,633	3,362,962	3,149,604	3,088,661	3,197,511	3,158,987	3,171,021	2,989,395											
2011	3,637,960	6,310,612	2,920,822	2,823,740	3,230,377	3,288,537	3,248,303	3,251,781	3,287,247	3,296,866												
2012	3,636,693	5,480,965	5,019,543	4,647,281	4,368,946	3,541,917	3,249,821	3,230,245	3,175,271													
2013	4,193,856	6,954,820	5,919,663	4,146,229	3,671,437	3,278,609	3,194,174	2,931,982														
2014	3,879,075	5,792,751	4,359,065	3,658,791	3,310,810	3,122,897	2,676,353															
2015	3,977,059	6,239,721	5,558,707	4,644,912	3,385,600	3,187,169																
2016	4,648,923	6,729,191	5,784,532	4,637,034																		
2017	4,811,141	7,216,575																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Travel Only
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	678,707	1,484,884	1,731,293	2,065,918	2,204,281	2,449,264	2,575,572	2,664,474	2,725,907	2,764,984	2,790,435	2,807,510	2,823,186	2,821,138	2,878,609	2,899,327	2,919,914	2,928,739	2,940,151	2,953,701	2,969,762
2000	270,663	699,490	1,527,179	1,797,783	2,069,078	2,154,774	2,307,176	2,407,244	2,454,426	2,479,424	2,509,193	2,540,763	2,570,085	2,581,149	2,601,166	2,615,799	2,647,105	2,662,150	2,678,723	2,690,088	2,707,048	
2001	362,486	840,399	1,785,827	2,034,585	2,296,063	2,377,498	2,560,049	2,631,850	2,667,655	2,702,671	2,741,718	2,781,176	2,795,143	2,829,236	2,863,654	2,899,305	2,931,006	2,968,954	3,008,038	3,046,400		
2002	350,544	810,024	1,648,852	1,870,763	2,079,746	2,139,084	2,220,401	2,275,979	2,310,960	2,336,157	2,357,980	2,345,218	2,369,663	2,387,211	2,403,436	2,419,592	2,447,761	2,464,263	2,486,557			
2003	390,376	875,317	1,729,911	1,934,095	2,120,584	2,168,234	2,253,975	2,328,612	2,389,705	2,445,174	2,495,469	2,548,320	2,593,662	2,640,686	2,678,255	2,712,640	2,737,158	2,772,476				
2004	280,965	719,521	1,449,732	1,620,160	1,770,391	1,808,050	1,922,330	2,014,247	2,080,569	2,135,274	2,193,521	2,258,729	2,316,115	2,355,918	2,396,993	2,435,028	2,457,020					
2005	309,765	725,193	1,434,529	1,593,330	1,738,104	1,798,604	1,918,669	1,973,119	2,011,645	2,063,706	2,093,929	2,109,866	2,124,020	2,135,781	2,147,855	2,161,638						
2006	310,806	718,009	1,516,204	1,677,274	1,901,776	1,976,041	2,136,578	2,209,691	2,288,228	2,340,915	2,402,915	2,452,148	2,485,010	2,518,488	2,553,751							
2007	309,589	735,722	1,622,212	1,849,981	2,143,246	2,228,352	2,428,167	2,610,326	2,745,229	2,847,099	2,918,104	2,967,416	2,999,768	3,037,277								
2008	290,024	699,037	1,557,007	1,851,629	2,199,494	2,322,861	2,543,461	2,707,264	2,817,471	2,862,493	2,914,513	2,947,159	2,962,570									
2009	282,977	727,572	1,554,372	1,766,214	2,003,495	2,095,901	2,271,599	2,376,814	2,439,427	2,482,678	2,519,819	2,549,003										
2010	250,927	619,248	1,494,710	1,769,761	2,121,621	2,225,392	2,461,069	2,618,189	2,714,522	2,778,955	2,818,320											
2011	272,168	694,644	1,654,878	1,939,792	2,312,368	2,396,800	2,609,800	2,714,662	2,809,589	2,876,744												
2012	325,730	778,824	1,715,508	1,988,658	2,307,733	2,408,457	2,583,274	2,702,864	2,797,406													
2013	297,837	697,497	1,618,214	1,880,622	2,208,396	2,312,819	2,527,047	2,618,117														
2014	259,974	630,447	1,419,751	1,632,330	1,869,249	1,928,716	2,079,846															
2015	317,210	763,509	1,610,762	1,848,614	2,127,386	2,205,975																
2016	294,217	720,381	1,532,350	1,798,327																		
2017	256,707	685,891																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Z-Files
February 28, 2018

Appendix F
Page 5

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - With Z-Files - Adjusted
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	45,334,783	56,511,952	53,268,377	53,840,407	53,698,775	57,166,023	57,835,305	58,102,803	52,746,913	54,724,568	53,651,788	53,946,208	53,770,819	53,441,743	54,693,655	54,710,263	54,248,264	54,442,268	55,090,655	55,027,165	53,429,256
2000	38,412,603	74,570,734	72,036,993	74,897,705	73,163,346	71,856,640	64,198,843	64,193,228	55,075,040	55,830,667	54,027,523	54,186,904	53,188,598	52,331,902	54,887,006	55,559,655	55,217,473	55,842,564	55,792,492	56,370,956	53,225,627	
2001	39,145,696	67,498,914	64,886,494	67,822,769	69,081,240	72,420,161	66,157,612	55,498,385	55,832,106	56,518,770	54,694,490	53,779,775	55,428,753	55,117,501	57,172,263	57,617,221	56,411,723	57,925,971	58,201,946	56,844,425		
2002	32,860,497	59,847,200	74,042,304	75,356,158	73,638,373	71,919,608	59,556,487	58,521,988	58,149,723	56,967,217	59,047,803	58,239,140	58,889,073	58,760,921	59,161,063	58,123,835	59,539,217	60,704,600	61,074,494			
2003	35,479,725	69,272,197	73,544,018	71,027,937	60,742,789	56,454,155	53,765,707	55,207,071	54,594,180	55,460,123	55,671,465	56,236,999	57,568,973	57,962,395	57,956,619	58,199,099	57,469,806	56,285,880				
2004	25,927,282	48,079,892	63,746,674	61,391,218	58,647,650	58,941,530	58,315,782	58,414,000	58,399,618	60,804,540	59,058,700	60,056,147	61,455,011	60,944,631	61,234,613	61,806,870	61,465,382					
2005	31,232,197	51,823,635	58,911,934	57,364,714	54,572,621	55,770,923	52,091,438	52,043,397	53,004,104	55,736,166	56,328,154	54,997,622	54,810,489	53,850,052	53,493,709	53,017,106						
2006	41,414,491	60,912,666	74,078,816	70,831,861	68,904,374	68,802,286	67,995,153	67,162,249	67,640,994	67,867,578	70,144,466	69,586,680	69,348,557	70,376,791	68,240,587							
2007	34,881,499	54,294,077	61,553,036	59,130,315	58,532,560	58,898,892	61,080,850	64,250,588	66,244,581	68,041,610	66,106,245	64,407,973	65,335,756	66,945,192								
2008	26,240,240	44,276,465	48,691,401	49,897,933	52,319,496	56,254,643	56,500,386	57,846,233	59,812,480	58,026,606	57,927,029	55,170,464	54,492,822									
2009	28,678,677	44,539,522	54,180,895	56,545,944	58,053,660	57,260,441	57,534,429	58,246,625	57,922,320	58,368,000	58,638,280	58,614,408										
2010	35,626,900	64,556,118	56,840,554	59,888,138	57,131,758	55,426,487	56,229,260	56,751,567	57,054,633	58,883,584	53,468,505											
2011	42,830,366	70,970,990	55,778,176	57,000,690	59,776,068	63,376,330	61,847,632	62,750,874	59,680,666	59,256,595												
2012	37,640,845	56,216,627	65,260,685	67,280,256	65,593,932	62,533,412	59,281,223	58,989,954	60,206,497													
2013	32,508,539	56,496,492	62,875,553	59,514,360	58,153,971	53,422,806	52,917,204	51,126,216														
2014	31,190,822	49,380,776	50,764,364	50,720,634	51,362,181	50,842,469	48,567,680															
2015	32,299,666	55,650,273	60,745,427	60,835,014	60,685,252	61,741,646																
2016	36,135,842	56,113,700	65,656,482	64,219,687																		
2017	36,597,028	59,372,157																				

*Prior years' figures indexed to current benefit level; Travel indexed separately from other benefits

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Z-Files - Adjusted
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Case Reserves - Expenses Only - Adjusted
February 28, 2018

	Evaluation in Months																				
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	292,063	258,191	272,948	354,720	375,487	348,766	346,200	108,279
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	176,875	184,044	277,832	314,072	320,163	300,249	297,839	147,804	
2001	-	-	-	-	-	-	-	-	-	-	-	-	261,065	246,111	217,004	549,147	260,782	483,228	466,658	145,578		
2002	-	-	-	-	-	-	-	-	-	-	-	293,311	288,612	311,853	394,667	325,007	303,677	393,365	203,474			
2003	-	-	-	-	-	-	-	-	-	-	341,640	350,793	865,889	404,339	436,674	412,162	422,148	225,627				
2004	-	-	-	-	-	-	-	-	-	480,278	442,357	490,018	489,381	460,782	401,747	384,789	117,776					
2005	-	-	-	-	-	-	-	-	547,711	516,412	557,840	511,491	393,485	383,120	428,150	206,001						
2006	-	-	-	-	-	-	-	739,020	690,517	949,781	1,088,009	946,373	852,050	777,949	426,265							
2007	-	-	-	-	-	-	761,878	1,057,930	815,976	847,416	755,421	705,219	647,053	427,434								
2008	-	-	-	-	1,467,326	1,270,626	881,494	891,749	983,504	843,128	773,817	576,370	298,403									
2009	-	-	4,045,361	2,644,149	1,517,043	1,186,010	957,651	934,168	817,118	659,666	638,731	265,259										
2010	4,903,537	5,656,364	3,554,058	2,799,614	1,898,255	1,793,070	1,024,146	711,147	740,987	673,457	431,709											
2011	2,999,821	4,566,470	3,185,765	2,793,516	1,676,781	1,422,360	945,900	787,148	778,625	495,201												
2012	2,858,233	4,410,859	3,133,214	2,824,239	2,179,624	1,501,370	1,127,684	964,907	502,572													
2013	2,813,396	4,468,431	3,116,791	2,333,244	1,898,288	1,215,470	850,736	450,332														
2014	2,244,196	3,309,364	2,214,274	1,955,605	1,558,386	1,351,152	710,476															
2015	2,468,597	3,879,843	3,199,350	2,694,704	1,908,836	1,672,236																
2016	3,212,476	4,430,178	3,432,915	2,665,400																		
2017	2,804,932	3,945,752																				

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Case Reserves - Excess Reserves - Adjusted
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	349,115	232,386	162,705	83,274	-	-	-	-								
2008	-	-	-	-	-	787,197	503,875	194,161	140,925	43,875	-	-	-									
2009	-	-	834,497	3,635,298	1,510,507	1,128,411	211,516	113,167	81,481	27,679	-	-										
2010	2,196,044	10,357,446	4,663,354	4,265,617	2,034,893	577,059	387,545	212,061	267,566	1,015,026	830,000											
2011	10,223,851	15,555,314	2,476,365	369,882	452,669	497,509	184,900	114,817	125,612	-												
2012	4,515,597	3,793,188	2,081,851	2,179,004	2,001,519	615,289	241,937	176,262	-													
2013	1,806,406	4,914,236	3,693,826	1,243,114	994,401	518,729	395,070	-														
2014	1,914,814	2,284,614	1,438,294	960,571	1,015,026	894,479	-															
2015	1,510,055	2,421,418	3,356,069	3,030,896	1,130,000	704,000																
2016	3,743,035	4,214,080	4,480,000	2,942,000																		
2017	3,748,000	4,806,000																				

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	45,335	56,512	53,268	53,840	53,699	57,166	57,835	58,103	52,747
2000	38,413	74,571	72,037	74,898	73,163	71,857	64,199	64,193	55,075	55,831
2001	39,146	67,499	64,886	67,823	69,081	72,420	66,158	55,498	55,832	56,519
2002	32,860	59,847	74,042	75,356	73,638	71,920	59,556	58,522	58,150	56,967
2003	35,480	69,272	73,544	71,028	60,743	56,454	53,766	55,207	54,594	55,460
2004	25,927	48,080	63,747	61,391	58,648	58,942	58,316	58,414	58,400	60,324
2005	31,232	51,824	58,912	57,365	54,573	55,771	52,091	52,043	52,456	55,220
2006	41,414	60,913	74,079	70,832	68,904	68,802	67,995	66,423	66,950	66,918
2007	34,881	54,294	61,553	59,130	58,533	58,899	59,970	62,960	65,266	67,111
2008	26,240	44,276	48,691	49,898	50,852	54,197	55,115	56,760	58,688	57,140
2009	28,679	44,540	49,301	50,266	55,026	54,946	56,365	57,199	57,024	57,681
2010	28,527	48,542	48,623	52,823	53,199	53,056	54,818	55,828	56,046	57,195
2011	29,607	50,849	50,116	53,837	57,647	61,456	60,717	61,849	58,776	58,761
2012	30,267	48,013	60,046	62,277	61,413	60,417	57,912	57,849	59,704	
2013	27,889	47,114	56,065	55,938	55,261	51,689	51,671	50,676		
2014	27,032	43,787	47,112	47,804	48,789	48,597	47,857			
2015	28,321	49,349	54,190	55,109	57,646	59,365				
2016	29,180	47,469	57,744	58,612						
2017	30,044	50,620								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.2465	0.9426	1.0107	0.9974	1.0646	1.0117	1.0046	0.9078	1.0375
2000	1.9413	0.9660	1.0397	0.9768	0.9821	0.8934	0.9999	0.8580	1.0137	0.9677
2001	1.7243	0.9613	1.0453	1.0186	1.0483	0.9135	0.8389	1.0060	1.0123	0.9677
2002	1.8213	1.2372	1.0177	0.9772	0.9767	0.8281	0.9826	0.9936	0.9797	1.0365
2003	1.9524	1.0617	0.9658	0.8552	0.9294	0.9524	1.0268	0.9889	1.0159	0.9977
2004	1.8544	1.3258	0.9630	0.9553	1.0050	0.9894	1.0017	0.9998	1.0330	0.9717
2005	1.6593	1.1368	0.9737	0.9513	1.0220	0.9340	0.9991	1.0079	1.0527	1.0100
2006	1.4708	1.2161	0.9562	0.9728	0.9985	0.9883	0.9769	1.0079	0.9995	1.0320
2007	1.5565	1.1337	0.9606	0.9899	1.0063	1.0182	1.0499	1.0366	1.0283	0.9738
2008	1.6873	1.0997	1.0248	1.0191	1.0658	1.0169	1.0299	1.0340	0.9736	1.0002
2009	1.5531	1.1069	1.0196	1.0947	0.9985	1.0258	1.0148	0.9969	1.0115	1.0055
2010	1.7016	1.0017	1.0864	1.0071	0.9973	1.0332	1.0184	1.0039	1.0205	0.9128
2011	1.7175	0.9856	1.0743	1.0708	1.0661	0.9880	1.0186	0.9503	0.9997	
2012	1.5863	1.2506	1.0372	0.9861	0.9838	0.9585	0.9989	1.0321		
2013	1.6893	1.1900	0.9977	0.9879	0.9353	0.9997	0.9807			
2014	1.6198	1.0759	1.0147	1.0206	0.9961	0.9848				
2015	1.7425	1.0981	1.0170	1.0460	1.0298					
2016	1.6268	1.2164	1.0150							
Latest 9 Volume Weighted	1.6578	1.1131	1.0311	1.0232	1.0085	1.0007	1.0096	1.0075	1.0144	0.9935
Latest 6 Volume Weighted	1.6578	1.1350	1.0255	1.0188	1.0019	0.9975	1.0106	1.0087	1.0057	0.9897
Latest 3 Volume Weighted	1.6841	1.1311	1.0156	1.0179	0.9873	0.9797	1.0004	0.9943	1.0104	0.9729
Simple Average of Middle 4 of Last 6	1.6634	1.1451	1.0210	1.0154	1.0017	0.9996	1.0127	1.0167	1.0078	0.9974
Simple Average of Middle 3 of Last 5	1.6453	1.1682	1.0156	1.0182	1.0032	0.9908	1.0107	1.0110	1.0106	0.9932
Selected Feb 17	1.6600	1.0900	1.0400	1.0250	1.0150	1.0150	1.0150	1.0135	1.0100	1.0075
Selected Oct 17	1.6600	1.1200	1.0350	1.0250	1.0050	1.0150	1.0150	1.0135	1.0085	1.0040
Selected Factors*	1.6600	1.1200	1.0350	1.0250	1.0050	1.0150	1.0150	1.0135	1.0085	1.0040
Selected Ultimate	2.2851	1.3766	1.2291	1.1875	1.1585	1.1528	1.1357	1.1190	1.1041	1.0948

*216-Ult Factor = 1.0050 ^ (1 + 2/3) * 1.0023 ^ (15 + 1/3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
54,725	53,652	53,946	53,771	53,150	54,435	54,437	53,894	54,067	54,742	54,681	53,321
54,028	54,187	53,189	52,155	54,703	55,282	54,903	55,522	55,492	56,073	53,078	
54,694	53,780	55,168	54,871	56,955	57,068	56,151	57,443	57,735	56,699		
59,048	57,946	58,600	58,449	58,766	57,799	59,236	60,311	60,871			
55,330	55,886	56,703	57,558	57,520	57,787	57,048	56,060				
58,616	59,566	60,966	60,484	60,833	61,422	61,348					
55,770	54,486	54,417	53,467	53,066	52,811						
69,056	68,640	68,497	69,599	67,814							
65,351	63,703	64,689	66,518								
57,153	54,594	54,194									
58,000	58,349										
52,207											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9804	1.0055	0.9967	0.9884	1.0242	1.0000	0.9900	1.0032	1.0125	0.9989	0.9751
1.0029	0.9816	0.9806	1.0489	1.0106	0.9932	1.0113	0.9995	1.0105	0.9466	
0.9833	1.0258	0.9946	1.0380	1.0020	0.9839	1.0230	1.0051	0.9820		
0.9813	1.0113	0.9974	1.0054	0.9835	1.0249	1.0182	1.0093			
1.0101	1.0146	1.0151	0.9993	1.0046	0.9872	0.9827				
1.0162	1.0235	0.9921	1.0058	1.0097	0.9988					
0.9770	0.9987	0.9825	0.9925	0.9952						
0.9940	0.9979	1.0161	0.9744							
0.9748	1.0155	1.0283								
0.9552	0.9927									
1.0060										
0.9886	1.0070	1.0013	1.0053	1.0041	0.9980	1.0052	1.0044	1.0013	0.9724	0.9751
0.9873	1.0073	1.0061	1.0015	1.0010	0.9980	1.0052	1.0044	1.0013	0.9724	0.9751
0.9786	1.0024	1.0106	0.9900	1.0035	1.0035	1.0080	1.0047	1.0013	0.9724	0.9751
0.9879	1.0067	1.0052	1.0008	1.0029	0.9948	1.0065	1.0042	1.0105	0.9727	0.9751
0.9819	1.0040	1.0078	0.9991	1.0006	0.9930	1.0065	1.0042	1.0105	0.9727	0.9751
1.0025	1.0025	1.0035	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0414
1.0025	1.0025	1.0030	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0446
1.0025	1.0025	1.0030	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0446
1.0904	1.0877	1.0850	1.0817	1.0763	1.0710	1.0656	1.0603	1.0551	1.0498	1.0446

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.9388	1.9127	1.7704	1.9785	1.9357	2.2623	2.2851	2.2851
12	1.1695	1.1537	1.0512	1.1895	1.1765	1.3628	1.3766	1.3766
20	1.0507	1.0165	0.9293	1.0387	1.0071	1.2503	1.2291	1.2291
24	1.0190	0.9912	0.9151	1.0174	0.9917	1.2022	1.1875	1.1875
32	0.9959	0.9729	0.8990	1.0020	0.9740	1.1729	1.1585	1.1585
36	0.9875	0.9711	0.9105	1.0002	0.9709	1.1555	1.1528	1.1528
48	0.9868	0.9735	0.9294	1.0006	0.9799	1.1385	1.1357	1.1357
60	0.9774	0.9633	0.9290	0.9881	0.9695	1.1216	1.1190	1.1190
72	0.9701	0.9550	0.9343	0.9719	0.9590	1.1067	1.1041	1.1041
84	0.9564	0.9496	0.9246	0.9643	0.9489	1.0957	1.0948	1.0948
96	0.9626	0.9595	0.9504	0.9668	0.9554	1.0876	1.0904	1.0904
108	0.9737	0.9718	0.9711	0.9787	0.9730	1.0849	1.0877	1.0877
120	0.9670	0.9648	0.9688	0.9722	0.9691	1.0822	1.0850	1.0850
132	0.9657	0.9590	0.9587	0.9672	0.9617	1.0784	1.0817	1.0817
144	0.9606	0.9576	0.9684	0.9664	0.9625	1.0730	1.0763	1.0763
156	0.9567	0.9567	0.9650	0.9636	0.9620	1.0677	1.0710	1.0710
168	0.9586	0.9586	0.9616	0.9687	0.9687	1.0624	1.0656	1.0656
180	0.9536	0.9536	0.9540	0.9625	0.9625	1.0571	1.0603	1.0603
192	0.9495	0.9495	0.9495	0.9585	0.9585	1.0518	1.0551	1.0551
204	0.9482	0.9482	0.9482	0.9485	0.9485	1.0466	1.0498	1.0498
216	0.9751	0.9751	0.9751	0.9751	0.9751	1.0414	1.0446	1.0446

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6600	2.2852	43.76%	8		2.2852	1.6600	1.6600	2.2851
12	1.1200	1.3766		12	72.64%	1.3766	1.1200	1.1200	1.3766
20	1.0350	1.2291	81.36%	20		1.2291	1.0350	1.0350	1.2291
24	1.0250	1.1876		24	84.21%	1.1876	1.0250	1.0250	1.1875
32	1.0050	1.1586	86.31%	32		1.1586	1.0050	1.0050	1.1585
36	1.0100	1.1528		36	86.74%	1.1528	1.0151	1.0150	1.1528
44	1.0150	1.1414	87.61%	48	88.05%	1.1358	1.0150	1.0150	1.1357
56	1.0150	1.1246	88.92%	60	89.37%	1.1190	1.0133	1.0135	1.1190
68	1.0100	1.1079	90.26%	72	90.56%	1.1043	1.0083	1.0085	1.1041
80	1.0050	1.0970	91.16%	84	91.31%	1.0951	1.0042	1.0040	1.0948
92	1.0025	1.0915	91.62%	96	91.69%	1.0906	1.0025	1.0025	1.0904
104	1.0025	1.0888	91.84%	108	91.92%	1.0879	1.0025	1.0025	1.0877
116	1.0025	1.0861	92.07%	120	92.15%	1.0852	1.0033	1.0030	1.0850
128	1.0050	1.0834	92.30%	132	92.46%	1.0816	1.0050	1.0050	1.0817
140	1.0050	1.0780	92.77%	144	92.92%	1.0762	1.0050	1.0050	1.0763
152	1.0050	1.0726	93.23%	156	93.39%	1.0708	1.0050	1.0050	1.0710
164	1.0050	1.0673	93.70%	168	93.85%	1.0655	1.0050	1.0050	1.0656
176	1.0050	1.0620	94.16%	180	94.32%	1.0602	1.0050	1.0050	1.0603
188	1.0050	1.0567	94.64%	192	94.79%	1.0549	1.0050	1.0050	1.0551
200	1.0050	1.0514	95.11%	204	95.27%	1.0497	1.0033	1.0050	1.0498
Tail	1.0462	1.0462	95.58%	Tail	95.58%	1.0462	1.0462	1.0446	1.0446

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	652,992	53,078	1.0446	55,445	2,367	9,022	8.49%
2001	497,121	666,345	56,699	1.0498	59,524	2,825	12,187	8.93%
2002	532,307	694,750	60,871	1.0551	64,223	3,352	16,800	9.24%
2003	560,857	720,485	56,060	1.0603	59,443	3,383	11,640	8.25%
2004	596,045	752,149	61,348	1.0656	65,375	4,027	20,690	8.69%
2005	630,367	779,863	52,811	1.0710	56,560	3,748	13,646	7.25%
2006	654,863	788,869	67,814	1.0763	72,991	5,176	23,564	9.25%
2007	677,464	800,878	66,518	1.0817	71,953	5,435	24,122	8.98%
2008	707,051	819,466	54,194	1.0850	58,799	4,604	14,197	7.18%
2009	739,881	838,236	58,349	1.0877	63,465	5,116	18,229	7.57%
2010	759,948	855,836	52,207	1.0904	56,926	4,719	14,874	6.65%
2011	772,985	863,609	58,761	1.0948	64,329	5,568	19,459	7.45%
2012	768,953	834,082	59,704	1.1041	65,917	6,213	19,545	7.90%
2013	778,092	830,703	50,676	1.1190	56,704	6,029	12,674	6.83%
2014	817,710	854,208	47,857	1.1357	54,354	6,496	16,372	6.36%
2015	873,488	895,461	59,365	1.1528	68,435	9,070	25,655	7.64%
2016	918,780	930,724	58,612	1.1875	69,603	10,990	33,055	7.48%
2017	971,436	971,436	50,620	1.3766	69,682	19,062	44,448	7.17%
	12,732,625	14,550,093	1,025,546		1,133,727	108,182	350,179	7.79%

Notes:
(3) Indexed to match the indexing done on losses
(9) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	55,445				55,445	8.49%	8.49%	100.00%	8.49%	8.49%
2001	666,345	59,524	56,554			56,554	8.49%	8.93%	100.00%	8.93%	8.93%
2002	694,750	64,223	60,714	57,685		59,200	8.52%	9.24%	100.00%	9.24%	9.24%
2003	720,485	59,443	65,508	61,929	58,839	62,092	8.62%	8.25%	100.00%	8.25%	8.25%
2004	752,149	65,375	60,632	66,818	63,167	63,539	8.45%	8.69%	100.00%	8.69%	8.69%
2005	779,863	56,560	66,683	61,845	68,154	65,561	8.41%	7.25%	100.00%	7.25%	7.25%
2006	788,869	72,991	57,691	68,016	63,082	62,930	7.98%	9.25%	90.00%	9.13%	9.13%
2007	800,878	71,953	74,451	58,845	69,377	67,557	8.44%	8.98%	80.00%	8.87%	8.87%
2008	819,466	58,799	73,392	75,940	60,021	69,784	8.52%	7.18%	70.00%	7.58%	7.58%
2009	838,236	63,465	59,975	74,860	77,458	70,764	8.44%	7.57%	60.00%	7.92%	7.92%
2010	855,836	56,926	64,734	61,174	76,357	67,422	7.88%	6.65%	50.00%	7.26%	7.26%
2011	863,609	64,329	58,064	66,029	62,398	62,164	7.20%	7.45%	40.00%	7.30%	7.30%
2012	834,082	65,917	65,616	59,226	67,349	64,064	7.68%	7.90%	30.00%	7.75%	7.75%
2013	830,703	56,704	67,235	66,928	60,410	64,858	7.81%	6.83%	20.00%	7.61%	7.61%
2014	854,208	54,354	57,839	68,580	68,267	64,895	7.60%	6.36%	10.00%	7.47%	7.47%
2015	895,461	68,435	55,441	58,995	69,951	61,462	6.86%	7.64%	0.00%	6.86%	6.86%
2016	930,724	69,603	69,804	56,550	60,175	62,176	6.68%	7.48%	0.00%	6.68%	6.68%
2017	971,436	69,682	70,995	71,200	57,681	66,625	6.86%	7.17%	0.00%	6.86%	6.86%
	14,550,093	1,133,727	1,085,326	1,034,618	982,686	1,147,091					

Trend in Losses Based on Exponential Regression (a):
0.48%
Selected Trend (b):
2.00%

Notes:
(3) Ultimate Losses from Page 14
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 23

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	652,992	8.49%	55,445	95.73%	4.27%	53,078	53,078	2,367	55,445	8.49%
2001	666,345	8.93%	59,524	95.25%	4.75%	56,699	56,699	2,825	59,524	8.93%
2002	694,750	9.24%	64,223	94.78%	5.22%	60,871	60,871	3,352	64,223	9.24%
2003	720,485	8.25%	59,443	94.31%	5.69%	56,060	56,060	3,383	59,443	8.25%
2004	752,149	8.69%	65,375	93.84%	6.16%	61,348	61,348	4,027	65,375	8.69%
2005	779,863	7.25%	56,560	93.37%	6.63%	52,811	52,811	3,748	56,560	7.25%
2006	788,869	9.13%	71,985	92.91%	7.09%	66,880	67,814	5,105	72,919	9.24%
2007	800,878	8.87%	71,074	92.45%	7.55%	65,705	66,518	5,369	71,887	8.98%
2008	819,466	7.58%	62,094	92.17%	7.83%	57,232	54,194	4,862	59,057	7.21%
2009	838,236	7.92%	66,385	91.94%	8.06%	61,034	58,349	5,351	63,700	7.60%
2010	855,836	7.26%	62,174	91.71%	8.29%	57,020	52,207	5,154	57,361	6.70%
2011	863,609	7.30%	63,030	91.34%	8.66%	57,574	58,761	5,455	64,217	7.44%
2012	834,082	7.75%	64,619	90.57%	9.43%	58,529	59,704	6,090	65,794	7.89%
2013	830,703	7.61%	63,227	89.37%	10.63%	56,505	50,676	6,722	57,398	6.91%
2014	854,208	7.47%	63,841	88.05%	11.95%	56,210	47,857	7,630	55,488	6.50%
2015	895,461	6.86%	61,462	86.75%	13.25%	53,317	59,365	8,146	67,511	7.54%
2016	930,724	6.68%	62,176	84.21%	15.79%	52,359	58,612	9,818	68,430	7.35%
2017	971,436	6.86%	66,625	72.64%	27.36%	48,400	50,620	18,226	68,846	7.09%
	14,550,093		1,139,262			1,031,630	1,025,546	107,632	1,133,178	7.79%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - With Z-Files - Adjusted
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	11,919,975	21,843,479	24,605,952	28,014,540	29,389,832	32,346,534	34,220,979	35,691,846	36,776,935	37,637,121	38,374,895	39,049,206	39,596,503	40,089,196	41,566,729	42,165,725	42,762,603	43,271,259	43,844,773	44,364,634	44,877,356
2000	5,539,373	13,018,590	23,966,717	26,673,543	30,018,243	31,066,041	33,136,697	34,662,565	35,720,468	36,583,824	37,376,108	38,035,048	38,632,797	39,431,430	40,461,713	41,238,359	41,949,862	42,564,422	43,132,288	43,688,792	44,203,513	
2001	6,738,639	13,849,332	24,814,316	27,078,816	29,901,660	30,800,727	32,670,330	33,943,025	34,782,837	35,590,659	36,367,716	37,036,574	38,238,791	39,187,997	40,414,804	41,732,150	42,435,961	43,206,766	43,892,075	44,657,046		
2002	6,313,874	13,755,300	23,361,406	25,498,511	27,208,161	28,276,442	30,132,478	31,555,186	32,688,667	33,675,999	34,629,382	35,877,724	37,184,173	38,415,175	39,598,683	40,685,390	41,849,161	43,260,638	44,274,838			
2003	6,895,611	13,959,173	24,099,538	26,172,799	29,113,620	30,100,411	32,321,095	33,833,888	35,107,947	36,292,894	37,629,659	38,887,293	40,065,861	41,096,925	42,164,062	43,113,484	43,862,373	44,645,858				
2004	5,835,994	12,330,900	20,715,287	22,379,874	24,897,185	25,851,858	28,072,611	29,833,502	31,179,818	32,619,139	34,000,480	35,186,228	36,593,908	37,671,632	38,691,146	39,750,782	40,775,755					
2005	5,413,105	11,746,711	20,946,177	23,024,811	25,582,050	26,455,829	28,274,590	29,910,578	31,461,980	32,887,547	34,616,947	35,754,376	36,754,840	37,636,828	38,449,736	39,370,623						
2006	5,512,763	11,791,849	22,162,356	24,068,556	27,199,257	28,168,865	31,253,613	33,425,165	35,347,575	37,064,042	38,697,702	40,223,990	41,733,554	43,019,554	44,676,823							
2007	5,553,981	11,589,081	22,327,916	24,401,955	27,536,328	28,661,210	31,470,521	33,544,290	35,480,524	37,297,571	39,153,878	40,409,529	41,505,275	42,822,855								
2008	5,282,306	11,027,768	21,616,532	24,104,885	27,662,174	28,829,560	31,391,340	33,803,947	35,462,887	37,028,204	38,596,446	39,470,133	40,295,588									
2009	5,523,289	12,366,553	22,346,759	24,730,185	27,777,280	28,985,655	32,099,207	34,182,350	35,825,983	37,574,224	39,037,768	40,385,874										
2010	5,148,139	11,531,781	23,023,175	25,821,582	29,179,686	30,304,094	32,941,653	34,864,297	36,499,190	37,665,353	38,594,322											
2011	5,563,129	12,830,278	24,509,221	27,187,025	30,753,074	32,147,122	34,990,597	37,184,798	38,071,350	39,797,412												
2012	7,201,539	14,622,337	27,064,281	29,551,371	33,180,340	34,588,930	37,263,864	38,981,659	40,661,333													
2013	5,949,064	12,910,610	27,464,114	30,090,868	33,547,188	34,675,428	37,030,312	38,452,226														
2014	5,175,063	11,845,231	23,236,419	26,106,668	29,023,071	30,007,083	32,195,824															
2015	6,341,701	15,055,057	28,045,177	30,715,876	34,645,527	36,086,966																
2016	6,854,451	14,362,285	27,947,772	31,164,920																		
2017	6,594,689	14,923,857																				

*Prior years' figures indexed to current benefit level; Travel indexed separately from other benefits

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	11,920	21,843	24,606	28,015	29,390	32,347	34,221	35,692	36,777
2000	5,539	13,019	23,967	26,674	30,018	31,066	33,137	34,663	35,720	36,584
2001	6,739	13,849	24,814	27,079	29,902	30,801	32,670	33,943	34,783	35,591
2002	6,314	13,755	23,361	25,499	27,208	28,276	30,132	31,555	32,689	33,676
2003	6,896	13,959	24,100	26,173	29,114	30,100	32,321	33,834	35,108	36,293
2004	5,836	12,331	20,715	22,380	24,897	25,852	28,073	29,834	31,180	32,619
2005	5,413	11,747	20,946	23,025	25,582	26,456	28,275	29,911	31,462	32,888
2006	5,513	11,792	22,162	24,069	27,199	28,169	31,254	33,425	35,348	37,064
2007	5,554	11,589	22,328	24,402	27,536	28,661	31,471	33,544	35,481	37,298
2008	5,282	11,028	21,617	24,105	27,662	28,830	31,391	33,804	35,463	37,028
2009	5,523	12,367	22,347	24,730	27,777	28,986	32,099	34,182	35,826	37,574
2010	5,148	11,532	23,023	25,822	29,180	30,304	32,942	34,864	36,499	37,665
2011	5,563	12,830	24,509	27,187	30,753	32,147	34,991	37,185	38,071	39,797
2012	7,202	14,622	27,064	29,551	33,180	34,589	37,264	38,982	40,661	
2013	5,949	12,911	27,464	30,091	33,547	34,675	37,030	38,452		
2014	5,175	11,845	23,236	26,107	29,023	30,007	32,196			
2015	6,342	15,055	28,045	30,716	34,646	36,087				
2016	6,854	14,362	27,948	31,165						
2017	6,595	14,924								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.8325	1.1265	1.1385	1.0491	1.1006	1.0579	1.0430	1.0304	1.0234
2000	2.3502	1.8410	1.1129	1.1254	1.0349	1.0667	1.0460	1.0305	1.0242	1.0217
2001	2.0552	1.7917	1.0913	1.1042	1.0301	1.0607	1.0390	1.0247	1.0232	1.0218
2002	2.1786	1.6984	1.0915	1.0670	1.0393	1.0656	1.0472	1.0359	1.0302	1.0283
2003	2.0244	1.7264	1.0860	1.1124	1.0339	1.0738	1.0468	1.0377	1.0338	1.0368
2004	2.1129	1.6799	1.0804	1.1125	1.0383	1.0859	1.0627	1.0451	1.0462	1.0423
2005	2.1701	1.7832	1.0992	1.1111	1.0342	1.0687	1.0579	1.0519	1.0453	1.0526
2006	2.1390	1.8795	1.0860	1.1301	1.0356	1.1095	1.0695	1.0575	1.0486	1.0441
2007	2.0866	1.9266	1.0929	1.1284	1.0409	1.0980	1.0659	1.0577	1.0512	1.0498
2008	2.0877	1.9602	1.1151	1.1476	1.0422	1.0889	1.0769	1.0491	1.0441	1.0424
2009	2.2390	1.8070	1.1067	1.1232	1.0435	1.1074	1.0649	1.0481	1.0488	1.0390
2010	2.2400	1.9965	1.1215	1.1301	1.0385	1.0870	1.0584	1.0469	1.0320	1.0247
2011	2.3063	1.9103	1.1093	1.1312	1.0453	1.0885	1.0627	1.0238	1.0453	
2012	2.0304	1.8509	1.0919	1.1228	1.0425	1.0773	1.0461	1.0431		
2013	2.1702	2.1273	1.0956	1.1149	1.0336	1.0679	1.0384			
2014	2.2889	1.9617	1.1235	1.1117	1.0339	1.0729				
2015	2.3740	1.8628	1.0952	1.1279	1.0416					
2016	2.0953	1.9459	1.1151							
Latest 9 Volume Weighted	2.2161	1.9326	1.1075	1.1261	1.0402	1.0878	1.0594	1.0466	1.0439	1.0399
Latest 6 Volume Weighted	2.1964	1.9389	1.1046	1.1231	1.0393	1.0829	1.0571	1.0444	1.0449	1.0418
Latest 3 Volume Weighted	2.2405	1.9201	1.1105	1.1185	1.0366	1.0727	1.0488	1.0378	1.0420	1.0353
Simple Average of Middle 4 of Last 6	2.2152	1.9202	1.1038	1.1239	1.0391	1.0814	1.0580	1.0468	1.0467	1.0438
Simple Average of Middle 3 of Last 5	2.1848	1.9235	1.1020	1.1219	1.0393	1.0791	1.0557	1.0460	1.0461	1.0418
Selected Feb 17	2.2500	1.9300	1.1075	1.1230	1.0425	1.0845	1.0655	1.0540	1.0470	1.0435
Selected Oct 17	2.2500	1.9300	1.1075	1.1230	1.0400	1.0815	1.0625	1.0505	1.0470	1.0435
Selected Factors*	2.2500	1.9300	1.1075	1.1230	1.0400	1.0815	1.0625	1.0505	1.0470	1.0435
Selected Ultimate	12.5852	5.5934	2.8981	2.6168	2.3302	2.2406	2.0718	1.9499	1.8561	1.7728

*216-Ult Factor = 1.0175 ^ 17

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
37,637	38,375	39,049	39,597	40,089	41,567	42,166	42,763	43,271	43,845	44,365	44,877
37,376	38,035	38,633	39,431	40,462	41,238	41,950	42,564	43,132	43,689	44,204	
36,368	37,037	38,239	39,188	40,415	41,732	42,436	43,207	43,892	44,657		
34,629	35,878	37,184	38,415	39,599	40,685	41,849	43,261	44,275			
37,630	38,887	40,066	41,097	42,164	43,113	43,862	44,646				
34,000	35,186	36,594	37,672	38,691	39,751	40,776					
34,617	35,754	36,755	37,637	38,450	39,371						
38,698	40,224	41,734	43,020	44,677							
39,154	40,410	41,505	42,823								
38,596	39,470	40,296									
39,038	40,386										
38,594											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
1.0196	1.0176	1.0140	1.0124	1.0369	1.0144	1.0142	1.0119	1.0133	1.0119	1.0116
1.0176	1.0157	1.0207	1.0261	1.0192	1.0173	1.0146	1.0133	1.0129	1.0118	
1.0184	1.0325	1.0248	1.0313	1.0326	1.0169	1.0182	1.0159	1.0174		
1.0360	1.0364	1.0331	1.0308	1.0274	1.0286	1.0337	1.0234			
1.0334	1.0303	1.0257	1.0260	1.0225	1.0174	1.0179				
1.0349	1.0400	1.0295	1.0271	1.0274	1.0258					
1.0329	1.0280	1.0240	1.0216	1.0240						
1.0394	1.0375	1.0308	1.0385							
1.0321	1.0271	1.0317								
1.0226	1.0209									
1.0345										
1.0316	1.0297	1.0261	1.0269	1.0271	1.0200	1.0197	1.0162	1.0145	1.0118	1.0116
1.0327	1.0305	1.0292	1.0294	1.0255	1.0200	1.0197	1.0162	1.0145	1.0118	1.0116
1.0298	1.0286	1.0290	1.0295	1.0246	1.0238	1.0231	1.0176	1.0145	1.0118	1.0116
1.0336	1.0307	1.0294	1.0288	1.0253	1.0193	1.0169	1.0146	1.0133	1.0118	1.0116
1.0332	1.0309	1.0287	1.0279	1.0263	1.0201	1.0169	1.0146	1.0133	1.0118	1.0116
1.0355	1.0320	1.0295	1.0270	1.0245	1.0185	1.0180	1.0175	1.0175	1.0175	1.3432
1.0355	1.0315	1.0295	1.0270	1.0250	1.0195	1.0175	1.0175	1.0175	1.0175	1.3431
1.0355	1.0315	1.0295	1.0270	1.0250	1.0195	1.0175	1.0175	1.0175	1.0175	1.3431
1.6989	1.6407	1.5906	1.5450	1.5044	1.4677	1.4396	1.4149	1.3905	1.3666	1.3431

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	9.1772	9.0678	8.8785	9.0532	8.8469	12.7231	12.5852	12.5852
12	4.1411	4.1285	3.9628	4.0869	4.0493	5.6547	5.5934	5.5934
20	2.1427	2.1292	2.0638	2.1284	2.1052	2.9299	2.8981	2.8981
24	1.9347	1.9277	1.8584	1.9282	1.9103	2.6455	2.6168	2.6168
32	1.7181	1.7164	1.6614	1.7156	1.7028	2.3558	2.3302	2.3302
36	1.6518	1.6515	1.6028	1.6511	1.6384	2.2597	2.2406	2.2406
48	1.5184	1.5251	1.4942	1.5267	1.5183	2.0836	2.0718	2.0718
60	1.4332	1.4427	1.4247	1.4430	1.4382	1.9556	1.9499	1.9499
72	1.3694	1.3813	1.3727	1.3785	1.3749	1.8554	1.8561	1.8561
84	1.3118	1.3219	1.3173	1.3170	1.3143	1.7721	1.7728	1.7728
96	1.2615	1.2688	1.2725	1.2617	1.2616	1.6982	1.6989	1.6989
108	1.2229	1.2287	1.2357	1.2207	1.2211	1.6400	1.6407	1.6407
120	1.1876	1.1923	1.2013	1.1843	1.1845	1.5891	1.5906	1.5906
132	1.1575	1.1585	1.1674	1.1505	1.1515	1.5436	1.5450	1.5450
144	1.1272	1.1254	1.1340	1.1183	1.1202	1.5030	1.5044	1.5044
156	1.0974	1.0974	1.1068	1.0907	1.0915	1.4671	1.4677	1.4677
168	1.0759	1.0759	1.0811	1.0700	1.0700	1.4404	1.4396	1.4396
180	1.0552	1.0552	1.0566	1.0522	1.0522	1.4150	1.4149	1.4149
192	1.0384	1.0384	1.0384	1.0371	1.0371	1.3906	1.3905	1.3905
204	1.0235	1.0235	1.0235	1.0235	1.0235	1.3667	1.3666	1.3666
216	1.0116	1.0116	1.0116	1.0116	1.0116	1.3432	1.3431	1.3431

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.2500	12.5855	7.95%	8		12.5855	2.2500	2.2500	12.5852
12	1.9300	5.5935		12	17.88%	5.5935	1.9300	1.9300	5.5934
20	1.1075	2.8982	34.50%	20		2.8982	1.1075	1.1075	2.8981
24	1.1230	2.6169		24	38.21%	2.6169	1.1230	1.1230	2.6168
32	1.0400	2.3303	42.91%	32		2.3303	1.0400	1.0400	2.3302
36	1.0575	2.2406		36	44.63%	2.2406	1.0813	1.0815	2.2406
44	1.0675	2.1188	47.20%	48	48.26%	2.0722	1.0623	1.0625	2.0718
56	1.0525	1.9848	50.38%	60	51.26%	1.9507	1.0506	1.0505	1.9499
68	1.0470	1.8858	53.03%	72	53.86%	1.8567	1.0470	1.0470	1.8561
80	1.0470	1.8012	55.52%	84	56.39%	1.7734	1.0437	1.0435	1.7728
92	1.0375	1.7203	58.13%	96	58.86%	1.6991	1.0356	1.0355	1.6989
104	1.0320	1.6581	60.31%	108	60.95%	1.6406	1.0317	1.0315	1.6407
116	1.0310	1.6067	62.24%	120	62.88%	1.5903	1.0296	1.0295	1.5906
128	1.0270	1.5584	64.17%	132	64.75%	1.5445	1.0270	1.0270	1.5450
140	1.0270	1.5174	65.90%	144	66.49%	1.5039	1.0246	1.0250	1.5044
152	1.0200	1.4776	67.68%	156	68.13%	1.4678	1.0193	1.0195	1.4677
164	1.0180	1.4486	69.03%	168	69.45%	1.4399	1.0178	1.0175	1.4396
176	1.0175	1.4230	70.28%	180	70.69%	1.4147	1.0175	1.0175	1.4149
188	1.0175	1.3985	71.51%	192	71.92%	1.3904	1.0175	1.0175	1.3905
200	1.0175	1.3744	72.76%	204	73.18%	1.3665	1.0116	1.0175	1.3666
Tail	1.3508	1.3508	74.03%	Tail	74.03%	1.3508	1.3508	1.3431	1.3431

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2000	475,277	652,992	44,204	1.3431	59,370	15,166	9,022	6,144	9.09%
2001	497,121	666,345	44,657	1.3666	61,029	16,371	12,187	4,184	9.16%
2002	532,307	694,750	44,275	1.3905	61,565	17,290	16,800	490	8.86%
2003	560,857	720,485	44,646	1.4149	63,167	18,522	11,640	6,882	8.77%
2004	596,045	752,149	40,776	1.4396	58,701	17,926	20,690	(2,764)	7.80%
2005	630,367	779,863	39,371	1.4677	57,784	18,413	13,646	4,767	7.41%
2006	654,863	788,869	44,677	1.5044	67,211	22,534	23,564	(1,030)	8.52%
2007	677,464	800,878	42,823	1.5450	66,161	23,338	24,122	(784)	8.26%
2008	707,051	819,466	40,296	1.5906	64,093	23,798	14,197	9,601	7.82%
2009	739,881	838,236	40,386	1.6407	66,260	25,874	18,229	7,645	7.90%
2010	759,948	855,836	38,594	1.6989	65,569	26,974	14,874	12,100	7.66%
2011	772,985	863,609	39,797	1.7728	70,554	30,756	19,459	11,297	8.17%
2012	768,953	834,082	40,661	1.8561	75,473	34,812	19,545	15,267	9.05%
2013	778,092	830,703	38,452	1.9499	74,977	36,525	12,674	23,851	9.03%
2014	817,710	854,208	32,196	2.0718	66,702	34,506	16,372	18,134	7.81%
2015	873,488	895,461	36,087	2.2406	80,856	44,769	25,655	19,114	9.03%
2016	918,780	930,724	31,165	2.6168	81,554	50,389	33,055	17,334	8.76%
2017	971,436	971,436	14,924	5.5934	83,476	68,552	44,448	24,104	8.59%
	12,732,625	14,550,093	697,986		1,224,501	526,516	350,179	176,337	8.42%

Notes:
(3) Indexed to match the indexing done on losses
(10) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	59,370				59,370	9.09%	9.09%	100.00%	9.09%	8.49%
2001	666,345	61,029	60,557			60,557	9.09%	9.16%	100.00%	9.16%	8.93%
2002	694,750	61,565	62,249	61,768		62,009	8.93%	8.86%	100.00%	8.86%	9.24%
2003	720,485	63,167	62,796	63,494	63,004	63,098	8.76%	8.77%	100.00%	8.77%	8.25%
2004	752,149	58,701	64,431	64,052	64,764	64,416	8.56%	7.80%	100.00%	7.80%	8.69%
2005	779,863	57,784	59,875	65,719	65,333	63,643	8.16%	7.41%	100.00%	7.41%	7.25%
2006	788,869	67,211	58,939	61,073	67,034	62,349	7.90%	8.52%	90.00%	8.46%	9.13%
2007	800,878	66,161	68,555	60,118	62,294	63,656	7.95%	8.26%	80.00%	8.20%	8.87%
2008	819,466	64,093	67,484	69,926	61,321	66,244	8.08%	7.82%	70.00%	7.90%	7.58%
2009	838,236	66,260	65,375	68,834	71,325	68,511	8.17%	7.90%	60.00%	8.01%	7.92%
2010	855,836	65,569	67,585	66,682	70,211	68,160	7.96%	7.66%	50.00%	7.81%	7.26%
2011	863,609	70,554	66,880	68,937	68,016	67,944	7.87%	8.17%	40.00%	7.99%	7.30%
2012	834,082	75,473	71,965	68,218	70,316	70,166	8.41%	9.05%	30.00%	8.60%	7.75%
2013	830,703	74,977	76,983	73,404	69,582	73,323	8.83%	9.03%	20.00%	8.87%	7.61%
2014	854,208	66,702	76,477	78,523	74,872	76,624	8.97%	7.81%	10.00%	8.85%	7.47%
2015	895,461	80,856	68,036	78,006	80,093	75,378	8.42%	9.03%	0.00%	8.42%	6.86%
2016	930,724	81,554	82,474	69,396	79,567	77,145	8.29%	8.76%	0.00%	8.29%	6.68%
2017	971,436	83,476	83,185	84,123	70,784	79,364	8.17%	8.59%	0.00%	8.17%	6.86%
	14,550,093	1,224,501	1,163,846	1,102,275	1,038,515	1,221,956					

Trend in Losses Based on Exponential Regression (a):
1.94%
Selected Trend (b):
2.00%

Notes:
(3) Ultimate Losses from Page 22
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(12) Selected Initial Ult Loss Ratio from Page 15
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the neare (b) Selected Trend from Page 15

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	8.49%	55,445	74.45%	25.55%	41,281	44,204	14,164	58,367	5,142	8.94%
2001	666,345	8.93%	59,524	73.17%	26.83%	43,556	44,657	15,968	60,625	3,781	9.10%
2002	694,750	9.24%	64,223	71.92%	28.08%	46,187	44,275	18,037	62,312	1,237	8.97%
2003	720,485	8.25%	59,443	70.68%	29.32%	42,014	44,646	17,430	62,075	5,790	8.62%
2004	752,149	8.69%	65,375	69.46%	30.54%	45,412	40,776	19,964	60,739	(726)	8.08%
2005	779,863	7.25%	56,560	68.13%	31.87%	38,537	39,371	18,023	57,394	4,377	7.36%
2006	788,869	9.13%	71,985	66.47%	33.53%	47,850	44,677	24,135	68,811	571	8.72%
2007	800,878	8.87%	71,074	64.73%	35.27%	46,003	42,823	25,071	67,894	949	8.48%
2008	819,466	7.58%	62,094	62.87%	37.13%	39,039	40,296	23,055	63,351	8,858	7.73%
2009	838,236	7.92%	66,385	60.95%	39.05%	40,462	40,386	25,923	66,309	7,694	7.91%
2010	855,836	7.26%	62,174	58.86%	41.14%	36,596	38,594	25,578	64,172	10,704	7.50%
2011	863,609	7.30%	63,030	56.41%	43.59%	35,553	39,797	27,476	67,274	8,017	7.79%
2012	834,082	7.75%	64,619	53.88%	46.12%	34,814	40,661	29,806	70,467	10,261	8.45%
2013	830,703	7.61%	63,227	51.29%	48.71%	32,426	38,452	30,801	69,253	18,127	8.34%
2014	854,208	7.47%	63,841	48.27%	51.73%	30,815	32,196	33,026	65,222	16,654	7.64%
2015	895,461	6.86%	61,462	44.63%	55.37%	27,431	36,087	34,031	70,118	8,376	7.83%
2016	930,724	6.68%	62,176	38.21%	61.79%	23,760	31,165	38,416	69,581	5,361	7.48%
2017	971,436	6.86%	66,625	17.88%	82.12%	11,911	14,924	54,714	69,638	10,266	7.17%
	14,550,093		1,139,262			663,646	697,986	475,616	1,173,602	125,437	8.07%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Discount Factors for Unpaid
February 28, 2018

Period in Months	Selected Factor	Growth in Paid	Paid in Period	Cumulative Paid	Discount Factor to 192 Months [a]		Discounted Paid in Period [b]		Discounted Cumulative Paid [b]		Disc to Undisc Cumulative Paid [b]		Discount to Beginning of Period [c]	
					No Margin	Margin	No Margin	Margin	No Margin	Margin	No Margin	Margin	No Margin	Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)*(6)	(9)=(4)*(7)	(10)	(11)	(12)=(10)/(5)	(13)=(11)/(5)	(14)	(15)
192-204	1.0175	1,017.50	17.50	390.45	99.29%	99.53%	17.38	17.42	339.37	355.97	86.92%	91.17%	86.92%	91.17%
204-216	1.0175	1,035.31	17.81	372.95	97.88%	98.61%	17.43	17.56	322.00	338.55	86.34%	90.78%	87.58%	91.63%
216-228	1.0175	1,053.42	18.12	355.14	96.49%	97.69%	17.48	17.70	304.57	321.00	85.76%	90.39%	88.25%	92.09%
228-240	1.0175	1,071.86	18.43	337.02	95.12%	96.78%	17.54	17.84	287.09	303.30	85.18%	89.99%	88.92%	92.56%
240-252	1.0175	1,090.62	18.76	318.59	93.77%	95.88%	17.59	17.98	269.55	285.46	84.61%	89.60%	89.59%	93.02%
252-264	1.0175	1,109.70	19.09	299.83	92.44%	94.98%	17.64	18.13	251.96	267.47	84.04%	89.21%	90.26%	93.48%
264-276	1.0175	1,129.12	19.42	280.74	91.13%	94.10%	17.70	18.27	234.32	249.34	83.46%	88.82%	90.94%	93.94%
276-288	1.0175	1,148.88	19.76	261.32	89.83%	93.22%	17.75	18.42	216.62	231.07	82.89%	88.42%	91.62%	94.41%
288-300	1.0175	1,168.99	20.11	241.56	88.56%	92.36%	17.80	18.57	198.87	212.65	82.33%	88.03%	92.30%	94.87%
300-312	1.0175	1,189.44	20.46	221.46	87.30%	91.50%	17.86	18.72	181.07	194.08	81.76%	87.64%	92.99%	95.34%
312-324	1.0175	1,210.26	20.82	201.00	86.06%	90.64%	17.91	18.87	163.21	175.36	81.20%	87.24%	93.68%	95.80%
324-336	1.0175	1,231.44	21.18	180.19	84.84%	89.80%	17.97	19.02	145.29	156.49	80.64%	86.85%	94.37%	96.27%
336-348	1.0175	1,252.99	21.55	159.01	83.63%	88.96%	18.02	19.17	127.33	137.48	80.08%	86.46%	95.06%	96.73%
348-360	1.0175	1,274.92	21.93	137.46	82.45%	88.13%	18.08	19.33	109.30	118.30	79.52%	86.07%	95.76%	97.20%
360-372	1.0175	1,297.23	22.31	115.53	81.28%	87.31%	18.13	19.48	91.22	98.98	78.96%	85.67%	96.46%	97.66%
372-384	1.0175	1,319.93	22.70	93.22	80.12%	86.50%	18.19	19.64	73.09	79.50	78.41%	85.28%	97.16%	98.13%
384-396	1.0175	1,343.03	23.10	70.52	78.99%	85.70%	18.24	19.79	54.90	59.86	77.86%	84.89%	97.87%	98.60%
396-408	1.0175	1,366.53	23.50	47.42	77.86%	84.90%	18.30	19.95	36.66	40.07	77.31%	84.50%	98.58%	99.07%
408-Ult	1.0175	1,390.45	23.91	23.91	76.76%	84.11%	18.36	20.11	18.36	20.11	76.76%	84.11%	99.29%	99.53%

Notes:
(2) - Per comment in Page 19: 216-Ult Factor = 1.0175 ^ 17
(3), (4) & (5) - Assuming Paid at 192 Months of 1,000
(14) = (12) / [(6) * (1 + Discount Rate Without Margin) ^ 0.5]
(15) = (13) / [(7) * (1 + Discount Rate With Margin) ^ 0.5]
[a] Assuming the Paid in Period is paid in the middle of the period:
Discount Rate Without Margin 1.44%
Discount Rate With Margin 0.94%
[b] As at 192 months
[c] Represents the discounting of the remaining unpaid at the beginning of the period back to the beginning of the period.
For example, the discount factor for the period 300-312 represents the remaining unpaid at 300 months discounted back to 300 months.

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APPENDIX G ACCIDENT BENEFITS – OTHER NON-INDEXED

Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Appendix G

Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)

Page 1

Reported Loss & ALAE - With Z-Files

February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	15,614,183	18,416,228	18,890,402	19,493,093	19,708,373	20,141,514	20,415,886	20,361,086	20,352,650	20,253,665	20,222,101	20,221,847	20,264,770	20,269,686	20,177,785	20,332,744	20,250,334	20,233,391	20,240,743	20,245,127	20,347,752
2000	13,248,480	19,869,376	20,607,948	20,987,380	21,956,189	22,437,790	22,556,949	22,778,342	22,802,727	22,904,067	22,735,289	22,823,887	22,762,199	22,763,955	22,730,235	22,776,689	23,093,250	23,121,075	23,152,975	23,157,545	23,157,545	
2001	11,998,587	19,779,661	22,159,829	23,358,380	24,293,860	24,765,947	24,446,074	24,277,153	24,334,055	24,579,985	24,545,047	24,451,707	24,364,176	24,324,762	24,414,028	24,566,330	24,624,510	24,643,898	24,614,783	24,642,464		
2002	13,853,174	21,721,255	25,076,554	25,935,107	26,651,912	26,617,160	26,782,881	26,635,258	26,497,650	26,485,487	26,425,112	26,564,827	26,573,003	26,706,810	26,733,256	26,680,008	26,690,083	26,758,134	26,824,047			
2003	15,908,735	22,182,572	23,620,530	24,171,427	24,702,712	24,640,000	24,592,235	24,780,575	24,984,552	24,821,952	24,717,345	24,755,716	24,953,630	25,059,932	25,055,475	25,200,229	25,373,988	25,325,159				
2004	12,164,055	20,542,932	23,679,973	23,887,495	24,397,461	24,759,798	24,729,568	24,598,494	24,623,537	24,606,704	24,488,634	24,536,708	24,527,793	24,555,717	24,636,346	24,699,523	24,743,547					
2005	15,086,830	23,676,741	27,029,227	27,927,574	28,797,236	29,113,672	29,170,632	28,709,041	28,586,751	28,590,023	28,777,644	28,730,198	28,637,295	28,695,705	28,826,597	28,826,637						
2006	18,910,980	28,500,166	32,800,788	32,429,299	32,934,170	33,185,844	33,098,509	33,196,834	33,129,020	33,443,824	33,684,530	33,715,209	33,799,760	33,822,837	33,886,977							
2007	16,756,804	25,558,440	28,775,988	29,006,867	29,456,414	29,341,558	29,374,692	29,527,840	29,743,408	29,875,241	29,769,685	29,859,617	29,917,099	29,954,932								
2008	13,480,647	22,763,087	27,140,507	26,736,491	27,043,868	27,142,043	27,324,526	27,916,248	28,039,769	27,985,611	28,153,625	28,640,601	28,869,797									
2009	14,766,007	24,267,657	26,400,812	26,476,667	27,557,181	28,029,966	28,981,596	29,326,858	29,624,638	29,393,288	29,654,159	29,643,131										
2010	13,085,747	20,354,691	23,370,788	24,268,990	26,408,297	26,986,424	27,494,906	27,854,278	28,013,642	28,050,213	28,212,166											
2011	12,747,067	22,187,250	25,988,437	27,318,653	29,513,344	30,272,669	30,949,250	31,221,155	31,292,887	31,559,727												
2012	15,927,869	20,915,320	26,257,757	27,252,254	29,119,310	29,108,630	29,422,641	29,719,742	29,744,821													
2013	12,069,544	19,800,148	24,200,893	25,687,717	26,046,586	26,341,306	26,534,207	26,939,478														
2014	10,773,795	17,286,113	21,778,146	23,959,432	26,131,038	26,383,067	27,274,599															
2015	10,927,304	18,463,504	22,047,620	23,573,852	28,743,733	29,200,287																
2016	12,114,999	20,831,035	27,300,539	27,908,674																		
2017	11,976,389	19,129,717																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-	-																
2016	-	-	-	-																		
2017	-	-																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	15,614	18,416	18,890	19,493	19,708	20,142	20,416	20,361	20,353
2000	13,248	19,869	20,608	20,987	21,956	22,438	22,557	22,778	22,803	22,904
2001	11,999	19,780	22,160	23,358	24,294	24,766	24,446	24,277	24,334	24,580
2002	13,853	21,721	25,077	25,935	26,652	26,617	26,783	26,635	26,498	26,485
2003	15,909	22,183	23,621	24,171	24,703	24,640	24,592	24,781	24,985	24,822
2004	12,164	20,543	23,680	23,887	24,397	24,760	24,730	24,598	24,624	24,607
2005	15,087	23,677	27,029	27,928	28,797	29,114	29,171	28,709	28,587	28,590
2006	18,911	28,500	32,801	32,429	32,934	33,186	33,099	33,197	33,129	33,444
2007	16,757	25,558	28,776	29,007	29,456	29,342	29,375	29,528	29,743	29,875
2008	13,481	22,763	27,141	26,736	27,044	27,142	27,325	27,916	28,040	27,986
2009	14,766	24,268	26,401	26,477	27,557	28,030	28,982	29,327	29,625	29,393
2010	13,086	20,355	23,371	24,269	26,408	26,986	27,495	27,854	28,014	28,050
2011	12,747	22,187	25,988	27,319	29,513	30,273	30,949	31,221	31,293	31,560
2012	15,928	20,915	26,258	27,252	29,119	29,109	29,423	29,720	29,745	
2013	12,070	19,800	24,201	25,688	26,047	26,341	26,534	26,939		
2014	10,774	17,286	21,778	23,959	26,131	26,383	27,275			
2015	10,927	18,464	22,048	23,574	28,744	29,200				
2016	12,115	20,831	27,301	27,909						
2017	11,976	19,130								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.1795	1.0257	1.0319	1.0110	1.0220	1.0136	0.9973	0.9996	0.9951
2000	1.4997	1.0372	1.0184	1.0462	1.0219	1.0053	1.0098	1.0011	1.0044	0.9926
2001	1.6485	1.1203	1.0541	1.0400	1.0194	0.9871	0.9931	1.0023	1.0101	0.9986
2002	1.5680	1.1545	1.0342	1.0276	0.9987	1.0062	0.9945	0.9948	0.9995	0.9977
2003	1.3944	1.0648	1.0233	1.0220	0.9975	0.9981	1.0077	1.0082	0.9935	0.9958
2004	1.6888	1.1527	1.0088	1.0213	1.0149	0.9988	0.9947	1.0010	0.9993	0.9952
2005	1.5694	1.1416	1.0332	1.0311	1.0110	1.0020	0.9842	0.9957	1.0001	1.0066
2006	1.5071	1.1509	0.9887	1.0156	1.0076	0.9974	1.0030	0.9980	1.0095	1.0072
2007	1.5253	1.1259	1.0080	1.0155	0.9961	1.0011	1.0052	1.0073	1.0044	0.9965
2008	1.6886	1.1923	0.9851	1.0115	1.0036	1.0067	1.0217	1.0044	0.9981	1.0060
2009	1.6435	1.0879	1.0029	1.0408	1.0172	1.0340	1.0119	1.0102	0.9922	1.0089
2010	1.5555	1.1482	1.0384	1.0881	1.0219	1.0188	1.0131	1.0057	1.0013	1.0058
2011	1.7406	1.1713	1.0512	1.0803	1.0257	1.0223	1.0088	1.0023	1.0085	
2012	1.3131	1.2554	1.0379	1.0685	0.9996	1.0108	1.0101	1.0008		
2013	1.6405	1.2223	1.0614	1.0140	1.0113	1.0073	1.0153			
2014	1.6045	1.2599	1.1002	1.0906	1.0096	1.0338				
2015	1.6897	1.1941	1.0692	1.2193	1.0159					
2016	1.7194	1.3106	1.0223							
Latest 9 Volume Weighted	1.6019	1.2013	1.0387	1.0672	1.0111	1.0143	1.0079	1.0028	1.0011	1.0025
Latest 6 Volume Weighted	1.5778	1.2351	1.0551	1.0914	1.0140	1.0212	1.0133	1.0051	1.0026	1.0052
Latest 3 Volume Weighted	1.6684	1.2571	1.0607	1.1052	1.0124	1.0171	1.0112	1.0029	1.0008	1.0069
Simple Average of Middle 4 of Last 6	1.6635	1.2329	1.0549	1.0819	1.0147	1.0214	1.0126	1.0049	1.0031	1.0064
Simple Average of Middle 3 of Last 5	1.6449	1.2459	1.0562	1.0798	1.0123	1.0173	1.0117	1.0041	1.0013	1.0063
Selected Feb 17	1.6300	1.2200	1.0500	1.0700	1.0150	1.0200	1.0115	1.0040	1.0020	1.0020
Selected Oct 17	1.6600	1.2350	1.0600	1.0850	1.0150	1.0225	1.0115	1.0040	1.0020	1.0020
Selected Factors	1.6600	1.2350	1.0600	1.0850	1.0150	1.0225	1.0115	1.0040	1.0020	1.0020
Selected Ultimate	2.5289	1.5234	1.2336	1.1637	1.0726	1.0567	1.0335	1.0217	1.0176	1.0156

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
20,254	20,222	20,222	20,265	20,270	20,178	20,333	20,250	20,233	20,241	20,245	20,348
22,735	22,824	22,762	22,764	22,730	22,777	23,093	23,121	23,153	23,158	23,158	
24,545	24,452	24,364	24,325	24,414	24,566	24,625	24,644	24,615	24,642		
26,425	26,565	26,573	26,707	26,733	26,680	26,690	26,758	26,824			
24,717	24,756	24,954	25,060	25,055	25,200	25,374	25,325				
24,489	24,537	24,528	24,556	24,636	24,700	24,744					
28,778	28,730	28,637	28,696	28,827	28,827						
33,685	33,715	33,800	33,823	33,887							
29,770	29,860	29,917	29,955								
28,154	28,641	28,870									
29,654	29,643										
28,212											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
0.9984	1.0000	1.0021	1.0002	0.9955	1.0077	0.9959	0.9992	1.0004	1.0002	1.0051
1.0039	0.9973	1.0001	0.9985	1.0020	1.0139	1.0012	1.0014	1.0002	1.0000	
0.9962	0.9964	0.9984	1.0037	1.0062	1.0024	1.0008	0.9988	1.0011		
1.0053	1.0003	1.0050	1.0010	0.9980	1.0004	1.0025	1.0025			
1.0016	1.0080	1.0043	0.9998	1.0058	1.0069	0.9981				
1.0020	0.9996	1.0011	1.0033	1.0026	1.0018					
0.9984	0.9968	1.0020	1.0046	1.0000						
1.0009	1.0025	1.0007	1.0019							
1.0030	1.0019	1.0013								
1.0173	1.0080									
0.9996										
1.0027	1.0013	1.0017	1.0017	1.0015	1.0053	0.9999	1.0005	1.0006	1.0001	1.0051
1.0034	1.0027	1.0023	1.0024	1.0023	1.0053	0.9999	1.0005	1.0006	1.0001	1.0051
1.0065	1.0040	1.0013	1.0032	1.0026	1.0030	1.0005	1.0009	1.0006	1.0001	1.0051
1.0014	1.0030	1.0022	1.0025	1.0026	1.0047	1.0000	1.0003	1.0004	1.0001	1.0051
1.0012	1.0014	1.0015	1.0021	1.0028	1.0037	1.0000	1.0003	1.0004	1.0001	1.0051
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
1.0136	1.0116	1.0095	1.0075	1.0055	1.0035	1.0015	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.2646	2.4441	2.6597	2.5480	2.5093	2.3904	2.5289	2.5289
12	1.4138	1.5491	1.5942	1.5317	1.5255	1.4665	1.5234	1.5234
20	1.1769	1.2542	1.2682	1.2423	1.2245	1.2021	1.2336	1.2336
24	1.1330	1.1887	1.1956	1.1776	1.1594	1.1448	1.1637	1.1637
32	1.0616	1.0892	1.0819	1.0885	1.0737	1.0699	1.0726	1.0726
36	1.0499	1.0741	1.0686	1.0727	1.0606	1.0541	1.0567	1.0567
48	1.0352	1.0518	1.0507	1.0502	1.0426	1.0335	1.0335	1.0335
60	1.0271	1.0380	1.0390	1.0371	1.0305	1.0217	1.0217	1.0217
72	1.0243	1.0328	1.0360	1.0321	1.0263	1.0176	1.0176	1.0176
84	1.0231	1.0301	1.0352	1.0289	1.0250	1.0156	1.0156	1.0156
96	1.0206	1.0248	1.0281	1.0224	1.0185	1.0136	1.0136	1.0136
108	1.0178	1.0213	1.0215	1.0209	1.0173	1.0116	1.0116	1.0116
120	1.0164	1.0185	1.0174	1.0179	1.0159	1.0095	1.0095	1.0095
132	1.0148	1.0162	1.0161	1.0157	1.0144	1.0075	1.0075	1.0075
144	1.0130	1.0138	1.0129	1.0132	1.0123	1.0055	1.0055	1.0055
156	1.0115	1.0115	1.0102	1.0105	1.0095	1.0035	1.0035	1.0035
168	1.0062	1.0062	1.0072	1.0058	1.0058	1.0015	1.0015	1.0015
180	1.0063	1.0063	1.0067	1.0058	1.0058	1.0000	1.0000	1.0000
192	1.0058	1.0058	1.0058	1.0055	1.0055	1.0000	1.0000	1.0000
204	1.0052	1.0052	1.0052	1.0052	1.0052	1.0000	1.0000	1.0000
216	1.0051	1.0051	1.0051	1.0051	1.0051	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6600	2.5290	39.54%	8		2.5290	1.6600	1.6600	2.5289
12	1.2350	1.5235		12	65.64%	1.5235	1.2350	1.2350	1.5234
20	1.0600	1.2336	81.06%	20		1.2336	1.0600	1.0600	1.2336
24	1.0850	1.1638		24	85.93%	1.1638	1.0850	1.0850	1.1637
32	1.0150	1.0726	93.23%	32		1.0726	1.0150	1.0150	1.0726
36	1.0175	1.0568		36	94.63%	1.0568	1.0226	1.0225	1.0567
44	1.0150	1.0386	96.28%	48	96.77%	1.0334	1.0116	1.0115	1.0335
56	1.0050	1.0232	97.73%	60	97.89%	1.0215	1.0040	1.0040	1.0217
68	1.0020	1.0181	98.22%	72	98.28%	1.0175	1.0020	1.0020	1.0176
80	1.0020	1.0161	98.41%	84	98.48%	1.0154	1.0020	1.0020	1.0156
92	1.0020	1.0141	98.61%	96	98.68%	1.0134	1.0020	1.0020	1.0136
104	1.0020	1.0121	98.81%	108	98.87%	1.0114	1.0020	1.0020	1.0116
116	1.0020	1.0100	99.01%	120	99.07%	1.0094	1.0020	1.0020	1.0095
128	1.0020	1.0080	99.20%	132	99.27%	1.0074	1.0020	1.0020	1.0075
140	1.0020	1.0060	99.40%	144	99.47%	1.0053	1.0020	1.0020	1.0055
152	1.0020	1.0040	99.60%	156	99.67%	1.0033	1.0020	1.0020	1.0035
164	1.0020	1.0020	99.80%	168	99.87%	1.0013	1.0013	1.0015	1.0015
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	23,158	1.0000	23,158	-	-	4.87%
2001	497,121	24,642	1.0000	24,642	-	1	4.96%
2002	532,307	26,824	1.0000	26,824	-	1	5.04%
2003	560,857	25,325	1.0000	25,325	-	39	4.52%
2004	596,045	24,744	1.0015	24,781	37	50	4.16%
2005	630,367	28,827	1.0035	28,928	101	24	4.59%
2006	654,863	33,887	1.0055	34,074	187	38	5.20%
2007	677,464	29,955	1.0075	30,180	225	126	4.45%
2008	707,051	28,870	1.0095	29,145	275	437	4.12%
2009	739,881	29,643	1.0116	29,986	343	66	4.05%
2010	759,948	28,212	1.0136	28,595	383	101	3.76%
2011	772,985	31,560	1.0156	32,052	493	378	4.15%
2012	768,953	29,745	1.0176	30,269	525	429	3.94%
2013	778,092	26,939	1.0217	27,524	585	475	3.54%
2014	817,710	27,275	1.0335	28,187	913	1,449	3.45%
2015	873,488	29,200	1.0567	30,856	1,656	7,156	3.53%
2016	918,780	27,909	1.1637	32,478	4,569	9,967	3.53%
2017	971,436	19,130	1.5234	29,143	10,013	11,829	3.00%
	12,732,625	495,844		516,148	20,304	32,566	4.05%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	23,158			23,158	4.87%	4.87%	100.00%	4.87%	4.87%
2001	497,121	24,642	23,447		23,447	4.72%	4.96%	100.00%	4.96%	4.96%
2002	532,307	26,824	24,950	23,740	24,345	4.57%	5.04%	100.00%	5.04%	5.04%
2003	560,857	25,325	27,159	25,262	26,211	4.67%	4.52%	100.00%	4.52%	4.52%
2004	596,045	24,781	25,642	27,499	26,570	4.46%	4.16%	100.00%	4.16%	4.16%
2005	630,367	28,928	25,090	25,962	25,526	4.05%	4.59%	100.00%	4.59%	4.59%
2006	654,863	34,074	29,289	25,404	27,347	4.18%	5.20%	90.00%	5.10%	5.10%
2007	677,464	30,180	34,500	29,655	32,077	4.73%	4.45%	80.00%	4.51%	4.51%
2008	707,051	29,145	30,557	34,931	32,744	4.63%	4.12%	70.00%	4.27%	4.27%
2009	739,881	29,986	29,509	30,939	30,224	4.09%	4.05%	60.00%	4.07%	4.07%
2010	759,948	28,595	30,360	29,878	30,119	3.96%	3.76%	50.00%	3.86%	3.86%
2011	772,985	32,052	28,953	30,740	29,846	3.86%	4.15%	40.00%	3.98%	3.98%
2012	768,953	30,269	32,453	29,315	30,884	4.02%	3.94%	30.00%	3.99%	3.99%
2013	778,092	27,524	30,648	32,859	31,753	4.08%	3.54%	20.00%	3.97%	3.97%
2014	817,710	28,187	27,868	31,031	29,450	3.60%	3.45%	10.00%	3.59%	3.59%
2015	873,488	30,856	28,539	28,217	28,378	3.25%	3.53%	0.00%	3.25%	3.25%
2016	918,780	32,478	31,242	28,896	30,069	3.27%	3.53%	0.00%	3.27%	3.27%
2017	971,436	29,143	32,884	31,632	32,258	3.32%	3.00%	0.00%	3.32%	3.32%
	12,732,625	516,148	493,092	465,961	514,408					

Trend in Losses Based on Exponential Regression (a):
1.23%
Selected Trend (b):
1.25%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4.87%	23,158	100.00%	0.00%	23,158	23,158	-	23,158	4.87%
2001	497,121	4.96%	24,642	100.00%	0.00%	24,642	24,642	-	24,642	4.96%
2002	532,307	5.04%	26,824	100.00%	0.00%	26,824	26,824	-	26,824	5.04%
2003	560,857	4.52%	25,325	100.00%	0.00%	25,325	25,325	-	25,325	4.52%
2004	596,045	4.16%	24,781	99.85%	0.15%	24,744	24,744	37	24,781	4.16%
2005	630,367	4.59%	28,928	99.65%	0.35%	28,827	28,827	101	28,928	4.59%
2006	654,863	5.10%	33,401	99.45%	0.55%	33,218	33,887	183	34,070	5.20%
2007	677,464	4.51%	30,560	99.25%	0.75%	30,332	29,955	228	30,183	4.46%
2008	707,051	4.27%	30,225	99.06%	0.94%	29,939	28,870	286	29,155	4.12%
2009	739,881	4.07%	30,081	98.86%	1.14%	29,738	29,643	344	29,987	4.05%
2010	759,948	3.86%	29,357	98.66%	1.34%	28,964	28,212	393	28,605	3.76%
2011	772,985	3.98%	30,729	98.46%	1.54%	30,257	31,560	472	32,032	4.14%
2012	768,953	3.99%	30,699	98.27%	1.73%	30,167	29,745	532	30,277	3.94%
2013	778,092	3.97%	30,907	97.88%	2.12%	30,251	26,939	657	27,596	3.55%
2014	817,710	3.59%	29,323	96.76%	3.24%	28,374	27,275	949	28,224	3.45%
2015	873,488	3.25%	28,378	94.63%	5.37%	26,855	29,200	1,523	30,723	3.52%
2016	918,780	3.27%	30,069	85.93%	14.07%	25,839	27,909	4,230	32,139	3.50%
2017	971,436	3.32%	32,258	65.64%	34.36%	21,175	19,130	11,084	30,213	3.11%
	12,732,625		519,646			498,627	495,844	21,019	516,863	4.06%

Notes:
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - With Z-Files
February 28, 2018

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228
1999	-	5,489,717	10,147,223	11,914,436	14,199,222	15,017,157	17,476,278	18,456,920	19,011,039	19,357,986	19,540,145	19,687,744	19,736,731	19,812,654	19,908,083	20,069,876	20,107,059	20,158,322	20,195,591	20,220,991	20,228,336	20,332,187
2000	3,002,777	6,512,963	12,347,718	13,853,105	16,426,857	18,405,663	20,372,434	21,274,582	21,730,743	22,081,543	22,358,170	22,416,897	22,469,877	22,581,395	22,622,217	22,674,303	22,947,854	23,118,320	23,152,975	23,157,545	23,157,545	
2001	2,724,732	7,346,305	13,177,463	15,867,012	18,980,684	19,945,613	21,445,228	22,777,253	23,303,528	23,668,147	23,870,545	24,012,067	24,036,475	24,135,338	24,309,104	24,384,578	24,558,967	24,595,219	24,614,783	24,641,054		
2002	3,560,608	6,986,586	12,738,793	15,767,434	20,692,272	22,022,148	23,919,666	25,317,596	25,715,605	25,878,808	25,956,200	26,152,444	26,390,487	26,535,284	26,591,130	26,632,261	26,654,127	26,732,678	26,822,997			
2003	2,691,094	5,229,843	11,137,954	14,784,616	18,872,090	20,086,948	22,545,218	23,510,890	23,884,876	24,129,995	24,252,240	24,472,662	24,703,419	24,753,457	24,867,496	25,054,564	25,072,772	25,286,131				
2004	1,435,777	4,300,864	10,811,860	14,603,447	19,021,845	20,440,581	22,390,498	23,009,845	23,916,341	24,060,906	24,347,014	24,461,485	24,421,144	24,488,232	24,605,730	24,641,180	24,693,926					
2005	3,502,201	7,343,011	14,632,057	18,723,897	22,643,035	23,941,751	25,716,942	26,817,455	27,445,783	27,975,622	28,392,394	28,521,665	28,551,929	28,633,977	28,767,052	28,802,947						
2006	3,665,156	9,266,254	17,758,895	21,827,679	25,872,476	27,151,571	30,127,367	31,441,794	32,032,294	32,693,176	33,247,940	33,459,723	33,703,854	33,796,106	33,849,308							
2007	3,845,036	7,189,597	14,436,656	18,382,776	23,035,308	25,005,754	26,917,269	27,974,648	28,555,437	29,099,494	29,507,449	29,633,114	29,741,322	29,829,187								
2008	2,339,545	5,326,122	13,090,424	17,719,667	21,827,744	22,564,465	24,710,545	26,333,173	26,926,740	27,361,377	27,743,773	28,299,821	28,432,452									
2009	2,909,994	6,123,495	12,568,233	15,653,900	21,998,174	23,876,808	26,886,054	28,319,343	29,041,187	29,208,059	29,313,062	29,577,593										
2010	1,568,379	4,584,025	12,436,976	16,804,971	22,734,436	24,562,654	26,363,456	27,247,980	27,797,195	27,969,227	28,111,129											
2011	4,325,448	7,948,508	17,375,311	21,457,654	25,653,174	27,160,230	29,370,884	30,444,118	30,740,161	31,181,344												
2012	3,400,101	6,555,641	13,729,127	17,482,946	23,858,288	25,424,153	28,327,402	28,863,435	29,316,169													
2013	3,415,933	7,316,690	12,873,620	16,625,596	22,204,750	23,688,048	25,414,725	26,464,594														
2014	3,860,952	6,854,577	12,791,307	15,890,417	21,903,434	23,105,238	25,825,629															
2015	2,718,895	7,121,547	12,663,538	14,577,362	20,063,145	22,044,106																
2016	3,966,456	9,406,633	16,179,882	17,941,562																		
2017	2,710,160	7,300,321																				

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	48	60	72	84
1999	-	5,490	10,147	11,914	14,199	15,017	17,476	18,457	19,011	19,358
2000	3,003	6,513	12,348	13,853	16,427	18,406	20,372	21,275	21,731	22,082
2001	2,725	7,346	13,177	15,867	18,981	19,946	21,445	22,777	23,304	23,668
2002	3,561	6,987	12,739	15,767	20,692	22,022	23,920	25,318	25,716	25,879
2003	2,691	5,230	11,138	14,785	18,872	20,087	22,545	23,511	23,885	24,130
2004	1,436	4,301	10,812	14,603	19,022	20,441	22,390	23,010	23,916	24,061
2005	3,502	7,343	14,632	18,724	22,643	23,942	25,717	26,817	27,446	27,976
2006	3,665	9,266	17,759	21,828	25,872	27,152	30,127	31,442	32,032	32,693
2007	3,845	7,190	14,437	18,383	23,035	25,006	26,917	27,975	28,555	29,099
2008	2,340	5,326	13,090	17,720	21,828	22,564	24,711	26,333	26,927	27,361
2009	2,910	6,123	12,568	15,654	21,998	23,877	26,886	28,319	29,041	29,208
2010	1,568	4,584	12,437	16,805	22,734	24,563	26,363	27,248	27,797	27,969
2011	4,325	7,949	17,375	21,458	25,653	27,160	29,371	30,444	30,740	31,181
2012	3,400	6,556	13,729	17,483	23,858	25,424	28,327	28,863	29,316	
2013	3,416	7,317	12,874	16,626	22,205	23,688	25,415	26,465		
2014	3,861	6,855	12,791	15,890	21,903	23,105	25,826			
2015	2,719	7,122	12,664	14,577	20,063	22,044				
2016	3,966	9,407	16,180	17,942						
2017	2,710	7,300								

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-48	48-60	60-72	72-84	84-96
1999		1.8484	1.1742	1.1918	1.0576	1.1638	1.0561	1.0300	1.0182	1.0094
2000	2.1690	1.8959	1.1219	1.1858	1.1205	1.1069	1.0443	1.0214	1.0161	1.0125
2001	2.6962	1.7938	1.2041	1.1962	1.0508	1.0752	1.0621	1.0231	1.0156	1.0086
2002	1.9622	1.8233	1.2377	1.3123	1.0643	1.0862	1.0584	1.0157	1.0063	1.0030
2003	1.9434	2.1297	1.3274	1.2765	1.0644	1.1224	1.0428	1.0159	1.0103	1.0051
2004	2.9955	2.5139	1.3507	1.3026	1.0746	1.0954	1.0277	1.0394	1.0060	1.0119
2005	2.0967	1.9927	1.2796	1.2093	1.0574	1.0741	1.0428	1.0234	1.0193	1.0149
2006	2.5282	1.9165	1.2291	1.1853	1.0494	1.1096	1.0436	1.0188	1.0206	1.0170
2007	1.8698	2.0080	1.2733	1.2531	1.0855	1.0764	1.0393	1.0208	1.0191	1.0140
2008	2.2766	2.4578	1.3536	1.2318	1.0338	1.0951	1.0657	1.0225	1.0161	1.0140
2009	2.1043	2.0525	1.2455	1.4053	1.0854	1.1260	1.0533	1.0255	1.0057	1.0036
2010	2.9228	2.7131	1.3512	1.3528	1.0804	1.0733	1.0336	1.0202	1.0062	1.0051
2011	1.8376	2.1860	1.2350	1.1955	1.0587	1.0814	1.0365	1.0097	1.0144	
2012	1.9281	2.0942	1.2734	1.3647	1.0656	1.1142	1.0189	1.0157		
2013	2.1419	1.7595	1.2914	1.3356	1.0668	1.0729	1.0413			
2014	1.7754	1.8661	1.2423	1.3784	1.0549	1.1177				
2015	2.6193	1.7782	1.1511	1.3763	1.0987					
2016	2.3715	1.7201	1.1089							
Latest 9 Volume Weighted	2.1890	2.0202	1.2461	1.3149	1.0696	1.0962	1.0413	1.0212	1.0133	1.0100
Latest 6 Volume Weighted	2.2197	1.8939	1.2145	1.3265	1.0701	1.0972	1.0410	1.0189	1.0138	1.0115
Latest 3 Volume Weighted	2.5362	1.7806	1.1627	1.3626	1.0727	1.1018	1.0320	1.0150	1.0089	1.0074
Simple Average of Middle 4 of Last 6	2.0698	1.8745	1.2254	1.3573	1.0679	1.0967	1.0412	1.0198	1.0139	1.0120
Simple Average of Middle 3 of Last 5	2.1472	1.8013	1.2223	1.3589	1.0637	1.0896	1.0371	1.0195	1.0122	1.0110
Selected Feb 17	2.0000	2.0000	1.2700	1.3600	1.0675	1.0945	1.0445	1.0225	1.0175	1.0140
Selected Oct 17	2.0000	2.0000	1.2700	1.3600	1.0675	1.0930	1.0405	1.0205	1.0150	1.0130
Selected Factors	2.0000	2.0000	1.2700	1.3600	1.0675	1.0930	1.0405	1.0205	1.0150	1.0130
Selected Ultimate	9.1409	4.5704	2.2852	1.7994	1.3231	1.2394	1.1340	1.0898	1.0679	1.0521

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Evaluation in Months

96	108	120	132	144	156	168	180	192	204	216	228
19,540	19,688	19,737	19,813	19,908	20,070	20,107	20,158	20,196	20,221	20,228	20,332
22,358	22,417	22,470	22,581	22,622	22,674	22,948	23,118	23,153	23,158	23,158	
23,871	24,012	24,036	24,135	24,309	24,385	24,559	24,595	24,615	24,641		
25,956	26,152	26,390	26,535	26,591	26,632	26,654	26,733	26,823			
24,252	24,473	24,703	24,753	24,867	25,055	25,073	25,286				
24,347	24,461	24,421	24,488	24,606	24,641	24,694					
28,392	28,522	28,552	28,634	28,767	28,803						
33,248	33,460	33,704	33,796	33,849							
29,507	29,633	29,741	29,829								
27,744	28,300	28,432									
29,313	29,578										
28,111											

96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-Ult
1.0076	1.0025	1.0038	1.0048	1.0081	1.0019	1.0025	1.0018	1.0013	1.0004	1.0051
1.0026	1.0024	1.0050	1.0018	1.0023	1.0121	1.0074	1.0015	1.0002	1.0000	
1.0059	1.0010	1.0041	1.0072	1.0031	1.0072	1.0015	1.0008	1.0011		
1.0076	1.0091	1.0055	1.0021	1.0015	1.0008	1.0029	1.0034			
1.0091	1.0094	1.0020	1.0046	1.0075	1.0007	1.0085				
1.0047	0.9984	1.0027	1.0048	1.0014	1.0021					
1.0046	1.0011	1.0029	1.0046	1.0012						
1.0064	1.0073	1.0027	1.0016							
1.0043	1.0037	1.0030								
1.0200	1.0047									
1.0090										
1.0079	1.0042	1.0035	1.0038	1.0034	1.0040	1.0046	1.0019	1.0008	1.0002	1.0051
1.0081	1.0042	1.0031	1.0040	1.0028	1.0040	1.0046	1.0019	1.0008	1.0002	1.0051
1.0109	1.0053	1.0028	1.0035	1.0033	1.0012	1.0043	1.0019	1.0008	1.0002	1.0051
1.0062	1.0042	1.0028	1.0040	1.0021	1.0030	1.0043	1.0017	1.0011	1.0002	1.0051
1.0066	1.0031	1.0028	1.0038	1.0020	1.0034	1.0043	1.0017	1.0011	1.0002	1.0051
1.0065	1.0050	1.0050	1.0045	1.0040	1.0040	1.0040	1.0035	1.0020	1.0000	1.0000
1.0070	1.0050	1.0045	1.0040	1.0040	1.0040	1.0040	1.0035	1.0020	1.0000	1.0000
1.0070	1.0050	1.0045	1.0040	1.0040	1.0040	1.0040	1.0035	1.0020	1.0000	1.0000
1.0386	1.0314	1.0263	1.0217	1.0176	1.0136	1.0095	1.0055	1.0020	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Feb 17 Factors	Selected Oct 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	9.6196	8.9922	9.3643	8.5240	8.3355	9.2430	9.1409	9.1409
12	4.3944	4.0510	3.6923	4.1183	3.8821	4.6215	4.5704	4.5704
20	2.1753	2.1389	2.0737	2.1970	2.1552	2.3107	2.2852	2.2852
24	1.7457	1.7612	1.7835	1.7928	1.7633	1.8195	1.7994	1.7994
32	1.3276	1.3277	1.3088	1.3208	1.2976	1.3379	1.3231	1.3231
36	1.2412	1.2407	1.2201	1.2368	1.2199	1.2533	1.2394	1.2394
48	1.1323	1.1307	1.1074	1.1278	1.1195	1.1451	1.1340	1.1340
60	1.0874	1.0862	1.0731	1.0832	1.0794	1.0963	1.0898	1.0898
72	1.0648	1.0661	1.0572	1.0622	1.0588	1.0721	1.0679	1.0679
84	1.0507	1.0516	1.0479	1.0476	1.0460	1.0537	1.0521	1.0521
96	1.0403	1.0396	1.0401	1.0352	1.0346	1.0392	1.0386	1.0386
108	1.0321	1.0312	1.0289	1.0289	1.0278	1.0324	1.0314	1.0314
120	1.0277	1.0269	1.0235	1.0246	1.0246	1.0273	1.0263	1.0263
132	1.0242	1.0237	1.0206	1.0217	1.0217	1.0222	1.0217	1.0217
144	1.0203	1.0197	1.0170	1.0176	1.0179	1.0176	1.0176	1.0176
156	1.0168	1.0168	1.0137	1.0154	1.0158	1.0136	1.0136	1.0136
168	1.0127	1.0127	1.0124	1.0124	1.0124	1.0095	1.0095	1.0095
180	1.0081	1.0081	1.0081	1.0081	1.0081	1.0055	1.0055	1.0055
192	1.0061	1.0061	1.0061	1.0064	1.0064	1.0020	1.0020	1.0020
204	1.0053	1.0053	1.0053	1.0053	1.0053	1.0000	1.0000	1.0000
216	1.0051	1.0051	1.0051	1.0051	1.0051	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.0000	9.1398	10.94%	8		9.1398	2.0000	2.0000	9.1409
12	2.0000	4.5699		12	21.88%	4.5699	2.0000	2.0000	4.5704
20	1.2700	2.2850	43.76%	20		2.2850	1.2700	1.2700	2.2852
24	1.3600	1.7992		24	55.58%	1.7992	1.3600	1.3600	1.7994
32	1.0675	1.3229	75.59%	32		1.3229	1.0675	1.0675	1.3231
36	1.0750	1.2393		36	80.69%	1.2393	1.0929	1.0930	1.2394
44	1.0500	1.1528	86.74%	48	88.19%	1.1339	1.0407	1.0405	1.1340
56	1.0230	1.0979	91.08%	60	91.78%	1.0896	1.0203	1.0205	1.0898
68	1.0150	1.0732	93.18%	72	93.64%	1.0679	1.0150	1.0150	1.0679
80	1.0150	1.0574	94.57%	84	95.05%	1.0521	1.0128	1.0130	1.0521
92	1.0085	1.0417	95.99%	96	96.26%	1.0388	1.0073	1.0070	1.0386
104	1.0050	1.0330	96.81%	108	96.97%	1.0312	1.0048	1.0050	1.0314
116	1.0045	1.0278	97.29%	120	97.44%	1.0263	1.0045	1.0045	1.0263
128	1.0045	1.0232	97.73%	132	97.88%	1.0217	1.0043	1.0040	1.0217
140	1.0040	1.0186	98.17%	144	98.30%	1.0173	1.0040	1.0040	1.0176
152	1.0040	1.0146	98.56%	156	98.69%	1.0132	1.0040	1.0040	1.0136
164	1.0040	1.0105	98.96%	168	99.09%	1.0092	1.0040	1.0040	1.0095
176	1.0040	1.0065	99.35%	180	99.49%	1.0052	1.0035	1.0035	1.0055
188	1.0025	1.0025	99.75%	192	99.83%	1.0017	1.0017	1.0020	1.0020
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	23,158	1.0000	23,158	-	-	-	4.87%
2001	497,121	24,641	1.0000	24,641	-	1	(1)	4.96%
2002	532,307	26,823	1.0020	26,877	54	1	53	5.05%
2003	560,857	25,286	1.0055	25,425	139	39	100	4.53%
2004	596,045	24,694	1.0095	24,929	235	50	185	4.18%
2005	630,367	28,803	1.0136	29,194	391	24	367	4.63%
2006	654,863	33,849	1.0176	34,446	596	38	558	5.26%
2007	677,464	29,829	1.0217	30,476	647	126	521	4.50%
2008	707,051	28,432	1.0263	29,180	747	437	310	4.13%
2009	739,881	29,578	1.0314	30,507	929	66	863	4.12%
2010	759,948	28,111	1.0386	29,197	1,086	101	985	3.84%
2011	772,985	31,181	1.0521	32,807	1,626	378	1,248	4.24%
2012	768,953	29,316	1.0679	31,307	1,991	429	1,562	4.07%
2013	778,092	26,465	1.0898	28,842	2,377	475	1,902	3.71%
2014	817,710	25,826	1.1340	29,285	3,459	1,449	2,010	3.58%
2015	873,488	22,044	1.2394	27,322	5,278	7,156	(1,878)	3.13%
2016	918,780	17,942	1.7994	32,284	14,342	9,967	4,375	3.51%
2017	971,436	7,300	4.5704	33,366	26,065	11,829	14,236	3.43%
	12,732,625	463,278		523,242	59,964	32,566	27,398	4.11%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	23,158			23,158	4.87%	4.87%	100.00%	4.87%	4.87%
2001	497,121	24,641	23,447		23,447	4.72%	4.96%	100.00%	4.96%	4.96%
2002	532,307	26,877	24,949	23,740	24,345	4.57%	5.05%	100.00%	5.05%	5.04%
2003	560,857	25,425	27,213	25,261	26,237	4.68%	4.53%	100.00%	4.53%	4.52%
2004	596,045	24,929	25,743	27,553	26,648	4.47%	4.18%	100.00%	4.18%	4.16%
2005	630,367	29,194	25,241	26,065	25,653	4.07%	4.63%	100.00%	4.63%	4.59%
2006	654,863	34,446	29,559	25,556	27,558	4.21%	5.26%	90.00%	5.15%	5.10%
2007	677,464	30,476	34,876	29,928	32,402	4.78%	4.50%	80.00%	4.56%	4.51%
2008	707,051	29,180	30,857	35,312	33,085	4.68%	4.13%	70.00%	4.29%	4.27%
2009	739,881	30,507	29,545	31,243	30,394	4.11%	4.12%	60.00%	4.12%	4.07%
2010	759,948	29,197	30,888	29,914	30,401	4.00%	3.84%	50.00%	3.92%	3.86%
2011	772,985	32,807	29,562	31,274	30,418	3.94%	4.24%	40.00%	4.06%	3.98%
2012	768,953	31,307	33,217	29,932	31,575	4.11%	4.07%	30.00%	4.10%	3.99%
2013	778,092	28,842	31,699	33,633	32,666	4.20%	3.71%	20.00%	4.10%	3.97%
2014	817,710	29,285	29,202	32,095	30,649	3.75%	3.58%	10.00%	3.73%	3.59%
2015	873,488	27,322	29,651	29,567	29,609	3.39%	3.13%	0.00%	3.39%	3.25%
2016	918,780	32,284	27,663	30,022	28,843	3.14%	3.51%	0.00%	3.14%	3.27%
2017	971,436	33,366	32,687	28,009	30,348	3.12%	3.43%	0.00%	3.12%	3.32%
	12,732,625	523,242	496,000	469,104	517,433					

Trend in Losses Based on Exponential Regression (a):
1.40%
Selected Trend (b):
1.25%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
February 28, 2018

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	4.87%	23,158	100.00%	0.00%	23,158	23,158	-	23,158	-	4.87%
2001	497,121	4.96%	24,642	100.00%	0.00%	24,642	24,641	-	24,641	(1)	4.96%
2002	532,307	5.04%	26,824	99.80%	0.20%	26,771	26,823	54	26,877	53	5.05%
2003	560,857	4.52%	25,325	99.45%	0.55%	25,186	25,286	139	25,425	100	4.53%
2004	596,045	4.16%	24,781	99.06%	0.94%	24,547	24,694	234	24,928	184	4.18%
2005	630,367	4.59%	28,928	98.66%	1.34%	28,540	28,803	387	29,190	363	4.63%
2006	654,863	5.10%	33,401	98.27%	1.73%	32,823	33,849	578	34,428	540	5.26%
2007	677,464	4.51%	30,560	97.88%	2.12%	29,911	29,829	649	30,478	523	4.50%
2008	707,051	4.27%	30,225	97.44%	2.56%	29,451	28,432	774	29,207	337	4.13%
2009	739,881	4.07%	30,081	96.95%	3.05%	29,165	29,578	916	30,494	850	4.12%
2010	759,948	3.86%	29,357	96.28%	3.72%	28,265	28,111	1,092	29,203	991	3.84%
2011	772,985	3.98%	30,729	95.04%	4.96%	29,206	31,181	1,523	32,704	1,145	4.23%
2012	768,953	3.99%	30,699	93.64%	6.36%	28,747	29,316	1,953	31,269	1,524	4.07%
2013	778,092	3.97%	30,907	91.76%	8.24%	28,360	26,465	2,547	29,012	2,072	3.73%
2014	817,710	3.59%	29,323	88.19%	11.81%	25,859	25,826	3,464	29,290	2,015	3.58%
2015	873,488	3.25%	28,378	80.68%	19.32%	22,896	22,044	5,482	27,526	(1,674)	3.15%
2016	918,780	3.27%	30,069	55.57%	44.43%	16,711	17,942	13,358	31,300	3,391	3.41%
2017	971,436	3.32%	32,258	21.88%	78.12%	7,058	7,300	25,200	32,501	13,371	3.35%
	12,732,625		519,646			461,295	463,278	58,350	521,628	25,784	4.10%

Notes:
(10) = (8) + (9)

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APPENDIX H RECONCILIATION

Manitoba Public Insurance
Appendix H: Reconciliation of Paid and Outstanding Claim Amounts ($000) - Basic
As of February 28, 2018

Gross Basis		Bodily Injury	Property Damage	Collision	Compre-hensive	Accident Benefits: Weekly Indemnity	Accident Benefits: Other	Total
1.	Feb 2018 Cumulative Paid	59,749	619,619	4,606,380	1,324,269	590,600	1,120,416	8,321,033
2.	Feb 2017 Cumulative Paid	54,613	573,526	4,196,280	1,235,487	530,348	1,032,927	7,623,180
3.	Calendar Year Paid in Database [(1)-(2)]	5,136	46,093	410,101	88,782	60,252	87,489	697,852
4.	Calendar Year Adjustments	-	-	-	-	-	-	-
5.	Prior Years Not in Database	(1)	(3)	(2)	(1)	8,335	4,812	13,141
6.	Per Financial Controls	5,135	46,091	410,099	88,781	68,587	92,501	711,194
7.	Difference [(3)+(4)+(5)-(6)]	-	-	-	-	-	(201)	(201)
8.	Feb 2018 O/S Claims in Database	11,877	13,490	76,937	17,759	633,741	492,732	1,246,536
9.	Prior Years Not in Database	-	-	-	-	-	-	-
10.	Per Financial Controls	11,877	13,490	76,937	17,759	640,155	492,900	1,253,118
11.	Difference [(8)+(9)-(10)]	-	-	-	-	(6,414)	(168)	(6,582)

Net Basis		Bodily Injury	Property Damage	Collision	Compre-hensive	Accident Benefits: Weekly Indemnity	Accident Benefits: Other	Total
1.	Feb 2018 Cumulative Paid	59,749	619,619	4,606,380	1,255,073	570,325	1,106,250	8,217,396
2.	Feb 2017 Cumulative Paid	54,613	573,526	4,196,280	1,166,301	511,529	1,017,312	7,519,560
3.	Calendar Year Paid in Database [(1)-(2)]	5,136	46,093	410,101	88,772	58,796	88,938	697,835
4.	Calendar Year Adjustments	-	-	-	-	-	-	-
5.	Prior Years Not in Database	(1)	(3)	(2)	(1)	6,777	6,370	13,141
6.	Per Financial Controls	5,135	46,091	410,099	88,771	65,573	95,508	711,177
7.	Difference [(3)+(4)+(5)-(6)]	-	-	-	-	-	(201)	(201)
8.	Feb 2018 O/S Claims in Database	11,877	13,490	76,937	17,427	633,158	492,438	1,245,327
9.	Prior Years Not in Database	-	-	-	-	-	-	-
10.	Per Financial Controls	11,877	13,490	76,937	17,427	639,572	492,606	1,251,909
11.	Difference [(8)+(9)-(10)]	-	-	-	-	(6,414)	(168)	(6,582)

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APPENDIX PE PIPP ENHANCEMENT BENEFITS

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 1
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Increasing the Weekly Indemnity to IAW								
1999 & Prior		1,676	2,998	4,673	16	4,689		3,014
2000	475,277	486	789	1,274	13	1,287	0.27%	801
2001	497,121	241	921	1,162	2	1,164	0.23%	923
2002	532,307	441	904	1,345	166	1,511	0.28%	1,070
2003	560,857	264	501	766	5	771	0.14%	507
2004	596,045	299	1,010	1,308	2	1,310	0.22%	1,012
2005	630,367	516	1,436	1,953	6	1,958	0.31%	1,442
2006	654,863	713	2,024	2,737	5	2,741	0.42%	2,029
2007	677,464	433	1,024	1,457	40	1,497	0.22%	1,064
2008	707,051	455	859	1,314	38	1,352	0.19%	898
2009	739,881	435	1,004	1,438	589	2,027	0.27%	1,592
2010	759,948	146	469	615	2	617	0.08%	471
2011	772,985	47	676	723	9	732	0.09%	686
2012	768,953	217	967	1,184	8	1,192	0.15%	974
2013	778,092	94	435	528	448	976	0.13%	883
2014	817,710	38	162	200	329	529	0.06%	491
2015	873,488	9	-	9	878	887	0.10%	878
2016	918,780	103	1,090	1,194	1,339	2,533	0.28%	2,429
2017	971,436	8	12	20	1,574	1,594	0.16%	1,585
Total	12,732,625	6,619	17,282	23,900	5,467	29,367	0.23%	22,749

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix A, Column 14 & PE Appendix B, Column 5

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 2
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Increasing the Maximum Personal Care								
1999 & Prior		1,682	4,740	6,422	192	6,614		4,932
2000	475,277	120	200	320	4	324	0.07%	204
2001	497,121	274	1,014	1,287	2	1,289	0.26%	1,015
2002	532,307	241	1,020	1,261	(6)	1,255	0.24%	1,014
2003	560,857	202	950	1,152	75	1,226	0.22%	1,025
2004	596,045	323	1,230	1,553	11	1,564	0.26%	1,240
2005	630,367	222	692	914	54	968	0.15%	747
2006	654,863	239	1,223	1,462	113	1,575	0.24%	1,336
2007	677,464	237	1,688	1,925	263	2,188	0.32%	1,951
2008	707,051	284	595	879	143	1,022	0.14%	738
2009	739,881	179	863	1,042	105	1,147	0.16%	968
2010	759,948	105	463	568	40	608	0.08%	503
2011	772,985	156	1,382	1,538	11	1,549	0.20%	1,393
2012	768,953	125	1,034	1,159	(4)	1,155	0.15%	1,029
2013	778,092	80	692	772	189	961	0.12%	881
2014	817,710	32	485	518	123	640	0.08%	608
2015	873,488	20	179	199	690	889	0.10%	869
2016	918,780	29	781	810	593	1,403	0.15%	1,374
2017	971,436	-	-	-	1,354	1,354	0.14%	1,354
Total	12,732,625	4,550	19,232	23,782	3,950	27,732	0.22%	23,182

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix C, Column 10

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 3
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(7)-(5)	(7)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Increasing the Maximum Permanent Impairment								
1999 & Prior		6,638	-	6,638	237	6,876		237
2000	475,277	1,128	-	1,128	-	1,128	0.24%	-
2001	497,121	879	-	879	-	879	0.18%	-
2002	532,307	1,204	-	1,204	-	1,204	0.23%	-
2003	560,857	954	-	954	106	1,060	0.19%	106
2004	596,045	977	-	977	-	977	0.16%	-
2005	630,367	1,250	-	1,250	-	1,250	0.20%	-
2006	654,863	1,687	-	1,687	-	1,687	0.26%	-
2007	677,464	1,286	-	1,286	92	1,378	0.20%	92
2008	707,051	1,379	-	1,379	-	1,379	0.20%	-
2009	739,881	813	-	813	271	1,084	0.15%	271
2010	759,948	745	-	745	93	839	0.11%	93
2011	772,985	831	-	831	185	1,016	0.13%	185
2012	768,953	924	-	924	185	1,109	0.14%	185
2013	778,092	648	-	648	93	740	0.10%	93
2014	817,710	940	-	940	313	1,253	0.15%	313
2015	873,488	342	-	342	389	731	0.08%	389
2016	918,780	692	-	692	486	1,178	0.13%	486
2017	971,436	128	-	128	1,069	1,197	0.12%	1,069
Total	12,732,625	23,445	-	23,445	3,518	26,964	0.21%	3,518

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(7) - PE Appendix D, Column 9

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 4
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Change to Vehicle Purchase Policy								
1999 & Prior		841	3,332	4,173	1	4,174		3,333
2000	475,277	113	688	802	4	805	0.17%	692
2001	497,121	103	622	724	(1)	723	0.15%	621
2002	532,307	251	1,004	1,255	(1)	1,254	0.24%	1,003
2003	560,857	244	544	788	(21)	767	0.14%	522
2004	596,045	256	1,238	1,495	41	1,536	0.26%	1,279
2005	630,367	52	459	512	9	520	0.08%	468
2006	654,863	324	1,410	1,734	3	1,737	0.27%	1,413
2007	677,464	281	1,293	1,573	8	1,581	0.23%	1,301
2008	707,051	129	944	1,073	(4)	1,069	0.15%	940
2009	739,881	117	731	849	9	858	0.12%	740
2010	759,948	150	751	901	40	941	0.12%	791
2011	772,985	242	513	755	16	771	0.10%	529
2012	768,953	127	391	519	1	520	0.07%	393
2013	778,092	-	-	-	1,028	1,028	0.13%	1,028
2014	817,710	99	553	652	288	940	0.11%	841
2015	873,488	34	369	403	540	943	0.11%	909
2016	918,780	70	666	736	340	1,076	0.12%	1,006
2017	971,436	-	-	-	1,028	1,028	0.11%	1,028
Total	12,732,625	3,433	15,509	18,942	3,329	22,271	0.17%	18,837

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix E, Column 11

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 5
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Death Benefits								
1999 & Prior		-	-	-	4,626	4,626		4,626
2000	475,277	-	-	-	811	811	0.17%	811
2001	497,121	-	-	-	675	675	0.14%	675
2002	532,307	-	-	-	1,008	1,008	0.19%	1,008
2003	560,857	-	-	-	601	601	0.11%	601
2004	596,045	-	-	-	1,055	1,055	0.18%	1,055
2005	630,367	-	-	-	824	824	0.13%	824
2006	654,863	-	-	-	1,521	1,521	0.23%	1,521
2007	677,464	-	-	-	1,337	1,337	0.20%	1,337
2008	707,051	-	-	-	918	918	0.13%	918
2009	739,881	-	-	-	897	897	0.12%	897
2010	759,948	-	-	-	847	847	0.11%	847
2011	772,985	-	-	-	899	899	0.12%	899
2012	768,953	-	-	-	988	988	0.13%	988
2013	778,092	-	-	-	556	556	0.07%	556
2014	817,710	-	-	-	1,099	1,099	0.13%	1,099
2015	873,488	-	-	-	800	800	0.09%	800
2016	918,780	-	-	-	1,042	1,042	0.11%	1,042
2017	971,436	-	-	-	1,190	1,190	0.12%	1,190
Total	12,732,625	-	-	-	21,696	21,696	0.17%	21,696

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - PE Appendix F, Column 11

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 6
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Annual Spending Allowance								
1999 & Prior		33	976	1,009	1	1,010		978
2000	475,277	7	181	188	(13)	175	0.04%	168
2001	497,121	16	200	215	(37)	179	0.04%	163
2002	532,307	23	324	348	(92)	256	0.05%	233
2003	560,857	6	99	105	42	147	0.03%	141
2004	596,045	16	285	301	(34)	266	0.04%	250
2005	630,367	1	135	136	39	175	0.03%	175
2006	654,863	7	412	420	(36)	383	0.06%	376
2007	677,464	21	517	538	(208)	330	0.05%	310
2008	707,051	14	217	230	(4)	227	0.03%	213
2009	739,881	3	152	155	64	219	0.03%	216
2010	759,948	16	243	259	(38)	221	0.03%	204
2011	772,985	4	166	170	101	271	0.04%	267
2012	768,953	2	97	98	155	254	0.03%	252
2013	778,092	1	17	17	140	157	0.02%	156
2014	817,710	6	108	114	105	219	0.03%	213
2015	873,488	-	116	116	48	164	0.02%	164
2016	918,780	-	66	66	225	291	0.03%	291
2017	971,436	-	-	-	289	289	0.03%	289
Total	12,732,625	175	4,311	4,485	747	5,232	0.04%	5,058

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix G, Column 10

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 7
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(7)-(5)	(7)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Caregiver Death Benefit								
1999 & Prior		-	-	-	-	-		-
2000	475,277	-	-	-	-	-	0.00%	-
2001	497,121	-	-	-	-	-	0.00%	-
2002	532,307	-	-	-	-	-	0.00%	-
2003	560,857	-	-	-	-	-	0.00%	-
2004	596,045	-	-	-	-	-	0.00%	-
2005	630,367	-	-	-	-	-	0.00%	-
2006	654,863	-	-	-	-	-	0.00%	-
2007	677,464	-	-	-	-	-	0.00%	-
2008	707,051	52	118	170	0	170	0.02%	118
2009	739,881	-	-	-	-	-	0.00%	-
2010	759,948	-	-	-	-	-	0.00%	-
2011	772,985	-	-	-	-	-	0.00%	-
2012	768,953	-	-	-	-	-	0.00%	-
2013	778,092	-	-	-	-	-	0.00%	-
2014	817,710	-	-	-	-	-	0.00%	-
2015	873,488	331	993	1,324	676	2,000	0.23%	1,669
2016	918,780		-		2,000	2,000	0.22%	2,000
2017	971,436	15	30	45	1,955	2,000	0.21%	1,985
Total	12,732,625	398	1,141	1,539	4,631	6,170	0.05%	5,772

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(7) - Estimated based on a review of claimants who are entitled/potentially entitled to this benefit

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 8
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of February 28, 2018
($000)

Insurance Year	Earned Premium	As of February 28, 2018 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Total								
1999 & Prior		10,870	12,046	22,916	5,073	27,989		17,119
2000	475,277	1,854	1,858	3,712	818	4,530	0.95%	2,676
2001	497,121	1,512	2,757	4,268	641	4,909	0.99%	3,398
2002	532,307	2,160	3,253	5,413	1,075	6,488	1.22%	4,328
2003	560,857	1,670	2,094	3,764	807	4,572	0.82%	2,901
2004	596,045	1,871	3,763	5,634	1,074	6,708	1.13%	4,837
2005	630,367	2,041	2,724	4,764	932	5,696	0.90%	3,656
2006	654,863	2,970	5,069	8,039	1,605	9,644	1.47%	6,674
2007	677,464	2,257	4,522	6,779	1,532	8,312	1.23%	6,054
2008	707,051	2,312	2,733	5,045	1,093	6,137	0.87%	3,826
2009	739,881	1,547	2,750	4,297	1,935	6,232	0.84%	4,685
2010	759,948	1,163	1,926	3,088	984	4,072	0.54%	2,909
2011	772,985	1,279	2,738	4,017	1,221	5,238	0.68%	3,959
2012	768,953	1,395	2,489	3,884	1,333	5,217	0.68%	3,821
2013	778,092	822	1,143	1,965	2,453	4,418	0.57%	3,596
2014	817,710	1,115	1,308	2,423	2,258	4,681	0.57%	3,566
2015	873,488	736	1,657	2,393	4,020	6,413	0.73%	5,677
2016	918,780	894	2,604	3,498	6,025	9,523	1.04%	8,629
2017	971,436	152	41	193	8,458	8,651	0.89%	8,500
Total	12,732,625	38,620	57,473	96,094	43,338	139,432	1.10%	100,811

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - Total All PIPP Enhancements

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 1

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Weekly Indemnity to IAW											
1999 & Prior	3,014	89.78%	85.05%	2,706	2,563	142	10.00%	256	2,962	16	(36)
2000	801	88.79%	83.64%	712	670	41	10.00%	67	779	13	(10)
2001	923	86.53%	80.52%	799	744	56	10.00%	74	873	2	(48)
2002	1,070	88.48%	83.26%	947	891	56	10.00%	89	1,036	166	132
2003	507	87.29%	81.59%	442	414	29	10.00%	41	484	5	(18)
2004	1,012	85.69%	79.38%	867	803	64	10.00%	80	947	2	(63)
2005	1,442	86.53%	80.55%	1,248	1,161	86	10.00%	116	1,364	6	(72)
2006	2,029	85.87%	79.64%	1,742	1,615	127	10.00%	162	1,904	5	(120)
2007	1,064	86.65%	80.73%	922	859	63	10.00%	86	1,008	40	(17)
2008	898	88.37%	83.09%	793	746	47	10.00%	75	868	38	9
2009	1,592	86.82%	80.98%	1,382	1,289	93	10.00%	129	1,511	589	508
2010	471	86.42%	80.37%	407	378	28	10.00%	38	445	2	(25)
2011	686	86.40%	80.39%	592	551	41	10.00%	55	647	9	(29)
2012	974	87.15%	81.39%	849	793	56	10.00%	79	929	8	(38)
2013	883	84.40%	77.66%	745	685	59	10.00%	69	813	448	379
2014	491	87.82%	82.32%	431	404	27	10.00%	40	472	329	310
2015	878	86.29%	80.21%	758	704	53	10.00%	70	828	878	828
2016	2,429	82.99%	75.78%	2,016	1,841	175	15.00%	276	2,292	1,339	1,202
2017	1,585	86.87%	81.01%	1,377	1,284	93	15.00%	193	1,570	1,574	1,558
Total	22,749	86.75%	80.87%	19,735	18,398	1,338	10.85%	1,996	21,731	5,467	4,450

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix A, Column 14 & PE Appendix B, Column 8
(6) - PE Appendix A, Column 14 & PE Appendix B, Column 11
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Weekly Indemnity
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 2

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Maximum Personal Care											
1999 & Prior	4,932	87.94%	82.52%	4,337	4,070	267	10.00%	407	4,744	192	4
2000	204	89.10%	84.07%	182	171	10	10.00%	17	199	4	(1)
2001	1,015	86.83%	80.94%	882	822	60	10.00%	82	964	2	(50)
2002	1,014	87.24%	81.52%	885	827	58	10.00%	83	967	(6)	(53)
2003	1,025	87.85%	82.40%	900	844	56	10.00%	84	984	75	34
2004	1,240	84.10%	77.25%	1,043	958	85	10.00%	96	1,139	11	(91)
2005	747	88.14%	82.76%	658	618	40	10.00%	62	720	54	27
2006	1,336	84.92%	78.34%	1,135	1,047	88	10.00%	105	1,240	113	17
2007	1,951	83.99%	77.14%	1,639	1,505	134	10.00%	151	1,789	263	101
2008	738	88.17%	82.82%	651	612	40	15.00%	92	743	143	148
2009	968	85.40%	79.01%	827	765	62	15.00%	115	942	105	79
2010	503	88.15%	82.80%	443	416	27	15.00%	62	506	40	43
2011	1,393	84.14%	77.38%	1,172	1,078	94	15.00%	162	1,334	11	(48)
2012	1,029	84.30%	77.70%	868	800	68	15.00%	120	988	(4)	(46)
2013	881	82.13%	74.63%	723	657	66	15.00%	99	822	189	130
2014	608	88.57%	83.42%	539	507	31	15.00%	76	615	123	129
2015	869	85.86%	79.74%	746	693	53	15.00%	104	850	690	671
2016	1,374	84.11%	77.33%	1,155	1,062	93	15.00%	159	1,315	593	534
2017	1,354	85.23%	78.83%	1,154	1,067	87	15.00%	160	1,314	1,354	1,314
Total	23,182	86.01%	79.89%	19,939	18,520	1,419	12.07%	2,235	22,173	3,950	2,941

Notes:
(2) - PE Exhibit 1, Column 9
(5) & (6) - PE Appendix C, Column 10
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 3

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)	(4)	(5)=(2)*(3)	(6)=(2)*(4)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Maximum Permanent Impairment											
1999 & Prior	237	98.55%	98.31%	234	233	1	10.00%	23	257	237	257
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	-	98.55%	98.31%	-	-	-	10.00%	-	-	-	-
2002	-	98.55%	98.31%	-	-	-	10.00%	-	-	-	-
2003	106	97.51%	97.11%	103	103	0	10.00%	10	114	106	114
2004	-	96.31%	95.72%	-	-	-	10.00%	-	-	-	-
2005	-	95.01%	94.22%	-	-	-	10.00%	-	-	-	-
2006	-	93.70%	92.71%	-	-	-	10.00%	-	-	-	-
2007	92	92.39%	91.20%	85	84	1	10.00%	8	93	92	93
2008	-	91.23%	89.88%	-	-	-	10.00%	-	-	-	-
2009	271	90.18%	88.69%	244	240	4	10.00%	24	268	271	268
2010	93	89.57%	88.00%	83	82	1	10.00%	8	92	93	92
2011	185	89.87%	88.35%	166	163	3	10.00%	16	182	185	182
2012	185	89.77%	88.24%	166	163	3	10.00%	16	182	185	182
2013	93	89.77%	88.26%	83	82	1	10.00%	8	91	93	91
2014	313	90.62%	89.23%	284	280	4	10.00%	28	312	313	312
2015	389	92.10%	90.93%	358	354	5	10.00%	35	393	389	393
2016	486	94.59%	93.77%	460	456	4	10.00%	46	505	486	505
2017	1,069	94.74%	93.94%	1,013	1,004	9	10.00%	100	1,113	1,069	1,113
Total	3,518	93.20%	92.18%	3,279	3,243	36	10.00%	324	3,604	3,518	3,604

Notes:
(2) - PE Exhibit 1, Column 9
(3) - Exhibit 8, Sheet 7, Column 3
(4) - Exhibit 8, Sheet 7, Column 4
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 4

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Change to Vehicle Purchase Policy											
1999 & Prior	3,333	88.66%	83.56%	2,955	2,785	170	10.00%	279	3,234	1	(98)
2000	692	88.35%	83.16%	612	576	36	10.00%	58	669	4	(19)
2001	621	87.75%	82.27%	545	511	34	10.00%	51	596	(1)	(26)
2002	1,003	87.84%	82.44%	881	827	54	10.00%	83	963	(1)	(41)
2003	522	86.93%	81.12%	454	424	30	10.00%	42	496	(21)	(47)
2004	1,279	86.29%	80.29%	1,104	1,027	77	10.00%	103	1,207	41	(32)
2005	468	88.23%	83.06%	413	389	24	10.00%	39	452	9	(7)
2006	1,413	85.52%	79.21%	1,208	1,119	89	10.00%	112	1,320	3	(90)
2007	1,301	84.14%	77.37%	1,094	1,006	88	10.00%	101	1,195	8	(98)
2008	940	87.74%	82.32%	825	774	51	15.00%	116	941	(4)	(3)
2009	740	90.00%	85.48%	666	633	34	15.00%	95	761	9	30
2010	791	87.82%	82.49%	695	652	42	15.00%	98	792	40	41
2011	529	85.65%	79.50%	453	421	32	15.00%	63	516	16	3
2012	393	86.84%	80.97%	341	318	23	15.00%	48	389	1	(3)
2013	1,028	90.56%	86.13%	930	885	46	15.00%	133	1,063	1,028	1,063
2014	841	86.97%	81.18%	732	683	49	15.00%	102	834	288	281
2015	909	89.84%	85.17%	817	774	43	15.00%	116	933	540	564
2016	1,006	86.40%	80.47%	870	810	60	15.00%	121	991	340	325
2017	1,028	90.56%	86.13%	930	885	46	15.00%	133	1,063	1,028	1,063
Total	18,837	87.72%	82.27%	16,525	15,498	1,027	12.21%	1,892	18,416	3,329	2,908

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix E, Column 12
(6) - PE Appendix E, Column 13
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 5

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Death Benefits											
1999 & Prior	4,626	86.28%	80.45%	3,991	3,721	270	10.00%	372	4,363	4,626	4,363
2000	811	85.36%	79.33%	692	643	49	10.00%	64	757	811	757
2001	675	85.68%	79.62%	578	538	41	10.00%	54	632	675	632
2002	1,008	85.65%	79.60%	864	803	61	10.00%	80	944	1,008	944
2003	601	85.29%	79.07%	513	475	37	10.00%	48	560	601	560
2004	1,055	83.94%	77.36%	886	816	69	10.00%	82	967	1,055	967
2005	824	86.00%	80.14%	709	661	48	10.00%	66	775	824	775
2006	1,521	82.99%	75.95%	1,262	1,155	107	10.00%	115	1,377	1,521	1,377
2007	1,337	83.73%	77.06%	1,120	1,031	89	10.00%	103	1,223	1,337	1,223
2008	918	85.23%	79.03%	783	726	57	10.00%	73	855	918	855
2009	897	85.48%	79.37%	767	712	55	10.00%	71	838	897	838
2010	847	82.99%	76.07%	703	645	59	10.00%	64	768	847	768
2011	899	80.80%	73.05%	727	657	70	10.00%	66	792	899	792
2012	988	83.45%	76.83%	824	759	65	10.00%	76	900	988	900
2013	556	82.52%	75.37%	459	419	40	10.00%	42	501	556	501
2014	1,099	84.71%	78.46%	931	862	69	10.00%	86	1,017	1,099	1,017
2015	800	85.90%	79.88%	687	639	48	10.00%	64	751	800	751
2016	1,042	81.42%	73.99%	849	771	77	10.00%	77	926	1,042	926
2017	1,190	83.64%	76.88%	995	915	80	10.00%	91	1,087	1,190	1,087
Total	21,696	84.53%	78.11%	18,339	16,947	1,392	10.00%	1,695	20,034	21,696	20,034

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix F, Column 12
(6) - PE Appendix F, Column 13
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 6

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Annual Spending Allowance											
1999 & Prior	978	87.97%	82.55%	860	807	53	10.00%	81	941	1	(36)
2000	168	87.24%	81.50%	146	137	10	10.00%	14	160	(13)	(21)
2001	163	87.18%	81.43%	142	133	9	10.00%	13	155	(37)	(44)
2002	233	87.45%	81.84%	204	191	13	10.00%	19	223	(92)	(102)
2003	141	87.98%	82.58%	124	116	8	10.00%	12	135	42	36
2004	250	85.90%	79.70%	215	199	16	10.00%	20	235	(34)	(50)
2005	175	87.32%	81.66%	152	142	10	10.00%	14	167	39	31
2006	376	85.20%	78.74%	320	296	24	10.00%	30	350	(36)	(62)
2007	310	84.92%	78.39%	263	243	20	10.00%	24	287	(208)	(230)
2008	213	87.40%	81.78%	186	174	12	15.00%	26	212	(4)	(4)
2009	216	86.75%	80.87%	187	175	13	15.00%	26	213	64	62
2010	204	85.76%	79.52%	175	162	13	15.00%	24	200	(38)	(43)
2011	267	84.02%	77.22%	224	206	18	15.00%	31	255	101	89
2012	252	85.10%	78.70%	214	198	16	15.00%	30	244	155	148
2013	156	84.85%	78.36%	133	123	10	15.00%	18	151	140	134
2014	213	86.66%	80.78%	185	172	13	15.00%	26	211	105	103
2015	164	86.40%	80.42%	142	132	10	15.00%	20	162	48	46
2016	291	84.76%	78.20%	247	228	19	15.00%	34	281	225	215
2017	289	85.81%	79.62%	248	230	18	15.00%	35	283	289	283
Total	5,058	86.35%	80.35%	4,367	4,064	304	12.21%	496	4,864	747	553

Notes:
(2) - PE Exhibit 1, Column 9
(5) & (6) - PE Appendix G, Column 10
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 7

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Caregiver Death Benefit											
1999 & Prior	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2002	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2008	118	97.79%	96.69%	116	114	1	10.00%	11	127	0	9
2009	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2010	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2011	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2012	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2013	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2014	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2015	1,669	95.11%	92.65%	1,587	1,546	41	10.00%	155	1,742	676	749
2016	2,000	95.10%	92.65%	1,902	1,853	49	10.00%	185	2,087	2,000	2,087
2017	1,985	95.13%	92.66%	1,888	1,839	49	10.00%	184	2,072	1,955	2,042
Total	5,772	95.17%	92.73%	5,493	5,352	140	10.00%	535	6,028	4,631	4,887

Notes: (2) - PE Exhibit 1, Column 9
(5) & (6) - Estimated based on a review of claimants who are entitled/potentially entitled to this benefit
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018
($000)

PE Exhibit 2
Sheet 8

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
PIPP Enhancement: Total											
1999 & Prior	17,119	88.10%	82.83%	15,083	14,180	903	10.00%	1,418	16,501	5,073	4,454
2000	2,676	87.56%	82.11%	2,343	2,197	146	10.00%	220	2,563	818	705
2001	3,398	86.71%	80.83%	2,946	2,746	200	10.00%	275	3,221	641	464
2002	4,328	87.32%	81.73%	3,779	3,537	242	10.00%	354	4,133	1,075	880
2003	2,901	87.41%	81.88%	2,536	2,376	160	10.00%	238	2,774	807	680
2004	4,837	85.07%	78.65%	4,114	3,804	310	10.00%	380	4,495	1,074	732
2005	3,656	87.00%	81.28%	3,180	2,971	209	10.00%	297	3,477	932	754
2006	6,674	84.91%	78.40%	5,667	5,232	435	10.00%	523	6,190	1,605	1,121
2007	6,054	84.61%	78.08%	5,122	4,727	395	10.00%	473	5,595	1,532	1,073
2008	3,826	87.66%	82.22%	3,354	3,145	208	12.48%	393	3,746	1,093	1,013
2009	4,685	86.97%	81.41%	4,075	3,815	260	12.06%	460	4,535	1,935	1,785
2010	2,909	86.16%	80.30%	2,507	2,336	170	12.63%	295	2,802	984	876
2011	3,959	84.23%	77.70%	3,335	3,076	259	12.77%	393	3,727	1,221	989
2012	3,821	85.38%	79.33%	3,263	3,031	231	12.17%	369	3,632	1,333	1,143
2013	3,596	85.47%	79.29%	3,073	2,851	222	12.92%	368	3,442	2,453	2,299
2014	3,566	86.96%	81.57%	3,101	2,908	192	12.34%	359	3,460	2,258	2,152
2015	5,677	89.73%	85.28%	5,094	4,841	253	11.65%	564	5,658	4,020	4,001
2016	8,629	86.90%	81.36%	7,499	7,021	478	12.81%	899	8,398	6,025	5,794
2017	8,500	89.48%	85.00%	7,606	7,225	381	12.40%	896	8,502	8,458	8,460
Total	100,811	86.97%	81.36%	87,677	82,022	5,655	11.18%	9,173	96,850	43,338	39,377

Notes:
(2) - PE Exhibit 1, Column 9
(5), (6) & (9) - Total All PIPP Enhancements
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Direct & Agency Unearned Premium
As of February 28, 2018
($000)

PE Exhibit 3
Sheet 1

	Estimated Ultimate Claims							Restated	Estimated Ultimate Loss Ratio						
Insurance Year	Incr WI to IAW	Incr Max PC	Incr Max PI	Change Veh Pur	Death Benefits	Annual Spending	C/Giver DB	Earned Premium	Incr WI to IAW	Incr Max PC	Incr Max PI	Change Veh Pur	Death Benefits	Annual Spending	C/Giver DB
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1999 & Prior	4,689	6,614	6,876	4,174	4,626	1,010	-								
2000	1,287	324	1,128	805	811	175	-	652,992	0.20%	0.05%	0.17%	0.12%	0.12%	0.03%	0.00%
2001	1,164	1,289	879	723	675	179	-	666,345	0.17%	0.19%	0.13%	0.11%	0.10%	0.03%	0.00%
2002	1,511	1,255	1,204	1,254	1,008	256	-	694,750	0.22%	0.18%	0.17%	0.18%	0.15%	0.04%	0.00%
2003	771	1,226	1,060	767	601	147	-	720,485	0.11%	0.17%	0.15%	0.11%	0.08%	0.02%	0.00%
2004	1,310	1,564	977	1,536	1,055	266	-	752,149	0.17%	0.21%	0.13%	0.20%	0.14%	0.04%	0.00%
2005	1,958	968	1,250	520	824	175	-	779,863	0.25%	0.12%	0.16%	0.07%	0.11%	0.02%	0.00%
2006	2,741	1,575	1,687	1,737	1,521	383	-	788,869	0.35%	0.20%	0.21%	0.22%	0.19%	0.05%	0.00%
2007	1,497	2,188	1,378	1,581	1,337	330	-	800,878	0.19%	0.27%	0.17%	0.20%	0.17%	0.04%	0.00%
2008	1,352	1,022	1,379	1,069	918	227	170	819,466	0.16%	0.12%	0.17%	0.13%	0.11%	0.03%	0.02%
2009	2,027	1,147	1,084	858	897	219	-	838,236	0.24%	0.14%	0.13%	0.10%	0.11%	0.03%	0.00%
2010	617	608	839	941	847	221	-	855,836	0.07%	0.07%	0.10%	0.11%	0.10%	0.03%	0.00%
2011	732	1,549	1,016	771	899	271	-	863,609	0.08%	0.18%	0.12%	0.09%	0.10%	0.03%	0.00%
2012	1,192	1,155	1,109	520	988	254	-	834,082	0.14%	0.14%	0.13%	0.06%	0.12%	0.03%	0.00%
2013	976	961	740	1,028	556	157	-	830,703	0.12%	0.12%	0.09%	0.12%	0.07%	0.02%	0.00%
2014	529	640	1,253	940	1,099	219	-	854,208	0.06%	0.07%	0.15%	0.11%	0.13%	0.03%	0.00%
2015	887	889	731	943	800	164	2,000	895,461	0.10%	0.10%	0.08%	0.11%	0.09%	0.02%	0.22%
2016	2,533	1,403	1,178	1,076	1,042	291	2,000	930,724	0.27%	0.15%	0.13%	0.12%	0.11%	0.03%	0.21%
2017	1,594	1,354	1,197	1,028	1,190	289	2,000	971,436	0.16%	0.14%	0.12%	0.11%	0.12%	0.03%	0.21%
Total	29,367	27,732	26,964	22,271	21,696	5,232	6,170	14,550,093	0.20%	0.19%	0.19%	0.15%	0.15%	0.04%	0.04%
								Selected Ultimate Loss Ratio (a):	0.14%	0.12%	0.12%	0.11%	0.11%	0.03%	0.21%
								Discount Factor (Including Interest & Claims Devt PFAD) (b):	0.9902	0.9705	1.0414	1.0348	0.9133	0.9775	1.0439
								Discounted Ultimate Loss Ratio (c):	0.14%	0.12%	0.12%	0.11%	0.10%	0.03%	0.22%
								Total Discounted Ultimate Loss Ratio (d):							0.84%
								Direct & Agency Unearned Premium as of February 28, 2018 (e):							468,613
								Expected Claims (Including External Adjustment Expenses) (f):							3,950

Notes:
(2) to (8) - PE Exhibit 1, Column 7
(9) - From Appendix F, Page 14, Column 3
(a) - Selected per the 10-Year Volume Weighted Hi-Lo Average
(b) - PE Exhibit 2, [Column 10 / Column 2] for 2017
(c) = (a) * (b)
(e) - Exhibit 6, Sheet 1
(f) = (d) * (e)

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of February 28, 2018

PE Exhibit 4
Sheet 1

PIPP Enhancement: Quality of Life Enhancements

	215	Catastrophic claimants (PE Appendix G, Column 8)
	54	Paneled; Assume 25% of catastrophic claimants
	161	Remaining catastophic claimants

I) Cottage Modifications

	35,000	Manitobans with cottages
	1,200,000	Total Manitobans
	2.92%	Percent of Manitobans with cottages
	5	Expected number of cottages requiring modifications; 161 x 2.92%
$	150,000	Expected cost per cottage
$	**750,000**	**Estimated Ultimate Claims - Cottage Modifications**

II) Attendant Care (for Work)

		Per claimant cost:
$	20	Cost per hour
	8	Hours per day (above PCA and Home Care)
	240	Expected number of working days per year
$	38,400	Total per claimant cost per year
	20	Expected working life (in years)
$	768,000	Total expected per claimant cost
	1	Expected number of claimants utilizing benefit
$	**768,000**	**Estimated Ultimate Claims - Attendant Care**

III) Activity Cost

		Per claimant cost:
$	2,000	Total per claimant cost per year
	25	Expected life (in years)
$	50,000	Total expected per claimant cost
	40	Expected number of claimants utilizing benefit; 161 x 25.00%
$	**2,000,000**	**Estimated Ultimate Claims - Activity Cost**

$	**3,518,000**	**Estimated Ultimate Claims - All Cost [(I) + (II) + (III)]**	(a)
$	742,007	Paid	(b)
$	1,350,366	Case Reserves	(c)
$	2,092,373	Reported	(d)
$	1,425,627	Estimated IBNR [(a) - (d)]	(e)
$	2,775,993	Estimated Unpaid Claims [(c) + (e)]	(f)
	86.01%	Discount Factor With Margin [PE Exhibit 2, Sheet 2, Column 3]	(g)
	79.89%	Discount Factor Without Margin [PE Exhibit 2, Sheet 2, Column 4]	(h)
$	2,387,627	Discounted Unpaid With Margin [(f) x (g)]	(i)
$	2,217,721	Discounted Unpaid Without Margin [(f) x (h)]	(j)
$	169,906	Interest PFAD [(i) - (j)]	(k)
	12.07%	Claims Development Margin [PE Exhibit 2, Sheet 2, Column 8]	(l)
$	267,624	Claims Development PFAD [(j) x (l)]	(m)
$	**2,655,251**	**CIA Rules Unpaid Claims [(j) + (k) + (m)]**	(n)
$	**1,304,885**	**Required IBNR [(n) - (f) + (e)]**	(o)

(b), (c), & (d) - From MPI Fiscal Year Summaries

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Undiscounted

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	15	1,515,189	891,521	2,406,710	0	-	-	-	15	2,406,710	160,447	15	2,406,710	160,447
2000	4	619,652	119,169	738,822	0	-	-	-	4	738,822	184,705	4	738,822	184,705
2001	3	737,480	186,002	923,481	0	-	-	-	3	923,481	307,827	3	923,481	307,827
2002	5	697,006	286,593	983,599	0	-	-	-	5	983,599	196,720	5	983,599	196,720
2003	3	402,569	85,301	487,871	0	-	-	-	3	487,871	162,624	3	487,871	162,624
2004	4	815,653	158,849	974,502	0	-	-	-	4	974,502	243,625	4	974,502	243,625
2005	5	1,214,678	200,813	1,415,491	0	-	-	-	5	1,415,491	283,098	5	1,415,491	283,098
2006	7	1,668,644	315,979	1,984,623	0	-	-	-	7	1,984,623	283,518	7	1,984,623	283,518
2007	4	854,903	201,764	1,056,667	0	-	-	-	4	1,056,667	264,167	4	1,056,667	264,167
2008	5	705,916	191,595	897,511	0	-	-	-	5	897,511	179,502	5	897,511	179,502
2009	4	794,608	201,732	996,340	2	546,375	49,570	595,944	6	1,592,284	265,381	6	1,592,284	265,381
2010	2	422,820	48,045	470,865	0	-	-	-	2	470,865	235,433	2	470,865	235,433
2011	2	596,684	88,893	685,577	0	-	-	-	2	685,577	342,789	2	685,577	342,789
2012	5	848,078	126,378	974,455	0	-	-	-	5	974,455	194,891	5	974,455	194,891
2013	2	365,287	73,718	439,005	1	385,312	58,320	443,632	3	882,637	294,212	3	882,637	294,212
2014	1	125,289	36,592	161,881	1	295,562	33,480	329,042	2	490,923	245,461	2	490,923	245,461
2015	0	-	-	-	1	297,526	70,558	368,084	1	368,084	368,084	3	877,890	292,630
2016	4	1,937,323	237,183	2,174,506	0	-	-	-	4	2,174,506	543,627	5	2,429,409	485,882
2017	1	228,323	82,509	310,832	0	-	-	-	1	310,832	310,832	6	1,585,348	264,225
Total	76	14,550,101	3,532,636	18,082,736	5	1,524,775	211,927	1,736,702	81	19,819,439	244,684	89	21,858,664	245,603

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016 & 2017 at 50%, 75% & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Discounted with Margin

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	15	1,405,324	771,349	2,176,674	0	-	-	-	15	2,176,674	145,112	15	2,176,674	145,112
2000	4	566,239	91,088	657,327	0	-	-	-	4	657,327	164,332	4	657,327	164,332
2001	3	663,062	136,050	799,112	0	-	-	-	3	799,112	266,371	3	799,112	266,371
2002	5	635,267	236,881	872,148	0	-	-	-	5	872,148	174,430	5	872,148	174,430
2003	3	358,576	67,739	426,316	0	-	-	-	3	426,316	142,105	3	426,316	142,105
2004	4	721,872	111,918	833,791	0	-	-	-	4	833,791	208,448	4	833,791	208,448
2005	5	1,081,087	143,588	1,224,674	0	-	-	-	5	1,224,674	244,935	5	1,224,674	244,935
2006	7	1,474,023	230,601	1,704,623	0	-	-	-	7	1,704,623	243,518	7	1,704,623	243,518
2007	4	761,808	153,926	915,734	0	-	-	-	4	915,734	228,933	4	915,734	228,933
2008	5	639,344	153,806	793,150	0	-	-	-	5	793,150	158,630	5	793,150	158,630
2009	4	717,286	157,091	874,377	2	475,229	32,859	508,088	6	1,382,465	230,411	6	1,382,465	230,411
2010	2	373,603	33,341	406,945	0	-	-	-	2	406,945	203,472	2	406,945	203,472
2011	2	525,947	66,403	592,350	0	-	-	-	2	592,350	296,175	2	592,350	296,175
2012	5	755,849	93,341	849,190	0	-	-	-	5	849,190	169,838	5	849,190	169,838
2013	2	316,037	60,426	376,463	1	330,743	37,717	368,460	3	744,922	248,307	3	744,922	248,307
2014	1	117,137	29,524	146,661	1	261,237	23,252	284,488	2	431,150	215,575	2	431,150	215,575
2015	0	-	-	-	1	265,773	50,549	316,322	1	316,322	316,322	3	757,551	252,517
2016	4	1,641,699	153,965	1,795,664	0	-	-	-	4	1,795,664	448,916	5	2,016,279	403,256
2017	1	210,336	63,746	274,081	0	-	-	-	1	274,081	274,081	6	1,377,155	229,526
Total	76	12,964,498	2,754,783	15,719,280	5	1,332,981	144,376	1,477,358	81	17,196,638	212,304	89	18,961,556	213,051

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016 & 2017 at 50%, 75% & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Discounted without Margin

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	15	1,352,277	717,108	2,069,385	0	-	-	-	15	2,069,385	137,959	15	2,069,385	137,959
2000	4	540,705	79,134	619,838	0	-	-	-	4	619,838	154,960	4	619,838	154,960
2001	3	628,040	115,519	743,559	0	-	-	-	3	743,559	247,853	3	743,559	247,853
2002	5	606,229	215,308	821,537	0	-	-	-	5	821,537	164,307	5	821,537	164,307
2003	3	338,271	60,403	398,674	0	-	-	-	3	398,674	132,891	3	398,674	132,891
2004	4	678,592	93,243	771,835	0	-	-	-	4	771,835	192,959	4	771,835	192,959
2005	5	1,019,285	120,613	1,139,897	0	-	-	-	5	1,139,897	227,979	5	1,139,897	227,979
2006	7	1,384,422	196,539	1,580,960	0	-	-	-	7	1,580,960	225,851	7	1,580,960	225,851
2007	4	718,897	134,281	853,178	0	-	-	-	4	853,178	213,294	4	853,178	213,294
2008	5	608,196	137,543	745,740	0	-	-	-	5	745,740	149,148	5	745,740	149,148
2009	4	681,426	138,386	819,812	2	443,073	26,470	469,543	6	1,289,354	214,892	6	1,289,354	214,892
2010	2	350,941	27,517	378,458	0	-	-	-	2	378,458	189,229	2	378,458	189,229
2011	2	493,839	57,317	551,156	0	-	-	-	2	551,156	275,578	2	551,156	275,578
2012	5	713,304	79,832	793,137	0	-	-	-	5	793,137	158,627	5	793,137	158,627
2013	2	294,026	55,125	349,151	1	306,339	30,003	336,342	3	685,493	228,498	3	685,493	228,498
2014	1	113,133	26,385	139,518	1	245,426	19,197	264,623	2	404,141	202,070	2	404,141	202,070
2015	0	-	-	-	1	250,918	42,444	293,362	1	293,362	293,362	3	704,168	234,723
2016	4	1,512,115	123,431	1,635,546	0	-	-	-	4	1,635,546	408,887	5	1,840,949	368,190
2017	1	201,630	55,701	257,331	0	-	-	-	1	257,331	257,331	6	1,284,345	214,057
Total	76	12,235,328	2,433,384	14,668,712	5	1,245,755	118,114	1,363,869	81	16,032,581	197,933	89	17,675,803	198,605

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016 & 2017 at 50%, 75% & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix B

PIPP Enhancement: Increasing the Weekly Indemnity to IAW Adjustment to 2009 IAW for Claimants at Older IAW Levels

Estimated Unpaid Claim

Insurance		Undiscounted			Discounted with Margin			Discounted Without Margin		
Year	Count	IRI	RIB	IRI & RIB	IRI	RIB	IRI & RIB	IRI	RIB	IRI & RIB
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	17	522,089	84,923	607,012	467,416	61,553	528,969	441,888	52,015	493,903
2000	2	51,104	11,557	62,661	45,850	8,442	54,292	43,386	7,162	50,548
2001	0	-	-	-	-	-	-	-	-	-
2002	3	77,321	9,286	86,606	68,321	6,441	74,762	64,176	5,316	69,492
2003	1	17,425	1,546	18,971	15,105	1,015	16,119	14,060	813	14,873
2004	2	29,493	7,647	37,140	26,852	6,199	33,051	25,615	5,571	31,185
2005	1	23,424	3,101	26,524	20,909	2,214	23,123	19,737	1,855	21,592
2006	3	39,338	4,622	43,960	34,301	3,092	37,393	32,014	2,504	34,518
2007	1	6,546	621	7,167	5,692	411	6,103	5,306	331	5,637
2008	0	-	-	-	-	-	-	-	-	-
2009	0	-	-	-	-	-	-	-	-	-
2010	0	-	-	-	-	-	-	-	-	-
2011	0	-	-	-	-	-	-	-	-	-
2012	0	-	-	-	-	-	-	-	-	-
2013	0	-	-	-	-	-	-	-	-	-
2014	0	-	-	-	-	-	-	-	-	-
2015	0	-	-	-	-	-	-	-	-	-
2016	0	-	-	-	-	-	-	-	-	-
2017	0	-	-	-	-	-	-	-	-	-
Total	30	766,740	123,302	890,042	684,444	89,367	773,811	646,183	75,566	721,749

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Undiscounted

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	27	4,931,980	0	-	27	4,931,980	182,666	27	4,931,980	182,666
2000	1	203,773	0	-	1	203,773	203,773	1	203,773	203,773
2001	4	1,015,409	0	-	4	1,015,409	253,852	4	1,015,409	253,852
2002	5	1,013,941	0	-	5	1,013,941	202,788	5	1,013,941	202,788
2003	6	1,024,513	0	-	6	1,024,513	170,752	6	1,024,513	170,752
2004	4	1,240,321	0	-	4	1,240,321	310,080	4	1,240,321	310,080
2005	4	746,651	0	-	4	746,651	186,663	4	746,651	186,663
2006	5	1,336,481	0	-	5	1,336,481	267,296	5	1,336,481	267,296
2007	8	1,951,118	0	-	8	1,951,118	243,890	8	1,951,118	243,890
2008	4	738,404	0	-	4	738,404	184,601	4	738,404	184,601
2009	4	968,446	0	-	4	968,446	242,112	4	968,446	242,112
2010	3	502,838	0	-	3	502,838	167,613	3	502,838	167,613
2011	5	1,393,207	0	-	5	1,393,207	278,641	5	1,393,207	278,641
2012	4	1,029,293	0	-	4	1,029,293	257,323	4	1,029,293	257,323
2013	3	880,695	0	-	3	880,695	293,565	3	880,695	293,565
2014	5	608,112	0	-	5	608,112	121,622	5	608,112	121,622
2015	2	200,508	3	442,647	5	643,156	128,631	6	868,828	144,805
2016	3	731,772	1	190,611	4	922,382	230,596	6	1,373,727	228,954
2017	0	-	0	-	0	-	-	6	1,354,033	225,672
Total	97	20,517,462	4	633,258	101	21,150,720	209,413	110	23,181,769	210,743

Notes:
(9) - 2015 & After: Judgmentally selected per the more recent maximum observed
(10) - 2015 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2005 to 2014] / [Sum (6) for 2005 to 2014]

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Discounted with Margin

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	27	4,337,166	0	-	27	4,337,166	160,636	27	4,337,166	160,636
2000	1	181,555	0	-	1	181,555	181,555	1	181,555	181,555
2001	4	881,667	0	-	4	881,667	220,417	4	881,667	220,417
2002	5	884,513	0	-	5	884,513	176,903	5	884,513	176,903
2003	6	900,047	0	-	6	900,047	150,008	6	900,047	150,008
2004	4	1,043,118	0	-	4	1,043,118	260,780	4	1,043,118	260,780
2005	4	658,107	0	-	4	658,107	164,527	4	658,107	164,527
2006	5	1,134,983	0	-	5	1,134,983	226,997	5	1,134,983	226,997
2007	8	1,638,822	0	-	8	1,638,822	204,853	8	1,638,822	204,853
2008	4	651,078	0	-	4	651,078	162,769	4	651,078	162,769
2009	4	827,030	0	-	4	827,030	206,758	4	827,030	206,758
2010	3	443,273	0	-	3	443,273	147,758	3	443,273	147,758
2011	5	1,172,300	0	-	5	1,172,300	234,460	5	1,172,300	234,460
2012	4	867,655	0	-	4	867,655	216,914	4	867,655	216,914
2013	3	723,281	0	-	3	723,281	241,094	3	723,281	241,094
2014	5	538,621	0	-	5	538,621	107,724	5	538,621	107,724
2015	2	182,716	3	370,921	5	553,637	110,727	6	745,974	124,329
2016	3	617,353	1	153,366	4	770,718	192,680	6	1,155,392	192,565
2017	0	-	0	-	0	-	-	6	1,154,020	192,337
Total	97	17,683,284	4	524,287	101	18,207,571	180,273	110	19,938,601	181,260

Notes:
(9) - 2015 & After: Judgmentally selected per the more recent maximum observed
(10) - 2015 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2005 to 2014] / [Sum (6) for 2005 to 2014]

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Discounted without Margin

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	27	4,069,675	0	-	27	4,069,675	150,729	27	4,069,675	150,729
2000	1	171,307	0	-	1	171,307	171,307	1	171,307	171,307
2001	4	821,833	0	-	4	821,833	205,458	4	821,833	205,458
2002	5	826,586	0	-	5	826,586	165,317	5	826,586	165,317
2003	6	844,162	0	-	6	844,162	140,694	6	844,162	140,694
2004	4	958,179	0	-	4	958,179	239,545	4	958,179	239,545
2005	4	617,899	0	-	4	617,899	154,475	4	617,899	154,475
2006	5	1,046,960	0	-	5	1,046,960	209,392	5	1,046,960	209,392
2007	8	1,505,129	0	-	8	1,505,129	188,141	8	1,505,129	188,141
2008	4	611,525	0	-	4	611,525	152,881	4	611,525	152,881
2009	4	765,163	0	-	4	765,163	191,291	4	765,163	191,291
2010	3	416,347	0	-	3	416,347	138,782	3	416,347	138,782
2011	5	1,078,035	0	-	5	1,078,035	215,607	5	1,078,035	215,607
2012	4	799,782	0	-	4	799,782	199,946	4	799,782	199,946
2013	3	657,287	0	-	3	657,287	219,096	3	657,287	219,096
2014	5	507,307	0	-	5	507,307	101,461	5	507,307	101,461
2015	2	174,350	3	340,556	5	514,906	102,981	6	692,805	115,467
2016	3	568,432	1	138,142	4	706,574	176,643	6	1,062,371	177,062
2017	0	-	0	-	0	-	-	6	1,067,391	177,899
Total	97	16,439,961	4	478,698	101	16,918,659	167,511	110	18,519,746	168,361

Notes:
(9) - 2015 & After: Judgmentally selected per the more recent maximum observed
(10) - 2015 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2005 to 2014] / [Sum (6) for 2005 to 2014]

PE Appendix D

PIPP Enhancement: Increasing the Maximum Permanent Impairment

Estimated Ultimate Claims - Undiscounted

Insurance	CAT Claims = Yes			CAT Claims = Potential			All CAT Claims	
Year	Count	PI	Average	Selected Avg	Count	PI	Count	PI
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1999 & Prior	56	6,638,479	118,544	118,544	2	237,089	58	6,875,567
2000	10	1,128,192	112,819	112,819	0	-	10	1,128,192
2001	8	878,959	109,870	109,870	0	-	8	878,959
2002	12	1,204,269	100,356	100,356	0	-	12	1,204,269
2003	9	953,922	105,991	105,991	1	105,991	10	1,059,913
2004	9	977,026	108,558	108,558	0	-	9	977,026
2005	12	1,249,611	104,134	104,134	0	-	12	1,249,611
2006	16	1,686,913	105,432	105,432	0	-	16	1,686,913
2007	14	1,286,241	91,874	91,874	1	91,874	15	1,378,116
2008	15	1,378,936	91,929	91,929	0	-	15	1,378,936
2009	9	813,042	90,338	90,338	3	271,014	12	1,084,055
2010	8	745,455	93,182	93,182	1	93,182	9	838,637
2011	9	831,169	92,352	92,352	2	184,704	11	1,015,874
2012	10	923,849	92,385	92,385	2	184,770	12	1,108,619
2013	7	647,779	92,540	92,540	1	92,540	8	740,319
2014	9	939,725	104,414	104,414	3	313,242	12	1,252,966
2015	4	341,850	85,463	97,200	4	388,800	8	730,650
2016	6	692,129	115,355	97,200	5	486,000	11	1,178,129
2017	1	127,884	127,884	97,200	11	1,069,200	12	1,197,084
Total	224	23,445,429			36	3,518,405	260	26,963,835

Notes:
(5) - Prior to 2015: Per Column (4); 2015 to 2017: Per the weighted average for 2010 to 2017
(7) = (5) * (6)

PE Appendix E

PIPP Enhancement: Change to Vehicle Purchase Policy

Estimated Unpaid Claims

	Head & Quad Claims				Other Claims				All Claims			
Insurance Year	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1999 & Prior	17	2,541,006	2,253,779	2,124,650	7	792,421	701,514	660,670	24	3,333,427	2,955,293	2,785,320
2000	1	202,183	177,047	165,897	5	489,958	434,491	409,703	6	692,141	611,538	575,600
2001	2	355,758	310,479	290,180	2	264,920	234,187	220,480	4	620,678	544,666	510,661
2002	4	814,703	710,899	665,162	3	188,093	169,931	161,522	7	1,002,796	880,829	826,684
2003	4	453,671	391,817	364,514	1	68,532	62,122	59,094	5	522,203	453,939	423,607
2004	5	1,032,356	895,990	835,935	2	246,972	207,881	191,255	7	1,279,328	1,103,872	1,027,190
2005	1	-	-	-	4	468,056	412,963	388,753	5	468,056	412,963	388,753
2006	3	614,656	523,524	483,554	7	797,890	684,528	635,319	10	1,412,545	1,208,052	1,118,872
2007	4	941,576	784,278	717,521	3	358,995	309,993	288,747	7	1,300,571	1,094,270	1,006,267
2008	4	650,816	574,911	540,866	2	289,652	250,277	233,337	6	940,468	825,188	774,202
2009	3	570,207	509,224	481,829	2	170,241	157,201	151,097	5	740,448	666,425	632,925
2010	2	231,190	214,678	206,911	4	559,688	479,869	445,447	6	790,879	694,546	652,359
2011	2	215,097	197,210	188,733	2	313,934	255,881	231,870	4	529,032	453,091	420,603
2012	2	249,373	222,646	210,247	1	143,432	118,473	107,818	3	392,804	341,120	318,064
2013	3	600,000	548,310	523,800	3	427,500	382,159	361,158	6	1,027,500	930,468	884,957
2014	3	435,896	374,281	347,433	3	405,439	357,400	335,604	6	841,335	731,680	683,037
2015	3	506,635	460,519	438,722	3	402,462	356,238	335,514	6	909,097	816,756	774,236
2016	3	669,610	576,206	535,664	3	336,847	293,361	274,263	6	1,006,456	869,567	809,928
2017	3	600,000	548,310	523,800	3	427,500	382,159	361,158	6	1,027,500	930,468	884,957
Total	69	11,684,732	10,274,106	9,645,417	60	7,152,532	6,250,628	5,852,808	129	18,837,264	16,524,733	15,498,224

Notes:
Head & Quad Claimants have higher average entitlement due to greater severity of injury

PE Appendix F

PIPP Enhancement: Death Benefits

Estimated IBNR

	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			
Insurance Year	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1999 & Prior	45	4,424,348	3,819,560	3,562,262	2	201,200	171,400	159,000	47	4,625,548	3,990,960	3,721,262
2000	7	811,124	692,353	643,491	0	-	-	-	7	811,124	692,353	643,491
2001	7	675,140	578,479	537,554	0	-	-	-	7	675,140	578,479	537,554
2002	11	1,008,265	863,567	802,578	0	-	-	-	11	1,008,265	863,567	802,578
2003	6	500,698	427,122	395,963	1	100,600	85,700	79,500	7	601,298	512,822	475,463
2004	10	1,055,113	885,663	816,204	0	-	-	-	10	1,055,113	885,663	816,204
2005	8	824,380	708,945	660,624	0	-	-	-	8	824,380	708,945	660,624
2006	14	1,520,549	1,261,875	1,154,849	0	-	-	-	14	1,520,549	1,261,875	1,154,849
2007	11	1,236,693	1,033,983	951,030	1	100,600	85,700	79,500	12	1,337,293	1,119,683	1,030,530
2008	10	918,345	782,727	725,727	0	-	-	-	10	918,345	782,727	725,727
2009	6	592,618	509,148	473,456	3	304,800	258,000	238,800	9	897,418	767,148	712,256
2010	7	746,416	618,017	565,854	1	100,900	85,200	78,700	8	847,316	703,217	644,554
2011	7	697,195	556,703	500,446	2	202,200	170,000	156,600	9	899,395	726,703	657,046
2012	8	783,856	653,347	601,581	2	204,000	171,000	157,400	10	987,856	824,347	758,981
2013	5	453,596	373,144	340,257	1	102,700	85,900	79,000	6	556,296	459,044	419,257
2014	7	789,341	671,685	623,753	3	309,600	259,200	238,500	10	1,098,941	930,885	862,253
2015	4	487,286	425,269	398,070	3	312,300	261,600	240,600	7	799,586	686,869	638,670
2016	7	634,624	507,794	457,917	4	407,600	340,800	313,200	11	1,042,224	848,594	771,117
2017	1	90,902	76,650	71,039	11	1,098,900	918,500	843,700	12	1,189,802	995,150	914,739
Total	181	18,250,490	15,446,030	14,282,653	34	3,445,400	2,893,000	2,664,500	215	21,695,890	18,339,030	16,947,153

Notes:
(7) to (9) - 2008 & Prior: Per the weighted average for 2008 & Prior; 2009 & After: Per the 10-year weighted rolling average

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Undiscounted

Insurance	Mild		Moderate		Severe		Catastrophic		Total
Year	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	Allowance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	393,693	55	516,856	43	710,124	47	1,793,160	977,614
2000	19	83,925	7	59,378	4	92,837	7	311,866	167,740
2001	22	75,542	6	49,551	5	105,779	7	302,988	163,038
2002	24	108,393	9	65,407	7	109,224	11	437,342	232,822
2003	21	80,384	7	50,929	3	47,713	7	263,274	140,588
2004	22	91,005	5	51,670	2	19,702	10	484,149	250,193
2005	25	109,742	15	103,220	0	-	8	327,713	174,505
2006	40	144,093	11	83,643	4	54,520	14	723,342	375,784
2007	31	126,172	11	77,465	2	34,369	12	595,445	309,623
2008	35	147,720	12	97,651	1	27,413	10	398,368	212,823
2009	46	191,993	12	121,196	4	72,958	9	392,939	215,777
2010	43	213,682	13	142,460	2	25,649	8	370,330	204,255
2011	57	245,296	13	90,668	7	144,281	9	485,466	266,745
2012	56	266,687	11	130,681	2	16,042	10	462,631	251,986
2013	60	261,025	13	129,610	3	49,259	6	268,822	156,405
2014	60	292,827	13	136,620	3	51,534	10	378,140	213,119
2015	60	323,354	13	114,275	3	70,493	7	277,470	164,141
2016	60	272,040	13	116,272	3	51,534	11	538,905	291,445
2017	60	272,040	13	116,272	3	51,534	12	534,238	289,111
Total	860	3,699,612	252	2,253,824	101	1,734,964	215	9,346,587	5,057,714

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Discounted with Margin

Insurance	Mild		Moderate		Severe		Catastrophic		Total
Year	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	Allowance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	356,096	55	455,573	43	631,835	47	1,575,628	859,989
2000	19	73,531	7	52,763	4	80,586	7	271,981	146,334
2001	22	67,648	6	44,086	5	92,277	7	263,858	142,130
2002	24	95,504	9	58,708	7	97,459	11	382,052	203,610
2003	21	71,455	7	46,068	3	42,929	7	231,341	123,693
2004	22	80,646	5	45,214	2	18,264	10	415,420	214,916
2005	25	96,789	15	93,101	0	-	8	285,778	152,383
2006	40	128,424	11	74,080	4	49,806	14	615,104	320,167
2007	31	112,298	11	69,388	2	30,926	12	504,596	262,928
2008	35	130,887	12	86,318	1	23,181	10	347,976	186,007
2009	46	169,233	12	103,880	4	63,317	9	340,720	187,182
2010	43	185,957	13	122,556	2	23,633	8	317,120	175,167
2011	57	215,273	13	81,375	7	125,938	9	406,006	224,133
2012	56	232,083	11	111,818	2	15,171	10	392,991	214,449
2013	60	228,387	13	112,481	3	42,666	6	227,060	132,707
2014	60	255,088	13	117,414	3	45,570	10	327,580	184,694
2015	60	276,420	13	100,020	3	59,523	7	240,029	141,813
2016	60	237,780	13	102,089	3	45,570	11	455,526	247,035
2017	60	237,780	13	102,089	3	45,570	12	457,606	248,075
Total	860	3,251,281	252	1,979,022	101	1,534,222	215	8,058,371	4,367,412

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Discounted without Margin

Insurance	Mild		Moderate		Severe		Catastrophic		Total
Year	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	Allowance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	338,698	55	427,880	43	596,165	47	1,477,761	807,018
2000	19	68,893	7	49,758	4	75,105	7	254,048	136,712
2001	22	64,051	6	41,605	5	86,228	7	246,328	132,758
2002	24	89,696	9	55,624	7	92,094	11	357,355	190,548
2003	21	67,424	7	43,804	3	40,712	7	216,996	116,095
2004	22	75,971	5	42,320	2	17,577	10	385,234	199,410
2005	25	90,952	15	88,434	0	-	8	267,056	142,497
2006	40	121,332	11	69,787	4	47,579	14	567,891	295,880
2007	31	105,997	11	65,698	2	29,320	12	465,321	242,711
2008	35	123,279	12	81,215	1	21,343	10	325,526	174,055
2009	46	159,037	12	96,353	4	59,080	9	317,568	174,507
2010	43	173,674	13	113,849	2	22,667	8	293,846	162,433
2011	57	201,894	13	77,114	7	117,741	9	372,288	205,981
2012	56	216,785	11	103,580	2	14,742	10	363,126	198,318
2013	60	213,927	13	104,927	3	39,775	6	209,249	122,556
2014	60	238,326	13	109,029	3	42,879	10	305,310	172,166
2015	60	256,085	13	93,687	3	54,814	7	223,540	132,000
2016	60	222,600	13	95,758	3	42,879	11	419,725	227,924
2017	60	222,600	13	95,758	3	42,879	12	424,269	230,197
Total	860	3,051,222	252	1,856,178	101	1,443,579	215	7,492,436	4,063,767

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

ACTUARIAL REPORT

ON

MANITOBA PUBLIC INSURANCE CORPORATION

UNIVERSAL COMPULSORY AUTOMOBILE INSURANCE

AS OF OCTOBER 31, 2017

Prepared by: Joe S. Cheng, F.C.I.A.

Date of Opinion: January 6, 2018

Date of Release: February 8, 2018

J. S. CHENG & PARTNERS INC.
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TABLE OF CONTENTS

	Page
INTRODUCTION	4
EXECUTIVE SUMMARY	5
DISTRIBUTION AND USE	10
VARIABILITY OF ACTUARIAL ESTIMATES	11
SCOPE OF THE REPORT	12
DATA AND RELIANCE	13
STANDARD OF MATERIALITY	14
EXPRESSION OF OPINION	15
DEFINITIONS	17
BASIS OF VALUATION	19
COMPANY OPERATIONS	20
REINSURANCE STRUCTURE	21
CLAIMS LIABILITY	22
REINSURANCE RECOVERY	36
PREMIUM LIABILITY	37
DESCRIPTION OF THE METHODOLOGIES TO ESTIMATE THE UNDISCOUNTED IBNR	39
PAYMENT PATTERN	42
DISCOUNT RATE & PROVISION FOR ADVERSE DEVIATIONS	44
SPECIFIC DISCLOSURE REQUIREMENTS	49
INDEX TO EXHIBITS	51
INDEX TO APPENDICES	53

J. S. CHENG & PARTNERS INC.
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INTRODUCTION

Corporation:	Manitoba Public Insurance Corporation
Purpose:	To provide an opinion on the policy provision for the Basic Insurance.
Valuation Date:	October 31, 2017
Author:	Joe S. Cheng, F.C.I.A.
Address:	1500 Don Mills Road, Suite 706, Toronto, Ontario, Canada M3B 3K4
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Position:	Appointed Actuary of Manitoba Public Insurance Corporation

EXECUTIVE SUMMARY

J. S. Cheng & Partners Inc. ("JSCP" or "we") has been appointed by the Board of Directors of Manitoba Public Insurance Corporation ("MPI" or "the Corporation") to conduct a policy liability valuation as of October 31, 2017. JSCP was engaged by MPI to provide an opinion on the policy provision for Universal Compulsory Automobile Insurance. The valuation was performed under the direction of Mr. Joe Cheng, FCIA.

The purpose of this report is to provide an opinion on the appropriateness of the Automobile Insurance Division – Universal Compulsory Automobile Insurance (Basic Insurance) policy provisions for the Manitoba Public Insurance Corporation as at October 31, 2017.

Our policy liability valuation has resulted in a release[1] of $35.3 million. The following tables break down the release (increase) by claim liabilities and by the change in deferred policy acquisition expenses write-down and premium deficiency.

Net Claim Liabilities (All figures in $'000)	Indicated [a]	MPI Carried Before Review	Release (Increase)
1) Accident Benefits	302,138	317,885	15,747
2) Other than Accident Benefits	49,544	57,808	8,264
3) All lines excluding PIPP Enhancement (1) + (2)	351,682	375,693	24,011
4) PIPP Enhancement	42,590	45,855	3,265
5) Internal Loss Adjustment Expense	174,244	181,128	6,884
6) Total Actuarial Liabilities [b]	**568,516**	**602,676**	**34,160**
7) Case Reserves Outstanding	1,252,919	1,252,919	0
8) Total Claim Liabilities [c]	**1,821,435**	**1,855,595**	**34,160**

[a] (1), (2), (4), (5) & (7) per Exhibit 1

[b] Sum of (3) to (5)

[c] Sum of (6) to (7)

[1] A release occurs when the booked value is greater than the indicated value (the result of the valuation) which leads to a decrease in the booked value to match the indicated value.

(All figures in $'000)	Indicated [a]	MPI Carried Before Review	Release (Increase)
9) Deferred Policy Acquisition Expenses (DPAE)	30,759		
10) Maximum Permissible DPAE	0		
11) DPAE Write-down	**30,759**	**29,692**	**-1,067**
12) Premium Deficiency	**4,677**	**6,844**	**2,167**

Total	**35,260**

Major changes in the policy liability valuation are summarized below:

Loss Development Factors

We reviewed the loss development factors and seasonality adjustment factors. The following is a list of changes made and the associated impact on the actuarial present value (APV) unpaid claims:

- We revised the loss development factors for Bodily Injury to reflect recent experience. Impact: Decrease of $0.2 million.
- We revised the loss development factors for Property Damage to reflect recent experience. Impact: Increase of $1.0 million.
- We revised the loss development factors for Collision to reflect recent experience. Impact: Decrease of $1.1 million.
- We revised the loss development factors for Comprehensive to reflect recent experience. Impact: Increase of $2.9 million.
- We revised the loss development factors for Accident Benefits – Weekly Indemnity to reflect the changes in reserving approach and recent experience. In respect of the reserving approach, MPI revised its reserving process for long-term PIPP claims in 2017, which increased the case reserves for insurance years older than 24 months. Therefore, we lowered the loss development factors to avoid overstating the provision for incurred but not reported claims. Impact: Decrease of $30.7 million.

- We revised the loss development factors for Accident Benefits – Other (Indexed) to reflect the changes in reserving approach and recent experience. Impact: Decrease of $0.5 million.
- We revised the loss development factors for Accident Benefits – Other (Non-Indexed) to reflect recent experience. Impact: Increase of $1.7 million.

In summary, the changes to the loss development factors resulted in a decrease in APV unpaid claims of $31.7 million, including a decrease of $4.9 million in internal loss adjustment expense ("ILAE").

Methodology for Selecting Provision for Incurred But Not Reported (IBNR)

We reviewed the methodology for selecting provision for IBNR. The following is a list of changes made and the associated impact on the APV unpaid claims:

- For Accident Benefits – Weekly Indemnity and Accident Benefits – Other (Indexed), we selected the IBNR based on the higher of the Incurred Bornhuetter-Ferguson method and Paid Bornhuetter-Ferguson method for the most recent three years (Insurance Years 2015-2017) instead of the most recent four years as in last year's report. In 2017, MPI revised its reserving process for long-term PIPP claims by centralizing the process to a dedicated team. The team completed a review of all PIPP claims older than 24 months, ensuring that case reserves are adequate to cover claimants' long-term entitlement to PIPP benefits based on established reserving guidelines. As a result, the case reserves were increased significantly in 2017, which reduces the uncertainty of the case reserve levels. (PIPP claims incurred, excluding the current loss year, was $81 million over budget as of October 31, 2017) Therefore, for this valuation, we decided to reduce the number of years that uses the higher of the incurred BF method and Paid BF method to the most recent three years only. Impact: $25.5 million decrease in APV unpaid claims, including a decrease of $4.0 million in ILAE.

Change in Interest Rates

We reviewed the methodology for selecting discount rate used to derive the APV unpaid claims and premium liabilities. The following is a list of changes made and the associated impact on the APV unpaid claim and premium liabilities:

- We switched from duration adjusted yield to market value weighted yield in selecting the discount rate. The Corporation's asset liability management policy strives to minimize the impact to its income statement due to a change in market interest rates. This change was made to reduce the mismatch between the Corporation's assets and liabilities from fluctuations in market yield.

- We selected a different discount rate for unpaid claims and premium liabilities. This change was made to recognize the difference in the duration of unpaid claims and premium liabilities, and the market yields of the investment portfolio used to support these liabilities.

Discount rate for unpaid claims	2/28/2017 Appraoch	10/31/2017 Approach
Non Indexed Lines		
- Nominal Rate	3.21%	3.35%
Indexed Lines		
- Real Rate (Adj. for 2% Inflation)	1.19%	1.32%

Discount rate for premium liabilities	2/28/2017 Appraoch	10/31/2017 Approach
Non Indexed Lines		
- Nominal Rate	3.21%	0.97%
Indexed Lines		
- Real Rate (Adj. for 2% Inflation)	1.19%	1.32%

In summary, the changes in discount rate resulted in a decrease in APV unpaid claims of $25.6 million and an increase in premium liabilities of $3.8 million.

Margin for Adverse Deviation (MfAD)

Given that most weekly indemnity claims older than 24 months are now tabular reserved for life, as a result of centralized reserving, and the only claims development risk is improvement on mortality, we decided to reduce the claims development MfAD for Accident Benefits – Weekly Indemnity from 15.0% to 10.0% for all claims older than 2 years. We also decreased the claims development MfAD for Accident Benefits – Other (Indexed) from 15.0% to 10.0% for all claims older than 10 years. Impact: Decrease of $31.6 million in APV unpaid claims, including a decrease of $3.1 million in ILAEs.

Subsequent Event

Since the date of this opinion, I am not aware of any subsequent event that would materially affect the results of my valuation.

DISTRIBUTION AND USE

The report contains confidential information about MPI. It does not deal with the future financial condition or rate adequacy of MPI. Its sole purpose is to provide an opinion on the appropriateness of the Automobile Insurance Division – Universal Compulsory Automobile Insurance policy provisions for Manitoba Public Insurance Corporation as at October 31, 2017. The report is neither intended nor necessarily suitable for any other use.

This report may be distributed to the regulator in the jurisdiction where the Corporation operates. Furthermore, the Corporation may distribute this report to its external auditor.

It is our understanding that this report is also filed annually with MPI's General Rate Application, which is a public document. Nevertheless, any party other than the ones named in paragraph two should be considered as a third party.

Where the report is disclosed, it should be provided in its entirety.

VARIABILITY OF ACTUARIAL ESTIMATES

There is a limitation upon the accuracy of claim liabilities as there is an inherent uncertainty in any estimate of claim liabilities. This inherent uncertainty is present because future events could affect the ultimate claim settlement. Some examples of future events are:

1. High/low inflation
2. High/low investment return
3. High/low termination rate
4. Increase/decrease in benefit levels (other than regular indexation)
5. Introduction of new benefits applicable to all insurance years

Therefore, one must acknowledge that the actual ultimate claim amount may differ materially from our estimates. We have employed standard actuarial techniques and appropriate assumptions. In our judgment, the conclusions presented in this report are best estimates, given the information available while performing the valuation.

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SCOPE OF THE REPORT

The scope of this report is limited to the Universal Compulsory Automobile Insurance (Basic Insurance). We are asked to:

1. Estimate the unpaid claims on a gross, ceded and net basis as of the valuation date.
2. Estimate the premium liabilities on the unearned premium as of the valuation date.
3. Determine the maximum allowable deferred policy acquisition expense.

All valuations are done as of October 31, 2017.

DATA AND RELIANCE

We relied on the gross and net case incurred (loss and allocated loss adjustment expense paid plus case reserve), and loss and allocated loss adjustment expense payments by insurance year as provided by MPI.

Premium figures were provided by MPI. They included both earned premium and unearned premium.

All data is as at October 31, 2017. We have asked PricewaterhouseCoopers LLP (PWC), the external auditor for MPI, to verify the valuation data against the Corporation's records. We expect to receive PWC's report before the statement of financial position as of February 28, 2018 is finalized. The data utilized in this report is unaudited.

We did not audit the claims and premium data, but a reconciliation was performed to ensure that no material data was omitted (see Appendix H).

STANDARD OF MATERIALITY

The Corporation's financial statement items for Basic Insurance are as follows:

Item	Amount $000	%	Threshold $000
2017 Net Unpaid Claims	1,821,435	0.5	9,107
Selected for February 28, 2017 valuation			5,000
Auditor's materiality for MPI			16,000
Basic Insurance unpaid claims / Total MPI's unpaid claims			95.1%
This year's selected			5,000

For the purpose of this valuation, an omission or inexplicable difference of $5,000,000 or about 0.3% of the net unpaid claims would be considered as material.

However, this does not imply that the actuary's provision is accurate within 0.3%. In fact, the future claim payment could be significantly different from the actuary's provision due to adverse/favourable claim development as noted in the Variability of Actuarial Estimates section.

EXPRESSION OF OPINION

I have valued the Automobile Insurance Division – Universal Compulsory Automobile Insurance policy liabilities and reinsurance recoverables of Manitoba Public Insurance Corporation for its statement of financial position at October 31, 2017 and their changes in the statement of income for the eight months then ended in accordance with accepted actuarial practice in Canada including selection of appropriate assumptions and methods.

In carrying out this valuation, I plan to use the work of the external auditor of the Corporation to ensure that the valuation data is essentially accurate and complete. A formal audit of the Corporation's financial statements will not be completed until the February 28, 2018 fiscal year end. Unless the audit uncovers material errors in the financial data, I am satisfied that the data utilized for the valuation of these liabilities are reliable and sufficient. I verified the consistency of the valuation data with the Corporation's financial records.

In my opinion, the amount of policy liabilities net of reinsurance recoverables makes appropriate provision for all policy obligations and the financial statements fairly present the results of the valuation.

The results of my valuation are as follows:

Claims Liabilities	Appointed Actuary's Estimate $000's
(1) Direct unpaid claims and adjustment expenses:	1,822,545
(2) Assumed unpaid claims and adjustment expenses:	0
(3) Gross unpaid claims and adjustment expenses:	1,822,545
(4) Ceded unpaid claims and adjustment expenses:	1,110
(5) Net unpaid claims and adjustment expenses (3)-(4):	1,821,435

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Premium Liabilities	Appointed Actuary's Estimate $000's
(1) Gross policy liabilities in connection with unearned premiums:	461,763
(2) Net policy liabilities in connection with unearned premiums:	460,655
(3) Gross unearned premiums:	459,742
(4) Net unearned premiums:	455,978
(5) Premium deficiency:	4,677
(6) Maximum policy acquisition expenses deferrable [(4)+(5)]–(2) :	0

_____ January 6, 2018
Signature of Appointed Actuary Date opinion was rendered

JOE S. CHENG, FCIA
Printed name of Appointed Actuary

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DEFINITIONS

Throughout this report, the term 'development' means a process in which claims of an insurance year (i.e. year in which the claims occur) progress from occurrence to settlement. As claims of similar nature have a similar development pattern over time, it is useful to know the age of the claims. The age of the claims is measured in months from the beginning of an insurance year to the valuation date. For example, claims valued at one year after the year in which they occur are said to be 24 months old or developed as of 24 months. Alternatively, they are said to be in development year '24 mos', or in the second development year. One year later, the same claims are said to be in development year '36 mos', or in the third development year. When all claims are settled, they are said to be in development year 'ultimate' or 'U'.

Development factors are ratios of values between two consecutive development years. They are named after the two development years. For example, in insurance year *N*, the ratio of cumulative incurred loss as of '36 mos' to cumulative incurred loss as of '24 mos' is called incurred loss development factor 36/24.

Development factors may be averaged only when they have the same name. In other words, if we want to have an average development factor 36/24, we can only do so by averaging development factors 36/24 from several insurance years, e.g. *N-1*, *N-2* and *N-3*.

The cumulative incurred loss development factor (incurred age-to-ultimate factor) is the chain product of the respective incurred development factors which would project the respective cumulative incurred at their present age to its ultimate value in development year 'U'. For example, the cumulative incurred loss development factor for incurred claims in development year '24 mos' would be the product of the incurred development factors 36/24, 48/36, 60/48, 72/60, 84/72, ..., U/108.

For a better understanding of the above definitions, refer to the Appendices.

Case reserve is the aggregate of all individual file estimates or tabular reserves as determined by the Corporation.

Deferred Policy Acquisition Expense (DPAE)

For a policy that has unearned premium at the valuation date, part of the paid expenses in acquiring the policy (e.g. commissions, premium tax, and investigation expense) may be deferred to reflect the unearned portion of that policy.

IBNR is the difference between unpaid and case reserve. It is a provision for incurred but not reported claims and deficiency in case reserve, and allocated loss adjustment expense.

Insurance years (policy years) are used in lieu of accident years. For MPI, the fiscal insurance year ends February 28th (February 29th in leap years). Therefore each insurance year is spread over two consecutive calendar years. 2017 insurance year means the period between March 1, 2017 to February 28, 2018.

Expenses incurred during the processing of claims that cannot be attributed to a specific claim are known as Internal Loss Adjustment Expense (ILAE). The sources of ILAE may be administrative expenses, in-house legal expenses or staffing costs.

Provision for Adverse Deviations (PFAD) is future payment provision that takes into account future adverse changes, such as claims development, uncollectible reinsurance, and investment return rate.

Unpaid is the difference between ultimate value and payments.

BASIS OF VALUATION

Undiscounted value is the sum of future payments without considering the time value of money.

Actuarial present value is the sum of future payments discounted at an interest rate determined from the balance sheet yield of the Corporation's portfolio with provisions for adverse deviations (i.e. claims development, uncollectible reinsurance and investment return rate). For the rest of the report, the term "actuarial present value" is abbreviated as "APV".

This valuation is done in accordance with generally accepted actuarial practice in Canada, meaning that claim liabilities are computed on an APV basis.

Salvage and subrogation are recorded as negative payments when they are received.

COMPANY OPERATIONS

MPI was incorporated as a Crown Corporation in 1970 under the Automobile Insurance Act. In 1974, the Automobile Insurance Act was revised and became the Manitoba Public Insurance Corporation Act. Under the provisions of this Act, MPI operates an automobile insurance division and a discontinued general insurance division.

On March 1, 1994, the province of Manitoba introduced the Personal Injury Protection Plan ("PIPP"). This plan eliminated bodily injury tort actions involving Manitoba drivers within Manitoba and increased payments under no-fault accident benefits coverage. For the coverages affected, we have segregated our analysis into pre-PIPP and PIPP eras.

The Automobile Insurance division provides Universal Compulsory Automobile Insurance (Basic Insurance), Special Risk Extension Insurance and Extension Insurance coverages. The Basic Insurance package includes third party liability with a $200,000 limit, no-fault accident benefits and all perils coverage with a $500 deductible. In addition, MPI writes optional coverage, for example increased liability limits and deductible buy-down coverage in competition with private insurers. This optional coverage is known as Extension Insurance. Other vehicle insurance coverages not offered by Basic Insurance or Extension Insurance are provided by Special Risk Extension Insurance (SRE Insurance).

On November 1, 1991, SRE Insurance was transferred from the General Insurance division to the Automobile Insurance division. The remaining portions of the General Insurance division have been in orderly run-off since 1990. All remaining portions of General Insurance division were transferred to the Automobile Insurance division under SRE in 2004.

This report is limited to Basic Insurance only.

REINSURANCE STRUCTURE

The Corporation uses excess of loss reinsurance to keep its net retention to a prudent level. The Corporation's net retention varies by calendar year, and is summarized in the table below:

Calendar Year	Reinsurance Coverage ($ million)
1994 - 1997	34.0 excess 1.0
1998	49.0 excess 1.0
1999 - 2001	74.0 excess 1.0
2002	73.0 excess 2.0
2003	38.0 excess 2.0
2004	47.5 excess 2.5
2005	47.0 excess 3.0
2006 - 2017	45.0 excess 5.0

The Corporation is also protected by a catastrophe program of $285 million excess of $15 million. The Corporation participates 33.3% of the $100 million excess of $200 million layer. Therefore the maximum recovery under the catastrophe program is $251.7 million.

For the Special Risks Extension Insurance coverage, the Corporation additionally uses a facultative excess of loss treaty covering $4.0 million excess of $1.0 million.

Reinsurance Disclosure

We wrote to Mr. Luke Johnston, Chief Actuary and Director of Pricing, Forecasting and Investments of MPI. Mr. Johnston confirmed that the Corporation had no ceded reinsurance agreements where there is not significant insurance risk transfer between MPI and the reinsurer as of October 31, 2017. Mr. Johnston also confirmed that the Corporation had no related party reinsurance as of October 31, 2017.

CLAIMS LIABILITY

1. Gross unpaid claims (undiscounted basis)

We employed four standard actuarial techniques described in the Description of Methodologies section and appropriate assumptions in estimating the unpaid claims and allocated (external) claims adjustment expense liability. The undiscounted IBNR was selected after reviewing the estimates from the four different methods. Adjustment factors are applied to the current insurance year by line of business to account for seasonality. All adjustment factors, except for Comprehensive, are based on a comprehensive study in 2008, and are relatively stable and not expected to change significantly over time. For Comprehensive, a seasonality adjustment factor of 84% was applied, similar to last year. The selected factors by line of business are in the table below.

	Incurred Losses During the Year	
Line of Business	First 8 months	Last 4 months
Bodily Injury	67%	33%
Property Damage	58%	42%
Collision	58%	42%
Comprehensive	84%	16%
Accident Benefits	67%	33%

The details of the undiscounted IBNR selection are as follows:

a) Bodily Injury (Appendix A)

As in prior reports, we selected the IBNR based on the Incurred Bornheutter-Ferguson method for all insurance years.

Loss development factors (both incurred and paid) were revised to reflect recent experience. The impact of these revisions is a decrease in undiscounted IBNR of $0.2 million.

b) Property Damage (Appendix B)

As in prior reports, we selected the IBNR based on the Incurred Bornheutter-Ferguson method for all insurance years.

Loss development factors (both incurred and paid) were revised to reflect recent experience. The impact of these revisions is an increase in undiscounted IBNR of $1.0 million.

c) Collision (Appendix C)

As in prior reports, we selected the IBNR based on the Incurred Loss Development method for all insurance years.

Loss development factors (both incurred and paid) were revised to reflect recent experience. The impact of these revisions is a decrease in undiscounted IBNR of $1.0 million.

d) Comprehensive (Appendix D)

As in prior reports, we selected the IBNR based on the Paid Loss Development method for all prior insurance years and the Incurred Loss Development method for the current year.

Loss development factors (both incurred and paid) were revised to reflect recent experience. The impact of these revisions is an increase in undiscounted IBNR of $2.9 million.

The data used is net of major hailstorm claims. As of October 31, 2017, there are no additional IBNR required for these major hailstorm claims.

e) Accident Benefits – Weekly Indemnity (Appendix E)

Historical payments and case reserves are restated to reflect current benefit levels prior to performing the analysis. Earned premiums are restated to match the indexing of loss costs.

Loss development factors (both incurred and paid) were revised to reflect the changes in reserving approach and recent experience. In respect of the reserving approach, MPI revised its reserving process for long-term PIPP claims by centralizing the process to a dedicated team. As a result, most weekly indemnity claims older than 24 months are now tabular reserved for life.

For the selection of the tail (116-month to Ultimate) factors;

- The incurred / paid tail factor was selected based on the observed ratios of the tabular reserve ultimate to the incurred/ paid at 116 months. The derivation of the tabular reserve ultimate is presented below.
- Incremental loss development factors after 116 months were revised to reflect the recent experience if there were at least five observed factors.

The impact of these loss development factor revisions is a decrease in undiscounted IBNR of $28.8 million.

As in prior reports, for insurance years that are at least 10 years old (2008 and prior), we determined tabular reserve ultimate for each insurance year as follows:

- Open weekly indemnity claims were identified.
- For open claims with tabular reserves, the tabular reserves were recalculated as of October 31, 2017. The calculation was done using a 0% interest rate so that only mortality and morbidity experience is reflected. These make up the majority of open claims.
- For open claims without tabular reserves;
  (i) 50% of the number of claims was assumed to ultimately be tabular reserved. These claims were multiplied by the average tabular reserves for open claims with tabular reserves.

(ii) 50% of the number of claims was assumed to remain non-tabular. These claims were multiplied by the average reserves for open claims without tabular reserves.

- The aggregate tabular reserve for all open claims is then used to determine the IBNR based on the tabular reserving method as presented in pages 20 and 21 of Appendix E.

In last year's report, we selected the IBNR based on the tabular reserving method for insurance years more than 10 years old. Some of the IBNR is intended for relapsed cases. For the six insurance years thereafter, we selected the IBNR based on the Incurred Bornheutter-Ferguson (BF) method. Finally for the four most recent insurance years, we selected the IBNR based on the higher of the Incurred BF method and Paid BF method. This "higher of" selection is to recognize the uncertainty among the actuarial methods in the more recent insurance years (especially as it pertains to the case reserve levels for serious losses). **For this valuation, we decided to decrease the higher of the Incurred BF method and Paid BF method from four to the three most recent years. The change is to recognize the change in reserving process for long-term PIPP claims, which increased the adequacy of case reserves for insurance years older than 24 months.** The impact of this revision is a decrease in undiscounted IBNR of $12.8 million.

f) Accident Benefits - Other Indexed (Appendix F)

Historical payments and case reserves are restated to reflect current benefit levels prior to performing the analysis. Earned premiums are restated to match the indexing of loss costs.

Loss development factors (both incurred and paid) were revised to reflect the recent experience. The impact of these loss development factors revisions is a decrease in undiscounted IBNR of $0.5 million.

In last year's report, the IBNR for the four most recent insurance years was selected based on the higher of the Incurred Bornheutter-Ferguson (BF) method and Paid BF method. For all other preceding insurance years, we selected the IBNR based on the Incurred Bornheutter-Ferguson method. **For this valuation, we decreased the higher of the Incurred BF method and Paid BF method from four to the three most recent years.** The impact of this revision is a decrease in undiscounted IBNR of $8.0 million.

In September 2010, a new claims management system (FINEOS/BI3) was implemented. The new system required that case reserves be set up to pay for expenses. However, the development on these expenses is already included in both the incurred and paid historical triangles. As such, the additional expense reserves (see Appendix F, page 8) were removed from the incurred triangle prior to analysis. The selected IBNR was then reduced by the current expense reserve of $16.6 million.

Further, the new claims management system was improperly handling the auto-reserving and auto-closing of new claims, resulting in excess reserves for certain benefits. The Corporation confirms that this issue was rectified as of November 2012. We have presented these excess reserves on page 9 of Appendix F. We have applied the same adjustment to these excess reserves as to the expense reserves; excess reserves were removed prior to analysis and the selected IBNR was reduced by $10.4 million.

g) Accident Benefits - Other Non-Indexed (Appendix G)

As in prior reports, we selected the IBNR based on the Incurred Bornheutter-Ferguson method for all insurance years.

Loss development factors (both incurred and paid) were revised to reflect recent experience. The impact of these revisions is an increase in undiscounted IBNR of $1.6 million

h) PIPP Enhancements (PE Exhibits)

Bill 36 was passed by the Manitoba legislature in October 2009 enhancing PIPP benefits for catastrophically injured claimants. The enhancements affect both past and future claimants. The enhancements are as follows (all figures at March 1, 2017 level):

(i) Increase income replacement indemnity to the industrial average wage (IAW) if claimant is not already receiving an amount equal to or greater than the IAW. (Income Replacement Indemnity)

(ii) Increase the maximum permanent impairment benefit to $243,580. (Permanent Impairment)

(iii) Increase the maximum personal care assistance monthly payments to $5,532. (Personal Care)

(iv) Provide the Corporation with the authority to reimburse expenses up to a lifetime limit of $1,132,934 per claimant.

(v) When permanent impairment benefits have been paid, and the claimant is later entitled to death benefits, the death benefits will not be offset by the permanent impairment benefits already paid (as was the previous practice). This enhancement applies to all injured claimants. (Death Benefits)

No provision was added for the fourth enhancement as it was estimated to have an immaterial effect. The estimation of the claim liabilities pertaining to the other four enhancements are presented in PE Exhibit 1.

Further, in August 2011, the Manitoba legislature passed additional PIPP benefit enhancements for catastrophically injured claimants, introduced as part of a reinterpretation of Section 138 of the Manitoba Public Insurance Corporation Act. These enhancements are as follows:

(i) Outright purchase and adaptation of a vehicle for the claimant once every five years. Previously, only the adaptation of a vehicle was

covered if a new vehicle was purchased by the claimant. (Vehicle Purchase)

(ii) Modification of a secondary residence e.g. a cottage owned by the claimant.

(iii) Reimbursement for extraordinary expenses to better support the claimant's continuation of pre-accident activities and new life event (e.g. marriage) requirements.

(iv) Provide attendant care coverage for employment if it reduces the total amount of PIPP benefits payable.

(v) Reimbursement for extraordinary expenses for leisure and recreational activities. Biannual limits ranging from $500 to $4,000 depending on the claimants' degree of permanent impairment. This enhancement applies to all injured claimants. (Annual Spending Allowance)

The estimation of the claim liabilities pertaining to the first and the fifth enhancements are presented in PE Exhibit 1. The estimation of the other three enhancements is presented in PE Exhibit 4.

On May 1, 2015, the Manitoba legislature further introduced another PIPP benefit enhancement. This enhancement provides caregiver weekly indemnity to the person responsible for the care of a deceased claimant's dependents (Caregiver Death Benefit). This enhancement affects only claimants with accident dates on May 1, 2015 and after. The estimation of the claim liabilities pertaining to this new enhancement is presented in PE Exhibit 1.

A summary of the undiscounted ultimate by enhancement is listed below. The ultimate in the February 28, 2017 report is provided for comparative purposes.

Enhancement	Ultimate as of February 28, 2017 $000	Ultimate as of October 31, 2017 $000
Income Replacement Indemnity	28,264	28,226
Personal Care	27,626	27,685
Permanent Impairment	26,173	26,457
Vehicle Purchase	21,716	21,772
Death Benefits	21,479	21,385
Annual Spending Allowance	5,207	5,166
Section 138 Enhancement	3,518	3,518
Caregiver Death Benefit	4,170	5,470
Total	**138,154**	**139,679**

There were no other changes, apart from increases resulting from the addition of one more insurance year.

A summary of all the impacts from the changes in assumption is listed below:

	10/31/2017 undiscounted IBNR based on 2/28/2017 assumptions	Change in LDFs Selection	*Changes in Other Assumptions	10/31/2017 undiscounted IBNR based on 10/31/2017 assumptions
	(1)	(2)	(3)	(4) = Σ[(1) to (3)]
Bodily Injury	6,514	-185	0	6,329
Property Damage	6,320	951	0	7,271
Accident Benefits				
Weekly Indemnity	222,677	-28,813	-12,849	181,015
Other (Indexed)	107,656	-450	-7,960	99,246
Other (Non-Indexed)	19,397	1,639	0	21,036
Collision	22,691	-1,012	0	21,679
Comprehensive	3,263	2,873	0	6,136
Sub-total before ILAE	388,519	-24,997	-20,809	342,713
ILAE	181,654	-4,600	-3,829	173,225
Sub-total after ILAE	570,173	-29,597	-24,638	515,938
PIPP Enhancement	45,042	0	0	45,042
Total IBNR	615,215	-29,597	-24,638	560,980

* Other assumptions include changes in method of selecting IBNR

2. Ceded unpaid claims

Ceded case reserves relate to Comprehensive hail losses and Accident Benefits (Accident Benefits - Weekly Indemnity and Accident Benefits - Other Indexed).

For Comprehensive hail losses, per section 1(d) above, we assume no further gross, and therefore net, undiscounted IBNR is required.

For Accident Benefits, we assume that no undiscounted IBNR is ceded i.e. the Corporation assumes the full undiscounted IBNR liability for these coverages.

3. Net unpaid claims

Net unpaid claims are equal to gross unpaid claims less ceded unpaid claims.

4. Internal Loss Adjustment Expense (ILAE)

We assumed a paid ILAE to paid claims methodology. The three year weighted average paid ILAE to paid claims[2] ratio was 18.2%. We selected a ratio of 18.4%, unchanged from the February 28, 2017 report, based on the recent three observed ratios and the indicated three year weighted average.

	As of Feb 16	As of Feb 17	As of Oct 17	3-Year Weighted Avg
Paid	644,211	681,113	457,442	1,782,766
ILAE Paid	118,614	120,972	84,499	324,085
ILAE factor	18.41%	17.76%	18.47%	18.18%

Selected in February 28, 2017 valuation	18.40%
Selected in October 31, 2017 valuation	18.40%

[2] Paid claims exclude payments made for PIPP Enhancements. It is assumed that the administration of these benefits do not change the ILAE paid.

As in prior reports, we apply one-half of the selected ratio (9.20%) to the total unpaid claims[3] as of valuation date. In addition, we apply one-half of the selected ratio to total IBNR as of valuation date.

The derivation of the ILAE provision is presented in Exhibit 5.

5. Mass Tort / Latent Liability Claims

According to the Corporation, there were no mass tort claims against the Corporation.

6. Summary of Undiscounted IBNR and Unpaid Claims

	IBNR			Unpaid Claims			Reference
Line	Gross	Ceded	Net	Gross	Ceded	Net	
Bodily Injury	6,329	-	6,329	17,629	-	17,629	Exh 2, Sheet 1
Property Damage	7,271	-	7,271	18,312	-	18,312	Exh 2, Sheet 2
Accident Benefits - Weekly Indemnity	181,015	-	181,015	800,861	476	800,385	Exh 2, Sheet 5 & 11
Accident Benefits - Other (Indexed)	99,246	-	99,246	525,662	236	525,426	Exh 2, Sheet 6 & 12
Accident Benefits - Other (Non-Indexed)	21,036	-	21,036	57,654	-	57,654	Exh 2, Sheet 7
Collision	21,679	-	21,679	81,476	-	81,476	Exh 2, Sheet 3
Comprehensive	6,136	-	6,136	32,142	345	31,797	Exh 2, Sheet 4 & 10
ILAE	173,225	-	173,225	173,225	-	173,225	Exh 5
Sub Total	515,938	-	515,938	1,706,962	1,057	1,705,905	
Additional Case Reserves (overpayments)	-	-	-	6,429	-	6,429	
PIPP Enhancements	45,042	-	45,042	101,565	-	101,565	Exh PE
Rounding	-	-	-	-	-	-	
Total	560,980	-	560,980	1,814,956	1,057	1,813,899	

7. Actuarial Present Value

In this valuation, the required provision is determined using generally accepted actuarial practice, i.e. actuarial present value (APV). We started with the undiscounted case and IBNR provisions and followed the procedures on pages 41-46 to derive the APV provisions.

The case reserves by convention were kept at the undiscounted basis. By subtracting the case reserves from the APV unpaid claims, we obtained the IBNR on an APV basis.

[3] Exclude PIPP Enhancements; similar basis as that used to derive the selected ratio.

8. Income Tax Effect

The Corporation does not pay income taxes.

9. Summary

The claims liabilities on a gross, ceded and net basis are shown in tables 1-3 on the following pages.

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Table 1

Manitoba Public Insurance Corporation

Gross Unpaid Claims Summary (APV)

Basic Insurance

October 31, 2017

Coverage	Case Reserve $ 000's	IBNR $ 000's	Total Unpaid $ 000's	Reference
Bodily Injury	11,300	7,570	18,870	Exh 7, Sheet 1
Property Damage	11,041	7,805	18,846	Exh 7, Sheet 1
Accident Benefits - Weekly Indemnity	619,846	169,333	789,179	Exh 7, Sheet 1
Accident Benefits - Other (Indexed)	426,416	109,903	536,319	Exh 7, Sheet 1
Accident Benefits - Other (Non-Indexed)	36,618	22,943	59,561	Exh 7, Sheet 1
Collision	59,797	26,326	86,123	Exh 7, Sheet 1
Comprehensive	26,006	7,856	33,862	Exh 7, Sheet 1
ILAE	-	174,244	174,244	Exh 7, Sheet 1
Sub Total	1,191,024	525,979	1,717,003	
Additional Case Reserves (overpayments)	6,429	-	6,429	
PIPP Enhancements	56,523	42,590	99,114	Exh PE
Total	1,253,976	568,569	1,822,545	

Table 2

Manitoba Public Insurance Corporation

Ceded Unpaid Claims Summary (APV)

Basic Insurance

October 31, 2017

Coverage	Case Reserve $ 000's	IBNR $ 000's	Total Unpaid $ 000's	Reference
Bodily Injury	-	-	-	Gross - Net
Property Damage	-	-	-	Gross - Net
Accident Benefits - Weekly Indemnity	476	24	500	Gross - Net
Accident Benefits - Other (Indexed)	236	17	253	Gross - Net
Accident Benefits - Other (Non-Indexed)	-	-	-	Gross - Net
Collision	-	-	-	Gross - Net
Comprehensive	345	12	357	Gross - Net
ILAE	-	-	-	Gross - Net
Sub Total	1,057	53	1,110	
Additional Case Reserves (overpayments)	-	-	-	
PIPP Enhancements	-	-	-	Exh PE
Total	1,057	53	1,110	

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Table 3

Manitoba Public Insurance Corporation

Net Unpaid Claims Summary (APV)

Basic Insurance

October 31, 2017

Coverage	Case Reserve $ 000's	IBNR $ 000's	Total Unpaid $ 000's	Reference
Bodily Injury	11,300	7,570	18,870	Exh 7, Sheet 2
Property Damage	11,041	7,805	18,846	Exh 7, Sheet 2
Accident Benefits - Weekly Indemnity	619,370	169,310	788,680	Exh 7, Sheet 2
Accident Benefits - Other (Indexed)	426,180	109,885	536,065	Exh 7, Sheet 2
Accident Benefits - Other (Non-Indexed)	36,618	22,943	59,561	Exh 7, Sheet 2
Collision	59,797	26,326	86,123	Exh 7, Sheet 2
Comprehensive	25,661	7,844	33,505	Exh 7, Sheet 2
ILAE	-	174,244	174,244	Exh 7, Sheet 2
Sub Total	1,189,967	525,926	1,715,893	
Additional Case Reserves (overpayments)	6,429		6,429	
PIPP Enhancements	56,523	42,590	99,114	Exh PE
Total	1,252,919	568,516	1,821,435	

REINSURANCE RECOVERY

No explicit provision is made for doubtful reinsurance recovery. However, a reinsurance margin of 5% for Accident Benefits and 2.5% for Comprehensive has been applied in the APV calculation.

PREMIUM LIABILITY

With respect to the policies/treaties in force as at October 31, 2017, MPI has the following liabilities:

1. Premium Deficiency

   Based on the results of our valuation, the Corporation is required to carry a premium deficiency of $4,677,000.

2. Reinsurance premium and Commission Due

   This is not applicable to the Corporation.

3. Unearned Premiums

   The gross and net unearned premiums as of October 31, 2017 were determined by the Corporation as $459,742,000 and $455,978,000 respectively. We did not do an independent validation of the above unearned premiums.

4. Premium Liability

   The derivation of the gross and net premium liability on the unearned premium is presented in Exhibit 6. The results are summarized in the following table.

Gross premium liability is as follows:		($000's)
(1)	Gross unearned premiums	459,742
(2)	Expected claims (Incl. PIPP Enhancement)	378,808
(3)	Expected claims expense	68,980
(4)	Policyholder Service Cost	13,975
(5)	Gross premium liability (2) + (3) + (4)	461,763
Recoverable from reinsurers is calculated as follows:		
(6)	Ceded unearned premiums	3,764
(7)	Expected claims and expense	2,990
(8)	Cost of excess and catastrophe reinsurance	1,882
(9)	Excess claims recoverable	0
(10)	Recoverable from reinsurers (7) + (9) - (8)	1,108
Net premium liability and DPAE is calculated as follows:		
(11)	Net premium liability (5) - (10)	460,655
(12)	Net unearned premiums	455,978
(13)	Maximum DPAE based on claims experience (12) - (11)	(4,677)
(14)	Deferrable expenses carried prior to the valuation	30,759
(15)	Allowable DPAE / (Premium Deficiency)	(4,677)

5. Deferred Policy Acquisition Expenses

The Corporation's Deferred Policy Acquisition Expenses (DPAE) include unearned commissions and deferred premium taxes. Based on the results of our valuation, the premium deficiency as of October 31, 2017 was estimated to be $4,677,000. Prior to this review, the Corporation has written down its DPAE by $29,692,000 and carried a net DPAE of $1,067,000. We expect the Corporation to write down the carried net DPAE to zero and book a premium deficiency of $4,677,000.

DESCRIPTION OF THE METHODOLOGIES TO ESTIMATE THE UNDISCOUNTED IBNR

Method I - Paid Loss Development Method (Paid Development Method)

This method assumes that the cumulative paid loss amount for each development period will progress to the next development period in a definite pattern, and the progression is independent of the corresponding rates of progression for the previous development periods. Therefore, by taking the product of a series of development factors, we can project the ultimate loss amount from the most recent paid loss amount for each insurance year.

If we denote the development factor from 12 months to 24 months development by $D_{24/12}$, from 24 months to 36 months development by $D_{36/24}$, etc., then the ultimate loss for insurance year N-2 valued at 31/12/N can be determined as:

(Paid loss at development month 36) × $D_{48/36}$ × $D_{60/48}$ × $D_{72/60}$… × $D_{U/(U-12)}$

where U is the ultimate period.

The ultimate loss for any insurance year X valued at development month M can similarly be determined as:

(Paid loss at development month M) × $D_{(M+12)/M}$ × $D_{(M+24)/(M+12)}$ × ... × $D_{U/(U-12)}$

The implicit assumptions are:

(1) the rate of claims payment and closure are constant in a development period; and

(2) the inflation rate is identical for identical development period.

Method II - Incurred Loss Development Method (Incurred Development Method)

This method assumes that the cumulative incurred loss (cumulative paid loss plus case reserve) for each development period will progress to the next development period in a definite pattern, and the progression is independent of the corresponding rates of progression for the previous development periods. Using a technique similar to Method I, the ultimate loss for any insurance year X valued at development month M

= (Incurred loss at development month M) × $D_{(M+12)/M}$ × $D_{(M+24)/(M+12)}$ × ... × $D_{U/(U-12)}$

The implicit assumptions are:

1. Case reserve level is constant; no major changes in reserving philosophy has taken place; and
2. The inflation rate is constant for a given development period.

Method III - Bornhuetter-Ferguson Incurred Method

In this method, ultimate loss = cumulative incurred loss + IBNR

where IBNR = IBNR factor × expected loss.

The expected loss can be determined by one of the following:

(a) Expected loss ratio × earned premium
(b) Average claim size × number of claims
(c) Ultimates from Method I, Method II, or Method IV
(d) Judgment

The IBNR factor can be determined by using a 1-1/incurred age-to-ultimate factor or from external sources.

The implicit assumptions are:

1. Incurred loss as reported is partially credible; and
2. IBNR emergence is dependent on the expected loss, not on reported claims.

Method IV - Bornhuetter-Ferguson Paid Method

In this method, ultimate loss = cumulative paid loss + unpaid loss

where unpaid loss = unpaid factor x expected loss.

The expected loss can be determined by one of the following:

(a) Expected loss ratio x earned premium
(b) Average claim size x number of claims
(c) Ultimates from Method I, Method II, or Method III
(d) Judgment

The unpaid factor can be determined by using a 1-1/paid age-to-ultimate factor or from external sources.

The implicit assumptions are:

1. Paid loss as reported is reasonably credible; and
2. Unpaid loss emergence is dependent on the expected loss, not on paid claims.

PAYMENT PATTERN

Objective

The purpose of this section is to estimate the proportion of unpaid claims which will be paid in the year after valuation, two years after valuation, etc., until all claims are paid.

Assumptions

For a given coverage, the unpaid ratio of every insurance year at the same stage of development is identical. For example, assume a coverage has unpaid ratios of 65%, 40%, and 20% in development years 1, 2, and 3, respectively. Then, the corresponding unpaid ratios, paid ratios, and incremental paid ratios for insurance year 2017 are:

Development Year beginning on March 1	Unpaid Ratio (%)	Cumulative Paid Ratio (%)	Incremental Paid Ratio (%)
2017	65	35	35
2018	40	60	25
2019	20	80	20
2020		100	20

If the unpaid amount for insurance year 2017 at the end of development year 1 is $13,000,000 then the estimated payment in 2018, 2019 and 2020 are as follows:

Fiscal Payment Year	Payment
2018	13,000,000 x 25/65 = 5,000,000
2019	13,000,000 x 20/65 = 4,000,000
2020	13,000,000 x 20/65 = 4,000,000

Unpaid ratio is the amount of unpaid claims to the ultimate losses as of the valuation date. Paid ratio is the cumulative amount of paid claims to the ultimate losses as of the valuation date. This ratio can be determined as 100% less the unpaid ratio. Incremental paid ratio is the difference between two consecutive paid ratios.

Methodology

The Corporation's experience was used to establish its payment pattern. The following method (shown in Exhibit 7) was used to derive the payment pattern.

The paid projection method produced age-to-ultimate factors that project the cumulative paid amount to ultimate, at each stage of development. Therefore, we could get an estimate of the ratio of unpaid amount to ultimate loss by taking 1.0 - (1.0/age-to-ultimate factor) for each stage of development. This procedure was done for all lines.

Once the unpaid ratio was established, the paid ratio was simply one minus the unpaid ratio at each stage of development. The incremental paid ratio was calculated as the difference between two consecutive paid ratios. This established the Corporation's payment pattern for each line. With the incremental paid ratio, a payment matrix showing the amount of payment by payment year and insurance year was tabulated. See Exhibit 7 for an illustration of the calculation.

Payments were assumed to occur, on average, in the middle of the year. Therefore, if i is assumed to be the rate of interest for discounting purposes, the discount factors are:

$$1/(1 + i)^{0.5}, 1/(1 + i)^{1.5}, 1/(1 + i)^{2.5}, \text{ ... for fiscal (payment) year 2018, 2019 ….}$$

See Exhibit 7 for more details.

The unpaid amount included case reserves as reported by the Corporation and IBNR reserve as estimated in this report. The ILAE provision was estimated as 9.20% of the gross case reserves and 18.40% of the gross IBNR estimate. In this report, ILAE was treated as a separate item.

All of the above undiscounted figures are identical to those in the Claims Liability section of this report.

DISCOUNT RATE & PROVISION FOR ADVERSE DEVIATIONS

In 2017, the Corporation's investments included cash, bonds, public equity, real estate, infrastructure, and venture capital. In our discount rate analysis, we used only short term investments and the bond portfolio because these assets were suitably matched to the claim and premium liability cash flow.

A summary of this partial portfolio is presented in the table below:

	B/S Value	B/S Yield	Duration Weighted Yield	Market Value	Duration Years
	$000			$000	
Govt Bonds	1,197,747	2.83%	3.01%	1,197,747	11.91
Corporate Bonds	62,961	3.03%	3.15%	62,961	12.37
Non-Marketable Bonds	622,378	4.58%	4.33%	622,378	5.87
Floating Rate Note	-	0.00%	0.00%	-	-
Total	1,883,086	3.42%	3.27%	1,883,086	9.93

Market value (MV) weighted yield	3.42%	
Investment management fees	0.07%	
Rounding	0.00%	
MV weighted yield less mgmt. fees	3.35%	for unpaid claims liabilities (non-indexed lines)
Inflation rate assumption	2.00%	for unpaid claims liabilities
MV weighted (real) yield less mgmt. fees #	1.32%	for unpaid claims liabilities (indexed lines)
Market yield for short-term investment	0.97%	for premium liabilities (non-indexed lines)
MV weighted (real) yield less mgmt. fees #	1.32%	for premium liabilities (indexed lines)

In this valuation, two changes were made to the approach in selecting discount rate:

- We switched from duration adjusted yield to market value weighted yield in selecting the discount rate. The Corporation's asset liability management policy strives to minimize the impact to its income statement due to a change in market interest rates. This change was made to reduce the mismatch between the Corporation's assets and liabilities from fluctuations in market yield.

- We selected a different discount rate for unpaid claims and premium liabilities. This change was made to recognize the difference in the duration of unpaid claims and premium liabilities, and the market yields of the investment portfolio used to support these liabilities.

For coverages that are not inflation-indexed, we discounted the unpaid claims at 3.35%, which is the market value weighted yield less management fees. For coverages that are inflation-indexed (Accident Benefits - Weekly Indemnity and Accident Benefits - Other Indexed), the unpaid claim liabilities were discounted at 1.32% (= 1.0335 / 1.0200 - 1), which is the market value weighted real yield less management fees. The inflation rate assumption of 2.0% represents the Corporation's long term forecast for inflation. In the February 28, 2017 report, the unpaid claims were discounted at 3.39% for non-indexed coverages and 1.36% for indexed coverages.

For premium liabilities, we discounted the coverages that are not inflation-indexed at 0.97%, which is the market yield for short-term investments. We used the yield from short-term investments because these coverages have an average duration of less than 1.5 years. For coverages that are inflation-indexed, we discounted the premium liabilities at 1.32%, same as the discount rate used for unpaid claims.

The investment management fees percentage is calculated as 0.07% ($1,284,000[4] / 1,883,086,000).

In the Standards of Practice of the Canadian Institute of Actuaries, three major valuation variables were identified – claim development, reinsurance recovery, and interest rate. For each of these variables, the Standards defined ranges for the selection of margins for adverse development (MFAD).

[4] $1,284,000 was the 2017 actual investment management fees for the bond portfolio.

The MFAD for claims development was selected by coverage based on the duration of the payments, the historical volatility in the development pattern, and reinsurance features. As mostly all weekly indemnity (WI) claims older than 24 months are tabular reserved for life, as a result of centralized reserving, and the only claims development risk is improvement in mortality, we decided to reduce the MFAD for WI from 15% to 10% for all WI claims older than 24 months. We also reduced the MFAD for AB – Other (indexed) from 15% to 10% for all claims older than 10 years. Other MFAD selections were unchanged from the February 28, 2017 report, and are within the range defined in the Standards of Practice between 2.5% and 20%. The selected MFAD for claims development by coverage are as follows:

Coverage	Margin for Adverse Deviations
BI-Pre-PIPP	12.50%
BI-Post March 1, 1994	15.00%
AB-Pre-PIPP WI	5.00%
AB-Pre-PIPP Other	5.00%
AB-PIPP WI (2016 & After)	15.00%
AB-PIPP WI (Prior to 2016)	10.00%
AB-PIPP Indexed (2008 & After)	15.00%
AB-PIPP Indexed (Prior to 2008)	10.00%
AB-PIPP Non-Indexed	10.00%
Collision	7.50%
Comprehensive	7.50%
Property Damage	5.00%
ILAE	10.95%

The MFAD for reinsurance recovery was selected to provide for possible future problems in the collectability of reinsurance. For coverages with potential reinsurance recovery, the selected MFAD were unchanged from the February 28, 2017 report, and are as follows:

Coverage	Margin for Adverse Deviations
AB-PIPP WI	5.00%
AB-PIPP Indexed	5.00%
Comprehensive	2.50%

The MFAD for interest rate was selected (similar for all coverage) to provide for possible adverse experience in yield rates, reinvestment, and/or asset defaults. For the current valuation, the MFAD for interest rate was selected at 50 basis points (bp), same as the selected margin in the February 28, 2017 report.

The following table shows the investment yield of MPI versus the Manitoba CPI from October 2011 to October 2017 (provided by MPI).

	Weighted Average Yield of Bond Portfolio	Manitoba CPI (year over year)	Real Return
31-Oct-11	3.69%	3.02%	0.67%
29-Feb-12	3.55%	1.71%	1.84%
31-Oct-12	3.55%	1.68%	1.87%
28-Feb-13	3.53%	2.18%	1.35%
31-Oct-13	3.90%	2.23%	1.67%
28-Feb-14	3.68%	2.22%	1.46%
31-Oct-14	3.55%	1.29%	2.26%
28-Feb-15	2.92%	0.72%	2.20%
31-Oct-15	3.42%	1.91%	1.51%
29-Feb-16	3.34%	1.12%	2.22%
31-Oct-16	2.96%	1.09%	1.87%
28-Feb-17	3.39%	2.29%	1.10%
31-Oct-17*	3.35%	1.55%	1.80%

* Prior to October 31, 2017, duration weighted yield was used instead of average market yield.

The provision for adverse deviations for interest rate was determined as the difference between the present value of the unpaid claim liabilities at the yield with margin and the present value of the unpaid claim liabilities at the yield without margin. The table below summarizes the yield with and without margin:

	Unpaid Claims		Premium Liabilities	
	Non-Indexed Benefits Gross/Net Basis	Indexed Benefits Gross/Net Basis	Non-Indexed Benefits Gross/Net Basis	Indexed Benefits Gross/Net Basis
Yield with margin	2.85%	0.82%	0.47%	0.82%
Yield without margin	3.35%	1.32%	0.97%	1.32%
Margin	0.50%	0.50%	0.50%	0.50%

SPECIFIC DISCLOSURE REQUIREMENTS

1. I was first appointed by the Corporation on October 28, 2011 and have been re-appointed annually since 2011.

2. I presented the February 28, 2015 report and the February 29, 2016 report to the Board of Directors in person on May 15, 2015 and May 26, 2016, respectively. Due to scheduling conflicts, Mr. Raul Martin, FCIA presented the February 28, 2017 report to the Board of Directors on May 18, 2017 on my behalf.

3. I am in compliance with the Continuing Professional Development requirements of the Canadian Institute of Actuaries.

4.

Disclosure of Compensation

I attest that all my direct and indirect compensation is derived using the following methodology:

Fixed fee basis, and without contingent compensation of any kind.

I confirm that I have performed my duties without regard to any personal considerations or to any influence, interest or relationship in respect of the affairs of my client or employer that might impair my professional judgment or objectivity.

I confirm that my ability to act fairly is unimpaired, that there has been full disclosure of the methodology used to derive my compensation to all known direct users of my services.

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INDEX TO EXHIBITS

EXHIBIT 1 Summary of Policy Liabilities

EXHIBIT 2 Claim Liabilities

EXHIBIT 3 Claim Run-Off

EXHIBIT 4 IBNR Estimates

EXHIBIT 5 Internal Loss Adjustment Expenses

EXHIBIT 6 DPAC Calculation

EXHIBIT 7 Actuarial Present Value Calculations

EXHIBIT 8 Actuarial Present Value Calculations by Insurance Year

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INDEX TO APPENDICES

APPENDIX A	BI - Undiscounted Gross IBNR Calculations
APPENDIX B	PD - Undiscounted Gross IBNR Calculations
APPENDIX C	Collision - Undiscounted Gross IBNR Calculations
APPENDIX D	Comprehensive - Undiscounted Gross IBNR Calculations
APPENDIX E	AB – Weekly Indemnity - Undiscounted Gross IBNR Calculations
APPENDIX F	AB – Other Indexed - Undiscounted Gross IBNR Calculations
APPENDIX G	AB – Other Non-Indexed - Undiscounted Gross IBNR Calculations
APPENDIX H	Reconciliation
APPENDIX PE	PIPP Enhancement - Undiscounted Gross IBNR Calculations

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EXHIBIT 1

Summary of Policy Liabilities

Manitoba Public Insurance
Automobile Insurance Division
Summary of Policy Claim Liabilities
As of October 31, 2017
($000)

Exhibit 1
Sheet 1

1. Selected IBNR (Including External Adjustment Expenses) [a]	Direct & Agency	Ceded	Net	Carried Before Review
Bodily Injury - Basic	6,329	-	6,329	
Property Damage - Basic	7,271	-	7,271	
Collision - Basic	21,679	-	21,679	
Comprehensive - Basic	6,136	-	6,136	
Accident Benefits - Weekly Indemnity	181,015	-	181,015	
Accident Benefits - Other (Indexed)	99,246	-	99,246	
Accident Benefits - Other (Non-Indexed)	21,036	-	21,036	
Total	342,713	-	342,713	
Internal Loss Adjustment Expense (ILAE) Provision [b]	173,225	-	173,225	
Total Including ILAE Provision	515,938	-	515,938	
2. CIA Rules Adjustments [c]				
i. Discount Amount - Excluding ILAE Provision	(205,895)	(6)	(205,889)	
ii. Discount Amount - ILAE Provision	(23,254)	-	(23,254)	
iii. Provision for Adverse Deviation - Excluding ILAE Provision	214,917	59	214,858	
iv. Provision for Adverse Deviation - ILAE Provision	24,273	-	24,273	
	10,042	53	9,988	
3. Adjusted IBNR (Including External Adjustment Expense) (1+2i+2iii)	351,735	53	351,682	375,693
4. Adjusted ILAE Provision (1+2ii+2iv)	174,244	-	174,244	181,128
5. Adjusted IBNR - PIPP Enhancement [d]	42,590	-	42,590	45,855
6. Total Actuarial Liabilities (3+4+5)	568,569	53	568,516	602,676
7. Case Reserve Outstanding — Hail Catastrophe	416	345	71	
PIPP Enhancement [e]	56,523	-	56,523	
Other than Hail & Enh	1,197,037	712	1,196,325	
Total [f]	1,253,976	1,057	1,252,919	1,252,920
8. Total - Claim Liabilities (6+7)	1,822,545	1,110	1,821,435	1,855,596

Notes:
[a] From Exhibit 2, Column 6 for the respective coverage
[b] From Exhibit 5, Row 12; Net equal to Direct & Agency
[c] From Exhibit 7, Sheet 1 for Direct & Agency and Exhibit 7, Sheet 2 for Net
[d] PE Exhibit 2, Sheet 8, Column 12 + PE Exhibit 4, Required IBNR
[e] PE Exhibit 1, Sheet 8, Column 4 + PE Exhibit 4, Case Reserves
[f] From MPI - Difference from Actuarial Database (Exh 2, Sheet 9 + PE Exh 1, Sheet 8 + PE Exhibit 4): 6,429

Manitoba Public Insurance
Automobile Insurance Division
Summary of Policy Premium Liabilities
As of October 31, 2017
($000)

Exhibit 1
Sheet 2

	Direct & Agency	Ceded	Net
1. Unearned Premium [a]	459,742	3,764	455,978
2. Equity in Unearned Premium [b]	(2,021)	2,656	(4,677)
3. Carried Deferred Policy Acquisition Expense [a]	30,759	-	30,759
4. Write Down Deferred Policy Acquisition Expense [c]	30,759	-	30,759
5. Maximum Permissible Deferred Policy Acquisition Expense [d]	-	-	-
6. Deferred Policy Acquisition Expense After Review [e]	-	-	-
7. Premium Deficiency [f]	2,021	(2,656)	4,677

Notes:
[a] From MPI
[b] From Exhibit 6, Sheet 1 for Direct & Agency and Exhibit 6, Sheet 5 for Net
[c] Min((3) - (2), (3)) if greater than 0, otherwise 0
[d] Max((2), (3) - (4))
[e] Min((3), (5))
[f] Negative of (2) if greater than 0, otherwise 0

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EXHIBIT 2

Claim Liabilities

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 1

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Bodily Injury - Basic								
1999 & Prior			(1)					(1)
2000	475,277	4,213	150	4,363	-	4,363	0.92%	150
2001	497,121	5,255	-	5,255	-	5,255	1.06%	-
2002	532,307	4,629	-	4,629	-	4,629	0.87%	-
2003	560,857	3,949	-	3,949	-	3,949	0.70%	-
2004	596,045	5,196	-	5,196	-	5,196	0.87%	-
2005	630,367	4,228	-	4,228	-	4,228	0.67%	-
2006	654,863	3,520	45	3,565	-	3,565	0.54%	45
2007	677,464	3,720	20	3,740	-	3,740	0.55%	20
2008	707,051	2,346	85	2,431	-	2,431	0.34%	85
2009	739,881	3,425	50	3,475	5	3,480	0.47%	55
2010	759,948	3,800	525	4,325	9	4,335	0.57%	534
2011	772,985	1,990	549	2,539	57	2,595	0.34%	606
2012	768,953	3,521	136	3,657	193	3,850	0.50%	329
2013	778,092	2,386	1,358	3,744	414	4,158	0.53%	1,772
2014	817,710	3,158	2,104	5,261	776	6,037	0.74%	2,880
2015	873,488	1,680	2,225	3,905	1,244	5,150	0.59%	3,469
2016	918,780	1,173	2,586	3,758	1,810	5,568	0.61%	4,396
2017	656,688	49	1,468	1,517	1,822	3,339	0.51%	3,290
Total	12,417,877	58,239	11,300	69,540	6,329	75,868	0.61%	17,629

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 2

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Property Damage - Basic								
1999 & Prior			(1)					(1)
2000	475,277	25,752	(1)	25,750	-	25,750	5.42%	(1)
2001	497,121	25,722	1	25,723	-	25,723	5.17%	1
2002	532,307	28,057	-	28,057	-	28,057	5.27%	-
2003	560,857	29,562	-	29,562	-	29,562	5.27%	-
2004	596,045	29,616	1	29,616	-	29,616	4.97%	1
2005	630,367	30,293	-	30,293	-	30,293	4.81%	-
2006	654,863	33,576	1	33,577	-	33,577	5.13%	1
2007	677,464	34,237	52	34,289	-	34,289	5.06%	52
2008	707,051	35,846	136	35,982	-	35,982	5.09%	136
2009	739,881	34,944	11	34,954	(17)	34,937	4.72%	(6)
2010	759,948	37,168	208	37,376	(37)	37,338	4.91%	171
2011	772,985	37,481	56	37,537	(56)	37,481	4.85%	(0)
2012	768,953	41,611	162	41,773	(81)	41,691	5.42%	81
2013	778,092	45,396	111	45,506	(86)	45,420	5.84%	25
2014	817,710	40,738	276	41,014	22	41,036	5.02%	298
2015	873,488	40,274	583	40,857	404	41,261	4.72%	987
2016	918,780	39,861	1,844	41,705	2,119	43,824	4.77%	3,963
2017	656,688	13,490	7,601	21,091	5,004	26,096	3.97%	12,605
Total	12,417,877	603,623	11,041	614,662	7,271	621,933	5.01%	18,312

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 3

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Collision - Basic								
1999 & Prior			3					3
2000	475,277	152,394	(1)	152,393	-	152,393	32.06%	(1)
2001	497,121	161,277	(5)	161,272	-	161,272	32.44%	(5)
2002	532,307	179,591	-	179,591	-	179,591	33.74%	-
2003	560,857	193,944	1	193,944	-	193,944	34.58%	1
2004	596,045	201,611	2	201,613	-	201,613	33.83%	2
2005	630,367	203,062	1	203,062	-	203,062	32.21%	1
2006	654,863	224,456	6	224,462	-	224,462	34.28%	6
2007	677,464	233,087	(2)	233,085	-	233,085	34.41%	(2)
2008	707,051	241,751	1	241,752	-	241,752	34.19%	1
2009	739,881	242,498	-	242,498	-	242,498	32.78%	-
2010	759,948	271,178	4	271,182	-	271,182	35.68%	4
2011	772,985	273,121	6	273,127	-	273,127	35.33%	6
2012	768,953	310,608	27	310,635	-	310,635	40.40%	27
2013	778,092	349,102	29	349,131	175	349,305	44.89%	204
2014	817,710	317,271	75	317,346	476	317,822	38.87%	551
2015	873,488	350,544	346	350,890	1,582	352,472	40.35%	1,928
2016	918,780	377,197	2,836	380,033	6,884	386,917	42.11%	9,720
2017	656,688	170,869	56,468	227,337	12,563	239,900	36.53%	69,031
Total	12,417,877	4,453,560	59,797	4,513,352	21,679	4,535,031	36.52%	81,476

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 4

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Comprehensive - Basic								
1999 & Prior			35					35
2000	475,277	44,517	1	44,518	(1)	44,517	9.37%	-
2001	497,121	71,216	(1)	71,215	1	71,216	14.33%	-
2002	532,307	46,113	-	46,113	-	46,113	8.66%	-
2003	560,857	53,147	-	53,147	-	53,147	9.48%	-
2004	596,045	62,357	-	62,357	-	62,357	10.46%	-
2005	630,367	70,854	-	70,854	-	70,854	11.24%	-
2006	654,863	74,850	-	74,850	-	74,850	11.43%	-
2007	677,464	113,322	-	113,322	-	113,322	16.73%	-
2008	707,051	49,802	50	49,852	(50)	49,802	7.04%	-
2009	739,881	78,615	(2)	78,614	2	78,616	10.63%	-
2010	759,948	74,802	69	74,871	(69)	74,802	9.84%	-
2011	772,985	74,610	418	75,029	(418)	74,611	9.65%	-
2012	768,953	72,539	942	73,481	(906)	72,575	9.44%	36
2013	778,092	74,632	8	74,640	141	74,782	9.61%	149
2014	817,710	70,634	36	70,670	282	70,952	8.68%	318
2015	873,488	118,383	3,411	121,794	(1,805)	119,989	13.74%	1,606
2016	918,780	112,068	7,113	119,181	157	119,338	12.99%	7,270
2017	656,688	36,227	13,926	50,153	8,801	58,954	8.98%	22,727
Total	12,417,877	1,298,690	26,006	1,324,661	6,136	1,330,798	10.72%	32,142

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 5

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Weekly Indemnity								
1999 & Prior			104,593		12,242			116,835
2000	475,277	36,600	17,860	54,461	1,110	55,570	11.69%	18,970
2001	497,121	31,945	16,199	48,144	1,119	49,263	9.91%	17,318
2002	532,307	34,947	20,195	55,141	1,807	56,948	10.70%	22,002
2003	560,857	34,688	17,655	52,343	2,142	54,486	9.71%	19,797
2004	596,045	27,094	18,163	45,257	2,140	47,397	7.95%	20,303
2005	630,367	33,771	21,900	55,671	2,261	57,932	9.19%	24,161
2006	654,863	39,610	31,798	71,408	3,163	74,571	11.39%	34,961
2007	677,464	39,047	30,111	69,158	3,038	72,196	10.66%	33,149
2008	707,051	39,226	28,650	67,876	2,913	70,789	10.01%	31,563
2009	739,881	34,639	29,384	64,024	2,875	66,899	9.04%	32,259
2010	759,948	40,868	41,008	81,876	3,213	85,089	11.20%	44,221
2011	772,985	36,459	42,167	78,626	3,200	81,826	10.59%	45,367
2012	768,953	36,993	56,727	93,720	3,458	97,178	12.64%	60,185
2013	778,092	29,997	44,349	74,346	6,195	80,542	10.35%	50,544
2014	817,710	21,889	39,894	61,783	8,543	70,326	8.60%	48,437
2015	873,488	23,421	42,597	66,018	23,601	89,619	10.26%	66,198
2016	918,780	17,343	10,329	27,672	57,245	84,918	9.24%	67,574
2017	656,688	4,732	6,267	10,999	40,749	51,748	7.88%	47,016
Total	12,417,877	563,272	619,846	1,078,524	181,015	1,247,297	10.04%	800,861

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 6

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Indexed)								
1999 & Prior			72,655		10,783			83,438
2000	475,277	34,585	10,804	45,389	2,309	47,699	10.04%	13,113
2001	497,121	35,750	13,599	49,349	2,550	51,899	10.44%	16,149
2002	532,307	36,266	16,718	52,984	3,114	56,098	10.54%	19,832
2003	560,857	36,885	11,246	48,131	3,216	51,347	9.16%	14,462
2004	596,045	34,353	19,508	53,861	3,676	57,537	9.65%	23,184
2005	630,367	33,562	13,528	47,090	3,484	50,574	8.02%	17,012
2006	654,863	38,936	26,153	65,089	4,785	69,875	10.67%	30,938
2007	677,464	37,792	24,059	61,851	4,958	66,810	9.86%	29,017
2008	707,051	36,106	14,778	50,884	4,553	55,438	7.84%	19,331
2009	739,881	36,430	18,863	55,293	5,092	60,385	8.16%	23,955
2010	759,948	35,079	16,974	52,054	3,778	55,832	7.35%	20,752
2011	772,985	36,571	20,979	57,550	5,043	62,593	8.10%	26,022
2012	768,953	37,867	19,994	57,861	5,742	63,603	8.27%	25,736
2013	778,092	36,386	13,639	50,025	6,482	56,507	7.26%	20,121
2014	817,710	30,675	19,168	49,844	6,998	56,841	6.95%	26,166
2015	873,488	34,108	26,040	60,148	9,623	69,771	7.99%	35,663
2016	918,780	27,773	37,709	65,481	3,768	69,250	7.54%	41,477
2017	656,688	6,595	30,002	36,597	9,289	45,886	6.99%	39,291
Total	12,417,877	605,719	426,416	959,481	99,246	1,047,944	8.44%	525,662

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 7

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Non-Indexed)								
1999 & Prior			3,289		-			3,289
2000	475,277	23,158	-	23,158	-	23,158	4.87%	-
2001	497,121	24,640	2	24,642	-	24,642	4.96%	2
2002	532,307	26,795	5	26,799	-	26,799	5.03%	5
2003	560,857	25,286	18	25,305	-	25,305	4.51%	18
2004	596,045	24,676	37	24,713	49	24,762	4.15%	86
2005	630,367	28,784	43	28,827	115	28,942	4.59%	158
2006	654,863	33,840	19	33,859	200	34,058	5.20%	219
2007	677,464	29,810	143	29,954	244	30,197	4.46%	387
2008	707,051	28,412	418	28,831	301	29,131	4.12%	719
2009	739,881	29,530	82	29,612	359	29,971	4.05%	441
2010	759,948	28,018	139	28,158	408	28,566	3.76%	547
2011	772,985	31,108	422	31,530	488	32,018	4.14%	910
2012	768,953	29,192	474	29,665	548	30,213	3.93%	1,022
2013	778,092	26,224	671	26,895	703	27,598	3.55%	1,374
2014	817,710	25,276	1,788	27,063	1,092	28,155	3.44%	2,880
2015	873,488	20,063	8,681	28,744	1,925	30,669	3.51%	10,606
2016	918,780	16,180	11,121	27,301	5,705	33,005	3.59%	16,826
2017	656,688	2,710	9,266	11,976	8,900	20,876	3.18%	18,166
Total	12,417,877	453,701	36,618	487,031	21,036	508,067	4.09%	57,654

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 8

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Total								
1999 & Prior			180,537		23,025			203,562
2000	475,277	94,343	28,664	123,008	3,419	126,426	26.60%	32,083
2001	497,121	92,335	29,800	122,136	3,669	125,805	25.31%	33,469
2002	532,307	98,007	36,918	134,925	4,921	139,846	26.27%	41,839
2003	560,857	96,859	28,919	125,779	5,359	131,138	23.38%	34,278
2004	596,045	86,122	37,708	123,830	5,866	129,696	21.76%	43,574
2005	630,367	96,117	35,471	131,588	5,860	137,448	21.80%	41,331
2006	654,863	112,386	57,970	170,356	8,148	178,504	27.26%	66,118
2007	677,464	106,650	54,313	160,963	8,240	169,203	24.98%	62,553
2008	707,051	103,745	43,846	147,591	7,767	155,358	21.97%	51,613
2009	739,881	100,599	48,329	148,929	8,326	157,255	21.25%	56,655
2010	759,948	103,966	58,121	162,088	7,399	169,487	22.30%	65,520
2011	772,985	104,137	63,568	167,706	8,731	176,437	22.83%	72,299
2012	768,953	104,052	77,195	181,247	9,747	190,994	24.84%	86,942
2013	778,092	92,607	58,659	151,266	13,381	164,647	21.16%	72,040
2014	817,710	77,840	60,850	138,690	16,633	155,323	18.99%	77,483
2015	873,488	77,592	77,318	154,909	35,149	190,058	21.76%	112,467
2016	918,780	61,296	59,159	120,454	66,718	187,173	20.37%	125,877
2017	656,688	14,037	45,535	59,572	58,938	118,510	18.05%	104,473
Total	12,417,877	1,622,691	1,082,880	2,525,036	301,298	2,803,308	22.57%	1,384,178

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 9

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Basic - Total All Coverage*								
1999 & Prior			180,573		23,025			203,598
2000	475,277	321,218	28,813	350,031	3,418	353,449	74.37%	32,231
2001	497,121	355,806	29,795	385,602	3,670	389,272	78.31%	33,465
2002	532,307	356,397	36,918	393,314	4,921	398,235	74.81%	41,839
2003	560,857	377,461	28,920	406,381	5,359	411,740	73.41%	34,279
2004	596,045	384,903	37,711	422,613	5,866	428,479	71.89%	43,577
2005	630,367	404,554	35,472	440,025	5,860	445,885	70.73%	41,332
2006	654,863	448,787	58,022	506,809	8,148	514,958	78.64%	66,170
2007	677,464	491,017	54,383	545,399	8,240	553,639	81.72%	62,623
2008	707,051	433,491	44,118	477,608	7,717	485,325	68.64%	51,835
2009	739,881	460,082	48,388	508,471	8,315	516,786	69.85%	56,703
2010	759,948	490,914	58,927	549,842	7,302	557,144	73.31%	66,229
2011	772,985	491,340	64,597	555,937	8,314	564,251	73.00%	72,911
2012	768,953	532,331	78,462	610,792	8,953	619,745	80.60%	87,415
2013	778,092	564,123	60,165	624,288	14,025	638,312	82.04%	74,190
2014	817,710	509,641	63,341	572,982	18,189	591,171	72.30%	81,530
2015	873,488	588,473	83,883	672,356	36,574	708,930	81.16%	120,457
2016	918,780	591,595	73,538	665,131	77,688	742,819	80.85%	151,226
2017	656,688	234,673	124,998	359,670	87,129	446,799	68.04%	212,127
Total	12,417,877	8,036,804	1,191,024	9,047,251	342,713	9,366,939	75.43%	1,533,737

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4
*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 10

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Comprehensive - Basic								
1999 & Prior			35					35
2000	465,488	44,517	1	44,518	(1)	44,517	9.56%	-
2001	485,406	56,560	(1)	56,559	1	56,560	11.65%	-
2002	523,812	46,113	-	46,113	-	46,113	8.80%	-
2003	549,473	53,147	-	53,147	-	53,147	9.67%	-
2004	583,916	62,357	-	62,357	-	62,357	10.68%	-
2005	619,077	70,854	-	70,854	-	70,854	11.45%	-
2006	646,124	74,850	-	74,850	-	74,850	11.58%	-
2007	665,011	77,195	-	77,195	-	77,195	11.61%	-
2008	697,151	49,802	50	49,852	(50)	49,802	7.14%	-
2009	727,088	60,389	(2)	60,388	2	60,390	8.31%	-
2010	749,534	74,802	69	74,871	(69)	74,802	9.98%	-
2011	761,677	74,425	73	74,499	(418)	74,081	9.73%	(345)
2012	756,751	72,539	942	73,481	(906)	72,575	9.59%	36
2013	764,671	74,632	8	74,640	141	74,782	9.78%	149
2014	803,881	70,634	36	70,670	282	70,952	8.83%	318
2015	861,065	118,383	3,411	121,794	(1,805)	119,989	13.94%	1,606
2016	907,145	112,068	7,113	119,181	157	119,338	13.16%	7,270
2017	649,159	36,227	13,926	50,153	8,801	58,954	9.08%	22,727
Total	12,216,429	1,229,496	25,661	1,255,122	6,136	1,261,259	10.32%	31,797

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 11

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Weekly Indemnity								
1999 & Prior			104,593		12,242			116,835
2000	465,488	30,834	17,860	48,694	1,110	49,804	10.70%	18,970
2001	485,406	23,963	16,199	40,162	1,119	41,281	8.50%	17,318
2002	523,812	34,360	20,195	54,555	1,807	56,362	10.76%	22,002
2003	549,473	31,998	17,655	49,653	2,142	51,795	9.43%	19,797
2004	583,916	24,932	18,163	43,095	2,140	45,235	7.75%	20,303
2005	619,077	33,546	21,862	55,408	2,261	57,669	9.32%	24,123
2006	646,124	39,610	31,798	71,408	3,163	74,571	11.54%	34,961
2007	665,011	39,047	29,986	69,033	3,038	72,071	10.84%	33,024
2008	697,151	39,226	28,650	67,876	2,913	70,789	10.15%	31,563
2009	727,088	34,639	29,384	64,023	2,875	66,899	9.20%	32,259
2010	749,534	40,868	40,854	81,722	3,213	84,935	11.33%	44,067
2011	761,677	36,459	42,167	78,626	3,200	81,826	10.74%	45,367
2012	756,751	36,993	56,727	93,720	3,458	97,178	12.84%	60,185
2013	764,671	29,860	44,190	74,050	6,195	80,246	10.49%	50,385
2014	803,881	21,889	39,894	61,783	8,543	70,326	8.75%	48,437
2015	861,065	23,421	42,597	66,018	23,601	89,619	10.41%	66,198
2016	907,145	17,343	10,329	27,672	57,245	84,918	9.36%	67,574
2017	649,159	4,732	6,267	10,999	40,749	51,748	7.97%	47,016
Total	12,216,429	543,723	619,370	1,058,500	181,015	1,227,273	10.05%	800,385

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 12

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Other (Indexed)								
1999 & Prior			72,655		10,783			83,438
2000	465,488	31,097	10,804	41,901	2,309	44,210	9.50%	13,113
2001	485,406	29,049	13,599	42,648	2,550	45,198	9.31%	16,149
2002	523,812	35,780	16,718	52,498	3,114	55,611	10.62%	19,832
2003	549,473	35,172	11,246	46,418	3,216	49,635	9.03%	14,462
2004	583,916	32,031	19,508	51,539	3,676	55,215	9.46%	23,184
2005	619,077	33,423	13,504	46,927	3,484	50,411	8.14%	16,988
2006	646,124	38,936	26,153	65,089	4,785	69,874	10.81%	30,938
2007	665,011	37,792	23,960	61,752	4,958	66,711	10.03%	28,918
2008	697,151	36,106	14,778	50,884	4,553	55,438	7.95%	19,331
2009	727,088	36,430	18,863	55,293	5,092	60,384	8.30%	23,955
2010	749,534	35,079	16,910	51,989	3,778	55,767	7.44%	20,688
2011	761,677	36,571	20,979	57,550	5,043	62,593	8.22%	26,022
2012	756,751	37,867	19,994	57,861	5,742	63,603	8.40%	25,736
2013	764,671	36,344	13,590	49,934	6,482	56,417	7.38%	20,072
2014	803,881	30,675	19,168	49,843	6,998	56,841	7.07%	26,166
2015	861,065	34,108	26,040	60,148	9,623	69,771	8.10%	35,663
2016	907,145	27,773	37,709	65,482	3,768	69,250	7.63%	41,477
2017	649,159	6,595	30,002	36,597	9,289	45,886	7.07%	39,291
Total	12,216,429	590,828	426,180	944,353	99,246	1,032,816	8.45%	525,426

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 13

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Accident Benefits - Total								
1999 & Prior			180,537		23,025			203,562
2000	465,488	85,089	28,664	113,753	3,419	117,172	25.17%	32,083
2001	485,406	77,652	29,800	107,453	3,669	111,122	22.89%	33,469
2002	523,812	96,934	36,918	133,852	4,921	138,773	26.49%	41,839
2003	549,473	92,456	28,919	121,376	5,359	126,734	23.06%	34,278
2004	583,916	81,638	37,708	119,346	5,866	125,212	21.44%	43,574
2005	619,077	95,753	35,409	131,162	5,860	137,022	22.13%	41,269
2006	646,124	112,386	57,970	170,356	8,148	178,504	27.63%	66,118
2007	665,011	106,650	54,089	160,739	8,240	168,979	25.41%	62,329
2008	697,151	103,745	43,846	147,591	7,767	155,358	22.28%	51,613
2009	727,088	100,599	48,329	148,928	8,326	157,254	21.63%	56,655
2010	749,534	103,966	57,903	161,869	7,399	169,269	22.58%	65,302
2011	761,677	104,137	63,568	167,706	8,731	176,437	23.16%	72,299
2012	756,751	104,052	77,195	181,247	9,747	190,994	25.24%	86,942
2013	764,671	92,428	58,451	150,879	13,381	164,260	21.48%	71,832
2014	803,881	77,840	60,850	138,689	16,633	155,322	19.32%	77,483
2015	861,065	77,592	77,318	154,910	35,149	190,059	22.07%	112,467
2016	907,145	61,296	59,159	120,455	66,718	187,173	20.63%	125,877
2017	649,159	14,037	45,535	59,572	58,938	118,510	18.26%	104,473
Total	12,216,429	1,588,251	1,082,168	2,489,883	301,298	2,768,156	22.66%	1,383,466

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4, Net = Direct & Agency

Manitoba Public Insurance
Automobile Insurance Division
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 2
Sheet 14

Insurance Year	Earned Premium	Actual Claims @ 31/10/2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
Basic - Total All Coverage*								
1999 & Prior			180,573		23,025			203,598
2000	465,488	311,964	28,813	340,777	3,418	344,194	73.94%	32,231
2001	485,406	326,467	29,795	356,262	3,670	359,932	74.15%	33,465
2002	523,812	355,324	36,918	392,241	4,921	397,163	75.82%	41,839
2003	549,473	373,058	28,920	401,978	5,359	407,337	74.13%	34,279
2004	583,916	380,419	37,711	418,129	5,866	423,994	72.61%	43,577
2005	619,077	404,190	35,410	439,599	5,860	445,459	71.96%	41,270
2006	646,124	448,787	58,022	506,810	8,148	514,958	79.70%	66,170
2007	665,011	454,890	54,159	509,048	8,240	517,288	77.79%	62,399
2008	697,151	433,491	44,118	477,608	7,717	485,325	69.62%	51,835
2009	727,088	441,856	48,388	490,244	8,315	498,560	68.57%	56,703
2010	749,534	490,914	58,709	549,623	7,302	556,926	74.30%	66,011
2011	761,677	491,155	64,252	555,407	8,314	563,721	74.01%	72,566
2012	756,751	532,331	78,462	610,792	8,953	619,745	81.90%	87,415
2013	764,671	563,944	59,957	623,901	14,025	637,926	83.42%	73,982
2014	803,881	509,641	63,341	572,981	18,189	591,170	73.54%	81,530
2015	861,065	588,473	83,883	672,356	36,574	708,930	82.33%	120,457
2016	907,145	591,595	73,538	665,132	77,688	742,819	81.89%	151,226
2017	649,159	234,673	124,998	359,670	87,129	446,799	68.83%	212,127
Total	12,216,429	7,933,170	1,189,967	8,942,559	342,713	9,262,247	75.82%	1,532,680

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - From Exhibit 4
*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

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EXHIBIT 3

Claim Run-Off

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 1
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bodily Injury - Basic							
2000	475,277	4,363	4,278	4,277	4,249	4,249	4,232
2001	497,121	5,255	5,255	5,255	5,255	5,255	5,256
2002	532,307	4,629	4,629	4,629	4,629	4,622	4,623
2003	560,857	3,949	3,949	3,949	3,964	3,930	3,930
2004	596,045	5,196	5,196	5,180	5,238	5,176	5,180
2005	630,367	4,228	4,223	4,242	4,238	4,240	4,289
2006	654,863	3,565	3,565	3,547	3,628	3,471	3,482
2007	677,464	3,740	3,738	3,736	3,785	3,786	4,011
2008	707,051	2,431	2,442	2,444	2,471	2,467	2,456
2009	739,881	3,480	3,488	3,695	3,757	3,604	4,024
2010	759,948	4,335	4,283	4,462	4,492	4,100	4,489
2011	772,985	2,595	2,603	2,783	2,693	2,823	3,397
2012	768,953	3,850	3,959	4,067	4,150	3,130	4,119
2013	778,092	4,158	4,400	4,383	4,194	5,189	
2014	817,710	6,037	5,883	6,321	5,121		
2015	873,488	5,150	5,523	4,810			
2016	918,780	5,568	5,853				
2017	656,688	3,339					
Total	12,417,877	75,868					
Total Excl. 2017	11,761,189	72,530	73,268				
Total Excl. 2016 to 2017	10,842,409	66,962	67,414	67,781			
Total Excl. 2015 to 2017	9,968,921	61,812	61,892	62,971	61,864		
Total Excl. 2014 to 2017	9,151,211	55,775	56,008	56,650	56,743	56,040	
Total Excl. 2013 to 2017	8,373,119	51,617	51,608	52,266	52,549	50,852	53,488

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 2

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Property Damage - Basic							
2000	475,277	25,750	25,752	25,755	25,751	25,756	25,761
2001	497,121	25,723	25,723	25,723	25,726	25,729	25,732
2002	532,307	28,057	28,059	28,061	28,064	28,076	28,080
2003	560,857	29,562	29,564	29,566	29,568	29,575	29,564
2004	596,045	29,616	29,618	29,626	29,630	29,655	29,660
2005	630,367	30,293	30,296	30,298	30,302	30,327	30,387
2006	654,863	33,577	33,580	33,582	33,586	33,570	33,572
2007	677,464	34,289	34,292	34,284	34,288	34,274	34,259
2008	707,051	35,982	35,965	35,949	36,098	35,999	36,004
2009	739,881	34,937	34,921	34,905	35,082	35,089	35,039
2010	759,948	37,338	37,314	37,260	37,315	37,237	37,054
2011	772,985	37,481	37,488	37,401	37,361	37,226	37,254
2012	768,953	41,691	41,689	41,545	41,275	41,250	40,524
2013	778,092	45,420	45,371	45,092	44,366	45,057	
2014	817,710	41,036	40,929	41,064	39,985		
2015	873,488	41,261	41,150	40,799			
2016	918,780	43,824	41,997				
2017	656,688	26,096					
Total	12,417,877	621,933					
Total Excl. 2017	11,761,189	595,838	593,708				
Total Excl. 2016 to 2017	10,842,409	552,014	551,711	550,911			
Total Excl. 2015 to 2017	9,968,921	510,753	510,561	510,111	508,398		
Total Excl. 2014 to 2017	9,151,211	469,716	469,632	469,047	468,413	468,819	
Total Excl. 2013 to 2017	8,373,119	424,296	424,261	423,955	424,047	423,763	422,890

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 3
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision - Basic							
2000	475,277	152,393	152,407	152,408	152,411	152,433	152,451
2001	497,121	161,272	161,275	161,284	161,290	161,302	161,325
2002	532,307	179,591	179,601	179,609	179,614	179,638	179,688
2003	560,857	193,944	193,956	193,970	193,991	194,025	194,069
2004	596,045	201,613	201,614	201,630	201,684	201,703	201,745
2005	630,367	203,062	203,050	203,062	203,087	203,099	203,150
2006	654,863	224,462	224,432	224,455	224,461	224,474	224,346
2007	677,464	233,085	233,097	233,118	233,125	233,055	232,978
2008	707,051	241,752	241,758	241,640	241,650	241,487	241,452
2009	739,881	242,498	242,523	242,417	242,278	242,137	242,021
2010	759,948	271,182	271,174	271,034	270,677	270,336	269,932
2011	772,985	273,127	273,093	272,845	272,363	271,756	272,042
2012	768,953	310,635	310,751	310,225	309,292	308,566	303,443
2013	778,092	349,305	349,214	348,258	346,295	347,122	
2014	817,710	317,822	317,313	316,130	315,862		
2015	873,488	352,472	352,428	349,069			
2016	918,780	386,917	385,169				
2017	656,688	239,900					
Total	12,417,877	4,535,031					
Total Excl. 2017	11,761,189	4,295,132	4,292,855				
Total Excl. 2016 to 2017	10,842,409	3,908,215	3,907,686	3,901,156			
Total Excl. 2015 to 2017	9,968,921	3,555,743	3,555,258	3,552,086	3,548,081		
Total Excl. 2014 to 2017	9,151,211	3,237,921	3,237,944	3,235,957	3,232,219	3,231,134	
Total Excl. 2013 to 2017	8,373,119	2,888,616	2,888,730	2,887,699	2,885,924	2,884,012	2,878,641

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 4

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Comprehensive - Basic							
2000	475,277	44,517	44,516	44,516	44,529	44,532	44,538
2001	497,121	71,216	71,218	71,219	71,222	71,225	71,246
2002	532,307	46,113	46,113	46,113	46,115	46,117	46,128
2003	560,857	53,147	53,146	53,151	53,160	53,164	53,192
2004	596,045	62,357	62,365	62,355	62,366	62,365	62,335
2005	630,367	70,854	70,857	70,861	70,858	70,831	70,835
2006	654,863	74,850	74,881	74,852	74,858	74,850	74,879
2007	677,464	113,322	113,288	113,283	113,262	113,240	113,286
2008	707,051	49,802	49,778	49,890	49,929	49,937	49,969
2009	739,881	78,616	78,588	78,538	78,510	78,487	78,452
2010	759,948	74,802	74,748	74,678	74,511	74,468	74,349
2011	772,985	74,611	74,545	74,488	74,356	74,116	73,327
2012	768,953	72,575	72,469	72,412	72,192	71,472	73,833
2013	778,092	74,782	74,636	74,477	74,116	75,439	
2014	817,710	70,952	70,931	71,616	72,352		
2015	873,488	119,989	119,834	125,330			
2016	918,780	119,338	123,042				
2017	656,688	58,954					
Total	12,417,877	1,330,798					
Total Excl. 2017	11,761,189	1,271,843	1,274,954				
Total Excl. 2016 to 2017	10,842,409	1,152,506	1,151,912	1,157,779			
Total Excl. 2015 to 2017	9,968,921	1,032,516	1,032,078	1,032,449	1,032,337		
Total Excl. 2014 to 2017	9,151,211	961,564	961,147	960,834	959,985	960,241	
Total Excl. 2013 to 2017	8,373,119	886,782	886,511	886,357	885,869	884,802	886,369

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 5
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Weekly Indemnity							
2000	475,277	64,394	63,848	63,731	61,273	61,277	62,851
2001	497,121	56,381	56,264	55,856	53,857	53,804	52,717
2002	532,307	63,685	62,935	62,042	58,873	60,515	60,618
2003	560,857	60,743	60,613	59,316	57,973	58,935	56,478
2004	596,045	51,995	50,685	49,919	48,179	50,320	49,388
2005	630,367	62,916	62,188	60,247	60,330	60,234	58,792
2006	654,863	79,531	76,551	76,283	75,803	74,358	67,727
2007	677,464	76,696	76,840	74,501	71,869	70,311	66,818
2008	707,051	74,859	73,632	72,677	73,275	70,494	68,285
2009	739,881	70,130	67,505	65,807	63,696	60,676	65,530
2010	759,948	88,414	83,656	78,099	73,710	65,523	66,885
2011	772,985	84,334	79,629	70,607	63,592	70,469	59,284
2012	768,953	99,120	76,018	69,898	72,886	68,414	53,187
2013	778,092	81,749	81,893	74,870	67,937	64,802	
2014	817,710	70,914	74,184	66,371	58,369		
2015	873,488	89,980	71,476	61,632			
2016	918,780	85,041	65,811				
2017	656,688	51,748					
Total	12,417,877	1,312,629					
Total Excl. 2017	11,761,189	1,260,881	1,183,728				
Total Excl. 2016 to 2017	10,842,409	1,175,840	1,117,918	1,061,855			
Total Excl. 2015 to 2017	9,968,921	1,085,860	1,046,442	1,000,224	961,622		
Total Excl. 2014 to 2017	9,151,211	1,014,946	972,258	933,853	903,252	890,133	
Total Excl. 2013 to 2017	8,373,119	933,197	890,365	858,983	835,315	825,331	788,559

Notes:
(2) - From MPI
(3) = Appendix E, Page 12, Accumulated-to-Date + Exhibit 2, Column 9
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 6
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

		Estimated Ultimate Losses					
Insurance Year	Earned Premium	Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Indexed)							
2000	475,277	57,161	58,693	58,148	58,197	57,652	57,707
2001	497,121	60,550	60,739	60,437	59,096	59,794	59,083
2002	532,307	63,784	63,760	62,564	60,910	61,443	60,803
2003	560,857	58,851	60,614	61,282	60,623	60,363	59,180
2004	596,045	63,626	65,587	64,751	63,874	64,143	62,330
2005	630,367	56,056	57,008	57,234	57,810	57,736	58,752
2006	654,863	75,193	74,897	73,204	72,873	73,080	70,678
2007	677,464	71,419	69,983	68,406	69,862	71,701	69,725
2008	707,051	59,367	59,574	61,781	61,960	63,813	64,970
2009	739,881	63,913	63,406	62,901	62,600	63,511	66,138
2010	759,948	59,027	62,895	61,670	62,172	62,107	66,040
2011	772,985	65,349	64,997	68,328	68,041	69,622	65,186
2012	768,953	65,832	65,008	65,524	71,107	73,128	65,746
2013	778,092	58,094	71,377	71,519	72,602	70,946	
2014	817,710	57,692	66,556	66,933	69,727		
2015	873,488	70,309	69,588	66,003			
2016	918,780	69,425	66,112				
2017	656,688	45,886					
Total	12,417,877	1,121,534					
Total Excl. 2017	11,761,189	1,075,648	1,100,793				
Total Excl. 2016 to 2017	10,842,409	1,006,224	1,034,681	1,030,684			
Total Excl. 2015 to 2017	9,968,921	935,915	965,093	964,681	971,455		
Total Excl. 2014 to 2017	9,151,211	878,223	898,537	897,748	901,728	909,040	
Total Excl. 2013 to 2017	8,373,119	820,129	827,160	826,229	829,126	838,094	826,340

Notes:
(2) - From MPI
(3) = Appendix F, Page 17, Accumulated-to-Date + Exhibit 2, Column 9
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance Exhibit 3
Automobile Insurance Division Sheet 7
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Non-Indexed)							
2000	475,277	23,158	23,158	23,153	23,121	23,093	22,799
2001	497,121	24,642	24,615	24,644	24,625	24,591	24,487
2002	532,307	26,799	26,758	26,690	26,707	26,813	26,839
2003	560,857	25,305	25,412	25,225	25,131	25,187	25,158
2004	596,045	24,762	24,786	24,711	24,681	24,705	24,819
2005	630,367	28,942	28,984	28,836	28,832	28,980	29,107
2006	654,863	34,058	34,067	34,023	33,997	34,024	33,807
2007	677,464	30,197	30,208	30,137	30,112	30,287	30,126
2008	707,051	29,131	28,989	28,490	28,390	28,518	28,304
2009	739,881	29,971	30,058	29,781	30,075	29,843	29,435
2010	759,948	28,566	28,504	28,453	28,358	28,228	27,643
2011	772,985	32,018	31,822	31,732	31,685	31,404	29,033
2012	768,953	30,213	30,373	30,199	30,413	29,857	26,503
2013	778,092	27,598	27,550	27,723	29,351	26,911	
2014	817,710	28,155	27,901	27,379	25,723		
2015	873,488	30,669	27,146	27,066			
2016	918,780	33,005	29,745				
2017	656,688	20,876					
Total	12,417,877	508,067					
Total Excl. 2017	11,761,189	487,191	480,076				
Total Excl. 2016 to 2017	10,842,409	454,185	450,330	448,243			
Total Excl. 2015 to 2017	9,968,921	423,516	423,184	421,177	421,200		
Total Excl. 2014 to 2017	9,151,211	395,362	395,283	393,798	395,477	392,442	
Total Excl. 2013 to 2017	8,373,119	367,763	367,733	366,075	366,126	365,531	358,060

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 8

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Total							
2000	475,277	144,713	145,698	145,032	142,591	142,022	143,358
2001	497,121	141,573	141,617	140,937	137,578	138,188	136,287
2002	532,307	154,269	153,453	151,296	146,490	148,772	148,260
2003	560,857	144,898	146,639	145,823	143,727	144,486	140,816
2004	596,045	140,382	141,058	139,381	136,735	139,169	136,536
2005	630,367	147,914	148,179	146,317	146,972	146,949	146,651
2006	654,863	188,783	185,515	183,511	182,673	181,463	172,212
2007	677,464	178,312	177,031	173,044	171,843	172,299	166,670
2008	707,051	163,358	162,195	162,948	163,624	162,826	161,559
2009	739,881	164,014	160,970	158,489	156,371	154,030	161,104
2010	759,948	176,007	175,054	168,221	164,240	155,858	160,568
2011	772,985	181,701	176,448	170,667	163,318	171,496	153,502
2012	768,953	195,165	171,400	165,622	174,406	171,399	145,436
2013	778,092	167,441	180,819	174,112	169,890	162,658	
2014	817,710	156,760	168,641	160,683	153,819		
2015	873,488	190,958	168,211	154,700			
2016	918,780	187,471	161,668				
2017	656,688	118,510					
Total	12,417,877	2,942,231					
Total Excl. 2017	11,761,189	2,823,720	2,764,597				
Total Excl. 2016 to 2017	10,842,409	2,636,249	2,602,929	2,540,782			
Total Excl. 2015 to 2017	9,968,921	2,445,291	2,434,719	2,386,082	2,354,277		
Total Excl. 2014 to 2017	9,151,211	2,288,531	2,266,078	2,225,400	2,200,458	2,191,614	
Total Excl. 2013 to 2017	8,373,119	2,121,089	2,085,258	2,051,287	2,030,568	2,028,956	1,972,958

Notes: (2) - From MPI
(3) to (8) - Total of Sheets 5 to 7

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 9

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Basic - Total All Coverage*							
2000	475,277	371,736	372,650	371,988	369,531	368,992	370,339
2001	497,121	405,040	405,088	404,418	401,070	401,699	399,845
2002	532,307	412,659	411,855	409,708	404,913	407,226	406,778
2003	560,857	425,501	427,254	426,458	424,410	425,179	421,570
2004	596,045	439,165	439,850	438,173	435,653	438,067	435,456
2005	630,367	456,352	456,605	454,780	455,458	455,446	455,312
2006	654,863	525,236	521,973	519,946	519,207	517,827	508,493
2007	677,464	562,748	561,447	557,466	556,303	556,653	551,204
2008	707,051	493,324	492,137	492,870	493,772	492,716	491,440
2009	739,881	523,545	520,490	518,045	515,998	513,346	520,639
2010	759,948	563,664	562,573	555,655	551,236	541,998	546,390
2011	772,985	569,515	564,178	558,185	550,091	557,417	539,523
2012	768,953	623,916	600,268	593,870	601,315	595,818	567,355
2013	778,092	641,107	654,441	646,322	638,861	635,464	
2014	817,710	592,609	603,697	595,814	587,139		
2015	873,488	709,830	687,145	674,708			
2016	918,780	743,118	717,730				
2017	656,688	446,799					
Total	12,417,877	9,505,861					
Total Excl. 2017	11,761,189	9,059,063	8,999,382				
Total Excl. 2016 to 2017	10,842,409	8,315,945	8,281,652	8,218,409			
Total Excl. 2015 to 2017	9,968,921	7,606,115	7,594,506	7,543,700	7,504,956		
Total Excl. 2014 to 2017	9,151,211	7,013,507	6,990,809	6,947,887	6,917,817	6,907,849	
Total Excl. 2013 to 2017	8,373,119	6,372,400	6,336,368	6,301,564	6,278,956	6,272,384	6,214,346

Notes:
(2) - From MPI
(3) to (8) - Total of Sheets 1 to 4, & Sheet 8
*Not including PIPP Enhancements

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 10

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Comprehensive - Basic							
2000	465,488	44,517	44,516	44,516	44,529	44,532	44,538
2001	485,406	56,560	56,562	56,563	56,566	56,569	56,590
2002	523,812	46,113	46,113	46,113	46,115	46,117	46,128
2003	549,473	53,147	53,146	53,151	53,160	53,164	53,192
2004	583,916	62,357	62,365	62,355	62,366	62,365	62,335
2005	619,077	70,854	70,857	70,861	70,858	70,831	70,835
2006	646,124	74,850	74,881	74,852	74,858	74,850	74,879
2007	665,011	77,195	77,161	77,156	77,135	77,153	77,149
2008	697,151	49,802	49,778	49,890	49,929	49,937	49,969
2009	727,088	60,390	60,362	60,312	60,284	60,400	60,306
2010	749,534	74,802	74,748	74,678	74,511	74,468	74,349
2011	761,677	74,081	74,017	73,976	74,356	74,116	73,327
2012	756,751	72,575	72,469	72,412	72,192	71,472	73,833
2013	764,671	74,782	74,636	74,477	74,116	75,439	
2014	803,881	70,952	70,931	71,616	72,352		
2015	861,065	119,989	119,834	125,330			
2016	907,145	119,338	123,042				
2017	649,159	58,954					
Total	12,216,429	1,261,259					
Total Excl. 2017	11,567,270	1,202,304	1,205,417				
Total Excl. 2016 to 2017	10,660,125	1,082,967	1,082,375	1,088,258			
Total Excl. 2015 to 2017	9,799,060	962,977	962,541	962,928	963,328		
Total Excl. 2014 to 2017	8,995,179	892,025	891,610	891,313	890,976	891,411	
Total Excl. 2013 to 2017	8,230,508	817,243	816,974	816,836	816,860	815,972	817,430

Notes:
(2) - From MPI
(3) - From Exhibit 2, Column 7
(4) to (8) - From respective year-end valuations

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 11

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Weekly Indemnity							
2000	465,488	58,628	58,402	58,200	55,920	56,302	57,909
2001	485,406	48,437	48,409	48,055	46,079	45,964	45,484
2002	523,812	63,098	62,355	61,459	58,286	59,933	60,106
2003	549,473	58,053	58,059	56,868	55,487	56,460	54,374
2004	583,916	49,833	48,665	47,591	45,987	48,144	47,495
2005	619,077	62,653	61,959	60,031	60,118	60,022	58,588
2006	646,124	79,531	76,551	76,283	75,803	74,358	67,727
2007	665,011	76,571	76,840	74,501	71,869	70,311	66,818
2008	697,151	74,859	73,632	72,677	73,275	70,494	68,285
2009	727,088	70,130	67,505	65,807	63,696	60,676	65,530
2010	749,534	88,260	83,656	78,099	73,710	65,523	66,885
2011	761,677	84,334	79,629	70,607	63,592	70,469	59,284
2012	756,751	99,120	76,018	69,898	72,886	68,414	53,187
2013	764,671	81,453	81,639	74,635	67,839	64,802	
2014	803,881	70,914	74,184	66,371	58,369		
2015	861,065	89,980	71,476	61,632			
2016	907,145	85,041	65,811				
2017	649,159	51,748					
Total	12,216,429	1,292,642					
Total Excl. 2017	11,567,270	1,240,894	1,164,790				
Total Excl. 2016 to 2017	10,660,125	1,155,853	1,098,980	1,042,713			
Total Excl. 2015 to 2017	9,799,060	1,065,873	1,027,504	981,082	942,915		
Total Excl. 2014 to 2017	8,995,179	994,959	953,319	914,711	884,546	871,873	
Total Excl. 2013 to 2017	8,230,508	913,506	871,681	840,076	816,707	807,072	771,672

Notes:
(2) - From MPI
(3) = Appendix E, Page 12, Accumulated-to-Date + Exhibit 2, Column 9 - Ceded Paid
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 12

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Other (Indexed)							
2000	465,488	53,673	54,885	54,425	54,296	54,272	54,528
2001	485,406	53,881	53,981	53,625	52,261	52,718	52,231
2002	523,812	63,298	63,267	62,074	60,424	60,975	60,396
2003	549,473	57,138	58,765	59,327	58,681	58,557	57,542
2004	583,916	61,304	63,123	61,992	61,334	61,709	60,298
2005	619,077	55,893	56,863	57,086	57,658	57,584	58,592
2006	646,124	75,193	74,897	73,204	72,873	73,080	70,678
2007	665,011	71,320	69,983	68,406	69,862	71,701	69,725
2008	697,151	59,367	59,574	61,781	61,960	63,813	64,970
2009	727,088	63,913	63,406	62,901	62,600	63,511	66,138
2010	749,534	58,963	62,895	61,670	62,172	62,107	66,040
2011	761,677	65,349	64,997	68,328	68,041	69,622	65,186
2012	756,751	65,832	65,008	65,524	71,107	73,128	65,746
2013	764,671	58,003	71,204	71,303	72,432	70,946	
2014	803,881	57,692	66,556	66,933	69,727		
2015	861,065	70,309	69,588	66,003			
2016	907,145	69,425	66,112				
2017	649,159	45,886					
Total	12,216,429	1,106,439					
Total Excl. 2017	11,567,270	1,060,553	1,085,104				
Total Excl. 2016 to 2017	10,660,125	991,129	1,018,992	1,014,581			
Total Excl. 2015 to 2017	9,799,060	920,820	949,404	948,578	955,430		
Total Excl. 2014 to 2017	8,995,179	863,128	882,848	881,645	885,703	893,723	
Total Excl. 2013 to 2017	8,230,508	805,125	811,643	810,342	813,270	822,777	812,071

Notes:
(2) - From MPI
(3) = Appendix F, Page 17, Accumulated-to-Date + Exhibit 2, Column 9 - Ceded Paid
(4) to (8) - From respective year-end valuations restated to current benefit level

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 13

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Accident Benefits - Total							
2000	465,488	135,459	136,444	135,778	133,337	133,668	135,237
2001	485,406	126,960	127,004	126,324	122,965	123,273	122,202
2002	523,812	153,196	152,380	150,223	145,417	147,721	147,341
2003	549,473	140,495	142,236	141,420	139,300	140,205	137,074
2004	583,916	135,898	136,574	134,294	132,002	134,558	132,611
2005	619,077	147,488	147,805	145,953	146,608	146,585	146,287
2006	646,124	188,783	185,515	183,511	182,673	181,463	172,212
2007	665,011	178,088	177,031	173,044	171,843	172,299	166,670
2008	697,151	163,358	162,195	162,948	163,624	162,826	161,559
2009	727,088	164,014	160,970	158,489	156,371	154,030	161,104
2010	749,534	175,789	175,054	168,221	164,240	155,858	160,568
2011	761,677	181,701	176,448	170,667	163,318	171,496	153,502
2012	756,751	195,165	171,400	165,622	174,406	171,399	145,436
2013	764,671	167,054	180,393	173,661	169,622	162,658	
2014	803,881	156,760	168,641	160,683	153,819		
2015	861,065	190,958	168,211	154,700			
2016	907,145	187,471	161,668				
2017	649,159	118,510					
Total	12,216,429	2,907,149					
Total Excl. 2017	11,567,270	2,788,638	2,729,970				
Total Excl. 2016 to 2017	10,660,125	2,601,167	2,568,302	2,505,537			
Total Excl. 2015 to 2017	9,799,060	2,410,209	2,400,091	2,350,837	2,319,545		
Total Excl. 2014 to 2017	8,995,179	2,253,449	2,231,450	2,190,154	2,165,726	2,158,037	
Total Excl. 2013 to 2017	8,230,508	2,086,394	2,051,057	2,016,493	1,996,103	1,995,379	1,941,803

Notes: (2) - From MPI
(3) to (8) - Total of Sheets 7, 11 & 12

Manitoba Public Insurance
Automobile Insurance Division
Comparison of Actual With Expected Experience in Previous Year-End Valuations
Net Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Exhibit 3
Sheet 14

Insurance Year	Earned Premium	Estimated Ultimate Losses					
		Oct 2017 Valuation	Feb 2017 Valuation	Feb 2016 Valuation	Feb 2015 Valuation	Feb 2014 Valuation	Feb 2013 Valuation
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Basic - Total All Coverage*							
2000	465,488	362,482	363,396	362,734	360,277	360,637	362,218
2001	485,406	375,771	375,819	375,149	371,801	372,128	371,104
2002	523,812	411,586	410,782	408,635	403,840	406,175	405,859
2003	549,473	421,098	422,851	422,055	419,982	420,898	417,828
2004	583,916	434,681	435,366	433,086	430,920	433,457	431,531
2005	619,077	455,926	456,230	454,416	455,094	455,082	454,948
2006	646,124	525,236	521,973	519,946	519,207	517,827	508,493
2007	665,011	526,397	525,320	521,339	520,176	520,566	515,067
2008	697,151	493,324	492,137	492,870	493,772	492,716	491,440
2009	727,088	505,319	502,264	499,819	497,772	495,259	502,493
2010	749,534	563,446	562,573	555,655	551,236	541,998	546,390
2011	761,677	568,985	563,650	557,673	550,091	557,417	539,523
2012	756,751	623,916	600,268	593,870	601,315	595,818	567,355
2013	764,671	640,720	654,015	645,871	638,593	635,464	
2014	803,881	592,609	603,697	595,814	587,139		
2015	861,065	709,830	687,145	674,708			
2016	907,145	743,118	717,730				
2017	649,159	446,799					
Total	12,216,429	9,401,240					
Total Excl. 2017	11,567,270	8,954,442	8,895,217				
Total Excl. 2016 to 2017	10,660,125	8,211,324	8,177,487	8,113,643			
Total Excl. 2015 to 2017	9,799,060	7,501,494	7,490,342	7,438,934	7,401,215		
Total Excl. 2014 to 2017	8,995,179	6,908,886	6,886,645	6,843,120	6,814,076	6,805,442	
Total Excl. 2013 to 2017	8,230,508	6,268,166	6,232,630	6,197,250	6,175,483	6,169,978	6,114,251

Notes:
(2) - From MPI
(3) to (8) - Total of Sheets 1 to 3, Sheet 10, & Sheet 13
*Not including PIPP Enhancements

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EXHIBIT 4

IBNR Estimates

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 1

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Bodily Injury - Basic					
1999 & Prior					
2000	-	-	(150)	(150)	-
2001	-	-	-	-	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	4	4	-
2006	-	-	(33)	(31)	-
2007	-	-	2	5	-
2008	-	-	(35)	5	-
2009	3	5	75	110	5
2010	9	9	(268)	(229)	9
2011	31	57	(255)	64	57
2012	155	193	1,030	1,043	193
2013	354	414	(60)	332	414
2014	958	776	1,565	604	776
2015	1,174	1,244	1,650	1,530	1,244
2016	1,766	1,810	4,942	2,312	1,810
2017	1,242	1,822	4,728	2,547	1,822
Total	5,691	6,329	13,194	8,145	6,329

Notes: (2) to (5) - Per Appendix A
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 2

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Property Damage - Basic					
1999 & Prior					
2000	-	-	1	1	-
2001	-	-	(1)	(1)	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	(1)	(1)	-
2005	-	-	-	-	-
2006	-	-	(1)	(1)	-
2007	-	-	(52)	(52)	-
2008	-	-	(136)	(136)	-
2009	(17)	(17)	(11)	(11)	(17)
2010	(37)	(37)	(208)	(208)	(37)
2011	(56)	(56)	(56)	(56)	(56)
2012	(83)	(81)	(141)	(142)	(81)
2013	(91)	(86)	(66)	(68)	(86)
2014	20	22	(72)	(54)	22
2015	368	404	371	463	404
2016	2,162	2,119	2,748	2,598	2,119
2017	5,141	5,004	5,739	5,095	5,004
Total	7,406	7,271	8,114	7,427	7,271

Notes: (2) to (5) - Per Appendix B
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 3

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Collision - Basic					
1999 & Prior					
2000	-	-	1	1	-
2001	-	-	5	5	-
2002	-	-	-	-	-
2003	-	-	(1)	(1)	-
2004	-	-	(2)	(2)	-
2005	-	-	(1)	(1)	-
2006	-	-	(6)	(6)	-
2007	-	-	2	2	-
2008	-	-	(1)	(1)	-
2009	-	-	-	-	-
2010	-	-	(4)	(4)	-
2011	-	-	(6)	(6)	-
2012	-	-	(27)	(27)	-
2013	175	166	146	137	175
2014	476	528	401	453	476
2015	1,582	1,642	1,762	1,841	1,582
2016	6,884	6,523	7,251	6,713	6,884
2017	12,563	12,041	19,437	14,253	12,563
Total	21,679	20,899	28,956	23,356	21,679

Notes: (2) to (5) - Per Appendix C
(6) - Incurred Development Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 4

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Comprehensive - Basic					
1999 & Prior					
2000	-	-	(1)	(1)	(1)
2001	-	-	1	1	1
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	(50)	(50)	(50)
2009	-	-	2	2	2
2010	-	-	(69)	(69)	(69)
2011	-	-	(418)	(418)	(418)
2012	-	-	(906)	(904)	(906)
2013	-	-	141	146	141
2014	-	-	282	310	282
2015	427	270	(1,805)	(2,375)	(1,805)
2016	2,821	2,361	157	(892)	157
2017	8,801	16,079	15,872	34,681	8,801
Total	12,049	18,710	13,207	30,432	6,136

Notes: (2) to (5) - Per Appendix D
(6) - Incurred Development Method for current year; Paid Development Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 5

Insurance Year	Tabular Reserve Method	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Accident Benefits - Weekly Indemnity						
1999 & Prior	12,242					12,242
2000	1,110	1,557	1,557	828	1,040	1,110
2001	1,119	1,699	1,699	1,305	1,427	1,119
2002	1,807	2,285	2,285	143	845	1,807
2003	2,142	2,529	2,529	4,151	3,587	2,142
2004	2,140	2,359	2,359	172	974	2,140
2005	2,261	2,998	2,998	2,754	2,849	2,261
2006	3,163	3,534	3,457	(601)	388	3,163
2007	3,038	3,177	3,112	3,776	2,824	3,038
2008	2,698	2,878	2,913	8,891	6,516	2,913
2009		2,690	2,875	7,058	7,274	2,875
2010		3,408	3,213	6,808	2,404	3,213
2011		3,246	3,200	5,673	3,685	3,200
2012		3,827	3,458	(1,553)	(4,024)	3,458
2013		5,380	6,195	7,979	14,038	6,195
2014		6,445	8,543	6,130	21,392	8,543
2015		24,144	23,601	20,127	21,562	23,601
2016		31,565	45,143	57,816	57,245	57,245
2017		27,248	36,428	47,778	40,749	40,749
Total	31,719	130,970	155,566	179,233	184,775	181,015

Notes: (2) to (6) - Per Appendix E
(7) - Tabular Reserve Method for 2007 & prior; greater of Incurred Born/Ferg Method or Paid Born/Ferg Method for 2015 & after; Incurred Born/Ferg Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 6

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Accident Benefits - Other (Indexed)					
1999 & Prior					10,783
2000	2,309	2,309	4,648	4,041	2,309
2001	2,550	2,550	3,026	2,897	2,550
2002	3,114	3,114	797	1,457	3,114
2003	3,216	3,216	7,529	6,247	3,216
2004	3,676	3,676	(1,367)	195	3,676
2005	3,484	3,484	5,117	4,590	3,484
2006	4,882	4,785	(3,254)	(934)	4,785
2007	5,019	4,958	(381)	1,272	4,958
2008	4,289	4,553	9,513	8,802	4,553
2009	4,835	5,092	7,435	7,651	5,092
2010	3,411	3,778	10,596	9,423	3,778
2011	5,179	5,043	10,529	7,467	5,043
2012	5,793	5,742	15,524	10,704	5,742
2013	5,727	6,482	23,758	18,194	6,482
2014	6,017	6,998	16,104	14,958	6,998
2015	6,104	5,513	20,048	9,623	9,623
2016	5,318	3,768	15,342	3,330	3,768
2017	9,175	8,775	18,735	9,289	9,289
Total	84,100	83,839	163,699	119,205	99,246

Notes: (2) to (5) - Per Appendix F
(6) - Greater of Incurred Born/Ferg Method or Paid Born/Ferg Method for 2015 & after; Incurred Born/Ferg Method for all other years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 7

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Accident Benefits - Other (Non-Indexed)					
1999 & Prior					
2000	-	-	-	-	-
2001	-	-	(2)	(2)	-
2002	-	-	62	62	-
2003	-	-	147	146	-
2004	49	49	223	221	49
2005	115	115	377	373	115
2006	204	200	612	592	200
2007	240	244	549	551	244
2008	289	301	373	401	301
2009	357	359	891	879	359
2010	397	408	1,031	1,038	408
2011	508	488	1,363	1,248	488
2012	538	548	1,664	1,623	548
2013	625	703	1,897	2,091	703
2014	1,044	1,092	2,074	2,107	1,092
2015	2,087	1,925	(2,202)	(1,739)	1,925
2016	6,378	5,705	9,669	5,820	5,705
2017	8,216	8,900	4,537	9,017	8,900
Total	21,048	21,036	23,264	24,429	21,036

Notes: (2) to (5) - Per Appendix G
(6) - Incurred Born/Ferg Method for all years

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 8

Insurance Year	Selected IBNR
(1)	(2)
Accident Benefits - Total	
1999 & Prior	23,025
2000	3,419
2001	3,669
2002	4,921
2003	5,359
2004	5,866
2005	5,860
2006	8,148
2007	8,240
2008	7,767
2009	8,326
2010	7,399
2011	8,731
2012	9,747
2013	13,381
2014	16,633
2015	35,149
2016	66,718
2017	58,938
Total	301,298

Manitoba Public Insurance
Summary of Direct & Agency IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 9

Insurance Year	Selected IBNR
(1)	(2)
Basic - Total All Coverage*	
1999 & Prior	23,025
2000	3,418
2001	3,670
2002	4,921
2003	5,359
2004	5,866
2005	5,860
2006	8,148
2007	8,240
2008	7,717
2009	8,315
2010	7,302
2011	8,314
2012	8,953
2013	14,025
2014	18,189
2015	36,574
2016	77,688
2017	87,129
Total	342,713

*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Summary of Net IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 10

Insurance Year	Incurred Development Method	Incurred Born/Ferg Method	Paid Development Method	Paid Born/Ferg Method	Selected IBNR
(1)	(2)	(3)	(4)	(5)	(6)
Comprehensive - Basic					
1999 & Prior					
2000	-	-	(1)	(1)	(1)
2001	-	-	1	1	1
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	(50)	(50)	(50)
2009	-	-	2	2	2
2010	-	-	(69)	(69)	(69)
2011	-	-	(418)	(418)	(418)
2012	-	-	(906)	(904)	(906)
2013	-	-	141	146	141
2014	-	-	282	310	282
2015	427	270	(1,805)	(2,375)	(1,805)
2016	2,821	2,361	157	(892)	157
2017	8,801	16,079	15,872	34,681	8,801
Total	12,049	18,710	13,207	30,432	6,136

Notes: (2) to (5) - Per Appendix D
(6) - Incurred Development Method for current year; Paid Development Method for all other years

Manitoba Public Insurance
Summary of Net IBNR Estimates
(Including External Adjustment Expenses)
As of October 31, 2017
($000)

Exhibit 4
Sheet 11

Insurance Year	Selected IBNR
(1)	(2)
Basic - Total All Coverage*	
1999 & Prior	23,025
2000	3,418
2001	3,670
2002	4,921
2003	5,359
2004	5,866
2005	5,860
2006	8,148
2007	8,240
2008	7,717
2009	8,315
2010	7,302
2011	8,314
2012	8,953
2013	14,025
2014	18,189
2015	36,574
2016	77,688
2017	87,129
Total	342,713

*Not including PIPP Enhancements (see PE Exhibit 1, Sheet 8 & PE Exhibit 4)

EXHIBIT 5

Internal Loss Adjustment Expenses

Manitoba Public Insurance
Automobile Insurance Division
Internal Loss Adjustment Expense (ILAE) Provision
As of October 31, 2017
($000)

Exhibit 5
Sheet 1

A. Calculation of Claims Base

	Valuation as at		
	Oct 2017	Feb 2017	Change
1. Direct & Agency Unpaid Claims [a, b]	1,540,165	1,478,491	61,674
2. Direct & Agency Paid Claims in Fiscal Year 2017 as of October 31, 2017 [b, c]			457,442
3. Direct & Agency Incurred Claims in Fiscal Year 2017 as of October 31, 2017 [(2)+Change in (1)]			519,116
4a. Direct & Agency Claims Base: Kittel's Paid ILAE to Paid Plus Incurred Claims Method [(2)+(3)]			976,558
4b. Direct & Agency Claims Base: Traditional Paid ILAE to Paid Claims Method [(2)*2]			914,884

B. Calculation of Internal Loss Adjustment Expense Provision:

	Valuation as at				
	Feb 2014	Feb 2015	Feb 2016	Feb 2017	Oct 2017
5a. Direct & Agency Claims Base: Kittel's Method [d]	1,282,687	1,235,277	1,379,954	1,478,536	976,558
5b. Direct & Agency Claims Base: Traditional Method [d]	1,157,178	1,235,748	1,288,422	1,362,226	914,884
6. Internal Loss Adjustment Expenses Paid [c]	114,552	116,578	118,614	120,972	84,499
7a. Ratio of ILAE Paid To Direct & Agency Claims Base: Kittel [(6)/(5a)]	8.93%	9.44%	8.60%	8.18%	8.65%
7b. Ratio of ILAE Paid To Direct & Agency Claims Base: Trad [(6)/(5b)]	9.90%	9.43%	9.21%	8.88%	9.24%
8. Selected Ratio of ILAE Paid To Direct & Agency Claims Base	10.00%	9.75%	9.50%	9.20%	9.20%
9. Direct & Agency Unpaid Claims (1)					1,540,165
10. Direct & Agency IBNR [b, e]					342,713
11. Direct & Agency Reserve Base: Unpaid Claims Plus IBNR [(9)+(10)]					1,882,878
12. Ultimate Direct & Agency ILAE Provision [(8)x(11)] [f]					173,225
13. CIA Rules Direct & Agency ILAE Provision [g]					174,244
14. MPI Carried Before Review [c]					181,128

Notes:
[a] Oct 2017: From Exhibit 1, Total Selected IBNR plus Case Reserve Outstanding;
Feb 2017: From respective year-end valuation
[b] Not including PIPP Enhancements
[c] From MPI
[d] Oct 2017: From Line 4; Other Years: From respective year-end valuations
[e] From Exhibit 1, Total Selected IBNR
[f] Selected Ratio applied twice to IBNR
[g] From Exhibit 7, Sheet 1

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EXHIBIT 6

DPAC Calculation

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Unearned Premium - Direct & Agency
As of October 31, 2017
($000)

Exhibit 6
Sheet 1

A. Claims (Including External Adjustment Expense) Data

		Estimated Ultimate Loss Ratio For Insurance Year [a]					Selected	Selected
		2013	2014	2015	2016	2017	Undisc	Disc [c]
1a.	Bodily Injury	0.53%	0.74%	0.59%	0.61%	0.51%		
1b.	Property Damage [b]	5.84%	5.02%	4.72%	4.77%	4.57%		
1c.	Collision [b]	44.89%	38.87%	40.35%	42.11%	41.99%		
1d.	Comprehensive [b]	9.61%	8.68%	13.74%	12.99%	7.12%		
1e.	Accident Benefits - Weekly Indemnity	10.35%	8.60%	10.26%	9.24%	7.88%		
1f.	Accident Benefits - Other (Indexed)	7.26%	6.95%	7.99%	7.54%	6.99%		
1g.	Accident Benefits - Other (Non-Indexed)	3.55%	3.44%	3.51%	3.59%	3.18%		
1.	Total All Coverage	82.04%	72.30%	81.16%	80.85%	72.24%		
2.	Trend/Rate Adjustment [Sheet 2]	0.9498	0.9557	0.9775	0.9845	1.0005		
3.	Adjusted Loss Ratio [(1) x (2)]	77.92%	69.09%	79.34%	79.59%	72.27%	76.51%	81.54%

B. Actual Data Other Than Losses

		2013	2014	2015	2016	2017	Selected
4.	Direct & Agency Earned Premium [d]	778,092	817,710	873,488	918,780	656,688	
5.	Operating Expenses as Percentage of Earned Premium [d]	10.87%	10.95%	10.11%	9.81%	8.47%	9.14%
6.	Maintenance Expense Rate [(5) x 1/3]	3.62%	3.65%	3.37%	3.27%	2.82%	3.05%
7.	Internal Loss Adjustment Expense Ratio to Losses [e]	20.00%	19.50%	19.00%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

		Discounted
8.	Direct & Agency Unearned Premium as of October 31, 2017 [d]	459,742
9.	Expected Claims (Including Ext Adj Expenses) [Max(Sheet 5, Row 10, (8) x (3))]	374,892
10.	Maintenance Expense [Sheet 5, Row 12]	13,975
11.	Internal Loss Adjustment Expense [(7) x (9)]	68,980
12.	Expected Claims (Including Ext Adj Expenses) for PIPP Enhancement [f]	3,916
13.	Equity in Unearned Premium [(8) - Sum((9) to (12))]	(2,021)
14.	Carried Deferred Policy Acquisition Expenses [d]	30,759
15.	Write Down Deferred Policy Acquisition Expenses [g]	30,759
16.	Premium Deficiency [h]	2,021

Notes:

[a] [Exhibit 2, Column 7] / (4)
[b] 2017: Includes a seasonality adjustment factor
[c] From Sheet 3
[d] From MPI
[e] [Exhibit 5, Row 8] x 2
[f] From PE Exhibit 3
[g] Min((14) - (13), (14)) if greater than 0, otherwise 0
[h] Negative of (13) if greater than 0, otherwise 0

Manitoba Public Insurance
Automobile Insurance Division
Trend/Rate Adjustment - Direct & Agency
As of October 31, 2017
($000)

Exhibit 6
Sheet 2

Insurance Year	Earned Premium	Earned Premium Increase	Ultimate Claims	Ultimate Claims Increase
(1)	(2)	(3)	(4)	(5)
2007	677,464		508,495	
2008	707,051	4.37%	485,325	-4.56%
2009	739,881	4.64%	486,519	0.25%
2010	759,948	2.71%	557,144	14.52%
2011	772,985	1.72%	549,863	-1.31%
2012	768,953	-0.52%	619,745	12.71%
2013	778,092	1.19%	638,312	3.00%
2014	817,710	5.09%	591,171	-7.39%
2015	873,488	6.82%	708,930	19.92%
2016	918,780	5.19%	742,819	4.78%
2017	656,688	6.14%	474,380	-4.21%

(6) Average Claims Increase	3.77%
(7) Selected Claims Increase	4.44%
(8) 3-Year Average Premium Increase	6.05%
(9) Selected Premium Increase	4.35%
(10) 2017 Trend/Rate Adjustment	1.0005
(11) 2016 Trend/Rate Adjustment	0.9845
(12) 2015 Trend/Rate Adjustment	0.9775
(13) 2014 Trend/Rate Adjustment	0.9557
(14) 2013 Trend/Rate Adjustment	0.9498

Notes:
(2) From MPI
(4) From Exhibit 2, Sheet 9, Column 7; Removed impact of Hail;
2017: Includes a seasonality adjustment factor
(7) Selected based on the indicated exponential trend for Ultimate Claims
(10) = [[1+(7)]/[1+(9)]]^[7/12]; Trended from the average accident date for the current year to the average accident date of the unearned premium (per Sheet 3)
(11) = (10)*[1+(7)]/[(1+(3) for 2017]
(12) = (11)*[1+(7)]/[(1+(3) for 2016]
(13) = (12)*[1+(7)]/[(1+(3) for 2015]
(14) = (13)*[1+(7)]/[(1+(3) for 2014]

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Direct & Agency
As of October 31, 2017
($000)

Exhibit 6
Sheet 3

Selected Undiscounted Loss Ratio [a] 76.51%

	12	24	36	48	60	72	84	96
Cumulative % Paid								
ABWI	11.22%	22.96%	29.24%	34.18%	38.54%	42.37%	45.74%	48.80%
ABO (Indexed)	17.88%	38.21%	44.63%	48.27%	51.29%	53.88%	56.41%	58.86%
ABO (Non-Indexed)	21.88%	55.57%	80.68%	88.19%	91.76%	93.64%	95.04%	96.28%
TPL-BI	4.21%	18.33%	34.78%	52.43%	68.21%	79.12%	89.33%	94.60%
TPL-PD	56.57%	93.48%	98.81%	99.65%	99.95%	100.00%	100.00%	100.00%
Collision	75.50%	98.42%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%
Comprehensive	75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%
Discount to Valuation Date [b]								
Without Margin (1) [c]	99.67%	98.37%	97.09%	95.83%	94.58%	93.35%	92.13%	90.93%
Without Margin (2) [d]	99.76%	98.80%	97.85%	96.91%	95.98%	95.06%	94.15%	93.24%
With Margin (1) [c & e]	99.80%	98.98%	98.18%	97.38%	96.59%	95.80%	95.02%	94.25%
With Margin (2) [d & e]	99.88%	99.42%	98.95%	98.49%	98.03%	97.57%	97.11%	96.66%
Discounted % Paid; Includes Discount Rate Margin and Claims Development Margin [f								
ABWI [g]	12.88%	13.34%	7.08%	5.52%	4.83%	4.21%	3.67%	3.31%
ABO (Indexed) [g]	20.51%	23.13%	7.23%	4.06%	3.34%	2.84%	2.76%	2.65%
ABO (Non-Indexed) [h]	24.04%	36.83%	27.30%	8.12%	3.84%	2.01%	1.50%	1.31%
TPL-BI [h]	4.84%	16.13%	18.69%	19.95%	17.74%	12.20%	11.35%	5.83%
TPL-PD [h]	59.33%	38.51%	5.53%	0.87%	0.31%	0.05%	0.00%	0.00%
Collision [h]	81.06%	24.48%	1.31%	0.26%	0.11%	0.00%	0.00%	0.00%
Comprehensive [h]	80.66%	22.32%	3.28%	0.58%	0.21%	0.10%	0.05%	0.00%

	Estimated Ultimate Claims [i]				% by Cvrg	% by Cvrg
	2015	2016	2017	3-yr Total	3-yr Total	Disc [j]
ABWI	89,619	84,918	51,748	226,284	11.75%	12.14%
ABO (Indexed)	69,771	69,250	45,886	184,907	9.60%	10.16%
ABO (Non-Indexed)	30,669	33,005	20,876	84,551	4.39%	4.78%
TPL-BI	5,150	5,568	3,339	14,056	0.73%	0.82%
TPL-PD [k]	41,261	43,824	29,995	115,080	5.97%	6.25%
Collision [k]	352,472	386,917	275,747	1,015,135	52.70%	56.51%
Comprehensive [k]	119,989	119,338	46,789	286,116	14.85%	15.92%
Total All Coverage	708,930	742,819	474,380	1,926,129	100.00%	106.58%
Selected Discounted Loss Ratio with Margins [l]						81.54%

Notes:
[a] From Sheet 1
[b] Accounts for Investable Assets
Months from Valuation Date to Average Accident Date 3
Percent in Non-Investable Assets 0.00%
[c] Year Ending Feb 28, 2018 & After - 1.32%
[d] Year Ending Feb 28, 2018 & After - 0.97%
[e] Discount Rate Margin - 50 bps
[f] Claims Development Margin - From Exhibit 7, Sheet 1
[g] Discounted Using (1)
[h] Discounted Using (2)
[i] From Exhibit 2, Column 7
[j] % by Cvrg 3-yr Total x Cumulative Discounted % Paid
[k] 2017: Includes a seasonality adjustment factor
[l] Selected Undiscounted Loss Ratio x Total All Coverage % Disc

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Direct & Agency
As of October 31, 2017
($000)

Exhibit 6
Sheet 4

108	120	132	144	156	168	180	192	204	216	
51.61%	54.22%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
60.95%	62.87%	64.73%	66.47%	68.13%	69.46%	70.68%	71.92%	73.17%	100.00%	
96.95%	97.44%	97.88%	98.27%	98.66%	99.06%	99.45%	99.80%	100.00%	100.00%	
96.96%	98.42%	99.50%	99.75%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
89.75%	88.58%	87.42%	86.28%	85.16%	84.05%	82.96%	81.87%	80.81%	79.76%	
92.34%	91.46%	90.58%	89.71%	88.85%	87.99%	87.15%	86.31%	85.48%	84.66%	
93.48%	92.72%	91.97%	91.22%	90.48%	89.74%	89.01%	88.29%	87.57%	86.86%	
96.21%	95.76%	95.31%	94.86%	94.42%	93.98%	93.54%	93.10%	92.66%	92.23%	
										Cumulative
3.00%	2.76%	42.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	103.33%
2.23%	2.04%	1.95%	1.82%	1.72%	1.36%	1.23%	1.24%	1.25%	24.44%	105.82%
0.71%	0.51%	0.46%	0.41%	0.41%	0.41%	0.41%	0.35%	0.20%	0.00%	108.80%
2.60%	1.59%	1.18%	0.27%	0.21%	0.05%	0.00%	0.00%	0.00%	0.00%	112.65%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	104.61%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.22%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.20%

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Unearned Premium - Net
As of October 31, 2017
($000)

Exhibit 6
Sheet 5

A. Claims (Including External Adjustment Expense) Data

		Estimated Ultimate Loss Ratio For Insurance Year [a]					Selected	Selected
		2013	2014	2015	2016	2017	Undisc	Disc [c]
1a.	Bodily Injury	0.54%	0.75%	0.60%	0.61%	0.51%		
1b.	Property Damage [b]	5.94%	5.10%	4.79%	4.83%	4.62%		
1c.	Collision [b]	45.68%	39.54%	40.93%	42.65%	42.48%		
1d.	Comprehensive [b]	7.97%	8.83%	13.94%	13.16%	7.21%		
1e.	Accident Benefits - Weekly Indemnity	10.49%	8.75%	10.41%	9.36%	7.97%		
1f.	Accident Benefits - Other (Indexed)	7.38%	7.07%	8.10%	7.63%	7.07%		
1g.	Accident Benefits - Other (Non-Indexed)	3.61%	3.50%	3.56%	3.64%	3.22%		
1.	Total All Coverage	81.61%	73.54%	82.33%	81.89%	73.08%		
2.	Trend/Rate Adjustment [Sheet 2]	0.9442	0.9505	0.9748	0.9833	1.0005		
3.	Adjusted Loss Ratio [(1) x (2)]	77.06%	69.90%	80.26%	80.52%	73.11%	76.81%	81.86%

B. Actual Data Other Than Losses

		2013	2014	2015	2016	2017	Selected
4.	Net Earned Premium [d]	764,671	803,881	861,065	907,145	649,159	
5.	Operating Expenses as Percentage of Earned Premium [d]	11.06%	11.14%	10.26%	9.94%	8.57%	9.26%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	2.86%	3.09%
7.	Internal Loss Adjustment Expense Ratio to Losses [e]	20.00%	19.50%	19.00%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

		Discounted
8.	Net Unearned Premium as of October 31, 2017 [d]	455,978
9.	Additional Expected Cost of Non-Proportional Reinsurance [f]	1,882
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	371,745
11.	Reinsurance PFAD [g]	157
12.	Maintenance Expense [h]	13,975
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	68,980
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement [i]	3,916
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(4,677)
16.	Carried Deferred Policy Acquisition Expenses [d]	30,759
17.	Write Down Deferred Policy Acquisition Expenses [j]	30,759
18.	Premium Deficiency [k]	4,677

Notes:
[a] [Exhibit 2, Column 7] / (4)
[b] 2017: Includes a seasonality adjustment factor
[c] From Sheet 7
[d] From MPI
[e] [Exhibit 5, Row 8] x 2
[f] Ceded Unearned Premium x 1/2
[g] (Sheet 1, Row 9 - (10)) x 5.00%
[h] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin
[i] From PE Exhibit 3
[j] Min((16) - (15), (16)) if greater than 0, otherwise 0
[k] Negative of (15) if greater than 0, otherwise 0

Manitoba Public Insurance
Automobile Insurance Division
Trend/Rate Adjustment - Net
As of October 31, 2017
($000)

Exhibit 6
Sheet 6

Insurance Year	Earned Premium	Earned Premium Increase	Ultimate Claims	Ultimate Claims Increase
(1)	(2)	(3)	(4)	(5)
2007	665,011		508,271	
2008	697,151	4.83%	485,325	-4.51%
2009	727,088	4.29%	486,519	0.25%
2010	749,534	3.09%	556,926	14.47%
2011	761,677	1.62%	549,863	-1.27%
2012	756,751	-0.65%	619,745	12.71%
2013	764,671	1.05%	637,926	2.93%
2014	803,881	5.13%	591,170	-7.33%
2015	861,065	7.11%	708,930	19.92%
2016	907,145	5.35%	742,819	4.78%
2017	649,159	6.27%	474,380	-4.21%

(6) Average Claims Increase	3.77%
(7) Selected Claims Increase	4.44%
(8) 3-Year Average Premium Increase	6.24%
(9) Selected Premium Increase	4.35%
(10) 2017 Trend/Rate Adjustment	1.0005
(11) 2016 Trend/Rate Adjustment	0.9833
(12) 2015 Trend/Rate Adjustment	0.9748
(13) 2014 Trend/Rate Adjustment	0.9505
(14) 2013 Trend/Rate Adjustment	0.9442

Notes:
(2) From MPI
(4) From Exhibit 2, Sheet 14, Column 7; Removed impact of Hail;
2017: Includes a seasonality adjustment factor
(7) Sheet 2, Row 7
(9) Sheet 2, Row 9
(10) = [[1+(7)]/[1+(9)]]^[7/12]; Trended from the average accident date for the current year to the average accident date of the unearned premium (per Sheet 7
(11) = (10)*[1+(7)]/[(1+(3) for 2017]
(12) = (11)*[1+(7)]/[(1+(3) for 2016]
(13) = (12)*[1+(7)]/[(1+(3) for 2015]
(14) = (13)*[1+(7)]/[(1+(3) for 2014]

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Net
As of October 31, 2017
($000)

Exhibit 6
Sheet 7

Selected Undiscounted Loss Ratio [a] 76.81%

	12	24	36	48	60	72	84	96
Cumulative % Paid								
ABWI	11.22%	22.96%	29.24%	34.18%	38.54%	42.37%	45.74%	48.80%
ABO (Indexed)	17.88%	38.21%	44.63%	48.27%	51.29%	53.88%	56.41%	58.86%
ABO (Non-Indexed)	21.88%	55.57%	80.68%	88.19%	91.76%	93.64%	95.04%	96.28%
TPL-BI	4.21%	18.33%	34.78%	52.43%	68.21%	79.12%	89.33%	94.60%
TPL-PD	56.57%	93.48%	98.81%	99.65%	99.95%	100.00%	100.00%	100.00%
Collision	75.50%	98.42%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%
Comprehensive	75.13%	96.02%	99.11%	99.65%	99.85%	99.95%	100.00%	100.00%
Discount to Valuation Date [b]								
Without Margin (1) [c]	99.67%	98.37%	97.09%	95.83%	94.58%	93.35%	92.13%	90.93%
Without Margin (2) [d]	99.76%	98.80%	97.85%	96.91%	95.98%	95.06%	94.15%	93.24%
With Margin (1) [c & e]	99.80%	98.98%	98.18%	97.38%	96.59%	95.80%	95.02%	94.25%
With Margin (2) [d & e]	99.88%	99.42%	98.95%	98.49%	98.03%	97.57%	97.11%	96.66%
Discounted % Paid; Includes Discount Rate Margin and Claims Development Margin [f								
ABWI [g]	12.88%	13.34%	7.08%	5.52%	4.83%	4.21%	3.67%	3.31%
ABO (Indexed) [g]	20.51%	23.13%	7.23%	4.06%	3.34%	2.84%	2.76%	2.65%
ABO (Non-Indexed) [h]	24.04%	36.83%	27.30%	8.12%	3.84%	2.01%	1.50%	1.31%
TPL-BI [h]	4.84%	16.13%	18.69%	19.95%	17.74%	12.20%	11.35%	5.83%
TPL-PD [h]	59.33%	38.51%	5.53%	0.87%	0.31%	0.05%	0.00%	0.00%
Collision [h]	81.06%	24.48%	1.31%	0.26%	0.11%	0.00%	0.00%	0.00%
Comprehensive [h]	80.66%	22.32%	3.28%	0.58%	0.21%	0.10%	0.05%	0.00%

	Estimated Ultimate Claims [i]				% by Cvrg	% by Cvrg
	2015	2016	2017	3-yr Total	3-yr Total	Disc [j]
ABWI	89,619	84,918	51,748	226,285	11.75%	12.14%
ABO (Indexed)	69,771	69,250	45,886	184,907	9.60%	10.16%
ABO (Non-Indexed)	30,669	33,005	20,876	84,551	4.39%	4.78%
TPL-BI	5,150	5,568	3,339	14,056	0.73%	0.82%
TPL-PD [k]	41,261	43,824	29,995	115,080	5.97%	6.25%
Collision [k]	352,472	386,917	275,747	1,015,135	52.70%	56.51%
Comprehensive [k]	119,989	119,338	46,789	286,116	14.85%	15.92%
Total All Coverage	708,930	742,819	474,380	1,926,129	100.00%	106.58%
Selected Discounted Loss Ratio with Margins [l]						81.86%

Notes:
[a] From Sheet 5
[b] Accounts for Investable Assets
Months from Valuation Date to Average Accident Date 3
Percent in Non-Investable Assets 0.00%
[c] Year Ending Feb 28, 2018 & After - 1.32%
[d] Year Ending Feb 28, 2018 & After - 0.97%
[e] Discount Rate Margin - 50 bps
[f] Claims Development Margin - From Exhibit 7, Sheet 2
[g] Discounted Using (1)
[h] Discounted Using (2)
[i] From Exhibit 2, Column 7
[j] % by Cvrg 3-yr Total x Cumulative Discounted % Paid
[k] 2017: Includes a seasonality adjustment factor
[l] Selected Undiscounted Loss Ratio x Total All Coverage % Disc

Manitoba Public Insurance
Automobile Insurance Division
Discounted Loss Ratio with Margins - Net
As of October 31, 2017
($000)

Exhibit 6
Sheet 8

108	120	132	144	156	168	180	192	204	216	
51.61%	54.22%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
60.95%	62.87%	64.73%	66.47%	68.13%	69.46%	70.68%	71.92%	73.17%	100.00%	
96.95%	97.44%	97.88%	98.27%	98.66%	99.06%	99.45%	99.80%	100.00%	100.00%	
96.96%	98.42%	99.50%	99.75%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
89.75%	88.58%	87.42%	86.28%	85.16%	84.05%	82.96%	81.87%	80.81%	79.76%	
92.34%	91.46%	90.58%	89.71%	88.85%	87.99%	87.15%	86.31%	85.48%	84.66%	
93.48%	92.72%	91.97%	91.22%	90.48%	89.74%	89.01%	88.29%	87.57%	86.86%	
96.21%	95.76%	95.31%	94.86%	94.42%	93.98%	93.54%	93.10%	92.66%	92.23%	
										Cumulative
3.00%	2.76%	42.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	103.33%
2.23%	2.04%	1.95%	1.82%	1.72%	1.36%	1.23%	1.24%	1.25%	24.44%	105.82%
0.71%	0.51%	0.46%	0.41%	0.41%	0.41%	0.41%	0.35%	0.20%	0.00%	108.80%
2.60%	1.59%	1.18%	0.27%	0.21%	0.05%	0.00%	0.00%	0.00%	0.00%	112.65%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	104.61%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.22%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	107.20%

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EXHIBIT 7

Actuarial Present Value Calculations

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities - Direct and Agency
As of October 31, 2017

Exhibit 7
Sheet 1

Coverage	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid Claims With Margin [a]	Discounted Unpaid Claims Without Margin [a]	Discount Amount With Margin	Discount Amount Without Margin	Interest Rate PFAD
	(1)	(2)=(4)/(1)	(3)=(5)/(1)	(4)	(5)	(6)=(1)-(4)	(7)=(1)-(5)	(8)=(7)-(6)
Bodily Injury - Basic	17,629	93.22%	92.12%	16,434	16,240	1,195	1,388	193
Pre-PIPP	-	100.00%	100.00%	-	-	-	-	-
Accident Benefits:								
Weekly Indemnity (2016 & After)	114,590	89.80%	84.55%	102,898	96,884	11,692	17,706	6,014
Weekly Indemnity (Prior to 2016)	663,316	89.51%	84.05%	593,765	557,491	69,551	105,825	36,273
Pre-PIPP	22,954	92.45%	88.33%	21,221	20,276	1,733	2,679	946
Other (Indexed) (2008 & After)	278,515	90.04%	84.74%	250,765	236,017	27,750	42,498	14,748
Other (Indexed) (Prior to 2008)	247,147	92.40%	88.18%	228,358	217,931	18,789	29,217	10,427
Other (Non-Indexed)	54,451	93.99%	93.04%	51,179	50,662	3,272	3,789	517
Pre-PIPP	3,203	98.60%	98.37%	3,158	3,151	45	52	8
Collision - Basic	81,476	98.35%	98.07%	80,130	79,901	1,346	1,575	229
Comprehensive - Basic	32,142	98.02%	97.69%	31,507	31,400	635	743	107
Property Damage - Basic	18,312	98.03%	97.70%	17,951	17,890	361	422	61
ILAE Provision [d]	173,225	91.11%	86.58%	157,823	149,970	15,402	23,254	7,852
Total	1,706,962	91.11%	86.58%	1,555,189	1,477,812	151,772	229,149	77,377

Coverage	Claims Development Margin	Claims Development PFAD	Reinsurance Margin	Reinsurance PFAD	CIA Rules Unpaid Claims [b]	Selected IBNR	Required IBNR [c]
	(9)	(10)=(5)x(9)	(11)	(12)	(13)	(14)	(15)
Bodily Injury - Basic	15.00%	2,436			18,870	6,329	7,570
Pre-PIPP	12.50%	-			-	-	-
Accident Benefits:							
Weekly Indemnity (2016 & After)	15.00%	14,533			117,430	97,994	100,834
Weekly Indemnity (Prior to 2016)	10.00%	55,749			649,514	74,175	60,373
Pre-PIPP	5.00%	1,014			22,235	8,845	8,126
Other (Indexed) (2008 & After)	15.00%	35,403			286,168	60,369	68,022
Other (Indexed) (Prior to 2008)	10.00%	21,793			250,151	38,877	41,881
Other (Non-Indexed)	10.00%	5,066			56,245	21,036	22,830
Pre-PIPP	5.00%	158			3,316	-	113
Collision - Basic	7.50%	5,993			86,123	21,679	26,326
Comprehensive - Basic	7.50%	2,355			33,862	6,136	7,856
Property Damage - Basic	5.00%	895			18,846	7,271	7,805
ILAE Provision [d]	10.95%	16,421			174,244	173,225	174,244
Total	10.95%	161,814			1,717,003	515,938	525,979

Notes:
[a] Summarized from the respective Exhibit 7 sheets
[b] (5) + (8) + (10) + (12)
[c] ((13) - (1)) + (14)
[d] Internal Loss Adjustment Expense (ILAE) Provision:
(1) From Exhibit 5, Row 12
(4) [Sum (4) all other coverage] / [Sum (1) all other coverage] * (1)
(5) [Sum (5) all other coverage] / [Sum (1) all other coverage] * (1)
(9) [Sum (9) all other coverage] / [Sum (5) all other coverage]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities - Net
As of October 31, 2017

Exhibit 7
Sheet 2

Coverage	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid Claims With Margin [a]	Discounted Unpaid Claims Without Margin [a]	Discount Amount With Margin	Discount Amount Without Margin	Interest Rate PFAD
	(1)	(2)=(4)/(1)	(3)=(5)/(1)	(4)	(5)	(6)=(1)-(4)	(7)=(1)-(5)	(8)=(7)-(6)
Bodily Injury - Basic	17,629	93.22%	92.12%	16,434	16,240	1,195	1,388	193
Pre-PIPP	-	100.00%	100.00%	-	-	-	-	-
Accident Benefits:								
Weekly Indemnity (2016 & After)	114,590	89.80%	84.55%	102,898	96,884	11,692	17,706	6,014
Weekly Indemnity (Prior to 2016)	662,840	89.51%	84.03%	593,289	557,015	69,551	105,825	36,273
Pre-PIPP	22,954	92.45%	88.33%	21,221	20,276	1,733	2,679	946
Other (Indexed) (2008 & After)	278,402	90.03%	84.74%	250,652	235,904	27,750	42,498	14,748
Other (Indexed) (Prior to 2008)	247,024	92.39%	88.17%	228,235	217,808	18,789	29,217	10,427
Other (Non-Indexed)	54,451	93.99%	93.04%	51,179	50,662	3,272	3,789	517
Pre-PIPP	3,203	98.60%	98.37%	3,158	3,151	45	52	8
Collision - Basic	81,476	98.35%	98.07%	80,130	79,901	1,346	1,575	229
Comprehensive - Basic	31,797	98.02%	97.68%	31,167	31,060	630	737	107
Property Damage - Basic	18,312	98.03%	97.70%	17,951	17,890	361	422	61
ILAE Provision [e]	173,225	91.11%	86.58%	157,823	149,970	15,402	23,254	7,852
Total	1,705,905	91.10%	86.57%	1,554,137	1,476,761	151,768	229,144	77,376

Coverage	Claims Development Margin	Claims Development PFAD	Reinsurance Margin	Reinsurance PFAD [b]	CIA Rules Unpaid Claims [c]	Selected IBNR	Required IBNR [d]
	(9)	(10)=(5)x(9)	(11)	(12)	(13)	(14)	(15)
Bodily Injury - Basic	15.00%	2,436			18,870	6,329	7,570
Pre-PIPP	12.50%	-			-	-	-
Accident Benefits:							
Weekly Indemnity (2016 & After)	15.00%	14,533	5.00%	-	117,430	97,994	100,834
Weekly Indemnity (Prior to 2016)	10.00%	55,702	5.00%	24	649,014	74,175	60,349
Pre-PIPP	5.00%	1,014			22,235	8,845	8,126
Other (Indexed) (2008 & After)	15.00%	35,386	5.00%	6	286,043	60,369	68,010
Other (Indexed) (Prior to 2008)	10.00%	21,781	5.00%	6	250,022	38,877	41,875
Other (Non-Indexed)	10.00%	5,066			56,245	21,036	22,830
Pre-PIPP	5.00%	158			3,316	-	113
Collision - Basic	7.50%	5,993			86,123	21,679	26,326
Comprehensive - Basic	7.50%	2,330	2.50%	8	33,505	6,136	7,844
Property Damage - Basic	5.00%	895			18,846	7,271	7,805
ILAE Provision [e]	10.95%	16,421			174,244	173,225	174,244
Total	10.95%	161,712		44	1,715,893	515,938	525,926

Notes:
[a] Summarized from the respective Exhibit 7 sheets:
Other than Accident Benefits - Weekly indemnity, Accident Benefits - Other (Indexed), and Comprehensive - Basic, Net amounts are equal to Direct & Agency
Accident Benefits - Weekly Indemnity reduced by ceded unpaid claims of 476
Accident Benefits - Other (Indexed) reduced by ceded unpaid claims of 236
[b] [Exhibit 7, Sheet 1, Column 5 less corresponding amount from above] * (11)
[c] (5) + (8) + (10) + (12)
[d] ((13) - (1)) + (14)
[e] Internal Loss Adjustment Expense (ILAE) Provision per Exhibit 7, Sheet 1

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Accident Benefits - Weekly Indemnity
($000)

Discount Rates	Year Ending Feb 28 2018	2019	2020	2021	2022	After 22
With Margin	0.82%	0.82%	0.82%	0.82%	0.82%	0.82%
Without Margin	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2007 & Prior	278,474	29,022	307,496	307,496									
2008	28,650	2,913	31,563	31,563									
2009	29,384	2,875	32,259	1,710	30,550								
2010	41,008	3,213	44,221	2,493	2,212	39,517							
2011	42,167	3,200	45,367	2,587	2,412	2,139	38,229						
2012	56,727	3,458	60,185	3,610	3,226	3,008	2,668	47,673					
2013	44,349	6,195	50,544	3,240	2,837	2,535	2,364	2,097	37,470				
2014	39,894	8,543	48,437	3,276	2,895	2,535	2,265	2,112	1,874	33,480			
2015	42,597	23,601	66,198	4,857	4,149	3,666	3,211	2,869	2,675	2,373	42,399		
2016	10,329	57,245	67,574	6,019	4,516	3,858	3,409	2,985	2,668	2,487	2,206	39,425	
2017	6,267	40,749	47,016	7,470	3,523	2,643	2,258	1,995	1,747	1,561	1,456	1,291	23,073
Total	619,846	181,015	800,861	374,320	56,319	59,902	54,404	59,732	46,434	39,901	46,061	40,716	23,073
Total Payments				35,261	25,769	20,385	16,175	12,059	8,963	6,421	3,662	1,291	-
Total Commuted Reserve				339,059	30,550	39,517	38,229	47,673	37,470	33,480	42,399	39,425	23,073
Discounted with Margin [b]				305,854	27,287	35,297	34,147	42,583	33,469	29,905	37,871	35,215	20,609
Discounted without Margin [b]				288,334	25,586	33,095	32,017	39,927	31,382	28,039	35,509	33,019	19,323
Paid Factor to Ultimate [c]			18.6304	4.9014	3.6374	3.0477	2.6769	2.4171	2.2277	2.0820	1.9623	1.8671	1.0000
Cumulative % Paid [c]			5.37%	20.40%	27.49%	32.81%	37.36%	41.37%	44.89%	48.03%	50.96%	53.56%	100.00%
Discount Factor for Payments [d]													
With Margin				99.59%	98.78%	97.98%	97.18%	96.39%	95.61%	94.83%	94.06%	93.29%	92.54%
Without Margin				99.35%	98.05%	96.77%	95.51%	94.27%	93.04%	91.83%	90.63%	89.45%	88.29%
Discount Factor for Commuted Reserve [d]													
With Margin				100.00%	99.19%	98.38%	97.58%	96.79%	96.00%	95.22%	94.44%	93.68%	92.91%
Without Margin				100.00%	98.70%	97.41%	96.14%	94.89%	93.65%	92.43%	91.23%	90.04%	88.87%
Discounted Unpaid [d]		Discount Factor [f]	Total [e]										
With Margin		89.64%	717,884	340,971	52,521	54,698	49,040	52,838	40,700	34,564	39,211	34,193	19,148
Without Margin		84.24%	674,651	323,364	50,519	51,966	46,231	49,254	37,730	31,814	35,714	30,885	17,172

Notes:
[a] From Exhibit 2
[b] Discounted to the beginning of the development year
[c] Per Appendix E
[d] Discounted to Oct 31, 2017
[e] Sum of Row
[f] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Accident Benefits - Other (Indexed)
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	0.82%	0.82%	0.82%	0.82%	0.82%	0.82%
Without Margin	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1999 & Prior	72,655	10,783	83,438	83,438																	
2000	10,804	2,309	13,113	13,113																	
2001	13,599	2,550	16,149	755	15,394																
2002	16,718	3,114	19,832	871	886	18,075															
2003	11,246	3,216	14,462	598	609	620	12,636														
2004	19,508	3,676	23,184	930	921	937	953	19,443													
2005	13,528	3,484	17,012	712	654	647	659	670	13,670												
2006	26,153	4,785	30,938	1,614	1,228	1,127	1,116	1,135	1,155	23,562											
2007	24,059	4,958	29,017	1,403	1,441	1,096	1,006	996	1,013	1,031	21,031										
2008	14,778	4,553	19,331	988	887	911	693	636	630	641	652	13,295									
2009	18,863	5,092	23,955	1,165	1,164	1,046	1,074	817	750	742	755	768	15,673								
2010	16,974	3,778	20,752	1,080	956	956	859	882	671	616	610	620	631	12,871							
2011	20,979	5,043	26,022	1,527	1,275	1,129	1,129	1,014	1,041	792	727	719	732	745	15,193						
2012	19,994	5,742	25,736	1,365	1,430	1,194	1,057	1,057	949	975	742	681	674	686	698	14,228					
2013	13,639	6,482	20,121	1,073	1,011	1,058	884	783	782	703	722	549	504	499	507	516	10,531				
2014	19,168	6,998	26,166	1,579	1,311	1,235	1,293	1,080	956	956	859	882	671	616	609	620	631	12,869			
2015	26,040	9,623	35,663	2,676	1,990	1,652	1,557	1,630	1,362	1,206	1,205	1,082	1,112	846	776	768	782	795	16,224		
2016	37,709	3,768	41,477	5,325	2,712	2,017	1,675	1,578	1,652	1,380	1,222	1,222	1,097	1,127	857	787	779	792	806	16,446	
2017	30,002	9,289	39,291	11,336	3,589	1,828	1,360	1,129	1,064	1,114	930	824	824	739	759	578	530	525	534	543	11,085
Total	426,416	99,246	525,662	131,549	37,459	35,529	27,950	32,850	25,695	33,717	29,454	20,642	21,917	18,128	19,400	17,498	13,253	14,982	17,564	16,990	11,085
Total Payments				34,997	22,065	17,454	15,314	13,407	12,026	10,155	8,423	7,347	6,244	5,257	4,207	3,269	2,722	2,113	1,340	543	-
Total Commuted Reserve				96,551	15,394	18,075	12,636	19,443	13,670	23,562	21,031	13,295	15,673	12,871	15,193	14,228	10,531	12,869	16,224	16,446	11,085
Discounted with Margin [b]				90,970	14,304	16,794	11,741	18,066	12,701	21,893	19,541	12,353	14,563	11,959	14,117	13,220	9,785	11,957	15,075	15,281	10,299
Discounted without Margin [b]				87,798	13,692	16,076	11,239	17,293	12,158	20,957	18,705	11,825	13,940	11,448	13,513	12,655	9,367	11,446	14,430	14,628	9,859
Paid Factor to Ultimate [c]			12.5855	2.8982	2.3303	2.1188	1.9848	1.8858	1.8012	1.7203	1.6581	1.6067	1.5584	1.5174	1.4776	1.4486	1.4230	1.3985	1.3744	1.3508	1.0000
Cumulative % Paid [c]			7.95%	34.50%	42.91%	47.20%	50.38%	53.03%	55.52%	58.13%	60.31%	62.24%	64.17%	65.90%	67.68%	69.03%	70.28%	71.51%	72.76%	74.03%	100.00%
Discount Factor for Payments [d]																					
With Margin				99.59%	98.78%	97.98%	97.18%	96.39%	95.61%	94.83%	94.06%	93.29%	92.54%	91.78%	91.04%	90.30%	89.56%	88.83%	88.11%	87.39%	86.68%
Without Margin				99.35%	98.05%	96.77%	95.51%	94.27%	93.04%	91.83%	90.63%	89.45%	88.29%	87.14%	86.00%	84.88%	83.78%	82.68%	81.61%	80.54%	79.49%
Discount Factor for Commuted Reserve [d]																					
With Margin				100.00%	99.19%	98.38%	97.58%	96.79%	96.00%	95.22%	94.44%	93.68%	92.91%	92.16%	91.41%	90.67%	89.93%	89.20%	88.47%	87.75%	87.04%
Without Margin				100.00%	98.70%	97.41%	96.14%	94.89%	93.65%	92.43%	91.23%	90.04%	88.87%	87.71%	86.57%	85.44%	84.33%	83.23%	82.14%	81.07%	80.02%
Discounted Unpaid [d]		Discount Factor [f]	Total [e]																		
With Margin		91.15%	479,123	125,824	35,983	33,624	26,339	30,409	23,691	30,476	26,378	18,426	19,309	15,846	16,734	14,938	11,237	12,542	14,518	13,884	8,964
Without Margin		86.36%	453,948	122,566	35,149	32,551	25,432	29,048	22,575	28,696	24,699	17,219	17,901	14,622	15,316	13,588	10,179	11,273	12,947	12,297	7,889

Notes:
[a] From Exhibit 2 [b] Discounted to the beginning of the development year [c] Per Appendix F [d] Discounted to Oct 31, 2017
[e] Sum of Row [f] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Accident Benefits - Other (Non-Indexed)
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1999 & Prior	3,289	-	3,289	3,289																	
2000	-	-	-	-																	
2001	2	-	2	2																	
2002	5	-	5	5	-	-															
2003	18	-	18	11	7	-	-														
2004	37	49	86	33	33	21	-	-													
2005	43	115	158	43	44	44	27	-	-												
2006	19	200	219	47	47	47	47	30	-	-											
2007	143	244	387	75	67	67	67	68	42	-	-										
2008	418	301	719	116	117	104	105	105	105	66	-	-									
2009	82	359	441	67	60	61	54	54	55	55	34	-	-								
2010	139	408	547	111	66	60	60	54	54	54	54	34	-	-							
2011	422	488	910	238	137	81	73	74	66	66	66	67	42	-	-						
2012	474	548	1,022	209	212	122	72	66	66	59	59	59	60	37	-	-					
2013	671	703	1,374	323	215	219	126	75	67	68	61	61	61	61	38	-	-				
2014	1,788	1,092	2,880	942	455	304	308	177	105	95	96	85	86	86	86	54	-	-			
2015	8,681	1,925	10,606	4,847	1,885	910	607	616	355	210	190	191	171	171	172	173	108	-	-		
2016	11,121	5,705	16,826	9,522	3,337	1,298	627	418	424	244	145	131	132	117	118	118	119	75	-	-	
2017	9,266	8,900	18,166	6,695	6,492	2,275	885	427	285	289	166	99	89	90	80	80	81	81	51	-	-
Total	36,618	21,036	57,654	26,576	13,174	5,612	3,060	2,164	1,625	1,207	872	727	639	563	495	426	308	156	51	-	-
Paid Factor to Ultimate [b]			9.1398	2.2850	1.3229	1.1528	1.0979	1.0732	1.0574	1.0417	1.0330	1.0278	1.0232	1.0186	1.0146	1.0105	1.0065	1.0025	1.0000	1.0000	1.0000
Cumulative % Paid [b]			10.94%	43.76%	75.59%	86.74%	91.08%	93.18%	94.57%	95.99%	96.81%	97.29%	97.73%	98.17%	98.56%	98.96%	99.35%	99.75%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																					
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%	62.90%	61.15%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%	58.06%	56.18%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																		
With Margin	94.25%	54,337	26,205	12,630	5,232	2,773	1,907	1,392	1,005	706	572	490	419	358	300	211	104	33	-	-
Without Margin	93.34%	53,812	26,142	12,539	5,169	2,727	1,866	1,356	974	681	549	468	398	339	282	197	97	31	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix G [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Bodily Injury - Basic
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1999 & Prior	(1)	-	(1)	(1)																	
2000	150	-	150	150																	
2001	-	-	-	-																	
2002	-	-	-	-																	
2003	-	-	-	-																	
2004	-	-	-	-																	
2005	-	-	-	-	-	-	-	-	-												
2006	45	-	45	32	13	-	-	-	-	-											
2007	20	-	20	8	8	3	-	-	-	-	-										
2008	85	-	85	60	10	10	4	-	-	-	-	-									
2009	50	5	55	22	23	4	4	2	-	-	-	-	-								
2010	525	9	534	237	122	124	21	21	8	-	-	-	-	-							
2011	549	57	606	308	132	68	69	12	12	5	-	-	-	-	-						
2012	136	193	329	159	86	37	19	19	3	3	1	-	-	-	-	-					
2013	1,358	414	1,772	521	604	329	141	73	74	12	13	5	-	-	-	-	-				
2014	2,104	776	2,880	992	555	644	350	151	78	79	13	13	5	-	-	-	-	-			
2015	2,225	1,244	3,469	796	920	515	598	325	140	72	73	12	12	5	-	-	-	-	-		
2016	2,586	1,810	4,396	852	814	940	526	611	332	143	74	75	13	13	5	-	-	-	-	-	
2017	1,468	1,822	3,290	428	554	530	612	343	397	216	93	48	49	8	8	3	-	-	-	-	-
Total	11,300	6,329	17,629	4,565	3,843	3,204	2,345	1,555	1,044	530	267	153	79	26	13	3	-	-	-	-	-
Paid Factor to Ultimate [b]			189.9490	7.4199	3.3065	2.1618	1.5442	1.3312	1.1476	1.0675	1.0364	1.0211	1.0060	1.0035	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			0.53%	13.48%	30.24%	46.26%	64.76%	75.12%	87.14%	93.68%	96.49%	97.93%	99.40%	99.65%	99.90%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																					
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%	62.90%	61.15%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%	58.06%	56.18%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																		
With Margin	93.22%	16,434	4,502	3,684	2,987	2,125	1,371	895	442	216	121	60	19	10	2	-	-	-	-	-
Without Margin	92.12%	16,240	4,491	3,658	2,951	2,089	1,341	871	428	208	116	58	18	9	2	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix A [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Property Damage - Basic
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31														
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1999 & Prior	(1)	-	(1)	(1)														
2000	(1)	-	(1)	(1)														
2001	1	-	1	1														
2002	-	-	-	-														
2003	-	-	-	-														
2004	1	-	1	1														
2005	-	-	-	-														
2006	1	-	1	1														
2007	52	-	52	52														
2008	136	-	136	136														
2009	11	(17)	(6)	(6)														
2010	208	(37)	171	171														
2011	56	(56)	(0)	(0)														
2012	162	(81)	81	81	-	-	-	-	-	-	-	-	-	-				
2013	111	(86)	25	12	12	-	-	-	-	-	-	-	-	-	-			
2014	276	22	298	238	30	30	-	-	-	-	-	-	-	-	-	-		
2015	583	404	987	775	170	21	21	-	-	-	-	-	-	-	-	-	-	
2016	1,844	2,119	3,963	3,076	696	153	19	19	-	-	-	-	-	-	-	-	-	-
2017	7,601	5,004	12,605	10,767	1,427	323	71	9	9	-	-	-	-	-	-	-	-	-	-
Total	11,041	7,271	18,312	15,301	2,335	527	111	28	9	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			3.4292	1.1152	1.0237	1.0050	1.0010	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			29.16%	89.67%	97.69%	99.50%	99.90%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	98.03%	17,951	15,088	2,239	491	101	25	8	-	-	-	-	-	-	-	-	-	-
Without Margin	97.70%	17,890	15,051	2,223	485	99	24	7	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix B [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Collision - Basic
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31														
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1999 & Prior	3	-	3	3														
2000	(1)	-	(1)	(1)														
2001	(5)	-	(5)	(5)														
2002	-	-	-	-														
2003	1	-	1	1														
2004	2	-	2	2														
2005	1	-	1	1														
2006	6	-	6	6														
2007	(2)	-	(2)	(2)														
2008	1	-	1	1														
2009	-	-	-	-														
2010	4	-	4	4														
2011	6	-	6	6														
2012	27	-	27	27														
2013	29	175	204	204	-	-	-	-	-	-	-	-	-	-	-			
2014	75	476	551	367	184	-	-	-	-	-	-	-	-	-	-	-		
2015	346	1,582	1,928	1,444	322	161	-	-	-	-	-	-	-	-	-	-	-	
2016	2,836	6,884	9,720	7,489	1,671	373	187	-	-	-	-	-	-	-	-	-	-	-	
2017	56,468	12,563	69,031	66,027	2,315	517	115	58	-	-	-	-	-	-	-	-	-	-	-
Total	59,797	21,679	81,476	75,574	4,492	1,050	302	58	-	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			2.4901	1.0267	1.0060	1.0015	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			40.16%	97.40%	99.40%	99.85%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	98.35%	80,130	74,520	4,307	979	273	51	-	-	-	-	-	-	-	-	-	-	-	-
Without Margin	98.07%	79,901	74,339	4,276	967	269	50	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix C [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Direct & Agency Unpaid Claims
As of October 31, 2017
Comprehensive - Basic
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31															
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1999 & Prior	35	-	35	35															
2000	1	(1)	-	-															
2001	(1)	1	-	-															
2002	-	-	-	-															
2003	-	-	-	-															
2004	-	-	-	-															
2005	-	-	-	-															
2006	-	-	-	-															
2007	-	-	-	-															
2008	50	(50)	-	-															
2009	(2)	2	-	-															
2010	69	(69)	-	-															
2011	418	(418)	-	-															
2012	942	(906)	36	36	-	-	-	-	-	-	-	-	-	-					
2013	8	141	149	112	37	-	-	-	-	-	-	-	-	-	-				
2014	36	282	318	177	106	35	-	-	-	-	-	-	-	-	-	-			
2015	3,411	(1,805)	1,606	1,068	299	180	60	-	-	-	-	-	-	-	-	-	-		
2016	7,113	157	7,270	5,673	1,062	297	179	60	-	-	-	-	-	-	-	-	-	-	
2017	13,926	8,801	22,727	20,159	2,004	375	105	63	21	-	-	-	-	-	-	-	-	-	-
Total	26,006	6,136	32,142	27,260	3,508	887	344	123	21	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			2.1697	1.0649	1.0136	1.0045	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			46.09%	93.91%	98.66%	99.55%	99.80%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	98.02%	31,507	26,879	3,363	827	311	108	18	-	-	-	-	-	-	-	-	-	-	
Without Margin	97.69%	31,400	26,814	3,339	817	306	106	18	-	-	-	-	-	-	-	-	-	-	

Notes:
[a] From Exhibit 2 [b] Per Appendix D [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

Manitoba Public Insurance
Automobile Insurance Division
Development of Net Unpaid Claims
As of October 31, 2017
Comprehensive - Basic
($000)

	Year Ending Feb 28					
Discount Rates	2018	2019	2020	2021	2022	After 22
With Margin	2.85%	2.85%	2.85%	2.85%	2.85%	2.85%
Without Margin	3.35%	3.35%	3.35%	3.35%	3.35%	3.35%

Insurance Year	Case Reserve [a]	Selected IBNR [a]	Total Unpaid [a]	Amount Paid for Development Year Ending Oct 31														
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
1999 & Prior	35	-	35	35														
2000	1	(1)	-	-														
2001	(1)	1	-	-														
2002	-	-	-	-														
2003	-	-	-	-														
2004	-	-	-	-														
2005	-	-	-	-														
2006	-	-	-	-														
2007	-	-	-	-														
2008	50	(50)	-	-														
2009	(2)	2	-	-														
2010	69	(69)	-	-														
2011	73	(418)	(345)	(345)														
2012	942	(906)	36	36	-	-	-	-	-	-	-	-	-	-				
2013	8	141	149	112	37	-	-	-	-	-	-	-	-	-	-			
2014	36	282	318	177	106	35	-	-	-	-	-	-	-	-	-	-		
2015	3,411	(1,805)	1,606	1,068	299	180	60	-	-	-	-	-	-	-	-	-	-	
2016	7,113	157	7,270	5,673	1,062	297	179	60	-	-	-	-	-	-	-	-	-	-
2017	13,926	8,801	22,727	20,159	2,004	375	105	63	21	-	-	-	-	-	-	-	-	-	-
Total	25,661	6,136	31,797	26,915	3,508	887	344	123	21	-	-	-	-	-	-	-	-	-	-
Paid Factor to Ultimate [b]			2.1697	1.0649	1.0136	1.0045	1.0020	1.0005	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Cumulative % Paid [b]			46.09%	93.91%	98.66%	99.55%	99.80%	99.95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Discount Factor for Payments [c]																			
With Margin				98.60%	95.87%	93.22%	90.63%	88.12%	85.68%	83.31%	81.00%	78.75%	76.57%	74.45%	72.39%	70.38%	68.43%	66.53%	64.69%
Without Margin				98.37%	95.18%	92.09%	89.11%	86.22%	83.42%	80.72%	78.10%	75.57%	73.12%	70.75%	68.46%	66.24%	64.09%	62.02%	60.01%

Discounted Unpaid [c]	Discount Factor [e]	Total [d]																	
With Margin	98.02%	31,167	26,539	3,363	827	311	108	18	-	-	-	-	-	-	-	-	-	-
Without Margin	97.68%	31,060	26,475	3,339	817	306	106	18	-	-	-	-	-	-	-	-	-	-

Notes:
[a] From Exhibit 2 [b] Per Appendix D [c] Discounted to Oct 31, 2017 [d] Sum of Row [e] Total Discounted Unpaid / Total Unpaid

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EXHIBIT 8

Actuarial Present Value Calculations by Insurance Year

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 1

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Bodily Injury - Basic											
1999 & Prior	(1)	98.60%	98.37%	(1)	(1)	(0)	15.00%	(0)	(1)	-	(0)
2000	150	98.60%	98.37%	148	148	0	15.00%	22	170	-	20
2001	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2002	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	15.00%	-	-	-	-
2006	45	97.82%	97.45%	44	44	0	15.00%	7	51	-	6
2007	20	96.56%	95.99%	19	19	0	15.00%	3	22	-	2
2008	85	97.24%	96.78%	83	82	0	15.00%	12	95	-	10
2009	55	96.22%	95.59%	52	52	0	15.00%	8	60	5	10
2010	534	95.80%	95.10%	512	508	4	15.00%	76	588	9	63
2011	606	95.92%	95.24%	581	577	4	15.00%	87	667	57	118
2012	329	95.84%	95.16%	315	313	2	15.00%	47	362	193	226
2013	1,772	94.78%	93.92%	1,679	1,664	15	15.00%	250	1,929	414	571
2014	2,880	94.37%	93.46%	2,718	2,692	26	15.00%	404	3,122	776	1,018
2015	3,469	93.33%	92.25%	3,238	3,200	38	15.00%	480	3,718	1,244	1,493
2016	4,396	92.27%	91.02%	4,056	4,001	55	15.00%	600	4,656	1,810	2,070
2017	3,290	90.87%	89.41%	2,989	2,941	48	15.00%	441	3,431	1,822	1,963
Total	17,629	93.22%	92.12%	16,434	16,240	193	15.00%	2,436	18,870	6,329	7,570

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 2

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Property Damage - Basic											
1999 & Prior	(1)	98.60%	98.37%	(1)	(1)	(0)	5.00%	(0)	(1)	-	(0)
2000	(1)	98.60%	98.37%	(1)	(1)	(0)	5.00%	(0)	(1)	-	(0)
2001	1	98.60%	98.37%	1	1	0	5.00%	0	1	-	0
2002	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2004	1	98.60%	98.37%	1	1	0	5.00%	0	1	-	0
2005	-	100.00%	100.00%	-	-	-	5.00%	-	-	-	-
2006	1	98.60%	98.37%	1	1	0	5.00%	0	1	-	0
2007	52	98.60%	98.37%	51	51	0	5.00%	3	54	-	2
2008	136	98.60%	98.37%	134	134	0	5.00%	7	141	-	5
2009	(6)	98.60%	98.37%	(6)	(6)	(0)	5.00%	(0)	(7)	(17)	(18)
2010	171	98.60%	98.37%	168	168	0	5.00%	8	177	(37)	(31)
2011	(0)	98.60%	98.37%	(0)	(0)	(0)	5.00%	(0)	(0)	(56)	(56)
2012	81	98.60%	98.37%	79	79	0	5.00%	4	83	(81)	(79)
2013	25	97.24%	96.77%	24	24	0	5.00%	1	25	(86)	(86)
2014	298	97.79%	97.42%	292	290	1	5.00%	15	306	22	30
2015	987	97.85%	97.48%	966	962	4	5.00%	48	1,014	404	431
2016	3,963	97.83%	97.46%	3,877	3,862	15	5.00%	193	4,070	2,119	2,226
2017	12,605	98.10%	97.77%	12,365	12,325	41	5.00%	616	12,982	5,004	5,381
Total	18,312	98.03%	97.70%	17,951	17,890	61	5.00%	895	18,846	7,271	7,805

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 3

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Collision - Basic											
1999 & Prior	3	98.60%	98.37%	3	3	0	7.50%	0	3	-	0
2000	(1)	98.60%	98.37%	(1)	(1)	(0)	7.50%	(0)	(1)	-	(0)
2001	(5)	98.60%	98.37%	(5)	(5)	(0)	7.50%	(0)	(5)	-	(0)
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2003	1	98.60%	98.37%	1	1	0	7.50%	0	1	-	0
2004	2	98.60%	98.37%	2	2	0	7.50%	0	2	-	0
2005	1	98.60%	98.37%	1	1	0	7.50%	0	1	-	0
2006	6	98.60%	98.37%	6	6	0	7.50%	0	6	-	0
2007	(2)	98.60%	98.37%	(2)	(2)	(0)	7.50%	(0)	(2)	-	(0)
2008	1	98.60%	98.37%	1	1	0	7.50%	0	1	-	0
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2010	4	98.60%	98.37%	4	4	0	7.50%	0	4	-	0
2011	6	98.60%	98.37%	6	6	0	7.50%	0	6	-	0
2012	27	98.60%	98.37%	27	27	0	7.50%	2	29	-	2
2013	204	98.60%	98.37%	201	200	0	7.50%	15	216	175	187
2014	551	97.69%	97.30%	538	536	2	7.50%	40	579	476	504
2015	1,928	97.70%	97.31%	1,883	1,876	7	7.50%	141	2,024	1,582	1,678
2016	9,720	97.78%	97.40%	9,503	9,467	37	7.50%	710	10,213	6,884	7,377
2017	69,031	98.45%	98.19%	67,962	67,779	182	7.50%	5,083	73,045	12,563	16,577
Total	81,476	98.35%	98.07%	80,130	79,901	229	7.50%	5,993	86,123	21,679	26,326

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 4

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Comprehensive - Basic											
1999 & Prior	35	98.60%	98.37%	35	34	0	7.50%	3	37	-	2
2000	-	100.00%	100.00%	-	-	-	7.50%	-	-	(1)	(1)
2001	-	100.00%	100.00%	-	-	-	7.50%	-	-	1	1
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-
2008	-	100.00%	100.00%	-	-	-	7.50%	-	-	(50)	(50)
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	2	2
2010	-	100.00%	100.00%	-	-	-	7.50%	-	-	(69)	(69)
2011	-	100.00%	100.00%	-	-	-	7.50%	-	-	(418)	(418)
2012	36	98.60%	98.37%	36	36	0	7.50%	3	38	(906)	(904)
2013	149	97.92%	97.57%	146	146	1	7.50%	11	157	141	149
2014	318	97.09%	96.60%	309	307	2	7.50%	23	332	282	296
2015	1,606	97.20%	96.73%	1,561	1,553	8	7.50%	117	1,678	(1,805)	(1,733)
2016	7,270	97.70%	97.32%	7,103	7,075	28	7.50%	531	7,634	157	521
2017	22,727	98.20%	97.89%	22,318	22,248	70	7.50%	1,669	23,986	8,801	10,060
Total	32,142	98.02%	97.69%	31,507	31,400	107	7.50%	2,355	33,862	6,136	7,856

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 5

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Weekly Indemnity											
1999 & Prior	116,835	90.77%	85.86%	106,049	100,310	5,738	8.99%	9,017	115,066	12,242	10,473
2000	18,970	89.86%	84.51%	17,046	16,032	1,014	10.00%	1,603	18,649	1,110	789
2001	17,318	90.07%	84.82%	15,598	14,688	910	10.00%	1,469	17,067	1,119	868
2002	22,002	90.54%	85.52%	19,920	18,817	1,103	10.00%	1,882	21,802	1,807	1,607
2003	19,797	91.11%	86.37%	18,037	17,098	939	10.00%	1,710	19,747	2,142	2,092
2004	20,303	89.35%	83.78%	18,140	17,010	1,129	10.00%	1,701	19,841	2,140	1,678
2005	24,161	90.66%	85.70%	21,903	20,706	1,197	10.00%	2,071	23,974	2,261	2,074
2006	34,961	89.52%	84.03%	31,297	29,377	1,919	10.00%	2,938	34,235	3,163	2,437
2007	33,149	89.51%	84.05%	29,672	27,860	1,812	10.00%	2,786	32,458	3,038	2,347
2008	31,563	89.32%	83.75%	28,192	26,434	1,758	10.00%	2,643	30,836	2,913	2,186
2009	32,259	89.18%	83.54%	28,768	26,951	1,818	10.00%	2,695	31,463	2,875	2,079
2010	44,221	89.08%	83.41%	39,393	36,884	2,509	10.00%	3,688	43,081	3,213	2,073
2011	45,367	89.00%	83.29%	40,375	37,787	2,588	10.00%	3,779	44,154	3,200	1,987
2012	60,185	88.95%	83.23%	53,536	50,095	3,441	10.00%	5,009	58,545	3,458	1,818
2013	50,544	88.96%	83.25%	44,963	42,080	2,883	10.00%	4,208	49,171	6,195	4,822
2014	48,437	89.00%	83.33%	43,110	40,363	2,747	10.00%	4,036	47,146	8,543	7,252
2015	66,198	89.11%	83.50%	58,987	55,274	3,713	10.00%	5,527	64,515	23,601	21,918
2016	67,574	89.38%	83.92%	60,399	56,708	3,691	15.00%	8,506	68,906	57,245	58,577
2017	47,016	90.39%	85.45%	42,499	40,175	2,323	15.00%	6,026	48,525	40,749	42,258
Total	800,861	89.64%	84.24%	717,884	674,651	43,233	10.57%	71,295	789,179	181,015	169,333

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 6

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Other (Indexed)											
1999 & Prior	83,438	94.42%	91.25%	78,785	76,134	2,651	10.00%	7,613	86,399	10,783	13,744
2000	13,113	92.92%	88.94%	12,184	11,663	521	10.00%	1,166	13,351	2,309	2,547
2001	16,149	92.51%	88.32%	14,939	14,264	676	10.00%	1,426	16,365	2,550	2,766
2002	19,832	92.10%	87.71%	18,265	17,394	871	10.00%	1,739	20,004	3,114	3,286
2003	14,462	91.69%	87.09%	13,261	12,596	665	10.00%	1,260	14,520	3,216	3,274
2004	23,184	91.29%	86.50%	21,166	20,054	1,112	10.00%	2,005	23,171	3,676	3,663
2005	17,012	90.93%	85.96%	15,469	14,623	846	10.00%	1,462	16,931	3,484	3,403
2006	30,938	90.68%	85.59%	28,055	26,481	1,574	10.00%	2,648	30,703	4,785	4,550
2007	29,017	90.41%	85.20%	26,234	24,722	1,513	10.00%	2,472	28,707	4,958	4,648
2008	19,331	90.18%	84.87%	17,433	16,406	1,027	15.00%	2,461	19,894	4,553	5,116
2009	23,955	89.94%	84.52%	21,545	20,246	1,299	15.00%	3,037	24,582	5,092	5,719
2010	20,752	89.75%	84.25%	18,625	17,483	1,142	15.00%	2,622	21,247	3,778	4,273
2011	26,022	89.64%	84.10%	23,326	21,884	1,442	15.00%	3,283	26,609	5,043	5,630
2012	25,736	89.48%	83.87%	23,028	21,585	1,443	15.00%	3,238	26,265	5,742	6,271
2013	20,121	89.33%	83.66%	17,974	16,834	1,140	15.00%	2,525	20,499	6,482	6,860
2014	26,166	89.26%	83.58%	23,357	21,870	1,486	15.00%	3,281	26,637	6,998	7,469
2015	35,663	89.37%	83.76%	31,871	29,871	2,000	15.00%	4,481	36,352	9,623	10,312
2016	41,477	90.05%	84.81%	37,349	35,176	2,172	15.00%	5,276	42,625	3,768	4,916
2017	39,291	92.28%	88.22%	36,258	34,662	1,596	15.00%	5,199	41,457	9,289	11,455
Total	525,662	91.15%	86.36%	479,123	453,948	25,176	12.60%	57,196	536,319	99,246	109,903

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 7

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
Accident Benefits - Other (Non-Indexed)											
1999 & Prior	3,289	98.60%	98.37%	3,243	3,235	8	5.13%	166	3,409	-	120
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	2	98.60%	98.37%	2	2	0	10.00%	0	2	-	0
2002	5	98.60%	98.37%	5	5	0	10.00%	0	5	-	0
2003	18	97.55%	97.14%	18	17	0	10.00%	2	19	-	1
2004	86	96.27%	95.65%	83	83	1	10.00%	8	91	49	54
2005	158	94.98%	94.15%	150	149	1	10.00%	15	165	115	122
2006	219	93.69%	92.65%	205	203	2	10.00%	20	225	200	206
2007	387	92.55%	91.34%	358	353	5	10.00%	35	393	244	250
2008	719	91.38%	89.99%	657	647	10	10.00%	65	721	301	303
2009	441	90.33%	88.79%	398	391	7	10.00%	39	437	359	355
2010	547	90.02%	88.45%	492	484	9	10.00%	48	541	408	402
2011	910	90.42%	88.92%	823	809	14	10.00%	81	904	488	482
2012	1,022	90.11%	88.57%	921	905	16	10.00%	90	1,011	548	537
2013	1,374	90.19%	88.67%	1,239	1,219	21	10.00%	122	1,361	703	690
2014	2,880	91.26%	89.91%	2,628	2,589	39	10.00%	259	2,887	1,092	1,099
2015	10,606	93.24%	92.19%	9,890	9,778	112	10.00%	978	10,868	1,925	2,187
2016	16,826	95.16%	94.39%	16,011	15,882	129	10.00%	1,588	17,599	5,705	6,478
2017	18,166	94.76%	93.92%	17,214	17,062	153	10.00%	1,706	18,921	8,900	9,655
Total	57,654	94.25%	93.34%	54,337	53,812	525	9.71%	5,224	59,561	21,036	22,943

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 1, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 8

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
Accident Benefits - Total											
1999 & Prior	203,562	92.39%	88.27%	188,077	179,680	8,397	9.35%	16,797	204,874	23,025	24,337
2000	32,083	91.11%	86.32%	29,230	27,695	1,535	10.00%	2,769	31,999	3,419	3,335
2001	33,469	91.25%	86.51%	30,539	28,954	1,585	10.00%	2,895	33,434	3,669	3,634
2002	41,839	91.28%	86.56%	38,190	36,216	1,974	10.00%	3,622	41,811	4,921	4,893
2003	34,278	91.36%	86.68%	31,316	29,712	1,604	10.00%	2,971	34,287	5,359	5,368
2004	43,574	90.39%	85.25%	39,388	37,147	2,241	10.00%	3,715	43,103	5,866	5,395
2005	41,331	90.78%	85.84%	37,522	35,478	2,045	10.00%	3,548	41,070	5,860	5,599
2006	66,118	90.08%	84.79%	59,557	56,061	3,496	10.00%	5,606	65,163	8,148	7,193
2007	62,553	89.95%	84.62%	56,264	52,935	3,329	10.00%	5,294	61,558	8,240	7,245
2008	51,613	89.67%	84.26%	46,282	43,487	2,796	11.89%	5,169	51,451	7,767	7,605
2009	56,655	89.51%	84.00%	50,711	47,588	3,123	12.13%	5,771	56,483	8,326	8,154
2010	65,520	89.30%	83.72%	58,510	54,851	3,659	11.59%	6,359	64,869	7,399	6,748
2011	72,299	89.25%	83.65%	64,524	60,481	4,044	11.81%	7,142	71,667	8,731	8,099
2012	86,942	89.12%	83.49%	77,484	72,584	4,900	11.49%	8,338	85,822	9,747	8,627
2013	72,040	89.08%	83.47%	64,176	60,132	4,044	11.40%	6,855	71,031	13,381	12,372
2014	77,483	89.17%	83.66%	69,095	64,822	4,273	11.69%	7,576	76,671	16,633	15,821
2015	112,467	89.58%	84.40%	100,748	94,923	5,825	11.57%	10,986	111,734	35,149	34,416
2016	125,877	90.37%	85.61%	113,759	107,766	5,993	14.26%	15,371	129,130	66,718	69,971
2017	104,473	91.86%	87.96%	95,971	91,899	4,072	14.07%	12,932	108,903	58,938	63,368
Total	1,384,178	90.40%	85.42%	1,251,344	1,182,411	68,934	11.31%	133,715	1,385,059	301,298	302,179

Notes: (2) - Exhibit 2, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

Exhibit 8
Sheet 9

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
Basic - Total All Coverage*											
1999 & Prior	203,598	92.39%	88.27%	188,113	179,716	8,397	9.35%	16,799	204,912	23,025	24,339
2000	32,231	91.14%	86.38%	29,376	27,840	1,535	10.03%	2,791	32,167	3,418	3,354
2001	33,465	91.24%	86.51%	30,535	28,950	1,585	10.00%	2,895	33,430	3,670	3,635
2002	41,839	91.28%	86.56%	38,190	36,216	1,974	10.00%	3,622	41,811	4,921	4,893
2003	34,279	91.36%	86.68%	31,317	29,713	1,604	10.00%	2,971	34,288	5,359	5,368
2004	43,577	90.40%	85.25%	39,391	37,150	2,242	10.00%	3,715	43,106	5,866	5,395
2005	41,332	90.78%	85.84%	37,523	35,479	2,045	10.00%	3,548	41,071	5,860	5,599
2006	66,170	90.08%	84.80%	59,608	56,112	3,496	10.00%	5,613	65,221	8,148	7,199
2007	62,623	89.96%	84.64%	56,333	53,003	3,330	10.00%	5,299	61,632	8,240	7,249
2008	51,835	89.71%	84.31%	46,500	43,704	2,796	11.87%	5,188	51,688	7,717	7,570
2009	56,703	89.51%	84.01%	50,758	47,634	3,123	12.13%	5,779	56,536	8,315	8,148
2010	66,229	89.38%	83.85%	59,194	55,531	3,663	11.60%	6,444	65,638	7,302	6,711
2011	72,911	89.30%	83.75%	65,111	61,063	4,048	11.84%	7,229	72,340	8,314	7,743
2012	87,415	89.16%	83.55%	77,941	73,039	4,902	11.49%	8,393	86,334	8,953	7,872
2013	74,190	89.27%	83.79%	66,227	62,166	4,061	11.47%	7,132	73,359	14,025	13,194
2014	81,530	89.48%	84.20%	72,952	68,648	4,304	11.74%	8,057	81,009	18,189	17,668
2015	120,457	89.99%	85.11%	108,396	102,515	5,881	11.48%	11,771	120,167	36,574	36,284
2016	151,226	91.45%	87.40%	138,298	132,172	6,126	13.17%	17,405	155,703	77,688	82,165
2017	212,127	95.04%	92.96%	201,605	197,193	4,413	10.52%	20,741	222,347	87,129	97,349
Total	1,533,737	91.11%	86.58%	1,397,367	1,327,842	69,524	10.95%	145,393	1,542,759	342,713	351,735

Notes: (2) - Exhibit 2, Column 9
(10) = (6)+(7)+(9)
(11) - Exhibit 2, Column 6
(12) = (11)+[(10)-(2)]
*Not including PIPP Enhancements (see PE Exhibit 2, Sheet 8 & PE Exhibit 4)

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of October 31, 2017
($000)

Exhibit 8
Sheet 10

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Comprehensive - Basic												
1999 & Prior	35	98.60%	98.37%	35	34	0	7.50%	3	-	37	-	2
2000	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(1)	(1)
2001	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	1	1
2002	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	-	-
2008	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(50)	(50)
2009	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	2	2
2010	-	100.00%	100.00%	-	-	-	7.50%	-	-	-	(69)	(69)
2011	(345)	98.60%	98.37%	(340)	(339)	(1)	7.50%	(25)	8	(357)	(418)	(430)
2012	36	98.60%	98.37%	36	36	0	7.50%	3	-	38	(906)	(904)
2013	149	97.92%	97.57%	146	146	1	7.50%	11	-	157	141	149
2014	318	97.09%	96.60%	309	307	2	7.50%	23	-	332	282	296
2015	1,606	97.20%	96.73%	1,561	1,553	8	7.50%	117	-	1,678	(1,805)	(1,733)
2016	7,270	97.70%	97.32%	7,103	7,075	28	7.50%	531	-	7,634	157	521
2017	22,727	98.20%	97.89%	22,318	22,248	70	7.50%	1,669	-	23,986	8,801	10,060
Total	31,797	98.02%	97.68%	31,167	31,060	107	7.50%	2,330	8	33,505	6,136	7,844

Notes:
(2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 4 less corresponding amount from above] * 2.50%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of October 31, 2017
($000)

Exhibit 8
Sheet 11

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Accident Benefits - Weekly Indemnity												
1999 & Prior	116,835	90.77%	85.86%	106,049	100,310	5,738	8.99%	9,017	-	115,066	12,242	10,473
2000	18,970	89.86%	84.51%	17,046	16,032	1,014	10.00%	1,603	-	18,649	1,110	789
2001	17,318	90.07%	84.82%	15,598	14,688	910	10.00%	1,469	-	17,067	1,119	868
2002	22,002	90.54%	85.52%	19,920	18,817	1,103	10.00%	1,882	-	21,802	1,807	1,607
2003	19,797	91.11%	86.37%	18,037	17,098	939	10.00%	1,710	-	19,747	2,142	2,092
2004	20,303	89.35%	83.78%	18,140	17,010	1,129	10.00%	1,701	-	19,841	2,140	1,678
2005	24,123	90.64%	85.68%	21,865	20,668	1,197	10.00%	2,067	2	23,934	2,261	2,072
2006	34,961	89.52%	84.03%	31,297	29,377	1,919	10.00%	2,938	-	34,235	3,163	2,437
2007	33,024	89.47%	83.99%	29,547	27,735	1,812	10.00%	2,774	6	32,327	3,038	2,341
2008	31,563	89.32%	83.75%	28,192	26,434	1,758	10.00%	2,643	-	30,836	2,913	2,186
2009	32,259	89.18%	83.54%	28,768	26,951	1,818	10.00%	2,695	-	31,463	2,875	2,079
2010	44,067	89.04%	83.35%	39,239	36,730	2,509	10.00%	3,673	8	42,919	3,213	2,065
2011	45,367	89.00%	83.29%	40,375	37,787	2,588	10.00%	3,779	-	44,154	3,200	1,987
2012	60,185	88.95%	83.23%	53,536	50,095	3,441	10.00%	5,009	-	58,545	3,458	1,818
2013	50,385	88.92%	83.20%	44,804	41,921	2,883	10.00%	4,192	8	49,004	6,195	4,814
2014	48,437	89.00%	83.33%	43,110	40,363	2,747	10.00%	4,036	-	47,146	8,543	7,252
2015	66,198	89.11%	83.50%	58,987	55,274	3,713	10.00%	5,527	-	64,515	23,601	21,918
2016	67,574	89.38%	83.92%	60,399	56,708	3,691	15.00%	8,506	-	68,906	57,245	58,577
2017	47,016	90.39%	85.45%	42,499	40,175	2,323	15.00%	6,026	-	48,525	40,749	42,258
Total	800,385	89.63%	84.23%	717,408	674,175	43,233	10.57%	71,248	24	788,680	181,015	169,310

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 5 less corresponding amount from above] * 5.00%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of October 31, 2017
($000)

Exhibit 8
Sheet 12

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)	(13)
Accident Benefits - Other (Indexed)												
1999 & Prior	83,438	94.42%	91.25%	78,785	76,134	2,651	10.00%	7,613	-	86,399	10,783	13,744
2000	13,113	92.92%	88.94%	12,184	11,663	521	10.00%	1,166	-	13,351	2,309	2,547
2001	16,149	92.51%	88.32%	14,939	14,264	676	10.00%	1,426	-	16,365	2,550	2,766
2002	19,832	92.10%	87.71%	18,265	17,394	871	10.00%	1,739	-	20,004	3,114	3,286
2003	14,462	91.69%	87.09%	13,261	12,596	665	10.00%	1,260	-	14,520	3,216	3,274
2004	23,184	91.29%	86.50%	21,166	20,054	1,112	10.00%	2,005	-	23,171	3,676	3,663
2005	16,988	90.92%	85.94%	15,445	14,599	846	10.00%	1,460	1	16,906	3,484	3,402
2006	30,938	90.68%	85.59%	28,055	26,481	1,574	10.00%	2,648	-	30,703	4,785	4,550
2007	28,918	90.38%	85.15%	26,135	24,623	1,513	10.00%	2,462	5	28,603	4,958	4,643
2008	19,331	90.18%	84.87%	17,433	16,406	1,027	15.00%	2,461	-	19,894	4,553	5,116
2009	23,955	89.94%	84.52%	21,545	20,246	1,299	15.00%	3,037	-	24,582	5,092	5,719
2010	20,688	89.72%	84.20%	18,561	17,419	1,142	15.00%	2,613	3	21,177	3,778	4,267
2011	26,022	89.64%	84.10%	23,326	21,884	1,442	15.00%	3,283	-	26,609	5,043	5,630
2012	25,736	89.48%	83.87%	23,028	21,585	1,443	15.00%	3,238	-	26,265	5,742	6,271
2013	20,072	89.30%	83.62%	17,925	16,785	1,140	15.00%	2,518	2	20,445	6,482	6,855
2014	26,166	89.26%	83.58%	23,357	21,870	1,486	15.00%	3,281	-	26,637	6,998	7,469
2015	35,663	89.37%	83.76%	31,871	29,871	2,000	15.00%	4,481	-	36,352	9,623	10,312
2016	41,477	90.05%	84.81%	37,349	35,176	2,172	15.00%	5,276	-	42,625	3,768	4,916
2017	39,291	92.28%	88.22%	36,258	34,662	1,596	15.00%	5,199	-	41,457	9,289	11,455
Total	525,426	91.14%	86.35%	478,887	453,712	25,176	12.60%	57,166	12	536,065	99,246	109,885

Notes: (2) - Exhibit 2, Column 9
(8) - Exhibit 7, Sheet 2, Column 9
(10) = [Column 6 from Sheet 6 less corresponding amount from above] * 5.00%
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of October 31, 2017
($000)

Exhibit 8
Sheet 13

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)	(13)
Accident Benefits - Total												
1999 & Prior	203,562	92.39%	88.27%	188,077	179,680	8,397	9.35%	16,797	-	204,874	23,025	24,337
2000	32,083	91.11%	86.32%	29,230	27,695	1,535	10.00%	2,769	-	31,999	3,419	3,335
2001	33,469	91.25%	86.51%	30,539	28,954	1,585	10.00%	2,895	-	33,434	3,669	3,634
2002	41,839	91.28%	86.56%	38,190	36,216	1,974	10.00%	3,622	-	41,811	4,921	4,893
2003	34,278	91.36%	86.68%	31,316	29,712	1,604	10.00%	2,971	-	34,287	5,359	5,368
2004	43,574	90.39%	85.25%	39,388	37,147	2,241	10.00%	3,715	-	43,103	5,866	5,395
2005	41,269	90.77%	85.82%	37,460	35,416	2,045	10.00%	3,542	3	41,005	5,860	5,596
2006	66,118	90.08%	84.79%	59,557	56,061	3,496	10.00%	5,606	-	65,163	8,148	7,193
2007	62,329	89.91%	84.57%	56,040	52,711	3,329	10.00%	5,271	11	61,323	8,240	7,234
2008	51,613	89.67%	84.26%	46,282	43,487	2,796	11.89%	5,169	-	51,451	7,767	7,605
2009	56,655	89.51%	84.00%	50,711	47,588	3,123	12.13%	5,771	-	56,483	8,326	8,154
2010	65,302	89.26%	83.66%	58,292	54,633	3,659	11.59%	6,334	11	64,637	7,399	6,734
2011	72,299	89.25%	83.65%	64,524	60,481	4,044	11.81%	7,142	-	71,667	8,731	8,099
2012	86,942	89.12%	83.49%	77,484	72,584	4,900	11.49%	8,338	-	85,822	9,747	8,627
2013	71,832	89.05%	83.42%	63,968	59,924	4,044	11.40%	6,832	10	70,810	13,381	12,359
2014	77,483	89.17%	83.66%	69,095	64,822	4,273	11.69%	7,576	-	76,671	16,633	15,821
2015	112,467	89.58%	84.40%	100,748	94,923	5,825	11.57%	10,986	-	111,734	35,149	34,416
2016	125,877	90.37%	85.61%	113,759	107,766	5,993	14.26%	15,371	-	129,130	66,718	69,971
2017	104,473	91.86%	87.96%	95,971	91,899	4,072	14.07%	12,932	-	108,903	58,938	63,368
Total	1,383,466	90.40%	85.42%	1,250,632	1,181,699	68,934	11.31%	133,638	36	1,384,306	301,298	302,138

Notes: (2) - Exhibit 2, Column 9
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Unpaid Claims Liabilities Including Provision for Adverse Deviation (Net)
As of October 31, 2017
($000)

Exhibit 8
Sheet 14

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	Reins PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)	(13)
Basic - Total All Coverage*												
1999 & Prior	203,598	92.39%	88.27%	188,113	179,716	8,397	9.35%	16,799	-	204,912	23,025	24,339
2000	32,231	91.14%	86.38%	29,376	27,840	1,535	10.03%	2,791	-	32,167	3,418	3,354
2001	33,465	91.24%	86.51%	30,535	28,950	1,585	10.00%	2,895	-	33,430	3,670	3,635
2002	41,839	91.28%	86.56%	38,190	36,216	1,974	10.00%	3,622	-	41,811	4,921	4,893
2003	34,279	91.36%	86.68%	31,317	29,713	1,604	10.00%	2,971	-	34,288	5,359	5,368
2004	43,577	90.40%	85.25%	39,391	37,150	2,242	10.00%	3,715	-	43,106	5,866	5,395
2005	41,270	90.77%	85.82%	37,461	35,417	2,045	10.00%	3,542	3	41,006	5,860	5,596
2006	66,170	90.08%	84.80%	59,608	56,112	3,496	10.00%	5,613	-	65,221	8,148	7,199
2007	62,399	89.92%	84.58%	56,109	52,779	3,330	10.00%	5,276	11	61,397	8,240	7,238
2008	51,835	89.71%	84.31%	46,500	43,704	2,796	11.87%	5,188	-	51,688	7,717	7,570
2009	56,703	89.51%	84.01%	50,758	47,634	3,123	12.13%	5,779	-	56,536	8,315	8,148
2010	66,011	89.34%	83.79%	58,976	55,313	3,663	11.61%	6,419	11	65,406	7,302	6,697
2011	72,566	89.26%	83.68%	64,771	60,724	4,047	11.86%	7,204	8	71,983	8,314	7,731
2012	87,415	89.16%	83.55%	77,941	73,039	4,902	11.49%	8,393	-	86,334	8,953	7,872
2013	73,982	89.24%	83.75%	66,019	61,958	4,061	11.47%	7,108	10	73,138	14,025	13,181
2014	81,530	89.48%	84.20%	72,952	68,648	4,304	11.74%	8,057	-	81,009	18,189	17,668
2015	120,457	89.99%	85.11%	108,396	102,515	5,881	11.48%	11,771	-	120,167	36,574	36,284
2016	151,226	91.45%	87.40%	138,298	132,172	6,126	13.17%	17,405	-	155,703	77,688	82,165
2017	212,127	95.04%	92.96%	201,605	197,193	4,413	10.52%	20,741	-	222,347	87,129	97,349
Total	1,532,680	91.10%	86.57%	1,396,314	1,326,791	69,524	10.95%	145,291	44	1,541,649	342,713	351,682

Notes: (2) - Exhibit 2, Column 9
(11) = (6)+(7)+(9)+(10)
(12) - Exhibit 2, Column 6
(13) = (12)+[(11)-(2)]
*Not including PIPP Enhancements (see PE Exhibit 2, Sheet 8 & PE Exhibit 4)

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J. S. CHENG & PARTNERS INC.
JSCP
ACTUARIES Who Care™

APPENDIX A

BI - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Bodily Injury - Basic

Reported Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	2,705,888	3,693,959	4,025,174	4,370,282	4,681,746	4,439,232	4,274,278	4,283,637	4,313,566	4,262,508	4,203,814	4,188,123	4,192,796	4,201,877	4,039,227	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700
2000	2,014,071	2,511,093	2,988,290	3,268,317	3,420,821	3,499,721	3,707,638	3,823,307	3,954,582	4,062,190	4,197,641	4,161,433	4,176,088	4,235,660	4,230,349	4,230,794	4,248,548	4,249,216	4,276,621	4,277,651	4,362,537	
2001	1,980,272	3,242,568	4,344,804	4,572,472	5,076,073	5,056,268	5,128,421	5,083,549	5,047,280	5,171,848	5,238,788	5,253,175	5,258,025	5,257,484	5,256,284	5,255,184	5,255,184	5,255,184	5,255,184	5,255,184		
2002	1,681,436	2,920,568	3,256,610	3,307,958	3,386,982	3,637,259	3,897,583	4,231,182	4,519,539	4,412,118	4,479,653	4,564,471	4,648,019	4,623,804	4,622,204	4,621,904	4,629,260	4,629,260	4,629,260			
2003	1,634,038	2,677,312	2,715,223	2,729,468	2,878,449	3,283,104	3,322,953	3,986,386	3,988,064	4,137,515	3,969,679	3,927,657	3,929,007	3,929,649	3,963,651	3,948,825	3,948,825	3,948,825				
2004	1,991,456	3,057,356	3,876,234	3,831,597	4,092,450	4,336,207	4,652,410	4,518,259	4,889,416	5,260,289	5,057,419	5,176,133	5,167,118	5,230,980	5,179,650	5,195,920	5,196,113					
2005	1,560,443	2,751,740	2,813,003	2,817,404	3,181,513	3,225,080	3,428,412	3,850,053	4,155,432	4,265,444	4,273,693	4,265,578	4,237,639	4,238,179	4,222,594	4,228,384						
2006	1,574,003	2,912,504	2,688,474	2,666,067	2,930,672	3,057,929	2,866,798	3,391,133	3,397,962	3,489,295	3,623,412	3,624,480	3,546,990	3,563,822	3,565,041							
2007	1,535,111	2,010,165	2,576,878	2,824,452	2,935,254	3,206,827	3,732,617	3,847,211	3,833,112	3,921,760	3,787,271	3,732,951	3,737,036	3,740,261								
2008	1,062,518	1,915,331	2,329,910	2,323,080	2,458,422	2,437,288	2,365,680	2,201,250	2,317,668	2,420,815	2,442,332	2,430,705	2,431,307									
2009	2,361,009	3,281,707	3,029,745	2,893,984	3,427,690	3,435,516	3,666,641	3,262,649	3,625,084	3,514,383	3,648,600	3,475,390										
2010	1,716,663	3,165,681	3,552,805	3,237,864	3,425,570	3,505,334	3,651,125	4,098,433	4,281,446	4,329,334	4,325,418											
2011	1,324,735	2,159,736	2,188,911	1,923,920	1,772,625	1,880,286	1,982,553	2,346,091	2,406,813	2,538,765												
2012	1,257,711	1,860,130	1,836,556	1,747,660	3,055,744	3,172,759	3,302,136	3,615,259	3,657,440													
2013	1,715,498	3,030,588	2,552,387	2,545,765	3,143,178	3,387,073	3,629,294	3,743,872														
2014	2,022,124	3,073,131	4,137,201	4,576,540	4,575,827	4,850,642	5,261,295															
2015	1,639,069	2,605,981	3,783,103	3,684,422	3,905,234																	
2016	2,005,904	3,494,842	3,758,234																			
2017	1,517,052																					

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Appendix A
Page 3

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	2,706	3,694	4,025	4,370	4,682	4,439	4,274	4,284	4,314
2000	2,014	2,511	2,988	3,268	3,421	3,500	3,708	3,823	3,955	4,062
2001	1,980	3,243	4,345	4,572	5,076	5,056	5,128	5,084	5,047	5,172
2002	1,681	2,921	3,257	3,308	3,387	3,637	3,898	4,231	4,520	4,412
2003	1,634	2,677	2,715	2,729	2,878	3,283	3,323	3,986	3,988	4,138
2004	1,991	3,057	3,876	3,832	4,092	4,336	4,652	4,518	4,889	5,260
2005	1,560	2,752	2,813	2,817	3,182	3,225	3,428	3,850	4,155	4,265
2006	1,574	2,913	2,688	2,666	2,931	3,058	2,867	3,391	3,398	3,489
2007	1,535	2,010	2,577	2,824	2,935	3,207	3,733	3,847	3,833	3,922
2008	1,063	1,915	2,330	2,323	2,458	2,437	2,366	2,201	2,318	2,421
2009	2,361	3,282	3,030	2,894	3,428	3,436	3,667	3,263	3,625	3,514
2010	1,717	3,166	3,553	3,238	3,426	3,505	3,651	4,098	4,281	4,329
2011	1,325	2,160	2,189	1,924	1,773	1,880	1,983	2,346	2,407	2,539
2012	1,258	1,860	1,837	1,748	3,056	3,173	3,302	3,615	3,657	
2013	1,715	3,031	2,552	2,546	3,143	3,387	3,629	3,744		
2014	2,022	3,073	4,137	4,577	4,576	4,851	5,261			
2015	1,639	2,606	3,783	3,684	3,905					
2016	2,006	3,495	3,758							
2017	1,517									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.3652	1.0897	1.0857	1.0713	0.9482	0.9628	1.0022	1.0070	0.9882
2000	1.2468	1.1900	1.0937	1.0467	1.0231	1.0594	1.0312	1.0343	1.0272	1.0333
2001	1.6374	1.3399	1.0524	1.1101	0.9961	1.0143	0.9913	0.9929	1.0247	1.0129
2002	1.7369	1.1151	1.0158	1.0239	1.0739	1.0716	1.0856	1.0682	0.9762	1.0153
2003	1.6385	1.0142	1.0052	1.0546	1.1406	1.0121	1.1997	1.0004	1.0375	0.9594
2004	1.5352	1.2678	0.9885	1.0681	1.0596	1.0729	0.9712	1.0821	1.0759	0.9614
2005	1.7634	1.0223	1.0016	1.1292	1.0137	1.0630	1.1230	1.0793	1.0265	1.0019
2006	1.8504	0.9231	0.9917	1.0992	1.0434	0.9375	1.1829	1.0020	1.0269	1.0384
2007	1.3095	1.2819	1.0961	1.0392	1.0925	1.1640	1.0307	0.9963	1.0231	0.9657
2008	1.8026	1.2165	0.9971	1.0583	0.9914	0.9706	0.9305	1.0529	1.0445	1.0089
2009	1.3900	0.9232	0.9552	1.1844	1.0023	1.0673	0.8898	1.1111	0.9695	1.0382
2010	1.8441	1.1223	0.9114	1.0580	1.0233	1.0416	1.1225	1.0447	1.0112	0.9991
2011	1.6303	1.0135	0.8789	0.9214	1.0607	1.0544	1.1834	1.0259	1.0548	
2012	1.4790	0.9873	0.9516	1.7485	1.0383	1.0408	1.0948	1.0117		
2013	1.7666	0.8422	0.9974	1.2347	1.0776	1.0715	1.0316			
2014	1.5198	1.3462	1.1062	0.9998	1.0601	1.0847				
2015	1.5899	1.4517	0.9739	1.0599						
2016	1.7423	1.0754								
Latest 9 Volume Weighted	1.6277	1.1050	0.9912	1.1142	1.0436	1.0527	1.0605	1.0461	1.0299	0.9960
Latest 6 Volume Weighted	1.6281	1.1252	0.9815	1.1220	1.0428	1.0623	1.0360	1.0388	1.0177	1.0073
Latest 3 Volume Weighted	1.6188	1.2730	1.0319	1.0756	1.0590	1.0686	1.0888	1.0284	1.0067	1.0148
Simple Average of Middle 4 of Last 6	1.6206	1.1056	0.9586	1.0881	1.0456	1.0587	1.0449	1.0338	1.0264	1.0120
Simple Average of Middle 3 of Last 5	1.6173	1.1363	0.9743	1.0981	1.0530	1.0558	1.0830	1.0411	1.0263	1.0154
Selected Oct 16	1.6500	1.1250	1.0000	1.1500	1.0430	1.0550	1.0800	1.0500	1.0300	1.0100
Selected Feb 17	1.6500	1.1250	1.0000	1.1500	1.0430	1.0550	1.0800	1.0500	1.0300	1.0100
Selected Factors	1.6500	1.1250	1.0000	1.1300	1.0430	1.0550	1.0800	1.0500	1.0300	1.0100
Selected Ultimate	2.7283	1.6535	1.4698	1.4698	1.3007	1.2471	1.1821	1.0945	1.0424	1.0120

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
4,263	4,204	4,188	4,193	4,202	4,039	4,041	4,041	4,041	4,041	4,041	4,041
4,198	4,161	4,176	4,236	4,230	4,231	4,249	4,249	4,277	4,278	4,363	
5,239	5,253	5,258	5,257	5,256	5,255	5,255	5,255	5,255	5,255		
4,480	4,564	4,648	4,624	4,622	4,622	4,629	4,629	4,629			
3,970	3,928	3,929	3,930	3,964	3,949	3,949	3,949				
5,057	5,176	5,167	5,231	5,180	5,196	5,196					
4,274	4,266	4,238	4,238	4,223	4,228						
3,623	3,624	3,547	3,564	3,565							
3,787	3,733	3,737	3,740								
2,442	2,431	2,431									
3,649	3,475										
4,325											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9862	0.9963	1.0011	1.0022	0.9613	1.0004	1.0000	1.0000	1.0000	1.0000	1.0000
0.9914	1.0035	1.0143	0.9987	1.0001	1.0042	1.0002	1.0064	1.0002	1.0198	
1.0027	1.0009	0.9999	0.9998	0.9998	1.0000	1.0000	1.0000	1.0000		
1.0189	1.0183	0.9948	0.9997	0.9999	1.0016	1.0000	1.0000			
0.9894	1.0003	1.0002	1.0087	0.9963	1.0000	1.0000				
1.0235	0.9983	1.0124	0.9902	1.0031	1.0000					
0.9981	0.9935	1.0001	0.9963	1.0014						
1.0003	0.9786	1.0047	1.0003							
0.9857	1.0011	1.0009								
0.9952	1.0002									
0.9525										
0.9981	0.9999	1.0032	0.9991	0.9951	1.0010	1.0000	1.0015	1.0001	1.0102	1.0000
0.9944	0.9953	1.0024	0.9987	1.0002	1.0010	1.0000	1.0015	1.0001	1.0102	1.0000
0.9758	0.9926	1.0018	0.9950	1.0005	1.0005	1.0000	1.0019	1.0001	1.0102	1.0000
0.9948	0.9981	1.0015	0.9990	1.0003	1.0005	1.0000	1.0000	1.0000	1.0099	1.0000
0.9930	0.9973	1.0019	0.9988	1.0004	1.0005	1.0000	1.0000	1.0000	1.0099	1.0000
1.0030	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0030	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0010	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0020	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.5031	2.4752	2.8964	2.3305	2.5732	2.7821	2.7821	2.7283
12	1.5378	1.5203	1.7892	1.4381	1.5910	1.6861	1.6861	1.6535
20	1.3917	1.3511	1.4055	1.3007	1.4002	1.4988	1.4988	1.4698
24	1.4041	1.3766	1.3621	1.3569	1.4371	1.4988	1.4988	1.4698
32	1.2601	1.2269	1.2663	1.2471	1.3086	1.3033	1.3033	1.3007
36	1.2075	1.1765	1.1957	1.1927	1.2427	1.2496	1.2496	1.2471
44	1.1471	1.1074	1.1190	1.1266	1.1770	1.1844	1.1844	1.1821
56	1.0817	1.0689	1.0278	1.0782	1.0869	1.0967	1.0967	1.0945
68	1.0340	1.0291	0.9994	1.0430	1.0439	1.0445	1.0445	1.0424
80	1.0040	1.0111	0.9927	1.0161	1.0172	1.0140	1.0140	1.0120
92	1.0081	1.0038	0.9783	1.0041	1.0018	1.0040	1.0040	1.0020
104	1.0100	1.0094	1.0025	1.0093	1.0088	1.0010	1.0010	1.0010
116	1.0102	1.0142	1.0100	1.0112	1.0115	1.0000	1.0000	1.0000
128	1.0070	1.0118	1.0082	1.0097	1.0096	1.0000	1.0000	1.0000
140	1.0078	1.0131	1.0133	1.0107	1.0108	1.0000	1.0000	1.0000
152	1.0128	1.0128	1.0128	1.0104	1.0105	1.0000	1.0000	1.0000
164	1.0118	1.0118	1.0122	1.0099	1.0099	1.0000	1.0000	1.0000
176	1.0118	1.0118	1.0122	1.0099	1.0099	1.0000	1.0000	1.0000
188	1.0103	1.0103	1.0103	1.0099	1.0099	1.0000	1.0000	1.0000
200	1.0102	1.0102	1.0102	1.0099	1.0099	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Appendix A
Page 6

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6500	2.7283	36.65%	8		2.7283	1.6500	1.6500	2.7281
12	1.1250	1.6535		12	60.48%	1.6535	1.1250	1.1250	1.6534
20	1.0000	1.4698	68.04%	20		1.4698	1.0000	1.0000	1.4697
24	1.1300	1.4698		24	68.04%	1.4698	1.1300	1.1300	1.4697
32	1.0430	1.3007	76.88%	32		1.3007	1.0430	1.0430	1.3006
36	1.0550	1.2471		36	80.19%	1.2471	1.0831	1.0830	1.2470
44	1.0800	1.1821	84.60%	48	86.85%	1.1514	1.0695	1.0695	1.1514
56	1.0500	1.0945	91.37%	60	92.89%	1.0766	1.0431	1.0430	1.0766
68	1.0300	1.0424	95.93%	72	96.89%	1.0321	1.0232	1.0235	1.0322
80	1.0100	1.0120	98.81%	84	99.14%	1.0087	1.0070	1.0070	1.0085
92	1.0010	1.0020	99.80%	96	99.83%	1.0017	1.0010	1.0010	1.0015
104	1.0010	1.0010	99.90%	108	99.93%	1.0007	1.0007	1.0005	1.0005
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	4,363	1.0000	4,363	-	150	0.92%
2001	497,121	5,255	1.0000	5,255	-	-	1.06%
2002	532,307	4,629	1.0000	4,629	-	-	0.87%
2003	560,857	3,949	1.0000	3,949	-	-	0.70%
2004	596,045	5,196	1.0000	5,196	-	-	0.87%
2005	630,367	4,228	1.0000	4,228	-	-	0.67%
2006	654,863	3,565	1.0000	3,565	-	45	0.54%
2007	677,464	3,740	1.0000	3,740	-	20	0.55%
2008	707,051	2,431	1.0000	2,431	-	85	0.34%
2009	739,881	3,475	1.0010	3,479	3	50	0.47%
2010	759,948	4,325	1.0020	4,334	9	525	0.57%
2011	772,985	2,539	1.0120	2,569	31	549	0.33%
2012	768,953	3,657	1.0424	3,812	155	136	0.50%
2013	778,092	3,744	1.0945	4,098	354	1,358	0.53%
2014	817,710	5,261	1.1821	6,219	958	2,104	0.76%
2015	873,488	3,905	1.3007	5,080	1,174	2,225	0.58%
2016	918,780	3,758	1.4698	5,524	1,766	2,586	0.60%
2017	656,688	1,517	2.7283	2,759	1,242	1,468	0.42%
	12,417,877	69,540		75,231	5,691	11,301	0.61%

Notes:
(5) Current year adjusted to reflect the portion of the fiscal year that is completed

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4,363			4,363	0.92%	0.92%	100.00%	0.92%	0.62%
2001	497,121	5,255	4,373		4,373	0.88%	1.06%	100.00%	1.06%	0.62%
2002	532,307	4,629	5,268	4,384	4,826	0.91%	0.87%	100.00%	0.87%	0.62%
2003	560,857	3,949	4,641	5,281	4,961	0.88%	0.70%	100.00%	0.70%	0.62%
2004	596,045	5,196	3,959	4,652	4,306	0.72%	0.87%	100.00%	0.87%	0.62%
2005	630,367	4,228	5,209	3,969	4,589	0.73%	0.67%	100.00%	0.67%	0.62%
2006	654,863	3,565	4,239	5,222	4,731	0.72%	0.54%	90.00%	0.56%	0.62%
2007	677,464	3,740	3,574	4,250	3,912	0.58%	0.55%	80.00%	0.56%	0.62%
2008	707,051	2,431	3,750	3,583	3,666	0.52%	0.34%	70.00%	0.40%	0.62%
2009	739,881	3,479	2,437	3,759	3,098	0.42%	0.47%	60.00%	0.45%	0.62%
2010	759,948	4,334	3,488	2,443	2,966	0.39%	0.57%	50.00%	0.48%	0.62%
2011	772,985	2,569	4,345	3,496	3,921	0.51%	0.33%	40.00%	0.44%	0.62%
2012	768,953	3,812	2,576	4,356	3,466	0.45%	0.50%	30.00%	0.46%	0.62%
2013	778,092	4,098	3,822	2,582	3,202	0.41%	0.53%	20.00%	0.43%	0.62%
2014	817,710	6,219	4,108	3,832	3,970	0.49%	0.76%	10.00%	0.51%	0.62%
2015	873,488	5,080	6,235	4,118	5,176	0.59%	0.58%	0.00%	0.59%	0.62%
2016	918,780	5,524	5,092	6,250	5,671	0.62%	0.60%	0.00%	0.62%	0.62%
2017	656,688	2,759	3,689	3,400	3,545	0.54%	0.42%	0.00%	0.54%	0.62%
	12,417,877	75,231	70,804	65,579	74,741					

Trend in Losses Based on Exponential Regression (a):
0.24%
Selected Trend (b):
0.25%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) = Sum [Column (3)] / Sum [Column (2)] excluding current year
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	0.62%	2,929	100.00%	0.00%	2,929	4,363	-	4,363	0.92%
2001	497,121	0.62%	3,063	100.00%	0.00%	3,063	5,255	-	5,255	1.06%
2002	532,307	0.62%	3,280	100.00%	0.00%	3,280	4,629	-	4,629	0.87%
2003	560,857	0.62%	3,456	100.00%	0.00%	3,456	3,949	-	3,949	0.70%
2004	596,045	0.62%	3,673	100.00%	0.00%	3,673	5,196	-	5,196	0.87%
2005	630,367	0.62%	3,884	100.00%	0.00%	3,884	4,228	-	4,228	0.67%
2006	654,863	0.62%	4,035	100.00%	0.00%	4,035	3,565	-	3,565	0.54%
2007	677,464	0.62%	4,174	100.00%	0.00%	4,174	3,740	-	3,740	0.55%
2008	707,051	0.62%	4,357	100.00%	0.00%	4,357	2,431	-	2,431	0.34%
2009	739,881	0.62%	4,559	99.90%	0.10%	4,555	3,475	5	3,480	0.47%
2010	759,948	0.62%	4,683	99.80%	0.20%	4,673	4,325	9	4,335	0.57%
2011	772,985	0.62%	4,763	98.81%	1.19%	4,707	2,539	57	2,595	0.34%
2012	768,953	0.62%	4,738	95.93%	4.07%	4,546	3,657	193	3,850	0.50%
2013	778,092	0.62%	4,795	91.37%	8.63%	4,381	3,744	414	4,158	0.53%
2014	817,710	0.62%	5,039	84.60%	15.40%	4,263	5,261	776	6,037	0.74%
2015	873,488	0.62%	5,382	76.88%	23.12%	4,138	3,905	1,244	5,150	0.59%
2016	918,780	0.62%	5,661	68.04%	31.96%	3,852	3,758	1,810	5,568	0.61%
2017	656,688	0.62%	4,046	36.65%	63.35%	2,225	1,517	1,822	3,339	0.51%
	12,417,877		76,518			70,189	69,540	6,329	75,868	0.61%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - With Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	200,641	625,190	908,815	1,626,209	2,249,665	2,678,527	3,368,167	3,801,408	3,891,566	3,937,508	3,978,814	3,963,123	3,967,796	3,976,877	4,039,227	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700	4,040,700
2000	113,030	351,579	1,266,895	1,384,315	1,734,631	1,891,099	2,034,030	3,205,307	3,408,582	3,531,190	3,707,641	3,961,433	3,976,088	4,185,660	4,180,349	4,180,794	4,198,548	4,199,216	4,206,621	4,207,651	4,212,537	
2001	114,007	663,589	950,739	1,558,680	2,238,555	3,154,817	3,490,922	3,959,067	4,390,298	4,678,948	4,855,888	5,045,275	5,200,125	5,257,484	5,256,284	5,255,184	5,255,184	5,255,184	5,255,184	5,255,184		
2002	75,436	301,960	556,835	713,209	1,433,417	1,645,797	2,022,714	2,563,886	3,098,694	3,821,192	4,263,541	4,308,359	4,608,019	4,623,804	4,622,204	4,621,904	4,629,260	4,629,260	4,629,260			
2003	27,573	195,916	820,696	960,154	1,307,629	1,504,285	1,766,133	2,266,386	2,819,064	3,191,214	3,824,679	3,927,657	3,929,007	3,929,649	3,948,825	3,948,825	3,948,825	3,948,825				
2004	65,714	135,405	522,925	616,905	1,091,948	1,404,567	2,262,337	2,984,568	3,420,301	4,206,174	4,811,130	4,999,674	5,020,829	5,030,980	5,129,650	5,195,920	5,196,113					
2005	35,051	344,964	858,754	966,976	1,262,269	1,628,336	2,289,258	2,562,405	2,996,634	3,530,288	3,774,539	4,018,317	4,018,485	4,218,179	4,222,594	4,228,384						
2006	26,270	87,803	436,303	579,038	1,272,974	1,458,538	1,980,901	2,641,685	3,032,962	3,074,295	3,133,412	3,246,325	3,301,990	3,518,822	3,520,041							
2007	53,336	281,517	517,159	797,362	1,229,990	1,254,059	1,538,816	2,593,439	2,879,340	3,672,360	3,684,688	3,712,951	3,717,036	3,720,261								
2008	30,518	132,136	362,871	507,664	1,091,321	1,220,187	1,525,784	1,706,250	1,765,668	2,178,815	2,217,332	2,245,705	2,346,307									
2009	18,009	126,443	395,212	594,585	1,107,633	1,222,590	1,624,232	2,375,677	2,643,372	3,264,383	3,398,600	3,425,390										
2010	17,095	179,390	890,937	993,996	1,370,318	1,428,682	1,716,475	2,482,230	2,914,564	3,526,899	3,800,418											
2011	19,785	243,636	347,311	427,729	610,894	693,555	930,908	1,621,891	1,877,613	1,989,565												
2012	24,711	88,130	269,056	489,160	1,195,318	1,512,518	2,054,524	2,719,599	3,521,390													
2013	23,498	83,588	605,536	806,568	1,113,765	1,310,701	1,732,644	2,386,019														
2014	56,413	619,593	992,548	1,371,260	2,171,067	2,715,386	3,157,517															
2015	25,569	106,112	773,050	986,369	1,680,027																	
2016	28,679	201,321	1,172,666																			
2017	49,315																					

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Appendix A
Page 11

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	201	625	909	1,626	2,250	2,679	3,368	3,801	3,892
2000	113	352	1,267	1,384	1,735	1,891	2,034	3,205	3,409	3,531
2001	114	664	951	1,559	2,239	3,155	3,491	3,959	4,390	4,679
2002	75	302	557	713	1,433	1,646	2,023	2,564	3,099	3,821
2003	28	196	821	960	1,308	1,504	1,766	2,266	2,819	3,191
2004	66	135	523	617	1,092	1,405	2,262	2,985	3,420	4,206
2005	35	345	859	967	1,262	1,628	2,289	2,562	2,997	3,530
2006	26	88	436	579	1,273	1,459	1,981	2,642	3,033	3,074
2007	53	282	517	797	1,230	1,254	1,539	2,593	2,879	3,672
2008	31	132	363	508	1,091	1,220	1,526	1,706	1,766	2,179
2009	18	126	395	595	1,108	1,223	1,624	2,376	2,643	3,264
2010	17	179	891	994	1,370	1,429	1,716	2,482	2,915	3,527
2011	20	244	347	428	611	694	931	1,622	1,878	1,990
2012	25	88	269	489	1,195	1,513	2,055	2,720	3,521	
2013	23	84	606	807	1,114	1,311	1,733	2,386		
2014	56	620	993	1,371	2,171	2,715	3,158			
2015	26	106	773	986	1,680					
2016	29	201	1,173							
2017	49									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		3.1160	1.4537	1.7894	1.3834	1.1906	1.2575	1.1286	1.0237	1.0118
2000	3.1105	3.6034	1.0927	1.2531	1.0902	1.0756	1.5758	1.0634	1.0360	1.0500
2001	5.8206	1.4327	1.6394	1.4362	1.4093	1.1065	1.1341	1.1089	1.0657	1.0378
2002	4.0029	1.8441	1.2808	2.0098	1.1482	1.2290	1.2675	1.2086	1.2332	1.1158
2003	7.1053	4.1890	1.1699	1.3619	1.1504	1.1741	1.2832	1.2439	1.1320	1.1985
2004	2.0605	3.8619	1.1797	1.7700	1.2863	1.6107	1.3192	1.1460	1.2298	1.1438
2005	9.8418	2.4894	1.1260	1.3054	1.2900	1.4059	1.1193	1.1695	1.1781	1.0692
2006	3.3423	4.9691	1.3271	2.1984	1.1458	1.3581	1.3336	1.1481	1.0136	1.0192
2007	5.2782	1.8370	1.5418	1.5426	1.0196	1.2271	1.6853	1.1102	1.2754	1.0034
2008	4.3298	2.7462	1.3990	2.1497	1.1181	1.2505	1.1183	1.0348	1.2340	1.0177
2009	7.0211	3.1256	1.5045	1.8629	1.1038	1.3285	1.4626	1.1127	1.2349	1.0411
2010	10.4935	4.9665	1.1157	1.3786	1.0426	1.2014	1.4461	1.1742	1.2101	1.0776
2011	12.3143	1.4255	1.2315	1.4282	1.1353	1.3422	1.7423	1.1577	1.0596	
2012	3.5664	3.0530	1.8181	2.4436	1.2654	1.3583	1.3237	1.2948		
2013	3.5572	7.2443	1.3320	1.3809	1.1768	1.3219	1.3771			
2014	10.9831	1.6019	1.3816	1.5833	1.2507	1.1628				
2015	4.1500	7.2852	1.2759	1.7032						
2016	7.0199	5.8249								
Latest 9 Volume Weighted	7.2882	3.2629	1.3533	1.6589	1.1481	1.2688	1.3700	1.1551	1.1760	1.0802
Latest 6 Volume Weighted	7.5138	3.0991	1.3085	1.6042	1.1737	1.2626	1.3868	1.1558	1.1716	1.0396
Latest 3 Volume Weighted	8.3772	3.1696	1.3345	1.5691	1.2363	1.2539	1.4259	1.2183	1.1809	1.0497
Simple Average of Middle 4 of Last 6	6.4299	4.4310	1.3053	1.5239	1.1667	1.2985	1.4024	1.1387	1.1847	1.0368
Simple Average of Middle 3 of Last 5	4.9121	5.3741	1.3298	1.5716	1.1876	1.2885	1.4286	1.1482	1.2263	1.0260
Selected Oct 16	8.0000	3.2000	1.3600	1.7000	1.1500	1.3300	1.4000	1.1600	1.1600	1.0750
Selected Feb 17	8.0000	3.2000	1.3600	1.7000	1.1500	1.3300	1.4000	1.1600	1.1600	1.0750
Selected Factors	8.0000	3.2000	1.3600	1.6500	1.1500	1.3300	1.4000	1.1600	1.1600	1.0750
Selected Ultimate	189.9490	23.7436	7.4199	5.4558	3.3065	2.8753	2.1618	1.5442	1.3312	1.1476

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
3,938	3,979	3,963	3,968	3,977	4,039	4,041	4,041	4,041	4,041	4,041	4,041
3,708	3,961	3,976	4,186	4,180	4,181	4,199	4,199	4,207	4,208	4,213	
4,856	5,045	5,200	5,257	5,256	5,255	5,255	5,255	5,255	5,255		
4,264	4,308	4,608	4,624	4,622	4,622	4,629	4,629	4,629			
3,825	3,928	3,929	3,930	3,949	3,949	3,949	3,949				
4,811	5,000	5,021	5,031	5,130	5,196	5,196					
3,775	4,018	4,018	4,218	4,223	4,228						
3,133	3,246	3,302	3,519	3,520							
3,685	3,713	3,717	3,720								
2,217	2,246	2,346									
3,399	3,425										
3,800											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
1.0105	0.9961	1.0012	1.0023	1.0157	1.0004	1.0000	1.0000	1.0000	1.0000	1.0000
1.0685	1.0037	1.0527	0.9987	1.0001	1.0042	1.0002	1.0018	1.0002	1.0012	
1.0390	1.0307	1.0110	0.9998	0.9998	1.0000	1.0000	1.0000	1.0000		
1.0105	1.0696	1.0034	0.9997	0.9999	1.0016	1.0000	1.0000			
1.0269	1.0003	1.0002	1.0049	1.0000	1.0000	1.0000				
1.0392	1.0042	1.0020	1.0196	1.0129	1.0000					
1.0646	1.0000	1.0497	1.0010	1.0014						
1.0360	1.0171	1.0657	1.0003							
1.0077	1.0011	1.0009								
1.0128	1.0448									
1.0079										
1.0284	1.0184	1.0190	1.0036	1.0043	1.0010	1.0000	1.0004	1.0001	1.0006	1.0000
1.0299	1.0083	1.0181	1.0045	1.0026	1.0010	1.0000	1.0004	1.0001	1.0006	1.0000
1.0090	1.0174	1.0380	1.0082	1.0054	1.0005	1.0000	1.0005	1.0001	1.0006	1.0000
1.0240	1.0057	1.0140	1.0015	1.0004	1.0005	1.0000	1.0000	1.0000	1.0006	1.0000
1.0189	1.0075	1.0175	1.0021	1.0004	1.0005	1.0000	1.0000	1.0000	1.0006	1.0000
1.0350	1.0150	1.0150	1.0025	1.0025	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000
1.0350	1.0150	1.0150	1.0025	1.0025	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000
1.0300	1.0150	1.0150	1.0025	1.0025	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000
1.0675	1.0364	1.0211	1.0060	1.0035	1.0010	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	168.5218	150.8827	200.8148	176.3583	182.6684	196.6550	196.6550	189.9490
12	23.1224	20.0807	23.9717	27.4280	37.1874	24.5819	24.5819	23.7436
20	7.0864	6.4795	7.5631	6.1900	6.9198	7.6818	7.6818	7.4199
24	5.2362	4.9517	5.6675	4.7424	5.2035	5.6484	5.6484	5.4558
32	3.1564	3.0868	3.6120	3.1120	3.3110	3.3226	3.3226	3.3065
36	2.7493	2.6300	2.9217	2.6674	2.7880	2.8892	2.8892	2.8753
44	2.1668	2.0830	2.3302	2.0542	2.1637	2.1723	2.1723	2.1618
56	1.5816	1.5020	1.6342	1.4648	1.5145	1.5517	1.5517	1.5442
68	1.3692	1.2996	1.3413	1.2864	1.3191	1.3376	1.3376	1.3312
80	1.1643	1.1093	1.1358	1.0859	1.0756	1.1531	1.1531	1.1476
92	1.0779	1.0671	1.0820	1.0473	1.0483	1.0727	1.0727	1.0675
104	1.0481	1.0361	1.0724	1.0228	1.0289	1.0364	1.0364	1.0364
116	1.0292	1.0276	1.0540	1.0170	1.0212	1.0211	1.0211	1.0211
128	1.0100	1.0093	1.0154	1.0029	1.0037	1.0060	1.0060	1.0060
140	1.0064	1.0047	1.0072	1.0014	1.0016	1.0035	1.0035	1.0035
152	1.0021	1.0021	1.0017	1.0011	1.0011	1.0010	1.0010	1.0010
164	1.0011	1.0011	1.0012	1.0006	1.0006	1.0000	1.0000	1.0000
176	1.0011	1.0011	1.0012	1.0006	1.0006	1.0000	1.0000	1.0000
188	1.0007	1.0007	1.0007	1.0006	1.0006	1.0000	1.0000	1.0000
200	1.0006	1.0006	1.0006	1.0006	1.0006	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	8.0000	189.9490	0.53%	8		189.9490	8.0000	8.0000	189.9562
12	3.2000	23.7436		12	4.21%	23.7436	3.2000	3.2000	23.7445
20	1.3600	7.4199	13.48%	20		7.4199	1.3600	1.3600	7.4202
24	1.6500	5.4558		24	18.33%	5.4558	1.6500	1.6500	5.4560
32	1.1500	3.3065	30.24%	32		3.3065	1.1500	1.1500	3.3067
36	1.3300	2.8753		36	34.78%	2.8753	1.5073	1.5075	2.8754
44	1.4000	2.1618	46.26%	48	52.42%	1.9075	1.3012	1.3010	1.9074
56	1.1600	1.5442	64.76%	60	68.21%	1.4660	1.1600	1.1600	1.4661
68	1.1600	1.3312	75.12%	72	79.13%	1.2638	1.1288	1.1290	1.2639
80	1.0750	1.1476	87.14%	84	89.32%	1.1196	1.0593	1.0590	1.1195
92	1.0300	1.0675	93.68%	96	94.61%	1.0569	1.0249	1.0250	1.0571
104	1.0150	1.0364	96.49%	108	96.97%	1.0313	1.0150	1.0150	1.0313
116	1.0150	1.0211	97.93%	120	98.42%	1.0160	1.0108	1.0110	1.0161
128	1.0025	1.0060	99.40%	132	99.49%	1.0052	1.0025	1.0025	1.0050
140	1.0025	1.0035	99.65%	144	99.73%	1.0027	1.0020	1.0020	1.0025
152	1.0010	1.0010	99.90%	156	99.93%	1.0007	1.0007	1.0005	1.0005
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	4,213	1.0000	4,213	-	150	(150)	0.89%
2001	497,121	5,255	1.0000	5,255	-	-	-	1.06%
2002	532,307	4,629	1.0000	4,629	-	-	-	0.87%
2003	560,857	3,949	1.0000	3,949	-	-	-	0.70%
2004	596,045	5,196	1.0000	5,196	-	-	-	0.87%
2005	630,367	4,228	1.0010	4,233	4	-	4	0.67%
2006	654,863	3,520	1.0035	3,532	12	45	(33)	0.54%
2007	677,464	3,720	1.0060	3,743	22	20	2	0.55%
2008	707,051	2,346	1.0211	2,396	50	85	(35)	0.34%
2009	739,881	3,425	1.0364	3,550	125	50	75	0.48%
2010	759,948	3,800	1.0675	4,057	257	525	(268)	0.53%
2011	772,985	1,990	1.1476	2,283	294	549	(255)	0.30%
2012	768,953	3,521	1.3312	4,688	1,166	136	1,030	0.61%
2013	778,092	2,386	1.5442	3,684	1,298	1,358	(60)	0.47%
2014	817,710	3,158	2.1618	6,826	3,669	2,104	1,565	0.83%
2015	873,488	1,680	3.3065	5,555	3,875	2,225	1,650	0.64%
2016	918,780	1,173	7.4199	8,701	7,528	2,586	4,942	0.95%
2017	656,688	49	189.9490	6,245	6,196	1,468	4,728	0.95%
	12,417,877	58,239		82,735	24,495	11,301	13,194	0.67%

Notes:
(5) Current year adjusted to reflect the portion of the fiscal year that is completed

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4,213			4,213	0.89%	0.89%	100.00%	0.89%	0.62%
2001	497,121	5,255	4,223		4,223	0.85%	1.06%	100.00%	1.06%	0.62%
2002	532,307	4,629	5,268	4,234	4,751	0.89%	0.87%	100.00%	0.87%	0.62%
2003	560,857	3,949	4,641	5,281	4,961	0.88%	0.70%	100.00%	0.70%	0.62%
2004	596,045	5,196	3,959	4,652	4,306	0.72%	0.87%	100.00%	0.87%	0.62%
2005	630,367	4,233	5,209	3,969	4,589	0.73%	0.67%	100.00%	0.67%	0.62%
2006	654,863	3,532	4,243	5,222	4,733	0.72%	0.54%	90.00%	0.56%	0.62%
2007	677,464	3,743	3,541	4,254	3,898	0.58%	0.55%	80.00%	0.56%	0.62%
2008	707,051	2,396	3,752	3,550	3,651	0.52%	0.34%	70.00%	0.39%	0.62%
2009	739,881	3,550	2,402	3,761	3,082	0.42%	0.48%	60.00%	0.45%	0.62%
2010	759,948	4,057	3,559	2,408	2,983	0.39%	0.53%	50.00%	0.46%	0.62%
2011	772,985	2,283	4,067	3,568	3,818	0.49%	0.30%	40.00%	0.41%	0.62%
2012	768,953	4,688	2,289	4,077	3,183	0.41%	0.61%	30.00%	0.47%	0.62%
2013	778,092	3,684	4,699	2,295	3,497	0.45%	0.47%	20.00%	0.45%	0.62%
2014	817,710	6,826	3,694	4,711	4,202	0.51%	0.83%	10.00%	0.55%	0.62%
2015	873,488	5,555	6,843	3,703	5,273	0.60%	0.64%	0.00%	0.60%	0.62%
2016	918,780	8,701	5,569	6,860	6,215	0.68%	0.95%	0.00%	0.68%	0.62%
2017	656,688	6,245	5,810	3,719	4,765	0.73%	0.95%	0.00%	0.73%	0.62%
	12,417,877	82,735	73,769	66,264	76,340					

Trend in Losses Based on Exponential Regression (a):
2.68%
Selected Trend (b):
0.25%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Bodily Injury - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	0.62%	2,929	100.00%	0.00%	2,929	4,213	-	4,213	(150)	0.89%
2001	497,121	0.62%	3,063	100.00%	0.00%	3,063	5,255	-	5,255	-	1.06%
2002	532,307	0.62%	3,280	100.00%	0.00%	3,280	4,629	-	4,629	-	0.87%
2003	560,857	0.62%	3,456	100.00%	0.00%	3,456	3,949	-	3,949	-	0.70%
2004	596,045	0.62%	3,673	100.00%	0.00%	3,673	5,196	-	5,196	-	0.87%
2005	630,367	0.62%	3,884	99.90%	0.10%	3,880	4,228	4	4,232	4	0.67%
2006	654,863	0.62%	4,035	99.65%	0.35%	4,021	3,520	14	3,534	(31)	0.54%
2007	677,464	0.62%	4,174	99.40%	0.60%	4,150	3,720	25	3,745	5	0.55%
2008	707,051	0.62%	4,357	97.93%	2.07%	4,267	2,346	90	2,436	5	0.34%
2009	739,881	0.62%	4,559	96.49%	3.51%	4,399	3,425	160	3,586	110	0.48%
2010	759,948	0.62%	4,683	93.68%	6.32%	4,387	3,800	296	4,097	(229)	0.54%
2011	772,985	0.62%	4,763	87.14%	12.86%	4,151	1,990	613	2,602	64	0.34%
2012	768,953	0.62%	4,738	75.12%	24.88%	3,559	3,521	1,179	4,700	1,043	0.61%
2013	778,092	0.62%	4,795	64.76%	35.24%	3,105	2,386	1,690	4,076	332	0.52%
2014	817,710	0.62%	5,039	46.26%	53.74%	2,331	3,158	2,708	5,865	604	0.72%
2015	873,488	0.62%	5,382	30.24%	69.76%	1,628	1,680	3,755	5,435	1,530	0.62%
2016	918,780	0.62%	5,661	13.48%	86.52%	763	1,173	4,898	6,071	2,312	0.66%
2017	656,688	0.62%	4,046	0.53%	99.47%	32	49	4,015	4,064	2,547	0.62%
	12,417,877		76,518			57,072	58,239	19,446	77,685	8,145	0.63%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

J. S. CHENG & PARTNERS INC.
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APPENDIX B

PD - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Property Damage - Basic

Reported Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	21,829,291	22,214,859	22,315,595	22,443,896	22,570,803	22,538,388	22,496,844	22,397,793	22,396,546	22,376,607	22,358,095	22,348,382	22,338,981	22,315,686	22,308,032	22,305,305	22,299,919	22,297,469	22,296,969	22,296,626	22,295,726
2000	12,788,977	24,201,850	25,604,567	25,987,645	26,015,185	26,090,631	26,048,591	25,862,994	25,829,050	25,808,758	25,795,958	25,793,218	25,788,481	25,778,380	25,764,555	25,761,322	25,756,034	25,752,582	25,750,189	25,751,562	25,750,457	
2001	13,514,186	23,330,120	25,612,049	25,874,125	25,984,742	26,091,015	25,940,091	25,904,369	25,887,459	25,881,196	25,766,696	25,758,393	25,751,572	25,737,094	25,733,711	25,728,567	25,726,845	25,723,914	25,722,914	25,722,754		
2002	15,546,056	26,506,813	28,027,422	28,210,532	28,372,843	28,376,769	28,305,062	28,184,408	28,158,215	28,148,296	28,121,521	28,106,567	28,083,711	28,080,187	28,077,765	28,064,978	28,061,683	28,060,209	28,056,798			
2003	15,076,399	26,875,012	29,085,435	29,370,861	29,721,723	29,802,040	29,733,420	29,704,620	29,663,096	29,619,902	29,598,650	29,590,205	29,566,780	29,558,219	29,573,392	29,565,660	29,564,400	29,561,983				
2004	14,512,645	26,870,328	28,867,824	29,464,025	29,792,692	29,777,670	29,749,789	29,729,972	29,704,887	29,676,131	29,665,760	29,662,178	29,655,160	29,645,527	29,627,123	29,624,384	29,616,207					
2005	16,083,412	27,295,660	29,786,024	30,009,137	30,510,641	30,568,106	30,277,611	30,446,142	30,437,659	30,425,286	30,406,280	30,324,937	30,303,565	30,299,629	30,296,861	30,292,961						
2006	16,806,045	30,353,079	32,221,733	32,949,645	33,607,049	33,712,675	33,683,388	33,635,601	33,620,405	33,605,984	33,589,509	33,585,816	33,584,380	33,581,910	33,576,684							
2007	17,253,986	31,000,779	33,310,425	33,885,293	34,659,200	34,662,954	34,525,819	34,364,335	34,359,638	34,311,667	34,302,060	34,304,065	34,294,790	34,288,972								
2008	17,401,208	31,312,769	34,671,608	35,493,766	36,197,544	36,386,099	36,164,907	36,094,671	36,052,113	36,053,177	35,977,416	35,983,224	35,981,676									
2009	18,735,277	31,416,572	33,936,908	34,547,474	34,798,331	35,051,147	35,155,772	35,133,325	35,137,942	35,158,867	34,957,790	34,954,482										
2010	18,115,608	31,919,673	35,361,977	36,416,408	37,167,752	37,297,943	37,339,057	37,384,902	37,336,245	37,369,260	37,375,676											
2011	19,234,149	32,719,528	36,001,526	36,567,021	37,318,322	37,398,436	37,435,003	37,491,683	37,562,526	37,537,373												
2012	21,104,666	35,554,794	39,519,708	40,460,066	41,092,569	41,413,191	41,531,596	41,695,020	41,772,513													
2013	19,012,329	36,054,767	42,085,066	43,494,266	44,680,909	45,112,420	45,226,066	45,506,470														
2014	18,585,718	33,872,504	39,700,090	39,978,471	40,686,248	40,951,348	41,014,312															
2015	19,417,052	33,904,039	39,071,452	40,070,976	40,856,982																	
2016	20,705,663	34,756,815	41,704,786																			
2017	21,091,193																					

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	21,829	22,215	22,316	22,444	22,571	22,538	22,497	22,398	22,397
2000	12,789	24,202	25,605	25,988	26,015	26,091	26,049	25,863	25,829	25,809
2001	13,514	23,330	25,612	25,874	25,985	26,091	25,940	25,904	25,887	25,881
2002	15,546	26,507	28,027	28,211	28,373	28,377	28,305	28,184	28,158	28,148
2003	15,076	26,875	29,085	29,371	29,722	29,802	29,733	29,705	29,663	29,620
2004	14,513	26,870	28,868	29,464	29,793	29,778	29,750	29,730	29,705	29,676
2005	16,083	27,296	29,786	30,009	30,511	30,568	30,278	30,446	30,438	30,425
2006	16,806	30,353	32,222	32,950	33,607	33,713	33,683	33,636	33,620	33,606
2007	17,254	31,001	33,310	33,885	34,659	34,663	34,526	34,364	34,360	34,312
2008	17,401	31,313	34,672	35,494	36,198	36,386	36,165	36,095	36,052	36,053
2009	18,735	31,417	33,937	34,547	34,798	35,051	35,156	35,133	35,138	35,159
2010	18,116	31,920	35,362	36,416	37,168	37,298	37,339	37,385	37,336	37,369
2011	19,234	32,720	36,002	36,567	37,318	37,398	37,435	37,492	37,563	37,537
2012	21,105	35,555	39,520	40,460	41,093	41,413	41,532	41,695	41,773	
2013	19,012	36,055	42,085	43,494	44,681	45,112	45,226	45,506		
2014	18,586	33,873	39,700	39,978	40,686	40,951	41,014			
2015	19,417	33,904	39,071	40,071	40,857					
2016	20,706	34,757	41,705							
2017	21,091									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.0177	1.0045	1.0057	1.0057	0.9986	0.9982	0.9956	0.9999	0.9991
2000	1.8924	1.0580	1.0150	1.0011	1.0029	0.9984	0.9929	0.9987	0.9992	0.9995
2001	1.7263	1.0978	1.0102	1.0043	1.0041	0.9942	0.9986	0.9993	0.9998	0.9956
2002	1.7051	1.0574	1.0065	1.0058	1.0001	0.9975	0.9957	0.9991	0.9996	0.9990
2003	1.7826	1.0822	1.0098	1.0119	1.0027	0.9977	0.9990	0.9986	0.9985	0.9993
2004	1.8515	1.0743	1.0207	1.0112	0.9995	0.9991	0.9993	0.9992	0.9990	0.9997
2005	1.6971	1.0912	1.0075	1.0167	1.0019	0.9905	1.0056	0.9997	0.9996	0.9994
2006	1.8061	1.0616	1.0226	1.0200	1.0031	0.9991	0.9986	0.9995	0.9996	0.9995
2007	1.7967	1.0745	1.0173	1.0228	1.0001	0.9960	0.9953	0.9999	0.9986	0.9997
2008	1.7995	1.1073	1.0237	1.0198	1.0052	0.9939	0.9981	0.9988	1.0000	0.9979
2009	1.6769	1.0802	1.0180	1.0073	1.0073	1.0030	0.9994	1.0001	1.0006	0.9943
2010	1.7620	1.1078	1.0298	1.0206	1.0035	1.0011	1.0012	0.9987	1.0009	1.0002
2011	1.7011	1.1003	1.0157	1.0205	1.0021	1.0010	1.0015	1.0019	0.9993	
2012	1.6847	1.1115	1.0238	1.0156	1.0078	1.0029	1.0039	1.0019		
2013	1.8964	1.1673	1.0335	1.0273	1.0097	1.0025	1.0062			
2014	1.8225	1.1720	1.0070	1.0177	1.0065	1.0015				
2015	1.7461	1.1524	1.0256	1.0196						
2016	1.6786	1.1999								
Latest 9 Volume Weighted	1.7498	1.1345	1.0217	1.0192	1.0052	1.0003	1.0012	1.0000	0.9996	0.9987
Latest 6 Volume Weighted	1.7522	1.1509	1.0226	1.0203	1.0063	1.0020	1.0019	1.0003	0.9998	0.9985
Latest 3 Volume Weighted	1.7465	1.1750	1.0222	1.0217	1.0080	1.0023	1.0040	1.0009	1.0003	0.9975
Simple Average of Middle 4 of Last 6	1.7386	1.1508	1.0237	1.0196	1.0063	1.0020	1.0015	1.0002	0.9999	0.9991
Simple Average of Middle 3 of Last 5	1.7511	1.1639	1.0217	1.0193	1.0059	1.0017	1.0022	1.0003	1.0000	0.9990
Selected Oct 16	1.7500	1.1500	1.0220	1.0200	1.0050	1.0020	1.0000	0.9995	0.9995	0.9995
Selected Feb 17	1.7500	1.1500	1.0220	1.0200	1.0050	1.0020	1.0000	0.9995	0.9995	0.9995
Selected Factors	1.7500	1.1650	1.0220	1.0200	1.0065	1.0020	1.0025	1.0000	0.9995	0.9995
Selected Ultimate	2.1444	1.2254	1.0518	1.0292	1.0090	1.0025	1.0005	0.9980	0.9980	0.9985

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
22,377	22,358	22,348	22,339	22,316	22,308	22,305	22,300	22,297	22,297	22,297	22,296
25,796	25,793	25,788	25,778	25,765	25,761	25,756	25,753	25,750	25,752	25,750	
25,767	25,758	25,752	25,737	25,734	25,729	25,727	25,724	25,723	25,723		
28,122	28,107	28,084	28,080	28,078	28,065	28,062	28,060	28,057			
29,599	29,590	29,567	29,558	29,573	29,566	29,564	29,562				
29,666	29,662	29,655	29,646	29,627	29,624	29,616					
30,406	30,325	30,304	30,300	30,297	30,293						
33,590	33,586	33,584	33,582	33,577							
34,302	34,304	34,295	34,289								
35,977	35,983	35,982									
34,958	34,954										
37,376											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9992	0.9996	0.9996	0.9990	0.9997	0.9999	0.9998	0.9999	1.0000	1.0000	1.0000
0.9999	0.9998	0.9996	0.9995	0.9999	0.9998	0.9999	0.9999	1.0001	1.0000	
0.9997	0.9997	0.9994	0.9999	0.9998	0.9999	0.9999	1.0000	1.0000		
0.9995	0.9992	0.9999	0.9999	0.9995	0.9999	0.9999	0.9999			
0.9997	0.9992	0.9997	1.0005	0.9997	1.0000	0.9999				
0.9999	0.9998	0.9997	0.9994	0.9999	0.9997					
0.9973	0.9993	0.9999	0.9999	0.9999						
0.9999	1.0000	0.9999	0.9998							
1.0001	0.9997	0.9998								
1.0002	1.0000									
0.9999										
0.9996	0.9996	0.9997	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
0.9996	0.9997	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
1.0000	0.9999	0.9999	0.9997	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
0.9999	0.9997	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
1.0000	0.9998	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9995	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9990	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.0738	2.1193	2.1690	2.1045	2.1396	2.1073	2.1073	2.1444
12	1.1851	1.2095	1.2419	1.2105	1.2218	1.2042	1.2042	1.2254
20	1.0447	1.0509	1.0570	1.0519	1.0498	1.0471	1.0471	1.0518
24	1.0224	1.0276	1.0340	1.0275	1.0275	1.0246	1.0246	1.0292
32	1.0032	1.0072	1.0120	1.0077	1.0080	1.0045	1.0045	1.0090
36	0.9980	1.0009	1.0039	1.0014	1.0021	0.9995	0.9995	1.0025
44	0.9977	0.9989	1.0016	0.9994	1.0004	0.9975	0.9975	1.0005
56	0.9965	0.9969	0.9976	0.9979	0.9981	0.9975	0.9975	0.9980
68	0.9964	0.9967	0.9968	0.9977	0.9979	0.9980	0.9980	0.9980
80	0.9968	0.9968	0.9965	0.9979	0.9979	0.9985	0.9985	0.9985
92	0.9981	0.9983	0.9990	0.9987	0.9988	0.9990	0.9990	0.9990
104	0.9985	0.9988	0.9989	0.9988	0.9989	0.9995	0.9995	0.9995
116	0.9989	0.9991	0.9991	0.9991	0.9991	1.0000	1.0000	1.0000
128	0.9991	0.9993	0.9992	0.9993	0.9993	1.0000	1.0000	1.0000
140	0.9994	0.9994	0.9995	0.9994	0.9994	1.0000	1.0000	1.0000
152	0.9996	0.9996	0.9996	0.9996	0.9996	1.0000	1.0000	1.0000
164	0.9997	0.9997	0.9998	0.9997	0.9997	1.0000	1.0000	1.0000
176	0.9998	0.9998	0.9999	0.9998	0.9998	1.0000	1.0000	1.0000
188	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
200	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7500	2.1444	46.63%	8		2.1444	1.7500	1.7500	2.1444
12	1.1650	1.2254		12	81.61%	1.2254	1.1650	1.1650	1.2254
20	1.0220	1.0518	95.07%	20		1.0518	1.0220	1.0220	1.0518
24	1.0200	1.0292		24	97.16%	1.0292	1.0200	1.0200	1.0292
32	1.0065	1.0090	99.11%	32		1.0090	1.0065	1.0065	1.0090
36	1.0020	1.0025		36	99.75%	1.0025	1.0028	1.0030	1.0025
44	1.0025	1.0005	99.95%	48	100.03%	0.9997	1.0017	1.0015	0.9995
56	1.0000	0.9980	100.20%	60	100.20%	0.9980	0.9998	1.0000	0.9980
68	0.9995	0.9980	100.20%	72	100.18%	0.9982	0.9995	0.9995	0.9980
80	0.9995	0.9985	100.15%	84	100.13%	0.9987	0.9995	0.9995	0.9985
92	0.9995	0.9990	100.10%	96	100.08%	0.9992	0.9995	0.9995	0.9990
104	0.9995	0.9995	100.05%	108	100.03%	0.9997	0.9997	0.9995	0.9995
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	25,750	1.0000	25,750	-	(1)	5.42%
2001	497,121	25,723	1.0000	25,723	-	1	5.17%
2002	532,307	28,057	1.0000	28,057	-	-	5.27%
2003	560,857	29,562	1.0000	29,562	-	-	5.27%
2004	596,045	29,616	1.0000	29,616	-	1	4.97%
2005	630,367	30,293	1.0000	30,293	-	-	4.81%
2006	654,863	33,577	1.0000	33,577	-	1	5.13%
2007	677,464	34,289	1.0000	34,289	-	52	5.06%
2008	707,051	35,982	1.0000	35,982	-	136	5.09%
2009	739,881	34,954	0.9995	34,937	(17)	11	4.72%
2010	759,948	37,376	0.9990	37,338	(37)	208	4.91%
2011	772,985	37,537	0.9985	37,481	(56)	56	4.85%
2012	768,953	41,773	0.9980	41,689	(83)	162	5.42%
2013	778,092	45,506	0.9980	45,416	(91)	111	5.84%
2014	817,710	41,014	1.0005	41,035	20	276	5.02%
2015	873,488	40,857	1.0090	41,225	368	583	4.72%
2016	918,780	41,705	1.0518	43,867	2,162	1,844	4.77%
2017	656,688	21,091	2.1444	26,233	5,141	7,601	3.99%
	12,417,877	614,662		622,069	7,406	11,042	5.01%

Notes:
(5) Current year adjustment factor is 0.58 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	25,750			25,750	5.42%	5.42%	100.00%	5.42%	5.42%
2001	497,121	25,723	26,523		26,523	5.34%	5.17%	100.00%	5.17%	5.17%
2002	532,307	28,057	26,494	27,319	26,907	5.05%	5.27%	100.00%	5.27%	5.27%
2003	560,857	29,562	28,899	27,289	28,094	5.01%	5.27%	100.00%	5.27%	5.27%
2004	596,045	29,616	30,449	29,765	30,107	5.05%	4.97%	100.00%	4.97%	4.97%
2005	630,367	30,293	30,505	31,362	30,934	4.91%	4.81%	100.00%	4.81%	4.81%
2006	654,863	33,577	31,202	31,420	31,311	4.78%	5.13%	100.00%	5.13%	5.13%
2007	677,464	34,289	34,584	32,138	33,361	4.92%	5.06%	100.00%	5.06%	5.06%
2008	707,051	35,982	35,318	35,622	35,470	5.02%	5.09%	100.00%	5.09%	5.09%
2009	739,881	34,937	37,061	36,377	36,719	4.96%	4.72%	100.00%	4.72%	4.72%
2010	759,948	37,338	35,985	38,173	37,079	4.88%	4.91%	100.00%	4.91%	4.91%
2011	772,985	37,481	38,458	37,065	37,762	4.89%	4.85%	80.00%	4.86%	4.86%
2012	768,953	41,689	38,606	39,612	39,109	5.09%	5.42%	60.00%	5.29%	5.29%
2013	778,092	45,416	42,940	39,764	41,352	5.31%	5.84%	40.00%	5.52%	5.52%
2014	817,710	41,035	46,778	44,228	45,503	5.56%	5.02%	20.00%	5.46%	5.46%
2015	873,488	41,225	42,266	48,181	45,224	5.18%	4.72%	0.00%	5.18%	5.18%
2016	918,780	43,867	42,462	43,534	42,998	4.68%	4.77%	0.00%	4.68%	4.68%
2017	656,688	26,233	29,826	28,871	29,349	4.47%	3.99%	0.00%	4.47%	4.47%
	12,417,877	622,069	598,355	570,720	623,549					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
2.77%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	5.42%	25,750	100.00%	0.00%	25,750	25,750	-	25,750	5.42%
2001	497,121	5.17%	25,723	100.00%	0.00%	25,723	25,723	-	25,723	5.17%
2002	532,307	5.27%	28,057	100.00%	0.00%	28,057	28,057	-	28,057	5.27%
2003	560,857	5.27%	29,562	100.00%	0.00%	29,562	29,562	-	29,562	5.27%
2004	596,045	4.97%	29,616	100.00%	0.00%	29,616	29,616	-	29,616	4.97%
2005	630,367	4.81%	30,293	100.00%	0.00%	30,293	30,293	-	30,293	4.81%
2006	654,863	5.13%	33,577	100.00%	0.00%	33,577	33,577	-	33,577	5.13%
2007	677,464	5.06%	34,289	100.00%	0.00%	34,289	34,289	-	34,289	5.06%
2008	707,051	5.09%	35,982	100.00%	0.00%	35,982	35,982	-	35,982	5.09%
2009	739,881	4.72%	34,937	100.05%	-0.05%	34,954	34,954	(17)	34,937	4.72%
2010	759,948	4.91%	37,338	100.10%	-0.10%	37,376	37,376	(37)	37,338	4.91%
2011	772,985	4.86%	37,537	100.15%	-0.15%	37,594	37,537	(56)	37,481	4.85%
2012	768,953	5.29%	40,657	100.20%	-0.20%	40,738	41,773	(81)	41,691	5.42%
2013	778,092	5.52%	42,977	100.20%	-0.20%	43,063	45,506	(86)	45,420	5.84%
2014	817,710	5.46%	44,609	99.95%	0.05%	44,587	41,014	22	41,036	5.02%
2015	873,488	5.18%	45,224	99.11%	0.89%	44,820	40,857	404	41,261	4.72%
2016	918,780	4.68%	42,998	95.07%	4.93%	40,879	41,705	2,119	43,824	4.77%
2017	656,688	4.47%	25,534	46.63%	53.37%	20,529	21,091	5,004	26,096	3.97%
	12,417,877		624,659			617,389	614,662	7,271	621,933	5.01%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - With Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	15,892,209	21,559,643	21,972,131	22,285,760	22,364,181	22,410,473	22,395,795	22,393,211	22,392,464	22,372,525	22,355,513	22,345,800	22,336,899	22,313,604	22,306,950	22,304,223	22,298,837	22,296,887	22,296,387	22,296,044	22,295,144
2000	7,834,330	16,519,136	24,246,830	24,929,447	25,416,440	25,772,285	25,841,530	25,856,232	25,822,921	25,807,629	25,794,830	25,792,089	25,787,649	25,778,348	25,764,523	25,761,290	25,756,001	25,753,772	25,751,379	25,752,952	25,751,847	
2001	8,723,365	16,546,010	24,636,601	25,206,949	25,541,432	25,598,800	25,772,869	25,765,439	25,774,990	25,769,726	25,755,226	25,747,693	25,741,072	25,736,594	25,733,211	25,728,067	25,726,345	25,723,414	25,722,414	25,722,254		
2002	10,181,100	18,730,168	26,942,803	27,597,171	28,041,283	28,091,814	28,085,121	28,140,528	28,104,235	28,111,716	28,098,141	28,084,317	28,074,211	28,070,687	28,068,265	28,064,478	28,061,683	28,060,209	28,056,798			
2003	10,488,212	18,993,183	28,040,690	28,812,908	29,444,594	29,622,075	29,646,631	29,627,743	29,616,528	29,607,287	29,586,034	29,578,705	29,566,280	29,557,719	29,573,392	29,565,660	29,564,400	29,561,983				
2004	9,740,251	18,241,960	27,611,388	28,445,159	29,255,292	29,509,719	29,529,712	29,584,066	29,581,981	29,653,225	29,643,260	29,639,678	29,632,660	29,625,027	29,621,623	29,618,884	29,615,707					
2005	9,884,226	18,707,466	27,818,773	28,552,997	29,390,059	29,581,493	29,844,411	30,329,392	30,350,209	30,338,236	30,319,230	30,304,087	30,303,565	30,299,629	30,296,861	30,292,961						
2006	10,413,815	20,008,636	30,502,393	31,897,331	32,981,327	33,425,730	33,606,980	33,617,274	33,602,777	33,591,033	33,588,609	33,584,916	33,583,480	33,581,010	33,575,784							
2007	9,872,245	19,426,077	31,159,767	32,210,176	33,442,533	33,604,270	33,656,870	34,036,736	34,032,138	34,059,167	34,250,060	34,252,065	34,242,790	34,236,972								
2008	10,851,779	20,381,646	32,642,644	33,764,219	35,133,005	35,384,454	35,620,488	35,780,978	35,838,363	35,835,177	35,841,916	35,847,724	35,846,176									
2009	11,779,357	21,931,621	31,943,685	33,088,788	34,148,421	34,461,835	34,804,581	34,911,900	34,923,743	34,947,192	34,947,115	34,943,807										
2010	10,963,061	21,420,350	33,725,335	35,388,132	36,550,782	36,991,380	37,058,558	37,095,632	37,078,099	37,161,560	37,167,976											
2011	11,794,741	23,155,009	34,365,947	35,292,298	36,553,739	36,904,577	37,273,515	37,406,658	37,446,876	37,481,173												
2012	12,808,936	23,572,363	37,061,990	38,611,007	40,227,881	40,890,323	41,061,130	41,251,598	41,610,754													
2013	12,092,548	23,092,538	39,736,734	42,106,181	44,458,564	44,849,597	45,217,379	45,395,670														
2014	11,585,663	23,110,136	36,704,201	38,120,665	40,038,054	40,560,547	40,738,430															
2015	12,296,312	24,288,615	37,443,495	38,931,303	40,273,728																	
2016	12,962,983	24,886,526	39,861,231																			
2017	13,489,896																					

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	15,892	21,560	21,972	22,286	22,364	22,410	22,396	22,393	22,392
2000	7,834	16,519	24,247	24,929	25,416	25,772	25,842	25,856	25,823	25,808
2001	8,723	16,546	24,637	25,207	25,541	25,599	25,773	25,765	25,775	25,770
2002	10,181	18,730	26,943	27,597	28,041	28,092	28,085	28,141	28,104	28,112
2003	10,488	18,993	28,041	28,813	29,445	29,622	29,647	29,628	29,617	29,607
2004	9,740	18,242	27,611	28,445	29,255	29,510	29,530	29,584	29,582	29,653
2005	9,884	18,707	27,819	28,553	29,390	29,581	29,844	30,329	30,350	30,338
2006	10,414	20,009	30,502	31,897	32,981	33,426	33,607	33,617	33,603	33,591
2007	9,872	19,426	31,160	32,210	33,443	33,604	33,657	34,037	34,032	34,059
2008	10,852	20,382	32,643	33,764	35,133	35,384	35,620	35,781	35,838	35,835
2009	11,779	21,932	31,944	33,089	34,148	34,462	34,805	34,912	34,924	34,947
2010	10,963	21,420	33,725	35,388	36,551	36,991	37,059	37,096	37,078	37,162
2011	11,795	23,155	34,366	35,292	36,554	36,905	37,274	37,407	37,447	37,481
2012	12,809	23,572	37,062	38,611	40,228	40,890	41,061	41,252	41,611	
2013	12,093	23,093	39,737	42,106	44,459	44,850	45,217	45,396		
2014	11,586	23,110	36,704	38,121	40,038	40,561	40,738			
2015	12,296	24,289	37,443	38,931	40,274					
2016	12,963	24,887	39,861							
2017	13,490									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.3566	1.0191	1.0143	1.0035	1.0021	0.9993	0.9999	1.0000	0.9991
2000	2.1086	1.4678	1.0282	1.0195	1.0140	1.0027	1.0006	0.9987	0.9994	0.9995
2001	1.8967	1.4890	1.0232	1.0133	1.0022	1.0068	0.9997	1.0004	0.9998	0.9994
2002	1.8397	1.4385	1.0243	1.0161	1.0018	0.9998	1.0020	0.9987	1.0003	0.9995
2003	1.8109	1.4764	1.0275	1.0219	1.0060	1.0008	0.9994	0.9996	0.9997	0.9993
2004	1.8728	1.5136	1.0302	1.0285	1.0087	1.0007	1.0018	0.9999	1.0024	0.9997
2005	1.8927	1.4870	1.0264	1.0293	1.0065	1.0089	1.0163	1.0007	0.9996	0.9994
2006	1.9214	1.5245	1.0457	1.0340	1.0135	1.0054	1.0003	0.9996	0.9997	0.9999
2007	1.9677	1.6040	1.0337	1.0383	1.0048	1.0016	1.0113	0.9999	1.0008	1.0056
2008	1.8782	1.6016	1.0344	1.0405	1.0072	1.0067	1.0045	1.0016	0.9999	1.0002
2009	1.8619	1.4565	1.0358	1.0320	1.0092	1.0099	1.0031	1.0003	1.0007	1.0000
2010	1.9539	1.5745	1.0493	1.0329	1.0121	1.0018	1.0010	0.9995	1.0023	1.0002
2011	1.9632	1.4842	1.0270	1.0357	1.0096	1.0100	1.0036	1.0011	1.0009	
2012	1.8403	1.5723	1.0418	1.0419	1.0165	1.0042	1.0046	1.0087		
2013	1.9097	1.7208	1.0596	1.0559	1.0088	1.0082	1.0039			
2014	1.9947	1.5882	1.0386	1.0503	1.0130	1.0044				
2015	1.9753	1.5416	1.0397	1.0345						
2016	1.9198	1.6017								
Latest 9 Volume Weighted	1.9213	1.5715	1.0404	1.0407	1.0106	1.0058	1.0051	1.0014	1.0007	1.0005
Latest 6 Volume Weighted	1.9323	1.5846	1.0430	1.0423	1.0116	1.0064	1.0035	1.0020	1.0007	1.0009
Latest 3 Volume Weighted	1.9619	1.5772	1.0463	1.0471	1.0126	1.0057	1.0041	1.0033	1.0013	1.0001
Simple Average of Middle 4 of Last 6	1.9420	1.5760	1.0424	1.0406	1.0110	1.0067	1.0038	1.0007	1.0006	1.0001
Simple Average of Middle 3 of Last 5	1.9349	1.5874	1.0400	1.0426	1.0116	1.0056	1.0035	1.0010	1.0008	1.0001
Selected Oct 16	1.9500	1.5700	1.0425	1.0450	1.0100	1.0070	1.0050	1.0005	1.0005	1.0000
Selected Feb 17	1.9500	1.5700	1.0425	1.0450	1.0100	1.0070	1.0050	1.0005	1.0005	1.0000
Selected Factors	1.9400	1.5850	1.0425	1.0450	1.0115	1.0070	1.0040	1.0005	1.0005	1.0000
Selected Ultimate	3.4292	1.7676	1.1152	1.0697	1.0237	1.0120	1.0050	1.0010	1.0005	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
22,373	22,356	22,346	22,337	22,314	22,307	22,304	22,299	22,297	22,296	22,296	22,295
25,795	25,792	25,788	25,778	25,765	25,761	25,756	25,754	25,751	25,753	25,752	
25,755	25,748	25,741	25,737	25,733	25,728	25,726	25,723	25,722	25,722		
28,098	28,084	28,074	28,071	28,068	28,064	28,062	28,060	28,057			
29,586	29,579	29,566	29,558	29,573	29,566	29,564	29,562				
29,643	29,640	29,633	29,625	29,622	29,619	29,616					
30,319	30,304	30,304	30,300	30,297	30,293						
33,589	33,585	33,583	33,581	33,576							
34,250	34,252	34,243	34,237								
35,842	35,848	35,846									
34,947	34,944										
37,168											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9992	0.9996	0.9996	0.9990	0.9997	0.9999	0.9998	0.9999	1.0000	1.0000	1.0000
0.9999	0.9998	0.9996	0.9995	0.9999	0.9998	0.9999	0.9999	1.0001	1.0000	
0.9997	0.9997	0.9998	0.9999	0.9998	0.9999	0.9999	1.0000	1.0000		
0.9995	0.9996	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999			
0.9998	0.9996	0.9997	1.0005	0.9997	1.0000	0.9999				
0.9999	0.9998	0.9997	0.9999	0.9999	0.9999					
0.9995	1.0000	0.9999	0.9999	0.9999						
0.9999	1.0000	0.9999	0.9998							
1.0001	0.9997	0.9998								
1.0002	1.0000									
0.9999										
0.9998	0.9998	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
0.9999	0.9998	0.9998	1.0000	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
1.0000	0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
1.0000	0.9999	0.9998	0.9999	0.9998	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	3.3445	3.4092	3.4800	3.3924	3.4033	3.4125	3.4125	3.4292
12	1.7408	1.7643	1.7738	1.7469	1.7589	1.7500	1.7500	1.7676
20	1.1077	1.1134	1.1246	1.1085	1.1080	1.1147	1.1147	1.1152
24	1.0646	1.0676	1.0749	1.0634	1.0654	1.0692	1.0692	1.0697
32	1.0230	1.0243	1.0265	1.0219	1.0218	1.0232	1.0232	1.0237
36	1.0123	1.0126	1.0137	1.0108	1.0101	1.0130	1.0130	1.0120
44	1.0064	1.0062	1.0080	1.0041	1.0045	1.0060	1.0060	1.0050
56	1.0013	1.0027	1.0039	1.0004	1.0010	1.0010	1.0010	1.0010
68	0.9999	1.0007	1.0006	0.9996	1.0000	1.0005	1.0005	1.0005
80	0.9992	0.9999	0.9993	0.9991	0.9992	1.0000	1.0000	1.0000
92	0.9987	0.9990	0.9992	0.9990	0.9991	1.0000	1.0000	1.0000
104	0.9989	0.9991	0.9992	0.9991	0.9991	1.0000	1.0000	1.0000
116	0.9991	0.9993	0.9993	0.9992	0.9992	1.0000	1.0000	1.0000
128	0.9993	0.9995	0.9994	0.9994	0.9994	1.0000	1.0000	1.0000
140	0.9995	0.9995	0.9995	0.9995	0.9995	1.0000	1.0000	1.0000
152	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
164	0.9997	0.9997	0.9998	0.9997	0.9997	1.0000	1.0000	1.0000
176	0.9999	0.9999	0.9999	0.9998	0.9998	1.0000	1.0000	1.0000
188	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
200	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.9400	3.4292	29.16%	8		3.4292	1.9400	1.9400	3.4291
12	1.5850	1.7676		12	56.57%	1.7676	1.5850	1.5850	1.7676
20	1.0425	1.1152	89.67%	20		1.1152	1.0425	1.0425	1.1152
24	1.0450	1.0697		24	93.48%	1.0697	1.0450	1.0450	1.0697
32	1.0115	1.0237	97.69%	32		1.0237	1.0115	1.0115	1.0237
36	1.0070	1.0120		36	98.81%	1.0120	1.0083	1.0085	1.0120
44	1.0040	1.0050	99.50%	48	99.63%	1.0037	1.0028	1.0030	1.0035
56	1.0005	1.0010	99.90%	60	99.92%	1.0008	1.0005	1.0005	1.0005
68	1.0005	1.0005	99.95%	72	99.97%	1.0003	1.0003	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	25,752	1.0000	25,752	-	(1)	1	5.42%
2001	497,121	25,722	1.0000	25,722	-	1	(1)	5.17%
2002	532,307	28,057	1.0000	28,057	-	-	-	5.27%
2003	560,857	29,562	1.0000	29,562	-	-	-	5.27%
2004	596,045	29,616	1.0000	29,616	-	1	(1)	4.97%
2005	630,367	30,293	1.0000	30,293	-	-	-	4.81%
2006	654,863	33,576	1.0000	33,576	-	1	(1)	5.13%
2007	677,464	34,237	1.0000	34,237	-	52	(52)	5.05%
2008	707,051	35,846	1.0000	35,846	-	136	(136)	5.07%
2009	739,881	34,944	1.0000	34,944	-	11	(11)	4.72%
2010	759,948	37,168	1.0000	37,168	-	208	(208)	4.89%
2011	772,985	37,481	1.0000	37,481	-	56	(56)	4.85%
2012	768,953	41,611	1.0005	41,632	21	162	(141)	5.41%
2013	778,092	45,396	1.0010	45,441	45	111	(66)	5.84%
2014	817,710	40,738	1.0050	40,942	204	276	(72)	5.01%
2015	873,488	40,274	1.0237	41,227	954	583	371	4.72%
2016	918,780	39,861	1.1152	44,454	4,592	1,844	2,748	4.84%
2017	656,688	13,490	3.4292	26,830	13,340	7,601	5,739	4.09%
	12,417,877	603,623		622,779	19,156	11,042	8,114	5.02%

Notes:
(5) Current year adjustment factor is 0.58 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	25,752			25,752	5.42%	5.42%	100.00%	5.42%	5.42%
2001	497,121	25,722	26,524		26,524	5.34%	5.17%	100.00%	5.17%	5.17%
2002	532,307	28,057	26,494	27,320	26,907	5.05%	5.27%	100.00%	5.27%	5.27%
2003	560,857	29,562	28,899	27,289	28,094	5.01%	5.27%	100.00%	5.27%	5.27%
2004	596,045	29,616	30,449	29,765	30,107	5.05%	4.97%	100.00%	4.97%	4.97%
2005	630,367	30,293	30,504	31,362	30,933	4.91%	4.81%	100.00%	4.81%	4.81%
2006	654,863	33,576	31,202	31,419	31,311	4.78%	5.13%	100.00%	5.13%	5.13%
2007	677,464	34,237	34,583	32,138	33,360	4.92%	5.05%	100.00%	5.05%	5.06%
2008	707,051	35,846	35,264	35,621	35,442	5.01%	5.07%	100.00%	5.07%	5.09%
2009	739,881	34,944	36,922	36,322	36,622	4.95%	4.72%	100.00%	4.72%	4.72%
2010	759,948	37,168	35,992	38,029	37,011	4.87%	4.89%	100.00%	4.89%	4.91%
2011	772,985	37,481	38,283	37,072	37,677	4.87%	4.85%	80.00%	4.85%	4.86%
2012	768,953	41,632	38,606	39,432	39,019	5.07%	5.41%	60.00%	5.28%	5.29%
2013	778,092	45,441	42,881	39,764	41,322	5.31%	5.84%	40.00%	5.52%	5.52%
2014	817,710	40,942	46,804	44,167	45,486	5.56%	5.01%	20.00%	5.45%	5.46%
2015	873,488	41,227	42,171	48,208	45,190	5.17%	4.72%	0.00%	5.17%	5.18%
2016	918,780	44,454	42,464	43,436	42,950	4.67%	4.84%	0.00%	4.67%	4.68%
2017	656,688	26,830	30,225	28,873	29,549	4.50%	4.09%	0.00%	4.50%	4.47%
	12,417,877	622,779	598,266	570,217	623,255					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
2.98%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Property Damage - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	5.42%	25,750	100.00%	0.00%	25,750	25,752	-	25,752	1	5.42%
2001	497,121	5.17%	25,723	100.00%	0.00%	25,723	25,722	-	25,722	(1)	5.17%
2002	532,307	5.27%	28,057	100.00%	0.00%	28,057	28,057	-	28,057	-	5.27%
2003	560,857	5.27%	29,562	100.00%	0.00%	29,562	29,562	-	29,562	-	5.27%
2004	596,045	4.97%	29,616	100.00%	0.00%	29,616	29,616	-	29,616	(1)	4.97%
2005	630,367	4.81%	30,293	100.00%	0.00%	30,293	30,293	-	30,293	-	4.81%
2006	654,863	5.13%	33,577	100.00%	0.00%	33,577	33,576	-	33,576	(1)	5.13%
2007	677,464	5.06%	34,289	100.00%	0.00%	34,289	34,237	-	34,237	(52)	5.05%
2008	707,051	5.09%	35,982	100.00%	0.00%	35,982	35,846	-	35,846	(136)	5.07%
2009	739,881	4.72%	34,937	100.00%	0.00%	34,937	34,944	-	34,944	(11)	4.72%
2010	759,948	4.91%	37,338	100.00%	0.00%	37,338	37,168	-	37,168	(208)	4.89%
2011	772,985	4.86%	37,537	100.00%	0.00%	37,537	37,481	-	37,481	(56)	4.85%
2012	768,953	5.29%	40,657	99.95%	0.05%	40,637	41,611	20	41,631	(142)	5.41%
2013	778,092	5.52%	42,977	99.90%	0.10%	42,934	45,396	43	45,439	(68)	5.84%
2014	817,710	5.46%	44,609	99.50%	0.50%	44,387	40,738	222	40,961	(54)	5.01%
2015	873,488	5.18%	45,224	97.69%	2.31%	44,178	40,274	1,046	41,320	463	4.73%
2016	918,780	4.68%	42,998	89.67%	10.33%	38,556	39,861	4,442	44,303	2,598	4.82%
2017	656,688	4.47%	25,534	29.16%	70.84%	12,838	13,490	12,696	26,185	5,095	3.99%
	12,417,877		624,659			606,190	603,623	18,469	622,092	7,427	5.01%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

J. S. CHENG & PARTNERS INC.
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APPENDIX C

Collision - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - With Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	136,699,685	137,759,060	137,904,002	138,119,827	138,142,562	138,136,148	138,001,521	137,925,239	137,848,983	137,810,825	137,735,955	137,661,825	137,598,262	137,558,470	137,517,701	137,481,200	137,477,880	137,464,953	137,458,872	137,457,515	137,457,500
2000	82,533,768	149,982,883	152,664,162	152,902,612	153,148,304	153,212,402	153,095,003	153,004,298	152,885,043	152,793,528	152,722,343	152,632,043	152,586,340	152,533,751	152,491,020	152,459,246	152,438,110	152,417,555	152,407,875	152,406,540	152,393,003	
2001	91,097,413	158,514,396	161,442,208	161,823,854	162,099,628	162,209,462	162,119,257	161,925,790	161,784,925	161,680,472	161,573,468	161,483,754	161,424,922	161,392,059	161,335,671	161,306,293	161,290,138	161,285,493	161,275,168	161,272,289		
2002	103,759,369	177,244,055	179,604,406	180,063,987	180,314,973	180,456,898	180,385,070	180,258,852	180,139,549	180,008,929	179,887,594	179,813,626	179,745,245	179,704,954	179,647,108	179,620,237	179,609,948	179,605,085	179,591,113			
2003	107,074,976	189,453,876	193,604,633	194,070,181	194,726,233	194,795,472	194,802,821	194,627,318	194,457,068	194,346,453	194,225,817	194,137,465	194,076,072	194,037,297	193,995,035	193,974,990	193,961,457	193,944,295				
2004	110,043,980	194,940,010	201,086,143	201,573,774	202,205,891	202,353,059	202,322,723	202,153,556	201,974,756	201,854,906	201,757,300	201,754,446	201,713,563	201,685,065	201,635,751	201,623,817	201,612,953					
2005	115,949,067	201,283,469	202,801,195	203,163,930	203,709,655	203,745,816	203,692,128	203,547,250	203,415,796	203,270,857	203,173,416	203,108,443	203,093,499	203,070,344	203,053,358	203,062,153						
2006	127,793,361	220,074,950	223,457,094	223,942,793	224,727,120	224,774,810	224,781,502	224,543,388	224,478,046	224,467,080	224,485,664	224,463,496	224,453,066	224,436,906	224,461,778							
2007	129,951,665	226,357,690	231,296,109	232,077,147	233,164,070	233,299,958	233,241,041	233,153,487	233,200,010	233,182,123	233,128,550	233,126,994	233,100,147	233,084,866								
2008	130,770,912	237,889,733	239,494,991	240,293,484	241,476,549	241,745,055	241,833,367	241,807,260	241,740,335	241,752,510	241,769,780	241,758,109	241,751,618									
2009	145,159,357	237,782,918	239,720,445	240,772,910	242,269,932	242,617,070	242,571,824	242,501,833	242,495,277	242,531,915	242,523,016	242,498,471										
2010	145,893,736	260,480,317	266,714,496	268,555,127	270,368,813	270,607,381	270,766,067	271,034,907	271,144,187	271,165,168	271,181,590											
2011	157,354,493	266,004,739	269,113,168	270,556,437	272,049,582	272,436,714	272,832,125	272,983,222	273,080,038	273,126,781												
2012	168,431,806	294,979,704	305,010,977	307,186,845	309,443,869	309,910,871	310,283,171	310,545,559	310,634,654													
2013	178,013,472	324,802,040	342,064,379	344,574,213	347,573,732	348,084,125	348,719,703	349,130,779														
2014	176,617,118	306,292,103	311,734,490	313,305,396	315,901,183	316,521,243	317,346,159															
2015	194,624,394	336,809,963	346,723,575	348,409,231	350,890,004																	
2016	215,249,182	367,116,090	380,033,131																			
2017	227,336,522																					

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	136,700	137,759	137,904	138,120	138,143	138,136	138,002	137,925	137,849
2000	82,534	149,983	152,664	152,903	153,148	153,212	153,095	153,004	152,885	152,794
2001	91,097	158,514	161,442	161,824	162,100	162,209	162,119	161,926	161,785	161,680
2002	103,759	177,244	179,604	180,064	180,315	180,457	180,385	180,259	180,140	180,009
2003	107,075	189,454	193,605	194,070	194,726	194,795	194,803	194,627	194,457	194,346
2004	110,044	194,940	201,086	201,574	202,206	202,353	202,323	202,154	201,975	201,855
2005	115,949	201,283	202,801	203,164	203,710	203,746	203,692	203,547	203,416	203,271
2006	127,793	220,075	223,457	223,943	224,727	224,775	224,782	224,543	224,478	224,467
2007	129,952	226,358	231,296	232,077	233,164	233,300	233,241	233,153	233,200	233,182
2008	130,771	237,890	239,495	240,293	241,477	241,745	241,833	241,807	241,740	241,753
2009	145,159	237,783	239,720	240,773	242,270	242,617	242,572	242,502	242,495	242,532
2010	145,894	260,480	266,714	268,555	270,369	270,607	270,766	271,035	271,144	271,165
2011	157,354	266,005	269,113	270,556	272,050	272,437	272,832	272,983	273,080	273,127
2012	168,432	294,980	305,011	307,187	309,444	309,911	310,283	310,546	310,635	
2013	178,013	324,802	342,064	344,574	347,574	348,084	348,720	349,131		
2014	176,617	306,292	311,734	313,305	315,901	316,521	317,346			
2015	194,624	336,810	346,724	348,409	350,890					
2016	215,249	367,116	380,033							
2017	227,337									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.0077	1.0011	1.0016	1.0002	1.0000	0.9990	0.9994	0.9994	0.9997
2000	1.8172	1.0179	1.0016	1.0016	1.0004	0.9992	0.9994	0.9992	0.9994	0.9995
2001	1.7401	1.0185	1.0024	1.0017	1.0007	0.9994	0.9988	0.9991	0.9994	0.9993
2002	1.7082	1.0133	1.0026	1.0014	1.0008	0.9996	0.9993	0.9993	0.9993	0.9993
2003	1.7694	1.0219	1.0024	1.0034	1.0004	1.0000	0.9991	0.9991	0.9994	0.9994
2004	1.7715	1.0315	1.0024	1.0031	1.0007	0.9999	0.9992	0.9991	0.9994	0.9995
2005	1.7360	1.0075	1.0018	1.0027	1.0002	0.9997	0.9993	0.9994	0.9993	0.9995
2006	1.7221	1.0154	1.0022	1.0035	1.0002	1.0000	0.9989	0.9997	1.0000	1.0001
2007	1.7419	1.0218	1.0034	1.0047	1.0006	0.9997	0.9996	1.0002	0.9999	0.9998
2008	1.8191	1.0067	1.0033	1.0049	1.0011	1.0004	0.9999	0.9997	1.0001	1.0001
2009	1.6381	1.0081	1.0044	1.0062	1.0014	0.9998	0.9997	1.0000	1.0002	1.0000
2010	1.7854	1.0239	1.0069	1.0068	1.0009	1.0006	1.0010	1.0004	1.0001	1.0001
2011	1.6905	1.0117	1.0054	1.0055	1.0014	1.0015	1.0006	1.0004	1.0002	
2012	1.7513	1.0340	1.0071	1.0073	1.0015	1.0012	1.0008	1.0003		
2013	1.8246	1.0531	1.0073	1.0087	1.0015	1.0018	1.0012			
2014	1.7342	1.0178	1.0050	1.0083	1.0020	1.0026				
2015	1.7306	1.0294	1.0049	1.0071						
2016	1.7055	1.0352								
Latest 9 Volume Weighted	1.7407	1.0260	1.0054	1.0068	1.0012	1.0010	1.0002	1.0000	0.9999	0.9998
Latest 6 Volume Weighted	1.7390	1.0309	1.0061	1.0074	1.0015	1.0013	1.0006	1.0002	1.0001	0.9999
Latest 3 Volume Weighted	1.7225	1.0280	1.0058	1.0080	1.0016	1.0019	1.0009	1.0003	1.0001	1.0000
Simple Average of Middle 4 of Last 6	1.7304	1.0291	1.0061	1.0074	1.0015	1.0013	1.0006	1.0002	1.0001	1.0000
Simple Average of Middle 3 of Last 5	1.7387	1.0329	1.0058	1.0076	1.0015	1.0015	1.0008	1.0002	1.0001	1.0000
Selected Oct 16	1.7425	1.0300	1.0070	1.0075	1.0015	1.0015	1.0005	1.0005	1.0000	1.0000
Selected Feb 17	1.7425	1.0300	1.0070	1.0075	1.0015	1.0015	1.0005	1.0005	1.0000	1.0000
Selected Factors	1.7350	1.0300	1.0060	1.0075	1.0015	1.0015	1.0010	1.0005	1.0000	1.0000
Selected Ultimate	1.8194	1.0487	1.0181	1.0120	1.0045	1.0030	1.0015	1.0005	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
137,811	137,736	137,662	137,598	137,558	137,518	137,481	137,478	137,465	137,459	137,458	137,458
152,722	152,632	152,586	152,534	152,491	152,459	152,438	152,418	152,408	152,407	152,393	
161,573	161,484	161,425	161,392	161,336	161,306	161,290	161,285	161,275	161,272		
179,888	179,814	179,745	179,705	179,647	179,620	179,610	179,605	179,591			
194,226	194,137	194,076	194,037	193,995	193,975	193,961	193,944				
201,757	201,754	201,714	201,685	201,636	201,624	201,613					
203,173	203,108	203,093	203,070	203,053	203,062						
224,486	224,463	224,453	224,437	224,462							
233,129	233,127	233,100	233,085								
241,770	241,758	241,752									
242,523	242,498										
271,182											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9995	0.9995	0.9995	0.9997	0.9997	0.9997	1.0000	0.9999	1.0000	1.0000	1.0000
0.9994	0.9997	0.9997	0.9997	0.9998	0.9999	0.9999	0.9999	1.0000	0.9999	
0.9994	0.9996	0.9998	0.9997	0.9998	0.9999	1.0000	0.9999	1.0000		
0.9996	0.9996	0.9998	0.9997	0.9999	0.9999	1.0000	0.9999			
0.9995	0.9997	0.9998	0.9998	0.9999	0.9999	0.9999				
1.0000	0.9998	0.9999	0.9998	0.9999	0.9999					
0.9997	0.9999	0.9999	0.9999	1.0000						
0.9999	1.0000	0.9999	1.0001							
1.0000	0.9999	0.9999								
1.0000	1.0000									
0.9999										
0.9998	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	0.9999	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	1.0000	1.0000
0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.8093	1.8217	1.8030	1.8096	1.8260	1.8282	1.8282	1.8194
12	1.0394	1.0476	1.0468	1.0457	1.0502	1.0492	1.0492	1.0487
20	1.0131	1.0161	1.0183	1.0162	1.0168	1.0186	1.0186	1.0181
24	1.0076	1.0100	1.0124	1.0100	1.0109	1.0115	1.0115	1.0120
32	1.0008	1.0026	1.0044	1.0026	1.0033	1.0040	1.0040	1.0045
36	0.9996	1.0011	1.0027	1.0011	1.0018	1.0025	1.0025	1.0030
44	0.9986	0.9998	1.0008	0.9999	1.0003	1.0010	1.0010	1.0015
56	0.9984	0.9992	1.0000	0.9993	0.9995	1.0005	1.0005	1.0005
68	0.9984	0.9990	0.9996	0.9991	0.9993	1.0000	1.0000	1.0000
80	0.9986	0.9990	0.9995	0.9990	0.9992	1.0000	1.0000	1.0000
92	0.9988	0.9991	0.9994	0.9991	0.9992	1.0000	1.0000	1.0000
104	0.9990	0.9992	0.9995	0.9991	0.9993	1.0000	1.0000	1.0000
116	0.9992	0.9993	0.9996	0.9993	0.9993	1.0000	1.0000	1.0000
128	0.9994	0.9994	0.9996	0.9994	0.9995	1.0000	1.0000	1.0000
140	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
152	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
164	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
176	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
188	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
200	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7350	1.8194	54.96%	8		1.8194	1.7350	1.7350	1.8194
12	1.0300	1.0487		12	95.36%	1.0487	1.0300	1.0300	1.0487
20	1.0060	1.0181	98.22%	20		1.0181	1.0060	1.0060	1.0181
24	1.0075	1.0120		24	98.81%	1.0120	1.0075	1.0075	1.0120
32	1.0015	1.0045	99.55%	32		1.0045	1.0015	1.0015	1.0045
36	1.0015	1.0030		36	99.70%	1.0030	1.0018	1.0020	1.0030
44	1.0010	1.0015	99.85%	48	99.88%	1.0012	1.0008	1.0010	1.0010
56	1.0005	1.0005	99.95%	60	99.97%	1.0003	1.0003	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	152,393	1.0000	152,393	-	(1)	32.06%
2001	497,121	161,272	1.0000	161,272	-	(5)	32.44%
2002	532,307	179,591	1.0000	179,591	-	-	33.74%
2003	560,857	193,944	1.0000	193,944	-	1	34.58%
2004	596,045	201,613	1.0000	201,613	-	2	33.83%
2005	630,367	203,062	1.0000	203,062	-	1	32.21%
2006	654,863	224,462	1.0000	224,462	-	6	34.28%
2007	677,464	233,085	1.0000	233,085	-	(2)	34.41%
2008	707,051	241,752	1.0000	241,752	-	1	34.19%
2009	739,881	242,498	1.0000	242,498	-	-	32.78%
2010	759,948	271,182	1.0000	271,182	-	4	35.68%
2011	772,985	273,127	1.0000	273,127	-	6	35.33%
2012	768,953	310,635	1.0000	310,635	-	27	40.40%
2013	778,092	349,131	1.0005	349,305	175	29	44.89%
2014	817,710	317,346	1.0015	317,822	476	75	38.87%
2015	873,488	350,890	1.0045	352,472	1,582	346	40.35%
2016	918,780	380,033	1.0181	386,917	6,884	2,836	42.11%
2017	656,688	227,337	1.8194	239,900	12,563	56,468	36.53%
	12,417,877	4,513,352		4,535,031	21,679	59,794	36.52%

Notes:
(5) Current year adjustment factor is 0.58 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	152,393			152,393	32.06%	32.06%	100.00%	32.06%	32.06%
2001	497,121	161,272	161,918		161,918	32.57%	32.44%	100.00%	32.44%	32.44%
2002	532,307	179,591	171,352	172,037	171,695	32.25%	33.74%	100.00%	33.74%	33.74%
2003	560,857	193,944	190,816	182,061	186,438	33.24%	34.58%	100.00%	34.58%	34.58%
2004	596,045	201,613	206,066	202,742	204,404	34.29%	33.83%	100.00%	33.83%	33.83%
2005	630,367	203,062	214,214	218,945	216,579	34.36%	32.21%	100.00%	32.21%	32.21%
2006	654,863	224,462	215,754	227,602	221,678	33.85%	34.28%	100.00%	34.28%	34.28%
2007	677,464	233,085	238,491	229,238	233,864	34.52%	34.41%	100.00%	34.41%	34.41%
2008	707,051	241,752	247,653	253,396	250,524	35.43%	34.19%	100.00%	34.19%	34.19%
2009	739,881	242,498	256,861	263,131	259,996	35.14%	32.78%	100.00%	32.78%	32.78%
2010	759,948	271,182	257,655	272,915	265,285	34.91%	35.68%	100.00%	35.68%	35.68%
2011	772,985	273,127	288,130	273,758	280,944	36.35%	35.33%	80.00%	35.54%	35.54%
2012	768,953	310,635	290,197	306,139	298,168	38.78%	40.40%	60.00%	39.75%	39.75%
2013	778,092	349,305	330,049	308,335	319,192	41.02%	44.89%	40.00%	42.57%	42.57%
2014	817,710	317,822	371,137	350,677	360,907	44.14%	38.87%	20.00%	43.08%	43.08%
2015	873,488	352,472	337,686	394,333	366,010	41.90%	40.35%	0.00%	41.90%	41.90%
2016	918,780	386,917	374,501	358,792	366,646	39.91%	42.11%	0.00%	39.91%	39.91%
2017	656,688	239,900	268,583	259,965	264,274	40.24%	36.53%	0.00%	40.24%	40.24%
	12,417,877	4,535,031	4,421,061	4,274,065	4,580,915					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
6.24%
Selected Trend (b):
6.25%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	32.06%	152,393	100.00%	0.00%	152,393	152,393	-	152,393	32.06%
2001	497,121	32.44%	161,272	100.00%	0.00%	161,272	161,272	-	161,272	32.44%
2002	532,307	33.74%	179,591	100.00%	0.00%	179,591	179,591	-	179,591	33.74%
2003	560,857	34.58%	193,944	100.00%	0.00%	193,944	193,944	-	193,944	34.58%
2004	596,045	33.83%	201,613	100.00%	0.00%	201,613	201,613	-	201,613	33.83%
2005	630,367	32.21%	203,062	100.00%	0.00%	203,062	203,062	-	203,062	32.21%
2006	654,863	34.28%	224,462	100.00%	0.00%	224,462	224,462	-	224,462	34.28%
2007	677,464	34.41%	233,085	100.00%	0.00%	233,085	233,085	-	233,085	34.41%
2008	707,051	34.19%	241,752	100.00%	0.00%	241,752	241,752	-	241,752	34.19%
2009	739,881	32.78%	242,498	100.00%	0.00%	242,498	242,498	-	242,498	32.78%
2010	759,948	35.68%	271,182	100.00%	0.00%	271,182	271,182	-	271,182	35.68%
2011	772,985	35.54%	274,690	100.00%	0.00%	274,690	273,127	-	273,127	35.33%
2012	768,953	39.75%	305,648	100.00%	0.00%	305,648	310,635	-	310,635	40.40%
2013	778,092	42.57%	331,237	99.95%	0.05%	331,072	349,131	166	349,296	44.89%
2014	817,710	43.08%	352,290	99.85%	0.15%	351,762	317,346	528	317,874	38.87%
2015	873,488	41.90%	366,010	99.55%	0.45%	364,367	350,890	1,642	352,532	40.36%
2016	918,780	39.91%	366,646	98.22%	1.78%	360,123	380,033	6,523	386,556	42.07%
2017	656,688	40.24%	229,918	54.96%	45.04%	217,878	227,337	12,041	239,377	36.45%
	12,417,877		4,531,294			4,510,395	4,513,352	20,899	4,534,251	36.51%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

Evaluation in Months

Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	116,997,479	137,222,879	137,601,938	137,945,112	138,074,035	138,102,469	137,994,783	137,888,526	137,817,270	137,804,111	137,729,242	137,658,312	137,594,749	137,554,957	137,517,206	137,480,706	137,477,385	137,464,459	137,458,377	137,457,021	137,457,006
2000	64,609,092	123,402,303	152,007,773	152,555,858	152,969,791	153,088,544	153,051,940	152,994,388	152,878,382	152,785,442	152,714,757	152,626,832	152,581,129	152,528,540	152,491,860	152,454,735	152,433,599	152,418,394	152,408,715	152,407,379	152,393,842	
2001	71,781,560	131,944,586	160,750,947	161,488,237	162,019,758	162,160,820	162,091,084	161,919,708	161,785,942	161,681,489	161,574,486	161,485,047	161,426,640	161,396,789	161,340,401	161,311,023	161,294,893	161,290,248	161,279,923	161,277,044		
2002	80,502,895	146,830,534	178,895,059	179,713,662	180,201,830	180,387,120	180,345,639	180,231,967	180,119,890	180,008,169	179,887,594	179,813,626	179,745,245	179,704,954	179,647,108	179,620,237	179,609,948	179,605,085	179,591,113			
2003	83,869,118	154,635,959	192,759,932	193,717,269	194,589,538	194,747,596	194,772,922	194,615,433	194,454,310	194,341,195	194,223,059	194,136,765	194,075,372	194,036,597	193,994,335	193,974,290	193,960,757	193,943,595				
2004	84,873,186	155,775,432	200,041,279	201,098,412	201,987,749	202,177,682	202,199,908	202,068,523	201,902,891	201,803,556	201,706,150	201,703,296	201,662,413	201,633,915	201,634,101	201,622,167	201,611,303					
2005	87,513,435	161,519,168	201,548,431	202,622,709	203,540,386	203,686,457	203,684,977	203,543,020	203,414,370	203,270,281	203,172,840	203,107,867	203,092,924	203,069,769	203,052,783	203,061,578						
2006	92,390,124	170,894,880	221,792,131	223,188,908	224,542,557	224,688,584	224,751,348	224,522,564	224,463,397	224,453,781	224,477,465	224,456,487	224,445,082	224,430,856	224,455,728							
2007	91,547,272	171,130,359	229,847,395	231,439,108	232,939,104	233,171,376	233,196,058	233,144,710	233,198,543	233,182,981	233,129,408	233,126,177	233,102,622	233,087,340								
2008	96,708,611	181,664,230	237,934,688	239,566,313	241,232,926	241,627,829	241,763,111	241,761,767	241,732,521	241,745,543	241,765,564	241,757,190	241,750,725									
2009	106,051,290	190,538,538	238,344,631	240,059,488	241,893,133	242,341,488	242,479,747	242,476,837	242,479,677	242,526,505	242,521,979	242,498,034										
2010	104,676,907	199,399,996	264,855,637	267,787,080	270,143,358	270,479,026	270,744,775	271,007,838	271,126,330	271,158,759	271,177,803											
2011	113,327,086	214,271,883	267,656,717	269,800,694	271,845,012	272,304,338	272,793,960	272,965,479	273,073,692	273,121,021												
2012	121,386,400	225,089,218	302,686,734	306,035,030	308,959,333	309,623,871	310,137,539	310,477,585	310,607,868													
2013	127,883,858	241,768,772	339,052,751	343,166,959	346,927,399	347,848,509	348,644,584	349,101,805														
2014	128,898,999	246,200,295	309,178,709	312,217,840	315,558,527	316,333,904	317,271,392															
2015	146,066,575	275,030,091	344,277,463	347,393,947	350,543,744																	
2016	162,739,879	295,257,539	377,197,334																			
2017	170,868,981																					

June 15, 2018

2019 GENERAL RATE APPLICATION
EAR Attachment B

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	116,997	137,223	137,602	137,945	138,074	138,102	137,995	137,889	137,817
2000	64,609	123,402	152,008	152,556	152,970	153,089	153,052	152,994	152,878	152,785
2001	71,782	131,945	160,751	161,488	162,020	162,161	162,091	161,920	161,786	161,681
2002	80,503	146,831	178,895	179,714	180,202	180,387	180,346	180,232	180,120	180,008
2003	83,869	154,636	192,760	193,717	194,590	194,748	194,773	194,615	194,454	194,341
2004	84,873	155,775	200,041	201,098	201,988	202,178	202,200	202,069	201,903	201,804
2005	87,513	161,519	201,548	202,623	203,540	203,686	203,685	203,543	203,414	203,270
2006	92,390	170,895	221,792	223,189	224,543	224,689	224,751	224,523	224,463	224,454
2007	91,547	171,130	229,847	231,439	232,939	233,171	233,196	233,145	233,199	233,183
2008	96,709	181,664	237,935	239,566	241,233	241,628	241,763	241,762	241,733	241,746
2009	106,051	190,539	238,345	240,059	241,893	242,341	242,480	242,477	242,480	242,527
2010	104,677	199,400	264,856	267,787	270,143	270,479	270,745	271,008	271,126	271,159
2011	113,327	214,272	267,657	269,801	271,845	272,304	272,794	272,965	273,074	273,121
2012	121,386	225,089	302,687	306,035	308,959	309,624	310,138	310,478	310,608	
2013	127,884	241,769	339,053	343,167	346,927	347,849	348,645	349,102		
2014	128,899	246,200	309,179	312,218	315,559	316,334	317,271			
2015	146,067	275,030	344,277	347,394	350,544					
2016	162,740	295,258	377,197							
2017	170,869									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.1729	1.0028	1.0025	1.0009	1.0002	0.9992	0.9992	0.9995	0.9999
2000	1.9100	1.2318	1.0036	1.0027	1.0008	0.9998	0.9996	0.9992	0.9994	0.9995
2001	1.8381	1.2183	1.0046	1.0033	1.0009	0.9996	0.9989	0.9992	0.9994	0.9993
2002	1.8239	1.2184	1.0046	1.0027	1.0010	0.9998	0.9994	0.9994	0.9994	0.9993
2003	1.8438	1.2465	1.0050	1.0045	1.0008	1.0001	0.9992	0.9992	0.9994	0.9994
2004	1.8354	1.2842	1.0053	1.0044	1.0009	1.0001	0.9994	0.9992	0.9995	0.9995
2005	1.8456	1.2478	1.0053	1.0045	1.0007	1.0000	0.9993	0.9994	0.9993	0.9995
2006	1.8497	1.2978	1.0063	1.0061	1.0007	1.0003	0.9990	0.9997	1.0000	1.0001
2007	1.8693	1.3431	1.0069	1.0065	1.0010	1.0001	0.9998	1.0002	0.9999	0.9998
2008	1.8785	1.3097	1.0069	1.0070	1.0016	1.0006	1.0000	0.9999	1.0001	1.0001
2009	1.7967	1.2509	1.0072	1.0076	1.0019	1.0006	1.0000	1.0000	1.0002	1.0000
2010	1.9049	1.3283	1.0111	1.0088	1.0012	1.0010	1.0010	1.0004	1.0001	1.0001
2011	1.8907	1.2491	1.0080	1.0076	1.0017	1.0018	1.0006	1.0004	1.0002	
2012	1.8543	1.3447	1.0111	1.0096	1.0022	1.0017	1.0011	1.0004		
2013	1.8905	1.4024	1.0121	1.0110	1.0027	1.0023	1.0013			
2014	1.9100	1.2558	1.0098	1.0107	1.0025	1.0030				
2015	1.8829	1.2518	1.0091	1.0091						
2016	1.8143	1.2775								
Latest 9 Volume Weighted	1.8680	1.2957	1.0093	1.0088	1.0018	1.0014	1.0003	1.0000	0.9999	0.9998
Latest 6 Volume Weighted	1.8713	1.2954	1.0102	1.0095	1.0021	1.0018	1.0007	1.0002	1.0001	0.9999
Latest 3 Volume Weighted	1.8654	1.2623	1.0103	1.0102	1.0024	1.0023	1.0010	1.0004	1.0002	1.0000
Simple Average of Middle 4 of Last 6	1.8796	1.2825	1.0103	1.0095	1.0020	1.0017	1.0007	1.0003	1.0001	1.0000
Simple Average of Middle 3 of Last 5	1.8759	1.2927	1.0100	1.0098	1.0021	1.0019	1.0009	1.0003	1.0001	1.0000
Selected Oct 16	1.8950	1.3050	1.0110	1.0100	1.0020	1.0020	1.0005	1.0005	1.0000	1.0000
Selected Feb 17	1.8950	1.3050	1.0110	1.0100	1.0020	1.0020	1.0005	1.0005	1.0000	1.0000
Selected Factors	1.8800	1.2900	1.0105	1.0100	1.0025	1.0020	1.0010	1.0005	1.0000	1.0000
Selected Ultimate	2.4901	1.3245	1.0267	1.0161	1.0060	1.0035	1.0015	1.0005	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
137,804	137,729	137,658	137,595	137,555	137,517	137,481	137,477	137,464	137,458	137,457	137,457
152,715	152,627	152,581	152,529	152,492	152,455	152,434	152,418	152,409	152,407	152,394	
161,574	161,485	161,427	161,397	161,340	161,311	161,295	161,290	161,280	161,277		
179,888	179,814	179,745	179,705	179,647	179,620	179,610	179,605	179,591			
194,223	194,137	194,075	194,037	193,994	193,974	193,961	193,944				
201,706	201,703	201,662	201,634	201,634	201,622	201,611					
203,173	203,108	203,093	203,070	203,053	203,062						
224,477	224,456	224,445	224,431	224,456							
233,129	233,126	233,103	233,087								
241,766	241,757	241,751									
242,522	242,498										
271,178											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9995	0.9995	0.9995	0.9997	0.9997	0.9997	1.0000	0.9999	1.0000	1.0000	1.0000
0.9994	0.9997	0.9997	0.9998	0.9998	0.9999	0.9999	0.9999	1.0000	0.9999	
0.9994	0.9996	0.9998	0.9997	0.9998	0.9999	1.0000	0.9999	1.0000		
0.9996	0.9996	0.9998	0.9997	0.9999	0.9999	1.0000	0.9999			
0.9996	0.9997	0.9998	0.9998	0.9999	0.9999	0.9999				
1.0000	0.9998	0.9999	1.0000	0.9999	0.9999					
0.9997	0.9999	0.9999	0.9999	1.0000						
0.9999	0.9999	0.9999	1.0001							
1.0000	0.9999	0.9999								
1.0000	1.0000									
0.9999										
0.9998	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000
1.0000	0.9999	0.9999	1.0000	1.0000	0.9999	1.0000	0.9999	1.0000	0.9999	1.0000
0.9999	0.9999	0.9999	0.9998	0.9999	0.9999	1.0000	0.9999	1.0000	1.0000	1.0000
0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.4695	2.4820	2.4176	2.4680	2.4846	2.5378	2.5378	2.4901
12	1.3220	1.3263	1.2961	1.3130	1.3245	1.3392	1.3392	1.3245
20	1.0203	1.0239	1.0267	1.0238	1.0246	1.0262	1.0262	1.0267
24	1.0109	1.0135	1.0162	1.0134	1.0145	1.0151	1.0151	1.0161
32	1.0020	1.0039	1.0059	1.0039	1.0046	1.0050	1.0050	1.0060
36	1.0002	1.0019	1.0035	1.0018	1.0025	1.0030	1.0030	1.0035
44	0.9989	1.0001	1.0012	1.0001	1.0006	1.0010	1.0010	1.0015
56	0.9985	0.9994	1.0002	0.9995	0.9997	1.0005	1.0005	1.0005
68	0.9985	0.9991	0.9997	0.9992	0.9994	1.0000	1.0000	1.0000
80	0.9986	0.9990	0.9996	0.9991	0.9993	1.0000	1.0000	1.0000
92	0.9988	0.9991	0.9995	0.9991	0.9993	1.0000	1.0000	1.0000
104	0.9990	0.9992	0.9996	0.9992	0.9994	1.0000	1.0000	1.0000
116	0.9992	0.9993	0.9996	0.9993	0.9994	1.0000	1.0000	1.0000
128	0.9994	0.9995	0.9997	0.9994	0.9995	1.0000	1.0000	1.0000
140	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
152	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
164	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
176	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
188	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000
200	0.9999	0.9999	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.8800	2.4901	40.16%	8		2.4901	1.8800	1.8800	2.4901
12	1.2900	1.3245		12	75.50%	1.3245	1.2900	1.2900	1.3245
20	1.0105	1.0267	97.40%	20		1.0267	1.0105	1.0105	1.0267
24	1.0100	1.0161		24	98.42%	1.0161	1.0100	1.0100	1.0161
32	1.0025	1.0060	99.40%	32		1.0060	1.0025	1.0025	1.0060
36	1.0020	1.0035		36	99.65%	1.0035	1.0023	1.0025	1.0035
44	1.0010	1.0015	99.85%	48	99.88%	1.0012	1.0008	1.0010	1.0010
56	1.0005	1.0005	99.95%	60	99.97%	1.0003	1.0003	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	152,394	1.0000	152,394	-	(1)	1	32.06%
2001	497,121	161,277	1.0000	161,277	-	(5)	5	32.44%
2002	532,307	179,591	1.0000	179,591	-	-	-	33.74%
2003	560,857	193,944	1.0000	193,944	-	1	(1)	34.58%
2004	596,045	201,611	1.0000	201,611	-	2	(2)	33.82%
2005	630,367	203,062	1.0000	203,062	-	1	(1)	32.21%
2006	654,863	224,456	1.0000	224,456	-	6	(6)	34.28%
2007	677,464	233,087	1.0000	233,087	-	(2)	2	34.41%
2008	707,051	241,751	1.0000	241,751	-	1	(1)	34.19%
2009	739,881	242,498	1.0000	242,498	-	-	-	32.78%
2010	759,948	271,178	1.0000	271,178	-	4	(4)	35.68%
2011	772,985	273,121	1.0000	273,121	-	6	(6)	35.33%
2012	768,953	310,608	1.0000	310,608	-	27	(27)	40.39%
2013	778,092	349,102	1.0005	349,276	175	29	146	44.89%
2014	817,710	317,271	1.0015	317,747	476	75	401	38.86%
2015	873,488	350,544	1.0060	352,651	2,108	346	1,762	40.37%
2016	918,780	377,197	1.0267	387,284	10,087	2,836	7,251	42.15%
2017	656,688	170,869	2.4901	246,774	75,905	56,468	19,437	37.58%
	12,417,877	4,453,560		4,542,310	88,750	59,794	28,956	36.58%

Notes:
(5) Current year adjustment factor is 0.58 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	152,394			152,394	32.06%	32.06%	100.00%	32.06%	32.06%
2001	497,121	161,277	161,918		161,918	32.57%	32.44%	100.00%	32.44%	32.44%
2002	532,307	179,591	171,357	172,038	171,698	32.26%	33.74%	100.00%	33.74%	33.74%
2003	560,857	193,944	190,816	182,067	186,441	33.24%	34.58%	100.00%	34.58%	34.58%
2004	596,045	201,611	206,065	202,742	204,403	34.29%	33.82%	100.00%	33.82%	33.83%
2005	630,367	203,062	214,212	218,944	216,578	34.36%	32.21%	100.00%	32.21%	32.21%
2006	654,863	224,456	215,753	227,600	221,677	33.85%	34.28%	100.00%	34.28%	34.28%
2007	677,464	233,087	238,484	229,237	233,861	34.52%	34.41%	100.00%	34.41%	34.41%
2008	707,051	241,751	247,655	253,389	250,522	35.43%	34.19%	100.00%	34.19%	34.19%
2009	739,881	242,498	256,860	263,134	259,997	35.14%	32.78%	100.00%	32.78%	32.78%
2010	759,948	271,178	257,654	272,914	265,284	34.91%	35.68%	100.00%	35.68%	35.68%
2011	772,985	273,121	288,126	273,758	280,942	36.35%	35.33%	80.00%	35.54%	35.54%
2012	768,953	310,608	290,191	306,134	298,163	38.78%	40.39%	60.00%	39.75%	39.75%
2013	778,092	349,276	330,021	308,328	319,174	41.02%	44.89%	40.00%	42.57%	42.57%
2014	817,710	317,747	371,106	350,647	360,877	44.13%	38.86%	20.00%	43.08%	43.08%
2015	873,488	352,651	337,607	394,300	365,953	41.90%	40.37%	0.00%	41.90%	41.90%
2016	918,780	387,284	374,692	358,707	366,700	39.91%	42.15%	0.00%	39.91%	39.91%
2017	656,688	246,774	268,838	260,097	264,468	40.27%	37.58%	0.00%	40.27%	40.24%
	12,417,877	4,542,310	4,421,356	4,274,037	4,581,050					

Trend in Losses Based on Exponential Regression (2008 & After) (a):
6.41%
Selected Trend (b):
6.25%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Collision - Basic
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	32.06%	152,393	100.00%	0.00%	152,393	152,394	-	152,394	1	32.06%
2001	497,121	32.44%	161,272	100.00%	0.00%	161,272	161,277	-	161,277	5	32.44%
2002	532,307	33.74%	179,591	100.00%	0.00%	179,591	179,591	-	179,591	-	33.74%
2003	560,857	34.58%	193,944	100.00%	0.00%	193,944	193,944	-	193,944	(1)	34.58%
2004	596,045	33.83%	201,613	100.00%	0.00%	201,613	201,611	-	201,611	(2)	33.82%
2005	630,367	32.21%	203,062	100.00%	0.00%	203,062	203,062	-	203,062	(1)	32.21%
2006	654,863	34.28%	224,462	100.00%	0.00%	224,462	224,456	-	224,456	(6)	34.28%
2007	677,464	34.41%	233,085	100.00%	0.00%	233,085	233,087	-	233,087	2	34.41%
2008	707,051	34.19%	241,752	100.00%	0.00%	241,752	241,751	-	241,751	(1)	34.19%
2009	739,881	32.78%	242,498	100.00%	0.00%	242,498	242,498	-	242,498	-	32.78%
2010	759,948	35.68%	271,182	100.00%	0.00%	271,182	271,178	-	271,178	(4)	35.68%
2011	772,985	35.54%	274,690	100.00%	0.00%	274,690	273,121	-	273,121	(6)	35.33%
2012	768,953	39.75%	305,648	100.00%	0.00%	305,648	310,608	-	310,608	(27)	40.39%
2013	778,092	42.57%	331,237	99.95%	0.05%	331,072	349,102	166	349,267	137	44.89%
2014	817,710	43.08%	352,290	99.85%	0.15%	351,762	317,271	528	317,799	453	38.86%
2015	873,488	41.90%	366,010	99.40%	0.60%	363,822	350,544	2,187	352,731	1,841	40.38%
2016	918,780	39.91%	366,646	97.40%	2.60%	357,097	377,197	9,549	386,747	6,713	42.09%
2017	656,688	40.24%	229,918	40.16%	59.84%	159,198	170,869	70,721	241,590	14,253	36.79%
	12,417,877		4,531,294			4,448,144	4,453,560	83,150	4,536,711	23,356	36.53%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

J. S. CHENG & PARTNERS INC.
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APPENDIX D

Comprehensive - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Comprehensive - Basic

Reported Loss & ALAE - With Z-Files & Hailstorm Losses

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	35,221,308	38,111,511	38,411,525	39,069,678	39,134,275	39,173,875	39,158,803	39,137,287	39,106,304	39,090,652	39,073,210	39,058,679	39,035,705	39,006,602	38,993,414	38,964,325	38,949,954	38,937,505	38,925,205	38,922,487	38,922,447
2000	26,941,730	39,018,204	43,884,912	44,381,448	44,858,616	44,946,102	44,954,010	44,929,839	44,929,727	44,939,043	44,950,028	44,656,651	44,634,299	44,605,466	44,586,006	44,540,541	44,533,768	44,531,782	44,525,287	44,517,670	44,517,570	
2001	50,497,280	66,219,894	70,806,886	71,374,521	72,622,768	72,841,955	72,822,794	72,810,031	72,780,031	71,293,048	71,304,032	71,287,238	71,283,182	71,253,957	71,247,597	71,224,955	71,221,500	71,223,547	71,218,461	71,215,273		
2002	31,395,202	43,217,155	45,727,055	45,945,377	46,389,011	46,427,747	46,484,834	46,266,159	46,227,407	46,194,885	46,178,782	46,165,121	46,148,509	46,131,838	46,118,835	46,115,382	46,113,649	46,112,761	46,112,561			
2003	36,357,454	48,701,885	52,246,493	52,659,868	53,201,442	53,280,329	53,345,575	53,353,652	53,326,058	53,275,424	53,251,049	53,234,609	53,205,699	53,176,440	53,164,981	53,152,659	53,149,815	53,147,125				
2004	38,091,641	58,889,715	61,702,023	61,969,236	62,372,239	62,416,498	62,445,796	62,459,513	62,474,270	62,437,769	62,395,971	62,374,043	62,367,460	62,366,868	62,362,593	62,365,835	62,357,493					
2005	49,842,164	65,072,980	69,213,769	69,704,603	70,670,642	70,773,309	70,890,849	70,930,802	70,951,859	70,922,294	70,937,689	70,931,910	70,874,065	70,861,827	70,868,229	70,853,784						
2006	52,101,532	68,118,260	72,467,991	73,243,420	74,429,481	74,584,253	74,802,094	74,829,142	74,884,369	74,920,950	74,913,538	74,895,690	74,899,318	74,881,020	74,850,063							
2007	91,973,523	103,722,682	110,320,996	111,438,275	114,591,463	114,762,851	114,398,003	114,295,493	114,402,518	113,290,102	113,315,200	113,316,801	113,325,022	113,322,091								
2008	35,440,880	46,052,774	48,754,702	49,142,182	49,711,990	50,045,105	50,025,802	50,074,818	50,032,193	50,011,338	50,007,982	49,984,795	49,852,093									
2009	61,823,210	74,497,706	78,098,193	78,712,342	79,741,920	79,824,834	79,916,728	78,452,988	78,560,977	78,557,475	78,597,102	78,613,795										
2010	58,164,754	69,029,786	71,692,910	72,718,517	74,414,506	74,536,708	74,683,087	74,604,762	74,812,819	74,841,998	74,871,205											
2011	57,733,077	69,284,587	74,042,512	74,386,482	75,014,786	75,257,237	75,441,532	74,967,172	74,986,705	75,028,789												
2012	56,286,008	67,506,838	72,071,742	72,748,391	73,699,726	73,739,936	73,894,117	73,429,902	73,481,037													
2013	55,824,151	69,043,443	73,786,455	74,600,216	75,693,452	75,766,496	75,758,082	74,640,435														
2014	50,745,439	65,631,219	70,139,971	70,390,581	71,015,442	71,180,442	70,670,040															
2015	92,252,087	113,688,033	120,270,142	120,912,082	121,794,348																	
2016	90,833,072	112,377,508	119,180,765																			
2017	50,152,638																					

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Z-Files
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	35,221	38,112	38,412	39,070	39,134	39,174	39,159	39,137	39,106
2000	26,942	39,018	43,885	44,381	44,859	44,946	44,954	44,930	44,930	44,939
2001	33,444	48,454	51,768	52,179	52,872	52,934	52,897	52,853	52,834	52,851
2002	31,395	43,217	45,727	45,945	46,389	46,428	46,485	46,266	46,227	46,195
2003	36,357	48,702	52,246	52,660	53,201	53,280	53,346	53,354	53,326	53,275
2004	38,092	58,890	61,702	61,969	62,372	62,416	62,446	62,460	62,474	62,438
2005	49,842	65,073	69,214	69,705	70,671	70,773	70,891	70,931	70,952	70,922
2006	52,102	68,118	72,468	73,243	74,429	74,584	74,802	74,829	74,884	74,921
2007	50,630	61,535	65,483	66,167	67,742	67,932	68,110	68,132	68,187	68,175
2008	35,441	46,053	48,755	49,142	49,712	50,045	50,026	50,075	50,032	50,011
2009	33,975	45,142	47,388	47,773	48,273	48,268	48,306	48,300	48,294	48,290
2010	58,165	69,030	71,693	72,719	74,415	74,537	74,683	74,605	74,813	74,842
2011	57,733	69,285	74,043	74,386	75,015	75,257	75,442	74,967	74,987	75,029
2012	56,286	67,507	72,072	72,748	73,700	73,740	73,894	73,430	73,481	
2013	55,824	69,043	73,786	74,600	75,693	75,766	75,758	74,640		
2014	50,745	65,631	70,140	70,391	71,015	71,180	70,670			
2015	92,252	113,688	120,270	120,912	121,794					
2016	90,833	112,378	119,181							
2017	50,153									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.0821	1.0079	1.0171	1.0017	1.0010	0.9996	0.9995	0.9992	0.9996
2000	1.4482	1.1247	1.0113	1.0108	1.0020	1.0002	0.9995	1.0000	1.0002	1.0002
2001	1.4488	1.0684	1.0079	1.0133	1.0012	0.9993	0.9992	0.9996	1.0003	1.0002
2002	1.3766	1.0581	1.0048	1.0097	1.0008	1.0012	0.9953	0.9992	0.9993	0.9997
2003	1.3395	1.0728	1.0079	1.0103	1.0015	1.0012	1.0002	0.9995	0.9991	0.9995
2004	1.5460	1.0478	1.0043	1.0065	1.0007	1.0005	1.0002	1.0002	0.9994	0.9993
2005	1.3056	1.0636	1.0071	1.0139	1.0015	1.0017	1.0006	1.0003	0.9996	1.0002
2006	1.3074	1.0639	1.0107	1.0162	1.0021	1.0029	1.0004	1.0007	1.0005	0.9999
2007	1.2154	1.0642	1.0104	1.0238	1.0028	1.0026	1.0003	1.0008	0.9998	0.9999
2008	1.2994	1.0587	1.0079	1.0116	1.0067	0.9996	1.0010	0.9991	0.9996	0.9999
2009	1.3287	1.0498	1.0081	1.0105	0.9999	1.0008	0.9999	0.9999	0.9999	1.0008
2010	1.1868	1.0386	1.0143	1.0233	1.0016	1.0020	0.9990	1.0028	1.0004	1.0004
2011	1.2001	1.0687	1.0046	1.0084	1.0032	1.0024	0.9937	1.0003	1.0006	
2012	1.1994	1.0676	1.0094	1.0131	1.0005	1.0021	0.9937	1.0007		
2013	1.2368	1.0687	1.0110	1.0147	1.0010	0.9999	0.9852			
2014	1.2933	1.0687	1.0036	1.0089	1.0023	0.9928				
2015	1.2324	1.0579	1.0053	1.0073						
2016	1.2372	1.0605								
Latest 9 Volume Weighted	1.2381	1.0602	1.0081	1.0131	1.0022	1.0006	0.9967	1.0006	0.9999	1.0000
Latest 6 Volume Weighted	1.2325	1.0642	1.0078	1.0121	1.0015	1.0000	0.9947	1.0007	1.0002	1.0002
Latest 3 Volume Weighted	1.2475	1.0613	1.0065	1.0098	1.0013	0.9983	0.9909	1.0012	1.0003	1.0004
Simple Average of Middle 4 of Last 6	1.2266	1.0664	1.0076	1.0113	1.0014	1.0012	0.9966	1.0004	1.0002	1.0001
Simple Average of Middle 3 of Last 5	1.2355	1.0656	1.0065	1.0101	1.0016	1.0013	0.9955	1.0003	1.0001	1.0001
Selected Oct 16	1.2300	1.0680	1.0085	1.0130	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
Selected Feb 17	1.2300	1.0680	1.0085	1.0130	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
Selected Factors	1.2800	1.0680	1.0080	1.0120	1.0020	1.0015	1.0000	1.0000	1.0000	1.0000
Selected Ultimate	1.3994	1.0933	1.0237	1.0155	1.0035	1.0015	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
39,091	39,073	39,059	39,036	39,007	38,993	38,964	38,950	38,938	38,925	38,922	38,922
44,950	44,657	44,634	44,605	44,586	44,541	44,534	44,532	44,525	44,518	44,518	
52,862	52,845	52,841	52,812	52,806	52,783	52,779	52,782	52,776	52,773		
46,179	46,165	46,149	46,132	46,119	46,115	46,114	46,113	46,113			
53,251	53,235	53,206	53,176	53,165	53,153	53,150	53,147				
62,396	62,374	62,367	62,367	62,363	62,366	62,357					
70,938	70,932	70,874	70,862	70,868	70,854						
74,914	74,896	74,899	74,881	74,850							
68,171	68,173	68,181	68,178								
50,008	49,985	49,852									
48,330	48,347										
74,871											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9996	0.9996	0.9994	0.9993	0.9997	0.9993	0.9996	0.9997	0.9997	0.9999	1.0000
0.9935	0.9995	0.9994	0.9996	0.9990	0.9998	1.0000	0.9999	0.9998	1.0000	
0.9997	0.9999	0.9994	0.9999	0.9996	0.9999	1.0000	0.9999	0.9999		
0.9997	0.9996	0.9996	0.9997	0.9999	1.0000	1.0000	1.0000			
0.9997	0.9995	0.9995	0.9998	0.9998	0.9999	0.9999				
0.9996	0.9999	1.0000	0.9999	1.0001	0.9999					
0.9999	0.9992	0.9998	1.0001	0.9998						
0.9998	1.0000	0.9998	0.9996							
1.0000	1.0001	1.0000								
0.9995	0.9973									
1.0003										

0.9998	0.9995	0.9997	0.9998	0.9997	0.9998	0.9999	0.9999	0.9998	1.0000	1.0000
0.9999	0.9994	0.9998	0.9998	0.9997	0.9998	0.9999	0.9999	0.9998	1.0000	1.0000
1.0000	0.9994	0.9998	0.9999	0.9999	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
0.9998	0.9996	0.9998	0.9998	0.9998	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
0.9999	0.9997	0.9998	0.9998	0.9998	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.3378	1.3318	1.3335	1.3304	1.3351	1.3467	1.3467	1.3994
12	1.0805	1.0805	1.0689	1.0846	1.0806	1.0949	1.0949	1.0933
20	1.0192	1.0153	1.0071	1.0171	1.0141	1.0252	1.0252	1.0237
24	1.0110	1.0075	1.0007	1.0094	1.0076	1.0165	1.0165	1.0155
32	0.9979	0.9954	0.9910	0.9982	0.9975	1.0035	1.0035	1.0035
36	0.9958	0.9939	0.9897	0.9968	0.9958	1.0015	1.0015	1.0015
44	0.9951	0.9939	0.9914	0.9957	0.9945	0.9995	0.9995	1.0000
56	0.9984	0.9991	1.0005	0.9991	0.9991	0.9995	0.9995	1.0000
68	0.9978	0.9984	0.9993	0.9987	0.9988	0.9995	0.9995	1.0000
80	0.9979	0.9982	0.9989	0.9985	0.9987	0.9995	0.9995	1.0000
92	0.9979	0.9980	0.9985	0.9984	0.9986	0.9995	0.9995	1.0000
104	0.9981	0.9982	0.9986	0.9986	0.9987	0.9995	0.9995	1.0000
116	0.9986	0.9987	0.9992	0.9989	0.9990	0.9995	0.9995	1.0000
128	0.9989	0.9990	0.9994	0.9991	0.9992	1.0000	1.0000	1.0000
140	0.9991	0.9991	0.9995	0.9993	0.9994	1.0000	1.0000	1.0000
152	0.9994	0.9994	0.9996	0.9995	0.9995	1.0000	1.0000	1.0000
164	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
176	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
188	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
200	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.2800	1.3994	71.46%	8		1.3994	1.2800	1.2800	1.3994
12	1.0680	1.0933		12	91.47%	1.0933	1.0680	1.0680	1.0933
20	1.0080	1.0237	97.69%	20		1.0237	1.0080	1.0080	1.0237
24	1.0120	1.0155		24	98.47%	1.0155	1.0120	1.0120	1.0155
32	1.0020	1.0035	99.65%	32		1.0035	1.0020	1.0020	1.0035
36	1.0015	1.0015		36	99.85%	1.0015	1.0015	1.0015	1.0015
44	1.0000	1.0000	100.00%	48	100.00%	1.0000	1.0000	1.0000	1.0000
56	1.0000	1.0000	100.00%	60	100.00%	1.0000	1.0000	1.0000	1.0000
68	1.0000	1.0000	100.00%	72	100.00%	1.0000	1.0000	1.0000	1.0000
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	44,518	1.0000	44,518	-	1	9.37%
2001	497,121	52,773	1.0000	52,773	-	(1)	10.62%
2002	532,307	46,113	1.0000	46,113	-	-	8.66%
2003	560,857	53,147	1.0000	53,147	-	-	9.48%
2004	596,045	62,357	1.0000	62,357	-	-	10.46%
2005	630,367	70,854	1.0000	70,854	-	-	11.24%
2006	654,863	74,850	1.0000	74,850	-	-	11.43%
2007	677,464	68,178	1.0000	68,178	-	-	10.06%
2008	707,051	49,852	1.0000	49,852	-	50	7.05%
2009	739,881	48,347	1.0000	48,347	-	(2)	6.53%
2010	759,948	74,871	1.0000	74,871	-	69	9.85%
2011	772,985	75,029	1.0000	75,029	-	418	9.71%
2012	768,953	73,481	1.0000	73,481	-	942	9.56%
2013	778,092	74,640	1.0000	74,640	-	8	9.59%
2014	817,710	70,670	1.0000	70,670	-	36	8.64%
2015	873,488	121,794	1.0035	122,221	427	3,411	13.99%
2016	918,780	119,181	1.0237	122,002	2,821	7,113	13.28%
2017	656,688	50,153	1.3994	58,954	8,801	13,926	8.98%
	12,417,877	1,230,808		1,242,857	12,049	25,971	10.01%

Notes:
(5) Current year adjustment factor is 0.84 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	44,518			44,518	9.37%	9.37%	100.00%	9.37%	9.37%
2001	497,121	52,773	46,410		46,410	9.34%	10.62%	100.00%	10.62%	10.62%
2002	532,307	46,113	55,016	48,382	51,699	9.71%	8.66%	100.00%	8.66%	8.66%
2003	560,857	53,147	48,072	57,354	52,713	9.40%	9.48%	100.00%	9.48%	9.48%
2004	596,045	62,357	55,406	50,115	52,761	8.85%	10.46%	100.00%	10.46%	10.46%
2005	630,367	70,854	65,008	57,761	61,384	9.74%	11.24%	100.00%	11.24%	11.24%
2006	654,863	74,850	73,865	67,771	70,818	10.81%	11.43%	100.00%	11.43%	11.43%
2007	677,464	68,178	78,031	77,004	77,518	11.44%	10.06%	100.00%	10.06%	10.06%
2008	707,051	49,852	71,076	81,348	76,212	10.78%	7.05%	100.00%	7.05%	7.05%
2009	739,881	48,347	51,971	74,096	63,034	8.52%	6.53%	100.00%	6.53%	6.53%
2010	759,948	74,871	50,402	54,180	52,291	6.88%	9.85%	100.00%	9.85%	9.85%
2011	772,985	75,029	78,053	52,544	65,298	8.45%	9.71%	80.00%	9.45%	9.45%
2012	768,953	73,481	78,218	81,370	79,794	10.38%	9.56%	60.00%	9.88%	9.88%
2013	778,092	74,640	76,604	81,542	79,073	10.16%	9.59%	40.00%	9.93%	9.93%
2014	817,710	70,670	77,813	79,860	78,836	9.64%	8.64%	20.00%	9.44%	9.44%
2015	873,488	122,221	73,674	81,120	77,397	8.86%	13.99%	0.00%	8.86%	8.86%
2016	918,780	122,002	127,415	76,805	102,110	11.11%	13.28%	0.00%	11.11%	11.11%
2017	656,688	58,954	83,623	87,334	85,478	13.02%	8.98%	0.00%	13.02%	13.02%
	12,417,877	1,242,857	1,190,655	1,108,584	1,217,342					

Trend in Losses Based on Exponential Regression (a):
4.03%
Selected Trend (b):
4.25%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Reported Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	9.37%	44,518	100.00%	0.00%	44,518	44,518	-	44,518	9.37%
2001	497,121	10.62%	52,773	100.00%	0.00%	52,773	52,773	-	52,773	10.62%
2002	532,307	8.66%	46,113	100.00%	0.00%	46,113	46,113	-	46,113	8.66%
2003	560,857	9.48%	53,147	100.00%	0.00%	53,147	53,147	-	53,147	9.48%
2004	596,045	10.46%	62,357	100.00%	0.00%	62,357	62,357	-	62,357	10.46%
2005	630,367	11.24%	70,854	100.00%	0.00%	70,854	70,854	-	70,854	11.24%
2006	654,863	11.43%	74,850	100.00%	0.00%	74,850	74,850	-	74,850	11.43%
2007	677,464	10.06%	68,178	100.00%	0.00%	68,178	68,178	-	68,178	10.06%
2008	707,051	7.05%	49,852	100.00%	0.00%	49,852	49,852	-	49,852	7.05%
2009	739,881	6.53%	48,347	100.00%	0.00%	48,347	48,347	-	48,347	6.53%
2010	759,948	9.85%	74,871	100.00%	0.00%	74,871	74,871	-	74,871	9.85%
2011	772,985	9.45%	73,083	100.00%	0.00%	73,083	75,029	-	75,029	9.71%
2012	768,953	9.88%	76,006	100.00%	0.00%	76,006	73,481	-	73,481	9.56%
2013	778,092	9.93%	77,300	100.00%	0.00%	77,300	74,640	-	74,640	9.59%
2014	817,710	9.44%	77,203	100.00%	0.00%	77,203	70,670	-	70,670	8.64%
2015	873,488	8.86%	77,397	99.65%	0.35%	77,126	121,794	270	122,065	13.97%
2016	918,780	11.11%	102,110	97.69%	2.31%	99,749	119,181	2,361	121,542	13.23%
2017	656,688	13.02%	107,703	71.46%	28.54%	91,623	50,153	16,079	66,232	10.09%
	12,417,877		1,236,661			1,217,951	1,230,808	18,710	1,249,519	10.06%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - With Z-Files & Hailstorm Losses
October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	32,057,827	37,889,397	38,314,109	38,985,431	39,072,912	39,146,177	39,150,630	39,134,090	39,102,332	39,085,355	39,070,013	39,055,482	39,032,708	39,003,605	38,992,913	38,963,824	38,949,454	38,937,005	38,924,705	38,922,587	38,922,547
2000	20,872,081	34,666,923	43,565,086	44,195,508	44,786,022	44,903,677	44,920,985	44,912,458	44,920,890	44,930,957	44,941,341	44,649,443	44,627,090	44,598,257	44,585,106	44,539,641	44,532,868	44,530,882	44,524,387	44,516,770	44,516,670	
2001	29,785,031	52,778,448	65,682,243	67,288,935	70,656,800	71,094,785	71,233,596	71,296,862	71,295,102	71,288,823	71,299,382	71,287,758	71,269,857	71,254,557	71,248,197	71,225,555	71,222,100	71,223,853	71,219,061	71,215,873		
2002	24,684,143	39,188,523	45,428,270	45,849,267	46,336,293	46,396,488	46,469,298	46,255,044	46,217,862	46,188,190	46,172,910	46,159,248	46,148,209	46,131,538	46,118,535	46,115,082	46,113,349	46,112,761	46,112,561			
2003	26,934,876	43,541,714	51,912,666	52,490,015	53,134,006	53,247,203	53,327,527	53,350,754	53,317,710	53,267,776	53,243,526	53,227,109	53,198,199	53,168,940	53,162,981	53,152,659	53,149,815	53,147,125				
2004	29,940,606	52,047,598	61,210,439	61,740,346	62,286,145	62,360,422	62,425,841	62,450,068	62,442,985	62,431,719	62,394,896	62,372,968	62,366,385	62,366,293	62,362,018	62,365,835	62,357,493					
2005	34,569,620	56,060,288	68,420,923	69,322,694	70,463,185	70,615,519	70,799,504	70,863,686	70,873,961	70,857,857	70,873,032	70,867,885	70,858,915	70,861,227	70,868,229	70,853,784						
2006	36,728,636	58,687,716	71,826,569	72,866,384	74,263,729	74,475,932	74,751,436	74,803,039	74,864,966	74,906,450	74,891,213	74,894,840	74,894,468	74,881,020	74,850,063							
2007	50,453,630	79,527,365	102,857,910	105,875,979	111,093,781	111,977,999	112,761,149	113,079,495	113,228,439	113,284,775	113,289,516	113,313,201	113,321,647	113,321,982								
2008	25,122,831	39,099,240	47,993,667	48,700,920	49,518,483	49,805,886	49,906,302	49,953,901	49,964,268	49,946,820	49,949,557	49,923,315	49,802,393									
2009	32,147,266	57,052,680	72,132,417	74,255,877	77,171,325	77,776,985	78,179,682	78,430,777	78,507,876	78,559,594	78,585,388	78,615,387										
2010	33,888,756	55,591,554	69,671,015	71,578,131	73,765,588	74,052,874	74,310,648	74,516,351	74,702,073	74,777,846	74,802,099											
2011	34,216,831	55,711,692	69,741,479	71,317,950	73,341,130	73,819,993	74,246,011	74,430,631	74,552,327	74,610,397												
2012	36,219,839	54,939,832	67,767,305	69,343,588	71,503,096	71,869,413	72,207,470	72,423,400	72,538,956													
2013	33,317,924	54,230,212	69,606,908	71,556,590	73,676,695	73,995,846	74,460,215	74,632,478														
2014	34,213,299	55,649,630	67,734,916	68,736,088	70,115,814	70,402,652	70,633,837															
2015	53,849,301	90,408,089	112,793,219	115,181,400	118,383,304																	
2016	56,621,753	88,747,401	112,068,073																			
2017	36,227,115																					

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	32,058	37,889	38,314	38,985	39,073	39,146	39,151	39,134	39,102
2000	20,872	34,667	43,565	44,196	44,786	44,904	44,921	44,912	44,921	44,931
2001	25,574	43,877	51,345	51,858	52,790	52,874	52,891	52,873	52,853	52,847
2002	24,684	39,189	45,428	45,849	46,336	46,396	46,469	46,255	46,218	46,188
2003	26,935	43,542	51,913	52,490	53,134	53,247	53,328	53,351	53,318	53,268
2004	29,941	52,048	61,210	61,740	62,286	62,360	62,426	62,450	62,443	62,432
2005	34,570	56,060	68,421	69,323	70,463	70,616	70,800	70,864	70,874	70,858
2006	36,729	58,688	71,827	72,866	74,264	74,476	74,751	74,803	74,865	74,906
2007	33,696	52,912	64,658	65,782	67,443	67,824	68,058	68,112	68,161	68,172
2008	25,123	39,099	47,994	48,701	49,518	49,806	49,906	49,954	49,964	49,947
2009	23,420	38,661	46,525	47,206	48,035	48,165	48,237	48,294	48,299	48,293
2010	33,889	55,592	69,671	71,578	73,766	74,053	74,311	74,516	74,702	74,778
2011	34,217	55,712	69,741	71,318	73,341	73,820	74,246	74,431	74,552	74,610
2012	36,220	54,940	67,767	69,344	71,503	71,869	72,207	72,423	72,539	
2013	33,318	54,230	69,607	71,557	73,677	73,996	74,460	74,632		
2014	34,213	55,650	67,735	68,736	70,116	70,403	70,634			
2015	53,849	90,408	112,793	115,181	118,383					
2016	56,622	88,747	112,068							
2017	36,227									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.1819	1.0112	1.0175	1.0022	1.0019	1.0001	0.9996	0.9992	0.9996
2000	1.6609	1.2567	1.0145	1.0134	1.0026	1.0004	0.9998	1.0002	1.0002	1.0002
2001	1.7157	1.1702	1.0100	1.0180	1.0016	1.0003	0.9997	0.9996	0.9999	1.0002
2002	1.5876	1.1592	1.0093	1.0106	1.0013	1.0016	0.9954	0.9992	0.9994	0.9997
2003	1.6166	1.1923	1.0111	1.0123	1.0021	1.0015	1.0004	0.9994	0.9991	0.9995
2004	1.7384	1.1760	1.0087	1.0088	1.0012	1.0010	1.0004	0.9999	0.9998	0.9994
2005	1.6217	1.2205	1.0132	1.0165	1.0022	1.0026	1.0009	1.0001	0.9998	1.0002
2006	1.5979	1.2239	1.0145	1.0192	1.0029	1.0037	1.0007	1.0008	1.0006	0.9998
2007	1.5703	1.2220	1.0174	1.0252	1.0057	1.0035	1.0008	1.0007	1.0002	0.9998
2008	1.5563	1.2275	1.0147	1.0168	1.0058	1.0020	1.0010	1.0002	0.9997	1.0001
2009	1.6507	1.2034	1.0146	1.0176	1.0027	1.0015	1.0012	1.0001	0.9999	1.0005
2010	1.6404	1.2533	1.0274	1.0306	1.0039	1.0035	1.0028	1.0025	1.0010	1.0003
2011	1.6282	1.2518	1.0226	1.0284	1.0065	1.0058	1.0025	1.0016	1.0008	
2012	1.5168	1.2335	1.0233	1.0311	1.0051	1.0047	1.0030	1.0016		
2013	1.6277	1.2835	1.0280	1.0296	1.0043	1.0063	1.0023			
2014	1.6265	1.2172	1.0148	1.0201	1.0041	1.0033				
2015	1.6789	1.2476	1.0212	1.0278						
2016	1.5674	1.2628								
Latest 9 Volume Weighted	1.6110	1.2455	1.0209	1.0260	1.0046	1.0040	1.0017	1.0009	1.0001	0.9999
Latest 6 Volume Weighted	1.6088	1.2503	1.0227	1.0279	1.0046	1.0043	1.0022	1.0013	1.0004	1.0001
Latest 3 Volume Weighted	1.6229	1.2461	1.0213	1.0262	1.0045	1.0048	1.0026	1.0019	1.0006	1.0003
Simple Average of Middle 4 of Last 6	1.6124	1.2489	1.0236	1.0291	1.0044	1.0043	1.0022	1.0010	1.0003	1.0001
Simple Average of Middle 3 of Last 5	1.6072	1.2480	1.0223	1.0286	1.0045	1.0047	1.0025	1.0011	1.0003	1.0001
Selected Oct 16	1.6300	1.2475	1.0225	1.0275	1.0050	1.0045	1.0025	1.0010	1.0000	1.0000
Selected Feb 17	1.6300	1.2475	1.0225	1.0275	1.0050	1.0045	1.0025	1.0010	1.0000	1.0000
Selected Factors	1.6300	1.2500	1.0225	1.0275	1.0045	1.0045	1.0025	1.0015	1.0005	1.0000
Selected Ultimate	2.1697	1.3311	1.0649	1.0414	1.0136	1.0090	1.0045	1.0020	1.0005	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
39,085	39,070	39,055	39,033	39,004	38,993	38,964	38,949	38,937	38,925	38,923	38,923
44,941	44,649	44,627	44,598	44,585	44,540	44,533	44,531	44,524	44,517	44,517	
52,857	52,846	52,828	52,813	52,806	52,784	52,780	52,782	52,777	52,774		
46,173	46,159	46,148	46,132	46,119	46,115	46,113	46,113	46,113			
53,244	53,227	53,198	53,169	53,163	53,153	53,150	53,147				
62,395	62,373	62,366	62,366	62,362	62,366	62,357					
70,873	70,868	70,859	70,861	70,868	70,854						
74,891	74,895	74,894	74,881	74,850							
68,161	68,169	68,178	68,178								
49,950	49,923	49,802									
48,318	48,348										
74,802											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9996	0.9996	0.9994	0.9993	0.9997	0.9993	0.9996	0.9997	0.9997	0.9999	1.0000
0.9935	0.9995	0.9994	0.9997	0.9990	0.9998	1.0000	0.9999	0.9998	1.0000	
0.9998	0.9997	0.9997	0.9999	0.9996	0.9999	1.0000	0.9999	0.9999		
0.9997	0.9998	0.9996	0.9997	0.9999	1.0000	1.0000	1.0000			
0.9997	0.9995	0.9995	0.9999	0.9998	0.9999	0.9999				
0.9996	0.9999	1.0000	0.9999	1.0001	0.9999					
0.9999	0.9999	1.0000	1.0001	0.9998						
1.0000	1.0000	0.9998	0.9996							
1.0001	1.0001	1.0000								
0.9995	0.9976									
1.0006										

0.9999	0.9996	0.9998	0.9998	0.9997	0.9998	0.9999	0.9999	0.9998	1.0000	1.0000
1.0000	0.9996	0.9998	0.9999	0.9997	0.9998	0.9999	0.9999	0.9998	1.0000	1.0000
1.0001	0.9994	0.9999	0.9999	0.9999	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
0.9999	0.9998	0.9999	0.9999	0.9998	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
1.0000	0.9999	0.9999	0.9998	0.9998	0.9999	1.0000	0.9999	0.9998	1.0000	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	0.9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.1218	2.1386	2.1486	2.1450	2.1353	2.1632	2.1632	2.1697
12	1.3171	1.3293	1.3239	1.3303	1.3286	1.3271	1.3271	1.3311
20	1.0575	1.0633	1.0624	1.0651	1.0646	1.0638	1.0638	1.0649
24	1.0358	1.0396	1.0402	1.0406	1.0413	1.0404	1.0404	1.0414
32	1.0095	1.0114	1.0136	1.0112	1.0124	1.0126	1.0126	1.0136
36	1.0049	1.0068	1.0091	1.0068	1.0078	1.0075	1.0075	1.0090
44	1.0009	1.0024	1.0043	1.0025	1.0032	1.0030	1.0030	1.0045
56	0.9992	1.0002	1.0017	1.0003	1.0006	1.0005	1.0005	1.0020
68	0.9983	0.9989	0.9998	0.9992	0.9995	0.9995	0.9995	1.0005
80	0.9981	0.9985	0.9991	0.9989	0.9992	0.9995	0.9995	1.0000
92	0.9982	0.9984	0.9988	0.9988	0.9991	0.9995	0.9995	1.0000
104	0.9983	0.9984	0.9988	0.9988	0.9991	0.9995	0.9995	1.0000
116	0.9987	0.9988	0.9993	0.9990	0.9992	0.9995	0.9995	1.0000
128	0.9989	0.9990	0.9994	0.9992	0.9992	1.0000	1.0000	1.0000
140	0.9991	0.9991	0.9995	0.9993	0.9994	1.0000	1.0000	1.0000
152	0.9994	0.9994	0.9996	0.9995	0.9996	1.0000	1.0000	1.0000
164	0.9996	0.9996	0.9997	0.9996	0.9996	1.0000	1.0000	1.0000
176	0.9997	0.9997	0.9997	0.9997	0.9997	1.0000	1.0000	1.0000
188	0.9998	0.9998	0.9998	0.9998	0.9998	1.0000	1.0000	1.0000
200	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
212	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6300	2.1697	46.09%	8		2.1697	1.6300	1.6300	2.1697
12	1.2500	1.3311		12	75.13%	1.3311	1.2500	1.2500	1.3311
20	1.0225	1.0649	93.91%	20		1.0649	1.0225	1.0225	1.0649
24	1.0275	1.0414		24	96.02%	1.0414	1.0275	1.0275	1.0414
32	1.0045	1.0136	98.66%	32		1.0136	1.0045	1.0045	1.0136
36	1.0045	1.0090		36	99.11%	1.0090	1.0053	1.0055	1.0090
44	1.0025	1.0045	99.55%	48	99.63%	1.0037	1.0022	1.0020	1.0035
56	1.0015	1.0020	99.80%	60	99.85%	1.0015	1.0012	1.0010	1.0015
68	1.0005	1.0005	99.95%	72	99.97%	1.0003	1.0003	1.0005	1.0005
80	1.0000	1.0000	100.00%	84	100.00%	1.0000	1.0000	1.0000	1.0000
92	1.0000	1.0000	100.00%	96	100.00%	1.0000	1.0000	1.0000	1.0000
104	1.0000	1.0000	100.00%	108	100.00%	1.0000	1.0000	1.0000	1.0000
116	1.0000	1.0000	100.00%	120	100.00%	1.0000	1.0000	1.0000	1.0000
128	1.0000	1.0000	100.00%	132	100.00%	1.0000	1.0000	1.0000	1.0000
140	1.0000	1.0000	100.00%	144	100.00%	1.0000	1.0000	1.0000	1.0000
152	1.0000	1.0000	100.00%	156	100.00%	1.0000	1.0000	1.0000	1.0000
164	1.0000	1.0000	100.00%	168	100.00%	1.0000	1.0000	1.0000	1.0000
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	44,517	1.0000	44,517	-	1	(1)	9.37%
2001	497,121	52,774	1.0000	52,774	-	(1)	1	10.62%
2002	532,307	46,113	1.0000	46,113	-	-	-	8.66%
2003	560,857	53,147	1.0000	53,147	-	-	-	9.48%
2004	596,045	62,357	1.0000	62,357	-	-	-	10.46%
2005	630,367	70,854	1.0000	70,854	-	-	-	11.24%
2006	654,863	74,850	1.0000	74,850	-	-	-	11.43%
2007	677,464	68,178	1.0000	68,178	-	-	-	10.06%
2008	707,051	49,802	1.0000	49,802	-	50	(50)	7.04%
2009	739,881	48,348	1.0000	48,348	-	(2)	2	6.53%
2010	759,948	74,802	1.0000	74,802	-	69	(69)	9.84%
2011	772,985	74,610	1.0000	74,610	-	418	(418)	9.65%
2012	768,953	72,539	1.0005	72,575	36	942	(906)	9.44%
2013	778,092	74,632	1.0020	74,782	149	8	141	9.61%
2014	817,710	70,634	1.0045	70,952	318	36	282	8.68%
2015	873,488	118,383	1.0136	119,989	1,606	3,411	(1,805)	13.74%
2016	918,780	112,068	1.0649	119,338	7,270	7,113	157	12.99%
2017	656,688	36,227	2.1697	66,025	29,798	13,926	15,872	10.05%
	12,417,877	1,204,837		1,244,014	39,178	25,971	13,207	10.02%

Notes:
(5) Current year adjustment factor is 0.84 to reflect seasonal impact on losses

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	44,517			44,517	9.37%	9.37%	100.00%	9.37%	9.37%
2001	497,121	52,774	46,409		46,409	9.34%	10.62%	100.00%	10.62%	10.62%
2002	532,307	46,113	55,017	48,381	51,699	9.71%	8.66%	100.00%	8.66%	8.66%
2003	560,857	53,147	48,072	57,355	52,714	9.40%	9.48%	100.00%	9.48%	9.48%
2004	596,045	62,357	55,406	50,115	52,761	8.85%	10.46%	100.00%	10.46%	10.46%
2005	630,367	70,854	65,008	57,761	61,384	9.74%	11.24%	100.00%	11.24%	11.24%
2006	654,863	74,850	73,865	67,771	70,818	10.81%	11.43%	100.00%	11.43%	11.43%
2007	677,464	68,178	78,031	77,004	77,518	11.44%	10.06%	100.00%	10.06%	10.06%
2008	707,051	49,802	71,076	81,348	76,212	10.78%	7.04%	100.00%	7.04%	7.05%
2009	739,881	48,348	51,919	74,096	63,008	8.52%	6.53%	100.00%	6.53%	6.53%
2010	759,948	74,802	50,403	54,126	52,264	6.88%	9.84%	100.00%	9.84%	9.85%
2011	772,985	74,610	77,981	52,545	65,263	8.44%	9.65%	80.00%	9.41%	9.45%
2012	768,953	72,575	77,781	81,295	79,538	10.34%	9.44%	60.00%	9.80%	9.88%
2013	778,092	74,782	75,660	81,087	78,373	10.07%	9.61%	40.00%	9.89%	9.93%
2014	817,710	70,952	77,960	78,875	78,418	9.59%	8.68%	20.00%	9.41%	9.44%
2015	873,488	119,989	73,968	81,273	77,620	8.89%	13.74%	0.00%	8.89%	8.86%
2016	918,780	119,338	125,089	77,111	101,100	11.00%	12.99%	0.00%	11.00%	11.11%
2017	656,688	66,025	81,797	85,739	83,768	12.76%	10.05%	0.00%	12.76%	13.02%
	12,417,877	1,244,014	1,185,441	1,105,883	1,213,383					

Trend in Losses Based on Exponential Regression (a):
4.17%
Selected Trend (b):
4.25%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Comprehensive - Basic
Paid Loss & ALAE - Without Z-Files & Hailstorm Losses
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	9.37%	44,518	100.00%	0.00%	44,518	44,517	-	44,517	(1)	9.37%
2001	497,121	10.62%	52,773	100.00%	0.00%	52,773	52,774	-	52,774	1	10.62%
2002	532,307	8.66%	46,113	100.00%	0.00%	46,113	46,113	-	46,113	-	8.66%
2003	560,857	9.48%	53,147	100.00%	0.00%	53,147	53,147	-	53,147	-	9.48%
2004	596,045	10.46%	62,357	100.00%	0.00%	62,357	62,357	-	62,357	-	10.46%
2005	630,367	11.24%	70,854	100.00%	0.00%	70,854	70,854	-	70,854	-	11.24%
2006	654,863	11.43%	74,850	100.00%	0.00%	74,850	74,850	-	74,850	-	11.43%
2007	677,464	10.06%	68,178	100.00%	0.00%	68,178	68,178	-	68,178	-	10.06%
2008	707,051	7.05%	49,852	100.00%	0.00%	49,852	49,802	-	49,802	(50)	7.04%
2009	739,881	6.53%	48,347	100.00%	0.00%	48,347	48,348	-	48,348	2	6.53%
2010	759,948	9.85%	74,871	100.00%	0.00%	74,871	74,802	-	74,802	(69)	9.84%
2011	772,985	9.45%	73,083	100.00%	0.00%	73,083	74,610	-	74,610	(418)	9.65%
2012	768,953	9.88%	76,006	99.95%	0.05%	75,968	72,539	38	72,577	(904)	9.44%
2013	778,092	9.93%	77,300	99.80%	0.20%	77,146	74,632	154	74,787	146	9.61%
2014	817,710	9.44%	77,203	99.55%	0.45%	76,857	70,634	346	70,980	310	8.68%
2015	873,488	8.86%	77,397	98.66%	1.34%	76,361	118,383	1,036	119,419	(2,375)	13.67%
2016	918,780	11.11%	102,110	93.91%	6.09%	95,889	112,068	6,221	118,289	(892)	12.87%
2017	656,688	13.02%	107,703	46.09%	53.91%	59,095	36,227	48,607	84,835	34,681	12.92%
	12,417,877		1,236,661			1,180,258	1,204,837	56,403	1,261,239	30,432	10.16%

Notes:
(4) & (7) - Current year adjusted to reflect seasonal impact on losses
(10) = (8) + (9)

J. S. CHENG & PARTNERS INC.
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ACTUARIES Who Care™

APPENDIX E

AB – Weekly Indemnity - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Weekly Indemnity

Reported Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	15,235,845	25,208,320	26,139,526	31,793,373	34,441,189	40,516,083	55,664,340	69,480,147	57,463,582	51,237,189	50,940,539	49,720,968	49,515,263	50,267,649	50,172,606	50,913,485	52,192,476	51,880,032	51,853,038	52,549,436	52,363,667
2000	14,086,697	24,933,704	30,470,187	33,137,885	38,368,881	43,002,703	48,787,957	60,504,575	52,350,042	51,923,431	52,204,534	51,087,781	52,136,619	51,568,371	51,779,582	51,808,422	50,722,980	50,604,806	52,860,703	53,658,305	54,460,514	
2001	9,407,461	20,835,313	30,328,819	34,273,099	41,225,070	47,114,823	51,453,563	44,736,273	44,480,854	43,742,841	43,355,714	41,130,145	41,734,592	43,075,079	43,032,380	44,012,081	45,403,093	46,447,340	47,213,611	48,144,377		
2002	10,167,998	23,160,675	37,542,529	41,413,716	45,761,890	47,127,403	41,952,916	45,565,681	47,270,140	47,803,053	49,377,323	48,768,557	50,691,624	51,243,708	51,702,505	50,855,584	52,669,617	53,813,113	55,141,160			
2003	19,289,238	37,318,612	58,077,420	59,397,527	49,740,133	49,781,923	46,638,871	45,214,292	44,059,555	46,705,643	45,373,586	45,742,631	47,309,842	51,065,633	51,334,711	51,331,539	52,005,446	52,343,364				
2004	14,633,633	23,877,016	30,777,436	33,928,422	38,104,302	41,417,822	42,518,798	42,612,713	43,796,457	45,244,333	45,482,013	42,687,669	43,944,888	42,560,437	43,202,601	43,854,869	45,257,154					
2005	18,609,271	34,015,637	43,791,978	46,654,107	53,268,514	58,093,848	55,236,702	52,582,344	52,467,580	53,740,149	51,508,236	51,957,586	53,118,639	53,617,570	55,720,879	55,670,795						
2006	20,842,804	35,586,858	52,015,348	53,852,233	57,128,092	57,078,101	57,204,126	58,013,639	58,321,660	58,197,079	65,437,823	67,497,257	69,439,888	68,933,676	71,407,779							
2007	17,458,524	25,923,666	35,175,260	36,879,097	45,832,090	48,964,542	51,017,969	53,369,922	57,464,176	63,756,463	63,492,479	65,419,744	67,617,277	69,157,907								
2008	13,687,566	21,964,066	30,630,533	32,332,352	38,685,490	42,215,425	45,080,253	50,086,317	61,436,969	62,291,526	67,118,269	65,603,198	67,876,321									
2009	14,654,951	21,267,539	29,816,338	32,272,253	37,088,117	39,242,848	41,888,283	51,919,196	54,035,487	58,183,840	59,519,252	64,023,630										
2010	13,041,174	26,773,966	29,848,848	32,131,717	37,666,550	39,708,805	53,606,930	56,929,162	68,917,496	70,650,125	81,876,214											
2011	14,276,249	23,600,141	28,854,067	32,386,870	44,847,852	48,832,683	49,764,164	59,701,889	62,720,372	78,625,954												
2012	16,340,779	26,131,765	35,645,806	39,445,893	44,500,413	47,739,504	53,342,412	60,619,372	93,720,420													
2013	14,345,155	24,290,326	32,610,409	34,472,791	40,559,323	43,383,359	48,677,261	74,346,380														
2014	9,360,725	16,647,887	26,498,582	28,317,182	34,229,467	36,518,540	61,782,817															
2015	10,767,083	18,822,548	32,115,461	35,786,665	66,017,989																	
2016	10,510,628	19,136,173	27,672,490																			
2017	10,998,883																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Weekly Indemnity

Paid Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	5,028,720	9,506,550	11,027,935	13,588,045	14,674,852	16,636,813	19,173,813	21,319,429	22,984,475	24,553,548	25,895,508	26,866,553	27,841,965	28,763,629	29,890,244	31,308,301	32,465,653	33,656,679	34,648,498	35,654,319	36,635,852
2000	2,647,746	5,820,713	10,794,763	12,384,576	14,956,119	15,952,844	17,901,872	20,407,321	22,528,707	24,144,900	25,692,447	27,035,953	28,118,309	29,047,094	30,159,410	31,209,946	32,273,335	33,252,154	34,430,862	35,519,140	36,600,264	
2001	2,948,695	6,063,918	10,832,828	12,380,909	14,683,036	15,532,935	16,964,118	18,784,154	20,195,035	21,350,821	22,473,433	23,563,224	24,481,058	25,251,281	26,599,564	27,754,471	29,052,926	30,033,814	30,948,002	31,945,419		
2002	2,869,701	5,974,104	10,904,711	12,557,721	14,336,593	15,282,252	16,953,263	18,971,501	20,532,307	22,065,591	23,324,708	24,768,850	26,233,239	27,789,118	29,245,576	30,564,715	32,168,538	33,472,472	34,946,564			
2003	3,005,630	6,170,169	10,986,579	12,440,789	14,712,792	15,890,336	17,547,864	19,411,966	21,109,875	23,137,508	24,519,853	25,914,121	27,239,462	29,173,989	30,717,182	32,180,629	33,446,875	34,687,967				
2004	2,576,774	5,575,687	9,715,931	10,857,997	12,645,570	13,400,601	14,699,204	16,636,115	18,037,161	19,383,829	20,553,368	21,476,269	22,567,953	23,809,303	24,808,922	26,089,835	27,093,794					
2005	3,043,779	6,426,413	11,404,751	12,911,811	15,372,480	16,495,654	18,278,933	20,395,703	22,262,867	23,936,468	25,533,505	27,273,294	29,097,693	30,676,081	32,345,947	33,771,140						
2006	3,181,846	6,926,859	12,631,579	14,251,835	16,839,421	17,851,785	20,004,949	22,778,302	25,162,714	27,836,686	30,567,722	33,072,195	35,342,335	37,663,685	39,610,127							
2007	3,330,358	7,403,373	13,467,624	15,117,740	18,207,792	19,428,313	21,250,679	24,225,117	27,489,256	30,241,685	32,859,887	35,141,330	37,040,633	39,047,320								
2008	3,829,663	7,726,704	14,261,055	16,108,593	19,140,391	20,534,825	23,083,616	26,874,140	30,338,262	32,809,841	35,042,267	37,204,130	39,226,339									
2009	4,043,694	7,997,379	14,141,334	15,920,885	18,815,508	20,048,291	22,273,245	25,437,379	28,143,780	30,584,089	32,439,505	34,639,497										
2010	4,432,354	9,016,774	16,588,395	19,104,142	22,775,355	24,227,052	27,070,618	30,879,302	34,365,835	37,707,179	40,868,214											
2011	4,031,494	8,604,360	15,930,161	18,165,138	21,923,349	23,452,802	26,624,779	30,542,208	33,584,668	36,458,615												
2012	4,978,237	9,883,485	17,689,284	20,040,313	23,897,208	25,644,619	28,704,573	32,994,561	36,993,444													
2013	4,478,913	9,077,008	16,243,504	18,265,738	21,882,664	23,404,237	26,334,041	29,997,194														
2014	3,355,670	7,526,522	13,749,357	15,374,215	18,301,259	19,530,697	21,888,790															
2015	4,314,277	9,116,114	16,883,352	19,310,678	23,421,077																	
2016	4,460,384	9,473,948	17,343,392																			
2017	4,732,370																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Weekly Indemnity

Reported Loss & ALAE - Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Weekly Indemnity

Reported Loss & ALAE - With Z-Files - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	21,435,192	34,799,988	36,079,388	43,151,458	46,700,612	53,932,815	72,919,703	89,541,409	73,498,314	64,893,801	63,953,601	61,967,065	61,147,145	61,850,003	61,554,276	61,717,051	62,753,320	61,983,259	61,606,953	62,107,194	61,706,221
2000	19,353,969	34,256,870	41,037,536	44,613,340	50,709,334	56,757,252	63,633,096	77,737,293	66,676,056	65,214,223	64,938,190	63,041,482	63,611,985	62,811,780	62,850,264	62,190,381	60,684,639	60,144,064	62,125,635	62,713,820	63,284,767	
2001	12,609,836	27,927,821	39,797,908	44,945,858	53,426,494	60,992,556	65,750,256	56,601,414	55,464,004	54,055,314	53,096,051	50,038,512	50,602,507	51,948,573	51,335,680	52,109,413	53,199,044	53,957,608	54,537,782	55,261,954		
2002	13,270,950	30,228,583	48,350,473	53,323,457	58,154,979	59,878,120	52,688,516	56,250,634	57,681,178	57,690,384	58,814,573	57,956,909	59,894,597	59,713,179	59,809,639	58,419,572	59,892,200	60,806,468	61,877,496			
2003	24,779,238	47,940,035	73,428,072	75,093,916	61,984,343	62,036,043	57,147,495	54,827,398	52,905,341	55,326,357	53,670,190	53,900,203	54,970,117	58,650,842	58,439,874	58,043,700	58,498,518	58,600,693				
2004	18,466,188	30,130,417	38,214,489	42,112,755	46,392,787	50,384,360	51,056,600	50,535,221	51,213,134	52,672,296	52,709,939	48,877,529	49,863,250	47,934,899	48,234,271	48,679,567	49,855,268					
2005	23,022,596	42,082,693	52,962,247	56,410,060	63,471,525	69,175,895	64,900,250	60,949,091	60,606,348	61,763,144	58,385,451	58,431,224	59,088,905	59,144,038	61,003,004	60,654,910						
2006	25,107,913	42,869,075	61,646,620	63,818,132	66,696,894	66,638,954	65,759,594	66,426,370	66,463,441	65,273,842	72,503,655	73,875,924	75,210,686	74,291,302	76,367,201							
2007	20,638,960	30,646,205	40,939,424	42,914,156	52,490,257	56,039,118	58,152,060	60,522,810	64,054,616	70,276,007	69,247,439	70,639,794	72,505,729	73,657,682								
2008	15,863,768	25,456,158	34,903,701	36,831,748	43,876,879	47,852,209	50,859,127	55,619,398	67,363,823	67,560,966	71,949,531	70,034,318	71,946,203									
2009	16,603,088	24,094,711	33,632,501	36,398,295	41,632,618	44,039,967	46,284,856	56,677,389	58,301,346	62,066,870	63,091,975	67,254,243										
2010	14,686,665	30,152,214	33,428,880	35,979,388	41,559,080	43,774,310	58,347,713	61,238,881	73,043,781	74,391,564	85,201,137											
2011	15,949,978	26,366,991	31,577,936	35,409,960	48,470,569	52,724,838	53,114,615	62,878,689	65,595,026	81,133,989												
2012	17,724,807	28,345,067	38,224,858	42,281,891	47,116,036	50,499,701	55,813,192	62,902,232	95,661,698													
2013	15,315,116	25,932,738	34,274,548	36,220,055	42,144,020	45,039,097	50,158,954	75,553,819														
2014	9,778,531	17,390,948	27,311,782	29,176,131	35,007,941	37,326,771	62,370,207															
2015	11,037,940	19,296,048	32,643,777	36,362,707	66,379,843																	
2016	10,647,266	19,384,943	27,795,651																			
2017	10,998,883																					

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	21,435	34,800	36,079	43,151	46,701	53,933	72,920	89,541	73,498
2000	19,354	34,257	41,038	44,613	50,709	56,757	63,633	77,737	66,676	65,214
2001	12,610	27,928	39,798	44,946	53,426	60,993	65,750	56,601	55,464	54,055
2002	13,271	30,229	48,350	53,323	58,155	59,878	52,689	56,251	57,681	57,690
2003	24,779	47,940	73,428	75,094	61,984	62,036	57,147	54,827	52,905	55,326
2004	18,466	30,130	38,214	42,113	46,393	50,384	51,057	50,535	51,213	52,672
2005	23,023	42,083	52,962	56,410	63,472	69,176	64,900	60,949	60,606	61,763
2006	25,108	42,869	61,647	63,818	66,697	66,639	65,760	66,426	66,463	65,274
2007	20,639	30,646	40,939	42,914	52,490	56,039	58,152	60,523	64,055	70,276
2008	15,864	25,456	34,904	36,832	43,877	47,852	50,859	55,619	67,364	67,561
2009	16,603	24,095	33,633	36,398	41,633	44,040	46,285	56,677	58,301	62,067
2010	14,687	30,152	33,429	35,979	41,559	43,774	58,348	61,239	73,044	74,392
2011	15,950	26,367	31,578	35,410	48,471	52,725	53,115	62,879	65,595	81,134
2012	17,725	28,345	38,225	42,282	47,116	50,500	55,813	62,902	95,662	
2013	15,315	25,933	34,275	36,220	42,144	45,039	50,159	75,554		
2014	9,779	17,391	27,312	29,176	35,008	37,327	62,370			
2015	11,038	19,296	32,644	36,363	66,380					
2016	10,647	19,385	27,796							
2017	10,999									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.6235	1.0368	1.1960	1.0822	1.1549	1.3520	1.2279	0.8208	0.8829
2000	1.7700	1.1979	1.0871	1.1366	1.1193	1.1211	1.2216	0.8577	0.9781	0.9958
2001	2.2148	1.4250	1.1294	1.1887	1.1416	1.0780	0.8609	0.9799	0.9746	0.9823
2002	2.2778	1.5995	1.1029	1.0906	1.0296	0.8799	1.0676	1.0254	1.0002	1.0195
2003	1.9347	1.5317	1.0227	0.8254	1.0008	0.9212	0.9594	0.9649	1.0458	0.9701
2004	1.6317	1.2683	1.1020	1.1016	1.0860	1.0133	0.9898	1.0134	1.0285	1.0007
2005	1.8279	1.2585	1.0651	1.1252	1.0899	0.9382	0.9391	0.9944	1.0191	0.9453
2006	1.7074	1.4380	1.0352	1.0451	0.9991	0.9868	1.0101	1.0006	0.9821	1.1108
2007	1.4849	1.3359	1.0482	1.2231	1.0676	1.0377	1.0408	1.0584	1.0971	0.9854
2008	1.6047	1.3711	1.0552	1.1913	1.0906	1.0628	1.0936	1.2112	1.0029	1.0650
2009	1.4512	1.3958	1.0822	1.1438	1.0578	1.0510	1.2245	1.0287	1.0646	1.0165
2010	2.0530	1.1087	1.0763	1.1551	1.0533	1.3329	1.0496	1.1928	1.0185	1.1453
2011	1.6531	1.1976	1.1214	1.3688	1.0878	1.0074	1.1838	1.0432	1.2369	
2012	1.5992	1.3486	1.1061	1.1143	1.0718	1.1052	1.1270	1.5208		
2013	1.6933	1.3217	1.0568	1.1636	1.0687	1.1137	1.5063			
2014	1.7785	1.5705	1.0683	1.1999	1.0662	1.6709				
2015	1.7482	1.6917	1.1139	1.8255						
2016	1.8206	1.4339								
Latest 9 Volume Weighted	1.6960	1.3575	1.0803	1.2627	1.0595	1.1282	1.1180	1.1200	1.0553	1.0327
Latest 6 Volume Weighted	1.6993	1.4031	1.0910	1.3029	1.0683	1.1927	1.1917	1.1784	1.0656	1.0475
Latest 3 Volume Weighted	1.7821	1.5650	1.0799	1.4105	1.0692	1.2670	1.2656	1.2528	1.1049	1.0795
Simple Average of Middle 4 of Last 6	1.7183	1.4186	1.0912	1.2218	1.0661	1.1507	1.1572	1.1264	1.0458	1.0444
Simple Average of Middle 3 of Last 5	1.7400	1.4510	1.0961	1.2441	1.0689	1.1839	1.1785	1.1490	1.0601	1.0641
Selected Oct 16	1.7200	1.3600	1.0800	1.1600	1.0720	1.0850	1.1150	1.0700	1.0300	1.0050
Selected Feb 17	1.7200	1.3600	1.0800	1.1600	1.0720	1.0850	1.1150	1.0700	1.0300	1.0050
Selected Factors*	1.7200	1.4200	1.0800	1.4500	1.2000	1.0300	1.0300	1.0300	1.0000	1.0000
Selected Ultimate	5.2160	3.0326	2.1356	1.9774	1.3637	1.1364	1.1033	1.0712	1.0400	1.0400

*212-Ult Factor = [Tab Rsv 116-Ult] / Product [116-128 Factor to 200-212 Factor]

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
64,894	63,954	61,967	61,147	61,850	61,554	61,717	62,753	61,983	61,607	62,107	61,706
64,938	63,041	63,612	62,812	62,850	62,190	60,685	60,144	62,126	62,714	63,285	
53,096	50,039	50,603	51,949	51,336	52,109	53,199	53,958	54,538	55,262		
58,815	57,957	59,895	59,713	59,810	58,420	59,892	60,806	61,877			
53,670	53,900	54,970	58,651	58,440	58,044	58,499	58,601				
52,710	48,878	49,863	47,935	48,234	48,680	49,855					
58,385	58,431	59,089	59,144	61,003	60,655						
72,504	73,876	75,211	74,291	76,367							
69,247	70,640	72,506	73,658								
71,950	70,034	71,946									
63,092	67,254										
85,201											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult	Tab Rsv 116-Ult
0.9855	0.9689	0.9868	1.0115	0.9952	1.0026	1.0168	0.9877	0.9939	1.0081	0.9935	1.0059
0.9708	1.0090	0.9874	1.0006	0.9895	0.9758	0.9911	1.0329	1.0095	1.0091		1.0123
0.9424	1.0113	1.0266	0.9882	1.0151	1.0209	1.0143	1.0108	1.0133			1.1142
0.9854	1.0334	0.9970	1.0016	0.9768	1.0252	1.0153	1.0176				1.0633
1.0043	1.0198	1.0670	0.9964	0.9932	1.0078	1.0017					1.1050
0.9273	1.0202	0.9613	1.0062	1.0092	1.0242						1.0427
1.0008	1.0113	1.0009	1.0314	0.9943							1.0648
1.0189	1.0181	0.9878	1.0279								1.0574
1.0201	1.0264	1.0159									1.0578
0.9734	1.0273										
1.0660											
0.9956	1.0199	1.0029	1.0089	0.9954	1.0084	1.0077	1.0120	1.0052	1.0086	0.9935	1.0565
1.0032	1.0208	1.0050	1.0100	0.9954	1.0084	1.0077	1.0120	1.0052	1.0086	0.9935	1.0647
1.0178	1.0238	1.0014	1.0233	0.9982	1.0188	1.0103	1.0208	1.0052	1.0086	0.9935	1.0597
1.0033	1.0211	1.0004	1.0081	0.9966	1.0139	1.0104	1.0142	1.0095	1.0086	0.9935	1.0608
1.0133	1.0215	1.0015	1.0119	0.9989	1.0176	1.0104	1.0142	1.0095	1.0086	0.9935	1.0600
1.0050	1.0050	0.9970	0.9970	0.9970	0.9970	0.9970	1.0060	1.0060	1.0040	1.0390	1.0400
1.0050	1.0050	0.9970	0.9970	0.9970	0.9970	0.9970	1.0060	1.0060	1.0040	1.0390	1.0400
1.0000	1.0000	0.9970	0.9970	0.9970	1.0020	1.0040	1.0060	1.0060	1.0060	1.0246	1.0400
1.0400	1.0400	1.0400	1.0431	1.0463	1.0494	1.0473	1.0432	1.0369	1.0307	1.0246	

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	5.4272	7.2540	12.2788	6.1422	7.3566	4.4217	4.4217	5.2160
12	3.2000	4.2688	6.8900	3.5747	4.2280	2.5708	2.5708	3.0326
20	2.3573	3.0424	4.4027	2.5198	2.9139	1.8903	1.8903	2.1356
24	2.1821	2.7886	4.0769	2.3093	2.6584	1.7502	1.7502	1.9774
32	1.7281	2.1404	2.8904	1.8900	2.1368	1.5088	1.5088	1.3637
36	1.6311	2.0036	2.7034	1.7728	1.9991	1.4075	1.4075	1.1364
44	1.4457	1.6799	2.1336	1.5406	1.6885	1.2972	1.2972	1.1033
56	1.2931	1.4097	1.6859	1.3313	1.4328	1.1634	1.1634	1.0712
68	1.1545	1.1963	1.3457	1.1819	1.2469	1.0873	1.0873	1.0400
80	1.0941	1.1227	1.2180	1.1302	1.1763	1.0556	1.0556	1.0400
92	1.0594	1.0718	1.1283	1.0821	1.1055	1.0504	1.0504	1.0400
104	1.0642	1.0685	1.1085	1.0786	1.0910	1.0452	1.0452	1.0400
116	1.0434	1.0467	1.0827	1.0563	1.0680	1.0400	1.0400	1.0400
128	1.0404	1.0415	1.0812	1.0558	1.0663	1.0431	1.0431	1.0431
140	1.0311	1.0312	1.0565	1.0474	1.0538	1.0462	1.0462	1.0463
152	1.0359	1.0359	1.0584	1.0510	1.0549	1.0494	1.0494	1.0494
164	1.0274	1.0274	1.0389	1.0366	1.0366	1.0525	1.0525	1.0473
176	1.0195	1.0195	1.0283	1.0259	1.0259	1.0557	1.0557	1.0432
188	1.0074	1.0074	1.0074	1.0116	1.0116	1.0494	1.0494	1.0369
200	1.0021	1.0021	1.0021	1.0021	1.0021	1.0432	1.0432	1.0307
212	0.9935	0.9935	0.9935	0.9935	0.9935	1.0390	1.0390	1.0246

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.7200	5.2160	19.17%	8		5.2160	1.7200	1.7200	5.2160
12	1.4200	3.0326		12	32.98%	3.0326	1.4200	1.4200	3.0326
20	1.0800	2.1356	46.83%	20		2.1356	1.0800	1.0800	2.1356
24	1.4500	1.9774		24	50.57%	1.9774	1.4500	1.4500	1.9774
32	1.2000	1.3637	73.33%	32		1.3637	1.2000	1.2000	1.3637
36	1.0300	1.1364		36	87.99%	1.1364	1.0403	1.0405	1.1364
44	1.0300	1.1033	90.63%	48	91.54%	1.0924	1.0300	1.0300	1.0922
56	1.0300	1.0712	93.35%	60	94.29%	1.0606	1.0198	1.0195	1.0604
68	1.0000	1.0400	96.15%	72	96.15%	1.0400	1.0000	1.0000	1.0401
80	1.0000	1.0400	96.15%	84	96.15%	1.0400	1.0000	1.0000	1.0401
92	1.0000	1.0400	96.15%	96	96.15%	1.0400	1.0000	1.0000	1.0401
104	1.0000	1.0400	96.15%	108	96.15%	1.0400	0.9990	1.0000	1.0401
116	0.9970	1.0400	96.15%	120	96.06%	1.0410	0.9970	1.0000	1.0401
128	0.9970	1.0431	95.86%	132	95.77%	1.0442	0.9970	1.0000	1.0401
140	0.9970	1.0463	95.58%	144	95.48%	1.0473	0.9987	1.0010	1.0401
152	1.0020	1.0494	95.29%	156	95.35%	1.0487	1.0027	1.0030	1.0391
164	1.0040	1.0473	95.48%	168	95.61%	1.0459	1.0047	1.0045	1.0360
176	1.0060	1.0432	95.86%	180	96.05%	1.0411	1.0060	1.0060	1.0313
188	1.0060	1.0369	96.44%	192	96.63%	1.0349	1.0060	1.0060	1.0252
200	1.0060	1.0307	97.02%	204	97.21%	1.0287	1.0040	1.0040	1.0191
Tail	1.0246	1.0246	97.60%	Tail	97.60%	1.0246	1.0246	1.0150	1.0150

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	652,992	63,285	1.0246	64,842	1,557	17,860	9.93%
2001	497,121	666,345	55,262	1.0307	56,961	1,699	16,199	8.55%
2002	532,307	694,750	61,877	1.0369	64,163	2,285	20,195	9.24%
2003	560,857	720,485	58,601	1.0432	61,130	2,529	17,655	8.48%
2004	596,045	752,149	49,855	1.0473	52,215	2,359	18,163	6.94%
2005	630,367	779,863	60,655	1.0494	63,653	2,998	21,900	8.16%
2006	654,863	788,869	76,367	1.0463	79,901	3,534	31,798	10.13%
2007	677,464	800,878	73,658	1.0431	76,835	3,177	30,111	9.59%
2008	707,051	819,466	71,946	1.0400	74,824	2,878	28,650	9.13%
2009	739,881	838,236	67,254	1.0400	69,945	2,690	29,384	8.34%
2010	759,948	855,836	85,201	1.0400	88,610	3,408	41,008	10.35%
2011	772,985	863,609	81,134	1.0400	84,380	3,246	42,167	9.77%
2012	768,953	834,082	95,662	1.0400	99,489	3,827	56,727	11.93%
2013	778,092	830,703	75,554	1.0712	80,934	5,380	44,349	9.74%
2014	817,710	854,208	62,370	1.1033	68,816	6,445	39,894	8.06%
2015	873,488	895,461	66,380	1.3637	90,524	24,144	42,597	10.11%
2016	918,780	930,724	27,796	2.1356	59,360	31,565	10,329	6.38%
2017	656,688	656,688	10,999	5.2160	38,247	27,248	6,267	5.82%
	12,417,877	14,235,345	1,143,856		1,274,825	130,970	515,253	8.96%

Notes:
(3) Indexed to match the indexing done on losses
(6) Current year adjusted to reflect the portion of the fiscal year that is completed
(9) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	64,842				64,842	9.93%	9.93%	100.00%	9.93%	9.93%
2001	666,345	56,961	66,787			66,787	10.02%	8.55%	100.00%	8.55%	8.55%
2002	694,750	64,163	58,670	68,790		63,730	9.17%	9.24%	100.00%	9.24%	9.24%
2003	720,485	61,130	66,088	60,430	70,854	65,791	9.13%	8.48%	100.00%	8.48%	8.48%
2004	752,149	52,215	62,963	68,070	62,243	64,426	8.57%	6.94%	100.00%	6.94%	6.94%
2005	779,863	63,653	53,781	64,852	70,112	62,915	8.07%	8.16%	100.00%	8.16%	8.16%
2006	788,869	79,901	65,562	55,395	66,798	62,585	7.93%	10.13%	90.00%	9.91%	9.91%
2007	800,878	76,835	82,298	67,529	57,056	68,961	8.61%	9.59%	80.00%	9.40%	9.40%
2008	819,466	74,824	79,140	84,767	69,555	77,821	9.50%	9.13%	70.00%	9.24%	9.24%
2009	838,236	69,945	77,069	81,514	87,310	81,964	9.78%	8.34%	60.00%	8.92%	8.92%
2010	855,836	88,610	72,043	79,381	83,959	78,461	9.17%	10.35%	50.00%	9.76%	9.76%
2011	863,609	84,380	91,268	74,204	81,763	82,412	9.54%	9.77%	40.00%	9.63%	9.63%
2012	834,082	99,489	86,911	94,006	76,430	85,782	10.28%	11.93%	30.00%	10.78%	10.78%
2013	830,703	80,934	102,473	89,518	96,826	96,273	11.59%	9.74%	20.00%	11.22%	11.22%
2014	854,208	68,816	83,362	105,547	92,204	93,704	10.97%	8.06%	10.00%	10.68%	10.68%
2015	895,461	90,524	70,880	85,862	108,714	88,485	9.88%	10.11%	0.00%	9.88%	9.88%
2016	930,724	59,360	93,240	73,006	88,438	84,895	9.12%	6.38%	0.00%	9.12%	9.12%
2017	656,688	38,247	40,361	63,397	49,640	51,133	7.79%	5.82%	0.00%	7.79%	7.79%
	14,235,345	1,274,825	1,252,896	1,216,271	1,161,903	1,340,966					

Trend in Losses Based on Exponential Regression (excluding 2017) (a):
1.95%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 9
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 18

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	652,992	9.93%	64,842	97.60%	2.40%	63,285	63,285	1,557	64,842	9.93%
2001	666,345	8.55%	56,961	97.02%	2.98%	55,262	55,262	1,699	56,961	8.55%
2002	694,750	9.24%	64,163	96.44%	3.56%	61,877	61,877	2,285	64,163	9.24%
2003	720,485	8.48%	61,130	95.86%	4.14%	58,601	58,601	2,529	61,130	8.48%
2004	752,149	6.94%	52,215	95.48%	4.52%	49,855	49,855	2,359	52,215	6.94%
2005	779,863	8.16%	63,653	95.29%	4.71%	60,655	60,655	2,998	63,653	8.16%
2006	788,869	9.91%	78,169	95.58%	4.42%	74,712	76,367	3,457	79,824	10.12%
2007	800,878	9.40%	75,260	95.86%	4.14%	72,148	73,658	3,112	76,770	9.59%
2008	819,466	9.24%	75,723	96.15%	3.85%	72,810	71,946	2,913	74,859	9.14%
2009	838,236	8.92%	74,753	96.15%	3.85%	71,877	67,254	2,875	70,130	8.37%
2010	855,836	9.76%	83,535	96.15%	3.85%	80,322	85,201	3,213	88,414	10.33%
2011	863,609	9.63%	83,199	96.15%	3.85%	79,999	81,134	3,200	84,334	9.77%
2012	834,082	10.78%	89,894	96.15%	3.85%	86,436	95,662	3,458	99,120	11.88%
2013	830,703	11.22%	93,205	93.35%	6.65%	87,009	75,554	6,195	81,749	9.84%
2014	854,208	10.68%	91,215	90.63%	9.37%	82,672	62,370	8,543	70,914	8.30%
2015	895,461	9.88%	88,485	73.33%	26.67%	64,885	66,380	23,601	89,980	10.05%
2016	930,724	9.12%	84,895	46.83%	53.17%	39,752	27,796	45,143	72,938	7.84%
2017	656,688	7.79%	51,133	19.17%	80.83%	14,705	10,999	36,428	47,427	7.22%
	14,235,345		1,332,429			1,176,863	1,143,856	155,566	1,299,422	9.13%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Weekly Indemnity

Paid Loss & ALAE - With Z-Files - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	7,074,867	13,227,040	15,317,298	18,748,890	20,205,655	22,766,345	26,043,438	28,767,378	30,842,236	32,749,827	34,346,093	35,479,000	36,592,736	37,632,679	38,894,037	40,451,351	41,692,650	42,946,526	43,969,615	44,992,440	45,978,406
2000	3,637,787	7,997,184	14,664,441	16,795,438	20,151,735	21,452,629	23,956,378	27,138,551	29,782,375	31,751,310	33,596,370	35,165,626	36,400,832	37,448,844	38,695,371	39,847,260	40,987,504	42,016,894	43,232,173	44,338,845	45,424,517	
2001	3,952,455	8,128,124	14,352,355	16,372,861	19,330,208	20,422,001	22,228,011	24,494,561	26,208,524	27,584,118	28,893,672	30,136,356	31,171,981	32,035,136	33,511,041	34,752,530	36,119,105	37,131,183	38,060,721	39,062,995		
2002	3,745,444	7,797,213	14,131,142	16,254,624	18,499,382	19,692,709	21,760,013	24,214,429	26,072,488	27,860,893	29,298,688	30,929,001	32,568,743	34,272,038	35,834,265	37,223,041	38,875,395	40,201,399	41,682,899			
2003	3,861,076	7,926,289	14,004,119	15,839,188	18,650,013	20,106,820	22,103,531	24,324,638	26,306,866	28,625,223	30,185,204	31,747,024	33,199,821	35,278,975	36,902,102	38,411,029	39,698,686	40,945,296				
2004	3,251,633	7,035,962	12,158,095	13,571,010	15,724,378	16,633,913	18,169,084	20,428,574	22,029,560	23,548,801	24,858,692	25,869,571	27,040,893	28,346,829	29,377,881	30,683,587	31,691,908					
2005	3,765,633	7,950,483	13,947,550	15,763,004	18,671,935	19,999,718	22,066,523	24,483,761	26,590,507	28,465,319	30,210,718	32,077,881	33,995,809	35,625,433	37,324,198	38,755,254						
2006	3,832,954	8,344,317	15,088,272	17,003,692	20,002,681	21,176,002	23,615,393	26,745,157	29,416,983	32,341,992	35,275,780	37,914,335	40,255,375	42,614,801	44,569,549							
2007	3,937,052	8,752,053	15,780,465	17,692,936	21,193,760	22,576,529	24,628,835	27,961,107	31,540,887	34,495,096	37,247,593	39,599,696	41,531,589	43,547,094								
2008	4,438,545	8,955,181	16,358,168	18,451,306	21,865,645	23,436,024	26,283,633	30,441,202	34,162,348	36,763,397	39,066,625	41,266,062	43,296,220									
2009	4,581,238	9,060,500	15,979,679	17,983,767	21,217,751	22,595,065	25,008,468	28,404,980	31,253,990	33,772,820	35,660,191	37,870,110										
2010	4,991,613	10,154,480	18,613,788	21,424,478	25,406,635	26,981,287	30,017,123	34,026,313	37,622,938	41,020,360	44,193,137											
2011	4,504,141	9,613,124	17,559,404	19,983,678	23,996,004	25,628,873	28,942,428	32,985,467	36,080,557	38,966,650												
2012	5,399,882	10,720,594	19,054,189	21,564,185	25,593,229	27,418,634	30,555,564	34,918,299	38,934,722													
2013	4,781,758	9,690,758	17,177,123	19,289,617	22,997,531	24,557,381	27,525,272	31,204,633														
2014	3,505,447	7,862,460	14,241,837	15,907,570	18,872,666	20,118,086	22,476,179															
2015	4,422,807	9,345,439	17,213,651	19,672,532	23,782,931																	
2016	4,518,369	9,597,109	17,466,554																			
2017	4,732,370																					

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	7,075	13,227	15,317	18,749	20,206	22,766	26,043	28,767	30,842
2000	3,638	7,997	14,664	16,795	20,152	21,453	23,956	27,139	29,782	31,751
2001	3,952	8,128	14,352	16,373	19,330	20,422	22,228	24,495	26,209	27,584
2002	3,745	7,797	14,131	16,255	18,499	19,693	21,760	24,214	26,072	27,861
2003	3,861	7,926	14,004	15,839	18,650	20,107	22,104	24,325	26,307	28,625
2004	3,252	7,036	12,158	13,571	15,724	16,634	18,169	20,429	22,030	23,549
2005	3,766	7,950	13,948	15,763	18,672	20,000	22,067	24,484	26,591	28,465
2006	3,833	8,344	15,088	17,004	20,003	21,176	23,615	26,745	29,417	32,342
2007	3,937	8,752	15,780	17,693	21,194	22,577	24,629	27,961	31,541	34,495
2008	4,439	8,955	16,358	18,451	21,866	23,436	26,284	30,441	34,162	36,763
2009	4,581	9,060	15,980	17,984	21,218	22,595	25,008	28,405	31,254	33,773
2010	4,992	10,154	18,614	21,424	25,407	26,981	30,017	34,026	37,623	41,020
2011	4,504	9,613	17,559	19,984	23,996	25,629	28,942	32,985	36,081	38,967
2012	5,400	10,721	19,054	21,564	25,593	27,419	30,556	34,918	38,935	
2013	4,782	9,691	17,177	19,290	22,998	24,557	27,525	31,205		
2014	3,505	7,862	14,242	15,908	18,873	20,118	22,476			
2015	4,423	9,345	17,214	19,673	23,783					
2016	4,518	9,597	17,467							
2017	4,732									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.8696	1.1580	1.2240	1.0777	1.1267	1.1439	1.1046	1.0721	1.0618
2000	2.1984	1.8337	1.1453	1.1998	1.0646	1.1167	1.1328	1.0974	1.0661	1.0581
2001	2.0565	1.7658	1.1408	1.1806	1.0565	1.0884	1.1020	1.0700	1.0525	1.0475
2002	2.0818	1.8123	1.1503	1.1381	1.0645	1.1050	1.1128	1.0767	1.0686	1.0516
2003	2.0529	1.7668	1.1310	1.1775	1.0781	1.0993	1.1005	1.0815	1.0881	1.0545
2004	2.1638	1.7280	1.1162	1.1587	1.0578	1.0923	1.1244	1.0784	1.0690	1.0556
2005	2.1113	1.7543	1.1302	1.1845	1.0711	1.1033	1.1095	1.0860	1.0705	1.0613
2006	2.1770	1.8082	1.1269	1.1764	1.0587	1.1152	1.1325	1.0999	1.0994	1.0907
2007	2.2230	1.8031	1.1212	1.1979	1.0652	1.0909	1.1353	1.1280	1.0937	1.0798
2008	2.0176	1.8267	1.1280	1.1850	1.0718	1.1215	1.1582	1.1222	1.0761	1.0627
2009	1.9777	1.7637	1.1254	1.1798	1.0649	1.1068	1.1358	1.1003	1.0806	1.0559
2010	2.0343	1.8331	1.1510	1.1859	1.0620	1.1125	1.1336	1.1057	1.0903	1.0773
2011	2.1343	1.8266	1.1381	1.2008	1.0680	1.1293	1.1397	1.0938	1.0800	
2012	1.9853	1.7773	1.1317	1.1868	1.0713	1.1144	1.1428	1.1150		
2013	2.0266	1.7725	1.1230	1.1922	1.0678	1.1209	1.1337			
2014	2.2429	1.8114	1.1170	1.1864	1.0660	1.1172				
2015	2.1130	1.8419	1.1428	1.2089						
2016	2.1240	1.8200								
Latest 9 Volume Weighted	2.0659	1.8078	1.1315	1.1916	1.0663	1.1145	1.1363	1.1046	1.0836	1.0666
Latest 6 Volume Weighted	2.0945	1.8074	1.1346	1.1935	1.0667	1.1169	1.1405	1.1105	1.0864	1.0715
Latest 3 Volume Weighted	2.1536	1.8251	1.1282	1.1965	1.0686	1.1174	1.1389	1.1051	1.0839	1.0660
Simple Average of Middle 4 of Last 6	2.0995	1.8088	1.1339	1.1916	1.0667	1.1162	1.1380	1.1108	1.0861	1.0703
Simple Average of Middle 3 of Last 5	2.0879	1.8029	1.1309	1.1933	1.0673	1.1175	1.1364	1.1070	1.0836	1.0733
Selected Oct 16	2.0750	1.8100	1.1300	1.1875	1.0680	1.1175	1.1385	1.1075	1.0850	1.0650
Selected Feb 17	2.0750	1.8100	1.1300	1.1875	1.0680	1.1175	1.1385	1.1075	1.0850	1.0650
Selected Factors*	2.1000	1.8100	1.1300	1.1925	1.0680	1.1175	1.1385	1.1075	1.0850	1.0700
Selected Ultimate	18.6304	8.8716	4.9014	4.3376	3.6374	3.4058	3.0477	2.6769	2.4171	2.2277

*212-Ult Factor = [Tab Rsv 116-Ult] / Product[116-128 Factor to 200-212 Factor]

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
32,750	34,346	35,479	36,593	37,633	38,894	40,451	41,693	42,947	43,970	44,992	45,978
33,596	35,166	36,401	37,449	38,695	39,847	40,988	42,017	43,232	44,339	45,425	
28,894	30,136	31,172	32,035	33,511	34,753	36,119	37,131	38,061	39,063		
29,299	30,929	32,569	34,272	35,834	37,223	38,875	40,201	41,683			
30,185	31,747	33,200	35,279	36,902	38,411	39,699	40,945				
24,859	25,870	27,041	28,347	29,378	30,684	31,692					
30,211	32,078	33,996	35,625	37,324	38,755						
35,276	37,914	40,255	42,615	44,570							
37,248	39,600	41,532	43,547								
39,067	41,266	43,296									
35,660	37,870										
44,193											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult	Tab Rsv 116-Ult
1.0487	1.0330	1.0314	1.0284	1.0335	1.0400	1.0307	1.0301	1.0238	1.0233	1.0219	1.7569
1.0467	1.0351	1.0288	1.0333	1.0298	1.0286	1.0251	1.0289	1.0256	1.0245		1.7690
1.0430	1.0344	1.0277	1.0461	1.0370	1.0393	1.0280	1.0250	1.0263			1.8087
1.0556	1.0530	1.0523	1.0456	1.0388	1.0444	1.0341	1.0369				1.9554
1.0517	1.0458	1.0626	1.0460	1.0409	1.0335	1.0314					1.8296
1.0407	1.0453	1.0483	1.0364	1.0444	1.0329						1.9228
1.0618	1.0598	1.0479	1.0477	1.0383							1.8507
1.0748	1.0617	1.0586	1.0459								1.9757
1.0631	1.0488	1.0485									1.8467
1.0563	1.0492										
1.0620											
1.0575	1.0484	1.0453	1.0412	1.0373	1.0365	1.0299	1.0303	1.0252	1.0239	1.0219	1.8568
1.0607	1.0520	1.0532	1.0449	1.0379	1.0365	1.0299	1.0303	1.0252	1.0239	1.0219	1.8964
1.0604	1.0531	1.0519	1.0440	1.0410	1.0371	1.0313	1.0304	1.0252	1.0239	1.0219	1.8927
1.0608	1.0509	1.0519	1.0459	1.0388	1.0364	1.0300	1.0295	1.0256	1.0239	1.0219	1.8939
1.0623	1.0526	1.0518	1.0458	1.0393	1.0352	1.0300	1.0295	1.0256	1.0239	1.0219	1.8734
1.0600	1.0510	1.0500	1.0425	1.0375	1.0365	1.0300	1.0275	1.0275	1.0260	1.3934	1.8300
1.0600	1.0510	1.0500	1.0425	1.0375	1.0365	1.0300	1.0275	1.0275	1.0260	1.3934	1.8300
1.0610	1.0510	1.0500	1.0460	1.0390	1.0365	1.0300	1.0300	1.0275	1.0260	1.4114	1.8670
2.0820	1.9623	1.8671	1.7782	1.7000	1.6361	1.5785	1.5326	1.4879	1.4481	1.4114	

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	12.8201	13.5404	13.9022	13.4896	13.3493	17.8665	17.8665	18.6304
12	6.2055	6.4646	6.4553	6.4252	6.3937	8.6104	8.6104	8.8716
20	3.4326	3.5768	3.5370	3.5521	3.5464	4.7571	4.7571	4.9014
24	3.0335	3.1524	3.1349	3.1327	3.1358	4.2098	4.2098	4.3376
32	2.5457	2.6412	2.6200	2.6290	2.6279	3.5451	3.5451	3.6374
36	2.3873	2.4760	2.4517	2.4647	2.4622	3.3194	3.3194	3.4058
44	2.1420	2.2167	2.1942	2.2080	2.2033	2.9704	2.9704	3.0477
56	1.8851	1.9437	1.9266	1.9403	1.9389	2.6090	2.6090	2.6769
68	1.7066	1.7503	1.7435	1.7467	1.7515	2.3558	2.3558	2.4171
80	1.5749	1.6111	1.6085	1.6082	1.6163	2.1712	2.1712	2.2277
92	1.4766	1.5036	1.5089	1.5026	1.5060	2.0387	2.0387	2.0820
104	1.3963	1.4175	1.4230	1.4164	1.4176	1.9233	1.9233	1.9623
116	1.3318	1.3474	1.3513	1.3479	1.3468	1.8300	1.8300	1.8671
128	1.2741	1.2794	1.2847	1.2813	1.2805	1.7428	1.7428	1.7782
140	1.2236	1.2244	1.2306	1.2251	1.2244	1.6718	1.6718	1.7000
152	1.1797	1.1797	1.1822	1.1794	1.1780	1.6114	1.6114	1.6361
164	1.1382	1.1382	1.1398	1.1379	1.1379	1.5546	1.5546	1.5785
176	1.1052	1.1052	1.1053	1.1048	1.1048	1.5093	1.5093	1.5326
188	1.0727	1.0727	1.0727	1.0731	1.0731	1.4689	1.4689	1.4879
200	1.0463	1.0463	1.0463	1.0463	1.0463	1.4296	1.4296	1.4481
212	1.0219	1.0219	1.0219	1.0219	1.0219	1.3934	1.3934	1.4114

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.1000	18.6304	5.37%	8		18.6304	2.1000	2.1000	18.7100
12	1.8100	8.8716		12	11.27%	8.8716	1.8100	1.8100	8.9095
20	1.1300	4.9014	20.40%	20		4.9014	1.1300	1.1300	4.9224
24	1.1925	4.3376		24	23.05%	4.3376	1.1925	1.1925	4.3561
32	1.0680	3.6374	27.49%	32		3.6374	1.0680	1.0680	3.6529
36	1.1175	3.4058		36	29.36%	3.4058	1.1691	1.1690	3.4203
44	1.1385	3.0477	32.81%	48	34.33%	2.9132	1.1273	1.1275	2.9259
56	1.1075	2.6769	37.36%	60	38.70%	2.5843	1.0995	1.0995	2.5950
68	1.0850	2.4171	41.37%	72	42.54%	2.3505	1.0797	1.0795	2.3602
80	1.0700	2.2277	44.89%	84	45.94%	2.1769	1.0669	1.0670	2.1863
92	1.0610	2.0820	48.03%	96	49.01%	2.0405	1.0575	1.0575	2.0491
104	1.0510	1.9623	50.96%	108	51.83%	1.9295	1.0507	1.0505	1.9376
116	1.0500	1.8671	53.56%	120	54.45%	1.8365	1.0486	1.0485	1.8445
128	1.0460	1.7782	56.24%	132	57.10%	1.7513	1.0436	1.0435	1.7592
140	1.0390	1.7000	58.82%	144	59.59%	1.6781	1.0381	1.0380	1.6858
152	1.0365	1.6361	61.12%	156	61.86%	1.6165	1.0343	1.0345	1.6241
164	1.0300	1.5785	63.35%	168	63.98%	1.5629	1.0300	1.0300	1.5700
176	1.0300	1.5326	65.25%	180	65.90%	1.5174	1.0292	1.0295	1.5242
188	1.0275	1.4879	67.21%	192	67.82%	1.4744	1.0270	1.0270	1.4806
200	1.0260	1.4481	69.06%	204	69.65%	1.4357	1.0172	1.0260	1.4416
Tail	1.4114	1.4114	70.85%	Tail	70.85%	1.4114	1.4114	1.4051	1.4051

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2000	475,277	652,992	45,425	1.4114	64,112	18,688	17,860	828	9.82%
2001	497,121	666,345	39,063	1.4481	56,567	17,504	16,199	1,305	8.49%
2002	532,307	694,750	41,683	1.4879	62,021	20,338	20,195	143	8.93%
2003	560,857	720,485	40,945	1.5326	62,751	21,806	17,655	4,151	8.71%
2004	596,045	752,149	31,692	1.5785	50,027	18,335	18,163	172	6.65%
2005	630,367	779,863	38,755	1.6361	63,409	24,654	21,900	2,754	8.13%
2006	654,863	788,869	44,570	1.7000	75,766	31,197	31,798	(601)	9.60%
2007	677,464	800,878	43,547	1.7782	77,434	33,887	30,111	3,776	9.67%
2008	707,051	819,466	43,296	1.8671	80,837	37,541	28,650	8,891	9.86%
2009	739,881	838,236	37,870	1.9623	74,312	36,442	29,384	7,058	8.87%
2010	759,948	855,836	44,193	2.0820	92,009	47,816	41,008	6,808	10.75%
2011	772,985	863,609	38,967	2.2277	86,807	47,840	42,167	5,673	10.05%
2012	768,953	834,082	38,935	2.4171	94,108	55,174	56,727	(1,553)	11.28%
2013	778,092	830,703	31,205	2.6769	83,532	52,328	44,349	7,979	10.06%
2014	817,710	854,208	22,476	3.0477	68,500	46,024	39,894	6,130	8.02%
2015	873,488	895,461	23,783	3.6374	86,507	62,724	42,597	20,127	9.66%
2016	918,780	930,724	17,467	4.9014	85,611	68,145	10,329	57,816	9.20%
2017	656,688	656,688	4,732	18.6304	58,777	54,045	6,267	47,778	8.95%
	12,417,877	14,235,345	628,603		1,323,089	694,486	515,253	179,233	9.29%

Notes:
(3) Indexed to match the indexing done on losses
(6) Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	64,112				64,112	9.82%	9.82%	100.00%	9.82%	9.93%
2001	666,345	56,567	66,036			66,036	9.91%	8.49%	100.00%	8.49%	8.55%
2002	694,750	62,021	58,264	68,017		63,140	9.09%	8.93%	100.00%	8.93%	9.24%
2003	720,485	62,751	63,881	60,012	70,057	64,650	8.97%	8.71%	100.00%	8.71%	8.48%
2004	752,149	50,027	64,634	65,798	61,812	64,081	8.52%	6.65%	100.00%	6.65%	6.94%
2005	779,863	63,409	51,528	66,573	67,772	61,957	7.94%	8.13%	100.00%	8.13%	8.16%
2006	788,869	75,766	65,312	53,073	68,570	62,318	7.90%	9.60%	90.00%	9.43%	9.91%
2007	800,878	77,434	78,039	67,271	54,666	66,659	8.32%	9.67%	80.00%	9.40%	9.40%
2008	819,466	80,837	79,757	80,381	69,289	76,475	9.33%	9.86%	70.00%	9.70%	9.24%
2009	838,236	74,312	83,262	82,149	82,792	82,734	9.87%	8.87%	60.00%	9.27%	8.92%
2010	855,836	92,009	76,541	85,760	84,614	82,305	9.62%	10.75%	50.00%	10.18%	9.76%
2011	863,609	86,807	94,770	78,838	88,333	87,313	10.11%	10.05%	40.00%	10.09%	9.63%
2012	834,082	94,108	89,411	97,613	81,203	89,409	10.72%	11.28%	30.00%	10.89%	10.78%
2013	830,703	83,532	96,932	92,094	100,541	96,522	11.62%	10.06%	20.00%	11.31%	11.22%
2014	854,208	68,500	86,038	99,840	94,856	93,578	10.95%	8.02%	10.00%	10.66%	10.68%
2015	895,461	86,507	70,555	88,619	102,835	87,336	9.75%	9.66%	0.00%	9.75%	9.88%
2016	930,724	85,611	89,102	72,672	91,278	84,351	9.06%	9.20%	0.00%	9.06%	9.12%
2017	656,688	58,777	58,210	60,584	49,412	56,069	8.54%	8.95%	0.00%	8.54%	7.79%
	14,235,345	1,323,089	1,272,271	1,219,291	1,168,029	1,349,046					

Trend in Losses Based on Exponential Regression (excluding 2017) (a):
2.77%
Selected Trend (b):
3.00%

Notes:
(3) Ultimate Losses from Page 17
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(12) Selected Initial Ult Loss Ratio from Page 10
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	9.93%	64,842	70.85%	29.15%	45,941	45,425	18,900	64,325	1,040	9.85%
2001	666,345	8.55%	56,961	69.06%	30.94%	39,335	39,063	17,626	56,689	1,427	8.51%
2002	694,750	9.24%	64,163	67.21%	32.79%	43,122	41,683	21,040	62,723	845	9.03%
2003	720,485	8.48%	61,130	65.25%	34.75%	39,887	40,945	21,242	62,188	3,587	8.63%
2004	752,149	6.94%	52,215	63.35%	36.65%	33,078	31,692	19,137	50,829	974	6.76%
2005	779,863	8.16%	63,653	61.12%	38.88%	38,904	38,755	24,749	63,504	2,849	8.14%
2006	788,869	9.91%	78,169	58.82%	41.18%	45,983	44,570	32,186	76,756	388	9.73%
2007	800,878	9.40%	75,260	56.24%	43.76%	42,325	43,547	32,935	76,482	2,824	9.55%
2008	819,466	9.24%	75,723	53.56%	46.44%	40,557	43,296	35,166	78,462	6,516	9.57%
2009	838,236	8.92%	74,753	50.96%	49.04%	38,095	37,870	36,658	74,528	7,274	8.89%
2010	855,836	9.76%	83,535	48.03%	51.97%	40,123	44,193	43,412	87,606	2,404	10.24%
2011	863,609	9.63%	83,199	44.89%	55.11%	37,347	38,967	45,852	84,818	3,685	9.82%
2012	834,082	10.78%	89,894	41.37%	58.63%	37,191	38,935	52,703	91,638	(4,024)	10.99%
2013	830,703	11.22%	93,205	37.36%	62.64%	34,818	31,205	58,387	89,591	14,038	10.79%
2014	854,208	10.68%	91,215	32.81%	67.19%	29,930	22,476	61,286	83,762	21,392	9.81%
2015	895,461	9.88%	88,485	27.49%	72.51%	24,327	23,783	64,159	87,942	21,562	9.82%
2016	930,724	9.12%	84,895	20.40%	79.60%	17,320	17,467	67,574	85,041	57,245	9.14%
2017	656,688	7.79%	51,133	5.37%	94.63%	4,117	4,732	47,016	51,748	40,749	7.88%
	14,235,345		1,332,429			632,401	628,603	700,028	1,328,631	184,775	9.33%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving
October 31, 2017

	(1) Paid-to-Date Disc to 116 Months			(2) Tabular Reserves at Valuation			Ultimate Adjustment [a]	
Insurance Year	Undisc 0.00%	With Margin 0.82%	No Margin 1.32%	Undisc 0.00%	With Margin 0.82%	No Margin 1.32%	Incremental	Accumulated
1997	40,078,429	39,635,697	39,380,154	12,208,207	11,030,582	10,407,063	1.0000	1.0000
1998	49,074,892	48,502,194	48,169,646	18,024,903	16,380,438	15,505,036	1.0000	1.0000
1999	45,978,406	45,612,191	45,398,545	16,230,764	14,696,650	13,882,706	1.0020	1.0020
2000	45,424,517	45,137,425	44,969,412	18,712,820	16,814,864	15,814,583	1.0020	1.0040
2001	39,062,995	38,848,750	38,722,689	16,758,177	15,093,633	14,213,511	1.0060	1.0100
2002	41,682,899	41,469,395	41,343,345	20,993,916	19,007,041	17,954,891	1.0060	1.0161
2003	40,945,296	40,805,303	40,722,225	18,479,075	16,836,172	15,959,709	1.0060	1.0222
2004	31,691,908	31,619,233	31,575,945	18,971,650	16,950,224	15,895,133	1.0040	1.0263
2005	38,755,254	38,699,010	38,665,360	22,427,677	20,331,815	19,220,514	1.0020	1.0283
2006	44,569,549	44,536,135	44,516,054	33,003,328	29,544,160	27,732,180	0.9970	1.0252
2007	43,547,094	43,538,881	43,533,922	31,485,733	28,183,707	26,462,336	0.9970	1.0222
2008	43,296,220	43,296,220	43,296,220	29,948,754	27,103,789	25,596,478	0.9970	1.0191

	(3) Tab Rsv at Valuation Adjusted [b]			(4) Ultimate Disc to 116 Months [c]			Disc Factor for Tab Rsv [d]	
Insurance Year	Undisc 0.00%	With Margin 0.82%	No Margin 1.32%	Undisc 0.00%	With Margin 0.82%	No Margin 1.32%	With Margin 0.82%	No Margin 1.32%
1997	12,208,207	11,030,582	10,407,063	52,286,636	49,718,582	48,389,250	91.41%	86.57%
1998	18,024,903	16,380,438	15,505,036	67,099,795	63,598,080	61,769,084	92.16%	87.71%
1999	16,355,182	14,809,309	13,989,125	62,333,589	59,372,067	57,830,342	92.91%	88.87%
2000	18,969,626	17,045,624	16,031,615	64,394,143	61,105,015	59,404,380	93.68%	90.04%
2001	17,317,953	15,597,808	14,688,287	56,380,948	53,579,902	52,122,692	94.44%	91.23%
2002	22,002,273	19,919,966	18,817,281	63,685,172	60,436,822	58,736,797	95.22%	92.43%
2003	19,797,388	18,037,279	17,098,289	60,742,684	58,120,903	56,735,374	96.00%	93.65%
2004	20,302,757	18,139,502	17,010,382	51,994,665	49,175,759	47,717,053	96.79%	94.89%
2005	24,160,745	21,902,928	20,705,753	62,916,000	60,071,844	58,572,345	97.58%	96.14%
2006	34,961,348	31,296,954	29,377,473	79,530,897	75,326,064	73,133,052	98.38%	97.41%
2007	33,148,858	29,672,415	27,860,118	76,695,952	72,969,961	71,031,077	99.19%	98.70%
2008	31,347,646	28,369,794	26,792,077	74,643,867	71,666,014	70,088,298	100.00%	100.00%

	(5) 116-Ult Paid Development Factor [e]			
Insurance Year	Undisc 0.00%	With Margin 0.82%	No Margin 1.32%	Paid to 116 Months
1997	1.7641	1.6775	1.6326	29,639,155
1998	1.9565	1.8544	1.8011	34,294,985
1999	1.7569	1.6734	1.6300	35,479,000
2000	1.7690	1.6787	1.6320	36,400,832
2001	1.8087	1.7188	1.6721	31,171,981
2002	1.9554	1.8557	1.8035	32,568,743
2003	1.8296	1.7506	1.7089	33,199,821
2004	1.9228	1.8186	1.7646	27,040,893
2005	1.8507	1.7670	1.7229	33,995,809
2006	1.9757	1.8712	1.8167	40,255,375
2007	1.8467	1.7570	1.7103	41,531,589
2008	1.7240	1.6552	1.6188	43,296,220
Simple Average of Middle 4 of Last 6 [f]	1.8939	1.7996	1.7503	
Simple Average of Middle 3 of Last 5 [f]	1.8734	1.7809	1.7326	
Latest 10 Volume Weighted [f]	1.8667	1.7742	1.7259	
Selected	1.8667	1.7742	1.7259	
Commuted Rsv Factor [g]		0.8932	0.8375	

Notes:
[a] Incremental Factors per the Selected Incurred Loss Development Factors for 116 months and thereafter
[b] Undiscounted = [(1) Undiscounted + (2) Undiscounted) * Ultimate Adjustment Accumulated - (1) Undiscounted;
Discounted = (3) Undiscounted / (2) Undiscounted * (2) Discounted
[c] (1) + (3) * Discount Factor for Tab Rsv
[d] Discount from Valuation Date to 116 Months
[e] (4) / Paid to 116 Months
[f] Not including 2008
[g] (Selected 116-Ult Paid Development Factor - 1) / (Selected 116-Ult Paid Development Factor @ 0.00% - 1)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving
October 31, 2017

Insurance Year	Tabular Reserve [a]	Case Reserves	IBNR
1999 & Prior	93,880	90,484	3,396
2000	18,970	17,860	1,110
2001	17,318	16,199	1,119
2002	22,002	20,195	1,807
2003	19,797	17,655	2,142
2004	20,303	18,163	2,140
2005	24,161	21,900	2,261
2006	34,961	31,798	3,163
2007	33,149	30,111	3,038
2008	31,348	28,650	2,698
	315,889	293,015	22,874

Notes:
[a] Tabular Reserves at Valuation Adjusted at 0.00% from Page 20

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Weekly Indemnity
Tabular Reserving - Pre-PIPP
October 31, 2017

Appendix E
Page 22

Insurance Year	Tabular Reserves at Valuation 0.00%	With Margin 0.82%	No Margin 1.32%
1972	123,484	117,634	114,306
1973	285,408	270,041	261,373
1974	160,550	151,092	145,789
1975	313,494	295,440	285,300
1976	263,603	248,310	239,777
1977	653,498	614,714	593,017
1978	587,112	534,780	506,669
1979	284,031	264,251	253,307
1980	1,011,183	918,363	868,799
1981	1,374,114	1,286,680	1,237,976
1982	903,331	845,079	812,817
1983	1,744,315	1,616,526	1,546,503
1984	999,541	938,048	903,830
1985	369,335	335,741	317,629
1986	737,621	674,420	640,200
1987	2,067,108	1,907,691	1,820,537
1988	2,014,602	1,861,672	1,778,431
1989	1,449,218	1,325,148	1,258,219
1990	2,493,968	2,308,863	2,207,663
1991	1,943,844	1,786,948	1,701,664
1992	1,531,555	1,406,337	1,339,027
1993	1,643,570	1,513,329	1,442,711
Total Tabular Reserves	22,954,485	21,221,106	20,275,545
Total Case Reserves	14,109,000		
Total IBNR	8,845,485		

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APPENDIX F

AB – Other Indexed - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Reported Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	32,626,365	41,340,394	38,961,436	39,903,898	39,815,808	41,214,607	43,699,063	45,245,523	40,195,691	42,319,389	42,481,947	41,939,263	42,408,975	42,363,808	42,684,373	43,673,968	43,447,870	43,845,653	44,422,335	44,846,563	44,063,538
2000	28,261,976	54,823,367	53,914,698	56,052,926	55,652,341	54,669,423	49,959,476	49,495,898	45,281,991	43,239,565	42,628,072	42,698,785	42,708,469	42,800,276	43,776,872	44,740,704	44,789,732	45,654,764	46,040,197	46,526,634	45,389,445	
2001	29,566,663	50,923,207	49,841,246	52,069,872	53,532,306	56,137,576	53,284,348	47,125,483	44,692,052	45,209,323	44,800,962	43,211,926	44,897,262	45,091,575	45,908,676	47,353,185	47,971,934	48,037,216	48,857,587	49,349,320		
2002	25,543,959	46,419,639	57,837,199	58,851,534	58,236,647	56,873,279	48,802,373	47,687,943	47,582,733	47,003,310	48,618,483	48,840,372	49,675,234	49,809,879	50,343,635	49,525,590	51,243,381	52,296,917	52,984,011			
2003	27,961,476	54,454,375	58,510,690	56,503,865	48,875,921	45,410,512	43,483,056	45,072,132	45,537,130	45,672,727	46,380,363	47,092,653	48,063,580	49,177,178	49,913,293	50,247,158	49,689,314	48,130,836				
2004	20,967,651	38,683,614	51,761,096	49,807,016	48,339,870	48,595,221	48,005,024	49,020,990	49,488,857	50,965,292	51,165,586	52,231,157	52,206,904	53,278,332	54,347,253	55,191,740	53,860,511					
2005	25,651,887	42,493,526	49,005,400	47,693,995	45,893,985	46,910,689	45,712,362	44,577,012	46,641,767	47,546,946	49,213,522	48,133,366	48,397,981	48,329,077	47,937,432	47,089,985						
2006	34,785,270	51,170,226	63,024,563	60,202,805	59,289,484	59,196,515	58,793,575	59,631,665	60,302,383	60,674,298	62,661,275	63,395,168	63,733,490	64,365,545	65,089,204							
2007	30,002,803	46,676,975	53,408,509	51,248,472	51,366,747	51,687,152	53,185,430	54,671,476	58,383,021	61,019,759	62,571,313	60,558,647	60,153,554	61,851,484								
2008	23,055,983	38,809,976	43,168,746	44,187,986	46,466,697	49,966,804	50,607,588	52,036,240	54,512,057	53,310,928	53,852,485	50,743,181	50,884,414									
2009	25,660,963	39,833,588	48,484,183	50,508,585	52,035,218	51,321,871	51,780,413	53,235,292	53,513,965	54,735,799	54,912,654	55,292,749										
2010	32,000,814	57,904,014	51,205,742	53,924,174	52,209,908	50,621,131	51,735,657	52,193,225	53,474,481	55,438,440	52,053,794											
2011	38,717,667	64,185,780	51,324,986	52,444,461	55,496,551	58,872,478	59,216,080	58,832,811	59,759,140	57,549,758												
2012	34,985,658	52,254,973	61,241,198	63,109,286	62,205,802	59,240,712	56,506,497	54,713,396	57,860,908													
2013	30,715,269	53,358,841	60,190,333	56,896,981	56,052,276	51,427,567	51,124,618	50,024,635														
2014	30,023,876	47,518,395	49,421,661	49,361,820	50,255,068	49,739,614	49,843,673															
2015	31,604,666	54,437,802	59,869,916	59,946,627	60,147,504																	
2016	35,731,765	55,479,940	65,481,413																			
2017	36,597,028																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Paid Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	8,566,340	15,904,973	17,951,038	20,534,912	21,577,859	23,345,870	24,868,308	26,170,594	27,092,682	27,909,885	28,586,988	29,139,584	29,681,844	30,119,976	31,231,598	31,962,174	32,533,818	33,030,768	33,531,132	34,080,134	34,572,629
2000	4,070,704	9,576,045	17,845,031	19,897,532	22,491,182	23,303,778	24,440,077	25,778,289	26,757,127	27,508,349	28,220,954	28,793,522	29,340,167	30,053,043	30,941,322	31,601,199	32,259,170	32,956,398	33,482,228	34,053,742	34,585,239	
2001	5,071,638	10,434,961	18,944,166	20,707,608	22,931,198	23,639,220	24,767,031	25,848,901	26,635,458	27,337,682	28,037,116	28,648,922	29,491,084	30,473,601	31,510,604	32,863,851	33,619,357	34,305,487	35,004,388	35,749,929		
2002	4,877,639	10,631,634	18,193,383	19,879,204	21,262,508	22,117,161	23,293,433	24,490,935	25,531,612	26,372,382	27,122,097	28,219,364	29,176,939	30,510,540	31,591,984	32,712,934	33,789,795	35,178,246	36,265,716			
2003	5,406,907	10,954,017	19,106,277	20,777,072	23,179,421	23,983,506	25,255,833	26,757,540	27,908,648	28,906,633	29,993,054	31,218,209	32,342,830	33,358,618	34,313,467	35,303,578	36,134,860	36,885,088				
2004	4,663,058	9,869,752	16,745,837	18,114,424	20,220,967	21,017,692	22,317,135	24,000,543	25,223,355	26,416,872	27,759,977	28,917,179	30,058,551	31,267,599	32,247,300	33,248,436	34,352,780					
2005	4,417,412	9,593,187	17,309,490	19,052,835	21,236,452	21,984,126	23,107,944	24,661,296	25,972,600	27,254,541	28,843,697	29,985,957	31,024,003	31,898,672	32,735,078	33,561,753						
2006	4,611,164	9,869,288	18,754,432	20,389,635	23,120,198	23,966,498	26,085,984	27,954,336	29,751,638	31,456,294	32,962,304	34,538,020	35,982,959	37,330,753	38,935,945							
2007	4,741,839	9,907,116	19,288,620	21,107,901	23,908,910	24,911,790	26,743,375	28,661,836	30,505,338	32,295,305	33,989,373	35,445,521	36,406,193	37,792,392								
2008	4,595,571	9,606,309	19,053,302	21,284,252	24,481,957	25,532,372	27,168,788	29,443,162	31,154,053	32,631,557	34,316,661	35,261,671	36,106,346									
2009	4,908,413	11,000,884	19,955,544	22,095,667	24,847,910	25,939,180	28,074,233	30,064,872	31,927,866	33,407,782	35,058,900	36,429,563										
2010	4,599,456	10,309,143	20,686,542	23,220,158	26,343,522	27,388,234	29,110,780	31,165,699	32,824,052	34,147,674	35,079,348											
2011	5,007,916	11,556,812	22,398,792	24,889,750	28,253,545	29,564,650	31,504,008	33,883,553	34,850,279	36,570,987												
2012	6,664,647	13,541,378	25,254,653	27,601,526	31,089,073	32,441,782	34,303,535	36,198,190	37,867,118													
2013	5,591,152	12,137,110	26,108,128	28,633,861	32,013,410	33,116,527	34,766,936	36,386,091														
2014	4,965,057	11,366,059	22,497,090	25,302,123	28,184,139	29,156,286	30,675,222															
2015	6,193,868	14,704,361	27,538,650	30,178,127	34,107,778																	
2016	6,770,263	14,187,216	27,772,703																			
2017	6,594,689																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Reported Loss & ALAE - Travel Only

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	3,107,850	2,891,413	2,765,206	2,898,419	3,042,103	3,252,679	3,585,538	3,719,781	3,692,536	3,640,713	3,396,974	3,288,806	3,326,408	3,299,403	3,289,981	3,342,916	3,397,146	3,354,756	3,369,792	3,399,789	3,302,787
2000	2,112,156	3,809,055	3,221,693	3,254,544	2,979,852	3,139,699	3,156,679	3,364,621	3,053,971	2,912,624	2,968,649	2,946,156	2,872,307	2,829,933	2,813,463	2,934,259	2,998,268	3,063,717	3,125,800	3,053,259	3,053,773	
2001	2,962,689	4,629,581	3,487,497	3,302,767	3,315,552	3,376,600	3,340,056	3,631,304	3,499,849	3,402,073	3,276,068	3,318,881	3,310,658	3,405,479	3,460,457	3,432,623	3,518,975	3,491,148	3,513,533	3,528,237		
2002	3,210,429	4,951,401	3,563,574	3,479,360	3,402,380	3,392,669	3,192,262	3,029,320	3,059,474	2,809,057	2,725,485	2,663,727	2,669,748	2,676,437	2,661,981	2,721,044	2,683,374	2,691,635	2,633,129			
2003	3,422,894	5,295,336	3,357,783	3,262,822	3,083,625	3,091,847	3,071,495	3,017,588	2,961,547	2,979,889	2,974,065	3,006,307	3,032,840	3,136,339	3,148,241	3,050,608	3,070,123	2,995,383				
2004	3,092,217	4,273,568	3,167,685	2,797,556	2,676,819	2,778,395	2,721,308	2,715,554	2,540,331	2,604,184	2,573,311	2,600,167	2,683,965	2,692,401	2,699,845	2,725,035	2,733,765					
2005	3,001,826	4,459,235	3,034,345	2,793,508	2,689,622	2,711,281	2,728,606	2,514,183	2,508,241	2,465,623	2,440,415	2,368,142	2,362,849	2,379,912	2,393,722	2,336,423						
2006	3,618,926	5,392,776	4,022,479	3,490,283	3,319,977	3,282,597	3,069,642	3,062,478	2,972,796	2,936,435	3,147,745	3,076,964	2,915,711	2,960,641	2,885,184							
2007	3,515,837	5,307,743	3,732,229	3,199,050	2,983,327	2,958,248	2,957,866	3,109,396	3,535,714	3,444,136	3,464,975	3,621,972	3,755,121	3,574,296								
2008	3,179,196	4,648,573	3,410,039	3,020,356	3,002,943	3,055,186	3,111,658	3,252,326	3,242,425	3,431,413	3,280,320	3,401,765	3,254,621									
2009	2,960,066	4,432,972	3,885,623	3,210,262	2,842,232	2,810,156	2,746,852	2,819,614	2,908,529	2,837,953	2,875,809	2,884,570										
2010	3,262,631	5,183,437	3,881,732	3,792,633	3,362,962	3,149,604	3,046,110	3,187,140	3,184,320	3,188,973	3,090,832											
2011	3,637,960	6,310,612	2,920,822	2,823,740	3,230,377	3,288,537	3,294,889	3,265,982	3,282,120	3,131,859												
2012	3,636,693	5,480,965	5,019,543	4,647,281	4,368,946	3,541,917	3,294,017	3,210,660	3,201,601													
2013	4,193,856	6,954,820	5,919,663	4,146,229	3,671,437	3,278,609	3,224,245	2,970,501														
2014	3,879,075	5,792,751	4,359,065	3,658,791	3,310,810	3,122,897	2,798,352															
2015	3,977,059	6,239,721	5,558,707	4,644,912	3,385,600																	
2016	4,648,923	6,729,191	5,784,532																			
2017	4,811,141																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Paid Loss & ALAE - Travel Only

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	678,707	1,484,884	1,731,293	2,065,918	2,204,281	2,396,172	2,529,721	2,631,168	2,708,486	2,753,369	2,783,640	2,801,159	2,820,104	2,816,651	2,831,717	2,893,638	2,915,659	2,925,709	2,935,384	2,948,279	2,965,169
2000	270,663	699,490	1,527,179	1,797,783	2,069,078	2,154,774	2,269,690	2,376,077	2,440,003	2,475,756	2,499,430	2,526,099	2,558,141	2,576,951	2,592,842	2,612,822	2,638,992	2,656,955	2,673,873	2,687,645	2,701,732	
2001	362,486	840,399	1,785,827	2,034,585	2,296,063	2,377,498	2,508,418	2,610,808	2,655,847	2,688,462	2,728,823	2,770,127	2,784,536	2,819,560	2,854,296	2,885,761	2,919,448	2,956,657	2,990,709	3,034,705		
2002	350,544	810,024	1,648,852	1,870,763	2,079,746	2,139,084	2,201,405	2,263,623	2,306,492	2,325,085	2,351,081	2,339,605	2,363,304	2,382,610	2,396,934	2,414,330	2,438,072	2,456,570	2,477,289			
2003	390,376	875,317	1,729,911	1,934,095	2,120,584	2,168,234	2,235,842	2,299,491	2,372,362	2,427,316	2,472,771	2,533,583	2,576,414	2,627,410	2,665,369	2,701,446	2,727,866	2,763,991				
2004	280,965	719,521	1,449,732	1,620,160	1,770,391	1,808,050	1,890,823	1,984,447	2,061,091	2,111,844	2,175,704	2,243,710	2,292,359	2,339,386	2,380,286	2,418,870	2,447,312					
2005	309,765	725,193	1,434,529	1,593,330	1,738,104	1,798,604	1,892,659	1,962,174	2,002,468	2,050,274	2,084,372	2,106,232	2,117,449	2,131,614	2,143,371	2,158,484						
2006	310,806	718,009	1,516,204	1,677,274	1,901,776	1,976,041	2,091,911	2,188,901	2,256,031	2,326,761	2,389,988	2,440,880	2,473,476	2,508,743	2,547,995							
2007	309,589	735,722	1,622,212	1,849,981	2,143,246	2,228,352	2,361,080	2,548,841	2,702,109	2,828,403	2,897,558	2,952,336	2,988,398	3,022,987								
2008	290,024	699,037	1,557,007	1,851,629	2,199,494	2,322,861	2,482,471	2,662,842	2,780,932	2,850,200	2,899,790	2,934,631	2,957,766									
2009	282,977	727,572	1,554,372	1,766,214	2,003,495	2,095,901	2,234,699	2,346,136	2,421,168	2,470,116	2,504,821	2,542,613										
2010	250,927	619,248	1,494,710	1,769,761	2,121,621	2,225,392	2,384,841	2,580,915	2,692,607	2,759,346	2,805,397											
2011	272,168	694,644	1,654,878	1,939,792	2,312,368	2,396,800	2,548,074	2,685,959	2,786,015	2,853,271												
2012	325,730	778,824	1,715,508	1,988,658	2,307,733	2,408,457	2,535,226	2,658,852	2,771,943													
2013	297,837	697,497	1,618,214	1,880,622	2,208,396	2,312,819	2,482,561	2,590,657														
2014	259,974	630,447	1,419,751	1,632,330	1,869,249	1,928,716	2,039,500															
2015	317,210	763,509	1,610,762	1,848,614	2,127,386																	
2016	294,217	720,381	1,532,350																			
2017	256,707																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Reported Loss & ALAE - Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Reported Loss & ALAE - With Z-Files - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	45,334,783	56,511,952	53,268,377	53,840,407	53,698,775	54,862,781	57,671,603	59,139,181	52,437,585	54,618,320	54,504,476	53,583,045	53,790,702	53,661,587	53,916,917	54,638,113	54,203,630	54,385,049	54,776,578	55,081,400	54,166,569
2000	38,412,603	74,570,734	72,036,993	74,897,705	73,163,346	71,856,640	65,179,550	63,953,395	58,218,807	55,202,905	54,108,617	53,871,511	53,542,370	53,563,986	54,546,819	55,177,992	55,011,500	55,638,610	55,795,887	56,144,731	54,852,353	
2001	39,145,696	67,498,914	64,886,494	67,822,769	69,081,240	72,420,161	68,044,385	59,683,224	56,120,984	56,322,360	55,470,208	53,242,832	55,048,404	55,125,064	55,559,312	56,874,278	57,202,314	57,005,572	57,678,886	58,000,178		
2002	32,860,497	59,847,200	74,042,304	75,356,158	73,638,373	71,919,608	61,113,694	59,006,057	58,338,929	57,211,516	58,530,502	58,647,821	59,401,668	58,908,779	59,161,424	57,888,680	59,335,485	60,198,055	60,670,707			
2003	35,479,725	69,272,197	73,544,018	71,027,937	60,742,789	56,454,155	53,468,155	54,933,331	55,075,461	54,786,351	55,476,898	56,131,070	56,693,079	57,620,045	58,043,471	58,100,871	57,361,812	55,634,367				
2004	25,927,282	48,079,892	63,746,674	61,391,218	58,647,650	58,941,530	57,603,036	58,212,151	58,138,058	59,634,686	59,651,394	60,068,889	59,650,855	60,281,313	60,961,637	61,556,289	59,948,948					
2005	31,232,197	51,823,635	58,911,934	57,364,714	54,572,621	55,770,923	53,815,809	51,996,024	54,193,557	55,033,386	56,209,934	54,727,039	54,600,847	54,201,482	53,611,043	52,572,183						
2006	41,414,491	60,912,666	74,078,816	70,831,861	68,904,374	68,802,286	67,480,256	68,214,500	68,705,028	68,159,885	69,786,606	69,903,216	69,712,364	70,025,395	70,408,157							
2007	34,881,499	54,294,077	61,553,036	59,130,315	58,532,560	58,898,892	60,410,275	61,827,301	65,007,857	67,376,523	68,361,759	65,760,108	65,055,179	66,460,583								
2008	26,240,240	44,276,465	48,691,401	49,897,933	52,319,496	56,254,643	56,752,085	57,567,712	59,845,955	58,067,048	58,244,352	54,864,407	54,813,916									
2009	28,678,677	44,539,522	54,180,895	56,545,944	58,053,660	57,260,441	56,960,449	58,124,749	57,906,030	58,757,424	58,689,114	58,821,589										
2010	35,626,900	64,556,118	56,840,554	59,888,138	57,131,758	55,426,487	56,242,296	56,225,007	57,150,888	58,901,007	55,249,102											
2011	42,830,366	70,970,990	55,778,176	57,000,690	59,776,068	63,376,330	63,081,927	62,178,734	62,827,063	60,306,050												
2012	37,640,845	56,216,627	65,260,685	67,280,256	65,593,932	62,533,412	59,236,739	57,169,292	60,089,916													
2013	32,508,539	56,496,492	62,875,553	59,514,360	58,153,971	53,422,806	52,905,776	51,611,008														
2014	31,190,822	49,380,776	50,764,364	50,720,634	51,362,181	50,842,469	50,694,470															
2015	32,299,666	55,650,273	60,745,427	60,835,014	60,685,252																	
2016	36,135,842	56,113,700	65,656,482																			
2017	36,597,028																					

*Prior years' figures indexed to current benefit level; Travel indexed separately from other benefits

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Reported Loss & ALAE - Z-Files - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Case Reserves - Expenses Only - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	243,395	275,206	280,513	335,427	377,527	355,736	364,616	292,360
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	201,042	194,311	263,131	274,661	313,926	321,832	303,369	215,037	
2001	-	-	-	-	-	-	-	-	-	-	-	-	253,163	260,110	233,944	231,854	526,575	271,970	460,774	411,722		
2002	-	-	-	-	-	-	-	-	-	-	-	295,076	584,791	301,636	374,659	358,847	308,916	357,570	308,068			
2003	-	-	-	-	-	-	-	-	-	-	312,183	373,489	335,900	397,705	413,246	424,538	411,847	217,806				
2004	-	-	-	-	-	-	-	-	-	456,913	434,897	409,774	465,886	455,382	409,685	369,717	334,584					
2005	-	-	-	-	-	-	-	-	537,800	554,721	524,906	520,409	429,825	370,033	412,091	310,808						
2006	-	-	-	-	-	-	-	783,437	711,252	913,582	1,605,043	1,015,571	854,280	817,140	564,473							
2007	-	-	-	-	-	-	847,542	744,720	703,487	867,705	815,090	713,102	844,621	481,697								
2008	-	-	-	-	1,467,326	1,270,626	873,868	900,972	941,254	865,006	792,645	594,225	395,717									
2009	-	-	4,045,361	2,644,149	1,517,043	1,186,010	947,049	941,995	891,266	720,453	630,157	356,003										
2010	4,903,537	5,656,364	3,554,058	2,799,614	1,898,255	1,793,070	1,151,096	818,197	770,375	663,165	536,567											
2011	2,999,821	4,566,470	3,185,765	2,793,516	1,676,781	1,422,360	1,196,251	836,186	809,361	610,184												
2012	2,858,233	4,410,859	3,133,214	2,824,239	2,179,624	1,501,370	1,253,237	1,008,971	625,376													
2013	2,813,396	4,468,431	3,116,791	2,333,244	1,898,288	1,215,470	927,027	623,863														
2014	2,244,196	3,309,364	2,214,274	1,955,605	1,558,386	1,351,152	989,084															
2015	2,468,597	3,879,843	3,199,350	2,694,704	1,908,836																	
2016	3,212,476	4,430,178	3,432,915																			
2017	2,804,932																					

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Case Reserves - Excess Reserves - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	311,710	162,705	68,327	-	-	-	-								
2008	-	-	-	-	-	787,197	513,930	342,764	104,626	56,410	-	-	-									
2009	-	-	834,497	3,635,298	1,510,507	1,128,411	501,130	177,224	72,080	20,503	-	-										
2010	2,196,044	10,357,446	4,663,354	4,265,617	2,034,893	577,059	383,274	338,461	249,113	1,114,300	971,000											
2011	10,223,851	15,555,314	2,476,365	369,882	452,669	497,509	490,978	192,729	149,924	-												
2012	4,515,597	3,793,188	2,081,851	2,179,004	2,001,519	615,289	327,025	219,821	-													
2013	1,806,406	4,914,236	3,693,826	1,243,114	994,401	518,729	413,304	-														
2014	1,914,814	2,284,614	1,438,294	960,571	1,015,026	894,479	21,000															
2015	1,510,055	2,421,418	3,356,069	3,030,896	1,130,000																	
2016	3,743,035	4,214,080	4,480,000																			
2017	3,748,000																					

*Prior years' figures indexed to current benefit level

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	45,335	56,512	53,268	53,840	53,699	54,863	57,672	59,139	52,438
2000	38,413	74,571	72,037	74,898	73,163	71,857	65,180	63,953	58,219	55,203
2001	39,146	67,499	64,886	67,823	69,081	72,420	68,044	59,683	56,121	56,322
2002	32,860	59,847	74,042	75,356	73,638	71,920	61,114	59,006	58,339	57,212
2003	35,480	69,272	73,544	71,028	60,743	56,454	53,468	54,933	55,075	54,786
2004	25,927	48,080	63,747	61,391	58,648	58,942	57,603	58,212	58,138	59,178
2005	31,232	51,824	58,912	57,365	54,573	55,771	53,816	51,996	53,656	54,479
2006	41,414	60,913	74,079	70,832	68,904	68,802	67,480	67,431	67,994	67,246
2007	34,881	54,294	61,553	59,130	58,533	58,899	59,563	60,771	64,142	66,440
2008	26,240	44,276	48,691	49,898	50,852	54,197	55,364	56,324	58,800	57,146
2009	28,679	44,540	49,301	50,266	55,026	54,946	55,512	57,006	56,943	58,016
2010	28,527	48,542	48,623	52,823	53,199	53,056	54,708	55,068	56,131	57,124
2011	29,607	50,849	50,116	53,837	57,647	61,456	61,395	61,150	61,868	59,696
2012	30,267	48,013	60,046	62,277	61,413	60,417	57,656	55,941	59,465	
2013	27,889	47,114	56,065	55,938	55,261	51,689	51,565	50,987		
2014	27,032	43,787	47,112	47,804	48,789	48,597	49,684			
2015	28,321	49,349	54,190	55,109	57,646					
2016	29,180	47,469	57,744							
2017	30,044									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.2465	0.9426	1.0107	0.9974	1.0217	1.0512	1.0254	0.8867	1.0416
2000	1.9413	0.9660	1.0397	0.9768	0.9821	0.9071	0.9812	0.9103	0.9482	0.9802
2001	1.7243	0.9613	1.0453	1.0186	1.0483	0.9396	0.8771	0.9403	1.0036	0.9849
2002	1.8213	1.2372	1.0177	0.9772	0.9767	0.8498	0.9655	0.9887	0.9807	1.0231
2003	1.9524	1.0617	0.9658	0.8552	0.9294	0.9471	1.0274	1.0026	0.9948	1.0069
2004	1.8544	1.3258	0.9630	0.9553	1.0050	0.9773	1.0106	0.9987	1.0179	1.0007
2005	1.6593	1.1368	0.9737	0.9513	1.0220	0.9649	0.9662	1.0319	1.0153	1.0221
2006	1.4708	1.2161	0.9562	0.9728	0.9985	0.9808	0.9993	1.0083	0.9890	1.0139
2007	1.5565	1.1337	0.9606	0.9899	1.0063	1.0113	1.0203	1.0555	1.0358	1.0166
2008	1.6873	1.0997	1.0248	1.0191	1.0658	1.0215	1.0173	1.0440	0.9719	1.0054
2009	1.5531	1.1069	1.0196	1.0947	0.9985	1.0103	1.0269	0.9989	1.0189	1.0007
2010	1.7016	1.0017	1.0864	1.0071	0.9973	1.0311	1.0066	1.0193	1.0177	0.9408
2011	1.7175	0.9856	1.0743	1.0708	1.0661	0.9990	0.9960	1.0117	0.9649	
2012	1.5863	1.2506	1.0372	0.9861	0.9838	0.9543	0.9702	1.0630		
2013	1.6893	1.1900	0.9977	0.9879	0.9353	0.9976	0.9888			
2014	1.6198	1.0759	1.0147	1.0206	0.9961	1.0224				
2015	1.7425	1.0981	1.0170	1.0460						
2016	1.6268	1.2164								
Latest 9 Volume Weighted	1.6577	1.1131	1.0239	1.0232	1.0048	1.0017	0.9993	1.0253	1.0026	1.0037
Latest 6 Volume Weighted	1.6633	1.1350	1.0368	1.0188	0.9965	1.0011	1.0008	1.0320	0.9994	1.0006
Latest 3 Volume Weighted	1.6633	1.1311	1.0094	1.0179	0.9712	0.9888	0.9851	1.0308	0.9994	0.9824
Simple Average of Middle 4 of Last 6	1.6634	1.1451	1.0358	1.0154	0.9939	1.0073	1.0022	1.0326	0.9994	1.0092
Simple Average of Middle 3 of Last 5	1.6453	1.1682	1.0229	1.0182	0.9924	1.0063	0.9971	1.0250	1.0028	1.0067
Selected Oct 16	1.6600	1.0900	1.0400	1.0250	1.0150	1.0100	1.0150	1.0150	1.0100	1.0100
Selected Feb 17	1.6600	1.0900	1.0400	1.0250	1.0150	1.0100	1.0150	1.0150	1.0100	1.0100
Selected Factors*	1.6600	1.1200	1.0350	1.0250	1.0050	1.0100	1.0150	1.0150	1.0100	1.0050
Selected Ultimate	2.2852	1.3766	1.2291	1.1876	1.1586	1.1528	1.1414	1.1246	1.1079	1.0970

*212-Ult Factor = 1.0050 ^ 2 * 1.0023 ^ (15 + 1/3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
54,618	54,504	53,583	53,791	53,418	53,642	54,358	53,868	54,008	54,421	54,717	53,874
54,109	53,872	53,542	53,363	54,353	54,915	54,737	55,325	55,474	55,841	54,637	
55,470	53,243	54,795	54,865	55,325	56,642	56,676	56,734	57,218	57,588		
58,531	58,353	58,817	58,607	58,787	57,530	59,027	59,840	60,363			
55,165	55,758	56,357	57,222	57,630	57,676	56,950	55,417				
59,216	59,659	59,185	59,826	60,552	61,187	59,614					
55,685	54,207	54,171	53,831	53,199	52,261						
68,182	68,888	68,858	69,208	69,844							
67,547	65,047	64,211	65,979								
57,452	54,270	54,418									
58,059	58,466										
53,742											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9979	0.9831	1.0039	0.9931	1.0042	1.0133	0.9910	1.0026	1.0077	1.0054	0.9846
0.9956	0.9939	0.9966	1.0185	1.0103	0.9968	1.0107	1.0027	1.0066	0.9784	
0.9598	1.0292	1.0013	1.0084	1.0238	1.0006	1.0010	1.0085	1.0065		
0.9970	1.0080	0.9964	1.0031	0.9786	1.0260	1.0138	1.0087			
1.0107	1.0108	1.0154	1.0071	1.0008	0.9874	0.9731				
1.0075	0.9921	1.0108	1.0121	1.0105	0.9743					
0.9735	0.9993	0.9937	0.9883	0.9824						
1.0104	0.9996	1.0051	1.0092							
0.9630	0.9871	1.0275								
0.9446	1.0027									
1.0070										
0.9861	1.0020	1.0061	1.0052	1.0015	0.9993	0.9980	1.0057	1.0069	0.9918	0.9846
0.9847	0.9982	1.0085	1.0050	1.0011	0.9993	0.9980	1.0057	1.0069	0.9918	0.9846
0.9712	0.9962	1.0095	1.0040	0.9985	0.9955	0.9962	1.0067	1.0069	0.9918	0.9846
0.9877	0.9984	1.0069	1.0069	1.0010	0.9995	1.0009	1.0056	1.0066	0.9919	0.9846
0.9811	0.9970	1.0104	1.0065	0.9979	0.9949	1.0009	1.0056	1.0066	0.9919	0.9846
1.0025	1.0025	1.0025	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0434
1.0025	1.0025	1.0025	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0434
1.0025	1.0025	1.0025	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050	1.0462
1.0915	1.0888	1.0861	1.0834	1.0780	1.0726	1.0673	1.0620	1.0567	1.0514	1.0462

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	1.9797	2.0211	1.7789	2.0723	2.0159	2.2621	2.2621	2.2852
12	1.1943	1.2151	1.0695	1.2459	1.2252	1.3627	1.3627	1.3766
20	1.0729	1.0706	0.9455	1.0880	1.0488	1.2502	1.2502	1.2291
24	1.0478	1.0326	0.9367	1.0504	1.0253	1.2021	1.2021	1.1876
32	1.0241	1.0135	0.9202	1.0345	1.0070	1.1728	1.1728	1.1586
36	1.0192	1.0171	0.9475	1.0408	1.0147	1.1555	1.1555	1.1528
44	1.0175	1.0160	0.9582	1.0332	1.0083	1.1440	1.1440	1.1414
56	1.0183	1.0152	0.9726	1.0310	1.0113	1.1271	1.1271	1.1246
68	0.9932	0.9837	0.9436	0.9984	0.9866	1.1105	1.1105	1.1079
80	0.9906	0.9842	0.9441	0.9990	0.9838	1.0995	1.0995	1.0970
92	0.9870	0.9836	0.9611	0.9900	0.9773	1.0886	1.0886	1.0915
104	1.0009	0.9989	0.9896	1.0023	0.9961	1.0859	1.0859	1.0888
116	0.9989	1.0007	0.9934	1.0039	0.9991	1.0832	1.0832	1.0861
128	0.9928	0.9923	0.9840	0.9970	0.9888	1.0805	1.0805	1.0834
140	0.9877	0.9873	0.9801	0.9901	0.9825	1.0751	1.0751	1.0780
152	0.9862	0.9862	0.9816	0.9891	0.9845	1.0697	1.0697	1.0726
164	0.9869	0.9869	0.9861	0.9896	0.9896	1.0644	1.0644	1.0673
176	0.9889	0.9889	0.9898	0.9887	0.9887	1.0591	1.0591	1.0620
188	0.9832	0.9832	0.9832	0.9831	0.9831	1.0539	1.0539	1.0567
200	0.9765	0.9765	0.9765	0.9767	0.9767	1.0486	1.0486	1.0514
212	0.9846	0.9846	0.9846	0.9846	0.9846	1.0434	1.0434	1.0462

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6600	2.2852	43.76%	8		2.2852	1.6600	1.6600	2.2851
12	1.1200	1.3766		12	72.64%	1.3766	1.1200	1.1200	1.3766
20	1.0350	1.2291	81.36%	20		1.2291	1.0350	1.0350	1.2291
24	1.0250	1.1876		24	84.21%	1.1876	1.0250	1.0250	1.1875
32	1.0050	1.1586	86.31%	32		1.1586	1.0050	1.0050	1.1585
36	1.0100	1.1528		36	86.74%	1.1528	1.0151	1.0150	1.1528
44	1.0150	1.1414	87.61%	48	88.05%	1.1358	1.0150	1.0150	1.1357
56	1.0150	1.1246	88.92%	60	89.37%	1.1190	1.0133	1.0135	1.1190
68	1.0100	1.1079	90.26%	72	90.56%	1.1043	1.0083	1.0085	1.1041
80	1.0050	1.0970	91.16%	84	91.31%	1.0951	1.0042	1.0040	1.0948
92	1.0025	1.0915	91.62%	96	91.69%	1.0906	1.0025	1.0025	1.0904
104	1.0025	1.0888	91.84%	108	91.92%	1.0879	1.0025	1.0025	1.0877
116	1.0025	1.0861	92.07%	120	92.15%	1.0852	1.0033	1.0030	1.0850
128	1.0050	1.0834	92.30%	132	92.46%	1.0816	1.0050	1.0050	1.0817
140	1.0050	1.0780	92.77%	144	92.92%	1.0762	1.0050	1.0050	1.0763
152	1.0050	1.0726	93.23%	156	93.39%	1.0708	1.0050	1.0050	1.0710
164	1.0050	1.0673	93.70%	168	93.85%	1.0655	1.0050	1.0050	1.0656
176	1.0050	1.0620	94.16%	180	94.32%	1.0602	1.0050	1.0050	1.0603
188	1.0050	1.0567	94.64%	192	94.79%	1.0549	1.0050	1.0050	1.0551
200	1.0050	1.0514	95.11%	204	95.27%	1.0497	1.0033	1.0050	1.0498
Tail	1.0462	1.0462	95.58%	Tail	95.58%	1.0462	1.0462	1.0446	1.0446

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	652,992	54,637	1.0462	57,162	2,524	10,804	8.75%
2001	497,121	666,345	57,588	1.0514	60,550	2,962	13,599	9.09%
2002	532,307	694,750	60,363	1.0567	63,784	3,422	16,718	9.18%
2003	560,857	720,485	55,417	1.0620	58,851	3,434	11,246	8.17%
2004	596,045	752,149	59,614	1.0673	63,625	4,011	19,508	8.46%
2005	630,367	779,863	52,261	1.0726	56,056	3,795	13,528	7.19%
2006	654,863	788,869	69,844	1.0780	75,290	5,446	26,153	9.54%
2007	677,464	800,878	65,979	1.0834	71,480	5,501	24,059	8.93%
2008	707,051	819,466	54,418	1.0861	59,102	4,684	14,778	7.21%
2009	739,881	838,236	58,466	1.0888	63,657	5,191	18,863	7.59%
2010	759,948	855,836	53,742	1.0915	58,660	4,918	16,974	6.85%
2011	772,985	863,609	59,696	1.0970	65,485	5,789	20,979	7.58%
2012	768,953	834,082	59,465	1.1079	65,883	6,419	19,994	7.90%
2013	778,092	830,703	50,987	1.1246	57,338	6,351	13,639	6.90%
2014	817,710	854,208	49,684	1.1414	56,711	7,027	19,168	6.64%
2015	873,488	895,461	57,646	1.1586	66,790	9,143	26,040	7.46%
2016	918,780	930,724	57,744	1.2291	70,975	13,231	37,709	7.63%
2017	656,688	656,688	30,044	2.2852	45,772	15,727	30,002	6.97%
	12,417,877	14,235,345	1,007,595		1,117,172	109,577	353,761	7.85%

Notes:
(3) Indexed to match the indexing done on losses
(6) Current year adjusted to reflect the portion of the fiscal year that is completed
(9) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	57,162				57,162	8.75%	8.75%	100.00%	8.75%	8.75%
2001	666,345	60,550	58,305			58,305	8.75%	9.09%	100.00%	9.09%	9.09%
2002	694,750	63,784	61,761	59,471		60,616	8.72%	9.18%	100.00%	9.18%	9.18%
2003	720,485	58,851	65,060	62,997	60,660	62,906	8.73%	8.17%	100.00%	8.17%	8.17%
2004	752,149	63,625	60,028	66,361	64,256	63,549	8.45%	8.46%	100.00%	8.46%	8.46%
2005	779,863	56,056	64,898	61,228	67,689	64,605	8.28%	7.19%	100.00%	7.19%	7.19%
2006	788,869	75,290	57,178	66,196	62,453	61,942	7.85%	9.54%	90.00%	9.37%	9.37%
2007	800,878	71,480	76,796	58,321	67,520	67,546	8.43%	8.93%	80.00%	8.83%	8.83%
2008	819,466	59,102	72,909	78,332	59,488	70,243	8.57%	7.21%	70.00%	7.62%	7.62%
2009	838,236	63,657	60,285	74,367	79,899	71,517	8.53%	7.59%	60.00%	7.97%	7.97%
2010	855,836	58,660	64,930	61,490	75,855	67,425	7.88%	6.85%	50.00%	7.37%	7.37%
2011	863,609	65,485	59,833	66,229	62,720	62,927	7.29%	7.58%	40.00%	7.41%	7.41%
2012	834,082	65,883	66,795	61,030	67,553	65,126	7.81%	7.90%	30.00%	7.84%	7.84%
2013	830,703	57,338	67,201	68,130	62,250	65,861	7.93%	6.90%	20.00%	7.72%	7.72%
2014	854,208	56,711	58,485	68,545	69,493	65,508	7.67%	6.64%	10.00%	7.57%	7.57%
2015	895,461	66,790	57,846	59,655	69,916	62,472	6.98%	7.46%	0.00%	6.98%	6.98%
2016	930,724	70,975	68,126	59,002	60,848	62,659	6.73%	7.63%	0.00%	6.73%	6.73%
2017	656,688	45,772	47,945	46,021	39,858	44,608	6.79%	6.97%	0.00%	6.79%	6.79%
	14,235,345	1,117,172	1,068,379	1,017,375	970,457	1,134,974					

Trend in Losses Based on Exponential Regression (excluding 2017) (a):
0.39%
Selected Trend (b):
2.00%

Notes:
(3) Ultimate Losses from Page 14
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 23

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Reported Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	652,992	8.75%	57,162	95.58%	4.42%	54,637	54,637	2,524	57,162	8.75%
2001	666,345	9.09%	60,550	95.11%	4.89%	57,588	57,588	2,962	60,550	9.09%
2002	694,750	9.18%	63,784	94.64%	5.36%	60,363	60,363	3,422	63,784	9.18%
2003	720,485	8.17%	58,851	94.16%	5.84%	55,417	55,417	3,434	58,851	8.17%
2004	752,149	8.46%	63,625	93.70%	6.30%	59,614	59,614	4,011	63,625	8.46%
2005	779,863	7.19%	56,056	93.23%	6.77%	52,261	52,261	3,795	56,056	7.19%
2006	788,869	9.37%	73,955	92.77%	7.23%	68,605	69,844	5,350	75,194	9.53%
2007	800,878	8.83%	70,693	92.30%	7.70%	65,253	65,979	5,440	71,419	8.92%
2008	819,466	7.62%	62,445	92.07%	7.93%	57,495	54,418	4,949	59,367	7.24%
2009	838,236	7.97%	66,801	91.84%	8.16%	61,353	58,466	5,448	63,913	7.62%
2010	855,836	7.37%	63,042	91.62%	8.38%	57,757	53,742	5,286	59,027	6.90%
2011	863,609	7.41%	63,950	91.16%	8.84%	58,297	59,696	5,653	65,349	7.57%
2012	834,082	7.84%	65,353	90.26%	9.74%	58,986	59,465	6,367	65,832	7.89%
2013	830,703	7.72%	64,156	88.92%	11.08%	57,050	50,987	7,106	58,093	6.99%
2014	854,208	7.57%	64,628	87.61%	12.39%	56,620	49,684	8,008	57,692	6.75%
2015	895,461	6.98%	62,472	86.31%	13.69%	53,920	57,646	8,552	66,199	7.39%
2016	930,724	6.73%	62,659	81.36%	18.64%	50,978	57,744	11,681	69,425	7.46%
2017	656,688	6.79%	44,608	43.76%	56.24%	29,280	30,044	15,328	45,372	6.91%
	14,235,345		1,124,791			1,015,475	1,007,595	109,316	1,116,911	7.85%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Indexed)

Paid Loss & ALAE - With Z-Files - Adjusted

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	11,919,975	21,843,479	24,605,952	28,014,540	29,389,832	31,668,773	33,617,060	35,255,741	36,392,067	37,380,060	38,180,650	38,822,177	39,439,011	39,933,782	41,175,160	41,972,409	42,584,171	43,106,602	43,622,324	44,180,876	44,675,661
2000	5,539,373	13,018,590	23,966,717	26,673,543	30,018,243	31,066,041	32,510,976	34,194,146	35,403,560	36,311,602	37,155,272	37,819,045	38,438,733	39,240,271	40,232,312	40,952,825	41,657,966	42,391,621	42,933,379	43,514,444	44,048,148	
2001	6,738,639	13,849,332	24,814,316	27,078,816	29,901,660	30,800,727	32,201,397	33,531,820	34,483,466	35,314,157	36,123,931	36,816,863	37,764,712	38,861,989	39,993,096	41,442,210	42,235,884	42,941,853	43,652,393	44,400,787		
2002	6,313,874	13,755,300	23,361,406	25,498,511	27,208,161	28,276,442	29,721,229	31,165,649	32,396,439	33,373,744	34,226,293	35,465,820	36,536,107	37,999,716	39,159,784	40,339,299	41,449,007	42,859,897	43,952,412			
2003	6,895,611	13,959,173	24,099,538	26,172,799	29,113,620	30,100,411	31,623,963	33,402,233	34,733,429	35,864,934	37,085,145	38,450,948	39,679,474	40,766,311	41,768,915	42,790,153	43,635,600	44,388,619				
2004	5,835,994	12,330,900	20,715,287	22,379,874	24,897,185	25,851,858	27,374,203	29,324,388	30,710,561	32,050,952	33,548,357	34,810,461	36,031,399	37,303,911	38,313,776	39,331,702	40,441,217					
2005	5,413,105	11,746,711	20,946,177	23,024,811	25,582,050	26,455,829	27,744,080	29,506,219	30,980,241	32,410,621	34,144,987	35,370,285	36,462,353	37,364,000	38,214,313	39,043,951						
2006	5,512,763	11,791,849	22,162,356	24,068,556	27,199,257	28,168,865	30,554,699	32,650,458	34,656,587	36,518,820	38,130,749	39,786,449	41,274,866	42,645,025	44,254,898							
2007	5,553,981	11,589,081	22,327,916	24,401,955	27,536,328	28,661,210	30,707,152	32,834,044	34,839,600	36,751,473	38,529,420	40,032,082	41,009,070	42,401,491								
2008	5,282,306	11,027,768	21,616,532	24,104,885	27,662,174	28,829,560	30,639,115	33,110,980	34,939,782	36,490,615	38,226,657	39,187,710	40,035,849									
2009	5,523,289	12,366,553	22,346,759	24,730,185	27,777,280	28,985,655	31,289,787	33,419,656	35,378,210	36,902,133	38,582,084	39,958,403										
2010	5,148,139	11,531,781	23,023,175	25,821,582	29,179,686	30,304,094	32,132,330	34,285,998	35,993,346	37,339,046	38,274,656											
2011	5,563,129	12,830,278	24,509,221	27,187,025	30,753,074	32,147,122	34,166,289	36,616,444	37,600,836	39,327,280												
2012	7,201,539	14,622,337	27,064,281	29,551,371	33,180,340	34,588,930	36,494,328	38,420,562	40,096,125													
2013	5,949,064	12,910,610	27,464,114	30,090,868	33,547,188	34,675,428	36,345,086	37,972,464														
2014	5,175,063	11,845,231	23,236,419	26,106,668	29,023,071	30,007,083	31,526,018															
2015	6,341,701	15,055,057	28,045,177	30,715,876	34,645,527																	
2016	6,854,451	14,362,285	27,947,772																			
2017	6,594,689																					

*Prior years' figures indexed to current benefit level; Travel indexed separately from other benefits

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	11,920	21,843	24,606	28,015	29,390	31,669	33,617	35,256	36,392
2000	5,539	13,019	23,967	26,674	30,018	31,066	32,511	34,194	35,404	36,312
2001	6,739	13,849	24,814	27,079	29,902	30,801	32,201	33,532	34,483	35,314
2002	6,314	13,755	23,361	25,499	27,208	28,276	29,721	31,166	32,396	33,374
2003	6,896	13,959	24,100	26,173	29,114	30,100	31,624	33,402	34,733	35,865
2004	5,836	12,331	20,715	22,380	24,897	25,852	27,374	29,324	30,711	32,051
2005	5,413	11,747	20,946	23,025	25,582	26,456	27,744	29,506	30,980	32,411
2006	5,513	11,792	22,162	24,069	27,199	28,169	30,555	32,650	34,657	36,519
2007	5,554	11,589	22,328	24,402	27,536	28,661	30,707	32,834	34,840	36,751
2008	5,282	11,028	21,617	24,105	27,662	28,830	30,639	33,111	34,940	36,491
2009	5,523	12,367	22,347	24,730	27,777	28,986	31,290	33,420	35,378	36,902
2010	5,148	11,532	23,023	25,822	29,180	30,304	32,132	34,286	35,993	37,339
2011	5,563	12,830	24,509	27,187	30,753	32,147	34,166	36,616	37,601	39,327
2012	7,202	14,622	27,064	29,551	33,180	34,589	36,494	38,421	40,096	
2013	5,949	12,911	27,464	30,091	33,547	34,675	36,345	37,972		
2014	5,175	11,845	23,236	26,107	29,023	30,007	31,526			
2015	6,342	15,055	28,045	30,716	34,646					
2016	6,854	14,362	27,948							
2017	6,595									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.8325	1.1265	1.1385	1.0491	1.0775	1.0615	1.0487	1.0322	1.0271
2000	2.3502	1.8410	1.1129	1.1254	1.0349	1.0465	1.0518	1.0354	1.0256	1.0232
2001	2.0552	1.7917	1.0913	1.1042	1.0301	1.0455	1.0413	1.0284	1.0241	1.0229
2002	2.1786	1.6984	1.0915	1.0670	1.0393	1.0511	1.0486	1.0395	1.0302	1.0255
2003	2.0244	1.7264	1.0860	1.1124	1.0339	1.0506	1.0562	1.0399	1.0326	1.0340
2004	2.1129	1.6799	1.0804	1.1125	1.0383	1.0589	1.0712	1.0473	1.0436	1.0467
2005	2.1701	1.7832	1.0992	1.1111	1.0342	1.0487	1.0635	1.0500	1.0462	1.0535
2006	2.1390	1.8795	1.0860	1.1301	1.0356	1.0847	1.0686	1.0614	1.0537	1.0441
2007	2.0866	1.9266	1.0929	1.1284	1.0409	1.0714	1.0693	1.0611	1.0549	1.0484
2008	2.0877	1.9602	1.1151	1.1476	1.0422	1.0628	1.0807	1.0552	1.0444	1.0476
2009	2.2390	1.8070	1.1067	1.1232	1.0435	1.0795	1.0681	1.0586	1.0431	1.0455
2010	2.2400	1.9965	1.1215	1.1301	1.0385	1.0603	1.0670	1.0498	1.0374	1.0251
2011	2.3063	1.9103	1.1093	1.1312	1.0453	1.0628	1.0717	1.0269	1.0459	
2012	2.0304	1.8509	1.0919	1.1228	1.0425	1.0551	1.0528	1.0436		
2013	2.1702	2.1273	1.0956	1.1149	1.0336	1.0482	1.0448			
2014	2.2889	1.9617	1.1235	1.1117	1.0339	1.0506				
2015	2.3740	1.8628	1.0952	1.1279						
2016	2.0953	1.9459								
Latest 9 Volume Weighted	2.1975	1.9326	1.1051	1.1261	1.0395	1.0633	1.0646	1.0501	1.0446	1.0411
Latest 6 Volume Weighted	2.2010	1.9389	1.1052	1.1231	1.0395	1.0590	1.0635	1.0487	1.0465	1.0438
Latest 3 Volume Weighted	2.2460	1.9201	1.1037	1.1185	1.0368	1.0513	1.0561	1.0399	1.0422	1.0393
Simple Average of Middle 4 of Last 6	2.2152	1.9202	1.1054	1.1239	1.0396	1.0572	1.0649	1.0518	1.0468	1.0464
Simple Average of Middle 3 of Last 5	2.1848	1.9235	1.1000	1.1219	1.0383	1.0553	1.0626	1.0495	1.0445	1.0457
Selected Oct 16	2.2500	1.9300	1.1075	1.1230	1.0425	1.0600	1.0700	1.0575	1.0470	1.0470
Selected Feb 17	2.2500	1.9300	1.1075	1.1230	1.0425	1.0600	1.0700	1.0575	1.0470	1.0470
Selected Factors*	2.2500	1.9300	1.1075	1.1230	1.0400	1.0575	1.0675	1.0525	1.0470	1.0470
Selected Ultimate	12.5855	5.5935	2.8982	2.6169	2.3303	2.2406	2.1188	1.9848	1.8858	1.8012

*212-Ult Factor = 1.0175 ^ (17 + 1/3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
37,380	38,181	38,822	39,439	39,934	41,175	41,972	42,584	43,107	43,622	44,181	44,676
37,155	37,819	38,439	39,240	40,232	40,953	41,658	42,392	42,933	43,514	44,048	
36,124	36,817	37,765	38,862	39,993	41,442	42,236	42,942	43,652	44,401		
34,226	35,466	36,536	38,000	39,160	40,339	41,449	42,860	43,952			
37,085	38,451	39,679	40,766	41,769	42,790	43,636	44,389				
33,548	34,810	36,031	37,304	38,314	39,332	40,441					
34,145	35,370	36,462	37,364	38,214	39,044						
38,131	39,786	41,275	42,645	44,255							
38,529	40,032	41,009	42,401								
38,227	39,188	40,036									
38,582	39,958										
38,275											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
1.0214	1.0168	1.0159	1.0125	1.0311	1.0194	1.0146	1.0123	1.0120	1.0128	1.0112
1.0179	1.0164	1.0209	1.0253	1.0179	1.0172	1.0176	1.0128	1.0135	1.0123	
1.0192	1.0257	1.0291	1.0291	1.0362	1.0192	1.0167	1.0165	1.0171		
1.0362	1.0302	1.0401	1.0305	1.0301	1.0275	1.0340	1.0255			
1.0368	1.0320	1.0274	1.0246	1.0244	1.0198	1.0173				
1.0376	1.0351	1.0353	1.0271	1.0266	1.0282					
1.0359	1.0309	1.0247	1.0228	1.0217						
1.0434	1.0374	1.0332	1.0378							
1.0390	1.0244	1.0340								
1.0251	1.0216									
1.0357										
1.0343	1.0281	1.0289	1.0263	1.0269	1.0218	1.0200	1.0168	1.0142	1.0125	1.0112
1.0361	1.0301	1.0324	1.0288	1.0262	1.0218	1.0200	1.0168	1.0142	1.0125	1.0112
1.0333	1.0278	1.0309	1.0296	1.0243	1.0250	1.0225	1.0183	1.0142	1.0125	1.0112
1.0370	1.0306	1.0325	1.0278	1.0257	1.0214	1.0172	1.0147	1.0135	1.0125	1.0112
1.0369	1.0301	1.0315	1.0274	1.0270	1.0221	1.0172	1.0147	1.0135	1.0125	1.0112
1.0375	1.0320	1.0310	1.0270	1.0270	1.0190	1.0180	1.0175	1.0175	1.0175	1.3508
1.0375	1.0320	1.0310	1.0270	1.0270	1.0190	1.0180	1.0175	1.0175	1.0175	1.3508
1.0375	1.0320	1.0310	1.0270	1.0270	1.0200	1.0180	1.0175	1.0175	1.0175	1.3508
1.7203	1.6581	1.6067	1.5584	1.5174	1.4776	1.4486	1.4230	1.3985	1.3744	1.3508

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	9.0113	9.0929	8.8340	9.0690	8.8104	12.7229	12.7229	12.5855
12	4.1007	4.1312	3.9332	4.0940	4.0326	5.6546	5.6546	5.5935
20	2.1218	2.1306	2.0484	2.1321	2.0965	2.9299	2.9299	2.8982
24	1.9201	1.9278	1.8559	1.9288	1.9058	2.6455	2.6455	2.6169
32	1.7051	1.7166	1.6592	1.7161	1.6988	2.3557	2.3557	2.3303
36	1.6403	1.6514	1.6004	1.6508	1.6361	2.2597	2.2597	2.2406
44	1.5427	1.5594	1.5223	1.5614	1.5503	2.1318	2.1318	2.1188
56	1.4490	1.4664	1.4414	1.4663	1.4590	1.9923	1.9923	1.9848
68	1.3800	1.3983	1.3860	1.3940	1.3901	1.8840	1.8840	1.8858
80	1.3210	1.3362	1.3299	1.3317	1.3309	1.7994	1.7994	1.8012
92	1.2689	1.2801	1.2796	1.2727	1.2727	1.7186	1.7186	1.7203
104	1.2268	1.2355	1.2384	1.2272	1.2275	1.6565	1.6565	1.6581
116	1.1933	1.1994	1.2049	1.1908	1.1916	1.6052	1.6052	1.6067
128	1.1597	1.1617	1.1688	1.1534	1.1552	1.5569	1.5569	1.5584
140	1.1300	1.1292	1.1352	1.1222	1.1244	1.5160	1.5160	1.5174
152	1.1004	1.1004	1.1083	1.0940	1.0948	1.4761	1.4761	1.4776
164	1.0770	1.0770	1.0813	1.0711	1.0711	1.4486	1.4486	1.4486
176	1.0559	1.0559	1.0574	1.0529	1.0529	1.4230	1.4230	1.4230
188	1.0384	1.0384	1.0384	1.0377	1.0377	1.3985	1.3985	1.3985
200	1.0239	1.0239	1.0239	1.0239	1.0239	1.3744	1.3744	1.3744
212	1.0112	1.0112	1.0112	1.0112	1.0112	1.3508	1.3508	1.3508

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.2500	12.5855	7.95%	8		12.5855	2.2500	2.2500	12.5852
12	1.9300	5.5935		12	17.88%	5.5935	1.9300	1.9300	5.5934
20	1.1075	2.8982	34.50%	20		2.8982	1.1075	1.1075	2.8981
24	1.1230	2.6169		24	38.21%	2.6169	1.1230	1.1230	2.6168
32	1.0400	2.3303	42.91%	32		2.3303	1.0400	1.0400	2.3302
36	1.0575	2.2406		36	44.63%	2.2406	1.0813	1.0815	2.2406
44	1.0675	2.1188	47.20%	48	48.26%	2.0722	1.0623	1.0625	2.0718
56	1.0525	1.9848	50.38%	60	51.26%	1.9507	1.0506	1.0505	1.9499
68	1.0470	1.8858	53.03%	72	53.86%	1.8567	1.0470	1.0470	1.8561
80	1.0470	1.8012	55.52%	84	56.39%	1.7734	1.0437	1.0435	1.7728
92	1.0375	1.7203	58.13%	96	58.86%	1.6991	1.0356	1.0355	1.6989
104	1.0320	1.6581	60.31%	108	60.95%	1.6406	1.0317	1.0315	1.6407
116	1.0310	1.6067	62.24%	120	62.88%	1.5903	1.0296	1.0295	1.5906
128	1.0270	1.5584	64.17%	132	64.75%	1.5445	1.0270	1.0270	1.5450
140	1.0270	1.5174	65.90%	144	66.49%	1.5039	1.0246	1.0250	1.5044
152	1.0200	1.4776	67.68%	156	68.13%	1.4678	1.0193	1.0195	1.4677
164	1.0180	1.4486	69.03%	168	69.45%	1.4399	1.0178	1.0175	1.4396
176	1.0175	1.4230	70.28%	180	70.69%	1.4147	1.0175	1.0175	1.4149
188	1.0175	1.3985	71.51%	192	71.92%	1.3904	1.0175	1.0175	1.3905
200	1.0175	1.3744	72.76%	204	73.18%	1.3665	1.0116	1.0175	1.3666
Tail	1.3508	1.3508	74.03%	Tail	74.03%	1.3508	1.3508	1.3431	1.3431

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Restated Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2000	475,277	652,992	44,048	1.3508	59,500	15,452	10,804	4,648	9.11%
2001	497,121	666,345	44,401	1.3744	61,026	16,625	13,599	3,026	9.16%
2002	532,307	694,750	43,952	1.3985	61,467	17,515	16,718	797	8.85%
2003	560,857	720,485	44,389	1.4230	63,163	18,775	11,246	7,529	8.77%
2004	596,045	752,149	40,441	1.4486	58,582	18,141	19,508	(1,367)	7.79%
2005	630,367	779,863	39,044	1.4776	57,689	18,645	13,528	5,117	7.40%
2006	654,863	788,869	44,255	1.5174	67,154	22,899	26,153	(3,254)	8.51%
2007	677,464	800,878	42,401	1.5584	66,079	23,678	24,059	(381)	8.25%
2008	707,051	819,466	40,036	1.6067	64,327	24,291	14,778	9,513	7.85%
2009	739,881	838,236	39,958	1.6581	66,257	26,298	18,863	7,435	7.90%
2010	759,948	855,836	38,275	1.7203	65,845	27,570	16,974	10,596	7.69%
2011	772,985	863,609	39,327	1.8012	70,835	31,508	20,979	10,529	8.20%
2012	768,953	834,082	40,096	1.8858	75,615	35,518	19,994	15,524	9.07%
2013	778,092	830,703	37,972	1.9848	75,369	37,397	13,639	23,758	9.07%
2014	817,710	854,208	31,526	2.1188	66,798	35,272	19,168	16,104	7.82%
2015	873,488	895,461	34,646	2.3303	80,734	46,088	26,040	20,048	9.02%
2016	918,780	930,724	27,948	2.8982	80,999	53,051	37,709	15,342	8.70%
2017	656,688	656,688	6,595	12.5855	55,332	48,737	30,002	18,735	8.43%
	12,417,877	14,235,345	679,310		1,196,771	517,460	353,761	163,699	8.41%

Notes:
(3) Indexed to match the indexing done on losses
(6) Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (6) / (3)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Restated Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Based on 3rd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	59,500				59,500	9.11%	9.11%	100.00%	9.11%	8.75%
2001	666,345	61,026	60,690			60,690	9.11%	9.16%	100.00%	9.16%	9.09%
2002	694,750	61,467	62,247	61,904		62,075	8.93%	8.85%	100.00%	8.85%	9.18%
2003	720,485	63,163	62,696	63,492	63,142	63,110	8.76%	8.77%	100.00%	8.77%	8.17%
2004	752,149	58,582	64,427	63,950	64,761	64,380	8.56%	7.79%	100.00%	7.79%	8.46%
2005	779,863	57,689	59,754	65,715	65,229	63,566	8.15%	7.40%	100.00%	7.40%	7.19%
2006	788,869	67,154	58,843	60,949	67,030	62,274	7.89%	8.51%	90.00%	8.45%	9.37%
2007	800,878	66,079	68,497	60,020	62,168	63,562	7.94%	8.25%	80.00%	8.19%	8.83%
2008	819,466	64,327	67,401	69,867	61,220	66,163	8.07%	7.85%	70.00%	7.92%	7.62%
2009	838,236	66,257	65,613	68,749	71,265	68,542	8.18%	7.90%	60.00%	8.01%	7.97%
2010	855,836	65,845	67,582	66,925	70,124	68,210	7.97%	7.69%	50.00%	7.83%	7.37%
2011	863,609	70,835	67,162	68,933	68,264	68,120	7.89%	8.20%	40.00%	8.01%	7.41%
2012	834,082	75,615	72,252	68,505	70,312	70,356	8.44%	9.07%	30.00%	8.62%	7.84%
2013	830,703	75,369	77,127	73,697	69,875	73,566	8.86%	9.07%	20.00%	8.90%	7.72%
2014	854,208	66,798	76,877	78,669	75,171	76,906	9.00%	7.82%	10.00%	8.88%	7.57%
2015	895,461	80,734	68,134	78,414	80,243	75,597	8.44%	9.02%	0.00%	8.44%	6.98%
2016	930,724	80,999	82,348	69,496	79,982	77,276	8.30%	8.70%	0.00%	8.30%	6.73%
2017	656,688	55,332	54,717	55,628	46,947	52,431	7.98%	8.43%	0.00%	7.98%	6.79%
	14,235,345	1,196,771	1,136,366	1,074,916	1,015,733	1,196,324					

Trend in Losses Based on Exponential Regression (excluding 2017) (a):
1.83%
Selected Trend (b):
2.00%

Notes:
(3) Ultimate Losses from Page 22
(7) = Average [(4), (5), (6)]
(11) = (9) * (10) + (8) * [1 - (10)]
(12) Selected Initial Ult Loss Ratio from Page 15
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Paid Loss & ALAE - Without Z-Files - Adjusted
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Restated Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	652,992	8.75%	57,162	74.03%	25.97%	42,317	44,048	14,845	58,893	4,041	9.02%
2001	666,345	9.09%	60,550	72.76%	27.24%	44,055	44,401	16,496	60,897	2,897	9.14%
2002	694,750	9.18%	63,784	71.51%	28.49%	45,609	43,952	18,175	62,127	1,457	8.94%
2003	720,485	8.17%	58,851	70.28%	29.72%	41,358	44,389	17,493	61,882	6,247	8.59%
2004	752,149	8.46%	63,625	69.03%	30.97%	43,923	40,441	19,703	60,144	195	8.00%
2005	779,863	7.19%	56,056	67.68%	32.32%	37,939	39,044	18,118	57,162	4,590	7.33%
2006	788,869	9.37%	73,955	65.90%	34.10%	48,737	44,255	25,219	69,473	(934)	8.81%
2007	800,878	8.83%	70,693	64.17%	35.83%	45,362	42,401	25,331	67,732	1,272	8.46%
2008	819,466	7.62%	62,445	62.24%	37.76%	38,865	40,036	23,580	63,616	8,802	7.76%
2009	838,236	7.97%	66,801	60.31%	39.69%	40,287	39,958	26,514	66,473	7,651	7.93%
2010	855,836	7.37%	63,042	58.13%	41.87%	36,646	38,275	26,397	64,671	9,423	7.56%
2011	863,609	7.41%	63,950	55.52%	44.48%	35,505	39,327	28,446	67,773	7,467	7.85%
2012	834,082	7.84%	65,353	53.03%	46.97%	34,655	40,096	30,698	70,794	10,704	8.49%
2013	830,703	7.72%	64,156	50.38%	49.62%	32,323	37,972	31,833	69,805	18,194	8.40%
2014	854,208	7.57%	64,628	47.20%	52.80%	30,502	31,526	34,126	65,652	14,958	7.69%
2015	895,461	6.98%	62,472	42.91%	57.09%	26,809	34,646	35,663	70,309	9,623	7.85%
2016	930,724	6.73%	62,659	34.50%	65.50%	21,620	27,948	41,039	68,987	3,330	7.41%
2017	656,688	6.79%	44,608	7.95%	92.05%	5,317	6,595	39,291	45,886	9,289	6.99%
	14,235,345		1,124,791			651,826	679,310	472,966	1,152,276	119,205	8.09%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Indexed)
Discount Factors for Unpaid
October 31, 2017

Period in Months	Selected Factor	Growth in Paid	Paid in Period	Cumulative Paid	Discount Factor to 200 Months [a]		Discounted Paid in Period [b]		Discounted Cumulative Paid [b]		Disc to Undisc Cumulative Paid [b]		Discount to Beginning of Period [c]	
					No Margin	Margin	No Margin	Margin	No Margin	Margin	No Margin	Margin	No Margin	Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)*(6)	(9)=(4)*(7)	(10)	(11)	(12)=(10)/(5)	(13)=(11)/(5)	(14)	(15)
200-212	1.0175	1,017.50	17.50	374.46	99.35%	99.59%	17.39	17.43	330.74	346.40	88.32%	92.51%	88.32%	92.51%
212-224	1.0175	1,035.31	17.81	356.96	98.05%	98.78%	17.46	17.59	313.35	328.97	87.78%	92.16%	88.94%	92.92%
224-236	1.0175	1,053.42	18.12	339.15	96.77%	97.98%	17.53	17.75	295.89	311.38	87.24%	91.81%	89.56%	93.32%
236-248	1.0175	1,071.86	18.43	321.03	95.51%	97.18%	17.61	17.92	278.36	293.63	86.71%	91.46%	90.19%	93.73%
248-260	1.0175	1,090.62	18.76	302.60	94.27%	96.39%	17.68	18.08	260.75	275.71	86.17%	91.12%	90.81%	94.14%
260-272	1.0175	1,109.70	19.09	283.84	93.04%	95.61%	17.76	18.25	243.07	257.63	85.63%	90.77%	91.44%	94.55%
272-284	1.0175	1,129.12	19.42	264.75	91.83%	94.83%	17.83	18.42	225.31	239.39	85.10%	90.42%	92.07%	94.96%
284-296	1.0175	1,148.88	19.76	245.33	90.63%	94.06%	17.91	18.59	207.48	220.97	84.57%	90.07%	92.70%	95.37%
296-308	1.0175	1,168.99	20.11	225.58	89.45%	93.29%	17.98	18.76	189.57	202.39	84.04%	89.72%	93.33%	95.78%
308-320	1.0175	1,189.44	20.46	205.47	88.29%	92.54%	18.06	18.93	171.58	183.63	83.51%	89.37%	93.97%	96.19%
320-332	1.0175	1,210.26	20.82	185.01	87.14%	91.78%	18.14	19.10	153.52	164.70	82.98%	89.02%	94.61%	96.59%
332-344	1.0175	1,231.44	21.18	164.20	86.00%	91.04%	18.21	19.28	135.38	145.59	82.45%	88.67%	95.25%	97.00%
344-356	1.0175	1,252.99	21.55	143.02	84.88%	90.30%	18.29	19.46	117.17	126.31	81.93%	88.32%	95.89%	97.41%
356-368	1.0175	1,274.92	21.93	121.47	83.78%	89.56%	18.37	19.64	98.88	106.85	81.40%	87.97%	96.53%	97.82%
368-380	1.0175	1,297.23	22.31	99.54	82.68%	88.83%	18.45	19.82	80.51	87.21	80.88%	87.62%	97.18%	98.23%
380-392	1.0175	1,319.93	22.70	77.23	81.61%	88.11%	18.53	20.00	62.06	67.40	80.36%	87.27%	97.83%	98.64%
392-404	1.0175	1,343.03	23.10	54.53	80.54%	87.39%	18.60	20.19	43.53	47.39	79.84%	86.92%	98.48%	99.05%
404-416	1.0175	1,366.53	23.50	31.43	79.49%	86.68%	18.68	20.37	24.93	27.21	79.32%	86.56%	99.13%	99.46%
416-Ult	1.0058	1,374.46	7.93	7.93	78.80%	86.21%	6.25	6.83	6.25	6.83	78.80%	86.21%	99.78%	99.86%

Notes:
(2) - Per comment in Page 19: *212-Ult Factor = 1.0175 ^ (17 + 1/3)
(3), (4) & (5) - Assuming Paid at 200 Months of 1,000
(14) = (12) / [(6) * (1 + Discount Rate Without Margin) ^ 0.5]
(15) = (13) / [(7) * (1 + Discount Rate With Margin) ^ 0.5]
[a] Assuming the Paid in Period is paid in the middle of the period:
Discount Rate Without Margin 1.32%
Discount Rate With Margin 0.82%
[b] As at 200 months
[c] Represents the discounting of the remaining unpaid at the beginning of the period back to the beginning of the period.
For example, the discount factor for the period 296-308 represents the remaining unpaid at 296 months discounted back to 296 months.

APPENDIX G

AB – Other Non-Indexed - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)

Reported Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	15,614,183	18,416,228	18,890,402	19,493,093	19,708,373	19,941,386	20,247,566	20,389,810	20,292,727	20,336,652	20,140,026	20,198,604	20,240,717	20,286,565	20,221,887	20,364,945	20,230,480	20,237,622	20,235,035	20,230,336	20,244,127
2000	13,248,480	19,869,376	20,607,948	20,987,380	21,956,189	22,437,790	22,563,524	22,720,450	22,738,959	22,861,414	22,842,959	22,731,100	22,807,817	22,765,448	22,773,549	22,755,097	23,017,200	23,120,970	23,152,975	23,154,176	23,157,545	
2001	11,998,587	19,779,661	22,159,829	23,358,380	24,293,860	24,765,947	24,586,779	24,451,601	24,325,669	24,519,271	24,581,767	24,471,931	24,371,793	24,425,455	24,409,028	24,486,365	24,653,717	24,643,898	24,614,783	24,642,464		
2002	13,853,174	21,721,255	25,076,554	25,935,107	26,651,912	26,617,160	26,823,821	26,828,059	26,479,315	26,440,374	26,396,472	26,563,951	26,720,617	26,704,212	26,700,005	26,651,435	26,687,991	26,758,134	26,799,451			
2003	15,908,735	22,182,572	23,620,530	24,171,427	24,702,712	24,640,000	24,681,263	24,686,763	24,950,516	24,858,697	24,865,202	24,803,295	24,910,627	25,002,689	25,091,475	25,167,842	25,137,314	25,304,609				
2004	12,164,055	20,542,932	23,679,973	23,887,495	24,397,461	24,759,798	24,786,775	24,522,201	24,618,688	24,739,963	24,676,559	24,564,209	24,505,919	24,542,495	24,636,346	24,642,458	24,712,593					
2005	15,086,830	23,676,741	27,029,227	27,927,574	28,797,236	29,113,672	29,128,534	28,729,588	28,691,436	28,573,859	28,765,579	28,825,568	28,612,583	28,682,816	28,819,085	28,826,787						
2006	18,910,980	28,500,166	32,800,788	32,429,299	32,934,170	33,185,844	33,081,007	33,248,827	32,983,575	33,258,655	33,792,774	33,630,111	33,780,307	33,821,773	33,858,884							
2007	16,756,804	25,558,440	28,775,988	29,006,867	29,456,414	29,341,558	29,350,089	29,471,006	29,539,172	29,906,961	29,761,446	29,843,215	29,957,924	29,953,565								
2008	13,480,647	22,763,087	27,140,507	26,736,491	27,043,868	27,142,043	27,259,842	27,914,407	27,952,670	27,904,341	27,959,862	28,572,735	28,830,698									
2009	14,766,007	24,267,657	26,400,812	26,476,667	27,557,181	28,029,966	28,745,683	29,383,032	29,559,362	29,356,972	29,503,809	29,612,273										
2010	13,085,747	20,354,691	23,370,788	24,268,990	26,408,297	26,986,424	27,665,779	27,726,185	27,976,731	28,096,553	28,157,915											
2011	12,747,067	22,187,250	25,988,437	27,318,653	29,513,344	30,272,669	30,799,896	31,199,623	31,346,341	31,530,064												
2012	15,927,869	20,915,320	26,257,757	27,252,254	29,119,310	29,108,630	29,206,596	29,830,876	29,665,234													
2013	12,069,544	19,800,148	24,200,893	25,687,717	26,046,586	26,341,306	26,580,187	26,894,971														
2014	10,773,795	17,286,113	21,778,146	23,959,432	26,131,038	26,383,067	27,063,250															
2015	10,927,304	18,463,504	22,047,620	23,573,852	28,743,733																	
2016	12,114,999	20,831,035	27,300,539																			
2017	11,976,389																					

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)

Reported Loss & ALAE - Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
2008	-	-	-	-	-	-	-	-	-	-	-	-	-									
2009	-	-	-	-	-	-	-	-	-	-	-	-										
2010	-	-	-	-	-	-	-	-	-	-	-											
2011	-	-	-	-	-	-	-	-	-	-												
2012	-	-	-	-	-	-	-	-	-													
2013	-	-	-	-	-	-	-	-														
2014	-	-	-	-	-	-	-															
2015	-	-	-	-	-																	
2016	-	-	-																			
2017	-																					

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	15,614	18,416	18,890	19,493	19,708	19,941	20,248	20,390	20,293
2000	13,248	19,869	20,608	20,987	21,956	22,438	22,564	22,720	22,739	22,861
2001	11,999	19,780	22,160	23,358	24,294	24,766	24,587	24,452	24,326	24,519
2002	13,853	21,721	25,077	25,935	26,652	26,617	26,824	26,828	26,479	26,440
2003	15,909	22,183	23,621	24,171	24,703	24,640	24,681	24,687	24,951	24,859
2004	12,164	20,543	23,680	23,887	24,397	24,760	24,787	24,522	24,619	24,740
2005	15,087	23,677	27,029	27,928	28,797	29,114	29,129	28,730	28,691	28,574
2006	18,911	28,500	32,801	32,429	32,934	33,186	33,081	33,249	32,984	33,259
2007	16,757	25,558	28,776	29,007	29,456	29,342	29,350	29,471	29,539	29,907
2008	13,481	22,763	27,141	26,736	27,044	27,142	27,260	27,914	27,953	27,904
2009	14,766	24,268	26,401	26,477	27,557	28,030	28,746	29,383	29,559	29,357
2010	13,086	20,355	23,371	24,269	26,408	26,986	27,666	27,726	27,977	28,097
2011	12,747	22,187	25,988	27,319	29,513	30,273	30,800	31,200	31,346	31,530
2012	15,928	20,915	26,258	27,252	29,119	29,109	29,207	29,831	29,665	
2013	12,070	19,800	24,201	25,688	26,047	26,341	26,580	26,895		
2014	10,774	17,286	21,778	23,959	26,131	26,383	27,063			
2015	10,927	18,464	22,048	23,574	28,744					
2016	12,115	20,831	27,301							
2017	11,976									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.1795	1.0257	1.0319	1.0110	1.0118	1.0154	1.0070	0.9952	1.0022
2000	1.4997	1.0372	1.0184	1.0462	1.0219	1.0056	1.0070	1.0008	1.0054	0.9992
2001	1.6485	1.1203	1.0541	1.0400	1.0194	0.9928	0.9945	0.9948	1.0080	1.0025
2002	1.5680	1.1545	1.0342	1.0276	0.9987	1.0078	1.0002	0.9870	0.9985	0.9983
2003	1.3944	1.0648	1.0233	1.0220	0.9975	1.0017	1.0002	1.0107	0.9963	1.0003
2004	1.6888	1.1527	1.0088	1.0213	1.0149	1.0011	0.9893	1.0039	1.0049	0.9974
2005	1.5694	1.1416	1.0332	1.0311	1.0110	1.0005	0.9863	0.9987	0.9959	1.0067
2006	1.5071	1.1509	0.9887	1.0156	1.0076	0.9968	1.0051	0.9920	1.0083	1.0161
2007	1.5253	1.1259	1.0080	1.0155	0.9961	1.0003	1.0041	1.0023	1.0125	0.9951
2008	1.6886	1.1923	0.9851	1.0115	1.0036	1.0043	1.0240	1.0014	0.9983	1.0020
2009	1.6435	1.0879	1.0029	1.0408	1.0172	1.0255	1.0222	1.0060	0.9932	1.0050
2010	1.5555	1.1482	1.0384	1.0881	1.0219	1.0252	1.0022	1.0090	1.0043	1.0022
2011	1.7406	1.1713	1.0512	1.0803	1.0257	1.0174	1.0130	1.0047	1.0059	
2012	1.3131	1.2554	1.0379	1.0685	0.9996	1.0034	1.0214	0.9944		
2013	1.6405	1.2223	1.0614	1.0140	1.0113	1.0091	1.0118			
2014	1.6045	1.2599	1.1002	1.0906	1.0096	1.0258				
2015	1.6897	1.1941	1.0692	1.2193						
2016	1.7194	1.3106								
Latest 9 Volume Weighted	1.6124	1.2013	1.0368	1.0672	1.0102	1.0115	1.0099	1.0012	1.0024	1.0029
Latest 6 Volume Weighted	1.6025	1.2351	1.0586	1.0914	1.0142	1.0176	1.0158	1.0029	1.0039	1.0048
Latest 3 Volume Weighted	1.6732	1.2571	1.0764	1.1052	1.0066	1.0124	1.0155	1.0026	1.0011	1.0031
Simple Average of Middle 4 of Last 6	1.6635	1.2329	1.0551	1.0819	1.0150	1.0193	1.0171	1.0036	1.0042	1.0040
Simple Average of Middle 3 of Last 5	1.6449	1.2459	1.0606	1.0798	1.0143	1.0172	1.0154	1.0040	1.0028	1.0031
Selected Oct 16	1.6300	1.2200	1.0500	1.0700	1.0150	1.0150	1.0150	1.0050	1.0020	1.0020
Selected Feb 17	1.6300	1.2200	1.0500	1.0700	1.0150	1.0150	1.0150	1.0050	1.0020	1.0020
Selected Factors	1.6600	1.2350	1.0600	1.0850	1.0150	1.0175	1.0150	1.0050	1.0020	1.0020
Selected Ultimate	2.5290	1.5235	1.2336	1.1638	1.0726	1.0568	1.0386	1.0232	1.0181	1.0161

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
20,337	20,140	20,199	20,241	20,287	20,222	20,365	20,230	20,238	20,235	20,230	20,244
22,843	22,731	22,808	22,765	22,774	22,755	23,017	23,121	23,153	23,154	23,158	
24,582	24,472	24,372	24,425	24,409	24,486	24,654	24,644	24,615	24,642		
26,396	26,564	26,721	26,704	26,700	26,651	26,688	26,758	26,799			
24,865	24,803	24,911	25,003	25,091	25,168	25,137	25,305				
24,677	24,564	24,506	24,542	24,636	24,642	24,713					
28,766	28,826	28,613	28,683	28,819	28,827						
33,793	33,630	33,780	33,822	33,859							
29,761	29,843	29,958	29,954								
27,960	28,573	28,831									
29,504	29,612										
28,158											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
0.9903	1.0029	1.0021	1.0023	0.9968	1.0071	0.9934	1.0004	0.9999	0.9998	1.0007
0.9951	1.0034	0.9981	1.0004	0.9992	1.0115	1.0045	1.0014	1.0001	1.0001	
0.9955	0.9959	1.0022	0.9993	1.0032	1.0068	0.9996	0.9988	1.0011		
1.0063	1.0059	0.9994	0.9998	0.9982	1.0014	1.0026	1.0015			
0.9975	1.0043	1.0037	1.0036	1.0030	0.9988	1.0067				
0.9954	0.9976	1.0015	1.0038	1.0002	1.0028					
1.0021	0.9926	1.0025	1.0048	1.0003						
0.9952	1.0045	1.0012	1.0011							
1.0027	1.0038	0.9999								
1.0219	1.0090									
1.0037										
1.0023	1.0020	1.0012	1.0019	1.0002	1.0045	1.0016	1.0005	1.0004	1.0000	1.0007
1.0034	1.0021	1.0013	1.0021	1.0007	1.0045	1.0016	1.0005	1.0004	1.0000	1.0007
1.0092	1.0057	1.0012	1.0031	1.0011	1.0010	1.0030	1.0006	1.0004	1.0000	1.0007
1.0010	1.0026	1.0013	1.0021	1.0007	1.0045	1.0022	1.0009	1.0001	1.0000	1.0007
1.0028	1.0020	1.0017	1.0028	1.0012	1.0037	1.0022	1.0009	1.0001	1.0000	1.0007
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0020	1.0000	1.0000	1.0000	1.0000
1.0141	1.0121	1.0100	1.0080	1.0060	1.0040	1.0020	1.0000	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Reported Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	2.2602	2.4674	2.6751	2.5326	2.5283	2.3905	2.3905	2.5290
12	1.4018	1.5397	1.5988	1.5224	1.5371	1.4666	1.4666	1.5235
20	1.1669	1.2466	1.2719	1.2348	1.2338	1.2021	1.2021	1.2336
24	1.1254	1.1776	1.1816	1.1704	1.1633	1.1449	1.1449	1.1638
32	1.0546	1.0790	1.0692	1.0818	1.0773	1.0700	1.0700	1.0726
36	1.0440	1.0638	1.0622	1.0658	1.0621	1.0542	1.0542	1.0568
44	1.0321	1.0454	1.0491	1.0456	1.0441	1.0386	1.0386	1.0386
56	1.0220	1.0292	1.0332	1.0280	1.0283	1.0232	1.0232	1.0232
68	1.0208	1.0262	1.0305	1.0243	1.0242	1.0181	1.0181	1.0181
80	1.0184	1.0222	1.0293	1.0201	1.0213	1.0161	1.0161	1.0161
92	1.0154	1.0174	1.0261	1.0160	1.0182	1.0141	1.0141	1.0141
104	1.0131	1.0139	1.0168	1.0150	1.0153	1.0121	1.0121	1.0121
116	1.0110	1.0118	1.0110	1.0124	1.0133	1.0100	1.0100	1.0100
128	1.0099	1.0105	1.0099	1.0111	1.0116	1.0080	1.0080	1.0080
140	1.0080	1.0084	1.0068	1.0091	1.0087	1.0060	1.0060	1.0060
152	1.0077	1.0077	1.0056	1.0084	1.0075	1.0040	1.0040	1.0040
164	1.0032	1.0032	1.0046	1.0038	1.0038	1.0020	1.0020	1.0020
176	1.0016	1.0016	1.0016	1.0016	1.0016	1.0000	1.0000	1.0000
188	1.0010	1.0010	1.0010	1.0007	1.0007	1.0000	1.0000	1.0000
200	1.0007	1.0007	1.0007	1.0006	1.0006	1.0000	1.0000	1.0000
212	1.0007	1.0007	1.0007	1.0007	1.0007	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Reported	Months of Devt	Percentage Reported	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	1.6600	2.5290	39.54%	8		2.5290	1.6600	1.6600	2.5289
12	1.2350	1.5235		12	65.64%	1.5235	1.2350	1.2350	1.5234
20	1.0600	1.2336	81.06%	20		1.2336	1.0600	1.0600	1.2336
24	1.0850	1.1638		24	85.93%	1.1638	1.0850	1.0850	1.1637
32	1.0150	1.0726	93.23%	32		1.0726	1.0150	1.0150	1.0726
36	1.0175	1.0568		36	94.63%	1.0568	1.0226	1.0225	1.0567
44	1.0150	1.0386	96.28%	48	96.77%	1.0334	1.0116	1.0115	1.0335
56	1.0050	1.0232	97.73%	60	97.89%	1.0215	1.0040	1.0040	1.0217
68	1.0020	1.0181	98.22%	72	98.28%	1.0175	1.0020	1.0020	1.0176
80	1.0020	1.0161	98.41%	84	98.48%	1.0154	1.0020	1.0020	1.0156
92	1.0020	1.0141	98.61%	96	98.68%	1.0134	1.0020	1.0020	1.0136
104	1.0020	1.0121	98.81%	108	98.87%	1.0114	1.0020	1.0020	1.0116
116	1.0020	1.0100	99.01%	120	99.07%	1.0094	1.0020	1.0020	1.0095
128	1.0020	1.0080	99.20%	132	99.27%	1.0074	1.0020	1.0020	1.0075
140	1.0020	1.0060	99.40%	144	99.47%	1.0053	1.0020	1.0020	1.0055
152	1.0020	1.0040	99.60%	156	99.67%	1.0033	1.0020	1.0020	1.0035
164	1.0020	1.0020	99.80%	168	99.87%	1.0013	1.0013	1.0015	1.0015
176	1.0000	1.0000	100.00%	180	100.00%	1.0000	1.0000	1.0000	1.0000
188	1.0000	1.0000	100.00%	192	100.00%	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Reported Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	IBNR	Case Reserves	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	475,277	23,158	1.0000	23,158	-	-	4.87%
2001	497,121	24,642	1.0000	24,642	-	2	4.96%
2002	532,307	26,799	1.0000	26,799	-	5	5.03%
2003	560,857	25,305	1.0000	25,305	-	18	4.51%
2004	596,045	24,713	1.0020	24,762	49	37	4.15%
2005	630,367	28,827	1.0040	28,942	115	43	4.59%
2006	654,863	33,859	1.0060	34,062	204	19	5.20%
2007	677,464	29,954	1.0080	30,194	240	143	4.46%
2008	707,051	28,831	1.0100	29,120	289	418	4.12%
2009	739,881	29,612	1.0121	29,969	357	82	4.05%
2010	759,948	28,158	1.0141	28,554	397	139	3.76%
2011	772,985	31,530	1.0161	32,038	508	422	4.14%
2012	768,953	29,665	1.0181	30,203	538	474	3.93%
2013	778,092	26,895	1.0232	27,520	625	671	3.54%
2014	817,710	27,063	1.0386	28,107	1,044	1,788	3.44%
2015	873,488	28,744	1.0726	30,831	2,087	8,681	3.53%
2016	918,780	27,301	1.2336	33,678	6,378	11,121	3.67%
2017	656,688	11,976	2.5290	20,192	8,216	9,266	3.07%
	12,417,877	487,031		508,079	21,048	33,329	4.09%

Notes:
(5) Current year adjusted to reflect the portion of the fiscal year that is completed

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	23,158			23,158	4.87%	4.87%	100.00%	4.87%	4.87%
2001	497,121	24,642	23,505		23,505	4.73%	4.96%	100.00%	4.96%	4.96%
2002	532,307	26,799	25,012	23,857	24,435	4.59%	5.03%	100.00%	5.03%	5.03%
2003	560,857	25,305	27,201	25,387	26,294	4.69%	4.51%	100.00%	4.51%	4.51%
2004	596,045	24,762	25,684	27,609	26,647	4.47%	4.15%	100.00%	4.15%	4.15%
2005	630,367	28,942	25,133	26,069	25,601	4.06%	4.59%	100.00%	4.59%	4.59%
2006	654,863	34,062	29,376	25,510	27,443	4.19%	5.20%	90.00%	5.10%	5.10%
2007	677,464	30,194	34,573	29,817	32,195	4.75%	4.46%	80.00%	4.52%	4.52%
2008	707,051	29,120	30,647	35,092	32,869	4.65%	4.12%	70.00%	4.28%	4.28%
2009	739,881	29,969	29,557	31,107	30,332	4.10%	4.05%	60.00%	4.07%	4.07%
2010	759,948	28,554	30,419	30,000	30,210	3.98%	3.76%	50.00%	3.87%	3.87%
2011	772,985	32,038	28,983	30,875	29,929	3.87%	4.14%	40.00%	3.98%	3.98%
2012	768,953	30,203	32,519	29,418	30,968	4.03%	3.93%	30.00%	4.00%	4.00%
2013	778,092	27,520	30,657	33,006	31,831	4.09%	3.54%	20.00%	3.98%	3.98%
2014	817,710	28,107	27,933	31,116	29,525	3.61%	3.44%	10.00%	3.59%	3.59%
2015	873,488	30,831	28,529	28,352	28,440	3.26%	3.53%	0.00%	3.26%	3.26%
2016	918,780	33,678	31,293	28,957	30,125	3.28%	3.67%	0.00%	3.28%	3.28%
2017	656,688	20,192	22,676	21,070	21,873	3.33%	3.07%	0.00%	3.33%	3.33%
	12,417,877	508,079	483,698	457,245	505,381					

Trend in Losses Based on Exponential Regression (a):
1.35%
Selected Trend (b):
1.50%

Notes:
(3) Ultimate Losses from Page 7
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(a) Based on the Projected Ultimate Losses
(b) Based on the exponential trend rounded up to the nearest 0.25%; minimum 0.00%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Reported Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Reported Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Reported	Expected Percentage: Unreported	Expected Reported Loss	Actual Reported Loss	Expected Unreported Loss	Estimated Ultimate Losses	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	4.87%	23,158	100.00%	0.00%	23,158	23,158	-	23,158	4.87%
2001	497,121	4.96%	24,642	100.00%	0.00%	24,642	24,642	-	24,642	4.96%
2002	532,307	5.03%	26,799	100.00%	0.00%	26,799	26,799	-	26,799	5.03%
2003	560,857	4.51%	25,305	100.00%	0.00%	25,305	25,305	-	25,305	4.51%
2004	596,045	4.15%	24,762	99.80%	0.20%	24,713	24,713	49	24,762	4.15%
2005	630,367	4.59%	28,942	99.60%	0.40%	28,827	28,827	115	28,942	4.59%
2006	654,863	5.10%	33,401	99.40%	0.60%	33,201	33,859	200	34,058	5.20%
2007	677,464	4.52%	30,594	99.20%	0.80%	30,351	29,954	244	30,197	4.46%
2008	707,051	4.28%	30,245	99.01%	0.99%	29,944	28,831	301	29,131	4.12%
2009	739,881	4.07%	30,114	98.81%	1.19%	29,755	29,612	359	29,971	4.05%
2010	759,948	3.87%	29,382	98.61%	1.39%	28,974	28,158	408	28,566	3.76%
2011	772,985	3.98%	30,773	98.41%	1.59%	30,285	31,530	488	32,018	4.14%
2012	768,953	4.00%	30,739	98.22%	1.78%	30,191	29,665	548	30,213	3.93%
2013	778,092	3.98%	30,969	97.73%	2.27%	30,266	26,895	703	27,598	3.55%
2014	817,710	3.59%	29,383	96.28%	3.72%	28,291	27,063	1,092	28,155	3.44%
2015	873,488	3.26%	28,440	93.23%	6.77%	26,515	28,744	1,925	30,669	3.51%
2016	918,780	3.28%	30,125	81.06%	18.94%	24,420	27,301	5,705	33,005	3.59%
2017	656,688	3.33%	21,873	39.54%	60.46%	12,973	11,976	8,900	20,876	3.18%
	12,417,877		509,646			488,610	487,031	21,036	508,067	4.09%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

Manitoba Public Insurance

Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)

Paid Loss & ALAE - With Z-Files

October 31, 2017

	Evaluation in Months																					
Insurance Year	8	12	20	24	32	36	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224
1999	-	5,489,717	10,147,223	11,914,436	14,199,222	15,017,157	16,682,139	18,100,545	18,966,327	19,123,787	19,490,744	19,618,392	19,727,429	19,806,601	19,814,145	19,960,625	20,085,044	20,123,571	20,168,072	20,215,487	20,222,832	20,233,851
2000	3,002,777	6,512,963	12,347,718	13,853,105	16,426,857	18,405,663	19,804,963	21,071,190	21,585,912	22,046,614	22,284,212	22,385,055	22,450,221	22,555,606	22,594,147	22,649,624	22,704,635	23,116,075	23,152,975	23,154,176	23,157,545	
2001	2,724,732	7,346,305	13,177,463	15,867,012	18,980,684	19,945,613	21,122,431	22,175,761	23,158,750	23,492,718	23,784,711	23,960,257	24,017,097	24,122,299	24,305,076	24,347,176	24,540,553	24,577,956	24,614,783	24,639,964		
2002	3,560,608	6,986,586	12,738,793	15,767,434	20,692,272	22,022,148	23,444,858	24,979,757	25,623,498	25,833,086	25,919,561	26,119,360	26,312,143	26,456,119	26,573,307	26,611,081	26,647,035	26,732,678	26,794,603			
2003	2,691,094	5,229,843	11,137,954	14,784,616	18,872,090	20,086,948	22,261,252	23,247,830	23,710,111	24,058,240	24,207,810	24,276,936	24,628,067	24,718,129	24,862,692	25,018,584	25,057,266	25,286,131				
2004	1,435,777	4,300,864	10,811,860	14,603,447	19,021,845	20,440,581	21,821,512	22,872,804	23,492,475	24,022,967	24,292,005	24,432,256	24,381,415	24,473,082	24,605,730	24,608,175	24,675,531					
2005	3,502,201	7,343,011	14,632,057	18,723,897	22,643,035	23,941,751	24,976,572	26,414,869	27,263,418	27,846,713	28,311,574	28,462,235	28,544,448	28,633,977	28,755,876	28,784,243						
2006	3,665,156	9,266,254	17,758,895	21,827,679	25,872,476	27,151,571	29,302,273	31,073,270	31,836,399	32,381,413	32,983,067	33,428,914	33,659,076	33,792,284	33,839,665							
2007	3,845,036	7,189,597	14,436,656	18,382,776	23,035,308	25,005,754	26,361,928	27,672,454	28,300,674	28,959,443	29,431,940	29,635,653	29,715,441	29,810,266								
2008	2,339,545	5,326,122	13,090,424	17,719,667	21,827,744	22,564,465	24,273,709	25,665,067	26,655,706	27,173,866	27,664,213	27,950,424	28,412,488									
2009	2,909,994	6,123,495	12,568,233	15,653,900	21,998,174	23,876,808	26,254,173	28,117,591	28,870,841	29,137,797	29,261,388	29,529,894										
2010	1,568,379	4,584,025	12,436,976	16,804,971	22,734,436	24,562,654	25,861,883	27,085,267	27,767,397	27,933,536	28,018,424											
2011	4,325,448	7,948,508	17,375,311	21,457,654	25,653,174	27,160,230	28,937,827	30,284,665	30,703,019	31,107,842												
2012	3,400,101	6,555,641	13,729,127	17,482,946	23,858,288	25,424,153	27,937,675	28,746,023	29,191,701													
2013	3,415,933	7,316,690	12,873,620	16,625,596	22,204,750	23,688,048	25,201,958	26,224,099														
2014	3,860,952	6,854,577	12,791,307	15,890,417	21,903,434	23,105,238	25,275,547															
2015	2,718,895	7,121,547	12,663,538	14,577,362	20,063,145																	
2016	3,966,456	9,406,633	16,179,882																			
2017	2,710,160																					

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

	Evaluation in Months									
Insurance Year	8	12	20	24	32	36	44	56	68	80
1999	-	5,490	10,147	11,914	14,199	15,017	16,682	18,101	18,966	19,124
2000	3,003	6,513	12,348	13,853	16,427	18,406	19,805	21,071	21,586	22,047
2001	2,725	7,346	13,177	15,867	18,981	19,946	21,122	22,176	23,159	23,493
2002	3,561	6,987	12,739	15,767	20,692	22,022	23,445	24,980	25,623	25,833
2003	2,691	5,230	11,138	14,785	18,872	20,087	22,261	23,248	23,710	24,058
2004	1,436	4,301	10,812	14,603	19,022	20,441	21,822	22,873	23,492	24,023
2005	3,502	7,343	14,632	18,724	22,643	23,942	24,977	26,415	27,263	27,847
2006	3,665	9,266	17,759	21,828	25,872	27,152	29,302	31,073	31,836	32,381
2007	3,845	7,190	14,437	18,383	23,035	25,006	26,362	27,672	28,301	28,959
2008	2,340	5,326	13,090	17,720	21,828	22,564	24,274	25,665	26,656	27,174
2009	2,910	6,123	12,568	15,654	21,998	23,877	26,254	28,118	28,871	29,138
2010	1,568	4,584	12,437	16,805	22,734	24,563	25,862	27,085	27,767	27,934
2011	4,325	7,949	17,375	21,458	25,653	27,160	28,938	30,285	30,703	31,108
2012	3,400	6,556	13,729	17,483	23,858	25,424	27,938	28,746	29,192	
2013	3,416	7,317	12,874	16,626	22,205	23,688	25,202	26,224		
2014	3,861	6,855	12,791	15,890	21,903	23,105	25,276			
2015	2,719	7,122	12,664	14,577	20,063					
2016	3,966	9,407	16,180							
2017	2,710									

Insurance Year	8-12	12-20	20-24	24-32	32-36	36-44	44-56	56-68	68-80	80-92
1999		1.8484	1.1742	1.1918	1.0576	1.1109	1.0850	1.0478	1.0083	1.0192
2000	2.1690	1.8959	1.1219	1.1858	1.1205	1.0760	1.0639	1.0244	1.0213	1.0108
2001	2.6962	1.7938	1.2041	1.1962	1.0508	1.0590	1.0499	1.0443	1.0144	1.0124
2002	1.9622	1.8233	1.2377	1.3123	1.0643	1.0646	1.0655	1.0258	1.0082	1.0033
2003	1.9434	2.1297	1.3274	1.2765	1.0644	1.1082	1.0443	1.0199	1.0147	1.0062
2004	2.9955	2.5139	1.3507	1.3026	1.0746	1.0676	1.0482	1.0271	1.0226	1.0112
2005	2.0967	1.9927	1.2796	1.2093	1.0574	1.0432	1.0576	1.0321	1.0214	1.0167
2006	2.5282	1.9165	1.2291	1.1853	1.0494	1.0792	1.0604	1.0246	1.0171	1.0186
2007	1.8698	2.0080	1.2733	1.2531	1.0855	1.0542	1.0497	1.0227	1.0233	1.0163
2008	2.2766	2.4578	1.3536	1.2318	1.0338	1.0757	1.0573	1.0386	1.0194	1.0180
2009	2.1043	2.0525	1.2455	1.4053	1.0854	1.0996	1.0710	1.0268	1.0092	1.0042
2010	2.9228	2.7131	1.3512	1.3528	1.0804	1.0529	1.0473	1.0252	1.0060	1.0030
2011	1.8376	2.1860	1.2350	1.1955	1.0587	1.0654	1.0465	1.0138	1.0132	
2012	1.9281	2.0942	1.2734	1.3647	1.0656	1.0989	1.0289	1.0155		
2013	2.1419	1.7595	1.2914	1.3356	1.0668	1.0639	1.0406			
2014	1.7754	1.8661	1.2423	1.3784	1.0549	1.0939				
2015	2.6193	1.7782	1.1511	1.3763						
2016	2.3715	1.7201								
Latest 9 Volume Weighted	2.1482	2.0202	1.2675	1.3149	1.0643	1.0758	1.0509	1.0248	1.0162	1.0111
Latest 6 Volume Weighted	2.0843	1.8939	1.2561	1.3265	1.0684	1.0788	1.0483	1.0234	1.0147	1.0129
Latest 3 Volume Weighted	2.2172	1.7806	1.2287	1.3626	1.0625	1.0858	1.0387	1.0180	1.0096	1.0083
Simple Average of Middle 4 of Last 6	2.0698	1.8745	1.2605	1.3573	1.0679	1.0805	1.0479	1.0225	1.0147	1.0138
Simple Average of Middle 3 of Last 5	2.1472	1.8013	1.2502	1.3589	1.0637	1.0744	1.0448	1.0225	1.0140	1.0129
Selected Oct 16	2.0000	2.0000	1.2700	1.3600	1.0675	1.0750	1.0550	1.0250	1.0175	1.0170
Selected Feb 17	2.0000	2.0000	1.2700	1.3600	1.0675	1.0750	1.0550	1.0250	1.0175	1.0170
Selected Factors	2.0000	2.0000	1.2700	1.3600	1.0675	1.0750	1.0500	1.0230	1.0150	1.0150
Selected Ultimate	9.1398	4.5699	2.2850	1.7992	1.3229	1.2393	1.1528	1.0979	1.0732	1.0574

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Evaluation in Months

92	104	116	128	140	152	164	176	188	200	212	224
19,491	19,618	19,727	19,807	19,814	19,961	20,085	20,124	20,168	20,215	20,223	20,234
22,284	22,385	22,450	22,556	22,594	22,650	22,705	23,116	23,153	23,154	23,158	
23,785	23,960	24,017	24,122	24,305	24,347	24,541	24,578	24,615	24,640		
25,920	26,119	26,312	26,456	26,573	26,611	26,647	26,733	26,795			
24,208	24,277	24,628	24,718	24,863	25,019	25,057	25,286				
24,292	24,432	24,381	24,473	24,606	24,608	24,676					
28,312	28,462	28,544	28,634	28,756	28,784						
32,983	33,429	33,659	33,792	33,840							
29,432	29,636	29,715	29,810								
27,664	27,950	28,412									
29,261	29,530										
28,018											

92-104	104-116	116-128	128-140	140-152	152-164	164-176	176-188	188-200	200-212	212-Ult
1.0065	1.0056	1.0040	1.0004	1.0074	1.0062	1.0019	1.0022	1.0024	1.0004	1.0005
1.0045	1.0029	1.0047	1.0017	1.0025	1.0024	1.0181	1.0016	1.0001	1.0001	
1.0074	1.0024	1.0044	1.0076	1.0017	1.0079	1.0015	1.0015	1.0010		
1.0077	1.0074	1.0055	1.0044	1.0014	1.0014	1.0032	1.0023			
1.0029	1.0145	1.0037	1.0058	1.0063	1.0015	1.0091				
1.0058	0.9979	1.0038	1.0054	1.0001	1.0027					
1.0053	1.0029	1.0031	1.0043	1.0010						
1.0135	1.0069	1.0040	1.0014							
1.0069	1.0027	1.0032								
1.0103	1.0165									
1.0092										
1.0079	1.0061	1.0040	1.0039	1.0027	1.0036	1.0067	1.0019	1.0011	1.0002	1.0005
1.0087	1.0069	1.0038	1.0046	1.0021	1.0036	1.0067	1.0019	1.0011	1.0002	1.0005
1.0088	1.0085	1.0035	1.0035	1.0024	1.0019	1.0046	1.0018	1.0011	1.0002	1.0005
1.0081	1.0067	1.0036	1.0050	1.0016	1.0032	1.0048	1.0019	1.0010	1.0003	1.0005
1.0088	1.0042	1.0035	1.0047	1.0014	1.0022	1.0048	1.0019	1.0010	1.0003	1.0005
1.0075	1.0050	1.0050	1.0050	1.0040	1.0040	1.0040	1.0040	1.0025	1.0000	1.0000
1.0075	1.0050	1.0050	1.0050	1.0040	1.0040	1.0040	1.0040	1.0025	1.0000	1.0000
1.0085	1.0050	1.0045	1.0045	1.0040	1.0040	1.0040	1.0040	1.0025	1.0000	1.0000
1.0417	1.0330	1.0278	1.0232	1.0186	1.0146	1.0105	1.0065	1.0025	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Paid Loss & ALAE Development Factors to Ultimate

Months to Ultimate	Latest 9 Volume Weighted	Latest 6 Volume Weighted	Latest 3 Volume Weighted	Simple Average of Middle 4 of Last 6	Simple Average of Middle 3 of Last 5	Selected Oct 16 Factors	Selected Feb 17 Factors	Selected Factors
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	9.5251	8.7021	8.5145	8.7599	8.5174	9.2422	9.2422	9.1398
12	4.4339	4.1751	3.8403	4.2322	3.9668	4.6211	4.6211	4.5699
20	2.1948	2.2044	2.1568	2.2578	2.2022	2.3105	2.3105	2.2850
24	1.7316	1.7550	1.7553	1.7911	1.7615	1.8193	1.8193	1.7992
32	1.3169	1.3230	1.2882	1.3196	1.2963	1.3377	1.3377	1.3229
36	1.2373	1.2383	1.2124	1.2357	1.2186	1.2531	1.2531	1.2393
44	1.1501	1.1478	1.1165	1.1436	1.1342	1.1657	1.1657	1.1528
56	1.0944	1.0949	1.0749	1.0913	1.0856	1.1049	1.1049	1.0979
68	1.0679	1.0699	1.0560	1.0672	1.0617	1.0780	1.0780	1.0732
80	1.0509	1.0544	1.0459	1.0517	1.0471	1.0595	1.0595	1.0574
92	1.0394	1.0410	1.0373	1.0374	1.0338	1.0417	1.0417	1.0417
104	1.0312	1.0320	1.0283	1.0291	1.0248	1.0340	1.0340	1.0330
116	1.0250	1.0249	1.0197	1.0222	1.0205	1.0288	1.0288	1.0278
128	1.0209	1.0210	1.0161	1.0185	1.0169	1.0237	1.0237	1.0232
140	1.0170	1.0163	1.0126	1.0134	1.0122	1.0186	1.0186	1.0186
152	1.0142	1.0142	1.0102	1.0118	1.0108	1.0146	1.0146	1.0146
164	1.0106	1.0106	1.0083	1.0085	1.0085	1.0105	1.0105	1.0105
176	1.0038	1.0038	1.0037	1.0037	1.0037	1.0065	1.0065	1.0065
188	1.0019	1.0019	1.0019	1.0018	1.0018	1.0025	1.0025	1.0025
200	1.0008	1.0008	1.0008	1.0008	1.0008	1.0000	1.0000	1.0000
212	1.0005	1.0005	1.0005	1.0005	1.0005	1.0000	1.0000	1.0000

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Interpolated Percentage of Ultimate Factors

For October				For February					
Months of Devt	RTR Factors	Factor to Ultimate	Percentage Paid	Months of Devt	Percentage Paid	Factor to Ultimate	RTR Factors	Selected RTR Factors	Sel'd Factor to Ultimate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8	2.0000	9.1398	10.94%	8		9.1398	2.0000	2.0000	9.1409
12	2.0000	4.5699		12	21.88%	4.5699	2.0000	2.0000	4.5704
20	1.2700	2.2850	43.76%	20		2.2850	1.2700	1.2700	2.2852
24	1.3600	1.7992		24	55.58%	1.7992	1.3600	1.3600	1.7994
32	1.0675	1.3229	75.59%	32		1.3229	1.0675	1.0675	1.3231
36	1.0750	1.2393		36	80.69%	1.2393	1.0929	1.0930	1.2394
44	1.0500	1.1528	86.74%	48	88.19%	1.1339	1.0407	1.0405	1.1340
56	1.0230	1.0979	91.08%	60	91.78%	1.0896	1.0203	1.0205	1.0898
68	1.0150	1.0732	93.18%	72	93.64%	1.0679	1.0150	1.0150	1.0679
80	1.0150	1.0574	94.57%	84	95.05%	1.0521	1.0128	1.0130	1.0521
92	1.0085	1.0417	95.99%	96	96.26%	1.0388	1.0073	1.0070	1.0386
104	1.0050	1.0330	96.81%	108	96.97%	1.0312	1.0048	1.0050	1.0314
116	1.0045	1.0278	97.29%	120	97.44%	1.0263	1.0045	1.0045	1.0263
128	1.0045	1.0232	97.73%	132	97.88%	1.0217	1.0043	1.0040	1.0217
140	1.0040	1.0186	98.17%	144	98.30%	1.0173	1.0040	1.0040	1.0176
152	1.0040	1.0146	98.56%	156	98.69%	1.0132	1.0040	1.0040	1.0136
164	1.0040	1.0105	98.96%	168	99.09%	1.0092	1.0040	1.0040	1.0095
176	1.0040	1.0065	99.35%	180	99.49%	1.0052	1.0035	1.0035	1.0055
188	1.0025	1.0025	99.75%	192	99.83%	1.0017	1.0017	1.0020	1.0020
200	1.0000	1.0000	100.00%	204	100.00%	1.0000	1.0000	1.0000	1.0000
Tail	1.0000	1.0000	100.00%	Tail	100.00%	1.0000	1.0000	1.0000	1.0000

Selected Development in 4th and Subsequent Years: 33.33%

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses & ALAE Using the Development Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Paid Loss & ALAE	Development Factor to Ultimate	Ultimate Losses	Unpaid	Case Reserves	IBNR	Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	475,277	23,158	1.0000	23,158	-	-	-	4.87%
2001	497,121	24,640	1.0000	24,640	-	2	(2)	4.96%
2002	532,307	26,795	1.0025	26,862	67	5	62	5.05%
2003	560,857	25,286	1.0065	25,451	165	18	147	4.54%
2004	596,045	24,676	1.0105	24,936	260	37	223	4.18%
2005	630,367	28,784	1.0146	29,204	420	43	377	4.63%
2006	654,863	33,840	1.0186	34,470	631	19	612	5.26%
2007	677,464	29,810	1.0232	30,502	692	143	549	4.50%
2008	707,051	28,412	1.0278	29,203	791	418	373	4.13%
2009	739,881	29,530	1.0330	30,503	973	82	891	4.12%
2010	759,948	28,018	1.0417	29,188	1,170	139	1,031	3.84%
2011	772,985	31,108	1.0574	32,893	1,785	422	1,363	4.26%
2012	768,953	29,192	1.0732	31,329	2,138	474	1,664	4.07%
2013	778,092	26,224	1.0979	28,792	2,568	671	1,897	3.70%
2014	817,710	25,276	1.1528	29,138	3,862	1,788	2,074	3.56%
2015	873,488	20,063	1.3229	26,542	6,479	8,681	(2,202)	3.04%
2016	918,780	16,180	2.2850	36,970	20,790	11,121	9,669	4.02%
2017	656,688	2,710	9.1398	16,514	13,803	9,266	4,537	2.51%
	12,417,877	453,701		510,294	56,593	33,329	23,264	4.11%

Notes:
(5) Current year adjusted to reflect the portion of the fiscal year that is completed

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Development of Bornhuetter-Ferguson Initial Expected Loss Ratio

Insurance Year	Earned Premium	Projected Ultimate Losses	Based on Prior Year	Based on 2nd Prior Year	Fitted Ultimate Losses	Fitted Ultimate Loss Ratio	Projected Ultimate Loss Ratio	Weight	Weighted Initial Ult Loss Ratio	Selected Initial Ult Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	475,277	23,158			23,158	4.87%	4.87%	100.00%	4.87%	4.87%
2001	497,121	24,640	23,505		23,505	4.73%	4.96%	100.00%	4.96%	4.96%
2002	532,307	26,862	25,010	23,857	24,434	4.59%	5.05%	100.00%	5.05%	5.03%
2003	560,857	25,451	27,265	25,385	26,325	4.69%	4.54%	100.00%	4.54%	4.51%
2004	596,045	24,936	25,833	27,673	26,753	4.49%	4.18%	100.00%	4.18%	4.15%
2005	630,367	29,204	25,310	26,220	25,765	4.09%	4.63%	100.00%	4.63%	4.59%
2006	654,863	34,470	29,642	25,689	27,666	4.22%	5.26%	90.00%	5.16%	5.10%
2007	677,464	30,502	34,987	30,087	32,537	4.80%	4.50%	80.00%	4.56%	4.52%
2008	707,051	29,203	30,960	35,512	33,236	4.70%	4.13%	70.00%	4.30%	4.28%
2009	739,881	30,503	29,641	31,424	30,533	4.13%	4.12%	60.00%	4.12%	4.07%
2010	759,948	29,188	30,961	30,086	30,523	4.02%	3.84%	50.00%	3.93%	3.87%
2011	772,985	32,893	29,626	31,425	30,526	3.95%	4.26%	40.00%	4.07%	3.98%
2012	768,953	31,329	33,386	30,070	31,728	4.13%	4.07%	30.00%	4.11%	4.00%
2013	778,092	28,792	31,799	33,887	32,843	4.22%	3.70%	20.00%	4.12%	3.98%
2014	817,710	29,138	29,224	32,276	30,750	3.76%	3.56%	10.00%	3.74%	3.59%
2015	873,488	26,542	29,575	29,662	29,619	3.39%	3.04%	0.00%	3.39%	3.26%
2016	918,780	36,970	26,940	30,019	28,479	3.10%	4.02%	0.00%	3.10%	3.28%
2017	656,688	16,514	24,893	18,139	21,516	3.28%	2.51%	0.00%	3.28%	3.33%
	12,417,877	510,294	488,555	461,412	509,894					

Trend in Losses Based on Exponential Regression (a):
1.04%
Selected Trend (b):
1.50%

Notes:
(3) Ultimate Losses from Page 15
(6) = Average [(4), (5)]
(10) = (8) * (9) + (7) * [1 - (9)]
(11) Selected Initial Ult Loss Ratio from Page 8
(a) Based on the Projected Ultimate Losses
(b) Selected Trend from Page 8

Manitoba Public Insurance
Automobile Insurance Division - Accident Benefits - Other (Non-Indexed)
Paid Loss & ALAE - Without Z-Files
October 31, 2017

Projected Ultimate Losses and ALAE Using the Bornhuetter-Ferguson Method on Paid Loss & ALAE

Insurance Year	Earned Premium	Selected Initial Ult Loss Ratio	Initial Expected Ult Losses	Expected Percentage: Paid	Expected Percentage: Unpaid	Expected Paid Loss	Actual Paid Loss	Expected Unpaid Loss	Estimated Ultimate Losses	Expected IBNR	Estimated Ultimate Loss Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
2000	475,277	4.87%	23,158	100.00%	0.00%	23,158	23,158	-	23,158	-	4.87%
2001	497,121	4.96%	24,642	100.00%	0.00%	24,642	24,640	-	24,640	(2)	4.96%
2002	532,307	5.03%	26,799	99.75%	0.25%	26,733	26,795	67	26,861	62	5.05%
2003	560,857	4.51%	25,305	99.35%	0.65%	25,141	25,286	164	25,450	146	4.54%
2004	596,045	4.15%	24,762	98.96%	1.04%	24,504	24,676	258	24,934	221	4.18%
2005	630,367	4.59%	28,942	98.56%	1.44%	28,526	28,784	416	29,200	373	4.63%
2006	654,863	5.10%	33,401	98.17%	1.83%	32,789	33,840	611	34,451	592	5.26%
2007	677,464	4.52%	30,594	97.73%	2.27%	29,900	29,810	694	30,505	551	4.50%
2008	707,051	4.28%	30,245	97.29%	2.71%	29,426	28,412	819	29,231	401	4.13%
2009	739,881	4.07%	30,114	96.81%	3.19%	29,153	29,530	961	30,491	879	4.12%
2010	759,948	3.87%	29,382	95.99%	4.01%	28,205	28,018	1,177	29,196	1,038	3.84%
2011	772,985	3.98%	30,773	94.57%	5.43%	29,103	31,108	1,670	32,777	1,248	4.24%
2012	768,953	4.00%	30,739	93.18%	6.82%	28,641	29,192	2,097	31,289	1,623	4.07%
2013	778,092	3.98%	30,969	91.08%	8.92%	28,207	26,224	2,762	28,986	2,091	3.73%
2014	817,710	3.59%	29,383	86.74%	13.26%	25,488	25,276	3,895	29,170	2,107	3.57%
2015	873,488	3.26%	28,440	75.59%	24.41%	21,498	20,063	6,942	27,005	(1,739)	3.09%
2016	918,780	3.28%	30,125	43.76%	56.24%	13,184	16,180	16,941	33,121	5,820	3.60%
2017	656,688	3.33%	21,873	10.94%	89.06%	3,590	2,710	18,283	20,994	9,017	3.20%
	12,417,877		509,646			451,889	453,701	57,758	511,459	24,429	4.12%

Notes:
(4) & (7) - Current year adjusted to reflect the portion of the fiscal year that is completed
(10) = (8) + (9)

J. S. CHENG & PARTNERS INC.
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APPENDIX H

Reconciliation

Manitoba Public Insurance
Appendix H: Reconciliation of Paid and Outstanding Claim Amounts ($000) - Basic
As of October 31, 2017

Gross Basis		Bodily Injury	Property Damage	Collision	Compre-hensive	Accident Benefits: Weekly Indemnity	Accident Benefits: Other	Total
1.	Oct 2017 Cumulative Paid	58,239	603,623	4,453,560	1,298,690	569,504	1,091,301	8,074,917
2.	Feb 2017 Cumulative Paid	54,613	573,526	4,196,280	1,235,487	530,348	1,032,927	7,623,180
3.	Calendar Year Paid in Database [(1)-(2)]	3,626	30,097	257,280	63,203	39,156	58,374	451,737
4.	Calendar Year Adjustments	-	-	-	-	-	-	-
5.	Prior Years Not in Database	-	(1)	(1)	(1)	5,570	3,106	8,673
6.	Per Financial Controls	3,626	30,096	257,280	63,202	44,726	61,620	460,550
7.	Difference [(3)+(4)+(5)-(6)]	-	-	-	-	-	(140)	(140)
8.	Oct 2017 O/S Claims in Database	11,300	11,041	59,797	26,006	636,721	502,683	1,247,547
9.	Prior Years Not in Database	-	-	-	-	-	-	-
10.	Per Financial Controls	11,300	11,041	59,797	26,006	642,969	502,862	1,253,975
11.	Difference [(8)+(9)-(10)]	-	-	-	-	(6,248)	(179)	(6,428)

Net Basis		Bodily Injury	Property Damage	Collision	Compre-hensive	Accident Benefits: Weekly Indemnity	Accident Benefits: Other	Total
1.	Oct 2017 Cumulative Paid	58,239	603,623	4,453,560	1,229,496	549,955	1,076,410	7,971,283
2.	Feb 2017 Cumulative Paid	54,613	573,526	4,196,280	1,166,301	511,529	1,017,312	7,519,560
3.	Calendar Year Paid in Database [(1)-(2)]	3,626	30,097	257,280	63,195	38,426	59,098	451,723
4.	Calendar Year Adjustments	-	-	-	-	-	-	-
5.	Prior Years Not in Database	-	(1)	(1)	(1)	5,339	3,337	8,673
6.	Per Financial Controls	3,626	30,096	257,280	63,194	43,765	62,575	460,536
7.	Difference [(3)+(4)+(5)-(6)]	-	-	-	-	-	(140)	(140)
8.	Oct 2017 O/S Claims in Database	11,300	11,041	59,797	25,661	636,245	502,447	1,246,490
9.	Prior Years Not in Database	-	-	-	-	-	-	-
10.	Per Financial Controls	11,300	11,041	59,797	25,661	642,493	502,626	1,252,918
11.	Difference [(8)+(9)-(10)]	-	-	-	-	(6,248)	(179)	(6,428)

J. S. CHENG & PARTNERS INC.
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APPENDIX PE

PIPP Enhancement - Undiscounted Gross IBNR Calculations

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 1
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Increasing the Weekly Indemnity to IAW								
1999 & Prior		1,607	3,038	4,645	87	4,733		3,126
2000	475,277	470	921	1,391	7	1,399	0.29%	929
2001	497,121	229	897	1,126	13	1,139	0.23%	910
2002	532,307	420	902	1,321	169	1,490	0.28%	1,071
2003	560,857	256	505	761	4	764	0.14%	509
2004	596,045	285	979	1,264	15	1,278	0.21%	994
2005	630,367	495	1,400	1,895	21	1,916	0.30%	1,421
2006	654,863	690	2,394	3,083	13	3,097	0.47%	2,407
2007	677,464	416	1,034	1,450	36	1,486	0.22%	1,070
2008	707,051	438	866	1,304	34	1,339	0.19%	901
2009	739,881	417	972	1,389	603	1,992	0.27%	1,576
2010	759,948	139	456	595	6	600	0.08%	461
2011	772,985	36	839	875	(152)	723	0.09%	687
2012	768,953	202	965	1,166	5	1,171	0.15%	970
2013	778,092	32	55	87	829	915	0.12%	883
2014	817,710	35	155	189	335	525	0.06%	490
2015	873,488	9	-	9	884	893	0.10%	884
2016	918,780	57	498	555	1,182	1,737	0.19%	1,680
2017	656,688	-	-	-	1,027	1,027	0.16%	1,027
Total	12,417,877	6,232	16,875	23,107	5,119	28,226	0.23%	21,994

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix A, Column 14 & PE Appendix B, Column 5

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 2
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Increasing the Maximum Personal Care								
1999 & Prior		1,609	4,733	6,342	391	6,733		5,124
2000	475,277	116	290	406	3	410	0.09%	294
2001	497,121	263	989	1,251	35	1,286	0.26%	1,023
2002	532,307	190	896	1,085	71	1,157	0.22%	967
2003	560,857	187	783	970	79	1,049	0.19%	862
2004	596,045	309	1,216	1,525	191	1,717	0.29%	1,408
2005	630,367	211	476	687	168	856	0.14%	645
2006	654,863	226	1,162	1,388	183	1,570	0.24%	1,345
2007	677,464	222	1,276	1,498	473	1,971	0.29%	1,749
2008	707,051	270	601	870	143	1,014	0.14%	744
2009	739,881	168	865	1,034	12	1,046	0.14%	878
2010	759,948	101	877	979	110	1,088	0.14%	987
2011	772,985	143	1,377	1,520	25	1,545	0.20%	1,402
2012	768,953	111	1,004	1,114	32	1,147	0.15%	1,036
2013	778,092	36	414	450	316	766	0.10%	730
2014	817,710	25	778	803	135	939	0.11%	913
2015	873,488	16	166	183	901	1,084	0.12%	1,067
2016	918,780	12	354	365	1,056	1,422	0.15%	1,410
2017	656,688	-	-	-	887	887	0.14%	887
Total	12,417,877	4,213	18,257	22,471	5,214	27,685	0.22%	23,471

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix C, Column 10

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 3
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(7)-(5)	(7)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Increasing the Maximum Permanent Impairment								
1999 & Prior		6,638	-	6,638	237	6,876		237
2000	475,277	1,128	-	1,128	-	1,128	0.24%	-
2001	497,121	879	-	879	-	879	0.18%	-
2002	532,307	1,204	-	1,204	-	1,204	0.23%	-
2003	560,857	954	-	954	106	1,060	0.19%	106
2004	596,045	977	-	977	-	977	0.16%	-
2005	630,367	1,250	-	1,250	-	1,250	0.20%	-
2006	654,863	1,687	-	1,687	-	1,687	0.26%	-
2007	677,464	1,286	-	1,286	92	1,378	0.20%	92
2008	707,051	1,379	0	1,379	-	1,379	0.20%	0
2009	739,881	813	-	813	271	1,084	0.15%	271
2010	759,948	745	-	745	93	839	0.11%	93
2011	772,985	831	80	911	182	1,093	0.14%	262
2012	768,953	924	-	924	185	1,109	0.14%	185
2013	778,092	564	-	564	94	658	0.08%	94
2014	817,710	839	-	839	315	1,154	0.14%	315
2015	873,488	328	36	363	388	751	0.09%	423
2016	918,780	692	-	692	485	1,177	0.13%	485
2017	656,688	-	-	-	775	775	0.12%	775
Total	12,417,877	23,119	116	23,235	3,222	26,457	0.21%	3,338

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(7) - PE Appendix D, Column 9

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 4
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Change to Vehicle Purchase Policy								
1999 & Prior		841	3,274	4,114	54	4,168		3,327
2000	475,277	113	745	858	(10)	848	0.18%	735
2001	497,121	103	617	720	6	725	0.15%	623
2002	532,307	218	730	948	19	967	0.18%	749
2003	560,857	264	510	775	10	785	0.14%	520
2004	596,045	216	1,200	1,416	53	1,469	0.25%	1,253
2005	630,367	52	566	618	10	628	0.10%	576
2006	654,863	322	1,540	1,862	18	1,880	0.29%	1,558
2007	677,464	281	1,144	1,424	35	1,459	0.22%	1,178
2008	707,051	129	932	1,061	10	1,070	0.15%	942
2009	739,881	117	751	869	(7)	861	0.12%	744
2010	759,948	150	747	898	45	942	0.12%	792
2011	772,985	202	562	764	16	780	0.10%	578
2012	768,953	127	399	526	(9)	517	0.07%	390
2013	778,092	-	-	-	1,028	1,028	0.13%	1,028
2014	817,710	99	545	643	295	939	0.11%	840
2015	873,488	34	385	420	524	944	0.11%	910
2016	918,780	70	433	503	573	1,076	0.12%	1,006
2017	656,688	-	-	-	685	685	0.10%	685
Total	12,417,877	3,339	15,080	18,419	3,354	21,772	0.18%	18,434

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix E, Column 11

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 5
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Death Benefits								
1999 & Prior		-	-	-	4,759	4,759		4,759
2000	475,277	-	-	-	875	875	0.18%	875
2001	497,121	-	-	-	678	678	0.14%	678
2002	532,307	-	-	-	1,007	1,007	0.19%	1,007
2003	560,857	-	-	-	601	601	0.11%	601
2004	596,045	-	-	-	1,056	1,056	0.18%	1,056
2005	630,367	-	-	-	823	823	0.13%	823
2006	654,863	-	-	-	1,583	1,583	0.24%	1,583
2007	677,464	-	-	-	1,334	1,334	0.20%	1,334
2008	707,051	-	-	-	921	921	0.13%	921
2009	739,881	-	-	-	897	897	0.12%	897
2010	759,948	-	-	-	844	844	0.11%	844
2011	772,985	-	-	-	897	897	0.12%	897
2012	768,953	-	-	-	988	988	0.13%	988
2013	778,092	-	-	-	439	439	0.06%	439
2014	817,710	-	-	-	1,036	1,036	0.13%	1,036
2015	873,488	-	-	-	799	799	0.09%	799
2016	918,780	-	-	-	1,044	1,044	0.11%	1,044
2017	656,688	-	-	-	803	803	0.12%	803
Total	12,417,877	-	-	-	21,385	21,385	0.17%	21,385

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - PE Appendix F, Column 11

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 6
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(9)-(4)	(7)=(5)+(6)	(8)=(7)/(2)	(9)
PIPP Enhancement: Annual Spending Allowance								
1999 & Prior		32	841	873	167	1,040		1,008
2000	475,277	7	180	187	(3)	184	0.04%	177
2001	497,121	16	139	154	25	179	0.04%	164
2002	532,307	20	333	353	(98)	255	0.05%	235
2003	560,857	4	104	108	38	146	0.03%	142
2004	596,045	16	289	305	(37)	268	0.04%	252
2005	630,367	1	117	118	59	177	0.03%	176
2006	654,863	7	272	279	133	412	0.06%	405
2007	677,464	20	482	502	(170)	332	0.05%	312
2008	707,051	14	226	240	(11)	229	0.03%	215
2009	739,881	3	153	156	65	221	0.03%	218
2010	759,948	16	251	267	(46)	221	0.03%	205
2011	772,985	4	166	170	103	274	0.04%	270
2012	768,953	2	99	101	155	256	0.03%	254
2013	778,092	1	17	17	113	131	0.02%	130
2014	817,710	2	109	111	95	206	0.03%	204
2015	873,488	-	116	116	51	167	0.02%	167
2016	918,780	-	66	66	212	278	0.03%	278
2017	656,688	-	-	-	192	192	0.03%	192
Total	12,417,877	163	3,961	4,124	1,042	5,166	0.04%	5,003

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(9) - PE Appendix G, Column 10

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 7
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)=(7)-(5)	(7)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Caregiver Death Benefit								
1999 & Prior		-	-	-	-	-		-
2000	475,277	-	-	-	-	-	0.00%	-
2001	497,121	-	-	-	-	-	0.00%	-
2002	532,307	-	-	-	-	-	0.00%	-
2003	560,857	-	-	-	-	-	0.00%	-
2004	596,045	-	-	-	-	-	0.00%	-
2005	630,367	-	-	-	-	-	0.00%	-
2006	654,863	-	-	-	-	-	0.00%	-
2007	677,464	-	-	-	-	-	0.00%	-
2008	707,051	43	13	56	114	170	0.02%	127
2009	739,881	-	-	-	-	-	0.00%	-
2010	759,948	-	-	-	-	-	0.00%	-
2011	772,985	-	-	-	-	-	0.00%	-
2012	768,953	-	-	-	-	-	0.00%	-
2013	778,092	-	-	-	-	-	0.00%	-
2014	817,710	-	-	-	-	-	0.00%	-
2015	873,488	281	794	1,075	925	2,000	0.23%	1,719
2016	918,780	-	-	-	2,000	2,000	0.22%	2,000
2017	656,688	6	10	16	1,284	1,300	0.20%	1,294
Total	12,417,877	331	817	1,147	4,323	5,470	0.04%	5,139

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(7) - Estimated based on a review of claimants who are entitled/potentially entitled to this benefit

Manitoba Public Insurance PE Exhibit 1
Automobile Insurance Division Sheet 8
Direct & Agency Ultimate Claim Experience (Including External Adjustment Expenses) - Undiscounted
As of October 31, 2017
($000)

Insurance Year	Earned Premium	As of October 31, 2017 Paid	Case Reserves	Reported	Selected IBNR	Estimated Ultimate Claims	Estimated Ultimate Loss Ratio	Estimated Unpaid Claims
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(5)+(6)	(8)=(7)/(2)	(9)=(4)+(6)
PIPP Enhancement: Total								
1999 & Prior		10,727	11,886	22,614	5,695	28,308		17,581
2000	475,277	1,834	2,137	3,971	873	4,844	1.02%	3,010
2001	497,121	1,489	2,642	4,130	756	4,886	0.98%	3,398
2002	532,307	2,051	2,860	4,912	1,168	6,080	1.14%	4,029
2003	560,857	1,664	1,902	3,567	838	4,404	0.79%	2,740
2004	596,045	1,803	3,683	5,486	1,279	6,765	1.13%	4,962
2005	630,367	2,009	2,560	4,569	1,080	5,649	0.90%	3,641
2006	654,863	2,932	5,367	8,299	1,930	10,229	1.56%	7,297
2007	677,464	2,225	3,936	6,161	1,799	7,960	1.18%	5,735
2008	707,051	2,272	2,638	4,910	1,211	6,121	0.87%	3,849
2009	739,881	1,518	2,742	4,260	1,841	6,101	0.82%	4,583
2010	759,948	1,153	2,331	3,483	1,052	4,535	0.60%	3,383
2011	772,985	1,216	3,024	4,240	1,071	5,311	0.69%	4,095
2012	768,953	1,365	2,466	3,832	1,357	5,188	0.67%	3,823
2013	778,092	633	485	1,118	2,819	3,937	0.51%	3,304
2014	817,710	1,000	1,587	2,586	2,212	4,798	0.59%	3,799
2015	873,488	668	1,497	2,166	4,471	6,637	0.76%	5,969
2016	918,780	831	1,351	2,182	6,552	8,734	0.95%	7,903
2017	656,688	6	10	16	5,655	5,671	0.86%	5,664
Total	12,417,877	37,397	55,105	92,502	43,659	136,161	1.10%	98,764

Notes: (2) - From MPI
(3) to (5) - From MPI Fiscal Year Summaries
(6) - Total All PIPP Enhancements

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 1

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Weekly Indemnity to IAW											
1999 & Prior	3,126	90.97%	86.14%	2,844	2,693	151	10.00%	269	3,113	87	75
2000	929	90.70%	85.73%	842	796	46	10.00%	80	922	7	1
2001	910	88.01%	81.79%	801	744	57	10.00%	74	875	13	(22)
2002	1,071	89.75%	84.36%	961	903	58	10.00%	90	1,051	169	149
2003	509	88.69%	82.80%	451	421	30	10.00%	42	493	4	(12)
2004	994	87.26%	80.73%	867	802	65	10.00%	80	947	15	(31)
2005	1,421	87.97%	81.77%	1,250	1,162	88	10.00%	116	1,366	21	(34)
2006	2,407	87.56%	81.16%	2,108	1,953	154	10.00%	195	2,303	13	(91)
2007	1,070	88.12%	81.99%	943	877	66	10.00%	88	1,030	36	(4)
2008	901	89.65%	84.19%	807	758	49	10.00%	76	883	34	17
2009	1,576	88.26%	82.20%	1,391	1,295	95	10.00%	130	1,520	603	548
2010	461	87.92%	81.66%	406	377	29	10.00%	38	443	6	(12)
2011	687	87.87%	81.64%	604	561	43	10.00%	56	660	(152)	(179)
2012	970	88.54%	82.59%	858	801	58	10.00%	80	938	5	(26)
2013	883	86.10%	79.12%	760	699	62	10.00%	70	830	829	776
2014	490	89.14%	83.44%	437	409	28	10.00%	41	478	335	323
2015	884	87.79%	81.50%	776	721	56	10.00%	72	849	884	849
2016	1,680	86.35%	79.46%	1,451	1,335	116	15.00%	200	1,651	1,182	1,153
2017	1,027	88.02%	81.85%	904	841	63	15.00%	126	1,031	1,027	1,031
Total	21,994	88.48%	82.51%	19,460	18,148	1,313	10.60%	1,924	21,384	5,119	4,509

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix A, Column 14 & PE Appendix B, Column 8
(6) - PE Appendix A, Column 14 & PE Appendix B, Column 11
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Weekly Indemnity
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 2

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Maximum Personal Care											
1999 & Prior	5,124	89.30%	83.72%	4,576	4,290	286	10.00%	429	5,005	391	272
2000	294	91.80%	87.37%	270	257	13	10.00%	26	296	3	5
2001	1,023	88.27%	82.18%	903	841	62	10.00%	84	988	35	(1)
2002	967	88.32%	82.26%	854	795	59	10.00%	80	934	71	38
2003	862	88.66%	82.78%	764	714	51	10.00%	71	836	79	53
2004	1,408	85.86%	78.76%	1,209	1,109	100	10.00%	111	1,320	191	103
2005	645	89.38%	83.80%	576	540	36	10.00%	54	630	168	154
2006	1,345	86.56%	79.73%	1,164	1,072	92	10.00%	107	1,271	183	109
2007	1,749	86.20%	79.26%	1,507	1,386	121	10.00%	139	1,646	473	370
2008	744	89.48%	83.96%	666	625	41	15.00%	94	760	143	159
2009	878	86.57%	79.76%	760	700	60	15.00%	105	865	12	(1)
2010	987	87.45%	81.05%	863	800	63	15.00%	120	983	110	106
2011	1,402	85.86%	78.82%	1,204	1,105	99	15.00%	166	1,370	25	(7)
2012	1,036	85.99%	79.12%	891	820	71	15.00%	123	1,014	32	10
2013	730	83.67%	75.72%	611	553	58	15.00%	83	693	316	279
2014	913	88.66%	82.81%	810	756	53	15.00%	113	923	135	145
2015	1,067	87.05%	80.53%	929	860	70	15.00%	129	1,058	901	892
2016	1,410	85.75%	78.66%	1,209	1,109	100	15.00%	166	1,376	1,056	1,022
2017	887	86.80%	80.14%	770	711	59	15.00%	107	877	887	877
Total	23,471	87.50%	81.13%	20,536	19,042	1,494	12.11%	2,306	22,842	5,214	4,585

Notes:
(2) - PE Exhibit 1, Column 9
(5) & (6) - PE Appendix C, Column 10
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 3

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)	(4)	(5)=(2)*(3)	(6)=(2)*(4)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Increasing the Maximum Permanent Impairment											
1999 & Prior	237	98.60%	98.37%	234	233	1	10.00%	23	257	237	257
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	-	98.60%	98.37%	-	-	-	10.00%	-	-	-	-
2002	-	98.60%	98.37%	-	-	-	10.00%	-	-	-	-
2003	106	97.55%	97.14%	103	103	0	10.00%	10	114	106	114
2004	-	96.27%	95.65%	-	-	-	10.00%	-	-	-	-
2005	-	94.98%	94.15%	-	-	-	10.00%	-	-	-	-
2006	-	93.69%	92.65%	-	-	-	10.00%	-	-	-	-
2007	92	92.55%	91.34%	85	84	1	10.00%	8	93	92	93
2008	0	91.38%	89.99%	0	0	0	10.00%	0	0	-	0
2009	271	90.33%	88.79%	245	241	4	10.00%	24	269	271	269
2010	93	90.02%	88.45%	84	82	1	10.00%	8	92	93	92
2011	262	90.42%	88.92%	237	233	4	10.00%	23	260	182	180
2012	185	90.11%	88.57%	166	164	3	10.00%	16	183	185	183
2013	94	90.19%	88.67%	85	83	1	10.00%	8	93	94	93
2014	315	91.26%	89.91%	287	283	4	10.00%	28	315	315	315
2015	423	93.24%	92.19%	395	390	4	10.00%	39	434	388	398
2016	485	95.16%	94.39%	461	457	4	10.00%	46	507	485	507
2017	775	94.76%	93.92%	735	728	7	10.00%	73	807	775	807
Total	3,338	93.38%	92.33%	3,117	3,082	35	10.00%	308	3,425	3,222	3,309

Notes:
(2) - PE Exhibit 1, Column 9
(3) - Exhibit 8, Sheet 7, Column 3
(4) - Exhibit 8, Sheet 7, Column 4
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 4

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Change to Vehicle Purchase Policy											
1999 & Prior	3,327	89.79%	84.45%	2,987	2,810	178	10.00%	281	3,268	54	(5)
2000	735	89.94%	84.72%	661	623	38	10.00%	62	724	(10)	(21)
2001	623	89.05%	83.36%	554	519	35	10.00%	52	606	6	(11)
2002	749	90.31%	85.22%	676	638	38	10.00%	64	740	19	10
2003	520	88.27%	82.21%	459	428	32	10.00%	43	502	10	(8)
2004	1,253	87.89%	81.74%	1,101	1,024	77	10.00%	102	1,203	53	4
2005	576	90.51%	85.62%	521	493	28	10.00%	49	570	10	4
2006	1,558	87.32%	80.87%	1,361	1,260	100	10.00%	126	1,487	18	(53)
2007	1,178	86.12%	79.18%	1,015	933	82	10.00%	93	1,108	35	(36)
2008	942	89.04%	83.40%	839	786	53	15.00%	118	957	10	24
2009	744	91.06%	86.37%	678	643	35	15.00%	96	774	(7)	23
2010	792	89.09%	83.54%	706	662	44	15.00%	99	805	45	58
2011	578	88.20%	82.32%	510	476	34	15.00%	71	581	16	19
2012	390	88.12%	81.96%	344	320	24	15.00%	48	391	(9)	(7)
2013	1,028	91.68%	87.16%	942	896	46	15.00%	134	1,076	1,028	1,076
2014	840	88.36%	82.36%	742	692	50	15.00%	104	846	295	301
2015	910	90.99%	86.17%	828	784	44	15.00%	118	945	524	560
2016	1,006	87.86%	81.71%	884	822	62	15.00%	123	1,008	573	574
2017	685	91.68%	87.16%	628	597	31	15.00%	90	718	685	718
Total	18,434	89.16%	83.56%	16,436	15,404	1,032	12.17%	1,874	18,310	3,354	3,230

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix E, Column 12
(6) - PE Appendix E, Column 13
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 5

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Death Benefits											
1999 & Prior	4,759	87.88%	81.88%	4,182	3,897	285	10.00%	390	4,572	4,759	4,572
2000	875	87.74%	81.65%	768	715	53	10.00%	71	839	875	839
2001	678	87.06%	80.78%	590	548	43	10.00%	55	645	678	645
2002	1,007	87.00%	80.72%	876	813	63	10.00%	81	958	1,007	958
2003	601	86.67%	80.22%	521	482	39	10.00%	48	569	601	569
2004	1,056	85.61%	78.77%	904	832	72	10.00%	83	987	1,056	987
2005	823	87.67%	81.56%	721	671	50	10.00%	67	788	823	788
2006	1,583	84.50%	77.18%	1,337	1,222	116	10.00%	122	1,460	1,583	1,460
2007	1,334	85.17%	78.25%	1,136	1,044	92	10.00%	104	1,241	1,334	1,241
2008	921	86.56%	80.14%	797	738	59	10.00%	74	871	921	871
2009	897	86.60%	80.25%	776	719	57	10.00%	72	848	897	848
2010	844	84.66%	77.46%	715	654	61	10.00%	65	780	844	780
2011	897	82.25%	74.21%	737	665	72	10.00%	67	804	897	804
2012	988	85.49%	78.58%	845	777	68	10.00%	78	923	988	923
2013	439	84.69%	77.52%	372	341	31	10.00%	34	406	439	406
2014	1,036	86.36%	79.70%	895	826	69	10.00%	83	978	1,036	978
2015	799	87.09%	80.88%	696	646	50	10.00%	65	760	799	760
2016	1,044	84.23%	76.83%	880	802	77	10.00%	80	960	1,044	960
2017	803	85.36%	78.39%	686	630	56	10.00%	63	749	803	749
Total	21,385	86.21%	79.59%	18,435	17,021	1,415	10.00%	1,702	20,138	21,385	20,138

Notes:
(2) - PE Exhibit 1, Column 9
(5) - PE Appendix F, Column 12
(6) - PE Appendix F, Column 13
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 6

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Annual Spending Allowance											
1999 & Prior	1,008	89.36%	83.80%	901	845	56	10.00%	84	985	167	144
2000	177	88.95%	83.17%	158	147	10	10.00%	15	172	(3)	(8)
2001	164	88.60%	82.67%	145	135	10	10.00%	14	159	25	20
2002	235	88.82%	83.02%	209	195	14	10.00%	20	228	(98)	(105)
2003	142	89.33%	83.75%	127	119	8	10.00%	12	139	38	35
2004	252	87.44%	81.02%	220	204	16	10.00%	20	241	(37)	(48)
2005	176	88.72%	82.86%	157	146	10	10.00%	15	171	59	54
2006	405	86.87%	80.19%	352	325	27	10.00%	32	384	133	112
2007	312	86.57%	79.80%	270	249	21	10.00%	25	295	(170)	(187)
2008	215	88.79%	82.98%	191	178	12	15.00%	27	217	(11)	(9)
2009	218	88.20%	82.12%	192	179	13	15.00%	27	219	65	66
2010	205	87.32%	80.87%	179	166	13	15.00%	25	204	(46)	(47)
2011	270	85.78%	78.71%	231	212	19	15.00%	32	263	103	97
2012	254	86.73%	80.09%	221	204	17	15.00%	31	251	155	152
2013	130	86.58%	79.90%	113	104	9	15.00%	16	128	113	112
2014	204	87.81%	81.58%	179	167	13	15.00%	25	204	95	95
2015	167	87.85%	81.65%	146	136	10	15.00%	20	167	51	51
2016	278	87.01%	80.45%	242	223	18	15.00%	34	275	212	209
2017	192	87.28%	80.85%	168	155	12	15.00%	23	191	192	191
Total	5,003	87.92%	81.73%	4,399	4,089	309	12.11%	495	4,894	1,042	933

Notes:
(2) - PE Exhibit 1, Column 9
(5) & (6) - PE Appendix G, Column 10
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 7

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)	(9)=(6)*(8)	(10)	(11)	(12)
PIPP Enhancement: Caregiver Death Benefit											
1999 & Prior	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2000	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2001	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2002	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2003	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2004	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2005	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2006	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2007	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2008	127	97.95%	96.69%	124	123	2	10.00%	12	137	114	124
2009	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2010	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2011	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2012	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2013	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2014	-	100.00%	100.00%	-	-	-	10.00%	-	-	-	-
2015	1,719	95.59%	93.09%	1,643	1,600	43	10.00%	160	1,803	925	1,009
2016	2,000	95.60%	93.10%	1,912	1,862	50	10.00%	186	2,098	2,000	2,098
2017	1,294	95.62%	93.07%	1,237	1,204	33	10.00%	120	1,357	1,284	1,348
Total	5,139	95.66%	93.18%	4,916	4,789	128	10.00%	479	5,395	4,323	4,579

Notes:
(2) - PE Exhibit 1, Column 9
(5) & (6) - Estimated based on a review of claimants who are entitled/potentially entitled to this benefit
(8) - Exhibit 7, Sheet 1, Column 9 for Accident Benefits - Other (Non-Indexed)
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017
($000)

PE Exhibit 2
Sheet 8

Insurance Year	Estimated Unpaid Claims	Discount Factor With Margin	Discount Factor Without Margin	Discounted Unpaid With Margin	Discounted Unpaid Without Margin	Interest PFAD	Claims Devt. Margin	Claims Devt. PFAD	CIA Rules Unpaid Claims	Selected IBNR	Required IBNR
(1)	(2)	(3)=(5)/(2)	(4)=(6)/(2)	(5)	(6)	(7)=(5)-(6)	(8)=(9)/(6)	(9)	(10)	(11)	(12)
PIPP Enhancement: Total											
1999 & Prior	17,581	89.44%	83.99%	15,724	14,766	957	10.00%	1,477	17,200	5,695	5,314
2000	3,010	89.66%	84.31%	2,699	2,538	161	10.00%	254	2,953	873	815
2001	3,398	88.12%	82.03%	2,994	2,787	207	10.00%	279	3,273	756	631
2002	4,029	88.77%	83.03%	3,576	3,345	231	10.00%	335	3,911	1,168	1,050
2003	2,740	88.53%	82.72%	2,426	2,267	159	10.00%	227	2,652	838	750
2004	4,962	86.68%	80.02%	4,301	3,971	330	10.00%	397	4,698	1,279	1,015
2005	3,641	88.59%	82.74%	3,225	3,012	213	10.00%	301	3,527	1,080	966
2006	7,297	86.62%	79.92%	6,321	5,832	489	10.00%	583	6,904	1,930	1,537
2007	5,735	86.42%	79.74%	4,956	4,573	383	10.00%	457	5,414	1,799	1,478
2008	3,849	88.95%	83.33%	3,424	3,208	217	12.48%	400	3,824	1,211	1,186
2009	4,583	88.18%	82.41%	4,041	3,777	264	12.01%	454	4,495	1,841	1,753
2010	3,383	87.26%	81.01%	2,952	2,740	212	12.97%	355	3,307	1,052	977
2011	4,095	86.02%	79.42%	3,523	3,252	270	12.76%	415	3,938	1,071	914
2012	3,823	86.97%	80.67%	3,325	3,084	241	12.18%	376	3,701	1,357	1,234
2013	3,304	87.25%	80.96%	2,883	2,675	208	12.90%	345	3,228	2,819	2,742
2014	3,799	88.20%	82.46%	3,350	3,133	218	12.58%	394	3,744	2,212	2,158
2015	5,969	90.69%	86.06%	5,413	5,136	276	11.73%	603	6,015	4,471	4,518
2016	7,903	89.06%	83.66%	7,039	6,612	427	12.64%	836	7,874	6,552	6,523
2017	5,664	90.53%	85.91%	5,128	4,866	261	12.37%	602	5,730	5,655	5,720
Total	98,764	88.39%	82.59%	87,299	81,574	5,725	11.14%	9,088	96,388	43,659	41,282

Notes:
(2) - PE Exhibit 1, Column 9
(5), (6) & (9) - Total All PIPP Enhancements
(10) = (6)+(7)+(9)
(11) - PE Exhibit 1, Column 6
(12) = (11)+[(10)-(2)]

Manitoba Public Insurance
Automobile Insurance Division
Calculation of Equity in Direct & Agency Unearned Premium
As of October 31, 2017
($000)

PE Exhibit 3
Sheet 1

Insurance Year	Estimated Ultimate Claims: Incr WI to IAW	Incr Max PC	Incr Max PI	Change Veh Pur	Death Benefits	Annual Spending	C/Giver DB	Restated Earned Premium	Estimated Ultimate Loss Ratio: Incr WI to IAW	Incr Max PC	Incr Max PI	Change Veh Pur	Death Benefits	Annual Spending	C/Giver DB
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1999 & Prior	4,733	6,733	6,876	4,168	4,759	1,040	-								
2000	1,399	410	1,128	848	875	184	-	652,992	0.21%	0.06%	0.17%	0.13%	0.13%	0.03%	0.00%
2001	1,139	1,286	879	725	678	179	-	666,345	0.17%	0.19%	0.13%	0.11%	0.10%	0.03%	0.00%
2002	1,490	1,157	1,204	967	1,007	255	-	694,750	0.21%	0.17%	0.17%	0.14%	0.14%	0.04%	0.00%
2003	764	1,049	1,060	785	601	146	-	720,485	0.11%	0.15%	0.15%	0.11%	0.08%	0.02%	0.00%
2004	1,278	1,717	977	1,469	1,056	268	-	752,149	0.17%	0.23%	0.13%	0.20%	0.14%	0.04%	0.00%
2005	1,916	856	1,250	628	823	177	-	779,863	0.25%	0.11%	0.16%	0.08%	0.11%	0.02%	0.00%
2006	3,097	1,570	1,687	1,880	1,583	412	-	788,869	0.39%	0.20%	0.21%	0.24%	0.20%	0.05%	0.00%
2007	1,486	1,971	1,378	1,459	1,334	332	-	800,878	0.19%	0.25%	0.17%	0.18%	0.17%	0.04%	0.00%
2008	1,339	1,014	1,379	1,070	921	229	170	819,466	0.16%	0.12%	0.17%	0.13%	0.11%	0.03%	0.02%
2009	1,992	1,046	1,084	861	897	221	-	838,236	0.24%	0.12%	0.13%	0.10%	0.11%	0.03%	0.00%
2010	600	1,088	839	942	844	221	-	855,836	0.07%	0.13%	0.10%	0.11%	0.10%	0.03%	0.00%
2011	723	1,545	1,093	780	897	274	-	863,609	0.08%	0.18%	0.13%	0.09%	0.10%	0.03%	0.00%
2012	1,171	1,147	1,109	517	988	256	-	834,082	0.14%	0.14%	0.13%	0.06%	0.12%	0.03%	0.00%
2013	915	766	658	1,028	439	131	-	830,703	0.11%	0.09%	0.08%	0.12%	0.05%	0.02%	0.00%
2014	525	939	1,154	939	1,036	206	-	854,208	0.06%	0.11%	0.14%	0.11%	0.12%	0.02%	0.00%
2015	893	1,084	751	944	799	167	2,000	895,461	0.10%	0.12%	0.08%	0.11%	0.09%	0.02%	0.22%
2016	1,737	1,422	1,177	1,076	1,044	278	2,000	930,724	0.19%	0.15%	0.13%	0.12%	0.11%	0.03%	0.21%
2017	1,027	887	775	685	803	192	1,300	656,688	0.16%	0.14%	0.12%	0.10%	0.12%	0.03%	0.20%
Total	28,226	27,685	26,457	21,772	21,385	5,166	5,470	14,235,345	0.20%	0.19%	0.19%	0.15%	0.15%	0.04%	0.04%
Selected Ultimate Loss Ratio (a):									0.13%	0.13%	0.12%	0.11%	0.11%	0.03%	0.21%
Discount Factor (Including Interest & Claims Devt PFAD) (b):									1.0030	0.9882	1.0415	1.0475	0.9320	0.9941	1.0493
Discounted Ultimate Loss Ratio (c):									0.13%	0.13%	0.12%	0.12%	0.10%	0.03%	0.22%
Total Discounted Ultimate Loss Ratio (d):															0.85%
Direct & Agency Unearned Premium as of October 31, 2017 (e):															459,742
Expected Claims (Including External Adjustment Expenses) (f):															3,916

Notes:
(2) to (7) - PE Exhibit 1, Column 7
(8) - From Appendix F, Page 14, Column 3
(a) - Selected per the 10-Year Volume Weighted Hi-Lo Average
(b) - PE Exhibit 2, [Column 10 / Column 2] for 2017
(c) = (a) * (b)
(e) - Exhibit 6, Sheet 1
(f) = (d) * (e)

Manitoba Public Insurance — PE Exhibit 4
Automobile Insurance Division — Sheet 1
Estimate of Liabilities Including Provision for Adverse Deviation (Direct & Agency)
As of October 31, 2017

PIPP Enhancement: Quality of Life Enhancements

	213	Catastrophic claimants (PE Appendix G, Column 8)
	53	Paneled; Assume 25% of catastrophic claimants
	160	Remaining catastophic claimants

I) Cottage Modifications

	35,000	Manitobans with cottages
	1,200,000	Total Manitobans
	2.92%	Percent of Manitobans with cottages
	5	Expected number of cottages requiring modifications; 160 x 2.92%
$	150,000	Expected cost per cottage
$	**750,000**	**Estimated Ultimate Claims - Cottage Modifications**

II) Attendant Care (for Work)

		Per claimant cost:
$	20	Cost per hour
	8	Hours per day (above PCA and Home Care)
	240	Expected number of working days per year
$	38,400	Total per claimant cost per year
	20	Expected working life (in years)
$	768,000	Total expected per claimant cost
	1	Expected number of claimants utilizing benefit
$	**768,000**	**Estimated Ultimate Claims - Attendant Care**

III) Activity Cost

		Per claimant cost:
$	2,000	Total per claimant cost per year
	25	Expected life (in years)
$	50,000	Total expected per claimant cost
	40	Expected number of claimants utilizing benefit; 160 x 25.00%
$	**2,000,000**	**Estimated Ultimate Claims - Activity Cost**

$	**3,518,000**	**Estimated Ultimate Claims - All Cost [(I) + (II) + (III)]**	(a)
$	716,959	Paid	(b)
$	1,418,078	Case Reserves	(c)
$	2,135,036	Reported	(d)
$	1,382,964	Estimated IBNR [(a) - (d)]	(e)
$	2,801,041	Estimated Unpaid Claims [(c) + (e)]	(f)
	87.50%	Discount Factor With Margin [PE Exhibit 2, Sheet 2, Column 3]	(g)
	81.13%	Discount Factor Without Margin [PE Exhibit 2, Sheet 2, Column 4]	(h)
$	2,450,786	Discounted Unpaid With Margin [(f) x (g)]	(i)
$	2,272,485	Discounted Unpaid Without Margin [(f) x (h)]	(j)
$	178,301	Interest PFAD [(i) - (j)]	(k)
	12.11%	Claims Development Margin [PE Exhibit 2, Sheet 2, Column 8]	(l)
$	275,214	Claims Development PFAD [(j) x (l)]	(m)
$	**2,725,999**	**CIA Rules Unpaid Claims [(j) + (k) + (m)]**	(n)
$	**1,307,922**	**Required IBNR [(n) - (f) + (e)]**	(o)

(b), (c), & (d) - From MPI Fiscal Year Summaries

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Undiscounted

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	16	1,592,055	932,079	2,524,134	0	-	-	-	16	2,524,134	157,758	16	2,524,134	157,758
2000	5	627,416	238,354	865,770	0	-	-	-	5	865,770	173,154	5	865,770	173,154
2001	3	728,782	180,929	909,711	0	-	-	-	3	909,711	303,237	3	909,711	303,237
2002	5	707,254	279,200	986,454	0	-	-	-	5	986,454	197,291	5	986,454	197,291
2003	3	406,366	83,645	490,010	0	-	-	-	3	490,010	163,337	3	490,010	163,337
2004	4	802,354	153,937	956,291	0	-	-	-	4	956,291	239,073	4	956,291	239,073
2005	5	1,199,948	195,228	1,395,176	0	-	-	-	5	1,395,176	279,035	5	1,395,176	279,035
2006	8	1,972,727	391,128	2,363,855	0	-	-	-	8	2,363,855	295,482	8	2,363,855	295,482
2007	4	862,849	199,755	1,062,604	0	-	-	-	4	1,062,604	265,651	4	1,062,604	265,651
2008	5	712,919	187,786	900,705	0	-	-	-	5	900,705	180,141	5	900,705	180,141
2009	4	781,424	194,766	976,190	2	550,164	49,205	599,369	6	1,575,559	262,593	6	1,575,559	262,593
2010	2	414,837	46,473	461,310	0	-	-	-	2	461,310	230,655	2	461,310	230,655
2011	2	599,883	86,992	686,876	0	-	-	-	2	686,876	343,438	2	686,876	343,438
2012	5	846,065	123,444	969,509	0	-	-	-	5	969,509	193,902	5	969,509	193,902
2013	1	13,035	43,244	56,279	2	739,974	86,872	826,846	3	883,125	294,375	3	883,125	294,375
2014	1	123,590	35,125	158,716	1	298,023	33,225	331,248	2	489,964	244,982	2	489,964	244,982
2015	0	-	-	-	1	300,409	70,224	370,633	1	370,633	370,633	3	884,379	294,793
2016	3	1,034,942	131,306	1,166,248	0	-	-	-	3	1,166,248	388,749	5	1,679,995	335,999
2017	0	-	-	-	0	-	-	-	0	-	-	4	1,027,494	256,873
Total	76	13,426,446	3,503,392	16,929,838	6	1,888,570	239,526	2,128,096	82	19,057,935	232,414	90	21,112,922	234,588

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016, & 2017 at 50%, 75%, & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Discounted with Margin

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	16	1,491,680	819,198	2,310,878	0	-	-	-	16	2,310,878	144,430	16	2,310,878	144,430
2000	5	579,206	207,687	786,893	0	-	-	-	5	786,893	157,379	5	786,893	157,379
2001	3	663,304	137,323	800,627	0	-	-	-	3	800,627	266,876	3	800,627	266,876
2002	5	651,552	235,433	886,985	0	-	-	-	5	886,985	177,397	5	886,985	177,397
2003	3	366,911	68,072	434,983	0	-	-	-	3	434,983	144,994	3	434,983	144,994
2004	4	720,269	113,074	833,343	0	-	-	-	4	833,343	208,336	4	833,343	208,336
2005	5	1,082,136	145,099	1,227,236	0	-	-	-	5	1,227,236	245,447	5	1,227,236	245,447
2006	8	1,773,138	296,975	2,070,113	0	-	-	-	8	2,070,113	258,764	8	2,070,113	258,764
2007	4	779,349	157,106	936,456	0	-	-	-	4	936,456	234,114	4	936,456	234,114
2008	5	653,051	154,401	807,453	0	-	-	-	5	807,453	161,491	5	807,453	161,491
2009	4	713,807	156,089	869,896	2	486,376	34,266	520,642	6	1,390,538	231,756	6	1,390,538	231,756
2010	2	371,886	33,694	405,581	0	-	-	-	2	405,581	202,790	2	405,581	202,790
2011	2	536,461	67,080	603,541	0	-	-	-	2	603,541	301,770	2	603,541	301,770
2012	5	764,021	94,399	858,420	0	-	-	-	5	858,420	171,684	5	858,420	171,684
2013	1	12,945	40,719	53,664	2	647,579	59,135	706,715	3	760,378	253,459	3	760,378	253,459
2014	1	116,398	29,039	145,437	1	267,209	24,098	291,307	2	436,745	218,372	2	436,745	218,372
2015	0	-	-	-	1	271,871	52,347	324,218	1	324,218	324,218	3	776,431	258,810
2016	3	904,203	94,244	998,447	0	-	-	-	3	998,447	332,816	5	1,450,659	290,132
2017	0	-	-	-	0	-	-	-	0	-	-	4	904,425	226,106
Total	76	12,180,319	2,849,634	15,029,953	6	1,673,035	169,847	1,842,882	82	16,872,835	205,766	90	18,681,685	207,574

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016, & 2017 at 50%, 75%, & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix A

PIPP Enhancement: Increasing the Weekly Indemnity to IAW

Estimated Unpaid Claims - Discounted without Margin

Insurance	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			All CAT Claims - Selected		
Year	Count	IRI	RIB	IRI & RIB	Count	IRI	RIB	IRI & RIB	Count	IRI & RIB	Average	Count	IRI & RIB	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1999 & Prior	16	1,435,674	760,009	2,195,683	0	-	-	-	16	2,195,683	137,230	16	2,195,683	137,230
2000	5	552,588	192,055	744,643	0	-	-	-	5	744,643	148,929	5	744,643	148,929
2001	3	627,664	116,365	744,029	0	-	-	-	3	744,029	248,010	3	744,029	248,010
2002	5	621,244	213,349	834,593	0	-	-	-	5	834,593	166,919	5	834,593	166,919
2003	3	345,811	60,481	406,292	0	-	-	-	3	406,292	135,431	3	406,292	135,431
2004	4	676,382	94,006	770,388	0	-	-	-	4	770,388	192,597	4	770,388	192,597
2005	5	1,019,033	121,539	1,140,572	0	-	-	-	5	1,140,572	228,114	5	1,140,572	228,114
2006	8	1,666,307	252,635	1,918,942	0	-	-	-	8	1,918,942	239,868	8	1,918,942	239,868
2007	4	734,751	136,633	871,384	0	-	-	-	4	871,384	217,846	4	871,384	217,846
2008	5	620,634	137,681	758,315	0	-	-	-	5	758,315	151,663	5	758,315	151,663
2009	4	677,490	137,177	814,667	2	452,921	27,545	480,467	6	1,295,134	215,856	6	1,295,134	215,856
2010	2	348,970	27,755	376,725	0	-	-	-	2	376,725	188,362	2	376,725	188,362
2011	2	503,069	57,673	560,742	0	-	-	-	2	560,742	280,371	2	560,742	280,371
2012	5	720,186	80,516	800,702	0	-	-	-	5	800,702	160,140	5	800,702	160,140
2013	1	12,891	39,287	52,178	2	599,608	46,898	646,506	3	698,684	232,895	3	698,684	232,895
2014	1	112,327	25,900	138,227	1	250,765	19,854	270,619	2	408,846	204,423	2	408,846	204,423
2015	0	-	-	-	1	256,423	43,868	300,291	1	300,291	300,291	3	720,770	240,257
2016	3	836,807	77,649	914,456	0	-	-	-	3	914,456	304,819	5	1,334,935	266,987
2017	0	-	-	-	0	-	-	-	0	-	-	4	840,957	210,239
Total	76	11,511,828	2,530,709	14,042,538	6	1,559,717	138,166	1,697,884	82	15,740,421	191,956	90	17,422,334	193,581

Notes:
(13) - 2015 & After: Judgmentally selected per the more recent maximum observed weighted by year - 2015, 2016, & 2017 at 50%, 75%, & 100% respectively
(14) - 2015 & After: [(13) - (10)] * F + (11) where F = [Sum (11) for 2005 to 2014] / [Sum (10) for 2005 to 2014]

PE Appendix B

PIPP Enhancement: Increasing the Weekly Indemnity to IAW
Adjustment to 2009 IAW for Claimants at Older IAW Levels

Estimated Unpaid Claims

Insurance		Undiscounted			Discounted with Margin			Discounted Without Margin		
Year	Count	IRI	RIB	IRI & RIB	IRI	RIB	IRI & RIB	IRI	RIB	IRI & RIB
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	17	518,727	82,957	601,684	470,343	62,444	532,788	444,200	52,651	496,851
2000	2	51,439	11,476	62,915	46,734	8,701	55,434	44,181	7,368	51,548
2001	0	-	-	-	-	-	-	-	-	-
2002	3	75,189	8,897	84,085	67,394	6,446	73,840	63,236	5,308	68,544
2003	1	17,311	1,517	18,828	15,260	1,048	16,308	14,188	838	15,026
2004	2	29,710	7,534	37,244	27,350	6,253	33,603	26,070	5,606	31,677
2005	1	22,979	2,996	25,975	20,785	2,227	23,011	19,601	1,862	21,463
2006	3	38,650	4,486	43,136	34,242	3,150	37,391	31,921	2,545	34,465
2007	1	6,592	616	7,208	5,826	429	6,255	5,424	344	5,769
2008	0	-	-	-	-	-	-	-	-	-
2009	0	-	-	-	-	-	-	-	-	-
2010	0	-	-	-	-	-	-	-	-	-
2011	0	-	-	-	-	-	-	-	-	-
2012	0	-	-	-	-	-	-	-	-	-
2013	0	-	-	-	-	-	-	-	-	-
2014	0	-	-	-	-	-	-	-	-	-
2015	0	-	-	-	-	-	-	-	-	-
2016	0	-	-	-	-	-	-	-	-	-
2017	0	-	-	-	-	-	-	-	-	-
Total	30	760,598	120,478	881,076	687,934	90,696	778,629	648,821	76,521	725,343

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Undiscounted

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	28	5,123,930	0	-	28	5,123,930	182,997	28	5,123,930	182,997
2000	2	293,949	0	-	2	293,949	146,974	2	293,949	146,974
2001	4	1,023,479	0	-	4	1,023,479	255,870	4	1,023,479	255,870
2002	5	967,026	0	-	5	967,026	193,405	5	967,026	193,405
2003	5	862,083	0	-	5	862,083	172,417	5	862,083	172,417
2004	5	1,407,821	0	-	5	1,407,821	281,564	5	1,407,821	281,564
2005	4	644,580	0	-	4	644,580	161,145	4	644,580	161,145
2006	5	1,344,668	0	-	5	1,344,668	268,934	5	1,344,668	268,934
2007	8	1,748,808	0	-	8	1,748,808	218,601	8	1,748,808	218,601
2008	4	744,078	0	-	4	744,078	186,019	4	744,078	186,019
2009	3	877,509	0	-	3	877,509	292,503	3	877,509	292,503
2010	5	986,828	0	-	5	986,828	197,366	5	986,828	197,366
2011	5	1,402,235	0	-	5	1,402,235	280,447	5	1,402,235	280,447
2012	4	1,036,049	0	-	4	1,036,049	259,012	4	1,036,049	259,012
2013	2	574,855	1	154,884	3	729,739	243,246	3	729,739	243,246
2014	5	854,928	1	58,536	6	913,464	152,244	6	913,464	152,244
2015	1	178,279	3	445,375	4	623,654	155,913	6	1,067,397	177,899
2016	1	331,331	1	191,295	2	522,626	261,313	6	1,410,112	235,019
2017	0	-	0	-	0	-	-	4	887,486	221,871
Total	96	20,402,435	6	850,090	102	21,252,525	208,358	112	23,471,239	209,565

Notes:
(9) - 2014 & After: Judgmentally selected per the more recent maximum observed
(10) - 2014 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2004 to 2013] / [Sum (6) for 2004 to 2013]

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Discounted with Margin

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	28	4,575,902	0	-	28	4,575,902	163,425	28	4,575,902	163,425
2000	2	269,844	0	-	2	269,844	134,922	2	269,844	134,922
2001	4	903,447	0	-	4	903,447	225,862	4	903,447	225,862
2002	5	854,040	0	-	5	854,040	170,808	5	854,040	170,808
2003	5	764,291	0	-	5	764,291	152,858	5	764,291	152,858
2004	5	1,208,776	0	-	5	1,208,776	241,755	5	1,208,776	241,755
2005	4	576,152	0	-	4	576,152	144,038	4	576,152	144,038
2006	5	1,163,991	0	-	5	1,163,991	232,798	5	1,163,991	232,798
2007	8	1,507,432	0	-	8	1,507,432	188,429	8	1,507,432	188,429
2008	4	665,827	0	-	4	665,827	166,457	4	665,827	166,457
2009	3	759,647	0	-	3	759,647	253,216	3	759,647	253,216
2010	5	862,948	0	-	5	862,948	172,590	5	862,948	172,590
2011	5	1,203,923	0	-	5	1,203,923	240,785	5	1,203,923	240,785
2012	4	890,889	0	-	4	890,889	222,722	4	890,889	222,722
2013	2	477,722	1	132,868	3	610,590	203,530	3	610,590	203,530
2014	5	754,819	1	55,054	6	809,873	134,979	6	809,873	134,979
2015	1	163,015	3	380,994	4	544,008	136,002	6	929,169	154,861
2016	1	281,017	1	157,882	2	438,900	219,450	6	1,209,221	201,537
2017	0	-	0	-	0	-	-	4	770,321	192,580
Total	96	17,883,683	6	726,798	102	18,610,481	182,456	112	20,536,283	183,360

Notes:
(9) - 2014 & After: Judgmentally selected per the more recent maximum observed
(10) - 2014 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2004 to 2013] / [Sum (6) for 2004 to 2013]

PE Appendix C

PIPP Enhancement: Increasing the Maximum Personal Care

Estimated Unpaid Claims - Discounted without Margin

Insurance	CAT Claims = Yes		CAT Claims = Potential		All CAT Claims			All CAT Claims - Selected		
Year	Count	PC	Count	PC	Count	PC	Average	Count	PC	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1999 & Prior	28	4,289,528	0	-	28	4,289,528	153,197	28	4,289,528	153,197
2000	2	256,817	0	-	2	256,817	128,409	2	256,817	128,409
2001	4	841,081	0	-	4	841,081	210,270	4	841,081	210,270
2002	5	795,447	0	-	5	795,447	159,089	5	795,447	159,089
2003	5	713,649	0	-	5	713,649	142,730	5	713,649	142,730
2004	5	1,108,794	0	-	5	1,108,794	221,759	5	1,108,794	221,759
2005	4	540,155	0	-	4	540,155	135,039	4	540,155	135,039
2006	5	1,072,155	0	-	5	1,072,155	214,431	5	1,072,155	214,431
2007	8	1,386,159	0	-	8	1,386,159	173,270	8	1,386,159	173,270
2008	4	624,703	0	-	4	624,703	156,176	4	624,703	156,176
2009	3	699,918	0	-	3	699,918	233,306	3	699,918	233,306
2010	5	799,784	0	-	5	799,784	159,957	5	799,784	159,957
2011	5	1,105,282	0	-	5	1,105,282	221,056	5	1,105,282	221,056
2012	4	819,757	0	-	4	819,757	204,939	4	819,757	204,939
2013	2	430,752	1	121,810	3	552,562	184,187	3	552,562	184,187
2014	5	703,309	1	53,102	6	756,411	126,069	6	756,411	126,069
2015	1	154,738	3	349,204	4	503,942	125,985	6	859,554	143,259
2016	1	256,107	1	141,908	2	398,015	199,008	6	1,109,239	184,873
2017	0	-	0	-	0	-	-	4	711,224	177,806
Total	96	16,598,132	6	666,025	102	17,264,157	169,256	112	19,042,217	170,020

Notes:
(9) - 2014 & After: Judgmentally selected per the more recent maximum observed
(10) - 2014 & After: [(9) - (6)] * F + (7) where F = [Sum (7) for 2004 to 2013] / [Sum (6) for 2004 to 2013]

PE Appendix D

PIPP Enhancement: Increasing the Maximum Permanent Impairment

Estimated Ultimate Claims - Undiscounted

Insurance	CAT Claims = Yes			CAT Claims = Potential			All CAT Claims	
Year	Count	PI	Average	Selected Avg	Count	PI	Count	PI
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1999 & Prior	56	6,638,479	118,544	118,544	2	237,089	58	6,875,567
2000	10	1,128,192	112,819	112,819	0	-	10	1,128,192
2001	8	878,959	109,870	109,870	0	-	8	878,959
2002	12	1,204,269	100,356	100,356	0	-	12	1,204,269
2003	9	953,922	105,991	105,991	1	105,991	10	1,059,913
2004	9	977,026	108,558	108,558	0	-	9	977,026
2005	12	1,249,611	104,134	104,134	0	-	12	1,249,611
2006	16	1,686,913	105,432	105,432	0	-	16	1,686,913
2007	14	1,286,241	91,874	91,874	1	91,874	15	1,378,116
2008	15	1,378,936	91,929	91,929	0	-	15	1,378,936
2009	9	813,042	90,338	90,338	3	271,014	12	1,084,055
2010	8	745,455	93,182	93,182	1	93,182	9	838,637
2011	10	911,116	91,112	91,112	2	182,223	12	1,093,340
2012	10	923,849	92,385	92,385	2	184,770	12	1,108,619
2013	6	564,115	94,019	94,019	1	94,019	7	658,134
2014	8	839,084	104,886	104,886	3	314,657	11	1,153,741
2015	4	363,233	90,808	96,900	4	387,600	8	750,833
2016	6	692,129	115,355	96,900	5	484,500	11	1,176,629
2017	0	-	-	96,900	8	775,200	8	775,200
Total	222	23,234,572			33	3,222,119	255	26,456,691

Notes:
(5) - Prior to 2015: Per Column (4); 2015 to 2017: Per the weighted average for 2010 to 2017
(7) = (5) * (6)

PE Appendix E

PIPP Enhancement: Change to Vehicle Purchase Policy

Estimated Unpaid Claims

	Head & Quad Claims				Other Claims				All Claims			
Insurance Year	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1999 & Prior	17	2,649,897	2,381,510	2,241,210	6	677,362	605,965	568,764	23	3,327,259	2,987,475	2,809,974
2000	1	203,374	180,837	169,220	5	532,039	480,601	453,819	6	735,413	661,439	623,039
2001	2	355,991	315,382	294,247	2	266,624	239,046	224,758	4	622,615	554,429	519,004
2002	3	539,471	483,215	453,844	3	209,509	193,202	184,459	6	748,980	676,418	638,302
2003	4	452,449	397,136	368,751	1	67,943	62,189	59,046	5	520,392	459,325	427,797
2004	4	908,442	800,261	745,153	3	344,137	300,634	278,749	7	1,252,579	1,100,895	1,023,902
2005	2	104,861	99,638	96,730	4	470,773	421,381	396,135	6	575,633	521,019	492,865
2006	3	611,104	529,384	487,693	7	947,188	831,293	772,554	10	1,558,292	1,360,676	1,260,246
2007	3	642,104	554,538	510,246	4	536,369	460,323	422,817	7	1,178,473	1,014,861	933,062
2008	4	650,785	582,823	547,427	2	291,166	255,854	238,153	6	941,952	838,677	785,580
2009	3	574,246	519,488	490,928	2	170,078	158,319	151,946	5	744,324	677,806	642,874
2010	2	230,852	216,015	207,940	4	561,123	489,590	453,656	6	791,975	705,605	661,597
2011	2	265,507	249,441	240,640	2	312,253	260,158	234,976	4	577,760	509,599	475,616
2012	2	247,140	223,209	210,354	1	142,720	120,331	109,191	3	389,860	343,541	319,544
2013	3	600,000	554,485	529,508	3	427,500	387,501	366,019	6	1,027,500	941,986	895,527
2014	3	435,154	380,005	352,040	3	404,652	362,045	339,607	6	839,805	742,050	691,647
2015	3	505,636	464,875	442,582	3	403,867	362,644	341,180	6	909,502	827,519	783,762
2016	3	669,366	585,992	543,869	3	337,045	298,258	278,446	6	1,006,411	884,250	822,316
2017	2	400,000	369,657	353,005	2	285,000	258,334	244,013	4	685,000	627,991	597,018
Total	66	11,046,378	9,887,891	9,285,388	60	7,387,347	6,547,670	6,118,286	126	18,433,725	16,435,561	15,403,674

Notes:
Head & Quad Claimants have higher average entitlement due to greater severity of injury

PE Appendix F

PIPP Enhancement: Death Benefits

Estimated IBNR

Insurance Year	CAT Claims = Yes				CAT Claims = Potential				All CAT Claims			
	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin	Count	Undisc	Disc with Margin	Disc w/out Margin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1999 & Prior	47	4,559,810	4,009,226	3,736,546	2	199,000	172,800	160,000	49	4,758,810	4,182,026	3,896,546
2000	8	875,157	767,865	714,594	0	-	-	-	8	875,157	767,865	714,594
2001	7	678,192	590,463	547,811	0	-	-	-	7	678,192	590,463	547,811
2002	11	1,007,356	876,363	813,157	0	-	-	-	11	1,007,356	876,363	813,157
2003	6	501,211	434,220	401,901	1	99,500	86,400	80,000	7	600,711	520,620	481,901
2004	10	1,056,128	904,165	831,881	0	-	-	-	10	1,056,128	904,165	831,881
2005	8	822,718	721,284	671,029	0	-	-	-	8	822,718	721,284	671,029
2006	15	1,582,777	1,337,497	1,221,632	0	-	-	-	15	1,582,777	1,337,497	1,221,632
2007	11	1,234,787	1,049,986	964,070	1	99,500	86,400	80,000	12	1,334,287	1,136,386	1,044,070
2008	10	920,957	797,146	738,042	0	-	-	-	10	920,957	797,146	738,042
2009	6	594,193	515,743	478,871	3	302,400	260,700	240,600	9	896,593	776,443	719,471
2010	7	743,893	628,532	574,428	1	100,500	86,300	79,600	8	844,393	714,832	654,028
2011	7	695,219	565,468	507,179	2	201,400	172,000	158,200	9	896,619	737,468	665,379
2012	8	785,112	671,550	617,382	2	203,200	173,400	159,200	10	988,312	844,950	776,582
2013	4	337,428	285,238	260,839	1	102,000	86,900	79,800	5	439,428	372,138	340,639
2014	6	727,388	631,333	583,900	3	309,000	263,700	242,100	9	1,036,388	895,033	826,000
2015	4	486,648	429,704	401,761	3	312,000	265,800	244,200	7	798,648	695,504	645,961
2016	6	532,944	443,696	401,897	5	511,500	436,000	400,500	11	1,044,444	879,696	802,397
2017	0	-	-	-	8	803,200	685,600	629,600	8	803,200	685,600	629,600
Total	181	18,141,918	15,659,477	14,466,920	32	3,243,200	2,776,000	2,553,800	213	21,385,118	18,435,477	17,020,720

Notes:
(7) to (9) - 2008 & Prior: Per the weighted average for 2008 & Prior; 2009 & After: Per the 10-year weighted rolling average

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Undiscounted

Insurance Year	Mild		Moderate		Severe		Catastrophic		Total Allowance
	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	402,722	57	533,124	43	729,212	49	1,849,432	1,007,969
2000	19	84,865	7	59,730	4	93,492	8	330,458	177,133
2001	22	62,729	6	49,993	5	106,561	7	305,491	163,710
2002	24	114,153	9	66,068	7	110,305	11	440,910	234,981
2003	24	94,439	7	51,499	3	48,159	7	264,684	142,047
2004	21	88,888	5	52,109	2	19,975	10	487,399	251,748
2005	26	110,967	16	117,397	0	-	8	330,152	176,494
2006	41	146,213	12	97,198	4	55,192	15	779,481	404,671
2007	33	133,225	11	82,337	2	34,742	12	598,495	311,763
2008	36	157,663	12	96,337	1	27,561	10	401,463	214,810
2009	45	187,703	13	136,691	4	73,575	9	395,311	217,554
2010	41	202,266	13	144,246	2	26,005	8	372,659	204,955
2011	60	263,446	14	97,365	7	145,354	9	488,458	269,537
2012	57	271,291	12	143,506	2	16,308	10	465,792	254,451
2013	60	286,094	13	121,828	3	60,775	5	213,468	130,169
2014	60	287,851	13	145,005	3	52,767	9	360,095	204,329
2015	60	335,077	13	124,947	3	70,931	7	280,266	166,681
2016	60	276,360	13	118,248	3	52,767	11	510,882	277,810
2017	40	184,240	9	81,864	2	35,178	8	354,504	192,316
Total	848	3,690,193	255	2,319,495	100	1,758,858	213	9,229,403	5,003,129

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Discounted with Margin

Insurance Year	Mild		Moderate		Severe		Catastrophic		Total Allowance
	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	367,797	57	476,792	43	656,627	49	1,651,374	900,748
2000	19	75,512	7	53,815	4	82,510	8	293,924	157,554
2001	22	57,706	6	45,093	5	94,457	7	270,371	145,048
2002	24	101,640	9	60,055	7	99,743	11	391,297	208,720
2003	24	85,062	7	47,130	3	43,869	7	236,164	126,885
2004	21	79,863	5	46,313	2	18,679	10	425,768	220,127
2005	26	99,378	16	106,607	0	-	8	292,563	156,581
2006	41	132,127	12	86,989	4	50,948	15	676,089	351,548
2007	33	120,328	11	74,434	2	31,645	12	517,133	269,887
2008	36	141,340	12	86,677	1	23,768	10	356,280	190,729
2009	45	167,953	13	119,147	4	64,923	9	348,567	191,885
2010	41	179,322	13	126,184	2	24,186	8	324,977	178,973
2011	60	234,944	14	88,657	7	128,913	9	417,141	231,196
2012	57	240,113	12	125,161	2	15,520	10	403,298	220,689
2013	60	251,708	13	108,438	3	52,598	5	184,132	112,703
2014	60	255,258	13	126,568	3	47,265	9	315,943	179,426
2015	60	291,546	13	110,345	3	61,094	7	246,576	146,437
2016	60	245,220	13	105,365	3	47,265	11	443,663	241,724
2017	40	163,480	9	72,945	2	31,510	8	308,932	167,863
Total	848	3,290,296	255	2,066,714	100	1,575,519	213	8,104,193	4,398,723

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

PE Appendix G

PIPP Enhancement: Annual Spending Allowance

Estimated Unpaid Claims - Discounted without Margin

Insurance Year	Mild		Moderate		Severe		Catastrophic		Total Allowance
	Count	Allowance	Count	Allowance	Count	Allowance	Count	Allowance	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999 & Prior	119	349,133	57	447,267	43	618,344	49	1,547,854	844,664
2000	19	70,664	7	50,698	4	76,803	8	274,819	147,318
2001	22	55,003	6	42,511	5	88,159	7	252,099	135,333
2002	24	95,126	9	56,847	7	94,157	11	365,557	195,085
2003	24	80,146	7	44,773	3	41,566	7	221,287	118,968
2004	21	75,134	5	43,296	2	17,963	10	394,285	203,962
2005	26	93,317	16	100,881	0	-	8	273,069	146,244
2006	41	124,728	12	81,681	4	48,630	15	623,544	324,524
2007	33	113,528	11	70,260	2	29,973	12	476,172	248,774
2008	36	132,803	12	81,604	1	21,851	10	332,893	178,259
2009	45	157,681	13	110,266	4	60,500	9	324,479	178,662
2010	41	167,461	13	117,002	2	23,179	8	300,710	165,737
2011	60	220,153	14	84,019	7	120,379	9	381,848	212,151
2012	57	224,082	12	115,823	2	15,072	10	372,070	203,784
2013	60	234,213	13	101,489	3	48,482	5	169,586	104,002
2014	60	238,415	13	117,204	3	44,388	9	293,388	166,695
2015	60	269,604	13	102,847	3	56,174	7	229,322	136,092
2016	60	229,140	13	98,670	3	44,388	11	409,753	223,486
2017	40	152,760	9	68,310	2	29,592	8	285,906	155,486
Total	848	3,083,090	255	1,935,449	100	1,479,601	213	7,528,642	4,089,228

Notes:
Mild - Permanent Impairment 20% or greater but less than 50%; Maximum allowance = $250/Year
Moderate - Permanent Impairment 50% or greater but less than 70%; Maximum allowance = $500/Year
Severe - Permanent Impairment 70% or greater; Maximum allowance = $1,000/Year
Catastrophic - Special category; Maximum allowance = $2,000/Year
(3), (5), (7), & (9) - Based on assumption that claimants will use up the maximum allowance
(10) - Based on expected uptake of 5% for Mild, Moderate and Severe, and 50% for Catastrophic

Memo

To: / Location:	Patrick Green
From: / Location:	Pierre Bourassa
Date:	May 2nd, 2018
Subject:	Actuarial support for Manitoba Public Insurance Corporation (MPIC) – Basic

Background

MPIC was incorporated as a Crown Corporation in 1970 under the Automobile Insurance Act. In 1974, the Automobile Insurance Act was revised and became the Manitoba Public Insurance Corporation Act. Under the provisions of this Act, MPIC operates an automobile insurance division and a discounted general insurance division.

On March 1, 1994, the province of Manitoba introduced the Personal Injury Protection Plan (PIPP). This plan eliminated bodily injury tort actions involving Manitoba drivers within Manitoba and increased payments under no-fault accident benefits coverage.

The Automobile Insurance division provides Universal Compulsory Automobile Insurance (Basic Insurance), Special Risk Extension (SRE) Insurance and Extension Insurance coverages. The Basic Insurance package includes third party liability with a $200,000 limit, no-fault accident benefits and all perils coverage with a $500 deductible. In addition, MPIC writes optional coverage, for example increased liability limits and deductible buy-down coverage in competition with private insurers. This optional coverage is known as Extension Insurance. Other vehicle insurance coverages not offered by Basic Insurance or Extension Insurance are provided by Special Risk Extension Insurance (SRE Insurance).

On November 1, 1991, SRE Insurance was transferred from the General Insurance division to the Automobile Insurance division. The remaining portions of the General Insurance division have been in orderly run-off since 1990. All remaining portions of General Insurance division were transferred to the Automobile Insurance division under SRE in 2004.

This report is limited to Basic Insurance only.

Objective and Scope

We have been asked to provide actuarial support to the audit engagement team of MPIC as at February 28, 2018 for statutory reporting purposes. The objective of our work is to provide reasonable assurance that the policy liabilities reported by MPIC as at February 28, 2018 are fairly stated. The scope of our work

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relates to the examinations of the policy liabilities, namely claims liabilities, premium liabilities and other policy liabilities of MPIC on both a discounted and undiscounted basis.

Joe Cheng, a Fellow in good standing of the Canadian Institute of Actuaries (CIA), prepared the policy liabilities of MPIC. Our examination of the methods, procedures and assumptions used to evaluate the policy liabilities as at February 28, 2018 is based on the draft actuarial report as of February 28, 2018 as well as the final actuarial reports as at October 31, 2017 for Basic Insurance. The actuary's opinion is unqualified.

Professional Standards

For the purpose of this review, generally accepted actuarial principles and the Standards of the Canadian Institute of Actuaries (CIA) were used to evaluate the policy liabilities calculated by the actuary of MPIC, subject to any additional regulatory requirements.

These standards require a *best estimate approach* to the derivation of policy liabilities.

The Standards of Practice of the Canadian Institute of Actuaries require that policy liabilities be reported on a discounted value with appropriate provision for adverse deviations. Similarly, the current regulatory requirement is that policy liabilities must be discounted and include provisions for adverse deviations.

Valuation Results (Basic)

Policy Liabilities ('000)	Actuary
Claims Liabilities	
Direct	1,796,730
Assumed	0
Gross	1,796,730
Ceded	1,270
Other Amounts to recover	0
Other Net Liabilities	0
Net	1,795,460
Premium Liabilities	
Gross Policy Liabilities	472,051
Net Policy Liabilities	477,458
Gross Unearned Premiums	468,613
Net Unearned Premiums	468,613
Premium Deficiency	8,845
Other Net Liabilities	0
DPAC	0
Maximum Allowable DPAC	0



We rely on the auditor to ensure that the appropriate amounts are posted in the financial statements of MPIC.

Claims Liabilities (Basic)

We reviewed the derivation of the claims liabilities of the company for the year ending February 28, 2018. The report of the actuary answers the requirements of the Office of the Superintendent of Financial Institutions and the valuation adheres to Accepted Actuarial Practice of the CIA. We have independently re-performed seven lines of business. These seven lines of business (including the associated ULAE reserve) represent approximately 91.7% of the total undiscounted unpaid.

We also performed a review of methods and assumptions (M&A) for two additional lines representing another 6.7% of total unpaid. The review focused on both reasonability of selections and approach used by the AA, as well as consistency with the previous valuation. A completed methodology and assumption review checklist is attached as an appendix to this memo. We are satisfied the provision for these lines of business is reasonable and appropriate for the company.

Lines with relatively smaller volume have not been reviewed. We have not independently tested the IBNR on those lines; however, nothing has come to our attention that would lead us to believe that that IBNR is not reasonable.

Actuarial Database

The actuarial database is as at 2/28/2018 and the loss development exhibits are shown on this basis.

In his reports, the actuary provided an Appendix to show the reconciliation of paid and outstanding claim amounts to financial statements. We rely on the auditor to ensure this reconciliation is appropriate and balances to the financial statements of the company.

Methods and Assumptions

In general, the actuary retained the Incurred B-F method, with certain exceptions. For the shorter tailed collision and comprehensive lines, the Incurred Loss Development method was retained, with the exception of prior accident years for comprehensive, where the Paid Loss Development method was used. For the Accident Benefits – Weekly Indemnity and Accident Benefits – Other Indexed, multiple methods were used and certain adjustments to the data were applied, as discussed below.

Accident Benefits – Weekly Indemnity

As usual, incurred loss triangles are restated to reflect current benefit levels. This year, Loss Development Factors were also changed to consider MPI's revised reserving approach. For long-term PIPP claims, MPI centralized the process to a dedicated team, resulting in most weekly indemnity claims older than 24 months being tabular reserved for life. This was evident in the data triangles as the last calendar year had much higher incurred losses than historically. This resulted in a decrease in IBNR as a larger portion of unpaid claims is now captured in the case reserves.



The actuary used Tabular Reserve method for 2008 and prior. Tabular reserves are selected after considering the possibility of claims turning into tabular claims after 10 years, mortality and morbidity experience, and incurred development factors. We reviewed and agreed with this methodology.

For the following accident years, the actuary used the Incurred B-F method, with the exception of 2015 to 2017 where the maximum between this method and the Paid B-F was used. Last year, the maximum was used for the last 4 years. One year was removed to reflect the change in reserving process. We have used the average of the Incurred and Paid B-F methods in our re-performance.

Accident Benefits – Other Indexed

Incurred loss triangles were restated to reflect current benefit levels. Expense and excess reserves, which resulted from a new claims management system since 2010, were removed from the triangles to be consistent with the historical triangles. Because the development on these expenses is already included in both the incurred and paid triangles, the final IBNR was reduced by the current expense and excess reserves. The same methods were retained by the actuary as for Weekly Indemnity line.

Use of October 31, 2017 Report

On page 5 of the Basic report, the actuary states the following:

"This letter, opinion and attached exhibits provide an update to our Appointed Actuary Report as of October 31, 2017 using data as of February 28, 2018 for Manitoba Public Insurance – Universal Compulsory Automobile Insurance. All comments, caveats, limitations and explanations contained in our October 31, 2017 report continue to apply unless noted in this letter.

The update to our previous report adds four additional months experience. We reviewed our methodologies and assumptions used in our October 31, 2017 report. Our discount rate has changed from 3.35% to 3.47% (1.32% to 1.44% for indexed benefits). For Premium Liabilities our discount rate has changed from 0.97% to 1.10% (1.32% to 1.44% for indexed benefits). These changes were made to reflect an increase in the portfolio yield from October 31, 2017 to February 28, 2018.

All other previous methodologies and assumptions used to estimate the policy liabilities remain appropriate."

Reinsurance

On page 21 of the October 31, 2017 report, the actuary describes the reinsurance structure of MPIC. MPIC is protected by excess of loss and catastrophe reinsurance treaties. There have been no changes to the program over the past year.

Internal Loss Adjustment Expense

We have reviewed the derivation of the provision for ILAE associated with the settlement of unpaid losses. The appointed actuary estimates ILAE by applying the historical average ratio of expense payments to the



gross paid losses to 50% of the outstanding losses and 100% of the ratio to the selected IBNR. The selected paid to paid ratio of 18.4%, the same as used in the prior valuation.

Discount Rate

We reviewed the actuary's selection of an interest rate used to discount the policy liabilities. The discount rate used is 3.47%, compared to 3.39% in last year's evaluation. For the lines which are inflation indexed, AB Weekly Indemnity and AB Other – Indexed, a rate of 1.44% was used which is the real adjusted yield. We believe the approach used by the actuary is reasonable.

We used the weighted average market yield using both market value and duration as weights. Based on the calculation, the discount rate that we came up with is 3.64% (net of a 0.07% investment expense reduction). We consider the actuary's selection of the discount rate reasonable.

Provision for Adverse Deviations (PfADs)

In Exhibit 7 & 8 of the report, the actuary presents the margins for adverse deviations (MfADs) for each line of business. For Basic, the AB weekly indemnity claims development margin for years 2007 to 2015 was reduced from 15% to 10%. The MfADs used are listed below:

MfAD Claims Development

Basic Insurance	**MfAD**
Bodily Injury - Basic	15.00%
Pre-PIPP	12.50%
Accident Benefits:	
Weekly Indemnity (2016 & After)	15.00%
Weekly Indemnity (prior to 2016)	10.00%
Pre-PIPP	5.00%
Other (Indexed) (2008 & after)	15.00%
Other (Indexed) (Prior to 2008)	10.00%
Other (Non-Indexed)	10.00%
Pre-PIPP	5.00%
Collision - Basic	7.50%
Comprehensive - Basic	7.50%
Property Damage - Basic	5.00%

MfAD Reinsurance

Line of Business	MfAD
Basic:	
Accident Benefits – Weekly Indemnity	5.00%
Accident Benefits – Other (Indexed)	5.00%
Comprehensive – Basic	2.50%
Extension:	
Comprehensive - Extension	2.50%
SRE:	
Bodily Injury, Property Damage & Accident Benefits	5.00%
Collision & Comprehensive	2.50%

MfAD Interest Rate

The selected interest MfAD for the total portfolio is 0.50%, which is the same as last year, which reflects long tail nature of liability and relatively low risk fixed income portfolio.

We have reviewed the actuary's selection of interest rate, claims development and reinsurance recovery PFAD margins and deem them to be reasonable.

Variability in Estimates

As of February 28, 2018, MPIC experienced an unfavorable one year run-off of $37.4 million for Basic Insurance on a gross basis. We consider this to be within a reasonable range. The details are shown in Exhibit 3.

Line of Business	2017 Gross Redundancy/(Deficiency) ($000)
Bodily Injury	881
Property Damage	(2,142)
Collision	(1,252)
Comprehensive	3,109
AB – Weekly Indemnity	(64,148)
AB – Other (Indexed)	32,704
AB – Other (Non-indexed)	(6,573)
Total Basic Insurance	**(37,420)**

Premium Liabilities

We re-calculated the development of the premium liabilities related to the unearned premiums. The Basic coverage generates a premium deficiency, once all DPAC have been written off. We are satisfied that the AA's premium liabilities are reasonable and appropriate for MPIC.

Other Net Policy Liabilities

The actuary did not mention in the report if there are any other policy liabilities. In general, other policy liabilities relate to reinsurance agreements with sliding scale commissions or adjustable premiums. We rely on the auditor to confirm that there are no other policy liabilities related to reinsurance contracts with sliding scale commissions or adjustable premiums.

Minimum Capital Test

The Minimum Capital Test is not applicable for MPIC.

Incentive Compensation

In the October 31, 2017 report, the actuary discloses the basis of his compensation, including any incentive compensation. As stated above, this disclosure is assumed to continue to apply. This disclosure is in accordance with CIA directives and guidelines communicated by the Office of the Superintendent of Financial Institutions (OSFI).

Additional Disclosure

In the October 31, 2017 Basic report, the actuary discloses information on: Annual Reporting to the Board of Directors and Continuing Professional Development Requirements. As stated above, these disclosures are assumed to continue to apply. These disclosures are in accordance with CIA directives and OSFI guidelines.

Conclusion

The valuation, as performed by Joe Cheng for MPIC as at February 28, 2018, provides reasonable estimates of the policy liabilities of MPIC with the proviso that we rely on the auditor to verify the statements presented above.



Pierre Bourassa, FCIA FCAS
Actuarial Services

MEDIA PACKAGE

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

MP.1 NEWS RELEASE

MP.2 PUBLIC NOTICE OF HEARING

MP.3 PUBLIC INVITATION

Manitoba Public Insurance

NewsRelease

June 15, 2018

Manitoba Public Insurance requests modest rate increase ─ 2.2 per cent

Manitoba Public Insurance announced it has requested a 2.2 per cent overall rate increase for the 2019/20 insurance year in its general rate application (GRA) filed with the Public Utilities Board today. If approved, the average passenger vehicle owner will pay about $27 more in premiums per year as a result of the requested increase, or $2.25 per month.

“The overall rate increase is required to maintain the Corporation’s Rate Stabilization Reserve which is used to absorb adverse financial results,” Ben Graham, president and chief executive officer of Manitoba Public Insurance said today.

“We fully recognize that our customers expect us to deliver comprehensive auto insurance coverage and service at rates that are affordable, predictable and stable over time. We believe this rate application continues to deliver on that mandate.”

Operationally, the Corporation continues to experience higher physical damage costs directly related to newer-model vehicles. Over the past five years, collision claim costs have been growing about five per cent annually, compared to the prior long term average of about two to three per cent annually.

“Newer vehicles have a wide-range of complex materials and driver assist technology features which are costly to repair or replace after a collision,” said Graham. “Understandably, newer vehicles of today are more expensive to repair than vehicles a decade ago.”

Manitoba’s weather can also have a major influence on the Corporation’s financial results. Fortunately, last year there was a significant reduction in vehicle hail claims ─ 2,100 claims filed in 2017, compared to 11,000 and 13,000 in 2016 and 2015, respectively.

The Corporation also continues its focus on fiscal prudence and cost containment, having lowered its expense forecast by $6 million, which builds on the forecasted staff and expense reductions identified in last year’s GRA.

“The combination of corporate cost containment, combined with a reduction of weather-related comprehensive claims both contributed to this modest rate increase,” said Graham.

Maintaining Adequate Capital
All insurance companies hold funds to pay claims, as well as to maintain a buffer of capital to endure unexpected adverse circumstances. Manitoba Public Insurance's 'buffer' is known as the Rate Stabilization Reserve and to remain effective it must grow with the business. For the 2019/20 insurance year, the Corporation is proposing a Capital Maintenance Provision which accounts for 2.1 per cent of the overall 2.2 per cent increase.

"This will ensure the financial strength of public auto insurance is maintained, and that the Rate Stabilization Reserve can continue to protect motorists against rate increases due to unexpected variations and adverse circumstances," said Graham.

Finalizing Vehicles For Hire Rates
The 2019 GRA will also seek final approval of the Vehicle for Hire (VFH) rates approved on an interim basis by the PUB in January 2018. VFH rates are available to private passenger vehicle and light truck owners interested in offering ride-share services in accordance to municipal by-laws starting March 1, 2018. VFH rates also apply to existing types of vehicles for hire such as taxicabs, limousines and accessible vehicles.

If approved by the Public Utilities Board, a total of 547,166 vehicles (excluding trailers and off-road vehicles) will receive a premium increase in 2019/20, with 39.5 per cent of these vehicles increasing by less than $50 per year. Approximately 37.7 per cent of all vehicle owners (excluding trailers and off-road vehicles) will see no change or a decrease in premium over 2018/19 rates.

Proposed rates will be effective March 1, 2019 but because renewal dates are staggered, some vehicle owners won't pay the new rates until February 28, 2020.

While individual rates will continue to vary based on the type of vehicle being insured, vehicle use, rating territory, and driving history, the following overall rate increases have been requested by major vehicle class.

Major Use	**Applied for Rate Changes**
Private passenger	2.4%
Commercial	2.4%
Public	0.6%
Motorcycles	3.1%
Trailers	-4.7%
Off-road Vehicles	-20.0%
Overall (applied for)	2.2%

Annual report

Manitoba Public Insurance also released its 2017/18 annual report this week. The Corporation reported a net income from operations of $91.1 million. The Corporation's overall claims costs decreased by approximately $72.5 million compared to the previous year due primarily to the fact that a significant actuarial adjustment was made in 2016/17. Fewer hail claims also contributed to the decrease in claims costs, although offset by increases in collision and property damage claims over the same period.

The increase in net income was also due to an increase of $65.3 million in revenues, and an increase of $38.2 million in investment income.

Last year, Manitobans filed an average of 1,203 claims every working day. This represents about $3.1 million in Autopac claims every working day.

—30—

For more information contact:
Manitoba Public Insurance
Media Relations Unit
204-985-7300

Public Utilities Board

Régie des services publics

Notice of Public Hearing and Pre-Hearing Conference

Applicant: Manitoba Public Insurance Corporation

HEARING:

The Public Utilities Board (Board) anticipates holding a public hearing of an application from Manitoba Public Insurance Corporation (MPI) for approval of rates and premiums for compulsory vehicle and driver insurance as of March 1, 2019. The hearing would take place at the Board's Hearing Room, 4th Floor, 330 Portage Avenue, Winnipeg, MB (commencing at 9:00 a.m.) on October 15, 2018. A Pre-Hearing Conference is to be convened by the Board in its offices at 9:00 a.m. on June 25, 2018.

RATE IMPACT:

The Corporation is requesting approval for Basic Autopac vehicle insurance rates and premiums effective March 1, 2019, which, if approved, will result in 2.2% overall increase in MPI's Basic vehicle premium revenue (in addition to the revenue impact of vehicle upgrades and an increased overall driver and vehicle population).

MPI proposes that this rate increase be comprised of two elements: i) a 0.1% increase to the break-even cost of policies, and ii) a 2.1% increase for a Net Capital Maintenance Provision to maintain Basic's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision recognizes the impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position.

MPI is also seeking final approval of 2017/18 and 2018/19 Vehicles for Hire rates, approved by the Board on an interim basis by Order 11/18 on January 15, 2018. MPI is not proposing any changes to the Driver Safety Rating system in the 2019 General Rate Application.

Individual vehicle and driver premiums would vary depending on claim and driving experience, insurance use, territory and vehicle rate group. Full particulars, including the rate impact and application, can be found on the Manitoba Public Insurance website www.mpi.mb.ca.

PRE-HEARING CONFERENCE:

Those seeking Intervener status should notify the Board of their intention, by applying to the Board Secretary before the now scheduled Pre-Hearing Conference of June 25, 2018. Interveners may be entitled to financial assistance, and the Board's Rules of Practice and Procedure (Rules) provide the related guidelines, which can be seen at the Board's website: www.pubmanitoba.ca or obtained on request to the Board, by either emailing (publicutilities@gov.mb.ca), writing or calling the Board Secretary (204-945-2638 or 1-866-854-3698, toll free). Parties wishing to submit a brief or to express comments at the hearing should also contact the PUB via the Board's on-line comment tool.

GENERAL INFORMATION:

Interested parties should take note that the Board does not have jurisdiction over the MPI lines of business denoted as Extension or SRE, or as to MPI's Driver and Vehicle Licensing operation.

Persons seeking further information as to MPI's application, or with respect to the Board's process, and/or wishing to address the public hearing in French should notify the Board Secretary by September 1st, 2018. As well, interested parties may examine MPI's application and supporting materials, either at the offices of the Corporation, on its website, or in the Board's office.

The Manitoba Ombudsman has recently issued privacy guidelines for administrative tribunals. The Board is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed unless it is appropriate and necessary to do so. However, the Board advises participants that these proceedings are public and that as a result, personal information protections are reduced.

CONTACT INFORMATION:

The Public Utilities Board
400 - 330 Portage Avenue
Winnipeg, MB R3C 0C4
Website: www.pubmanitoba.ca
Telephone: 204-945-2638
Toll-Free: 1-866-854-3698
Email: publicutilities@gov.mb.ca

DATED this 15th day of June, 2018.

D. Christle
Secretary and Executive Director
The Public Utilities Board

Five days notice required.

Wheelchair access is available.

Manitoba

Public Utilities Board

Régie des services publics

Public Notice

You're Invited

to share your views about the proposed rate increases from Manitoba Public Insurance

The Manitoba Public Insurance Corporation (MPI) has applied to the Public Utilities Board (Board) for a 2.2 per cent increase to Basic Autopac vehicle insurance rates and premiums, effective on March 1, 2019.

Further details are available at the MPI website, **www.mpi.mb.ca** or the Board's website at **www.pubmanitoba.ca**.

A public hearing on the proposed increases will be held on:

Monday, October 15, 2018 at 9:00 a.m.
Public Utilities Board Hearing Room
4th Floor, 330 Portage Avenue, Winnipeg, MB R3C 0C4

If you are interested in learning about this rate increase, you are encouraged to attend the hearing, observe the hearing via live streaming, or provide your perspective through the Board's on-line comment tool.

If you wish to speak at the hearing or make a written submission, please contact the Board Secretary at 204-945-2638 or toll free 1-866-854-3698, no later than **September 1, 2018**.

For more information, visit **www.pubmanitoba.ca**.

Manitoba Public Utilities Board
400-330 Portage Avenue
Winnipeg, Manitoba R3C 0C4
Phone: 204-945-2638 | Email: publicutilities@gov.mb.ca

FINANCIAL FORECASTING MODEL UPDATE

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

FINANCIAL FORECASTING MODEL UPDATE 3
FFM.1 PURPOSE 3
FFM.2 SCOPE 4
FFM.3 FINANCIAL MODEL UPDATES 5
FFM.3.1 Report Updates 5
FFM.3.1.1 Update Model MCT Calculation as per 2018 OSFI Guidelines 5
FFM.3.2 Functional Updates 5
FFM.3.2.1 Update Investment Assets and Income from allocated to direct 6
FFM.3.2.2 New Investment Asset Classes 6
FFM.3.3 Test Application 6
FFM.3.3.1 Update Investment Income from allocated to direct 7
FFM.4 TEST RESULTS AND ASSESSMENT 8

FINANCIAL FORECASTING MODEL UPDATE

FFM.1 PURPOSE

The purpose of this document is to identify any reporting or functional updates within the Financial Forecast Model (FM) from the prior year. Annually, Manitoba Public Insurance (MPI, or the Corporation) undertakes model updates or modifications at the request of the Public Utilities Board and MPI senior management. This document will outline all 2019 GRA changes to the FM.

FFM.2 SCOPE

An update has been defined as any change in automated calculation as a result of a change in forecasting assumption that is directly contained within or as an output of the FM. Any changes in forecasting assumptions or independent calculations not contained within the FM and which do not require an update are not considered an FM update and are beyond the scope of this document. Forecasting assumption changes are described within the applicable parts of the Rate Application.

FFM.3 FINANCIAL MODEL UPDATES

For the purposes of this document, an update has been classified as either a reporting update or a functional update. A reporting update, detailed in FFM.3.1, implies that an underlying calculation or functionality of the FM has not changed, but rather a change has occurred in the financial statement presentation or similar report output. These changes have no impact to calculated results. A functional update, detailed in FFM.3.2, implies a change in the actual formulaic calculation directly within the FM, which may influence an output or financial result.

FFM.3.1 Report Updates

A reporting update has no underlying change in financial calculation. Updates made to the FM have been tested, mainly by comparing financial results and impacts pre and post change.

FFM.3.1.1 Update Model MCT Calculation as per 2018 OSFI Guidelines

The FM provides a forecasted Minimum Capital Test (MCT) based on the Office of the Superintendent of Financial Institutions' (OSFI) MCT template. The inputs for the MCT calculation are primarily balance sheet items and have been functionally tested previously. To the extent of the input detail available, the FM MCT provides a close approximation of the Corporation's estimated actual target as well as further validation of the actual MCT it calculated. The FM includes the latest updates, as per OSFI guidelines and, as of the date of this writing, these updates did not have an effect on the FM.

FFM.3.2 Functional Updates

A functional update may have a financial impact or change in financial result. Updates of this nature have been unit and system tested.

Functional updates are as follows:

FFM.3.2.1 Update Investment Assets and Income from allocated to direct.

Prior to the update, Investment Assets and Income were allocated to each line of business through an allocation process. As a result of the recent Asset Liability Management (ALM) strategy, an update has been made whereby investment assets are directly assigned to each operating line of business (Basic and Non-Basic) as well as to Employee Future Benefits.

Please refer to *Part VI Investments* for further discussion regarding the recent ALM strategy.

FFM.3.2.2 New Investment Asset Classes

The following investment asset classes have been added to the investment portfolio:

-Global Equities

-Global Low Volatility Equities

-Private Debt

Please refer to *Part VI Investments* for more details.

FFM.3.3 Test Application

Internal testing was carried out as appropriate to the component parts of the FM. The nature and degree of testing will vary according to the extent of the change and the level of the financial impact.

The functional updates stated above did not require new calculations or model logic but rather were adopted from formulas and logic existing within the current FM. Emphasis was placed on unit and system testing whereby the component item has been tested to ensure it is functioning as expected (unit test) and that it has been incorporated correctly within the financial statement results (system test).

Given that reporting updates have no financial impact to the financial statement results and unit testing has been previously conducted, the application of testing has been contained to system testing, whereby the linkage between the reporting item or component and financial statement line item is tested for consistency, correctness and completeness.

FFM.3.3.1 Update Investment Income from allocated to direct

The figures below provide for a comparison between allocated and direct allocation of investment income:

Figure FFM-1 Investment Income Comparison - Allocated vs Direct

No.			Fiscal Year				
1		Line of Business	2018-19	2019-20	2020-21	2021-22	2022-23
2	Pre Change (Allocated)	Basic	85.76%	84.88%	83.77%	82.65%	81.42%
3		Non-Basic	14.24%	15.12%	16.23%	17.35%	18.58%
4	Post Change (Direct)	Basic	85.76%	87.30%	86.08%	84.12%	82.39%
5		Non-Basic	14.24%	12.70%	13.92%	15.88%	17.61%

Please refer to *Part VI Investments, INV.2.2.1* for a summary of financial impacts between pre and post ALM change.

FFM.4 TEST RESULTS AND ASSESSMENT

The determination of whether or not a test has passed depends on the type of test employed. For practical purposes, three types of unit and system tests were carried out: links; calculations; sensitivity.

The FM passed all of the links and calculations tests conducted, and was acceptably assessed in all sensitivity tests.

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

Round 1 Information Requests

August 8, 2018

ROUND 1 FILING

Public Utilities Board

Consumers' Association of Canada (Manitoba)

Coalition of Manitoba Motorcycles Groups

PUB (MPI)

PUB (MPI) 1-1

Part and Chapter:	**I OV**	**Page No.:**	**38**
PUB Approved Issue No:	**1. Requested Vehicle Rate and Any Changes to Other Fees and Discounts** **7. Update on DCAT** **9. Cost of Operations and Cost Containment Measures** **19. Current IT Strategic Plan and IT Expenses and Projects** **21. Asset Liability Management Study**		
Topic:	**Financial Overview**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please file the Corporation's Board of Directors, Audit Committee and Investment Committee Working Group meeting minutes that relate to:

a) Asset Liability Management/ Investment Strategy;
b) IT Optimization/BTO Projects;
c) Impairment Provision;
d) RSR or Total Equity Targets/DCAT;
e) Capital Maintenance and/or Build and Release provisions;
f) Enterprise Risk Management;
g) Cost Containment; and
h) Approval of the 2019 GRA.

Rationale for Question:

To understand Corporate decisions that impact Basic.

RESPONSE:

Please see *Appendix 1*.

Matters not related to the information request have been redacted from the various minutes.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Minutes of the Investment Committee Working Group are not herein provided. The investments are administered by the Minister of Finance pursuant to *The Financial Administration Act*. The minutes are not provided because they reflect advice, opinions and policy options for the Minister of Finance.

Board of Directors - Committee Meeting
AUDIT, FINANCE & RISK COMMITTEE MINUTES

Date: October 5, 2017
Page: 3 of 5

[redacted]

Enterprise Risk Management Framework

Agenda Item C.2 “Enterprise Risk Management Framework” was deferred to the next meeting of the Audit, Finance & Risk Committee to allow the new Chief Financial Officer and Chief Executive Officer to consider future reporting relationships of the Finance and Internal Audit Departments.

[redacted]

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

[redacted]

[redacted]

Corporate Bond Implementation Plan

Mr. Yien presented Agenda Item C.1 "Corporate Bond Implementation Plan" which was discussed by the Members.

The Committee supports the intention to purchase additional Corporate Bonds to increase the weight of the allocation from the current 2% to 4%. The purchase is accordance with the Investment Policy Statement approved in principle subject to due diligence of the Corporate Bond Implementation review. As part of the due diligence review it is the Committee's understanding that the purpose of the various investment funds will be clearly defined through the Asset Liability Management study that is currently underway.

Mr. DiNoto and Mr. Makarchuck of Mercer (Canada) Limited joined the meeting via teleconference.

Asset Liability Management Study

Mr. Yien presented Agenda Item C.2 "Asset Liability Management Study" which was discussed by the Members.

The Committee will meet in early December, 2017, to discuss the final report.

Mr. DiNoto and Mr. Makarchuck withdrew from the meeting.

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

[redacted]

Mercer Asset Liability Management Presentation

Mr. Giesbrecht presented Agenda Item B.1 “Mercer Asset Liability Management Presentation” which was discussed by the Members.

Messrs. DiNoto and Makarchuk withdrew from the meeting.

[redacted]

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

Asset Liability Management Study Recommendations

Mr. Giesbrecht presented Agenda Item C.1 "Asset Liability Management Study Recommendations".

Moved by Ms. Wowryk and seconded by Mr. Grestoni that the Members approve the following:

1) Segregating assets by their underlying purpose:
    a. Basic liabilities
    b. RSR
    c. Extension/SRE
    d. Pension
2) Approve acceptance of Mercer's ALM report as advice to management for developing appropriate asset mixes and policies to be submitted April 30, 2018 with the intention of fully implementing the plan within the next 24 months from today's date
3) Inclusion of BBB rated corporate bonds into corporate bond allocation
4) The authority for management to direct the Department of Finance to purchase up to an additional 6% corporate bonds by February 28, 2018

Asset Liability Management Phase 2 Update

Members received Agenda Item D.1 "Asset Liability Management Phase 2 Update" as information.

Mercer Asset Liability Management Study Phase 2 Report

Members received Agenda Item D.2 "Mercer Asset Liability Management Study Phase 2 Report" as information.



Board of Directors - Committee Meeting
AUDIT, FINANCE & RISK COMMITTEE MINUTES

Annual Review of Accounting Policies

Mr. Giesbrecht presented Agenda Item C.1 "Annual Review of Accounting Policies".

Moved by Mr. Grestoni and seconded by Mr. Bubis that the Members recommend that the Board approve the following policies:

- Policy for Allocation of Expenses
- Policy for Allocation of Balance Sheet Items – Assets, Liabilities, Retaining Earnings and Accumulated Other Comprehensive Income (Loss)
- Policy for Allocation of Investment Income and Other Comprehensive Income (Loss)
- Policy for Allocation of Service Fees and Other Revenue
- Policy for Write-Off of Uncollectible Accounts and Allowance for Doubtful Accounts
- Policy for Writing Down Investments
- Policy for Allocation of Reinsurance Ceded Premiums Written
- Policy for Valuation of Private Equity, Venture Capital and Infrastructure Investments; and
- Policy for Capitalization of Organizational and Development Costs

CARRIED

[redacted]

Board of Directors - Committee Meeting
AUDIT, FINANCE & RISK COMMITTEE MINUTES

Annual Review of Non Accounting Policies

Mr. Giesbrecht presented Agenda Item C.3 "Annual Review of Non Accounting Policies".

Moved by Mr. Grestoni and seconded by Mr. Bubis that the Members recommend that the Board approve the following non accounting policies:

- Risk Governance and Management Policy
- Environmental and Sustainable Development Policy
- Board of Directors' and CEO's Expenses Policy
- Whistleblower Policy
- Provision of Non-Audit Services by External Auditors

CARRIED



Board of Directors - Committee Meeting
AUDIT, FINANCE & RISK COMMITTEE MINUTES

[redacted]

Enterprise Risk Management Framework	Agenda Item E.3 “Enterprise Risk Management Framework” was deferred to the next meeting of the Audit, Finance & Risk Committee.
Risk Management Evaluation Report - Review	Agenda Item E.4 “Risk Management Evaluation Report - Review” was deferred to the next meeting of the Audit, Finance & Risk Committee.

[redacted]

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

Date: January 31, 2018
Page: 2 of 3

[redacted]

Mercer ALM Study Phase 3 Report

Mr. Bunston presented Agenda Item C.1 “Mercer ALM Study Phase 3 Report”. Following discussion, Members received the report as information.

[redacted]

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

[redacted]

Asset Liability Management Study Recommendations and Implementation Plan

Mr. Giesbrecht presented Agenda Item B.1 “Asset Liability Management Study Recommendations and Implementation Plan”.

Moved by Ms. Wowryk and seconded by Mr. Grestoni that the Members recommend to the Board that it approve for the Minister of Finance’s consideration the following:

1. Approval to invest in the listed new asset classes of private debt, global equity and global low volatility equities;

2. The creation of five segregated portfolios for Basic Claims Liabilities, Extension, SRE, Employee Future Benefits and RSR;

3. Adoption of asset allocations for each portfolio as shown in Figure 3 *Recommended Target Asset Allocations* (ALM Implementation Plan, April 30, 2018, found on page 10 of agenda item B.1 Attachment A);

4. Adoption of the Implementation Plan (as described in the ALM Implementation Plan, April 30, 2018, found on pages 12 to 22 of agenda item B.1 Attachment A);

Board of Directors - Committee Meeting
INVESTMENT COMMITTEE MINUTES

5. Realization of gains in Canadian and U.S. equity portfolios in 2018/19;

6. Hire a consultant to assist with search for external managers;

7. Hire a transition manager to manage the transitions between public market asset classes as necessary (purchases and sales).

CARRIED

[Corporate Secretary Note: Title in slide 17 of the presentation was amended from “non-marketable bonds and private debt” to “non-marketable bonds”. Title and weights in the proposed asset class column in slide 28 of the presentation was also amended. The corrected presentation has been uploaded on the Portal as a separate PDF document.]

Mr. Steski joined the meeting. Mr. VanKoughnet and Ms. Shock withdrew from the meeting.

Investment Policy Statement

Mr. Giesbrecht presented Agenda Item B.2 “Investment Policy Statement”.

Moved by Mr. Grestoni and seconded by Ms. Wowryk that the Members approve the recommended changes to the Investment Policy Statement.

CARRIED

[redacted]

Board of Directors - Committee Meeting
AUDIT, FINANCE & RISK COMMITTEE MINUTES

Dynamic Capital Adequacy Test (DCAT) and Minimum Capital Test (MCT)

Mr. Johnston presented Agenda Item B.4 “Dynamic Capital Adequacy Test (DCAT) and Minimum Capital Test (MCT)”.

Moved by Ms. Schock and seconded by Mr. Grestoni that the Members recommend that the Board approve a lower Total Equity Rate Stabilization Reserve (RSR) target (36% MCT) for the 2019/20 fiscal year based on the minimum capital required to achieve satisfactory future financial condition at the 1-in-40 year level under the 2018 Dynamic Capital Adequacy Test;

an upper Total Equity RSR target of 85% MCT for the 2019/20 fiscal year based on a 1-in-40, 2-year operating range above the lower RSR target as calculated in the 2018 Dynamic Capital Adequacy Test report; and,

the Corporation include these RSR targets in the 2019 General Rate Application.

CARRIED

The Committee directed Management to provide the final 2018 DCAT report for information to the Board Members prior to June 1, 2018.

Minutes of the Four Hundred and Forty-Fourth Meeting
October 12, 2017
Page 4

In Camera – Asset Liability Manage-ment	17-175	An In Camera discussion was held with Messrs. Yien, Bunston, Johnston, Steski and Koury in attendance to discuss the Asset Liability Matching program. Messrs. Yien, Bunston, Steski and Koury withdrew from the meeting.

[redacted]

[redacted]

Budget Stretch Target Update	17-179	Mr. Yien presented Agenda Item 5.1 “Budget Stretch Target Update”. Members received the report for discussion.

[redacted]

Revised Actuarial Opinion on the Future Financial Condition of Basic Insurance in the 2017 Dynamic Capital Adequacy Test (DCAT) Report	17-182	Members received Agenda Item 6.1 “Revised Actuarial Opinion on the Future Financial Condition of Basic Insurance in the 2017 Dynamic Capital Adequacy Test (DCAT) Report” as information.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Investment Committee Report – Asset Liability Management Study Recommendations	17-201	Moved by Mr. Bubis and seconded by Ms. Wowryk that the Members ratify the recommendation of the Investment Committee to approve the following: 1. Segregating assets by their underlying purpose: a. Basic liabilities b. RSR c. Extension/SRE d. Pension 2. Approve acceptance of Mercer's ALM report as advice to management for developing appropriate asset mixes and policies to be submitted April 30, 2018 with the intention of fully implementing the plan within the next 24 months from today's date 3. Inclusion of BBB rated corporate bonds into corporate bond allocation 4. The authority for management to direct the Department of Finance to purchase up to an additional 6% corporate bonds by February 28, 2018 CARRIED

[redacted]

[redacted]

[redacted]

Minutes of the Four Hundred and Forty-Sixth Meeting
December 14, 2017
Page 4



In Camera – 2019 General Rate Application	17-216	Members held an in camera discussion.

[redacted]

[redacted]

[redacted]

[redacted]

Audit, Finance & Risk Committee Report – Annual Review of Accounting Policies

18-019

Moved by Mr. Grestoni and seconded by Ms. Schock that the Members ratify the recommendation of the Audit, Finance & Risk Committee to approve the following policies:

- Policy for Allocation of Expenses
- Policy for Allocation of Balance Sheet Items – Assets, Liabilities, Retaining Earnings and Accumulated Other Comprehensive Income (Loss)
- Policy for Allocation of Investment Income and Other Comprehensive Income (Loss)
- Policy for Allocation of Service Fees and Other Revenue
- Policy for Write-Off of Uncollectible Accounts and Allowance for Doubtful Accounts
- Policy for Writing Down Investments
- Policy for Allocation of Reinsurance Ceded Premiums Written
- Policy for Valuation of Private Equity, Venture Capital and Infrastructure Investments; and
- Policy for Capitalization of Organizational and Development Costs

CARRIED

[redacted]

[redacted]

Audit, Finance & Risk Committee Report – Annual Review of Non Accounting Policies	18-021	Moved by Mr. Grestoni and seconded by Ms. Schock that the Members ratify the recommendation of the Audit, Finance & Risk Committee to approve the following non accounting policies: • Risk Governance and Management Policy • Environmental and Sustainable Development Policy • Board of Directors' and CEO's Expenses Policy • Whistleblower Policy • Provision of Non-Audit Services by External Auditors CARRIED



Planning & Technology Committee Report – Final Corporate Strategic Initiatives and IT Support Contracts 2018/2019	18-025	Moved by Mr. Chale and seconded by Ms. Nabess that the Members ratify the recommendation of the Planning & Technology Committee to approval for the Corporate Strategic Initiative and IT Support Contracts budgets broken down as follows: • $22.16 million for Corporate Strategic Initiatives for 2018/19 (the majority to be allocated to DXC (formerly HP), IBM, Mitchell, and FINEOS according to the terms of contracts. Board approval will be sought for any further services to be provided by other entities in accordance with the corporate directives). • $9.79 million to engage IBM for the support and operation of the data centre in 2018/19. • $3.5 million in 2018/19 to be distributed amongst the DXC/IBM Master Service Agreements as management deems appropriate, to provide daily maintenance and support for the Corporation's enterprise systems. CARRIED

Minutes of the February 8, 2018 Manitoba Public Insurance Board of Directors Meeting
Page 6

[redacted]

[redacted]

2019 General Rate Application	18-044	Mr. Crozier joined the meeting to present Agenda Item 6.1 “2019 General Rate Application”. Following discussion, Members received the report as information. Mr. Crozier withdrew from the meeting and Mr. Wennberg joined the meeting.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Planning & Technology Committee Report – INFOR Contract Approval	18-060	Moved by Mr. Chale and seconded by Ms. Schock that the Members ratify the recommendation of the Planning & Technology Committee to approve the purchase of annual support and maintenance from INFOR for Manitoba Public Insurance's (MPI's) Human Resource Management and Financial Management systems at a cost not to exceed $650,000 CAD plus tax for the period June 1, 2018 until May 31, 2019. CARRIED

[redacted]

[redacted]

Planning & Technology Committee Report – Legacy Modernization Assessment Tender Award	18-063	Moved by Mr. Chale seconded by Mr. Bubis that the Members ratify the recommendation of the Planning & Technology Committee to authorize Management to complete negotiations and award the Legacy Modernization Assessment tender to one or two vendors at a total combined cost not to exceed $900,000 plus taxes and expenses against the $2M project budget. CARRIED
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
President & CEO's Report	18-067	Mr. Graham presented Agenda Item 3.1 "President and CEO's Report" providing a report on the following items: • Public Utilities Board Technical Conferences • Capital Maintenance Provision • Asset Liability Management Study [redacted] [redacted]

Extension Transfer

18-071

Mr. Giesbrecht presented Agenda Item 4.4 “Extension Transfer”.

Moved by Mr. Grestoni and seconded by Mr. Bubis that the Members approve a transfer of excess retained earnings from the Extension line of business to the Basic line of business as at February 28, 2018 in the amount of $37,300,000 to ensure Basic exceeds the minimum requirement of $201 million for satisfactory financial condition and closes the 2017/18 fiscal year with the Rate Stabilization Reserve (RSR) in sound financial condition.

CARRIED

2019/20 Basic Autopac Program and Rates

18-072

Mr. Johnston presented Agenda Item 5.1 “2019/20 Basic Autopac Program and Rates”.

Moved by Ms. Schock and seconded by Mr. Grestoni

1. That the Members approve the 2019/20 General Rate Application forecast *before* the impact of proposed changes to the Corporation’s Asset and Liability Management program.

2. That the Members approve the methodology used to determine the 2019/20 Basic break-even rate indication per Accepted Actuarial Practice of +.02% on the understanding that minor changes to this indication may occur as a result of the Board’s decision on the ALM implementation strategy presented to the Investment Committee on April 30, 2018.

3. That the Members approve the methodology used to determine the 2019/20 Basic rate indication of 2.9% *after* inclusion of investment income on the Rate Stabilization Reserve and a Capital Maintenance Provision.

CARRIED

Ms. Kacher joined the meeting. Mr. Keith rejoined the meeting and Mr. Johnston withdrew from the meeting.





[redacted]

Ms. Kacher and Mr. Keith withdrew from the meeting. Mr. Wennberg joined the meeting.

PDR Business Case and Customer Claims Reporting System (CCRS) Next Steps

18-076

Mr. Wennberg presented Agenda Item 5.5 “PDR Business Case and Customer Claims Reporting System (CCRS) Next Steps”.

Moved by Mr. Grestoni and seconded by Mr. Bubis that the Members authorize Management to begin closing down activities for the Customer Claims Reporting System (CCRS) project effective immediately.

Following discussion, Members received the report as information.

CARRIED

Messrs. Wennberg and Giesbrecht withdrew from the meeting.

[redacted]



Investment Committee Report – Asset Liability Management Study Recommendations and Implementation Plan	18-104	Moved by Mr. Grestoni and seconded by Ms. Schock that the Members ratify the recommendation of the Investment Committee to approve for the Minister of Finance's consideration of the following: 1. Approval to invest in the listed new asset classes of private debt, global equity and global low volatility equities; 2. The creation of five segregated portfolios for Basic Claims Liabilities, Extension, SRE, Employee Future Benefits and RSR; 3. Adoption of asset allocations for each portfolio as shown in Figure 3 *Recommended Target Asset Allocations* (ALM Implementation Plan, April 30, 2018, found on page 10 of agenda item B.1 Attachment A); 4. Adoption of the Implementation Plan (as described in the ALM Implementation Plan, April 30, 2018, found on pages 12 to 22 of agenda item B.1 Attachment A); 5. Realization of gains in Canadian and U.S. equity portfolios in 2018/19; 6. Hire a consultant to assist with search for external managers; 7. Hire a transition manager to manage the transitions between public market asset classes as necessary (purchases and sales). CARRIED

Members identified the importance of notifying Department of Finance of the details of the ALM Implementation Plan.

[redacted]

2019/20 Basic Autopac General Rate Application

18-109

Mr. Johnston presented Agenda Item 4.2 “2019/20 Basic Autopac General Rate Application”.

Moved by Ms. Wowryk and seconded by Ms. Nabess that the Members approve the application to the Public Utilities Board for 2019/20 rates for the Basic Autopac Program as set out below:

1. Overall 2.2% increase to the average rate for Basic Autopac comprised of a 0.1% break-even rate change and a 2.1% net capital maintenance provision.

2. Rates for individual risk classifications to be adjusted based on statistically determined experience indicators.

3. Classification changes to be implemented on a revenue neutral basis.

4. No change to the driver premiums or vehicle premium discounts on the Driver Safety Rating (DSR) scale.

CARRIED

Dynamic Capital Adequacy Test (DCAT) and Minimum Capital Test (MCT)	18-110	Moved by Ms. Schock and seconded by Ms. Wowryk that the Members ratify the recommendation of the Audit, Finance & Risk Committee to approve a lower Total Equity Rate Stabilization Reserve (RSR) target of 36% MCT for the 2019/20 fiscal year based on the minimum capital required to achieve satisfactory future financial condition at the 1-in-40 year level under the 2018 Dynamic Capital Adequacy Test; an upper Total Equity RSR target of 85% MCT for the 2019/20 fiscal year based on a 1-in-40, 2-year operating range above the lower RSR target as calculated in the 2018 Dynamic Capital Adequacy Test report; and, the Corporation include these RSR targets in the 2018 GRA. CARRIED

Mr. Johnston withdrew from the meeting.



PUB (MPI) 1-2

Part and Chapter:	**Part V RM**	**Page No.:**	**15-16, 19 of 58 and RM Appendix 8**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Change Documentation**		

Preamble to IR (If Any):

In RM Appendix 8, the Corporation states: *There were no significant methodology or assumption changes made in the 2019 GRA (from the 2018 GRA).*

However, at a minimum, the basis of selection of the cash flow discount rate has changed to no longer include consideration of the expected new money yield on non-marketable bonds [p. 19].

Question:

Please identify, describe, and provide the rationale for any significant changes in methodology or basis of selection of assumptions being introduced with this Application (relative to the 2018 GRA). Please include the estimated impact of each such change, with supporting documentation.

Rationale for Question:

To assess the reasonableness of any significant changes in methodology or basis of selection of assumptions.

RESPONSE:

The Corporation maintains that its statement at *Part V, RM Appendix 8* is correct. The method of deriving the new money yield is based on PUB Order 130/17 (see page 28) issued within the 2018 GRA. This method was also adopted for the 2019 GRA.

The exclusion of non-marketable bonds is, with respect, neither a methodology nor an assumption change. It is a decision by the Corporation to refrain from purchasing non-marketable bonds in the future (i.e. the Corporation will allocate no "new money" for purchasing non-marketable bonds). Please also see *PUB (MPI) 1-3*.

PUB (MPI) 1-3

Part and Chapter:	**Part RM**	**Page No.:**	**19 of 58**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Cash Flow Discount Rate**		

Preamble to IR (If Any):

The Corporation states: *The investment return used to discount future payments is based on the market value weighted yield of MPI's marketable bonds portfolio i.e. the new money yield. The investment return of 3.21% reflects the projected yield as at the midpoint of rating year 2019/20 i.e. September 1, 2019.*

In its response to PUB (MPI) 1-12 a) of the 2018 GRA, the Corporation stated: *The Corporation has used the projected duration weighted investment return of the Corporation's fixed income portfolio as the basis for the discount rate selection on the assumption that this investment return is reflective of the assets that are expected to be acquired with the net cash flows.*, in effect explaining that the use of a portfolio yield rate was intended as an approximation of a new money yield rate.

Question:

a) Please provide supporting documentation for the derivation of the assumed 3.21% cash flow discount rate, linking to the Investment section as appropriate.
b) Given that non-marketable bonds also back the actuarial liabilities, why does the cash flow discount rate not also depend on the expected new money rate for non-marketable bonds?
c) Please show the derivation of an alternate cash flow discount rate based on an appropriately weighted average expected new money yield rate as at 1 September 2019 (consistent with the financial forecast) for the mix of fixed income

investments and durations expected to back the related actuarial liabilities, and prepare an alternate overall rate indication using this alternate cash flow discount rate, with supporting documentation.

d) Please repeat the response to part c) above reflecting the Board approved 50/50 interest rate forecast.

Rationale for Question:

To assess the sensitivity of the rate indication to the cash flow discount rate selection.

RESPONSE:

a) See Figure 1 for the supporting documentation for the derivation of the assumed 3.21% new money yield as of September 1, 2019. The Investment section does not provide this information.

Figure 1: New Money Yield Calculation

Line No.	New Money Yield Calculation	Q2 2019/20*
1	*(C$000s)*	
2	Market Value	
3	Provincial Bonds	977,873
4	Corporate Bonds	381,264
5	Total Marketable Bonds	1,359,137
6		
7	Percentage Allocation	
8	Provincial Bonds	71.9%
9	Corporate Bonds	28.1%
10	Total Marketable Bonds	100.0%
11		
12	Yield To Maturity	
13	Provincial Bonds	2.95%
14	Corporate Bonds	3.90%
15	New Money Yield	3.21%
16	* Forecast for August 31, 2019, which is used for the September 1, 2019 New Money Yield	

b) MPI does not intend to purchase non-marketable bonds going forward. As such, "new money" derived from policies issued in the 2019/20 rating year, will not be allocated for the purchase of non-marketable bonds. Given that the discount rate (for ratemaking) must represent the "*expected investment income to be earned on assets that might be acquired with the net cash flows resulting from the revenue at the indicated rate*" (see *Part V, Ratemaking, page 19*), the discount rate calculation excludes non-marketable bonds.

c) Per the response to (b) above, the discount rate of 3.21% "reflects the cash flow discount rate based on an appropriately weighted average expected new money yield rate as at September 1, 2019 for the mix of fixed income investments and durations" expected to back the policies issued in the 2019/20 rating year.

d) Based on the 50/50 interest rate forecast, the discount rate would increase from 3.21% to 3.50%. This would decrease the required overall rate (exclusive of Net CMP) to breakeven from 0.1% to -0.5% (see *Part V, Ratemaking, page 40*). The required overall rate (inclusive of Net CMP) would also decrease from 2.2 to 1.2% (see *Part V, Ratemaking, page 41*).

PUB (MPI) 1-4

Part and Chapter:	**Part V RM**	**Page No.:**	**29 of 58**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Vehicle Drift**		

Preamble to IR (If Any):

Question:

a) Please provide supporting documentation for the derivation of the estimated and projected annual overall vehicle drift assumptions for 2017/18 through 2019/20, including commentary on the relationship with the HTA vehicle drift assumptions documented in REV.1.2.
b) Please explain why it is necessary to apply vehicle drift adjustments through to the average earning date for the March 2019 rate (rather than the average written date for the March 2019 rate).

Rationale for Question:

To assess the reasonableness of Vehicle Drift assumptions.

RESPONSE:

a) Per *Part V, Ratemaking, page 29*, the annual overall vehicle drift for 2017/18 of 2.24% is "*determined per the rate model*".

Appendix 1 shows the derivation of the annual overall vehicle drift up to March 1, 2019 (in a format similar to *Part V, RM Appendix 7*). As indicated, the annual

overall vehicle drift up to March 1, 2019 is 2.71%. The annual overall vehicle drift for 2018/19 was determined by solving the following equation:

((1 + 2.71%) / ((1 + 2.24%) ^ (4/12))) - 1 i.e. 1.96%

Appendix 2 shows the derivation of the annual overall vehicle drift up to March 1, 2020 (per *Part V, RM Appendix 7*). The annual overall vehicle drift, up to March 1, 2020, is shown at 4.92%. The annual overall vehicle drift for 2019/20 was determined by solving the following equation:

((1 + 4.92%) / (1 + 2.71%)) - 1 i.e. 2.15%

b) MPI will review the appropriateness of using the average earned date in the 2020 GRA. If the Corporation used the average written date (instead of the average earned date) in the context of the 2019 GRA, the breakeven required overall rate change would increase from 0.1% to 1.4% but the required overall rate change inclusive of Net CMP would remain unchanged at 2.2%.

Appendix 1
Drift Calculation by Major Class (Trended to March 1, 2019)

Row	Description	Notes	Overall	Major Class: Priv Pass	Comm	Public	Motorcycle	Trailer	ORV
[1]	2018/19 Written Premiums	[a]	986,304,184	893,171,487	36,082,358	26,448,834	13,569,983	16,323,142	708,380
[2]	Number of Vehicles	[a]	1,149,140	801,666	46,246	12,690	17,023	200,677	70,838
[3]	2018/19 Average Rate	[a]	858.30	1,114.14	780.23	2,084.23	797.16	81.34	10.00
[4]	Projected Volume Growth	[b]		1.98%	1.98%	1.98%	1.98%	4.13%	4.13%
[5]	2017/18 Actual Volume Growth	[c]		1.44%	1.44%	1.44%	1.44%	2.76%	2.76%
[6]	2018/19 Selected Volume Growth	[c]		1.50%	1.50%	1.50%	1.50%	3.19%	3.19%
[7]	Number of Vehicles - Adjusted	[d]	1,177,775	817,578	47,164	12,942	17,361	208,966	73,764
[8]	Projected Drift	[e]	2.63%	3.34%	2.50%	-2.32%	0.44%	2.33%	0.00%
[9]	2017/18 Actual Drift	[f]		2.34%	1.92%	2.96%	0.13%	1.87%	0.00%
[10]	2018/19 Selected Drift	[f]		2.55%	1.85%	-3.27%	0.40%	1.70%	0.00%
[11]	2018/19 Average Rate - Adjusted	[g]	880.86	1,151.39	799.73	2,035.80	800.70	83.24	10.00
[12]	2018/19 Written Premiums - Adjusted	[h]	1,037,451,635	941,354,187	37,718,270	26,347,291	13,900,871	17,393,375	737,640
[13]	HTA Drift per Revenue Forecast	[i]	3.20%						
[14]	HTA Drift per Rate Model	[j]	3.12%						
[15]	2018/19 Average Rate	[k]	1,104.43						
[16]	2018/19 Average Rate - Adjusted	[l]	1,138.85						
[17]	Adjust to Revenue Forecast	[m]	1.0008						
[18]	Projected Drift - Adjusted	[n]	2.71%	3.43%	2.58%	-2.24%	0.53%	2.33%	0.00%
[19]	2018/19 Average Rate - Adjusted	[o]	881.58	1,152.35	800.39	2,037.49	801.36	83.24	10.00
[20]	2018/19 Written Premiums - Adjusted	[p]	1,038,301,396	942,138,952	37,749,714	26,369,256	13,912,460	17,393,375	737,640

Notes:

[a] From the Rate Model; based on the population of vehicles as at November 1, 2017; premiums reflect the approved 2018/19 rates

[b] = ((1 + [5]) ^ (4/12) * (1 + [6]))- 1; trended from November 1, 2017 to March 1, 2019

[c] Selected based on historical volume growth for HTA and non-HTA vehicles; See Part V(i), Revenues

[d] = [2] * [4]; Overall = Sum of major classes

[e] = ((1 + [9]) ^ (4/12) * (1 + [10]))- 1; trended from November 1, 2017 to March 1, 2019; Overall = [11] / [3] - 1

[f] Selected based on historical drift for each major class; 2018/19 Selected Drift for the Public major class adjusted to reflect VFH vehicles eligibility for DSR discoun

[g] = [3] * (1 + [8]); Overall = [12] / [7]

[h] = [7] * [11]; Overall = Sum of major classes

[i] = ((1 + 2.40%) ^ (4/12) * (1 + 2.39%)) - 1; See Part V(i), Revenues

[j] = ([16] / [15]) - 1

[k] = Sum [1] / Sum [2] for HTA Units

[l] = Sum [12] / Sum [7] for HTA Units

[m] = (1 + [13]) / (1 + [14])

[n] = (1 + [8]) * [17] - 1 for HTA Units; [8] for non-HTA Units; Overall = [19] / [3] - 1

[o] = [3] * (1 + [18]); Overall = [20] / [7]

[p] = [7] * [19]; Overall = Sum of major classes

Appendix 2
Drift Calculation by Major Class (Trended to March 1, 2020)

Row	Description	Notes	Overall	Major Class: Priv Pass	Comm	Public	Motorcycle	Trailer	ORV
[1]	2018/19 Written Premiums	[a]	986,304,184	893,171,487	36,082,358	26,448,834	13,569,983	16,323,142	708,380
[2]	Number of Vehicles	[a]	1,149,140	801,666	46,246	12,690	17,023	200,677	70,838
[3]	2018/19 Average Rate	[a]	858.30	1,114.14	780.23	2,084.23	797.16	81.34	10.00
[4]	Projected Volume Growth	[b]		3.51%	3.51%	3.51%	3.51%	7.43%	7.43%
[5]	2017/18 Actual Volume Growth	[c]		1.44%	1.44%	1.44%	1.44%	2.76%	2.76%
[6]	2018/19 Selected Volume Growth	[c]		1.50%	1.50%	1.50%	1.50%	3.19%	3.19%
[7]	2019/20 Selected Volume Growth	[c]		1.50%	1.50%	1.50%	1.50%	3.17%	3.17%
[8]	Number of Vehicles - Adjusted	[d]	1,200,163	829,842	47,871	13,136	17,621	215,591	76,102
[9]	Projected Drift	[e]	4.73%	5.98%	4.40%	-1.93%	0.85%	4.07%	0.00%
[10]	2017/18 Actual Drift	[f]		2.34%	1.92%	2.96%	0.13%	1.87%	0.00%
[11]	2018/19 Selected Drift	[f]		2.55%	1.85%	-3.27%	0.40%	1.70%	0.00%
[12]	2019/20 Selected Drift	[f]		2.55%	1.85%	0.40%	0.40%	1.70%	0.00%
[13]	2018/19 Average Rate - Adjusted	[g]	898.93	1,180.75	814.52	2,043.94	803.90	84.65	10.00
[14]	2018/19 Written Premiums - Adjusted	[h]	1,078,856,998	979,839,489	38,991,924	26,849,205	14,165,488	18,249,872	761,020
[15]	HTA Drift per Revenue Forecast	[i]	5.82%						
[16]	HTA Drift per Rate Model	[j]	5.63%						
[17]	2018/19 Average Rate	[k]	1,104.43						
[18]	2018/19 Average Rate - Adjusted	[l]	1,166.63						
[19]	Adjust to Revenue Forecast	[m]	1.0018						
[20]	Projected Drift - Adjusted	[n]	4.92%	6.17%	4.59%	-1.75%	1.03%	4.07%	0.00%
[21]	2018/19 Average Rate - Adjusted	[o]	900.53	1,182.90	816.00	2,047.66	805.36	84.65	10.00
[22]	2018/19 Written Premiums - Adjusted	[p]	1,080,784,052	981,621,072	39,062,821	26,898,023	14,191,244	18,249,872	761,020

Notes:

[a] From the Rate Model; based on the population of vehicles as at November 1, 2017; premiums reflect the approved 2018/19 rates

[b] = ((1 + [5]) ^ (4/12) * (1 + [6]) * (1 + [7]))- 1; trended from November 1, 2017 to March 1, 2020

[c] Selected based on historical volume growth for HTA and non-HTA vehicles; See Part V(i), Revenues

[d] = [2] * [4]; Overall = Sum of major classes

[e] = ((1 + [10]) ^ (4/12) * (1 + [11]) * (1 + [12]))- 1; trended from November 1, 2017 to March 1, 2020; Overall = [13] / [3] - 1

[f] Selected based on historical drift for each major class; 2018/19 Selected Drift for the Public major class adjusted to reflect VFH vehicles eligibility for DSR discounts

[g] = [3] * (1 + [9]); Overall = [14] / [8]

[h] = [8] * [13]; Overall = Sum of major classes

[i] = ((1 + 2.40%) ^ (4/12) * (1 + 2.39%) * (1 + 2.54%)) - 1; See Part V(i), Revenues

[j] = ([18] / [17]) - 1

[k] = Sum [1] / Sum [2] for HTA Units

[l] = Sum [14] / Sum [8] for HTA Units

[m] = (1 + [15]) / (1 + [16])

[n] = (1 + [9]) * [19] - 1 for HTA Units; [9] for non-HTA Units; Overall = [21] / [3] - 1

[o] = [3] * (1 + [20]); Overall = [22] / [8]

[p] = [8] * [21]; Overall = Sum of major classes

PUB (MPI) 1-5

Part and Chapter:	**Part V RM**	**Page No.:**	**31 of 58**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Expected Return on Investment Assets Supporting Basic Total Equity**		

Preamble to IR (If Any):

The proposed approach to recognizing the expected return on investment assets supporting Basic Total Equity draws on information shown in Figure INV-53 RSR Investment Income.

Question:

Please provide supporting documentation for the derivation of the information shown in Figure INV-53, with links to other GRA exhibits as appropriate.

Rationale for Question:

To assess the reasonableness of the proposed approach to recognizing the expected return on investment assets supporting Basic Total Equity.

RESPONSE:

Figure INV-54 provides the asset values for Basic RSR, which supports *Figure INV-53*.

Sections 3 to 11 of the Investment chapter of the Application show how the results of the investment portfolio for the Basic line of business were calculated. The basic line of business portfolio is a combination of the Basic Claims and the RSR portfolios. Where appropriate, the above sections contain discussions and assumptions for the

RSR portfolio that are separate and different from the assumptions used for the Basic Claims portfolio. For example:

- **Cash:** Section 3 discusses the cash holdings, which is forecasted to have $0 dollars over the four-year forecast for RSR.

- **Marketable Bonds**: Section 4 discusses how the interest income and capital return, which is the same process for Basic claims and Basic RSR, is calculated. Separate assumptions for the RSR portfolio are provided for yield to maturity and convexity.

- **Non-Marketable bonds:** Section 5 describes the calculation process for MUSH bonds. Asset values for MUSH in the RSR portfolio are included in *Figure INV-54*.

- **Private Debt and Growth Assets:** Sections 5 to 10 provide the assumption for private debt and all of the growth asset classes (Canadian equity, global equity, low volatility global equity, real estate and infrastructure). Note that there are no private debt and growth assets in the Basic Claims portfolio, so all assumptions and tables (for 2019/20 and thereafter) show information for the RSR portfolio only.

- **Rebalancing:** Separate rebalancing assumptions for RSR are provided in *Section INV.11.3*.

PUB (MPI) 1-6

Part and Chapter:	**I COM**	**Page No.:**	**9**
PUB Approved Issue No:	**3. Compliance with Board Orders**		
Topic:	**Compliance with PUB Orders**		
Sub Topic:	**Board Order 130-17 11.23**		

Preamble to IR (If Any):

Order 11.23 - A Technical Conference shall be held on road safety and loss prevention in early 2019, which shall be initiated by the Board but on such dates as are mutually agreed as between the Board and MPI.

MPI expects to begin preparations for this Technical Conference in Q3 of 2018.

Question:

Please advise as to what preparations MPI intends to undertake for the Technical Conference.

Rationale for Question:

To understand the progress of the response to Order 11.23.

RESPONSE:

In preparation for the Technical Conference in 2019, the Corporation intends to prepare progress summary reports, in consultation and collaboration with stakeholders, for each of the identified topics including:

- progress on the implementation of the Loss Prevention Strategy and Framework,
- activities of the External Stakeholder Committee on Loss Prevention and member feedback on the effectiveness of that committee;
- activities of the Provincial Road Safety Committee and progress on priorities noted within the Provincial Road Safety Plan - Road to Zero;
- progress on the 2017-2020 Road Safety Operational Plan;
- review of the Corporation's priorities for road safety and loss prevention;
- review of business case related to Experienced Rider Program;
- success of the Drug Impaired Driving Communication Strategy and any other efforts undertaken by the Corporation to address drug-impaired driving;
- the Corporation's ongoing efforts to address speed and distracted driving;
- progress on the High School Driver Education Program Redevelopment;
- an update on the Corporation's rural road strategy;
- a jurisdictional scan conducted by the Corporation of road safety measures; and
- an examination of safety for drivers and clients of Vehicles For Hire.

In the coming months, the Corporation will confirm with the PUB, the Technical Conference's objectives, its schedule of topics, and the expected approach for including the information on the public record; as well as establish the expected duration and potential dates of the Technical Conference.

The Corporation invited members of the External Stakeholder Committee on Loss Prevention to provide any additional road safety issues or subject matter that they wished to see discussed at the Technical Conference at the June quarterly meeting.

PUB (MPI) 1-7

Part and Chapter:	**VI INV**	**Page No.:**	**48**
PUB Approved Issue No:	**4.a. Financial Forecast- Financial Forecast Accuracy**		
Topic:	**Canadian Equities**		
Sub Topic:	**Turnover Assumption**		

Preamble to IR (If Any):

The average mid-point of the range for the manager's expected future turnover was 20%. Based on this information, a 20% turnover ratio was used in the model for 2018/19. However, after separation of asset classes in the financial model occurs … at the end of Q4 2018/19, the forecasted turnover rate thereafter will be 0% because it is expected that equity holdings will be held in pooled funds.

Question:

a) Why does the planned shift to pooled funds necessarily imply a turnover assumption of 0%?
b) Please summarize the accounting treatment of changes in unrealized gains/losses on such pooled funds.

Rationale for Question:

To assess the reasonableness of the Basic financial forecast assumptions.

RESPONSE:

a) When the Corporation holds units in a pooled fund only turnover of the pooled fund units results in a realization of gains. The Corporation does not plan to sell any units of the fund and therefore does not plan to realize any gains. Turnover of

holdings within the fund will not result in the realization of gains for the Corporation, as it is only turnover of the pooled fund units that results in the realization of gains.

b) The Corporation expects no change to the accounting treatment of the unrealized gains/losses on such pooled funds. The investments are anticipated to remain as Available for Sale.

PUB (MPI) 1-8

Part and Chapter:	**VIII FFM**	**Page No.:**	**6**
PUB Approved Issue No:	**4.a. Financial Forecast- Financial Forecast Accuracy**		
Topic:	**Financial Forecast Model**		
Sub Topic:	**Update for ALM Changes**		

Preamble to IR (If Any):

Prior to the update, Investment Assets and Income were allocated to each line of business through an allocation process. As a result of the recent Asset Liability Management (ALM) strategy, an update has been made whereby investment assets are directly assigned to each operating line of business (Basic and Non-Basic) as well as to Employee Future Benefits.

Question:

a) Please provide a complete list of the Corporation's investment portfolio "buckets" into which investment assets have been assigned for financial forecast modeling purposes.
b) Are financial forecast modeling assumptions separately specified for each of these investment portfolio buckets?

Rationale for Question:

To assess the reasonableness of the Basic financial forecast assumptions.

RESPONSE:

a) Starting in Q1 of 2019/20, the five financial portfolios modeled are: 1) Basic Claims, 2) RSR, 3) Employee Future Benefits, 4) SRE and 5) Extension.

b) Starting in Q1 2019/20 for fixed income, the yield to maturity and duration assumptions used in the financial model for Basic Claims are separate from those used for non-Basic Claims (including RSR and Employee Future Benefits). All portfolios containing growth assets (i.e. equities, real estate and infrastructure) use a single set of return assumptions for growth assets in the financial model. The Basic Claims portfolio contains no growth assets.

The asset mixes for Basic Claims, RSR and Employee Future Benefits each use different assumptions as shown in Figure INV-1, reproduced below for convenience.

Figure INV- 1: Asset Mix to be Implemented End of Q4 2018/19

Line No.	Target Weights	Basic Claims	RSR	Employee Future Benefits
1	**Fixed Income**			
2	**Provincial Bonds**	60.0%	20.0%	0.0%
3	**Corporate Bonds**	20.0%	10.0%	20.0%
4	**MUSH**	20.0%	5.0%	0.0%
	Private Debt	0.0%	15.0%	20.0%
5	**Total Fixed Income**	**100.0%**	**50.0%**	**40.0%**
6	**Public Equities**			
7	**Canadian Equities**	0.0%	12.0%	10.0%
8	**Global Equities**	0.0%	13.0%	18.0%
9	**Global Low Volatility**	0.0%	10.0%	7.0%
10	**Total Equities**	**0.0%**	**35.0%**	**35.0%**
11	**Alternatives**			
12	**Canadian Real Estate**	0.0%	10.0%	15.0%
13	**Infrastructure**	0.0%	5.0%	10.0%
14	**Total Alternatives**	**0.0%**	**15.0%**	**25.0%**

PUB (MPI) 1-9

Part and Chapter:	**V REV 1.1-1.2; Figure REV-5**	**Page No.:**	**7-10**
PUB Approved Issue No:	**4.b. – Financial Forecast – Changes in Projected Financial Results**		
Topic:	**Motor Vehicle Premiums**		
Sub Topic:	**Volume and Upgrade Factors**		

Preamble to IR (If Any):

Question:

a) Please provide a restated PF.1, PF.2 and PF.3 and R.1 pages 5 and 6 "Motor Vehicle Premiums Written and Earned," to reflect a volume factor of 1.75% throughout the forecast period.
b) Please provide a restated PF.1, PF.2 and PF.3 and R.1 pages 5 and 6 "Motor Vehicle Premiums Written and Earned," to reflect a vehicle upgrade factor of 2.65% throughout the forecast period.
c) Please provide the impact of the changes in (b) on the indicated rate in accordance with accepted actuarial practice.

Rationale for Question:

To test the forecast's sensitivity to changes in the volume and upgrade factors.

RESPONSE:

a) Please see *Appendix 1* for PF.1, PF.2, PF.3 and REV.1. Changing the volume factor to 1.75% throughout the forecast period reduces the overall required rate change based on breakeven rates (inclusive of the net CMP), from 2.2% to 2.1%.

b) Please see *Appendix 2* for PF.1, PF.2, PF.3 and REV.1.

c) Changing the vehicle upgrade factor to 2.65% throughout the forecast period reduces the overall required rate change based on breakeven rates (inclusive of the net CMP), from 2.2% to 1.8%.

PF.1 STATEMENT OF OPERATIONS – 2019/20 Basic Premium Rate Increase of 2.1% Rate Increase with 1.75% Volume Factor Upgrade throughout the forecast

Multi-year - Statement of Operations

Line *2019 GRA - 2019/20 Basic Premium Rate increase of 2.1% with 1.75% Volume Factor Upgrade throughout the forecast*
No. *(C$ 000s, rounding may affect totals)* *For the Years Ended February,*

1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,021,835	1,089,227	1,137,276	1,186,631	1,238,412
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,079,541	1,148,710	1,198,513	1,249,473	1,302,858
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	992,430	1,058,052	1,115,049	1,163,800	1,214,459
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,040,780	1,116,528	1,175,288	1,225,717	1,277,978
12	Service Fees & Other Revenues	22,849	23,322	23,875	25,913	27,747	29,730	31,905
13	Total Earned Revenues	982,991	1,059,512	1,064,655	1,142,441	1,203,035	1,255,447	1,309,883
14	Claims Incurred	783,040	870,564	855,242	899,901	948,146	999,054	1,053,382
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(29,287)	(5,339)	(4,503)	3,172	8,092
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(8,185)	8,621	11,468	10,144	10,085
17	Total Claims Incurred	767,239	831,017	817,770	903,183	955,111	1,012,370	1,071,559
18	Claims Expense	143,337	136,975	137,168	135,440	139,228	144,372	146,834
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,694	12,819	13,007	13,285
20	Total Claims Costs	923,722	981,835	968,544	1,051,317	1,107,158	1,169,749	1,231,678
21	Expenses							
22	Operating	70,201	73,799	75,060	73,613	76,320	80,019	82,936
23	Commissions	37,378	40,407	40,373	42,795	45,011	46,887	48,830
24	Premium Taxes	29,143	31,445	31,559	33,838	35,608	37,128	38,703
25	Regulatory/Appeal	4,443	4,666	4,669	4,840	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,661	155,086	161,937	169,148	175,702
27	Underwriting Income (Loss)	(81,896)	(72,640)	(55,550)	(63,962)	(66,060)	(83,450)	(97,497)
28	Investment Income	111,731	82,203	191,848	82,178	84,900	87,867	90,628
29	(b) Investment Income - Interest Rate Impact	4,589	-	(0)	(1)	(0)	(0)	0
30	Net Investment Income	116,320	82,203	191,848	82,177	84,900	87,867	90,628
31	Net Income (Loss)	34,424	9,563	136,298	18,215	18,840	4,417	(6,869)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	8,185	(8,621)	(11,468)	(10,145)	(10,085)

PF.2 STATEMENT OF FINANCIAL POSITION – 2019/20 Basic Premium Rate Increase of 2.1% Rate Increase with 1.75% Volume Factor Upgrade throughout the forecast

Multi-year - Statement of Financial Position

Line No.	*2019 GRA - 2019/20 Basic Premium Rate increase of 2.1% with 1.75% Volume Factor Upgrade throughout the forecast* *(C$ 000s, rounding may affect totals)*	For the Years Ended February,						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	28,189	64,575	79,677	90,983	90,141
5	Investments	2,272,545	2,451,402	2,509,362	2,598,204	2,705,101	2,816,087	2,928,238
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,186	357,114	355,241	376,497	392,151	408,206	425,030
9	Prepaid expenses	714	-	17,949	25,237	31,131	29,386	22,792
10	Deferred policy acquisition costs	-	9,628	-	-	-	-	-
11	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	55,423	72,551	43,654	47,106	59,149	61,156	63,186
14		2,916,137	3,025,250	3,058,156	3,216,217	3,369,758	3,507,913	3,634,860
15	Liabilities							
16	Due to other insurance companies	141	2,642	144	144	144	144	144
17	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	508,089	548,406	548,485	584,043	610,924	638,639	667,807
20	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	331,910	316,773	341,796	357,994	373,916	389,867	406,138
22	Provision for unpaid claims	1,806,067	1,920,634	1,851,493	1,931,504	2,012,599	2,090,639	2,166,990
23		2,705,292	2,840,245	2,802,994	2,934,995	3,060,587	3,184,589	3,307,825
24	Equity							
25	Retained Earnings	170,975	134,734	307,273	325,488	344,328	348,743	341,873
26	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,267)	(35,158)	(25,417)	(14,837)
27	Total Equity	210,845	185,005	255,161	281,222	309,170	323,326	327,036
28	Total Liabilities & Equity	2,916,137	3,025,250	3,058,155	3,216,217	3,369,757	3,507,915	3,634,861

PF.3 STATEMENT OF CHANGES IN EQUITY - 2019/20 Basic Premium Rate Increase of 2.1% Rate Increase with 1.75% Volume Factor Upgrade throughout the forecast

Multi-year - Statement of Changes in Equity

Line No.	*2019 GRA - 2019/20 Basic Premium Rate increase of 2.1% with 1.75% Volume Factor Upgrade throughout the forecast* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	307,273	325,488	344,328	348,743
6	Net Income (Loss) from annual operations	34,424	9,563	136,298	18,216	18,839	4,416	(6,870)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	307,273	325,488	344,328	348,743	341,873
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,267)	(35,158)	(25,417)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,844	9,109	9,740	10,580
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,267)	(35,158)	(25,417)	(14,837)
13	Total Equity Balance	210,845	185,005	255,161	281,222	309,170	323,326	327,036
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	307,273	325,488	344,328	348,743	341,873
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,267)	(35,158)	(25,417)	(14,837)
18	Total Rate Stabilization Reserve	210,845	185,005	255,161	281,222	309,170	323,326	327,036
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	255,161	281,222	309,170	323,326	327,036
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	156,000*	174,000*	181,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000*	337,000*	363,000*	380,000*	398,000*
25	MCT RATIO (%)	44%	28%	70%	70%	71%	71%	68%

REV.1 PREMIUMS WRITTEN AND EARNED - 2019/20 Basic Premium Rate Increase of 2.1% Rate Increase with 1.75% Volume Factor Upgrade throughout the forecast

Premiums Written and Earned

2019 GRA - 2019/20 Basic Premium Rate increase of 2.1% with 1.75% Volume Factor Upgrade throughout the forecast

Line No.	BASIC	2018A	2019B	2020F	2021F	2022F	2023F
				For the Years Ended February,			
1	***(C$ 000s, except where noted)***						
2							
3	**HTA Volume Change**	1.44%	1.75%	1.75%	1.75%	1.75%	1.75%
4	**HTA Upgrading & Other Changes**	2.40%	2.39%	2.54%	2.58%	2.51%	2.54%
5	**Rate Change**	3.70%	2.60%	2.08%	0.00%	0.00%	0.00%
6	**Premiums Unearned during Year**	46.37%	46.26%	46.26%	46.26%	46.26%	46.26%
7							
8	**Basic Insurance Written**						
9	**Last Year Premiums Written**	904,245	972,433	1,039,489	1,107,127	1,155,512	1,205,264
10	**Volume Increase**	12,976	17,018	18,191	19,375	20,221	21,092
11	**Total Volume Written**	917,221	989,451	1,057,680	1,126,501	1,175,734	1,226,356
12							
13	**Upgrading & Other Changes**	21,967	23,696	26,881	29,011	29,530	31,137
14	**Total With Upgrading**	939,188	1,013,147	1,084,562	1,155,512	1,205,264	1,257,493
15							
16	**Impact of Rate Change**	34,750	26,342	22,565	0	0	0
17	**Adjustments**	(1,505)	0	0	0	0	0
18	**Total Premium Written Before Rebates**	**972,433**	**1,039,489**	**1,107,127**	**1,155,512**	**1,205,264**	**1,257,493**
19							
20	**Fleet Rebates**	(13,377)	(14,935)	(15,532)	(16,150)	(16,796)	(17,463)
21	**Anti Theft & Other Charges**	(3,115)	(2,719)	(2,367)	(2,087)	(1,837)	(1,618)
22	**Total Premiums Written**	**955,941**	**1,021,835**	**1,089,227**	**1,137,276**	**1,186,631**	**1,238,412**
23							
24	**Reinsurance Ceded**	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
25	**Total Net Premiums Written**	**944,647**	**1,010,639**	**1,077,807**	**1,125,627**	**1,174,750**	**1,226,293**
26							
27	**Basic Insurance Earned**						
28	**Beginning Unearned Premium Balance**	409,960	443,284	472,688	503,863	526,090	548,921
29	**Premiums Written**	955,941	1,021,835	1,089,227	1,137,276	1,186,631	1,238,412
30	**Unearned Premiums during Year**	443,284	472,688	503,863	526,090	548,921	572,874
31	**Premiums Earned**	**922,617**	**992,430**	**1,058,052**	**1,115,049**	**1,163,800**	**1,214,459**
32							
33	**Reinsurance Ceded**	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
34	**Total Net Premiums Earned**	**911,323**	**981,234**	**1,046,632**	**1,103,401**	**1,151,919**	**1,202,340**

PF.1 STATEMENT OF OPERATIONS – 2019/20 Basic Premium Rate Increase of 1.8% Rate Increase with 2.65% Vehicle Upgrade Factor throughout the forecast

Multi-year - Statement of Operations

Line *2019 GRA - 2019/20 Basic Premium Rate Increase of 1.8% with 2.65 % Vehicle Upgrade Factor throughout the forecast*
No. *For the Years Ended February,*

1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,021,864	1,084,866	1,130,732	1,178,475	1,228,182
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,079,570	1,144,349	1,191,969	1,241,317	1,292,628
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	992,446	1,055,722	1,109,515	1,156,390	1,205,188
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,040,796	1,114,198	1,169,754	1,218,307	1,268,707
12	Service Fees & Other Revenues	22,849	23,322	23,876	25,835	27,624	29,568	31,692
13	Total Earned Revenues	982,991	1,059,512	1,064,672	1,140,033	1,197,378	1,247,875	1,300,399
14	Claims Incurred	783,040	870,564	853,862	896,983	943,502	992,470	1,044,612
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(29,661)	(4,119)	(4,644)	3,291	7,371
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(8,189)	8,612	11,451	10,126	10,071
17	Total Claims Incurred	767,239	831,017	816,012	901,476	950,309	1,005,887	1,062,054
18	Claims Expense	143,337	136,975	137,168	135,425	139,216	144,330	146,780
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,693	12,818	13,003	13,279
20	Total Claims Costs	923,722	981,835	966,786	1,049,594	1,102,343	1,163,220	1,222,113
21	Expenses							
22	Operating	70,201	73,799	75,060	73,606	76,313	79,998	82,908
23	Commissions	37,378	40,407	40,374	42,735	44,839	46,652	48,536
24	Premium Taxes	29,143	31,445	31,560	33,769	35,442	36,906	38,425
25	Regulatory/Appeal	4,443	4,666	4,669	4,840	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,663	154,950	161,592	168,670	175,102
27	Underwriting Income (Loss)	(81,896)	(72,640)	(53,777)	(64,511)	(66,557)	(84,015)	(96,816)
28	Investment Income	111,731	82,203	191,876	82,215	84,936	87,853	90,693
29	(b) Investment Income - Interest Rate Impact	4,589	-	(0)	(1)	(0)	(0)	0
30	Net Investment Income	116,320	82,203	191,876	82,214	84,936	87,853	90,693
31	Net Income (Loss)	34,424	9,563	138,099	17,703	18,379	3,838	(6,123)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	8,189	(8,613)	(11,451)	(10,126)	(10,071)

PF.2 STATEMENT OF FINANCIAL POSITION – 2019/20 Basic Premium Rate Increase of 1.8% Rate Increase with 2.65% Vehicle Upgrade Factor throughout the forecast

Multi-year - Statement of Financial Position

2019 GRA - 2019/20 Basic Premium Rate Increase of 1.8% with 2.65 % Vehicle Upgrade Factor throughout the forecast

Line No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	28,194	64,061	77,831	88,019	86,291
5	Investments	2,272,545	2,451,402	2,510,416	2,599,297	2,706,055	2,816,873	2,928,980
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,186	357,114	355,249	375,340	390,415	406,043	422,317
9	Prepaid expenses	714	-	18,325	24,266	30,237	28,327	22,395
10	Deferred policy acquisition costs	-	9,628	-	-	-	-	-
11	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	55,423	72,551	43,654	47,107	59,151	61,160	63,190
14		2,916,137	3,025,250	3,059,599	3,214,669	3,366,238	3,502,517	3,628,646
15	Liabilities							
16	Due to other insurance companies	141	2,642	144	144	144	144	144
17	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	508,089	548,406	548,499	582,026	607,897	634,866	663,075
20	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	331,910	316,773	341,796	357,994	373,917	389,867	406,138
22	Provision for unpaid claims	1,806,067	1,920,634	1,851,120	1,930,671	2,011,245	2,088,710	2,164,431
23		2,705,292	2,840,245	2,802,635	2,932,145	3,056,207	3,178,887	3,300,534
24	Equity							
25	Retained Earnings	170,975	134,734	309,075	326,778	345,156	348,994	342,871
26	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,255)	(35,125)	(25,363)	(14,759)
27	Total Equity	210,845	185,005	256,964	282,524	310,031	323,631	328,112
28	Total Liabilities & Equity	2,916,137	3,025,250	3,059,599	3,214,669	3,366,238	3,502,518	3,628,646

PF.3 STATEMENT OF CHANGES IN EQUITY - 2019/20 Basic Premium Rate Increase of 1.8% Rate Increase with 2.65% Vehicle Upgrade Factor throughout the forecast

Multi-year - Statement of Changes in Equity

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 1.8% with 2.65 % Vehicle Upgrade Factor throughout the forecast*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	309,075	326,778	345,156	348,994
6	Net Income (Loss) from annual operations	34,424	9,563	138,100	17,704	18,378	3,838	(6,123)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	309,075	326,778	345,156	348,994	342,871
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,255)	(35,125)	(25,363)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,856	9,130	9,762	10,604
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,255)	(35,125)	(25,363)	(14,759)
13	Total Equity Balance	210,845	185,005	256,964	282,524	310,031	323,631	328,112
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	309,075	326,778	345,156	348,994	342,871
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,255)	(35,125)	(25,363)	(14,759)
18	Total Rate Stabilization Reserve	210,845	185,005	256,964	282,524	310,031	323,631	328,112
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	256,964	282,524	310,031	323,631	328,112
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	156,000*	173,000*	181,000*	189,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000*	336,000*	363,000*	379,000*	397,000*
25	MCT RATIO (%)	44%	28%	70%	70%	71%	71%	68%

REV.1 PREMIUMS WRITTEN AND EARNED - 2019/20 Basic Premium Rate Increase of 1.8% Rate Increase with 2.65% Vehicle Upgrade Factor throughout the forecast

Premiums Written and Earned

2019 GRA - 2019/20 Basic Premium Rate Increase of 1.8% with 2.65 % Vehicle Upgrade Factor throughout the forecast

Line No.	BASIC	2018A	2019B	2020F	2021F	2022F	2023F
				For the Years Ended February,			
1	*(C$ 000s, except where noted)*						
2							
3	HTA Volume Change	1.44%	1.50%	1.50%	1.50%	1.50%	1.50%
4	HTA Upgrading & Other Changes	2.40%	2.65%	2.65%	2.65%	2.65%	2.65%
5	Rate Change	3.70%	2.60%	1.82%	0.00%	0.00%	0.00%
6	Premiums Unearned during Year	46.37%	46.26%	46.26%	46.26%	46.26%	46.26%
7							
8	Basic Insurance Written						
9	Last Year Premiums Written	904,245	972,433	1,039,519	1,102,765	1,148,969	1,197,108
10	Volume Increase	12,976	14,587	15,593	16,541	17,235	17,957
11	Total Volume Written	917,221	987,020	1,055,111	1,119,307	1,166,203	1,215,064
12							
13	Upgrading & Other Changes	21,967	26,156	27,960	29,662	30,904	32,199
14	Total With Upgrading	939,188	1,013,176	1,083,072	1,148,969	1,197,108	1,247,263
15							
16	Impact of Rate Change	34,750	26,343	19,694	0	0	0
17	Adjustments	(1,505)	0	0	0	0	0
18	Total Premium Written Before Rebates	**972,433**	**1,039,519**	**1,102,765**	**1,148,969**	**1,197,108**	**1,247,263**
19							
20	Fleet Rebates	(13,377)	(14,935)	(15,532)	(16,150)	(16,796)	(17,463)
21	Anti Theft & Other Charges	(3,115)	(2,719)	(2,367)	(2,087)	(1,837)	(1,618)
22	Total Premiums Written	**955,941**	**1,021,864**	**1,084,866**	**1,130,732**	**1,178,475**	**1,228,182**
23							
24	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
25	Total Net Premiums Written	**944,647**	**1,010,668**	**1,073,446**	**1,119,084**	**1,166,594**	**1,216,063**
26							
27	Basic Insurance Earned						
28	Beginning Unearned Premium Balance	409,960	443,284	472,702	501,846	523,063	545,148
29	Premiums Written	955,941	1,021,864	1,084,866	1,130,732	1,178,475	1,228,182
30	Unearned Premiums during Year	443,284	472,702	501,846	523,063	545,148	568,142
31	Premiums Earned	**922,617**	**992,446**	**1,055,722**	**1,109,515**	**1,156,390**	**1,205,188**
32							
33	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
34	Total Net Premiums Earned	**911,323**	**981,250**	**1,044,302**	**1,097,867**	**1,144,508**	**1,193,069**

PUB (MPI) 1-10

Part and Chapter:	**V Pro Formas PF.1-PF.3**	**Page No.:**	**4-7**
PUB Approved Issue No:	**4.d. Financial Forecast – Justification for the use of Naïve Forecast**		
Topic:	**Interest Rate Forecast**		
Sub Topic:	**2.2% Rate Change**		

Preamble to IR (If Any):

Question:

a) Please provide an updated PF.1, PF.2, PF.3 and actuarially indicated rate (with supporting schedules) based on a 25-basis point increase in interest rates in 2018/19.

b) Please provide an updated PF.1, PF.2, PF.3 and actuarially indicated rate (with supporting schedules) based on a 50-basis point increase in interest rates in 2018/19.

c) Please provide an updated PF.1, PF.2, PF.3 and actuarially indicated rate (with supporting schedules) based on a 50-basis point increase in interest rates in 2018/19 and 50-basis point increase in interest rates in 2019/20.

Rationale for Question:

To understand the impact of changing interest rate on actuarial indicated rate and forecasted financial results.

RESPONSE:

To model the requested changes in interest rates, MPI will assume that the rate change will occur at the end of the year. For example, MPI will assume that the 25-basis point increase in 2018/19 for question (a) below will occur on March 1, 2019.

Further, to model the effect of the change in interest rates, MPI will also assume that the only other change is in the new money yield as at September 1, 2019, which is used to determine rates.

a) Please see *Appendix 1* for PF.1, PF.2 and PF.3. The change in interest rates increased the new money yield as at September 1, 2019 from 3.21% to 3.46%. This has the effect of reducing the overall required rate change based on breakeven rates from 0.1% to -0.4%. The effect on the overall required rate change based on breakeven rates (inclusive of the net CMP), is a reduction from 2.2% to 1.6%.

b) Please see *Appendix 2* for PF.1, PF.2 and PF.3. The change in interest rates increased the new money yield as at September 1, 2019 from 3.21% to 3.71%. This reduces the overall required rate change based on breakeven rates from 0.1% to -0.9% and the overall required rate change based on breakeven rates (inclusive of the net CMP), from 2.2% to 1.0%.

c) Please see *Appendix 3* for PF.1, PF.2 and PF.3. The change in interest rates increased the new money yield as at September 1, 2019 from 3.21% to 3.71%. This reduces the overall required rate change based on breakeven rates from 0.1% to -0.9% and the overall required rate change based on breakeven rates (inclusive of the net CMP), from 2.2% to 0.1%.

   Compared to (b), the effect of the net CMP on the overall required rate change is 0.9% lower. The 50-basis point increase in interest rates in 2019/20 results in a higher MCT ratio at fiscal year-end 2019/20 (compared to (b)) due to higher capital available. This means that a lower net CMP is required.

PF.1 STATEMENT OF OPERATIONS – 1.6% Rate Increase with Interest Rate Increase of +0.25% in Q4 2018/19

Multi-year - Statement of Operations

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 1.6% with Interest Rate Increase of +25bps in 2018/19 Q4* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,078,513	1,123,282	1,169,110	1,217,086
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,137,996	1,184,519	1,231,952	1,281,532
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,051,113	1,102,572	1,147,910	1,194,893
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,109,589	1,162,811	1,209,827	1,258,412
12	Service Fees & Other Revenues	22,849	23,322	23,840	25,764	27,569	29,520	31,660
13	Total Earned Revenues	982,991	1,059,512	1,063,248	1,135,353	1,190,380	1,239,347	1,290,072
14	Claims Incurred	783,040	870,564	853,862	895,964	942,530	991,533	1,043,710
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(30,514)	(2,625)	(4,342)	3,949	7,871
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(44,157)	7,827	9,801	8,469	7,751
17	Total Claims Incurred	767,239	831,017	779,191	901,166	947,989	1,003,951	1,059,332
18	Claims Expense	143,337	136,975	137,168	135,259	139,047	144,162	146,625
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,676	12,801	12,986	13,263
20	Total Claims Costs	923,722	981,835	929,965	1,049,101	1,099,837	1,161,099	1,219,220
21	Expenses							
22	Operating	70,201	73,799	75,060	73,525	76,230	79,914	82,830
23	Commissions	37,378	40,407	40,338	42,599	44,617	46,383	48,208
24	Premium Taxes	29,143	31,445	31,518	33,630	35,234	36,651	38,116
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,585	154,593	161,079	168,062	174,387
27	Underwriting Income (Loss)	(81,896)	(72,640)	(18,302)	(68,341)	(70,536)	(89,814)	(103,535)
28	Investment Income	111,731	82,203	191,799	85,449	89,305	92,932	96,134
29	(b) Investment Income - Interest Rate Impact	4,589	-	(27,683)	15	6	5	(4)
30	Net Investment Income	116,320	82,203	164,116	85,464	89,311	92,937	96,130
31	Net Income (Loss)	34,424	9,563	145,814	17,123	18,775	3,123	(7,405)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	16,474	(7,812)	(9,795)	(8,464)	(7,755)

PF.2 STATEMENT OF FINANCIAL POSITION – 1.6% Rate Increase with Interest Rate Increase of +0.25% in Q4 2018/19

Multi-year - Statement of Financial Position

2019 GRA - 2019/20 Basic Premium Rate Increase of 1.6% with Interest Rate Increase of +25bps in 2018/19 Q4

Line No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	28,841	60,961	69,418	72,870	62,744
5	Investments	2,272,545	2,451,402	2,480,227	2,571,603	2,681,871	2,796,743	2,913,743
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,186	357,114	354,564	373,655	388,439	403,559	419,374
9	Prepaid expenses	714	-	-	-	-	-	-
10	Deferred policy acquisition costs	-	9,628	19,103	23,442	29,079	26,456	19,973
11	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	55,423	72,551	43,654	47,120	59,177	61,192	63,225
14		2,916,137	3,025,250	3,030,150	3,181,379	3,330,533	3,462,915	3,584,532
15	Liabilities							
16	Due to other insurance companies	141	2,642	144	144	144	144	144
17	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	508,089	548,406	547,303	579,087	604,451	630,534	657,942
20	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	331,910	316,773	341,796	358,175	374,325	390,478	406,937
22	Provision for unpaid claims	1,806,067	1,920,634	1,815,152	1,892,899	1,970,851	2,045,723	2,118,222
23		2,705,292	2,840,245	2,765,471	2,891,615	3,012,775	3,132,179	3,249,991
24	Equity							
25	Retained Earnings	170,975	134,734	316,790	333,912	352,688	355,809	348,405
26	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,149)	(34,930)	(25,072)	(13,863)
27	Total Equity	210,845	185,005	264,678	289,763	317,758	330,738	334,542
28	Total Liabilities & Equity	2,916,137	3,025,250	3,030,149	3,181,378	3,330,533	3,462,917	3,584,533

PF.3 STATEMENT OF CHANGES IN EQUITY – 1.6% Rate Increase with Interest Rate Increase of +0.25% in Q4 2018/19

Multi-year - Statement of Changes in Equity

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 1.6% with Interest Rate Increase of +25bps in 2018/19 Q4*							
	(C$ 000s, rounding may affect totals)	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	316,790	333,912	352,688	355,809
6	Net Income (Loss) from annual operations	34,424	9,563	145,815	17,123	18,776	3,121	(7,405)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	316,790	333,912	352,688	355,809	348,405
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,149)	(34,930)	(25,072)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,962	9,219	9,858	11,209
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,149)	(34,930)	(25,072)	(13,863)
13	Total Equity Balance	210,845	185,005	264,678	289,763	317,758	330,738	334,542
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	316,790	333,912	352,688	355,809	348,405
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,149)	(34,930)	(25,072)	(13,863)
18	Total Rate Stabilization Reserve	210,845	185,005	264,678	289,763	317,758	330,738	334,542
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	264,678	289,763	317,758	330,738	334,542
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	172,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000*	334,000*	361,000*	378,000*	396,000*
25	MCT RATIO (%)	44%	28%	73%	73%	74%	73%	70%

PF.1 STATEMENT OF OPERATIONS – 1.0% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19

Multi-year - Statement of Operations

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 1.0% with Interest Rate Increase of +50bps in 2018/19 Q4* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,072,099	1,116,604	1,162,162	1,209,855
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,131,582	1,177,841	1,225,004	1,274,301
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,047,666	1,096,017	1,141,087	1,187,792
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,106,142	1,156,256	1,203,004	1,251,311
12	Service Fees & Other Revenues	22,849	23,322	23,847	25,690	27,526	29,514	31,701
13	Total Earned Revenues	982,991	1,059,512	1,063,255	1,131,832	1,183,782	1,232,518	1,283,012
14	Claims Incurred	783,040	870,564	853,862	894,991	941,599	990,632	1,042,829
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(32,413)	64	(4,441)	3,882	7,826
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(78,284)	6,992	8,071	6,382	7,017
17	Total Claims Incurred	767,239	831,017	743,165	902,047	945,229	1,000,896	1,057,672
18	Claims Expense	143,337	136,975	137,168	135,090	138,892	143,996	146,460
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,660	12,785	12,969	13,246
20	Total Claims Costs	923,722	981,835	893,939	1,049,797	1,096,906	1,157,861	1,217,378
21	Expenses							
22	Operating	70,201	73,799	75,060	73,444	76,153	79,831	82,745
23	Commissions	37,378	40,407	40,338	42,510	44,405	46,162	47,978
24	Premium Taxes	29,143	31,445	31,518	33,527	35,037	36,447	37,903
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	141,165	150,317	151,585	154,320	160,593	167,554	173,859
27	Underwriting Income (Loss)	(81,896)	(72,640)	17,731	(72,285)	(73,717)	(92,897)	(108,225)
28	Investment Income	111,731	82,203	191,786	88,485	93,424	97,772	101,986
29	(b) Investment Income - Interest Rate Impact	4,589	-	(53,663)	30	11	10	15
30	Net Investment Income	116,320	82,203	138,123	88,515	93,435	97,782	102,001
31	Net Income (Loss)	34,424	9,563	155,854	16,230	19,718	4,885	(6,224)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	24,622	(6,962)	(8,060)	(6,373)	(7,001)

PF.2 STATEMENT OF FINANCIAL POSITION – 1.0% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19

Multi-year - Statement of Financial Position

2019 GRA - 2019/20 Basic Premium Rate Increase of 1.0% with Interest Rate Increase of +50bps in 2018/19 Q4

Line No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	29,463	58,311	61,891	60,051	44,796
5	Investments	2,272,545	2,451,402	2,453,618	2,547,450	2,661,063	2,780,632	2,902,650
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,186	357,114	354,564	371,954	386,668	401,716	417,456
9	Prepaid expenses	714	-	-	-	-	-	-
10	Deferred policy acquisition costs	-	9,628	21,002	22,466	28,194	25,630	19,184
11	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	55,423	72,551	43,654	47,134	59,202	61,223	63,259
14		2,916,137	3,025,250	3,006,062	3,151,913	3,299,567	3,431,347	3,552,818
15	Liabilities							
16	Due to other insurance companies	141	2,642	144	144	144	144	144
17	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	508,089	548,406	547,303	576,120	601,361	627,320	654,597
20	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	331,910	316,773	341,796	358,358	374,734	391,096	407,743
22	Provision for unpaid claims	1,806,067	1,920,634	1,781,025	1,856,964	1,932,255	2,004,138	2,075,023
23		2,705,292	2,840,245	2,731,344	2,852,896	2,971,498	3,087,998	3,204,253
24	Equity							
25	Retained Earnings	170,975	134,734	326,829	343,058	362,775	367,661	361,437
26	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,040)	(34,707)	(24,311)	(12,871)
27	Total Equity	210,845	185,005	274,717	299,018	328,068	343,350	348,566
28	Total Liabilities & Equity	2,916,137	3,025,250	3,006,061	3,151,914	3,299,566	3,431,348	3,552,819

PF.3 STATEMENT OF CHANGES IN EQUITY – 1.0% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19

Multi-year - Statement of Changes in Equity

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 1.0% with Interest Rate Increase of +50bps in 2018/19 Q4* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	326,829	343,058	362,775	367,661
6	Net Income (Loss) from annual operations	34,424	9,563	155,854	16,230	19,717	4,886	(6,224)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	326,829	343,058	362,775	367,661	361,437
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,040)	(34,707)	(24,311)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	8,071	9,334	10,396	11,440
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,040)	(34,707)	(24,311)	(12,871)
13	Total Equity Balance	210,845	185,005	274,717	299,018	328,068	343,350	348,566
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	326,829	343,058	362,775	367,661	361,437
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,040)	(34,707)	(24,311)	(12,871)
18	Total Rate Stabilization Reserve	210,845	185,005	274,717	299,018	328,068	343,350	348,566
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	274,717	299,018	328,068	343,350	348,566
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	154,000*	172,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000*	332,000*	359,000*	377,000*	395,000*
25	MCT RATIO (%)	44%	28%	76%	76%	77%	77%	74%

PF.1 STATEMENT OF OPERATIONS – 0.1% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19 and +0.50% in Q4 2019/20

Multi-year - Statement of Operations

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 0.1% with Interest Rate Increases of +50bps in 2018/19 Q4 and +50bps in 2019/20 Q4* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,062,587	1,106,700	1,151,857	1,199,129
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,076,138	1,076,987	1,122,070	1,167,937	1,214,699	1,263,575
7	Net Premiums Earned							
8	Motor Vehicles	922,617	988,774	991,058	1,042,554	1,086,294	1,130,968	1,177,262
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,036,190	1,039,408	1,101,030	1,146,533	1,192,885	1,240,781
12	Service Fees & Other Revenues	22,849	23,322	23,847	25,535	27,428	29,492	31,771
13	Total Earned Revenues	982,991	1,059,512	1,063,255	1,126,565	1,173,961	1,222,377	1,272,552
14	Claims Incurred	783,040	870,564	853,862	894,991	939,819	988,938	1,041,196
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(32,413)	411	(4,588)	3,742	7,732
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(78,284)	(60,997)	6,140	3,539	6,312
17	Total Claims Incurred	767,239	831,017	743,165	834,405	941,371	996,219	1,055,240
18	Claims Expense	143,337	136,975	137,168	135,090	138,568	143,687	146,152
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,660	12,753	12,937	13,214
20	Total Claims Costs	923,722	981,835	893,939	982,155	1,092,692	1,152,843	1,214,606
21	Expenses							
22	Operating	70,201	73,799	75,060	73,444	75,994	79,678	82,590
23	Commissions	37,378	40,407	40,338	42,379	44,090	45,834	47,637
24	Premium Taxes	29,143	31,445	31,518	33,373	34,745	36,143	37,587
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,113	5,233
26	Total Expenses	141,165	150,317	151,585	154,035	159,827	166,768	173,047
27	Underwriting Income (Loss)	(81,896)	(72,640)	17,731	(9,625)	(78,558)	(97,234)	(115,101)
28	Investment Income	111,731	82,203	191,786	88,208	100,049	106,542	112,073
29	(b) Investment Income - Interest Rate Impact	4,589	-	(53,663)	(64,509)	21	19	35
30	Net Investment Income	116,320	82,203	138,123	23,699	100,070	106,561	112,108
31	Net Income (Loss)	34,424	9,563	155,854	14,074	21,512	9,327	(2,993)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	24,622	(3,512)	(6,119)	(3,519)	(6,277)

PF.2 STATEMENT OF FINANCIAL POSITION – 0.1% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19 and +0.50% in Q4 2019/20

Multi-year - Statement of Financial Position

2019 GRA - 2019/20 Basic Premium Rate Increase of 0.1% with Interest Rate Increases of +50bps in 2018/19 Q4 and +50bps in 2019/20 Q4

Line No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets							
4	Cash and cash equivalents	72,998	11,929	29,463	53,334	50,247	41,038	17,908
5	Investments	2,272,545	2,451,402	2,453,618	2,477,003	2,595,325	2,722,319	2,853,836
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,186	357,114	354,564	369,431	384,041	398,983	414,611
9	Prepaid expenses	714	-	-	-	-	-	-
10	Deferred policy acquisition costs	-	9,628	21,002	21,844	27,708	25,273	18,908
11	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	55,423	72,551	43,654	47,134	59,225	61,259	63,299
14		2,916,137	3,025,250	3,006,062	3,073,344	3,219,095	3,350,967	3,474,035
15	Liabilities							
16	Due to other insurance companies	141	2,642	144	144	144	144	144
17	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	508,089	548,406	547,303	571,720	596,780	622,553	649,635
20	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	331,910	316,773	341,796	354,449	371,141	387,770	404,641
22	Provision for unpaid claims	1,806,067	1,920,634	1,781,025	1,788,975	1,860,554	1,927,900	1,996,446
23		2,705,292	2,840,245	2,731,344	2,776,598	2,891,623	3,003,667	3,117,612
24	Equity							
25	Retained Earnings	170,975	134,734	326,829	340,902	362,413	371,739	368,745
26	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,155)	(34,941)	(24,439)	(12,323)
27	Total Equity	210,845	185,005	274,717	296,747	327,473	347,301	356,423
28	Total Liabilities & Equity	2,916,137	3,025,250	3,006,061	3,073,345	3,219,096	3,350,968	3,474,035

PF.3 STATEMENT OF CHANGES IN EQUITY – 0.1% Rate Increase with Interest Rate Increase of +0.50% in Q4 2018/19 and +0.50% in Q4 2019/20

Multi-year - Statement of Changes in Equity

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Increase of 0.1% with Interest Rate Increases of +50bps in 2018/19 Q4 and +50bps in 2019/20 Q4* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	326,829	340,902	362,413	371,739
6	Net Income (Loss) from annual operations	34,424	9,563	155,854	14,073	21,511	9,326	(2,994)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	326,829	340,902	362,413	371,739	368,745
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,155)	(34,941)	(24,439)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,956	9,215	10,502	12,116
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,155)	(34,941)	(24,439)	(12,323)
13	Total Equity Balance	210,845	185,005	274,717	296,747	327,473	347,301	356,423
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	326,829	340,902	362,413	371,739	368,745
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,155)	(34,941)	(24,439)	(12,323)
18	Total Rate Stabilization Reserve	210,845	185,005	274,717	296,747	327,473	347,301	356,423
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	210,845	185,005	274,717	296,747	327,473	347,301	356,423
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	154,000*	170,000*	178,000*	187,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000*	330,000*	354,000*	372,000*	392,000*
25	MCT RATIO (%)	44%	28%	76%	76%	78%	79%	77%

PUB (MPI) 1-11

Part and Chapter:	**VI INV**	**Page No.:**	**27-31**
PUB Approved Issue No:	**4.d. Financial Forecast – Justification for the use of Naïve Forecast**		
Topic:	**Interest Rate Forecasting**		
Sub Topic:	**Use of Naïve Interest Rate Forecast**		

Preamble to IR (If Any):

With respect to interest rate forecasting, in Board Order 130/17 the PUB stated: *The Board accepts the evidence of Dr. Simpson that the 50/50 interest rate forecast is the appropriate approach for rate-setting and target capital purposes at this time. The Board acknowledges that this is a departure from its findings in Order 162/16, and grounds its decision in this regard on the recent change in interest rates, the lack of accuracy in the SIRF, and the evidence of Dr. Simpson and Mr. Steski.* [p. 69]

In the current Application, the Corporation states: *MPI is required to base its rate application on best estimates, and for the 2019 GRA, MPI's management and Board of Directors continue to maintain that the naïve forecast is the best estimate.* [INV.2.3]

Question:

a) Please discuss the statistical significance of the cited improvement in standard error from using a Naïve Forecast (0.15%) over using a 50/50 Forecast (0.16%). [INV.2.3.1 Figure INV-11]
b) Please provide any other new evidence the Corporation has in support of its position that the Naïve Forecast represents a best estimate?
c) In his External Review Report of the prior Basic DCAT, Mr. Joe S. Cheng stated: In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naïve interest rate as a base case. My initial guess is

an increase in interest rates should strengthen the financial position of Basic. [DCAT Attachment A, p. 7] Please confirm that Mr. Cheng's opinion in this regard is provided in the context of a DCAT investigation of Basic's satisfactory financial condition, and specifically not in a Basic rate-setting context.

d) In reference back to PUB (MPI) 2-7 from the 2018 GRA, the Corporation notes that Mr. Cheng: *reviews over 30 DCAT reports annually, and a naïve forecast is the most common for the base scenario*. With respect to those 30 DCAT reports reviewed in 2017, please have Mr. Cheng provide a high level summary of the basis of interest rate forecast, the approximate annual written premium, and the approximate size of the fixed income investment portfolio for the five insurers reviewed with the largest fixed income investment portfolios.

e) Does the Corporation anticipate amending its Application to reflect an updated interest rate forecast reflecting market activity up to 30 September 2018 or thereabouts?

Rationale for Question:

To clarify the strength of the Corporation's position on interest rate forecasting.

RESPONSE:

a) The actuarial standards of practice establish that a best estimate should be unbiased.

Another useful attribute of an estimate is its efficiency, and for an estimate to be efficient it should have a low standard error. The standard error of a forecast does not measure how biased the forecast is, but how variable the forecast is relative to actual.

For example, a forecast that always produces an estimate that is 50 basis points higher than the true rate will have a very low standard error and therefore be efficient, but very biased. The Naïve forecast produces an estimate that is both efficient and less biased than the 50/50 forecast.

To determine if there is bias, a paired sample t-test on the sample mean was performed, which tested if the 50/50 forecast or the Naïve forecast produce statistically significant results from each other.

The test showed that the Naïve forecast produces a statistically significant forecast from the 50/50 forecast with less error (bias) at a 99% confidence level. See *Figure 1* below.

Figure 1: T-Test - Paired Two Sample for Means

	50/50	*Naïve*
Mean	0.0034	0.0015
Variance	3.58E-05	3.18E-05
Observations	14	14
Pearson Correlation	0.9743	
Hypothesized Mean Difference	0	
df	13	
t Stat	5.2635	
P(T<=t) one-tail	0.0001	
t Critical one-tail	2.6503	
P(T<=t) two-tail	0.0002	
t Critical two-tail	3.0123	

b) See the response to Part a), which indicates that the Naïve forecast produces a statistically significant forecast with less bias than the 50/50 forecast at the 99th confidence level.

c) Refer to Attachment A, letter from Joe S. Cheng, FCIA.

d) Refer to Attachment A, letter from Joe S. Cheng, FCIA.

e) The Corporation does not anticipate filing an Amendment to its Application at this time. The Corporation would consider doing so if a material change in circumstances required immediate action to rectify the present Application.

In deciding whether to amend, the Corporation must also consider the impact it could have on the regulatory process (particularly the possibility of publishing public notice, standing being granted to other interested parties, and additional round(s) of information requests). Given that the existing schedule leaves little room for delay in order to meet the requirement for an early December order, amending the Application will have procedural and financial costs, which require careful consideration.

As has been conventional practice for the last number of years, the Corporation responds to information requests, and/or gives undertakings at the Hearing, which require it to update the rate indication in consideration of the most current interest rate forecast. The Corporation will continue to provide this information to ensure the PUB has the means to assess the reasonableness of the Application.

However, the Corporation notes that re-running a rate indication is not a trivial amount of work and that it has already sensitivity analysis of the rate indication to interest rates.

The Corporation is cognizant of the PUB's preference for use of the most current information available, but notes that the PUB declined to adopt its proposed interest rate update (and final approval of rates) through an Order approving the compliance filing. Given that the rate setting methodology is identical in both approaches, the only technical difference is the timing of the forecast.

The Corporation prefers to set rates by adopting the correct methodology, based on current best estimate forecasts, rather than by choosing the preferred rates from a menu of varying approaches, across many points time.

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J. S. CHENG & PARTNERS INC.

July 20, 2018

Mr. Luke Johnston
Chief Actuary & Vice-President,
Risk Management
Manitoba Public Insurance
234 Donald Street,
Winnipeg, MB R3C 4A4

Dear Mr. Johnston,

RE: PUB (MPI) 1-11 Interest Rate Forecasting (Use of Naïve Interest Rate Forecast)

Per your e-mail from July 16, 2018, these are my responses to questions c) and d) posed by the Public Utility Board:

PUB: c) In his External Review Report of the prior Basic DCAT, Mr. Joe S. Cheng stated: *In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naïve interest rate as a base case. My initial guess is an increase in interest rates should strengthen the financial position of Basic.* [DCAT Attachment A, p. 7] Please confirm that Mr. Cheng's opinion in this regard is provided in the context of a DCAT investigation of Basic's satisfactory financial condition, and specifically not in a Basic rate-setting context.

JSCP: I can confirm that my above opinion was provided solely in the context of a DCAT investigation of Basic's satisfactory financial condition—not in a Basic rate-setting context.

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Any forecast other than a 0% change in interest rates (i.e. a naïve interest rate assumption) would require more work without necessarily providing any benefit. First, one would have to determine the change in accumulated other comprehensive income (AOCI); this would require a re-pricing of every bond in the portfolio. Most insurers do not forecast AOCI in their business plan and therefore implicitly use the naïve interest rate assumption. Second, one would have to accept that an incorrect estimate of the AOCI would understate or overstate the equity in each scenario, and could exacerbate any rate forecasting error. As I stated in the sentence immediately preceding that paragraph on p.7 of the DCAT external peer review: "Previous increasing rate assumptions have proved to be incorrect, compounding forecasting errors."

Depending on the timing of the DCAT, one can always—and it is a common practice—bring the yield curve to the latest one so that the naïve yield curve is most up to date. If the report should become stale, a disclosure (in the subsequent event section) can quantify the impact on equity if it is material.

PUB: d) In reference back to PUB (MPI) 2-7 from the 2018 GRA, the Corporation notes that Mr. Cheng: *reviews over 30 DCAT reports annually, and a naïve forecast is the most common for the base scenario*. With respect to those 30 DCAT reports reviewed in 2017, please have Mr. Cheng provide a high level summary of the basis of interest rate forecast, the approximate annual written premium, and the approximate size of the fixed income investment portfolio for the five insurers reviewed with the largest fixed income investment portfolios.

JSCP: Most insurers review what the large chartered banks and the Conference Board of Canada are forecasting in terms of future interest rates and make a subjective judgment. We note that most DCATs show a 5-year forecast, but insurers rarely forecast interest rates past 1 plus the stub-year (the year in which the DCAT is done).

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We ranked the five largest, unrelated insurers that we reviewed in the order of their fixed income investment portfolios. The five insurers conducted their respective 2016 DCAT reports in different quarters as noted in the following table. Therefore some were able to bring the implied yield curve in their DCAT model to the one after the Bank of Canada made a rate change (see footnote).

Insurer	DCAT Date	Annual Premiums	Fixed Income Portfolio	Interest Rate Forecast
1	Q4 2017	$3 billion	$4+ billion	2017: +0.25%[(1)] 2018: +0.25%
2	Q2 2017	$2 billion	$2+ billion	2017: +0.50% 2018: +0.50%
3	Q3 2017	$1 billion	$1+ billion	2017: no change 2018: no change
4	Q4 2017	<$1 billion	$1 billion	2017: +0.25%[(1)] 2018: no change
5	Q4 2017	<$1 billion	<$1 billion	2017: +0.25%[(1)] 2018: no change

[(1)] The Bank of Canada raised the key interest rate by 25 basis points on July 12, 2017. Therefore a 0.25% increase in 2017 was a known fact—rather than a forecast—by the time these DCATs were done. Although the BoC made another 25 bps increase on September 6, 2017, it was probably too late to change the DCATs due to each insurer's respective deadline to present their report to their Board of Directors.

I would be happy to elaborate on or clarify any points made in my responses.

Yours truly,

Joe S. Cheng, FCIA

JSC/sc

PUB (MPI) 1-12

Part and Chapter:	**VIII AR Appendix 1**	**Page No.:**	**20-21**
PUB Approved Issue No:	**4. Financial Forecast**		
Topic:	**Financial Forecast**		
Sub Topic:	**Interest Rate Impacts**		

Preamble to IR (If Any):

IFRS 9 Financial Instruments was issued in July 2014 and is intended to replace IAS 39 Financial Instruments: Recognition and Measurement. IFRS 9 is a three part standard aimed at reducing complexity in reporting financial instruments. The project has been divided into three phases: Phase 1 Classification and measurement, Phase 2 Impairment and Phase 3 Hedge accounting.

IFRS 9 is effective for annual periods beginning on or after January 1, 2021. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

IFRS 17 is also going to be implemented at the same time. This change in accounting standard impacts the determination of the claims liability by requiring the use of a risk free discount rate plus a liquidity premium. The current approach is based on the discount rate inherent in the investment portfolio return.

Question:

a) Please file an update on the analysis of the Corporation's evaluation of the impact of the proposed accounting standard changes on its financial reporting.
b) Please file an update on the impact of the new standards on the risk of changes in interest rates on reported forecast net income.

Rationale for Question:

To understand the impact of changes in accounting standards on rate-setting.

RESPONSE:

a) and b)

MPI's evaluation of the proposed changes to IFRS 17 and 9 is still in progress, and the status report provided in the Annual Financial Statements remains unchanged. MPI is still collecting information on this topic with the intention of receiving an external opinion on the expected impact of IFRS 17.

At this time, the Corporation cannot commit to filing an external impact analysis of IFRS 17 with the PUB in the 2019 GRA proceeding.

Please note that IFRS 17 will have to be applied for reporting periods starting on or after January 1, 2021. MPI will apply IFRS 17 for the fiscal year beginning March 1, 2021.

PUB (MPI) 1-13

Part and Chapter:	**V EXP.6.1**	**Page No.:**	**59**
PUB Approved Issue No:	**6. Changes to Cost Allocation Methodology**		
Topic:	**Cost Allocation**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please indicate who undertakes the independent review of initiatives to determine how the cost is to be allocated among the Corporation's lines of business.
b) Please provide the criteria utilized to determine the allocation of initiative costs among lines of business.
c) How has the Corporation differentiated between core and non-core business functions in determining spending on deferred development?
d) Please provide an example of what projects are considered non-core, and why.

Rationale for Question:

To understand the allocation of costs, including the write-off of IT project costs among lines of business.

RESPONSE:

a) Members of the Budget-Project Accounting Team determine how initiatives are allocated among the Corporation’s lines of business. The Audit, Finance and Risk Committee reviews and approves the recommendations of this team on an annual basis.

b) Implementation initiatives can be specific to one or apply to many lines of business. The Budget-Project Accounting Team determines allocations on an initiative-by-initiative basis, based on similar past initiatives and utilizing the approved criteria identified in the Cost Allocation – AI-16-Attachment D, found in the 2013 GRA Application. An example would be the customer self-service project which is split between Insurance & Non-insurance based on WCCCCR then to Line of Business based on Claims Incurred then to Claims & Operating expenses based on FTE percentage (this is because the project benefits all lines of business).

c) The term "core project" refers to a project that is focused on insurance-activity capital projects rather than on other value added initiatives. The Executive, in consultation with the Board of Directors, determines which projects are core projects, as part of their strategic planning responsibilities.

d) Non-core projects are non-Basic projects.

PUB (MPI) 1-14

Part and Chapter:	**V EXP Appendix 13; Appendix 12 (2018 GRA)**	**Page No.:**	**47**
PUB Approved Issue No:	**6. Changes to Cost Allocation Methodology**		
Topic:	**Cost Allocation**		
Sub Topic:	**Changes to Cost Allocation**		

Preamble to IR (If Any):

The listing of physical properties allocated in Cost Category L has changed from the 2018 GRA. MPI has indicated that accounting unit 185 Brandon Testing Service Outlet has been discontinued.

Question:

a) Please indicate what properties that were included in the 2018 GRA for accounting units 117 and 187 do not appear in this year's schedule.
b) Please describe how the properties have been disposed of and the accounting for their disposal.

Rationale for Question:

To understand changes in Cost Allocation Methodology.

RESPONSE:

a) Accounting unit 117 was for the Pacific Avenue Service Centre and accounting unit 187 was for the Portage la Prairie Testing Centre. Pacific Avenue Service Centre was sold in early 2018 and the Portage la Prairie Testing Centre merged with the Portage la Prairie Service Centre in 2015.

b) Properties owned by the Corporation are disposed of using real estate agents and external legal counsel. Upon disposition, the sales price was offset by costs associated with sale and the asset value remaining to determine gain/loss on sale of property. For non-owned properties, when the Corporation determines that it no longer requires their use, it vacates and ceases to use the property, based on the terms associated with the lease.

Please refer to *CAC (MPI) 1-29* for additional information on the accounting for the disposal of Pacific Service Centre and Flin Flon Claims Centre.

PUB (MPI) 1-15

Part and Chapter:	**V EXP Appendix 19; Figure EXP App 19-2**	**Page No.:**	**2**
PUB Approved Issue No:	**6. Changes to Cost Allocation Methodology**		
Topic:	**IT Expenses**		
Sub Topic:	**Total IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please provide an explanation for the forecasted increase in External Labour for AOL and CARS in 2018/19 for Data Processing.
b) Please explain the forecasted external labour increase of $1.5M under Implementation Expenses in 2018/19.
c) Please provide details of the agreement supporting the expense for the IBM Security Operations Centre.

Rationale for Question:

To assess the reasonableness of the change in allocation in expenses assigned to Basic.

RESPONSE:

a) The original budget for 2017/18 was $4.0M, but actual spend was lower than budget due to refocusing efforts on initiative work that required resources normally assigned to operational work. This year, the Corporation has reduced the budget from $4.0M to $3.6M as it resumes normal operations.

b) The approximate $1.5 million increase is primarily due to $2.0 million of external labour expenses related to the Legacy Modernization project in 2018/19. These expenses were previously classified as deferred development; however, upon further review they were determined to be in year expenses.

c) The service improves MPI's Cyber Security posture by providing better situational awareness and matures processes required to detect and respond to potential Cyber threat against Manitoban's data. The IBM Security Operations Centre agreement provides 24x7 Tier 1 (Threat Analyst Event Monitoring) and Tier 2 (Event Triage and Incident Classification) Cyber Security services. These services also include management of our Security Incident and Event Monitoring (SIEM) infrastructure and an automated ticketing bridge system between IBM's ticketing system and MPI's ticketing system. The service handles security alerts from MPI devices both at the IBM data centre and within the MPI Manitoba network, correlating security events which are investigated and escalated for potential mitigation or remediation.

PUB (MPI) 1-16

Part and Chapter:	**VI RSR**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**Basic Total Equity Target Range Thresholds**		
Sub Topic:	**2018 GRA Board Approved Methodology**		

Preamble to IR (If Any):

The methodology ordered by the PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million …

Question:

a) Please provide the usual scenario statement exhibits resulting from the Board approved **lower** threshold iterative methodology as cited here for each of the base scenario, the modified base scenario, and the selected adverse scenario (before and after routine management / regulatory actions). Please include a summary of the adverse scenario assumed routine management / regulatory actions.

b) Please provide the usual scenario statement exhibits resulting from the Board approved **upper** threshold iterative methodology relative to the lower threshold as cited here for each of the base scenario, the modified base scenario, and the selected adverse scenario (before and after routine management / regulatory rate change actions, i.e. excluding such RSR rebuilding fee actions). Please include a summary of the adverse scenario assumed routine management / regulatory rate change actions.

c) In reference to its approved iterative methodology, in Board Order 130/17 the PUB stated: The Board agrees that such transfers are not best estimate expectations, but rather sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about

the proposed threshold level. [p. 78] In this context, what specific concerns does the Corporation have with respect to the Board approved iterative methodology?

Rationale for Question:

To assess the Corporation's decision to deviate from the Board approved methodology.

RESPONSE:

a) Please see Appendix 1 and Appendix 2. The assumed routine management/regulatory rate changes are outlined in *Figure 20* of *Part VI DCAT.5.1*, which has been reproduced below for convenience.

Figure DCAT- 20: Assumed Management and Regulatory Action for Combined Scenarios

Line No.	Combined Scenarios	2019/20	2020/21	2021/22	2022/23
1	Base	0.1% Rate / 0% RSR			
2	1 year	0.1% Rate / 0% RSR	n/a	n/a	n/a
3	2 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	n/a	n/a
4	3 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	2% Rate / 2% RSR	n/a
5	4 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	3% Rate / 2% RSR	3% Rate / 2% RSR

b) Please see Appendix 3 and Appendix 4.

c) In *Part VI RSR.4*, the Corporation articulates its justification for the use of a different lower RSR target methodology than the one in PUB Order 130/17. The Corporation elaborates on these points below:

First, the Corporation cannot support a lower RSR target that is below the minimum amount required to maintain the future satisfactory financial condition of Basic, as calculated using accepted actuarial practice in Canada. For the fiscal year 2018/19, the Board of Directors (BoD) transferred $37.3 million from the Extension line of business to Basic, increasing the RSR balance from $173.5 million

to $210.8 million. This transfer exceeded the amount required for satisfactory financial condition of Basic ($201 million) by $9.8 million.

In Order 130/17, the PUB approved $180 million as the lower RSR target for 2018/19. Basic would have an unsatisfactory financial condition had the MPI Board of Directors been unwilling or unable to transfer funds from Extension as noted above. Further, under the present RSR framework, the Corporation could not have sought the full amount of RSR rebuilding fees to achieve satisfactory financial condition, as the lower RSR target was less than and the minimum capital required for satisfactory financial condition of Basic. The timing of a request for regulatory approval of an RSR rebuilding fee would have also been deeply problematic had the MPI Board not intervened.

The intent of the lower RSR target is to establish the level of total equity (measured as a Minimum Capital Target percentage) below which a rebuilding fee is required. From the Corporation's perspective, a lower RSR target that is below the minimum percentage required for satisfactory financial condition could compromise the financial standing of Basic. Equally important is the fact that operating with an RSR balance at or near the minimum RSR target defeats the purpose of the RSR (i.e. stable rates) and increases the likelihood that the Corporation will face the difficult regulatory scenario identified above. To prevent the occurrence of this scenario, the Corporation will bring forward a Capital Management Plan in the 2020 GRA. The Corporation anticipates that this Plan will include build/release provisions designed to ensure that Basic would operate within the limits of the established RSR range.

Second, the Corporation does not support the use of an RSR target methodology that uses improper/inaccurate forecasting assumptions (i.e. not best estimate assumptions). The Corporation has directed its collaborative efforts to date towards developing a universally acceptable lower RSR target methodology. RSR target methodologies must be based on best estimates, which the PUB recognized in Order 162/16, stating:

> *"The Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for purposes of setting Basic target capital levels, expressed in terms of Basic total equity.* ***This approach is consistent with the objective of setting Basic target capital levels to be specific to the risk profile of the Corporation's Basic insurance operations.***
>
> *…*
>
> ***It is the Board's expectation, and for that matter a requirement of accepted actuarial practice in Canada, that the Corporation's Basic Application, including the rate indications, the Basic DCAT investigation and the target capital analysis, be prepared on a best estimate basis. Doing otherwise complicates the regulatory review process."*** *[emphasis added]*

In Order 130/17, the PUB reversed its position, stating that the modelling approach did not reflect best estimate expectations, but provided no clear reasons for this conclusion The PUB did state however that it:

> *"…sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about the proposed threshold level"*

With respect, it is inappropriate to view the establishment and maintenance of Basic's satisfactory financial condition as a theoretical exercise. Further, the PUB's interest in setting a lower RSR target (in the context of testing Basic to adverse circumstances when operating around the lower RSR target) ignores the purpose of the RSR (in essence, to stabilize rates and protect ratepayers from rebuilding fees). The Corporation does not understand why the PUB now believes the purpose of the RSR should be something other than what it identified its purpose as in Section 5.1 of Order 162/16.

Third, the lower RSR target methodology set out in Order 130/17 relies on a 50/50 interest rate forecast methodology. The Corporation cannot demonstrate that this interest rate forecast methodology is a best estimate, given the evidence available. The Corporation cannot support the use of an RSR methodology based on biased forecasting assumptions.

The RSR methodology in Order 130/17 produces a lower RSR target of $120 million for the 2019 GRA. This amount is well below the $143 million required to maintain satisfactory financial condition for Basic. For this reason and the reasons above, the Corporation cannot employ this methodology. The Corporation has opted instead to seek MCT based lower and upper RSR targets, based on DCAT modeling, using best estimate assumptions.

For 2019, The Corporation requests a lower RSR target of 34% MCT ($143 million based on current forecasts) for the 2019/20 fiscal year, as this target represents the absolute minimum MCT ratio required to maintain the financial condition of Basic.

Appendix 1a
Base Scenario with 27% MCT
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,166	29,036	31,083
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,526	1,221,741	1,271,677
Net Claims Incurred	742,604	869,023	783,040	824,008	899,722	937,489	995,156	1,051,173
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(37,865)	(12,793)	(253)	7,286	5,425
Total Claims Incurred	666,404	860,035	767,239	786,143	886,928	937,237	1,002,442	1,056,598
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,019	144,093	146,543
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,798	12,979	13,255
Total Claims Costs	798,045	993,537	923,722	936,917	1,034,896	1,089,054	1,159,514	1,216,396
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,216	79,880	82,788
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,038	166,959	173,233
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(62,651)	(75,566)	(104,733)	(117,952)
Investment Income	48,476	101,645	111,731	192,404	81,154	85,870	89,787	93,096
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	(18,782)	(8,734)	282	(1,854)
Net Investment Income	(4,038)	82,897	116,320	169,377	62,372	77,136	90,068	91,242
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(279)	1,570	(14,665)	(26,710)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,839	(5,989)	(8,482)	(7,004)	(7,279)

Appendix 1b
Base Scenario with 27% MCT
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	172,481	175,851	184,653	183,152
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(279)	1,570	(14,665)	(26,710)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,610)	3,649	7,232	13,164	24,352
Total Retained Earnings	194,498	99,251	170,975	172,481	175,851	184,653	183,152	180,794
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,984)	(38,846)	(30,891)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,127	7,138	7,955	9,076
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,984)	(38,846)	(30,891)	(21,814)
Total Equity Balance	231,002	181,000	210,845	120,369	129,867	145,807	152,261	158,980
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	172,481	175,851	184,653	183,152	180,794
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,984)	(38,846)	(30,891)	(21,814)
Total Rate Stabilization Reserve	231,002	181,000	210,845	120,369	129,867	145,807	152,261	158,980
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	120,369	129,867	145,807	152,261	158,980

Appendix 1c
Base Scenario with 27% MCT
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	54,575	56,948	59,488	59,192
Equity investments	2,083,349	2,189,534	2,272,545	2,342,890	2,407,098	2,499,891	2,607,612	2,714,791
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	16,113	22,064	19,174	12,521
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,176	61,194	63,228
	2,683,473	2,805,484	2,916,137	2,892,133	2,998,887	3,124,622	3,248,497	3,369,767
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,175	372,686	388,927	405,335
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,878,750	1,946,282	2,019,398	2,089,014
	2,452,472	2,624,484	2,705,292	2,771,763	2,869,020	2,978,814	3,096,236	3,210,787
Equity								
Retained earnings	194,499	99,251	170,975	172,481	175,851	184,653	183,152	180,794
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,984)	(38,846)	(30,891)	(21,814)
Total Equity	231,003	181,000	210,845	120,369	129,867	145,807	152,261	158,980
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,892,133	2,998,887	3,124,622	3,248,497	3,369,767

Appendix 1d
Base Scenario with 27% MCT
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	76,715	82,749	86,632	91,067	95,752
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	76,715	82,749	86,632	91,067	95,752
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	110,921
Unpaid claims	22	191,890	198,316	205,744	213,771	221,493
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	296,895	308,325	320,431	332,414
Market Risk:						
Interest rate risk	30	1,664	13,360	16,964	20,514	24,121
Foreign exchange risk	32	13,054	12,559	13,380	14,690	17,146
Equity risk	34	56,385	53,767	57,371	63,727	70,553
Real estate risk	36	23,110	23,850	24,368	25,108	26,407
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	94,213	103,536	112,083	124,039	138,227
Credit Risk:						
Counterparty default risk for balance sheet assets	40	38,826	55,967	58,106	59,538	60,571
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	38,826	55,967	58,106	59,538	60,571
Operational risk margin	50	62,590	66,842	69,868	73,204	76,738
Less: Diversification credit	52	48,196	55,220	58,393	62,193	66,343
Total Capital (Margin) Required at Target	59	433,982	468,020	489,989	515,019	541,607
Minimum Capital (Margin) Required (line 59 / 1.5)	60	289,321	312,014	326,660	343,346	361,071
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	289,321	312,014	326,660	343,346	361,071
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(212,606)	(229,265)	(240,028)	(252,279)	(265,319)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.52%	26.52%	26.52%	26.52%	26.52%

Appendix 1e
Base Scenario with 27% MCT
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	469,648	502,881	538,527	576,737
Comprehensive	69,497	99,940	105,465	111,606	118,143	124,991
Property Damage	48,647	46,844	48,480	50,174	51,939	53,774
Public Liability - BI	4,680	5,025	5,162	5,243	5,333	5,400
PIPP	187,022	174,815	198,431	211,633	220,359	221,390
Total	726,240	765,440	827,186	881,536	934,300	982,292
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	3,793	5,455	6,409	6,077
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	3,578	(4,675)	4,196	8,020
Total Net Claims Incurred	767,240	786,142	886,928	937,237	1,002,443	1,056,598

Appendix 1f
Base Scenario with 27% MCT
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	78.78%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	78.09%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	78.69%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	79.78%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.20%	8.21%	8.16%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.74%	2.72%
	Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.73%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	410,710	423,738	444,042	468,415
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,896	15,438	16,025
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	75,571	77,968	81,704	86,188
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	16,113	22,064	19,174	12,521
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	14,624	9,949	14,145	22,165
	Change	2,363	(21,009)	3,578	(4,675)	4,196	8,020
18.	Premium Deficiency [c]	8,845	-	-	-	-	-
	Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 1g
Base Scenario with 27% MCT
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	53	0	(0)	(2)
Marketable Bonds	44,346	55,326	63,149	69,269	74,562
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	79,741	85,214	89,121	92,253
Dividend and other Income					
Canadian Equities	9,646	5,845	4,556	5,313	6,131
Global	4,213	6,010	4,886	5,620	6,409
Global LV	-	2,888	3,228	3,725	4,255
Private Debt	-	3,853	10,278	10,262	10,249
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,658	26,643	28,621	30,674
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	(33,881)	(8,968)	(900)	(2,836)
Marketable Bonds Realized Gains/(Loss)	13,622	13,774	(442)	1,198	822
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	2,837	0	0	0
Global Equities Realized Gains	66,310	3,816	0	0	1,945
Global LV Realized Gains	-	459	-	-	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	(2,947)	1,070	11,389	11,667
Other					
Investment Fees Paid	(5,201)	(4,728)	(4,575)	(4,859)	(5,117)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	5,248	6,712	7,049	7,044
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(13,352)	(12,176)	(12,567)	(13,280)
Total Corporate Investment Income	197,519	84,351	99,648	116,597	121,133
Total Basic Investment Income	169,377	62,372	77,136	90,068	91,242
% - Basic to Total Investment Income	85.75%	74%	77%	77%	75%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	6,926	4,821	5,622	6,842
US Equities Unrealized Gains/(Losses)	7,529	9,368	7,292	8,387	9,564
Global LV Unrealized Gains/(Losses)	-	4,203	4,408	5,086	5,809
Total Corporate Unrealized Gains/(Losses)	19,628	16,294	12,112	14,009	16,406
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,718.2	1,859.4	2,001.4	2,154.5
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	128.7	147.9	172.3	196.9
Global Equities	166.7	168.0	190.8	219.4	229.6
Global LV Equities	96.6	115.0	130.8	150.9	170.6
Private Debt	-	188.0	186.9	186.9	186.8
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,061.6	3,224.1	3,406.3	3,583.9
Total Basic Assets	2,385.6	2,475.2	2,570.4	2,680.9	2,789.2
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	56.1%	57.7%	58.8%	60.1%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.2%	4.6%	5.1%	5.5%
US Equities	5.7%	5.5%	5.9%	6.4%	6.4%
Global LV	3.3%	3.8%	4.1%	4.4%	4.8%
Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 2a
Combined Scenario with 27% MCT before Management Action
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,169	29,040	31,088
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,530	1,221,745	1,271,681
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,335	1,012,296	1,000,298	1,058,398
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,292	1,024,686	1,004,523	1,064,433
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,109	147,485
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,083	13,354
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,260	1,177,243	1,162,715	1,225,272
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,388	83,268
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,372	167,469	173,713
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,015)	(164,085)	(108,438)	(127,304)
Investment Income	48,476	101,645	111,731	192,404	73,816	71,741	76,191	76,897
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	37,888	39,403	304	(2,137)
Net Investment Income	(4,038)	82,897	116,320	169,377	111,704	111,144	76,495	74,760
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(100,311)	(52,941)	(31,943)	(52,544)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	196,930	27,013	(3,920)	(8,172)

Appendix 2b
Combined Scenario with 27% MCT before Management Action
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	172,495	75,802	30,094	11,281
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(100,311)	(52,941)	(31,943)	(52,544)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,596)	3,618	7,232	13,130	24,389
Total Retained Earnings	194,498	99,251	170,975	172,495	75,802	30,094	11,281	(16,874)
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,603)	(51,920)	(45,402)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,492)	2,684	6,518	7,085
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,402)	(38,317)
Total Equity Balance	231,002	181,000	210,845	120,384	21,199	(21,826)	(34,121)	(55,191)
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	172,495	75,802	30,094	11,281	(16,874)
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,402)	(38,317)
Total Rate Stabilization Reserve	231,002	181,000	210,845	120,384	21,199	(21,826)	(34,121)	(55,191)
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	120,384	21,199	(21,826)	(34,121)	(55,191)

Appendix 2c
Combined Scenario with 27% MCT before Management Action
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	25,634	6,841	2,556	-
Equity investments	2,083,349	2,189,534	2,272,545	2,342,905	2,442,261	2,564,017	2,655,165	2,741,931
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	-	2,326	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,107	63,126
	2,683,473	2,805,484	2,916,137	2,892,147	2,988,996	3,116,529	3,222,183	3,325,091
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,708	2,104,598	2,178,541	2,257,733
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,798	3,138,355	3,256,304	3,380,283
Equity								
Retained earnings	194,499	99,251	170,975	172,495	75,802	30,094	11,281	(16,874)
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,402)	(38,317)
Total Equity	231,003	181,000	210,845	120,384	21,199	(21,826)	(34,121)	(55,191)
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,892,147	2,988,996	3,116,529	3,222,183	3,325,091

Appendix 2d
Combined Scenario with 27% MCT before Management Action
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	76,729	(25,919)	(80,954)	(95,228)	(118,318)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	76,729	(25,919)	(80,954)	(95,228)	(118,318)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	102,740	106,660	111,936
Unpaid claims	22	191,890	208,689	221,679	229,774	237,882
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	324,419	336,434	349,818
Market Risk:						
Interest rate risk	30	1,663	3,213	2,705	12,029	14,856
Foreign exchange risk	32	13,055	13,613	13,271	12,988	13,484
Equity risk	34	56,386	60,991	58,553	55,844	59,606
Real estate risk	36	23,110	23,851	24,369	25,109	26,407
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	94,214	101,668	98,898	105,970	114,353
Credit Risk:						
Counterparty default risk for balance sheet assets	40	38,826	54,231	56,568	58,639	60,017
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	38,826	54,231	56,568	58,639	60,017
Operational risk margin	50	62,590	67,421	69,984	72,952	76,141
Less: Diversification credit	52	48,196	54,977	55,794	58,704	61,830
Total Capital (Margin) Required at Target	59	433,983	475,660	494,075	515,291	538,499
Minimum Capital (Margin) Required (line 59 / 1.5)	60	289,322	317,107	329,383	343,527	359,000
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	289,322	317,107	329,383	343,527	359,000
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(212,593)	(343,026)	(410,337)	(438,755)	(477,318)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.52%	-8.17%	-24.58%	-27.72%	-32.96%

Appendix 2e
Combined Scenario with 27% MCT before Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,509	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,332	5,385
PIPP	187,022	174,815	274,358	279,057	228,579	227,837
Total	726,240	765,440	947,414	953,595	942,507	988,764
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,302	6,353	6,337
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	1,868	(1,874)	9,123
Total Net Claims Incurred	767,240	786,142	1,036,292	1,024,686	1,004,523	1,064,433

Appendix 2f
Combined Scenario with 27% MCT before Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	75.30%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9645	0.9751	1.0083	1.0201	1.0146				
	2021					0.9842	1.0172	1.0285	1.0224	1.0155			
	2022						1.0219	1.0338	1.0282	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				78.45%	72.73%	73.86%	80.68%	76.41%			76.24%	81.65%
	2021					73.41%	74.51%	81.34%	76.99%	75.66%		75.72%	81.20%
	2022						74.86%	81.76%	77.42%	76.12%	76.65%	76.73%	82.35%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.24%	8.27%	8.21%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.76%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	443,068	458,203	483,494
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,927	15,519	16,121
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,525	84,309	88,963
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	(854)	2,326	(5,429)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	32,013	30,993	34,687
	Change	2,363	(21,009)	19,691	1,276	(1,020)	3,694
18.	Premium Deficiency [c]	8,845	-	262	854	-	5,429
	Change	2,001	(8,845)	262	592	(854)	5,429

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 2g
Combined Scenario with 27% MCT before Management Action
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	58	3	0	(3)
Marketable Bonds	44,346	53,591	57,390	60,818	64,314
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,011	79,458	80,669	82,004
Dividend and other Income					
Canadian Equities	9,646	5,891	4,574	4,850	5,375
Global	4,213	6,011	4,657	4,894	5,400
Global LV	-	2,895	2,903	3,067	3,383
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,604	25,835	26,534	27,823
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	19,721	29,268	(5,537)	(1,581)
Marketable Bonds Realized Gains/(Loss)	13,622	21,634	12,698	5,862	(674)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,676)	(4,339)	88	0
Global Equities Realized Gains	66,310	(634)	(6,516)	111	0
Global LV Realized Gains	-	(99)	(4,086)	76	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	47,995	37,506	11,691	9,480
Other					
Investment Fees Paid	(5,201)	(4,744)	(4,547)	(4,721)	(4,905)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,478	(732)	(1,528)	(1,862)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,138)	(19,592)	(21,006)	(21,974)
Total Corporate Investment Income	197,519	131,472	127,932	97,923	97,146
Total Basic Investment Income	169,377	111,704	111,144	76,495	74,760
% - Basic to Total Investment Income	85.75%	85%	87%	78%	77%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,858)	5,132	5,999
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,714)	7,304	8,059
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,291)	4,187	4,619
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,572)	12,436	14,057
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,879.8	2,042.7	2,169.0
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.7	145.3	153.5	171.9
Global Equities	166.7	171.9	177.0	187.3	208.4
Global LV Equities	96.6	111.1	115.8	121.6	135.5
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.9	3,219.7	3,373.9	3,523.6
Total Basic Assets	2,385.6	2,481.4	2,584.4	2,671.5	2,757.2
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.7%	58.4%	60.5%	61.6%
MUSH	19.5%	17.1%	14.8%	12.8%	11.0%
Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.9%
US Equities	5.7%	5.6%	5.5%	5.6%	5.9%
Global LV	3.3%	3.6%	3.6%	3.6%	3.8%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 2h
Combined Scenario with 27% MCT after Management Action
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,593	29,504	31,595
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,186,042	1,245,194	1,296,108
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,335	1,002,333	1,000,082	1,057,974
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,292	1,014,723	1,004,307	1,064,009
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,067	147,443
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,079	13,349
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,260	1,167,280	1,162,453	1,224,801
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,367	83,247
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	161,045	168,882	175,184
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,015)	(142,283)	(86,141)	(103,877)
Investment Income	48,476	101,645	111,731	192,404	73,797	71,751	76,241	78,013
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	37,884	39,399	302	(2,139)
Net Investment Income	(4,038)	82,897	116,320	169,377	111,681	111,150	76,543	75,874
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(100,334)	(31,133)	(9,598)	(28,003)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	196,927	27,009	(3,922)	(8,173)

Appendix 2i
Combined Scenario with 27% MCT after Management Action
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	171,873	75,157	51,257	54,789
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(100,334)	(31,133)	(9,598)	(28,003)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(143,217)	3,618	7,232	13,130	24,389
Total Retained Earnings	194,498	99,251	170,975	171,873	75,157	51,257	54,789	51,175
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,599)	(51,920)	(45,336)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,488)	2,680	6,584	6,198
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,599)	(51,920)	(45,336)	(39,138)
Total Equity Balance	231,002	181,000	210,845	119,762	20,558	(663)	9,453	12,036
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	171,873	75,157	51,257	54,789	51,175
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,599)	(51,920)	(45,336)	(39,138)
Total Rate Stabilization Reserve	231,002	181,000	210,845	119,762	20,558	(663)	9,453	12,036
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	119,762	20,558	(663)	9,453	12,036

Appendix 2j
Combined Scenario with 27% MCT after Management Action
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	25,632	20,485	35,129	51,158
Equity investments	2,083,349	2,189,534	2,272,545	2,342,283	2,441,623	2,565,361	2,659,927	2,751,499
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	9,763	13,139	5,895
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,109	63,129
	2,683,473	2,805,484	2,916,137	2,891,525	2,988,356	3,147,248	3,276,541	3,398,176
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,708	2,103,748	2,178,498	2,252,321
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,798	3,147,911	3,267,089	3,386,139
Equity								
Retained earnings	194,499	99,251	170,975	171,873	75,157	51,257	54,789	51,175
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,599)	(51,920)	(45,336)	(39,138)
Total Equity	231,003	181,000	210,845	119,762	20,558	(663)	9,453	12,036
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,891,525	2,988,356	3,147,248	3,276,541	3,398,176

Appendix 2k
Combined Scenario with 27% MCT after Management Action
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	76,107	(26,559)	(59,791)	(51,656)	(51,092)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	76,107	(26,559)	(59,791)	(51,656)	(51,092)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	104,527	108,684	113,029
Unpaid claims	22	191,890	208,689	221,680	229,770	237,884
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	326,207	338,454	350,913
Market Risk:						
Interest rate risk	30	1,696	3,180	2,997	12,406	17,783
Foreign exchange risk	32	13,043	13,599	13,265	13,048	13,117
Equity risk	34	56,330	60,927	58,541	56,217	56,338
Real estate risk	36	23,098	23,838	24,355	25,094	26,392
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	94,167	101,544	99,158	106,765	113,630
Credit Risk:						
Counterparty default risk for balance sheet assets	40	38,824	54,211	57,839	60,046	60,979
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	38,824	54,211	57,839	60,046	60,979
Operational risk margin	50	62,586	67,409	70,829	73,896	76,863
Less: Diversification credit	52	48,184	54,943	56,270	59,356	61,948
Total Capital (Margin) Required at Target	59	433,942	475,538	497,763	519,805	540,437
Minimum Capital (Margin) Required (line 59 / 1.5)	60	289,294	317,025	331,842	346,537	360,291
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	289,294	317,025	331,842	346,537	360,291
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,187)	(343,584)	(391,633)	(398,193)	(411,383)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.31%	-8.38%	-18.02%	-14.91%	-14.18%

Appendix 2I
Combined Scenario with 27% MCT after Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,509	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,332	5,385
PIPP	187,022	174,815	274,358	279,061	228,539	227,888
Total	726,240	765,440	947,414	953,598	942,467	988,815
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,302	6,346	6,345
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	(8,099)	(2,043)	8,639
Total Net Claims Incurred	767,240	786,142	1,036,292	1,014,723	1,004,307	1,064,009

Appendix 2m
Combined Scenario with 27% MCT after Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	74.52%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9456	0.9560	0.9885	1.0002	1.0053				
	2021					0.9656	0.9979	1.0091	1.0136	1.0155			
	2022						1.0026	1.0143	1.0194	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				76.91%	71.31%	72.41%	79.10%	74.91%			74.75%	80.05%
	2021					72.02%	73.10%	79.80%	75.53%	74.23%		74.29%	79.66%
	2022						73.44%	80.21%	75.96%	74.68%	75.20%	75.28%	80.80%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.15%	8.11%	8.05%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.70%	2.68%
	Selected					3.16%	2.99%	2.88%	2.74%	2.71%	2.69%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	442,715	458,161	483,452
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	15,135	15,583	16,116
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,459	84,302	88,955
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	9,763	13,139	5,895
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	22,901	20,857	29,496
	Change	2,363	(21,009)	19,691	(7,836)	(2,043)	8,639
18.	Premium Deficiency [c]	8,845	-	262	-	-	-
	Change	2,001	(8,845)	262	(262)	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 2n
Combined Scenario with 27% MCT after Management Action
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	58	3	0	(3)
Marketable Bonds	44,346	53,591	57,454	61,065	64,855
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,010	79,522	80,916	82,545
Dividend and other Income					
Canadian Equities	9,646	5,892	4,603	4,986	5,648
Global	4,213	6,011	4,682	5,014	5,642
Global LV	-	2,895	2,922	3,156	3,562
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,605	25,908	26,879	28,518
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	19,767	29,339	(5,174)	(1,592)
Marketable Bonds Realized Gains/(Loss)	13,622	21,587	12,628	5,500	(693)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,678)	(4,338)	83	618
Global Equities Realized Gains	66,310	(634)	(6,515)	105	341
Global LV Realized Gains	-	(99)	(4,086)	71	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	47,993	37,508	11,675	10,410
Other					
Investment Fees Paid	(5,201)	(4,744)	(4,555)	(4,753)	(4,973)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,478	(741)	(1,568)	(1,948)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,138)	(19,609)	(21,078)	(22,128)
Total Corporate Investment Income	197,519	131,470	128,054	98,426	99,158
Total Basic Investment Income	169,377	111,681	111,150	76,543	75,874
% - Basic to Total Investment Income	85.75%	85%	87%	78%	77%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,858)	5,275	6,303
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,714)	7,483	8,420
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,291)	4,309	4,864
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,572)	12,758	14,724
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,886.7	2,060.0	2,211.1
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.7	147.5	160.1	174.6
Global Equities	166.7	171.9	179.4	194.4	215.9
Global LV Equities	96.6	111.1	117.7	127.0	144.4
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.9	3,233.1	3,410.2	3,584.8
Total Basic Assets	2,385.0	2,480.8	2,599.4	2,708.8	2,817.9
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.7%	58.4%	60.4%	61.7%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.6%	4.6%	4.7%	4.9%
US Equities	5.7%	5.6%	5.5%	5.7%	6.0%
Global LV	3.3%	3.6%	3.6%	3.7%	4.0%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 2o
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,593	29,504	31,595
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,186,042	1,245,194	1,296,108
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,335	1,002,333	1,000,082	1,057,929
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,292	1,014,723	1,004,307	1,063,964
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,067	147,443
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,079	13,349
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,260	1,167,280	1,162,453	1,224,756
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,367	83,247
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	161,045	168,882	175,184
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,015)	(142,283)	(86,141)	(103,832)
Investment Income	48,476	101,645	111,731	192,404	73,816	71,766	76,262	77,088
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	37,888	39,402	302	(2,150)
Net Investment Income	(4,038)	82,897	116,320	169,377	111,704	111,168	76,565	74,939
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(100,311)	(31,115)	(9,576)	(28,893)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	196,930	27,012	(3,922)	(8,184)

Appendix 2p
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	172,495	75,802	51,920	55,473
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(100,311)	(31,115)	(9,576)	(28,893)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,596)	3,618	7,232	13,130	24,389
Total Retained Earnings	194,498	99,251	170,975	172,495	75,802	51,920	55,473	50,968
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,603)	(51,920)	(45,326)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,492)	2,684	6,594	7,167
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,326)	(38,158)
Total Equity Balance	231,002	181,000	210,845	120,384	21,199	0	10,147	12,810
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	172,495	75,802	51,920	55,473	50,968
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,326)	(38,158)
Total Rate Stabilization Reserve	231,002	181,000	210,845	120,384	21,199	0	10,147	12,810
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	120,384	21,199	0	10,147	12,810

Appendix 2q
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	25,634	20,480	35,124	51,151
Equity investments	2,083,349	2,189,534	2,272,545	2,342,905	2,442,261	2,566,030	2,660,627	2,752,234
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	9,763	13,139	5,898
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,109	63,129
	2,683,473	2,805,484	2,916,137	2,892,147	2,988,996	3,147,911	3,277,236	3,398,906
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,708	2,103,748	2,178,498	2,252,277
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,798	3,147,911	3,267,089	3,386,096
Equity								
Retained earnings	194,499	99,251	170,975	172,495	75,802	51,920	55,473	50,968
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,603)	(51,920)	(45,326)	(38,158)
Total Equity	231,003	181,000	210,845	120,384	21,199	0	10,147	12,810
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,892,147	2,988,996	3,147,911	3,277,236	3,398,906

Appendix 2r
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	76,729	(25,919)	(59,129)	(50,962)	(50,318)
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	76,729	(25,919)	(59,129)	(50,962)	(50,318)
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	104,527	108,684	113,029
Unpaid claims	22	191,890	208,689	221,680	229,770	237,879
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	326,207	338,454	350,908
Market Risk:						
Interest rate risk	30	1,663	3,213	3,031	12,442	16,384
Foreign exchange risk	32	13,055	13,613	13,279	13,063	13,572
Equity risk	34	56,386	60,991	58,608	56,290	60,084
Real estate risk	36	23,110	23,851	24,369	25,109	26,407
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	94,214	101,668	99,287	106,904	116,447
Credit Risk:						
Counterparty default risk for balance sheet assets	40	38,826	54,231	57,859	60,066	60,999
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	38,826	54,231	57,859	60,066	60,999
Operational risk margin	50	62,590	67,421	70,842	73,909	77,104
Less: Diversification credit	52	48,196	54,977	56,307	59,395	62,639
Total Capital (Margin) Required at Target	59	433,983	475,660	497,888	519,938	542,819
Minimum Capital (Margin) Required (line 59 / 1.5)	60	289,322	317,107	331,925	346,626	361,880
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	289,322	317,107	331,925	346,626	361,880
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(212,593)	(343,026)	(391,054)	(397,588)	(412,198)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.52%	-8.17%	-17.81%	-14.70%	-13.90%

Appendix 2s

Combined Scenario with 27% MCT after Management Action - Minimum Total Equity

Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,509	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,332	5,385
PIPP	187,022	174,815	274,358	279,061	228,539	227,851
Total	726,240	765,440	947,414	953,598	942,467	988,778
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,302	6,346	6,339
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	(8,099)	(2,043)	8,637
Total Net Claims Incurred	767,240	786,142	1,036,292	1,014,723	1,004,307	1,063,963

Appendix 2t
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	74.52%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9456	0.9560	0.9885	1.0002	1.0053				
	2021					0.9656	0.9979	1.0091	1.0136	1.0155			
	2022						1.0026	1.0143	1.0194	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				76.91%	71.31%	72.41%	79.10%	74.91%			74.75%	80.05%
	2021					72.02%	73.10%	79.80%	75.53%	74.23%		74.29%	79.66%
	2022						73.44%	80.21%	75.96%	74.68%	75.20%	75.28%	80.79%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.15%	8.11%	8.05%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.70%	2.68%
	Selected					3.16%	2.99%	2.88%	2.74%	2.71%	2.69%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	442,715	458,161	483,450
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	15,135	15,583	16,116
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,459	84,302	88,955
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	9,763	13,139	5,898
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	22,901	20,857	29,494
	Change	2,363	(21,009)	19,691	(7,836)	(2,043)	8,637
18.	Premium Deficiency [c]	8,845	-	262	-	-	-
	Change	2,001	(8,845)	262	(262)	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 2u
Combined Scenario with 27% MCT after Management Action - Minimum Total Equity
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	58	3	0	(3)
Marketable Bonds	44,346	53,591	57,454	61,064	64,854
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,011	79,522	80,916	82,545
Dividend and other Income					
Canadian Equities	9,646	5,891	4,603	4,986	5,648
Global	4,213	6,011	4,683	5,015	5,643
Global LV	-	2,895	2,922	3,156	3,563
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,604	25,908	26,880	28,519
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	19,721	29,335	(5,177)	(1,592)
Marketable Bonds Realized Gains/(Loss)	13,622	21,634	12,632	5,503	(693)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,676)	(4,339)	83	0
Global Equities Realized Gains	66,310	(634)	(6,516)	105	0
Global LV Realized Gains	-	(99)	(4,086)	71	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	47,995	37,506	11,675	9,452
Other					
Investment Fees Paid	(5,201)	(4,744)	(4,554)	(4,754)	(4,974)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,478	(740)	(1,568)	(1,948)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,138)	(19,607)	(21,079)	(22,129)
Total Corporate Investment Income	197,519	131,472	128,053	98,425	98,199
Total Basic Investment Income	169,377	111,704	111,168	76,565	74,939
% - Basic to Total Investment Income	85.75%	85%	87%	78%	76%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,858)	5,275	6,304
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,714)	7,484	8,421
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,291)	4,310	4,864
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,572)	12,759	14,725
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,886.7	2,060.0	2,198.8
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.7	147.5	160.1	182.7
Global Equities	166.7	171.9	179.4	194.4	220.0
Global LV Equities	96.6	111.1	117.7	127.0	144.4
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.9	3,233.1	3,410.2	3,584.8
Total Basic Assets	2,385.6	2,481.4	2,600.1	2,709.5	2,818.6
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.7%	58.4%	60.4%	61.3%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.6%	4.6%	4.7%	5.1%
US Equities	5.7%	5.6%	5.5%	5.7%	6.1%
Global LV	3.3%	3.6%	3.6%	3.7%	4.0%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3a
Base Scenario with 69% MCT
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,166	29,036	31,083
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,526	1,221,741	1,271,677
Net Claims Incurred	742,604	869,023	783,040	824,008	899,721	937,490	995,156	1,051,174
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(37,865)	(12,794)	(252)	7,286	5,421
Total Claims Incurred	666,404	860,035	767,239	786,143	886,927	937,238	1,002,442	1,056,595
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,019	144,093	146,543
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,798	12,979	13,255
Total Claims Costs	798,045	993,537	923,722	936,917	1,034,895	1,089,055	1,159,514	1,216,393
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,216	79,880	82,788
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,038	166,959	173,233
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(62,650)	(75,567)	(104,733)	(117,949)
Investment Income	48,476	101,645	111,731	192,404	85,943	90,826	95,109	98,608
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	(19,091)	(8,872)	288	(1,883)
Net Investment Income	(4,038)	82,897	116,320	169,377	66,852	81,954	95,397	96,726
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	4,202	6,387	(9,336)	(21,223)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,839	(6,297)	(8,620)	(6,999)	(7,304)

Appendix 3b
Base Scenario with 69% MCT
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	302,865	317,820	331,573	335,860
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	4,202	6,387	(9,336)	(21,223)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(12,225)	10,753	7,366	13,623	25,182
Total Retained Earnings	194,498	99,251	170,975	302,865	317,820	331,573	335,860	339,818
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,340)	(35,337)	(25,388)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,771	9,003	9,949	11,246
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,340)	(35,337)	(25,388)	(14,143)
Total Equity Balance	231,002	181,000	210,845	250,754	273,480	296,236	310,471	325,675
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	302,865	317,820	331,573	335,860	339,818
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,340)	(35,337)	(25,388)	(14,143)
Total Rate Stabilization Reserve	231,002	181,000	210,845	250,754	273,480	296,236	310,471	325,675
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	250,754	273,480	296,236	310,471	325,675

Appendix 3c
Base Scenario with 69% MCT
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,821	62,136	64,758	67,772	68,309
Equity investments	2,083,349	2,189,534	2,272,545	2,473,275	2,543,147	2,642,506	2,757,533	2,872,350
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	16,113	22,064	19,174	12,521
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,176	61,194	63,228
	2,683,473	2,805,484	2,916,137	3,022,517	3,142,497	3,275,046	3,406,701	3,536,443
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,172	372,682	388,921	405,320
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,878,749	1,946,282	2,019,398	2,089,010
	2,452,472	2,624,484	2,705,292	2,771,763	2,869,017	2,978,811	3,096,230	3,210,768
Equity								
Retained earnings	194,499	99,251	170,975	302,865	317,820	331,573	335,860	339,818
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,340)	(35,337)	(25,388)	(14,143)
Total Equity	231,003	181,000	210,845	250,754	273,480	296,236	310,471	325,675
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,022,517	3,142,497	3,275,046	3,406,701	3,536,443

Appendix 3d
Base Scenario with 69% MCT
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	207,099	226,363	237,060	249,277	262,447
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	207,099	226,363	237,060	249,277	262,447
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	110,921
Unpaid claims	22	191,890	198,315	205,744	213,771	221,492
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	296,894	308,325	320,431	332,413
Market Risk:						
Interest rate risk	30	5,120	20,747	24,603	28,487	32,431
Foreign exchange risk	32	15,401	15,016	16,001	17,486	20,329
Equity risk	34	68,119	66,037	70,481	77,733	85,529
Real estate risk	36	25,718	26,617	27,301	28,217	29,702
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,358	128,417	138,386	151,923	167,991
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,308	60,228	62,378	63,847	64,913
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,308	60,228	62,378	63,847	64,913
Operational risk margin	50	64,343	69,319	72,467	75,940	79,637
Less: Diversification credit	52	53,231	61,581	64,937	68,898	73,216
Total Capital (Margin) Required at Target	59	451,327	493,277	516,619	543,243	571,738
Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,885	328,852	344,413	362,162	381,159
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	300,885	328,852	344,413	362,162	381,159
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(93,786)	(102,489)	(107,353)	(112,885)	(118,712)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.83%	68.83%	68.83%	68.83%	68.86%

Appendix 3e
Base Scenario with 69% MCT
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	469,648	502,881	538,527	576,737
Comprehensive	69,497	99,940	105,465	111,606	118,143	124,991
Property Damage	48,647	46,844	48,480	50,174	51,939	53,774
Public Liability - BI	4,680	5,025	5,162	5,243	5,333	5,400
PIPP	187,022	174,815	198,430	211,633	220,359	221,387
Total	726,240	765,440	827,185	881,537	934,300	982,288
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	3,792	5,455	6,409	6,077
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	3,578	(4,675)	4,196	8,020
Total Net Claims Incurred	767,240	786,142	886,927	937,238	1,002,443	1,056,594

Appendix 3f
Base Scenario with 69% MCT
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	78.78%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	78.09%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	78.69%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	79.78%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.20%	8.21%	8.16%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.74%	2.72%
	Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.73%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	410,710	423,738	444,042	468,415
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,896	15,438	16,025
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	75,571	77,968	81,704	86,188
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	16,113	22,064	19,174	12,521
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	14,624	9,949	14,145	22,165
	Change	2,363	(21,009)	3,578	(4,675)	4,196	8,020
18.	Premium Deficiency [c]	8,845	-	-	-	-	-
	Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 3g
Base Scenario with 69% MCT
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	89	0	(0)	0
Marketable Bonds	44,346	55,415	63,167	69,331	75,162
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	79,865	85,232	89,182	92,855
Dividend and other Income					
Canadian Equities	9,646	5,693	4,546	5,285	5,884
Global	4,213	5,968	4,877	5,595	6,117
Global LV	-	2,886	3,218	3,702	4,139
Private Debt	-	3,853	10,278	10,262	10,249
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,462	26,614	28,545	30,020
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	(45,121)	(8,969)	(901)	(2,884)
Marketable Bonds Realized Gains/(Loss)	13,622	24,996	(442)	1,199	810
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	2,665	0	0	823
Global Equities Realized Gains	66,310	3,754	0	0	968
Global LV Realized Gains	-	459	-	-	999
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	(3,199)	1,069	11,389	12,452
Other					
Investment Fees Paid	(5,201)	(4,715)	(4,574)	(4,852)	(5,075)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	5,258	6,714	7,058	7,124
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(13,329)	(12,173)	(12,551)	(13,158)
Total Corporate Investment Income	197,519	84,050	99,640	116,598	121,988
Total Basic Investment Income	169,377	66,852	81,954	95,397	96,726
% - Basic to Total Investment Income	85.75%	80%	82%	82%	79%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	6,746	4,810	5,592	6,566
US Equities Unrealized Gains/(Losses)	7,529	9,304	7,278	8,350	9,129
Global LV Unrealized Gains/(Losses)	-	4,200	4,394	5,055	5,652
Total Corporate Unrealized Gains/(Losses)	19,628	16,050	12,088	13,942	15,695
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,718.3	1,861.0	2,004.6	2,151.8
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	128.6	147.3	171.1	191.4
Global Equities	166.7	167.9	190.1	218.1	242.9
Global LV Equities	96.6	114.8	130.2	149.7	163.9
Private Debt	-	188.0	186.9	186.9	186.8
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,061.2	3,223.8	3,405.8	3,582.3
Total Basic Assets	2,516.0	2,618.8	2,720.8	2,839.1	2,955.9
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	56.1%	57.7%	58.9%	60.1%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.3%
US Equities	5.7%	5.5%	5.9%	6.4%	6.8%
Global LV	3.3%	3.7%	4.0%	4.4%	4.6%
Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 4a
Combined Scenario with 69% MCT before Management Action
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,169	29,040	31,088
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,530	1,221,745	1,271,681
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,334	1,012,342	1,000,392	1,058,307
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,291	1,024,732	1,004,616	1,064,342
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,109	147,485
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,083	13,354
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,259	1,177,289	1,162,808	1,225,181
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,388	83,268
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,372	167,469	173,713
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,014)	(164,131)	(108,531)	(127,212)
Investment Income	48,476	101,645	111,731	192,404	77,808	74,664	81,651	81,335
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,644	39,926	324	(2,174)
Net Investment Income	(4,038)	82,897	116,320	169,377	116,451	114,590	81,975	79,160
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(95,562)	(49,541)	(26,556)	(48,052)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,686	27,536	(3,900)	(8,209)

Appendix 4b
Combined Scenario with 69% MCT before Management Action
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	299,589	214,574	172,406	159,475
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(95,562)	(49,541)	(26,556)	(48,052)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(15,502)	10,548	7,373	13,625	25,152
Total Retained Earnings	194,498	99,251	170,975	299,589	214,574	172,406	159,475	136,575
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,474)	(51,920)	(44,775)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,362)	3,554	7,145	8,144
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(44,775)	(36,630)
Total Equity Balance	231,002	181,000	210,845	247,478	159,101	120,487	114,701	99,945
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	299,589	214,574	172,406	159,475	136,575
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(44,775)	(36,630)
Total Rate Stabilization Reserve	231,002	181,000	210,845	247,478	159,101	120,487	114,701	99,945
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	247,478	159,101	120,487	114,701	99,945

Appendix 4c
Combined Scenario with 69% MCT before Management Action
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	32,994	17,373	13,588	10,655
Equity investments	2,083,349	2,189,534	2,272,545	2,469,999	2,572,802	2,695,841	2,793,092	2,886,458
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	-	2,320	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,107	63,126
	2,683,473	2,805,484	2,916,137	3,019,241	3,126,898	3,258,887	3,371,136	3,480,273
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,707	2,104,643	2,178,672	2,257,778
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,797	3,138,400	3,256,435	3,380,328
Equity								
Retained earnings	194,499	99,251	170,975	299,589	214,574	172,406	159,475	136,575
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(44,775)	(36,630)
Total Equity	231,003	181,000	210,845	247,478	159,101	120,487	114,701	99,945
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,019,241	3,126,898	3,258,887	3,371,136	3,480,273

Appendix 4d
Combined Scenario with 69% MCT before Management Action
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	203,823	111,983	61,358	53,594	36,819
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	203,823	111,983	61,358	53,594	36,819
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	102,740	106,660	111,937
Unpaid claims	22	191,890	208,689	221,683	229,787	237,886
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	324,423	336,447	349,823
Market Risk:						
Interest rate risk	30	4,950	10,033	10,729	23,029	23,599
Foreign exchange risk	32	15,342	16,371	15,805	14,953	15,713
Equity risk	34	67,825	73,963	69,823	61,260	72,219
Real estate risk	36	25,652	26,548	27,228	28,139	29,619
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	113,769	126,915	123,585	127,381	141,150
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,296	58,347	61,138	63,240	64,375
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,296	58,347	61,138	63,240	64,375
Operational risk margin	50	64,292	69,917	72,471	75,164	78,790
Less: Diversification credit	52	53,091	61,650	62,714	64,827	69,021
Total Capital (Margin) Required at Target	59	450,815	500,846	518,903	537,405	565,117
Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,543	333,898	345,935	358,270	376,745
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	300,543	333,898	345,935	358,270	376,745
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(96,720)	(221,915)	(284,577)	(304,676)	(339,926)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	67.82%	33.54%	17.74%	14.96%	9.77%

Appendix 4e
Combined Scenario with 69% MCT before Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,510	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,333	5,385
PIPP	187,022	174,815	274,357	279,094	228,654	227,763
Total	726,240	765,440	947,413	953,633	942,583	988,689
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,308	6,366	6,324
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	1,870	(1,870)	9,119
Total Net Claims Incurred	767,240	786,142	1,036,291	1,024,732	1,004,616	1,064,341

Appendix 4f
Combined Scenario with 69% MCT before Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	75.30%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9645	0.9751	1.0083	1.0201	1.0146				
	2021					0.9842	1.0172	1.0285	1.0224	1.0155			
	2022						1.0219	1.0338	1.0282	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				78.45%	72.73%	73.86%	80.68%	76.41%			76.24%	81.65%
	2021					73.41%	74.51%	81.34%	76.99%	75.66%		75.72%	81.20%
	2022						74.86%	81.76%	77.42%	76.12%	76.65%	76.73%	82.35%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.24%	8.27%	8.21%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.76%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	443,070	458,208	483,496
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,927	15,519	16,121
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,525	84,310	88,963
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	(856)	2,320	(5,431)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	32,013	30,999	34,687
	Change	2,363	(21,009)	19,691	1,276	(1,014)	3,687
18.	Premium Deficiency [c]	8,845	-	262	856	-	5,431
	Change	2,001	(8,845)	262	594	(856)	5,431

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 4g
Combined Scenario with 69% MCT before Management Action
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	91	0	(0)	(1)
Marketable Bonds	44,346	53,671	57,368	60,981	64,836
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,123	79,433	80,832	82,529
Dividend and other Income					
Canadian Equities	9,646	5,746	4,536	4,704	4,884
Global	4,213	5,975	4,738	4,905	5,188
Global LV	-	2,894	2,874	2,966	3,265
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,422	25,849	26,298	27,002
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	9,758	28,817	(6,517)	(4,759)
Marketable Bonds Realized Gains/(Loss)	13,622	31,597	13,100	6,843	2,508
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,375)	(4,637)	709	0
Global Equities Realized Gains	66,310	(606)	(6,625)	453	0
Global LV Realized Gains	-	(99)	(4,081)	76	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	48,323	37,053	12,654	9,485
Other					
Investment Fees Paid	(5,201)	(4,734)	(4,559)	(4,722)	(4,839)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,476	(724)	(1,525)	(1,968)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,130)	(19,596)	(21,004)	(22,014)
Total Corporate Investment Income	197,519	131,738	127,464	98,816	96,814
Total Basic Investment Income	169,377	116,451	114,590	81,975	79,160
% - Basic to Total Investment Income	85.75%	88%	90%	83%	82%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,855)	4,977	5,451
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,796)	7,321	7,742
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,286)	4,049	4,457
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,651)	12,297	13,193
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,698.2	1,883.6	2,070.2	2,175.8
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.6	141.2	134.0	173.3
Global Equities	166.7	175.7	177.6	180.0	200.1
Global LV Equities	96.6	110.9	112.3	117.4	130.6
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.8	3,216.6	3,370.4	3,518.7
Total Basic Assets	2,512.7	2,619.3	2,726.8	2,820.4	2,912.4
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.6%	58.6%	61.4%	61.8%
MUSH	19.5%	17.1%	14.8%	12.8%	11.0%
Canadian Equities	4.2%	4.6%	4.4%	4.0%	4.9%
US Equities	5.7%	5.7%	5.5%	5.3%	5.7%
Global LV	3.3%	3.6%	3.5%	3.5%	3.7%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 4h
Combined Scenario with 69% MCT after Management Action
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,593	29,504	31,595
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,186,042	1,245,194	1,296,108
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,334	1,002,380	1,000,082	1,057,973
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,291	1,014,770	1,004,307	1,064,008
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,067	147,443
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,079	13,349
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,259	1,167,327	1,162,453	1,224,800
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,367	83,247
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	161,045	168,882	175,184
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,014)	(142,330)	(86,141)	(103,876)
Investment Income	48,476	101,645	111,731	192,404	77,808	74,689	80,776	81,745
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,644	39,925	305	(2,184)
Net Investment Income	(4,038)	82,897	116,320	169,377	116,451	114,613	81,081	79,561
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(95,562)	(27,716)	(5,060)	(24,315)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,686	27,534	(3,920)	(8,219)

Appendix 4i
Combined Scenario with 69% MCT after Management Action
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	299,589	214,574	194,231	202,797
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(95,562)	(27,716)	(5,060)	(24,315)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(15,502)	10,548	7,373	13,625	25,152
Total Retained Earnings	194,498	99,251	170,975	299,589	214,574	194,231	202,797	203,634
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,474)	(51,920)	(43,735)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,362)	3,554	8,184	8,895
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(43,735)	(34,840)
Total Equity Balance	231,002	181,000	210,845	247,478	159,101	142,312	159,061	168,794
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	299,589	214,574	194,231	202,797	203,634
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(43,735)	(34,840)
Total Rate Stabilization Reserve	231,002	181,000	210,845	247,478	159,101	142,312	159,061	168,794
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	247,478	159,101	142,312	159,061	168,794

Appendix 4j
Combined Scenario with 69% MCT after Management Action
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	32,994	31,022	46,164	62,967
Equity investments	2,083,349	2,189,534	2,272,545	2,469,999	2,572,802	2,697,844	2,798,546	2,896,491
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	9,761	13,137	5,893
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,109	63,129
	2,683,473	2,805,484	2,916,137	3,019,241	3,126,898	3,290,266	3,426,193	3,554,976
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,707	2,103,791	2,178,542	2,252,363
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,797	3,147,955	3,267,132	3,386,182
Equity								
Retained earnings	194,499	99,251	170,975	299,589	214,574	194,231	202,797	203,634
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,474)	(51,920)	(43,735)	(34,840)
Total Equity	231,003	181,000	210,845	247,478	159,101	142,312	159,061	168,794
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,019,241	3,126,898	3,290,266	3,426,193	3,554,976

Appendix 4k
Combined Scenario with 69% MCT after Management Action
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	203,823	111,983	83,183	97,953	105,665
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	203,823	111,983	83,183	97,953	105,665
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	104,527	108,684	113,029
Unpaid claims	22	191,890	208,689	221,684	229,774	237,888
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	326,211	338,458	350,917
Market Risk:						
Interest rate risk	30	4,950	10,033	11,050	20,883	25,130
Foreign exchange risk	32	15,342	16,371	15,815	15,767	16,648
Equity risk	34	67,825	73,963	69,882	68,324	72,946
Real estate risk	36	25,652	26,548	27,228	28,139	29,619
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	113,769	126,915	123,975	133,113	144,343
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,296	58,347	62,429	64,668	65,628
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,296	58,347	62,429	64,668	65,628
Operational risk margin	50	64,292	69,917	73,329	76,528	79,870
Less: Diversification credit	52	53,091	61,650	63,208	66,546	70,059
Total Capital (Margin) Required at Target	59	450,815	500,846	522,736	546,221	570,699
Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,543	333,898	348,491	364,147	380,466
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	300,543	333,898	348,491	364,147	380,466
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(96,720)	(221,915)	(265,308)	(266,194)	(274,801)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	67.82%	33.54%	23.87%	26.90%	27.77%

Appendix 4I
Combined Scenario with 69% MCT after Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,510	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,332	5,385
PIPP	187,022	174,815	274,357	279,099	228,539	227,887
Total	726,240	765,440	947,413	953,637	942,467	988,815
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,309	6,346	6,345
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	(8,097)	(2,043)	8,639
Total Net Claims Incurred	767,240	786,142	1,036,291	1,014,770	1,004,307	1,064,008

Appendix 4m
Combined Scenario with 69% MCT after Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	74.52%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9456	0.9560	0.9885	1.0002	1.0053				
	2021					0.9656	0.9979	1.0091	1.0136	1.0155			
	2022						1.0026	1.0143	1.0194	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				76.91%	71.31%	72.41%	79.10%	74.91%			74.75%	80.05%
	2021					72.02%	73.10%	79.80%	75.53%	74.23%		74.29%	79.66%
	2022						73.44%	80.21%	75.96%	74.68%	75.20%	75.28%	80.80%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.15%	8.11%	8.05%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.70%	2.68%
	Selected					3.16%	2.99%	2.88%	2.74%	2.71%	2.69%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	442,716	458,163	483,454
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	15,135	15,583	16,116
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,460	84,302	88,955
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	9,761	13,137	5,893
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	22,903	20,859	29,498
	Change	2,363	(21,009)	19,691	(7,834)	(2,043)	8,639
18.	Premium Deficiency [c]	8,845	-	262	-	-	-
	Change	2,001	(8,845)	262	(262)	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 4n
Combined Scenario with 69% MCT after Management Action
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	91	0	0	(1)
Marketable Bonds	44,346	53,671	57,433	61,227	65,052
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,123	79,497	81,078	82,744
Dividend and other Income					
Canadian Equities	9,646	5,746	4,565	4,839	5,475
Global	4,213	5,975	4,764	5,026	5,641
Global LV	-	2,894	2,893	3,055	3,444
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,422	25,922	26,644	28,225
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	9,758	28,888	(6,102)	(1,596)
Marketable Bonds Realized Gains/(Loss)	13,622	31,597	13,029	6,428	(694)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,375)	(4,637)	83	0
Global Equities Realized Gains	66,310	(606)	(6,625)	105	703
Global LV Realized Gains	-	(99)	(4,081)	71	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	48,323	37,053	11,675	10,149
Other					
Investment Fees Paid	(5,201)	(4,734)	(4,566)	(4,758)	(4,972)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,476	(733)	(1,565)	(1,947)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,130)	(19,612)	(21,080)	(22,126)
Total Corporate Investment Income	197,519	131,738	127,586	98,352	98,805
Total Basic Investment Income	169,377	116,451	114,613	81,081	79,561
% - Basic to Total Investment Income	85.75%	88%	90%	82%	81%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,855)	5,120	6,110
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,796)	7,501	8,418
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,286)	4,172	4,703
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,651)	12,621	14,528
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,698.2	1,890.6	2,065.4	2,218.5
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.6	143.4	155.2	177.1
Global Equities	166.7	175.7	180.0	194.5	206.9
Global LV Equities	96.6	110.9	114.1	122.9	139.5
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.8	3,229.9	3,406.7	3,580.9
Total Basic Assets	2,512.7	2,619.3	2,742.4	2,858.5	2,974.7
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.6%	58.5%	60.6%	62.0%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.6%	4.4%	4.6%	4.9%
US Equities	5.7%	5.7%	5.6%	5.7%	5.8%
Global LV	3.3%	3.6%	3.5%	3.6%	3.9%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 4o
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,129,020	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,190,257	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,098,211	1,153,773	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,593	29,504	31,595
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,186,042	1,245,194	1,296,108
Net Claims Incurred	742,604	869,023	783,040	794,345	1,195,334	1,002,380	1,000,082	1,057,973
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,036,291	1,014,770	1,004,307	1,064,008
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,692	145,067	147,443
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,865	13,079	13,349
Total Claims Costs	798,045	993,537	923,722	936,917	1,184,259	1,167,327	1,162,453	1,224,800
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,548	80,367	83,247
Commissions	33,862	35,086	37,378	40,338	42,377	44,394	46,573	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	35,103	36,827	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	161,045	168,882	175,184
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(212,014)	(142,330)	(86,141)	(103,876)
Investment Income	48,476	101,645	111,731	192,404	77,911	74,766	80,893	81,866
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,663	39,938	305	(2,185)
Net Investment Income	(4,038)	82,897	116,320	169,377	116,574	114,704	81,198	79,681
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(95,440)	(27,626)	(4,943)	(24,195)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,706	27,548	(3,920)	(8,219)

Appendix 4p
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Statement of Changes in Equity

(C$ 000s, except where noted)

	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	302,872	217,979	197,727	206,409
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(95,440)	(27,626)	(4,943)	(24,195)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(12,219)	10,548	7,373	13,625	25,152
Total Retained Earnings	194,498	99,251	170,975	302,872	217,979	197,727	206,409	207,367
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,496)	(51,920)	(43,685)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,385)	3,576	8,235	8,950
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,496)	(51,920)	(43,685)	(34,735)
Total Equity Balance	231,002	181,000	210,845	250,761	162,483	145,807	162,724	172,632
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	302,872	217,979	197,727	206,409	207,367
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,496)	(51,920)	(43,685)	(34,735)
Total Rate Stabilization Reserve	231,002	181,000	210,845	250,761	162,483	145,807	162,724	172,632
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	250,761	162,483	145,807	162,724	172,632

Appendix 4q
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,821	33,004	31,035	46,177	62,981
Equity investments	2,083,349	2,189,534	2,272,545	2,473,281	2,576,174	2,701,327	2,802,197	2,900,316
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	389,961	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	-	9,761	13,137	5,893
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,129	61,109	63,129
	2,683,473	2,805,484	2,916,137	3,022,524	3,130,280	3,293,762	3,429,856	3,558,814
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	607,105	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,976,707	2,103,791	2,178,542	2,252,363
	2,452,472	2,624,484	2,705,292	2,771,763	2,967,797	3,147,955	3,267,132	3,386,182
Equity								
Retained earnings	194,499	99,251	170,975	302,872	217,979	197,727	206,409	207,367
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,496)	(51,920)	(43,685)	(34,735)
Total Equity	231,003	181,000	210,845	250,761	162,483	145,807	162,724	172,632
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,022,524	3,130,280	3,293,762	3,429,856	3,558,814

Appendix 4r
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	207,106	115,366	86,679	101,616	109,503
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	207,106	115,366	86,679	101,616	109,503
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,628	104,527	108,684	113,029
Unpaid claims	22	191,890	208,689	221,684	229,774	237,888
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	307,317	326,211	338,458	350,917
Market Risk:						
Interest rate risk	30	5,120	10,210	11,239	21,081	25,336
Foreign exchange risk	32	15,401	16,442	15,887	15,844	16,736
Equity risk	34	68,120	74,298	70,222	68,687	73,335
Real estate risk	36	25,718	26,617	27,301	28,217	29,702
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,359	127,567	124,649	133,829	145,109
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,308	58,454	62,539	64,779	65,739
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,308	58,454	62,539	64,779	65,739
Operational risk margin	50	64,343	69,982	73,396	76,599	79,944
Less: Diversification credit	52	53,232	61,812	63,381	66,726	70,247
Total Capital (Margin) Required at Target	59	451,327	501,508	523,414	546,939	571,462
Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,885	334,338	348,943	364,626	380,975
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	300,885	334,338	348,943	364,626	380,975
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(93,779)	(218,972)	(262,264)	(263,010)	(271,472)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.83%	34.51%	24.84%	27.87%	28.74%

Appendix 4s
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	502,295	489,510	538,731	576,791
Comprehensive	69,497	99,940	112,592	131,640	117,910	124,970
Property Damage	48,647	46,844	49,742	49,423	51,954	53,781
Public Liability - BI	4,680	5,025	8,428	3,965	5,332	5,385
PIPP	187,022	174,815	274,357	279,099	228,539	227,887
Total	726,240	765,440	947,413	953,637	942,467	988,815
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	16,554	14,309	6,346	6,345
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	19,953	(8,097)	(2,043)	8,639
Total Net Claims Incurred	767,240	786,142	1,036,291	1,014,770	1,004,307	1,064,008

Appendix 4t
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.09%	74.52%	73.10%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9529	0.9589	0.9695	1.0025	1.0143					
	2020				0.9456	0.9560	0.9885	1.0002	1.0053				
	2021					0.9656	0.9979	1.0091	1.0136	1.0155			
	2022						1.0026	1.0143	1.0194	1.0217	1.0150		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.91%	78.00%	72.31%	73.43%	80.21%				76.45%	81.43%
	2020				76.91%	71.31%	72.41%	79.10%	74.91%			74.75%	80.05%
	2021					72.02%	73.10%	79.80%	75.53%	74.23%		74.29%	79.66%
	2022						73.44%	80.21%	75.96%	74.68%	75.20%	75.28%	80.80%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,939	1,158,450	1,215,690	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.15%	8.11%	8.05%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.72%	2.70%	2.68%
	Selected					3.16%	2.99%	2.88%	2.74%	2.71%	2.69%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	558,962	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	424,540	442,716	458,163	483,454
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	15,135	15,583	16,116
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	78,115	81,460	84,302	88,955
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	(262)	9,761	13,137	5,893
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,664	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	30,737	22,903	20,859	29,498
	Change	2,363	(21,009)	19,691	(7,834)	(2,043)	8,639
18.	Premium Deficiency [c]	8,845	-	262	-	-	-
	Change	2,001	(8,845)	262	(262)	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 4u
Combined Scenario with 69% MCT after Management Action - Minimum Total Equity
Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	91	0	0	(1)
Marketable Bonds	44,346	53,673	57,430	61,226	65,052
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	78,125	79,495	81,077	82,744
Dividend and other Income					
Canadian Equities	9,646	5,743	4,565	4,839	5,474
Global	4,213	5,975	4,766	5,029	5,643
Global LV	-	2,894	2,893	3,055	3,443
Private Debt	-	3,745	10,006	10,022	10,034
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,418	25,925	26,645	28,225
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	9,454	28,890	(6,099)	(1,596)
Marketable Bonds Realized Gains/(Loss)	13,622	31,900	13,025	6,425	(694)
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	(2,368)	(4,645)	83	0
Global Equities Realized Gains	66,310	(606)	(6,628)	105	698
Global LV Realized Gains	-	(99)	(4,081)	71	0
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	48,332	37,042	11,675	10,144
Other					
Investment Fees Paid	(5,201)	(4,733)	(4,565)	(4,758)	(4,973)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,476	(733)	(1,565)	(1,947)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,129)	(19,611)	(21,080)	(22,127)
Total Corporate Investment Income	197,519	131,745	127,576	98,352	98,799
Total Basic Investment Income	169,377	116,574	114,704	81,198	79,681
% - Basic to Total Investment Income	85.75%	88%	90%	83%	81%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	(3,158)	(3,855)	5,120	6,109
US Equities Unrealized Gains/(Losses)	7,529	(3,435)	(3,798)	7,504	8,421
Global LV Unrealized Gains/(Losses)	-	(1,894)	(2,286)	4,171	4,702
Total Corporate Unrealized Gains/(Losses)	19,628	(6,593)	(7,653)	12,624	14,530
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,698.1	1,890.5	2,065.4	2,218.5
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	139.6	143.4	155.2	177.0
Global Equities	166.7	175.8	180.1	194.6	207.0
Global LV Equities	96.6	110.9	114.1	122.8	139.5
Private Debt	-	188.8	193.5	193.5	193.3
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,056.8	3,229.9	3,406.7	3,580.8
Total Basic Assets	2,516.0	2,622.7	2,745.9	2,862.1	2,978.5
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.6%	58.5%	60.6%	62.0%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.6%	4.4%	4.6%	4.9%
US Equities	5.7%	5.7%	5.6%	5.7%	5.8%
Global LV	3.3%	3.6%	3.5%	3.6%	3.9%
Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

PUB (MPI) 1-17

Part and Chapter:	**VI RSR**	**Page No.:**	**10-11**
PUB Approved Issue No:	**7.1. Update of DCAT**		
Topic:	**DCAT Modified Base Scenario**		
Sub Topic:	**Treatment of Capital Maintenance Provision (CMP)**		

Preamble to IR (If Any):

The Corporation has proposed a CMP in their 2019 GRA. However, the methodology and the proposed amount of this provision (+2.1%) have not yet been approved by the PUB. For the purposes of the DCAT analysis, MPI has assessed the satisfactory financial condition of Basic Insurance excluding the CMP. [RSR.4.5.1.1]

Question:

a) The Corporation states: *… the DCAT modeling assumption is that the maximum RSR rebuilding fee in response to an adverse event is 2.0% per year; however, this assumption would likely be eliminated (or reduced significantly) if the CMP was included in the base forecast*. Please explain.

b) The Corporation states: *… it is MPI's position that including the CMP in the calculation of the PUB's lower and upper RSR targets is not appropriate.* If a standard approach to determining a CMP is approved by the PUB, why would it not be appropriate to include a CMP in each year of the forecast period to reflect a best estimate forecast of Basic Insurance operations?

c) The Corporation states: The inclusion of the CMP, or a future capital build and release provision, should not impact the calculation of the actual RSR targets. Does the Corporation agree that the decision to include or exclude the CMP in the financial forecast used in the calculation of the lower and upper Basic Total Equity target range thresholds is of little significance when using the Board approved iterative methodology?

d) The Corporation states: The exclusion of any proposed capital adjustments in the calculation of the required RSR targets will also result in more consistent year-to-year assessments of the capital targets. Considering the Board approved iterative methodology, please explain.

Rationale for Question:

To assess the Corporation's position on excluding the CMP for DCAT purposes.

RESPONSE:

a) Under the previous approach to rate setting and capital management (i.e. 2017 GRA and prior), the Corporation's Basic rates were forecasted to essentially produce a net income of zero over the rating period. This approach, on average, would result in an RSR (capital) balance that was forecasted *by design* to remain constant in absolute dollar terms over time and *declining* in relative terms (as measured by the MCT ratio or by the size of the business in general). If the RSR balance fell below the minimum RSR target, it was then assumed in the DCAT that the Corporation would charge a maximum 2.0% additional RSR rebuilding fee each year until the minimum RSR balance was restored.

Under the Corporation's proposed approach to rate setting and capital management in the 2019/20 GRA, it has applied for Basic rates assuming zero profit (as in the 2018/19 GRA), but has also applied to for a capital maintenance provision to ensure that the capitalization rate of Basic does not decline over time. By *proactively* maintaining capital in each GRA (rather than allowing capitalization to decline), the need to *reactively* respond to adverse events with successive 2.0% surcharges and/or rate increases is reduced. Also, the policyholders contribution to maintaining capital is collected each year, rather than collecting monies from policyholders who happen to have policies in the year(s) after an adverse event occurs.

b) A capital maintenance provision and/or the capital build and release provision should <u>not</u> reduce/change the RSR capital targets. The lower and upper RSR

targets should be calculated based upon a best-estimate methodology *before* the application of any capital adjustments. The Corporation would then use its capital management plan to determine how to adjust capital *given* these RSR targets. Including the capital adjustments in the RSR target calculation exercise would result in a circular calculation.

c) The Corporation cannot support the Board approved RSR methodology for the reasons provided in *PUB(MPI) 1-16b* and *Part VI RSR.4*. The Board is asking the Corporation to accept a lower RSR target that is less than the minimum amount required for satisfactory future financial condition. The methodology that MPI has submitted does not suffer from this shortcoming. The inclusion of a capital maintenance provision will significantly lower the RSR capital targets in the Board approved RSR methodology.

d) See part c).

PUB (MPI) 1-18

Part and Chapter:	**VI DCAT**	**Page No.:**	**34-54**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**DCAT Adverse Scenarios**		
Sub Topic:	**Combined Scenario**		

Preamble to IR (If Any):

Question:

Please summarize the differences (and rationale for these differences) between modeling assumptions used in the Combined Scenario vs. those used in each of the Decline in Equity Markets Scenario, the High Loss Ratio Scenario, and the Interest Rate Decline Scenario.

Rationale for Question:

To assess the reasonableness of the DCAT and Target Capital Analysis scenario assumptions.

RESPONSE:

The assumptions used in the Combined Scenario are the same assumptions as used in each of the Decline in Equity Markets Scenario, the High Loss Ratio Scenario, and the Interest Rate Decline Scenario, with the inclusion of a modeled Canadian Corporate Bond default rate as outlined in *Part VI DCAT.5.6*.

PUB (MPI) 1-19

Part and Chapter:	**VI DCAT**	**Page No.:**	**65, 68**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**DCAT Adverse Scenarios**		
Sub Topic:	**Policy Liabilities Risk and Inflation Risk Scenarios**		

Preamble to IR (If Any):

Question:

a) The Corporation states: … the risk of unfavourable variations in policy liabilities does exist. The Corporation will conduct further research on this topic for the 2019 DCAT. Please outline the direction and nature of the planned research in this regard, and indicate whether this will include consideration of the DCAT prepared for Saskatchewan Auto Fund, if made available.

b) With respect to Inflation Risk, the Corporation states: We assumed that (i) the severity of all new claims in these periods would increase by the additional (compounded) inflation amount, (ii) PIPP claims from prior years would be indexed at the observed inflation, and (iii) the long term inflation projection of 2.0% would not change.

   i. What is meant by “observed inflation”?

   ii. What is the significance to the modeling results of assuming no change in the long term inflation projection?

   iii. Please summarize the assumed impact on Basic costs other than claims?

Rationale for Question:

To assess the reasonableness of the DCAT and Target Capital Analysis scenario assumptions.

RESPONSE:

a) The Corporation intends to:

i. Build a policy liability mis-estimation model based on historical 1, 2, 3, and 4 year percentage changes to policy liabilities relative to original booked/forecasted amounts, with appropriate adjustments for unique circumstances/outliers;

ii. Build a policy liability stochastic model based on the variability in the underlying loss experience *assuming* centralized reserving was in-place in all prior loss years (i.e. adjust prior loss years to reflect centralized reserving assumptions); and

iii. Use information from the above two analyses to create a single model for DCAT purposes.

While the Corporation is, open to having discussions with the Saskatchewan Auto Fund, it notes that the Saskatchewan Auto Fund will ultimately decide whether to share this potentially confidential information with the Corporation.

b)

i. The Corporation is referring to the observed inflation resulting from the sustained increase in inflation of 2.8% from 2019/20 to 2022/23;

ii. For forecasting purposes, the Corporation would continue to assume that claim liabilities would be discounted at the real rate assuming the long-run inflation expectation of 2.0%; and

iii. The Corporation assumed no other impacts beyond the impact to claims.

PUB (MPI) 1-20

Part and Chapter:	**VI DCAT Appendix 6**	**Page No.:**	**8-26**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**DCAT Adverse Scenarios**		
Sub Topic:	**Stochastic Modeling**		

Preamble to IR (If Any):

Question:

For each coverage (and all Basic coverages combined), please add information for the simulated mean values into the tables showing Cumulative Simulated Ultimate Losses and Cumulative Simulated Ultimate Losses minus Base Forecast.

Rationale for Question:

To assess the reasonableness of the DCAT and Target Capital Analysis scenario assumptions.

RESPONSE:

Please see *Appendix 1* for the updated tables.

Appendix PUB 1-20 - Appendix 1a
DCAT Appendix 6 -4
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Range	Collision	Property Damage	Weekly Indemnity	ABO-Indexed	ABO-NonIndexed	Non-Hail Comp	Public Liability
1	0-10K	92.24%	99.10%	64.38%	94.06%	53.14%	98.13%	44.42%
2	10K-50K	7.73%	0.82%	24.02%	4.84%	37.62%	1.84%	32.34%
3	50K-100K	0.03%	0.05%	4.12%	0.63%	5.87%	0.03%	10.36%
4	100K-250K	0.00%	0.02%	2.84%	0.25%	2.62%	0.00%	10.36%
5	250K-500K	0.00%	0.00%	1.95%	0.12%	0.67%	0.00%	2.40%
6	500K-1M	0.00%	0.00%	2.10%	0.05%	0.07%	0.00%	0.11%
7	1M - 2M	0.00%	0.00%	0.58%	0.02%	0.00%	0.00%	0.00%
8	2M - 3M	0.00%	0.00%	0.01%	0.02%	0.00%	0.00%	0.00%
9	3M - 5M	0.00%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%
10	Average	$3,895	$1,135	$44,102	$5,347	$21,589	$1,353	$41,443
11	Standard Dev.	$4,586	$3,460	$154,796	$54,064	$41,355	$3,085	$67,803

Appendix PUB 1-20 - Appendix 1b
DCAT Appendix 6 -6
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$76,840	$76,953	$77,046	$77,119	$77,171
3	Cumulative	$76,840	$153,793	$230,840	$307,959	$385,130

Appendix PUB 1-20 - Appendix 1c
DCAT Appendix 6 -7
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$77,262	$154,663	$232,106	$309,806	$387,417
3	2.5%	$57,595	$126,368	$196,698	$268,032	$340,723
4	5%	$60,384	$130,500	$202,178	$274,641	$348,018
5	10%	$63,830	$135,462	$208,390	$282,126	$356,382
6	25%	$69,765	$144,108	$219,130	$294,744	$370,600
7	50%	$76,865	$154,105	$231,560	$309,321	$386,802
8	75%	$84,207	$164,737	$244,517	$324,384	$403,718
9	90%	$91,278	$174,462	$256,626	$338,106	$419,319
10	95%	$95,667	$180,493	$263,934	$346,949	$428,881
11	97.5%	$99,639	$186,075	$270,484	$354,341	$437,275

Appendix PUB 1-20 - Appendix 1d
DCAT Appendix 6 -8
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$421	$870	$1,267	$1,847	$2,287
3	2.5%	($19,245)	($27,425)	($34,141)	($39,927)	($44,407)
4	5%	($16,456)	($23,293)	($28,662)	($33,318)	($37,112)
5	10%	($13,011)	($18,332)	($22,450)	($25,833)	($28,748)
6	25%	($7,076)	($9,685)	($11,709)	($13,215)	($14,530)
7	50%	$24	$312	$720	$1,362	$1,672
8	75%	$7,367	$10,943	$13,677	$16,425	$18,588
9	90%	$14,438	$20,668	$25,786	$30,147	$34,189
10	95%	$18,827	$26,699	$33,094	$38,990	$43,751
11	97.5%	$22,799	$32,282	$39,644	$46,382	$52,145

Appendix PUB 1-20 - Appendix 1e
DCAT Appendix 6 -9
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.5%	0.6%	0.5%	0.6%	0.6%
2	2.5%	-25.0%	-17.8%	-14.8%	-13.0%	-11.5%
3	5%	-21.4%	-15.1%	-12.4%	-10.8%	-9.6%
4	10%	-16.9%	-11.9%	-9.7%	-8.4%	-7.5%
5	25%	-9.2%	-6.3%	-5.1%	-4.3%	-3.8%
6	50%	0.0%	0.2%	0.3%	0.4%	0.4%
7	75%	9.6%	7.1%	5.9%	5.3%	4.8%
8	90%	18.8%	13.4%	11.2%	9.8%	8.9%
9	95%	24.5%	17.4%	14.3%	12.7%	11.4%
10	97.5%	29.7%	21.0%	17.2%	15.1%	13.5%

Appendix PUB 1-20 - Appendix 1f
DCAT Appendix 6 -10
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$63,849	$64,567	$65,294	$66,028	$66,770
3	Cumulative	$63,849	$128,416	$193,710	$259,738	$326,508

Appendix PUB 1-20 - Appendix 1g
DCAT Appendix 6 -11
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$64,287	$129,356	$195,112	$261,561	$328,832
3	2.5%	$50,843	$109,850	$170,733	$232,971	$296,619
4	5%	$52,743	$112,708	$174,247	$237,281	$301,415
5	10%	$54,974	$116,019	$178,658	$242,377	$307,079
6	25%	$58,919	$121,897	$185,964	$251,000	$316,925
7	50%	$63,852	$128,908	$194,662	$261,027	$328,274
8	75%	$69,151	$136,330	$203,660	$271,592	$340,237
9	90%	$74,138	$143,321	$212,216	$281,447	$351,256
10	95%	$77,326	$147,738	$217,370	$287,438	$358,021
11	97.5%	$80,118	$151,445	$221,964	$292,972	$364,025

Appendix PUB 1-20 - Appendix 1h
DCAT Appendix 6 -12
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$438	$940	$1,402	$1,823	$2,324
3	2.5%	($13,006)	($18,566)	($22,977)	($26,767)	($29,889)
4	5%	($11,106)	($15,708)	($19,463)	($22,457)	($25,093)
5	10%	($8,875)	($12,398)	($15,052)	($17,361)	($19,430)
6	25%	($4,930)	($6,520)	($7,746)	($8,738)	($9,583)
7	50%	$3	$492	$952	$1,289	$1,765
8	75%	$5,302	$7,914	$9,950	$11,854	$13,728
9	90%	$10,289	$14,905	$18,505	$21,709	$24,748
10	95%	$13,478	$19,321	$23,660	$27,700	$31,513
11	97.5%	$16,269	$23,029	$28,254	$33,234	$37,516

Appendix PUB 1-20 - Appendix 1i
DCAT Appendix 6 -13
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.7%	0.7%	0.7%	0.7%	0.7%
2	2.5%	-20.4%	-14.5%	-11.9%	-10.3%	-9.2%
3	5%	-17.4%	-12.2%	-10.0%	-8.6%	-7.7%
4	10%	-13.9%	-9.7%	-7.8%	-6.7%	-6.0%
5	25%	-7.7%	-5.1%	-4.0%	-3.4%	-2.9%
6	50%	0.0%	0.4%	0.5%	0.5%	0.5%
7	75%	8.3%	6.2%	5.1%	4.6%	4.2%
8	90%	16.1%	11.6%	9.6%	8.4%	7.6%
9	95%	21.1%	15.0%	12.2%	10.7%	9.7%
10	97.5%	25.5%	17.9%	14.6%	12.8%	11.5%

Appendix PUB 1-20 - Appendix 1j
DCAT Appendix 6 -14
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$30,911	$31,350	$31,796	$32,249	$32,707
3	Cumulative	$30,911	$62,261	$94,058	$126,306	$159,014

Appendix PUB 1-20 - Appendix 1k
DCAT Appendix 6 -15
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$30,954	$62,342	$94,170	$126,454	$159,217
3	2.5%	$24,692	$53,333	$83,027	$113,530	$144,684
4	5%	$25,694	$54,767	$84,776	$115,539	$147,004
5	10%	$26,805	$56,401	$86,853	$117,959	$149,572
6	25%	$28,716	$59,164	$90,268	$121,909	$154,086
7	50%	$30,900	$62,290	$94,108	$126,388	$159,177
8	75%	$33,115	$65,476	$98,011	$130,924	$164,246
9	90%	$35,167	$68,357	$101,619	$135,057	$168,899
10	95%	$36,450	$70,143	$103,734	$137,610	$171,697
11	97.5%	$37,554	$71,693	$105,615	$139,775	$174,096

Appendix PUB 1-20 - Appendix 1l
DCAT Appendix 6 -16
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$43	$81	$112	$148	$203
3	2.5%	($6,219)	($8,928)	($11,030)	($12,777)	($14,329)
4	5%	($5,217)	($7,495)	($9,281)	($10,767)	($12,010)
5	10%	($4,106)	($5,860)	($7,204)	($8,347)	($9,442)
6	25%	($2,195)	($3,098)	($3,789)	($4,398)	($4,928)
7	50%	($10)	$29	$51	$82	$163
8	75%	$2,204	$3,215	$3,953	$4,618	$5,232
9	90%	$4,257	$6,096	$7,562	$8,751	$9,886
10	95%	$5,539	$7,881	$9,677	$11,304	$12,684
11	97.5%	$6,643	$9,432	$11,558	$13,469	$15,082

Appendix PUB 1-20 - Appendix 1m
DCAT Appendix 6 -17
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.1%	0.1%	0.1%	0.1%	0.1%
2	2.5%	-20.1%	-14.3%	-11.7%	-10.1%	-9.0%
3	5%	-16.9%	-12.0%	-9.9%	-8.5%	-7.6%
4	10%	-13.3%	-9.4%	-7.7%	-6.6%	-5.9%
5	25%	-7.1%	-5.0%	-4.0%	-3.5%	-3.1%
6	50%	0.0%	0.0%	0.1%	0.1%	0.1%
7	75%	7.1%	5.2%	4.2%	3.7%	3.3%
8	90%	13.8%	9.8%	8.0%	6.9%	6.2%
9	95%	17.9%	12.7%	10.3%	8.9%	8.0%
10	97.5%	21.5%	15.1%	12.3%	10.7%	9.5%

Appendix PUB 1-20 - Appendix 1n
DCAT Appendix 6 -18
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$5,090	$5,159	$5,229	$5,299	$5,371
3	Cumulative	$5,090	$10,249	$15,478	$20,777	$26,148

Appendix PUB 1-20 - Appendix 1o
DCAT Appendix 6 -19
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$5,066	$10,208	$15,407	$20,683	$26,029
3	2.5%	$2,497	$6,659	$11,058	$15,669	$20,378
4	5%	$3,016	$7,313	$11,810	$16,513	$21,356
5	10%	$3,523	$8,002	$12,657	$17,478	$22,428
6	25%	$4,297	$9,083	$14,017	$19,063	$24,187
7	50%	$5,094	$10,243	$15,441	$20,727	$26,076
8	75%	$5,884	$11,371	$16,852	$22,369	$27,928
9	90%	$6,595	$12,397	$18,113	$23,832	$29,588
10	95%	$7,021	$12,998	$18,858	$24,677	$30,557
11	97.5%	$7,396	$13,508	$19,509	$25,447	$31,375

Appendix PUB 1-20 - Appendix 1p
DCAT Appendix 6 -20
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	($24)	($41)	($71)	($94)	($119)
3	2.5%	($2,593)	($3,590)	($4,420)	($5,108)	($5,770)
4	5%	($2,074)	($2,936)	($3,668)	($4,264)	($4,792)
5	10%	($1,567)	($2,247)	($2,821)	($3,299)	($3,720)
6	25%	($793)	($1,166)	($1,460)	($1,713)	($1,960)
7	50%	$3	($6)	($36)	($50)	($72)
8	75%	$794	$1,122	$1,374	$1,592	$1,780
9	90%	$1,505	$2,148	$2,636	$3,055	$3,441
10	95%	$1,931	$2,749	$3,381	$3,900	$4,410
11	97.5%	$2,306	$3,259	$4,031	$4,670	$5,228

Appendix PUB 1-20 - Appendix 1q
DCAT Appendix 6 -21
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	-0.5%	-0.4%	-0.5%	-0.5%	-0.5%
2	2.5%	-50.9%	-35.0%	-28.6%	-24.6%	-22.1%
3	5%	-40.7%	-28.6%	-23.7%	-20.5%	-18.3%
4	10%	-30.8%	-21.9%	-18.2%	-15.9%	-14.2%
5	25%	-15.6%	-11.4%	-9.4%	-8.2%	-7.5%
6	50%	0.1%	-0.1%	-0.2%	-0.2%	-0.3%
7	75%	15.6%	11.0%	8.9%	7.7%	6.8%
8	90%	29.6%	21.0%	17.0%	14.7%	13.2%
9	95%	37.9%	26.8%	21.8%	18.8%	16.9%
10	97.5%	45.3%	31.8%	26.0%	22.5%	20.0%

Appendix PUB 1-20 - Appendix 1r
DCAT Appendix 6 -22
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$438,325	$469,244	$502,411	$537,993	$576,172
3	Cumulative	$438,325	$907,569	$1,409,979	$1,947,972	$2,524,144

Appendix PUB 1-20 - Appendix 1s
DCAT Appendix 6 -23
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$438,364	$907,309	$1,409,414	$1,946,996	$2,522,998
3	2.5%	$390,190	$837,320	$1,320,829	$1,840,654	$2,401,683
4	5%	$397,548	$848,008	$1,334,878	$1,857,811	$2,421,106
5	10%	$406,462	$860,672	$1,351,266	$1,877,828	$2,443,500
6	25%	$421,486	$882,730	$1,378,503	$1,910,461	$2,481,476
7	50%	$438,333	$907,055	$1,409,345	$1,947,063	$2,522,864
8	75%	$455,165	$931,713	$1,440,207	$1,983,481	$2,564,548
9	90%	$470,421	$954,072	$1,467,728	$2,016,090	$2,602,541
10	95%	$479,787	$967,374	$1,484,090	$2,035,644	$2,625,566
11	97.5%	$487,524	$978,391	$1,498,652	$2,052,422	$2,644,776

Appendix PUB 1-20 - Appendix 1t
DCAT Appendix 6 -24
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$39	($260)	($565)	($976)	($1,146)
3	2.5%	($48,135)	($70,249)	($89,151)	($107,318)	($122,462)
4	5%	($40,777)	($59,561)	($75,101)	($90,161)	($103,038)
5	10%	($31,863)	($46,897)	($58,714)	($70,144)	($80,645)
6	25%	($16,839)	($24,839)	($31,477)	($37,511)	($42,668)
7	50%	$8	($514)	($634)	($909)	($1,280)
8	75%	$16,841	$24,144	$30,227	$35,509	$40,404
9	90%	$32,096	$46,503	$57,749	$68,118	$78,397
10	95%	$41,462	$59,805	$74,110	$87,672	$101,422
11	97.5%	$49,199	$70,822	$88,672	$104,450	$120,632

Appendix PUB 1-20 - Appendix 1u
DCAT Appendix 6 -25
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.0%	0.0%	0.0%	-0.1%	0.0%
2	2.5%	-11.0%	-7.7%	-6.3%	-5.5%	-4.9%
3	5%	-9.3%	-6.6%	-5.3%	-4.6%	-4.1%
4	10%	-7.3%	-5.2%	-4.2%	-3.6%	-3.2%
5	25%	-3.8%	-2.7%	-2.2%	-1.9%	-1.7%
6	50%	0.0%	-0.1%	0.0%	0.0%	-0.1%
7	75%	3.8%	2.7%	2.1%	1.8%	1.6%
8	90%	7.3%	5.1%	4.1%	3.5%	3.1%
9	95%	9.5%	6.6%	5.3%	4.5%	4.0%
10	97.5%	11.2%	7.8%	6.3%	5.4%	4.8%

Appendix PUB 1-20 - Appendix 1v
DCAT Appendix 6 -26
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$75,812	$80,697	$85,901	$91,430	$97,237
3	Cumulative	$75,812	$156,509	$242,410	$333,839	$431,077

Appendix PUB 1-20 - Appendix 1x
DCAT Appendix 6 -27
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$75,946	$157,218	$244,168	$337,067	$436,272
3	2.5%	$67,386	$143,789	$226,773	$316,044	$412,189
4	5%	$68,325	$145,462	$229,118	$318,924	$415,392
5	10%	$69,502	$147,490	$231,791	$322,251	$419,277
6	25%	$71,831	$151,269	$236,710	$328,385	$426,312
7	50%	$75,009	$156,173	$243,112	$335,899	$435,039
8	75%	$79,004	$161,997	$250,377	$344,528	$444,943
9	90%	$83,630	$168,248	$257,984	$353,383	$454,874
10	95%	$86,792	$172,712	$263,011	$359,080	$461,062
11	97.5%	$89,918	$176,712	$267,738	$364,435	$467,131

Appendix PUB 1-20 - Appendix 1y
DCAT Appendix 6 -28
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$134	$710	$1,758	$3,228	$5,195
3	2.5%	($8,426)	($12,720)	($15,637)	($17,796)	($18,888)
4	5%	($7,487)	($11,047)	($13,292)	($14,916)	($15,684)
5	10%	($6,310)	($9,018)	($10,619)	($11,588)	($11,800)
6	25%	($3,981)	($5,239)	($5,699)	($5,454)	($4,764)
7	50%	($803)	($336)	$702	$2,059	$3,962
8	75%	$3,192	$5,488	$7,967	$10,689	$13,866
9	90%	$7,818	$11,740	$15,574	$19,543	$23,798
10	95%	$10,980	$16,203	$20,601	$25,240	$29,985
11	97.5%	$14,106	$20,204	$25,328	$30,596	$36,054

Appendix PUB 1-20 - Appendix 1z
DCAT Appendix 6 -29
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.2%	0.5%	0.7%	1.0%	1.2%
2	2.5%	-11.1%	-8.1%	-6.5%	-5.3%	-4.4%
3	5%	-9.9%	-7.1%	-5.5%	-4.5%	-3.6%
4	10%	-8.3%	-5.8%	-4.4%	-3.5%	-2.7%
5	25%	-5.3%	-3.3%	-2.4%	-1.6%	-1.1%
6	50%	-1.1%	-0.2%	0.3%	0.6%	0.9%
7	75%	4.2%	3.5%	3.3%	3.2%	3.2%
8	90%	10.3%	7.5%	6.4%	5.9%	5.5%
9	95%	14.5%	10.4%	8.5%	7.6%	7.0%
10	97.5%	18.6%	12.9%	10.4%	9.2%	8.4%

Appendix PUB 1-20 - Appendix 1aa
DCAT Appendix 6 -30
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$23,722	$24,646	$25,606	$26,603	$27,640
3	Cumulative	$23,722	$48,368	$73,974	$100,578	$128,217

Appendix PUB 1-20 - Appendix 1ab
DCAT Appendix 6 -31
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$51,952	$105,913	$161,701	$219,950	$280,575
3	2.5%	$9,500	$28,036	$52,137	$80,811	$112,830
4	5%	$11,055	$32,346	$59,511	$91,132	$126,381
5	10%	$13,520	$38,613	$69,895	$105,760	$144,787
6	25%	$20,153	$53,684	$93,238	$136,726	$184,319
7	50%	$33,730	$81,090	$133,406	$189,072	$247,786
8	75%	$60,695	$128,804	$198,116	$268,641	$341,780
9	90%	$108,743	$203,102	$291,454	$378,266	$463,274
10	95%	$156,937	$270,863	$368,494	$460,330	$551,823
11	97.5%	$214,360	$339,957	$438,189	$535,666	$629,993

Appendix PUB 1-20 - Appendix 1ac
DCAT Appendix 6 -32
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$28,230	$57,545	$87,727	$119,372	$152,358
3	2.5%	($14,222)	($20,332)	($21,837)	($19,767)	($15,388)
4	5%	($12,667)	($16,023)	($14,463)	($9,445)	($1,836)
5	10%	($10,202)	($9,755)	($4,080)	$5,183	$16,570
6	25%	($3,569)	$5,315	$19,263	$36,149	$56,101
7	50%	$10,008	$32,722	$59,432	$88,494	$119,569
8	75%	$36,973	$80,436	$124,141	$168,063	$213,563
9	90%	$85,021	$154,734	$217,480	$277,688	$335,057
10	95%	$133,215	$222,494	$294,520	$359,752	$423,606
11	97.5%	$190,638	$291,589	$364,215	$435,089	$501,776

Appendix PUB 1-20 - Appendix 1ad
DCAT Appendix 6 -33
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	119.0%	119.0%	118.6%	118.7%	118.8%
2	2.5%	-60.0%	-42.0%	-29.5%	-19.7%	-12.0%
3	5%	-53.4%	-33.1%	-19.6%	-9.4%	-1.4%
4	10%	-43.0%	-20.2%	-5.5%	5.2%	12.9%
5	25%	-15.0%	11.0%	26.0%	35.9%	43.8%
6	50%	42.2%	67.7%	80.3%	88.0%	93.3%
7	75%	155.9%	166.3%	167.8%	167.1%	166.6%
8	90%	358.4%	319.9%	294.0%	276.1%	261.3%
9	95%	561.6%	460.0%	398.1%	357.7%	330.4%
10	97.5%	803.6%	602.9%	492.4%	432.6%	391.3%

Appendix PUB 1-20 - Appendix 1ae
DCAT Appendix 6 -34
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$25,784	$52,172	$79,179	$107,032	$135,654
3	2.5%	$9,500	$27,731	$47,911	$69,906	$92,808
4	5%	$11,055	$30,894	$52,307	$74,901	$98,525
5	10%	$13,520	$34,772	$57,338	$80,771	$105,341
6	25%	$19,103	$41,871	$66,017	$91,079	$116,960
7	50%	$24,473	$50,145	$76,157	$103,023	$130,262
8	75%	$30,858	$58,841	$86,925	$115,556	$144,795
9	90%	$36,436	$67,342	$97,931	$129,216	$161,627
10	95%	$40,857	$73,452	$107,347	$143,201	$183,625
11	97.5%	$43,247	$82,243	$133,149	$187,795	$245,384

Appendix PUB 1-20 - Appendix 1af
DCAT Appendix 6 -35
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$2,062	$3,803	$5,205	$6,454	$7,436
3	2.5%	($14,222)	($20,637)	($26,063)	($30,671)	($35,410)
4	5%	($12,667)	($17,475)	($21,667)	($25,676)	($29,692)
5	10%	($10,202)	($13,596)	($16,637)	($19,807)	($22,876)
6	25%	($4,619)	($6,498)	($7,957)	($9,499)	($11,257)
7	50%	$751	$1,776	$2,182	$2,445	$2,045
8	75%	$7,136	$10,473	$12,950	$14,978	$16,577
9	90%	$12,714	$18,974	$23,956	$28,638	$33,410
10	95%	$17,135	$25,084	$33,372	$42,623	$55,408
11	97.5%	$19,524	$33,874	$59,175	$87,217	$117,167

Appendix PUB 1-20 - Appendix 1ag
DCAT Appendix 6 -36
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	8.7%	7.9%	7.0%	6.4%	5.8%
2	2.5%	-60.0%	-42.7%	-35.2%	-30.5%	-27.6%
3	5%	-53.4%	-36.1%	-29.3%	-25.5%	-23.2%
4	10%	-43.0%	-28.1%	-22.5%	-19.7%	-17.8%
5	25%	-19.5%	-13.4%	-10.8%	-9.4%	-8.8%
6	50%	3.2%	3.7%	3.0%	2.4%	1.6%
7	75%	30.1%	21.7%	17.5%	14.9%	12.9%
8	90%	53.6%	39.2%	32.4%	28.5%	26.1%
9	95%	72.2%	51.9%	45.1%	42.4%	43.2%
10	97.5%	82.3%	70.0%	80.0%	86.7%	91.4%

Appendix PUB 1-20 - Appendix 1ah
DCAT Appendix 6 -37
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$46,849	$48,465	$50,150	$51,908	$53,743
3	Cumulative	$46,849	$95,314	$145,464	$197,372	$251,115

Appendix PUB 1-20 - Appendix 1ai
DCAT Appendix 6 -38
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$46,828	$95,289	$145,431	$197,343	$251,081
3	2.5%	$42,366	$88,959	$137,473	$188,118	$240,566
4	5%	$43,049	$89,932	$138,777	$189,568	$242,233
5	10%	$43,916	$91,096	$140,263	$191,262	$244,248
6	25%	$45,264	$93,058	$142,657	$194,138	$247,461
7	50%	$46,809	$95,244	$145,409	$197,338	$251,085
8	75%	$48,373	$97,512	$148,207	$200,536	$254,687
9	90%	$49,785	$99,527	$150,645	$203,432	$257,940
10	95%	$50,654	$100,763	$152,124	$205,159	$259,916
11	97.5%	$51,384	$101,758	$153,388	$206,613	$261,638

Appendix PUB 1-20 - Appendix 1aj
DCAT Appendix 6 -39
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	($21)	($25)	($33)	($29)	($34)
3	2.5%	($4,483)	($6,356)	($7,991)	($9,254)	($10,549)
4	5%	($3,801)	($5,382)	($6,687)	($7,804)	($8,882)
5	10%	($2,933)	($4,219)	($5,201)	($6,110)	($6,868)
6	25%	($1,585)	($2,256)	($2,807)	($3,234)	($3,654)
7	50%	($41)	($70)	($55)	($33)	($31)
8	75%	$1,524	$2,198	$2,743	$3,164	$3,572
9	90%	$2,935	$4,213	$5,181	$6,060	$6,825
10	95%	$3,804	$5,449	$6,661	$7,787	$8,801
11	97.5%	$4,535	$6,444	$7,924	$9,241	$10,523

Appendix PUB 1-20 - Appendix 1ak
DCAT Appendix 6 -40
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.0%	0.0%	0.0%	0.0%	0.0%
2	2.5%	-9.6%	-6.7%	-5.5%	-4.7%	-4.2%
3	5%	-8.1%	-5.6%	-4.6%	-4.0%	-3.5%
4	10%	-6.3%	-4.4%	-3.6%	-3.1%	-2.7%
5	25%	-3.4%	-2.4%	-1.9%	-1.6%	-1.5%
6	50%	-0.1%	-0.1%	0.0%	0.0%	0.0%
7	75%	3.3%	2.3%	1.9%	1.6%	1.4%
8	90%	6.3%	4.4%	3.6%	3.1%	2.7%
9	95%	8.1%	5.7%	4.6%	3.9%	3.5%
10	97.5%	9.7%	6.8%	5.4%	4.7%	4.2%

Appendix PUB 1-20 - Appendix 1al
DCAT Appendix 6 -41
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Base Forecast	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Annual	$768,995	$808,678	$851,029	$896,226	$944,409
3	Cumulative	$768,995	$1,577,673	$2,428,702	$3,324,928	$4,269,337

Appendix PUB 1-20 - Appendix 1am
DCAT Appendix 6 -42
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$772,087	$1,583,750	$2,437,777	$3,337,330	$4,285,482
3	2.5%	$709,369	$1,492,587	$2,323,123	$3,200,848	$4,128,767
4	5%	$719,101	$1,506,751	$2,340,218	$3,222,388	$4,153,951
5	10%	$730,603	$1,523,759	$2,361,284	$3,246,638	$4,182,159
6	25%	$749,689	$1,551,207	$2,396,710	$3,288,473	$4,229,526
7	50%	$771,403	$1,582,356	$2,436,170	$3,335,459	$4,283,196
8	75%	$793,244	$1,614,420	$2,476,807	$3,383,432	$4,338,419
9	90%	$813,588	$1,644,794	$2,514,025	$3,428,526	$4,390,752
10	95%	$826,330	$1,663,910	$2,538,530	$3,458,056	$4,424,730
11	97.5%	$838,893	$1,682,953	$2,562,337	$3,486,208	$4,455,645

Appendix PUB 1-20 - Appendix 1an
DCAT Appendix 6 -43
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	*($000)*					
2	Average	$3,092	$6,077	$9,074	$12,401	$16,146
3	2.5%	($59,627)	($85,087)	($105,580)	($124,080)	($140,569)
4	5%	($49,894)	($70,922)	($88,484)	($102,541)	($115,386)
5	10%	($38,392)	($53,914)	($67,418)	($78,290)	($87,178)
6	25%	($19,306)	($26,467)	($31,993)	($36,456)	($39,810)
7	50%	$2,408	$4,683	$7,468	$10,531	$13,859
8	75%	$24,249	$36,747	$48,105	$58,504	$69,083
9	90%	$44,593	$67,120	$85,322	$103,598	$121,415
10	95%	$57,335	$86,236	$109,828	$133,128	$155,393
11	97.5%	$69,898	$105,280	$133,634	$161,280	$186,309

Appendix PUB 1-20 - Appendix 1ao
DCAT Appendix 6 -44
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line No.	Percentile	2018/19	2019/20	2020/21	2021/22	2022/23
1	Average	0.4%	0.4%	0.4%	0.4%	0.4%
2	2.5%	-7.8%	-5.4%	-4.3%	-3.7%	-3.3%
3	5%	-6.5%	-4.5%	-3.6%	-3.1%	-2.7%
4	10%	-5.0%	-3.4%	-2.8%	-2.4%	-2.0%
5	25%	-2.5%	-1.7%	-1.3%	-1.1%	-0.9%
6	50%	0.3%	0.3%	0.3%	0.3%	0.3%
7	75%	3.2%	2.3%	2.0%	1.8%	1.6%
8	90%	5.8%	4.3%	3.5%	3.1%	2.8%
9	95%	7.5%	5.5%	4.5%	4.0%	3.6%
10	97.5%	9.1%	6.7%	5.5%	4.9%	4.4%

Appendix PUB 1-20 - Appendix 1ap
DCAT Appendix 6 -47
Cumulative Simulated Ultimate Losses % Deviation from Base Forecast – All Basic Coverages

Line. No.	Percentile	Simulation 1 Year	Historical Variability 1 Year	Simulation 5 Year	Historical Variability 5 Year
1	10%	-5.0%	-3.5%	-2.0%	-1.8%
2	25%	-2.5%	-2.1%	-0.9%	-1.3%
3	50%	0.3%	1.0%	0.3%	0.1%
4	75%	3.2%	3.3%	1.6%	1.1%
5	90%	5.8%	3.7%	2.8%	1.7%

PUB (MPI) 1-21

Part and Chapter:	**VI INV Investments; Figure INV-5**	**Page No.:**	**14**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investment Income Forecast**		
Sub Topic:	**Major Asset Class**		

Preamble to IR (If Any):

Question:

Please indicate how the Corporation determined the Global equity returns.

Rationale for Question:

To assess the reasonableness of forecast investment income.

RESPONSE:

The method for determining the equity return ordered by the PUB (as per Order No. 157/12) uses the 5th percentile 20 year annualized return of the S&P/TSX index. For this year's application, the total return for Canadian, U.S. and Global equities was calculated to be 7.0%.

For comparison, Mercer's Capital Market Assumptions used in the most recent ALM study used the same 6.5% return for Canadian, U.S. and Global equities.

PUB (MPI) 1-22

Part and Chapter:	**VI INV Investments; Figure INV-5**	**Page No.:**	**14**
PUB Approved Issue No:	**8. (i) Performance of the Investment Portfolio and the composition of the Portfolio**		
Topic:	**Investment Portfolio**		
Sub Topic:	**Major Asset Class**		

Preamble to IR (If Any):

Question:

a) Please provide details on the fixed income holdings for 2017/18, including issue amount and yield.
b) Please indicate the extent to which MPI has invested in Corporate Bonds and indicate the composition of those bonds, by rating.
c) Please provide a schedule indicating the actual yields on Corporate Bond investments, a comparison with the GOC 10 year bonds, and the spread.

Rationale for Question:

To assess the reasonableness of forecast investment income.

RESPONSE:

a) Please refer to *Appendix 1* attached.

b) As of June 30, 2018, the Corporation has invested a total of $116.9 million in corporate bonds, which represents 4.1% of the total investment portfolio. The composition of corporate bonds by credit rating is described in the table below.

Figure 1:

Rating	Amount ($)	%
AAA	2,961,887	2.5%
AA+	-	0.0%
AA	-	0.0%
AA-	7,472,701	6.4%
A+	36,675,260	31.4%
A	26,539,447	22.7%
A-	43,215,329	37.0%
Total	**116,864,624**	**100.0%**

c) The table below indicates the actual yields on corporate bond investments and their spreads relative to the Government of Canada 10 year bond as of June 30, 2018.

Figure 2:

As of June 30, 2018 Issuer	Rating	MV Plus Accrued Income ($)	YTM (%) (a)	GOC 10 YR (%) (b)	Spread (%) (a-b)	Term (in years)
ACCESS ROADS EDMONTON	A	4,305,727	3.64%	2.17%	1.47%	19.3
ALTALINK LP	A	2,483,428	3.55%	2.17%	1.38%	25.2
DAIMLER CANADA FINANCE	A	2,452,463	2.89%	2.17%	0.72%	3.0
407 INTERNATIONAL INC	A	2,769,728	3.56%	2.17%	1.39%	23.8
407 INTERNATIONAL INC	A	4,103,703	3.62%	2.17%	1.45%	27.9
HYDRO ONE INC	A	2,916,644	3.64%	2.17%	1.47%	25.3
IGM FINANCIAL INC	A	4,770,002	3.93%	2.17%	1.76%	12.9
IGM FINANCIAL INC	A	2,737,752	3.97%	2.17%	1.80%	14.7
ANHEUSER-BUSCH INBEV FIN	A-	5,194,486	2.80%	2.17%	0.63%	4.6
ANHEUSER-BUSCH INBEV FIN	A-	4,881,561	3.11%	2.17%	0.94%	5.9
CU INC	A-	2,911,109	3.55%	2.17%	1.38%	23.3
CANADIAN WESTERN BANK	A-	5,015,411	2.96%	2.17%	0.79%	3.2
CANADIAN WESTERN BANK	A-	2,522,799	2.90%	2.17%	0.73%	2.7
CENTRAL 1 CREDIT UNION	A-	4,918,789	3.10%	2.17%	0.93%	4.4
ENBRIDGE GAS DISTRIBUTION	A-	2,695,817	3.62%	2.17%	1.45%	26.2
ENBRIDGE GAS DISTRIBUTION	A-	1,721,778	3.62%	2.17%	1.45%	29.4
MANULIFE FINANCIAL CORP TR REC	A-	2,470,157	3.30%	2.17%	1.13%	11.1
MANULIFE FIN DELAWARE	A-	7,880,304	4.21%	2.17%	2.04%	23.5
UNION GAS LTD	A-	3,003,117	3.59%	2.17%	1.42%	23.0
BMW CANADA INC	A+	2,455,400	2.68%	2.17%	0.51%	2.5
LTI BMO	A+	2,916,622	3.10%	2.17%	0.93%	8.4
LTI BMO	A+	2,974,635	3.00%	2.17%	0.83%	6.2
GREAT WEST LIFECO INC.	A+	3,382,174	3.70%	2.17%	1.53%	14.7
GREAT WEST LIFECO INC.	A+	3,354,123	3.72%	2.17%	1.55%	21.4
WINNIPEG AIRPORT AUTHORITY	A+	10,184,758	3.59%	2.17%	1.42%	22.3
WINNIPEG AIRPORT AUTHORITY	A+	5,709,349	3.44%	2.17%	1.27%	22.4
WINNIPEG AIRPORT AUTHORITY	A+	2,023,749	2.92%	2.17%	0.75%	4.8
WINNIPEG AIRPORT AUTHORITY	A+	3,674,450	3.44%	2.17%	1.27%	29.3
HSBC BANK CANADA	AA-	4,852,745	2.96%	2.17%	0.79%	4.0
ROYAL BANK OF CANADA	AA-	2,619,956	3.07%	2.17%	0.90%	7.0
CPPIB	AAA	2,961,887	2.13%	2.17%	-0.04%	1.9
Total		**116,864,624**				

CUSIP	Investment	Description	Units	Cost	Yield
	Bonds - Non Marketable	1331 Non-Marketable Bonds	617,525,688.31	617,624,220.23	4.570
00433JAA3	Bonds-Corporate	ACCESS ROADS EDMONTON	3,671,695.45	3,824,951.96	5.669
02135ZAK2	Bonds-Corporate	ALTALINK LP	2,000,000.00	2,506,000.00	4.922
03524BAB2	Bonds-Corporate	ANHEUSER-BUSCH INBEV FIN	5,000,000.00	5,205,150.00	3.375
03524BAG1	Bonds-Corporate	ANHEUSER-BUSCH INBEV FIN	5,000,000.00	4,953,200.00	2.600
05590HAT4	Bonds-Corporate	BMW CANADA INC	2,500,000.00	2,483,250.00	1.880
06368AAA8	Bonds-Corporate	LTI BMO	3,000,000.00	3,049,590.00	2.700
06368AAD2	Bonds-Corporate	LTI BMO	3,000,000.00	2,999,610.00	2.700
12593CAA9	Bonds-Corporate	CPPIB	3,000,000.00	2,994,390.00	1.400
12657ZAW3	Bonds-Corporate	CU INC	2,500,000.00	2,949,000.00	4.543
136765AW4	Bonds-Corporate	CANADIAN WESTERN BANK	5,000,000.00	5,043,500.00	2.788
136765AZ7	Bonds-Corporate	CANADIAN WESTERN BANK	2,500,000.00	2,530,500.00	2.881
154728AN9	Bonds-Corporate	CENTRAL 1 CREDIT UNION	5,000,000.00	5,009,500.00	2.600
23384NAV9	Bonds-Corporate	DAIMLER CANADA FINANCE	2,500,000.00	2,468,750.00	1.910
29290ZAP5	Bonds-Corporate	ENBRIDGE GAS DISTRIBUTION	2,500,000.00	2,729,000.00	4.000
29290ZAS9	Bonds-Corporate	ENBRIDGE GAS DISTRIBUTION	1,750,000.00	1,750,000.00	3.510
35085ZBF2	Bonds-Corporate	407 INTERNATIONAL INC	2,500,000.00	2,808,000.00	4.190
35085ZBL9	Bonds-Corporate	407 INTERNATIONAL INC	3,900,000.00	4,107,168.00	3.830
39138CAD8	Bonds-Corporate	GREAT WEST LIFECO INC.	2,500,000.00	3,420,250.00	6.670
39138CAF3	Bonds-Corporate	GREAT WEST LIFECO INC.	2,500,000.00	3,342,750.00	5.998
40427HTB9	Bonds-Corporate	HSBC BANK CANADA	5,000,000.00	4,960,500.00	2.170
44810ZBK5	Bonds-Corporate	HYDRO ONE INC	2,500,000.00	2,971,750.00	4.590
46152HAD3	Bonds-Corporate	IGM FINANCIAL INC	3,500,000.00	4,830,000.00	7.450
46152HAG6	Bonds-Corporate	IGM FINANCIAL INC	2,000,000.00	2,740,000.00	7.110
56501RAF3	Bonds-Corporate	MANULIFE FINANCIAL CORP TR REC	2,500,000.00	2,510,500.00	3.049
780085N93	Bonds-Corporate	ROYAL BANK OF CANADA	2,300,000.00	2,744,958.00	4.930
89353ZBV9	Bonds-Corporate	TRANSCANADA PIPELINES	5,000,000.00	5,536,500.00	4.550
89353ZBZ0	Bonds-Corporate	TRANSCANADA PIPELINES	2,000,000.00	2,157,800.00	4.350
90664ZAU4	Bonds-Corporate	UNION GAS LTD	2,500,000.00	3,058,500.00	4.880
975014AA9	Bonds-Corporate	WINNIPEG AIRPORT AUTHORITY	8,760,510.52	8,760,510.52	5.205
975014AC5	Bonds-Corporate	WINNIPEG AIRPORT AUTHORITY	4,484,033.77	4,484,033.77	6.102
975014AD3	Bonds-Corporate	WINNIPEG AIRPORT AUTHORITY	2,000,000.00	2,000,000.00	3.039
975014AE1	Bonds-Corporate	WINNIPEG AIRPORT AUTHORITY	3,500,000.00	3,500,000.00	3.659
013051DM6	Bonds-Government	ALBERTA	6,000,000.00	6,392,520.00	3.100
013051DQ7	Bonds-Government	ALBERTA	49,000,000.00	49,116,720.00	2.350
013051DR5	Bonds-Government	ALBERTA	9,000,000.00	8,938,022.00	1.250
013051DT1	Bonds-Government	ALBERTA	28,700,000.00	28,180,450.00	2.200
013051DW4	Bonds-Government	ALBERTA	8,000,000.00	7,845,840.00	2.550
013051DY0	Bonds-Government	ALBERTA	34,000,000.00	32,918,270.00	3.050
01306ZCV1	Bonds-Government	Alberta TSY	12,800,000.00	12,579,840.00	2.900
01306ZDC2	Bonds-Government	Alberta TSY	3,000,000.00	3,285,217.69	3.900
1107098Y1	Bonds-Government	PROV OF BRITISH COLUMBIA	10,000,000.00	12,482,000.00	4.300
11070TAG3	Bonds-Government	PROV OF BRITISH COLUMBIA	13,000,000.00	12,751,922.38	2.800
11070TAJ7	Bonds-Government	PROV OF BRITISH COLUMBIA	4,800,000.00	4,863,264.00	2.300
40649CTR7	Bonds-Government	HALTON REGIONAL MUNICIPALITY	2,000,000.00	1,990,360.00	4.050
4488148V8	Bonds-Government	QUEBEC HYDRO BOND	5,000,000.00	5,402,050.00	4.000
448814DG5	Bonds-Government	QUEBEC HYDRO BOND	2,000,000.00	2,747,323.04	11.000
505443AB7	Bonds-Government	CANADA LABRADOR-ISLAND LINK FU	10,000,000.00	10,608,550.00	3.860
56344ZCG2	Bonds-Government	PROVINCE OF MANITOBA BOND	5,100,000.00	7,350,630.00	6.300
56344ZEH8	Bonds-Government	PROVINCE OF MANITOBA BOND	22,550,000.00	28,691,839.55	6.300
56344ZJM2	Bonds-Government	PROVINCE OF MANITOBA BOND	30,000,000.00	38,265,800.00	5.330
56344ZPV5	Bonds-Government	PROVINCE OF MANITOBA BOND	20,000,000.00	19,007,400.00	3.150
563469TH8	Bonds-Government	PROVINCE OF MANITOBA BOND	10,000,000.00	12,430,000.00	4.700
563469TW5	Bonds-Government	PROVINCE OF MANITOBA BOND	8,000,000.00	7,962,240.00	3.350
56346ZKW6	Bonds-Government	PROVINCE OF MANITOBA	10,777,000.00	7,329,231.53	-
570344AA9	Bonds-Government	MARITIME LINK FINANCING TR	5,000,000.00	4,983,050.00	3.500
614853CC1	Bonds-Government	VILLE MONTREAL	5,000,000.00	4,957,400.00	5.000
614853CJ6	Bonds-Government	VILLE MONTREAL	2,000,000.00	2,135,140.00	5.450
614853CM9	Bonds-Government	VILLE MONTREAL	11,000,000.00	12,128,580.00	4.500
614853CV9	Bonds-Government	VILLE MONTREAL	2,400,000.00	2,349,714.49	3.500
628153AC2	Bonds-Government	MUSKRAT FALLS	10,000,000.00	11,047,900.00	3.860
6428668Z3	Bonds-Government	PROV OF NEW BRUNSWICK BOND	3,500,000.00	3,752,805.00	4.400
642866FW2	Bonds-Government	PROV OF NEW BRUNSWICK BOND	10,000,000.00	12,033,600.00	4.650
642866FZ5	Bonds-Government	PROV OF NEW BRUNSWICK BOND	10,000,000.00	11,952,400.00	4.550
642866GA9	Bonds-Government	PROV OF NEW BRUNSWICK BOND	5,000,000.00	5,043,537.35	4.800
642866GK7	Bonds-Government	PROV OF NEW BRUNSWICK BOND	2,000,000.00	1,998,750.00	2.600

CUSIP	Investment	Description	Units	Cost	Yield
642866GL5	Bonds-Government	PROV OF NEW BRUNSWICK BOND	14,700,000.00	13,769,343.00	3.100
642869AE1	Bonds-Government	PROVINCE OF NEW BRUNSWICK	13,000,000.00	12,722,630.00	3.550
651329BE3	Bonds-Government	NFLD LABRADOR HYDRO BOND	4,500,000.00	4,259,320.00	3.600
651333EG7	Bonds-Government	NEWFOUNDLAND PROV	3,800,000.00	3,954,676.88	6.500
651333EZ5	Bonds-Government	NEWFOUNDLAND PROV	10,000,000.00	13,633,700.00	6.550
651333FM3	Bonds-Government	NEWFOUNDLAND PROV	10,000,000.00	12,924,300.00	5.600
651333FQ4	Bonds-Government	NEWFOUNDLAND PROV	22,000,000.00	26,603,070.00	4.500
651333FS0	Bonds-Government	NEWFOUNDLAND PROV	7,700,000.00	7,378,294.00	2.300
651333FT8	Bonds-Government	NEWFOUNDLAND PROV	22,500,000.00	21,160,075.00	3.300
651333FY7	Bonds-Government	NEWFOUNDLAND PROV	22,300,000.00	22,647,032.15	3.700
65355DZC2	Bonds-Government	NIAGARA REG MUNI	1,000,000.00	993,980.00	5.200
669827FL6	Bonds-Government	PROVINCE OF NOVA SCOTIA	12,000,000.00	16,574,400.00	5.800
669827FP7	Bonds-Government	PROVINCE OF NOVA SCOTIA	15,000,000.00	19,633,500.00	4.900
669827FZ5	Bonds-Government	PROVINCE OF NOVA SCOTIA	10,000,000.00	10,681,197.68	3.450
669827GA9	Bonds-Government	PROVINCE OF NOVA SCOTIA	10,000,000.00	9,994,200.00	2.100
6832348J0	Bonds-Government	PROVINCE OF ONTARIO BOND	10,000,000.00	10,899,500.00	4.200
683234B98	Bonds-Government	PROVINCE OF ONTARIO BOND	1,700,000.00	2,205,948.34	4.650
683234NM6	Bonds-Government	PROVINCE OF ONTARIO BOND	3,100,000.00	4,115,963.00	6.200
683234YD4	Bonds-Government	PROVINCE OF ONTARIO BOND	5,000,000.00	6,109,000.00	4.700
683234ZP6	Bonds-Government	PROVINCE OF ONTARIO BOND	1,000,000.00	983,393.33	4.600
68323AAD6	Bonds-Government	PROVINCE OF ONTARIO	25,000,000.00	27,473,750.00	4.000
68323AAY0	Bonds-Government	PROVINCE OF ONTARIO	18,000,000.00	18,720,000.00	3.500
68323ABN3	Bonds-Government	PROVINCE OF ONTARIO	9,800,000.00	10,330,882.09	2.850
68323ADM3	Bonds-Government	PROVINCE OF ONTARIO	29,400,000.00	29,683,595.12	2.400
68323AEE0	Bonds-Government	PROVINCE OF ONTARIO	107,000,000.00	107,356,250.00	2.600
68323Z4W6	Bonds-Government	ONTARIO GENERAL RESIDUALS	4,800,000.00	3,313,872.00	2.992
68323ZUK3	Bonds-Government	ONTARIO GENERAL RESIDUALS	12,300,000.00	8,277,900.00	-
689551DE6	Bonds-Government	CITY OF OTTAWA	5,000,000.00	4,972,000.00	5.050
689551ED7	Bonds-Government	CITY OF OTTAWA	6,935,000.00	7,287,159.00	4.200
689551ER6	Bonds-Government	CITY OF OTTAWA	5,000,000.00	4,951,400.00	3.050
705464EQ4	Bonds-Government	PEEL REG ONTARIO	5,000,000.00	5,294,150.00	4.250
741666CF6	Bonds-Government	PRINCE EDWARD ISLAND	3,123,000.00	4,491,186.30	8.500
741666CN9	Bonds-Government	PRINCE EDWARD ISLAND	2,200,000.00	2,189,858.66	6.100
741666CS8	Bonds-Government	PRINCE EDWARD ISLAND	9,000,000.00	9,960,780.00	4.650
741666DA6	Bonds-Government	PRINCE EDWARD ISLAND	5,000,000.00	4,927,500.00	2.350
74814ZEF6	Bonds-Government	PROVINCE OF QUEBEC	5,000,000.00	6,956,250.00	5.000
74814ZEK5	Bonds-Government	PROVINCE OF QUEBEC	10,000,000.00	11,873,400.00	4.250
74814ZER0	Bonds-Government	PROVINCE OF QUEBEC	18,900,000.00	19,896,384.91	3.500
74814ZEV1	Bonds-Government	PROVINCE OF QUEBEC	20,000,000.00	20,369,200.00	2.750
74814ZEW9	Bonds-Government	PROVINCE OF QUEBEC	35,000,000.00	37,889,000.00	3.500
74814ZEX7	Bonds-Government	PROVINCE OF QUEBEC	28,000,000.00	28,358,500.00	2.500
803854GY8	Bonds-Government	PROV OF SASKATCHEWAN BOND	5,000,000.00	6,955,850.00	5.750
803854JH2	Bonds-Government	PROV OF SASKATCHEWAN BOND	5,000,000.00	7,254,400.00	5.600
803854JJ8	Bonds-Government	PROV OF SASKATCHEWAN BOND	3,000,000.00	3,892,110.00	5.000
803854JL3	Bonds-Government	PROV OF SASKATCHEWAN BOND	5,000,000.00	6,750,400.00	4.750
803854JT6	Bonds-Government	PROV OF SASKATCHEWAN BOND	16,000,000.00	16,290,680.00	3.400
803854JU3	Bonds-Government	PROV OF SASKATCHEWAN BOND	4,500,000.00	5,272,830.00	3.900
803854KA5	Bonds-Government	PROV OF SASKATCHEWAN BOND	5,000,000.00	4,789,650.00	2.750
803854KB3	Bonds-Government	PROV OF SASKATCHEWAN BOND	7,700,000.00	7,658,346.00	2.550
803854KC1	Bonds-Government	PROV OF SASKATCHEWAN BOND	30,000,000.00	30,051,500.00	3.300
891288DJ8	Bonds-Government	CITY OF TORONTO	2,500,000.00	2,491,400.00	3.400
921577RE4	Bonds-Government	CITY OF VANCOUVER	3,100,000.00	3,097,365.00	3.450
975026HB4	Bonds-Government	CITY OF WINNIPEG	11,500,000.00	12,342,461.67	4.300
975026HC2	Bonds-Government	CITY OF WINNIPEG	17,350,000.00	18,533,731.50	4.100
98704CQR0	Bonds-Government	MUNICIPALITY OF YORK REGION	4,520,000.00	4,828,896.80	4.000
98704CQT6	Bonds-Government	MUNICIPALITY OF YORK REGION	5,000,000.00	5,522,500.00	4.000
98704CQZ2	Bonds-Government	MUNICIPALITY OF YORK REGION	5,000,000.00	4,740,850.00	2.350
DOFSWAP$1	Bonds-Government	PROV OF QUEBEC BOND	13,350,000.00	13,350,000.00	5.760
			1,800,796,928.05	**1,875,215,711.94**	

PUB (MPI) 1-23

Part and Chapter:	**VI INV.2.1.1**	**Page No.:**	**16**
PUB Approved Issue No:	**8. Performance of the investment portfolio** **21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**ALM Study Outcomes**		

Preamble to IR (If Any):

The portfolio backing the Basic claims will consist of 100% fixed income, the portfolios backing Extension, SRE and RSR will be balanced (50% growth assets/50% fixed income assets), and the portfolio backing EFB will have a slightly higher allocation to growth assets at 60%. Currently, the portfolios recommended for RSR, Extension and SRE have the same asset allocations (50/50 growth/fixed income), but because the portfolios are unique (i.e. no assets shared between them) the asset allocations can be changed in the future if necessary.

Question:

Please explain how MPI intends to monitor its portfolio allocations to assess whether changes should be made in the asset allocations in the future.

Rationale for Question:

To understand possible future changes to asset allocations.

RESPONSE:

The process of monitoring the asset allocation will be very similar to the Corporation's current process. Specifically, the Corporation has a portfolio-rebalancing policy, which will be applied to the new portfolios. Each portfolio has target weights for each asset

class (as well as minimum and maximum weight). The Corporation will ensure that the asset classes remain within the approved ranges and rebalance as necessary. The Investment Department monitors actual portfolio weights on a monthly basis and provides reports to the Investment Committee Working Group at each meeting, recommending corrective action as necessary. Changes to the target weights are reviewed only when asset-liability management studies are completed.

PUB (MPI) 1-24

Part and Chapter:	**VI INV.2.2**	**Page No.:**	**23**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Accommodation of Commingled Portfolio**		

Preamble to IR (If Any):

Manager searches must be conducted and accounting systems and processes must be redesigned to accommodate the separation of the commingled portfolio.

Question:

a) Please provide a progress update on manager searches, redesigning of accounting systems and processes, and any other steps necessary to accommodate the separation of the commingled portfolio.
b) Please explain what options were considered to minimize transactional costs related to the portfolio segregation.

Rationale for Question:

To understand the details and impact behind the accommodations of the commingled portfolio.

RESPONSE:

a) The Corporation issued a request for proposals seeking a consultant to assist with the manager searches in early July. Responses are due in late July. The Corporation expects the consultant, once selected, to begin working in mid-August.

The Corporation has done the following to redesign its accounting systems and processes in order to accommodate the separation of the commingled portfolio:

a) reviewed existing allocations relating to the accommodation of sub-accounts;

b) completed additional training on the Portfolio Accounting Management (PAM) investment accounting system;

c) determined that PAM can adequately manage the five new portfolios; and

d) identified specific securities for each portfolio.

The Corporation plans to carry out the following in August or September:

a) determine new allocation methodology for balance sheet and investment income;

b) build new portfolios into PAM;

c) test the transfer of investments, interfaces & minimal allocation;

d) create new accounts in Lawson; and

e) obtain a license for a new PAM system module in order to reduce the requirement for manual processing and to allow for more robust testing.

b) The Corporation will fund the new asset classes, including private debt purchases, using MUSH bond maturities. MUSH bond maturities will not incur any transaction costs. Redemptions from the Greystone Real Estate Fund will not involve any transaction costs as the redemption will be funded largely by drawdowns from new investors to the fund. The Corporation estimates that these two items will total approximately $395 million or 52% of the withdrawals required to segregate the assets.

PUB (MPI) 1-25

Part and Chapter:	**VI INV.2.2.1; Figure INV-8**	**Page No.:**	**24-25**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Interest Rate Forecasting**		

Preamble to IR (If Any):

The projections in this table are based on a Naïve interest rate forecast.

Question:

Instead of using a Naïve interest rate forecast, please refile the Figure INV-8 table under each scenario using:

a) 50/50
b) Mercer's interest rate forecast - standard
c) Mercer's interest rate forecast – forward curve

Rationale for Question:

To understand the change in financial impact to the Basic line of business under different interest rate forecast approaches.

RESPONSE:

a) See the figure below for the March 50/50 forecast

Figure 1: Financial Impact to Basic Line of Business - March 2018 50/50 Forecast

Line No	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
	Ending Asset Values (C$ 000's)					
1	**Basic Net Income**					
2	**GRA Forecast - ALM**	144,582	27,053	28,486	16,615	4,796
3	**GRA Forecast - No ALM**	49,323	31,077	30,219	25,665	11,695
4	**Difference**	95,259	(4,024)	(1,733)	(9,050)	(6,899)
5	**Basic Investment Income**					
6	**GRA Forecast - ALM**	169,379	67,338	82,542	96,140	97,598
7	**GRA Forecast - No ALM**	63,549	74,837	88,972	99,881	103,049
8	**Difference**	105,830	(7,499)	(6,430)	(3,741)	(5,451)
9	**Basic Total Equity**					
10	**GRA Forecast - ALM**	263,445	298,426	336,090	362,943	379,394
11	**GRA Forecast - No ALM**	266,442	305,727	343,279	376,953	397,088
12	**Difference**	(2,997)	(7,301)	(7,188)	(14,010)	(17,693)
13	**Basic MCT Ratio**					
14	**GRA Forecast - ALM**	73%	75%	79%	82%	82%
15	**GRA Forecast - No ALM**	57%	60%	63%	68%	69%
16	**Difference**	16%	16%	16%	14%	12%

b) Please see the figure below for INV-8 restated for Mercer's interest rate forecast – standard as of August 2017.

Figure 2: Financial Impact to Basic Line of Business - Mercer's Interest Rate Forecast - Standard

Line No	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
	Ending Asset Values (C$ 000's)					
1	**Basic Net Income**					
2	**GRA Forecast - ALM**	139,865	21,910	22,053	10,854	6,506
3	**GRA Forecast - No ALM**	44,494	24,167	27,556	28,064	14,788
4	**Difference**	95,371	(2,257)	(5,503)	(17,210)	(8,282)
5	**Basic Investment Income**					
6	**GRA Forecast - ALM**	181,760	80,860	80,973	60,837	67,031
7	**GRA Forecast - No ALM**	75,948	85,826	87,949	74,099	80,954
8	**Difference**	105,812	(4,966)	(6,976)	(13,262)	(13,923)
9	**Basic Total Equity**					
10	**GRA Forecast - ALM**	258,728	288,527	319,718	340,345	357,843
11	**GRA Forecast - No ALM**	261,549	293,989	328,959	363,906	386,160
12	**Difference**	(2,821)	(5,462)	(9,241)	(23,561)	(28,317)
13	**Basic MCT Ratio**					
14	**GRA Forecast - ALM**	71%	72%	74%	76%	77%
15	**GRA Forecast - No ALM**	55%	57%	60%	65%	67%
16	**Difference**	16%	16%	15%	11%	10%

c) Please see the figure below for INV-8 restated for Mercer's interest rate forecast – forward curve as of August 2017.

Figure 3: Financial Impact to Basic Line of Business - Mercer's Interest Rate Forecast - Forward Curve

Line No	Scenario	2018/19	2019/20	2020/21	2021/22	2022/23
1	**Ending Asset Values (C$ 000's)**					
1	**Basic Net Income**					
2	**GRA Forecast - ALM**	136,639	19,482	20,303	5,210	(4,674)
3	**GRA Forecast - No ALM**	41,279	22,225	25,782	20,185	5,381
4	**Difference**	95,360	(2,743)	(5,479)	(14,975)	(10,055)
5	**Basic Investment Income**					
6	**GRA Forecast - ALM**	187,283	78,638	81,615	84,967	88,183
7	**GRA Forecast - No ALM**	81,402	84,119	88,279	91,753	96,454
8	**Difference**	105,881	(5,481)	(6,664)	(6,786)	(8,271)
9	**Basic Total Equity**					
10	**GRA Forecast - ALM**	255,503	282,843	312,259	327,215	333,478
11	**GRA Forecast - No ALM**	258,383	288,861	322,225	350,100	363,653
12	**Difference**	(2,881)	(6,018)	(9,967)	(22,884)	(30,175)
13	**Basic MCT Ratio**					
14	**GRA Forecast - ALM**	70%	70%	72%	72%	70%
15	**GRA Forecast - No ALM**	54%	55%	58%	62%	62%
16	**Difference**	16%	15%	14%	11%	8%

PUB (MPI) 1-26

Part and Chapter:	**VI INV 10.5; INV Appendix 9; Figure INV-32**	**Page No.:**	**59; Appendix 9; 60**
PUB Approved Issue No:	**8. Performance of the Investment portfolio**		
Topic:	**Investments**		
Sub Topic:	**Allocation of Investment Income to Lines of Business**		

Preamble to IR (If Any):

The 2018-2019 fiscal year applies a methodology consistent to prior year's forecast; i.e. a net equity allocation formula. The 2019-2020 and subsequent forecast period applies investment income based on the direct proportion of investment assets available to each line of business.

Question:

a) What factors are contributing to Basic's relative share of corporate investment income declining into the forecast period?
b) Please compare and contrast the different methodologies used for the calculations supporting the forecasting of investment income.
c) Please provide the detailed calculations, analysis and commentary for the allocation of investment income into the forecast period.

Rationale for Question:

To understand the detailed calculations and analysis behind the allocations of investment income.

RESPONSE:

a) The decline of Basic's relative share of corporate investment income throughout the forecast period is primarily attributable to asset re-allocation, from alternative growth assets (namely Equity, Infrastructure and Real Estate Investments) to lower yielding fixed-income investments.

b) The recent ALM study focuses on the shift from the comingling of investment assets to the separation of these assets for the various lines of business. A comparison of the advantages and disadvantages of each approach is provided in Phase 1 of the ALM study which is found at *Part VI Investments, Appendix 12, pages 3-6* of the Application.

c) Detailed calculations for the investment income allocation of commingled investment assets in 2018/19 are provided at *Part VI Investments, Appendix 9* of the Application. Investment income in 2019/20 and subsequent years no longer use the formula as shown in Appendix 9, because investment assets are separated by line of business and any forecasted income is directly accounted for in each respective line of business.

PUB (MPI) 1-27

Part and Chapter:	**VI INV 14.1; Figure INV-42 & INV-43**	**Page No.:**	**74-75**
PUB Approved Issue No:	**8. Performance of the Investment portfolio**		
Topic:	**Investments**		
Sub Topic:	**Interest Rate Forecast**		

Preamble to IR (If Any):

Question:

a) Please provide the actual supporting forecast that was used to populate both INV-42 and INV-43.
b) Please update table INV-42 and INV-43 for the most current date (currently based on February 28, 2018) and also provide the supporting forecasts used for the updated tables.

Rationale for Question:

To understand the details that support the interest rate forecast tables and to obtain a most recent version.

RESPONSE:

a) See *Attachment A.*

[Attachment C Redacted. The Corporation is seeking confidential treatment of this response].

b) Figure 1 and 2 below are updates to INV-42 and INV-43. See *Attachment B* for the supporting forecasts.

[Attachment C Redacted. The Corporation is seeking confidential treatment of this response].

Figure 1: SIRF, Naïve and 50/50 GoC 10 Year Bond Forecast as of July 2018

Line No.		BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	2018 Q2	2.28%	2.19%	2.17%	2.23%	2.17%	2.17%	2.17%	2.20%	2.20%	2.17%	2.18%
2	Q3	2.30%	2.50%	2.35%	2.43%	2.22%	2.35%	2.40%	2.45%	2.38%	2.17%	2.27%
3	Q4	2.50%	2.55%	2.55%	2.52%	2.57%	2.60%	2.55%	2.55%	2.55%	2.17%	2.36%
4	2019 Q1	2.60%	2.65%	2.70%	2.63%	2.74%	2.70%	2.60%	2.60%	2.65%	2.17%	2.41%
5	Q2	2.65%	2.70%	2.80%	2.74%	2.93%	2.80%	2.65%	2.65%	2.74%	2.17%	2.46%
6	Q3	2.75%	2.65%	2.90%	2.84%	3.01%	2.90%	2.70%	2.70%	2.81%	2.17%	2.49%
7	Q4	2.80%	2.60%	2.95%	2.92%	3.09%	2.95%	2.75%	2.75%	2.85%	2.17%	2.51%
8	2020 Q1	X.XX%	2.72%	3.00%	2.98%	3.26%	X.XX%		2.78%	2.96%	2.17%	2.56%
9	Q2	X.XX%	2.75%	3.00%	3.03%	3.37%	X.XX%		2.80%	3.01%	2.17%	2.59%
10	Q3	X.XX%	2.80%	2.80%	3.06%	3.35%	X.XX%		2.83%	3.01%	2.17%	2.59%
11	Q4	X.XX%	2.85%	2.55%	3.08%	3.33%	X.XX%		2.85%	3.00%	2.17%	2.59%
12	2021 Q1	X.XX%	2.90%	2.35%	3.08%	3.31%	X.XX%		2.85%	2.99%	2.17%	2.58%
13	Q2	X.XX%	2.95%	2.25%	3.09%	3.29%	X.XX%		2.85%	2.97%	2.17%	2.57%
14	Q3	X.XX%	2.96%	2.20%	3.09%	3.33%	X.XX%		2.85%	2.97%	2.17%	2.57%
15	Q4	X.XX%	2.98%	2.20%	3.08%	3.37%	X.XX%		2.85%	2.99%	2.17%	2.58%
16	2022 Q1			2.20%	3.07%	3.40%	X.XX%		2.85%	2.96%	2.17%	2.57%
17	Q2			2.25%	3.06%	3.44%	X.XX%		2.85%	2.97%	2.17%	2.57%
18	Q3			2.35%	3.05%	3.48%	X.XX%		2.85%	3.01%	2.17%	2.59%
19	Q4			2.45%	3.04%	3.52%	X.XX%		2.85%	3.04%	2.17%	2.61%

Figure 2: SIRF, Naïve, 50/50 90-Day T-Bill Forecast as of July 2018

Line No.		BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	2018 Q2	1.21%	1.24%	1.26%	1.25%	1.42%	1.26%	1.26%	1.22%	1.27%	1.26%	1.26%
2	Q3	1.50%	1.45%	1.45%	1.49%	1.53%	1.40%	1.55%	1.50%	1.48%	1.26%	1.37%
3	Q4	1.70%	1.45%	1.55%	1.74%	1.88%	1.65%	1.80%	1.63%	1.68%	1.26%	1.47%
4	2019 Q1	1.70%	1.75%	1.70%	1.99%	1.96%	1.90%	2.05%	1.76%	1.83%	1.26%	1.55%
5	Q2	1.95%	1.70%	1.80%	2.24%	2.18%	2.15%	2.30%	1.88%	2.00%	1.26%	1.63%
6	Q3	2.15%	1.95%	1.95%	2.49%	2.21%	2.15%	2.30%	2.01%	2.15%	1.26%	1.71%
7	Q4	2.15%	2.00%	2.05%	2.74%	2.21%	2.15%	2.50%	2.13%	2.22%	1.26%	1.74%
8	2020 Q1	X.XX%	2.10%	2.25%	3.03%	2.39%	X.XX%		2.22%	2.35%	1.26%	1.80%
9	Q2	X.XX%	2.20%	2.25%	3.03%	2.47%	X.XX%		2.32%	2.42%	1.26%	1.84%
10	Q3	X.XX%	2.21%	2.20%	3.03%	2.41%	X.XX%		2.41%	2.40%	1.26%	1.83%
11	Q4	X.XX%	2.23%	1.90%	3.03%	2.35%	X.XX%		2.50%	2.35%	1.26%	1.81%
12	2021 Q1	X.XX%	2.24%	1.40%	3.03%	2.28%	X.XX%		2.50%	2.30%	1.26%	1.78%
13	Q2	X.XX%	2.25%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.31%	1.26%	1.79%
14	Q3	X.XX%	2.26%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
15	Q4	X.XX%	2.28%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
16	2022 Q1			1.25%	3.03%	2.26%	X.XX%		2.50%	2.31%	1.26%	1.79%
17	Q2			1.25%	3.03%	2.30%	X.XX%		2.50%	2.32%	1.26%	1.79%
18	Q3			1.25%	3.03%	2.33%	X.XX%		2.50%	2.33%	1.26%	1.80%
19	Q4			1.25%	3.03%	2.37%	X.XX%		2.50%	2.34%	1.26%	1.80%

Canadian Economic Outlook

BMO Capital Markets
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Our key forecasts for the Canadian economy — **March 16, 2018**

		2017				2018				2019							
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2016	2017	2018	2019
Production	**q/q % chng : a.r.**																
Real GDP (chain-weighted)		4.0	4.4	1.5	1.7	1.8	2.3	2.1	1.9	1.8	1.7	1.7	1.6	1.4	3.0	2.0	1.8
Final Sales		1.1	3.5	0.5	2.8	2.2	2.4	2.3	2.0	1.9	1.8	1.8	1.6	1.7	2.2	2.2	2.0
Final Domestic Demand		4.5	3.6	3.9	3.9	1.7	2.3	2.0	1.9	1.9	1.8	1.7	1.6	1.1	3.0	2.7	1.9
Consumer Spending		3.5	4.6	3.7	2.1	2.0	2.3	2.0	1.8	1.8	1.7	1.7	1.4	2.4	3.5	2.4	1.8
Durables		10.9	7.6	1.1	1.6	2.2	2.0	1.7	1.5	1.8	1.7	1.5	1.7	4.5	6.4	2.1	1.7
Nondurables		1.7	6.1	0.6	1.8	2.0	2.2	1.9	1.9	1.6	1.6	1.6	1.3	1.7	2.6	2.0	1.7
Services		2.8	3.0	5.7	2.5	1.9	2.5	2.2	1.9	1.9	1.7	1.8	1.6	2.2	3.2	2.7	1.9
Goverment Spending		2.5	1.1	4.8	4.0	3.7	2.8	2.4	2.3	2.2	2.0	2.0	2.0	2.7	2.5	3.3	2.2
Business Investment		12.1	9.5	5.4	8.2	2.3	2.8	2.4	2.4	2.6	2.3	2.0	2.0	-9.4	2.6	4.3	2.4
Non-residential Construction		2.0	10.8	7.2	5.4	2.2	2.7	2.4	2.3	2.6	2.3	2.0	2.0	-11.5	0.3	4.0	2.4
Machinery and Equipment		29.3	7.7	2.8	12.6	2.5	3.0	2.5	2.5	2.6	2.3	2.0	2.0	-6.0	6.0	4.8	2.4
Residential Construction		9.4	-2.9	-0.2	13.4	-7.0	0.0	0.0	0.0	0.5	1.0	1.0	1.0	3.3	3.1	0.3	0.5
Exports		2.7	6.3	-10.4	3.0	3.4	2.3	2.8	2.2	2.0	2.2	2.2	2.2	1.0	1.0	1.3	2.2
Imports		13.9	6.2	0.3	6.3	1.9	2.2	2.0	1.9	2.0	2.0	2.0	2.0	-1.0	3.6	2.8	2.0
	2007$ blns (contribution in ppts : a.r.)																
Inventory Change		10.2	14.0	16.9	13.8	12.4	12.1	11.6	11.3	10.8	10.2	9.7	9.7	1.0	13.7	11.8	10.1
Contribution to GDP Growth		2.8	0.8	0.7	-0.7	-0.4	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.3	0.8	-0.1	-0.1
Net Exports		1.8	1.9	-14.7	-19.7	-17.6	-17.4	-16.3	-15.8	-15.9	-15.7	-15.6	-15.4	7.4	-7.7	-16.8	-15.7
Contribution to GDP Growth		-3.7	-0.1	-3.4	-1.2	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.6	-0.9	-0.5	0.0
	$ blns : a.r. (growth in q/q % chng : a.r.)																
Nominal GDP		2,115	2,137	2,146	2,180	2,205	2,230	2,253	2,275	2,296	2,317	2,337	2,358	2,036	2,144	2,241	2,327
Growth		7.1	4.2	1.7	6.5	4.7	4.7	4.1	4.0	3.7	3.7	3.6	3.6	2.0	5.3	4.5	3.9
Real GDP	y/y % chng	2.3	3.7	3.0	2.9	2.3	1.8	2.0	2.0	2.0	1.9	1.8	1.7				
Inflation	**q/q % chng : a.r.**																
GDP Price Index		3.2	-0.3	0.0	5.0	2.8	2.3	1.9	2.0	1.9	1.9	1.9	1.9	0.6	2.3	2.4	2.0
CPI All Items		2.6	0.2	1.4	3.0	3.6	1.3	1.8	2.2	2.5	1.9	2.0	2.1	1.4	1.6	2.2	2.1
Ex. Food and Energy		2.3	0.7	1.4	2.1	2.2	1.1	1.8	2.2	2.6	1.9	2.0	2.1	1.9	1.6	1.8	2.1
Food Prices		-1.0	4.2	3.0	0.3	2.0	2.1	1.8	2.1	2.6	2.1	1.8	2.1	1.5	0.0	1.9	2.1
Energy Prices		17.0	-15.1	-4.8	24.8	19.9	1.3	1.6	2.4	1.4	2.3	2.4	2.0	-2.9	5.4	7.9	1.9
Services		2.9	3.7	2.2	0.0	2.4	2.2	2.3	1.5	1.9	2.4	2.3	1.5	1.9	2.2	1.9	2.0
CPI All Items	y/y % chng	1.9	1.3	1.4	1.8	2.0	2.3	2.4	2.2	2.0	2.1	2.2	2.1				
CPIX8	y/y % chng	1.5	1.0	0.8	1.1	1.3	1.6	1.9	2.0	2.0	2.0	1.9	2.0	1.9	1.1	1.7	2.0
New Core CPIs	y/y % chng : avg.	1.5	1.3	1.5	1.7	1.9	2.0	2.0	2.1	2.0	2.0	1.9	2.0	1.9	1.5	2.0	2.0
Financial	**% : quarterly avg.**																
Overnight Rate		0.50	0.50	0.83	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.50	2.50	0.50	0.71	1.44	2.31
3-Month T-Bill		0.47	0.54	0.81	0.92	1.15	1.20	1.45	1.70	1.90	2.15	2.35	2.35	0.49	0.69	1.35	2.20
90-Day BAs		0.94	0.91	1.31	1.43	1.65	1.70	1.90	2.15	2.35	2.55	2.75	2.75	0.88	1.15	1.85	2.60
10-Year Bond Yield		1.71	1.51	1.95	1.96	2.30	2.40	2.55	2.65	2.80	2.95	3.05	3.20	1.25	1.78	2.45	3.00
Canada/US Spread	**bps**																
90 Day		-13	-36	-25	-30	-43	-65	-58	-51	-45	-38	-27	-27	17	-26	-54	-34
10 Year		-73	-75	-30	-41	-48	-50	-46	-42	-38	-34	-30	-26	-59	-55	-46	-32
Foreign Trade	**$ blns : a.r.** (share in % of GDP)																
Current Account Balance		-54.6	-61.3	-74.4	-65.4	-58.8	-56.8	-55.0	-53.5	-53.5	-53.2	-52.9	-52.4	-65.4	-63.9	-56.0	-53.0
Share of GDP		-2.6	-2.9	-3.5	-3.0	-2.7	-2.5	-2.4	-2.4	-2.3	-2.3	-2.3	-2.2	-3.2	-3.0	-2.5	-2.3
Merchandise Balance		-10.1	-20.7	-36.1	-28.6	-22.5	-20.5	-18.8	-17.6	-17.7	-17.6	-17.5	-17.4	-25.9	-23.9	-19.8	-17.6
Non-Merchandise Balance		-44.5	-40.6	-38.3	-36.8	-36.4	-36.3	-36.2	-35.9	-35.7	-35.6	-35.4	-35.0	-39.5	-40.0	-36.2	-35.4
	quarterly avg.																
US$	US¢/C$	75.6	74.4	79.9	78.6	79.1	78.1	79.1	79.9	80.3	80.8	81.3	81.8	75.5	77.1	79.1	81.1
	C$/US$	1.323	1.344	1.252	1.272	1.264	1.280	1.265	1.252	1.245	1.237	1.230	1.222	1.326	1.298	1.265	1.234
Yen	¥/C$	85.9	82.6	88.6	88.8	85.7	82.6	83.4	84.0	84.1	84.2	84.3	84.4	82.0	86.5	83.9	84.2
Euro	C$/€	1.41	1.48	1.47	1.50	1.56	1.59	1.57	1.56	1.56	1.56	1.56	1.56	1.47	1.46	1.57	1.56
Incomes	**y/y % chng**																
Corporate Profits Before Tax		61.7	69.8	17.5	10.0	3.8	11.3	20.1	9.8	9.5	9.2	9.0	8.8	-6.8	34.8	11.0	9.1
Corporate Profits After Tax		27.1	27.6	15.2	9.5	7.5	12.3	10.5	5.5	5.2	5.5	7.2	8.8	1.9	19.2	8.9	6.7
Personal Income		3.7	4.2	4.5	4.6	5.3	5.0	4.6	4.2	3.9	3.6	3.5	3.5	2.2	4.3	4.8	3.6
Real Disposable Income		4.2	3.6	3.4	3.4	4.1	3.4	2.3	2.0	1.9	1.5	1.3	1.3	1.3	3.7	2.9	1.5
Savings Rate	% : quarterly avg.	3.0	3.1	4.0	4.2	4.2	4.3	4.5	4.4	4.4	4.4	4.4	4.5	3.5	3.6	4.4	4.4
Other Indicators	**quarterly avg.** (000s and mlns are a.r.)																
Unemployment Rate	percent	6.6	6.5	6.2	6.0	5.8	5.8	5.7	5.6	5.6	5.6	5.5	5.5	7.0	6.3	5.7	5.5
Housing Starts	000s	222	207	223	229	222	217	204	198	198	196	194	191	198	220	210	195
Existing Home Sales	y/y % chng	0.7	-6.5	-10.1	-0.4	-6.1	-8.2	-1.5	-8.0	-5.5	2.3	0.8	0.8	5.9	-4.5	-8.0	2.5
MLS Home Price Index	y/y % chng	17.1	17.7	11.5	9.4	6.2	1.4	2.8	1.9	0.8	0.6	1.0	1.7	12.7	13.8	3.0	1.0
Motor Vehicle Sales	mlns	2.09	2.07	2.07	2.07	2.05	1.95	1.93	1.93	1.93	1.92	1.91	1.91	1.99	2.08	1.97	1.92
	q/q % chng : a.r.																
Employment Growth		2.1	1.7	2.0	2.6	0.1	2.0	1.3	1.2	0.6	1.0	1.1	1.0	0.7	1.9	1.5	1.0
Industrial Production		5.7	7.7	2.3	0.7	2.5	2.2	2.6	2.2	1.9	1.8	1.6	1.6	0.1	5.1	2.4	2.0
Federal Budget Balance	% of FY GDP													-0.9	-0.9	-0.8	-0.8

Shaded values represent forecasts

Please refer to page 2 for Important Disclosures

MARKET CALL

- We're sticking to our guns that the Bank of Canada will be on hold until July, and that a quarter point hike could be the last we hear from them until 2019. True, there's a bit more hope now that a NAFTA deal can be reached. But we still have the BoC needing enough evidence that the only 1.6% growth pace in the second half of last year has given way to much better times, and that there isn't too much of a drag from new mortgage regulation and rate hikes to date.
- Dollar-Canada came a long way towards our 1.32 target, but could lose a few cents if the BoC takes a pass on rate hikes in the next two months. We would see anything through that level as an opportunity to buy the Canadian currency, expecting a weaker general trend for the US$ to give it at least a stable track in the last half of this year.
- The very long end of both the US and Canadian curves looks rich, given our expectations for an upward creep in CPI in both countries. Long rates will also be pressured higher globally if, as we expect, markets start to focus on the upcoming end to QE in Europe and a potential for major central banks to begin tightening policy earlier than they now assert.

INTEREST & FOREIGN EXCHANGE RATES

		2018				2019			
END OF PERIOD:		**21-Mar**	**Jun**	**Sep**	**Dec**	**Mar**	**Jun**	**Sep**	**Dec**
CDA	Overnight target rate	1.25	1.25	1.50	1.50	1.75	1.75	2.00	2.00
	98-Day Treasury Bills	1.10	1.25	1.45	1.45	1.75	1.70	1.95	2.00
	2-Year Gov't Bond	1.87	1.85	2.05	2.05	2.10	2.10	2.20	2.25
	10-Year Gov't Bond	2.27	2.35	2.35	2.35	2.45	2.40	2.55	2.60
	30-Year Gov't Bond	2.38	2.50	2.65	2.70	2.75	2.80	2.90	2.95
U.S.	Federal Funds Rate	1.625	1.875	2.125	2.125	2.375	2.625	2.625	2.875
	91-Day Treasury Bills	1.74	1.80	1.90	2.05	2.25	2.55	2.65	2.80
	2-Year Gov't Note	2.31	2.30	2.40	2.50	2.60	2.70	2.70	2.80
	10-Year Gov't Note	2.88	2.85	2.80	2.90	3.05	3.10	3.10	3.15
	30-Year Gov't Bond	3.11	3.25	3.35	3.40	3.40	3.45	3.55	3.50
Canada - US T-Bill Spread		-0.63	-0.55	-0.45	-0.60	-0.50	-0.85	-0.70	-0.80
Canada - US 10-Year Bond Spread		-0.61	-0.50	-0.45	-0.55	-0.60	-0.70	-0.55	-0.55
Canada Yield Curve (10-Year — 2-Year)		0.40	0.50	0.30	0.30	0.35	0.30	0.35	0.35
US Yield Curve (10-Year — 2-Year)		0.58	0.55	0.40	0.40	0.45	0.40	0.40	0.35
EXCHANGE RATES	CADUSD	0.78	0.77	0.76	0.76	0.78	0.78	0.76	0.77
	USDCAD	1.29	1.30	1.32	1.31	1.28	1.29	1.31	1.30
	USDJPY	106	105	103	102	102	102	101	100
	EURUSD	1.23	1.25	1.27	1.28	1.29	1.29	1.30	1.32
	GBPUSD	1.41	1.37	1.38	1.43	1.45	1.47	1.48	1.52
	AUDUSD	0.78	0.80	0.82	0.83	0.85	0.86	0.86	0.85
	USDCHF	0.95	0.94	0.92	0.92	0.92	0.93	0.93	0.92
	USDBRL	3.27	3.26	3.40	3.45	3.40	3.50	3.52	3.58
	USDMXN	18.4	20.1	19.5	19.0	18.8	18.8	18.5	19.0

Interest rate outlook

%, end of period

	Actuals				Forecast							
	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	19Q2	19Q3	19Q4
Canada												
Overnight	0.50	0.50	1.00	1.00	1.25	1.50	1.75	2.00	2.25	2.25	2.25	2.25
Three-month	0.52	0.71	1.00	1.06	1.20	1.45	1.70	2.05	2.25	2.15	2.15	2.15
Two-year	0.75	1.10	1.52	1.69	1.75	2.05	2.25	2.45	2.60	2.50	2.40	2.30
Five-year	1.12	1.40	1.75	1.87	2.00	2.30	2.55	2.75	2.90	2.85	2.85	2.80
10-year	1.62	1.76	2.10	2.04	2.20	2.50	2.75	2.95	3.10	3.10	3.05	3.05
30-year	2.30	2.14	2.47	2.27	2.45	2.75	3.05	3.15	3.25	3.25	3.30	3.30
United States												
Fed funds**	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50
Three-month	0.76	1.03	1.06	1.39	1.55	1.80	2.05	2.30	2.55	2.80	3.05	3.30
Two-year	1.27	1.38	1.47	1.89	2.10	2.35	2.55	2.75	3.00	3.25	3.40	3.55
Five-year	1.93	1.89	1.92	2.20	2.50	2.70	2.90	3.05	3.25	3.45	3.55	3.65
10-year	2.40	2.31	2.33	2.40	2.80	3.00	3.15	3.30	3.45	3.60	3.70	3.75
30-year	3.02	2.84	2.86	2.74	3.20	3.35	3.50	3.60	3.70	3.75	3.80	3.85
United Kingdom												
Bank rate	0.25	0.25	0.25	0.50	0.50	0.75	0.75	0.75	1.00	1.00	1.00	1.25
Two-year	0.12	0.36	0.46	0.45	0.75	0.80	0.85	0.95	1.00	1.05	1.10	1.15
10-year	1.14	1.26	1.38	1.19	1.65	1.75	1.85	1.90	2.00	2.10	2.20	2.30
Euro area												
Deposit Rate	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.40	-0.30	-0.20
Two-year	-0.74	-0.57	-0.69	-0.63	-0.65	-0.65	-0.60	-0.50	-0.50	-0.50	-0.40	-0.30
10-year	0.33	0.47	0.47	0.43	0.65	0.65	0.70	0.80	1.00	1.05	1.25	1.25
Australia												
Cash target rate	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.75	2.00	2.00	2.00
Two-year	1.76	1.78	1.94	2.00	2.00	2.10	2.25	2.40	2.50	2.60	2.60	2.60
10-year	2.70	2.60	2.84	2.63	2.70	2.75	3.05	3.30	3.70	4.10	4.10	4.05
New Zealand												
Cash target rate	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	2.00
Two-year swap	2.31	2.32	2.19	2.20	2.20	2.30	2.40	2.50	2.60	2.75	2.80	2.80
10-year swap	3.41	3.35	3.24	3.13	3.25	3.40	3.50	3.60	3.75	3.85	4.10	4.25
Yield curve*												
Canada	87	66	58	35	45	45	50	50	50	60	65	75
United States	113	93	86	51	70	65	60	55	45	35	30	20
United Kingdom	102	90	92	74	90	95	100	95	100	105	110	115
Eurozone	107	104	116	106	130	130	130	130	150	155	165	155
Australia	94	82	90	63	70	65	80	90	120	150	150	145
New Zealand	110	103	105	93	105	110	110	110	115	110	130	145

* Two-year/10-year spread in basis points, **Top of 25 basis point range

Source: Reuters, RBC Economics Research

Central bank policy rate

%, end of period

		Current	Last				Current	Last	
United States	Fed funds	1.25-1.50	1.00-1.25	December 13, 2017	Eurozone	Deposit rate	-0.40	-0.30	March 10, 2016
Canada	Overnight rate	1.25	1.00	January 17, 2018	Australia	Cash rate	1.50	1.75	August 3, 2016
United Kingdom	Bank rate	0.50	0.25	November 2, 2017	New Zealand	Cash rate	1.75	2.00	November 10, 2016

Source: Bloomberg, Reuters, RBC Economics Research

Scotiabank™

GLOBAL ECONOMICS
| SCOTIABANK'S FORECAST TABLES

March 6, 2018

	2017	2018				2019			
Central Bank Rates	**Q4**	**Q1f**	**Q2f**	**Q3f**	**Q4f**	**Q1f**	**Q2f**	**Q3f**	**Q4f**
Americas				(%, end of period)					
Bank of Canada	1.00	1.25	1.50	1.50	1.75	2.00	2.25	2.25	2.50
US Federal Reserve (upper bound)	1.50	1.75	1.75	2.00	2.25	2.25	2.50	2.50	2.75
Bank of Mexico	7.25	7.50	7.50	7.50	7.75	7.75	7.50	7.25	7.00
Central Bank of Brazil	7.00	6.75	6.50	6.50	6.75	7.00	7.50	8.00	8.50
Bank of the Republic of Colombia	4.75	4.50	4.25	4.25	4.25	4.50	4.75	5.00	5.00
Central Reserve Bank of Peru	3.25	2.75	2.75	2.75	2.75	3.00	3.00	3.25	3.25
Central Bank of Chile	2.50	2.50	2.75	3.00	3.25	3.50	3.50	3.75	3.75
Europe									
European Central Bank	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.50
Bank of England	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.50	1.50
Asia/Oceania									
Reserve Bank of Australia	1.50	1.50	1.50	1.50	1.75	1.75	2.00	2.00	2.25
Bank of Japan	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
People's Bank of China	4.35	4.35	4.35	4.35	4.35	4.60	4.60	4.85	4.85
Reserve Bank of India	6.00	6.00	6.00	6.00	6.00	6.25	6.25	6.50	6.50
Bank of Korea	1.50	1.50	1.75	1.75	2.00	2.00	2.25	2.25	2.25
Bank of Thailand	1.50	1.50	1.50	1.50	1.75	1.75	2.00	2.00	2.25
Currencies and Interest Rates									
Americas				(end of period)					
Canadian Dollar (USDCAD)	1.26	1.28	1.27	1.26	1.25	1.25	1.22	1.22	1.25
Canadian Dollar (CADUSD)	0.80	0.78	0.79	0.79	0.80	0.80	0.82	0.82	0.80
Mexican Peso (USDMXN)	19.66	18.84	19.11	19.18	19.46	19.56	19.38	19.43	19.71
Brazilian Real (USDBRL)	3.31	3.25	3.15	3.25	3.25	3.30	3.30	3.35	3.35
Colombian Peso (USDCOP)	2,986	2,800	2,900	2,900	2,900	2,950	2,950	3,000	3,050
Peruvian Nuevo Sol (USDPEN)	3.24	3.22	3.19	3.20	3.18	3.18	3.14	3.15	3.12
Chilean Peso (USDCLP)	615	597	598	597	596	593	591	588	586
Europe									
Euro (EURUSD)	1.20	1.18	1.18	1.20	1.20	1.24	1.24	1.28	1.28
UK Pound (GBPUSD)	1.35	1.35	1.35	1.37	1.37	1.38	1.38	1.40	1.40
Asia/Oceania									
Japanese Yen (USDJPY)	113	114	114	115	115	118	118	120	120
Australian Dollar (AUDUSD)	0.78	0.79	0.79	0.80	0.80	0.81	0.81	0.82	0.82
Chinese Yuan (USDCNY)	6.51	6.40	6.40	6.30	6.30	6.20	6.20	6.10	6.10
Indian Rupee (USDINR)	63.9	64.5	64.5	64.0	64.0	63.5	63.5	63.0	63.0
South Korean Won (USDKRW)	1,067	1,060	1,060	1,040	1,040	1,030	1,030	1,020	1,020
Thai Baht (USDTHB)	32.6	31.8	31.8	31.6	31.6	31.2	31.2	31.0	31.0
Canada (Yields, %)									
3-month T-bill	1.06	1.20	1.50	1.55	1.75	2.05	2.30	2.30	2.50
2-year Canada	1.69	1.75	2.00	2.20	2.30	2.40	2.50	2.55	2.65
5-year Canada	1.87	2.00	2.25	2.30	2.45	2.55	2.60	2.65	2.75
10-year Canada	2.05	2.20	2.45	2.50	2.60	2.65	2.70	2.75	2.85
30-year Canada	2.27	2.40	2.65	2.75	2.90	3.00	3.10	3.15	3.10
United States (Yields, %)									
3-month T-bill	1.38	1.70	1.85	2.05	2.30	2.30	2.55	2.60	2.80
2-year Treasury	1.88	2.25	2.30	2.50	2.60	2.70	2.75	2.85	2.90
5-year Treasury	2.21	2.65	2.70	2.75	2.80	2.85	2.90	3.00	3.05
10-year Treasury	2.40	2.90	2.95	2.95	3.00	3.05	3.10	3.15	3.20
30-year Treasury	2.74	3.20	3.20	3.25	3.25	3.30	3.30	3.35	3.35

Sources: Scotiabank Economics, Bloomberg.

INTEREST RATE OUTLOOK

	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1*	Q2F	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
CANADA												
Overnight Target Rate	0.50	0.50	1.00	1.00	1.25	1.25	1.50	1.50	1.75	1.75	2.00	2.00
3-mth T-Bill Rate	0.52	0.71	1.00	1.06	1.08	1.38	1.50	1.63	1.75	1.88	2.00	2.13
2-yr Govt. Bond Yield	0.75	1.09	1.52	1.68	1.77	1.85	1.95	2.10	2.20	2.30	2.35	2.40
5-yr Govt. Bond Yield	1.12	1.38	1.75	1.86	2.00	2.15	2.25	2.35	2.40	2.45	2.55	2.60
10-yr Govt. Bond Yield	1.63	1.75	2.10	2.04	2.16	2.35	2.45	2.55	2.60	2.65	2.70	2.75
30-yr Govt. Bond Yield	2.31	2.13	2.47	2.26	2.32	2.60	2.75	2.85	2.95	3.00	3.05	3.10
10-yr-2-yr Govt Spread	0.88	0.66	0.58	0.36	0.39	0.50	0.50	0.45	0.40	0.35	0.35	0.35
U.S.												
Fed Funds Target Rate	1.00	1.25	1.25	1.50	1.50	2.00	2.25	2.25	2.50	2.75	3.00	3.00
3-mth T-Bill Rate	0.76	1.03	1.06	1.39	1.72	1.98	2.10	2.23	2.53	2.78	2.90	2.90
2-yr Govt. Bond Yield	1.27	1.38	1.47	1.89	2.26	2.35	2.50	2.65	2.75	2.85	2.95	2.95
5-yr Govt. Bond Yield	1.93	1.89	1.92	2.20	2.61	2.75	2.85	2.95	3.00	3.05	3.10	3.10
10-yr Govt. Bond Yield	2.40	2.31	2.33	2.40	2.82	2.95	3.05	3.15	3.20	3.25	3.30	3.30
30-yr Govt. Bond Yield	3.02	2.84	2.86	2.74	3.06	3.15	3.25	3.35	3.40	3.45	3.50	3.50
10-yr-2-yr Govt Spread	1.13	0.93	0.86	0.51	0.56	0.60	0.55	0.50	0.45	0.40	0.35	0.35
CANADA - U.S SPREADS												
Can - U.S. T-Bill Spread	-0.24	-0.32	-0.06	-0.33	-0.64	-0.60	-0.60	-0.60	-0.78	-0.90	-0.90	-0.77
Can - U.S. 10-Year Bond Spread	-0.77	-0.56	-0.23	-0.36	-0.66	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.55

F: Forecast by TD Bank Group as at March 2018. All forecasts are end-of-period.
Source: Bloomberg, Bank of Canada, Federal Reserve, TD Economics. * Spot rate as at March 14, 2018.

FOREIGN EXCHANGE OUTLOOK

Currency	Exchange rate	2017				2018				2019			
		Q1	Q2	Q3	Q4	Q1*	Q2F	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
Exchange rate to U.S. dollar													
Japanese yen	JPY per USD	111	112	113	113	106	106	105	105	105	105	104	104
Euro	USD per EUR	1.07	1.14	1.18	1.20	1.24	1.22	1.21	1.22	1.23	1.24	1.25	1.26
U.K. pound	USD per GBP	1.25	1.30	1.34	1.35	1.40	1.38	1.39	1.39	1.40	1.41	1.42	1.43
Exchange rate to Canadian dollar													
U.S. dollar	USD per CAD	0.75	0.77	0.80	0.80	0.77	0.77	0.78	0.79	0.79	0.80	0.80	0.80
Japanese yen	JPY per CAD	83.6	86.6	90.0	90.0	82.1	81.5	82.0	82.7	83.3	83.1	82.8	82.5
Euro	CAD per EUR	1.43	1.48	1.48	1.51	1.60	1.59	1.55	1.55	1.55	1.56	1.57	1.58
U.K. pound	CAD per GBP	1.67	1.69	1.68	1.69	1.81	1.79	1.78	1.77	1.76	1.77	1.78	1.79

F: Forecast by TD Bank Group as at March 2018. All forecasts are end-of-period.
Source: Bloomberg, Bank of Canada, Federal Reserve, TD Economics. * Spot rate as at March 14, 2018.

COMMODITY PRICE OUTLOOK

	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1*	Q2F	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
Crude Oil (WTI, $US/bbl)	52	48	48	55	61	60	59	59	59	59	58	58
Natural Gas ($US/MMBtu)	2.99	3.04	2.93	2.88	2.69	3.00	3.05	3.18	3.20	3.05	3.10	3.18
Gold ($US/troy oz.)	1218	1258	1278	1276	1325	1315	1315	1325	1325	1335	1375	1375
Silver (US$/troy oz.)	17.47	17.22	16.85	16.71	16.55	16.50	16.75	17.50	18.00	18.50	19.00	19.00
Copper (cents/lb)	264	257	288	309	314	324	329	329	331	331	335	335
Nickel (US$/lb)	4.66	4.19	4.78	5.26	6.29	6.00	5.75	5.75	5.50	5.50	6.00	6.00
Aluminum (cents/lb)	84	87	91	95	95	98	99	98	98	98	99	99
Wheat ($US/bu)	6.53	6.80	7.79	7.47	7.78	7.15	7.00	7.15	7.25	7.50	7.75	7.80

F: Forecast by TD Bank Group as at March 2018. All forecasts are period averages.
Source: Bloomberg, TD Economics, USDA (Haver). * Spot rate as at March 14, 2018.

NATIONAL BANK OF CANADA
FINANCIAL MARKETS

Monthly Fixed Income Monitor

Economics and Strategy

March 2018

Highlights

- With passage of the Bipartisan Budget Act, the odds of faster U.S. policy normalization have increased. However, the recent budget deal combined with the tax cuts voted late last year is projected to push the net supply of Treasury marketable debt above US$1 trillion in 2018, twice as much as in 2017, adding to the upward pressure on 10-year yields. In these circumstances, the FOMC will have to focus on overall financial conditions. Since long rates have more effect on the economy than short rates, we see the FOMC easing up on the brakes a bit. A combination of a 10-year rate trading around 3.17% and a target fed funds range of 2.00—2.25% by year end is what we see as the most likely scenario for the end of this year.

- In Canada, wages and salaries can be expected to accelerate further as the year progress, setting the stage for the Bank of Canada to normalize further. Yet we expect the Bank to move cautiously, since rapid policy normalization could trigger mortgage repricing (wider spreads on top of rising swap rates) at a time when the housing market faces tougher macro-prudential measures (B-20) and mortgage rates already higher than a year ago. We see the Bank hiking a quarter-point in May and again in October. If global interest rates lag our forecast, limiting the tightening of financial conditions in Canada, the Bank could still deliver one more rate hike in December. We see the overnight rate at 1.75% in December and 10-year Canadas trading around 2.68%.

Paul-André Pinsonnault

Forecast dated February 23, 2018

United States

Quarters	Fed Fund	3 Mth Bill	2YR	5YR	10YR	30YR
02/23/18	1.50	1.64	2.24	2.62	2.87	3.16
Q1/18	1.75	1.60	2.25	2.69	2.93	3.17
Q2	1.75	1.60	2.35	2.75	2.97	3.19
Q3	2.00	1.85	2.46	2.83	3.00	3.21
Q4	2.25	2.10	2.56	2.89	3.17	3.36
Q1/19	2.25	2.10	2.63	2.94	3.22	3.40
Q2	2.50	2.35	2.77	3.01	3.27	3.43
Q3	2.75	2.60	2.91	3.11	3.33	3.48
Q4	3.00	2.85	3.00	3.18	3.38	3.52

Canada

Quarters	Overnight	3 Mth Bill	2YR	5YR	10YR	30YR
02/23/18	1.25	1.15	1.78	2.05	2.24	2.40
Q1/18	1.25	1.30	1.89	2.15	2.38	2.50
Q2	1.50	1.46	1.96	2.18	2.51	2.60
Q3	1.50	1.65	2.05	2.28	2.63	2.71
Q4	1.75	1.88	2.13	2.33	2.68	2.74
Q1/19	2.00	1.96	2.31	2.57	2.87	2.93
Q2	2.00	2.18	2.37	2.62	2.94	2.98
Q3	2.25	2.21	2.48	2.74	3.02	3.06
Q4	2.25	2.21	2.55	2.77	3.05	3.08

FINANCIAL FORECASTS

Following a very tough week at the start of February, a relative calm returned to the markets, and stock indexes shed much of their losses. However, the markets remain a little edgy, with investors still concerned about the potential for a steeper rise in bond yields, and by the U.S. government's protectionist intentions. Despite the concerns, favourable economic outlooks and slightly stronger inflationary pressure suggest that interest rates will keep rising gradually. In the United States, the Federal Reserve seems certain to raise its key rates again on March 21st, and could signal a few more rate increases for the coming quarters, while continuing its gradual approach. Consequently, we are expecting slightly faster, steeper increases in U.S. rates in the coming years. Key rates are also expected to rise gradually in Canada, but some signs of slowing in the housing market and household debt, and the heightened risks associated with U.S. protectionism could convince the Bank of Canada (BoC) to wait until summer before tightening its monetary policy further. The BoC's slightly more cautious tone and fears of protectionism recently took the Canadian dollar to around US$0.77. These factors should curb the loonie's appreciation in the coming quarters, despite the fairly good outlook for commodity prices.

TABLE 2

Summary of the financial forecasts

	2017		2018				2019			
END OF PERIOD IN % (EXCEPT IF INDICATED)	Q3	Q4	Q1f	Q2f	Q3f	Q4f	Q1f	Q2f	Q3f	Q4f
Key interest rate										
United States	1.25	1.50	1.75	2.00	2.25	2.25	2.50	2.75	3.00	3.00
Canada	1.00	1.00	1.25	1.25	1.50	1.75	1.75	2.00	2.25	2.25
Euro zone	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.25	0.25	0.50
United Kingdom	0.25	0.50	0.50	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Federal bonds										
United States										
2-year	1.49	1.88	2.35	2.50	2.60	2.70	2.85	3.00	3.05	3.15
5-year	1.92	2.19	2.75	2.90	3.00	3.05	3.15	3.20	3.25	3.30
10-year	2.33	2.41	2.95	3.05	3.15	3.25	3.35	3.40	3.45	3.45
30-year	2.86	2.74	3.20	3.30	3.40	3.45	3.55	3.60	3.65	3.70
Canada										
2-year	1.52	1.69	1.80	1.95	2.10	2.25	2.30	2.45	2.50	2.60
5-year	1.75	1.87	2.05	2.20	2.40	2.50	2.55	2.65	2.70	2.75
10-year	2.10	2.04	2.25	2.40	2.60	2.75	2.80	2.85	2.90	2.90
30-year	2.47	2.26	2.45	2.55	2.75	2.90	2.95	3.00	3.05	3.10
Currency market										
Canadian dollar (USD/CAD)	1.25	1.26	1.28	1.27	1.25	1.25	1.27	1.25	1.23	1.23
Canadian dollar (CAD/USD)	0.80	0.79	0.78	0.79	0.80	0.80	0.79	0.80	0.81	0.81
Euro (EUR/USD)	1.18	1.20	1.23	1.23	1.24	1.25	1.26	1.28	1.29	1.30
British pound (GBP/USD)	1.34	1.35	1.39	1.41	1.41	1.40	1.38	1.37	1.38	1.40
Yen (USD/JPY)	112	113	107	109	111	113	114	115	115	114
Stock markets (level and growth)*										
United States – S&P 500	2,674		Target: 2,875 (+7.5%)				Target: 3,025 (+5.2%)			
Canada – S&P/TSX	16,209		Target: 17,000 (+4.9%)				Target: 18,300 (+7.6%)			
Commodities (annual average)										
WTI oil (US$/barrel)	51 (60*)		60 (62*)				64 (68*)			
Gold (US$/ounce)	1,258 (1,303*)		1,300 (1,275*)				1,250 (1,200*)			

f: forecasts; WTI: West Texas Intermediate; * End of year.
Sources: Datastream and Desjardins, Economic Studies

Global Insight - March 2018

Financial Markets	3-Month T-Bill Rate (%)	GOC Ten-Year Bond Rate (%)
18Q1	1.17	2.24
18Q2	1.38	2.42
18Q3	1.55	2.60
18Q4	1.72	2.75
19Q1	1.97	2.88
19Q2	2.22	2.97
19Q3	2.47	3.03
19Q4	2.72	3.08
20Q1	3.03	3.12
20Q2	3.03	3.16
20Q3	3.03	3.19
20Q4	3.03	3.20
21Q1	3.03	3.20
21Q2	3.03	3.20
21Q3	3.03	3.20
21Q4	3.03	3.19
22Q1	3.03	3.18
22Q2	3.03	3.18
22Q3	3.03	3.17
22Q4	3.03	3.16
23Q1	3.03	3.16
23Q2	3.03	3.15
23Q3	3.03	3.15
23Q4	3.03	3.15

National

Interest rate forecast

United States

Quarters	Fed Fund	3 Mth	2YR	5YR	10YR	30YR
03/27/18	1.75	1.77	2.27	2.57	2.78	3.03
Q2	1.75	1.69	2.35	2.75	2.97	3.17
Q3	2.00	1.91	2.46	2.83	3.00	3.19
Q4	2.25	2.10	2.56	2.89	3.17	3.34
Q1/19	2.25	2.10	2.63	2.94	3.22	3.38
Q2	2.50	2.35	2.77	3.01	3.27	3.41
Q3	2.75	2.60	2.91	3.11	3.33	3.46
Q4	3.00	2.85	3.00	3.18	3.38	3.51

Canada

Quarters	Overnight	3 Mth Bill	2YR	5YR	10YR	30YR
03/27/18	1.25	1.10	1.83	2.03	2.14	2.28
Q2	1.50	1.46	1.96	2.18	2.45	2.54
Q3	1.50	1.65	2.05	2.28	2.59	2.66
Q4	1.75	1.88	2.13	2.33	2.68	2.74
Q1/19	2.00	1.96	2.31	2.50	2.78	2.83
Q2	2.00	2.18	2.37	2.63	2.92	2.96
Q3	2.25	2.21	2.48	2.74	3.02	3.06
Q4	2.25	2.21	2.55	2.78	3.06	3.09

Source: NBF Economics and Strategy - 2018/03/27

CIBC

LT forecast-March 19, 2018

	2018	2019	2020	2021	2022
BoC Overnight Rate	1.31	1.81	2.15	2.25	2.25
90 Day T-bill Yield	1.27	1.78	2.20	2.25	2.30
2-Year Bond Yield	1.87	2.14	2.55	2.55	2.60
5-Year Bond Yield	2.14	2.39	2.65	2.70	2.75
10-Year Bond Yield	2.32	2.47	2.75	2.95	3.00
30-Year Bond Yield	2.55	2.82	2.90	2.90	3.05

Desjardins
Canada

	2018				2019				2020				2021				2022			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
Bank of Canada over	1.25	1.25	1.50	1.75	1.75	2.00	2.25	2.25	2.25	2.25	2.25	2.00	1.50	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Bons du Trésor - 3 r	1.20	1.30	1.55	1.75	1.80	2.05	2.25	2.25	2.25	2.25	2.20	1.90	1.40	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Obligations fédérales - 10 ans	2.25	2.40	2.60	2.75	2.80	2.85	2.90	2.90	2.95	2.95	2.75	2.50	2.30	2.20	2.15	2.15	2.15	2.20	2.30	2.40

Source : Datastream (CN14309, CNTBL3M,CNBCH10)

19-Mar-18

Canadian Economic Outlook

BMO Capital Markets
We're here to help.

Our key forecasts for the Canadian economy

July 6, 2018

		2017				2018				2019							
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2016	2017	2018	2019
Production		**q/q % chng : a.r.**															
Real GDP (chain-weighted)		4.0	4.6	1.7	1.7	1.3	2.4	1.5	2.2	1.8	1.7	1.7	1.6	1.4	3.0	1.9	1.8
Final Sales		1.2	3.9	0.1	2.8	1.0	3.0	1.7	2.2	1.9	1.8	1.8	1.6	1.7	2.3	1.9	2.0
Final Domestic Demand		4.9	3.2	3.6	4.1	2.1	2.0	2.0	2.0	1.9	1.8	1.7	1.6	1.1	3.0	2.7	1.9
Consumer Spending		4.0	4.3	3.1	2.2	1.1	1.7	2.0	2.0	1.8	1.7	1.7	1.4	2.4	3.5	2.0	1.8
Durables		12.2	7.2	-0.6	2.1	0.2	-2.0	1.7	1.5	1.8	1.7	1.5	1.7	4.5	6.5	0.7	1.4
Nondurables		2.1	5.6	0.4	3.5	-0.3	1.8	1.9	2.0	1.6	1.6	1.6	1.3	1.7	2.6	1.7	1.7
Services		3.0	2.8	5.2	2.0	2.1	2.5	2.2	2.1	1.9	1.7	1.8	1.6	2.2	3.2	2.6	1.9
Goverment Spending		3.3	0.5	4.8	4.5	3.3	2.8	2.4	2.3	2.2	2.0	2.0	2.0	2.7	2.6	3.3	2.2
Business Investment		14.3	7.5	5.9	8.0	10.9	3.4	2.4	2.4	2.6	2.3	2.0	2.0	-9.4	2.8	6.5	2.4
Non-residential Construction		5.9	6.7	8.9	4.0	6.3	3.0	2.4	2.3	2.6	2.3	2.0	2.0	-11.5	0.7	4.8	2.4
Machinery and Equipment		28.5	8.7	1.6	14.5	18.1	4.0	2.5	2.5	2.6	2.3	2.0	2.0	-6.0	6.0	9.0	2.5
Residential Construction		7.1	-1.3	-0.1	13.5	-7.2	0.0	0.0	0.0	0.5	1.0	1.0	1.0	3.3	2.9	0.4	0.5
Exports		2.6	6.4	-9.9	3.9	1.7	10.4	1.2	2.4	2.0	2.2	2.2	2.2	1.0	1.1	2.4	2.5
Imports		14.9	4.1	1.3	7.7	4.9	6.8	2.0	1.9	2.0	2.0	2.0	2.0	-1.0	3.6	4.7	2.3
		2007$ blns (contribution in ppts : a.r.)															
Inventory Change		8.9	12.8	18.3	15.8	15.3	12.5	11.6	11.6	11.0	10.5	9.9	10.0	1.0	13.9	12.7	10.4
Contribution to GDP Growth		2.5	0.9	1.3	-0.6	-0.1	-0.6	-0.2	0.0	-0.1	-0.1	-0.1	0.0	-0.3	0.8	0.0	-0.1
Net Exports		0.3	3.5	-13.7	-19.2	-24.1	-19.6	-20.9	-20.2	-20.3	-20.1	-20.0	-19.8	7.4	-7.3	-21.2	-20.1
Contribution to GDP Growth		-4.1	0.7	-3.6	-1.3	-1.1	0.9	-0.3	0.1	0.0	0.0	0.0	0.0	0.6	-0.9	-0.8	0.0
		$ blns : a.r. (growth in q/q % chng : a.r.)															
Nominal GDP		2,115	2,138	2,147	2,181	2,194	2,226	2,245	2,268	2,290	2,311	2,331	2,352	2,036	2,145	2,233	2,321
Growth		7.0	4.5	1.7	6.3	2.6	5.8	3.5	4.2	3.9	3.7	3.6	3.6	2.0	5.4	4.1	3.9
Real GDP	y/y % chng	2.3	3.8	3.1	3.0	2.3	1.8	1.7	1.9	2.0	1.8	1.8	1.7				
Inflation		**q/q % chng : a.r.**															
GDP Price Index		2.8	0.0	0.3	4.2	1.4	3.3	2.0	2.0	2.1	1.9	1.9	1.9	0.6	2.3	2.1	2.1
CPI All Items		2.6	0.2	1.4	3.0	3.6	1.0	1.7	2.2	2.5	1.9	2.0	2.1	1.4	1.6	2.2	2.1
Ex. Food and Energy		2.3	0.7	1.4	2.1	2.7	0.7	1.5	2.2	2.6	1.9	2.0	2.1	1.9	1.6	1.7	2.0
Food Prices		-1.0	4.2	3.0	0.3	0.9	0.8	1.3	2.1	2.6	2.1	1.8	2.1	1.5	0.0	1.4	2.0
Energy Prices		16.7	-15.0	-3.3	23.0	20.3	6.1	0.8	2.4	1.4	2.3	2.4	2.0	-2.9	5.4	8.8	2.1
Services		2.9	3.7	2.2	0.0	4.2	2.8	2.7	1.5	1.9	2.4	2.3	1.5	1.9	2.2	2.5	2.1
CPI All Items	y/y % chng	1.9	1.3	1.4	1.8	2.1	2.3	2.3	2.1	1.9	2.1	2.2	2.1				
CPIX8	y/y % chng	1.5	1.0	0.8	1.1	1.3	1.4	1.7	1.8	1.7	2.1	2.0	2.0	1.9	1.1	1.6	2.0
New Core CPIs	y/y % chng : avg.	1.5	1.4	1.5	1.7	1.9	2.0	2.0	1.8	1.7	2.1	2.0	2.1	1.9	1.5	1.9	2.0
Financial		**% : quarterly avg.**															
Overnight Rate		0.50	0.50	0.83	1.00	1.25	1.25	1.50	1.75	1.75	2.00	2.25	2.25	0.50	0.71	1.44	2.06
3-Month T-Bill		0.47	0.54	0.81	0.92	1.14	1.21	1.50	1.70	1.70	1.95	2.15	2.15	0.49	0.69	1.40	2.00
90-Day BAs		0.94	0.91	1.31	1.43	1.67	1.74	2.00	2.15	2.20	2.40	2.55	2.55	0.88	1.15	1.90	2.40
10-Year Bond Yield		1.71	1.51	1.95	1.96	2.24	2.28	2.30	2.50	2.60	2.65	2.75	2.80	1.25	1.78	2.35	2.70
Canada/US Spread		**bps**															
90 Day		-13	-36	-25	-30	-44	-66	-53	-54	-71	-68	-60	-60	17	-26	-55	-64
10 Year		-73	-75	-30	-41	-52	-64	-62	-58	-54	-51	-47	-44	-59	-55	-59	-49
Foreign Trade		**$ blns : a.r.** (share in % of GDP)															
Current Account Balance		-55.9	-59.6	-71.7	-65.9	-78.0	-68.5	-69.6	-67.9	-66.4	-66.1	-65.9	-65.5	-65.4	-63.3	-71.0	-66.0
Share of GDP		-2.6	-2.8	-3.3	-3.0	-3.6	-3.1	-3.1	-3.0	-2.9	-2.9	-2.8	-2.8	-3.2	-2.9	-3.2	-2.8
Merchandise Balance		-11.1	-19.8	-34.9	-30.0	-35.9	-27.0	-28.2	-26.8	-26.2	-26.1	-26.0	-26.0	-25.9	-24.0	-29.5	-26.0
Non-Merchandise Balance		-44.7	-39.8	-36.8	-36.0	-42.1	-41.5	-41.4	-41.2	-40.2	-40.1	-39.9	-39.6	-39.5	-39.3	-41.6	-39.9
		quarterly avg.															
US$	US¢/C$	75.6	74.4	79.9	78.6	79.1	77.5	76.9	78.1	78.7	79.1	79.5	79.9	75.5	77.1	77.9	79.3
	C$/US$	1.323	1.344	1.252	1.272	1.265	1.291	1.300	1.281	1.271	1.265	1.258	1.252	1.326	1.298	1.284	1.261
Yen	¥/C$	85.9	82.6	88.6	88.8	85.7	84.6	84.1	84.6	84.6	84.4	84.2	84.1	82.0	86.5	84.7	84.3
Euro	C$/€	1.41	1.48	1.47	1.50	1.55	1.54	1.54	1.55	1.56	1.56	1.56	1.56	1.47	1.46	1.55	1.56
Incomes		**y/y % chng**															
Corporate Profits Before Tax		61.6	68.3	17.7	8.6	2.1	10.6	18.0	9.5	9.8	9.2	9.1	8.9	-6.8	34.1	9.9	9.2
Corporate Profits After Tax		26.2	27.3	15.4	9.1	7.3	12.0	9.6	5.3	5.6	5.5	7.4	8.9	1.9	18.8	8.5	6.9
Personal Income		3.7	4.2	4.4	4.6	5.0	4.7	4.2	4.0	3.9	3.8	3.8	3.6	2.2	4.2	4.5	3.8
Real Disposable Income		4.2	3.7	3.7	3.3	3.8	2.7	1.5	1.7	1.8	1.7	1.7	1.4	1.3	3.7	2.4	1.7
Savings Rate	% : quarterly avg.	3.0	3.3	4.3	4.5	4.4	4.5	4.4	4.6	4.4	4.4	4.3	4.3	3.5	3.8	4.5	4.4
Other Indicators		**quarterly avg.** (000s and mlns are a.r.)															
Unemployment Rate	percent	6.6	6.5	6.2	6.0	5.8	5.9	5.9	5.7	5.7	5.7	5.6	5.6	7.0	6.3	5.8	5.6
Housing Starts	000s	222	207	223	229	223	209	215	213	211	207	204	200	198	220	215	205
Existing Home Sales	y/y % chng	0.7	-6.5	-10.1	-0.4	-14.8	-15.0	-9.7	-15.7	-3.3	2.5	2.2	2.2	5.9	-4.5	-13.5	1.0
MLS Home Price Index	y/y % chng	16.2	17.0	11.0	8.9	5.8	1.2	1.9	1.1	0.2	0.1	1.5	2.3	11.8	13.2	2.5	1.0
Motor Vehicle Sales	mlns	2.08	2.08	2.07	2.07	2.13	2.03	2.03	2.03	2.02	2.01	1.99	1.99	1.99	2.07	2.05	2.00
		q/q % chng : a.r.															
Employment Growth		2.1	1.7	2.0	2.6	0.1	0.7	1.3	1.3	0.8	1.0	1.1	1.0	0.7	1.9	1.2	1.0
Industrial Production		5.8	7.7	2.2	1.9	2.6	6.8	2.6	2.0	1.5	1.8	1.6	1.6	0.1	5.2	3.5	2.1
Federal Budget Balance	% of FY GDP													-0.9	-0.9	-0.8	-0.8

Shaded values represent forecasts

Please refer to page 2 for Important Disclosures

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MARKET CALL

- Back in January, we argued that the moderate pace to economic growth since mid-2017 would put the Bank of Canada on the sidelines until July, expecting a firmer pace to growth in Q2. The numbers have cooperated, and a July hike looks very probable. But thereafter, we again see another half-year pause on rates, in line with our view that trade headwinds and tighter mortgage rules obviate the need for a faster pace to monetary tightening.

- In the past month, we shifted one of our 2019 forecast Fed hikes into 2018, in line with an upgraded near term growth outlook and on target inflation. That still leaves us with fed funds topping out just below 3% in 2019, and if fiscal policy tightens in 2020 to address the deficit, that might be a near term peak. Long yields still need to move higher as the term premium adjusts to modest momentum in inflation and supply pressures as global central banks step away from QE.

- Much of the pressure on the loonie in recent months has simply reflected global US dollar strength. Should the greenback shed some of that supremacy, that will keep a lid on how weak the Canadian dollar can get against its US counterpart even if, as we expect, the C$ weakens on other crosses when the Bank of Canada goes back on hold. A much softer C$ would be in the offing should the US go ahead with punitive tariffs on Canadian automotive products.

INTEREST & FOREIGN EXCHANGE RATES

		2018	2018		2019			
END OF PERIOD:		**3-Jul**	**Sep**	**Dec**	**Mar**	**Jun**	**Sep**	**Dec**
CDA	Overnight target rate	1.25	1.50	1.50	1.75	1.75	2.00	2.00
	98-Day Treasury Bills	1.24	1.45	1.45	1.75	1.70	1.95	2.00
	2-Year Gov't Bond	1.91	2.05	2.05	2.10	2.10	2.20	2.25
	10-Year Gov't Bond	2.19	2.50	2.55	2.65	2.70	2.65	2.60
	30-Year Gov't Bond	2.22	2.45	2.75	2.85	2.85	2.90	3.05
U.S.	Federal Funds Rate	1.875	2.125	2.375	2.375	2.625	2.625	2.875
	91-Day Treasury Bills	1.98	2.05	2.25	2.35	2.55	2.65	2.80
	2-Year Gov't Note	2.55	2.60	2.75	2.75	2.80	2.80	2.85
	10-Year Gov't Note	2.86	2.95	3.05	3.20	3.30	3.25	3.15
	30-Year Gov't Bond	2.98	3.25	3.45	3.50	3.50	3.55	3.60
Canada - US T-Bill Spread		-0.74	-0.60	-0.80	-0.60	-0.85	-0.70	-0.80
Canada - US 10-Year Bond Spread		-0.67	-0.45	-0.50	-0.55	-0.60	-0.60	-0.55
Canada Yield Curve (10-Year — 2-Year)		0.28	0.45	0.50	0.55	0.60	0.45	0.35
US Yield Curve (10-Year — 2-Year)		0.31	0.35	0.30	0.45	0.50	0.45	0.30
EXCHANGE RATES	CADUSD	0.76	0.75	0.75	0.76	0.78	0.76	0.77
	USDCAD	1.32	1.33	1.34	1.31	1.28	1.31	1.30
	USDJPY	111	112	110	108	106	104	104
	EURUSD	1.16	1.17	1.19	1.21	1.23	1.25	1.28
	GBPUSD	1.32	1.31	1.32	1.36	1.38	1.42	1.47
	AUDUSD	0.74	0.76	0.79	0.81	0.82	0.84	0.85
	USDCHF	0.99	0.98	0.97	0.96	0.95	0.94	0.94
	USDBRL	3.90	3.70	3.55	3.50	3.45	3.50	3.55
	USDMXN	19.6	19.4	18.9	18.5	18.1	18.4	18.0

Desjardins
Canada

	2018				2019				2020				2021				2022			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
Bank of Canada o	1.25	1.25	1.50	1.50	1.75	1.75	2.00	2.00	2.25	2.25	2.25	2.00	1.50	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Bons du Trésor -	1.10	1.26	1.45	1.55	1.70	1.80	1.95	2.05	2.25	2.25	2.20	1.90	1.40	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Obligations fédérales - 10 ans	2.09	2.17	2.35	2.55	2.70	2.80	2.90	2.95	3.00	3.00	2.80	2.55	2.35	2.25	2.20	2.20	2.20	2.25	2.35	2.45

Source : Datastream (CN14309, CNTBB3M,CNBB10Y)

3-Jul-18

NATIONAL BANK OF CANADA
FINANCIAL MARKETS

Monthly Fixed Income Monitor

Economics and Strategy

July - August 2018

Highlights

- Assuming some limited further deterioration in trade talks between the U.S. and its major trading partners before year end, we expect the FOMC to be cautious taking the fed funds target range to 2.00%-2.25%. In the longer portion of the yield curve the market will face crosscurrents. International uncertainty will tend to limit rate increases while Fed balance sheet normalization, softer pension-fund demand and large borrowing requirements will tend to pull rates up. All things considered, we have revised our year-end forecast for the 10-year yield slightly downward, to 3.04% from 3.18%, but left it unchanged at 3.47% for year end 2019.

- While we see numerous yellow beeps on our radar screen, none are strong enough yet to turn outright bearish about the global outlook. In that context, our base case scenario (55% odds) is that the Bank will proceed with one more rate hike this year. Most likely in October when it will update its economic outlook. Looking at the longer end of the yield curve we see 10-year Canada trading around 2.57% by year end and around 3.09% in December 2019.

Paul-André Pinsonnault

Forecast dated July 11, 2018

United States						
Quarters	Fed Fund	3 Mth Bill	2YR	5YR	10YR	30YR
07/09/18	2.00	1.96	2.56	2.75	2.86	2.97
Q3	2.25	2.13	2.68	2.82	2.96	3.06
Q4	2.25	2.08	2.73	2.85	3.04	3.12
Q1/19	2.50	2.25	2.76	2.87	3.12	3.24
Q2	2.50	2.37	2.98	3.13	3.33	3.44
Q3	2.75	2.62	3.13	3.22	3.41	3.50
Q4	3.00	2.83	3.20	3.32	3.47	3.56

Canada						
Quarters	Overnight	3 Mth Bill	2YR	5YR	10YR	30YR
07/09/18	1.25	1.42	1.94	2.09	2.17	2.22
Q3	1.50	1.53	2.06	2.15	2.22	2.29
Q4	1.75	1.88	2.28	2.46	2.57	2.63
Q1/19	2.00	1.96	2.31	2.49	2.74	2.79
Q2	2.00	2.18	2.38	2.63	2.93	2.97
Q3	2.25	2.21	2.48	2.74	3.01	3.05
Q4	2.25	2.21	2.55	2.78	3.09	3.14

FINANCIAL MARKET FORECASTS

July 12, 2018

Interest rates (%, end of quarter,)

	Actual						Forecast						Actual		Forecast	
	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	19Q2	19Q3	19Q4	2016	2017	2018	2019
Canada																
Overnight	0.50	0.50	1.00	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.25	2.25	0.50	1.00	1.75	2.25
Three-month	0.52	0.71	1.00	1.06	1.10	1.26	1.40	1.65	1.90	2.15	2.15	2.15	0.46	1.06	1.65	2.15
Two-year	0.75	1.10	1.52	1.69	1.78	1.91	2.10	2.30	2.45	2.45	2.40	2.35	0.75	1.69	2.30	2.35
Five-year	1.12	1.40	1.75	1.87	1.97	2.07	2.25	2.45	2.55	2.65	2.70	2.70	1.12	1.87	2.45	2.70
10-year	1.62	1.76	2.10	2.04	2.09	2.17	2.35	2.60	2.70	2.80	2.90	2.95	1.71	2.04	2.60	2.95
30-year	2.30	2.14	2.47	2.27	2.23	2.20	2.45	2.70	2.80	2.90	3.00	3.00	2.31	2.27	2.70	3.00
Yield curve (10s-2s)	87	66	58	35	31	26	25	30	25	35	50	60	96	35	30	60
United States																
Fed funds*	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	0.75	1.50	2.50	3.50
Three-month	0.76	1.03	1.06	1.39	1.73	1.93	2.15	2.35	2.65	2.90	3.15	3.35	0.51	1.39	2.35	3.35
Two-year	1.27	1.38	1.47	1.89	2.27	2.52	2.65	2.80	3.00	3.25	3.40	3.55	1.20	1.89	2.80	3.55
Five-year	1.93	1.89	1.92	2.20	2.56	2.73	2.95	3.10	3.25	3.45	3.55	3.65	1.93	2.20	3.10	3.65
10-year	2.40	2.31	2.33	2.40	2.74	2.85	3.15	3.30	3.45	3.60	3.70	3.75	2.45	2.40	3.30	3.75
30-year	3.02	2.84	2.86	2.74	2.97	2.98	3.35	3.50	3.65	3.75	3.80	3.85	3.06	2.74	3.50	3.85
Yield curve (10s-2s)	113	93	86	51	47	33	50	50	45	35	30	20	125	51	50	20
Yield spreads																
Three-month T-bills	-0.24	-0.32	-0.06	-0.33	-0.63	-0.67	-0.75	-0.70	-0.75	-0.75	-1.00	-1.20	-0.05	-0.33	-0.70	-1.20
Two-year	-0.52	-0.28	0.05	-0.20	-0.49	-0.61	-0.55	-0.50	-0.55	-0.80	-1.00	-1.20	-0.45	-0.20	-0.50	-1.20
Five-year	-0.81	-0.49	-0.17	-0.33	-0.59	-0.66	-0.70	-0.65	-0.70	-0.80	-0.85	-0.95	-0.81	-0.33	-0.65	-0.95
10-year	-0.78	-0.55	-0.23	-0.36	-0.65	-0.68	-0.80	-0.70	-0.75	-0.80	-0.80	-0.80	-0.74	-0.36	-0.70	-0.80
30-year	-0.72	-0.70	-0.39	-0.47	-0.74	-0.78	-0.90	-0.80	-0.85	-0.85	-0.80	-0.85	-0.75	-0.47	-0.80	-0.85
															0.00	0.00

Note: Interest Rates are end of period rates. * Top of 25 basis point range

Exchange rates (end of quarter,)

	Actual						Forecast						Actual		Forecast	
	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	19Q2	19Q3	19Q4	2016	2017	2018	2019
AUD/USD	0.76	0.77	0.78	0.78	0.77	0.74	0.73	0.70	0.71	0.72	0.73	0.73	0.72	0.78	0.70	0.73
USD/CAD	1.33	1.30	1.25	1.26	1.29	1.31	1.30	1.28	1.26	1.26	1.27	1.28	1.34	1.26	1.28	1.28
EUR/USD	1.07	1.14	1.18	1.20	1.23	1.17	1.16	1.12	1.14	1.16	1.18	1.20	1.05	1.20	1.12	1.20
USD/JPY	111.4	112.4	112.5	112.7	106.3	110.8	112.0	115.0	117.0	119.0	122.0	125.0	117.0	112.7	115.0	125.0
NZD/USD	0.70	0.73	0.72	0.71	0.72	0.68	0.69	0.70	0.70	0.71	0.72	0.72	0.69	0.71	0.70	0.72
USD/CHF	1.00	0.96	0.97	0.97	0.95	0.99	1.02	1.09	1.08	1.07	1.06	1.05	1.02	0.97	1.09	1.05
GBP/USD	1.26	1.30	1.34	1.35	1.40	1.32	1.27	1.20	1.23	1.25	1.27	1.29	1.24	1.35	1.20	1.29

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INTEREST RATE OUTLOOK

	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2*	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
CANADA												
Overnight Target Rate	0.50	0.50	1.00	1.00	1.25	1.25	1.50	1.50	1.75	1.75	2.00	2.00
3-mth T-Bill Rate	0.52	0.71	1.00	1.06	1.10	1.22	1.50	1.63	1.75	1.88	2.00	2.13
2-yr Govt. Bond Yield	0.75	1.09	1.52	1.68	1.77	1.87	1.95	2.10	2.20	2.30	2.35	2.40
5-yr Govt. Bond Yield	1.12	1.38	1.75	1.86	1.96	2.06	2.25	2.35	2.40	2.45	2.55	2.60
10-yr Govt. Bond Yield	1.63	1.75	2.10	2.04	2.09	2.20	2.45	2.55	2.60	2.65	2.70	2.75
30-yr Govt. Bond Yield	2.31	2.13	2.47	2.26	2.23	2.24	2.60	2.70	2.75	2.80	2.85	2.90
10-yr-2-yr Govt Spread	0.88	0.66	0.58	0.36	0.32	0.33	0.50	0.45	0.40	0.35	0.35	0.35
U.S.												
Fed Funds Target Rate	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.25
3-mth T-Bill Rate	0.75	1.01	1.04	1.37	1.70	1.89	2.23	2.48	2.78	3.03	3.15	3.15
2-yr Govt. Bond Yield	1.27	1.38	1.47	1.89	2.27	2.55	2.75	2.90	3.00	3.10	3.15	3.15
5-yr Govt. Bond Yield	1.93	1.89	1.92	2.20	2.56	2.79	2.95	3.05	3.15	3.20	3.20	3.20
10-yr Govt. Bond Yield	2.40	2.31	2.33	2.40	2.74	2.92	3.10	3.20	3.25	3.30	3.35	3.35
30-yr Govt. Bond Yield	3.02	2.84	2.86	2.74	2.97	3.05	3.30	3.40	3.45	3.50	3.55	3.55
10-yr-2-yr Govt Spread	1.13	0.93	0.86	0.51	0.47	0.37	0.35	0.30	0.25	0.20	0.20	0.20
CANADA - U.S SPREADS												
Can - U.S. T-Bill Spread	-0.23	-0.30	-0.04	-0.31	-0.60	-0.67	-0.73	-0.85	-1.03	-1.15	-1.15	-1.02
Can - U.S. 10-Year Bond Spread	-0.77	-0.56	-0.23	-0.36	-0.65	-0.72	-0.65	-0.65	-0.65	-0.65	-0.65	-0.60

F: Forecast by TD Bank Group as at June 2018. All forecasts are end-of-period.
Source: Bloomberg, Bank of Canada, Federal Reserve, TD Economics. * Spot rate as at June 18, 2018.

FOREIGN EXCHANGE OUTLOOK

Currency	Exchange rate	2017				2018				2019			
		Q1	Q2	Q3	Q4	Q1	Q2*	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
Exchange rate to U.S. dollar													
Japanese yen	JPY per USD	111	112	113	113	106	111	108	106	105	104	103	102
Euro	USD per EUR	1.07	1.14	1.18	1.20	1.23	1.16	1.20	1.21	1.22	1.23	1.24	1.25
U.K. pound	USD per GBP	1.25	1.30	1.34	1.35	1.40	1.32	1.37	1.39	1.40	1.41	1.42	1.43
Exchange rate to Canadian dollar													
U.S. dollar	USD per CAD	0.75	0.77	0.80	0.80	0.78	0.76	0.78	0.78	0.79	0.79	0.79	0.79
Japanese yen	JPY per CAD	83.6	86.6	90.0	90.0	82.4	83.7	83.7	82.8	82.7	82.1	81.5	80.8
Euro	CAD per EUR	1.43	1.48	1.48	1.51	1.59	1.53	1.55	1.55	1.55	1.56	1.57	1.58
U.K. pound	CAD per GBP	1.67	1.69	1.68	1.69	1.81	1.75	1.77	1.78	1.78	1.79	1.80	1.80

F: Forecast by TD Bank Group as at June 2018. All forecasts are end-of-period.
Source: Bloomberg, Bank of Canada, Federal Reserve, TD Economics. * Spot rate as at June 18, 2018.

COMMODITY PRICE OUTLOOK

	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2*	Q3F	Q4F	Q1F	Q2F	Q3F	Q4F
Crude Oil (WTI, $US/bbl)	52	48	48	55	63	66	68	67	66	65	65	65
Natural Gas ($US/MMBtu)	2.99	3.04	2.93	2.88	3.10	3.02	2.85	3.05	3.06	3.00	3.05	3.10
Gold ($US/troy oz.)	1218	1258	1278	1276	1329	1279	1300	1300	1325	1335	1375	1375
Silver (US$/troy oz.)	17.47	17.22	16.85	16.71	16.74	16.49	16.80	17.00	17.50	18.00	18.50	19.00
Copper (cents/lb)	264	257	288	309	316	318	324	324	327	327	331	331
Nickel (US$/lb)	4.66	4.19	4.78	5.26	6.01	6.89	5.90	5.75	5.70	5.70	5.86	5.86
Aluminum (cents/lb)	84	87	91	95	98	100	99	101	99	96	99	101
Wheat ($US/bu)	6.53	6.80	7.79	7.47	7.42	7.16	7.40	7.30	7.40	7.50	7.75	7.80

F: Forecast by TD Bank Group as at June 2018. All forecasts are period averages.
Source: Bloomberg, TD Economics, USDA (Haver). * Spot rate as at June 18, 2018.

Scotiabank™

GLOBAL ECONOMICS
| SCOTIABANK'S FORECAST TABLES

July 3, 2018

	2017	2018				2019			
Central Bank Rates	**Q4**	**Q1**	**Q2**	**Q3f**	**Q4f**	**Q1f**	**Q2f**	**Q3f**	**Q4f**
Americas				(%, end of period)					
Bank of Canada	1.00	1.25	1.25	1.50	1.75	2.00	2.25	2.25	2.50
US Federal Reserve (upper bound)	1.50	1.75	2.00	2.25	2.50	2.50	2.75	2.75	3.00
Bank of Mexico	7.25	7.50	7.75	7.75	8.00	8.25	8.25	8.25	8.00
Central Bank of Brazil	7.00	6.50	6.50	6.75	7.25	8.00	8.50	9.00	9.00
Bank of the Republic of Colombia	4.75	4.50	4.25	4.25	4.50	4.75	5.00	5.25	5.50
Central Reserve Bank of Peru	3.25	2.75	2.75	2.75	2.75	3.00	3.00	3.25	3.25
Central Bank of Chile	2.50	2.50	2.50	2.75	3.00	3.25	3.25	3.50	3.50
Europe									
European Central Bank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bank of England	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.75	1.00
Asia/Oceania									
Reserve Bank of Australia	1.50	1.50	1.50	1.50	1.75	1.75	2.00	2.00	2.25
Bank of Japan	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
People's Bank of China	4.35	4.35	4.35	4.35	4.35	4.60	4.60	4.85	4.85
Reserve Bank of India	6.00	6.00	6.25	6.25	6.50	6.50	6.50	6.50	6.50
Bank of Korea	1.50	1.50	1.50	1.75	2.00	2.00	2.25	2.25	2.25
Bank of Thailand	1.50	1.50	1.50	1.50	1.75	1.75	2.00	2.00	2.25
Currencies and Interest Rates									
Americas				(end of period)					
Canadian dollar (USDCAD)	1.26	1.29	1.31	1.28	1.28	1.25	1.22	1.22	1.25
Canadian dollar (CADUSD)	0.80	0.78	0.76	0.78	0.78	0.80	0.82	0.82	0.80
Mexican peso (USDMXN)	19.66	18.18	19.81	20.19	20.20	20.32	20.13	20.19	20.48
Brazilian real (USDBRL)	3.31	3.31	3.86	3.85	3.90	3.85	3.80	3.75	3.70
Colombian peso (USDCOP)	2,986	2,794	2,926	2,950	3,000	2,950	2,900	2,850	2,850
Peruvian sol (USDPEN)	3.24	3.23	3.28	3.20	3.18	3.18	3.14	3.15	3.12
Chilean peso (USDCLP)	615	604	653	624	602	599	596	593	590
Europe									
Euro (EURUSD)	1.20	1.23	1.17	1.17	1.20	1.22	1.25	1.30	1.35
UK pound (GBPUSD)	1.35	1.40	1.32	1.30	1.32	1.32	1.35	1.37	1.40
Asia/Oceania									
Japanese yen (USDJPY)	113	106	108	110	110	110	110	108	105
Australian dollar (AUDUSD)	0.78	0.77	0.73	0.73	0.73	0.75	0.77	0.77	0.77
Chinese yuan (USDCNY)	6.51	6.28	6.50	6.45	6.45	6.40	6.40	6.30	6.30
Indian rupee (USDINR)	63.9	65.2	68.0	67.0	67.0	66.0	66.0	65.0	65.0
South Korean won (USDKRW)	1,067	1,064	1,100	1,080	1,080	1,070	1,070	1,060	1,060
Thai baht (USDTHB)	32.6	31.2	33.0	32.5	32.5	32.0	32.0	31.5	31.5
Canada (Yields, %)									
3-month T-bill	1.06	1.15	1.26	1.55	1.80	2.05	2.30	2.30	2.50
2-year Canada	1.69	1.78	1.91	2.05	2.30	2.40	2.50	2.55	2.60
5-year Canada	1.87	1.97	2.07	2.25	2.45	2.55	2.60	2.65	2.70
10-year Canada	2.05	2.09	2.17	2.40	2.55	2.60	2.65	2.70	2.75
30-year Canada	2.27	2.23	2.20	2.50	2.70	2.80	2.85	2.90	2.95
United States (Yields, %)									
3-month T-bill	1.38	1.70	1.92	2.20	2.45	2.50	2.70	2.75	3.00
2-year Treasury	1.88	2.27	2.53	2.60	2.70	2.80	2.90	3.00	3.10
5-year Treasury	2.21	2.56	2.73	2.85	2.90	2.95	3.00	3.10	3.20
10-year Treasury	2.40	2.74	2.84	3.00	3.05	3.10	3.15	3.20	3.30
30-year Treasury	2.74	2.97	2.96	3.15	3.20	3.30	3.35	3.40	3.45

Sources: Scotiabank Economics, Bloomberg.

Global Insight - July 2018

Financial Markets	3-Month T-Bi	GOC Ten-Year Bond Rate (%)
18Q1	1.15	2.21
18Q2	1.25	2.23
18Q3	1.49	2.43
18Q4	1.74	2.52
19Q1	1.99	2.63
19Q2	2.24	2.74
19Q3	2.49	2.84
19Q4	2.74	2.92
20Q1	3.03	2.98
20Q2	3.03	3.03
20Q3	3.03	3.06
20Q4	3.03	3.08
21Q1	3.03	3.08
21Q2	3.03	3.09
21Q3	3.03	3.09
21Q4	3.03	3.08
22Q1	3.03	3.07
22Q2	3.03	3.06
22Q3	3.03	3.05
22Q4	3.03	3.04
23Q1	3.03	3.03
23Q2	3.03	3.02
23Q3	3.03	3.01
23Q4	3.03	3.01

CIBC July 2018

	2018	2019	2020	2021	2022
BoC Overnight Rate	1.31%	1.81%	2.15%	2.25%	2.25%
CAD 3 Month T-Bill	1.28%	1.78%	2.20%	2.25%	2.30%
2 Year GOC Bond	1.90%	2.14%	2.55%	2.55%	2.60%
5 Year GOC Bond	2.11%	2.39%	2.65%	2.70%	2.75%
10 Year GOC Bond	2.26%	2.64%	2.75%	2.95%	3.00%
30 year GOC Bond	2.35%	2.88%	2.90%	2.90%	3.05%

National Bank

Interest rate forecast

United States

Quarters	Fed Fund	3 Mth E	2YR	5YR	10YR	30YR
07/09/18	2.00	1.96	2.56	2.75	2.86	2.97
Q3	2.25	2.13	2.68	2.82	2.96	3.06
Q4	2.25	2.08	2.73	2.85	3.04	3.12
Q1/19	2.50	2.25	2.76	2.87	3.12	3.24
Q2	2.50	2.37	2.98	3.13	3.33	3.44
Q3	2.75	2.62	3.13	3.22	3.41	3.50
Q4	3.00	2.83	3.20	3.32	3.47	3.56
Q1/20	3.00	3.00	3.26	3.34	3.48	3.56
Q2	3.25	3.12	3.33	3.50	3.61	3.68

Canada

Quarters	Overnigh	3 Mth Bill	2YR	5YR	10YR	30YR
07/09/18	1.25	1.42	1.94	2.09	2.17	2.22
Q3	1.50	1.53	2.06	2.15	2.22	2.29
Q4	1.75	1.88	2.28	2.46	2.57	2.63
Q1/19	2.00	1.96	2.31	2.49	2.74	2.79
Q2	2.00	2.18	2.38	2.63	2.93	2.97
Q3	2.25	2.21	2.48	2.74	3.01	3.05
Q4	2.25	2.21	2.55	2.78	3.09	3.14
Q1/20	2.25	2.46	2.60	2.83	3.12	3.18
Q2	2.5	4.47	2.7998949	3.0369943	3.2860419	3.3381019

Source: NBF Economics and Strategy - 2018/07/12



INTEREST RATE OUTLOOK												
	Annual Average						End of Period					
	17	18F	19F	20F	21F	22F	17	18F	19F	20F	21F	22F
U.S. FIXED INCOME												
Fed Funds Target Rate (%)*	1.25	2.15	3.05	3.25	3.00	2.75	1.50	2.50	3.25	3.25	3.00	2.75
3-mth T-Bill Rate (%)	1.05	2.10	3.05	3.10	2.85	2.65	1.37	2.48	3.15	3.03	2.78	2.65
2-yr Govt. Bond Yield (%)	1.50	2.60	3.10	3.15	2.90	2.70	1.89	2.90	3.15	3.05	2.80	2.70
5-yr Govt. Bond Yield (%)	2.00	2.85	3.20	3.20	3.00	2.85	2.20	3.05	3.20	3.10	2.90	2.85
10-yr Govt. Bond Yield (%)	2.35	3.00	3.30	3.30	3.10	3.00	2.40	3.20	3.35	3.20	3.00	3.00
10-yr-2-yr Govt. Spread (%)	0.85	0.40	0.20	0.15	0.20	0.30	0.51	0.30	0.20	0.15	0.20	0.30
CANADIAN FIXED INCOME												
Overnight Target Rate (%)	0.75	1.40	1.90	2.40	2.50	2.50	1.00	1.50	2.00	2.50	2.50	2.50
3-mth T-Bill Rate (%)	0.80	1.40	1.95	2.40	2.50	2.50	1.06	1.63	2.13	2.50	2.50	2.50
2-yr Govt. Bond Yield (%)	1.25	1.95	2.30	2.50	2.55	2.55	1.68	2.10	2.40	2.55	2.55	2.55
5-yr Govt. Bond Yield (%)	1.55	2.20	2.50	2.70	2.70	2.70	1.86	2.35	2.60	2.70	2.70	2.70
10-yr Govt. Bond Yield (%)	1.90	2.35	2.70	2.85	2.85	2.85	2.04	2.55	2.75	2.85	2.85	2.85
10-yr-2-yr Govt. Spread (%)	0.65	0.40	0.40	0.35	0.30	0.30	0.36	0.45	0.35	0.30	0.30	0.30

*Upper bound of target range. F: Forecast by TD Economics as at June 2018.

Annual averages are the average of the four quarterly end-of-period forecasts.

Source: Bank of Canada, Bloomberg, Statistics Canada, TD Economics.

Disclaimer

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PUB (MPI) 1-28

Part and Chapter:	**VI INV 16.2.1; Figure INV-47**	**Page No.:**	**79**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Basic Interest Rate Risk with Naive Forecast**		

Preamble to IR (If Any):

Question:

a) Please provide an updated table of INV-47 for the most current date. Based on the updated table at the most current date, please provide the same table (Basic Investment and Claims Net Interest Rate Impact) for the following interest rate forecasting methods:
   i. Naïve
   ii. 50/50
b) Please provide additional commentary and analysis on each forecasting method, where possible.

Rationale for Question:

To understand and compare the Basic investment and claims net interest rate impact under different forecast approaches with current information.

RESPONSE:

a) See Figure 1 and 2 below.

i. Naïve

Figure 1: Basic Investment and Claims Net Interest Rate Impact with Naïve Forecast (June 30, 2018)

Line No.		2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Actual	2017/18 Actual	2018/19 FB	2019/20 Forecast	2020/21 Forecast	2021/22 Forecast	2022/23 Forecast
	(in Millions of Dollars)										
1	Marketable Bond Yield	2.80%	2.27%	2.85%	2.91%	3.04%	3.13%	3.14%	3.14%	3.14%	3.14%
2	YoY Change	0.05%	-0.53%	0.58%	0.06%	0.13%	0.09%	0.01%	0.00%	0.00%	0.00%
3	Claims Discount Rate	3.68%	2.92%	3.28%	3.39%	3.47%	3.51%	3.42%	3.36%	3.31%	3.27%
4	YoY Change	0.13%	-0.76%	0.36%	0.11%	0.08%	0.04%	-0.10%	-0.06%	-0.05%	-0.05%
5	Duration Gap (Years)*	(1.4)	(0.7)	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
6	Investments										
7	Investment Income	147.7	188.5	(4.0)	82.9	116.3	199.2	81.1	83.5	86.2	88.9
8	(1) Marketable Bond Gain/(Loss)	(19.4)	85.6	(52.5)	(18.8)	4.6	7.7	(0.0)	(0.0)	(0.0)	(0.0)
9	Investment Income excluding Marketable Bond G/L	167.2	102.8	48.5	101.7	111.7	191.5	81.1	83.5	86.2	88.9
10	Claims										
11	Net Claims Incurred	747.4	745.8	666.4	806.0	783.0	826.8	900.2	951.2	1,007.7	1,063.3
12	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	1.9	9.2	11.9	10.6	10.5
13	Claims Excluding Interest Rate Impact	773.5	623.4	742.6	815.0	798.8	824.9	891.0	939.3	997.1	1,052.8
14	Net Interest Rate Impact										
15	(1) Marketable Bond Gain/Loss	(19.4)	85.6	(52.5)	(18.8)	4.6	7.7	(0.0)	(0.0)	(0.0)	(0.0)
16	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	1.9	9.2	11.9	10.6	10.5
17	Net Impact of Changes in Interest Rates [(1) - (2)]	6.7	(36.8)	23.7	9.0	75.6	5.8	(9.2)	(11.9)	(10.6)	(10.5)

ii. 50/50

Figure 2: Basic Investment and Claims Net Interest Rate Impact with 50/50 Forecast (July 2018)

Line No.		2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Actual	2017/18 Actual	2018/19 FB	2019/20 Forecast	2020/21 Forecast	2021/22 Forecast	2022/23 Forecast
	(in Millions of Dollars)										
1	Marketable Bond Yield	2.80%	2.27%	2.85%	2.91%	3.04%	3.32%	3.48%	3.55%	3.54%	3.53%
2	YoY Change	0.05%	-0.53%	0.58%	0.06%	0.13%	0.28%	0.16%	0.07%	-0.01%	-0.01%
3	Claims Discount Rate	3.68%	2.92%	3.28%	3.39%	3.47%	3.65%	3.67%	3.68%	3.64%	3.62%
4	YoY Change	0.13%	-0.76%	0.36%	0.11%	0.08%	0.18%	0.02%	0.01%	-0.04%	-0.02%
5	Duration Gap (Years)*	(1.4)	(0.7)	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
6	Investments										
7	Investment Income	147.7	188.5	(4.0)	82.9	116.3	178.2	63.9	79.0	95.1	93.9
8	(1) Marketable Bond Gain/(Loss)	(19.4)	85.6	(52.5)	(18.8)	4.6	(13.5)	(21.2)	(11.1)	0.8	(4.3)
9	Investment Income excluding Marketable Bond G/L	167.2	102.8	48.5	101.7	111.7	191.7	85.1	90.1	94.3	98.2
10	Claims										
11	'Net Claims Incurred	747.4	745.8	666.4	806.0	783.0	799.5	875.8	935.4	1,003.2	1,054.6
12	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	(25.5)	(14.3)	(2.2)	8.2	3.7
13	Claims Excluding Interest Rate Impact	773.5	623.4	742.6	815.0	798.8	825.0	890.0	937.5	995.0	1,050.9
14	Net Interest Rate Impact										
15	(1) Marketable Bond Gain/Loss	(19.4)	85.6	(52.5)	(18.8)	4.6	(13.5)	(21.2)	(11.1)	0.8	(4.3)
16	(2) Claims Interest Rate Impact	(26.1)	122.4	(76.2)	(9.0)	(15.8)	(25.5)	(14.3)	(2.2)	8.2	3.7
17	Net Impact of Changes in Interest Rates [(1) - (2)]	6.7	(36.8)	23.7	9.0	75.6	12.0	(6.9)	(9.0)	(7.4)	(8.0)

b) MPI considers the Naïve forecast as the best estimate. In addition to the analysis completed in Figure INV-8, see *PUB(MPI) 1-11 (a)* for additional analysis on the Naïve and 50/50 forecast.

PUB (MPI) 1-29

Part and Chapter:	**VI INV.17**	**Page No.:**	**81-82**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Investment Policy Statement – Material Changes**		

Preamble to IR (If Any):

The Investment Policy Statement and associated governance documents attached to this application are current to the time of filing and material changes to the current Investment Policy Statement from the documents previously filed are explained below.

Fixed Income Portfolio (Section 8.4)

For interest rate risk management purposes the duration of the marketable bond portfolio (excluding MUSH bonds) will be matched to the duration of the claims liabilities.

Rationale: *This change is required because of the change in the calculation methodology of the claims discount rate (from duration weighted to dollar weighted) as discussed in INV.16.1.*

Minimum Credit Rating (Section 8.6)

The minimum credit rating was changed from "A (low)" to "BBB".

Rationale: *To conform to the standard definition of Investment Grade securities. This change was approved at the December 8, 2017 Investment Committee meeting.*

Question:

a) Please discuss the impact of the change made to matching the duration marketable bond portfolio (excluding MUSH bonds) to the duration of the claims liabilities.
b) Please discuss the impact on risk versus return of the change made to move the minimum credit rating from "A (low)" to "BBB".

Rationale for Question:

To better understand the details of any impact from the material changes to the Investment Policy Statement.

RESPONSE:

a) **Rationale for Change**

As background, the claims discount rate methodology was changed to use the dollar-weighted yield of the fixed income portfolio rather than the duration-weighted yield. Under the duration-weighted yield approach, capital gains/losses for marketable bonds were based on changes in the market weighted yield of the portfolio, whereas claims liabilities were being valued based on the duration-weighted yield of the fixed income portfolio, which created basis risk (i.e.: valuation on two different bases). The dollar-weighted (i.e. market-value weighted) claims discount rate methodology provided tighter tracking (less basis risk) and was easier to explain compared to the duration-weighted claims discount rate. Page 7 of the Actuarial Report as of October 31, 2017 states:

"We switched from duration adjusted yield to market value weighted yield in selecting the discount rate. The Corporation's asset liability management policy strives to minimize the impact to its income statement due to a change in market interest rates."

As a result of this change to the claims discount rate methodology, the marketable bond duration was required to match to the claims liability duration. MUSH bonds were removed from the duration matching calculation because MUSH bonds are a poor hedge against changes in interest rates. MUSH bonds are measured at amortized cost, and are not sensitive to changes in interest rates. This lack of sensitivity creates basis risk (valuation on two different bases). When there are fluctuations in market interest rates, marketable bond yields change and MUSH bond yields do not change.

The duration-weighted claims discount rate places a smaller weighting on MUSH bonds than the market value weighted claims discount rate. To illustrate (using **approximate, round numbers)**, for a 100 bps change in market interest rates:

- The duration weighted claims discount rate would change by approximately 80 bps. This is because marketable bonds have an **approximate** 80% weight and MUSH bonds would have a 20% weight in the claims discount rate on a duration weighted basis.

- The market value weighted claims discount rate would change by approximately 67 bps. This is because the market value weight of marketable bonds to non-marketable bonds is **approximately** 67%/33%.

In summary, changing the claims discount rate methodology to a market-value weighted basis decreased the impact of the interest rate-sensitive assets (marketable bonds) in the claims discount rate. As a result, matching the duration of the claims liabilities to the total fixed income portfolio (including MUSH bonds) did not provide sufficient protection from changes to interest rates when using a market value weighted claims discount rate. Matching the marketable bond duration to the claims duration ensures that interest rate-sensitive liabilities are duration matched to interest rate-sensitive assets.

Impact of the Change in the 2019 GRA

The removal of the MUSH portfolio from the duration-matching fixed income portfolio required the government bond duration to fall by 2.2 years from 11.9 years to 9.7 years in Q2 2018/19. Note that the corporate bond duration remained unchanged at 9.9 years, and the claims liability duration was 9.7 years in Q2 2018/19.

When the government bond duration fell by 2.2 years, it caused the government bond yield spread to fall by 7 bps (see INV.4.3.4 to see further discussion on the government bond yield spread). This in turn caused the claims discount rate to decrease by 4 bps, which increased the claims liabilities by $9.4M. Since there is no offsetting impact to the fixed income portfolio from the decline in the government bond yield, this change had a $9.4M negative impact on net income.

In 2018/19, two other factors impacted the claims discount rate/claims liabilities without an offsetting impact to the fixed income portfolio. First, a declining MUSH yield and declining allocation to MUSH bonds negatively impact net income. Second, the corporate bond allocation was forecasted to increase from $115.9M as of Q4 2018/19 to $619.0M as of Q4 2019/20. Also, a forecasted allocation to corporate bonds with added exposure to BBB bonds increased the corporate bond yield from 3.35% to 3.90%. A larger allocation to higher yielding corporate bonds more than offset the negative impact from government bonds and MUSH bonds in 2018/19.

For the 2019 GRA, the combined impact of 1) a lower government bond duration, 2) a declining MUSH yield and a declining exposure to MUSH bonds, and 3) an increasing corporate bond yield with increasing exposure to corporate bonds, resulted in an increase to net income in the amount of $8.2 million dollars.

b) A credit rating is an evaluation of the credit risk of a debtor, predicting their ability to repay their debt and the likelihood of defaulting on their financial obligations. A lower rated investment (e.g. BBB compared to A (low)) implies a higher probability of default by a debtor. Defaults by investment grade bonds in Canada (BBB or

higher credit rating) are rare, but occurred in the global financial crisis of 2008/2009. According to Moody's, the average cumulative default rates for corporate issuers over any 5 year period from 1989-2013 was 0.2% for A rated bonds and 1.8% for BBB rated bonds.

The table below shows yields, management fees, credit loss rates, total returns and volatility for long term corporate bonds with A and BBB credit ratings. Credit loss rates are the product of default frequency and loss severity (reflecting the fact that when an issuer defaults the borrower often recovers a portion of their investment, i.e. the loss severity is not necessarily 100%). Net yields represent gross yields after considering management fees and credit loss rates.

Figure 1: Corporate Bond Yields – February 28, 2017

Line No.	Bond Category	Yield	DOF fees	Management fees	Total fees	Average One Year Credit Loss Rates*	Net Yield	Yield Spread to Government Bonds	Volatility
1									
2	Long Term Corp A	3.79%	0.07%	0.13%	0.20%	0.00%	3.59%	0.77%	7.10%
3	Long Term Corp BBB	4.37%	0.07%	0.13%	0.20%	0.20%	3.97%	1.15%	8.10%
4	*Credit Loss Rates were calculated by Moody's and are the product of default frequency and loss severity								

The table above indicates that, even when considering the higher loss rates on long term corporate bonds rated BBB relative to corporate bonds rated A (0.2% vs.0.0%), BBB bonds provide a significant additional net yield (0.38%) with a relatively small increase in risk (as measured by volatility, from 7.1% to 8.1%).

PUB (MPI) 1-30

Part and Chapter:	**VI INV.18; Figure INV-50**	**Page No.:**	**83**
PUB Approved Issue No:	**8. Performance of the investment portfolio** **11. Operational Benchmarking**		
Topic:	**Investments**		
Sub Topic:	**Benchmarking Performance**		

Preamble to IR (If Any):

SGI and ICBC's fiscal 2017 returns have not yet been published. MPI will provide those returns when they are available.

Question:

Please refile the table in Figure INV-50 including the 2017 returns for SGI and ICBC, when available.

Rationale for Question:

To understand the relative performance of the Corporation's investment portfolio with other comparable organizations.

RESPONSE:

ICBC's returns will not be available until the corporation's annual report is filed with the BCUC; because ICBC's year-end is at March 31 the report has not yet been released. Last year we did not receive this information until early October.

The table below includes SGI's return information, which when adjusted to match MPI's asset allocation is slightly lower than MPI's return.

Figure 1: Return Comparison

Line No.	Year	CSSB	TRAF	WCB	SGI	Average	MPI
1	**2013**	14.7%	14.0%	13.6%	5.7%	12.0%	8.0%
2	**2014**	9.2%	10.8%	10.0%	9.0%	9.8%	9.6%
3	**2015**	7.6%	8.3%	7.9%	6.6%	7.6%	2.7%
4	**2016**	5.7%	7.3%	3.5%	4.6%	5.3%	6.5%
5	**2017**	10.8%	9.2%	8.3%	9.1%	9.4%	6.3%
6	**Annualized Return over 5 Years**	9.6%	9.9%	8.6%	7.0%	8.8%	6.6%
7	**MPI Value Added**	-3.0%	-3.3%	-2.0%	-0.4%	-2.2%	
8	**Asset Allocation Adjusted Returns**						
9	**2016**	4.2%	5.5%	2.4%		4.0%	6.5%
10	**2017**	6.4%	6.5%	4.9%	6.2%	6.0%	6.3%
11	**MPI Value Added (Asset Allocation Adjusted Returns)**						
12	**2016**	2.3%	1.0%	4.1%		2.5%	
13	**2017**	-0.1%	-0.2%	1.4%	0.1%	0.3%	

PUB (MPI) 1-31

Part and Chapter:	**VI INV Appendix 1**	**Page No.:**	**2**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investment Policy Statement**		
Sub Topic:	**Review of Investment Policy Statement**		

Preamble to IR (If Any):

The Investment Policy Statement is: *to be reviewed annually by the Investment Committee [of the Board]. The next scheduled review will occur in April 2019. The Investment Committee will be required to provide a written report on the results of its review, including assessment of the effectiveness of this Policy and recommendations for revisions.*

Question:

a) Please indicate the current composition of the individuals on the Investment Committee Working Group.
b) Please file the results of the most current review of the Investment Committee/ Investment Committee Working Group, including the effectiveness of the Investment Policy Statement, and any recommendations for revisions.

Rationale for Question:

To understand the forecasting of investment income.

RESPONSE:

a) The following individuals are members of the Investment Committee Working Group:

1. Ben Graham; President & CEO
2. Luke Johnston; Vice President, Product and Risk Management & Chief Actuary
3. Mark Giesbrecht; Vice President, Finance & Chief Financial Officer
4. Glenn Bunston; Manager, Investments
5. Cynthia Campbell; Corporate Controller
6. Diane Hopkins; Manager, Financial Forecasting
7. Garry Steski; Assistant Deputy Minister of Finance, Province of MB
8. Don Delisle; Director of Capital Markets, Province of Manitoba
9. Scott Wiebe; Director of Treasury Services, Province of Manitoba
10. Bob Block; Director of Risk Management & Banking, Province of MB

b) The Investment Policy Statement is still being reviewed by the Investment Committee. A copy of the revised policy and a list of the changes will be filed with the PUB, when available.

PUB (MPI) 1-32

Part and Chapter:	**VI INV Appendix 1; Appendix 17**	**Page No.:**	**Appendix 1 Appendix 17**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio and Composition** **14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:	**Five Optimized Portfolios**		
Sub Topic:	**Definition of Risk**		

Preamble to IR (If Any):

Question:

Please articulate what is defined as "risk" in relation to the establishment of each of the five Optimized portfolios.

Rationale for Question:

To understand the definition of risk and how it is used in establishing optimal investment portfolios.

RESPONSE:

In each portfolio (except the RSR), the expected volatility of the funded position (assets/liabilities) was the primary risk measure and the expected excess return of assets over liabilities was the primary reward measure.

For the RSR portfolio, the primary risk measure was expected return volatility and the primary reward measure was the expected return. A mean-variance optimizer identified the portfolios with the maximum return, at each level of risk, which then formed the efficient frontier. By definition, all portfolios on the efficient frontier are optimal.

PUB (MPI) 1-33

Part and Chapter:	**VI INV Appendix 6**	**Page No.:**	**1-3**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investment Income**		
Sub Topic:	**Investment Portfolio Composition**		

Preamble to IR (If Any):

Question:

a) Please provide an update to INV Appendix 6, indicating the current balance of Unrealized Gains and Losses on the equity portfolio, and the relative market value to book value ratio.
b) Please provide details of the changes in the forecast balance of AOCI for 2018/19 and 2019/20.

Rationale for Question:

To understand the current performance of the Investment Portfolio.

RESPONSE:

a) Please refer to *Appendix 1* attached.

b) Please refer to the schedule below.

Manitoba Public Insurance
Accumulated Other Comprehensive Income / (Loss)

Line No.	(C$ 000s)	*For the Years Ended February* 2019BF	2020F
1	**Beginning Accumulated Other Comprehensive Income (Loss)**	39,870	(52,111)
2	Unrealized Gains (losses) on Available for Sale Assets	16,852	11,887
3	Reclassification of net realized (gains) losses on Available for Sale Assets	(116,236)	(4,221)
4	Allocation adjustment on Employee Future Benefit Liabilities	7,589	-
5	Allocation adjustment on Available for Sale Assets	(186)	186
6	**Ending Accumulated Other Comprehensive Income (Loss)**	**(52,111)**	**(44,259)**

The change in value on Available for Sale Assets represents RSR and Basic's share of the employee future benefit assets. The allocation adjustment on Employee Future Benefit Liabilities in 2018/19 is due to the new ALM strategy whereby the primary allocator is now the payroll ratio and not the investment ratio.

MANITOBA PUBLIC INSURANCE INVESTMENT HOLDINGS AS OF May 31, 2018

Holding's Name	Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10 Canadian Equities		*Available for Sale*		
AKITA DRILLING LTD	85,140.00	511,691.41	477,635.41	-34,056.00
ALIMENTATION COUCHE-TARD INC	75,000.00	4,823,955.00	4,056,000.00	-767,955.00
ALTAGAS LTD SUB RECPT	97,185.00	2,551,106.38	2,461,696.04	-89,410.34
ALTAGAS LTD SUB RECPT	21,100.00	560,205.00	534,674.00	-25,531.00
ARITZIA INC	129,030.00	1,616,908.23	1,778,033.40	161,125.17
BADGER DAYLIGHTING LTD.	48,785.00	1,118,632.74	1,404,032.32	285,399.58
BANK OF MONTREAL	40,000.00	2,358,387.30	4,012,799.99	1,654,412.69
BANK OF NOVA SCOTIA	167,473.00	9,135,935.51	13,098,063.35	3,962,127.84
BLACK DIAMOND GROUP LTD	98,010.00	277,368.32	318,532.58	41,164.26
CAN IMP BANK OF COMMERCE	78,774.00	6,282,640.74	8,917,216.79	2,634,576.05
CANADA TREASURY BILL	2,845,000.00	2,829,514.75	2,845,000.00	15,485.25
CANADA TREASURY BILL	1,000,000.00	996,880.00	1,000,000.00	3,120.00
CANADA TREASURY BILL	3,000,000.00	2,990,530.00	3,000,000.00	9,470.00
CANADA TREASURY BILL	2,925,000.00	2,911,154.24	2,925,000.00	13,845.76
CANADIAN NATIONAL RAILWAY CO C	41,000.00	3,170,750.65	4,434,970.02	1,264,219.37
CANADIAN TIRE CORP LTD CLASS A	31,910.00	3,298,272.27	5,264,511.81	1,966,239.54
CANADIAN WESTERN BANK	103,320.00	2,253,709.77	3,481,884.02	1,228,174.25
CANFOR CORPORATION	80,085.00	1,175,110.91	2,588,347.19	1,413,236.28
CANFOR CORPORATION	85,323.00	886,205.74	1,925,740.11	1,039,534.37
CDN NATURAL RESOURCES LTD	259,052.00	8,699,978.82	11,608,120.14	2,908,141.32
CERVUS EQUIPMENT CORP	16,530.00	194,062.25	246,297.00	52,234.75
CGI GROUP INC CL A SUB VTG	38,632.00	1,031,492.96	3,074,720.89	2,043,227.93
CI FINANCIAL INC	116,319.00	3,092,150.43	2,905,648.62	-186,501.81
COMINAR REAL ESTATE INVESTMENT	140,830.00	1,869,213.08	1,711,084.50	-158,128.58
CORUS ENTERTAINMENT	75,058.00	723,768.97	466,110.17	-257,658.80
E-L FINANCIAL CORP LTD	3,365.00	1,493,352.41	2,708,825.00	1,215,472.59
ELEMENT FINANCIAL CORP	100,380.00	558,749.38	545,063.40	-13,685.98
EMERA INC	100,000.00	4,583,495.78	4,047,000.00	-536,495.78
ENBRIDGE INC COM	95,000.00	4,616,185.62	3,824,700.00	-791,485.62
ENERCARE INC.	107,810.00	2,042,422.34	1,851,097.70	-191,324.64
ENSIGN ENERGY SERVICES INC.	208,851.00	1,163,294.67	1,225,955.37	62,660.70
EVERTZ TECHNOLOGIES LTD	69,235.00	1,090,585.99	1,158,301.56	67,715.57
FAIRFAX FINANCIAL HOLDINGS LTD	4,399.00	2,195,946.08	3,184,876.00	988,929.92
FINNING INTERNATIONAL INC	80,442.00	1,776,284.67	2,590,232.40	813,947.73
FORTIS INC.	100,000.00	3,260,841.65	4,136,999.99	876,158.34
FRESHII INC CL A SUB	132,340.00	1,369,657.88	881,384.40	-488,273.48
GDI INTEGRATED FACILITY SVCS	40,645.00	652,977.18	679,177.94	26,200.76
GILDAN ACTIVE WEAR INC.	113,000.00	4,199,679.66	4,239,760.01	40,080.35
GREAT WEST LIFECO INC.	71,490.00	2,043,972.99	2,340,582.59	296,609.60

Holding's Name	Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10 Canadian Equities		*Available for Sale*		
GUARDIAN CAP GRP CL A	98,110.00	1,739,096.25	2,282,038.58	542,942.33
HUSKY ENERGY INC	255,697.00	3,875,200.60	4,761,078.14	885,877.54
IMPERIAL OIL LTD	140,387.00	5,844,229.00	5,952,408.78	108,179.78
INDUSTRIAL-ALLIANCE LIFE INSUR	113,780.00	4,951,364.15	6,003,032.81	1,051,668.66
INFORMATION SVCS CORP CLS	42,820.00	665,681.54	749,778.16	84,096.62
INTACT FINANCIAL CORP COMMON	44,000.00	4,138,640.26	4,298,800.00	160,159.74
KNIGHT THERAPEUTICS INC	146,945.00	1,166,371.85	1,175,560.00	9,188.15
LABRADOR IRON ORE	45,105.00	564,255.84	1,071,243.79	506,987.95
LASSONDE INDS INC SUBD COM	11,475.00	732,679.33	3,204,623.27	2,471,943.94
LAURENTIAN BANK OF CANADA	17,055.00	725,633.34	770,715.52	45,082.18
LEONS FURNITURE	108,465.00	1,236,199.17	1,963,216.54	727,017.37
LOBLAW COS LTD	27,666.00	1,236,284.85	1,852,792.01	616,507.16
LOGISTEC CORP CL B	20,460.00	706,279.20	1,036,299.00	330,019.80
MAGNA INTL INC CL A SVS	126,772.00	5,625,445.66	10,530,950.05	4,905,504.39
MAJOR DRILLING GROUP INC	100,545.00	632,428.05	723,923.99	91,495.94
MANULIFE FINANCIAL CORP TR REC	185,450.00	3,775,061.51	4,530,543.50	755,481.99
MAXAR TECHNOLOGIES LTD	19,830.00	1,178,348.66	1,229,460.00	51,111.34
MELCOR DEVS LTD	83,810.00	1,151,671.35	1,274,750.03	123,078.68
MULLEN GROUP LTD.	102,460.00	1,482,645.40	1,531,777.03	49,131.63
NATIONAL BANK OF CANADA	75,000.00	2,539,275.78	4,651,500.01	2,112,224.23
NUTRIEN LTD	88,114.00	4,192,373.65	5,781,159.54	1,588,785.89
OPEN TEXT CORP.	78,564.00	2,318,733.41	3,552,664.06	1,233,930.65
PARKLAND FUEL CORP	88,035.00	2,055,102.21	2,777,504.24	722,402.03
PASON SYSTEMS INC.	51,075.00	740,644.57	1,017,413.97	276,769.40
PEYTO EXPLORATION & DEVELOPMEN	72,790.00	1,016,410.82	767,934.50	-248,476.32
POWER CORP CDA SVS	118,906.00	3,299,430.44	3,588,583.08	289,152.64
PRECISION DRILLING CORP	290,605.00	1,166,438.34	1,299,004.31	132,565.97
RICHELIEU HARDWARE LTD.	19,505.00	162,052.66	581,834.15	419,781.49
ROGERS COMMUNICATIONS INC.	80,458.00	3,155,003.07	4,894,260.14	1,739,257.07
ROYAL BANK OF CANADA	135,725.00	7,808,241.25	13,299,692.74	5,491,451.49
SECURE ENERGY SERVICES INC	227,163.00	1,707,697.77	1,778,686.27	70,988.50
SHAW COMMUNICATIONS INC CLASS	118,596.00	2,680,832.33	3,084,681.96	403,849.63
SHAWCOR LTD COMMON NEW	98,491.00	3,107,012.27	2,527,279.07	-579,733.20
SHERRITT INTERNATIONAL LTD	491,945.00	388,678.75	570,656.20	181,977.45
SNC - LAVALIN GROUP INC	45,556.00	1,848,979.83	2,572,091.76	723,111.93
SOLIUM CAPITAL INC.	85,064.00	632,184.13	946,762.31	314,578.18
STANTEC INC.	49,540.00	1,623,151.06	1,616,490.20	-6,660.86
SUN LIFE FINANCIAL	80,000.00	3,367,710.41	4,284,000.00	916,289.59
SUNCOR ENERGY INC NEW COMM	245,710.00	9,050,688.96	12,668,807.56	3,618,118.60
SUPERIOR PLUS CORP COMMO	184,720.00	2,061,818.95	2,281,292.00	219,473.05
TECK RESOURCES LIMITED	31,950.00	284,479.39	1,121,445.01	836,965.62
TELUS CORP COM	90,000.00	3,806,297.37	4,103,100.00	296,802.63
THOMSON REUTERS CORP	30,693.00	978,116.22	1,545,392.58	567,276.36
TOROMONT INDUSTRIES LTD.	10,715.00	309,612.27	621,470.00	311,857.73
TORONTO DOMINION BANK	156,460.00	5,434,720.40	11,842,457.38	6,407,736.98
TRANSCANADA CORPORATION	75,000.00	4,015,387.92	4,066,499.99	51,112.07

Holding's Name		Units/Par	Book Value	Market Value	Unrealized Gain/(Loss)
10	*Canadian Equities*		*Available for Sale*		
TRANSCONTINENTAL INC		49,334.00	1,319,856.80	1,436,112.74	116,255.94
WINPAK LTD		9,835.00	93,723.82	434,116.90	340,393.08
Total	Canadian Equities	17,695,894.00	208,999,242.63	272,605,958.58	63,606,715.95
Count	87				
15	*U.S. Equities*		*Available for Sale*		
Blackrock		182,860.00	17,527,230.82	31,085,156.21	13,557,925.39
Blackrock		747,290.00	69,130,565.16	117,126,902.10	47,996,336.94
Total	U.S. Equities	930,150.00	86,657,795.98	148,212,058.31	61,554,262.33
Count	2				
Total MPI		18,626,044.00	295,657,038.61	420,818,016.89	125,160,978.28

PUB (MPI) 1-34

Part and Chapter:	**VI INV Appendix 17**	**Page No.:**	**10**
PUB Approved Issue No:	**8. Performance of the investment portfolio** **21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Mercer ALM Alternatives & Board Risk Tolerance**		

Preamble to IR (If Any):

It was determined that the risk tolerance of MPI's Board of Directors for the assets backing the Basic claims liabilities was very low and that mitigating risk was more important that maximizing returns. The focus was on further reducing interest rate risk, with a willingness to take on modest credit risk (as long as it is diversified and cost effective).

Based on this risk tolerance, it was determined that the best way to mitigate the interest rate risk associated with the Basic claims liability was to develop an investment portfolio with 100% fixed income assets (i.e. no growth assets) and dollar and duration matching those assets to the claims liabilities.

Private debt was excluded from the Basic Claims portfolio as it was deemed to be incompatible with the Investment Committee's low appetite for risk for the Basic Claims portfolio. Similarly, leveraged bond funds and diversified growth funds (DGF) were excluded from consideration from all portfolios.

Question:

Please provide any support for the Board's discussion, analysis, conclusion, etc. that resulted in private debt, leveraged bond funds and diversified growth funds being excluded from consideration of all portfolios.

Rationale for Question:

To evaluate if there has been any significant changes or updates to efficient frontiers since the last Mercer report.

RESPONSE:

Private debt was not excluded from all portfolios; it was excluded from the Basic Claims portfolio but was included in the other portfolios. Leveraged bond funds and diversified growth funds were excluded because the Corporation was not comfortable with taking short positions in any securities. Diversified growth fund managers require full discretion to invest across a broad universe of asset classes and can use derivative instruments, similar to hedge funds. The Corporation was not comfortable with the use of derivatives in the asset class.

Both leveraged bond funds and diversified growth funds are considered growth asset classes. As a result of the Asset Liability Management study, the Corporation decreased the target weight of growth assets from 30% to 16% of the consolidated total portfolio. With allocations to infrastructure and real estate decreasing from 15% to 6%, and the equity allocation decreasing from 15% to 10%, there was little room to add meaningful allocations to growth asset classes to the asset mix (on a consolidated basis).

As discussed in *CAC (MPI) 1-96*, Board of Directors risk tolerance is shaped by the regulatory environment, the purpose of each of the funds, and the requirement to avoid negatively affecting the Province's consolidated financial statements

PUB (MPI) 1-35

Part and Chapter:	**VI INV Appendix 17; Figures 2 & 3**	**Page No.:**	**4**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio** **21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Mercer's Interest Rate Forecasts**		

Preamble to IR (If Any):

Question:

Please provide the underlying assumptions and details in support of the Mercer interest rate forecasts in INV Appendix 17 Figure 2 (Standard) and Figure 3 (Forward Curve).

Rationale for Question:

To understand the source of the Mercer interest rate forecasts and assumptions for how the forecasts were determined.

RESPONSE:

[Redacted. This response has been filed in the confidential module pursuant to the Order No. 89/18.]

PUB (MPI) 1-36

Part and Chapter:	**IV SDM.1.6 Service Delivery Model**	**Page No.:**	**11**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Direct Repair Program**		
Sub Topic:			

Preamble to IR (If Any):

MPI implemented a straight through processing for high-performance repair shops. MPI has also implemented a Direct Repair Plus Program, which allows those enrolled to handle more perils and claims types that those solely in the Direct Repair Program.

Question:

a) Please explain what additional claims are handled under the Direct Repair Plus Program.
b) Please indicate how MPI has determined which repair shops have demonstrated a proven record of accomplishment on performance repairs.
c) How many body shops are eligible for the Direct Repair Program?
d) How many claims have been handled under the direct repair process?
e) How many post audits have been undertaken, and what have the results of the audits performed to date?

Rationale for Question:

To understand Direct Repair Program process.

RESPONSE:

a) The Direct Repair (DR) Plus program allows DR Plus eligible facilities to complete claims of increased complexity such as collision with animals, common carrier (rental and fleet vehicles) and out of province claims in addition to the claims allowed under the DR Program. Customers agreed to participate in the DR Plus program for 25% of eligible claims compared to 47% participation in the DR program.

Effective July 18, 2018, the DR and DR Plus programs were amalgamated to provide greater access to the DR program across Manitoba. Prior to the amalgamation, collision with animal claims were not eligible for direct repair as all the DR Plus shops were located in Winnipeg. It is expected that this amalgamation will increase the overall DR adoption rate.

b) Repair shops demonstrate a proven record of accomplishment based on performance by using Key Performance Indicators that align with MPI's objectives to control costs, improve efficiencies, encourage proper repair and enhance customer service. These scores are distributed to the shops monthly. Opportunities for improvement are reviewed by the Shop Relationship Advisor with the shops as deemed necessary.

c) As of February 28, 2018 there were 74 DR shops and 6 DR Plus shops. There were 15 additional shops that were eligible for the DR program based on KPI performance, but chose to not participate in DR at that time.

As of July 24, 2018, there are 90 DR shops in Manitoba after the amalgamation of DR and DR Plus.

d) For the period of March 1, 2017 to Feb 28th 2018, there were 14,233 claims completed within the DR Program.

e) MPI's physical damage claim audit process targets claims that fail to comply with specific estimating policies and procedures. Though all shops are subject to audit,

MPI focuses on shops with an earned approval limit which makes up 25% of all claims approved through automation. Earned Authority Limits (EAL) are provided to DR shops and non DR shops. Claims above EAL are reviewed by MPI estimating staff. The table below provides a summary of the results of claims audited in FY 2017/18.

Shop Type	Net $ Recovered	Claims With Recoveries	Total Claims Audited
Direct Repair	$192,983.89	1,303	9,932
Direct Repair Plus	$14,422.91	127	928
Non-Direct Repair	$311,305.55	2,222	12,008
Grand Total	**$518,712.35**	**3,652**	**22,868**

PUB (MPI) 1-37

Part and Chapter:	**IV SDM.1.7.2 Service Delivery Model**	**Page No.:**	**12**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Cost Containment Measures**		
Sub Topic:			

Preamble to IR (If Any):

MPI has indicated that the current Light Vehicle Accreditation Agreement between MPI and the repair industry negatively impacts the financial viability of the Direct Repair (DR) program.

Question:

a) Please produce the Light Vehicle Accreditation Agreement, and if necessary, with a request for confidentiality under Rule 13.
b) Please provide the analysis that demonstrates that the $81 per DR claim premium exceeds the value saved by the Corporation related to preparing the first estimate.
c) Please file any analysis made that supported the establishment of the current premium.
d) Please indicate the amount paid in DR premiums to date and provide the analysis that supports the annual cost estimate of $6.3M.

Rationale for Question:

To understand the details and impact related to the current Light Vehicle Accreditation Agreement.

RESPONSE:

a) The 2017 Light Vehicle Accreditation Agreement (LVAA) is available on the MPI Partners website (as a reference for shops), along with policies and Estimating Standards. The 2017 LVAA is accessible at: http://www.mpipartners.ca/documents/Policies_Procedures/2017-LVAA.pdf

Although the question specifically requests production of the LVAA, a separate agreement negotiated with Automotive Trades Association and Manitoba Motor Dealers Association specifies compensation. A signed copy of this agreement is included at Appendix "A".

b) Please refer to the detailed cost benefit analysis in *PUB (MPI) 1-62*, for which the Corporation is seeking confidential treatment.

c) and d)

The Corporation initially established an amount of $6 million annually to be part of the LVAA payments for Direct Repair (DR) shops in the long run. The math used to support that estimate was that the Corporation expected 75% of the 98,000 annual repairable claims would be subject to the $81 premium over the long term. The $6 million in annual cost was not supported by established efficiencies to MPI, which are generated mainly through lower numbers of estimating staff. A key flaw in the $81 premium is that MPI is required to pay it on all jobs performed by a DR repair shop, not just DR jobs. Paying a premium for the roughly 80% of non-DR jobs creates a direct mismatch in costs and benefits, when no efficiencies are created. MPI is now relying on assessments of value, and NPV analysis in operational and claims management programs such as these. As significant efficiency gains have not materialized with DR, the Corporation has announced its intent to dramatically alter the $81 premium and other DR policies with its repair shop partner network. Future partner compensation negotiations better reflect the true cost incurred or value created, and also industry practice outside Manitoba, which is commonly not to remunerate repair shops for DR types of estimating.

To date, the Corporation paid $483,939 for 5,532 eligible claims in Q1 2018. The analysis supporting the annual cost estimate of $6.3M was subsequently revised it to $3.63M for 2018/19. As the DR program matures and adoption grows, the Corporation could expect that the DR premium could cost as much as $6 million per year if not changed and based on the percentage of MPI's repair capacity that DR shops process multiplied by the $81 premium. The variance from $6.3m down to $3.63m for 2018/19 resulted from the following:

i. The confirmation of DR Premium implementation criteria after negotiations to only include claims with a date of loss after December 31, 2017, and the claim's acceptance by a DR shop after February 28, 2018. 13,031 in claims paid by the Corporation in Q1 were excluded from the $81 payment due this change in criteria.

ii. The original estimate used a conservative scenario of 127 DR shops representing 71,989 claims being entitled to the premium.

iii. The estimate did not consider excluding claims for shops in corrective actions. DR shops must be in "good standing" to be entitled to the DR Premium. 264 claims were excluded from the DR Premium in Q1.

iv. DR Shops entering the operational phase of DR midway through Q1.

Figure 1: Annual Cost Estimate

	Q1	Q1	Q3	Q4
Original Estimate 2018/19 $6.3M	$1.57M	$1.57M	$1.57M	$1.57M
Re-Set Estimate $3.63M	$0.48M	$0.48M	$1.02M	$1.15M

Manitoba Public Insurance

COPY

THE MANITOBA PUBLIC INSURANCE CORPORATION

- and -

THE AUTOMOTIVE TRADES ASSOCIATION OF MANITOBA INC.

- and –

MANITOBA MOTOR DEALERS ASSOCIATION INC.

INDUSTRY AGREEMENT

March 1, 2017

An Agreement dated the 1st day of March, 2017.

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION
(called "**Manitoba Public Insurance**")

- and -

THE AUTOMOTIVE TRADES ASSOCIATION OF MANITOBA INC.
(called "**ATA**")

- and –

MANITOBA MOTOR DEALERS ASSOCIATION INC.
(called "**MMDA**")

WHEREAS:

The ATA and MMDA ("**Industry**") and Manitoba Public Insurance are entering into this agreement (the "**Industry Agreement**") in order to set out the agreed-upon labour rates and related fees and other compensation payable to accredited and non-accredited motor vehicle body shops in Manitoba, to establish an Accreditation Agreement template, and to address other issues within the collision repair industry in Manitoba.

NOW THEREFORE, the Parties hereto agree as follows:

1. DEFINITIONS

1.1. "**Accreditation Agreement**" means the agreement entered into between Manitoba Public Insurance and a motor vehicle repair shop covering Light Vehicle repairs that allows a motor vehicle repair shop to become an Accredited Shop, and entitled to the accredited rates and fees in the attached Schedule A – Compensation of this Industry Agreement. The template Accreditation Agreement in place as of the Effective Date is attached for reference only as Schedule E to this Industry Agreement.

1.2. "**Accreditation Program Administration**" is the Manitoba Public Insurance managed activity to coordinate and administer the initial enrollment, acceptance and ongoing accreditation requirements of each Accredited Shop and the industry overall.

1.3. "**Accreditation Requirements**" has the meaning given to it in the Accreditation Agreement.

1.4. "**Accredited Shop**" has the meaning given to it in the Accreditation Agreement.

1.5. "**Customer**" has the meaning given to it in the Accreditation Agreement.

1.6. "**Disputes**" has the meaning given to it in Schedule C – Governance.

1.7. "**DR Program**" has the meaning given to it in the Schedule 9.1 – Direct Repair

Program of the Accreditation Agreement.

1.8. "**DR Shop**" has the meaning given to it in the Schedule 9.1 – Direct Repair Program of the Accreditation Agreement.

1.9. "**Earned Approval Limit**" has the meaning given to it in Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level.

1.10. "**Effective Date**" means March 1, 2017.

1.11. "**Estimate**" has the meaning given to it in the Accreditation Agreement.

1.12. "**Estimating Standards**" has the meaning given to it in the Accreditation Agreement.

1.13. "**KPI**" or "**KPIs**" has the meaning given to it in Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level.

1.14. "**Light Vehicle**" has the meaning given to it in the Accreditation Agreement.

1.15. "**MPI Partners Website**" has the meaning given to it in the Accreditation Agreement.

1.16. "**Non-Accredited Shop**" means a motor vehicle repair shop which has not entered into an Accreditation Agreement with Manitoba Public Insurance.

1.17. "**OEM**" has the meaning given to it in the Accreditation Agreement.

1.18. "**Party**" or "**Parties**" means individually or collectively the ATA, MMDA, or Manitoba Public Insurance (as the case may be).

1.19. "**Policies & Procedures**" has the meaning given to it in the Accreditation Agreement.

1.20. "**Proper Repair**" has the meaning given to it in the Accreditation Agreement.

1.21. "**Quality Assurance Program**" has the meaning given to it in the Accreditation Agreement.

1.22. "**Tiers**" has the meaning given to it in Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level.

2. TERM AND TERMINATION OF INDUSTRY AGREEMENT

2.1. Term

This Industry Agreement comes into effect as of March 1, 2017, and shall continue until terminated, in accordance with the terms and conditions of this Industry Agreement.

2.2. Termination

A Party may terminate its involvement with this Industry Agreement by providing sixty (60) days prior written notice to all of the other Parties.

2.3. Effect of Termination

In the event this Industry Agreement is terminated, Manitoba Public Insurance may elect to continue to pay the rates and fees in the attached Schedule A – Compensation that were in effect prior to the termination of this Industry Agreement, or deem different rates and fees to be applicable.

3. SCOPE

3.1. Industry Member Representation

The ATA and MMDA warrant that they have the authority to negotiate for their collective member motor vehicle repair shops regarding the rates and fees, and obligations in this Industry Agreement, and the Accreditation Agreement.

3.2. Compensation

This Industry Agreement covers the process to administer fee increases to be paid by Manitoba Public Insurance to all Accredited Shops and Non-Accredited Shops in Manitoba as determined by Manitoba Public Insurance for Light Vehicle repairs. The details of these rates and fees and other compensatory items are outlined in the attached Schedule A – Compensation, and shall be paid to Accredited Shops and Non-Accredited Shops in accordance with the Accreditation Agreement, the Policies and Procedures, and this Industry Agreement. Where a particular service is not addressed by this Industry Agreement, the Accredited Shop or Non-Accredited Shop and Manitoba Public Insurance may negotiate the fees to be charged for such specialized services on a case-by-case basis. At the Effective Date of this Industry Agreement, rates and fees in Schedule A – Compensation are only for the duration indicated in Schedule A – Compensation. The Parties shall negotiate any renewal or updates to Schedule A – Compensation prior to the expiry date indicated in Schedule A – Compensation utilizing the governance process in Schedule C – Governance. In the event the Parties cannot agree on a revised Schedule A – Compensation prior to its expiry date, Manitoba Public Insurance shall continue to pay the rates and fees in Schedule A – Compensation that were in effect prior to its expiry. Changes to Schedule A – Compensation will be posted on the MPI Partners Website and Industry, and the Accredited Shops will be notified of such changes in accordance with Article 7.

3.3. Estimating Standards

Manitoba Public Insurance has established and published a series of Estimating Standards applicable to the repair of Light Vehicles in Manitoba by all Accredited Shops and Non-Accredited Shops. The current version(s) may be found on the MPI Partners Website. Manitoba Public Insurance and the Industry shall utilize the governance process in Schedule C – Governance to discuss potential changes to, or any Disputes regarding the Estimating Standards. Changes to the Estimating Standards will be posted on the MPI Partners Website and Industry will be notified of such changes in accordance with Article 7.

3.4. KPI Program and Earned Approval Limits

Manitoba Public Insurance has established and published a series of KPIs, Tiers, and Earned Approval Limits applicable to the repair of Light Vehicles in Manitoba by all Accredited Shops. The KPIs and Earned Approval Limits in effect as of the Effective Date are included in the attached Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level. Manitoba Public Insurance and the Industry shall utilize the governance process in Schedule C – Governance to discuss potential changes to, or any Disputes regarding the KPIs and Earned Approval Limits.

Changes to the KPIs and Earned Approval Limits will be posted on the MPI Partners Website and Industry will be notified of such changes in accordance with Article 7.

3.5. Quality Assurance, Accreditation Requirements and Program Administration
Manitoba Public Insurance has established a Quality Assurance Program, Accreditation Requirements, and Accreditation Program Administration rules, applicable to the repair of Light Vehicles in Manitoba by all Accredited Shops and Non-Accredited Shops. The current version(s) may be found on the MPI Partners Website. Manitoba Public Insurance and the Industry shall utilize the governance process in Schedule C – Governance to discuss potential changes to, or any Disputes regarding the Quality Assurance Program, Accreditation Requirements, and Accreditation Program Administration rules. Changes to the Quality Assurance Program, Accreditation Requirements, and Accreditation Program Administration rules will be posted on the MPI Partners Website and Industry will be notified of such changes in accordance with Article 7.

3.6. DR Program Requirements and Administration
Manitoba Public Insurance has established and published requirements and administrative procedures regarding the DR Program, applicable to the repair of Light Vehicles in Manitoba by all Accredited Shops accepted into the DR Program. The current version(s) may be found on the MPI Partners Website. Manitoba Public Insurance and the Industry shall utilize the governance process in Schedule C – Governance to discuss potential changes to, or any Disputes regarding the Direct Repair Program. Changes to the Direct Repair Program will be posted on the MPI Partners Website and Industry will be notified of such changes in accordance with Article 7.

3.7. Sustainable Industry Development Initiatives
Manitoba Public Insurance and Industry are committed to the long term viability and sustainability of the Manitoba repair industry for Light Vehicles. Schedule D – Sustainable Industry Development Initiatives outlines industry initiatives undertaken by the Parties.

3.8. Manitoba Public Insurance Mandate
Manitoba Public Insurance is undertaking its Physical Damage Re-engineering program in conjunction with the Industry to improve overall efficiency and effectiveness of the physical damage repair management process. These activities include efforts to streamline and adjust business practices to obtain savings for Manitoba Public Insurance and motor vehicle repair shops in administrative efficiency and overall cost savings in the completion of physical damage repairs.

Manitoba Public Insurance will consult with Industry in the development of new operating policies and procedures to implement the technology and improved business practices that the Physical Damage Re-engineering program will develop in accordance with Schedule C – Governance. The Parties recognize that changing business conditions require a co-operative and mutually beneficial approach to achieving an overall effective and sustainable collision repair industry in Manitoba that is also affordable to Manitoba Public Insurance's rate payers.

Manitoba Public Insurance retains the right to establish and update its own internal policies and strategic direction regarding the issues contemplated by this Industry Agreement generally, and without limiting the foregoing the issues contemplated by Sections 3.3 to 3.7, and reserves the right to effect any such decisions as it so requires.

3.9. Job Solicitations

Manitoba Public Insurance shall not directly or indirectly solicit any employee of the motor vehicle body shops in Manitoba who provide repair services to Manitoba Public Insurance. The foregoing prohibition shall not prevent Manitoba Public Insurance from publishing general advertisements for employees and subsequently hiring such employees who respond to such advertisements.

4. Governance

4.1. Governance

Manitoba Public Insurance and Industry agree to govern themselves, resolve any Disputes, and discuss any changes to this Industry Agreement as outlined in Schedule C – Governance.

5. DISCLOSURE OF INFORMATION

5.1. Industry acknowledges that *The Freedom of Information and Protection of Privacy Act* ("**FIPPA**") and *The Personal Health Information Act* ("**PHIA**") each impose obligations on Manitoba Public Insurance to collect, use or disclose "personal information" and "personal health information", as those terms are defined in FIPPA and PHIA (collectively called "**Personal Information**"), in the strictest of confidence, and in accordance with those Acts.

5.2. While this Industry Agreement is in effect, and at all times thereafter, the Parties agree to treat as confidential information and materials acquired by it, or to which it has been given access, in the course of the performance of this Industry Agreement (collectively called "**Confidential Information**"), excluding information that is in the public domain (for greater certainty, this does not include information in the public domain which was made public as a result of an unauthorized disclosure by a third party). For the purposes of this Agreement, Personal Information shall be considered to be Confidential Information.

5.3. The Parties agree that during the term of this Agreement and at all times thereafter:

(a) the Personal Information disclosed to a Party (a "**Receiving Party**") by a disclosing Party (the "**Disclosing Party**") may only be used by the Receiving Party in a manner expressly permitted by FIPPA, PHIA, *The Personal Information Protection and Electronic Documents Act* (Canada), or such other applicable privacy laws (as the case may be);

(b) the Receiving Party shall not disclose or permit the disclosure of Confidential Information, or any copies of it, in any format, to any third party that is not a Party's Representative without the express prior written consent of the Disclosing Party;

(c) Industry shall comply with all directives given to it by Manitoba Public Insurance with respect to safeguarding, or otherwise ensuring the confidentiality, of any Confidential Information disclosed to it by Manitoba Public Insurance;

(d) the Receiving Party shall ensure that access to the Confidential Information by the Representatives of the Receiving Party is on a "need-to-know" basis, and that access, when given, shall be to the minimum amount of Confidential Information necessary to accomplish the task;

(e) the Receiving Party shall use the Confidential Information only for those purposes that have been expressly permitted by this Industry Agreement, or by the Disclosing Party;

(f) the Receiving Party shall not reproduce Confidential Information, in any format, without the express prior written consent of the Disclosing Party, other than for the Receiving Party to perform its obligations under this Industry Agreement;

(g) Industry shall ensure that it, or its Representatives, do not transport or store any Personal Information collected, used or disclosed under this Agreement outside of Canada without the express prior written consent of Manitoba Public Insurance; and,

(h) after the Confidential Information has been used for its authorized purpose, or where destruction of the Confidential Information is requested by the Disclosing Party or is required by this Agreement, or upon expiration or termination of this Services Agreement, the Receiving Party shall destroy the Confidential Information (and all copies of the Confidential Information in any form) in a manner which adequately protects the confidentiality of the Confidential Information. If destruction of the Confidential Information is not possible or feasible the Receiving Party shall extend the confidentiality protections of this Article 5 to the Confidential Information indefinitely.

5.4. During the term of this Agreement and at all times thereafter, the Parties shall take reasonable precautions to prevent any unauthorized disclosure of the Confidential Information. The standard of such precautions taken by a Party shall be the greater of:

(a) the standards the Receiving Party has in place to protect its own Confidential Information; or,
(b) the standards imposed on the Receiving Party by the Disclosing Party.

5.5. A Party shall immediately notify the other Parties in writing upon becoming aware of any unauthorized use of, access to, disclosure of, or destruction of Confidential Information (a "**Confidentiality Breach**"). The written notification must include full details of the Confidentiality Breach. The Party shall immediately take all reasonable steps to prevent the recurrence of any such Confidentiality Breach and shall notify the other Parties in writing of the steps taken.

5.6. The Parties shall inform its applicable Representatives of the obligations imposed upon it in this Agreement with respect to Confidential Information, and shall take whatever steps are necessary to ensure that all of its Representatives comply with those obligations.

5.7. The Parties acknowledge that monetary damages may not be a sufficient remedy for a Confidentiality Breach, and that a Party may, without waiving any other rights or remedies, seek appropriate injunctive or equitable relief from a court of competent jurisdiction.

5.8. If a Party receives a subpoena or other validly issued administrative or judicial order seeking Confidential Information, the Party shall provide prompt notice to the other Parties and deliver to the other Parties a copy of its proposed response to the demand.

Unless the demand has been time-limited, quashed or extended, the Party shall thereafter be entitled to comply with the demand to the extent permitted or required by law. If so requested by a Party, and at the expense of that Party, the other Parties shall cooperate with that Party in the defence of the demand.

5.9. Industry undertakes not to publish any public statement or advertisement with respect to this Agreement and further undertakes not to seek publicity of this Agreement without the express prior written consent of Manitoba Public Insurance, except as otherwise required by law or by this Agreement.

5.10. A Party shall cooperate with the other Parties so that the other Parties or Party can verify that the Party has complied, and is complying, with the provisions of this Article 5.00.

6. General

6.1. Independent Parties

For the purposes of this Industry Agreement "Representatives" is defined as the directors, officers, shareholders, employees, subcontractors, partners, volunteers, agents, affiliates, members, delegates and other representatives of a Party. This Industry Agreement does not create the relationship of employer and employee, of principal and agent, of joint venture, or of partnership between Manitoba Public Insurance and Industry, or between Manitoba Public Insurance and any Representatives of Industry. The Representatives of one Party shall not be deemed or construed to be the Representatives of the other Party for any purpose whatsoever.

6.2. Assignment or Transfer

The ATA or MMDA shall not assign or transfer this Industry Agreement or any of their rights or obligations under this Industry Agreement without first obtaining written permission from Manitoba Public Insurance. This Agreement shall be binding upon the successors and any permitted assigns of the Parties.

6.3. Survival

The terms and conditions contained in this Industry Agreement that by their sense and context are intended to survive the performance of this Industry Agreement by the Parties shall so survive the completion and performance, suspension or termination of this Industry Agreement.

6.4. Entire Agreement

This Industry Agreement, including any schedules, along with any policies, procedures or directives referenced herein contain the entire agreement between the Parties with respect to the subject matter hereof, and supersedes and extinguishes all prior oral and written communications between the Parties about its subject matter. There are no undertakings, representations, or promises, express or implied, other than those contained in this Industry Agreement and none have been relied on.

6.5. Amendment

No amendment or change to, or modification of this Industry Agreement shall be valid unless it is in writing and signed by all Parties.

6.6. Invalidity

If any provision of this Industry Agreement is for any reason invalid, that provision shall be considered separate and severable from this Industry Agreement, and the other provisions of this Industry Agreement shall remain in force and continue to be binding upon the Parties as though the invalid provision had never been included in this Industry Agreement.

6.7. Applicable Laws

This Industry Agreement shall be interpreted, performed and enforced in accordance with the laws of Manitoba and the laws of Canada applicable therein. The Parties hereby irrevocably and unconditionally attorn to the exclusive jurisdiction of the courts of the Province of Manitoba and all courts competent to hear appeals therefrom.

6.8. Waiver

Any failure or delay by a Party to exercise or partially exercise any right hereunder shall not be deemed a waiver of any of the rights under this Industry Agreement. The waiver by a Party of a breach of any provision of the Industry Agreement shall not operate as, or be construed as, a waiver of any subsequent breach thereof. The election of any one or more remedies by a Party shall not constitute a waiver of that Party's right to pursue other available remedies.

6.9. Further Acts

The Parties agree to perform any further acts and execute and deliver any documents that may be reasonably necessary to carry out the provisions of this Industry Agreement.

6.10. Dollars

All dollar references in this Agreement and its schedules are in Canadian Dollars unless otherwise specified.

7. Notices

7.1. Addresses

Any notice or other communication under this Agreement shall be delivered:

To the ATA:

President
The Automotive Trades Association of Manitoba Inc.
112-1790 Wellington Avenue
Winnipeg, Manitoba, R3H 1B2
Email: ata@mts.net

To the MMDA:

Executive Director
Manitoba Motor Dealers Association Inc.
112-1790 Wellington Avenue
Winnipeg, Manitoba, R3H 1B2
Email: info@mmda.mb.ca

To Manitoba Public Insurance:

Director, Service Operations Control and Compliance
Manitoba Public Insurance
Box 6300
807-234 Donald St.
Winnipeg, Manitoba R3C 4A4
Email: serviceopscontandcomp@mpi.mb.ca

7.2. Notice Timing
Any notice or communication:

(a) sent by registered mail shall be deemed to have been received on the third business day following the date of mailing;
(b) sent by facsimile or other electronic transmission (including email) shall be deemed to have been received on the same business day it was sent if it was sent prior to 5:00 PM central time, or the next business day following the date it was sent if it was sent after 5:00 PM central time; and,
(c) sent by courier or personal delivery shall be deemed to have been received on the day that it was delivered.

This Industry Agreement has been executed on behalf of the Parties (by their duly authorized representatives) effective the date first above written.

for **THE MANITOBA PUBLIC INSURANCE CORPORATION**

Per: _____
Dan Guimond
President & CEO

Nov 24/16
Date

Per: _____
Christine Martin
Vice President, Customer Service and Chief Operating Officer

Nov 24, 2016
Date

for **THE AUTOMOTIVE TRADES ASSOCIATION OF MANITOBA INC.**

Per: _____
Rick De Dominicis
President

Nov 24/16
Date

for **MANITOBA MOTOR DEALERS ASSOCIATION INC.**

Per: _____
Brian Lowes
President

Nov. 24/16.
Date

Schedule A: Compensation March 1, 2017 to February 28, 2019

All fees in this schedule are in Canadian dollars. This schedule is effective from March 1, 2017 to February 28, 2019.

SOUTHERN MANITOBA LABOUR RATES

	Labour				Material & Other Fees		
	Labour Rate (Body, Refinish & Mechanical)		Frame Labour Rate	Designated Repairs Labour Rate	Shop Material	Paint Material	Toxic Waste
	Accredited	Non-Accredited					
	per Hr	per Hr	per Hr	per Hr	per Hr	per Hr	per Paint Estimate
1-Jan-16	$71.36	$35.68	$78.20	$96.56	$6.71	$38.20	$4.97
1-Mar-17	$72.89	n/a	$79.88	$98.64	$6.71	$38.20	$4.97
1-Mar-18	$74.43	n/a	$81.56	$100.71	$6.71	$38.20	$4.97

NORTHERN MANITOBA LABOUR RATES

Thompson, Flin Flon, The Pas

	Labour				Material & Other Fees		
	Labour Rate (Body, Refinish & Mechanical)		Frame Labour Rate	Designated Repairs Labour Rate	Shop Material	Paint Material	Toxic Waste
	Accredited	Non-Accredited					
	per Hr	per Hr	per Hr	per Hr	per Hr	per Hr	per Paint Estimate
1-Jan-16	$79.86	$39.93	$87.54	$96.56	$9.91	$38.20	$5.46
1-Mar-17	$81.58	n/a	$89.42	$98.64	$9.91	$38.20	$5.46
1-Mar-18	$83.29	n/a	$91.30	$100.71	$9.91	$38.20	$5.46

NORTHERN MANITOBA LABOUR RATES

Churchill, Lynn Lake, Leaf Rapids, Gillam, Norway House

	Labour				Material & Other Fees		
	Labour Rate (Body, Refinish & Mechanical)		Frame Labour Rate	Designated Repairs Labour Rate*	Shop Material	Paint Material	Toxic Waste
	Accredited	Non-Accredited					
	per Hr	per Hr	per Hr	per Hr	per Hr	per Hr	per Paint Estimate
1-Jan-16	$82.18	$41.09	$90.02	$96.56	$9.91	$38.20	$5.46
1-Mar-17	$83.95	n/a	$91.96	$98.64	$9.91	$38.20	$5.46
1-Mar-18	$85.71	n/a	$93.89	$100.71	$9.91	$38.20	$5.46

* The designated repairs labour rate was previously named the mechanical specialty labour rate.

Accreditation Agreement Effective Date and Application to Rates:

Accredited Shops that sign a new Accreditation Agreement with an effective date on or after March 1, 2017:

- shall start being paid the rates under this schedule upon the effective date of their new Accreditation Agreement.
- shall have access to the rates, fees, Inflation Protection Index (as defined below), and Top Up Payments (as defined below) under this schedule during the effective term of this schedule.

Non-Accredited Rates
The Non-Accredited rates shall no longer be indexed to the Accredited rates. The Non-Accredited rates in place as of February 28, 2017 shall remain unchanged going forward. Manitoba Public Insurance will work with Industry to review and set these values as warranted by ongoing market conditions and customer need.

Administration Fee:
For completed repairs where the vehicle has been returned to the customer with body, frame, mechanical, and/or designated repair labour an administration fee may be charged as follows:

	As of Jan 1, 2016	As of Mar 1, 2017	As of Mar 1, 2018
Rate, per Repair	$15.00	$15.00	$15.00

In the event this schedule lapses or is terminated, Manitoba Public Insurance is not obliged to pay for any such administration fees incurred after the lapse or termination.

Inflation Protection for Labour Rates:
Labour rate increases shown throughout the tables in this schedule may indicate year over year percentage increases. The rates in this schedule with a year over year percentage increase are subject to the Inflation Protection Index defined below. Those rates set at the same rate for each year (i.e. there is no planned increase year over year) ("**Frozen Rates**") are not subject to the Inflation Protection Index and will be excluded from the calculations and rate adjustments

Inflation Protection Index Calculation:
The percentage rate increase will be protected against inflation in year two of this schedule. Inflation for a given year (March 1st to February 28th) will be calculated using:

- forty (40%) percent of the Industrial Average Wage ("**IAW**") increase for Manitoba from data provided by Statistics Canada, and
- sixty (60%) percent of the Consumer Price Index ("**CPI**") for Manitoba from data provided by Statistics Canada.

Referred to as the "**Inflation Protection Index**".

- For greater certainty, the Inflation Protection Index calculation for a given year will use the above-mentioned IAW and CPI Manitoba data from the twelve month period beginning January 1st and ending December 31 in the prior year.
- The Inflation Protection Index only applies to the second year of the term of this schedule.

As an example calculation: if the average industrial wage increase was 1.6% and the CPI increase was 1.4%, and the applicable annual increase was only a 1%, then:

- [1.6% (IAW increase) X 0.4] + [1.4% (CPI increase) X 0.6] =
  - 0.64% + 0.84% yields an Inflation Protection Index of 1.48%
- 1.48% Inflation Protection Index – 1% (annual increase) = 0.48%
- The proposed labour rate is increased by a further 0.48%.

In the event this schedule lapses or is terminated, Manitoba Public Insurance is not obliged to provide this Inflation Protection Index after the lapse or termination.

Labour Pool Increase Amount Guarantee:
The agreed annual increase to the labour pool is $2.5 million (the "**Labour Pool Increase Amount**") in each of the two years of this term of this schedule. The "**Actual Volume of Work**" equals the total amount of labour hours for Services performed by Accredited Shops in a year (ending February 28) for work paid in that year (work in progress does not count). The **"Agreed Baseline**" for March 1, 2017 is 1,631,753 labour hours for all labour types. The Labour Pool Increase Amount shall be distributed on a pro rata basis to those Accredited Shops that performed the Services in the year (ending February 28) as follows:

Labour Pool Increase Amount Calculation:
The Actual Volume of Work divided by the Agreed Baseline in the period equals the "**Labour Hour Ratio**".

- If the Labour Hour Ratio is ***greater than*** 1.0 then the Labour Pool Increase Amount has been fully consumed and there is no adjustment applied, and no further payments to Accredited Shops.
- If the Labour Hour Ratio is ***less than*** 1.0 then the Labour Pool Increase Amount has ***not*** been fully consumed and an adjustment shall be applied as follows:

Adjustment Pool Amount and Top Up Payment Calculation:
Accredited Shops, still in operation in the following Period, may receive a Top-Up Payment based upon the Adjustment Pool Amount as follows. The following definitions apply:

(a) The **"Adjustment Pool Amount"** in dollars equals the Current Period's Planned Total Labour Spend in dollars less the Actual Labour Paid in the Period.
(b) The "**Current Period's Planned Total Labour Spend"** equals the Prior Period's Actual Labour Paid plus the Labour Pool Increase Amount ($2.5 Million).
(c) "**Actual Labour Paid**" means the gross total amount of dollars paid by Manitoba Public Insurance to Accredited Shops for the Services in the Period.
(d) "**Period**" means the applicable year ending on February 28.
(e) "**Prior Period**" mean the twelve month period before the Period.

The following are examples of how to calculate the Adjustment Pool Amount:

1. ***Actual labour paid is above prior period, but below current period's planned labour spend***

Adjustment Pool Amount Example :		Totals
Prior Period (2016 in this case) Actual Labour Paid in $M	$	116.7
Plus :: Labour Pool Increase Amount $M	$	2.5
Current Period's Planned Total Labour Spend $M	$	119.2
Less :: Actual Labour Paid in Period $M	$	118.0
Adjustment Pool Amount $	$	1,200,000

This scenario is consistent with fewer repairable claims than the planned baseline and a corresponding under run of total hours of work paid in the period.

An Accredited Shop's "**Top Up Payment**" shall be calculated as the Individual Accredited Shop Amount Paid divided by the Actual Labour Paid, multiplied by the Adjustment Pool Amount.

The "**Individual Accredited Shop Amount Paid**" means the gross total amount of labour dollars paid by Manitoba Public Insurance to the individual Accredited Shop for the Services in the Period.

The following is an example of how to calculate an Accredited Shop's Top Up Payment:

Top Up Payment example:			
Actual Labour Paid to Industry in Period: **$118.0M**			
Adjustment Pool Amount: **$1.2M**	Shop A	Shop B	Shop C
Individual Accredited Shop Amount Paid $	$1,200,000	$200,000	$50,000
Individual Accredited Shop Amount Paid / Actual Labour Paid to Industry	1.2M/118M	200K/118M	50K/118M
Accredited Shop's Percentage of the Adjustment Pool Amount	1.02%	0.17%	0.04%
Accredited Shop's Top Up Payment $	$12,203	$2,034	$508

2. ***Actual labour paid is below prior period***

Adjustment Pool Amount Example :		
		Totals
Prior Period (2016 in this case) Actual Labour Paid in $M	$	116.7
Plus :: Labour Pool Increase Amount $M	$	2.5
Current Period's Planned Total Labour Spend $M	$	119.2
Less :: Actual Labour Paid in Period $M	$	115.0
Adjustment Pool Amount $	$	4,200,000

This scenario is consistent with fewer repairable claims than the planned baseline and a corresponding under run of total hours of work paid in the period; in this case the work is below the prior year base.

Top Up Payment example:			
Actual Labour Paid to Industry in Period: **$115.0M**			
Adjustment Pool Amount: max of **$2.5 M**	Shop A	Shop B	Shop C
Individual Accredited Shop Amount Paid $	$1,200,000	$200,000	$50,000
Individual Accredited Shop Amount Paid / Actual Labour Paid to Industry	1.2M/115M	200K/115M	50K/115M
Accredited Shop's Percentage of the Adjustment Pool Amount	1.04%	0.17%	0.04%
Accredited Shop's Top Up Payment $	$26,087	$4,348	$1,087

- Individual Top Up Payments of less than fifty ($50.00) dollars will not be made, will not accrue, will expire, and will not count for next year's Top Up Payments.
- Top Up Payments shall be completed by June 1 of the current year of the term of this schedule.

Nothing in this schedule or the Industry Agreement, or the Accreditation Agreement shall be construed as Manitoba Public Insurance guaranteeing the total or minimum number of labour hours required during the term of this schedule. The intent is to fully consume the incremental labour funding of $2.5 million in the first year and the second $2.5 million in the second year. In the event this schedule lapses or is terminated, Manitoba Public Insurance is not obliged to provide this Labour Pool Increase Amount guarantee after the lapse or termination.

DR Program Premium Structure:

1. The Premium Amount applies to all DR Shops in all regions of the Province of Manitoba.
2. The Premium Amount does not apply to jobs that have not been returned to the Customer.
3. For all DR Shops in good standing the Premium Amount shall be paid for all completed Eligible Repairs in the periods noted below in the Premium Amount table. "**Eligible Repairs**" are repairs done by a DR Shop where the vehicle has been returned to the Customer with body/refinish labour in accordance with the Accreditation Agreement.
4. Premium Amount payments will be calculated quarterly and distributed within thirty (30) days in accordance with the Accreditation Agreement.
5. Payments of less than fifty ($50.00) dollars shall not be made, will not accrue, and will expire.

Premium Amount:

	As of Jan 1, 2016	As of Mar 1, 2017	As of Mar 1, 2018
Rate, per eligible repair (job)	n/a	$0.00	$81.00

Total Premium Amounts:

- Manitoba Public Insurance anticipates that in the second year of the term of this schedule, the Premium Amount shall apply to approximately 31,000 Eligible Repairs (the "**Estimated Amount**") completed in qualified DR Shops. This equates to about $2.5 million in additional disbursements for the DR Program in the second year of the term of this schedule.
- Actual volumes of Services experienced by the industry are a function of market conditions; the Estimated Amount is neither capped nor guaranteed by Manitoba Public Insurance.
    - Manitoba Public Insurance shall pay the per job Premium Amounts as they are earned.
    - If the value of Eligible Repairs is less than the Estimated Amount Manitoba Public Insurance is not required to top up or guarantee the Estimated Amount of Services.

Manitoba Public Insurance

Effective March 1, 2017

SOUTHERN MANITOBA GLASS LABOUR RATES

	Labour				Discount on NAGS Price List		Material & Other Fees	
	Windshield (Safety)		Tempered Glass		Windshield (Safety)	Tempered Glass	Material*	Sealant Allowance
	Accredited	Non-Accredited	Accredited	Non-Accredited	Applied per Estimate	Applied per Estimate	per Hr	per item
1-Jan-16	$55.31	$27.66	$69.15	$34.58	10.0%	10.0%	$6.71	$32.00
1-Mar-17	$55.31	n/a	$69.15	n/a	10.0%	10.0%	$6.71	$32.00
1-Mar-18	$55.31	n/a	$69.15	n/a	10.0%	10.0%	$6.71	$32.00

* Material is paid for side & back glass only (tempered)

NORTHERN MANITOBA GLASS LABOUR RATES

Thompson, Flin Flon, The Pas

	Labour				Discount on NAGS Price List		Material & Other Fees	
	Windshield (Safety)		Tempered Glass		Windshield (Safety)	Tempered Glass	Material*	Sealant Allowance
	Accredited	Non-Accredited	Accredited	Non-Accredited	Applied per Estimate	Applied per Estimate	per Hr	per item
1-Jan-16	$63.32	$31.66	$77.40	$38.70	0%	0%	$9.91	$32.00
1-Mar-17	$63.32	n/a	$77.40	n/a	0%	0%	$9.91	$32.00
1-Mar-18	$63.32	n/a	$77.40	n/a	0%	0%	$9.91	$32.00

NORTHERN MANITOBA GLASS LABOUR RATES

Churchill, Lynn Lake, Leaf Rapids, Gillam, Norway House

	Labour				Discount on NAGS Price List		Material & Other Fees	
	Windshield (Safety)		Tempered Glass		Windshield (Safety)	Tempered Glass	Material*	Sealant Allowance
	Accredited	Non-Accredited	Accredited	Non-Accredited	Applied per Estimate	Applied per Estimate	per Hr	per item
1-Jan-16	$65.22	$32.61	$79.61	$39.81	0%	0%	$9.91	$32.00

1-Mar-17	$65.22	n/a	$79.61	n/a	0%	0%	$9.91	$32.00
1-Mar-18	$65.22	n/a	$79.61	n/a	0%	0%	$9.91	$32.00

Cracks & Windshield Repairs

Windshield Repairs

	Windshield - Repairs				Windshield - Cracks					
	Accredited		Non-Accredited		Accredited			Non-Accredited		
	Up to 2 (Total)	per Additional Instance	Up to 2 (Total)	per Additional Instance	First 4 inches	Next 4 inches	Maximum Cost Payable (8 inch crack)	First 4 inches	Next 4 inches	Maximum Cost Payable (8 inch crack)
1-Jan-16	$80.00	$20.00	$40.00	$10.00	$94.50	$14.50	$109.00	$47.25	$7.25	$54.50
1-Mar-17	$80.00	$20.00	n/a	n/a	$94.50	$14.50	$109.00	n/a	n/a	n/a
1-Mar-18	$80.00	$20.00	n/a	n/a	$94.50	$14.50	$109.00	n/a	n/a	n/a

Job Maximums:

- The first two instances of a windshield repair are included in the initial fee.
- Cracks are paid for units of 4 inches each.
- Cracks are capped at the amount for an 8 inch repair, made up of the initial 4 inches and up to 4 more inches.

Notes:

1. Starting March 1, 2017:
   a. The Non-Accredited rate for all glass repairs shall no longer be indexed to the Accredited rate.
      i. Manitoba Public Insurance will work with Industry to review and set the value as warranted by ongoing market conditions and Customer need.

Additional Items

Various additional items may be appended to this schedule as appendices.

Items may include but are not limited to:

- Lock Coding and Services: no changes contemplated in the period.
  - See Appendix 1: Lock Coding and Services
  - Manitoba Public Insurance and Industry will review this item on a regular basis through the governance process of this Industry Agreement and make adjustments as the marketplace and Customer need warrants.

- Court and Regulatory Appearance Fees:
  - See Appendix 2: Court and Regulatory Appearance Fees
  - To be set per Manitoba Public Insurance current allowances for such appearances.

- Alternative Transportation Rates (Loss Of Use & Courtesy Cars)
  - See the MPI Partners Website for the Alternative Transportation Rates.

Appendix 1: Lock Coding and Services

Lock Coding

	Initial Lock Coding – domestic and foreign	Each additional Lock Coding for **domestic**	Each additional Lock Coding for **foreign**	Coding sidewinder ignitions	Coding sidewinder door & trunk cylinders	OEM Lock Discount Rate (off of list)	On-site service charge
1-Jan-16	$50.00	$34.40	$41.40	$65.00	$55.00	26.0%	n/a
1-Mar-17	$50.00	$34.40	$41.40	$65.00	$55.00	26.0%	n/a
1-Mar-18	$50.00	$34.40	$41.40	$65.00	$55.00	26.0%	n/a

Appendix 2: Court and Regulatory Appearance Fees

Fees for Accredited Shops' Representatives attending internal Manitoba Public Insurance claim dispute resolution processes, civil, criminal, or other court or administrative proceedings in order to provide testimony related to their Estimates or services when required, shall be paid at an hourly rate of $37.50 per hour to the Accredited Shop, provided that this rate shall only apply to appearances and calls, and does not apply to any prep work or background actions required or performed by the Accredited Shop's Representatives. It is the Accredited Shop's responsibility to adequately compensate their Representatives for these services. These rates also do not apply to any Lock Coding rates in Appendix 1.

SCHEDULE B: KPI Program, Tiers and Earned Approval Limits, and MPI Service Level

Definitions:

"CE" (Collaborative Estimating) means Manitoba Accredited Shops which have installed and are using the Mitchell Products to work collaboratively with Manitoba Public Insurance to process physical damage claims. These Accredited Shops are not eligible to produce the First Estimate of physical damage related to a Manitoba Public Insurance physical damage claim.

"DR" (Direct Repair) means Manitoba DR Shops producing the First Estimate of physical damage related to a Manitoba Public Insurance physical damage claim.

"DR Criteria" is the term used to describe the performance criteria each Accredited Shop must meet or exceed to be eligible to apply for and continue to participate in the DR Program.

"DR Shop" means an Accredited Shop that meets the DR Criteria, and that has applied and has been accepted into the DR Program by Manitoba Public Insurance.

"EAL" (Earned Approval Limit) means the limit under which an Accredited Shop does not require Manitoba Public Insurance review and approval to proceed with repair work. EAL is based on total gross value of the estimate.

"FA-LOU Program" (Fair Allocation Loss of Use) means an optional program managed and set up by MPI to offer Customers alternate transportation in the event that the vehicle is unavailable to them and they also have coverage for its loss of use.

"Tier" means the specific operating level for EAL and any related premium value, its associated eligibility criteria, representing a defined range of options and performance parameters as contemplated in this schedule.

Part 1 - Key Performance Indicator ("KPI") Program ("KPI Program")

KPIs are a way to measure an Accredited Shop's performance against Manitoba Public Insurance's business standards and policies. A number of KPIs will be tracked to determine Tier level assignments. Accredited Shops will be able to influence their assignment to a Tier by the degree to which they meet or exceed target values for each indicator.

The KPI Program shall have a balanced approach reflecting performance against various criteria as follows:

KPI Structure		
Customer Satisfaction	Financial & Administrative	Quality Of Repair

The composition and particular measures shall be developed by Manitoba Public Insurance at its sole discretion to manage its operational risk and facilitate administrative efficiencies and desired business outcomes for the Parties.

Manitoba Public Insurance shall publish the latest KPI measures and current operating targets on the MPI Partners Website.

- The KPI measures shall each have a purpose, definition (what is being measured), formula (how is it calculated), interpretation, and applicability criteria.

Manitoba Public Insurance shall consult with Industry on updates and structural changes to the KPI Program such as changes, deletions or additions to the KPI set, adjustments to EALs, or other such amendments per Schedule C – Governance.

It is anticipated that future compensation methods may utilize the KPI Program to provide alternative means to assess and pay for particular service levels and desirable outcomes. Manitoba Public Insurance shall consult with Industry on the development and introduction of such compensation programs per Schedule C – Governance.

Part 2 - Tier Structure and Earned Authority Levels

All Accredited Shops must meet and maintain minimum criteria to become accredited, and are required to be capable of performing safe, Proper Repairs. In addition to facilities, equipment, and technician training to perform repairs, some Accredited Shops have also invested in their processes and training to maximize compliance to operating standards and policies, minimize cycle time, and ensure a cost effective repair.

Accredited Shops with consistently higher levels of performance will have different levels of privileges such as not requiring approval to proceed with repair work up to a certain EAL.

The following table depicts the Tier structure.

Tier	Tier Name	Earned Approval Limit (EAL)
4	EAL-3500	$3,500
3	EAL-2500	$2,500
2	EAL-1500	$1,500
1	Base	$0

The EAL limits shall be set and revised from time to time as Manitoba Public Insurance determines. Eligibility criteria for each Tier are determined by Manitoba Public Insurance at its sole discretion. Manitoba Public Insurance shall publish the latest criteria on the MPI Partners Website.

Tier Privileges:

Automated Approvals or EALs: A CE or DR Shop in a particular Tier may complete repairs without specific Manitoba Public Insurance approval where the cumulative total cost of the repair is less than the EAL for that Tier.

Base level or an EAL of $0 approval means that all submissions from the Accredited Shop (Estimate and/or Supplement) are subject to review and approval by Manitoba Public Insurance review staff. Tiers 2 through 4 have a review process where selected submissions will be assessed for compliance with the Estimating Standards and the Policies & Procedures. See the latest Policies & Procedures on the MPI Partners Website for the operating details for such reviews.

An Accredited Shop must apply for Tier Privileges (Earned Approval) and be accepted into the Program.

Part 3 – Manitoba Public Insurance Service Level

The Parties agree to introduce a new standard of performance for Manitoba Public Insurance relating to the review of first submissions.

First submissions are either the First Estimates if completed by an Accredited Shop, or the Accredited Shop's First Supplement.

The agreed to service standard is:

- A completed review within four (4) of Manitoba Public Insurance's normal business hours (8:30 AM to 4:30 PM Monday to Friday) excluding holidays of first submission by the Accredited Shop.

Actions:

- Accredited Shops are authorized to proceed with the repair work, including ordering parts as defined in such first submissions if Manitoba Public Insurance has not responded within four (4) business hours.

- Such first submissions are subject to Manitoba Public Insurance's review and audit processes, including but not limited to recovery of inappropriate charges or other items in question in accordance with the Accreditation Agreement.

This measure and related activities will be reported on a regular basis as part of the Executive Committee responsibilities under Schedule C – Governance.

Part 4 – Manitoba Public Insurance Optional Management Programs

Manitoba Public Insurance shall from time to time introduce optional programs to improve customer services in the local markets that the Manitoba repair industry may participate in. For those accredited shops that are interested and that qualify, an opportunity to expand their services into areas related to the work undertaken by shops for Manitoba Public Insurance paid repairs shall be offered.

Such programs are under Manitoba Public Insurance's sole discretion to implement and may be updated or modified (including but not limited to the orderly wind up of said program) at any time by Manitoba Public Insurance at its sole discretion. Manitoba Public Insurance shall review such proposed programs and the associated updates with Industry per the terms of Schedule C – Governance. Any such programs will be managed in an orderly manner, with scheduled updates and releases co-ordinated across the entire Province. The ongoing activities in the programs will be reviewed as part of the Executive Committee responsibilities under Schedule C – Governance.

In support of such reviews:

- The various committee structures in Schedule C – Governance, as directed by the Executive Committee, shall prepare the necessary criteria, reviews, policies, operating procedures, analysis etc... that shall allow the Parties to understand the intent and impact of the proposed optional management programs.
- Manitoba Public Insurance shall take such materials into consideration in establishing the individual program requirements and to accommodate those items it deems appropriate into the relevant program's ongoing management processes.

The structure of all such programs are as follows:

- They are voluntary (no Accredited Shop is obligated to apply to participate);
- They are open to any Accredited Shop that meets the eligibility criteria of each program;
    - Meeting the **entry** eligibility criteria is determined on a case by case basis and applies to each Accredited Shop that applies in its own right;
        - The entry criteria shall change from time to time; such changes will be managed in an orderly manner.
    - Each participating Accredited Shop is required to meet the **on-going** eligibility criteria of each program they have applied for;
        - Such on-going criteria shall change from time to time; such changes will be managed in an orderly manner.
- Programs will have varying promotion and marketing requirements that the participating shops will need to follow. Such promotion plans, will be as set out in the program's individual plans and on the MPI Partners Website.

Currently there are two optional management Programs contemplated under this schedule:

1. Direct Repair
    - For eligible claims, Customers can go direct to a DR Shop to obtain their First Estimate.
2. Alternative Transportation Management / Loss of Use
    - For eligible claims, Customers can have their alternative transportation needs met directly by the participating Accredited Shop.

The latest program plans can be found on the MPI Partners Website.

Schedule C – Governance
Effective March 1, 2017

1. Objectives

(a) Principal Objectives: The principal objectives of the governance structure are:

(i) facilitating the proper management of the relationship between Manitoba Public Insurance and the ATA and MMDA and to encourage co-operative and value-added behavior;
(ii) establishing clear lines of responsibilities and decision making accountability;
(iii) resolving issues as quickly as possible; and,
(iv) providing clear and centralized channels of communication so that the Parties both receive consistent and relevant information.

(b) Co-operation: Manitoba Public Insurance and the ATA and MMDA recognize that the success of the relationship will be dependent upon the timely sharing of information, co-operation and decision-making. The Parties recognize that the level at which information is shared between the Parties is dependent upon the nature of the information being shared. Each Party has the responsibility of ensuring that information is passed along within in its own organization as required and as appropriate.

2. Executive Committee:

(a) Composition: The Parties hereby establish a committee of eight (8) senior personnel (the "**Executive Committee**") as follows:

(i) Manitoba Public Insurance will assign four (4) senior executives to the Executive Committee; and,
(ii) the ATA and MMDA will each assign two (2) senior executive to the Executive Committee with the ability to represent their respective organization.

(b) Responsibilities: The functions and responsibilities of the Executive Committee include:

(i) setting direction and goals for the relationship and ensuring alignment between the Parties, including deciding on any changes to the composition of the committees established under this Industry Agreement;
(ii) conducting annual reviews of the Schedule A – Compensation and approving changes and amendments, including resolution of any outstanding set-offs or other considerations;
(iii) resolving proposals or disputes referred to the Executive Committee pursuant to this schedule and the Industry Agreement;
(iv) reviewing Manitoba motor vehicle repair industry cost drivers and recommendations from the Sustainability and Cost Control Committee to develop strategies for improved cost competitiveness of the Manitoba motor vehicle repair industry;
(v) developing joint positions on regulatory and economic issues that affect the long term competiveness and viability of the motor vehicle repair industry in Manitoba;
(vi) discussing motor vehicle repair industry trends;
(vii) creating and maintaining such joint committees, from time to time, as they mutually deem necessary in order to address issues of mutual interest that impact the motor vehicle repair industry in Manitoba, with a view to benefiting Manitobans; and,

(viii) monitoring compliance with the Industry Agreement and applicable laws.

(c) Meeting Dates: The Executive Committee will meet once every six (6) months or such other frequency as the Executive Committee may decide. In addition to the foregoing, the Executive Committee will be available for other meetings as requested by a Party and upon reasonable prior notice. The members of the Executive Committee will determine for each meeting whether it will be held in person, by telephone, or by video conference. Meetings to be held in person will be held at a location agreed by the Parties acting reasonably.

(d) No Meeting Chair: The Executive Committee shall work collaboratively in setting the agenda, scheduling meetings, and suggesting meeting locations or format.

(e) Meeting Attendance: The Parties will use commercially reasonable efforts to cause their personnel on the Executive Committee to participate in every meeting scheduled in accordance with this schedule. Each Party may, upon notice to the other Parties, designate an alternative person to participate as a committee member, and/or invite one or more of its personnel to attend meetings of the Executive Committee to provide reports and other support.

(f) Minutes: The Executive Committee shall decide if there will be any draft minutes recording the decisions of each Executive Committee meeting and who shall record and provide them. If minutes are recorded and provided, each Party will notify the other Parties of any errors or discrepancies in the minutes at or prior to the next scheduled Executive Committee meeting, failing which the minutes will be deemed to have been approved.

3. Sustainability and Cost Control Committee:

(a) Composition: The Parties hereby establish a committee of seven (7) personnel (the "**Sustainability and Cost Control Committee**") as follows:

(i) Manitoba Public Insurance will assign three (3) personnel to the Sustainability and Cost Control Committee;
(ii) the ATA and MMDA will each assign two (2) personnel to the Sustainability and Cost Control Committee with the ability to represent their respective organization; and,
(iii) the composition of the Sustainability and Cost Control Committee will be revised regularly to obtain a wider perspective on the issues and topics that present.

(b) Responsibilities: The Sustainability and Cost Control Committee reports to the Executive Committee. The functions and responsibilities of the Sustainability and Cost Control Committee will include:

(i) reviewing and making recommendations on any changes to Schedule A – Compensation to the Executive Committee;
(ii) reviewing issues and recommendations presented by the Technical Committee;
(iii) developing opportunities to control costs that affect the overall competiveness of the Manitoba motor vehicle repair vehicle industry:

(1) this may include instructing the Technical Committee to investigate options in parts and materials sourcing, administration processes, new operating practices, or improved training and technique development programs for technical and operational staff; and,
(2) the Sustainability and Cost Control Committee will make recommendations to the Executive Committee on opportunities to improve cost effectiveness for their consideration.

(iv) providing guidance to the Technical Committee on new review topics, priority, and focus of current and pending reviews;

(v) reviewing the Technical Committee's report(s) on items in the period and identifying:

(1) items closed in the last period;
(2) items in progress in the current period;
(3) new items added in the current period; and,
(4) for more complex items, individual work plans, and reports may be required.

(vi) updating Appendix 1 to this schedule listing the composition of the Executive Committee, Sustainability and Cost Control Committee, and Technical Committee;

(vii) managing and monitoring systemic and recurring issues;

(viii) discussing motor vehicle repair industry trends;

(ix) examining and evaluating ways and means in which new tradespersons can be encouraged to enter the motor vehicle repair industry and remain employed in the industry-includes oversight of Schedule D – Sustainable Industry Development Initiatives; and,

(x) monitoring compliance with the Industry Agreement and applicable laws.

(c) Meeting Dates: The Sustainability and Cost Control Committee will meet on a frequency determined from time to time by the Parties, but no less frequently than quarterly. The members of the Sustainability and Cost Control Committee will determine for each meeting whether it will be held in person, by telephone, or by video conference. Meetings to be held in person will be held at a location agreed by the Parties acting reasonably.

(d) Meeting Chair: Manitoba Public Insurance and the ATA and MMDA's personnel will co-chair meetings of the Sustainability and Cost Control Committee and will be responsible for: (i) directing the meetings; (ii) setting the agenda; (iii) scheduling meetings; and (iv) suggesting meeting location or format.

(e) Meeting Attendance: The Parties will use commercially reasonable efforts to cause their personnel on the Sustainability and Cost Control Committee to participate in every meeting scheduled in accordance with this schedule. Either Party may, upon notice to the other Parties, designate an alternative person to participate as a committee member, and/or invite one or more of its personnel to attend meetings of the applicable Sustainability and Cost Control Committee to provide reports and other support.

(f) Minutes: Draft minutes recording decisions of the Sustainability and Cost Control Committee meeting will be provided by the Party designated to provide minutes within five (5) business days of each meeting by e-mail to the other members of the Sustainability and Cost Control Committee. After the receipt of such draft copy, each Party will notify the other Parties of any errors or discrepancies in the minutes at or prior to the next scheduled meeting, failing which the minutes will be deemed to have been approved.

4 Technical Committee:

(a) Composition: The Parties hereby establish a committee of seven (7) personnel (the "**Technical Committee**") as follows:

(i) Manitoba Public Insurance will assign three (3) personnel to the Technical Committee; and,

(ii) the ATA and MMDA will each together assign two (2) personnel to the Technical Committee with the ability to represent their respective organization.

(b) Responsibilities: The Technical Committee reports to the Sustainability and Cost Control Committee. The functions and responsibilities of the Technical Committee will include:

(i) reviewing and making recommendations on any changes to Schedule A – Compensation to the Sustainability and Cost Control Committee;
(ii) reviewing and making recommendations on any changes to Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level to the Sustainability and Cost Control Committee;
(iii) reviewing and making recommendations on any changes to the DR Program;
(iv) reviewing and making recommendations on any changes to the Industry Agreement and schedules, the Accreditation Agreement or any other agreements;
(v) reviewing and making recommendations on the Estimating Standards including policies around alternative parts use;
(vi) reviewing and making recommendations on the quality assurance program;
(vii) reviewing and making recommendations on identified issues that offer an opportunity to improve the cost effectiveness of the motor vehicle repair industry in Manitoba;
(viii) reviewing aggregate Manitoba motor vehicle repair industry activity and trends including:

a. business volumes in Manitoba;
b. emerging technology impacts; and,
c. other items of interest (any Party can suggest other relevant items to consider).

(ix) Reviewing training and development program activity, including:

a. training curriculum, review and making recommendations;
b. apprenticeship programs;
c. allowance programs, scope, availability, and utilization;
d. training activity, enrollment, course completion, and feedback on courses; and,
e. developing goals and requirements for the training and development program, and making joint recommendations to the providing bodies.

(x) managing and monitoring systemic and recurring issues;
(xi) discussing motor vehicle repair industry trends; and,
(xii) monitoring compliance with the Industry Agreement and applicable laws.

(c) The foregoing shall not act as an alternative from Manitoba Public Insurance's normal day to day operations and procedures for resolving specific operational issues with a repair shop, or for any dispute covered under an Accredit Shop's Accreditation Agreement.

(d) Meeting Dates: The Technical Committee will meet on a frequency determined from time to time by the Parties, but no less frequently than quarterly. The members of the Technical Committee will determine for each meeting whether it will be held in person, by telephone, or by video conference. Meetings to be held in person will be held at a location agreed by the Parties acting reasonably.

(e) Meeting Chair: Manitoba Public Insurance's personnel will chair meetings of the Technical Committee and will be responsible for: (i) directing the meetings; (ii) setting the agenda in consultation with Manitoba Public Insurance; (iii) scheduling meetings; and (iv) suggesting meeting location or format.

(f) Meeting Attendance: The Parties will use commercially reasonable efforts to cause their personnel on the Technical Committee to participate in every meeting scheduled in accordance with this schedule. Each Party may, upon notice to the other Parties, designate an alternative person to participate as a committee member, and/or invite one or more of its personnel to attend meetings of the applicable Technical Committee to provide reports and other support.

(g) Minutes: Draft minutes recording decisions of the Technical Committee meeting will be provided by Manitoba Public Insurance's personnel within five (5) business days of each meeting by e-mail to the other members of the Technical Committee. After the receipt of such draft copy, each Party will notify the other Parties of any errors or discrepancies in the minutes at or prior to the next scheduled meeting, failing which the minutes will be deemed to have been approved.

5. Approval Process:

All issue resolutions and decisions made at meetings of the governance committees will be documented in the minutes of such meetings, and the implementation of such resolutions and decisions are subject to the internal approval procedures of each of the Parties. Notwithstanding any implication to the contrary by the foregoing, amendments to the Industry Agreement must be signed by all Parties in a document which clearly states it is an amendment to the Industry Agreement (e.g., not by email and email signature).

6. Managing Industry Agreement Schedules

(a) Purpose: The purpose is to ensure that the rates in the current period are known to the Parties and all schedules are kept up to date.

(b) Updating: The Industry Agreement's schedules, including this schedule, may be updated as required and mutually agreed to, based on the business circumstances that manifest.

(c) Annual Review of Issues: At a minimum, Schedule A – Rates, Schedule B – KPI Program, Tiers and Earned Approval Limits, and MPI Service Level, Schedule D – Sustainable Industry Development Initiatives, the DR Program, the quality assurance program, and the Mitchell Products list shall be reviewed and, if mutually agreed to, updated annually on or about the anniversary of the Effective Date of this Industry Agreement as part of the Executive Committee agenda.

(d) Signing: Updates or amendments to the Industry Agreement, Schedule A – Compensation, or Schedule C – Governance require signing by all Parties to place them in force. Such updated schedules are to be replaced in their entirety. These schedules will be dated and numbered in sequence. The version of such schedule with the most recent date and highest number sequence will take precedence over all preceding schedules of that type. For greater clarity, any other documentation provided on the MPI Partners Website that is updated or amended is not required to be signed by all Parties to become effective.

7. Dispute Resolution:

(a) Scope: This dispute resolution process shall cover any disagreement, claim, or dispute (a "**Dispute**") between the Parties regarding this Industry Agreement. For greater clarity, individual Accredited Shop Disputes shall be addressed through the dispute resolution process under the Accreditation Agreement.

(b) Amicable Resolution: Before commencing legal action, the Parties will attempt to resolve any Dispute between them arising out of or relating to the Industry Agreement in accordance with

the following provisions, provided that nothing shall prevent either Party from seeking an injunction or other equitable relief from a court:

(i) The Parties will in good faith attempt to resolve any Dispute promptly and in an amicable manner by referring the Dispute to the Executive Committee.

(ii) If the Executive Committee is unable to resolve the Dispute within thirty (30) days, then, upon request by a Party, the Dispute may be referred to arbitration as outlined in Section 8.

(c) Confidential Information: Any materials provided pursuant to this schedule shall be deemed to be Confidential Information.

(d) Without Prejudice: Offers of settlement and all documents or other materials created for the purposes of resolving a Dispute are made on a without prejudice basis. Evidence of any such offers of settlement, documents and materials shall not be admissible in any court proceeding or mediation and do not constitute an admission or waiver of rights.

(e) Continued Performance: Except where clearly prevented by the nature of the matter that is the subject of the Dispute and without limiting either Party's applicable rights of termination stated in the Industry Agreement, or right to seek injunction as provided in Section 7(b) above, each of the Parties shall continue performing its respective obligations under the Industry Agreement and while the Dispute is being resolved, unless and until such obligations are terminated or expire in accordance with the applicable provisions of the Industry Agreement. Additionally, any affected Accredited Shop must continue to comply with its Accreditation Agreement unless and until such obligations are terminated or expire in accordance with the applicable provisions of its Accreditation Agreement.

8. Arbitration

(a) In the case of any Dispute referred to arbitration in Section 7(b)(ii) above, between Manitoba Public Insurance and the ATA and MMDA as to their respective rights and obligations under this Industry Agreement, Manitoba Public Insurance and the ATA and MMDA shall appoint a single arbitrator within fifteen (15) days to arbitrate the matter in dispute and the decision of the said arbitrator shall be binding and final on the Parties. All such disputes shall be governed in accordance with the provisions of *The Arbitration Act* (Manitoba), as may be amended from time to time, insofar as the said Act is not inconsistent with the provisions of this Industry Agreement.

(b) If Manitoba Public Insurance and the ATA and MMDA are unable to agree upon one arbitrator within fifteen (15) days, Manitoba Public Insurance shall appoint one arbitrator within fifteen (15) days, and the ATA and MMDA shall jointly appoint one arbitrator within fifteen (15) days, and each arbitrator so selected shall jointly elect a third arbitrator within fifteen (15) days and they all shall hear the matter in dispute and deliver a decision, which decision shall be binding upon the Parties. In the event that the ATA and MMDA cannot agree on their joint arbitrator within fifteen (15) days, the arbitrator appointed by Manitoba Public Insurance shall become the sole arbitrator of the Dispute.

(c) If written notice of arbitration is given by a Party to the other Parties, naming an arbitrator, and the Receiving Party(ies) fail to name its arbitrator within fifteen (15) days of notice, the arbitrator first named shall be empowered to hear the matter in dispute and deliver a decision which decision shall be final and binding on the Parties.

(d) All costs with respect to the arbitration shall be born equally between Manitoba Public Insurance and the ATA and MMDA.

Schedule D – Sustainable Industry Development Initiatives

Manitoba Public Insurance and our industry partners are committed to the long term viability and sustainability of the Manitoba light vehicle repair industry. This schedule outlines industry initiatives undertaken by Manitoba Public Insurance and our partners to strengthen Manitoba's repair industry.

1. Centre Of Excellence ("COE") for Physical Damage

The services provided by the COE shall be available per the fee and service delivery schedule then in place to the repair industry overall. Preference is given to Accredited Shops.

Initiative	Impacted Stakeholder	Details
Centre of Excellence – state of the art training and research facility	Repair Industry	COE will increase apprenticeship opportunities, allow sharing of new technologies, and ensure the industry is able to respond to rapidly developing repair techniques. Manitoba Public Insurance welcomes Industry partners to invest in and participate in the COE physical damage ongoing programs.

- **Annual Activity Report:** Manitoba Public Insurance shall review the COE for physical damage activity with Industry at least annually at a place and time as the parties may agree. Such review will be in a format and style of Manitoba Public Insurance's choosing.

2. Training

The following outlines the scope of the current training offerings.

Initiative	Impacted Stakeholder	Details
Demo Nights and Tech Nights	Technicians	Provides technicians with the opportunity to test new tools, meet suppliers and learn new repair methods.
Skills Manitoba – Judging and Preparatory Course	Technician Trainees/Red River College	Manitoba Public Insurance hosts a prep day for participants; Research & Training (R&T) technicians judge at the competition and provide fleet vehicles/props.
I-CAR Course Instruction (City and Rural)	Technicians	6-8 classes/month taught primarily by Manitoba Public Insurance employees. Facility, equipment, tools and props provided by Manitoba Public Insurance.
I-CAR Independent Learning (Review)	Technicians/ Shops	Adopted US model based on review. Changed to online exams, eliminating travel time and decreasing course costs.
I-CAR Red Seal Exemption Schedule (Review)	Red Seal Technicians/ Shops	Applied seven exemptions for Motor Vehicle Body Repairer (MVBR) and Automotive Painter graduates based on review, saving graduates approximately $840/ea.
Welding Recertification Preparatory Course	Non-Structural and Steel Structural Key Role Technicians	Developed prep course to assist recertifying technicians & reduce failure rates. Implemented I-CAR credits for course.
Red Seal Challenge Examination Prep Courses	Technicians	Developed prep course to assist technicians and increase pass rates. Implemented I-CAR credits for course.

I-CAR Supplier Certification: Facility Donation	Technicians	Manitoba Public Insurance offers our facility and R&T staff for refinish technicians to complete their required I-CAR supplier certification
Other Initiatives Related to Training	Various	From time to time Manitoba Public Insurance and industry partners will undertake other activities to further the capability of Manitoba Industry as it pertains to training.

Manitoba Public Insurance, at its sole discretion, will update, change or expand the scope of training services to address new industry requirements. Such changes shall be reviewed with Industry per the terms of this Agreement.

- **Training Fees:** The various training services provided by the COE shall be available to the repair industry overall. Preference is given to Accredited Shops. Fees per course or activity will be per the latest in-force schedule.
- **Third Party Course and Events:**
  - Some courses are provided by third parties, but co-ordinated or otherwise facilitated by Manitoba Public Insurance for the benefit of industry.
  - Industry is responsible for meeting the pre-requisite criteria and paying such fees as required directly to the third party.
  - Manitoba Public Insurance will not process payments or resolve registration issues for any third party items or activities.

3. Proper Repair

The following outlines the current scope of the proper repair activities.

Initiative	Impacted Stakeholder	Details
Manitoba Public Insurance Estimating Standards – creation, awareness, training	Repair Industry	Creation/ training of 59 standards. Implemented two I-CAR exemptions for training completion (saving techs approximately $240/ea.)
Quality Control ("QC") Referrals and Inspections	Repair Industry	Manitoba Public Insurance administers QC referrals and performs inspections to ensure proper repairs.
Accredited Shop Search and Online Lookup Tool	Repair Industry	Search tool/service on Manitoba Public Insurance's website for customers to get listings of Accredited Shops (including complex vehicles).
Other Initiatives Related to Proper Repair	Various	From time to time Manitoba Public Insurance and industry partners will undertake other activities to further the capability of Manitoba Industry as it pertains to Proper Repair.

The Estimating Standards will, at Manitoba Public Insurance's sole discretion, be updated from time to time. Manitoba Public Insurance will review such changes with Industry per the terms of this agreement. **Manitoba Public Insurance provides the Estimating Standards to industry at no fee.**

4. Collaboration and Communication with the Industry

The following outlines the current scope of the collaboration and communications activities.

Initiative	Impacted Stakeholder	Details
Estimating Standards Working Group	Repair Industry	Collaborative working group with Manitoba Public Insurance and repair industry representatives to discuss estimating standards.
Partners Notices to the Trade ("NTT")	Repair Industry	Manitoba Public Insurance uses NTTs to keep the industry informed of rate information, tooling/equipment/training changes, etc.
Complex Materials Awareness	Repair Industry	Manitoba Public Insurance is supporting complex material knowledge/ awareness through a repairability study & video series development.
Mechanical/Technical Requests	Repair Industry	Shops are able to request assistance from Manitoba Public Insurance T&R technicians for technical expertise and OEM support.
MPI Partners site (www.mpipartners.ca)	Repair Industry	Website to house all business requirements and communications for the Manitoba repair industry.
Other Initiatives Related to sharing of technical information	Various	From time to time Manitoba Public Insurance and industry partners will undertake other activities to further the capability of Manitoba Industry as it pertains to sharing of technical information.

The scope of the collaboration and communications will, at Manitoba Public Insurance's sole discretion, be updated from time to time. Manitoba Public Insurance will review such changes with Industry per the terms of this Agreement.

- **Content Fees: Manitoba Public Insurance provides the materials and content to repair shops and the Industry at no fee.**

5. Financial Supports

Manitoba Public Insurance provides financial support for industry development.

Initiative	Impacted Stakeholder	Details
TAAG (Tool Allowance and Apprenticeship Grants)	Apprentices	Manitoba Public Insurance provides grants to assist qualifying apprentices in completing their education as follows: 1. Manitoba Public Insurance will provide a five thousand ($5,000) dollar tool allowance, available to each registered apprentice with Apprenticeship Manitoba either as a motor vehicle body painter or a motor vehicle body repairer (a "**Registered Apprentice**") based upon receipt of supporting invoices in accordance with procedures established by Manitoba Public Insurance; and, 2. Manitoba Public Insurance will provide a two thousand ($2,000) dollar grant available to each Registered Apprentice, who has successfully completed a level of the four-level Motor Vehicle Body Repairer Program or the two-level Motor Vehicle Body Painter Program in accordance with procedures established by Manitoba Public Insurance. The maximum amount that can be received by any Registered Apprentice under the Motor Vehicle Body Repairer Program is eight thousand ($8,000) dollars (4 levels x $2,000). The maximum amount that can be received by any Registered Apprentice under the Motor Vehicle Body Painter

		Program is four thousand ($4,000) dollars (2 levels x $2,000). This is in addition to other grant programs and is expected to be over and above the apprentice's wages. By design, the allowances do not cover the full cost of these categories; it is intended to make entering the trade more affordable.
I-CAR Gold Class/Gold Class in progress Store Recognition renewal certificate 1 fee Subsidy	Repair Industry	Manitoba Public Insurance reimburses annual I-CAR Gold Class/Gold Class in progress Store Recognition renewal certificate fee for Accredited Shops upon request up to a max of 50% of the annual renewal occurrence.
Manitoba Public Insurance Accredited Repairer Signage	Repair Industry	Manitoba Public Insurance covers costs for updated signage when a repair shop becomes accredited upon request up to a max of $90.00 lifetime. Approximately equalling $23,760.00 ($90/shop, 264 shops as of May 1, 2016)
Motor Vehicle Industry of Manitoba Scholarships	Technicians	Manitoba Public Insurance donates $1000 scholarships for qualifying repair technicians. The scholarship is non-refundable. Manitoba Public Insurance provides five $1000 scholarships annually. The technician must be a Manitoba resident, enrolled in either secondary or post secondary education. 1 per category of Mechanical AST, Collision Body Repair, and Refinisher.
Corporate Donations	Donor Recipients	Qualifying organizations aligned with the objectives of sustainable repair industry receive various donations and grants: Apprenticeship Manitoba ($3000 annually) Automotive Trades Association ($900 annually) Manitoba Motor Dealers Association ($14,550 annually) Motor Vehicle Industry of Manitoba ($1400 annually) Skills Canada Manitoba ($15,000 annually) Grants: Provided that these grants are not guaranteed or required to be renewed annually or be the same amounts.
Other Initiatives Related to supports	various	From time to time Manitoba Public Insurance and industry partners will undertake other activities to further the capability of Manitoba Industry as it pertains to supports.

The scope of the financial support will, at Manitoba Public Insurance's sole discretion, be updated from time to time. Manitoba Public Insurance will review such changes with Industry per the terms of this agreement (excluding corporate donations which are at Manitoba Public Insurance's sole discretion).

- Qualifications & Fees:
  - The qualifications for each financial support are per the terms of the then current program requirements.
  - Various administration or processing fees and cost sharing requirements may apply to specific items. The latest then current requirements of each item shall apply.

Manitoba Public Insurance

ACCREDITATION AGREEMENT

This Agreement made effective on the ____ day of _____, 20__ (the "Effective Date")

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION

- AND -

(INSERT SHOP'S FULL LEGAL NAME)

1.00 PURPOSE AND SCOPE:

1.01 Scope

Manitoba Public Insurance is committed to ensuring that its Customers receive Proper Repairs and excellent customer service from vehicle repair shops in Manitoba. Accordingly, Manitoba Public Insurance, together with the industry representatives, the ATA and the MMDA, have negotiated and agreed to standards, terms, and conditions that repair shops must adhere to in order to become accredited by Manitoba Public Insurance. These standards, terms, and conditions are contained within the following documents:

(a) this agreement and its schedules;
(b) the Policies & Procedures;
(c) the Accreditation Specifications and Application; and,
(d) your specific Transition Plan or QA-Corrective Action Plan, if applicable.

(all collectively referred to as the "**Agreement**")

Manitoba Public Insurance, the ATA and the MMDA have also agreed to labour and material rates and other fees that Accredited Shops may charge for vehicle repair services for Manitoba Public Insurance claims. By meeting the standards, terms, and conditions outlined in this Agreement, Accredited Shops are entitled to charge the rates and fees agreed upon by Manitoba Public Insurance, the ATA, and the MMDA.

This Agreement sets out the relationship between you and Manitoba Public Insurance with respect to your status as an Accredited Shop. By voluntarily signing the Accreditation Application and by signing this Agreement, you agree to adhere to the standards expected of an Accredited Shop and all of the terms and conditions in this Agreement.

1.02 ATA and MMDA Authorization to Negotiate

By signing this Agreement, you agree to allow the ATA and the MMDA, and any of their successor organizations, to negotiate on your behalf any and all changes to this Agreement. You further agree to abide by those changes upon your being notified of such changes in accordance with this Agreement. The ATA, MMDA, and Manitoba Public Insurance will review issues related to the labour and material rates and fees, the template accreditation agreement, and other issues within the collision repair industry in Manitoba in accordance with the Industry Agreement.

1.03 Order of Precedence

To the extent there is a conflict or inconsistency, the following is the order of precedence of documents comprising this Agreement:

(a) this agreement and its schedules;
(b) the Policies & Procedures;
(c) the Accreditation Specifications and Application; and,
(d) your specific Transition Plan or QA-Corrective Action Plan, if applicable.

provided that in a subordinate document that a specific provision contained in such subordinate document overrides a specific provision in a superior document but such agreement is only effective to the extent the subordinate document expressly refers to the provision in the document over which it is to prevail (or the intent is clear to any reasonable reading that a specific provision be overridden).

1.04 Transition Plan

Upon your initial entrance into this Agreement you may be required to follow a Transition Plan as established under Section 16.5.

2.00 DEFINITIONS:

"**Accredited Shop**" means a vendor which has signed an accreditation agreement with Manitoba Public Insurance;

"**Accreditation Application**" means the application for accreditation together with the initial shop profile information in accordance with the Accreditation Requirements.

"**Accreditation Requirements**" means the requirements as set out on the MPI Partners Website that each applicant must meet in order to be eligible for accreditation. There are continuing compliance criteria as well as initial eligibility criteria.

"**Accreditation Committee**" means the committee that is set out in Section 18.2;

"**ATA**" means the Automotive Trades Association of Manitoba Inc.;

"**Back-ordered Parts**" means any part not available at the time of repair required to complete the repair that is on order from a supplier;

"**Current ACV Threshold**" has the meaning set forth in Schedule 9.1 – Direct Repair Program.

"**Customer**" means the claimant that is insured by Manitoba Public Insurance and that has engaged you to perform repair work on their Light Vehicle;

"**DR Program**" has the meaning set forth in Schedule 9.1 – Direct Repair Program.

"**DR Shop**" has the meaning set forth in Schedule 9.1 – Direct Repair Program.

"**Estimate**" means an outline of proposed work required to place the Customer's Light Vehicle back into pre-loss condition in accordance with Proper Repair;

"**Estimating Standards**" means those defined parameters and terms that specify labour hours, or parts or material use, or other requirements that are unique to Manitoba Public Insurance's application of the estimating process as identified on the MPI Partners Website.

"**Finder-fee Cards**" means a card designed for the purpose of compensating a third party who refers work to a repair shop;

"**FIPPA**" means *The Freedom of Information and Protection of Privacy Act* (Manitoba), as amended from time to time;

"**Giveaways**" means any reduction or benefit which affects the true cost of repairs including monetary merchandise or benefits used to entice Customers;

"**I-CAR**" means Inter Industry Conference on Auto Collision Repair;

"**Industry Agreement**" means the agreement dated March 1, 2017 made between Manitoba Public Insurance, the ATA, and the MMDA to set labour rates and related fees and other compensation payable to Accredited Shops in Manitoba, to establish an accreditation agreement template for Accredited Shops, and to address other issues within the collision repair industry in Manitoba.

"**KPI**" or "**KPIs**" mean the key performance indicator(s) as set out on the MPI Partners Website.

"**Light Vehicle**" means any vehicle with a gross vehicle weight rating of less than 4500 kilograms;

"**FA-LOU Program**" has the meaning set forth in Schedule 9.2 – Fair Allocation Loss of Use Program.

"**Mitchell**" refers to Mitchell International Information Services Inc.

"**Mitchell Products**" includes all products licensed by Manitoba Public Insurance under the MPI-Mitchell Agreement.

"**MMDA**" means the Manitoba Motor Dealers Association;

"**Manitoba Public Insurance**" mean The Manitoba Public Insurance Corporation;

"**MPI Intellectual Property**" has the meaning set out in Section 12.3;

"**MPI-Mitchell Agreement**" means the in force agreement between Manitoba Public Insurance and Mitchell regarding an enterprise-wide license agreement to license Mitchell Products involved with repairing vehicles;

"**MPI Names**" means the words "Manitoba Public Insurance", "The Manitoba Public Insurance Corporation", "MPI", "MPIC", and "Autopac";

"**MPI Partners Website**" means the website administered by Manitoba Public Insurance located at http://mpipartners.ca, or as designated by Manitoba Public Insurance;

"**OEM**" means original equipment manufacturer of the Light Vehicle;

"**Parts/Service Credits**" means cash allowances to be applied towards the acquisition of parts or services;

"**Pattern**" means two (2) or more instances of actions or behaviour within a consecutive three hundred and sixty-five (365) day period;

"**PIPEDA**" means *The Personal Information Protection and Electronic Documents Act* (Canada), as amended from time to time;

"**Policies & Procedures**" means the policies and procedures applicable to Accredited Shops doing direct business with Manitoba Public Insurance, all of which are set out on the MPI Partners Website;

"**Probationary Period**" means a period during which an Accredited Shop's repair administration

and repair activities are under a QA-Corrective Action Plan per the Quality Assurance Program requirements, or your shop transition plan is still effective;

"**Proper Repair**" means that work completed is per the approved Estimate, that applies the needed parts, materials, repair methods, products, tooling, and equipment, by qualified and trained individuals such that the total repair is in compliance with OEM product/repair specifications for that Light Vehicle, and is performed in compliance with the requirements of this Agreement. For clarity OEM certified repairs are not necessarily Proper Repairs.

"**Quality Assurance Program**" is the program managed by Manitoba Public Insurance for the reliable outcome of a Proper Repair for all Light Vehicles covered by a Manitoba Public Insurance policy and for which Manitoba Public Insurance is requiring a repair per an approved Estimate.

"**QA-Corrective Action Plan**" means one of various options for resolving a current deficiency under the Quality Assurance Program or this Agreement, which may limit your benefits and obligations under this Agreement, in Manitoba Public Insurance's sole discretion.

"**Representatives**" shall mean the directors, officers, shareholders, employees, subcontractors, partners, volunteers, affiliates, agents, delegates and other representatives of a party.

"**refuse to do direct business**" (or such other similar phrase) means that Manitoba Public Insurance will not initiate or accept to do business or business communications with you;

"**suspension of accreditation**" (or such other similar phrase) means that you have lost your status as an Accredited Shop, and as such, have lost some or all of the rights and benefits associated with being an Accredited Shop, including but not limited to, the right to be reimbursed at the accredited rates, as decided in Manitoba Public Insurance's sole discretion. If your accreditation is suspended, you will only be reimbursed for repair work at the non-accredited rates;

"**Transition Plan**" means a plan developed to allow you to become compliant with the requirements of this Agreement which may limit your benefits and obligations under this Agreement, in Manitoba Public Insurance's sole discretion.

"**WHMIS**" means Workplace Hazardous Materials Information System; and,

"**you**", "**your**" and "**yours**" refer to the shop that has signed this Agreement;

3.0 MITCHELL PRODUCTS USE:

3.1 Software License Agreement

You may access and use the Mitchell Products in accordance with the terms and conditions in Schedule 3.1 – Mitchell Product Use Terms only while you are an Accredited Shop. You are required to use the Manitoba Public Insurance provided systems to do business with Manitoba Public Insurance.

3.2 Systems Security

You must comply with all procedures, technical requirements and security requirements related to your access to and use of any Mitchell Products or Manitoba Public Insurance computer systems, online systems, or other electronic systems, which may be used by you for your business operations. For greater certainty, Manitoba Public Insurance computer systems, online systems or

other electronic systems include systems that are owned by Manitoba Public Insurance, hosted by Manitoba Public Insurance, licensed by Manitoba Public Insurance or otherwise operated by or on behalf of Manitoba Public Insurance.

4.00 BUSINESS REQUIREMENTS AND CERTIFICATIONS:

4.1 Sharing Premises

Only you will be considered an Accredited Shop if you and any other entity operate a vehicle repair businesses on the same premises. Any other entities sharing the same premises as you would have to enter into an Accreditation Agreement with Manitoba Public Insurance to become an Accredited Shop.

4.2 Operational Hours

You shall post and maintain your then current hours of operation so that Customers know when they may receive service or contact you.

4.3 Business Licenses and Permits

You will maintain a valid business license if required to do so by the City or Municipality in which you operate. Additionally, you will maintain all valid permits and certificates as required by the City or Municipality, including but not limited to a health inspection certificate and a fire inspection certificate if applicable. You will maintain a valid certificate of good standing with the Worker's Compensation Board. Your business license, permits, certificates, and health and fire inspection certificates must be available for inspection at Manitoba Public Insurance's request.

4.4 Liability Insurance

You agree to maintain the following minimum insurance policies during the term of this Agreement:

(a) Comprehensive General Liability Policy with minimum limits of liability of two million Canadian dollars ($2,000,000.00); and,

(b) Garage or Dealers Liability Policy which includes third party liability, as well as damage to Customers' vehicles which are in your care, custody, or control (which includes collision or upset and specified perils coverage) with minimum limits of liability of two million Canadian dollars ($2,000,000.00).

Manitoba Public Insurance, acting reasonably, may require additional insurance coverage or amounts and shall provide notice to you of such new requirements in accordance with Section 20.10. At the request of Manitoba Public Insurance, you shall deposit certified copies of your original bonds, certificates, and renewals with Manitoba Public Insurance, and you agree that each such bond, policy or renewal shall be endorsed so that Manitoba Public Insurance shall be advised if altered or cancelled prior to expiry.

You may not cancel or allow required policies to lapse during the term of this Agreement unless they are being contemporaneously replaced by new, equivalent policies. Manitoba Public Insurance may suspend your accreditation if you lack any required insurance policy required under this Agreement.

4.5 Solvency

You shall ensure your business and operations are meeting all financial obligations to third parties as they become due. You shall promptly notify Manitoba Public Insurance in accordance with Section 20.10 if you enter into an assignment for the benefit of creditors, take any other action for

the benefit of creditors, become bankrupt or insolvent, or take the benefit of or become subject to any legislation in force relating to bankruptcy, insolvency, or tax arrears.

4.6 Credentials
You must meet and maintain the credentials required for the type of repairs that you undertake.

5.00 SHOP PROFILE AND UPDATES:

5.1 Maintain Shop & Staff Profiles
You understand that you are responsible for updating and maintaining your shop profile according to the requirements on the MPI Partners Website. If your shop profile record indicates that any work you've performed was not supported by your shop profile at the time you performed the work, such work may be subject to additional review as determined by Manitoba Public Insurance in a QA-Corrective Action Plan as identified in Article 16.

5.2 Records Keeping
All records associated with your shop profile are to be stored locally and be available to Manitoba Public Insurance for inspection within seven (7) days of Manitoba Public Insurance's request. Records related to your shop profile that are older than one year need not be held locally, but shall be made available to Manitoba Public Insurance for inspection within thirty (30) days upon request. Selected records may need to be forwarded to Manitoba Public Insurance in electronic format or scanned and then saved in an electronic format. Each such item shall be prepared and forwarded to Manitoba Public Insurance as set out on the MPI Partners Website or as required based on the circumstance.

5.3 Meet Accreditation Requirements
You agree to meet all of the Accreditation Requirements.

5.4 Changes Related to Your Business
You shall provide not less than thirty (30) days' prior written notice to Manitoba Public Insurance if your name, location of your business, or ownership is changing, or if you will no longer be engaging in the business of auto glass repair, or auto repair services.

5.5 Manitoba Public Insurance Review
Manitoba Public Insurance will review all submitted information in your shop profile and may accept or reject the submitted information, may require you to resubmit updated information or correct any information, and reserves the right to adjust it accordingly.

5.6 Operational Shop Data
You shall permit Manitoba Public Insurance to gather additional operational data regarding your shop characteristics, and understand that the data will form the basis for a shop profile. Such profile may be used in various Manitoba Public Insurance processes to support administration of business outcomes such as, proper repair and customer informed choice.

5.7 Surveys
You shall participate in online, telephone, or written surveys related to the Accreditation program and the DR Program if applicable to your shop.

6.00 STAFF TRAINING REQUIREMENTS:

6.1 Qualified for the work completed

Under Proper Repair requirements your Representatives performing the work must be trained and qualified prior to commencing repairs.

6.2 Training Program Requirements

You shall maintain I-CAR Gold Class designation and meet Manitoba Public Insurance's training program requirements on the MPI Partners Website. Regular welding recertification is a mandatory requirement. Shops entering the accreditation program, or transitionally obtaining their I-CAR Gold Class designation, any related specialized training, or other required training, may require a Transition Plan or QA-Corrective Action Plan to meet Manitoba Public Insurance's training program requirements on the MPI Partners Website. Additional or alternative training requirements for Accredited Shops qualified for accredited glass repairs are to be met. If applicable to you, you are responsible for ensuring you are in compliance with the latest training program requirements for glass as set out on the MPI Partners Website.

6.3 Journeyperson or Equivalent

All repair work needs to be completed or overseen by a qualified journeyperson with the appropriate credentials for the work at hand. All of your Representatives providing the services under this Agreement need to have a defined role as defined in Manitoba Public Insurance's training program requirements on the MPI Partners Website. Additional or alternative technician (staff) credentials or certifications or designations requirements for Accredited Shops qualified for accredited glass repairs are to be met. You are responsible for ensuring you are in compliance with the latest technician qualification requirements for glass as set out on the MPI Partners Website.

6.4 Staff Certification: Credentials & Training Records

You are required to maintain records of all completed staff training certificates. You shall provide updates on your staff training activity to Manitoba Public Insurance within thirty (30) days of confirmation of training completion. The procedures for updating staff training records shall be as set out on the MPI Partners Website.

7.00 REPAIRS:

7.1 Responsible for the Entire Repair

You understand that you are responsible for the entire repair that you undertake for Manitoba Public Insurance under this Agreement and that such repairs will meet the requirements of Proper Repair. Any work undertaken by a third party is still your responsibility. To minimize the impact to Customers and avoid inefficient repair procedures, any work you accept will be substantially completed by you. In this case substantially means more than 60% of all the work measured in labour hours is completed by you, unless another amount has been approved by Manitoba Public Insurance. Notwithstanding the forgoing certain makes or models of Light Vehicles, or specialized repair procedures may be subject to additional constraints by the OEMs in terms of who is actually performing the work, and you are responsible for knowing and complying with them. You have an obligation to find and report to Manitoba Public Insurance all damage to the Light Vehicle related to the Customer's claim.

7.2 Estimating Standards

You shall be expected to know and comply with the current Estimating Standards published and available on the MPI Partners Website.

7.3 Estimating Systems Exception

Actions or efforts not expressly required by an approved Estimate or Manitoba Public Insurance approved supporting materials or sources, is out of scope and shall not be reimbursed. If you make available to Manitoba Public Insurance information from Manitoba Public Insurance approved supporting materials or sources, those additional items need to be included in the authorized work. Manitoba Public Insurance at its sole discretion may direct you to update the Estimates with the additional details. Such items will be noted as being "Estimating Systems Exception."

7.4 Marginal Total Losses

If the total value of the completed Estimate including all Supplements is over the Current ACV Threshold, you shall follow the Policies & Procedures on the MPI Partners Website for contacting Manitoba Public Insurance for directions on the proper disposition of the Light Vehicle and await direction before proceeding with ordering any parts or commencing repairs. You understand that you may not be reimbursed for any unauthorized repair work and costs associated with repairs for a Light Vehicle where the total repair costs are in excess of the Current ACV Threshold amount for that Light Vehicle.

7.5 Confirmation of Repairs

One of your Representatives authorized to sign on your behalf must sign any documentation required by Manitoba Public Insurance to confirm that all the repairs you have performed have been completed and all itemized parts have been installed. You understand and accept that Manitoba Public Insurance may not pay you for your work unless and until this confirmation is provided.

7.6 Policies & Procedures

You agree to comply with all Policies & Procedures that are applicable to your business and operations. The Policies & Procedures can be found on the MPI Partners Website. You understand and accept that if you do not comply with any of the Policies & Procedures or if you have a Pattern of non-compliance with any the Policies & Procedures, then your accreditation may be suspended and/or Manitoba Public Insurance may refuse to do direct business with you. Any amendments to the Policies & Procedures will be developed by Manitoba Public Insurance in consultation with the ATA and MMDA, and you will be notified of the in accordance with Section 20.10. The following paragraphs highlight some of the key Policies & Procedures that apply to your accreditation. However, the following paragraphs do not cover all of the Policies & Procedures, and it is your responsibility to review and ensure that you are in compliance with all of the Policies & Procedures applicable to your business and operations.

(a) **Approval Required for Estimate changes**

You understand that Manitoba Public Insurance will not pay for changes to an Estimate that are not approved by Manitoba Public Insurance.

(b) **Proper signatures**

You will get the Customer's authorization where required by the Policies & Procedures.

(c) **Repair Delays**

You agree to complete repairs promptly upon receiving the Customer's authorization. You understand that prompt completion of repairs is necessary for providing quality customer service. Undue delays in repairs must be reported promptly to Manitoba Public Insurance and the Customer. Manitoba Public Insurance will give you written notice if it determines that you have caused an undue delay. If you cause a Pattern of undue delays,

Manitoba Public Insurance may recover from you the costs related to loss of use.

(d) **Temporary Repairs**
If the Customer's vehicle is safely drivable or temporary repairs can be made to make it safely drivable, you must allow the Customer to continue to drive the Light Vehicle until you can complete any outstanding repairs. Any costs to complete temporary repairs must be per an approved Estimate, or requires prior approval from Manitoba Public Insurance.

(e) **Collect deductibles, depreciation and taxes**
You shall collect all deductibles, depreciation and applicable taxes from Customers shown on the Estimate. You shall not waive or otherwise offset any deductibles, depreciation or applicable taxes. However, you may providing financing to the Customer for the cost of any deductible or depreciation owing on your account, on condition that you enter into a written contract with the Customer. The contract must include the following conditions:

(i) the full amount financed must be repaid to you in a period not exceeding ninety (90) days from the date repairs were completed (the "**Repayment Period**"); and,
(ii) failure to repay the full amount to you within the Repayment Period shall cause a fixed rate of interest to accrue on the amount owing, such rate to exceed the Bank of Canada's Prime lending rate.

(f) **Use of own registered account number**
You must always use your own registered account number, as provided to you by Manitoba Public Insurance, and you shall not use another repairer's registered account number. You also shall not permit any other repairer to use your registered account number.

(h) **Correct amounts to be invoiced**
You will correctly invoice Manitoba Public Insurance based upon the applicable Policies & Procedures. Manitoba Public Insurance reserves the right to adjust the invoiced amounts based on the Policies & Procedures.

7.7 Records Keeping

All records associated with the work you perform under this Agreement are to be stored in a readily accessible manner and be available to Manitoba Public Insurance for inspection within seven (7) days of Manitoba Public Insurance's request. Records that are older than one year need not be held locally, but shall be made available to Manitoba Public Insurance for inspection within thirty (30) days of Manitoba Public Insurance's request. You must retain records for the previous three (3) years. Selected records may need to be forwarded to Manitoba Public Insurance in electronic format or scanned and then saved in an electronic format. Each such item shall be prepared and forwarded to Manitoba Public Insurance as set out on the MPI Partners Website or as required based on the circumstance.

8.00 REPAIR WARRANTIES:

8.1 Provide a Repair Warranty

You agree to warrant all repairs (including all parts and all labour) for a minimum period of one year from the date that the repairs were completed and the work has been certified as complete by the Customer, and to inform the Customer of such warranty at the time they certify that work has been completed on their Light Vehicle. This warranty extends to repairs completed by a sublet

service provider at your request. If there are workmanship issues involving repairs by a sublet service provider, you are responsible for resolving the issue on behalf of the Customer. You understand and agree that a failure to properly provide or honour such warranties may result in suspension of your accreditation.

9.00 DIRECT REPAIR AND LOSS OF USE PROGRAMS:

9.1 Application to the DR Program

You may apply to become part of the DR Program, and if accepted, perform direct repairs in accordance with Schedule 9.1 – Direct Repair Program.

9.2 Application to the Fair Allocation Loss of Use Program

You may apply to become part of the FA-LOU Program, and if accepted, perform loss of use authorizations in accordance with Schedule 9.2 – Fair Allocation Loss of Use Program.

10.00 COMPENSATION:

10.1 Current and Future Compensation

At the Effective Date of this Agreement, the rates and fees on the MPI Partners Website cover only a limited duration. The ATA, MMDA and Manitoba Public Insurance will negotiate any renewal or updates to the rates and fees on the MPI Partners Website prior to the expiry date indicated on the MPI Partners Website. In the event the ATA, MMDA and Manitoba Public Insurance cannot agree on revised rates and fees prior to their expiry date, Manitoba Public Insurance may elect to continue to pay the rates and fees on the MPI Partners Website that were in effect prior to their expiry. Changes to the rates and fees will be posted on the MPI Partners Website and you will be notified of such changes in accordance with Section 20.10. All rates and fees referred to in this Agreement shall be in Canadian Dollars unless otherwise specified. You agree to comply with the current rates and fees on the MPI Partners Website that were agreed to by the ATA, MMDA and Manitoba Public Insurance, and that you will not charge either Manitoba Public Insurance or Customers more than those agreed upon rates. You agree to accept any rates and fees incurred under this Agreement via electronic funds transfer, or any other payment form as decided by Manitoba Public Insurance.

11.0 KEY PERFORMANCE INDICATORS:

11.1 Accreditation Program Key Performance Indicators

Manitoba Public Insurance and the ATA and MMDA have agreed upon certain KPIs to track and monitor ongoing work under this Agreement. This information shall form part of what Manitoba Public Insurance can measure and report on. Accredited Shops may have certain KPIs that apply specifically to them, and DR Shops may have KPIs which apply specifically to their DR Program work.

11.2 Individual Repair Shop Report

Manitoba Public Insurance will provide participants with their individual KPI results in the timelines outlined on the MPI Partners Website. The individual report allows you to see how you are doing against the targets for each of the KPIs.

12.00 PROMOTIONS, ADVERTISING, AND MARKETING:

12.1 No Giveaways

Giveaways of products or services related to repairs are not permitted. Manitoba Public Insurance may deduct the value of any Giveaways from the repair accounts which you submit.

12.2 Finder-fee Cards and Parts/Service Credits

You agree not to use Finder-fee Cards or issue Parts/Service Credits.

12.3 Advertisement, and Use of MPI Intellectual Property

You may advertise and market to Customers that you are an Accredited Shop or DR Shop only in accordance with the advertising policy on the MPI Partners Website. You shall not use any MPI Names, Manitoba Public Insurance logos, or any other trademark, logo, business name, or trade name which is owned and/or used by Manitoba Public Insurance (the "**MPI Intellectual Property**"), without complying with the advertising policy on the MPI Partners Website. You understand and accept that if you use any of the MPI Intellectual Property without complying with the advertising policy on the MPI Partners Website, your accreditation may be suspended and/or Manitoba Public Insurance may refuse to do direct business with you.

12.4 Badges & Signage

Any badges or signage of the MPI Intellectual Property that you create is at your expense and Manitoba Public Insurance shall not reimburse you for it.

12.5 Manitoba Public Insurance Promotion of the Accreditation Program and DR Program

Manitoba Public Insurance may promote the availability of the Accreditation program or the DR Program and advise qualifying Customers of these services by providing Customers a list of Accredited Shops and DR Shops in their area which are both qualified and have the technical expertise to complete the required repairs to their Light Vehicle.

12.6 Customer Satisfaction and Manitoba Public Insurance Use of Shop Details

Manitoba Public Insurance will be collaborating with Mitchell to provide Customer satisfaction information via AutoCheX of Estimates and repairs you do by polling Customers who have had a physical damage claim repaired by you. Your AutoCheX Customer satisfaction ratings, other KPIs, and details from you shop profile may be published to the Manitoba Public Insurance public website, or in any other place Manitoba Public Insurance decides to place the information, in rank order and by location.

13.00 COMPLIANCE WITH LAWS:

13.1 Compliance with laws

You must provide a working environment which is safe, healthy, free of hazards and complies with all applicable provincial building codes, municipal by-laws, environmental laws (including laws related to the disposal of hazardous waste), as well as workplace health and safety laws and regulations (including, but not limited to, Manitoba Regulation 217/2006, as amended from time to time). This regulation applies to controlled products that are used, stored and handled at the workplace. In addition, you and your Representatives shall at all times comply with all laws which are applicable to your business and operations.

13.2 Harassment

The parties shall ensure that the Customers and the parties' Representatives are safe and free from harassment in their dealings with the parties and their Representatives.

14. CONFIDENTIAL INFORMATION:

14.1 Personal Information

You acknowledge that FIPPA and The Personal Health Information Act ("**PHIA**") each impose obligations on Manitoba Public Insurance to collect, use or disclose "personal information" and "personal health information", as those terms are defined in FIPPA, PHIA and PIPEDA (collectively called "**Personal Information**"), in the strictest of confidence, and in accordance with those Acts. In performing the services under this Agreement, you acknowledge that you may collect, use, or have access to Customers' Personal Information and shall only do so in compliance with this Agreement.

14.2. Confidential Information

While this Agreement is in effect, and at all times thereafter, the parties agree to treat as confidential all information and materials acquired by it, or to which it has been given access, in the course of the performance of this Agreement (collectively called "**Confidential Information**"), excluding information that is in the public domain (for greater certainty, this does not include information in the public domain which was made public as a result of an unauthorized disclosure by a third party). For the purposes of this Agreement, Personal Information shall be considered to be Confidential Information.

14.3. Confidentiality Obligations

The parties agree that during the term of this Agreement and at all times thereafter:

(a) the Personal Information disclosed to a party (a "**Receiving Party**") by a disclosing party (the "**Disclosing Party**") may only be used by the Receiving Party in a manner expressly permitted by FIPPA, PHIA, The Personal Information Protection and Electronic Documents Act (Canada), or such other applicable privacy laws (as the case may be);

(b) the Receiving Party shall not disclose or permit the disclosure of Confidential Information, or any copies of it, in any format, to any third party that is not a party's Representative without the express prior written consent of the Disclosing Party;

(c) you shall comply with all directives given to you by Manitoba Public Insurance with respect to safeguarding, or otherwise ensuring the confidentiality, of any Confidential Information disclosed to you by Manitoba Public Insurance;

(d) the Receiving Party shall ensure that access to the Confidential Information by the Representatives of the Receiving Party is on a "need-to-know" basis, and that access, when given, shall be to the minimum amount of Confidential Information necessary to accomplish the task;

(e) the Receiving Party shall use the Confidential Information only for those purposes that have been expressly permitted by this Agreement, or by the Disclosing Party;

(f) the Receiving Party shall not reproduce Confidential Information, in any format, without the express prior written consent of the Disclosing Party, other than for the Receiving Party to perform its obligations under this Agreement;

(g) You shall ensure that you or your Representatives do not transport or store any Personal Information outside of Canada without the express prior written consent of Manitoba Public Insurance; and,

(h) after the Confidential Information has been used for its authorized purpose, or where destruction of the Confidential Information is requested by the Disclosing Party or is required by this Agreement, or upon expiration or termination of this Agreement, the Receiving Party shall destroy the Confidential Information (and all copies of the Confidential Information in any form) in a manner which adequately protects the confidentiality of the Confidential Information. If destruction of the Confidential Information is not possible or feasible the Receiving Party shall extend the confidentiality protections of this Article 14 to the Confidential Information indefinitely.

14.4. Standards

During the term of this Agreement and at all times thereafter, the parties shall take reasonable precautions to prevent any unauthorized disclosure of the Confidential Information. The standard of such precautions taken by a party shall be the greater of:

(a) the standards the Receiving Party has in place to protect its own Confidential Information; or,
(b) the standards imposed on the Receiving Party by the Disclosing Party.

14.5. Confidentiality Breaches

A party shall immediately notify the other party in writing upon becoming aware of any unauthorized use of, access to, disclosure of, or destruction of Confidential Information (a "**Confidentiality Breach**"). The written notification must include full details of the Confidentiality Breach. The party shall immediately take all reasonable steps to prevent the recurrence of any such Confidentiality Breach and shall notify the other party in writing of the steps taken.

14.6. Inform Representatives of Confidentiality Obligations

The parties shall inform their applicable Representatives of the obligations imposed upon them in this Agreement with respect to Confidential Information, and shall take whatever steps are necessary to ensure that all of their Representatives comply with those obligations.

14.7. Injunctive Relief

The parties acknowledge that monetary damages may not be a sufficient remedy for a Confidentiality Breach, and that a party may, without waiving any other rights or remedies, seek appropriate injunctive or equitable relief from a court of competent jurisdiction.

14.8. Demands for Confidential Information

If a party receives a subpoena or other validly issued administrative or judicial order seeking Confidential Information, the party shall provide prompt notice to the other parties and deliver to the other parties a copy of its proposed response to the demand. Unless the demand has been time-limited, quashed or extended, the party shall thereafter be entitled to comply with the demand to the extent permitted or required by law. If so requested by a party, and at the expense of that party, the other parties shall cooperate with that party in the defence of the demand.

14.9. Publicity

You undertake not to publish any public statement or advertisement with respect to this

Agreement and further undertake not to seek publicity of this Agreement without the express prior written consent of Manitoba Public Insurance, except as otherwise required by law or by this Agreement.

14.10. Compliance
You shall cooperate with Manitoba Public Insurance so Manitoba Public Insurance can verify that you have complied with, and are complying with the provisions of this Article 14.00.

15.0 MANITOBA PUBLIC INSURANCE'S OBLIGATIONS:

15.1 Standards of Service
Manitoba Public Insurance will:

(a) attempt to respond to Supplements within twenty-four (24) hours during Manitoba Public Insurance's regular business hours;
(b) attempt to provide marginal repair determinations within twenty-four (24) hours during Manitoba Public Insurance's regular business hours;
(c) provide a support line that will be available to you during Manitoba Public Insurance's regular business hours;
(d) acknowledge technical support requests within three (3) days; and,
(e) attempt to visit your shop at least once a year.

15.2 Pay accounts within 30 days
Manitoba Public Insurance will pay your valid invoices within thirty (30) days of receipt, provided you have submitted your invoice promptly and correctly according to this Agreement.

15.3 Deductibles/Depreciation
Where Manitoba Public Insurance performs the first estimate, except where the Customer is not present, Manitoba Public Insurance will explain or make information available to Customers about the contents of Estimates and the repair related procedures, including the requirement on the part of the Customer to pay any deductibles and/or depreciation. Manitoba Public Insurance will also clarify to the Customer any situations involving old damage or aftermarket and recycled parts if called for in the Estimate.

15.4 Industry Consultation
The ATA, MMDA, and Manitoba Public Insurance will review issues related to the labour and material rates and fees, the template accreditation agreement, and other issues within the collision repair industry in Manitoba in accordance with the Industry Agreement.

15.5 Up to date MPI Partners Website
Manitoba Public Insurance will attempt to make the MPI Partners Website available to you at all times, other than during scheduled outages. Manitoba Public Insurance will keep the MPI Partners Website up to date and will notify you of any changes negotiated on your behalf by the ATA and the MMDA to this Agreement, or to the Policies & Procedures in accordance with Section 20.10.

15.6 Centre of Excellence for Physical Damage
Manitoba Public Insurance's centre of excellence for physical damage will stay abreast of new repair techniques, equipment, methods, processes, and related training. You have access to Manitoba Public Insurance's centre of excellence services and products.

16.0 QUALITY ASSURANCE PROGRAM:

16.1 Quality Assurance & Performance Management Process

The objectives of Manitoba Public Insurance's Quality Assurance Program are to:

(a) ensure Proper Repair of Customers' damaged Light Vehicles before they are returned to Customers;
(b) ensure that Proper Repairs are performed in a fiscally responsible manner;
(c) evaluate Light Vehicle repair quality in a collaborative manner with the ATA and MMDA to reduce risk on the road;
(d) foster an effective business relationship with you, and the ATA and which strives for continuous improvement; and,
(e) assist the repair industry in meeting changing business environmental factors and Manitoba Public Insurance's goals.

16.2 Manitoba Public Insurance may inspect on-premises

You agree to allow Representatives of Manitoba Public Insurance to inspect your repair facilities from time to time to confirm that all Accreditation Requirements are being maintained, that you are following the Policies & Procedures, and that you are in compliance with the requirements of this Agreement. These inspections will occur during normal business hours without prior notice.

16.3 Inspection of In-Progress or Repaired Vehicles

Manitoba Public Insurance will inspect a number of vehicles in all areas of Manitoba on a continuing basis, in order to satisfy itself and Customers that, Proper Repairs are being completed in accordance with the Estimate's requirements. If deficiencies are found as a result of the inspection, you are responsible for correcting the deficiencies according to the Policies & Procedures on the MPI Partners Website.

16.4 Process Reviews

Manitoba Public Insurance may conduct process reviews from time to time to confirm that all Accreditation Requirements are being maintained, that you are following the Policies & Procedures, and that you are in compliance with the requirements of this Agreement.

16.5 QA-Corrective Action Plans and Transition Plans

The Quality Assurance Program may involve courses of action to resolve particular instances of unfulfilled Accreditation Requirements, breaches of this Agreement, one or more repair deficiencies, administrative methods and practices, or other such procedural matters. It may also involve a Transition Plan to achieve a certain outcome of shop credentials such as I-CAR Gold Class, or technical capability including such items as staff training and development, installation of equipments, or introduction of new processes. Shops following a QA-Corrective Action Plan or Transition Plan, agreed to by Manitoba Public Insurance, are considered in good standing per the terms of this Agreement. A QA-Corrective Action Plan or Transition Plan may note exceptions to and restrictions on certain provisions of this Agreement. Manitoba Public Insurance is the final arbiter of what constitutes an appropriate Transition Plan or QA-Corrective Action Plan. You are responsible for completing all actions/tasks in the QA-Corrective Action Plan or Transition Plan in the timelines required to resolve the matter(s). Failure to meet the requirements in the QA-Corrective Action Plan or Transition Plan in the timelines provided may be grounds for suspension of your accreditation. For clarity, Manitoba Public Insurance will normally attempt to correct deficiencies with QA-Corrective Actions Plans or Transition Plans; notwithstanding anything else in this Agreement, Manitoba Public Insurance is not required to utilize a QA-Corrective Action Plan or Transition Plan prior to suspending your accreditation or

terminating this Agreement.

17.00 SUSPENSION OF ACCREDITATION:

17.1 Reasons for Suspension

Your accreditation may be suspended by Manitoba Public Insurance for the following reasons:

(a) Failure to maintain the Accreditation Requirements, including failing to maintain your shop profile;
(b) Failure to produce to Manitoba Public Insurance any requested records required under this Agreement within the required time;
(c) Failure to collect deductibles;
(d) Submission of false invoices;
(e) Making false statements on applications and required submissions;
(f) Unauthorized surcharging on parts;
(g) Failure to comply with the stolen wrecked vehicle monitoring program rules and regulations in law or on the MPI Partners Website;
(h) Improper invoicing for substitute transportation;
(i) Conducting repairs for which you are not qualified or certified;
(j) Failing to agree to a Transition Plan or QA-Corrective Action Plan;
(k) Failure to follow or complete your requirements in the required timelines under any Transition Plan or QA-Corrective Action Plan;
(l) Failure to comply with any of the Policies & Procedures;
(m) Failure to comply with any term or condition of this Agreement, including any schedules;
(n) Failure to comply with any law which is applicable to your business and operations;
(o) Any attempt to defraud Manitoba Public Insurance;
(p) Conviction of fraud with respect to services under this Agreement;
(q) Any body integrity inspection station that has its ability to perform Body Integrity Inspections surrendered, revoked, suspended, or cancelled by Manitoba Public Insurance Vehicle Standards and Inspections;
(r) Use any of the MPI Intellectual Property without complying with the advertising policy on the MPI Partners Website;
(s) you have been convicted of a criminal offence; or,
(t) one of your Representatives has been convicted of a criminal offence in relation to the services related to this Agreement.

17.2 Reputational Protection

You agree that, in respect of the subject matter of this Agreement, you shall conduct yourself in a manner so as not to negatively affect either the public or business reputation, or community standing of Manitoba Public Insurance. If Manitoba Public Insurance determines, acting reasonably, that you or your Representatives' conduct has materially affected Manitoba Public Insurance's public or business reputation, or community standing, or that Manitoba Public Insurance's continued association with you would materially and negatively affect the operations of Manitoba Public Insurance, Manitoba Public Insurance may immediately suspend or terminate this Agreement upon written notice to you.

17.3 Written Notice of Suspension

You understand and agree that your accreditation will be suspended in accordance with the provisions of this Agreement within fourteen (14) days following receipt of written notice from Manitoba Public Insurance. Manitoba Public Insurance will provide the reasons for such suspension within the written notice. However, if you request a review of this suspension in

accordance with Section 18.4, the suspension (if ultimately upheld) will not commence until your receipt of the Accreditation Committee's decision.

17.4 Length of Suspension

Manitoba Public Insurance has the right to impose whatever length of suspension of your accreditation as Manitoba Public Insurance, in its sole discretion, acting reasonably, determines to be just in the circumstances. However, Manitoba Public Insurance agrees to limit first time accreditation suspensions to a period not to exceed six (6) months. For second suspensions, or if any suspension of your accreditation is due to any of the reasons in Sections 17.1(o) to 17.1(t), then there shall be no such limit on your period of suspension of accreditation. For clarity, upon the completion of the period of your suspension of accreditation, you do not automatically become accredited again. You must apply for reinstatement under Section 17.6.

17.5 Your Obligations Upon Suspension

Upon suspension of your accreditation for any reason, you cannot take on any new work under this Agreement, and you shall comply with Manitoba Public Insurance's directions which may include removing and ceasing to use all Manitoba Public Insurance permitted signage and advertising, ceasing to use any MPI Names and MPI Intellectual Property, ceasing to use the Mitchell Products, and any other requirements as decided by Manitoba Public Insurance. Any in-progress work is still subject to the requirements of this Agreement. Resolution of all in-progress work will be subject to a close out and reconciliation process. Failure to do so may result in Manitoba Public Insurance initiating legal proceedings against you, including but not limited to, proceedings requesting injunctive relief, Manitoba Public Insurance terminating this Agreement, and/or Manitoba Public Insurance refusing to do direct business with you.

17.6 Reinstatement of Accreditation

Upon suspension of your accreditation, you will only be eligible to regain your accreditation upon applying for reinstatement of your accreditation in accordance with the Policies & Procedures on the MPI Partners Website. Manitoba Public Insurance reserves the right to accept or decline your reinstatement of accreditation in its sole discretion.

18. DISPUTE RESOLUTION:

18.1 Issues Management

If you have any disputes related to this Agreement other than:

(a) suspension of accreditation;
(b) suspension or termination from the DR Program;
(c) termination of this Agreement; or
(d) refusal to do direct business,

you shall first try to amicably resolve them with Manitoba Public Insurance in accordance with the issues resolution policy on the MPI Partners Website prior to utilizing the dispute resolution process in Section 18.2. If you have a dispute identified in Sections 18.1(a) to (d) you may use the dispute resolution process under Section 18.2.

18.2 Resolving Disputes

Subject to Section 17.4, the parties agree that the committee set out in this section (the "**Accreditation Committee**") is the final arbiter of all disputes arising from this Agreement, and that the Accreditation Committee's decision shall be final and binding upon both parties. The Accreditation Committee is composed of five members, as follows:

(a) A chairperson with no board or employment connection to Manitoba Public Insurance, the ATA, or the MMDA and mutually agreed to by Manitoba Public Insurance, the ATA, and the MMDA;
(b) one member from the ATA;
(c) one member from the MMDA; and,
(d) two Manitoba Public Insurance appointees.

18.3 Disputes not subject to Review

You may not use the dispute resolution process in this Article 18 where:

(a) you have been convicted of a criminal offence;
(b) one of your Representatives has been convicted of a criminal offence in relation to the services related to this Agreement, or,
(c) this Agreement specifically states that specific issues and disputes are not subject to this Article 18.

18.4 Request for Review

Either you or Manitoba Public Insurance may ask the Accreditation Committee to review a dispute. You may ask the Accreditation Committee for a review of a dispute by applying to Manitoba Public Insurance in writing, as provided for in Section 20.10.

18.5 Time Limit for Request

Manitoba Public Insurance must receive a written request for review from you within ten (10) days after you have received written notice that your accreditation has been suspended, and/or that Manitoba Public Insurance refuses to do direct business with you, and/or that you have been suspended or terminated from the DR Program.

18.6 Notification of Review

Upon Manitoba Public Insurance's receipt of the above-mentioned request from you, you must wait for notification from Manitoba Public Insurance of the date, time, and location of the review, which shall be held in a reasonable amount of time. Upon notification of the date, time and location of the review, you must attend in person at the appointed date, time and location. You may represent yourself at the review or be represented by a representative of your choice.

18.7 Presentation of Information

You or your representative, as applicable, may present information at the review which you determine to be related to, and relevant for resolving, the dispute. Manitoba Public Insurance may also present information at the review which it determines to be related to, and relevant for, resolving the dispute. During the review, the Accreditation Committee may ask you to answer questions in order to clarify any facts or issues related to the dispute.

18.8 Minutes

Minutes will be taken during the presentation of information at the review and will be available to the Accreditation Committee, to you or your representative (as applicable), to Manitoba Public Insurance, and to representatives of the ATA and the MMDA. However, all discussions of the Accreditation Committee during its decision process will remain confidential and shall be treated in accordance with the terms and conditions of this Agreement.

18.9 Decision to be Rendered

The Accreditation Committee shall provide a written decision with respect to the dispute as soon

as possible after the review, but in any event not more than twenty (20) days from the date the review was completed.

18.10 Outcome of a Review
A decision rendered by the majority of the Accreditation Committee will be binding on the parties.

18.11 Continued Performance
During the dispute resolution process in this Article 18, you shall continue to perform all of your obligations required under this Agreement.

19.00 TERM AND TERMINATION:

19.1 Term
This Agreement shall come into effect on the Effective Date, and shall remain in effect until it is terminated by either of the parties in accordance with the provisions of this Agreement.

19.2 Termination for any Reason with Notice
Either party may terminate this Agreement for any reason with ninety (90) days' prior written notice to the other party.

19.3 Specific Rights of Termination
Manitoba Public Insurance may terminate this Agreement with ten (10) days' prior written notice to you if you fail to comply with any of the requirements of your suspension of accreditation.

19.4 Termination or Suspension of Schedules
Termination or suspension of this Agreement automatically terminates or suspends all schedules to this Agreement (as the case may be), including but not limited to Schedule 3.1 – Mitchell Product Use Terms, Schedule 9.1 – Direct Repair Program, and Schedule 9.2 – Fair Allocation Loss of Use Program.

19.5 Compensation after Termination
In the event this Agreement is terminated, Manitoba Public Insurance may elect to continue to pay the rates and fees on the MPI Partners Website that were in effect prior to the termination of this Agreement, or deem different rates and fees to be applicable.

19.6 Your Obligations Upon Termination
Upon termination of this Agreement for any reason, you shall remove and cease using all Manitoba Public Insurance permitted signage and advertising, cease to use any MPI Names and MPI Intellectual Property, and cease to use the Mitchell Products as required in Schedule 3.1 – Mitchell Product Use Terms. Failure to do so may result in Manitoba Public Insurance initiating legal proceedings against you, including but not limited to, proceedings requesting injunctive relief, and/or Manitoba Public Insurance refusing to do direct business with you.

20.00 GENERAL PROVISIONS:

20.1 Entire Agreement
This Agreement contains the entire agreement between the parties with respect to the subject matter hereof. There are no undertakings, representations, or promises, express or implied, other than those contained in this Agreement and none have been relied on. **For clarity, upon the Effective Date, this Agreement replaces and terminates any previous accreditation**

agreement between you and Manitoba Public Insurance, and any previous agreements between you and Manitoba Public Insurance regarding the use of the Mitchell Products such as the eGlassClaim agreement and the physical damage claims user agreement, and any distributed estimating pilot agreement.

20.2 Survival of Terms
The terms and conditions contained in this Agreement that by their sense and context are intended to survive the performance of this Agreement by the parties shall so survive the completion and performance, suspension or termination of this Agreement.

20.3 Independent Contractor
You are an independent contractor, and this Agreement does not create the relationship of employer and employee, of principal and agent, of joint venture, or of partnership between you and Manitoba Public Insurance or between Manitoba Public Insurance and any of your Representatives.

20.4 No Assignment
You shall not assign or transfer this Agreement or any of its rights or obligations under this Agreement without first obtaining written permission from Manitoba Public Insurance. This Agreement shall be binding upon the executors, administrators, heirs, successors and any permitted assigns of the parties.

20.5 Amendments
No amendment or change to, or modification of, this Agreement shall be valid unless it is in writing and signed by both parties.

20.6 Applicable Law
This Agreement shall be interpreted, performed and enforced in accordance with the laws of Manitoba and the laws of Canada applicable therein. The parties hereby irrevocably and unconditionally attorn to the exclusive jurisdiction of the courts of the Province of Manitoba and all courts competent to hear appeals therefrom.

20.7 Waiver and Remedies
Any failure or delay by either party to exercise or partially exercise any right hereunder shall not be deemed a waiver of any of the rights under this Agreement. The waiver by either party of a breach of any provision of this Agreement shall not operate as, or be construed as, a waiver of any subsequent breach thereof. The election of any one or more remedies by either party shall not constitute a waiver of that party's right to pursue other available remedies.

20.8 Performance of Necessary Acts
You agree to perform any further acts and execute and deliver any further documents that may be reasonably necessary to carry out the provisions of this Agreement.

20.9 Counterparts and Execution by Facsimile or Other Electronic Transmission
This Agreement may be executed in any number of parts. Each such part will have the same effect as if both parties had signed the same document. All parts shall be construed together and shall constitute one agreement. The execution and delivery of this Agreement by facsimile or other electronic transmission shall be sufficient to constitute proper execution and delivery of this Agreement.

20.10 Notice:

Any notice or other communication to you under this Agreement shall be in writing and shall be delivered personally, sent by facsimile or other electronic transmission, or sent by registered mail, postage prepaid to the address listed in your shop profile.

Any notice or other communication to Manitoba Public Insurance under this Agreement shall be in writing and shall be delivered personally, sent by facsimile or other electronic transmission, or sent by registered mail, postage prepaid, to:

Attention: Accreditation Program Officer
Physical Damage Management
P.O. Box 45064, Regent Postal Outlet
Physical Damage Centre
Manitoba Public Insurance
Winnipeg, MB, R2C 5C7
Facsimile: 204-985-1661
Email: partners@mpi.mb.ca

Any notice or communication:

(a) sent by registered mail shall be deemed to have been received on the third day following the date of mailing;
(b) sent by facsimile or other electronic transmission (including email) shall be deemed to have been received on the same day it was sent if it was sent prior to 5:00 PM central time, or the next day following the date it was sent if it was sent after 5:00 PM central time; and,
(c) sent by courier or personal delivery shall be deemed to have been received on the day that it was delivered.

This Agreement has been executed on behalf of the parties effective the date first above written.

for **THE MANITOBA PUBLIC INSURANCE CORPORATION**

Per: _____
Dan Guimond,
President and CEO

Date:_____

Per: _____
Curtis Wennberg,
Vice President, Operations

Date:_____

for **[INSERT SHOP'S FULL LEGAL NAME]**

Per: _____
Name:
Title:

Date:_____
I have legal authority to bind the above named shop.

SCHEDULE 9.1 – DIRECT REPAIR PROGRAM

Background:

A. Manitoba Public Insurance is offering a DR Program to improve customer service and expand the working relationship with its partners in the motor vehicle repair industry in Manitoba. The DR Program is voluntary and available to all Accredited Shops that meet the DR Criteria, that apply to the DR Program, and are accepted into the DR Program by Manitoba Public Insurance.

1 Definitions

This schedule is in addition to, and subject to the terms of the Accreditation Agreement, and incorporates defined terms used in the Accreditation Agreement.

1.1 "**Accurate Estimate" and "Accurate Supplement"** mean the Estimate or Supplement as submitted by you is complete and compliant with Manitoba Public Insurance's Estimating Standards and guidelines as per Manitoba Public Insurance's Policies & Procedures.

1.2 "**Current ACV Threshold**" means the latest value, as published on the MPI Partners Website, over which the Total Loss Indicator value shall not exceed before obtaining Manitoba Public Insurance's guidance for that particular repair.

1.3 "**Direct Repair**" is the term used to describe DR Shops producing the First Estimate of physical damage related to a Manitoba Public Insurance physical damage claim.

1.4 "**DR Criteria**" is the term used to describe the performance criteria each Accredited Shop must meet or exceed to be eligible to apply for and continue to participate in the DR Program.

1.5 "**DR Program**" means Manitoba Public Insurance's Direct Repair program as contemplated under this schedule and the MPI Partner's Website.

1.6 "**DR Shop**" means an Accredited Shop that meets the DR Criteria, and that has applied and has been accepted into the DR Program by Manitoba Public Insurance.

1.7 "**Earned Approval Limit**" is a monetary limit associated with your then current Tier below which you are preapproved to do work, and are listed on the MPI Partners Website.

1.8 "**Exit Criteria**" means the process to be followed where a DR Shop is deemed no longer eligible to participate in the DR Program as indicated on the MPI Partners Website.

1.9 "**First Estimate**" means your initial preparation of an Estimate for the Light Vehicle under the physical damage claim in accordance with Manitoba Public Insurance's Estimating Standards, Policies & Procedures, guidelines, and the requirements of this schedule.

1.10 "**KPI**" or "**KPIs**" mean the key performance indicator(s) as set out on the MPI Partners Website.

1.11 "**MPI Authorized Contact**" is the designated individual within Manitoba Public Insurance assigned to help resolve operational and business issues related to the DR Program.

1.12 "**Supplement**" means an amendment, change, or update to an existing Estimate, processed and submitted using the Mitchell Products, such that the supplement number is increased.

1.13 "**Tiers**" means the various levels used to differentiate Accredited Shops based on their KPI scores, and are listed on the MPI Partners Website.

1.14 **"Total Loss"** means the total cost of the repair for the physical damage claim exceeds the net dollar value of the Light Vehicle's actual cash value as indicated by the Total Loss Indicator.

1.15 "**Total Loss Indicator**" means the value in the Mitchell Products that indicates percentage of cost of repairs compared to the then current actual cash value of the Light Vehicle.

2 DR Program

2.1 The purpose of the DR Program is three-fold:

(a) increasing customer service by allowing Customers to go directly to their preferred DR Shop for a First Estimate, and allowing them to proceed from the Estimate to repair without undue delay;
(b) increasing repair shop productivity and efficiency by lessening delays in the repair Estimate and Supplement approval process; and,
(c) increasing Manitoba Public Insurance's efficiency and effectiveness by decreasing reliance on line-by-line oversight of the physical damage repair process.

2.2 To participate in the DR Program an Accredited Shop must:

(a) meet or exceed the entry portions of the DR Criteria as described on the MPI Partners Website;
(b) be in good standing under its Accreditation Agreement;
(c) complete the DR Program application process as described on the MPI Partners Website; and,
(d) be accepted by Manitoba Public Insurance into the DR Program.

2.3 Manitoba Public Insurance reserves the right to:

(a) accept you into the DR Program;
(b) deny you entry into the DR Program; or,
(c) require you to agree to a transition plan prior to you entering into the DR Program.

If you are accepted into the DR Program, the following sections of this schedule will apply to you effective on the date determined by Manitoba Public Insurance in your application process.

2.4 If your participation in the DR Program is terminated in accordance with this schedule or the Accreditation Agreement, and you want to re-enter the DR Program, you will need to re-apply according to the current DR Program application process at the time of re-application, and re-qualify for all entry portions of the DR Criteria that are in place at the time of re-application.

3 Your Obligations

3.1 As a DR Shop in the DR Program, you will:

(a) maintain your Accreditation Agreement in good standing to continue your participation in the DR Program;
(b) continue to meet or exceed the DR Criteria;
(c) provide a comprehensive Accurate Estimate or Accurate Supplement of the damage incurred as part of a Customer's physical damage claim as required by Manitoba Public Insurance using the proper damage recording processes and applying the appropriate Manitoba Public Insurance Estimating Standards and business practices as per this schedule, and the Policies and Procedures on the MPI Partners website. This includes an obligation to find and report all damage to the Light Vehicle in accordance with the processes as set out on the MPI Partners Website;
(d) keep your appointment and client schedule up to date;
(e) ensure all your Representatives involved in the DR Program and supporting processes and practices undertake any training and review all documentation, Policies & Procedures, Estimating Standards, and processes as deemed necessary by Manitoba Public Insurance for each function that those Representatives perform for you in order for you to participate in the DR Program;
(f) comply with the parameters associated with your then current Tier;
(g) contact your assigned MPI Authorized Contact if you have any questions related to the DR Program, and follow the Policies & Procedures for contacting Manitoba Public Insurance regarding questions related to a specific physical damage claim;
(h) meet with your assigned MPI Authorized Contact in accordance with Section 4.5;
(i) ensure that your Representatives who have performed an Estimate are available and will work with Manitoba Public Insurance to explain their estimate to Manitoba Public Insurance, and to attend internal Manitoba Public Insurance claim dispute resolution processes, civil, criminal, or other court or administrative proceedings in order to provide testimony related to their Estimates or services when required; and,
(j) not turn away or refuse to take a Customer seeking a First Estimate from your shop.

3.2 There will be no additional compensation paid to you by Manitoba Public Insurance for provision of the First Estimate, other than for services provided under Subsection 3.1(i) of this schedule, which are listed on the MPI Partners Website. All other charges will be related to the repair functions as detailed on Manitoba Public Insurance's final, approved Estimate or Supplement.

3.3 The completion of the First Estimate is required to establish the following information:

a) which areas and associated damage are part of the current physical damage claim for which the First Estimate or Supplement is being created;
b) which areas and associated damage are not part of the current physical damage claim or prior damage which may or may not be part of a prior physical damage claim; and,
c) preparation of a complete Accurate Estimate for the purposes of establishing repairability or Total Loss determination.

3.4 Subject to Section 3.6, if the Light Vehicle is initially assessed as being repairable (i.e. not a Total Loss) you may proceed with the repair process per the conditions of your then current Tier and Earned Approval Limit, otherwise you may only proceed via the standard Manitoba Public Insurance review and approval process for physical damage claims.

3.5 Prior to commencing the First Estimate, if Total Loss is your initial assessment of the physical damage claim, you shall follow the regular Policies & Procedures on the MPI Partners Website for contacting Manitoba Public Insurance for directions on the proper disposition of the Light Vehicle.

3.6 If the total value of the completed Estimate including all Supplements is over the Current ACV Threshold, you shall follow the Policies & Procedures on the MPI Partners Website for contacting Manitoba Public Insurance for directions on the proper disposition of the Light Vehicle and await direction before proceeding with ordering any parts or commencing repairs. You understand that you may not be reimbursed for any unauthorized repair work and costs associated with repairs for a Light Vehicle where the total repair costs are in excess of the Current ACV Threshold amount for that Light Vehicle. In this instance unauthorized work includes activity that would normally fall under your then current Earned Approval Limit.

3.7 The First Estimate is to be prepared per Manitoba Public Insurance's then current Estimating Standards, guidelines, and Policies & Procedures that describe how to complete an Accurate Estimate and Accurate Supplement on the MPI Partners Website.

3.8 If the Customer's vehicle is safely drivable or temporary repairs can be made to make it safely drivable, you must allow the Customer to continue to drive the vehicle until you can complete any outstanding repairs. Any costs to complete temporary repairs must be per an approved Estimate, or requires prior approval from Manitoba Public Insurance, and will be exempt from the Earned Approval Limit.

3.9 You understand that the Customer is not obligated to proceed to a repair at your DR Shop even if you provide the First Estimate to the Customer.

4 Manitoba Public Insurance's Obligations

4.1 If available, Manitoba Public Insurance may provide you with additional information regarding the physical damage claim, including but not limited to loss details, with a view to assisting you to make informed decisions regarding the cause and extent of damage as described by the Customer.

4.2 Manitoba Public Insurance shall arrange for any training including providing all materials,

Estimating Standards, Policies and Procedures, and processes Manitoba Public Insurance identifies as necessary for you to participate in the DR Program. Any changes of use to the Mitchell Products will be communicated to you as required under the Accreditation Agreement.

4.3 Manitoba Public Insurance shall continue to utilize the established processes for processing and authorizing payment under the Accreditation Agreement. Your continued proper use of the Mitchell Products is necessary for timely and complete payment for your completed services.

4.4 Manitoba Public Insurance shall provide your individual DR Shop KPI results within the service standard time as indicated on the MPI Partners Website.

4.5 You shall be assigned an MPI Authorized Contact who will contact you on a regular basis per an agreed to schedule to review your KPI results and any other indicators describing your performance, the impact of the DR Program on your DR Shop, and to handle any questions you have regarding the DR Program.

4.6 Notwithstanding anything else in this schedule, Manitoba Public Insurance reserves the right to perform any First Estimates or Estimates in its sole discretion.

5 Tiers, Earned Approval Limits and Privileges

5.1 Upon joining the DR Program, you will be assigned to a Tier with an associated Earned Approval Limit. Manitoba Public Insurance reserves the right to make changes to the Tiers, Earned Approval Limits, and other privileges associated therewith in accordance with the Industry Agreement, and you may not use the Accreditation Agreement's dispute resolution provisions to appeal any issues related to them. You will be notified of updated versions in accordance with Article 9.

5.2 In accordance with the requirements in this schedule and the Accreditation Agreement, and up to your Earned Approval Limit, you have authority without additional approvals from Manitoba Public Insurance to:

(a) provide Manitoba Public Insurance with a First Estimate;
(b) order required parts;
(c) make changes to the First Estimate as per a normal Supplement;
(d) begin and complete the repair; and,
(e) submit request for payment.

5.3 Manitoba Public Insurance shall use the Mitchell Products, or other means, to automatically approve Estimates and Supplements based on the total value of the Estimate up to and including your current Earned Approval Limit. Manitoba Public Insurance's approval will be within the service standard time, as indicated on the MPI Partners Website, provided that the Mitchell Products are operational and functioning normally.

5.4 The Earned Approval Limit applies to the entire physical damage claim; if the latest Supplement increases the total value of the repair such that it is now higher than your then current Earned Approval Limit, the entirety of the Estimate including the changes from the latest submitted Supplement will be subject to Manitoba Public Insurance

review.

5.5 Any Estimate and Supplement that exceeds your current Earned Approval Limit will be reviewed by Manitoba Public Insurance and a response provided within the service standard time as indicated on the MPI Partners Website.

6 Performance Management and KPIs

6.1 Manitoba Public Insurance reserves the sole right to make changes to the KPIs, their weighting and calculation in accordance with the Industry Agreement and you may not use the Accreditation Agreement's dispute resolution provisions to appeal any issues related to them. You will be notified of updates to the KPIs in accordance with Article 9.

6.2 Manitoba Public Insurance shall regularly monitor and review your KPIs with you, and you may be reassigned to a different Tier based upon the criteria to maintain such Tier according to the processes as indicated on the MPI Partners Website.

6.3 You understand that the KPI results are based on the information recorded in the Mitchell Products and AutocheX, plus other Manitoba Public Insurance systems. Information not on file in the Mitchell Products or in other Manitoba Public Insurance systems at the time the reports are processed will not be included in the month's measures. Additional details on the calculation and distribution of the relevant KPIs can be found on the MPI Partners Website.

6.4 Your KPI results may be published to the Manitoba Public Insurance public website, or in any other place Manitoba Public Insurance decides to place the information, in rank order and by location, or in any other manner as determined by Manitoba Public Insurance.

6.5 In Manitoba Public Insurance's sole discretion, if there have been any events of force majeure beyond the control of either party, an event caused by Manitoba Public Insurance, or any other event that Manitoba Public Insurance determines has had a material impact on your KPIs, Manitoba Public Insurance may waive or make any adjustments to your KPIs to mitigate or reflect the impact of such event.

6.6 Throughout the DR Program, Manitoba Public Insurance solely determines your Tier, Earned Approval Limit, and KPIs, however if you have any disputes regarding your Tier, Earned Approval Limit, and KPIs you shall utilize Section 18.1 of the Accreditation Agreement.

6.7 Notwithstanding the above, Manitoba Public Insurance shall manage the Tiers and Earned Approval Limits in their own right as a companion program. If the then current versions of the Tiers and Earned Approval Limits program differ in detail or application from the material herein, the version as set out in the companion program shall be followed.

7 Inspections and Reviews

7.1 Any Estimate or Supplement you have prepared for the DR Program may be randomly selected by Manitoba Public Insurance for review at any point in the repair process, including but not limited to in-progress or completed repairs, as part of Manitoba Public

Insurance's ongoing quality assurance process.

7.2 An Estimate or Supplement you have prepared for the DR Program that has been approved by the Mitchell Products based on the total value of the Estimate, up to and including your current Earned Approval Limit, may be randomly selected by Manitoba Public Insurance for review as part of Manitoba Public Insurance's on-going quality assurance process. Manitoba Public Insurance shall notify you if you have not provided an Accurate Estimate.

7.3 Manitoba Public Insurance or its Representatives shall conduct regular reviews of a random sample of your DR Program physical damage claims approved by the Mitchell Products and paid to you.

7.4 Each month, Manitoba Public Insurance will conduct a review of a portion of all Estimates, the proportion being determined at Manitoba Public Insurance's sole discretion, submitted by your DR Shop to Manitoba Public Insurance where the total value of each Estimate is up to and including your current Earned Approval Limit, and where each Estimate is automatically reviewed and approved. Where the review determines any portion of an Estimate has been paid, which would otherwise not have been approved if reviewed manually, or identifies an amount has not been included by you in the Estimate for which you were entitled to be paid and would otherwise have been added to the Estimate and approved by Manitoba Public Insurance, Manitoba Public Insurance may in its sole discretion, seek reimbursement from or make payment to you, according to the process more fully described on the MPI Partners Website.

7.5 As part of the DR Program, parts invoices and Customer authorization signatures need to be uploaded to the Mitchell Products along with the Estimate. These documents must be retained in accordance with the Accreditation Agreement. Manitoba Public Insurance reserves the right to request copies of these documents at any time, with or without prior notification.

7. Termination

8.1 Manitoba Public Insurance may cancel the DR Program, or any portion thereof, at any time in its sole discretion in accordance with the Industry Agreement, and shall provide you notice of such, and the application of this schedule and your ability to perform Direct Repairs will be deemed to be terminated upon the receipt of such notice.

8.2 Manitoba Public Insurance may terminate or suspend the application of this schedule to your Accredited Shop for any reason by giving thirty (30) days' prior written notice to you.

8.3 You may withdraw from the DR Program by giving thirty (30) days prior written notice. Manitoba Public Insurance shall notify you in writing that your participation in the DR Program has been terminated.

8.4 In addition to its rights under Sections 8.1 and 8.2 above, and in the Accreditation Agreement, and without restricting any other remedies available, Manitoba Public Insurance may, at its sole option, immediately suspend or restrict your ability to participate in the DR Program, or any portion thereof, and/or terminate the application of this schedule if:

(a) you make an assignment for the benefit of creditors or take any other action for the benefit of creditors, become bankrupt or insolvent, or take the benefit of or become subject to any legislation in force relating to bankruptcy and insolvency; or,

(b) in the opinion of Manitoba Public Insurance, you have failed to comply with or breached any other term or condition of this schedule, or your Accreditation Agreement.

8.5 Upon written notice of suspension or termination of the application of this schedule, you shall cease to prepare First Estimates, cease to participate in the DR Program, and you shall follow all additional directions from Manitoba Public Insurance required to cease participation in the DR Program. If termination of this schedule is made pursuant to Section 8.4, Manitoba Public Insurance may also refuse to do direct business with you in accordance with the Accreditation Agreement.

8.6 If your Accreditation Agreement is terminated for any reason under the Accreditation Agreement, this schedule's application also terminates as of the date of the termination of the Accreditation Agreement.

8.7 Termination of the application of this schedule shall not terminate the Accreditation Agreement.

8.8 You may use the Accreditation Agreement's dispute resolution provisions to appeal a termination of your DR Shop's participation in the DR Program, but you may not appeal a decision to terminate under Section 8.1 of this schedule.

9 Notification

9.1 Notwithstanding anything else in this schedule, Manitoba Public Insurance may deliver updates to any Estimating Standards, guidelines, documentation, Policies & Procedures, processes, and advertising rules related to the DR Program to you electronically to an email address of your choosing, until the MPI Partners Website is established for dissemination of such updates, or in any other manner that Manitoba Public Insurance deems appropriate.

SCHEDULE 9.2 – FAIR ALLOCATION LOSS OF USE PROGRAM

1 **Definitions:**

This schedule is in addition to, and subject to the terms of the Accreditation Agreement, and incorporates defined terms used in the Accreditation Agreement.

(a) "**Fair Allocation LOU Program**" or "**FA-LOU Program**") means an optional program managed and set up by MPI to offer Customers alternate transportation in the event that the vehicle is unavailable to them and they also have coverage for its loss of use.

(b) "**LOU**" means loss of use.

(c) "**LOU Program**" means program for the services authorized for covered Manitoba Public Insurance Customers to provide alternative transportation in the event their Light Vehicle is not available to them during an insured loss event.

2 **Background for FA-LOU Program:**

2.1 Manitoba Public Insurance is offering the optional FA-LOU Program to Accredited Shops to improve customer service and expand the working relationship with the motor vehicle repair industry in Manitoba. The FA-LOU Program is voluntary and available to all Accredited Shops that apply to the FA-LOU Program by completing the FA-LOU Program application form, and are accepted into the FA-LOU Program by Manitoba Public Insurance.

3 **FA-LOU Program:**

3.1 The purpose of the FA-LOU Program is three-fold:

(a) increasing customer service by allowing Customers to have their rental or courtesy car needs provided directly by the Accredited Shop. The Accredited Shop is authorized to arrange for and deliver a vehicle meeting Manitoba Public Insurance's customer service standards for alternative transportation needs while the Customer's own Light Vehicle is being repaired;
(b) increasing Accredited Shop efficiency by allowing direct control over the administration of the rental; and,
(c) increasing Manitoba Public Insurance's efficiency by decreasing the day-to-day approvals and coordination between Accredited Shops and rental agencies and allowing this interaction to occur directly.

4 **FA-LOU Program Eligibility, Application and Operating Guidelines:**

4.1 Program eligibility, the application process, and the operating guidelines of the FA-LOU Program are as posted on the MPI Partners Website.

5 **Your Obligations under the FA-LOU Program:**

5.1 As an Accredited Shop in the FA-LOU Program, you will:

(a) maintain your Accreditation Agreement in good standing to continue your participation in the FA-LOU Program;
(b) explain Manitoba Public Insurance's LOU policies to Customers, including policy limits;
(c) manage the authorization for rental vehicles provided to Customers;
(d) only authorize rentals for Customers who have been authorized for LOU as per documentation provided to you by Manitoba Public Insurance on a claim by claim basis;

(e) ensure each eligible Customer receives a vehicle meeting the minimum rental vehicle requirements as posted on the MPI Partners Website;
(f) ensure each eligible Customer is provided a vehicle for the duration of the time they are entitled to one;
(g) manage the duration of repair of the Customer's Light Vehicle such that the rental duration is minimized;
(h) promptly apprise the Manitoba Public Insurance claims adjuster/processor in charge of the claim of any extra-ordinary delays, along with details on costs and customer service impacts and request direction;
(i) immediately inform the Manitoba Public Insurance claims adjuster/processor in charge of the claim if the Customer's Light Vehicle is deemed a total loss while under your care and the Customer has already been issued a replacement vehicle;
(j) where LOU coverage is provided as a result of a claim against a liable third party motorist, advise Customers that they have a duty to mitigate the costs of their LOU in accordance with the business rules posted on the MPI Partners Website. Manitoba Public Insurance will not pay for unauthorized upgrades;
(k) explain to Customers that they have a duty to minimize the length of time that they endure the loss of their Light Vehicle (e.g. repairs are undertaken in an expedient manner);
(l) contact your assigned Manitoba Public Insurance authorized contact if you have any questions related to the FA-LOU Program, and follow the Policies & Procedures for contacting Manitoba Public Insurance regarding questions related to a specific physical damage claim;

5.2 You will maintain records for all rentals you have authorized. These records will include the following information:

(a) claim number;
(b) rental agreement number;
(c) rental car provider name and address;
(d) Customer first and last name;
(e) class of vehicle supplied;
(f) rental vehicle license plate number;
(g) rental start and end dates, and rental duration;
(h) upgrade reason if an upgrade is provided;
(i) relationship between the renter and the policy holder for the damaged Light Vehicle (where they are different); and,
(j) amount and details of any additional charges.

5.3 Manitoba Public Insurance will provide you compensation based on the replacement vehicle rental rate structure (as posted on the MPI Partners Website) per eligible labour hour authorized and paid for each eligible claim. This compensation will be fixed regardless of the actual cost of the rental except where you have been specifically authorized for additional compensation by the Manitoba Public Insurance claims adjuster/processor in charge of the claim for extra-ordinary repair situations. Payment will be made along with and in the same fashion as payment for the Light Vehicle being repaired.

5.4 If the Customer's Light Vehicle is safely drivable or temporary repairs can be made to make it safely drivable, you must allow the Customer to continue to drive the Light Vehicle until you can complete any outstanding repairs and not authorize a rental vehicle. Any costs to complete temporary repairs must be managed according to the terms of the Accreditation Agreement.

5.6 If you provide Customers with a vehicle that is not from a Manitoba rental vehicle company, you will follow the business rules for rental vehicle companies on the MPI Partners Website, and need to meet the following business rules:

(a) your vehicles must meet the same criteria as those applicable to the rental vehicle companies in order to qualify for rental vehicle rates; otherwise, your vehicles will be deemed courtesy cars and you will be compensated based on the courtesy car rates; and,
(b) you must maintain the same record keeping and insurance requirements as applicable to rental companies and meet all regulations they are required to meet.

6 Manitoba Public Insurance's Obligations:

6.1 Manitoba Public Insurance will provide you with notification when a claim is eligible for the FA-LOU Program and will inform you of the type of LOU coverage available so that you may appropriately authorize the rental. This notification will also determine the daily rental rate applicable to this claim.

6.2 Manitoba Public Insurance reserves the right to revoke the authorization for LOU or for the duration of LOU for a specific claim if it receives additional information which brings coverage or liability into question. In such cases, Manitoba Public Insurance will allow the Accredited Shop twenty-four (24) hours to notify their Customer that Manitoba Public Insurance's authorization for LOU for their claim has been cancelled.

6.3 Manitoba Public Insurance will not authorize FA-LOU Program coverage until all of the following conditions have been met:

(a) the Customer has reported the claim to Manitoba Public Insurance;
(b) coverage has been confirmed; and,
(c) A customer has an entitlement for alternate transportation costs and as a result of a claim that the Customer is without their Light Vehicle.

6.4 Manitoba Public Insurance shall arrange for any training including providing all materials, Policies & Procedures, and processes Manitoba Public Insurance identifies as necessary for you to participate in the FA-LOU Program.

6.5 Manitoba Public Insurance will conduct audits on a random and structured basis to review the FA-LOU Program. You will cooperate with the audit by supplying records when requested in accordance with the Accreditation Agreement. Where the audit determines any irregularities with replacement vehicle authorizations, Manitoba Public Insurance may in its sole discretion, seek reimbursement from you for a portion of the amount up to and including the entire amount.

6.6 LOU services that have been initiated somewhere other than your shop will be handled by Manitoba Public Insurance.

7 Termination:

7.1 Manitoba Public Insurance may cancel the FA-LOU Program, or any portion thereof, at any time in its sole discretion, and shall provide you notice of such, and the application of this schedule and your ability to perform FA-LOU authorizations will be deemed to be terminated upon the receipt of such notice.

7.2 Manitoba Public Insurance may terminate or suspend the application of this schedule to your Accredited Shop for any reason by giving thirty (30) days' prior written notice to you.

7.3 You may withdraw from the FA-LOU Program by giving thirty (30) days prior written notice. Manitoba Public Insurance shall notify you in writing that your participation in the FA-LOU Program has been terminated.

7.4 In addition to its rights under Sections 7.1 and 7.2 above, and in the Accreditation Agreement,

and without restricting any other remedies available, Manitoba Public Insurance may, at its sole option, immediately suspend or restrict your ability to participate in the FA-LOU Program, or any portion thereof, and/or terminate the application of this schedule if:

(a) you make an assignment for the benefit of creditors or take any other action for the benefit of creditors, become bankrupt or insolvent, or take the benefit of or become subject to any legislation in force relating to bankruptcy and insolvency; or,
(b) in the opinion of Manitoba Public Insurance, you have failed to comply with or breached any other term or condition of this schedule, or your Accreditation Agreement.

7.5 Upon written notice of suspension or termination of the application of this schedule, you shall cease to authorize replacement vehicles, cease to participate in the FA-LOU Program, and you shall follow all additional directions from Manitoba Public Insurance required to cease participation in the FA-LOU Program. If termination of this schedule is made pursuant to Section 7.4, Manitoba Public Insurance may also refuse to do direct business with you in accordance with the Accreditation Agreement.

7.6 If your Accreditation Agreement is terminated for any reason under the Accreditation Agreement, this schedule's application also terminates as of the date of the termination of the Accreditation Agreement.

7.7 Termination of the application of this schedule shall not terminate the Accreditation Agreement.

7.8 You may use the Accreditation Agreement's dispute resolution provisions to appeal a termination of your participation in the FA-LOU Program, provided that you may not appeal a decision to terminate under Section 7.1 of this schedule.

8 Notification:

8.1 Notwithstanding anything else in this schedule, Manitoba Public Insurance may deliver updates to any Estimating Standards, guidelines, documentation, Policies & Procedures, processes, and advertising rules related to the FA-LOU Program to you electronically to an email address of your choosing, until the MPI Partners Website is established for dissemination of such updates, or in any other manner that Manitoba Public Insurance deems appropriate.

9 Rental Days and Coverage:

9.1 The actual covered rental days per repair are a function of the scope of the repair and typical durations to effect a proper repair. These parameters are set by Manitoba Public Insurance and will be updated on an annual basis. Such updates will be coordinated with other updates associated with Annual Rate changes. You shall receive notice of such changes and are expected to apply the latest in force rates for work completed in the period that qualify for the FA-LOU Program.

PUB (MPI) 1-38

Part and Chapter:	**IV SDM.1.9 Service Delivery Model**	**Page No.:**	**18-19**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Claims Expenses**		
Sub Topic:	**BI3 Claims Management**		

Preamble to IR (If Any):

Question:

a) Please file the jurisdictional review that supports the increase in staffing levels for managing claims.
b) Please indicate what additional case management capacity has been added to manage claims, in terms of FTE and annualized cost.

Rationale for Question:

To understand changes in claims expenses.

RESPONSE:

a) The increase in staffing levels is based on the operational needs of MPI, however similar pressures are being felt in other jurisdictions.

A January 2018 Operational Review[1] of ICBC by PWC specified an increase in the number of injury adjusters from 2011 to 2016 by nearly 20% (up from 555 in

[1] https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/organizational-structure/crown-corporations/pwc-review-icbc-jan-2018.pdf. Page 10.

2011 to 660 in 2016). The driving force behind this increase is ICBC's efforts to reduce claim durations.

The Corporation has a strong working relationship with the Transport Accident Commission (TAC) in Victoria, Australia and both participate as part of the Global Users Group through FINEOS. The TAC has increased their case management staff by 20%, and are reporting dramatic reduction in injury durations where they experiment with higher case management resources and proactivity.

The Corporation's thirteen (13) additional staff equates to an increase of less than 8% within injury claims management, which will increase the overall capacity of the 58.8 case managers within Rehabilitation Management, through the reduction of administrative functions.

b) MPI did not add any case managers. The additional resources are as follows:

- 10 Benefit Administrators (2 of which are French designated)
- 1 Data Steward
- 1 Injury Claims Analyst
- 1 Supervisor

Figure 1 identifies the total costs associated with this additional staff is $930,000 per year calculated as follows:

Figure 1: Additional FTE Costs

	FTE Cost
Annual salary	$55,000
FTEs	13
Additional benefit costs	30%
Annual FTE Costs	**$930,000**

The 10 benefit administrators will complete all new claims intakes (excluding catastrophic claims, fatality claims, and claims where the claimant is still in hospital). They will assess and triage these claims to the most appropriate level of case management, a function that was previously completed by case manager 2s. As part of this role, they will:

- Confirm coverage
- Initiate Income Replacement
- Arrange Personal Care Assessments (when required)
- Arrange for the completion of authorizations
- Complete all Permanent Impairment Calculations
- Additional insertions of work are anticipated over the ensuing months, such as monitoring the opioid policy, dry cannabis policy, dental claims, and potentially personal care only claims, and short term duration IRI claims.

Removing these functions from case managers increases their overall capacity to focus on rehabilitation efforts that return claimants to health and to work through the Corporation's active case management model.

The corporation projects a net savings to claims costs of over $2 million per year to be realized beginning in fiscal year 2020/21.

PUB (MPI) 1-39

Part and Chapter:	**IV SDM.2 Service Delivery Model**	**Page No.:**	**21**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Cost Containment Measures**		
Sub Topic:	**Customer Experience Framework**		

Preamble to IR (If Any):

MPI is establishing a Customer Experience framework, and expects it to be completed by the end of the current fiscal year.

Question:

a) What organizations has the Corporation identified for comparison purposes?
b) Please advise as to what benchmarks are being developed, and describe what they measure and where are they currently utilized.
c) Who is responsible for developing the framework, and at what cost?

Rationale for Question:

To understand the Customer Experience Framework.

RESPONSE:

a) The Corporation is currently seeking to compare Customer Experience (CX) metrics with other public insurers and to an overall benchmark for automobile insurance providers in Canada. The Corporation may also benchmark to other industries where relevant.

b) The Corporation is seeking to develop benchmarks for Customer Experience (CX) quality metrics such as: that the experience delivers value to customers; that it is

easy to do business with the Corporation; and, how the customer feels about the experience. Customer loyalty metrics such as: the likelihood of customers engaging the Corporation's services; and, the likelihood of speaking positively about the Corporation to other people will also have benchmarks established.

Metrics regarding CX quality and customer loyalty would feed into an overall CX Index Score. These metrics and the overall CX Index Score would be compared to similar organizations and to the automobile insurance industry overall in Canada or North America. The metrics would be gathered across important customer touchpoints with the Corporation, providing direction on what actions are needed to improve what the Corporation provides for Manitobans.

c) The COO and VP of Customer Service has overall authority for the development of the framework. The target budget for development purposes is less than $150,000, which excludes implementation costs (yet to be determined). Use of in-house staff and the selective use of external resources will keep costs low in the development phase.

PUB (MPI) 1-40

Part and Chapter:	**V EXP.3, Figure EXP-5**	**Page No.:**	**16**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Cost Containment**		
Sub Topic:	**Expense Variances**		

Preamble to IR (If Any):

Question:

a) Please provide a breakdown of the forecasted savings for 2018/19 for each of the items listed under EXP-5.
b) Please elaborate on the savings realized for the one-time deferral of department redevelopment.
c) Please explain why the Space Redevelopment Initiative was deferred.

Rationale for Question:

To understand the Corporation's cost containment efforts.

RESPONSE:

a) Please see *Figure 1* below for the reductions included in the 2018/19 budget:

Figure 1: Cost Containment

Line No.	Description	Savings
	(C$000s, except where noted)	
1	Telco Cell Phones	80
2	IBM Operations	200
3	Forward Collision Avoidance	164
4	Road Safety Promotion	424
5	Corporate Sponsorship - Business Partnerships	50
6	Corporate Sponsorship - Community Support	262
7	Impaired Driving Strategy	11
8	Vulnerable Road User Strategy	20
9	Entry Level Professional Truck Driver Training	650
10	Corporate Fleet Vehicles	490
12	Total Savings	**2,351**

b) The $1.3M one-time deferral for departmental redevelopments at Cityplace was reallocated to another area of the business in support of the flat budget requirement for the 2017/18 year. There are no long term savings realized from the one-time deferral as it only changed the year in which the expenses would occur. This is not a long term cost containment solution.

c) Same as b) above.

PUB (MPI) 1-41

Part and Chapter:	**V EXP Figure EXP-42**	**Page No.:**	**62-63**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Basic Capital Expenditure by Project**		

Preamble to IR (If Any):

Notable projects include Technology Risk Management, Legacy Modernization, and the Finance Re-Engineering Initiative.

Question:

Please refile the table in Figure EXP-42 to include columns for the prior year expenditures on each of the listed projects, and a total column by project and in total.

Rationale for Question:

To understand the details of notable Basic capital expenditure projects.

RESPONSE:

Please see *Figure 1* below:

Figure 1: Basic Capital Expenditures by Project (Part 1)

Line No.	Project	LTD Actual*	Allocation Adjustment**	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital**	Total
	(C$000s, except where noted)										
1	Deferred Development	194	7	(201)	-	-	-	-	-	-	-
2	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
3	Expense	-	-	201	163	-	-	-	-	-	364
4	**HR Management System Phase 3 & 4**	194	7	-	163	-	-	-	-	-	364
5	Deferred Development	-	-	-	1,159	941	-	-	-	-	2,100
6	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
7	Expense	-	-	-	-	-	-	-	-	-	-
8	BI3 Fineos Upgrade 2020	-	-	-	1,159	941	-	-	-	-	2,100
9	Deferred Development	-	-	-	-	-	-	-	1,153	-	1,153
10	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
11	Expense	-	-	-	-	-	-	-	-	-	-
12	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	1,153	-	1,153
13	Deferred Development	-	-	-	-	-	1,628	814	-	-	2,442
14	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
15	Expense	-	-	-	-	-	-	-	-	-	-
16	Infor Major Upgrade 2022	-	-	-	-	-	1,628	814	-	-	2,442
17	Deferred Development	-	-	595	786	-	-	-	-	(771)	610
18	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
19	Expense	-	-	-	-	-	-	-	-	(9)	(9)
20	**High School Driver Education Phase 3**	-	-	595	786	-	-	-	-	(780)	601
21	Deferred Development	1,127	-	1,147	204	-	-	-	-	105	2,583
22	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
23	Expense	-	-	159	-	-	-	-	-	10	169
24	Corporate Learning Management	1,127	-	1,306	204	-	-	-	-	115	2,752
25	Deferred Development	1	-	2,367	186	-	-	-	-	264	2,818
26	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
27	Expense	-	-	641	-	-	-	-	-	(486)	155
28	Technology Risk Management - 2017	1	-	3,008	186	-	-	-	-	(222)	2,973
29	Deferred Development	-	-	-	3,070	-	-	-	-	-	3,070
30	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
31	Expense	-	-	-	407	-	-	-	-	-	407
32	Technology Risk Management - 2018	-	-	-	3,477	-	-	-	-	-	3,477
33	Deferred Development	-	-	-	-	3,256	-	-	-	-	3,256
34	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
35	Expense	-	-	-	-	407	-	-	-	-	407
36	Technology Risk Management - 2019	-	-	-	-	3,663	-	-	-	-	3,663
37	Deferred Development	-	-	-	-	-	3,256	-	-	-	3,256
38	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
39	Expense	-	-	-	-	-	407	-	-	-	407
40	Technology Risk Management - 2020	-	-	-	-	-	3,663	-	-	-	3,663
41	Deferred Development	-	-	-	-	-	-	3,256	-	-	3,256
42	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
43	Expense	-	-	-	-	-	-	407	-	-	407
44	Technology Risk Management - 2021	-	-	-	-	-	-	3,663	-	-	3,663
45	Deferred Development	-	-	-	-	-	-	-	3,256	-	3,256
46	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
47	Expense	-	-	-	-	-	-	-	407	-	407
48	Technology Risk Management - 2022	-	-	-	-	-	-	-	3,663	-	3,663

Figure 1: Basic Capital Expenditures by Project (Part 2)

Line No.	Project	LTD Actual*	Allocation Adjustment**	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital**	Total
	(C$000s, except where noted)										
49	Deferred Development	269	-	686	-	-	-	-	-	607	1,562
50	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
51	Expense	-	-	631	461	-	-	-	-	81	1,173
52	Enhanced Direct Repair Capabilities	269	-	1,317	461	-	-	-	-	688	2,735
53	Deferred Development	279	-	(279)	-	5,460	5,217	-	-	-	10,677
54	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
55	Expense	-	-	280	407	-	-	-	-	-	687
56	Finance Re-Engineering Initiative	279	-	1	407	5,460	5,217	-	-	-	11,364
57	Deferred Development	-	-	1,345	1,221	814	814	-	-	(577)	3,617
58	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
59	Expense	-	-	-	-	-	-	-	-	-	-
60	Customer Self Service	-	-	1,345	1,221	814	814	-	-	(577)	3,617
61	Deferred Development	-	-	-	-	8,140	16,280	16,280	16,280	-	56,980
62	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
63	Expense	-	-	-	1,628	-	-	-	-	-	1,628
64	Legacy Systems Modernization	-	-	-	1,628	8,140	16,280	16,280	16,280	-	58,608
65	Deferred Development	-	-	208	810	-	-	-	-	202	1,220
66	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
67	Expense	154	-	-	4	-	-	-	-	-	158
68	Credit Card Strategy	154	-	208	814	-	-	-	-	202	1,378
69	Deferred Development	-	-	-	-	-	-	-	-	-	-
70	Capital Depreciation	-	-	-	-	-	-	-	-	-	-
71	Expense	808	-	90	350	350	350	350	350	19	2,667
72	AOL PUB Release	808	-	90	350	350	350	350	350	19	2,667
73	Total BTO / BPR Project Costs	2,832	7	7,870	10,856	19,368	27,952	21,107	21,446	(555)	110,883

74 **LTD actual are expenditures from 2011/12 to 2016/17 for current projects identified in EXP-42.*

75 ***Allocation adjustment is required to adjust monthly alloations to annual balances.*

PUB (MPI) 1-42

Part and Chapter:	**V EXP Appendix 4**	**Page No.:**	**1**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Basic Total Expenses**		
Sub Topic:	**Compounded Annual Growth Rates**		

Preamble to IR (If Any):

Question:

a) Please explain the compounded annual growth rates for 4 years from 14/15 to 17/18 in Compensation-Overtime, and explain the 19.6% compounded growth through the forecast period (in 18/19 through 20/21).
b) Please explain the compounded annual growth rates for 4 years from 14/15 to 17/18 in Furniture and Equipment, and explain the 18.6% compounded growth through the forecast period (18/19 to 20/21).
c) Please explain the compounded annual growth rates for 4 years from 14/15 to 17/18 in Travel & Vehicle Expense, and explain the 12.7% compounded growth through the forecast period (18/19 to 20/21).
d) Please explain the compounded annual growth rates for 4 years from 14/15 to 17/18 in Printing, Stationary and Supplies, and explain the 13.1% compounded growth through the forecast period (18/19 to 20/21).
e) Please explain the compounded annual growth rates for 4 years from 14/15 to 17/18 in Public Information/Advertising, and explain the 7.8% compounded growth through the forecast period (18/19 to 20/21).

Rationale for Question:

To understand growth in Corporation's expenses.

RESPONSE:

a) Overtime Expense has steadily declined from $2.45 million in 2013/14 to $0.8 million in 2017/18. This explains the average decline of 23.5% for this period and is in large part due to MPI's cost containment measures. However, the Corporation expects these expenses to grow slightly in 2018/19 and then to be below the 5-year average as cost containment measures continue. However, unexpected events (such as hail or winter storms) may increase the need for overtime. Please refer to *PART V, EXP, Appendix 3*, page 3, line 2, for a 10-year summary of Basic Total Overtime Expenses.

b) Furniture and Equipment Expense declined from $1.1 million in 2013/14 to $0.7 million in 2017/18. However, 2017/18 was lower than historical values due to a deferral of various IT equipment refreshment cycles into the forecast period. The drop in 2017/18 expenses followed by an increase in forecasted expenses resulted in an 18.6% Compound Annual Growth Rate (CAGR) from 2018/19 to 2020/21. Please refer to *PART V, EXP, Appendix 3*, page 3, line 18, for a 10-year summary of Basic Total Furniture and Equipment Expenses.

c) Travel and Vehicle Expense declined gradually from $1.2 million in 2013/14 to $0.7 million in 2017/18. However, while the 5-year forecast has increased from 2017/18, it has remained flat at approximately $0.9 million. This drop in expenses over the historical period followed by an increase in forecast expenses is mostly attributable to the Corporation's cost containment measures, which has resulted in a 13.2% CAGR between 2014/15 and 2017/18. Although the 2018/19 to 2020/21 CAGR reflects a 12.7% average annual increase, this is primarily attributable to the establishment of the budget / forecast based on historical levels and is, from a dollar perspective, minimal. Please refer to *PART V, EXP, Appendix 3*, page 3, line 15 for a 10-year summary of Basic Total Travel and Vehicle Expenses.

d) Printing, Stationary and Supplies Expenses declined from $1.8 million in 2013/14 to $1.1 million in 2017/18, mainly due to lower spending on computer accessories/supplies and stationery. However, while the 5-year forecast has increased from 2017/18, the forecast has remained flat at approximately $1.6 -

$1.7 million. This drop in expenses over the historical period followed by an increase in forecast expenses is mostly attributable to the Corporation's cost containment measures, which has resulted in a -11.9% CAGR per annum, between 2014/15 and 2017/18.. Although the 2018/19 to 2020/21 CAGR reflects an average annual increase of 13.1%, this is due to the establishment of the budget / forecast based on historical levels and is, from a dollar perspective, minimal. Please refer to *PART V, EXP, Appendix 3*, page 3, line 12, for a 10-year summary of Basic Total Printing, Stationary, and Supplies Expenses.

e) Public Information/Advertising Expense declined from $2.5 million in 2013/14 to $1.9 million in 2017/18. However, while the 5 year forecast has increased from 2017/18, the forecast has remained flat at approximately $2.3 - $2.4 million. This drop in expenses over the historical period followed by an increase in forecast expenses is mostly attributable to the Corporation's cost containment measures which has resulted in a -6.0% CAGR per annum, between 2014/15 and 2017/18. Although, the 2018/19 to 2020/21 CAGR reflects an average annual increase of 7.8%, this is due to the establishment of the budget / forecast based on historical levels. Please refer to *PART V, EXP, Appendix 3*, page 3, line 11, for a 10-year summary of Basic Total Public Information/Advertising Expenses.

PUB (MPI) 1-43

Part and Chapter:	**V EXP Appendix 7**	**Page No.:**	**7**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Other Expenses**		

Preamble to IR (If Any):

Question:

Please provide a breakdown of the strategies and savings that were realized as part of the $2.64M stretch target budget included in the 2018 GRA.

Rationale for Question:

To understand the Corporation's cost containment measures.

RESPONSE:

Please refer to the section *EXP.3.2 Cost Containment* of Part V Expenses, specifically *Figure EXP-5* on page 16.

PUB (MPI) 1-44

Part and Chapter:	**V EXP Appendix 9-11; PUB (MPI) 1-35 (2017 GRA)**	**Page No.:**	**1, 1-2, 1-2**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Staffing Levels**		

Preamble to IR (If Any):

Question:

a) Please provide an update to staff turnover in PUB/MPI 1-35 (2017 GRA).

b) Please file a copy of retirement statistics over the previous five years.

c) Please indicate the current number of staff eligible for retirement.

Rationale for Question:

To understand Corporation's attrition-based staff reduction strategy.

RESPONSE:

a) For the period March 1, 2018 – June 30, 2018:

Voluntary Turnover	Involuntary Turnover	Retirements	Total	Comments
16	2	37	55	
0.90%	0.11%	2.08%	3.10%	Percentage of overall permanent employee headcount.

b) Retirements over the past five fiscal years:

- 2013/14: 60
- 2014/15: 58
- 2015/16: 44
- 2016/17: 63
- 2017/18: 73

c) There are presently (as of June 30, 2018) 127 employees (including active and inactive employees) who are eligible to retire.

PUB (MPI) 1-45

Part and Chapter:	**V EXP Appendix 16**	**Page No.:**	**1-3**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Basic Capital Expenditures**		

Preamble to IR (If Any):

Question:

For Figure EXP App 16: Basic Capital Expenditures, please elaborate where possible on the root cause of the differences noted for the decreased spending by expenditure type (i.e. internal and/or external factors, change in policy, risk tolerance, etc.).

Rationale for Question:

To better understand the detail behind the significant differences noted for basic capital expenditures.

RESPONSE:

2017/18 Basic Capital Expenditures Variance Analysis

Automobiles

As part of the Fleet Vehicle Reduction Initiative in 2017/18, the Corporation replaced only 3 of the 29 vehicles that were disposed of during the year (as part of normal vehicle turnover/replacement practices), resulting in savings of approximately $733,000 to Basic.

Office Equipment / Systems Furniture

The favorable variance is mainly due to the cancellation of redevelopment projects at Cityplace and lower level space redevelopments at the Main, Bison and Gateway Service Centres. The service centre redevelopments were planned in order to accommodate the relocation of staff as a result of the closure of the Pacific Avenue Service Centre, however, prior to the redeployment of staff into alternate Service Centre locations it was later found that existing space was available and suitable with minimal changes. In addition, approximately $309,000 in savings to Basic were realized through the repurposing of existing inventory as part of the renovations to the Pembina, Brandon and Plessis buildings.

Data Processing

The review and optimization of purchasing resulted in actual spending on data processing equipment being lower than budgeted in 2017/18. The Corporation also moved from hardware appliances to virtual appliances, matched hardware upgrades to capacity and performance needs and, in some cases, deferred equipment upgrades, in favour of maximizing the life span of its current infrastructure.

Land and Building

Land and Building costs are lower than budgeted for 2017/18, as a result of the cancelled or deferred building projects at Cityplace. This was a cost containment initiative which saved Basic approximately $1.3M for the 2017/18 fiscal year. The remaining favorable variance is due to the cancellation of lower level space redevelopment projects at the Main, Bison and Gateway Service Centres.

PUB (MPI) 1-46

Part and Chapter:	**VII LP Loss Prevention**	**Page No.:**	**11**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures** **22. Road Safety Program Costs and Budget**		
Topic:	**Road Safety Expenses**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please indicate the anticipated savings from the use of Predictive Analytics.

Rationale for Question:

To understand the Corporation's success in reducing costs.

RESPONSE:

The Corporation currently applies the Predictive Analytics tool only to Total Loss claims, which accounts for less than 20% of all physical damage claims (approximately 35,000 annually). The Corporation originally projected savings from the use of Predictive Analytics for the Total Loss claim segment at $500,000 annually. This projection was based on a very small data set of savings identified during the pilot period and soft launch of the Tool in late 2017/early 2018. Since that time, and with a larger data set, the Corporation has amended the projection to an annual saving of $250,000 by the end of this fiscal year.

The additional benefits of the Predictive Analytics tool (i.e. stronger referrals, higher success rates and shorter investigation times) continue to trend positively. The Tool permits investigators to conduct their investigations sooner and to focus them through

the identification of better leads. The result is an increase in investigator productivity and an improvement in customer service levels.

The Corporation will continue to optimize its use of Predictive Analytics to reduce claims costs and improve results.

PUB (MPI) 1-47

Part and Chapter:	**VIII AR Appendix 4**	**Page No.:**	**15**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Staffing Levels**		

Preamble to IR (If Any):

Question:

a) Please explain why number of management positions has decreased but employee positions have increased.
b) Please provide details of the improvement initiative efficiencies that will be implemented to reduce staff levels.

Rationale for Question:

To understand Corporation's staff reduction strategy.

RESPONSE:

a) Rationale for Management decrease: Please refer to *Volume I, Overview*, page 6 of the 2018 GRA. By December 2017, the Corporation was able to reduce its management FTE count by 15%. To achieve this reduction in management staff, the Corporation analyzed the span of control across the organization. Human Resources and business leaders then collaborated to identify opportunities to combine leadership portfolios/like functions in order to gain efficiencies and allow leaders to take on broader portfolios.

Rationale for Employee positions increasing: Section 5.1 of *AR Appendix 4* indicates that the number of FTE positions increased by 24 non-management FTEs (from 1757.90 FTEs in 2016/17 to 1781.90 FTEs in 2017/18), which represents a 1.35% change overall in the total number of employees. This increase was required to respond to the various business needs of the Corporation (i.e. increased seasonal demands on driver testing).

b) Please see table below for details of the staffing savings forecast through improvement initiatives

Figure 1: Improvement Initiatives Staffing Efficiencies

Line No.	Improvement Initiatives Staffing Efficiencies	2018/19FB	2019/20F	2020/21F	2021/22F
1	*(C$000s, except where noted)*				
2	Financial Re-engineering Inititiative	-	-	52	318
3	Enhanced DR Capabilities	-	280	280	280
4	Non-Basic Initiatives	-	-	762	762
5	**Total**	**-**	**280**	**1,094**	**1,360**

PUB (MPI) 1-48

Part and Chapter:	**Part V CI**	**Page No.:**	**41-42, 53-54 of 82**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Claims Forecasting**		
Sub Topic:	**Comprehensive Hail**		

Preamble to IR (If Any):

Section CI.10.1.1 references the Corporation's Paintless Dent Repair initiative for minor hail claims which: *has greatly reduced the severity of hail claims.*

Question:

a) Please document the derivation of the forecasted Repair, Total Loss and Total Basic Comprehensive Hail Claim Counts Excluding $0 Claims (as shown in Figure CI-37) from the historical information shown in Figure CI-36 reflecting the Corporation having: *selected a ten-year average of claims and applied the latest repair and total loss ratios of 21% and 79% respectively.*

b) Please discuss the significant drop in Comprehensive Hail Severity Excluding $0 Claims in 2017/18 as shown in Figure CI-48, and how much of this decline is attributable to the Corporation's Paintless Dent Repair initiative. In this context, please also discuss the rationale for the Corporation having: *selected a weighted average severity (33%/67%) of the last two years giving the latest year the most weight.*

Rationale for Question:

To assess the reasonableness of the forecasted Comprehensive Hail frequencies and severities.

RESPONSE:

a) Calculations for the repair and total loss ratios for Basic Comprehensive Hail Claim Counts Excluding $0 Claims are set out below:

Repair ratio 79% = 1,559 / 1,972

Total Loss ratio 21% = 413 / 1,972

The Corporation selected the ten-year average total claims of 6,817 and applied the ratios to create the repair and total loss claim count forecast.

Repair claim counts 5,388 = 21% * 6,817

Total Loss claim counts 1,429 = 79% * 6,817

b) It is unknown how much the Paintless Dent Repair initiative will actually reduce claim severity in the forecast years. As it is not possible to repair all hail damage through the Paintless Dent Repair process (especially severe hail damage), the initiative may not significantly reduce claim severity in years with higher frequency or high intensity hailstorms. It would therefore be inaccurate to assume that claim severity will remain at 2017 levels going forward. As a result, the Corporation selected a weighted average severity between the two most recent years.

PUB (MPI) 1-49

Part and Chapter:	**IV BMK 4.1 , BMK 4.2**	**Page No.:**	**11, 17**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**Corporate and Claims Performance**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please file supplemental tables detailing the MPI data used to calculate each of the benchmarking measures.
b) Please provide the determination of MPI's Benchmarks for 2017/18 and 2018/19, based on the same calculations in (a).
c) Please file the trend analysis report prepared for MPI by Ward Group.

Rationale for Question:

To evaluate the benchmarking information presented and to assess trends.

RESPONSE:

a) Supplemental tables used to calculate benchmarking measures are provided below:

Figure 1: Benchmarking Measures

	Metric	Corporate Performance Measure	Reference	MPI 2012/2013	MPI 2013/2014	MPI 2014/2015	MPI 2015/2016	MPI 2016/2017
Figure BMK-1: Corporate Performance Results	4.1.1	Gross Expense per GPW	K/A	32.00%	30.40%	29.88%	27.89%	27.21%
	4.1.2	Gross Expenses per PIF	K/B	$288	$282	$286	$280	$279
	4.1.3	FTEs per $100M of GPW	J/(A/100,000,000)	153.25	148.33	140.39	130.98	128.30
	4.1.4	Ratio of Staff to Management	I/H	6.83	7.52	7.04	6.64	6.95
	4.1.5	Personnel Expense per FTE	(Q+R+S)/J	$79,275	$77,062	$78,489	$81,626	$81,978
	4.1.6	Loss Ratio	F/G	77.75%	88.42%	82.99%	70.90%	85.66%
	4.1.7	Net Investment Yield	(L+M)/N	5.88%	7.10%	9.13%	-1.44%	6.08%
		Claims Performance Measure						
Figure BMK-2: Claims Performance Results	4.2.1	Claims Expense as a % of GPW	P/A	7.14%	6.82%	6.51%	6.24%	6.02%
	4.2.2	Claims Expense per Reported Claim	P/C	$261.05	$240.62	$253.88	$243.36	$236.18
	4.2.3	Reported Claims per Claims FTE	C/O	332.34	346.56	335.77	360.66	371.02
	4.2.4	Reported Claims per 1,000 Policies in Force	C/(B/1000)	246.22	262.50	244.95	256.93	261.28
	4.2.5	Personal Lines Losses Incurred per Paid Claim	D/E	$3,115	$2,845	$3,063	$2,841	$3,624
	4.2.6	FTEs per 100,000 Reported Claims	J/(C/100,000)	560.21	523.32	547.65	510.86	503.73
	4.2.7	Managers per 100,000 Reported Claims	H/C	71.55	61.45	68.14	66.89	63.39
	4.2.8	Staff per 100,000 Reported Claims	I/(C/100,000)	488.66	461.87	479.51	443.97	440.34
	4.2.9	Total Gross Expenses per Report Claims	K/C	$1,170	$1,072	$1,166	$1,088	$1,068

Please see reference table for calculations of benchmarking measures.

Figure 2: Reference Table

Reference	Performance Measure	2012	2013	2014	2015	2016
A	Gross Premiums Written	$948,818,000	$995,555,960	$1,044,355,916	$1,119,773,285	$1,169,044,267
B	Policies in Force	1,054,164	1,075,008	1,092,920	1,117,449	1,139,589
C	Reported Claims	259,552	282,186	267,715	287,109	297,751
D	Personal Lines Losses Incurred	$649,650,501	$728,014,487	$711,941,729	$660,764,069	$837,497,917
E	Personal Lines Paid Claims	208,531	255,858	232,418	232,568	231,106
F	Net Losses Incurred	$746,482,000	$861,137,764	$846,104,248	$770,488,027	$981,328,426
G	Net Premiums Earned	$960,121,000	$973,922,013	$1,019,553,923	$1,086,733,600	$1,145,638,187
H	Managers FTE	186	173	182	192	189
I	Staff FTE	1,268	1,303	1,284	1,275	1,311
J	Total FTEs	1,454	1,477	1,466	1,467	1,500
K	Gross Expenses	$303,606,584	$302,621,876	$312,058,083	$312,331,785	$318,142,331
L	Net Investment Gain (Losses)	$89,330,000	$175,123,000	$226,150,000	($4,731,000)	$96,635,000
M	Net Unrealized Capital Gains (Losses)	$46,440,000	($4,024,000)	$6,625,000	($32,545,000)	$62,899,000
N	Total Average Invested Assets	$2,307,903,000	$2,409,770,500	$2,549,688,000	$2,595,066,000	$2,624,263,500
O	Claims FTEs	780.99	814.24	797.31	796.06	802.53
P	Claims Expense	$67,755,549	$67,900,187	$67,968,342	$69,872,037	$70,322,837
Q	Salaries	$88,780,115	$89,802,488	$91,748,417	$94,458,362	$97,762,909
R	Benefits	$24,604,254	$21,519,764	$21,572,476	$23,837,377	$23,908,816
S	Overtime	$1,884,153	$2,476,852	$1,754,916	$1,426,967	$1,282,658

b) The Ward benchmarking process does not involve future forecasting of any metrics.

The tables in Part IV (i) BMK 4.1 and 4.2 of the 2019 General Rate Application provide performance measures for 2012/13 to 2016/17. The Corporation will provide the performance measures for 2017/18 and 2019/20 as part of the 2020 and 2021 General Rate Applications respectively.

c) [Redacted. The Corporation is seeking confidential treatment for this item]

PUB (MPI) 1-50

Part and Chapter:	**V REV Appendix 3**	**Page No.:**	**3-5**
PUB Approved Issue No:	**15. Results of the Service Fees Review**		
Topic:	**Adequacy of Current Service Fees**		
Sub Topic:	**Comparison of Total Service Fees Charged**		

Preamble to IR (If Any):

The table provides a comparison of the total service fees charged at MPI, SGI, and ICBC.

Question:

a) Please update the table noted in the GRA REV Appendix 3 (comparison of the total service fees charged at MPI, SGI, and ICBC) supplemented with the year the fees were last established.
b) To what extent has MPI performed cost/benefit analysis that relates to insurance service fees recovering costs of that service?

Rationale for Question:

To understand and evaluate an updated version of the comparison table.

RESPONSE:

a) Please see *GRA REV Appendix 2* for the year the fees were established.

b) This information is contained in *Part V Revenues Appendix 3*, identified in the question. The 2nd column identifies the fees recovered for the service and the 3rd, 4th and 5th columns identify the estimates costs associated with performing the

service. Any additional funds collected through a change in service fees would be offset by an equal reduction in funds collected through premiums, and so would have no effect on overall revenue requirement.

PUB (MPI) 1-51

Part and Chapter:	**V DSR.9**	**Page No.:**	**15**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**DSR Conclusions and Next Steps**		
Sub Topic:	**Public Consultation Efforts**		

Preamble to IR (If Any):

MPI presently anticipates that, by the 2020 GRA, it will be in a position to report on the results of its public consultation efforts, its preliminary research on the no or low cost options as well as on its decision on whether to proceed with data collection for the higher cost options.

Question:

Please provide the current status of the consultation process including any key dates, who will be engaged to assist, and expected timing of public consultation to take place.

Rationale for Question:

To understand details and receive an update on the next steps for DSR public consultation.

RESPONSE:

The DSR consultation process is in its initial stages and key dates and expected timing of public consultation have not been determined at this time.

PUB (MPI) 1-52

Part and Chapter:	**V VFH.7 Figure VFH-2**	**Page No.:**	**16**
PUB Approved Issue No:	**18. Vehicles for Hire**		
Topic:	**Data Collection – Rate Making**		
Sub Topic:	**Insured VFH Vehicles**		

Preamble to IR (If Any):

Question:

Please update Figure VFH-2 to include the detail on each time band, forecasted take-up vs. actual, and revenue expected to be earned vs. forecasted amounts based on experience to date.

Rationale for Question:

To understand the current status and detail related to VFH and insured VFH vehicles.

RESPONSE:

As of July 9, 2018, the numbers of insured vehicle for hire (VFH) vehicles (all territories) are as follows:

Figure 1 Insured VFH vehicles (all territories)

	Number of Time Bands				
VFH Category	1	2	3	4	**Total**
Accessible	1	1	5	78	**85**
Limo	5	1	0	58	**64**
Passenger	18	16	10	394	**438**
Taxi	2	3	5	536	**546**
Total	**26**	**21**	**20**	**1,066**	**1,133**

The Corporation did not forecast the take-up level for VFH vehicles.

PUB (MPI) 1-53

Part and Chapter:	**V VFH.10**	**Page No.:**	**22**
PUB Approved Issue No:	**18. Vehicle for Hire**		
Topic:	**VFH Stakeholder Engagement**		
Sub Topic:			

Preamble to IR (If Any):

Although discussions between MPI and stakeholders have been substantial to date, they remain ongoing, particularly with those in the taxi and TNC industries.

Question:

Please provide an update on the stakeholder consultation for each of the parties.

Rationale for Question:

To receive an update and understand the ongoing stakeholder discussions and progress.

RESPONSE:

The current status of stakeholder consultations is as follows:

- Taxi Industry Representatives – MPI continues to hold quarterly meetings with the taxi industry representatives, with the most recent meeting taking place on June 29, 2018. Topics of discussion have included loss prevention, insurance and downtime rates, taxi damage estimating and repairs.
- City of Winnipeg – MPI continues to work with the City in relation to information sharing and associated data framework.

- TappCar Inc. – MPI most recently met with the two principle owners of TappCar and their local representative on May 10, 2018. Discussions at this meeting centered on their successes in the Manitoba VFH market.

- Cowboy Taxi Ltd. – MPI has occasional telephone conversations with representatives of Cowboy Taxi to answer questions and obtain feedback. The most recent telephone conversation occurred on April 11, 2018.

- Lyft Inc. - Discussions continue with Lyft on opportunities to enter the Manitoba market and operate within the insurance framework established.

- Uber Technologies Inc. – There have been no recent discussions with Uber Technologies Inc.

PUB (MPI) 1-54

Part and Chapter:	**Part V VFH**	**Page No.:**	**Page 14 of 27 in VFH Appendix 1**
PUB Approved Issue No:	**18. Vehicles for Hire**		
Topic:	**Vehicles for Hire**		
Sub Topic:	**Passenger VFH**		

Preamble to IR (If Any):

Figure 2 provides a Summary of the Corporation's Jurisdictional Review of VFH Premiums

Question:

Please discuss the nature and origin of the information shown in Figure 2 for the "Base Rate" and the "TNC Endorsement", and whether the latter amounts are consistent with full time usage as a VFH.

Rationale for Question:

To assess the reasonableness of the foundation for the proposed Passenger VFH rates.

RESPONSE:

The Corporation reviewed rating models and pricing in Ontario, Alberta and Quebec as, at the time, these were the only jurisdictions in Canada permitting the operation of Transportation Network Companies (TNC). The Corporation contacted insurers and agents/brokers in these jurisdictions to obtain quotes and/or estimates. The TNC endorsement premiums are consistent with the premium for a TNC operator in Manitoba that has selected all four time bands.

PUB (MPI) 1-55

Part and Chapter:	**IV BMK Attachment A**	**Page No.:**	**PDF.13**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:			

Preamble to IR (If Any):

MPI's outsourcing costs include a prepayment for future upgrades as part of a 'vitality' clause in the IBM contract, which avoids large single year increases, but presents a higher yearly cost than might be expected.

Question:

a) Please indicate the amount of spending that relates to the vitality clause.
b) Please indicate whether MPI is undertaking an assessment of the competitiveness of the outsourcing and maintenance agreement.
c) Please indicate what true-ups are done to determine any upgrades applied against the amounts determined to be pre-paid under the vitality clause.
d) Please provide the current term of the existing IBM contract.

Rationale for Question:

To understand third party IT vendor costs.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response.]

PUB (MPI) 1-56

Part and Chapter:	**IV BMK Attachment A**	**Page No.:**	**PDF.14**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please explain why the average cost per blended FTE increased from $72,103 in 2015/16 to $95,569 in 2016/17.
b) What analysis is prepared by MPI to determine insource versus outsource of IT functions when it relates to the IT functions that MPI has outsourced?
c) In near future years, the consultants appear to be fixed at 80%. Please explain further the rationale for the constant level.

Rationale for Question:

To understand changes in IT FTE costs.

RESPONSE:

a) In the review of the 2016/17 Infrastructure and Operations scorecard, it was identified that several resources were allocated to Infrastructure and Operations (MPI team) which were not part of the Infrastructure and Operations function (as defined by Gartner). In review of *BMK Attachment A, PDF Page 14* (left chart) you can see how this resulted in a reduction of 52.3 staff in 2015/16 to 35.7 staff in 2016/17. This affected the cost per FTE (right chart) as some of the FTEs that were removed from Infrastructure and Operations, and accounted for in other

areas (such as Security or Application Development / Support) had a lower cost. This is the major factor for the increase in cost per blended FTE from 2015/16 to 2016/17.

For consideration, Infrastructure and Operations is a subset of the overall CIO and Budget score card. This incorrect allocation of resources (between Infrastructure and Operations and other areas) would not impact the overall IT staff counts or cost metrics in the budget score card.

b) As part of the Value Management process, MPI creates business cases to support major change such as the outsourcing of an IT function. The Value Management process outlines the documentation required to support the decision. Please see *CAC (MPI) 1-63 (c)* for additional actions on current agreements. Please see 2017 GRA (Information Technology – IT), IT.1 for details on the usage of consultants.

c) This response assumes the question refers to the following quote: "MPI has embraced outsourcing for 8 of 10 I&O functions … ". These 8 I&O functions are received as part of the IBM data center agreement and are consistent over the duration of that agreement.

PUB (MPI) 1-57

Part and Chapter:	**IV VM.1.1**	**Page No.:**	**9**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Information Security Risk Management**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please provide the Board the Information Security Risk Management Projects including the timing of the associated spending and the cost of each initiative, and if necessary, with a request for confidentiality under Rule 13.

Rationale for Question:

To assess the reasonableness of IT Capital Spending.

RESPONSE:

The following project details were redacted from the Technology Risk Management Initiatives (2018/19) – Value Management Chapter, VM 1.1, page 9. Upon further review, the following information can be partially disclosed to the public, and it has also been provided as part of CAC (MPI)-1-56. Redactions bellow:

Project	**ITBT-2018-010 ITSM Identity and Access Management Self Service Password Reset Management**
Automate common password requests, providing a secure, self-service, password reset solution for requests which are traditionally handled by the MPI IT Service Desk.	

Project	ITBT-2018-025 Data Loss Prevention (DLP)
Implement information security improvements recommended in a 2017/18 DLP strategy, 2018/19 efforts will focus on: • Creation of an implementation and Organizational Change Management strategy for data tagging and classification • Roll-out of the tagging and classification solution to the organization • Creation of an implementation and Organizational Change Management strategy for DLP	
Project	**ITBT-2018-035 Network and Perimeter Security Enhancement**
Review and enhance current network protection processes and technologies with a focus on network and perimeter network security to protect MPI from current, emerging, and future threats. [Redacted. The corporation is seeking confidential treatment for this content].	
Project	**ITBT-2018-043 Security Awareness Activities for Brokers and Partners**
Formalize a Security Awareness Training Program for Brokers and Partners focused on raising awareness around securing and proper handling of MPI / client information as per industry best practices.	
Project	**ITBT-2018-045 Forensics and Vulnerability Assessment**
Acquire and implement tools and processes to enhance workstation forensics capabilities within MPI. Such tools include the ability to examine IT assets using forensics tools. Expand vulnerability assessments and penetration testing against MPI's Internet facing applications (ethical hacking) in order to identity weaknesses requiring remediation.	
Project	**ITBT-2018-046 Workstation Security Enhancement**
Enhance the workstation security through the implementation of a threat analytics software (second generation anti-virus technology) that provides the intelligence to learn, analyze, and identify normal and suspicious user or device behavior. Review the local administrative privileges on workstations in order to develop an approach to address associated risks.	

For financial details please see *Part IV(ii) 04 VM Value Management Appendix 1b Information Security Risk Management FA*

PUB (MPI) 1-58

Part and Chapter:	**IV VM.1.2**	**Page No.:**	**12**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Legacy Systems Modernization**		
Sub Topic:			

Preamble to IR (If Any):

MPI identified in the 2018 GRA that there are concerns regarding IT legacy systems, which are 20 to 30 years old. Replacing these systems could potentially have significant costs. On direction from its Board, Management retained two industry consultants to complete independent assessments of the MPI legacy system risks and to confirm the need for future action to mitigate the associated technical and business risks.

According to the proposed timeline for the project, vendor presentations were to occur in June and September.

Question:

a) Please provide details of the consultants engaged related to the independent assessment of MPI legacy systems.
b) Please file the respective consultants' reports/ presentations and/or resulting business cases dealing with legacy system issues, including details on each of the consultants' responses to the each of the mandate scope established for the project.
c) Please file any internal analysis that was prepared to support the consultants' reports or internally assess the AOL/ CARS replacement.

Rationale for Question:

To understand assessment performed of legacy systems.

RESPONSE:

a) [Redacted: The Corporation is seeking confidential treatment for this response.]

b) Development of the Legacy Modernization business case is still in early stages, and only Deloitte has completed its high level assessment report.

[Attachment A Redacted: The Corporation is seeking confidential treatment for this response.]

c) The Corporation provided background material to both Assessment Vendors but they requested no internal analysis and the Corporation did not prepare any for the assessment engagements. The Assessment Vendors were responsible for performing their own analysis.

PUB (MPI) 1-59

Part and Chapter:	**IV VM.1.4**	**Page No.:**	**23**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Customer Self-Service – Phase 1, 2 and 3**		
Sub Topic:			

Preamble to IR (If Any):

Until a critical mass of over 300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained. The financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

Question:

a) Is there concern that this number will not be met, factoring in marketing costs to get users to use the portal?
b) How many transactions are processed in a year that could be potentially addressed by the self-service component, and what percentage would 300,000 users represent of that total? Please elaborate and provide supporting details where possible in the response.

Rationale for Question:

To understand the details of the cost/benefit analysis related to customer-self services.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response.]

PUB (MPI) 1-60

Part and Chapter:	**IV VM.1.6**	**Page No.:**	**24-25**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Credit Card Strategy**		
Sub Topic:			

Preamble to IR (If Any):

A funding envelope for the Credit Card Strategy was approved in the 2018/19 Capital Budget based upon a particular solution. An alternative, less costly, solution is presently being considered. Management is targeting a completed business case by the Fall 2018.

Question:

Please provide the referenced business case once completed (i.e. credit cards / credit card strategy).

Rationale for Question:

To obtain and understand the details from the business case as they apply to the credit card strategy.

RESPONSE:

MPI will provide the business case once it is completed. Please note that this business case may require confidential filing, but MPI will not know for certain until the document is finalized.

PUB (MPI) 1-61

Part and Chapter:	**IV VM.2**	**Page No.:**	**29-32**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**MPI's Cost Benefit Analysis of Customer Claims Reporting System (CCRS)**		
Sub Topic:			

Preamble to IR (If Any):

The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative.

Question:

a) Please file the detailed cost benefit financial analysis in support of the incremental, life cycle and terminate project perspective.
b) Please explain what was evaluated and determined to be "lite" scope and "full" scope of the CSSR project. Please describe the business solution in terms of lite and full scope.
c) Please provide any further financial analysis that was prepared to support the decision to cancel the CSSR, which has not been provided in the Application.
d) Please provide the amounts written off by major component, including detail of the spending by year, which formed part of the total impairment amount.

Rationale for Question:

To better understand analysis performed on CCSR initiative.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response]

PUB (MPI) 1-62

Part and Chapter:	**IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR Project**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please update the Updated PDR NPV Analysis table including the NPV for PDR from Gartner last year, including the discount rate used by Gartner.
b) Please provide details of the project costs and ongoing costs, and provide a comparison with those costs forecast at the last GRA.
c) Please provide the detailed schedules supporting the NPV analysis this year.

Rationale for Question:

To understand changes in the cost benefit analysis related to PDR.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response]

PUB (MPI) 1-63

Part and Chapter:	**IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

a) Please provide supporting documents for the $20.3M impairment of Deferred Development costs, including working paper files, business case and any analysis performed, as well as details of impairment amount per each project.
b) Please provide detail of the spending by year on each cancelled PDR project.

Rationale for Question:

To understand the impairment analysis performed.

RESPONSE:

a) During the year, the various components of key projects were reviewed in more detail and the following principles (standard practice) were applied to them:

- If there is no future value of the expenditures, then the expenditures were written off
- If the expenditures were research related, then the expenditures were written off
- If the expenditures were to investigate a platform/software that the company did not go forward with, then the expenditures were written off

The result of the review is outlined in the table below. Please see table below:

Figure 1: Impairment of Deferred Development Costs

Line No.	Total Corporate Initiatives	2017/18 Impairment
1	*(C$000s, except where noted)*	
2	Physical Damage Re-Engineering Main/Phase 3	993
3	Financial Re-engineering Inititiative	343
4	SRE Future State	55
5	High School Driver Education Phase 2	2,086
6	Enhanced DR Capabilities	681
7	Customer Claims Reporting System	15,624
8	PDR Opt Repair - Remote Estimating	229
9	HR Management System Phase 3 & 4	247
10	**Total Impairment**	**20,258**

Also please see the response to *PUB(MPI) 1-61 (a)*

b) See table below for the details of the PDR impairments (other than the CCRS, these were not cancelled):

Figure 2: Impairment of PDR Projects

Line No.	Impairment of PDR Projects	2012/13A	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	LTD 2017/18A
1	*(C$000s, except where noted)*							
2	Physical Damage Re-Engineering Main/Phase 3	-	-	-	223	1,018	(248)	993
3	Enhanced DR Capabilities	-	-	-	-	292	389	681
4	Customer Claims Reporting System	46	2,203	3,011	1,975	3,385	5,004	15,624
5	PDR Opt Repair - Remote Estimating	-	-	1	42	70	116	229
6	Total Impairment of PDR Projects	46	2,203	3,012	2,240	4,765	5,261	17,527

PUB (MPI) 1-64

Part and Chapter:	**IV VM Appendix 2a**	**Page No.:**	**5**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**HSDE Business Case**		
Sub Topic:	**Cost Benefit Analysis**		

Preamble to IR (If Any):

MPI has provided a business case for the High School Driver Education (HSDE) Project and indicates a measurable financial benefit of a better prepared driver will result in a reduction of at-fault claims. MPI has stated an increase in supervised practice from 24 to 45 hours is estimated to decrease collision claim risk by two percent (2%) and is supported by evidence as an anticipated outcome for this project.

Question:

a) Please file PD and BI forecast Analysis - HSDE dynamic model vers3.xlsx and explain the forecast level of savings anticipated from the HSDE project.
b) Please file the PD and BI historical - HSDE at-fault claims and costs.
c) Please explain how the Corporation determined a targeted 2% improvement.
d) Please explain why MPI applied a 5% annual increase to claims severity for the years 2021/22 through 2029/30.
e) Please explain how a reduction in 3,000 second attempt in road tests leads to a reduction of 2 FTE.

Rationale for Question:

To understand the forecast of benefits from the HSDE program redesign.

RESPONSE:

a) PD and BI forecast Analysis – HSDE dynamic model vers3.xlsx consists of 20 separate worksheets that forecast PD and BI savings based on changing at-fault claim reduction assumptions from one to 10 percent. VM Appendix 2b (2% PD BI claims forecasting) and VM Appendix 2c (5% PD BI claims forecasting) represent the relevant excerpts of the PD and BI forecast Analysis – HSDE dynamic model vers3.xlsx file.

The forecast level of savings are based on attaining a two or five percent (2% or 5%) improvement in the rate of at-fault claims frequency for drivers who will complete Driver Z (the new program). The calculations as detailed in Appendix 2b and 2c are based on historical at-fault claims experience and related average claim costs for drivers between the ages of 15 to 24 who have previously participated in the High School Drivers Education program.

b) Please see Appendix 1 - PD and BI historical - HSDE at-fault claims and costs

c) The two percent (2%) improvement in the rate of at-fault claims frequency is a best estimate by management based on available evidence of collision reductions associated with the practices and methods that will be incorporated in the new program. Research conducted on the topic of Driver Education, including the "Global Analysis of Emerging, Promising and Best Practices in Driver Education" report conducted by the American Driver and Traffic Safety Education Association for the Corporation in 2013, found that increasing pre-licensing training hours correlates to reductions in automobile accidents. In addition, the Insurance Institute for Highway Safety has quantified the expected change in collision claims and fatal crashes associated with increasing supervised practice hours of driving.

Redesigning the curriculum to focus on the chief factors behind motor vehicle crashes among youth (visual search, hazard detection, speed adjustment, space management, risk perception, traffic safety culture and pro-social driver behaviour) is also anticipated to garner improved collision frequency outcomes.

It is the Corporation's belief that higher order learning methodologies, a focused curriculum on the root and practical causes of collisions, and greater requirements for on-road practice in different conditions will, by extension, produce an improvement in a tangible measurement of at-fault claims. Management will monitor results of this key performance measurement on an annual basis to quantify claims cost savings. Many other factors external to driver education may impact driver behaviour and risk in future (for example the use of personal communication devices or legalization of cannabis); therefore, the Corporation has taken a relatively conservative approach to estimating on the claims improvement front.

While the key benefit drivers for the new HSDE program initiative are primarily focused on delivering exceptional service and product given today's audience, it was important to determine if there would also be a measurable financial benefit for Manitobans. The two-five percent (2% to 5%) improvement in the rate of frequency of at-fault claims for drivers completing the new HSDE program represents such a benefit that we hope to achieve.

d) The five percent (5%) annual increase in claims severity is consistent with the Corporation's claim forecasting results.

e) The FTE reduction estimate assumes that a volume decrease of 1,500 road tests annually will result in enough additional system capacity to trigger one FTE saving. A Driver Examiner's annual capacity for testing can ran range from 400 to 1,000 road tests per year (dependent on multiple considerations, including travel time). By improving the first attempt pass rate we are reducing the number of second, third and, in some cases, multiple road tests that are currently demanded by novice drivers. It is important to note that an improvement in the first attempt pass rate will eliminate the need for road tests spread over multiple locations, hence a full FTE reduction will not be achievable until a decrease significantly exceeds annual capacity; therefore the FTE reduction calculation is conservative.

Total value of all at-fault claims for HSDE drivers in the 15-24 year old age range*
Loss Insurance Years 2012-2017
Collision, Collision with Wildlife, and Collision with Domestic Animals
(Physical Damage)

1	2	3	4	5	6	7	9	10	11
							Col 4 / 7	**Col 2 / 4**	**Col 2 / 3**
Loss Insurance Year	**Incurred to Date**	**Claim Count**	**Customer Count**	**Average Number of Claims per Customer**	# HSDE Customers	Cumulative # of Drivers*	% of HSDE customers with a at-fault claim	Avg Claim per customer	Avg Claim per claim
	HSDE	**HSDE**	**HSDE**	**HSDE**					
2011					4,409				
2012	2,478,503	701	658	1.065	9,595	14,004	4.70%	$ 3,767	$ 3,536
2013	7,866,640	2,123	1,920	1.106	9,317	23,321	8.23%	$ 4,097	$ 3,705
2014	11,461,223	2,927	2,692	1.087	9,086	32,407	8.31%	$ 4,258	$ 3,916
2015	16,844,876	3,930	3,632	1.082	9,247	41,654	8.72%	$ 4,638	$ 4,286
2016	19,680,532	4,686	4,319	1.085	9,523	51,177	8.44%	$ 4,557	$ 4,200
2017	24,604,259	5,545	5,102	1.087	8,025	59,202	8.62%	$ 4,822	$ 4,437
		Three year average 2015 to 2017			8,932		8.59%	$ 4,672	
				Say	9,000				

** This analysis provided by Business Analytics department as of March 2018 from the HSDE data set that was created in May 2011. As a result the "Cumulative # of drivers" total (for the 15 to 24 age group) of 59,202 does not include 5L licensed drivers who earned their licence in 2008, 2009 and 2010.*

The definition of an HSDE Customer for this analysis is:

1. Students who passed In-Car and In-Class portion of the course
2. Age 15-24 years of age with Class 5 Learners
3. Removed students with "Dropped Out", "Cancelled" and "Unregistered" status.

Total value of all bodily injury claims caused by HSDE and non-HSDE drivers in the 15-24 year old age range*
Loss Insurance Years 2012-2017
Collision, Collision with Wildlife, and Collision with Domestic Animals

1	2	3	4	5	6	7	8	9	10
							Col 4/7	**Col 2/4**	**Col 2/3**
Loss Insurance Year	**Incurred to Date HSDE**	**Claim Count HSDE**	**Customer Count HSDE**	**Average Number of Claims per Customer HSDE**	# HSDE Customers	Cumulative # of Drivers *	% of HSDE customers with a at-fault claim	Avg Claim per customer	Avg Claim per claim
2011					4,409				
2012	166,505.80	64	48	1.333	9,595	14,004	0.343%	$ 3,469	$ 2,602
2013	882,417.44	194	145	1.338	9,317	23,321	0.622%	$ 6,086	$ 4,549
2014	1,375,384.81	250	192	1.302	9,086	32,407	0.592%	$ 7,163	$ 5,502
2015	3,347,962.19	373	307	1.215	9,247	41,654	0.737%	$ 10,905	$ 8,976
2016 **	8,473,110.57	376	321	1.171	9,523	51,177	0.627%	$ 26,396	$ 22,535
2017	3,138,816.96	474	389	1.219	8,025	59,202	0.657%	$ 8,069	$ 6,622
			Three year average 2015 to 2017		8,932		0.674%		

** This analysis provided by Business Analytics department as of March 2018 from the HSDE data set that was created in May 2011. As a result the "Cumulative # of drivers" total (for the 15 to 24 age group) of 59,202 does not include 5L licensed drivers who earned their licence in 2008, 2009 and 2010.*

***There was a huge increase of incurred in 2016 as there is an open claim with $490K paid amount* and $4.3M in reserve amount (making the incurred $4.8M)

The definition of an HSDE Customer for this analysis is:

1. Students who passed In-Car and In-Class portion of the course
2. Age 15-24 years of age with Class 5 Learners
3. Removed students with "Dropped Out", "Cancelled" and "Unregistered" status.

PUB (MPI) 1-65

Part and Chapter:	**IV VM Appendix 6; PUB (MPI) I-34 (2018 GRA)**	**Page No.:**	**1-26**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR Project**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

At last year's GRA, MPI provided a Cost/Benefit analysis of the PDR program which indicated a Net Present Value for the Project of $13.5 million. The analysis was provided in response to PUB/MPI I-34 (2018 GRA).

Question:

a) Please provide an update to MPI Exhibit #33, providing a comparison of the forecast staff reductions associated with the PDR and the related change in forecast cost savings.
b) Please explain why MPI is forecasting higher levels of Internal Efficiencies/Process Improvements in 2017/18 through 2019/20 this year versus what was forecast by Gartner last year.
c) Please provide detailed calculations supporting the amounts forecast for reduction in benefits, by program component evaluation.
d) Please explain the changes in the marketplace and trade negotiation forecast behind the major reduction in benefits for Loss of Use.
e) Please provide an explanation of the forecast benefit for Claim Audit Recoveries.

Rationale for Question:

To understand the changes in benefits related to PDR.

RESPONSE:

a) See Below

Figure 1: PDR FTE Reductions Forecast

	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22
PDR FTE Reductions (2018 GRA - MPI exhibit #33)	0	13	19	23	9
PDR FTE Reductions (2018 PDR Analysis & forecast)	3	10	16	21	0

b) In preparing the 2018 PDR financial analysis, the Corporation categorized the updated benefit streams in a manner consistent with the Gartner 2017 PDR evaluation, to ensure a valid comparison. The new claims audit recoveries benefits stream (as described in "e)" below) was not originally forecasted in the most current PDR financial analysis. It is however, an operational realization of the model and focuses on estimate audits. The remainder of the internal efficiencies variance is depicted in a) above with respect to future PDR FTE reductions.

c) Please see *PUB(MPI) 1-62 (c)*

d) Please see *PUB(MPI) 1-69 (d)*

e) The claims audit recoveries are claims costs which are reduced due to audits performed by the claims audit unit. These audit recoveries are claims expenses that would have otherwise been incurred and flowed through to overall claims costs. Initially, incremental claim expense recoveries were not anticipated in the creation of the Center of Excellence. The associated claims expense reductions are a byproduct of the unit's efforts and is therefore attributable as a value benefits stream for PDR.

PUB (MPI) 1-66

Part and Chapter:	**IV VM Appendix 6**	**Page No.:**	**VM Appendix 6**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) For each of the lessons learned in the PDR project, please indicate what specific changes have been made to improve the project evaluation process.

b) How has MPI incorporated changes to incorporate future software licensing, maintenance and operational support resource expenses are properly forecast? In particular, with respect to PDR, what changes were incorporated?

c) What project contingency was used in the PDR? Please describe the changes in project contingency that were incorporated in the evaluation of the PDR project.

d) Please provide the sensitivity analysis that has been performed on benefit streams in evaluating the PDR.

Rationale for Question:

To understand changes in project evaluation.

RESPONSE:

a) The Corporation has recently made very broad changes with respect to Value Management assessment and realization, project delivery governance and is more actively engaging with MPI business stakeholders as key business owners for corporate initiatives. For further information, please see *2018 GRA Volume I Value Management* and 2019 GRA Volume IV Value Management and CAC 1-031 b) for details on the BTO Project Delivery approach, methodology and governance.

Lesson Learned

- Large capital programs like PDR should have iterative business cases with no longer than 3-year project funding/value management period assessments

Actions

- Active engagement (review, approval) of Value Management Office in development of business cases
- Active engagement of business operations in development of business cases
- Formal application of BTO project 'gating' checkpoints and controls

Lesson Learned

- Future software licensing, maintenance and operational support resource expenses need to be properly forecasted and included in financial analysis

Actions

- Active engagement (review, approval) of Value Management Office in development of business cases
- Active engagement of IT operations and Enterprise Systems Support in the review of business case development

Lesson Learned

- Appropriate Discount Rate needs to be applied to financial analysis based on project risk

Actions

- Active engagement (review, approval) of Value Management Office in development of business cases
- Value Management Office has formalized a framework for the application of appropriate discount rates in business cases – See 2019 GRA Volume IV Value Management Appendix 7

Lesson Learned

- Appropriate project contingency percentages need to be incorporated into project cost estimates based on project risks and updated annually based on findings/realizations

Actions

- Active engagement (review, approval) of Value Management Office in development of business cases
- Active engagement of business operations in development of business cases
- Formal application of BTO project 'gating' checkpoints and controls and ongoing reviews of project budget forecast and risks

Lessons Learned

- A sensitivity analysis should be performed with respect to benefit stream projections

Actions

- Active engagement (review, approval) of Value Management Office in development of business cases
  - Include optimistic, realistic and pessimistic modeling of business stream benefits and costs aspects of the business case.
  - Discount rate sensitivity analysis as further explained in d) below.
- Active engagement of business operations in development of business cases

b) As per a) above

c) A project contingency of 20% was utilized as part of the estimating of each major PDR program component. No changes in project contingency were exercised during the execution of the PDR program. In evaluating the NPV and/or financial viability of PDR program components, it was assumed that project contingency would be utilized as part of the program spend.

d) The following sensitivity analyses parameters and scenario analyses were performed in evaluating the PDR program:

- NPV discount rate
- Cash flow (# of years) analysis
- Direct Repair premium paid to repair shops
- Direct Repair % of claims
- Parts – alternative parts utilization rates
- Loss of Use – Daily Allocation Factor (DAF) rates
- Predictive Analytics – loss prevention claims costs impacts and/or recoveries
- Labour rate differentials
- Mitchell licensing MPI vs. shop funded
- Customer Claims Reporting System (CCRS)
  - Customer adoption rates
  - Staff productivity gains
  - Scope alternative “lite” vs. “full”

The results of the sensitivity analysis for the PDR project in terms of discount rates of 6.5% and 9.5% as well as the impact of the cash flow analysis for the 10, 15 and 20 Cost/Benefit years are reported on page 41 of Part IV (ii) Value Management Chapter in the 2019 GRA. Similarly for the CCRS project sensitivity analysis results are reported on page 31 and 32 of said chapter. The supporting documents for the NPV calculations of the PDR project as a whole as well as the CCRS project have been submitted in the confidential filing of responses to PUB (MPI) 1-62 and 1-61 respectively.

PUB (MPI) 1-67

Part and Chapter:	**IV VM Appendix 6**	**Page No.:**	**3**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

Question:

a) Please file the MPI Management presentation regarding the PDR Program to the MPI Board of Directors (dated April 19, 2018) which restated the PDR cost and benefit projections.
b) Please elaborate on the aspects of the agreements in place that limited the Corporation in achieving projected benefits.

Rationale for Question:

To understand changes in PDR project costs.

RESPONSE:

a) [Appendix 1 Redacted. The Corporation is seeking confidential treatment for this response]

b) The Corporation understands this question to pertain to overall net present value impact from agreements in place. While the projected benefits were not limited by the agreements in place, the costs of implementing PDR processes were impacted greatly by two key agreements. The first is the agreement made with the repair shop network in Manitoba that established an $81 premium payable for all claims

processed by a Direct Repair designated shop. This premium applied to all claims done by that shop, not just Direct Repair claims. The Corporation is currently negotiating a new compensation agreement with the repair community effective March 1, 2019. This new agreement will correct this issue, as industry standard is not to pay a premium for this type of estimating service. The second agreement that reduced the PDR net present value was the Mitchell licencing agreement for Collaborative Estimating. This was not included in the economic evaluation of PDR and should have been from the beginning. However, Mitchell estimating software is an industry standard tool for auto insurance and repair networks. Please see PUB (MPI) 1-062 Appendix 2 for Mitchell Licensing cost details.

PUB (MPI) 1-68

Part and Chapter:	**IV VM Appendix 6**	**Page No.:**	**4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

Question:

a) Please identify which costs were excluded from the NPV analysis that was prepared by Gartner last year.
b) Please identify and quantify the changed view on benefits from the project. Provide supporting assumptions behind the changed view.

Rationale for Question:

To understand changes in the PDR business case cost/benefit analysis.

RESPONSE:

a) Please see *PUB(MPI) 1-62 Appendix 1-8* for details. The primary categories of costs which were not included in the NPV analysis prepared by Gartner last year include:

- Direct Repair Operations
- Direct Repair Premium
- Mitchell software licensing
- CCRS software licensing
- Partner Portal software licensing

- Car Part software licensing
- Predictive Analytics software licensing and operations

b) Please refer to *Part IV Value Management Figure VM-1*, and the accompanying commentary.

PUB (MPI) 1-69

Part and Chapter:	**IV VM Appendix 6**	**Page No.:**	**4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

Gartner has reviewed the latest iteration of the PDR Value Management/Business Case data and related assumptions. It would appear that MPI has followed the advice provided by Gartner and applied a more rigorous approach to the PDR business case and application of the Value Management framework.

Question:

a) Please file as a document in this proceeding the Gartner prepared Cost / Benefit Analysis presented at the 2018 GRA.
b) Please indicate who was responsible for the preparation of the Gartner PDR report filed in the 2018 GRA and the report filed in this GRA.
c) Please indicate when the agreement with the repair shops was entered into and explain why Gartner did not review the agreement to inform its 2017 Cost / Benefit Analysis.
d) Please provide the underlying support for the Loss of Use Benefit forecast last year. Please explain what could not be negotiated with repair shops.

Rationale for Question:

To understand changes in the cost/benefit analysis for PDR.

RESPONSE:

a) In 2017, the program was showing a lengthy payback period, an Internal Rate of Return of 7% and a Net Present Value of $13.7M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

Gartner 2017 Analysis

Fiscal Year	Year 1 Actual 2010/11	Year 2 Actual 2011/12	Year 3 Actual 2012/13	Year 4 Actual 2013/14	Year 5 Actual 2014/15	Year 6 Actual 2015/16	Year 7 Actual 2016/17	Year 8 Forecast 2017/18	Year 9 Forecast 2018/19	Year 10 Forecast 2019/20	Year 11 Forecast 2020/21	Year 12 Forecast 2021/22
Benefits							$ 1,120	$ 4,280	$ 5,250	$ 7,970	$ 11,970	$ 13,650
Cost												
Actual and Forecast	$ 40	$ 1,346	$ 3,788	$ 11,831	$ 8,550	$ 7,304	$ 10,476	$ 9,790	$ 6,847	$ 1,547		
Unallocated Budget										$ 3,965		
Total	$ (40)	$ (1,346)	$ (3,788)	$(11,831)	$ (8,550)	$ (7,304)	$ (9,356)	$ (5,510)	$ (1,597)	$ 2,458	$ 11,970	$ 13,650

b) Martin Geffen, Vice President, Gartner Canada Co., authored the 2018 GRA Gartner PDR report. Charles (Chuck) Henry, Vice President, Solution & Pricing, authored the 2019 GRA Gartner PDR report with quality assurance provided by Mr. Geffen and Rand Guy, Senior Managing Partner, Western Canada Energy & Public Sector.

c) The Repair Shop Agreement came into effect on March 1, 2017 and expires on February 28, 2019. The Corporation did not share the repair shop agreement because it did not see the relevance in assessing the PDR program execution. The relevant aspects of the agreement however have been shared with Gartner (i.e. Direct Repair $81 premium, agreement duration, shop KPI's, qualification criterion, claim types eligible)

d) The Loss of Use (LOU) benefit stream projections assume that the Corporation and Manitoba repair shops will agree to transition from the 'touch time' Loss of Use allocation model to the more industry-prevalent Daily Allocation Formula (DAF) model. The DAF model presents an opportunity for repair shops to self-manage LOU expenses and incentivizes them to manage the repair process efficiently. At

this time, the transition remains under review and is the subject of ongoing negotiations with Manitoba repair shops. So as to not prejudice negotiations, and given the low likelihood of this benefits stream being realized, the Corporation removed the forecasted benefits from the 2018 PDR financial analysis.

PUB (MPI) 1-70

Part and Chapter:	**IV VM Appendix 6**	**Page No.:**	**11**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Expenses**		
Sub Topic:	**PDR Project**		

Preamble to IR (If Any):

Question:

a) Please provide details the termination cost of $10.2 million.
b) Please provide the detail of the $16.08 million spent on the CCRS.
c) Please reconcile the difference between the spending used in the “go” vs. “no-go” analysis at $9.6M vs. $16.08M indicated by Gartner at March 31, 2018.

Rationale for Question:

To understand the details of the impairment charge for IT expenditures.

RESPONSE:

a) Please see PUB(MPI) 1-61 (d)

b) See table below:

Figure 1: Customer Claims Reporting System Cost Breakdown

Line No.	CCRS Cost Breakdown	LTD March 30, 2018
1	*(C$000s, except where noted)*	
2	Compensation	836
3	External Labour	12,633
4	Software	2,601
5	Miscellaneous	7
6	Travel	5
7	**Total CCRS**	**16,082**

c) The $9.6M referenced was the projected remaining spend for the CCRS project, whereas the $16.08M was the spend to-date (at March 31, 2018) on the CCRS project.

PUB (MPI) 1-71

Part and Chapter:	**IV VM Appendix 7**	**Page No.:**	**1-7**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Capital Project Evaluation**		
Sub Topic:	**Impaired Securities**		

Preamble to IR (If Any):

MPI utilized a 9.5% discount rate in evaluation of the Cost Benefit of the Customer Claims Reporting System (CCRS) project. In establishing the 9.5% discount rate, MPI noted:

Using the industry average as a hurdle rate will encourage competitive decision making that is comparable to that in the private sector. There is an associated risk that will exist if the Corporation is attempting to meet its social mandate while trying to make decisions using a private sector hurdle rate.

Question:

a) Why was the CCRS project considered high risk?
b) Please indicate where other Corporations apply a similar high discount rate for internal IT projects.
c) Please explain what costs were excluded from the Net Present Value analysis.
d) Please provide the cost benefit analysis for the proposed solution to replace the CCRS.

Rationale for Question:

To understand CCRS framework.

RESPONSE:

a) The CCRS project was considered high risk because of the significant amount of innovation it required and because:

- it involved the development of a new online application to address sophisticated technical requirements not previously offered by the insurance industry, namely the automation of the adjudication claims process using pictures and not text scans;
- it required partnership with a vendor (Mitchell) with no prior experience in this field;
- of uncertainty regarding customer acceptance of the delivered product; and
- the forecasted benefits relied on assumptions regarding significant FTE reductions that were dependent on customer adoption rates and customer acceptance of the automated claims liability assessment provided which would have been 'innovative' in the industry at this time.

b) The Corporation did not classify the project as a purely "internal" IT project. As previously mentioned, Mitchell and other vendors contributed significantly to the development of the CCRS application. However, it is common financial practice to apply a discount rate for all projects a company may pursue, additionally it is common for private enterprises to use discount rates in excess of 10% given their shareholder return expectations and costs of capital. Given the level of identified risk and using the Corporation's discount rate methodology, it deemed the 9.5% rate appropriate. If the Corporation runs a low risk project in the future, it will assign it a lower discount rate following this logic. The rational for discount rate selection on projects going forward is provided in *VM Appendix 7*.

c) The NPV calculation for CCRS does not include $5,306,060 in costs that were incurred from 2012/13 to 2015/16 that were written off in 2018. The Corporation incurred these costs with Fineos in the early development of the Optimized

Adjusting project and should have been categorized separately from CCRS. All other relevant costs are included in this calculation.

d) There is no proposed solution to replace CCRS for online claims service at this time. The insurance industry is testing the ability to scan a customer's free-form text description of the accident and assign a liability score based on that information. As outlined in *IT Appendix 2*, the Corporation prefers to adopt proven mainstream technology in lieu of innovating new technology (essentially following best in class innovations to ensure they work efficiently, before offering them in Manitoba). In the interim, given customer demand, the Corporation will focus its attention on moving other service elements online.

PUB (MPI) 1-72

Part and Chapter:	**IV IT**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Management**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please file an update to PUB/MPI I-29 Appendix 1 and I-29 (c) from the 2018 GRA.

b) Please file an update to PUB/MPI 2-16 (a) & (b) from the 2018 GRA.

Rationale for Question:

To provide an update on project status.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment of this response].

PUB (MPI) 1-73

Part and Chapter:	**IV IT Appendix 2**	**Page No.:**	**4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Strategy**		
Sub Topic:			

Preamble to IR (If Any):

Question:

What is the impact on staffing, processes, technology and cost of the new IT Strategy.

Rationale for Question:

To understand the impact of the new IT Strategy on the Corporation.

RESPONSE:

The financial and staffing impact of the IT strategy is included as part of the budgeting process and Value Management process (via individual business cases).

From a process perspective, there will be ongoing growth and improvement in business capabilities such as self-service to customers, driver education programming, financial reporting, and physical damage controls. These will be delivered through related projects (with associated business cases).

From a technology perspective, the future direction will be significantly influenced by the outcome of the Legacy Modernization Assessment. In the interim, initiatives will leverage / build upon pre-existing software solutions.

PUB (MPI) 1-74

Part and Chapter:	**V EXP Appendix 19; Figure EXP App 19-4**	**Page No.:**	**4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Expenses**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please explain how MPI determined that 80% of operational activities relates to Basic.
b) Please supplement the schedule including the internal FTE and related costs that support operational and IT projects.

Rationale for Question:

To assess the reasonableness of the allocation of IT project expenses to Basic.

RESPONSE:

a) The 80% cost allocation estimate for Basic is based on Basic's proportion of corporate operating expenses. Please refer to *EXP Appendix 7, page 3* which provides support for this estimate.

b) Please see table below:

Figure 1: Basic Initiatives Internal FTE Costs

Line No.	Basic Internal FTE Costs	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A
1	*(C$000s, except where noted)*					
2	Initiatives Internal FTE Costs	889	817	1,139	1,741	1,261

PUB (MPI) 1-75

Part and Chapter:	**V EXP Appendix 19; Figure EXP App 19-2; Figure EXP App 19-4**	**Page No.:**	**2, 4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Expenses**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please provide a schedule of fees paid by consulting professional service firms for the years 2016/17 and 2017/18 identifying the service(s) provided for the fees.
b) Please provide an updated table from PUB/MPI I-32 (2018 GRA) of the IBM Data Centre costs forecast in this GRA with the 2018 GRA Forecast since the inception of the arrangement, though 2019/20.
c) Per review of Figure EXP App 19-2, noted on line 34 the DC IBM charges increase to $500k up from $161k. Please explain the cause of this change.
d) Figure EXP App 19-4, summary of consultant costs and FTE, note (4) indicates "Any changes to the planned improvement initiatives for 2019/20 and 2020/21 will impact the number of consultants." Please summarize the programs or projects that can influence external consultant numbers.
e) Please discuss how the cancellation of CCRS has impacted the use of external consultants.

Rationale for Question:

To understand the level of external consulting expense.

RESPONSE:

a) Please see table below:

Figure 1: Consulting Fees - Basic

Line No.	Consulting Fees	2016/17A	2017/18A
1	*(C$000s, except where noted)*		
2	ITO Operational Activities	4,376	2,568
3	Improvement Initiatives	15,528	11,778
4	*Note: Consulting services rendered for participation on IT operational activities*		
5	*and corporate initiatives.*		

b) Please see table below:

Figure 2: IBM Data Centre Costs

Line No.	Fiscal Year	2019 GRA Forecast/Actual	2018 GRA Forecast/Actual	Variance 2019 vs 2018	% Change
1	*(C$000s)*				
2	**2014/15 (a)**	7,593	7,593	-	0.00%
3	**2015/16 (a)**	9,084	9,084	-	0.00%
4	**2016/17 (a)**	9,700	9,700	-	0.00%
5	**2017/18**	9,337	9,430	(93)	-0.99%
6	**2018/19**	10,840	10,668	172	1.61%
7	**2019/20**	12,239	11,022	1,217	11.04%

c) Please see table below:

Figure 3: IBM Data Centre - Total Corporate

Line No.	IBM Data Centre	2017/18A	2018/19FB	Increase
1	*(C$000s, except where noted)*			
2	IBM Data Centre	161	500	339
3	*The $500,000 IBM Data Centre for 2018/19FB is related to TRM-2017 project*			
4	*This is the estimate for Security Ops Centre; Website redesign & Infrastructure Improvements.*			

d) Please see table below:

Figure 4: 2019/20 and 2020/21 Basic Initiatives

Line No.	Basic Initiatives	2019/20F	2020/21F
1	*(C$000s, except where noted)*		
2	BI3 Fineos Upgrade 2020	941	-
3	Infor Major Upgrade 2022	-	1,628
4	Technology Risk Management - 2019	3,256	-
5	Technology Risk Management - 2020	-	3,256
6	Financial Re-engineering Inititiative	5,460	5,217
7	Customer Self Service	814	814
8	Legacy Systems Modernization	8,140	16,280
9	**Total Deferred Development Costs**	**18,611**	**27,195**

e) MPI's decision to cancel the Customer Claims Reports System (CCRS) project resulted in 8 consultants being released from the MPI account and the reassignment of the remaining 17 consultant resources to new corporate or operational projects based on project resource requirements. The decision also decreased the number of external consultants added to the MPI account to initiate new projects in the corporate project portfolio.

PUB (MPI) 1-76

Part and Chapter:	**Part V RM**	**Page No.:**	**31 of 58**
PUB Approved Issue No:	**20. Capital Maintenance Provision** **2. Rate Indication**		
Topic:	**Capital Maintenance Provision**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please provide supporting documentation for the estimated Capital Maintenance Provision of 3.3%, which the Corporation defines as" *the required rate change to maintain capital adequacy in fiscal year 2019/20.* Please include a detailed derivation of the MCT ratios as fiscal year-ends 2018/19 and 2019/20 (before application of the CMP), including commentary on any significant differences causing a shift in the MCT ratio.

b) Please provide supporting documentation for the comparably derived Capital Maintenance Provisions for each year over the forecast period, with accompanying commentary on any observed changes or patterns starting from the 3.3% assumption used in the Application.

c) From what the Corporation knows of past and current practices followed by Saskatchewan Auto Fund in deriving its Capital Maintenance Provision, how does the Corporation's proposed approach compare?

d) Please prepare an estimated Capital Maintenance Provision, with supporting documentation, following the approach currently in use by Saskatchewan Auto Fund, suitably adapted to Manitoba's Basic Insurance program.

e) Please prepare an alternate overall rate indication, with supporting documentation, incorporating the results from part d) above.

f) Please prepare an alternate overall rate indication, with supporting documentation, incorporating the results from part d) above and the Board approved 50/50 interest rate forecast.

g) The Corporation states: *The Corporation is also in the process of developing a Capital Maintenance Plan, which may result in Capital Build and Release adjustments to the assumed base forecast in future year.* [RSR.4.5.1.1] Please describe the nature and purpose of a Capital Build and Release Provision in a rate setting context, and how this may be adapted to work with a Basic Total Equity target capital range.

Rationale for Question:

To assess the reasonableness of the proposed approach to estimating the Capital Maintenance Provision.

RESPONSE:

a) Please refer to *Appendix 1,* which shows the detailed derivation of the MCT ratios after applying the different required rate changes described in *Part V, Ratemaking, pages 30 and 31.*

The Corporation's approach to determining the Net Capital Maintenance Provision (CMP) is straightforward. Per *Part V, Ratemaking, page 30*, "*…the Net CMP ensures that the Minimum Capital Test (MCT) ratio… at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19."* Per Figure 1, the MCT ratio at fiscal year-end 2019/20 based on breakeven rates is 63.5%. As such, a Net CMP equal to an additional 2.1% required overall rate increase is necessary to make the MCT ratio at fiscal year-end 2019/20 equal to 69.5% (i.e. the same MCT ratio as it was in the fiscal year-end 2018/19).

Per *Part V, Ratemaking, page 31*, "*The Net CMP of 2.1% is comprised of a 1.2% decrease in the required rate change from the investment income earned on the Rate Stabilization Reserve (RSR), offset by a 3.3% increase in the required rate change to maintain capital adequacy in fiscal year 2019/20.*" 3.3% is simply the

difference between the increase of 2.1% from the Net CMP and the decrease of 1.2% from the investment income earned on the RSR.

In respect of capital adequacy, per *Part V, Ratemaking, page 30*, "*The Net CMP is required to maintain capital adequacy in fiscal year 2019/20.*" (i.e. the increase of 2.1% from the Net CMP is required to maintain capital adequacy).

b) Per *Part V, ProFormas, page 6*, based on breakeven rates, including the Net CMP (of 2.1%), the MCT Ratio remains consistently at 70% over the forecast period except for fiscal year 2022/23. As such, no *additional* Net CMP is required for the rating years 2020/21 and 2021/22, assuming that the required overall rate changes for those two rating years is zero. For 2022/23, assuming that the required overall rate change is zero, an *additional* Net CMP rate increase of 1.2%is required.

The rates sought in 2019/20 include a 2.1% Net CMP. The Corporation assumed that this Net CMP amount would remain in the base rates over the forecast period. MPI will however recalculate the Net CMP in each GRA.

c) The Corporation's approach to capital maintenance increases available capital by the amount required to maintain the MCT ratio (i.e. 2019/20 MCT ratio = 2018/19 MCT ratio). In contrast, SAF's approach increases capital available based on the long-term average growth in capital required. The Corporation's approach charges current year policyholders for the cost of capital maintenance in the rating period, rather than basing this charge on the experience of the prior year.

d) Please refer to *DCAT Appendix 1, page 4*. Applying SAF's approach, the long-term annual growth in capital required is 5.98% [= ((382,621 / 303,315) ^ (1/4)) - 1]. This requires a Net CMP of $18.1M [= 303,315 * 5.98%], which is equal to an additional 1.8% required rate increase (compared to 2.1% per MPI's proposed approach).

e) See the response to (d) above.

f) Please see *Appendix 2* to this IR. Applying SAF's approach, the long-term annual growth in capital required is 6.03% [= ((381,891 / 302,191) ^ (1/4)) - 1]. This requires a Net Capital Maintenance Provision of $18.2M [= 302,191 * 6.03%], which equals an additional 1.8% required rate increase (compared to 1.7% per *PUB (MPI) 1-3(d)*).

g) On the assumption the Corporation and the PUB can agree on the methodology for the lower and upper RSR targets; the Corporation would expect the Capital Management Plan to act as follows:

1. Calculate the lower and upper RSR targets *before* the inclusion of any capital adjustments (i.e. 34% to 85% MCT for 2019/20 GRA).

2. Calculate the overall Basic rate indication based on Accepted Actuarial Practice (i.e. e.g. +0.1% for 2019/20 GRA).

3. Calculate the CMP for the rating year such that the MCT ratio remains constant over the rating period (i.e. 2018/19 MCT score is 70%; a 2.1% Net CMP is applied to ensure 2019/20 MCT score remains at 70%).

4. Calculate the Capital Build and Release Provision. The determination of an appropriate Capital Build and Release Provision is dependent on having appropriate RSR target and a Capital Maintenance Provision methodologies approved by the PUB. MPI cannot develop a Capital Management Plan without clarity and confidence in the underlying capital targets and rate setting methodologies that are the basis for the Capital Management Plan. There are multiple approaches to the Capital Build and Release Provision including (i) constantly moving to a target MCT level over a predetermined number of years (similar to SGI); (ii) only applying a Capital Build and Release if the RSR is outside of the approved range; etc. The Corporation will bring a Capital Management Plan to the 2020/21 GRA.

Appendix 1
2019/2020 Rate Change Scenario Comparison
Minimum Capital Test

Column Reference		(a)	(b)	(c)	(d)	(e)
2019/20 Basic Premium Rate Increase		0.0%	0.0%	0.1%	-1.1%	2.2%
		2018 - 2019	2019 - 2020	2019 - 2020	2019 - 2020	2019 - 2020
(All figures in $000s)		Forecast Base Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (02)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	210,765	210,135	211,178	198,620	233,068
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	210,765	210,135	211,178	198,620	233,068
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,485	98,579	97,458	100,540
Unpaid claims	22	194,866	203,516	203,517	203,518	203,523
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	289,525	302,001	302,096	300,976	304,063
Market Risk:						
Interest rate risk	30	4,990	19,656	19,667	19,515	19,917
Foreign exchange risk	32	15,503	15,147	15,147	15,147	15,147
Equity risk	34	68,628	66,694	66,694	66,694	66,694
Real estate risk	36	25,831	26,737	26,737	26,737	26,737
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	114,952	128,234	128,245	128,093	128,495
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,415	60,594	60,660	59,867	62,046
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,415	60,594	60,660	59,867	62,046
Operational risk margin	50	64,656	69,741	69,783	69,284	70,656
Less: Diversification credit	52	53,576	62,009	62,032	61,751	62,520
Total Capital (Margin) Required at Target	59	454,972	498,561	498,752	496,469	502,740
Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,315	332,374	332,501	330,979	335,160
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	303,315	332,374	332,501	330,979	335,160
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(92,550)	(122,239)	(121,323)	(132,359)	(102,092)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	69.5%	63.2%	63.5%	60.0%	69.5%

Column Reference	Scenario	MCT Ratio %
a)	2018/2019 @ Base Forecast (0.0% Rate Change)	69.5%
b)	2019/2020 @ Base Forecast (0.0% Rate Change)	63.2%
c)	2019/2020 @ Break-Even Rate (0.1% Rate Change)	63.5%
d)	2019/2020 @ Break-Even Rate excluding RSR Investment Income (-1.1% Rate Change)	60.0%
e)	2019/2020 @ Break-Even Rate including Net CMP (2.2% Rate Change)	69.5%

Appendix 1a
50/50 Interest Rate Scenario with -0.5% Rate Change
Minimum Capital Test

(All figures in $000s)		2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
		Forecast Base Year (01)	Forecast Year (02)	Forecast Year (03)	Forecast Year (04)	Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	219,790	223,190	220,982	213,045	195,408
Phase-in of capital available	03					
Total Capital Available	09	219,790	223,190	220,982	213,045	195,408
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,018	101,997	106,052	110,289
Unpaid claims	22	191,890	198,314	205,746	213,811	221,500
Catastrophes	24					
Margin required for reinsurance ceded to unregistered insurers	26					
Subtotal: Insurance risk margin	29	286,549	296,332	307,743	319,863	331,789
Market Risk:						
Interest rate risk	30	5,757	21,384	25,137	30,412	33,036
Foreign exchange risk	32	15,622	15,247	16,248	17,315	20,542
Equity risk	34	69,221	67,192	71,715	76,545	86,475
Real estate risk	36	25,962	26,877	27,577	28,509	30,012
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	116,562	130,700	140,677	152,781	170,065
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,399	60,323	62,469	63,974	64,962
Counterparty default risk for off-balance sheet exposures	42					
Counterparty default risk for unregistered reinsurance collateral and SIRs	44					
Subtotal: Credit risk margin	49	39,399	60,323	62,469	63,974	64,962
Operational risk margin	50	64,538	69,311	72,452	75,800	79,581
Less: Diversification credit	52	53,762	62,021	65,366	69,042	73,561
Total Capital (Margin) Required at Target	59	453,286	494,645	517,975	543,376	572,836
Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,191	329,764	345,317	362,250	381,891
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	302,191	329,764	345,317	362,250	381,891
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(82,401)	(106,574)	(124,335)	(149,205)	(186,483)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.7%	67.7%	64.0%	58.8%	51.2%

PUB (MPI) 1-77

Part and Chapter:	**VI INV.17**	**Page No.:**	**81**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Investment Policy Statement**		
Sub Topic:	**Revised Investment Policy Statement**		

Preamble to IR (If Any):

It is anticipated that the revised Investment Policy Statement will be provided as part of the answers to the first round of Information Requests.

Question:

Please provide the revised Investment Policy Statement (IPS).

Rationale for Question:

To note any significant changes to the IPS.

RESPONSE:

Please see the response to *PUB(MPI) 1-31 (b)*.

PUB (MPI) 1-78

Part and Chapter:	**VI INV Appendix 2**	**Page No.:**	**1**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Operational Asset Liability Management Policy**		
Sub Topic:	**Changes to ALM**		

Preamble to IR (If Any):

The Corporation has made changes to the Investment Policy Statement by which:
Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds and floating rate notes to the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.

Question:

a) Please explain the rationale for the changes made to the Operational Asset Liability Management Policy.
b) Please advise as to the implications of removing nonmarketable bonds from the determination of duration matching of interest rate risk.

Rationale for Question:

To understand the changes in the Investment Policy Statement.

RESPONSE:

a) The changes to the Operational Asset Liability Management Policy involved the removal of MUSH bonds from the duration matching portfolio as stated in Section

8.4 of the Investment Policy Statement and in Section III Definitions. Please see *PUB(MPI) 1-29 (a)* for the full discussion.

b) Please see *PUB(MPI) 1-29 (a)* for the implications of removing non-marketable bonds from the duration matching portfolio.

PUB (MPI) 1-79

Part and Chapter:	**VI INV Appendix 13**	**Page No.:**	**9**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Mercer ALM Study**		
Sub Topic:	**New Asset Allocations – Stochastic Modelling and Analysis**		

Preamble to IR (If Any):

Following a thorough review of the relative merits of the asset classes noted above and after considering the purpose of each business line and MPI's risk tolerance and return requirements, Mercer modeled multiple combinations of asset classes utilizing efficient frontier concepts as well as stochastic projections of both assets and MPI's obligations utilizing the economic assumptions outlined in Appendix B.

Question:

Please provide any analysis from the stochastic modelling and stress testing that support the portfolio allocations, if necessary, with a request for confidentiality under Rule 13.

Rationale for Question:

To obtain and understand the stochastic modelling and results of the stress testing.

RESPONSE:

The analysis was provided in *Part VI INV, Appendix 17*, and is reproduced below for convenience.

As provided by Mercer:

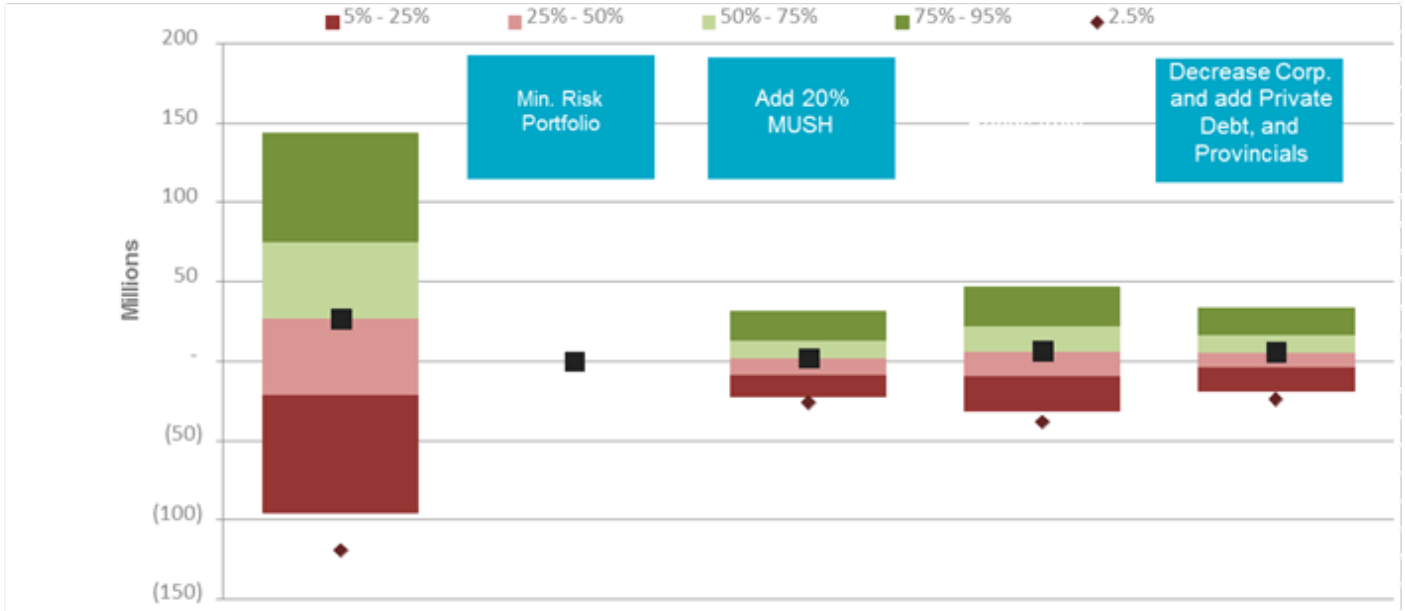
The above excerpt is from the Phase Two Report Section 2 Key Recommendations. Based on the analysis, management recommended the following Policy portfolios for each business line and Pension obligations with the supporting analysis below.

	CURRENT	PROPOSED BASIC	PROPOSED SRE/EXT RSR	PROPOSED PENSION
MIX NAME IN		BASIC.3	R-S-E.1	PENSION.1
Fixed Income	**70%**	**100%**	**50%**	**40%**
Short-term Bonds (Prov.)	6.5%	0%	10%	0%
Mid-term Bonds (Prov.)	12%	28%	10%	0%
Long-term Bonds (Prov.)	29.5%	32%	0%	0%
Short-term Bonds (Corp.)	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0%	9%	10%	0%
Long-term Bonds (Corp.)	2%	11%	0%	20%
MUSH Bonds	20%	20%	5%	0%
Private Debt - Universe	0%	0%	15%	0%
Private Debt - Long	0%	0%	0%	20%
Public Equities	**15%**	**0%**	**35%**	**35%**
Canadian Equity	10%	0%	12%	10%
U.S. Equity	5%	0%	0%	0%
All Country World Equity	0%	0%	13%	18%
Global Equity (Low Volatility)	0%	0%	10%	7%
Alternatives	**15%**	**0%**	**15%**	**25%**
Real Estate	10%	0%	10%	15%
Infrastructure	5%	0%	5%	10%

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

EXPECTED SURPLUS GROWTH
BASIC- 1 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	143.8 M	0.0 M	30.9 M	46.3 M	33.6 M
75th	75.4 M	0.0 M	13.2 M	22.4 M	16.9 M
50th	27.1 M	0.0 M	2.0 M	6.4 M	5.9 M
25th	-22.2 M	0.0 M	-8.5 M	-9.3 M	-4.7 M
5th	-95.2 M	0.0 M	-22.3 M	-31.4 M	-19.3 M
2.5th	-119.5 M	0.0 M	-26.5 M	-38.5 M	-23.9 M

Median

Downside

Assets are modelled to equal liabilities at the start of the projection period.

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

EXPECTED SURPLUS GROWTH
BASIC- 5 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	444.5 M	0.0 M	94.2 M	139.7 M	107.4 M
75th	272.3 M	0.0 M	41.5 M	73.7 M	58.9 M
50th	151.5 M	0.0 M	11.5 M	32.3 M	29.6 M
25th	27.2 M	0.0 M	-14.1 M	-6.8 M	2.9 M
5th	-163.2 M	0.0 M	-44.7 M	-60.8 M	-32.3 M
2.5th	-229.3 M	0.0 M	-53.2 M	-78.3 M	-43.1 M

Median

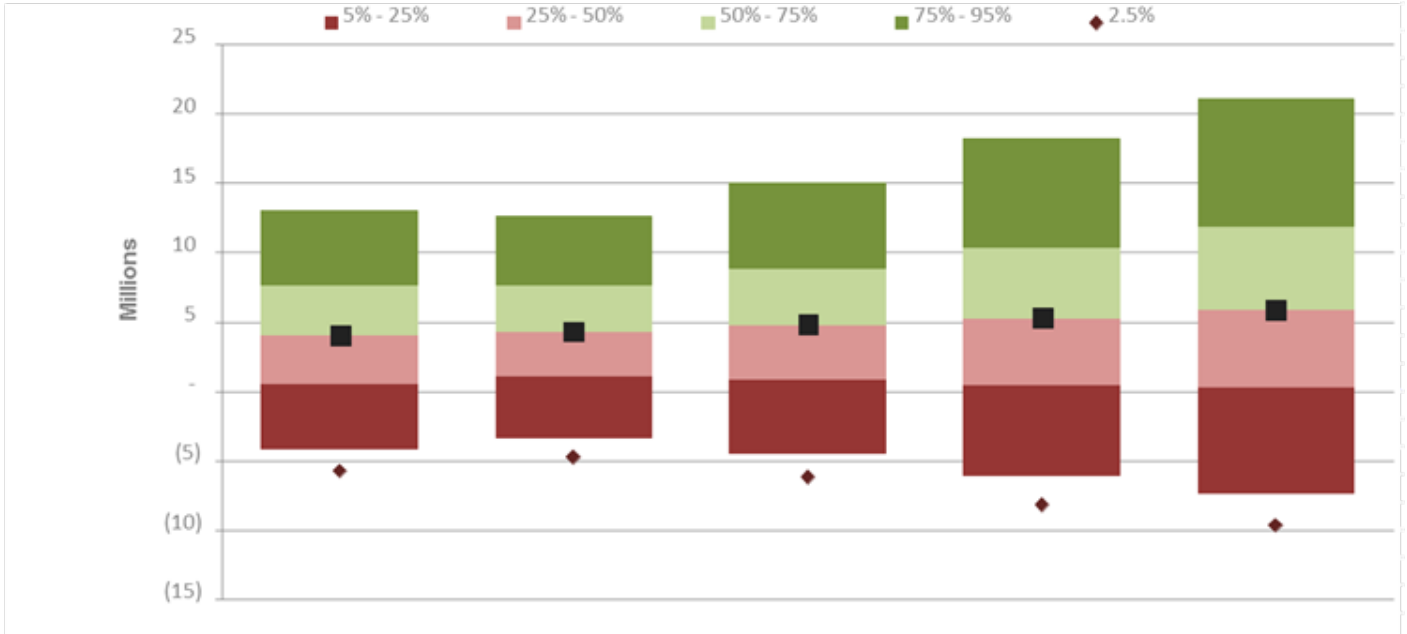
Downside

Assets are modelled to equal liabilities at the start of the projection period.

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

ASSET MIX ANALYSIS
RSR- 1 YEAR PROJECTIONS OF INCREMENTAL RETURN



Percentile	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
95th	13.0 M	12.6 M	15.1 M	18.1 M	21.1 M
75th	7.6 M	7.6 M	8.9 M	10.4 M	11.8 M
50th	4.0 M	4.3 M	4.8 M	5.3 M	5.9 M
25th	0.6 M	1.1 M	0.9 M	0.5 M	0.3 M
5th	-4.2 M	-3.3 M	-4.5 M	-6.1 M	-7.3 M
2.5th	-5.7 M	-4.7 M	-6.2 M	-8.2 M	-9.7 M

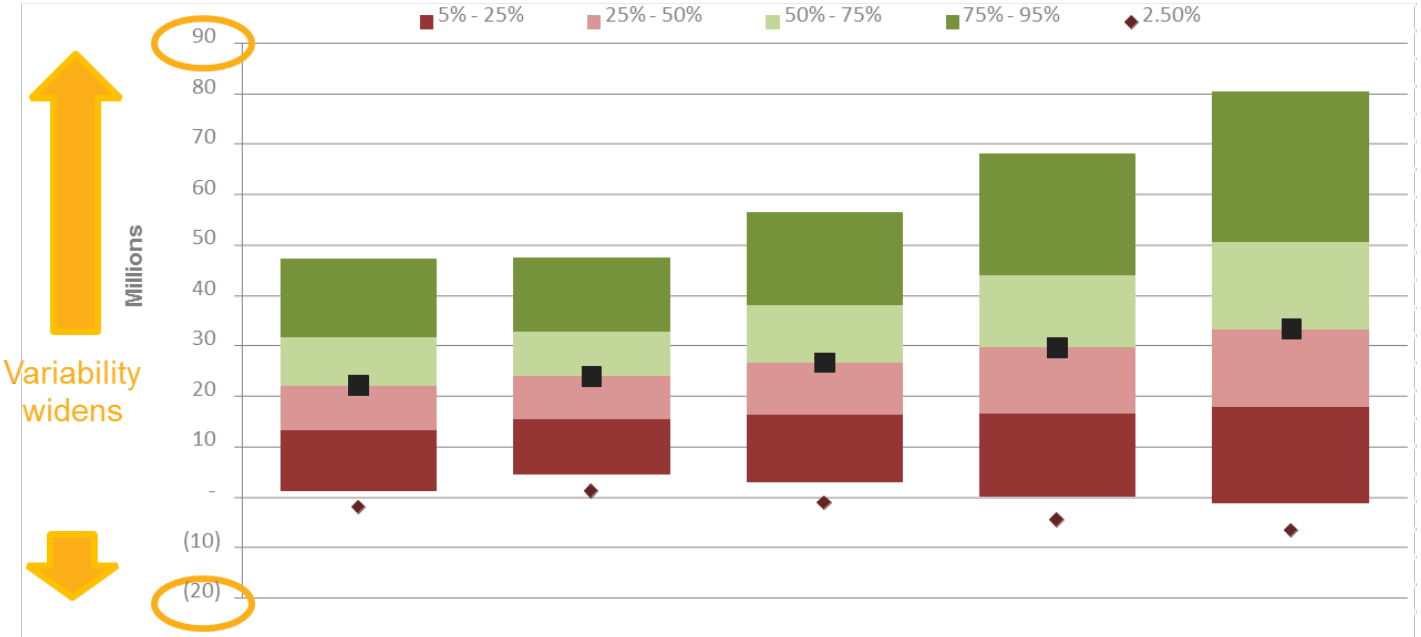
Median

Downside

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

ASSET MIX ANALYSIS
RSR- 5 YEAR PROJECTIONS OF INCREMENTAL RETURNS



Percentile	Current	RSR.1	R-S-E.1	R-S-E.2	R-S-E.3
95th	47.2 M	47.4 M	56.6 M	68.1 M	80.4 M
75th	31.8 M	33.1 M	38.3 M	44.2 M	50.9 M
50th	22.2 M	24.1 M	27.0 M	29.8 M	33.5 M
25th	13.3 M	15.8 M	16.6 M	16.8 M	18.1 M
5th	1.5 M	4.6 M	3.0 M	0.3 M	-1.1 M
2.5th	-2.0 M	1.3 M	-1.0 M	-4.5 M	-6.6 M

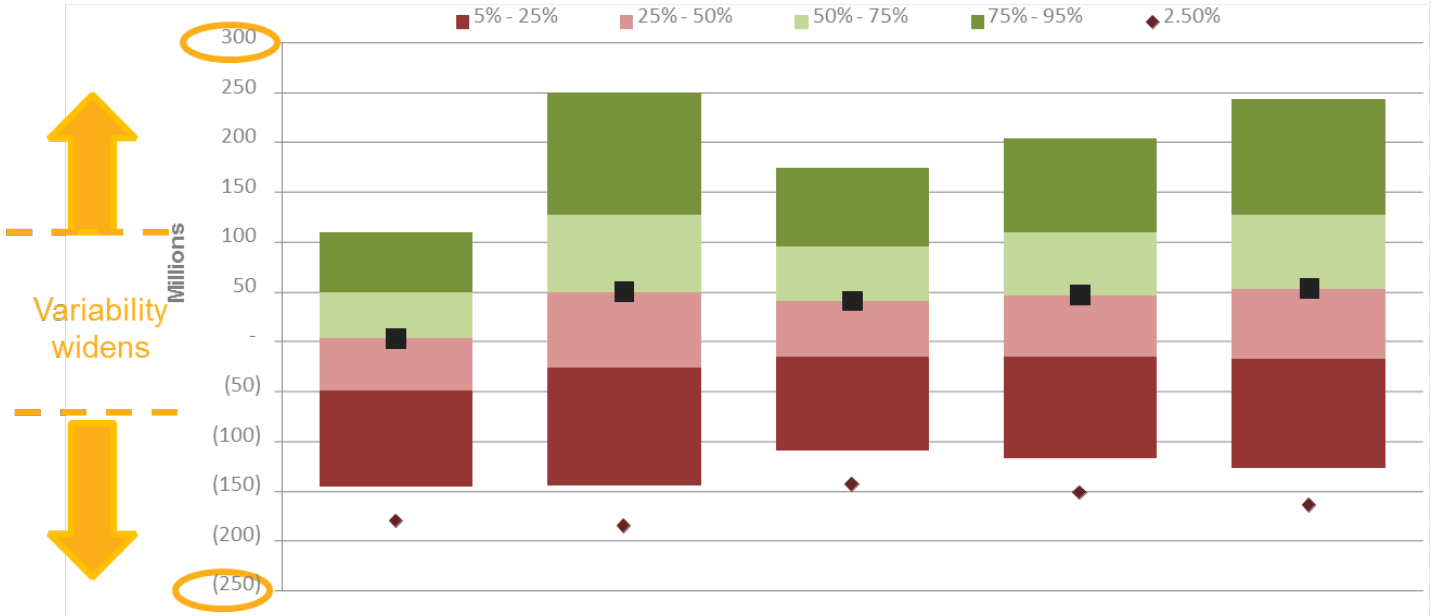
Median

Downside

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

ASSET MIX ANALYSIS
PENSION- 5 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	109.1 M	250.0 M	174.0 M	203.5 M	243.6 M
75th	51.0 M	128.4 M	96.0 M	110.1 M	128.0 M
50th	4.1 M	50.4 M	41.5 M	47.7 M	54.5 M
25th	-50.1 M	-26.5 M	-16.1 M	-15.9 M	-17.5 M
5th	-144.6 M	-143.3 M	-109.5 M	-115.9 M	-126.0 M
2.5th	-180.3 M	-184.4 M	-143.8 M	-151.9 M	-164.1 M

Median

Downside

Assets are modelled to equal liabilities at the start of the projection period.

PUB (MPI) 1-80

Part and Chapter:	**VI INV Appendix 16**	**Page No.:**	**11**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Completion of Recommendations Details**		

Preamble to IR (If Any):

Real Return Bonds (RRBs) have been designated by Mercer to have a strong ability to duration match the inflation-linked liabilities. MPI's proposed Basic Portfolio is based on 100% fixed income securities. Previously the portfolio contained real estate investments as a hedge against inflation.

MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target. RRBs were not considered for this reason, as well as because the real yields on RRBs are currently very low. In addition, the Dynamic Capital Adequacy Test (DCAT) report does not include a high inflation scenario as a significant risk.

Question:

a) Given that the fixed income portfolio is set to back claims liabilities which are impacted by inflation risk, please explain how MPI proposes managing inflation risk with its proposed fixed income portfolio design.
b) Please explain why MPI believes that inflation risk is not a significant risk requiring protection through the investment portfolio.

Rationale for Question:

To understand the new portfolio design.

RESPONSE:

a) The portfolio supporting Basic claims liabilities after February 28, 2019 will include only nominal bonds. Nominal interest rate risk is hedged instead of real interest rate risk.

b) As stated in the Corporation's Rate Application "MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target." Since the Bank of Canada (BoC) adopted its explicit inflation target in March 1991, inflation has averaged at 1.9%. The Corporation therefore believes that the risk of inflation significantly exceeding the BoC's 2% inflation target is low. Further, given the low real yields currently available on Real Return Bonds (RRBs), the cost of obtaining protection from a high inflation scenario is substantial.

Mercer states at page 7 of the Phase 2 Report, that dollar and duration matching of liabilities is "challenging with RRBs. The Canadian RRB market consists of 15 issues of which only 7 are liquid and all are government issued. Further, RRBs are traditionally indexed to Canadian Consumer Price Index, while Basic Liabilities are indexed to other drivers."

PUB (MPI) 1-81

Part and Chapter:	**VI INV Appendix 16 - Appendix F (Efficient Frontiers)**	**Page No.:**	**50-53**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**ALM**		
Sub Topic:	**Efficient Frontiers**		

Preamble to IR (If Any):

Question:

a) Please provide a narrative description of the results presented in the charts, and articulate how the selected portfolio mix represented the best alternative based on the risk reward profile for MPI.
b) Please indicate how the relative charts and portfolio may change if Mercer's SIRF was used in the analysis, rather than the implied forward rate.

Rationale for Question:

To understand the ALM results related to the efficient frontiers.

RESPONSE:

As provide by Mercer:

a) The following is a narrative description of the results presented in the charts.

Page 50: Basic Claims

The Efficient Frontier is based on the Nominal Liability Benchmark for the Basic Claims liability. The frontiers shown are constrained to allow only the fixed income asset classes shown in the table, in order to achieve MPI's objective of minimizing

interest rate risk. The Current mix that currently applies to all business lines, the RSR and Pension fund includes equities and alternatives and therefore appears well above the constrained frontier. The blue efficient frontier includes fixed income asset classes in Current. The green efficient frontier includes the classes included in the blue efficient frontier and private debt and mortgages.

After analyzing the stochastic projections and summary results (see INV Appendix 17 Appendix B), Basic portfolio #3 was selected because it had the highest yield but did not include private debt. Private debt was not included in the Basic Claims portfolio in order to limit risk within the portfolio and because including private debt could complicate the duration matching strategy.

Page 51: Rate Stabilization Reserve

The Efficient Frontier is based on asset only approach, given the nature of the RSR. The blue efficient frontier includes all asset classes in Current. The purple efficient frontier includes the classes shown in the table. After analyzing the stochastic projections and summary results (see INV Appendix 17 Appendix B), RSE.1 was selected because of the high Sharpe Ratio, high probability of positive real return, and relatively more upside than downside. In order for RSE.1 to place on the purple efficient frontier, a small private equity allocation is necessary. Given the size of that allocation and the materially more complicated oversight required, the slight improvement in moving to the purple frontier was not sufficient to warrant the implementation of a private equity mandate.

Page 52: Employee future benefits (primarily pension)

The Efficient Frontier is based on the Nominal Liability Benchmark for the EFB liability. The blue efficient frontier includes all asset classes in Current. The purple efficient frontier includes the classes shown in the table. The Current mix which currently applies to all business lines, the RSR and Pension fund is aligned to the liability characteristics of each component weighted on the size of the liability and therefore Current is more aligned to BASIC claim liabilities rather than EFB liability and therefore Current appears suboptimal when only EFB liabilities are considered. For illustrative purposes, the CSSB asset mix was plotted. In order to move the CSSB plot closer to the frontier, we would need to improve the asset mix

alignment with the liabilities (i.e., better duration match) and we would to use the additional asset classes which offer better expected rates of return and/or enhanced equity portfolio diversification. After analyzing the stochastic projections and summary results (see *INV Appendix 17 Appendix B*), Pension.1 was selected because it had the highest interest rate risk hedge, the probability of surplus and positive real return was not improved in Pension.2 or Pension.3 and relative to CSSB's 5-year projection, Penion.1 has less volatility with similar return.

b) *The **Operational Asset Liability Management Policy:** ICWG Policy #1, Effective March 23, 2016*, states that the objective of this policy is to "minimize the Corporation's interest rate risk, the duration matching portfolio will closely match the claims liabilities in both dollar amount and duration."

Accordingly, the specifics of an interest rate forecast are unlikely to impact portfolio construction unless the forecasts were significantly different (i.e. perhaps one forecasted a significant rise in base rates and the other forecasts a significant decline in base rates) AND the portfolio construction included significant emphasis on minimizing convexity risk.

Given the duration matching objective, the use of Mercer's interest rates forecast rather than the implied forward rates would not have impacted the proposed portfolio.

PUB (MPI) 1-82

Part and Chapter:	**VI INV Appendix 17**	**Page No.:**	**1**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**ALM**		
Sub Topic:			

Preamble to IR (If Any):

It was determined that the risk tolerance of MPI's Board of Directors for the assets backing the Basic claims liabilities was very low and that mitigating risk was more important that maximizing returns. The focus was on further reducing interest rate risk, with a willingness to take on modest credit risk (as long as it is diversified and cost effective).

Based on this risk tolerance, it was determined that the best way to mitigate the interest rate risk associated with the Basic claims liability was to develop an investment portfolio with 100% fixed income assets (i.e. no growth assets) and dollar and duration matching those assets to the claims liabilities.

IFRS 17 requires the discount rate for establishing claims liability to be based on the observable market rates of expected future returns.

In the 2018 GRA MPI indicated it was still assessing the full implications of IFRS 17. MPI anticipates it will provide an assessment of the impacts once the review is complete.

Question:

In light of IFRS 17, please discuss how the accounting changes required in IFRS 17 in determining the discount rate will impact the effectiveness of the current proposed portfolio on mitigating interest rate risk.

Rationale for Question:

To understand the impact of changes in accounting standards on interest rate risk.

RESPONSE:

MPI's evaluation of the proposed changes to IFRS 17 is still in progress. MPI continues to collect information on this topic with the intention of receiving an external opinion on the expected impact of IFRS 17.

At this time, the Corporation cannot commit to having an external impact analysis of IFRS 17 by October 2018.

Please note that the application of IFRS 17 for reporting periods must start on or after January 1, 2021. MPI will apply IFRS 17 for the fiscal year beginning March 1, 2021.

PUB (MPI) 1-83

Part and Chapter:	**VI INV Appendix 17**	**Page No.:**	**3**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio** **21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Inflation Volatility Assumption**		

Preamble to IR (If Any):

The inflation volatility assumption was 2.6%.

Question:

Please provide details on how the 2.6% inflation volatility assumption was arrived at.

Rationale for Question:

To understand the inflation volatility assumption.

RESPONSE:

As provided by Mercer:

Our inflation volatility assumption is based on our analysis of historical data on Canadian inflation going back to 1992. The historical distribution of inflation has tails fatter than a lognormal distribution (high kurtosis). It is also asymmetric (it is skewed to the right). Another key characteristic of inflation is its high serial correlation. Simply put, years of high inflation tend to be followed by years with similarly high inflation, and the same with periods of low inflation. Because of serial correlation, the modeled annualized volatility of a future period increases with the length of the period. 2.6% volatility corresponds to the compounded annualized volatility over the next 10 years.

PUB (MPI) 1-84

Part and Chapter:	**VI INV Appendix 17**	**Page No.:**	**4**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**ALM**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please explain how the portfolio composition changes relative to the efficient frontier, based on utilization of Mercer's interest rate forecast versus the implied forward rates. (i.e., would the use of Mercer's interest rate impact the proposed portfolio from 100% fixed income for Basic, or would it alter the relative distribution among fixed income instruments?)

Rationale for Question:

To understand the impact of utilizing Mercer's standard interest rate forecast on the optimization of the Basic investment portfolio.

RESPONSE:

Please see the response to *PUB(MPI) 1-81(b)*.

PUB (MPI) 1-85

Part and Chapter:	**VI INV Appendix 17 Attachment B**	**Page No.:**	**21-25**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Minimum Risk Portfolios Assumptions**		

Preamble to IR (If Any):

Question:

Please provide a narrative description of the results of the asset mix analysis presented on pages 21 to 23 that support Mercer's portfolio recommendation.

Rationale for Question:

To understand the results of the asset mix analysis.

RESPONSE:

As provided by Mercer:

Page 21

The Current mix applies to all business lines, the RSR, and Employee Future Benefits (EFM) fund. The asset mix is fixed in light of the Basic Claims liabilities and given the duration matching policy, all suggested asset mixes are 100% fixed income. Basic.1 illustrates the impact of no MUSH and minimizing risk. Basic.2 continues to use only provincial bonds but also includes the 20% MUSH which is based on the illiquid nature of the existing investments. Basic.3 includes corporate bonds for yield enhancement. Basic.4 includes private debt for further yield enhancement.

Page 22

Current and alternative asset mixes are compared based on the return and risk metrics developed at the beginning of the project. Note that Current includes equities and alternatives and therefore is not directly suitable for the Basic Claims liabilities. Basic.3 has the highest 1-year Median Surplus and 5-year Median Surplus, as well as, the highest probability of 5-year positive real return.

Page 23

Current and alternative asset mixes are compared based on the projected surplus in 1 year. Note that Current includes equities and alternatives and therefore is not directly suitable for the Basic Claims liabilities. Basic.3 has the highest 1-year Median Surplus while the 1 in 40 year downside (the 2.5th percentile) is tolerable.

PUB (MPI) 1-86

Part and Chapter:	**VI INV Appendix 17 Attachment E**	**Page No.:**	**3**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Investments**		
Sub Topic:	**Min/Max Asset Allocation Constraints**		

Preamble to IR (If Any):

The portfolios based upon Mercer's standard interest rate forecast had 66% to 78% bond allocations with durations of 4.4 to 7.1 years; these portfolios had relatively low hedge ratios (43% to 69%).

The portfolios based upon the forward curve all had durations of 10.3 years and 100% hedge ratios.

Question:

a) Please explain how the forward curve interest rate forecast was determined and provide illustrative supporting calculations.
b) Explain why the forward curve interest rate forecast approach was utilized for modelling purposes, rather than Mercer's Standard Interest Rate Forecast (SIRF).
c) Please advise as to the composition of the optimal portfolio for Basic utilizing Mercer's SIRF.
d) Please provide a narrative description of the comparative risk return metrics and the results of the modelling in Attachment E (Current Asset Classes Only).
e) Please file the chart and related data table detailing its placement relative to the efficient frontier in similar format to that presented in Appendix 16 page 50, using Mercer's SIRF.

Rationale for Question:

To understand the assumptions and details underlying the determination of the minimum and maximum constraints.

RESPONSE:

a) Please see the response to *PUB(MPI) 1-35*.

b) Mercer's standard interest rate forecast assumed a rapid reversion to the long-term mean for interest rates, similar to the chartered banks forecasts. The Corporation believed that the more modest increase in interest rates reflected in Mercer's forecast based upon the forward curve was more realistic. Use of Mercer's standard interest rate forecast resulted in capital losses for the fixed income holdings. As a result of using the standard interest rate forecast, Mercer recommended minimal allocations to fixed income assets and reducing the duration of the fixed income holdings, which was not consistent with the Corporation's desire to hedge its exposure to interest rate changes.

c) Please see the response to *PUB(MPI) 1-81 (b)*.

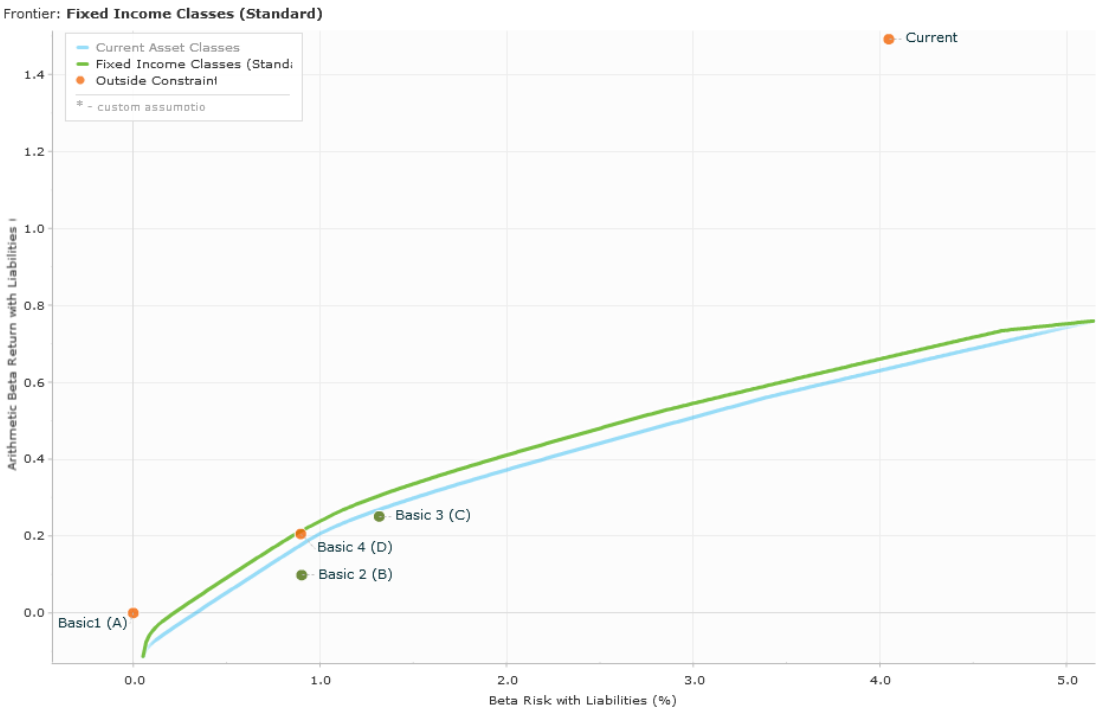
d) As provided by Mercer:

The efficient frontier is based on the Nominal Liability Benchmark for the Basic Claims liability. The frontier shown is constrained to allow currently used asset classes (provincial bonds, corporate bonds, MUSH bonds, Canadian equity, US equity, private equity, real estate and infrastructure). In addition, there was a 10% minimum allocation to MUSH bonds and 15% maximum allocation to alternatives. Portfolio B was selected to show what changes might be made to reduce the surplus volatility without reducing the expected return. Portfolio C was selected to show what changes might be made to increase the expected return without increasing the surplus volatility. Portfolios D and E were showing the impact of adding corporate bonds (higher expected return, but also higher risk). The Current portfolio appeared not very efficient (below the efficient frontier)

because no duration constraint was imposed on the frontier and given Mercer's SIRF (forecasting rising interest rates), the fixed income allocation on the frontier was dominated by mid-term bonds (except in the very low risk area.

e) As provided by Mercer:

The following chart illustrates the efficient frontier corresponding to the chart presented in Appendix 16 page 50, but using Mercer's standard interest rate forecast in place of the assumptions based on implied forward rates. Note that the related data table would be identical, since the composition of the plotted portfolios has not changed.



CAC (MPI)

CAC (MPI) 1-1

Part and Chapter:	**Part I, LA, OV**	**Page No.:**	**LA, page 2, OV, page**
PUB Approved Issue No:	**1. Requested vehicle rate and any changes to other fees and discounts** **14. Risk assessment and risk management** **20. Capital Maintenance Provision** **21. Asset Liability Management Study**		
Topic:	**Consumer/ratepayer engagement**		
Sub Topic:			

Preamble to IR (If Any):

In the 2019 GRA, MPI has requested:

A 2.2% overall increase in Basic vehicle premium revenue (including Vehicles for Hire rates for service) comprised of:

i. 0.1% increase to the break-even cost of policies
ii. 2.1% increase for a Net Capital Maintenance Provision to maintain MPI's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision accounts for the positive impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position

Question:

Please describe in detail all steps taken to engage with Manitoba consumers/ratepayers including, but not limited to, focus groups, stakeholder conversation, quantitative surveys and direct consumer conversations, related to:

a) the overall rate increase sought;
b) the concept of the capital maintenance provision; and

c) risk tolerances related to the basic and pension investment portfolios.

Rationale for Question:

To understand the extent and type of consumer engagement conducted by MPI prior to filing the 2019 GRA.

RESPONSE:

a) through c)

The Corporation did not consult ratepayers/consumers on any of the above noted issues for the following reasons:

- The General Rate Application is an open and public process. Anyone wishing to voice support or opposition to the requested rate change can do so through the PUB's online comment tool, in writing, or in person at the public hearing itself. Anyone wishing to test the rate request can apply for standing as an intervener or, presumably, seek to have an existing intervener advance any concerns on their behalf.

- The rate indication is itself generally treated as confidential by MPI until the time of filing, which necessarily precludes public consultation in advance of filing.

- Technical topics such as actuarial pricing, capital adequacy and investment risk tolerances are unlikely to garner constructive feedback through a public consultation process.

- The regulatory process affords an opportunity for the advancement of the interests of lay members of the public by subject matter experts. The Corporation has focused its effort on the regulatory process, and has taken steps to make its Application content more accessible to the public.

- The Corporation has also participated in technical conferences on matters related to Accepted Actuarial Practice (AAP) and a Capital Maintenance Provision (CMP), that were attended by registered interveners from prior proceedings (please see CAC (MPI) 1-72 for a discussion of the consensus reached at these technical conference).

- The Manitoba Government appointed a Board of Directors who have established the risk tolerance related to the Corporation's investments.

CAC (MPI) 1-2

Part and Chapter:	**PART V, Revenues**	**Page No.:**	**10**
PUB Approved Issue No:	**4. Revenue Forecasts**		
Topic:	**Upgrade Factors**		
Sub Topic:			

Preamble to IR (If Any):

"After remaining very stable at approximately 2.60% per year from 2011/12 to 2015/16, the vehicle upgrade factor fell to 2.23% in 2016/17 and 2.32% in 2017/18. The main cause of the decrease in vehicle upgrade is a drop in the number of customers that 'upgraded' their vehicles (i.e. purchased newer vehicles). From 2011/12 to 2015/16 the average age of an HTA vehicle was stable at approximately 9.92 years; however, in 2016/17 and 2017/18 the average age increased to 10.05 years and 10.21 years respectively. If the 'age of vehicle' distribution had remained the same in 2017/18, then the upgrade factor would have been approximately 2.55%. The Corporation does not anticipate vehicle age to continue this upward trend in future years."

MPI adjusted (decreased) the Upgrade Factor by 0.05% due to vehicle age increasing judgmentally (page 11)

Question:

a. Please provide MPI's rationale for "not anticipat(ing) vehicle age to continue this upward trend in future years".
b. Please assume that the average vehicle age trend will continue at the 2016/17 and 2017/18 pace into the forecasting periods, recalculate and reforecast the Upgrade Factor Forecast and compare to Figure Rev 7 on page 8 or Figure Rev

9 (whichever is correct) and calculate the financial impact based on the revised Upgrade Factor.

c. Please reconcile Figure Rev 7 to Figure Rev 9 and explain any differences.

Rationale for Question:

With improved vehicle technology it may be likely that the age of vehicles may increase and accordingly may impact projected basic insurance premiums due to a lower upgrade factor.

RESPONSE:

a) Throughout MPI's history, the average age of the vehicle fleet has generally fluctuated around 10 years. The Corporation believes that it is inappropriate, for this year's forecast, to assume that, after only a few years of increases in vehicle age, the current trend will continue indefinitely. This assumption would increase the average vehicle age to 11+ years, a figure not previously observed.

b) To model an assumed increase in the average vehicle age upward trend similar to 2016/17 and 2017/18, we have used an approximation of the recent two year average of 2.27% throughout the forecasting period. **Figure 1** below compares the revised upgrade factor to the original form figure Rev-7.The financial impact is a reduction to net income of approximately $4.9 million per year over the 2019/20 and 2020/21 rating years. Please see *Appendix 1* for the Statement of Operations with the revised upgrade factor.

Figure 1:

	Revised Total Upgrade	REV 7 Total Upgrade	Difference
2018/19	2.21%	2.39%	-0.18%
2019/20	2.36%	2.54%	-0.18%
2020/21	2.40%	2.58%	-0.18%
2021/22	2.33%	2.51%	-0.18%
2022/23	2.36%	2.54%	-0.18%

c) The figure REV 7 is the total upgrade factor, which is the sum of the vehicle upgrade factor and the DSR upgrade factor in REV 9. **Figure 2** below shows the relationship between these two tables.

Figure 2:

	(1) Vehicle Upgrade in REV 9	(2) DSR Upgrade in REV 9	(3)=(1)+(2) Total upgrade in REV 7
2018/19	2.45%	-0.06% *	2.39%
2019/20	2.45%	0.09%	2.54%
2020/21	2.45%	0.13%	2.58%
2021/22	2.45%	0.06%	2.51%
2022/23	2.45%	0.09%	2.54%

* Note: The 2018/19 DSR upgrade was adjusted to recognize the introduction of DSR discounts for taxi VFH, limousine VFH, and accessible VFH. The reduction is 0.1%.

PF.1 STATEMENT OF OPERATIONS – 2019/20 Basic Premium Rate Change of +2.2% with Revised Vehicle Upgrade Factor throughout the forecast

Manitoba Public Insurance

Multi-year - Statement of Operations

Line No.	*2019 GRA - 2019/20 Basic Premium Rate Change of +2.2% with revised Vehicle Upgrade Factor as per CAC 1 - 2(b)* *(C$ 000s, rounding may affect totals)*	For the Years Ended February, 2018A	2019BF	2020F	2021F	2022F	2023F
1							
2	BASIC						
3	Motor Vehicles	955,941	1,017,408	1,081,141	1,124,063	1,167,816	1,213,584
4	Drivers	49,946	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	994,593	1,075,114	1,140,624	1,185,300	1,230,658	1,278,030
7	Net Premiums Earned						
8	Motor Vehicles	922,617	990,052	1,051,659	1,104,208	1,147,576	1,192,412
9	Drivers	48,819	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	960,142	1,038,402	1,110,135	1,164,447	1,209,493	1,255,931
12	Service Fees & Other Revenues	22,849	23,799	25,768	27,498	29,357	31,389
13	Total Earned Revenues	982,991	1,062,201	1,135,903	1,191,945	1,238,850	1,287,320
14	Claims Incurred	783,040	853,863	896,982	943,502	992,469	1,044,611
15	DPAC \ Premium Deficiency Adjustment	-	(27,695)	(4,484)	(3,318)	5,024	9,085
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(8,213)	8,598	11,481	10,108	10,058
17	Total Claims Incurred	767,239	817,955	901,096	951,665	1,007,601	1,063,754
18	Claims Expense	143,337	137,168	135,440	139,216	144,345	146,795
19	Road Safety/Loss Prevention	13,146	13,606	12,694	12,818	13,004	13,281
20	Total Claims Costs	923,722	968,729	1,049,230	1,103,699	1,164,950	1,223,830
21	Expenses						
22	Operating	70,201	75,060	73,613	76,313	80,005	82,915
23	Commissions	37,378	40,312	42,600	44,677	46,380	48,135
24	Premium Taxes	29,143	31,488	33,647	35,283	36,641	38,042
25	Regulatory/Appeal	4,443	4,669	4,840	4,998	5,114	5,233
26	Total Expenses	141,165	151,529	154,700	161,271	168,140	174,325
27	Underwriting Income (Loss)	(81,896)	(58,057)	(68,027)	(73,025)	(94,240)	(110,835)
28	Investment Income	111,731	191,769	82,093	84,786	87,658	90,436
29	(b) Investment Income - Interest Rate Impact	4,589	(0)	(1)	(0)	(0)	0
30	Net Investment Income	116,320	191,769	82,092	84,786	87,658	90,436
31	Net Income (Loss)	34,424	133,712	14,065	11,761	(6,582)	(20,399)
32	Total net Impact due to interest rate change (b) - (a)	20,390	8,213	(8,598)	(11,481)	(10,108)	(10,058)

CAC (MPI) 1-3

Part and Chapter:	**Part VIII, Annual Reports, Universal Compulsory Automobile Insurance Annual Report**	**Page No.:**	**6, 30**
PUB Approved Issue No:	**16. Other matters**		
Topic:	**Gross unearned premiums**		
Sub Topic:			

Preamble to IR (If Any):

For 2018, on page 6 of the Compulsory Automobile Insurance Annual report, it indicates a decrease in gross unearned premiums of $34,451,000. Per Note 13 on page 30, it indicates that the gross unearned premiums as at February 28, 2018 are $468,613,000 and at February 28, 2017 it is $434,162,000, an increase year over year of $34,451,000.

Question:

Please clarify the disclosure description in the Compulsory Automobile Insurance Statement of Operations.

Rationale for Question:

To clarify the disclosure description of unearned premium changes in the Statement of Operations.

RESPONSE:

On the Statement of Operations at page 6, the line in question should read:

"(Increase) decrease in gross unearned premiums"

CAC (MPI) 1-4

Part and Chapter:	**Part IV, INV.2.3.1**	**Page No.:**	**29, Fig INV-11**
PUB Approved Issue No:	**4 c. and 4d. Interest Rate Forecast**		
Topic:	**Historical Analysis of the Naive, 50 50 and SIRF Forecasts**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please confirm that the standard error of the naïve interest rate forecast is 0.015 for the period 2005-18 while the standard error of the 50/50 forecast is only marginally higher at 0.016.
b) Please confirm that the forecast differences for the SIRF and 50/50 forecasts are lower than the forecast difference for the naïve forecast for the 2017 GRA and 2018 GRA.
c) Please explain why the historical period from the 2005 GRA to the 2018 GRA was used to assess forecasting performance.
d) Please provide the results for any other historical periods considered to assess forecasting performance.

Rationale for Question:

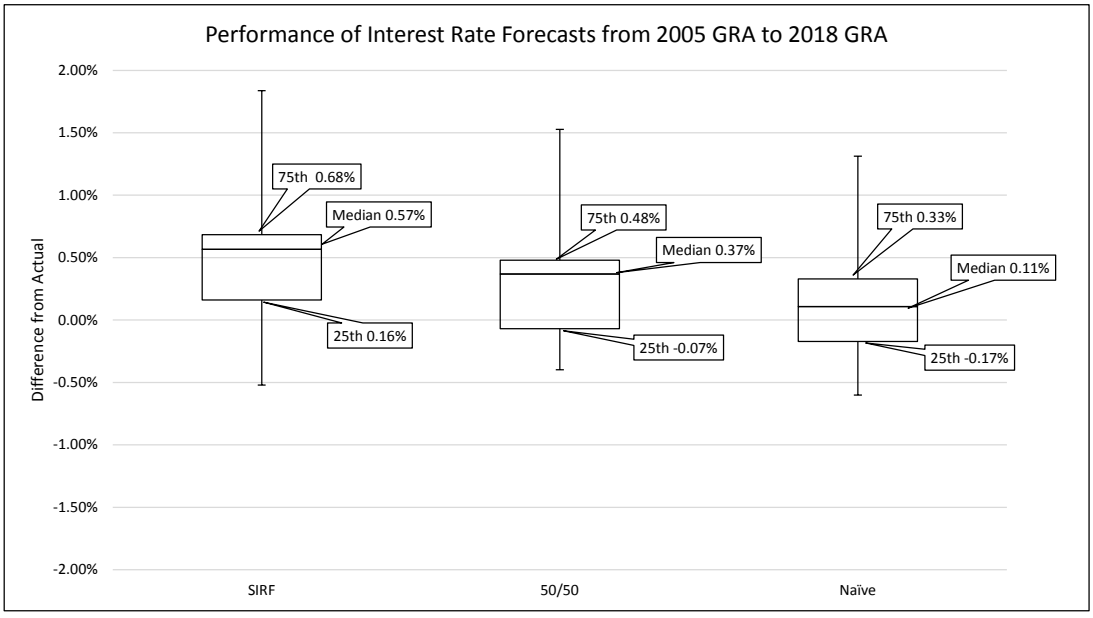
The interest rate forecast is an important component of the ratemaking process and the naïve forecast would replace the conventional practice of relying on a consensus forecast of financial institutions (SIRF), at least partially (50/50).

RESPONSE:

a) The standard error is a measure of variance of a sample. A similar forecast that is always 500 basis points higher than the naive forecast will produce a similar standard error as the naive forecast, even though it is an extremely biased forecast. Please also see the Corporation's response to *PUB (MPI)1-11 (a)*.

The figure below shows how each of the three interest rate forecasts differ from the actual. As indicated, there is marginal difference in the variance between the 50/50 and naïve forecast (as seen by the overall length of the 'whisker' in the box and whisker plot below). However, the naïve forecast is less biased than the 50/50 forecast (given the range of differences of the naïve forecast plots closer to the 'zero difference' line – that is, the 'box' in the box and whisker plot is more centered around the zero difference line) and, as seen in the Corporation's response to *PUB (MPI) 1-11 (a)*, the naïve forecast is statistically less biased than the 50/50 forecast.

Further, the middle line of the 'box', the median, is closest to 0.00% in the naïve forecast, while the 50/50 forecast produced forecasts that are at least 37 basis points higher than actual, 50% of the time.



b) While this is true, it should be noted that between the 2005 and 2018 GRA, the average difference between 1) the SIRF and actual; and 2) 50/50 and actual, is significantly higher than the average difference between the naïve forecast and actual. Specifically, the average difference is 0.54% for the SIRF and 0.34% for the 50/50 forecasts while only 0.15% for the naïve forecast.

c) The Corporation used the historical period from the 2005 GRA to the 2018 GRA to assess forecasting performance, because the Standard Interest Rate Forecast (consensus forecast from the Banks) was not available for the period prior to the 2005 GRA.

d) The Corporation cannot provide the results for any other historical periods considered to assess forecasting performance, as no other historical periods were available. As indicated above, this is because the data determining the Standard Interest Rate Forecast is unavailable for the period prior to the 2005 GRA.

CAC (MPI) 1-5

Part and Chapter:	**RSR.4**	**Page No.:**	**4**
PUB Approved Issue No:	**4 c. and 4d. Interest Rate Forecast**		
Topic:	**Best interest rate forecast estimate**		
Sub Topic:			

Preamble to IR (If Any):

"Further, the PUB ordered a 50/50 interest rate forecasting methodology which the Corporation cannot demonstrate to be a best estimate (based on the evidence observed to date)"

Question:

Please explain what steps MPI has taken to demonstrate that the 50/50 interest rate methodology does not produce a best estimate beyond Fig INV-11.

Rationale for Question:

An assessment of the best forecasting methodology should be robust to the choice of historical period.

RESPONSE:

The Corporation provides the following facts to support its position that the naïve forecast is a best estimate and, conversely, that the 50/50 interest rate methodology is not a best estimate:

1. In the 2017 GRA hearings, the Corporation presented Dr. Sean Cleary, CFA, as an expert witness. A principal finding of his analysis was that "Naïve forecasts

using existing 10-year Canada yields would have improved forecasting accuracy significantly, reducing percentage forecast error by close to 60%." (See 2017 GRA, MPI Exhibit 7, page 4);

2. There is no principled basis to use the 50/50 interest rate methodology over any other judgmentally based blending of the Naïve and SIRF forecasts;

3. In response to *PUB (MPI) 1-11 (a)*, the Corporation demonstrates that the Naïve forecast produces a statistically significant forecast with less error at a 99% confidence level, which the 50/50 forecast does not. In other words, the Naïve forecast produces an estimate that is not statistically different from the actual forecast;

4. The 50/50 forecast produces a forecast with statistically more bias than the Naïve forecast; and

5. MPI's external actuary, Mr. Joe Cheng, endorses the use of the naïve forecast for DCAT base case scenario and has stated that it is the most common approach amongst his property and casualty insurance clients.

CAC (MPI) 1-6

Part and Chapter:	**DCAT.1.7.4**	**Page No.:**	**16**
PUB Approved Issue No:	**4 c. and 4d. Interest Rate Forecast**		
Topic:	**Naïve interest rate forecast**		
Sub Topic:			

Preamble to IR (If Any):

"In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada (BoC), I do not see any material risk in assuming a naïve interest rate as a base case. My initial guess is an increase in interest rates should strengthen the financial position of Basic.
Response: MPI agrees with this assessment."

Question:

a. Please explain whether MPI considers "two recent hikes by the Bank of Canada" to be immaterial to the choice of the naïve interest rate forecast, i.e. that interest rates will not rise again for the next four years.
b. Please explain whether MPI considers the interest rate increase by the Bank of Canada on July 11, 2018 (see: https://www.bankofcanada.ca/2018/07/fad-press-release-2018-07-11/) to be immaterial to the choice of the naïve interest rate forecast, i.e. that interest rates will not rise again for the next four years (even though they just have for the third time).
c. Please confirm that MPI considers the naïve interest rate forecast to be an unbiased forecast, i.e. that interest rates are as likely to fall as to rise over the next four years.

Rationale for Question:

The naïve interest rate forecast is no longer appropriate as interest rates begin to rise.

RESPONSE:

The rationale to this Information Request assumes facts not in evidence and is largely anecdotal. MPIC will confine its answer to the germane portion of the question, in a fair and accurate manner, while making note of the prejudicial effect of the premise.

a. Actual or expected changes in the BOC overnight rate are not material considerations in the selection of a best estimate interest rate forecast. Increases in the Bank of Canada (BoC) overnight rate do not necessarily result in increases in Government of Canada (GoC) 10-year bond yields. To illustrate, the Naïve forecast uses the February 28, 2018 GoC 10-year bond yield (2.24%). The BoC has increased the overnight rate once since then, from 1.25% to 1.50% on July 11, 2018. As of July 20, 2018 (the date of this writing), the GoC 10-year bond yield was 2.18%, 0.06% lower than it was on February 28, 2018 and is so despite the fact that the BoC increased the overnight rate.

   The reasons for selecting the naïve forecast as a best estimate are provided chiefly in *PUB(MPI) 1-11*, *CAC(MPI) 1-4*, and *CAC(MPI) 1-5*, among others.

b. The Naïve forecast is a *neutral* forecast – going forward, the GoC 10-year bond yield could increase, decrease or remain flat. As mentioned in the response to question a) above, it does not necessarily follow that increases in the BoC overnight rate result in increases in the GoC 10-year bond yield.

c. For the purposes of setting rates, the Corporation considers the naïve forecast to be an unbiased forecast. Using the last 14 years of interest rate forecasts as provided in the response to Information Request *PUB (MPI) 1-11*, the naïve forecast produces an estimate that is statistically the same as the actual forecast. That is, the average difference of the naïve to the actual forecast is between 0.48% and -0.17%, with 95% confidence. Contrast this to the 50/50 forecast,

which produces a rate forecast that is significantly more biased than the naïve forecast.

CAC (MPI) 1-7

Part and Chapter:	**PART VI, Investments**	**Page No.:**	**8, 27**
PUB Approved Issue No:	**4.d. Naïve interest rate forecast**		
Topic:	**Naïve interest rate forecast**		
Sub Topic:			

Preamble to IR (If Any):

"The Minimum Capital Test (MCT) ratio will increase by 16% at the end of 2018/19 from 54% to 69% because of lower capital requirements on the Basic line of business investment assets. Interest income is forecasted to increase by approximately $18.5 million on average from 2019/20 to 2021/22 as there will be more fixed income assets in the portfolio supporting the Basic line of business. These projections are based on a Naive interest rate forecast."

"11.19. The 50/50 interest rate forecast shall be used for rate-setting and target capital purposes." PUB Order #130/17 page 96.

Question:

a) Please explain and provide the rationale for MPI believing it has complied with PUB Order 130/17 order 11.19.
b) Please define "best estimate".

Rationale for Question:

To better understand MPI's rationale for not using the 50/50 interest rate forecast in the 2019 GRA

RESPONSE:

a) The Corporation's position is that by Order 130/17, the PUB approved the Corporation's application for driver premiums under the Driver Safety Rating System for the year ending February 28, 2019 and provided specific directions for the Corporation to follow. One of these directions is 11.19, which is reproduced in the preamble above. The Corporation complied with the directions provided, including direction 11.19, as acknowledged by the PUB in Order 134/17, approving MPI's compliance filing to Order 130/17 The Corporation submits that directive 11.19 of PUB Order 130/17 pertains to the rate increase to Basic compulsory motor vehicle premiums for the 2018/2019 insurance year, and that year alone. This is because:

i. Order 130/17 expressly states (see pages 5 and 94 thereof) that the approval of a rate increase for the 2018/2019 insurance year is based on the 50/50 interest rate forecast;

ii. Order 130/17 does not expressly direct the Corporation to use the 50/50 interest rate forecast for any insurance year other than 2018/2019;

iii. Order 134/17 confirms that the Corporation complied with direction 11.19 in Order 130/17; and

iv. Given the unpredictability and dynamic nature of interest rates, use of the 50/50 interest rate forecast beyond 2018/19, it would not be reasonable to interpret direction 11.19 in Order 130/17 as applying indefinitely.

v. The onus to demonstrate that a request for rates is just, reasonable and in the public interest resides with the Applicant, and it follows that an applicant must be able to bring an application with the form and substance it sees fit

b) Best estimate means an unbiased forecast.

CAC (MPI) 1-8

Part and Chapter:	**INV.2.3**	**Page No.:**	**26-29**
PUB Approved Issue No:	**4 c. and 4d. Interest Rate Forecast**		
Topic:	**Naive interest rate forecast**		
Sub Topic:			

Preamble to IR (If Any):

On page 26 of 87 of the Investment Chapter of the GRA, MPI states the following:

> MPI is required to base its rate application on best estimates, and for the 2019 GRA, MPI's management and Board of Directors continue to maintain that the naïve forecast is the best estimate.

Question:

a) Please provide any authority from the Bank of Canada or the United States Federal Reserve upon which MPI relies in support of its use of the naive interest rate forecast as best estimate.
b) Please provide any statements from the Bank of Canada or the United States Federal Reserve over the past 12 months which were considered by MPI in developing its interest rate forecast for the current General Rate Application.
c) Please provide any peer reviewed literature upon which MPI relies in support of its use of the naive interest rate forecast as best estimate.

Rationale for Question:

To understand the basis for MPI's choice to rely on the naive interest rate forecast.

RESPONSE:

a) MPI does not rely on any authority from the Bank of Canada or the United States Federal Reserve to provide support for the Government of Canada (GoC) 10-year bond yield forecast. The Bank of Canada sets the overnight rate, which is not highly correlated with the GoC 10 year bond yield (please see *CAC (MPI) 1-6* for a case in point).

b) In developing its interest rate forecast for the 2019 GRA, MPI considered no statements over the past 12 months from either the Bank of Canada or the United States Federal Reserve. Please also see part a) above.

Dr. Sean Cleary, CFA, the Corporation's expert witness, testified at the 2017 GRA hearing, "Naïve forecasts using existing 10-year Canada yields would have improved forecasting accuracy significantly, reducing percentage forecast error by close to 60%". The Corporation relies on the analysis and findings of Dr. Cleary in support of its position on the use of the naïve interest rate forecast, as well as on updates to this analysis - see *Figure INV-8*. Please also see the response to *PUB (MPI) 1-11 (a)* where the Corporation states that the naïve forecast produces a statistically significant forecast with less bias than the 50/50 forecast, at the 99th confidence level.

c) Please see part b above.

CAC (MPI) 1-9

Part and Chapter:	**Part I, Overview**	**Page No.:**	**3**
PUB Approved Issue No:	**5. Corporate Strategic Plan – new direction**		
Topic:	**New Mission Statement**		
Sub Topic:	**Achieving the new mission of MPI**		

Preamble to IR (If Any):

"The Board of Directors approved a new mission statement focusing on and guiding the core business of MPI:

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

Benjamin Graham was hired by the Board of Directors as the new President and CEO to lead MPI in achieving this mission. Upon Mr. Graham's appointment, the Minister of Crown Services stated:

> *"Mr. Graham's international experience will bring new perspectives to the organization and ensure the Crown Corporation is delivering industry best-practice solutions within the public insurance context that we are so proud to offer to Manitobans.""*

Question:

Please contrast, in a value added context, MPI's current insurance practices to that of "industry best practice solutions within the public insurance context".

Rationale for Question:

To better understand any short comings relating to MPI's current operations and understand the financial and strategic impact of MPI's new direction and potential impact on basic insurance rates.

RESPONSE:

The new mission statement identifies **where** MPI will be focusing its efforts – coverage, service, affordable rates and safer roads. Applying best practices is **how** MPI will focus its efforts in these areas by leveraging the experience of others in identifying areas for improvement in the MPI and Manitoba context. These comparisons should be done across a broad spectrum – national and international / public and private insurance.

MPI is an insurance company. At the core of any insurance company are three fundamentals of the business supported by operational components:

- Underwriting
- Claims
- Investments

Achieving the revised mission of MPI will be accomplished through focusing on core business and applying best practices to the core business where fiscally prudent to do so. For 2018/19, MPI has identified 8 strategic priorities. Each one of these priorities directly relate to at least one of the 3 core elements of an insurance company. The strategic priorities and the core they relate to are:

- Broker negotiations (claims)
- Repair Trade negotiations (claims)

- Customer Experience (underwriting, claims)
- Product Suite Review (underwriting)
- ALM Implementation (investments)
- Claims Cost Control (claims)
- Capitalization (investments)
- Risk Appetite (underwriting, claims, investments)

Over the past year, MPI has, at a more granular level, taken a number of actions focused on improving the management of the core insurance business. See *Part IV(i)01 Service Delivery Model* for a detailed explanation of the various initiatives that have taken place over the past year that are based upon thorough reviews designed to find solutions that add value and improve customer experience. The Value Management Process has been central to improving the management of the core insurance business.

The cancelation of the Customer Claims Reporting System (CCRS) is a tangible example of the efficacy of the Value Management Process for facilitating appropriately measured decisions concerning the future of an IT project.

As stated above, underwriting and claims are core to any insurance company. Best practice requires the insurance company's Chief Actuary to be a member of the Executive with dotted line reporting to the Board's Audit, Finance and Risk Committee. This was implemented within months of Mr. Graham commencing employment at MPI.

An area of concern has been the increase in the number of long-tail bodily injury claims. By focusing on this core issue, staff have identified a two-pronged approach for addressing the problem. As a result, improved reserving process/methodologies have been developed and a PIPP triaging initiative was implemented to identify, at an earlier stage, claimants who maybe in need of specialized medical treatment. The

primary benefit of triaging is that claimants are getting the medical care they need quicker; an ancillary benefit is a reduction in claims costs.

What was a best practice yesterday may not be today. However, it will always be a best practice to have a corporate culture where staff are empowered to continually seek improvement. The culture at MPI is for staff to collaborate, be innovative and accountable. Living this culture requires staff to question existing practices and adopt best practices be it in any of the contexts mentioned earlier. In doing so, MPI will attain its mission of *Exceptional coverage and service, affordable rates and safer roads through public auto insurance.*

That corporate culture applies to all MPI staff, including those involved in the regulatory process. As such, staff will work collaboratively with the PUB and intervenors to be innovative in identifying efficiencies for these hearings. Doing things the same way but expecting different results will not work. Only questioning the status quo and applying best practices will bring about positive change.

CAC (MPI) 1-10

Part and Chapter:	**Part II, Corporate Mission**	**Page No.:**	**3**
PUB Approved Issue No:	**5. Corporate Strategic Plan**		
Topic:	**Investing in People**		
Sub Topic:			

Preamble to IR (If Any):

"Investing in People

- *We empower our employees to provide excellent service. We work together with business, community and road safety partners to fulfil our mission."*

In the past 3 to 5 years MPI engaged in excess of 100 consultants who appeared to have all kinds of excellent skills, but may be lacking in the nuts and bolts skills of running MPI business operations. While these consultants were put in charge of leading MPI business projects and even operations, MPI employees seemed to operate on the side lines.

MPI should be commended that in 2018 Senior Management and the Board of Directors of MPI are, once again, investing in and empowering their employees to run the business of MPI.

Question:

a) Please file a copy of the most recent employee opinion survey, if available, and comment on the results of this survey. If the survey has not taken place, please advise when it may take place and if MPI is willing to share an executive summary of the results.

b) Please provide a brief commentary on the types of investments MPI is making or is planning on making in its employees, the expected results from these investments, and the impact on the need of external consultants.

Rationale for Question:

The employees of MPI, properly trained, provide excellent service to customers and have intimate underwriting and claims field (physical vehicle damage and personal injury adjudication) knowledge. The wisdom gained from this knowledge is input to premium and claims forecasting and cost control and ultimately can positively impact basic insurance rates. To better understand MPI investment in their employees and the expected results going forward.

RESPONSE:

The preamble and rationale to this Information Request assume facts not in evidence and is largely anecdotal. MPI will confine its answer to the germane portion of the question, in a fair and accurate manner, while making note of the prejudicial effect of the premise.

a) MPI has partnered with IBM Kenexa to deliver three surveys between 2015 and 2019. The first survey, completed in 2015, showed an employee participation rate of 86% and an employee engagement rate of 68%. Though positive, management sought to increase employee engagement in order to enhance employee experience and organizational effectiveness. The Corporation enacted a plan to accomplish this and completed a follow up survey in fall of 2016. The results of this survey were outstanding. Employee participation rose to 91% while employee engagement rose to 73%.

b) MPI strives to create and renew a culture of excellence in an effort to attract, retain and motivate top talent. Investment in talent management strategies are designed to ensure the Corporation maintains a complement of employees with the required skills and abilities to meet the changing needs of the business. The need for external consultants depends on the capital

expenditure and the Corporation limits the use of external consultants to situations where the demand for specialized talent is higher than expected or cannot be met through our current workforce or even in the current labour market.

CAC (MPI) 1-11

Part and Chapter:	**Part III, Basic Autopac Coverage and Benefits**	**Page No.:**	**17**
PUB Approved Issue No:	**5. Corporate Strategic Plan / 2018/19 Annual Business Plan**		
Topic:	**Corporate Priority Review**		
Sub Topic:	**Product Suite Review**		

Preamble to IR (If Any):

"• Product Suite Review
  - o A comprehensive product review is underway, still in its infancy. This review will look for opportunities within the Basic Compulsory, Autopac Extension and SRE insurance products and will specifically consider:
    - o PIPP entitlements and coverage
    - o Basic deductible, TPL, First-Party all-perils coverage MIV
- Appeal Process Review (PIPP and Physical Damage)
  - o A comprehensive review to simplify and improve the various appeal processes for physical damage claims
  - o A review to create efficiencies in the PIPP appeal process."

Question:

Please file a copy of the Project Charter relating to the Product Suite Review.

Rationale for Question:

To better understand the details of the Product Suite Review and the potential impact on basic insurance claims incurred going forward.

RESPONSE:

The Corporation does not have a Product Suite Review Project Charter at this time. The Corporation will file the Project Charter within this proceeding, if possible.

CAC (MPI) 1-12

Part and Chapter:	**RSR.4**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**RSR lower threshold**		
Sub Topic:			

Preamble to IR (If Any):

"The methodology ordered by PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million, which is below the amount of $143 million required for satisfactory financial condition."

Question:

a) Please explain the term "satisfactory financial condition" in the context of the lower RSR target and the RSR purpose "to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors"
b) Please explain why the 2019 lower RSR target of $120 million is unsatisfactory in the context of the RSR purpose.

Rationale for Question:

The concept of satisfactory financial condition in the context of the RSR/DCAT methodology needs to be clarified.

RESPONSE:

a) The Corporation's Chief Actuary has determined that Basic requires an absolute minimum RSR balance of $143 million as of the beginning of the 2019/20 fiscal year in order for it to remain in satisfactory financial condition. In this context, the term "Satisfactory financial condition" means that, under the base scenario:

- the insurer meets the PUB's assumed minimum Rate Stabilization Reserve (RSR) target; and
- in all plausible adverse scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities. Scenarios of which were modelled in accordance with accepted actuarial practice in Canada.

The $143 million minimum RSR required for Basic to remain in a satisfactory financial condition is not the "optimal" amount to satisfy the purpose of the RSR. Maintaining anything less than this amount would require the Corporation to report that Basic insurance is in an unsatisfactory financial condition. Should this occur, MPI would either need to request RSR rebuilding fees from Basic rate payers, or consider other options (i.e. transferring funds from other lines of business). Maintaining the RSR at minimum levels does not protect rate payers against rebuilding fees. With no buffer to absorb rate volatility, the RSR is rendered ineffective.

The lower RSR target methodology previously ordered by the PUB (Order 130/17) establishes an RSR target that is already below what is required for satisfactory financial condition. This Order was understood to say that the PUB accepts it is appropriate to (i) report unsatisfactory financial condition for Basic and (ii) reject an RSR rebuilding fee (in some cases) despite the Corporation having unsatisfactory financial condition. The Corporation cannot support this position.

b) See part a).

CAC (MPI) 1-13

Part and Chapter:	**RSR.4**	**Page No.:**	**5**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**The minimum RSR target**		
Sub Topic:			

Preamble to IR (If Any):

"In order for the RSR to be effective, and reduce the incidence of RSR rebuilding fees, the total equity balance of the RSR cannot be at or about the minimum RSR target for a material period of time."

Question:

a) Please explain what is meant by "a material period of time"
b) Please explain why the minimum RSR target level does not provide effective protection again risk as defined by the purpose of the RSR.

Rationale for Question:

To clarify MPI's statement in the preamble.

RESPONSE:

a) Please see CAC (MPI) 1-12.

The purpose of the RSR is:

To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results

and due to events and losses arising from non-recurring events or factors

In this context, the term "material period of time" means that the RSR balance would be expected to move away from the minimum RSR level toward the 'optimal' target RSR over a pre-determined period of time that balances both the need for adequate capital and the potential for rate shock. It should never be the 'plan' for the RSR to remain at the minimum RSR balance for any period of time within the Corporation's control (e.g. within the time period that MPI is able to apply for rate changes or apply rebuilding fees). Operating at the lower RSR target (as opposed to further within the range of the lower and upper RSR target), would not permit MPI to effectively manage the inherent volatility of the business. Operating at the lower RSR target level also offers no protection from the risk the RSR seeks to avoid, that is, falling below the lower RSR target triggering the requirement for RSR rebuilding fees.

The amount of time that it takes to move toward the 'optimal' RSR target, along with the proposed definition of 'optimal RSR target', will be determined as part of MPI's Capital Management Plan. For example, the Capital Management Plan would propose that it is reasonable to build or release capital to the target level over 'X' years subject to a maximum annual RSR build or release of 'Y' percent. MPI will provide a Capital Management Plan in the 2020/21 GRA.

b) See part a) and *CAC (MPI) 1-12*.

CAC (MPI) 1-14

Part and Chapter:	**Part VI, RSR**	**Page No.:**	**9**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**Establishing a MCT ratio as a dynamic RSR target**		
Sub Topic:			

Preamble to IR (If Any):

"This calculated minimum Total Equity balance is then converted to a Minimum Capital Test ratio of 34% for the purposes of establishing a dynamic RSR target. The selected 1-in-40 year risk tolerance is supported by MPI and the PUB based on Board Order 128/15.

Question:

a) Please clarify whether a 34% MCT ratio represents "a dynamic RSR target" going forward, i.e. beyond 2019?
b) Please explain how a 34% MCT ratio would necessarily reflect a minimum Total Equity balance based on a 1-in-40 year risk tolerance beyond 2019.

Rationale for Question:

The 34% MCT ratio does not reflect the risk assessment provided by the DCAT. Rather, it is a result of the lower RSR target calculation derived from the DCAT.

RESPONSE:

a) The Corporation does not suggest that a 34% MCT ratio will necessarily 'dynamically' respond to changes in the Basic risk profile in future years (i.e. beyond 2019). However, absent any significant changes in the risk profile, the

Corporation believes that using the MCT ratio as a means to express the dollar estimates of the minimum RSR target results in a best estimate. The MCT ratio will adjust the capital targets in future years based on growth in the balance sheet, producing a more appropriate forecast. Despite this, the Corporation intends to continue performing the DCAT analyses in each GRA to confirm the most appropriate target for the rating year.

b) A 34% MCT ratio may not reflect a minimum Total Equity balance based on a 1-in-40 year risk tolerance beyond 2019. The Corporation believes however that the MCT ratio is a "best estimate" assumption. As indicated in *Part VI RSR 4.6 Figure RSR-11*, there is a strong directional linkage between the estimated 1-in-40 DCAT-based minimum RSR target and the capital required for 100% MCT. Both estimates declined by approximately 30%, based on the forecasted implementation of the Corporation's new investment portfolio.

CAC (MPI) 1-15

Part and Chapter:	**DCAT.1.8**	**Page No.:**	**18**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**Recommendation #3**		
Sub Topic:			

Preamble to IR (If Any):

"The Corporation should convert their proposed dollar-based RSR targets into MCT-based RSR targets. MCT-based targets create a dynamic RSR target that responds to changes in risk level and can be more directly compared with other insurers."

Question:

Please explain how any specific MCT ratio would necessarily reflect the minimum Total Equity balance based on a 1-in-40 year risk tolerance consistent determined by the current DCAT methodology for the calculation of the RSR target range in 2020 and beyond.

Rationale for Question:

The MCT ratio does not reflect the risk assessment provided by the DCAT. Rather, it is a result of the lower RSR target calculation derived from the DCAT.

RESPONSE:

Please also see the Corporation's response to Information Request *CAC (MPI) 1-14*. The Corporation uses the MCT ratio as a means to forecast future DCAT-based RSR target calculations. The Corporation does not take the position that the MCT ratio can

replace the DCAT exercise in 2020 and beyond. The 34% MCT ratio is derived from the 1-in-40 DCAT scenario.

CAC (MPI) 1-16

Part and Chapter:	**DCAT.1.8**	**Page No.:**	**18**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**Significant adverse claims costs event**		
Sub Topic:			

Preamble to IR (If Any):

"If there is a significant increase in projected claims costs, management should be prepared to increase rates as quickly as possible."

Question:

a) Please explain how this condition differs from, and is not captured by, the high-loss adverse scenario in the DCAT.
b) Please explain how the DCAT methodology might be adapted to capture this risk if it is not captured by the current high-loss scenario.

Rationale for Question:

Risks to MPI should be captured in the DCAT methodology and the RSR determination as much as possible.

RESPONSE:

a) MPI views the recommendation from the Chief Actuary (that the Corporation be very responsive to the latest claims trends in its pricing, specifically in light of the break-even pricing of the Basic product) as the natural response to adverse claims trends or events. Notwithstanding its use of the high-loss adverse scenario in the

DCAT, MPI would still be expected to make best estimate forecasts and apply for break-even rates per Accepted Actuarial Practice, in each GRA.

b) The DCAT captures the management response to adverse claims trends, specifically in the 3 and 4 year adverse scenarios. This is one of the main reasons why the 3 and 4 year adverse scenarios are the most significant *before* management action (i.e. because assumed rate increases are applied in years 3 and 4). The most adverse scenario *after* management actions is the two-year scenario. Given the period of time between the Corporation's rate application and the earning of the Basic policy revenue, MPI cannot immediately respond to sudden, unexpected increases in claims costs. Generally, a minimum 12-36 month delay period can be expected (i.e. if the 2018/19 actual results are poor, MPI will apply for rate changes in 2020/21, which will earn over 2020/21 and 2021/22).

CAC (MPI) 1-17

Part and Chapter:	**DCAT.6**	**Page No.:**	**72**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**Maximum Capital Target**		
Sub Topic:			

Preamble to IR (If Any):

"The DCAT-based minimum capital target utilized by the PUB is, by definition, calculated to be the absolute minimum amount of capital *including* management action that Basic can hold to withstand all 1-in-40 adverse scenarios. This minimum amount should never be considered an optimal capital level for a financially prudent entity. A capital range above the minimum amount is needed for the Corporation to be fiscally responsible and to allow the Rate Stabilization Reserve to achieve its purpose."

Question:

a) Please clarify that the minimum capital target is calculated from the DCAT determination of the Total Equity required to withstand all 1-in-40 adverse scenarios, i.e. it is derivative of the DCAT calculation of the lower RSR target threshold.
b) Please explain the time horizon over which "the minimum capital target should never be considered an optimal capital level"? Any one year?
c) Please explain the value of the minimum capital target to the determination of sufficient Total Equity if the minimum is never optimal.

Rationale for Question:

To clarify the concept of a minimum capital target and its relationship to the RSR lower threshold level.

RESPONSE:

a) The minimum capital target methodology, *as proposed by MPI* is a calculation from the DCAT analysis to determine the minimum amount of Total Equity required such that Basic can withstand all 1-in-40 year adverse scenarios *including* management actions. MPI's lower RSR target should be considered a the minimum capital target because any amount below this level would place the Corporation in an unsatisfactory financial condition and require rate increases, RSR rebuilding fees, or transfers from other lines of business to restore it to a satisfactory financial condition.

Assuming a completely unbiased forecast and approval of the Capital Maintenance Provision, if the Corporation had an RSR balance exactly equal to the lower RSR target, there would be an approximately 50% chance that the balance will fall below that lower target within the next 12 months. Assuming the same scenario except with a biased (not best estimate) interest rate forecast, and no Capital Maintenance Provision (i.e. the conditions present in the last 3-5 years), the possibility that the RSR balance will fall below the lower RSR target would greatly exceed 50%. The Corporation's position is that managing the RSR in the same manner as the recent past, is far from optimal, inconsistent with its purpose of the RSR, and is of no benefit to rate payers.

b) The purpose of having an RSR range above the minimum capital requirement is to manage normal financial volatility *without* triggering frequent rate increases and/or RSR rebuilding fees. The likelihood of the RSR balance falling below the minimum RSR target depends on the position of the current RSR balance within the RSR range. Adverse financial events will cause the RSR balance to fall below the minimum target. As per the DCAT report, the Corporation assumes that, if the RSR balance falls below the minimum target, the RSR will be 'rebuilt' using 2% incremental RSR rebuilding fees. The time required to rebuild the RSR will be situational, and based on the specific adverse financial conditions. While severe financial events may warrant significant management action, for the purposes of DCAT modeling, and based on historical events, the Corporation believes it is appropriate to assume a 2% rebuilding fee. The minimum capital target should

never be considered as the equivalent of an optimal capital level under any time horizon.

c) Every other P&C insurer in Canada has minimum capital requirements, whether they be regulatory or internally set. These minimum capital requirements are just that: 'minimums', which are not optimal requirements and must not be viewed as such by regulators, boards, or other stakeholders. The Corporation's minimum capital target represent the absolute minimum amount of capital required to maintain the Corporation in a satisfactory financial condition. It is not an 'optimal' or desired target.

CAC (MPI) 1-18

Part and Chapter:	**RSR.4.5.1.1**	**Page No.:**	**11**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17**		
Topic:	**DCAT Modified Base Scenario and Treatment of Capital Maintenance Provision (CMP)**		
Sub Topic:			

Preamble to IR (If Any):

Figure RSR- 1: Base Scenario: Includes proposed 0.1% rate increase in 2019/20.

Question:

Please provide the Base Scenario using the 50/50 interest rate forecast.

Rationale for Question:

The naïve interest rate forecast biases the Base Scenario and is not robust to expected interest rate hikes.

RESPONSE:

The Corporation does not accept as accurate the stated rationale for this question. Indeed, the available evidence supports an opposite conclusion, namely, that the naïve interest rate forecast is an unbiased best estimate, consistent with accepted actuarial practice, and does not bias the base scenario. While the Corporation produces the requested information below, it does so without endorsing the results as a best estimate.

Figure 1: Base Scenario with 50-50 Forecast: Includes proposed 0.1% rate increase in 2019/20

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
1	*(in millions)*					
2	Net Income	$145	$5	$7	($9)	($20)
3	Retained Earnings	$263	$277	$293	$294	$286
4	AOCI[1]	($52)	($44)	($35)	($25)	($13)
5	Total Equity[2]	$263	$277	$293	$294	$286
6	MCT Ratio[3]	72.73%	69.42%	67.51%	64.05%	58.04%
7	1. Accumulated Other Comprehensive Income					
8	2. Total Equity = Retained Earnings + AOCI					
9	3. Minimum Capital Test Ratio based on the 2017 MCT Guideline					

CAC (MPI) 1-19

Part and Chapter:	**Part I, Overview**	**Page No.:**	**16 and 17**
PUB Approved Issue No:	**7. DCAT and RSR**		
Topic:	**Investment risk tolerance**		
Sub Topic:			

Preamble to IR (If Any):

"Given the purpose of the RSR, the investment risk tolerance can vary. There will be minimal investment risk tolerance when the RSR balance is below the DCAT minimum; however, there will be moderate investment risk tolerance when the RSR is within the approved range."

Question:

For greater clarity, please explain why the investment risk tolerance is lower if the RSR balance is below the DCAT minimum and higher if the RSR is within the approved range.

Rationale for Question:

To obtain clarity on the investment risk tolerances at different RSR balances.

RESPONSE:

If the RSR balance were to fall below the minimum amount required to maintain an actuarially-determined satisfactory financial condition, the Corporation would be more financially vulnerable than it would be if Basic were sufficiently capitalized (i.e. the risk of total equity falling to zero, rate increases and RSR rebuilding fees would increase in

this scenario). It would be imprudent in such circumstances for the Corporation to exacerbate its downside risk by increasing its appetite for investment risk.

Notwithstanding the above, the Corporation could re-evaluate its tolerance for risk if:

- the RSR target methodology were known, predictable, and stable from year to year,
- the RSR target methodology were based on best estimates and produced a range above the minimum capital required for satisfactory financial condition;
- rates for Basic were set using best estimates (specifically the interest rate forecast); and
- Basic were able to maintain adequate capital within the RSR range, through a capital maintenance and a build/release provision.

For a further discussion on risk tolerance, please see *CAC (MPI) 1-96*.

CAC (MPI) 1-20

Part and Chapter:	**Part I, Overview**	**Page No.:**	**17 and 18**
PUB Approved Issue No:	**7. DCAT and RSR**		
Topic:	**RSR amount as at February 28, 2018 for 2018/19**		
Sub Topic:			

Preamble to IR (If Any):

"The Board of Directors has determined that the minimum amount of the RSR is **$201** million, as of February 28, 2018 **for the 2018/19 fiscal year**. In order to provide a greater buffer to the capital reserve so that it is not sitting at $1 above unsatisfactory financial status, the Board of Directors transferred funds to raise the RSR to $211 million. Determination of the range for the RSR is based upon risks facing MPI. The recent changes to how the Corporation manages investments has significantly reduced the risks its faces. Accordingly, MPI is seeking for the 2019/20 fiscal year approval of an RSR range of 34% to 85% MCT (**forecast equivalent to $143 million to $305 million as at February 28, 2019).** MPI is forecasting that as of February 28, 2020 it will have an RSR of 70% ($280 million)." **emphasis added**

Question:

Please clarify whether MPI needs a minimum RSR amount of $201 million or $143 million as at February 28, 2019 based on the DCAT analysis.

Rationale for Question:

To clarify the required minimum RSR amount as at February 28, 2019.

RESPONSE:

MPI's lower RSR target is estimated at 34% MCT ($143 million) as of March 1, 2019 based on the 2018 DCAT report. This target amount reflects the planned implementation of the new Basic investment portfolio in the 2019/20 fiscal year, which is why the target is lower in dollar terms than the 2018/19 target.

CAC (MPI) 1-21

Part and Chapter:	**Part VI, Rate Stabilization Reserve**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT and target capital analysis**		
Topic:	**Lower RSR target, satisfactory financial condition and best estimates**		
Sub Topic:			

Preamble to IR (If Any):

"The Lower RSR Target must be greater or equal to the minimum capital required to achieve satisfactory financial condition*.* MPI cannot support any methodology that produces an RSR target that is lower than the amount required for satisfactory future financial condition. The methodology ordered by PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million, which is below the amount of $143 million required for satisfactory financial condition. For this reason, the Corporation will not be using the 2018 PUB Order methodology. MPI is applying for a lower RSR target of $143 million based on the minimum amount for satisfactory future financial condition"

"Any RSR target methodology must be based on best estimates."

Questions:

a) Please provide, based on best estimates, a chart listing the 'satisfactory financial condition' RSR targets for the last five fiscal years and the next three forecasted fiscal years along with the supporting documentation and calculations.
b) Please file a copy of the Actuarial Standards of Practices (the related sections) describing and defining 'best estimates' and satisfactory financial condition'.

Rationale for Question:

To clarify the potential range of the lower RSR target based on 'satisfactory financial condition' and 'best estimates' and review the related actuarial obligation documentation.

RESPONSE:

a) A chart listing the 'satisfactory financial condition' RSR targets for the last five fiscal years and the next three forecasted fiscal years is reproduced at Figure 1 below.

The minimum amount required to maintain the Corporation in a satisfactory financial condition, set out in each of the DCAT reports, reflects the DCAT methodologies, company risk profile and best estimate forecasts available at the time the respective reports were created. For example, the DCAT reports from 2013 through 2015 use the Standard Interest Rate Forecast as a 'best estimate,' because the PUB ordered the use of that rate forecast. In those years, the minimum amount required to place the Corporation in a satisfactory financial condition was higher because the DCAT model correctly indicated that the Standard Interest Rate Forecast was more risky (i.e. more likely to turn out unfavorably) than a naïve interest rate forecast. The Corporation will no longer use a interest rate forecast in its DCAT reports if it believes the forecast is not a best estimate MPI cannot cede control of its forecasts.

Figure 1: Historical Targets for Satisfactory Financial Condition

Line No.	DCAT Report	Fiscal Year	Minimum for Satisfactory Financial Condition
1	2013	2013/14	$172M[1]
2	2014	2014/15	$213M
3	2014	2015/16	$213M[2]
4	2015	2016/17	$231M
5	2016	2017/18	$159M
6	2017	2018/19	$201M
7	2018	2019/20	$143M
8	2019	2020/21	$155M[3]

9 [1] Prior to the 2014 DCAT, targets were set based on RSR balance not Total Equity
10 [2] Starting with the 2015 DCAT, the Corporation set targets a year later
11 [3] An estimate based off of the 2018 DCAT maintaining 34% MCT Ratio

b) Please find below a link to the Canadian Institute of Actuaries Standards of Practice. Section 1120.12 thereof defines the term 'best estimate' while Section 2520.09 defines the term 'satisfactory financial condition'.

http://www.cia-ica.ca/docs/default-source/standards/sc030119e.pdf

CAC (MPI) 1-22

Part and Chapter:	**Part VI, Rate Stabilization Reserve**	**Page No.:**	**8**
PUB Approved Issue No:	**7. Update of DCAT and target capital analysis**		
Topic:	**MCT**		
Sub Topic:			

Preamble to IR (If Any):

"As described in DCAT.1.4 and RSR.4.5.1.3, application of the PUB methodology from the 2018 Order would require MPI to set the *lower RSR target* using:

(i) A DCAT-based iterative modelling approach
(ii) Over a two-year time horizon
(iii) At a 1-in-40 year (97.5th percentile) outcome level
(iv) Using a 50/50 interest rate forecast, and
(v) After routine management / regulatory actions.

This methodology produces a lower RSR target of $120 million (27% MCT) for the 2019/20 year. For reasons outlined above, MPI has not adopted this methodology. The methodology applied for by MPI (described below in *RSR.4.5.1.2*) produces a lower RSR target of $143 million (34% MCT) for the 2019/20 year. MPI has also proposed that this lower RSR target be converted to an MCT ratio of 34% rather than a dollar amount."

Question:

Please explain why it is important to convert the RSR amount, determined by the DCAT modeling approach, into an MCT ratio.

Rationale for Question:

To understand the rationale and purpose for converting the RSR amount into an MCT ratio.

RESPONSE:

MPI has historically established lower (and more recently upper) RSR targets as a static total equity amount, which was determined and supported by DCAT modelling. As the total equity amount required is determined at a particular point in time and on certain assumptions existing at that point in time, that amount may not be adequate or reasonable for purposes of measuring the Corporation's capital adequacy in the future (as circumstances may have changed in the interim). For example, if the Corporation's business grew at a faster pace than anticipated, the Corporation would need to hold additional capital. Additionally, the amount of capital required would necessarily change if the Corporation's balance sheet characteristics changed as a result of a shift in the mix of its investment assets.

Utilizing an MCT-based target (rooted in DCAT modelling), provides a dynamic target that adapts with the business and ensures a target capital level that is truly sufficient and responsive to the risks of the Corporation on each date the metric is calculated.

Additionally, while the capital required expressed as a total equity dollar amount can change substantially from year to year, the associated MCT percentage target should fluctuate much less and provide a more consistent yearly target.

CAC (MPI) 1-23

Part and Chapter:	**Part VI, Dynamic Capital Adequacy**	**Page No.:**	**Pages 11 and 16**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**Maximum Capital Target**		
Subtopic:			

Preamble to IR (If Any):

PUB Order 130/17 directive 11.21 states that "For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modelling of a 1-in-40 scenario over a two-year time horizon after routine management/regulatory actions." (From Page 16 of DCAT report). Yet on page 11 of the DCAT report the Corporation indicates that the maximum was proposed based on modeling results before management action.

Question:

a) Please provide the justification for calculating the maximum proposed level of the RSR based on modeling results before management action while the PUB Order clearly indicates the results should be after management actions
b) Can the Corporation confirm that the maximum proposed level of the RSR based on modeling results after management action would be $283 million? Please give the correct figure if this is not confirmed.

Rationale for Question:

To understand why the Corporation did not follow the direction of the PUB order and the impact of not using the after management action scenarios.

RESPONSE:

The rationale to this Information Request assumes facts not in evidence and is largely anecdotal. MPIC will confine its answer to the germane portion of the question, in a fair and accurate manner, while making note of the prejudicial effect of the premise.

a) The Corporation followed the above-mentioned direction of the PUB contained in Order 130/17 (the "Direction"), as it pertained to the 2018 GRA and fiscal year 2017/18, and set the upper threshold for Basic Total Equity to $325 million. The Corporation outlined its reasons for not adopting the approach in the 2019 GRA in *Part VI DCAT.1.7.3*.

b) Confirmed.

CAC (MPI) 1-24

Part and Chapter:	**Part VI, DCAT**	**Page No.:**	**70, 71**
PUB Approved Issue No:	**7. Update of DCAT** **10. Claims forecasting**		
Topic:	**IFRS 17**		
Sub Topic:			

Preamble to IR (If Any):

"International Financial Reporting Standards (IFRS)

In May 2017, the IASB issued IFRS 17 on the accounting for insurance contracts. The changes under IFRS 17 would come into effect in 2021/22, but could potentially be implemented earlier by the Corporation. From a DCAT perspective, the most significant financial risk from IFRS is from changes in the discounting of policy liabilities. Currently, the policy liabilities are discounted based on the assets backing the liabilities (MPI uses fixed income assets) plus a provision for adverse deviation (PfAD) on the assumed investment return. However, under IFRS 17 the liabilities will be discounted using a risk-free rate plus a liquidity premium. The provision for adverse deviation will be removed or reduced under IFRS 17. As of May 31, 2018, if the yield on the Corporation's government bond portfolio was used as a proxy for the 'risk free rate', then the discount rate used in the valuation of Basic claims liabilities would decrease by approximately 50 basis points. However, the actuarial PfAD (which is being eliminated under IFRS) is currently set at 50 basis points, so the two amounts would largely offset (in theory). A liquidity premium would then increase the discount rate, which would decrease the present value of the claims liabilities with no offsetting impact from the fixed income portfolio, causing a favourable impact to net income. If the Corporation increases its allocation to higher yielding bonds, then there is greater risk that these amounts will not offset."

Question:

a) Please confirm that the provision for adverse deviation will be removed or reduced under IFRS 17. Please explain the reasons for the removal or reduction of the PfAD under IFRS 17.
b) Please advise whether MPI has performed a preliminary IFRS 17 financial impact analysis. If yes, please elaborate on the results of this preliminary assessment.

Rationale for Question:

It appears from the Preamble MPI does not expect a significant negative financial impact from the implementation of IFRS 17 to the bottom line for basic insurance. The questions are meant to clarify these expectations.

RESPONSE:

a) MPI cannot confirm the handling of provision for adverse deviation under IFRS 17. However, if claims liabilities were discounted based on a risk-free rate consistent with the expected timing of the liability cash flows, then the need for a provision for adverse deviation, under IFRS 17 or current actuarial Standards of Practice, would be greatly reduced.

b) MPI has not conducted an IFRS 17 financial impact analysis.

CAC (MPI) 1-25

Part and Chapter:	**Part VI, DCAT**	**Page No.:**	**1974-1975**
PUB Approved Issue No:	**7. DCAT**		
Topic:	**DCAT**		
Sub Topic:	**Impact of IFRS Changes on DCAT**		

Preamble to IR (If Any):

Pages 1974-1975 say:

In May 2017, the IASB issued IFRS 17 on the accounting for insurance contracts. The changes under IFRS 17 would come into effect in 2021/22, but could potentially be implemented earlier by the Corporation.

From a DCAT perspective, the most significant financial risk from IFRS is from changes in the discounting of policy liabilities. Currently, the policy liabilities are discounted based on the assets backing the liabilities (MPI uses fixed income assets) plus a provision for adverse deviation (PfAD) on the assumed investment return. However, under IFRS 17 the liabilities will be discounted using a risk-free rate plus a liquidity premium. The provision for adverse deviation will be removed or reduced under IFRS 17.

As of May 31, 2018, if the yield on the Corporation's government bond portfolio was used as a proxy for the 'risk free rate', then the discount rate used in the valuation of Basic claims liabilities would decrease by approximately 50 basis points. However, the actuarial PfAD (which is being eliminated under IFRS) is currently set at 50 basis points, so the two amounts would largely offset (in theory). A liquidity premium would then increase the discount rate, which would decrease the present value of the claims liabilities with no offsetting impact from the fixed income portfolio, causing a

favourable impact to net income. If the Corporation increases its allocation to higher yielding bonds, then there is greater risk that these amounts will not offset.

More research is required on this topic over the next fiscal year; however, the Corporation appears to be well positioned financially to make this transition, especially relative to insurance companies that are discounting their liabilities using assets with much higher assumed returns.

Question:

a) What is the "scope" of the research being taken related to this topic over the next fiscal year? (i.e. What major questions would be asked, and which ones will not be asked?)

   i. Is the basis (formula) for the DCAT calculation open for discussion, for example?
   ii. For the RSR?

b) Explain why and how MPI is "well positioned financially" to make this transition.

Rationale for Question:

The proposed IFRS accounting policy changes may have a material impact on key metrics, and key decisions. It is important to understand the nature, materiality, and timing of both the accounting changes and their implications on key metrics and key decisions.

RESPONSE:

a) MPI does not have a position on these matters at this time. The scope of the research from an actuarial perspective will require MPI to work with an externally-appointed actuary to determine how the policy liability valuation will be impacted by the changes from IFRS 17 (e.g. conduct a comparative October 31, 2018 liability valuation using assumed IFRS 17 rules). As the Corporation comes to

better understand these impacts, it will develop a formal recommendation on potential impacts to the DCAT or RSR methodologies.

b) MPI believes it is well positioned to handle the potential IFRS 17 impacts related to policy liabilities because these liabilities are currently discounted based on a duration and dollar matched, low risk, fixed income portfolio. Insurers who match their claims liabilities against more risky asset types (i.e. equities) would be expected to have a larger financial impact from a move to a risk-free (or close to risk free) discount rate. However, MPI is still working toward fully understanding the potential IFRS 17 impacts.

CAC (MPI) 1-26

Part and Chapter:	**Part III, Basic Autopac Coverage and Benefits**	**Page No.:**	**6**
PUB Approved Issue No:	**9. Cost of operations and cost containment measures**		
Topic:	**Cost avoidance and cost control**		
Sub Topic:			

Preamble to IR (If Any):

"A single public administrator of the public auto insurance plan delivers certain efficiencies that further contribute to the mission of comprehensive coverage with affordable rates, namely:

- Consistent interpretation and application of plan and the coverage provided under it
- Avoidance of extraneous administrative costs
- The ability to improve the plan and make it more responsive to the needs of the public with greater ease
- A better control of costs by leveraging synergies with repair shops, medical clinics and business partners"

Question:

a) Please provide an explanation and details of extraneous administrative costs that are being avoided as they relate to basic insurance.
b) Please provide examples of costs that are being controlled by leveraging synergies with repair shops, medical clinics and business partners. Please explain how these cost synergies are reflected in the operating and/or claims incurred forecasts used for rate making purposes.

Rationale for Question:

To better understand the management and control of costs (operating and claims) by MPI leveraging its single public auto insurer status.

RESPONSE:

a) The Corporation, as the single public administrator of the public insurance plan in the Province, is able to achieve lower costs (which includes avoidance of extraneous or duplicate administrative costs) in a number of functional areas as compared to other Canadian automobile insurers including those in a multi-insurer, private insurance environment. These lower costs are a result of the Corporation's business model and economies of scale from being the sole public auto insurer, as reflected in the benchmarking results (see: *Part IV(i) 02 BMK Benchmarking*). Specific areas where MPI incurs lower administrative costs include:

- Sales, Marketing and Distribution Management, including:
  - No marketing of compulsory products is required
  - Training of direct sales agents (MPI employees engaged in renewal and new insurance processing)
  - Market research analysis, development of advertising campaigns and external communications materials for public and brokers
  - Broker training, support and analysis
- Costs associated with Development and Maintenance of the Basic line of business, (i.e. Product Development, Underwriting and Policy Processing), including:
  - Conducting product research
  - Determining underwriting rules and policy development
  - Monitoring product performance
  - Updating and maintaining policy information
  - Responding to policy holder enquiries

- Claims processing costs (i.e. Adjusting and Appraising and Legal support of Claims), including:

    - Verifying policy coverages and limits, setting and maintaining reserves
    - Confirming entitlement, negotiating and settling and paying claims
    - Providing legal advice to adjusting staff, providing legal opinions
    - Legal research, preparing and taking cases to trial, litigation, negotiating out-of-court settlements, managing attorney represented and claim files in litigation

b) Examples of costs that are being controlled by leveraging synergies with repair shops, medical clinics and business partners include the following:

- Bodily injury claims costs
- Physical damage claims costs
- Overall claims costs (frequencies).

Claims (and transaction) costs are controlled in part by maintaining minimum standards/agreements/guidelines (e.g. accreditation programs, fee schedules,) with repair shops and medical clinics, against which the quality and cost of repairs, as well as health and rehabilitation services, are measured.

The Corporation also collaborates with Manitoba's collision repair industry to ensure that it and the Corporation are able to effectively and efficiently respond to the emerging trends and significant changes underway within the industry. For example, the Corporation created and opened the state-of-the-art J.W. Zacharias Physical Damage Research Centre. The Centre enables technicians to work closely with the repair industry to provide training on new and emerging repair techniques and equipment. This results in cost savings for the repair industry and helps to ensure Manitoba vehicles are repaired to manufacture specifications, protecting the safety of all road users. See: *Part VII, LP Loss Prevention*.

As another example, recovery from injury is maximized using multi-disciplinary teams (health practitioners) in the management of bodily injury claims, which in turn helps to minimize costs incurred under PIPP.

In addition, partnerships with community groups and law enforcement agencies to promote road safety and implement safety and loss prevention initiatives, are formed to reduce collisions, claims and claims costs (e.g. External Stakeholder Committee on Loss Prevention; MADD Canada; Provincial Road Safety Committee).

Cost savings achieved via leveraged partnerships are reflected in claims costs incurred. Service and fee agreements and compensation controls help to stabilize future claim costs and increase predictability. The cost savings and the increase in the predictability of future claims costs are factored in the operating and claims incurred forecasts used in ratemaking.

For additional comments reinforcing MPI's strategic importance of collaborating with business partners, see: *Part VIII, AR Annual Reports*:

- Manitoba Public Insurance 2017 Annual Report
- 2017 -2021 Corporate Strategic Plan

CAC (MPI) 1-27

Part and Chapter:	**PART V, Expenses**	**Page No.:**	**23**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Staffing and Economic negotiated salary increases**		
Sub Topic:	**Retention of skilled staff**		

Preamble to IR (If Any):

On page 23 Part V, Expenses in Figure EXP – 11, it lists negotiated salary rate increase ranging from as low as 0.00% to as high as 2.75%. The Normal Staffing compliment is listed in Figure EXP – 12 and is at 1,860.9 FTEs at February 28, 2018 and is forecasted to be 1,874.1 FTEs as at February 28, 2019 and is expected to decrease to 1,853.1 FTEs in 2022/23.

On page 15 Part V, Expenses Exp.3.2, it states that MPI exceeded its cost containment target for 2017/18 by $1.3 million for total expense savings of $3.9 million.

Question:

a) Please confirm MPI does not pay performance bonuses to employees and management.
b) Please elaborate whether MPI is considering performance based compensation plans for its employees going forward.
c) Please elaborate on MPI's skilled employee retention strategy going forward as MPI focuses on its core business operations.

Rationale for Question:

With changing demographics, including transitioning to the millennium cohort, it is important to understand whether MPI has an employee retention and engagement

strategy going forward to deliver on its core business goals and objectives. The employee skill set may impact future operation and claims incurred costs.

RESPONSE:

a) The Corporation does not pay performance bonuses to employees or management. MPI has updated its Pay Bands and compensation practices to an annual merit increase on the achievement of performance outcomes. All employees are eligible for performance based merit adjustment of up to a maximum of 5% which is applied to their base salary. However if the employee is at the top of their band and their superior performance warrants a merit increase, merit increase is paid in lump sum. Employees who do not achieve performance outcomes do not receive an annual merit increase.

b) The wages and benefits of the Corporation's unionized employees are determined through the collective bargaining process. The compensation model for the Corporation's non-unionized and management employees ensures that these employees are fairly compensated and recognized for their professional abilities as well as their achievement of goals and objectives. An aspect of the compensation model is the annual merit increase based on the achievement of performance outcomes of the year. Eligibility for a merit increase is dependent on the outcome of a performance review.

c) The overall talent management strategy of the Corporation is to attract, retain, recognize and reward high performing employees through fair wages, the employee recognition program, training and development opportunities, and employee engagement. Employees are recognized and rewarded for achievement of individual objectives, corporate objectives and for professional competency (meeting our corporate values, driving organizational success, and displaying the key behaviours).

CAC (MPI) 1-28

Part and Chapter:	**PART V, Expenses**	**Page No.:**	**32**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Special Services**		
Sub Topic:			

Preamble to IR (If Any):

Per PART V, page 32, Expenses, Special services expense for 2017/18 are reported to be $6,867,000 and forecasted for 2018/19FB to be $7,790,000.

Question:

Please prepare, by expense account category, a detailed analysis comparing the 2017/18 actual to the 2018/19FB amounts with explanations and rationale for each significant expenditures.

Rationale for Question:

To better understand the purpose of each special services expenditures and how it benefits basic insurance.

RESPONSE:

Please see below.

Figure 1: List of Major Special Services Category - Total Corporate

Line No.	Special Services Category	2017/18A	2018/19FB	Difference
1	*(C$000s, except where noted)*			
2	Special Services - Other	4,421	4,574	153
3	PIPP Mediation Pilot	431	576	145
4	Surveys/Evaluations-Corporate	314	243	(71)
5	Employee Opinion Survey	-	150	150
6	Customer Service Standard	-	314	314
7	Surveys/Eval-Ext Products	-	56	56
8	Safety Survey - Traffic Safety Culture	-	150	150
9	Other	1,701	1,727	26
10	Total Special Services	6,867	7,790	923

Included in the Special Services – Other $4.6M for 2018/19FB is $1.5M for the CEO for executive strategic planning purposes to allow the new CEO to implement any strategic plans as desired through consultation with and direction from the Board of Directors. This was included in the budget in order to allow the CEO to effectively manage the Corporation and bring long-term success to Basic. Also included in the $4.6M for 2018/19FB is $400,000 for the Finance Division relating to consulting services for International Financial Reporting Standards, a significant and required accounting standard policy change, to be researched and implemented over the next several years.

Customer Research projects account for the increase of $314,000 relating to Customer Service Standards and $150,000 relating to Traffic Safety Culture Surveys.

Figure 2: (Ref. Figure 1, line 2) Special Services - Other predominately relates to consulting services. Key examples include:

Line No.		2017/18A	2018/19 FB
1	*(C$000's except where noted)*		
2	Projects	1,439	1,406
3	Buildings *	144	137
4	MNP - Acting CFO	971	-
5	Strategic Planning	-	1,500
6	Pension Actuary	41	-
7	Investment Strategies	440	100
8	Gartner	530	661
9	IBA Agreement	250	250
10	IFRS	-	400
11	**Total**	**3,814**	**4,454**
12	** Fire protection & property tax appeals*		

Figure 3: (Ref. Figure 1, line 9) Other

Line No.		2017/18A	2018/19 FB
1	*(C$000's except where noted)*		
2	Auction Fees	33	31
3	Auditor Fees	217	212
4	Actuary Fees	113	90
5	Credit Rating Services	18	14
6	Security	836	804
7	Diversity	207	225
8	Misc. Surveys	66	103
9	Misc. Services	211	247
10	**Total**	**1,701**	**1,726**

CAC (MPI) 1-29

Part and Chapter:	**PART V, Expenses**	**Page No.:**	**33**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Building closures**		
Sub Topic:			

Preamble to IR (If Any):

"Forecasting Assumptions
Annually, MPI assesses its physical capacity to run operations in determining the optimum levels for cost containment and customer service. As presented in last year's GRA, it was expected the Corporation would close the Flin Flon Claims Centre and the Pacific Avenue Service Centre. These closures have both been completed with savings to occur in the 2018/19 fiscal year. For the Pacific Service Centre this is one year sooner than expected. Most other expenses related to building costs have a 0% CPI increase for 2018/19, with CPI increases applied in 2019/20 and onward."

Question:

Please prepare and file the building disposition analysis relating to the Flin Flon and Pacific Avenue centres.

Rationale for Question:

In addition to reducing building expenses due to the closure of these facilities, obtain an understanding, that on disposition of these buildings, did MPI generate a capital gain or loss.

RESPONSE:

The reductions in the building budgets for 2018/19 for the corporate operation of the Pacific and Flin Flon buildings were (in $000):

Pacific – $324
Flin Flon - $88

In order to determine a capital gain or loss, upon disposition MPI adjusted the sale prices of these Service Centres to account for the costs associated with their sales.

Sale of Pacific Avenue Service Centre:

	($000)
Sale Price	2,535
Costs associated with sale	(83)
Asset Cost	(723)
Gain on Sale of Property	1,729

Sale of Flin Flon Service Centre:

	($000)
Sale Price	90
Costs associated with sale	(8)
Asset Cost	(52)
Gain on Sale of Property	30

CAC (MPI) 1-30

Part and Chapter:	**PART V, Expenses, Figure EXP 42**	**Page No.:**	**62, 63**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Basic capital expenditures by project**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please elaborate on the reasons for the Technology Risk Management project, in an amount in excess of $3 million per year, appears each year for 5 years in Figure EXP 42.
b) The Finance Re-engineering project projected costs add up to $11,364,000 from LTD actual to 2020/21. Please provide the Value Management business case supporting the $11.4 million project costs or an explanation detailing the derivation of this amount.
c) The Legacy Systems Modernization projected costs add up to $58,608,000 from 2018/19 to 2022/23. Please provide the Value Management business case supporting the $58.6 million project costs or an explanation detailing the derivation of this amount.

Rationale for Question:

To better understand the source of the projected values for the projects listed in the question and to understand the rationale for the Technology Risk Management project being budgeted for each of the next five years.

RESPONSE:

a) The Technology Risk Management (TRM) Program regularly invests in technology systems and processes, ensuring that existing technologies stay on supported versions and that technology risks are addressed through process and technology improvements. Investments are identified and prioritized annually. For the amounts noted in *Figure EXP-42*, the 2018/19 program budget is spread across 4 key areas: Application Risk Management, Infrastructure Risk Management, Information Security Risk Management and Risk Registry Remediation.

TRM aligns to the following implications and recommendations made by Gartner and included in the latest Benchmarking Findings and Recommendations – Executive Report; "With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years" (please see *BMK Attachment A, pdf page 6*)

For budgeting and forecasting purposes, the Corporation includes TRM in subsequent fiscal years with the capped amount noted in *Figure EXP-42* and subject to an annual review of investments (Value Management process).

b) As noted in the *Part IV VM.1.17*, one of the current year project objectives is to complete the detailed business case for the full Finance Re-engineering project. The detailed business case (being developed in 2018/19) will support the future project costs. The $11.4 million figure includes funds expensed in prior years relating to the initial project work and referenced in the value management section of the Application along with Basic's portion of the current year project work. The remaining future amounts relate to initial estimates of the cost of the project (estimated in 2015 by Deloitte) and the Corporation will update them once the detailed business case is completed in the current fiscal year.

c) The Legacy Systems Modernization forecast is a placeholder for project costs at this time. The 2018/19 Technology Modernization Assessment project will be

developing a detailed business case to present to the Corporation's Planning and Technology Committee in February 2019.

CAC (MPI) 1-31

Part and Chapter:	**PART V, Expenses, EXP Appendix 7**	**Page No.:**	**5**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Impairment of Various Projects**		
Sub Topic:			

Preamble to IR (If Any):

"c) **Data Processing –** $18.7 million increase compared to the 2018 GRA is primarily due to the following:

- Impairment of various project costs totaling approximately $20.3 million occurred during the 2017/18 fiscal year. These projects no longer met the criterion to be classified as deferred development capital costs and thus were expensed.
- Partially offsetting the above expenses were approximately $1.6 million of less than expected external labor expenses. This is primarily related to external labor for CARS and AOL of about $1.7 million."

Question:

a) Please provide a list, by project, of the projects that were impaired and written off in 2017/18 in the amount of $20.3 million including the rationale for write-off.
b) In addition to the current Value Management discipline, has MPI put in place additional mitigation measures to assess projects, at an earlier stage, to determine to discontinue or continue a project?
c) Please file a copy of MPI's project capitalization policy and indicate any changes from previous years. Also please provide a copy of the Board of Directors Minute approving the most recent project capitalization policy.

Rationale for Question:

To better understand the cost of project failures and impact on basic insurance rates.

RESPONSE:

a) Please see the response for *PUB (MPI) 1-63 (a)*.

b) Please refer to 2018 GRA Volume I Value Management for details on the Business Transformation Office Project Delivery approach, methodology and governance. Within each project phase stated, the Corporation will continuously apply its value management process and discipline to ensure the realization of overall project value. If, through this ongoing assessment, it is determined that a project's expected net benefit, return on investment and overall value is being impaired, the Corporation will consider canceling the project to limit the financial investment incurred.

c) Please refer to 2018 GRA Information Request – *Round 1 CAC 1-41 (a) Appendix 1*, and for the minutes see *PUB (MPI) 1-1*.

CAC (MPI) 1-32

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:	**9. Cost of operations**		
Topic:	**2017 Compensation report**		
Sub Topic:			

Preamble to IR (If Any):

Per the *Public Sector Compensation Disclosure Act* the corporation prepares a compensation report.

Question:

Please file a copy of the public compensation report as of December 1, 2017 prepared in accordance with the *Public Sector Compensation Disclosure Act* together with the Auditor's report.

Rationale for Question:

To assess and understand compensation costs paid, by the corporation, in 2017 to employees.

RESPONSE:

Please see *Attachment A*.

Manitoba Public Insurance

SCHEDULE OF COMPENSATION IN ACCORDANCE WITH THE PUBLIC SECTOR COMPENSATION DISCLOSURE ACT TOGETHER WITH AUDITOR'S REPORT

FOR THE CALENDAR YEAR ENDED DECEMBER 31, 2017

COMPENSATION DISCLOSURE FOR 2017

The Public Sector Compensation Disclosure Act requires Crown Corporations to disclose to the public the total compensation of the Chairperson of the Board, officers and employees who earned $50,000 or more in a year as well as the aggregate compensation received by the Board of Directors. In compliance with the Act, Manitoba Public Insurance has prepared this disclosure schedule for the year ended December 31, 2017.

For the 2017 income tax year, Manitoba Public Insurance issued 2,235 T4 slips to full-time, part-time and temporary employees and officers. Manitoba Public Insurance had a monthly average of 1,898 employees during 2017. This schedule lists the compensation paid to 1,464 officers and employees in managerial, technical and professional support positions.

The schedule lists the employees and officers in alphabetical order, along with their position and total compensation. In each case, the most recent position that the employee or officer held during 2017 is given. Total compensation includes the officer's and employee's regular salary, taxable benefits, retiring allowances, retroactive pay, vacation pay and severance pay.

This schedule is available to the public upon request. For additional information, contact our Human Resources Department at 204-985-8770 ext. 7653.



May 17, 2018

Independent Auditor's Report

To the Board of Directors of Manitoba Public Insurance Corporation

We have audited Manitoba Public Insurance Corporation's (the Corporation) compliance as at December 31, 2017 with the criteria established by C.C.S.M c. P265 and described in Sections 1 to 11 inclusive of The Public Sector Disclosure Act dated September 1, 2011 with respect to all public sector bodies operating in Manitoba as defined in the act. Compliance with the criteria established by the provisions of the agreement is the responsibility of the management of the Corporation. Our responsibility is to express an opinion on this compliance based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the Corporation complied with the criteria established by the provisions of the agreement referred to above. Such an audit includes examining, on a test basis, evidence supporting compliance, evaluating the overall compliance with these criteria and, where applicable, assessing the accounting principles used and significant estimates made by management.

In our opinion, as at December 31, 2017 the Corporation is in compliance, in all material respects, with the criteria established by The Public Sector Disclosure Act described in Sections 1 to 11 of this agreement.

PricewaterhouseCoopers LLP

Chartered Professional Accountants

PricewaterhouseCoopers LLP
One Lombard Place, Suite 2300, Winnipeg, Manitoba, Canada R3B 0X6
T: +1 204 926 2400, F: +1 204 944 1020, www.pwc.com/ca

"PwC" refers to PricewaterhouseCoopers LLP, an Ontario limited liability partnership.

Name	Position Title	Total Compensation	
Abbott, D	Broker Services Administrator	67,783.57	
Abraham, A	Manager, IT Service Management	92,388.53	
Abrey, W	Business Relationship Manager	110,513.79	
Adams, B	Reviewing Officer	64,559.41	
Adams, S	Sr Case Manager	82,446.69	
Addison, I	Adjuster	66,295.63	
Addison, K	Manager, Special Accounts & Subrogation	134,077.93	
Adolphe, L	Supervisor, Claims Processing	75,676.61	
Adviento, L	Adjuster	60,587.06	
Agnew, R	Manager, Service Centre	109,817.85	
Aguilar-Manalo, A	Accountant 1	60,618.99	
Ahlbaum, C	Manager, Vehicle Safety	105,190.32	
Ahmad, A	Sr Analyst	89,974.62	
Alarie, M	Sr Business Analyst	84,166.22	
Alarie, R	Adjuster	54,490.63	**
Albig, J	Sr IT Support Analyst	60,635.64	
Alcantara, S	Data Steward	50,357.91	
Alexander, R	Sr Case Manager	80,696.91	
Ali, H	Sr IT Support Analyst	71,773.50	
Allard, L	Sr Adjuster	71,809.32	
Allardyce, D	Service Centre Representative	57,601.55	
Allarie, G	Estimator-City	68,972.97	
Allen, J	Commercial Registrations Representative	56,537.94	
Almosnino, R	Director, Internal Audit & Enterprise Risk Management	71,615.50	**
Amante, C	Contact Centre Supervisor	70,040.94	
Andersen, G	Director, Injury Claims Management	134,643.98	
Anderson, L	Analyst	77,566.85	
Anderson, L	Case Manager 2	67,942.53	
Anderson, M	Research & Traninig Technician - Autobody	84,002.87	
Andres, R	Supervisor, Rural Service Centre	93,035.85	
Angers, D	Associate Driver Examiner	55,899.28	
Angus, C	Special Investigator	88,168.08	
Antle, J	Subrogation Adjuster	60,148.81	
Appelt, B	Driver Examiner	62,607.69	
Apperley, K	Purchasing Agent	64,310.64	
Aquino, P	Sr IT Administrator - Operations	67,707.81	
Arabsky, H	Manager, Service Centre	109,470.84	
Arendt, E	Supervisor, Application Services	100,632.14	
Armour, T	Supervisor, Driver Testing	74,423.07	
Armstrong, F	Strategic Communications Coordinator	72,948.29	
Armstrong, J	Sr Case Manager	84,908.07	
Arnold, J	Customer Relations Officer	73,872.74	
Arvidson, B	Supervisor, Rural Service Centre	83,269.31	

Name	Position Title	Total Compensation	
Asif, S	Analyst	64,438.31	
Asselstine, C	Supervisor, Salvage Yard	71,471.35	
Atienza, D	Digital Media Developer	51,435.29	
Audette, M	Payroll Administrator	54,187.77	
Avila, G	IT Security Administrator	59,801.13	
Awoyemi, O	Advanced Analytics Specialist	84,821.42	
Backstrom, J	Estimatics Coordinator	87,841.64	
Backstrom, J	Estimator-City	55,817.86	
Baerr, P	Adjuster	50,284.03	
Bailer, K	HR Business Partner	83,480.58	
Bailey, S	Director, Corporate Strategic Planning & Analytics	126,427.08	**
Bailey, W	Driver Examiner	65,035.95	**
Bains, R	IT Administrator	56,040.64	
Baker, I	Business Analyst	82,163.92	**
Baker, L	Subrogation Specialist	63,287.48	
Ballance, S	Injury Claims Adjuster	69,885.90	
Balmer, R	IT Service Delivery Lead	77,321.10	
Bannon, T	Special Investigator	79,451.63	
Baran, T	Supervisor, Driver Testing	76,230.96	
Barbour, G	Sr Case Manager	84,040.87	
Barbour, M	Accountant 2	72,224.18	
Barker, D	Manager, Contact Centre Operations	108,403.10	
Barkley, C	Sr Case Manager	64,652.40	
Barnett, P	Special Advisor	111,651.43	
Barr, B	Estimator-Rural	73,808.26	
Barrault, S	Accountant 2	78,758.50	
Barron, M	Adjuster	58,269.73	
Barske, B	Driver Training Administrator	64,331.43	
Bartlett, J	Customer Care Agent 1	52,464.44	
Bautista, R	Business Analyst	70,044.57	
Beare, R	Sr Case Manager	83,856.85	
Beaudoin, G	Sr Case Manager	84,643.80	
Beaudry, T	Systems User Analyst	58,592.37	
Beaumont, R	Business Analyst	78,008.89	
Beckel, R	Customer Care Agent 1	51,595.55	
Bedard, M	Adjuster – FLS	59,166.08	
Bedi, B	Associate Driver Examiner	52,016.50	
Bell, R	Fair Practices Analyst	78,958.52	
Beltran, L	IRI Analyst	74,802.58	
Bender, D	Adjuster	60,924.23	
Bercier, T	Service Centre Representative	52,930.40	
Bergen, B	Research Engineer	66,638.75	
Berkis, A	Claims Supervisor	60,370.42	

Name	Position Title	Total Compensation
Bernardin, J	Case Manager 2	73,523.81
Bernardin, M	Supervisor, Driver Testing Quality Assurance	72,806.74
Bernhardt, D	Reviewing Officer	64,631.18
Bernier, M	Research & Training Technician Lead - Autobody	88,002.81
Berriault, L	Estimator-City	68,125.02
Berry, D	Commercial Adjuster	62,723.56
Best, C	Estimator-City	69,252.88
Betker, A	Case Manager 2	66,085.06
Betker, C	Analyst	75,224.34
Betker, J	Analyst	80,189.18
Betker, L	Tech Communications Officer 1	60,181.01
Bettencourt, C	Sr Adjuster	67,619.29
Beyer, A	Solicitor 2	94,929.23
Bielinski, J	Accredited Repair Inspector	80,811.45
Bileski, J	Culture & Engagement Specialist	88,448.27
Billard, D	Systems User Analyst	64,567.82
Bilonozhko, A	Commercial Adjuster	62,435.79
Birch, G	Manager, Service Centre	115,667.50
Birss, S	Facilities/Premises Administrator	86,260.87
Bissessar, E	Associate Commercial Adjuster	55,171.30
Bittner, S	Service Centre Representative	55,569.73
Bjore, L	Sr Case Manager (Secondment)	84,340.87
Bjornson, V	Premises Coordinator	69,010.55
Black, C	Vehicle Standards Officer	72,972.54
Blackman, B	Driver Ed Liaison Officer	65,242.76
Blackmon, W	Administrative Officer	65,237.34
Blain, S	Contact Centre Supervisor	70,503.84
Blerot, G	Case Manager 2	73,157.54
Blue, B	Licensing Services Analyst	62,372.39
Boak, C	Service Centre Representative	51,011.17
Boblinski, T	Director, Human Resources	125,475.85
Bodanski, M	Payroll Administrator	56,017.72
Bodnarchuk, G	Estimator-City	66,979.41
Bodz, V	Manager, Serious & Long Term Case Management	101,074.68
Bohemier, C	Community Relations Specialist	66,514.81
Bohm, K	Adjuster	58,647.05
Bohonos, M	Supervisor, Customer Service Centre	69,488.13
Boisjoli, J	Sr IT Analyst	99,386.88
Bonan, S	Executive Assistant	74,252.25
Borowski, P	IT Support Analyst	66,197.62
Bouchard, A	Estimator-City	55,598.92
Bouchard, J	Instructional Designer	60,270.15
Bouchard, K	Sr Adjuster	66,773.92

Name	Position Title	Total Compensation	
Bouchard, R	Estimating Supervisor	84,497.16	
Bouchard, R	Sr Case Manager	83,790.87	
Bourgeois, S	Estimator-City	69,251.71	
Bourgouin, C	Sr IT Analyst	90,542.73	
Bourrier, M	Subrogation Adjuster	59,280.10	
Boutet, K	Case Manager 2	63,830.61	
Bouvier, S	Underwriter 1	59,651.57	
Bowering, J	Project Manager	96,108.39	
Boyd, G	Business Analyst	79,290.72	
Boyd, J	Sr Case Manager	68,363.59	
Bozek, R	Internal Review Officer	138,909.99	**
Bradford, K	Manager, Administrative Services	156,288.92	**
Brajczuk, K	Case Manager 2	51,184.18	
Brannan, S	Tech Communications Lead	70,578.25	
Brantitsas, G	Customer Care Agent 1	52,095.92	
Bratton, V	Identity Interview Coordinator	53,543.21	
Braun, J	Customer Care Agent 2	57,719.85	
Braun, K	Programmer/Analyst	57,325.07	
Breedon, E	Supervisor, Rural Service Centre	88,469.51	
Breland, L	Adjuster	60,352.57	
Brennan, T	Special Investigator	85,917.72	
Brezden, W	Vehicle Standards Officer	75,850.52	
Brin, W	Adjuster	58,209.69	
Briscoe, A	Internal Review Officer	83,693.04	
Brisson, P	Special Investigator	83,559.21	
Brooker, D	Research & Traninig Technician - Autobody	84,562.30	
Brown, A	Injury Management Coordinator	90,523.08	
Brown, A	Claims Supervisor	80,655.93	
Brown, E	Sr Collection Officer	59,119.41	
Brown, G	Case Manager 2	61,913.73	
Brown, J	Accountant 2	66,349.75	
Brown, K	Case Manager 2	71,308.33	
Brown, T	Legal Specialist	122,143.12	
Brown, T	Customer Care Agent 1	53,179.60	
Bruce, D	Security Services Technician	78,650.61	
Bruce, G	Adjuster/Driver Examiner	70,811.31	
Bryden, S	Sr IT Analyst	91,694.08	
Buchanan, M	Sr Organizational Development Consultant	88,767.99	
Buchberger, K	Sr Case Manager	89,522.51	
Budgell, D	Customer Relations Officer	114,254.84	**
Buenviaje, A	KMS Administrator	52,132.40	
Buizer, K	Special Investigator	89,825.20	
Buller, E	Sr Analyst	94,809.30	

Name	Position Title	Total Compensation	
Bunko, B	Vice President, IT & Business Transformation and CIO	223,569.34	
Bunkowsky, S	Director, Loss Prevention	114,466.14	
Bunston, G	Manager, Investments	118,047.66	
Burbella, D	KM Portfolio Manager	106,894.94	**
Burdz, M	Sr Business Analyst	66,268.51	
Burke, J	Corporate Application Architect	92,229.30	
Burns, D	Manager, Licensing Services	106,493.91	
Burns, G	Multimedia App Developer	55,315.86	
Burns, K	IRI Analyst	78,020.67	
Burns, N	Clerk Typist 4	53,562.17	
Burt, J	Director, Special Risk Extension	117,244.30	
Burtniak, S	Fleets Administrator	56,233.21	
Byrnes, J	Programmer/Analyst	58,706.02	
Cabral, L	Sr Case Manager	81,750.77	
Cabrera, H	Customer Care Agent 1	52,653.79	
Caillier, T	Sr Case Manager	77,883.91	
Calas, P	Auditor 1	69,086.77	**
Caligiuri, C	Sr Business Analyst	78,021.05	
Cameron, E	Premises Coordinator	73,903.14	
Cameron, K	Manager, Vehicle Safety	117,688.46	**
Campbell, A	Customer Care Agent 1	53,027.52	
Campbell, C	Corporate Controller	169,914.63	
Campbell, P	Customer Service Representative	56,448.12	
Campbell, S	Senior Applications Architect	127,114.25	
Campbell, T	Driver Examiner	58,070.22	
Campeau, R	Facial Recognition Analyst	50,821.10	
Carbotte, C	Customer Care Lead	60,376.81	
Cardillo, M	Sr Investment Analyst	79,134.53	**
Carias, H	Payroll Coordinator	86,822.44	
Carter, K	Sr Adjuster	60,601.50	
Carter, T	Customer Care Agent 2	56,176.32	
Carton, V	Underwriting Supervisor	89,890.88	
Casar, J	Adjuster/Driver Examiner	65,819.77	
Castaneda, Y	Sr Analyst	77,701.45	
Castro, E	Analyst	65,315.98	
Caufield, A	PIPP Benefits Administrator	57,162.67	
Cawson, M	Driver Records Coordinator	59,113.06	
Celones, E	Adjuster	59,504.96	
Chalmers, C	Sr Adjuster	67,655.79	
Chalmers, J	Service Centre Representative	55,425.34	
Chamberlain, C	Accredited Repair Coordinator	87,841.64	
Chambers, W	Tech Communications Officer 1	54,556.64	
Champagne, S	Service Centre Representative	54,348.53	

Name	Position Title	Total Compensation	
Chandonnet, L	Service Centre Representative	55,876.74	
Charles, D	Commercial Specialist	78,982.61	
Charriere, J	Claims Audit Administrator	51,839.76	
Chartier, N	Service Centre Representative	55,917.60	
Chartier, N	Adjuster	53,704.70	
Chartrand, B	Estimator-Rural	69,740.50	
Chartrand, M	Sr Case Manager	80,160.39	
Chastko, D	Compensation Analyst	96,388.86	
Chaudhuri, A	Business Analyst	78,496.81	
Cheadle, A	Sr Business Analyst	84,284.99	
Chen, C	Underwriter 2	56,882.91	
Chernecki, P	Estimator-City	67,034.33	
Chestley, D	Sr Case Manager	121,878.45	**
Cheung, M	Business Analyst	66,936.97	
Chicoine, C	Sr IT Analyst	96,252.28	
Chimuk, D	Director, PDC Claims Operations	131,724.00	
Chochinov, C	Injury Claims Analyst 2	71,452.57	
Choi, J	Accounting Clerk 2	53,335.56	
Cholod, D	Injury Management Coordinator	90,005.92	
Cholod, H	IT Administrator	51,648.05	
Chomski, A	Sr Investment Analyst	87,960.86	
Chorney, J	Service Centre Representative	55,661.57	
Christoph, J	PC Claim Audit Coordinator	84,735.29	
Chuatoco, B	Functional Support Analyst - Payroll	76,928.57	
Churley, J	Adjuster/Driver Examiner	62,229.58	
Cielen, B	Adjuster	59,363.81	
Cielen, K	Service Centre Representative	55,748.95	
Claridge, D	Service Centre Representative	55,559.41	
Clark, L	Case Manager 2	72,396.80	
Clarke, D	Adjuster	54,692.06	
Clearwater, T	Actuarial Analyst	82,188.91	
Clemens, D	Sr IT Analyst	97,653.95	
Clow, K	Adjuster	51,653.83	
Coker, A	Case Manager 2	61,332.74	
Cole, K	Manager, Service Centre	91,496.86	
Coleman, C	Adjuster	59,951.36	
Colomy, C	Community Program Coordinator	54,736.35	
Conley, M	SRE Administrator	83,209.04	**
Cook, T	Programmer	51,395.35	
Cooke, R	Business Analyst	64,706.03	
Cooke, T	Incident & Problem Management Specialist	88,900.39	
Cookson, R	Commercial Estimator	56,266.42	
Cordeiro, S	Clerk Typist 2	53,406.29	

Name	Position Title	Total Compensation	
Corley, J	Commercial Specialist	74,423.33	
Cormier, C	Special Advisor	61,085.30	**
Cormier, V	Project Manager	71,616.25	
Correia, K	Service Centre Representative	59,886.52	
Cortens, P	Sr Case Manager	73,063.55	
Costa, M	Claims Processor	50,683.27	
Cosyns, P	IT Change Management Specialist	81,123.87	
Coulson, C	Shop Relationship Advisor	87,841.64	
Courchene, S	Accountant 2	66,845.63	
Court, T	Assistant Manager, Special Investigation Unit	89,723.66	
Cowley, T	Assistant Manager, Special Investigation Unit	84,400.55	
Craig, C	Driver Examiner	64,982.97	
Crittenden, R	Director, IT Infrastructure	124,212.04	
Crocker, K	Commercial Specialist	53,513.74	
Crocker, W	Shop Relationship Advisor	92,459.57	
Croker, B	Customer Service Representative	53,193.95	
Crowe, M	Vehicle Standards Officer	65,764.57	
Crozier, A	Estimate Auditor	62,854.68	
Crozier, J	Director, Regulatory Affairs	122,520.14	
Cruz, R	Associate Business Analyst	50,540.84	
Cruz, S	Sr Adjuster	67,849.17	
Cudden, F	IRI Analyst	78,028.16	
Cullen, C	Manager, Service Centre	98,196.31	
Cumming, L	Director, Special Risk Extension	56,890.91	**
Cummings, E	SME - Sr Instructional Designer	75,750.44	
Cupples, J	Case Manager 2	73,939.74	
Curtaz, J	Sr Business Analyst	87,321.15	
Cyrenne, R	Reviewing Officer	64,606.55	
da Silva, L	Adjuster	57,979.00	
Dabu, R	Customer Care Agent 1	52,632.88	
Daley, D	Reviewing Officer	64,506.97	
Dalman, J	Community Relations Specialist Lead	77,026.64	
Damasco, M	Business Analyst	79,217.95	
Danais, A	Sr Analyst	105,665.66	
D'Andrea, C	Medical Fitness Administrator	83,235.66	
Dash, J	Analyst	65,151.08	
Dattero, G	Sr Adjuster	67,695.65	
Dattero, L	Service Centre Representative	55,288.72	
Davey, P	Fleet Vehicle Administrator	74,924.38	
Davis, L	Benefits & HRMS Administrator	52,950.72	
Davis, T	Estimator-City	73,115.65	
Dayman, C	Supervisor, Rural Service Centre	81,235.29	
Dayman, R	Vehicle Standards Supervisor	78,782.96	

Name	Position Title	Total Compensation	
Dayne, J	Adjuster	59,693.15	
De Cruyenaere, A	Driver Testing Policy Analyst	65,683.18	
de Denus, M	Employee & Labour Relations Specialist	64,134.42	
de Jesus, E	IT Analyst	92,350.50	
de Souza, L	Sr Information Security Risk Analyst	91,952.46	
De Viet, B	Accounts Receivable Representative	57,283.68	
Debeuckelaere, T	Special Investigator	88,746.45	
Decock, T	Claims Supervisor	75,836.65	
DeFolter, A	Manager, Estimating & Salvage Operations	146,455.72	**
Degrave, A	Driver Examiner	64,357.44	
Deighton, T	Workplace Safety Coordinator	58,777.05	
Delamater, N	Accredited Repair Inspector	82,093.86	
Deluca, C	Systems User Analyst	62,975.02	
Deluna, D	Customer Relations Officer	74,064.61	
Demianiw, M	Supervisor, Rural Service Centre	82,030.53	
Deogun, A	Sr Sharepoint Analyst	101,202.88	
DeRuddere, P	Service Centre Representative	55,598.69	
Desautels, A	Driver Examiner	59,363.81	
Dessler, G	Corporate System Architect	173,459.90	
Deveau, Y	French Language Services and Accessibility Coordinator	66,629.07	
Devodder, J	Sr IT Analyst	109,163.32	
Dheilly, L	Clerk 3	50,291.79	**
Diduch, C	Sr Case Manager	84,747.05	
Dion, D	Estimator-City	70,550.27	
Dirks, P	Manager, Service Operations Policy & Control	100,232.00	
Disbrowe, C	IRI Calculator	50,294.26	
Dittmar, W	Injury Management Coordinator	90,305.88	
Dixon, B	Analyst	91,026.22	
Dixon, N	Autopac Program Coordinator	68,910.02	
Doell, B	Business Analyst	50,393.87	
Doherty, V	Sr Case Manager	83,743.15	
Domish, C	Sr Case Manager	84,540.87	
Donaldson, D	Buyer	56,282.84	
Donay, M	Contact Centre Supervisor	69,178.39	
Doskoch, M	Accountant 2	71,955.04	
Doucette, D	Programmer/Analyst	68,258.50	
Douglas, M	HRMS Coordinator	88,922.64	
Douglas, S	Estimate Auditor	71,262.58	
Douglass, T	Community Relations Specialist	74,153.84	
Downey, C	Director, Organizational Development	127,991.10	
Downie, K	Adjuster	61,856.11	
Dreesen, L	Customer Care Agent 2	56,734.58	
Drosdoski, J	Adjuster	60,195.75	

Name	Position Title	Total Compensation	
Drummond, R	Sr IT Support Analyst	69,805.49	
Druwe, A	Case Manager 2	57,840.74	
Du, R	Business Analyst	70,253.06	
Dubowits, J	Estimate Auditor	68,125.02	
Duda, R	Customer Account Representative	93,802.80	**
Dueck, P	Organizational Development Consultant	70,364.03	
Dufault, J	Driver Ed Liaison Officer	64,273.16	
Dufault, L	Sr Case Manager	70,154.93	
Dundas, I	Sr IT Analyst	89,491.51	
Dunlop, D	Vehicle Registrations Coordinator	82,067.30	
Dunstone, D	KM Service Delivery Manager	104,510.86	
Dunstone, D	Assistant Manager, Reinsurance & Forecasting	104,074.62	
Durand, B	Adjuster	63,191.60	
Dutka, C	Sr Policy Analyst	76,929.50	
Duval, J	Supervisor, Salvage Administration	72,340.67	
Dvorak, J	Manager, Production Support	119,180.25	
Dyck, J	Investigator	87,192.32	
Dyck, T	Associate Commercial Adjuster	55,529.44	
Dyer, G	Analyst - COTS Applications	86,636.60	
Eckberg, B	Commercial Registrations Representative	56,455.21	
Eden, C	Manager, Road Safety Program Development	103,176.19	
Edginton, G	Corporate Application Architect	92,229.30	
Edwards, A	Accredited Repair Inspector	72,148.60	
Edwards, E	Estimator-Rural	66,933.18	
Edwards, J	Clerk 4	56,233.21	
Egan, D	Sr Case Manager	84,692.10	
Eger, R	Estimator-City	70,282.53	
Eisener, D	PIPP Benefits Administrator	56,016.01	
Eisner, R	Sr Case Manager	83,740.87	
Ekdahl, S	Sr Business Analyst	84,608.07	
Ellis, S	Clerk 4	50,371.04	
Emes-Macklin, B	Deputy Registrar	102,828.08	
Empey, G	Service Centre Representative	57,368.17	
Engbrecht, A	Sr Instructional Designer	83,516.87	
Engel, S	Sr IT Administrator	55,313.62	
English, T	Estimator-City	54,223.28	
Enns, L	Medical Assessment Supervisor	83,931.60	
Ernewein, A	Administrator 1	57,465.65	
Esau, G	Driver Examiner	61,585.55	
Estabrooks, J	Customer Care Agent 2	55,481.51	
Estares, J	Sr Business Analyst	86,236.37	
Exconde, K	Customer Care Agent 1	52,786.84	
Fahrenschon, T	Adjuster	58,148.74	

Name	Position Title	Total Compensation	
Falkenberg, P	Special Investigator	64,010.13	
Falkowski, C	Estimator-Rural	57,149.70	
Faria, P	Information Architect	91,516.18	
Fast, C	Underwriter 1	59,558.82	
Fecyk, K	Customer Care Lead	61,663.44	
Feeney, M	Talent Acquisition Consultant	63,403.00	
Fehr, T	Service Centre Representative	55,547.77	
Fender, J	Service Centre Representative	54,348.53	
Feng, Y	Sr IT Support Analyst	73,285.14	
Fernando, S	Analyst	89,108.05	
Ferreira, R	Assistant Manager, Physical Damage Program	93,330.66	
Ferris, E	Identity Verification Administrator	50,343.81	
Feser, J	Driver Examiner	58,174.48	
Figueiredo, C	Business Relationship Manager	103,237.81	
Fiks, M	Manager, Basic Autopac Special Services	52,048.67	**
Fillion, K	Sr Case Manager	84,009.12	
Firman, S	Service Centre Representative	55,416.01	
Fish, D	Broker Services Administrator	69,664.19	
Fisher, D	Analyst	83,717.47	
Fisher, L	Assistant Manager, Customer Service	72,785.23	
Fleming, D	Tow Truck Operator	56,875.37	
Fleury, S	Clerk 3	50,860.72	
Fleury-Charles, F	Adjuster	58,597.29	
Foidart, P	Estimator-City	61,231.51	
Fomgbami, Z	Adjuster	59,888.46	
Fontaine, D	Supervisor, Driver Testing	74,521.69	
Fontaine, S	Driver Training Permit Officer	53,211.87	
Forson, K	Associate Commercial Adjuster	58,290.61	
Fosty, B	Manager, Driver Testing Policy & Evaluation	112,280.55	**
Fosty, P	Driver Training Permit Officer	78,487.96	**
Fotheringham, B	Identity Verification Supervisor	63,520.37	
Foulkes, G	Case Manager 2	72,395.47	
Fraiter, T	Programmer	61,032.96	
Francis, R	Estimator-Rural	60,753.95	
Franklin, M	Strategic Communications Coordinator	67,039.10	
Frazer, D	Manager, Estimating & Salvage Operations	85,153.11	
Frechette, F	Reviewing Officer	64,439.36	
Frederickson, F	SME - Sr Instructional Designer	84,141.84	
Fredette, R	Estimator-City	56,737.36	
Freeman, B	Sr Graphic Designer	66,917.15	
Friesen, K	Sr Business Continuity Coordinator	92,985.88	
Friesen, K	Instructional Designer	62,341.35	
Froelich, S	Analyst	79,576.38	

Name	Position Title	Total Compensation
Froese, G	Manager, Accredited Repair	96,822.96
Frykas, C	Injury Claims Analyst 2	74,419.33
Fujiwara, T	Estimator-City	70,285.79
Fuz, J	Commercial Specialist	85,085.84
Gagne, J	Director, Corporate Services	144,127.27
Gagnon, C	Adjuster	59,183.10
Gagnon, R	Analytics Specialist	68,527.32
Galezowski, L	Supervisor, Driver Testing	78,677.66
Galka, R	Purchasing Agent	64,931.91
Gallant, N	Supervisor, Commercial Claims	54,179.15
Gardner, S	Estimating Supervisor	74,234.34
Garn, P	Manager, KM Governance and Architecture	101,937.05
Garofoli, D	Product Specialist	84,720.23
Garrioch, C	Estimator-City	64,203.58
Garwood, M	Internal Review Officer	84,861.37
Gasmen, K	Associate Driver Examiner	50,842.84
Gaspar, L	Adjuster	55,748.61
Gaucher, M	Manager, Broker Support & Autopac Services	86,482.51
Gaudry, G	Assistant Manager, Financial Reporting	100,321.69
Geiger, C	Service Centre Representative	57,975.55
Gendreau, L	Manager, HR Business Partnerships	98,284.71
General, E	Programmer/Analyst	56,699.26
Gerullis, G	Community Program Coordinator	60,047.24
Giannico, M	Customer Relations Officer	73,758.88
Giasson, C	Yardman	52,719.47
Gibson, T	Business Analyst	72,816.24
Giesbrecht, B	Claims Cost Controller	98,442.21
Giesbrecht, W	Adjuster	63,876.52
Gillies, G	Senior Applications Architect	140,889.95
Gilmore, C	Driver Examiner	59,847.06
Gingras, M	Adjuster	60,601.27
Glenday, C	Assistant Manager, Contact Centre Operations	73,419.22
Glowa, R	Subrogation Specialist 2	73,800.05
Gnoinski, J	Adjuster	58,951.39
Gobeil, L	Customer Care Agent 2	57,304.45
Gobeil, T	Customer Care Agent 1	52,464.49
Goddard, S	Injury Management Coordinator	87,416.26
Goertzen, C	Special Investigator	87,826.76
Goertzen, I	Claims Cost Controller	98,641.31
Gomez Sanchez Baca, J	Premises Assistant	50,691.66
Gomez-Sanchez, K	Case Manager 2	69,653.69
Gompf, V	Subrogation Adjuster	60,481.01
Goodine, K	Special Investigator	82,094.92

Name	Position Title	Total Compensation	
Goos Berard, A	Strategic Communications Coordinator	77,547.54	
Gordon, A	Legal Processor	51,986.04	
Gordon, D	Customer Care Agent 1	52,390.82	
Gowen, T	Commercial Estimating Supervisor	82,285.53	
Grabowski, M	Service Centre Representative	55,736.95	
Graham, C	Case Manager 2	69,332.19	
Grantham, D	Analyst	72,727.42	
Greco, F	Vehicle Standards Officer	72,972.54	
Green, B	Driver Examiner	117,290.44	**
Green, D	Sr Case Manager	82,421.02	
Greig, R	Vehicle Standards Officer	74,959.09	
Grenier, R	Instructional Designer	66,328.94	
Griffith-Parker, B	Sr Graphic Designer	69,027.50	
Groen, L	Sr Instructional Designer	75,780.59	
Grose, T	Driver Examiner	58,220.23	
Gross, W	Case Manager 2	59,121.82	
Grossman, P	Assistant Manager, Special Accounts & Subrogation	99,912.13	
Gudz, T	Systems User Analyst	92,327.02	**
Guerra, A	Solicitor 1	59,447.34	
Guimond, D	President & CEO	353,717.49	
Gunn, C	Assistant Manager, Service Centre	95,640.96	
Gushulak, T	Data Steward	53,285.33	
Hadla, A	Accounting Clerk 2	52,219.89	
Haggarty, K	Associate Underwriter	54,573.68	
Haire, S	Tech Communications Lead	77,590.45	
Haithwaite, R	Executive Director, Injury Claims Management	137,688.51	**
Halabiski, J	IT Analyst	86,582.57	
Halili, R	IRI Calculator	53,724.73	
Hall, L	Driver Fitness Systems User Analyst	64,288.73	
Halliday, B	Underwriter 2	60,376.43	
Halliday, E	SRE Administrator	60,120.78	
Hallock, J	Manager, Purchasing	80,432.10	
Halma, J	Estimating Supervisor	68,357.55	
Hannah, H	Injury Management Coordinator	81,134.42	
Hansell, C	Sr Case Manager	78,059.43	
Hansma, A	Talent Acquisition Consultant	56,983.10	
Harasym, C	Adjuster	59,548.81	
Harkness, K	Director, Organizational Readiness	118,490.09	
Harmacy, S	Shop Relationship Advisor	75,577.88	
Harron, P	Underwriting Supervisor	85,496.03	
Hartry, B	Driver Examiner	51,096.43	
Hartung, S	Adjuster	57,955.25	
Hartwich, S	Medical Fitness Administrator	81,703.63	

Name	Position Title	Total Compensation	
Harvey, M	Underwriting Supervisor	90,337.88	
Harvey-Rundle, J	Fleets Administrator	56,522.21	
Hassa, M	Sr Functional Support Analyst	87,752.80	
Hastings, M	Supervisor, Customer Service Centre	65,508.73	
Hauser, T	Injury Management Coordinator	89,051.25	
Haywood, J	PIPP Benefits Administrator	55,086.94	
Haywood, T	Customer Care Lead	60,037.81	
Heinrichs, C	Supervisor, IT Services	120,459.89	
Heintz, D	Accredited Repair Inspector	83,091.56	
Helgason, N	Sr Adjuster	73,180.51	
Henderson, J	Adjuster	113,950.34	**
Henderson, K	Sr Case Manager	86,044.02	
Hendricks, C	Sr Business Analyst	81,603.69	
Hermary, M	Vehicle Standards Officer	72,972.54	
Hibbert, C	Accounts Receivable Representative	52,114.89	
Higgins, D	Systems User Analyst	64,714.11	
Higgs, D	Assistant Manager, Subrogation & Control	87,504.98	**
Hildawa, R	Project Manager	88,692.22	
Hildebrand, K	Estimating Supervisor	78,176.73	
Hills, T	HR Business Partner	62,804.99	
Hindmarsh, C	Supervisor, Customer Service Centre	67,339.41	
Hirmann, J	Premises Coordinator	70,345.02	
Hirose, G	Customer Care Agent 1	52,727.27	
Hlatkey, R	Adjuster	59,866.84	
Hnatiuk, C	Case Manager 2	64,074.49	
Hoban, J	HR Benefits Administrator	66,501.58	
Hobson, K	Claims Supervisor	84,996.04	
Hobson, K	Adjuster	51,519.10	
Hocken, C	Registrar of Motor Vehicles	168,242.16	
Hoffman, M	Legal Specialist	136,837.65	
Hoggan, B	Salvage Supervisor	95,809.70	**
Hogue, I	Estimating Systems Administrator	78,773.52	
Holdsworth, K	Business Architect	95,442.63	
Holgate, R	Accountant 1	61,077.92	
Holmes, K	Driver Examiner	60,179.39	
Holowachuk, D	Service Centre Representative	54,291.60	
Holowick, D	Sr Payroll Administrator	107,610.03	**
Hook, C	Accountant 1	60,393.45	
Hooper, S	Estimating Supervisor	75,831.19	
Hopkins, D	Manager, Financial Reporting	119,772.99	
Hoppe, D	Estimator-Rural	64,044.23	**
Hora, C	Director, Service Centre Operations	130,245.96	
Horn, L	Case Manager 2	62,250.78	

Name	Position Title	Total Compensation	
Howdle, H	Manager, Health Care Services	79,267.73	**
Howe, D	Sr Adjuster	68,428.23	
Howell, A	Estimator-Rural	64,559.94	
Howlett, J	Premises Coordinator	67,301.88	
Hoy, K	Business Analyst	83,514.53	
Hrabliuk, C	Injury Management Coordinator	90,033.88	
Hristovski, M	Sr Case Manager	59,484.54	
Hruda, M	Commercial Estimator	54,996.67	
Hrustic-Gyselinck, A	Service Centre Representative	55,554.45	
Hryciw, N	Supervisor, Broker Services Audit	55,884.67	
Huber, C	Manager, Physical Damage Research & Training	109,923.20	
Huber, R	Adjuster	59,043.05	
Hudey, J	Supervisor, PIPP Administrative Services	72,731.51	
Hudson, G	Estimator-Rural	55,250.57	
Hudson, J	Commercial Specialist	78,173.52	
Humble, J	Sr Business Analyst	85,815.98	
Humphries, E	Special Investigator	88,141.64	
Hunt, T	Strategic Communications Coordinator	54,012.89	
Huppe, G	Fair Practices & Customer Relations Coordinator	87,295.59	
Hussey, M	Programmer/Analyst	71,777.59	
Hutchinson, V	Case Manager 2	66,664.78	
Hutsal, F	Customer Care Agent 2	55,324.04	
Huzel, J	Business Analyst	78,963.53	
Hykawy, R	Vehicle Standards Officer	72,972.54	
Ingram, J	Emergency Preparedness & Safety Coordinator	71,946.40	
Innes, M	Sr IT Support Analyst	68,356.60	
Insch, K	Assistant Manager, Contact Centre Operations	76,662.81	
Irie, I	Adjuster	57,117.88	
Irving, C	Commercial Registrations Supervisor	64,196.91	
Irwin, C	Service Centre Representative	55,416.01	
Isaak, J	Supervisor, Customer Service Centre	65,155.77	
Isaak, N	Analyst	78,862.72	
Isfjord, S	SME - HRMS Information Specialist	86,053.69	
Isfjord, T	Sr Business Analyst	98,358.06	
Iskierski, J	Adjuster	51,493.26	
Islam, Z	Service Centre Representative	55,448.95	
Ismail, M	Assistant Manager, Financial Operations	103,198.23	
Izzard, R	Accountant 2	83,093.78	
Jagger, H	Sr Case Manager	84,694.10	
Jajam, J	Sr Adjuster	68,125.02	
Jamieson, S	Systems User Analyst	62,674.74	
Jansen, S	Commercial Registrations Representative	56,441.83	
Janssen, K	Adjuster	55,443.57	

Name	Position Title	Total Compensation	
Jantz, F	Driver Examiner	57,107.48	
Jaques, L	Medical Assessment Clerk	50,258.52	
Jassal, G	Auditor 2	77,130.11	
Jay, R	Programmer/Analyst	64,514.91	
Jeanson, R	Commercial Adjuster	68,128.23	
Jeffrey, K	Assistant Manager, Claims Services	95,527.91	
Jenkyns, M	Adjuster	60,625.22	
Jensen, M	Estimator-Rural	65,202.03	
Jia, H	Sr IT Analyst	81,987.52	
Johns, R	Systems User Analyst	67,317.91	
Johnson, D	Staff Development Consultant	83,211.06	
Johnson, D	IT Support Analyst	60,452.05	
Johnson, J	Adjuster	59,751.52	
Johnson, K	Sr Systems User Analyst	71,676.48	
Johnson, K	Commercial Estimator	69,815.62	
Johnson, K	Estimator-City	55,159.65	
Johnson, L	Special Investigator	77,381.81	
Johnston, G	Director, Business Transformation Office	168,215.70	
Johnston, L	Chief Actuary	197,864.46	
Jolicoeur, N	Customer Care Agent 2	51,880.53	
Jonasson, K	Associate Underwriter	50,064.09	
Jonasson, L	PIPP Benefits Administrator	53,214.50	
Jones, D	Special Investigator	69,716.26	
Jones, G	Adjuster	59,646.10	
Jones, L	Special Activities Services Officer	64,737.39	
Jones, M	Underwriter 2	58,921.11	
Jovanovic, M	Manager, Budgeting	134,661.98	**
Jubinville, D	Sr IT Administrator - Operations	68,206.53	
Juhnke, M	Case Manager 2	72,764.63	
Jurkowski, L	Manager, Estimatics	95,294.55	
Jurkowski, R	Driver Improvement Supervisor	73,771.09	
Kacher, M	Director, DVA Administration	140,802.39	
Kalomiris, H	Analyst	82,752.44	
Kalushka, K	Tech Communications Officer 1	60,227.09	
Kamenkovich, M	Enterprise Data Warehouse Specialist	69,727.78	
Kantimer, C	Instructional Designer	61,202.06	
Karpenko, S	Assistant Manager, Special Investigation Unit	81,235.55	**
Kaspersion, D	Accountant 2	78,388.26	
Kaspick, J	Shop Relationship Advisor	86,309.79	
Katz Robert, S	Manager, Internal Communications	82,294.93	
Kauk, S	Adjuster	56,975.18	
Kaushal, M	Respectful Workplace Advisor	89,607.36	
Kaushal, R	Driver Examiner	57,795.20	

Name	Position Title	Total Compensation	
Kazubek, S	Customer Account Representative	57,442.23	
Keating, D	Adjuster	60,989.67	
Kee, A	Adjuster	57,598.21	
Kehler, R	Supervisor, Rural Service Centre	89,922.37	
Keith, M	Supervisor, PIPP Administrative Services	64,272.51	
Keith, W	Vice President, Business Development & Communications and CAO	222,945.56	
Keller, D	Estimator-City	69,063.59	
Kemash, A	Identity Verification Supervisor	62,579.42	
Kernaghan, B	Business Analyst	56,271.57	
Keszi, M	Multimedia App Developer	64,196.91	
Ketola, D	Estimator-Rural	70,846.84	
Khan, D	Business Analyst	68,054.17	
Khan, S	Analyst	77,383.40	
Kindrat, D	Adjuster	60,311.24	
King, K	Case Manager 1	53,423.30	
Kintop, K	Business Analyst	78,971.52	
Kirkwood, M	Adjuster	59,443.81	
Kjartanson, M	Systems User Analyst	64,439.69	
Klassen, B	Driver Examiner	52,640.42	
Klassen, C	Analyst	79,049.53	
Klassen, K	Team Leader, Broker Services Administration	78,368.76	
Klingbell, S	Sr Analyst	99,412.62	
Klohn, K	Contact Centre Operations Resource Coordinator	63,560.35	
Kluner, R	Administrative Officer 2	68,596.28	
Kneeshaw, B	Supervisor, Customer Service Centre	68,381.02	
Knight, K	Adjuster	52,511.18	
Kobylinski, M	Assistant Manager, Licencing Services	109,125.28	**
Kocis, M	Estimator-City	67,757.65	
Koehl, H	Sr Analyst	75,927.21	**
Kokan, D	Analyst	60,624.96	
Kolly, L	Manager, Enterprise Project Management Office	130,580.55	
Komadowski, S	Executive Assistant	75,715.20	
Kominowski, P	Adjuster	61,533.33	
Koots, K	Project Manager	139,664.01	**
Kopec, C	Supervisor, Customer Service Centre	62,737.04	
Kopeechuk, L	Supervisor, Customer Service Centre	50,416.77	
Koroscil, D	Manager, Quality Assurance	115,125.63	
Koroscil, M	Technical Communications Editor	53,946.93	
Korozsi, B	Estimating Supervisor	79,460.12	
Korsunsky, A	Solicitor 1	93,213.58	
Koscielny, K	Sr Underwriter	76,600.10	
Kowalchuk, M	Sr Case Manager	84,313.64	

Name	Position Title	Total Compensation	
Kowbel, D	Director, External Communications & Community Relations	170,534.06	
Krahn, M	Sr Injury Claims Adjuster	74,329.13	
Kramble, D	Clerk 2 - Receiver	50,399.86	
Kramer, L	Estimator-City	68,138.37	
Kramer, O	Special Advisor	64,209.27	
Krasnowski, G	Sr Analyst	100,374.31	
Kravetsky, M	Business Analyst	72,346.79	
Krawchuk, M	IT CMDB Specialist	78,898.40	
Kroeker, C	Sr Adjuster	50,266.61	
Kroll, D	Tow Truck Operator	51,303.70	
Krueger, K	Director, Internal Audit & Enterprise Risk Management	128,655.80	
Krueger, K	Adjuster	58,482.23	
Krupinski, J	Manager, Budgeting	131,685.34	
Ksiazek, K	Supervisor, PIPP Administrative Services	68,505.74	
Kuby, Q	Adjuster	53,131.93	
Kuegle, A	Customer Care Agent 2	50,036.80	
Kumka, J	Occupational Therapist	85,211.93	
Kumka, T	Solicitor 2	121,410.70	
Kushnir, A	Analyst	66,869.09	
Kusiak, J	Tech Communications Officer 1	58,343.28	
Kusie, T	Customer Care Agent 2	56,906.68	
Kuypers, A	Estimator-City	56,114.91	
Kwiatkowski, B	Corporate Application Architect	92,547.55	
Kyliuk, T	Analyst	80,924.26	
Lacey, R	Programmer	52,814.29	
Lachance, K	Subrogation Specialist 2	74,388.18	
Lacroix, P	Privacy & Information Officer	89,041.64	
Laferriere, M	Sr Analyst	104,260.08	
Lafortune, C	Supervisor, Customer Service Centre	68,255.93	
LaFreniere, R	Adjuster	62,526.86	
Lagace, C	Supervisor, Claims Processing	73,163.46	
Laidlaw, D	Project Manager	101,388.64	**
Lamb, D	Driver Licensing Liaison Officer	65,540.11	
Lambert, J	Assistant Manager, Claims Services	72,580.84	**
Lambrecht, K	Analyst	75,509.89	
Lamont, B	Facilities Service Technician	80,790.38	
Lang, L	Claims Supervisor	73,745.14	
Lansard, S	Supervisor, Rural Service Centre	90,085.07	
Lapina, J	Injury Claims Analyst 1	63,167.29	
Lapointe, G	Injury Management Coordinator	98,259.53	**
Lapointe, J	IT Analyst	82,167.80	
Lapratte, P	Estimator-Rural	68,961.99	
Larsen, M	Identity Case Administrator	55,660.41	

Name	Position Title	Total Compensation	
Larson, C	Supervisor, Mail and Warehouse	69,372.94	
Lasuik, B	Assistant Manager, Claims Services	80,928.89	
Lau, R	Information Systems Auditor	90,600.43	
Lawless, S	Associate Business Analyst	52,697.35	
Lawrence, M	Business Analyst	78,767.12	
Lawrence, M	Sr IT Support Analyst	73,043.25	
Lawrence, S	Administrative Officer 2	72,303.24	
Laxdal, G	Business Analyst	78,874.61	
Lazarko, L	Director, Information Technology	161,047.12	
Lea, M	Supervisor, IT Services	110,035.02	
Leach, K	Collection Supervisor	79,013.34	
Lebedeff, T	Parts Program Administrator	52,663.00	
Leclerc, P	Customer Care Agent 1	51,272.81	
Lee, R	Business Analyst	80,102.63	
Lee, S	Disaster Recovery Coordinator	77,646.77	
Lee-Ward, B	Sr IT Analyst	72,751.24	
Leganchuk, D	Service Centre Representative	55,554.67	
Lehmann, K	Supervisor, Rural Service Centre	95,015.19	
Lehmann, S	Sr Information Security Risk Analyst	96,854.56	
Leiman, C	Associate Case Manager	52,388.63	
Leitold, K	Special Investigator	87,902.89	
Lemoine, C	Sr Graphic Designer	65,595.39	
Lepki, G	Estimating Supervisor	78,173.52	
Leppky, S	Acting Vice President, Human Resources & CHRO	200,097.29	**
Lernowicz, K	Customer Care Agent 2	52,698.47	
LeSage, J	Adjuster	63,802.85	
Leslie, S	Estimator-City	55,159.65	
Letkemann, J	SME - Adjuster	59,848.81	
Levy, S	Accountant 1	53,230.01	
Lewis, C	Sr IT Administrator - Operations	67,717.70	
Lewis, J	Special Investigator	88,556.15	
Lewis, R	Customer Account Representative	56,016.01	
Leys, E	Commercial Estimator	70,391.54	
Leys, T	Estimator-Rural	68,763.58	
Ligsa, J	PIPP Benefits Administrator	63,760.92	
Lima de Moura, R	HRMS Administrator	53,038.96	
Lindenberg, L	Sr Analyst	86,899.22	
Lindo, G	Buyer	56,025.71	
Link, C	Manager, Rehabilitation Management	106,914.00	
Lischynski, A	Tech Communications Officer 1	50,056.44	
Litke, D	Assistant Manager, Accounting Services	79,993.14	
Litwin, S	Claims Audit Administrator	51,733.09	
Liu, L	Business Analyst	55,679.31	

Name	Position Title	Total Compensation
Lobban, E	Sr Case Manager	76,585.42
Locke, C	Sr Adjuster	69,995.99
Locke, J	Adjuster	58,638.14
Loeb, C	Customer Care Agent 2	55,766.59
Loechner, M	Assistant Manager, Customer Service	95,340.96
Loeppky, G	Injury Management Coordinator	92,695.39
Loewen, D	Research & Training Technician - Mechanical	83,321.15
Lokke, A	Business Analyst	79,578.76
Long, R	Adjuster	62,370.64
Lopushniuk, S	Accounting Clerk 2	56,577.76
Loree-Dueck, K	Programmer	61,715.52
Lorteau, G	Driver Examiner	60,110.78
Loster, J	Sr IT Analyst	88,710.96
Love, D	Supervisor, Driver Testing	73,272.54
Lovering, A	Medical Fitness Administrator	81,687.13
Lucko, T	Manager, SRE Fleet Safety	95,664.85
Lucyk, T	Driver Examiner	60,624.79
Ludba, D	Sr Information Security Risk Analyst	108,857.62
Luky, C	Supervisor, Claims Audit	68,125.02
Lumbres, M	Functional Support Analyst	65,063.45
Lundy, R	Estimator-City	69,854.30
Lupky, S	Manager, Specialized Risk Claims	126,489.28
Lyburn, L	Commercial Specialist	78,636.83
Lyle, K	Claims Supervisor	84,043.12
Lyons, J	Sr Communications Specialist	88,790.30
Lysy, C	Analyst	84,119.65
Lysyk, N	Collection Officer	54,571.26
Lytwyn, C	Advertising Specialist	62,460.79
MacBeth, R	Analyst	80,734.46
MacCutcheon, S	Internal Review Officer	84,521.87
MacDonald, K	Vehicle Standards Officer	71,566.83
MacDonald, T	Commercial Adjuster	68,927.74
Macdonald, V	Assistant Manager, Medical Compliance & Assessments	96,676.75
MacFadyen, R	Business Analyst	66,423.70
MacFarlane, E	Sr Underwriter	70,989.97
Machado, N	Business Analyst	71,613.96
MacKay, A	Analyst	80,553.55
MacKeen, M	Fair Practices Analyst	79,450.69
Mackeen, T	IT Support Analyst	61,683.51
MacKenzie, A	Clerk 4	55,936.50
Macsymach, B	Service Centre Representative	55,416.01
Madden, K	Sr Payroll Administrator	63,386.35
Madhosingh, T	Business Analyst	78,975.92

Name	Position Title	Total Compensation	
Madrigga, J	Project Coordinator	79,598.76	
Maeren, D	Driver Records Coordinator	84,475.87	
Maes, D	Estimator-City	68,372.02	
Maharajh, M	Business Analyst	78,323.52	
Mai Moussa, C	Associate Commercial Adjuster	55,064.58	
Major, R	SME - Analyst	50,233.10	
Maly, P	Service Centre Representative	52,503.15	
Mangubat, R	Sr IT Support Analyst	61,726.85	
Mankewich, A	Commercial Estimator	66,545.23	
Manmohan, S	IRI Analyst	78,673.87	
Mann, C	Purchasing Agent	60,263.81	
Mann, S	Business Analyst	78,673.52	
Manthei, H	Medical Fitness Administrator	81,702.73	
Manzano, B	Contact Centre Supervisor	68,880.02	
Marchant, J	Facilities/Premises Administrator	83,013.70	
Marcheschuk, H	Driver Examiner	55,298.78	
Marczak, R	Customer Care Agent 2	59,807.17	
Marlatt, V	Adjuster	63,166.79	
Marsch, T	Service Centre Representative	56,477.70	
Marshall, J	Paralegal	55,979.12	
Martens, L	Adjuster	59,516.72	
Martin, C	Vice President, Customer Service and COO	351,705.74	**
Martin, S	Manager, Special Investigation Unit	75,710.32	**
Martineau, B	Sr Case Manager	82,616.87	
Martinez, J	Estimator-City	68,037.90	
Martynuk, J	Manager, IT Support & Operations	101,626.86	
Mary, D	Subrogation Adjuster	57,132.32	
Maryalaya Nelson, J	Business Architect	94,741.50	
Maslanka, M	Solicitor 2	124,314.30	
Masnyk, C	Subrogation Adjuster	60,192.53	
Mason, K	Customer Care Agent 2	56,551.36	
Mason, M	Clerk Typist 2	50,631.36	
Mather, J	Dealer Inspector	63,896.91	
Matkowski, R	Adjuster/Driver Examiner	71,835.02	
Matlashewski, L	Sr Compensation & Benefits Analyst	89,779.31	
Matson, G	Manager, Driver Fitness	110,104.81	
Matthes, B	Driver Examiner	61,107.03	
Matthes, B	Driver Examiner	59,715.14	
Mazzei, C	Policy Research Analyst	84,450.88	
McBride, C	Service Centre Representative	55,722.81	
McCaffrey, D	Data Architect	89,603.61	
McComb, L	Sr Subrogation Specialist	79,542.31	
McCulloch, I	Clerk 2 - Receiver	51,401.49	

Name	Position Title	Total Compensation	
McCullough, A	Fleet Safety & Loss Prevention Specialist	67,375.72	
McDivitt, M	Supervisor, Customer Accounts Receivable	65,221.25	
McDonald, C	Corporate Information Security Officer	167,824.08	
McDonald, D	Identity Verification Clerk	51,131.60	
McDonald, J	Estimator-Rural	73,408.48	
McDonald, W	Sr MultiMedia Application Developer	68,942.22	
McEachern, I	Customer Care Agent 1	52,496.39	
McEvoy, C	Service Centre Representative	54,680.11	
McFadyen, K	Manager, Quality Control & Metrics	96,936.18	
McGill, C	Sr Case Manager	77,124.84	
McGinnis, S	Audit Clerk	52,704.75	
McGrath, C	Sr Security Advisor	89,462.44	
McIntyre, H	Sr Analyst	91,906.74	
McKay, G	Analyst - Rate Groups	56,255.17	
McKay, J	Adjuster	58,165.22	
McKee, J	Business Analyst	83,717.53	
McKinnon, S	Executive Assistant	78,980.03	
McLaughlin, C	Injury Claims Adjuster	66,979.03	
McLean, P	IT Support Analyst	52,964.45	
McLennan, K	Manager, Financial Operations	122,363.51	
McLeod, T	Reinspection Estimator	83,973.63	**
McMullin, L	Customer Care Lead	57,310.78	
McNabb, D	Adjuster	58,868.32	
McNarry, N	Underwriter 1	54,621.46	
McRae, J	Sr IRI Calculator	62,162.48	
Meakin, K	Adjuster	63,765.02	
Meakin, L	Vehicle Standards Officer	72,159.17	
Meakin, S	Commercial Adjuster	80,691.06	**
Meier, C	Estimator-City	60,157.22	
Melizza, F	Sr Collection Officer	60,189.28	
Melnick, C	Accountant 1	63,423.95	
Melnyk, C	Sr Business Analyst	83,539.98	
Melnyk, R	Sr Business Analyst	84,331.69	
Melo, L	Assistant Manager, Rehabilitation Management	96,347.96	
Memryk, K	Service Centre Representative	52,186.12	
Mestdagh, L	Manager, Special Investigation Unit	109,972.37	
Meyer, A	SME - Technical Communicatons Lead	79,796.60	
Meyer, D	Driver Licensing Liaison Officer	83,689.39	**
Michie, S	Business Analyst	77,568.05	
Middlestead, W	Supervisor, Application Services	109,665.39	
Middleton, M	Service Centre Representative	53,984.36	
Mignon, C	Wellness Program Coordinator	77,581.10	
Miles, A	Solicitor	73,553.33	

Name	Position Title	Total Compensation	
Milette, C	Case Manager 2	72,430.81	
Miller, B	Associate Adjuster	53,754.06	
Miller, J	Manager, Service Centre	112,174.50	
Miller, T	Contact Centre Supervisor	59,654.41	
Millman, T	Commercial Registrations Representative	56,511.77	
Milroy, M	Supervisor, Legal Services	58,964.37	
Minenna, M	Manager, Driver Education & Training	102,613.08	
Mitchell, B	Sr Functional Support Analyst	84,340.87	
Mitra, S	Director, Physical Damage	144,625.02	
Mofe-Damijo, K	Associate Case Manager	50,806.31	
Mohr, A	Manager, Accounting Services	120,390.17	
Mohr, T	Sr Analyst	99,709.13	
Moins, M	Accredited Repair Inspector	82,095.03	
Molinski, D	Shop Relationship Advisor	87,508.94	
Molinski, T	Estimator-City	77,178.00	
Monchamp, M	Commercial Registrations Representative	55,798.26	
Monikandan, C	Analyst	88,517.33	
Moniuk, S	Sr Legal Processor	66,399.10	
Monteith, L	SME - Organizational Change Management Consultant	59,377.89	
Montroy, L	Manager, Service Centre	104,529.97	
Moore, D	Internal Review Officer	111,380.46	**
Moore, R	Sr Injury Claims Adjuster	131,926.44	**
Moorehead, D	Out of Province Claims Supervisor	79,096.79	
Morcos, G	Accountant 2	66,766.52	
Morgan, K	Adjuster	59,300.93	
Morgan, M	Project Manager	93,089.06	
Morin, L	Legal Processor	64,517.48	
Morley, D	Estimator-City	65,656.93	
Moroz, B	Supervisor, Driver Testing	73,338.14	
Morris, R	Estimator-Rural	69,715.46	
Morrish, A	Clerk 3 Receiver	55,037.73	
Morrison, T	Vehicle Standards Supervisor	78,415.36	
Morton, S	Adjuster	59,553.42	
Mosiuk, B	Business Analyst	78,773.52	
Moski, J	Sr Case Manager	84,281.87	
Mowat, B	Sr Analyst	91,031.37	**
Mucska, A	Case Manager 2	68,836.09	
Mulcahy, S	Accountant 1	64,196.91	
Mulholland, J	Contact Centre Supervisor	62,498.97	
Munyoro, V	Business Analyst	51,189.85	
Murray, G	Special Investigator	93,720.39	**
Murray, P	Workplace Safety Advisor	82,878.63	
Murray, R	Adjuster	56,731.55	

Name	Position Title	Total Compensation	
Murray, S	Service Centre Representative	53,266.00	
Mutcheson, M	Adjuster/Driver Examiner	60,488.18	
Mutter, J	Accountant 2	78,525.39	
Mwanza, O	Manager, Customer Research	109,699.82	
Myshkowsky, S	Executive Assistant	75,430.44	
Napier, B	Special Investigator	83,493.96	
Natt, G	Business Analyst	68,012.32	
Nault, L	Supervisor, Customer Service Centre	96,883.60	**
Navid, H	Service Centre Representative	53,928.44	
Naworynski, J	HRMS Information Analyst	51,775.42	
Neal, J	Customer Care Agent 1	52,449.09	
Neiser, S	Sr Case Manager	83,990.87	
Neufeld, C	Estimator-City	68,179.02	
Neufeld, J	Adjuster	59,892.21	
Neufeld, J	Adjuster	55,566.09	
Neufeld, K	Estimator-Rural	71,660.55	
Neufeld, P	Sr Systems User Analyst	71,020.09	
Neufeld, R	Commercial Estimator	70,667.51	
Newton, K	Injury Management Coordinator	89,898.36	
Newton, T	Assistant Manager, SRE	94,046.90	
Nickel, D	Sr Business Analyst	82,684.92	
Nietrzeba, A	Estimator-City	54,970.17	
Nimchan, N	Estimator-City	63,782.94	
Nixon, B	Disability Management Specialist	102,441.91	
Niziol, L	Service Centre Representative	58,529.73	
Nkingi, J	Accountant 1	60,936.92	
Norris, C	Customer Account Representative	56,355.54	
North, S	Clerk 2 - Receiver	50,513.44	
Novak, D	Sr Case Manager	85,643.37	
Nuevo, M	Analyst	68,962.59	
Oberholtzer, J	Claims Supervisor	78,136.64	
Odlum, J	Estimator-Rural	72,116.61	
Oertel, E	Facilities Service Technician	76,642.50	
Okun, J	Accredited Repair Inspector	81,782.90	
Olijnek, J	Sr Graphic Designer	68,725.02	
Oliver, S	Claims Audit Administrator	52,033.09	
Olsen, C	KM Service Delivery Manager	96,544.27	
Olson, A	Adjuster	58,688.52	
Olson, D	Service Centre Representative	55,581.20	
Onofreychuk, L	Sr Business Analyst	84,781.22	
Opinga, R	Estimator-City	66,178.09	
Oravec, D	Product Specialist	92,176.60	
Ordonez, M	Clerical Supervisor	55,393.77	

Name	Position Title	Total Compensation	
Orlukiewicz, P	Sr IT Administrator	57,078.73	
Osborne, B	Claims Controller - Injury	97,933.55	
Overwater, D	Director, Insurance & Underwriting	169,863.50	
Owen, R	Injury Management Coordinator	90,366.08	
Ozouf, R	Sr IT Support Analyst	77,894.83	
Pacheco Valente, L	Service Centre Representative	52,813.14	
Palatino, R	Assistant Manager, Internal Audit	86,508.18	
Pankratz Wieler, S	Sr Business Analyst	73,632.08	
Pantel, S	Adjuster/Driver Examiner	66,186.47	
Pardoski, A	Commercial Registrations Representative	55,679.47	
Paredes, C	Adjuster	54,501.23	
Parent, S	Associate Driver Examiner	51,599.09	
Pariyasamy, K	Manager, Application Services	117,934.85	
Park, J	Associate Business Analyst	52,124.98	
Park, P	Programmer/Analyst	62,258.93	
Parker, B	Customer Service Representative	51,623.56	
Partaker, T	Programmer/Analyst	60,948.48	
Pathak, S	Sr Business Analyst	84,596.53	
Patton, J	Business Analyst	70,684.94	
Patton, S	Sr Business Analyst	84,640.87	
Paul, B	Case Manager 2	68,511.20	
Paul, C	Organizational Change Management Consultant	74,842.37	
Paul, G	Claims System Analyst	60,181.01	
Pauls, T	Systems User Analyst	64,628.83	
Paulus, J	Adjuster	77,028.21	**
Pavluk, T	Adjuster	59,438.81	
Pearce, T	Sr Data Steward	51,247.62	
Pedrosa, J	Case Manager 2	71,515.81	
Pelissier, B	PIPP Benefits Administrator	56,177.23	
Pellatt, K	HR Business Partner	81,595.32	
Pellegrino, D	Adjuster	60,759.57	
Pemkowski, D	Fair Practices & Customer Relations Coordinator	134,904.72	**
Pendley, H	Estimator-City	64,792.99	
Peniuk, K	Commercial Specialist	74,913.51	
Penner, H	Vehicle Control Supervisor	77,221.02	
Penner, K	Adjuster	53,292.55	
Perchuk, T	Sr Test Administrator	61,060.80	
Perehinec, B	Adjuster	58,354.78	
Pereira, D	Sr Case Manager	83,893.46	
Perez, G	Community Relations Specialist	67,548.33	
Perreault, S	Service Centre Representative	56,314.35	
Perron, M	Broker Services Administrator	69,182.42	
Peterson, B	Manager, Administrative Services	89,999.90	

Name	Position Title	Total Compensation	
Peterson, D	Sr Case Manager	89,782.11	
Peterson, R	Customer Account Representative	56,653.77	
Petersson Martin, K	Solicitor	70,038.55	
Philippot, C	Facilities Service Technician	83,544.26	
Phoa, T	Manager, Pricing	89,975.36	
Phung, J	Business Analyst	65,769.61	
Picard, M	Sr Analyst	99,256.30	
Picard, P	Estimator-City	79,176.27	
Picard, V	Century Warehouse Supervisor	64,161.49	
Piec, D	Sr Adjuster	66,827.55	
Piec, M	KM Portfolio Manager	88,333.39	
Piirik, S	Tech Communications Officer 1	54,843.82	
Pilawski, C	Facilities/Premises Administrator	80,283.17	
Pineda, G	Accountant 1	51,782.52	
Pisipati, R	Associate Business Analyst	54,940.06	
Pitt, A	Estimatics Coordinator	81,535.81	
Pitzel, S	Legal Specialist	126,768.01	
Place, D	Systems User Analyst	64,695.31	
Plante, J	Customer Care Lead	60,314.11	
Platt, C	Contact Centre Supervisor	62,258.97	
Plenert, H	Estimator-City	68,688.95	
Pogorzelec, E	Sr Project Manager 2	116,800.06	
Poitras, K	Driver Examiner	61,590.26	
Pokorny, K	Adjuster	54,154.86	
Pollock, D	Sr Analyst	82,212.78	
Poloway, C	Adjuster	72,936.56	**
Popiel, S	Customer Care Agent 2	56,300.09	
Porco, K	Manager, Bodily Injury Centre	151,930.82	**
Prasek, W	IT Managed Services Controller	97,625.16	
Prendergast, C	Contact Centre Supervisor	86,172.25	**
Preteau, R	Estimator-Rural	68,520.50	
Price, R	Manager, Service Centre	112,926.61	
Prince, E	Estimate Reviewer	50,994.15	
Prozyk, C	Assistant Manager, Financial Operations	82,407.12	
Prud'homme, M	Estimator-City	57,250.88	
Prysizney, G	Sr Graphic Designer	50,384.91	**
Puchailo, D	Vehicle Standards Officer	77,924.03	
Pudlo, K	Injury Management Coordinator	90,305.88	
Pukin, W	Customer Care Agent 1	53,211.49	
Pura, S	Contact Centre Supervisor	69,486.19	
Pursaga, J	Sr Program Delivery Coordinator	78,773.52	
Pye, T	Estimator-Rural	76,750.88	
Quan, T	Customer Care Lead	60,976.04	

Name	Position Title	Total Compensation	
Quenelle, R	Fleet Safety & Loss Prevention Specialist	70,966.70	
Quirante, J	Programmer/Analyst	62,449.25	
Rabichuk, C	Special Investigator	65,818.86	
Radi, J	Buisness Analyst	65,285.10	
Radtke, D	Manager, Application Services	125,964.96	**
Ragasa, C	Accountant 1	61,329.11	
Rahman, N	Associate Adjuster	51,670.09	
Rahman, R	Adjuster	58,231.23	
Raimo, G	Systems User Analyst	63,277.69	
Rajotte, M	Accounting Clerk 2	53,669.45	
Rak, A	IT Support Analyst	56,463.53	
Rak, T	Business Analyst	78,173.52	
Ramani Gopal, A	Analyst	74,163.79	
Ramberran, R	Estimator-City	69,236.66	
Ramchandar, S	Business Relationship Manager	96,240.90	
Ramirez, A	Manager, Vendor Management	102,502.84	
Randell, R	Programmer/Analyst	67,953.10	
Randhawa, T	Business Analyst	69,556.19	
Rebizant, D	Administrative Assistant	59,377.26	
Redfern, D	Payroll Administrator	59,645.85	
Redmond, S	Supervisor, Rural Service Centre	88,325.62	
Reesor, E	Customer Care Lead	60,634.33	
Reeves, B	SME - CCRS Project	104,932.31	
Reichert, H	Vice President, Finance and CFO	163,136.56	**
Reid, L	Sr Analyst	109,533.10	
Reilly, C	Corporate Application Architect	98,070.76	
Reis, D	Sr Case Manager	88,488.26	
Rekrut, J	Business Relationship Manager	102,013.08	
Remillard, C	Adjuster	58,099.57	
Remillard, J	Corporate Business Architect	175,368.82	
Rempel, E	Estimator-Rural	73,592.78	
Rempel, S	Operations Supervisor, Special Accounts & Subrogation	60,162.91	
Renaud, J	Collection Officer	54,419.82	
Revet, G	Underwriter 1	59,963.81	
Reyes, A	IRI Calculator	51,106.50	
Reynante, J	IT Analyst	86,624.62	
Reznik, L	Adjuster/Driver Examiner	67,358.84	
Rhodes, T	Sr Business Analyst	84,192.91	
Richard, J	Contact Centre Supervisor	61,388.30	
Richard, W	Service Centre Representative	55,562.11	
Riddell, J	Analyst	88,666.27	
Riddell, M	Business Analyst	66,481.68	
Riel, J	Senior Value Management Specialist	120,518.27	

Name	Position Title	Total Compensation	
Rieu, D	Sr Systems User Analyst	74,248.80	
Riffel, T	Supervisor, PIPP Administrative Services	65,280.59	
Riggs, R	Adjuster	60,855.48	
Rindall, C	Adjuster/Driver Examiner	59,899.25	
Ring, M	Assistant Manager, Service Centre	94,345.40	
Ripak, D	Analyst	81,349.44	
Riva, M	Facilities Design Administrator	74,709.66	
Robert, R	Ignition Interlock Program Administrator	56,217.61	
Robertson, A	Solicitor 2	113,337.66	
Robertson, D	Customer Account Representative	56,016.01	
Robertson, R	Project Coordinator	91,520.60	
Robidoux, B	Service Centre Representative	56,030.89	
Robins, C	Accredited Repair Inspector	77,652.48	
Robins, D	Vehicle Standards Officer	73,435.22	
Robinson, D	Solicitor 2	125,865.22	
Robinson, P	Risk Management Specialist	98,906.53	
Robson, K	Estimator-Rural	56,593.75	
Rochon, A	Claims Supervisor	82,987.97	
Rodewald, L	Business Analyst	67,659.51	
Rodrigo, C	IT Security Administrator	52,177.08	
Rody, V	HR Business Partner	66,808.13	
Rogers, A	Manager, Service Centre	79,298.45	
Rondeau, N	Paralegal	56,016.01	
Rosario, M	Injury Claims Analyst 2	75,691.52	
Rosche, R	IT Analyst	85,241.08	
Roschuk, K	Accounts Receivable Representative	66,575.22	**
Ross, K	Analyst	89,003.00	
Rowbotham, P	Special Activities Clerk	54,700.31	
Roy, C	Adjuster	50,703.02	
Roziere, G	Service Centre Representative	55,470.91	
Ruffeski, D	Manager, Business Services	95,940.96	
Rusak, D	Sr Case Manager	81,950.58	
Russo, M	Accountant 2	80,869.73	
Rutter, C	Business Analyst	76,403.37	
Rydz, K	Strategic Communications Coordinator	66,559.35	
Ryman, T	Business Analyst	65,889.48	
Ryz, C	Injury Management Coordinator	90,890.08	
Rzepka, O	Adjuster	62,804.29	
Saffie, D	Accredited Repair Inspector	82,093.86	
Safiniuk, B	Information Systems Auditor	90,985.43	
Sahar, N	SME - PDR Program	236,719.85	**
Saini, P	SME - Analyst	84,212.75	
Saluk, G	Supervisor, Application Services	105,198.06	

Name	Position Title	Total Compensation	
Sam, S	Organizational Change Management Consultant	85,579.00	
Samatte, W	Driver Ed Liaison Officer	59,779.33	
Sanan, S	Vehicle Standards Officer	72,972.54	
Sarginson, P	Sr Legislation Analyst	84,601.87	
Sass, J	Director, Service Centre Operations	129,913.92	
Savard, G	Sr Case Manager	84,340.87	
Savoie, A	Adjuster	59,881.98	
Sawatzky, L	Research & Training Technician - Mechanical	81,547.06	
Sawatzky, N	Business Analyst	78,421.13	
Sawatzky, P	Specialist, Strategic Research	118,340.06	
Scaletta, D	Director, Legal Services	147,273.05	
Scalizzi, C	Adjuster	56,443.23	
Scanlon, M	PIPP Benefits Administrator	51,446.79	
Scarff, N	Claims Supervisor	76,382.89	
Scarfone, S	Solicitor 2	126,165.22	
Scham, A	Clerk 2	52,293.18	
Schaubroeck, M	Manager, External Communications	56,121.82	**
Schesnuk, D	Sr IT Support Analyst	71,604.48	
Schlag, J	Adjuster	63,917.35	
Schmidt, D	SME - Instructional Designer	80,717.58	
Schmuland, D	Customer Care Agent 2	55,357.16	
Schneiderat, T	Sr Case Manager	85,185.37	
Schroeder, T	Commercial Adjuster	62,987.27	
Schultz, A	Claims Audit Administrator	50,356.08	
Schwab, D	Sr Business Analyst	83,740.87	
Scott, J	Supervisor, Commercial Claims	76,942.16	
Seddon, K	Injury Management Coordinator	89,890.88	
Seddon, T	Sr Case Manager	81,478.57	
Selch, J	Research & Training Technician Lead - Mechanical	89,808.47	
Selch, J	Claims Audit Administrator	55,622.33	
Sellar, E	Customer Relations Officer	64,949.09	
Senden, N	Systems User Analyst	64,248.07	
Senkowsky, M	Manager, Compulsory Insurance	102,363.08	
Sentner, C	Supervisor, Web & Multimedia	81,947.51	
Senyk, D	Sr Collection Officer	59,037.43	
Serbyniuk, M	Estimator-City	68,796.94	
Serceau, M	Estimator-Rural	69,257.36	
Serceau, R	Estimator-City	68,135.35	
Serino, S	Service Centre Representative	55,759.93	
Sesay, A	Accountant 1	64,714.11	
Sharaburak, G	Commercial Registrations Representative	56,452.83	
Sharma, A	Customer Care Agent 1	52,740.85	
Shemeliuk, T	Adjuster/Driver Examiner	68,435.48	

Name	Position Title	Total Compensation	
Shemeluk, G	Shop Relationship Advisor	81,048.97	
Sheppard, J	Sr Systems User Analyst	113,579.23	**
Shibata, S	Adjuster	60,932.29	
Shimoda-Loechner, L	Sr IRI Calculator	59,181.74	
Shokpeka, E	Assistant Manager, Customer Service	52,731.27	**
Shostak, M	Instructional Designer	71,939.20	
Shukin, K	Underwriter 2	56,488.51	
Shum-McDonald, E	Business Analyst	74,048.00	
Shyiak, J	Organizational Development Consultant	87,060.56	
Siepman, K	Research & Traninig Technician - Autobody	85,029.83	
Sierhuis, T	Assistant Manager, Accounting Services	79,771.99	
Sigurdson, D	Sr Case Manager	82,199.60	
Sim, S	Tow Truck Operator	54,150.83	
Simard, T	Injury Claims Adjuster	73,052.54	
Simmons, A	Sr Case Manager	83,740.87	
Simoes, G	Organizational Change Management Consultant	53,385.50	
Skelton, C	Sr Case Manager	83,746.62	
Skiba, K	IT Analyst	84,827.10	
Skibo, W	Commercial Specialist	78,509.72	
Skinner, S	Customer Service Representative	50,172.63	
Skitcko, L	Sr Case Manager	77,960.43	
Sklar, A	Driver Education Course Coordinator	53,335.34	
Skrupski, D	Broker Services Administrator	63,455.25	
Sladek, J	Estimating Supervisor	75,309.06	
Slimmon, J	Supervisor, Customer Service Centre	53,202.46	
Sloggett, P	Medical Fitness Administrator	83,645.54	
Smale, P	Organizational Development Administrator	50,710.21	
Smart, S	Research & Training Technician - Mechanical	79,954.00	
Smiley, B	Media Relations Coordinator	112,327.91	
Smit, R	Sr Underwriter	84,275.49	
Smith, B	Supervisor, Commercial Claims	90,114.08	
Smith, C	Claims Supervisor	88,400.04	
Smith, D	Estimator-City	60,244.00	
Smith, R	Supervisor, Customer Service Centre	72,705.44	
Smoley, D	Case Manager 2	59,149.26	
Snider, D	Adjuster	74,119.05	
Soares, A	Claims Supervisor	77,678.81	
Soucy, M	Claims Supervisor	85,930.63	
Sousa, L	Driver Examiner	57,436.30	
Spence, C	Premises Assistant	56,233.21	
Spencer, I	Special Investigator	86,805.06	
Sprenger, W	Sr Investment Forecasting Specialist	105,157.17	
Sproule, R	Estimatics Coordinator	82,913.88	

Name	Position Title	Total Compensation	
St. Germain, P	Data Architect	93,722.98	
St. Godard, C	Injury Management Coordinator	116,185.89	**
St. Godard, D	Commercial Specialist	71,163.32	
St. Vincent, K	Case Manager 2	70,284.18	
Stacey, K	Associate Adjuster	58,814.47	
Stade, S	Sr Case Manager	85,807.20	
Stakhura, C	Adjuster	51,762.41	
Stallard, T	Estimator-Rural	56,597.46	**
Stanke, B	Analyst - Rate Groups	55,875.65	
Starrett, M	Clerk 2	56,139.63	**
Steeds, K	Internal Review Officer	84,727.48	
Stefaniuk, C	Service Centre Representative	52,336.42	
Steffens, M	Clerical Supervisor	61,707.49	
Stelma, K	Service Centre Representative	88,707.19	**
Ste-Marie, G	Yardman	52,763.04	
Sterzer, C	Estimatics Coordinator	73,776.25	
Stock, N	Case Manager 1	58,093.42	
Stoneham, C	Supervisor, Customer Service Centre	69,187.38	
Stonyk, R	Legal Specialist	84,637.76	
Stow, L	Adjuster	63,771.95	
Stoyka, E	Business Analyst	71,320.92	
Strand, C	Clerk 3 Receiver	65,535.86	
Strecker, M	Service Centre Representative	54,524.37	
Streib, C	Driver Examiner	61,653.31	
Striefler, D	Lead IT Security Administrator	111,632.10	**
Stuart, C	Medical Fitness Administrator	83,039.67	
Stuart, D	Estimator-City	71,165.04	
Stubbe, K	Driver Fitness Systems User Analyst	58,101.32	
Su, Y	Sr Actuarial Analyst	95,418.08	
Subramaniam, T	IT Managed Services Analyst	76,432.90	
Sullivan, N	Service Centre Representative	56,081.19	
Surgeoner, S	Purchasing Agent	64,831.71	
Surla, J	Customer Care Lead	59,327.20	
Swayze, C	Service Centre Representative	53,572.10	
Sy, J	Customer Service Representative	55,789.39	
Sych, J	Security Operations Coordinator	64,703.57	
Sykes, L	Associate Adjuster/Driver Examiner 2	70,314.41	
Sykes, R	Estimator-City	68,318.05	
Sylvestre, P	Service Centre Representative	58,042.79	
Symons, K	Customer Account Representative	55,584.55	
Sysa, M	Systems User Analyst	64,196.91	
Tachan, L	Communications Officer 2	54,288.35	
Tackaberry, W	Claims Controller - Injury	96,932.52	

Name	Position Title	Total Compensation	
Tackie Anderson, N	Business Architect	92,795.98	
Tagliaferri, M	Estimator-City	68,125.02	
Tan, K	Corporate Application Architect	82,123.18	
Tanchak, P	SME - Sr Analyst	117,950.90	
Tapia, R	Driver Examiner	62,433.44	
Tapia, R	Analyst - Rate Groups	53,781.60	
Tarrosa, A	Adjuster	53,047.44	
Tavares, A	Contact Centre Supervisor	67,448.21	
Taylor, B	Assistant Manager, Claims Services	95,525.96	
Taylor, B	Injury Management Coordinator	91,021.95	
Taylor, C	Director, Corporate Services	105,735.19	
Taylor, C	Estimator-City	67,243.51	
Taylor, J	Broker Services Administrator	68,261.52	
Taylor, M	Injury Management Coordinator	111,150.44	**
Taylor, M	SME - Sr Adjuster	68,205.02	
Taylor, M	Commercial Registrations Representative	56,081.89	
Taylor, S	Manager, Driver Testing Policy & Evaluation	86,894.52	
Tazin, C	Adjuster	60,753.32	
Telfer, D	Business Analyst	74,847.47	
Thai, N	Customer Care Agent 2	53,784.40	
Theriault, P	Service Centre Representative	55,470.31	
Thiessen, A	Service Centre Representative	55,199.65	
Thiessen, B	Adjuster	59,677.46	
Thomassen, R	Internal Review Officer	84,525.87	
Thompson, J	Adjuster	59,878.00	
Thompson, P	Supervisor, Rural Service Centre	89,890.88	
Thompson, R	Vehicle Standards Officer	67,279.65	
Thompson, T	Commercial Specialist	67,932.74	
Thomson, A	Adjuster/Driver Examiner	61,275.73	
Thomson, J	Director, Corporate Business Planning	96,245.73	**
Thorsteinson, D	Director, Knowledge Management Services	111,097.43	
Thorsteinson, S	Adjuster	64,477.56	
Thou, B	Adjuster	50,439.06	
Thurston, J	Injury Claims Adjuster	73,164.24	
Tibbs, L	Adjuster	62,567.67	
Tiltman, R	Adjuster	60,355.76	
Timcoe, W	Sr IT Support Analyst	70,986.33	
Tkachuk, S	Acting Vice President, Human Resources & CHRO	170,979.49	
Tkachyk, D	Clerk 2	59,110.50	**
To, C	IRI Supervisor	85,597.73	
Todd, A	Customer Care Lead	56,293.13	
Toews, M	IT Security Administrator	50,243.77	
Toker, R	Estimatics Administrator	55,613.65	

Name	Position Title	Total Compensation	
Toms, A	Estimator-Rural	68,683.55	
Toor, E	Customer Account Representative	58,052.42	
Topolnitska, O	Service Centre Representative	55,416.01	
Toporoski, C	Driver Examiner	52,490.00	
Torgerson, J	Analyst	51,369.40	
Tranmer, L	Systems User Analyst	62,091.61	
Travica, D	Sr Case Manager	70,457.11	
Trefiak, J	Clerical Supervisor	61,984.94	
Treichel, A	Talent Acquisition Specialist	84,696.92	
Tremblay, C	Associate Adjuster	52,860.55	
Tremblay, D	Identity Case Administrator	54,431.24	
Triggs, M	General Counsel & Corporate Secretary	196,850.63	
Tripp, S	Service Centre Representative	54,972.19	
Trivett, D	Sr Underwriter	72,540.19	**
Trudeau, J	Injury Management Coordinator	90,905.88	
Trudeau, M	Estimator-Rural	66,144.53	
Trudeau, M	Service Centre Representative	54,821.54	
Trudel, P	Senior Application Services Technical Advisor	104,421.32	
Truong, M	Adjuster	51,600.71	
Trupp, N	Contact Centre Quality Analyst	59,944.73	
Tubman, T	Contact Centre Quality Analyst	60,259.01	
Tucovic, A	Programmer	54,120.56	
Turcan, L	Adjuster	59,512.92	
Turnley, C	Facilities/Premises Administrator	81,349.22	
Tweed, T	Training & Development Support Clerk	56,159.59	**
Ulicki, K	Corporate Training Facilitator	72,824.99	**
Valliani, R	Sr Information Security Risk Analyst	53,651.35	
Van Kleek, N	Identity Verification Clerk	61,648.40	**
Van Landeghem, D	Injury Management Coordinator	78,153.97	
Van Oeveren, S	Quality Control Coordinator	87,714.17	
Van Ryckeghem, D	Claims Supervisor	87,183.52	
van Wissen, L	Customer Care Agent 1	51,631.55	
VandeMosselaer, D	Manager, Identity Verification and Data Integrity	84,565.44	
Vandermeulen, K	Corporate Directives Coordinator	54,514.77	
Vandurme, B	Business Analyst	78,943.88	
Varey, A	Estimator-Rural	68,887.67	
Vaughan, D	Estimator-City	71,162.99	
Veitch, T	Adjuster	62,781.44	
Velasco, A	Programmer/Analyst	60,900.22	
Veldkamp, S	Supervisor, Driver Fitness Administration	60,108.61	
Venton, B	Business Analyst	78,775.52	
Verghetti, A	Lead IT Security Administrator	60,787.02	
Verghetti, T	Sr Subrogation Specialist	78,116.34	

Name	Position Title	Total Compensation	
Vermette, C	Adjuster	63,713.18	
Vermette, D	Sr IT Support Analyst	81,652.82	
Vermette, R	Sr IT Analyst	96,394.19	
Vermette, R	Systems User Analyst	64,414.11	
Vernon, T	Analyst	290,986.46	**
Viallet, D	Adjuster	59,443.81	
Vickery, C	PIPP Benefits Administrator	50,208.78	
Vieira, P	Manager, External Communication & Advertising	91,879.15	
Vince, K	Community Relations Specialist	64,162.75	
Vital, A	Sr Business Analyst	81,846.10	
Vnuk, J	Service Centre Representative	55,633.21	
Vokey, H	Premises Coordinator	69,552.65	
Vokey, V	Driver Fitness Clerk	60,358.62	**
Von Dohren, R	Business Analyst	79,513.68	
Vreyborg, H	Fleet Safety & Loss Prevention Specialist	64,635.13	
Waddington, R	IT Remedy Administration & Reporting	78,681.20	
Wagner, B	Accredited Repair Inspector	95,353.16	
Wahl, M	IT Managed Services Analyst	67,971.19	
Wai, E	Analyst	77,449.85	
Walder, E	Sr IT Administrator - Operations	70,914.89	
Waldner, E	Sr IT Analyst	102,660.01	
Wall, J	Adjuster	60,850.44	
Wallis, K	Medical Fitness Administrator	83,293.87	
Walterson, S	Driver Examiner	52,919.27	
Wang, F	Analyst	82,576.92	
Wang, J	Business Analyst	71,070.58	
Wang, X	Claims Cost Controller	91,398.07	
Wannamaker, M	Underwriting Supervisor	76,127.72	
Warkentin, L	Service Centre Representative	54,226.98	
Warren, D	Associate Driver Examiner	59,516.51	
Warren, L	Executive Assistant To The President	86,315.88	
Watson, D	Advertising Services Lead	65,573.70	
Watson, D	Tech Communications Officer 1	57,002.33	
Way, C	Manager, PIPP Support Services	92,732.03	
Webb, C	Manager, Compensation & Benefits	103,451.25	
Webb, H	Identity Verification Administrator	56,095.21	
Webb, M	Programmer/Analyst	58,484.11	
Weger, J	Estimator-Rural	69,515.09	
Weighell, C	Injury Claims Adjuster	67,083.92	
Wells, H	Case Manager 2	66,733.92	
Welsh, O	Adjuster	60,188.59	
Wennberg, C	Vice President, Customer Service and COO	248,201.23	
Weselake, S	Manager, Community & Customer Relations	101,099.10	

Name	Position Title	Total Compensation
Weselowski, N	Business Analyst	72,905.95
Whalen, G	Manager, Injury Claims Management	108,656.28
Wheeler, I	Tech Communications Officer 1	60,023.81
Wheeler, J	Customer Account Supervisor	64,154.31
Whettell, C	Customer Care Agent 2	58,025.36
White, C	Injury Claims Adjuster	73,457.54
White, S	Assistant Manager, Customer Service	81,945.41
White, T	Estimator-Rural	70,166.66
Wiebe, B	Manager, Service Centre	111,901.94
Wiebe, N	Subrogation Adjuster	60,058.18
Wiebe, R	Sr Injury Claims Adjuster	79,736.11
Wiedmer, R	Supervisor, Customer Service Centre	67,888.38
Wieler, D	Sr IT Analyst	74,602.72
Wieler, T	Customer Care Agent 1	52,279.42
Williams, A	Manager, Business Analytics	97,639.34
Williamson, L	Sr Graphic Designer	50,711.31
Winter, J	Driver Ed Curr Dev and Trng Support Spec	72,426.12
Wityshyn, W	Analyst	80,183.56
Wlasiuk, D	Premises Coordinator	70,620.02
Wojtowicz, E	IT Change Management Specialist	81,022.69
Wojtowicz, G	Adjuster	56,433.00
Wolch, M	Supervisor, IT Services	97,093.86
Wolfe, M	Organizational Change Management Consultant	71,829.21
Woloshyn, C	Service Centre Representative	54,974.11
Wong, P	Sr Business Analyst	83,246.35
Wood, B	Estimator-Rural	56,899.33
Woodhurst, D	Driver Ed Liaison Officer	62,223.36
Worboys, C	Analyst	87,270.13
Wu, R	Accredited Repair Inspector	76,565.01
Wyche, C	Organizational Development Consultant	71,676.70
Wycislak, F	Injury Management Coordinator	88,191.76
Wylde, J	Service Centre Representative	55,416.01
Wyrzykowski, C	Analyst	76,706.73
Yakel, J	Director, Enterprise System Support	126,786.29
Yarish, Y	Service Centre Representative	58,827.94
Yewdall, H	Manager, Bodily Injury Centre	98,968.22
Youell, D	Sr Business Analyst	76,746.36
Young, S	Sr Business Analyst - Workforce Management Coordinator	82,798.82
Yu, E	Manager, Autopac Extension & Special Programs	102,675.98
Zacharias, S	Sr IT Administrator	51,338.02
Zadnepreannii, L	IT Analyst	95,202.83
Zajac, B	Adjuster	57,770.22
Zalitach, W	Clerk Typist 3	54,646.85

Name	Position Title	Total Compensation
Zarrillo, D	Business Relationship Manager	96,051.47
Zeaton, G	SME - Service Centre	108,986.16
Zhao, L	Business Analyst	72,583.27
	Aggregate Total Board of Directors	85,422.70

** Denotes inclusion of severance pay/retiring allowance

NOTE TO SCHEDULE

Basis of presentation

The schedule lists employees or individuals affiliated with Manitoba Public Insurance Corporation who received compensation and benefits in excess of $50,000 for the year ended December 31, 2017. The amounts reported were calculated in accordance with the definition of compensation provided in Section 1 of The Public Sector Compensation Disclosure Act.

MANITOBA PUBLIC INSURANCE CORPORATION
NOTE TO SCHEDULE OF COMPENSATION IN ACCORDANCE WITH THE PUBLIC SECTOR COMPENSATION DISCLOSURE ACT
FOR THE YEAR ENDED DECEMBER 31, 2017

The Public Sector Compensation Disclosure Act requires public sector bodies to disclose:

- the compensation paid to the Chairperson of its Board of Directors, if the Chairperson's compensation is $50,000 or more;
- the aggregate of the benefits paid to the members of the Board of Directors;
- the individual compensation paid to its officers and employees whose compensation is $50,000 or more.

The compensation amount is calculated in accordance with the requirements of The Public Sector Compensation Disclosure Act.

Compensation includes but is not limited to:

- regular salary;
- all payments for overtime, acting pay, statutory holiday pay, retirement/severance payments, lump sum payments and vacation pay-outs; and
- value of the taxable benefits to board members, officers and employees.

CAC (MPI) 1-33

Part and Chapter:	**Part VIII, Annual Reports, Universal Compulsory Automobile Insurance, Note 15**	**Page No.:**	**30**
PUB Approved Issue No:	**9. Cost of operations**		
Topic:	**Employee future benefits**		
Sub Topic:			

Preamble to IR (If Any):

"The Corporation uses an actuarial valuation, on an annual basis, to measure the accrued provision for its benefit plans. The most recent actuarial valuation was conducted by an external actuary as at December 31, 2017, with the next scheduled valuation being December 31, 2018."

Question:

Please file a copy of the actuarial pension and other benefit plans valuation reports prepared as at December 31, 2017.

Rationale for Question:

To review the pension and other benefits plans actuarial valuation reports and the financial impact on basic insurance operations.

RESPONSE:

Please see the reports provided as *Attachments A*, *B*, and *C*.

Actuarial Valuation Report as at December 31, 2017

Pension Liabilities of Manitoba Public Insurance (As a result of participation of its employees in the Civil Service Superannuation Act)

Submitted: March, 2018

Ellement
Pensions | Benefits | Investments

TABLE OF CONTENTS

		Page
1.	Purpose	1
2.	Data	1
3.	Membership	2
4.	Assumptions	2
5.	M.P.I. Share of Benefit Payments	3
6.	Valuation Procedure	4
7.	Valuation Results	5
8.	Projection Formula for Liabilities	5
9.	Maturity Analysis	6
10.	Accounting for Pension Obligations	6
11.	Actuarial Opinion	7

APPENDICES

I	Summary of Data
II	Summary of Actuarial Assumptions
III	Projection of M.P.I. Pension Liabilities for 2017

1. PURPOSE

The purpose of this Actuarial Valuation Report (Report) is to:

- indicate the liabilities which the Manitoba Public Insurance (M.P.I.) has as at December 31, 2017 (Valuation Date), as a result of the participation of its employees in the Civil Service Superannuation Act (CSSA), and
- provide a formula which can be used by the management of M.P.I. to estimate the increase in these liabilities in the following 12 to 18 months after December 31, 2017.

These liabilities are an estimate of the present value of the future payments which M.P.I. is expected to make to the Civil Service Superannuation Fund (CSSF).

The liabilities have been computed on a going concern basis. This basis contemplates the continued existence of the pension plan and the funding arrangements for the benefits under the pension plan.

The guidance for the calculation of the liabilities and the preparation of this Report are the Practice-Specific Standards for Pension Plans of the Canadian Institute of Actuaries and IAS 19, Employee Benefits issued by the International Accounting Standards Committee.

2. DATA

It is anticipated no amendments will be made to the CSSA.

The data used in the calculations includes the portion of each pension, currently in payment or which is expected to be in payment, that M.P.I. is responsible for.

The data for all the pensions in payment and the accrued pensionable service of all employees participating in the CSSA was provided by the Civil Service Superannuation Board (Superannuation Board).

Information on the pensions and benefits paid by M.P.I. and the employee contributions for 2017 were obtained from M.P.I., as reported by the Superannuation Board.

Due to time constraints, the data provided by the Superannuation Board was sent without performing their normal annual edit checks. However, the data was checked for missing information, illogical information and reconciled with the prior valuation data. A few minor changes to the data resulted from the checks made.

3. MEMBERSHIP

The data provided indicated that M.P.I. was the employer of record for the following participants:

	31-Dec-2017			31-Dec-2016		
	Males	Females	Total	Males	Females	Total
Contributors	823	1,135	1,958	846	1,187	2,033
Deferred Pensioners	81	115	196	80	117	197
Reciprocal Transfers	1	-	1	1	-	1
Pensioners & Survivors	464	468	932	440	434	874
Total	1,369	1,718	3,087	1,367	1,738	3,105

A reconciliation of the number of member records used in the calculations is shown in Appendix I.

The numbers shown for pensioners includes 70 beneficiary records as at December 31, 2017 and 66 as at December 31, 2016.

4. ASSUMPTIONS

The assumptions used in this Report and assumptions used in the last actuarial valuation report of the M.P.I. pension liabilities are shown in Appendix II.

The demographic assumptions have been developed from the accumulated experience of the CSSF. This experience is reflected in the demographic assumptions adopted for the actuarial valuations of the CSSF. Changes to these assumptions were made for the actuarial valuation of the CSSF as at December 31, 2016 (CSSF AVR 2016).

The economic assumptions have been chosen by management. The specific choices are made after a review with internal staff and the actuary. The existing economic assumptions were confirmed to us on March 5, 2018 by management after management's review of the assumptions.

The demographic assumptions overall represent a reasonable best estimate basis for these assumptions. The economic assumptions, overall, represent M.P.I.'s best estimate basis for those assumptions.

5. M.P.I. SHARE OF BENEFIT PAYMENTS

The benefits expected to be paid are based on the provisions of the CSSA.

M.P.I. is expected to make payments due to:

- pensions in payment as at December 31, 2017 where M.P.I. is the last employer of record,
- pensions expected to become payable to former employees who retained the right to a deferred paid-up pension, and
- pensions and other benefits expected to become payable to existing employees as a result of service completed up to the Valuation Date.

At present, M.P.I. is contributing to the CSSF based on the pay-as-you-go method of funding. Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF. M.P.I. has, however, established a reserve against general assets which is being increased to match the increase in its pension liabilities.

Each month, M.P.I. makes payments to the CSSF to reimburse it for:

- a portion (currently about 44%) of each pension payment to retired employees,
- a portion (currently about 44%) of each pension payment to a beneficiary of a deceased pensioner or the survivor of an employee who dies in service,
- a portion of any amounts transferred to other pension plans under reciprocal agreements,
- a portion of any commuted values paid out as a result of employees terminating service or as a result of marriage breakdowns, and
- a portion of the administrative costs of operating the CSSF in respect of M.P.I. records.

Pensions in payment are indexed to 2/3 of the increases in the cost of living, provided sufficient funds exist to finance such increases. Former employees who retain a right to a deferred paid-up pension have their pensions indexed during both the deferral period and the payout period.

The employer share of each pension is based on when the pension starts. For pensions which commenced:

(a) prior to March 31, 1961, the employer is responsible for a portion of each increase in that pension and

(b) after March 31, 1961, the employer is responsible for a portion (currently about 44%) of the pension paid.

Pursuant to CSSA subsection 22(11), employer funding for employees who have service with more than one non-matching Agency shall be on a pro rata basis. This proration of the benefits assigned to an employer is based on the proration of service allocated to the employer. This proration assignment was made effective for events on or after January 1, 1998. This may decrease or increase the pension obligations in the absence of CSSA subsection 22(11). However, for enhanced benefits, it is the administrative practice to bill all of the enhanced benefits to the current employer.

6. VALUATION PROCEDURE

The projected unit credit actuarial cost method has been used to determine the accrued liabilities and the current service cost applicable to each year after the Valuation Date.

The liabilities are computed separately for each employee and each potential benefit in the future for that employee. For each benefit, we determine:

- the probability of that benefit becoming payable each year in the future based on the assumptions outlined in Appendix II,
- a discount factor which makes allowance for the interest expected to be earned between the valuation date and the date of payment to finance a portion of the future payment, and
- the amount of the future benefit. Pensions are based on service completed prior to the valuation date and projected salaries immediately prior to the event causing the pension to be paid.

The liability for each benefit for an employee is the sum of the product of these three factors for each year in the future. The sum of these liabilities obtained for all employees is the liability for that benefit in respect of employees.

The liabilities for pensioners and deferred pensioners is determined by a similar process except that the amount of payment is based on the pension in payment or the pension of record in the case of deferred pensioners.

For accounting purposes, the service-to-date pension obligations have been shown.

7. VALUATION RESULTS

The following table shows the liabilities which M.P.I. has as at December 31, 2017 and December 31, 2016 as a result of the participation of its employees and former employees in the CSSA:

	Pension Liabilities with Allowance Made for Indexing of Pensions		
	After Change in assumptions 31-Dec-2017	Before change in assumptions 31-Dec-2017	31-Dec-2016
Contributors	$ 187,915,900	$ 170,763,600	$ 174,397,300
Deferred Pensioners	7,423,300	6,523,200	9,503,900
Pensioners & Survivors	195,974,300	185,453,000	168,240,100
Total	$ 391,313,500	$ 362,739,800	$ 352,141,300

For this valuation, the liabilities were $969,800 less than projected prior to reflecting changes in actuarial assumptions. The detailed breakdown of all experience is shown in Appendix III.

The liabilities were also affected by the change made to anticipated future experience. The decrease in the discount rate from 3.89% to 3.43% increased the liabilities by $31.3 million.

The expected average remaining service life (EARSL) of employees is 15.0 years.

8. PROJECTION FORMULA FOR LIABILITIES

The application of the projection formula is shown in Appendix III.

The following formula can be used to project the estimated increase in liabilities in the 12 to 18 months after the Valuation Date:

- Add interest at the rate of 3.43% per year to the liabilities at the beginning of the period, the contributions for the period, and the benefit payments for the period. The interest addition for the contributions and the benefit payments should be prorated to recognize investment for half the period on average.
- Add employer contributions at the rate of 144.8% of the employee contributions required to be made for the period.
- Deduct the actual employer pension and benefit payments made to the CSSF for the period.

9. MATURITY ANALYSIS

The following table shows the estimated future pensions as at December 31, 2017 and December 31, 2016:

	Less than 1 year	Between 1 - 2 years	Between 2 - 5 years	Over 5 years	Total
31-Dec-2017	$ 11,119,600	$ 12,407,100	$ 44,945,600	$ 635,237,300	$ 703,709,600
31-Dec-2016	10,173,000	11,436,400	41,889,400	622,866,000	686,364,800

10. ACCOUNTING FOR PENSION OBLIGATIONS

A reserve against general assets has been established and is being increased to match the accrued pension liability. This reserve should eventually reflect the existence of assets in the Employer Trust Account held in the CSSF.

The pension expense for a period is equal to:

(a) the change in the reserve, plus

(b) the actual benefit payments, plus

(c) the amounts for the amortization of previous gains and losses.

The above formula takes no credit for interest that may have been earned on assets supporting the liabilities.

11. ACTUARIAL OPINION

In our opinion, for the purposes of this Report:

- The membership data is sufficient and reliable.
- The assumptions, in aggregate which have been used, are appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- The method which has been used is appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- There is a risk that the liabilities may be exposed to adverse demographic experience in the future (e.g. retirement, mortality, etc.).
- We are not aware of any other matters or events occurring since the completion of this Report, which will materially affect the financial position of the liabilities as at December 31, 2017.

This Report has been prepared and this opinion has been given in accordance with accepted actuarial practice.

Dated at Winnipeg, this 16th day of March, 2018.

ELLEMENT CONSULTING GROUP

Dennis Ellement

Dennis Ellement, FSA, FCIA

Brandon Ellement

Brandon Ellement, FSA, FCIA

APPENDIX I

Summary of Data

- Reconciliation of Membership

TOTAL	ACTIVES	DEFERREDS	RECIPROCAL	PENSIONERS	SURVIVORS
Opening 31-Dec-2016	2,033	197	1	808	66
New Entrants	109	-	-	-	-
Retirements	(69)	(5)	-	74	-
Terminations - Deferred	(21)	21	-	-	-
Terminations - Refunds	(94)	(17)	-	(14)	(2)
Terminations - Deaths	-	-	-	-	-
Death - Survivors	-	-	-	(6)	6
Closing 31-Dec-2017	1,958	196	1	862	70

MALES	ACTIVES	DEFERREDS	RECIPROCAL	PENSIONERS	SURVIVORS
Opening 31-Dec-2016	846	80	1	432	8
New Entrants	60	-	-	-	-
Retirements	(29)	(3)	-	32	-
Terminations - Deferred	(10)	10	-	-	-
Terminations - Refunds	(44)	(6)	-	(10)	-
Terminations - Deaths	-	-	-	-	-
Death - Survivors	-	-	-	(2)	4
Closing 31-Dec-2017	823	81	1	452	12

FEMALES	ACTIVES	DEFERREDS	RECIPROCAL	PENSIONERS	SURVIVORS
Opening 31-Dec-2016	1,187	117	-	376	58
New Entrants	49	-	-	-	-
Retirements	(40)	(2)	-	42	-
Terminations - Deferred	(11)	11	-	-	-
Terminations - Refunds	(50)	(11)	-	(4)	(2)
Terminations - Deaths	-	-	-	-	-
Death - Survivors	-	-	-	(4)	2
Closing 31-Dec-2017	1,135	115	-	410	58

▪ Contributors

CONTRIBUTORS - MALES 31-Dec-2017

MALES		Average			Number of Members in Each Years of Service Cell								
Age	Count	Age	Service	Salary	00 - 04	05 - 09	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44
15 - 19	-	-	-	$ -	-	-	-	-	-	-	-	-	-
20 - 24	9	23.22	1.61	48,313.44	9	-	-	-	-	-	-	-	-
25 - 29	58	27.41	2.88	54,979.03	45	13	-	-	-	-	-	-	-
30 - 34	109	32.17	5.28	59,651.38	53	47	9	-	-	-	-	-	-
35 - 39	136	37.05	6.96	73,492.11	54	50	22	10	-	-	-	-	-
40 - 44	130	41.83	9.58	72,429.41	30	43	24	32	1	-	-	-	-
45 - 49	104	46.87	11.86	78,041.60	22	23	20	26	11	2	-	-	-
50 - 54	125	52.23	18.24	81,293.71	21	13	13	20	13	21	23	1	-
55 - 59	95	56.75	20.35	82,721.02	8	13	12	14	11	8	22	6	1
60 - 64	46	61.80	23.14	77,322.26	1	8	3	8	4	5	10	6	1
65 - 69	11	66.36	20.57	68,283.73	-	2	1	3	1	3	-	-	1
70 - 74	-	-	-	-	-	-	-	-	-	-	-	-	-
2017 Total/Avg	823	43.92	11.77	$ 72,880.73	243	212	104	113	41	39	55	13	3
2016 Total/Avg	846	44.36	12.06	$ 73,552.62	263	200	117	101	36	54	51	20	4

CONTRIBUTORS - FEMALES 31-Dec-2017

MALES		Average			Number of Members in Each Years of Service Cell								
Age	Count	Age	Service	Salary	00 - 04	05 - 09	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44
15 - 19	-	-	-	$ -	-	-	-	-	-	-	-	-	-
20 - 24	31	22.65	1.10	43,709.13	31	-	-	-	-	-	-	-	-
25 - 29	96	27.38	3.36	50,445.98	76	20	-	-	-	-	-	-	-
30 - 34	189	32.07	5.61	56,420.29	80	96	13	-	-	-	-	-	-
35 - 39	166	36.98	7.28	61,704.49	53	68	38	7	-	-	-	-	-
40 - 44	142	41.98	9.82	66,099.40	30	47	36	28	1	-	-	-	-
45 - 49	140	47.24	12.62	66,489.90	21	39	29	25	17	8	1	-	-
50 - 54	172	52.23	19.51	67,847.73	13	21	30	21	20	42	24	1	-
55 - 59	141	56.43	20.63	60,402.90	11	19	19	20	17	17	20	18	-
60 - 64	47	61.49	18.08	59,442.66	2	11	8	12	3	2	4	3	2
65 - 69	11	66.09	18.34	57,262.36	-	4	-	4	1	1	-	-	1
70 - 74	-	-	-	-	-	-	-	-	-	-	-	-	-
2017 Total/Avg	1,135	42.87	11.54	$ 61,153.47	317	325	173	117	59	70	49	22	3
2016 Total/Avg	1,187	43.11	11.54	$ 61,507.40	381	297	170	109	65	90	46	25	4

▪ Deferred Pensioners

DEFERREDS - MALES 31-Dec-2017

MALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
15 - 19	-	$ -	-	$ -
20 - 24	-	-	-	-
25 - 29	-	-	-	-
30 - 34	6	303.43	-	-
35 - 39	11	960.82	-	-
40 - 44	14	1,099.82	-	-
45 - 49	16	788.44	-	-
50 - 54	17	1,171.36	-	-
55 - 59	13	642.14	-	-
60 - 64	3	852.11	-	-
65 - 69	1	372.27	-	-
70 - 74	-	-	-	-
2017 Total/Avg	81	$ 883.85	-	$ -
2016 Total/Avg	80	$ 716.34	-	$ -

DEFERREDS - MALES 31-Dec-2016

MALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
15 - 19	-	$ -	-	$ -
20 - 24	-	-	-	-
25 - 29	-	-	-	-
30 - 34	6	342.85	-	-
35 - 39	11	793.57	-	-
40 - 44	12	678.13	-	-
45 - 49	18	617.35	-	-
50 - 54	16	988.78	-	-
55 - 59	11	683.90	-	-
60 - 64	4	712.67	-	-
65 - 69	2	538.39	-	-
70 - 74	-	-	-	-
2016 Total/Avg	80	$ 716.34	-	$ -
2015 Total/Avg	75	$ 673.66	-	$ -

DEFERREDS - FEMALES 31-Dec-2017

FEMALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
15 - 19	-	$ -	-	$ -
20 - 24	-	-	-	-
25 - 29	-	-	-	-
30 - 34	7	326.94	-	-
35 - 39	17	510.20	-	-
40 - 44	24	630.52	-	-
45 - 49	11	834.98	-	-
50 - 54	25	1,426.47	-	-
55 - 59	12	1,577.50	-	-
60 - 64	17	377.99	-	-
65 - 69	2	407.90	-	-
70 - 74	-	-	-	-
2017 Total/Avg	115	$ 844.46	-	$ -
2016 Total/Avg	117	$ 680.63	-	$ -

DEFERREDS - FEMALES 31-Dec-2016

FEMALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
15 - 19	-	$ -	-	$ -
20 - 24	-	-	-	-
25 - 29	-	-	-	-
30 - 34	8	350.90	-	-
35 - 39	21	396.13	-	-
40 - 44	18	589.57	-	-
45 - 49	12	682.11	-	-
50 - 54	28	1,313.46	-	-
55 - 59	15	515.88	-	-
60 - 64	15	346.34	-	-
65 - 69	-	-	-	-
70 - 74	-	-	-	-
2016 Total/Avg	117	$ 680.63	-	$ -
2015 Total/Avg	117	$ 685.17	-	$ -

- Pensions in Payment

PENSIONERS & SURVIVORS - MALES 31-Dec-2017

MALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
40 - 44	-	$ -	-	$ -
45 - 49	-	-	-	-
50 - 54	1	925.72	1	96.55
55 - 59	51	2,773.69	36	44.07
60 - 64	125	2,275.34	116	101.02
65 - 69	129	2,326.51	123	208.19
70 - 74	83	1,904.69	83	281.56
75 - 79	38	1,574.60	38	373.89
80 - 84	21	1,646.05	21	471.85
85 - 89	14	808.13	14	365.36
90 - 94	1	408.18	1	438.88
95 - 99	1	804.03	1	318.51
100 -105	-	-	-	-
2017 Total/Avg	464	$ 2,137.80	434	$ 212.83
2016 Total/Avg	440	$ 2,119.18	410	$ 205.42

PENSIONERS & SURVIVORS - MALES 31-Dec-2016

MALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
40 - 44	-	$ -	-	$ -
45 - 49	-	-	-	-
50 - 54	1	925.72	1	86.35
55 - 59	52	2,804.04	33	46.60
60 - 64	124	2,150.62	117	87.96
65 - 69	118	2,338.69	114	206.63
70 - 74	80	1,988.57	80	294.21
75 - 79	27	1,770.44	27	420.96
80 - 84	20	1,098.46	20	381.41
85 - 89	15	822.33	15	348.14
90 - 94	1	804.03	1	305.43
95 - 99	2	531.88	2	345.83
100 -105	-	-	-	-
2016 Total/Avg	440	$ 2,119.18	410	$ 205.42
2015 Total/Avg	422	$ 2,096.93	388	$ 198.01

PENSIONERS & SURVIVORS - FEMALES 31-Dec-2017

FEMALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
40 - 44	-	$ -	-	$ -
45 - 49	1	162.60	1	12.24
50 - 54	1	760.96	1	137.55
55 - 59	73	2,487.30	45	44.38
60 - 64	129	1,819.91	118	80.70
65 - 69	116	1,235.79	114	110.94
70 - 74	68	875.17	68	123.51
75 - 79	33	859.51	33	204.97
80 - 84	21	650.86	21	233.27
85 - 89	16	614.29	16	294.32
90 - 94	6	602.01	6	251.09
95 - 99	3	678.07	3	498.05
100 -105	1	76.13	1	95.91
2017 Total/Avg	468	$ 1,448.10	427	$ 122.21
2016 Total/Avg	434	$ 1,365.96	405	$ 113.48

PENSIONERS & SURVIVORS - FEMALES 31-Dec-2016

FEMALES Age	Count	Average Monthly Basic Pension	Count	Average Monthly Cola Pension
40 - 44	-	$ -	-	$ -
45 - 49	1	162.60	1	10.44
50 - 54	1	760.96	1	128.41
55 - 59	62	2,164.44	43	41.13
60 - 64	135	1,782.05	128	72.26
65 - 69	104	1,118.42	101	106.28
70 - 74	60	865.34	60	121.08
75 - 79	29	817.24	29	198.64
80 - 84	20	676.48	20	267.88
85 - 89	13	536.57	13	228.14
90 - 94	5	515.54	5	233.83
95 - 99	4	527.59	4	387.38
100 -105	-	-	-	-
2016 Total/Avg	434	$ 1,365.96	405	$ 113.48
2015 Total/Avg	413	$ 1,319.27	386	$ 107.88

Notes:

1. Both the pension amounts and cost-of-living (cola) amounts shown in the above table are the total amounts paid.

2. Counts are based on the primary pensioner sex.

3. The counts shown reflect employees who are with another employer but have service that is the responsibility of M.P.I.

APPENDIX II

Summary of Actuarial Assumptions

		31-Dec-2017	31-Dec-2016
1.	Annual Discount Rate	3.43%	3.89%
	Annual Rate of Inflation Included in Rate of Return	2.00% for 1.00 year, 2.10% for 1.00 year, 2.00% thereafter	2.20% for 1.00 year, 2.10% for 1.00 year, 2.00% thereafter
2.	General Salary Increases (service and merit is separate and age specific)	1.50% for 0.75 years, 2.00% for 2.00 year, 0.00% for 2.00 year, 0.75% for 1.00 year, 1.00% for 1.00 year, 2.00% thereafter	2.00% for 0.75 years, 1.50% for 1.00 year, 2.00% thereafter
3.	Annual Salary Merit Increases	increased 0.50% (2009) see TABLE	same
4.	Indexing of Pensions (2/3 of the assumed rate of inflation)	1.33% for 1.00 year, 1.40% for 1.00 year, 1.33% thereafter	1.47% for 1.00 year, 1.40% for 1.00 year, 1.33% thereafter
5.	Annual Increase in Earnings under Canada Pension Plan	same as general salary increases	same
6.	Annual Increase in Maximum Pension under Income Tax Act	2018: $2,944 Indexed $\geq$ 2019: same as 5. above	2017: $2,914 Indexed $\geq$ 2018: same as 5. above
7.	Annual Rate of Interest Credited to Employee Contributions	1.43% for 1.00 year, 1.33% for 1.00 year, 1.43% thereafter	1.69% for 1.00 year, 1.79% for 1.00 year, 1.89% thereafter
8.	Employer's Portion of Administrative Costs - % of Employee Contributions	0.00%	same
9.	Annual Rates of Death	CPM 2014 Public Mortality Projected using Scale B (see TABLE)	same
10.	Proportion of Employees with a Spouse	see TABLE	same
11.	Annual Rates of Termination of Service	see TABLE	same
12.	Annual Rates of Disability	see TABLE	same
13.	Annual Rates of Retirement	see TABLE	same

	Mortality*		Termination		Disability		Retirement	
Age	Males	Females	Males	Females	Males	Females	Males	Females
20	0.08%	0.02%	10.15%	12.60%	-	-	-	-
25	0.10	0.02	6.60	9.20	-	-	-	-
30	0.11	0.03	4.63	6.88	-	-	-	-
35	0.11	0.04	3.39	5.31	0.01%	0.01%	-	-
40	0.13	0.06	2.58	4.26	0.04	0.06	-	-
45	0.18	0.09	2.06	3.64	0.09	0.13	-	-
50	0.25	0.13	1.71	3.22	0.23	0.30	-	-
55	0.36	0.21	-	-	0.66	0.76	24.86%	24.49%
60	0.53	0.35	-	-	-	-	27.10	21.45
65	0.76	0.56	-	-	-	-	100.00	100.00
70	1.17	0.88	-	-	-	-	-	-
75	2.00	1.46	-	-	-	-	-	-
80	3.74	2.71	-	-	-	-	-	-
85	7.22	5.32	-	-	-	-	-	-
90	13.54	10.23	-	-	-	-	-	-
95	24.27	18.86	-	-	-	-	-	-
100	36.64	31.78	-	-	-	-	-	-

* CPM 2014 Public Mortality Projected using Scale B

	Service and Merit		Married Proportions	
Age	Males	Females	Males	Females
20	3.41%	3.41%	33.00%	35.00%
25	2.90	2.90	69.00	55.00
30	2.40	2.40	90.00	68.40
35	1.89	1.89	92.70	70.50
40	1.37	1.37	93.30	70.00
45	0.94	0.94	93.50	67.80
50	0.70	0.70	90.00	71.00
55	-	-	90.00	71.00
60	-	-	90.00	71.00
65	-	-	90.00	71.00

Plus allowance for use of accrued vacation in calculation of average annual salary at date of retirement: 3.45%.

APPENDIX III

Projection of M.P.I. Pension Liabilities for 2017

1.	**Actuarial Liabilities as at 31-Dec-2016**	$ 352,141,300
2.	Interest on liabilities and cash flow (3.89%)	13,657,700
3.	Current Service Cost for Active Members	14,094,600
4.	Employer Benefit Payments	(16,184,000)
5.	**Projected Liabilities as at 31-Dec-2017**	$ 363,709,600
6.	ACTUAL LIABILITIES as at 31-Dec-2017 before change in economic assumptions	$ 362,739,800
7.	ACTUAL LIABILITIES as at 31-Dec-2017 after change in economic assumptions	$ 391,313,500
	GAIN/(LOSS) due to actual experience: [5] - [6]	$ 969,800
	GAIN/(LOSS) due to change in assumptions: [6] - [7]	(28,573,700)
	NET GAIN/(LOSS)	$ (27,603,900)

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Actuarial Valuation Report as at December 31, 2017

Liabilities for Post-Retirement Health Benefits for In-Scope Employees of Manitoba Public Insurance

Submitted: March, 2018

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TABLE OF CONTENTS

		Page
1.	Purpose	1
2.	Data	1
3.	Post-Retirement Health Benefits Participation	2
4.	Assumptions	2
5.	M.P.I. Share of Premiums	3
6.	Valuation Procedure	3
7.	Valuation Results	3
8.	Projection Formula for Liabilities	3
9.	Sensitivity of Results to Different Assumptions	4
10.	Maturity Analysis	4
11.	Accounting for Post-Retirement Obligations	4
12.	Actuarial Opinion	5

APPENDICES

I	Summary of Benefits
II	Summary of Actuarial Assumptions
III	Projection of M.P.I. Post-Retirement Health Benefits Liabilities for 2017

1. PURPOSE

The purpose of this Actuarial Valuation Report (Report) is to:

- indicate the liabilities which the Manitoba Public Insurance (M.P.I.) has at December 31, 2017 (Valuation Date) as a result of the provision of Post-Retirement Health Benefits to in-scope employees, and
- provide a formula that can be used by the management of M.P.I. to estimate the increase in these liabilities in the following 12 to 18 months after December 31, 2017.

These liabilities are an estimate of the present value of the benefits that M.P.I. is expected to pay to provide Post-Retirement Health Benefits to in-scope employees after their retirement. The Post-Retirement Health Benefits include eligible health benefits.

A summary of the Post-Retirement Health Benefits is provided in Appendix I.

The liabilities have been computed on a going concern basis. This basis contemplates the continued existence of the Post-Retirement Health Benefits and the funding arrangements for the benefits.

The guidance for the calculation of the liabilities and the preparation of this Report are the Practice-Specific Standards for Post-Employment Benefit Plans of the Canadian Institute of Actuaries and IAS 19, Employee Benefits issued by the International Accounting Standards Committee.

2. DATA

It is anticipated no amendments will be made to the Post-Retirement Health Benefits, other than those described in Appendix I.

The data used in the calculations includes the benefits currently in payment or those that are expected to be in payment.

Information on each in-scope employee covered by the Post-Retirement Health Benefits was obtained from M.P.I. For current in-scope employees, this information included employee number, name, and birth date.

For retired in-scope employees, similar information was provided.

The data was checked for missing information and illogical information. As a result of these checks, the data was found to be sufficient and reliable.

3. POST-RETIREMENT HEALTH BENEFITS PARTICIPATION

The data provided indicated that M.P.I. was the employer of record for the following participants (new entrants, and separately terminations, may include or exclude temporary employees as provided by M.P.I.):

	EMPLOYEES			PENSIONERS & SURVIVORS		
	Males	Females	Total	Males	Females	Total
Participants as at 31-Dec-2016	595	903	1,498	145	194	339
New employees	44	49	93	-	-	-
Retirements	(22)	(33)	(55)	22	33	55
Terminations	(17)	(23)	(40)	-	-	-
Deaths	-	-	-	-	-	-
Adjustments	-	-	-	-	-	-
Participants as at 31-Dec-2017	600	896	1,496	167	227	394

4. ASSUMPTIONS

The actuarial assumptions used in this valuation are shown in Appendix II.

The demographic assumptions are the same as those used for the actuarial valuation report on the pension liabilities that the Manitoba Public Insurance has as at December 31, 2017. In addition, the marital status at the date of retirement was assumed to be the same as the marital status at the valuation date.

The economic assumptions have been chosen by management. The specific choices are made after a review with internal staff and the actuary. The existing economic assumptions were confirmed on March 5, 2018 by management after management's review of the assumptions. The assumptions are the same as those adopted for the actuarial valuation report on the pension liabilities as at December 31, 2017.

For purposes of future increases in premium (benefit) rates, it was assumed that the benefits currently in force at the Valuation Date would increase at the assumed rate of inflation. Based on information from various sources on the escalating cost of health benefits, it is anticipated that the current benefits will increase at 2.00% per year.

The demographic assumptions overall represent a reasonable best estimate basis for these assumptions. The economic assumptions, overall, represent M.P.I.'s best estimate basis for those assumptions.

5. M.P.I. SHARE OF PREMIUMS

It has been anticipated that M.P.I. will continue to pay 100% of the premiums (benefits) required to finance the Post-Retirement Health Benefits for in-scope employees.

6. VALUATION PROCEDURE

The projected benefit method prorated on service has been used to determine the accrued liabilities and the current service cost applicable to each year after the Valuation Date.

For each in-scope employee, the present value of the expected post-retirement premiums (benefits) was determined. The proportion of this amount held as the accrued liability is equal to the ratio of the completed service as at the Valuation Date divided by the total service expected to be completed at the date of retirement.

For each retired in-scope employee, the present value of the expected post-retirement premiums (benefits) was determined. This full amount is held as the accrued liability.

7. VALUATION RESULTS

The following table shows the liabilities that M.P.I. has as at December 31, 2017 and December 31, 2016 as a result of the provision of Post-Retirement Health Benefits to in-scope employees:

Category	Amount at 31-Dec-2017	Amount at 31-Dec-2016
Current Employees	$ 3,186,900	$ 2,881,200
Retired Employees	1,962,900	1,602,600
Total	$ 5,149,800	$ 4,483,800

For this valuation, the liabilities were $27,200 less than projected prior to reflecting changes in actuarial assumptions. The detailed breakdown of the experience is shown in Appendix III.

8. PROJECTION FORMULA FOR LIABILITIES

The following formula can be used to project the estimated increase in liabilities in the 12 to 18 months after the Valuation Date:

- Add interest at the rate of 3.43% per year to the liabilities at the beginning of the period, the current service cost for the period, and the premium (benefit) payments for the period. The interest addition for the current service cost and the premium (benefit) payments should be prorated to recognize investment for half the period, on average.
- Add employer current service cost at the rate of $175 per covered current in-scope employee per year for the period.

9. SENSITIVITY OF RESULTS TO DIFFERENT ASSUMPTIONS

The results obtained are based on the assumptions outlined in Appendix II.

The accrued liability would increase by approximately $0.264 million or 5.13% for each ¼ of 1% increase in the health cost inflation rate. The current service cost would increase by a similar percentage.

The accrued liability would increase by approximately $0.261 million or 5.07% for each ¼ of 1% decrease in the assumed rate of return. The current service cost would increase by a similar percentage.

10. MATURITY ANALYSIS

The following table shows the estimated future benefits as at December 31, 2017 and December 31, 2016:

	Less than 1 year	Between 1 - 2 years	Between 2 - 5 years	Over 5 years	Total
31-Dec-2017	$ 98,100	$ 114,900	$ 445,900	$ 9,262,600	$ 9,921,500
31-Dec-2016	85,400	102,100	406,200	8,794,500	9,388,200

11. ACCOUNTING FOR POST-RETIREMENT OBLIGATIONS

The cost for a period, including the assumed interest, is equal to:

(a) the change in the reserve plus

(b) the premium (benefit) payments plus

(c) the amounts for the amortization of the previous unfunded liability.

The above formula takes no credit for interest that may have been earned on assets supporting the liabilities.

12. ACTUARIAL OPINION

In our opinion, for the purposes of this Report:

- The membership data is sufficient and reliable.
- The assumptions, in aggregate which have been used, are appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- The method which has been used is appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- We are not aware of any other matters or events occurring since the completion of this Report, which will materially affect the calculation of the liabilities as at December 31, 2017.
- This Report has been prepared and this opinion given in accordance with accepted actuarial practice in Canada.

Dated at Winnipeg, this 16th day of March, 2018.

Respectfully submitted,
ELLEMENT CONSULTING GROUP

Dennis Ellement

Brandon Ellement

Dennis Ellement, FSA, FCIA

Brandon Ellement, FSA, FCIA

APPENDIX I

SUMMARY OF BENEFITS

An annual post-retirement health benefits spending account is available, in the amount of $200, for eligible in-scope employees who retired after September 27, 2008.

Effective January 1, 2015, all eligible in-scope retirees who retired after September 27, 2008 had their post-retirement health benefits spending account increase from $200 to $350.

APPENDIX II

SUMMARY OF ACTUARIAL ASSUMPTIONS

	31-Dec-2017	31-Dec-2016
1. Annual Discount Rate:	3.43%	3.89%
2. Post-Retirement Benefit Rates (as at valuation date):		
- increase in post-retirement benefit rates	2.00% for 1.00 year, 2.10% for 1.00 year, 2.00% thereafter	2.20% for 1.00 year, 2.10% for 1.00 year, 2.00% thereafter
- family rate (benefit) per year	$350	same
- single rate (benefit) per year	$350	same
3. Marital Status at Retirement:	same as at Valuation Date	same
4. Annual Rates of Death:	CPM 2014 Public Mortality Projected using Scale B (see TABLE)	same
5. Annual Rates of Termination of Service:	(see TABLE)	same
6. Annual Rates of Disability:	(see TABLE)	same
7. Annual Rates of Retirement:	(see TABLE)	same
8. Portion of Health Spending Account Expected to be Utilized:	65%	same

The age specific rates for the demographic assumptions are shown in the following table:

	Mortality*		Termination		Disability		Retirement	
Age	Males	Females	Males	Females	Males	Females	Males	Females
20	0.08%	0.02%	10.15%	12.60%	-	-	-	-
25	0.10	0.02	6.60	9.20	-	-	-	-
30	0.11	0.03	4.63	6.88	-	-	-	-
35	0.11	0.04	3.39	5.31	0.01%	0.01%	-	-
40	0.13	0.06	2.58	4.26	0.04	0.06	-	-
45	0.18	0.09	2.06	3.64	0.09	0.13	-	-
50	0.25	0.13	1.71	3.22	0.23	0.30	-	-
55	0.36	0.21	-	-	0.66	0.76	24.86%	24.49%
60	0.53	0.35	-	-	-	-	27.10	21.45
65	0.76	0.56	-	-	-	-	100.00	100.00
70	1.17	0.88	-	-	-	-	-	-
75	2.00	1.46	-	-	-	-	-	-
80	3.74	2.71	-	-	-	-	-	-
85	7.22	5.32	-	-	-	-	-	-
90	13.54	10.23	-	-	-	-	-	-
95	24.27	18.86	-	-	-	-	-	-
100	36.64	31.78	-	-	-	-	-	-

* CPM 2014 Public Mortality Projected using Scale B

APPENDIX III

PROJECTION OF M.P.I. POST-RETIREMENT HEALTH BENEFITS LIABILITIES FOR 2017

1.	**Actuarial Liabilities as at 31-Dec-2016**	4,483,800
2.	Interest on liabilities and cash flow (3.89%)	176,200
3.	Current Service Cost for Active Members	231,900
4.	Premium Payments for Retired Members	(137,900)
5.	Adjustment for new entrants	-
6.	Adjustment for data	-
7.	**Projected Liabilities as at 31-Dec-2017**	4,754,000
8.	ACTUAL LIABILITIES as at 31-Dec-2017 before change in economic assumptions	4,726,800
9.	ACTUAL LIABILITIES as at 31-Dec-2017 after change in economic assumptions	5,149,800
	GAIN/(LOSS) due to actual experience: [7] - [8]	27,200
	GAIN/(LOSS) due to change in assumptions: [8] - [9]	(423,000)
	NET GAIN/(LOSS)	(395,800)

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Actuarial Valuation Report as at December 31, 2017

Liabilities for Post-Retirement Health Benefits for Out-of-Scope Employees of Manitoba Public Insurance

Submitted: March, 2018

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TABLE OF CONTENTS

		Page
1.	Purpose	1
2.	Data	1
3.	Post-Retirement Health Benefits Participation	2
4.	Assumptions	2
5.	M.P.I. Share of Premiums	3
6.	Valuation Procedure	3
7.	Valuation Results	3
8.	Projection Formula for Liabilities	3
9.	Sensitivity of Results to Different Assumptions	4
10.	Maturity Analysis	4
11.	Accounting for Post-Retirement Obligations	4
12.	Actuarial Opinion	5

APPENDICES

I	Summary of Benefits
II	Summary of Actuarial Assumptions
III	Projection of M.P.I. Post-Retirement Health Benefits Liabilities for 2017

1. PURPOSE

The purpose of this Actuarial Valuation Report (Report) is to:

- indicate the liabilities which the Manitoba Public Insurance (M.P.I.) has at December 31, 2017 (Valuation Date) as a result of the provision of Post-Retirement Health Benefits to out-of-scope employees, and
- provide a formula that can be used by the management of M.P.I. to estimate the increase in these liabilities in the following 12 to 18 months after December 31, 2017.

These liabilities are an estimate of the present value of the future premiums that M.P.I. is expected to pay to provide Post-Retirement Health Benefits to out-of-scope employees after their retirement. The Post-Retirement Health Benefits include Ambulance/Hospital Benefits, Extended Health Benefits, Vision Care Benefits and Dental Benefits. M.P.I. pays premiums to Blue Cross to provide these benefits.

A summary of the Post-Retirement Health Benefits is provided in Appendix I.

The liabilities have been computed on a going concern basis. This basis contemplates the continued existence of the Post-Retirement Health Benefits and the funding arrangements for the benefits.

The guidance for the calculation of the liabilities and the preparation of this Report are the Practice-Specific Standards for Post-Employment Benefit Plans of the Canadian Institute of Actuaries and IAS 19, Employee Benefits issued by the International Accounting Standards Committee.

2. DATA

It is anticipated no amendments will be made to the Post-Retirement Health Benefits.

The data used in the calculations includes the premiums currently in payment or those that are expected to be in payment.

Information on each out-of-scope employee covered by the Post-Retirement Health Benefits was obtained from M.P.I. For current out-of-scope employees, this information included employee number, name, birth date, and single or family coverage.

For retired out-of-scope employees, similar information was provided and, as well, the amount of monthly premium for the coverage. The premium rates effective July 1, 2017 were $161.52 per month for family coverage and $81.68 per month for single coverage.

The data was checked for missing information and illogical information. As a result of these checks, the data was found to be sufficient and reliable.

3. POST-RETIREMENT HEALTH BENEFITS PARTICIPATION

The data provided indicated that M.P.I. was the employer of record for the following participants:

	EMPLOYEES			PENSIONERS & SURVIVORS		
	Males	Females	Total	Males	Females	Total
Participants as at 31-Dec-2016	192	140	332	146	43	189
New employees	12	7	19	-	-	-
Retirements	(10)	(8)	(18)	10	8	18
Terminations	(25)	(25)	(50)	-	-	-
Deaths	-	-	-	-	-	-
Adjustments	-	-	-	-	-	-
Participants as at 31-Dec-2017	169	114	283	156	51	207

4. ASSUMPTIONS

The actuarial assumptions used in this valuation are shown in Appendix II.

The demographic assumptions are the same as those used for the actuarial valuation report on the pension liabilities that the Manitoba Public Insurance has as at December 31, 2017. In addition, the marital status at the date of retirement was assumed to be the same as the marital status at the valuation date.

The economic assumptions have been chosen by management. The specific choices are made after a review with internal staff and the actuary. The existing economic assumptions were confirmed on March 5, 2018 by management after management's review of the assumptions. The assumptions are the same as those adopted for the actuarial valuation report on the pension liabilities as at December 31, 2017.

For purposes of future increases in premium rates, it was assumed that the premium rates currently in force at the Valuation Date would increase at the assumed rate of inflation. The assumed rate of inflation is 2.00%. However, based on information from various sources on the escalating cost of health benefits, it is anticipated that the current premiums will increase at 5.00% per year. For 2016, the rate of escalation of the cost of health benefits was 4.90%.

The demographic assumptions overall represent a reasonable best estimate basis for these assumptions. The economic assumptions, overall, represent M.P.I.'s best estimate basis for those assumptions.

5. M.P.I. SHARE OF PREMIUMS

It has been anticipated that M.P.I. will continue to pay 100% of the premiums required to finance the Post-Retirement Health Benefits for out-of-scope employees.

6. VALUATION PROCEDURE

The projected benefit method prorated on service has been used to determine the accrued liabilities and the current service cost applicable to each year after the Valuation Date.

For each out-of-scope employee, the present value of the expected post-retirement premiums was determined. The proportion of this amount held as the accrued liability is equal to the ratio of the completed service as at the Valuation Date divided by the total service expected to be completed at the date of retirement.

For each retired out-of-scope employee, the present value of the expected post-retirement premiums was determined. This full amount is held as the accrued liability.

7. VALUATION RESULTS

The following table shows the liabilities that M.P.I. has as at December 31, 2017 and December 31, 2016 as a result of the provision of Post-Retirement Health Benefits to out-of-scope employees:

Category	Amount at 31-Dec-2017	Amount at 31-Dec-2016
Current Employees	$ 11,288,500	$ 10,994,400
Retired Employees	10,122,700	8,496,000
Total	$ 21,411,200	$ 19,490,400

For this valuation, the liabilities were $1,702,200 less than projected prior to reflecting changes in actuarial assumptions. The detailed breakdown of the experience is shown in Appendix III.

8. PROJECTION FORMULA FOR LIABILITIES

The following formula can be used to project the estimated increase in liabilities in the 12 to 18 months after the Valuation Date:

- Add interest at the rate of 3.43% per year to the liabilities at the beginning of the period, the current service cost for the period, and the premium payments for the period. The interest addition for the current service cost and the premium payments should be prorated to recognize investment for half the period, on average.
- Add employer current service cost at the rate of $4,093 per covered current out-of-scope employee per year for the period.
- Deduct the actual premiums to Blue Cross for the period.

9. SENSITIVITY OF RESULTS TO DIFFERENT ASSUMPTIONS

The results obtained are based on the assumptions outlined in Appendix II.

The accrued liability would increase by approximately $1.115 million or 5.21% for each ¼ of 1% increase in the health cost inflation rate. The current service cost would increase by a similar percentage.

The accrued liability would increase by approximately $1.137 million or 5.31% for each ¼ of 1% decrease in the assumed rate of return. The current service cost would increase by a similar percentage.

10. MATURITY ANALYSIS

The following table shows the estimated future benefits as at December 31, 2017 and December 31, 2016:

	Less than 1 year	Between 1 - 2 years	Between 2 - 5 years	Over 5 years	Total
31-Dec-2017	$ 392,800	$ 439,300	$ 1,596,500	$ 39,612,800	$ 42,041,400
31-Dec-2016	362,300	408,900	1,506,400	39,956,200	42,233,800

11. ACCOUNTING FOR POST-RETIREMENT OBLIGATIONS

The cost for a period, including the assumed interest, is equal to:

(a) the change in the reserve plus

(b) the premium payments plus

(c) the amounts for the amortization of the previous unfunded liability.

The above formula takes no credit for interest that may have been earned on assets supporting the liabilities.

12. ACTUARIAL OPINION

In our opinion, for the purposes of this Report:

- The membership data is sufficient and reliable.
- The assumptions, in aggregate which have been used, are appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- The method which has been used is appropriate for the purpose of determining the accounting requirements of the Plan on a going concern basis.
- We are not aware of any other matters or events occurring since the completion of this Report, which will materially affect the calculation of the liabilities as at December 31, 2017.
- This Report has been prepared and this opinion given in accordance with accepted actuarial practice in Canada.

Dated at Winnipeg, this 16th day of March, 2018.

Respectfully submitted,

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Dennis Ellement

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APPENDIX I

SUMMARY OF BENEFITS

AMBULANCE/HOSPITAL BENEFITS

The Plan provides for complete coverage for Ambulance and Hospital Semi-Private charges in Manitoba.

Full payment for reasonable and customary charges for ambulance services provided within the province, and payment of up to $250 per trip, (based on provincial rates) for ambulance services provided elsewhere.

Full payment for the charge of a semi-private room in a Manitoba hospital if the hospital does not normally provide the semi-private room, without charge to any patient.

EXTENDED HEALTH CARE BENEFITS

Prescription drugs are reimbursed at 70%.

Other necessary health expenses are reimbursed at 80%. Various limits and benefit periods apply for these other health expenses.

An annual deductible of $20 per person to a maximum of $40 applies.

Other necessary health expenses include expenses incurred for: travel health care, dental treatment due to accident, athletic therapy, paramedical practitioner, physiotherapy, chiropody, clinical psychology, nutritional counseling, private duty nursing, prosthetic appliances and miscellany, wigs, rental or purchase of medical equipment and cardiac rehabilitation.

VISION CARE BENEFITS

Eligible eye care expenses are reimbursed at 100% up to $150 per person per 24-month benefit period.

Eligible eye care expenses include the cost of eyeglasses, replacement glasses, repairs to existing glasses and contact lenses which are prescribed as a result of an eye examination by a licensed medical doctor, ophthalmologist or optometrist. Various limits and exclusions apply.

DENTAL BENEFITS

Basic Dental Services are reimbursed at 80%.

Major Dental Services are reimbursed at 50%.

Reimbursement for dental services is subject to an annual maximum of $800.

If the cost of the treatment is expected to exceed $500, then pre-treatment authorization is required.

Benefit payments are based on the Dental Fee Guide established by the Manitoba Dental Association.

Various exclusions apply. The exclusions depend on the type of dental treatment or the conditions giving rise to the charges.

SURVIVOR BENEFITS

The surviving spouse of a retired member receives the benefits under the Plan for up to 24 months following the death of the member.

APPENDIX II

SUMMARY OF ACTUARIAL ASSUMPTIONS

	31-Dec-2017	31-Dec-2016
1. Annual Discount Rate:	3.43%	3.89%
2. Post-Retirement Premium Rates (at valuation date):		
- increase in post-retirement premium rates	5.00%	4.90%
- family rate per month	$161.52	$161.73
- single rate per month	$81.68	$81.79
3. Marital Status at Retirement:	same as at Valuation Date	same
4. Annual Rates of Death:	CPM 2014 Public Mortality Projected using Scale B (see TABLE)	same
5. Annual Rates of Termination of Service:	(see TABLE)	same
6. Annual Rates of Disability:	(see TABLE)	same
7. Annual Rates of Retirement:	(see TABLE)	same

The age specific rates for the demographic assumptions are shown in the following table:

	Mortality*		Termination		Disability		Retirement	
Age	Males	Females	Males	Females	Males	Females	Males	Females
20	0.08%	0.02%	10.15%	12.60%	-	-	-	-
25	0.10	0.02	6.60	9.20	-	-	-	-
30	0.11	0.03	4.63	6.88	-	-	-	-
35	0.11	0.04	3.39	5.31	0.01%	0.01%	-	-
40	0.13	0.06	2.58	4.26	0.04	0.06	-	-
45	0.18	0.09	2.06	3.64	0.09	0.13	-	-
50	0.25	0.13	1.71	3.22	0.23	0.30	-	-
55	0.36	0.21	-	-	0.66	0.76	24.86%	24.49%
60	0.53	0.35	-	-	-	-	27.10	21.45
65	0.76	0.56	-	-	-	-	100.00	100.00
70	1.17	0.88	-	-	-	-	-	-
75	2.00	1.46	-	-	-	-	-	-
80	3.74	2.71	-	-	-	-	-	-
85	7.22	5.32	-	-	-	-	-	-
90	13.54	10.23	-	-	-	-	-	-
95	24.27	18.86	-	-	-	-	-	-
100	36.64	31.78	-	-	-	-	-	-

* CPM 2014 Public Mortality Projected using Scale B

APPENDIX III

PROJECTION OF M.P.I. POST-RETIREMENT HEALTH BENEFITS LIABILITIES FOR 2017

1.	**Actuarial Liabilities as at 31-Dec-2016**	19,490,400
2.	Interest on liabilities and cash flow (3.89%)	769,700
3.	Current Service Cost for Active Members	959,900
4.	Premium Payments for Retired Members	(369,600)
5.	Adjustment for new entrants	-
6.	Adjustment for data	-
7.	**Projected Liabilities as at 31-Dec-2017**	20,850,400
8.	ACTUAL LIABILITIES as at 31-Dec-2017 before change in economic assumptions	19,148,200
9.	ACTUAL LIABILITIES as at 31-Dec-2017 after change in economic assumptions	21,411,200
	GAIN/(LOSS) due to actual experience: [7] - [8]	1,702,200
	GAIN/(LOSS) due to change in assumptions: [8] - [9]	(2,263,000)
	NET GAIN/(LOSS)	(560,800)

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CAC (MPI) 1-34

Part and Chapter:	**Part IV, Value Management**	**Page No.:**	**3**
PUB Approved Issue No:	**9. Cost of operations and cost containment measures**		
Topic:	**Capital Space Plan**		
Sub Topic:			

Preamble to IR (If Any):

"In April 2018, subsequent to the approval of the 2018/19 Capital budget, a business case was prepared for the Five Year Strategic Space Plan and submitted for approval to the Board of Directors. This multi-phase, multi-year project focuses on the redevelopment of MPI's physical facilities. In the first phase, a budget of $2,065,000 was approved for 2018/19. Details of this business case are commercially sensitive, and are the subject of a motion seeking confidential treatment prior to filing with the PUB."

Question:

Realizing that the business case may be commercially sensitive, could MPI elaborate as to the expected 'building expenses' savings in fiscal years 2019/20 and onwards.

Rationale for Question:

To better understand the financial impact on future basic insurance rates.

RESPONSE:

This response is directly related to materials for which the Corporation has sought confidential treatment, has been provided with the confidential module pursuant to PUB Order 89/18.

CAC (MPI) 1-35

Part and Chapter:	**Part VIII, EAR Attachment B and Part V Claims Incurred**	**Page No.:**	**Part VIII, EAR Attachment B – page 7 and Part V Claims Incurred Page 15**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Increase in Weekly Indemnity Ultimates**		
Subtopic:	**Impact on Rate Indication**		

Preamble to IR (If Any):

Page 15 of Part V Claims Incurred indicates that "the ultimate loss estimates for the 2010/11 through 2016/17 accident years were increased by $55.8 million over last year's estimates. The increase is driven primarily by the introduction of centralized reserving."

Page 7 of Part VIII, EAR Attachment B states "In 2017, MPI revised its reserving process for long-term PIPP claims by centralizing the process to a dedicated team. The team completed a review of all PIPP claims older than 24 months, ensuring that case reserves are adequate to cover claimants' long-term entitlement to PIPP benefits based on established reserving guidelines."

Question:

a) Please provide the established reserving guidelines.
b) Please give the Corporation's rationale for the decision to change its reserving process and explain who was involved in this decision.
c) Has the Corporation considered, and if not, would the Corporation consider an external third party review of their reserving practices?
d) Please give the impact on the rate indication of the $55.8 million increase of ultimate loss estimates for Weekly Indemnity for the 2010/11 through 2016/17 accident years.

e) The case reserves went up substantially without a full offset in IBNR causing the Ultimates to go up. Is it the Corporation's opinion that the estimated Ultimates were too low for the Weekly Indemnity coverage in the February 2017 valuation? If so, please fully explain why that is. If not, what is the justification for the increase in Ultimates for this coverage in the February 2018 valuation?

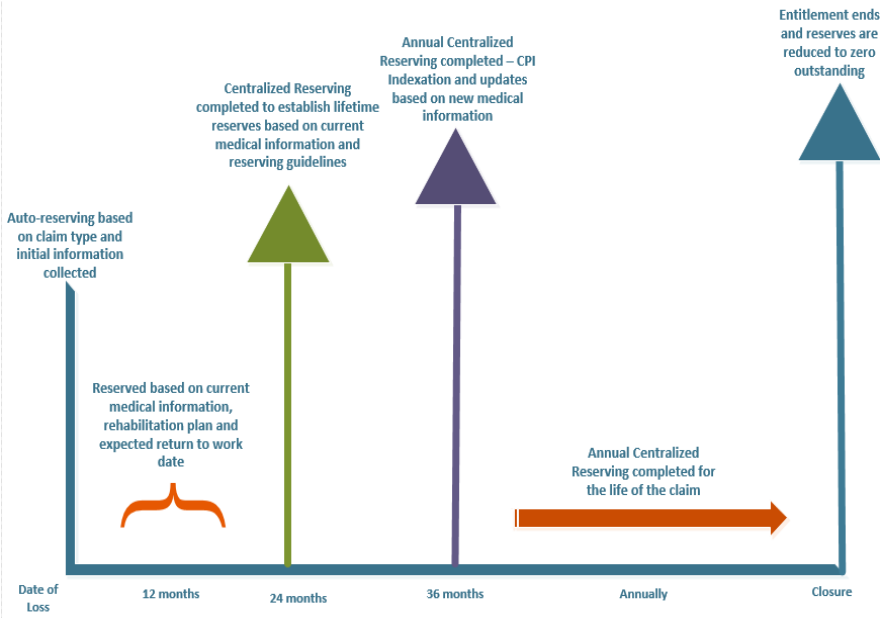
Rationale for Question:

To understand the reserving guidelines, the justification for the new reserving process and its impact on the rate indication.

RESPONSE:

a) Figure 1 demonstrates the reserving process over time.

Figure 1: PIPP Claim Reserving Timeline



At the outset of a claim, based on the claim type and information collected when the claim is opened, reserves are established automatically to cover initial expenses and entitlements. Following that, periodic reviews and reserve updates

are completed as medical information is obtained and rehabilitation plans are established. Starting at 24 months, and annually thereafter, the Centralized Reserving team evaluates and updates each claim, utilizing standardized processes and calculators developed by the actuarial team, to establish reserves on all claims.

b) The reserving guidelines have not changed for PIPP claims open for 24 months or longer. The existing guidelines were not being followed post-BI3 implementation, which is why the Corporation set up the dedicated Centralized Reserving team to remedy this situation. In addition, the Manager of PIPP Support Services (responsible for the Centralized Reserving team), now reports directly to the Chief Actuary, and the Chief Actuary reports directly to the Audit Chair of the Board of Directors. The Chief Actuary now has clear control and can ensure that case reserving guidelines are being followed.

c) The Corporation has yet to consider an external third party review of its reserving practices. The Corporation would need to determine if the cost of engaging a third party would be fiscally prudent before engaging in any such review.

d) The rise in ultimate loss estimates for Weekly Indemnity increased the ultimate forecast for 2019/20 accident year by approximately $8.0 million. However, per Part V, RM Appendix 10, as a component of the required rate, "*Total PIPP claims costs (Accident Benefits – Other and Income Replacement Indemnity) increased marginally by $0.53 or 0.3%",* (i.e. the increase in PIPP claims costs had only a marginal effect on the rate indication).

e) A significant number of income replacement (IR) claims open for more than 24 months were not fully case reserved as per the applicable guidelines. In many cases, the under-reserving was a result of overly optimistic assumptions on the claimants' ability to return to work. However, the Corporation's actuarially based reserving guidelines for longer-term IR claims already incorporates expected recovery rates. So, although well-intentioned, case managers did not reserve appropriately, for claims open for more than 24 months, the Centralized Reserving process takes the case reserving process completely out of their hands, ensuring

that reserving is done consistently and is based on established reserving guidelines.

CAC (MPI) 1-36

Part and Chapter:	**Part IV, Service Delivery Model**	**Page No.:**	**17**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Current Status of PIPP**		
Sub Topic:	**Mental Health and Chronic Pain—growth in retained claims**		

Preamble to IR (If Any):

"SDM.1.9.1 Current State of PIPP

The injury and medical environment in which PIPP resides continues to evolve due to an overall increase in the complexity of injury claims caused by the rising number of mental health claims, such as addictions, depression, anxiety, and chronic pain, as well as concussion and post-concussion diagnosis. MPI seeks to continuously improve and adapt to these changes given their significant impact to reserves in 2016 and 2017. The downstream impact of this trend on MPI is significant growth in our retained claims beyond five years from first notice of loss (FNOL). Through the deep dive review of this area in 2017, various process improvements have been initiated that will mitigate this trend."

Question:

a) Please file a copy of the "deep-dive review" referred to in the preamble.
b) Please file an analysis of the financial impact on "reserves" (increase in claims incurred) for 2016 and 2017 relating to injury claims caused by the rising number of mental health claims, such as addictions, depression, anxiety, and chronic pain, concussion and post-concussion diagnosis.
c) Please elaborate on the root causes of the rising mental health claims in the last couple of years, if known.

Rationale for Question:

To understand the financial impact of rising claims incurred relating to the various types of claims referred to in the preamble and their impact on basic insurance rates.

RESPONSE:

a) The PIPP Program Review report (the "deep dive review") is available in *Appendix 1*. Please note that a number of slides have been redacted as they relate to potential legislative amendments.

b) Long-term claim retention is increasing as indicated by Figure 1.

Figure 1: IRI Claim Retention

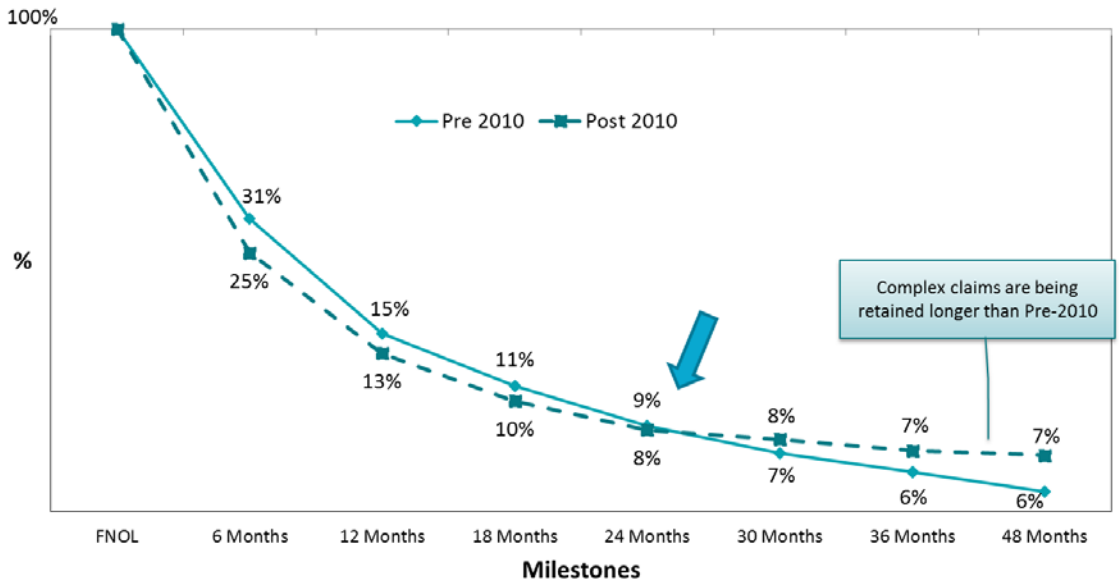
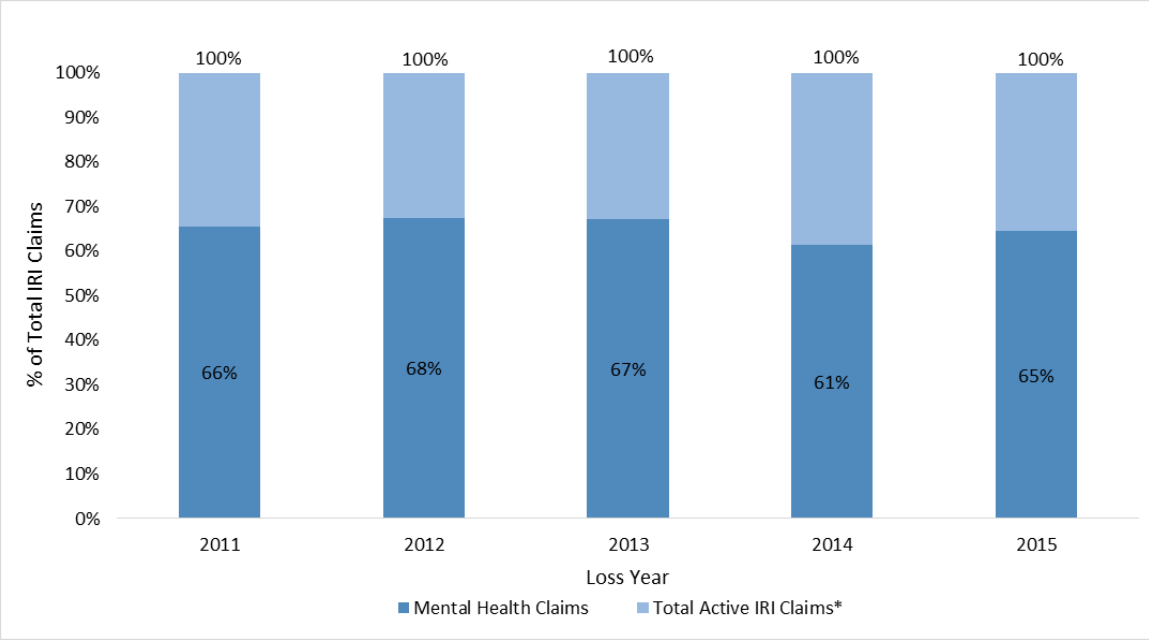


*Chart represents percentage of claims that remain with payments past each milestone

Complex claims are generally those claims involving issues related to mental health. Claimants with issues affecting their mental health also typically have physical injuries. As a result, the Corporation cannot isolate the financial impact of mental health. Figure 1 demonstrates that overall long-term claim retention is increasing. Figure 2 shows that this is primarily attributable to the increase in

claims involving issues related to mental health. Increased claim retention results in an increase in claims incurred.

Figure 2: Long Term Mental Health IRI Claims



*Active or anticipated IRI claims as at Feb. 28, 2018

The effects of mental health claims and the increase in claims retention are expected to continue to permeate in the 2016 and 2017 loss years, however it is unknown as to which claims in these loss years will be retained and contribute to long term retention.

c) The response to CAC (MPI) 1-66 in the 2018 General Rate Application discusses the root causes of the rising mental health claims, and is reproduced (in italics) below for convenience.

In summary, the emergence of psychological and psychiatric impairment claims resulting from physical injury is a trend being experienced by auto insurance companies globally, and one that Manitoba Public Insurance has not been immune to.

The causes of this increase in claims complexity is both complicated and multifaceted. In 2007/08, the medical community declared an opioid crisis[1]. Studies showed an increased reliance on the prescribing of opioid drugs to manage pain from two percent to fifteen percent of cases[2]. This resulted in increased addiction issues, which then increase the complexity of the claim, increasing the likelihood that claim will remain active, longer. Manitoba Public Insurance recognized this trend, and in partnership with the Worker's Compensation Board of Manitoba, implemented an Opioid Medication Policy on November 1, 2012, helping to ensure prescribed opioid medications are done so safely and effectively, following Health Canada guidelines.

In their January 1, 2016 feature article, Canadian Underwriter stated that "The insurance industry has experienced a commensurate increase over the years in claims for psychological and psychiatric injuries"[3]. This is echoed by Claims Canada in their February 1, 2012 edition when they wrote, "In recent years, personal injury claims have increasingly included claims not just for physical injuries but also for psychological or psychiatric impairment, such as anxiety, stress and depression disorders."[4]

In Ontario's tort based auto insurance, they noted an 83% increase in accident benefit costs between 2006 and 2010[5]. The Chartered Insurance Professional Society described the rise in psychological claims as "alarming", and they explain how these types of claims challenge the industry because "Many (psychological claims) involve multiple causes and overlapping impairments. Prior susceptibility is very often an issue."[6]

Though the experiences in Ontario and British Columbia are magnified in comparison to MPI due to the tort environments of those jurisdictions, in both

[1] journal.cpha.ca/index.php/cjph/article/download/2495/2486
[2] Ibid
[3] http://www.canadianunderwriter.ca/features/psychological-injuries/
[4] http://claimscanada.ca/adjusting-for-angst/
[5] http://clcnow.com/uploads/articles/57/escalating-claims-1.pdf?1414789851
[6] http://www.insuranceinstitute.ca/en/cipsociety/information-services/advantage-monthly/0611-Psychological-Injury-Claims.aspx

raising settlement and legal costs, MPI is aware of this issue, and has been strategizing and implementing processes and procedures to mitigate the impact of the increasing number of complex claims for a number of years.

Adjustments in case management practices, service level agreements and internal policies have allowed MPI to mitigate some of the increasing strain on the system as a result of the increasing complexity of injury claims, as discussed within Part IV SDM.1.9.1 Current State of PIPP.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

MPI is unable to provide portions of the PIPP Program Review that relate to potential legislative amendments to the PIPP program. Legislative changes to the PIPP program are beyond the jurisdiction of the Public Utilities Board.

PIPP Program Review

Board of Directors Meeting

April 19, 2018

This report has been prepared as advice, opinions, proposals, recommendations, analyses or policy options developed by or for the public body or a minister, as per Section 23(1) of the Freedom of Information and Protection of Privacy Act

Manitoba Public Insurance

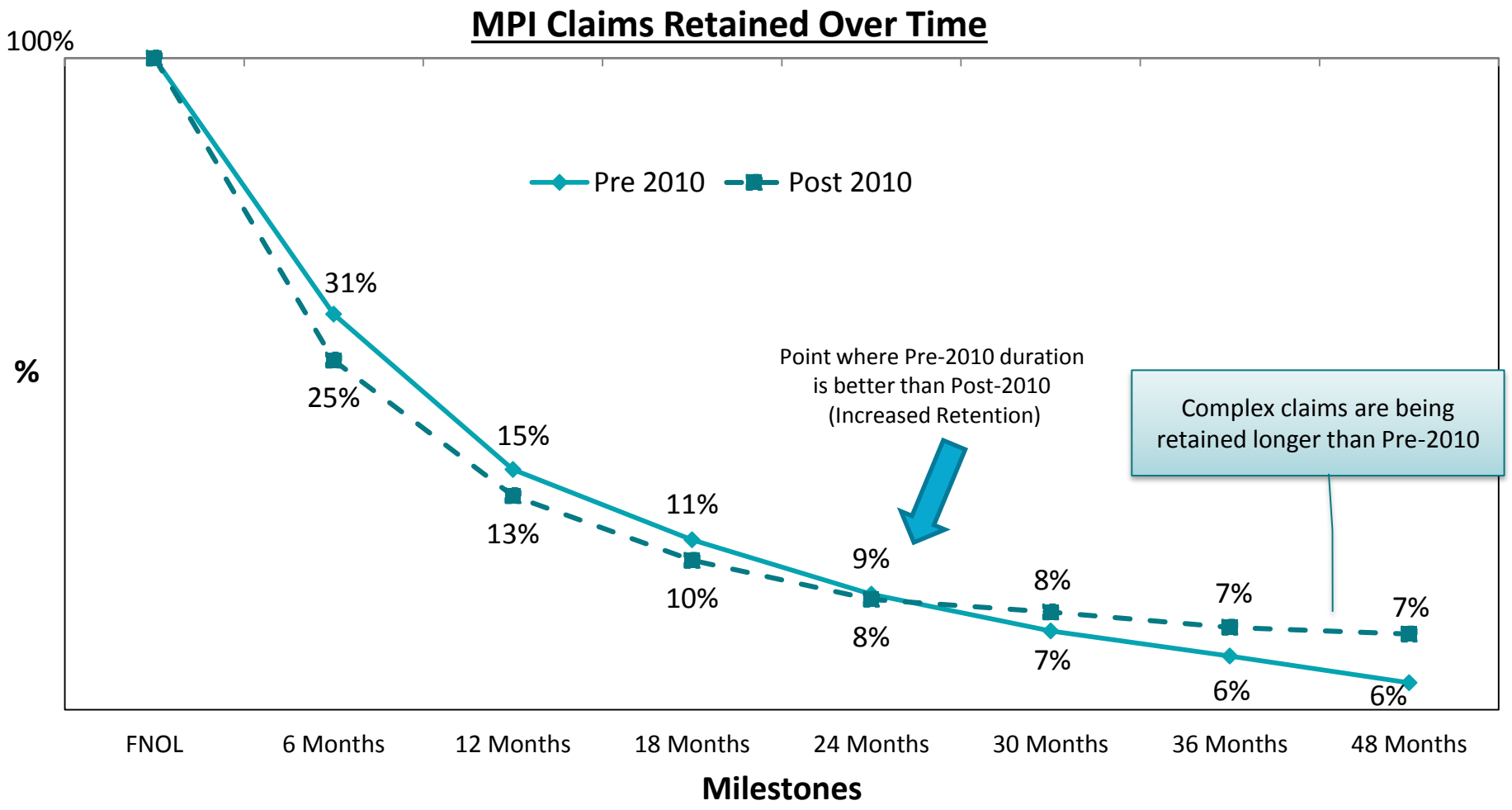
Executive Summary

- The Board requested a deep dive into the Personal Injury Protection Plan (PIPP) in response to substantial IBNR adjustments, year over year variability in claims incurred, and growth in retained claims
- Growth in retained claims has been occurring since 2008. Influences include the implementation of BI3, a reduction in staff, and challenges with complex claims
- The PIPP claims reserving processes were modified in 2010 via BI^3 that resulted in systemic under reserving in operations
- To resolve these problems, three primary improvement areas and their annual claims savings potential have been identified by the deep dive. In order of priority:

	Annual Benefit
1. Recommend resources and work structure: ▪ Intake Unit and triage (triage pilot in place since May 2017) ▪ Proper resources – numbers and talent / qualifications ▪ Centralized Reserving (implemented March 2017)	$2M+
2. Policy and Process Improvements: ▪ 180 day / 2 year determinations procedures ▪ Permanent impairment interest calculations ▪ Chiropractic Agreement ▪ Investigation / Surveillance Policy	$1 to 2M
3. Legislation and Product Improvements: ▪ [REDACTED] ▪ [REDACTED]	[REDACTED]

Manitoba Public Insurance

Claim Retention Curve is Trending Longer



NOTE: Chart represents percentage of claims that remain with payments past each milestone

Priorities

1. **Organizational structure, resourcing, talent management, and workforce planning**
   - Intake and triage
   - Proper resources – numbers and talent
   - Resource to workforce plan

2. **Procedural and policy changes**
   - Investigation / Surveillance Policy
   - 180 day / 2 year determinations procedures
   - Permanent impairment interest calculations
   - Chiropractic Agreement

3. **Act and Regulation changes**
   - [REDACTED]
   - [REDACTED]
   - [REDACTED]

Organizational Structure and Resourcing

Manitoba Public Insurance

Centralized Reserving and Initial Contact

Centralized Reserving:

- Commenced March 1, 2017
- Creates consistency in claim reserving and provides capacity for case managers to focus on returning claimants to work
- Critical to the actuarial process as it relates to claims forecasting
- Identifies areas of opportunity in case management and work processes

Initial Claim Contact:

- Implemented an initial review of medical expense claims handled by the Benefit Administration Unit
- Cost avoidance of **$390 thousand** per year
- Resourcing constraints will determine if this practice can continue

Operational reserving fundamentals - repaired

IRI Case Reserves per Open IRI Claim by Development Age

Loss Year	32mths	44mths	56mths	68mths	80mths
2000	Old Reserving Calculator				$455,386
2001				$391,707	$414,667
2002			$391,091	$477,461	$459,598
2003		$316,207	$358,366	$353,072	$380,131
2004	$249,595	$327,289	$360,786	$422,284	$461,795
2005	$284,933	$355,363	$387,791	$392,269	$413,940
2006	$327,550	$347,656	$387,202	$360,423	$319,583
2007	$198,736	$261,117	$288,562	$309,020	$356,540
2008	$149,199	$181,790	$214,928	$320,605	$320,453
2009	$132,410	$190,437	$262,196	$311,948	$358,438
2010	$97,328	$214,003	$228,508	$342,096	$362,010
2011	$154,895	$186,608	$294,542	$306,692	$501,992
2012	$126,400	$189,522	$222,781	$476,697	
2013	$128,805	$170,559	$389,028		
2014	$137,312	$411,279			
2015	$271,318				

Old Reserving Calculator (case reserving using different mortality table fiscal 2005/06 and prior)

Pre-BI3 Years (case reserving occurs in fiscal years 2006/07 to 2009/10)

BI-3 Implementation Year (case reserving occurs in fiscal year 2010/11)

Post BI-3 Years (case reserving occurs in fiscal 2011/12 through 2016/17)

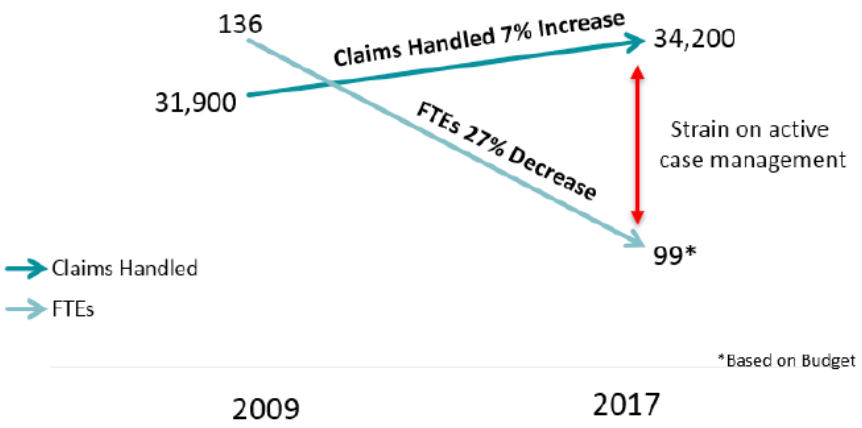
Centralized Reserving Implementation Year (case reserving occurs in 2017/18)

Centralized Reserving

- Effective March 1, 2017
- All claims 24+ months properly reserved
- Reserving process developed through operations and actuarial partnership
- Chief Actuary has dotted line from Ops reserving

Claims staff cut, not proactive in recoveries

Too few Case Management Staff
FTE vs. Claims



Need better skills and pro-active approaches

Problem:

- Not enough time to actively adopt return to work practices on claimants
- Claims with psychological factors have increased by 10% from 2009 to 2016
- Sample of claims with a risk assessment show 14% have complex issues and need case management/return to work efforts immediately
- Majority of current case managers come from physical damage, primarily adjusters and are ill-equipped to manage the complexity of claims

Resolution:

- Get 13 more FTE
- Work with HR to recruit staff with specialized skills in social work, occupational therapy, physical therapy, etc.
- More active approach to case management and return to work goal setting

- ICBC also hiring to be more pro-active on return to work

PIPP Support Services: Centralized Intake Unit Proposal

- Adding 13 EFT to improve intake and triage to assign claims appropriately
  - 10 Administration Unit
  - 3 Analytic support & leader
- This maintains a 12% reduction in staffing levels compared to pre-2010 numbers
- Right sizing to occur based on a continuous improvement methodology
- Allow case managers to work on tougher cases and not admin work

Intake and Triage	Complex Claims	Medical Expense (50% of Claims)
Average New Claims Per Day	21	49
Total Minutes Required per Claim	**90**	**25**

Payment Exceptions	
Average daily exceptions	89
Total Minutes Required per Exception	**5**

	Total Daily Time Required (Hours)
Total Hours Required	49.16
Turnover, Vacation, Illness Contingency (15%)	7.37
Total Hours Required	56.54
Total Administrator FTEs Required*	**10**

	FTE Cost
Annual salary	$55,000
FTEs	13
Additional benefit costs	30%
Annual FTE Costs	**$930,000**

*Based on 5.75 hours per day dedicated specifically to intake and exceptions. The remaining productive hours would be focused on administration, training and various other claim related tasks.

Aligning specialized case management skills with complex claims

Problem:

Majority of case managers come from physical damage, primarily adjusters. These may not have the bodily injury or return to work experience MPI needs

Actions:

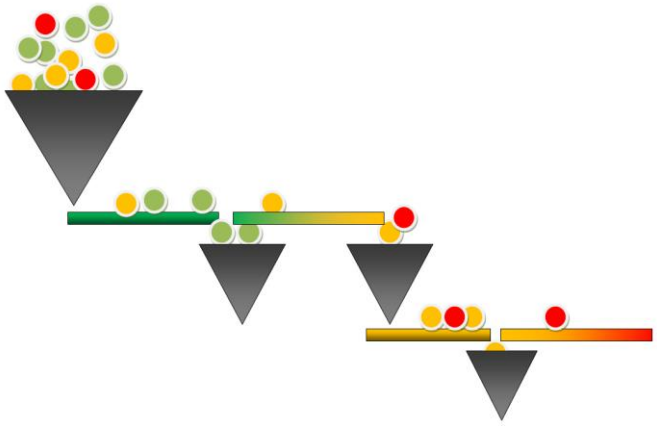
1. Working with Human Resources to attract and recruit staff with specialized skills

2. The education and skills that these professionals possess cannot be easily trained or substituted
   - Additional compensation should not be required

3. Specialized case management skills will result in a more active approach to case management and help achieve return to work goals

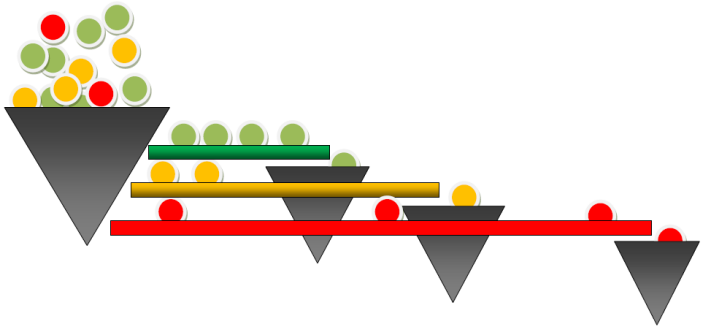
Just in Time Active Case Management

Current Structure



- Complex claims are actively managed only in the later stages of the claim
- Delays are experienced each time a claim is transferred
- Claims retention is impacted by this structure

Recommended Structure



- Intake unit assigns a high or low risk factor to each claim
- High risk claims are case managed immediately
- Accountability on complex claims increases
- Increases hands on approach
- Critical checkpoints reduces disability duration and leakage

Intake & Triage Pilot Results Feel Positive

Triage Pilot

Pilot commenced May 1, 2017 that provides early identification of risk factors of mental health and immediately address in rehab plans – **don't wait!**

Borrowed from the Transport Accident Commission (TAC) in Australia, a two part screening system was implemented:

- **Cognition, Resilience**
- **Social Support**
- **Persistent Pain, and**
- **Pre-Existing Mental Health**

Screening Questions

1. How are you doing with your memory, thinking and concentration?
2. Even at this early stage, are you feeling confident you will get better?
3. Are you getting support from your family and friends?
4. Have you ever seen a doctor or councilor for stress, anxiety, depression, or a mood related condition? (Pre-Existing Mental Health)

Next Steps:

1. Centralize this function within an intake and triage unit
2. Take this admin function off case managers to free them for pro-active case management

✓Small increase in claims closure rates so far – very positive

Coverage Opportunities

Manitoba Public Insurance

[REDACTED]

.

[REDACTED]

.

[REDACTED]

.

[REDACTED]

.

Permanent impairment interest costs $1M/year

Interest Calculation

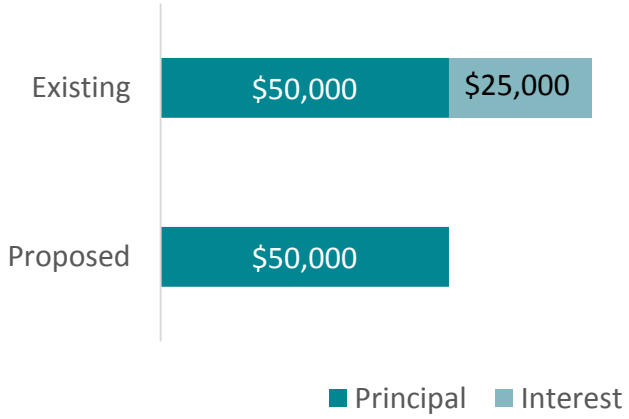
Calculated from date of loss

Proposed Interest Calculation

Calculate interest and pay indemnity amounts only in cases that exceed 30 days from the date of maximum medical improvement (MMI) determination

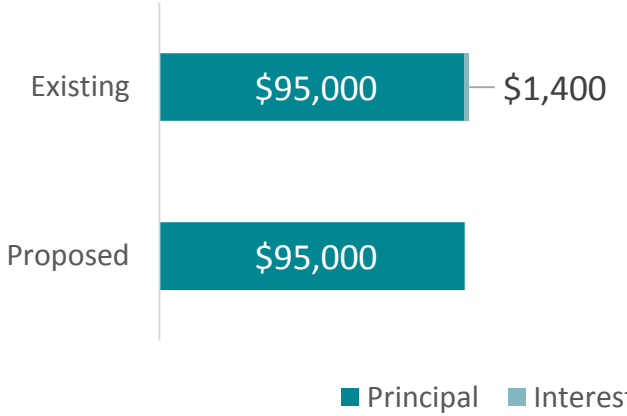
Example 1

Relapse Claim with DOL of March 1, 1999
MMI at March 1, 2018



Example 2

Claim with DOL of March 1, 2017
MMI at March 1, 2018



Permanent Impairment

Meaning of "permanent impairment"

126 In this Division, **"permanent impairment"** includes a permanent anatomicophysiological deficit and a permanent disfigurement.

Lump sum indemnity for permanent impairment

127(1) Subject to this Division and the regulations, a victim who suffers permanent physical or mental impairment because of an accident is entitled to a lump sum indemnity of not less than $500. and not more than $100,000. for the permanent impairment.

Lump sum indemnity for catastrophic injury

127(2) Subject to this Division and the regulations, a victim who suffers permanent physical or mental impairment because of a catastrophic injury resulting from an accident is entitled to a lump sum indemnity of $215,000. for the permanent impairment.

Effect of death on compensation

128(1) Compensation for a permanent impairment is not payable if, on or before the 89th day after the day of the accident, the victim dies of a cause related to the accident.

Compensation where victim dies of other cause

128(2) If the victim dies of a cause unrelated to the accident and, on the day of his or her death, the victim has suffered a permanent impairment resulting from the accident, the corporation shall estimate the amount of compensation that it would have awarded to the victim in respect of the permanent impairment if the victim had not died, and pay that amount to the victim's estate.

Evaluation of permanent impairment under schedule

129(1) The corporation shall evaluate a permanent impairment as a percentage that is determined on the basis of the prescribed schedule of permanent impairments.

Evaluation of permanent impairment when victim dies

129(1.1) If a victim dies before the degree of his or her permanent impairment has been determined, the corporation shall, unless subsection 128(1) applies, estimate the degree of his or her permanent impairment, taking into consideration the available medical information about the victim and any other information about the victim and his or her injuries that the corporation considers relevant.

Impairment not listed on schedule

129(2) The corporation shall determine a percentage for any permanent impairment that is not listed in the prescribed schedule, using the schedule as a guideline.

Computation of lump sum indemnity

130 The lump sum indemnity payable under section 127 for a permanent impairment, other than one resulting from a catastrophic injury, is an amount equal to the product obtained by multiplying the maximum amount applicable under subsection 127(1) on the day of the accident by the percentage determined for the permanent impairment.

When Interest is Paid

Interest where benefit not paid within 30 days after entitlement established

197.1 Where the corporation fails to pay an indemnity, a retirement income or an expense to a person entitled to compensation under this Part within 30 days after the day on which the person's entitlement to the benefit is determined, the corporation shall pay to the person interest on the amount of the indemnity or expense at the prejudgement rate of interest prescribed under section 79 of *The Court of Queen's Bench Act,* computed from the day on which the person became entitled to the benefit

[REDACTED]

.

Next Steps

- Adopt more active approach for case management and FTEs required
  - Centralized intake unit (13 FTEs)
  - Attempting to fill using internal MPI FTE where possible

- Approve MPI management to pursue product coverage recommendations for advancement through legislative process where needed

- As changes mature, we will review overall progress quarterly with MPI actuarial department and focus on continuous improvement

CAC (MPI) 1-37

Part and Chapter:	**Part IV, Service Delivery Model**	**Page No.:**	**17 to 18**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Centralized Reserving**		
Sub Topic:			

Preamble to IR (If Any):

"Centralized Reserving:

On March 1, 2017, injury file reserving moved from being the responsibility of benefit administrators and case managers to that of a centralized reserving unit. The goals were to improve the consistency and reliability of reserves, and build capacity for the benefit administrators and case managers to allow more time to focus on return to health / work efforts. Effective May 1, 2018, the oversight of this unit will be a shared responsibility between the Director, Injury Claims Management and the Chief Actuary, and Vice President, Risk Management. The purpose for this change is to ensure there is open communication and collaboration between the two areas that will result in improved operational effectiveness, and sound actuarial practices related to reserves."

Question:

a) Please explain how the PIPP claims reserving process unfolds in practice from the time a PIPP claim is opened to when it is closed.
b) Please explains the PIPP claims reserve accountability and cost control framework during the life of the PIPP claim in a central reserving unit operation.
c) Please elaborate on the accuracy and confidence level of each PIPP claim reserve within the context of the PIPP claims reserve accountability framework.
d) Does the central reserving unit type of operation impact the accuracy of the PIPP claims incurred forecasts either positively or negatively, please elaborate.

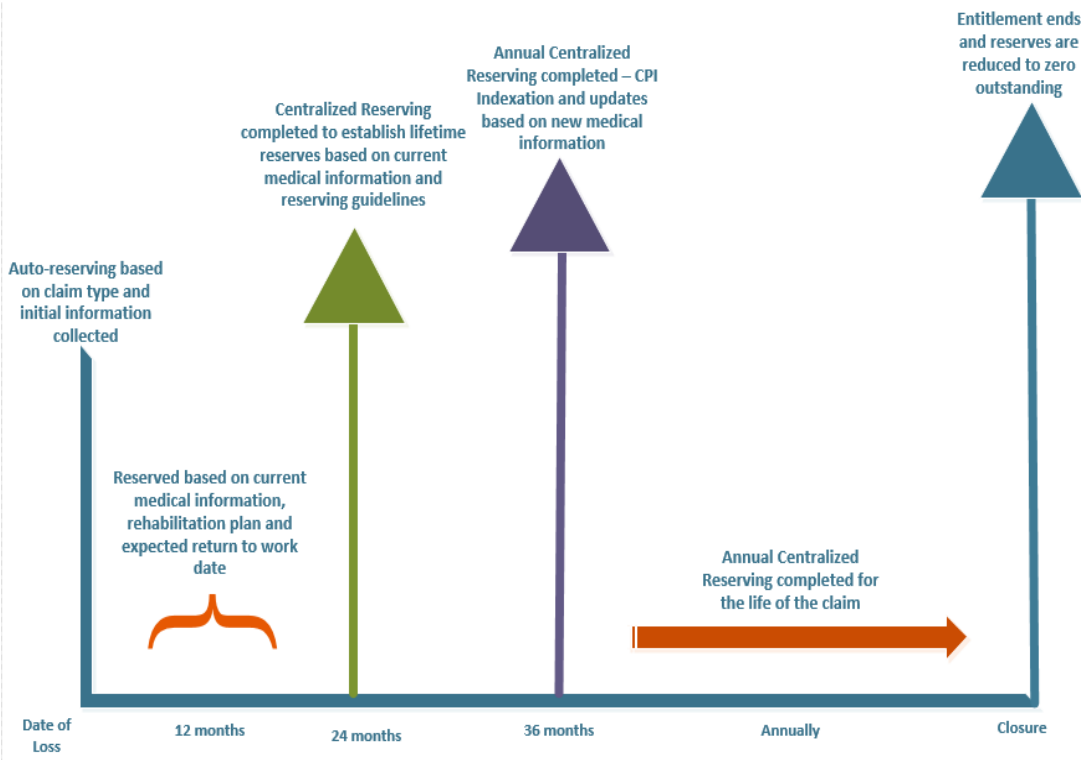
Rationale for Question:

To better understand the centralized PIPP claims processes and the impact of PIPP claims control and forecasting accuracy.

RESPONSE:

a) *Figure 1* demonstrates the reserving process over time:

Figure 1: PIPP Claim Reserving Timeline



At the outset of a claim, based on the claim type and information collected when the claim is opened, reserves are established automatically to cover initial expenses and entitlements. Periodic reviews and reserve updates are then completed as medical information is obtained and rehabilitation plans are established. Starting at 24 months, and annually thereafter, the centralized reserving team evaluates and updates each claim utilizing standardized guidelines

and calculators developed by the actuarial team, to establish reserves on all claims.

b) The implementation of centralized reserving improved the accountability framework. This team is responsible for ensuring that the reserves accurately reflect the anticipated exposure on the claim. The segregation of duties between the case owners and reserving increases the consistency and reliability of the reserves. Centralized reserving solves the problem of overly optimistic reserving practices of case managers, by leveraging actuarial best practices and a standardized approach.

The Corporation is developing monthly monitoring of reserving and overall claims incurred occurrences as well as a compliance reporting process, as it relates to the reserving timelines. In addition, a monthly review of injury claims was recently introduced to ensure compliance with the centralized reserving guidelines.

c) The Centralized Reserving process will significantly improve the consistency of PIPP reserving for claims beyond 24 months. On average, the Corporation expects the case reserves for long-term claims to be highly accurate based on the historical performance of the Corporation's assumed mortality table and return to work assumptions. However, in the event there is bias in the initial case reserve assumptions, the actuarial valuation adjusts for bias over time, based on observed development experience. For example, the actuarial valuation makes an adjustment for tabular reserved claims open for 10+ years. The Centralized Reserving process will bring automatic/tabular reserving forward to 24 months.

d) The Chief Actuary expects significant improvement in the consistency of reported case reserves because of centralized reserving. This improved consistency will make claims forecasts much more reliable.

CAC (MPI) 1-38

Part and Chapter:	**Part VIII, Annual Report, Appendix 3**	**Page No.:**	**5, 5**
PUB Approved Issue No:	**5. Corporate strategic direction** **10. Claims Forecasting**		
Topic:	**Journey of renewal—focus on core business**		
Sub Topic:			

Preamble to IR (If Any):

"Vehicle manufacture and repair is undergoing a dramatic shift due to increased use of lightweight complex materials and advanced electronic systems. There are significant cost and repair implications that will need to be managed thoughtfully. In response, we enhanced our claims process, including the launch of our increasingly popular Direct Repair program. Manitoba Public Insurance will continue to collaborate with the repair industry to ensure vehicles damaged in collisions are properly repaired, and we will continue to be proactive in preparing for structural change in the auto industry, including the anticipated introduction of fully autonomous vehicles."

Question:

In the context of the current physical damage repair and distributed estimating model, please elaborate on the steps MPI is taking in controlling physical damage claims incurred costs (collision, comprehensive, property damage) to further inform and improve the financial forecasting process and reduce pressure on basic insurance rates.

Rationale for Question:

MPI needs to be commended for re-focusing its strategic direction toward its core business to enhance policyholder value. With respect to the question, by distributing

estimating activities to other parties, there may be a loss of cost control in prudently managing the various stakeholder relationships.

RESPONSE:

What was previously referred to as 'Distributed Estimating' in prior GRA submissions is now referred to as the Direct Repair (DR) Program. Internally, the Corporation monitors severity and identifies opportunities for improvement in policies and shop performance. The Corporation anticipated the risks associated with DR Program and implemented the following steps to control physical damage claims costs:

- Shop Specific Key Performance Indicators (KPIs):
    - This action ensures that shops writing 'first estimates' are doing so in a fiscally responsible manner by maintaining their KPIs in line with the DR Program objectives and estimating standards.
    - The Corporation maintains control over costs by granting autonomy only to shops with positive KPI results. Shops with high KPI scores earn higher earned approval limits and may be eligible to enter into the Direct Repair Program. High performing KPI shops lessen administrative efforts, use fewer new parts and conduct repairs properly resulting in savings for the Corporation.
- Shop Relationship Advisors:
    - A Shop Relationship Advisor is assigned to and works closely with each shop, not only support them, but to monitor their KPIs and find areas of concerns or opportunities for further improvement, thereby benefiting the shop, customers and the Corporation (through controlled severity).
- Physical Damage and Glass Audit Programs:
    - In place to keep shops in compliance with Estimating Standards and recover incorrect billing.

- The audit programs have been successful in achieving both direct and indirect benefits. The audit unit recovered in excess of $500,000 in direct claim cost recoveries in the past year. The introduction of the current audit process has increased shop awareness and compliance with the Corporation's estimating standards for the entire Manitoba industry.

- Repair Accuracy Inspections:

  - To ensure the completion of proper repairs and to encourage shops to have the right process in place to prevent negative customer service and additional administrative effort resulting from corrective repairs.

  - "Proper Repair" means that work is completed per the approved estimate in compliance with OEM product/repair specifications for that Light Vehicle. The proper repair includes the necessary parts, materials, repair methods, products, tooling, and equipment. In addition, a trained and qualified individual must complete the repair.

- Compliance with the Accreditation Agreement between Shops and MPI:

  - The Accreditation Agreement is in place to identify all expectations of a repair facility to enforce proper repair, proper billing and compliance to MPI programs.

CAC (MPI) 1-39

Part and Chapter:	**Part VIII, External Actuary Review**	**Page No.:**	**4**
PUB Approved Issue No:	**12. Run-off of prior year claims**		
Topic:	**PIPP Review**		
Sub Topic:			

Preamble to IR (If Any):

"*Figure EAR- 6* indicates significant unfavourable runoff for Accident Benefits – Weekly Indemnity and significant favourable runoff for Accident Benefits – Other (Indexed). This is driven primarily by the introduction of centralized reserving. A dedicated team was set up specifically to ensure proper reserving for long-term PIPP claims. The team was tasked with regularly updating PIPP reserves based on established reserving guidelines.

The team completed a review of all PIPP claims older than 24 months to ensure that case reserves for these claims were adequate to cover claimants' long-term entitlement to PIPP benefits based on established reserving guidelines. As a result, the case reserves were increased significantly for Accident Benefits – Weekly Indemnity, and reduced significantly for Accident Benefits – Other (Indexed)".

Question:

Please file a copy of the PIPP review and elaborate on MPI management's PIPP reserving confidence going forward. Please also discuss steps taken to improve the PIPP reserving process and the impact BI3 has had on improving the accuracy of PIPP reserves.

Rationale for Question:

To better understand the PIPP reserving process and accuracy. It seems that the annual PIPP claims incurred volatility is mainly driven by actuarial assumptions, development factors and IBNR selection (judgment) changes (page 6). These belated actuarial changes are, in turn, it seems driven by PIPP adjudicators not case reserving accurately based on guidelines. Need to understand: Could this cycle go on into perpetuity or are there steps taken to stop this cycle?

RESPONSE:

As opposed to a summary review of all PIPP claims, the team reviewed the details of each individual claim and based on this, updated reserves to reflect the established guidelines. As a result, no summary review document exists.

Centralized reserving has brought consistency and reliability to case reserves on claims older than 24 months, which has increased the confidence in PIPP reserving. The implementation of centralized reserving ensures that case reserving aligns with the established guidelines and actuarial best practices, with annual reviews to ensure reserves remain accurate based on new information and changes to each claim. The data available from BI3 enables the centralized reserving team to obtain claim information to support the reserves posted on each claim.

The Chief Actuary expects significant improvement in the consistency of reported case reserves relative to that experienced from 2010 through 2017. This improved consistency will make the claims forecasts much more reliable. In terms of directional impacts, the Corporation tracks the duration of long term claims before and after the implementation of BI3. As indicated in the previous assessment of BI3, while the Corporation is experiencing a reduction is disability duration on shorter tailed, fully developed closed claims, there has been deterioration in the number of long term claims. Although MPI does not fully understand the root causes of this impact, the Corporation is optimistic that recent changes can affect long-term claim persistency.

CAC (MPI) 1-40

Part and Chapter:	**Part V, Pro Formas**	**Page No.:**	**4**
PUB Approved Issue No:	**4. Financial Forecasts**		
Topic:	**DPAC/ Premium deficiency adjustments**		
Sub Topic:			

Preamble to IR (If Any):

Part V, PF.1, page 4 reports the following DPAC/Premium deficiency adjustments ($000) for years 2019B through to 2023F:

"DPAC \ Premium Deficiency Adjustment - (15,750) (28,521) (5,380) (4,243) 3,999 7,997"

Question:

a) Please explain the reasons for these adjustments and provide the detailed analysis comprising these adjustments.
b) Please discuss the condition required for MPI basic insurance rates to be premium sufficient.

Rationale for Question:

To clarify the premium deficiency condition inherent in basic insurance rates.

RESPONSE:

a) The Corporation provides an explanation for these adjustments in *Part V(i) CI.12.5*. These reductions (in DPAC/Premium Deficiency adjustments)

reduce Net Claims Incurred, and result in a positive impact to Net Income. See Appendix 1 for a detailed outline of the calculations for each year.

b) The breakeven rates that the Corporation has applied for in the 2019 GRA cover all expected costs from policies issued in rating year 2019/20. The main condition needed for break-even rates is 'best estimate' (i.e. non-biased) forecasting. Given MPI's break-even mandate, Basic rates will always be on the 'cusp' of premium deficiency. Using a biased forecast, such as the Standard Interest Rate forecast, is an example of how Basic premiums have become deficient in recent years because the interest rates ordered for Basic pricing did not materialize.

Appendix 1
Base Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.														
1	A. Claims (Including External Adjustment Expense) Data													
2							Accident Year						Selected	Selected
3			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	71.97%	72.12%	73.03%	74.02%		
5	2.	Trend/Rate Adjustment for Fiscal Year												
6		2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7		2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8		2019			0.9169	0.9262	0.9399	0.9755	1.0016					
9		2020				0.9271	0.9411	0.9772	1.0037	1.0115				
10		2021					0.9508	0.9856	1.0108	1.0169	1.0132			
11		2022						0.9917	1.0165	1.0222	1.0179	1.0134		
12	3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13		2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14		2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
15		2019			74.97%	75.33%	70.10%	71.46%	72.08%				72.84%	77.54%
16		2020				75.41%	70.20%	71.58%	72.24%	72.95%			72.26%	77.00%
17		2021					70.92%	72.20%	72.74%	73.34%	73.99%		72.76%	77.61%
18		2022						72.65%	73.15%	73.72%	74.34%	75.01%	73.74%	78.72%
19	B. Actual Data Other Than Losses													
20							Fiscal Year							
21			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,113,119	1,169,526	1,216,815	1,265,684		
23	5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.19%	8.05%	8.06%	8.01%		
24	6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.68%	2.69%	2.67%		
25		Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.68%		
26	7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium													
28	8.	Net Unearned Premium					468,613	506,193	537,639	559,472	581,724	604,979		
29	9.	Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	392,259	412,378	426,236	446,776	471,494		
31	11.	Reinsurance PFAD					10	-	-	-	-	-		
32	12.	Maintenance Expense [a]					13,837	14,989	15,216	14,978	15,458	16,047		
33	13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	72,176	75,878	78,427	82,207	86,755		
34	14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	17,110	24,394	29,940	27,275	20,674		
36	16.	Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,393	32,696	34,029	35,426		
37	17.	Write Down Deferred Policy Acquisition Expenses [b]					32,055	12,379	6,999	2,756	6,755	14,752		
38		Change					2,363	(19,676)	(5,380)	(4,243)	3,999	7,997		
39	18.	Premium Deficiency [c]					8,845	-	-	-	-	-		
40		Change					2,001	(8,845)	-	-	-	-		
41	Notes:													
42	[a]	((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b]	Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c]	Negative of (15) if greater than 0, otherwise 0												

CAC (MPI) 1-41

Part and Chapter:	**Part V, Pro Formas**	**Page No.:**	**4**
PUB Approved Issue No:	**4. Financial Forecasts**		
Topic:	**Claims incurred-interest rate impact and investment income-interest rate impact**		
Sub Topic:			

Preamble to IR (If Any):

Part V, PF.1, page 4 reports the following Claims Incurred – Interest Rate Impact and Investment Income- Interest Rate Impact ($000) for years 2018A through to 2023F:

"(a) Claims Incurred - Interest Rate Impact (15,801) (23,797) (8,203) 8,610 11,453 10,124 10,109"

"(b) Investment Income - Interest Rate Impact 4,589 - - - - - -"

Question:

a) Please provide the detailed analysis comprising the Interest rate impact for both claims incurred and investment income.
b) Please explain the reasons that investment income – interest rate impact for years 2019B through to 2023F is zero.

Rationale for Question:

To clarify the interest rate impact on claims incurred and investment income and understand changes impacting these values.

RESPONSE:

a) Please see *Part VI INV.16.2.1* (Basic Interest Rate Risk with Naïve Forecast) for a full explanation. In short, the forecasted declining MUSH yield and declining allocation to MUSH bonds negatively affect the claims discount rate, which negatively affects net income. There is no offsetting impact from the fixed income portfolio, due to the decline in the claims discount rate from MUSH bonds.

b) The "Investment income – Interest Rate Impact" is zero over the five year forecast because this line shows marketable bond gains or losses from changes in interest rates. There are no marketable bond gains or losses over the five-year forecast because of the naïve interest rate forecast. The naïve interest rate forecast assumes no changes to interest rates over the five-year forecast.

If interest rates were forecasted to change, the marketable bond gain/loss would not be zero – see *PUB(MPI) 1-28 a)* for an example of Figure INV-47 using the updated 50/50 forecast.

CAC (MPI) 1-42

Part and Chapter:	**2018 GRA, CAC (MPI) 1-27**	**Page No.:**	
PUB Approved Issue No:	**10. Claims Forecasting** **14. Risk Management**		
Topic:	**Shop-Specific Key Performance Indicators**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please file a copy of the results of the shop-specific key performance indicators to date.

Rationale for Question:

To understand the impact and effectiveness of the shop-specific KPI on claims operations.

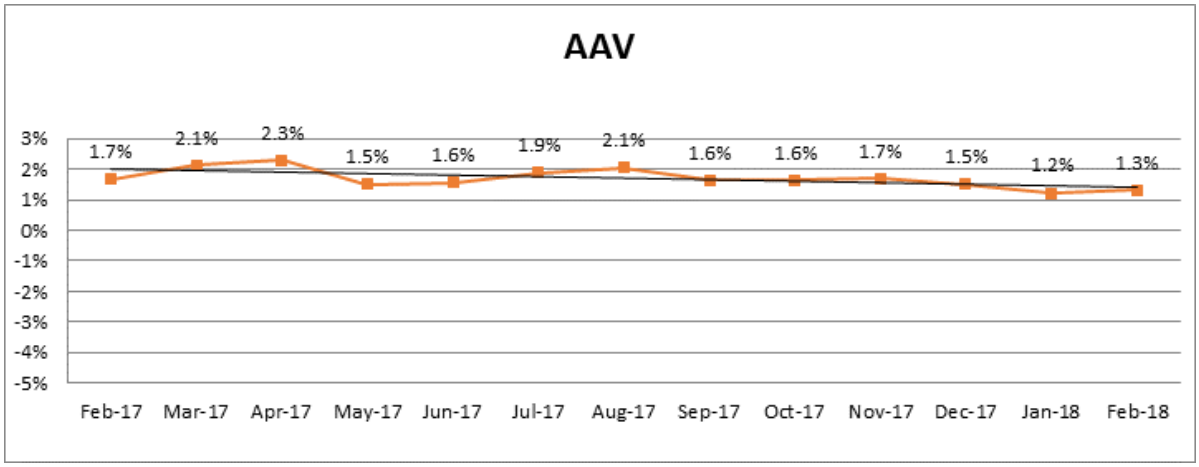
RESPONSE:

Shop specific Key Performance Indicators (KPIs) are essential indicators that provide confidential information regarding the individual performance of a repair facility. The Corporation uses KPIs in alignment with its objectives of controlling costs, improving efficiencies, ensuring proper repair and enhancing customer service, to assess the eligibility of a facility for acceptance in the Direct Repair program (DR) and the Performance Recognition program.

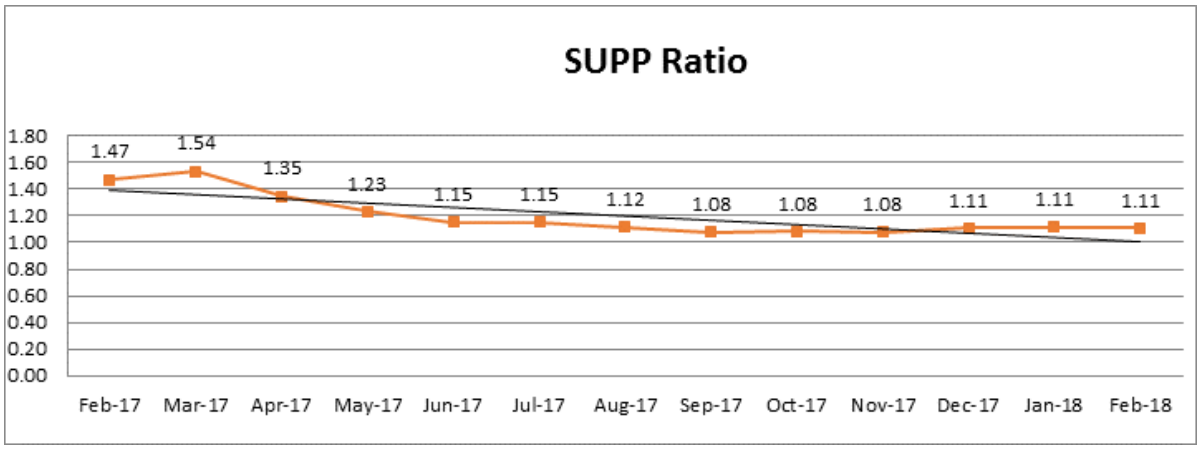
In response to this Information Request, the Corporation provides the industry trend reporting for all Light Vehicle Accredited repair facilities at an industry level over a 13-month reporting period, ending February 28, 2018.

- Shop Measures Information Guide: http://www.mpipartners.ca/documents/Policies_Procedures/Shop-Measures-Information-Guide.pdf

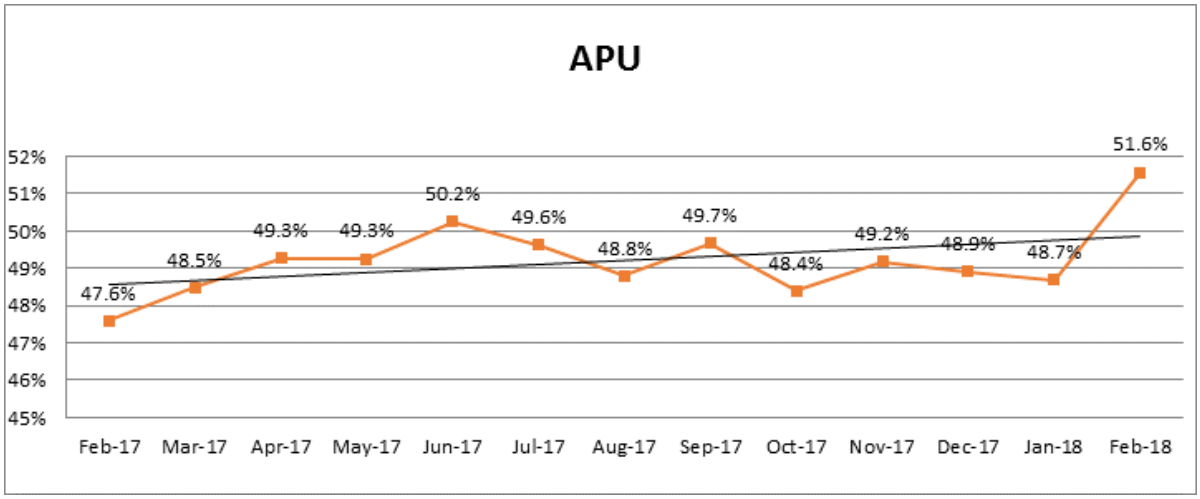
- The **Ask / Approve Variance (AAV)** KPI is used to control a shop's requests in compliance with the Corporation's Estimating Standards, and reduce its administrative efforts. AAV measures the variance between what the shops request, and what is approved according to the Corporation's Estimating Standards. This KPI measure has improved (decreased) since the release of KPIs and is one of two criteria for the DR and Earned Approval Limit tiers.



- The **Supplement (SUPP) Ratio** KPI is used to control the count of shop requests, in order to reduce the Corporation's administrative efforts and the costs associated to repair cycle times. The SUPP Ratio has improved (decreased) since the release of KPIs by 0.5 (or approximately 50,000 fewer estimate supplements) in the past year.

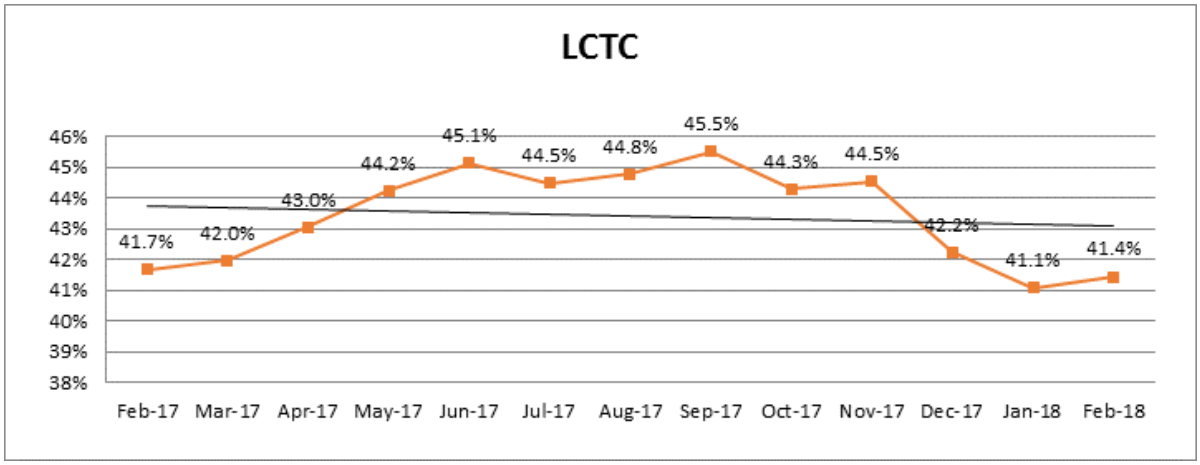


- The **Alternate Parts Usage (APU)** KPI reviews how closely a shop follows the estimating standards for use of alternate parts. Using alternate parts, when cost-effective, reduces the overall cost of repair, while maintaining proper repair standards. APU rates have improved (increased) since the release of KPIs.

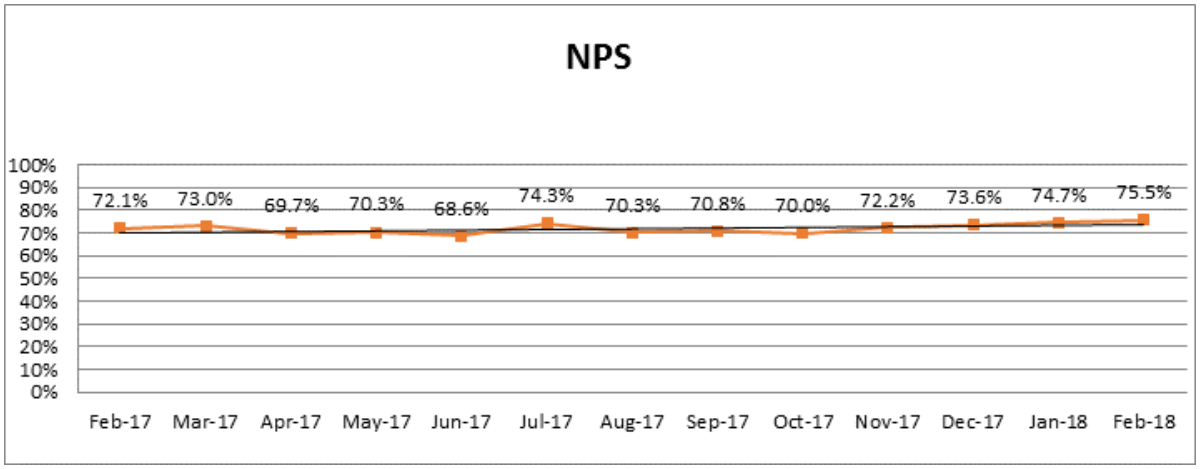


- The **Labour Cost / Total Cost (LCTC)** KPI compares the cost of labour to the total cost of the claim. This measure shows a shop's willingness to repair rather than replace parts, where cost effective and safe. The intent is to encourage shops to save on replacement part costs, when there is an economic alternative. It may also be possible that a shop can reduce their cycle times by beginning a repair task immediately versus waiting to receive replacement

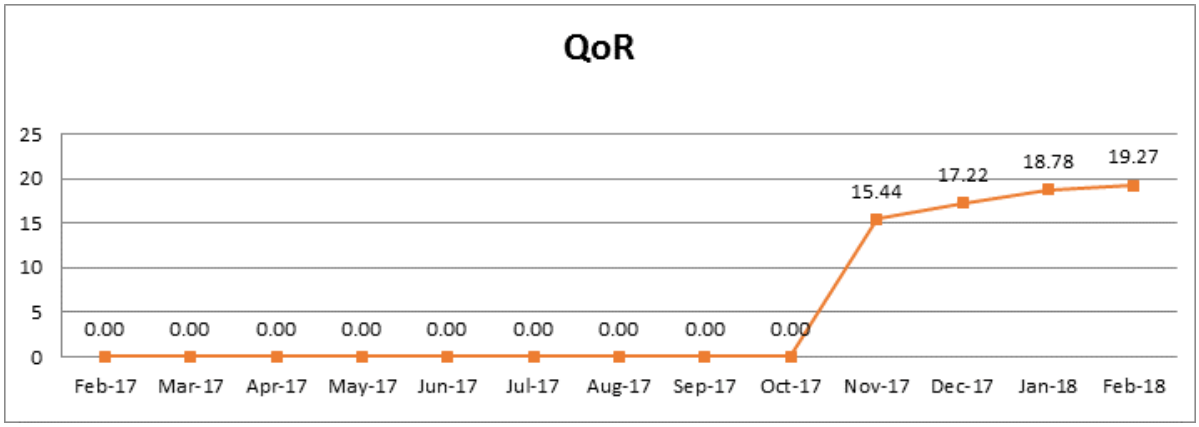
parts. LCTC is influenced by seasonal fluctuations. The Corporation considers the industry is in good standing when LCTC is at 40%.



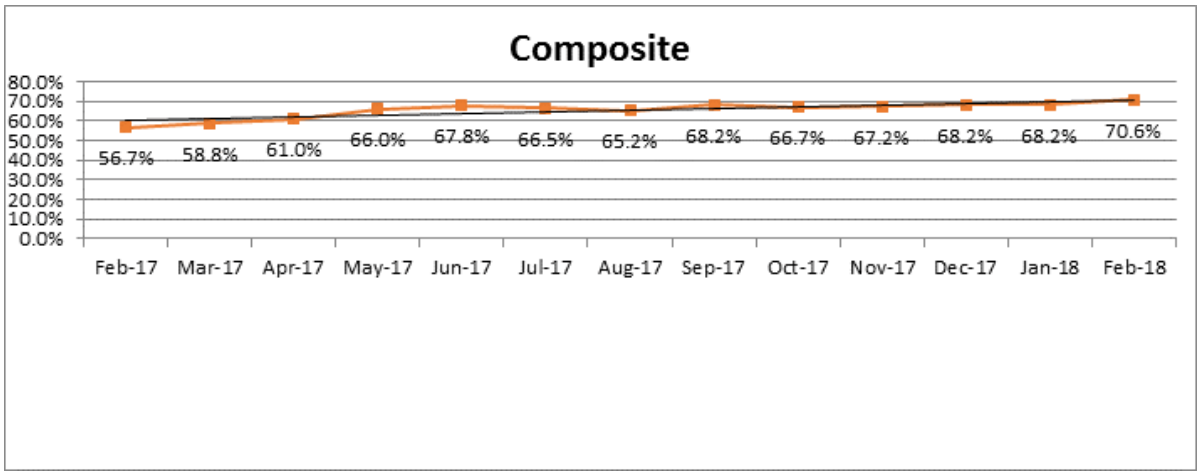
- The **Net Promoter Score (NPS)** KPI measures overall customer satisfaction. NPS compares customers who are most satisfied with their repair experience with those who are least satisfied. NPS is an industry-accepted method of monitoring customer satisfaction. The Corporation has seen a minor increase in customer satisfaction since implementing this KPI. Repair shops can also use the NPS to improve their business and customer satisfaction rates.



- The **Quality of Repair (QofR)** KPI consists of the following:
  - Repair Capability: This indicates a repair shop's ability to perform a proper repair, through a commitment to training and continuous learning;
  - Repair Records on File: This indicator ensures that a repair shop has proper operational procedures supported by timely repair status updates as well as documentation attached to its claims; and
  - Repair Accuracy: This indicator confirms whether a shop is performing collision repair as per its stated capability through in person and virtual process inspections.
- Since it started tracking this KPI in October 2017 (though implemented for facility scoring in April 2018), the Corporation has seen a steady improvement (increase) in the QofR indicator.



- The **Composite Score (CS)** KPI is a weighted ranking of all KPI measures and is one of two criteria's for DR and Earned Approval Limit tiers. The CS has steadily improved (increased) since the implementation of KPIs.



CAC (MPI) 1-43

Part and Chapter:	**Part IV, Benchmarking**	**Page No.:**	**30**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**IT Service Delivery Capability**		
Sub Topic:			

Preamble to IR (If Any):

"Overall, Gartner benchmarking results indicate that MPI continues to improve its Maturity (at a 3.9% CAGR over 5 years using the ratings from the CIO Scorecard). IT Spending relative to operating expenses has continued to decrease annually. With a reduction in the current project portfolio, it is expected that going forward personnel spending (specifically consultants) will also decrease. In line with Gartner recommendations and subsequent to conducting a comprehensive review of Business Process Management and associated expenses, MPI has redirected its focus on further developing Enterprise Architecture capabilities to advance corporate IT maturity."

Question:

a) Please file a copy of the indicated comprehensive Business Process Management review report, if available.
b) Please elaborate on the statement "MPI has redirected its focus on further developing Enterprise Architecture capabilities to advance corporate IT maturity"

Rationale for Question:

To better understand MPI's new direction on information technology and related expenditures.

RESPONSE:

a) The Business Process Management (BMP) Report was incomplete prior to its being suspended in Q4, 2017/18.

b) The BPM Report and Enterprise Architecture activities required some resources contemporaneously, resulting in conflict. Enterprise Architecture processes and capabilities were required to complete the IT Strategy and to support the development and review of the Legacy Modernization Business Case deliverables (ex. RFI / RFP). Therefore, in order to resolve the conflict, the Corporation prioritized the Enterprise Architecture activities and suspended the completion of the BPM Report. As the contemporaneous need for resources was resolved in Q2/Q3, review of the BPM proposal continues and the Corporation expects completion of the BMP Report in late Q3 2018/19.

CAC (MPI) 1-44

Part and Chapter:	**Part IV, Benchmarking**	**Page No.:**	**39**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**Infrastructure and Operations Spending by Cost Category**		
Sub Topic:	**Unallocated cost category**		

Preamble to IR (If Any):

"Since 2015/16, MPI has decreased spending on majority of the cost categories, thus narrowing the gap between its own performance and that of its peers. The unallocated cost category and $9.2 million encompasses the outsourcing expenses after Transmission and Personnel are removed. The outsourcing for the peer groups is included within the allocated categories. Occupancy and software provide opportunities for cost savings."

Question:

a) Please elaborate and explain the unallocated amount of $9.2 million and how this cost category can be brought in line with the Peer Average.
b) Please elaborate on how occupancy and software costs categories provide opportunities for cost savings.

Rationale for Question:

To better understand how the unallocated cost category can be brought in line with the Peer Average costs.

RESPONSE:

a) The unallocated costs reflect data centre related expenditures. MPI is presently working with Gartner to redistribute the $9.2 million to other cost categories (hardware, software, and disaster recovery services) for future score cards. Please note that upon a more granular review by Gartner, some costs included in the $9.2M may be excluded from the Infrastructure and Operations section and recorded in other areas such as Application Support and Development. Please see *CAC(MPI) 1-63 (c)* – which the Corporation is seeking confidentially – for additional actions planned to validate costs are in line with industry.

b) For actions taken by the Corporation that could positively impact the occupancy measure, please see the Space Plan Business Case, filed confidentially pursuant to PUB Order 89/18.

To reduce software costs, the Corporation continues to leverage several approaches:

- MPI is active in its procurement processes, leveraging quotes and tenders as outlined in its corporate directives. This results in competitive market conditions and favorable costs.

- MPI leverages best practices, including those provided by Gartner, to effectively negotiate software agreements resulting in optimal cost structure.

- MPI is diligent in its software asset / license tracking to ensure any unused licenses are recovered / reclaimed in a timely fashion.

CAC (MPI) 1-45

Part and Chapter:	**Part IV, Benchmarking, BMK Appendix 1**	**Page No.:**	**13**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**Project delivery process**		
Sub Topic:			

Preamble to IR (If Any):

The current status of Gartner Recommendation #5.06 states:

"MPI is refining its project delivery processes in 2018/19 which includes the standardization of many deliverables used in Application Development. Additional standardization of deliverables will be reviewed at the completion of this activity."

Question:

Please elaborate on how MPI is refining its project delivery processes and how the new processes are different from the previous processes.

Rationale for Question:

To obtain a better understanding of the new project delivery processes and how they may impact the IT spend and resulting benefits realization going forward.

RESPONSE:

The Corporation is conducting a review of current processes and the recommendations of Gartner regarding best practices. This review will identify opportunities to refine processes, which management will prioritize for implementation. MPI has a standard deliverable log that lists all project deliverables. MPI reviews and updates this

document and the processes on a regular basis to improve the quality of deliverables, ensure proper ownership for each deliverable, and streamline processes to improve project delivery.

CAC (MPI) 1-46

Part and Chapter:	**Part IV, Benchmarking, BMK Appendix 1**	**Page No.:**	**22**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**CIO Scorecard vs. Gartner's IT Score methodology**		
Sub Topic:			

Preamble to IR (If Any):

"5.16 Replace the CIO Scorecard with Gartner's IT Score Methodology: Replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis.

Add two additional surveys (Strategy & Execution, Data & Analytics) to the IT Score methodology to assess the maturity of the IT Strategy and information management disciplines. The addition of these two surveys will also increase the overall confidence level of the enterprise view."

Question:

a) Please ask Gartner to provide a side by side comparison and differences of the CIO scorecard and the IT Score methodology and the advantages of the IT Score methodology compared to the CIO Scorecard.
b) Please ask Gartner to provide a description of the two additional surveys: Strategy & Execution and Data & Analytics.

Rationale for Question:

To obtain a better understanding of the various methodologies to be applied to measure MPI's IT maturity and processes in terms of adding value to its Core Business of being an insurance company and administrator of DVL.

RESPONSE:

Response provided by Gartner:

Gartner response to Question A:

i. Comparison and difference of the CIO Scorecard and IT Score Methodology

	CIO Scorecard	IT Score
Toolset Overview	Previously used to assess MPI's process maturity.	MPI provided data for 2016/17.
	This tool has been discontinued by Gartner.	Current tool used by Gartner to perform in-depth maturity assessments.
Comparison Data	While the framework provides a way to perform year on year comparisons of MPI's maturity level, the peer data should be considered out of date.	Provides a way to perform year on year comparisons
		Current peer data is available for the Insurance industry
Scoring	MPI's maturity level assessed at level 3.52 using CIO Dashboard methodology during the 2016/17 period.	IT Score is a different methodology with different weightings in the assessment domains.
		MPI's maturity level assessed at level 3.10 using IT Score methodology during 2016/17 period.
Assessment	Infrastructure and Operations	Infrastructure & Operations

Framework	Applications Organization	Applications Organization
	Business Process Management	Enterprise Architecture
	Enterprise Architecture and Innovation	Vendor Management
	Cost Containment	Program and Portfolio Management
	Open Innovation Readiness	Security and Risk Management - Privacy
	Effectiveness / Innovation Enterprise Viewpoint	Security and Risk Management - Information Security
	Effectiveness / Innovation IT Organization Viewpoint	Enterprise View
	Overall Score	

ii. Advantages of the IT Score Methodology:

1. Provides a way to perform peer comparisons using up-to-date peer data
2. Provides a way to analyze IT management domains relevant to current organizations
3. IT Score is widely in use and supported by Gartner

Gartner response to Question B:

i. Strategy & Execution

The purpose of ITScore for Strategy and Execution is to assess IT's performance within the context of the role IT takes on in the enterprise. Every IT organization takes on a role, either implicitly or explicitly, and that role ranges on a continuum from that of an efficient service provider to one that drives innovation and business transformation. The ITScore for Strategy and Execution survey drills down from the Executive View survey but stands on its own, alongside the other role-based ITScore assessments.

As a stand-alone assessment, ITScore for Strategy and Execution will give CIOs a good understanding of how well the IT organization is positioned to operate as a business, partner with the business and execute against strategy. CIOs can use the assessment to both improve their performance against the business expectations of their enterprise role or better understand how they can broaden their role and raise expectations in the enterprise (for example, to move from the role of efficient service provider to one driving innovation and growth). As with all the role-based ITScore assessments, the ITScore for Strategy and Execution gets rolled up into the aggregated ITScore for the Enterprise, giving further insight into the enterprise's capability to exploit IT to achieve its strategic goals.

ii. Data & Analytics

Data and analytics leaders are increasingly being tasked with the goal of exploiting data and analytics as a strategic asset, so they want to know the steps required to achieve this. Enterprises of any size and in any industry can use this ITScore to gauge their capabilities in general for any data and/or analytics initiative. The tool is built on years of research focused on data and analytics practices, with insights gleaned from thousands of engagements and interactions with data and analytics organizations around the globe. Once initiatives have been evaluated and programs prioritized, further analysis of maturity at the specific program level can then occur. This assessment measures the maturity of a data and analytics organization's processes and capabilities, not of the solutions deployed.

CAC (MPI) 1-47

Part and Chapter:	**Part IV, Benchmarking, BMK Appendix 1, Attachment A**	**Page No.:**	**10**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**IT FTEs**		
Sub Topic:			

Preamble to IR (If Any):

"Observations:

- MPI's overall staffing level rose slightly from 324 FTEs to 336 FTEs (16.7% to 17%)
- MPI's staffing level is 33% higher than the peers
- MPI continues to transition to third-party services for a number of areas within Infrastructure and Operations
- The benchmark measured a high level of availability for infrastructure functions (service levels increased year over year and are better than peer averages."

Question:

a) Please elaborate on the types of services being transitioned to a third-party within infrastructure and operations and explain the benefit to MPI.
b) Please enumerate the impact of transitioning services to third parties on IT FTEs and service contractors (consultants), if any over the next couple of years.

Rationale for Question:

To better understand the impact on operations of transitioning Infrastructure and Operations services to third parties.

RESPONSE:

a) As part of its Technology Risk Management Program (2017/18), the Corporation issued a tender for 24/7/365 operational, security, monitoring services. Having an around the clock, fully staffed, and scalable service was a new requirement, identified when the Corporation increased its Information Security capabilities in 2016-2018. Leveraging a service provides access to resources based upon transaction volumes (a group to handle all normal requests and the ability to add more or specialized resources for major security events). This avoided incremental staffing requirements (including the potential to over or understaff), and provided stable access to talent (attraction / retention / development of internal security staff has been challenging). The Corporation is not actively pursuing additional third party services, in this area, at this time. If the outcome of activities referenced in *CAC(MPI) 1-63 (c)*, changes this, the Corporation will provide an update in the 2020 GRA.

b) The operational security monitoring service contributed to the reduction of 2 FTEs (removed from IT budgets going forward) and avoided the requirement to hire at least 5 more FTEs. There were no financial implications to external labour (contractors / consultants did not perform this function).

CAC (MPI) 1-48

Part and Chapter:	**Part IV, Benchmarking, BMK Appendix 1, Attachment A**	**Page No.:**	**13**
PUB Approved Issue No:	**11. Operational Benchmarking**		
Topic:	**IT Outsourcing and Maintenance**		
Sub Topic:			

Preamble to IR (If Any):

"Observations:

- Outsourced spending is 3.3X higher than the peer group average
- Maintenance costs are 3X higher than the peer group average
- MPI's outsourcing costs include a prepayment for future upgrades as part of a 'vitality' clause in the IBM contract which avoids large single year increases, but presents a higher yearly cost than might be expected.

Implications:

- MPI may benefit from an assessment of the competitiveness of the outsourcing and maintenance agreements"

Question:

a) Please explain the "vitality" clause in the IBM contract, and whether this a standard industry contract clause to be included in future contracts. If the vitality clause had not been included, please comment whether the IBM contract would have been more competitive.
b) Please advise whether MPI is planning an assessment to determine the competitiveness of the IBM contract. Please comment.
c) Please elaborate on MPI's plans to bring the outsourcing and maintenance spending in line with MPI's peers.

Rationale for Question:

To assess MPI's direction in containing and controlling IT costs and steering MPI back to its core business.

RESPONSE:

a) As part of the IBM data centre agreement, IBM must refresh all physical and virtual equipment and software managed by IBM at agreed to intervals. This refresh is completed at no additional charge by IBM and includes coverage of all equipment and services as well as project management efforts related to the deployment of that equipment. The IBM agreement is a ten year agreement and this vitality clause provides significant benefits at no additional cost, these benefits ensure data center hardware and software currency that guarantees the data centre is operating on supported technology to ensure availability of services. This clause also reduces cyber security risk to the organization by ensuring the data centre is on the latest 3rd party supported technology and not running on unsupported and unpatched technology that would introduce security risks. This option was negotiated into the agreement with guidance from industry experts, and it is MPI's understanding that this was a standard industry contract clause. It is also our understanding that this type of clause is often found in modern service agreements.

b) MPI completed a light assessment of the IBM data centre agreement utilizing Gartner services in 2016. This was executed in preparation for the second part of the 10 year agreement; the 5 year renewal of the IBM data centre agreement. In 2018 MPI plans to complete a full independent benchmark of the IBM data centre agreement.

c) MPI actively reviews its maintenance agreements and leverages tendering and negotiation to secure price stability, and potentially reductions. MPI is also active in the review of its External Labour and is executing a strategy which secures results in this area.

CAC (MPI) 1-49

Part and Chapter:	**Part V, Pro Formas**	**Page No.:**	
PUB Approved Issue No:	**14. Risk management and assessment**		
Topic:	**MPI risk profile changes, if any**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please indicate, list and explain any technical, process, information technology or management constraints that the PUB should take into consideration in issuing its 2019 GRA ruling effective March 1, 2019, if any.
b) Please indicate, list and explain any financial transactions under consideration or in progress that have not been explicitly reported in the 2019 GRA, either by management, the Board of Directors or Government, which could impact the 2019 GRA proposed rates, if any.
c) Please discuss and elaborate on any material changes to the Corporation's risk profile since last year's GRA, with respect to financial risk, operational risk, continuation of service risk, unpaid claims risk, information technology risk, and investment risk or with respect to any other risk factors, if any.
d) Please discuss and elaborate whether the Corporation expects any changes to its risk profile going forward through the outlook period.

Rationale for Question:

Assess material risk profile changes or material transactions in progress or outstanding potentially impacting the 2019 GRA forecasts, if any.

RESPONSE:

a) The most significant technical issue from the investment and reserves standpoint is the use of the industry standard Minimum Capital Test (MCT) as the appropriate capitalization measure for insurance companies. The Corporation's very low level of capitalization exposes Basic and its ratepayers to additional risk from adverse events (compared to similar companies in Canada that maintain a minimum of 100% MCT, and to many that maintain an internal target of 150% to 200% MCT). The effect of this constraint on the Corporation's risk tolerance, and the associated opportunity cost is discussed in *CAC (MPI) 1 96.*

The most significant information technology (IT) constraint on the Corporation is its ageing IT infrastructure, which limits its ability to offer new products or services as they enter the licensing or insurance environment in Manitoba (e.g. vehicles for hire, cannabis, etc.), and reduces its ability to adapt in the face of change. The departure from these legacy systems is an expensive undertaking and an assessment of the cost of doing so is currently underway.

b) The two largest transactions underway are negotiations with the broker community for the $80M per year in broker costs, and negotiations with repair shops for the $350-400M in repair claims costs annually. Agreements resulting from these negotiations will set the commissions and labour rates that determine if any increases or decreases are paid, and consequently affect the rates Manitobans pay. MPI is aligned with the government principles of fiscal prudent management and have communicated these principles of value for money to all parties involved.

The above financial transactions/events, under consideration or in progress, that are not explicitly set out in the 2018 GRA, will not require changes to the proposed rates in 2019. The Corporation has submitted this Application based on best estimate forecasts at the time of preparing the Application, and is seeking approval of rates on that basis. If the financial circumstance of Basic change sufficiently as to have a material implication for the Corporation and ratepayers, the Corporation will notify the parties of its intention to amend its Application in response to the extraordinary circumstances.

c) Basic's risk profile is well documented in its MCT calculation found in *Part VI Rate Stabilization Reserve – Appendix 1*.

The most significant change to the risk profile results from the ALM implementation, and the reduction of risk on assets supporting Basic claim liabilities.

d) There are no new changes in strategy apart from a refocus into the core of insurance and licensing (e.g. no new markets or new products of significance) that would shift the risk profile of the Corporation in this Application.

The Corporation anticipates bringing a Capital Management Plan for PUB approval in the 2020 GRA, which at this time, will contain a capital build/release framework.

CAC (MPI) 1-50

Part and Chapter:	**Part IV, Service Delivery Model**	**Page No.:**	**3 to 5**
PUB Approved Issue No:	**17. DSR**		
Topic:	**Driver Licensing Initiative**		
Sub Topic:	**Failing road tests**		

Preamble to IR (If Any):

"The overall pass rate for MPI customers attempting to obtain their driver's licence through the road test has been declining since 2014. While pass rates for road testing for all classes of driver's licences have declined, the pass rate for road testing for Class 5 licences, the most frequently taken driver's licence road test, has experienced the greatest decline."

Question:

Has MPI identified the root cause(s) as to why drivers fail the Class 5 driver's licence road test? If yes, please provide a commentary on the root causes of the road test failures.

Rationale for Question:

It appears MPI has implemented a number of initiatives (page 4); however, these initiatives do not appear to address any specific identified causes or issues of road test failures.

RESPONSE:

The Corporation has not definitively identified the root cause(s) for drivers failing the Class 5 driver's licence road test. However, preliminary feedback from driver

examiners and customers attending service centres for road tests indicates the foremost cause as drivers not spending enough time preparing and practicing for the examination. Customer reports of the amount of time spent practicing also supported the existence of a correlation between increased time practicing and improved success rates.

CAC (MPI) 1-51

Part and Chapter:	**Part V, Driver Safety Rating**	**Page No.:**	**Page 9**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**Primary Driver Model**		
Subtopic:			

Preamble to IR (If Any):

On page 9 of Part V, Driver Safety Rating it is stated "the larger concern is that using the Primary Driver Model is unlikely to provide any significant benefits relative to the Registered Owner Model. This is because MPI expects that customers may simply declare the best-rated driver as the primary driver for all vehicles in the household and thereby undermine the effectiveness of the Model"

Question:

a) Has the Corporation done any research on this topic to validate this statement?
b) If not why does the Corporation make this large assumption?
c) If the Corporation were to collect the primary driver information (ie. ask the question at registration time) for the estimated cost of $217,000 could they analyze that information for impact on premium levels in order to validate or invalidate the statement above?

Rationale for Question:

To understand the Corporations rationale for the statement above that declares the Registered Owner Model would not have "significant benefits"

RESPONSE:

While the Corporation has not researched this topic, current legislation gives legal owners a choice as to how they register and insure their vehicles. Legal owners can register and insure their vehicles themselves or they can give exclusive use of them to others individual who can register and insure them.

By allowing registered owners the ability to declare a primary driver, the Primary Driver Model does not address the perceived inequalities raised by the PUB. The Corporation believes that some customers may simply declare the best-rated driver as the primary driver for all vehicles in the household, thereby undermining the purpose and effectiveness of the Model. Customers acting in their own self-interest (within the confines of the rules) and choosing the option that provides them with the greatest financial benefit (i.e. lower rates) is neither unreasonable nor a particularly large assumption to make in the circumstances.

The Corporation will conduct customer research before proposing any significant changes to the Driver Safety Rating Program.

CAC (MPI) 1-52

Part and Chapter:	**Part V, Driver Safety Rating**	**Page No.:**	**Page 10**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**Residual Risk Model**		
Subtopic:			

Preamble to IR (If Any):

On page 10 of Part V, Driver Safety Rating it is stated "The driver premium collected from these "non-owners" would then be used to lower vehicle premiums and/or improve the actuarial soundness of the vehicle premium discounts."

Question:

a) Does the Residual Risk Model suggest that the premium collected from the "non-owners" be added to the overall rate indication so that it benefits all those who register a vehicle?
b) If so, does this now add inequity to the vehicle premiums paid as the non-owners premium benefits all?

Rationale for Question:

To understand the Residual Risk Model and whether it adds inequity to the vehicle premiums charged.

RESPONSE:

a) Driver premium is currently used in the vehicle premium rate calculation as a positive (favourable) revenue stream to lower vehicle premiums. The Corporation assumes that this treatment of driver premiums will continue under the Residual Risk Model. The goal of the Residual Risk Model is to collect only the incremental

(additional) risk created by the non-owner that is not adequately collected in the existing registered owner model. Charging rates in this manner addresses the concern that non-owners do not pay their 'fair share', while also ensuring they are not over-charged. While MPI expects rates under the Residual Risk Model to be actuarially sound, depending on the amount of 'rate dislocation', a longer-term implementation / phase-in strategy may be required should it ultimately be selected.

b) See part a).

CAC (MPI) 1-53

Part and Chapter:	**Part V, VFH.4 and VFH.9**	**Page No.:**	**10-11, 19-21**
PUB Approved Issue No:	**18. Vehicles for Hire**		
Topic:	**Vehicles for Hire Rating Model**		
Sub Topic:			

Preamble to IR (If Any):

In its General Rate Application, MPI states that it examined and evaluated insurance solution models/options for vehicles for hire. It also states that it evaluated best practices in the TNC industry and that rating models used in other Canadian jurisdictions were not considered suitable with Manitoba's public insurance environment given the compulsory nature of Basic.

Question:

Please identify all industry, gray and peer-reviewed literature that was reviewed by MPI regarding vehicles for hire.

Rationale for Question:

To better understand the basis for MPI's Vehicles for Hire taring model.

RESPONSE:

The Corporation reviewed the following with respect to vehicles for hire:

- MPI's current policies, legislation, framework models, and underwriting rules

Articles

- Canadian Underwriter
- Global News
- Insurance Canada
- Thompson's World Insurance News
- USA today

Studies

- Winnipeg Taxicab Services Review – Final Report December 20, 2016 http://www.gov.mb.ca/mr/taxicab/pubs/wpg_taxicab_review_final_rpt_dec20.pdf

- Study completed by the National Bureau of Economic Research entitled "*The Value of Flexible Work: Evidence from Uber Drivers*" http://www.nber.org/papers/w23296.

Websites

- AVIVA Insurance
- Insurance Corporation of British Columbia
- Intact Insurance
- Saskatchewan Government Insurance
- Uber

Other

- Alberta Standard Automobile Form – Transportation Network S.P.F. 9
- Alberta Superintendent of Insurance Bulletin
- Canadian Municipal TNC bylaws
- Financial Services Commission of Ontario Bulletin
- Government of Alberta Announcements
- Uber Presentation to the Winnipeg Chamber of Commerce

CAC (MPI) 1-54

Part and Chapter:	**Part I, Overview 2018 GRA, CAC (MPI) 2-22**	**Page No.:**	**13**
PUB Approved Issue No:	**19. Value Management**		
Topic:	**MPI not a technology company**		
Sub Topic:	**The application of Value Management caused projects to be cancelled**		

Preamble to IR (If Any):

Reference Part 1, Overview, page 13:

"MPI, however, is an automobile insurance company and administrator of *The Drivers and Vehicles Act*. The "IT Strategic Plan" is to support the business carry out the corporation's mission - *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*. IT expenses are incurred to meet business needs. Business needs are not determined by an IT Strategic Plan.

As previously mentioned, MPI uses a Value Management Process to ensure that IT expenditures will only be incurred when it is appropriate to do so. As the PUB noted in Order 130/17 this process is applied on all new initiatives with a budget in excess of $500,000. The MPI Board of Directors recognized in the same Order, the PUB expressed concerns about IT projects that were currently "in-flight". The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative."

Reference 2018 GRA, CAC (MPI) 2-22:

"MPI has entered into a co-development agreement with Mitchell International with respect to the Customer Claims Reporting System (CCRS)"

Question:

a) Please file a copy of 2018 GRA, CAC (MPI) 2-22 for the record.
b) MPI has cancelled the CCRS project and written off the development costs of $9.3 million plus an additional amount of about $5.3 million (which may not be entirely related to the CCRS project) (see Part IV, Value Management, pages 32 and 33); based on the co-development agreement with Mitchell, please provide the amount of the write-off recoverable from Mitchell, if any. If there is no amount recoverable from Mitchell, please explain in detail the going-forward business relationship with Mitchell.
c) Please prepare a chart, by project, of projects cancelled and the amount of project development costs write-offs for the last three fiscal years, including the rationale for write-off.

Rationale for Question:

To obtain a clear understanding as to the disposition of policyholders moneys invested in a leading edge system (CCRS) co-developed with Mitchell which has subsequently been cancelled. Who benefited from this work and who is responsible for the loss?

RESPONSE:

a) Please see, *Appendix 1*.

b) None of the amounts written-off are recoverable from Mitchell, as the Corporation spent these amounts mainly for internal development and work on the Customer Claims Reporting System (CCRS) project. Mitchell also invested capital in the CCRS project and the amounts written-off by the Corporation do not reflect this. With the indefinite postponement of the project, the Corporation is negotiating the licence and use of the CCRS software in order to mitigate its losses. These negotiations are close to finalized.

c) Please see table below:

Figure 1: Deferred Development Cost Write-Offs

Line No.	Impairment Projects	2015/16A	2016/17A*	2017/18A**
1	*(C$000s, except where noted)*			
2	Physical Damage Re-Engineering Main/Pha	-	1	993
3	Financial Re-engineering Inititiative	-	-	343
4	SRE Future State	-	-	55
5	High School Driver Education Phase 2	-	-	2,086
6	Enhanced DR Capabilities	-	-	681
7	Customer Claims Reporting System	-	-	15,624
8	PDR Opt Repair - Remote Estimating	-	-	229
9	HR Management System Phase 3 & 4	-	-	247
10	**Total**	**-**	**1**	**20,258**

11 *2016/17 Project cancelled

12 **2017/18 Projects impaired

13 Note: The original 2016/17 cancelled project total included $125,000 that was written off in 2017/18.

14 The $125,000 is included in the $993,000 total under 2017/18.

CAC (MPI) 2-22

Volume and Chapter:	**PUB (MPI) 1-2**	**Page No.:**	**PDF Page 3**
Topic:	**Board of Directors Minutes, Minute 17-023**		
Sub Topic:	**Mitchell International Co-Development Agreement re Customer Claims Reporting System (CCRS)**		
Issue:	**See Preamble**		

Preamble to IR (If Any):

Moved by Mr. Chale and seconded by Ms. Wowryk that the members ratify the recommendation of the Planning & Technology Committee authorizing Management to:

• Finalize negotiations to extend the term of the Master Services Agreement between Manitoba Public Insurance and Mitchell International for an additional 5 years.

• Finalize negotiations for a co-development agreement under the Master Services Agreement to create a Customer Claims Reporting System (CCRS). The costs are to total.

• Enter into a co-development agreement and extend the Master Service Agreement with Mitchell International for a 5 year term ending on April 4, 2023 at a total.

CARRIED

Question:

Please advise whether the co-development agreement with Mitchell International relating to the creating and building of a Customer Claims Reporting System (CCRS) includes a revenue sharing clause with MPIC, as a partner, in the event the CCRS is commercialized and sold to other entities by Mitchell International.

Rationale for Question:

MPIC, it appears, is participating financially expending and investing policyholder funds in the creation (development) and building of the CCRS with Mitchell Internationally and thus it may make economic sense for MPIC to participate in the commercialization of the CCRS with Mitchell International and benefit (basic insurance) from the potential profits of this IT product should it be sold and licensed in the market place.

RESPONSE:

MPI has entered into a co-development agreement with Mitchell International with respect to the Customer Claims Reporting System (CCRS). This agreement provides MPI with the following:

a) Confirmation that business requirements and functionality that are important to MPI from a customer experience and/or business case realization are confirmed to be part of the CCRS general market product

b) Joint MPI/Mitchell International commitment to project timelines and delivery dates

c) Project governance, delivery management and issue/risk escalation parameters and structure

d) Protection of MPI intellectual property

e) 10-year confirmed pricing for CCRS software licensing

The specific terms of the agreement are commercially sensitive, including whether it contemplates revenue sharing, and cannot be disclosed.

CAC (MPI) 1-55

Part and Chapter:	**Part IV, Value Management**	**Page No.:**	**12**
PUB Approved Issue No:	**19. Technology Modernization**		
Topic:	**Legacy System Modernization**		
Sub Topic:			

Preamble to IR (If Any):

"Project Description

The Legacy System Modernization project will develop a business case package, strategy and roadmap to modernize the following enterprise applications (and associated supporting applications) over a multi-year, multi-phase program:

- AOL, DLS and CARS
- SIS replacement for the SRE line of business
- Financial Re-engineering

Two neutral 3rd party consultant partners will be engaged to perform an independent Legacy Modernization assessment. A neutral 3rd party will ensure that a bias free assessment and target solution is recommended."

Question:

Please elaborate on the MPI core business knowledge the two neutral third parties possess to be qualified to recommend a target solution to the replacement of AOL and CARS—MPI's core business systems.

Rationale for Question:

MPI has been spending a significant amount of policyholders' money on various very expensive systems using external contractors just to find out that the benefits promised have allegedly not been realized. In this application significant IT development costs have been written off. Manitobans need to be assured that future IT expenditures add value and improper IT expenditures have negative rating consequences.

RESPONSE:

The rationale for this Information Request assumes facts not in evidence and is largely anecdotal. The Corporation will confine its answer to the germane portion of the question, in a fair and accurate manner, while making note of the prejudicial effect of the premise.

When the Corporation reviewed the request for proposal responses, in the process of selecting two assessments vendors, the vendor's assessment methodology and their qualifications and experience were highly considered and valued factors. A well-defined methodology demonstrates that the vendor has predefined approach to legacy modernization engagements. They know what questions to ask and what information is required to make an informed decision. Their qualifications and experience speak to their record of accomplishment on delivery and their level of performance for various customers.

Deloitte is a recognized leader in the Insurance industry and was able to bring a great deal of business acumen on the trends in the public and private insurance sectors. This vendor presented a very strong modernization and business case methodology, which included a detailed business capability model for Insurance and Driver Vehicle Administration functions.

Avasant is Canadian management consulting firm with experience leading large enterprise transformation and modernization projects in Canada over the last 5+ years, focusing on government clients and other clients subject to government

regulation and oversight. Their proposal placed an emphasis on modernization activities following a strong methodology.

In both cases, each vendor provided numerous client references for whom they performed similar work. The Corporation performed multiple reference checks, which were all positive.

CAC (MPI) 1-56

Part and Chapter:	**Part IV, Value Management**	**Page No.:**	**6**
PUB Approved Issue No:	**19. IT expenses and projects**		
Topic:	**Technology risk management life cycle**		
Sub Topic:			

Preamble to IR (If Any):

"5. A program charter is created for the Technology Risk Management for the fiscal year which guides overall program execution."

Question:

Please file a copy of the Technology Risk Management program charter.

Rationale for Question:

To review the program charter along with the business case filed.

RESPONSE:

Please see *CAC (MPI) 1-56 Appendix 1*.

[Appendix 1 Redacted. The Corporation is seeking confidential treatment of this response].

Manitoba Public Insurance

Technology Risk Management Charter FY 18/19

Version: 0.7
Date: July 23, 2018

Table of Contents

1 INTRODUCTION 1
2 PROGRAM PURPOSE 1
3 PROGRAM OBJECTIVES 1
4 PROGRAM SCOPE DEFINITIONS 2
5 PROGRAM STRATEGY 4
6 PROGRAM MANAGEMENT 5
6.1 DATA REPOSITORY 5
6.2 PROJECT TRACKING 5
6.3 PROJECT REPORTING 6
6.4 APPROVALS 6
6.5 ESCALATIONS 6
7 PROGRAM ASSUMPTIONS 6
8 PROGRAM BUDGET 7
9 PROGRAM ORGANIZATION 7
9.1 ROLES AND RESPONSIBILITIES 9
10 AUTHORIZATION 13

1 INTRODUCTION

This Program Charter summarizes the business and management aspects of the Technology Risk Management Program. When signed by the sponsor(s), this charter serves as an agreement between the business and the project groups, formally authorizing the existence of the project, and gives authorization for the Project Managers to engage resources in the planning and execution of the project activities based on the conditions established.

2 PROGRAM PURPOSE

MPI recognizes the need to continue to invest in its technical assets, to avoid technology obsolescence, and to achieve the goals identified in the Business plan.

Information Technology focused investments are proposed annually to improve Technology Risk Management. This will provide regular investment in technology systems and processes to avoid significant capital outlays in future years by ensuring that existing technologies stay on current, supported versions and other technology risks are addressed through process and technology improvements.

3 PROGRAM OBJECTIVES

Technology Risk Management

The goal of the Technology Risk Management program is to implement projects that will keep existing technology in a stable and supported state and address other technology risk through process and technology improvements. Return on investment will be realized through risk reduction. This includes reduced risk of running on unsupported or outdated technologies and reducing risks identified in various risk assessments. Improvements are focused on the following areas:

- Application Risk Management
- Infrastructure Risk Management
- Information Security Risk Management
- Risk Registry Remediation

4 PROGRAM SCOPE DEFINITIONS

Application Risk Management: Investments in the remediation of prioritized recommendations identified by the Application Portfolio Management process. This also includes improvements to how MPI monitors and manages applications

Infrastructure Risk Management: Investments in infrastructure upgrades to remain on current and supported technologies. Infrastructure Risk Management invests in technology services and solutions which improves our operation of IT Infrastructure assets within the IBM data center. While some of these costs are covered within the IBM enterprise agreement, it is essential to test and remediate the systems and residing applications after any significant infrastructure upgrades to ensure there is no loss of functionality and to minimize or remove any risk to the business. This may include limited application configuration changes, and related testing, to ensure applications function on updated platforms

Information Security Risk Management: Implement solutions to manage risks identified by the Corporate Information Security Office and as identified through the use of MPI's security risk assessment capabilities.

Risk Registry Remediation: Implement solutions to lessen high priority Enterprise risks. This is currently focused on Business Continuity and Disaster Recovery, reducing risk through better event preparedness and by investing in response capabilities.

Project	**ITBT-2018-001 Informatica Update**
Upgrade Informatica to version 10.1. Version 10.1 will be supported until 2020 (or later). Informatica is used in the extraction, transformation, and loading (ETL) of data which populates the enterprise data warehouse. It is critical for report generation. This upgrade is covered under an existing maintenance agreement with the vendor and is planned to be completed by leveraging internal MPI resources.	
Project	**ITBT-2018-004 Application Performance Management Suite Implementation (APMS)**
Install and integrate an APMS suite into the MPI environment to gain full application end to end insight and the following key functions application performance management, end-user monitoring, infrastructure visibility, and application analytics. This enables better identification of negative application performance and facilitates faster response times to these negative events.	
Project	**ITBT-2018-005 VIP Upgrade**
Merge three outdated VIP applications into a single modern application. The three applications in question are VIP Inquiry, VIP2, and VIP_CARS. The focus is to ensure the platform operates on stable / supported infrastructure, uses secure and stable application components, and has the appropriate levels of data protection and auditing. This was recommended by the Application Portfolio Management (APM) process.	
Project	**ITBT-2018-006 Loss of Use - Platform Upgrade**
Upgrade the Loss of Use Web Application (LOU) from its current unsupported VB.NET framework to a current supported environment. This was recommended by the Application Portfolio Management (APM) process.	

Project	ITBT-2018-008 CDW-EDW Migration Strategy
Conduct a review of the Classic Data Warehouse (CDW) and propose a strategy to reduce support risk and shift workload to other internal platforms.	

Project	ITBT-2018-009 Dollar Universe Upgrade 6.7
Upgrade the Automic Dollar Universe Application Suite to the latest stable version of the product, as recommended by the vendor. This was recommended by the Application Portfolio Management (APM) process.	

Project	ITBT-2018-055 Team Foundation Servers (TFS) and Visual Studio Upgrade
Refresh the Microsoft Team Foundation Server (TFS) and Visual Studio development environments ensuring operation of current supported versions and to gain capabilities required to support modern application development processes.	

Project	ITBT-2018-010 ITSM Identity and Access Management Self Service Password Reset Management
Automate common password requests, providing a secure, self service, password reset solution for requests which are traditionally handled by the MPI IT Service Desk.	

Project	ITBT-2018-025 Data Loss Prevention (DLP)

Implement information security improvements recommended in a 2017/18 DLP strategy, 2018/19 efforts will focus on:

- Creation of an implementation and Organizational Change Management strategy for data tagging and classification
- Roll-out of the tagging and classification solution to the organization
- Creation of an implementation and Organizational Change Management strategy for DLP

Project	ITBT-2018-035 Network and Perimeter Security Enhancement
Review and enhance current network protection processes and technologies with a focus on network and perimeter network security to protect MPI from current, emerging, and future threats. [Redacted. The corporation is seeking confidential treatment for this part].	

Project	ITBT-2018-043 Security Awareness Activities for Brokers and Partners
Formalize a Security Awareness Training Program for Brokers and Partners focused on raising awareness around securing and proper handling of MPI / client information as per industry best practices.	

Project	ITBT-2018-045 Forensics and Vulnerability Assessment
Acquire and implement tools and processes to enhance workstation forensics capabilities within MPI. Such tools include the ability to examine IT assets using forensics tools. Expand vulnerability assessments and penetration testing against MPI's Internet facing applications (ethical hacking) in order to identity weaknesses requiring remediation.	

Project	ITBT-2018-046 Workstation Security Enhancement
Enhance the workstation security through the implementation of a threat analytics software (second generation anti-virus technology) that provides the intelligence to learn, analyze, and identify normal and suspicious user or device behavior. Review the local administrative privileges on workstations in order to develop an approach to address associated risks.	

Project	ITBT-2018-003 File Server Storage Solution
Redefine the file storage environment in order to reduce operational costs while improving efficiencies and accommodating MPI's evolving business needs.	

Project	ITBT-2018-029 Security Device Refresh
Execute a refresh for the hardware and add improvements in technology (i.e. High Availability (HA) or Disaster Recovery (DR) capabilities and storage upgrades for retention improvements) if viable within budget and timeline. The Software version will be upgraded to the latest supported version to ensure MPI is maximizing all available features for the Managed SIEM (Security Incident and Event Management) service.	
Project	**ITBT-2018-030 SAN Storage and TSM Backup Upgrade**
Modernize storage and backup solutions to ensure supportability, capacity, and value.	
Project	**ITBT-2018-031 Windows Server Vitality (2009 -> 2016)**
Reduce the risks associated with running End of Life software in our environment. Execute on IBM contractual agreement to perform a major Operating System upgrade every 4 years and validate the changes through formal testing processes.	
Project	**ITBT-2018-033 Intel Server HW and Vmware ESXi Refresh**
Upgrade plan is to move to execute a "like for like" refresh and expected to move to new IT infrastructure. **Intel Server Hardware Refresh/Vitality** To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life hardware in our environment. HX5 blades (current technology) are no longer in production. To remain current on all major Data Centre platforms, and to execute on IBM contractual agreement to upgrade Data Centre infrastructure once every 5 years. **VMWare ESXi 5.5 Upgrade to ESXi 6.5 (Vitality)** To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life Support platforms in our environment. End of general support for ESXi 5.5 is 2018/09/19. To remain current on all major Data Centre platforms and to execute on IBM contractual agreement to upgrade Operating Systems and Middleware once every 4 years.	
Project	**ITBT-2018-100: Risk Registry Remediation - 2018**
Implement solutions to lessen high priority Enterprise risks. Upcoming investments will focus on improving process maturity for Business Continuity Management (BCM) with specific investments in Information Technology Service Continuity Maturity (ITSC). The goals of this project focus on review, refinement, and testing of MPI's IT recovery capabilities. This project addresses recommendations from a 2017/18 external review.	

5 PROGRAM STRATEGY

MPI will leverage internal expertise and external advisory services to identify specific opportunities for improved Technology Risk Management. In accordance with the Value Management process, these opportunities are documented and refined until the final list is submitted to Executive and Board for approval.

Upon approval, a program charter will be created for the Technology Risk Management for that fiscal year.

Throughout the delivery of the product(s) or service(s) described in this Charter, the Program Director and Project Managers will leverage the MPI Enterprise Project Management Methodology which will be modified for efficiency and to address the

technical focus of Technology Risk Management projects and the EPMO Toolkit to provide the clearly defined delivery framework for project management consistency.

Each project within the program will follow the process outlined above to produce a project charter and plan specific to the delivery of that project's objectives, scope and defined deliverables. All projects will be governed following the program organizational chart shown below.

6 PROGRAM MANAGEMENT

6.1 DATA REPOSITORY

- A master program site will be created in share point where all program centric information will be maintained.

- Individual project share point sites will be built within the master site where all program specific documents will be retained and managed.

6.2 PROJECT TRACKING

Projects will be created in the most supported version of MS-Project and will be maintained on the PPM site. Project schedules will track the key deliverables identified and approved in the project deliverables document. The information identified in this schedule will be tracked by Gating Stage and sub-deliverable.

Example:
Phase 2 Elaboration

- Project Plan creation
- Architectural Definition Document
- Refined Project Schedule
- Vendor engagement (Contracts and RFS)

All detailed work required to complete the deliverables above will be maintained and tracked in individual detailed work packages, and the progress of these work packages will be reflected in the respective deliverable. This concept will minimize the size of the project schedules making them easier to manage and report against, and provides the project manager with more control on delivering their projects. Projects will create a detailed project plan that will clearly articulate governance, deliverables, costs, schedule and success criteria.

This approach to project management and tracking will apply to all projects with adjustments depending on project costs, complexity and time line. Projects will be reviewed individually by project sponsors and a project management / delivery approach will be identified that will meet acceptable project delivery requirements, auditability and report requirements.

6.3 PROJECT REPORTING

Weekly Project status reports will be updated and generated as per BTO-EPMO reporting cycle. Preference will be given to creating one report through the PPM tool.

6.4 APPROVALS

Approvals for all agreed to deliverables will be work flowed for auditability. Standard document reviews, presentations, CR, DR and "thin" deliverables will have a 5 business day response. More complex documents such as Architectural Definition Documents will require a 10 business day response.

6.5 ESCALATIONS

Project risks and issues will be tracked in PPM for all projects and will also maintain issues and risks on their respective project share point sites and will comply with auditability requirements.

Definitions

RED – Immediate action is required. The cost or schedule performance is greater than 20% of the baselined plan; Issues / Risks / Change Requests: 2 weeks past the due dates
YELLOW – Project has significant issues that could impact future milestones, cost or schedule performance and is 15% - 20% of the baselined plan
GREEN – The cost or schedule performance is within 14% of the baselined plan

YELLOW:

- Escalate to Program Director for resolution
- Escalate to Project Sponsors if Program Director cannot resolve
- Resolution required: 5 business days

RED:

- Escalate to Program Sponsors for resolution
- Escalate to VP Business Owner if Project Sponsors cannot resolve
- Resolution required: 2-3 business days

Back to Green Plan:
Each Yellow or Red status should have an associated "back to green" activity associated with it. The activity should describe an achievable solution with status on what activities will be executed to ensure that the project can return to green status.

7 PROGRAM ASSUMPTIONS

- Leveraging internal MPI resources will take priority over engaging external contract resources.

- There is a risk that the following projects will carry over to March/April 2019 in order to complete all deliverables:
  - ITBT-2018-025 Data Loss Prevention (DLP)
  - ITBT-2018-031 Windows Server Vitality (2009 -> 2016)
  - ITBT-2018-033 Intel Server HW and Vmware ESXi Refresh
  - ITBT-2018-035 Network and Perimeter Security Enhancement
- Funds from cancelled project, if applicable, will be re-purposed for enhancements or insertions to scope of remaining projects.
- A program governance document will be created and followed for the duration of the 2018/2019 program.

8 PROGRAM BUDGET

Funding Area	2016/17	2017/18	2018/19	2019/20
Technology Modernization	$6.0M	$4.5M	**$4.5M**	$4.5M

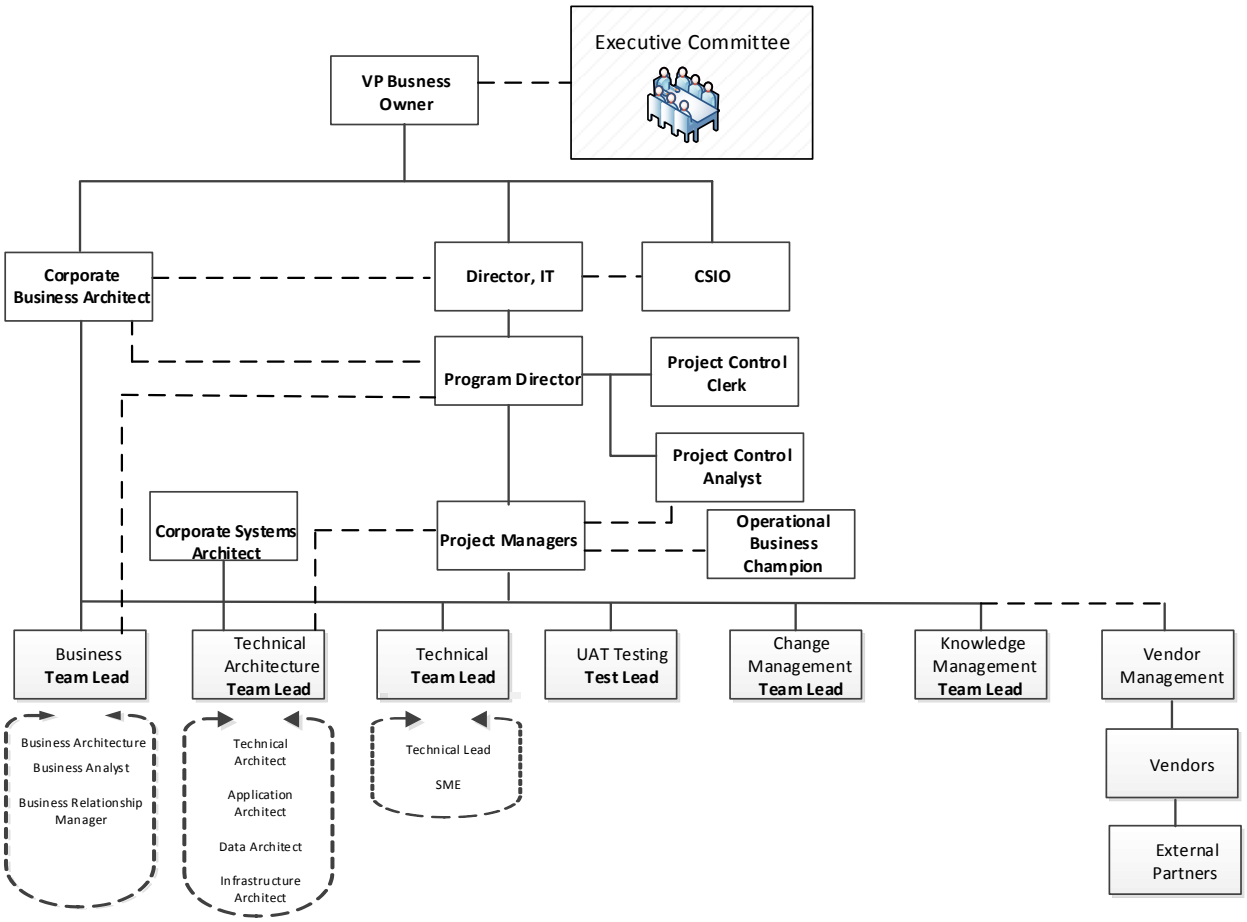
Management intends to seek funding of $4.5M on an annual basis to ensure IT risks are appropriately addressed in a timely manner and capabilities are maintained or developed as required to support the Corporate Strategic Plan. Investments which exceed the proposed funding for 2018/19 to 2019/20 will be evaluated according to the value management process.

Project	Budget
ITBT-2018-103: Application Risk Management - 2018	875,000.00
ITBT-2018-101: Security Risk Management - 2018	1,700,000.00
ITBT-2018-100: Risk Registry Remediation - 2018	300,000.00
ITBT-2018-102: Infrastructure Risk Management - 2018	1,600,000.00

9 PROGRAM ORGANIZATION

The delivery of these projects will follow the approved EPMO delivery approach as it applies to Technology Modernization deliverables. IT Business Services Unit will manage and review the monthly project budgets, expenditures, resource costs and other aspects of project financial management.

EPMO and Vendor Management will assist with resource requests. Project Managers will work with EPMO and QCM to review test cycles and delivery dates to ensure they coincide with the master schedules and the Business and Technical Architecture teams will contribute to, and review all architectural artefacts.


Executive Committee
VP Busness Owner
Corporate Business Architect
Director, IT
CSIO
Program Director
Project Control Clerk
Project Control Analyst
Corporate Systems Architect
Project Managers
Operational Business Champion
Business Team Lead
Technical Architecture Team Lead
Technical Team Lead
UAT Testing Test Lead
Change Management Team Lead
Knowledge Management Team Lead
Vendor Management
Business Architecture
Business Analyst
Business Relationship Manager
Technical Architect
Application Architect
Data Architect
Infrastructure Architect
Technical Lead
SME
Vendors
External Partners

9.1 ROLES AND RESPONSIBILITIES

VP Business Owner

- Support business sponsorship of Projects
- Approve the Project charter giving authority to expend resources on the initiative
- Provide oversight on Program direction, risks, issues, budgets
- Facilitate cross organization dialog and objectives that impact corporate level process

Corporate Business Architect

- Project Sponsor
- Review and approve the Project charter
- Promote the benefits of the project to gain buy-in from stakeholders
- Provide strategic direction
- Facilitate project prioritization
- Signoff/approve key project deliverables; and facilitate approval from Executive Committee members, where applicable

Corporate Information Security Officer

- Project Sponsor for Security Projects
- Review and approve the Project Charter and Project Plans
- Promote the benefits of the project to gain buy-in from stakeholders
- Provide strategic direction
- Facilitate project prioritization
- Signoff/approve key project deliverables; and facilitate approval from Executive Committee members, where applicable

Director, IT

Director, IT is accountable for the planning and successful implementation of Technology Modernization program.

Responsibilities include:

- Project Sponsor
- Review and approve the Project charter
- Provide overall direction and guidance for the program and ensure alignment with overall corporate objectives
- Oversight and ownership of program budget
- Expedite decisions for the program and help to remove roadblocks that could potentially negatively impact the program
- Review and approve the Project charter
- Promote the benefits of the project to gain buy-in from stakeholders
- Provide strategic direction
- Facilitate project prioritization
- Signoff/approve key project deliverables; and facilitate approval from Executive Committee members, where applicable

Business Architect, Information Security Analyst, Technical Solution Architect
The Business Architect, Information Security Analyst, and Technical Solution Architect are accountable to ensure that the solutions align to corporate standards and integrate with future business, technical, and security vision.

Responsibilities include:

- Provide direction and guidance to the project teams and their respective teams, to ensure program/project solutions are in alignment with corporate objectives and future vision
- Ensure that program/project deliverables impacting their perspective areas align with deliverables from other initiatives
- Provide resources to deliver required work packages

Program Director
The program director provides the centralized coordinated management of the program to achieve the program's strategic objectives and benefits.
Responsibilities include:

- Ensures that the program achieves the outcomes for which the program is being initiated. This may involve the creation of new projects, recommendation of scope changes to projects, cancellation of projects, and review/consulting on dotted line projects.
- Monitoring business outcomes being met
- Ensuring that project issues are being resolved in a timely manner and delivery timelines for all the projects being met or adjusted through the change request process
- Provide project managers with support and guidance on individual projects
- Ensure alignment of the projects with the program and organizational performance objectives
- Ensure that the overall technology modernization program structure and program management processes enable the project teams to successfully complete their work
- Ensure projects are organized and executed in a consistent manner
- Leverage resources among the program's projects where feasible
- Manage the program budget

Project Control Analyst (PCA)
The Project Control Analyst resource provides support to the Project Director and Project Managers by ensuring standard processes exist and are followed, and assist with monitoring and reporting project status.
Responsibilities include:

- Consolidate and manage issues, risks, assumptions, CR and DR's
- Ensure compliance with established guidelines and standards for schedule management
- Ensure governance and controls are being adhered to
- Provide support to the Team Leads and Project Managers to ensure projects are being delivered on-time and on-budget
- Work with Team Leads and Project Managers (when required) to facilitate and coordinate project planning

- Consolidate the team project schedules to ensure schedules are integrated at the project level
- Assist Team Leads and Project Managers with creating and updating project schedules in PPM and producing timesheets, if required
- Assist Team Leads with update to project status report
- Record and distribute project meeting minutes, as required
- Identify and communicate process areas for improvement

Project Support Clerk

The Project Support Clerk resource provides support to the Project Director and Project Managers by ensuring standard processes exist and are followed, and assist with monitoring and reporting project status.

Responsibilities include:

- Work with Project Managers to submit and manage project resource requests
- Ensure Share Point compliance with established guidelines and standards
- Ensure deliverable governance, controls and auditability are being adhered to
- Work with Team Leads and Project Managers to facilitate and coordinate project planning when required
- Track weekly status reporting to ensure reporting timelines are met
- Produce weekly status report summary for BTO – EPMO consumption
- Provide program status reports are required
- Record and distribute project meeting minutes, as required
- Point of contact for Program Manager, Team Leads and Project Managers for posting to SharePoint
- Identify and communicate process areas for improvement

EPMO Support

EPMO Support will collaborate with the technology modernization project to coordinate:

- PPM environment activities and updates
- Weekly project status reporting
- Monthly EC reporting
- Quarterly Board reports

Project Managers

The Project Managers are responsible for the timely completion of all deliverables within their team, and planning and management of the work to complete delivery.

Responsibilities include:

- Participate in planning and re-planning
- As per MPI EPMO process and Technology Modernization governance, apply disciplined project management tools, techniques and methods
- Create and maintain project schedules in PPM
- Support issue and risk management processes
- Identify and resolve Project issues/risks and escalate to the Program Director, if required
- Ensure quality of, and delivery of in-scope deliverables
- Defining and managing and controlling scope
- Manage and coordinate resources within the team

- Identify and manage resource needs and submit resource request to EPMO as required
- Monitor and report Team progress using weekly status reports
- Perform monthly resource reviews via Time Card validation
- Track monthly project expenditures

Team Leads

The Team Lead is responsible for working with the Program Director and PCA to establish a work plan including, work assignments, task ordering, and dependencies. They will provide a solution approach for their area of expertise.
Responsibilities include:

- Be the main project point of contact
- Provide expertise, overall direction and accountability for all the deliverables produced by their team
- Provide effort/duration estimates for the work plan/scheduled tasks
- Develop Team Strategy and provide management, monitoring, and control of assigned team activities
- Ensure timely completion of Project deliverable-based milestones
- Identify and resolve Project issues/risks and escalate to the Program Director
- Responsible for Project planning and re-planning within their team
- Advise Program Director on any area that could facilitate integration, efficiencies or improvement.
- Assist with team level procurements
- Working cooperatively and collaboratively across the teams to achieve project goals
- Work with PCA to produce weekly status reports
- Work with PCA to update project schedule in PPM

10 AUTHORIZATION

Deliverable	**Approver**
Program Charter	Program Sponsor + VP Business Owner
Program Budget	Program Sponsor + Manager, Business Services + VP Business Owner
Program Level CR and DR	Program Sponsor + VP Business Owner
Project Based Deliverables	
Project General Content	Program Sponsors
Business Centric	Program Sponsors + ISO
Security Centric	Program Sponsors + ISO
Technical Architecture	Corporate System Architect + Program Sponsors + ISO
As identified in the approved TRM Delivery Log	Program Sponsors + Director, ESS

Name:		**Signature:**	*See SharePoint Workflow*
Role:	Director, IT	**Date:**	
Name:		**Signature:**	*See SharePoint Workflow*
Role:	Corporate Business Architect	**Date:**	
Name:		**Signature:**	*See SharePoint Workflow*
Role:	Vice President, IT, Business Transformation & CIO	**Date:**	

CAC (MPI) 1-57

Part and Chapter:	**Part IV, Value Management**	**Page No.:**	**23, 41, 43**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**BI3**		
Sub Topic:			

Preamble to IR (If Any):

MPI, as per the statement below (page 23, Value Management, Part IV), is required contractually to upgrade BI3/Fineos.

"In order to comply with the contractual provisions of the software licensing agreement between MPI and Fineos, MPI must maintain a 4-year vitality cycle on the Fineos platform. The last Fineos upgrade was completed in early 2016. Therefore, MPI must complete an upgrade of the Fineos platform before the end of calendar year 2020 to maintain status quo annual licensing rates."

On page 41, Value Management, Part IV, MPI updated the NPV (net present value) analysis of the Physical Damage Re-engineering (PDR) project. This analysis now indicates negative NPVs of $49 million to $58 million depending on the discount rate and the time period applied. In last year's GRA, Volume I, PDR, page 19-Gartner Report, the PDR project was to deliver a NPV of 13.7 million with an Internal Rate of Return of 7%.

MPI, it appears, has realized that the likelihood of these major projects (PDR and BI3), with an implementation time frame in excess of 5 years, tend not to deliver positive NPVs. To this end MPI has made revisions to the project governance framework that formally incorporates the Value Management Process as stated below (ref. Part IV, Value Management, page 43:

"In recognition of the evolution and increased maturity of the value management process, as well as the involvement of the Value Management Office in the development, review and post implementation reviews of business case realization, as well as the corporate objective of more actively and engaging operational management in the projects associated with their respective business cases, MPI Management has decided to change key project leadership roles and responsibilities and introduce a new role "Operational Business Champion". As well as more actively engaging the Value Management Office in the entire lifecycle of the project."

Question:

a) With respect to BI3, please indicate whether a current NPV cost benefit analysis similar to the one prepared for PDR on page 40 and 41 of Part IV, Value Management has been conducted. If it has been conducted, please provide it.
b) Using a methodology consistent with the NPV update for PDR (ie p. 41), please prepare and provide an analysis of the net cost, by expense category, to ratepayers as at February 28, 2018 of the PDR project and the BI3 project. The benefits realization, if any, should be shown in a separate column.
c) Please define the PDR and BI3 IT projects either as a success or a failure and provide the rationale supporting MPI's conclusion.

Rationale for Question:

To better understand the magnitude of the net costs to basic insurance policyholders of the PDR and BI3 IT projects which appeared to have been driven by IT euphoria as oppose to business needs. It is comforting to read in this GRA that MPI is turning its attention back to its core business of operating an insurance company.

RESPONSE:

a) The BI3 – Fineos Upgrade 2020 project is supported by a business case and financial analysis submitted in Appendix 4 and 4a of the Value Management Chapter Part IV (ii). No NPV cost benefit analysis has been conducted for the original BI3 project as this initiative was completed in 2010. The Post

Implementation Review conducted by Ernst & Young and submitted in the 2018 GRA addresses original project benefits realization.

The Corporation recognizes that, since implementation of BI3, an increase in long-tail claims occurred and that this increase could be partially due to the planned reduction in employees in 2009/2010, as part of BI3 implementation. While MPI has no definitive evidence that these employee reductions had an affect the duration of injury claims, it is currently expanding its capacity in the bodily injury department to increase case management capacity it believes is necessary to manage this longer duration trend.

More proactive case management and return to work practices will assist customers to do all that is necessary to return to their normal lives, which in many cases helps both parties as it also reduces the income replacement claim costs. Given the long-term nature of this claims impact and the various environmental variables that exist such as increasing concussion claims or mental health claims, trying to isolate the true NPV of the BI3 project eight years after conclusion would be very imprecise and not lead to a different strategy for this area of claims.

b) The PDR project cost categories and the corresponding total financial forecasted benefits realization for the period 2017/18 to 2021/22 are as follows:

Program / Project	Spend as of March 31, 2018	Forecasted Financial Benefit Stream 2017/18 to 2021/22	Benefit Stream Description
PDR Phases 1&2	$3.11 M		
Appointment Manager	$1.45 M		
Enhanced Direct Repair & Parts	$1.80 M	$7.07 M	• All Loss of Use • Internal efficiencies & process improvements • Labour rate • Customer Service
Portal	$2.56 M		• Risk Reduction • Service Improvement
Mitchell Data Services (Tableau) - MDS	$0.15 M	$2.52 M	• Contributes to Claims Audit recoveries • Fraud Risk reduction
PDR Program Management	$5.0 M		
Website Redesign and Portal Consolidation	$4.54 M		• Fraud Risk reduction • Service Improvement
Collaborative Estimating (CE) & Autochex	$10.75 M		• Labour Rate
Direct Repair (DR) – previously Distributed Estimating (DE)	$5.26 M	$22.14 M	• Labour rate (DR is the primary driver) • Internal efficiencies & process improvements • Customer Service
Accreditation	$1.12 M		• Fraud Risk reduction
Shop Support Administration	$1.7 M		
Shop Training Management	$0.12 M		
Predictive Analytics / Loss Prevention	$2.19 M	$2.08 M	• Loss Prevention
JSST (Joint Solution Support Team)	$0.05 M		
PDR Re-Visioning	$0.47 M		
Customer Claims Reporting System	$16.08 M		
Remote Estimating	$0.24 M		
Total	**$56.59 M**	**$33.81 M**	

c) For PDR, please refer to the conclusion reported on page 41 Value Management, Part IV (ii). As stated, the Corporation has concluded the PDR Program did not attain the desired results from a project delivery, value management and realization perspective.

Regarding BI3, the corporation believes that there are incremental claims costs that were incurred as a result of reducing the case management employee base and the process changes that created a more passive approach to injury management since 2010. These incremental claims costs would reduce the overall NPV that had previously been submitted to the PUB, which declared the BI3 project as a success without considering claims impacts.

At this point and for the reasons identified above, there is little point to try to develop a new NPV given that BI3 closed eight years ago and the variables affecting claims duration are many. Therefore, claims impact from BI3 can be difficult to identify with confidence to the NPV. That said, the reduction of paper and the move towards a software system of injury management was and continues to be appropriate. Comparable companies also chose Fineos (TAC, RBC, Sunlife) for the purpose of reducing administration work and gaining controllership, but perhaps did not reducing case management capacity to justify the expense.

Over time, the Corporation will seek to reduce the amount of customization that occurred to the standard Fineos software and, more importantly, take a more 'proactive' approach to injury case management. As it considers future software or systems implementations, the Corporation will look at ways to reduce the amount of customization so future upgrades are faster, cheaper and less risky.

CAC (MPI) 1-58

Part and Chapter:	**Part IV, Value Management, Appendix 3 (MPI Exhibit 2)**	**Page No.:**	**1, 4, 7, 8**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**Customer self-service**		
Sub Topic:			

Preamble to IR (If Any):

"This project will introduce a new customer self-service channel via the Internet and mobile platforms to meet current and future customer service expectations and needs. Building on the **business architecture and technology infrastructure being introduced by the Physical Damage Re-engineering program (PDR)** with respect to shop appointment booking as well as the portal technology for the business partner portal, this project will leverage these foundational corporate technology investments and assets to introduce an extended customer self-service channel for high volume/low/value transactions for maximum impact**." Emphasis added**

"This business case in its current form is not providing a near-term positive financial return on investment. It will however start to provide a positive financial return after year 7."

Total estimated range of project cost is $3,179,498 (page 7) and Net Present Value – negative $(2,227,360) (page 8)

Question:

a) Please explain and rationalize the requirement of 100% use of external labour (VM Appendix 3a, page 3), and no use of internal labour, in the amount of $3,179,498; to deliver this project.

b) Please elaborate on MPI's confidence using the business architecture and technology infrastructure introduced by PDR.
c) Please elaborate on MPI's confidence that the implementation of customer self service, using the PDR architecture and infrastructure, will deliver a positive NPV after 7 years.

Rationale for Question:

To better understand MPI's approval of an IT project delivering a negative NPV just after experiencing the PDR project latest NPV analysis.

RESPONSE:

a) The project costs and external resource percentage allocation depicted in (*VM Appendix 3a, page 3*) are specified as such to complete the Corporation's value management project financial analysis on a 'worst case scenario' basis. Where possible, the Corporation assigns its internal resources to all corporate initiatives (including the PDR project), to use them effectively, manage project expenses and provide opportunities for staff growth.

b) The business and technical architecture implemented by PDR is stable and meets the Corporation's current and future business needs. The Corporation is confident that it can extend this business and technical architecture to the customer self-service delivery channel, as required. The Corporation is however, evaluating other technical alternatives, which may be cheaper to implement and operate, thereby improving the overall value management for the customer self-service project.

While it remains early in the overall project delivery cycle, the Corporation is confident that customers will embrace the customer self-service delivery channel and its expanded capabilities, features and services, as they become available. The results of recent customer surveys and the feedback from customer focus groups regarding the Customer Claims Reporting System give the Corporation reason to be confident. The Corporation is also confident in the business case and

value management realization (targets and timeframes) and therefore plans to continue with the project and future phases.

c) As per the response to question b) above, while it is early in the overall project delivery cycle, the Corporation is confident that the PDR business and technical architecture is well aligned to the needs of the customer self-service project. That said the Corporation is evaluating other technical alternatives that are potentially cheaper to implement and operate. As customer adoption rates increase in future years and as online services expand, the Corporation is confident that it will achieve the forecasted NPV and positive return within the projected timeframes. Incrementally, the customer self-service business architecture will provide customers with the option to elect electronic mailings vs. paper mail, secure text messaging regarding claims status, expanded hours of service (near 24/7), and easy access to high volume/low complexity MPI products and services.

CAC (MPI) 1-59

Part and Chapter:	**Part IV, Value Management, VM Appendix 4**	**Page No.:**	**2, 4**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**BI3/Fineos Upgrade 2020**		
Sub Topic:			

Preamble to IR (If Any):

"Based on the preliminary scope determination and approach, MPI has identified 11 pieces of custom code that can be retired and migrated to out-of-the-box functionality. This will result in a reduction in the annual MPI customization support/licensing fees related to these identified customizations." (Page 2)

"The last upgrade of the Fineos platform was a large upgrade and the first upgrade completed since the initial project implementation. The project experienced many challenges from a technical, complexity and project schedule and costs over-run perspectives. MPI is still immature on this platform from an upgrade path perspective, thus, there are inherent risks regarding project complexity, size, and associated project schedule and costs. The project approach to reduce the MPI customizations will reduce overall complexity of the upgrade. Incrementally, this is not a 'major' platform and version release like the previous upgrade in 2016. Therefore, based on feedback and advice from Fineos experts, the upgrade will not be as complex." (Page 4)

Question:

In this upgrade MPI is planning on decommissioning 11 pieces of custom code. Please provide a cost analysis of building the pieces of custom codes that were required for the BI3 Fineos system to meet MPI PIPP business requirements and compare this cost to the BI3 Fineos 'vanilla' system cost.

Rationale for Question:

To understand the quantum and magnitude of modifying a system that is deficient in meeting business requirement and get a sense of the lingering issues of customizing a 'out of the box' system for which rate payers hold financial responsibility.

RESPONSE:

The Corporation cannot provide a breakdown of the actual cost of the 11 customizations of the BI3 system from its original implementation as FINEOS built them into its overall delivery charges. However, the initial costs can be estimated by taking the number of days of effort for each customization and multiplying that by the daily rate charged by FINEOS. Using this approach, the Corporation estimates that these 11 customizations cost approximately $436,800 in 2008.

The BI3 system required customization because the version of the software the Corporation implemented in 2008 was deficient in some areas. Since that time, FINEOS has continued to invest and make improvements its software. The new core system now closely aligns with the Corporation's business and requires minimal changes to use or can be used in its original form without significant impact.

The Corporation budgets $60,000 towards the use of FINEOS resources to assist in the implementation of the upgrade. The Corporation estimates that this upgrade will eliminate $80,000 in ongoing customer support expenditures, beginning July 2019.

CAC (MPI) 1-60

Part and Chapter:	**Part IV, Value Management, VM Appendix 5**	**Page No.:**	**1, 2, 5**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**Finance Re-Engineering Project**		
Sub Topic:			

Preamble to IR (If Any):

"In 2015, MPI issued an RFP to hire a consulting firm to review the Finance Division in order to determine the Finance Division vision, mission, and structure to ensure the best use of corporate resources and consistently meet all the Divisional objectives and deadlines in a timely manner. This Finance Division Review was conducted and completed by Deloitte with a report submitted in March 2015.

The Finance Division Review identified opportunities to improve the finance systems and processes to support the success of Finance operations. These opportunities were further explored during a separate engagement in 2015, conducted by Deloitte, which resulted in documented business requirements to simplify, standardize and streamline processes, increase automation and improve the timeliness and visibility of financial information. These requirements formed the basis for the Finance Re-Engineering (FRE) project.

Due to other priorities and limited funding, the original FRE project was deferred.

In conjunction with the Legacy Systems Modernization and HRMS - Human Resource Management System Phase 3 / 4 project, the 2018/19 funding for this renewed project will involve an assessment of the long-term strategic fit and viability of the Infor suite of products, potential expanded utilization of the Infor suite as part of the strategy to decommission the Legacy Systems (AOL, DLS, CARS) as well as re-

validation of the business vision, roadmap, budget and business case for the Finance Re-Engineering program.

The key deliverables from the 2018/19 spend will be a business case, strategy and roadmap, including updating the business requirements established in 2015. This will determine the estimated future spend in 2019/20 and beyond."

"This project will be responsible for reassessing the original 2015 FRE business case and recommending and validating and confirming the need for MPI to take future actions. This current project will include the following deliverables:

- Detailed business case
- Financial analysis for updating the financial systems and processes
- Business vision – a strategic description of the business end state
- Project charter
- Project road map"

Question:

a) Please file a copy of Deloitte's 2015 recommendations to improve Finance's processes and procedures, for the record.
b) Please justify MPI's rationale to spend $500,000 on external consulting fees to re-review a 2015 consultant's report.
c) Please elaborate on MPI's internal staff skill set to update a previously prepared Finance Re-Engineering business case.
d) Please elaborate whether MPI is considering using the Infor Suite of products in its Legacy Systems Modernization process (AOL, CARS, DVL). If so, please comment on the appropriate timing to perform this investigation.

Rationale for Question:

To better understand the rationale for spending an additional $500,000 of rate payers' money on a project that was completed in 2015 and may need to be brought to current.

RESPONSE:

a) [Redacted. The Corporation is seeking confidential treatment for this response.]

b) As noted above and in *Part IV Value Management*, the purpose of the renewed Finance Re-Engineering (FRE) project is to review the consultant report and deliver on the following project objectives: detailed business case, financial analysis, business vision, project charter and project road map. The cost of the project at this stage are to ensure that the previous consultant's report is still current and relevant to the business. Please note that the $500,000 was not linked exclusively to external consulting fees, but also relate to internal resources and anticipated training requirements.

c) A third party provided the FRE Business Case to the Corporation. MPI's internal staff is highly suited to update the previously prepared business case as the internal staff have detailed business knowledge and experience which will allow them to validate recommendations and create a detailed work plan for the FRE project and create an end solution that is feasible for the business needs.

d) The Corporation cannot indicate which platform it will consider using as the Legacy Systems Modernization project will not recommend a platform until the end of fiscal year 2018/19.

CAC (MPI) 1-61

Part and Chapter:	**PART IV, Information Technology, IT Appendix 1**	**Page No.:**	**1, 2**
PUB Approved Issue No:	**19. IT Expenses--staffing**		
Topic:	**Corporate Reorganization**		
Sub Topic:			

Preamble to IR (If Any):

"Figure 1: Corporate Reorganizations occurred in 2017/18 and 2018/19 which resulted in 35.6 internal FTE being transferred into the division from other areas of the corporation. The increase has been identified as a separate line item in Figure 1 below."

Question:

Please elaborate on the rationale, efficiency and effectiveness of moving two internal departments to the IT division.

Rationale for Question:

To better understand the operational impact of the re-organization.

RESPONSE:

As part of a corporate review, finalized in June 2017, the Corporation identified that it could develop efficiencies through the combination of four data and analytics working groups into two departments. The move resulted in in the reduction of four positions (two management and two staff). At the time of the reorganization, these two departments (both very technical in their given subject areas) were identified as a

good fit for the Information Technology and Business Transformation division, which includes other technical departments.

Since the restructuring, the two departments have significantly improved delivery on combined operational activities, resulting in benefits such as reduced cycle time, increased volume and quality of outputs (dashboards and reports) and increased capability (cross training, automation). The two departments have also created a draft Data Strategy, leveraged in the development of the IT strategy, that will help guide data and analytics practices at MPI for the fiscal year. Moving forward, these teams will continue to enable corporate IT and Business capabilities by developing/deploying governance (eg. decision making, access and permissions) and managing common infrastructure (eg. Data Warehouses, Data dictionaries).

CAC (MPI) 1-62

Part and Chapter:	**PART IV, Information Technology, IT Appendix 1**	**Page No.:**	**8, 9**
PUB Approved Issue No:	**19. IT Expenses--staffing**		
Topic:	**External IT Resources**		
Sub Topic:			

Preamble to IR (If Any):

Per Figure IT App 1-12, pages 8 and 9, there is a listing of external consultants along with a brief description of their individual role.

Question:

a) Please explain the organizational reporting relationship of these consultants within MPI's management team.
b) Please explain the knowledge transfer process of these expert consultants' expertise to MPI staff experts.

Rationale for Question:

To better understand the knowledge transfer process and organizational business control structure the assumption being MPI staff have the business expertise.

RESPONSE:

a) All DXC and IBM project consultants report directly to the manager, Enterprise Project Management Office (EPMO). The EPMO is responsible for all project resourcing, which includes working with the vendors, resource planning, tracking, and reporting. These resources are assigned to project teams and have a reporting relationship to a manager of the Corporation for the role they are

serving. This manager provides day to day direction and performance management. The consultants work closely with the Corporation's teams and project teams to ensure there is effective knowledge transfer (see b).

Operational consultants report directly to the manager, Application Services who provides day-to-day direction and performance management.

b) The Corporation has successfully implemented the knowledge transfer approaches for the last four years. This has allowed project teams to disband at closure of a project and operational teams to assume full responsibility for the support of "in production" systems. Successes occur over time as internal staff take larger roles on project activities (such as updates and upgrades) previously staffed by the vendor or contractors.

There are several methods of knowledge transfer between contractors and operational units at the completion of initiatives.

1. Operational resources work directly on the project – Operational resources join the project and fully participate, as subject matter experts (SME's), in the analysis, design, and implementation of new solutions. At the completion of the project, they return to their operational unit with a deep understanding of the initiative and play a key role in operationalizing the initiative.

2. Operational resources participate in the project – Operational resources join the project and cross train with SME's (internal, contract, and vendor resources), in the analysis, design, and implementation of new solutions. At the completion of the project, they return to their operational unit and have additional capabilities for supporting or enhancing the solution in future.

3. Formal knowledge transfer – Projects create and execute a plan, which identifies the transition from production to operations. The specific deliverables vary by project, but may include a support model, vendor documentation, process documents, procedure documents, and training documents.

4. Operational Consultants embedded in teams – Operational consultants are used primarily as staff augmentation and are embedded in teams so that knowledge that they gained is easily shared amongst the team.

5. Consultant Conversion: As part of the External Labour Strategy, several consultants have joined the Corporation as employees. This is a not a primary strategy to retain knowledge, but has resulted in knowledge retention in several key areas.

CAC (MPI) 1-63

Part and Chapter:	**PART IV, Information Technology, IT Appendix 1**	**Page No.:**	**3**
PUB Approved Issue No:	**19. IT Expenses--staffing**		
Topic:	**IBM Master Service Agreement and HP Master Service Agreement**		
Sub Topic:			

Preamble to IR (If Any):

Per Figures IT App 1-3 and 1 – 4 on page 3 show the annual expenses for these two agreements.

Question:

a) Please indicate the date these agreements expire.
   IBM Data Centre Statement of Work (SOW)
   IBM Master Services Agreement (MSA)
   DxC Agreement
b) Please indicate whether MPI believes it receives value for money from these agreements.
c) Is MPI contemplating changes to these agreements going forward, if yes, please elaborate.

Rationale for Question:

To determine and understand whether MPI receives value for money spent on these agreements.

RESPONSE:

d) [Redacted. The Corporation is seeking confidential treatment for this response]

e) The Corporation believes that it is currently receiving value for money from these agreements and actively reviews them to ensure it continues to do so.

f) [Redacted. The Corporation is seeking confidential treatment for this response]

CAC (MPI) 1-64

Part and Chapter:	**I, Overview** **PART IV, BMK Benchmarking, BMK Appendix 1**	**Page No.:**	**13, 1**
PUB Approved Issue No:	**19. Value Management**		
Topic:	**MPI not a technology company**		
Sub Topic:	**The application of Value Management caused projects to be cancelled**		

Preamble to IR (If Any):

Reference Part 1, Overview, page 13:

"MPI, however, is an automobile insurance company and administrator of *The Drivers and Vehicles Act*. The "IT Strategic Plan" is to support the business carry out the corporation's mission - *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*. IT expenses are incurred to meet business needs. Business needs are not determined by an IT Strategic Plan.

As previously mentioned, MPI uses a Value Management Process to ensure that IT expenditures will only be incurred when it is appropriate to do so."

Reference: Part IV(i) 03 BMK Benchmarking Appendix 01 Gartner Recommendations

"13 As noted in Part IV(i) BMK Benchmarking Attachment A, page 15 Gartner transitioned from the CIO Dashboard to the IT Score assessment tool. As part of this, Gartner conducted a review of all outstanding recommendations provided using the CIO Dashboard tool and confirmed that they remained appropriate and measurable using the IT Score tool."

Question:

a) Can MPI confirm that this IT Strategic Plan principle/mandate (i.e. MPI is not a technology company) is in alignment with Gartner's consulting recommendations to MPI?
b) In support of this principle, does MPI intend to use the Gartner IT Scoring Assessment tool as one means of tracking IT spend against related business value?
c) With this principle in mind, what is the intended purpose of future IT Strategic planning efforts?

Rationale for Question:

MPI has expressed a strategic guiding principle that IT Strategy will be driven by business priorities (and not vice-versa). This is desirable, and consistent with recommended practice that positions IT as a business enabler.

As part of the annual scorecard review, Gartner provides MPI with recommendations to improve process maturity where it concerns Information Technology. In view of the assertion that MPI is not a technology company, this question seeks to understand how MPI will use Gartner's processes and tools to support/measure IT expense tracking against business value/results. It is also intended to understand how MPI will be employing IT Strategic Planning going forward.

RESPONSE:

a) The Corporation's IT Strategy focuses on the development of its IT capabilities, which support the business capabilities required to meet the Corporation's business objectives.

   As part of its annual benchmarking assessment, Gartner provides recommendations for improvement of IT capabilities based upon its experience, research and its observance of comparable organizations.

Both documents prepared by Gartner recommend the development of the Corporation's IT capabilities. The difference is that the IT strategy recommendations directly relate to the Corporation's business plan through its business capabilities and business objectives.

The Gartner recommendations are appropriate for a company within the Insurance or Government sectors that is comparable in size to the Corporation. However, these recommendations do not specifically consider the Corporation's business plan, business capabilities, and business objectives. For this reason, the Corporation carefully reviews each Gartner recommendation to confirm its alignment / value prior to its implementation. Recommendations that have value, are in alignment with the business strategy and can be executed within the fiscal year are incorporated into the annual IT strategy.

b) The Gartner IT Score solution includes an IT Budget Assessment and an Infrastructure and Operations (I&O) scorecard, which has a financial component. The Corporation uses these assessments to benchmark IT against a comparable peer group and highlight potential opportunities for improvement. For example, Gartner identified higher spending on external labour, which resulted in the creation of the External Labour Strategy and ultimately an expense savings. The Gartner IT Score solution does not connect IT expenditure to business value. The Corporation uses the Value Management process to show the business value associated with capital investments.

c) On an annual basis, the Corporation will update its business plan including changes to business context, objectives and strategies. Following the release of its annual business plan, the Corporation will update and communicate its IT Strategy reflecting the IT capabilities, which support the business capabilities required to meet the Corporation's business objectives. In this way, the IT strategy provides direction in the current fiscal year and guidance for future fiscal years.

CAC (MPI) 1-65

Part and Chapter:	**Part IV, Value Management**	**Page No.:**	**12**
PUB Approved Issue No:	**19. Technology Modernization**		
Topic:	**Legacy Systems Modernization**		
Sub Topic:			

Preamble to IR (If Any):

"Project Description

The Legacy System Modernization project will develop a business case package, strategy and roadmap to modernize the following enterprise applications (and associated supporting applications) over a multi-year, multi-phase program:

- AOL, DLS and CARS
- SIS replacement for the SRE line of business
- Financial Re-engineering

Two neutral 3rd party consultant partners will be engaged to perform an independent Legacy Modernization assessment. A neutral 3rd party will ensure that a bias free assessment and target solution is recommended."

Questions:

a) How exactly is the multi-year Legacy Modernization initiative to be structured from a program governance perspective? Is there a high-level description of the proposed phased approach over that multi-year horizon?
b) What are the key program milestones and expected outcomes at each milestone?
c) How will responsibility, accountability and program performance for this initiative be managed?

Rationale for Question:

It is our opinion that the need for business case justification, validation of strategy and detailed roadmaps are critically important first steps. However, it is not clear that the initiative has been structured as an ongoing program with well-defined phases, continuity of purpose and measureable outcomes. The assessment project that is presented appears to be only the initial phase of a multi-year program.

The proposed Business Case and Strategy for the IT Legacy Modernization initiative is an initiative that is already underway in 2018. The 'first phase' focuses on the selection of a qualified independent 3rd party to review and assess MPI's legacy systems risk and confirm what action MPI should take with respect legacy system modernization. MPI has indicated that a detailed business case, risk assessment, plan, roadmap, and financial forecast that defines the multi-year program will be prepared for review and approval by the MPI Board of Directors prior to any Legacy Modernization implementation actions being taken.

It must be noted that projects aimed at the modernization of legacy IT systems typically involve significant levels complexity, as well as a requirement for precision in terms of strategy and planning. Although it is prudent to outsource the initial assessment phase of this initiative, MPI would be advised to ensure that accountability for overall program governance is managed internally. As such, a strategic plan for the multi-year program should be addressed.

RESPONSE:

To all questions posed above:

The Corporation has not defined a detailed governance structure at this point. The 2018/19 Technology Modernization Assessment Project will be reviewing the recommendation from both Assessment Vendors and developing a detailed program plan for the Corporation's Planning and Technology Committee by Feb 28th, 2019. This detailed program plan will include the following components:

- Business Vision
- Program Charter – includes a description of the program governance
- Conceptual Architecture
- Program implementation plan and high-level schedule
- Preliminary Financial analysis
- Future state Roadmap

The information requested is not currently available. Both Legacy assessment engagements must be completed before the Corporation can finalize its Legacy Modernization program. The Corporation will develop a governance structure before it issues any request for proposals.

CAC (MPI) 1-66

Part and Chapter:	**Part IV, Benchmarking Appendix 1**	**Page No.:**	**7 of 22**
PUB Approved Issue No:	**19. IT - GARTNER'S RECOMMENDATIONS – STATUS UPDATE**		
Topic:	**IT Process Maturity**		
Sub Topic:	**Item 4.09**		

Preamble to IR (If Any):

"4.09 Communicate technical debt to IT and business leadership and develop a long-term program to remove it from the MPI environment (e.g. through increased adherence to technology standards and application re-use) and track the success of those efforts

See recommendation 5.01

In Progress (Q4 - 2017/18)

IT leaders presented an update on Application Portfolio Management to Executive in Q1 – 2018/19 which aligns to this recommendation. Additionally, MPI continues to invest in the Technology Risk Management program which is specifically focused on addressing technical debt. Going forward, this recommendation has been replaced by recommendation 5.01."

Question:

a) Can MPI clarify what is meant by Gartner when the term 'technical debt' is used. Has this term been defined?
b) Can MPI provide a copy of the reference report '…an update to Application Portfolio Management'?

Rationale for Question:

To understand the details of IT investment performance reporting, and to determine how well informed MPI business leadership is regarding any significant technology deficits/challenges and priorities

RESPONSE:

a) As shared in 2018 GRA – CAC(MPI) 1-60

This response includes segments of / references to a proprietary Gartner Article "A Primer on Technical Debt", published October 5, 2016.

Gartner defines technical Debt as

> *"the deviation of a system from any of its non-functional requirements."*

In the article, Gartner further explains

> *"It would be completely impossible to eliminate technical debt in the portfolio of applications that support a modern business. On the other hand, the gradual accumulation of technical debt in such a portfolio can lead to a level of suboptimal performance, such that there will be significant and measurable negative impact on business performance."*

MPI is concerned about the impact of technical debt on business performance and has taken the actions to better understand and manage technical debt.

b) [Redacted. The Corporation is seeking confidential treatment for this response]

CAC (MPI) 1-67

Part and Chapter:	**Part IV, Value Management, Appendices 1a to 1d**	**Page No.:**	**Page 2 of appendices 1a, 1b, 1c, 1d**
PUB Approved Issue No:	**19. IT expenses and projects**		
Topic:	**Part IV VM Value Management Appendices**		
Sub Topic:	**Appendices (1a) through (1d)**		

Preamble to IR (If Any):

"Project Specific Assumptions (please list)

1 The ability to secure external resources with the necessary skills for the outlined rate."

Question:

a) Please advise how MPI intends to manage the risk and challenges associated with procuring and maintaining the required skills at a manageable cost for the duration of time required?
b) What strategies with MPI use to ensure knowledge transfer to full time staff?

Rationale for Question:

For each of the Technology Risk Management Program's initiatives, this project specific assumption seems to be repeated, highlighting a potential pervasive risk of not being able to source and retain the required IT talent.

RESPONSE:

a) The Corporation conducts resource forecasting for all of its initiatives at a project and portfolio level and identifies the key skills needed for upcoming projects.

Where possible, the Corporation fills project roles with internal resources. The Corporation works closely with DXC Technology to source resources for specific skill sets that are not available internally and for additional resources above internal capacity. The Corporation assesses the risks related to resources and works with DXC Technology to manage this risk. The portfolio view allows the Corporation to prioritize resource allocation to specific needs that it deems high priority.

b) The Corporation has successfully implemented the knowledge transfer approaches for the last four years. This has allowed project teams to disband, at closure of a project and operational teams to assume full responsibility for the support of "in production" systems. Successes occur over time as internal staff take larger roles on project activities (such as updates and upgrades) previously staffed by the vendor or contractors.

There are several methods of knowledge transfer between contractors and operational units at the completion of initiatives:

1. Operational resources work directly on the project – Operational resources join the project and fully participate, as subject matter experts (SME's), in the analysis, design, and implementation of new solutions. At the completion of the project, they return to their operational unit with a deep understanding of the initiative and play a key role in operationalizing the initiative.

2. Operational resources participate in the project – Operational resources join the project and cross train with SME's (internal, contract, and vendor resources), in the analysis, design, and implementation of new solutions. At the completion of the project, they return to their operational unit and have additional capabilities for supporting or enhancing the solution in future.

3. Formal knowledge transfer – Projects create and execute a plan, which identifies the transition from production to operations. The specific deliverables vary by project, but may include a support model, vendor documentation, process documents, procedure documents, and training documents.

4. Consultant Conversion: As part of the External Labour Strategy, several consultants have joined the Corporation as employees. This is a not a primary strategy to retain knowledge, but has resulted in knowledge retention in several key areas.

CAC (MPI) 1-68

Part and Chapter:	**Part IV, Value Management, Appendices 1a to 1d**	**Page No.:**	**1**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**Part IV VM Value Management Appendices**		
Sub Topic:	**Appendices (1a) through (1d)**		

Preamble to IR (If Any):

EXAMPLE APPENDIX PAGE:

June 15, 2018 2019 GENERAL RATE APPLICATION
VM Appendix 1c

PROJECT NAME: ITBT-2018-102 Technology Risk Management Program (2018) Infrastructure Risk Management

Line No.		2018/19 Year 1	2019/20 Year 2	2020/21 Year 3	2021/22 Year 4	2022/23 Year 5	Total
1	Project Costs	(1,625,000)	0	0	0	0	(1,625,000)
2	Project Benefit	175,000	470,000	514,500	560,113	605,740	2,325,353
3	Net Project Impact	(1,450,000)	470,000	514,500	560,113	605,740	700,353
4	Cumulative Net Project Impact	(1,450,000)	(980,000)	(465,500)	94,613	700,353	
5	**Net Present Value**	356,312	based on discount rate of	6.50%			
6	**IRR**	17.0%					
7	**Payback Period in years**				3.83		
8	**Return on Investment**	-89%	-60%	-29%	6%	43%	
9	**Discounted Payback Period in years**					4.19	

Draft for Screening

Manitoba Public Insurance Page 1

Question:

Please explain, in qualitative terms, how the MPI Value Management program intends to monitor and report on the performance of the various Technology Risk Management initiatives over the coming five year period (in terms of project benefit and project impact). How does IT Management participate in the process of validating performance against project forecasting?

Rationale for Question:

To understand how the VM process intends to monitor project performance against forecast, and to understand the role that IT Management will play in this aspect of value management.

RESPONSE:

Each Technology Risk Management project has specific objectives and deliverables outlined at the start of the project. The Change Request (CR) process manages any variance from these objectives and deliverables. Value Management (VM) will review CRs affecting the business case (achievement of objectives and benefits, cost to implement, changes to project scope and schedule, identified risks) and track revisions to the business case. IT Leadership must approve CRs as well as the revised business case objectives and deliverables. In addition, IT Leadership, Finance and Value Management perform monthly financial reviews of these initiatives to ensure proper forecasting and to assess variances to actual costs.

At the completion of a project, the Corporation will create project documents that link project results to the updated project objectives. VM will review these documents to verify that the results are in line with the project's objectives (adjusted for any approved CRs). Completed projects then transition from the project team to an operational team "to production" for the ongoing delivery of services. VM interacts with operational leaders to understand the value of "in production" solutions and ensure any ongoing benefits are met. The process involves IT Management throughout its implementation. IT Management may identify needs or opportunities

that become objectives for a project. IT Management and their teams often contribute directly to projects (in the work effort, governance activities, and as subject matter experts) and are often involved in the transition from project to operations. VM will engage IT Management for updates / outcomes on “in production” solutions as required, to verify outcomes. VM will report on the results of post-implementation reviews.

CAC (MPI) 1-69

Part and Chapter:	**Part IV, BMK Attachment A**	**Page No.:**	**4, 6, 7**
PUB Approved Issue No:	**19. IT Expenses**		
Topic:	**IT Benchmark and Maturity Assessment – Executive Report**		
Sub Topic:	**Key takeaways from Gartner analysis**		

Preamble to IR (If Any):

On page 4 of BMK Attachment A, it is stated:

> *"MPI is a hybrid organization – it is an Insurer, but its public mission is to serve Manitobans, not maximize revenues."*

This Gartner statement is further emphasized by the comment:

> *"If MPI is successful in its Mission -returning more benefits to Manitobans while driving down prices – revenues will be lower than those of similar organizations who focus on profit maximization"*

Key takeaways from the analysis

Key Findings

- Personnel spending and staffing levels remain higher than peers, with a slight increase in IT to Company FTE ratio (16.7% to 17%)
- Similar to previous years, the focus for MPI IT investment is on reliability, availability, and lowering risk. These investments, along with initiatives to provide better access and a better user experience, increase the IT footprint, resulting in higher steady-state IT expenses.
- MPI improved its overall Maturity rating from 3.42 in 2015/16 to 3.52 in 2016/17.
- Similar to previous years, MPI spends 62% of the IT budget on Personnel vs. 45% for the peers. 32% of MPI's IT staff is made up of contractors vs. 24% for the peers. Higher staffing levels relative to peers is particularly evident in Infrastructure and Operations.
- Business Process Management and Enterprise Architecture maturity remains generally low and appears to be an opportunity for improvement.

Implications and Recommendations

- With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years.
- MPI's IT organization should focus on establishing linkages through enterprise architecture and focus future investments on delivering transformative value to the business operations.
- MPI should develop stronger relationships with business stakeholders.
- Maturity improvements should be focused on governance and metrics to track value delivered to the business and achievement of business outcomes.
- MPI should continue the efforts currently underway to review the size of its retained staff and the number of contractors as it increases its use of third-party support for infrastructure services.
- Internal skills development and training should be a priority.
- MPI should replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis.

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Gartner.

June 15, 2018 2019 GENERAL RATE APPLICATION
BMK Attachment A

MPI's IT spending has become more stable in recent years and with an improved ratio vs. business operating expense.

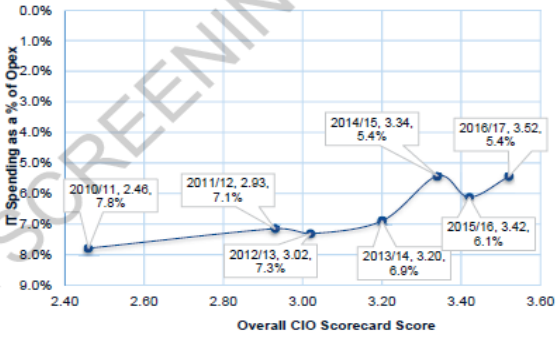
Observations:

- IT spending as a percentage of business operating expense is a better performance indicator for MPI. MPI is supporting a growing business workload with modest increases in IT spending (OPEX increased by 18.8% but IT spending only increased 5.8%.)
- IT Maturity continues to improve and should help MPI contain costs providing leverage in new initiatives.
- Six of the peer organizations from 2015/16 updated their data and this updated data is used in the 2016/17 peer analysis. IT Spending as a % of OPEX has been trending lower for the peer group.

Implications:

- OPEX spending is higher due to higher claims payouts*. Gartner has observed that mature IT operations contribute towards business efficiencies (lower overall operating expense) in the enterprise. MPI IT should unlock efficiency to the business, which will in turn contribute towards a reduction in OPEX spending (not withstanding other non-IT related expenses.)
- Continuing to work on process maturity will assist in improved efficiency in the IT operations and the delivery of additional value to the organization's business operations.

* **Source:** Manitoba Public Insurance 2016 Annual Report



	Maturity Score	IT as a % of Opex
2010/11	2.46	7.8%
2011/12	2.93	7.1%
2012/13	3.02	7.3%
2013/14	3.20	6.9%
2014/15	3.34	5.4%
2015/16	3.42	6.1%
2016/17	3.52	5.4%
2016/17 Peer	2.84	4.8%

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Gartner

Question:

a) Does MPI have a 5-year achievable target for what the organization would consider to be a reasonable and acceptable spend for IT spend?
b) How would this target be measured, described and reported going forward?

Rationale for Question:

MPI is faced with the ongoing challenge of addressing and managing increasing IT costs, even though MPI's IT spending as a % of Operating Expense has decreased by year over year. This challenge is seen clearly in anticipated complex IT initiatives such as the Legacy IT Modernization program. This question seeks to understand what MPI will consider to be an acceptable target rate of spend on IT.

RESPONSE:

a) The Corporation does not have a separate 5-year target for IT expenditures. MPI provides annual reporting on all IT-related expenditures in its general rate application, including reporting on both historical and future budget expenditures. This reflects both ongoing operations and new capital initiatives, incorporating any known and material future considerations. The Corporation also provides the Gartner Scorecard, related recommendations for improvement and a status on each of those recommendations.

These two reporting mechanisms ensure that the Corporation accurately presents past, present, and future IT expenditures and that these expenditures align with a comparable industry peer group. They also provide increased consistency and predictability over a single percentage or fixed financial target, which would not reflect industry changes or align to the changing business needs and challenges facing the Corporation.

b) Please see response to a) above.

CAC (MPI) 1-70

Part and Chapter:	**Part IV, Value Management, VM Appendix 4**	**Page No.:**	**2, 4**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**BI3/Fineos Upgrade 2020**		
Sub Topic:			

Preamble to IR (If Any):

"Based on the preliminary scope determination and approach, MPI has identified 11 pieces of custom code that can be retired and migrated to out-of-the-box functionality. This will result in a reduction in the annual MPI customization support/licensing fees related to these identified customizations." (Page 2)

"The last upgrade of the Fineos platform was a large upgrade and the first upgrade completed since the initial project implementation. The project experienced many challenges from a technical, complexity and project schedule and costs over-run perspectives. MPI is still immature on this platform from an upgrade path perspective, thus, there are inherent risks regarding project complexity, size, and associated project schedule and costs. The project approach to reduce the MPI customizations will reduce overall complexity of the upgrade. Incrementally, this is not a 'major' platform and version release like the previous upgrade in 2016. Therefore, based on feedback and advice from Fineos experts, the upgrade will not be as complex." (Page 4)

Question:

Where an IT organization makes the decision to decommission custom code, it means that the related business processes and functions have been changed or rationalized. Please explain what business process changes were made, and identify any costs incurred to make the vanilla system work.

Rationale for Question:

To understand the extent to which the business functions and business requirements needed to be adjusted by the line of business.

RESPONSE:

The Corporation is still in the planning stages of reducing customization and has targeted 11 pieces of custom code for reduction. These 11 pieces were targeted because the base product has evolved to a point where it more closely aligns with the Corporation's business processes and requires minimal business process changes to use the 'out of the box' functionality. It is anticipated that end users will not be required to significantly modify their daily work processes and, in many cases, the changes are back-end changes which will not impact work processes in any way. Additionally the business is engaged in this IT work to ensure that business deliverables and work processes are not negatively impacted. Overall, these changes will improve the end user experience when the upgrade is completed. The internal support team, with some support from the vendor, is doing the work. The Corporation will be tracking the costs and benefits of each change as it executes these changes.

CAC (MPI) 1-71

Part and Chapter:	**Part V, Proformas**	**Page No.:**	**Pages 4 and 15**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**Need for capital maintenance provision**		
Subtopic:	**How DPAC is related to this need**		

Preamble to IR (If Any):

The main item creating a difference in Net Income, other than premiums, on the statement of operations with 0% rate change versus 2.2% is the DPAC/Premium Deficiency Adjustment.

Question:

a) Please give the detailed calculation of the DPAC/Premium Deficiency Adjustment on PF.1 and PF.8.
b) Is the difference between these two numbers essentially the Corporation's justification for the Capital Maintenance Provision? If not, please explain what is the justification referencing PF.1 and PF.8 for understanding.

Rationale for Question:

To fully understanding the differences between PF.1 (2.2% rate change) and PF.8 (0% rate change) and how the Capital Maintenance Provision impacts the statement of operations.

RESPONSE:

a) Refer to *Appendix 1* and *Appendix 2*, which provide detailed calculations of the DPAC/Premium Deficiency Adjustment for PF.1 and PF.8 respectively.

b) The Corporation's justification for seeking the Capital Maintenance Provision (CMP) is to maintain capital adequacy. As stated in *Part I, Overview, page 18*, the Corporation believes that "*having adequate capital reserves is a pillar of prudent fiscal management.*" Further, the CMP "*is an extremely important development towards ensuring long term rate stability for customers and satisfactory financial status for the shareholder."*

The Corporation's position is grounded in PUB Order 130/17 which states "*the Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile….*" and "the *Board believes that a properly constituted Capital Maintenance Provision… can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the breakeven objective.*"

Per *Part V, Ratemaking, page 31*, the net CMP was determined such that "*the Minimum Capital Test (MCT) ratio… at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19.*" This required "*an additional 2.1% (overall) rate increase.*"

The difference between PF.1 and PF.8 simply reflects the effect on the Statement of Operations as a result of applying a 2.2% required overall rate increase (vs. 0.0% rate change), of which 2.1% is for the Net CMP. Neither PF.1 nor PF.8 provides the justification for the CMP.

Appendix 01
Base Scenario
Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.														
1	A. Claims (Including External Adjustment Expense) Data													
2								Accident Year					Selected	Selected
3			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	71.97%	72.12%	73.03%	74.02%		
5	2.	Trend/Rate Adjustment for Fiscal Year												
6		2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7		2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8		2019			0.9169	0.9262	0.9399	0.9755	1.0016					
9		2020				0.9271	0.9411	0.9772	1.0037	1.0115				
10		2021					0.9508	0.9856	1.0108	1.0169	1.0132			
11		2022						0.9917	1.0165	1.0222	1.0179	1.0134		
12	3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13		2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14		2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
15		2019			74.97%	75.33%	70.10%	71.46%	72.08%				72.84%	77.54%
16		2020				75.41%	70.20%	71.58%	72.24%	72.95%			72.26%	77.00%
17		2021					70.92%	72.20%	72.74%	73.34%	73.99%		72.76%	77.61%
18		2022						72.65%	73.15%	73.72%	74.34%	75.01%	73.74%	78.72%
19	B. Actual Data Other Than Losses													
20								Fiscal Year						
21			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,113,119	1,169,526	1,216,815	1,265,684		
23	5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.19%	8.05%	8.06%	8.01%		
24	6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.68%	2.69%	2.67%		
25		Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.68%		
26	7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium													
28	8.	Net Unearned Premium					468,613	506,193	537,639	559,472	581,724	604,979		
29	9.	Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	392,259	412,378	426,236	446,776	471,494		
31	11.	Reinsurance PFAD					10	-	-	-	-	-		
32	12.	Maintenance Expense [a]					13,837	14,989	15,216	14,978	15,458	16,047		
33	13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	72,176	75,878	78,427	82,207	86,755		
34	14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	17,110	24,394	29,940	27,275	20,674		
36	16.	Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,393	32,696	34,029	35,426		
37	17.	Write Down Deferred Policy Acquisition Expenses [b]					32,055	12,379	6,999	2,756	6,755	14,752		
38		Change					2,363	(19,676)	(5,380)	(4,243)	3,999	7,997		
39	18.	Premium Deficiency [c]					8,845	-	-	-	-	-		
40		Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix B
Base Scenario with 0.00% Rate Change
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

	Accident Year										Selected	Selected
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.80%	73.65%	74.58%	75.59%		
2. Trend/Rate Adjustment for Fiscal Year												
2017	0.9142	0.9259	0.9555	0.9697	0.9888							
2018		0.9151	0.9384	0.9464	0.9589	0.9937						
2019			0.9371	0.9465	0.9605	0.9969	1.0119					
2020				0.9467	0.9611	0.9979	1.0133	1.0115				
2021					0.9710	1.0065	1.0203	1.0169	1.0132			
2022						1.0127	1.0262	1.0222	1.0180	1.0134		
3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.38%
2019			76.62%	76.99%	71.64%	73.03%	73.67%				74.44%	79.25%
2020				77.01%	71.69%	73.10%	73.77%	74.49%			73.79%	78.63%
2021					72.42%	73.73%	74.28%	74.89%	75.56%		74.30%	79.25%
2022						74.19%	74.71%	75.28%	75.92%	76.60%	75.30%	80.39%

B. Actual Data Other Than Losses

	Fiscal Year									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,100,359	1,145,257	1,191,557	1,239,399
5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.28%	8.22%	8.24%	8.19%
6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.75%	2.73%
Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.74%
7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8. Net Unearned Premium	468,613	506,193	526,656	548,037	569,826	592,596
9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10 Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	392,259	412,738	426,275	446,813	471,535
11 Reinsurance PFAD	10	-	-	-	-	-
12 Maintenance Expense [a]	13,837	14,989	14,984	14,911	15,464	16,054
13 Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	72,176	75,944	78,435	82,214	86,762
14 Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15 Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	17,110	13,216	18,526	15,327	8,235
16 Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,706	31,980	33,285	34,651
17 Write Down Deferred Policy Acquisition Expenses [b]	32,055	12,379	17,489	13,455	17,958	26,416
Change	2,363	(19,676)	5,110	(4,035)	4,504	8,458
18 Premium Deficiency [c]	8,845	-	-	-	-	-
Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

CAC (MPI) 1-72

Part and Chapter:	**Part I, OV Overview, OV.4.3**	**Page No.:**	**18**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**Consensus on the requirement for a CMP**		
Sub Topic:			

Preamble to IR (If Any):

Page 18 of the Overview section states "A PUB ordered technical conference was held, and from MPI's perspective, there was consensus on the requirement for a Capital Maintenance Provision to be incorporated into the rate making process."

Question:

a) Please explain what MPI means by a consensus.
b) Please explain how this consensus was achieved and recorded
c) Please explain whether a specific motion was tabled and voted on during the technical conference
d) Please point to the page numbers of the transcript of the technical conference on the Capital Maintenance provision that indicates a consensus on the need and methodology.

Rationale for Question:

The PUB ordered technical conference with stakeholders was meant to achieve a consensus on the establishment of a Capital Maintenance Provision. It is important to understand why the Corporation feels that consensus on the need and methodology behind a capital maintenance provisions was reached.

RESPONSE:

To all questions posed above:

The PUB states in Order 130/17, at page 5:

> *"The Board nonetheless recognizes MPI's need to protect against the depletion of Basic's capital position, and finds that a Capital Maintenance Provision could be considered a legitimate necessary Basic expense for rate setting purposes. The Board finds that it would be premature to base its decision on the inclusion of a Capital Maintenance Provision at this time, as it was not a significant area of focus in this Application, but directs that a technical Conference be held on the issue, and any findings therefrom be incorporated into the 2019 General Rate Application (GRA)." [Emphasis Added]*

At page 8 of Order 130/17, the PUB also states:

> *"Additionally, the Board has ordered that the Corporation participate in a Technical Conference regarding the possible inclusion of a Capital Maintenance Provision for future rate applications. The Board notes that the use of a Capital Maintenance Provision would serve to protect against the depletion of Basic Total Equity." [Emphasis Added]*

At page 28 of Order 130/17, the PUB states:

> *"The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective.*
>
> *Since the estimation of a Capital Maintenance Provision was not a focus of these proceedings and has not been fully considered by the Corporation, the Board believes it is premature to base its decision on inclusion of a Capital Maintenance Provision. Accordingly, and for this Application only, the Board accepts the Corporation's approach to estimating the Basic overall rate indication, excluding consideration of the expected return on investment assets supporting Basic Total Equity, which the Board considers to conceptually overlap with the Capital*

Maintenance Provision, as evidenced by the Corporation's early estimates of the longer term Capital Maintenance Provisions." [Emphasis Added]

In sum, PUB Order 130/17 sets out the belief of the PUB that the Corporation should consider inclusion of a Capital Maintenance Provision for the 2019 GRA. However, the PUB also recognized that the 2018 GRA did not sufficiently examine the matter and therefore directed the holding of a Technical Conference for further consideration.

After hearing from PUB advisers and representatives from SGI and the CAC, the Corporation agreed that it was appropriate to include a Capital Maintenance Provision in the 2019 GRA. The PUB explicitly suggested the use of a Capital Maintenance Provision in Order 130/17 and the Corporation accepts the suggestion. Therefore, the Corporation believes a consensus, that is, a judgment arrived at by most of those concerned, exists for the inclusion of a Capital Maintenance Provision in the 2019 GRA.

The Corporation also notes that the excerpt from the Overview (above) does not speak to methodology.

CAC (MPI) 1-73

Part and Chapter:	**Part I, OV Overview, OV.4.3**	**Page No.:**	**18**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**On-going CMP requirement**		
Sub Topic:			

Preamble to IR (If Any):

". . . it must be noted that MPI forecasts, if there are no expected variances in the coming 5 years, that there will not be an on-going requirement for Capital Maintenance Provision increases, capital build requirements or transfers from the Extension line of business to maintain adequate capital reserves."

Question:

a) Please explain why a five-year plan for annual CMP provisions of approximately 0.42% per year would not satisfy the capital maintenance requirement "if there are no expected variances in the coming 5 years".
b) Please explain why it is in the interest of motorists for to satisfy the capital maintenance requirement in one year rather than over a five-year plan.

Rationale for Question:

A CMP provision of 2.1% in one year is more rate destabilizing than an equivalent five-year plan for annual CMP provisions.

RESPONSE:

The rationale to this Information Request assumes facts not in evidence and is largely anecdotal. MPIC will confine its answer to the germane portion of the question, in a fair and accurate manner, while making note of the prejudicial effect of the premise.

a) The logic implied in the question is not correct, and there appears to be a fundamental misunderstanding of the purpose of the Capital Maintenance Provision (CMP). CMP is to maintain Basic's capital position from one year to the next. Spreading the collection of one year's CMP requirement over five years is contrary to the purpose of the CMP, as Basic's capitalization would decline over that period. Secondly, if this approach were to be taken the CMP increases are not eliminated in future fiscal years in the Corporation's forecast. The forecast assumes the approval of the 2019/20 Net CMP and that it *remains* built into the rates over the forecast period. In reality, the CMP will be recalculated in every application (i.e. if less capital is required to maintain the MCT ratio, the 2.1% CMP would be lowered in the 2020 GRA).

b) The Corporation believes that an annual approach to capital maintenance is fair and appropriate for current year policyholders, as they would contribute to the incremental cost of maintaining capital (RSR) in each GRA. Without the CMP, Basic's capitalization will naturally deteriorate over time until the RSR falls below the minimum capital requirement. Policyholders in that year would then be required to pay for the lack of capital maintenance over the previous fiscal years. As a result, a 5-year CMP is not fair or in the best interests of policyholders. The CMP does not attempt to build or release capital; it simply tries to maintain capital year to year. It is most appropriate for policyholders to fully contribute to this maintenance cost annually, as part of their Basic rates. The Corporation maintains that a stable, properly funded RSR is in the best interests of all motorists. Applying over a 5-year horizon may be more appropriate in the context of a build / release provision where a capital level is being incrementally moved towards a target, as compared to CMP which simply seeks to hold the MCT level constant year over year.

CAC (MPI) 1-74

Part and Chapter:	**Part V, Ratemaking**	**Page No.:**	**Page 31**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**Capital Maintenance Methodology**		
Subtopic:			

Preamble to IR (If Any):

On page 31 of Part V, Ratemaking it indicates that a net capital maintenance provision was calculated and added to the rate indication so that the projected MCT ratio at year end 2019/20 would equal the MCT ratio at year end 2018/19. The addition of the capital maintenance provision to the required rate causes an increase of 3.3%.

Question:

a) Please explain the Corporation's use of an MCT ratio equal to the projected ratio at year end 2018/19 as the "ideal" MCT ratio to rate to?
b) Please explain the Corporation's use of an MCT ratio in ratemaking. That is, how is this methodology justified?
c) Does the Corporation agree that the use of a capital maintenance provision in a rate indication is not actuarial best practice? If not, please fully explain how it is actuarial best practice.
d) Would the use of the capital maintenance provision, as calculated in the current rate application, result in the need for a rebate in the future? If not please explain how that could be.

Rationale for Question:

To understand the Corporations rationale for the use of the 2018/19 projected MCT as the basis for this rate application's rate requirement and how the Corporation justifies using untested assumptions.

RESPONSE:

a) The Corporation does not believe that the use of an MCT ratio equal to the projected ratio is the "ideal" MCT ratio to rate to. In this case, it is simply the MCT ratio at which capitalization is maintained for the 2019/20 fiscal year, the year the rates applied for are written. It is inappropriate to target a capital maintenance provision (CMP) beyond the fiscal year 2019/20, as any rate changes approved in the 2020 GRA could affect the 2020/21 fiscal year.

b) The Corporation uses the MCT ratio each year to determine whether capitalization is maintained. The MCT ratio is a standard industry measure of capitalization that can be forecasted into future years.

c) Unlike most other insurers, MPI does not have a natural means to grow and/or maintain capital. While private insurers factor capitalization levels into product pricing, the Corporation's Basic product does not generate profit. As a result, the Corporation requires a unique approach maintain capital. Saskatchewan Government Insurance (SGI) faces a similar situation and developed a CMP in response. Although the approach taken by SGI is not the 'gold standard,' it appears to meet the unique needs of their program.

d) The use of a CMP, as calculated in the current rate application, does not result in the need for a rebate in the future. Rebates would be determined based on the upper RSR target and/or the application of a Capital Release provision (presently not in place). Regardless of the capitalization level of Basic, the Corporation still calculates the appropriate CMP for the policyholders in a particular year. The Corporation then determines the need for a build (surcharge) or release (rebate), based on the current level of the MCT, relative to the lower and upper RSR targets.

If the MCT ratio were above the upper RSR target range, the Corporation would likely request a rebate.

The Corporation is currently developing a Capital Management Plan to, among other things, address this question. However, for the current GRA, the 2018/19 MCT ratio is within the calculated lower and upper RSR target. As a result, the Corporation did not request either a rebate or surcharge.

CAC (MPI) 1-75

Part and Chapter:	**Part V, RM Ratemaking and Pro Formas**	**Page No.:**	**31**
PUB Approved Issue No:	**20. Capital Maintenance Provision (CMP)**		
Topic:	**Accounting for RSR and CMP**		
Sub Topic:			

Preamble to IR (If Any):

Part V, Ratemaking, page 31 it states:

"The Net CMP of 2.1% is comprised of a 1.2% decrease in the required rate change from the investment income earned on the Rate Stabilization Reserve (RSR), offset by a 3.3% increase in the required rate change to maintain capital adequacy in fiscal year 2019/20."

"We then applied the ratio of 1.1% as a cost offset to the required rates. This has the effect of decreasing the required rate change by 1.2% from 0.1% (per *Ratemaking RM.4.2.6*) to -1.1%."

"After applying the required rate change of -1.1%, we compared the MCT ratio at fiscal year-end 2019/20 to fiscal year-end 2018/19. To ensure that the MCT ratio at fiscal year-end 2019/20 remains unchanged from fiscal year-end 2018/19, we had to revise the required rate change to 2.2%, which reflects an increase of 3.3% (from -1.1%). Including the additional 2.1% required rate increase from the Net CMP results in a final required rate change of 2.2%."

Question:

a) For greater clarity please confirm or explain the following:
   i. Applying the investment income earned by the RSR amount to basic insurance rate making would indicate a rate reduction for 2019/20 of 1.1%.
   ii. To maintain the RSR amount at the February 28, 2018 MCT ratio would require an RSR rebuilding rate increase of 3.3% if the proposed CMP plan is not accepted.
b) Please file the studies MPI reviewed or approaches examined in support of the proposed CMP methodology, if any.
c) Currently, per PF.3 page 6, MPI does not account for the proposed CMP provision or the interest income earned by the RSR separately. Please elaborate how MPI proposes to account for the proposed CMP, interest income earned by the RSR and potentially an RSR rebuilding fee.

Rationale for Question:

To clarify the various rate components and the accounting of the CMP and RSR components to ensure policyholder transparency of moneys held in trust, on their behalf, by MPI.

RESPONSE:

a)

i. Confirmed.

ii. If the proposed CMP plan is not accepted, per *Part V, Ratemaking, page 40*, the required overall rate increase based on breakeven rates would be 0.1%. The Net CMP, equivalent to an additional 2.1% required overall rate increase, would be removed. The Corporation reiterates that the Net CMP is required to maintain capital adequacy in fiscal year 2019/20 by ensuring that the MCT ratio at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19. The Corporation does not seek the Net CMP to rebuild the RSR.

b) Please see *CAC (MPI) 1-78*.

c) It is neither the Corporation's policy nor its practice to account for different sources of premium revenue or interest income separately within the Statement of Changes in Equity. Standard accounting practice is to record the premium revenue and interest income in the Statement of Operations, which is what the Corporation proposes for the CMP and the interest income earned by the RSR. The Corporation would then allocate these two items to RSR in order to maintain its capital position.

As stated in part (a), the proposed CMP is to maintain capital adequacy in fiscal year 2019/20. The additional capital is required to ensure that the level of capitalization is unchanged from fiscal year 2018/19 and that it reflects and supports the level of risk for fiscal year 2019/20.

CAC (MPI) 1-76

Part and Chapter:	**Part VI, Dynamic Capital Adequacy**	**Page No.:**	**Page 7**
PUB Approved Issue No:	**7. Update of DCAT** **20. Capital Maintenance Provision**		
Topic:	**Capital Maintenance Provision in Base Scenario**		
Subtopic:			

Preamble to IR (If Any):

The Corporation has taken the position that "including the Capital Maintenance Provision in the calculation of the PUB's lower and upper RSR targets is not appropriate." The Capital Maintenance Provision (CMP) is part of the applied for rate increase so should be built in to the base scenario of the DCAT. Since the CMP is not approved the DCAT should be completed with two base scenarios, with the CMP and without.

Question:

Please give the Corporation's justification for excluding the Capital Maintenance Provision that is built in to the Corporation's rate request from the base scenario of the DCAT analysis.

Rationale for Question:

To understand why the Corporation did not include the Capital Maintenance Provision in the DCAT base scenario.

RESPONSE:

Please see *PUB(MPI) 1-17(b)*.

CAC (MPI) 1-77

Part and Chapter:	**DCAT.1.2**	**Page No.:**	**7**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17** **20. Capital Maintenance Provision**		
Topic:	**Modified base scenario**		
Sub Topic:			

Preamble to IR (If Any):

"The inclusion of the CMP, or a future capital build and release provision, should not impact the calculation of the RSR targets themselves. The CMP is designed to maintain capital at the existing Minimum Capital Test (MCT) ratio in the rating year, preferably at a level that is within the lower and upper regulatory capital targets."

Question:

a) Please confirm that the CMP or a future capital build and release provision is a separate calculation from the RSR targets determination that is used "to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors."
b) Please explain how the lower and upper regulatory capital targets are defined and determined outside the DCAT process designed to determine the RSR target range.

Rationale for Question:

To clarify that there is no link between the CMP or a future capital build and release provision and the risks facing MPI as defined by the purpose of the RSR.

RESPONSE:

a) As per *PUB (MPI) 1-17 (b)* the Corporation's position is that the calculation of the RSR range (i.e. lower and upper RSR targets) should be separate from the determination of how to operate within those targets (i.e. CMP, Capital Build and Release).

b) The lower and upper RSR targets continue to be determined based on the DCAT process.

CAC (MPI) 1-78

Part and Chapter:	**Part I, LA, OV 4.3**	**Page No.:**	**LA p. 2, OV p. 18**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**The need for and the methodology to establish a capital maintenance provision**		
Sub Topic:			

Preamble to IR (If Any):

MPI's overall requested rate increase includes a "2.1% increase for a Net Capital Maintenance Provision to maintain MPI's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision accounts for the positive impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position."

Question:

Please identify all industry, gray and peer-reviewed literature that was reviewed by MPI regarding the need for and the methodology to establish a Capital Maintenance Provision.

Rationale for Question:

To better understand the basis for MPI's application for the implementation of a Capital Maintenance Provision.

RESPONSE:

The Corporation is not aware of the existence of any industry, gray and peer-reviewed literature regarding the need for and the methodology to establish a Capital Maintenance Provision (CMP) for non-profit, monopoly, public auto insurers, and

therefore did not review any. The CMP is simply a tool for maintaining capitalization from year-to-year, based on a standard industry measure of capitalization (i.e. the Minimum Capital Test ratio). Even if such literature existed, the Corporation does not believe it was necessary, in the circumstances, to review it in order to recognize the need for a CMP and to establish the methodology.

CAC (MPI) 1-79

Part and Chapter:	**PART VI, Investments**	**Page No.:**	**6**
PUB Approved Issue No:	**8. Investment portfolio** **10. Claims forecasting**		
Topic:	**De-risking the basic claims portfolio; no equities in the investment portfolio**		
Sub Topic:			

Preamble to IR (If Any):

"2. De-risking the Basic Claims portfolio by eliminating exposure to growth assets. Interest rate risk associated with the Basic line of business is expected to be significantly reduced from the separating of investment assets into unique portfolios."

Question:

Please elaborate and rationalize the statement "De-risking the Basic Claims portfolio by eliminating exposure to growth assets" (ie. equities) by contrasting the risk characteristic of a bond investment portfolio to the risk characteristics of the PIPP liability portfolio.

Rationale for Question:

The PIPP liability risk characteristics profile seems to align more with pension plan risk characteristics profile and a Workers Compensation liability profile and it is strange that MPI would propose to have an investment portfolio totally comprised of bonds to support basic insurance liabilities. Trying to better understand MPI's rationale in this respect.

RESPONSE:

Fixed income securities (bonds) and PIPP liabilities have the following risks:

Bond Risks	**PIPP Risks**
Real interest rates	Real interest rates
Inflation	Inflation
Default	Mortality
	Under reserving
	Legislative enhancements to benefits

The present value of PIPP liabilities is interest rate-sensitive, due to the long-tail nature of some of the liabilities. This risk is mitigated by holding bonds of similar duration, which are also interest rate-sensitive. The other risks associated with the PIPP liabilities cannot be hedged with investments in financial assets. See the response to *PUB (MPI) 1-80* for a discussion of inflation risk.

Growth assets such as equities, real estate and infrastructure have unique idiosyncratic risks (i.e.: financial performance, regulatory, legal, competition, financing, etc.), which can cause the price of these securities to be volatile. These risks are not present in the PIPP liabilities. Therefore, removing these asset classes from the Basic Claims portfolio should reduce the risk of the combined portfolio of assets and liabilities.

CAC (MPI) 1-80

Part and Chapter:	**PART VI, Investments**	**Page No.:**	**39**
PUB Approved Issue No:	**8. Investment portfolio** **10. Claims forecasting**		
Topic:	**Duration matching**		
Sub Topic:			

Preamble to IR (If Any):

"As per Section 8.4 of the Investment Policy Statement (*INV Appendix 1*), the marketable bond duration is matched to the claims duration to minimize the interest rate risk of MPI. In last year's rate application, the total fixed income portfolio including MUSH bonds was matched to the claims duration. The duration matching policy has been changed this year to exclude MUSH bonds due to a change in the calculation methodology for the claims discount rate, which is now based upon the dollar weighted yield of the fixed income portfolio rather than the duration weighted yield of the fixed income portfolio."

Question:

For greater clarity, please explain the terms "dollar weighted yield" and "duration weighted yield" and explain the reason for changing the calculation methodology for the claims discount rate. Did the change in discount rate result in changes to the unpaid claims liabilities? If yes please quantify the change.

Rationale for Question:

To clarify investment terminology.

RESPONSE:

The duration weighted yield of the fixed income portfolio is calculated using the yield to maturity of each security in the total fixed income portfolio, and weighting the yield of each security in the portfolio by duration. Dollar weighted yield is the market value weighted yield, or the yield to maturity of the fixed income portfolio. See *CAC(MPI) 1-86 (c)* for a full discussion of the impact of change.

CAC (MPI) 1-81

Part and Chapter:	**Part VI, Investments**	**Page No.:**	**6**
PUB Approved Issue No:	**8. Investment portfolios**		
Topic:	**Five unique investment portfolios—reporting and disclosure**		
Sub Topic:			

Preamble to IR (If Any):

"Asset Liability Management (ALM) Study Update

The ALM study was completed in late 2017. The benefits of implementing the outcomes of the ALM study are:

1. 1. Separation of the commingled investment portfolio into five unique portfolios that back the corporation's liabilities and surplus. The five portfolios are Basic Claims, Basic Rate Stabilization Reserve (RSR), Pension, Extension and Special Risk Extension (SRE), and each will have unique asset allocations at the end of fiscal 2018/19. This will allow MPI to develop investment portfolios that better reflect the associated liabilities (where there are liabilities) and the investment goals of each portfolio."

Question:

a) Please describe how the various individual investment portfolios will be disclosed, discussed and reported in the Universal Compulsory Automobile Insurance and Corporate Annual Financial Statements.
b) Please describe the Pension portfolio allocation methodology amongst the various lines of business.

Rationale for Question:

To clarify and understand the disclosure of the various investment portfolios in financial statements; financial and performance reporting.

RESPONSE:

a) At this time, the only additional disclosure is anticipated to be in relation to describing the portfolios in the accounting policy section of the 2019/20 audited statements. No other disclosures or reporting is anticipated at this time.

b) The forecasted employee future benefit asset portfolio and associated income has been allocated amongst the various lines of business by use of the same formula allocating employee future benefit liabilities, which is the payroll ratio. The payroll ratio is the percentage of salary and benefits expenses allocated to each line of business as calculated using the approved allocation methodology. The base forecast uses a static percentage ratio based on a four-year historical average.

CAC (MPI) 1-82

Part and Chapter:	**Part VI, Investments**	**Page No.:**	
PUB Approved Issue No:	**8. Performance of the investment portfolio**		
Topic:	**Investment performance report**		
Sub Topic:			

Preamble to IR (If Any):

Investment performance for the last fiscal year and current quarter as measured by a third party.

Question:

Please file a copy of the February 28, 2018 and May 31, 2018 investment performance reports prepared by a third party, if any.

Rationale for Question:

To assist in understanding the most recent corporate investment portfolio's investment performance prepared by a third party compared to benchmark performance.

RESPONSE:

A copy of the February 28, 2018 report is included as *Attachment A*. The next available report was as of June 30, 2018 which is included as *Attachment B*.

Manitoba Public Insurance

Manitoba Public Insurance

Executive Summary

As of February 28, 2018

Submitted: April, 2018

Ellement
Pensions | Benefits | Investments

Table of Contents

Manitoba Public Insurance

Observations 1

Market Update 2

Performance Summary 3

Performance Commentary

- Total Fund 5
- Bonds 6
- Canadian Equity 8
- Canadian Small Cap Equity 9
- US Equity 10
- Real Estate & Infrastructure 11

Comparative Measurement 12

Observations

Based on the implied market valuation of the portfolio, the portfolio increased $87.1 million over fiscal 2018. Net contributions during 2018 were -$23.0 million, and market value stands at $2,812.6 million at the end of the fiscal 2018 with the largest shift in assets belonging to Canadian Bonds whose asset allocation increased by 2.3%. Currently Infrastructure has the largest underweighting at 1.3% from the Policy mix, while Real Estate is the most overweight at 1.7%.

The MPI investment portfolio with Implied Market Valuation returned 4.1% in fiscal 2018 ranking in the 2nd quartile of the Custom Universe but lagged the Custom Benchmark by 0.2%. Portfolio performance ranks above the Custom Universe median over the 4-year trailing period, but now trails the Custom Benchmark.

Total Bonds with Implied Market Valuations was a source of underperformance in fiscal 2018, returning 2.5% and underperforming the Custom Bond Benchmark by 1.4%. Total Bonds with Implied Market Valuations now trails the Custom Bond Benchmark by 0.7% over the 4-year trailing period, despite outperforming the peer universe median by 0.5%.

Canadian Equity was a source of outperformance in fiscal 2018 with a return of 4.9%. Manager C and Manager D both ranked in the first quartile of their respective peer universes earning 7.6% and 4.1% in fiscal 2018. Manager A struggled in fiscal 2018, ranking in the bottom quartile and earning 1.9%. The Canadian Equity portfolio has added 1.3% over its Custom Benchmark during the 4-year trailing period.

Large capitalization US value companies earned stronger returns during fiscal 2018 than mid-capitalization US value companies as the Russell 1000 Value (C$) returned 4.1% versus the -0.4% return of the Russell 2000 Value (C $). MPI was hurt by investing in the value indexes as the S&P 500 (C$) outperformed the Russell 1000 Value (C$) by 9.0%. MPI US Equity returned 3.2% in fiscal 2018.

Real Estate & Infrastructure produced strong returns in fiscal 2018 earning 11.2% and 9.8%, respectively. Both asset classes have outperformed their respective benchmarks over the 4-year trailing period.

Market Update

Manitoba Public Insurance

As of 2/28/2018

Canadian markets were relatively flat during fiscal 2018. The FTSE TMX Canada Universe Bond returned 1.0%, as fixed income returns were hurt by the Bank of Canada increasing the key overnight lending rate 0.75% over the fiscal year. The Canadian Equity market lagged behind the Global Equity markets, with the S&P/TSX Capped Composite earning 3.2%. Active management added some value with the median manager return being 4.4%.

The S&P 500 returned 17.1% in US$ during fiscal 2018 and 13.3% in C$ as the Canadian dollar appreciated throughout the fiscal year. Global markets had a strong year as the bull market continued, with the MSCI EAFE (C$) and MSCI World (C$) indexes earned 16.8 % and 14.2% during fiscal 2018, respectively. The median active manager was able to outperform the EAFE (C$) Index, but not the S&P 500 (C$) index.

Major Indices	Recent		Annualized					Annual				
Fixed Income												
	3 Mo	YTD	1 Yr	2 Yr	3 Yr	4 Yr	5 Yr	2018	2017	2016	2015	2014
FTSE TMX Canada Universe Bond	-1.06	1.01	1.01	1.45	0.85	3.16	2.82	1.01	1.89	-0.33	10.40	1.48
FTSE TMX Canada LT Bond	-1.64	4.33	4.33	3.22	1.26	5.66	4.50	4.33	2.12	-2.55	20.05	0.01
FTSE TMX Canada MT Bond	-1.54	-0.95	-0.95	0.61	0.72	3.05	2.84	-0.95	2.20	0.94	10.35	2.04
FTSE TMX Canada ST Bond	-0.40	-0.40	-0.40	0.53	0.61	1.43	1.56	-0.40	1.48	0.75	3.93	2.10
FTSE TMX Canada All Government Bond	-1.23	0.74	0.74	0.69	0.44	3.02	2.61	0.74	0.64	-0.06	11.19	0.95
FTSE TMX Canada All Corp Bond	-0.59	1.72	1.72	3.48	1.96	3.55	3.40	1.72	5.27	-1.01	8.49	2.78
Median	-0.95	1.13	1.13	1.93	1.17	3.25	2.99	1.13	2.77	-0.36	10.18	1.69
Canada												
S&P/TSX Composite	-3.23	3.23	3.23	12.79	3.47	5.14	6.92	3.23	23.24	-12.93	10.32	14.34
BMO Small Cap Blended (UW)	-2.06	-3.10	-3.10	18.23	3.76	0.44	2.86	-3.10	44.26	-20.09	-8.87	13.09
Median	-2.68	4.37	4.37	12.74	4.24	6.39	8.81	4.37	22.00	-11.32	12.48	19.20
US (C$)												
S&P 500 (C$)	2.41	13.29	13.29	17.66	12.10	16.40	19.90	13.29	22.19	1.77	30.29	35.00
Russell 1000 Value (C$)	-0.19	4.25	4.25	14.72	8.96	13.44	17.09	4.25	26.25	-1.72	28.01	32.91
Russell 2000 Value (C$)	-5.26	-0.39	-0.39	17.31	8.96	10.98	15.57	-0.39	38.14	-5.99	17.27	35.87
Median	2.38	13.10	13.10	17.58	11.60	15.41	19.30	13.10	21.74	0.44	29.60	35.00
US (US$)												
S&P 500 (US$)	2.96	17.10	17.10	20.97	11.14	12.22	14.73	17.10	24.98	-6.19	15.51	25.37
Russell 1000 Value (US$)	0.35	7.75	7.75	17.96	8.02	9.36	12.04	7.75	29.13	-9.41	13.49	23.44
Russell 2000 Value (US$)	-4.75	2.96	2.96	20.61	8.03	7.00	10.59	2.96	41.29	-13.35	3.96	26.19
Median	2.93	16.90	16.90	20.90	10.64	11.27	14.16	16.90	24.51	-7.42	14.89	25.38
International												
MSCI EAFE (C$)	1.38	16.76	16.76	15.23	7.07	8.58	12.38	16.76	13.72	-7.57	13.24	28.97
Median	1.29	17.88	17.88	15.65	7.65	9.25	12.34	17.88	13.24	-7.62	13.48	27.71
Global												
MSCI World (C$)	1.83	14.16	14.16	16.68	9.75	12.77	16.33	14.16	19.25	-2.90	22.33	31.73
Median	1.86	14.01	14.01	16.29	9.61	12.33	15.65	14.01	18.36	-2.81	21.37	29.35

Performance Summary

Manitoba Public Insurance

As of 2/28/2018

Performance Summary Asset Class and Manager	MV in Millions	MRQ	YTD	12 Month Results 2018	 2017	 2016	 2015	4 Year
Total Fund	**$2,768.7**	(0.2)	5.1	5.1	7.1	(0.5)	10.3	5.4
Total Fund w/ Imp	**$2,812.6**	(0.5)	4.1	4.1	6.7	(1.6)	11.7	5.1
Custom Benchmark [1]		(0.6)	4.2	4.2	6.6	(1.2)	12.2	5.3
Custom Universe Median		(0.6)	3.2	3.2	6.0	(0.8)	10.2	4.7
Value Added (TF w/ IMP vs Benchmark)		**0.1**	**-0.2**	**-0.2**	**0.0**	**-0.4**	**-0.5**	**-0.3**
Value Added (TF w/ IMP vs Median)		**0.1**	**0.9**	**0.9**	**0.7**	**-0.8**	**1.5**	**0.4**
Short Term	**$19.5**	0.3	0.9	0.9	0.5	0.6	0.9	0.7
Callable Short Term	**$11.5**	0.3	0.9	0.9	0.5	0.7	0.9	0.8
Manager C Short Term	**$4.5**	0.2	0.8	0.8	0.5	0.5	0.8	0.7
Manager D Short Term	**$3.5**	0.2	0.8	0.8	0.5	0.5	0.9	0.7
FTSE TMX CA 91 Tbill		0.2	0.7	0.7	0.5	0.5	0.9	0.7
Median		0.3	1.1	1.1	0.8	0.8	1.2	1.0
Bonds	**$1,913.2**	(0.7)	3.9	3.9	2.5	0.2	10.8	4.3
MPI w/ Imp	**$1,957.1**	(1.1)	2.5	2.5	2.0	(1.5)	12.9	3.9
Marketable	**$1,281.2**	(1.6)	3.6	3.6	1.5	(2.5)	14.5	4.1
Non Mkt Imp	**$675.9**	(0.3)	0.8	0.8	3.1	0.0	10.7	3.6
Non Mkt Book	**$632.0**	1.1	4.6	4.6	4.8	4.9	5.0	4.8
Custom Bond Benchmark [2]		(0.8)	3.9	3.9	2.5	(1.0)	13.4	4.6
Median		(0.9)	1.3	1.3	2.9	(0.4)	10.2	3.3
Value Added (Bonds)		**0.1**	**0.0**	**0.0**	**-0.1**	**1.3**	**-2.7**	**-0.3**
Value Added (MPI w/Imp)		**-0.3**	**-1.4**	**-1.4**	**-0.5**	**-0.4**	**-0.5**	**-0.7**
Value Added (Marketable)		**-0.7**	**-0.3**	**-0.3**	**-1.1**	**-1.4**	**1.1**	**-0.5**
Value Added (Non Mkt Imp)		**0.6**	**-3.1**	**-3.1**	**0.6**	**1.0**	**-2.7**	**-1.0**
Value Added (Non Mkt Book)		**2.0**	**0.7**	**0.7**	**2.2**	**5.9**	**-8.4**	**0.3**
Canadian Equity	**$256.1**	(3.0)	4.9	4.9	27.7	(13.3)	7.8	5.8
Custom CE Benchmark [3]		(3.0)	2.3	2.3	26.3	(14.0)	7.3	4.5
Median		(2.6)	4.7	4.7	22.5	(10.6)	11.5	6.6
Value Added (CNEQ vs Custom CE bmk)		**0.0**	**2.7**	**2.7**	**1.4**	**0.6**	**0.6**	**1.3**
Manager A	**$80.5**	(5.9)	1.9	1.9	24.5	(16.1)	9.3	3.8
Manager C	**$120.8**	(1.9)	7.6	7.6	31.4	(13.6)	7.5	7.0
S&P/TSX Capped Comp.		(3.2)	3.2	3.2	23.2	(12.9)	10.3	5.1
Median		(2.6)	4.7	4.7	22.5	(10.6)	11.5	6.6
Value Added (Manager A vs S&P/TSX)		**-2.7**	**-1.3**	**-1.3**	**1.3**	**-3.2**	**-1.0**	**-1.3**
Value Added (Manager C vs S&P/TSX)		**1.3**	**4.4**	**4.4**	**8.1**	**-0.7**	**-2.8**	**1.9**
Manager D	**$54.9**	(1.0)	4.1	4.1	28.3	(4.2)	1.8	6.8
BMO Small Cap Blended (UW)		(2.1)	(3.1)	(3.1)	44.3	(20.1)	(8.9)	0.4
Median		(2.5)	0.2	0.2	24.5	(11.4)	4.0	4.5
Value Added (Manager D vs BMO SC Blended UW)		**1.1**	**7.2**	**7.2**	**-15.9**	**15.9**	**10.6**	**6.4**

Note: Value Added vs Custom Benchmark

[1] Current Benchmark weight: 70% MPI Claim Liability, 8.5% S&P/TSX Capped Composite, 1.5% BMO Small Cap Blended Unweighted, 4% Russell 1000 Value (C$), 1% Russell 2000 Value (C$), 5% Can CPI + 5%, 10% IPD All Property Index (lagged by one quarter)

Note: Value Added vs Custom Bond Benchmark

[2] Current Benchmark weight: 100% MPI Claim Liability

Note: Value Added vs Respective Benchmark

Note: Rounding issues may arise

[3] Current Benchmark weight: 85% S&P/TSX Capped Composite, 15% BMO Small Cap Blended (Unweighted)

Performance Summary

Manitoba Public Insurance

As of 2/28/2018

Performance Summary Asset Class and Manager	MV in Millions	MRQ	YTD	12 Month Results 2018	2017	2016	2015	4 Year
US Equity	**$145.1**	(1.3)	3.2	3.2	28.7	(3.0)	25.7	12.8
Manager G	**$116.9**	(0.3)	4.1	4.1	26.4	(2.3)	27.9	13.2
Manager H	**$28.2**	(5.3)	(0.4)	(0.4)	38.3	(6.4)	17.3	10.9
Russell 1000 Value (C$)		(0.2)	4.2	4.2	26.3	(1.7)	28.0	13.4
Russell 2000 Value (C$)		(5.3)	(0.4)	(0.4)	38.1	(6.0)	17.3	11.0
[4] Custom US Benchmark		(1.2)	3.3	3.3	28.6	(2.5)	25.9	13.0
Median		2.0	12.3	12.3	21.3	(0.4)	29.7	15.2
Value Added (USEQ vs Custom US bmk)		**-0.1**	**-0.2**	**-0.2**	**0.0**	**-0.5**	**-0.2**	**-0.2**

Note: Value Added vs Custom US Benchmark

[4] Current Benchmark weight: 80% Russell 1000 Value (C$), 20% Russell 2000 Value (C$)

Real Estate	**$329.0**	3.0	11.2	11.2	7.1	8.5	8.1	8.7
Direct Real Estate	**$66.0**	2.0	6.9	6.9	6.0	16.8	14.2	10.9
Manager F	**$263.0**	3.3	12.4	12.4	7.5	6.2	6.2	8.1
IPD All Prop (Lag)		2.3	7.1	7.1	6.4	7.7	7.6	7.2
Median		1.7	5.9	5.9	5.5	5.0	6.2	5.9
Value Added (Real Estate)		**0.7**	**4.1**	**4.1**	**0.7**	**0.8**	**0.5**	**1.5**
Value Added (Direct RE)		**-0.3**	**-0.2**	**-0.2**	**-0.4**	**9.2**	**6.7**	**3.7**
Value Added (Manager F)		**1.0**	**5.3**	**5.3**	**1.1**	**-1.5**	**-1.4**	**0.9**

Note: Value Added vs IPD All Property (lagged by one quarter) Index

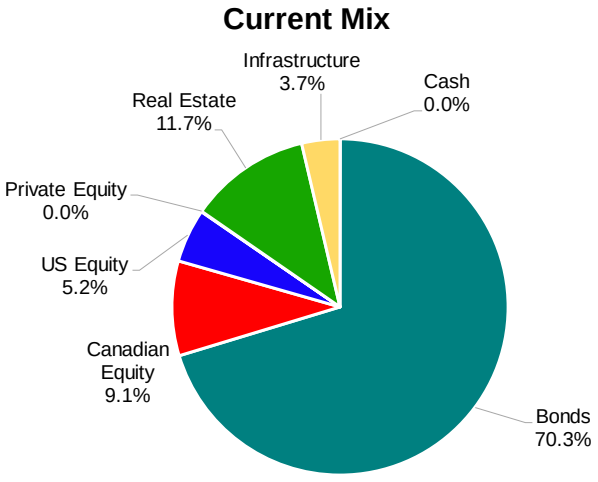
Infrastructure	**$103.3**	8.4	9.8	9.8	3.9	7.2	7.4	7.1
CPI + 5% (lag)		1.8	6.8	6.8	7.3	7.2	6.0	6.8
Value Added (Infra)		**6.5**	**3.0**	**3.0**	**-3.4**	**0.0**	**1.4**	**0.2**

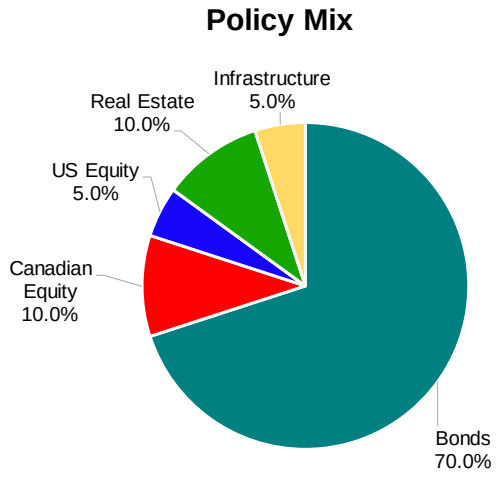
Note: Value Added vs CPI + 5% (lagged one month)

Note: Rounding issues may arise

Note: Market values may not add due to cash component

Current vs Policy Asset Mix





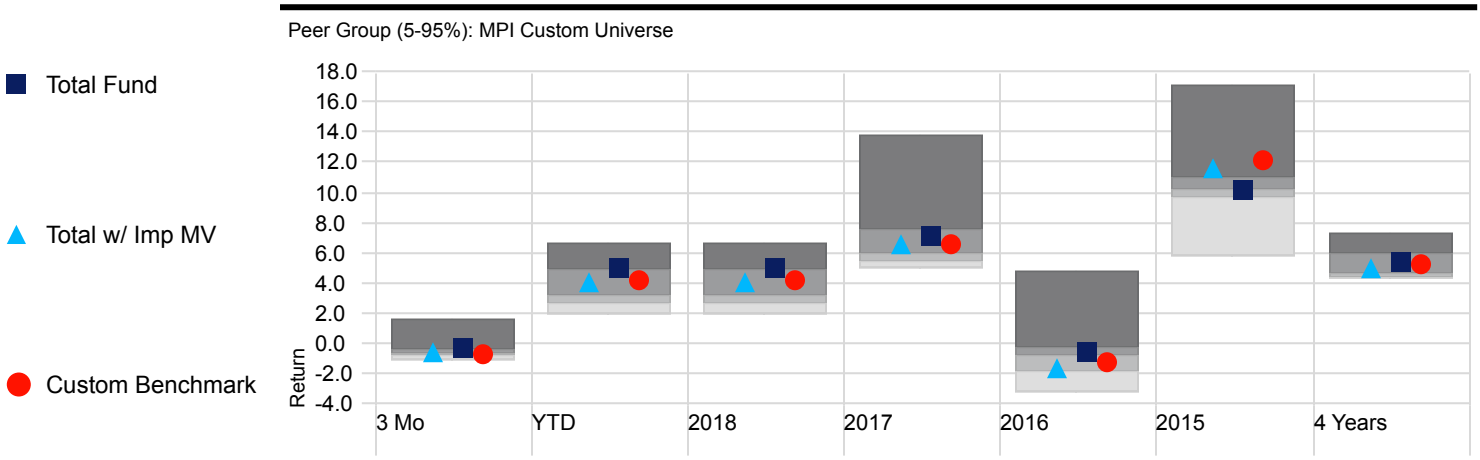
Note: Bonds include Short Term

Total Fund

Manitoba Public Insurance

As of 2/28/2018

Trailing Performance

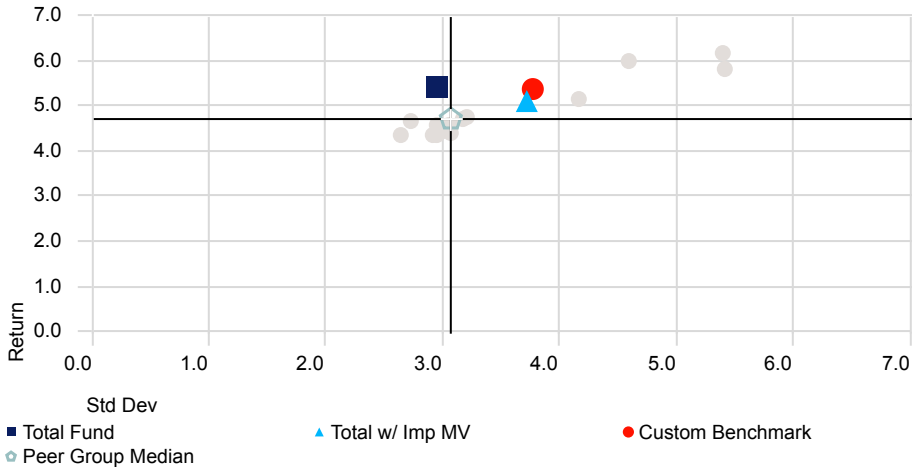


	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Total Fund	-0.22	**18**	5.06	**22**	5.06	**22**	7.11	**34**	-0.52	**44**	10.26	**44**	5.40	**31**
Total w/ Imp MV	-0.53	**39**	4.06	**39**	4.06	**39**	6.65	**38**	-1.64	**72**	11.67	**20**	5.08	**44**
Custom Benchmark	-0.64	**52**	4.22	**39**	4.22	**39**	6.62	**38**	-1.22	**68**	12.20	**20**	5.35	**31**
Median	-0.62		3.20		3.20		5.96		-0.79		10.18		4.69	

The MPI with Implied Market Value on Non Marketable Bonds has a 4-year trailing return of 5.1%, ranking in the 44th percentile of the Custom MPI Universe. This return exceeds Custom Universe median by 0.4%, but lags the Custom Benchmark by 0.3%. During fiscal 2018, the portfolio ranked in 2nd quartile of the Custom Universe, underperforming its Custom Benchmark by 0.2%, but outperforming its Custom Universe median by 0.9%.

MPI Total Fund returned 5.1% in fiscal 2018 and 5.4% over the 4-year trailing period. Over both time periods, the Fund outperformed the Custom Benchmark and Custom Universe median.

Risk-Reward 4 Year



Total Fund Total w/ Imp MV Custom Benchmark
Peer Group Median

	Return	Std Dev
Total Fund	5.40	2.96
Total w/ Imp MV	5.08	3.72
Custom Benchmark	5.35	3.76
Median	4.69	3.07

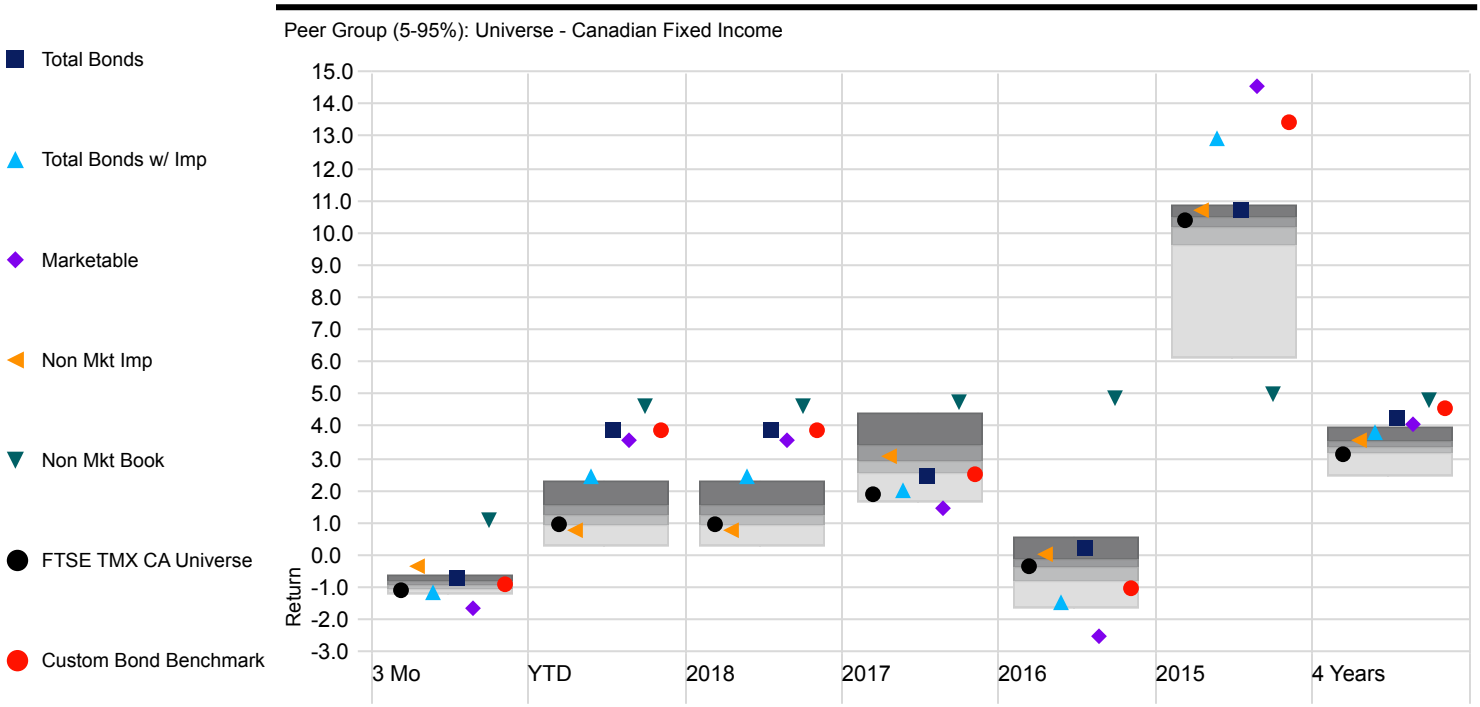
The volatility of the MPI with Implied Market Value on Non Marketable Bonds over the 4-year trailing period is below the Custom Benchmark but above the Custom Universe median. Total Fund volatility is lower than both the median and the Custom Benchmark.

Bonds

Manitoba Public Insurance

As of 2/28/2018

Trailing Performance



	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Total Bonds	-0.71	**15**	3.89	**1**	3.89	**1**	2.48	**77**	0.23	**14**	10.75	**11**	4.27	**1**
Total Bonds w/ Imp	-1.15	**86**	2.49	**3**	2.49	**3**	2.05	**86**	-1.46	**90**	12.94	**1**	3.87	**8**
Marketable	-1.60	**100**	3.57	**1**	3.57	**1**	1.49	**95**	-2.47	**97**	14.55	**1**	4.10	**2**
Non Mkt Imp	-0.29	**3**	0.78	**81**	0.78	**81**	3.13	**39**	0.03	**20**	10.71	**12**	3.58	**18**
Non Mkt Book	1.10	**1**	4.64	**1**	4.64	**1**	4.77	**5**	4.89	**1**	5.05	**100**	4.84	**1**
FTSE TMX CA Universe	-1.06	**78**	1.01	**70**	1.01	**70**	1.89	**90**	-0.33	**42**	10.40	**34**	3.16	**72**
Custom Bond Benchmark	-0.85	**35**	3.91	**1**	3.91	**1**	2.55	**73**	-1.02	**81**	13.43	**1**	4.58	**1**
Median	-0.94		1.26		1.26		2.90		-0.41		10.15		3.34	

Total Bonds with Implied Market Valuations earned 2.5% in fiscal 2018 ranking in the 3rd percentile of the peer universe, yet still lagged the Custom Bond Benchmark by 1.4%. Over the 4-year trailing period the portfolio earned 3.9%, ranking in the top decile of the peer universe, but lagging behind the Custom Bond Benchmark by 0.6%.

Marketable Bonds and Non-Marketable Bonds with Implied Market Value ranked in the 1st and 81st percentile of the peer universe in fiscal 2018, returning 3.6% and 0.8%, respectively.

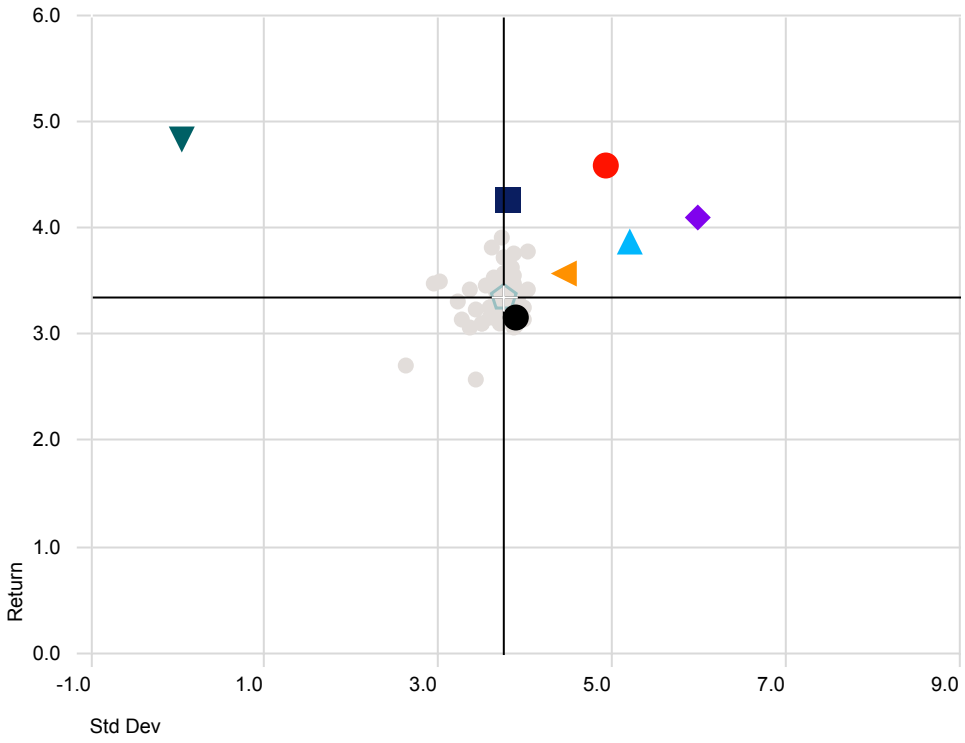
Bonds

Manitoba Public Insurance

As of 2/28/2018

Total Bonds | Total Bonds w/ Imp | Marketable | Non Mkt Imp | Non Mkt Book | FTSE TMX CA Universe | Custom Bond Benchmark

Risk-Reward 4 Year



	Return	Std Dev
Total Bonds	4.27	3.81
Total Bonds w/ Imp	3.87	5.20
Marketable	4.10	6.00
Non Mkt Imp	3.58	4.44
Non Mkt Book	4.84	0.06
FTSE TMX CA Universe	3.16	3.89
Custom Bond Benchmark	4.58	4.94
Median	3.34	3.76

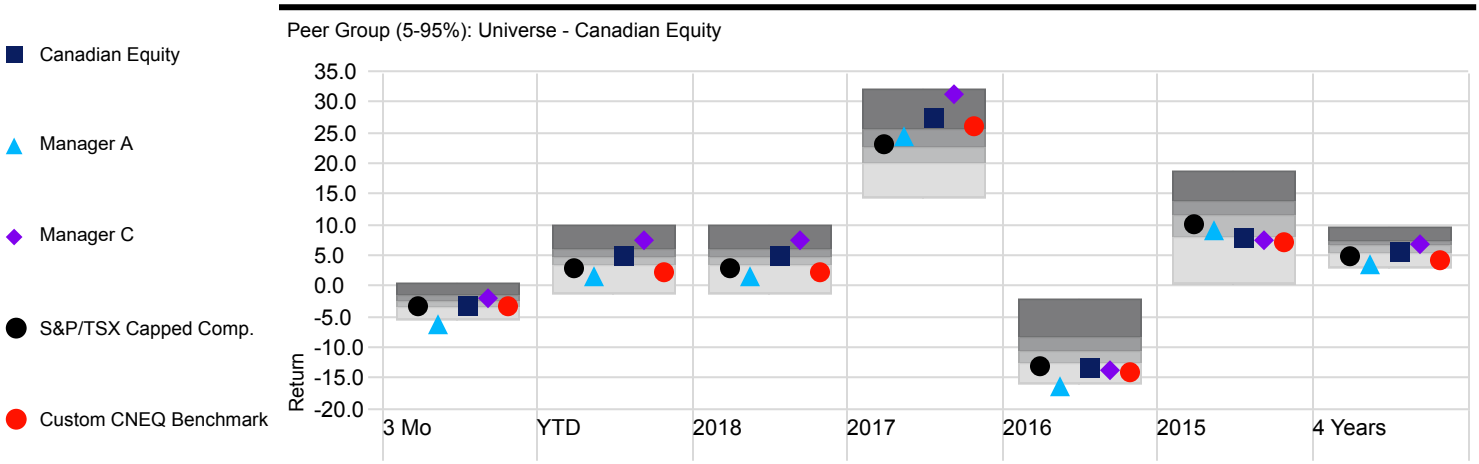
MPI Total Bonds with Implied Market Valuations generated lower returns compared to the Custom Bond Benchmark with a slightly higher volatility over the 4-year trailing period. The Fund managed to outperform the FTSE TMX CA Universe by 0.7%, but was more volatile.

Canadian Equity

Manitoba Public Insurance

As of 2/28/2018

Trailing Performance

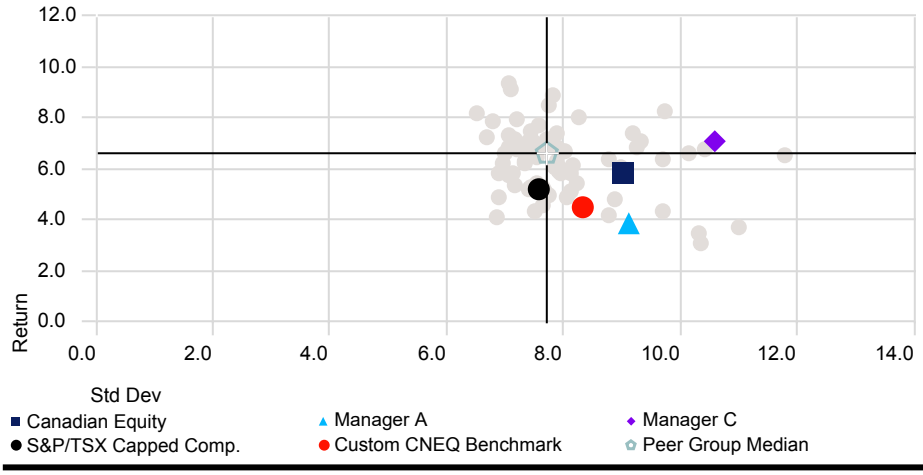


	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Canadian Equity	-3.02	**61**	4.94	**47**	4.94	**47**	27.67	**18**	-13.32	**82**	7.82	**76**	5.78	**69**
Manager A	-5.94	**97**	1.91	**82**	1.91	**82**	24.51	**32**	-16.15	**95**	9.28	**66**	3.84	**90**
Manager C	-1.91	**34**	7.58	**12**	7.58	**12**	31.36	**10**	-13.64	**82**	7.54	**79**	7.04	**32**
S&P/TSX Capped Comp.	-3.23	**66**	3.23	**75**	3.23	**75**	23.24	**46**	-12.93	**79**	10.32	**57**	5.14	**76**
Custom CNEQ Benchmark	-3.04	**62**	2.27	**82**	2.27	**82**	26.27	**24**	-13.95	**86**	7.27	**81**	4.49	**85**
Median	-2.59		4.66		4.66		22.50		-10.58		11.47		6.57	

MPI Canadian Equity returned 4.9% in fiscal 2018 outperforming the Custom Benchmark, the S&P/TSX Capped Composite and the peer universe median. Over the 4-year trailing period, Canadian Equity has outperformed the Custom Benchmark and the S&P/TSX Capped Composite by 1.3% and 0.6%, respectively; but has lagged the peer universe median by 0.8%

Large Cap Canadian Equity manager, Manager C had a strong fiscal 2018 ranking in the 1st quartile of the peer universe and outperforming the S&P/TSX Capped Composite by 4.4%. Manager A struggled yet again, ranking in the fourth quartile and failing to beat the benchmark for the third straight fiscal year, and now ranks in the bottom decile of the peer universe over the 4-year trailing period.

Risk-Reward 4 Year



Canadian Equity
Manager A
Manager C
S&P/TSX Capped Comp.
Custom CNEQ Benchmark
Peer Group Median

	Return	Std Dev
Canadian Equity	5.78	9.03
Manager A	3.84	9.12
Manager C	7.04	10.60
S&P/TSX Capped Comp.	5.14	7.57
Custom CNEQ Benchmark	4.49	8.34
Median	6.57	7.70

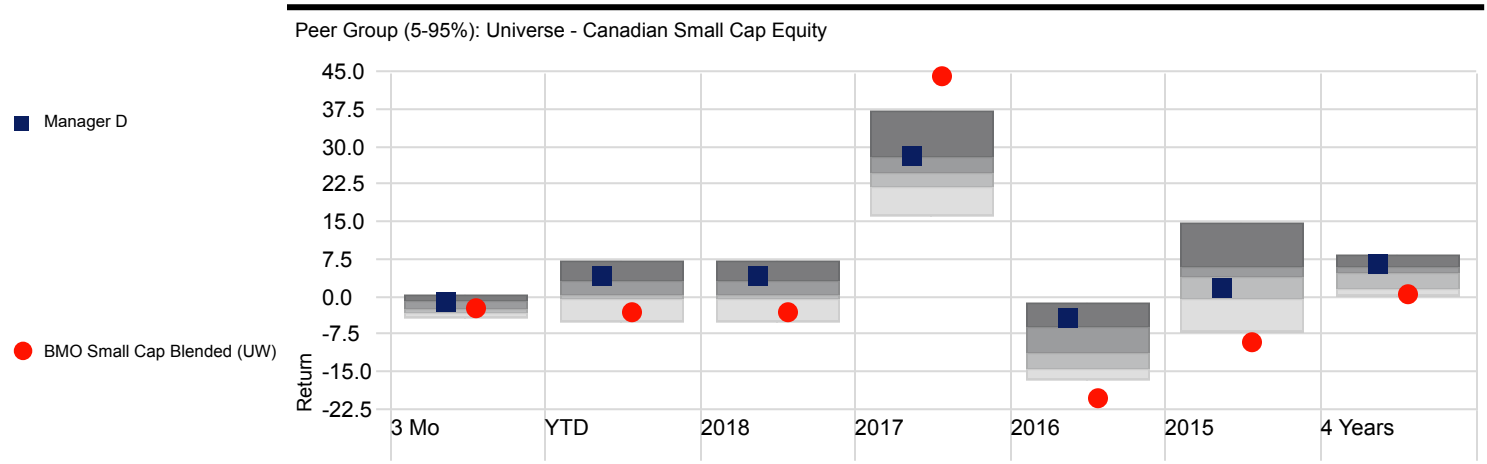
Manager A and Manager C have been more volatile than Custom Canadian Equity benchmark and the peer universe median over the 4-year trailing period. Manager C has outperformed the S&P/TSX Capped Composite, peer universe median, and the Custom Canadian Equity benchmark, but Manager A trails all three.

Canadian Small Cap Equity

Manitoba Public Insurance

As of 2/28/2018

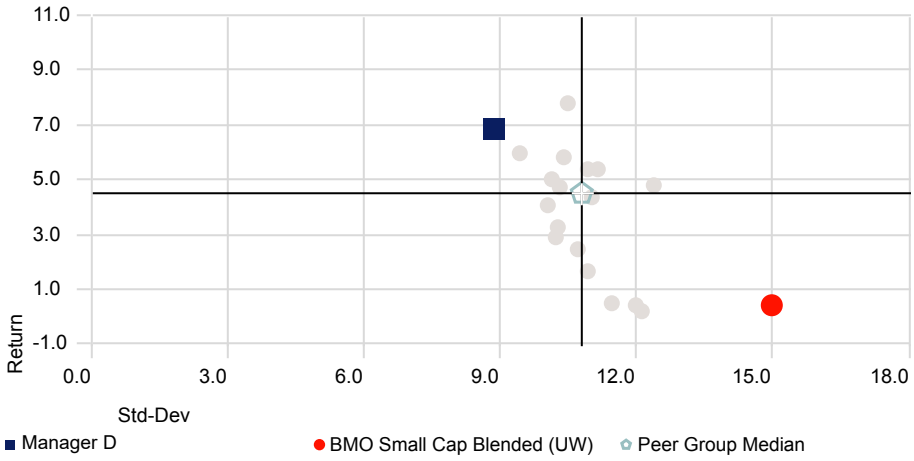
Trailing Performance



	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Manager D	-0.99	**38**	4.12	**17**	4.12	**17**	28.31	**23**	-4.24	**22**	1.77	**61**	6.82	**17**
BMO Small Cap Blended (UW)	-2.06	**46**	-3.10	**91**	-3.10	**91**	44.26	**4**	-20.09	**96**	-8.87	**96**	0.44	**87**
Median	-2.50		0.15		0.15		24.48		-11.44		4.02		4.54	

Small Cap Canadian Equity manager Manager D returned 4.1% in fiscal 2018, outperforming the benchmark by 7.2% and ranked in the 1st quartile of the peer universe. Over the 4-year trailing period, Manager D ranks in the 1st quartile of the peer universe and added value of 6.4% versus the benchmark.

Risk-Reward 4 Year



	Return	Std Dev
Manager D	6.82	8.86
BMO Small Cap Blended (UW)	0.44	14.96
Median	4.54	10.82

Manager D | BMO Small Cap Blended (UW) | Peer Group Median

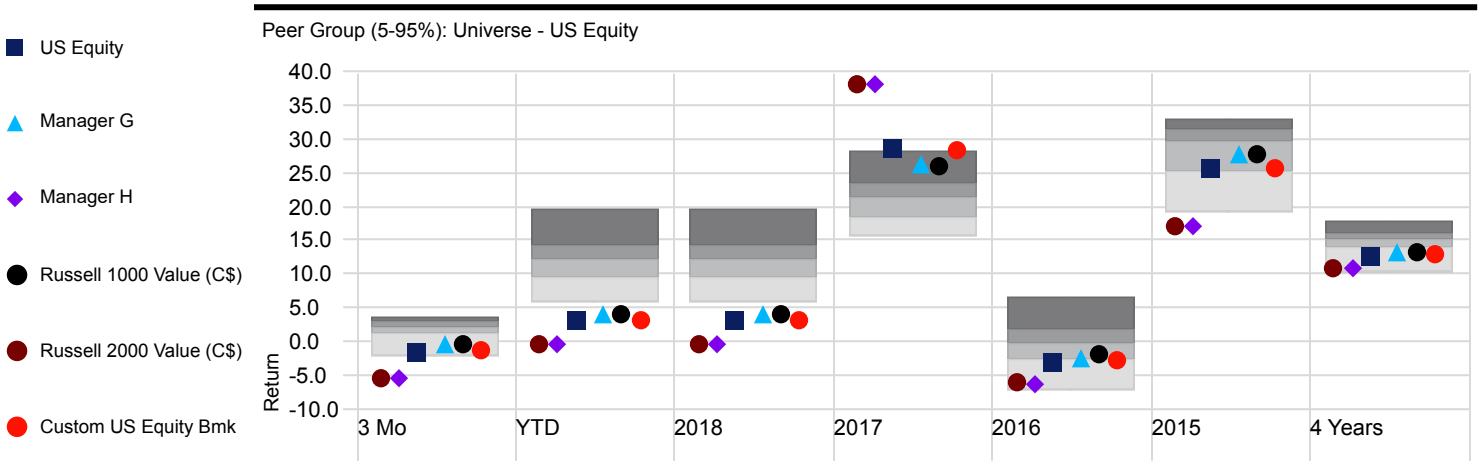
Manager D earned significantly higher returns than the benchmark and peer universe median over the 4-year trailing period whilst maintaining a lower degree of volatility.

US Equity

Manitoba Public Insurance

As of 2/28/2018

Trailing Performance

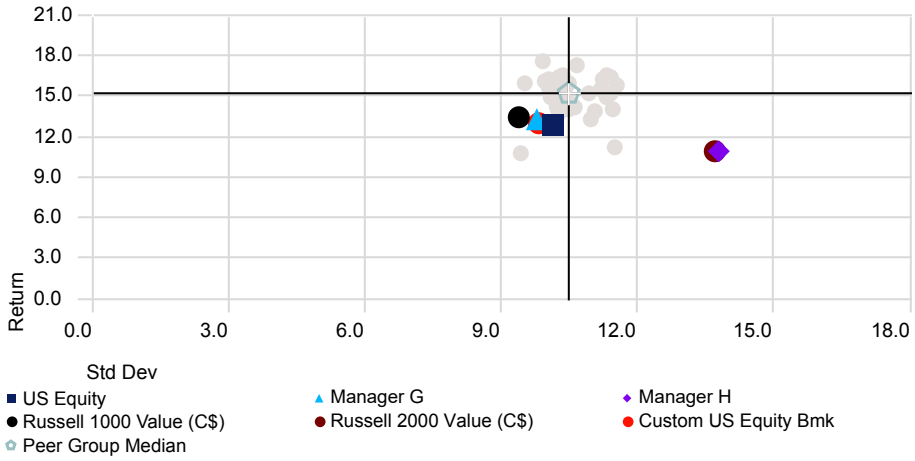


	3 Mo		YTD		2018		2017		2016		2015		4 Years	
US Equity	-1.33	**91**	3.16	**97**	3.16	**97**	28.66	**5**	-3.05	**79**	25.71	**71**	12.78	**84**
Manager G	-0.31	**89**	4.05	**95**	4.05	**95**	26.44	**15**	-2.27	**73**	27.86	**59**	13.23	**82**
Manager H	-5.34	**100**	-0.40	**100**	-0.40	**100**	38.31	**1**	-6.35	**91**	17.31	**95**	10.91	**91**
Russell 1000 Value (C$)	-0.19	**89**	4.25	**95**	4.25	**95**	26.25	**15**	-1.72	**73**	28.01	**59**	13.44	**80**
Russell 2000 Value (C$)	-5.26	**100**	-0.39	**100**	-0.39	**100**	38.14	**1**	-5.99	**87**	17.27	**95**	10.98	**91**
Custom US Equity Bmk	-1.22	**91**	3.34	**95**	3.34	**95**	28.62	**5**	-2.54	**73**	25.88	**71**	13.00	**82**
Median	2.00		12.26		12.26		21.35		-0.42		29.67		15.18	

US Equity returned 3.2% in fiscal 2018 ranking in the 4th quartile of the peer universe and slightly behind the US Equity Custom Benchmark. Growth outperformed value during fiscal 2018 leading to weaker returns for the asset class. The 4-year trailing return is 12.8% ranking in the bottom quartile of the peer universe.

Manager G returned 4.1% in fiscal 2018, while Manager H returned -0.4%, as large cap value outperformed mid cap value in the US Equity market over fiscal 2018.

Risk-Reward 4 Year



US Equity
Manager G
Manager H
Russell 1000 Value (C$)
Russell 2000 Value (C$)
Custom US Equity Bmk
Peer Group Median

	Return	Std Dev
US Equity	12.78	10.14
Manager G	13.23	9.77
Manager H	10.91	13.80
Russell 1000 Value (C$)	13.44	9.39
Russell 2000 Value (C$)	10.98	13.70
Custom US Equity Bmk	13.00	9.84
Median	15.18	10.50

Over the 4-year trailing period, the US Equity portfolio returns have lagged the US Equity Custom Benchmark while volatility has been higher. The portfolio has lower volatility than the median.

Real Estate & Infrastructure

Manitoba Public Insurance

As of 2/28/2018

Trailing Performance

	3 Mo	YTD	2018	2017	2016	2015	4 Years
Real Estate	3.01	11.22	11.22	7.15	8.52	8.05	8.72
Direct Real Estate	2.02	6.87	6.87	5.97	16.83	14.21	10.87
Manager F	3.26	12.41	12.41	7.55	6.21	6.18	8.06
Infrastructure	8.37	9.79	9.79	3.92	7.15	7.44	7.06
IPD Property Index (lag)	2.30	7.08	7.08	6.41	7.67	7.56	7.18
CAN CPI + 5.00%	1.83	6.77	6.77	7.28	7.16	6.02	6.81

MPI Real Estate outperformed the IPD All Prop Index (lag) by 4.1% in fiscal 2018, led by Manager F who outperformed the benchmark by 5.3%. Infrastructure return in fiscal 2018 was 9.8% outperforming its benchmark of CAN CPI + 5%.

Both Real Estate & Infrastructure have performed well over the trailing 4-year period earning returns of 8.7% and 7.1%, respectfully.

To assist the reader of this report, a description of the background universe is being provided. Per instruction from MPI in August 2016, Ellement Consulting Group will no longer be providing Fiscal Year Ending Quarterly Reports. Ellement Consulting Group will now provide measurement of the MPI Fund at calendar year quarter end. Peer universes used to rank performance and compare funds are from Morningstar.

With the February 2007 fiscal quarter report, a custom universe has been added. This universe is comprised of pooled funds weighted to MPI's policy asset mix which provides a performance comparison that is independent of asset mix. Prior to that, the Total Fund had been compared only to a Balanced Universe. Beginning with the November 2015 fiscal report, the custom universe is being run out of Morningstar.

Ellement Consulting Group began measuring the MPI fund as of July 1, 2003. Fixed Income returns are supplied by MPI, while Equity returns are calculated independently by Ellement from custodial records. Some data is obtained directly from the investment managers for improved accuracy. Return data prior to 2003 is a combination of MPI records and prior measurement reports.

Disclaimer

1. The rates of return used in this Report are not necessarily a prediction of possible future experience.
2. The rates of return used in this Report are believed to be accurate, complete and timely. Rounding issues may arise.
3. Reliance for data has been made primarily on the custodial statements of the Plan, Morningstar Direct, eVestment, the Bank of Canada, Ellement Performance Measurement Proprietary System and the Canadian Institute of Actuaries publications on Economic Statistics in the preparation of this Report. Additional information provided from investment managers has been of assistance from time to time.
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5. Careful deliberation, perhaps with supplementary information, may be required before investment managers are hired, continued or terminated, or before an asset class mix change is directed.

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Manitoba Public Insurance

Manitoba Public Insurance

Executive Summary

As of June 30, 2018

Submitted: July, 2018

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Table of Contents

Manitoba Public Insurance

Observations 1

Market Update 2

Performance Summary 3

Performance Commentary

- Total Fund 5
- Bonds 6
- Canadian Equity 8
- Canadian Small Cap Equity 9
- US Equity 10
- Real Estate & Infrastructure 11

Comparative Measurement 12

Based on the implied market valuation of the portfolio, the portfolio increased $27.7 million during Q2 2018. Net withdrawals were $12.8 million, and the market value stands at $2,849.1 million at the end of Q2 2018, with the largest shift in assets belonging to Canadian Bonds, whose asset allocation decreased by 1.9%. Currently, Infrastructure has the largest underweighting from the Policy mix at 1.4%, while Real Estate has the largest overweighting, at 1.8%.

The MPI Investment Portfolio with Implied Market Valuation returned 1.4% in Q2 2018, ranking in the 2nd quartile of the Custom Universe and underperforming the Custom Benchmark by 0.8%. Portfolio performance ranks ahead the Custom Universe median over the most recent 4-year trailing period, with a return of 4.8%; however, it lags the Custom Benchmark over the 4-year trailing period by 0.5%.

Total Bonds with Implied Market Valuations returned 0.6% in Q2 2018, ranking in the 2nd quartile of the peer universe but behind the Custom Bond Benchmark by 1.1%. Total Bonds with Implied Market Valuations are outperforming the peer universe median over the 4-year trailing period, ranking in the 3rd percentile but still trails the Custom Bond Benchmark which ranks in the 1st percentile of the peer universe.

After a poor Q1, Canadian Equities had a stronger quarter in Q2, returning 6.2%, which matched the return of Custom Canadian Equity Benchmark. Manager C has outperformed the benchmark by 2.0% and ranks slightly below the peer universe median over the 4-year trailing period. Manager A had a positive start to the quarter but was ultimately terminated during Q2 and replaced with Manager B. Manager D earned 6.9% in Q2 2018 outperforming its benchmark by 3.8%. Year-to-date, Manager D has outperformed its benchmark by 6.2%.

Mid-capitalization value US companies earned significantly higher returns during Q2 2018 than large-capitalization value US companies, as the Russell 2000 Value (C$) returned 10.5% versus a return of 3.2% for the Russell 1000 Value (C$). The S&P 500 (C$) returned 5.5%, outperforming the Russell 1000 Value (C$) by 2.3%.

Real Estate returned 2.3% in Q2 2018, while Infrastructure returned -0.5%. Both asset classes have earned strong returns over the 4-year trailing period.

Market Update

Manitoba Public Insurance

As of 6/30/2018

After raising rates by 0.25% in Q1, the Bank of Canada (BofC) left the overnight lending rate unchanged in Q2 2018 at 1.25%. The Canadian Equity market got off to a rough start to 2018, but rebounded sharply in Q2, earning 6.8%. Strong performance in Q2 was driven by a rebound in both Energy and Health Care sector stocks.

The S&P 500 returned 3.4% in US$ during Q2 2018 and 5.5% in C$, as the Canadian dollar depreciated during the quarter. Growth stocks slightly outperformed value stocks led by Energy, Consumer Discretionary, and Information Technology sectors. The MSCI EAFE (C$) and MSCI World (C$) indexes once again earned positive returns in Q2 2018, earning 1.1% and 4.0%, respectively.

Major Indices	Recent		Annualized					Annual				
Fixed Income												
	3 Mo	YTD	1 Yr	2 Yr	3 Yr	4 Yr	5 Yr	2018	2017	2016	2015	2014
FTSE TMX Canada Universe Bond	0.51	0.61	0.76	0.39	1.97	3.03	3.48	0.76	0.02	5.22	6.25	5.33
FTSE TMX Canada LT Bond	0.92	0.92	1.84	1.12	3.96	5.46	5.89	1.84	0.40	9.90	10.07	7.65
FTSE TMX Canada MT Bond	0.24	0.26	-0.11	-0.52	1.54	2.80	3.50	-0.11	-0.93	5.78	6.70	6.35
FTSE TMX Canada ST Bond	0.31	0.53	0.36	0.28	0.71	1.38	1.74	0.36	0.20	1.56	3.43	3.21
FTSE TMX Canada All Government Bond	0.55	0.59	0.60	-0.17	1.68	2.94	3.35	0.60	-0.94	5.50	6.79	5.00
FTSE TMX Canada All Corp Bond	0.42	0.70	1.21	1.90	2.75	3.30	3.86	1.21	2.59	4.49	4.96	6.12
Median	0.51	0.64	0.93	0.76	2.22	3.13	3.62	0.93	0.54	5.18	5.99	5.55
Canada												
S&P/TSX Composite	6.77	1.95	10.41	10.73	6.96	4.87	9.24	10.41	11.05	-0.20	-1.16	28.66
BMO Small Cap Blended (UW)	3.11	-5.28	3.60	6.35	5.33	-0.44	5.53	3.60	9.18	3.32	-15.93	33.23
Median	6.44	2.44	10.45	10.95	7.15	6.03	10.28	10.45	11.60	-0.18	1.15	29.57
US (C$)												
S&P 500 (C$)	5.54	7.77	15.85	16.87	13.90	16.79	18.54	15.85	17.90	8.18	25.91	25.81
Russell 1000 Value (C$)	3.23	3.21	8.15	11.78	10.16	13.02	15.32	8.15	15.53	7.00	22.05	25.01
Russell 2000 Value (C$)	10.50	10.70	14.56	19.60	13.17	14.39	16.20	14.56	24.86	1.34	18.12	23.73
Median	5.23	7.48	15.43	16.74	12.80	15.94	17.82	15.43	17.79	5.86	25.86	25.78
US (US$)												
S&P 500 (US$)	3.43	2.65	14.37	16.12	11.93	10.79	13.42	14.37	17.90	3.99	7.42	24.61
Russell 1000 Value (US$)	1.18	-1.69	6.77	11.06	8.26	7.21	10.34	6.77	15.53	2.86	4.13	23.81
Russell 2000 Value (US$)	8.30	5.44	13.10	18.83	11.22	8.51	11.18	13.10	24.86	-2.58	0.78	22.54
Median	3.14	2.38	13.96	16.00	10.85	9.98	12.73	13.96	17.79	1.77	7.38	24.58
International												
MSCI EAFE (C$)	1.05	2.50	8.76	14.63	7.26	8.61	11.76	8.76	20.83	-6.09	12.74	25.29
Median	0.75	2.06	9.12	14.65	7.33	8.69	11.56	9.12	20.44	-6.34	13.66	23.52
Global												
MSCI World (C$)	4.00	5.78	13.14	15.96	11.01	13.08	15.54	13.14	18.86	1.74	19.52	25.92
Median	2.57	3.89	12.08	15.52	10.34	12.44	14.66	12.08	18.67	0.98	18.93	24.22

Performance Summary

Manitoba Public Insurance

As of 6/30/2018

Performance Summary Asset Class and Manager	MV in Millions	MRQ	YTD	12 Month Results 2018	2017	2016	2015	4 Year
Total Fund	**$2,812.1**	1.7	1.8	4.8	4.8	5.9	9.1	5.1
Total Fund w/ Imp	**$2,849.1**	1.4	1.4	3.8	3.2	6.3	11.0	4.8
Custom Benchmark [1]		2.3	2.0	3.9	4.5	6.2	11.6	5.3
Custom Universe Median		1.4	1.6	3.4	3.4	5.1	9.7	4.5
Value Added (TF w/ IMP vs Benchmark)		-0.8	-0.7	-0.1	-1.3	0.1	-0.6	-0.5
Value Added (TF w/ IMP vs Median)		0.0	-0.2	0.4	-0.2	1.2	1.2	0.3

Note: Value Added vs Custom Benchmark

[1] Current Benchmark weight: 70% MPI Claim Liability, 8.5% S&P/TSX Capped Composite, 1.5% BMO Small Cap Blended Unweighted, 4% Russell 1000 Value (C$), 1% Russell 2000 Value (C$), 5% Can CPI + 5%, 10% IPD All Property Index (lagged by one quarter)

Short Term	**$59.2**	0.3	0.6	1.1	0.6	0.5	0.9	0.8
Callable Short Term	**$50.8**	0.3	0.6	1.2	0.6	0.5	0.9	0.8
Manager C Short Term	**$5.0**	0.3	0.6	1.1	0.4	0.5	0.8	0.7
Manager D Short Term	**$3.4**	0.3	0.5	1.0	0.5	0.5	0.9	0.7
FTSE TMX CA 91 Tbill		0.3	0.6	1.0	0.4	0.5	0.9	0.7
Median		0.4	0.7	1.3	0.8	0.8	1.2	1.0

Bonds	**$1,891.4**	0.9	1.0	2.6	1.7	6.4	10.6	4.2
MPI w/ Imp	**$1,928.4**	0.6	0.5	1.2	(0.4)	7.0	13.4	3.8
Marketable	**$1,280.0**	0.8	0.4	1.5	0.3	7.2	14.3	4.0
Non Mkt Imp	**$648.5**	0.1	0.6	0.6	(1.4)	6.6	12.2	3.5
Non Mkt Book	**$611.4**	1.1	2.2	4.6	4.7	4.9	5.0	4.8
Custom Bond Benchmark [2]		1.7	1.6	2.0	2.3	6.7	13.3	4.6
Median		0.5	0.6	1.0	0.8	5.2	10.0	3.2
Value Added (Bonds)		-0.8	-0.6	0.5	-0.6	-0.3	-2.7	-0.5
Value Added (MPI w/Imp)		-1.1	-1.1	-0.8	-2.7	0.3	0.1	-0.9
Value Added (Marketable)		-0.9	-1.2	-0.6	-2.0	0.5	1.0	-0.7
Value Added (Non Mkt Imp)		-1.6	-1.0	-1.4	-3.7	-0.1	-1.2	-1.2
Value Added (Non Mkt Book)		-0.5	0.7	2.6	2.5	-1.8	-8.3	0.1

Note: Value Added vs Custom Bond Benchmark

[2] Current Benchmark weight: 100% MPI Claim Liability

Canadian Equity	**$269.2**	6.2	0.7	10.4	13.6	1.0	2.0	4.7
Custom CE Benchmark [3]		6.2	0.8	9.4	10.8	0.4	3.9	4.1
Median		5.9	2.3	10.4	11.7	1.7	7.8	6.0
Value Added (CNEQ vs Custom CE bmk)		0.0	-0.1	1.0	2.8	0.5	-1.9	0.6
Manager B	**$83.9**							
Manager C	**$127.9**	6.9	2.8	16.1	15.1	0.3	2.3	6.1
S&P/TSX Capped Comp.		6.8	1.9	10.4	11.0	(0.2)	6.9	4.9
Median		5.9	2.3	10.4	11.7	1.7	7.8	6.0
Value Added (Manager B vs S&P/TSX)								
Value Added (Manager C vs S&P/TSX)		0.1	0.9	5.7	4.0	0.5	-4.6	1.2
Manager D	**$57.4**	6.9	0.9	7.2	14.9	7.9	(2.3)	5.8
BMO Small Cap Blended (UW)		3.1	(5.3)	3.6	9.2	3.3	(11.9)	(0.4)
Median		4.8	(0.2)	6.3	8.4	3.0	0.2	2.8
Value Added (Manager D vs BMO SC Blended UW)		3.8	6.1	3.6	5.8	4.6	9.6	6.3

Note: Value Added vs Respective Benchmark

Note: Rounding issues may arise

[3] Current Benchmark weight: 85% S&P/TSX Capped Composite, 15% BMO Small Cap Blended (Unweighted)

Performance Summary

Manitoba Public Insurance

As of 6/30/2018

US Equity	**$151.2**	4.8	4.5	9.4	17.1	5.8	23.9	13.2
Manager G	**$119.4**	3.3	3.0	8.1	15.4	6.8	24.9	12.8
Manager H	**$31.8**	10.5	10.5	14.6	24.4	1.4	19.7	14.3
Russell 1000 Value (C$)		3.2	3.2	8.1	15.5	7.0	25.5	13.0
Russell 2000 Value (C$)		10.5	10.7	14.6	24.9	1.3	19.8	14.4
[4] Custom US Benchmark		4.7	4.7	9.5	17.4	5.9	24.4	13.4
Median		4.7	6.5	13.8	17.6	5.0	28.8	15.2
Value Added (USEQ vs Custom US bmk)		**0.1**	**-0.2**	**0.0**	**-0.3**	**-0.1**	**-0.6**	**-0.2**

Note: Value Added vs Custom US Benchmark

[4] Current Benchmark weight: 80% Russell 1000 Value (C$), 20% Russell 2000 Value (C$)

Real Estate	**$337.1**	2.3	4.5	10.2	9.0	7.7	7.6	8.6
Real Estate Direct	**$66.0**	1.7	3.9	7.3	6.3	13.2	13.7	10.1
Manager F	**$271.1**	2.5	4.7	11.0	9.8	6.2	5.8	8.2
IPD All Prop (Lag)		1.4	4.1	7.3	6.2	7.8	7.0	7.1
Median		2.6	4.2	7.7	5.4	6.2	5.3	6.1
Value Added (Real Estate)		**0.9**	**0.4**	**2.9**	**2.8**	**-0.1**	**0.6**	**1.6**
Value Added (Direct RE)		**0.3**	**-0.2**	**-0.1**	**0.1**	**5.4**	**6.7**	**3.1**
Value Added (Manager F)		**1.1**	**0.5**	**3.7**	**3.6**	**-1.6**	**-1.2**	**1.1**

Note: Value Added vs IPD All Property (lagged by one quarter) Index

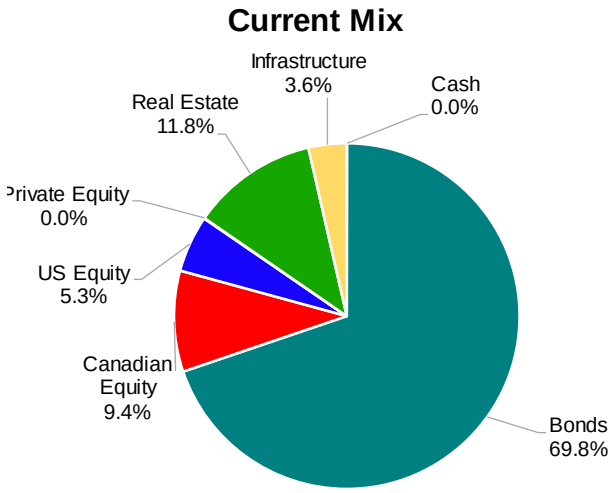
Infrastructure	**$101.7**	(0.5)	7.8	8.0	5.7	4.6	7.3	6.4
CPI + 5% (lag)		1.9	4.1	7.3	6.4	6.6	6.1	6.6
Value Added (Infra)		**-2.4**	**3.7**	**0.6**	**-0.8**	**-2.0**	**1.2**	**-0.1**

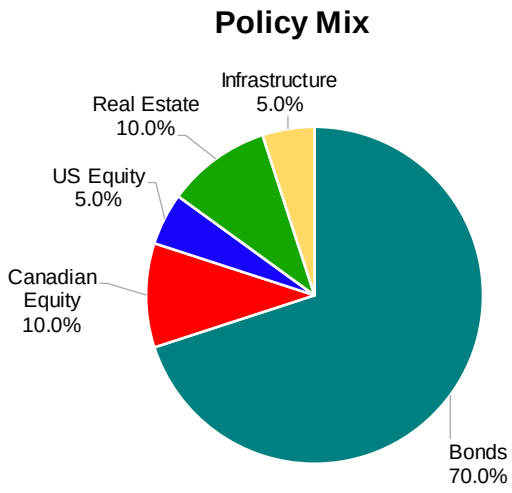
Note: Value Added vs CPI + 5% (lagged one month)

Note: Rounding issues may arise

Note: Market values may not add due to cash component

Current vs Policy Asset Mix





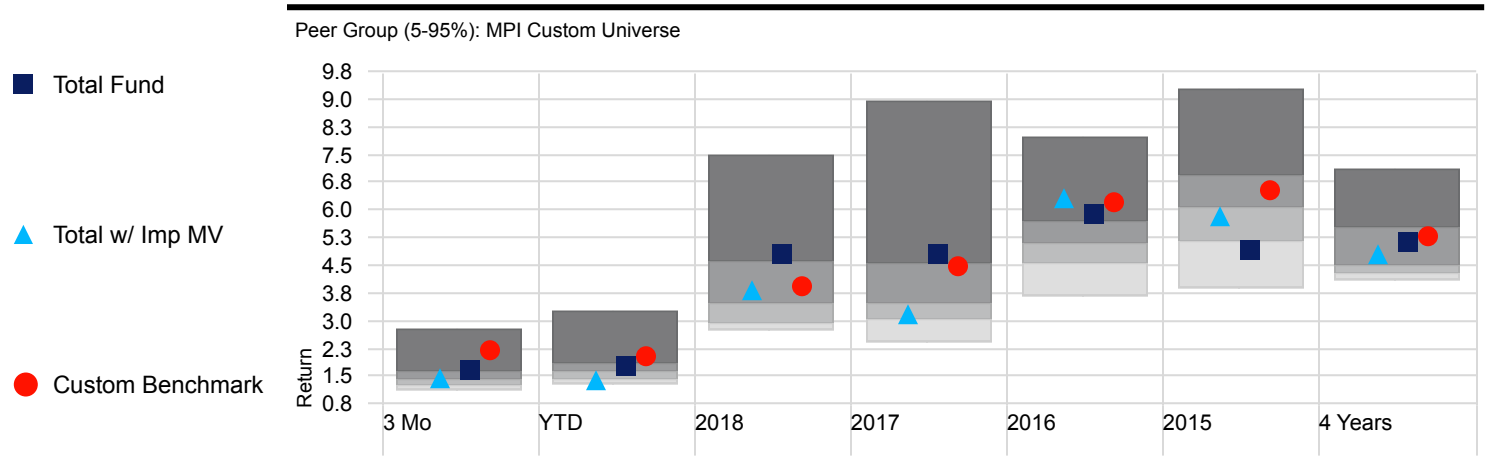
Note: Bonds include Short Term

Total Fund

Manitoba Public Insurance

As of 6/30/2018

Trailing Performance

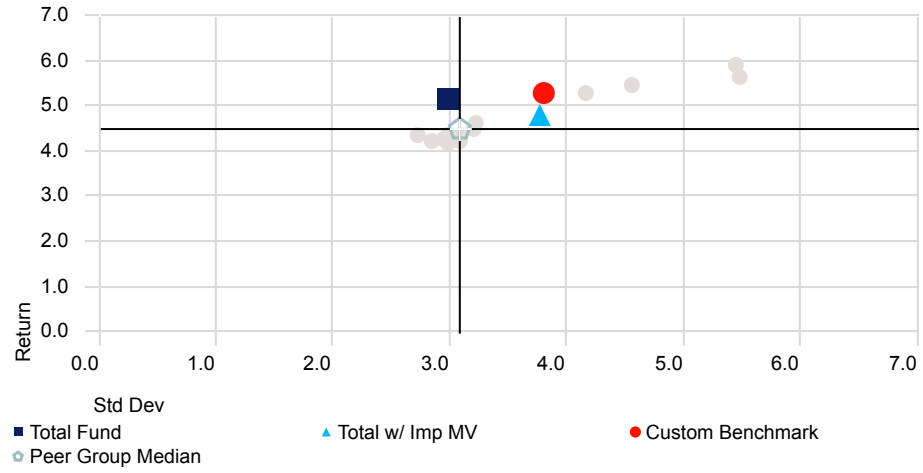


	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Total Fund	1.69	**26**	1.79	**35**	4.82	**26**	4.81	**21**	5.93	**16**	4.96	**80**	5.13	**44**
Total w/ Imp MV	1.44	**44**	1.40	**91**	3.84	**44**	3.23	**62**	6.32	**16**	5.84	**56**	4.80	**44**
Custom Benchmark	2.25	**18**	2.05	**18**	3.95	**35**	4.48	**34**	6.22	**16**	6.56	**28**	5.30	**31**
Median	1.40		1.62		3.45		3.45		5.10		6.07		4.48	

The MPI with Implied Market Value on Non Marketable Bonds has a 4-year trailing return of 4.8%, ranking in the 44th percentile of the Custom MPI Universe. This return exceeds the Custom Universe median by 0.3% but trails the Custom Benchmark by 0.5%. During Q2 2018, the portfolio ranked in the 2nd quartile of the Custom Universe and underperformed the Custom Benchmark by 0.8%.

MPI Total Fund returned 1.7% in Q2 2018. Over the 4-year trailing period, the Total Fund returned 5.1%, outperforming the Custom Universe median by 0.7% but underperformed the Custom Benchmark by 0.2%.

Risk-Reward 4 Year



	Return	Std Dev
Total Fund	5.13	2.98
Total w/ Imp MV	4.80	3.76
Custom Benchmark	5.30	3.80
Median	4.48	3.09

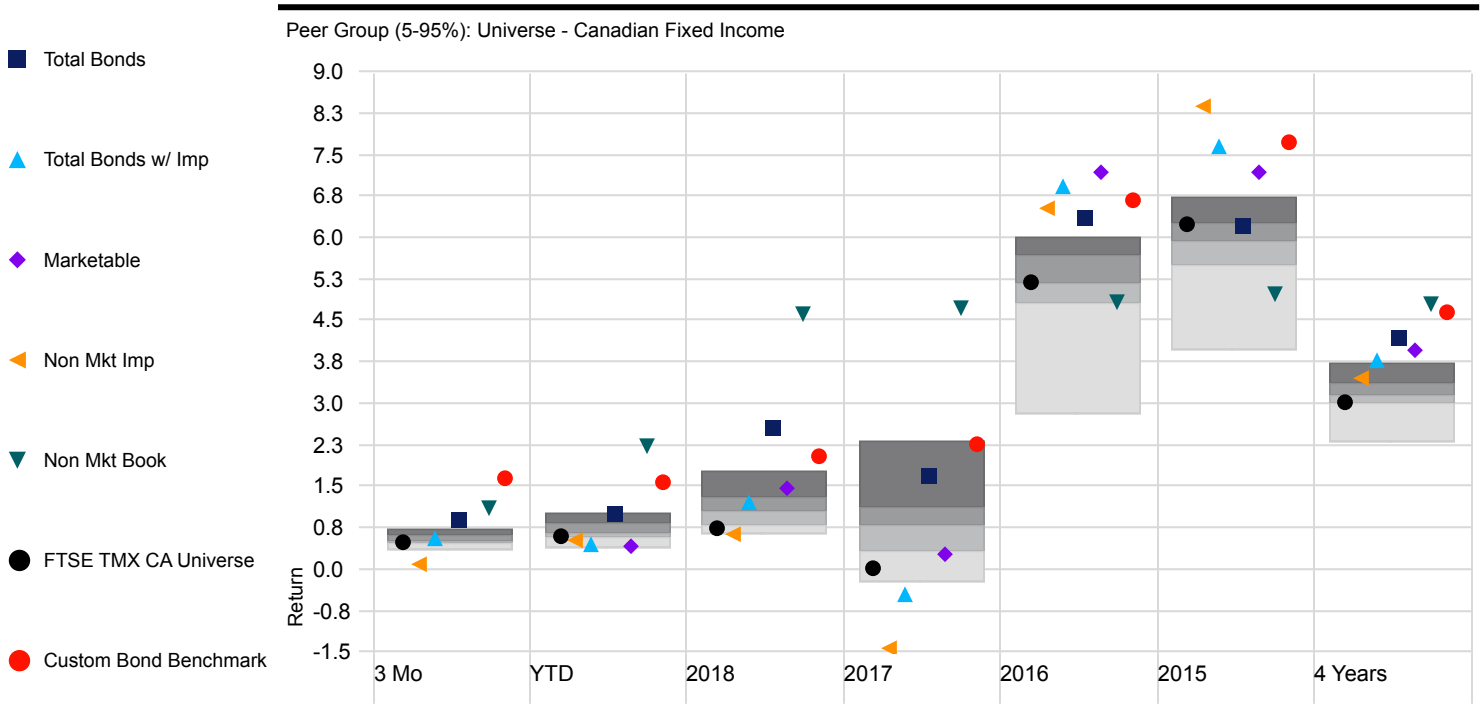
The volatility of the MPI with Implied Market Value on Non Marketable Bonds over the 4-year trailing period is below the Custom Benchmark but above the Custom Universe median. Total Fund volatility is lower than both the median and the Custom Benchmark.

Bonds

Manitoba Public Insurance

As of 6/30/2018

Trailing Performance



	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Total Bonds	0.91	**2**	1.02	**5**	2.56	**1**	1.70	**10**	6.37	**2**	6.24	**29**	4.19	**1**
Total Bonds w/ Imp	0.57	**34**	0.47	**91**	1.22	**33**	-0.43	**97**	6.95	**1**	7.66	**2**	3.79	**3**
Marketable	0.81	**2**	0.42	**92**	1.48	**9**	0.27	**79**	7.20	**1**	7.21	**2**	3.99	**1**
Non Mkt Imp	0.11	**98**	0.55	**79**	0.65	**94**	-1.41	**100**	6.56	**1**	8.37	**1**	3.46	**17**
Non Mkt Book	1.12	**1**	2.24	**1**	4.61	**1**	4.73	**2**	4.85	**73**	5.00	**89**	4.80	**1**
FTSE TMX CA Universe	0.51	**49**	0.61	**60**	0.76	**79**	0.02	**89**	5.22	**49**	6.25	**27**	3.03	**73**
Custom Bond Benchmark	1.66	**1**	1.58	**1**	2.04	**1**	2.27	**6**	6.69	**1**	7.72	**2**	4.65	**1**
Median	0.51		0.64		1.03		0.78		5.18		5.94		3.15	

Total Bonds with Implied Market Valuations earned 0.6% in Q2 2018, ranking in the 2nd quartile of the peer universe and trailing the Custom Benchmark. Over the 4-year trailing period the portfolio earned 3.8%, ranking in the 3rd percentile of its peer universe but lagging the Custom Bond Benchmark by 0.9%.

Marketable Bonds and Non Marketable Bonds with Implied Market Value both ranked in the 1st quartile of the peer universe in Q2 2018, returning 0.8% and 0.1%, respectively.

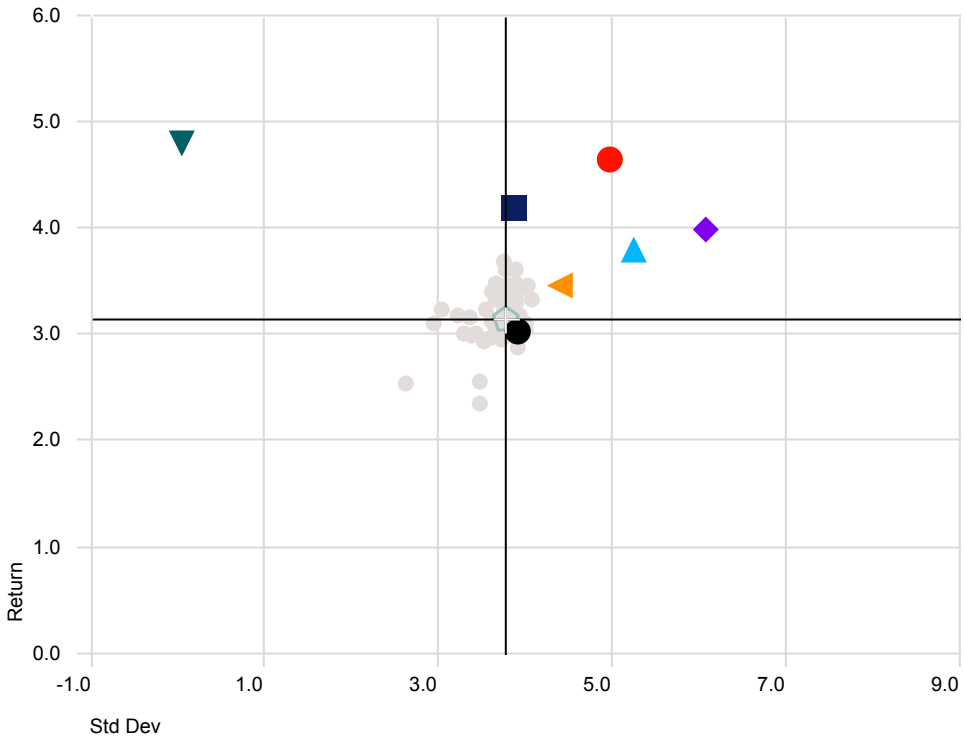
Bonds

Manitoba Public Insurance

As of 6/30/2018

Total Bonds | Total Bonds w/ Imp | Marketable | Non Mkt Imp | Non Mkt Book | FTSE TMX CA Universe | Custom Bond Benchmark

Risk-Reward 4 Year



	Return	Std Dev
Total Bonds	4.19	3.88
Total Bonds w/ Imp	3.79	5.25
Marketable	3.99	6.09
Non Mkt Imp	3.46	4.41
Non Mkt Book	4.80	0.06
FTSE TMX CA Universe	3.03	3.91
Custom Bond Benchmark	4.65	4.97
Median	3.15	3.78

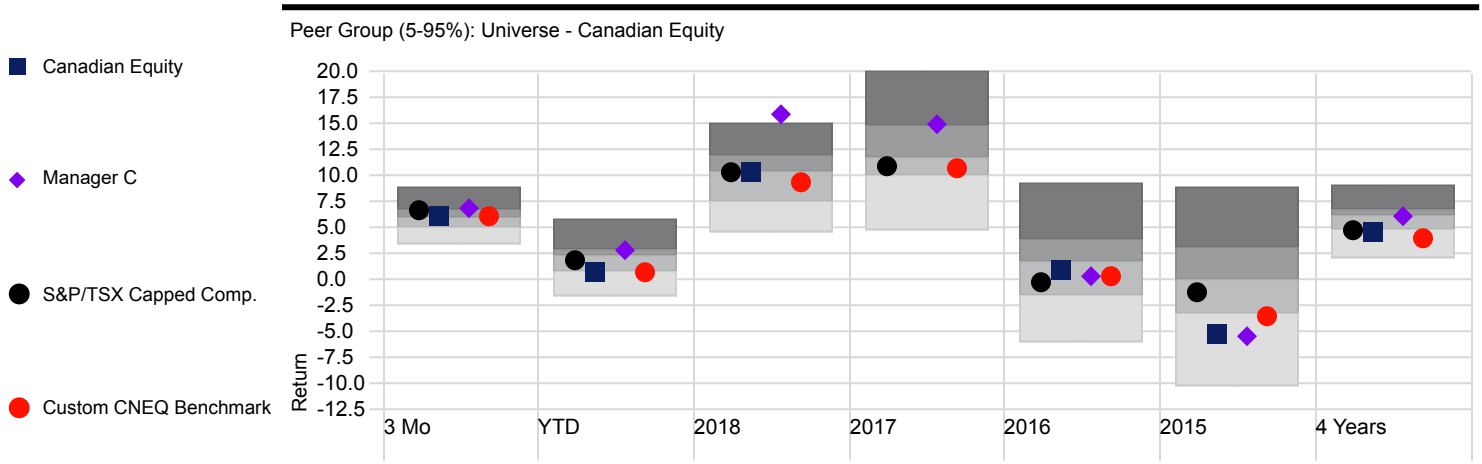
MPI Total Bonds with Implied Market Valuations generated lower returns compared to the Custom Bond Benchmark with a slightly higher volatility over the 4-year trailing period. The Fund outperformed the FTSE TMX CA Universe with similar level of volatility.

Canadian Equity

Manitoba Public Insurance

As of 6/30/2018

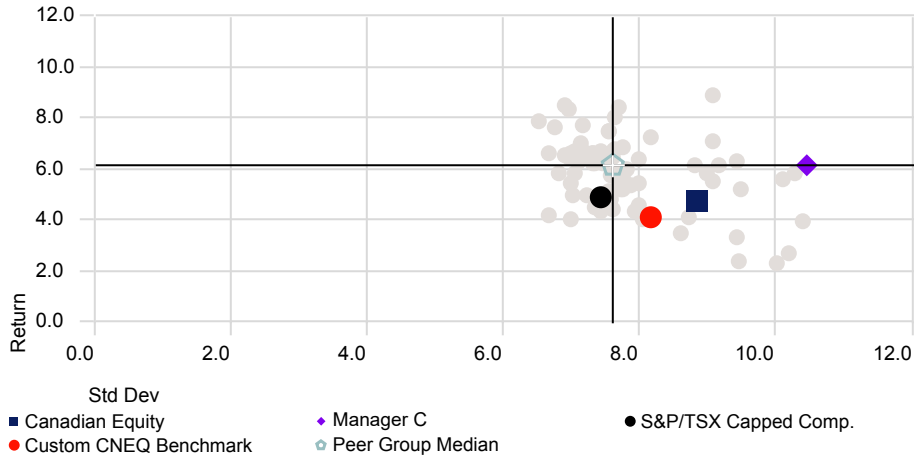
Trailing Performance



	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Canadian Equity	6.20	**40**	0.73	**73**	10.40	**49**	13.59	**35**	0.96	**55**	-5.19	**84**	4.67	**75**
Manager C	6.91	**22**	2.82	**30**	16.07	**3**	15.07	**21**	0.31	**60**	-5.39	**84**	6.11	**51**
S&P/TSX Capped Comp.	6.77	**27**	1.95	**54**	10.41	**49**	11.05	**65**	-0.20	**61**	-1.16	**61**	4.87	**74**
Custom CNEQ Benchmark	6.22	**39**	0.84	**73**	9.38	**65**	10.80	**70**	0.45	**60**	-3.47	**76**	4.12	**83**
Median	5.93		2.25		10.35		11.74		1.71		-0.02		6.12	

MPI Canadian Equity returned 6.2% in Q2 2018 on par with the Custom Canadian Equity Benchmark, underperforming the S&P/TSX Capped Composite, and outperforming the peer universe median. Over the 4-year trailing period, Canadian Equity has outperformed the Custom Benchmark by 0.6%, but lags the S&P/TSX Capped Composite and peer universe median. Large Cap Canadian Equity Manager C outperformed in Q2 2018 and has added 2.0% versus the S&P/TSX Capped Composite over the 4-year trailing period, ranking just below the peer universe median. Manager A had a positive start to the quarter but was ultimately terminated during Q2 and replaced with Manager B.

Risk-Reward 4 Year



	Return	Std Dev
Canadian Equity	4.67	8.84
Manager C	6.11	10.47
S&P/TSX Capped Comp.	4.87	7.45
Custom CNEQ Benchmark	4.12	8.16
Median	6.12	7.60

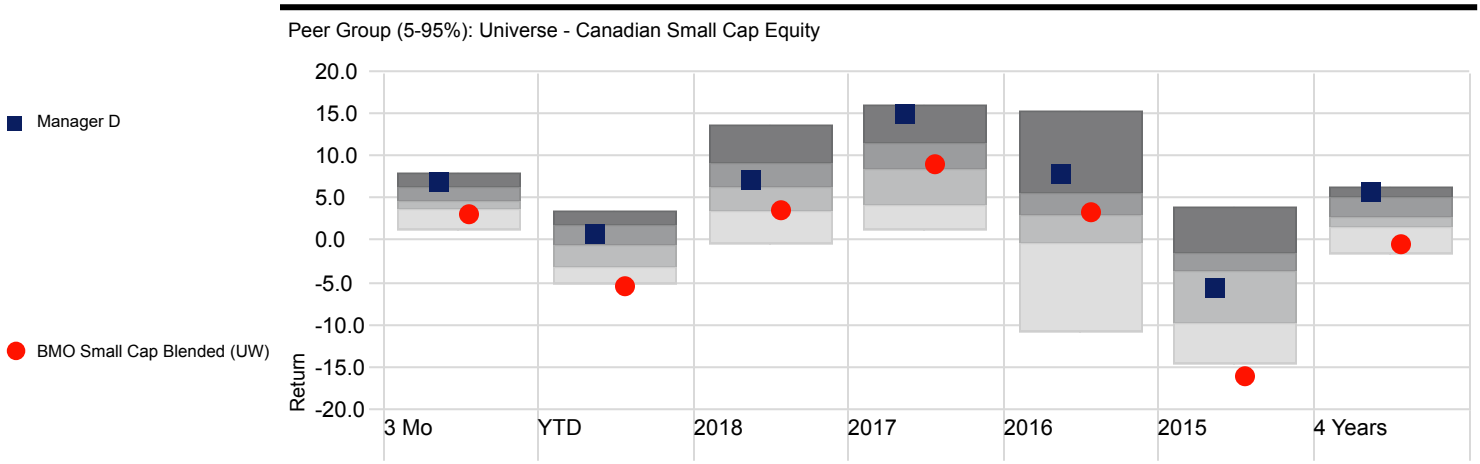
Manager C has been more volatile than the Custom Canadian Equity Benchmark and the peer universe median over the 4-year trailing period. Canadian Equity has outperformed the Custom Canadian Equity benchmark but trails the S&P/TSX Capped Composite and peer universe median.

Canadian Small Cap Equity

Manitoba Public Insurance

As of 6/30/2018

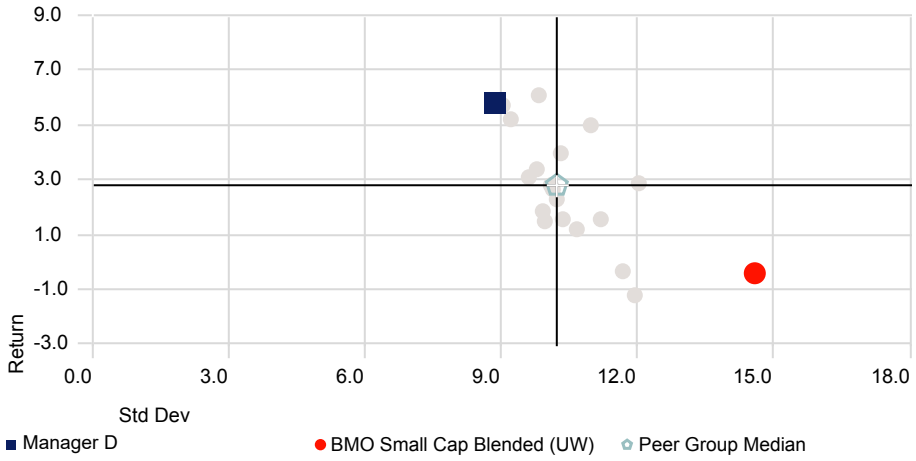
Trailing Performance



	3 Mo		YTD		2018		2017		2016		2015		4 Years	
Manager D	6.94	**16**	0.87	**32**	7.24	**32**	14.95	**8**	7.89	**18**	-5.70	**61**	5.83	**16**
BMO Small Cap Blended (UW)	3.11	**84**	-5.28	**96**	3.60	**72**	9.18	**50**	3.32	**39**	-15.93	**96**	-0.44	**84**
Median	4.72		-0.60		6.19		8.43		2.96		-3.66		2.80	

Small Cap Canadian Equity Manager D returned 6.9% in Q2 2018, outperforming the benchmark and peer group median by 3.8%, and 2.2%, respectively. Over the 4-year trailing period, Manager D ranks in the 16th percentile of the peer universe and has added value of 6.3% versus the benchmark.

Risk-Reward 4 Year



	Return	Std Dev
Manager D	5.83	8.88
BMO Small Cap Blended (UW)	-0.44	14.58
Median	2.80	10.24

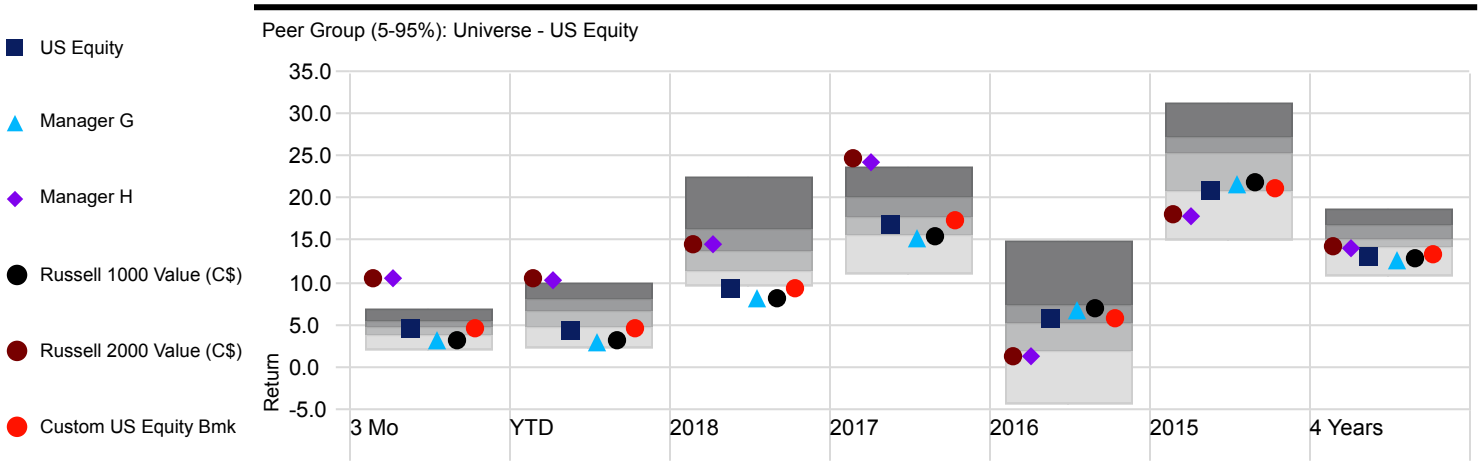
Manager D earned higher returns than the benchmark and peer universe median over the 4-year trailing period, whilst maintaining a lower degree of volatility.

US Equity

Manitoba Public Insurance

As of 6/30/2018

Trailing Performance

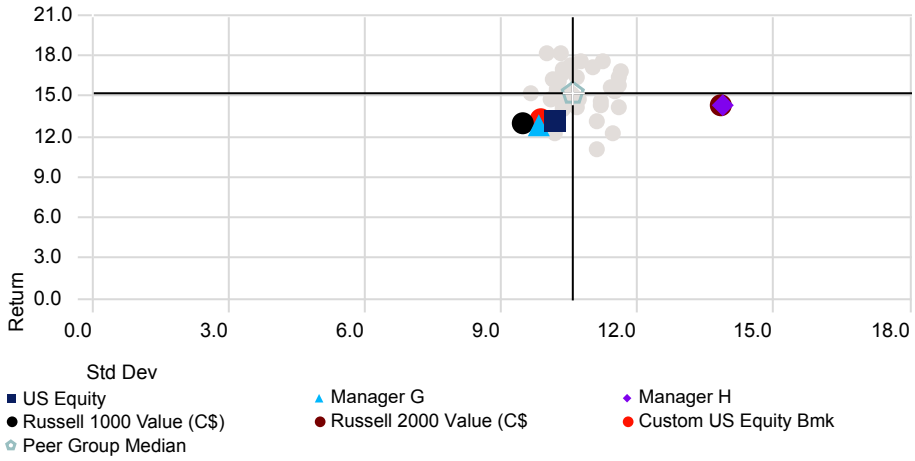


	3 Mo		YTD		2018		2017		2016		2015		4 Years	
US Equity	4.76	**50**	4.51	**80**	9.45	**95**	17.10	**54**	5.77	**45**	20.94	**74**	13.15	**84**
Manager G	3.33	**82**	3.03	**93**	8.14	**95**	15.39	**76**	6.82	**35**	21.67	**70**	12.85	**84**
Manager H	10.53	**1**	10.47	**5**	14.64	**46**	24.41	**5**	1.37	**77**	17.94	**88**	14.27	**73**
Russell 1000 Value (C$)	3.23	**82**	3.21	**89**	8.15	**95**	15.53	**72**	7.00	**31**	22.05	**70**	13.02	**84**
Russell 2000 Value (C$)	10.50	**1**	10.70	**5**	14.56	**46**	24.86	**5**	1.34	**77**	18.12	**88**	14.39	**71**
Custom US Equity Bmk	4.67	**54**	4.71	**76**	9.46	**95**	17.42	**52**	5.87	**43**	21.35	**74**	13.36	**82**
Median	4.74		6.46		13.75		17.64		5.04		25.26		15.17	

US Equities returned 4.8% in Q2 2018, on par with the median manager in the peer universe. Value securities underperformed growth securities during Q2 2018, and the mid cap value index outperformed the S&P 500 (C$). The 4-year trailing return is 13.2%, ranking in the 4th quartile of the peer universe.

Manager G returned 3.3% in Q2 2018, while Manager H returned 10.5%, as mid cap value significantly outperformed large cap value in the US Equity market during Q2 2018.

Risk-Reward 4 Year



US Equity
Manager G
Manager H
Russell 1000 Value (C$)
Russell 2000 Value (C$
Custom US Equity Bmk
Peer Group Median

	Return	Std Dev
US Equity	13.15	10.17
Manager G	12.85	9.82
Manager H	14.27	13.88
Russell 1000 Value (C$)	13.02	9.47
Russell 2000 Value (C$)	14.39	13.85
Custom US Equity Bmk	13.36	9.89
Median	15.17	10.57

Over the 4-year trailing period, the US Equity portfolio returns have lagged the US Equity Custom Benchmark while volatility has been higher. The portfolio has lower volatility than the median.

Real Estate & Infrastructure

Manitoba Public Insurance

As of 6/30/2018

Trailing Performance

	3 Mo	YTD	2018	2017	2016	2015	4 Years
Real Estate	2.31	4.51	10.24	9.04	7.68	7.58	8.63
Real Estate Direct	1.72	3.92	7.25	6.32	13.22	13.97	10.14
Manager F	2.45	4.65	11.03	9.83	6.19	5.68	8.16
Infrastructure	-0.49	7.78	7.97	5.65	4.61	7.50	6.42
IPD Property Index (lag)	1.38	4.12	7.35	6.21	7.82	6.83	7.05
CAN CPI + 5.00%	1.91	4.09	7.33	6.41	6.63	5.91	6.57

Real Estate portfolio earned 2.3% in Q2 2018, outperforming the IPD All Property Index (lag) by 0.9%. The IPD Index trailed all Canadian Real Estate managers in Q2. Infrastructure returned -0.5% in Q2, underperforming its benchmark of CAN CPI + 5%.

Both Real Estate & Infrastructure have performed well over the trailing 4-year period, earning returns of 8.6% and 6.4%, respectively.

To assist the reader of this report, a description of the background universe is being provided. Per instruction from MPI in August 2016, Ellement Consulting Group will no longer be providing Fiscal Year Ending Quarterly Reports. Ellement Consulting Group will now provide measurement of the MPI Fund at calendar year quarter end, along with one fiscal year report at year end. Peer universes used to rank performance and compare funds are from Morningstar.

With the February 2007 fiscal quarter report, a custom universe has been added. This universe is comprised of pooled funds weighted to MPI's policy asset mix which provides a performance comparison that is independent of asset mix. Prior to that, the Total Fund had been compared only to a Balanced Universe. Beginning with the November 2015 fiscal report, the custom universe is being run out of Morningstar.

Ellement Consulting Group began measuring the MPI fund as of July 1, 2003. Fixed Income returns are supplied by MPI, while Equity returns are calculated independently by Ellement from custodial records. Some data is obtained directly from the investment managers for improved accuracy. Return data prior to 2003 is a combination of MPI records and prior measurement reports.

Disclaimer

1. The rates of return used in this Report are not necessarily a prediction of possible future experience.
2. The rates of return used in this Report are believed to be accurate, complete and timely. Rounding issues may arise.
3. Reliance for data has been made primarily on the custodial statements of the Plan, Morningstar Direct, eVestment, the Bank of Canada, Ellement Performance Measurement Proprietary System and the Canadian Institute of Actuaries publications on Economic Statistics in the preparation of this Report. Additional information provided from investment managers has been of assistance from time to time.
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5. Careful deliberation, perhaps with supplementary information, may be required before investment managers are hired, continued or terminated, or before an asset class mix change is directed.

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CAC (MPI) 1-83

Part and Chapter:	**PART VI INV.2.1.2**	**Page No.:**	**1,459 - 1,462; 1,469; 1,633**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #10. Minimum Risk Portfolio**		

Preamble to IR (If Any):

On page 1,449, MPI states that its responses to CAC's 18 Recommendations have been "completed in full", but we raise some questions about some of the responses from MPI and Mercer, starting with #10 (Minimum Risk Portfolio).

Recommendation #10

> A minimum risk portfolio (for market risk) should be clearly defined. It should be aligned with the interests of relevant stakeholders, with clarity regarding the **short-term and long-term factors that impact rate sustainability** and other important outcomes.

Two Liability Benchmarks Considered

In the ALM Study and GRA, the Minimum Risk Portfolio is called the Liability Benchmark Portfolio ("Liability Benchmark"), and Mercer developed two such benchmarks – one defined in **real** terms, and the other in **nominal** terms. These two bases for proxying MPI's liabilities are very different, given the distinction between nominal interest rates on the one hand, and real interest rates and inflation on the other hand. For example, Mercer determined that real return bonds ("RRBs") represent 66% of the **Basic** Liability proxy and 81% for the **Pension** Liability proxy using the "real" basis, while RRBs represented 0% of the liability proxies for both liabilities under the "nominal" basis.

The significance of this difference is illustrated below for Basic and Pension liabilities.

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

MPI Relied on the Nominal (not Real) Liability Benchmark

MPI's asset allocation decisions appear to rely on modeling results that assume a **Nominal** Liability Benchmark, rather than a **real** one, despite the significant differences between the benchmarks noted above.

As noted in CAC Recommendation #13 (No Over-Reliance on Quantitative Modeling), optimal asset allocations are very sensitive to seemingly small changes in capital market assumptions (returns, volatilities and correlations). This sensitivity applies to the assumptions for volatilities and correlations related to the liabilities as well (not just the portfolio of assets). In other words, the selection of a nominal, rather than real, liability benchmark is a material decision that has a significant impact on the results of portfolio optimizations (i.e. efficient frontiers).

Ability to Forecast Long-Term Interest Rates

On page 1,469, Mr. Cheng (actuary) said "nobody can forecast interest rates (especially long term bonds) accurately and consistently".

The Purpose and Desirable Characteristics of Benchmarks

On page 1,633, Mercer described why benchmarks are established, along with their desirable characteristics (e.g. appropriateness and accountability). These are summarized below:

> An **effective** benchmark serves two … purposes:
>
> 1. Provide … an **appropriate** … objective for managing the … portfolio.
> 2. Acts as a **standard** against which … performance … can be measured.

… to effectively fulfill these two purposes, a benchmark should be:

a. **Specified in advance.** … at the start of the … evaluation period and is known to … the investor.
b. **Appropriate.** … consistent with the … desired approach and style …
c. **Unambiguous.** … composition (i.e. its constituents and their weights) is clearly defined.
d. **Measurable.** … composition and return can be determined on a reasonably frequent basis.
e. **Accountable.** … manager accepts the applicability of the benchmark and agrees to accept that differences in performance between the portfolio and the benchmark are caused only by their active management.
f. **Investable.** It is possible to forgo active management and instead passively replicate the benchmark.

Question:

a) **Materiality:** Would MPI and Mercer agree that optimal asset allocations ("efficient frontiers") are very sensitive to the composition of the Liability Benchmark (i.e., nominal vs. real)?
b) **Nominal vs. Real Liability Benchmark:** Why did MPI rely on the **nominal**, rather than **real**, Liability Benchmark?
c) Better Benchmark:
    i. Which liability benchmark (real or nominal) is better, given the purpose and desirable characteristics of benchmarks noted by Mercer, and also taking into account both the long-term nature of MPI's liabilities as well as the ability to forecast interest rates (especially long term bonds)?
    ii. Which liability benchmark (real or nominal) is:
        1) more effective?
        2) more appropriate?
        3) a better standard for measuring performance?
        4) a better standard for measuring risk?
        5) better from an accountability perspective?

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

RESPONSE:

a) Mercer responds: the Corporation and Mercer agree that optimal asset allocations depend on whether a nominal or real Liability Benchmark is used.

b) The Corporation has identified inflation as a risk and believes that the risk of sustained high inflation is low. The Corporation's outlook for inflation is discussed in *PUB (MPI) 1-80 (b)*.

c) A nominal benchmark is better (more appropriate and effective) given the Corporation's outlook for inflation. The Corporation's outlook for inflation is discussed in *PUB (MPI) 1-80 (b)*.

CAC (MPI) 1-84

Part and Chapter:	**PART VI INV**	**Page No.:**	**1459-1462; 1654; 1755; 1749; 1765**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #13. No Over-Reliance on Quantitative Modeling**		

Preamble to IR (If Any):

Recommendation #13

> MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.

Mercer's response:

> Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. **The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.**

On page 1,654, Mercer said:

> While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling …

Capital Market Assumptions for the Liability Benchmark

Page 1,765 (INV Appendix 17, Attachment A) shows the assumptions related to the components of the liability benchmark, which CAC summarized below (Basic and Pension only).

	Components of Liability Benchmarks	Return	SD
1	Treasury Bills	1.50%	1.50%
2	Short-Term Provincial Bonds	2.40%	3.50%
3	Mid-Term Provincial Bonds	3.00%	6.50%
4	Long-Term Provincial Bonds	3.30%	8.50%
5	Long-Term Corporate Bonds	4.20%	8.50%
6	Real Return Bonds	3.00%	7.50%

	Correlations					
	1	2	3	4	5	6
Treasury Bills	1.00					
Short-Term Provincial Bonds	0.31	1.00				
Mid-Term Provincial Bonds	0.02	0.87	1.00			
Long-Term Provincial Bonds	(0.14)	0.61	0.89	1.00		
Long-Term Corporate Bonds	(0.38)	0.14	0.51	0.69	1.00	
Real Return Bonds	(0.19)	0.39	0.65	0.70	0.62	1.00

The significant difference between the nominal and real bases are shown below for both Basic and Pension liabilities.

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

The GRA included many efficient frontiers using the **Nominal** Liability Benchmark, showing for example, the effects of adding different asset classes one step at a time ("stepped approach") so the effects on return/risk could be seen. (Fewer such analyses were provided using the **Real** Liability Benchmark, and no "steps" were shown in the GRA on this basis.)

The table below shows how material the Liability Benchmark decision is on return/risk and asset allocation. (The supporting tables, A to C, are on the next two pages. They show the different implications reported by Mercer arising from the selection of a different Liability Benchmark – i.e., nominal vs. real).

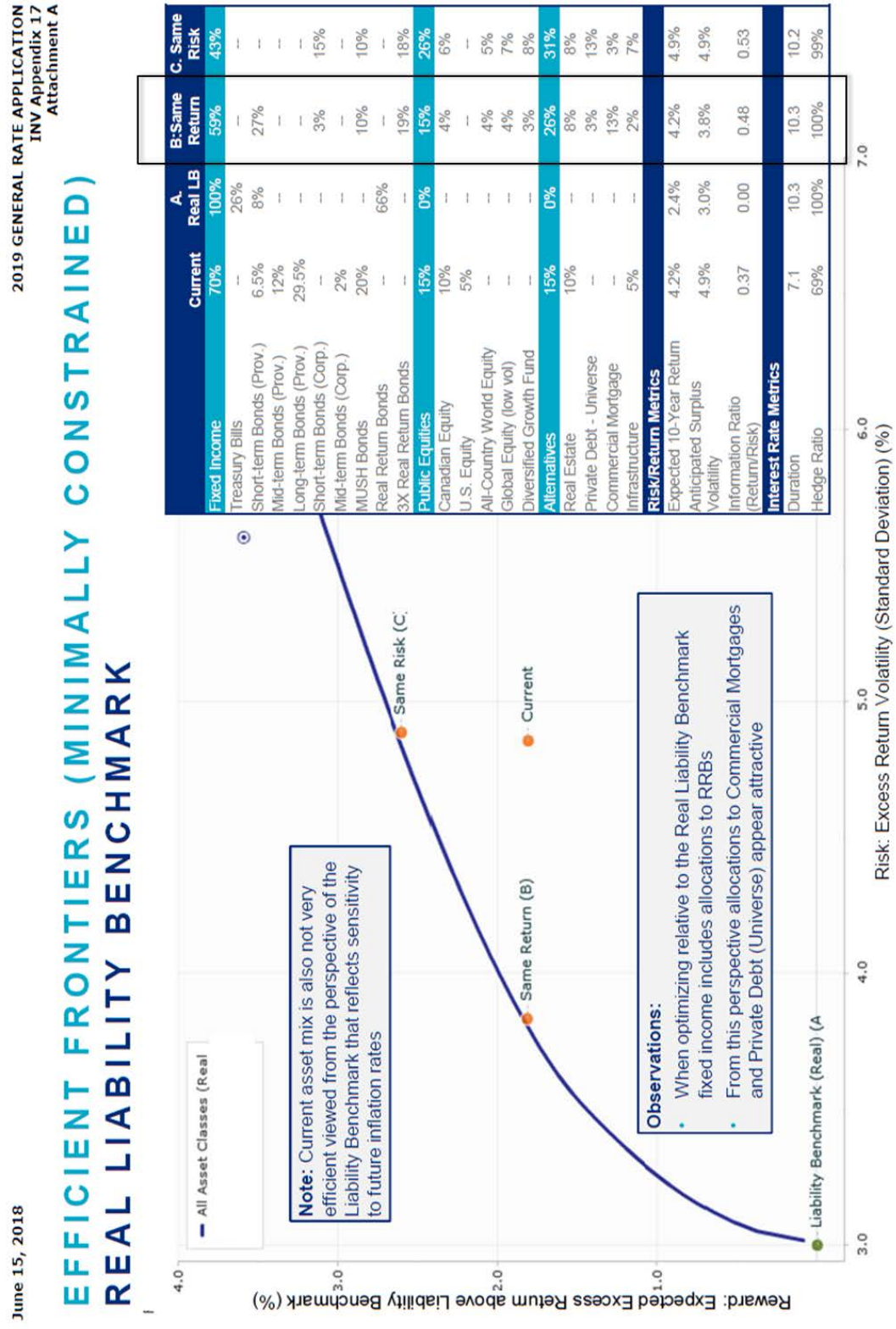
Table	Content	Materiality of Liability Benchmark Choice
A	**Table A shows return/risk metrics** for a portfolio that has the same expected return as the current portfolio (~ 4.2%), but is more efficient than the current portfolio (i.e. less risk); **The asset allocations** are also shown	The main difference between the optimizations relates to the inclusion of **RRBs in the portfolio under the real optimization**; The total fixed income allocation is the same (~ 75%) under both real and nominal optimizations
B	**Table B shows the current portfolio's return/risk metrics**	n/a
C	**Table C shows the improved efficiency** (less risk, same return) of the optimized portfolio, compared to the current portfolio (i.e. C = A minus B)	**Surplus volatility falls more when the real liability proxy is used (1.1% risk reduction, rather than 0.4%)**

B	**Current Portfolio**	Real	Nominal
	Expected 10-Year Return:		
	Portfolio	4.2	4.2
	Liability Benchmark Portfolio	2.4	2.8
	Excess Return	1.8	1.4
	Anticipated Surplus Volatility	4.9	5.0
	Excess Return/Anticipated Surplus Volatility	0.37	0.28
	Information Ratio (Return/Risk)	0.37	0.27
	Difference	- 0.00	0.01

C	**Improved Efficiency (Same Return)**	Real	Nominal	C = A - B
	Expected 10-Year Return:			
	Portfolio	-	- 0.1	No change in return (except rounding)
	Liability Benchmark Portfolio	-	-	
	Excess Return	-	- 0.1	
	Anticipated Surplus Volatility	- **1.1**	- **0.4**	More measured risk reduction with Real Liability
	Excess Return/Anticipated Surplus Volatility	0.11	0.00	
	Information Ratio (Return/Risk)	0.11	0.03	
	Difference	- 0.00	- 0.03	

The source for the above data is on the following two pages.

"Real" Liability Benchmark (page 1,755)



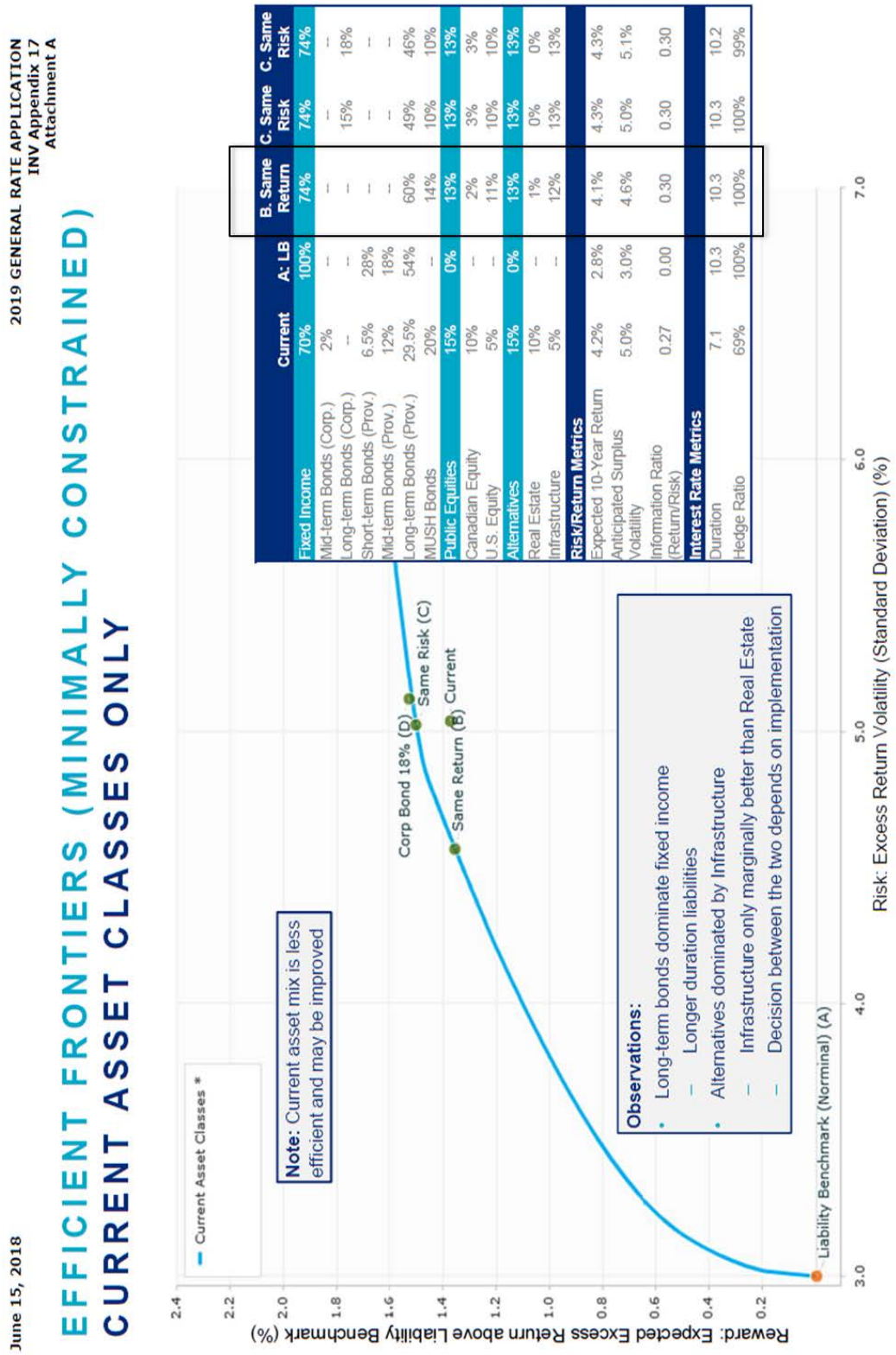
	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	--	26%	--	--
Short-term Bonds (Prov.)	6.5%	8%	27%	--
Mid-term Bonds (Prov.)	12%	--	--	--
Long-term Bonds (Prov.)	29.5%	--	--	--
Short-term Bonds (Corp.)	--	--	3%	15%
Mid-term Bonds (Corp.)	2%	--	--	--
MUSH Bonds	20%	--	10%	10%
Real Return Bonds	--	66%	--	--
3X Real Return Bonds	--	--	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	--	4%	6%
U.S. Equity	5%	--	--	--
All-Country World Equity	--	--	4%	5%
Global Equity (low vol)	--	--	4%	7%
Diversified Growth Fund	--	--	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	--	8%	8%
Private Debt - Universe	--	--	3%	13%
Commercial Mortgage	--	--	13%	3%
Infrastructure	5%	--	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

"Nominal" Liability Benchmark (page 1,749)

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

June 15, 2018

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY



	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.8%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

Questions:

a. **Quantitative vs. Qualitative:** To what extent were the results of the **quantitative** analyses relied upon to inform asset allocation decisions (as compared to **qualitative** considerations)?

b. **Practical Considerations:** What "practical considerations", if any, were used to justify the use of a Liability Benchmark based on **nominal** rather than real metrics?

c. **Time Horizon:** What time horizon did the "current market environment" refer to in the concluding phase of the ALM process?
   i. Next 5 years, or less?
   ii. Longer?

d. **Correlations:**
   i. Why do Treasury Bills have a negative correlation with both long-term bonds (Provincial and Corporate) and RRBs?
   ii. What is the significance of these negative correlations on optimal asset allocations, particularly as it relates to treasury bills, long-term fixed income (including RRBs), and the attractiveness of "leverage"?

e. **Basis Risk ("Tracking Error"):** Would MPI and Mercer agree that there is material tracking error* or basis risk between the Nominal Liability Benchmark and the Real Liability Benchmark for:
   i. Basic liabilities?
   ii. Pension liabilities?

   * **Tracking error** measures the standard deviation of the return difference between two groups of assets or liabilities (e.g. actual portfolio vs. benchmark). Basis risk refers to the risk that two portfolios (including liability benchmarks) will experience different performance/growth, arising from imperfect correlations (not = 1.0), for example.

f. **More Detailed Analysis for Real Scenarios:** Was the same "stepped" analysis that was performed using the **Nominal** Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the **Real** Liability Benchmark?
   i. If so, provide the analysis and commentary (at least for Basic and Pensions).

ii. If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions)

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

RESPONSE:

Mercer provided the following responses:

a) MPI relied on both quantitative analyses and qualitative considerations to inform asset allocation decisions. From Mercer's perspective, MPI's reliance on both quantitative analyses and qualitative considerations was reasonable and prudent given the situation and consistent with other like investors.

b) During the early stages of the project, MPI advised that they were comfortable with a fixed 2% inflation assumption and that they were less concerned with inflation risk (in particular, the risk of long-term inflation materially exceeding 2%) than nominal interest rate risk (in particular, the risk of buying fixed income securities with duration much shorter than liabilities). Accordingly, it was agreed to model liabilities assuming 2% inflation and utilize a nominal liability benchmark.

c) When the "current market environment" was referred to, it was the next 5 years, or less.

d)

i. Our correlation assumptions are based on analyzing quarterly total returns during the last 2 decades for the respective FTSE TMX bond indices. Treasury Bills have exhibited a consistently negative correlation with both long-term bonds (Provincial and Corporate) and RRBs.

ii. The negative correlations of Treasury Bills with long-term bonds and RRBs were of very little significance, if any, to the recommended portfolios. MPI preferred to manage interest rate risk using physical securities (rather than leverage) for a variety of reasons and the early stages of the Asset Liability Study indicated this was possible.

e) There is tracking error or basis risk any time one uses a portfolio of marketable fixed income securities to proxy liabilities. Whether the tracking error/basis risk is 'material' depends on one's interpretation of what is 'material'. Given MPI's overall risk tolerance, return objectives, modelling budget, asset class constraints and the scope of the project, Mercer is supportive with MPI's decision to make its asset allocation decisions based off of the liability benchmarks analysis used.

f) Please see Rationale for Refusal.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Mercer estimates that re-running the modelling of efficient frontiers will take approximately a week, and cost in excess of $20,000. The requested analysis is predicated on inflation forecast assumptions that Mercer and the Corporation rejected, in early stages of the ALM study, as not probable.

In an email exchange with counsel for the CAC, the Corporation suggested it would consider having Mercer conduct the requested analysis if the CAC could provide some evidence that Mercer's inflation forecast used in the ALM study was sufficiently inaccurate, or flawed in some way, so as to call into doubt the results of the ALM study.

As that evidence was not forthcoming from the CAC, the Corporation does not expect the requested analysis to add any meaningful evidence to the record, but will instead satisfy academic interest. When weighed against the costs of having Mercer conduct the analysis, the Corporation cannot establish that it is prudent to incur those costs.

CAC (MPI) 1-85

Part and Chapter:	**PART VI INV**	**Page No.:**	**1459-1462; 1588; 1618; 1719; 1753**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation # 7. Min/Max Asset Class Constraints**		

Preamble to IR (If Any):

Recommendation #7

The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns).

The rationale for imposing any such constraints should be made explicit.

Mercer's response (page 1,460):

The ALM study had minimally constrained and practical implementation constraints.

Leverage Constraint

The Liability Benchmarks developed by Mercer included negative (short) exposures related to TBills in both the nominal and real representations of the Pension Liability (17% and 11% short respectively), as summarized by CAC on the right.

	Pension Liability		
	Nominal	Real	Diff
Treasury Bills	- 17	- 11	6
Short-Term Provincial Bonds			-
Mid-Term Provincial Bonds			-
Long-Term Provincial Bonds		30	30
Long-Term Corporate Bonds	117		- 117
Real Return Bonds		81	81
	100	100	-

Benefits of Leverage

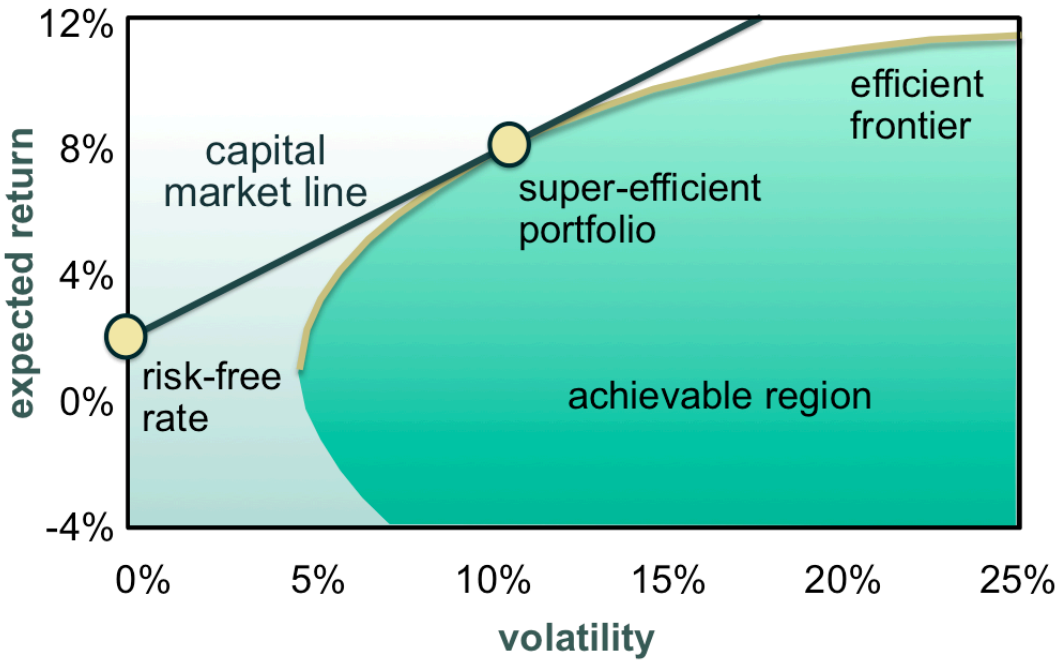
On page 1,753, Mercer said "adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum".

On page 1,588, Mercer said this about overlay bonds:

> By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.
>
> Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds. When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

Capital Market Line Theory

In an asset-only context (i.e. ignoring liabilities), the Capital Market Line illustrated below shows how the introduction of a risk-free asset (e.g. Government of Canada TBills in an asset-only context) expands the efficient frontier.



While many assumptions underlie the Capital Market Line in the broader CAPM[1] theory, two implications for "asset-only" investors are:

- All investors (regardless of risk tolerance) hold the "market portfolio"; and
- The proportion of an investor's portfolio held in the risk-free asset reflects their risk tolerance, with the balance invested in the market portfolio.

Exclusion of Leverage

On page 1,618, the rationale for excluding "Levered Bonds" was provided:

> Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). … Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio. **Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.**

On page 1,719, Mercer's report said RRBs and leveraged bond funds (RRBs & Provincial bonds) were rejected from consideration because they were "either deemed too risky or the expected returns were too low".

1 CAPM: Capital Asset Pricing Model

Question:

a) Were there any "practical considerations" or "observations" used to justify removing RRBs from consideration as a component of the **Liability Benchmark** (as distinct from the removal of RRBs as an asset class in which MPI might invest)? If so, what were they?

b) Were there any "practical considerations" or "observations" used to justify the removal of RRBs from consideration as an asset class in which MPI might invest? If so, what were they?

c) Can Mercer/MPI confirm that the asset allocation recommendations were based on a non-negative constraint for fixed income assets (i.e. 0% minimum), and if so, why?

d) Why does MPI have a "preference" or "desire" to not use leverage in the non-Basic components of the portfolio (e.g. pension), given the "improvement across the risk spectrum" of allowing leverage noted by Mercer?

e) What proportion (roughly) of Mercer's pension clients use leverage (e.g. have short or negative exposures to very short-term fixed income/cash), and are there any relevant and common characteristic that define which clients use leverage, and which clients don't?

f) When RRBs and leveraged bond funds (RRBs & Provincial bonds) were rejected from consideration because they were "either deemed too risky or the expected returns were too low", were these return/risk assessments done on a total portfolio basis (i.e. all assets in relation to liabilities, taking into account the effects of correlations for example), or for the asset class in question viewed in isolation?

g) Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (**Real** Liability Benchmark, **not Nominal** Liability Benchmark, and not TBills)?

   i. The analysis should show the effects of allowable leverage **for fixed income assets only** (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:
   1) Set 0% maximum in RRBs
   2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) **individual steps** for:
      (1) Canadian Equity
      (2) Emerging Markets Equity
      (3) Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:
   1) Real estate, infrastructure, and private equity using MPI's recommended weights
   2) **Public equity** in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI))

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension.

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to constraints (established in 2017 GRA).

RESPONSE:

Mercer provided the following responses:

a) During the early stages of the project, MPI advised that they were comfortable with a fixed 2% inflation assumption and that they were less concerned with inflation risk (in particular, the risk of long-term inflation materially exceeding 2%) than nominal interest rate risk (in particular, the risk of buying fixed income securities with duration much shorter than liabilities). Accordingly, it was agreed to model liabilities assuming 2% inflation in all scenarios. RRB's were not specifically 'removed' from consideration for the Liability Benchmark, but given the absence of assumed inflation volatility, other fixed income benchmarks better matched the requirements for MPI's Liability Benchmark.

b) During the early stages of the project, MPI advised that they were comfortable with a fixed 2% inflation assumption and that they were less concerned with inflation risk (in particular, the risk of long-term inflation materially exceeding 2%) than nominal interest rate risk (in particular, the risk of buying fixed income securities with duration much shorter than liabilities). RRB's were not specifically 'removed' from consideration as an asset class in which MPI might invest, but given the characteristics of MPI's Liability Benchmark, other fixed income securities better fulfilled MPI's risk and return objectives.

c) A 0% minimum on fixed income assets applied throughout the project. Modelling an asset allocation with a 'net-negative' exposure to fixed income (i.e. borrowing heavily to derive exposure to risky growth assets) was not aligned with MPI's return objectives and risk tolerance.

d) The analysis indicated that MPI would be able to achieve its risk and return objectives utilizing a diversified portfolio of physical bonds and not require synthetic bonds.

e) Roughly 10% of Mercer's defined benefit pension clients use leverage. Clients more likely to use leverage are typically represented by many of the following characteristics:

i. Larger funds;
ii. Subject to solvency funding and sensitive to solvency volatility;
iii. Are risk averse with respect to interest rate risk (the risk of yields falling) along with a strong view that interest rates will continue to fall, **or** looking to enhance returns by profiting from positive carry (less prevalent in 2018's interest rate environment);
iv. A governance structure and staff that are more willing to embrace financial innovation and operational complexity.

f) Return/risk assessments were done on both a total portfolio basis (i.e. in relation to liabilities) as well as on an asset only basis. MPI was otherwise able to identify a diversified physical portfolio that met its risk and return requirements without requiring the complexity of leverage or an allocation to RRBs.

g) Please see Rational For Refusal

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Mercer estimates that re-running the modelling of efficient frontiers will take approximately half a week, and cost in excess of $10,000. The requested analysis is predicated on inflation forecast assumptions that Mercer and the Corporation rejected, in early stages of the ALM study, as not probable.

In an email exchange with counsel for the CAC, the Corporation suggested it would consider having Mercer conduct the requested analysis if the CAC could provide some evidence that Mercer's inflation forecast used in the ALM study was sufficiently inaccurate, or flawed in some way, so as to call into doubt the results of the ALM study.

As that evidence was not forthcoming from the CAC, the Corporation does not expect the requested analysis to add any meaningful evidence to the record, but will instead satisfy academic interest. When weighed against the costs of having Mercer conduct the analysis, the Corporation cannot establish that it is prudent to incur those costs.

CAC (MPI) 1-86

Part and Chapter:	**PART VI INV**	**Page No.:**	**1459-1462; 1481; 1520; 1532; 1614**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management 21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #15. Effectiveness of Duration Policy**		

Preamble to IR (If Any):

Recommendation #15

> The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations.

MPI's response to this recommendation in the GRA focuses mainly on duration **matching**, and the **efficiency** and cost of duration matching compared to other methods, such as cash flow matching. CAC is not questioning the efficiency of the duration policy, only its **effectiveness**, given the chosen basis for hedging (i.e. hedging **nominal**, rather than **real** interest rate risk).

On page 1,614, Mercer said:

> Most Basic liabilities are subject to inflation risk. After considering the cost of hedging inflation risks and the likelihood of future increases in inflation, MPI decided to hedge the nominal interest rate risk of Basic liabilities assuming that inflation linked obligations increase at 2% per annum. By matching the duration of assets to the duration of liabilities, MPI will be able to efficiently construct portfolios that allow for return enhancement. A fully cash flow matched asset portfolio would mitigate both duration and convexity risk, but

would require MPI to sacrifice opportunities to diversify its fixed income portfolio and enhance yields. We are supportive of MPI's strategy decision in the regard.

Change in Duration Policy

On page 1,481, MPI said that it had changed its duration matching policy "to exclude MUSH bonds due to a change in the calculation methodology for the claims discount rate, which is now based upon the dollar weighted yield of the fixed income portfolio rather than the duration weighted yield of the fixed income portfolio".

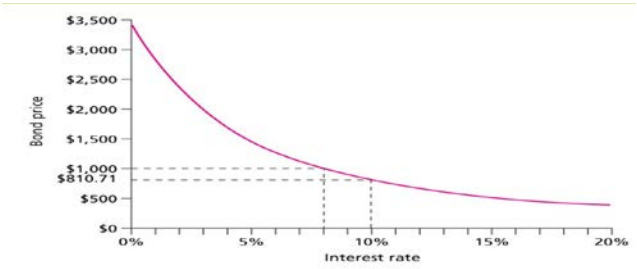
8.4 Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds~~,~~ and floating rate notes~~, and non-marketable bonds~~ to the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.

On page 1,520 (INV.16.1), MPI said:

… the duration of the **marketable bond portfolio (i.e. excluding MUSH bonds)** will be matched to the duration of the claims liabilities. This change is due to the change in the calculation methodology for the claims discount rate, which is now based upon the dollar weighted yield of the fixed income portfolio rather than the duration weighted yield of the fixed income portfolio. **The net result is that the duration of the marketable bond portfolio will decrease by approximately 2 years.**

Yield / Duration Relationships

The present value of a bond is inversely related to its yield, and its duration (price sensitivity) is higher when interest rates are lower (i.e. the price/yield relationship "steepens"). The same is true for a claim/pension liability, and these relationships are illustrated on the right.



MPI's Investment Beliefs

The first three investment beliefs in MPI's Investment Policy Statement (IPS) say:

a. Asset allocation is the most important factor in determining the performance of the Fund.
b. Market timing at the strategic asset allocation level is generally not an effective strategy for consistently increasing returns.
c. Identifying, measuring and monitoring risks within the portfolio are important.

Question:

a. How can MPI reconcile its decision to measure risk relative to a **Nominal** Liability Benchmark (which does not measure the **inflation and real interest rate** components of interest rate risk) with its third investment belief, which is that "identifying, measuring and monitoring risks within the portfolio are important"?
b. To what extent does MPI believe:
   i. Asset allocation is a very important factor in determining the **risk** of the Fund? (i.e. comparable to MPI's first belief regarding **performance / return**)?

ii. Market timing at the strategic asset allocation level is generally **not** an effective strategy for **managing risks**? (i.e. comparable to MPI's second belief regarding consistently increasing **returns**)

c. Why was the calculation policy for the claims discount rate changed to a dollar weighted yield of the fixed income portfolio rather than duration weighted?

d. Why was the duration policy changed to exclude MUSH bonds?

e. Was the decision to exclude MUSH bonds related to the change in the discount rate methodology, and if so, why?

f. To what extent was the reduction in duration of the marketable bond portfolio (~ 2 years) an intended result, or simply a byproduct of the changes made?

g. How much of the ~ 2 year reduction in duration was due to:
   i. change in the method for discounting ("weighting" effect)?
   ii. change in the composition ("security selection" effect)?
   iii. combination of the above?

h. When Mercer said it was supportive of MPI's strategy decision "in the regard", to what extent does Mercer's support relate to:
   i. The decision by MPI to duration match, rather than cash flow match?
   ii. The decision by MPI to hedge the nominal interest rate risk of Basic liabilities, rather than real interest rate risk and inflation risk?
   iii. The assumption that inflation linked obligations increase at 2% per annum?

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

The long-term effectiveness of the duration policy, in managing interest rate risk, depends on the basis selected for measuring duration (i.e. real vs. nominal), as well as the methods/calculations and assumptions used. Long-term inflation (actual and/or expected) may differ from current expectations.

RESPONSE:

a) The Corporation has identified inflation as a risk but believes there to be a low risk of sustained high inflation. See the Corporation's response to *PUB(MPI) 1-80 (b)* for its view on inflation.

b)

i) The Corporation believes that asset allocation is an important determinant of the risk of an investment portfolio.

ii) The Corporation believes that market timing at the strategic asset allocation level is generally not an effective strategy for managing risks.

c) The Corporation's ALM program has evolved over time. As background, the Corporation implemented the duration-weighted claims discount rate methodology when cash was used as part of the duration matching fixed income portfolio. Cash has a duration of between 0 and 0.25 years. Dollar weighting the yield of cash in the claims discount rate calculation causes significant variance to net income as cash flowed in/out of the portfolio, which decreases/increases the discount rate for liabilities. However, by duration weighting the claims discount rate, cash is effectively given no weight in the yield calculation. As a result, cash can flow in and out of the portfolio without affecting the claims discount rate.

Up until April 10, 2015, Section 8.4 of IPS included cash in the duration matching fixed income portfolio:

> *"Interest rate risk is managed by maintaining the combined Macaulay duration of the floating rate note, **cash**, marketable and non-marketable bond components with ± 1.0 year of the actuarially determined duration of the Corporation's claims liabilities. If an allocation to cash and floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation."*

On April 10, 2015, the Section 8.4 of the IPS was changed to say the following (which excluded cash from the duration matching fixed income portfolio):

> *"Interest rate risk is managed by matching the combined duration of the, marketable bonds, which includes floating rate notes, and non-marketable bonds with the actuarially determined duration of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.*

The above change occurred because the Corporation created the Operational Asset Liability Management Policy, which first became effective in 2015. The non-use of cash in the duration matching fixed income portfolio, eliminated the purpose for using the duration-weighted claims discount rate.

Over time, there were discrepancies in net interest rate impacts caused by the duration-weighted claims discount rate. Capital gains/losses for marketable bonds are based on changes in the market weighted yield of the portfolio, whereas claims liabilities were being valued based on the duration weighted yield of the fixed income portfolio, which created basis risk (ie: valuation on two different bases). The dollar-weighted (i.e. market-value weighted) claims discount rate methodology was found to provide tighter tracking (less basis risk) and was easier to explain compared to the duration weighted claims discount rate. Page 7 of the Actuarial Report as of October 31, 2017, states:

> *"We switched from duration adjusted yield to market value weighted yield in selecting the discount rate. The Corporation's asset liability management policy strives to minimize the impact to its income statement due to a change in market interest rates."*

Changing the methodology had a one-time positive impact to net income. As stated in Part VIII, AR Appendix 1, page 35, the change in the basis for determining the discount rate increased the claims discount rate by 15 basis points from 3.32% (duration weighted) to 3.47% (market value weighted) as of the February 28, 2018 valuation. The change in the basis for determining the discount

rate decreased the discounted net claim liabilities by $25.8 million, and the Internal Loss Adjustment Expense provision by $2.7 million.

d) Please see *PUB(MPI) 1-29 (a)*.

e) Please see *PUB(MPI) 1-29 (a)*.

f) The reduction in the duration of the marketable bond portfolio was a byproduct of the changes made, not an intended result.

g) Purchasing lower yielding government bonds created the approximate 2-year reduction in duration.. The Corporation does not have the analytical software required to perform fixed income performance attribution, which would quantify the weighting effect and the security selection effect.

h) See parts i) through iii) below for Mercer's response

i) Duration matching is a cost effective and efficient method for identifying and hedging interest rate risks. For larger investors and/or investors who are more risk averse, cash flow matching provides the opportunity to identify more robust matching portfolios. However, cash flow matching portfolios require more costly internal systems and more costly asset liability studies and ongoing analysis, particularly if inflation risks are to be hedged. Given our understanding of MPI's risk and return objectives along with its desire to mitigate system and modelling costs, we support their decision to duration match.

ii) Given the current environment, we support decisions by institutional investors such as MPI to hedge nominal interest rate risk before hedging real interest rate risk. We share MPI's view that over the long-term it is unlikely that inflation will persistently exceed 2% per annum. Fully hedging both nominal and real interest rate risk would materially reduce return expectations and significantly limit MPI's investment opportunity set.

iii) The decision to assume that inflation linked obligations increase at 2% per annum contributed significantly to our support of MPI's strategy.

CAC (MPI) 1-87

Part and Chapter:	**PART VI INV**	**Page No.:**	**1553**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management 21. Asset Liability Management Study**		
Topic:	**Operational Asset Liability Management Policy**		
Sub Topic:	**Designated Amount of Floating Rate Notes**		

Preamble to IR (If Any):

On page 1,553, the Operational Asset Liability Management Policy says "if an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation".

Question:

a) Please describe the process followed by the Working Group to designate (to fund other asset classes) the amount of floating rate notes to be excluded from duration calculations. For example, what requirements need to be satisfied (e.g. approved resolution), and when does the designation become effective in relation to when it is designated/approved?
b) What designations have been made after September 2017:
    i. Related to the ALM Study?
    ii. Related to other considerations?
c) For the purpose of accounting and performance measurement, when do the effects of the designation get recorded between asset classes that have different benchmarks?
    i. When the designation is effective?
    ii. When the funding occurs?
d) How predictable are the amounts to be designated? i.e. Are the funding needs very predictable in terms of their amount and timing?

e) Is there a "reciprocal" designation that has an impact on duration calculations related to injections (rather than withdrawals) of cash (e.g. arising from the planned sale of real estate, rather than acquisitions)?

Rationale for Question:

The designated amount of floating rate notes has an impact on duration calculations, which is used to measure and manage interest rate risk. The process followed by the Working Group to designate the amount of floating rate notes to exclude from the duration calculations is not clear.

RESPONSE:

a) The Working Group's designation of the amount of floating rate notes to be excluded from duration calculations (to fund other asset classes) only occurred when the Corporation was set to fund new investments in real estate and infrastructure from October 2010 to August 2012. The Investment Department recommends to the Working Group an amount to fund a new asset class, the Working Group then discusses that recommendation and makes a decision by consensus. Designations are effective immediately following the conclusion of the relevant Working Group meeting.

b) The Working Group made no designations after September 2017.

c) There is no effect on the performance calculation following the designation of floating rate notes investments to fund other asset classes. The only calculation affected by the designation is the duration calculation. Whenever there is a transfer of funds from one asset class to another, the performance calculation for each asset class accurately accounts for the transfer and reflects the change in the market value of each asset class on the date of the transfer.

d) The amounts designated are predictable since the Corporation determines how much it will commit to new funds. Timing of designations generally depend upon drawdown notices issued the by external investment managers.

e) There is no “reciprocal” designation that impact duration calculations related to injections (rather than withdrawals) of cash.

CAC (MPI) 1-88

Part and Chapter:	**PART VI** **INV**	**Page No.:**	**1459-1462; 1586; 1603; 1618; 1626; 1639; 1677; 1726; 1756; 1773**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #14. Exclusion of Real Return Bonds**		

Preamble to IR (If Any):

Recommendation #14

> The role that RRBs can play in effectively managing relevant risks should be discussed, with consensus achieved regarding the effectiveness of RRBs from a risk management perspective (i.e., independent of the cost of any "insurance" as measured by RRB yields and their expected returns).

Mercer and MPI's response (page 1,461):

> Given low current inflation expectations Mercer and MPI agreed to hedge nominal, not real interest rate risk. Prior discussions with intervenors identified high inflation scenarios as a relatively low risk.

On page 1,586, Mercer listed some of the asset classes to consider, noting that the products listed in their table (reproduced below) "have a valuable role to play as part of MPI's allocation and are worth modelling as part of the Asset Liability Study". Mercer provided general guidance on the relative ability of each asset class to fulfil various objectives, and these are shown in the table below.

While CAC agrees with some of Mercer's assessments, CAC provided additional commentary to further clarify the distinguishing characteristics about regular bonds (exposed to inflation risk) and RRBs (not exposed). CAC's comments appear **shaded**.

Asset Class	View	Ability to Match Duration	Ability to Enhance Investment Returns	Ability to Protect Principal
Federal / Provincial Bonds	Mercer	Very strong. Diverse set of duration and terms to choose from.	Weak. Modest real return expectations at best.	Excellent, particularly for shorter-duration federal bonds.
	CAC	Very strong ability to match **nominal** duration. Weaker ability to match **real** duration. Ability of nominal bonds to match real duration risks in the liabilities depends on the correlation between real and nominal yields (which in turn depends on the volatility of inflation expectations and inflation realizations).	Weak. Modest **nominal** return expectations at best.	Weak for MPI's long-duration, inflation linked liabilities. Principal may erode as nominal interest rates rise (e.g. inflation expectations change, realized inflation is above expectations).
Real Return Bonds	Mercer	Strong for MPI's inflation linked liabilities.	Weak. Will only perform well if Canadian inflation is high.	Principal may erode as interest rates rise and/or inflation expectations change.
	CAC	Same as Mercer above.	Weak. Will perform better if Canadian inflation is i) higher than the BEIR[1] or ii) if **real** yields fall.	Real value of principal will be protected, adjusted upwards (downwards) by inflation (deflation) to maintain purchasing power. Real value of principal may erode if **real** interest rates rise, but if RRB asset duration is matched to the real liability duration, surplus is hedged.

[1] BEIR: Break Even Inflation Rate, as defined by Mercer on page 1,756 of the GRA

Mercer's Analysis, Implementation Considerations, and Recommendations

On page 1,603, Mercer said:

> RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns. Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical real estate, physical infrastructure).
>
> The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances. RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.
>
> … Due to the limited number of RRB issues and their specific maturity dates, developing a portfolio to match the inflation risk in the MPI components can be challenging. The challenge arises from trying to achieve a closely matching inflation-sensitive cash flow between assets and the respective component's projected claims or pension payments.
>
> We agree that RRBs can provide an effective hedge against CPI linked obligations **MPI has approved the inclusion of RRBs in the 2017 Asset Liability Study**.

On page 1,626, Mercer added "much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation".

Exclusion of RRBs

On page 1,677, MPI said:

> MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target. Real Return Bonds (RRBs)

were not considered for this reason and also because the real yields on RRB's are currently very low.

On page 1,618, Mercer explained why RRBs were excluded from the recommendation:

> While basic claim liabilities and pension liabilities are indexed to inflation; a number of factors contributed to the exclusion of RRBs from the Policy recommendation, including:
>
> 1. **RRB real yields are relatively low**, averaging ~0.6% through November 2017.
> 2. **MPI's Basic liabilities assume a 2% inflation rate.** If future inflation is near this rate, these obligations can be most efficiently hedged with traditional bonds. RRBs will only be worth their cost if inflation is well in excess of 2%, but will cause MPI to incur losses if inflation is flat.
> 3. **Duration and dollar matching liabilities is challenging with RRBs.** The Canadian RRB market consists of 15 issues of which only 7 are liquid and all are government issued.
> 4. RRBs are traditionally indexed to the Canadian Consumer Price Index, while Basic Liabilities are indexed to other drivers.

Convexity

On page 1,639, Mercer defined convexity risk as the risk of non-parallel shifts in the yield curve, noting that convexity risk "is most pronounced when unusual changes in yields happen", and that "gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time".

On page 1,677, MPI said:

> MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target. Real Return Bonds (RRBs) were not considered for this reason and also because the real yields on RRB's are currently very low. In addition, the Dynamic Capital Adequacy Test (DCAT) report does not include a high inflation scenario as a significant risk.

Return Expectations

On page 1,756, Mercer said:

Currently, RRBs offer relatively attractive inflation protection.

This is best understood by calculating the total expected yield of an RRB and then comparing it to a conventional bond with the same quality and maturity. Below we consider 30-year Government of Canada

RRB Real Yield	0.6%
30-year BEIR[1]	1.6%
Total Yield	2.2%
30-year conventional bond yield	2.3%

- … it is worth noticing that despite RRBs offering attractive inflation protections, the expected return on RRBs is below its long-term historical levels with a current real yield of 0.60%.

Footnote 1: BEIR is the Break Even Inflation Rate which is calculated as the difference between a conventional bond and an RRB. The BEIR can be interpreted as the capital markets expectation on future inflation.

Key Learnings and Conclusions

On page 1,773, Mercer's summary of key learnings and conclusions included:

Inflation linkage of liabilities: "Much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation." However, MPI concluded that "given low inflation expectations, hedge nominal, but not real, interest rate risk".

Interest Rate Risk Management Strategy: "Focus on duration matching for 100% of Basic liabilities."

Economic Assumptions: "Mercer's long-term assumptions assume a gradual rise in interest rates to a long-term equilibrium state. Alternatively, we are comfortable assuming shifts in future yields implied by current forward rates." MPI concluded that "projections and analysis will be based on implied forward rates".

Interest Rate Forecasts

Mercer's Interest Rate Forecasts are summarized below (page 1,726).

Figure 2: Mercer Interest Rate Forecast – Standard

Line No.	Year	Federal T-Bills	Short Term	Mid Term	Long Term	Overall RRB
1	0	0.76%	1.42%	1.87%	2.25%	0.60%
2	1	1.80%	1.58%	2.04%	2.34%	0.65%
3	2	1.08%	1.59%	2.11%	2.36%	0.66%
4	3	1.24%	1.79%	2.24%	2.40%	0.68%
5	4	1.41%	1.96%	2.42%	2.59%	0.79%
6	5	1.58%	2.13%	2.60%	2.78%	0.90%
7	6	1.75%	2.30%	2.78%	2.97%	1.01%
8	7	1.91%	2.47%	2.96%	3.16%	1.11%
9	8	2.08%	2.64%	3.14%	3.35%	1.22%
10	9	2.25%	2.81%	3.32%	3.54%	1.33%
11	10	2.41%	2.98%	3.50%	3.73%	1.44%

Figure 3: Mercer Interest Rate Forecast – Forward Curve

Line No.	Year	Federal T-Bills	Short Term	Mid Term	Long Term	Overall RRB
1	0	0.76%	1.42%	1.87%	2.25%	0.60%
2	1	0.99%	1.56%	1.96%	2.29%	0.60%
3	2	1.18%	1.67%	2.04%	2.32%	0.59%
4	3	1.34%	1.77%	2.11%	2.35%	0.59%
5	4	1.47%	1.86%	2.17%	2.38%	0.59%
6	5	1.56%	1.93%	2.23%	2.41%	0.58%
7	6	1.63%	1.99%	2.28%	2.43%	0.58%
8	7	1.68%	2.03%	2.32%	2.46%	0.58%
9	8	1.72%	2.07%	2.36%	2.48%	0.58%
10	9	1.75%	2.11%	2.40%	2.50%	0.57%
11	10	1.77%	2.13%	2.43%	2.52%	0.57%

Question:

a) Do MPI and/or Mercer agree with CAC's comments related to various characteristics about Federal/Provincial Bonds and RRBs, as **shaded** in the table?

b) Does MPI continue to believe that inflation risk remains a relatively low risk since the ALM Study was completed, taking into account the recent imposition of U.S. trade tariffs and continued uncertainty around NAFTA negotiations?

c) Can Mercer clarify its statements, below, regarding efficiency, cost, and losses if inflation is flat?

> "MPI's Basic liabilities assume a 2% inflation rate. If future inflation is near this rate, these obligations can be most **efficiently** hedged with traditional bonds. RRBs will only be worth their **cost** if inflation is well in excess of 2%, but will cause MPI to incur **losses** if inflation is flat."

i. **Efficiency:** Are the obligations more efficiently hedged with traditional bonds (rather than RRBs) due to better duration "matching" (e.g. because nominal bonds are in larger supply than RRBs), or are there other reasons?

ii. **Cost:** Could/should the Break Even Inflation Rate ("BEIR") defined by Mercer be interpreted as the inflation rate that will make the cost of hedging inflation and real rate risk (by buying RRBs) "break even"? (i.e. compared to buying nominal bonds instead)

iii. **"Flat Inflation":**

i. Does flat inflation mean:

- 0% **volatility** in inflation (e.g., constant **level** of 2%)? or
- 0% **average** inflation rate (perhaps with some volatility around a 0% mean)?

ii. How and why would MPI incur losses if inflation is "flat"?

d) Under the "Forward Curve" method for forecasting interest rates that was recommended by MPI and "deemed acceptable" by Mercer, wouldn't RRBs perform reasonably well compared to long-term bonds over the next decade if the forecasted **3 bps drop in real yields for RRBs** is realized, along with the forecasted **27 bps rise in long-term nominal yield (and curve steeping at shorter horizons)**? (The table below show the interest rate forecast from Figure 3 on page 1,726 of the GRA.)

		Forecast (1 Decade Later)		Change in Decade	
	Current	Standard	Forward Curve	Standard	Forward Curve
Federal T-Bills	**0.76%**	2.41%	1.77%	**1.65%**	**1.01%**
Short Term	**1.42%**	2.98%	2.13%	**1.56%**	**0.71%**
Mid Term	**1.87%**	3.50%	2.43%	**1.63%**	**0.56%**
Long Term	**2.25%**	3.73%	2.52%	**1.48%**	**0.27%**
Overall RRB	**0.60%**	1.44%	0.57%	**0.84%**	**-0.03%**

e) Does the 1.6% 30-year BEIR look attractive, and if not, what BEIR might be attractive, considering:
   i. **MPI's** inflation forecast of 2% (i.e. 0.4% higher than "break even") in the near term?
   ii. **Past**, long-term experience (i.e. decades, not the past few years)?
   iii. **Longer**-term future expectations (i.e. decades)?

f) How well does the BEIR formula measure the cost of RRBs?

g) Isn't the best measure of the cost of RRBs (or any asset class) done at the total portfolio level (not asset class levels), given the importance of correlation effects, by quantifying the impact on net returns for the same level of risk "with" and "without" the asset class (or with marginal changes to asset class exposures)?

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

The decision to exclude RRBs does not appear to be consistent with **qualitative** considerations related to the risk, cost, and return expectations for this asset class, viewed on a total portfolio basis. On a **quantitative** basis, MPI's decision to define the Liability Benchmark Portfolio in nominal, rather than real, terms i) understates the true surplus risk in the fund and ii) does not accurately measure the contribution that RRBs could make in increasing risk-adjusted returns over both the long term and short term.

RESPONSE:

a) Mercer responds:

In general, Mercer agrees with CAC's shaded comments. However, we'd offer the following comments/clarifications IN CAPS.

Asset Class	View	Ability to Match Duration	Ability to Enhance Investment Returns	Ability to Protect Principal
Federal / Provincial Bonds	Mercer	Very strong. Diverse set of duration and terms to choose from.	Weak. Modest real return expectations at best.	Excellent, particularly for shorter-duration federal bonds.
	CAC	Very strong ability to match nominal duration. Weaker ability to match real duration. Ability of nominal bonds to match real duration risks in the liabilities depends on the correlation between real and nominal yields (which in turn depends on the volatility of inflation expectations and inflation realizations).	Weak. Modest **nominal** return expectations at best. FEDERAL/ PROVINCIALS HAVE MODEST RETURN EXPECTATIONS (AT BEST) ON BOTH REAL AND A NOMINAL BASIS.	Weak for MPI's long-duration, inflation linked liabilities. DON'T SEE THE CONNECTION BETWEEN 'ABILITY TO PROTECT PRINCIPAL' AND MPI'S LIABILITIES. 'ABILITY TO PROTECT PRINCIPAL' IS INDEPENDENT OF LIABILITIES. Principal may erode as nominal interest rates rise (e.g. inflation expectations change, realized inflation is above expectations).
Real Return Bonds	Mercer	Strong for MPI's inflation linked liabilities.	Weak. Will only perform well if Canadian inflation is high.	Principal may erode as interest rates rise and/or inflation expectations change.
	CAC	Same as Mercer above.	Weak. Will perform better if Canadian inflation is i) higher than the BEIR2 or ii) if real yields fall.	Real value of principal will be protected, adjusted upwards (downwards) by inflation (deflation) to maintain purchasing power. Real value of principal may erode if real interest rates rise, but if RRB asset duration is matched to the real liability duration, surplus is hedged.

[2] BEIR: Break Even Inflation Rate, as defined by Mercer on page 1,756 of the GRA

b) Yes, MPI believes that long-term inflation risk remains a relatively low risk. See *PUB(MPI) 1-80 (b)* for further discussion on the Corporation's view on long-term inflation.

c) Mercer provided the following response:

a. If inflation is near 2% over the long term (and in particular, there is little volatility), we expect that other asset classes will deliver excess returns relative to RRBs. Investors in RRBs pay a premium that is driven in part by a conservative view on volatility of future inflation. There is also a wider investment opportunity set of nominal securities that allow MPI to pursue diversified excess returns from credit, liquidity, and other risks.

b. The BEIR is defined relative to federal bonds. It may be interpreted as the inflation rate that will make the cost of hedging inflation and real rate risk (by buying RRBs) "break even" (i.e. compared to buying nominal **federal** bonds).

c. Within this context, 'flat inflation' meant 0% **average** inflation rate (perhaps with some volatility around a 0% mean). Had MPI made a significant allocation to RRBs AND future inflation was 'flat', RRBs would likely underperform, and perhaps decline in value if investors perceived future risks to be low and sold RRBs for a loss.

d) Mercer responds:

Yes RRBs will be expected to perform better than long-term nominal federal bonds in this case. As indicated in on page 59 of Appendix_17_Attachment_B_-ALM_Phase_2_Summary_Report, the median 10-year annualized return on federal long-term bonds was assumed to be 2.0% (roughly estimated as the average yield of 2.4% less a capital loss of 0.4%) and the median 10-year annualized return on RRBs was assumed to be 2.7% (roughly estimated as the average yield of 0.6% plus inflation of 2.0% and a capital gain of 0.1%). However, RRBs were expected to underperform provincial and corporate long-term nominal bonds.

e) Mercer responds:

Attractiveness of BEIR is a subjective matter. On first glance, for someone who is expecting inflation to be 2% (that is higher than 1.6%) 1.6% should look attractive. However, there are numerous factors that might impact negatively on this view, for example:

i. Doubts about whether RRBs are rationally priced;
ii. Lower depths of the RRB market as compared to the nominal bonds market;
iii. Availability of nominal bonds other than those issued by the federal government.

f) Mercer responds:

The BEIR formula provides an indication of the expected inflation that would make an investor indifferent between buying an RRB and a federal bond of the same term to maturity. However, it is an imperfect measure, because it may ignore investors' preferences to their actual and perceived needs of buying the inflation protection.

g) Mercer responds:

We agree that considerations and decisions on any asset class should be done at the total portfolio level.

CAC (MPI) 1-89

Part and Chapter:	**PART VI INV**	**Page No.:**	**1524; 1544**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:			
Sub Topic:	**Fixed Income: Increased Risk Concentration**		

Preamble to IR (If Any):

MPI's proposed changes in the asset mix will create more concentration of risks within fixed income, rather than equities and other assets, as summarized below:

- **More credit risk** (corporate + provincial, rather than Government of Canada);
- **Transferred liquidity risk** (private debt, from real estate/infrastructure); and
- **More inflation risk** (less real assets, like real estate/infrastructure, no RRBs).

For example, the minimum credit rating was changed from "A (low)" to "BBB" in the Investment Policy Statement (Section 8.6). The rationale provided by MPI was "to conform to the standard definition of Investment Grade securities".

The table below summarizes the recommended changes within fixed income.

	Basic	EXT	SRE	RSR	EFB	Total	Current Policy	Change
Corporate Bonds	20.0%	20.0%	20.0%	20.0%	50.0%	22.2%	7.1%	15.1%
Provincial Bonds	60.0%	40.0%	40.0%	40.0%	0.0%	53.8%	64.3%	-10.5%
MUSH Bonds	20.0%	10.0%	10.0%	10.0%	0.0%	17.7%	28.6%	-10.9%
Private Debt	0.0%	30.0%	30.0%	30.0%	50.0%	6.2%	0.0%	6.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%

Question:

a) Does MPI have a preference or desire to concentrate more of the total portfolio risk within fixed income, rather than within equity or other asset classes, and if so what is the rationale?
b) **Risk Tolerance / Preferences:** Does MPI have a different tolerance for:
   i. credit risk compared to equity risk, other things equal?
   ii. inflation risk compared to equity risk, other things equal?
c) To what extent were the changes in the composition of fixed income integrated with the decisions to:
   i. change the claims discount rate (to dollar weighted from duration weighted)?
   ii. change the duration policy to exclude MUSH bonds?
d) Are there any changes in financial accounting requirements (or elections that MPI could elect to make, rather than be required to make to comply with accounting standards) that impacted the recommendation regarding the allocation **within** fixed income, or the allocation **to** fixed income, for each of the five portfolios?

Rationale for Question:

Risk appears to be increasingly concentrated within fixed income, rather than being more balanced to include risks (and earn risk premia) from other asset classes, such as equities, real estate, and infrastructure.

RESPONSE:

a) It is the Corporation's position that it is no longer beneficial to discuss total portfolio risk on the consolidated portfolio as it will be developing five unique investment portfolios to back the liabilities of 1) Basic Claims 2) Extension 3) SRE 4) RSR and 5) Employee Future Benefits, each with their own unique allocations of assets.

Basic Claims has a 100% allocation to fixed income, which de-risks the basic claims liability portfolio by reducing interest rate risk and eliminating exposure to growth assets and the associated risks. Additionally, the Corporation expects RSR to have a 50% target allocation to growth assets and Employee Future Benefits a 60% target allocation. In these two cases, the Corporation will concentrate more of the total risk within the growth assets rather than fixed income.

b) Similar to the discussion in part a), the position of the Corporation is that comparisons of different risk tolerances must take place within the context of the five unique investment portfolios. Compared to equity risk, the Corporation has a different risk tolerance for credit risk or inflation risk depending on the portfolio considered.

c) The Corporation considered changes to the composition of the fixed income portfolio when it chose long-term asset mixes for the five unique investment portfolios during the ALM study.

The impact of higher yielding bonds on the claims discount rate is a one-time impact that the Corporation forecasted when planning for implementation of the ALM study.

The change in duration policy to exclude MUSH bonds was independent of the outcome of the ALM study.

d) To date, no noted “financial accounting requirements” have affected the recommendations regarding the allocation within fixed income or the allocation to fixed income, for each of the 5 portfolios.

CAC (MPI) 1-90

Part and Chapter:	**PART VI INV**	**Page No.:**	**1617; 1670; 1704**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:			
Sub Topic:	**Emerging Markets Equity**		

Preamble to IR (If Any):

On page 1,617, Mercer notes that the standard All Country World Index Equities (ACWI) benchmark is composed of approximately 52% US, 32% EAFE, and 12% Emerging Markets Equities.

On page 1,670 (INV Appendix 16), MPI said that Mercer recommended a Global Equity strategy that **includes emerging markets**, but then added:

> MPI management recommends a global equity strategy that excludes exposure to emerging markets. Historical returns for the MSCI All Country World Index (MSCI ACWI) (which includes exposure to emerging markets) and MSCI Global indices showed that adding exposure to emerging markets does not improve risk adjusted returns. Further, **there are potential concerns about investing in the emerging market countries**.

On page 1,704 (INV Appendix 16), MPI provided the rationale for excluding emerging markets, referencing the Sharpe Ratio as a consideration, as shown below.

II. Rationale to Exclude Emerging Markets

Historical return, risk and Sharpe ratios for the MSCI ACWI (which includes emerging markets) and MSCI World (excludes emerging markets) indices are shown in Figure 1.

Figure 1: Impact of Emerging Markets

Index	Annualized Returns (%)			Annualized Std Dev (%)		Sharpe Ratio		
	5 yr	10 Yr	Since Dec 31, 1987	5 yr	10 Yr	5 yr	10 Yr	Since Dec 31, 1987
MSCI ACWI	9.8%	6.2%	7.9%	10.4%	16.7%	0.91	0.41	0.36
MSCI World	10.3%	6.5%	7.9%	10.2%	16.3%	0.97	0.43	0.36

Source: MSCI ACWI Index Factsheet March 2018

MSCI World had better returns over 5 and 10 years with lower risk and a higher sharp ratio compared to MSCI ACWI. Since December 31, 1987, the return and Sharpe ratio was the same, with slightly lower risk.

Question:

a) What are MPI's "potential concerns" about investing in the emerging market countries?
b) How relevant is the Sharpe Ratio for assessing the attractiveness of any asset class (including Emerging Market Equities), given MPI's definition for its Minimum Risk Portfolio/Liability Benchmark, which has a longer duration than TBills (the definition of risk used in a Sharpe Ratio)?

Rationale for Question:

Model optimizations are very sensitive to constraints (established in 2017 GRA).

RESPONSE:

a) The Corporation's concerns with investing in emerging market equities relate to the potential legal, regulatory and political risks associated with these markets. As the data provided in the preamble above shows, increasing exposure to emerging market equities increases risk and actually *reduces* rates of return.

b) Mercer responds: The point being made in the rationale to exclude Emerging Markets Equity is that the Sharpe Ratio for MSCI World is consistently larger than

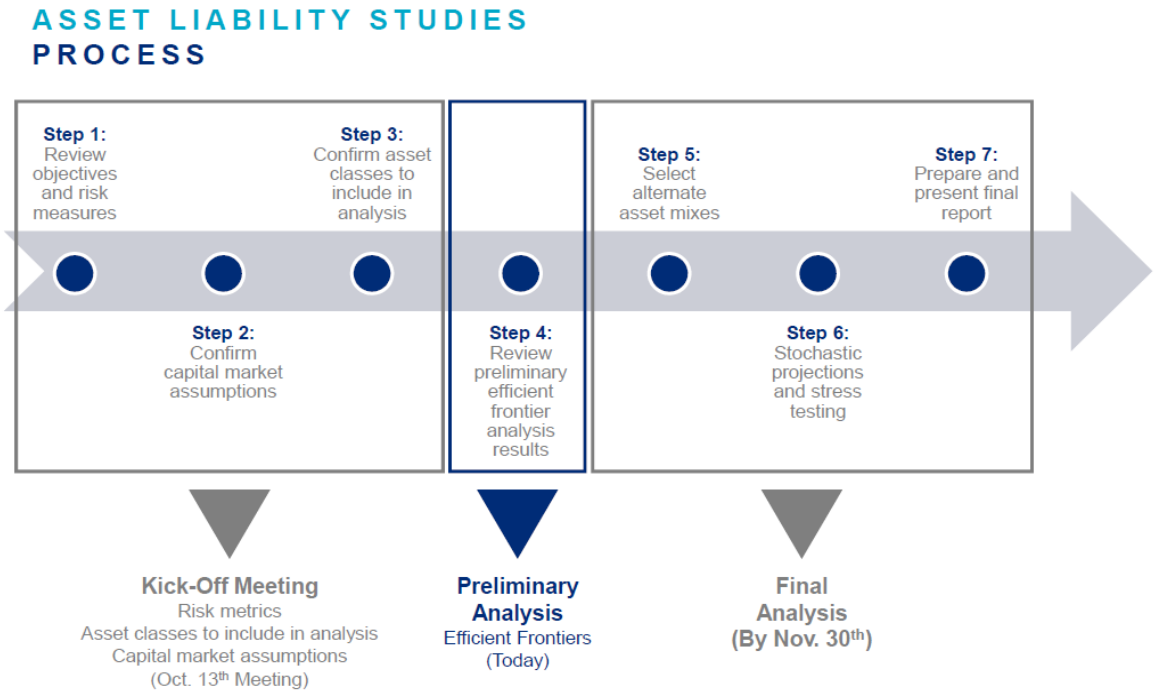
that of the MSCI ACWI. Changing the risk free rate from T-Bills to long bonds will not change the relative positions. That is, you will still have a better Sharpe Ratio under the MSCI World, which excludes Emerging Markets Equity.

CAC (MPI) 1-91

Part and Chapter:	**PART VI INV**	**Page No.:**	**1738**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:			
Sub Topic:	**ALM Study Process**		

Preamble to IR (If Any):

On page 1,738 (INV Appendix 17, Attachment A), Mercer illustrated a 7-step process for the ALM Study (below).



Question:

a) Were the efficient frontiers presented by Mercer all the result of “single period” modeling (i.e. not "stochastic")?

b) How sensitive were the broad outcomes/conclusions (e.g., return/risk, asset allocations) to the different models/approaches used in the ALM Study (e.g., single period, vs. multi-period), and why? (Define the different modeling/assumptions used clearly, noting key differences between them.)
c) Which modeling approach, defined above, is more reliable, and why?
d) To what extent were MPI's final asset allocation decisions based on one model's outputs over another (e.g. single period efficient frontier analyses vs. multi-period stochastic simulations)?

Rationale for Question:

How much reliance was placed on different models (single period vs. multi-period) to support long-term asset allocation decisions is unclear.

RESPONSE:

Mercer provided the following responses:

a) The efficient frontier models are single period models.

b) The broad outcomes/conclusions were not very sensitive to the different quantitative approaches used in the ALM Study. While the single period approach (efficient frontier) analyzed what might happen during any year of the next 10 years, the multi-period (5-year projection) analyzed potential outcomes at the end of the next 5 years. The efficient frontier generated the optimal portfolios by maximizing the expected return for each level of surplus risk, so the key measures were the expected return and the surplus volatility. The projection focused on the dollar amount of surplus in 5 years, so the key outcomes were the median surplus in 5 years and the potential downside (measured as the largest deficit at 2.5% probability).

c) Both modeling approaches are driven by the same inputs and are therefore equally reliable. The efficient frontier tool is more flexible and reflects 1-year projections of annualized risk and returns. The advantage of the projection modeling is that it

more effectively illustrates the potential financial implications of various portfolios over longer time horizons.

d) MPI's final asset allocation decisions considered both qualitative and quantitative considerations. With respect to the modeling, in general the single period efficient frontier analyses was used as a preliminary screen, while the multi period stochastic model was used to verify results and understand financial implications.

CAC (MPI) 1-92

Part and Chapter:	**PART VI INV**	**Page No.:**	**1783**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:			
Sub Topic:	**Decision-Making Framework**		

Preamble to IR (If Any):

On page 1,783, Mercer described why investors make investment decisions (below).

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment B

WHY DO WE MAKE INVESTMENT DECISIONS?

We make investment decisions to deliver better outcomes

One's perception of a 'Better Outcome' can vary significantly

Identifying, and articulating, desired outcomes is a crucial fiduciary responsibility

Question:

a) **Better Outcomes:** Which basis of analysis is better suited to support MPI's decisions? **Nominal** Liability Benchmark, or **Real** Liability Benchmark?
b) **Perceptions:** In relation to Asset/Liability Studies:
   i. How and why can perceptions differ about what constitutes a "better outcome"?
   ii. Where do the two or three biggest differences in perception arise related to "better outcomes", and which parties are involved? (e.g. consultant vs. client?)
   iii. Are these differences in perception symptoms of an underlying problem, and if so, what is the problem, and are there any effective remedies?

Rationale for Question:

It is important to understand the rationale for key decisions that are made (including long-term asset allocation). Any differences in perceptions about what constitutes "better outcomes" should be made transparent.

RESPONSE:

a) As stated in *CAC (MPI) 1-83 (c)* and *CAC (MPI) 1-86 (a)*, the selection of a nominal vs. real liability benchmark depends upon inflation expectations.

b) Competing interests can alter the perception of what constitutes a "better outcome". For example, the Corporation understands that predictable and stable rates have the greatest influence on ratepayers' perception of value, and so has established that as a key objective. An alternative view of a "better outcome" might involve emphasizing rate minimization over rate stability.

CAC (MPI) 1-93

Part and Chapter:	**CAC (MPI) 1-85 from 2018 GRA** **Part VIII, AR, Appendix 1**	**Page No.:**	**2,158**
PUB Approved Issue No:	**7. DCAT** **8. Performance of investment portfolio** **21. Asset Liability Management Study**		
Topic:	**Changes in IFRS Accounting Policy**		
Sub Topic:	**Accounting Policy Changes: IFRS 4 (Insurance Contracts), 7 (Financial Instruments: Disclosures), 9 (Financial Instruments), and 17 (Insurance Contracts)**		

Preamble to IR (If Any):

Last year, CAC asked a series of questions related to i) the status of MPI's evaluation of the impacts that the proposed IFRS accounting policy changes will have on the financial statements and ii) how the proposed changes would impact MPI's financial statements and other relevant items. (See CAC (MPI) 1-85 from the 2018 GRA.)

In its response last year, MPI indicated that:

> MPI's evaluation of the proposed changes to IFRS 17, 7 and 9 is still in progress, and the status report provided in the Annual Financial Statements (quoted in the preamble to this IR) remains unchanged. MPI is still collecting information on this topic with the current intention of receiving an external opinion on the expected impact of IFRS 17. Please see also PUB (MPI) 1-78, and CAC (MPI) 1-8.

In this year's GRA, the notes to the Financial Statements describe the future changes in accounting policy and disclosure, starting on page 2,158 of the GRA. These changes are copied below.

IFRS 4 – Insurance Contracts

In September 2016, IFRS 4 Insurance Contracts was amended to address concerns regarding the different effective dates of IFRS 9 Financial Instruments and the new insurance contracts standard IFRS 17 Insurance Contracts. The amendment provides a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Alternatively, the amendment provides an option to permit entities that issue insurance contracts to reclassify, from profit or loss to OCI, the volatility arising from financial assets reclassified as FVTPL under IFRS 9 that were not FVTPL under IAS 39 Financial Instruments: Recognition and Measurement.

This amendment is effective for annual periods beginning on or after January 1, 2018. Based on the amendments to IFRS 4, the Corporation meets the criteria to defer IFRS 9 and is currently evaluating the impact that this standard will have on its financial statements.

IFRS 7 – Financial Instruments: Disclosures

In December 2011, IFRS 7 Financial Instruments: Disclosures was amended to require additional financial instrument disclosures upon transition from IAS 39 Financial Instruments: Recognition and Measurement to IFRS 9 Financial Instruments. The amendments are effective upon adoption of IFRS 9, which is effective for annual periods beginning on or after January 1, 2018. However, in September 2016, IFRS 4 Insurance Contracts was amended to provide an option of a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Therefore, qualifying entities will have the option to adopt IFRS 9 upon the adoption of IFRS 17 Insurance Contracts. The Corporation will qualify for a temporary exemption; thus, the amended IFRS 7 is effective for annual periods beginning on or after January 1, 2021. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

IFRS 9 – Financial Instruments

IFRS 9 Financial Instruments was issued in July 2014 and is intended to replace IAS 39 Financial Instruments: Recognition and Measurement. IFRS 9 is a three part standard aimed at reducing complexity in reporting financial instruments. The project has been divided into three phases: Phase 1 Classification and measurement, Phase 2 Impairment and Phase 3 Hedge accounting. Phase 1 was issued in November 2009 and amended in October 2010. It requires financial assets to be recorded at amortized cost or fair value depending on the entity's business model for managing the assets and their associated cash flow characteristics. All financial assets are to be measured at fair value on the balance sheet if they are not measured at amortized cost. At initial recognition, an entity may irrevocably designate a financial asset as measured at FVTPL if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases.

Phase 2 was completed in July 2014 and introduced a new expected loss impairment methodology that will result in more timely recognition of impairment losses. Phase 3 was completed in November 2013. This phase replaces the rule-based hedge accounting requirements in IAS 39 to more closely align the accounting with risk management activities.

The standard is effective for annual periods beginning on or after January 1, 2018. However, in September 2016, IFRS 4 Insurance Contracts was amended to provide an option of a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Therefore, qualifying entities will have the option to adopt IFRS 9 upon the adoption of IFRS 17 Insurance Contracts. The Corporation will qualify for a temporary exemption; thus, IFRS 9 is effective for annual periods beginning on or after January 1, 2021. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

Note disclosures that both explain how an entity qualified for the temporary exemption and allow for comparison with other entities applying IFRS 9 will be required during

the deferral period. The Corporation is evaluating the impact this will have on the financial statements.

IFRS 17 – Insurance Contracts

IFRS 17 Insurance Contracts was issued in May 2017 and will replace IFRS 4 Insurance Contracts. The intent of the standard is to establish consistent recognition, measurement, presentation and disclosure principles to provide relevant and comparable reporting of insurance contracts across jurisdictions.

The standard requires entities to measure insurance contract liabilities as the risk-adjusted present value of the cash flows plus the contractual service margin, which represents the unearned profit the entity will recognize as future service is provided. This is referred to as the general model. Expedients are specified, provided the insurance contracts meet certain conditions. If, at initial recognition or subsequently, the contractual service margin becomes negative, the contract is considered onerous and the excess is recognized immediately in the statement of operations. The standard also includes significant changes to the presentation and disclosure of insurance contracts within entities' financial statements.

IFRS 17 is effective for annual reporting periods beginning on or after January 1, 2021. The standard is to be applied retrospectively unless impracticable, in which case a modified retrospective approach or fair value approach is to be used for transition. Early application is permitted where entities have also adopted IFRS 15 Revenue from Contracts with Customers and IFRS 9 Financial Instruments. The Corporation is currently evaluating the impact that this standard will have on its financial statements.

Question:

The following questions are the same as last year's questions.

a) What is the status of MPI's evaluation of the impacts that the proposed changes will have on the financial statements?
   i. IFRS 17 – Insurance Contracts
   ii. IFRS 7 – Financial Instruments: Disclosures

iii. IFRS 9 – Financial Instruments

iv. any other material changes, but not listed above

b) How would the proposed changes impact MPI's financial statements and other relevant items (including those listed below)? Please use the table below to describe the directional impact and materiality (10 being extremely material and 0 being immaterial). Please also note which practices are expected to be mandatory for MPI to remain IFRS compliant, and which ones may provide MPI with "elections". Where elections are available, please describe the impact of the different elections, which would ones would likely be chosen and why.

Metric	**Increase (Decrease)**	**Materiality (0 – 10)**
Net Income		
OCIO		
Comprehensive Income*		
DCAT*		
RSR*		
Rate Stability		
Rate Predictability		

* These requests were added this year (2019 GRA). Requests without an asterisk were made last year (2018 GRA).

The following question is **new**.

c) Please discuss the implications, if any, of the potential accounting changes upon the DCAT and the RSR.

Rationale for Question:

The proposed IFRS accounting policy changes may have a material impact on key metrics, and key decisions. It is important to understand the nature, materiality, and timing of both the accounting changes and their implications on key metrics and key decisions.

RESPONSE:

a) and b)

The Corporation's response from the prior year remains valid. The Corporation continues to evaluate the proposed changes to IFRS 17, 7, and 9, and the status report provided in the Annual Financial Statements (quoted in the preamble to this IR) remains current. The Corporation continues to collect information on this topic and intends to receive an external opinion on the expected impact of IFRS 17.

At this time, the Corporation cannot commit to having an external impact analysis of IFRS 17 during the 2019 GRA proceeding.

Please note that the Corporation will have to apply IFRS for reporting periods starting on or after January 1, 2021. The Corporation will apply IFRS 17 for the fiscal year beginning March 1, 2021.

c) See *CAC (MPI) 1-25 (a)*.

CAC (MPI) 1-94

Part and Chapter:	**CAC (MPI) 1-85 c-f in 2018 GRA** **Part VIII, AR, Appendix 1**	**Page No.:**	**2158**
PUB Approved Issue No:	**8. Performance of investment portfolio** **21. Asset Liability Management Study**		
Topic:			
Sub Topic:	**OSFI Guidance on Changes in Accounting Policy and Disclosure**		

Preamble to IR (If Any):

In last year's GRA, MPI responded to CAC's questions related to future changes in IFRS accounting policy and disclosures. CAC's questions and MPI's responses to CAC (MPI) 1-85 (c to f) are noted below.

CAC Question	MPI Response
c) Why has MPI decided to "generally follow OSFI's guidance on such matters"?	Although the Corporation is not regulated by Office of the Superintendent of Financial Institutions (OSFI), the Corporation considers the guidance provided to the P&C Industry by OSFI.
d) Has MPI ever chosen not to follow OSFI's guidance in the past, and if so: i. What was the source and nature of the accounting issue, where the source refers to the IFRS or other reference # and the nature refers to the accounting treatment (e.g., asset and or liability valuation, income recognition, disclosure, etc.) ii. What was the rationale for the decision to not follow OSFI's guidance (e.g., what principle was applied by MPI, such as a desire for greater rate stability, rate predictability, both, or some other factor(s) to be listed)?	Upon review of the past 5 years, MPI has not chosen to "not follow" OSFI guidance relating to accounting standard changes.

e) Under what circumstances would MPI choose not to follow OSFI's guidance in the future?	MPI cannot speculate on circumstances that have not occurred, and for which the detail and context of the matter would be critical to informing any decision.
f) In addition to OSFI, are there other sources or perspectives that MPI is considering to inform its evaluations?	MPI also considers the practices of peers, and common industry best practices.

Question:

a) What guidance is OSFI providing to the P&C Industry related to IFRS changes that are relevant to MPI?
b) Is there any reason to believe that MPI will "not follow" OSFI guidance relating to accounting standard changes, and if so, why?
c) Can MPI describe the practices that have been, or plan to be, implemented by peers?

Rationale for Question:

The proposed IFRS accounting policy changes may have a material impact on key metrics, and key decisions, and it is important to understand the considerations that are being taken into account when selecting the policies to change, and when they become effective.

RESPONSE:

a) In May 2018, the Office of the Superintendent of Financial Institutions (OSFI) published an advisory pertaining to IFRS 17. OSFI issued the advisory in response to the issuance of the final version of IFRS 17 *Insurance Contracts* by the International Accounting Standard Board. In its advisory, OSFI states:

> *"The* Insurance Companies Act *stipulates in the case of federally regulated insurers (FRIs) that "financial statements shall, except as otherwise specified by the Superintendent, be prepared in accordance*

with generally accepted accounting principles, the primary source of which is the Handbook of the Canadian Institute of Chartered Accountants." Generally Accepted Accounting Principles for FRIs is effectively International Financial Reporting Standards as issued by the IASB."

OSFI goes on to outline its expectations respecting adoptions of the standard, stating:

"After reviewing several factors (e.g. consistency across insurers, operational capacity, etc.), OSFI determined that FRIs should not adopt IFRS 17 before its effective date of January 1, 2021."

b) No, the Corporation will follow IFRS 17 and plans to adopt it for the year beginning March 1, 2021.

c) Most P&C insurers in Canada (including all FRIs) report under IFRS and will be implementing IFRS 17 for annual periods beginning after January 1, 2021. In conjunction with IFRS 17, the Corporation understands that most insurers will implement IFRS 9 Financial Instruments in conjunction with IFRS 17. IFRS 9 became effective January 1, 2018, however, in September 2016, IFRS 4 (the previous insurance standard) was amended to provide an option of a temporary exemption from applying IFRS 9 for entities whose predominant activity is issuing insurance contracts within the scope of IFRS 4. Therefore, qualifying entities have the option of adopting IFRS 9 upon the adoption of IFRS 17.

Based on information publically available in annual reports, the Corporation understands that other government auto insurers in Canada are exercising this option to defer IFRS 9 as well, and will be fully implementing IFRS 9 & 17 in the fiscal years beginning after January 1, 2021.

CAC (MPI) 1-95

Part and Chapter:	**Part VI** **INV, Appendix 15**	**Page No.:**	**1647**
PUB Approved Issue No:	**8. Performance of investment portfolio** **21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #1. Clarity of Accounting Choices and Recommendation # 2. Adoption of More Comparable Accounting Principles**		

Preamble to IR (If Any):

Recommendation #1

MPI should clarify what flexibility it has regarding the accounting for assets and liabilities, while remaining GAAP-compliant, and the factors it takes into account in electing to use one method/assumption over others.

Recommendation #2

In measuring its investment portfolio and liabilities, MPI should consider adopting accounting principles, where GAAP allows MPI to make such elections, that reduce the discrepancy between net income and comprehensive income (as these terms are currently defined by MPI), to improve comparability across all assets as well as liabilities.

Comparability would be improved, for example, by accounting for more assets in a way that is consistent with the treatment of financial assets and liabilities at fair value through profit or loss ("FVTPL").MPI should clarify what flexibility it has regarding the accounting for assets and liabilities, while remaining GAAP-compliant, and the factors it takes into account in electing to use one method/assumption over others.

In MPI's rebuttal to CAC's evidence in the 2017 GRA, MPI said:

> When accounting policies are reviewed, all relevant factors are taken into account. The key considerations are – (i) what is IFRS compliant, and (ii) how do the choices impact the key corporate strategic direction of rate stability and predictability. Options that would cause more volatility in net income, and as a result more volatility in the premium rates required to breakeven, would undermine rate stability and predictability.
>
> MPI disagrees with Mr. Viola's view that accounting policies should be chosen to reduce the discrepancy between net income and comprehensive income to improve comparability. Rather, accounting principles and policies should be chosen that align with the nature of the assets and liabilities.

Question:

a) What elections, where such discretion exists, does MPI plan to make related to the upcoming IFRS accounting policy changes (i.e. IFRS 4, 7, 9, and 17)?
b) Where such discretion exists, explain how each election aligns with the nature of the assets and/or nature of the liabilities.

Rationale for Question:

The proposed IFRS accounting policy changes may have a material impact on key metrics, and key decisions, and it is important to understand the considerations that are being taken into account when selecting the policies to change, and when they become effective.

RESPONSE:

To all questions posed:

The Corporation's evaluation of the proposed changes to IFRS 7, 9, and 17 remains in progress. As a result, the Corporation is not able to discuss, at this time, potential proposed elections relating to the new standards.

CAC (MPI) 1-96

Part and Chapter:	**Part VI INV, Appendix 13**	**Page No.:**	**1614, 1723, 1788**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Risk Management**		
Sub Topic:	**Risk Tolerance in Basic and Pension**		

Preamble to IR (If Any):

On page 1,614, one of the Mercer reports from the ALM Study said MPI has a **"very low risk tolerance"** for Basic, but that it **"could grow in future"**. The risk tolerance for the other four components, which includes Pension, are "moderate". (See table below.)

OVERVIEW OF MPI'S OBLIGATIONS

For the purpose of the Study, obligations of MPI were segmented amongst the following 5 components ("Components"):

	BASIC	EXT	SRE	RSR	PENSION
What's included	Compulsory: auto insurance claims	Optional: auto insurance claims	Competitive: fleet insurance claims & Provincial Facilities	Retained earnings from Basic	Employee Benefits
Size[1]	$1,790M	$106M	$147M	$97M	$405M
Purpose	Pay claims as they come due			Stabilize rates	Fund pension benefits
Return Expectation/ Risk Tolerance	Very low risk tolerance. Could grow in future.	Moderate	Moderate	Moderate	Moderate
Interest Rate Sensitivity (Duration)	High (10.5)	Low (1.1)	Low (2.7)	Not applicable	Very high (15.6)

On page 1,723, MPI said:

> It was determined that the risk tolerance of MPI's Board of Directors for the assets backing the Basic claims liabilities was very low and that **mitigating risk was more important that maximizing returns**. The focus was on further reducing interest rate risk, with a willingness to take on modest credit risk (as long as it is diversified and cost effective).
>
> Based on this risk tolerance, it was determined that the best way to mitigate the interest rate risk associated with the Basic claims liability was to develop an investment portfolio with 100% fixed income assets (i.e. no growth assets) and dollar and duration matching those assets to the claims liabilities.
>
> Several portfolio options were presented, including the minimum risk portfolio (MRP), a portfolio with mostly Provincial bonds, a portfolio adding corporate bonds and a portfolio adding private debt. See Attachment B: ALM Phase 2 Summary Report, pg. 20. Ultimately, management recommended the portfolio with Provincial, corporate & MUSH bonds.

On page 1,788, one of the Mercer reports from the ALM Study said "if RSR grows in future, risk tolerance could increase" for Basic.

Question:

a) What are the biggest factors contributing to the "very low" risk tolerance for **Basic** today? Please differentiate between any factors that are controllable by MPI and those that are not (e.g. controlled by PUB, driven by accounting or actuarial standards, capital market volatility/uncertainty, etc.).
b) How would the factors noted above for Basic have to change for MPI's risk tolerance to "grow in the future" for **Basic**?
c) What is the expected cost of the decision to mitigate risk for Basic, because it was more important than maximizing returns, over:
    i. the next 5 years?
    ii. longer time horizon?

d) To what extent do the tolerances for risk reflect different capital outlooks over different time horizons? For example, to what extent are risk tolerances today lower than they would be otherwise given today's interest rates and any outlook for interest rates over the next 5 years vs. an outlook over a longer time horizon?
e) What are the biggest factors contributing to the "moderate" risk tolerance for **Pension** today? Please differentiate between any factors that are controllable by MPI, and those that are not.
f) How would the factors noted above for Pension have to change for MPI's risk tolerance to increase in the future for **Pension**?

Rationale for Question:

Risk tolerances have a material impact on the return/risk profile of the portfolio, and the costs and risks related to rates.

RESPONSE:

a) The Corporation's risk tolerance for a particular fund depends on the fund's purpose.

The purpose of the portfolio supporting Basic Claims Liabilities is to ensure funds are available as liabilities come due. Basic claims liabilities are both long and short-term (i.e. long-term liabilities relating to bodily injury and short-term liabilities relating to physical damage). Claims liability estimates have risk related to mortality, asset liability mismatch, investment returns, technological improvements, and societal/legal factors. These liabilities are long-term in nature and are subject to significant interest rate risk. They also require a high level of liquidity to pay claims. The Corporation has varying levels of control over these factors.

The purpose of the portfolio supporting the Rate Stabilization Reserve (RSR) is to, at a minimum, ensure sufficient levels of capital are available to achieve actuarially determined satisfactory financial condition, and maintain adequate capital in the

face of plausible adverse events. Upon achieving satisfactory financial condition, the purpose of RSR is to protect policyholders from the need to pay fees to rebuild the RSR following the occurrence of adverse events, consistent with the oft-cited purpose of the RSR is:

> *"To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors"*

The purpose of the portfolio supporting the Employee Future Benefits (EFB) fund is to pay pension and other EFB liabilities, as they come due.

The current regulatory landscape has directly influenced the Corporation's risk appetite for Basic. Capital levels (as measured by MCT) and capital targets remain the lowest in Canada (among crown and OSFI regulated insurers). The PUB-approved capital target methodology has varied unpredictably, and its most recently approved target methodology relies on assumptions that are not 'best estimates', which yields a lower RSR target that is below the amount required for satisfactory financial condition of Basic. Rates have been set using aggressive interest rate forecasts, which has created significant and unnecessary pricing risks over several years, resulting in large premium deficiencies. The Corporation has transferred significant capital from its other lines of business in order to maintain the satisfactory financial condition of Basic.

Finally, as explained in Overview of the 2018 GRA, prudent fiscal management requires the Corporation to avoid causing a negative impact on the Consolidated Financial Statements of the Province of Manitoba.

b) It is unlikely that the Corporation's risk tolerance for the portfolio supporting Basic Claims Liabilities will change significantly, given the purpose of the fund. However, the Corporation may re-evaluate its tolerance for risk with improvements in the regulatory environment. Such improvements could include:

- the removal of key uncertainties around Basic's capital framework;
- the adoption of reasonably prudent capital targets, sufficient to the risk profile of the Basic line of business;
- a move toward a formula based method for pricing and capital targets;
- the adoption of industry best practices, including the use of best estimates; and
- the adoption of mechanisms to protect and maintain capital, ensuring Basic is self-sustaining.

c) The move from the current portfolio to the new fixed-income only portfolio reduced the expected return on the Basic claims portfolio by 1.17%, but the risk of the portfolio (as measured by surplus volatility) fell by 2.74% (see *INV Appendix 17 – Attachment B – ALM Phase 2 Summary Report*, page 21/22). The Corporation considered this trade-off appropriate in light of its risk tolerance described in the response to question (a) above.

d) The binding constraint on the Corporation's risk tolerance is not related to an outlook for the capital markets or interest rates. As explained in the response to question (a) above, risk tolerance is driven by the regulatory environment, the purpose of each of the funds and the requirement to avoid negatively affecting the Province's consolidated financial statements.

e) The biggest factors contributing to the "moderate" risk tolerance for EFBs (primarily pension liabilities) are:

i. that the pension is fully funded;

ii. that the ratio of active to retired members is stable;

iii. that the plan is open and has a long time horizon;

iv. that the Corporation's business is relatively stable; and

v. the Corporation's desire to offer competitive pension benefits at a reasonable cost.

The Corporation has some control over the funded status of the plan, the stability of its business and whether the plan is open or closed, while other factors are not within its control.

f) The Corporation's risk tolerance for its EFBs portfolio could increase with an increase in the number of active members relative to retired members. Changes in the other factors would likely lead to a decrease in risk tolerance.

CMMG (MPI)

CMMG (MPI) 1-1

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Motorcyclists are being asked for a larger increase than private passenger insured.

Question:

What changes in the recent loss experience for motorcycles caused this increase? Please identify the factors giving rise to this larger required rate. What is the amount of the increase attributable to premiums rather than CMP?

Rationale for Question:

Determining the components driving the need for the increase.

RESPONSE:

The difference between the required rate increases for the Private Passenger and the Motorcycle major classes results from a decrease in Comprehensive claims costs.

As indicated in *Part V, Ratemaking, Appendix 10*, Comprehensive claims costs, as a component of the required rate, decreased by $8.23, thereby lowering the required rate increase for the Private Passenger major class. This decrease in claims costs does not affect the Motorcycle major class, as Comprehensive coverage is not available to the Motorcycle major class under Basic. Had this $8.23 decrease not occurred, the required rate increase for both of these major classes would have been approximately equal.

The amount of the increase attributable to premiums (i.e. excluding the Capital Maintenance Provision) is 1.1% as indicated in *Part V, Ratemaking, page 40*.

CMMG (MPI) 1-2

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Nil

Question:

Are there any program changes or rate - making methodology changes affecting the applied for rate for motorcycles?

Rationale for Question:

Determining the components driving the need for the increase.

RESPONSE:

There are no coverage/benefit changes or ratemaking changes that affect the rates for motorcycles.

CMMG (MPI) 1-3

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

The Corporation reported an increase of $65 million dollars in revenue this year.

Question:

Please provide a breakdown of the revenue, with an explanation as to whether this was anticipated at the time of last year's GRA, or whether there are unique components of this revenue.

Rationale for Question:

RESPONSE:

Basic's share of the $65 million dollar increase in revenue from last year is approximately $55 million. Please refer to *Part V Pro Formas page 7* for a breakdown of the revenue and a comparison of the anticipated forecast from the prior year's GRA. The forecast provided in last year's GRA is within approximately $3.1 million of actual results.

CMMG (MPI) 1-4

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**2**		
Topic:	**Forecast Accuracy**		
Sub Topic:			

Preamble to IR (If Any):

Forecasting.

Question:

Please update last year's CMMG (PPI) 1-1 to show comparison of projected v. actual losses 2007 to 2017.

Rationale for Question:

Reviewing accuracy of forecasts.

RESPONSE:

Please see *Figure 1* below.

Figure 1: Comparison of Projected vs Actual for Motorcycle Major Class

Line No.	Loss Ins Year	Projected Losses [a] Excluding "Pool" Loss	Projected Losses [a] Including "Pool" Loss	Projected Total Premium [b]	Actual Losses Excluding "Pool" Loss [c]	Actual Losses Including "Pool" Loss [d]	Actual Total Premium [e]	Actual Loss Ratio Excluding "Pool" Loss	Actual Loss Ratio Including "Pool" Loss
1	**2007**	10,390,631	10,952,927	9,343,600	8,328,469	9,002,242	9,474,661	87.90%	95.01%
2	**2008**	12,106,150	12,761,721	10,994,400	9,492,758	10,260,723	10,686,013	88.83%	96.02%
3	**2009**	12,050,545	12,775,440	12,238,200	7,077,447	7,650,012	11,474,147	61.68%	66.67%
4	**2010**	12,072,057	12,825,747	13,576,300	14,143,121	15,287,299	12,156,455	116.34%	125.75%
5	**2011**	12,245,914	13,018,014	13,131,800	5,959,639	6,441,774	12,817,434	46.50%	50.26%
6	**2012**	9,347,361	10,054,858	11,687,400	7,218,043	7,801,983	12,986,962	55.58%	60.08%
7	**2013**	9,991,774	10,729,886	12,523,900	10,343,079	11,179,834	12,851,434	80.48%	86.99%
8	**2014**	9,209,789	9,859,082	12,594,800	6,151,268	6,648,905	12,845,431	47.89%	51.76%
9	**2015**	9,031,739	9,734,074	12,210,000	9,711,882	10,497,573	12,810,342	75.81%	81.95%
10	**2016**	8,226,228	8,815,160	11,673,200	11,415,545	12,339,062	12,748,322	89.55%	96.79%
11	**2017**	9,129,732	9,890,060	12,538,800	10,004,678	10,814,057	12,865,906	77.76%	84.05%
12	**2018**	10,258,926	11,054,969	13,498,000					
13	**2019**	10,768,703	11,640,354	14,467,200					
14	**TOTAL**	134,829,549	144,112,293	160,477,600	99,845,928	107,923,464	133,717,106	74.67%	80.71%

15 Notes:

16 "Pool" Loss as defined in Part V, Ratemaking, pages 32 & 33

17 [a] From the respective GRA; Pure Premium * Projected Units

18 [b] From the respective GRA; PUB Approved Average Rate * Projected Units; 2019 based on Applied for Average Rate * Projected Units

19 [c] Part V, Ratemaking, Appendix 9, Table 9; Pure Premium No Trend * Number of Units; Sum over all coverages

20 [d] Actual Losses Excluding "Pool" Loss * 1.0809; 1.0809 = 11,640,354 / 10,768,703

21 [e] Earned premium from the Corporation's Data Warehouse; does not account for premium rebates

CMMG (MPI) 1-5

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**2 and 10**		
Topic:	**Loss Data**		
Sub Topic:			

Preamble to IR (If Any):

Loss Data

Question:

Please update last year's CMMG (MPI) 1-2.

Rationale for Question:

Reviewing loss distributions for anomalies and trends.

RESPONSE:

Please refer to *Appendix 1*. The data provided is as of July 10, 2018.

Motorcycle Claims Loss Data
By Insurance Year
All Physical Damage and Injuries, All Heads of Coverage

Collision - Incurred

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount
< 0	3	(1,156)	2	(490)	3	(556)	1	(10)	1	(290)
0	52	-	31	-	19	-	25	-	33	-
0.01 to 25000	267	1,364,454	327	1,562,848	284	1,345,809	265	1,137,756	258	1,112,856
25001 to 50000	2	70,778			1	25,388			1	25,756
50001 to 75000							1	50,385		
Grand Total	324	1,434,075	360	1,562,358	307	1,370,641	292	1,188,131	293	1,138,322

Collision - Paid

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount
< 0	3	(1,156)	2	(490)	3	(556)	1	(10)	1	(290)
0	62	-	33	-	19	-	25	-	33	-
0.01 to 25000	257	1,294,519	325	1,549,081	284	1,345,809	265	1,137,756	258	1,112,856
25001 to 50000	2	70,778			1	25,388			1	25,756
50001 to 75000							1	50,385		
Grand Total	324	1,364,140	360	1,548,591	307	1,370,641	292	1,188,131	293	1,138,322

Motorcycle Claims Loss Data
By Insurance Year
All Physical Damage and Injuries, All Heads of Coverage

Public Liability - Incurred

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount
0							1	-	1	-
0.01 to 25000	1	5,000								
25001 to 50000			1	25,587						
Grand Total	1	5,000	1	25,587	0	-	1	-	1	-

Public Liability - Paid

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount
0	1	-					1	-	1	-
0.01 to 25000			1	587						
25001 to 50000										
Grand Total	1	-	1	587	0	-	1	-		

Motorcycle Claims Loss Data
By Insurance Year
All Physical Damage and Injuries, All Heads of Coverage

Property Damage - Incurred

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount
0	18	-	16	-	18	-	14	-	12	-
0.01 to 25000	37	40,236	38	53,290	44	88,187	24	19,275	37	54,586
Grand Total	55	40,236	54	53,290	62	88,187	38	19,275	49	54,586

Property Damage - Paid

	2017		2016		2015		2014		2013	
Ranges	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount
0	21	-	16	-	18	-	14	-	12	-
0.01 to 25000	34	36,211	38	53,290	44	88,187	24	19,275	37	54,586
Grand Total	55	36,211	54	53,290	62	88,187	38	19,275	49	54,586

Motorcycle Claims Loss Data
By Insurance Year
All Physical Damage and Injuries, All Heads of Coverage

Accident Benefits - Incurred	2017		2016		2015		2014		2013	
Ranges	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount	Claim Count	Incurred Amount
< 0			3	(1,682)						
0	28	-	32	-	27	-	31	-	34	-
0.01 to 25000	113	840,666	121	911,523	106	794,823	101	682,538	78	591,473
25001 to 50000	29	1,086,838	23	825,018	21	709,945	14	507,282	21	745,571
50001 to 75000	9	531,400	12	716,704	9	544,067	13	761,300	8	487,592
75001 to 100000	4	334,937	9	779,405	5	427,227	3	254,462	4	352,461
100001 to 125000	3	331,990	6	678,499	9	1,021,032	3	334,924	4	453,673
125001 to 150000	2	288,249	4	532,212	1	143,843	4	535,560	2	277,275
150001 to 175000			2	328,799			3	487,214	2	310,065
175001 to 200000	2	363,025			1	198,714	1	178,323	1	199,452
200001 to 225000							1	212,143	1	217,399
225001 to 250000			2	481,623	1	247,056			1	226,802
250001 to 275000					1	259,351			1	259,951
300001 to 325000	1	311,559							2	625,628
325001 to 350000	1	348,432	1	328,752			1	336,955		
350001 to 375000	1	350,183								
375001 to 400000					1	391,581	1	381,294	1	388,169
400001 to 425000			1	401,874						
425001 to 450000					3	1,299,282			1	427,292
475001 to 500000			1	491,770						
500001 to 525000					2	1,034,579				
525001 to 550000							1	546,098		
550001 to 575000	1	573,869							1	550,761
650001 to 675000					1	657,166			1	665,290
675001 to 700000					1	691,237			1	680,875
725001 to 750000			1	744,226	1	731,012				
925001 to 950000									1	928,554
950001 to 975000					1	969,900				
1075001 to 1100000									1	1,099,454
1550001 to 1575000									1	1,573,417
Grand Total	194	5,361,147	218	7,218,723	191	10,120,814	177	5,218,094	167	11,061,153

Motorcycle Claims Loss Data
By Insurance Year
All Physical Damage and Injuries, All Heads of Coverage

Accident Benefits - Paid	2017		2016		2015		2014		2013	
Ranges	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount	Claim Count	Paid Amount
0	49	-	39	-	27	-	31	-	34	-
0.01 to 25000	123	778,119	135	766,708	112	563,043	101	666,428	79	620,490
25001 to 50000	12	417,972	14	513,038	18	630,068	15	545,148	20	707,754
50001 to 75000	2	121,178	11	680,658	10	591,656	12	703,952	9	563,183
75001 to 100000	4	331,605	8	657,824	4	348,808	3	253,249	3	272,855
100001 to 125000			4	450,245	10	1,143,468	4	436,549	4	453,453
125001 to 150000			2	265,329	2	278,342	5	668,337	4	547,040
150001 to 175000			1	170,976	2	322,262	3	481,171	2	310,678
175001 to 200000	1	183,296	1	184,601					5	952,753
200001 to 225000					1	219,937	1	211,514	1	223,736
225001 to 250000			1	243,391	4	946,610	1	232,117	2	476,448
250001 to 275000			1	272,517			1	253,114		
275001 to 300000	1	275,022								
300001 to 325000	1	310,809							1	310,073
325001 to 350000	1	348,432								
375001 to 400000									2	766,747
450001 to 475000					1	453,270				
475001 to 500000			1	491,770						
500001 to 525000									1	509,817
Grand Total	194	2,766,432	218	4,697,058	191	5,497,464	177	4,451,578	167	6,715,027

CMMG (MPI) 1-6

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**2 and 10**		
Topic:	**Loss Trends**		
Sub Topic:			

Preamble to IR (If Any):

Rates

Question:

Please update last year's CMMG (MPI) 1-3 for applied v. rates approved.

Rationale for Question:

Reviewing increases sought and approved.

RESPONSE:

The Corporation objects to the question on the basis that the information sought is not relevant to the matters at issue in this GRA. The Corporation respectfully submits that the rate changes it sought in prior years are not among the factors considered in approving the rates sought for the 2019/2010 rate year. Despite this and, without prejudice to its right to further object to the use of the evidence, the Corporation provides the requested information in Figure 1 below.

Figure 1: History of Rates and Rate Changes for Motorcycle Major Class

Line No.	Loss Ins Year	Actual Loss Ratio [a]	Average Rate	Approved Avg Rate Change	Sought for Avg Rate Change
1	**2004**	79.32%	846	14.82%	19.93%
2	**2005**	93.58%	942	13.86%	15.01%
3	**2006**	165.35%	952	5.00%	12.70%
4	**2007**	95.01%	994	5.00%	8.36%
5	**2008**	96.02%	1,018	9.16%	9.16%
6	**2009**	66.67%	1,046	7.21%	7.21%
7	**2010**	125.75%	1,069	5.67%	5.67%
8	**2011**	50.26%	1,034	-2.50%	1.62%
9	**2012**	60.08%	906	-10.79%	-10.33%
10	**2013**	86.99%	901	-0.22%	-0.22%
11	**2014**	51.76%	851	-6.07%	-6.02%
12	**2015**	81.95%	814	-5.79%	-6.55%
13	**2016**	96.79%	758	-7.63%	-7.63%
14	**2017 [b]**	84.05%	774	2.25%	-1.65%
15	**2018**		794	2.48%	2.70%
16	**2019 [c]**		822		3.06%

17 Notes:

18 [a] Per CMMG (MPI) 1-4

19 [b] Based on the initial 2017 GRA filing on Jun 17, 2016; MPI did not rerun the rate

20 model based on the revised filing per PUB (MPI) 2-25

21 [c] Based on proposed average rate per Part V, Ratemaking, Page 54

CMMG (MPI) 1-7

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**2 and 10**		
Topic:	**Loss Trends**		
Sub Topic:			

Preamble to IR (If Any):

Loss Data

Question:

Please provide a comparison of A) actual loss ratios; B) claims frequency for both private passenger and motorcycle use groups.

Rationale for Question:

Reviewing loss trends.

RESPONSE:

Please refer to the figures below which compare the loss experience as of February 28, 2018 for the Motorcycle major class and the Private Passenger major class. The comparison is done separately for Collision and PIPP.

Figure 1: Loss Comparison Between Motorcycle and Private Passenger Major Classes - Collision

Line No.	Loss Yr	Units	Premium	Count	Incurred	Frequency	Severity	Loss Ratio
1	Motorcycle							
2	2007	10,742	9,474,661	314	1,201,867	2.92%	3,828	12.69%
3	2008	11,688	10,686,013	344	1,335,127	2.94%	3,881	12.49%
4	2009	11,758	11,474,147	326	1,234,356	2.77%	3,786	10.76%
5	2010	11,860	12,156,455	313	1,371,792	2.64%	4,383	11.28%
6	2011	12,542	12,817,434	321	1,154,322	2.56%	3,596	9.01%
7	2012	13,559	12,986,962	320	1,092,818	2.36%	3,415	8.41%
8	2013	13,927	12,851,434	287	1,155,979	2.06%	4,028	8.99%
9	2014	14,285	12,845,431	281	1,195,473	1.97%	4,254	9.31%
10	2015	15,088	12,810,342	306	1,382,955	2.03%	4,519	10.80%
11	2016	16,103	12,748,322	344	1,562,130	2.14%	4,541	12.25%
12	2017	16,758	12,865,906	284	1,420,392	1.69%	5,001	11.04%
13	Private Passenger							
14	2007	673,707	592,904,534	92,609	216,094,750	13.75%	2,333	36.45%
15	2008	689,022	620,602,184	94,682	224,410,884	13.74%	2,370	36.16%
16	2009	700,521	648,298,934	92,286	226,045,918	13.17%	2,449	34.87%
17	2010	711,929	671,010,213	101,730	253,144,169	14.29%	2,488	37.73%
18	2011	726,645	690,284,214	96,704	254,697,948	13.31%	2,634	36.90%
19	2012	744,066	680,305,745	105,606	290,148,771	14.19%	2,747	42.65%
20	2013	754,058	682,187,895	111,898	326,660,427	14.84%	2,919	47.88%
21	2014	763,887	713,763,727	97,088	296,920,932	12.71%	3,058	41.60%
22	2015	775,395	763,568,847	96,676	328,784,818	12.47%	3,401	43.06%
23	2016	787,943	802,758,074	100,331	356,877,856	12.73%	3,557	44.46%
24	2017	798,642	849,010,549	95,339	368,846,689	11.94%	3,869	43.44%

Figure 2: Loss Comparison Between Motorcycle and Private Passenger Major Classes - PIPP

Line No.	Loss Yr	Units	Premium	Count	Incurred	Frequency	Severity	Loss Ratio
1	Motorcycle							
2	2007	10,742	9,474,661	161	9,594,636	1.50%	59,594	101.27%
3	2008	11,688	10,686,013	186	9,119,528	1.59%	49,030	85.34%
4	2009	11,758	11,474,147	165	7,208,160	1.40%	43,686	62.82%
5	2010	11,860	12,156,455	168	16,072,984	1.42%	95,673	132.22%
6	2011	12,542	12,817,434	166	8,886,027	1.32%	53,530	69.33%
7	2012	13,559	12,986,962	169	7,830,141	1.25%	46,332	60.29%
8	2013	13,927	12,851,434	154	11,469,762	1.11%	74,479	89.25%
9	2014	14,285	12,845,431	153	5,322,924	1.07%	34,790	41.44%
10	2015	15,088	12,810,342	177	10,624,539	1.17%	60,026	82.94%
11	2016	16,103	12,748,322	196	7,297,705	1.22%	37,233	57.24%
12	2017	16,758	12,865,906	172	5,623,016	1.03%	32,692	43.70%
13	Private Passenger							
14	2007	673,707	592,904,534	10,944	133,472,802	1.62%	12,196	22.51%
15	2008	689,022	620,602,184	10,467	119,083,792	1.52%	11,377	19.19%
16	2009	700,521	648,298,934	10,273	108,101,356	1.47%	10,523	16.67%
17	2010	711,929	671,010,213	10,886	120,800,510	1.53%	11,097	18.00%
18	2011	726,645	690,284,214	10,271	120,706,077	1.41%	11,752	17.49%
19	2012	744,066	680,305,745	11,102	133,681,300	1.49%	12,041	19.65%
20	2013	754,058	682,187,895	11,499	103,753,773	1.52%	9,023	15.21%
21	2014	763,887	713,763,727	9,893	104,746,527	1.30%	10,588	14.68%
22	2015	775,395	763,568,847	10,862	131,579,862	1.40%	12,114	17.23%
23	2016	787,943	802,758,074	11,006	100,144,976	1.40%	9,099	12.48%
24	2017	798,642	849,010,549	12,941	80,009,123	1.62%	6,183	9.42%

CMMG (MPI) 1-8

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**22**		
Topic:	**Investment in Motorcycle road Safety**		
Sub Topic:			

Preamble to IR (If Any):

Road safety

Question:

Please indicate the amount spent by MPI last year on exclusively motorcycle road safety programs and initiatives. What percentage of the road safety budget was this? What percentage of the road safety budget is allocated to passenger car initiatives?

Rationale for Question:

Reviewing investment levels in road safety.

RESPONSE:

In 2017/18, the Corporation spent $227,895 (Basic share) on motorcycle-specific road safety programs and initiatives. Total spending by the Corporation on overall road safety programs in 2017/18 was $13,145,000 (Basic share). As a result, specific motorcycle safety programs represents 1.73% of total road safety expenditures in 2017/18. On a per-vehicle basis, total spending on road safety programming is forecasted at $12.08/vehicle compared to $14.84/motorcycle on motorcycle specific initiatives.

While the above information represents spending on motorcycle specific programs, this does not represent the totality of road safety spending that directly benefits motorcyclists. All

other road safety strategies, with the exception of auto crime and occupant restraints, apply equally to motorcyclists as they do to other road users.

CMMG (MPI) 1-9

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.	**1**		
Topic:	**Comparison with other provinces**		
Sub Topic:			

Preamble to IR (If Any):

N/A

Question:

Please provide a comparison of the premiums for a 50 year old male insured with two vehicles, being:

- A 2004 Harley FLHTC
- A 2004 GMC pick up truck

in the provinces of Manitoba, Alberta and Saskatchewan.

Rationale for Question:

Testing Corporation's claims regarding the affordability compared to other jurisdictions.

RESPONSE:

Please see the table below for the premium comparison requested.

Table CMMG (MPI) 1-9
50 Year old Male, claims and conviction free
2004 GMC Sierra 1500 Extended CAB

Jurisdiction	
Winnipeg	$769
Regina	$1,067
Calgary	$1,362

50 Year old Male, claims and conviction free
2004 Harley Davidson FLHTC ELECTRA GLIDE

Jurisdiction	
Winnipeg	$795
Regina	$1,670
Calgary	$713

In reviewing the above information, the reader should consider the following:

- the 50 year old male in the above request is assumed to be claims and conviction free;
- the specific vehicle models selected for the comparison are the most commonly registered model in Manitoba[1] for each vehicle (as no model was indicated in the request);
- the Corporation purchases proprietary private insurer automobile rate information from a third party;
- the Alberta rate used in the comparison for the 2004 GMC pick-up truck is based on the average of several private insurers;
- the Manitoba and Saskatchewan rates for the 2004 GMC pick-up truck are based on a single rate as provided by the respective public insurers in those jurisdictions;
- currently, there is no single third-party data service that provides comparative rates from private insurers for motorcycles in Canada, as exists for auto insurance rates;
- the Alberta rate used in the comparison for the 2004 Harley Davidson FLHTCC is a single rate quote, and is not based on an average; and
- the Manitoba and Saskatchewan rates for the 2004 Harley Davidson FLHTCC are based on a single rate as provided by the respective public insurers in those jurisdictions.

[1] The selections were based on the highest vehicle counts from the 2018 rate model. The 2018 rate model uses policy data pulled as of August 1, 2017 for motorcycles and November 1, 2017 for trucks

CMMG (MPI) 1-10

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

N/A

Question:

What progress has the Corporation made with respect to new initiatives on the Experienced Rider Program?

Rationale for Question:

RESPONSE:

The Corporation plans to complete a business case in 2018/19, with stakeholder consultation, to determine the potential benefit and financial impact of subsidizing the Experienced Rider Program.

In Order 130/17, the PUB found that for "the purposes of future GRAs, road safety and loss prevention would be best addressed by devoting a Technical Conference to this area". The PUB also directed that this Technical Conference "will cover such issues as the Corporation's road safety priorities, reports on the success of the Corporation's efforts to address speed, drug-impaired driving and distracted driving, the progress of Road to Zero, and road safety efforts in other jurisdictions, among others".

Accordingly, the Corporation will share the contents of the business case as part of the Technical Conference ordered by the PUB for 2019.

CMMG (MPI) 1-11

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

N/A

Question:

Please provide the set RSR basic program amounts (both approved and realized) indicating any transfers from extension, over the last fifteen (15) years.

Rationale for Question:

RESPONSE:

Please see the attached *Appendix 1* for the requested information.

The PUB-approved RSR target range has dramatically shifted in recent years in response to orders issued by the PUB. Prior to 2015/2016, the PUB-approved RSR target range was, in most cases, based on a percentage of written premiums. The RSR target range was more stable during this period as written premiums are themselves stable. More recently, MPI proposed the use of risk-based RSR targets. These targets fluctuate in response to the underlying business risks as well as to the assumptions used (e.g. naïve versus increasing interest rates). MPI believes that future RSR targets will be stable (for a given risk profile) if it can agree with the PUB on the use of a consistent methodology.

Line No.	Fiscal Year	Beginning RSR Balance (a)	Net Income (b)	Transfer from Non-Basic (c)	Surplus Distribution (d)	Adjustments (e)	Transfer (to)/from Retained Earnings (f)	Transfer (to)/from IIF (g)	Transfer (to)/from ITOF (h)	Ending RSR (i)	Retained Earnings (j)	Immobilizer Incentive Fund (IIF) (k)	Information Technology Optimization Fund (ITOF) (l)	Total Retained Earnings (m)	Accumulated Other Comprehensive Income (n)	Total Equity (o)	PUB Approved RSR Range
1	***(C$000s, except where noted)***									**Total (a) to (h)**				**Total (i) to (l)**		**(m)+(n)**	
2	**2003/04**	35,366	3,358	4,049	-			-		42,773		-	-	42,773	-	42,773	$50-80M
3	**2004/05***	42,773	59,943	33,907	-	(10,619)		-		126,004		-	-	126,004	-	126,004	$50-80M
4	**2005/06**	126,004	85,703	19,427	(58,000)			(37,063)		136,071		37,063	-	173,134	-	173,134	$50-80M
5	**2006/07**	136,071	47,783	-	(59,652)			3,920		128,122		33,143	-	161,265	-	161,265	$69-105M
6	**2007/08**	128,122	69,040	-	(62,565)	(22,693)		15,218		127,122		17,925	-	145,047	20,012	165,059	$69-106M
7	**2008/09**	127,122	(8,165)	-	54			15,904		134,915		2,021	-	136,936	(101,501)	35,435	$72-109M
8	**2009/10**	134,915	87,773	-	-		(70,709)	2,021	-	154,000	70,709	-	-	224,709	34,645	259,354	$77-154M
9	**2010/11***	154,000	283,855	-	(321,678)	18,639	70,709	-	(65,000)	140,525		-	65,000	205,525	73,082	278,607	$77-154M
10	**2011/12**	140,525	22,278	-	(14,120)		(57,983)	-	65,000	155,700	57,983	-	-	213,683	49,007	262,690	$78-156M
11	**2012/13 ***	155,700	(63,103)	-	-		57,203	-		149,800	19,240	-	-	169,040	56,800	225,840	$78-156M
12	**2013/14**	149,800	(69,162)	-	-		19,240	-		99,878	-	-	-	99,878	70,284	170,162	$79-157M
13	**2014/15**	99,878	2,440	75,500	-			-		177,818		-	-	177,818	35,262	213,080	$89-178M
14	**2015/16**	177,818	(56,050)	72,729	-			-		194,497		-	-	194,497	36,503	231,000	$231-366M
15	**2016/17**	194,497	(123,070)	27,824	-			-		99,251		-	-	99,251	81,749	181,000	$159M
18	**2017/18**	99,251	34,424	37,300	-			-		170,975		-	-	170,975	39,870	210,845	$180-325M
19	* - Restated																

CMMG (MPI) 1-12

Part and Chapter:	**OV.4.2**	**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

The Corporation is forecasting decreases in expenses in excess of $5 million over the previous year's forecast.

Question:

What percentage of the expenses does this decrease represent?

Rationale for Question:

RESPONSE:

The average decrease of $5 million in Basic operating expenses for the rating years represents an approximate 2.2% decrease as compared to the 2018 GRA.

CMMG (MPI) 1-13

Part and Chapter:	**OV 4.3, Page 18**	**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

The Corporation has RSR of $211 million. MPI is forecasting that as of February 28, 2020, it will have an RSR of 70% ($280 million).

Question:

What factors would operate to raise the RSR by $69 million over that time period? Please indicate the sources and relative accumulation of monies from each source.

Rationale for Question:

RESPONSE:

A combined net comprehensive income of $69 million for 2018/19 and 2019/20 would need to occur in order for the RSR to increase to $280 million as of February 28, 2020. Please refer to *Volume V Proforma, PF.3* which provides the detail on the forecasted RSR increase.

CMMG (MPI) 1-14

Part and Chapter:	**RSR 4.5.1.1, Page 10**	**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

N/A

Question:

Should not the introduction of a Capital Maintenance Provision (CMP) be delayed until the Corporation has completed its Capital Management Plan? If not, why not?

Rationale for Question:

RESPONSE:

MPI understands that the Capital Management Plan is an important part of managing an effective Rate Stabilization Reserve for the benefit of all rate payers. MPI will file the Capital Management Plan in the 2020/21 GRA.

MPI does not believe that the Capital Maintenance Provision should be delayed until the Capital Management Plan is completed because:

1. The RSR balance is within the RSR range, so a rebate or 'release' is not required.

2. If capital is not maintained in the 2019/20 GRA, then Basic capitalization (as measured by MCT) will decline over the forecast period. The PUB, in Order 130/17, recognized the need for MPI to protect against the depletion of Basic's capital position. Setting Basic

rates as proposed in this Application, without the Capital Maintenance Provision would be an intentional depletion of capital equivalent to a capital release as MPI would knowingly not be collecting enough premium to maintain capital.

CMMG (MPI) 1-15

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Insert text here

Question:

Please describe any new wildlife collision programs or initiatives for 2019/2020.

Rationale for Question:

RESPONSE:

The Corporation, in collaboration with Manitoba Infrastructure (MI), plans to conduct a one-year roadside animal carcass reporting pilot study on Manitoba highways in 2019. During the pilot, location tracking devices will be used to input detailed location information, in addition to, the recording species of large animal carcasses found roadside as a result of a collision with a motor vehicle. This information will help pinpoint vehicle/wildlife collision 'hot spot' locations and better identify causes for collision in order to determine whether more costly mitigation strategies, such as fencing with or without active detection warning systems, would be economically feasible in select locations in Manitoba.

Further, once true 'hot spot' locations are determined and roadside conditions examined closely, the Corporation and MI may consider other mitigation strategies, to determine whether they can have a positive impact on road safety.

The Corporation plans to raise public awareness on the benefits of newer and upcoming vehicle technologies, which help to minimize, and in some cases avoid, collisions with wildlife. Benefits associated with newer vehicle technology include better illumination of the road while driving at night, especially in rural locations, or maintaining control of a vehicle should a driver steer abruptly to avoid a large animal.

Though noted as an option in the *Proposed Strategy for Collisions with Animals: Programming and Research (2018-2019)*, the Corporation will not study the impact of LED-lit wildlife crossing signs in 2018. MI has determined these signs do not meet the requirements and guidelines set out in the Manual of Uniform Traffic Control Devices in Canada (MUTCDC) and follows these guidelines. Also, after consultation with MI, a brush clearing and grass mowing joint pilot study may be considered in the future, if improved 'hot spot' locations can be determined through the carcass pick-up pilot and favourable cost benefit analysis results, allowing for the necessary resources to be planned and budgeted for.

For details on additional efforts related to reducing wildlife collisions, please see *Part VII 02 LP Appendix 1 Wildlife Strategy 2018-2019 FINAL*.

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

Round 2 Information Requests

September 14, 2018

ROUND 2 FILING

Public Utilities Board

Coalition of Manitoba Motorcycles Groups

Consumers' Association of Canada (Manitoba)

PUB (MPI)

PUB (MPI) 2-1

Part and Chapter:	**PUB (MPI) 1-1 Appendix 1, January 18, 2018 Audit, Finance and Risk Committee Minutes**	**Page No.:**	
PUB Approved Issue No:	**1. Requested Vehicle Rate and Any Changes to Other Fees and Discounts** **7. Update on DCAT** **9. Cost of Operations and Cost Containment Measures** **19. Current IT Strategic Plan and IT Expenses and Projects** **21. Asset Liability Management Study**		
Topic:	**Financial Overview**		
Sub Topic:			

Preamble to IR (If Any):

MPI sought Board approval of various accounting policies.

Question:

a) Please file those policies approved by the Board. Please indicate which policies have changed from those used last year, and provide the impact on Basic reported income and balance sheet as a result of the changes.
b) Please advise as to the Corporation's approved policy for provision of Non-audit services by external auditors.

Rationale for Question:

To understand Corporate decisions that impact Basic.

RESPONSE:

a) Only one accounting policy was changed. Please see *Appendix 1* for a blackline version of *Policy for Valuation of Private Equity, Venture Capital and Infrastructure Investments*. The change to the policy was to formally capture Infrastructure investments in the policy. As Infrastructure investments were previously subject to the treatment prescribed in the policy, there is no impact on the financial statements.

The other policies listed in the Board minute were reviewed by the Corporation, but no changes were recommended for Audit, Finance and Risk Committee approval.

b) Please see *Appendix 2* for a copy of the Policy on the Provision of Non-Audit Services by External Auditors.

Attachment B
Agenda C.1
January 18, 2018

Manitoba Public Insurance
Policy for Valuation of Private Equity, ~~and~~ Venture Capital and Infrastructure Investments

Procedure

Management will perform an annual review of these investments prior to corporate fiscal year-end to determine the appropriate fair value to be used in the corporate financial statements.

Fair Value Considerations

Marketable securities are carried at fair value in the corporate financial statements which is usually based on quoted prices in active markets close to the date of assessment.

When active market prices (S&P/TSX) are not available, as is the case with Private Equity, ~~and~~ Venture Capital and Infrastructure investments, estimates of fair value should be based on the best information available, including prices of similar investments or other acceptable valuation techniques.

The Department of Finance, in collaboration with MPI management, will calculate the new fair value by using current and past financial information for each investment, along with information provided by the fund manager. Other supplemental information that may be available like erosion of market share and going concern and liquidity issues will be incorporated into the valuation process. The change in fair value is then recorded in Accumulated Other Comprehensive Income (Available for Sale assets) or profit/loss (Fair Value Through Profit and Loss for Financial assets).

Declines in fair value, other than temporary, would be accounted for in a manner consistent with the valuation of publicly traded equities and bonds following the Policy for Writing Down Investments.

Manitoba Public Insurance
2014-2015 Expense Allocation Methodology
Effective January 28, 2016

The allocation methodology and formulas are based on the new cost allocation methodology prepared by Deloitte in 2009 and approved by PUB for basic Autopac ratemaking in Order # 157/12. The Deloitte methodology focused on the allocation of normal operating costs to insurance or non-insurance categories of business, and did not include the determination of type of expense (claims, operating, road safety and regulatory). This aspect of the methodology was developed internally and is presented as Level E in this summary.

The allocation of improvement initiative costs has been based on a review of each project and the determination of which category and line of business will benefit from the project. Attachment B summarizes the allocation basis for each project.

The allocation methodology for normal operating costs is summarized below:

The first step of the process allocates corporate benefit costs to accounting units based on the percentage of salary costs to total corporate salary expense.

In the next step, occupancy costs are allocated to accounting units based on the percentage of square footage to total corporate square footage. Occupancy costs include; all building expenses, Premises department expenses and allocated corporate benefit costs.

Prior to the allocation of costs, direct department and directly assignable costs are charged to the insurance line of business or non-insurance category of business which directly benefits from the work performed in the department or particular cost expenditure.

The remaining “purified” cost categories are subject to allocation as set out in the following steps:

Cost Classification and Assignment:

<u>Level A -</u>
Cost categories at Level A are assigned to either one of the following:

i) directly to an insurance Line of Business (LOB) - Basic, Extension or SRE, or,
ii) directly to the non-insurance Category of Business (COB), DVL, with the balance to,
iii) non-assignable to an insurance LOB.

Level B -
Costs non-assignable to an insurance LOB (from Aiii), are assigned in Level B to one of the following:

i) Insurance COB (Allocated to Insurance LOB in Level D), or
ii) Subject to allocation in Level C.

Level C -
Costs subject to allocation (from Bii), are allocated in Level C to one of the following:

i) Insurance COB, or
ii) Non-insurance COB.

Level D -
Costs assigned to insurance COB (from Bi) and allocated to insurance COB (from Ci) are further allocated to the insurance lines of business (LOB):

i) Basic,
ii) Extension, or
iii) SRE.

Level E –
All costs assigned and allocated to the insurance LOB are further categorized into the following expense types:

i) Operating
ii) Claims
iii) Road Safety/Loss Prevention, or
iv) Regulatory/Appeal.

The tables on the following pages reflect the results of the assignment, classification and allocation of expenses in Levels A to E of the methodology.

LEVEL A:
Cost categories assigned directly to an Insurance LOB or to Non-insurance COB

LEVEL B:
Cost categories assigned to Insurance COB or Subject to Allocation

Level A – Line of business	Basic	Ext.	SRE	Non-Ins.		
Level B – Category of business					Insurance	Subject to Allocation
Injury claims management - PIPP					X	
Claims Insurance support operations					X	
Loss prevention programs					X	
Driver licensing and control				X		
Driver records						X
Vehicle registration						X
Vehicle standards and inspection				X		
Claims centres					X	
Service centres						X
Physical damage centre					X	
Central administration						X
Physical properties						X
Corporate information technology						X
Human resources and training						X
Advertising and communications						X
Fair practices						X
Accounting and finance						X
Investments					X	
Injury claims management - Liability					X	
Employee benefits						X
Legal						X
Compulsory Insurance	X					
Extension		X				
Special risk extension			X			
Enterprise systems support						X
Internal Audit						X
Regulatory/appeal	X					
Management committee						X
Contact Centre Operations						X
Business Transformation Office						X
Product & Policy Management						X
ID Verification & Data Integrity						X
Customer Service & Support						X

LEVEL C:
Costs Subject to Allocation to Category of Business:

Based on the assignment of costs subject to allocation in Level B, the following table summarizes the allocators used to allocate these costs to insurance and non-insurance categories of business.

Cost Category	Basis of allocation
Driver records	Estimated work effort
Vehicle registration	Estimated work effort
Service centres	COB Salary ratio
Physical properties	Enterprise wide per square foot basis
Employee benefits	% of base salary costs
ID verification and data integrity	Estimated work effort
Business Transformation Office	% calculated based on allocation of all improvement initiatives
Central administration	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Corporate information technology	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Legal	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Customer service and support	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Human resources and training	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Advertising and communications	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Fair practices	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Accounting and finance	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Enterprise systems support	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Internal audit	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Management committee	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Contact Centre Operations	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)
Product & Policy Management	4 year rolling average Weighted customer call centre contact ratio (WCCCCR)

LEVEL D:
Allocation of Assigned and Allocated Insurance COB Costs

Based on the assignment of costs to the insurance category of business in Level B, and costs allocated to insurance in Level C, the following table summarizes the allocators used to allocate these costs to the appropriate line of business.

Cost Category	Basis of allocation
Injury claims management – PIPP	4 year rolling average Claims Incurred Basic & Extension only
Driver records	Assigned to Basic LOB
Vehicle registration	Assigned to Basic LOB
Investments	Percentage of claims reserves and unearned premiums by insurance LOB
Injury claims management – Liability	4 year rolling average Claims Incurred
Business Transformation Office	% calculated based on allocation of all improvement initiatives
Claims Insurance support operations	4 year rolling average Claims Incurred
Loss prevention programs	4 year rolling average Claims Incurred
Claims centres	4 year rolling average Claims Incurred
Service centres	4 year rolling average Claims Incurred
Physical damage centre	4 year rolling average Claims Incurred
Central administration	4 year rolling average Claims Incurred
Corporate information technology	4 year rolling average Claims Incurred
Human resources and training	4 year rolling average Claims Incurred
Advertising and communications	4 year rolling average Claims Incurred
Fair practices	4 year rolling average Claims Incurred
Accounting and finance	4 year rolling average Claims Incurred
Legal	4 year rolling average Claims Incurred
ID verification and data integrity	4 year rolling average Claims Incurred
Customer service and support	4 year rolling average Claims Incurred
Enterprise systems support	4 year rolling average Claims Incurred
Internal audit	4 year rolling average Claims Incurred
Management committee	4 year rolling average Claims Incurred
Contact Centre Operations	4 year rolling average Claims Incurred
Product & policy Management	4 year rolling average Claims Incurred

LEVEL E:
Allocation of Assigned and Allocated LOB Insurance Costs to Claims, Operating, Road Safety and Loss Prevention and Regulatory/Appeal

Based on the assignment of costs to an insurance line of business in Level D, and costs allocated to insurance in Level C, the following table summarizes the allocators used to allocate costs to the appropriate type of expense.

Cost Category	Basis of allocation
Injury claims management - PIPP	100% Claims
Claims Insurance support operations	100% Claims
Claims centres	100% Claims
Physical damage centre	100% Claims
Injury claims management - Liability	100% Claims
Regulatory/Appeal	100% Regulatory/Appeal
Loss prevention programs	100% Road Safety and Loss Prevention
Driver Records	100% Operating
Vehicle Registration	100% Operating
Central Administration	100% Operating
Human Resources and training	100% Operating
Advertising and communications	100% Operating
Accounting and finance	100% Operating
Investments	100% Operating
ID verification and data integrity	100% Operating
Customer service and support	100% Operating
Internal audit	100% Operating
Management Committee	100% Operating
Service Centres	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Corporate information technology	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Product & Policy Management	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Fair practices	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Legal	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Enterprise systems support	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget
Contact Centre Operations	Allocated to Claims and Operating based on 2014/15 Staffing (FTE) budget

Agenda #2d
June 29, 2016

MANITOBA PUBLIC INSURANCE
POLICY FOR ALLOCATION OF BALANCE SHEET ITEMS – ASSETS, LIABILITIES, RETAINED EARNINGS AND ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Description:

The Corporation began utilizing the allocation formulas as detailed in the July, 2010 Deloitte Asset and Liability Allocation Methodology Report effective March 1, 2011. The allocation formulas assign direct and common Balance Sheet items (assets, liabilities, retained earnings and accumulated other comprehensive income) between Basic, Extension, Special Risk Extension (SRE), Discontinued Operations and The Drivers and Vehicles Act Operations.

The balance sheet allocation is primarily used for internal management reporting purposes and to assist in the allocation of investment income.

The SRE line of business includes Balance Sheet items allocated to Discontinued Operations (Personal and Commercial Lines).

Policy Allocation Formula:

The allocation formulas assign Balance Sheet items (assets, liabilities, retained earnings and accumulated other comprehensive income) between Basic, Extension, Special Risk Extension (SRE), Discontinued Operations and The Drivers and Vehicles Act Operations based on:

i. direct identification; any balance sheet account that is identifiable with a specific line of business is assigned directly to that line of business

ii. common Balance Sheet items are allocated based on various ratios (direct premiums written, paid losses, expenses incurred, etc.)

Agenda #2d
June 29, 2016

MANITOBA PUBLIC INSURANCE
POLICY FOR ALLOCATION OF INVESTMENT INCOME AND OTHER COMPREHENSIVE INCOME (LOSS)

Description:

The allocation of investment income and other comprehensive income (loss) is dependent on the allocation of all of the balance sheet items – refer to Agenda F. In July, 2010 Deloitte completed a review of the asset and liability allocation methodology utilized by MPI to create separate balance sheets by line of business and also to form the basis for the allocation of pooled investment income and other comprehensive income (loss) by line of business. Investment income for the purpose of allocation, is net of investment income credited to the provision for pension and investment management fees.

Policy Allocation Formula:

The Corporation pools its investment portfolio. The pooled investment portfolio is marked to market for investments deemed "Fair Value Through Profit and Loss"– marketable bonds, infrastructure investments and pooled investment property funds and investments deemed "Available for Sale"– investments in equities.

The investment portfolio generates two types of income investment income resulting from interest, dividends, realized gains (losses) on the sale of any investments and unrealized gains (losses) on Fair Value Through Profit and Loss investments and other comprehensive income (loss) resulting from unrealized gains (losses) on Available for Sale investments. Investment income is reported on the Statement of Operations. Other comprehensive income (loss) is reported on the Statement of Comprehensive Income (Loss).

The formula used to allocate investment income and other comprehensive income (loss) is based on the net average weighted equity balances pertaining to the following:

- Basic
- Extension
- Special Risk Extension (SRE)
- Discontinued Operations (reported under SRE)
- The Drivers and Vehicles Act Operations

Balance Sheet items (assets, liabilities, retained earnings and accumulated other comprehensive income) are calculated based on ratios recommended by Deloitte in their July, 2010 Asset and Liability Allocation Methodology Report. The resulting net average weighted equity account balances are then used to allocate the pooled investment income and other comprehensive income (loss) between Basic, Extension, SRE, Discontinued Operations and The Drivers and Vehicles Act Operations.

Investment income and other comprehensive income (loss) allocated to Discontinued Operations will be reported under the SRE line of business.

Attachment B
Agenda C.1
January 26, 2017

MANITOBA PUBLIC INSURANCE
POLICY FOR ALLOCATION OF SERVICE FEES AND OTHER REVENUE

Policy Allocation Formula:

Service Fees and Other Revenue	Allocation Basis
Motor Vehicle Transaction Fees	Allocation between Basic and Extension based on Motor Vehicles Direct Premiums Written Ratio
Time Payment Fees Late Payment Fees Motor Vehicle Dishonoured Cheque Fees (Including Brokers) Time Payment Interest Arrears Interest Time Payment Interest – Unearned Adjustment Pre –authorized Payment Default Fees	Allocation between Basic and Extension based on motor vehicles and drivers direct premiums written and driver licencing and vehicle registration fees ratio. Driver licencing and vehicle registration portion to be allocated to Extension.
Non-Policy Admin Fees Non-Policy Late Fees Non-Policy Electronic Dishonoured Fees Non-Policy Interest (net of unearned interest) Rental Car Certificate Replacement Fees	100% Extension
Enhanced Identity Application Charge Identity Card/Enhanced Identity Card Charge Identity Card/Enhanced Identity Card/Enhanced Drivers Licence Replacement Charge Commissions – Snoman Ignition Interlock Fee Drivers Licence Late Fees Motor vehicle information disclosure revenue Cognitive Assessments Fee Canadian Council of Motor Transport	100% The Drivers and Vehicles Act Operations

Service Fees and Other Revenue Continued	Allocation Basis Continued
Driver's Education Course Fees Physical Damage – Training Revenue Garage Keeper's Act	Allocation to Basic, Extension and SRE based on claims incurred payments ratio
Salvage Sales Revenue Unclaimed Cheques Miscellaneous Revenue	Allocation to Basic, Extension, SRE and DVA based on earned revenue ratio
DriverCheck Payments SRE Fronting Fees IRP – SRE Time Payment Interest	100% SRE
Other Income - Basic	100% Basic

Attachment C
Agenda C.1
January 26, 2017

MANITOBA PUBLIC INSURANCE
POLICY ON ACCOUNTS RECEIVABLE WRITE-OFFS
AND ALLOWANCE FOR DOUBTFUL ACCOUNTS

1. **Motor Vehicle Accounts Receivable**

Description - Motor Vehicle receivables occur as a result of underpayment of insurance premiums, cheques not honoured by the client's bank and non payment of time payment installments (4-pay, policy and non-policy financing) or late payment fees.

Policy - Accounts are written-off if they have been outstanding for five years.

An allowance for Underpayments and Arrears are established based on 2% of the receivables less than 4 years old and 100% of receivables 4 years old or greater.

An allowance for motor vehicle arrears resulting from policy and non-policy financing agreements are established based on 5% of receivables less than 4 years old and 100% of receivables 4 years old or greater.

An allowance for motor vehicle arrears resulting from 4-pay Time Payments is established based on 1% of the receivables less than 4 years old and 100% of receivables 4 years old or greater.

Percentages are set based on historical analysis.

2. **Drivers Underpayments Accounts Receivable**

Description - Drivers receivables consist of underpayment of driver and additional driver premiums, cheques not honoured by the client's bank and non payment of time payment installments or late payment fees.

Policy - Accounts are written-off if they have been outstanding for five years, or earlier if the driver is deceased.

An allowance is established based on 5% of the receivables less than 4 years old and 100% of receivables 4 years old or greater.

Percentages are set based on historical analysis

3. **Subrogation Accounts Receivable**

Description - Subrogation accounts receivables are established when the Corporation is required to pay a third party claim for damages, injury or death caused by a first party who is uninsured or in breach of coverage.

Policy - Uncollectible subrogation files are written-off based on a review of each individual account. These items will be included in the annual write-off report, approved by the Board of Directors.

Expected future subrogation recoveries will be included in the actuary's valuation of policy and claim liabilities.

4. **Fleet Surcharge Accounts Receivable**

Description - Fleet surcharges consist of additional premiums charged to owners of ten or more vehicles who have an unfavourable loss experience. The assessment ranges between 1% and 50% of the original premiums paid in accordance with Manitoba Regulations 289/88R Section (63).

Policy - Accounts are written-off based on a review of each individual account.

An allowance is established based on a review of the collectability of each individual account.

5. **Reinsurance Ceded Accounts Receivable & Reinsurer's Share of Unpaid Claims**

Description - The Corporation cedes certain risks above certain limits to reinsurers. If the Corporation pays claims above these limits they become receivables from the company assuming these risks. In addition, unpaid claims are recognized as the reinsurer's share of unpaid claims and recorded as an asset.

Policy - On an annual basis, prior to fiscal year end, receivable accounts are written-off based on a review of each individual account.

An allowance for reinsurer's share of unpaid claims is included in the provision for adverse deviation (PFAD) component of the actuary's valuation of unpaid claims.

6. **Miscellaneous Accounts Receivables**

Description - Miscellaneous accounts receivables are established from a variety of sources such as outstanding rates appeal fees, salvage receivables, agents' receivables and miscellaneous returned cheques.

Policy - Accounts are written-off based on a review of each individual account.

An allowance is established based on a review of the collectability of each individual account.

Manitoba Public Insurance
Policy for Writing Down Investments

Procedure

Management will perform an annual review at corporate year end of all individual corporate investments with a market value below book value or cost by $150,000 or by 20% or more to assess whether there has been a loss in value that is other than a temporary decline in the value of the investment. Any other individual holdings identified in a non-specific manner as having a potential impairment will also be subject to review. The annual review will be on a per security basis, not on a per investment counsel basis and will only be deemed impaired if the impairment is significant or prolonged.

Definitions

Significance:

$2.5 million per security
With over $2.5 billion in investments, a movement of $150,000 is not significant (this is the threshold for review only). A 1% movement in the total investment portfolio would equate to $25 million. Significance on a portfolio basis would be $25 million. Significance on an individual security would be a portion of the portfolio significance. Ten percent of the portfolio movement would be $2.5 million and this would be considered significant on an individual security.

20% decline where decline is over $500 thousand
A 20% decline is significant so long as there is still a material dollar movement in the security. A 20% decline in an equity security also needs to be more than 20% of the overall significance of an individual security which is $500 thousand (20% of $2.5 million).

Prolonged:

A prolonged decline is any decline that has occurred for more than one year.

Considerations

A loss in value of an investment is other than temporary when any one of the following three items occur in isolation or together: a significant decline in the market value below book value or cost; a prolonged decline; or significant changes with an adverse effect that has taken place in the technological, market, economic or legal environment in which the issuer operates and indicates that the cost of the investment may not be recovered.

The following guidelines, to satisfy International Accounting Standard 39 – Financial Instruments: Recognition and Measurement, will be used in evaluating whether other than temporary impairment in value of an investment may have occurred for consideration under the third requirement noted above.

- Has the issuer experienced severe market value losses in the current year or current and prior years?
- Have financial losses by the issuer existed for a period of years?
- Is the issuer experiencing depressed and declining earnings in relation to competition, erosion of market share, and deteriorating financial position?
- Has the trading of the security been suspended?
- Has the active market for this security disappeared?
- Does the issuer have going concern or liquidity concerns?
- Is the appraised value of the investment below the carrying value?
- What is the expected period of time required for any anticipated recovery in market value?
- Is there an expectation of, or actual default/delay, interest or principal payments for a fixed income security?

Write-Down of Impaired Investments

Once a decline in fair value of a corporate investment is considered other than temporary, it is deemed impaired. The accounting treatment of an impaired asset depends on its classification: 1. Assets measured at amortized cost (Held to Maturity) or 2. Assets measured at fair value (Available for Sale or Fair Value through Profit or Loss) and type (Equity or Fixed income).

1. **Assets Measured at Amortized Cost**

   - **Held To Maturity**

     The amount of the impairment loss is the difference between the carrying value and the present value of estimated future cash flows discounted at the financial asset's original effective interest rate (effective interest rate computed at initial recognition) and recognized in profit/loss for the period.

2. **Assets Measured at Fair Value**

   - **Available for Sale**

     Where a decline in fair value has been recognized in other comprehensive income, a cumulative loss is reclassified from accumulated other comprehensive income to profit/loss. The cumulative loss reclassified to profit/loss is the difference between book value (amortized cost) or cost and fair value less any impairment losses previously recognized.

   - **Fair Value through Profit or Loss**

     The decline in fair value is recognized in profit/loss for the period with no impact on accumulated other comprehensive income.

A write-down of an impaired Available for Sale **equity** investment to reflect a decrease in value that is other than temporary will not be reversed through profit/loss if there is a subsequent increase in value of that investment. Any increase in fair value subsequent to an impairment loss is recognized in other comprehensive income.

A write-down of an impaired Available for Sale **fixed income** investment to reflect a decrease in value that is other than temporary must be reversed through profit/loss if there is a subsequent increase in value of that investment and this increase can be related to a specific event after the loss was recognized.

When the fair value of an investment within a portfolio is significantly less than the book value or cost and no write-down has been taken, disclosure to the Audit, Finance & Risk Committee will be made of:

- the cost, book value, carrying value and the fair value of the investment; and,
- the reasons for not reducing the carrying amount, including the nature of the evidence that provides the basis for management's belief that the decrease in value will be recovered.

Fair Value

Determination of fair value starts with the identification of the current value as indicated by a quoted price (bid or last trade) in active markets, reasonably close to the date of assessment.

When quoted market prices are not available, estimates of fair value are based on the best information available, including prices for similar investments and the results of other acceptable valuation techniques.

Agenda #2d
June 29, 2016

MANITOBA PUBLIC INSURANCE POLICY FOR ALLOCATION OF REINSURANCE CEDED PREMIUMS

Policy Allocation Formula:

For the allocation of the casualty program, the flat premium for the first layer is allocated based on a split between Basic and SRE. The SRE premium is determined by actual premiums written in the preceding year multiplied by the Gross Net Earned Premium Income. This is the rate that SRE paid on written premiums when these premiums were subject to a separate cession agreement. The remainder is allocated to Basic.

For the allocation of the catastrophe program, the premiums are allocated based on Gross Net Earned Premium Income.

Attachment E
Agenda C.1
January 26, 2017

MANITOBA PUBLIC INSURANCE
POLICY FOR CAPITALIZATION OF ORGANIZATIONAL AND DEVELOPMENT COSTS

Description

The Corporation has various Initiatives and Projects which are expensed or reviewed by management for capitalization in accordance with IFRS, IAS 38 Intangible Assets.

Deferred Development Costs, which are "internally generated intangible assets" under IFRS, IAS 38 Intangible Assets will be evaluated for all lines of business (Basic, Extension, Special Risk Extension and Driver & Vehicle Administration Operations) against the criteria for determining if such costs are to be deferred to future periods or expensed in the current period.

Policy

Projects are to be capitalized as an asset and deferred to future periods when they meet all of the following 4 criteria:

1. Identifiability – the asset is separable and arises from contractual or other legal rights.
2. Control – the corporation has the power to obtain the future economic benefit and/or restrict others to those benefits.
3. Future economic benefit – the corporation benefits from the use of the asset (revenue, cost savings or other benefits).
4. Total project costs to be deferred are equal to or greater than $500,000.

When capitalizing a project, the following types of expenses may be considered to be deferred:

- Payments to outside companies such as contract fees, data centre services, consulting costs, travel and incidental costs;
- Payments associated with direct assigned employee compensation costs including travel and incidental costs;
- Data processing costs for testing computer systems being developed; and
- Packaged software costs.

Organizational and development projects will be amortized over a five year period unless the useful life is deemed to be shorter.

Attachment B
Agenda C.3
January 18, 2018

MANITOBA PUBLIC INSURANCE
POLICY ON THE PROVISION OF NON-AUDIT SERVICES BY EXTERNAL AUDITORS

Description:

The Corporation will periodically use the services of the External Auditors in relation to non-audit related work.

Annually, the Audit, Finance & Risk Committee approves the total amount of non-audit services that can be conducted by the External Auditors prior to requiring Audit, Finance & Risk Committee approval on individual engagements once this amount is reached.

Policy:

Management can engage the External Auditors in non-audit related work assignments on an annual basis up to and not exceeding a total amount of $50,000.

Once the $50,000 threshold has been reached in the year, any subsequent engagement in excess of $5,000 requires prior approval by the Audit, Finance & Risk Committee.

Annually, Management will report to the Audit, Finance & Risk Committee, the nature and amount of non-audit engagements with the External Auditor.

PUB (MPI) 2-2

Part and Chapter:	**PUB (MPI) 1-1 Investment Committee Minutes April 30, 2018**	**Page No.:**	
PUB Approved Issue No:	**1. Requested Vehicle Rate and Any Changes to Other Fees and Discounts** **7. Update on DCAT** **9. Cost of Operations and Cost Containment Measures** **19. Current IT Strategic Plan and IT Expenses and Projects** **21. Asset Liability Management Study**		
Topic:	**Financial Overview**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please file the respective documents approved by the Board of Directors including asset allocation and implementation plan.

Rationale for Question:

To understand Corporate decisions that impact Basic.

RESPONSE:

This information was included as appendices to the Investment chapter of the 2019 General Rate Application. Please see the following documents:

1. *Part VI INV Appendix 12*: Mercer ALM Study Phase One Report (21 Dec 2017)

2. *Part VI INV Appendix 13*: Mercer ALM Study Phase Two Report (8 Dec 2017)

3. *Part VI INV Appendix 14* Mercer ALM Study Phase Three Report (16 Jan 2017)

4. *Part VI INV Appendix 16*: ALM Implementation Plan

PUB (MPI) 2-3

Part and Chapter:	**PUB (MPI) 1-1 Appendix 1 I OV**	**Page No.:**	**38**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures 19. Current IT Strategic Plan and IT Expenses and Projects 21. Asset Liability Management Study**		
Topic:	**Financial Overview**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please file the "PDR Business Case and Customer Claims Reporting System (CCRS) Next Steps" presentation material which was used by the Board of Directors to close down the project.

Rationale for Question:

To understand Corporate decisions that impact Basic.

RESPONSE:

This material has been provided in *Appendix 1*, to *PUB (MPI) 1-67*. MPI has filed a motion seeking confidential treatment of this document.

PUB (MPI) 2-4

Part and Chapter:	**PUB (MPI) 1-3, PUB (MPI) 1-8**	**Page No.:**	
PUB Approved Issue No:	**2. Rate Indication** **4.a. Financial Forecast- Financial Forecast Accuracy**		
Topic:	**Financial Forecast Model**		
Sub Topic:			

Preamble to IR (If Any):

MPI has indicated the new discount yield rate to be 3.21% at September 1, 2019, based on an assumed 28.1% investment in Corporate Bonds.

The portfolio to be implemented per PUB/MPI 1-8 reflects a 20% allocation to Corporate Bonds and 20% to MUSH. The forecast of the Investment Portfolio Asset Values for the Basic Line of Business indicates that the allocation to Corporate Bonds will be 21.4% om 2022/23. [Figure INV-3]

Question:

Please reconcile and explain why MPI is assuming a 28.1% allocation to Corporate Bonds for the determination of the discount rate.

Rationale for Question:

To assess the reasonableness of the Basic financial forecast assumptions.

RESPONSE:

As of September 1, 2019 in the financial model, Basic's allocation to government, corporate, and MUSH bonds was 52.2%, 20.3% and 27.5% respectively. As per Figure 1 in *PUB (MPI) 1-3*, the percentage allocation of government and corporate bonds (excluding MUSH bonds) was 71.9% and 28.1% respectively. The new money yield excludes MUSH bonds because MPI does not intend to purchase non-marketable bonds going forward. As such, "new money" derived from policies issued in the 2019/20 rating year, will not be allocated for the purchase of non-marketable bonds.

PUB (MPI) 2-5

Part and Chapter:	**PUB (MPI) 1-3 V RM**	**Page No.:**	**19**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Cash Flow Discount Rate**		

Preamble to IR (If Any):

The GRA states "*The investment return used to discount future payments is based on the market value weighted yield of MPI's marketable bonds portfolio i.e. the new money yield.*"

Question:

a) Why make reference to the "*yield of MPI's marketable bonds portfolio*" in this context if new money rates are being used?
b) Please tie the market values shown in Figure 1 in PUB (MPI) 1-3(a) for Q2 2019/20 Provincial and Corporate marketable bonds to a schedule in the GRA materials showing forecasted portfolio market values.
c) Please tie the yields to maturity in Figure 1 in PUB (MPI) 1-3(a) for Q2 2019/20 Provincial and Corporate marketable bonds to a schedule in the GRA materials showing forecasted bond yields.
d) Please provide a table comparable to Figure 1 in PUB (MPI) 1-3(a) in support of the derivation of the 50/50 interest rate forecast discount rate provided (3.50%), including tying in the yields to maturity to a schedule in the GRA materials showing 50/50 interest rate forecasted bond yields.

Rationale for Question:

To assess the sensitivity of the rate indication to the cash flow discount rate selection.

RESPONSE:

a) The quote was written that way to explain that MUSH bonds are excluded from the new money yield - the forecasted yield of the marketable bond portfolio (excluding MUSH bonds) as of September 1, 2019 is the same yield as the new money yield. With this context, the quote could be rephrased to say "The investment return used to discount future payments is based on the new money yield i.e. the market value weighted yield of MPI's marketable bonds portfolio as of September 1, 2019."

b) *Figure INV-52* shows the Basic Claims asset allocation for the end of Q4 2019/20 (note that the heading for line 2 says Government bonds, but should say Provincial bonds). The market values provided in Figure 1of *PUB (MPI) 1-3* are as of the end of Q2 2019/20. The market values are higher in Q4 2019/20 compared to Q2 2019/20 because of the re-investment of interest income and operational cash. MPI will provide a schedule for the derivation of the new money yield for next year's rate application.

c) See Figure *INV-14*, *INV-15* and *INV-16* line 11 for the marketable bond, provincial and corporate bond yield at the end of Q4 2019/20. Since the naïve forecast was used, the Q4 2019/20 yields match the Q2 2019/20 yields in Figure 1 of *PUB (MPI) 1-3*.

d) See Figure 1 below for the new money yield calculation for the March 50/50 interest rate forecast.

Figure 1: New Money Yield Calculation March 50/50 Interest Rate Forecast

Line No.	New Money Yield Calculation	Q2 2019/20*
1	*(C$000s)*	
2	Market Value	
3	Provincial Bonds	947,854
4	Corporate Bonds	372,659
5	Total Marketable Bonds	1,320,514
6		
7	Percentage Allocation	
8	Provincial Bonds	71.8%
9	Corporate Bonds	28.2%
10	Total Marketable Bonds	100.0%
11		
12	Yield To Maturity	
13	Provincial Bonds	3.23%
14	Corporate Bonds	4.19%
15	New Money Yield	3.50%
16	** Forecast for August 31, 2019, which is used for the September 1, 2019 New Money Yield*	

The question asks for the 50/50 interest rate forecasted bond yields to be tied to a schedule in the GRA materials. As MPI did not apply for rates based on the 50/50 interest rate forecast, no such materials in the GRA exist. The information can be calculated as follows:

- See *Figure INV-42* line 6 for the 50/50 GoC 10 year interest rate forecast, which is 2.53%. The provincial and corporate bond yields can be calculated by adding the 50/50 GoC 10 year interest rate forecast (2.53%) and the provincial/corporate spread:

  - Provincial bonds have a forecasted duration of 9.8 years as of Q2 2019/20 (using the 50/50 forecast). As shown in Figure INV-19 and as per the discussion in INV.4.3.5, the provincial bond spread is 70 bps over the GoC 10 year bond yield (2.53% + 0.70% = 3.23%)

  - Corporate bonds have a forecasted spread of 166 bps over the GoC 10 year bond, which is discussed in INV.4.3.5. (2.53% + 1.66% = 4.19%).

PUB (MPI) 2-6

Part and Chapter:	**PUB (MPI) 1-3(d) V RM**	**Page No.:**	**19**
PUB Approved Issue No:	**2. Rate Indication**		
Topic:	**Ratemaking in Accordance with Accepted Actuarial Practice**		
Sub Topic:	**Cash Flow Discount Rate**		

Preamble to IR (If Any):

Based on the Application, the rate request consists of a 2.1% Net Capital Maintenance Provision ("NCMP") and a 0.1% increase to the breakeven cost of policies, for an overall rate indication of 2.2%

Utilizing a 50/50 interest rate forecast results in the overall indicated rate increase declining by 100 basis points and the required increase for breakeven cost of policies declines by 60 basis points.

Question:

a) Please file a table of the indicated and approved rate increase by customer class using the 50/50 interest rate forecast.

b) Please refile Figure MR-14 including an additional column for proposed dollar rate change based on use of an updated 50/50 interest rate forecast.

c) Please file RM-15 using an updated 50/50 interest rate forecast.

d) Please provide the derivation of the restated NCMP (an apparent decline of 40 basis points) as a result of the used of the 50/50 interest rate forecast with accompanying narrative to support the change.

Rationale for Question:

To assess the sensitivity of the rate indication to the cash flow discount rate selection.

RESPONSE:

MPI has provided the response to this information request below, but reminds the PUB that MPI has applied for rates for service based on the best estimate naïve interest rate forecast.

In the 2018 GRA MPI indicated that Basic suffered $163 million in premium deficiency as a result of interest rates not materializing between 2014/15 and 2016/17.

In this application, MPI has demonstrated that the naïve forecast is a best estimate, and that the selection of this estimate is supported both by the Corporation and by the Corporation's external actuary. These facts are established in Sections *INV 1.1* and *INV.2.3* of Part VI Investments, and MPI has expanded on these and related points in the following IR responses:

- CAC (MPI)1-4
- CAC (MPI)1-5
- CAC (MPI)1-6
- CAC (MPI)1-7
- CAC (MPI)1-8
- CAC (MPI)1-18
- PUB (MPI)1-11
- PUB (MPI)1-28
- PUB (MPI)2-5
- PUB (MPI) 2-9
- PUB (MPI) 2-39
- CAC (MPI) 2-1

Taken together, this body of evidence establishes that the naïve forecast is a best estimate, and the information provided below deviates from best estimate assumptions.

a) Refer to the response to (b) below.

b) Refer to the table below:

Figure 1: Major Class Summary Report

Line No.	Major Class	Vehicle Count*	Current Average Rate*	Proposed Average Rate		Proposed Rate Change		Experience Rate Change	
				Naïve I/R*	50/50 I/R	Naïve I/R*	50/50 I/R	Naïve I/R*	50/50 I/R
1	**Private Passenger**	801,726	$1,111	$1,138	$1,126	2.4%	1.4%	2.4%	1.4%
2	**Commercial**	46,246	$780	$798	$790	2.4%	1.3%	2.6%	1.4%
3	**Public**	12,630	$2,003	$2,014	$1,994	0.6%	-0.5%	-0.2%	-1.2%
4	**Motorcycles**	17,023	$797	$822	$807	3.1%	1.3%	3.2%	1.4%
5	**Trailers**	200,677	$81	$78	$77	-4.7%	-5.3%	-4.6%	-5.2%
6	**Off-Road Vehicles**	70,838	$10	$8	$8	-20.0%	-20.0%	-36.0%	-36.8%
7	**Overall**	1,149,140	$855	$874	$865	2.2%	1.2%	2.2%	1.2%
8	*Per Figure RM-14								

c) Refer to the table below:

Figure 2: Dollar Distribution Table

Line No.	$ Change	# of Vehicles	% of Vehicles
1	**Decrease $300 or more**	131	0.01%
2	**Decrease $200 to $299**	529	0.05%
3	**Decrease $150 to $199**	3,244	0.28%
4	**Decrease $100 to $149**	27,722	2.41%
5	**Decrease $50 to $99**	124,912	10.87%
6	**Decrease $20 to $49**	144,330	12.56%
7	**Decrease $1 to $19**	210,838	18.35%
8	**No Change**	87,688	7.63%
9	**Increase $1 to $19**	151,947	13.22%
10	**Increase $20 to $49**	105,294	9.16%
11	**Increase $50 to $99**	216,250	18.82%
12	**Increase $100 to $149**	57,342	4.99%
13	**Increase $150 to $199**	13,353	1.16%
14	**Increase $200 to $299**	5,529	0.48%
15	**Increase $300 or more**	*31	0.00%
16	**GRAND TOTAL**	**1,149,140**	**100%**
17	*Of those 31 units, 22 are Taxicab Vehicle-for-Hire 4 in Territory 3		

d) The 40 basis point difference (i.e. 2.1% compared to 1.7%) in the impact of the Net CMP on the required overall rate is driven by two factors:

First, the 50/50 forecast results in an increase in capital available in 2019/20. This increase occurs because increasing interest rates have a favorable impact on net income. This impact is partially offset by the lower breakeven rate requirement of -0.5% compared to 0.1% based on the naïve forecast.

The table below presents the change in the capital available between 2018/19 and 2019/20 based on breakeven rate requirement. The higher increase in the capital available under the 50/50 scenario of $3.0 million results in an equivalent decrease in the amount needed to maintain capital adequacy.

Figure 3: Capital Available Based on Breakeven Rate Requirement

Line No.	Interest Rate Scenario	2018/19	2019/20	Change
1	(C$'000)			
2	Naïve Scenario	210,765	211,178	413
3	50/50 Scenario	219,790	223,190	3,400
4	Additional Capital Available from the 50/50 Scenario			2,987

Second, the required change in the capital available to maintain the 2018/19 MCT ratio is smaller under the 50/50 scenario. The table below shows the required change in capital available to maintain the 2018/19 MCT ratio.

Figure 4: Required Change in Capital Available to Maintain the 2018/19 MCT Ratio

Line No.	Interest Rate Scenario	Capital Required 2018/19	Capital Required 2019/20	Change in Capital Required	Capital Available 2018/19	Change in Capital Available*
1	(C$'000)					
2	Naïve Scenario	303,315	335,160	10.5%	210,765	22,128
3	50/50 Scenario	302,191	331,912	9.8%	219,790	21,617
4	**Variance**					**-511**
5	*Reflects the required change in capital available to maintain the 2018/19 MCT ratio;					
6	equal to the Change in Capital Required * Capital Available 2018/19					

The total impact of these two factors is a $3.5 million decrease in the amount of capital needed to maintain capital adequacy, which translates into the 40 basis point difference in the impact of the Net CMP on the required overall rate.

The figures for capital available and capital required in the tables above were taken from *PUB (MPI) 1-76, Appendix 1* and *Appendix 1a*, except for the $331.9M capital required for 2019/20 under the 50/50 scenario. The $331.9M reflects the capital required for 2019/20 under the 50/50 scenario based on the rate requirement including net CMP of 1.2%.

PUB (MPI) 2-7

Part and Chapter:	**PUB (MPI) 1-7 VI INV**	**Page No.:**	**48**
PUB Approved Issue No:	**4.a Financial Forecast – Financial Forecast Accuracy**		
Topic:	**Canadian Equities**		
Sub Topic:	**Turnover Assumption**		

Preamble to IR (If Any):

Question:

Why is the Corporation planning to change its position in equity holdings to be only in pooled funds in 2019/20 and subsequent years?

Rationale for Question:

To assess the reasonableness of the Basic financial forecast assumptions.

RESPONSE:

The allocation to Canadian equities will be decreasing to approximately 4.2% of the total portfolio and will be split across four of the five new portfolios. Therefore, the allocations to equities within the new portfolios will be as small as $3 million, which does not meet the required minimum for a segregated account. Even when the amounts are aggregated across the four portfolios containing equities, the amounts likely do not meet the required minimum for a segregated account.

PUB (MPI) 2-8

Part and Chapter:	**PUB (MPI) 1-8(b)** **VIII FFM**	**Page No.:**	**6**
PUB Approved Issue No:	**4.a Financial Forecast – Financial Forecast Accuracy**		
Topic:	**Financial Forecast Model**		
Sub Topic:	**Update for ALM Changes**		

Preamble to IR (If Any):

Question:

Can financial forecast modeling assumptions be separately specified for each of the investment portfolio buckets?

Rationale for Question:

To better understand the capabilities of the financial forecast model.

RESPONSE:

See Figure 1 below for the modeling assumptions specific to each of the investment portfolio buckets for 2019/20 and thereafter. Note that the Basic Claims portfolio contains no growth assets.

Figure 1: Modeling Assumptions for 2019/20 and Thereafter

Line No.		Basic	RSR	EFB
1	Marketable Bonds (Government, Corporate, Provincial)			
2	Turnover	65%	65%	Same as RSR
3	Yield to Maturity	See INV.4.3.4	See INV.4.3.4	Same as RSR
4	Overall Duration Gap	0.0 years	0.0 years	Same as RSR
5	MUSH			
6	New MUSH Purchases	n/a	n/a	n/a
7	Private Debt			
8	Private Debt Spread	n/a	1.42%	Same as RSR
9	Private Debt Purchases	n/a	Funding occurs in 2019/20	Same as RSR
10	Canadian Equities			
11	Total Return	n/a	7.0%	Same as RSR
12	Dividend Yield	n/a	3.1% 2018/19, 3.2% 2019/20, 3.4% 2020/21 and thereafter	Same as RSR
13	Capital Return	n/a	Total Return - Dividend Yield = Capital Return	Same as RSR
14	Turnover Ratio (Annual)	n/a	0.2 for 2018/19, 0.0 for 2019/20 and thereafter	Same as RSR
15	Global Equities and Global Low Vol			
16	Total Return	n/a	7.0% for Global Equities, 6.4% for Global Low Vol	Same as RSR
17	Dividend Yield	n/a	2.7% 2019/20, 2.8% thereafter	Same as RSR
18	Capital Return	n/a	Total Return - Dividend Yield = Capital Return	Same as RSR
19	Turnover Ratio (Annual)	n/a	0	Same as RSR
20	Real Estate Pooled Fund			
21	Return	n/a	CPI + 4%: 6.2% in 2018/19, 6.1% in 2019/20 and 6.0% thereafter	Same as RSR
22	Funding	n/a	$0 funding over the five year forecast	Same as RSR
23	Investment Properties (Cityplace)			
24	Investment Property Income	n/a	Based on manager's projections	Same as RSR
25	Infrastructure			
26	Return	n/a	CPI + 5%: 7.2% in 2018/19, 7.1% in 2019/20 and 7.0% thereafter	Same as RSR
27	Funding	n/a	No additional funding for infrastructure forecasted	Same as RSR
28	Rebalancing Assumptions and Asset Allocation	See INV.11.2 Basic Portfolio supporting Basic Claims Liabilities Rebebalancing	See INV.11.3 RSR and EFB Rebalancing Assumptions	See INV.11.3 RSR and EFB Rebalancing Assumptions

PUB (MPI) 2-9

Part and Chapter:	**PUB (MPI) 1-11(a) VI INV**	**Page No.:**	**31**
PUB Approved Issue No:	**4.d. Financial Forecast – Justification for the Use of Naïve Forecast**		
Topic:	**Interest Rate Forecasting**		
Sub Topic:	**Use of Naïve Interest Rate Forecast**		

Preamble to IR (If Any):

Question:

Please discuss how the predominant pattern of decline in Government of Canada 10-year bond yields over most of the 14 year history used in the paired sample t-test on the sample mean as provided in PUB (MPI) 1- 11(a) affects the conclusion of that test.

Rationale for Question:

To clarify the strength of the Corporation's position on interest rate forecasting.

RESPONSE:

The banks surveyed in the Standard Interest Rate Forecast (SIRF) use a form of mean reversion for their interest rate forecasts, which causes their forecasts to be biased upwards, particularly in a flat or decreasing interest rate environment. The naïve forecast over the last 14 years, which is neither biased upwards or downwards, has produced a forecast with the least amount of bias, while the SIRF and 50/50 forecast have had significantly higher bias. This is the actual historical performance of the 50/50 (SIRF) interest rate forecast, and the basis on which MPI has selected the naïve forecast as a best estimate.

It is not a given that that the interest rate environment is currently rising, as the GoC 10 year bond yield at August 31st was 2.23%, against the 2.24% naïve forecast in the GRA. Nor is it a given that the interest rate environment will be rising in the future.

However, the interest rate environment could potentially increase, and if so, it is nevertheless unclear what the results of the paired sample t-test would be for the 50/50 forecast and naïve forecast when Government of Canada 10-year bond yields are rising. No data and experience exist to observe and test the results. Therefore, MPI cannot comment on what the results would be of such a hypothetical test.

Accordingly, MPI is left with only the actual historical data on which to base its estimates, which it has done, in the selection of the naïve forecast.

PUB (MPI) 2-10

Part and Chapter:	**PUB (MPI) 1-16** **VI RSR**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**Basic Total Equity Target Range Thresholds**		
Sub Topic:	**2018 GRA Approved Methodology**		

Preamble to IR (If Any):

Question:

a) Please provide the summary of the adverse scenario assumed routine management / regulatory rate change actions (i.e., excluding RSR rebuilding fee actions) as requested in PUB (MPI) 1-16(b).

b) In PUB (MPI) 1-16(c), the Corporation's response indicates "*it is inappropriate to view the establishment and maintenance of Basic's satisfactory financial condition as a theoretical exercise*". In this context, please discuss the use of a theoretical base scenario financial forecast and the stressing of that forecast using theoretical plausible adverse scenarios in the Corporation's DCAT and its approach to setting the Basic Total Equity target range thresholds.

c) In RSR.4, the Corporations states "*The methodology ordered by PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million, which is below the amount of $143 million required for satisfactory financial condition.*" Please confirm that this conclusion is in large part due to the exclusion of the CMP from the DCAT base scenario, and the declining MCT ratio then expected over the forecast period.

d) Would the Corporation agree that the Board approved iterative methodology used to derive a modified base scenario, while not a best estimate of forecasted Basic financial results generally (in a similar manner that each tested adverse scenario in the Corporation's DCAT is not a best estimate of forecasted Basic financial results),

is a best estimate of Basic financial results if Basic was operating steadily at the specified Basic Total Equity threshold level?

Rationale for Question:

To assess the Corporation's decision to deviate from the Board approved methodology.

RESPONSE:

a) The assumed routine management/regulatory rate changes are outlined in *Figure 20* of *Part VI DCAT.5.1*, which has been reproduced below for convenience.

Figure DCAT- 20: Assumed Management and Regulatory Action for Combined Scenarios

Line No.	Combined Scenarios	2019/20	2020/21	2021/22	2022/23
1	Base	0.1% Rate / 0% RSR			
2	1 year	0.1% Rate / 0% RSR	n/a	n/a	n/a
3	2 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	n/a	n/a
4	3 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	2% Rate / 2% RSR	n/a
5	4 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	3% Rate / 2% RSR	3% Rate / 2% RSR

b) There is a difference between theoretical 'best estimate' scenario testing and arbitrary theoretical scenarios. With respect, the determination of the threshold for satisfactory financial condition of Basic by MPI's Chief Actuary is based on best estimates, not imagined base case scenarios. The PUB methodology for the determination of the lower RSR target is not based on best estimates and produces a minimum RSR target that is below the amount required for satisfactory financial condition of Basic. MPI does not support the PUB approach theoretically or in actuality.

c) The inclusion or exclusion of the Capital Maintenance Provision in the determination of the minimum capital levels between the two methodologies does not change the Corporation's conclusion. The inclusion of a CMP in the PUB

iterative methodology would further reduce the minimum capital required and result in an unsatisfactory financial condition.

d) Yes. However, the key reference point for the determination of satisfactory financial condition of Basic is the current RSR balance, not a hypothetical RSR balance. Further, the management actions of the Corporation (e.g. the need for rebuilding fees) and the behavior of the financial model (e.g. the amount invested in equities) will be different depending on the current RSR balance. Such impacts are not properly recognized when modeling theoretical base case scenarios.

PUB (MPI) 2-11

Part and Chapter:	**PUB (MPI) 1-17**	**Page No.:**	
PUB Approved Issue No:	**7.1 Update of DCAT**		
Topic:	**DCAT Modified Base Scenario**		
Sub Topic:	**Treatment of Capital Maintenance Provision (CMP)**		

Preamble to IR (If Any):

Question:

If a suitably defined and Board approved methodology for determining the CMP is established, why would it be inappropriate to include this CMP in the DCAT base scenario as part of a best estimate forecast of Basic financial results?

Rationale for Question:

To assess the Corporation's position on excluding the CMP for DCAT purposes.

RESPONSE:

The establishment of an appropriate RSR range should reflect the best estimate risk level of Basic before the application of capital maintenance provisions. The management of capital within the RSR range would then be determined by MPI's capital management plan. Capital build and release provisions and capital maintenance provisions are examples of how MPI can manage capital within an appropriate RSR range. A capital maintenance provision would not lower the minimum capital targets of 100% MCT for SGI/ICBC/SAAQ nor would it lower the 150% MCT regulatory capital targets of a federally regulated private insurer. MPI does not see any reason why its minimum capital target should be treated any differently.

PUB (MPI) 2-12

Part and Chapter:	**PUB (MPI) 1-22 VI INV Figure INV-5**	**Page No.:**	**14**
PUB Approved Issue No:	**8.(i) Performance of the Investment Portfolio and the composition of the Portfolio**		
Topic:	**Investment Portfolio**		
Sub Topic:	**Major Asset Class**		

Preamble to IR (If Any):

In the 2018 GRA, MPI targeted an 18% allocation to Corporate Bonds, returns of which were based on having a mix of 60% A or better and 40% BBB rated bonds. The introduction of Corporate Bonds was expected to increase the yields and return from the investment portfolio.

MPI indicates that at the end of 2017/18 MPI had $99 million in Corporate Bonds, for an allocation of 4.2% of the portfolio. As at June 30, 2018 MPI reported investment in Corporate Bonds of $116 million, or 4.1%, of the portfolio. This is $26 million more than reported at the end of last year. MPI does not appear to have made any investments in BBB rated bonds to date. MPI is forecasting to have $403 million in Corporate Bonds by the end of 2018/19.

Question:

a) Please indicate the forecasted level of investment in Corporate bonds in each of the remaining quarters of the current fiscal year.
b) Please indicate the forecasted yield on Corporate bonds for 2018/19 and 2019/20, based on the actual and forecast purchases.

Rationale for Question:

To assess the reasonableness of forecasted investment income.

RESPONSE:

a) See Figure 1 below.

Figure 1: Forecasted Corporate Bond Market Value and Allocation (%)

Line No.	Quarter	Corporate Bond Market Value (C$000s)	Percentage of the Total Portfolio (%)
1	**Q2 2018/19**	262,977	9.2%
2	**Q3 2018/19**	414,561	14.3%
3	**Q4 2018/19**	618,898	21.0%

No new purchases of corporate bonds have occurred to date as the new corporate bond manager has not yet been selected. The Corporation is in the process of hiring a consultant to assist with the search for new investment managers. Purchases of new corporate bonds is now not expected to begin until March 1, 2019 as changes to our accounting systems and investment income allocation policy cannot occur until the new fiscal year. As a result, no changes can be made to the current 70% bond/30% growth asset allocation without having an adverse impact on the interest rate risk mitigation strategy. The majority of purchases of corporate bonds are expected to be funded by the sale of growth assets (equities, real estate and infrastructure), which would affect the fixed income/growth assets split.

b) The 2018/19 and 2019/20 forecasted corporate bond yields are shown in Figure 2 below. When the 2019 GRA forecast was set, no corporate bonds had been purchased fiscal year-to-date in 2018/19. See INV.4.3.4 for the yield to maturity assumptions used in 2018/19. See INV.4.3.5 for the yield to maturity assumptions used in 2019/20.

Figure 2: Forecasted Corporate Yield

Line No.	Quarter	Corporate Bond Yield (Forecast)
1	**Q1 2018/19**	3.35%
2	**Q2 2018/19**	3.53%
3	**Q3 2018/19**	3.71%
4	**Q4 2018/19**	3.90%
5	**Q1 2019/20**	3.90%
6	**Q2 2019/20**	3.90%
7	**Q3 2019/20**	3.90%
8	**Q4 2019/20**	3.90%

PUB (MPI) 2-13

Part and Chapter:	**PUB (MPI) 1-24 PUB (MPI) 1-26(c) Figure INV-2 and INV-3**	**Page No.:**	**11- 12**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Accommodation of Commingled Portfolio**		

Preamble to IR (If Any):

MPI has indicated that it is determining a new allocation methodology for its balance sheet and investment income.

Question:

a) Please provide the supporting detail for the investment income forecast to be allocated to Basic, including the proportion to be reported in Basic's annual report related to the investment in Pension and RSR for the years 2019/20 and 2020/21.
b) Please file a Summary of Corporate Investment Income and provide a comparison in terms of dollars and percentage of the investment income related to Basic.
c) Please indicate how the Corporation intends to fund the remaining 48% or assets required to segregate the portfolio, and the expected transactional impacts.

Rationale for Question:

To understand the details and impact of the accommodations of the commingled portfolio**.**

RESPONSE:

a) See Figure 1 below.

Figure 1: Basic Line of Business Investment Earnings Summary

Line No.	(C$000's)	2019/20	2020/21
1	Basic Claims	70,316	72,609
2	RSR	11,830	12,254
3	**Total Basic Investment Income**	**82,147**	**84,863**
4	Add: Basic's share of Income on Pension Assets	15,209	13,995
5	**Total Earnings on Investment Assets**	**97,356**	**98,858**

b) See Figure 2 below.

Figure 2: Summary of Basic Line of Business Investment Income as a Proportion of Corporate Investment Income

Line No.		2019/20 Basic Forecast	2019/20 Corporate Forecast	2019/20 Difference (C$000s)	2019/20 Difference Percentage	2020/21 Basic Forecast	2020/21 Corporate Forecast	2020/21 Difference (C$000s)	2020/21 Difference Percentage
	(C$000s, except where noted)								
1	Interest Income During Period								
2	Cash/Short Term Investments	90	90	-	100%	-	-	-	-
3	Provincial Bonds	30,286	31,851	1,565	95%	33,170	35,075	1,905	95%
4	Corporate Bonds	18,375	22,356	3,981	82%	20,233	25,332	5,099	80%
4	MUSH	23,699	24,361	662	97%	21,465	22,065	600	97%
5	Private Debt	986	3,755	2,769	26%	2,630	10,014	7,384	26%
6	Total	73,436	82,413	8,977	89%	77,497	92,485	14,988	84%
7	Dividend and other Income								
8	Canadian Equities	1,690	5,690	4,000	30%	1,422	4,657	3,235	31%
9	Global Equities	1,423	5,979	4,556	24%	1,271	4,978	3,707	26%
10	Global Low Volatility	869	2,898	2,029	30%	961	3,293	2,333	29%
11	Investment Properties (CityPlace)	642	1,926	1,284	33%	837	2,512	1,675	33%
12	Infrastructure	239	1,133	894	21%	249	1,180	931	21%
13	Total	4,863	17,626	12,763	28%	4,740	16,620	11,881	29%
14	Gains During Period - Profit & Loss								
15	Provincial Bonds Unrealized Gains/(Loss)	(28,827)	(28,828)	-	100%	(417)	(417)	-	100%
16	Provincial Bonds Realized Gains/(Loss)	28,827	28,827	-	100%	417	417	-	100%
17	Corporate Bonds Unrealized Gains/(Loss)	(4)	(4)	-	100%	(4)	(4)	-	100%
18	Corporate Bonds Realized Gains/(Loss)	4	4	-	100%	4	4	-	100%
19	Canadian Equities Realized Gains	683	2,620	1,938	26%	-	-	-	-
20	US/Global Equities Realized Gains	649	3,717	3,068	17%	-	-	-	-
21	Global Low Volatility	-	458	458	0%	-	-	-	-
22	Real Estate	1,162	5,580	4,418	21%	1,213	5,824	4,611	21%
23	Infrastructure	936	4,439	3,503	21%	975	4,625	3,650	21%
24	Total	3,431	16,815	13,384	20%	2,188	10,448	8,260	21%
25	Other								
26	Investment Fees Paid	(2,121)	(4,730)	(2,609)	45%	(2,153)	(4,626)	(2,473)	47%
27	Amortization of Bond Premium/Discount	2,538	2,526	(12)	100%	2,591	2,576	(15)	101%
28	Total	417	(2,204)	(2,621)	-19%	438	(2,050)	(2,488)	-21%
29	Less: Income on Pension Assets	-	(20,553)	-	-	-	(18,912)	-	-
30	Total Investment Income	82,147	94,096	11,950	87%	84,863	98,592	13,729	86%

c) It is estimated that the remaining 48% of the new investments will be funded by selling 55% of Canadian equities ($150M), 100% of U.S. equities ($150M), and 23% of infrastructure ($23M). The Corporation will engage a transition manager to oversee, minimize and report on the costs associated with the transition between the public equity holdings.

PUB (MPI) 2-14

Part and Chapter:	**PUB (MPI) 1-29**	**Page No.:**	
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Investment Policy Statement – Material Changes**		

Preamble to IR (If Any):

In its response, the Corporation states "*the claims discount rate methodology was changed to use the dollar-weighted yield of the fixed income portfolio rather than the duration weighted yield.*"

Question:

a) Please provide comparative documentation of the derivation of the claims discount rate as of 28 February 2018 using each of the two methodologies.
b) Please discuss the impact of this methodological change on 2018/19 Basic operating results, forecasted Basic operating results, and rate indications determined in accordance with accepted actuarial practice in Canada.

Rationale for Question:

To better understand the impact of the claims discount rate methodological change.

RESPONSE:

a) The derivation of the claims discount rate for both the dollar weighted yield and the duration weighted yield is presented in Appendix A.

b) The change in the methodology, from using a duration weighted yield to using a dollar-weighted yield, had a one-time favourable impact on the 2017/18 operational results. Specifically, per *Part VIII, AR Appendix 1, page 35*, based on the February 28, 2018 review of policy liabilities: "[*T]he change in the Basis for determining the discount rate decreased the discounted net claim liabilities by $25.8 million and ILAE provision by $2.7 million.*" No further impact is anticipated on operational results on a go forward basis.

The change in methodology does not impact the rate indication for 2019/20. This is because the new money yield used to discount future payments was always calculated on a market value weighted basis.

PUB (MPI) 2-15

Part and Chapter:	**PUB (MPI) 1-30 VI INV.18; Figure INV-50**	**Page No.:**	**83**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio 11. Operational Benchmarking**		
Topic:	**Investments**		
Sub Topic:	**Benchmarking Performance**		

Preamble to IR (If Any):

Question:

a) Please explain why the Corporation has provided a comparison of asset allocation adjusted returns, and provide an interpretation of this comparison.

Rationale for Question:

To understand the relative performance of the Corporation's investment portfolio with other comparable organizations.

RESPONSE:

a) The table previously provided by the Corporation includes returns from pension plans whose liabilities have different duration and liquidity requirements than MPI's claims liabilities. As the Corporation does not share the same appetite for risk as these other organizations, the Corporation must adjust their asset allocations to ensure the returns are directly comparable. With adjustments to the asset allocations of other investors to match the asset allocation of the Corporation, it is possible to meaningfully compare the returns within the various asset classes. Unadjusted, the Corporation's annualized return over the last five years is similar to SGI, its closest peer.

PUB (MPI) 2-16

Part and Chapter:	**PUB (MPI) 1-32** **VI INV Appendix 1, Appendix 17**	**Page No.:**	
PUB Approved Issue No:	**8. Performance of the Investment Portfolio** **14. Risk Assessment and Risk Management**		
Topic:	**Investments**		
Sub Topic:	**Accommodation of Commingled Portfolio**		

Preamble to IR (If Any):

In each portfolio (except the RSR), the expected volatility of the funded position (assets/liabilities) was the primary risk measure and the expected excess return of assets over liabilities was the primary reward measure.

For the RSR portfolio, the primary risk measure was expected return volatility and the primary reward measure was the expected return. A mean-variance optimizer identified the portfolios with the maximum return, at each level of risk, which then formed the efficient frontier. By definition, all portfolios on the efficient frontier are optimal.

Question:

a) Please indicate whether any other secondary risk or reward variables were used in the Mercer ALM Study.
b) If other risk or reward measures were incorporated, please explain how the other risks or rewards were used to determine the optimal portfolio allocations.

Rationale for Question:

To understand the definition of risk and how it is used in establishing optimal investment portfolios.

RESPONSE:

a) Both qualitative and quantitative considerations were used in the ALM study. The following quantitative risk or reward variables were used:

1. Expected return
2. Excess return over liability benchmark
3. 1-Year Surplus volatility
4. Excess return/Surplus volatility
5. Median Surplus in 1 year
6. 1-year Downside Surplus: 90th, 95th and 97.5^{th} Percentile VaR
7. Interest Rate Risk Hedge Ratio
8. Median Surplus in 5 years
9. 5-Year Surplus volatility
10. Probability of Surplus in 5 years
11. Probability of 5-year positive real return

b) The other measures were used as a secondary assessment of alternate mixes to assess potential expected outcomes, and potential downside outcomes over different time horizons and/or in dollar terms. Qualitative considerations (such as liquidity, implementation, and operational considerations) were also considered.

PUB (MPI) 2-17

Part and Chapter:	**PUB (MPI) 1-33(a) Figure INV.8 VI INV Appendix 6**	**Page No.:**	**24**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investment Income**		
Sub Topic:	**Investment Portfolio Composition**		

Preamble to IR (If Any):

MPI was forecasting unrealized equity gains to grow to $116.2 million by the end of fiscal 2018/19. As at May 31, 2018 MPI had unrealized gains of $125.2 million.

Question:

a) Please explain why the separation of assets into unique portfolios necessitates the triggering of the gains on the portfolio.
b) Based on the current balance of Unrealized gains, please indicate what MPI is forecasting for realized gains for 2018/19, and the extent to which they relate to Basic.
c) Please indicate the extent to which MPI has realized such gains as at August 31, 2018.
d) What triggering events, if any, has led to these gains being realized?

Rationale for Question:

To understand the current performance of the Investment Portfolio.

RESPONSE:

a) 70% of the holdings in the equity portfolio must be liquidated in order to implement the new investment strategy since U.S. equities are being eliminated

and Canadian equities are being significantly reduced. This will cause unrealized gains to become realized. It is anticipated that the remaining 30% of the equity portfolio will be transitioned into pooled funds, which will also cause the associated gains to be realized. Please see the response to *PUB (MPI) 2-7* for the rationale for transitioning to pooled funds.

b) *Figure INV-2* lines 15 to 22 provide the forecasted gain/loss for marketable bonds, equities, real estate and infrastructure for the Basic line of business.

c) Figure 1 below includes a schedule of realized gains on a monthly basis from March 31, 2018 to July 31, 2018.

Figure 1: Realized Gain / (Loss) for March, 2018 to July, 2018

	$000s	Book Value	Sales Proceed	Realized Gain / (Loss)	Budget
1	March, 2018	3,322	3,516	194	1,190
2	April, 2018	7,496	7,249	(247)	1,190
3	May, 2018	2,161	2,822	661	1,190
4	June, 2018	74,149	91,773	17,624	1,178
5	July, 2018	577	969	392	1,178
6	**Total**	**87,705**	**106,329**	**18,624**	**5,926**

d) The major event that resulted in the realization of gains in 2018/19 was the termination of a large-cap Canadian equity manager in May 2018.

PUB (MPI) 2-18

Part and Chapter:	**PUB (MPI) 1-36(b) IV SDM.1.6 Service Delivery Model**	**Page No.:**	**11**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Direct Repair Program**		
Sub Topic:			

Preamble to IR (If Any):

Repair shops demonstrate a proven record of accomplishment based on performance by using Key Performance Indicators (KPIs) that align with MPI's objectives to control costs, improve efficiencies, encourage proper repair and enhance customer service.

Question:

a) Please provide details on the KPIs incorporated by MPI.
b) Please provide an example of the scorecard used to evaluate claims repair performance.

Rationale for Question:

To understand the Direct Repair Program process.

RESPONSE:

a) A link to the MPI Shop Measures Overview on MPI Partners Website is provided below. Please note that the Key Performance Indicators (KPIs) are used for all shops, not just those in the Direct Repair program. Certain scores on the KPIs enable repair shops to apply for the Direct Repair program or attain higher levels of auto-approval on their supplements for greater system efficiency.

https://mpipartners.ca/documents/Policies_Procedures/Shop-Measures-Overview.pdf

b) Included below are: Figure 1: shop scorecard for August; and Figure 2: a repair accuracy inspection template used for assessing accuracy of claims repairs, as part of the shop scorecard.

Figure 1: Shop scorecard for August

Monthly Shop Measures - July 2018

KEY MEASURES:	Optimal Value Direction	Month (Jul 2018)	3 Month Average (May 2018 To Jul 2018)	Industry 3 Month Average (May 2018 To Jul 2018)	3 Month Average Contribution to Composite
Ask-Approve Variance	Closer to 0 is better	6.8%	2.1%	1.4%	18.5
Average Supplement per Estimate	Closer to 0 is better	1.19	0.98	1.02	9.1
Alternate Parts Usage (APU)	Higher is better	47.8%	47.3%	51.0%	7.6
Labour % of Gross Total	Higher is better	38.3%	44.0%	44.6%	4.5
Net Promoter Score (NPS)	Higher is better	100.0%	98.4%	70.1%	9.8
QUALITY OF REPAIR:		**Month (Jul 2018)**	**3 Month Average (May 2018 To Jul 2018)**	**Industry Average**	**Standardized QoR KPI Score**
Shop Capability Score	Higher is better		100.0%	98.8%	5.0
Repair Records On File	Higher is better		68.9%	68.8%	3.4
Repair Accuracy	Higher is better		100.0%	89.5%	15.0

Total Out of 100	73.0
Composite Score	73.0%

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Manitoba Public Insurance

Figure 2: Repair Accuracy Checklist

Repair Accuracy Checklist

Category	☐ Repair Accuracy ☐ Customer Referral ☐ Non-Certified ☐ Tracker Shop Inquiry ☐ Audit
Shop*	
RAN*	
Date of visit*	
Claim number (if no claim number, enter VIN)*	
Repair stage	☐ Pre-repair ☐ Mid-repair ☐ Post-repair
Trained technician working on repair score (3 pts) • Body • Frame • Mechanic • Paint	☐ Yes ☐ No • **Yes** = If a qualified tech is working on repairs (structural) or non-qualified tech is working on repairs under the supervision of a qualified tech (non-structural only) • **No** = If QoR is impacted due to a non-qualified tech working on non-structural repairs without the supervision, final claim score = 0/15 ○ If a non-qualified tech is working on structural repairs, final claim score = 0/15; select **No** on Proper Repair below
Trained technician working on repair score – Comments	

Right tools are calibrated and being used as per OEM (3 pts)
• 3-D Measurement Tool
• 4-Wheel Alignment
• CSA Paint Booth
• Frame Bench
• Proper Welding Tool
• Scanning Tool
	☐ Yes
	☐ No
	• **Yes** = Full points if all applicable tools are calibrated and being used as per OEM standards
	• **No** = If QoR is impacted because the proper tool wasn't used, the score will be 0 for this category
	  ○ One "No" results in a no for this whole category
	  ○ Justifies 0/15 final claim score depending on repairs and OEM procedures; if 0, select **No** on Proper Repair below

Right tools are calibrated and being used as per OEM – Comments	

Tech trained on tool (1 pt)
• 3-D Measurement Tool
• 4-Wheel Alignment
• CSA Paint Booth
• Frame Bench
• Proper Welding Tool
• Scanning Tool
	☐ Yes
	☐ No
	• **Yes** = Full points if technician is trained on all applicable tools
	• **No** = If QoR is impacted because technician did not receive training, the score will be 0 for this category
	  ○ One "No" results in a no for this whole category
	  ○ Does not justify 0/15 final claim score
	Notes:
	• 1 point for the component
	• Train-the-trainer is acceptable
	• Proof of training is not available through suppliers for most tools
	• A proper welding tool is defined as an MIG/MAG welder/brazing/STRW tool

Tech trained on tool – Comments	

Repair procedures available (3 pts) • All Data • OEM • R&T • Tech Advisor	☐ Yes ☐ No • **Yes** = Full points if tech has all applicable repair procedures on hand • **No** = If not on hand, have conversation as to why and determine if actable; if determined it is not acceptable, it results in 0 points for this category; ○ May or may not justify a 0/15 final claims score ○ If 0 for the claim, select No on Proper Repair below.
Repair procedures available – Comments	
Procedures followed or exceeded (5 pts)	☐ Yes ☐ No • **Yes** = If the current stage of repair (and entire work plan) is in line with the procedures • **No** = If not, final claim score = 0/15; select No on Proper Repair below ○ May not justify 0/15, please contact the manager of Accredited Repair
Procedures followed – Comments	
Proper Repair (0 pts)	☐ Yes ☐ No • Selecting "No" will give the claim a score of 0. • Based on whether the shop is capable by referencing shop profile, staffing, and complexity of repair • If not, final claim score = 0/15
Proper Repair – Comments	
Damages related to loss (0pts)	☐ Yes ☐ No • If anything stands out, flag the claim and share it with the assigned SRA.
Damages related to loss – Comments	
Non safety related repair discrepancy	☐ Yes ☐ No
Reviewed repair accuracy results with	
Avoided a corrective repair	☐ Yes ☐ No
Turned into corrective repair	☐ Yes ☐ No
Comments:	
Inspector	

PUB (MPI) 2-19

Part and Chapter:	**PUB (MPI) 1-38 IV SDM.1.9 Service Delivery Model**	**Page No.:**	**18-19**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Claims Expenses**		
Sub Topic:	**BI3 Claims Management**		

Preamble to IR (If Any):

Question:

Please provide any analysis or reporting undertaken by MPI related to its review of the findings in PWC's report on ICBC, and indicate the extent to which this report has been used to benchmark, or evaluate, MPI's operations.

Rationale for Question:

To understand changes in Claims Expenses.

RESPONSE:

MPI's analysis related to the growth in retained claims was completed prior to and independent of PWC's report on ICBC. MPI has documented and explained its analysis in previous IR responses, but can advise that MPI's analysis identified a shift in the claims mix with a growth in the number of complex claims as the root cause. Complex claims are claims that involve both physical and mental health injuries, as well as claims where mental health is the primary injury. Previous reductions to MPI case management capacity, in the face of an increase in the complexity of claims, increased the durations of injury claims, the expense of which was greater than the expected savings from reductions in FTEs.

As part of due diligence, MPI completed a jurisdictional scan and literature review to support the PIPP Review (provided as Appendix 1 to *CAC (MPI) 1-36*), understand the cause of this shift and to determine whether this phenomenon was common or unique to MPI. The PWC report on ICBC was one part of the jurisdictional scan and literature review. MPI's own independent analysis did align with that of ICBC, indicating ICBC is experiencing a growth in retained claims. PWC's recommendation to move to a proactive injury care recovery model, as well as their recommendation to adequately resource the injury claims division, aligned with MPI's active case management strategy.

Perhaps the major finding of the PWC report is that there is an extremely high legal cost, which, thankfully for Manitobans, is absent from the PIPP program. The absence of high legal costs allows MPI to focus on paying injury claims benefits to its injured clients and on helping them return to their lives, including work, as they repair themselves after a motor vehicle accident.

PUB (MPI) 2-20

Part and Chapter:	**PUB/MPI 1-40** **V EXP.3, Figure EXP-5** **PUB (MPI) 1-45** **V EXP Appendix 16**	**Page No.:**	**16, 1-3**
PUB Approved Issue No:	**9. Cost of Operations and Cost Containment Measures**		
Topic:	**Expenses**		
Sub Topic:	**Basic Capital Expenditures**		

Preamble to IR (If Any):

Question:

a) Please explain whether the forecasted savings listed under EXP.5 are deferred costs (such as fleet vehicles) or true annual cost savings.
b) Please explain any operational or staffing changes resulting from replacing only 3 of 29 vehicles through the fleet reduction program.(I.e., does the Corporation intend to operate with 26 fewer vehicles, or has the expenditure been deferred to another reporting period?)

Rationale for Question:

To understand the Corporation's cost containment efforts.

RESPONSE:

a) The forecasted savings listed under EXP.5 are true annual cost savings (including the fleet vehicles). The costs listed in the table represent changes to operations in order to reduce costs on an annual ongoing basis.

b) The corporation intends to operate with fewer vehicles, and one FTE was reduced as a result of the fleet reduction.

PUB (MPI) 2-21

Part and Chapter:	**PUB (MPI) 1-52 V VFH.7 Figure VFH-2**	**Page No.:**	**16**
PUB Approved Issue No:	**18. Vehicles for Hire**		
Topic:	**Data Collection – Rate Making**		
Sub Topic:	**Insured VFH Vehicles**		

Preamble to IR (If Any):

Question:

Please provide a build-up of the VFH premium revenue earned and compare it with what has been forecasted for 2019/20.

Rationale for Question:

To understand the current status and detail related to VFH and insured VFH vehicles.

RESPONSE:

As of August 1, 2018 the Basic VFH premium earned is as follows:

Figure 1: Basic VFH premium earned

Line No.	VFH category		Basic Earned Premiums
1	Accessible VFH	$	38,549.60
2	Limo VFH	$	57,300.34
3	Passenger VFH	$	246,807.04
4	Taxicab VFH	$	1,445,756.35
5	**Total**	**$**	**1,788,413.33**

While the Corporation was unable to forecast VFH premium revenue or claims costs for the 2019/20 year due to a lack of actual observable experience, it anticipated a $1M reduction of premium revenue for the 2019/20 rating year, resulting from the eligibility of Taxi VFH, Limousine VFH, and Accessible VFH for DSR discounts (*Appendix 20: ORDER 11/18 DIRECTIVE 6.8*). Based on data as of July 31, 2018, the Corporation is on pace to realize this reduction.

PUB (MPI) 2-22

Part and Chapter:	**PUB (MPI) 1-54**	**Page No.:**	
PUB Approved Issue No:	**18. Vehicles for Hire**		
Topic:	**Vehicles for Hire (VFH)**		
Sub Topic:	**Passenger VFH**		

Preamble to IR (If Any):

Question:

Please summarize how the TNC Endorsement premiums surveyed from other jurisdictions would be affected by a TNC operator electing to operate on a less than full time basis.

Rationale for Question:

To assess the reasonableness of the foundation for the proposed Passenger VFH rates.

RESPONSE:

TNC Endorsements vary depending on the jurisdiction and insurer. Some TNC Endorsements do not limit the number of hours of operation while some specify a maximum number of hours an insured can operate. The Corporation is not aware of any existing TNC Endorsements where premiums fluctuate based on the number of hours of operation. This model was unique to the insurance framework in Manitoba and was developed to give vehicle-for-hire operators maximum flexibility and control of the premiums they pay for the services they provide.

PUB (MPI) 2-23

Part and Chapter:	**PUB (MPI) 1-56 IV IT Appendix 1**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:			

Preamble to IR (If Any):

During round 1 IRs, an incorrect reference to IV BMK Attachment A was provided. The question should have referenced IT Information Technology, IT Appendix 1, Figure IT App 1-1 (IT Personnel).

Question:

Please provide further rationale for the level of IT Staff fixed between 82-80 consultants in the years 2018/19, 2019/20 and 2020/21.

Rationale for Question:

To understand changes in IT FTE costs.

RESPONSE:

Part IV IT Appendix 1 Figure IT App 1-1 (IT Personnel) includes the budgeted number, 82, with one change (two consultant conversions in 2019/20, the last remaining actions from the External Labour strategy), thereby reducing the consultant count to 80, the complement which will be used in 2019/20 and 2020/21. This table will be updated in GRA 2020 to further reflect changes in the demand for consultants for projects and operations and any additional management actions (see *CAC (MPI)1-63*, part c, which is the subject of a motion seeking confidential treatment).

PUB (MPI) 2-24

Part and Chapter:	**PUB (MPI) 1-63 IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

a) Please provide the Mitchell International agreement/statement of work as it relates to the CCRS Co-Development project.
b) Please provide copies of any other agreements or statements of work for Mitchell for ongoing work, post CCRS cancellation.

Rationale for Question:

To understand the impairment analysis performed.

RESPONSE:

a) Please see Appendices 1 through 3 for which the Corporation is seeking confidential treatment.

b) The Corporation does not have any other agreements and/or statements of work currently engaging Mitchell.

PUB (MPI) 2-25

Part and Chapter:	**PUB (MPI) 1-63 IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

a) Please provide the details of expenditures that form the write-offs, by year.
b) Please provide supporting documents and details for the $2,086 write-off for the High School Driver Education Phase 2 project.

Rationale for Question:

To understand the impairment analysis performed.

RESPONSE:

a) Please see Figure 1.

Figure 1: Details of Expenditures for Impaired Initiatives

Line No.		2012/13A	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	Total
1	(C$000s, except where noted)							
2	Physical Damage Re-Engineering Main/Phase 3							
3	Internal Costs	-	-	-	-	-	-	-
4	External Costs	-	-	-	223	1,018	-	1,241
5	Amortization	-	-	-	-	-	(248)	(248)
6	Total	-	-	-	223	1,018	(248)	993
7	Financial Re-engineering Initiative							
8	Internal Costs	-	-	-	-	117	1	118
9	External Costs	-	-	-	-	225	-	225
10	Amortization	-	-	-	-	-	-	-
11	Total	-	-	-	-	342	1	343
12	Non-Basic Projects							
13	Internal Costs	-	-	-	-	54	1	55
14	External Costs	-	-	-	-	-	-	-
15	Amortization	-	-	-	-	-	-	-
16	Total	-	-	-	-	54	1	55
17	High School Driver Education Phase 2							
18	Internal Costs	-	-	-	-	46	-	46
19	External Costs	-	-	314	327	1,287	112	2,040
20	Amortization	-	-	-	-	-	-	-
21	Total	-	-	314	327	1,333	112	2,086
22	Enhanced DR Capabilities							
23	Internal Costs	-	-	-	-	-	222	222
24	External Costs	-	-	-	-	292	167	459
25	Amortization	-	-	-	-	-	-	-
26	Total	-	-	-	-	292	389	681
27	Customer Claims Reporting System							
28	Internal Costs	-	-	-	-	453	346	799
29	External Costs	46	2,203	3,011	1,975	2,932	4,658	14,825
30	Amortization	-	-	-	-	-	-	-
31	Total	46	2,203	3,011	1,975	3,385	5,004	15,624
32	PDR Opt Repair - Remote Estimating							
33	Internal Costs	-	-	-	-	32	-	32
34	External Costs	-	-	1	42	38	116	197
35	Amortization	-	-	-	-	-	-	-
36	Total	-	-	1	42	70	116	229
37	HR Management System Phase 3 & 4							
38	Internal Costs	-	-	-	-	-	-	-
39	External Costs	-	142	105	-	-	-	247
40	Amortization	-	-	-	-	-	-	-
41	Total	-	142	105	-	-	-	247
42	Grand Total	46	2,345	3,431	2,567	6,494	5,375	20,258

b) As per *PUB (MPI) 1-63* part (a), during the year, MPI reviewed the various components of key projects in detail and applied certain principles (standard practice) to determine whether write-off expenditures associated with these projects were indicated. MPI applied these principles to the High School Driver Education Phase 2 project. The principles MPI applied are as follows:

1. If there is no future value associated with the expenditures, then the expenditures were written off;

2. If the expenditures were research related, then the expenditures were written off; and

3. If the expenditures were to investigate a platform/software that the company did not go forward with, then the expenditures were written off.

PUB (MPI) 2-26

Part and Chapter:	**PUB (MPI) 1-63**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

Please provide a detail of all projects that were discontinued and the costs of each write off since the inception of the PDR. Please supplement the schedule provided in PUB (MPI) 1-63.

Rationale for Question:

To understand the quantum of all impairments related to the PDR.

RESPONSE:

Below is a list of the discontinued projects whose costs MPI wrote off since the inception of PDR that were not already included in the 2017/18 Impairment:

Figure 1: Cancelled PDR Projects not included in the 2017/18 Impairment

Line No.		2012/13A	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	Total
	(Canadian Dollars)							
1	Physical Damage Re-Engineering Main/Phase 3 Enhanced Registration Card - External Labour costs	-	-	158	453	-	-	-

PUB (MPI) 2-27

Part and Chapter:	**PUB (MPI) 1-64 IV VM Appendix 2a**	**Page No.:**	**5**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**HSDE Business Case**		
Sub Topic:	**Cost Benefit Analysis**		

Preamble to IR (If Any):

By improving the first attempt pass rate we are reducing the number of second, third, and in some cases, multiple road tests that are currently demanded by novice drivers. It is important to note that an improvement in the first attempt pass rate will eliminate the need for road tests spread over multiple locations…

Question:

What programs/initiatives were impacted as a result of the $420,000 reduction in Road Safety expenditures?

Rationale for Question:

To understand the forecast of benefits from the HSDE program redesign.

RESPONSE:

MPI expects Road safety program expenditures to increase by $460,000 overall in 2018/19, when compared to 2017/18 actual. This increase is attributable to budgeted increases for the enhanced enforcement program (distracted driving and gravel road program expansion), the speed reduction awareness program, the improved data collection initiatives related to wildlife, the forward collision warning aftermarket device pilot project with the Winnipeg taxi industry and the launch of traffic safety

culture programming, including the 'Save the 100' campaign that aims to influence Manitobans to reduce tolerance for traffic fatalities and serious injuries by motivating them to take preventative action.

Within Appendix 15-1: Road Safety Programs Costs please note Line 14, "Other" costs, within the table, indicate an actual expenditure of $1,823,000. This amount includes a portion of the High School Driver Education Redevelopment, which was deemed research and could not be capitalized. Therefore, the 2018/19 forecast of $829,000 was changed to $0 in the 2019 GRA because it was expensed in 2017/18. Please note that MPI did not cancel this project and it is currently in its third phase with further capital expenditures forecasted in 2019/20 and beyond. Research in phase one and two of this project involved establishing the multi-year roadmap for redevelopment and developing proof of concepts for a variety of technologies for potential use within the future program. Phase three involves the curriculum design, technology architecture, and people readiness to support the new program which will launch in 2019.

PUB (MPI) 2-28

Part and Chapter:	**PUB (MPI) 1-66 IV VM Appendix 6**	**Page No.:**	**VM Appendix 6**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR**		
Sub Topic:			

Preamble to IR (If Any):

Question:

In order to better understand the changes to the Value Management (VM) process from the 2018 GRA, please provide a table that identifies the incremental changes between the past and current (new) VM process, and please provide any supporting comments as required. Please also confirm that the new VM process has been implemented.

Rationale for Question:

To understand changes in project evaluation.

RESPONSE:

The Corporation is implementing the process described in the 2019 GRA, as it relates to the introduction of the Operational Business Champion (OBC), in August 2018. The new project organizational structure more formally integrates the Value Management (VM) process into the corporate work intake and project lifecycle processes. The tools used to prepare a VM business case and financial analysis remain relatively the same.

The incremental changes are as follows:

Incremental Change	Comment
Formal approval of the Value Management Office (VMO) is required to submit business cases to the Executive Committee for approval.	While VMO would vet the business case and provide guidance to address gaps and improve content quality, it would not provide formal approval.
Formal VMO participation in certain project gate checkpoints, specifically:	
• At the Inception phase of the Business Transformation Office (BTO) Project Delivery Methodology, the VMO, in conjunction with the OBC, ensures the incorporation of any changes to objectives/scope/financial forecasts in the business case and re-assesses the net present value of the project.	While these activities were completed by the BTO project team, oversight by the OBC and VMO is a new oversight activity.
• All formal Change Request and Decision Request submissions require both OBC and VMO approval. The impact of approved changes are updated in the business case which is then re-assessed material impacts	The OBC, being a new position, and the VMO were not previously involved in the Change Request and Decision Request process.
• At the implementation phase the VMO reviews the Project Closeout report completed by the project team and validates the costs and other assertions included in the report. This forms part of the post implementation review	The role of the VMO was initially focused on the business case framework and process. With the evolution of value management the next phase is to include a timely review of key project documents such as the Project Closeout report.

PUB (MPI) 2-29

Part and Chapter:	**PUB (MPI) 1-67 IV VM Appendix 6**	**Page No.:**	**3**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

Question:

a) Please explain the rationale for applying an $81 premium for all process claims for Direct Repair Shops, rather than those claims that relate to the Direct Repair Program.
b) Please indicate what has been paid out on premiums by year and in total to date (in number and dollar amount), related to non-direct repairs claims.

Rationale for Question:

To understand changes in PDR project costs.

RESPONSE:

a) The Direct Repair Program (the Program) significantly transformed Manitoba Public Insurance (MPI) and the Manitoba automobile repair industry. While other Crown and private jurisdictions preceded MPI in implementing similar programs, they did so without similar premium payments. The $81.00 Direct Repair premium (the DR Premium) is unique to Manitoba and is part of the 2017 Light Vehicle Accreditation Agreement MPI entered into in order to incentivize the participation of repair shops in the DR Program and ensure its successful launch and as such, it applied it to all

repairs – whether the repairs resulted from the Direct Repair Program or MPI-originated estimates. .

MPI did not model the true efficiencies of the Direct Repair Program to help inform the DR Premium. Despite the fact that MPI launched the Program on March 1, 2017, the DR Premium is only in effect between March 1, 2018 and February 28, 2019. MPI did not pay the DR Premium in the first year because it devoted that year to onboarding and ensuring the familiarization and successful transitioning of repair shops to the Program to promote a level playing field between DR shops.

Eighteen months following the launch of the Direct Repair Program, MPI is reviewing the value of the DR Premium and the fact that it applies regardless of whether a repair shop prepared the estimate. As the efficiencies of the Program become evident, so do the appropriate amount and the method of paying the DR Premium. MPI is currently renegotiating the Light Vehicle Accreditation Agreement with a new agreement slated to become effective March 1, 2019. As part of its negotiations with repair shops, MPI will ensure that the amount and method of paying the Premium is justifiable, fair and reasonable.

b) In the first three months in which the DR Premium was payable (i.e. March 1, 2018-May 31, 2018) MPI paid $297,169.56 in DR Premiums to DR Shops on 3,397 claims that were not estimated in the DR Program. This represents approximately 61% of the total DR Premium paid in the quarter (per *PUB (MPI) 1-37*). Premiums are payable to shops on a quarterly basis. At the time of finalizing this response, Q2 payment information was not available, but can be produced for the record at a later date. In general, roughly 80% of claims are estimated by MPI and do not go through the DR program.

If left unchanged, MPI currently estimates that the DR Premium will cost $3.5-4m annually, increasing in later years to $6-7m annually.

PUB (MPI) 2-30

Part and Chapter:	**PUB (MPI) 1-68(a)**	**Page No.:**	**4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

Question:

Please provide the detail of each of the costs that were excluded.

Rationale for Question:

To understand changes in the PDR business case cost/benefit analysis.

RESPONSE:

The details of each of the costs identified in PUB (MPI) 1-68(a) are as follows:

- Direct Repair Premium – See PUB (MPI) 1-37 c) and d)

Other items are directly related to materials for which the Corporation either has sought or is seeking confidential treatment of the referred appendix. The following material has been provided within the confidential module:

- Direct Repair Operations – See *PUB (MPI) 1-62 Appendix 5* (Direct Repair Oper Costs tab)
- Direct Repair Premium – *PUB (MPI) 1-62 Appendix 2* (Post Project Impact tab)

- Mitchell software licensing – Amounts are in accordance with licensing agreement, also see *PUB (MPI) 1-62 Appendix 2* (Post Project Impact tab)
- CCRS software licensing - Amounts are in accordance with licensing agreement, also see *PUB (MPI) 1-62 Appendix 2* (Post Project Impact tab)
- Partner Portal software licensing – *See PUB (MPI) 1-62 Appendix 2* (Post Project Impact tab)
- Car Part software licensing - Amounts are in accordance with licensing agreement, also see *PUB (MPI) 1-62 Appendix 2* (Post Project Impact tab)
- Predictive Analytics operations - See PUB (MPI) 1-62 Appendix 2 (Post Project Impact tab)

The Corporation is seeking confidential treatment for *PUB (MPI) 2-24 Appendix 2*, in which details of other costs identified in *PUB (MPI) 1-68*(a) can be found:

- Mitchell software licensing, and
- CCRS software licensing

PUB (MPI) 2-32

Part and Chapter:	**PUB (MPI) 1-70 IV VM Appendix 6**	**Page No.:**	**11**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Expenses**		
Sub Topic:	**PDR Project**		

Preamble to IR (If Any):

Question:

a) Please explain to what the $836,000 in compensation relates.
b) Please provide details of the $12.6 million in external labour costs incurred by year including the related number of consultants, and indicate the extent to which these consultants are deployed on MPI projects.
c) Please indicate what software was considered obsolete that resulted in $2,601 being written off.

Rationale for Question:

To understand the details of the impairment charge for IT expenditures.

RESPONSE:

a) The $836,000 in compensation relates to the internal resources of the Corporation directly charged to Customer Claims Reporting System (CCRS) projects.

b) The following table shows the number of consultants that the Corporation allocated 'full-time' to CCRS and related historical projects (i.e. PDR – Optimized Adjusting and PDR – IFAM/FNOL).

FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19
9	7	7	23	22	23

Please see PUB (MPI) 1-75 e) with respect to details regarding the release/re-deployment of CCRS consultants.

c) Please see *PUB (MPI) 1-71 c)*.

PUB (MPI) 2-33

Part and Chapter:	**PUB (MPI) 1-71 IV VM Appendix 7**	**Page No.:**	**1-7**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Capital Project Evaluation**		
Sub Topic:	**Impaired Securities**		

Preamble to IR (If Any):

The Corporation has indicated that it has no proposed solution to replace the CCRS program that was cancelled, and has indicated a preference to adopt mainstream technology in lieu of innovating new technology. In the interim, given customer demand, the Corporation will focus its attention on moving other service elements online.

Question:

a) Please elaborate on what the Corporation has determined to be a customer demand.
b) Please elaborate on what service elements are being considered to be moved online to meet such demand.
c) Please provide examples of how other public insurers have adopted online services and whether MPI is going to adopt similar technology.

Rationale for Question:

To understand the CCRS framework.

RESPONSE:

a) The results of a Customer Claims Reporting System focus group completed in early 2018 and the results of a recent Physical Damage Claimant Satisfaction survey indicate that there exists customer demand for the provision of its services on-line. Please see also *CAC (MPI) 2-33* for related details.

b) *Part IV(i) Service Delivery Model SDM.1.10* identifies those services which the Corporation is considering providing through an on-line customer service system. Incrementally, the Corporation is in the process of developing a longer-term customer self-service strategy, with input from the Manitoba insurance brokers.

c) SGI provides online self-service options including: opening or viewing a claim, scheduling appointments for vehicle inspection or collision estimates, scheduling road or knowledge tests, requesting driver abstracts and registration renewal or cancellation, and online payment.

ICBC's online self-service is limited to opening/viewing a claim, scheduling a road test, requesting a driver abstract, and ordering a vehicle history report.

MPI's long term approach will be informed by the customer self-service strategy discussed in part (b) above, and the outcomes of the Legacy Modernization initiative. Also, details of the Customer Self Service business case are provided in *Part IV VM Appendix 3*.

PUB (MPI) 2-34

Part and Chapter:	**PUB (MPI) 1-75** **IV VM Appendix 1b** **Information Security Risk Management**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Consultant Staffing**		
Sub Topic:			

Preamble to IR (If Any):

Question:

Please provide the breakdown of the number of staff (internal versus external) related to the Information Security Risk Management Business Case.

Rationale for Question:

RESPONSE:

The referenced business case accounted for approximately 5,000 hours of internal time for MPI staff including architects, analysts, developers, and security professionals. External labour included a combination of contract staff (approximately 1,700 hours) and third party services at approximately $50,000.

PUB (MPI) 2-35

Part and Chapter:	**PUB (MPI) 1-75 V EXP Appendix 19; Figure EXP App 19-2; Figure EXP App 19-4**	**Page No.:**	**2, 4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Expenses**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

Please provide a schedule of fees paid by consulting professional service firms for the years 2016/17 and 2017/18 identifying the service(s) provided for the fees. Please include all expenditures made to external consultants by consultant and detail/ nature of the service provided under each individual contract.

Rationale for Question:

To understand the level of external consulting expense.

RESPONSE:

Please refer to the following table that states consultant fees, from 2016 to 2018.

Figure 1: Consultant Costs – Basic

Line No.	(C$000s, except where noted)	2016/17A	2017/18A
1	**ADV Document Systems**		
2	Legal Management	(4)	-
3	**Bottomline Technology**		
4	Technology Risk Management - 2016	-	3
5	**Ciber**		
6	Infor/Lawson Upgrade	500	(50)
7	**Frank Digital**		
8	High School Driver Education Phase 3	-	27
9	**Fineos**		
10	BI3 Fineos Upgrade 2016	(6)	-
11	Customer Claims Reporting System	-	-
12	Physical Damage Re-Engineering Main/Phase 3	-	-
13	**Global Knowledge**		
14	Technology Risk Management - 2016	11	-
15	**Handcraft Creative**		
16	High School Driver Education Phase 3	-	55
17	**ESIT**		
18	Appointment Manager	-	1,179
19	BI3 Fineos Upgrade 2016	(10)	-
20	Corporate Learning Management	364	925
21	Credit Card Strategy	-	207
22	Customer Claims Reporting System	4,268	-
23	Customer Self Service	-	1,140
24	Enhanced DR Capabilities	267	829
25	Enterprise Data Masking	1	-
26	Financial Re-engineering Inititiative	109	-
27	High School Driver Education Phase 2	195	-
28	High School Driver Education Phase 3	-	445
29	Infor/Lawson Upgrade	439	332
30	Information Security Strategy and Road Map Phase 1	449	74
31	Information Security Strategy and Road Map Phase 2	537	1,276
32	ITO - High Availability	21	-
33	Partner Portal	127	1,367
34	Physical Damage - Centre of Excellence	205	-

35	PDR Opt Repair - Collaborative Estimating & JSST	(6)	-
36	PDR Opt Repair - Distributed Estimating	1,666	-
37	PDR Opt Repair - Remote Estimating	8	-
38	Physical Damage Re-Engineering Main/Phase 3	1,133	-
39	Predictive Analytics	(2)	-
40	Technology Innovation & Capabilities	(10)	-
41	Technology Risk Management - 2016	1,376	82
42	Technology Risk Management - 2017	-	1,394
43	**Humphrey Group**		
44	PDR Opt Repair - Distributed Estimating	10	-
45	Physical Damage Re-Engineering Main/Phase 3	6	-
46	**IBM**		
47	BI3 Fineos Upgrade 2016	(3)	-
48	Customer Self Service	-	173
49	Enhanced DR Capabilities	-	69
50	High School Driver Education Phase 2	922	-
51	High School Driver Education Phase 3	-	6
52	Infor/Lawson Upgrade	175	298
53	Information Security Strategy and Road Map Phase 1	1,059	32
54	Information Security Strategy and Road Map Phase 2	-	114
55	ITO - High Availability	396	-
56	Legal Management	(1)	-
57	Partner Portal	140	611
58	Physical Damage Re-Engineering Main/Phase 3	267	10
59	Technology Risk Management - 2016	361	30
60	Technology Risk Management - 2017	-	756
61	**Infor**		
62	Financial Re-engineering Initiative	16	-
63	Infor/Lawson Upgrade	-	179
64	**Insight**		
65	Information Security Strategy and Road Map Phase 2	-	40
66	**Librestream**		
67	PDR Opt Repair - Remote Estimating	28	-
68	**Micro Focus**		
69	Technology Risk Management - 2017	-	46

70	**Mitchell International Systems**		
71	Customer Claims Reporting System	461	-
72	**Open Text**		
73	Corporate Learning Management	-	123
74	Legal Management	(5)	-
75	**Translacom**		
76	Customer Self Service	-	2
77	**Other**		
78	Enhanced DR Capabilities	-	2
79	High School Driver Education Phase 2	10	-
80	Infor/Lawson Upgrade	-	2
81	PDR Opt Repair - Distributed Estimating	14	-
82	Physical Damage Re-Engineering Main/Phase 3	34	-
83	**Total Consultant Costs**	**15,528**	**11,778**

PUB (MPI) 2-36

Part and Chapter:	**PUB (MPI) 1-75(b)** **V EXP Appendix 19** **Figure EXP App 19-2** **Figure EXP App 19-4**	**Page No.:**	**2, 4**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Expenses**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please provide the reason for the 11% increase in IBM Data Centre Costs in 2019/20.
b) Please indicate whether this increase is related to Operations or Developmental costs.

Rationale for Question:

To understand third party IT vendor costs.

RESPONSE:

a) Please see *Figure 1* below.

Figure 1: IBM Data Centre Costs

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast
1	*(C$000s)*		
2	Normal Operations	9,972	9,707
3	IBM Security Ops	550	-
4	Normal Operations	10,522	9,707
5	Improvement Initiative - Implementation		
6	Technology Risk Management	500	-
7	Improvement Initiative - Implementation	500	-
8	Improvement Initiative - Ongoing		
9	Technology Risk Management - Future years	1,089	816
10	Infor Security Strategy & Roadmap	-	61
11	Appointment Manager	-	36
12	Customer Self Servce	-	274
13	Infor/Lawson	128	128
14	Improvement Initiative - Ongoing	1,217	1,315
15	TOTAL	12,239	11,022

b) As shown in *Figure 1*, the increase is primarily related to implementation costs related to the Technology Risk Management project and normal operations costs related to IBM Security Operations.

PUB (MPI) 2-37

Part and Chapter:	**PUB (MPI) 1-76**	**Page No.:**	
PUB Approved Issue No:	**20. Capital Maintenance Provision** **2. Rate Indication**		
Topic:	**Capital Maintenance Provision (CMP)**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please provide an analysis (with supporting documentation) of the estimated Capital Maintenance Provision (comparable to the estimate of 3.3% made for 2019/20) for each year of the forecast period.
b) Please discuss SAF's approach to the Capital Maintenance Provision and, in particular, why the Corporation believes it is consistent with the Corporation's concept of a Net Capital Maintenance Provision.
c) Please rework the response to PUB (MPI) 1-76(d) following SAF's approach to the Capital Maintenance Provision (i.e., not the Net CMP).
d) Please rework the response to PUB (MPI) 1-76(e) following SAF's approach to the Capital Maintenance Provision (i.e., not the Net CMP).
e) Please rework the response to PUB (MPI) 1-76(f) following SAF's approach to the Capital Maintenance Provision (i.e., not the Net CMP).

Rationale for Question:

To assess the reasonableness of the proposed approach to estimating the Capital Maintenance Provision.

RESPONSE:

a) Refer to the table below which presents the ratio of the investment income earned on the RSR to the Basic Vehicle Written Premium for fiscal years 2020/21 to 2022/23. The table is comparable to *Figure RM-8* presented in *Part V, Ratemaking, page 31*.

Line No.	Description	Source	Fiscal Year 20/21	Fiscal Year 21/22	Fiscal Year 22/23
1	Basic Vehicle Written Premium	Part V(i) Proformas, Page 4	1,130,121	1,176,226	1,224,492
2	Investment Income from RSR	Part VI Investments, INV.19	12,254	12,706	13,136
3	Investment Income from RSR as percent of Basic Vehicle Written Premium		1.1%	1.1%	1.1%

Also, per the response to *PUB (MPI) 1-76(b)*, "*no additional Net CMP is required for the rating years 2020/21 and 2021/22*" and "*For 2022/23… an additional Net CMP rate increase of 1.2% is required.*"

Applying the same calculations per *Part V, Ratemaking, page 31*, the ratio of 1.1% (per the table above) has the effect of decreasing the required rate change by 1.2%. As such, the comparable figures to the increase of 3.3% for 2019/20 are increases of 1.2%, 1.2% and 2.4% for 2020/21, 2021/22 and 2022/23 respectively.

b) Per *PUB (MPI) 1-76(c)*, SAF's approach to the Capital Maintenance Provision "*increases capital available based on the long-term average growth in capital required.*" MPI does not consider its concept of a Net CMP to be consistent with SAF.

MPI's approach is different in two ways. First, per PUB (MPI) 1-76(c), MPI's "*approach to capital maintenance increases available capital by the amount required to maintain the MCT ratio*", rather than using the long-term average growth in capital required. Second, MPI's approach considers the investment

income earned on the RSR as part of its approach to capital maintenance. In contrast, SAF's approach includes this as part of the breakeven rate requirement.

c) The responses to PUB (MPI) 1-76 parts (d) to (f) are based on SAF's approach. The difference is MPI considers the investment income earned on the RSR as part of its approach to capital maintenance, not part of breakeven pricing.

Per the response to PUB (MPI) 1-76 (d), using SAF's approach would result in "*an additional 1.8% required rate increase*", which is comprised of a 1.2% decrease from the investment income earned on the RSR, offset by a 3.0% increase to maintain capital adequacy in fiscal year 2019/20.

d) Refer to the response to (c) above.

e) Refer to the response to (c) above. Per the response to PUB (MPI) 1-76 (f), using SAF's approach would result in "*an additional 1.8% required rate increase*", which is comprised of a 1.2% decrease from the investment income earned on the RSR, offset by a 3.0% increase to maintain capital adequacy in fiscal year 2019/20.

PUB (MPI) 2-38

Part and Chapter:	**PUB (MPI) 1-79 VI INV Appendix 13**	**Page No.:**	**9**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Mercer ALM Study**		
Sub Topic:	**New Asset Allocations – Stochastic Modelling and Analysis**		

Preamble to IR (If Any):

Question:

Please provide a narrative description for the results illustrated for Expected Surplus Growth for each of the Portfolios, based on changes to the asset mixes.

Rationale for Question:

To obtain and understand the stochastic modelling and results of the stress testing.

RESPONSE:

For Basic, SRE, Extension and Employee Future Benefits (EFB) (i.e.: pension) the Expected Surplus Growth charts illustrate the range of potential future surplus amounts. There are two projection charts, one for 1-year and the other for 5-year time horizons. The top of the dark green box shows the 95th percentile result, meaning that there is a 95% probability that the surplus will be lower than that amount. The bottom of the dark red box indicates the 5th percentile result, meaning that there is 5% probability that the surplus will be lower than that amount. In addition, the black diamond indicates the 2.5th percentile result. The middle line between the light green and the light red shows the median result, which could be interpreted as the expected value. The light green and the light red areas represent

the most probable range – there is a 50% probability that the surplus will be in that range.

For Basic, the charts show that the alternate mixes are less risky than the current mix, as the range of potential outcomes narrows significantly. The charts also support an expectation of a lower surplus.

For SRE, Extension and EFB, the charts show that the alternate mixes are slightly more risky than the current mix, as the range of potential outcomes widens. The charts also support an expectation of a higher surplus and help assess whether the downside is tolerable.

For RSR, the range of incremental growth is illustrated. There are also two projection charts and these are again for 1-year and 5-year time horizons respectively. The top of the dark green box shows the 95th percentile result, meaning that there a 95% probability that the asset growth will be lower than that amount. The bottom of the dark red box indicates the 5th percentile result, meaning that there a 5% probability that the asset growth will be lower than that amount. Similar observations as above could be made regarding the other boxes.

The projections assume no future underwriting losses or gains and that, for each portfolio, the inflows will offset the outflows. This limits the results so that they only reflect the impact of capital markets (investment returns and interest rate changes).

PUB (MPI) 2-39

Part and Chapter:	**CAC (MPI) 1-6 DCAT.1.7.4**	**Page No.:**	**16**
PUB Approved Issue No:	**4c. and 4d. Interest Rate Forecast**		
Topic:	**Naïve interest rate forecast**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please provide a table that compares the BOC overnight rate with the GOC 10-year bond rate for the last two years (daily).
b) Please provide a chart with supporting data table, and provide further narrative on the correlation between these two rates.

Rationale for Question:

RESPONSE:

a) and b)

Please see Attachment A which contains a table that compares the BOC overnight rate with the GOC 10-year bond rate for the last two years (daily).

As Attachment A shows, the correlation coefficient between daily changes in the overnight rate and daily changes in the GoC 10 year bond rate for the last two years is 0.07. The relationship between changes in the bond yields and the overnight rate is not captured well by the correlation coefficient because the overnight rate changed only 4 times over the 2 year period. For the majority of

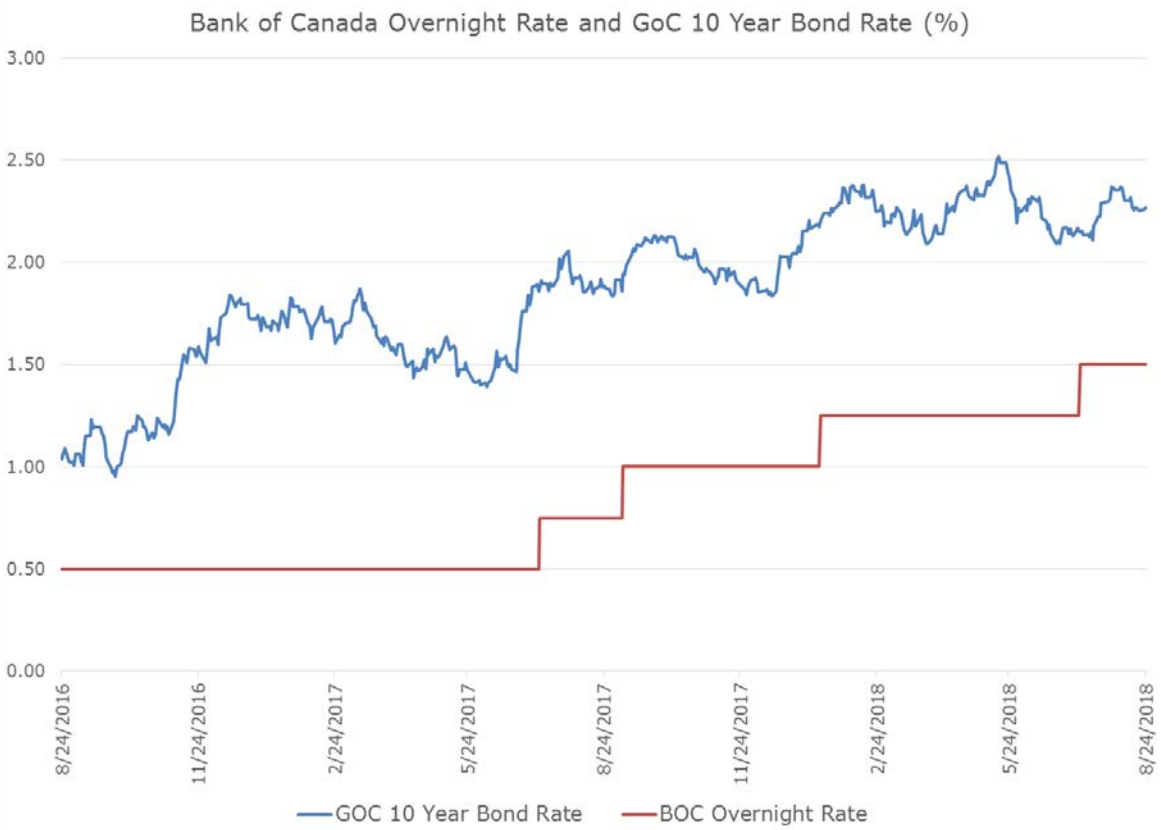
the 2 year time span, the overnight rate does not change while the GoC varies, which causes the correlation to be close to zero.

For the purposes of rate setting, MPI's is concerned with changes in interest rates, and on a daily basis, the Bank of Canada Overnight rate is not predictive of the changes to the GoC 10 yr bond rate. MPI's response to *CAC (MPI) 2-1* shows also that the correlation of monthly changes between overnight rates and GoC 10 yr bond rates is quite low (r=0.23), and that the relationship between these two data sets only appears to be predictable over the long run (with the caveat that even the long relationship might have changed since the 2008 Global Financial Crisis).

Figure 1 below provides the requested chart. Visually, the relationship between the overnight and the GoC 10 year bond yield indicates that there is a positive relationship in the absolute value of the data sets over the last two years. However, the two years presented in Figure 1 below are not necessarily reflective of the general relationship between the two data sets over the short term (1 to 1.5 years). MPI's response to *CAC (MPI) 2-1* also shows that increases in the Bank of Canada overnight rate do not necessarily result in increases in the Government of Canada 10-year bond yields, particularly over the over the short-term.

The summary point is as follows: the timing of the relative movements between the interest rates matters. Over the short term (be it 1 day, 1 month, or most importantly 1 to 1.5 years) there is simply not enough empirical evidence to conclude that changes in the Bank of Canada overnight rate is predictive of the direction and magnitude of movements in the GOC 10 yr bond rate.

Figure 1: BOC Overnight Rate and the GoC 10 Year Bond Rate over the last 2 years



Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate		
8/24/2018	2.27	1.50	0.01	0.00	**Correlation**	0.073
8/23/2018	2.26	1.50	0.00	0.00		
8/22/2018	2.26	1.50	0.00	0.00		
8/21/2018	2.26	1.50	0.01	0.00		
8/20/2018	2.25	1.50	-0.02	0.00		
8/17/2018	2.27	1.50	0.01	0.00		
8/16/2018	2.26	1.50	-0.01	0.00		
8/15/2018	2.27	1.50	-0.05	0.00		
8/14/2018	2.32	1.50	0.02	0.00		
8/13/2018	2.30	1.50	0.00	0.00		
8/10/2018	2.30	1.50	-0.03	0.00		
8/9/2018	2.33	1.50	-0.03	0.00		
8/8/2018	2.36	1.50	-0.01	0.00		
8/7/2018	2.37	1.50	0.02	0.00		
8/6/2018	2.35	1.50	0.00	0.00		
8/3/2018	2.35	1.50	-0.01	0.00		
8/2/2018	2.37	1.50	0.00	0.00		
8/1/2018	2.37	1.50	0.06	0.00		
7/31/2018	2.31	1.50	0.01	0.00		
7/30/2018	2.30	1.50	0.00	0.00		
7/27/2018	2.30	1.50	0.00	0.00		
7/26/2018	2.29	1.50	0.00	0.00		
7/25/2018	2.29	1.50	0.07	0.00		
7/24/2018	2.23	1.50	0.00	0.00		
7/23/2018	2.22	1.50	0.05	0.00		
7/20/2018	2.18	1.50	0.07	0.00		
7/19/2018	2.11	1.50	-0.04	0.00		
7/18/2018	2.15	1.50	0.03	0.00		
7/17/2018	2.12	1.50	-0.01	0.00		
7/16/2018	2.14	1.50	0.00	0.00		
7/13/2018	2.13	1.50	-0.02	0.00		
7/12/2018	2.15	1.50	0.01	0.00		
7/11/2018	2.15	1.50	0.00	0.25		
7/10/2018	2.15	1.25	-0.02	0.00		
7/9/2018	2.17	1.25	0.04	0.00		
7/6/2018	2.13	1.25	-0.02	0.00		
7/5/2018	2.15	1.25	-0.02	0.00		
7/4/2018	2.16	1.25	0.02	0.00		
7/3/2018	2.14	1.25	-0.03	0.00		
7/2/2018	2.17	1.25	0.00	0.00		
6/29/2018	2.17	1.25	0.03	0.00		
6/28/2018	2.13	1.25	0.04	0.00		
6/27/2018	2.09	1.25	-0.01	0.00		
6/26/2018	2.11	1.25	0.01	0.00		
6/25/2018	2.09	1.25	-0.03	0.00		
6/22/2018	2.13	1.25	-0.02	0.00		
6/21/2018	2.14	1.25	-0.04	0.00		
6/20/2018	2.18	1.25	0.02	0.00		
6/19/2018	2.16	1.25	-0.04	0.00		
6/18/2018	2.20	1.25	-0.02	0.00		
6/15/2018	2.22	1.25	-0.05	0.00		
6/14/2018	2.27	1.25	-0.05	0.00		
6/13/2018	2.32	1.25	0.02	0.00		
6/12/2018	2.30	1.25	-0.01	0.00		
6/11/2018	2.31	1.25	-0.01	0.00		
6/8/2018	2.32	1.25	0.04	0.00		
6/7/2018	2.28	1.25	-0.02	0.00		
6/6/2018	2.31	1.25	0.05	0.00		
6/5/2018	2.25	1.25	-0.02	0.00		
6/4/2018	2.28	1.25	0.03	0.00		

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
6/1/2018	2.25	1.25	0.00	0.00
5/31/2018	2.24	1.25	-0.02	0.00
5/30/2018	2.27	1.25	0.08	0.00
5/29/2018	2.19	1.25	-0.11	0.00
5/28/2018	2.30	1.25	-0.04	0.00
5/25/2018	2.35	1.25	-0.06	0.00
5/24/2018	2.41	1.25	-0.03	0.00
5/23/2018	2.44	1.25	-0.04	0.00
5/22/2018	2.49	1.25	0.00	0.00
5/21/2018	2.49	1.25	0.00	0.00
5/18/2018	2.49	1.25	-0.03	0.00
5/17/2018	2.52	1.25	0.02	0.00
5/16/2018	2.50	1.25	0.02	0.00
5/15/2018	2.48	1.25	0.06	0.00
5/14/2018	2.43	1.25	0.05	0.00
5/11/2018	2.38	1.25	-0.02	0.00
5/10/2018	2.40	1.25	0.00	0.00
5/9/2018	2.39	1.25	0.04	0.00
5/8/2018	2.35	1.25	0.02	0.00
5/7/2018	2.33	1.25	0.00	0.00
5/4/2018	2.33	1.25	0.00	0.00
5/3/2018	2.33	1.25	-0.03	0.00
5/2/2018	2.36	1.25	0.02	0.00
5/1/2018	2.34	1.25	0.03	0.00
4/30/2018	2.31	1.25	-0.02	0.00
4/27/2018	2.32	1.25	-0.03	0.00
4/26/2018	2.35	1.25	-0.02	0.00
4/25/2018	2.37	1.25	0.02	0.00
4/24/2018	2.35	1.25	0.00	0.00
4/23/2018	2.35	1.25	0.02	0.00
4/20/2018	2.34	1.25	0.01	0.00
4/19/2018	2.32	1.25	0.04	0.00
4/18/2018	2.29	1.25	0.04	0.00
4/17/2018	2.25	1.25	-0.03	0.00
4/16/2018	2.27	1.25	0.03	0.00
4/13/2018	2.24	1.25	-0.04	0.00
4/12/2018	2.28	1.25	0.08	0.00
4/11/2018	2.20	1.25	0.02	0.00
4/10/2018	2.18	1.25	0.04	0.00
4/9/2018	2.14	1.25	0.00	0.00
4/6/2018	2.14	1.25	-0.04	0.00
4/5/2018	2.18	1.25	0.01	0.00
4/4/2018	2.18	1.25	0.03	0.00
4/3/2018	2.15	1.25	0.03	0.00
4/2/2018	2.12	1.25	0.02	0.00
3/30/2018	2.09	1.25	0.00	0.00
3/29/2018	2.09	1.25	-0.03	0.00
3/28/2018	2.12	1.25	-0.02	0.00
3/27/2018	2.15	1.25	-0.09	0.00
3/26/2018	2.23	1.25	0.04	0.00
3/23/2018	2.19	1.25	0.02	0.00
3/22/2018	2.18	1.25	-0.08	0.00
3/21/2018	2.26	1.25	0.05	0.00
3/20/2018	2.21	1.25	0.04	0.00
3/19/2018	2.17	1.25	0.03	0.00
3/16/2018	2.14	1.25	0.00	0.00
3/15/2018	2.14	1.25	-0.02	0.00
3/14/2018	2.16	1.25	-0.04	0.00
3/13/2018	2.21	1.25	-0.03	0.00
3/12/2018	2.24	1.25	-0.03	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
3/9/2018	2.27	1.25	0.04	0.00
3/8/2018	2.23	1.25	-0.01	0.00
3/7/2018	2.24	1.25	0.00	0.00
3/6/2018	2.23	1.25	0.04	0.00
3/5/2018	2.19	1.25	-0.01	0.00
3/2/2018	2.20	1.25	0.02	0.00
3/1/2018	2.18	1.25	-0.06	0.00
2/28/2018	2.24	1.25	-0.04	0.00
2/27/2018	2.28	1.25	0.02	0.00
2/26/2018	2.25	1.25	0.01	0.00
2/23/2018	2.25	1.25	-0.05	0.00
2/22/2018	2.30	1.25	-0.05	0.00
2/21/2018	2.35	1.25	0.03	0.00
2/20/2018	2.32	1.25	0.00	0.00
2/19/2018	2.32	1.25	0.00	0.00
2/16/2018	2.32	1.25	-0.06	0.00
2/15/2018	2.38	1.25	0.00	0.00
2/14/2018	2.37	1.25	0.05	0.00
2/13/2018	2.33	1.25	-0.02	0.00
2/12/2018	2.34	1.25	-0.01	0.00
2/9/2018	2.35	1.25	-0.02	0.00
2/8/2018	2.38	1.25	0.00	0.00
2/7/2018	2.37	1.25	0.01	0.00
2/6/2018	2.37	1.25	0.07	0.00
2/5/2018	2.29	1.25	-0.07	0.00
2/2/2018	2.36	1.25	0.00	0.00
2/1/2018	2.37	1.25	0.08	0.00
1/31/2018	2.29	1.25	-0.01	0.00
1/30/2018	2.30	1.25	0.01	0.00
1/29/2018	2.28	1.25	0.02	0.00
1/26/2018	2.26	1.25	0.02	0.00
1/25/2018	2.24	1.25	-0.02	0.00
1/24/2018	2.27	1.25	0.04	0.00
1/23/2018	2.23	1.25	-0.01	0.00
1/22/2018	2.24	1.25	0.00	0.00
1/19/2018	2.24	1.25	0.02	0.00
1/18/2018	2.22	1.25	0.02	0.00
1/17/2018	2.20	1.25	0.03	0.25
1/16/2018	2.17	1.00	-0.02	0.00
1/15/2018	2.19	1.00	0.02	0.00
1/12/2018	2.17	1.00	0.01	0.00
1/11/2018	2.17	1.00	0.00	0.00
1/10/2018	2.16	1.00	-0.04	0.00
1/9/2018	2.20	1.00	0.05	0.00
1/8/2018	2.16	1.00	0.00	0.00
1/5/2018	2.15	1.00	0.07	0.00
1/4/2018	2.08	1.00	0.03	0.00
1/3/2018	2.05	1.00	-0.03	0.00
1/2/2018	2.08	1.00	0.04	0.00
1/1/2018	2.05	1.00	0.00	0.00
12/29/2017	2.05	1.00	0.01	0.00
12/28/2017	2.03	1.00	0.05	0.00
12/27/2017	1.98	1.00	-0.05	0.00
12/26/2017	2.03	1.00	0.00	0.00
12/25/2017	2.03	1.00	0.00	0.00
12/22/2017	2.03	1.00	0.00	0.00
12/21/2017	2.03	1.00	0.04	0.00
12/20/2017	1.99	1.00	0.06	0.00
12/19/2017	1.93	1.00	0.08	0.00
12/18/2017	1.86	1.00	0.02	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
12/15/2017	1.84	1.00	-0.02	0.00
12/14/2017	1.86	1.00	0.01	0.00
12/13/2017	1.84	1.00	-0.02	0.00
12/12/2017	1.87	1.00	0.00	0.00
12/11/2017	1.86	1.00	0.00	0.00
12/8/2017	1.86	1.00	0.01	0.00
12/7/2017	1.85	1.00	0.00	0.00
12/6/2017	1.86	1.00	-0.04	0.00
12/5/2017	1.90	1.00	-0.03	0.00
12/4/2017	1.92	1.00	0.01	0.00
12/1/2017	1.91	1.00	0.02	0.00
11/30/2017	1.89	1.00	0.01	0.00
11/29/2017	1.88	1.00	0.04	0.00
11/28/2017	1.84	1.00	-0.03	0.00
11/27/2017	1.87	1.00	-0.02	0.00
11/24/2017	1.89	1.00	-0.01	0.00
11/23/2017	1.89	1.00	-0.01	0.00
11/22/2017	1.90	1.00	-0.02	0.00
11/21/2017	1.92	1.00	-0.04	0.00
11/20/2017	1.96	1.00	0.02	0.00
11/17/2017	1.94	1.00	-0.04	0.00
11/16/2017	1.97	1.00	0.06	0.00
11/15/2017	1.91	1.00	-0.04	0.00
11/14/2017	1.95	1.00	-0.02	0.00
11/13/2017	1.97	1.00	0.00	0.00
11/10/2017	1.97	1.00	0.03	0.00
11/9/2017	1.93	1.00	0.01	0.00
11/8/2017	1.92	1.00	0.03	0.00
11/7/2017	1.89	1.00	-0.03	0.00
11/6/2017	1.93	1.00	-0.03	0.00
11/3/2017	1.96	1.00	0.00	0.00
11/2/2017	1.96	1.00	-0.01	0.00
11/1/2017	1.97	1.00	0.02	0.00
10/31/2017	1.95	1.00	0.00	0.00
10/30/2017	1.96	1.00	-0.03	0.00
10/27/2017	1.99	1.00	-0.04	0.00
10/26/2017	2.03	1.00	-0.01	0.00
10/25/2017	2.05	1.00	-0.02	0.00
10/24/2017	2.07	1.00	0.04	0.00
10/23/2017	2.02	1.00	0.00	0.00
10/20/2017	2.03	1.00	0.02	0.00
10/19/2017	2.01	1.00	-0.02	0.00
10/18/2017	2.04	1.00	0.02	0.00
10/17/2017	2.02	1.00	-0.01	0.00
10/16/2017	2.03	1.00	-0.01	0.00
10/13/2017	2.04	1.00	-0.04	0.00
10/12/2017	2.08	1.00	-0.03	0.00
10/11/2017	2.11	1.00	-0.01	0.00
10/10/2017	2.12	1.00	0.00	0.00
10/9/2017	2.13	1.00	0.00	0.00
10/6/2017	2.13	1.00	0.03	0.00
10/5/2017	2.10	1.00	-0.02	0.00
10/4/2017	2.12	1.00	0.00	0.00
10/3/2017	2.11	1.00	-0.02	0.00
10/2/2017	2.13	1.00	0.03	0.00
9/29/2017	2.10	1.00	-0.03	0.00
9/28/2017	2.13	1.00	0.00	0.00
9/27/2017	2.13	1.00	0.02	0.00
9/26/2017	2.11	1.00	0.02	0.00
9/25/2017	2.09	1.00	-0.02	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
9/22/2017	2.11	1.00	-0.01	0.00
9/21/2017	2.12	1.00	0.02	0.00
9/20/2017	2.10	1.00	0.01	0.00
9/19/2017	2.09	1.00	0.01	0.00
9/18/2017	2.08	1.00	-0.01	0.00
9/15/2017	2.09	1.00	0.03	0.00
9/14/2017	2.06	1.00	-0.01	0.00
9/13/2017	2.07	1.00	0.02	0.00
9/12/2017	2.04	1.00	0.02	0.00
9/11/2017	2.03	1.00	0.04	0.00
9/8/2017	1.98	1.00	0.05	0.00
9/7/2017	1.94	1.00	-0.01	0.00
9/6/2017	1.94	1.00	0.08	0.25
9/5/2017	1.86	0.75	-0.05	0.00
9/4/2017	1.91	0.75	0.00	0.00
9/1/2017	1.91	0.75	0.07	0.00
8/31/2017	1.85	0.75	0.01	0.00
8/30/2017	1.84	0.75	0.00	0.00
8/29/2017	1.84	0.75	-0.03	0.00
8/28/2017	1.87	0.75	-0.01	0.00
8/25/2017	1.87	0.75	-0.01	0.00
8/24/2017	1.89	0.75	0.01	0.00
8/23/2017	1.88	0.75	-0.04	0.00
8/22/2017	1.92	0.75	0.04	0.00
8/21/2017	1.88	0.75	0.01	0.00
8/18/2017	1.87	0.75	0.02	0.00
8/17/2017	1.85	0.75	-0.02	0.00
8/16/2017	1.87	0.75	-0.04	0.00
8/15/2017	1.91	0.75	0.03	0.00
8/14/2017	1.88	0.75	0.02	0.00
8/11/2017	1.85	0.75	0.00	0.00
8/10/2017	1.85	0.75	-0.05	0.00
8/9/2017	1.91	0.75	-0.03	0.00
8/8/2017	1.94	0.75	0.01	0.00
8/7/2017	1.92	0.75	0.00	0.00
8/4/2017	1.92	0.75	0.03	0.00
8/3/2017	1.89	0.75	-0.05	0.00
8/2/2017	1.94	0.75	-0.02	0.00
8/1/2017	1.96	0.75	-0.10	0.00
7/31/2017	2.06	0.75	0.03	0.00
7/28/2017	2.03	0.75	0.03	0.00
7/27/2017	2.00	0.75	0.03	0.00
7/26/2017	1.97	0.75	-0.05	0.00
7/25/2017	2.02	0.75	0.09	0.00
7/24/2017	1.92	0.75	0.04	0.00
7/21/2017	1.89	0.75	0.00	0.00
7/20/2017	1.88	0.75	-0.02	0.00
7/19/2017	1.90	0.75	0.04	0.00
7/18/2017	1.86	0.75	-0.03	0.00
7/17/2017	1.90	0.75	0.00	0.00
7/14/2017	1.90	0.75	-0.01	0.00
7/13/2017	1.91	0.75	0.04	0.00
7/12/2017	1.88	0.75	0.02	0.25
7/11/2017	1.86	0.50	-0.03	0.00
7/10/2017	1.89	0.50	0.01	0.00
7/7/2017	1.88	0.50	0.05	0.00
7/6/2017	1.83	0.50	0.04	0.00
7/5/2017	1.79	0.50	-0.05	0.00
7/4/2017	1.84	0.50	0.08	0.00
7/3/2017	1.76	0.50	0.00	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
6/30/2017	1.76	0.50	0.06	0.00
6/29/2017	1.71	0.50	0.08	0.00
6/28/2017	1.62	0.50	0.05	0.00
6/27/2017	1.57	0.50	0.11	0.00
6/26/2017	1.46	0.50	-0.01	0.00
6/23/2017	1.48	0.50	-0.02	0.00
6/22/2017	1.50	0.50	0.01	0.00
6/21/2017	1.49	0.50	-0.01	0.00
6/20/2017	1.50	0.50	-0.04	0.00
6/19/2017	1.54	0.50	0.02	0.00
6/16/2017	1.52	0.50	-0.01	0.00
6/15/2017	1.53	0.50	0.04	0.00
6/14/2017	1.49	0.50	-0.07	0.00
6/13/2017	1.56	0.50	0.08	0.00
6/12/2017	1.49	0.50	0.06	0.00
6/9/2017	1.42	0.50	0.01	0.00
6/8/2017	1.42	0.50	0.01	0.00
6/7/2017	1.41	0.50	0.02	0.00
6/6/2017	1.39	0.50	-0.02	0.00
6/5/2017	1.41	0.50	0.01	0.00
6/2/2017	1.40	0.50	-0.03	0.00
6/1/2017	1.43	0.50	0.01	0.00
5/31/2017	1.42	0.50	0.00	0.00
5/30/2017	1.41	0.50	0.00	0.00
5/29/2017	1.41	0.50	-0.03	0.00
5/26/2017	1.45	0.50	-0.02	0.00
5/25/2017	1.46	0.50	-0.02	0.00
5/24/2017	1.48	0.50	-0.03	0.00
5/23/2017	1.51	0.50	0.03	0.00
5/22/2017	1.48	0.50	0.00	0.00
5/19/2017	1.48	0.50	0.03	0.00
5/18/2017	1.45	0.50	0.00	0.00
5/17/2017	1.45	0.50	-0.12	0.00
5/16/2017	1.57	0.50	-0.02	0.00
5/15/2017	1.59	0.50	0.02	0.00
5/12/2017	1.57	0.50	-0.03	0.00
5/11/2017	1.60	0.50	-0.03	0.00
5/10/2017	1.64	0.50	0.02	0.00
5/9/2017	1.62	0.50	0.03	0.00
5/8/2017	1.59	0.50	0.05	0.00
5/5/2017	1.54	0.50	0.00	0.00
5/4/2017	1.54	0.50	-0.01	0.00
5/3/2017	1.54	0.50	0.03	0.00
5/2/2017	1.51	0.50	-0.06	0.00
5/1/2017	1.58	0.50	0.03	0.00
4/28/2017	1.55	0.50	-0.03	0.00
4/27/2017	1.58	0.50	0.10	0.00
4/26/2017	1.48	0.50	-0.04	0.00
4/25/2017	1.52	0.50	0.04	0.00
4/24/2017	1.49	0.50	0.02	0.00
4/21/2017	1.47	0.50	-0.01	0.00
4/20/2017	1.48	0.50	0.02	0.00
4/19/2017	1.47	0.50	0.03	0.00
4/18/2017	1.44	0.50	-0.08	0.00
4/17/2017	1.52	0.50	0.02	0.00
4/14/2017	1.49	0.50	0.00	0.00
4/13/2017	1.49	0.50	-0.01	0.00
4/12/2017	1.51	0.50	-0.04	0.00
4/11/2017	1.55	0.50	-0.05	0.00
4/10/2017	1.60	0.50	0.00	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
4/7/2017	1.60	0.50	0.05	0.00
4/6/2017	1.55	0.50	-0.01	0.00
4/5/2017	1.56	0.50	-0.02	0.00
4/4/2017	1.58	0.50	0.01	0.00
4/3/2017	1.57	0.50	-0.06	0.00
3/31/2017	1.63	0.50	-0.01	0.00
3/30/2017	1.64	0.50	0.04	0.00
3/29/2017	1.59	0.50	-0.04	0.00
3/28/2017	1.63	0.50	0.02	0.00
3/27/2017	1.61	0.50	-0.04	0.00
3/24/2017	1.64	0.50	-0.05	0.00
3/23/2017	1.69	0.50	0.01	0.00
3/22/2017	1.68	0.50	-0.02	0.00
3/21/2017	1.70	0.50	-0.02	0.00
3/20/2017	1.73	0.50	-0.03	0.00
3/17/2017	1.76	0.50	-0.04	0.00
3/16/2017	1.80	0.50	0.04	0.00
3/15/2017	1.77	0.50	-0.07	0.00
3/14/2017	1.84	0.50	-0.03	0.00
3/13/2017	1.87	0.50	0.06	0.00
3/10/2017	1.81	0.50	0.00	0.00
3/9/2017	1.81	0.50	0.03	0.00
3/8/2017	1.78	0.50	0.04	0.00
3/7/2017	1.74	0.50	0.03	0.00
3/6/2017	1.71	0.50	0.01	0.00
3/3/2017	1.70	0.50	0.01	0.00
3/2/2017	1.70	0.50	0.01	0.00
3/1/2017	1.69	0.50	0.05	0.00
2/28/2017	1.64	0.50	-0.01	0.00
2/27/2017	1.65	0.50	0.04	0.00
2/24/2017	1.61	0.50	-0.07	0.00
2/23/2017	1.67	0.50	-0.05	0.00
2/22/2017	1.72	0.50	0.00	0.00
2/21/2017	1.72	0.50	0.01	0.00
2/20/2017	1.71	0.50	0.00	0.00
2/17/2017	1.71	0.50	-0.04	0.00
2/16/2017	1.75	0.50	-0.04	0.00
2/15/2017	1.78	0.50	0.02	0.00
2/14/2017	1.77	0.50	0.03	0.00
2/13/2017	1.73	0.50	0.03	0.00
2/10/2017	1.70	0.50	0.02	0.00
2/9/2017	1.68	0.50	0.06	0.00
2/8/2017	1.63	0.50	-0.07	0.00
2/7/2017	1.69	0.50	-0.01	0.00
2/6/2017	1.70	0.50	-0.06	0.00
2/3/2017	1.77	0.50	0.00	0.00
2/2/2017	1.77	0.50	0.00	0.00
2/1/2017	1.76	0.50	0.00	0.00
1/31/2017	1.76	0.50	-0.03	0.00
1/30/2017	1.79	0.50	0.00	0.00
1/27/2017	1.78	0.50	-0.04	0.00
1/26/2017	1.82	0.50	-0.01	0.00
1/25/2017	1.83	0.50	0.06	0.00
1/24/2017	1.76	0.50	0.08	0.00
1/23/2017	1.68	0.50	-0.07	0.00
1/20/2017	1.75	0.50	-0.01	0.00
1/19/2017	1.76	0.50	0.05	0.00
1/18/2017	1.71	0.50	0.04	0.00
1/17/2017	1.67	0.50	-0.03	0.00
1/16/2017	1.70	0.50	-0.02	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
1/13/2017	1.72	0.50	0.05	0.00
1/12/2017	1.66	0.50	-0.02	0.00
1/11/2017	1.68	0.50	0.00	0.00
1/10/2017	1.69	0.50	0.01	0.00
1/9/2017	1.68	0.50	-0.05	0.00
1/6/2017	1.73	0.50	0.07	0.00
1/5/2017	1.67	0.50	-0.05	0.00
1/4/2017	1.71	0.50	-0.03	0.00
1/3/2017	1.74	0.50	0.02	0.00
1/2/2017	1.72	0.50	0.00	0.00
12/30/2016	1.72	0.50	0.00	0.00
12/29/2016	1.72	0.50	-0.01	0.00
12/28/2016	1.73	0.50	-0.06	0.00
12/27/2016	1.80	0.50	0.00	0.00
12/26/2016	1.80	0.50	0.00	0.00
12/23/2016	1.80	0.50	-0.03	0.00
12/22/2016	1.82	0.50	0.01	0.00
12/21/2016	1.81	0.50	0.00	0.00
12/20/2016	1.81	0.50	0.02	0.00
12/19/2016	1.78	0.50	-0.05	0.00
12/16/2016	1.83	0.50	0.00	0.00
12/15/2016	1.84	0.50	0.05	0.00
12/14/2016	1.79	0.50	0.03	0.00
12/13/2016	1.76	0.50	0.01	0.00
12/12/2016	1.75	0.50	0.02	0.00
12/9/2016	1.73	0.50	0.07	0.00
12/8/2016	1.66	0.50	0.06	0.00
12/7/2016	1.60	0.50	-0.04	0.00
12/6/2016	1.64	0.50	0.01	0.00
12/5/2016	1.63	0.50	0.01	0.00
12/2/2016	1.62	0.50	-0.06	0.00
12/1/2016	1.68	0.50	0.09	0.00
11/30/2016	1.59	0.50	0.08	0.00
11/29/2016	1.51	0.50	-0.01	0.00
11/28/2016	1.52	0.50	-0.04	0.00
11/25/2016	1.56	0.50	-0.03	0.00
11/24/2016	1.59	0.50	0.05	0.00
11/23/2016	1.54	0.50	0.00	0.00
11/22/2016	1.54	0.50	-0.03	0.00
11/21/2016	1.57	0.50	-0.01	0.00
11/18/2016	1.58	0.50	0.01	0.00
11/17/2016	1.56	0.50	0.06	0.00
11/16/2016	1.51	0.50	-0.03	0.00
11/15/2016	1.54	0.50	-0.01	0.00
11/14/2016	1.55	0.50	0.12	0.00
11/11/2016	1.43	0.50	0.00	0.00
11/10/2016	1.43	0.50	0.06	0.00
11/9/2016	1.37	0.50	0.10	0.00
11/8/2016	1.27	0.50	0.05	0.00
11/7/2016	1.22	0.50	0.06	0.00
11/4/2016	1.16	0.50	-0.04	0.00
11/3/2016	1.20	0.50	0.02	0.00
11/2/2016	1.18	0.50	-0.02	0.00
11/1/2016	1.21	0.50	0.01	0.00
10/31/2016	1.20	0.50	-0.03	0.00
10/28/2016	1.23	0.50	-0.01	0.00
10/27/2016	1.24	0.50	0.08	0.00
10/26/2016	1.16	0.50	0.02	0.00
10/25/2016	1.14	0.50	-0.03	0.00
10/24/2016	1.17	0.50	0.04	0.00

Date	GOC 10 Year Bond Rate	BOC Overnight Rate	Daily Changes GOC 10 Year Bond Rate	Daily Changes BOC Overnight Rate
10/21/2016	1.13	0.50	-0.04	0.00
10/20/2016	1.17	0.50	-0.02	0.00
10/19/2016	1.20	0.50	0.00	0.00
10/18/2016	1.20	0.50	-0.02	0.00
10/17/2016	1.22	0.50	-0.03	0.00
10/14/2016	1.25	0.50	0.07	0.00
10/13/2016	1.18	0.50	-0.02	0.00
10/12/2016	1.20	0.50	0.00	0.00
10/11/2016	1.20	0.50	0.03	0.00
10/10/2016	1.17	0.50	0.00	0.00
10/7/2016	1.17	0.50	0.03	0.00
10/6/2016	1.14	0.50	0.05	0.00
10/5/2016	1.09	0.50	0.02	0.00
10/4/2016	1.07	0.50	0.05	0.00
10/3/2016	1.01	0.50	0.02	0.00
9/30/2016	1.00	0.50	0.04	0.00
9/29/2016	0.95	0.50	-0.03	0.00
9/28/2016	0.98	0.50	0.01	0.00
9/27/2016	0.97	0.50	-0.03	0.00
9/26/2016	0.99	0.50	-0.05	0.00
9/23/2016	1.04	0.50	-0.06	0.00
9/22/2016	1.10	0.50	-0.05	0.00
9/21/2016	1.15	0.50	-0.01	0.00
9/20/2016	1.16	0.50	-0.03	0.00
9/19/2016	1.19	0.50	0.00	0.00
9/16/2016	1.19	0.50	-0.01	0.00
9/15/2016	1.20	0.50	0.01	0.00
9/14/2016	1.19	0.50	-0.04	0.00
9/13/2016	1.23	0.50	0.08	0.00
9/12/2016	1.16	0.50	0.00	0.00
9/9/2016	1.15	0.50	0.07	0.00
9/8/2016	1.08	0.50	0.08	0.00
9/7/2016	1.01	0.50	-0.02	0.00
9/6/2016	1.03	0.50	-0.04	0.00
9/5/2016	1.06	0.50	0.00	0.00
9/2/2016	1.06	0.50	0.06	0.00
9/1/2016	1.01	0.50	-0.02	0.00
8/31/2016	1.02	0.50	0.00	0.00
8/30/2016	1.02	0.50	-0.01	0.00
8/29/2016	1.03	0.50	-0.06	0.00
8/26/2016	1.09	0.50	0.03	0.00
8/25/2016	1.07	0.50	0.03	0.00
8/24/2016	1.04	0.50		

CAC (MPI)

CAC (MPI) 2-1

Part and Chapter:	**CAC (MPI) 1-6 (a) and (b)**	**Page No.:**	**2**
PUB Approved Issue No:	**4c and 4d Interest Rate Forecast**		
Topic:	**Naïve Interest Rate Forecast**		
Sub Topic:			

Preamble to IR (If Any):

"a. Actual or expected changes in the BOC overnight rate are not material considerations in the selection of a best estimate interest rate forecast. Increases in the Bank of Canada (BoC) overnight rate do not necessarily result in increases in Government of Canada (GoC) 10-year bond yields.. .

b. . . . it does not necessarily follow that increases in the BoC overnight rate result in increases in the GoC 10-year bond yield."

Question:

Please explain how these assertions can be credible at any level of generality in light of the Bank of Canada's official document "Monetary Policy: How It Works, and What is Takes" which states unequivocally: "Following the announcement of the Bank's policy action to increase its target for the overnight rate, the actual overnight interest rate adjusts almost instantly. As the overnight interest rate rises, two responses are observed. First, the hike in the overnight rate leads to an increase in longer-term interest rates in Canada. This increase occurs because there is an entire spectrum of financial assets, ranging from overnight loans to 30-year bonds, and their rates tend to move together" (https://www.bankofcanada.ca/publications/books-and-monographs/why-monetary-policy-matters/4-monetary-policy/ , section 4.1)

Rationale for Question:

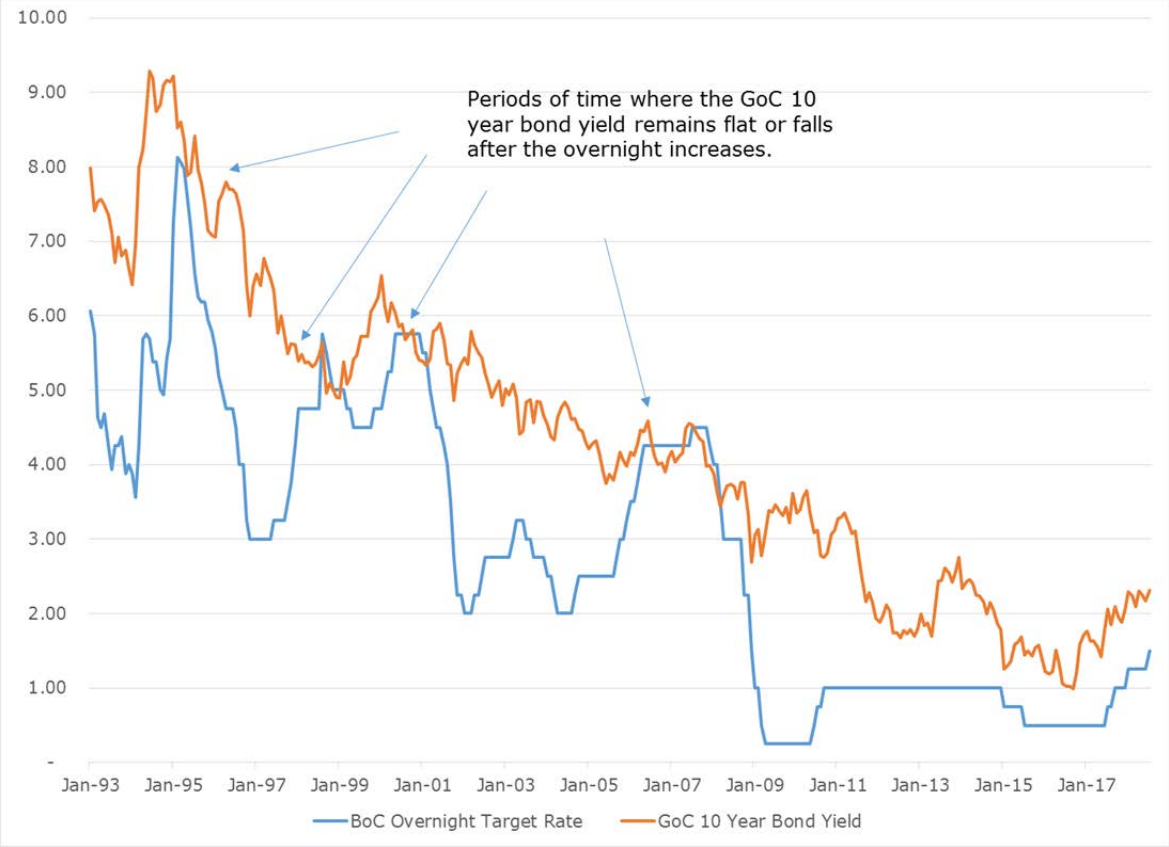
MPI has asserted that recent increases in the Bank of Canada policy rate will not necessarily affect the 10 year Government of Canada bond rate to justify the use of a naïve interest rate forecast.

RESPONSE:

Analysis using Historical Data

Historical data since 1993 indicates that increases in the overnight rate do not necessarily mean that the GoC 10 year bond yield will increase over the short term (1 to 1.5 year outlook period).

Figure 1: Bank of Canada Overnight Rate and GoC 10 Year Bond Year 1993 to Present



As shown in *Figure 1*, over a long horizon (more than two years outlook) the Government of Canada (GoC) 10 year bond yield has followed the general direction of the overnight rate downwards. However, rate setting is based on interest rates with an outlook of less than two years (i.e. short term outlook). There are various 1 year periods where the overnight rate increased significantly, and the Bank of Canada 10 year bond yield fell. *Figure 2* shows a few notable instances over a multi-decade span where the magnitude of both the overnight rate increase and the GoC 10 year bond yield decrease was significant.

Figure 2: Overnight and GoC 10 Year Bond Yield Divergence when Overnight Rate Increases over 1 Year

Line No.	1 Year Outlook	Overnight Rate Change (%)	GoC 10 Year Bond Yield Change (%)	Divergence (%)
1	Oct 1994 to Oct 1995	1.25	-1.57	2.82
2	Jan 1997 to Jan 1998	1.75	-1.17	2.92
3	Jan 2000 to Jan 2001	0.75	-1.15	1.90
4	May 2002 to May 2003	1.00	-1.09	2.09
5	Jun 2004 to June 2005	0.50	-1.09	1.59
6	Oct 2009 to Oct 2010	0.75	-0.61	1.36

Figure 3 below shows this same analysis over a 1.5 year outlook period. This outlook period is relevant because the new money yield used for setting rates in the 2019 GRA is calculated as of September 1, 2019, which is an outlook period of 1.5 years from the naïve forecast that was set using the February 28, 2018 GoC 10 year bond yield. An example of extreme divergence of the overnight rate and the GoC 10 year bond yield was seen over the 1.5 year period ending September 1998. The overnight rate increased by 2.50% and the GoC 10 year bond yield decreased by 1.81%, for a divergence of 4.31%.

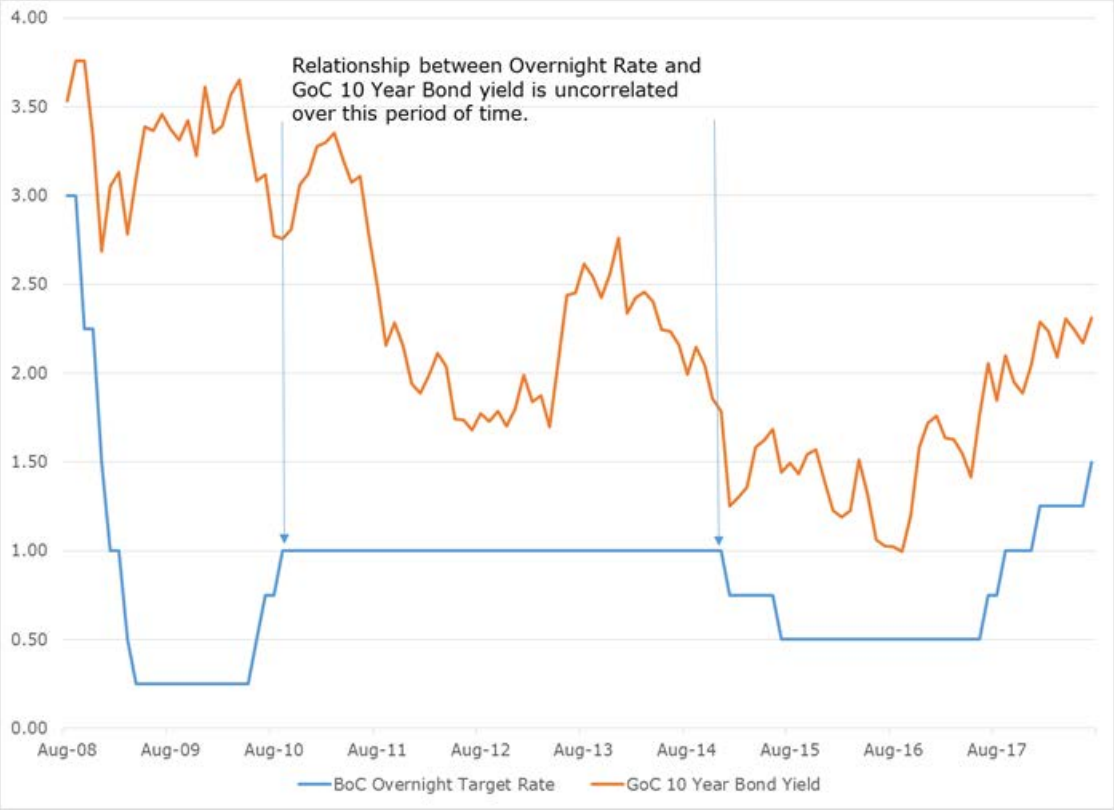
Figure 3: Overnight and GoC 10 Year Bond Yield Divergence when Overnight Rate Increases over 1.5 Years

Line No.	1 Year Outlook	Overnight Rate Change (%)	GoC 10 Year Bond Yield Change (%)	Divergence (%)
1	Mar 1997 to Sept 1998	2.50	-1.81	4.31
2	Mar 2002 to Sep 2003	0.75	-1.23	1.98
3	Jun 2004 to Dec 2005	1.25	-0.86	2.11
4	Mar 2010 to Sep 2011	0.75	-1.41	2.16

Bank of Canada Article

Christopher Ragan wrote the article that was published in the Bank of Canada Review in Winter 2006-2007, written between 2004 and 2005. Financial markets have changed since the article was published, due in part to the impact of the Global Financial Crisis in 2008/2009, which was followed by historically low interest rates. Figure 4 provides the last 10 years of history for both variables.

Figure 4: 10 Years of History: Bank of Canada Overnight Rate and GoC 10 Year Bond Yield (%)



A few observations about *Figure 4*:

- Since the article was written there was yet another divergence of interest rates in the short term when the overnight rate increased. The overnight rate as of May 2010 was 0.25% and the GoC 10 year bond yield was 3.35%. By September 2010, the overnight rate increased by 0.75% to 1.00% and the GoC 10 year bond yield fell by 0.59% to 2.76%.
- The correlation coefficient of monthly movements between the overnight rate and the GoC 10 year bond yield over the last 10 years (August 2008 to July 2018) is r = 0.23, indicating little strength in the relationship between the relative movements of the two variables.
- See *PUB (MPI) 2-39* for discussion of correlation for the two year period ending August 2018.

In sum, increases in the Bank of Canada overnight rate do not necessarily result in increases in Government of Canada 10-year bond yields, particularly over the short-term (1 to 1.5 years).

CAC (MPI) 2-2

Part and Chapter:	**PART VI** **INV.2.1.2**	**Page No.:**	**1,459 - 1,462; 1,469; 1,633**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #10. Minimum Risk Portfolio (Follow-up question to CAC (MPI) 1-83)**		

Preamble to IR (If Any):

In CAC (MPI) 1-83 (response b), MPI said it relies on the nominal, rather than real, Liability Benchmark because it "has identified inflation as a risk and believes that the risk of sustained high inflation is low". In response c, MPI said "a nominal benchmark is better (more appropriate and effective) given the Corporation's outlook for inflation".

In response to PUB (MPI) 1-80 (b), MPI said:

> "MPI has a long-term inflation forecast of 2.0%, which is based upon historical inflation and the Bank of Canada's inflation target." Since the Bank of Canada (BoC) adopted its explicit inflation target in March 1991, inflation has averaged at 1.9%. The Corporation therefore believes that the risk of inflation significantly exceeding the BoC's 2% inflation target is low. Further, given the low real yields currently available on Real Return Bonds (RRBs), the cost of obtaining protection from a high inflation scenario is substantial.
>
> Mercer states at page 7 of the Phase 2 Report, that dollar and duration matching of liabilities is "challenging with RRBs. The Canadian RRB market consists of 15 issues of which only 7 are liquid and all are government issued. Further, RRBs are traditionally indexed to Canadian Consumer Price Index, while Basic Liabilities are indexed to other drivers."

Question:

a) Sustained inflation vs. high inflation: To what extent was MPI's low risk assessment related to "sustained high inflation" based on the "sustained" (i.e. presumably low volatility) component vs. the "high" (i.e. level) component?

b) Appropriateness: How does the **Nominal** Liability Benchmark provide a more **appropriate** objective for managing the portfolio than the **Real** Liability Benchmark?

c) Standard effectiveness: Does the **Nominal** Liability Benchmark provide a more or less effective standard against which performance can be measured, compared to the **Real** Liability Benchmark?

d) Accountability: Would MPI agree that the **Real** Liability Benchmark would make MPI more accountable (compared to using a **Nominal** Liability Benchmark)? If not, why not?

e) To what extent would MPI agree with CAC's assessments, in the table below, of:
   i. the **importance** of the characteristics (column 1) regarding the desirable characteristics of benchmarks noted by Mercer when selecting a liability benchmark (i.e. nominal vs. real)?
   ii. the **assessments** about the Real Liability Benchmark vs. the Nominal Liability Benchmark (columns 2 and 3)?

Desirable Benchmark Characteristic (per Mercer)	CAC's Assessment		
	(1) Importance of Characteristic	(2) Real Liability Benchmark	(3) Nominal Liability Benchmark
a. Specified in advance	n/a*	No material difference	
b. Appropriate	High	**Real Liability Benchmark is more consistent with the desire to reduce risk, given a low tolerance for risk**	
c. Unambiguous	n/a*	No material difference	
d. Measurable	n/a*	No material difference	
e. Accountable	High	**Real Liability Benchmark would hold MPI more accountable** by measuring the difference in performance between the portfolio and the benchmark caused by changes in factors that impact the liabilities (inflation and **real** interest rates)	
f. Investable	Lower	**Real Liability Benchmark is less investable**, given the large weight to RRBs in the Real Liability Benchmark (66% for Basic, 81% for Pension), compared to 0% RRBs in the Nominal Liability Benchmark	

* Importance does not need to be assessed because CAC believes there is no material difference in this regard between the real and nominal liability benchmarks (i.e. both benchmarks are a) specified in advance, c) unambiguous, and d) measureable.

Rationale for Question:

The rationale provided by MPI for selecting the **nominal** liability benchmark (rather than **real**) seems inconsistent with the desirable characteristics of benchmarks that were described by Mercer. In other words, it is not clear why the **nominal** liability benchmark is "more appropriate and effective" than the **real** liability benchmark. It is also not clear how much weight was given to the various benchmark characteristics in making MPI's decision.

RESPONSE:

a) MPI based its low risk assessment of inflation primarily upon the expected *level* rather than the expected *volatility* of inflation.

b) Early in the project, MPI indicated that it was comfortable focusing on mitigating nominal interest rate risk over real risk.

As indicated in the response to CAC 1-84(b): "During the early stages of the project, MPI advised that they were comfortable with a fixed 2% inflation assumption and that they were less concerned with inflation risk (in particular, the risk of long-term inflation materially exceeding 2%) than nominal interest rate risk (in particular, the risk of buying fixed income securities with duration much shorter than liabilities). Accordingly, it was agreed to model liabilities assuming 2% inflation and utilize a nominal liability benchmark."

Given MPI's investment objectives and risk tolerance, the Nominal Liability Benchmark is a more appropriate objective.

c) Given MPI's investment objectives and risk tolerance, a Nominal Liability Benchmark provides a more effective standard than a Real Liability Benchmark.

d) MPI would be equally accountable using a real or nominal liability benchmark.

e) MPI and Mercer believe that each of the characteristics in the table are important when selecting a liability benchmark, regardless of whether the benchmark selected is nominal or real.

Desirable Benchmark Characteristic (per Mercer)	CAC's Assessment		
	(1) Importance of Characteristic	(2) Real Liability Benchmark	(3) Nominal Liability Benchmark
a. Specified in advance	n/a*	No material difference	
b. Appropriate	High	**Real Liability Benchmark is more consistent with the desire to reduce risk, given a low tolerance for risk**	See response to CAC 1-84(b)
c. Unambiguous	n/a*	No material difference	
d. Measurable	n/a*	No material difference	
e. Accountable	High	**Real Liability Benchmark would hold MPI more accountable** by measuring the difference in performance between the portfolio and the benchmark caused by changes in factors that impact the liabilities (inflation and **real** interest rates)	See response to CAC 1-84(b)
f. Investable	Lower	**Real Liability Benchmark is less investable**, given the large weight to RRBs in the Real Liability Benchmark (66% for Basic, 81% for Pension), compared to 0% RRBs in the Nominal Liability Benchmark	Agree some RRB's are more difficult to purchase.

* Importance does not need to be assessed because CAC believes there is no material difference in this regard between the real and nominal liability benchmarks (i.e. both benchmarks are a) specified in advance, c) unambiguous, and d) measureable.

CAC (MPI) 2-3

Part and Chapter:	**PART VI INV**	**Page No.:**	**1459-1462; 1654; 1755; 1749; 1765**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #13. No Over-Reliance on Quantitative Modeling (Follow-up question to CAC (MPI) 1-84)**		

Preamble to IR (If Any):

In CAC (MPI) 1-84 (response e), Mercer said:

> There is tracking error or basis risk any time one uses a portfolio of marketable fixed income securities to proxy liabilities. Whether the tracking error/basis risk is 'material' depends on one's interpretation of what is 'material'. Given MPI's overall risk tolerance, return objectives, modelling budget, asset class constraints and the scope of the project, Mercer is supportive with MPI's decision to make its asset allocation decisions based off of the liability benchmarks analysis used.

Question:

a) Original question (unchanged): Would MPI and Mercer agree that there is material tracking error* or basis risk between the Nominal Liability Benchmark and the Real Liability Benchmark for:
   i. Basic liabilities?
   ii. Pension liabilities?

   * Tracking error measures the standard deviation of the return difference between two groups of assets or liabilities (e.g. actual portfolio vs. benchmark). Basis risk refers to the risk that two portfolios (including

liability benchmarks) will experience different performance/growth, arising from imperfect correlations (not = 1.0), for example.

b) In answering the above question, how was 'materiality' interpreted by MPI?

c) To what extent would MPI agree that materiality could be assessed, for the purpose above, in relation to:

   i. MPI's tracking error vs. the traditional benchmark portfolio (i.e. policy portfolio, which excludes active management)?

   ii. MPI's permitted tracking error arising from allowable deviations from its duration policy?

Rationale for Question:

The initial question posed by CAC was not answered. (i.e. CAC's question **does not** relate to the tracking error of the **actual** portfolio.) Instead, CAC's question relates to the significance of the difference between the **Nominal** Liability Benchmark and the **Real** Liability Benchmark, with tracking error being a familiar basis for quantifying the difference between the two portfolios (in this case, **two benchmark** portfolios).

RESPONSE:

a) Mercer responds: The response to CAC 1-84 (e) interpreted the question as a discussion of the tracking error between the proxy benchmark and the actual liabilities. CAC's follow-up question (CAC 2-3 (a)) has clarified that their interest in this topic is with respect to the variation in the tracking error between the two Benchmarks (rather than the Benchmarks and the actual liabilities). The variation in future returns between the Nominal Liability Benchmark and the Real Liability Benchmark can be summarized via the anticipated volatility (standard deviation) between the two portfolios. The anticipated volatility between these two portfolios using the forward rate assumptions used for the ALM project is 4.5%. While we would agree that this variation is material, we continue to support the decision to hedge the nominal liability benchmark for the reasons outlined elsewhere.

b) While materiality was not explicitly defined, MPI accepts Mercer's characterization of 4.5% tracking error as material. Materiality is typically defined in terms of

dollars in order to ensure that it is intuitive (i.e. % of net income, % of normal annual revenue, % of the total investment portfolio, etc.).

c) We agree that the tracking error of MPI's actual investment portfolio vs. MPI's benchmark portfolio is one way to assess materiality. We also agree that tracking error arising from deviations from the duration policy is one way to assess materiality. MPI's policy requires the duration of the bond portfolio to be within 0.25 years of the duration of the liabilities so "allowable deviations from its duration policy" are very small.

CAC (MPI) 2-4

Part and Chapter:	**PART VI** **INV**	**Page No.:**	**1459-1462; 1481; 1520; 1532; 1614**
PUB Approved Issue No:	**14. Risk Assessment and Risk Management** **21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #15. Effectiveness of Duration Policy (Follow-up question to CAC (MPI) 1-86)**		

Preamble to IR (If Any):

In CAC (MPI) 1-86 (response h ii), Mercer said:

> Given the current environment, we support decisions by institutional investors such as MPI to hedge nominal interest rate risk before hedging real interest rate risk. We share MPI's view that over the long-term it is unlikely that inflation will persistently exceed 2% per annum. Fully hedging both nominal and real interest rate risk would materially reduce return expectations and significantly limit MPI's investment opportunity set.

Question:

a) Persistently exceed: To what extent is Mercer's support/view to "hedge nominal interest rate risk before hedging real interest rate risk" based on the "persistence" (i.e. presumably low volatility) component vs. the "excess" (i.e. level) component?
b) Can MPI/Mercer explain if hedging **both** nominal and real interest rate risk (at the same time) is possible, or do you have to pick one basis or the other?
c) What evidence can Mercer/MPI provide regarding the material reduction of return expectations arising from "fully hedging both nominal and real interest rate risk"? (Ideally, the response uses the capital market assumptions included in the Asset/Liability Study to quantify the reduction of return expectations.)

d) Would MPI/Mercer agree that MPI's investment opportunity set would only be "significantly limited" if MPI decides that "**fully** hedging" interest rate risk is the chosen strategy? In other words, couldn't the opportunity set be kept larger if **real** interest rate risk is only **partially** hedged?

e) Can Mercer confirm the time horizon (years) when it indicates that in "the long-term it is unlikely that inflation will persistently exceed 2% per annum"?

Rationale for Question:

There are a number of underlying assumptions that may have informed the responses from MPI/Mercer, and it is important to make those assumptions clear when interpreting the responses to certain questions. For example, the term "fully hedging" is used, but a strategy to pursue full (rather than partial) hedging represents a constraint – and it is unclear what impact the constraint itself has on the answers to some questions.

RESPONSE:

a) Mercer's support to "hedge nominal interest rate risk before hedging real interest rate risk" is driven more by our views on the expected level of future inflation than the volatility of future inflation.

b) Hedging both nominal and real interest rate risk at the same time is possible, particularly if one is willing to use derivative overlays to extend duration and achieve exposure to RRB's synthetically. Completely hedging both with physical bonds would significantly limit investment options and result in at least some tracking error.

c) Please see the table below:

Figure 1: Expected Returns

	Basic.1	Basic.3	With RRBs
	Nominal Benchmark	Recommended Portfolio	Real Benchmark
Fixed Income	**100%**	**100%**	**100%**
T-Bills	0%	0%	26%
Short-term Bonds (Prov.)	28%	0%	8%
Mid-term Bonds (Prov.)	18%	28%	0%
Long-term Bonds (Prov.)	54%	32%	0%
Real Return Bonds	0%	0%	66%
Mid-term Bonds (Corp.)	0%	9%	0%
Long-term Bonds (Corp.)	0%	11%	0%
MUSH Bonds	0%	20%	0%
Expected Return	**2.80%**	**3.12%**	**2.43%**

The table above compares expected returns for Basic.1 (the Nominal Benchmark), Basic.3 (the Recommended Portfolio) and the Real Liability Benchmark. The calculation uses the capital market assumptions of the Asset/Liability Study (that is the expected returns based on projected yields implied by the forward yield curve as of August 31, 2017). It illustrates the reduced return expectations for the Real Liability Benchmark.

d) Agreed. The opportunity set would be larger if real interest rate risk was only partially hedged.

e) Mercer does not specifically assign a number of years when referring to the long-term, but generally refers to the 'short-term' as 1-3 years, the 'mid-term' as 3-10 years, and the 'long-term' as 10 years or more.

CAC (MPI) 2-5

Part and Chapter:	**Part VI** **INV, Appendix 13**	**Page No.:**	**1614, 1723, 1788**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Risk Management**		
Sub Topic:	**Risk Tolerance in Basic and Pension (Follow-up question to CAC (MPI) 1-96)**		

Preamble to IR (If Any):

In CAC (MPI) 1-96 (response a), MPI said "prudent fiscal management requires the Corporation to avoid causing a negative impact on the Consolidated Financial Statements of the Province of Manitoba".

Question:

a) Under what circumstances, if any, could there be a "**negative** impact on the Consolidated Financial Statements of the Province of Manitoba" and at the same time be a "**positive** impact for ratepayers"?

   i. Describe the circumstances or triggering events.

   ii. Describe how the Province's Consolidated Financial Statements are negatively impacted in the above circumstances/events.

b) Are there any accounting treatments related to the Consolidated Financial Statements of the Province of Manitoba that may impact MPI's investment-related decisions that are noteworthy? If so, what are they?

Rationale for Question:

To understand how any accounting treatment in the Consolidated Financial Statements of the Province of Manitoba, or other consideration relevant to the Province of Manitoba, might impact MPI's decisions related to risk tolerance and/or portfolio design.

RESPONSE:

a) At the outset, MPI cautions that this question seeks a response that is speculative in nature, and further, MPI's response to CAC (MPI) 1-96 did not specifically reference scenarios that positively impact ratepayers, and negatively impact the consolidated financial statements of the Province. However, the relationship between the ratepayer and MPI's shareholder, in the rate setting context is worthy of some consideration, even in the hypothetical.

There are two key pathways for MPI's financial results to negatively impact the consolidated financial statements of the Province. The first is through negative net income to MPI's (predominantly Basic's) operations, which impacts the Province's consolidated income statement. The second is through elevated risk in the investment portfolio coupled with inadequate capitalization, such that the risk, magnitude and impact of loss would be greater in the face of a major adverse event.

For the first pathway, the timescale is relevant to establishing if impacts are positive or negative for a given stakeholder. Over a short term, say one year, a rate decrease driven by an aggressive interest rate forecast, resulting in policies being sold for less than the cost of coverage, would be beneficial to ratepayers. Basic would, with a high degree of probability, earn negative net income that year, which would negatively impact the Province's consolidated financial statements.

Over a medium term, say 2-3 years, there could be lingering effects on net income and capitalization, as retained earnings are drawn down, potentially triggering management action including RSR rebuilding fees. Over the medium term, both

ratepayers and province's consolidated financial statements could be negatively impacted on a net basis, even factoring in the short term benefit to ratepayers from a lower rates in the first year.

The second pathway is more appropriately considered over the longer term, say 3-8 years, where a scenario could unfold as such: rates are set low on the basis of aggressive interest rate forecasts, and capitalization is drawn down to the bare minimum. A rare, unexpected and adverse event, say a global financial crisis, depletes the reserves of Basic beyond the ability of transfers from MPI's Extension line to maintain Basic's satisfactory financial condition. Remedial action including transfers from the Province, along with management action, could be needed.

In this scenario, ratepayers are arguably negatively impacted on balance (notwithstanding the sustained low rates enjoyed prior to the adverse event), as they now face potential rate increases, rebuilding fees, and indirectly through impacts to government finances.

The Province's consolidated financial statements could be negatively impacted by the following:

i. Basic's negative net income impacting the Province's income statement;

ii. A reduction in assets on Basic's balance sheet, which translates to a reduction of assets on the provincial balance sheet. This loss could be exacerbated if higher risk assets are held by Basic; and

iii. Credit rating downgrade resulting from impacts to Province's income statement and balance sheet.

Here, harm to Basic's financial condition, and the Province's consolidated balance sheet could be amplified with higher risk equities and alternatives supporting the claims liabilities.

As the Province aims to restore fiscal sustainability, balance the budget, and secure a strong credit rating; MPI strives to do its part by limiting variability in earnings. This reduction in volatility will benefit rate payers through stable and predictable rates while also benefiting all Manitoban's through MPI's contribution to a strong Provincial financial position.

b) The Province of Manitoba and MPI follow different accounting principles (Public Sector Accounting versus International Financial Reporting Standards). Provincial accounting treatments have no effect on the Corporation's investment-related decisions.

CAC (MPI) 2-6

Part and Chapter:	**Part VI** **INV.17**	**Page No.:**	**81-82**
PUB Approved Issue No:	**8. Performance of the Investment Portfolio**		
Topic:	**Investments**		
Sub Topic:	**Investment Policy Statement – Material Changes (Follow-up question to PUB (MPI) 1-29)**		

Preamble to IR (If Any):

In PUB (MPI) 1-29, MPI said:

> As a result of this change to the claims discount rate methodology, the marketable bond duration was required to match to the claims liability duration. MUSH bonds were removed from the duration matching calculation because MUSH bonds are a poor hedge against changes in interest rates. MUSH bonds are measured at amortized cost, and are not sensitive to changes in interest rates. This lack of sensitivity creates basis risk (valuation on two different bases). When there are fluctuations in market interest rates, marketable bond yields change and MUSH bond yields do not change.

Question:

a) Was the decision to stop investing in MUSH bonds based, in part, on the accounting treatment for MUSH bonds?

b) If so, how important was the accounting treatment in that investment decision?

Rationale for Question:

To understand the extent to which accounting treatments influence investment decisions, given the different accounting treatments for different asset classes.

RESPONSE:

a) The accounting treatment of MUSH bonds was a minor consideration in the decision to stop investing in them. MPI based its decision primarily on the fact that it expects the issuance of new MUSH bonds to be minimal.

b) See the response to Part (a).

CAC (MPI) 2-7

Part and Chapter:	**CAC (MPI) 1-96**	**Page No.:**	**3, 5 and 6**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Risk Management**		
Sub Topic:	**Risk Tolerance in Basic and Pension**		

Preamble to IR (If Any):

In response to CAC (MPI) 1-96 a) MPI states:

"Claims liability estimates have risk related to mortality, asset liability mismatch, investment returns, technological improvements, and societal/legal factors. These liabilities are long-term in nature and are subject to significant interest rate risk. They also require a high level of liquidity to pay claims. The Corporation has varying levels of control over these factors."

In response to CAC (MPI) 1-96 b) MPI states:

"• a move toward a formula based method for pricing and capital targets;"

In response to CAC (MPI) 1-96 e) MPI states:

"The Corporation has some control over the funded status of the plan, the stability of its business and whether the plan is open or closed, while other factors are not within its control."

Question:

a) Please elaborate and discuss the concept of "high level of liquidity" in the context of MPI's Basic Insurance monthly cash flow requirements vs. the actual cash inflow on a daily basis. Please discuss the frequency at which MPI has drawn on its line of credit to fund operations.

b) Please define and discuss what is meant by "a formula based method for pricing and capital targets".

c) For greater clarity please explain the differences between an open vs. a closed pension plan.

Rationale for Question:

To better understand MPI's cash liquidity requirements in relation to claim payments and to clarify the concepts in questions b) and c).

RESPONSE:

a) The Corporations' claims liabilities require a high level of liquidity in the short-term, mostly to settle physical damage claims. Current claims obligations are generally funded by cash generated from ongoing operations while overall funding requirements are met by the Corporation's Asset Liability Matching (ALM) program. To ensure that policyholder obligations will always be met, MPI backs its claim liabilities with high quality, investment-grade securities that offer a good level of liquidity. MPI has not drawn on its line of credit to fund operations in the last 10 years.

b) The Corporation already has a ratemaking formula that is used for the pricing of Basic insurance. The inputs into the ratemaking formula can be regularly updated to produce a rate indication at various points in time. For example, it is not uncommon for MPI to update the rate indication based on the latest interest rates at the rate hearings in October. The most significant pricing risks faced by MPI are the lag from the regulatory cycle (1-2 years) and the use of biased forecasts (e.g. standard interest rate forecast). In theory, MPI rates could be updated 'dynamically' such that current policyholder renewal rates are based on the latest information. This approach would involve the PUB approving a ratemaking formula that could be updated based on certain constraints (e.g. use of interest rates from the prior month to update current renewal rates). Such an approach would significantly reduce pricing risk for Basic.

For capital targets, Basic insurance could follow a program similar to that used by SGI where there is a target MCT level with various rules used to automatically build or release toward that target over time (again, with some constraints based on more extreme circumstances).

c) An open pension plan is one that is still accepting new members. A closed pension plan is one that is not accepting new members.

CAC (MPI) 2-8

Part and Chapter:	**Part V** **Driver Safety Rating**	**Page No.:**	**9**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**Primary Driver Model**		
Sub Topic:			

Preamble to IR (If Any):

In response to CAC (MPI) 1-51 the Corporation states "By allowing registered owners the ability to declare a primary driver, the Primary Driver Model does not address the perceived inequalities raised by the PUB. The Corporation believes that some customers may simply declare the best-rated driver as the primary driver for all vehicles in the household."

Question:

a) Given that the Corporation has never asked for primary or occasional driver information, please provide the basis for the Corporation's statement in the preamble.

b) Would the Corporation consider asking for primary driver information starting as soon as possible with the goal of analyzing how often the primary driver differs from the registered owner and the potential impact on premiums if premiums were based on primary driver?

Rationale for Question:

To fully understand the Corporation's response to CAC (MPI) 1-51 and ask for consideration of a sample test.

RESPONSE:

a) The Corporation's statement is based on the belief that customers will act in their own self-interest (within the confines of the rules) by choosing the option that provides them with the greatest financial benefit (i.e. lower rates). This belief is neither unreasonable nor a particularly large assumption to make in the circumstances.

b) While the Corporation will consider the possibility of asking for primary driver information in the future, key dates and timelines for the DSR initiative have not yet been determined.

CAC (MPI) 2-9

Part and Chapter:	**Part V Driver Safety Rating**	**Page No.:**	**10**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**Residual Risk Model**		
Sub Topic:			

Preamble to IR (If Any):

In Response to CAC (MPI) 1-52 the Corporation states "Driver premium is currently used in the vehicle premium rate calculation as a positive (favorable) revenue stream to lower vehicle premiums. The Corporation assumes that this treatment of driver premiums will continue under the Residual Risk Model."

Question:

With reference to CAC (MPI) 1-52 please give the Corporation's opinion on the equity of any additional premium collected from "non-owners" being factored in to the overall rate indication.

Rationale for Question:

To fully understand the Residual Risk Model and how non-owner premium would be used in the rate indication.

RESPONSE:

MPI believes that it is equitable from a rate setting perspective to continue to use the income generated from driver premiums to reduce the rates for vehicle premiums, regardless of the methodology used to determine the appropriate driver premiums. One of the objectives of the current DSR model, and of any improvements to the DSR

model, is to make the allocation of the premiums paid by drivers and vehicle owners more equitable.

CAC (MPI) 2-10

Part and Chapter:	**Part VIII, Annual Reports, AR Appendix 2**	**Page No.:**	**4 and 5**
PUB Approved Issue No:	**17. Driver Safety Rating**		
Topic:	**Movement of drivers down the DSR scale**		
Sub Topic:			

Preamble to IR (If Any):

On page 4 of AR Appendix 2 an explanation is given relating to the increase in earned premiums and it states:

"Total earned revenues for the three months ended May increased from the previous year by $23.2 million. This increase is primarily attributed to motor vehicle earned revenues which increased by $19.2 million or 6.8%. The increase in earned revenues is primarily due to the growth in the number of vehicles on the road in Manitoba, and the value of these vehicles and **movement of drivers down the Drivers Safety Rating scale resulted in higher premiums." (emphasis added).**

On page 5 of AR Appendix it states:

"As approved by the Public Utilities Board (PUB), effective March 1, 2018, there was a 2.6 per cent overall rate increase to average Basic insurance rates for the 2018/19 insurance year and the equivalent of a 1.8 per cent increase for demerit drivers."

Question:

Please explain, and if possible, provide a statistical analysis of the impact the 1.8% premium rate increase, effective March 1, 2018, for demerit drivers has had on movements on the DSR rating scale, if any.

Rationale for Question:

To gain a fuller understanding of the impact the 1.8% rate increase for demerit drivers has had on the DSR rating scale movements.

RESPONSE:

The statement in the quarterly report should have also reflected the PUB approved increase for demerit drivers. The driver premium increase for demerit drivers was effective March 1, 2018. One year of data is needed to do the impact analysis. MPI will provide this analysis after March 1, 2019.

CAC (MPI) 2-11

Part and Chapter:	**Part VI** **RSR.4**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/70**		
Topic:	**RSR lower threshold**		
Sub Topic:			

Preamble to IR (If Any):

In response to CAC (MPI) 1-12 a) the Corporation states "Maintaining the RSR at minimum levels does not protect rate payers against rebuilding fees. With no buffer to absorb rate volatility, the RSR is rendered ineffective."

In response to CAC (MPI) 1-17 a) the Corporation states "The Corporation's position is that managing the RSR in the same manner as the recent past, is far from optimal, inconsistent with its purpose of the RSR, and is of no benefit to rate payers."

Question:

a) Does the Corporation believe it is better to have higher premiums now to ensure the RSR is above the minimum level rather than have higher premium when the RSR actually falls below the minimum level? If so, please elaborate as to why.

b) Please explain why the management of the RSR "in the same manner as the recent past" is harmful to rate payers, given that no large rate increases have been required in the recent past.

Rationale for Question:

To understand why the Corporation feels the RSR should be kept above the minimum level required.

RESPONSE:

a) MPI's Basic rates are set on a break-even basis using Accepted Actuarial Practice and are among the lowest rates in Canada for comparable coverage.

MPI's Basic program remains the most undercapitalized automobile insurance program in Canada. The actual MCT ratio for Basic was 44% as of February 28, 2018, while the current PUB ordered minimum capital target (2018 GRA) for Basic equated to a 31% MCT ratio. Owing mostly to changes to the investment portfolio, Basic's projected MCT ratio at Feb 28, 2019 is 70%. Public automobile insurers in Quebec, Saskatchewan, and British Columbia all have MCT targets or MCT minimum capital requirements of 100%. Federally regulated insurers have minimum regulatory capital requirements of 150% MCT. Having said that, MPI has provided extensive evidence in past GRA's, including the comparatives to other public insurers above, that MPI should have an upper RSR target based on an MCT ratio, and that the appropriate level is 100% MCT.

MPI does not agree that it is better to "have higher premiums when the RSR actually falls below the minimum level" because that would represent poor fiscal management of the Basic program. Such an approach is a reactionary strategy that creates rate instability for customers, and risks negatively impacting the consolidated financial statements of the Province.

Prudent fiscal management requires MPI build capital in advance of adverse events, so as to protect ratepayers against rebuilding fees, and insulate the province's consolidated financial statements. Accordingly, MPI intends to bring a Capital Management Plan that includes a rebuild/release provision, in the 2020 GRA.

By contrast to this application, MPI is asking for higher rates only to <u>maintain</u> its capital position.

b) The deficiencies in the current approach to the management of the Rate Stabilization Reserve *and* the use of a biased interest rate forecasting are well

documented in the 2019 GRA. 2017/18 marked the fourth consecutive year in which the Board of Directors directed a transfer to Basic RSR in order for Basic to meet a satisfactory financial condition. Between 2013/14 and 2016/17 the Basic line of business suffered net income losses totaling $250 million. Absent these transfers, ratepayers would have faced approximately a 25% rate increase over this period of time (based on the rule of thumb that $10 million in revenue requirement equals approximately a 1% rate increase).

This particular Information Request from the Consumers' Association of Canada (CAC) suggests that the CAC is interested in only the lowest possible rates (in the near-term) and lowest possible capitalization for MPI's Basic program. CAC continues to support approaches that are not based on best estimates (e.g. interest rate forecasting), are not based on industry best practice (e.g. MCT 100%), and do not create stability for customers (e.g. increasing premiums *after* an adverse event occurs). The direction pursued by the CAC is not a fiscally prudent approach to the management of Manitoba's public automobile insurance program and is not in the best interests of MPI's stakeholders.

CAC (MPI) 2-12

Part and Chapter:	**Part VI** **RSR**	**Page No.:**	**9**
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/70**		
Topic:	**The use of the MCT as a RSR target**		
Sub Topic:			

Preamble to IR (If Any):

In response to CAC (MPI) 1-14 the Corporation states "that using the MCT ratio as a means to express the dollar estimates of the minimum RSR target results in a best estimate."

Question:

a) Given the MCT is a calculation based on a set of financial statements why does the Corporation believe that it is necessary to convert the financial statements resulting from the DCAT scenarios into an MCT ratio?

b) How does the MCT ratio give more information than the dollar amount required at the same MCT ratio level?

c) Does the Corporation agree that any MCT ratio target chosen for the Corporation would be arbitrary as the Corporation has no regulatory set MCT ratio level requirements?

Rationale for Question:

To understand the Corporation's renewed focus on the MCT ratio calculation.

RESPONSE:

a) The Dynamic Capital Adequacy Test (DCAT) provides a lower and upper target for a specific point in time, that being the beginning of the rating year (March 1, 2019). By converting the DCAT target numbers into a Minimum Capital Test (MCT) ratio, the Corporation can forecast lower and upper targets. The Corporation can also estimate what the lower and upper DCAT targets would be if circumstances (i.e. risk levels) change in the future.

   RSR Fig. 11 shows how the MCT ratio can be used to forecast future RSR targets. Specifically, this table shows how planned changes to the Corporation's investment portfolio affect the RSR targets. For both the lower and upper DCAT-calculated RSR targets, the equivalent MCT ratio remained essentially unchanged before and after the assumed transition to the lower risk investment portfolio.

b) The Corporation believes that the MCT ratio provides a target that reasonably estimates the amount of capital the Corporation will need in future years as a result of changes in growth in the balance sheet.

c) The Corporation does not agree that any MCT ratio target chosen for the Corporation would be arbitrary as the MCT ratio is based on the DCAT analysis of the appropriate lower and upper targets.

CAC (MPI) 2-13

Part and Chapter:	**CAC (MPI) 1-74 (b)**	**Page No.:**	
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/70**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In information request CAC (MPI) 1 – 74 (b), CAC requested MPI to explain how the use of the MCT ratio is justified for rate-setting purposes. MPI responded that the MCT is a standard industry measure of capitalization that can be forecast into future years but did not address why the MCT ratio is appropriate for ratemaking.

Question:

a) Please explain why the MCT ratio is appropriate for ratemaking for a crown-owned monopoly insurer such as MPI.

b) Please explain how MPI determined that a 70% MCT ratio was optimal for rate-setting purposes.

c) Please provide references to prior PUB Orders where the MCT ratio has been used as the basis for the determination of an approved rate increase.

Rationale for Question:

To understand the applicability of the MCT ratio as the basis for the calculation of the Corporation's requested rate increase.

RESPONSE:

a) Per the response to CAC (MPI) 1-74(b), the Minimum Capital Test (MCT) ratio is used to "determine whether capitalization is maintained", and is not used for ratemaking. MPI's position is that a Net Capital Maintenance Provision, equivalent to an additional 2.1% overall rate increase, is required to generate the additional premiums needed to maintain capital adequacy. MPI uses the MCT ratio as a means of determining capital adequacy and maintains the adequacy of its capital by ensuring the MCT ratio at fiscal year-end 2019/20 remains unchanged from fiscal year-end 2018/19.

b) See the response to (a) above.

c) See the response to (a) above.

CAC (MPI) 2-14

Part and Chapter:	**Part VI** **RSR**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT and target capital analysis**		
Topic:	**Lower RSR target, satisfactory financial condition and best estimates**		
Sub Topic:			

Preamble to IR (If Any):

In response to CAC (MPI) 1-21 the Corporation states "The Corporation will no longer use an interest rate forecast in its DCAT reports if it believes the forecast is not a best estimate MPI cannot cede control of its forecasts."

Question:

Please confirm the Corporation would respond to a Board order requiring the Corporation to use a different interest rate forecast, for the purposes of rate setting, than in the Corporation's current DCAT report.

Rationale for Question:

To understand the Corporation's response.

RESPONSE:

MPI will comply with PUB Orders setting rates for service pursuant to *The Crown Corporations Governance and Accountability Act*, subject to the outcome of review and appeal mechanisms, where appropriate.

CAC (MPI) 2-15

Part and Chapter:	**Part VI DCAT**	**Page No.:**	**16**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**Maximum Capital Target**		
Sub Topic:			

Preamble to IR (If Any):

From page 16 of Part VI, DCAT:

> *11.21. For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modelling of a 1-in-40 scenario over a two-year time horizon after routine management / regulatory actions.*
>
> **Reason for partial adoption: The methodology is not based on best estimate forecasting assumptions; however, MPI is willing to use the two-year time horizon as it should be a viable amount of time to respond to adverse events.**

Question:

Please explain why using the iterative modelling of a 1-in-40 scenario over a two-year time horizon after routine management/regulatory actions is not based on best estimate forecasting assumptions.

Rationale for Question:

To understand why the Corporation is not continuing to follow the Board's direction from Board Order 130/17.

RESPONSE:

For reasons previously provided in other Information Requests, the Corporation does not agree with the CAC's assertion that the Corporation has not complied with directives under Board Order 130/17.

In Board Order 130/17, the Board states that the iterative modeling approach is not a best estimate:

> *The Corporation has noted its reservations about the iterative modeling approach, namely that creating the modified financial forecast requires significant transfers from its competitive lines that do not reflect best estimate expectations**. The Board agrees that such transfers are not best estimate** expectations, but rather sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about the proposed threshold level.*

The Corporation maintains that creating a modified forecast that assumes transfers from other lines of business over the forecast period to reduce the minimum required capital levels is not a best estimate.

CAC (MPI) 2-16

Part and Chapter:	**Part I** **OV 4.3**	**Page No.:**	**18**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**Consensus on the requirement for a CMP**		
Sub Topic:			

Preamble to IR (If Any):

In response to CAC (MPI) 1-72 the Corporation states "After hearing from PUB advisers and representatives from SGI and the CAC, the Corporation agreed that it was appropriate to include a Capital Maintenance Provision in the 2019 GRA."

Question:

Where in the transcript of the technical conference referenced in the preamble does the CAC indicate support for the inclusion of a Capital Maintenance Provision in the 2019 GRA?

Rationale for Question:

To understand why the Corporation feels that consensus on the need for a Capital Maintenance Provision was reached.

RESPONSE:

The above quote does not state that the CAC indicated support for the inclusion of the Capital Maintenance Provision (CMP) in the 2019 General Rate Application (GRA). MPI appreciates hearing the CAC's position on matters in order to gain a different perspective, but retains the last word on the content of its applications.

As stated throughout the Application, the Corporation's Board of Directors believes in prudent fiscal management. PUB Order 130/17 supports a CMP and SGI, who has one, spoke to its merits. After considering all positions advanced, including the position taken by the CAC, the Corporation understood that the consensus position favoured a CMP and agreed that its inclusion in the 2019 GRA was appropriate.

CAC (MPI) 2-17

Part and Chapter:	**CAC (MPI) 1-72**	**Page No.:**	
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 72, MPI indicates that "… the Corporation believes a consensus, that is, a judgement arrived at by most of those concerned, exists for the inclusion of a Capital Maintenance Provision in the 2019/20 GRA".

Question:

Please clarify and elaborate on what is meant by " a judgement arrived at by most of those concerned".

Rationale for Question:

To further clarify why MPI believes that a consensus was reached at the Capital Maintenance Provision technical conference.

RESPONSE:

Please see response to *CAC 2-16*.

CAC (MPI) 2-18

Part and Chapter:	**Part V Ratemaking**	**Page No.:**	**Page 31**
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:	**Capital Maintenance Methodology**		
Sub Topic:			

Preamble to IR (If Any):

In response to PUB (MPI) 1-17 a) the Corporation states "Under the previous approach to rate setting and capital management (i.e. 2017 GRA and prior), the Corporation's Basic rates were forecasted to essentially produce a net income of zero over the rating period. This approach, on average, would result in an RSR (capital) balance that was forecasted by design to remain constant in absolute dollar terms over time and declining in relative terms."

In response to CAC (MPI) 1-74 c) the Corporation states "Unlike most other insurers, MPI does not have a natural means to grow and/or maintain capital."

Question:

If the Corporation were to set minimum and maximum RSR target levels based on the DCAT scenarios and the board approved methodology would the RSR band not move up in dollar terms as the Corporation's risk grows in dollar terms? If not, please explain why not. If so, please explain the need for a Capital Maintenance Provision.

Rationale for Question:

To understand why a Capital Maintenance Provision is required if the DCAT is used to set the RSR band.

RESPONSE:

The question and associated rationale appear to confuse the purpose and effect of the RSR Targets (upper and lower), with the purpose and effect of the RSR Balance (total equity).

The purpose of the minimum RSR target level is to identify the minimum amount of total equity needed for Basic to meet satisfactory financial condition, and define the amount of total equity below which some immediate remedial action needs to be taken (in the past four years, that remedial action has been transfers of equity from competitive lines of business to ensure satisfactory financial condition).

Without diminishing the importance of RSR Targets, increasing or decreasing the upper and lower targets only changes the trigger point for remedial actions (transfers, RSR rebuilding fees, RSR Rebates). Changing the RSR Targets with the risk profile of Basic does not change the total equity balance or put 'money in the bank'.

Well-designed RSR targets will adjust with the risk profile of Basic, and accurately reflect the minimum amount of total equity required for satisfactory financial condition. The RSR targets sought by MPI in this application achieve both.

The purpose of the Capital Maintenance Provision is to ensure that the RSR Balance, total equity as measured by the Minimum Capital Test (MCT) ratio, which compares capital available to capital required, at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19.

The minimum and maximum RSR target levels along with the Capital Maintenance Provision can be used in conjunction to create rate stability for Manitobans. This is done by ensuring the Corporation has sufficient capital levels and that it does not diminish over time as a result of a growing business.

In short, while the RSR target levels will move over time based on changes to the company's risk profile and resulting DCAT analysis – the CMP is needed to ensure that

the actual capital position does not deteriorate with changes in Basic's risk profile, as measured by the MCT ratio.

CAC (MPI) 2-19

Part and Chapter:	**CAC (MPI) 1-18, CMMG (MPI) 1-11 and PF.9 Statement of Financial Position – 0.0% Rate Change**	**Page No.:**	
PUB Approved Issue No:	**1. Requested vehicle rate and any changes to other fees and discounts** **7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17** **20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

MPI provides information on the projected financial impacts of 0.1% and 0.0% rate increases in response to CAC (MPI)1-18 and PF.9 Statement of Financial Position – 0.0%. The 0.0% rate change scenario is projected to increase the Total Equity balance from $254 million in 2018/19 to $257 million in 2019/20. The 0.1% rate change scenario using a 50/50 interest rate forecast is projected to increase the Total Equity balance from $263 million in 2018/19 to $277 million in 2019/20.

Question:

a) Please confirm that under the 0.0% rate change scenario the RSR balance is forecast to increase by approximately $46 million or 22% between 2017/18 ($211 million) and 2019/20 ($257 million).
b) Please confirm that under the 0.1% rate change scenario using a 50/50 interest rate forecast the RSR balance is forecast to increase by approximately $66 million or 31% between 2017/18 ($211 million) and 2019/20 ($277 million).
c) Please confirm that under the requested 2.2% rate increase the RSR balance is forecast to increase by approximately $69 million or 33% between 2017/18 ($211 million) and 2019/20 ($280 million).

d) Please confirm that there are is no depletion of the forecast RSR balance for 2019/20 under either of the rate change scenarios referenced in the preamble.
e) Please confirm that Basic would be assessed as having a satisfactory financial condition for 2019/20 under either of the rate change scenarios referenced in the preamble.

Rationale for Question:

To understand if a rate increase is required to prevent depletion in the forecast RSR balance or unsatisfactory financial condition assessments.

RESPONSE:

a) through d)

The dollar figures cited are confirmed, however the dollar figures were requested without the context of the MCT score, and are therefore missing critical contextual information.

Additional relevant context is as follows:

i. The 0.1% rate increase is designed to recover the cost of issuing the new policies. There is no profit provision, and breakeven ratemaking does not consider forecasted movements in the RSR balance.

ii. While there is no depletion in the RSR balance between fiscal year 2018/19 and 2019/20, the MCT ratio declined in fiscal year 2019/20 without a capital maintenance provision. MPI is applying for a 2.1% Net CMP on the basis that the MCT ratio for year-end 2019/20 be the same as for year-end 2018/19.

iii. MPI notes that in the three scenarios referenced in questions (a) to (c), a significant portion of the increase occurred in fiscal year 2018/19. E.g. under the 0.0% rate change scenario referenced in question (a),

$43.6 million of the $46.4 million increase occurred in fiscal year 2018/19. The primary reason for the large increase in fiscal year 2018/19 is due to various changes related to ALM and claims discount rate changes in 2018/19. As a result of this, the Corporation expects a larger than normal increase in equity levels.

e) Under either of the rate change scenarios mentioned above, the RSR balance for 2019/20 is forecasted to be in excess of the proposed lower RSR target. However, *Basic's future assessment of meeting a satisfactory financial condition is mainly a result of the MPI Board of Directors' past willingness to transfer funds from Extension to Basic, totaling approximately $250 million over the past 4 years*, and far less a result of the rate change requirement in the test year (equal to roughly $1 million, or 0.1% rate increase).

CAC (MPI) 2-20

Part and Chapter:	**CAC (MPI) 1-14 (b) and CAC (MPI) 1-20**	**Page No.:**	
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 14 (b), MPI indicates that the estimates of the 1-in-40 DCAT-based minimum RSR target and capital required for the 100% MCT have both declined by approximately 30%, based on forecasted implementation of the Corporation's new investment portfolio. In the response to CAC (MPI) 1 – 20, MPI clarifies that the MPI estimate of the minimum amount of the RSR has declined from $201 million for the 2018/19 fiscal year to $143 million for the 2019/20 fiscal year, reflecting the planned implementation of the new Basic investment portfolio in the 2019/20 fiscal year.

Question:

a) Please explain how MPI reconciles the lowering of the RSR range for 2019/20 due to lower risk with the proposal to implement a Capital Maintenance Provision and associated rate increase for the purposes of protecting against the growth in Basic's risk profile.

b) Please explain why MPI believes that it is fair to ratepayers to implement a 2.2% rate increase when there is a lowering of its risk profile.

Rationale for Question:

To understand why the rate increase that is driven by the proposed Capital Maintenance Provision is necessary when the DCAT RSR range is significantly decreasing because of lower corporate risk.

RESPONSE:

a) As outlined in CAC 2-18, the purpose of the lower RSR target (the minimum of the range) is to identify the minimum amount required for the Corporation to meet satisfactory financial condition. The purpose of the Capital Maintenance Provision is to ensure that the Minimum Capital Test (MCT) ratio, which compares capital available to capital required, at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19.

   The forecasted implementation of the Corporation's new investment portfolio has lowered the minimum of the RSR range as of February 28, 2019. However, a Capital Maintenance Provision is required to offset the decline in the MCT ratio from February 28, 2019 to February 29, 2020.

b) The Corporation is applying for a 0.1% rate increase with a 2.1% Capital Maintenance Provision. The Corporation believes that the 2.1% Capital Maintenance Provision is fair to rate payers because: i) it represents the increased risk associated with the natural growth of the business as a result of the new policy holders; and ii) it maintains the capital level that protects rate payers from potential rate shock from future unforeseen adverse events.

CAC (MPI) 2-21

Volume and Chapter:	**CAC (MPI) 1-75 (a) (i) (ii)**	**Page No.:**	
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 74 (a) (i), MPI confirms that if investment income earned by the RSR is applied to the break-even cost of policies instead of the - Net CMP - that a rate reduction of 1.1% would be indicated. However, in the response to CAC (MPI) 1 – 74 (a) (ii), MPI indicates that if the CPM proposal is not accepted that the overall rate increase based on break-even rates would be 0.1%.

Question:

a) Please confirm that if the PUB applied the investment income earned by the RSR to the break-even cost of policies and rejected the CMP proposal that the resulting rate reduction would be 1.1%.
b) Please confirm that under the treatment of the investment income assumed in part (a) of the question, the PUB would have rejected a 3.3% rate increase resulting from the CMP proposal.

Rationale for Question:

To clarify the impact of the CMP proposal assuming that investment income earned by the RSR is applied by the PUB to the break-even cost of policies.

RESPONSE:

a) Per the response to *CAC (MPI) 1-75* part (a) sub (i), MPI confirms that applying only the investment income earned on the RSR would indicate a required overall rate decrease for 2019/20 of 1.1%.

However, MPI's application is for an additional 2.1% required overall rate increase from Net CMP, comprising both the CMP and the investment income earned on the RSR. MPI's position is that these two components must be considered together.

b) MPI confirms that the CMP portion of the Net CMP results in an additional 3.3% required overall rate increase. However, per the response to part (a), MPI's position is that both the CMP and the investment income earned on the RSR must be considered together.

In the 2018 GRA, MPI explained that to reject the CMP and rebate RSR investment income through rates would be to sell policies at a loss, contrary to breakeven ratemaking.

In Order 130/17, the PUB recognized the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile. The PUB further recognized the conceptual overlap between Basic retaining the investment income on the RSR and a CMP. Accordingly, the Order did not direct MPI to apply the RSR investment income against rates.

MPI's proposal in the 2019 GRA sets the pure breakeven cost of policies at a 0.1% increase, and applies investment income on the RSR against the additional revenue required to maintain Basic's MCT ratio over the rating year. This has reduced the CMP rate requirement from 3.3% to 2.1%. If the RSR investment income is instead used to offset rates, the breakeven cost of policies in the 2019 GRA will be – 1.1%; however, the rate now required to maintain capital will be 3.3%.

The RSR investment has effectively been used for a capital maintenance purpose, as advocated for by MPI in the 2018 GRA, and as recommended by the PUB in the ensuing Order (130/17).

CAC (MPI) 2-22

Part and Chapter:	**CAC (MPI) 1-17 (b)**	**Page No.:**	
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17** **20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 17 (b), MPI indicates that "the likelihood of the RSR balance falling below the minimum RSR target depends on the position of the current RSR balance within the RSR range".

Question:

a) Please confirm that for 2018/19, the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 58% ($254 million/$438 million) under the MPI methodology and 78% ($254 million/$325 million) under the PUB approved methodology.
b) Please confirm that for 2019/20, and assuming no rate change, the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 84% ($257 million/$305 million) under the MPI methodology and 102% ($257 million/$251 million) under the PUB approved methodology.
c) Please confirm that for 2019/20, and assuming a 2.2% rate increase, the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 92% ($280 million/$305 million) under the MPI methodology and 112% ($280 million/$251 million) under the PUB approved methodology.

Rationale for Question:

To understand the projected financial condition of MPI in 2018/19 and 2019/20 under various rate change scenarios.

RESPONSE:

The values quoted in the question are from the beginning of the stated year. The responses below provide the figures as requested in the question.

a) For 2018/19 (or beginning of year 2019/20), the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 53% ($254 million/ $478 million) under the MPI methodology (101% MCT Ratio) and 74% ($254 million/ $341 million) under the PUB approved methodology (70% MCT Ratio).

b) For 2019/20 (or beginning of year 2020/21), and assuming no rate change, the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 76% ($257 million/$337 million) under the MPI methodology and 94% ($257 million/$273 million) under the PUB approved methodology.

c) For 2019/20 (or beginning of year 2020/21), and assuming a 2.2% rate increase, the forecast RSR balance at the end of the fiscal year as a percentage of the top of the RSR range is 83% ($280 million/$337 million) under the MPI methodology and 103% ($280 million/$273 million) under the PUB approved methodology.

The financial condition of Basic is best understood by the objective measure of MCT, rather than the 'percentage of the upper RSR target'. As stated often in past GRA's MCT is a measure used across the Property and Casualty insurance industry, reflects relevant risks of MPI, and allows for comparison to other insurers.

CAC (MPI) 2-23

Part and Chapter:	**CAC (MPI) 1-73**	**Page No.:**	
PUB Approved Issue No:	**20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 73, MPI provides its position on phasing-in the rate impacts of the Capital Maintenance Provision over a five-year period.

Question:

Please explain if MPI believes that it is appropriate to phase-in the impacts on ratepayers of major changes to the rate-setting methodology.

Rationale for Question:

To understand MPI's view on the merits of phasing-in major changes to the rate-setting methodology.

RESPONSE:

The following guides MPI's approach to ratemaking:

- "Appropriate premiums based upon Accepted Actuarial Practice (AAP)" per Part 1, Overview, page 4, which is one of the Corporation's three pillars for prudent fiscal management. Further, per Part 1, Overview, page 10, "In the context of Basic's not for profit business model of breakeven rate making this means that the premiums must be sufficient to cover the costs of delivering the coverage.

It is a foundational principle that Basic Insurance is self-sustaining; the costs of coverage and service delivery of the Basic Insurance program must be paid for by the premiums charged to customers to purchase the coverage."

- Stable and predictable rates for Manitobans.

For changes to ratemaking methodology, regardless of whether they are major or minor, MPI is obligated to set rates appropriately based upon AAP and after taking into consideration rate stability and predictability. The treatment of each change, whether to phase-in gradually or apply immediately, depends on the magnitude of the change and its impact to policyholders.

While the CMP has an effect on the overall rate request, the process for determining breakeven rates is separate from the process of determining the level of capital required to maintain the current capital position.

CAC (MPI) 2-24

Part and Chapter:	**CAC (MPI) 1-13 (a)**	**Page No.:**	
PUB Approved Issue No:	**7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17** **20. Capital Maintenance Provision**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

In the response to CAC (MPI) 1 – 13 (a), MPI states that "The amount of time that it takes to move toward the 'optimal' RSR target, along with the proposed definition of the 'optimal RSR target' will be determined as part of MPI's Capital Management Plan. MPI will provide a Capital Management Plan in the 2020/21 GRA".

Question:

Please explain if MPI believes it is appropriate for the PUB to review and approve the optimal capital structure and appropriate time frame to achieve the optimal target first, before it reviews the specific components/proposals of the Capital Management Plan (the CMP and Capital Build/Release Provision).

Rationale for Question:

To understand MPI's view on the most appropriate approach to seek regulatory review and approval of the Capital Management Plan and the underlying components of the plan.

RESPONSE:

MPI will present its Capital Management Plan in the 2020 GRA, at which time the PUB and stakeholders will have an opportunity to review the approach. MPI does not believe it is necessary at this time for the PUB to review the optimal capital target or the appropriate time frame to achieve optimal capital target as these components are not being presented by MPI in the 2019 GRA.

CAC (MPI) 2-25

Part and Chapter:	**CAC (MPI) 1-1**	**Page No.:**	**2**
PUB Approved Issue No:	**1. Requested vehicle rate and any changes to other fees and discounts** **14. Risk assessment and risk management** **20. Capital Maintenance Provision** **21. Asset Liability Management Study**		
Topic:	**Consumer/ratepayer engagement**		
Sub Topic:			

Preamble to IR (If Any):

The response, in part, on page 2 states:

> "• The rate indication is itself generally treated as confidential by MPI until the time of filing, which necessarily precludes public consultation in advance of filing."

Question:

Please elaborate on the pros and cons of engaging ratepayers, by way of statistically valid focus groups, to determine ratepayers understanding of the concept and necessity of the Basic Insurance Rate Stabilization Reserve (RSR) and the Capital Maintenance Provision (CMP), which maintains the RSR at current risk levels.

Rationale for Question:

To assess ways to engage ratepayers to better understand and support the concepts of RSR and CMP without divulging future potential rate indications.

RESPONSE:

Assessing ratepayers understanding of and support for the concepts of RSR or CMP through statistically valid focus groups in no way assists the Corporation in making decisions on the establishment and maintenance of the reserves required under section 18 of *The Manitoba Public Insurance Corporation Act* (the "Act"). Indeed, section 18 of the Act makes use of mandatory language as it concerns establishing and maintaining sufficient reserves.

MPI's requests for rate increases and capital provisions are founded in accepted actuarial practice and prudent fiscal management. Broader public understanding and/or support for the rate requests, while desirable, does not influence MPI's decision to apply for rates or capital provisions as mandated under the Act.

The Public Utilities Board process is designed to determine just and reasonable rates that are in the public interest. As explained in response to *CAC (MPI) 1-1*, a number of avenues are available to the general public to have their voices heard, and issues advanced. Presently, public comments are not subject to testing, and do not assist the Public Utilities Board in making decisions related to approving changes to the rates charged with respect to compulsory driver and vehicle insurance. MPI maintains that the 'right' decision is not necessarily the popular decision, and does not believe advancing evidence that MPI's rate request is popular (or not popular) would be compelling, or determinative of just and reasonable rates.

With that said, MPI does conduct public opinion polling related to MPI's value equation, which is one factor that guides the corporate approach to rate setting at a strategic level. Attached as Appendix 1 is a report on MPI's public opinion survey, testing various factors that comprise "good value" in the minds of Manitobans. The quadrant graph on page 2 shows that "maintaining stable and fair rates" is the most influential determinant of "good value" (as indicated by the highest Beta score on the vertical axis). This is the 'customer opinion' basis for MPI's insistence on having an appropriate RSR range, and capitalization within the range that reduces the likelihood of RSR rebuilding fees (compliance with Accepted Actuarial Practice, and prudent fiscal management are the other key bases for MPI's insistence on adequate and sustained

capitalization). The mean rating along the horizontal axis indicates that Manitobans' opinion of MPI's rate stability is relatively low. This means that "maintaining stable and fair rates" has the most influence on Manitoban's perceptions of good value, but also has among the most room for improvement.

Finally, while the break-even rate request is distinct from the CMP provision, MPI expects that the subtle but important differences between the 0.1% break even rate request, and the 2.1% CMP provision, are not as important to the general public who face an overall 2.2% increase. In this regard, a focus group consultation on a 2.1% CMP provision would be 'incomplete', and possibly misleading insofar as the general public is likely to be concerned with the combined impact.

In response to *CAC (MPI) 1-1*, MPI stated that the rate indication is treated confidentially, but should have specified that both the rate indication and the CMP provision are treated as confidential until the time of filing.



Executive Summary: Value Equation Quadrant Analysis

An Analysis of the 2017 Rolling Poll Results

Manitoba Public Insurance's value equation[1]

Price	**+**	**Coverage**	**+**	**Service**	**+**	**Access**	**=**	**Value**
Affordable insurance		*Comprehensive protection against the cost of collisions*		*Service where and when you need it*		*Easily attainable coverage and services that do not discriminate*		*For all Manitobans*

Highlights:

- The value equation was developed and published as a communications tool, to illustrate the aspects of value that Manitoba Public Insurance brings to Manitobans. This analysis continues to demonstrate that the attributes in the equation do a good job of explaining variance in *good value* as a descriptor of Manitoba Public Insurance; variables in the model explain 74% of the variance in ratings of *good value*. The model has strong explanatory power over time.
- As seen in the past, price-related variables have a strong impact on views of value. The Corporation's ability to *maintain stable and fair rates* is the strongest driver (of the variables tested) of *good value* as a descriptor of Manitoba Public Insurance. Manitobans' rating of the impact that *the cost of vehicle insurance* has on their views of the Corporation also influences their ratings of value (moderate driver).
- Being *service-minded* and being *fair* (as a descriptor of the Corporation) are moderate drivers of ratings of *good value* as is ratings for *feeling protected* when dealing with the Corporation.
- Customer Research has reviewed the value equation regression model using a comparison of linear and logistic regression models. To confirm the validity of the linear regression approach, a logistic regression was performed in 2018. Findings were similar to the linear regression, confirming the validity of the current approach[2]. Results indicate that the current approach (linear regression) remains a valid method with strong explanatory power.

How to interpret the charts:

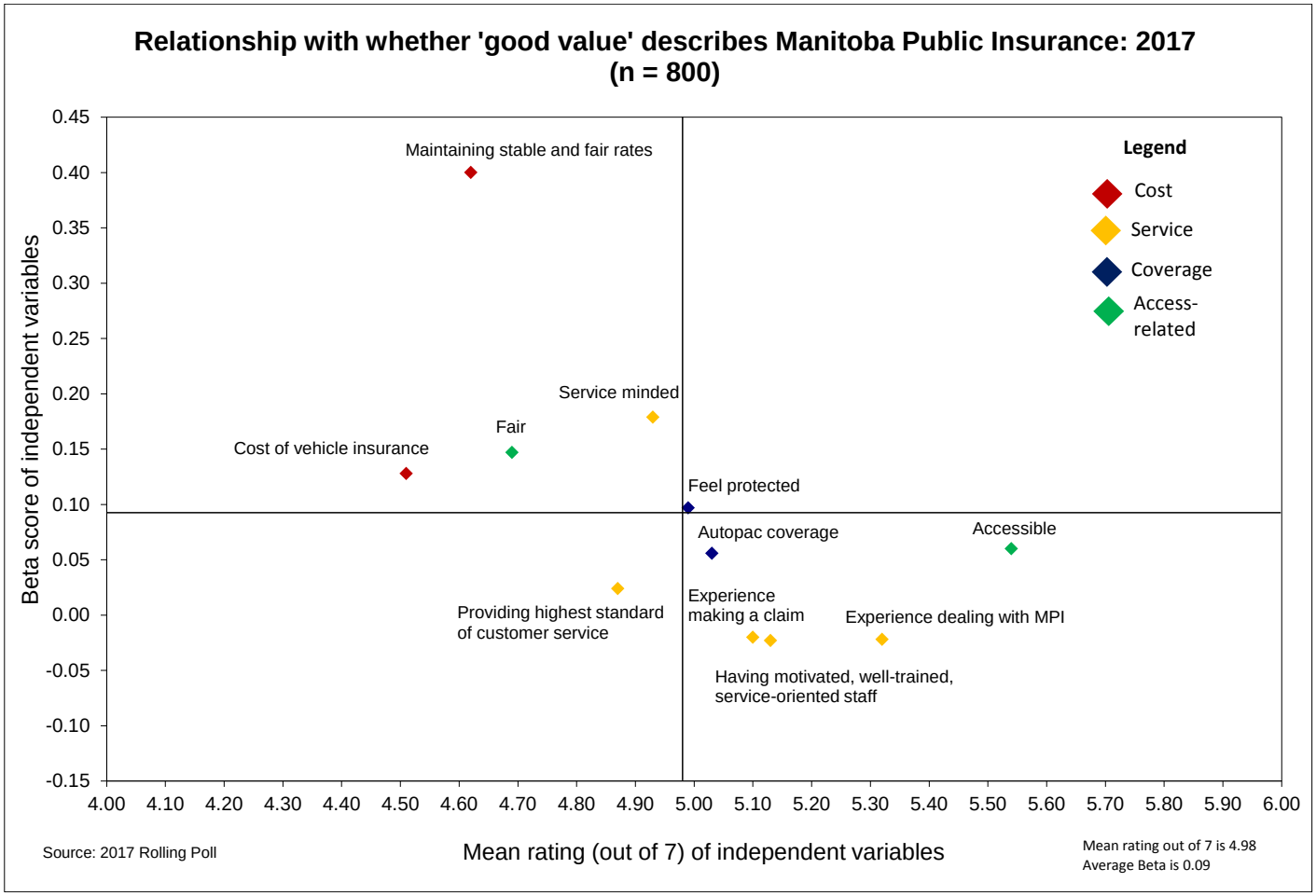
- The Beta score is represented on the vertical axis. The Beta score is a standardized way of reporting the amount of impact an independent variable has on a dependent variable. This analysis examines how much impact variables (which represent the attributes in the value equation) have on Manitobans' rating of *good value* as a descriptor of the Corporation. The higher a variable appears in the chart (vertically) the greater the impact that attribute has on ratings of *good value* as a descriptor of the Corporation.
- Mean scores are represented on the horizontal axis. The mean scores for each independent variable are based on a seven point response scale. The questions (and response scales) are included in Appendix A.
- The axes in quadrant analysis are different for each chart. The placement of the horizontal quadrant line is determined by averaging the Betas of the variables in the chart; and the

placement of the vertical quadrant line is determined by averaging the mean scores of all variables in the chart.

- Notes for interpreting variables in each of the four quadrants:
  - in the top right quadrant are variables which have greater than average influence on *good value* (as a descriptor of the Corporation) and are rated higher than the average (on a 7-point scale) of variables in the chart
  - in the top left quadrant are variables which have greater than average influence on *good value* (as a descriptor of the Corporation) but are rated lower than the average (on a 7-point scale) of variables in the chart
  - in the bottom left quadrant are variables which have less than average influence on *good value* (as a descriptor of the Corporation) and are rated lower than the average (on a 7-point scale) of variables in the chart
  - in the bottom right quadrant are variables which have less than average influence on *good value* (as a descriptor of the Corporation) however, they are rated higher than the average (on a 7-point scale) of variables in the chart

2017 Results

The chart below shows results for Manitoba (eleven-variable model[3]) for October 2017.



- **Cost-related variables**: *Maintaining stable and fair rates* has consistently been the strongest driver of *good value* as a descriptor of Manitoba Public Insurance. In each of the eight years this regression analysis has been conducted, this variable has had the greatest impact on ratings of *good value*. Impressions of *the cost of vehicle insurance* have also been a moderate to key driver of perceptions of value, consistently over time.

  - While the majority of Manitobans give Manitoba Public Insurance positive ratings for these cost-related variables, when compared to other variables in the analysis, the cost-related variables have a lower mean score, which shows Manitoban are less positive about cost than some of the other variables in the equation. They have also been consistently rated lower in the past.

- **Coverage-related variables**: Ratings of *feeling protected* are a moderate driver of *good value*.

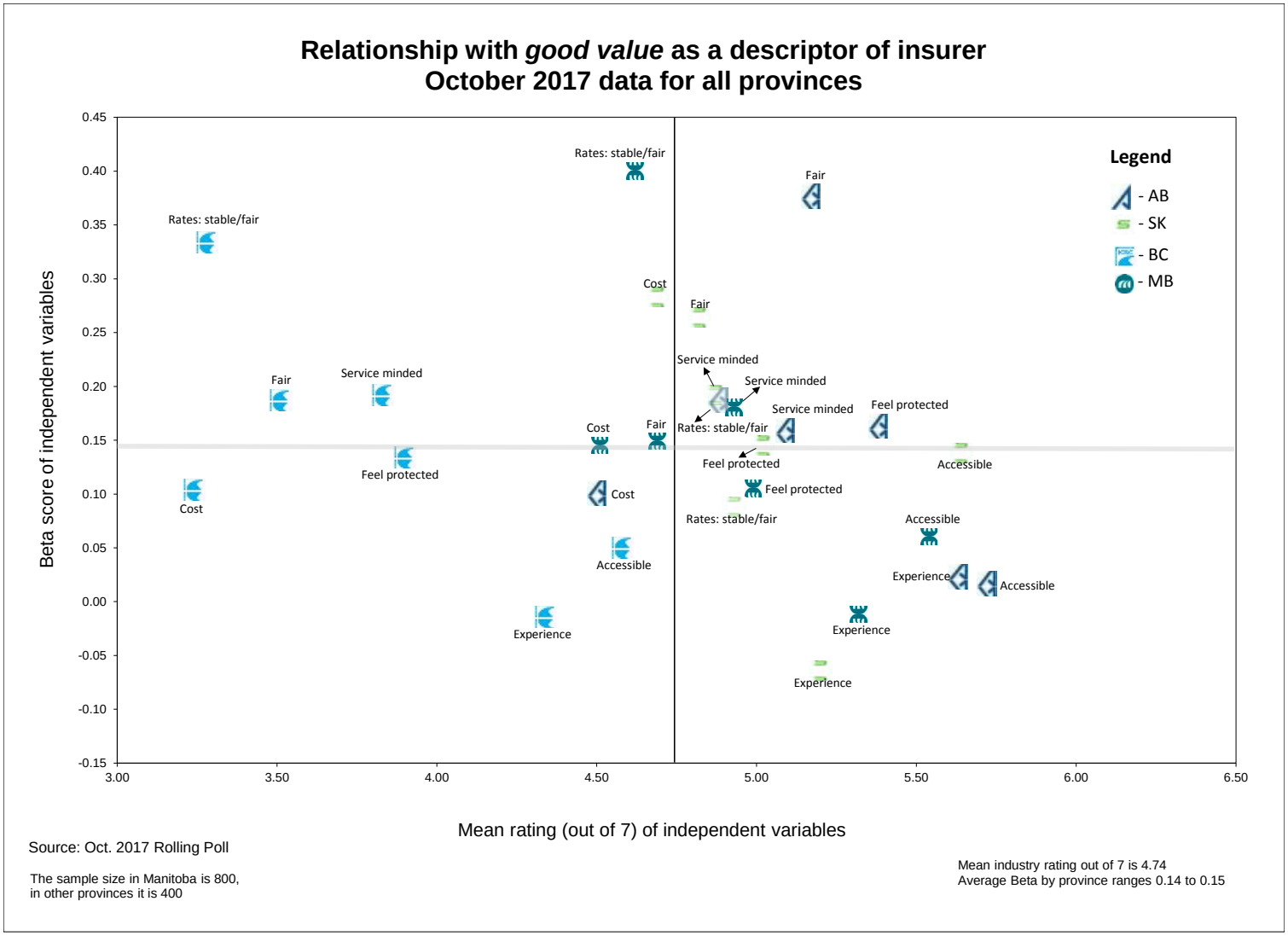
- **Service-related variables**: *service-minded* as a descriptor of Manitoba Public Insurance has moderate impact on views of value in 2017 and in previous years. Other service-related variables have no impact on Manitobans' ratings of value in 2017, though some have had minimal impact as drivers in past years. The service related variables that do not have impact in the 2017 analysis include:
  - *experience dealing with Manitoba Public Insurance* (no impact)
  - *providing the highest standard of customer service* (no impact)
  - *experience making a claim*[4] (no impact)
  - *having motivated, well-trained, service-oriented staff* (no impact)

- **Access-related variables:** the variable *fair* has moderate impact on ratings of value, while *accessible* has minimal impact.

Compared to other provinces:

- The Manitoba results discussed in prior sections of this summary are based on an 11 variable model. The Western Province Poll includes only a sub-set of the questions from the full Manitoba Poll; as a result, the model run in Western Provinces is based on a 7 variable model. To maintain comparability, the Manitoba results are also run in a 7 variable model. While the results between the two models are generally consistent, slight differences may occur.
- The impact of independent variables on the ratings of *good value* are highlighted below:
  - *maintaining stable and fair rates* is a key driver of *good value* in both Manitoba and British Columbia in 2017. It is has a moderate impact on ratings of *good value* in Alberta. In Saskatchewan, this variable had a minimal impact on *good value* in 2017.
  - the *cost of vehicle insurance* is a key driver of *good value* in Saskatchewan 2017, it should be noted that in 2015 its impact was minimal. This variable is a moderate driver of *good value* in Manitoba, and has minimal impact in both Alberta and British Columbia in 2017.
  - the attribute *fair* as a descriptor of one's vehicle insurer is a key driver in both Alberta and Saskatchewan in 2017 and a moderate driver in British Columbia and Manitoba.
  - *experience* dealing with their auto insurer has minimal or no influence on residents' view of *good value* in all provinces.
  - being *accessible* also has a minimal impact on the ratings of *good value* in Saskatchewan and Manitoba and no impact in Alberta and British Columbia.
  - *feeling protected* has a moderate impact on residents' ratings of *good value* in Alberta and Saskatchewan and has minimal impact in British Columbia and Manitoba[5].
  - being *service-minded* has a moderate impact on the ratings of *good value* in all provinces.

The chart below shows results for October 2017 for Manitoba (seven-variable model[6]) and other western provinces.



Current results compared to previous years:

- Overall, Manitoba Public Insurance continues to see the same patterns in results over time.
- *Maintaining stable and fair rates* has been the strongest driver of *good value* in Manitoba in every year that the analysis on the value equation has been conducted. This continues to be the case this year. The impact that the *cost of vehicle insurance* has on *good value* has also been consistent over time.
- As in previous years, the following continue to have minimal or no impact on good value:
  - *providing the highest standard of customer service*
  - *experience making a claim*
  - *having motivated, well-trained, service-oriented staff*

Predictive value of the equation:

- The attributes in the value equation do a good job of explaining variance in ratings of value. In Manitoba the model explains 74%[7] of the variance in ratings of *good value* as a descriptor of

Manitoba Public Insurance. This shows that collectively the variables in the model account for most of the variance in ratings of value.

- The model has shown overtime to consistently offer strong predictive value. In past years, the attributes in the equation have explained between 68% and 76% of the variance in *good value*.[8]
- The model also has good predictive value when tested on data from western provinces.[9] In 2017, the model explained between 71% and 75% in the variance in *good value* when run on data from western provinces. The MPI Value Equation model is particularly strong considering some sources show that while 'pure science' studies require R-squared values to be over 60%, in human behaviour studies, R-squared values as low as 10% can still be acceptable.[10]

Terms and Methodology:

- Definitions and methodology are consistent with analysis used to conduct the value equation quadrant analysis in previous years.
- In this report, the items listed in the value equation (price, coverage, service and access) are referred to as 'attributes'. The survey questions that are included in the model are referred to as 'variables'.
- The intent of a linear regression is to find the best fit linear relationship between independent variables and a dependent variable.[11] The goal is to determine to what extent independent variables impact the dependent variable. To confirm the validity of the linear regression approach, a logistic regression was performed in 2018. Findings were similar to the linear regression, confirming the validity of the current approach[12]. The full model containing all predictors was statistically significant, and *maintaining stable rates* remained the strongest predictor.
- In this analysis, variables with Beta scores that are close to or above the mean Beta score (but less than 0.25) are reported as having *moderate* impact. Variables with Beta scores that are over 0.25 are reported as key drivers, or reported as having *strong* impact. Variables with Beta scores that are below the mean are reported as having minimal impact. Variables with scores of 0.05 or less are considered to have no influence on *good value*. Values that are between -0.05 and zero are also considered no influence.
- Beta coefficients allow you to compare the relative contribution of each independent variable in the prediction of the dependent variable.[13]
- The R-square value shows how well a model fits the data.[14]
- Two regressions were run on Manitoba 2017 data; one that included 11 variables in the model and another that included seven variables in the model.[15] The first regression (11 variables) included all the survey questions that are related to the attributes in the value equation. The second regression (with seven variables) was run to provide results that were comparable to models run for data from Saskatchewan, Alberta and British Columbia. In the Western Province Poll fewer question are asked, and as a result, the western province chart has only seven variables. To make Manitoba results comparative for inclusion in that chart, the regression was run on Manitoban data with the seven variables. Beta scores are impacted by the number of variables included in a model. For this reason, the Beta scores are slightly different in each of the two models produced for this report.

Appendix A: Questions Used In The Regression Analysis

Dependent variable – value:

- ***Good value as a descriptor of Manitoba Public Insurance***
  Q23: Please tell me how much you agree or disagree with this description of Manitoba Public Insurance using a scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree.... Manitoba Public Insurance is... Good value

Price related independent variables:

- ***Maintaining fair and stable rates***
  Q36. Using a scale of 1 to 7, where 1 means a very poor job and 7 means an excellent job, what kind of job is Manitoba Public Insurance doing in terms of: Maintaining stable and fair rates
- ***Cost***
  Q17. People's impressions of Manitoba Public Insurance are often influenced by a number of different things. I'm going to read a list of factors that may have a negative or positive impact on how you currently feel about Manitoba Public Insurance. As I read each, please rate it on a 1 to 7 scale, where 1 means very negative impact and 7 means very positive impact. What impact does the... Cost of vehicle insurance ...have on how you currently feel about Manitoba Public Insurance.

Coverage related independent variables:

- ***Autopac coverage*** (this question asked only in Manitoba)
  Q18. People's impressions of Manitoba Public Insurance are often influenced by a number of different things. I'm going to read a list of factors that may have a negative or positive impact on how you currently feel about Manitoba Public Insurance. As I read each, please rate it on a 1 to 7 scale, where 1 means very negative impact and 7 means very positive impact. What impact does the... Autopac coverage provided by Manitoba Public Insurance ...have on how you currently feel about the corporation.
- ***Feel protected***
  Q34 I'm going to read some words that might describe how people feel when dealing with Manitoba Public Insurance. As I read each, please tell me how much you agree or disagree with the description using a scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree. When dealing with Manitoba Public Insurance you feel... Protected

Service related independent variables:

- ***Customer service*** (this question asked only in Manitoba)
  Q37. Using a scale of 1 to 7, where 1 means a very poor job and 7 means an excellent job, what kind of job is Manitoba Public Insurance doing in terms of: Providing the highest standard of customer service
- ***Motivated well trained staff*** (this question asked only in Manitoba)
  Q41. Using a scale of 1 to 7, where 1 means a very poor job and 7 means an excellent job, what kind of job is Manitoba Public Insurance doing in terms of:....Having motivated, well trained, service-oriented staff
- ***Service minded***
  Q29.Please tell me how much you agree or disagree with this description of Manitoba Public Insurance using a scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree... ...Manitoba Public Insurance is... Service minded

- ***Claims experience*** (this question asked only in Manitoba)
  Q20. People's impressions of Manitoba Public Insurance are often influenced by a number of different things. I'm going to read a list of factors that may have a negative or positive impact on how you currently feel about Manitoba Public Insurance. As I read each, please rate it on a 1 to 7 scale, where 1 means very negative impact and 7 means very positive impact. What impact does... Experience making a claim ...have on how you currently feel about Manitoba Public Insurance.
- ***Experience***
  Q16. Using a scale of 1 to 7, where 1 means very poor and 7 means excellent, please rate the kind of experiences you've had dealing with Manitoba Public Insurance. We are looking for your experience overall, with everything from paying your premium to calling them for information. Please think about your experience over the last few years.

Access related independent variables *(access as defined in the communication tool: easily attainable coverage that does not discriminate):*

- ***Fair***
  Q27.Please tell me how much you agree or disagree with this description of Manitoba Public Insurance using a scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree.... ... Manitoba Public Insurance is... Fair
- ***Accessible***
  Q22. Please tell me how much you agree or disagree with this description of Manitoba Public Insurance using a scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree..... ....Manitoba Public Insurance is... Accessible

Endnotes

[1] As published in corporate communications such as the Manitoba Public Insurance Annual Report.
[2] The independent variables used in the logistic regression were the same as the 11 variables in the linear regression. Dependent variable is "likelihood of Manitobans think MPI is good value". Q23 was recoded to a binary variable: scales 1-4 were recoded to 0 (no, not good value), scales 5-7 were recoded to 1 (yes, good value).
[3] Two regressions were run on Manitoba 2017 data; one that included 11 variables in the model and another that included seven variables in the model. The first regression included all the survey questions we have that are related to the attributes in the value equation. The second regression (with seven variables) was run to provide results that were comparable to models run for data from Saskatchewan, Alberta and British Columbia. In the Western Province Poll fewer question are asked, and as a result, the western province chart has only seven variables. To make our results comparative for inclusion in that chart, the regression was run on Manitoban data with the seven variables.
[4] It should be noted that this question has a high proportion of missing data (8%). The proportion of missing data for other variables in the model range from 1% to 4%. Missing data proportions may be higher for the *'experience making a claim'* question because people who do not have claim experience may chose not to answer the question (though they may answer based on what they have read, seen or heard).
[5] While *feeling protected* is a moderate driver of *good value* in the Manitoba-specific 11 variable model, it has a *minimal impact* on *good value* in the 7 variable, Western provinces model.
[6] See footnote three.
[7] This R-squared is for the model where we included 11 variables. The model (Manitoba) where we included only seven variables has the same R-squared (74%).
[8] R-squared values for previous years are as follows: 68% in 2003; 73% in 2007; 74% in 2008; 73% in 2009; 76% in 2011; 76% in 2013; and 72% in 2015.
[9] The R-squared values are as follows: 74% in Saskatchewan; 75% in Alberta; and 71% in British Columbia. In 2011, cost-related questions were added to the western province poll; this improved the predictive value of the model.
[10] Based on Customer Research's work on the regression analysis conducted on the Corporations' Value Equation; initial modeling was developed in conjunction with Prairie Research Associates. Further discussion of R-Squared is offered on the Research Gate discussion website:

- By Han Pin Fung: He references Hair et al. (2011) and Hair et al. (2013) suggested that in scholarly research that focuses on marketing issues, R-squared values of 75% (0.75) may be described as substantial, R-squared values of 50% (0.50) may be described as moderate and R-squared values of 25% (0.25) may be described as weak. Accessed on April 11, 2018, accessed at: https://www.researchgate.net/post/R-squared_values_between_1_and_5_in_linear_regression_social_science.
- By Peterson K. Ozili of the University of Essex: A high R-square of above 60%(0.60) is required for studies in the 'pure science' field because the behaviour of molecules and/or particles can be reasonably predicted to some degree of accuracy in science research; while an R-square as low as 10% is generally accepted for studies in the field of arts, humanities and social sciences because human behaviour cannot be accurately predicted. Accessed on April 11, 2018, accessed at: https://www.researchgate.net/post/what_is_the_acceptable_r-squared_value.

[11] Definition accessed on June 21, 2016, accessed at: http://www.statistics.com/index.php?page=glossary&term_id=390
[12] The independent variables used in the logistic regression were the same as the 11 variables in the linear regression. Dependent variable is "likelihood of Manitobans think MPI is good value". Q23 was recoded to a binary variable: scales 1-4 were recoded to 0 (no, not good value), scales 5-7 were recoded to 1 (yes, good value).
[13] Definition accessed on June 21, 2016, accessed at: http://www.statsoft.com/textbook/statistics-glossary/b/?button=0#Beta%20Coefficients.
[14] Definition accessed on June 21, 2016, accessed at: http://www.statsoft.com/textbook/multiple-regression/#cresidual.
[15] A full list of the questions is included in Appendix A.

CAC (MPI) 2-26

Part and Chapter:	**Part VIII, EAR Attachment B and Part V Claims Incurred**	**Page No.:**	**Page 15**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Increase in Weekly Indemnity Ultimates**		
Sub Topic:			

Preamble to IR (If Any):

CAC (MPI) 1-35 was not fully answered.

Question:

a) Please provide the impact on the rate indication of the $55.8 million increase in ultimate loss estimates for Weekly Indemnity for the 2010/11 through 2016/17 accident years, assuming no other changes to the rate indication.

b) Would the Corporation determine the cost of engaging a third party to review its reserving practices given the large dollar amounts involved on longer term claims?

c) Is it the Corporation's opinion that the estimated Ultimates were too low for the Weekly Indemnity coverage in the February 2017 evaluation?

Rationale for Question:

To understand the impact of the increase in Weekly Indemnity claims and request an external review of the Corporation's reserving practices to ensure they are now adequate.

RESPONSE:

a) Per *CAC (MPI) 1-35(d)*, "The rise in ultimate loss estimates for Weekly Indemnity increased the ultimate forecast for 2019/20 accident year by approximately $8.0 million", which is approximately a 0.8% impact on the rate indication. However, there was a corresponding decrease in ultimate loss estimates for Accident Benefits Other – Indexed which decreased the ultimate forecast for 2019/20 accident year by approximately $5.3 million, which is approximately a -0.5% impact on the rate indication.

b) See the response to *CAC (MPI) 1-35(c)*. A third party does review the Corporation's reserves on an annual basis; its external auditor. In addition, the external auditor performed a peer review in 2017/18, which review included a determination that MPI's reserves were adequate (PwC made minor recommendations for change).

c) For the reasons cited in *CAC (MPI) 1-35(e)*, the estimated ultimates for Weekly Indemnity were too low in the February 2017 Review of Policy Liabilities.

CAC (MPI) 2-27

Part and Chapter:	**Part IV Service Delivery Model**	**Page No.:**	**17 to 18**
PUB Approved Issue No:	**10. Claims Forecasting**		
Topic:	**Centralized Reserving**		
Sub Topic:			

Preamble to IR (If Any):

The Corporation states, in response to CAC (MPI) 1-37 that "Starting at 24 months, and annually thereafter, the centralized reserving team evaluates and updates each claim utilizing standardized guidelines and calculators developed by the actuarial team, to establish reserves on all claims."

Question:

a) What mortality table is used in the calculators developed by the actuarial team?
b) Why does the centralized reserving team only review claims at 24 months if the claim is determined to be catastrophic in nature prior to that?
c) Does the Corporation agree that earlier intervention may impact psychological injury severity in a positive way for the Corporation?

Rationale for Question:

To fully understand the new reserving methodology.

RESPONSE:

a) The current mortality table used is from the Canadian Institute of Actuaries research paper entitled "Accident Benefits Long-Term Disability Losses" published in July 1992.

b) The centralized reserving team also establishes reserves on claims identified as catastrophic or where the overall exposure is anticipated to be greater than one million dollars at the outset of the claim (or as soon as possible) as opposed to waiting until 24 months has elapsed.

c) It is anticipated that earlier claim intervention in terms of actively case managing psychological claims will have positive impacts on severity. *Part IV SDM.1.9.1 Current State of PIPP* discusses the workforce planning currently underway to increase case manager capacity and allow more effort to be focused on earlier claim intervention. While earlier case management intervention is important and anticipated to have an impact on severity, establishing lifetime reserves earlier than 24 months will not have a positive impact on severity. This would artificially inflate the potential exposure on claims as sufficient time needs to elapse prior to establishing lifetime reserves (to determine if the claimant can make a successful return to health). Reserving based on the individual medical information and rehabilitation plan in the first 24 months will continue to result in an accurate reflection of the anticipated exposure.

CAC (MPI) 2-28

Part and Chapter:	**Part VIII, Annual Reports, AR Appendix 2**	**Page No.:**	**4**
PUB Approved Issue No:	**10. Claims forecasting (including PIPP)**		
Topic:	**Bodily injury claims decrease by $51.3 million**		
Sub Topic:			

Preamble to IR (If Any):

On page 4 of AR Appendix 2 it explains the decrease in claims incurred quarter over quarter and it states:

"Claims costs for the three months ended May 31, 2018 decreased by $30.6 million or 11.6% compared to last year due primarily to a decrease of $26.1 million or 22.9% in bodily injury claims incurred and a decrease of $4.3 million or 3.1% in physical damage claims incurred. **The $26.1 million increase in bodily injury claims was impacted by a decrease of $51.3 million due to the interest rate adjustment on unpaid claims.** Claims expense increased by $0.2 million or 0.5% from the previous year, offset by a decrease in road safety and loss prevention expenses of $0.4 million or $15.5%." (**Emphasis added)**

On page 7 of AR Appendix 2, MPI reports an Underwriting Income of $3.2 million for the 1st Quarter of 2018/19 compared to last year's Underwriting Loss of ($47.0) million; mainly due to increased Earned Revenues of $23 million and decreased claims costs of $31 million offset by increased expenses of about $4 million.

Question:

a) Please prepare a chart comparing this year's quarter (actual and budget) to last year's quarter (actual and budget) claims incurred by coverage, covers and average per cover. Please explain any significant changes by cover quarter over quarter for both 'actuals' and 'budget'.

b) Please provide a detailed analysis, including and describing the various assumptions and changes in assumptions, comprising the $51.3 million change in bodily injury unpaid claims. Please elaborate if MPI is expecting any changes to this year's (2018/19) claims incurred budget and/or future claims incurred projections. Please explain.

Rationale for Question:

To gain a fuller understanding of the significant change to unpaid claims in the first quarter of 2018/19 fiscal year (noting the 1st quarter reports an underwriting income) and the impact this may have on rating year claims incurred forecasts.

RESPONSE:

a) See the figure below for a Basic direct claims incurred comparison for both actuals and budget for the first quarter.

Figure 1: Basic Direct Claims Incurred for the three month ending May 31

Line No.	Direct Claims Incurred	2018A	2017A	Difference	2018B	2017B	Difference
1	*($000)*						
2	Accident Benefits - Pre Mar 1/94	($125)	($79)	($46)	$0	$0	$0
3	Public Liability - Pre Mar 1/94	$0	$0	$0	$0	$0	$0
4	Public Liability - Post Mar 1/94	$1,543	$1,040	$503	$1,064	$982	$82
5	Income replacement indemnity	$25,329	$15,075	$10,254	$25,728	$23,011	$2,717
6	Death Payments	$2,276	$1,816	$460	$2,982	$3,118	($136)
7	Permanent impairment	$6,705	$8,665	($1,960)	$8,306	$6,773	$1,533
8	Personal care	$12,788	$243	$12,545	$5,206	$2,933	$2,273
9	Rehabilitation	$1,559	($1,414)	$2,973	$610	$3,027	($2,417)
10	Medical expenses	$11,884	$8,278	$3,606	$10,481	$15,599	($5,118)
11	Collision	$82,672	$87,763	($5,091)	$101,179	$94,509	$6,670
12	Comprehensive	$15,820	$18,605	($2,785)	$14,482	$18,462	($3,980)
13	Property Damage	$11,748	$10,998	$750	$11,170	$10,710	$460

The two largest differences are in income replacement indemnity and personal care which increased $10.3 million and $12.5 million respectively in the first quarter of 2018 over 2017's first quarter. This is attributed to centralized reserving being implemented. The first quarter in 2017 included minimal incurred changes as

centralized reserving was just transitioned into operations. The first quarter in 2018 represents incurred where centralized reserving is fully implemented. The variances to budget are also a result of centralized reserving, as this process has now been fully implemented, budgets will need to be adjusted in the upcoming fiscal year to include this change in methodology.

See the figure below for a Basic covers opened comparison for both actuals and budget for the first quarter.

Figure 2: Basic Covers Opened for the three month ending May 31

Line No.	Covers Opened	2018A	2017A	Difference	2018B	2017B	Difference
1	Accident Benefits - Pre Mar 1/94	4	5	(1)	0	0	0
2	Public Liability - Pre Mar 1/94	0	0	0	0	0	0
3	Public Liability - Post Mar 1/94	35	31	4	33	48	(15)
4	Income replacement indemnity	555	941	(386)	605	753	(148)
5	Death Payments	103	64	39	77	97	(20)
6	Permanent impairment	537	620	(83)	544	661	(117)
7	Personal care	172	177	(5)	197	208	(11)
8	Rehabilitation	583	606	(23)	581	655	(74)
9	Medical expenses	14,774	15,259	(485)	16,171	17,898	(1,727)
10	Collision	27,939	30,354	(2,415)	31,782	32,871	(1,089)
11	Comprehensive	16,042	17,003	(961)	17,554	15,396	2,158
12	Property Damage	20,326	19,030	1,296	20,326	20,231	95

b) The table below shows the derivation of the $51.3 million decrease in unpaid claims due to interest rate adjustment. The $51.3 million reflects the difference in the impact of interest rate adjustment (between February 28 and May 31 of the fiscal year) on the claims incurred. For fiscal year 2018, the impact of interest rate adjustment (as of May 31) of $13.1 million is small. MPI does not update its claims incurred budget/projection monthly to reflect interest rate adjustment.

Figure 3: Interest Rate Impact on Claims for the three month ending May 31

Line No.	Fiscal Year	as of Feb 28	as of May 31	Difference	Impact on Unpaid Claim Liabilities ($000)
1	2017	3.39%	3.04%	-35 bps	$64,401
2	2018	3.47%	3.40%	-7 bps	$13,094
3	**Difference**				($51,307)

CAC (MPI) 2-29

Part and Chapter:	**CAC (MPI) 1-79**	**Page No.:**	**2**
PUB Approved Issue No:	**8. Investment portfolio** **10. Claims forecasting**		
Topic:	**De-risking the basic claims portfolio; no equities in the investment portfolio**		
Sub Topic:			

Preamble to IR (If Any):

On page 2 of CAC (MPI) 1-79 the Bond risks and PIPP risks are compared and it highlights that bonds do not hedge PIPP "Under reserving" and "Legislative enhancements to benefits" risks. It further states:

"The present value of PIPP liabilities is interest rate-sensitive, due to the long-tail nature of some of the liabilities. This risk is mitigated by holding bonds of similar duration, which are also interest rate-sensitive. The other risks associated with the PIPP liabilities cannot be hedged with investments in financial assets."

Question:

a) Please confirm that PIPP claims incurred volatility is not only caused by under reserving practices and legislative enhancements to benefits, but also by emerging new claims categories caused by such medical conditions as depression and mental health, et al.

b) Please discuss whether the SGI Auto Fund and the SAAQ consider equities to be an appropriate asset type in which to invest to support pure no-fault PIPP type liabilities.

Rationale for Question:

To better understand why long term type PIPP claims liabilities should not be supported by growth type equity assets in the investment portfolio.

RESPONSE:

a) Confirmed. Emerging trends related to claims with mental health components has an impact on PIPP claims incurred. *Part IV SDM.1.9.1 Current State of PIPP* discusses the strategies being implemented to mitigate risks associated with these emerging claim trends. Changes or volatility to forecasted PIPP claims incurred over the long term can be caused by a number of factors including under or over reserving issues, higher or lower inflation than forecast, or changes in relapse rates.

b) SGI Auto Fund uses a 'return seeking portfolio' comprised of equities, real estate, and infrastructure investments to support claims liability payments beyond 20 years.

SAAQ confirmed that they hold a diversified investment portfolio with the following allocations as of December 31, 2017.

Fixed income (34.5%)

- Short term : 1%
- Rates : 7.5%
- Credit : 16%
- Real return bonds : 10%

Real assets (21%)

- Real estate : 14%
- Infrastructure : 7%

Equity (44.5%)

- Public equity : 34%
- Private equity : 10.5%

CAC (MPI) 2-30

Part and Chapter:	**CAC (MPI) 1-21(b)**	**Page No.:**	**3**
PUB Approved Issue No:	**7. Update of DCAT and target capital analysis** **2.Rate indication based on accepted actuarial practice in Canada** **4. Financial Forecasts**		
Topic:	**Satisfactory financial condition and best estimates**		
Sub Topic:	**Actuarial Standard of Practice (ASOP)**		

Preamble to IR (If Any):

The response to CAC (MPI) 21 (b) refers to the Canadian Institute of Actuaries Standards of Practice (ASOP). The ASOP dated March 2019 is laid out in seven (7) parts:

1. 1000—General
2. 2000—Insurance
3. 3000—Pension Plans
4. 4000—Actuarial Evidence
5. 5000—Public Personal Injury Compensation Plans
6. 6000—Post-Employment Benefit Plans
7. 7000—Social Security Programs

Part V of the 2019 GRA in the Rate Setting chapter, page 4, states: "This section describes the rating principles, techniques, and approaches used by MPI in the calculation of Basic rates, following AAP." AAP stands for Accepted Actuarial Practice.

Excerpts from ASOP:

"1120 Definitions

.01 Each term set over dotted underlining has the meaning given in this subsection. A term that is not set over dotted underlining has its ordinary meaning.

.02 Accepted actuarial practice is the manner of performing work in accordance with these Standards of Practice. Unless the context requires otherwise, it refers to work in Canada.

.12 Best estimate means without bias.

.34 Insurance contract is a contract under which one party (the insurer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder. Insurance contract includes group insurance, third-party contracts where the owner of the contract and the person who is compensated (the policyholder) differ, and all like arrangements substantively in the nature of insurance.

.35 Insurance contract liabilities in an insurer's statement of financial position are the liabilities at the date of the statement of financial position on account of the insurer's insurance contracts, including commitments, that are in force at that date or that were in force before that date.

.39 Margin for adverse deviations is the difference between the assumption for a calculation and the corresponding best estimate assumption.

.52 Property and casualty insurance is insurance that insures individuals or legal persons

- Having an interest in tangible or intangible property, for costs arising from loss of or damage to such property (e.g., fire, fidelity, marine hull, warranty, credit, legal expense, and title insurance); or
- For damages to others or costs arising from the actions of such persons (e.g., liability and surety bonds) and for costs arising from injury to such persons (e.g., automobile accident benefits insurance).

.53 Provision for adverse deviations is the difference between the actual result of a calculation and the corresponding result using best estimate assumptions.

.54 Public personal injury compensation plan means a public plan

- Whose primary purpose is to provide benefits and compensation for personal injuries;
- Whose mandate may include health and safety objectives and other objectives ancillary to the provision of benefits and compensation for personal injuries; and
- That has no other substantive commitments.

The benefits and compensation provided under such public plans are defined by statute. In addition, such public plans have monopoly powers, require compulsory coverage except for those groups excepted by legislation or regulation, and have the authority to set assessment rates or premiums.

1600 Assumptions and Methods

1610 Methods

.01 The actuary should select a method that takes account of the circumstances affecting the work. [Effective February 1, 2018]

.02 The basis for calculating actuarial estimates is comprised of a method and one or more assumptions. Methods represent the underlying manner in which actuarial calculations are undertaken. Methods differ from one area of actuarial practice to another and have differed over time.

.03 In selecting an appropriate method, the actuary would consider whether any method is mandated by law, by practice-specific standards or by the terms of the engagement.

1620 Assumptions

Discount rate

.35 The use of a discount rate is inherent in the actuarial present value method. The discount rate may be constant or it may vary over time. In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may either

- Take into account the expected investment returns of the assets that support the liabilities; or
- Reflect interest rates on relevant fixed income reference securities.

.36 In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may assume that the yields on fixed income investments at future dates, either

- Remain at levels applicable at the calculation date; or
- Revert in the long term to expected levels.

1630 Provision for adverse deviations

.01 The actuary should include a provision for adverse deviations in calculations only to the extent required by the terms of the actuary's engagement or as mandated by law or as prescribed by practice-specific standards. [Effective February 1, 2018]

2120 Method

Time value of money

.36 In this context, "supporting assets" means the insurer's assets and asset commitments that support its insurance contract liabilities.

.37 To take account of the time value of money is to express the forecast of periodic future cash flows as an equivalent single amount at the calculation date, thereby reflecting in the value of the liabilities the amount of future investment income forecast to be earned on the supporting assets. There are two common methods of doing so – a roll-forward approach (e.g., the Canadian asset liability method) and a discounting approach (e.g., the actuarial present value method).

.38 The discount rates and forecast of supporting assets used in the valuation, would take account of

- The supporting assets owned at the calculation date;
- The insurer's policy for asset-liability management; and
- Assumptions about investment return after the calculation date.

.39 The actuary would value the insurance contract liabilities and reinsurance recoverables so that their aggregate value in combination with the value of other policy-related items in the statement of financial position appropriately takes account of the time value of money.

Margin for adverse deviations

.40 The margin for adverse deviations reflects the degree of uncertainty of the best estimate assumption. This uncertainty results from the risk of misestimation of and deterioration from the best estimate assumption. The potential for misestimation is greater when the past experience has been more volatile and

hence would justify a greater margin. However, the margin for adverse deviations would be based on a forward-looking assessment of the expected experience and would not act as a mechanism to absorb changes in observed experience, such as changes caused by statistical fluctuations.

2200 Insurance Contract Valuation:

Property and Casualty Insurance

.02 The amount of claim liabilities consists of the following components on a present value basis:

- The amount of the case estimates;
- A provision (which may be positive or negative) for development on reported claims, including claim adjustment expenses;
- A provision for incurred but unreported claims, including claim adjustment expenses; and
- A provision for adverse deviations.

For property and casualty practitioners, this is also referred to as the actuarial present value basis.

2240 Present values

.01 The expected investment return rate for calculation of the present value of cash flows, net of reinsurance, is that to be earned on the assets, taking into account reinsurance recoverables, that support the insurance contract liabilities. The expected investment return depends on

- The assets owned at the calculation date;
- The allocation of those assets and related investment income among lines of business;
- The method of valuing assets and reporting investment income;
- The yield on assets acquired after the calculation date;
- The capital gains and losses on assets sold after the calculation date;
- Investment expenses; and
- Losses from asset depreciation.

2500 Dynamic Capital Adequacy Testing

Dynamic capital adequacy testing

.06 Dynamic capital adequacy testing examines the effect of selected plausible adverse scenarios on the insurer's forecasted capital adequacy. It would be one of the actuary's primary tools for investigation of an insurer's financial condition.

.07 The purpose of dynamic capital adequacy testing is to identify plausible threats to satisfactory financial condition, actions that would lessen the likelihood of those threats, and actions that would mitigate a threat if it materialized

.08 Dynamic capital adequacy testing is defensive, i.e., it addresses threats to financial condition rather than the exploitation of opportunity.

Satisfactory financial condition

.09 The insurer's financial condition would be satisfactory if throughout the forecast period,

- Under the base scenario, the insurer meets the supervisory target(s); and
- Under the base scenario and all plausible adverse scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities.

2600 Ratemaking: Property and Casualty Insurance

.06 This section 2600 also applies to the derivation of indicated rates for insurance risks accepted by a property and casualty quasi-insurer, similar to insurance risks accepted under an insurance contract. In this section 2600, "property and casualty quasi-insurer" means an entity that assumes insurance risks that a property and casualty insurer may assume, without having the legal form of an insurer. Examples of property and casualty quasi-insurers include

- Federal or provincial crown corporations or agencies acting in a capacity similar to a property and casualty insurer;

2620 Method

.01 The best estimate present value of cash flows relating to the revenue at the indicated rate should equal the best estimate present value of cash flows relating to the

5000—Public Personal Injury Compensation Plans

5100 Scope

.00 Part 1000 applies to work within the scope of this part 5000.

.01 The standards in this part apply to an actuary's work on the valuation of benefits liabilities of a public personal injury compensation plan, including its benefits liabilities in respect of a self-insured employer, and to any other items required under the terms of an appropriate engagement for a public personal injury compensation plan, for the purpose of its financial statements and for the purpose of providing input into its funding arrangements.

5420 Assumptions

01 The actuary should set assumptions that reflect the expectation that the public personal injury compensation plan will continue indefinitely as a going concern entity, but may make adjustment for short-term considerations, where appropriate. [Effective February 1, 2018]

.02 The actuary should select either best estimate assumptions or best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, required by law or by the circumstances affecting the work, and should provide the rationale for the decision made with respect to the inclusion or exclusion of margins. [Effective February 1, 2018]

5430 Economic assumptions

.01 The needed economic assumptions include the expected rate of investment income, the expected investment expenses and, depending on the benefit being valued, one or more of

- expected rate of general inflation,
- expected rate of health care cost inflation,
- expected rate of wage inflation,
- if different, expected earnings increase specific to wage loss benefits, and
- expected rate of change of any other economic factor that may be applicable.

.02 The economic assumptions that are needed would depend on the nature of the benefits that are being valued, and may vary by year.

.03 The actuary would develop and disclose separate nominal assumptions, but may prefer to complete the calculations using rates that are net of inflation, net of expenses or net of some other factor. Such calculations may, however, be approximations.

5450 Margins for adverse deviations

01 The actuary should not include a margin for adverse deviations when the circumstances affecting the work require a best estimate calculation or an unbiased calculation. [Effective February 1, 2018]

.02 The actuary should include margins for adverse deviations when the circumstances affecting the work require such margins. A non-zero margin should be sufficient, without being excessive, and should have the effect of increasing the benefits liabilities or reducing the reported value of the offsetting assets, the computation of which falls within the scope of the work of the actuary. In addition, the provision resulting from the application of all margins for adverse deviations should be appropriate in the aggregate. [Effective February 1, 2018]

.03 If the actuary is required by legislation, regulation, accounting standards, the accounting policy or the funding policy of the plan to use a margin for adverse deviations that is outside the range that the actuary considers appropriate, the actuary may use such imposed assumption, but the actuary should disclose that the margin is outside of the appropriate range and disclose the reason for using such margin. [Effective February 1, 2018]

Question:

a) Please confirm that the ASOP parts 1000 to 7000 represent all the actuarial standards of practice in Canada. If not, please elaborate and describe additional actuarial standards of practice applicable to Canada and specifically to MPI Basic Insurance.

b) Please contrast and explain the differences between Parts 1000 (General), 2000 (Insurance and specifically Property and Casualty Insurance {P&C}) to Part 5000 (Public Personal Injury Compensation Plans).

   i. Please explain the applicability of Parts 1000, 2000 {P&C} and 5000 to MPI Basic Insurance rate making.

c) According to ASOP 1120.12 “best estimate means without bias”. In ASOP 2200.02 the amount of claim liabilities include a provision for adverse deviations (PfAD). In ASOP 2620.01 (Ratemaking) the “best estimate” appears not to include a PfAD. In ASOP 5450.01 and .02 a margin for adverse deviation appears optional.

   i. For greater clarity please explain the difference between a provision for adverse deviation and a margin for adverse deviation.

   ii. Please explain the situation or circumstances when a “best estimate” includes a PfAD and/or Margin for adverse deviation

d) Please elaborate on the applicability of ASOP 5000 Public Personal Injury Compensation Plans to the valuation of MPI’s basic insurance Personal Injury Protection Plan unpaid claims. Is MPI aware whether SGI or the SAAQ use ASOP 5000 to value their PIPP type unpaid claims liabilities? Please elaborate.

e) With respect to the selection of a discount rate to determine the best estimate, the actuary appears to consider a wide range of options as detailed in ASOP 1620.35, 1620.36, 2120.36, 2120.37, 2120.38, 2240.01,and 5430.01. “The discount rate may be constant or it may vary over time”. Please describe MPI’s discernment process in establishing its discount rate to calculate its best estimate for rate making purposes.

Rationale for Question:

MPI’s basic insurance rates are prospectively determined by accepted actuarial practices, as well the RSR is measured, and to some extent, determined by the DCAT methodology. These processes and procedures appear to be prescribed by the Actuarial Standard of Practice (ASOP) which impact rate making, claims incurred values, net income, RSR, investment asset mix and possibly other operational matters. A summary review of ASOP may be of assistance to the various parties to gain a better understanding of the impact ASOP has on MPI’s operations and the GRA before the PUB for consideration.

RESPONSE:

a) Confirmed.

b) Part 1000 presents the general standards of practice applicable to all actuaries regardless of the type/scope of work of the actuary's engagement. An example of this is how to appropriately use and document the work produced by another person.

Part 2000 presents the standards of practice applicable when performing specific actuarial work. For example, section 2200 presents the standards of practice applicable when performing the valuation of insurance contract liabilities for a property and casualty insurer.

Part 5000 presents the standards of practice applicable specifically to actuaries working on "*the valuation of benefits liabilities of a public personal injury compensation plan*". Part 5000 is applicable to actuaries working on workers compensation plans.

Parts 1000 and 2000 (excluding sections 2300 and 2700) are applicable to all the actuarial related work performed at MPI. Given the scope, Part 5000 is not applicable to MPI.

c) The provision for adverse deviation (PFAD) reflects the additional dollar amount added to the best estimate assumption to account for the uncertainty of the best estimate assumption. The PFAD is determined by applying the margin for adverse deviation (MFAD), usually expressed as a percentage, to the best estimate assumption. As an example, assume that the best estimate assumption for the unpaid claim liabilities for Collision is $50.0 million. The addition of a 5% MFAD would result in a PFAD of $2.5 million (i.e. $50 * 5%). Assuming no other MFAD/PFAD, the total unpaid claim liabilities for Collision would be $52.5 million.

As stated above, a PFAD is added when there is uncertainty of the best estimate assumption. This uncertainty can result from various factors e.g. the duration (i.e.

from opening to settlement) of a claim, the historical volatility in the claims development pattern, possible adverse experience in yield rates, etc. The Appointed Actuary is responsible to consider all these factors, and determine an appropriate MFAD to apply to the best estimate assumption.

In general, based on the ASOP, the MFAD/PFAD should be reviewed when working on the valuation of insurance contract liabilities. The MFAD/PFAD is not a consideration in ratemaking. The MFAD/PFAD is also not a consideration when working on the Dynamic Capital Adequacy Testing (DCAT) except to the extent that the PFAD is included in the figures per the financial statements.

d) Refer to the response to part (b). MPI has confirmed with SGI that Part 5000 is not applicable to their actuarial related work. Part 5000 is applicable to SAAQ given the nature of their business. Specifically, per *Part III, CBP*, SAAQ "*provides public compulsory injury coverage (on a "pure" no-fault basis), while private insurers provide compulsory Third Party Liability (for physical damage only), and optional first party physical damage coverage.*" This model more closely mirrors a public workers compensation plan than a property and casualty insurer.

e) Refer to *Part V, Ratemaking, page 19*.

CAC (MPI) 2-31

Part and Chapter:	**CAC (MPI) 1-27(a)**	**Page No.:**	**2**
PUB Approved Issue No:	**9. Cost of Operations**		
Topic:	**Staffing and Economic negotiated salary increases**		
Sub Topic:	**Retention of skilled staff**		

Preamble to IR (If Any):

In response to question a) MPI states: "However if the employee is at the top of their band and their superior performance warrants a merit increase, merit increase is paid in lump sum."

Question:

Please elaborate on what is meant by "merit increase is paid in lump sum". Is this similar to a performance bonus?

Rationale for Question:

To clarify the response to question a) in CAC (MPI) 1-27.

RESPONSE:

The Corporation strives for a culture of excellence and wishes to recognize excellence. Merit increases allow strong performing employees to progress through their respective pay bands. Employees who do not exceed their performance objectives do not receive a merit increase.

Employees who have reached the top of their pay bands are often highly qualified, experienced employees that the Corporation wants to retain, keep engaged and

exceeding their performance objectives. An incentive to do this is allowing them to be eligible to receive similar merit pay benefits for exceptional performance criteria that are available to other employees who are not at the top of their pay scale.

Employees who reach the top of their pay bands and continue to exceed performance expectations are eligible to have their merit recognized through the payment of a one-time, lump-sum amount.

The lump sum payment is limited to a maximum of 5% of their base salary. The employee's base salary will remain the same (subject to the cost of living increase).

It is important to the Corporation that all high performing employees are treated equally; MPI does not want to be in a position where some who exceed performance expectations receive merit pay and others do not.

For the 2017/18 fiscal year, MPI had 1,859 employees at the time of the payout, 1589 were in-scope, 270 were out of scope. Of the out of scope employees, 62 were at the maximum of their pay ranges and were eligible for a lump sum payment. 26 employees received lump sum payments for a total payment of $58,427.

CAC (MPI) 2-32

Part and Chapter:	**Part VIII, Annual Reports, AR Appendix 2**	**Page No.:**	
PUB Approved Issue No:	**4. Financial Forecasts** **9. Cost of operations**		
Topic:	**Decrease in investment income – 1st Quarter May 31, 2018**		
Sub Topic:			

Preamble to IR (If Any):

On page 4 of AR Appendix 2 it explains the reasons for the $5.2 million decrease in Corporate net income from last year's comparable quarter and it states:

"iii) a decrease in investment income of $57.0 million mainly due to the decrease of unrealized gains on Fair Value Through Profit or Loss bonds of $47.3 million and decrease gains on the sale of equities and other investments of $9.7 million."

Question:

Please elaborate, for greater clarity, and provide a comparative analysis, by issuer, explaining the decrease in investment income of $57.0 million quarter over quarter.

Rationale for Question:

To gain a fuller understanding of the significant change/causes in investment income quarter over quarter.

RESPONSE:

Please see *Appendix 1* which provides details on the "Unrealized Gains/(Losses) on FVTPL Bonds" and *Appendix 2* for the "Gains/(Losses) on Sale of Equities and Other"

which addresses the most significant differences in investment income comparing the first quarter of 2018 to the first quarter of 2017.

Unrealized Gains(Losses) FVTPL Bonds

	Sec ID	Issuer's Name	Q1-2018	Q1-2017
1	013051DM6	ALBERTA	(14)	108
2	013051DQ7	ALBERTA	(31)	-
3	013051DR5	ALBERTA	(5)	37
4	013051DT1	ALBERTA	(3)	699
5	013051DS3	ALBERTA	-	1,052
6	013051DU8	ALBERTA	(43)	-
7	013051DW4	ALBERTA	(8)	-
8	013051DY0	ALBERTA	(314)	-
9	01306ZCV1	Alberta TSY	(25)	494
10	01306ZDC2	Alberta TSY	11	594
11	01306ZDF5	Alberta TSY	-	497
12	135087B45	GOVERNMENT OF CANADA BOND	-	205
13	135087D35	GOVERNMENT OF CANADA BOND	-	840
14	135087D50	GOVERNMENT OF CANADA BOND	-	7
15	135087F25	GOVERNMENT OF CANADA BOND	-	34
16	135087F58	GOVERNMENT OF CANADA BOND	-	44
17	135087XW9	GOVERNMENT OF CANADA BOND	-	338
18	135087YQ1	GOVERNMENT OF CANADA BOND	-	353
19	135087ZS6	GOVERNMENT OF CANADA BOND	-	260
20	13509PFV0	CANADA HOUSING	-	43
21	1107098Y1	PROV OF BRITISH COLU	125	613
22	11070TAG3	PROV OF BRITISH COLU	341	1,793
23	11070TAJ7	PROV OF BRITISH COLU	(12)	121
24	40649CTR7	HALTON REGIONAL MUNI	26	29
25	4488148V8	QUEBEC HYDRO BOND	73	410
26	448814DG5	QUEBEC HYDRO BOND	(23)	(13)
27	505443AB7	CANADA LABRADOR-ISLA	68	737
28	56344ZCG2	PROVINCE	(46)	264
29	56344ZEH8	PROVINCE	(149)	1,306
30	56344ZJM2	PROVINCE OF MANITOBA	(53)	1,902
31	56344ZPV5	PROVINCE OF MANITOBA	120	1,344
32	563469EZ4	PROVINCE OF MANITOBA BOND	-	(2,249)
33	563469TH8	PROVINCE OF MANITOBA	106	802
34	563469TW5	PROVINCE OF MANITOBA	41	966
35	56346ZKW6	PROVINCE OF MANITOBA	(77)	(68)
36	570344AA9	MARITIME LINK FINANC	62	343
37	614853CC1	VILLE MONTREAL	(41)	(20)
38	614853CJ6	VILLE MONTREAL	(14)	3
39	614853CM9	VILLE MONTREAL	(58)	157
40	614853CV9	VILLE MONTREAL	(13)	55
41	628153AC2	MUSKRAT FALLS	133	786
42	626209JH4	BC MUNICIPAL FINANCING AUTHOR	-	27
43	6428668Z3	PROV OF NEW BRUNSWIC	4	14
44	642866FW2	PROV OF NEW BRUNSWIC	13	1,008
45	642866FZ5	PROV OF NEW BRUNSWIC	38	(619)
46	642866GA9	PROV OF NEW BRUNSWIC	11	356
47	642866GK7	PROV OF NEW BRUNSWIC	(11)	63
48	642866GL5	PROV OF NEW BRUNSWIC	(482)	-
49	642869AD3	PROVINCE OF NEW BRUN	(49)	-
50	642869AE1	PROVINCE OF NEW BRUN	68	915
51	651329BE3	NFLD LABRADOR HYDRO	94	403
52	651333EG7	NEWFOUNDLAND PROV	(19)	222

Unrealized Gains(Losses) FVTPL Bonds

	Sec ID	Issuer's Name	Q1-2018	Q1-2017
53	651333EZ5	NEWFOUNDLAND PROV	1	-
54	651333FM3	NEWFOUNDLAND PROV	53	-
55	651333FQ4	NEWFOUNDLAND PROV	262	1,414
56	651333FS0	NEWFOUNDLAND PROV	(1)	210
57	651333FT8	NEWFOUNDLAND PROV	(1,102)	1,027
58	651333FX9	NEWFOUNDLAND PROV	(72)	-
59	651333FY7	NEWFOUNDLAND PROV	(1,208)	809
60	65355DZC2	NIAGARA REG MUNI	11	69
61	669827FL6	PROVINCE OF NOVA SCO	(26)	705
62	669827FQ5	PROVINCE OF NOVA SCO	-	713
63	669827FP7	PROVINCE OF NOVA SCO	62	920
64	669827FW2	PROVINCE OF NOVA SCO	62	-
65	669827FZ5	PROVINCE OF NOVA SCO	116	1,437
66	669827GA9	PROVINCE OF NOVA SCOTIA	(28)	302
67	6832348J0	PROVINCE ONTARIO BOND	(4)	49
68	683234B98	PROVINCE ONTARIO BOND	(82)	3,335
69	683234NM6	PROVINCE ONTARIO BOND	(32)	149
70	683234YD4	PROVINCE ONTARIO BOND	12	289
71	683234ZP6	PROVINCE OF ONTARIO	2	60
72	68323AAD6	PROVINCE OF ONTARIO	(39)	219
73	68323AAY0	PROVINCE OF ONTARIO	101	-
74	68323ACY8	PROVINCE OF ONTARIO	-	67
75	68323ABN3	PROVINCE OF ONTARIO	(31)	432
76	68323ACC6	PROVINCE OF ONTARIO	-	276
77	68323ADM3	PROVINCE OF ONTARIO	(121)	829
78	68323ADZ4	PROVINCE OF ONTARIO	-	879
79	68323AEE0	PROVINCE OF ONTARIO	428	597
80	68323Z4W6	ONTARIO GENERAL RESI	11	160
81	68323ZUK3	ONTARIO GENERAL RESI	(75)	(10)
82	683244AG2	ONTARIO SCHOOL FINANCE	-	(106)
83	689551DE6	CITY OF OTTAWA	(32)	205
84	689551ED7	CITY OF OTTAWA	92	487
85	689551ER6	CITY OF OTTAWA	71	279
86	705464EQ4	PEEL REG ONTARIO	2	270
87	69363TAK8	PSP CAPITAL INC.	-	110
88	69363TAJ1	PSP CAPITAL INC.	-	38
89	741666CF6	PRINCE EDWARD ISLAND	(14)	65
90	741666CN9	PRINCE EDWARD ISLAND	(25)	66
91	741666CS8	PRINCE EDWARD ISLAND	76	576
92	741666DA6	PRINCE EDWARD ISLAND	(14)	141
93	74814ZEF6	PROVINCE OF QUEBEC	130	357
94	74814ZEK5	PROVINCE OF QUEBEC	123	-
95	74814ZEP4	PROVINCE OF QUEBEC	(114)	-
96	74814ZER0	PROVINCE OF QUEBEC	(469)	1,235
97	74814ZES8	PROVINCE OF QUEBEC	-	63
98	74814ZEV1	PROVINCE OF QUEBEC	(55)	-
99	74814ZEW9	PROVINCE OF QUEBEC	(113)	688
100	74814ZEX7	PROVINCE OF QUEBEC	(122)	834
101	803854GY8	PROV OF SASKATCHEWAN	(7)	218
102	803854JA7	PROV OF SASKATCHEWAN	-	101
103	803854JH2	PROV OF SASKATCHEWAN	43	355
104	803854JJ8	PROV OF SASKATCHEWAN	22	206

Unrealized Gains(Losses) FVTPL Bonds

	Sec ID	Issuer's Name	Q1-2018	Q1-2017
105	803854JL3	PROV OF SASKATCHEWAN	73	360
106	803854JT6	PROV OF SASKATCHEWAN	242	680
107	803854JU3	PROV OF SASKATCHEWAN	86	303
108	803854JW9	PROV OF SASKATCHEWAN	(128)	21
109	803854KA5	PROV OF SASKATCHEWAN	86	292
110	803854KB3	PROV OF SASKATCHEWAN	(15)	220
111	803854KC1	PROV OF SASKATCHEWAN	(839)	641
112	891288DJ8	CITY OF TORONTO	(10)	51
113	921577RE4	CITY OF VANCOUVER	(15)	23
114	975026HB4	CITY OF WINNIPEG	122	854
115	975026HC2	CITY OF WINNIPEG	192	1,155
116	975026FN0	CITY OF WINNIPEG	-	(9)
117	98704CQR0	MUNICIPALITY OF YORK	(20)	29
118	98704CQT6	MUNICIPALITY OF YORK	3	-
119	98704CQZ2	MUNICIPALITY OF YORK	(19)	-
120	98704CQW9	MUNICIPALITY OF YORK	-	258
121	00433JAA3	ACCESS ROADS EDMONTO	(1)	162
122	02135ZAK2	ALTALINK LP	13	-
123	03524BAB2	ANHEUSER-BUSCH INBEV	2	-
124	03524BAG1	ANHEUSER-BUSCH INBEV	(3)	-
125	05590HAT4	BMW CANADA INC	(7)	-
126	06368AAA8	LTI BMO	(19)	51
127	06368AAD2	LTI BMO	(17)	-
128	12593CAA9	CPPIB	(1)	20
129	12657ZAW3	CU INC	26	-
130	136765AW4	CANADIAN WESTERN BAN	(8)	-
131	136765AZ7	CANADIAN WESTERN BAN	(6)	-
132	154728AN9	CENTRAL 1 CREDIT UNI	(15)	-
133	23384NAV9	DAIMLER CANADA FINAN	(19)	-
134	29290ZAP5	ENBRIDGE GAS DISTRIB	7	-
135	29290ZAS9	ENBRIDGE GAS DISTRIB	7	-
136	35085ZBF2	407 INTERNATIONAL IN	13	-
137	35085ZBL9	407 INTERNATIONAL IN	25	-
138	39138CAD8	GREAT WEST LIFECO IN	15	-
139	39138CAF3	GREAT WEST LIFECO IN	28	-
140	40427HTB9	HSBC BANK CANADA	(33)	-
141	44810ZBK5	HYDRO ONE INC	24	-
142	46152HAD3	IGM FINANCIAL INC	45	-
143	46152HAG6	IGM FINANCIAL INC	25	-
144	56501RAF3	MANULIFE FINANCIAL C	(8)	-
145	780085N93	ROYAL BANK OF CANADA	(14)	25
146	89353ZBV9	TRANSCANADA PIPELINE	(94)	-
147	89353ZBZ0	TRANSCANADA PIPELINE	(49)	-
148	90664ZAU4	UNION GAS LTD	9	-
149	975014AA9	WINNIPEG AIRPORT AUT	(154)	537
150	975014AC5	WINNIPEG AIRPORT AUT	(44)	327
151	975014AD3	WINNIPEG AIRPORT AUT	(13)	27
152	975014AE1	WINNIPEG AIRPORT AUT	(45)	-
153	44889ZEL6	HYDRO QUEBEC FRN	-	8
154	74814ZET6	PROVINCE OF QUEBEC	-	6
155	651333GA8	NEWFOUNDLAND PROV	(7)	-
156	**Unrealized Gains(Losses) FVTPL Bonds**		**(2,822)**	**44,441**

Gains/(Losses) Sale of Equities & Other

	Sec ID	Issuer's Name	Q1-2018	Q1-2017
1	136385101	CDN NATURAL RESOURCES LT	175	-
2	137576104	CANFOR CORPORATION	207	-
3	137584207	CANFOR CORPORATION	108	-
4	448055103	HUSKY ENERGY	161	-
5	453038408	IMPERIAL OIL	(3)	-
6	47215Q104	JEAN COUTU	245	-
7	57778L103	MAXAR TECHNOLOGIES	(821)	-
8	59162N109	METRO INC CLASS	132	-
9	70137T105	PARKLAND FUEL CORP	81	-
10	767744105	RITCHIE BROTHER	136	-
11	83425Q105	SOLIUM CAPITAL	48	-
12	867224107	SUNCOR ENERGY	140	-
13	021361100	ALTAGAS LTD SUB RECPT	-	(2)
14	05534B760	05534B760 BCE INC	-	782
15	136069101	CAN IMP BANK OF COMM	-	347
16	136375102	CANADIAN NATIONAL RAILWAYS	-	525
17	063671101	71101 BANK OF MONTREAL	-	410
18	136385101	CDN NATURAL RESOURCE	-	175
19	064149107	07 BANK OF NOVA SCOTIA	-	526
20	136717832	36717832 CDN UTILS LTD	-	3
21	15135U109	109 CENOVUS ENERGY INC	-	53
22	29250N105	0N105 ENBRIDGE INC COM	-	92
23	293570107	SIGN ENERGY SERVICES I	-	50
24	349553107	349553107 FORTIS INC.	-	323
25	39138C106	GREAT WEST LIFECO INC.	-	1,278
26	47215Q104	215Q104 JEAN COUTU GRP	-	68
27	51925D106	LAURENTIAN BANK OF CANAD	-	57
28	554282103	MACDONALD, DETTWILER & A	-	18
29	633067103	NATIONAL BANK OF CANADA	-	315
30	70137T105	105 PARKLAND FUEL CORP	-	98
31	70137T113	113 PARKLAND FUEL CORP	-	42
32	702925108	108 PASON SYSTEMS INC.	-	143
33	775109200	ROGERS COMM	-	92
34	76329W103	RICHELIEU HARDWARE LTD.	-	254
35	780087102	ROYAL BANK OF CANADA	-	1,035
36	85853F105	STELLA-JONES INC	-	171
37	867224107	SUNCOR ENERGY INC NEW CO	-	340
38	87971M103	TELUS CORP COM	-	9
39	891102105	TOROMONT INDUSTRIES LTD.	-	31
40	891160509	TORONTO DOM	-	469
41	89353D107	TRANSCANADA COR	-	142
42	961148509	GEORGE WESTON	-	31
43	985572106	YELLOW PAGES	-	(156)
44	464287598	Blackrock 1000	-	4,305
45	464287630	Blackrock2000	-	1,500
46	RFG2STD$1	STRAD ENERGY SERVICES	(12)	-
47	**Gains/(Losses) Sale of Equities & Other**		**597**	**13,526**

CAC (MPI) 2-33

Part and Chapter:	**CAC (MPI) 1-58 (b)**	**Page No.:**	**2**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**Customer self-service**		
Sub Topic:	**Customer surveys and focus groups**		

Preamble to IR (If Any):

In response to CAC (MPI) 2-4 b) it states:

> While it remains early in the overall project delivery cycle, the Corporation is confident that customers will embrace the customer self-service delivery channel and its expanded capabilities, features and services, as they become available. **The results of recent customer surveys and the feedback from customer focus groups regarding the Customer Claims Reporting System give the Corporation reason to be confident**. The Corporation is also confident in the business case and value management realization (targets and timeframes) and therefore plans to continue with the project and future phases. **(emphasis added)**

Question:

Please file an Executive Summary elaborating on the feedback of the customer surveys and focus groups as mentioned in the preamble.

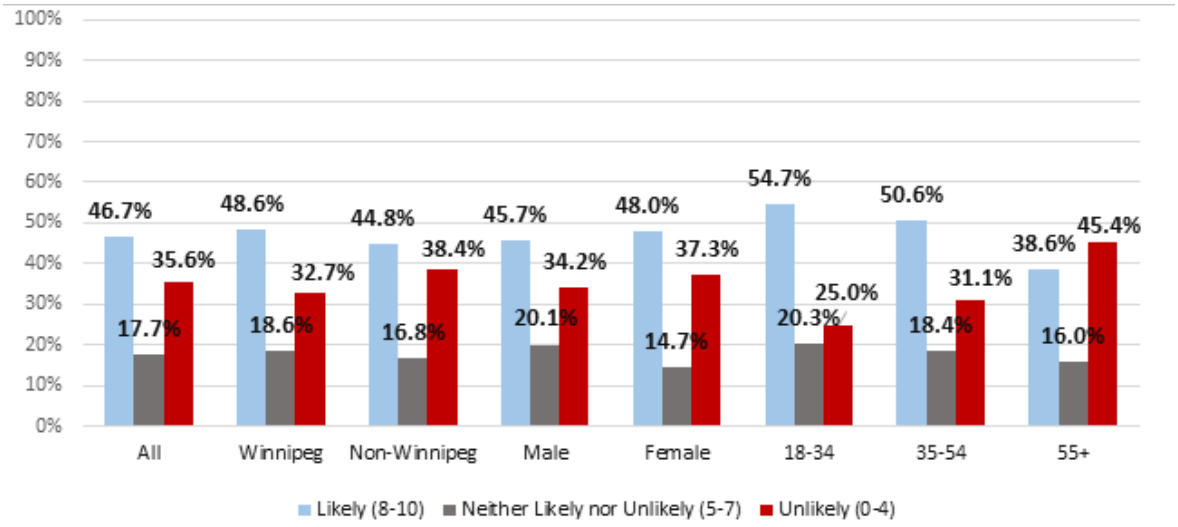
Rationale for Question:

To better understand customers' views on the subjects canvassed in the surveys and focus groups as stated in the preamble.

RESPONSE:

In a recent Physical Damage Claimant Satisfaction survey, a special interest topic question set was added to the survey to ascertain customer interest in online claim reporting if provided as an option in the future. The results of that survey are as follows:

Figure 1: Special Interest Topic: Online Claim Reporting
Likeliness to report vehicle damage claim online:
For future claims if given the option



Please also find *Appendix 1 & 2* which are results of the Customer Claims Reporting System customer focus group sessions completed in early 2018. Of specific interest will be pages 34-39 of Appendix 1 which provide specific customer feedback notes, likelihood to utilize the service results, and customer feedback on whether or not they would recommend the online service capability to other customers. Overall, the Corporation believes that the above and attached materials provide sufficient evidence that customers have a definite interest in self service delivery channel services in the future.

Prairie Research Associates

Testing of online vehicle damage claim process:

Presentation on the results of qualitative research

A presentation to Manitoba Public Insurance

February 20, 2018

Prairie Research Associates

Methodology and demographics

- PRA conducted two focus groups with Manitoba Public Insurance employees on February 1, 2018, both of which were completed on MPI computers in its computer lab.
- PRA conducted nine focus groups between February 5 and 12, 2018:
  - six groups segmented by age (18 to 29, 30 to 54, 55 and older) and claimant type (claim in past six months vs. no claim in past two years)
  - one group conducted with claimants with high school education or less
  - one group conducted with claimants whose first language was not English
  - one group conducted with claimants tested on PCs
- All public groups required participants to have a valid driver's licence and all said they would be at least somewhat likely to complete a claim online.
- In total, 73 representatives from the public and 15 employees tested the online process.

Caution

- It is important to remember that while focus groups provide insight into participants' attitudes and opinions, they cannot be said to be representative of the population as a whole.

- Any quantification of the results refers only to group participants and cannot necessarily be extrapolated to the entire sample population represented.

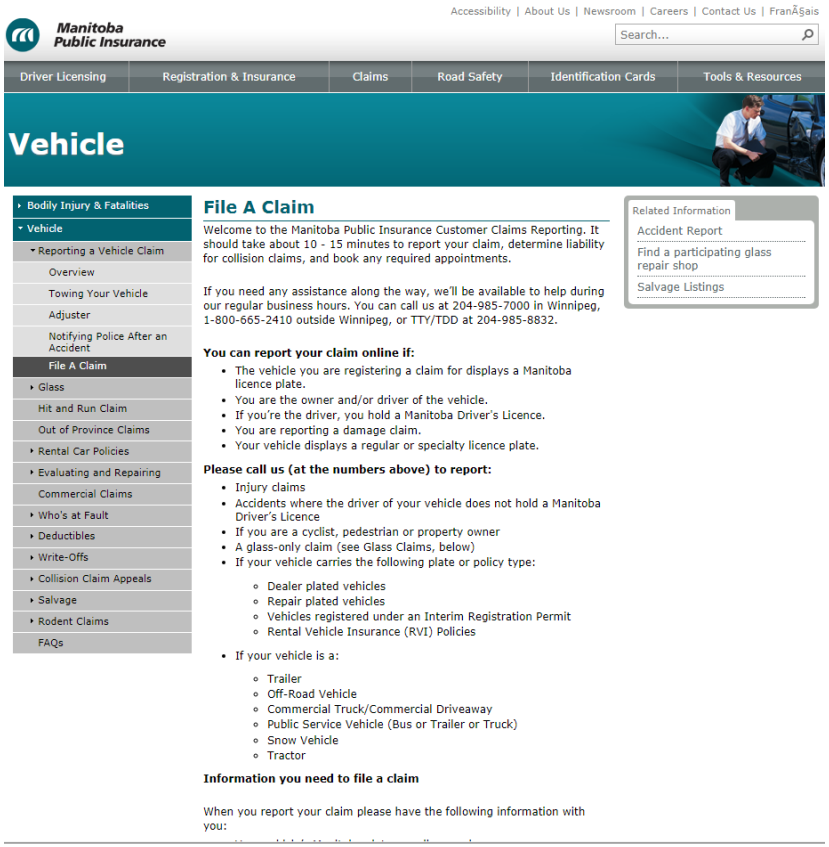
Prairie Research Associates

Accessing the online process

Prairie Research Associates

Accessing the online process

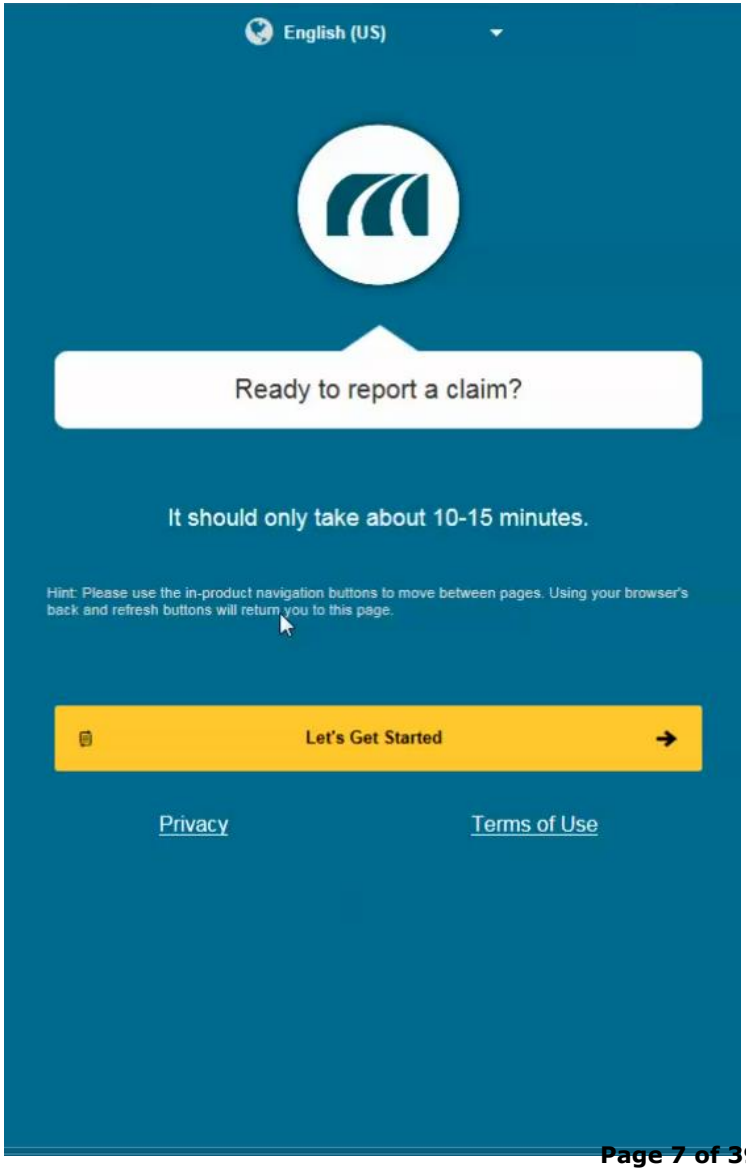
- Some participants had difficulty finding the link to access the website and clicked options on the left or right-hand side of the page.
- Participants expected access to be at the top of the page.
- If information on the page is important, it should be included within the process, rather than on the access page.



Navigation issues

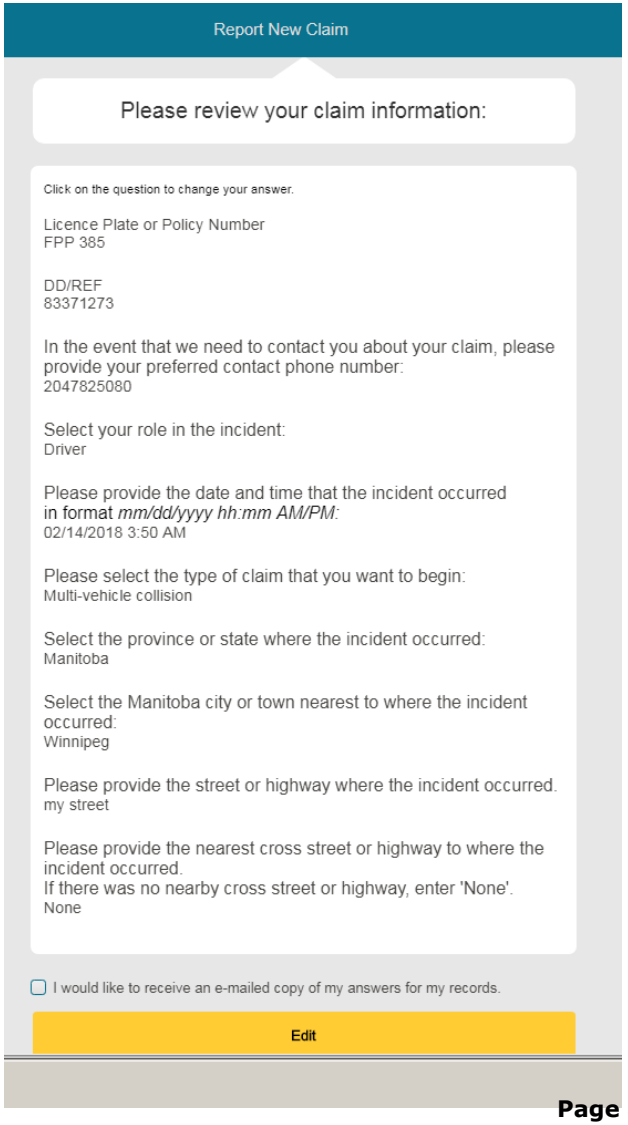
Instructions

- The main issue was participants using the back button on their browser as opposed to the in-app back button.
  - When hitting the back button on their browser, it takes them back to the initial page, which participants found frustrating.
- Instructions to participants need to be made explicitly clear rather than placed as a *Hint* on the first page.



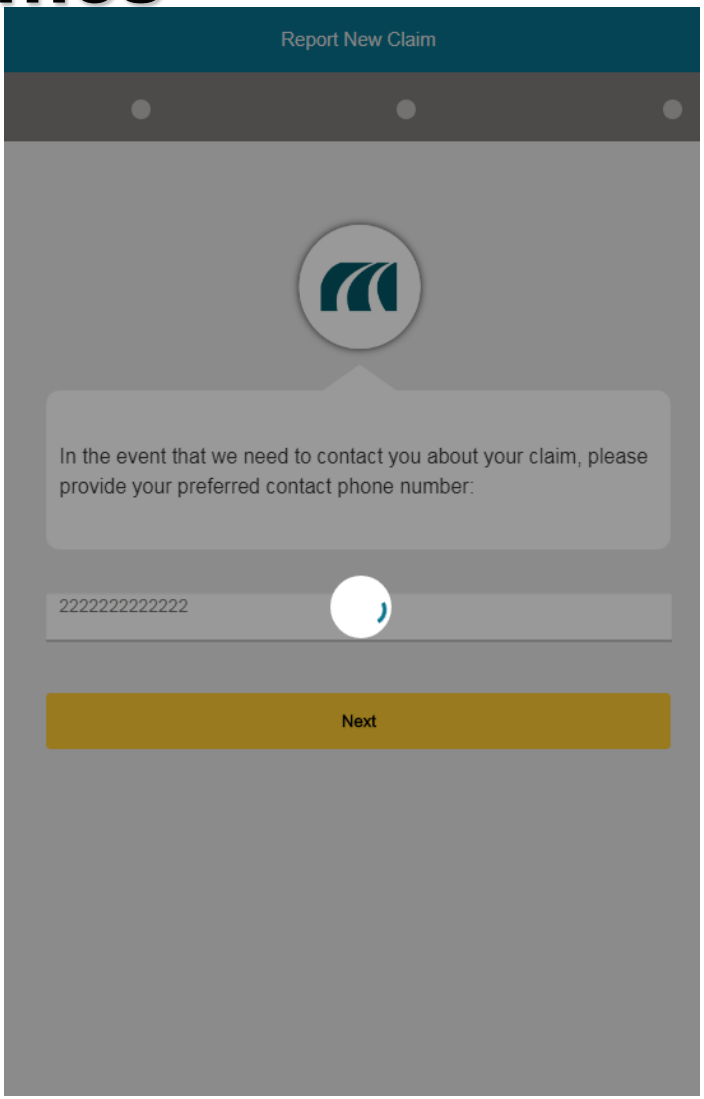
Edit buttons

- Edit buttons had two issues: how they functioned and placement.
- Participants expected that when selecting *Edit* on a page that it would allow them to edit a single aspect, rather than being returned to the first page of that section and having to re-answer every question in that section.
- Many participants also clicked *Edit* by accident assuming it was the button to move forward because this was the case on preceding screens.
- In some cases, the *Confirm* button did not appear until participants scrolled down.
- Participants also suggested making the *Edit* and *Confirm* buttons different colours to differentiate.



Loading times

- A few participants noted that the loading time between pages was quite long.
- In some cases, pages took upwards of 10 to 12 seconds to load (typically between sections), while even “short” loading times between pages were averaging 3 to 4 seconds.
- With 50+ pages to navigate through, this is adding 3 to 4 minutes to the process alone.
- In addition, this does not match participants’ experiences online, either through normal day-to-day web browsing or completing online forms/surveys.

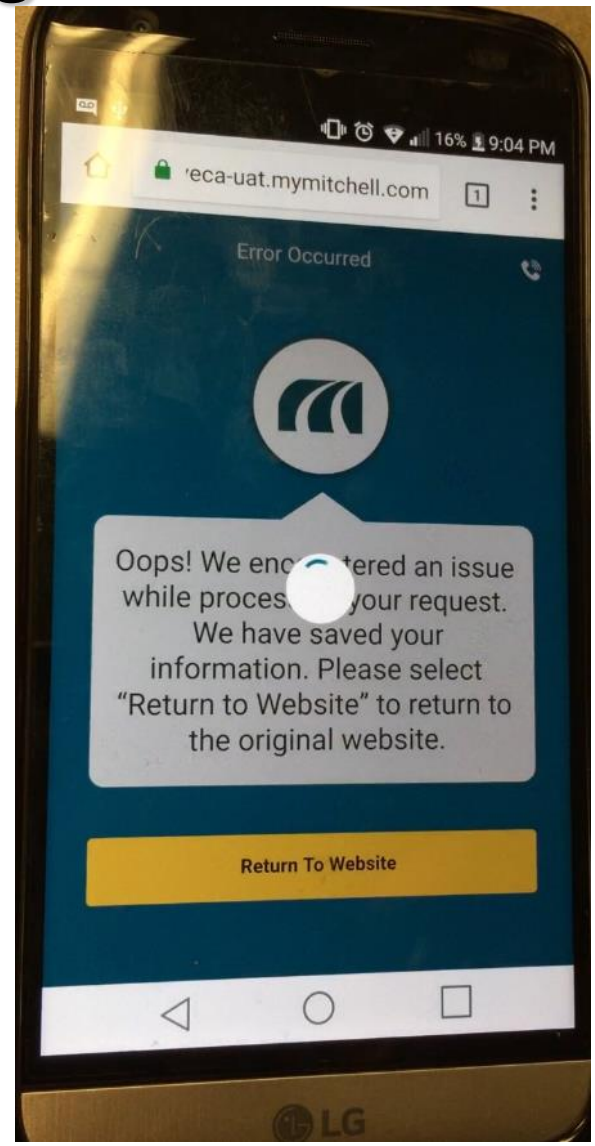


Tracking progress

- Many participants did not see or recognize that the circles at the top or side of the page were tracking their progress.
- Many who did recognize the progress tracking did not find it helpful because some sections were much longer than others.
- Some participants identified the statistics questions as being quite long and having a single checkmark did not accurately reflect the time required to complete the online process.

Crashing

- The process seemed to crash randomly and more often for cell phone users — primarily on Android devices.
- Computers and laptops were less prone to random crashing.
- Some participants received a message at the top of their screen that said "*Error occurred*," but could continue for several pages until it crashed.
- After experiencing a crash, some participants could not re-access the site and would receive a crash message immediately after entering their DD/REF and licence plate.



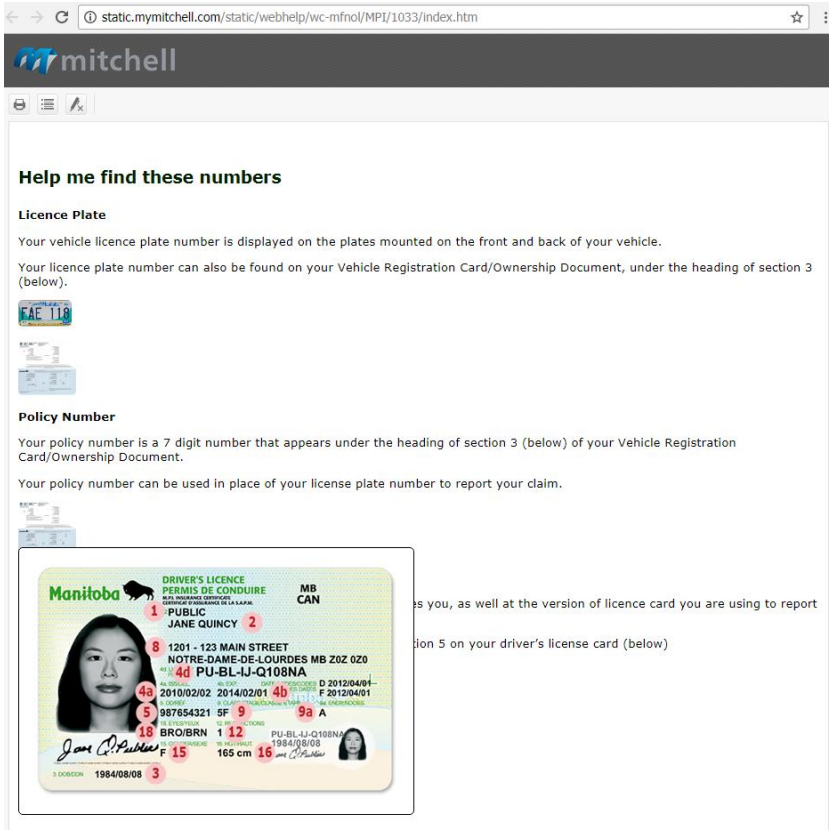
Option to not answer

- There were many pages where participants did not want to provide an answer because their opinion/information was not represented on the page.
- The most common pages were:
  - Winter tires
  - Vehicle suspension damage (Yes or No)
  - Damage to undercarriage (Yes or No)
  - Police incident number
  - Speed which you were travelling
  - Speed limit
  - Direction vehicle was travelling

Confusing and unclear aspects

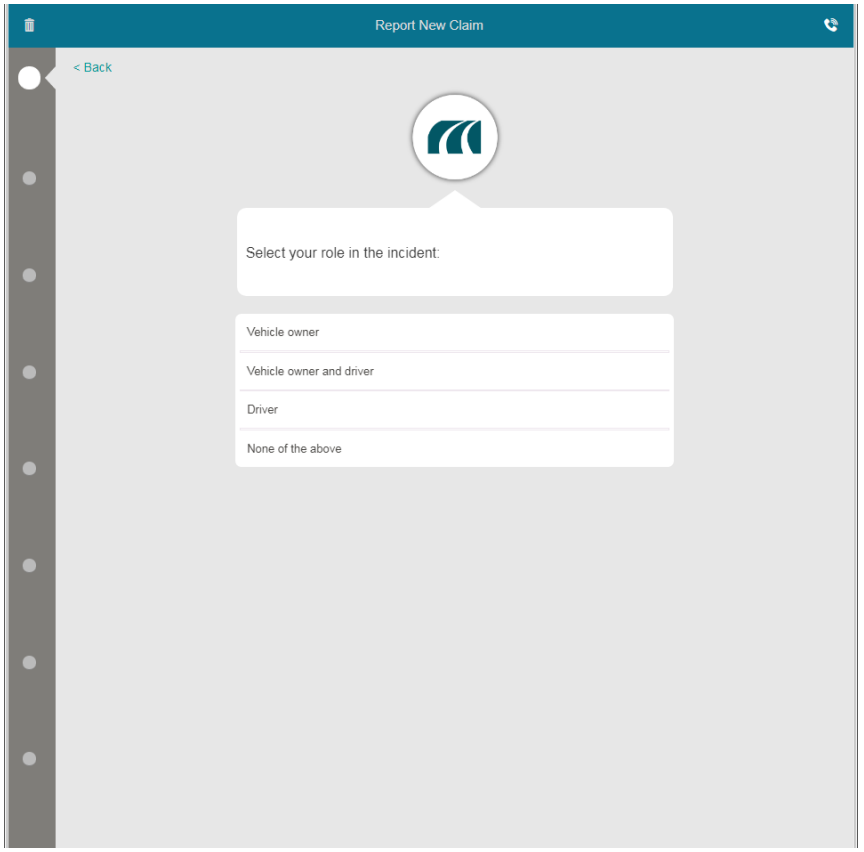
Vehicle and policy info

- Without instructions, participants assumed their DD/REF was their licence number.
  - Primarily this is because their licence number is what they are most commonly asked for in other situations.
- Participants suggested that an image of the information should be on screen, rather than having to click a link that takes them to another page.
  - This is because most assumed that they were entering the correct information.
- The linked page is confusing and it is unclear where to find the relevant information.



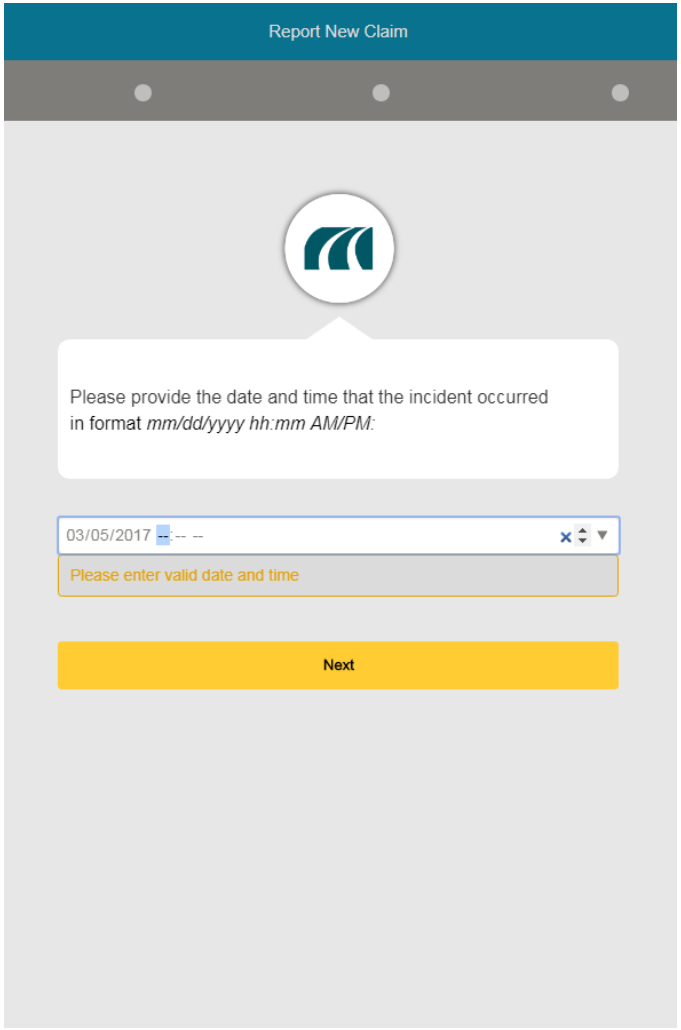
Role in the incident

- The page was confusing for some because it combined two aspects: vehicle ownership and nature of claim.
- Participants thought it would be easier to split it into two questions.
  - A first question asking if they were driving the vehicle for which they are reporting the claim.
  - A second question asking if they are the owner of the vehicle.
- Also, it is unclear what is the definition of ‘owner’.



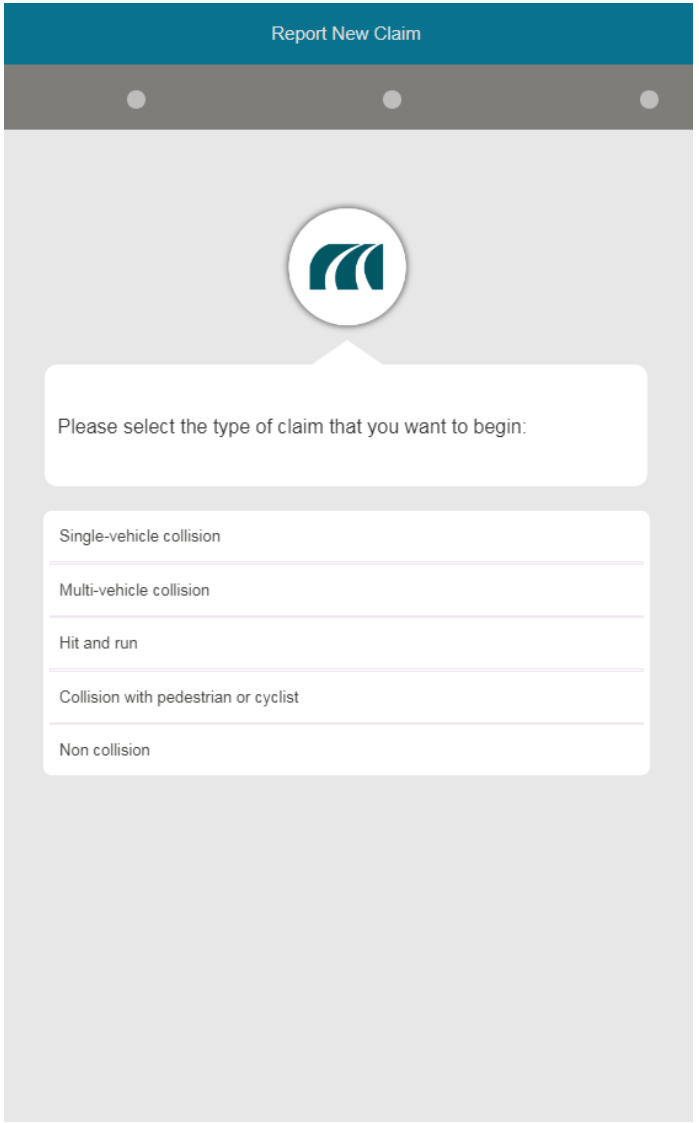
Date and time

- Participants had considerable issues navigating the date and time on a laptop or computer.
- They expected to have a calendar open up to select the date and time as opposed to typing it in.
- Many participants made errors when typing it in because it required a specific format (MM/DD/YYYY HH:MM AM/PM).
- If information was not entered exactly as indicated, they would get errors.
- There was no drop-down menu for date or autofill in Internet Explorer.
- Some participants suggested breaking the question into two pages (date and then time) to make it easier.



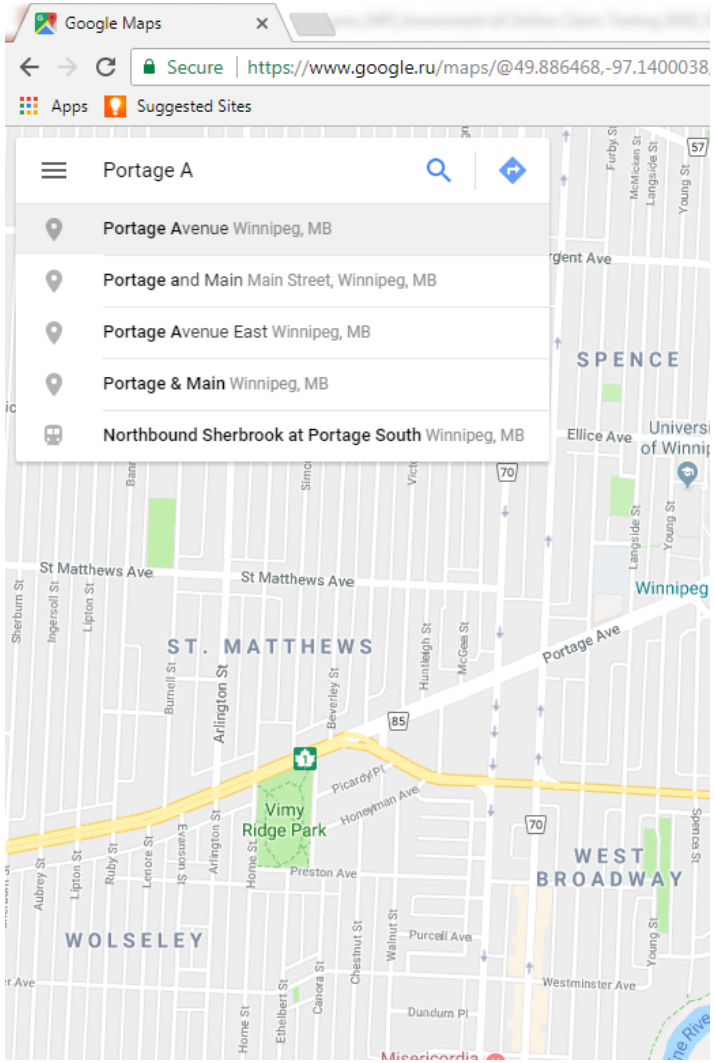
Type of claim

- Some participants did not understand the difference between a single-vehicle and multi-vehicle collision.
- For many participants, a single-vehicle collision was a collision involving their vehicle and one other vehicle (e.g., rear end).
- Multi-vehicle collision implied that several vehicles were involved in the incident.
- Some participants wondered how to select both a collision and something else (e.g., hit and run, collision with pedestrian, etc.) because it would only accept one response.



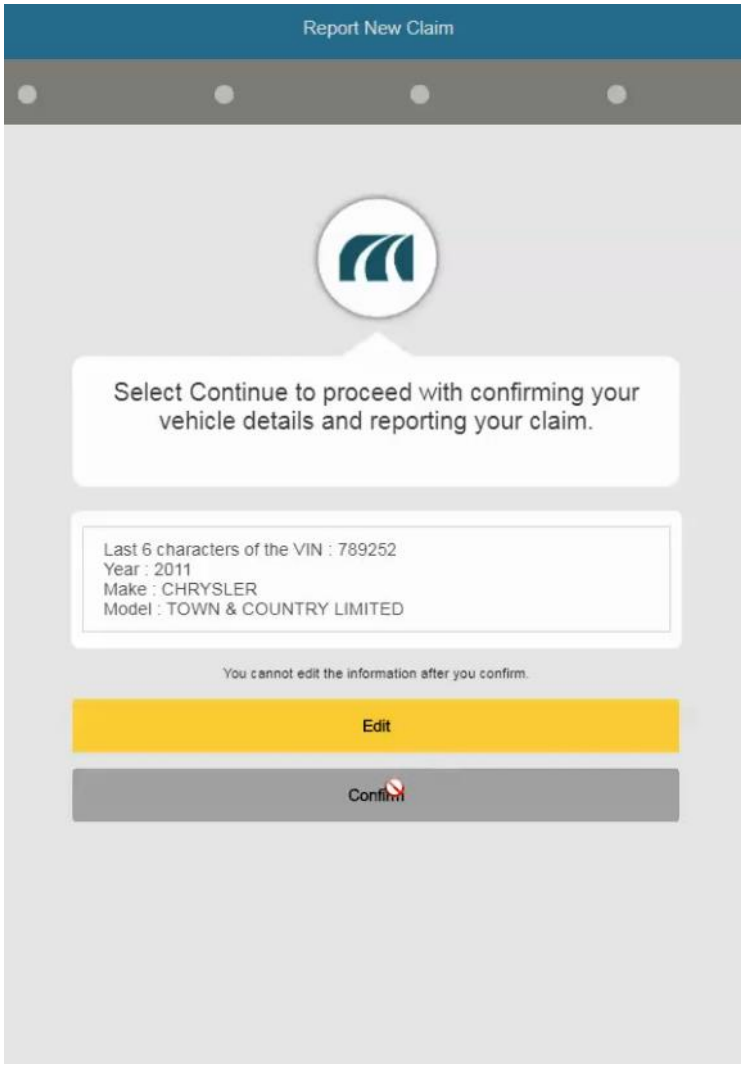
Reporting street/highway

- In the employee groups, participants indicated that this format to input information would make location specific data difficult.
- A few participants noted that they could enter anything they wanted (e.g., behind my house).
- Some participants wanted to select the location on a map, while a few others said having access to a map on the page would be helpful to identify the street, since they may not be familiar with the name or the cross street.
- Others said that it should give options for streets when you start entering the name.



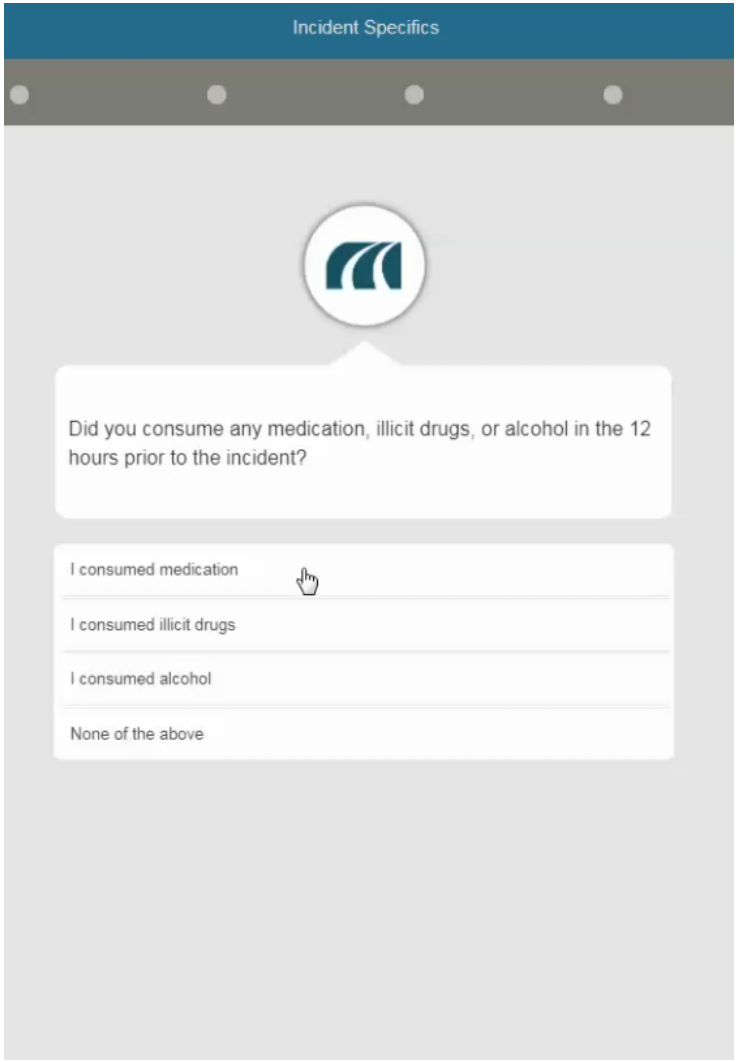
Confirmation page

- The confirmation page was very confusing for people, even after a change in language after the first night of groups.
- Most participants did not realize they had to click their vehicle prior to hitting the *Confirm* button and because of this, thought they had to hit *Edit.*
- The placement of this page also seemed strange to some, as you have to answer several questions about the claim prior to confirming the vehicle; they expected this would come right after entering their vehicle and policy information.



Drugs and alcohol

- Participants had several concerns about this page.
- Foremost, older participants questioned what type of medication the question was referring to. As one participant said, "*I think anyone over 55 is taking some kind of medication for something on a daily basis*."
- Others said they were not able to select multiple options (e.g., they had medication and alcohol) and wondered which one they should select.
  - They would likely default to whichever answer appeared first because they were unaware that it would move forward after selecting.



Statistics issues

- Participants had issues with how to answer most questions in the statistics pages.

Light conditions

- What is the difference between street lights and dark? Don't street lights come on in the dark?
- When would light be "not applicable?"

Weather conditions

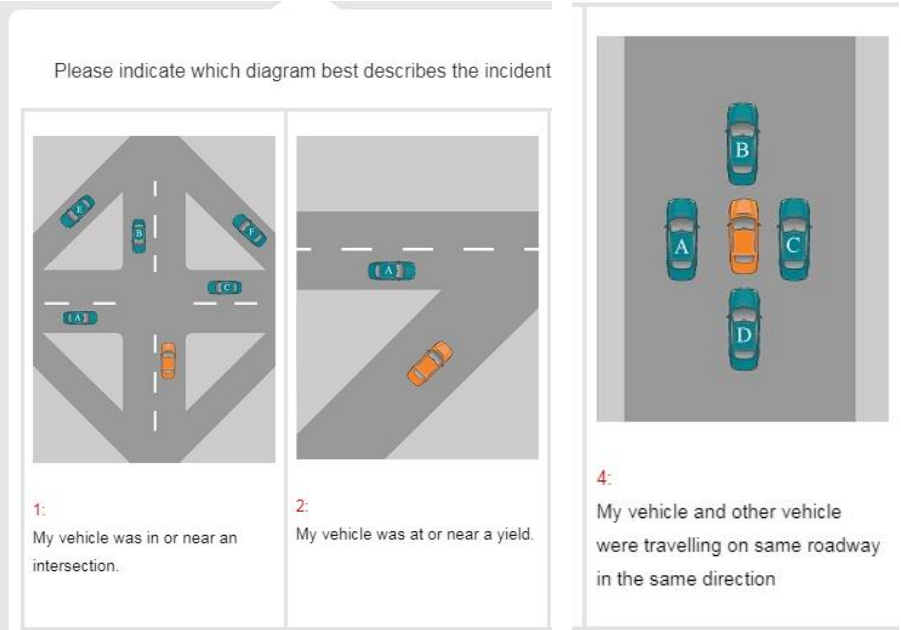
- Participants wanted to select more than one (e.g., windy and cloudy).

Vehicle collided with first

- Participants did not understand what a "movable object" was and what "other" would qualify as.

Selecting accident type

- Participants had significant difficulty selecting the right situation for their collision.
- For rear-end collisions, most selected the image that depicted where the incident occurred, rather than Diagram 4 which showed how it happened.
- The image and information for Diagram 4 were not clearly understood by participants, especially for rear-end collisions.
- Participants also expected to be able to click the image to move on, rather than having to read the information and then select from a button below it.
- A few participants mentioned issues with picking the write option if they are colour blind.



Questions about “the vehicle”

- Several pages contained questions asking participants about “the vehicle.”
- These questions were confusing because participants were unsure if “the” referred to their vehicle or the other vehicle(s) involved in the collision.
- Examples:
  - Did the vehicle have winter tires on it at the time of the incident?
  - What direction was the vehicle travelling?
  - What was the estimated speed of the vehicle at the time of the incident?

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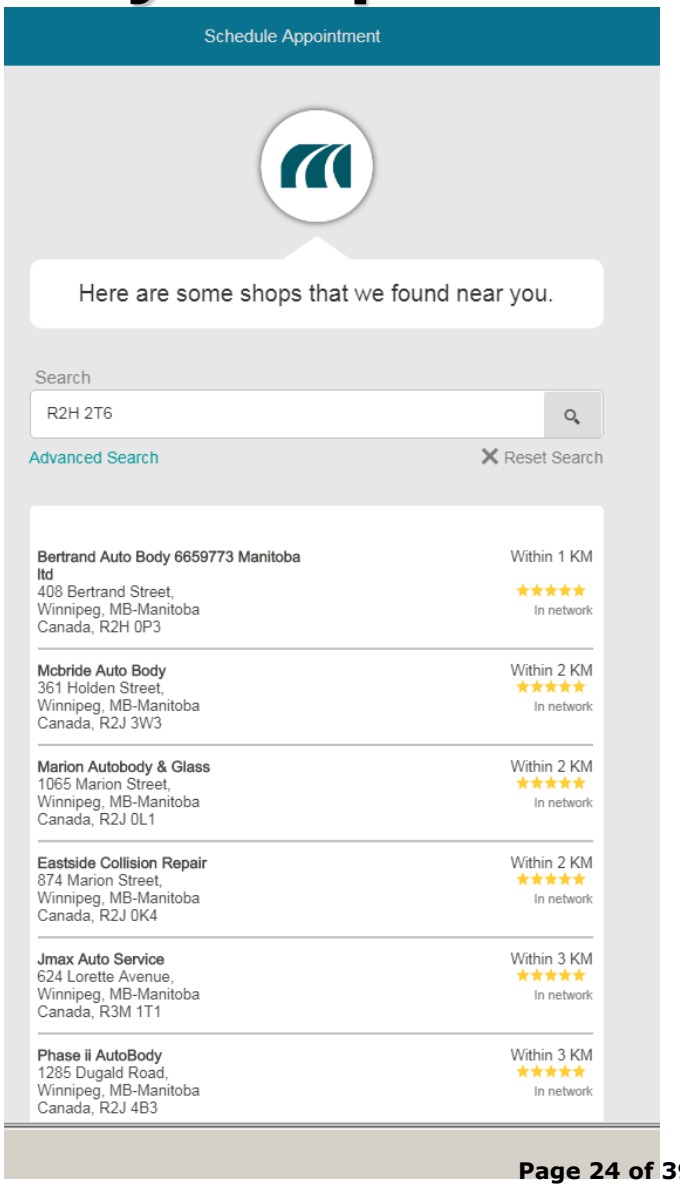
Selecting auto body shop

- The page defaulted to what appeared to be a random or pre-set postal code, rather than using the postal code of the address associated with either the participants' licence or vehicle.
- Participants had trouble searching for auto body shops because they did not necessarily know the postal code.
- Participants would prefer to search via a map or by typing in the name of the shop.



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Consistency issues

Consistency issues

- One of the major concerns from participants, other than their ability to navigate the pages, was consistency within the process.
- Participants noted several questions that seemed irrelevant to their claim or that they should not have been asked based on answers to other questions.
- Although it would not stop them from submitting the claim online, for some this caused concern that they may have been doing something wrong, and therefore that their liability assessment may not be accurate, or that they may have been filing an incorrect claim.
- For others, it was a convenience issue; they would not expect that an MPI representative on the phone would ask them irrelevant questions, and thus it makes the online process take longer than phoning to open their claim.

Consistency issues

Vehicle driven FROM page

- On the previous page (vehicle driven TO), participants expected that if they selected *Parked*, it would not ask the FROM page, since they had indicated that it was parked.

Medication, drugs, and alcohol

- If participants stated that the vehicle was parked, they wondered why they were asked questions about their consumption of medication, drugs, or alcohol.

Type of collision

- Although participants indicated that the vehicle was parked, it asks for the details of the collision again.

What type of road

- When participants already indicated the vehicle was parked in a parking lot, it asks about the road and/or roadway.

Speed limit

- If the vehicle was parked or in a parking lot, participants wondered why they were being asked about speed limit.

Direction vehicle travelling

- If the vehicle was parked, participants could not provide a direction of travel.

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Other issues

Other issues

- Less than 10 digits and more than 10 digits can be inputted for the telephone number.
- For some of the drop-down lists for province, U.S. states appeared before Canadian provinces (and specifically Manitoba).
- The first page (Captcha) says to "*please type the word below*," but all examples were numbers.
- Some participants raised concerns with the statistics section because they felt that this section took the longest to complete and was the least intuitive to answer.
  - As well, because it had no bearing on their claim and the liability assessment, many questioned why this was the longest section of the online process in terms of time required to complete.
  - Some felt that the statistics questions should be answered after completing their claim so that irrelevant questions would be skipped.

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Other issues

- When the image of the vehicle came up to indicate where there was damage, the vehicle image did not match their vehicle (e.g., showing a car instead of truck).
- Some people felt they wanted to tell their story in their own words, even those who had a liability assessment that they accepted.
  - Some suggested giving people the option of telling their story (i.e., yes/no) and indicating that this information would only be used by MPI if they declined their liability assessment.

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Assessment of liability

Assessment of liability

- Participants generally liked receiving their liability assessment at the end of the process.
- For most who completed the process using a previous claim, the liability assessment matched their final outcome.
- A major concern is that because many did not feel that the process understood their claim (either by asking irrelevant or confusing questions), they were unsure if issues with a new claim were because of the process or if they were providing incorrect answers
- The wording in Determined Outcomes needs to be improved to explain that people can accept or decline their liability.
  - It also needs to indicate what will happen (i.e., the process) if they decline, specifically that they will be able to speak with an adjuster.

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Process feedback

Feedback

EASE OF USE

- Generally speaking, participants found the online process easy to use, when it was not randomly crashing.
- The primary issues around use were related to the participants' ability to answer questions correctly and how quickly they could complete the process.

LENGTH OF TIME TO COMPLETE

- Generally, the time to complete the process took 25 to 60 minutes; however, accurate assessments were difficult because many participants had to restart because of crashing or errors. We also asked participants to record issues during the process, which slowed it down.
- Most thought that the process took longer online when only considering the time they would spend speaking to an MPI representative; however, when factoring in wait times, many thought it would be shorter.

Feedback

LIKELIHOOD TO COMPLETE ONLINE

- Most participants said that they would complete their next claim online if the process was available.
- The primary deterrents were the time required to complete the process and the complexity of the claim.
  - When participants felt that the claim was more complex (e.g., more than two vehicles involved, liability is not clear, etc.), they would prefer to speak with someone on the phone because they believe the individual is “listening” to their story.

	Would use	Maybe	No	No answer
Focus groups (n = 73)	43	18	5	7

Feedback

LIABILITY

- Most participants liked getting their liability assessment as part of the process.
- What happens when someone declines their liability assessment needs to be made clearer; many accepted because they were unsure of what would happen if they declined.
- It should be emphasized that after declining they will be able to speak to an adjuster about their claim and provide information for the adjuster to review prior to the discussion.

RECOMMENDING THE PROCESS

- Most would recommend the process to other MPI customers, except for those who are technologically illiterate or have complicated claims.

Feedback

GETTING INFORMATION ABOUT THEIR CLAIM

- Most participants preferred to get information about their claim via email at the end of the process and did not find the options mid-stream to have any value (especially because they are most interested in their liability assessment, claim number, and appointment date/time, which would not occur until the latter end of the process).
- Having an option to print would be fine, although many recognized that by receiving a .PDF attachment they could also print it.
- Some wanted the option to receive it by mail, but primarily as a "backup."

PRIVACY

- Participants did not have any concerns about their privacy because the site was secure (https). There was also nothing asked that they would be overly concerned about someone else knowing.

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Key findings

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Conclusion

- Despite what we perceived as significant technical issues (i.e., random crashing, length of time to complete, etc.), participants were very positive about the online claims process.
- This is highlighted by the fact that many would use this process rather than phoning the call centre for their next vehicle damage claim.
- The primary issues with the online process were:
  - stability on mobile devices
  - ability to re-access claim once started
  - time to complete
  - clarity of questions/response options
  - irrelevant and/or previously answered questions (i.e., don't feel the process is listening)

TEST OF ONLINE CUSTOMER CLAIMS REPORTING SYSTEM:

A REPORT ON QUALITATIVE RESEARCH

DRAFT — FOR RESEARCH PURPOSES ONLY

February 27, 2018

Prepared for:

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Table of Contents

1.0 Introduction 1
1.1 Methodology 1
1.2 Caution 2

2.0 Website usability issues 3
2.1 Accessing the online process 3
2.2 General navigation issues 3
2.3 Confusing and unclear aspects 6
2.4 Issues with consistency of questions 9
2.5 Other issues 10
2.6 Suggestions for improvements 10

3.0 Assessment of liability 11

4.0 Overall assessment 12

5.0 Key findings 13

Appendix A — Employee focus group moderator's guide
Appendix B — One-on-one guide
Appendix C — Device types

1.0 Introduction

Manitoba Public Insurance (the Corporation) engaged PRA Inc. to conduct focus groups with recent vehicle damage claimants, past/non-claimants, and employees to test an online vehicle damage claim process.

1.1 Methodology

To meet the objectives for the research, PRA conducted focus groups with drivers and the Corporation's employees. The methodology used for each of these groups is described below.

1.1.1 Employee focus groups

PRA conducted two focus groups with the Corporation's employees on February 1, 2018. The Corporation was responsible for recruiting employees to take part in the one-hour focus groups. In the groups, participants tested the online claim process using computers in the Corporation's computer lab located on the second floor of its offices in Cityplace. A few employees also tested the tool on their smart device. The moderator's guide for the discussion can be found in Appendix A.

In total, 25 employees participated across the two focus groups. Screen capture software was used to capture the interactions of the employee-participants who completed the prototype service on desktop computers.

1.1.2 Customer focus groups

PRA tested the online claim process using nine focus groups conducted between February 5 and 12, 2018 in Winnipeg at the Corporation's computer lab. The groups were segmented as follows:

- Six groups were segmented by age (18 to 29, 30 to 54, and 55 and older) and length of time since their last vehicle damage claim with Manitoba Public Insurance (within the past six months or more than two years ago/never had a claim).
- Three groups were conducted with claimants (i.e., within the past six months) split into three groups: those with education no higher than a high school diploma, those whose first learned language was not English, and those who completed the process on PCs in the Corporation's computer lab.

To recruit recent claimants, the Corporation provided PRA with a database. To recruit non-claimants (i.e., no claim or longer than two years), PRA used a list of Manitobans who had completed past surveys for PRA. None of the participants had attended a focus group in the past 12 months or worked (or had a member of their household who worked) in market research; for the media; in advertising; in law enforcement; or for an insurance broker, agent, or company. A total of 73 individuals participated in the nine groups.

In collaboration with the Corporation, PRA drafted a moderator's guide (see Appendix B). At the beginning of each group, participants were asked to complete the process using their most recent claim (if they did not have one, they were provided with a list of types of claims from which they could select). After completing the process, participants completed questionnaires about their impressions and then discussed their opinions.

With the exception of the group who specifically tested on PCs, all groups tested the process using a device of their choosing. Please see Appendix C for a list of devices used by participants.

1.2 Caution

It is important to remember that while focus groups provide insight into participants' attitudes and opinions, they cannot be said to be representative of the population as a whole. Any quantification of the results refers only to group participants and cannot necessarily be extrapolated to the entire sample population represented. The discussion of focus group results is aided by the use of terms such as "few," "some," "many," "half," "most," and "almost all." These terms are used to help readers understand the levels of agreement (or disagreement) among participants, but do not quantify results in any way.

2.0 Website usability issues

2.1 Accessing the online process

Some participants had difficulty finding the link to access the online claim process from the *File a Claim* landing page. Most often it was participants accessing the process via a laptop or PC. These participants often did not realize that they needed to scroll to the bottom of the page to find the link to the online process, as many expected that the link would be at the top of the page. They often clicked links in the navigation options to the left, assuming the information would be there.

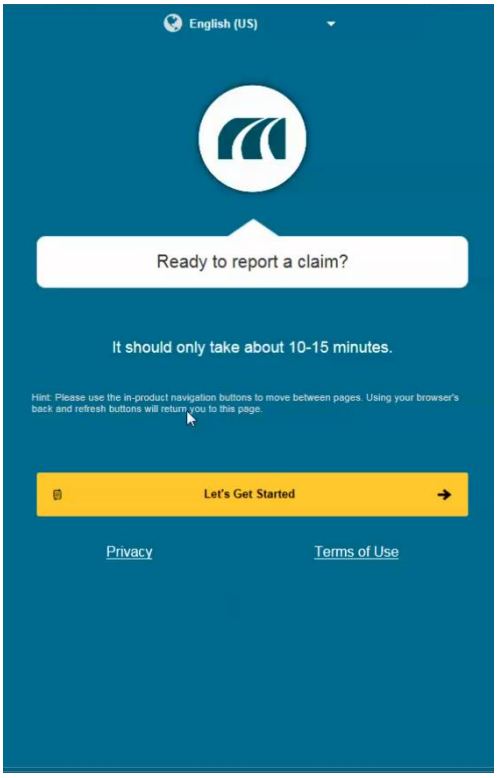
To overcome this issue, participants said that the link should be at the top of the page and clearly visible (either by colour or by size) and should not require scrolling to access. If there was important information to read or know prior to starting the claim process, participants expected this information to be part of the process, since many did not read much, if any, of the information on this page.

2.2 General navigation issues

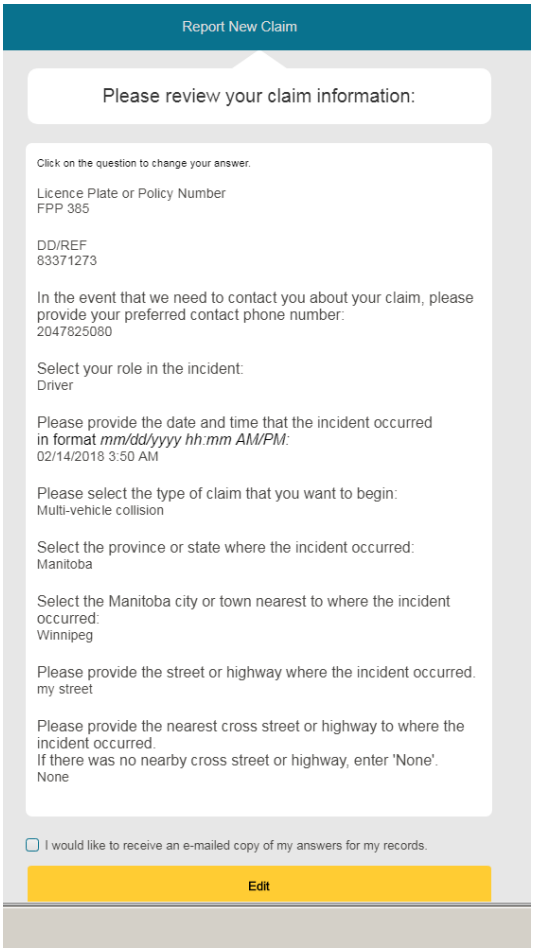
The bullets below highlight aspects that caused issues when participants tried to use or navigate through the online process. These were issues that, when encountered, would likely have resulted in participants phoning Manitoba Public Insurance to open/resume their claim, since they were impediments to being able to complete the process online.

- **Navigating to previous page.** It was not clear to most participants that they should not navigate back to a previous page in the online process by using the back button on their browser. When they clicked the back button on their browser, rather than the embedded back button in the process, it returned them to the beginning of their claim. Since the system was not consistently saving their record, this meant that when participants hit back on their browser, they had to begin their claim from scratch.

  Although there was a back button embedded in the top left-hand corner of the screen, it was small and not noticeable to most participants. In addition, hitting the browser's back button is a common way to navigate most websites and the instruction to use the embedded back button was not recognized by most participants since it was in very small text (and stated as a "Hint" rather than a necessity) on the first page. Participants said that since this feature was so important, the text should be larger and clearly evident for users before beginning the process.



- **Edit buttons**. There were two issues with "Edit" buttons when they were used on pages in the process. The first issue was with participants identifying that the button was "Edit" rather than "Confirm." The "Edit" button appeared above the "Confirm" button, but participants often assumed that the top button would be the "Confirm" button (or the button they would hit to move to the next page) without reading it. In other cases, participants would see the "Edit" button on their screen, but the "Confirm" button would not be visible without scrolling, so some participants did not scroll down to see the "Confirm" button and assumed that the only button available was "Edit."



  Hitting the "Edit" button in itself would not be problematic if the button functioned in the manner that participants expected. When they hit "Edit," participants expected to be able to select the item/question that they wanted to edit, change their response, and then return to the edit/confirm page. However, when they clicked the "Edit" button, it would return them to the beginning of the section and they would have to review their answers to all questions.

  To resolve these issues, participants provided several suggestions:

  - To avoid participants inadvertently clicking "Edit," move the "Confirm" button above the "Edit" button.
  - If the buttons cannot be moved (and in some cases, even if they can be), make the "Confirm" and "Edit" buttons two different colours. For instance, making the "Edit" button red would indicate that clicking this button results in some type of change, or at least alerts participants to the fact that they are clicking a button that is unlikely to move them forward (as red would indicate a stop in some way).
  - When the "Edit" button is clicked, the next step should be for a clickable icon to appear beside each question so that participants can select which one they want to edit. This change would have two benefits. First, it is how participants expected the edit function to work (i.e., editing one item at a time and being able to select what they want to edit). Second, if they accidentally clicked "Edit," they will not automatically be returned to the first page and will have a second chance to hit "Confirm."

- **Loading times.** Although only a few participants noted that loading times between pages were long (most often in the groups with younger participants), generally the loading times between pages averaged three to four seconds, and in some cases the loading times between pages were in excess of 20 seconds. Even at three to four seconds per page, the loading times between pages alone would add three to four minutes to the overall process, since the average number of pages participants had to click through was over 50. The loading times alone would make it impossible for an individual to complete the process in 10 to 12 minutes as stated on the opening page. In addition, when participants did identify issues with pages taking a long time to load, it did not match their normal day-to-day web browsing experiences or expectations.

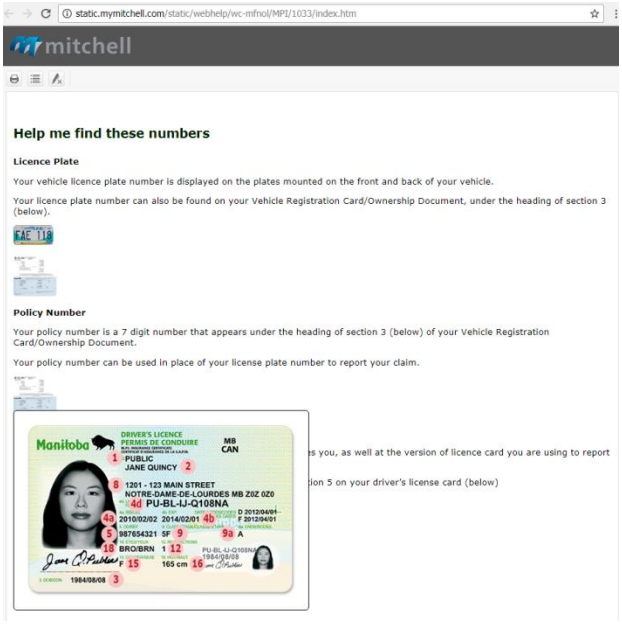
- **Tracking progress.** Many participants did not see or recognize that the circles at the top (PC and laptops) or side (tablets/phones) were tracking their progress as they moved through the online process. However, even among those who did, many did not find this feature helpful because the progress checkmarks only tracked when a section was completed. Since each section was not equivalent in the number of pages they were required to answer or the time required to complete the section, the progress bar did not accurately reflect how long it would take to complete the process. As one participant said, "*The first couple of sections take way longer than the last few, so it's unclear how long it will actually take to finish*." Participants would prefer if the progress bar more accurately reflected the number of pages they would be required to visit or the time it would take to complete, rather than a progress by section.

- **Crashing.** For many participants who accessed the website via a mobile device (especially Android devices), the process would randomly crash and deliver an error message stating "*Oops! We encountered an issue while processing your request. We have saved your information. Please select "Return to website" to return to the original website*." The crashing, while annoying, would not have been a considerable issue if participants could have returned to the process and picked up their claim where they left off; however, very rarely was their information saved. In addition, often when a device crashed, it would crash again right after participants entered their DD/REF and licence plate number, and this would happen even if participants tried a different browser on their phone or cleared their history. Crashing rarely occurred when participants accessed the website on laptops and PCs.

2.3 Confusing and unclear aspects

The following are aspects of the vehicle damage online claim process that participants found unclear or confusing.

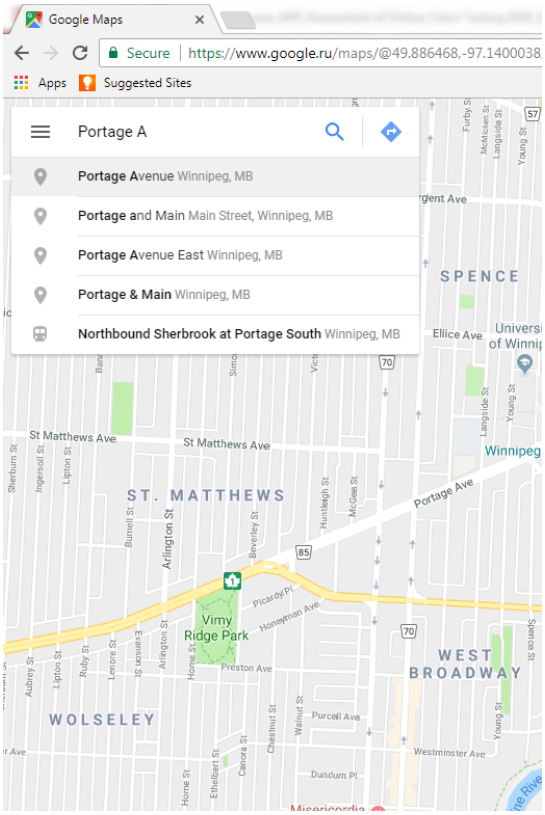
- **DD/REF.** To open a claim, participants were required to provide two pieces of information: the licence plate number of their vehicle involved in the claim and their DD/REF. Although participants were able to enter their licence plate number without incident, most participants entered their driver's licence number rather than DD/REF. Participants said it was because they were more familiar with the driver's licence number than their DD/REF and it is more prominent on their licence, so they assumed this was the information required. The link on the page that intends to show participants where the information can be found on their licence was not helpful, as it did not clearly identify where their DD/REF was found on their licence. Rather, it showed where all information on their licence could be found (image on the right). Participants said that an image of the licence with the DD/REF highlighted or circled should be on this page, or, if not, it should be the only thing that appears when they click on the link for assistance with finding their information.



- **Role in the incident.** Early in the process, participants were asked to "Select your role in the incident" and were presented with four options. Many participants were unclear of the definition of "owner" and found it confusing that the question was asking about two aspects: ownership and role. For clarity, they suggested breaking the question into two questions: vehicle ownership and role in the incident.

- **Date and time.** Participants had considerable issues navigating the date and time on a laptop or computer. On the mobile version, participants were prompted with a calendar to select the date, but they were not presented with a calendar on a computer unless they were on Chrome, in which case they had to click an arrow on the right-hand side of the input box, which most participants did not notice. Even with the example on screen of how information should be entered (mm/dd/yyyy hh:mm AM/PM), many participants made mistakes by inversing day and month, leaving out digits (e.g., 17 instead of 2017), or entering time in military rather than standard time. To assist, participants expected that a calendar option would be available (and apparent) regardless of device, and also thought that the question should be broken into two (date and then time).

- **Type of claim.** Some participants did not understand the difference between a single-vehicle and multi-vehicle collision, as some thought single vehicle meant a collision that involved their vehicle and one other vehicle, while a multi-vehicle collision was one involving three or more vehicles. This information was not confirmed until the next screen, where the definition of the collision was given. Participants expected this information to be available on screen when they select the collision type. In addition, some wondered how they would select a collision type if multiple types applied (e.g., multi-vehicle collision and collision with pedestrian).



- **Reporting street/highway**. Employees noted that an open text field for entering the street and cross street would make it difficult to code the location to develop data specific to the locations, especially since there were no checks for accuracy or what was being entered (for example, a participant could enter "behind my house" for the street). In addition, participants in the public groups indicated that this was not how they expected to select the location of their incident. Many said that they expected to be able to select the location using a map and dropping a pin on the location where the incident occurred, or at the very least, when they started to type the name of the street or cross street, there would be a generated drop-down list of streets based on the first few letter/characters entered (for example, as shown in Google maps in the image to the right).

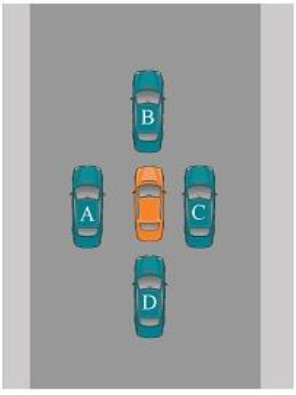
- **Vehicle confirmation page**. The vehicle confirmation page was very confusing to participants, even after the language on the page was changed after the first night of groups with the public. Most participants did not realize that they needed to click/select the information about their vehicle in the middle of the page prior to hitting the "Confirm" button. Due to this, many participants assumed that they had to hit the "Edit" button and were taken back to the beginning of the section, which most found very frustrating.

- **Drugs and alcohol question**. Older participants had some concern with this question, because as one participant said, "*I think anyone over 55 is taking some kind of medication for something on a daily basis*." Participants did not think it was necessary or relevant to be asked questions about medication prescribed by a doctor that should have no impact on their ability to drive a vehicle. Also, a few participants questioned how they should answer the question if multiple aspects were applicable (e.g., took medication and consumed alcohol).

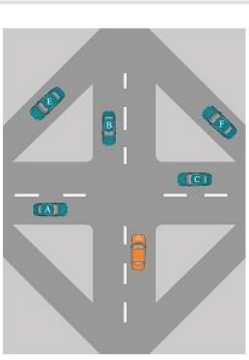
- **Questions without a non-response option.** There were many questions participants encountered throughout the process that they felt that they should not have to answer. In most cases it was because they felt that they did not know the answer to the question (or it was not relevant to their situation, discussed further in Section 2.4). Participants wanted to have the option of "Don't know" for the following questions:
  - Winter tires
  - Vehicle suspension damage (Yes or No)
  - Damage to undercarriage (Yes or No)
  - Police incident number
  - Speed which you were travelling
  - Speed limit
  - Direction vehicle was travelling

- **Statistics questions.** A few questions in the statistics section confused some participants, most often the following:
  - Light conditions – Participants were unsure of the difference between "Street lights" and "Dark," since street lights come on at night. One participant wondered when lights would be "Not applicable."
  - Weather conditions – Participants wanted to be able to select more than one option, since weather is not always one aspect (e.g., windy and cloudy).
  - Vehicle collided with first – It was unclear to many participants what a "Movable object" is and what would qualify under the "Other" category. In most cases, participants felt that "Another vehicle" would be the most common answer, and it was not available.

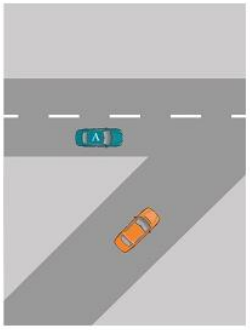
- **Selecting accident type.** Participants had significant difficulty selecting the right situation that defined their collision. For example, many participants experienced rear-end collisions that occurred at an intersection or yield. In these cases, participants would select one of the two options shown to the right; however, these were not the correct options to select for a rear-end collision. It was not clear to participants that the image to the left was the one that should have been selected to report a rear-end collision, which appeared to be the most common type of collision participants tested.



4:
My vehicle and other vehicle were travelling on same roadway in the same direction



1:
My vehicle was in or near an intersection.



2:
My vehicle was at or near a yield.

The issue with this question is that the options include a mix of location (i.e., intersection and yield) and the mechanisms of the collision (e.g., rear end, side hit, etc.), so it is not clear to participants which option they should select that best fits their claim.

Another issue was that one participant mentioned that for those who are colour blind, the colours used to differentiate the cars do not necessarily work well.

- **Questions about "the vehicle."** Several pages included a question that used the term "the vehicle" and participants were confused when reporting a multi-vehicle collision because they were unsure if the question referred to their vehicle or the other vehicle(s) in the collision. Examples include the following:
  - Did the vehicle have winter tires on it at the time of the incident?
  - What direction was the vehicle travelling?
  - What was the estimated speed of the vehicle at the time of the incident?
- **Selecting an auto body shop.** For the testing, the online process appeared to default to a random or pre-set postal code when showing available auto body shops; however, even if the default was participants' postal code, this method of searching was not intuitive, because often the auto body shop they were looking for was not one that was close to their home. Participants would rather search by auto body shop name or search using a map.

2.4 Issues with consistency of questions

One of the participants' primary concerns with the questions (other than issues with being able to navigate through the process) was that many questions were either irrelevant to their claim or should not have been asked based on their answers to previous questions in the process. Below are some of the most commonly cited consistency issues that participants encountered (most of which were encountered when the vehicle was parked or not on a roadway):

- **Vehicle driven FROM page.** On the previous page (vehicle driven TO), participants expected that if they selected "Parked," it would not ask the FROM page, since they had indicated that it was parked.
- **Medication, drugs, and alcohol.** If participants stated that the vehicle was parked, they wondered why they were asked questions about their consumption of medication, drugs, or alcohol.
- **Type of collision.** Although participants indicated that the vehicle was parked, the process asked for the details of the collision again.
- **Type of road.** When participants already indicated that the vehicle was parked in a parking lot, it asked about the road and/or roadway.
- **Speed limit.** If the vehicle was parked or in a parking lot, participants wondered why they were being asked about speed limit.
- **Direction vehicle travelling.** If the vehicle was parked, participants could not provide a direction of travel.

Although these issues would not necessarily stop participants from submitting their claim online or calling in to report their claim, for some it raised concerns that they had answered previous questions incorrectly or had selected the wrong response. These concerns led to doubts about the accuracy of their liability assessment and, if they had answered questions incorrectly, if that would impact their claim.

For others, the issue was simply one of convenience; they would not expect to be asked irrelevant questions when phoning in their claim. This would cause their online claim to take longer than phoning to open their claim (or extend their online claim longer than it absolutely needed to be).

2.5 Other issues

Participants identified these other issues when completing their claim:

- **CAPTCHA.** The first page (CAPTCHA) says to "*please type the word below*," but all examples were numbers.
- **Telephone number.** Participants could enter a contact telephone number of less than 10 digits or more than 10 digits.
- **Drop-down lists for province.** For some of the drop-down lists for provinces, U.S. states appeared before Canadian provinces (and specifically Manitoba).
- **Vehicle image when indicating damage.** A few participants mentioned that when selecting the damage to their vehicle, the image did not match their vehicle (e.g., showing a four-door car versus a two-door truck).
- **Statistics section.** Some participants raised concerns with the statistics section because they felt that this section took the longest to complete and was the least intuitive to answer. As well, because it had no bearing on their claim and the liability assessment, many questioned why this was the longest section of the online process in terms of time required to complete. Some felt that the statistics questions should be answered after completing their claim so that irrelevant questions would be skipped (as noted in the previous section).
- **Spelling error.** In one question, an option read "Staring in traffic" and should have read "Starting in traffic."

2.6 Suggestions for improvements

In addition to the issues and suggested improvements identified above, participants also put forth several suggestions to improve the overall process.

- **Online chat option**. Although participants liked the idea of being able to call a representative at any time to carry on their claim, many participants (especially younger ones) thought it would be more convenient to have a chat option where they could ask questions or get clarification. Many participants said that if they started the claim online, they would want to continue the claim online, and would prefer to ask a clarification question in a chat option.
- **Moving the open text question earlier**. In the tested version, participants were not able to provide a written description of their claim unless they declined their liability assessment. Since many participants did not decline their assessment, they were unaware that this field existed; however, some wanted the ability to give this information prior to their liability assessment. For participants, this question would need to be optional (i.e., have the option not to provide details), and it would need to be clear that this information would only be viewed by an adjuster if they declined their liability assessment.

- **Getting information about their claim**. In a few places throughout the process, participants were able to input their email address to send themselves their answers to questions; however, there was no option at the end of the process to send themselves information. Participants wanted the ability to email themselves their claim information, most importantly their claim number and bookings for any visits to a Service Centre, with an adjuster, or with an auto body shop. There was very little interest in printing and/or a mail option (since they could print the PDF if they wanted to from their email). In addition, if asked for their email address, they wanted to be asked once, rather than two separate times, as is the case in the tested version.

3.0 Assessment of liability

Overall, participants had very few concerns about receiving their liability assessment at the end of the process. For recent claimants, almost all received a liability assessment that matched the assessment on their most recent claim, and had no concerns about accepting the liability assessment. For one claimant whose outcome did not match, it did not appear that the process properly allowed for him to identify the nuances of his collision (a vehicle turned the wrong way down a one-way street and hit him head on in the left-hand lane while he was stopped).

A major concern that participants raised is that because many did not feel that the process understood their claim (either by asking irrelevant or confusing questions), they were unsure if their liability assessment was accurate and if it would differ if they were to phone in their claim.

Another issue is that many participants did not seem to understand the outcomes associated with selecting "Decline" when presented with their liability statement. Most participants did not understand that if they declined their liability assessment that they would have the opportunity to provide a description of the claim in their own words (which would be provided to an adjuster) and then have the opportunity to speak to an adjuster about their claim. When the moderator explained this process to participants, most thought this information should be explicitly stated prior to the liability page, as they did not believe the tested version gave this information (or stated it clearly). If the process was clearly stated, this would ease any concerns that participants had about their liability being assessed by a "*computer*" rather than a person.

4.0 Overall assessment

There were several key areas for assessing the online claim process and are discussed below.

- **Ease of use.** Generally speaking, participants found the online process easy to use, in spite of what seemed like considerable issues with stability (i.e., crashing) and length of time to complete. The major challenges around ease of use were related to participants' comfort that they were providing the correct answer to each question and how quickly they completed the process. The less they felt that they were answering correctly or the longer the process was taking, the less likely participants were to describe the process as easy to use.

- **Length of time to complete.** Although the first page of the process indicates that the process should only take 10 to 12 minutes to complete, the process took 25 to 60 minutes for participants; however, assessing the time to complete was difficult since participants were asked to record any issues encountered while completing the process. For those who were able to complete it a second time, the time to complete was still over 20 minutes.

  Most participants agreed that the time to complete the online process was longer than the time it takes to complete the process when speaking to a representative from the Corporation. However, when some included the wait time on the phone, they thought the online process would be faster.

- **Likelihood to complete online.** Most participants said that they would complete their next claim online if the process was available, and most of those who answered "Maybe" said it would depend on the claim. Many participants said that if the claim was complicated (e.g., three or more vehicles involved in the collision) or if liability may not be clear, they would be more likely to open their claim on the phone than online. They felt that speaking to someone would be easier and that they would be more likely to receive the information they would be looking for about their claim. For those who said "No," it was most often because the online process took longer than they thought it would take to open their claim on the phone.

Table 1: Expected use of online claim website
If the online claims registration process was available, would you use it to register a claim with Manitoba Public Insurance?

	Would use	Maybe	No	No answer
Focus groups (n = 73)	43	18	5	7

Note: These results are not representative of the MPI customer base. Respondents were recruited based on their likelihood to use an online application, if they were unlikely they were not recruited to conduct testing.

- **Recommending the process.** Most participants said they would recommend the process to friends or family, with the exception of those with complex claims (for reasons noted in the previous bullet) and those who are technologically illiterate.

- **Privacy.** Participants did not have any concerns about their privacy because the site was secure (https) and there was nothing that they were asked or required to provide that they were overly concerned about someone else knowing.

5.0 Key findings

Despite what we perceived as significant technical issues (i.e., random crashing, length of time to complete, etc.), participants were very positive about the online claim process and most would likely use the process if it was available. Participants see the value in having an online option available to report their claim, and expect that many of the tweaks/issues they encountered will be fixed to improve their user experience.

With that being said, there are issues that participants encountered that would be significant obstacles for using the process and diverting people from phoning in their claim to completing their claim online. These include the stability of the process on mobile devices (i.e., random crashing) and the time to complete the process.

The former issue should be rectified; however, the latter issue may require significant changes to the process. The easiest way of improving the time to complete is to reduce the loading times between pages, which should reduce the average time by at least three to four minutes. Also, examining the relationship between questions to determine where redundant or irrelevant questions can be skipped based on answers to previous questions would help to reduce the time to complete. Reducing the time to complete the process is important because it was one of two major considerations that participants used when deciding if they would use the online process or phone it in, with the other being the perceived complexity of their claim.

The other issues related to clarity of questions/response options should easily be fixed with re-wording the questions/response options or providing information for participants (e.g., online chat, clickable hints, or information on the page); however, the ones that require the most attention are those that impact the liability assessment. If participants do not trust that the information they are entering is correct, they are likely to discontinue the online process and phone in or decline their liability assessment.

Appendix A — Employee focus group moderator's guide

Claim Prototype Instruction Sheet
Employee Focus Group

Thank you for participating in today's testing of Manitoba Public Insurance's online claim form. Today you will be testing a prototype of the form, so your feedback will help shape the development of the final online application.

Before we begin I have some instructions for you:

- As mentioned, the website is still in testing form.
- Please think of a claim that you have recently encountered as part of your job. If you don't deal with claims, please think of a claim you have made with the Corporation, or simply make up a claim. You may also use one of the sample claims scenarios in our handout If you are finished within 30 minutes, please begin another scenario and I will give you time at the end to add any additional comments to your form.
- When identifying issues, think about areas where you were not able to do what you wanted, what words/terms did you not understand, what did you find confusing or unclear, and what aspects did you want that weren't there.
- Please sign the consent form prior to beginning the test.

[FOR DISCUSSION AT END OF GROUP]

1. How clear were the instructions? What was missing to make it clearer?
2. Were there any aspects of the claim or pages that were confusing or difficult to answer? What did you do to understand how to proceed? Are there areas that you think a customer might find difficult? Explain.
3. Did the form include terms that you think customers may find difficult to understand?
4. Was the amount of time it took you to complete the claim appropriate?
5. What other issues or suggestions would you have to improve the process?
6. Was there any important information missing from the online claim form that should be collected?
7. From a customers' point of view, what do you think will be some road blocks to using the online form? What do you think are the benefits?

FEEDBACK FORM

Please list any issues you encountered using the website. This can include technical issues, terms that are not explained well enough, instructions that were not clear or any menu options where it is unclear how to proceed.

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

Overall, what do you like best about this website?

_____

_____

Overall, what change would you most recommend to improve the website's usability?

_____

_____

Overall, what other change(s) would you recommend to improve the website's usability?

_____

_____

Appendix B — One-on-one guide

Claim Prototype Instruction Sheet
Public Focus Group

Thank you for participating in today's testing of Manitoba Public Insurance's online claim registration process. Today you will be testing a prototype of this new online service, so your feedback will help the Corporation make changes so that is functional for all users.

Before we begin, I have some instructions for you:

- There are no right or wrong answers. We invited you here today to provide your opinions, so please provide your honest opinions even if they are different from others in the group.
- Please try to speak one at a time, so the entire group can hear your comments. Please avoid side conversations while others are speaking. One of the reasons we invited you to the group is to listen to what others have to say.
- To ensure that everyone has an opportunity to speak, I may call on you to get your opinion. Conversely, I may interrupt you, not because what you have to say is not important, but to allow others to have the opportunity to speak.
- Because we are audio-taping our discussion tonight, please try to speak up and talk one at a time. We audio-record the group in order to make sure that our notes accurately reflect what everyone says here tonight. We will not use your name in our report, and after the report is complete we will destroy the tapes.
- What we are showing you here is confidential and that you should keep the information confidential outside of this group.

[REFERENCE TO VIEWERS]

Before we begin, does anybody have any questions? First, let's go around the table. I would like each of you to introduce yourself and mention what you do for a living, how often you drive, how many years you have been driving, and what area you live in.

INSTRUCTIONS (CLAIMANTS)

Before we begin, I have some instructions for you:

- As mentioned, the new claim registration process is still in a testing state.
- When completing the new claim registration process, please think of your most recent claim for vehicle damage with MPI. Once you have gone through your scenario once, please try to enter it a second time using the same website provided.
- When identifying issues, think about areas where you were not able to do what you wanted, what words/terms did you not understand, what did you find confusing or unclear, and what aspects did you want that weren't there.
- Please sign the consent form prior to beginning the test.

INSTRUCTIONS (NON-CLAIMANTS)

Before we begin, I have some instructions for you:

- As mentioned, the new online claims registration process is still in a testing state.
- When completing the claims registration process, we have given you three broad scenarios for a vehicle damage claim. Please use one of these when entering a claim. The scenario has very little information, so please feel free to make up the rest of the collision as you go through the form. Once you have done it once, please select another scenario and complete it again using the same website.
- When identifying issues, think about areas where you were not able to do what you wanted, what words/terms did you not understand, what did you find confusing or unclear, and what aspects did you want that weren't there.
- Please sign the consent form prior to beginning the test.

SECTION 1: INITIAL INSTRUCTIONS

1. When starting the claim, how clear were the instructions? What was missing to make it clearer?
2. Were there any words or terms used in the initial instructions that were unclear? What were those?
3. Was it clear how you should start the claim? [PROBE: What button to click? Where the button was?]

SECTION 2: WEBSITE USABILITY

4. Were there any aspects of the claim or pages that were confusing or difficult to answer? What did you do to understand how to proceed? [Probe to understand the types of questions that people are having difficulty with]
5. Did you have a time where you could not advance to the next page because you were doing something incorrect? What page was it? What issue did you encounter?
6. Were there any words or terms used throughout the claim that were unclear? What were those?
7. Did you feel like you had enough sufficient opportunities to review your answers before they were sent off/submitted? Was there any point where you went back in the claim to edit or change information? What was that? Why did you have to do that?
8. Were there any questions you thought were missing that should have been asked? What were those?
9. Were there functions that you would have thought should be there but weren't? [For example option to submit photos, link to maps, etc.]
10. If you were completing this claim online in real life, would there have been a time where you would have given up on the claim and called MPI to open your claim? When was that? Is there something that could be changed about the new online claims registration process that would have allowed you to continue to the claim online?
11. Was it clear about how to get help/information?
12. Was the flow through the new online claims registration process logical? How about the tools within the application, were they intuitive? How did the screen layout work for people? Did you find the amount of information on the page worked well? Did you have to do a lot of scrolling?
13. Would you describe the online claims registration process easy to use? Why or why not?

SECTION 3: LIABILITY

14. How did you feel about getting your liability assessment at the end of the claim? Does it feel different than getting a liability statement through the mail or verbally from a person?
15. [FOR CLAIMANTS] Did your liability assessment match your most recent claim? How was it different?
16. Was it clear what to do after you received your liability assessment?
17. Did you decline your liability statement? Why was that? What would make you more likely to accept it?
18. How likely would you be to accept the statement of liability online? In what situations might you not accept the statement and prefer to speak with an adjuster?

SECTION 4: OVERALL IMPRESSIONS

[HANDOUT QUESTIONNAIRE]

19. Overall, what are your impressions of the new online claims registration process? In its current form, how likely would people be to use it to open a claim?
20. Was the amount of time it took you to complete the claim appropriate? Why or why not? Did anyone feel it got to be too long and they would rather have just called in? How long do people feel they would invest in the online process before they would simply call in? Was the process efficient? If not, what could be done to improve efficiency?
21. After going through the new online form, how does it differ from your expectations? How does the process feel different than going through a phone process?
22. In what situations would you open your claim online versus phoning MPI? Why would you use online/not use online in these situations? What are the benefits of opening the claim online? What are the benefits of phoning?
23. What might prevent you from opening the claim online versus phoning MPI? [PROBE: Amount of time to complete claim online]
24. When you have needed to make a claim, what are the steps you have gone through? [PROBE: How did you find the number to call? How did they know when to call? How did they know what information to have?]
25. How do you feel about dealing online vs. a person (don't ask directly but if it comes up explore the idea to see if they felt 'heard'.)
26. Are there any privacy concerns with filing a claim online compared to filing a claim in person?
27. If the online system expanded in the future to allow for filing injury claims, would this be of interest? In what situations? Why or why not?
28. Would you recommend the online process to others? How likely would you be to give this process a positive review online, or speak positively about it online (i.e., through social media)?
29. What other issues or suggestions would you have to improve the new online claims registration process? What capabilities may be missing?

FEEDBACK FORM

Please list any issues you encountered using the website. This can include technical issues, terms that are not explained well enough, instructions that were not clear or any menu options where it is unclear how to proceed.

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

ISSUE: _____

QUESTIONNAIRE 1

Overall, what do you like best about the new online claims registration process?

_____

Overall, what change would you most recommend to improve the usability of the new online claims registration process?

_____

Overall, what other change(s) would you recommend to improve the new claims registration process' usability?

_____

_____

If the online claims registration process was available, would you use it to register a claim with Manitoba Public Insurance?

Yes ..... ☐

No ..... ☐

Maybe ..... ☐

Please explain your answer from the question above.

_____

_____

_____

_____

Appendix C — Device types

Table: Device types used for testing	
	Count
Desktop computer (Windows)	26
Laptop	15
iPhone (unknown)	6
iPad	4
Samsung Galaxy S7	3
Samsung Galaxy S8	3
iPhone 7	2
iPhone 6	2
iPhone 6S	2
LG G6	2
Samsung Galaxy S5	2
Tablet (unknown)	2
Samsung Galaxy S8+	1
iPhone 8	1
Android	1
Google Pixel 2 XL	1
LG T5	1
Chromebook	1
LG Nexus 5X	1
Macbook Air	1
Surface 3	1
Samsung Galaxy S6	1
Samsung (unknown)	1
Windows tablet	1
Unknown	17

CAC (MPI) 2-34

Part and Chapter:	**PUB (MPI) 1-69**	**Page No.:**	**2**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Spending**		
Sub Topic:	**PDR**		

Preamble to IR (If Any):

In response to PUB (MPI) 1-69 d) page 2 it states:

"The Loss of Use (LOU) benefit stream projections assume that the Corporation and Manitoba repair shops will agree to transition from the 'touch time' Loss of Use allocation model to the more industry-prevalent Daily Allocation Formula (DAF) model. The DAF model presents an opportunity for repair shops to self-manage LOU expenses and incentivizes them to manage the repair process efficiently."

Question:

For greater clarity please explain and list the differences of the touch time Loss of Use allocation model and the Daily Allocation Formula model.

Rationale for Question:

To clarify for greater understanding of two loss of use models.

RESPONSE:

Since the filing of its response to PUB (MPI) 1-69, the Corporation has decided not to pursue a transition to the Daily Allocation Formula (DAF) model. Instead, MPI is pursuing options to lower the daily rate (and therefore overall loss of use (LOU)

expense) with existing loss of use providers by agreement, rate card or Request for Proposal, as seen in other crown jurisdictions. MPI made this decision because the repair shops have little or no experience with managing LOU expenses under the DAF model. In addition, MPI had not negotiated use of the DAF model into the industry agreement, nor were the repair shops willing to participate in this model.

However, in response to the question posed, the following is an explanation of the two models:

Under the current "touch time" model, the requester (typically a rental car agency) enters a request for LOU via a LOU partner portal with MPI. MPI then reviews (automated and/or manual process) and approves/denies LOU based on coverage and business rules. MPI manages all LOU transactions. Every change in activity and event requires separate approval from MPI, which slows the process and increase duration of rental usage.

Under the DAF model, repair shops primarily manage LOU transactions. Essentially, where the vehicle is repairable, every rental duration gets a "fair allocation" of days, based on industry average "touch times" for repair and tied to cycle times. DAF eliminates the frequent back and forth between MPI and rental agencies.

- The estimated labour hours will be multiplied by the DAF to arrive at the number of days of rental due to the physical repair. Other factors affecting the duration of the LOU are then added to the DAF as allowances.

    - Proposed DAF of 0.33 (industry standard)
    - DAF is applicable to shop repair time and therefore within the control of the shop
    - Sample repair with 20 hours of total repair time
        - 20 hours x .33 = 6.6 or 7 days of loss of use

- Allowances – there are a number of allowances made for items outside the repair shops control, including:

- 1 day for paint dry time; 5 days for PDC estimating on a non-drive; 5 days for adjusting on a marginal claim or a total loss; 2 days on a non-drive parts delay. There are no allowances for a drivable, repairable vehicle (other than paint dry time).

CAC (MPI) 2-35

Part and Chapter:	**Part IV** **02 Value Management** **Appendix 1 Technology Risk Management**	**Page No.:**	**1 of 27**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Business Cases for: Application Risk Management, Information Security Risk Management and infrastructure Risk Management**		
Sub Topic:	**Monitoring and Reporting of Project Objectives & Benefits**		

Preamble to IR (If Any):

The Business Case document states in the project objectives section: " *….for each of the upgrade/improvement initiatives listed above in the project objectives section, a separate set of project documents will be completed. The individual project documents will address detailed project objectives/benefits and the monitoring of costs and benefits."*

Question:

Based on the proposed start date of these initiatives (April 2018), can MPI provide copies of the project progress documents for the various business cases that have been developed to date, indicating how the monitoring of project costs and benefits is progressing.

Rationale for Question:

To understand the operational aspect of the Value Management process as it relates to in-flight projects for which a business case has been articulated. Progress reports will provide indication/evidence of how the VM process is delivered.

RESPONSE:

The most recent status report on initiative progress has been provided in PUB (MPI) 1-72 Appendix 2, pages 10 and 11. Please note that a redacted version of this information response has been filed on the public record as part *MPI Exhibit 9*. An un-redacted version is the subject of a motion for confidential treatment.

The rational for the question is to understand the ongoing relationship between Value Management and initiatives. The following discussion of the Technology Risk Management (TRM) initiative illustrates the approach and interactions with Value Management:

Intake: As part of the planning for 2017/18 budget cycle, IT engaged a broad group of management and leaders to identify priority areas for investment for the TRM program. MPI leveraged the Value Management business case template for data collection purposes, as the template was the best available document for the purpose and used the value management workflow (tracking process) to register and follow the documentation of the proposed initiatives. The use of the Value Management business case template and tracking process allowed for the creation of multiple parallel TRM initiative proposals and for the consistent evaluation of initiative proposals.

Alignment: IT Senior Management evaluated the proposed initiatives (documented in the business case template) recommended for the TRM program and approved them for inclusion in the four TRM business cases. Management then reviewed and approved these business cases using all the steps in the Value Management process. By combining individual initiative proposals into larger business cases, management optimized resource utilization and were able to compare year over year investment by risk area (infrastructure, application, security, and enterprise risk).

Delivery: MPI created an overall TRM charter to align and govern the delivery of all projects. Ideally, MPI would have created one project for each of the four business cases above (i.e. infrastructure, application, security, and enterprise risk). However, challenges in resource and solution availability in Q1 required the subdivision of some

projects to maintain the existing schedule. As a result, one or more projects delivered the infrastructure, application, security, and enterprise risk business cases. MPI is making efforts to retain the synergies gained during alignment while ensuring the traceability of actions back to particular business cases and to original proposals. As MPI wishes to avoid making the process overly complicated, it is emphasizing the use of project charters (which clearly links the project back to the business case and initiative proposal) and is requiring the documentation of project changes and their review by Value Management. Supporting project documents such as the project plan, schedule, and budget each link back to project level charters.

Tracking: To date, the Value Management Office (VMO) has tracked the objectives, scope, deliverables, cost budget and benefits outlined in the TRM-approved business cases to the related project charters. In addition, VMO is currently validating several formal change requests initiated on these projects, ensuring that the business cases remain up to date and reflect the changes to project scope, cost budgets, cost benefits and the resulting net present value calculations. VMO approves all change requests, which affect the business cases. VMO will continue to monitor projects and, at project completion, will ensure the preparation of closeout reports, which reports will form part of the post-implementation review that measures the realization of the deliverables outlined in the updated business cases.

CAC (MPI) 2-36

Part and Chapter:	**Part IV** **02 Value Management** **Appendix 1 Technology Risk Management BC**	**Page No.:**	**21 & 22**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Business Cases for: Technology Risk Management Program, Risk Registry Remediation**		
Sub Topic:	**Monitoring of Actual Project Benefits / Impact Analysis**		

Preamble to IR (If Any):

The Business Case document states in the Impact Analysis section (page 22): "*….Based upon the insights gained from IBM Resiliency Services (RS), Gartner, and findings from major incidents which occurred in 2017-18, it is recommended that outside expertise be brought in to augment the existing team and cross-train MPI resources (providing long term capability).*"

Question:

a) Can MPI provide qualitative examples of the 'major incidents' that are referred to, and the impact that these would have had to MPI's IT Service Continuity?

b) What were the identified root causes, lessons learned and remediations that would have been put in place for those major incidents?

Rationale for Question:

To understand how MPI current handles Incident Management and Business Continuity processes, to gain insight into the need for bringing in outside expertise.

RESPONSE:

a) Two major incidents referred to:

i. A major incident occurred in early January 2017 which had 3 hours of impact to over 50 MPI applications. Review and follow-up occurred as part of the problem management process.

ii. A second major incident occurred in January 2017 which had 6 hours of impact to all major MPI applications and required the execution of disaster recovery protocols to resolve. Review and follow-up occurred as part of the problem business continuity management process. An after incident report was created and tracking of action items is reviewed / followed up quarterly. Details of this incident were provided in a confidential response to PUB (MPI) 2-31 in the 2018 GRA.

b) In the first major incident, the root cause (specific hardware component failure) was identified and remediated successfully (via hardware replacement and system software updates). The two recommendations (specific technical changes), generated by the problem management process have since been resolved.

In the second major incident, the root cause (multiple hardware component failures) was identified and remediated successfully (via equipment replacement and subsequent full platform replacement in 2017/18 leveraging the IBM vitality clause). The disaster recovery process identified 25 recommendations at varying levels of detail (people, process, technology), which are at varying stages of resolution (tracked and reported quarterly).

Two business impacting major incidents in one month, with significantly different recommendations raised questions about the potential for systemic gaps. External expertise was leveraged to assess MPI's overall capability and make recommendations. These recommendations were reviewed, and remediation actions are included in the scope of the Technology Risk Management: Risk Registry Remediation project (2018/19).

CAC (MPI) 2-37

Part and Chapter:	**Part IV** **04 Benchmarking** **Attachment A**	**Page No.:**	**6**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**MPI IT Benchmarking and Maturity Assessment**		
Sub Topic:	**Key Takeaways from the Analysis**		

Preamble to IR (If Any):

Key Takeaways/Findings included the following key statement from Gartner: *"Similar to previous years, MPI spends 62% of the IT budget on personnel versus 45% for the peers. 32% of MPI's IT staff is made up of contractors vs. 24% for the peers. Higher staffing levels relative to peers is particularly evident in Infrastructure and Operations"*

Question:

What are the performance targets that MPI is hoping to achieve going forward in terms of a 'steady state' for its IT Operations for both sets of metrics (% of IT budget spent on personnel, and % of IT staff allocated to contract personnel)?

Rationale for Question:

To understand MPI's commitment to maintaining a healthy ratio of internal versus contract staff; additionally, to determine MPI's intent regarding establishing and monitoring a target IT spending ratio relative to its industry peers.

RESPONSE:

MPI is actively working towards a healthy ratio of internal vs. contract staff and expects reductions % of IT staff allocated to contract personnel moving forward. MPI aims to become / remain in line with industry peers.

MPI does not have a specific target for % of IT spend on personnel as the difference between MPI and its peer group is significantly influenced by other areas (such as overall hardware and software spend) where MPI spends differently than its peer group. In lieu of using this measure, MPI remains focused on demonstrating responsible IT spend as a % of OPEX (see *Part IV Benchmarking Attachment A*, Page 7) with a goal of remaining in-line with the industry peer group. This is the key metric MPI continues to monitor and work towards.

A key part of how MPI will achieve reductions to IT spend as a % of OPEX is through continued alignment to the peer group on a % of OPEX is reductions to the use of External Labour. This will result in net expense savings and effectively drive reductions in % of the IT budget on personnel and % of IT staff made up of contractors. MPI is working to be comparable to the industry peer group (see *Part IV Benchmarking Attachment A*, Page 11).

CAC (MPI) 2-38

Part and Chapter:	**Part IV 04 Benchmarking Attachment A**	**Page No.:**	**13**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**MPI IT Benchmarking and Maturity Assessment**		
Sub Topic:	**MPI's Spending on Outsourcing and Maintenance**		

Preamble to IR (If Any):

MPIs spending outsourcing and maintenance is significantly higher than the peer group average for Infrastructure and Operations

Observations:

- Outsourced spending is 3.3X higher than the peer group average
- Maintenance costs are 3X higher than the peer group average
- MPI's outsourcing costs include a prepayment for future upgrades as part of a 'vitality' clause in the IBM contract which avoids large single year increases, but presents a higher yearly cost than might be expected.

Implications:

- *MPI may benefit from an assessment of the competitiveness of the outsourcing and maintenance agreements"*

Question:

Does MPI intend to follow up on the implicit Gartner recommendation to perform a competitive assessment of IT outsourcing and maintenance arrangements? Has such an assessment been performed previously?

Rationale for Question:

To understand MPI's commitment to maintaining a healthy ratio of internal versus contract staff; additionally, to determine MPI's intent regarding establishing and monitoring a target IT spending ratio relative to its industry peers.

RESPONSE:

As shared in *CAC(MPI)1-48*, part b:

> MPI completed a light assessment of the IBM data centre agreement utilizing Gartner's services in 2016. This was executed in preparation for the second part of the 10 year agreement; the 5 year renewal of the IBM data centre agreement. In 2018 MPI plans to complete a full independent benchmark of the IBM data centre agreement.

MPI continues to apply leading practices (such as the tendering process) to ensure optimal pricing is received on maintenance agreements. MPI actively leverages Gartner research and Gartner analyst insights to assist in optimizing the cost effective purchase of these agreements. MPI is actively working with Gartner, as part of the benchmarking process, to understand and explain the differences between MPI and the peer group as it relates to maintenance agreements. It is anticipated that further information will be included in the next Gartner Scorecard (GRA 2020) to help explain the differences in maintenance.

CAC (MPI) 2-39

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:			
Sub Topic:	**Customization of Off-the-shelf (COTS) software products**		

Preamble to IR (If Any):

MPI's current business practices involving the customization of common off-the-shelf COTS software products often involves writing significant custom code.

Question:

a) What are the current and proposed MPI standard/practices regarding the acquisition and customization of COTS software solutions?
b) How does MPI address definition of and compliance with business requirements in the selection and implementation of COTS software?
c) What approach does MPI use to assess and justify the effort and costs associated with significant COTS software customizations?

Rationale for Question:

To understand MPI's approach to selection and subsequent customization of COTS software, in view of industry standards of good practice regarding the identification of business requirements and related software acquisition and implementation methods.

See, for example, the following references:

https://ptgmedia.pearsoncmg.com/images/9780735679665/samplepages/9780735679665.pdf

http://siteresources.worldbank.org/EXTFINANCIALMGMT/Resources/313217-1196229169083/4441154-1196275288288/4444688-1196371176805/MakevsBuy.pdf

RESPONSE:

Please refer to the IT Strategy, Section 6 Guiding Principles in Appendix 2 for the referenced principles.

a) MPI has defined Enterprise Architecture principles that favour selection of Commercial off the Shelf (COTS) products over custom development solutions where suitable marketplace solutions exist. MPI will seek to standardize its products and processes, where prudent, to avoid uneconomical customization of COTS.

b) MPI evaluates commercial software through a Request for Proposal (RFP) process. An RFP documents the business context and identifies the mandatory and non-functional requirements the COTS must satisfy. MPI evaluates vendor responses against its requirements and chooses the best solution.

c) MPI only customizes COTS products where the vendor provides a framework for customization. Many of the COTS packages used in MPI are never customized. If customization is considered, MPI calculates the total cost of ownership of the customization looking at:

- the one-time cost of the customization for MPI and the Vendor;
- yearly operational costs of the customization for MPI and the Vendor;
- impacts to future upgrade paths, namely, whether customization would preclude upgrades; and
- the business impacts and costs of not proceeding with the customization.

CMMG (MPI)

CMMG (MPI) 2-1

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

When the 2017 actual losses as indicated in Fig. 1 of CMMG IR 1-4 are compared to the 2017. PIPP incurred motorcycle losses in Fig. 2 of MCCM IR 1 - 7, there is a substantial difference in the amount of the losses ($10,004,678.00 v. $5,623,016).

Question:

Given that PIPP losses make up almost all of motorcyclists incurred losses, why is the CMMG IR 1 - 7 number almost half? Even if the Fig. 2 numbers are not ultimate, this should not explain the magnitude of the discrepancy.

Rationale for Question:

RESPONSE:

The difference between the $10.0M and the $5.6M is a result of multiple factors:

- The $10.0M figure reflects total ultimate losses for the motorcycle major class based on the PUB approved PIPP claims cost allocation. Of this $10.0M, $8.4M relates to PIPP ultimate losses.
- The table below presents the derivation of the $8.4M in PIPP ultimate losses. Actual PIPP losses as of February 28, 2018 (i.e. before consideration of loss development) are $4.2M.

Figure 1: Motorcycle Major Class PIPP Losses

Line No.	Loss Ins Year	Incurred Claims [a]	Loss Devt Factor [a]	Ultimate Incurred Claim
1	**Accident Benefits - Other (Indexed)**	1,833,768	1.1729	2,150,839
2	**Accident Benefits - Other (Non-Indexed)**	1,434,503	1.5794	2,265,642
3	**Accident Benefits - IRI**	950,074	4.1410	3,934,279
4	**Total**	4,218,345		8,350,759

5 Notes:

6 [a] Per Part V, Ratemaking, RM Appendix 9, pages 60 to 62

- The PUB-approved PIPP claims cost allocation explains the remaining difference between the $4.2M in actual PIPP losses as of February 28, 2018 and the $5.6M amount found at Fig. 2 of MCCM IR 1 - 7 (i.e. $1.4M). Specifically, the $5.6M figure reflects actual PIPP losses as of February 28, 2018 before the cost allocation and the $4.2M figure reflects actual PIPP losses as of February 28, 2018 after the cost allocation.

CMMG (MPI) 2-2

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Referencing *CMMG (MPI) 1 - 11, Appendix 1*

Question:

Please explain interest transfer from retained earnings from 2009 to 2013, explaining the significance of the brackets or lack of same and explaining the abbreviations "ITF" and "ITOF".

Rationale for Question:

RESPONSE:

From 2009/10 to 2013/14, in column (f), the amounts in brackets depict that amount transferred from the Rate Stabilization Reserve (RSR) to the Basic Retained Earnings. Amounts were transferred from RSR to Retained Earnings if the balance exceeded the RSR target. The amounts not in brackets in column (f) depict amounts that had to be transferred back from Basic Retained Earnings to the RSR if the RSR balance did not exceed the RSR target.

The abbreviation “IIF”, as defined in column (k), is Immobilizer Incentive Fund. The abbreviation “ITOF”, as defined in column (l), is Information Technology Optimization Fund.

In columns (g) & (h), the amounts in brackets depict a transfer from the Rate Stabilization Reserve to IIF or ITOF. The amounts not in brackets in column (g) depict a utilization of the fund. The amounts not in brackets in column (h) depict the closing of the ITOF as it was not utilized.

CMMG (MPI) 2-3

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

CMMG/MPI 1 - 9 indicates that the Alberta rates were based upon the average of several private insurers.

Question:

Kindly provide each of the rates that were averaged together.

Rationale for Question:

RESPONSE:

A third party is used to obtain coverage and premium information for private insurers under agreement for the purposes of comparing vehicle rates. The names of the specific companies and the individual rates used in the analysis are considered to be proprietary information and can be used only for the purposes of publishing aggregated comparative vehicle rate information. A dispersion analysis of the rates, including the minimum, maximum, 25th percentile, and 75th percentile dispersion, is provided in the following table.

2004 GMC Sierra 1500 Extended CAB 50 year old male primary driver, claims and convictions free, and no secondary driver	Calgary
Minimum	$1,044
Maximum	$1,811
Median	$1,408
25th percentile	$1,107
75th percentile	$1,494
Average	$1,362

Currently, there is no single third-party data service that provides comparative rates from private insurers for motorcycles in Canada. The Alberta rate is a single rate quote.

INTERVENER EVIDENCE

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

INTERVENER EVIDENCE

Consumers' Association of Canada (CAC) Manitoba Branch Evidence

- The Role of the DCAT and Interest Rate Forecasting report (Sherry and Simpson), September 27, 2018
- The Capital Maintenance Provision (CMP) Proposal by MPI report, (Sherry and Simpson), September 27, 2018
- Asset Liability Analysis Revised, (Valter Viola), October 3, 2018

Intervener Information Requests and Responses

- MPI (CAC)
- PUB (CAC)

Intervener Presentation

- CAC Opening Statement, October 15, 2018
- DCAT and Interest Rate Forecasting Presentation (Sherry and Simpson), September 27, 2018
- Capital Maintenance Provision (CMP) Proposal by MPI (Sherry and Simpson), October 26, 2018
- Asset Liability Management (ALM) Presentation (Viola), October 29, 2018
- CAC Closing Submission, October 31, 2018

INTERVENER INFORMATION REQUESTS

Manitoba Public Insurance (MPI)

2019 GRA Intervener Information Requests on Consumers' Association of Canada (CAC) Intervener Information Requests

October 10, 2018

MPI (CAC) 1-1

Part and Chapter:	**The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA**	**Page No.:**	**p.4**
PUB Approved Issue No:	**2. Rate indication based on accepted actuarial practice in Canada;** **7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;**		
Topic:	**Minimum Capital Test**		
Sub Topic:	**Risks captured by the MCT framework**		

Preamble to IR (If Any):

"The MCT is designed to assess the capital required for a private company in a competitive industry to forestall insolvency. **As such, it is not linked to the specific risks facing MPI as a monopoly crown insurer** except insofar as an MCT level can be determined from RSR target levels calculated in the DCAT analysis." [Emphasis added]

Question:

a) Please itemize, and provide a detailed explanation of the risks facing MPI as a monopoly crown insurer, that are not captured by the Minimum Capital Test (MCT)

b) Referencing the 2018 MCT Guidelines (available here: http://www.osfi-bsif.gc.ca/Eng/fi-if/rg-ro/gdn-ort/gl-ld/Pages/mct2018.aspx#Toc-4), please identify which risk categories are not relevant to MPI, as a crown monopoly insurer, and provide a detailed explanation as to why. If any risk categories are linked to the specific risks facing MPI as a monopoly crown insurer, please also provide a detailed explanation as to why.

Rationale for Question:

To understand the supporting grounds and reasons for the statement highlighted in the pre-amble.

RESPONSE:

a) The quote ["The MCT is designed to assess the capital required for a private company in a competitive industry to forestall insolvency. As such, it is not linked to the specific risks facing MPI as a monopoly crown insurer except insofar as an MCT level can be determined from RSR target levels calculated in the DCAT analysis."] is taken out of context by the question. From the Financial Services Commission of Ontario's Superintendent's Guideline No. 08/04, August 2004 as amended and effective January 1, 2016 "The MCT is a harmonized capital adequacy solvency test that is intended to apply throughout Canada for provincially and federally regulated insurers." The point is that the MCT is a solvency test that is not applicable to a monopoly crown insurer.

b) Please see the answer to a)

MPI (CAC) 1-2

Part and Chapter:	**The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA**	**Page No.:**	**p.4**
PUB Approved Issue No:	**2. Rate indication based on accepted actuarial practice in Canada;** **7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;**		
Topic:	**Minimum Capital Test**		
Sub Topic:	**Insolvency challenges**		

Preamble to IR (If Any):

"Moreover, it raises again the questions around the setting of appropriate MCT levels for **a monopoly crown corporation that does not face the competitive and insolvency challenges of the private insurance industry**." [emphasis added]

Question:

a) Please provide the working definition of insolvency as it is used in this passage.

b) Please elaborate on if it is possible for MPI to become insolvent, under this definition.

c) If the answer to part (b) is yes, please elaborate on the remedial actions MPI could reasonably be expected to take, and discuss the implications for MPI's ratepayers, and shareholder.

d) If the answer to part (b) is no, please elaborate on the reasons for this view.

Rationale for Question:

To understand the supporting grounds for the highlighted statement in the pre-amble

RESPONSE:

a) From https://www.merriam-webster.com/dictionary/insolvent "Definition of insolvent 1a : unable to pay debts as they fall due in the usual course of business"

b) Manitoba Public Insurance is backed by the government of Manitoba and is a monopoly. The only situation where MPI would go insolvent is if the government of Manitoba were to go insolvent, which is improbable given the taxing power of the provincial government.

CAC Manitoba adds that additional insight on related topics may be had by considering PUB Order 59/18 pages 61 – 68.

c) N/A

d) Please see the answer to b)

MPI (CAC) 1-3

Part and Chapter:	**The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA**	**Page No.:**	**p.6**
PUB Approved Issue No:	**4. d. Justification for the use of the Naïve interest rate forecast for rate-setting and target capital purposes; in particular, any change of circumstances since the issuance of Order 130/17 that would warrant the use of the Naïve interest rate forecast.** **7.1 Any change in circumstances since the issuance of Order 130/17 that would justify changes to the DCAT methodology from that approved by the Board in Order 130/17;**		
Topic:	**Interest Rate Forecast**		
Sub Topic:	**Long-term yields Relationship with the Monetary Policy**		

Preamble to IR (If Any):

Bank of Canada (BoC) states that its monetary policy is "a commitment to maintain low and relatively stable inflation—in particular, to keep the rate of inflation close to the 2 per cent midpoint of the 1 to 3 per cent target range"[1].

The BoC describes the transmission mechanism as "a complicated sequence of cause and effect that helps to keep inflation from rising above its target". The starting point of the transmission mechanism is the target for the overnight interest rate.

The Transmission mechanism was described in the BoC materials cited in the following passage:

"Reliance on the naïve interest rate forecast for 2019 GRA also ignores recent developments in which the Bank of Canada has already twice raised the overnight lending rate this year, labelling the Bank of Canada's "policy rate" to be "not material" (2019 GRA Information Requests – Round 1 CAC (MPI) 1-6). **This response flies in**

1 https://www.bankofcanada.ca/publications/books-andmonographs/why-monetary-policy-matters/4-monetary-policy/, Monetary Policy: How It Works, and What It takes

the face of both common knowledge about the conduct of modern monetary policy and the Bank of Canada's clear official position, based on leading research:

> Following the announcement of the Bank's policy action to increase its target for the overnight rate, the actual overnight interest rate adjusts almost instantly. As the overnight interest rate rises, two responses are observed. First, the hike in the overnight rate leads to an increase in longer-term interest rates in Canada. **This increase occurs because there is an entire spectrum of financial assets, ranging from overnight loans to 30-year bonds, and their rates tend to move together**."[2] **[Emphasis Added]**

Question:

a Please provide any industry, or peer reviewed academic studies/literature that quantifies the length of lag, and the variability of lag between the overnight rate policy change, and the 10 Yr GOC Bond Rate.

b Please assess the length and variability of the lags, documented in response to CAC (MPI) 2-1, in the context of the studies provided in part a) above.

c Please provide any industry, or peer reviewed academic studies/literature that test the effectiveness of overnight rate policy changes as a forecasting proxy for 10 Yr GOC bond Rate. Please also discuss the lags documented in CAC (MPI) 2-1, in the context of these studies.

Rationale for Question:

To understand the relationship between the monetary policy and long-term yields.

2 https://www.bankofcanada.ca/publications/books-andmonographs/why-monetary-policy-matters/4-monetary-policy/, Monetary Policy: How It Works, and What it Takes, section 4.1

RESPONSE:

a) To argue about the position of the Bank of Canada on monetary policy and long-term yields on the basis of "any industry, or peer reviewed academic studies/literature that quantifies the length of lag, and the variability of lag between the overnight rate policy change, and the 10 Yr GOC Bond Rate" professes expertise and insight into the research underlying monetary policy decisions that I do not possess. Monetary policy is not based on one study or a narrow set of research. The extensive research program of the Bank of Canada is at https://www.bankofcanada.ca/research/

b) Please see a)

c) Please see a)

MPI (CAC) 1-4

Part and Chapter:	**The Capital Maintenance Provision Proposal by Manitoba Public Insurance**	**Page No.:**	**p.3**
PUB Approved Issue No:	**2. Rate indication based on accepted actuarial practice in Canada;** **20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.**		
Topic:	**Capital Maintenance Provision**		
Sub Topic:	**Alignment with international best practices**		

Preamble to IR (If Any):

"The CMP does not align with Accepted Actuarial Practice in Canada.

In response to CAC (MPI) 1-78 the Corporation states that it "is not aware of the existence of any industry, gray and peer-reviewed literature regarding the need for and the methodology to establish a Capital Maintenance Provision (CMP) for non-profit, monopoly, public auto insurers, and therefore did not review any. **The CMP is simply a tool for maintaining capitalization from year-to-year,** based on a standard industry measure of capitalization (i.e. the Minimum Capital Test ratio). Even if such literature existed, the Corporation does not believe it was necessary, in the circumstances, to review it in order to recognize the need for a CMP and to establish the methodology." [emphasis added]

And

"the use of a CMP is not normal actuarial practice and is not supported by any type of analysis or research in the industry"

Question:

Please identify the relevant section of the Actuarial Standards of Practice (ASOP) that describe how a company should **maintain** target capital.

Rationale for Question:

To understand the grounds for the statement

RESPONSE:

The question indicates that the passages quoted were taken out of context. The passages were written to indicate that including a capital growth component in an actuarial rate indication would not be the norm. To the best of the writer's knowledge the Actuarial Standards of Practice does not contain a section on how a company should maintain target capital.

MPI (CAC) 1-5

Part and Chapter:	**The Capital Maintenance Provision Proposal by Manitoba Public Insurance**	**Page No.:**	**p.4**
PUB Approved Issue No:	**7.1 Any change in circumstances since the issuance of Order 130/17 that would justify changes to the DCAT methodology from that approved by the Board in Order 130/17;**		
Topic:	**Update of DCAT**		
Sub Topic:			

Preamble to IR (If Any):

"the MCT used to calculate the proposed CMP in the 2019 GRA has no basis in actual capital need but is an arbitrary figure used to force through a CMP in this application."

And

"The determination of a required rate increase to ensure a constant MCT is contrary to the PUB's preference that the DCAT analysis be used to determine rate need based on the Corporation's risk profile."

Question:

a Please explain how MPI uses the DCAT analysis to determine rate need.

b Please provide a citation of the PUB order where the PUB's preference is articulated.

Rationale for Question:

To understand the grounds for the statement

RESPONSE:

- The purpose of MPI's DCAT should be to determine the amount of capital the Corporation should hold in the Rate Stabilization Reserve. If the Corporation's actual capital is within the range of the RSR, determined using a carefully analyzed DCAT process, then the Corporation is holding sufficient capital for the risks it is faced with and the RSR will be at a level sufficient to serve its purpose which is to "protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors", which is the stated purpose of the Rate Stabilization Reserve from Section RSR.3, page 3 of the 2019 GRA. If the RSR level falls below the minimum of the RSR target range then a rebuilding fee would be built into the rate change applied for.

- One citation is from PUB Order 162/16 (pp. 60-61): "The Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for the purposes of setting Basic target capital levels, expressed in terms of Basic total equity. . . For purposes of setting the upper threshold of the Basic target capital range, the Board withdraws its support for the use of the MCT and a MCT threshold ratio of 100%."

MPI (CAC) 1-6

Part and Chapter:	**The Capital Maintenance Provision Proposal by Manitoba Public Insurance**	**Page No.:**	**p.5 & p.6**
PUB Approved Issue No:	**2. Rate indication based on accepted actuarial practice in Canada;** **20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.**		
Topic:	**Capital Maintenance Provision**		
Sub Topic:	**Alignment with international best practices**		

Preamble to IR (If Any):

"The RSR range will go up in dollar terms as the size of the Corporation increases. This negates the need for a CMP" p.5

And

"In short, while the RSR target levels will move over time based on changes to the Company's risk profile and resulting DCAT analysis – the CMP is needed to ensure that the actual capital position does not deteriorate with changes in Basic's risk profile, as measured by the MCT ratio." This suggests that the use of the DCAT to set the RSR range will adjust to any changes in the Corporation's risk profile and, therefore, go up as needed to fit that profile. A CMP is not needed on top of a carefully analyzed DCAT and resulting RSR range." P.6

Question:

Please explain how abstract RSR targets (even those determined by DCAT analysis, and adjusted from year to year) contribute to actual capital (total equity) within the

range? Please ensure the answer fully explores the conceptual and practical differences between a target range for capital, and actual capital (total equity) held.

Rationale for Question:

To understand the grounds for the statement

RESPONSE:

The question asked seems to imply that MPI should hold capital above the level needed to ensure the Corporation can "protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors", which is the stated purpose of the Rate Stabilization Reserve from Section RSR.3, page 3 of the 2019 GRA.

The question is also confusing in the sense that it implies a link between contribution to the actual capital of the Corporation and the level of the RSR target range. A company's total equity position will vary from year to year depending on the events that occur during that year (investment returns, frequency and severity of losses, population changes, etc.). The amount of capital a company should hold varies depending on the risk associated with its business model and the risk tolerance of the company. The purpose of MPI's DCAT should be to determine the amount of capital the Corporation should hold in the Rate Stabilization Reserve, which is the Corporation's capital reserve. If the Corporation's actual capital is within the range of the RSR, determined using a carefully analyzed DCAT process, then the Corporation is holding sufficient capital for the risks it faces and the RSR will be at a level sufficient to serve its purpose stated above.

MPI (CAC) 1-7

Part and Chapter:	**The Capital Maintenance Provision Proposal by Manitoba Public Insurance**	**Page No.:**	**p.6** **Appendix B, p. 10**
PUB Approved Issue No:	**2. Rate indication based on accepted actuarial practice in Canada;** **20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.**		
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Recommendations:

1. The PUB order that the CMP be removed from the 2019 GRA.
2. **The DCAT methodology should be used to set the RSR range.**
3. The PUB approve a decrease in rates based on the 50/50 interest rate forecast and Accepted Actuarial Practice in Canada, that would include the investment income on the RSR.

[Emphasis Added]

Question:

Please provide the excerpt from the application that forms the basis for recommendation 2.

Rationale for Question:

To understand the grounds of the recommendation.

RESPONSE:

From page 2 of the Legal Application of the 2019 GRA:

"In the 2019 General Rate Application (GRA) for Basic Autopac the Corporation is requesting that the PUB approve the premiums charged with respect to compulsory driver and vehicle insurance (rates for service) effective March 1, 2019, including:
1. A 2.2% overall increase in Basic vehicle premium revenue (including Vehicles for Hire rates for service) comprised of:
i. 0.1% increase to the break-even cost of policies
ii. 2.1% increase for a Net Capital Maintenance Provision to maintain MPI's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision accounts for the positive impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position
2. A minimum (lower) RSR target of 34% Minimum Capital Test (MCT), (total equity equivalent of $143 million as at February 28, 2019), based on a 1-in-40 probability Dynamic Capital Adequacy Test (DCAT) scenario.
3. A maximum (upper) range RSR target of 85% Minimum Capital Test (MCT), (total equity equivalent of $305 million as at February 28, 2019), based on a 2 year, 1-in-40 DCAT scenario with no management action."

The recommendations made in the report support the use of the DCAT methodology to set the RSR range and also that the CMP be removed.

MPI (CAC) 1-8

Part and Chapter:	**MPI's Investment Portfolio: Asset/Liability and Previous Recommendations**	**Page No.:**	**p.6**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Dollar and Duration Matching**		
Sub Topic:	**Length of Nominal Duration**		

Preamble to IR (If Any):

"#4 Lengthening Nominal Duration

Re-examine the decision to lengthen the nominal duration in the Basic Portfolio, given: MPI's defensive (lower risk) strategy; Mercer's return assumptions for bonds and RRBs; and concerns about the effectiveness of the duration policy noted above ("basis" risk)."

The Corporation's strategy to reduce interest rate risk is by dollar and duration matching the fixed income portfolio and claims liabilities.

Question:

a Please explain how lowering the nominal duration of the Basic Claims fixed income portfolio below the claims liability duration will impact interest rate risk strategy and;

b Please explain why this decision needs to be re-examined.

Rationale for Question:

To understand the supporting grounds for the recommendation

RESPONSE:

a) Lengthening Nominal Duration

It is my understanding that MPI proposes to **lengthen or increase nominal** duration in the Basic Portfolio. I believe that this would increase the inflation risk component of surplus volatility when a Real (not Nominal) Liability Benchmark Portfolio is used.

I am not suggesting lowering the nominal duration. Instead, I am suggesting changing the basis of hedging (i.e., using some RRBs to better match the real interest rate risks and inflation risks in the Real Liability Benchmark Portfolio).

b) Re-examining Lengthening "Nominal" Bond Duration

Unless the bases (nominal vs. real) are the same for assets and liablities, there is basis risk from using one type of (nominal) asset to hedge (real) interest rate risk and inflation risk in the liabilities.

For example, here's one exposure that arises from the current policy to use nominal assets only (no RRBs) to hedge risk in the liabilities (which have some inflation sensitivity). If inflation turns out to be higher than expected ("realized" inflation), then surplus will fall because nominal bonds will do poorly relative to RRBs. (Lengthening nominal bonds would make the outcomes worse.)

- "Current" income on RRBs would reflect higher actual inflation (i.e., the RRB principal is adjusted up by the rate of inflation, maintaining the real purchasing power of RRB capital);
- RRBs may also have a capital gain to the extent that real yields fall, with investors seeking more insurance protection against future inflation risk by bidding the price of RRBs up); and
- Nominal bonds would do poorly (nominal yields could rise), with longer duration bonds doing worse than shorter ones.

MPI (CAC) 1-9

Part and Chapter:	**MPI's Investment Portfolio: Asset/Liability and Previous Recommendations**	**Page No.:**	**p.16**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Real Interest Rate Risk**		
Sub Topic:			

Preamble to IR (If Any):

"MPI's approach **appears to** focus more on the **shorter-horizon** and on the inflation component (less risky), rather than the capital gain/duration effects from **longer-term** changes related to **both inflation and changing "real" interest rates** ("really" risky)

Question:

a Please provide a definition of "really risky", specifying the metrics and relevant benchmarks.

b Please provide supporting documentation, in the form of relevant industry or peer reviewed academic articles that supports the assertion that real yields are "really risky".

Rationale for Question:

To understand the supporting grounds for the statement

RESPONSE:

a) "Really Risky" Metrics and Relevant Benchmarks

Using the definition of risk adopted by MPI (surplus volatility), I would say the liabilities are inherently "really" risky because their present value varies considerably with changes in real interest rates and inflation. (A 10 year duration for Basic Liabilities is much riskier, other things equal, than a liability which matures tomorrow.)

Using the Liability Benchmark Portfolio as the reference point, I would suggest that the shorter-horizon component of those liabilities has less inherent risk in it in today's environment (relatively low, stable inflation) compared to historic periods. In other words, it may not be that risky to use nominal bonds to hedge real interest rate exposures in the liabilities over, say, the next few years (< 3 years). However, going beyond, say, five (5) years, the basis risk between nominal bonds and RRBs may be higher given the greater uncertainty about these longer-term forecasts, and the greater sensitivity of outcomes (i.e., duration) over those longer time horizons.

b) How Risky are Real Yields?

The limited time frame to prepare a response (i.e., over a long weekend plus two working days) does not allow for a thorough literature review. However, here are some useful statistics from the the Canadian Institute of Actuaries ("CIA").

The CIA publishes a Report on Canadian Economic Statistics, and the most recent version covers the period ending 2017.[3] In this report, the CIA shows the performance difference between RRBs and nominal bonds over the past 25 years since RRBs were first issued (in 1993), as well as inflation and related volatilities.

The table on the following page shows, for example, the **standard deviation** ("volatility") of the percentage change/return in the Consumer Price Index ("inflation"), Canada Long Bonds, and RRBs (highlighted in yellow).

3 Table 2A. STANDARD DEVIATIONS OF NOMINAL ANNUAL PERCENTAGE RATES OF CHANGE/RETURN, in *Report on Canadian Economic Statistics 1924–2017 (Final Release, Document 218048)*

STANDARD DEVIATIONS OF NOMINAL ANNUAL PERCENTAGE RATES OF CHANGE/RETURN

PERIOD	CONSUMER PRICE INDEX	CANADA COMMON STOCKS	CANADA LONG BONDS	CONVENTIONAL MORTGAGE INDEX	91 DAY T-BILLS	REAL RETURN BONDS	U.S. COMMON STOCKS IN CANADIAN $	GDP PER EMPLOYED	WAGE AND SALARY INDEX
5 YRS 1928 - 1932	5,51	26,51	6,94	.	.	.	.	7,67	3,54
1933 - 1937	2,54	24,48	8,22	.	.	.	.	3,06	2,88
1938 - 1942	3,37	12,66	4,29	.	0,08	.	19,87	6,75	2,85

1943 - 1947	6,21	15,37	1,27	.	0,05	.	20,35	5,34	3,98
1948 - 1952	5,23	18,04	3,27	.	0,26	.	9,94	4,01	1,47
1953 - 1957	1,27	23,13	5,31	3,98	1,06	.	26,16	3,89	0,89
1958 - 1962	0,99	18,18	6,86	3,24	1,01	.	20,25	2,20	0,96
1963 - 1967	0,96	12,47	3,47	2,76	0,62	.	13,45	1,44	1,13
1968 - 1972	1,72	13,78	10,24	6,97	1,76	.	10,93	1,52	1,67
1973 - 1977	2,49	17,38	8,01	4,55	1,45	.	27,80	1,91	3,27
1978 - 1982	1,42	21,99	19,61	9,75	4,18	.	15,54	1,40	2,11
1983 - 1987	0,33	15,35	9,26	4,01	1,27	.	14,35	2,27	1,97
1988 - 1992	1,22	14,01	7,74	4,74	2,97	.	13,91	1,28	0,64
1993 - 1997	0,79	12,94	14,49	7,03	1,51	12,53	14,14	0,62	0,75
1998 - 2002	1,36	18,33	8,86	3,61	1,16	6,73	24,23	3,01	1,34
2003 - 2007	0,25	6,93	4,85	1,90	0,90	10,77	8,75	2,33	0,71
2008 - 2012	0,69	25,93	8,93	2,59	0,94	7,88	14,17	2,33	0,90
2013 - 2017	0,23	10,77	8,76	1,27	0,22	13,34	12,41	2,11	0,40
10 YRS 1928 - 1937	4,99	29,84	7,44	.	.	.	.	8,08	3,83
1938 - 1947	4,78	14,79	3,00	.	0,13	.	19,19	7,43	3,27
1948 - 1957	4,13	20,13	4,42	.	1,13	.	18,71	4,91	2,25
1958 - 1967	1,18	14,71	5,13	3,23	0,89	.	16,33	1,95	1,60
1968 - 1977	3,43	15,34	8,68	5,86	1,89	.	19,93	2,71	2,81
1978 - 1987	3,28	18,10	14,74	7,17	3,68	.	14,11	2,75	3,29
1988 - 1997	1,72	14,30	10,96	5,83	3,60	.	13,84	1,03	1,61
1998 - 2007	0,93	15,55	6,75	2,91	1,15	8,50	17,18	2,54	1,21
2008 - 2017	0,49	18,94	8,91	2,52	0,68	11,46	16,42	2,10	0,72
15 YRS 1928 - 1942	4,88	24,96	6,48	.	.	.	.	10,38	4,16
1943 - 1957	4,74	18,18	3,83	.	1,04	.	18,60	5,09	2,84
1958 - 1972	1,61	13,92	7,15	4,58	1,44	.	14,95	2,19	2,45
1973 - 1987	3,12	18,61	12,83	6,39	3,71	.	19,78	3,19	3,68
1988 - 2002	1,57	15,76	10,53	5,46	3,40	.	18,85	1,81	1,56
2003 - 2017	0,48	16,71	7,65	2,26	1,35	10,89	14,60	2,23	0,82
25 YRS 1943 - 1967	3,75	16,64	4,29	.	1,68	.	17,38	4,15	2,50
1968 - 1992	3,19	16,54	11,36	6,42	3,77	.	17,08	3,21	3,31
1993 - 2017	0,80	16,49	9,57	4,15	2,02	10,14	17,40	2,14	0,98
50 YRS 1968 - 2017	3,27	16,35	10,42	5,79	4,50	.	17,08	3,55	3,59
75 YRS 1943 - 2017	3,45	16,43	9,33	.	4,24	.	17,16	3,74	3,26
ALL YRS - 2017	3,91	18,29	8,72	5,61	4,21	9,96	17,24	5,29	3,60

Source: Statistics Canada CANSIM Series © Copyright 2018. All Rights Reserved.
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Source: Standard & Poor's, a division of The McGraw-Hill Companies, Inc. © Copyright 2018. All Rights Reserved.

The CIA's statistics show:

c) **Over the last 25 years:**

- **CPI (inflation) volatility/standard deviation of 0.8%**, significantly below the two prior 25-year periods (~ 3% to ~ 4%);
- **RRB return volatility ~ 10.1%**;
- **Canada Long Bond return volatility ~ 9.6%**;

d) **Over 5-year periods (ending 2017, 2012, 2007, 2002, 1997):**

- **Falling volatility in Canada Long Bond returns** (14.5% to 8.8%);
- **Falling inflation volatility**; and
- **No trend in RRB return volatility** (12.5% by 1997, 13.3% by 2017).

If inflation volatility were zero, then nominal yield volatility would be the same as real yield volatility, and all yield volatilities would be deemed "really" risky or less risky depending on, say, the mismatch in duration between assets and liabilities. Given the long time horizon we are concerned about – such as 10 years or longer – even small changes in yields can have big impacts on funded status (surplus) if there is a material mismatch between asset and liability durations (type of mismatch and size).

While inflation volatility has fallen over the decades and we are currently in a low, stable inflation environment, over a long time horizon (10+ years), investors should not be overconfident about their ability to predict inflation or interest rate "regimes". If the cost of buying inflation protection/insurance is relatively low, the surplus volatility reduction from hedging inflation risk (and real interest rate risk) can free up risk-taking room in asset classes that offer better risk-adjusted returns, measured on a total portfolio basis and in relation to liabilities.

MPI (CAC) 1-10

Part and Chapter:	**MPI's Investment Portfolio: Asset/Liability and Previous Recommendations**	**Page No.:**	**p.22, footnote 23**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Liability Benchmark Portfolio**		
Sub Topic:			

Preamble to IR (If Any):

"In my oral testimony two years ago, I described the concept of a "risky bucket" and a "risk-free" or "minimum risk" bucket. Simply put, I believe MPI has a "leak", or two, in its Liability Benchmark Portfolio (minimum risk bucket)."

Question:

Please elaborate on what is meant by "leak" in the context of this quote, specifying if there are one or more. If more than one, please specify if there are any distinguishing features between them.

Rationale for Question:

To understand the supporting grounds for the assertion.

RESPONSE:

The Risk-Free Bucket

I believe that MPI's Minimum Risk Portfolio (also called Liability Benchmark Portfolio) should include some RRBs. However, MPI has chosen to define the Liability Benchmark Portfolio in nominal terms (i.e., by including only nominal bonds, and no RRBs).

Possible Leaks

Because the liabilities have some exposure to inflation risk, I believe that a Liability Benchmark Portfolio that has no inflation protection in it may suffer a leak (loss in purchasing power) if **realized** inflation turns out to be higher in the future than the rate being priced in the nominal bonds that make up the Liability Benchmark Portfolio.

A second leak would occur if **real interest rates** fall, while nominal interest rates remained unchanged (implying higher **expected** inflation).

MPI (CAC) 1-11

Part and Chapter:	**MPI's Investment Portfolio: Asset/Liability and Previous Recommendations**	**Page No.:**	**p.6**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**Recommendations**		
Sub Topic:	**Inflation expectations**		

Preamble to IR (If Any):

"EXECUTIVE SUMMARY OF RECOMMENDATIONS
1. Real Liability Benchmark
Re-examine the reliance on a Nominal Liability Benchmark, rather than a Real Liability Benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities."

Question:

a Please elaborate on Mr. Viola's expectations for inflation, and inflation volatility, in the short and long run.

b Please provide any supporting documentation, in the form of relevant industry or peer reviewed academic articles that supports these expectations

Rationale for Question:

To provide context for the recommendation noted in the pre-amble.

RESPONSE:

a) Expectations for Inflation and Inflation Volatility

I don't have a "view" on expected inflation, or inflation volatility, per se. However, I would suggest that investors should have less confidence about their inflation forecasts the farther out the forecast goes (i.e., we should have less confidence about the 2025 inflation rate than the inflation rate next year).

b) Supports for Expectations

My comment about the "understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities" relates specifically to MPI's determination of the constituents of the Basic and Pension Liability Benchmark Portfolios. As such, there is no industy or academic article that I am aware of that addresses my claim about the basis risk that I believe exists between liability benchmark portfolios that are defined in nominal terms rather than real terms.

Public Utilities Board (PUB)

2019 GRA Information Requests on Intervener Evidence

October 10, 2018

PUB (CAC) 1-1

Document:	The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA PUB (MPI) 2-39	**Page No.:**	5-6
PUB Approved Issue No.:	4. Financial Forecast		
Topic:	Update of Interest Rate Forecast and Justification for Use of Naïve Forecast		
Sub-Topic:			

Preamble to IR (If Any):

"Reliance on the naïve interest rate forecast for 2019 GRA also ignores recent developments in which the Bank of Canada has already twice raised the overnight lending rate this year, labelling the Bank of Canada's "policy rate" to be "not material" (2019 GRA Information Requests – Round 1 CAC (MPI) 1-6)."

Question:

a) In regard to the above statement and issue, please elaborate on the concept of materiality as it relates to interest rate forecasting, and how Dr. Simpson and Ms. Sherry would distinguish between what is material and what is not material.

b) Please provide Dr. Simpson and Ms. Sherry's interpretation of the line graph in PUB (MPI) 2-39 on the relationship between the GOC 10-year Bond rate and BoC overnight rate.

c) Please provide a comparative table demonstrating the relationship between actual interest rates versus the Naïve and 50/50 forecasts from the 2017 & 2018 GRAs to illustrate the forecasting accuracy discussed in Dr. Simpson's evidence.

Rationale for Question:

To understand the reasonableness of using Naïve vs. 50/50 interest rate forecasts.

RESPONSE:

a) MPI has used the term "not material," which we would assume to mean irrelevant to the issue at hand, i.e. the future course of interest rates in Canada in general and the future course of the 10-year Government of Canada rate in particular. We interpret the term to suggest that existing evidence and research does not support a link between a rising Bank of Canada overnight lending (policy rate) and rising interest rates.

b) Although the line graph depicts daily rates, which are not normally used to capture the long-term trends that would be of concern to monetary policy and long-term interest rate forecasting, there is a clear upward trend in both series, suggesting that the recent Bank of Canada policy rate changes are "material" to changes in the GoC 10-year bond rate even at this simplistic level of analysis.

c) Our evidence refers to "Figure INV- 11: Historical Analysis of SIRF, 50/50 and Naïve Forecast from 2005 to 2018 GRA" from the MPI GRA, lines 13-14.

PUB (CAC) 1-2

Document:	The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA	**Page No.:**	4
PUB Approved Issue No.:	7. Update of DCAT		
Topic:	Setting Equity Target Range		
Sub-Topic:			

Preamble to IR (If Any):

"Absent such events, the current POP and DCAT methodologies should continue to inform the setting of the RSR range."

Question:

Please explain why Dr. Simpson and Ms. Sherry believe the POP methodology is currently informing the setting of the RSR range.

Rationale for Question:

To understand the assertion that POP is currently used for setting the RSR range.

RESPONSE:

We are not aware of any PUB decision that explicitly asserts that the POP would no longer be used to set the RSR range with or without the use of other information, although we would acknowledge that recent emphasis and discussion has concentrated on the use of the DCAT to inform, if not set, the RSR range.

PUB (CAC) 1-3

Document:	MPI'S Investment Portfolio: Asset / Liability Analysis and Previous Recommendations	**Page No.:**	
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Minimum Risk Portfolio		
Sub-Topic:			

Preamble to IR (If Any):

Question:

Is it Mr. Viola's view that MPI's minimum risk portfolio should be based on real interest? Please explain how the minimum risk portfolio would likely change if based on real interest versus nominal.

Rationale for Question:

To understand how the minimum risk portfolio for ALM modelling purposes might change if based on real vs. nominal interest rates.

RESPONSE:

Real Interest Rate Risk

Yes. I believe the minimum risk portfolio ("MRP") should reflect the factors that impact the liabilities. It is my understanding that MPI's liabilities are i) **long-term** in nature (e.g., duration ~ 10 years for Basic, and longer for Pensions), and ii) exposed to some **inflation** risk.

In evidence two years ago, I described five (5) beliefs that supported my recommendations and one of these beliefs relates to the MRP. This belief is re-stated below, along with some implications and clarifications about investing in it.

Belief #2 (MINIMUM RISK PORTFOLIO): Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio.

"I believe that MPI's minimum risk portfolio **(MRP) should include at least some long-duration real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure)**. Note, however, that Belief #2 simply supports the definition of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these follow-on questions requires additional beliefs …"[1]

Difference between Real and Nominal MRP

The significant difference in the composition of the MRPs is shown below, as summarized in Round 1 IRs and table 8 of my evidence this year.

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

1 Page 16

As noted in evidence:

> "In the case of **Basic** … the Nominal Liability Benchmark includes a 54% allocation to long-term provincial bonds while the Real Liability Benchmark has 66% in RRBs."[2]

In the case of **Pensions**, the **Nominal** Liability Benchmark includes a 117% allocation to long-term corporate bonds and no RRBs, while the **Real** Liability Benchmark has 81% in RRBs.

These liability benchmark compositions are based on Mercer's work, and reflect Mercer's construction methodology for asset classes. For example, it may be the case that Mercer assumed that the RRB asset class (in both potential portfolios and Liability Benchmark Portfolio) is "market-weighted" (i.e., have low tracking error[3] relative to an index, such as the FTSE TMX Canada Real Return Bond Index™). This may explain, in part, why the T Bill exposures are negative in both the nominal and real liability benchmarks for **Pensions** (-17% and -11% respectively). This short/negative T Bill position "levers" up duration (e.g., above the duration of the passive benchmark index alone, such as the FTSE TMX Canada Real Return Bond Index™ noted above, if that index's duration is too low).

2 Source: *Asset/Liability Analysis and Previous Recommendations*, page 9

3 Tracking error measures the risk that a portfolio underperforms the benchmark that it is trying to outperform or track. Tracking error is measured as the volatility or standard deviation of the performance difference between the actual and benchmark portfolio.

PUB (CAC) 1-4

Document:	MPI'S Investment Portfolio: Asset / Liability Analysis and Previous Recommendations	**Page No.:**	6
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Asset Mix		
Sub-Topic:			

Preamble to IR (If Any):

"Re-examine the decision to concentrate risk in fixed income, rather than better diversify the sources of risk across the whole portfolio, and avoid "crowding out" risk-reducing RRBs."

Question:

a) Please explain Mr. Viola's view on how MPI should design its portfolio for Basic, which currently is proposed to be 100% fixed income, to diversify the sources of risk across the whole portfolio.

b) In Mr. Viola's view, what level of Real Return Bonds should be incorporated in the Basic and Pension portfolios?

Rationale for Question:

To understand how the Basic and Pension portfolio could change to address inflation risk.

RESPONSE:

a) Basic Portfolio Design

The benefits of diversification are generally understood and accepted, so they are not repeated here. However, it is important to highlight **the key role that correlations play in generating the benefits of diversification**.

In my evidence two years ago, I described an inconvenient truth about risk, which is that **risks don't add** (i.e., 1 + 1 ≠ 2). I also stated a consequence of this truth, which is the important role that correlations play in optimizations.

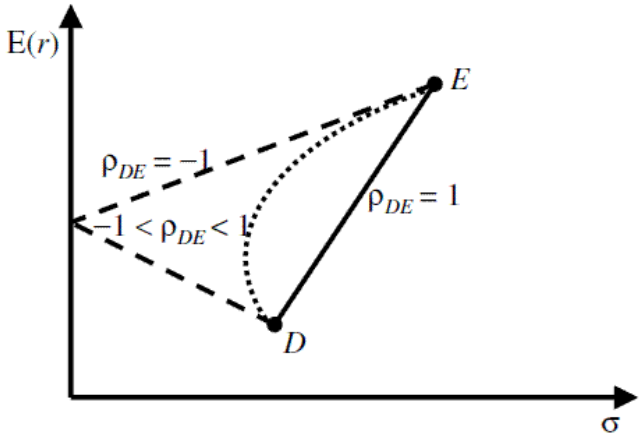
> *The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because correlations are not perfect.*[4]

In my evidence two years ago, I also stated Belief #4 (TOTAL PORTFOLIO):

> *The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the Minimum Risk Portfolio is taken.*[5]

In other words, the attractiveness of any asset class should be assessed, not in isolation, but in the context of the other assets that are in the portfolio or contemplated to be in the portfolio. This is illustrated below in the efficient frontier below.

If correlations are perfect (ρ = +1.0 or -1.0), there are no benefits from diversification because return/risk tradeoffs would be "linear" (straight lines, constant return/risk slope).



The efficient frontier only "bends" when correlations, in this case between Debt (D) and Equity (E), are between -1 and +1.

When correlations are equal to – 1 or + 1, there is no "free lunch". This means

4 Source: *Asset/Liability Analysis and Previous Recommendations*, page 6

5 Source: *Asset/Liability Analysis and Previous Recommendations*, page 17

you cannot get higher returns at the same level of risk.

MPI has stated that it has a low tolerance for risk in the **Basic** Portfolio, and therefore MPI has decided to allocate 100% to fixed income in that portfolio. I would argue that the decision to impose a constraint (0% to other asset classes) has a cost (i.e., lower risk-adjusted returns).

This 100% fixed income constraint has the effect of concentrating risk in various forms of interest rate risk (0% coming from equity risk). The various risk premia from fixed income were described in evidence as "building blocks" and relate to these interest rate risks:

a) **Term/duration risk:** not matching asset and liability durations;
b) **Inflation risk:** buying nominal bonds, rather than RRBs;
c) **Credit risk:** including corporate bonds and Provincials (not Federal); and
d) **Illiquidity:** including private debt.

In the case of real estate and infrastructure, both types of assets have equity and fixed income characteristics. For example, any leverage/borrowing to finance real estate or infrastructure investments has term/duration risk and likely inflation risk.[6] The equity component of real estate or infrastructure depends on the sector/type of the underlying gross exposures. For example, infrastructure that has regulated return or revenue streams (e.g., electricity **transmission** across power grids) has less equity risk than infrastructure that is less regulated (e.g., electricity **generation** using oil or gas, whose spot prices are volatile).

This concentration of risk in fixed income in MPI's **proposed portfolio** for Basic is illustrated on the next page by comparing a more diversified **current portfolio** and a portfolio described by Mercer as having the **same risk** as the current portfolio.

6 As a real estate "borrower" (rather than a lender), there would be no credit risk of course. The inflation risk is that inflation turns out to be lower than expected, which results in a loss in purchasing power as a borrower.

The current portfolio (C) and MPI-proposed portfolio (P) have a significant allocation to Provincial Bonds, and smaller allocation to Corporate Bonds, as shown on the right.

In other words, the sources of risk in the current and MPI-proposed portfolios have concentrated risk in inflation and credit.

Asset Class Breakdown

	(C) Current	(B) Same Risk	(P) Proposed	(P)-(B) Difference
Private Debt	-	15.0	-	-15.0
Corporate Bonds	2.0	-	20.0	20.0
Provincial Bonds [1]	68.0	38.0	80.0	42.0
Federal Bonds [2]	-	-	-	-
Federal RRBs	-	45.0	-	-45.0
T Bills	-	-30.0	-	30.0
Fixed Income	70.0	68.0	100.0	32.0
				-
Equities [3]	15.0	23.5	-	-23.5
Real Estate	10.0	5.5	-	-5.5
Infrastructure	5.0	3.0	-	-3.0
	100.0	100.0	100.0	-
Return	4.2	4.9		
Surplus Volatility	3.8	3.8		

The "Same Risk (B)" portfolio has a higher return than the current portfolio because B is better diversified. B has more equity risk, less inflation risk, but the total risk of 3.8% is the same.

If investment management were a hockey game, it appears that strategy B works better because it has both a stronger goalie (RRBs) and is more aggressive on offense (more equities). That combination of higher RRBs and higher equities yields better return/risk tradeoffs than one which has a weaker goalie (nominal bonds) and more aggressive defensemen (credit risk, less liquidity in fixed income).

b) Level of RRBs in Basic and Pension Portfolios

The optimal allocation to RRBs, or any other asset class, depends on the:

1. **definition** of risk; and
2. **tolerance** for risk.

1. Definition of Risk

MPI uses surplus volatility to measure the risk of assets in relation to liabilities. If the liabilities are exposed to inflation risk, then the **Liability Benchmark Portfolio** should include some inflation-hedging assets (e.g., RRBs).

2. Tolerance for Risk

MPI's tolerance for risk should impact how much it allocates between riskier assets (e.g., equities), and those assets that hedge surplus volatility (e.g., RRBs). At lower levels of risk tolerance, more RRBs would be held in the portfolio, with a shift from the "risky bucket" to a "risk-free" or at least "minimum risk" bucket. Mercer's analysis in MPI Exhibit 12 clearly shows the improved return/risk ratios available when RRBs are included across the risk spectrum in the portfolios.

Basic Portfolio: If MPI were to rely on Mercer's analyses in MPI Exhibit 12, then the RRB allocations for Basic would reflect MPI's risk tolerance as follows:

a) **~ 40% RRBs if risk tolerance remains the same** (current risk of 3.8%);
b) **66% if MPI has no tolerance for risk** and takes the minimum risk by investing in the Liability Benchmark Portfolio; and
c) **between ~ 40% and 66% for "lower" risk tolerances**.

Similarly, for the **Pension** Portfolio:

d) **~ 45%[7] RRBs if risk tolerance remains the same**;
e) **81%[8]** if MPI **has no tolerance for risk**; and
f) **between ~ 45% and 81% for "modest" risk tolerance**.

PUB (CAC) 1-5

7 MPI Exhibit 12, page 23 of 36

8 MPI Exhibit 12, page 19 of 36

Document:	MPI'S Investment Portfolio: Asset / Liability Analysis and Previous Recommendations	**Page No.:**	9, 21
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Asset Mix		
Sub-Topic:			

Preamble to IR (If Any):

Mr. Viola has provided an estimate of the impact of removing Real Return Bonds (RRBs) from the portfolio, to demonstrate Mercer's observation that their absence removes an opportunity for improvement at lower levels of risk.

Question:

Please explain the estimates provided of the impact of removing Real Return Bonds on returns of the portfolio.

Rationale for Question:

To understand the implications of excluding RRBs from MPI's Basic and Pension portfolios.

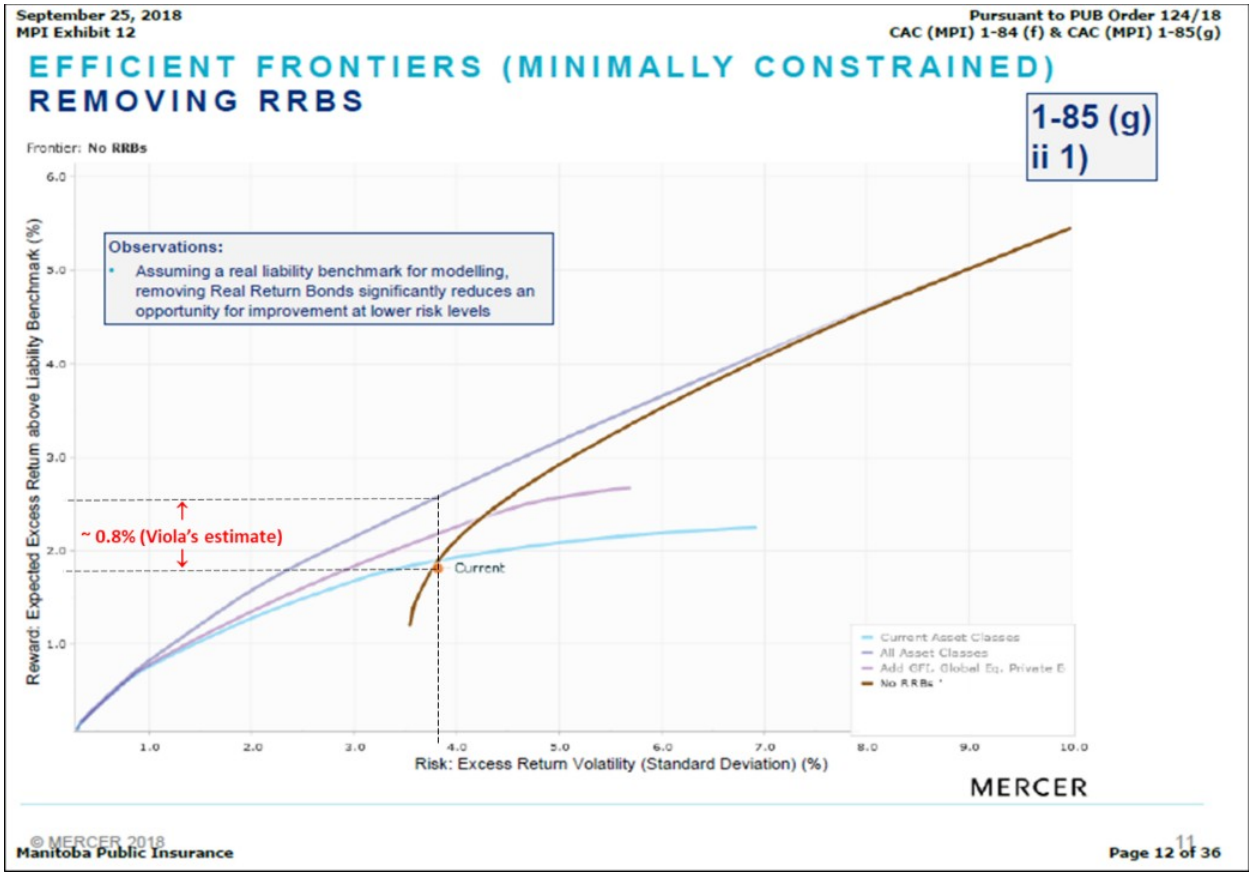
RESPONSE:

Mercer's "observations" in MPI Exhibit 12 indicate that "removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."[9]

9 MPI Exhibit 12, page 12 of 36

0.8% Return Reduction in Basic Portfolio

The 0.8% adverse impact of removing RRBs from the **Basic** Portfolio is inferred from Mercer's analysis in MPI Exhibit 12, page 12 of 36 (below).



At "current" risks levels (vertically at x = Risk = 3.8%), Mercer's efficient frontier suggests that the expected excess return above the Liability Benchmark drops by ~ 0.8%, from a visual inspection of the graph. In other words, the upper efficient frontier is the most efficient, while the one labelled "No RRBs" excludes RRBs. The vertical distance between those two graphs (measured at the current risk level of 3.8%) measures the cost of removing RRBs (lower "excess return above Liability Benchmark"). Mercer did not include a "table" of statistics for returns in the above graph, so the vertical difference or cost of the constraint appears to be ~ 0.8% as the difference calculated below.

~ 2.6% "Excess return", **including** RRBs (X = top dotted horizontal line)

~ 1.8% "Excess return", **excluding** RRBs (Y= bottom dotted horizontal line)

~ 0.8% Cost **excluding** RRBs (X – Y = vertical distance, at 3.8% risk)

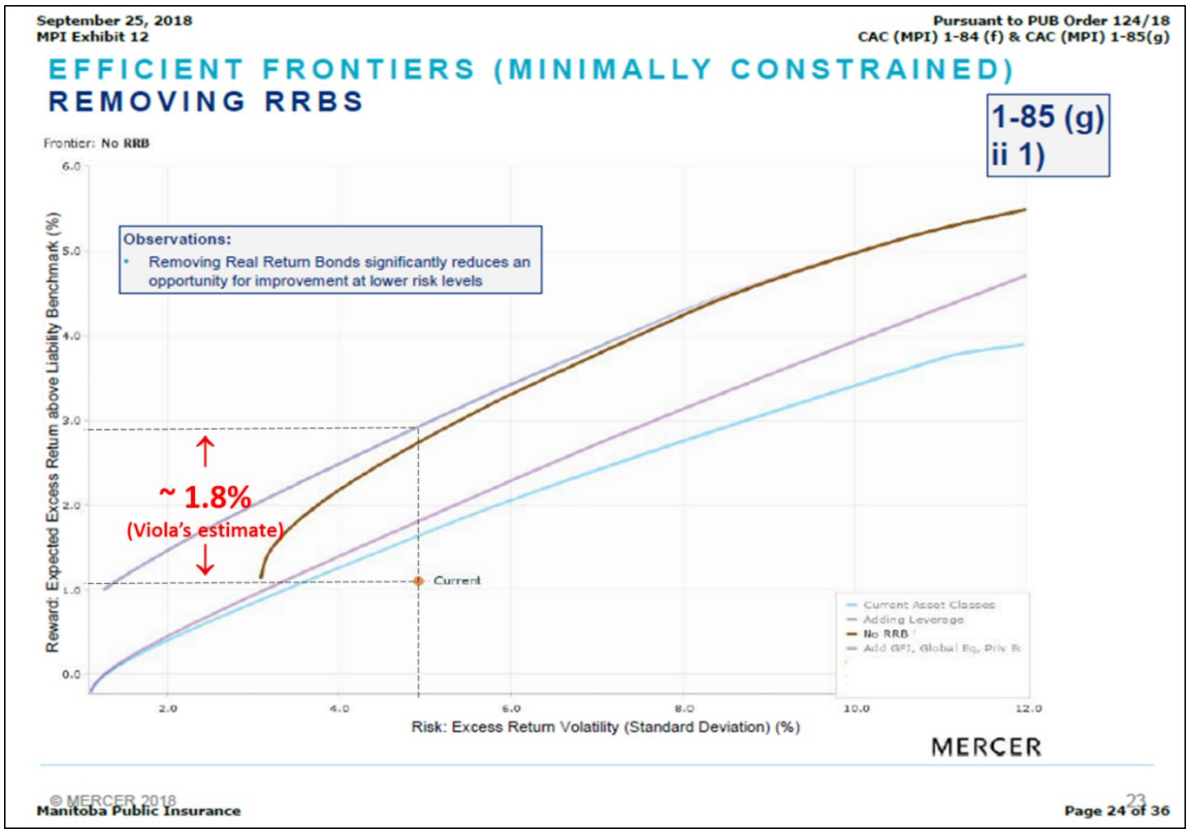
1.8% Return Reduction in Pension Portfolio

Similarly, for the **Pension** Portfolio, the return reduction appears to be ~ 1.8% from a visual inspection of the graph below (page 24 of 36 in MPI Exhibit 12).

~ 2.9% "Excess return", **including** RRBs (X = top dotted horizontal line)

~ 1.1% "Excess return", **excluding** RRBs (Y= bottom dotted horizontal line)

~ 1.8% Cost **excluding** RRBs (X – Y = vertical distance, at 4.9% risk)



The return reduction is bigger in the case of the **Pension** Portfolio, compared to **Basic**, because the **Pension** liabilities have a longer duration and therefore the Liability Benchmark Portfolio for Pensions has more RRBs (other things equal). When RRBs are removed, the reduction in return is larger in the Pension Portfolio because the elimination of RRBs means more equities are reduced as well (lowering returns).

PUB (CAC) 1-6

Document:	MPI'S Investment Portfolio: Asset / Liability Analysis and Previous Recommendations	**Page No.:**	6, 24
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Asset Mix		
Sub-Topic:			

Preamble to IR (If Any):

Question:

In light of Mr. Viola's recommendation that MPI should continue to be vigilant about placing too much reliance on quantitative considerations, what level of other inflation hedging assets (such as real estate and infrastructure) does Mr. Viola believe should be maintained in order to meet qualitative risk considerations.

Rationale for Question:

To understand the use of investment classes other than RRBs to provide a level of inflation protection.

RESPONSE:

Investment Beliefs

This question is best answered by first reviewing some investment beliefs that were described in evidence two years ago, and summarized again on the next page. These beliefs involve measuring the **additional return and risk** implications of changing the portfolio at the **total portfolio** level (not individual asset classes).

Belief #2 (MINIMUM RISK PORTFOLIO):

Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio.[10]

I also said:

Belief #2 simply supports the ***definition*** *of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these follow-on questions requires additional beliefs, starting with the next two beliefs below (taken together).*

Belief #3 (ADDITIONAL RISK): *Taking additional risk beyond the Minimum Risk Portfolio should be done only if the expected additional returns justify doing so.*
AND
Belief #4 (TOTAL PORTFOLIO): *The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the Minimum Risk Portfolio is taken.*
Together, Beliefs #3 and #4 imply that the attractiveness of any asset class should be assessed, not in isolation, but in the context of the other assets that are in the portfolio or contemplated to be in the portfolio, and the MRP that is defined in Belief #1 and #2.
The rationale for taking a total portfolio approach stems from the "inconvenient truth", mentioned earlier, and re-stated below.

> *The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because correlations are not perfect.*

10 Page 16

Real Estate and Infrastructure

Mercer's quantitative analysis in MPI Exhibit 12 clearly shows that RRBs can "co-exist" with other assets that provide some inflation protection, and which offer higher returns than RRBs (e.g., real estate and infrastructure).

For example, in the case of the **Basic** Portfolio, the table below shows the figures from MPI Exhibit 12 (page 11 of 36), which is shown on the next page as well.

RRBs would represent 51% of the efficient portfolio in scenario A (Same Return) and 45% in B (Same Risk).[11]

It shows a 5:1 or 6:1 ratio of RRBs to other real assets (real estate and infrastructure) at these two levels of risk.

	Current	A	B	
RRBs	-	51.0	45.0	X
Real Estate	10.0	6.5	5.5	
Infrastructure	5.0	1.5	3.0	
Other Real Assets	15.0	8.0	8.5	Y
Total Real Assets	15.0	59.0	53.5	
Equities	15.0	14.5	23.5	
Bonds	70.0	26.5	23.0	
	100.0	100.0	100.0	
Ratio of RRBs (X) to:				
(Y) Real Estate + Infrastructure		6	5	X/Y

11 This assumes no constraint regarding leverage, and that the "3X RRB" allocation is shown at its gross, rather than, net exposure. (The conclusions would be substantially the same if a "no leverage" constraint were imposed.)

Mercer's analysis, summarized on the prior page, comes from MPI Exhibit 12 (page 11 of 36).

The red boxes show the exposures to real assets.

	Current	A. Same Return	B. Same Risk
Fixed Income	70%	62.5%	53%
3X Real Return Bonds	--	17.0%	15.0%
Short-term Bonds (Prov)	6.5%	35.5%	3.5%
Mid-term Bonds (Prov)	12.0%	--	24.5%
Long-term Bonds (Prov)	29.5%	--	--
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	15%
Canadian Equity	10%	10.5%	15.0%
U.S. Equity	5%	--	--
Alternatives	15%	27%	32%
Private Equity	--	3.0%	6.5%
Real Estate	10%	6.5%	5.5%
Infrastructure	5%	1.5%	3.0%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	2.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.9%
Surplus Volatility	3.8%	2.4%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.76	0.68
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Conclusion

Based on Mercer's analysis, it appears that the optimal allocations to real estate and infrastructure (combined) are ~ 16% to 20% **of the RRB allocation (i.e., the inverse of the 5:1 to 6:1 ratio of RRBs to other real assets noted earlier)**. For greater clarity, if RRBs were to represent ½ the portfolio, Mercer's analysis suggests an optimal allocation to real estate and infrastructure (combined) of 8% to 10% (½ of 16% to 20%). This is an approximation, which would change along the efficient frontier as risk levels change.

A similar analysis could be performed for **Pensions**, using data from MPI Exhibit 12 (below, from page 23 of 36).

	Current	A. Same Return	B. Same Risk
Fixed Income	70%	69.0%	47.5%
3X Real Return Bonds	--	23.0%	15.0%
3X Long-term Bonds (Prov)	--	6.0%	15.0%
Short-term Bonds (Prov)	6.5%	29.0%	--
Mid-term Bonds (Prov)	12.0%	--	6.5%
Long-term Bonds (Prov)	29.5%	1.0%	1.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	7.5%	18.5%
Canadian Equity	10%	7.5%	18.5%
U.S. Equity	5%	--	--
Alternatives	15%	23.5%	34%
Private Equity	--	1.5%	10.5%
Real Estate	10%	5.0%	1.0%
Infrastructure	5%	1.0%	7.5%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	--
Diversified Growth Fund			
Expected 10-Year Return	4.2%	4.0%	5.7%
Surplus Volatility	4.9%	1.4%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.78	0.59
Interest Rate Metrics			
Duration	7.3	15.8	16.0
Hedge Ratio	43%	94%	95%

RRBs would represent 69%[12] of the efficient portfolio in scenario A (Same Return) and 45%[13] in B (Same Risk).[14] At these return/risk levels, optimal allocations to real estate and infrastructure (combined) appear to be 6% to 8.5%.

12 69% = 3 X 23% in "3 X RRBs"

13 45% = 3 X 15% in "3 X RRBs"

14 This assumes no constraint regarding leverage, and that the "3X RRB" allocation is shown at its gross, rather than, net exposure. (The conclusions would be substantially the same if a "no leverage" constraint were imposed.)

PUB (CAC) 1-7

Document:	INV Appendix 12	**Page No.:**	16
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Real Return Bonds		
Sub-Topic:			

Preamble to IR (If Any):

Mr. Viola is of the view that MPI should consider the inclusion of RRBs in its portfolio. Mercer has indicated that there are limited issuances of RRBs and that the market for the available bonds is liquid.

Question:

a) Does Mr. Viola have any concerns about the availability of RRBs for MPI's portfolio, either now or in the future?

b) Does Mr. Viola have any concerns about the inclusion of RRBs on the impact of returns realized from the Basic or Pension portfolios?

Rationale for Question:

To understand the merits of including RRBs in the investment portfolio.

RESPONSE:

a) RRB Availability

Current Market Size

According to FTSE Canada, there are 14 RRBs in the FTSE TMX Canada Real Return Bond Index™, with an $84 billion market value as of October 8, 2018. This index is comprised mostly of Federal issues, as summarized on the next page.[15]

Closing figures for : 10/05/2018

	Index Level (TR)	# of Issues	MktVal (Billions)	Effective Term
Real Return Bond Indices				
Real Return Bond	559.0	14	84.2	25.00
Real Return Federal Non-Agency Bond	329.2	8	74.9	25.93

While the RRB market is not as large as the (nominal) bond market, and trading/turnover is likely lower as well (given the "buy-and-hold" nature of RRBs as a long-term hedge), I would not be overly concerned about acquiring RRBs because RRBs should generally be considered a long-term, "buy-and-hold" investment. Any "premium" cost associated with acquiring RRBs initially is relatively small, since it is generally a "one time" cost that could be "amortized" (notionally) over a period that exceeds a decade. In other words, the annualized extra cost of "bidding RRB prices up" is relatively small, yet the "release" of risk capital in other areas to increase returns would more than compensate for any perceived high cost when measured on a total portfolio basis.

15 Source: https://www.ftse.com/products/FTSETMX/home/indices

Future Market Size

I do not have a view on how issuers of RRBs will change the RRB **supply** in the future, nor do I have a view on how demand for RRBs from investors will change. The two relevant considerations, however, relate to:

d) **changes** in MPI's demand for RRBs to achieve its rebalancing objective (e.g., buying more RRBs to keep RRBs at their long-term target weight); and
e) any future new capital to be received by MPI that needs to be invested.

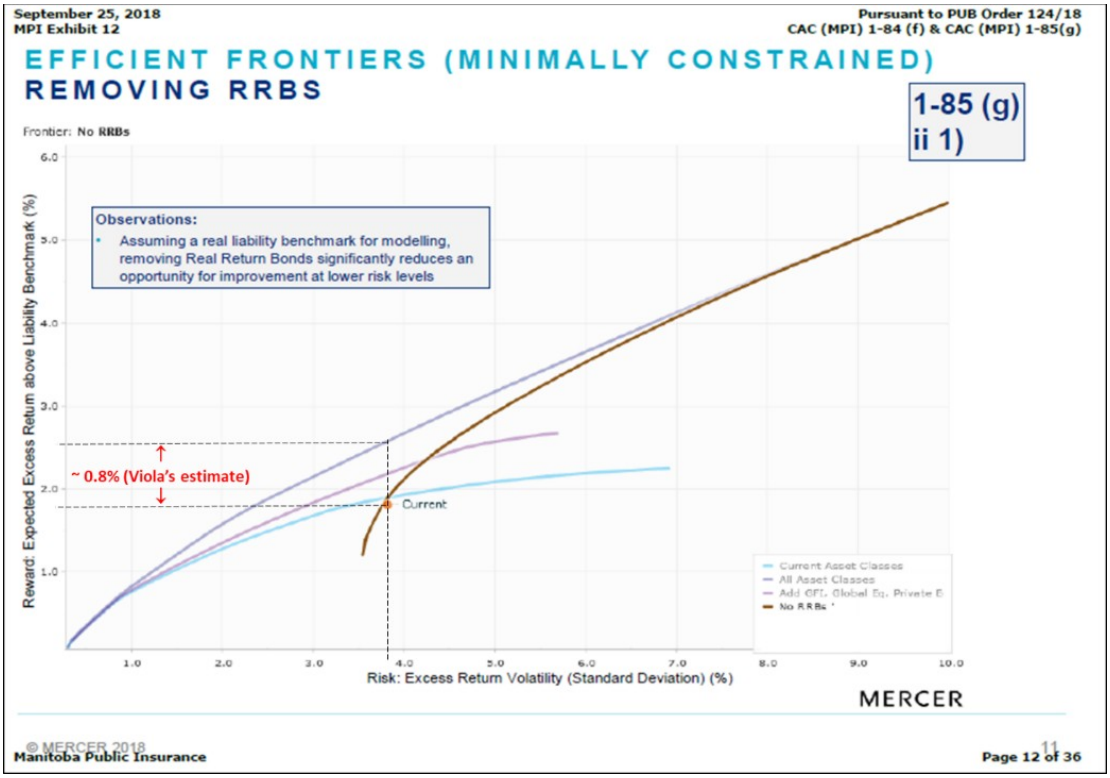
The first item requires a small additional investment if RRBs underperform other assets (to "top up" the RRB weight, based on the **difference** between RRB returns and the return on other assets). The second item is not a large concern, assuming any new capital to be invested is a small proportion of assets under management.

b) RRB Concerns

I do not have concerns about the inclusion of RRBs on the impact of returns from the Basic or Pension portfolios when viewed on a **total portfolio basis** and after adjusting for the risk reduction that RRBs have on the portfolios, other things equal. As noted in my evidence and response to PUB (CAC) 1-5, RRBs improve **total portfolio** returns at all levels of risk according to Mercer. In other words, an efficient frontier that includes RRBs is higher than one that excludes them.

0.8% Return Reduction in Basic Portfolio

The 0.8% adverse impact of removing RRBs from the **Basic** Portfolio is inferred from Mercer's analysis in MPI Exhibit 12, page 12 of 36 (below).



At "current" risks levels (vertically at x = Risk = 3.8%) Mercer's efficient frontier suggests that the expected excess return above the Liability Benchmark drops by ~ 0.8% when RRBs are removed, from a visual inspection of the graph.

PUB (CAC) 1-8

Document:	The Capital Maintenance Provision Proposal by Manitoba Public Insurance	**Page No.:**	3
PUB Approved Issue No.:	20. Capital Maintenance Provision		
Topic:	CMP and Accepted Actuarial Practice		
Sub-Topic:			

Preamble to IR (If Any):

"The CMP does not align with Accepted Actuarial Practice in Canada."

Question:

a) What does it mean to be aligned with Accepted Actuarial Practice vs. being in compliance with Accepted Actuarial Practice?

b) If the assertion being made is that a CMP is not in compliance with Accepted Actuarial Practice in Canada, please file specific authorities from the Standards of Practice of the Canadian Institute of Actuaries to support this assertion.

Rationale for Question:

To understand the assertions made with respect to the CMP and Accepted Actuarial Practice in Canada.

RESPONSE:

a) From http://www.yourdictionary.com/align one of the definitions of align is "to bring into agreement, close cooperation, etc." To the best of the writer's knowledge the Actuarial Standards of Practice does not contain a section on how a company should maintain target capital. Therefore, the CMP does not align with the Actuarial Standards of Practice.

b) Please see the response to a). The Actuarial Standards of Practice do not contain a section on maintaining capital so the CMP would not technically be non-compliant.

PUB (CAC) 1-9

Document:	The Capital Maintenance Provision Proposal by Manitoba Public Insurance	**Page No.:**	5
PUB Approved Issue No.:	20. Capital Maintenance Provision		
Topic:	CMP and Capital Preservation		
Sub-Topic:			

Preamble to IR (If Any):

"The RSR range will go up in dollar terms as the size of the Corporation increases. This negates the need for a CMP."

Question:

a) Is it Dr. Simpson's and Ms. Sherry's assertion that the CMP is redundant when one considers the target range for Basic total equity is to be determined annually from the DCAT? Please explain.
b) In the absence of a CMP, if Basic's capital position is expected to naturally decline during the forecast period, is that outcome in the public interest and acceptable for rate setting purposes?

Rationale for Question:

To better understand Dr. Simpson's and Ms. Sherry's evidence re: the need for a CMP.

RESPONSE:

a) Yes. MPI's DCAT is performed yearly, the RSR range can be determined yearly based on the DCAT results, the actuarial rate indication is completed yearly, and the rate required based on the actuarial rate indication and whether the Corporation's capital is within the RSR range determined can be applied for yearly. Given this, there is no need for a CMP as the rate required can be sought annually based on the Corporation's situation at the time of filing.

b) It is not against public interest if Basic's capital position falls over the time period between GRAs because the capital position will be reviewed when the RSR target range is set on an annual basis. If the capital position of the Corporation is below the minimum of the range a filing asking for an RSR rebuild provision would be possible.

CAC Manitoba adds that it expects to explore the hypothesis that "Basic's capital position is expected to naturally decline during the forecast period" during the General Rate Application.

INTERVENER PRESENTATION

MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION
EXHIBITS

- Manitoba Public Insurance (MPI) Exhibits
- Public Utilities Board (PUB) Exhibits
- Canadian Automobile Association (CAA) Exhibits
- Consumer's Association of Canada (Manitoba) Inc. (CAC) Exhibits
- Coalition of Manitoba Motorcycle Groups (CMMG) Exhibits

MANITOBA PUBLIC INSURANCE (MPI)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
2019/2020 General Rate Application	1	21	Jun 25
Customer Service Business Case	2	25	Jun 25
2019 GRA Revisions - Information Technology (IT) Appendix 1 and Expenses (EXP) Appendix 19	3	54	Jun 25
Curriculum Vitae of Chares (Chuck) E. Henry	4	79	Jun 25
Curriculum Vitae of David (Dave) Makarchuk	5	80	Jun 25
Revised Timetable for 2019 General Rate Application	6	87	Jun 25
Expenses (EXP) Appendix 16 Revised - August 8, 2018	7	--	--
Expenses (EXP) Appendix 11 Revised - August 8, 2018	8	--	--
Round I IRs redaction changes on PUB-MPI I-58(a), 59(a)(b), 61(b)(d), 62 App. 3&4, 2(a)(b) App 1 and CAC-MPI-I-60(a) - August 20, 2018	9	--	--
Revised CAC-MPI Round I IR Response 54	10	--	--
Notice of Motion re: Rule 13 - Treatment of Confidential Documents (Viewable upon request only)	11-1	--	--
Motion Brief re: Rule 13 - Treatment of Conditional Documents (Viewable upon request only)	11-2	--	--
Notice of Motion re: Round I IR Responses	12-1	--	--
Motion Brief re: Round I IR Responses	12-2	--	--
Motion Brief re: Response to CAC Motion compelling responses	13-1	--	--
Affidavit of Glen Bunston re: CAC Motion compelling responses	13-2	--	--
Supplemental Affidavit of Glen Bunston, sworn September 7, 2018	13-3	--	--

MANITOBA PUBLIC INSURANCE (MPI)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
MPI Motion - Notice of Motion re: Confidential filing of Round II IR Responses - September 14, 2018	14-1	--	--
MPI Motion: Motion Brief re: Confidential filing of Round II IRs Responses - September 17, 2018	14-2	--	--
Round I Information Response - CAC-MPI-I-84(f)-85(g) – September 25, 2018	15	--	--
Round II Information Response Revised - PUB-MPI-II-24 – October 1, 2018	16	--	--
Round I Information Response Revised - PUB-MPI-I-27 – October 1, 2018	17	--	--
MPI to Consumers Association of Canada (Manitoba) (CAC) Intervener IRs - October 5, 2018	18	--	--
MPI Investment Policy Statement - October 12, 2018	19	--	--
MPI Rebuttal to CAC Evidence - October 12, 2018	20	--	--
MPI CEO Overview Presentation - October 12, 2018	21	--	--
MPI Investment - Rate Stabilization Reserve -Capital Maintenance Provision Panel Presentation - October 14, 2018	22	244	Oct 16
Mercer ALM Project Summary - October 14, 2018	23	244	Oct 16
MPI Quarterly Financial Report - 2nd Quarter	24	245	Oct 16
MPI Revenue - Expenses - Rate Making Panel Presentation – October 18, 2018	25	727	Oct 18
Pre-Ask # 1 with all attachments	26	1106	Oct 23
IT-PDR-VM Panel Presentation - October 22, 2018	27	1107	Oct 23

Description of Exhibit	Number Assigned	Transcript Page	Date
Gartner Presentation - October 22, 2018	28	1107	Oct 23
Undertaking # 3 - Decrease in Basic's share of income on pension assets - October 22, 2018	29	1107	Oct 23
Undertaking # 4 - Blackline version of Transitional Investment Policy Statement - October 22, 2018	30	1108	Oct 23
Undertaking # 1 - Yield rate on Government of Canada 10-year bonds - October 23, 2018	31	1168	Oct 26
Undertaking # 2 - Pension benefit portfolio based on relative size of payroll allocated to basic - October 23, 2018	32	1168	Oct 26
Undertaking # 15 - Increase in revenue associated from higher DSR demerit premiums in dollars - October 23, 2018	33	1168	Oct 26
Undertaking # 5 - Capital Maintenance Provisions	34	1168	Oct 26
Undertaking # 7 - MCT ratio from 75 to 100 percent	35	1169	Oct 26
Undertaking # 9 - Motorcycle road safety initiatives on budget	36	1169	Oct 26
Undertaking # 10 - Mercer comments on read liability benchmarking	37	1169	Oct 26
Undertaking # 11 - Inflation of volatility assumption – October 24, 2018	38	1169	Oct 26
Undertaking # 13 - analysis in PUB-MPI-I-86, based on Mercer's standard interest rate forecast - October 26, 2018	39	1170	Oct 26
Undertaking # 18 - progress on public consultations – October 26, 2018	40	1170	Oct 26

Description of Exhibit	Number Assigned	Transcript Page	Date
Undertaking # 14 - savings from eliminating management full time positions by 15 and creating 24 new positions - October 26, 2018	41	1170	Oct 26
Undertaking # 6 - correction on basic target capital under threshold in Board Order 130-17 - October 26, 2018	42	1170	Oct 26
Undertaking # 8 - Reserves, purposes and amounts in each – October 26, 2018	43	1171	Oct 26
Undertaking # 12 - Stress Test from Mercer Report - results/why was it not done - October 26, 2018	44	1171	Oct 26
Undertaking # 16 - amount of the offsetting provision for investment expenses in discount rate used in rate setting – October 26, 2018	45	1171	Oct 26
Undertaking # 17 - fiscal year-to-date account of actual revenue impact - October 26, 2018	46	1171	Oct 26
Excerpts from Board Order 130-17 page 29 - October 26, 2018	47	1172	Oct 26
Commercially Sensitive IRs (CSI) - MPI letter and response to CAC questions re: MERCER re Appendix 17, Attachment C - Slide 8 - October 26, 2018 (document is CSI & not available to the public)	48 *CSI	--	--
Correction to MPI-41 (Undertaking 14) blacklined – October 29, 2018	49	1339	Oct 29
MPI Closing Submission Written Document - October 30, 2018	50	1697	Oct 30
MPI Closing Submission Presentation - October 30, 2018	51	1697	Oct 30
MPI Reply Argument - October 31, 2018	52	--	--

Manitoba Public Insurance

Business Case

PROJECT NAME:	Customer Self Service – Phase 1 , 2 and 3
DATE SUBMITTED:	November 16, 2017
PREPARED/SUBMITTED BY:	John Remillard, Corporate Business Architect, Business Architecture
BUSINESS OWNER	Brad Bunko, VP, IT & Business Transformation & CIO Curtis Wennberg, VP, Customer Service & COO
DEPARTMENT	Service Operations / Business Architecture
DIVISION	Customer Service and Information Technology & Business Transformation

PROJECT DESCRIPTION:
(Provide a summary description of the project along with the current process and proposed future process)

This project will introduce a new customer self-service channel via the Internet and mobile platforms to meet current and future customer service expectations and needs. Building on the business architecture and technology infrastructure being introduced by the Physical Damage Re-engineering program (PDR) with respect to shop appointment booking as well as the portal technology for the business partner portal, this project will leverage these foundational corporate technology investments and assets to introduce an extended customer self-service channel for high volume/low-value transactions for maximum impact.

The Business Transformation Office will assume responsibility for oversight, management, and delivery of this project. Corporately, other key stakeholders include Service Operations, Broker Support Services and Finance.

<u>Phase 1 (Summer 2018)</u>
The FY17/18 and FY18/19 funding for this project will implement the necessary base business and technical architecture which will provide a long-term and strategic platform for the customer self-service delivery channel and provide some relief to customer service delays being experienced in MPI Service Centres. This will include the implementation of:

- Customer portal for on-line authentication via the following type of devices (mobile phone, personal computer, personal device)
- MPI appointment based services eligibility & booking (for road tests and knowledge tests)

<u>Phase 2 (Fall 2018)</u>

This phase will introduce the expandability customer self-service capability of:

- Secure messaging (i.e. ability to send claims status messages)
- High School Driver's Education Registration

- E-notification (transition from paper mail to on-line e-copy of MPI notifications

Phase 3 (Winter 2018)

This phase will introduce the expandability customer self-service capability of:

- Driver abstracts (ability to purchase and obtain electronic copy)
- Claims experience letters (ability to purchase and obtain electronic copy)

This project is also strategically related to the High School Driver's Education – Phase 3 project, the Legacy Systems Modernization project, the customer self-service strategy and roadmap, and Broker Compensation Negotiations FY19/20.

The above stated customer self-service strategy and roadmap and the Broker Compensation Negotiations FY19/20 will collectively establish the long-term vision, priorities, capabilities and overall financial viability of migrating further existing services to the customer self-service channel.

After the base infrastructure is implemented for customer self-service, it will be imperative to invest in future customer self-service 'applets' which align to the direction of the Legacy Systems Modernization project. Also, as each service offering is considered for the customer self-service delivery channel, this business case will be updated accordingly with transaction migration impacts and associated impact to customer portal licensing costs, MPI FTE impacts, MPI operating costs, and broker compensation impacts.

BUSINESS NEED:
(Provide a detailed description of the project/initiative and how it will satisfy the business need. Include opportunities and the issues that led you to prepare this document)

Currently, at peak times throughout the day, urban Service Centres are 'deflecting' up to 20% of our customers to local Autopac agencies due to excessive wait times (excess of 25 minutes) to receive service at the front counter.

Autopac agents also continue to deflect complicated, time-consuming transactions to Service Centres.

In looking at other related Canadian insurers, SGI offers a far greater presence for customer self-service with up to 80% of their transactions available. MPI will review and consider similar self-service offerings in the long-term strategy and roadmap.

Online Service	MPI	SGI
Change of address	**No**	**Yes**
Reassess/Renew DL	**No**	**Yes**
Replace DL	**No**	**Yes**
Cancel DL	**No**	**No**
Driver info (abstract)	**No**	**Yes**
Schedule Knowledge Test/Road Test	**No**	**Yes**
View Registration/ Insurance	**No**	**Yes**
Cancel Registration / Insurance	**No**	**Yes**
File PD Claim	**No**	**Yes**
Schedule Estimate	**No**	**Yes**

With the marketplace changes in society and business, customers are getting self-service options from brokers, insurance providers, banks and similar organizations to MPI. In 2014, MPI launched the first customer self-service transaction via the on-line credit card payment process. To-date, no targeted marketing nor aggressive customer communications have occurred and yet over 50,000 customers utilized this service last year.

Lastly, with the pending High School Driver's Education curriculum re-design launch in 2018, there is an opportunity for MPI to permanently establish 'a new way of doing business' with these year-over-year new customers to MPI. With a strong and meaningful customer self-service channel with transactions and capabilities that are relevant to customer needs, the self-service channel will become 'the future way to seek services' with MPI for this customer demographic. This will ultimately transform the service delivery model and ensure that MPI remains relevant to Manitobans' from a customer service perspective.

PROJECT OBJECTIVES:
(List SMART objectives – Specific, Measurable, Attainable, Realistic, Time-limited)

Introducing a customer self-service delivery channel at MPI will:

- Meet current and ongoing customer service levels and demand
- Eliminate excessive customer service delays at Service Centres
- Reduction in operating and other expenses up to $776,000 per annum

PROJECT BENEFITS:

(Provide a description of the benefits that this project/initiative would provide)

The implementation of Phase 1 of a customer self-service channel is expected to generate the following project benefits:

- Eliminate excessive customer service delays at Service Centres
- Reduce Service Centre FTE's by up to 14 through attrition
- Reduction of broker transaction fees
- Meet the current and future customer service needs of an evolving customer base
- Reduce future mailing operational expenses by up to $172,500 per annum

This business case in its current form is not providing a near-term positive financial return on investment. It will however start to provide a positive financial return after year 7. The financial investment is deemed to be strategic in nature and partially a 'cost of doing business' to meet future customer needs from a service delivery and service channel perspective. The business case is also challenged in the early stages due to the licensing model for the portal technology. Until a critical mass of over 300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained, the financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

Also, the near-term high-volume/low-value transactions and services envisioned for the customer self-service delivery channel are 'flat fee' based broker compensation transactions. Thus, not having a significant impact on the overall $80M broker compensation operating expenses overall.

An opportunity exists to also introduce a 'kiosk' model for customer self-service in MPI service centres. This concept and associated costs for computer equipment and/or premises renovations have not been incorporated into the business case at this time. This will be a concept that is observed and continuously reviewed and evaluated with subsequent iterations of the business case in conjunction with the customer self-service strategy and roadmap.

This project provides many opportunities to enhance customer service and reduce operational costs from a MPI service centre, mailing costs, and broker compensation expense perspective. Strategic conversations between MPI executive management, MPI Board of Directors, and IBAM executive are required to determine:

- How quickly do we transition to the customer self-service channel
- Which inventory of products, services can be made available thru the customer self-service channel
- What does the future Autopac agent commission structure look like in co-relation to a customer self-service channel

MONITORING OF ACTUAL PROJECT BENEFITS:
(List tools and processes to monitor attainment of listed project benefits

- Corporate FTE levels
- Customer transaction volumes by service channel (self-service, MPI service centres, Autopac agents)
- Broker transaction fees
- Corporate mailing expenses

IMPACT ANALYSIS:
(Describe the quantifiable and non-quantifiable effects of the outcome of this project. Include a summary only)

Who will be impacted	What is the impact
Service Centre Operations	Service Centre Operations (front counter service representatives) – reduction in effort and associated staffing required as customers transition to the self-service channel as the primary channel
Driver Licensing	Reduction in effort required to support customer service needs as customers transition to self-service channel as a primary channel
Communications	Customer communications campaign to inform customers of new customer service delivery channel will be required. Conduct client polls to confirm support of new customer self-service strategy
Human Resources	Staff reductions are anticipated to occur via attrition versus staff redeployments
Autopac Agents	Reduction in customer traffic for high volume/low value transactions and corresponding fees
Premises	Reduction in Service Centre real estate footprint over time and facilitate/align to strategy to decommission Service Centre locations

RISK ANALYSIS:
(Describe the impact of risk and the likelihood of it happening, both for proceeding or not proceeding with the project)

Potential Risk	Likelihood (L,M,H)	Description of Impact of Risk and description of planned action taken to mitigate this risk

Risks/Obstacles of Proceeding with Project
(A high likelihood of risk without sufficient planned action for mitigation, may impact the discount rate used in calculating the Net Present Value of forecasted financial benefits. Impact to be discussed with the VM office)

Customer transition rate to self-service channel slower than anticipated	M	Will impact business case savings stream and overall financial return of the project. Adoption rates in financial analysis are deemed conservative.

Autopac agents concerned about self-service channel and MPI long-term direction and intentions	M	Will require ongoing dialogue with the broker community.

Risks of NOT Proceeding with Project		
Customer opinion of MPI and services offered could be negatively impacted	M	MPI relevance to and opinion of Manitobans' could suffer.
Lost opportunity to reduce operational costs	M	Operational cost savings opportunity would be lost or deferred
Customer service delays in Service Centres will continue and increase into the future	M	MPI service centres will continue to experience customer service delays and line-ups of customers. Service operation will need to consider FTE increases or service centre front-counter staffing models which increase service availability. There is a risk of increasing ongoing operating costs.
Legend L=Low; M=Medium; H=High		

PROPOSED TIMING
(When, how long, and organizational capacity)

Initial implementation in June 2018, with subsequent expanded service offerings each quarter over FY 18/19.

LEGAL REVIEW REQUIRED?

No X Yes

If yes, include legal review's response:

ENTERPRISE ARCHITECTURE AND INFORMATION SECURITY REVIEW REQUIRED?
(To be considered for medium and detailed business cases)

No Yes X

Enterprise Architecture is already engaged and involved with the business case preparation and the project.

ENTERPRISE ARCHITECTURE REVIEW:

(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)

Business Architecture	Reviewed Date:

	Review Completed By: Findings: Recommended to proceed: Yes / No
Technical Architecture	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes/No

INFORMATION SECURITY REVIEW: *(Technical review of the proposed solution to ensure alignment to corporate policies, standards, and business rules)*	
Information Security Office	Reviewed Date: Review Completed By: Findings: Recommended to proceed: Yes / No

HIGH LEVEL ESTIMATED COST/BENEFIT ANALYSIS:		
Project cost (must be completed)		
• Total estimated range of project cost	$	3,179,495
• Capital percentage (if known)	%	100
Estimated reduction/increases in cost (must be completed if applicable)		
• Continuing annual cost reduction amount	$	500k to 1.5M from 2019/20 to 2023/24
• Continuing annual cost (increases)	$	(330k) to (720k) from 2019/20 to 2023/24
• Other (specify)	$	
Estimated increase in revenue (must be completed if applicable)		
• Continuing annual incremental increase in revenue	$	
• One time revenue increase	$	
• Other	$	

Cost/Benefit Analysis *(To generate these measures see Business Case Financials template at end of package)*		
• Discounted Payback in years *(The year discounted benefits exceed discounted costs)*	Yrs	➢ 8
• Payback in years *(The year accumulated benefits exceed accumulated costs)*	Yrs	8 years
• Internal Rate of Return (IRR)	%	(34 %)
• Net Present Value (NPV)	$	(2,227,360)
• Other (specify)		

INITIAL ASSUMPTIONS: *(What are you assuming to be true, or what conditions are you assuming will prevail that will make this achievable?)*	
Cost Assumptions	• Customer self-service project will fund customer portal user authentication development and will incur customer portal user licensing costs
Cost/Benefit Assumptions	Customer adoption rates will be impacted by other corporate projects (High School Driver's Education) Broker negotiations in FY18/19 will consider impact of customer self-service project and delivery channel.
Other Assumptions	

CONSTRAINTS/DEPENDENCIES: *(What are the constraints or dependencies, if any, that limit the range of options?)*	
Cost Constraints	
Schedule Constraints/ Dependencies	Project assumes High-School Driver's Education launch by Spring 2019
Other Constraints/ Dependencies	

SIGNIFICANT MILESTONES: *(List the high-level key events, and their dates, that need to occur for this project to be delivered as planned)*	
Project Start Date	FY 17/18
Phase 1 Implementation	June, 2018
Phase 2 Implementation	Fall, 2018
Phase 3 Implementation	Winter, 2018
Project End Date	FY 18/19
Other Milestones	Remaining phases will be part of customer self-service strategy, roadmap and updated business case.

APPROVAL REQUEST/RECOMMENDATION: *(Indicate what project stage and funding $ amount you are requesting approval for)*
Requesting approval of $1.5M for FY 18/19 and approval to proceed with pursuing base technology architecture by end of FY 18/19.

SIGN-OFF BY DOCUMENT CONTRIBUTORS:
(Sign if you have contributed to this document and are comfortable with proceeding to the next stage, as indicated above)

Area/Department	Date	Name of Individual Required for Sign-off	Signature

VALUE MANAGEMENT REVIEW:			
Reviewed By	**Date**	**Printed Name**	**Signature**
Joe Riel	Vers 1 Dec 5, 2017		

MANAGEMENT APPROVAL:			
Should this go to executive for approval?			Circle **YES** or **NO**
Approved By	**Date**	**Printed Name**	**Signature**

EXECUTIVE APPROVAL:			
Approved By	**Date**	**Printed Name**	**Signature**

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	**Total**
1	Project Costs	(1,679,495)	(1,500,000)	0	0	0	0	0	**(3,179,495)**
2	Project Benefit	0	(71,890)	163,906	306,447	495,428	708,264	778,156	**2,380,311**
3	Net Project Impact	(1,679,495)	(1,571,890)	163,906	306,447	495,428	708,264	778,156	**(799,183)**
4	Cumulative Net Project Impact	(1,679,495)	(3,251,385)	(3,087,479)	(2,781,032)	(2,285,604)	(1,577,340)	(799,183)	
5	**Net Present Value**	**(2,227,361)**	based on discount rate of 6.50%						
6	**IRR**	**-34.0%**							
7	**Payback Period in years** **Return on Investment**	-100%	-102%	-97%	-87%	-72%	-50%	-25%	
8	**Discounted Payback Period in years**								

PROJECT NAME: Customer Self Service

List all major financial assumptions used to develop the Financial Template

Line No.	Spreadsheet Assumptions		Source
2	Project Contingency	15%	Project
3	Interest/Discount Rate for NPV calculation	6.50%	See **Note 1** for guidance on discount rate to use for calculating net present value. 4% for low risk project; 6.5% for medium risk project; or 9.5% for high risk project.
4	Inflation increase on expenses/costs	2.50%	Finance unless fixed price - amend specific cells
5	Benefits Gross up as % of Salary	30%	HR/Finance covers pension, cpp, ei, heath benefits, etc

6 **Note 1** Risk free discount rate (i.e. Corporate Cost of Capital or the average expected investment return from MPI's investment portfolio as projected for the next several years (See 2018 GRA) is 4%. This is the rate to be used on low risk initiatives such as repetitive MPI work where the risks to the success of the project are known and have been managed well in the past. A premium rate can be added to the discount rate to reflect riskier than normal project initiatives where there is greater uncertainty of realizing the projected future cash flows or of estimating costs. For these medium risk projects we recommend a discount rate of 6.5%. For instance, the longer the period of expected cash flows, the riskier the realization of such cash flows. Also initiatives in areas new to the corporation or where the corporation has no past experience, this increases the risk of realizing projected cash flows or estimating costs. In these circumstances, this warrants a higher discount rate in calculating the net present value of a project's cash flows. For these high risk projects we recommend a discount rate of 9.5%.

7 Project Specific Assumptions (please list)

8 * Service Centre operations staff reductions will occur thru attrition
9 * High school driver's education launch in FY 19/20 is linked to success of customer adoption rates of customer self-service
10 * ongoing mailing costs reductions will be realized by customer adoption of e-notifications vs. paper mail customer communications channel
11 * customer self-service project will fund the customer portal development in FY 17/18 & carryover into FY 18/19
12 * An assumption is being made that all customers which adopt customer portal will elect to transition to e-notification for all MPI letters etc.
13 * Note this project has future anticipated funding of $1.0M in FY 19/20 and FY 20/21 respectfully that is not accounted for in the project costs
all future expanded customer self-service capabilities associated with that funding will have to demonstrate via a revised business case that the investment is worthy of consideration

14 **Based on PMIS licencing scale and the user thresholds, once the threshold is met and maintained for 3 months, the higher volume and lower price per user will immediately apply**

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	External Labour (list various categories)								
2		1,460,430	1,304,348	0	0				2,764,778
									0
									0
3	Total External Labour	1,460,430	1,304,348	0	0	0	0	0	2,764,778
4	Other External Operating Costs								
5	Travel								0
6	Training								0
									0
									0
7	Total Other External Operating Cos	0	0	0	0	0	0	0	0
8	Capital Expenditures								
9	Hardware								0
10	Software								0
11	Furniture								0
									0
12	Total Capital Expenditures	0	0	0	0	0	0	0	0
13	Total External Cost before Contingency	1,460,430	1,304,348	0	0	0	0	0	2,764,778
14	Contingency 15%	219,065	195,652	0	0	0	0	0	414,717
15	Total External Costs	1,679,495	1,500,000	0	0	0	0	0	3,179,495
16	Internal Incremental Costs (list)								
17	Staffing	0	0	0	0	0	0	0	0
									0
									0
									0
18	Total Internal Incremental Costs	0	0	0	0	0	0	0	0
19	Total Project Costs	**1,679,495**	**1,500,000**	**0**	**0**	**0**	**0**	**0**	**3,179,495**

20 Project Cost Assumptions

21 * External labour costs are not based on 'bottom-up' estimating, the costs are capital funding allocations and the project team will need to design and deliver associated functionality for capital funding amount provided

PROJECT NAME: Customer Self Service

Line No.		FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	**Project Impact**								
2	**One time Impact**								
3	Cost Savings								0
4	Cost Avoidance								0
5	Revenue increase								0
6	Total One Time Impact	0	0	0	0	0	0	0	0
7	**On Going Impact**								
8	Cost Increases								
9	Maintenance			50,000	51,250	52,531	53,845	55,191	262,816
10	Software				0	0	0	0	0
11	Licensing		104,160	289,045	441,930	548,345	630,871	665,010	2,679,360
12	Facilities				0	0	0	0	0
13	Other								0
14	Total Cost Increases	0	104,160	339,045	493,180	600,876	684,716	720,200	2,942,176
15	Cost Decreases/avoidance								
16	Staffing (net) and tx fees		32,270	412,624	661,524	910,424	1,159,324	1,226,924	4,403,090
17	Maintenance		0	0	0	0	0	0	0
18	Software				0	0	0	0	0
19	Licensing		0	0	0	0	0	0	0
20	Other (mailing costs)		0	90,327	138,103	185,880	233,656	271,433	919,398
21	Other		0	0	0	0	0	0	0
22		0	32,270	502,951	799,627	1,096,304	1,392,980	1,498,357	5,322,488
23	Claims Incurred Decrease		0	0	0	0	0	0	0
24	Revenue Increase		0	0	0	0	0	0	0
25	Total Ongoing Impact	0	(71,890)	163,906	306,447	495,428	708,264	778,156	2,380,311
26	Total Project Impact	0	(71,890)	163,906	306,447	495,428	708,264	778,156	2,380,311

27 Describe in detail all Project Impact amounts below:

28	**Customer Take up rate**							
29	MPI Customer Base	1,000,000						
30	Road test/Knowledge test volume	100,000						
31	Customer self service txn adoption rate % for Broker commission (see last assumption below)	10%	20%	30%	40%	50%	50%	
32	HSDE	10,500	10,500	10,500	10,500	10,500	10,500	
33	HSDE parent/co-pilot	22,050	22,050	22,050	22,050	22,050	22,050	
34								
35	Customer self service (services)		20,000	30,000	40,000	50,000	50,000	
36	Customer self service (e-docs)		20,000	40,000	60,000	80,000	100,000	
37	HSDE for life		10,500	21,000	31,500	42,000	52,500	
38	HSDE parent/co-pilot for life		7,277	14,553	21,830	29,106	36,383	
39	**Total - customer portal licences**	**32,550**	**90,327**	**138,103**	**185,880**	**233,656**	**271,433**	

40 * Maintenance costs are a post-implementation operations based funding allocated provided to add minor features/resolve production issues for implemented functions in FY18/19, not associated with adding new capabilities/service. Timing of expense is related to timing of implementation of customer portal and initial self-service functions

41 * Licensing costs are based on PMIS Licensing costs model. Based on customer/user take-up rates the associated rate will be incurred annually per customer

42 * HSDE take-up; assumption is that all year over year HSDE students, parents and co-pilots will utilize the Customer Portal in order to access necessary/applicable content, service and functions associated with the new HSDE program. Volume is based on operational take-up rates for HSDE program

43 * A management decision has been made that customer self-service will incur all associated customer portal licensing fees. (i.e. HSDE business case will not incur portal licensing fees, will be allocated to this business case)

* HSDE for life - assumption is that all HSDE customer are new customers to MPI and based on demographic and customer service needs/preferences will continue to use customer portal as a primary service channel into the future

* HSDE parent/co-pilot for life - assumption is that 1/3 of HSDE parents/co-pilots will prefer to permanently transition for the new customer portal service channel (deemed to be a conservative estimate)

* For 'customer self service' adoption rates - assumed 2% of MPI customers will elect/prefer to transition to the new customer portal service delivery channel (deemed to be a conservative estimate)

* Overall - as the premlinary services planned to be migrated to the customer self-service channel (road/knowledge test appointment bookings, driver abstracts, claims experience letters, and secure messaging for claims status, and electronic document delivery vs. paper mail for customer communications/mailings) the main MPI benefit/impact will be to service provided at MPI service centres vs. Autopac agents.

* Mailing costs - $1 for every edocs customer and HSDE for life and HSDE parent/co-pilot for life.

PROJECT NAME: Customer Self Service

Line No.			FY 2017/18 Year 1	FY 2018/19 Year 2	FY 2019/20 Year 3	FY 2020/21 Year 4	FY 2021/22 Year 5	FY 2022/23 Year 6	FY 2023/24 Year 7	Total
1	Project Staff									
										0
										0
										0
										0
										0
										0
2	Total Salary		0	0	0	0	0	0	0	0
3	Benefits	30%	0	0	0	0	0	0	0	0
4	Total Salary and Benefits		0	0	0	0	0	0	0	0
5	Impact of Project on Staffing (Increases and Decreases)									
6	Reduction of Staff			0	156,000	312,000	468,000	624,000	676,000	2,236,000
7	New Staff			0	0	0	0	0	0	0
8				0	0	0	0	0	0	0
9				0	0	0	0	0	0	0
10				0	0	0	0	0	0	0
11				0	0	0	0	0	0	0
12	Total Salary		0	0	156,000	312,000	468,000	624,000	676,000	2,236,000
13	Benefits	30%	0	0	46,800	93,600	140,400	187,200	202,800	670,800
14	Total Salary and Benefits		0	0	202,800	405,600	608,400	811,200	878,800	2,906,800

15 Describe in detail all Staffing changes resulting from the project below:

16 Describe in detail all Staffing changes resulting from the project below:

17										
6 Year Model			2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	Total
18		0	0	3	3	3	3	1	1	14

19 SCR reductions in Service Centres operations are supported by anciliary models

Appendix 01: EXTERNAL LABOUR - MEASURES AND METRICS – STATUS UPDATE

TABLE NAME(s): Figure IT App 1– 1 IT Personal / Figure IT App 1– 2 IT Personal Costs

REFERENCE: Update on PUB (MPI) 1-31 (2018 GRA) & (II Exp. Appendix 18 PUB/MPI 1-18 (2017 GRA) - Figure IT - 1: IT Personal & Figure IT - 2: IT Personal Costs

DESCRIPTION: Figure 1 below contains a 5 year historical summary and a 3 year forecast for both internal resources and consultants that have worked and are expected to work within the Information Technology area. Figure 2 below provides the actual spend for 2017/18 and also the forecasted spend on internal and external resources for the next three years.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Tables updated to include 2020/21 figures and revised forecasts for 2018/19 and 2019/20.
- Figure 1: Note - As of May 2018 # of external has been reduced to 82.
- Figure 1: Corporate Reorganizations occurred in 2017/18 and 2018/19 which resulted in 35.6 internal FTE being transferred into the division from other areas of the corporation. The increase has been identified as a separate line item in Figure 1 below.
- Figure 1: 18 Consultant Conversions also appear as a separate line item below. These positions were added into the operational budgets (2017/18 & 2018/19). Note – Three additional conversions occurred in 2016/17…these positions are reflected in the project budgets.
- Figure 1: Additional changes listed decrease the overall FTE totals by 2.5 in 2017/18 and 0.6 in 2018/19.

- Figure 2: Approximated internal costs based on budgeted/forecasted FTEs. Approximated external costs based on anticipated consultants in relation to known projects.

Figure IT App 1- 1: IT Personal – Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2013/14	2014/15	2015/16	2016/17	2017/18(A)	2018/19 (B)	2019/20 (F)	2020/21 (F)
1	Internal FTE	212	210	223	235.7	235.7	271.8	290.2	290.2
2	Corporate Re-Organization(s)					27.6	8		
3	Consultant Conversions					11	7		
4	New Positions (security, etc.)					2	2		
5	Divisional Reductions					(4.50)	(2.60)		
6	Internal FTE Total	212	210	223	235.7	271.8	286.2	290.2	290.2
7	Consultants	120	110	114	107	107	82	80	80
8	Total	**332**	**320**	**337**	**342.7**	**378.8**	**368.2**	**370.2**	**370.2**

Figure IT App 1- 2: IT Personal Costs- - Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2017/18(A)	2018/19(B)	2019/20(F)	2020/21(F)
	(C$000s except where noted)				
1	Internal FTE Costs ($)	$ 22,392	$ 24,119	$ 25,417	$ 26,203
2	~~Consultant Costs ($) - Original~~	~~$ 15,153~~	~~$ 12,029~~	~~$ 10,791~~	~~$ 10,792~~
2	Consultant Costs ($) - Revised	$ 14,346	$ 11,517	$ 10,333	$ 10,334
3		$ 36,738	$ 35,636	$ 35,750	$ 36,537
4	* Two internal departments moved under IT umbrella during 2017/18				
5	Change - MPI deferred development costs were included in the original consultant cost calculation (in error).				

TABLE NAME(s): Figure IT App 1- 3 IBM Master Service Agreement / Figure IT App 1- 4 HP Master Service Agreement / Figure IT App 1-5 IBM Data Center Costs

REFERENCE: Update on PUB (MPI) 1-32 (2018 GRA) & II EXP Appendix 14 PUB/MPI I-29 (2017 GRA) – Figure IT - 1: IBM Master Service Agreement / Figure IT - 2: HP Master Service Agreement / Figure IT - 3: IBM Data Center Costs

DESCRIPTION: The first two tables below contains a 5 year historical summary of the annual spend that occurred under the HP & IBM Master Services Agreement. The last table provides an historical summary of the IBM Data Center Costs.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 3 & 4 updated to include 2017/18 figures.
- Figure IT App 1- 3 & 4 summaries capture all payment transactions that occurred between March 1st and Feb 28th in each of the years listed.

Figure IT App1- 3: IBM Master Service Agreement– Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	8.92	16.71	13.4	12.68	14.52	14.4

Figure IT App 1- 4: HP Master Service Agreement Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	19.5	25.08	23.18	24.61	21.09	20.1

TABLE NAME(s): Figure IT App 1- 5 IT Personal – Internal (FTE) / Figure IT App 1- 6 IT Personal – Consultants (FTE) / Figure IT App 1- 7 IT Personal – Internal Costs / Figure IT App 1- 8 IT Personnel - Consultant Costs / Figure IT App 1- 9 IT Personal - FTE 2011/12 – 2020/21 / Figure IT App 1- 10 IT Personal – Costs 2011/12 – 2020/21 / Figure IT App 1- 11 Average Cost per FTE

REFERENCE: Update on PUB (MPI) 2-17 (2018 GRA) & PUB (MPI) 1-31, PUB (MPI) 1-27 (2017 GRA) – Figure IT - 6 thru 12.

DESCRIPTION: The tables below contain a 5 year historical summaries of IT Personal and their related costs. The last three tables provide a broader perspective and cover a ten year period (7 years actual and 3 years forecast).

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 5 to 8 updated to include forecasts to 2020/21
- Figure IT App 1- 9 to 11 updated to include forecasts to 2020/21

- Figure IT App 1- 5 to 7: Major changes for 2017/18 & 2018/19 include the following:
  - Corporate Reorganizations – 27.6 FTE added to division in 2017/18 & 8 FTE added in 2018/19
  - Consultant Conversions – 11 FTE added to operational budget in 2017/18 and 7 FTE added in 2018/19
  - New Positions/Reductions – Net change -2.5 FTE in 2017/18 and -0.6 FTE in 2018/19.
- Figure IT App 1- 5: The remaining consultant conversions will occur in the 2019/20 budget.
- Figure IT App 1- 6: Variance in 2017/18 was due to additional testing requirements for the CLMS and the Infor Lawson upgrade projects. Projects went a little longer than anticipated…as of May 2018 the number of consultants has been reduced to 82. As noted in the IT Chapter, External Labour Update, it is anticipated that there will be additional reductions to 2019/20 numbers. Specific details are not available at the time of this submission so previous forecasts have been leveraged.
- Figure IT App 1– 7: Variances due to the staff increase as explained in the major changes note above.
- Figure IT App 1- 8: The variance mainly reflects changes to major projects requiring fewer consultants and the external labour strategy accelerating vs. plan.
- Figure IT App 1- 11: * denotes an increase in average consultant fee for 2013/14 is due to one-time transition/migration cost of IBM data center operations. The additional reduction measures identified in the IT Chapter, External Labour Update, are anticipated to further reduce average external labour cost per hour.

  An update is expected in 2018/19 and will be included in GRA 2020.

Figure IT App 1- 5: IT Personnel - Internal (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2016/17	235.7	235.7	0
2	2017/18	248.2	248.2	0
3	2018/19	286.2	253.2	33
4	2019/20	290.2	249.2	41
5	2020/21	290.2	n/a	

Figure IT App 1- 6: IT Personnel - Consultants (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	**2016/17**	107	107	0
2	**2017/18**	107	92	15
3	**2018/19**	82	81	1
4	**2019/20**	80	80	0
5	**2020/21**	80	n/a	

Figure IT App1- 7: IT Personnel - Internal Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)				
1	**2016/17**	$ 20,189	$ 20,189	$ -	0.0%
2	**2017/18**	$ 22,392	$ 22,199	$ 193	0.9%
3	**2018/19**	$ 24,119	$ 23,584	$ 535	2.3%
4	**2019/20**	$ 25,417	$ 24,655	$ 762	3.1%
5	**2020/21**	$ 26,203	n/a		

Figure IT App 1- 8: IT Personnel - Consultant Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast (Revised)	2019 GRA Forecast (Original)	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)					
1	**2016/17**	$ 19,904	$ 19,904	$ 23,965	$ (4,061)	-16.9%
2	**2017/18**	**$ 14,346**	~~$ 15,153~~	$ 16,233	$ (1,887)	-11.6%
3	**2018/19**	**$ 11,517**	~~$ 12,029~~	$ 14,292	$ (2,775)	-19.4%
4	**2019/20**	**$ 10,333**	~~$ 10,791~~	$ 14,166	$ (3,833)	-27.1%
5	**2020/21**	**$ 10,334**	~~$ 10,792~~	n/a		
6	*Change - MPI deferred development costs were included in the original consultant cost calculation (in error).					

Please see Figure IT App 1- 9 to 11 for historical IT Personnel FTE and Costs for Internal and Consultants, respectively and average cost per FTE.

Figure IT App 1- 9: IT Personnel – (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
1	**2011/12**	215	98
2	**2012/13**	227	129
3	**2013/14**	212	120
4	**2014/15**	210	110
5	**2015/16**	223	114
6	**2016/17**	235.7	107
7	**2017/18**	281.2	107
8	**2018/19F**	286.2	82
9	**2019/20F**	290.2	80
10	**2020/21F**	290.2	80

Figure IT App 1- 10: IT Personnel - Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants (Revised)	Consultants (Original)
1	**2011/12**	$ 17,663	$ 17,219	$ 17,219
2	**2012/13**	$ 19,043	$ 29,468	$ 29,468
3	**2013/14**	$ 19,380	$ 35,527	$ 35,527
4	**2014/15**	$ 17,588	$ 23,158	$ 23,158
5	**2015/16**	$ 18,632	$ 25,396	$ 25,396
6	**2016/17**	$ 20,189	$ 23,965	$ 23,965
7	**2017/18**	$ 22,392	**$ 14,346**	~~$ 15,153~~
8	**2018/19F**	$ 24,119	**$ 11,517**	~~$ 12,029~~
9	**2019/20F**	$ 25,417	**$ 10,333**	~~$ 10,791~~
10	**2020/21F**	$ 26,203	**$ 10,334**	~~$ 10,792~~
11	* Change - MPI deferred development costs were included in the original consultant cost calculation (in error).			

Figure IT App 1- 11: Average Cost per FTE- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants (Revised)	Consultants (Original)
	(C$000s except where noted)			
1	**2011/12**	$ 82.15	$ 175.70	$ 175.70
2	**2012/13**	$ 83.89	$ 228.43	$ 228.43
3 *	**2013/14**	$ 91.42	$ 296.06	$ 296.06
4	**2014/15**	$ 83.75	$ 210.53	$ 210.53
5	**2015/16**	$ 83.55	$ 222.77	$ 222.77
6	**2016/17**	$ 85.66	$ 223.97	$ 223.97
7	**2017/18**	$ 79.63	**$ 134.07**	~~$ 141.62~~
8	**2018/19F**	$ 84.27	**$ 140.45**	~~$ 146.70~~
9	**2019/20F**	$ 87.58	**$ 129.16**	~~$ 134.89~~
10	**2020/21F**	$ 90.29	**$ 129.18**	~~$ 134.90~~
11	Change - MPI deferred development costs were included in the original consultant cost calculation (in error).			

* Increase in average consultant fee for 2013/14 is due to one time transition/migration cost of IBM data center operations

TABLE NAME(s): Figure IT App 1-12 External IT Resources

REFERENCE: Update on PUB (MPI) 2-18 (2018 GRA) & PUB (MPI) 1-32
Appendix 14, PUB (MPI) 1-29 (2017 GRA) – Figure 1: External IT Resources

DESCRIPTION: The tables below contains a list of external labour resources who provide Information Technology (IT) services to projects and operations.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

The list below includes 82 Information Technology (IT) consultants from DXC and IBM who are working within MPI on operational and project initiatives as at May 2018.

Figure IT App 1- 12: External IT Resources - Updated chart previously submitted in response to PUB (MPI) 2-18 (2018 GRA question a)

Line No.	Identifier	Role May 2018	Project/Ops
1	DXC - 001	Senior Systems Analyst	Operations
2	DXC - 002	Senior Software Designer	Operations
3	DXC - 003	SharePoint Developer	Operations
4	DXC - 004	Senior Informatica Developer	Operations
5	DXC - 005	Programmer Analyst	Operations
6	DXC - 006	SharePoint Developer	Operations
7	DXC - 007	Programmer Analyst	Operations
8	DXC - 008	Senior Informatica Developer	Operations
9	DXC - 009	Senior Systems Analyst	Operations
10	DXC - 010	Senior Business Analyst	Operations
11	DXC - 011	Senior Informatica Developer	Operations
12	DXC - 012	Senior Informatica Developer	Operations
13	DXC - 013	Intermediate Programmer Analyst	Operations
14	DXC - 014	SharePoint Consultant	Projects
15	DXC - 015	Intermediate Project Manager	Projects
16	DXC - 016	Senior Application Architect	Projects
17	DXC - 017	Application Architect	Projects
18	DXC - 018	Senior Systems Analyst	Projects
19	DXC - 019	Snr Data Architect	Projects
20	DXC - 020	Senior Business Analyst	Projects
21	DXC - 021	Intermediate Project Manager	Projects
22	DXC - 022	Technical Writer	Projects
23	DXC - 023	Intermediate Project Manager	Projects
24	DXC - 024	Senior Business Analyst	Projects
25	DXC - 025	Senior Systems Analyst	Projects
26	DXC - 026	Intermediate Project Manager	Projects
27	DXC - 027	Project Director	Projects
28	DXC - 028	Senior Software Designer	Projects
29	DXC - 029	Senior Business Analyst	Projects
30	DXC - 030	Senior Business Analyst	Projects
31	DXC - 031	Senior Software Designer	Projects

Line No.	Identifier	Role May 2018	Project/Ops
32	DXC - 032	Technical Consultant	Projects
33	DXC - 033	Senior Technical Architect	Projects
34	DXC - 034	Senior Systems Analyst	Projects
35	DXC - 035	Senior Systems Analyst	Projects
36	DXC - 036	Senior Systems Analyst	Projects
37	DXC - 037	Senior Software Designer	Projects
38	DXC - 038	Senior Systems Analyst	Projects
39	DXC - 039	Intermediate Project Manager	Projects
40	DXC - 040	Business Consultant	Projects
41	DXC - 041	Technical Consultant	Projects
42	DXC - 042	Project Control Analyst	Projects
43	DXC - 043	Project Control Analyst	Projects
44	DXC - 044	Project Director	Projects
45	DXC - 045	Senior Business Analyst	Projects
46	DXC - 046	Senior Project Manager	Projects
47	DXC - 047	Senior Project Manager	Projects
48	DXC - 048	Senior Systems Analyst	Projects
49	DXC - 049	Business Analyst	Projects
50	DXC - 050	Senior Systems Analyst	Projects
51	DXC - 051	Senior Instructional Designer	Projects
52	DXC - 052	Senior Application Architect	Projects
53	DXC - 053	Senior Software Designer	Projects
54	DXC - 054	Senior Program Manager	Projects
55	DXC - 055	Project Control Analyst	Projects
56	DXC - 056	Senior Application Architect	Projects
57	DXC - 057	Snr Systems Analyst	Projects
58	DXC - 058	Snr Software Designer	Projects
59	DXC - 059	Intermediate Project Manager	Projects
60	DXC - 060	Technical Writer	Projects
61	DXC - 061	Senior Systems Analyst	Projects
62	DXC - 062	Senior Systems Analyst	Projects
63	DXC - 063	Application Architect	Projects
64	DXC - 064	Senior Business Analyst	Projects
65	DXC - 065	Senior Systems Analyst	Projects
66	DXC - 066	Senior Systems Analyst	Projects
67	DXC - 067	Business Architect	Projects
68	DXC - 068	Senior Business Analyst	Projects
69	DXC - 069	Technical Writer	Projects
70	DXC - 070	Senior Business Analyst	Projects
71	DXC - 071	Senior Software Designer	Projects

Line No.	Identifier	Role May 2018	Project/Ops
72	DXC - 072	Business Architect	Projects
73	DXC - 073	Senior Business Architect	Projects
74	DXC - 074	Senior Business Analyst	Projects
75	DXC - 075	Senior Project Manager	Projects
76	DXC - 076	Systems Analyst	Projects and Operations
77	DXC - 077	Intermediate Programmer Analyst	Projects and Operations
78	DXC - 078	Systems Analyst	Projects and Operations
79	DXC - 079	DBA	Projects and Operations
80	DXC - 080	SharePoint Developer	Projects and Operations
81	IBM-001	Senior DBA	Projects and Operations
82	IBM-002	Senior DBA	Projects and Operations

Appendix 19: INFORMATION TECHNOLOGY COSTS

The following tables provide a comprehensive analysis of Corporate Information Technology (CIT) expenses and capital expenditures. This includes both historical actual from 2013/14 to 2017/18 and the forecast period from 2018/19 to 2022/23.

The first table provides a summary, including compounded annual growth rates for all corporate expense costs related to IT within MPI.

Figure EXP App 19 – 1: Information Technology Costs (Corporate)

Line No.	Summary	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/232F	Compound Annual Growth 13/14A-17/18A (5 years)	Compound Annual Growth 18/19B-22/23F (5 years)
	(C$000s, except where noted)												
1	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255	8.6%	2.5%
2	Deferred Development Costs	29,819	17,079	20,847	27,671	204	10,902	25,757	33,409	26,500	25,250		
3	Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625		
4	Total IT Costs	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875		

The following two tables provide detail for the summary showing budgeted and forecasted amounts for the three IT related departments within the Corporation as well as all of the capital IT costs within the Corporation.

Figure EXP App 19 – 2: Total Information Technology Expenses

Line No.	IT Expenses	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F
1	*($C 000s, except where noted)*										
2	CIT Departmental Expenses:										
3	Data processing:										
4	Computer Costs	377	14	-	-	-	-	-	-	-	-
5	Licence Charges	6,431	5,698	6,219	5,826	7,408	8,126	8,342	8,720	8,894	9,072
6	Computer Maintenance	1,683	1,348	1,371	1,484	1,787	1,689	1,715	1,748	1,783	1,819
7	Software	1,668	702	277	805	176	352	258	258	263	268
8	IBM Data Centre	-	6,080	7,276	9,550	9,176	9,790	9,972	10,558	10,769	10,984
9	IBM Security Operations Centre	-	-	-	-	-	550	550	550	561	572
10	External Labour										
11	AOL	3,145	2,955	2,313	2,305	1,230	2,201	1,887	1,887	1,924	1,963
12	CARS	793	739	578	576	308	624	535	535	546	557
13	Other	3,832	2,414	1,522	2,324	1,672	730	634	627	639	659
14	Total Data Processing	17,929	19,950	19,556	22,870	21,756	24,062	23,893	24,883	25,379	25,894
15	Compensation	10,382	9,388	10,044	11,231	11,521	13,314	14,100	14,511	14,764	15,056
16	Training	103	144	142	132	127	129	140	143	146	149
17	Special Services	1,203	969	766	991	1,024	926	944	963	982	1,002
18	Printing, Stationery and Supplies	596	338	295	231	169	582	564	225	229	234
19	Telephone and Telecommunications	3,049	2,562	2,377	2,221	2,054	2,121	2,174	2,231	2,275	2,321
20	Computer Equipment Expense	645	674	289	167	295	1,161	878	969	989	1,008
21	Miscellaneous	291	115	30	116	42	80	81	83	84	86
22	Total CIT Dept Exp (before Dep'n/Amort)	34,198	34,140	33,499	37,959	36,989	42,375	42,774	44,008	44,848	45,750
23	Depreciation - Data Processing Equipment	1,847	826	1,075	672	411	813	1,526	2,176	2,176	2,176
24	Amortization of Deferred Dev Costs	-	7,941	8,534	9,415	12,702	14,573	6,125	6,125	2,835	1,683
25	Total CIT Direct Departmental Expenses	36,045	42,907	43,108	48,046	50,103	57,761	50,425	52,309	49,859	49,609
26	Allocated Building Expenses	1,264	1,293	1,292	1,309	1,112	1,311	1,347	1,362	1,384	1,406
27	Allocated Corporate Benefits	2,786	2,870	2,951	3,092	3,304	3,997	4,119	4,196	4,275	4,275
28	DP - Microfiche	42	44	43	43	43	44	44	45	46	46
29	DP - External Labour - Other	118	247	376	264	244	310	310	316	323	323
30	Total CIT Departmental Expenses including allocations	40,255	47,361	47,770	52,754	54,806	63,423	56,245	58,228	55,887	55,659
31	Implementation Expense:										
32	Licence Charges	10	52	33	12	243	5	-	-	-	-
33	Computer Maintenance	-	-	-	-		-	-	-	-	-
34	IBM Data Centre	-	-	-	150	161	500	500	500	500	500
35	Software	-	-	5	-		500	-	-	-	-
36	Deferred Development Impairment					20,258	-	-	-	-	-
37	External Labour	4,955	5,707	4,891	4,290	1,571	3,050	350	350	350	350
38	Total Implementation Expense	4,965	5,759	4,929	4,452	22,233	4,055	850	850	850	850
39	Ongoing expense:										
40	Licence Charges	-	-	-	205	-	-	233	308	955	955
41	Amortization of Deferred Dev Costs	-	-	-	-	-	-	3,477	6,052	15,676	21,376
42	Computer Maintenance	-	-	-	-	-	-	-	-	-	-
43	Software	-	-	-	-	-	-	50	50	50	50
44	IBM Data Centre	7,170	1,513	1,808	-	-	-	1,217	1,630	4,136	4,432
45	Total Ongoing Expense	7,170	1,513	1,808	205	-	-	4,977	8,041	20,817	26,812
						-					
46	Total other CIT Exp	16,345	11,726	11,399	9,365	26,936	9,717	11,647	14,810	27,695	33,712
47	Depreciation - Data Processing	-	903	-	-	-	-	-	-	-	-
48	Amortization of Deferred Dev Costs	8,847	8,634	2,972	6,878	8,055	8,740	8,740	7,253	5,102	934
49	Total CIT other Exp (after Dep'n/Amort)	25,192	21,263	14,371	16,243	34,991	18,457	20,388	22,063	32,797	34,646
50	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255

Figure EXP App 19 – 3: Corporate Capital Expenditures - Deferred Development Costs

Line No.	Project Description	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
1	*(C$000s, except where noted)*											
2	Projects that do not impact Basic	-	135	533	3,154	31	2,000	3,029	-	1,500	-	-
3	Projects that impact Basic											-
5	IT Optimization	2,688	-	-	46	-	-	-	-	-	-	-
6	Disaster Recovery	11,826	-	-	14	-	-	-	-	-	-	-
7	HR Management System Phase 1 & 2	2,945	(302)	-	1,579	-	-	-	-	-	-	-
8	HR Management System Phase 3 & 4	102	145	-	-	-	-	-	-	-	-	-
9	Physical Damage Re-engineering	-	1,674	-	390	-	-	-	-	-	-	-
10	PDR Opt Repair - Collaborative Estimating & JSST	-	9,676	387	688	-	-	-	-	-	-	-
11	PDR Opt Repair - Distributed	-	1,296	1,593	2,343	2	-	-	-	-	-	-
12	Physical Damage Re-engineering Main/Phase 3	11,350	(4,529)	4,707	(2,434)	282	-	-	-	-	-	-
13	PDR Opt Repair - Remote Estimating	-	1	42	70	115	-	-	-	-	-	-
14	BI3 Fineos Upgrade 2016	257	1,462	2,002	577	-	-	-	-	-	-	-
15	BI3 Fineos Upgrade 2020	-	-	-	-	-	1,257	1,020	-	-	-	-
16	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	-	-	1,250	-
17	Enterprise Data Masking	651	1,189	1,077	3	-	-	-	-	-	-	-
18	High School Driver Education Phase 2	-	314	327	1,333	112	-	-	-	-	-	-
19	High School Driver Education Phase 3	-	-	-	-	681	900	-	-	-	-	(882)
20	Infor/Lawson Upgrade	-	172	978	1,258	1,101	-	-	-	-	-	31
21	Infor Major Upgrade 2022	-	-	-	-	-	-	-	2,000	1,000	-	-
22	ITO - High Availability	-	2,919	4,881	938	-	-	-	-	-	-	-
23	Legal Management Project	-	1,086	1,536	(8)	-	-	-	-	-	-	-
24	Predictive Analytics	-	1,578	600	1	-	-	-	-	-	-	-
25	Corporate Learning Management	-	263	-	1,123	1,406	250	-	-	-	-	129
26	Physical Damage - Centre of	-	-	537	283	-	-	-	-	-	-	-
27	Information Security Strategy and Road Map Phase 1	-	-	1,298	1,934	130	-	-	-	-	-	11
28	Information Security Strategy and Road Map Phase 2	-	-	337	659	1,756	-	-	-	-	-	206
29	Technology Innovation & Capabilities	-	-	12	(12)	-	-	-	-	-	-	-
30	Technology Risk Management -	-	-	-	2,213	145	-	-	-	-	-	25
31	Technology Risk Management - 2017	-	-	-	-	2,902	228	-	-	-	-	325
32	Technology Risk Management - 2018	-	-	-	-	-	3,772	-	-	-	-	-
33	Technology Risk Management - 2019	-	-	-	-	-	-	4,000	-	-	-	-
34	Technology Risk Management - 2020	-	-	-	-	-	-	-	4,000	-	-	-
35	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	4,000	-	-
36	Technology Risk Management - 2022	-	-	-	-	-	-	-	-	-	4,000	-
37	Appointment Manager	-	-	-	2	1,402	-	-	-	-	-	-
38	Customer Claims Reporting System	-	-	-	10,592	5,032	-	-	-	-	-	-
39	Enhanced DR Capabilities	-	-	-	292	1,422	-	-	-	-	-	658
40	Partner Portal	-	-	-	291	2,256	-	-	-	-	-	(140)
41	Financial Re-Engineering Initiative	-	-	-	342	1	-	6,708	6,409	-	-	-
42	Customer Self Service	-	-	-	-	1,679	1,500	1,000	1,000	-	-	(709)
43	Credit Card Strategy	-	-	-	-	255	995	-	-	-	-	249
44	Legacy Systems Modernization	-	-	-	-	-	-	10,000	20,000	20,000	20,000	-
45	Total Deferred Development Costs	29,819	17,079	20,847	27,671	20,710	10,902	25,757	33,409	26,500	25,250	(97)
46	Impairment of Deferred Development	-	-	-	-	(20,506)	-	-	-	-	-	-
46	Data Processing Equipment:											
47	Provision for New and Replacement	1,019	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	
48	Projects that impact Basic											
49	IT Optimization	136	-	-	-	-	-	-	-	-	-	
50	Total Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	-
51	Total Capital Requirements for IT	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875	(97)

1

The table below provides the number of Consultants supporting IT operational activities as well as Consultants utilized on projects. The subsequent Basic Program costs for these Consultant activities are also provided. Improvement Initiative Costs do not include deferred development costs.

Figure EXP App 19 – 4: Summary of Consultant Costs and FTE

Line No.	Consultants - Corporate[1]	2013/14A[3]	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F[4]	2020/21F[4]
1	IT Operational Activities	49	40	37	31	17	16	20	20
2	Improvement Initiatives	71	70	77	76	90	66	60	60
3	Total	120	110	114	107	107	82	80	80
4	Consulting Costs - Basic only						~~2,800~~	~~2,400~~	~~2,400~~
5	IT Operational Activities[2]	6,311	5,084	3,831	4,376	2,568	2,880	2,480	2,480
						~~12,585~~	~~9,229~~	~~8,391~~	~~8,392~~
6	Improvement Initiatives	23,100	14,553	17,214	15,528	11,778	8,637	7,853	7,854
						~~15,153~~	~~12,029~~	~~10,791~~	~~10,792~~
7	Total	29,411	19,637	21,045	19,904	14,346	11,517	10,333	10,334

(1) Contractor counts vary throughout the year. For this table on September of each fiscal year (mid-point) thus 2016-17 actuals do not reflect all contractor conversions in Q3 and Q4. Please see GRA 2017 Volume I, Chapter 8, IT.2 for details on this.

(2) Basic IT Operational Activities are estimated at 80% of Corporate

(3) Adjusted as the improvement initiatives total had previously included IT Operational Activities, some license fees and software maintenance.

(4) Any changes to the planned improvement initiatives for 2019/20 and 2020/21 will impact the number of consultants.

Appendix 01: EXTERNAL LABOUR - MEASURES AND METRICS – STATUS UPDATE

TABLE NAME(s): Figure IT App 1– 1 IT Personal / Figure IT App 1– 2 IT Personal Costs

REFERENCE: Update on PUB (MPI) 1-31 (2018 GRA) & (II Exp. Appendix 18 PUB/MPI 1-18 (2017 GRA) - Figure IT - 1: IT Personal & Figure IT - 2: IT Personal Costs

DESCRIPTION: Figure 1 below contains a 5 year historical summary and a 3 year forecast for both internal resources and consultants that have worked and are expected to work within the Information Technology area. Figure 2 below provides the actual spend for 2017/18 and also the forecasted spend on internal and external resources for the next three years.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Tables updated to include 2020/21 figures and revised forecasts for 2018/19 and 2019/20.
- Figure 1: Note - As of May 2018 # of external has been reduced to 82.
- Figure 1: Corporate Reorganizations occurred in 2017/18 and 2018/19 which resulted in 35.6 internal FTE being transferred into the division from other areas of the corporation. The increase has been identified as a separate line item in Figure 1 below.
- Figure 1: 18 Consultant Conversions also appear as a separate line item below. These positions were added into the operational budgets (2017/18 & 2018/19). Note – Three additional conversions occurred in 2016/17…these positions are reflected in the project budgets.
- Figure 1: Additional changes listed decrease the overall FTE totals by 2.5 in 2017/18 and 0.6 in 2018/19.

- Figure 2: Approximated internal costs based on budgeted/forecasted FTEs. Approximated external costs based on anticipated consultants in relation to known projects.

Figure IT App 1- 1: IT Personal – Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2013/14	2014/15	2015/16	2016/17	2017/18(A)	2018/19 (B)	2019/20 (F)	2020/21 (F)
1	Internal FTE	212	210	223	235.7	235.7	271.8	290.2	290.2
2	Corporate Re-Organization(s)					27.6	8		
3	Consultant Conversions					11	7		
4	New Positions (security, etc.)					2	2		
5	Divisional Reductions					(4.50)	(2.60)		
6	Internal FTE Total	212	210	223	235.7	271.8	286.2	290.2	290.2
7	Consultants	120	110	114	107	107	82	80	80
8	Total	**332**	**320**	**337**	**342.7**	**378.8**	**368.2**	**370.2**	**370.2**

Figure IT App 1- 2: IT Personal Costs- - Updated chart previously submitted in response to PUB (MPI) 1-31 (2018 GRA – Question a)

Line No.	Year	2017/18(A)	2018/19(B)	2019/20(F)	2020/21(F)
	(C$000s except where noted)				
1	Internal FTE Costs ($)	$ 22,392	$ 24,119	$ 25,417	$ 26,203
2	Consultant Costs ($)	$ 14,346	$ 11,517	$ 10,333	$ 10,334
3		$ 36,738	$ 35,636	$ 35,750	$ 36,537

4 * Two internal departments moved under IT umbrella during 2017/18

TABLE NAME(s): Figure IT App 1- 3 IBM Master Service Agreement / Figure IT App 1- 4 HP Master Service Agreement / Figure IT App 1-5 IBM Data Center Costs

REFERENCE: Update on PUB (MPI) 1-32 (2018 GRA) & II EXP Appendix 14 PUB/MPI I-29 (2017 GRA) – Figure IT - 1: IBM Master Service Agreement / Figure IT - 2: HP Master Service Agreement / Figure IT - 3: IBM Data Center Costs

DESCRIPTION: The first two tables below contains a 5 year historical summary of the annual spend that occurred under the HP & IBM Master Services Agreement. The last table provides an historical summary of the IBM Data Center Costs.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 3 & 4 updated to include 2017/18 figures.
- Figure IT App 1- 3 & 4 summaries capture all payment transactions that occurred between March 1st and Feb 28th in each of the years listed.

Figure IT App1- 3: IBM Master Service Agreement– Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	8.92	16.71	13.4	12.68	14.52	14.4

Figure IT App 1- 4: HP Master Service Agreement Updated chart previously submitted in response to PUB (MPI) 1-32 (2018 GRA question a)

Line No.	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
	(C$ 000,000)					
1	19.5	25.08	23.18	24.61	21.09	20.1

TABLE NAME(s): Figure IT App 1- 5 IT Personal – Internal (FTE) / Figure IT App 1- 6 IT Personal – Consultants (FTE) / Figure IT App 1- 7 IT Personal – Internal Costs / Figure IT App 1- 8 IT Personnel - Consultant Costs / Figure IT App 1- 9 IT Personal - FTE 2011/12 – 2020/21 / Figure IT App 1- 10 IT Personal – Costs 2011/12 – 2020/21 / Figure IT App 1- 11 Average Cost per FTE

REFERENCE: Update on PUB (MPI) 2-17 (2018 GRA) & PUB (MPI) 1-31, PUB (MPI) 1-27 (2017 GRA) – Figure IT - 6 thru 12.

DESCRIPTION: The tables below contain a 5 year historical summaries of IT Personal and their related costs. The last three tables provide a broader perspective and cover a ten year period (7 years actual and 3 years forecast).

ASSUMPTIONS / CONSIDERATIONS / NOTES:

- Figure IT App 1- 5 to 8 updated to include forecasts to 2020/21
- Figure IT App 1- 9 to 11 updated to include forecasts to 2020/21

- Figure IT App 1- 5 to 7: Major changes for 2017/18 & 2018/19 include the following:
  - Corporate Reorganizations – 27.6 FTE added to division in 2017/18 & 8 FTE added in 2018/19
  - Consultant Conversions – 11 FTE added to operational budget in 2017/18 and 7 FTE added in 2018/19
  - New Positions/Reductions – Net change -2.5 FTE in 2017/18 and -0.6 FTE in 2018/19.
- Figure IT App 1- 5: The remaining consultant conversions will occur in the 2019/20 budget.
- Figure IT App 1- 6: Variance in 2017/18 was due to additional testing requirements for the CLMS and the Infor Lawson upgrade projects. Projects went a little longer than anticipated…as of May 2018 the number of consultants has been reduced to 82. As noted in the IT Chapter, External Labour Update, it is anticipated that there will be additional reductions to 2019/20 numbers. Specific details are not available at the time of this submission so previous forecasts have been leveraged.
- Figure IT App 1– 7: Variances due to the staff increase as explained in the major changes note above.
- Figure IT App 1- 8: The variance mainly reflects changes to major projects requiring fewer consultants and the external labour strategy accelerating vs. plan.
- Figure IT App 1- 11: * denotes an increase in average consultant fee for 2013/14 is due to one-time transition/migration cost of IBM data center operations. The additional reduction measures identified in the IT Chapter, External Labour Update, are anticipated to further reduce average external labour cost per hour.

  An update is expected in 2018/19 and will be included in GRA 2020.

Figure IT App 1- 5: IT Personnel - Internal (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	2016/17	235.7	235.7	0
2	2017/18	248.2	248.2	0
3	2018/19	286.2	253.2	33
4	2019/20	290.2	249.2	41
5	2020/21	290.2	n/a	

Figure IT App 1- 6: IT Personnel - Consultants (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018
1	**2016/17**	107	107	0
2	**2017/18**	107	92	15
3	**2018/19**	82	81	1
4	**2019/20**	80	80	0
5	**2020/21**	80	n/a	

Figure IT App1- 7: IT Personnel - Internal Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)				
1	**2016/17**	$ 20,189	$ 20,189	$ -	0.0%
2	**2017/18**	$ 22,392	$ 22,199	$ 193	0.9%
3	**2018/19**	$ 24,119	$ 23,584	$ 535	2.3%
4	**2019/20**	$ 25,417	$ 24,655	$ 762	3.1%
5	**2020/21**	$ 26,203	n/a		

Figure IT App 1- 8: IT Personnel - Consultant Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question a)

Line No.	Fiscal Year	2019 GRA Forecast	2018 GRA Forecast	Variance 2019 vs 2018	% Change
	(C$000s except where noted)				
1	**2016/17**	$ 19,904	$ 23,965	$ (4,061)	-16.9%
2	**2017/18**	$ 14,346	$ 16,233	$ (1,887)	-11.6%
3	**2018/19**	$ 11,517	$ 14,292	$ (2,775)	-19.4%
4	**2019/20**	$ 10,333	$ 14,166	$ (3,833)	-27.1%
5	**2020/21**	$ 10,334	n/a		

Please see Figure IT App 1- 9 to 11 for historical IT Personnel FTE and Costs for Internal and Consultants, respectively and average cost per FTE.

Figure IT App 1- 9: IT Personnel – (FTE) - Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
1	**2011/12**	215	98
2	**2012/13**	227	129
3	**2013/14**	212	120
4	**2014/15**	210	110
5	**2015/16**	223	114
6	**2016/17**	235.7	107
7	**2017/18**	281.2	107
8	**2018/19F**	286.2	82
9	**2019/20F**	290.2	80
10	**2020/21F**	290.2	80

Figure IT App 1- 10: IT Personnel - Costs- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
1	**2011/12**	$ 17,663	$ 17,219
2	**2012/13**	$ 19,043	$ 29,468
3	**2013/14**	$ 19,380	$ 35,527
4	**2014/15**	$ 17,588	$ 23,158
5	**2015/16**	$ 18,632	$ 25,396
6	**2016/17**	$ 20,189	$ 23,965
7	**2017/18**	$ 22,392	$ 14,346
8	**2018/19F**	$ 24,119	$ 11,517
9	**2019/20F**	$ 25,417	$ 10,333
10	**2020/21F**	$ 26,203	$ 10,334

Figure IT App 1- 11: Average Cost per FTE- Updated chart previously submitted in response to PUB (MPI) 2-17 (2018 GRA question b)

Line No.	Fiscal Year	Internal	Consultants
	(C$000s except where noted)		
1	**2011/12**	$ 82.15	$ 175.70
2	**2012/13**	$ 83.89	$ 228.43
3 *	**2013/14**	$ 91.42	$ 296.06
4	**2014/15**	$ 83.75	$ 210.53
5	**2015/16**	$ 83.55	$ 222.77
6	**2016/17**	$ 85.66	$ 223.97
7	**2017/18**	$ 79.63	$ 134.07
8	**2018/19F**	$ 84.27	$ 140.45
9	**2019/20F**	$ 87.58	$ 129.16
10	**2020/21F**	$ 90.29	$ 129.18

* Increase in average consultant fee for 2013/14 is due to one time transition/migration cost of IBM data center operations

TABLE NAME(s): Figure IT App 1-12 External IT Resources

REFERENCE: Update on PUB (MPI) 2-18 (2018 GRA) & PUB (MPI) 1-32
Appendix 14, PUB (MPI) 1-29 (2017 GRA) – Figure 1: External IT Resources

DESCRIPTION: The tables below contains a list of external labour resources who provide Information Technology (IT) services to projects and operations.

ASSUMPTIONS / CONSIDERATIONS / NOTES:

The list below includes 82 Information Technology (IT) consultants from DXC and IBM who are working within MPI on operational and project initiatives as at May 2018.

Figure IT App 1- 12: External IT Resources - Updated chart previously submitted in response to PUB (MPI) 2-18 (2018 GRA question a)

Line No.	Identifier	Role May 2018	Project/Ops
1	DXC - 001	Senior Systems Analyst	Operations
2	DXC - 002	Senior Software Designer	Operations
3	DXC - 003	SharePoint Developer	Operations
4	DXC - 004	Senior Informatica Developer	Operations
5	DXC - 005	Programmer Analyst	Operations
6	DXC - 006	SharePoint Developer	Operations
7	DXC - 007	Programmer Analyst	Operations
8	DXC - 008	Senior Informatica Developer	Operations
9	DXC - 009	Senior Systems Analyst	Operations
10	DXC - 010	Senior Business Analyst	Operations
11	DXC - 011	Senior Informatica Developer	Operations
12	DXC - 012	Senior Informatica Developer	Operations
13	DXC - 013	Intermediate Programmer Analyst	Operations
14	DXC - 014	SharePoint Consultant	Projects
15	DXC - 015	Intermediate Project Manager	Projects
16	DXC - 016	Senior Application Architect	Projects
17	DXC - 017	Application Architect	Projects
18	DXC - 018	Senior Systems Analyst	Projects
19	DXC - 019	Snr Data Architect	Projects
20	DXC - 020	Senior Business Analyst	Projects
21	DXC - 021	Intermediate Project Manager	Projects
22	DXC - 022	Technical Writer	Projects
23	DXC - 023	Intermediate Project Manager	Projects
24	DXC - 024	Senior Business Analyst	Projects
25	DXC - 025	Senior Systems Analyst	Projects
26	DXC - 026	Intermediate Project Manager	Projects
27	DXC - 027	Project Director	Projects

Line No.	Identifier	Role May 2018	Project/Ops
28	DXC - 028	Senior Software Designer	Projects
29	DXC - 029	Senior Business Analyst	Projects
30	DXC - 030	Senior Business Analyst	Projects
31	DXC - 031	Senior Software Designer	Projects
32	DXC - 032	Technical Consultant	Projects
33	DXC - 033	Senior Technical Architect	Projects
34	DXC - 034	Senior Systems Analyst	Projects
35	DXC - 035	Senior Systems Analyst	Projects
36	DXC - 036	Senior Systems Analyst	Projects
37	DXC - 037	Senior Software Designer	Projects
38	DXC - 038	Senior Systems Analyst	Projects
39	DXC - 039	Intermediate Project Manager	Projects
40	DXC - 040	Business Consultant	Projects
41	DXC - 041	Technical Consultant	Projects
42	DXC - 042	Project Control Analyst	Projects
43	DXC - 043	Project Control Analyst	Projects
44	DXC - 044	Project Director	Projects
45	DXC - 045	Senior Business Analyst	Projects
46	DXC - 046	Senior Project Manager	Projects
47	DXC - 047	Senior Project Manager	Projects
48	DXC - 048	Senior Systems Analyst	Projects
49	DXC - 049	Business Analyst	Projects
50	DXC - 050	Senior Systems Analyst	Projects
51	DXC - 051	Senior Instructional Designer	Projects
52	DXC - 052	Senior Application Architect	Projects
53	DXC - 053	Senior Software Designer	Projects
54	DXC - 054	Senior Program Manager	Projects
55	DXC - 055	Project Control Analyst	Projects
56	DXC - 056	Senior Application Architect	Projects
57	DXC - 057	Snr Systems Analyst	Projects
58	DXC - 058	Snr Software Designer	Projects
59	DXC - 059	Intermediate Project Manager	Projects
60	DXC - 060	Technical Writer	Projects
61	DXC - 061	Senior Systems Analyst	Projects
62	DXC - 062	Senior Systems Analyst	Projects
63	DXC - 063	Application Architect	Projects
64	DXC - 064	Senior Business Analyst	Projects
65	DXC - 065	Senior Systems Analyst	Projects
66	DXC - 066	Senior Systems Analyst	Projects
67	DXC - 067	Business Architect	Projects

Line No.	Identifier	Role May 2018	Project/Ops
68	DXC - 068	Senior Business Analyst	Projects
69	DXC - 069	Technical Writer	Projects
70	DXC - 070	Senior Business Analyst	Projects
71	DXC - 071	Senior Software Designer	Projects
72	DXC - 072	Business Architect	Projects
73	DXC - 073	Senior Business Architect	Projects
74	DXC - 074	Senior Business Analyst	Projects
75	DXC - 075	Senior Project Manager	Projects
76	DXC - 076	Systems Analyst	Projects and Operations
77	DXC - 077	Intermediate Programmer Analyst	Projects and Operations
78	DXC - 078	Systems Analyst	Projects and Operations
79	DXC - 079	DBA	Projects and Operations
80	DXC - 080	SharePoint Developer	Projects and Operations
81	IBM-001	Senior DBA	Projects and Operations
82	IBM-002	Senior DBA	Projects and Operations

Appendix 19: INFORMATION TECHNOLOGY COSTS

The following tables provide a comprehensive analysis of Corporate Information Technology (CIT) expenses and capital expenditures. This includes both historical actual from 2013/14 to 2017/18 and the forecast period from 2018/19 to 2022/23.

The first table provides a summary, including compounded annual growth rates for all corporate expense costs related to IT within MPI.

Figure EXP App 19 – 1: Information Technology Costs (Corporate)

Line No.	Summary	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/232F	Compound Annual Growth 13/14A-17/18A (5 years)	Compound Annual Growth 18/19B-22/23F (5 years)
	(C$000s, except where noted)												
1	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255	8.6%	2.5%
2	Deferred Development Costs	29,819	17,079	20,847	27,671	204	10,902	25,757	33,409	26,500	25,250		
3	Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625		
4	Total IT Costs	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875		

The following two tables provide detail for the summary showing budgeted and forecasted amounts for the three IT related departments within the Corporation as well as all of the capital IT costs within the Corporation.

Figure EXP App 19 – 2: Total Information Technology Expenses

Line No.	IT Expenses	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F
1	*($C 000s, except where noted)*										
2	CIT Departmental Expenses:										
3	Data processing:										
4	Computer Costs	377	14	-	-	-	-	-	-	-	-
5	Licence Charges	6,431	5,698	6,219	5,826	7,408	8,126	8,342	8,720	8,894	9,072
6	Computer Maintenance	1,683	1,348	1,371	1,484	1,787	1,689	1,715	1,748	1,783	1,819
7	Software	1,668	702	277	805	176	352	258	258	263	268
8	IBM Data Centre	-	6,080	7,276	9,550	9,176	9,790	9,972	10,558	10,769	10,984
9	IBM Security Operations Centre	-	-	-	-	-	550	550	550	561	572
10	External Labour										
11	AOL	3,145	2,955	2,313	2,305	1,230	2,201	1,887	1,887	1,924	1,963
12	CARS	793	739	578	576	308	624	535	535	546	557
13	Other	3,832	2,414	1,522	2,324	1,672	730	634	627	639	659
14	Total Data Processing	17,929	19,950	19,556	22,870	21,756	24,062	23,893	24,883	25,379	25,894
15	Compensation	10,382	9,388	10,044	11,231	11,521	13,314	14,100	14,511	14,764	15,056
16	Training	103	144	142	132	127	129	140	143	146	149
17	Special Services	1,203	969	766	991	1,024	926	944	963	982	1,002
18	Printing, Stationery and Supplies	596	338	295	231	169	582	564	225	229	234
19	Telephone and Telecommunications	3,049	2,562	2,377	2,221	2,054	2,121	2,174	2,231	2,275	2,321
20	Computer Equipment Expense	645	674	289	167	295	1,161	878	969	989	1,008
21	Miscellaneous	291	115	30	116	42	80	81	83	84	86
22	Total CIT Dept Exp (before Dep'n/Amort)	34,198	34,140	33,499	37,959	36,989	42,375	42,774	44,008	44,848	45,750
23	Depreciation - Data Processing Equipment	1,847	826	1,075	672	411	813	1,526	2,176	2,176	2,176
24	Amortization of Deferred Dev Costs	-	7,941	8,534	9,415	12,702	14,573	6,125	6,125	2,835	1,683
25	Total CIT Direct Departmental Expenses	36,045	42,907	43,108	48,046	50,103	57,761	50,425	52,309	49,859	49,609
26	Allocated Building Expenses	1,264	1,293	1,292	1,309	1,112	1,311	1,347	1,362	1,384	1,406
27	Allocated Corporate Benefits	2,786	2,870	2,951	3,092	3,304	3,997	4,119	4,196	4,275	4,275
28	DP - Microfiche	42	44	43	43	43	44	44	45	46	46
29	DP - External Labour - Other	118	247	376	264	244	310	310	316	323	323
30	Total CIT Departmental Expenses including allocations	40,255	47,361	47,770	52,754	54,806	63,423	56,245	58,228	55,887	55,659
31	Implementation Expense:										
32	Licence Charges	10	52	33	12	243	5	-	-	-	-
33	Computer Maintenance	-	-	-	-		-	-	-	-	-
34	IBM Data Centre	-	-	-	150	161	500	500	500	500	500
35	Software	-	-	5	-		500	-	-	-	-
36	Deferred Development Impairment					20,258	-	-	-	-	-
37	External Labour	4,955	5,707	4,891	4,290	1,571	3,050	350	350	350	350
38	Total Implementation Expense	4,965	5,759	4,929	4,452	22,233	4,055	850	850	850	850
39	Ongoing expense:										
40	Licence Charges	-	-	-	205	-	-	233	308	955	955
41	Amortization of Deferred Dev Costs	-	-	-	-	-	-	3,477	6,052	15,676	21,376
42	Computer Maintenance	-	-	-	-	-	-	-	-	-	-
43	Software	-	-	-	-	-	-	50	50	50	50
44	IBM Data Centre	7,170	1,513	1,808	-	-	-	1,217	1,630	4,136	4,432
45	Total Ongoing Expense	7,170	1,513	1,808	205	-	-	4,977	8,041	20,817	26,812
						-					
46	Total other CIT Exp	16,345	11,726	11,399	9,365	26,936	9,717	11,647	14,810	27,695	33,712
47	Depreciation - Data Processing	-	903	-	-	-	-	-	-	-	-
48	Amortization of Deferred Dev Costs	8,847	8,634	2,972	6,878	8,055	8,740	8,740	7,253	5,102	934
49	Total CIT other Exp (after Dep'n/Amort)	25,192	21,263	14,371	16,243	34,991	18,457	20,388	22,063	32,797	34,646
50	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255

Figure EXP App 19 – 3: Corporate Capital Expenditures - Deferred Development Costs

Line No.	Project Description	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
1	*(C$000s, except where noted)*											
2	Projects that do not impact Basic	-	135	533	3,154	31	2,000	3,029	-	1,500	-	-
3	Projects that impact Basic											-
5	IT Optimization	2,688	-	-	46	-	-	-	-	-	-	-
6	Disaster Recovery	11,826	-	-	14	-	-	-	-	-	-	-
7	HR Management System Phase 1 & 2	2,945	(302)	-	1,579	-	-	-	-	-	-	-
8	HR Management System Phase 3 & 4	102	145	-	-	-	-	-	-	-	-	-
9	Physical Damage Re-engineering	-	1,674	-	390	-	-	-	-	-	-	-
10	PDR Opt Repair - Collaborative Estimating & JSST	-	9,676	387	688	-	-	-	-	-	-	-
11	PDR Opt Repair - Distributed	-	1,296	1,593	2,343	2	-	-	-	-	-	-
12	Physical Damage Re-engineering Main/Phase 3	11,350	(4,529)	4,707	(2,434)	282	-	-	-	-	-	-
13	PDR Opt Repair - Remote Estimating	-	1	42	70	115	-	-	-	-	-	-
14	BI3 Fineos Upgrade 2016	257	1,462	2,002	577	-	-	-	-	-	-	-
15	BI3 Fineos Upgrade 2020	-	-	-	-	-	1,257	1,020	-	-	-	-
16	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	-	-	1,250	-
17	Enterprise Data Masking	651	1,189	1,077	3	-	-	-	-	-	-	-
18	High School Driver Education Phase 2	-	314	327	1,333	112	-	-	-	-	-	-
19	High School Driver Education Phase 3	-	-	-	-	681	900	-	-	-	-	(882)
20	Infor/Lawson Upgrade	-	172	978	1,258	1,101	-	-	-	-	-	31
21	Infor Major Upgrade 2022	-	-	-	-	-	-	-	2,000	1,000	-	-
22	ITO - High Availability	-	2,919	4,881	938	-	-	-	-	-	-	-
23	Legal Management Project	-	1,086	1,536	(8)	-	-	-	-	-	-	-
24	Predictive Analytics	-	1,578	600	1	-	-	-	-	-	-	-
25	Corporate Learning Management	-	263	-	1,123	1,406	250	-	-	-	-	129
26	Physical Damage - Centre of	-	-	537	283	-	-	-	-	-	-	-
27	Information Security Strategy and Road Map Phase 1	-	-	1,298	1,934	130	-	-	-	-	-	11
28	Information Security Strategy and Road Map Phase 2	-	-	337	659	1,756	-	-	-	-	-	206
29	Technology Innovation & Capabilities	-	-	12	(12)	-	-	-	-	-	-	-
30	Technology Risk Management -	-	-	-	2,213	145	-	-	-	-	-	25
31	Technology Risk Management - 2017	-	-	-	-	2,902	228	-	-	-	-	325
32	Technology Risk Management - 2018	-	-	-	-	-	3,772	-	-	-	-	-
33	Technology Risk Management - 2019	-	-	-	-	-	-	4,000	-	-	-	-
34	Technology Risk Management - 2020	-	-	-	-	-	-	-	4,000	-	-	-
35	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	4,000	-	-
36	Technology Risk Management - 2022	-	-	-	-	-	-	-	-	-	4,000	-
37	Appointment Manager	-	-	-	2	1,402	-	-	-	-	-	-
38	Customer Claims Reporting System	-	-	-	10,592	5,032	-	-	-	-	-	-
39	Enhanced DR Capabilities	-	-	-	292	1,422	-	-	-	-	-	658
40	Partner Portal	-	-	-	291	2,256	-	-	-	-	-	(140)
41	Financial Re-Engineering Initiative	-	-	-	342	1	-	6,708	6,409	-	-	-
42	Customer Self Service	-	-	-	-	1,679	1,500	1,000	1,000	-	-	(709)
43	Credit Card Strategy	-	-	-	-	255	995	-	-	-	-	249
44	Legacy Systems Modernization	-	-	-	-	-	-	10,000	20,000	20,000	20,000	-
45	Total Deferred Development Costs	29,819	17,079	20,847	27,671	20,710	10,902	25,757	33,409	26,500	25,250	(97)
46	Impairment of Deferred Development	-	-	-	-	(20,506)	-	-	-	-	-	-
46	Data Processing Equipment:											
47	Provision for New and Replacement	1,019	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	
48	Projects that impact Basic											
49	IT Optimization	136	-	-	-	-	-	-	-	-	-	
50	Total Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	-
51	Total Capital Requirements for IT	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875	(97)

1

The table below provides the number of Consultants supporting IT operational activities as well as Consultants utilized on projects. The subsequent Basic Program costs for these Consultant activities are also provided. Improvement Initiative Costs do not include deferred development costs.

Figure EXP App 19 – 4: Summary of Consultant Costs and FTE

Line No.	Consultants - Corporate[1]	2013/14A[3]	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F[4]	2020/21F[4]
1	IT Operational Activities	49	40	37	31	17	16	20	20
2	Improvement Initiatives	71	70	77	76	90	66	60	60
3	Total	120	110	114	107	107	82	80	80
4	Consulting Costs - Basic only								
5	IT Operational Activities[2]	6,311	5,084	3,831	4,376	2,568	2,880	2,480	2,480
6	Improvement Initiatives	23,100	14,553	17,214	15,528	11,778	8,637	7,853	7,854
7	Total	29,411	19,637	21,045	19,904	14,346	11,517	10,333	10,334

(1) Contractor counts vary throughout the year. For this table on September of each fiscal year (mid-point) thus 2016-17 actuals do not reflect all contractor conversions in Q3 and Q4. Please see GRA 2017 Volume I, Chapter 8, IT.2 for details on this.

(2) Basic IT Operational Activities are estimated at 80% of Corporate

(3) Adjusted as the improvement initiatives total had previously included IT Operational Activities, some license fees and software maintenance.

(4) Any changes to the planned improvement initiatives for 2019/20 and 2020/21 will impact the number of consultants.

Charles E. (Chuck) Henry

Vice President, Solution and Pricing, Gartner Consulting

Chuck is a Vice President with Gartner Consulting with over 40 years of executive and consulting experience with both public and private sector organizations. He co-leads Gartner's public sector Solution Hub, which works with North American Public Sector Managing Partners to integrate our intellectual property and the skills and knowledge of our associates to maximize engagement value for our public sector clients.

In 2017, Chuck led Gartner's Consulting team supporting Public Safety and Justice in Canada. This includes engagements across Federal, Provincial and Municipal organizations in areas of Strategy, Benchmarking, Service Management, Sourcing in including RMS, Cad and Data Analytics capabilities, Portfolio Management and Enterprise and Technology Architecture. Recent clients include Calgary 911, Calgary Fire, PrimeCorp, the Ottawa Police Service, the Toronto Police Service and the RCMP.

In 2016, Chuck was Vice President and led teams delivering consulting engagements organizations in the areas of Strategy, Benchmarking, Service Management, Sourcing, Portfolio Management and Enterprise and Technology Architecture.

Prior to moving to Kelowna, Chuck was the Senior Managing Partner responsible for Gartner's consulting relationship with the Canadian Federal Government and Crown Corporations. As the Managing Partner, Chuck developed the methodology to apply Gartner's intellectual property and consulting and benchmarking skills to client issues and then provided quality assurance of the engagements. These engagements included the development of the back office strategy for the Government of Canada, project reviews of Major Crown projects (i.e. over $100 Million in spend), development of a digital maturity model for Service Canada and the development of the Government of Canada's Application Program management model (based on Gartner's T.I.ME. methodology).

Prior to Gartner, Chuck spent 5 years in the Canadian Federal Government. The last 7 months were spent as the Interim CIO of Health Canada (600 staff, $92 million budget) where he defined a strategy and developed funding and HR models to improve IT operations, reduce costs and expand development capabilities. He provide executive management and leadership of major projects including the migration to an updated email system and migrating onto an ERP for human capital management, replacing a home grown system.

Prior to Health, Chuck was the Chief Technology Officer (CTO) for Canada working for the CIO of Canada within Treasury Board Secretariat (TBS). Chuck provided management oversight for the approximately $6 Billion per year of IT spend by the Government of Canada. His team also initiated the use of government wide collaboration (Web 2.0) technologies across the government with the creation of GCpedia (http://en.wikipedia.org/wiki/GCPEDIA).

Prior to the Government, Chuck spent 30 years at IBM where he delivered engagements covering IT Optimization, System Design and System implementation on multiple platforms (e.g. Mainframes, Unix, Windows) and delivery environments from SAP to custom development.

Selected Work Experience

Note – Projects overlap

1. Shared Services Canada External Review (August 2016 to January 2017
2. Shared Services Canada (SSC) Cloud Broker Assessment (Jan to April 2016)
3. Government of Canada Managed Web Services Project review (Dec 2015 to March 2016)
4. Government of Canada Workstation Print RFP support (Sept 2015 to Dec 2015)
5. Government of Canada Cloud Strategy (Dec 2014 to July 2015)
6. Government of Canada Back Office Strategy (Dec 2013 to March 2016)
7. Canada Border Services Agency Organization and Capabilities Re-engineering (March 2014 to April 2016)
8. Health Canada Security Benchmark and Security program development (Aug 2016 to Jan 2016)
9. DND Security Assessment Nov 2012 to March 2013
10. AAFC and CFIA Application Portfolio Modernization (Jan 2012 – August 2012)
11. Statistics Canada ITSM Assessment and Benchmark (Dec 2013 – March 2014)
12. CIC – Client, Peripheral and Help Desk Assessment (Jan 2012 - May 2012)
13. PSP Investments Service Delivery Strategy (Jan 2012 - May 2012
14. State of Kansas – Service Delivery Assessment. (Aug 2011 – Nov 2011)
15. IT Strategy for the County of Maui (at the request of the Mayor). (Nov 2012 – March 2013)
16. PRIMECorp strategy and risk assessment (June 2012 — March 2013)
17. PWGSC HR System (PeopleSoft) project review (June 2011 – Sept 2011)

Prior to Gartner

18. Interim CIO – Health Canada (August 2010 — March 2011)

Independent Consultant: Oct 2009 to August 2010

19. Industry Canada Enterprise Architecture (May 2010 — August 2010)
20. KPIs and Risk Management for OSFI (May 2010 — Mar 2011)
21. KPIs for the Government of Canada (February 2009 — May 2009)
22. Industry Canada Enterprise Architecture and Business Case (February 2009 — April 2009)
23. Environment Canada Data Center Consolidation Strategy (January 2009 — March 2009)

CTO Government of Canada Projects: October 2005 to October

Background: TBS (Treasury Board Secretariat) is the management board of the government of Canada. Chuck was Chief Technology Officer (CTO) responsible for creating, sustaining and implementing the management framework for IT in the Government of Canada from October 2005 to October 2009.

- IT Policy for the Government of Canada: Phase 1- IT Policy
  - Duration: October 2005 to July 2007
  - Number of Departments Engaged and Consulted: >100
- IT Policy for the Government of Canada: Phase II - IT Directive, Standards
  - Duration: August 2006 to May 2007
  - Number of Departments Engaged and Consulted: >100
  - KPIs developed for GC wide use
- IT Policy for the Government of Canada: Phase III- ERP and Interoperability Architecture Framework
  - Number departments consulted and engaged: >100

Additional Projects

24. April 2007 — October 2009

Working with the CIO of Canada and CIO Council, Chuck was project executive leading the team that created the technology architecture for the Government of Canada, starting with an ERP framework, followed by an SOA framework and a major guidance document defining the adoption of interoperability standards. This work was presented up to the EX5 level.

25. April 2007 — October 2009

Chuck was the project executive, leading the team redefining the Common Look and Feel (CLF) Standard. CLF is Canada's standards for web accessibility, site style and navigation. These standards are now integrated into the IT management and governance process through the CIO Council and the framework was established to evolve them at a pace better suited to government and departmental implementation. This work was presented up to the DM level.

26. April 2007 — October 2007

Mr. Henry led the TBS team and liaised with 3 external advisors (all at the VP or higher level from Royal Bank, CIBC and IBM) that developed and wrote the external post mortem advising Canada Revenue Agency (CRA) on system and process changes in light of CRA's 10 day personal tax (T1) system outage of March of 2007.

27. September 2006 — October 2009

Mr. Henry initiated and led the first Web 2.0 (social networking) strategy and pilot for a pan government (all departments and agencies) in the world. At the time of writing, GCPEDIA has over 10,000 registered users from over 190 departments and agencies in

the Federal Government. Canada's use of Web 2.0 technology has been recognized as a leading practice for internal collaboration. This work was presented to the DM level.

28. October 2008 — October 2009

Mr. Henry was on the Board of Governors for GTEC (Government Technology Exhibit and Conference, see www.gtec.ca and presented awards at the GTEC Gala in October 2009.

29. October 2007 — May 2009

At the request of Microsoft, Chuck was a member of Microsoft's "Interoperability Executive Council" providing advice and guidance to Bob Muglia, President Server and Tools Business unit at Microsoft

Independent Consultant: June 2005 to October 2005

30. August 2005 — Sept 2005

Chuck led a consulting engagement to examine management and privacy aspects of a new web based service from Canada Post. The final presentation of this work was to Moira Green, then President of Canada Post.

31. September 2005 — October 2005

Chuck led a consulting engagement at TBS looking at the prospects for the IT policy that resulted in his coming to TBS on executive interchange as the Federal CTO.

IBM Canada – Executive Consultant: May 1975 to June 2005

32. May 2003 — February 2004

Chuck was the Project Leader and lead architect of a server consolidation study at DND. The study showed DND substantial ongoing capitol and operational savings.

33. November 2002 — June 2003

Chuck was the Project Leader and lead architect of an environment simplification study at ICBC. The study showed ICBC $5 Million a year in ongoing capitol and operational savings.

34. November 2001 — June 2002

- Chuck was a consultant on a number of optimization studies in large Canadian financial and manufacturing institutions:
- Leadership of a server architecture rationalization study at large Canadian Bank
- Optimization consultant for a large study at another large Canadian Bank
- Solution architect Mainframe/Unix SAP R/3 deployment at major Aerospace firm.
- Numerous other server consolidation and architecture engagements include railroads, energy distribution and insurance companies across Canada.

35. January 2000 — December 2001

Chuck was a member of IBM's Virtualization Task Force led by Jim Rymarczyk, IBM Fellow and Chief Virtualization architect. Mr. Henry's focus was on customer requirements and implementation challenges.

36. January 1998 — December 1999

Chuck was team leader and solution architect for Department of National Defence (DND) when they initially implemented a large scale SAP R/3 system. The system is now a key element of the Canadian Forces and is consolidating over 1100 discrete material management systems into a UNIX and Mainframe complex at a central location and supporting departmental units around the world. It includes the remote access from PDA devices as well as deployment capability for ships and other units deployed in remote areas.

37. January 1996 — December 1997

Mr. Henry was lead architect and infrastructure team lead for DND's Data Centre Consolidation and Automation Project. This project created a 'World Class' Data Centre within the department and won an award from GTEC (www.gtec.ca).

May 1975 to June 2005 IBM Canada – (May 1975 to December 1992 – Systems Engineer (various levels) IBM Canada))

38. January 1990 — December 1992

Mr. Henry was the Systems Engineer for Canada Mortgage and Housing Corporation and consulted with CMHC in evaluating, architecting and installing advanced processor and storage technology. This resulted in the successful implementation of IBM Mainframe hardware and software that improved CMHC's storage utilization and system responsiveness.

39. January 1990 — December 1992

Mr. Henry also executed a tape management study at CMHC, and was project leader on the subsequent installation of the first Canadian Installation of an IBM 3495 tape library (1 of the first 6 in the world). This resulted in significantly reduced processing times as well as reduced manpower needs for CMHC.

40. January 1983 — December 1989

Mr. Henry was country support for IBM Mainframe hardware and software and worked with clients across the Country to architect and implement mainframe centric solutions. In addition, he worked on special projects for IBM Development laboratories. These projects included:

Working at the San Jose Programming Laboratory and writing the 'Enterprise Systems Managed Storage Presentation Guide' used to teach IBM and customer technical and management personnel around the world about upcoming distributed storage management announcements.

Working in the Poughkeepsie Programming Laboratory as a member of a 7-person council reporting directly to the laboratory director to validate IBM Mainframe Software design objectives and prepare sales and technical material.

Education & Certifications

Chuck holds a Bachelor of Engineering with Distinction (Electrical) from Carleton University. He and his wife reside in Kelowna British Columbia.

David (Dave) Makarchuk, *CFA, FSA, FCIA*

Partner & Senior Investment Consultant, Mercer Canada

As a member of Mercer Canada's National Wealth Leadership team, I am responsible for driving client success across Mercer Canada's spectrum of Wealth solutions. We do this by collaborating with our clients to help them make better Saving decisions, better Administration decisions, better Investment decisions, and better Delivery decisions. In addition to leading our strategic growth initiatives, I consult to a select group of clients to help improve the Wealth of their employees and/or institutional funds by improving Returns, optimizing Risk, managing Costs and making better use of Time.

More specifically, I lever my investment and actuarial background to advise institutional plan sponsors across a variety of strategic issues. I advise sponsors of both defined benefit and defined contribution pension plans as well as a variety of non-pension institutional funds, with a focus on plans with assets in excess of $1Billion. I lever the breadth and depth of Mercer's intellectual capital to effectively work with boards and committees to help them identify and achieve their investment objectives.

I am a CFA Charterholder (2008), a Fellow of the Canadian Institute of Actuaries (1999), and a Fellow of the Society of Actuaries (1999). I graduated from the University of Calgary in 1992 with a Bachelor of Commerce (Finance) and Bachelor of Science (Actuarial Science).

Prior to joining Mercer in 1999, I consulted with Watson Wyatt. From 1993-1997, I provided actuarial services to Crown Life Insurance Company.

Dave Makarchuk

89 Strathlea Court SW, Calgary, AB, T3H 4T4 | 403.607.1555 | davemakarchuk14@gmail.com

3807, 80 John Street, Toronto, ON , M5V 3X4 | 416.996.1175

Education

BACHELOR OF COMMERCE, BACHELOR OF ACTUARIAL SCIENCE
1992 | UNIVERSITY OF CALGARY

- Major: Finance

FELLOW OF THE SOCIETY OF ACTUARIES, 1999
FELLOW OF THE CANADIAN INSTITUTE OF ACTUARIES, 1999
CHARTERED FINANCIAL ANALYST CHARTERHOLDER, 2008

Experience

SALES AND STRATEGIC GROWTH LEADER – CANADIAN WEALTH BUSINESS | MERCER
JANUARY 2017- PRESENT

- Partnering with Mercer Canada's National Wealth Leadership team, I am responsible for driving profitable growth across Mercer Canada's spectrum of Wealth solutions.

INVESTMENT/WEALTH BUSINESS LEADER – TORONTO | MERCER
SEPTEMBER 2016-AUGUST 2017

- As a member of Mercer Canada's National Investment/Wealth Leadership team, I was responsible for leading our Toronto Investment/Wealth business. Management responsibilities included people leadership (50-130 people), operational efficiencies, sales growth, and overall profitability.

INVESTMENT BUSINESS LEADER – WESTERN CANADA | MERCER
JANUARY 2006-SEPTEMBER 2016

- As a member of Mercer Canada's National Investment Leadership team, I was responsible for leading our Western Canadian investment business. Management responsibilities included people leadership (10 people), operational efficiencies, sales growth, and overall profitability.

RETIREMENT BUSINESS LEADER – CALGARY | MERCER
JANUARY 2003-DECEMBER 2005

- As a member of Mercer Canada's National Retirement Leadership team, I was responsible for leading our retirement business in Calgary. Management responsibilities included people leadership (30 people), operational efficiencies, sales growth, and overall profitability.

INVESTMENT CONSULTANT – CALGARY/TORONTO| MERCER
JANUARY 2006-PRESENT

I lever my investment and actuarial background to advise institutional plan sponsors regarding a variety of strategic issues regarding their pension plans and other institutional assets. I advise sponsors of both defined benefit and defined contribution pension plans as well as a variety of non-pension institutional

funds, with a focus on plans with assets in excess of $1Billion. I lever the breadth and depth of Mercer's intellectual capital to effectively work with boards and committees to help them identify and achieve their investment objectives.

RETIREMENT CONSULTANT – CALGARY| MERCER
DECEMBER 1999 -DECEMBER 2007

I levered my actuarial background to provide design, valuation, and other related advice to sponsors of defined benefit pension plans.

RETIREMENT CONSULTANT – CALGARY| WATSON WYATT
AUGUST 1997 -DECEMBER 1999

I levered my actuarial background to provide design, valuation, and other related advice to sponsors of defined benefit pension plans.

ACTUARIAL ANALYST – REGINA| CROWN LIFE INSURANCE COMPANY
MARCH 1993 – AUGUST 1997

I levered my actuarial background to provide valuation, pricing, design, and other services to Crown Life's pension and corporate actuarial divisions. I was the youngest plan level manager at the company.

MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION

PROPOSED TIMETABLE
-DRAFT incl Hearing Issues List-

	ITEM	Date	Day of the Week	Elapsed Working Days
1	Application Filed	June 15, 2018	Friday	**0**
2	Notice of Public hearing Published	June 16, 2018	Saturday	**0**
3	PUB Issues Workshop	June 22, 2018	Friday	**5**
	Intervener Registration Deadline	June 22, 2018	Friday	**5**
4	Procedural Conference	June 25, 2018	Monday	**6**
5	PUB Procedural Order Issued	July 04, 2018	Wednesday	**12**
6	**Round One Information Requests Filed**	**July 11, 2018**	**Wednesday**	**17**
7	**Round One Information Responses Filed**	**August 08, 2018**	**Wednesday**	**36**
8	Parties to file motions on Round 1 IRs	August 09, 2018	Thursday	**37**
9	Board to hear Motions	August 10, 2018	Friday	**38**
10	**Round Two Information Requests Filed**	**August 20, 2018**	**Monday**	**44**
11	Reminder Notice of Public Hearing Published	September 15, 2018	Saturday	**62**
12	**Round Two Information Responses**	**September 17, 2018**	**Monday**	**63**
13	**Parties to file motions/Issues List Submissions**	**September 19, 2018**	**Wednesday**	**65**
14	**Pre-Hearing Conference (motions/Hearing Issues List)**	**September 21, 2018**	**Friday**	**67**
15	Interveners to file pre-filed testimony to all parties	September 24, 2018	Monday	**68**
16	**PUB Order to finalize Hearing Issues List**	**September 26, 2018**	**Wednesday**	**70**
17	Information Requests on Intervener Evidence	September 27, 2018	Thursday	**71**
18	Intervener Information Responses	October 03, 2018	Wednesday	**75**
19	MPI Rebuttal Evidence	October 09, 2018	Tuesday	**78**
20	Oral Hearing			
		October 15 to 19	Monday to Friday	**5 days**
		October 22 to 26	Monday to Friday	**5 days**
	If Required	*October 29 to Nov 2*	*Monday to Friday*	***5 days***
21	PUB Order Released	December 03, 2018	Monday	**117**

Appendix 16: BASIC CAPITAL EXPENDITURES

Figure EXP App 16:Basic Capital Expenditures

Line No.	Expenditure Type	2018 GRA (2017/18B)	2019 GRA (2017/18A)	Difference (2019 GRA - 2018 GRA)	2018 GRA (2018/19F)	2019 GRA (2018/19FB)[1]	Difference (2019 GRA - 2018 GRA)
	(C$000s, except where noted)						
1	**Land and Building**	5,621	3,599	(2,022)	2,786	2,422	(364)
2	**Automobiles**	1,118	330	(788)	1,133	924	(209)
	Office Equipment / Systems Furniture / Demountable Walls	1,370	959	(411)	856	-	(856)
4	**Data Processing Equipment**	905	116	(789)	2,016	2,023	7
5	**Deferred Development**	13,890	18,104	4,214	20,983	7,436	(13,547)
						~~-~~	~~**(20,983)**~~
6	**Impairment of Deferred Development**	-	(18,678)	(18,678)	-	-	-
7	**Subtotal - Expenditures**	**22,904**	**4,430**	**(18,474)**	**27,774**	**12,805**	**(14,969)**
						~~**5,369**~~	~~**(22,405)**~~
8	**Implementation Expense**	2,443	1,781	(662)	2,566	3,420	854
9	**Impairment of Deferred Development**	-	18,678	18,678	-	-	-
10	**Total Expenses**	**25,347**	**24,889**	**(458)**	**30,340**	**16,225**	**(14,115)**
						~~**8,789**~~	~~**(21,551)**~~

[1] 2018/19FB Deferred development did not report the correct amount due to incorrect link. The correct amount of 7,436 agrees to Appendix 17.
NOTE: Basic % of capital estimated

2017/18

Land and Building

Land and Building costs are lower than expected for 2017/18 mainly due to decreased spending for various buildings.

Automobiles

The number of vehicles requiring replacement decreased.

Office Equipment / Systems Furniture

Equipment spending on Systems Furniture for various locations did not materialize.

Data Processing Equipment

Data Processing equipment costs are lower than the 2018 GRA forecast mainly due to some deferred IT division spending.

Deferred Development

Deferred Development is higher in comparison to the 2018 GRA submission mainly due to higher Partner Portal, Corporate Learning Management and High School Driver Education - Phase 3.

Impairment of Deferred Development

Impairment of the following initiatives were recognized in 2017/18; portion of Physical Damage Re-engineering – Phase 3, Customer Claims Reporting System, portion of Enhanced DR Capabilities, High School Driver Education – Phase 2, PDR Remote Estimating, Finance Re-engineering, HRMS – Phase 3 & 4, and Technology Innovation and Capabilities.

Implementation Expense

Implementation Expenses are lower than the 2018 GRA forecast mainly due to reduction in Credit Card Strategy expenses.

2018/19

Land and Building

Land and Building costs are forecasted to be slightly lower than the 2018 GRA submission mainly due to expected decrease in spending for various buildings.

Automobiles

The forecasted number of vehicles that require replacement has decreased.

Office Equipment / Systems Furniture

Expected spending on Systems Furniture for various locations has been deferred.

Data Processing Equipment

Data Processing equipment costs are forecasted to be slightly higher in comparison to the 2018 GRA.

Deferred Development

Deferred Development forecast is lower in comparison to the 2018 GRA submission mainly due to reductions in Customer Claims Reporting Systems, HRMS-Ph3/4, Legacy Systems Modernization and Insertions of Work offset by increases in Customer Self-Service, Credit Card Strategy and High School Driver Education - Phase 3.

Implementation Expense

Implementation Expenses are higher than the 2018 GRA forecast mainly due to increases in Legacy Systems Modernization, Enhanced Direct Repair Capabilities and Financial Re-engineering Initiative offset by reduction in the Insertions of Work expense.

Appendix 16: BASIC CAPITAL EXPENDITURES

Figure EXP App 16:Basic Capital Expenditures

Line No.	Expenditure Type	2018 GRA (2017/18B)	2019 GRA (2017/18A)	Difference (2019 GRA - 2018 GRA)	2018 GRA (2018/19F)	2019 GRA (2018/19FB)	Difference (2019 GRA - 2018 GRA)
	(C$000s, except where noted)						
1	**Land and Building**	5,621	3,599	(2,022)	2,786	2,422	(364)
2	**Automobiles**	1,118	330	(788)	1,133	924	(209)
3	**Office Equipment / Systems Furniture / Demountable Walls**	1,370	959	(411)	856	-	(856)
4	**Data Processing Equipment**	905	116	(789)	2,016	2,023	7
5	**Deferred Development**	13,890	18,104	4,214	20,983	7,436	(13,547)
6	**Impairment of Deferred Development**	-	(18,678)	(18,678)	-	-	-
7	**Subtotal - Expenditures**	**22,904**	**4,430**	**(18,474)**	**27,774**	**12,805**	**(14,969)**
8	**Implementation Expense**	2,443	1,781	(662)	2,566	3,420	854
9	**Impairment of Deferred Development**	-	18,678	18,678	-	-	-
10	**Total Expenses**	**25,347**	**24,889**	**(458)**	**30,340**	**16,225**	**(14,115)**

NOTE: Basic % of capital estimated

2017/18

Land and Building

Land and Building costs are lower than expected for 2017/18 mainly due to decreased spending for various buildings.

Automobiles

The number of vehicles requiring replacement decreased.

Office Equipment / Systems Furniture

Equipment spending on Systems Furniture for various locations did not materialize.

Data Processing Equipment

Data Processing equipment costs are lower than the 2018 GRA forecast mainly due to some deferred IT division spending.

Deferred Development

Deferred Development is higher in comparison to the 2018 GRA submission mainly due to higher Partner Portal, Corporate Learning Management and High School Driver Education - Phase 3.

Impairment of Deferred Development

Impairment of the following initiatives were recognized in 2017/18; portion of Physical Damage Re-engineering – Phase 3, Customer Claims Reporting System, portion of Enhanced DR Capabilities, High School Driver Education – Phase 2, PDR Remote Estimating, Finance Re-engineering, HRMS – Phase 3 & 4, and Technology Innovation and Capabilities.

Implementation Expense

Implementation Expenses are lower than the 2018 GRA forecast mainly due to reduction in Credit Card Strategy expenses.

2018/19

Land and Building

Land and Building costs are forecasted to be slightly lower than the 2018 GRA submission mainly due to expected decrease in spending for various buildings.

Automobiles

The forecasted number of vehicles that require replacement has decreased.

Office Equipment / Systems Furniture

Expected spending on Systems Furniture for various locations has been deferred.

Data Processing Equipment

Data Processing equipment costs are forecasted to be slightly higher in comparison to the 2018 GRA.

Deferred Development

Deferred Development forecast is lower in comparison to the 2018 GRA submission mainly due to reductions in Customer Claims Reporting Systems, HRMS-Ph3/4, Legacy Systems Modernization and Insertions of Work offset by increases in Customer Self-Service, Credit Card Strategy and High School Driver Education - Phase 3.

Implementation Expense

Implementation Expenses are higher than the 2018 GRA forecast mainly due to increases in Legacy Systems Modernization, Enhanced Direct Repair Capabilities and Financial Re-engineering Initiative offset by reduction in the Insertions of Work expense.

Appendix 11: STAFFING LEVELS BY CATEGORY (CORPORATE 2018/19FB)

The following schedules show the forecast base versus actual comparative for average normal operations staffing levels for each position category by division for the 2018/19 forecast base year. The Corporation is comprised of seven divisions with four main position types. New to this year's analysis is the inclusion of staff counts for specialty programs.

Figure EXP App 11: Staffing Budget in 2018/19

NORMAL OPERATIONS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	~~48.00~~	~~7.00~~	~~14.00~~	~~12.00~~	~~8.00~~	-	~~22.00~~	~~111.00~~
2	Management	55.00	9.00	18.00	15.00	9.00	1.00	25.00	132.00
3	Supervisory	~~122.00~~	~~4.00~~	~~3.00~~	~~2.00~~	-	~~1.00~~	~~3.00~~	~~135.00~~
4	Supervisory	123.00	4.00	3.00	3.00	-	1.00	6.00	140.00
5	Technical/Professional	~~555.50~~	~~53.30~~	~~124.60~~	~~77.00~~	~~9.00~~	~~21.00~~	~~251.20~~	~~1,091.60~~
6	Technical/Professional	554.50	51.30	117.60	73.00	8.00	20.00	245.20	1,069.60
7	Clerical	~~467.50~~	~~11.00~~	~~21.00~~	~~22.00~~	~~1.00~~	~~4.00~~	~~10.00~~	~~536.50~~
8	Clerical	460.50	11.00	24.00	22.00	1.00	4.00	10.00	532.50
9	Total	~~1,193.00~~	~~75.30~~	~~162.60~~	~~113.00~~	~~18.00~~	~~26.00~~	~~286.20~~	~~1,874.10~~
10	Total	1,193.00	75.30	162.60	113.00	18.00	26.00	286.20	1,874.10

IMPROVEMENT INITIATIVE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
2	Technical/Professional	-	-	-	-	-	-	18.55	18.55
3	Clerical	-	-	-	-	-	-	-	-
3	Total	-	-	-	-	-	-	18.55	18.55

SPECIALTY PROGRAMS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
2	Technical/Professional	2.00	-	3.00	1.00	-	-	-	6.00
3	Clerical	2.33	-		1.55	-	-	-	3.88
3	Total	4.33	-	3.00	2.55	-	-	-	9.88

CORPORATE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	~~48.00~~	~~7.00~~	~~14.00~~	~~12.00~~	~~8.00~~	-	~~22.00~~	~~111.00~~
2	Management	55.00	9.00	18.00	15.00	9.00	1.00	25.00	132.00
3	Supervisory	~~122.00~~	~~4.00~~	~~3.00~~	~~2.00~~	-	~~1.00~~	~~3.00~~	~~135.00~~
4	Supervisory	123.00	4.00	3.00	3.00	-	1.00	6.00	140.00
5	Technical/Professional	~~557.50~~	~~53.30~~	~~127.60~~	~~78.00~~	~~9.00~~	~~21.00~~	~~269.75~~	~~1,116.15~~
6	Technical/Professional	556.50	51.30	120.60	74.00	8.00	20.00	263.75	1,094.15
7	Clerical	~~469.83~~	~~11.00~~	~~21.00~~	~~23.55~~	~~1.00~~	~~4.00~~	~~10.00~~	~~540.38~~
8	Clerical	462.83	11.00	24.00	23.55	1.00	4.00	10.00	536.38
9	Total	~~1,197.33~~	~~75.30~~	~~165.60~~	~~115.55~~	~~18.00~~	~~26.00~~	~~304.75~~	~~1,902.53~~
10	Total	1,197.33	75.30	165.60	115.55	18.00	26.00	304.75	1,902.53

** Due to sensitivity of the ongoing planning around management reductions, specific positions are not being identified in this schedule at this time.*

Appendix 11: STAFFING LEVELS BY CATEGORY (CORPORATE 2018/19FB)

The following schedules show the forecast base versus actual comparative for average normal operations staffing levels for each position category by division for the 2018/19 forecast base year. The Corporation is comprised of seven divisions with four main position types. New to this year's analysis is the inclusion of staff counts for specialty programs.

Figure EXP App 11: Staffing Budget in 2018/19

NORMAL OPERATIONS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	55.00	9.00	18.00	15.00	9.00	1.00	25.00	132.00
2	Supervisory	123.00	4.00	3.00	3.00	-	1.00	6.00	140.00
3	Technical/Professional	554.50	51.30	117.60	73.00	8.00	20.00	245.20	1,069.60
4	Clerical	460.50	11.00	24.00	22.00	1.00	4.00	10.00	532.50
5	Total	1,193.00	75.30	162.60	113.00	18.00	26.00	286.20	1,874.10

IMPROVEMENT INITIATIVE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
2	Technical/Professional	-	-	-	-	-	-	18.55	18.55
3	Clerical	-	-	-	-	-	-	-	-
3	Total	-	-	-	-	-	-	18.55	18.55

SPECIALTY PROGRAMS STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	-	-	-	-	-	-	-	-
2	Supervisory	-	-	-	-	-	-	-	-
3	Technical/Professional	2.00	-	3.00	1.00	-	-	-	6.00
4	Clerical	2.33	-		1.55	-	-	-	3.88
5	Total	4.33	-	3.00	2.55	-	-	-	9.88

CORPORATE STAFFING LEVELS
2018/19 Total Budget (FTE)

Line No.	CATEGORY	Customer Service	Actuarial & Risk Management	Human Resources & Corporate Services	Finance	Executive	General Counsel	Information Technology & Business Transformation	Total
1	Management	55.00	9.00	18.00	15.00	9.00	1.00	25.00	132.00
2	Supervisory	123.00	4.00	3.00	3.00	-	1.00	6.00	140.00
3	Technical/Professional	556.50	51.30	120.60	74.00	8.00	20.00	263.75	1,094.15
4	Clerical	462.83	11.00	24.00	23.55	1.00	4.00	10.00	536.38
5	Total	1,197.33	75.30	165.60	115.55	18.00	26.00	304.75	1,902.53

** Due to sensitivity of the ongoing planning around management reductions, specific positions are not being identified in this schedule at this time.*

Manitoba Public Insurance / Société d'assurance publique du Manitoba

August 20, 2018

Via email

The Public Utilities Board
400 – 330 Portage Avenue
Winnipeg, MB R3C 0C4

Attention: Mr. Darren Christle, Board Secretary and Executive Director

Dear Mr. Christle:

RE: Manitoba Public Insurance Corporation (MPI)
2019 General Rate Application (GRA) Refiling of Redacted Round One Information Requests and Responses (IRs)

Upon further review of the Round 1 IRs filed with the Public Utilities Board on August 8, 2018, MPI has determined that certain aspects of the redacted IRs, for which confidential treatment is being sought, could be released onto the public record.

MPI has prepared, as an Errors and Omissions filing, two versions of the IRs in question. The August 8, 2018 version, as filed previously, and a revised version with additional information (fewer redactions), dated August 20, 2018.

The following IRs and Subparts/Appendices have been modified to appear on the public record:

1. PUB (MPI) 1-58, Part (a)
2. PUB (MPI) 1-59, Parts (a) and (b)
3. PUB (MPI) 1-61, Parts (b) and (d)
4. PUB (MPI) 1-62, Appendices 3 & 4
5. PUB (MPI) 1-72, Part (a) and Part (b), and Appendix 1 (note Appendix 1 still contains some redactions for IT security reasons)
6. CAC (MPI) 1-60, Part (a) – now specifies only the attachment is redacted

MPI requests that this filing be marked as MPI Exhibit 9. MPI will update the web posted application PDF and provide paper copies to parties to the proceeding.

Given the additional information, MPI will accept additional Round 2 IRs (if any) related to the enclosed material, and will endeavor to file responses on September 14, 2018, with the balance of Round 2 IRs. MPI would appreciate any further Round 2 IRs on this additional material be provided by August 31, 2018.

Yours truly,

Anthony Guerra
Legal Counsel

AG/JC
Encl.

cc: K. McCandless
2019 GRA Registered Interveners

PUB (MPI) 1-58

Part and Chapter:	**IV VM.1.2**	**Page No.:**	**12**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Legacy Systems Modernization**		
Sub Topic:			

Preamble to IR (If Any):

MPI identified in the 2018 GRA that there are concerns regarding IT legacy systems, which are 20 to 30 years old. Replacing these systems could potentially have significant costs. On direction from its Board, Management retained two industry consultants to complete independent assessments of the MPI legacy system risks and to confirm the need for future action to mitigate the associated technical and business risks.

According to the proposed timeline for the project, vendor presentations were to occur in June and September.

Question:

a) Please provide details of the consultants engaged related to the independent assessment of MPI legacy systems.
b) Please file the respective consultants' reports/ presentations and/or resulting business cases dealing with legacy system issues, including details on each of the consultants' responses to the each of the mandate scope established for the project.
c) Please file any internal analysis that was prepared to support the consultants' reports or internally assess the AOL/ CARS replacement.

Rationale for Question:

To understand assessment performed of legacy systems.

RESPONSE:

a) [Redacted: The Corporation is seeking confidential treatment for this response.]

b) Development of the Legacy Modernization business case is still in early stages, and only Deloitte has completed its high level assessment report.

[Attachment A Redacted: The Corporation is seeking confidential treatment for this response.]

c) The Corporation provided background material to both Assessment Vendors but they requested no internal analysis and the Corporation did not prepare any for the assessment engagements. The Assessment Vendors were responsible for performing their own analysis.

PUB (MPI) 1-58

Part and Chapter:	**IV VM.1.2**	**Page No.:**	**12**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Legacy Systems Modernization**		
Sub Topic:			

Preamble to IR (If Any):

MPI identified in the 2018 GRA that there are concerns regarding IT legacy systems, which are 20 to 30 years old. Replacing these systems could potentially have significant costs. On direction from its Board, Management retained two industry consultants to complete independent assessments of the MPI legacy system risks and to confirm the need for future action to mitigate the associated technical and business risks.

According to the proposed timeline for the project, vendor presentations were to occur in June and September.

Question:

a) Please provide details of the consultants engaged related to the independent assessment of MPI legacy systems.

b) Please file the respective consultants' reports/ presentations and/or resulting business cases dealing with legacy system issues, including details on each of the consultants' responses to the each of the mandate scope established for the project.

c) Please file any internal analysis that was prepared to support the consultants' reports or internally assess the AOL/ CARS replacement.

Rationale for Question:

To understand assessment performed of legacy systems.

RESPONSE:

a) Two vendors have been selected to perform an independent assessment of our legacy systems.

1. Deloitte was the first vendor on site and performed their assessment from May 1st to June 22nd. Deloitte delivered their findings to the Corporation's Planning and Technology Committee on June 21, 2018.

   Deloitte has a well-recognized professional services practice that specializes in Insurance advisory and delivery services.

2. Avasant was the second vendor on site. Their assessment period runs from July 13th to September 28th. Avasant will be delivering their report to the Corporation's Planning and Technology Committee on September 27th, 2018

   Avasant is a Canadian management consulting firm that specializes in large enterprise transformation and modernization projects in Canada. Avasant is a subsidiary of Avasant LLC, a global management consulting firm with over 150 consultants and experience in providing business and technology transformation consulting in over 40 countries.

b) Development of the Legacy Modernization business case is still in early stages, and only Deloitte has completed its high level assessment report (please see *Attachment A*). MPI sought the views of two parties to gain the benefit of differing perspectives. If MPI is considered a strong candidate for Legacy Modernization, a detailed business case for Legacy Modernization, including both Assessment vendor reports, and MPI's position on the reports, will be filed in the 2020 GRA.

   [Attachment A Redacted: The Corporation is seeking confidential treatment for this response.]

c) The Corporation provided background material to both Assessment Vendors but they requested no internal analysis and the Corporation did not prepare any for the assessment engagements. The Assessment Vendors were responsible for performing their own analysis.

PUB (MPI) 1-59

Part and Chapter:	**IV VM.1.4**	**Page No.:**	**23**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Customer Self-Service – Phase 1, 2 and 3**		
Sub Topic:			

Preamble to IR (If Any):

Until a critical mass of over 300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained. The financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

Question:

a) Is there concern that this number will not be met, factoring in marketing costs to get users to use the portal?
b) How many transactions are processed in a year that could be potentially addressed by the self-service component, and what percentage would 300,000 users represent of that total? Please elaborate and provide supporting details where possible in the response.

Rationale for Question:

To understand the details of the cost/benefit analysis related to customer-self services.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response.]

PUB (MPI) 1-59

Part and Chapter:	**IV VM.1.4**	**Page No.:**	**23**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Customer Self-Service – Phase 1, 2 and 3**		
Sub Topic:			

Preamble to IR (If Any):

Until a critical mass of over 300,000 users is met, the portal licensing is an operational costs driver. Once the 300,000 users threshold is reached, surpassed and maintained. The financial benefits of available customer self-serve services opposite the user licensing costs will be more financially viable.

Question:

a) Is there concern that this number will not be met, factoring in marketing costs to get users to use the portal?

b) How many transactions are processed in a year that could be potentially addressed by the self-service component, and what percentage would 300,000 users represent of that total? Please elaborate and provide supporting details where possible in the response.

Rationale for Question:

To understand the details of the cost/benefit analysis related to customer-self services.

RESPONSE:

a) The current short-term customer self-serve strategy is to implement high-volume/low-complexity oriented transactions. The Corporation is confident that customers will transition to the expanded service delivery channel as projected for near-term transition rates. The Corporation must expand its future service offerings of a similar nature to achieve the long-term projected customer take-up rates. In the Customer Claims Reporting System customer focus group research completed in early 2018, and in the recent Physical Damage Claimant Satisfaction surveys, over 50% of those surveyed expressed interest in reporting vehicle damage claims online. The Corporation is therefore confident that customer enrollment in the customer portal and self-service delivery channel will reach anticipated participation rates.

b) The to-date customer self-service strategy analysis has used the FY2015/16 transaction count in the research and analysis performed thus far. The overall number of transactions performed in FY2015/16 was 13.3M for basic insurance, Autopac extension insurance, vehicle registration, and the driver licensing lines of business. The maximum number of transactions the Corporation envisions the self-service delivery channel could handle is ~7M or 57% (@100% customer self-service adoption rate). The Corporation would require a business case to transition all stated services and products while the self-service strategy and the roadmap are finalized. It should also be noted that the maximum customer self-service adoption rate is 50% in future year projects. As 300,000 users represents approximately 30% of the Corporation's total customers, the figure is much lower than the future anticipated self-service adoption rate. The Corporation will finalize specific details as part of the customer self-service roadmap, which it will complete by end of FY18/19.

PUB (MPI) 1-61

Part and Chapter:	**IV VM.2**	**Page No.:**	**29-32**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**MPI's Cost Benefit Analysis of Customer Claims Reporting System (CCRS)**		
Sub Topic:			

Preamble to IR (If Any):

The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative.

Question:

a) Please file the detailed cost benefit financial analysis in support of the incremental, life cycle and terminate project perspective.
b) Please explain what was evaluated and determined to be "lite" scope and "full" scope of the CSSR project. Please describe the business solution in terms of lite and full scope.
c) Please provide any further financial analysis that was prepared to support the decision to cancel the CSSR, which has not been provided in the Application.
d) Please provide the amounts written off by major component, including detail of the spending by year, which formed part of the total impairment amount.

Rationale for Question:

To better understand analysis performed on CCSR initiative.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response]

PUB (MPI) 1-61

Part and Chapter:	**IV VM.2**	**Page No.:**	**29-32**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**MPI's Cost Benefit Analysis of Customer Claims Reporting System (CCRS)**		
Sub Topic:			

Preamble to IR (If Any):

The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative.

Question:

a) Please file the detailed cost benefit financial analysis in support of the incremental, life cycle and terminate project perspective.

b) Please explain what was evaluated and determined to be "lite" scope and "full" scope of the CSSR project. Please describe the business solution in terms of lite and full scope.

c) Please provide any further financial analysis that was prepared to support the decision to cancel the CSSR, which has not been provided in the Application.

d) Please provide the amounts written off by major component, including detail of the spending by year, which formed part of the total impairment amount.

Rationale for Question:

To better understand analysis performed on CCSR initiative.

RESPONSE:

a) Please see Appendices 1 to 6 attached.

[Appendices 1 to 6 Redacted: The Corporation is seeking confidential treatment for this response.]

b) While the "lite" scope version of the Customer Claims Reporting System (CCRS) Project also envisioned an on-line customer self-service solution for the registration of first loss notices in respect of physical damage claims, its process was simpler and/or less time consuming for the customer as compared to the "full" scope version. CCRS "lite" also had lower systems implementation costs, but was less efficient operationally than CCRS "full" and was unable to offer the same return on investment through a reduction in future operating expenses. Specifically, CCRS "lite" was less efficient because it only marginally improved the productivity of Corporation's Contact Centre and did not improve the productivity of claims adjusting. As a result, the Corporation did not consider CCRS "lite" a viable alternative solution. CCRS "full" was the originally envisioned solution. Through this solution, simple claims did not require initial or subsequent Contact Centre calls or calls with claims adjusters to resolve liability or settlement issues. Instead, the on-line service-reporting tool would have handled a large portion of these claims.

c) Please see Appendices 1 to 6 attached.

[Appendices 1 to 6 Redacted: The Corporation is seeking confidential treatment for this response.]

d) See table below:

Figure 1:
Customer Claims Reporting System Deferred Development Costs

Line No.	Customer Claims Reporting System Deferred Development Costs	2012/13A	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	LTD 2017/18A
1	*(C$000s, except where noted)*							
2	CCRS	-	-	-	-	-	4,036	4,036
3	Optimized Adjusting	46	2,203	2,993	18	40	-	5,300
4	Interim FNOL	-	-	18	1,957	3,345	968	6,288
5	Total CCRS	46	2,203	3,011	1,975	3,385	5,004	15,624

PUB (MPI) 1-62

Part and Chapter:	**IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR Project**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please update the Updated PDR NPV Analysis table including the NPV for PDR from Gartner last year, including the discount rate used by Gartner.
b) Please provide details of the project costs and ongoing costs, and provide a comparison with those costs forecast at the last GRA.
c) Please provide the detailed schedules supporting the NPV analysis this year.

Rationale for Question:

To understand changes in the cost benefit analysis related to PDR.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment for this response]

PUB (MPI) 1-62

Part and Chapter:	**IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**PDR Project**		
Sub Topic:	**IT Expenses**		

Preamble to IR (If Any):

Question:

a) Please update the Updated PDR NPV Analysis table including the NPV for PDR from Gartner last year, including the discount rate used by Gartner.

b) Please provide details of the project costs and ongoing costs, and provide a comparison with those costs forecast at the last GRA.

c) Please provide the detailed schedules supporting the NPV analysis this year.

Rationale for Question:

To understand changes in the cost benefit analysis related to PDR.

RESPONSE:

a) Please see Attachment A attached.

[Attachment A Redacted: The Corporation is seeking confidential treatment for this response.]

b) Please see Appendix 1 to 5 attached, Appendix 2 attached (Post Project Impact) depicts the forecasted ongoing operating and licensing costs

associated with PDR. All of these associated costs were not included in the last GRA or historical PDR financial analysis.

[Appendices 1, 2 and 5 Redacted: The Corporation is seeking confidential treatment for this response.]

c) Please see Appendix 1 to 5 attached.

[Appendices 1, 2 and 5 Redacted: The Corporation is seeking confidential treatment for this response.]

LOU- Financial Benefit details

Project	Source	Description	2017/18 Incremental Financial Benefits	2018/19 Incremental Financial Benefits	2019/20 Incremental Financial benefits	2020/21 Incremental Financial benefits	2021/22 Incremental Financial benefits
LOU		CPU Reduction	$ -	$ -	$ 43,753	$ 89,694	$ 91,936

LOU-CPU staffing reductions - 1.5 FTE saving due to automation of certain claim process efforts consisting of avg salary of $44,875 plus 30% benefits =

Average Annual Salary	$ 44,875					
30% benefits	$ 13,463		Full year equivalent in 2019/20	half year 2019/20	2020/21 (2.5% COL)	2021/22 (2.5% COL)
Total Savings Full year 1 FTE	$ 58,338	1.5 FTE =	87,506	43,753	89,694	91,936

This report has been prepared as advice, opinions, proposals, recommendations, analyses or policy options developed by or for the public body or a minister, as per Section 23(1) of the Freedom of Information and Protection of Privacy Act.

Analysis and Support for Predictive Analytics Savings

Source: Director, Loss Prevention , January 4, 2018

Following much discussion, analysis and debate over methodology, I am, with the full support of submitting the projected PA benefits for Total Loss to be $500,000 per year. Data from the Very Soft Launch (VSL) and the PA Pilot were considered, and because the new triage process was in place for the pilot only, data to derive the estimate is from the pilot period experience only (December 11-22 only).

Here is the methodology and key assumptions utilized to derive this estimate:

- Only the SIU referrals considered to be incremental to regular SIU business rules are included in the PA benefit. In the two week pilot, we agreed this equated to 2 MUST referrals and 3 SHOULD referrals, for a total of 5 strong incremental SIU referrals from the PA model (or approximately 18% of the 34 referrals made during the pilot).
- The average ACV of $7,000 is used in the calculation, which is based on 5 years of history on total losses from the SIU database
- An SIU investigation success rate of 50% is applied. Historically, the TL success rate for 2014-2016 has been 30%, but the new process will significantly reduce the number of unsubstantiated referrals making their way to SIU which will increase our success rate.
- Estimate employs data from two week period * 26 = year one benefit

The operational introduction of the PA tool has been the catalyst to introduce a new triage model that is already proving the following benefits:

- Collaborative work at the SC ensures primary investigations are complete before a decision to refer to SIU is made (referrals subsequently made have good information to initiate SIU investigation).
- SIU can inform and give professional opinion on primary SCO investigation from FNOL
- Enables SIU to complete earlier “mini” investigation of claim (credit checks, history, speak with police) and removes unnecessary SIU referrals. This provides quicker triage decisions which will reduce potential Loss Of Use exposure and increased service levels on suspicious and low evidence claims
- SIU referral time during VSL pilot shows an average of 19 days (current referral time average is 28 days). This trend is expected to continue, reflecting a major customer service improvement that wasn’t fully anticipated.
- The new triage process provides training opportunities for SCO to enhance fraud detection skills and evidence gathering.

While these benefits cannot be quantified at this early point, the SIU team involved in the pilot are very pleased with these side benefits of the PA project. I would look to SCO to comment if the impact on SCO represents additional cost or inefficiency from her people’s perspective.

IT will be utilizing this financial forecast information at the Executive meeting tomorrow, so if you have questions about anything, please let us know.

Update Analysis and Support for 2017/18 Predictive Analytics Actual Savings of $82,987

This saving amount reflects SIU recorded savings on:

- Closed investigations on the PA referrals received between Dec 11, 2017 and Feb 28, 2018
- Those files were closed on or before Feb 28, 2018.

Source:, Director, Loss Prevention, April 24, 2018

Projection has been updated based on available data since launch of the piloting of PA.

On previous projection provided in January 2018, a 50% success rate was applied based on overall success rate (TL or non-TL investigation). Our data shows 52% of success rate, hence the assumption remains unchanged.

Savings are associated with use of the PA model but cannot be assessed as to whether or not they are "Incremental" as:

- The majority of PA claims already consist of mandatory claims investigation processes which may have resulted in an SIU referral
- Previous data capturing/reporting does not clearly define savings categories therefore the baseline is not accurate

The PA pilot has derived intangible benefits defined as process value noted below:

- SIU now has oversight and input into the claims investigation at all Service Centers due to the introduction of a new pilot triage model
- Unwarranted referrals interrupting customer service should not occur as only claims with strong evidence of fraud are being referred.
- The success rate of investigations has increased from 28.4% to 52%
- Definitive reporting metrics that clearly outline and capture accurate savings amounts and categories have been created
- The length of an investigation has been reduced from 51.5 days to 36 days

Since Dec 11, 2017, over the period of 19 weeks, the stats are as follows:

Must:	133	
Should:	64	
Total PA Referrals:	**197**	
Strong Leads:	49	=25% (of 197)
SAS Crime (not strong leads):	47	
Total Savings on strong leads	$159,243.71	

SIU Closed Investigations:	33
Number of strong leads generated savings	17
Success rate:	17/33=***52%***

Average Strong Leads Investigations Days span between Referred and Closed (closed strong leads SIU investigation): ***36 days***

Historically (baseline) FY2014-2016 Data:

Days span between referred and closed: ***51.5 Days (previously reported 55.5 days which including 11 months of FY2017 data as well)***

Success rate – TL claim Investigations ***28.4%***

Success rate – all investigations 49.3%

Based on the 19 week's data, total projected savings from PA referrals:

197 PA referrals /19 weeks* 52 weeks * 25% (strong leads per cent age) * 50% success rate * $7,000 = approx. $472K.

PUB (MPI) 1-72

Part and Chapter:	**IV IT**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Management**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please file an update to PUB/MPI I-29 Appendix 1 and I-29 (c) from the 2018 GRA.

b) Please file an update to PUB/MPI 2-16 (a) & (b) from the 2018 GRA.

Rationale for Question:

To provide an update on project status.

RESPONSE:

[Redacted. The Corporation is seeking confidential treatment of this response].

PUB (MPI) 1-72

Part and Chapter:	**IV IT**	**Page No.:**	
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**IT Management**		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please file an update to PUB/MPI I-29 Appendix 1 and I-29 (c) from the 2018 GRA.
b) Please file an update to PUB/MPI 2-16 (a) & (b) from the 2018 GRA.

Rationale for Question:

To provide an update on project status.

RESPONSE:

a) Please see Appendix 1: Status of Corporate Strategic Initiatives. With respect to PUB/MPI I-29 (c) from the 2018 GRA, the Value Management Post Implementation Review template has not changed except for the addition of a section entitled “PIR Methodology” which will outline what procedures were undertaken to perform the review (i.e. interviews, verification procedures).

b) Please see the tables below for update to PUB(MPI) 2-16 from the 2018 GRA:

Figure 1: Listing of Active and Future Initiatives – Total Corporate

Line No.	Active and Future Projects - (completed and closed projects not shown)	Budget	Business Case Development Phase	Business Case Approved (Y/N)	Delivery Phase	Notes
1	*(C$000s, except where noted)*					
2	**High School Driver Education Phase 2**	1,982	Completed	Y	Elaboration	
3	**High School Driver Education Phase 3**	2,018	Completed	Y	Elaboration	
4	HR Managenent System Phase 3 & 4	446	Not started	N	Start up	
5	BI3 Fineos Upgrade 2020	2,277	Completed	Y	Not Started	
6	BI3 Fineos 2024	1,250	Not started	N	Not Started	
7	Financial Re-engineering Initiatives	13,960	In Progress	N	Start up	Note 1
8	Legacy Systems Modernization	72,000	In Progress	N	Inception	Note 1
9	Infor/Lawson Upgrade	4,505	N/A	N/A	Warranty	Note 2
10	Infor Major Upgrade 2022	3,000	Not Started	N	Not Started	
11	Technology Risk Management - 2017	4,525	Completed	Y	Various Phases	
12	Technology Risk Management - 2018	4,272	Completed	Y	Various Phases	
13	Technology Risk Management - 2019	4,500	Not Started	N	Not Started	
14	Technology Risk Management - 2020	4,500	Not Started	N	Not Started	
15	Technology Risk Management - 2021	4,500	Not Started	N	Not Started	
16	Technology Risk Management - 2022	4,500	Not Started	N	Not Started	
17	Enhanced DR Capabilities	2,989	PDR	N/A	Various Phases	Note 2
18	Customer Self Service	4,870	Completed	Y	Various Phases	
19	AOL PUB Release	2,672	Completed	Y	Inception	
20	Credit Card Strategy	1,701	In Progress	N	Various Phases	
21	Non-Basic Projects	7,090	Various	Various	Various Phases	
22	Total Project Budget	147,557				

Note 1: Initial Phase of project includes completion of detailed business case for approval before proceeding to full project phase.

Note 2: Project approved prior to full implementation of Value Management Process

Figure 2: Listing of PDR Related Projects

Line No.	Project name	Basic Deferred Development Project*
1	*(C$000s, except where noted)*	
2	Physical Damage Re-Engineering Phase 1 & 2	1,888
3	Physical Damage Re-Engineering Main/Phase 3	11,639
4	PDR Opt Repair - Remote Estimating	212
5	Appointment Manager	1,297
6	Customer Claims Reporting System	14,412
7	Enhanced DR Capabilities	2,189
8	Partner Portal	2,223
9	Total Project	33,860

**Impairment of Deferred Developmen excluded Basic Deferred Development reference Appendix 18*

Project	Infor/Lawson Upgrade				
Start Date	December 2014		Projected End Date		June 2018
Status	Budget		Schedule		Overall

Project Description

This initiative includes a full platform upgrade of the Infor (formerly Lawson) Financial, Payroll and Time Entry components in addition to the Human Resource Management System. Major goals of the upgrade are to (i) fulfill the existing requirement for future dating functionality; (ii) enable additional employee self-serve functionality; and (iii) remain on mainstream maintenance and support from the vendor.

Understanding of the functionality changes included in the new versions of the software is crucial as it is anticipated that modifications to existing business processes, documentation and change management will be required. The project was initially expected to be completed by end of 2016/17 fiscal year. The project encountered significant issues with the Infor/Lawson product and with the setup of the pre-production testing environment. With Executive review and approval, go-live was postponed to April 23, 2018 in order to add increased quality assurance to the configuration of the Production Support and Production environments. Setup and testing functionality in the Production Support environment was successfully concluded as well as the implementation dry run in Production. System went live April 23. Warranty Period has been extended to June 15 to address additional defects, and stabilize the Systems Integration Test environment. Exit criteria for warranty is under review.

Timeline

Phase - Warranty	Target Date	
Warranty Period Extended	June 15	
Exit Criteria In Reivew with Executive Steering Committee	June 12	
Decision whether to extend warranty past June 15	June 13	

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Infor Upgrade went live April 23/18.	System Integration Test environment stabilized
"Go-Live" incident reporting was closed May 28, the team is shifting focus from resolving incidents occurring in prodcution to fixing defects on the workaround list.	Resolve prioritized defects – time boxed for completion on June 15
Executive Steering Committee has extended the warranty period from May 18 to June 15 with a focus on stabilization, reduction of reliance on incremental resources and successful transition.	Executive Committee Meeting to validate and approve the recommended Warranty Exit Criteria
	Transition the Project to Production Support – TBD pending approval of exit from Warranty

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Continue monitoring production to identify system stability issues	Issue	Determine the tools required to monitor production	In Progress
Stabilize System Integration Test (SIT) environment	Issue	Vendor to be onsite to re-install SIT	In progress

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	121,679	392,796
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,504,600	3,663,130	3,934,247

The following is a summary of the PDR Spinoff projects initiated March 1 2017.

Project	**PDR Spinoff - Customer Claims Reporting System**				
Start Date	July 2014		**Projected End Date**		April 2018
Status	**Budget**		**Schedule**		**Overall**
After a thorough review of the business case and technology factors, a decision has been made to not pursue the implementation of Customer Claims Reporting System (CCRS) at this time. The CCRS project was one of the last initiatives of the Physical Damage Re-engineering (PDR) Program. The goal of CCRS was to create an online claims reporting option for our customers by 2019. While this project is not moving forward, the project has already helped create efficiencies in the claims reporting and liability assessment processes, and created a clear vision for a future customer self-service process.					
Timeline					
Project closed					
Milestones					
Milestones – First Quarter 2018/19 (Mar-May)			**Milestones – Second Quarter 2018/19 (June-August)**		
Project close out activities			N/A		
Resource reassignment					
Project Risks/Issues					
Description		**Type**	**Mitigation Plan**		**Status**
Financials					
Project Budget for 18/19		**YTD Actual**		**Forecasted Current Year Spend**	
7,200,000		766,959		775,979	
Total Project Budget as at Mar 1, 2018		**LTD Actual**		**Total Forecast @ Completion**	
23,388,041		16,399,175		16,408,195	

Project	PDR Spinoff - Loss of Use (LOU)						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	Mar 2017	**Projected End Date**	Feb 2019

The goal fo the LOU Program is to move the responsibility for managing rental vehicle use to the shops on a per claim basis. This will occur in parallel with establishing more robust control structures within MPI. MPI will establish standard and fixed spend per repair. This will allow shops to deal directly with rental agencies to source and provide replacement vehicles. The rental companies will bill the repair shops instead of MPI and MPI will reimburse the shops based on the fixed rate for the repair, not based on the actual which pass the risk of repair delays to the shops.

Phase 1 of LOU was implemented February 24th 2018, and warranty has been closed. Phase 1 included the LOU Automated Approval for Rental Agencies based on current touch times. Work on CR-LOU-05 (Deferred Functionality) has started and is in SIT (System Integration Testing). Deferred Functionality has an implementation date of June 24th, 2018. This implementation includes 5 tasks deferred from Phase 1.

Phase 2 will contain the balance of the original LOU scope and will be implemented in fiscal 18/19- dependent upon the negotiation outcome with the Repair trade.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Completed Design / Development	Complete SIT (System Integration Testing)
Started SIT (System Integration Testing)	Complete UAT (User Acceptance Testing)
	Complete implementation and warranty

Project Risks/Issues

Description	Type	Mitigation Plan	Status
No Risks or issues at this time			

Project	PDR Spinoff - Parts Solution						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	April 2018	**Projected End Date**	2018/19

The solution will implement software commonly used in the recycled parts market to identify recycled parts for MPI claims. The new solution will replace the legacy in-house Claims Response System (CRS) which limits parts and pricing. This will influence the OEM and Aftermarket industries. Much of the work to be conducted serves the purpose of removing current barriers to the utilization of recycled parts in repairs. The solution comprises a combination of organizational (structure, process, people) and technological changes.

Mitchell uParts, Mitchell QRP, and Mitchell Parts solutions have been assessed and it has been determined they are not viable options for MPI to implement as a Recycled Part Sourcing solution. A comprehensive solution for Recycled Part Sourcing was presented, and Executive Streeing Committee (ESC) accepted the solution April 25th. The project commenced on April 26th and is scheduled to complete at the end of December. There will be at least one key touchpoint relating to the implementation of Mitchell Estimate advisor once the Mitchell roadmap is confirmed. A key dependency is successful negotiations with ARM (Automotive Recyclers of Manitoba), and that the Manitoba recyclers will agree to use Car Part and list their inventory.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Start Schedule for critical path	ESC approval for new set of policies
Begin Recycler engagement activities	Decision on project direction when the Mitchell roadmap is available for Estimate Advisor (if required)
Begin software setup for review of closed files and testing	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Mitchell Roadmap for Estimate Advisor not yet known- may impact schedule/budget	Risk		

Financials (LOU & Car Parts Pro/uParts)

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
500,000	169,099	1,263,483
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
2,989,314	1,886,918	2,981,302

Project	PDR Spinoff - Appointment Manager						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	April 2018

The Appointment Manager project web-enables the existing appointment management functionality for use by internal staff and extends appointment management capabilities to support future customer self-service booking of appointments as well as usage by repair shops to self manage their availability for direct booking of estimate appointments through the new FNOL applications.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Appointment Manager/Appointment Viewer functionality testing (User Acceptance Testing) completed	Project implementation and closeout activities completed.
Implemented on February 25, 2018.	
Post go-live Warranty and transition to Operations completed.	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
All risks and issues are addressed and closed			

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	41,087	41,087
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
1,404,440	1,445,355	1,445,355

Project	PDR Spinoff - Partner Portal						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	Oct 2015	**Projected End Date**	February 2018

MPI is replacing the existing Partners Portal to provide MPI partners a new web and mobile based platform to interact and engage with MPI.
Partner Portal will provide a new experience to MPI Partners to communicate with the respective service areas and perform various self managed activities using different service applications/Communities and utilize online tools and knowledge guides.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Transition to Operations complete	Project is completed – no further reporting will be provided
Close out documentation	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
All risks and issues are addressed and closed			

Financials

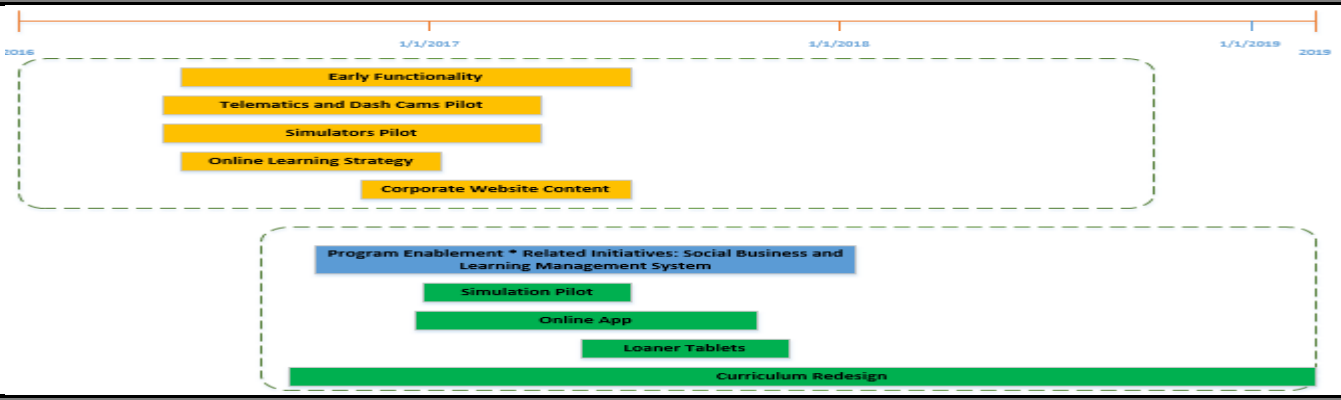
Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	27,740	40,740
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
2,406,770	2,573,828	2,586,828

Project	High School Drivers Education (HSDE)				
Start Date	April 2016		Projected End Date	February 2019	
Status	Budget		Schedule		Overall

The purpose of the program is to redevelop of the High School Driver Education program. The final phase of the program has been initiated with a focus on curriculum redevelopment. The outcomes of the curriculum redesign focus on higher order learning concepts and better utilization of classroom hours by shifting some 'knowledge- based' program content to online computer-based learning. This can be leveraged further with our other audiences including: first nations, northern communities, adult driver education, etc. This is intended to enhance the student experience and further engage guardian/parent/Co-pilot involvement.

The Board approved $1 million in additional funding as well as additional time, extending the project end date from June 2018 to the end of February 2019. The curriculum development is planned to be complete by June 2018, with some video assets to be completed by the end of August. The technical solution concepts are being validated and developed. Testing is expected to begin fall 2018.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
CR approved for additional funding and new project end date of Feb 2019	Competency model and training with learning for HSDE instructors being developed for facilitation and coaching.
Technical & Security resources assigned. Security Risk Assessment complete	Security audit planning
Architecture Design solution being validated. Business & System Requirements being gathered and prioritized	Architecture Design solution validated and development underway
Video development, approvals, and filming underway	All video assets complete and loaded into the system
Project plan and schedule revised. Business Case revised	Curriculum design/development and Competency Model complete
Instructor Advisory Committee Workshop held for HSDE Instructors to introduce new program	Training approach and plan developed. Training material development

Project Risks/Issues

Description	Type	Mitigation Plan	Status
CLMS may not meet solution requirements	Risk	Assessment and Proof of concept underway	On Track
CSS timelines may not meet HSDE's needs for authentication	Issue	Assessment underway	On Track
Budget and Schedule have no contingency	Risk	Prioritization of technical pieces with business input to deliver the most value for the budget and the timeline	On Track
Parallel streams of work need to be integrated with coordination between different business units.	Risk	Project teams being co-located to increase communication amongst teams	

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
900,000	251,346	2,229,857
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,000,000	3,021,490	5,000,000

Program	**Technology Modernization Program - Technology Risk Management (2017/18 Program)**		
Start Date	March 2017	**Projected End Date**	September 2018
Status On Track	**Budget**	**Schedule**	**Overall**

The Technology Risk Management program will evaluate, identify and/or implement technologies to reduce technology risk leveraging technologies and best practice where applicable. The initiatives 10 new initiatives under the 2017/18 portfolio:

- EDMS and Kofax Upgrade
- Risk Registry Remediation
- APM and eWFM Replacement
- **[Redacted]** Upgrade
- eCounsel Upgrade
- SSRS Migration
- SharePoint Migration
- Network and Firewall Upgrade
- Security Risk Management
- Security Event Management (SEM)

Timeline

Project	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18
Information Security Risk Management													
Security Risk Management													
Security Event Management (SEM)													
Risk Registry Remediation													
Infrastructure Risk Management													
AIX Upgrade													
SSRS Migration													
Network and Firewall Upgrades													
Application Risk Management													
EDMS and Kofax Upgrade													
APM and eWFM Replacement													
eCounsel Upgrade													
Share Point Migration													

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Security Risk Management – Pilot completed	**EDMS and Kofax Upgrade:** A key project resource has being fully leveraged by a parallel project impacting schedule. The conflict is resolved and the team is confident they can meet the July 31, 2018 delivery date.
Security Event Management (SEM) completed	**Risk Registry Remediation:** Data Masking and access control recommendations are completed. Project Completed.
	eCounsel Upgrade: The project is fully resourced and the team has started work in the development environment. The timeline for user testing may be extended due to business user availability. The project is reporting as yellow based on this risk to the June 30, 2018 delivery date.
	APM and eWFM Replacement: Project is fully resourced and has engaged the product vendor. Project is on track to complete by July 31, 2018
	[Redacted] Upgrade: Project complete
	SSRS Migration: Project complete
	Share Point Migration: Project is progressing with site collection and departmental site migrations. Due to site complexities discovered during the migrations and scheduling challenges the project will extend to September 30 2018.

	Network and Firewall Upgrades: Firewall monitoring / management software has been purchased and implemented. Outstanding configuration work will be transitioned to TRM-2018 allowing the project to close.
	Security Risk Management: The project has completed all in-scope deliverables. Project is in the process of obtaining final approvals on deliverables and completing the project closure report.
	Security Event Management (SEM): Project complete.

Project Risks/Issues
No significant risks or issues at this time.

Financials		
Project Budget for 18/19	**YTD Actual**	**Forecasted Current Year Spend**
228,295	593,260	1,512,145
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,524,676	4,281,594	5,200,479

The following is a summary of the projects under this program.

Program	**Technology Risk Management – 2017/18 Initiatives**						
Project	**EDMS and Kofax Upgrade**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	June 2017	**Projected End Date**	July 2018
Upgrade the Electronic Document Management System applications to the latest version offered by the vendors, ensuring continued supportability and reducing the cost of future upgrades.							
Project	**Risk Registry Remediation**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	March 2018
Complete the Data Masking initiative resulting in the masking of the production databases and the implementation of processes which support MPI data security policies. Identify and document process for implementing access controls in the production support environment, and implementing these controls on one application to ensure the processes are valid and can be re-used.							
Project	**APM and eWFM Replacement**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	July 2018
Replace end-of-life applications used to manage the Contact Centre, ensuring that the technologies used are vendor supported.							
Project	**[Redacted] Upgrade**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	March 2018
Upgrade our current **[Redacted]** reducing operational risk. This operating system supports the database solution, used by the AOL / CARS applications.							
Project	**eCounsel Upgrade**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	Sept 2017	**Projected End Date**	June 2018
Maintain the software at a current version to ensure continued vendor support and provide the ability to decommission non-standard components.							

Project		SSRS Migration					
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	December 2017
Convert and migrate the remaining SSRS reports off of aging non-supported environments (namely **[Redacted]**) to fully supported environments.							
Project		**Share Point Migration**					
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	September 2018
Migrate all of the approximately 150 project, department and executive SharePoint site collections. This allows the decommissioning of the legacy environments, and improved capabilities for SharePoint users.							
Project		**Network and Firewall Upgrades**					
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	April 2017	**Projected End Date**	June 2018
Ensure the continued manageability of firewall devices, by optimizing the network and firewall configurations to ensure consistency between different MPI environments (production, test, development).							
Project		**Security Risk Management**					
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	May 2018
Address security gaps identified during the implementation, and on-going security assessment of the Information Security Strategy & Road Map Program.							
Project		**Security Event Management (SEM)**					
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	March 2018
Engage a third party to monitor security events, conduct investigation and coordinate remediation of security incidents, identified through new security technologies.							

Program	Technology Modernization Program - Technology Risk Management (2018/19 Program)					
Start Date				Projected End Date		
Status On Track	Budget	On Track		Schedule	On Track	Overall

The Technology Risk Management program will evaluate, identify and/or implement technologies to reduce technology risk leveraging technologies and best practice where applicable. The initiatives 14 new initiatives under the 2018/19 portfolio:

- Informatica Upgrade
- VIP Upgrade
- Loss of Use – Platform Upgrade
- CDW-EDW Migration
- Dollar Universe Upgrade
- Team Foundation Servers(TFS) and Visual Server Upgrade
- VMware **[Redacted]** Refresh
- Security Risk Management-2018
- Workstation Security Enhancements
- Risk Registry Remediation
- File Server Storage Solution
- Security Device Refresh
- SAN Storage and TSM Backup Upgrade
- Windows Server Vitality **[Redacted]**

Timeline

Project	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19
Informatica Upgrade												
VIP Upgrade												
Loss of Use - Platform Upgrade												
CDW-EDW Migration												
Dollar Universe Upgrade												
Team Foundation Servers (TFS) and Visual Studio Upgrade												
Security Risk Management-2018												
Workstation Security Enhancements												
Risk Registry Remediation – 2018												
File Server Storage Solution												
Security Device Refresh												
SAN Storage and TSM Backup Upgrade												
Windows Server Vitality **[Redacted]**												
VMware **[Redacted]** Refresh												

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Informatica Upgrade – Project Delivery Log approved	**Informatica Upgrade:** Project is completing the planning documents to complete the inception phase and move to elaboration where final schedule is to be confirmed.
File Server Storage Solution – Inception Phase complete	**File Server Storage Solution:** Project is moving into elaboration phase and is focusing on more detailed planning documentation and schedule
SAN Storage and TSM Backup Upgrade - Inception Phase complete	**SAN Storage and TSM Backup Upgrade:** Project is in elaboration phase and is focusing on more detailed planning documentation and schedule
Windows Server Vitality **[Redacted]** – Inception phase started	**Windows Server Vitality [Redacted]:** Project is in inception phase and is completing the deliverables to proceed to elaboration
VMware **[Redacted]** Refresh – Project Charter approved	**VMware [Redacted] Refresh:** Project is in inception phase and is completing the deliverables to proceed to elaboration

Project Risks/Issues

No significant risks or issues at this time.

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
4,271,705	90,293	3,516,919
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,271,705	90,293	3,516,919

The following is a summary of the projects under this program.

Program	Technology Risk Management – 2018/19 Initiatives						
Project	**Informatica Upgrade**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	**April 2018**	**Projected End Date**	**July 2018**
Upgrade Informatica to **[Redacted]** will be supported until 2020 (or later). Informatica is used in the extraction, transformation, and loading (ETL) of data which populates the enterprise data warehouse. It is critical for report generation. This upgrade is covered under an existing maintenance agreement with the vendor and is planned to be completed by leveraging internal MPI resources.							
Project	**File Server Storage Solution**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	**March 2018**	**Projected End Date**	**October 2018**
Redefine the file storage environment in order to reduce operational costs while improving efficiencies and accommodating MPI's evolving business needs.							
Project	**SAN Storage and TSM Backup Upgrade**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	**March 2018**	**Projected End Date**	**December 2018**
Modernize storage and backup solutions to ensure supportability, capacity, and value.							
Project	**Windows Server Vitality (2009 to 2016)**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	**March 2018**	**Projected End Date**	**December 2018**
Reduce the risks associated with running End of Life software in our environment. Execute on IBM contractual agreement to perform a major Operating System upgrade every 4 years and validate the changes through formal testing processes.							
Project	**VMware [Redacted] Refresh**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	**March 2018**	**Projected End Date**	**December 2018**
VMWare [Redacted] (Vitality) To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life Support platforms in our environment. End of general support for **[Redacted]** is 2018/09/19. To remain current on all major Data Centre platforms and to execute on IBM contractual agreement to upgrade Operating Systems and Middleware once every 4 years.							

Project	Customer Self Service (CSS)				
Start Date	April 2017		Projected End Date		July 2018
Status	Budget		Schedule		Overall

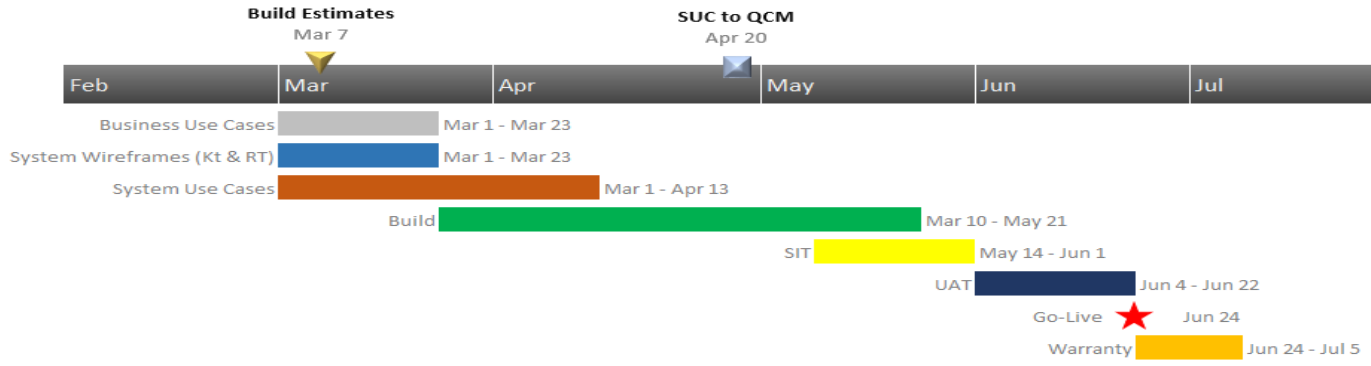
To enhance service and control costs, MPI is extending self-service options beyond the existing Online Credit Card payment functionality. Providing an online self-serve option for customers to perform transactions historically handled at either an Autopac agent or MPI service centre will reduce the transaction count at physical locations. This is a multi-year project with functionality to be built on yearly depending on business needs.

For the first release, the project has been revised to incorporate three main components:

1. "Low" authentication
2. Self-serve user functionality (Booking of Knowledge Test & Road Test)
3. Online payments (PCI Compliant)

Release 1 being tested and it is expected to be implemented by the end of June. Planning of subsequent releases is underway.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Revised Scope/Approach to CSS initial release 1 (R1)	Complete R1 SIT
Refocus design and analysis activities.	Complete R1 UAT
Completed Project Plan & Schedule	R1 Go-Live and Warranty
Architecture Definition, Business and Systems Analysis	Begin work on Release 2
	Begin work on Release 3

Project Risks/Issues

Description	Type	Mitigation Plan	Status
No contingency in the schedule	Risk	Ask project team to work overtime to complete tasks ahead of schedule to build in schedule contingency.	On Track
PCI compliance for Online Credit Card Payments introduces additional scope	Risk	Implement CSS-specific functionality relevant to PCI compliance. Ensure Credit Card Strategy project is aware of CSS timelines and provides PCI-compliance deliverables when required.	On Track
System Testing & User Acceptance are time-boxed in order to meet schedule targets.	Risk	Prioritize testing, and perform in parallel as much as possible.	On Track
CSS & Credit Card Strategy need UAT cycles to align	Risk	Close coordination with Credit Card Strategy project.	On Track

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
1,500,000	891,317	1,998,933
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,869,613	2,570,811	4,584,000

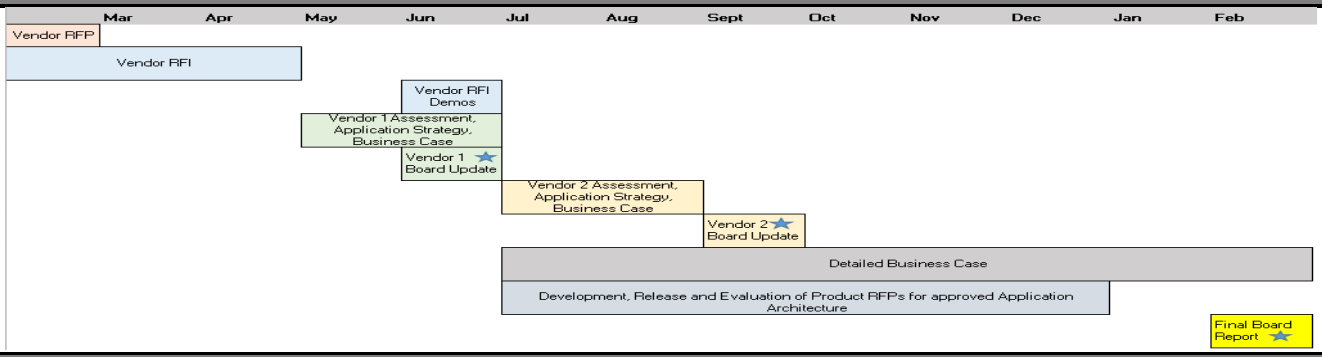
Project	Legacy System Modernization				
Start Date	March 2018		Projected End Date	February 2019	
Status	Budget		Schedule		Overall

Project Description

The purpose of the Legacy System Modernization assessment is to provide MPI with direction on how to manage and evolve MPI legacy systems so that gaps in the legacy system capabilities are addressed allowing for the technology to meet the long term business goals.

The project will deliver an assessment that will determine if MPI is a good candidate for a modernization program and provide recommendations and a strategy on how to address the gaps in MPI's legacy systems, in order to support of the long term business needs. The project will also develop, release, and evaluate product RFPs and complete a detailed business case for review at the February 2019 Board meeting depending on outcome of assessement and Board directiong in June 2018.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Project start & kickoff meeting. Project resources assigned	Board presentation (Vendor #1)
Legacy System Modernization Assessment Request for Pricing (RFP) Awarded - Vendor #1 (Deloitte). Master Services Agreement and Statement of Work signed	Legacy System Modernization Assessment Request for Pricing (RFP) Awarded - Vendor #2 (Avasant). Master Services Agreement and Statement of Work signed
Vendor #1 Legacy System Modernization Assessment and Business Case underway	Vendor #2 Legacy System Modernization Assessment underway
Request for Information (RFI) Application Architecture solution Vendors selected & product demos booked	Application Architecture Vendor demonstrations and evaluation
Vendor #1 Legacy System Modernization proposed Application Strategy solution in progress	Development, Release and Evaluation of Product RFPs for approved Application Architecture

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Ability for MPI to provide information to support Deloitte Assessment in a timely manner	Risk	Working with Project Sponsor and Deloitte team to ensure that clear questions are asked so they are more easily answered	
MPI resource allocation to meet competing project needs	Risk		
Coordination of second Assessment Vendor. Timing, effort, and cost unknown	Risk	Currently being assessed	

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
2,000,000	8,901	1,991,099
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
72,000,000	8,901	72,000,000

Project	Corporate Learning Management System (CLMS)				
Start Date	March 21, 2016		Projected End Date		June 4, 2018
Status	Budget		Schedule		Overall

Project Description

The purpose of the CLMS project is to provide a central location for all MPI related training and development for internal MPI staff, business partners, and customers. In doing so, the corporation will benefit from reduced administration costs, improved training compliance, better access to training, and enhanced employee career development - all of which align with the Corporate Values, Mission, Vision, and Goals. The project has been extended until the end of June 2018 to provide for warranty and knowledge transfer, and a Project Change Request is in place the explains the budget variance.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Brokers on boarded to new community – March 16 (99% complete)	Warranty and transition complete
Broker rollout begins – April 8	Project closeout
HRMS enrollments/achievements import complete – May 24	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Simplistic system response to OpenText timeouts and technical issues can cause IWS compliance check to fail occasionally	Issue	Improve error handling, including allowing compliance check to succeed if technical errors are encountered	In progress
Data Migration related to achievements and IWS compliance is more complex and more effort than anticipated.	Issue	Revisit data conversion requirements and simplify as appropriate. Rework data transformation code and retest. Prioritize conversion and stage import of data.	Resolved

Financials

Project Budget for 17/18	YTD Actual	Forecasted Current Year Spend
250,000	427,872	553,179
Total Project Budget as at Mar 1, 2017	**LTD Actual**	**Total Forecast @ Completion**
3,128,141	3,414,785	3,540,092

CAC (MPI) 1-60

Part and Chapter:	**Part IV, Value Management, VM Appendix 5**	**Page No.:**	**1, 2, 5**
PUB Approved Issue No:	**19. IT projects and expenses**		
Topic:	**Finance Re-Engineering Project**		
Sub Topic:			

Preamble to IR (If Any):

"In 2015, MPI issued an RFP to hire a consulting firm to review the Finance Division in order to determine the Finance Division vision, mission, and structure to ensure the best use of corporate resources and consistently meet all the Divisional objectives and deadlines in a timely manner. This Finance Division Review was conducted and completed by Deloitte with a report submitted in March 2015.

The Finance Division Review identified opportunities to improve the finance systems and processes to support the success of Finance operations. These opportunities were further explored during a separate engagement in 2015, conducted by Deloitte, which resulted in documented business requirements to simplify, standardize and streamline processes, increase automation and improve the timeliness and visibility of financial information. These requirements formed the basis for the Finance Re-Engineering (FRE) project.

Due to other priorities and limited funding, the original FRE project was deferred.

In conjunction with the Legacy Systems Modernization and HRMS - Human Resource Management System Phase 3 / 4 project, the 2018/19 funding for this renewed project will involve an assessment of the long-term strategic fit and viability of the Infor suite of products, potential expanded utilization of the Infor suite as part of the strategy to decommission the Legacy Systems (AOL, DLS, CARS) as well as re-

validation of the business vision, roadmap, budget and business case for the Finance Re-Engineering program.

The key deliverables from the 2018/19 spend will be a business case, strategy and roadmap, including updating the business requirements established in 2015. This will determine the estimated future spend in 2019/20 and beyond."

"This project will be responsible for reassessing the original 2015 FRE business case and recommending and validating and confirming the need for MPI to take future actions. This current project will include the following deliverables:

- Detailed business case
- Financial analysis for updating the financial systems and processes
- Business vision – a strategic description of the business end state
- Project charter
- Project road map"

Question:

a) Please file a copy of Deloitte's 2015 recommendations to improve Finance's processes and procedures, for the record.
b) Please justify MPI's rationale to spend $500,000 on external consulting fees to re-review a 2015 consultant's report.
c) Please elaborate on MPI's internal staff skill set to update a previously prepared Finance Re-Engineering business case.
d) Please elaborate whether MPI is considering using the Infor Suite of products in its Legacy Systems Modernization process (AOL, CARS, DVL). If so, please comment on the appropriate timing to perform this investigation.

Rationale for Question:

To better understand the rationale for spending an additional $500,000 of rate payers' money on a project that was completed in 2015 and may need to be brought to current.

RESPONSE:

a) [Redacted. The Corporation is seeking confidential treatment for this response.]

b) As noted above and in *Part IV Value Management*, the purpose of the renewed Finance Re-Engineering (FRE) project is to review the consultant report and deliver on the following project objectives: detailed business case, financial analysis, business vision, project charter and project road map. The cost of the project at this stage are to ensure that the previous consultant's report is still current and relevant to the business. Please note that the $500,000 was not linked exclusively to external consulting fees, but also relate to internal resources and anticipated training requirements.

c) A third party provided the FRE Business Case to the Corporation. MPI's internal staff is highly suited to update the previously prepared business case as the internal staff have detailed business knowledge and experience which will allow them to validate recommendations and create a detailed work plan for the FRE project and create an end solution that is feasible for the business needs.

d) The Corporation cannot indicate which platform it will consider using as the Legacy Systems Modernization project will not recommend a platform until the end of fiscal year 2018/19.

CAC (MPI) 1-60

Part and Chapter:	**Part IV, Value Management, VM Appendix 5**	**Page No.:**	**1, 2, 5**
PUB Approved Issue No:	**19. IT projects and expenses**		
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Due to other priorities and limited funding, the original FRE project was deferred.

In conjunction with the Legacy Systems Modernization and HRMS - Human Resource Management System Phase 3 / 4 project, the 2018/19 funding for this renewed project will involve an assessment of the long-term strategic fit and viability of the Infor suite of products, potential expanded utilization of the Infor suite as part of the strategy to decommission the Legacy Systems (AOL, DLS, CARS) as well as re-

validation of the business vision, roadmap, budget and business case for the Finance Re-Engineering program.

The key deliverables from the 2018/19 spend will be a business case, strategy and roadmap, including updating the business requirements established in 2015. This will determine the estimated future spend in 2019/20 and beyond."

"This project will be responsible for reassessing the original 2015 FRE business case and recommending and validating and confirming the need for MPI to take future actions. This current project will include the following deliverables:

- Detailed business case
- Financial analysis for updating the financial systems and processes
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Question:

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d) Please elaborate whether MPI is considering using the Infor Suite of products in its Legacy Systems Modernization process (AOL, CARS, DVL). If so, please comment on the appropriate timing to perform this investigation.

Rationale for Question:

To better understand the rationale for spending an additional $500,000 of rate payers' money on a project that was completed in 2015 and may need to be brought to current.

RESPONSE:

a) Please see *Attachment 1*.

[Attachment 1 Redacted: The Corporation is seeking confidential treatment for this response.]

b) As noted above and in Part IV Value Management, the purpose of the renewed Finance Re-Engineering (FRE) project is to review the consultant report and deliver on the following project objectives: detailed business case, financial analysis, business vision, project charter and project road map. The cost of the project at this stage are to ensure that the previous consultant's report is still current and relevant to the business. Please note that the $500,000 was not linked exclusively to external consulting fees, but also relate to internal resources and anticipated training requirements.

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d) The Corporation cannot indicate which platform it will consider using as the Legacy Systems Modernization project will not recommend a platform until the end of fiscal year 2018/19.

CAC (MPI) 1-54

Part and Chapter:	**Part I, Overview 2018 GRA, CAC (MPI) 2-22**	**Page No.:**	**13**
PUB Approved Issue No:	**19. Value Management**		
Topic:	**MPI not a technology company**		
Sub Topic:	**The application of Value Management caused projects to be cancelled**		

Preamble to IR (If Any):

Reference Part 1, Overview, page 13:

"MPI, however, is an automobile insurance company and administrator of *The Drivers and Vehicles Act*. The "IT Strategic Plan" is to support the business carry out the corporation's mission - *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*. IT expenses are incurred to meet business needs. Business needs are not determined by an IT Strategic Plan.

As previously mentioned, MPI uses a Value Management Process to ensure that IT expenditures will only be incurred when it is appropriate to do so. As the PUB noted in Order 130/17 this process is applied on all new initiatives with a budget in excess of $500,000. The MPI Board of Directors recognized in the same Order, the PUB expressed concerns about IT projects that were currently "in-flight". The Board of Directors directed the Value Management Process be applied to a number of these projects. Based upon the results, Management cancelled the Customer Claims Reporting System (CCRS) initiative."

Reference 2018 GRA, CAC (MPI) 2-22:

"MPI has entered into a co-development agreement with Mitchell International with respect to the Customer Claims Reporting System (CCRS)"

Question:

a) Please file a copy of 2018 GRA, CAC (MPI) 2-22 for the record.
b) MPI has cancelled the CCRS project and written off the development costs of $9.3 million plus an additional amount of about $5.3 million (which may not be entirely related to the CCRS project) (see Part IV, Value Management, pages 32 and 33); based on the co-development agreement with Mitchell, please provide the amount of the write-off recoverable from Mitchell, if any. If there is no amount recoverable from Mitchell, please explain in detail the going-forward business relationship with Mitchell.
c) Please prepare a chart, by project, of projects cancelled and the amount of project development costs write-offs for the last three fiscal years, including the rationale for write-off.

Rationale for Question:

To obtain a clear understanding as to the disposition of policyholders moneys invested in a leading edge system (CCRS) co-developed with Mitchell which has subsequently been cancelled. Who benefited from this work and who is responsible for the loss?

RESPONSE:

a) Please see, *Appendix 1*.

b) None of the amounts written-off are recoverable from Mitchell, as the Corporation spent these amounts mainly for internal development and work on the Customer Claims Reporting System (CCRS) project. Mitchell also invested capital in the CCRS project and the amounts written-off by the Corporation do not reflect this. With the indefinite postponement of the project, the Corporation is negotiating the licence and use of the CCRS software in order to mitigate its losses. These negotiations are close to finalized.

c) Please see table below:

Figure 1: Deferred Development Cost Write-Offs

Line No.	Impairment Projects	2015/16A	2016/17A*	2017/18A**
1	*(C$000s, except where noted)*			
2	Physical Damage Re-Engineering Main/Ph	-	1 ~~126~~	993
3	Financial Re-engineering Inititiative	-	-	343
4	SRE Future State	-	-	55
5	High School Driver Education Phase 2	-	-	2,086
6	Enhanced DR Capabilities	-	-	681
7	Customer Claims Reporting System	-	-	15,624
8	PDR Opt Repair - Remote Estimating	-	-	229
9	HR Management System Phase 3 & 4	-	-	247
10	**Total**	**-** **-**	**1** **~~126~~**	**20,258**
11	*2016/17 Project cancelled			
12	**2017/18 Projects impaired			
13	Note: The original 2016/17 cancelled project total included $125,000 that was written off in 2017/18.			
14	The $125,000 is included in the $993,000 total under 2017/18.			

CAC (MPI) 1-54

Part and Chapter:	**Part I, Overview 2018 GRA, CAC (MPI) 2-22**	**Page No.:**	**13**
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10	**Total**	**-**	**1**	**20,258**

11 *2016/17 Project cancelled

12 **2017/18 Projects impaired

13 Note: The original 2016/17 cancelled project total included $125,000 that was written off in 2017/18.

14 The $125,000 is included in the $993,000 total under 2017/18.

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") will make a motion before a panel of members of the Public Utilities Board of Manitoba ("PUB") on **Monday, July 9, 2018 at 9:00 a.m.,** or as soon before or after that time as the motion can be heard, at the Office of the PUB, 400-330 Portage Avenue, in Winnipeg, Manitoba.

THE MOTION IS FOR:

1) leave to file certain information and documents with the PUB, in confidence and on any terms it considers appropriate in the public interest (the "Confidential Information"); and

2) such further and other relief as counsel may advise and the PUB may permit.

THE GROUNDS FOR THE MOTION ARE:

1) Rule 13(2) of the Rules of Practice and Procedure (the "PUB Rules");

2) The disclosure of the Confidential Information could reasonably be expected to result in undue financial loss or gain to or significantly harm the competitive position of a person directly or indirectly affected by the proceeding;

3) the Confidential Information is personal, financial, commercial, scientific or technical in nature, has been consistently treated as confidential by persons directly affected by the proceeding and the interest in maintaining confidentiality over the Confidential Information outweighs the public interest in its disclosure; and

4) such further and other grounds as counsel may advise and the PUB may permit.

THE FOLLOWING DOCUMENTARY EVIDENCE will be used at the hearing of the motion:

1. the Affidavit of Jeffery Crozier, sworn June 29, 2018; and

2. such further and other evidence as counsel may provide and the PUB may permit.

Date: June 29, 2018

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF
(MANITOBA PUBLIC INSURANCE)

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

[2]

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF

(MANITOBA PUBLIC INSURANCE)

INDEX

		Page No.
PART I	LIST OF DOCUMENTS TO BE RELIED ON	3
PART II	LIST OF AUTHORITIES	4
PART III	STATEMENT OF FACTS	5
PART IV	ISSUES TO BE DETERMINED	6
PART V	POINTS TO BE ARGUED AND ARGUMENT	7

[3]

PART I LIST OF DOCUMENTS TO BE RELIED ON

		TAB
1.	The General Rate Application of The Manitoba Public Insurance Corporation, filed June 15, 2018	
2.	The Affidavit of Jeffery Crozier, *sworn* June 29, 2018	
3.	Undertaking of Confidentiality - Space Plan Business Case	1
4.	Confidentiality Agreement – Space Plan Business Case	2
4.	Undertaking of Confidentiality - Mercer Methodology and Response to RFP	3
5.	Confidentiality Agreement – Mercer Methodology and Response to RFP	4

PART II LIST OF AUTHORITIES

1. The Public Utilities Board Rules of Practice and Procedure

PART III STATEMENT OF FACTS

1) On June 15, 2018, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") filed its General Rate Application for the 2019 rate year (the "2019 GRA"). The 2019 GRA makes reference to the following documents which MPI requests The Public Utilities Board of Manitoba (the "PUB") receive in confidence, namely:

a. the business case for the Five Year Strategic Space Plan (the "Space Plan Business Case");

b. the document identified as "attachment C" to Appendix 17 of the Investment Chapter under Part IV of the 2019 GRA (the "Mercer Methodology"); and

c. Mercer (Canada) Limited's ("Mercer") response to MPI's request for proposals ("RFP") details the Mercer Methodology (the "Response to RFP").

[6]

PART IV ISSUES TO BE DETERMINED

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

i. Space Plan Business Case

ii. Mercer Methodology & Mercer Response to RFP

Issue 2: If so, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

i. Space Plan Business Case

ii. Mercer Methodology & Mercer Response to RFP

[7]

PART V POINTS TO BE ARGUED AND ARGUMENT

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

i. Space Plan Business Case

1) Part IV of the 2019 GRA contains the Value Management ("VM") Chapter, which lists and appends a number of business cases developed by MPI for capital projects valued at or more than $500,000. Referenced, but not appended to the VM Chapter, is the Space Plan Business Case. In relation to the Space Plan Business Case, the VM Chapter states, at page 3 thereof:

> *"In April 2018, subsequent to the approval of the 2018/19 Capital budget, a business case was prepared for the Five Year Strategic Space Plan and submitted for approval to the Board of Directors. This multi-phase, multi-year project focuses on the redevelopment of MPI's physical facilities. In the first phase, a budget of $2,065,000 was approved for 2018/19. Details of this business case are commercially sensitive, and are the subject of a motion seeking confidential treatment prior to filing with the PUB."* [Emphasis Added]

Ref: 2019 General Rate Application – Part IV – VM Value Management – page 3

2) The Space Plan Business Case contains financial and commercial information, which, if made publicly available, would certainly influence a number of the key assumptions underpinning the analysis set out therein. Thus, implementation of the Space Plan Business Case following the release of this financial and commercial information would likely result in undue financial loss or cause significant harm to MPI's competitive position.

[8]

3) Since its preparation in January 2018, MPI has maintained the Space Plan Business Case in confidence. It is not publicly available and it has only shared its details outside of the Corporation with its consultant, Triovest Realty Advisors, upon whose advice MPI relied in preparing the Space Plan Business Case.

4) The goal of the Space Plan Business Case is to decrease operating costs while increasing revenue-generating opportunities for MPI. If achieved, this goal benefits all MPI ratepayers and the release of the information contained in the Space Plan Business case, which MPI seeks to remain confidential, potentially defeats the objective. MPI respectfully submits that its interest in maintaining confidentiality over the financial and commercial information contained in the Space Plan Business Case clearly outweighs the public interest in its disclosure.

5) Unfortunately, due to the nature of the financial and commercial information, MPI is unable to release an alternate version publicly. The redactions that would be required to protect the confidential information would be so extensive that it would render the document void of any meaningful information. The 2019 GRA appends seven (7) non-redacted business cases to promote transparency and to allow for public scrutiny of its business decisions. MPI respectfully submits that any public scrutiny of a business plan not containing key assumptions would be futile.

6) As a result, MPI submits that the Space Plan Business Case cannot be placed on the public record and that the PUB must receive this document in confidence.

7) Exhibit "A" to the Affidavit of Jeffery Crozier sworn June 29, 2018, is a copy of the Space Plan Business Case, over which MPI seeks to maintain confidentiality. MPI

provides this to the PUB for the sole purpose of providing it with an opportunity to examine it and ascertain whether the PUB will sustain MPI's claim of confidentiality (as contemplated under Rule 13(4) of the PUB Rules). MPI will not provide a copy of the Space Plan Business Case to any other party pending the release by the PUB of its decision on this motion.

8) If the PUB decides to place the Space Plan Business Case on the public record, MPI requests the opportunity to withdraw the document prior to the implementation of that decision (as contemplated under Rule 13(5) of the PUB Rules).

ii. Mercer's Capital Markets Assumption & Response to Request for Proposals

9) On March 14, 2018, the PUB held a technical conference to discuss the results of and the implementation plan for the Asset Liability Management ("ALM") Study prepared by Mercer in 3 phases, between December 2017 and January 2018 (the "ALM Conference"). The primary concern of the PUB advisors and interveners related to the level of detail and analysis that was included in the 3 phase reports constituting the ALM Study. Following the ALM Conference, the PUB requested additional information from MPI. Of the requests made by the PUB were for the following:

> "...
>
> *2. MPI to provide additional detail on "initial" findings made by Mercer, as well as "final" findings made by Mercer, including [T18, 134, 135]:*
>
> *a) MPI to provide the independent set of capital market assumptions (correlation matrix, expected returns to the nearest basis point, volatility, initial interest rate forecast) – set of capital market set of capital market assumptions for all 12 asset classes that were considered. [T130]*

[10]

...

10. MPI to contact Mercer to determine if their RFP response is confidential and if MPI is able to release it (RFP describes model in some detail). [T105]

...

14. MPI to provide an index of what documents could not be provided with Mercer's concerns, if any, for each as support for the document not being provided. [T107, 109]"

Ref: 2019 General Rate Application – Part VI – INV Investments – Appendix 17 - pages 2-8

10) MPI provided responses in the 2019 GRA to the requests made by the PUB at the ALM Conference. In response to the above requests for information, MPI responded:

"2. MPI to provide additional detail on "initial" findings made by Mercer, as well as "final" findings made by Mercer, including [T18, 134, 135]:

a) MPI to provide the independent set of capital market assumptions (correlation matrix, expected returns to the nearest basis point, volatility, initial interest rate forecast) – set of capital market assumptions for all 12 asset classes that were considered. [T130]

Attachment C contains a detailed explanation of the methodology that Mercer uses to develop its capital market assumptions. This material is commercially sensitive and is the subject of a motion for confidential treatment. This document includes projected returns based upon Mercer's standard interest rate forecast (see Appendix B to Mercer's Phase Two Report for returns based upon the forward curve). See Attachment D for a complete correlation matrix including inflation and minimum risk portfolios.

10. MPI to contact Mercer to determine if their RFP response is confidential and if MPI is able to release it (RFP describes model in some detail). [T105]

Mercer's response to the Corporation's RFP is commercially sensitive and is the subject of a motion for confidential treatment."

14. MPI to provide an index of what documents could not be provided with Mercer's concerns, if any, for each as support for the document not being provided. [T107, 109]"

Mercer raised no concerns about providing any documents, other than their Capital Markets Assumptions and their response to our RFP, both of which will be provided on a confidential basis."
[Emphasis Added]

Ref: 2019 General Rate Application – Part VI – INV Investments – Appendix 17 - pages 2-8

11) MPI did not append the document identified as the Mercer Methodology (see Exhibit "C" of Jeffery Crozier sworn June 29, 2018) or provide copies of same to prospective interveners or representatives of the PUB. At the request of Mercer, MPI has maintained this document in confidence.

12) The document detailing the Mercer Methodology contains third party confidential information in that it contains information that a party other than MPI (i.e. Mercer) claims is confidential. Indeed, the document contains the following notice at the end of the document:

"This contains confidential and proprietary information of Mercer and is intended for the exclusive use of the parties to whom it was provided by Mercer. Its content may not be modified, sold or otherwise provided, in whole or in part, to any other person or entity, without Mercer's prior written permission.

The findings, ratings and/or opinions expressed herein are the intellectual property of Mercer and are subject to change without notice. They are not intended to convey any guarantees as to the future performance of the investment products, asset classes or capital markets discussed. Past performance does not guarantee future results. Mercer's ratings do not constitute individualized investment advice." [Emphasis Added]

13) The information contained in the document detailing the Mercer Methodology is commercial/technical in nature. It is Mercer's work product and proprietary in nature. Mercer constrains the use that MPI and others may make of this information. Its public release could reasonably be expected to result in undue financial loss to or significantly harm Mercer's competitive position. Conversely, the public release of this information could result in undue financial gain by Mercer's competitors.

14) MPI believes that it is contractually bound and/or bound by a duty at law to maintain this document (and the information contained therein) in confidence. Mercer has not authorized MPI to reproduce or distribute the Mercer Methodology without its permission and doing so without Mercer's authorization would expose MPI to potential legal liability. In the context of the 2019 GRA, Mercer has only authorized MPI to make the Mercer Methodology available to the panel members of the PUB as well as any of its representatives, advisors and consultants who require access to the document. However, Mercer also expects that the PUB will return the document to MPI should it decide that it must be placed on the public record.

15) MPI, on its own and on behalf of Mercer, respectfully submits that receiving the document (and the information contained therein) in confidence outweighs the public

interest in its disclosure. Without the ability to honour contractual or other legal obligations to its advisors respecting the dissemination of proprietary information, MPI would not be able to continue to obtain advice from respected professional advisors like Mercer.

16) As a result, MPI submits that the Mercer Methodology cannot be placed on the public record and that the PUB must receive this document in confidence.

17) Similarly, Mercer's Response to RFP (see Exhibit "E" of Jeffery Crozier sworn June 29, 2018) is another document over which MPI seeks to maintain confidentiality as it also contains information about the Mercer Methodology and other proprietary information.

18) As Mercer has not authorized MPI to disclose the Mercer Methodology or the Response to RFP on the public record, MPI opposes the release of the Response to RFP to the public.

19) MPI also provides the Mercer Methodology and the Response to RFP to the PUB for the sole purpose of providing it with an opportunity to examine and ascertain whether the PUB will sustain its claim for confidentiality (as contemplated under Rule 13(4) of the PUB Rules. MPI will not provide a copy of these documents to any other party pending the release by the PUB of its decision on this motion.

20) If the PUB decides to place the Mercer Methodology and the Response to RFP on the public record, MPI requests the opportunity to withdraw the document prior thereto (as contemplated under Rule 13(5) of the PUB Rules).

Issue 2: If leave is granted, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

i. Space Plan Business Case

21) MPI does not oppose the circulation of the Space Plan Business Case by the PUB, subject to the following restrictions, namely that:

a. those eligible to receive the document (an "Eligible Person") be:

   i. a representative, a consultant or a professional advisor of a registered intervener who has been granted standing to intervene on an issue or issues falling within the ambit of matters raised in the Space Plan Business Case; or

   ii. a representative, a consultant or a professional advisor of the PUB,

b. the Space Plan Business Case not be provided to an Eligible Person until or unless they execute an Undertaking of Confidentiality and a Confidentiality Agreement, the form and content of which is acceptable to MPI **(see TABs 1 and 2 hereof)**; and

c. no use be made of the Space Plan Business Case or reference made to its content at any time where doing so would place the confidential information on the public record or make it available to persons other than Eligible Persons who have complied with the requirement to execute the

Undertaking of Confidentiality and a Confidentiality Agreement as set out above.

22) Therefore, in the event that the PUB grants leave to file the Space Plan Business Case with the PUB, in confidence, MPI respectfully submits that it add the above as conditions to its dissemination.

ii. Mercer's Capital Markets Assumption & Response to Request for Proposals

23) Mercer has authorized MPI to disclose the Mercer Methodology and Response to RFP, subject to the following restrictions, namely that:

a. Eligible Persons be:

   i. a representative, a consultant or a professional advisor of the PUB; or

   ii. a representative, legal counsel or a consultant for the CAC; and

b. the Mercer Methodology and Response to RFP not be provided to an Eligible Person until or unless they execute an Undertaking of Confidentiality and a Confidentiality Agreement, the form and content of which is acceptable to MPI and Mercer **(see TABs 3 and 4 hereof)**; and

c. no use be made of the Mercer Methodology and Response to RFP or reference made to its content at any time where doing so would place the confidential information on the public record or make it available to persons

other than Eligible Persons who have complied with the requirement to execute the Undertaking of Confidentiality and a Confidentiality Agreement as set out above.

24) Therefore, in the event that the PUB grants leave to file the Mercer Methodology and Response to RFP with the PUB, in confidence, MPI respectfully submits that it add the above as conditions to their dissemination.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 29th DAY OF JUNE, 2018.

MANITOBA PUBLIC INSURANCE

Per: _____

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

TAB 1

UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on July xx, 2018, in Order xxx/18 (the **"Order"**), issued in the course of The Manitoba Public Insurance Corporation's (**"MPI"**) 2019/2020 General Rate Application (**"2019 GRA"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered that a document described therein as the "Space Plan Business Case" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Document"**).

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Document to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role – legal counsel, consultant, etc.] to [insert name of entity – the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of the Confidential Document, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Document:

1. I understand and agree:

   (a) that the term "Confidential Information" means:

      (i) any information contained in the Confidential Document (including the Confidential Document itself);

      (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

      (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Document or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2018 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

   (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

   (c) that this Undertaking will be filed with the Board;

(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Board-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board and MPI that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI, and

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(i) to promptly report any violation of the recipient of this undertaking to the Board and MPI, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board and to MPI.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board and MPI are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] [Province], this day of July xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

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APPENDIX "A"

STATUTORY DECLARATION

I, _____ (recipient) of the _____ (city/town) of _____, in the _____ (province/state) of _____, do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment ("Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared ("related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of)
_____, in the Province of Manitoba,)
this _____ day of _____, 201__.)
)
)
)
_____)
A Notary Public / Commissioner for Oaths
in and for the Province of Manitoba
My commission expires: _____

_____
(Recipient)

TAB 2

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of July, 2018

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION,
(called "**MPI**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on July xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that a document described as the "Space Plan Business Case" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Document"**).

AND WHEREAS the Confidential Document contains information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Document to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Document, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Document (and includes the Confidential Document itself) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of MPI;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of MPI, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and MPI, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit MPI's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide MPI with prompt notice so that MPI may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with MPI protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to MPI in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that MPI waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of MPI, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by MPI may not be compensable by monetary damages alone and, accordingly, that MPI shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **MPI**

Executive Offices
912-234 Donald Street
Winnipeg, Manitoba R3C 4A4
Attn: General Counsel
and Corporate Secretary

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by MPI in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of MPI. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MANITOBA PUBLIC INSURANCE

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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TAB 3

UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on July xx, 2018, in Order xxx/18 (the **"Order"**), issued in the course of The Manitoba Public Insurance Corporation's (**"MPI"**) 2019/2020 General Rate Application (**"2019 GRA"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered that documents described therein as the "Mercer Methodology" and the "Mercer Response to RFP," be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Documents to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role – legal counsel, consultant, etc.] to [insert name of entity – the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of all or some of the Confidential Documents, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Documents:

1. I understand and agree:

   (a) that the term "Confidential Information" means:

      (i) any information contained in the Confidential Documents (including the Confidential Documents themselves);

      (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

      (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Documents or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2018 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

   (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

(c) that this Undertaking will be filed with the Board;

(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Board-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board, MPI and Mercer that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage

media in my possession and under my direction and control;

(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board, MPI and Mercer,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board, MPI and Mercer,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board, MPI and Mercer, and

(i) to promptly report any violation of the recipient of this undertaking to the Board, to MPI and to Mercer, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board, MPI and Mercer.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board, MPI and Mercer are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] , [Province], this day of July xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

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APPENDIX "A"

STATUTORY DECLARATION

I, _____ (recipient) of the _____ (city/town) of _____, in the _____ (province/state) of _____, do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment ("Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared ("related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of)
_____, in the Province of Manitoba,)
this _____ day of _____, 201__.)
)
)
)
_____)

_____
(Recipient)

A Notary Public / Commissioner for Oaths
in and for the Province of Manitoba
My commission expires: _____

TAB 4

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of July, 2018

BETWEEN:

MERCER (CANADA) LIMITED,
(called "**MERCER**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on July xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering Manitoba Public Insurance's (**"MPI"**) 2019/2020 General Rate Application (**"2019 GRA"**), that documents described as the "Mercer Methodology" and the "Mercer Response to RFP" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and proprietary in nature and which is the lawful property of Mercer.

AND WHEREAS the Order directs MPI to provide non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than Mercer, MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of Mercer;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of Mercer, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and Mercer, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit Mercer's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide Mercer with prompt notice so that Mercer may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with Mercer protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to Mercer in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that Mercer waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of Mercer, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by Mercer may not be compensable by monetary damages alone and, accordingly, that Mercer shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **Mercer**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by Mercer in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of Mercer. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MERCER (CANADA) LIMITED

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") will make a motion before a panel of members of the Public Utilities Board of Manitoba ("PUB") on **Friday, August 10, 2018 at 9:00 a.m.,** or as soon before or after that time as the motion can be heard, at the Office of the PUB, 400-330 Portage Avenue, in Winnipeg, Manitoba.

THE MOTION IS FOR:

1) leave to file all or portions of the responses to the following Round One Information Requests with the PUB, in confidence and on any terms it considers appropriate in the public interest, namely:

i.	PUB (MPI) 1 027 (Parts A, B and Attachment "C")
ii.	PUB (MPI) 1 049 (Part C)
iii.	PUB (MPI) 1 055
iv.	PUB (MPI) 1 057
v.	PUB (MPI) 1 058 (Part A and B)
vi.	PUB (MPI) 1 059
vii.	PUB (MPI) 1 061

viii.	PUB (MPI) 1 062
ix.	PUB (MPI) 1 067 (Part A – Appendix "1")
x.	PUB (MPI) 1 072
xi.	CAC (MPI) 1 056 (Appendix "1")
xii.	CAC (MPI) 1 060 (Part A)
xiii.	CAC (MPI) 1 063 (Part A and C)
xiv.	CAC (MPI) 1 066 (Part B)

(the "Confidential Information"); and

2) such further and other relief as counsel may advise and the PUB may permit.

THE GROUNDS FOR THE MOTION ARE:

1) Rule 13(2) of the Rules of Practice and Procedure (the "PUB Rules");

2) The disclosure of the Confidential Information could reasonably be expected to result in undue financial loss or gain to or significantly harm the competitive position of a person directly or indirectly affected by the proceeding;

3) the Confidential Information is personal, financial, commercial, scientific or technical in nature, has been consistently treated as confidential by persons directly affected by the proceeding and the interest in maintaining confidentiality over the Confidential Information outweighs the public interest in its disclosure; and

4) such further and other grounds as counsel may advise and the PUB may permit.

THE FOLLOWING DOCUMENTARY EVIDENCE will be used at the hearing of the motion:

1. the Affidavit of Jeffery Crozier, *to be sworn and filed*; and

2. such further and other evidence as counsel may provide and the PUB may permit.

Date: August 8, 2018

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF
(MANITOBA PUBLIC INSURANCE)

(Seeking Leave to file Certain Round 1 Information Request Responses Confidentially)

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF

(MANITOBA PUBLIC INSURANCE)

(Seeking Leave to file Certain Round 1 Information Request Responses Confidentially)

INDEX

Page No.

PART I LIST OF DOCUMENTS TO BE RELIED ON 3

PART II LIST OF AUTHORITIES 4

PART III STATEMENT OF FACTS 5

PART IV ISSUES TO BE DETERMINED 6

PART V POINTS TO BE ARGUED AND ARGUMENT 7

PART I LIST OF DOCUMENTS TO BE RELIED ON

		TAB
1.	The Affidavit of Jeffrey Crozier, *sworn* August 17, 2018	
2.	Undertaking of Confidentiality	**1**
3.	Confidentiality Agreement – MPI	**2**
4.	Confidentiality Agreement – Royal Bank of Canada	**3**
5.	Confidentiality Agreement – Bank of Montreal	**4**
6.	Confidentiality Agreement – Ward Group	**5**
7.	Confidentiality Agreement – Deloitte	**6**

[4]

PART II LIST OF AUTHORITIES

1. The Public Utilities Board Rules of Practice and Procedure

PART III STATEMENT OF FACTS

1) On June 15, 2018, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") filed its General Rate Application for the 2019 rate year (the "2019 GRA").

2) On August 8, 2018, MPI filed the majority of its responses to the first round of information requests (IRs) received from The Public Utilities Board of Manitoba (the "PUB") and intervenors, non-redacted. However, it also filed 14 partially or completely redacted responses in answer to the following IRs:

i. PUB (MPI) 1 027;
ii. PUB (MPI) 1 049;
iii. PUB (MPI) 1 055;
iv. PUB (MPI) 1 057;
v. PUB (MPI) 1 058;
vi. PUB (MPI) 1 059;
vii. PUB (MPI) 1 061;
viii. PUB (MPI) 1 062;
ix. PUB (MPI) 1 067;
x. PUB (MPI) 1 072;
xi. CAC (MPI) 1 056;
xii. CAC (MPI) 1 060;
xiii. CAC (MPI) 1 063; and
xiv. CAC (MPI) 1 066.

3) MPI now seeks leave of the PUB to file the non-redacted versions of the responses to the above IRs (the "Confidential Documents"), confidentially.

[6]

PART IV ISSUES TO BE DETERMINED

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

i. Third party proprietary, confidential or commercially sensitive information

ii. MPI confidential or commercially sensitive information

Issue 2: If so, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

PART V POINTS TO BE ARGUED AND ARGUMENT

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

1) MPI is no longer seeking leave of the PUB to file the following portions of its responses to Round One IRs confidentially:

a. PUB (MPI) 1 061 (Parts B and D)

b. PUB (MPI) 1 062 (Appendices 3 and 4)

c. PUB (MPI) 1 072 (Part A, Part B and certain pages of Appendix "1").

Accordingly, MPI will be filing updated versions of these responses to IRs to be placed on the public record.

i. Third Party Proprietary, Confidential or Commercially-Sensitive Information

Affects IRs:

- **PUB (MPI) 1 027**
- **PUB (MPI) 1 049**
- **PUB (MPI) 1 058**
- **CAC (MPI) 1 060**

2) The information contained in the Confidential Documents is commercial, the work product of the third parties who created them and therefore proprietary in nature. MPI is

not authorized to make this information available for public use. The public release of this information could reasonably be expected to result in undue financial loss or significant harm to the competitive position of these third parties. The third parties do not otherwise make this information available to the public.

3) MPI is contractually bound and/or bound by a duty at law to maintain this information in confidence. Publishing this information without authorization exposes MPI to potential legal liability, harms its reputation generally and could damage its relationships with these third parties. In the context of the 2019 GRA, MPI is only authorized to make this information available to the panel members of the PUB as well as any of its representatives, advisors and consultants who require access to the document. However, MPI expects that the PUB will return the Confidential Documents should it decide that they must be placed on the public record.

4) MPI respectfully submits that receiving the Confidential Documents (and the information contained therein) in confidence outweighs the public interest in its disclosure. Without the ability to honour contractual or other legal obligations to its advisors respecting the dissemination of proprietary information, MPI would not be able to continue to obtain advice from respected professional advisors.

5) As a result, MPI submits that the Confidential Documents cannot be placed on the public record and that the PUB must receive this document in confidence.

6) If the PUB decides that the Confidential Documents must be placed on the public record, MPI requests the opportunity to withdraw them prior thereto (as contemplated under Rule 13(5) of the PUB Rules).

[9]

ii. MPI Confidential or Commercially Sensitive Information

Affects IRs:

- **PUB (MPI) 1 055**
- **PUB (MPI) 1 057**
- **PUB (MPI) 1 059**
- **PUB (MPI) 1 061**
- **PUB (MPI) 1 062**
- **PUB (MPI) 1 067**
- **PUB (MPI) 1 072**
- **CAC (MPI) 1 056**
- **CAC (MPI) 1 063**
- **CAC (MPI) 1 066**

7) MPI's responses to these IRs contain confidential and/or commercially sensitive information. Some of this information is confidential because its publication poses a security risk to MPI's IT infrastructure and data. Other information identifies the strategic plans of the Corporation and could negatively affect its relationship with its vendors and suppliers or place the Corporation at a competitive disadvantage in the market. MPI has also consistently treated this information as confidential.

8) If the PUB decides that these Confidential Documents must be placed on the public record, MPI requests the opportunity to withdraw them prior thereto (as contemplated under Rule 13(5) of the PUB Rules).

Issue 2: If leave is granted, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

9) MPI does not oppose the circulation any of the Confidential Documents by the PUB, subject to the following restrictions, namely that:

a. those eligible to receive the Confidential Documents (an "Eligible Person") be:

   i. a representative, a consultant or a professional advisor of a registered intervener who has been granted standing to intervene on an issue or issues falling within the ambit of matters raised in each of the respective documents; or

   ii. a representative, a consultant or a professional advisor of the PUB,

b. the Confidential Documents not be provided to an Eligible Person until or unless they execute an Undertaking of Confidentiality and a Confidentiality Agreement, the form and content of which is acceptable to MPI **(see TABs 1-6 hereof)**; and

c. no use be made of the Confidential Documents or reference made to their content at any time where doing so would place the confidential information on the public record or make it available to persons other than Eligible Persons who have complied with the requirement to execute the Undertaking of Confidentiality and a Confidentiality Agreement as set out above.

9) Therefore, in the event that the PUB grants leave to file the non-redacted responses to the IRs with the PUB, in confidence, MPI respectfully submits that it add the above as conditions to their dissemination.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 17th DAY OF AUGUST, 2018.

MANITOBA PUBLIC INSURANCE

Per: Anthony L Guerra
STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

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UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), issued in the course of The Manitoba Public Insurance Corporation's (**"MPI"**) 2019/2020 General Rate Application (**"2019 GRA"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered that certain documents described therein be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Documents to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role – legal counsel, consultant, etc.] to [insert name of entity – the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of the Confidential Documents, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Documents:

1. I understand and agree:

   (a) that the term "Confidential Information" means:

      (i) any information contained in the Confidential Documents (including the Confidential Documents themselves);

      (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

      (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Documents or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2018 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

   (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

   (c) that this Undertaking will be filed with the Board;

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(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Boarc-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board and MPI that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

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(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI, and

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(i) to promptly report any violation of the recipient of this undertaking to the Board and MPI, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board and to MPI.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board and MPI are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] , [Province], this day of August xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

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APPENDIX "A"

STATUTORY DECLARATION

I, _____ (recipient) of the _____ (city/town) of _____, in the _____ (province/state) of _____, do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment ("Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared ("related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of)
_____, in the Province of Manitoba,)
this _____ day of _____, 201__.)
)
)
_____)

_____
(Recipient)

A Notary Public / Commissioner for Oaths
in and for the Province of Manitoba
My commission expires: _____

DRAFT

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of August, 2018

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION,
(called "**MPI**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that certain documents prepared in response to Round 1 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of MPI;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of MPI, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and MPI, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit MPI's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide MPI with prompt notice so that MPI may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with MPI protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to MPI in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that MPI waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

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ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of MPI, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by MPI may not be compensable by monetary damages alone and, accordingly, that MPI shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **MPI**

Executive Offices
912-234 Donald Street
Winnipeg, Manitoba R3C 4A4
Attn: General Counsel
and Corporate Secretary

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by MPI in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

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be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of MPI. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MANITOBA PUBLIC INSURANCE

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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THIS CONFIDENTIALITY AGREEMENT made this xxxx day of August, 2018

BETWEEN:

ROYAL BANK OF CANADA,
(called "**RBC**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that certain documents prepared in response to Round 1 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of RBC

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of RBC, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and RBC, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit RBC's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide RBC with prompt notice so that RBC may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with RBC protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to RBC in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that RBC waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

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ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information pertaining to RBC is the property of RBC, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by RBC may not be compensable by monetary damages alone and, accordingly, that RBC shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **RBC**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by RBC in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

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be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of RBC. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

ROYAL BANK OF CANADA

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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THIS CONFIDENTIALITY AGREEMENT made this xxxx day of August, 2018

BETWEEN:

BANK OF MONTREAL,
(called "**BMO**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that certain documents prepared in response to Round 1 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of BMO

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of BMO, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and BMO, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit BMO's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide BMO with prompt notice so that BMO may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with BMO protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to BMO in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that BMO waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

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ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

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ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information pertaining to BMO is the property of BMO, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by BMO may not be compensable by monetary damages alone and, accordingly, that BMO shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **BMO**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by BMO in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

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be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

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ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

BANK OF MONTREAL

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

DRAFT

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of August, 2018

BETWEEN:

WARD INC.,
(called "**WARD**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that certain documents prepared in response to Round 1 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of WARD

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of WARD, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and WARD, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit WARD's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide WARD with prompt notice so that WARD may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with WARD protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to WARD in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that WARD waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

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ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information pertaining to WARD is the property of WARD, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by WARD may not be compensable by monetary damages alone and, accordingly, that WARD shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **WARD**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by WARD in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

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be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of WARD. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

WARD INC.

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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THIS CONFIDENTIALITY AGREEMENT made this xxxx day of August, 2018

BETWEEN:

DELOITTE INC.,
(called "**DELOITTE**")

of the first part,

- and -

[Insert name of Individual],
(called the "**Confidant**")

of the second part

WHEREAS on August xx, 2018, in Order xxx/18 (the **"Order"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered, within the course of considering MPI's 2019/2020 General Rate Application (**"2019 GRA"**), that certain documents prepared in response to Round 1 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the **"Agreement"**).

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

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ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

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ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of DELOITTE

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of DELOITTE, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and DELOITTE, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit DELOITTE's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide DELOITTE with prompt notice so that DELOITTE may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with DELOITTE protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to DELOITTE in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that DELOITTE waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

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ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information pertaining to DELOITTE is the property of DELOITTE, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by DELOITTE may not be compensable by monetary damages alone and, accordingly, that DELOITTE shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

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ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **DELOITTE**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by DELOITTE in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach

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thereof, shall be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

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Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

DELOITTE INC.

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF
(MANITOBA PUBLIC INSURANCE)

(Motion to Compel Answers to Information Requests)

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF
(MANITOBA PUBLIC INSURANCE)

(Motion to Compel Answers to Information Requests)

INDEX

		Page No.
PART I	LIST OF DOCUMENTS TO BE RELIED ON	3
PART II	LIST OF AUTHORITIES	4
PART III	STATEMENT OF FACTS	5
PART IV	ISSUES TO BE DETERMINED	9
PART V	POINTS TO BE ARGUED AND ARGUMENT	10

PART I LIST OF DOCUMENTS TO BE RELIED ON

1. The General Rate Application of The Manitoba Public Insurance Corporation, filed June 15, 2018

2. The Affidavit of Glenn Bunston, sworn August 20, 2018

PART II LIST OF AUTHORITIES

		TAB
1.	The Public Utilities Board Rules of Practice and Procedure	
2.	*Manitoba Hydro Electric Board v. John Inglis Co.*, 2001 MBQB 289	A
3.	*Dunsmuir v. New Brunswick*, 2008 SCC 9 (excerpts)	B

PART III STATEMENT OF FACTS

1) On June 15, 2018, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") filed its General Rate Application for the 2019 rate year (the "2019 GRA").

2) By Order No. 82/18, the Public Utilities Board of Manitoba (the "PUB") permitted the use of information requests ("IRs") by the parties thereto.

3) On July 11, 2018, MPI received 197 IRs, most containing a number of sub-parts, totalling 441 questions. Of those IRs, the Consumers' Association of Canada (Manitoba) Inc. ("CAC"), posed 226 questions through 96 IRs. On August 8, 2018, MPI provided responses to 224 of these 226 questions. The two unanswered questions were CAC (MPI) 1-84(f) and CAC (MPI) 1-85(g) (collectively referred to as the "Subject IRs").

4) The first of the Subject IRs (CAC (MPI) 1-84(f)) asks for the following:

> "f. More Detailed Analysis for Real Scenarios: Was the same "stepped" analysis that was performed using the Nominal Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the Real Liability Benchmark?
>
> i. If so, provide the analysis and commentary (at least for Basic and Pensions).
>
> ii. If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions)"

5) The second of the Subject IRs (CAC (MPI) 1 085(g)) asks:

"g) Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (Real Liability Benchmark, not Nominal Liability Benchmark, and not TBills)?

i. The analysis should show the effects of allowable leverage for fixed income assets only (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:

1) Set 0% maximum in RRBs

2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) individual steps for:

(1) Canadian Equity

(2) Emerging Markets Equity

[7]

(3) Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:

1) Real estate, infrastructure, and private equity using MPI's recommended weights

2) Public equity in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI))

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension."

6) On July 19, 2018, General Counsel for MPI wrote to counsel for the CAC seeking clarification that IR CAC (MPI) 1 85(g) sought production of a new report based on the Asset Liability Management ("ALM") study.

7) On July 26, 2018, legal counsel for the CAC responded that the CAC was seeking the commission of new studies.

8) On July 27, 2018, General Counsel for MPI replied that MPI was not prepared to conduct the assessments requested by the CAC in the Subject IRs without evidence suggesting that there was a real possibility that the inflation forecast underpinning the ALM Study was not correct.

9) On August 8, 2018, MPI answered the Subject IRs but did not produce new assessments as requested.

10) On August 8, 2018, the CAC brought a motion seeking to compel MPI to commission the assessments requested in the Subject IRs.

11) The ALM study, conducted by Mercer, included the participation of MPI's investment department, MPI's Investment Committee Working Group (which includes representatives of the Provincial Department of Finance), and the Investment Committee of the Board of Directors ("BoD"). The study was conducted during the fourth quarter of calendar 2017, with development of the implementation plan over the first and second calendar quarters of 2018. The 2019 GRA contains 305 pages of material generated by the study, as appendices to the Investments chapter, as well as narrative on the ALM study and implementation plan within the Investments chapter itself. A technical conference on the ALM study was also held at the PUB offices on March 14, 2018, where MPI presented the results of the ALM study to parties to the 2019 GRA.

PART IV ISSUES TO BE DETERMINED

Issue 1: Should the PUB issue an order compelling MPI to provide answers to IRs CAC (MPI) 1 084(f) and/or CAC (MPI) 1 085(g)?

i. IRs are not proper questions

ii. MPI's Decision-Making and Investment Strategy Reasonable

iii. IRs cannot be answered as information does not exist and cannot be obtained with reasonable effort

iv. Effort (and cost) of obtaining information required to answer IRs exceeds the anticipated value of that information

v. CAC can obtain the information sought without the assistance of MPI

Issue 2: Costs and Process Efficiency.

PART V POINTS TO BE ARGUED AND ARGUMENT

Introduction

1) The PUB states the following regarding the need for an ALM study in Order 162/16:

> "The Board finds that an ALM study should take place more frequently than has been the practice with the Corporation. The Board finds there is a need to update the ALM study, given that now the RSR target is based on total equity. The ALM study filed in the 2016 GRA used a constraint based on retained earnings that excluded AOCI, a significant component of total equity. The Board directs that MPI obtain an updated ALM study to be filed in the 2018 GRA, which study shall address each of the 18 recommendations made by Mr. Viola, which are set out in Appendix E of this Order."

2) MPI's Board of Directors ("BoD") and the Department of Finance are responsible for investing the Corporation's funds. While one could conduct an ALM study using a variety of reasonable assumptions, variables and risk tolerances or inputs, it is ultimately the responsibility and duty of the BoD and the Department of Finance to select the inputs and to determine whether and how to apply the ALM study. In determining rates, the role of the PUB is to examine policy issues affecting rates, whether the decisions related thereto are reasonable, and to determine whether the rates sought (resulting from those decisions) are just and reasonable. The PUB does not make investment decisions for the Corporation.

3) The CAC has presented no evidence to refute or call into question the accuracy of the inflation forecast assumption used by Mercer in the ALM Study. However, without

this evidence, the Order sought is not justifiable. Nonetheless, the CAC requests that Mercer create new scenarios (new evidence) based upon assumptions that MPI rejected in the development of the ALM study.

4) The broad consensus for inflation forecasting is in line with the inflation assumptions made by Mercer in the ALM Study. MPI knows of no credible alternative forecast. Actual inflation between now and December 2018 (2019 GRA Order), is unlikely to be instructive as inflation rarely escalates materially over a single quarter. MPI agrees that an inflation forecast predicting significantly elevated and/or prolonged inflation (should such a forecast exist), would no doubt lead to an optimal portfolio with inflation protection in the form of Real Return Bonds (RRBs). However, absent such a forecast, exploring these portfolio options becomes purely an academic exercise.

5) Finally, MPI plans to conduct an ALM study every three to four years, meaning it will revisit these forecasts and accompanying portfolios in the near future. Should actual inflation materialize above the forecast before the next ALM study, MPI's Investment Committee will respond appropriately.

6) MPI respectfully submits that, through this Motion, the CAC seeks, through improper questions no less, information:

a. that will have no impact upon the determination of the 2019 GRA or on the investment decisions of the BoD/Department of Finance; and

b. whose costs (funded through ratepayers' premiums) will exceed its benefits.

Issue 1: Should the PUB issue an order compelling MPI to provide answers to IRs CAC (MPI) 1 084(f) and/or CAC (MPI) 1 085(g)?

IRs are not proper questions

7) The Subject IRs are not proper questions because they:

a. are, in effect, a demand for new evidence; and

b. do not seek to provide a party with a satisfactory understanding of the matters to be considered.

8) While the Subject IRs technically contain questions, they are not the questions to which the CAC seeks answers. Instead, the *real* "questions" posed by the CAC call upon MPI to have its consultant (Mercer) create and produce new evidence.

9) For example, CAC (MPI) 1-84(f) contains two questions and a demand for production of a specific document, should it exist. The first question asks whether Mercer analyzed the effects of adding different asset classes on return/risk, using Real Liability Benchmark. The answer to that question is either "yes" or "no". If MPI answers the question in the affirmative, what follows at CAC (MPI) 1-84(f)(i) is a demand by the CAC for production of Mercer's analysis and commentary. However, if MPI answers the question in the negative, the CAC next asks MPI at CAC (MPI) 1-84(f)(ii) whether Mercer could perform that analysis (showing the effect of including RRBs) and provide commentary. This too is a simple "yes" or "no" question and, for the record, the complete answer to it is "yes", since Mercer could redo its analysis using the Real Liability Benchmark.

10) However, the question contained in CAC (MPI) 1-84(f)(ii) is not the question the CAC seeks to compel MPI to answer. What it really wants is an Order compelling MPI to commission Mercer to conduct further analyses and prepare a new report that does not currently exist.

11) The same applies in the case of the question posed in CAC (MPI) 1-85(g). On its face, the question is proper and, since Mercer could perform a new analysis showing efficient frontiers with risk defined to account for liabilities and with the risk-free asset being the Minimum-Risk Portfolio using the Real Liability Benchmark, MPI could completely answer the question with "yes". However, sub-parts "i" through "v" of CAC (MPI) 1-85(g) specify how the CAC expects Mercer to conduct this new analysis. Therefore, while the question technically asks whether Mercer *is able to* conduct a further review, the question is really a demand for new evidence.

12) Sections 14-16 of the PUB's Rules of Practice and Procedure (the "PUB Rules") provide the process of making and answering IRs. The purpose of IRs, as set out in Section 14 of the PUB Rules, is to provide a party with "...a satisfactory understanding of the matters to be considered". In other words, IRs are a means by which a party can get a better understanding of the material filed. Further, Section 16 uses the term "interrogatory" in place of IR, meaning these terms are interchangeable. An interrogatory is simply a question in written form and, in this context, is a substitute for oral examinations for discovery.

13) In addition, other avenues are available to the CAC to obtain the relief it seeks. For example, Rule 12(2) provides that the PUB may order a party to produce a document.

Rule 17(1)(b) goes further and provides that the PUB may direct a person to provide a report. The availability of this relief supports a limited scope of permissible questioning by interrogatories.

14) The PUB allowed the use of IRs in its Procedural Order No. 82/18. However, Page, 22, paragraph 4 of that Order makes it clear that all IRs must contain a question; and the rationale for the question asked. A demand that a party create and produce new evidence is not a question; it is a demand.

15) In the context of litigation, it is not proper (through an interrogatory) to demand that a third party create and produce new evidence. In *Manitoba Hydro Electric Board v. John Inglis Co.*, 2001 MBQB 289, MacInnes J. (then of the Court of Queen's Bench) considers the scope of an examination based on interrogatories. MacInnes J. finds that, in Manitoba, the scope on interrogatories is as broad as the scope for examinations for discovery. However, on the issue of whether parties could elicit expert opinions through interrogatories, MacInnes J. writes (at paragraph 28):

> "I conclude, therefore, that one may ask an examinee on discovery (i.e. whether by way of oral examination or interrogatories) to disclose and/or make inquiries of an expert already retained in respect of, findings, conclusions or opinions that the expert then has relating to a matter in issue in the action, and such examinee is obligated to respond whether by reason of having already informed himself or by way of undertaking. <u>However, it is not necessary for a party to go out and engage an expert so as to permit its representative to be able to answer questions put on examination for discovery, or to ask its expert to provide a new or fresh opinion not yet given in response to an examining party's question.</u> <u>Nor does the examinee have to ask his expert to comment or opine upon the theories or opinions advanced by examining counsel, such questions being cross-examination, not examination for discovery.</u>" [emphasis added]

16) Notwithstanding that, court proceedings are somewhat different than proceedings before the PUB, comparisons to the litigation context are appropriate as interrogatories serve the same purpose (i.e. pre-hearing discovery) and because other avenues already exist to compel the production of documents/reports.

17) In the case at hand, the CAC theorizes in its letter dated August 8, 2018 that the ALM Study prepared by Mercer and filed by MPI, as part of its GRA, is potentially inaccurate or flawed. The letter states at page 2 that the purpose of the Subject IRs is to "...test the decisions made regarding key assumptions on which the ALM Study is based". With respect, the theory posited by the CAC is exactly the type that the court in *Inglis* held was improper to explore through interrogatories. The information sought requires fresh opinions from Mercer (i.e. opinions not yet provided).

18) Further, the subject IRs do not elicit information from MPI for the purposes of obtaining "a satisfactory understanding of the matters to be considered". Based on the content of the Subject IRs, the CAC clearly understands the ALM Study. It also acknowledges that it has the capacity to obtain this information without the assistance of MPI. What is truly at issue is whether MPI should pay the cost of testing the CAC's theory that MPI did not select the right compositions of its investment portfolios. Obtaining this information on its own, MPI submits, requires the CAC to justify its usefulness to the PUB, in order to obtain reimbursement for the expense. However, proceeding in the fashion chosen by the CAC exposes it to no risk in the event that the reports are not useful, while limiting the ability of MPI to seek recovery of the costs.

19) By identifying its motion as one to compel answers to IRs, the CAC suggests that the only issue is whether its demand pertains to information that is relevant and material. While that is not the case (Section 16 of the PUB Rules provide two other grounds for refusal), MPI submits that where the IR seeks the creation of new evidence such as a report, the decision of whether to require its production should not solely rest on whether that new evidence would be relevant or material. In addition to relevancy and materiality, there must be consideration of the costs and anticipated benefits of creating the evidence. The fact that the test employed must be different further supports that a dispute of this nature cannot be resolved via a motion to compel answers to IRs.

20) As a result of the above, MPI respectfully submits that the CAC does not seek clarification of existing evidence but instead seeks the creation of new evidence. Demands of this nature are not questions, let alone proper ones, and a motion to compel answers to IRs is not the proper vehicle for redress in this case. On this basis alone, the PUB must dismiss this Motion.

MPI's Decision-Making and Investment Strategy Reasonable

21) In the alternative, should the PUB decide that a motion to compel answers to IRs is the proper vehicle for seeking production of new evidence, MPI respectfully submits that the PUB must still be satisfied that the benefits of producing this evidence do not outweigh the costs. Not all "costs" are financial. One of the costs of granting an Order of this nature is that it implies that decisions made by the BoD and Investment Committee were not reasonable.

22) The PUB has recently signaled its intention not to direct the business of the Corporation. In Order 82/18, the PUB denied intervener status to UBER because its intervention would be of limited assistance to the PUB in its determination of just and reasonable rates. At page 19 of its Order 82/18 (issued June 29, 2018) the PUB states:

> "While the Board has a broad jurisdiction to examine policy issues affecting rates, the Board does not view its role as regulator to include directing MPI's business practices." [emphasis added]

23) The PUB (in the above case) correctly concluded that its role was not to usurp that of MPI and its BoD, by second-guessing its business decisions. Therefore, MPI respectfully submits that, if the PUB is prepared to grant the Order sought, it must be satisfied that the decision to conduct the ALM Study in the manner chosen was unreasonable. There is no evidence before the PUB to suggest that this was the case.

24) MPI developed its investment strategy under the guidance of the recommendations of Mercer. Mercer is an independent consulting firm specializing in the provision of investment advice to corporate clients globally. The BoD (including the Investment Committee, comprised of three individuals with lengthy careers in the investment industry) carefully examined Mercer's recommendations.

25) In confirming the investment strategy now under scrutiny, the BoD had the benefit of the advice and recommendations of the Investment Committee Working Group, a group again comprised of individuals with a wealth of finance and investment experience, including Garry Steski, Assistant Deputy Minister of Manitoba Finance (Treasury Division) and his three directors. Mr. Steski was a witness for the PUB in the hearing of the 2018 General Rate Application and testified that, in addition to his ICWG input, he monitors the

investment fund and reports any concerns to the Minister of Finance. Mr. Steski also testified that he sees his role as 'watchdog' for the Minister of Finance because, although MPI is responsible for its investments, the Government of Manitoba owns the investment fund. As it concerns the composition of the Investment Committee (a committee of the MPI BoD), Mr. Steski testified as follows:

> "MR. STEVE SCARFONE: And would you agree with me, sir, that those three (3) members that we spoke of, of the investment committee, are very qualified individuals in their area of expertise?
>
> MR. GARRY STESKI: Very highly competent, yes.
>
> MR. STEVE SCARFONE: And so, sir, based on your earlier comments about the qualifications and – and the competency of the investment committee members, is it fair to say, sir, that you would have complete confidence in the investment committee's ability to properly and prudently manage and make decisions concerning MPIC's investment strategy.
>
> MR. GARRY STESKI: Absolutely."

26) In determining whether MPI's decision to conduct the ALM Study in the manner it did was unreasonable, MPI respectfully submits, that the approach used by the PUB should mirror that of a court of law when reviewing the decision of an expert tribunal. That is, the PUB should measure MPI's decisions on a standard of reasonableness.

27) *Correctness* is the other standard of review used by courts in the administrative law context. Correctness is of course is a more stringent standard and normally only applies in the case of questions of law. In this case, the decisions in question are not questions of law. Therefore, the correctness standard has no application in this case, by analogy or otherwise. Further, by virtue of its prospective nature, it is only possible to

determine whether a decision to employ one investment strategy over another is correct years later (when the results thereof are known).

28) In *Dunsmuir v. New Brunswick*, 2008 SCC 9 (CanLII), [2008] 1 S.C.R. 190, the Supreme Court of Canada holds there are two standards of review, namely, correctness and reasonableness. The Supreme Court defines the standard of *reasonableness* at paragraph 47, when it states:

> "Reasonableness is a deferential standard animated by the principle that underlies the development of the two previous standards of reasonableness: certain questions that come before administrative tribunals do not lend themselves to one specific, particular result. Instead, they may give rise to a number of possible, reasonable conclusions. Tribunals have a margin of appreciation within the range of acceptable and rational solutions. A court conducting a review for reasonableness inquiries into the qualities that make a decision reasonable, referring both to the process of articulating the reasons and to outcomes. In judicial review, reasonableness is concerned mostly with the existence of justification, transparency and intelligibility within the decision-making process. But it is also concerned with whether the decision falls within a range of possible, acceptable outcomes which are defensible in respect of the facts and law." [emphasis added]

29) Central to the reasonableness standard is the notion of deference. The Supreme Court in *Dunsmuir* adopts the definition from Professor David Dyzenhaus (Professor of Law, University of Toronto) which relies on the concept of "deference as respect" whereby there is not submission, but a respectful attention to the reasons offered in support of a decision. At paragraph 49 of its decision, the Supreme Court states:

> "Deference in the context of the reasonableness standard therefore implies…due consideration to the determinations of decision makers. [A] policy of deference "recognizes the reality that, in many instances, those working day to day in the implementation of frequently complex administrative schemes

have or will develop a considerable degree of expertise or field sensitivity to the imperatives and nuances of the legislative regime."

30) In the case at hand, the PUB must consider, in determining the reasonableness of the investment strategy chosen by MPI, whether the decisions it made fall outside the specialized area of expertise of the Investment Committee. If the answer is no, the PUB must give deference to the decision makers.

31) The investment strategy adopted by MPI, based on models run by Mercer in the ALM Study, does not include the purchase of RRBs issued by the Government of Canada. MPI based this decision largely on the reasonable assumption that inflation is not expected to significantly rise over the next few years. RRB yields are dependent on inflation (generating low yields during periods of low and stable inflation). Indeed, the Corporation acknowledges that RRB's would have formed part of the new investment strategy had the ALM Study forecasted rising inflation, but that was not the assumption.

32) It was reasonable for MPI to rely upon the recommendations of Mercer, including its recommendations on the modeling the ALM Study should use. It was also reasonable for MPI not to have Mercer perform the ALM Study using the scenarios proposed by the CAC. In fact, MPI considered but ultimately chose not to run alternate scenarios at the time it was preparing the ALM study with Mercer. The Investment Committee and the BoD each have specialized knowledge regarding investment strategies and the PUB must give deference to their decisions.

33) With respect to the CAC, the issue in this case is not the ALM study itself, but whether it is was unreasonable for MPI to conduct the ALM in the manner suggested by

the CAC. MPI respectfully submits there is no evidence to refute the inflation assumptions underpinning the investment strategy it adopted.

34) Even if Mercer were to re-run portions of the ALM study as proposed by the CAC, any significant and lasting increase to the current inflation rate would not be known for at least another year or two. As a result, the results could not form part of the Order the PUB is expected to issue December 3, 2018.

35) In sum, unless the PUB finds that the decisions made by MPI concerning conduct of the ALM Study were unreasonable, it must not interfere with those decisions. Ordering the production of new studies (as sought by the CAC) would do just that. The available evidence supports that MPI's decisions were reasonable. There is no evidence to the contrary. Therefore, should the PUB find that a motion to compel production of new evidence is appropriate on a motion to compel answers to interrogatories, MPI respectfully submits that the CAC has failed to establish that the decisions not to produce this evidence in the first instance was unreasonable. For that reason as well, this motion must fail.

IRs cannot be answered as information does not exist and cannot be obtained with reasonable effort

36) In the further alternative, Section 16(b) of the PUB Rules suggests that a party may refuse to provide a full and adequate response an interrogatory "...where the information necessary to provide an answer is not available or cannot be provided with reasonable effort".

37) The actual questions contained in the subject IRs are demands for further analysis, which does not currently exist. Mercer estimates that re-running the modelling of efficient frontiers, as requested in the Subject IRs will take over 40 hours to complete, at a cost of approximately $46, 000. MPI has already paid more than $30,000 for Mercer to respond to Round 1 IRs.

38) The additional effort to complete the new modelling cumulatively represents about one-quarter the cost of the initial study. Given the value of the proposed further analysis, MPI submits that it cannot provide this information with reasonable effort.

Effort (and cost) of obtaining information required to answer IRs exceeds the anticipated value of that information

39) In the further alternative and, as indicated previously above, MPI submits that the central issue here is whether the costs of obtaining the information required exceeds its expected benefits. At page two (2) of its motion, the CAC characterizes MPI's reason for refusal to produce the requested analysis as being on the basis of cost, not relevance. MPI submits that the costs to the regulatory process are an important consideration, and should be weighed against the potential benefits derived from those costs.

40) In considering this balance, it must be remembered that costs does not necessarily mean *financial costs*, although that it an important consideration. As discussed above, MPI believes there is a substantial cost to granting an order of this nature that is not monetary in nature.

41) MPI respectfully submits that the analysis requested will have little, if any benefit, and will not assist the PUB in the determination of the 2019 GRA. The CAC's motion

asserts that the ALM study could be "vulnerable given the simplifying assumption about the nature of the liabilities (nominal vs. real)". However, the term "simplifying assumption" mischaracterizes how MPI made the decision to rely on the nominal liability benchmark, and suggests that MPI assumed its way to the desired result.

42) In fact, the decision to proceed using a nominal liability benchmark was made having accurately modelled the liabilities, with real and nominal benchmarks, based on Mercer's inflation assumption that is a reasonable best estimate. The affidavit of Mr. Bunston explains that a real liability benchmark was modelled, producing an efficient frontier, and several possible portfolios. These modelled portfolios did contain RRBs, and allocations to other inflation sensitive assets. However, of these portfolios, only one provided the necessary level of interest rate hedging (a Hedge Ratio of 100%), and this particular portfolio had an expected 10 year return of 1.9%, just over **one third less** than the return of 3.12% for the portfolio ultimately selected. Further the risk the portfolio, as measured by the Anticipated Surplus Volatility was 3.0%, **more than double** that of the portfolio ultimately selected, at 1.32%.

43) The analysis requested by the CAC will not add meaningful evidence to the record unless there exists some reasonable basis to challenge Mercer's inflation forecast.

44) Mercer's inflation forecast is 2%, with a standard deviation of 2.6%. Inflation forecasts from six independent forecasters were provided in the GRA Application, at Part VI Investments INV.14.2.1, Figure INV-44, which is reproduced below for convenience:

Figure INV- 44: Canadian CPI Forecast

Line No.	Quarterly	Scotia	CIBC	RBC	TD	BMO NB	Global	Average
1	2018 Q1	1.9%	1.8%	1.9%	1.3%	3.6%	1.6%	2.0%
2	Q2	2.0%	2.0%	2.2%	1.8%	1.3%	1.9%	1.9%
3	Q3	2.2%	2.4%	2.3%	2.0%	1.8%	2.4%	2.2%
4	Q4	2.2%	2.4%	2.0%	2.0%	2.2%	2.1%	2.2%
5	2019 Q1	2.3%	2.3%	1.7%	2.0%	2.5%	1.9%	2.1%
6	Q2	2.3%	2.2%	2.0%	2.1%	1.9%	1.9%	2.1%
7	Q3	2.3%		2.1%	2.0%	2.0%	2.0%	2.1%
8	Q4	2.3%		2.0%	2.1%	2.1%	2.1%	2.1%
9								
9	Annual							
10	2018	2.2%	2.2%	2.1%	2.2%	2.2%	2.0%	2.2%
11	2019	2.3%	2.1%	1.8%	2.1%	2.1%	2.0%	2.1%
12	2020				2.0%		2.0%	2.0%
13	2021				2.0%		2.0%	2.0%
14	2022				2.0%		2.0%	2.0%

15 Scotiabank, "Global Economics", March 6 , 2018
16 CIBC, "Economic Insights", February 15, 2018
17 RBC, "Economic Forecast Detail", March 2018
18 TD Economics, "Quarterly Economic Forecast", December 14, 2017
19 BMO, "Canadian Economic Outlook", March 9, 2018
20 Global Insight, March 2018
21 Global Insight, March 2017

45) While these inflation forecasts vary between forecasters, none diverges materially from 2.0%, and average 2.1% in 2019.

46) Further, Mercer's inflation forecast is consistent with the mid-point of the Bank of Canada's inflation target band. The inflation target band is described by the following excerpt from the Bank of Canada's website:

> **Inflation-control target**
>
> The inflation-control target was adopted by the Bank and the Government of Canada in 1991 and has been renewed several times since then, most recently in October 2016 for the five years to the end of 2021. The target aims to keep total CPI inflation at the 2 per cent midpoint of a target range of 1 to 3 per cent over the medium term. The Bank raises or lowers its policy interest rate, as appropriate, in order to achieve the target typically within a horizon of six to eight quarters—the

time that it usually takes for policy actions to work their way through the economy and have their full effect on inflation.1

47) MPI believes that the Bank of Canada's inflation target is credible, and notes that the independent inflation forecasts appear to concur based on the tight variation in the forecasts about the midpoint of the range.

48) Evidence regarding inflation targeting was placed on the record of the 2015 GRA, where the CAC's expert witness Dr. Simpson expressed some degree of confidence in the Bank of Canada's inflation targeting:

"And also again, to repeat this point about monetary policy, I think monetary policy much like it is improved to avoid the collapses associated with the Great Depression, and we've seen some evidence of that in the treatment of the recession in '08/'09, it's also improved to avoid the mistakes associated with the great stagflation. That is to say, it has adopted inflation targeting procedures which causes the Bank of Canada to lean against the wind of inflation once it gets near the top of that band of 3 percent. And that was not the case earlier, and I think monetary policy has learned from that period, because that was a worldwide phenomenon and a worldwide lesson, that if it's a choice between high inflation and low inflation, you're not going to get very much out of that in terms of improved economic performance, and so you're better off to adopt a low inflation strategy." [emphasis added]2

49) Dr. Simpson also opined that the inflation outlook for Canada at that time, was well within Bank of Canada's target range when he stated:

"Similarly, the interest rate decline scenario relies entirely for its adverse outcomes on the era surrounding the Great Stagflation of the late 1970s and early 1980s when inflation and unemployment were both high and authorities were able to reduce interest rates to stimulate the economy once inflationary concerns abated. No such

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1 https://www.bankofcanada.ca/rates/indicators/key-variables/inflation-control-target/

2 MPI GRA 2015-16, 11-05-2014, Tx: 1642-1643

inflationary concerns exist today, since inflation remains low and well within the Bank of Canada's target range and unemployment and excess capacity in the economy remain the focus." [emphasis added] [3]

50) Counsel for CAC also cross-examined an MPI witness on the presence of structural breaks in the historical inflation data, coincident with the change in approach to monetary policy. This suggests that the Bank of Canada's inflation targeting policy is both effective and predictable:

"MR. BYRON WILLIAMS: You've risen incredibly in my estimation, sir. We can agree that since 1991 the Government of Canada and the -- the Bank of Canada have had an expressed policy objective of keeping inflation low, stable, and predictable?

MR. LUKE JOHNSTON: Agreed.

MR. BYRON WILLIAMS: And the current inflation target as measured by the total consumer price index remains at the midpoint of the control range of 1 to 3 percent?

MR. LUKE JOHNSTON: That's my understanding.

MR. BYRON WILLIAMS: And it's also fair -- it's also your understanding that the Bank of Canada carries out monetary policy through changes in its target overnight range of interest, agreed?

MR. LUKE JOHNSTON: Yes.

MR. BYRON WILLIAMS: And turning, if -- if we might, to page 57 of the D-C-A-T report, DCAT. Scrolling down to the bottom, if you would, Diana. And actually, is this -- just one (1) second, please. (BRIEF PAUSE)

MR. BYRON WILLIAMS: Page 56. I apologize. At the bottom of page 56, the table under, "Inflation risk." Mr. Johnston, in preparing your DCAT and assessing inflation risk, you reviewed the all items Consumer Price Index for two (2) distinct

[3] Determining the Manitoba Public Insurance Rate Stabilization Reserve
Dr. Wayne Simpson with the advice and assistance of Ms Andrea Sherry and Mr. Peter Dyck October 1, 2014, p.15

historical periods, one (1) being from 1914 to 1991 and the second being from 1992 to 2013, agreed?

MR. LUKE JOHNSTON: Agreed.

MR. BYRON WILLIAMS: The significance of the second period, being the 1992 to 2013 period, is that coincides with the Bank of Canada inflation targeting area, correct?

MR. LUKE JOHNSTON: Correct.

MR. BYRON WILLIAMS: And the purpose of your analysis was to examine whether or not within the data you could associate a structural break in the data associated with the Bank of Canada inflation targeting era, agreed?

MR. LUKE JOHNSTON: Agreed.

MR. BYRON WILLIAMS: And if we look at the data, sir, for the period between 1915 and 1991, we can see that the average for that time period was interest [sic inflation] rates as measured by the all Canada – all items Consumer Price Index of about 3.6 percent. Is that correct?

MR. LUKE JOHNSTON: Correct.

MR. BYRON WILLIAMS: And we can also see a substantial standard deviation of 5.4 percent?

MR. LUKE JOHNSTON: Yes.

MR. BYRON WILLIAMS: And by standard deviation simplistically, would that suggest variance around the -- around the mean or average, sir?

MR. LUKE JOHNSTON: Yes, going back to your bell curve, as you can see here, it's probably not possible that the standard deviation's going to be negative 5.4 percent of that mean. But as a general statement, it's -- it's the variability around the -- the mean terms of 0.7 percent or standard deviation?

MR. LUKE JOHNSTON: Yes.

MR. BYRON WILLIAMS: And based on this analysis for the purposes of the DCAT modelling of interest rate risk, you chose to base your assessment of inflation risk focusing on data from the recent period, 1992 to present. Is that correct?

20 MR. LUKE JOHNSTON: Correct." [emphasis added]4

51) The evidence on the record of the current and past GRAs coalesces around certain key points. First, the Bank of Canada targets inflation, to the 2% midpoint of a range. Second, the Bank of Canada's inflation targeting policy is credible, as evidenced by both the historical data and the presence of a structural break in the data, and the forecasts of private forecasters who predict inflation to be at or near the inflation control target.

52) Given the foregoing, MPI respectfully submits that the reasonableness of Mercer's inflation forecast is the single determinative issue to the relevance of the additional modelling requested by the CAC. For the CAC to establish that the requested analysis is relevant and material, and therefore beneficial to the process to a degree that outweighs the cost, it must establish that there is some credible deficiency in Mercer's inflation forecast. To date, the CAC has not taken issue with the inflation forecast, nor has it articulated any specific concerns with Mercer's inflation forecast, nor provided any alternative forecast.

53) In this context, the CAC's requested analysis would extend the current analysis down a path whose destination is already known with enough certainty that the analysis was abandoned at an early stage of the ALM study. That destination is a portfolio laden with RRBs, earning less return with higher risk than the selected portfolio to protect against rising inflation that experts say will not occur.

---

[4] October 22, 2014 – 2015-16 Insurance year TX 1471:1474

54) As indicated, MPI has obtained an estimate from Mercer that the financial costs of re-running the portions of the ALM study will cost MPI (and its ratepayers) approximately $46,000. These costs (and the intangible costs noted above) far exceed the anticipated and highly questionable benefits of producing the requested evidence. As a result, MPI respectfully submits that this motion must also fail on this basis.

CAC can obtain the information sought without the assistance of MPI

55) The email correspond from CAC's counsel dated July 26, 2018 states the following:

> "We note that CAC Manitoba and its consultants could do the analysis, using the first method of single period optimization to get efficient frontiers, for less than $10,000 by downloading an Excel optimization model from the web and using Mercer's capital market assumptions as inputs to the model. However, there are two difficulties with this option that would likely make it more efficient for MPI/Mercer's to conduct the analysis..."

56) The CAC concedes that it has access to the tools and expertise required to perform the analysis requested but states that it is reluctant to use them. MPI respectfully submits that the PUB must also consider this as a factor in determining whether to grant the relief sought. Should the PUB refuse this motion, the CAC could still obtain this information. It would of course need to decide whether the benefits of doing so outweigh the costs, the same analysis already performed by MPI (with costs having tipped the scale) and the same analysis, which MPI submits the PUB must perform now.

Issue 2: Costs and Process Efficiency

57) The PUB awards costs in consideration of the criteria set out in Sections 43-44 of the PUB Rules. The PUB Rules do not permit MPI to make a claim for costs but instead set the criteria for awarding costs *to an intervenor*.

58) Page 19 of Order 82/18 of the PUB indicates that the PUB will provide intervenors with preliminary approval of their budgets with final approval to be granted once the hearing is complete.

59) The alternative scenarios proposed by the CAC (notwithstanding a reasonable alternative already in place) are also cost prohibitive and appear to be in conflict with the PUB having indicated to MPI in a letter dated April 11, 2018 (and again in PUB Interim Procedural Order No. 61/18) that it wished to streamline the 2019 GRA by improving the focus and efficiency of the application and hearing process.

60) In the event that the PUB dismisses this motion, MPI respectfully submits that the CAC should not be awarded any costs in relation thereto.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 20th DAY OF AUGUST, 2018.

MANITOBA PUBLIC INSURANCE

Per: _____

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

TAB "A"

2001 MBQB 289
Manitoba Court of Queen's Bench

Manitoba Hydro Electric Board v. John Inglis Co.

2001 CarswellMan 529, 2001 MBQB 289, 109 A.C.W.S. (3d) 572, 159 Man. R. (2d) 136

The Manitoba Hydro Electric Board (Plaintiff) and John Inglis Co. Limited, Inglis Limited/Inglis Limitee, English Electric Company of Canada, Limited, GEC Alsthom International Canada Inc., GEC Alsthom Reseau de Vente Inc./GEC Ashom Sales Network Inc. and English Electric Company Limited (Defendants) and Acres International Limited and Racey, MacCallum and Associates Limited (Third Parties)

MacInnes J.

Judgment: November 2, 2001
Docket: Winnipeg Centre CI 93-01-70004

Counsel: *Rod E. Stephenson Q.C.*, *L. William Bowles*, for Plaintiff
Robert P. Sokalski, *J.A. Baigrie*, *H. Cholakis*, for Defendants, Inglis Co. Limited, Inglis Limited/Inglis Limitee
Kevin T. Williams, *Kyle Dear*, for Defendant, English Electric Company Limited
Kelly Dixon, for Third Party, Acres International Limited

Subject: Civil Practice and Procedure; Corporate and Commercial; Contracts
Headnote
Corporations --- Practice and procedure in actions involving corporations — Discovery — Interrogatories
Defendant corporation produced representative for examination — Plaintiff first served interrogatories in order to focus and shorten oral examination — Defendant refused to answer many questions — Plaintiff brought motion for order to answer questions — Motion granted — Interrogatories under Manitoba Rules are no different than oral examination for discovery — In either case, party has obligation to correct any answers later discovered to be incorrect or incomplete — Person being examined as representative of corporation has duty to make reasonable efforts to inform himself — Queen's Bench Rules, Man. Reg. 553/88, R. 31.02, 31.03(2), 31.04(2), 31.09.
Practice --- Discovery — Examination for discovery by interrogatories — Range of discovery by interrogatories — What may be asked
Plaintiff served interrogatories on defendants — Defendants refused to answer many of questions — Plaintiff brought motion for order to answer questions — Motion granted — Interrogatories under Manitoba Rules are no different than oral examination for discovery — Plaintiff was entitled to disclosure of findings, opinions, and conclusions of any experts engaged by defendants — Rule applied to even provisional opinions — Defendants had obligation to correct any answers later discovered to be incorrect or incomplete — Queen's Bench Rules, Man. Reg. 553/88, R. 31.02, 31.04(2), 31.06.

MOTION by plaintiff for order that defendants provide answers and further and better answers to interrogatories.

***MacInnes J.*:**

1 Plaintiff moves for an order that the defendants John Inglis Co. Limited ("Inglis") and English Electric Company Limited ("English Electric") provide answers and/or further and better answers to interrogatories served by the plaintiff upon each of Inglis and English Electric.

2 This litigation relates to the design, manufacture and installation of certain turbine generator units at the plaintiff's generating station in Grand Rapids, Manitoba. The work was done pursuant to a contract between the plaintiff and

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Inglis executed January 28, 1963. Inglis in turn arranged for the involvement of English Electric in the project. The turbines were put into service in October 1965 and the completion certificate under the contract was issued by the plaintiff July 1, 1967. On March 10, 1992, an explosion occurred which seriously damaged the outer head cover on one of the turbines (unit 1), thereby allowing water and oil to escape into the powerhouse of the generating station. The plaintiff alleges that its loss, suffered by reason of this occurrence, including loss of profits, totals approximately $30 million.

3 The litigation in question was commenced in 1993. For reasons I need not go into, the litigation has not proceeded swiftly. Indeed, it is only now at the examination for discovery stage with much time and work contemplated to complete discovery. While the issues in the litigation are not particularly difficult, the extensive passage of time since performance of the work has made the discovery process difficult from the standpoint of both production of records and documents, and the availability of knowledgeable or informed witnesses.

4 Inglis has examined for discovery a representative of the plaintiff. The examination has lasted 3 1/2 weeks and is not yet complete. Extensive undertakings are outstanding in respect of the questions asked so far. The plaintiff now wishes to examine Inglis for discovery. Inglis has chosen to produce a Mr. Davies as its representative for discovery, believing him to be the most knowledgeable person they are able to produce. Mr. Davies is now 74, retired and a resident of Salt Spring Island, British Columbia. While he is prepared to serve as Inglis' representative, he does not wish to travel to Winnipeg for examination and, accordingly, two weeks have been scheduled to examine him in Vancouver. This will necessitate the attendance of counsel and the shipment of volumes of documents from Winnipeg to Vancouver for purposes of the examination.

5 Plaintiff's counsel asserts that because of the foregoing, he felt it reasonable to serve interrogatories in advance of oral examination in an attempt to identify and receive evidence on some of the major issues between the parties so as hopefully to permit the oral examination to be more focused, brief and efficient.

6 The plaintiff asserts the existence of a relationship between Inglis and English Electric and the exchange between them of knowledge and information relative to the project. Accordingly, plaintiff's counsel considered it reasonable to serve interrogatories on English Electric as well.

7 As a result, interrogatories were served by the plaintiff upon both Inglis and English Electric. The interrogatories consist of 238 questions and are identical for each of Inglis and English Electric in the sense that the same questions are to be answered by each of them separately.

8 Inglis answered many of the questions asked, but objected to a large number and refused to answer them. No answers have yet been obtained from English Electric, but its counsel has provided an indication as to those questions which English Electric will answer as compared with those questions to which it objects.

9 Plaintiff then made the motion now before me seeking answers to those questions objected to by both Inglis and English Electric and seeking further and better answers to some of the questions which have been answered by Inglis.

10 At the hearing of the motion, many of the questions were resolved both as to the validity of objections made and as to whether further or better answers were required. Two issues, however, were left for resolution, namely:

(1) Whether there is an obligation upon an individual designated by a corporation to answer interrogatories, to inform himself in order to provide such answers; and

(2) Whether questions on interrogatories can elicit opinions of expert witnesses for the party being examined.

11 I reserved judgment on both issues and the following are my reasons for decision.

12 The focal point for the argument advanced by Inglis' counsel on these two issues is that interrogatories are different than examination for discovery. They argued that the interrogatories were served under Manitoba Queen's Bench Rule 35, that it is therefore the governing rule, and that there is no obligation under that rule for a person answering

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interrogatories to be required to inform himself, including in respect of the findings or opinions of experts. Inglis' counsel referred me to authorities as to the purpose and limits of interrogatories, including as to the obligation to inform oneself and as to the question whether one needs to ascertain and then relate by way of answer to interrogatories the findings or opinions of an expert.

13 I do not agree with or accept the submission of Inglis' counsel on either issue, or of English Electric's counsel which was confined to the second issue only. In my view, the reference point for deciding the issues in question are the Manitoba Queen's Bench Rules. While many of the authorities referred to me by counsel were interesting in providing an historical background to the nature, purpose and scope of interrogatories, none of the cases referred to me are binding upon this court, nor, in my view, are they consistent with the Manitoba Queen's Bench Rules as I interpret them.

14 The present Queen's Bench Rules came into force March 1, 1989 and were the first major revision of the Queen's Bench Rules in Manitoba since 1939. They are the product of extensive study by a committee of bench and bar and, while not identical to, were closely modeled upon the Ontario Rules of Civil Procedure which came into existence January 1, 1985. I conclude, therefore, that whatever may have been the law in Manitoba before March 1, 1989, after that date the new (now current) Queen's Bench Rules apply.

15 In deciding this motion, the following in my view are the rules relevant for consideration. Under Rule 31 entitled Examination for Discovery, the following sub-rules appear:

> 31.02 An examination for discovery may take the form of an oral examination or interrogatories or both.
>
> . . .
>
> 31.03(2) Where a corporation may be examined for discovery, the examining party may examine any person who is or has been an officer, director or employee on behalf of the corporation . . .
>
> . . .
>
> 31.04(2) A party who seeks to examine a defendant for discovery may serve a notice of examination under rule 34.04 or interrogatories under rule 35.01 . . .
>
> . . .
>
> 31.06(1) A person examined for discovery shall answer, to the best of the person's knowledge, information and belief, any proper question relating to any matter in issue in the action or to any matter made discoverable by subrules (2) to (4) and no question may be objected to on the ground that,
>
> (a) the information sought is evidence;
>
> . . .
>
> 31.06(3) A party may on an examination for discovery obtain disclosure of the findings, opinions and conclusions of an expert engaged by or on behalf of the party being examined that relate to a matter in issue in the action and of the expert's name and address, but the party being examined need not disclose the information or the name and address of the expert where,
>
> > (a) the findings, opinions and conclusions of the expert relating to any matter in issue in the action were made or formed in preparation for contemplated or pending litigation and for no other purpose; and
> >
> > (b) the party being examined undertakes not to call the expert as a witness at the trial.

16 In addition, I note that Rule 34 is entitled "Procedure On Oral Examinations" and Rule 35 "Procedure On Interrogatories". The rules also provide for a general ongoing undertaking that answers given, which subsequently are

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discovered either to be incorrect or incomplete, will be made correct or complete when so discovered (31.09), and for the production of expert reports (53).

17 I interpret Queen's Bench Rule 31.02 to mean just what is says, namely, that an examination for discovery may take the form of an oral examination or interrogatories or both. That is, interrogatories are not some separate kind of animal. Interrogatories are simply a form of examination for discovery. Rule 31 covers in a substantive way the essentials of examination for discovery, which includes both oral examination and interrogatories. Rules 34 and 35, on the other hand, provide for the process to be followed in embarking upon and completing either an oral examination or interrogatories, both or either as a method by which examination for discovery may be held.

18 I am fortified in my interpretation of Rule 31.02 by reference to Rule 31.04 (and in particular as it applies here, Rule 31.04(2)), which clearly in my view contemplates two different modes of examination for discovery, namely, serving a notice of examination (which pertains to oral examination) or interrogatories. In short, I conclude that Queen's Bench Rule 31 deals with substance of examination for discovery, whether oral examination or interrogatories, and Rule 35 is simply a rule of process pertaining to one of the forms by which examination for discovery may be conducted.

19 Having concluded then that interrogatories are simply a form of examination for discovery, I likewise conclude that whether by way of interrogatories or by way of oral examination, the obligation of a party being examined by way of interrogatories to inform himself and to answer questions as to the findings, opinions and conclusions of an expert, is the same. If it were otherwise, you would have the anomaly of examination by interrogatories being considerably restricted as to both scope and effectiveness compared to oral examinations, contrary to the prevailing mood and intent of broadening the scope of discovery and disclosure so as to avoid surprises at trial, and to enable litigants at an earlier time to more reliably assess their positions in the hope and expectation that this may result in earlier and therefore less costly resolution of disputes. What is the logical or principled reason for a former employee offered as a corporate representative being required to inform himself by inquiry of company records and other past employees or as regards the findings, opinion and conclusions of an expert, if either can reasonably be done, for purposes of oral examination but not for purposes of interrogatories?

20 As regards the obligation to inform oneself, I note the comments of Master Peppiatt in *Air Canada v. McDonnell Douglas Corp.* (1995), 22 O.R. (3d) 140 (Ont. Master), at 152 where he wrote:

> It is the obligation of any person who is to be examined for discovery to prepare himself or herself to answer questions which may reasonably be expected to be asked. This is particularly so where, as here, the person is being examined on behalf of a large corporation in respect of the matter which engaged the attention of a considerable number of people. It is a well-established principle that the person to be examined must make reasonable inquiries of fellow servants of the corporation.

At p. 153 of the reported decision, Master Peppiatt refers to *Gravlev v. Venturetek International Ltd.* (1979), 15 C.P.C. 18 (Ont. H.C.), and to the comments of Steele J. who wrote at pp. 23 - 25:

> The fact that the persons are no longer employees or servants of the Company is not, in my opinion, grounds for refusing to attempt to obtain the information.
>
> . . .
>
> Merely because a person becomes a former employee does not excuse the plaintiff from attempting to obtain information from him. The test really is that the plaintiff is bound to obtain the information from such former agents or servants unless he can show that it would be unreasonable to require him to do so. The test is not whether such employee is still within the control of the plaintiff but whether it is unreasonable to require him to inform himself. It may be that if the plaintiff cannot obtain information from a former employee no longer under his control he will be excused from answering the question, but that is a secondary matter and not the primary matter.

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. . .

In the present case, all of the persons from whom information may be obtained are still available and there is no evidence to indicate that they will not supply the information to the plaintiff.

. . .

The test is that the party being examined must inform himself unless it would be unreasonable to require him so to do. I am of the opinion that it is not unreasonable to require the plaintiff to do so in the present case. Obviously, if the persons from whom he must obtain the information are not available or refuse to give him information, the matter would have to be considered further, but he should be required to attempt to obtain the information in the first instance.

21 Having concluded that interrogatories are simply a form of examination for discovery and not, as Inglis' counsel argued, something distinct from examination for discovery, it follows that the obligation to inform oneself in respect of interrogatories is the same as in respect of oral examination, as succinctly described in *Air Canada* (supra).

22 I appreciate in the circumstances of this case that it may be extremely difficult, costly and ultimately impossible for the representatives of Inglis and English Electric to be able to obtain information of the kind one would consider satisfactory in most lawsuits. However, reasonable effort must first be made. Thereafter the parties may further litigate the extent of the effort required given the practicabilities of the case. For the present, however, there is no evidence before me as to the difficulty or expense which might be incurred in the examinee representative informing himself.

23 As regards the second issue, that is the extent if at all to which an examining party can examine in respect of expert opinions, it is my view that Rule 31.06(3) clearly provides that an examining party may obtain disclosure of the findings, opinions and conclusions of an expert engaged by or on behalf of the party being examined, provided of course that they relate to a matter in issue in the action. There is under Rule 31.06(3) an exclusion to that general proposition, but the circumstances of this case to my knowledge do not give rise to that exclusion. As well, the old objection that the question(s) sought evidence rather than fact no longer applies in light of Rule 31.06(1)(a). Furthermore, Rule 31.06(3) is clearly distinct from the intent and requirements of Rule 53, which relates to the service of an expert's report prior to trial.

24 In *Cheaney v. Peel Memorial Hospital* (1990), 44 C.P.C. (2d) 158 (Ont. Master), Master Clark at p. 162 wrote the following which in my view is applicable here:

. . . rule 31.06(3) deals with the disclosure of "findings, opinions and conclusions", which, according to the plain meaning of the Rule, and subject to the exemptions set out therein, must be disclosed on discovery if they exist, regardless of whether they have been transmitted orally or in writing, and whether or not counsel chooses to categorize such as preliminary or final.

25 In argument, there was an expression of concern as to the fact that the expert's opinion, by reason of the stage of the litigation, may be preliminary and subject to change. But, the rules provide for and contemplate just such a situation. Rule 31.09 requires that evidence given which subsequently is discovered to have been incorrect or incomplete when given, will be made correct or complete when so discovered.

26 At p. 163 of *Cheaney* (supra) Master Clark wrote:

It is not unheard of for "findings, opinions and conclusions" of an expert to change between the time of the original instructions from counsel and the date of the final report. . . . But a finding, or an opinion or a conclusion, is still that, even though it is reached at an early time in the process, and especially if it has been expressed to counsel. On discovery, counsel may only say he or she has no "findings, opinions or conclusions" to disclose if in fact, none have by that time been expressed to counsel by the expert. Counsel may not safely or properly avoid disclosure by

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describing the consultations as "discussions only", or as being "preliminary" or "informal" in nature. Once arrived at, a finding or an opinion or a conclusion exists, notwithstanding that it may change.

The test is this: if the finding is expressed in a sufficiently coherent manner that it can be used by counsel, then it is a "finding" that ought to be disclosed. The same applies to "opinions" and "conclusions". They may change, and change dramatically, but they still must be disclosed whenever they are formed. And it is the duty of counsel, as an officer of the court, to disclose those coherent "findings, opinions and conclusions" as they are disclosed to counsel. It is not proper practice to so construct the relationship of expert to counsel that no "findings, opinions, or conclusions" are expressed to counsel until the final written report is produced before trial.

The operation of rule 31.06(3) does not depend on the subjective judgment of counsel as to whether or not "findings, opinions or conclusions" are final or preliminary, or written or oral. Rather, the operation of the rule depends on the objective judgment of counsel as to whether his or her expert has expressed a coherent "finding, opinion or conclusion" that ought, in all fairness, to be disclosed.

If rule 31.06(3) required that "findings, opinions and conclusions" be in writing and be final before being disclosed, it would allow counsel to avoid all disclosure until forced by rule 53.03(1) to serve a report just before trial.

27 I note that the comments of Master Clark in *Cheaney* pertain to the Ontario Rules of Practice. However, the rules to which he refers are identical to Manitoba Rules 31.06(3), 31.09 and 53.03(1) respectively.

28 I conclude, therefore, that one may ask an examinee on discovery (i.e. whether by way of oral examination or interrogatories) to disclose and/or to make inquiries of an expert already retained in respect of, findings, conclusions or opinions that that expert then has relating to a matter in issue in the action, and such examinee is obligated to respond whether by reason of having already informed himself or by way of undertaking. However, it is not necessary for a party to go out and engage an expert so as to permit its representative to be able to answer questions put on examination for discovery, or to ask its expert to provide a new or fresh opinion not yet given in response to an examining party's question. Nor does the examinee have to ask his expert to comment or opine upon the theories or opinions advanced by examining counsel, such questions being cross-examination, not examination for discovery.

29 In light of the matters resolved at the hearing of the motion and of my decision expressed in these reasons, plaintiff has been substantially successful in its motion and is entitled to costs. If counsel are unable to agree as to costs, they may be spoken to.

Motion granted.

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TAB "B"

2008 SCC 9, 2008 CSC 9
Supreme Court of Canada

Dunsmuir v. New Brunswick

2008 CarswellNB 124, 2008 CarswellNB 125, 2008 SCC 9, 2008 CSC 9, [2008] 1 S.C.R. 190, [2008] A.C.S. No. 9, [2008] S.C.J. No. 9, 164 A.C.W.S. (3d) 727, 170 L.A.C. (4th) 1, 2008 C.L.L.C. 220-020, 291 D.L.R. (4th) 577, 329 N.B.R. (2d) 1, 372 N.R. 1, 64 C.C.E.L. (3d) 1, 69 Imm. L.R. (3d) 1, 69 Admin. L.R. (4th) 1, 844 A.P.R. 1, 95 L.C.R. 65, J.E. 2008-547, D.T.E. 2008T-223

David Dunsmuir (Appellant) v. Her Majesty the Queen in Right of the Province of New Brunswick as represented by Board of Management (Respondent)

McLachlin C.J.C., Bastarache, Binnie, LeBel, Deschamps, Fish, Abella, Charron, Rothstein JJ.

Heard: May 15, 2007
Judgment: March 7, 2008*
Docket: 31459

Proceedings: affirming *New Brunswick (Board of Management) v. Dunsmuir* (2006), 2006 CarswellNB 155, 2006 CarswellNB 156, 2006 NBCA 27, (sub nom. *Dunsmuir v. R.*) 2006 C.L.L.C. 220-030, 297 N.B.R. (2d) 151, 771 A.P.R. 151, 44 Admin. L.R. (4th) 92, 48 C.C.E.L. (3d) 196, 265 D.L.R. (4th) 609 (N.B. C.A.)**Proceedings: affirming *New Brunswick (Board of Management) v. Dunsmuir* (2005), 2005 NBQB 270, 2005 CarswellNB 444, 293 N.B.R. (2d) 5, 762 A.P.R. 5, 43 C.C.E.L. (3d) 205 (N.B. Q.B.)**

Counsel: J. Gordon Petrie, Q.C., Clarence L. Bennett for Appellant
C. Clyde Spinney, Q.C., Keith P. Mullin for Respondent

Subject: Labour; Employment; Public

Headnote

Labour and employment law --- Employment law — Termination and dismissal — Termination of employment by employer — Procedure on dismissal — Procedural fairness

Employee was employed by Province as legal officer and court clerk — Performance issues arose and employee was disciplined — Province later dismissed employee with four months' notice, and did not allege cause for dismissal — Employee grieved under Public Service Labour Relations Act ("PSLRA"), alleging that dismissal was actually for cause and he was not given opportunity to correct his performance prior to dismissal — After interpreting sections of PSLRA and Civil Service Act ("CSA"), adjudicator determined he had jurisdiction to inquire into reasons for employee's dismissal — Adjudicator held that employee was denied procedural fairness and reinstated him — Province applied successfully for judicial review — Application judge held that adjudicator was incorrect in finding that he had jurisdiction to inquire into true reasons for dismissal, and that adjudicator erred in ruling that employee had been denied procedural fairness — Employee unsuccessfully appealed to Court of Appeal — Employee appealed to Supreme Court of Canada — Appeal dismissed — Adjudicator's decision was correctly struck down on judicial review — Adjudicator erred in his application of duty of fairness by imposing procedural fairness requirements on Province over and above its contractual obligations and ordering reinstatement — Employee was contractual employee of Province as well as public office holder — Section 20 of CSA provided that, as civil servant, employee could only be dismissed in accordance with ordinary rules of contract — It was unnecessary to consider public law duty of procedural fairness — Employee was protected by contract and was able to obtain contractual remedies related to dismissal.

Labour and employment law --- Employment law — Termination and dismissal — Practice and procedure — Judicial review of adjudicative decisions

Labour and employment law --- Public service employees — Termination of employment — Practice and procedure

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Jurisdiction of adjudicator to inquire into reasons underlying dismissal where no cause is alleged — Employee was employed by Province as legal officer and court clerk — Performance issues arose and employee was disciplined — Province later dismissed employee with four months' notice, and did not allege cause for dismissal — Employee grieved under Public Service Labour Relations Act ("PSLRA"), alleging that dismissal was actually for cause, and he was not given opportunity to correct his performance prior to dismissal — After interpreting sections of PSLRA and Civil Service Act, adjudicator determined he had jurisdiction to inquire into reasons for employee's dismissal — Adjudicator held that employee was denied procedural fairness and reinstated him, but provisionally assessed notice period to be eight months — Province applied successfully for judicial review — Application judge held that adjudicator lacked jurisdiction to inquire into true reasons for dismissal, and that adjudicator erred in ruling that employee had been denied procedural fairness — Employee unsuccessfully appealed to Court of Appeal — Employee appealed to Supreme Court of Canada — Appeal dismissed — Adjudicator's decision regarding his jurisdiction was not reasonable — Adjudicator adopted fatally flawed reasoning process that was inconsistent with employment contract by giving PSLRA interpretation that allowed him to inquire into reasons for dismissal when employer had right not to provide such reasons — Combined effect of PSLRA sections could not, on any reasonable interpretation, remove employer's right under contract law to discharge employee with reasonable notice or pay in lieu.

Labour and employment law --- Public service employees — Appeal and judicial review — Standard of review

Decision of adjudicator — Employee was employed by Province as legal officer and court clerk — Performance issues arose and employee was disciplined — Province later dismissed employee with four months' notice, and did not allege cause for dismissal — Employee grieved under Public Service Labour Relations Act ("PSLRA"), alleging that dismissal was actually for cause and he was not given opportunity to correct his performance prior to dismissal — After interpreting section of PSLRA and Civil Service Act ("CSA"), adjudicator determined he had jurisdiction to inquire into reasons for employee's dismissal — Adjudicator held that employee was denied procedural fairness and reinstated him — Province applied successfully for judicial review — Application judge held that adjudicator was incorrect in concluding that he had jurisdiction to inquire into true reasons for dismissal, and that adjudicator erred in ruling that employee had been denied procedural fairness — Employee unsuccessfully appealed to Court of Appeal — Employee appealed to Supreme Court of Canada — Appeal dismissed — Appropriate standard of review of adjudicator's interpretation of PSLRA and s. 20 of CSA was reasonableness — Question was whether PSLRA sections permitted adjudicator to inquire into employer's reasons for dismissing employee with notice or pay in lieu, which was question of law — Inclusion of full privative clause in PSLRA gave rise to strong indication that reasonableness standard of review should apply — Nature of question was not of central importance to legal system and outside specialized expertise of adjudicator, which also suggested reasonableness standard of review.

Administrative law --- Standard of review — General principles

Employee was employed by Province as legal officer and court clerk — Performance issues arose and employee was disciplined — Province later dismissed employee with four months' notice, and did not allege cause for dismissal — Employee grieved under Public Service Labour Relations Act, alleging that dismissal was actually for cause and he was not given opportunity to correct his performance prior to dismissal — Adjudicator held that employee was denied procedural fairness and reinstated him — Province applied successfully for judicial review — Application judge held that adjudicator's decision on merits failed to meet reasonableness standard of review — Application judge held that adjudicator's jurisdiction in circumstances was limited to assessing reasonableness of notice period — Employee unsuccessfully appealed to Court of Appeal — Employee appealed to Supreme Court of Canada — Appeal dismissed — It was necessary to reconsider both number and definitions of various standards of review, and analytical process employed to determine which standard applies in a given situation — Analytical problems that arose in trying to apply different standards of review undercut any conceptual usefulness created by inherently greater flexibility of having multiple standards of review — Two variants of reasonableness review, reasonableness simpliciter and patent unreasonableness, should be collapsed into single form of "reasonableness" review — Result was system of judicial review comprising two standards: correctness and reasonableness.

Labour and employment law --- Public service employees — Termination of employment — Dismissal — Common law right to dismiss at pleasure

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Distinction between office holder and contractual employee — Employee was employed by Province as legal officer and court clerk — Performance issues arose and employee was disciplined — Province later dismissed employee with four months' notice, and did not allege cause for dismissal — Employee grieved under Public Service Labour Relations Act, alleging that dismissal was actually for cause and he was not given opportunity to correct his performance prior to dismissal — Adjudicator held that employee was denied procedural fairness and reinstated him, but provisionally assessed notice period to be eight months — Province applied successfully for judicial review — Application judge held that adjudicator's decision failed to meet reasonableness standard of review — Application judge held that adjudicator's jurisdiction in circumstances was limited to assessing reasonableness of notice period — Employee unsuccessfully appealed to Court of Appeal — Employee appealed to Supreme Court of Canada — Appeal dismissed — Distinction between office holder and contractual employee for purposes of public law duty of fairness was problematic and should be done away with — Distinction was difficult to apply in practice and did not correspond with justifications for imposing public law procedural fairness requirements — Where relationship is contractual, it should be viewed as any other private law employment relationship regardless of an employee's status as office holder — Public authority which dismisses employee pursuant to contract of employment should not be subject to any additional public law duty of fairness — Where public employee is protected from wrongful dismissal by contract, his or her remedy should be in private law.

Droit du travail et de l'emploi --- Droit de l'emploi — Cessation et licenciement — Cessation de l'emploi par l'employeur — Procédure au moment du licenciement — Équité procédurale

Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère ») — Rendement de l'employé a été remis en question et l'employé a été réprimandé — Ministère a, par la suite, congédié l'employé sans motif moyennant un préavis de quatre mois — Employé a déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'en fait, il avait été congédié pour une raison mais qu'il n'avait pas eu la chance de corriger son rendement avant d'être congédié — Après avoir interprété des dispositions de la LRTSP et de la Loi sur la Fonction publique (« LFP »), l'arbitre a conclu qu'il avait compétence pour s'enquérir des raisons de la cessation d'emploi de l'employé — Arbitre a conclu que l'employé n'avait pas eu droit à l'équité procédurale et l'a réintégré — Ministère a déposé une demande de contrôle judiciaire avec succès — Juge de révision a conclu que l'arbitre avait erré en concluant qu'il avait compétence pour s'enquérir des raisons véritables du congédiement et en statuant que l'employé n'avait pas eu droit à l'équité procédurale — Employé a interjeté appel sans succès — Employé a formé un pourvoi devant la Cour suprême du Canada — Pourvoi rejeté — Cour de révision a annulé à bon droit la décision de l'arbitre — Arbitre a erré dans son application de l'obligation d'équité en imposant au ministère des exigeances d'équité procédurale allant au-delà des obligations contractuelles de ce dernier et en ordonnant la réintégration de l'employé — Employé était à la fois titulaire d'une charge publique et employé contractuel du ministère — Article 20 de la LFP prévoyait qu'à titre de fonctionnaire, il ne pouvait être congédié que suivant les règles contractuelles ordinaires — Il n'était pas nécessaire de tenir compte de quelque obligation d'équité procédurale que ce soit en droit public — Employé était protégé par un contrat et a pu obtenir des mesures de réparation de nature contractuelle en liaison avec son congédiement.

Droit du travail et de l'emploi --- Droit de l'emploi — Cessation et licenciement — Procédure — Révision judiciaire d'une sentence arbitrale

Droit du travail et de l'emploi --- Fonctionnaires — Cessation d'emploi — Procédure

Compétence d'un arbitre pour s'enquérir des raisons d'un congédiement sans cause alléguée — Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère ») — Rendement de l'employé a été remis en question et l'employé a été réprimandé — Ministère a, par la suite, congédié l'employé sans motif moyennant un préavis de quatre mois — Employé a déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'en fait, il avait été congédié pour une raison mais qu'il n'avait pas eu la chance de corriger son rendement avant d'être congédié — Après avoir interprété des dispositions de la LRTSP et de la Loi sur la Fonction publique (« LFP »), l'arbitre a conclu qu'il avait compétence pour s'enquérir des raisons de la cessation d'emploi de l'employé — Arbitre a conclu que l'employé n'avait pas eu droit à l'équité procédurale et l'a réintégré, mais a subsidiairement évalué la période de préavis à huit mois — Ministère a déposé une demande de contrôle judiciaire avec succès — Juge de révision a conclu que l'arbitre n'avait pas compétence pour s'enquérir des raisons véritables du congédiement et avait erré en statuant que l'employé n'avait pas eu droit à l'équité procédurale — Employé a interjeté appel sans succès — Employé a formé un pourvoi devant la Cour suprême du Canada — Pourvoi rejeté — Décision de

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l'arbitre concernant sa compétence n'était pas raisonnable — En concluant que la LRTSP lui permettait de rechercher les motifs du congédiement, alors que l'employeur avait le droit de ne pas les préciser, l'arbitre a tenu un raisonnement foncièrement incompatible avec le contrat d'emploi et, de ce fait, entaché d'un vice fatal — Application concomitante des dispositions de la LRTSP ne saurait raisonnablement supprimer le droit contractuel de l'employeur de congédier un employé avec préavis raisonnable ou indemnité en tenant lieu.

Droit du travail et de l'emploi --- Fonctionnaires — Appel et contrôle judiciaire — Norme de contrôle

Sentence arbitrale — Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère ») — Rendement de l'employé a été remis en question et l'employé a été réprimandé — Ministère a, par la suite, congédié l'employé sans motif moyennant un préavis de quatre mois — Employé a déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'en fait, il avait été congédié pour une raison mais qu'il n'avait pas eu la chance de corriger son rendement avant d'être congédié — Après avoir interprété des dispositions de la LRTSP et de la Loi sur la Fonction publique (« LFP »), l'arbitre a conclu qu'il avait compétence pour s'enquérir des raisons de la cessation d'emploi de l'employé — Arbitre a conclu que l'employé n'avait pas eu droit à l'équité procédurale et l'a réintégré — Ministère a déposé une demande de contrôle judiciaire avec succès — Juge de révision a conclu que l'arbitre avait erré en concluant qu'il avait compétence pour s'enquérir des raisons véritables du congédiement et en statuant que l'employé n'avait pas eu droit à l'équité procédurale — Employé a interjeté appel sans succès — Employé a formé un pourvoi devant la Cour suprême du Canada — Pourvoi rejeté — Interprétation de la LRTSP et de l'art. 20 de la LFP par l'arbitre devait être révisée selon la norme de la décision raisonnable — Question de savoir si les dispositions de la LRTSP autorisaient l'arbitre à s'enquérir des motifs du congédiement de l'employé avec préavis ou indemnité en tenant lieu était une question de droit — Présence d'une clause privative dans la LRTSP militait clairement en faveur d'un contrôle selon la norme de la décision raisonnable — De par sa nature, la question ne revêtait pas une importance capitale pour le système juridique et n'était pas étrangère au domaine d'expertise de l'arbitre, ce qui favorisait encore le critère de la décision raisonnable.

Droit administratif --- Norme de contrôle — Principes généraux

Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère ») — Rendement de l'employé a été remis en question et l'employé a été réprimandé — Ministère a, par la suite, congédié l'employé sans motif moyennant un préavis de quatre mois — Employé a déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'en fait, il avait été congédié pour une raison mais qu'il n'avait pas eu la chance de corriger son rendement avant d'être congédié — Arbitre a conclu que l'employé n'avait pas eu droit à l'équité procédurale et l'a réintégré — Ministère a déposé une demande de contrôle judiciaire avec succès — Juge de révision a conclu que la sentence arbitrale, quant au fond de l'affaire, ne satisfaisait pas à la norme de la décision raisonnable — Juge de révision a conclu que, dans les circonstances, le rôle de l'arbitre se limitait à l'examen de la durée du préavis — Employé a interjeté appel sans succès — Employé a formé un pourvoi devant la Cour suprême du Canada — Pourvoi rejeté — Il était nécessaire de repenser tant le nombre que la teneur des normes de contrôle, ainsi que la démarche analytique qui présidait à la détermination de la norme applicable — Difficultés analytiques soulevées par l'application des différentes normes réduisaient à néant toute utilité conceptuelle découlant de la plus grande souplesse propre à l'existence de normes de contrôle multiples — Il y avait lieu de fondre en une seule les deux normes de « raisonnabilité », à savoir la norme de la décision raisonnable simpliciter et la norme de la décision manifestement déraisonnable — Il en résultait un mécanisme de contrôle judiciaire emportant l'application de deux normes : celle de la décision correcte et celle de la décision raisonnable.

Droit du travail et de l'emploi --- Fonctionnaires — Cessation d'emploi — Congédiement — Droit issu de la Common Law permettant de congédier à volonté

Distinction entre l'employé titulaire d'une fonction et l'employé contractuel — Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère ») — Rendement de l'employé a été remis en question et l'employé a été réprimandé — Ministère a, par la suite, congédié l'employé sans motif moyennant un préavis de quatre mois — Employé a déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'en fait, il avait été congédié pour une raison mais qu'il n'avait pas eu la chance de corriger son rendement avant d'être congédié — Arbitre a conclu que l'employé n'avait pas eu droit à l'équité procédurale et l'a réintégré, mais a subsidiairement évalué la période de préavis à huit mois — Ministère a déposé une demande de contrôle

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judiciaire avec succès — Juge de révision a conclu que la sentence arbitrale ne satisfaisait pas à la norme de la décision raisonnable — Juge de révision a conclu que, dans les circonstances, le rôle de l'arbitre se limitait à l'examen de la durée du préavis — Employé a interjeté appel sans succès — Employé a formé un pourvoi devant la Cour suprême du Canada — Pourvoi rejeté — Établissement d'une distinction entre l'employé titulaire d'une fonction et l'employé contractuel pour les besoins de l'obligation d'équité posait problème en droit public et devrait être abandonné — Distinction était difficile à établir dans les faits et était sans corrélation avec la raison d'être de l'imposition de l'obligation d'équité procédurale — Lorsque la nature de la relation d'emploi est contractuelle, elle doit être considérée comme toute autre relation d'emploi assujettie au droit privé, même lorsque l'employé est titulaire d'une charge — Organisme public qui renvoie un employé en application d'un contrat d'emploi ne devrait pas être assujetti en outre à une obligation d'équité reconnue en droit public — Fonctionnaire qu'un contrat protège contre le congédiement injuste devait exercer un recours en droit privé.

The employee was employed as a court clerk and legal officer by the provincial Department of Justice (Province). Performance issues arose and the employee was reprimanded. While preparing for the employee's performance review, the Province concluded that the employee was not right for the job. The Province cancelled the meeting and purported to dismiss the employee without cause on reasonable notice pursuant to s. 20 of the Civil Service Act (CSA).

The employee unsuccessfully grieved under the Public Service Labour Relations Act (PSLRA), claiming that he was dismissed without procedural fairness as the Province gave no reasons for its dissatisfaction with his performance, and he had no opportunity to respond to the concerns. The grievance was referred to adjudication. A preliminary issue arose as to whether the adjudicator was authorized to assess the reasons underlying the decision to dismiss, as cause was not alleged. The adjudicator held that the employee was entitled to adjudication as to whether the dismissal with notice was in fact for cause, and found he had jurisdiction to consider the merits. The adjudicator found that the dismissal was not disciplinary.

The adjudicator noted that the employee's employment was "hybrid in character" as he was a legal officer under the CSA and an office holder at pleasure as court clerk. The adjudicator held that the employee was entitled to procedural fairness, and declared the termination void ab initio. The adjudicator ordered reinstatement, but provisionally assessed the notice period at eight months. The Province applied for judicial review.

The application judge held that a correctness standard of review applied to the preliminary issue. The application judge ruled that the adjudicator had overlooked the effects of s. 20 of the CSA and had misinterpreted certain procedural sections of the PSLRA, giving them a substantive interpretation. The application judge held that the adjudicator lacked jurisdiction to inquire into the reasons for dismissal, and quashed his preliminary ruling.

The application judge held that the adjudicator's reasons for his decision on the merits did not meet a reasonableness simpliciter standard of review, so that the reinstatement award could not stand. It was held that the employee received procedural fairness due to the grievance hearing. The reinstatement order was quashed, but the provisional award of eight months' notice was upheld. The employee appealed.

The Court of Appeal held that the application judge had erred in adopting a correctness standard of review of the adjudicator's preliminary decision. The Court of Appeal found that a reasonableness standard of review applied to the adjudicator's decisions, and held that the decisions were unreasonable. The appeal was dismissed. The employee appealed to the Supreme Court of Canada.

Held: The appeal was dismissed.

Bastarache, LeBel JJ. (McLachlin C.J.C., Fish, Abella JJ. concurring): It was necessary to reconsider the number and definitions of the various standards of review, and the analytical process employed to determine which standard applies in a given situation. The analytical problems that arise in trying to apply the different standards undercut any conceptual usefulness created by the inherently greater flexibility of having multiple standards of review. The two variants of reasonableness review should be collapsed into a single form of "reasonableness" review. The result is a system of judicial review comprising two standards — correctness and reasonableness.

The appropriate standard of review of the adjudicator's interpretation of the PSLRA and s. 20 of the CSA was reasonableness. The question of whether the PSLRA sections permitted the adjudicator to inquire into the employer's reasons for dismissal of the employee with notice was a question of law. The legislative regime and purpose, and the inclusion of a full privative clause in the PSLRA, favoured a standard of reasonableness. The nature of the question

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was not of central importance to the legal system and outside the specialized expertise of the adjudicator, which also suggested a reasonableness standard.

The preliminary decision was unreasonable. By giving the PSLRA an interpretation that allowed him to inquire into the reasons for discharge when the Province had the right not to provide, or even have, such reasons, the adjudicator adopted a reasoning process that was fundamentally inconsistent with the employment contract and fatally flawed. The adjudicator's decision treated the employee as a unionized employee when he was not. The combined effect of the PSLRA sections could not, on any reasonable interpretation, remove the employer's right under contract law to discharge an employee with reasonable notice or pay in lieu.

The adjudicator's decision was correctly struck down on judicial review. The employee was a contractual employee of the Province in addition to being a public office holder. Section 20 of the CSA provides that, as a civil servant, he could only be dismissed in accordance with the ordinary rules of contract. In the circumstances, it was unnecessary to consider any public law duty of fairness. The Province was fully within its rights to dismiss the employee without a hearing with pay in lieu of notice. The employee was able to obtain contractual remedies for his dismissal.

Binnie, J. (concurring): The appeal should be dismissed. The employee's employment relationship with the Province was governed by contract. The Province chose to exercise its right to dismiss the employee without alleging cause. The adjudicator adopted an unreasonable interpretation of s. 20 of the CSA and of the PSLRA sections. The employee was not unionized, and his employment was terminated in accordance with contract law. Public law principles of fairness were not applicable.

The need for a re-examination of the Canadian approach to judicial review of administrative decision is widely recognized, but the majority's reasons did not deal with the system as a whole: they focused on administrative tribunals. In that context they reduced the applicable standards from three to two, but retained the pragmatic and functional analysis, although it is now to be called the standard of review analysis. A broader reappraisal is called for. The present "pragmatic and functional" approach is more complicated than is required by the subject matter.

Deschamps, J. (concurring): The appeal should be dismissed. The majority's decision on the issue of natural justice was agreed with.

Since the common law, not the adjudicator's enabling statute, was the starting point of the analysis, and since the adjudicator did not have specific expertise in interpreting the common law, the reviewing court did not have to defer to his decision on the basis of his expertise. The standard of review was correctness.

In the case at bar, the adjudicator's role was limited to evaluating the length of notice. The adjudicator erred in his interpretation and application of the PSLRA sections, and overlooked common law rules. The adjudicator did not even consider the common law rules. Even if deference had been owed to the adjudicator, his interpretation could not have stood.

Employé travaillait comme conseiller juridique et greffier pour un ministère de la Justice provincial (« ministère »). Le rendement de l'employé a été remis en question et l'employé a été réprimandé. En préparant l'évaluation de rendement de l'employé, le ministère s'est rendu compte qu'il n'était pas fait pour le travail. Le ministère a annulé la rencontre et a pris la décision de mettre fin à l'emploi de l'employé sans motif moyennant un préavis raisonnable, conformément à l'art. 20 de la Loi sur la Fonction publique (« LFP »).

L'employé a vainement déposé un grief en vertu de la Loi relative aux relations de travail dans les services publics (« LRTSP »), alléguant qu'il avait été congédié au mépris de l'équité procédurale en raison du fait que le ministère ne lui avait pas précisé ses motifs d'insatisfaction relativement à son rendement et qu'il n'avait pas eu la chance de répondre aux reproches. Le grief a fait l'objet d'un arbitrage. S'est alors posé la question préjudicielle de savoir si l'arbitre était autorisé à déterminer les raisons de la décision du ministère de mettre fin à l'emploi, puisque les motifs de congédiement n'avaient pas été révélés. L'arbitre a statué que l'employé avait droit à une décision arbitrale quant à savoir si son congédiement avec préavis constituait en fait un congédiement pour motif et a conclu qu'il avait compétence pour rendre pareille décision. L'arbitre a conclu que le congédiement n'était pas de nature disciplinaire.

L'arbitre a relevé la « nature hybride » de l'emploi de l'employé qui était à la fois conseiller juridique soumis à la LFP et greffier nommé à titre amovible. L'arbitre a conclu que l'employé avait droit à l'équité procédurale et a déclaré nulle ab initio la cessation d'emploi. L'arbitre a ordonné la réintégration de l'employé dans ses fonctions et a jugé que ce dernier, subsidiairement, aurait droit à un préavis de huit mois. Le ministère a demandé un contrôle judiciaire.

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Le juge de révision a estimé que la norme de la décision correcte s'appliquait à la question préjudicielle. Le juge de révision a statué que l'arbitre n'avait pas tenu compte de la portée de l'art. 20 de la LFP et avait considéré à tort certains articles de la LRTSP comme des dispositions substantielles plutôt que procédurales. Le juge de révision a conclu que l'arbitre n'avait pas compétence pour s'enquérir des motifs de la cessation d'emploi et a annulé sa décision sur la question préjudicielle. Le juge de révision a conclu que les motifs de l'arbitre en ce qui a trait à la sentence arbitrale sur le fond ne satisfaisaient pas la norme de la décision raisonnable simpliciter et, qu'en conséquence, l'ordonnance de réintégration devait être annulée. Il a également conclu que l'employé avait bénéficié de l'équité procédurale du fait de l'audition de son grief par l'arbitre. L'ordonnance de réintégration a été annulée mais la décision subsidiaire portant à huit mois le préavis requis a été confirmée. L'employé a interjeté appel.

La Cour d'appel a statué que le juge de révision avait erré en appliquant la norme de la décision correcte à la décision de l'arbitre sur la question préjudicielle. La Cour d'appel était d'avis que la norme de la décision raisonnable s'appliquait aux décisions de l'arbitre et a conclu que ces décisions n'étaient pas raisonnables. L'appel a été rejeté. L'employé a formé un pourvoi devant la Cour suprême du Canada.

Arrêt: Le pourvoi a été rejeté.

Bastarache, LeBel, JJ. (McLachlin, J.C.C., Fish, Abella, JJ., souscrivant à leur opinion): Il était nécessaire de repenser tant le nombre que la teneur des normes de contrôle, ainsi que la démarche analytique qui présidait à la détermination de la norme applicable. Les difficultés analytiques soulevées par l'application des différentes normes réduisaient à néant toute utilité conceptuelle découlant de la plus grande souplesse propre à l'existence de normes de contrôle multiples. Il y avait lieu de fondre en une seule les deux normes de raisonnabilité. Il en résultait un mécanisme de contrôle judiciaire emportant l'application de deux normes : celle de la décision correcte et celle de la décision raisonnable.

L'interprétation de la LRTSP et de l'art. 20 de la LFP par l'arbitre devait être révisée selon la norme de la décision raisonnable. La question de savoir si les dispositions de la LRTSP autorisaient l'arbitre à s'enquérir des motifs du congédiement de l'employé avec préavis était une question de droit. Le régime et l'objectif législatif, ainsi que la présence d'une clause privative dans la LRTSP, militaient en faveur d'un contrôle selon la norme de la décision raisonnable. De par sa nature, la question ne revêtait pas une importance capitale pour le système juridique et n'était pas étrangère au domaine d'expertise de l'arbitre, ce qui favorisait encore le critère de la décision raisonnable.

La décision relative à la question préjudicielle n'était pas raisonnable. En concluant que la LRTSP lui permettait de rechercher les motifs du congédiement, alors que l'employeur avait le droit de ne pas les préciser, et même, de ne pas en avoir, l'arbitre a tenu un raisonnement foncièrement incompatible avec le contrat d'emploi et, de ce fait, entaché d'un vice fatal. Dans sa décision, l'arbitre a considéré l'employé comme un employé syndiqué alors qu'il n'en était pas un. L'application concomitante des dispositions de la LRTSP ne saurait donc raisonnablement supprimer le droit contractuel de l'employeur de congédier un employé avec préavis raisonnable ou indemnité en tenant lieu.

La cour de révision a annulé à bon droit la décision de l'arbitre. L'employé était à la fois titulaire d'une charge publique et employé contractuel du ministère. L'article 20 de la LFP prévoit qu'à titre de fonctionnaire, il ne pouvait être congédié que suivant les règles contractuelles ordinaires. Dans les circonstances, il n'était pas nécessaire de tenir compte de quelque obligation d'équité procédurale en droit public que ce soit. Le ministère pouvait parfaitement congédier l'employé en lui versant une indemnité tenant lieu de préavis, sans lui offrir la possibilité d'être entendu. L'employé a pu obtenir des mesures de réparation de nature contractuelle en liaison avec son congédiement.

Binnie, J. (souscrivant à l'opinion de la majorité) : Le pourvoi devrait être rejeté. Le lien d'emploi entre l'employé et la ministère était régi par un contrat. Le ministère a choisi d'exercer son droit de mettre fin à l'emploi de l'employé sans invoquer de motif. L'arbitre a interprété l'art. 20 de la LFP ainsi que les dispositions de la LRTSP d'une manière déraisonnable. L'employé était un employé non syndiqué, et le ministère a mis fin à son emploi conformément au droit contractuel. Les principes du droit public relatifs à l'équité procédurale ne s'appliquaient pas dans les circonstances.

La nécessité d'un réexamen du contrôle judiciaire des décisions administratives au Canada est largement reconnue, mais les motifs des juges majoritaires ne s'attaquaient pas au mécanisme dans son ensemble : leurs motifs visaient les tribunaux administratifs. Dans ce contexte, ils ramenaient le nombre de normes de contrôle applicables de trois à deux, mais conservaient l'analyse pragmatique et fonctionnelle, rebaptisée « analyse relative à la norme de contrôle ». Une réévaluation plus vaste s'imposait. L'actuelle analyse « pragmatique et fonctionnelle » est plus compliquée qu'elle ne le devrait.

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Deschamps, J. (Charron, Rothstein, JJ., souscrivant à l'opinion de la majorité): Le pourvoi devrait être rejeté. La décision de la majorité concernant le respect de la justice naturelle était bien fondée.
La décision ne commandait pas la retenue, car c'était la Common Law, et non la loi habilitante, qui était le point de départ de l'analyse et l'arbitre ne possédait en ce domaine aucune expertise particulière. La norme de contrôle applicable était celle de la décision correcte.
En l'espèce, le rôle de l'arbitre se limitait à l'examen de la durée du préavis. Il a eu tort dans son interprétation et son application dispositions de la LRTSP et a ignoré les règles de la Common Law. L'arbitre n'a même pas envisagé les règles de la common law. Même si l'arbitre avait eu droit à la déférence, son interprétation n'aurait pu être retenue.

APPEAL by employee from judgment reported at *New Brunswick (Board of Management) v. Dunsmuir* (2006), 2006 CarswellNB 155, 2006 CarswellNB 156, 2006 NBCA 27, (sub nom. *Dunsmuir v. R.*) 2006 C.L.L.C. 220-030, 297 N.B.R. (2d) 151, 771 A.P.R. 151, 44 Admin. L.R. (4th) 92, 48 C.C.E.L. (3d) 196, 265 D.L.R. (4th) 609 (N.B. C.A.), dismissing employee's appeal from decision allowing employer's application for judicial review.

POURVOI formé par un employé à l'encontre d'un jugement publié à*New Brunswick (Board of Management) v. Dunsmuir* (2006), 2006 CarswellNB 155, 2006 CarswellNB 156, 2006 NBCA 27, (sub nom. *Dunsmuir v. R.*) 2006 C.L.L.C. 220-030, 297 N.B.R. (2d) 151, 771 A.P.R. 151, 44 Admin. L.R. (4th) 92, 48 C.C.E.L. (3d) 196, 265 D.L.R. (4th) 609 (N.B. C.A.), ayant rejeté l'appel interjeté par l'employé à l'encontre d'une décision ayant accueilli la demande de contrôle judiciaire de l'employeur.

Bastarache, LeBel JJ.:

I. Introduction

1 This appeal calls on the Court to consider, once again, the troubling question of the approach to be taken in judicial review of decisions of administrative tribunals. The recent history of judicial review in Canada has been marked by ebbs and flows of deference, confounding tests and new words for old problems, but no solutions that provide real guidance for litigants, counsel, administrative decision makers or judicial review judges. The time has arrived for a reassessment of the question.

A. Facts

2 The appellant, David Dunsmuir, was employed by the Department of Justice for the Province of New Brunswick. His employment began on February 25, 2002, as a Legal Officer in the Fredericton Court Services Branch. The appellant was placed on an initial six-month probationary term. On March 14, 2002, by Order-in-Council, he was appointed to the offices of Clerk of the Court of Queen's Bench, Trial Division, Administrator of the Court of Queen's Bench, Family Division, and Clerk of the Probate Court of New Brunswick, all for the Judicial District of Fredericton.

3 The employment relationship was not perfect. The appellant's probationary period was extended twice, to the maximum 12 months. At the end of each probationary period, the appellant was given a performance review. The first such review, which occurred in August 2002, identified four specific areas for improvement. The second review, three months later, cited the same four areas for development, but noted improvements in two. At the end of the third probationary period, the Regional Director of Court Services noted that the appellant had met all expectations and his employment was continued on a permanent basis.

4 The employer reprimanded the appellant on three separate occasions during the course of his employment. The first incident occurred in July 2002. The appellant had sent an email to the Chief Justice of the Court of Queen's Bench objecting to a request that had been made by the judge of the Fredericton Judicial District for the preparation of a practice directive. The Regional Director issued a reprimand letter to the appellant, explaining that the means he had used to raise his concerns were inappropriate and exhibited serious error in judgment. In the event that a similar concern arose in the future, he was directed to discuss the matter first with the Registrar or the Regional Director. The letter warned that failure to comply would lead to additional disciplinary measures and, if necessary, to dismissal.

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42 Moreover, even if one could conceive of a situation in which a clearly or highly irrational decision were distinguishable from a merely irrational decision, it would be unpalatable to require parties to accept an irrational decision simply because, on a deferential standard, the irrationality of the decision is not clear *enough*. It is also inconsistent with the rule of law to retain an irrational decision. As LeBel J. explained in his concurring reasons in *Toronto (City) v. C.U.P.E., Local 79*, at para. 108:

> In the end, the essential question remains the same under both standards: was the decision of the adjudicator taken in accordance with reason? Where the answer is no, for instance because the legislation in question cannot rationally support the adjudicator's interpretation, the error will invalidate the decision, regardless of whether the standard applied is reasonableness *simpliciter* or patent unreasonableness. ...

See also *Voice Construction Ltd. v. Construction & General Workers' Union, Local 92*, [2004] 1 S.C.R. 609, 2004 SCC 23 (S.C.C.), at paras. 40-41, *per* LeBel J.

C. Two Standards of Review

43 The Court has moved from a highly formalistic, artificial "jurisdiction" test that could easily be manipulated, to a highly contextual "functional" test that provides great flexibility but little real on-the-ground guidance, and offers too many standards of review. What is needed is a test that offers guidance, is not formalistic or artificial, and permits review where justice requires it, but not otherwise. A simpler test is needed.

(1) Defining the Concepts of Reasonableness and Correctness

44 As explained above, the patent unreasonableness standard was developed many years prior to the introduction of the reasonableness *simpliciter* standard in *Southam*. The intermediate standard was developed to respond to what the Court viewed as problems in the operation of judicial review in Canada, particularly the perceived all-or-nothing approach to deference, and in order to create a more finely calibrated system of judicial review (see also L. Sossin and C. M. Flood, "The Contextual Turn: Iacobucci's Legacy and the Standard of Review in Administrative Law" (2007), 57 *U.T.L.J.* 581). However, the analytical problems that arise in trying to apply the different standards undercut any conceptual usefulness created by the inherently greater flexibility of having multiple standards of review. Though we are of the view that the three-standard model is too difficult to apply to justify its retention, now, several years after *Southam*, we believe that it would be a step backwards to simply remove the reasonableness *simpliciter* standard and revert to pre-*Southam* law. As we see it, the problems that *Southam* attempted to remedy with the introduction of the intermediate standard are best addressed not by three standards of review, but by two standards, defined appropriately.

45 We therefore conclude that the two variants of reasonableness review should be collapsed into a single form of "reasonableness" review. The result is a system of judicial review comprising two standards — correctness and reasonableness. But the revised system cannot be expected to be simpler and more workable unless the concepts it employs are clearly defined.

46 What does this revised reasonableness standard mean? Reasonableness is one of the most widely used and yet most complex legal concepts. In any area of the law we turn our attention to, we find ourselves dealing with the reasonable, reasonableness or rationality. But what is a reasonable decision? How are reviewing courts to identify an unreasonable decision in the context of administrative law and, especially, of judicial review?

47 Reasonableness is a deferential standard animated by the principle that underlies the development of the two previous standards of reasonableness: certain questions that come before administrative tribunals do not lend themselves to one specific, particular result. Instead, they may give rise to a number of possible, reasonable conclusions. Tribunals have a margin of appreciation within the range of acceptable and rational solutions. A court conducting a review for reasonableness inquires into the qualities that make a decision reasonable, referring both to the process of articulating the reasons and to outcomes. In judicial review, reasonableness is concerned mostly with the existence of justification,

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transparency and intelligibility within the decision-making process. But it is also concerned with whether the decision falls within a range of possible, acceptable outcomes which are defensible in respect of the facts and law.

48 The move towards a single reasonableness standard does not pave the way for a more intrusive review by courts and does not represent a return to pre-*Southam* formalism. In this respect, the concept of deference, so central to judicial review in administrative law, has perhaps been insufficiently explored in the case law. What does deference mean in this context? Deference is both an attitude of the court and a requirement of the law of judicial review. It does not mean that courts are subservient to the determinations of decision makers, or that courts must show blind reverence to their interpretations, or that they may be content to pay lip service to the concept of reasonableness review while in fact imposing their own view. Rather, deference imports respect for the decision-making process of adjudicative bodies with regard to both the facts and the law. The notion of deference "is rooted in part in a respect for governmental decisions to create administrative bodies with delegated powers" (*Mossop*, [*infra*], at p. 596, *per* L'Heureux-Dubé J., dissenting). We agree with David Dyzenhaus where he states that the concept of "deference as respect" requires of the courts "not submission but a respectful attention to the reasons offered or which could be offered in support of a decision": "The Politics of Deference: Judicial Review and Democracy", in M. Taggart, ed., *The Province of Administrative Law* (1997), 279, at p. 286 (quoted with approval in *Baker*, at para. 65, *per* L'Heureux-Dubé J.; *Ryan*, at para. 49).

49 Deference in the context of the reasonableness standard therefore implies that courts will give due consideration to the determinations of decision makers. As Mullan explains, a policy of deference "recognizes the reality that, in many instances, those working day to day in the implementation of frequently complex administrative schemes have or will develop a considerable degree of expertise or field sensitivity to the imperatives and nuances of the legislative regime": D. J. Mullan, "Establishing the Standard of Review: The Struggle for Complexity?" (2004), 17 *C.J.A.L.P.* 59, at p. 93. In short, deference requires respect for the legislative choices to leave some matters in the hands of administrative decision makers, for the processes and determinations that draw on particular expertise and experiences, and for the different roles of the courts and administrative bodies within the Canadian constitutional system.

50 As important as it is that courts have a proper understanding of reasonableness review as a deferential standard, it is also without question that the standard of correctness must be maintained in respect of jurisdictional and some other questions of law. This promotes just decisions and avoids inconsistent and unauthorized application of law. When applying the correctness standard, a reviewing court will not show deference to the decision maker's reasoning process; it will rather undertake its own analysis of the question. The analysis will bring the court to decide whether it agrees with the determination of the decision maker; if not, the court will substitute its own view and provide the correct answer. From the outset, the court must ask whether the tribunal's decision was correct.

(2) Determining the Appropriate Standard of Review

51 Having dealt with the nature of the standards of review, we now turn our attention to the method for selecting the appropriate standard in individual cases. As we will now demonstrate, questions of fact, discretion and policy as well as questions where the legal issues cannot be easily separated from the factual issues generally attract a standard of reasonableness while many legal issues attract a standard of correctness. Some legal issues, however, attract the more deferential standard of reasonableness.

52 The existence of a privative or preclusive clause gives rise to a strong indication of review pursuant to the reasonableness standard. This conclusion is appropriate because a privative clause is evidence of Parliament or a legislature's intent that an administrative decision maker be given greater deference and that interference by reviewing courts be minimized. This does not mean, however, that the presence of a privative clause is determinative. The rule of law requires that the constitutional role of superior courts be preserved and, as indicated above, neither Parliament nor any legislature can completely remove the courts' power to review the actions and decisions of administrative bodies. This power is constitutionally protected. Judicial review is necessary to ensure that the privative clause is read in its appropriate statutory context and that administrative bodies do not exceed their jurisdiction.

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

AFFIDAVIT OF GLENN BUNSTON

SWORN: AUGUST 20, 2018

MANITOBA PUBLIC INSURANCE
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(Steve Scarfone/Anthony Lafontaine Guerra)

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(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

AFFIDAVIT OF GLENN BUNSTON
SWORN: AUGUST 20, 2018

I, **GLENN BUNSTON**, of the City of Winnipeg, in the Province of Manitoba, Manager of Investments, for the applicant, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") MAKE OATH AND SAY THAT:

1) I have personal knowledge of the facts and matters hereinafter deposed to by me, except where same is stated to be based upon information and belief, in which case I have stated the source of my information and do verily believe same to be true.

2) I am the Manager of Investments with MPI, and have held this position for 12 years. I have 20 years of relevant experience in institutional fund management, and hold a Chartered Financial Analyst designation. I also hold a Chartered Alternative Investment Analyst designation.

3) On June 15, 2018, MPI filed its Application for approval by The Public Utilities Board of Manitoba of its rates for service, effective March 1, 2019.

4) On or about July 11, 2018, MPI received a number of Information Requests ("IR") from the Consumers' Association of Canada (Manitoba) Inc. ("CAC"), many of which

were investment related and forwarded to my department for review and response. Included among the IRs CAC (MPI) 1-84 and CAC (MPI) 1-85 (the "Subject IRs"), which each asked (specifically CAC(MPI) 1-84(f) and CAC(MPI) 1-85(g)) MPI to conduct further analyses in connection with the Asset Liability Management ("ALM") Study performed by Mercer Canada in late 2017 and early 2018.

5) I am aware and do verily believe that counsel for MPI sought clarification from counsel for the CAC on July 19, 2018 concerning the Subject IRs. More specifically, counsel for MPI confirmed with counsel for the CAC that the Subject IRs seek to have Mercer re-run portions of the ALM Study using different assumptions, variables and risk tolerances (input factors), which MPI was not agreeable to. Attached to my Affidavit and marked as **Exhibit "A"** is a copy of the email exchange between counsel for MPI and the CAC, beginning July 19, 2018 and ending July 30, 2018.

6) The requests made by CAC in the Subject IRs require Mercer to run new "efficient frontiers". The efficient frontier, derived from modern portfolio theory, is a set of investment portfolios that occupy the 'efficient' parts of the risk-return spectrum. Put another way, the efficient frontier is the set of optimal portfolios that offer the highest expected return for a defined level of risk or, conversely, the lowest level of risk for a given level of expected return. Portfolios below the efficient frontier are sub-optimal because they do not provide a maximum expected return on investment for the defined level of risk.

7) The efficient frontier proposed in the ALM Study factored in inflation using Mercer's standard assumption of 2.0% (with a standard deviation of 2.6%). I am not

aware of the existence of an alternative inflation forecast that would refute or call into question the accuracy of the inflation assumption used by Mercer in the ALM Study.

8) Real return bonds (RRBs) are an investment vehicle often used where the expectation is that inflation rates will rise. Given Mercer's low and stable inflation forecast, MPI considered the purchase of RRBs to be sub-optimal and ultimately did not select them for purchase.

9) Notwithstanding its inflationary assumption, Mercer did model inflation and RRBs in its ALM Study. Mercer used a real liability benchmark as a proxy for the liabilities (also known as a Minimum Risk Portfolio), which included the following allocations: 66% to RRBs, 26% to Treasury bills and 8% to short-term Provincial bonds. Based on this liability benchmark an efficient frontier was developed; Mercer then identified several investment portfolio options along the efficient frontier. The only portfolio that provided the interest rate protection desired by MPI and its Board of Directors (i.e. a portfolio with a 100% hedge ratio or 100% protection against interest rate risk) was the Minimum Risk Portfolio identified in the ALM Study.

10) Although the Minimum Risk Portfolio (based upon a real liability benchmark) identified an investment portfolio containing RRBs with the desired 100% hedge ratio, the portfolio had a significantly lower return (1.9%) and a much higher risk (3.0%) than the portfolio ultimately selected by MPI for its Basic Claims Liabilities (3.12% return and 1.32% risk). The difference in return is largely the result of making an allocation to RRBs. That is, the allocation to RRBs would result in MPI having to accept returns of 1.9%. MPI

and its Board of Directors therefore rejected the Minimum Risk Portfolio in favour of a portfolio that provided higher returns at a lower risk.

11) Mercer first provided its analysis to MPI of the available efficient frontier portfolios (based upon the real liability benchmark) in a presentation entitled "Preliminary Efficient Frontier Analysis for Basic Insurance Component" (the "Mercer Presentation"). Attached to my Affidavit and marked as **Exhibit "B"** is copy of Slide 26 from the Mercer Presentation showing the portfolios and the spectrum of risk and return for each, including the portfolio with the requisite 100% hedge ratio that did not generate satisfactory expected returns.

12) At Exhibit "B", the right hand side of the slide details the results of the modelling presented in the table. Five portfolios were generated along the efficient frontier (shown as the curved line), and were compared against the existing MPI portfolio (labelled on the table as "Current"). The five portfolios on the efficient frontier are labelled across the top of the table as follows:

A. **Real LB**: the Real Liability Benchmark

B. **Same Return**: a portfolio offering the same return (and less risk) as the "Current" portfolio

C. **Same Risk**: a portfolio offering the same risk (and more return) as the "Current" Portfolio

D. **More Risk**: a portfolio offering more risk (and more return) as the "Current" Portfolio

E. **85% HR**: a portfolio providing 85% Hedge Ratio

13) I have prepared an annotated copy of Slide 26 of the Mercer Presentation in order to provide a better understanding of Exhibit "B" hereto. Attached to my Affidavit and marked as **Exhibit "C"** is an annotated copy of Slide 26 highlighting certain relevant parts:

a. "Box 1" contains the Hedge Ratios for each portfolio, which show the degree to which each portfolio is protected against interest rate risk. MPI only considered portfolios with a 100% hedge ratio as appropriate for the portfolio supporting Basic Claims Liabilities.

b. "Box 2", hedge ratios of less than 100% disqualified all portfolios except for the Real Liability Benchmark (A) portfolio.

c. "Box 3" highlights the absence of MUSH bonds in the Real Liability Benchmark portfolio (A), which disqualified it from consideration given the "Current" portfolio contained 20% allocation to illiquid MUSH bonds. Mush bonds cannot be sold in meaningful quantities and, as a result, any new portfolio must include a significant allocation to these bonds.

d. "Box 4" shows the return (Expected 10-Year Return) of the Real Liability Benchmark portfolio (A) at 1.9% and the risk (Anticipated Surplus Volatility) at 3.0%. As indicated, MPI also disqualified the Real Liability Benchmark portfolio given the risk and return rates as compared against the portfolio it ultimately selected.

14) The Real Liability Benchmark portfolio (A) delivered a third less return at over twice the risk compared to the selected portfolio, which used a nominal liability benchmark (not adjusted for inflation).

15) MPI based its decision to use a nominal liability benchmark portfolio on Mercer's inflation forecast, which is supported by historical data, the internal forecasts of the major chartered banks and the Bank of Canada's inflation target. The inflation assumption made by MPI is a best estimate that resulted in the selection of a Basic Claims Liabilities portfolio with higher returns and lower risk than the Minimum Risk Portfolio based on the real liability benchmark.

16) The portfolio selected by MPI is identified as "Basic.3" and presented on slide 21 of the ALM Phase 2 Summary Report (GRA Investments Chapter, Appendix 17, Attachment B). The return and risk characteristics are presented in the first and third lines of the table, while the hedge ratio is presented in the ninth line of the table. The composition of "Basic.3" includes a 20% allocation to MUSH bonds, as presented in slide 20 of the same document. Attached to my Affidavit and marked as **Exhibit "D"** are slides 20 and 21 of the ALM Phase 2 Summary Report.

17) Based on the deficiencies in the portfolios generated by the Real Liability Benchmark modelling, and the reasonableness of the inflation forecast, MPI decided against further modelling and examination of high inflation scenarios or other portfolios based upon the real liability benchmark.

18) I contacted Angelo DiNoto of Mercer to determine the cost of having the Subject IRs answered in the manner proposed by the CAC. Mr. DiNoto informed me that

he estimated it would take Mercer 40+ hours to prepare answers to the Subject IRs at a cost of approximately $50,000. Attached to my Affidavit and marked as **Exhibit "E"** is an e-mail from Mercer dated August 20, 2018 concerning the time and costs associated with answering the Subject IRs. This is a revised cost estimate from that provided in the initial response to the Subject IRs.

I MAKE THIS AFFIDAVIT BONA FIDE IN RESPONSE TO THE MOTION TO COMPEL ANSWERS TO INTERROGATORIES AND FOR NO IMPROPER PURPOSE.

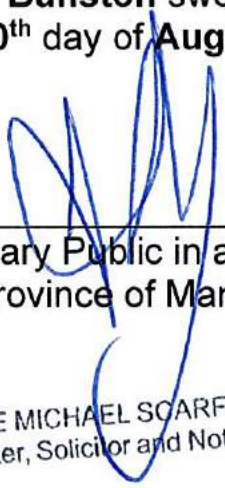
SWORN BEFORE ME at the City of Winnipeg, in the Province of Manitoba, this 20th day of August, 2018.

A Notary Public in and for the Province of Manitoba

G. Bunston

GLENN BUNSTON

This is **Exhibit "A"** to the Affidavit of **Glenn Bunston** sworn before me this **20th** day of **August, 2018**.



A Notary Public in and for the Province of Manitoba.

STEVE MICHAEL SCARFONE
Barrister, Solicitor and Notary Public

Scarfone, Steve

From: Byron Williams <bywil@legalaid.mb.ca>
Sent: Monday, July 30, 2018 8:23 AM
To: Triggs, Mike; Scarfone, Steve
Cc: kadil@pilc.mb.ca
Subject: Re: Response regarding CAC MB information requests 84 and 85

Thanks Mike. It looks like we will agree to disagree.

We will await your response to the irs. Assuming that you do provide the information requested, we will consider our options then.

BW

On 27/07/18 04:29 PM, MTriggs@mpi.mb.ca wrote:

> Hi Byron,
>
> Thank you for your email, it is good that we hash out and clarify issues and concerns. Even though we might not end up agreeing, we need to focus in on what the true areas of dispute are and see if we can achieve a solution. To address the points you raise:
>
> - Although PUB Order 82-18 states that the ALM Study will be considered in more detail at the 2019 GRA, MPI does not believe that this consideration necessarily requires an analysis of the issues raised by the CAC in IRs CAC 1-85(g) and 1-84(f).
>
> - Through IRs CAC 1-85(g) and 1-84(f), the CAC seeks to determine whether Mercer modeled liabilities as accurately as possible (in this case being the potential impact of high inflation on the liabilities) and whether it properly excluded Real Return Bonds (RRBs) from consideration as an asset class (RRBs are generally an attractive option to protect against inflation and inflation was not considered as a material risk). In MPI's view, the issue comes down to whether Mercer's assumption regarding inflation is wrong to a sufficient degree to bring the results of the ALM Study into question.
>
> - MPI considered the risk of high inflation with Mercer early on and concluded that the risk was low enough that it did not make sense financially to assess the appropriateness of using portfolios that protect against its effects (RRBs). Essentially, unless inflation materially exceeds the rate assumed therein (i.e. 2.0%), the outcome of the ALM Study would be the same.
>
> - As noted in the ALM Study, the DCAT does not include a high inflation scenario as a significant risk. This is because the dataset used in the interest rate decline scenario is the historical long-term bond yield series from the Bank of Canada from 1956 to April 2018, excluding the period between 1976 and 1985 known as the "stagflation period". Based on prior year's discussions at the PUB hearings and the DCAT collaborative process, it was

generally viewed as appropriate to exclude this period. Dr. Simpson has also opined that this period should not be included in the DCAT. As this dataset does not support an high inflation scenario as a significant risk, this further supports MPI belief that the inflation assumption contained in the ALM Study is appropriate.

- While MPI is open to reconsidering its position, given the anticipated cost, it is not prepared to engage Mercer to conduct the assessments requested IRs CAC 1-85(g) and 1-84(f) unless it is satisfied that there is a real possibility that Mercer's inflation forecast is incorrect. Accordingly, we invite the CAC to provide any evidence it has to support its present contention to that effect.

I look forward to hearing from you further on this.

Cheers,

Mike

From: Byron Williams [mailto:bywil@legalaid.mb.ca]
Sent: Thursday, July 26, 2018 10:58 AM
To: Triggs, Mike <MTriggs@mpi.mb.ca>; Scarfone, Steve <SScarfone@mpi.mb.ca>
Cc: kadil@pilc.mb.ca
Subject: Response regarding CAC MB information requests 84 and 85

Good morning Mike,

Thank you for bringing forward the concerns of MPI regarding IRs CAC 1-85(g) and 1-84(f). We appreciate the opportunity to share our views with you.

At the outset, we note that CAC Manitoba remains of the view that Mercer's answers to these Information Requests would assist the Public Utilities Board in its assessment of Issue 21 (page 25 of PUB Order 82-18), "Asset Liability Management Study, including **review of all aspects of the Study recommendations** and implementation thereof, the basis for and evaluation of risk and return, **alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s)**, forecast investment performance and changes to the Investment Policy Statement." (emphasis added)

The purpose of the questions posed is to test the decisions made regarding key assumptions on which the ALM study is based. If the qualitative rationale to support a key decision (such as liability characteristics) is flawed, the value of the ALM study may come into question. In this case, based on our review of the material, the ALM study is potentially vulnerable given the simplifying assumption about the nature of the liabilities (nominal vs real). Given this reality, it is important to understand the implications of that assumption.

The liability modeling "simplification" does not just impact the apparent attractiveness of RRBs as an asset class. It also impacts the return/risk relationships for all assets, and therefore the relative attractiveness of all asset classes - with particularly notable impacts on other real assets (i.e. real estate and infrastructure). Given the liability assumptions used in the ALM study, it appears that the model will "prefer" nominal bonds, and will tend to not prefer RRBs, real estate and infrastructure. That is a material outcome related to three asset classes. If different liability assumptions were used, it is possible that alternative portfolio compositions would have been recommended. This is central to Issue 21 being examined by the PUB.

We note that CAC Manitoba and its consultants could do the analysis, using the first method of single period optimization to get efficient frontiers, for less than $10,000 by downloading an Excel optimization model from the web and using Mercer's capital market assumptions as inputs to the model. However, there are two difficulties with this option that would likely make it more efficient for MPI/Mercer's to conduct the analysis:

1. MPI and the PUB would likely want to check our calculations, and it is possible that Mercer's would decide to do the analysis themselves directly and compare the results; and
2. We cannot replicate the second method (multi-period scenarios), at least not without a lot more work/cost, and assumptions could differ from those that were actually used by Mercer under the Nominal approach. Based on our review of the material, the second method was likely the basis for the final decision (the first method being "preliminary" to start eliminating some asset classes and adding others to the study).

As noted above, IRs CAC 1-85(g) and 1-84(f), along with the other sub-parts to those IRs, are attempting to test whether the assumptions and constraints imposed in the Mercer's ALM study were appropriate. Specifically:

- Were **liabilities** modeled as accurately as possible (by including RRBs in the liability benchmark portfolio)? If not, this can make RRBs (as an asset class) look inferior to nominal bonds, which means the model will not like RRBs as much as nominal bonds. A more subtle but important point is that the liability modeling assumption makes other real asset classes (like real estate and infrastructure) look less attractive too, not just RRBs. The liability benchmark portfolio definition is fundamental to the whole analysis and the discussion should not revolve around RRBs per se (as an asset class to invest in).
- Were **RRBs (as an asset class)** inappropriately excluded from consideration as an asset class to consider (constrained weight = 0%)? If so, this can bring into question the results of the ALM study.

Regarding some of the specific points made in your email:

- "fairly flat inflation assumption in MPI's projection models": we note that inflation is not completely flat (some volatility), and time horizon may be too short (5 years versus decades). However, this was not modeled, and models are very sensitive to assumptions.

- "inflation in the real return bonds being different from the inflation in the MPI liabilities": we note that in the long-term, these are likely to be correlated "enough" to impact the relative attractiveness of different asset classes.
- "to a certain degree the RRBs were considered expensive": we note that BEIR, forecasts in GRA, and Mercer's comments suggest otherwise, and this should be judged on a total portfolio basis (return/risk), not as individual "silos" (RRBs vs nominal bonds in isolation).

Finally, we note the finding of the PUB in last year's General Rate Application at page 67 which held that the responsibility for the investment fund resides with MPI not the Province. This factual finding which was not challenged by MPI via a review and vary order reinforces the jurisdiction of the PUB to consider (within the rate setting context) both the reasonableness and prudence of the decisions made with regard to the investment portfolio as well as their impact on the overall health of the ratepayers as it may affect current and future ratepayers.

Please do not hesitate to contact us if you have any questions.

--
Byron Williams, Director
Public Interest Law Centre
of Legal Aid Manitoba
200 - 393 Portage Avenue
Winnipeg, MB R3B 3H6

Direct Phone: (204) 985-8533
General office Phone: (204)985-8540
Fax: (204) 985-8544

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Scarfone, Steve

From: Triggs, Mike
Sent: Thursday, July 19, 2018 10:05 AM
To: Crozier, Jeff; Scarfone, Steve; Guerra, Anthony
Subject: FW: CAC 1-85(g)

Importance: High

FYI

From: Triggs, Mike
Sent: Thursday, July 19, 2018 10:05 AM
To: 'Byron Williams' <bywil@legalaid.mb.ca>; kadil@pilc.mb.ca
Subject: CAC 1-85(g)
Importance: High

Hi Byron/Katrine,

I would like to be proactive in addressing concerns we have with answering this question from Valter.

The rationale in the IR is stated as:

> While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.
>
> Model optimizations are very sensitive to constraints (established in 2017 GRA).

In the preamble to the IR the following is stated:

> The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). **The rationale for imposing any such constraints should be made explicit.** [emphasis is in the IR]

CAC 1-85(g) is not asking for the rationale rather it is essentially asking Mercer to rerun the ALM study using a different risk-free portfolio and a real liability benchmark. It is estimated that it will cost at **least** $10,000 to run this new ALM study. I have serious concerns about spending $10,000 to create a new ALM study based upon factors that management/Board of Directors did not consider appropriate. It is of course legitimate to ask why these factors were not considered but it is not appropriate to spend ratepayers money to rerun the ALM using different factors because it is not believed that the rationale for the constraints used were sufficiently explained.

The high level rationale for not pursuing the ALM model that Valter is asking about is that developing the efficient frontier based upon on a Real Liability Benchmark would produce materially different portfolio recommendations. The Real Liability Benchmark and the fact that the BASIC portfolio is all bonds would lead to a portfolio with a large allocation to real return bonds. The decision to not use the Real Liability Benchmark was analysed and discussed thoroughly during the project. Essentially, it came down to acknowledging a fairly flat inflation assumption in MPI's

projection models, inflation in the real return bonds being different from the inflation in the MPI liabilities, and to a certain degree the RRBs were considered expensive.

As stated I do not wish to proceed with spending $10,000 on this, please let me know your thoughts on the matter.

Cheers,

Mike

Michael Triggs
General Counsel & Corporate Secretary
Manitoba Public Insurance
contact |mtriggs@mpi.mb.ca ☎ 204.985.8770 ext. 8263 ⌨. 204.942.2217

DON'T TEXT AND DRIVE. Here's why.

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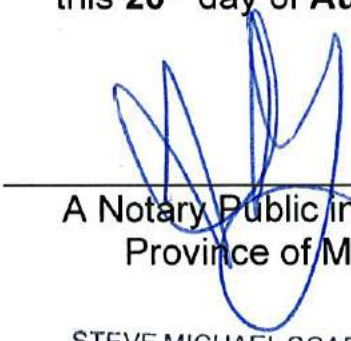
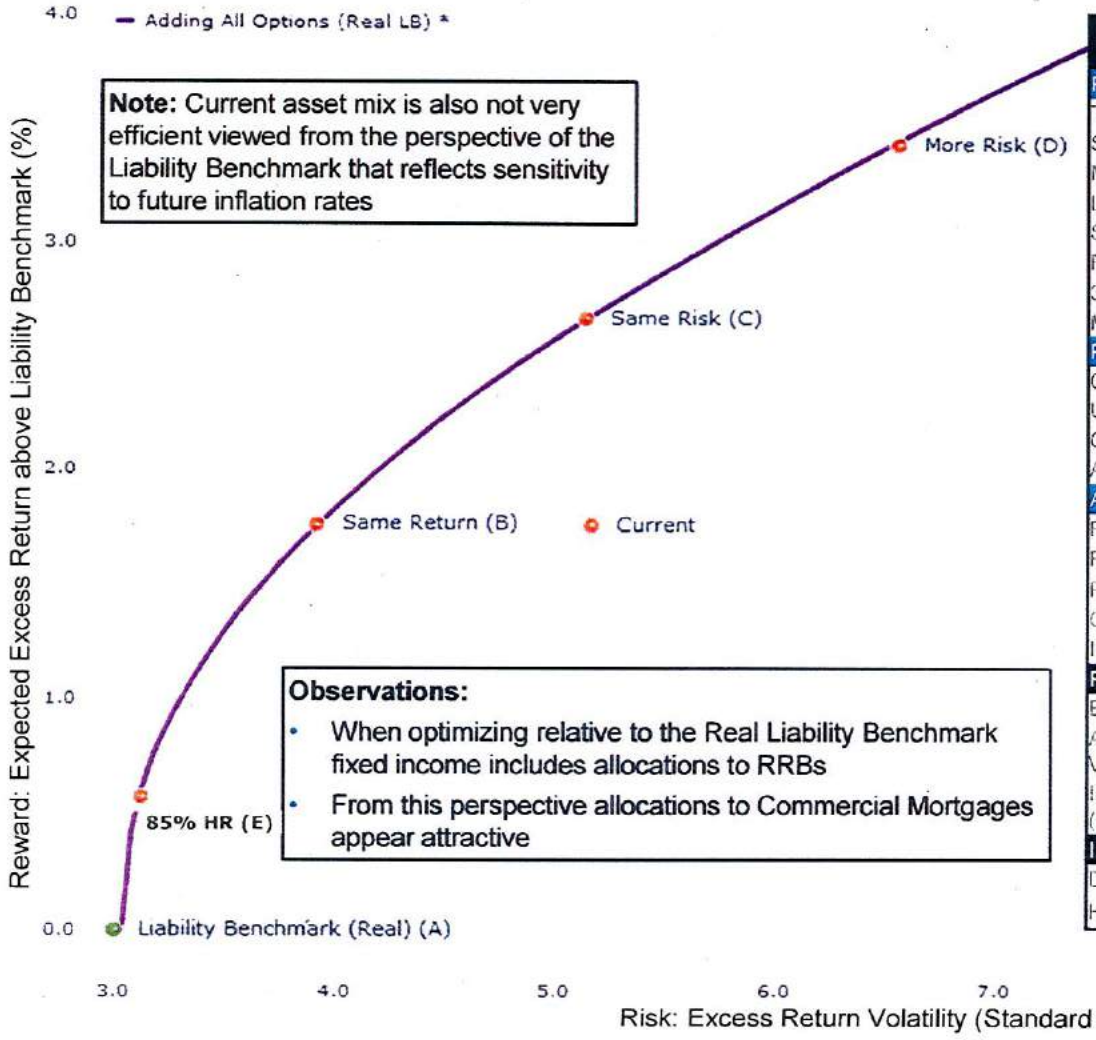
This is **Exhibit "B"** to the Affidavit of **Glenn Bunston** sworn before me this **20th** day of **August, 2018**.



A Notary Public in and for the Province of Manitoba.

STEVE MICHAEL SCARFONE
Barrister, Solicitor and Notary Public

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



	Current	A. Real LB	B:Same Return	C:Same Risk	D. More Risk	E. 85% HR
Fixed Income	70%	100%	61%	49%	38%	79%
Treasury Bills	--	26%	--	--	--	9%
Short-term Bonds (Prov.)	6.5%	8%	15%	--	--	9%
Mid-term Bonds (Prov.)	14%	--	16%	34%	25%	--
Long-term Bonds (Prov.)	29.5%	--	--	--	--	--
Short-term Bonds (Corp.)	--	--	10%	--	--	--
Real Return Bonds	--	66%	--	--	--	51%
3X Real Return Bonds	--	--	10%	5%	3%	--
MUSH Bonds	20%	--	10%	10%	10%	10%
Public Equities	15%	0%	12%	18%	24%	3%
Canadian Equity	10%	--	4%	7%	9%	1.5%
U.S. Equity	5%	--	--	--	--	--
Global Equity Low Vol	--	--	1%	--	--	--
ACWI	--	--	7%	11%	15%	1.5%
Alternatives	15%	0%	27%	33%	38%	18%
Private Equity	--	--	1%	5%	8%	--
Real Estate	10%	--	3%	--	--	--
Private Debt - Universe	--	--	--	--	15%	--
Commercial Mortgage	--	--	15%	15%	--	15%
Infrastructure	5%	--	8%	13%	15%	3%
Risk/Return Metrics						
Expected 10-Year Return	3.6%	1.9%	3.7%	4.7%	5.5%	2.4%
Anticipated Surplus Volatility	5.2%	3.0%	3.8%	5.1%	6.6%	3.1%
Information Ratio (Return/Risk)	0.34	0.00	0.48	0.56	0.55	0.16
Interest Rate Metrics						
Duration	7.1	10.3	6.7	5.2	3.7	8.7
Hedge Ratio	69%	100%	65%	50%	36%	84%

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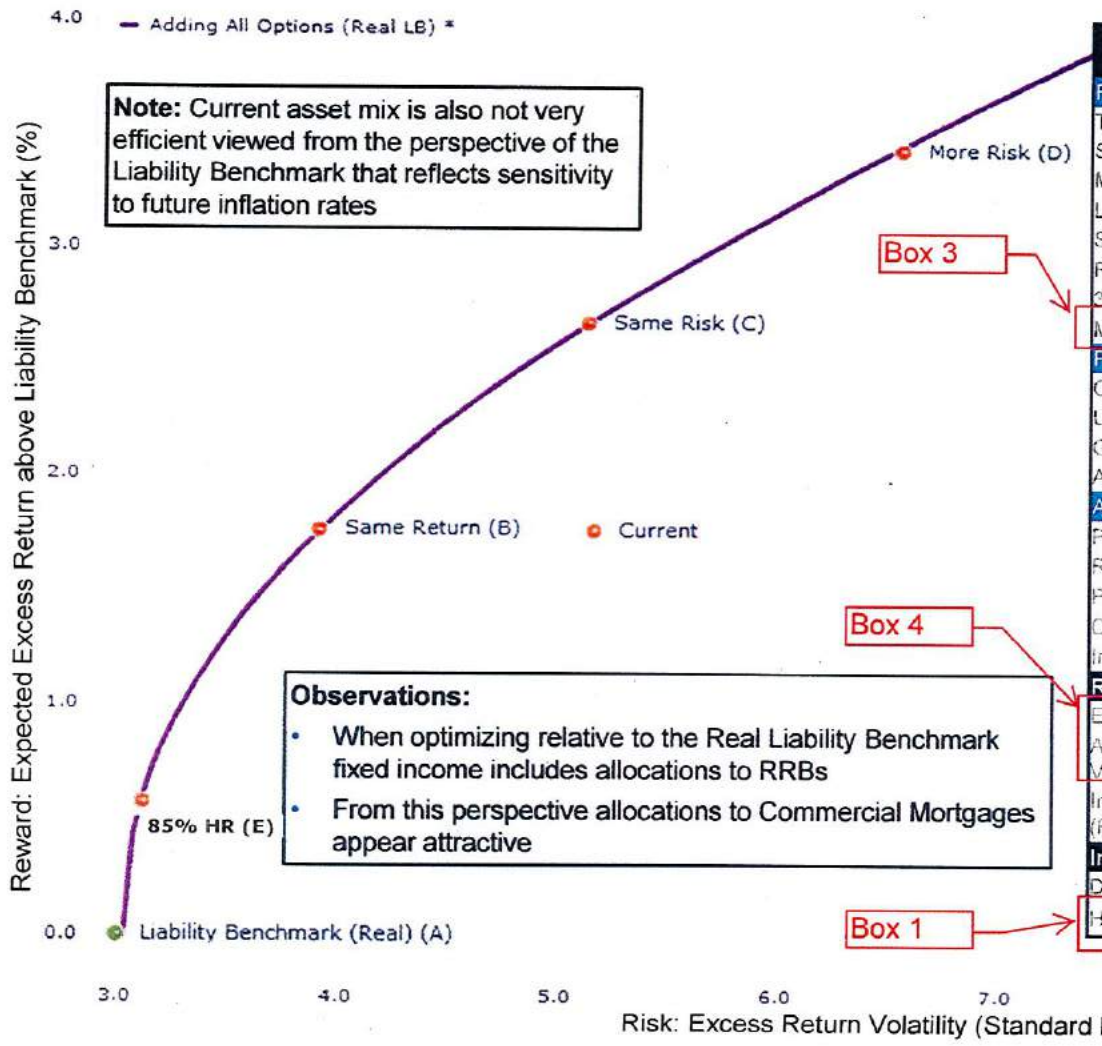
This is **Exhibit "C"** to the Affidavit of **Glenn Bunston** sworn before me this **20th** day of **August, 2018**.

A Notary Public in and for the Province of Manitoba.

STEVE MICHAEL SCARFONE
Barrister, Solicitor and Notary Public

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



Box 2

Box 3

Box 4

Box 1

	Current	A. Real LB	B:Same Return	C:Same Risk	D. More Risk	E. 85% HR
Fixed Income	70%	100%	61%	49%	38%	79%
Treasury Bills	--	26%	--	--	--	9%
Short-term Bonds (Prov.)	6.5%	8%	15%	--	--	9%
Mid-term Bonds (Prov.)	14%	--	16%	34%	25%	--
Long-term Bonds (Prov.)	29.5%	--	--	--	--	--
Short-term Bonds (Corp.)	--	--	10%	--	--	--
Real Return Bonds	--	66%	--	--	--	51%
3X Real Return Bonds	--	--	10%	5%	3%	--
MUSH Bonds	20%	--	10%	10%	10%	10%
Public Equities	15%	0%	12%	18%	24%	3%
Canadian Equity	10%	--	4%	7%	9%	1.5%
U.S. Equity	5%	--	--	--	--	--
Global Equity Low Vol	--	--	1%	--	--	--
ACWI	--	--	7%	11%	15%	1.5%
Alternatives	15%	0%	27%	33%	38%	18%
Private Equity	--	--	1%	5%	8%	--
Real Estate	10%	--	3%	--	--	--
Private Debt - Universe	--	--	--	--	15%	--
Commercial Mortgage	--	--	15%	15%	--	15%
Infrastructure	5%	--	8%	13%	15%	3%
Risk/Return Metrics						
Expected 10-Year Return	3.6%	1.9%	3.7%	4.7%	5.5%	2.4%
Anticipated Surplus Volatility	5.2%	3.0%	3.8%	5.1%	6.6%	3.1%
Information Ratio (Return/Risk)	0.34	0.00	0.48	0.56	0.55	0.16
Interest Rate Metrics						
Duration	7.1	10.3	6.7	5.2	3.7	8.7
Hedge Ratio	69%	100%	65%	50%	36%	84%

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Manitoba Public Insurance

MPI Exhibit 13

2019 GENERAL RATE APPLICATION

Page 67 of 78

This is **Exhibit "D"** to the Affidavit of **Glenn Bunston** sworn before me this **20th** day of **August, 2018**.

A Notary Public in and for the Province of Manitoba.

STEVE MICHAEL SCARFONE
Barrister, Solicitor and Notary Public

ASSET MIX ANALYSIS – SUMMARY RESULTS

BASIC.3 OPTIMIZES RETURN, BUT WITH HIGHER RISK

BASIC.4 BALANCES RETURN IMPROVEMENT WITH DOWNSIDE PROTECTION

	Current Mix	Alternative Asset Mixes			
		Basic.1	Basic.2	Basic.3	Basic .4
		No MUSH	Add MUSH	Add Corps	Add PD
Expected return	4.29%	2.80%	2.93%	3.12%	3.09%
Excess return over liability benchmark	1.49%	0.00%	0.13%	0.32%	0.29%
1-Year Surplus volatility	4.06%	0.00%	0.90%	1.32%	0.90%
Excess return/Surplus volatility	0.37	N/A	0.15	0.24	0.32
1-year Median Surplus	$27.1 M	0.0 M	2.0 M	6.4 M	5.9 M
1-year 90th Percentile VaR	-95 M	0 M	-19 M	-30 M	-20 M
1-year 95th Percentile VaR	-$122 M	0 M	-24 M	-38 M	-25 M
1-year 97.5th Percentile VaR	-$147 M	0 M	-28 M	-45 M	-30 M
Interest Rate Risk Hedge Ratio	85%	**100%**	**100%**	**100%**	**100%**
Median Surplus in 5 years	$152 M	0 M	11 M	32 M	30 M
5-Year Surplus volatility	10.35%	0.00%	2.39%	3.42%	2.38%
Prob. of Surplus in 5 years	79%	50%	61%	71%	77%
Prob. of 5-year positive real return	83%	60%	61%	64%	63%
Non-MUSH Yield	2.75%	2.55%	2.71%	2.92%	2.91%

Return Metrics

Risk Metrics

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Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

ASSET MIX OPTIONS

BASIC

	Current	Basic.1	Basic.2	Basic.3	Basic.4
	Commingled	Min. Risk Portfolio (No MUSH)	80% Provis, 20% MUSH	60% Provis 20% Corps 20% MUSH	60% Provis 10% Corps 20% MUSH 10% Prv Dbt
Fixed Income	70%	100%	100%	100%	100%
Short-term Bonds (Prov.)	6.5%	28%	0%	0%	0.0%
Mid-term Bonds (Prov.)	12.0%	18%	40%	28%	28%
Long-term Bonds (Prov.)	29.5%	54%	40%	32%	32%
Short-term Bonds (Corp.)	0.0%	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0.0%	0%	0%	9%	0%
Long-term Bonds (Corp.)	2.0%	0%	0%	11%	10%
MUSH Bonds	20.0%	0%	20%	20%	20%
Private Debt - Universe	0%	0%	0%	0%	10%
Public Equities	15%	0%	0%	0%	0%
Alternatives	15%	0%	0%	0%	0%

100% Fixed Income to fully match interest rate risk.

All options match Basic liability duration (i.e. minimal nominal interest rate risk).

No Growth Assets proposed to Basic

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This is **Exhibit "E"** to the Affidavit of **Glenn Bunston** sworn before me this **20th** day of **August, 2018**.

A Notary Public in and for the Province of Manitoba.

STEVE MICHAEL SCARFONE
Solicitor and Notary Public

Bunston, Glenn

From: DiNoto, Angelo <Angelo.DiNoto@mercer.com>
Sent: Monday, August 20, 2018 10:31 AM
To: Bunston, Glenn
Cc: Sprenger, Wes; Piesowicz, Pawel; Makarchuk Dave
Subject: CAC 1-84f and CAC 1-85g - Anticipated hours and cost to prepare full response

Hi Glenn,
As requested in your July 19, 2018 email, below we provide the anticipated hours and cost to prepare full responses to the items listed below:

CAC 84-f
Anticipate that this will take 20 hours for each of BASIC and Pension. Based on my hourly estimates and using the team's billing rates or about $23,000 for both BASIC and Pension. Once approved, this work would take us a week to complete.

CAC 84-g
Anticipate that this will take over 20 hours. Based on my hourly estimates and using the team's billing rates we anticipate the associated fee to be over $23,000. Once approved, this work would take us a week to complete.

This response was provided in an earlier email, but was included in an email that contained other information that isn't relevant to the costs and preparation time.

Kind regards,

Angelo DiNoto, Principal
Mercer | 120 Bremner Boulevard, Suite 800, Toronto, ON M5J 0A8, Canada
+1 416 868 2366 | Fax +1 416 868 2131 | angelo.dinoto@mercer.com
Assistant: Connie Melo | +1 416-868-2722
www.mercer.ca | Mercer (Canada) Limited
MERCER MAKE TOMORROW, TODAY

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

SUPPLEMENTAL AFFIDAVIT OF GLENN BUNSTON

SWORN: SEPTEMBER 7, 2018

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

SUPPLEMENTAL AFFIDAVIT OF GLENN BUNSTON
SWORN: SEPTEMBER 7, 2018

I, **GLENN BUNSTON**, of the City of Winnipeg, in the Province of Manitoba, Manager of Investments, for the applicant, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") MAKE OATH AND SAY THAT:

1) I have personal knowledge of the facts and matters hereinafter deposed to by me, except where same is stated to be based upon information and belief, in which case I have stated the source of my information and do verily believe same to be true.

2) On August 20, 2018 I swore an affidavit in this matter and was later made aware by Mercer on August 27, 2018 that information provided in paragraphs 10, 11 (Exhibit "B"), 13(d), 14 and 15 contained an error as it concerns the spectrum of risk and return for the Minimum Risk Portfolio based upon the real liability benchmark (the benchmark ultimately rejected by MPI).

3) At paragraph 10 of my August 20, 2018 affidavit I indicated that the portfolio rejected by MPI had a significantly lower return of 1.9% when in fact it showed a return of 2.4%. In addition, I indicated that the rejected portfolio had a much higher risk of 3.0% when in fact it showed a risk of 0.0% (as compared against the risk (1.32%) and return (3.12%) for the portfolio selected based upon the nominal liability benchmark).

4) The error as it concerns the return (2.4% rather than 1.9%) was the result of using the standard interest rate forecast rather than the forward rate forecast. The error as it concerns the risk (0.0% rather than 3.0%) was the result of including a 3.0% liability volatility assumption in the earlier modeling, later backed out to allow for a proper comparison.

5) At paragraph 15 of my August 20, 2018 affidavit I indicated that the Basic Claims Liabilities portfolio selected by MPI had higher returns and lower risk than the rejected portfolio when in fact it had higher risk.

6) The error identified as it concerns the adjustments now needed to the risk and return of the rejected portfolio, if known at the material time, would not have changed the decision made by MPI against further modeling that included high inflation scenarios or other portfolios based upon the real liability benchmark. The inflation assumptions made by Mercer and MPI have not been refuted meaning Real Return Bonds (an investment to protect against rising inflation) are still not preferred.

I MAKE THIS SUPPLEMENTAL AFFIDAVIT BONA FIDE TO CORRECT AN ERROR IN THE AFFIDAVIT I SWORE ON AUGUST 20, 2018.

SWORN BEFORE ME at the City of Winnipeg, in the Province of Manitoba, this 7th day of September 2018.

A Notary Public in and for the Province of Manitoba

GLENN BUNSTON

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

NOTICE OF MOTION

The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") will make a motion before a panel of members of the Public Utilities Board of Manitoba ("PUB") on **Friday, September 21, 2018 at 9:00 a.m.,** or as soon before or after that time as the motion can be heard, at the Office of the PUB, 400-330 Portage Avenue, in Winnipeg, Manitoba.

THE MOTION IS FOR:

1) leave to file all or portions of the responses to the following Round Two Information Requests with the PUB, in confidence and on any terms it considers appropriate in the public interest, namely:

    i. PUB (MPI) 2 024 (Appendices 1-3)

    (the "Confidential Information"); and

2) such further and other relief as counsel may advise and the PUB may permit.

THE GROUNDS FOR THE MOTION ARE:

1) Rule 13(2) of the Rules of Practice and Procedure (the "PUB Rules");

2) The disclosure of the Confidential Information could reasonably be expected to result in undue financial loss or gain to or significantly harm the competitive position of a person directly or indirectly affected by the proceeding;

3) the Confidential Information is personal, financial, commercial, scientific or technical in nature, has been consistently treated as confidential by persons directly affected by the proceeding and the interest in maintaining confidentiality over the Confidential Information outweighs the public interest in its disclosure; and

4) such further and other grounds as counsel may advise and the PUB may permit.

THE FOLLOWING DOCUMENTARY EVIDENCE will be used at the hearing of the motion:

1. the Affidavit of Jeffery Crozier, *to be sworn and filed*; and

2. such further and other evidence as counsel may provide and the PUB may permit.

Date: September 14, 2018

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

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IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF
(MANITOBA PUBLIC INSURANCE)

(Seeking Leave to file Certain Round 2 Information Request Responses Confidentially)

MANITOBA PUBLIC INSURANCE
Legal Services
702 – 234 Donald Street
Winnipeg, MB R3C 4A4

(Steve Scarfone/Anthony Lafontaine Guerra)

(Telephone No. 204-985-8770)

(Facsimile No. 204-942-2217)

IN THE MATTER OF: **An Application by The Manitoba Public Insurance Corporation to The Public Utilities Board of Manitoba for review and approval of its rate bases and premiums charged with respect to compulsory driver and vehicle insurance effective March 1, 2019.**

MOTION BRIEF

(MANITOBA PUBLIC INSURANCE)

(Seeking Leave to file Certain Round 2 Information Request Responses Confidentially)

INDEX

		Page No.
PART I	LIST OF DOCUMENTS TO BE RELIED ON	3
PART II	LIST OF AUTHORITIES	4
PART III	STATEMENT OF FACTS	5
PART IV	ISSUES TO BE DETERMINED	6
PART V	POINTS TO BE ARGUED AND ARGUMENT	7

[3]

PART I LIST OF DOCUMENTS TO BE RELIED ON

		TAB
1.	The Affidavit of Jeffrey Crozier, *sworn* September 17, 2018	
2.	Undertaking of Confidentiality	1
3.	Confidentiality Agreement – MPI	2
4.	Confidentiality Agreement – Mitchell	3

PART II LIST OF AUTHORITIES

1. The Public Utilities Board Rules of Practice and Procedure

PART III STATEMENT OF FACTS

1) On June 15, 2018, The Manitoba Public Insurance Corporation ("MPI" or the "Corporation") filed its General Rate Application for the 2019 rate year (the "2019 GRA").

2) On September 14, 2018, MPI filed the majority of its responses to the second round of information requests (IRs) received from The Public Utilities Board of Manitoba (the "PUB") and intervenors, non-redacted. However, it also filed one completely redacted response in answer to IR PUB (MPI) 2 024.

3) MPI now seeks leave of the PUB to file the documents in response to the above IR (the "Confidential Documents"), confidentially.

PART IV ISSUES TO BE DETERMINED

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

Issue 2: If so, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

PART V POINTS TO BE ARGUED AND ARGUMENT

Issue 1: Should MPI be granted leave to file the Confidential Documents with the PUB, in confidence?

1) IR PUB (MPI) 2 024 and its 5 appendices each contain information that is commercial, the work product of the third party who created them and, therefore, is proprietary in nature. MPI is not authorized to make the information contained in these documents available for public use. The public release of this information could reasonably be expected to result in undue financial loss or significant harm to the competitive position of these third parties. Neither MPI nor the third party otherwise makes this information available to the public.

2) MPI is contractually bound and/or bound by a duty at law to maintain this information in confidence. Publishing this information, without authorization, exposes MPI to potential legal liability, harms its reputation generally and could damage its relationships with the third party. In the context of the 2019 GRA, MPI is only authorized to make this information available to the panel members of the PUB and to its representatives, advisors and consultants who require access. However, MPI expects that the PUB will return the Confidential Documents should it decide that they must be placed on the public record.

3) MPI respectfully submits that receiving the Confidential Documents (and the information contained therein), in confidence, outweighs the public interest in its disclosure. Without the ability to honour contractual or other legal obligations respecting

the dissemination of proprietary information, MPI may not be able to continue to conduct business with this third party in the future.

4) As a result, MPI submits that the Confidential Documents cannot be placed on the public record and that the PUB must receive this document in confidence.

5) If the PUB decides that the Confidential Documents must be placed on the public record, MPI requests the opportunity to withdraw them prior thereto (as contemplated under Rule 13(5) of the PUB Rules).

Issue 2: If leave is granted, what conditions, if any, should be placed on the access to and use of the Confidential Documents?

6) MPI does not oppose the circulation any of the Confidential Documents by the PUB, subject to the following restrictions, namely that:

a. those eligible to receive the Confidential Documents (an "Eligible Person") be:

i. a representative, a consultant or a professional advisor of a registered intervener who has been granted standing to intervene on an issue or issues falling within the ambit of matters raised in each of the respective documents; or

ii. a representative, a consultant or a professional advisor of the PUB,

b. the Confidential Documents not be provided to an Eligible Person until or unless they execute an Undertaking of Confidentiality and a Confidentiality Agreement, the form and content of which is acceptable to MPI and the third party **(see TABs 1-3 hereof)**; and

c. no use be made of the Confidential Documents or reference made to their content at any time where doing so would place the confidential information on the public record or make it available to persons other than Eligible Persons who have complied with the requirement to execute the Undertaking of Confidentiality and a Confidentiality Agreement as set out above.

9) Therefore, in the event that the PUB grants leave to file its response to IR PUB (MPI) 2 024 with the PUB, in confidence, MPI respectfully submits that it add the above as conditions to their dissemination.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 17th DAY OF SEPTEMBER, 2018.

MANITOBA PUBLIC INSURANCE

Per:

STEVE SCARFONE/
ANTHONY LAFONTAINE GUERRA
Legal Counsel

TAB 1

UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on September xx, 2018, in Order xxx/18 (the **"Order"**), issued in the course of The Manitoba Public Insurance Corporation's (**"MPI"**) 2019/2020 General Rate Application (**"2019 GRA"**), the Public Utilities Board of Manitoba (the **"Board"**) ordered that certain documents described therein be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the **"Confidential Documents"**).

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Documents to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role – legal counsel, consultant, etc.] to [insert name of entity – the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of the Confidential Documents, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Documents:

1. I understand and agree:

   (a) that the term "Confidential Information" means:

      (i) any information contained in the Confidential Documents (including the Confidential Documents themselves);

      (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

      (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Documents or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2019 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

   (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

   (c) that this Undertaking will be filed with the Board;

(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Board-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board and MPI that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration **(in the form attached as Appendix "A")**, to the Board and MPI,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board and MPI, and

(l) to promptly report any violation of the recipient of this undertaking to the Board and MPI, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board and to MPI.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board and MPI are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] [Province] this day of September xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

APPENDIX "A"

STATUTORY DECLARATION

I, _____ (recipient) of the _____ (city/town) of _____, in the _____ (province/state) of _____, do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment ("Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared ("related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of _____, in the Province of Manitoba, this _____ day of _____, 201__.

_____
A Notary Public / Commissioner for Oaths
In and for the Province of Manitoba
My commission expires: _____

_____
(Recipient)

TAB 2

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of September, 2018

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION,
(called "**MPI**")

of the first part,

- and -

[Insert name of individual],
(called the "**Confidant**")

of the second part.

DRAFT

WHEREAS on September xx, 2018, in Order xxx/18 (the "**Order**"), the Public Utilities Board of Manitoba (the "**Board**") ordered, within the course of considering MPI's 2019/2020 General Rate Application ("**2019 GRA**"), that certain documents prepared in response to Round 2 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Documents**").

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the "**Agreement**").

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of MPI;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of MPI, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and MPI, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit MPI's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide MPI with prompt notice so that MPI may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with MPI protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to MPI in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that MPI waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of MPI, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by MPI may not be compensable by monetary damages alone and, accordingly, that MPI shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **MPI**

Executive Offices
912-234 Donald Street
Winnipeg, Manitoba R3C 4A4
Attn: General Counsel
and Corporate Secretary

b) **Confidant:**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by MPI in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall

be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of MPI. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MANITOBA PUBLIC INSURANCE

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

TAB 3

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of September, 2018

BETWEEN:

MITCHELL INTERNATIONAL INFORMATION SERVICES INC.,
(called "**MITCHELL**")

of the first part,

- and -

[Insert name of individual],
(called the "**Confidant**")

of the second part.

WHEREAS on September xx, 2018, in Order xxx/18 (the "**Order**"), the Public Utilities Board of Manitoba (the "**Board**") ordered, within the course of considering MPI's 2019/2020 General Rate Application ("**2019 GRA**"), that certain documents prepared in response to Round 2 Information Requests be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Documents**").

AND WHEREAS the Confidential Documents contain information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the "**Agreement**").

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1 DEFINITIONS

In this Agreement:

"Authorized Person" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"Confidential Information" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"Permitted Uses" has the meaning set forth in Article 2 below.

"Person" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"Proceeding" means the proceeding before the Board in respect of the 2019 GRA.

"Reverse Engineer" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"Unauthorized Person" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called **"Permitted Uses"**):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying *in camera* where Confidential Information is discussed.

ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of MITCHELL;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of MITCHELL, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and MITCHELL, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit MITCHELL's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide MITCHELL with prompt notice so that MITCHELL may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with MITCHELL protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to MITCHELL in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that MITCHELL waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information pertaining to MITCHELL is the property of MITCHELL, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by MITCHELL may not be compensable by monetary damages alone and, accordingly, that MITCHELL shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) MITCHELL:

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) Confidant:

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERRRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by MITCHELL in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach

thereof, shall be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of MITCHELL. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MITCHELL INTERNATIONAL INFORMATION SERVICES INC.

Per: _____
Name:
Title:

_____
WITNESS [PRINTED NAME]

CONFIDANT

_____
WITNESS [SIGNATURE]

_____
[SIGNATURE]

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HEALTH WEALTH CAREER

ASSET LIABILITY STUDY

EFFICIENT FRONTIER ANALYSIS FOR BASIC INSURANCE & PENSION COMPONENTS

ASSUMPTIONS BASED ON FORWARD YIELD CURVE & REAL LIABILITY BENCHMARKS

CAC (MPI) 1-84(f) , 1-85(g) RESPONSES

Manitoba Public Insurance

SEPTEMBER 25, 2018

Dave Makarchuk
Pawel Piesowicz
Angelo DiNoto

INTRODUCTION

The analysis provided in this document is in accordance with:

Order No. 124/18

Motion by Consumers' Association of Canada (Manitoba) Inc. for an Order Compelling Certain Responses to Information Requests in the 2019/2020 General Rate Application

September 14, 2018

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ASSET CLASSES CONSIDERED

	Return Seeking	Inflation Sensitive	Interest Rate Sensitive
Broad Markets	**Canadian Equity** US Equity **EAFE Equity**	Real Return Bonds 3x Real Return Bonds	Cash MUSH Bonds Provincial Bonds Federal Bonds Canadian Corporate Bonds 3X Long Provincial Bonds
Other Markets	Emerging Markets Equity Global Low Volatility Equity		Global Bonds High Yield Bonds Emerging Market Debt
Alternative Investments	Private Equity Diversified Growth Fund	Infrastructure – Direct Global Real Estate - Direct Cdn	Private Debt – Universe Private Debt – Long Commercial Mortgages Long Comm. Mortgages

Asset classes already included in the target asset mix

Additional asset classes included in the analysis as suggested by Mercer (approved by MPI Investment Committee)

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ASSET CLASSES TO CONSIDER CONSTRAINTS

- Practical and reasonable modelling approaches and constraints are necessary. Mercer recommendations on modelling are as follows:

  ✓ U.S./EAFE/Emerging Markets Equity should be bundled into a single ACWI[1] equity mandate
  - Single ACWI mandate provides greater mandate efficiency, affordability
  - Expands equities to include Emerging Markets Equity (note: Samsung is an example)
  - Allows the manager to select best in class stocks without artificial geographic boundaries (i.e., attaching a multinational company to a single country)

  ✓ Global Bonds/High Yield Bonds/Emerging Market Debt (one-third each), hereafter referred to as Growth Fixed Income
  - Diversified package of liquid bonds which diversifies return and risk sources of the Growth Portfolio

ACWI is All Country World Index. MSCI ACWI is currently about 54% US, 32% EAFE, 12% Emerging Markets and 3% Canadian Equity.

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ASSET CLASSES TO CONSIDER
MINIMALLY CONSTRAINED APPROACH - PARAMETERS

Current

Asset Class	Single	Group
MUSH Bonds	Max. 25% of total portfolio	
Real Estate and Infrastructure		Not exceed 50% of U.S. Equity, Real Estate, Infrastructure

Proposed by Mercer

Asset Class	Single	Group
MUSH Bonds Private Debt Commercial Mortgages	Min. 10% of total portfolio	Max. 25% of total portfolio
Real Estate Infrastructure Private Equity Growth Fixed Income		Not exceed Equity portfolio

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ANALYSIS
EFFICIENT FRONTIERS
BASIC INSURANCE
– REAL LIABILITY BENCHMARK



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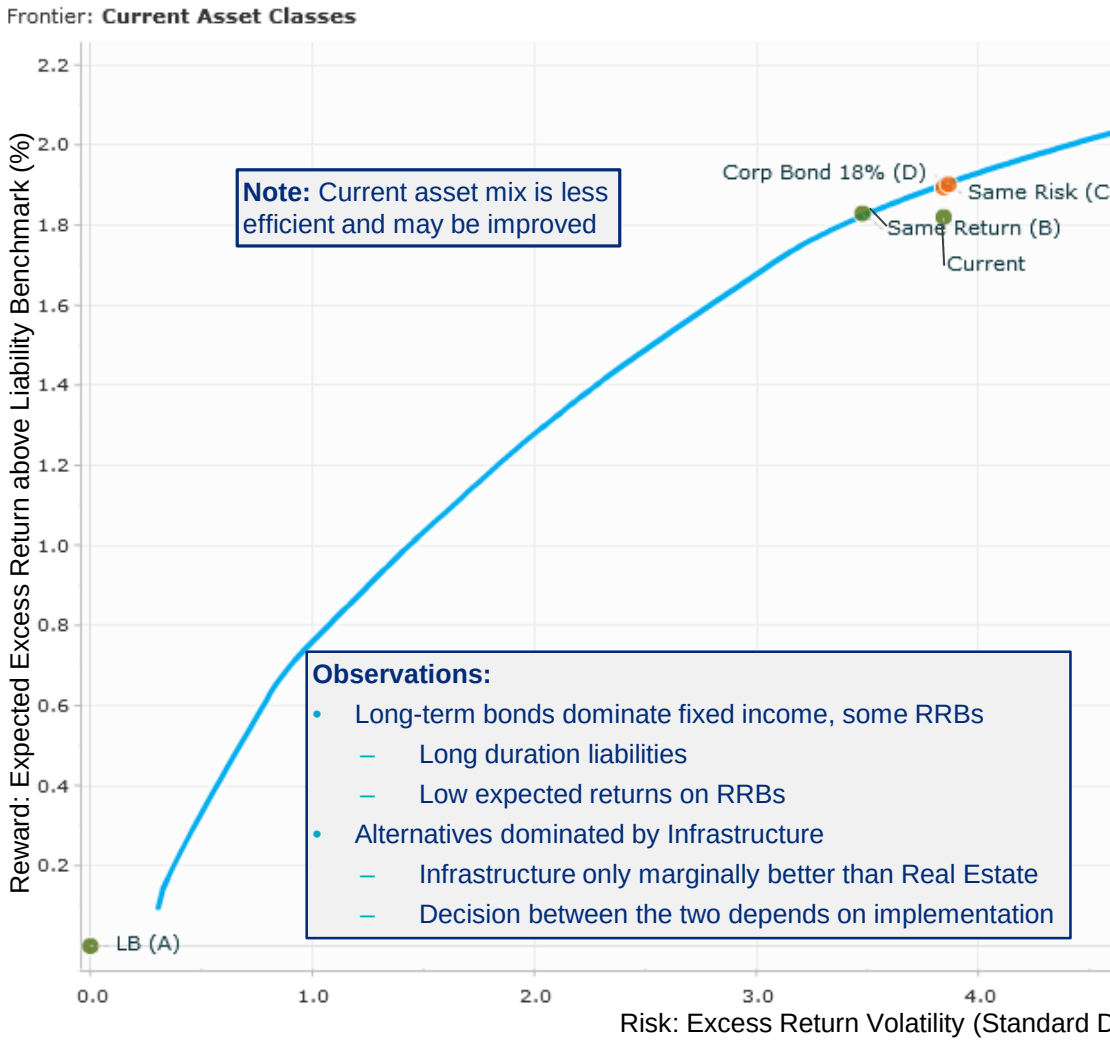
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY

1-84 (f)



	Current	A: LB	B. Same Return	C. Same Risk	D. Corp Bond 18%
Fixed Income	70%	100%	74%	75%	75%
Treasury Bills	--	26.0%	--	--	--
Real Return Bonds	--	66.0%	30.0%	18.0%	18.0%
Short-term Bonds (Prov)	6.5%	8.0%	--	--	--
Mid-term Bonds (Prov)	12.0%	--	--	--	--
Long-term Bonds (Prov)	29.5%	--	23.5%	30.0%	29.0%
Mid-term Bonds (Corp)	2.0%	--	--	--	--
Long-term Bonds (Corp)	--	--	10.5%	17.0%	18.0%
MUSH Bonds	20.0%	--	10.0%	10.0%	10.0%
Public Equities	15%	0%	13%	12.5%	12.5%
Canadian Equity	10%	--	10.0%	11.5%	11.5%
U.S. Equity	5%	--	3.0%	1.0%	1.0%
Alternatives	15%	0%	13%	12.5%	12.5%
Real Estate	10%	--	1%	--	--
Infrastructure	5%	--	12%	12.5%	12.5%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.4%	4.2%	4.2%	4.2%
Surplus Volatility	3.8%	N/A	3.5%	3.8%	3.9%
Information Ratio (Excess Return/Risk)	0.47	N/A	0.53	0.49	0.49
Interest Rate Metrics					
Duration	7.3	10.3	10.3	10.3	10.3
Hedge Ratio	86%	100%	100%	100%	100%

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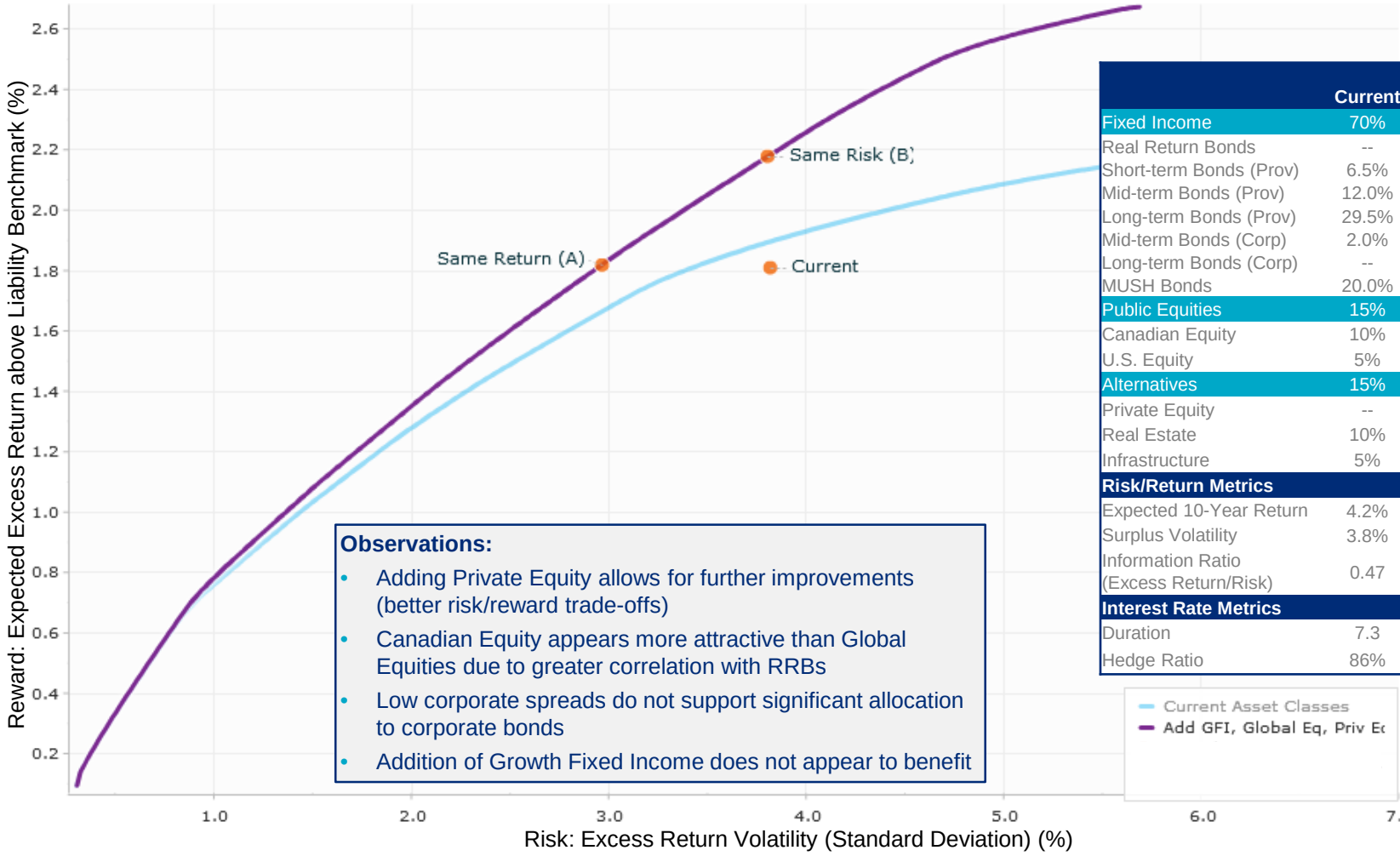
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EOUITY

1-84 (f)

Frontier: **Add GFI, Global Eq, Priv Eq**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	79.5%	74.5%
Real Return Bonds	--	48.0%	41.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	1.0%	--
Long-term Bonds (Prov)	29.5%	9.5%	20.0%
Mid-term Bonds (Corp)	2.0%	--	--
Long-term Bonds (Corp)	--	1.0%	1.0%
MUSH Bonds	20.0%	20.0%	12.0%
Public Equities	15%	10%	12.5%
Canadian Equity	10%	10.0%	12.5%
U.S. Equity	5%	--	--
Alternatives	15%	10.5%	13%
Private Equity	--	7%	9%
Real Estate	10%	--	--
Infrastructure	5%	3.5%	4%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.5%
Surplus Volatility	3.8%	3.0%	3.9%
Information Ratio (Excess Return/Risk)	0.47	0.61	0.57
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding Private Equity allows for further improvements (better risk/reward trade-offs)
- Canadian Equity appears more attractive than Global Equities due to greater correlation with RRBs
- Low corporate spreads do not support significant allocation to corporate bonds
- Addition of Growth Fixed Income does not appear to benefit

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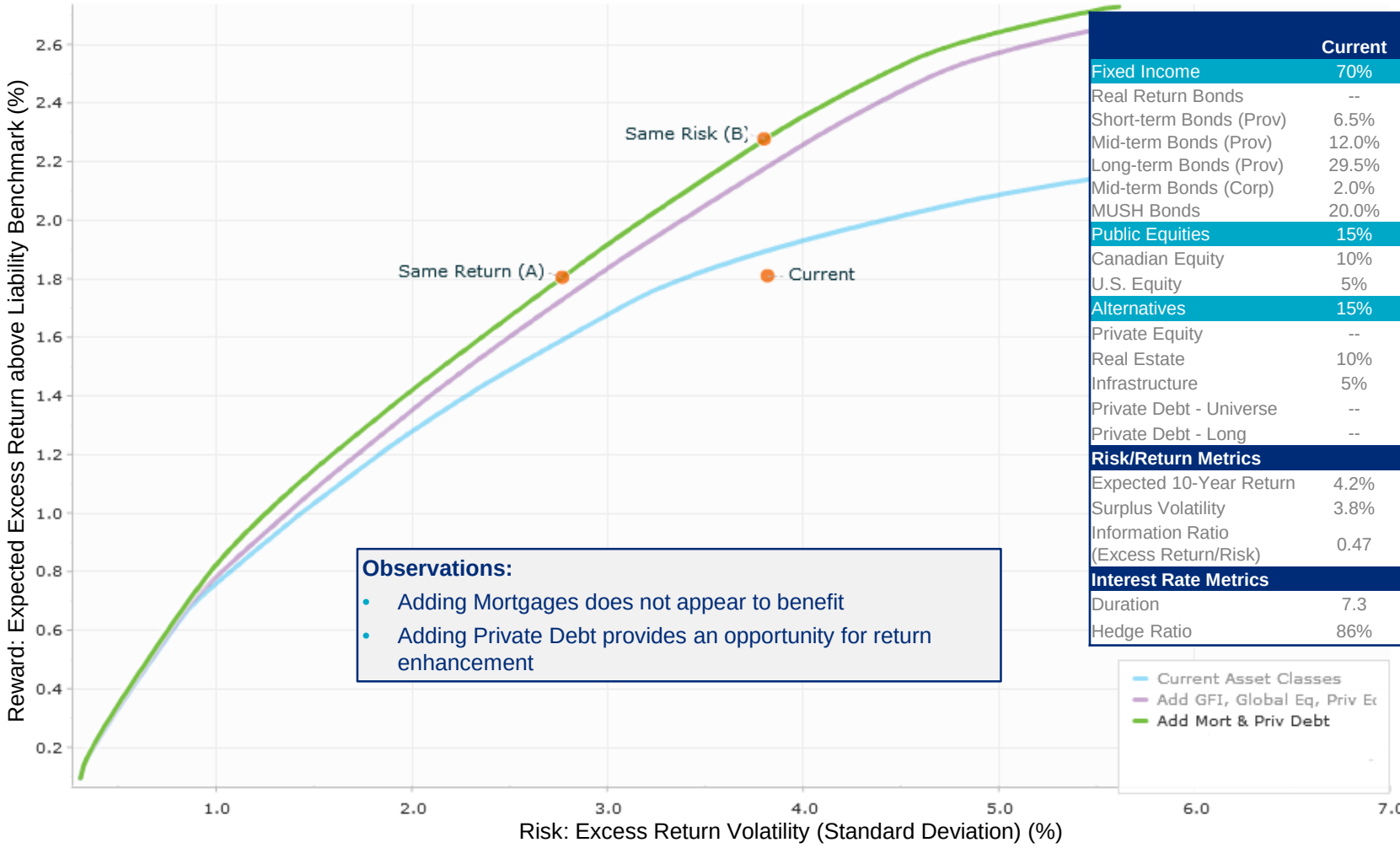
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT

1-84 (f)

Frontier: **Add Mort & Priv Debt**



Observations:

- Adding Mortgages does not appear to benefit
- Adding Private Debt provides an opportunity for return enhancement

	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	58.5%
Real Return Bonds	--	46.0%	40.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	8.5%	--
Long-term Bonds (Prov)	29.5%	--	8.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10%	13%
Canadian Equity	10%	10.0%	13.0%
U.S. Equity	5%	--	--
Alternatives	15%	25.5%	28.5%
Private Equity	--	5.5%	8.5%
Real Estate	10%	1.0%	--
Infrastructure	5%	4.0%	5.0%
Private Debt - Universe	--	1.5%	--
Private Debt - Long	--	13.5%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.6%
Surplus Volatility	3.8%	2.8%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.65	0.60
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

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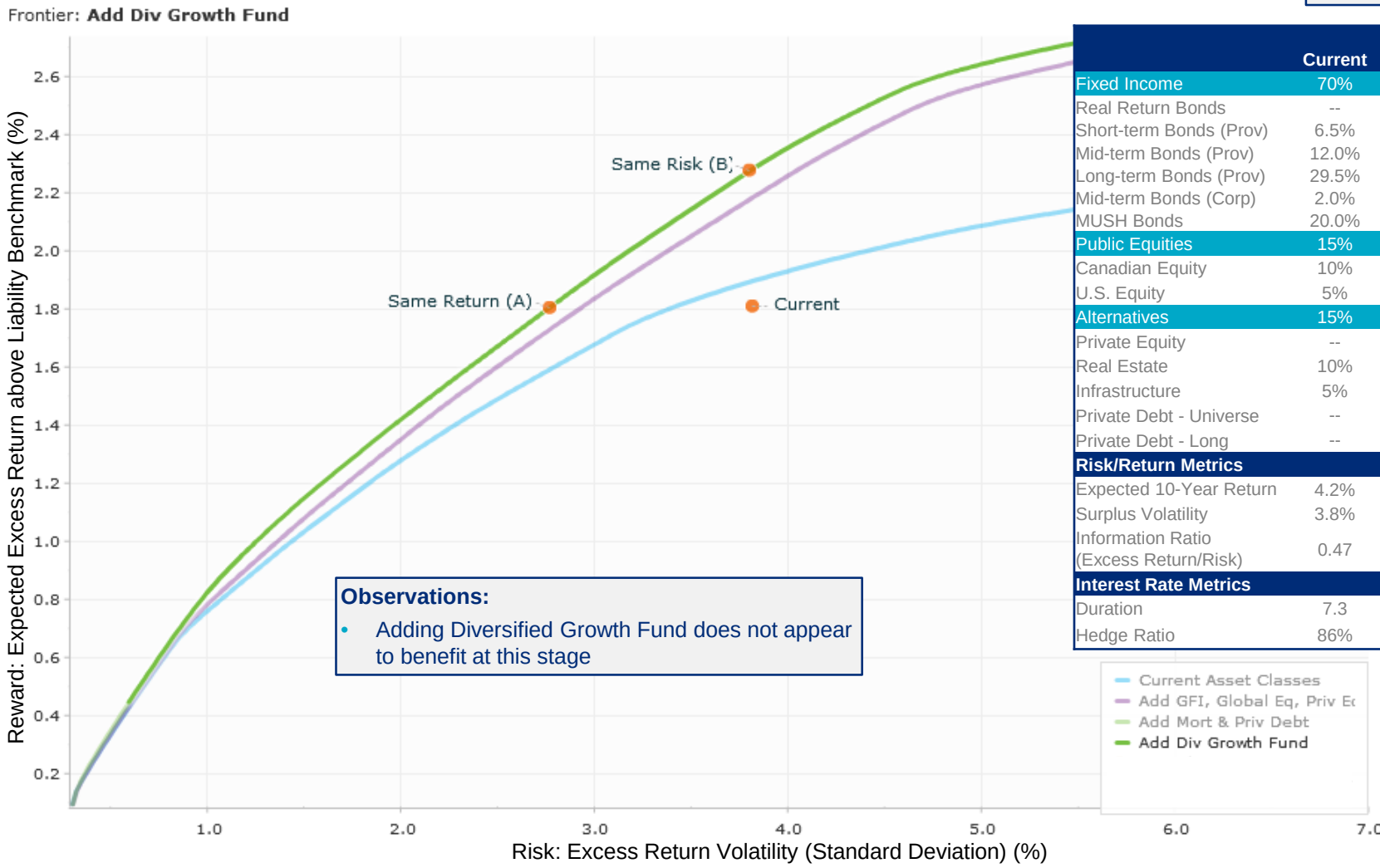
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND

1-84 (f)



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	58.5%
Real Return Bonds	--	46.0%	40.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	8.5%	--
Long-term Bonds (Prov)	29.5%	--	8.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10%	13%
Canadian Equity	10%	10.0%	13.0%
U.S. Equity	5%	--	--
Alternatives	15%	25.5%	28.5%
Private Equity	--	5.5%	8.5%
Real Estate	10%	1.0%	--
Infrastructure	5%	4.0%	5.0%
Private Debt - Universe	--	1.5%	--
Private Debt - Long	--	13.5%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.6%
Surplus Volatility	3.8%	2.8%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.65	0.60
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding Diversified Growth Fund does not appear to benefit at this stage

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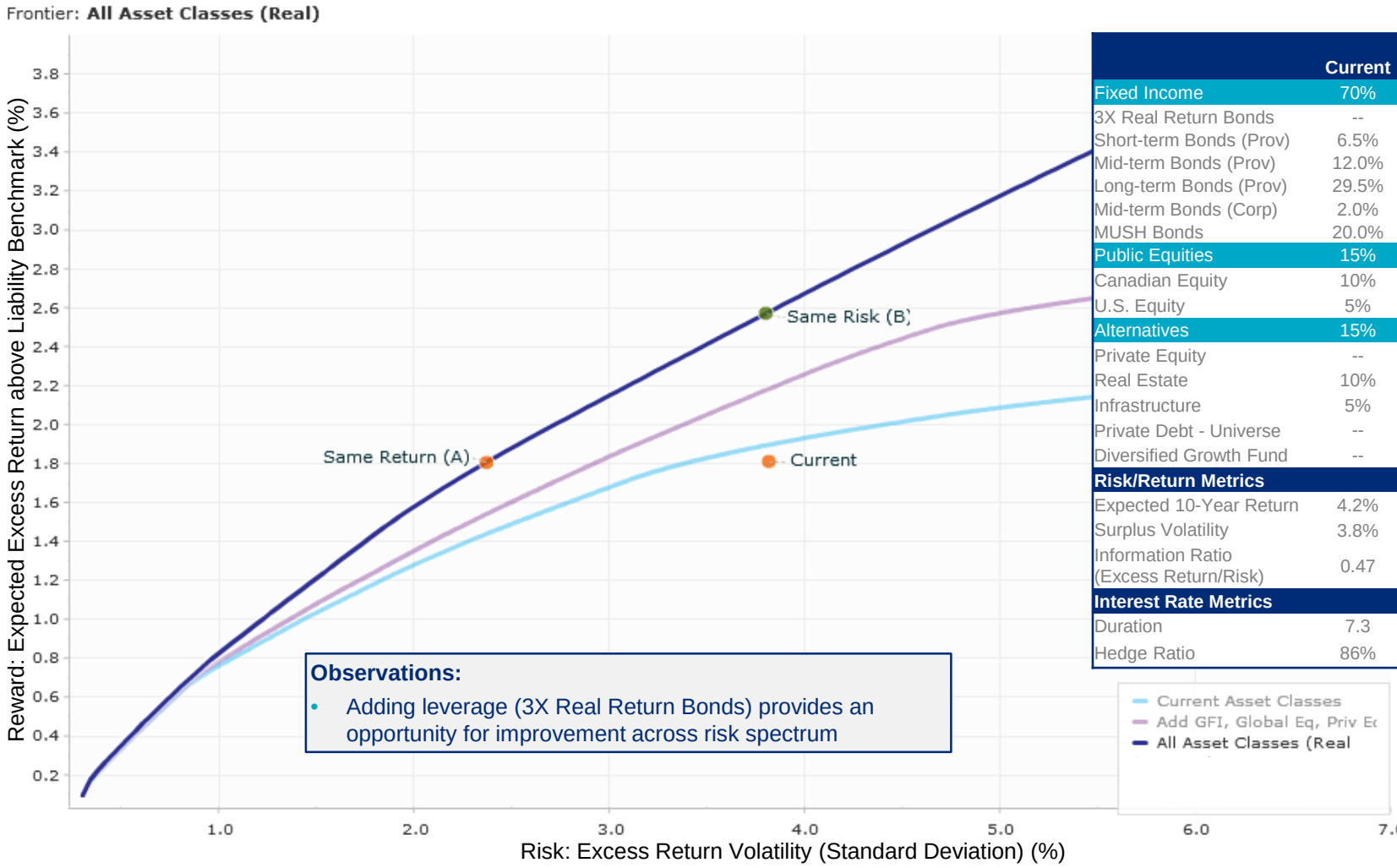
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)

1-84 (f) **1-85 (g) i**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	62.5%	53%
3X Real Return Bonds	--	17.0%	15.0%
Short-term Bonds (Prov)	6.5%	35.5%	3.5%
Mid-term Bonds (Prov)	12.0%	--	24.5%
Long-term Bonds (Prov)	29.5%	--	--
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	15%
Canadian Equity	10%	10.5%	15.0%
U.S. Equity	5%	--	--
Alternatives	15%	27%	32%
Private Equity	--	3.0%	6.5%
Real Estate	10%	6.5%	5.5%
Infrastructure	5%	1.5%	3.0%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	2.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.9%
Surplus Volatility	3.8%	2.4%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.76	0.68
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum

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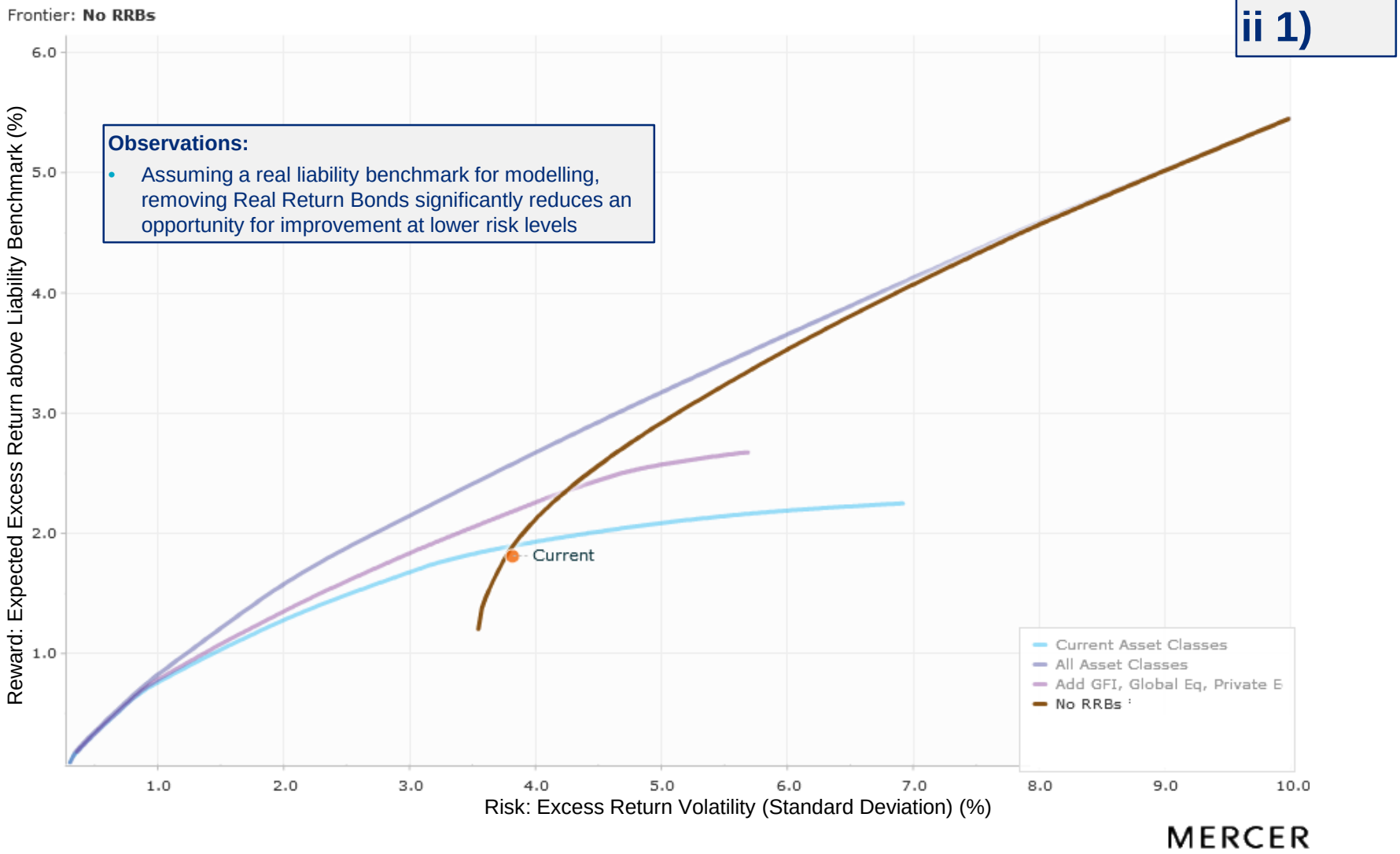
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REMOVING RRBS

1-85 (g) ii 1)



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1-85 (g) ii 2), iii)

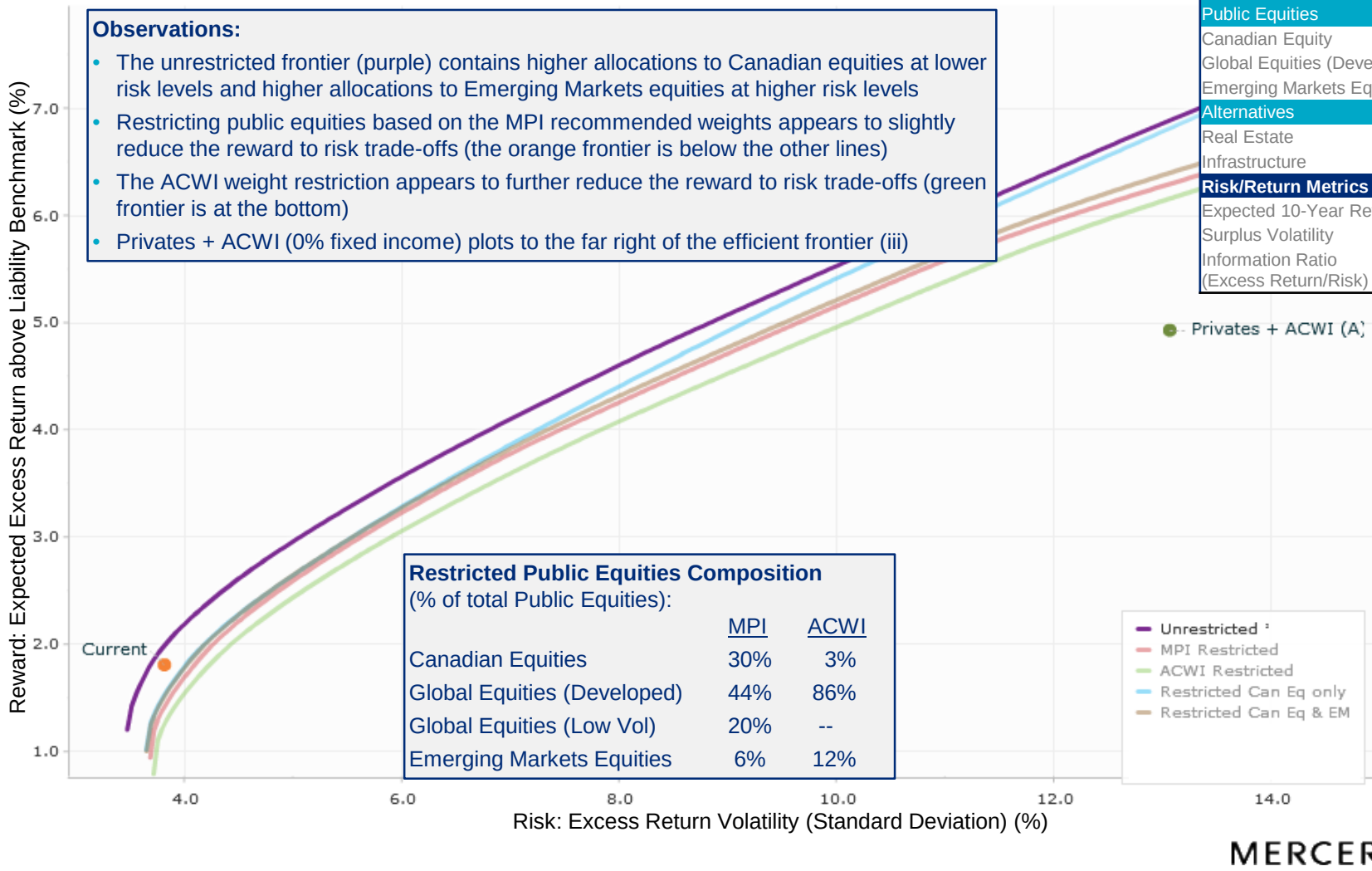
EFFICIENT FRONTIERS (NO RRBS)
RESTRICTING PUBLIC EQUITIES

Frontier: **Unrestricted**

Observations:

- The unrestricted frontier (purple) contains higher allocations to Canadian equities at lower risk levels and higher allocations to Emerging Markets equities at higher risk levels
- Restricting public equities based on the MPI recommended weights appears to slightly reduce the reward to risk trade-offs (the orange frontier is below the other lines)
- The ACWI weight restriction appears to further reduce the reward to risk trade-offs (green frontier is at the bottom)
- Privates + ACWI (0% fixed income) plots to the far right of the efficient frontier (iii)

	A:Privates + ACWI
Fixed Income	--
Public Equities	62.5%
Canadian Equity	1.9%
Global Equities (Developed)	53.4%
Emerging Markets Equities	7.2%
Alternatives	37.5%
Real Estate	25.0%
Infrastructure	12.5%
Risk/Return Metrics	
Expected 10-Year Return	6.8%
Surplus Volatility	13.1%
Information Ratio (Excess Return/Risk)	0.38



Restricted Public Equities Composition
(% of total Public Equities):

	MPI	ACWI
Canadian Equities	30%	3%
Global Equities (Developed)	44%	86%
Global Equities (Low Vol)	20%	--
Emerging Markets Equities	6%	12%

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ASSET MIX OPTIONS
BASIC

**1-85 (g) iv
1790 of GRA**

	Current	Basic.1	Basic.2	Basic.3	Basic.4
	Commingled	Min. Risk Portfolio (No MUSH)	80% Provis, 20% MUSH	60% Provis 20% Corps 20% MUSH	60% Provis 10% Corps 20% MUSH 10% Prv Dbt
Fixed Income	**70%**	**100%**	**100%**	**100%**	**100%**
Short-term Bonds (Prov.)	6.5%	28%	0%	0%	0.0%
Mid-term Bonds (Prov.)	12.0%	18%	40%	28%	28%
Long-term Bonds (Prov.)	29.5%	54%	40%	32%	32%
Short-term Bonds (Corp.)	0.0%	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0.0%	0%	0%	9%	0%
Long-term Bonds (Corp.)	2.0%	0%	0%	11%	10%
MUSH Bonds	20.0%	0%	20%	20%	20%
Private Debt - Universe	0%	0%	0%	0%	10%
Public Equities	15%	0%	0%	0%	0%
Alternatives	15%	0%	0%	0%	0%

100% Fixed Income

All options match nominal Basic liability duration.

No Growth Assets proposed to Basic

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ASSET MIX ANALYSIS – SUMMARY RESULTS

BASIC.3 VS REAL LIABILITY BENCHMARK PRODUCES THE HIGHEST RETURN VS THE PREVIOUSLY ANALYSIS ASSET MIX OPTIONS

	Current Mix	Alternative Asset Mixes			
		Basic.1	Basic.2	Basic.3	Basic .4
		No MUSH	Add MUSH	Add Corps	Add PD
Expected return	4.29%	2.80%	2.93%	3.12%	3.09%
Excess return over liability benchmark	1.86%	0.38%	0.51%	0.70%	0.67%
1-Year Surplus volatility	3.84%	4.48%	4.91%	4.45%	4.57%
Excess return/Surplus volatility	0.484	0.085	0.104	0.156	0.146
1-year Median Surplus	$33.3 M	5.7 M	7.7 M	12.1 M	11.6 M
1-year 90th Percentile VaR	-87 M	-100 M	-109 M	-99 M	-102 M
1-year 95th Percentile VaR	-112 M	-128 M	-139 M	-126 M	-130 M
1-year 97.5th Percentile VaR	-134 M	-152 M	-164 M	-150 M	-154 M
Interest Rate Risk Hedge Ratio	85%	**100%**	**100%**	**100%**	**100%**
Median Surplus in 5 years	$185 M	30 M	42 M	63 M	60 M
5-Year Surplus volatility	10.00%	11.26%	12.48%	11.39%	11.68%
Prob. of Surplus in 5 years	86%	56%	58%	63%	62%
Prob. of 5-year positive real return	83%	60%	61%	64%	63%
Non-MUSH Yield	2.75%	2.55%	2.71%	2.92%	2.91%

Return Metrics

Risk Metrics

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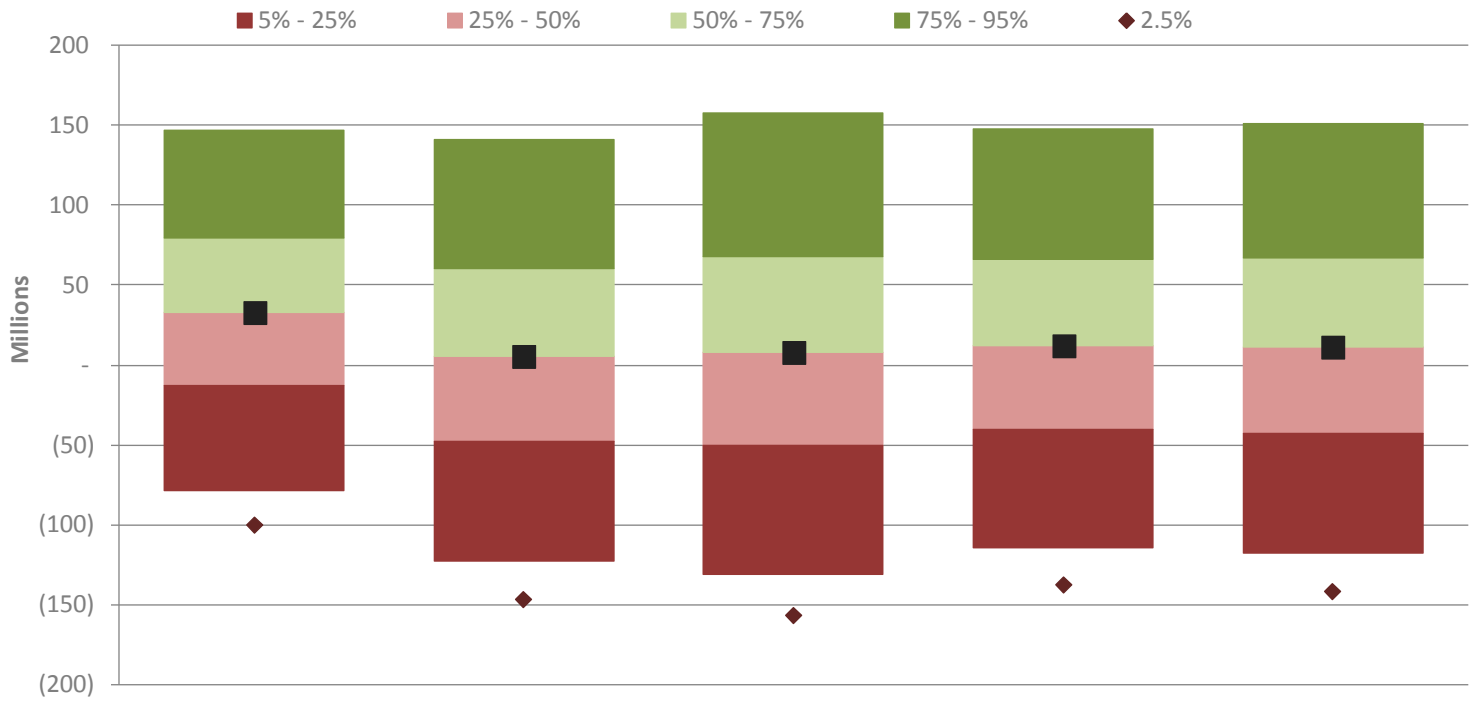
Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

1-85 (g) iv

EXPECTED SURPLUS GROWTH
BASIC- 1 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	147.1 M	140.9 M	158.0 M	147.7 M	150.8 M
75th	79.6 M	60.1 M	67.7 M	66.4 M	67.4 M
50th	33.3 M	5.7 M	7.7 M	12.1 M	11.6 M
25th	-12.9 M	-47.6 M	-50.4 M	-40.7 M	-42.6 M
5th	-79.0 M	-122.5 M	-130.9 M	-114.4 M	-118.0 M
2.5th	-100.5 M	-146.4 M	-156.4 M	-137.8 M	-142.1 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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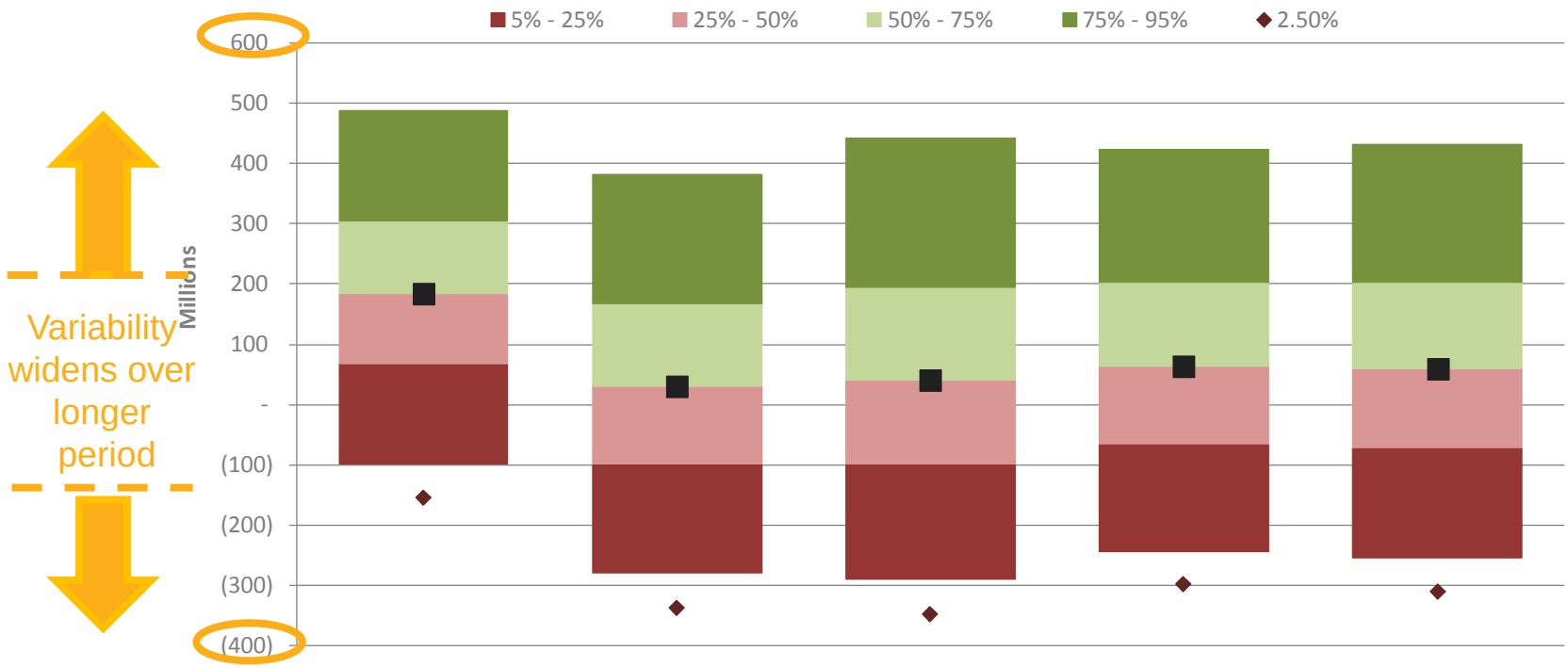
1-85 (g) iv

EXPECTED SURPLUS GROWTH
BASIC- 5 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	488.5 M	381.5 M	441.2 M	424.1 M	430.8 M
75th	305.8 M	167.2 M	194.8 M	202.1 M	202.8 M
50th	185.2 M	30.3 M	41.8 M	62.7 M	59.9 M
25th	67.8 M	-99.6 M	-99.7 M	-67.4 M	-73.3 M
5th	-99.2 M	-279.2 M	-289.3 M	-243.4 M	-253.4 M
2.5th	-153.8 M	-336.9 M	-349.0 M	-299.1 M	-310.4 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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1-85 (g) v

ANALYSIS
EFFICIENT FRONTIERS
PENSION PLAN
– REAL LIABILITY BENCHMARK



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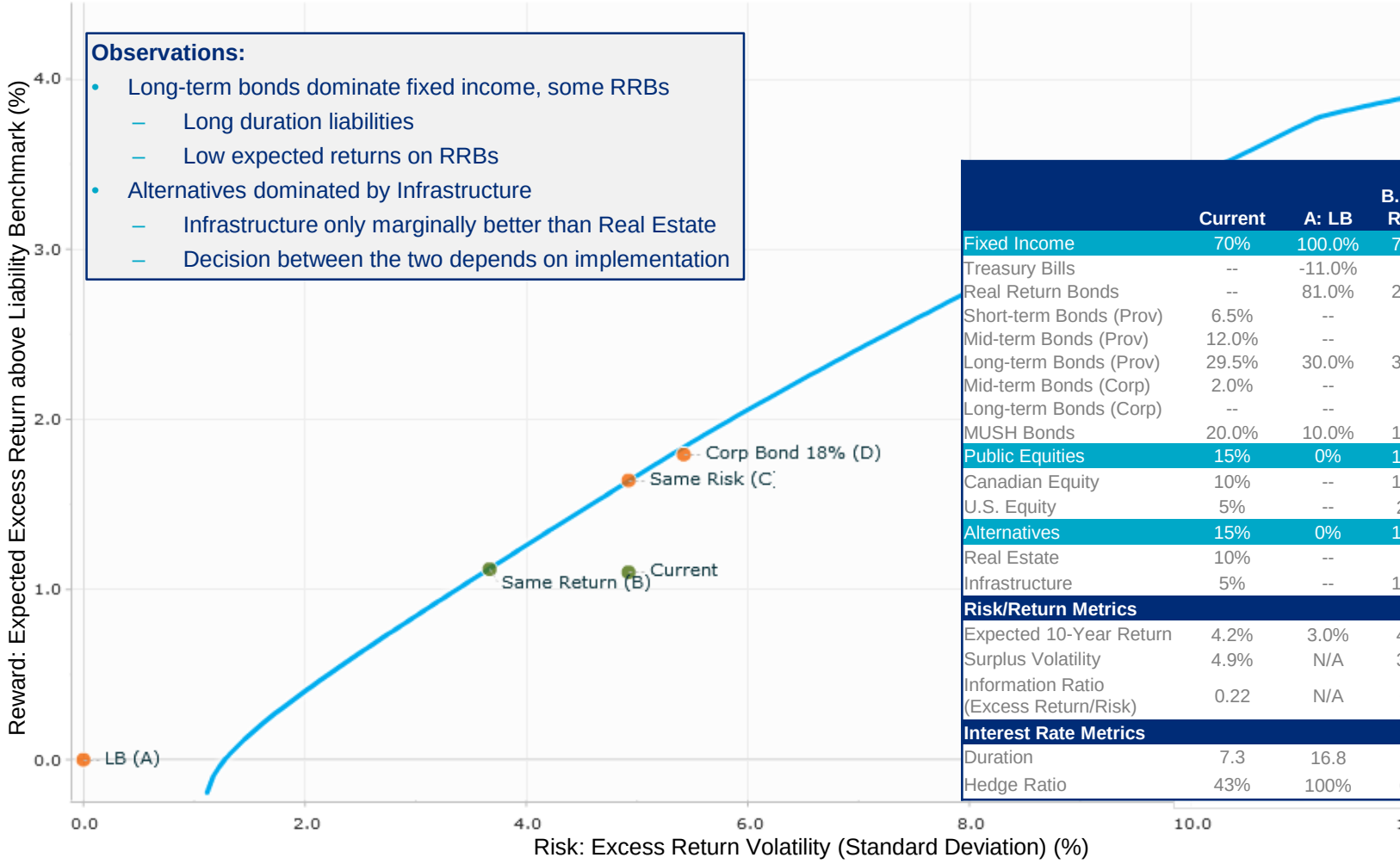
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY

1-84 (f)

Frontier: **Current Asset Classes**

Observations:

- Long-term bonds dominate fixed income, some RRBs
  - Long duration liabilities
  - Low expected returns on RRBs
- Alternatives dominated by Infrastructure
  - Infrastructure only marginally better than Real Estate
  - Decision between the two depends on implementation



	Current	A: LB	B. Same Return	C. Same Risk	D. Corp Bond 18%
Fixed Income	70%	100.0%	72.5%	61.5%	61.5%
Treasury Bills	--	-11.0%	--	--	--
Real Return Bonds	--	81.0%	23.5%	3.5%	3.5%
Short-term Bonds (Prov)	6.5%	--	--	--	--
Mid-term Bonds (Prov)	12.0%	--	--	--	--
Long-term Bonds (Prov)	29.5%	30.0%	39.0%	48.0%	30.0%
Mid-term Bonds (Corp)	2.0%	--	--	--	--
Long-term Bonds (Corp)	--	--	--	--	18.0%
MUSH Bonds	20.0%	10.0%	10.0%	10.0%	10.0%
Public Equities	15%	0%	14.0%	19.0%	19.0%
Canadian Equity	10%	--	11.5%	15.5%	15.5%
U.S. Equity	5%	--	2.5%	3.5%	3.5%
Alternatives	15%	0%	13.5%	19.5%	19.5%
Real Estate	10%	--	--	--	--
Infrastructure	5%	--	13.5%	19.5%	19.5%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	3.0%	4.2%	4.7%	4.8%
Surplus Volatility	4.9%	N/A	3.7%	4.9%	5.4%
Information Ratio (Excess Return/Risk)	0.22	N/A	0.31	0.33	0.33
Interest Rate Metrics					
Duration	7.3	16.8	10.3	8.7	8.3
Hedge Ratio	43%	100%	61%	52%	49%

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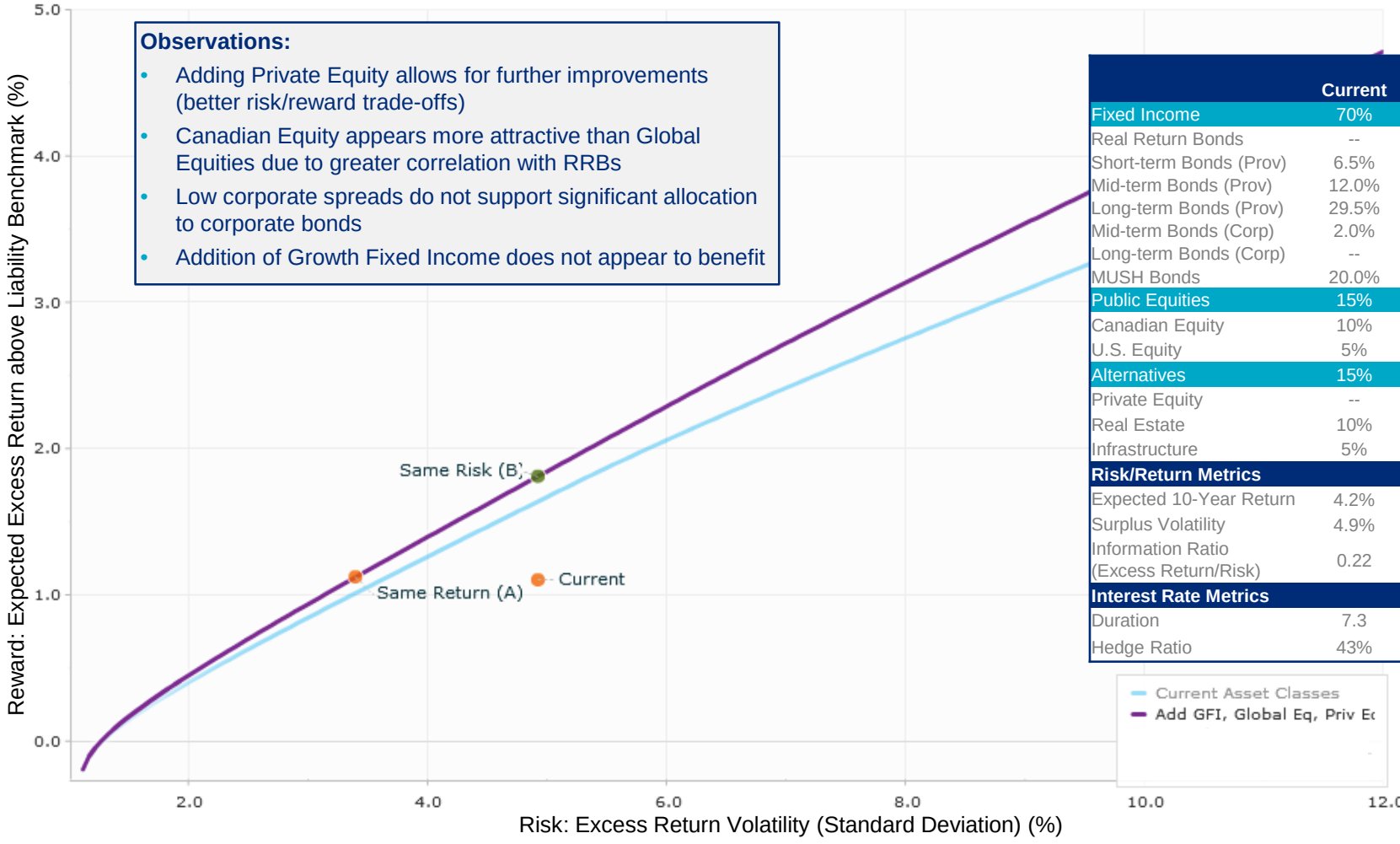
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EOUITY

1-84 (f)

Frontier: **Add GFI, Global Eq, Priv Eq**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	78.5%	67.0%
Real Return Bonds	--	34.0%	14.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	34.5%	42.5%
Mid-term Bonds (Corp)	2.0%	--	--
Long-term Bonds (Corp)	--	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	11.0%	16.5%
Private Equity	--	5.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	8.5%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.9%
Surplus Volatility	4.9%	3.4%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.33	0.37
Interest Rate Metrics			
Duration	7.3	11.2	9.5
Hedge Ratio	43%	66%	56%

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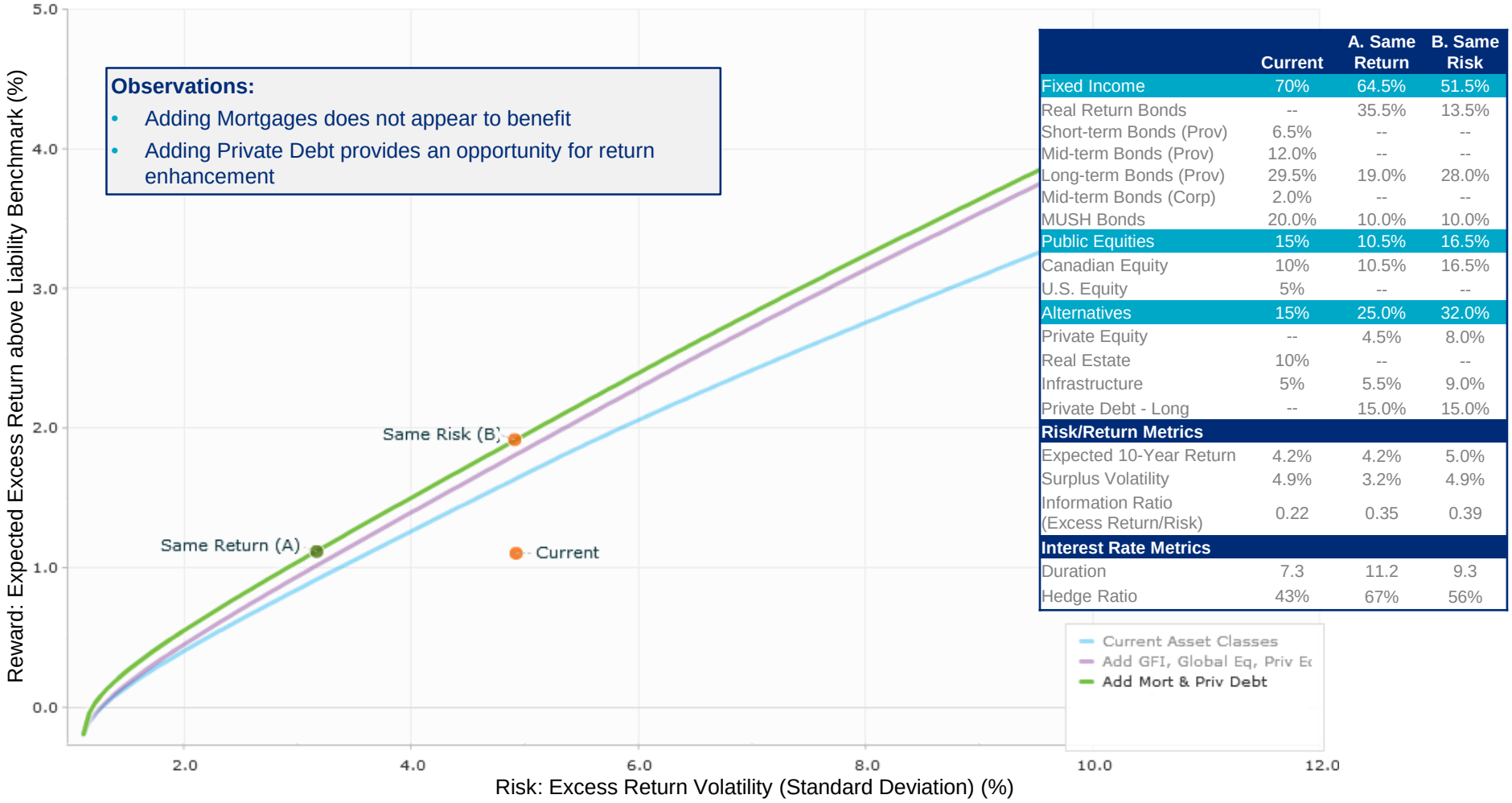
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT

1-84 (f)

Frontier: **Add Mort & Priv Debt**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	51.5%
Real Return Bonds	--	35.5%	13.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	19.0%	28.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	25.0%	32.0%
Private Equity	--	4.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	9.0%
Private Debt - Long	--	15.0%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	5.0%
Surplus Volatility	4.9%	3.2%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.35	0.39
Interest Rate Metrics			
Duration	7.3	11.2	9.3
Hedge Ratio	43%	67%	56%

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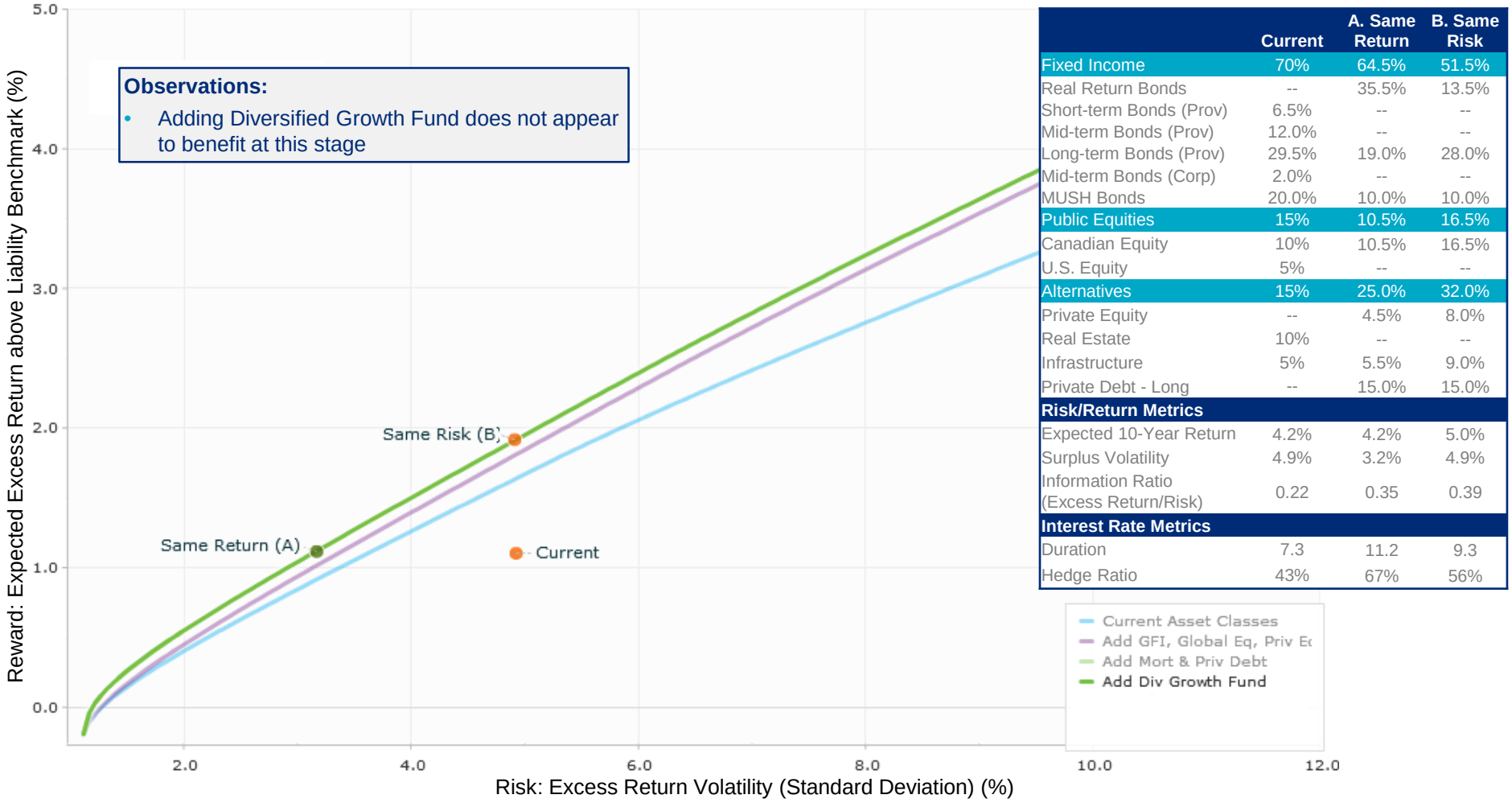
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND

1-84 (f)

Frontier: **Add Div Growth Fund**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	51.5%
Real Return Bonds	--	35.5%	13.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	19.0%	28.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	25.0%	32.0%
Private Equity	--	4.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	9.0%
Private Debt - Long	--	15.0%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	5.0%
Surplus Volatility	4.9%	3.2%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.35	0.39
Interest Rate Metrics			
Duration	7.3	11.2	9.3
Hedge Ratio	43%	67%	56%

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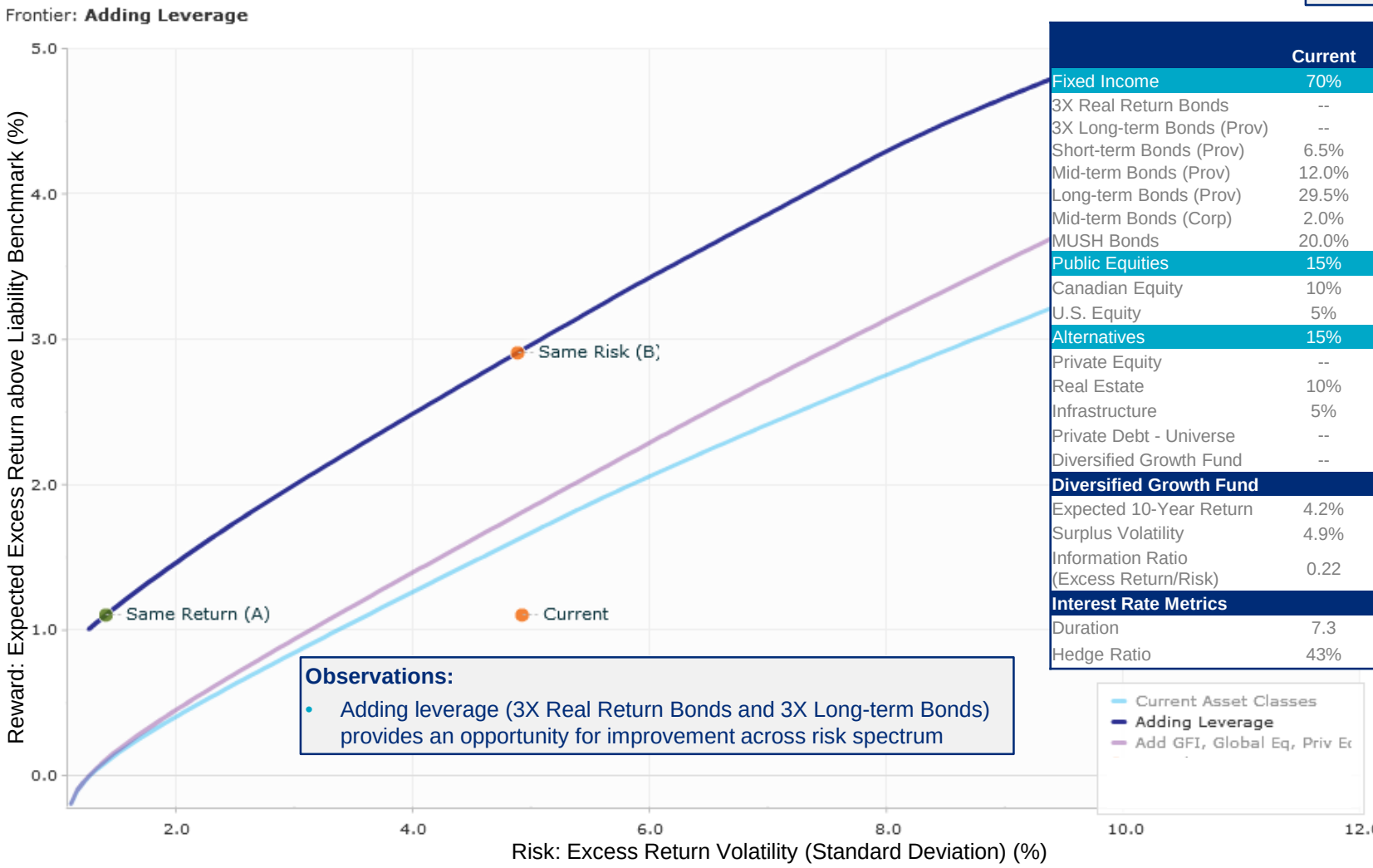
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING LEVERAGE (BOND OVERLAY)

1-84 (f)



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	69.0%	47.5%
3X Real Return Bonds	--	23.0%	15.0%
3X Long-term Bonds (Prov)	--	6.0%	15.0%
Short-term Bonds (Prov)	6.5%	29.0%	--
Mid-term Bonds (Prov)	12.0%	--	6.5%
Long-term Bonds (Prov)	29.5%	1.0%	1.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	7.5%	18.5%
Canadian Equity	10%	7.5%	18.5%
U.S. Equity	5%	--	--
Alternatives	15%	23.5%	34%
Private Equity	--	1.5%	10.5%
Real Estate	10%	5.0%	1.0%
Infrastructure	5%	1.0%	7.5%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	--
Diversified Growth Fund			
Expected 10-Year Return	4.2%	4.0%	5.7%
Surplus Volatility	4.9%	1.4%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.78	0.59
Interest Rate Metrics			
Duration	7.3	15.8	16.0
Hedge Ratio	43%	94%	95%

Observations:

- Adding leverage (3X Real Return Bonds and 3X Long-term Bonds) provides an opportunity for improvement across risk spectrum

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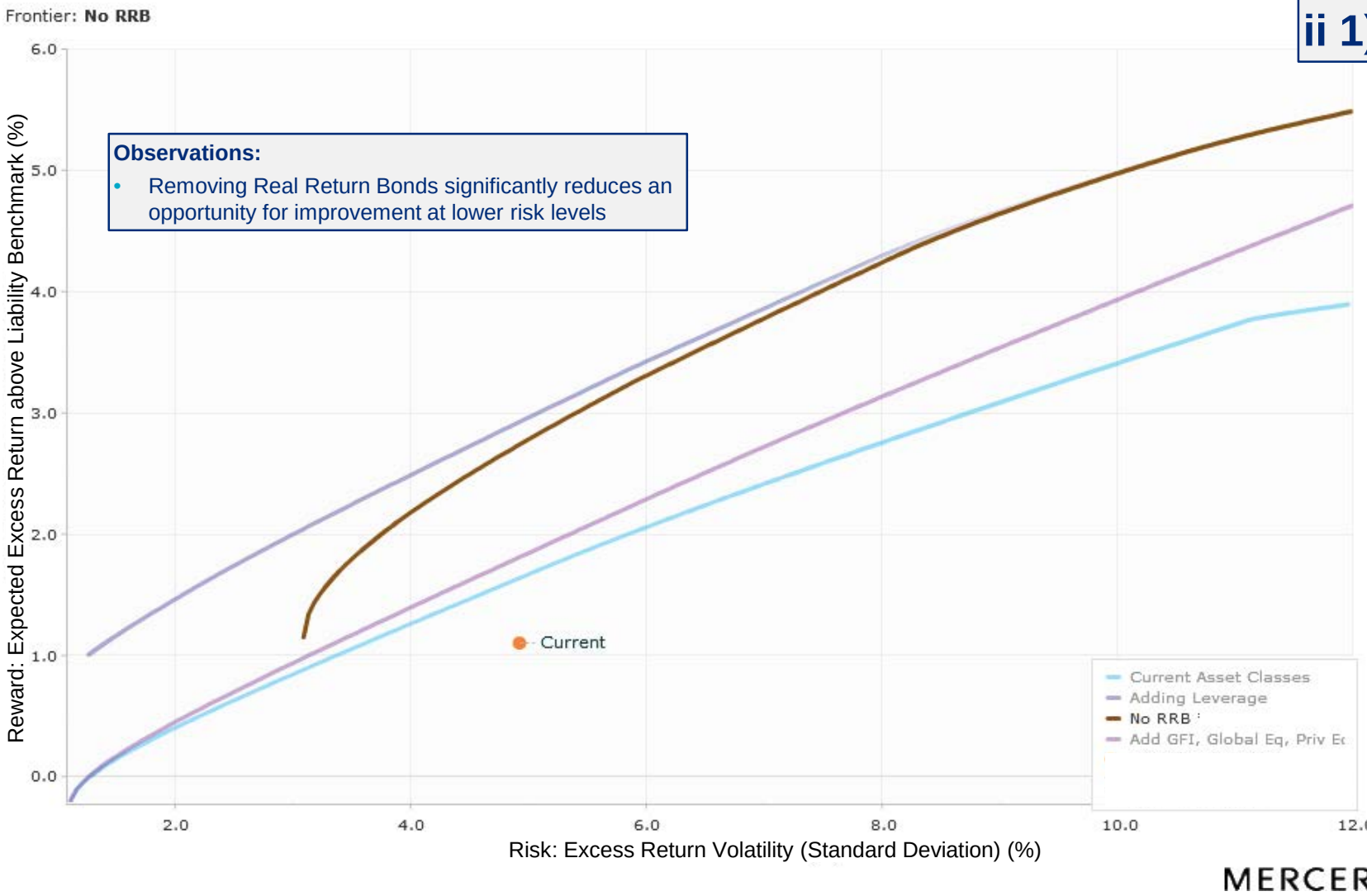
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REMOVING RRBS

1-85 (g) ii 1)



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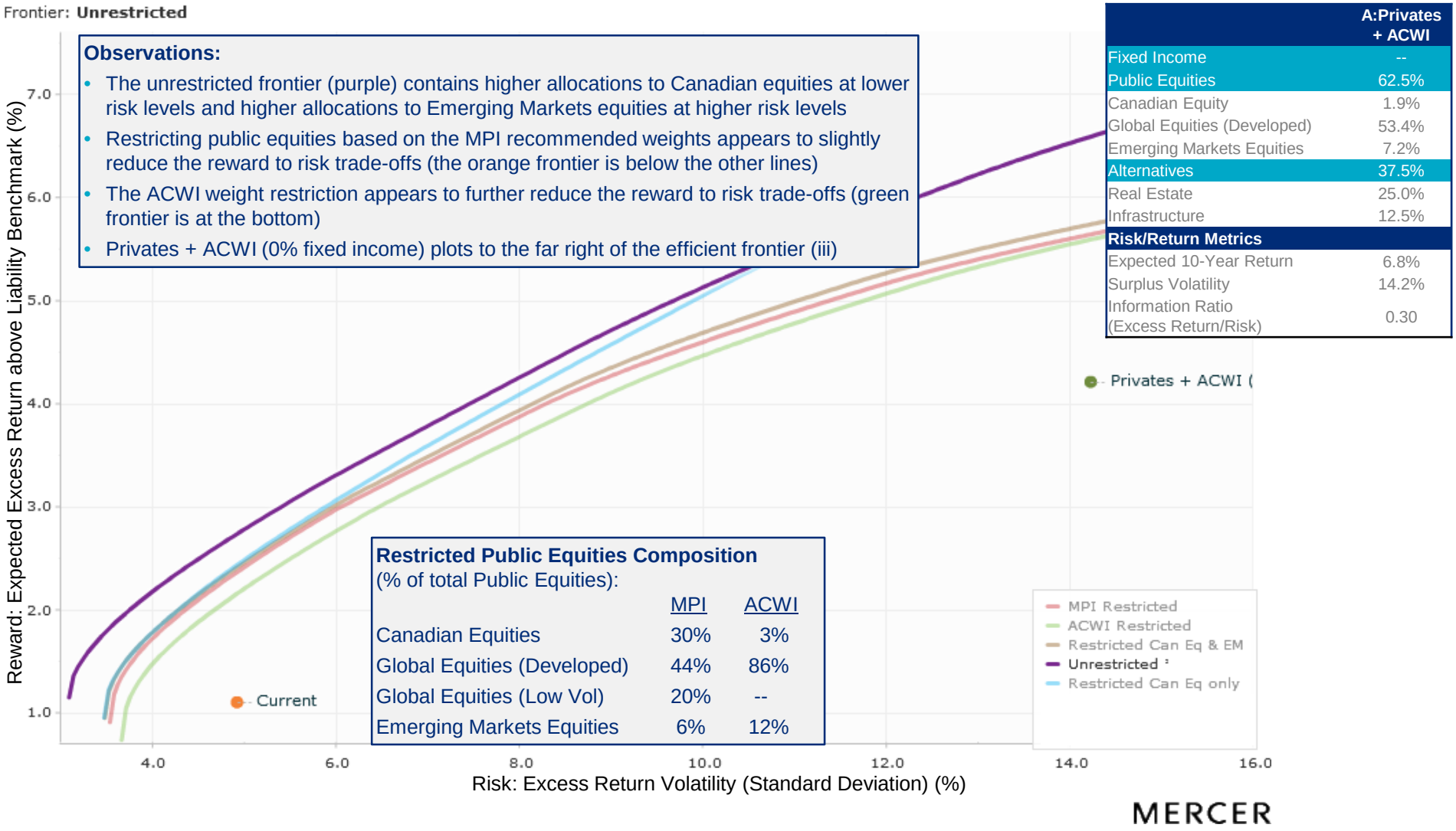
1-85 (g) ii 2), iii)

EFFICIENT FRONTIERS (NO RRBS)
RESTRICTING PUBLIC EQUITIES



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ASSET CLASS OPTIONS
PENSION

1-85 (g) iv GRA pg.

GROWTH ASSETS INCREASE

	Current	CSSB	Pension.1	Pension.2	Pension.3
		For reference	Balanced	Growth	Aggressive
Fixed Income	70%	27%	40%	30%	20%
T-Bills	0%	1%	-	-	-
Mid-term Bonds (Corp.)	2%	-	-	-	-
Long-term Bonds (Corp.)	0%	-	20%	20%	20%
Short-term Bonds (Prov.)	6.5%	-	-	-	-
Mid-term Bonds (Prov.)	12%	-	-	-	-
Long-term Bonds (Prov.)	29.5%	-	-	-	-
MUSH Bonds	20%	-	-	-	-
Private Debt – Long	0%	-	20%	10%	0%
Overall – Universe	0%	17.5%	-	-	-
Overall – Long	0%	8.5%	-	-	-
Public Equities	15%	55%	35%	46%	55%
Canadian Equity	10%	19%	10%	13%	18%
U.S. Equity	5%	15%	-	-	-
EAFE Equity	0%	21%	-	-	-
All-Country World Equity	0%	-	18%	18%	20%
Global Equity (Low Volatility)	0%	-	7%	14%	17%
Alternatives	15%	18%	25%	25%	25%
Private Equity	0%	4%	0%	0%	0%
Real Estate	10%	10%	15%	15%	15%
Infrastructure	5%	4%	10%	10%	10%

Emphasize Corporate Bonds and Private Debt to enhance returns.

Remove MUSH.

Diversify Equities.

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ASSET MIX ANALYSIS – SUMMARY RESULTS

PENSION

1-85 (g) iv

Metric	Current Mix	Alternative Approaches			
		Reference CSSB	Balanced Pension.1	Growth Pension.2	Aggressive Pension.3
Expected return	4.3%	6.1%	5.7%	5.9%	6.2%
Excess return over liability benchmark	1.3%	3.2%	2.7%	3.0%	3.3%
Surplus volatility	4.9%	11.4%	8.4%	9.6%	11.1%
Excess Return / Surplus Volatility	0.26	0.28	0.32	0.31	0.29
1 Year Median Surplus	$0.4 M	8.4 M	7.3 M	8.2 M	9.2 M
90th Percentile VaR	-27 M	-58 M	-44 M	-50 M	-57 M
95th Percentile VaR	-35 M	-74 M	-57 M	-64 M	-73 M
97.5th Percentile VaR	-43 M	-89 M	-68 M	-77 M	-87 M
Interest Rate Risk Hedge Ratio	47%	17%	36%	27%	17%
Median Surplus in 5 years	$6.2 M	52.7 M	44 M	50 M	57 M
5-Year Surplus volatility	13.4%	32.1%	23.3%	27.1%	31.8%
Prob. of surplus in 5 years	55%	67%	68%	68%	68%
Prob. of 5-year positive real return	83%	84%	87%	86%	85%
Non-MUSH Yield	2.75%	2.48%	3.72%	3.77%	3.86%

Return Metrics

Risk Metrics

Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

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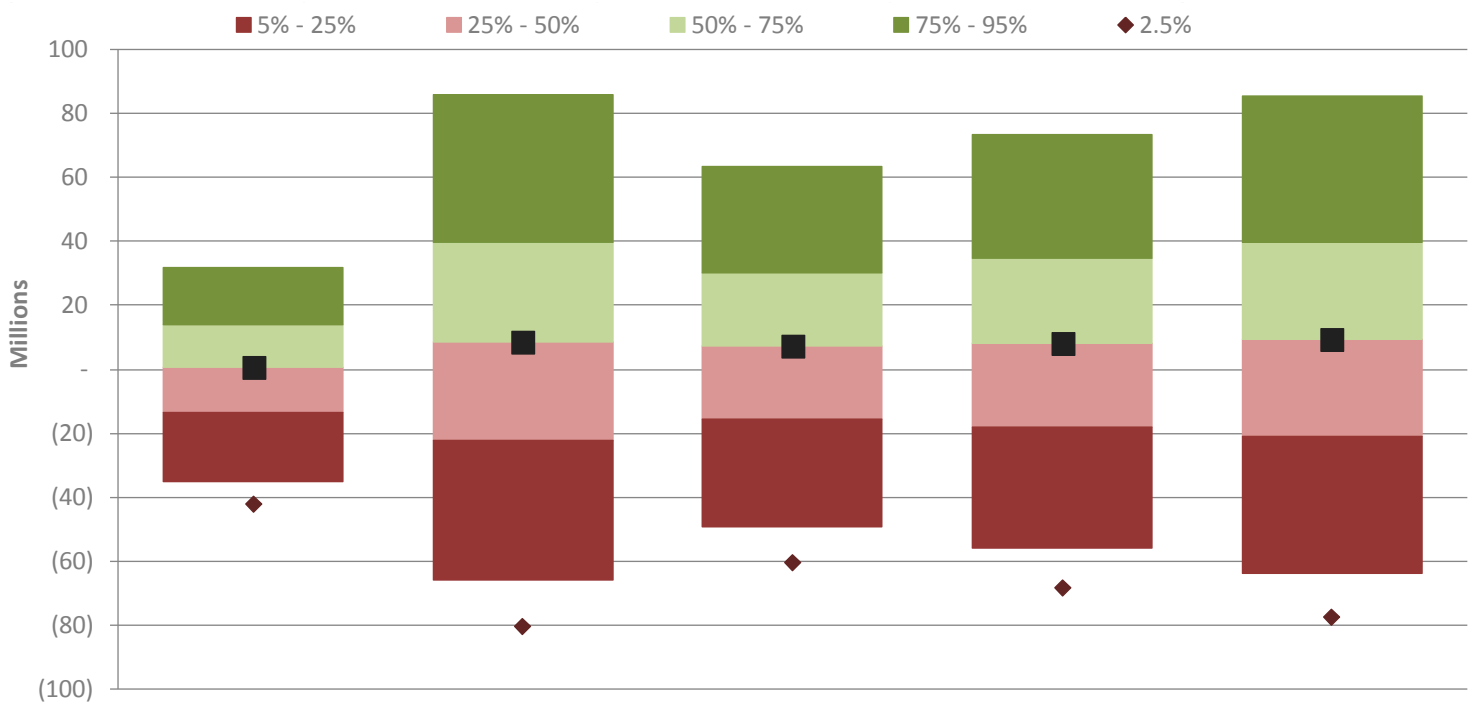
1-85 (g) iv

EXPECTED SURPLUS GROWTH
PENSION - 1 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	32.0 M	85.8 M	63.5 M	73.3 M	85.4 M
75th	13.8 M	39.5 M	30.3 M	34.7 M	39.9 M
50th	0.4 M	8.4 M	7.3 M	8.2 M	9.2 M
25th	-13.6 M	-22.3 M	-15.7 M	-18.0 M	-20.9 M
5th	-35.0 M	-66.0 M	-49.4 M	-55.9 M	-63.7 M
2.5th	-42.4 M	-80.3 M	-60.5 M	-68.3 M	-77.6 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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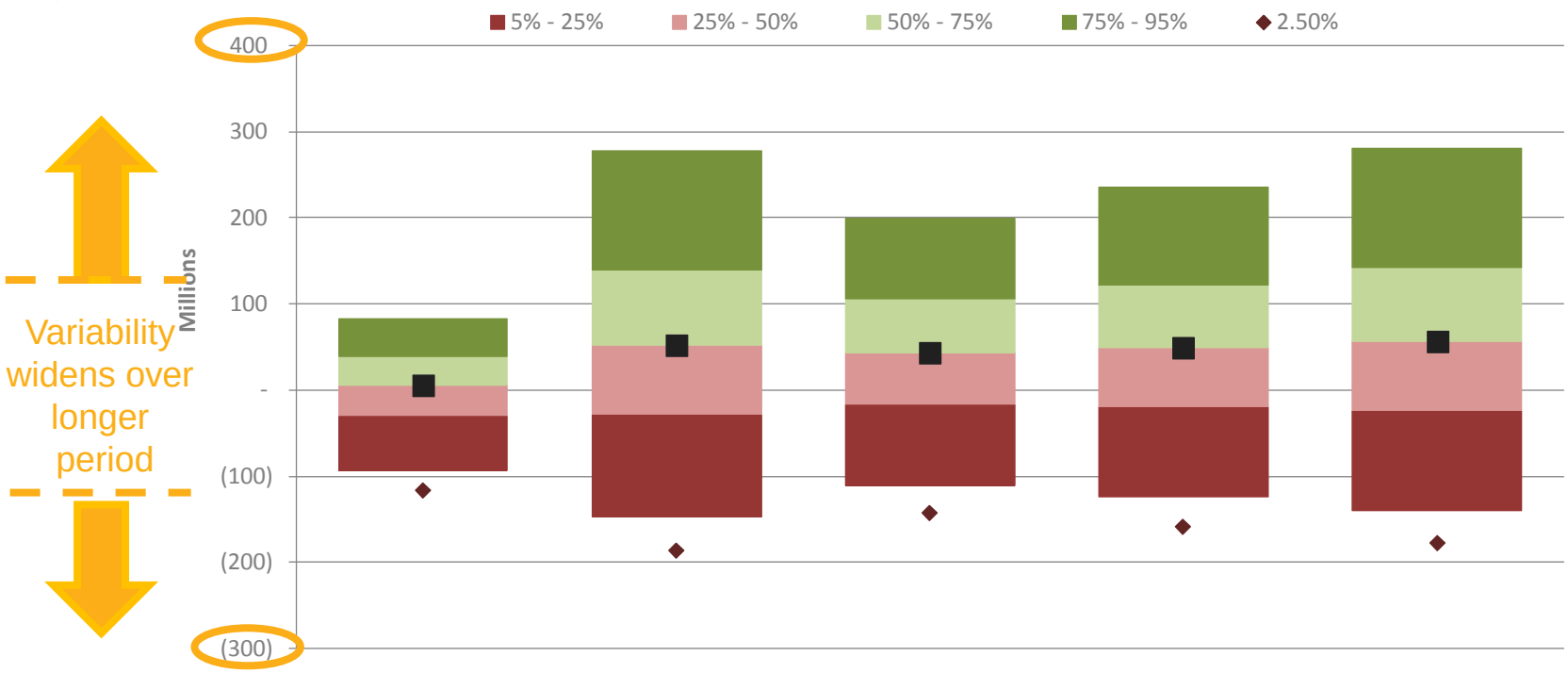
EXPECTED SURPLUS GROWTH
PENSION - 5 YEAR PROJECTIONS

1-85 (g) iv



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	83.3 M	278.3 M	199.2 M	235.3 M	281.1 M
75th	39.7 M	139.6 M	105.7 M	122.6 M	142.9 M
50th	6.2 M	52.7 M	43.7 M	50.0 M	56.9 M
25th	-31.3 M	-30.0 M	-18.0 M	-20.6 M	-24.5 M
5th	-93.9 M	-147.6 M	-110.5 M	-123.8 M	-139.7 M
2.5th	-116.9 M	-186.8 M	-142.3 M	-158.7 M	-178.0 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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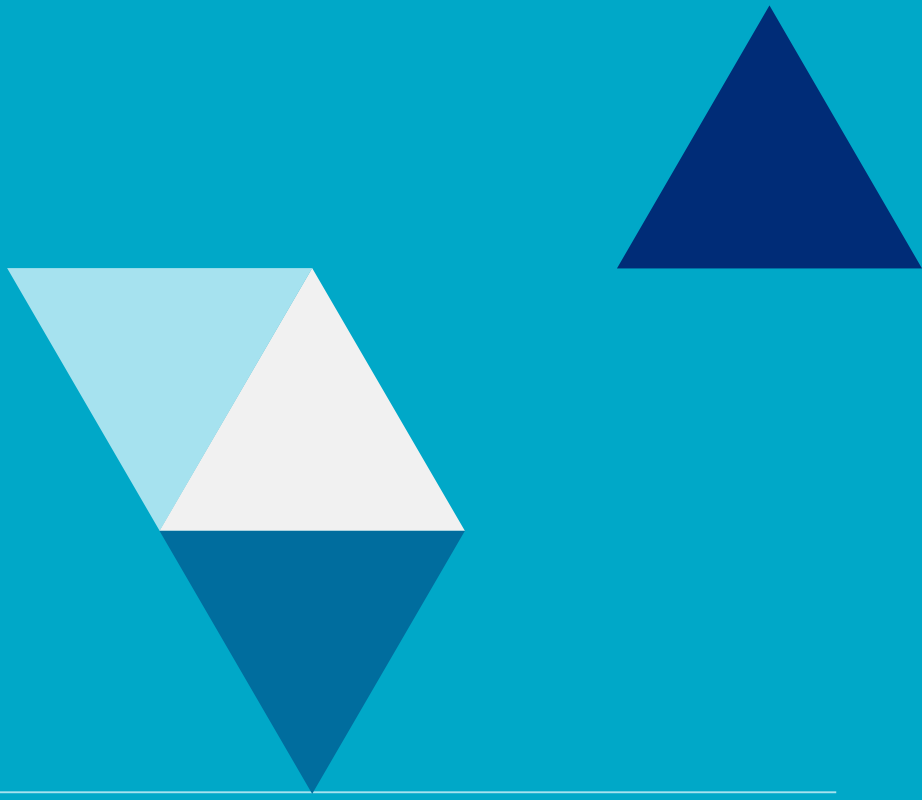
APPENDIX
CAPITAL MARKET ASSUMPTIONS



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CAPITAL MARKET ASSUMPTIONS
10-YEAR ASSUMPTIONS

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.4%	1.5%
2	Federal short-term bonds	1.9%	3.5%
3	Federal mid-term bonds	2.1%	6.5%
4	Federal long-term bonds	2.0%	8.5%
5	Real return bonds	2.7%	7.5%
6	Provincial short-term bonds	2.3%	3.5%
7	Provincial mid-term bonds	2.8%	6.5%
8	Provincial long-term bonds	3.0%	8.5%
9	Corporate short-term bonds	2.8%	3.5%
10	Corporate mid-term bonds	3.5%	6.5%
11	Corporate long-term bonds	3.8%	8.5%
12	Global bonds	0.8%	8.6%
13	High yield bonds	3.9%	9.5%
14	Emerging debt	6.8%	12.0%
15	Canadian equity (large cap.)	6.7%	19.5%
16	U.S. equity (large cap.)	6.7%	17.0%
17	Int'l equity (large cap.)	6.7%	17.1%
18	Global equity (large cap.)	6.7%	16.1%
19	Global low vol equity	6.1%	13.0%
20	Emerging equity	8.7%	25.0%
21	Private equity	10.1%	25.0%
22	Real estate	5.4%	13.0%
23	Diversified Growth Fund	4.9%	9.8%
24	Direct Infrastructure	6.2%	13.0%
25	MUSH Bonds	3.0%	6.5%
26	Commercial Mortgages	2.7%	3.5%
27	Long Commercial Mortgages	2.5%	5.3%
28	Private Debt - Universe	3.3%	5.4%
29	Private Debt - Long	3.5%	8.5%

Inflation: 2.0%

Fixed income returns based on projected yields implied by the current yield curve.

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

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CAPITAL MARKET ASSUMPTIONS
STANDARD MERCER CORRELATIONS

Correlations

Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Mercer's capital market assumptions are intended to represent reasonable expectations for the next 10 to 20 years and incorporate a wide range of considerations including:
  - Historical return, risk and correlation statistics of broad indices
  - Fixed income returns based on projected yields implied by the current yield curve
  - Estimation of component returns to develop total equity returns, using as starting points such items as
    - Current level of equity earnings yield
    - Inflation expectations
    - Expected economic growth
  - Expected relative relationships between asset classes
  - Some forward-looking judgment
- In general, we assume that future returns will be consistent with assumed risk levels
- Our assumptions have not been developed in the sense of an economic forecast, but rather, to the extent possible, a reading of the market

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Note that:
  - All foreign asset class return, risk and correlation assumptions are based on unhedged foreign currency exposures
  - Publicly traded asset class returns are assumed to be index returns
  - Alternative asset class returns are assumed to be inclusive of median alpha (i.e., active management value-added) and net of median fees

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PUB (MPI) 2-24

Part and Chapter:	**PUB (MPI) 1-63 IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

a) Please provide the Mitchell International agreement/statement of work as it relates to the CCRS Co-Development project.

b) Please provide copies of any other agreements or statements of work for Mitchell for ongoing work, post CCRS cancellation.

Rationale for Question:

To understand the impairment analysis performed.

RESPONSE:

a) ~~Please see the Appendices to this IR that contain the~~ Please refer to the Appendices for which the Corporation has sought confidential treatment: Master Services Agreement with Mitchell (Appendix 1); Schedule A – Support and Service Levels – and Order Form #7 (Appendix 2), and additional Order Forms numbered 5 (Appendix 3), 6 (Appendix 4), and 8 (Appendix 5).

MPI notes the rationale for the question is to further understand the impairment of deferred development costs detailed in *PUB (MPI) 1-63*. The deferred development

costs paid to Mitchell for CCRS, represent approximately ~~25%~~17% of the impaired deferred development. Figure 1 below presents a breakdown of the CCRS impairment.

Figure 1- CCRS Impairment ($)

Line No.	CCRS Payment Type	Consultant Services	Software	Compensation	Travel/Meeting Costs	Total
1	ESIT/Hewlett Packard	8,251,226				8,251,226
2	Mitchell SOW	2,617,829				2,617,829
		~~3,859,929~~				~~3,859,929~~
3	PRA Inc	66,525				66,525
4	Fineos	1,255,975	2,601,300			3,857,275
		~~13,875~~				~~13,875~~
5	IBM	17,989				17,989
6	MPI			797,632	7,488	805,120
7	Other Consultant Expenses				8,437	8,437
8	Total	12,209,543	2,601,300	797,632	15,925	15,624,400

In CAC (MPI) 1- 41 of the 2018 GRA, MPI provided the accounting policy for capitalization of organizational and deferred development costs, which provides a definition of deferred development costs.

b) The Corporation does not have any other agreements and/or statements of work currently engaging Mitchell.

PUB (MPI) 2-24

Part and Chapter:	**PUB (MPI) 1-63 IV VM.3**	**Page No.:**	**41**
PUB Approved Issue No:	**19. Current IT Strategic Plan and IT Expenses and Projects**		
Topic:	**Deferred Development Costs**		
Sub Topic:	**Impaired Deferred Development Cost**		

Preamble to IR (If Any):

Question:

a) Please provide the Mitchell International agreement/statement of work as it relates to the CCRS Co-Development project.

b) Please provide copies of any other agreements or statements of work for Mitchell for ongoing work, post CCRS cancellation.

Rationale for Question:

To understand the impairment analysis performed.

RESPONSE:

a) Please refer to the Appendices for which the Corporation has sought confidential treatment: Master Services Agreement with Mitchell (Appendix 1); Schedule A – Support and Service Levels – and Order Form #7 (Appendix 2), and additional Order Forms numbered 5 (Appendix 3), 6 (Appendix 4), and 8 (Appendix 5).

MPI notes the rationale for the question is to further understand the impairment of deferred development costs detailed in *PUB (MPI) 1-63*. The deferred development costs paid to Mitchell for CCRS, represent approximately 17% of the impaired

deferred development. Figure 1 below presents a breakdown of the CCRS impairment.

Figure 1: CCRS Impairment ($)

Line No.	CCRS Payment Type	Consultant Services	Software	Compensation	Travel/ Meeting Costs	Total
1	ESIT/Hewlett Packard	8,251,226				8,251,226
2	Mitchell SOW	2,617,829				2,617,829
3	PRA Inc	66,525				66,525
4	Fineos	1,255,975	2,601,300			3,857,275
5	IBM	17,989				17,989
6	MPI			797,632	7,488	805,120
7	Other Consultant Expenses				8,437	8,437
8	**Total**	**12,209,543**	**2,601,300**	**797,632**	**15,925**	**15,624,400**

In CAC (MPI) 1- 41 of the 2018 GRA, MPI provided the accounting policy for capitalization of organizational and deferred development costs, which provides a definition of deferred development costs.

b) The Corporation does not have any other agreements and/or statements of work currently engaging Mitchell.

PUB (MPI) 1-27

Part and Chapter:	**VI INV 14.1; Figure INV-42 & INV-43**	**Page No.:**	**74-75**
PUB Approved Issue No:	**8. Performance of the Investment portfolio**		
Topic:	**Investments**		
Sub Topic:	**Interest Rate Forecast**		

Preamble to IR (If Any):

Question:

a) Please provide the actual supporting forecast that was used to populate both INV-42 and INV-43.
b) Please update table INV-42 and INV-43 for the most current date (currently based on February 28, 2018) and also provide the supporting forecasts used for the updated tables.

Rationale for Question:

To understand the details that support the interest rate forecast tables and to obtain a most recent version.

RESPONSE:

a) See *Attachment A*, *Attachment C;* and *Attachment D*, which the Corporations is seeking confidential treatment pursuant to rule 13.

b) Figure 1 and 2 below are updates to INV-42 and INV-43. See *Attachment B, Attachment C,* and *Attachment D (seeking confidentiality)* for the supporting forecasts.

Figure 1: SIRF, Naïve and 50/50 GoC 10 Year Bond Forecast as of July 2018

Line No.			BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	**2018**	**Q2**	2.28%	2.19%	2.17%	2.23%	2.17%	2.17%	2.17%	2.20%	2.20%	2.17%	2.18%
2		**Q3**	2.30%	2.50%	2.35%	2.43%	2.22%	2.35%	2.40%	2.45%	2.38%	2.17%	2.27%
3		**Q4**	2.50%	2.55%	2.55%	2.52%	2.57%	2.60%	2.55%	2.55%	2.55%	2.17%	2.36%
4	**2019**	**Q1**	2.60%	2.65%	2.70%	2.63%	2.74%	2.70%	2.60%	2.60%	2.65%	2.17%	2.41%
5		**Q2**	2.65%	2.70%	2.80%	2.74%	2.93%	2.80%	2.65%	2.65%	2.74%	2.17%	2.46%
6		**Q3**	2.75%	2.65%	2.90%	2.84%	3.01%	2.90%	2.70%	2.70%	2.81%	2.17%	2.49%
7		**Q4**	2.80%	2.60%	2.95%	2.92%	3.09%	2.95%	2.75%	2.75%	2.85%	2.17%	2.51%
8	**2020**	**Q1**	X.XX%	2.72%	3.00%	2.98%	3.26%	X.XX%		2.78%	2.96%	2.17%	2.56%
9		**Q2**	X.XX%	2.75%	3.00%	3.03%	3.37%	X.XX%		2.80%	3.01%	2.17%	2.59%
10		**Q3**	X.XX%	2.80%	2.80%	3.06%	3.35%	X.XX%		2.83%	3.01%	2.17%	2.59%
11		**Q4**	X.XX%	2.85%	2.55%	3.08%	3.33%	X.XX%		2.85%	3.00%	2.17%	2.59%
12	**2021**	**Q1**	X.XX%	2.90%	2.35%	3.08%	3.31%	X.XX%		2.85%	2.99%	2.17%	2.58%
13		**Q2**	X.XX%	2.95%	2.25%	3.09%	3.29%	X.XX%		2.85%	2.97%	2.17%	2.57%
14		**Q3**	X.XX%	2.96%	2.20%	3.09%	3.33%	X.XX%		2.85%	2.97%	2.17%	2.57%
15		**Q4**	X.XX%	2.98%	2.20%	3.08%	3.37%	X.XX%		2.85%	2.99%	2.17%	2.58%
16	**2022**	**Q1**			2.20%	3.07%	3.40%	X.XX%		2.85%	2.96%	2.17%	2.57%
17		**Q2**			2.25%	3.06%	3.44%	X.XX%		2.85%	2.97%	2.17%	2.57%
18		**Q3**			2.35%	3.05%	3.48%	X.XX%		2.85%	3.01%	2.17%	2.59%
19		**Q4**			2.45%	3.04%	3.52%	X.XX%		2.85%	3.04%	2.17%	2.61%

Figure 2: SIRF, Naïve, 50/50 90-Day T-Bill Forecast as of July 2018

Line No.			BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	**2018**	**Q2**	1.21%	1.24%	1.26%	1.25%	1.42%	1.26%	1.26%	1.22%	1.27%	1.26%	1.26%
2		**Q3**	1.50%	1.45%	1.45%	1.49%	1.53%	1.40%	1.55%	1.50%	1.48%	1.26%	1.37%
3		**Q4**	1.70%	1.45%	1.55%	1.74%	1.88%	1.65%	1.80%	1.63%	1.68%	1.26%	1.47%
4	**2019**	**Q1**	1.70%	1.75%	1.70%	1.99%	1.96%	1.90%	2.05%	1.76%	1.83%	1.26%	1.55%
5		**Q2**	1.95%	1.70%	1.80%	2.24%	2.18%	2.15%	2.30%	1.88%	2.00%	1.26%	1.63%
6		**Q3**	2.15%	1.95%	1.95%	2.49%	2.21%	2.15%	2.30%	2.01%	2.15%	1.26%	1.71%
7		**Q4**	2.15%	2.00%	2.05%	2.74%	2.21%	2.15%	2.50%	2.13%	2.22%	1.26%	1.74%
8	**2020**	**Q1**	X.XX%	2.10%	2.25%	3.03%	2.39%	X.XX%		2.22%	2.35%	1.26%	1.80%
9		**Q2**	X.XX%	2.20%	2.25%	3.03%	2.47%	X.XX%		2.32%	2.42%	1.26%	1.84%
10		**Q3**	X.XX%	2.21%	2.20%	3.03%	2.41%	X.XX%		2.41%	2.40%	1.26%	1.83%
11		**Q4**	X.XX%	2.23%	1.90%	3.03%	2.35%	X.XX%		2.50%	2.35%	1.26%	1.81%
12	**2021**	**Q1**	X.XX%	2.24%	1.40%	3.03%	2.28%	X.XX%		2.50%	2.30%	1.26%	1.78%
13		**Q2**	X.XX%	2.25%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.31%	1.26%	1.79%
14		**Q3**	X.XX%	2.26%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
15		**Q4**	X.XX%	2.28%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
16	**2022**	**Q1**			1.25%	3.03%	2.26%	X.XX%		2.50%	2.31%	1.26%	1.79%
17		**Q2**			1.25%	3.03%	2.30%	X.XX%		2.50%	2.32%	1.26%	1.79%
18		**Q3**			1.25%	3.03%	2.33%	X.XX%		2.50%	2.33%	1.26%	1.80%
19		**Q4**			1.25%	3.03%	2.37%	X.XX%		2.50%	2.34%	1.26%	1.80%

PUB (MPI) 1-27

Part and Chapter:	**VI INV 14.1; Figure INV-42 & INV-43**	**Page No.:**	**74-75**
PUB Approved Issue No:	**8. Performance of the Investment portfolio**		
Topic:	**Investments**		
Sub Topic:	**Interest Rate Forecast**		

Preamble to IR (If Any):

Question:

a) Please provide the actual supporting forecast that was used to populate both INV-42 and INV-43.
b) Please update table INV-42 and INV-43 for the most current date (currently based on February 28, 2018) and also provide the supporting forecasts used for the updated tables.

Rationale for Question:

To understand the details that support the interest rate forecast tables and to obtain a most recent version.

RESPONSE:

a) ~~See *Attachment A.*~~ See Attachment A, Attachment C; and Attachment D, which the Corporations is seeking confidential treatment pursuant to rule 13.

~~[Attachment C Redacted. The Corporation is seeking confidential treatment of this response].~~

b) Figure 1 and 2 below are updates to INV-42 and INV-43. See *Attachment B* ~~for the supporting forecasts.,~~ Attachment C, and Attachment D (seeking confidentiality) for the supportingforecasts.

~~[Attachment C Redacted. The Corporation is seeking confidential treatment of this response].~~

Figure 1: SIRF, Naïve and 50/50 GoC 10 Year Bond Forecast as of July 2018

Line No.		BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	2018 Q2	2.28%	2.19%	2.17%	2.23%	2.17%	2.17%	2.17%	2.20%	2.20%	2.17%	2.18%
2	Q3	2.30%	2.50%	2.35%	2.43%	2.22%	2.35%	2.40%	2.45%	2.38%	2.17%	2.27%
3	Q4	2.50%	2.55%	2.55%	2.52%	2.57%	2.60%	2.55%	2.55%	2.55%	2.17%	2.36%
4	2019 Q1	2.60%	2.65%	2.70%	2.63%	2.74%	2.70%	2.60%	2.60%	2.65%	2.17%	2.41%
5	Q2	2.65%	2.70%	2.80%	2.74%	2.93%	2.80%	2.65%	2.65%	2.74%	2.17%	2.46%
6	Q3	2.75%	2.65%	2.90%	2.84%	3.01%	2.90%	2.70%	2.70%	2.81%	2.17%	2.49%
7	Q4	2.80%	2.60%	2.95%	2.92%	3.09%	2.95%	2.75%	2.75%	2.85%	2.17%	2.51%
8	2020 Q1	X.XX%	2.72%	3.00%	2.98%	3.26%	X.XX%		2.78%	2.96%	2.17%	2.56%
9	Q2	X.XX%	2.75%	3.00%	3.03%	3.37%	X.XX%		2.80%	3.01%	2.17%	2.59%
10	Q3	X.XX%	2.80%	2.80%	3.06%	3.35%	X.XX%		2.83%	3.01%	2.17%	2.59%
11	Q4	X.XX%	2.85%	2.55%	3.08%	3.33%	X.XX%		2.85%	3.00%	2.17%	2.59%
12	2021 Q1	X.XX%	2.90%	2.35%	3.08%	3.31%	X.XX%		2.85%	2.99%	2.17%	2.58%
13	Q2	X.XX%	2.95%	2.25%	3.09%	3.29%	X.XX%		2.85%	2.97%	2.17%	2.57%
14	Q3	X.XX%	2.96%	2.20%	3.09%	3.33%	X.XX%		2.85%	2.97%	2.17%	2.57%
15	Q4	X.XX%	2.98%	2.20%	3.08%	3.37%	X.XX%		2.85%	2.99%	2.17%	2.58%
16	2022 Q1			2.20%	3.07%	3.40%	X.XX%		2.85%	2.96%	2.17%	2.57%
17	Q2			2.25%	3.06%	3.44%	X.XX%		2.85%	2.97%	2.17%	2.57%
18	Q3			2.35%	3.05%	3.48%	X.XX%		2.85%	3.01%	2.17%	2.59%
19	Q4			2.45%	3.04%	3.52%	X.XX%		2.85%	3.04%	2.17%	2.61%

Figure 2: SIRF, Naïve, 50/50 90-Day T-Bill Forecast as of July 2018

Line No.			BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (SIRF)	Naïve	50/50
1	2018	Q2	1.21%	1.24%	1.26%	1.25%	1.42%	1.26%	1.26%	1.22%	1.27%	1.26%	1.26%
2		Q3	1.50%	1.45%	1.45%	1.49%	1.53%	1.40%	1.55%	1.50%	1.48%	1.26%	1.37%
3		Q4	1.70%	1.45%	1.55%	1.74%	1.88%	1.65%	1.80%	1.63%	1.68%	1.26%	1.47%
4	2019	Q1	1.70%	1.75%	1.70%	1.99%	1.96%	1.90%	2.05%	1.76%	1.83%	1.26%	1.55%
5		Q2	1.95%	1.70%	1.80%	2.24%	2.18%	2.15%	2.30%	1.88%	2.00%	1.26%	1.63%
6		Q3	2.15%	1.95%	1.95%	2.49%	2.21%	2.15%	2.30%	2.01%	2.15%	1.26%	1.71%
7		Q4	2.15%	2.00%	2.05%	2.74%	2.21%	2.15%	2.50%	2.13%	2.22%	1.26%	1.74%
8	2020	Q1	X.XX%	2.10%	2.25%	3.03%	2.39%	X.XX%		2.22%	2.35%	1.26%	1.80%
9		Q2	X.XX%	2.20%	2.25%	3.03%	2.47%	X.XX%		2.32%	2.42%	1.26%	1.84%
10		Q3	X.XX%	2.21%	2.20%	3.03%	2.41%	X.XX%		2.41%	2.40%	1.26%	1.83%
11		Q4	X.XX%	2.23%	1.90%	3.03%	2.35%	X.XX%		2.50%	2.35%	1.26%	1.81%
12	2021	Q1	X.XX%	2.24%	1.40%	3.03%	2.28%	X.XX%		2.50%	2.30%	1.26%	1.78%
13		Q2	X.XX%	2.25%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.31%	1.26%	1.79%
14		Q3	X.XX%	2.26%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
15		Q4	X.XX%	2.28%	1.25%	3.03%	2.22%	X.XX%		2.50%	2.30%	1.26%	1.78%
16	2022	Q1			1.25%	3.03%	2.26%	X.XX%		2.50%	2.31%	1.26%	1.79%
17		Q2			1.25%	3.03%	2.30%	X.XX%		2.50%	2.32%	1.26%	1.79%
18		Q3			1.25%	3.03%	2.33%	X.XX%		2.50%	2.33%	1.26%	1.80%
19		Q4			1.25%	3.03%	2.37%	X.XX%		2.50%	2.34%	1.26%	1.80%

BANK OF MONTREAL
(BMO)

.DESC	Canada: Overnight Money Market Financing Rate, Target [BoC] (%)	Canada: 3-Month Treasury Bills [BoC] (%)	Canada: Benchmark 10-Year Bond Yields [BoC] (%)
.T1	Q4-1992	Q1-1962	Q1-1989
.TN	Q4-2021	Q4-2021	Q4-2021
.SOURCE	BMOCME	BMOCME	BMOCME
.DTLM	Mar-16-2018 10:48	Mar-16-2018 10:48	Mar-16-2018 10:48
.FRQ	Quarterly [Monthly]	Quarterly [Monthly]	Quarterly [Monthly]
20161	0.500000	0.446985	1.216894
20162	0.500000	0.510072	1.284791
20163	0.500000	0.502113	1.059972
20164	0.500000	0.482349	1.445373
20171	0.500000	0.471420	1.712945
20172	0.500000	0.539864	1.513022
20173	0.833333	0.808318	1.947045
20174	1.000000	0.923567	1.961595
20181	1.250000	1.161387	2.286381
20182	1.250000	1.202641	2.416139
20183	1.500000	1.441989	2.535222
20184	1.750000	1.681337	2.654306
20191	2.000000	1.920684	2.786667
20192	2.250000	2.160032	2.925667
20193	2.500000	2.359489	3.064667
20194	2.500000	2.359489	3.203667
20201	2.500000	2.359489	3.293889
20202	2.750000	2.609489	3.394445
20203	2.750000	2.609489	3.495000
20204	2.750000	2.609489	3.540000
20211	2.750000	2.609489	3.557222
20212	2.500000	2.359489	3.518889
20213	2.500000	2.359489	3.508333
20214	2.500000	2.359489	3.553333

BANK OF MONTREAL
(BMO)

.DESC	Canada: Overnight Money Market Financing Rate, Target [BoC] (%)	Canada: 3-Month Treasury Bills [BoC] (%)	Canada: Benchmark 10-Year Bond Yields [BoC] (%)
.T1	Q4-1992	Q1-1962	Q1-1989
.TN	Q4-2022	Q4-2022	Q4-2022
.SOURCE	BMOCME	BMOCME	BMOCME
.DTLM	Jul-12-2018 13:34	Jul-12-2018 13:34	Jul-12-2018 13:34
.FRQ	Quarterly [Monthly]	Quarterly [Monthly]	Quarterly [Monthly]
20161	0.500000	0.446985	1.216894
20162	0.500000	0.510072	1.284791
20163	0.500000	0.502113	1.059972
20164	0.500000	0.482349	1.445373
20171	0.500000	0.471420	1.712945
20172	0.500000	0.539864	1.513022
20173	0.833333	0.808318	1.947045
20174	1.000000	0.923567	1.961595
20181	1.250000	1.139677	2.236988
20182	1.250000	1.212951	2.277850
20183	1.500000	1.468929	2.237415
20184	1.750000	1.675000	2.425930
20191	1.750000	1.712500	2.537857
20192	2.000000	1.937500	2.635102
20193	2.250000	2.125000	2.715680
20194	2.250000	2.125000	2.787925
20201	2.250000	2.162500	2.901281
20202	2.500000	2.350000	3.047222
20203	2.500000	2.350000	3.120000
20204	2.500000	2.350000	3.165000
20211	2.500000	2.350000	3.182222
20212	2.500000	2.350000	3.143889
20213	2.500000	2.350000	3.133333
20214	2.500000	2.350000	3.178333

13. TRANSITIONAL INVESTMENT POLICY STATEMENT

Table of Contents

POLICY STATEMENT - GOVERNANCE 35

SECTION I – OVERVIEW 38

SECTION II – RESPONSIBILITIES 39

SECTION III – CONFLICT OF INTEREST 41

SECTION IV – LIABILITY CHARACTERISTICS 42

SECTION V – INVESTMENT OBJECTIVES 43

SECTION VI – PERMITTED INVESTMENTS 44

SECTION VII – ASSET ALLOCATION 47

SECTION VIII – INVESTMENT RISK 48

SECTION IX – VOTING RIGHTS 49

SECTION X – MONITORING 50

SECTION XI – WITHDRAWAL POLICY 24

SECTION XII – REVIEW 25

APPENDIX A - DEFINITIONS 26

Purpose

The purpose of this Policy is to provide comprehensive guidelines to the Investment Committee on considerations to be made in dealing with the Corporation's investments. This policy is transitional as the current 70% bond/30% growth asset allocation will be effective until February 28, 2019 and the five new investment portfolios will be effective after February 28, 2019 as a result of the Asset Liability Management study conducted in 2017/18. When the policy is reviewed in April 2019 the current 70% bond/30% growth asset allocation will be removed.

Effective Date

The Investment Policy Statement applies to investment activity on or after July 31, 2018.

Review

To be reviewed annually by the Investment Committee. The next scheduled review will occur in April 2019. The Investment Committee will be required to provide a written report on the results of its review, including assessment of the effectiveness of this Policy and recommendations for revisions.

Approval

This Policy is effective subject to approval by the Minister of Finance and will be applied by the Department of Finance.

General Policy Statement

The Manitoba Public Insurance Corporation Act requires the Corporation to pay to the Minister of Finance (the "Minister") the Corporation's investment assets (the "Fund") to be invested in accordance with The Financial Administration Act. The Minister recognizes that the Corporation has unique investment goals and desires the Department of Finance (the "Department") to work closely and cooperatively with the Corporation in ensuring that this Investment Policy Statement is followed to address both the need and objectives of the Corporation and the Minister, respectively.

The purpose of the five portfolios defined in Section 7.2 (collectively "the Fund") is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in stabilizing premiums payable by policyholders, in that order.

The Corporation must maintain significant long and short-term investment funds to ensure satisfaction of its obligations to claimants. These assets must be managed in a manner which will maximize investment returns for an appropriate level of risk. The Fund must also have sufficient liquidity to address all funding needs of the Corporation as they arise.

Total Return includes both the change in the price of a financial asset, over a set period of time, as well as any income or dividends paid by the asset. In a portfolio context, it is the weighted average of the change in price of the various asset classes.

Risk is the uncertainty of future outcomes. In a portfolio context, there is unsystematic risk which can be diversified away and systematic risk which cannot be eliminated. Systematic risk is essentially the risk inherent in securities markets. The minimum acceptable level of risk for the Corporation occurs when its assets have been sufficiently diversified so as to effectively eliminate unsystematic risk. Systematic risk may be controlled by investing in authorized asset classes and through the use of hedging strategies.

The Corporation considers the short-term volatility of premiums to be a primary concern. As such, mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations. The mismatch in the changes in assets and liabilities, as a result of changes in interest rates, is expected to be minimized by defining a narrow bandwidth around the actuarially determined duration of the Corporation's claim liabilities.

It is a statutory requirement that the Corporation, pursuant to the requirements of the Act, pay to the Minister of Finance (the "Minister"), all moneys in any reserves established under Section 18 of the Act and such additional moneys as are not immediately required for the purposes of the Corporation as are available for investment. The moneys paid will be invested in accordance with *The Financial Administration Act.* The Minister has charged the Department of Finance (the "Department") with the operational management of the Fund.

Any investment counsel, advisors or custodians that may be required to advise on the Corporation's investments will be engaged on a basis satisfactory to the Minister where applicable, subject to authorization by the Lieutenant Governor in Council.

The Minister and the Department recognize the need for participation and direction from the Corporation in determining the appropriate policies and strategies and parameters for investment of the Fund including the use of derivatives to mitigate investment risk or create a desired return (where no margin or borrowing is used). Derivatives are not to be used for speculative purposes.

The Investment Committee Working Group reviews the Investment Policy Statement at least once a year.

Statement of Investment Beliefs

The administrators of the Fund believe that:

i. Asset allocation is the most important factor in determining the performance of the Fund.
ii. Market timing at the strategic asset allocation level is generally not an effective strategy for consistently increasing returns.
iii. Identifying, measuring and monitoring risks within the portfolio are important.
iv. The success of active management varies on the efficiency of capital markets.
    a. In inefficient markets, active managers can add value net of fees over the long term.

b. In efficient markets, it is believed that active managers will tend to underperform net of fees over the long term.

v. Passive management may be appropriate to reduce active management risk and cost in both efficient and some inefficient markets.

vi. A liability sensitive approach to investing reduces the Fund's interest rate risk by matching the size and duration of the Corporation's liabilities with fixed income securities.

vii. Over the long-term, equities are expected to provide a return premium over bonds, with higher expected volatility. A meaningful allocation to foreign equities will increase portfolio diversification and thereby decrease portfolio risk while, at the same time, providing the potential for enhanced long-term returns.

viii. MUSH bonds benefit the Corporation without degrading the quality and return of the Fund's investment portfolio, while also benefiting Manitoba residents.

ix. Private debt benefits the Corporation by enhancing and diversifying the return of the Fund's investment portfolio without degrading the quality.

x. Alternative asset classes such as real estate and infrastructure provide income and potential capital growth, and are suited to offset inflation sensitive liabilities.

xi. Cash provides the lowest expected long-term return, and should be held in minimal amounts where possible.

Investment Fund Strategy Statement

The asset allocation contained in the Investment Policy Statement shall be adopted for investments of the Fund.

Equities

Equities include Canadian and foreign securities.

The Working Group shall annually review the risk, return and diversification of the equity holdings in the Fund, and will report the results to the Investment Committee.

Alternative Investments

Alternative Investments may include Canadian Real Estate, Private Equity and Infrastructure.

The Working Group shall annually review the risk, return and diversification of the Canadian Real Estate, Private Equity and Infrastructure holdings in the Fund, and will report the results to the Investment Committee.

Fixed Income

The Working Group shall annually review the risk, return and diversification of the fixed income holdings in the Fund, and will report the results to the Investment Committee.

The Fund's fixed income assets shall be primarily managed in a "buy and hold" strategy subject to changes in the duration of the claims liabilities. When it is advantageous, the Department may trade bonds to take advantage of various bonds that appear undervalued and to take advantage of the changing shape of the yield curve. The Department should not be taking significant actions based on views regarding the future direction of interest rates. Fixed income management will be governed by the accepted duration ranges as defined in section 8.4 of this Investment Policy Statement. The fixed income portfolio shall be diversified amongst federal, Manitoba, other provincial, municipal and corporate issues and also amongst a variety of maturities, and may include allocations to private placements (bonds and debentures) of various maturities to be funded over time.

Gains and Losses

The Corporation will account for gains and losses in accordance with International Financial Reporting Standards (IFRS).

Section I – Overview

1.1 This Investment Policy Statement ("the Statement") applies to the assets held in the Fund ("the Fund") in respect of the liabilities of the Manitoba Public Insurance Corporation ("the Corporation") under the Manitoba Public Insurance Corporation Act ("the Act"). The Statement contains investment objectives, investment guidelines, and monitoring procedures.

1.2 The Fund will be managed in accordance with all applicable legal requirements notwithstanding any indication to the contrary which might be construed from the Statement. The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

1.3 With respect to any portion of the Fund invested in pooled funds, provisions of the Investment Policy Statement of such pooled fund shall prevail over those of the Statement to the extent that they are in conflict.

1.4 Any investment counsel or other agent or advisor providing services in connection with the investment of the Fund shall accept and adhere to this Statement.

Section II – Responsibilities

2.1 The purpose of the Investment Committee ("the Committee"), as appointed by the Board of Directors of the Corporation ("the Board") shall be to assist the Board in:

i) recommending investment policies and strategies to the Board for subsequent consideration by the Minister;

ii) review matters relating to investment activities of the Fund;

iii) providing oversight and monitoring performance of the Fund;

iv) monitor the implementation of investment decisions consistent with policies and strategies approved by the Board; and

v) provide suggestions for consideration by the Working Group.

2.2 In accordance with the Section 12 of the Act, The Minister of Finance is responsible for the investments of the Corporation. Specifically, the Act provides:

INVESTMENTS
12(1) The corporation shall pay to the minister charged with the administration of The Financial Administration Act, for investment for the corporation, moneys in any reserve established under section 18 and such additional moneys as are not immediately required for the purposes of the corporation and are available for investment.

MONEYS TO BE CREDITED TO CORPORATION
12(2) Moneys paid under subsection (1) for investment shall form part of the trust and special division of the Consolidated Fund and may be invested in accordance with The Financial Administration Act, and the interest earnings thereon shall be credited to the account of the corporation in the trust and special division of the Consolidated Fund.

PAYMENT OF EARNINGS
12(3) Any earnings, whether alone or with the principal sum invested for the corporation under this section, or any part thereof, shall be paid over to the corporation by the minister charged with the administration of The Financial Administration Act on the request of the corporation."

RESERVES
18 The corporation shall establish and maintain reserves in such amounts that, at all times, it has sufficient funds to meet all the payments as may come payable under this Act and regulations.

2.3 Investment counsels, advisers and custodians may be hired by the Minister of Finance subject to authorization by the Lieutenant Governor in Council under The Executive Government Organization Act, Section 16 and 16(d) as follows:

AGREEMENTS WITH OTHER AUTHORITIES

16 The Lieutenant Governor in Council may authorize a minister, for and on behalf of the government, or an agency of the government, to enter into an agreement with

(d) any person or group of persons; for the benefit or purposes of the residents of Manitoba or any part thereof."

The Department is charged by the Minister with the operational management of the fund. Duties include establishing legal contracts with investment counsel, providing the Corporation with short term cash and treasury management services, managing the fixed income portfolio and providing input into the Investment Committee Working Group.

The Investment Committee Working Group is a joint committee of the Department and the Corporation. The role of the Investment Committee Working Group is:

a) Act as liaison between the Department and the Investment Committee;

b) Develop strategies for investment exposure for consideration by the Investment Committee and the Department;

c) Review, screen and recommend investment managers;

d) Monitor the performance of investment managers;

e) Prepare draft investment policies and annual strategies for the Fund for review and approval by the Investment Committee and the Department;

f) Implement investment policies and direction with the prior approval and concurrence of the Department;

g) Provide regular reports to the Investment Committee and the Department, as they shall require.

Quorum for the Investment Committee Working Group is met by one of MPI's Vice President, Finance & CFO or the Chief Actuary & Vice President, Product and Risk Management plus the Assistant Deputy Minister from the Department of Finance, or their respective designates in their absence.

MPI's Financial Services Department manages the treasury function of the Corporation in conjunction with the Department of Finance. This department is also responsible for all the accounting requirements of the Fund.

MPI's Investment Department monitors the outside investment counsel for compliance with the Statement and their contracts, works with any outside consultant for investment counsel searches, provides research and analysis on issues discussed by the Working Group, and develops and maintains relationships with members of the investment community and other provincial Crown insurance companies.

Section III – Conflict of Interest

3.1 A conflict of interest, whether actual, potential or perceived, is defined for the purposes of this Statement as any event in which the Corporation, an employee of the Corporation, an employee of the Department performing duties on behalf of the Corporation, any member of the Board or the Committee, any investment counsel or delegate, the Custodian, or any person or company directly related to any of the foregoing, may benefit materially from knowledge of, participation in, or by virtue of, an investment decision or holding of the Fund.

3.2 The Working Group shall satisfy itself that an appropriate policy regarding conflicts of interest exists and is followed by any investment counsel appointed. As a minimum, The Code of Ethics and The Standards of Professional Conduct adopted by the CFA Institute (formerly the Association of Investment Management Research or AIMR) shall be applied to such investment counsel.

3.3 A fiduciary, according to the CFA Institute, is one who holds a position of trust or confidence. A conflict of interest is deemed to exist when a fiduciary has an interest of sufficient substance and proximity to its duties and powers with respect to the Fund to impair its ability to render unbiased advice or to make unbiased decisions affecting the Fund.

3.4 A fiduciary, as described in section 3.3, must immediately disclose any conflict of interest in writing along with all relevant details to the chairperson of the Committee who, in turn, discloses it to all Committee members at the appropriate time.

3.5 No part of the Fund shall be loaned to any member of the Board, the Committee, an employee of the Department performing duties on behalf of the Corporation, or employee of the Corporation or any legal entity owned or controlled by any of the aforementioned. In addition, the Fund may not enter into a transaction with a related party unless:

a. The transaction is required for the operation or administration of the Fund and the terms and conditions of the transaction are not less favourable to the Fund than market terms and conditions; or
b. The securities of the related party are acquired through a public exchange, with the exception of MUSH bonds as noted in section 6.5.

Related party includes any officer, director or employee of the Corporation. It also includes the investment counsels and their employees, a union representing employees of the Corporation, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others.

Section IV – Liability and Retained Earnings Characteristics

4.1 The Corporation is a Manitoba Crown Corporation and is not subject to provincial or federal income taxes.

4.2 The Corporation's liabilities include both short-term and long-term liabilities arising from its insurance business as well as pension liabilities. In its insurance business, short-term liabilities are a result of all perils coverage, which have a short time frame between claim

reporting and claim settlement while long-term liabilities are a result of both PIPP coverage and tort coverage. The long-term nature of PIPP coverage arises mainly from lifetime benefits payable to eligible claimants. Tort coverage has a long-term nature mainly due to long settlement periods, which is a result of the more complicated nature of these claims. The following is a description of liabilities and retained earnings by business line:

4.2.1 **Basic Claims Liabilities** cover universal compulsory automobile insurance for Manitoban drivers. The rates for this coverage are approved by the Public Utilities Board of Manitoba. Obligations are a mix of long-term payments (typically disability claims indexed to inflation – Manitoba CPI), and short-term payments (typically physical damage repairs). Claim liability estimates have risk from mortality, asset liability mismatch, investment returns, technological improvements, and societal/legal factors. These liabilities comprise the great majority of the total business based on net claims incurred. These liabilities are long-term in nature and are subject to significant interest rate risk, while requiring a high level of liquidity to pay claims.

4.2.2 **Rate Stabilization Reserve** represents the Basic Claims investment assets in excess of liabilities, hence does not directly have backing liabilities, yet would transfer to back liabilities in the case of unfavourable Basic Claims experience. The purpose of the assets is to protect motorists from rate increases due to unexpected variances from forecasted results and non-recurring events.

4.2.3 **Special Risk Extension Liabilities** are with respect to an unregulated, competitive insurance line covering fleet insurance claims. These liabilities are short-term in nature, and are not inflation sensitive. Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims.

4.2.4 **Extension Liabilities** are with respect to unregulated, optional policies covering auto insurance claims. These liabilities are short-term in nature, and are not inflation sensitive. Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims.

4.2.5 **Employee Future Benefit Liabilities** are with respect to accrued employee pension, post-retirement and severance benefits for all lines of business in conjunction with MPI's unfunded portion of the Civil Service Superannuation Board of Manitoba ("CSSB") pension obligations. Employee Future Benefit Liabilities are subject to interest rate risk tied to high quality long-term corporate bond yields. These liabilities are long-term in nature and are subject to high interest rate risk.

4.3 The Corporation's cash needs are significant due to the uncertainties in the timing and amount of claims payments. This is offset by the high certainty of future premium income.

4.4 Benefits of the Personal Injury Protection Plan (PIPP) paid by the Corporation are indexed to inflation through the Manitoba consumer price index.

4.5 The assets supporting the Corporation's liability for the employer's portion of the employee's pension liability will no longer be co-mingled with other investments and will have their own asset allocation (see Section 7.2).

4.6 The duration of current liabilities of the Corporation are reviewed and calculated annually by MPI's Pricing and Economics Department.

Section V – Investment Objectives

5.1 To meet the Corporation's liability commitments, both short-term and long-term.

5.2 To maximize investment returns for an appropriate level of risk. Risk can be defined by the standard deviation of returns, the Sharpe Ratio, Value at Risk and other commonly used risk measures for the total MPI portfolio, or any component of the total portfolio, which are compared to the same measures for the relevant index. For more specific information on risk tolerances please see "Schedule B" of the relevant equity manager's contract.

5.3 Risk is also defined as the duration gap (or mismatch) between fixed income assets and claims liabilities. Duration is a measure of the sensitivity of the market value of fixed income assets and liabilities to changes in interest rates. Section 8.4 describes the duration bandwidth that the Corporation applies to manage its interest rate risk.

5.4 Given the different nature of liabilities, the investment objectives and risk tolerances for each portfolio backing the five segments (which are held to back liabilities, retained earnings or a combination of both) is as follows:

5.4.1 **Basic Claims Liabilities:** Objective is to back policyholder claims and ensure funds are available as liabilities come due and to minimize interest rate risk through duration matching. The funds are intended to pursue modest incremental returns while maintaining risk management as a top priority. The fund must maintain sufficient liquidity to support the Basic line of business as required. Physical damage claims are typically settled within one year and are funded by cash from premiums. Payments on PIPP claims made in the short-term (0-12 months) represent approximately 5%-10% of the overall PIPP liability and are funded from a combination of investment income and cash from premiums. The timing and amount of payments beyond 12 months are estimated and long-term investments are held to cover these liabilities.

5.4.2 **Rate Stabilization Reserve:** Objective is to ensure sufficient levels of capital are maintained such that the line of business remains healthy and in an actuarially determined state of satisfactory financial condition. The RSR portfolio must have sufficient capital to withstand plausible adverse events and to deliver rate stability and predictability. Given that there are no specific backing obligations duration management does not apply and the fund's objective is to generate real returns to facilitate stable premium rates. A moderate level of liquidity is required such that funds will be available in the event the Corporation experiences a series of adverse events and resulting financial losses which deteriorate its capital base. The RSR is currently designed to withstand adverse scenarios at the 1-in-40 year probability level

5.4.3 **Special Risk Extension:** Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. SRE claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing SRE contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

5.4.4 **Extension:** Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. Extension claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing Extension contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

5.4.5 **Employee Future Benefits Liabilities:** Objective is to ensure that pension and other obligations are paid as they become due. The duration of the Employee Future Benefits liability will be continually monitored to inform liquidity requirements and constraints of the pension fund. Current durations are such that minimal liquidity is required.

5.5 To protect the portfolio from loss of principal (book value).

5.6 To achieve a time weighted total return, before all investment management fees, at least equal to the following indices and according to the target allocation defined in section 7.1. Passive management strategies are not expected to earn a return above their respective benchmarks. The investment returns achieved by the investment managers will be measured and monitored on rolling four-year and ten-year periods.

Asset Class	Annual Expected Return
Cash and Equivalents	FTSE TMX 91-Day Treasury Bill Index
Canadian Bonds	
Provincial Short-term Bonds	FTSE TMX Short Term Provincial Bond Index
Provincial Mid-term Bonds	FTSE TMX Mid Term Provincial Bond Index
Provincial Long-Term Bonds	FTSE TMX Long Term Provincial Bond Index
Corporate Mid-term Bonds	FTSE TMX Mid Term Corporate Bond Index
Corporate Long-term Bonds	FTSE TMX Long Term Corporate Bond Index
Corporate Bonds	FTSE TMX Corporate Bond Index
Non-marketable (MUSH) Bonds	FTSE TMX Short Term Provincial Bond Index FTSE TMX Mid Term Provincial Bond Index
Private Debt	
Private Debt - Universe	FTSE TMX Universe Bond Index plus 75 bps over a rolling four year period annualized
Private Debt - Long	FTSE TMX Long Term Bond Index plus 50 basis points over a rolling four year period annualized

Canadian Equities	
Large Market Capitalization Equities	S&P/TSX Capped Composite Total Return Index plus 150 basis points over a rolling four year period annualized
Small to Mid Market Capitalization Equities	BMO Small Cap (Unweighted) Blended Index plus 150 basis points over a rolling four year period annualized[a]
Global Equities	
Global Equities	MSCI World Total Return Index plus 150 basis points over a rolling four year period annualized
Low Volatility Equities	MSCI World Total Return Index
Alternative Investments	
Canadian Real Estate	ICREIM/IPD Canadian Property Index
Infrastructure	CPI + 5%

[a] The unweighted index is an equally weighted average of the price of each member. The Blended index includes both equities and income trusts.

Section VI – Permitted Investments

6.1 The Investment Committee supports the Fund's annual commitment to new Manitoba School, Hospital and Municipal bonds and debentures. The Fund's annual commitment will be determined by the Department and reported to the Investment Committee.

6.2 The Investment Committee is committed to support Manitoba enterprise where, on the advice of the Minister of Finance, no degradation in investment yield or grade is evident. This mandate reflects the Investment Committee's commitment for the Fund investments to be socially responsible to Manitoba residents. The benchmark against which no degradation in yield or grade is allowed is defined as the ten-year Government of Canada bond at the time of the investment.

6.3 After meeting the commitments of 6.1 and 6.2, the Fund may only be invested in the following asset categories:

a) cash;

b) demand or term deposits, or similar instruments issued or unconditionally guaranteed by trust companies or banks;

c) short-term notes;

d) treasury bills;

e) bankers' acceptances;

f) commercial paper;

g) bonds and debentures or other debt instruments of government, government agencies, or corporations;

h) private placement bonds and debentures

i) Canadian and foreign publicly traded equities;

j) private equity and venture capital

k) real estate

l) infrastructure

m) pooled funds consisting of assets listed in a) through k) above.

6.4 Cash and equivalent investments include cash and fixed income investments having a maturity of less than one year at the time of purchase.

6.5 Bonds include all fixed income securities having a maturity of one year or more at the time of purchase and include Canada, Manitoba, provincial, municipal, corporate bonds, floating rate notes, and debentures that are tradable in the fixed income market and

Manitoba rural municipality, school division and health care facility bonds and debentures (MUSH bonds) which are not tradable in the fixed income market.

6.6 Private Debt includes investment grade debt covering private corporate debt, infrastructure debt, power & energy debt, real estate debt and other forms of private debt.

6.7 Canadian equities include securities traded on the TSX or common stocks, preferred stocks and convertible securities of Canadian issuers.

6.8 Foreign equities include common stocks, preferred stocks and convertible securities of foreign issuers.

6.9 Canadian Real Estate includes pooled funds and direct holdings of real estate.

6.10 Infrastructure includes pooled funds, segregated funds, direct holdings and co-investments.

6.11 Private Equity is an investment in an unlisted company, which is typically long-term and unregulated. Venture capital is a form of private equity which focuses on small to medium sized business with strong growth potential. Venture capital is designed to help entrepreneurs start up or develop a new business where a high degree of risk is involved. The Corporation has capped its investments in Private Equity and will make no new investments in this asset class.

6.11 The Fund may purchase derivative financial, commodity or currency related instruments such as forward contracts, options, futures or swaps provided that such participation is not for speculative purposes and are not purchased with the use of leverage. Use of derivatives should be consistent with the overall asset allocation and risk management of the Corporation. Use of a derivative is permitted only after the Working Group has reviewed the application of the derivative and determined that it meets or exceeds the defined investment objectives of this document. Derivative strategies also require the prior approval of the Committee.

6.12 Investment counsels shall not borrow money, pledge or otherwise encumber any of the Fund's assets except to the extent that a temporary overdraft may occur in the normal course of day to day portfolio management. The use of leverage associated with real estate pooled funds and infrastructure investments is acceptable and will be defined in the investment manager's contract.

6.13 The Investment Counsel shall assess the financial strength of borrowers by reference to published credit ratings and by their own analysis. The investment counsel's analysis should include all material factors relevant to assess the ability of the borrower to repay the debt instrument, to discharge interest obligations on the specified payment dates and to survive periods of financial adversity. New investments may not be made in debt obligations that are in default of principal or interest.

6.14 The Minister may enter into a written agreement with the Custodian for securities lending provided that readily marketable securities having a market value of at least 105%, of the market value of the securities lent, are maintained on at least a daily basis.

6.15 Investment counsels may use soft dollars (directed commissions) to pay for research related goods and services in accordance with the CFA Institute Soft Dollar Standards. Investment counsels shall disclose to the Corporation at least annually the total amount of commissions and the products and services obtained through soft dollar arrangements from the Corporation's account.

Section VII – Asset Allocation

7.1 Until February 28, 2019 (or any other date determined by the Investment Committee) the Fund's target asset allocation is the following:

Asset Class (Group)	**Minimum**	**Normal**	**Maximum**	Accounting Class**
Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
-Government Bonds	40.0%	45.0%	60.0%	FVTPL
-Corporate Bonds	0.0%	5.0%	10.0%	FVTPL
-Non-Marketable Bonds	15.0%	20.0%	25.0%	HTM
Total Debt	**60.0%**	**70.0%**	**80.0%**	
Public Equities				
-Canadian	7.0%	10.0%	13.0%	AFS
-U.S.	3.0%	5.0%	7.0%	AFS
Total Public Equities	**10.0%**	**15.0%**	**20.0%**	
Alternative Investments				
-Canadian Real Estate	7.0%	10.0%	13.0%	FVTPL
-Private Equity*	0.0%	0.0%	0.5%	AFS
-Infrastructure	2.0%	5.0%	8.0%	FVTPL
Total Alternative Investments	**9.0%**	**15.0%**	**21.5%**	

*represents net committed capital

**AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

7.2 After February 28, 2019 (or any other date determined by the Investment Committee) the target allocation for each portfolio is as follows:

Basic Claims

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Provincial Bonds	60% FTSE Mid Term Provincial Bond Index 40% FTSE Long Term Provincial Bond Index	50%	60%	70%	FVTPL
Corporate Bonds	50% FTSE TMX Mid Term Corporate Bond Index 50% FTSE TMX Long Term Corporate Bond Index	10%	20%	30%	FVTPL
Non-Marketable Bonds	FTSE TMX Provincial Bond Index	10%	20%	25%	HTM, FVTPL
Total Debt			100%		

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Objective is to back policyholder claims and ensure funds are available as liabilities come due and to minimize interest rate risk through duration matching. The funds are intended to pursue modest incremental returns while maintaining risk management as a top priority. The fund must maintain sufficient liquidity to support the Basic line of business as required. Physical damage claims are typically settled within one year and are funded by cash from premiums. Payments on PIPP claims made in the short-term (0-12 months) represent approximately 5%-10% of the overall PIPP liability and are funded from a combination of investment income and cash from premiums. The timing and amount of payments beyond 12 months are estimated and long-term investments are held to cover these liabilities.

Basic RSR, Extension, SRE

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Provincial Bonds	50% FTSE TMX Short Term Provincial Bond Index 50% FTSE TMX Mid Term Provincial Index	10%	20%	30%	FVTPL
Corporate Bonds	FTSE TMX Corporate Bond Index	0%	10%	20%	FVTPL
Non-Marketable Bonds	FTSE TMX Provincial Bond Index	0%	5%	10%	HTM, FVTPL
Private Debt	FTSE TMX Universe Bond Index	10%	15%	20%	FVTPL
Total Debt		40%	50%	60%	
Public Equities					
Canadian	85% S&P TSX Capped Composite Total Return Index 15% BMO Small Cap (Unweighted) Blended Index	7%	12%	17%	AFS
Global	MSCI World Total Return Index	8%	13%	18%	AFS
Global Low Volatility	MSCI World Total Return Index	5%	10%	15%	AFS
Total Public Equities		25%	35%	45%	
Alternative Investments					
Canadian Real Estate	REALPAC/IPD Canada Property Index	7%	10%	13%	FVTPL
Infrastructure	CPI +5%	2%	5%	8%	FVTPL
Venture Capital		0%	0%	1%	
Total Alternative Investments		10%	15%	20%	

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Rate Stabilization Reserve: Objective is to ensure sufficient levels of capital are maintained such that the line of business remains healthy and in an actuarially determined state of satisfactory financial condition. The RSR portfolio must have sufficient capital to withstand plausible adverse events and to deliver rate stability and predictability. Given that there are no specific backing obligations duration management does not apply and the fund's objective is to generate real returns to facilitate stable premium rates. A moderate level of liquidity is required such that funds will be available in the event the Corporation experiences a series of adverse events and resulting financial losses which

deteriorate its capital base. The RSR is currently designed to withstand adverse scenarios at the 1-in-40 year probability level

Special Risk Extension: Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. SRE claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing SRE contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

Extension: Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. Extension claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing Extension contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

Employee Future Benefits

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Corporate Bonds	FTSE TMX Corporate Bond Index	10%	20%	30%	FVTPL
Private Debt	FTSE TSX Long Term Bond Index	10%	20%	30%	FVTPL
Total Debt		30%	40%	50%	
Public Equities					
Canadian	85% S&P TSX Capped Composite Total Return Index	5%	10%	15%	AFS
	15% BMO Small Cap (Unweighted) Blended Index				
Global	MSCI World Total Return Index	13%	18%	23%	AFS
Global Low Volatility	MSCI World Total Return Index	2%	7%	12%	AFS
Total Public Equities		25%	35%	45%	
Alternative Investments					
Canadian Real Estate	REALPAC/IPD Canada Property Index	12%	15%	18%	FVTPL
Infrastructure	CPI +5%	7%	10%	13%	FVTPL
Total Alternative Investments		20%	25%	30%	

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Objective is to ensure that pension and other obligations are paid as they become due. The duration of the Employee Future Benefits liability will be continually monitored to inform liquidity requirements and constraints of the pension fund. Current durations are such that minimal liquidity is required.

7.3 The target asset allocations have been determined in order to meet the objectives of the relevant portfolio. They reflect risk/return tradeoffs selected by the Committee.

7.4 The target allocations are different in Section 7.1 and 7.2. As a result, the Working Group may, at its discretion, authorize actual asset class weights that are outside of the minimum/maximum ranges specified in either Section 7.1 or 7.2 while transitioning towards the target asset allocations in Section 7.2.

7.5 The Working Group, at its discretion, can allocate up to 20.0% from the Canadian equity asset class to the Canadian Small to Mid Cap equity asset class.

7.6 The target allocation to illiquid growth assets (Real Estate and Infrastructure) as a proportion of total growth assets (Canadian, Global and Global Low Volatility Equity, and U.S. equity, Real Estate and Infrastructure) should not exceed 50%.

7.7 The actual allocation to non-marketable bonds (MUSH bonds and private debt) should not exceed 25% of the total fund.

7.8 The Working Group will monitor the target asset allocation of the fund on a quarterly basis, at a minimum, and rebalance if necessary in accordance with the Working Group's rebalancing policy.

7.9 Securities held in a pooled fund are classified on the basis of the assets comprising the major portion of such pooled funds.

7.10 Derivative instruments along with any collateral held thereon are included in the asset class comprising the securities whose return or price serves as the basis for the pricing of such derivative instruments.

Section VIII – Investment Risk

8.1 Diversification between asset classes is provided through the asset allocation guidelines set forth in the Statement.

8.2 Diversification within each asset class is provided by limiting to 5% or less the percentage of the book value of Fund assets invested in a single security not issued or guaranteed by the Government of Canada, charged against the Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. Minimum and/or maximum percentage weight targets may be developed and implemented for corporate and provincial bond issuers (Province of Manitoba excluded) to assist in the diversification of the fixed income portfolio.

8.3 Diversification in equity investments is achieved by contracting with investment counsels that concentrate on specific equity market segments (large cap and small/mid cap) as well as investment style (value, growth and core). Managers will be selected based on their investment philosophy and internal investment policies.

8.4 Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds and floating rate notes to the actuarially determined duration

of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.

8.5 When investments are made outside of Canada, consideration will be given to limiting exposure to foreign exchange risk by hedging where practical.

8.6 Quality is ensured by requiring that 100% of the market value of short-term securities have a minimum credit rating of R-1 (low) as assigned by Dominion Bond Rating Service Limited (DBRS), or its equivalent, and that 100% of other fixed income securities have a minimum credit rating of BBB (low), or its equivalent, as assigned by Standard & Poor's or Moody's Investors Service, or is a security issued or guaranteed by the Government of Canada, charged against the Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. If a security has a split credit rating from the credit rating agencies the lower rating will be accepted.

8.7 In the event of a downgrade in the credit rating of a fixed income security by a recognized bond rating agency to a credit rating below the minimum as defined in Section 8.6, the Fixed Income Manager will follow the course of action set out below:

a) The Working Group will be notified of the downgrade at the earliest possible opportunity;

b) Within five business days of the downgrade, the Investment Counsel will advise the Working Group in writing of the course of action taken or to be taken by the Investment Counsel along with the rationales; and

c) The Investment Counsel will provide regular reporting to the Working Group on the status of the asset until such time as it matures, is sold, or is upgraded to a rating consistent with the minimum rating standards as defined in Section 8.6.

8.8 Trading and execution of the Fund will be done through the investment counsels who shall utilize their best efforts to obtain best execution of orders at the most favorable prices and competitive commission rates.

Section IX – Voting Rights

9.1 The responsibility of exercising and directing voting rights acquired through Fund investments is delegated to the investment counsels, who shall at all times act prudently and in the best interests of the Fund.

9.2 In case of doubt as to the best interests of the Fund, the investment counsel must request instructions from the Working Group and act in accordance with such instructions.

9.3 Investment counsels shall maintain a record of how Fund voting rights have been exercised.

9.4 Investment counsels shall advise the Working Group and provide details when:

a) the results of the vote are contrary to the investment counsel's recommendations;

b) the vote is related to anti-takeover charter and bylaw amendments or shareholder rights;

c) the voting rights have not been exercised.

9.5 Investment counsels shall not delegate voting rights unless the policy and procedures to be used when voting has been filed with the Minister of Finance and written approval of those policies and procedures have been granted.

Section X – Monitoring

10.1 Each quarter, investment counsels shall provide a letter indicating compliance with the Statement and the investment counsel's mandate and indicating all instances where the Statement and mandate were violated.

10.2 At the end of each quarter, the market value of each Fund investment is calculated. Investments that are not regularly traded are valued by the Custodian according to a methodology acceptable to the Committee. Any such investment that may represent more than 1% of the market value of the Fund is valued by a qualified independent appraiser or by the Committee through a resolution at least every three (3) years, except for non-marketable bonds as they are reported at book value.

10.3 Fund performance is evaluated at least quarterly in accordance with current Performance Presentation Standards established by the CFA Institute. Such evaluation is focused on objectives set in this document for the Fund and for the investment counsels.

10.4 Investment counsels report to the Committee at least annually in order to:

a) provide information concerning new developments affecting the firm and its services;

b) review the transactions in the latest period and the assets held at the end of the period and explain how they relate to the strategy advocated;

c) explain the latest performance;

d) provide an economic outlook along with a strategy under such circumstances.

10.5 The Corporation has a graduated investment manager compliance policy in accordance with this Investment Policy Statement with escalating action based upon the degree of non-compliance. The Corporation monitors the compliance of its active equity managers with their internal Investment Policy Statements on a monthly basis and reports to the Investment Committee Working Group on a quarterly basis. In addition, the Corporation evaluates the compliance with the defined duration bandwidth as defined in Section 8.4 on a monthly basis and reports to the Working Group on a quarterly basis.

COMPLIANCE RULES:

1. Maximum concentration in an individual holding
2. Sector weight limits (linked to index)
3. Market capitalization limits (min & max)
4. Minimum and maximum number of holdings
5. Cash restrictions:
    a. Less than 10% of each managers portfolio
    b. Holdings rated A1 or better
    c. Short-term cash equivalents (less than 1 year)

DEFINITIONS:

Non-compliance is defined as minor if the manager is less than 10% out of compliance, for compliance rules 1, 2, 3 and 5(c). All breaches of compliance rules 4, 5(a) and 5(b) are considered major.

ACTION:

For minor instances of non-compliance the relevant external manager is notified of the non-compliance with the Investment Policy Statement. For major issues of non-compliance the relevant manager is contacted and requested to rectify the non-compliance within 30 days. Minor issues of non-compliance will be addressed internally by the Corporation. Major issues of non-compliance will be brought to the attention of the Investment Committee Working Group at its next meeting.

REPORTING

All major and minor cases of non-compliance with the Investment Policy Statement, and any related action taken, will be reported to the Investment Committee and the Investment Committee Working Group. Compliance reports will be completed at the end of each calendar month by the Investment Department.

The Investment Committee Working Group has the authority to provide exemptions to these rules and will report to the Investment Committee whenever it exercises this authority.

Section XI – Withdrawal Policy

11.1 In order to support the financial health of the Fund, ensure necessary liquidity levels are maintained and adequate diversification by asset class and by manager is adhered to, the Corporation has established the following guidelines for cash withdrawals.

11.2 Withdrawals of corporate funds to fund corporate operations are permissible, provided that pension plan assets are not affected by the withdrawals. Cash management is the joint responsibility of the Investment Department and the Risk Control and Financial Forecasting Department. The withdrawals will be reported to the Investment Committee Working Group at the Committee's next scheduled meeting. Withdrawals shall be reported to the Investment Committee at the Committee's next scheduled meeting.

11.3 The cash withdrawal guidelines are intended to assist in managing the Fund and maintaining adherence to the target policy weights, to the extent possible. The dollar amount of each withdrawal will be calculated by the Risk Control and Financial Forecasting Department and implemented by the Investment Department, which shall exercise judgment in withdrawing cash based on the following factors:

1. withdrawals are to be from retained earnings only, which represent corporate assets;
2. the market value of the fixed income portfolio (excluding cash) must match (or exceed) the present value of the claim liabilities;
3. withdrawals from each asset class/ manager will be in order of greatest variance from the target, until the withdrawal amount is satisfied;
4. each asset class must remain within its min/max range as established in Section 7.1;
5. availability of liquidity within the portfolio;
6. current market conditions; and
7. future Fund strategies, and Corporate needs.

11.4 In order to reduce cost, the number of asset classes/managers involved in the transaction should be the fewest possible to raise the necessary amount. Illiquid asset classes such as real estate, infrastructure and private equity are generally exempt from normal course withdrawals.

11.5 The Working Group is required to advise the Investment Committee of any exceptions to this policy and state the reason(s) for the exception (s).

Section XII – Review

12.1 This Statement may be changed or modified at any time by action of the Board of Directors of the Corporation in consultation with the Minister of Finance.

12.2 This Statement shall be reviewed at least annually. Such review may be caused by:

a) a fundamental change in the business of the Corporation;

b) significant revisions to the expected long-term trade-off between risk and reward on key asset classes;

c) a major change in liabilities;

d) a significant shift in the financial risk tolerance of the Corporation;

e) shortcomings of the Statement that emerge in its practical application, or substantive modifications that are recommended to the Committee by a investment counsel;

f) applicable change in legislation.

Appendix A - Definitions

Alternative Asset Classes:
There are three primary asset classes: equities, bonds, and cash. Alternative asset classes refer to any other types of investments or collections of investment strategies that can be used to diversify investment portfolios. These investment strategies are generally aimed to provide meaningful growth, low correlation and lower volatility with equity markets. Some examples of alternative investments include: hedge funds, private equity, private debt, currencies, commodities, infrastructure and real estate.

Duration:
Duration is the weighted average time until the repayment of a fixed income instrument. In addition, it is also used to measure the price sensitivity of those instruments to changes in bond yields.

Fixed Income Securities:
An investment that provides a return in the form of fixed periodic payments and the return of the principal at maturity. Unlike a variable-income security, the payment amounts and dates of a fixed-income security are known in advance.

Investment Counsel:
Investment counsels are appointed by the Province of Manitoba to invest certain funds of the Corporation in accordance with and subject to the terms of an agreement with the Provincial government.

MUSH Bonds:
MUSH bonds are Manitoba rural municipality, school division and health-care facility bonds which are not tradable in the fixed income market and are managed by the Department of Finance at the Province of Manitoba.

REBUTTAL EVIDENCE

2019 GENERAL RATE APPLICATION

October 12, 2018

Manitoba Public Insurance

Table of Contents

1. Introduction 3

2. Rebuttal to The Role of the DCAT and Interest Rate Forecasting in the 2019 MPI GRA 3

2.1 MPI's RSR Range is Determined Using the Best Estimate DCAT Approach 3

2.2 MPI's RSR Range has been converted to an MCT value to allow for forecasting the RSR targets beyond the current period 4

2.2.1 The DCAT estimate provides a static point in time estimate while an MCT ratio is dynamic 7

2.3 The Minimum Capital Test Assess the Risks Facing Basic 7

2.4 The 50/50 interest rate forecast recommendation Is a result of Recency bias from a misleading indicator 14

2.4.1 The Bank of Canada overnight rate is not a reliable proxy for 10 year GoC bond rate 14

2.4.2 The Naïve Forecast is a best estimate 15

3. Rebuttal to The Capital Maintenance Provision Proposal by Manitoba Public Insurance 17

3.1 MPI is applying for approval of the CMP as part of its 2019 GRA 17

3.2 Accepted Actuarial Practice is Silent on the Capital Maintenance 18

3.3 The MCT Ratio is a meaningful measure of capitalization around which to build a Capital Maintenance Provision 18

4. Rebuttal to MPI'S Investment Portfolio: Asset/Liability Analysis and Previous Recommendations 20

4.1 The Difference between a nominal liability benchmark and a real liability benchmark .. 20

4.2 MPI chose to accept the threat of inflation volatility with good reason 21

4.2.1 Inflation variability risk is the lesser threat 22

4.2.2 Hedging inflation variability is not without a cost 24

4.2.3 The cost of inflation variability is low 24

Appendix 1 26

1. Introduction

MPI welcomes the participation and input of Dr. Simpson, Ms. Sherry and Mr. Viola to the testing of the 2019 General Rate application. Their respective evidence is canvassed below, and MPI has taken the opportunity to clarify the application where it appears to be misunderstood, to re-emphasize the existing evidentiary record and where appropriate expand the record to shed light on the core issues of contention.

2. Rebuttal to The Role of the DCAT and Interest Rate Forecasting in the 2019 MPI GRA

The first several pages of the evidence provides a chronology of proposals for how the RSR should be determined. This chronology highlights three key facts. The first is that standards and practices evolve over time, and rightly so. The second is that MPI has sought to apply the MCT approach to determine the RSR target since 2005. The third fact highlighted is that Dr. Simpson and Ms. Sherry continue to claim that the MCT "does not address the specific risks facing MPI"[1]. The evidence that MCT is applicable and appropriate for MPI has been established on past GRA records, and MPI re-examines this evidence in section 2.3 below.

2.1 MPI's RSR Range is Determined Using the Best Estimate DCAT Approach

In the 2019 GRA, MPI has applied for capital targets based on MPI's best estimate DCAT analysis, as it did last year. The lower RSR target for FY 2019/20, which establishes the minimum level of capital required for satisfactory financial condition, has been set after testing adverse scenarios at the 1-in-40 probability level. The minimum Total Equity balance, such that all of the Combined Scenarios after assumed

[1] 2019 GRA Part VI DCAT p.3

management action remain above zero, is $143 million. A summary of the analysis is provided at page 10 of *Part VI DCAT*, in the 2019 GRA.

The upper RSR target for FY 2019/20, is $305 million. This target establishes the RSR range above the minimum, and has been selected based on a 2 year 1-in-40 DCAT scenario, before management action. A summary of the analysis is provided at page 11 of *Part VI DCAT*, in the 2019 GRA.

As explained in the application[2], and throughout the information requests[3], MPI has applied best estimate assumptions as opposed to the iterative DCAT methodology used in PUB Order 130/17. This particular iterative methodology results in a lower RSR target reflecting the actual minimum level of capital required for satisfactory financial condition.

2.2 MPI's RSR Range has been converted to an MCT value to allow for forecasting the RSR targets beyond the current period

In the 2019 GRA MPI has chosen to **express** the upper and lower RSR targets as a percentage of MCT. This has been reflected in both the Legal Application[4], the Public Notice of Hearing[5], and is explained in the RSR Chapter[6], and demonstrated in the DCAT chapter[7]. Figure DCAT-10 has been reproduced below for convience.

[2] 2019 GRA Part VI DCAT page 15
[3] See PUB (MPI) 1-16, PUB (MPI) 1-17, PUB (MPI) 1-28 for example
[4] 2019 GRA Part I Legal Application page 2
[5] 2019 GRA Part VIII Media Package Notice of hearing
[6] 2019 GRA Part VI RSR page 9
[7] 2019 GRA Part VI DCAT page 14

Figure DCAT- 10: Lower/Upper Target Comparison

Line No.	Target	2018 GRA Total Equity	2018 GRA MCT Ratio	2019 GRA Total Equity	2019 GRA MCT Ratio
1	*(C$millions, unless otherwise noted)*				
2	Lower RSR Target (MPI)	$201	37%	$143	34%
3	Upper RSR Target (MPI)	$438	100%	$305*	85%*
4	Lower RSR Target (PUB)	$180	31%	$120	27%
5	Upper RSR Target (PUB)	$325	72%	$251	69%
6	100% MCT	$438	100%	$358	100%
7	* Would have been $354M and 99% MCT without methodology change				

MPI has chosen to express the RSR targets as an MCT ratio for two reasons:

1. First is that the MCT ratio is used as a means to forecast future DCAT-based RSR target calculations. The Corporation does not take the position that the MCT ratio can replace the DCAT exercise in 2020 and beyond. The 34% MCT ratio is derived from the 1-in-40 DCAT scenario[8].

   Page 23 of the DCAT states:

> *MPI applied for DCAT-based minimum $143 million capital target represents an MCT score of 34%, while the proposed maximum capital target of $305 million represents an MCT score of 85%.* ***Assuming the DCAT analysis would produce a similar MCT score in future years,*** *the table below shows the projected minimum and maximum RSR targets at 34% MCT and 85% MCT ratios over the forecast period. The 100% MCT target is also provided. The calculations assume that the Corporation's proposed RSR targets in 2019/20 will be approved by the PUB. [emphasis added]*

[8] CAC (MPI) 1-15

Figure DCAT- 11: Projected Regulatory Capital Targets

Line No.	Fiscal Year Beginning	Minimum RSR	Maximum RSR	100% MCT
1	*(in millions)*			
2	2019/20	$143	$305	$358
3	2020/21	$155	$337	$396
4	2021/22	$173	$363	$426
5	2022/23	$180	$380	$445

Note: The Corporation's Total Equity (RSR) balance is not equivalent to Capital Available in the MCT calculation. As a result of certain deductions that are included in the MCT calculation, the required Total Equity balance to achieve a 100% ratio will be higher than MCT Capital Available. The calculations above reflect the amount of Total Equity required for Basic to achieve a 100% MCT ratio in the given fiscal year. The MCT calculations for the base scenario and the selected adverse scenarios are provided in the appendices of this DCAT report.

This future projection of RSR Targets (in dollars, derived from MCT ratios) is necessary to demonstrate the future satisfactory financial condition of Basic, throughout the forecast period. This is reflected in DCAT.1 which states:

> *In my opinion, the future financial condition of Basic is satisfactory because (i) Basic exceeds the Manitoba Public Utilities Board (PUB) assumed minimum capital target under the base scenario during the forecast period, and (ii) Basic Total Equity remains positive in all adverse scenarios at the 1-in-40 probability levels as set by the Public Utilities Board*[9]

2. The second is that expressing the RSR Targets as an MCT ratio provides a convenient way to compare MPI's capital targets and actual capital level against industry standard targets, and MPI's crown insurer peers.

The DCAT report, at page 18 explains this point, as follows:

> *The Corporation should convert their proposed dollar-based RSR targets into MCT-based RSR targets. MCT-based targets create a*

[9] 2019 GRA Part VI DCAT page 4

> *dynamic RSR target that responds to changes in risk level and can be more directly compared with other insurers.*[10]

This passage also alludes to a third benefit which is outlined in section 2.2.1 below.

2.2.1 The DCAT estimate provides a static point in time estimate while an MCT ratio is dynamic

As explained in response to CAC (MPI) 1-14, MPI believes that absent any significant changes in the risk profile, using the MCT ratio as a means to **express** the dollar estimates of the minimum RSR target, results in a best estimate. The MCT ratio will adjust the capital targets in future years based on growth in the balance sheet, producing a more appropriate forecast. Despite this, the Corporation intends to continue performing the DCAT analyses in each GRA to confirm the most appropriate target for the rating year.

2.3 The Minimum Capital Test Assess the Risks Facing Basic

At section RSR.4.5.2 of the 2019 GRA, MPI again lays out the relevant facts about the MCT test, and in RSR.4.5.2.2 details the risks assessed by the MCT. In RSR.Appendix 1, the MPI has included the MCT worksheets detailing the calculation of the MCT Capital Available and Capital Required.

Further, in past GRA's MPI has established that the MCT test accurately reflects the risks that face Basic, in a manner that is consistent with industry standard. The MCT is required by OSFI regulated P&C insurance companies, and has been adopted by comparable crown auto insurers, in particular, SGI and ICBC.

[10] 2019 GRA Part VI DCAT Page 18

In the 2018 GRA hearing, Ms. Sherry had an extensive cross examination with counsel for MPI on the issue of whether the MCT reflects the risks facing Basic, and this testimony is reproduced below[11]:

> *MR. MATTHEW GHIKAS: Okay. Now, if we go over to the following page -- first of all, you'll agree with me that what the MCT test does is it looks at the particular balance sheet of an insurer; right?*
>
> *MS. ANDREA SHERRY: M-hm.*
>
> *MR. MATTHEW GHIKAS: Sorry, you'll have answer "yes" or "no".*
>
> *MS. ANDREA SHERRY: Yes.*
>
> *MR. MATTHEW GHIKAS: And each individual insurer's own balance sheet is going to be different, right?*
>
> *MS. ANDREA SHERRY: Correct.*
>
> *MR. MATTHEW GHIKAS: And so what this test does is it looks at that individual insurer's characteristics, and comes up and assesses the itemized risks in the context of an individual insurer; correct?*
>
> *MS. ANDREA SHERRY: Correct.*
>
> *MR. MATTHEW GHIKAS: Okay. And so an indiv -- an individual insurer's risk profile and the risk to its balance sheet are assessed under this test, correct?*
>
> *MS. ANDREA SHERRY: Correct.*
>
> *MR. MATTHEW GHIKAS: Now, keeping it really simple, at a high level, that means that if there are two (2) different insurers, and they're both operating at 100 percent MCT, the amount of capital that they're actually retaining in dollars could be quite different, depending on the risks to their balance sheet and the size of the business?*

[11] 2018 GRA Transcript, pages 1690 to 1698

MS. ANDREA SHERRY: The type of business they write, et cetera, yes.

MR. MATTHEW GHIKAS: Right. Okay. So, if we can look on page 5, you'll see there is an overview of the minimum capital requirements, and how they're calculated. And I just wanted to run through some of them with you, Ms. Sherry. You'll see it says "minimum capital requirements are calculated as follows: Some of..." and then there's a list. Do you see that?

MS. ANDREA SHERRY: I do, yeah.

MR. MATTHEW GHIKAS: Okay. So let's go through some of the items. First of all, 1(a) capital required for unpaid claims and premium liabilities. Do you see that?

MS. ANDREA SHERRY: M-hm. Yes, I do.

MR. MATTHEW GHIKAS: Okay. You'd agree with me that Basic Autopac has unpaid claims and premium liabilities?

MS. ANDREA SHERRY: I would agree.

MR. MATTHEW GHIKAS: And you'd agree with me that Basic Autopac has risks associated with the potential for catastrophes?

MS. ANDREA SHERRY: I would have to look into that one, to be honest with you because I'm not sure if that's thr -- anything related to earthquake.

MR. MATTHEW GHIKAS: Okay. But depending on the catastrophe and depending on what they're writing, they can conceivably have that; correct?

MS. ANDREA SHERRY: Correct.

MR. MATTHEW GHIKAS: Right. And to the extent that they have less than another insurer, that's going to be picked up in the -- in the balance sheet, correct?

MS. ANDREA SHERRY: Yep.

MR. MATTHEW GHIKAS: Okay. And the next one "margin required for reinsurance seated to unregistered reinsurers." MPI doesn't include anything for that.

MS. ANDREA SHERRY: M-hm.

MR. MATTHEW GHIKAS: But -- so we'll - we'll leave that one. But you'll agree with me that MPI has exposure to interest rate risk?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: And that, for example, would be reflected in the fact that there is -- there is -- had to be $163 million transferred from optional to the Basic side of the business to deal with interest rate variances?

MS. ANDREA SHERRY: I would agree that MPI has interest rate risk, yes.

MR. MATTHEW GHIKAS: Right. And you'd agree with me that MPI has foreign-exchange risk on investments that are US denominated or US infrastructure investments?

MS. ANDREA SHERRY: Yep.

MR. MATTHEW GHIKAS: And you'd agree with me that MPI, to the extent that it is holding equity in its portfolio, has equity risk?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: And you would agree with me that if there is real estate in MPI's portfolio - which I understand there is - MPI would also face real estate risk?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: And you'd agree with me -- let's skip over the next one. You'd agree with me that there is the potential for counter-party default risk for MPI?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: Okay. And the next two they are no values for MPI, so I'll skip over those. And there is the potential for operational risk, just like any other insurer; correct?

MS. ANDREA SHERRY: Correct.

MR. MATTHEW GHIKAS: Okay. Now, I take it that the fact that MPI is not subject to competition, the only place for that to fit is under 2(e) capital required for other market risk exposures?

MS. ANDREA SHERRY: Yes, I believe you're correct in the MCT.

MR. MATTHEW GHIKAS: Okay. And so for Basic then what MPI would simply do is put a zero value in for that, on their P&C-1 form. Right?

MS. ANDREA SHERRY: Is that a question?

MR. MATTHEW GHIKAS: It is.

MS. ANDREA SHERRY: I don't know what MPI would do.

MR. MATTHEW GHIKAS: Okay. So if -- if there is no market risk exposure from competition, you would expect that simply -- the insurer would simply fill -- fill out that line item reflecting the fact that they have no competitive risk; correct?

MS. ANDREA SHERRY: Okay.

MR. MATTHEW GHIKAS: Now, I just want to clarify your position, Ms. Sherry, on whether you oppose the use of the MCT as a test for MPI, or whether you simply believe that 100 percent MCT is too high?

MS. ANDREA SHERRY: My belief is that the MC -- a choice of a target, a higher level of the RSR using 100 percent MCT is arbitrary. The MCT wasn't created for an RSR target per se, it was created so that OSFI would know when a company was into the potential of going insolvent. So the tests around it including tests of a BC earthquake, et cetera, things that MPI does not face. As well, MPI does not face the risk of

insolvency and the risk to the whole economy of Canada if we -- they go down on. That's what OSFI is trying to protect the consumers against. It wasn't built for a monopoly public insurer.

MR. MATTHEW GHIKAS: Okay. So let me -- let me ask you this again. I'm not sure if I understood whether you are objecting to the use of the test itself, or whether you're objecting to the use of 100 percent.

MS. ANDREA SHERRY: I'm objecting to the use of the MCT as -- in setting the RSR range.

MR. MATTHEW GHIKAS: Okay.

MS. ANDREA SHERRY: You can calculate the MCT and see where you're at, but it's -- I – I don't think it should be used to set the RSR range.

MR. MATTHEW GHIKAS: Okay. Can we go, Diana, if you can pull up last year's transcript, please. And to page 2,059. And you can -- if you go down to line 15, please. Okay. Now, last year, Ms. Sherry, you -- I cross-examined you last year, right?

MS. ANDREA SHERRY: I recall.

MR. MATTHEW GHIKAS: And if -- starting at line 15 of this transcript, I asked you:

"And I've seen your transcripts, Ms. Sherry, where you had indicated that you didn't believe MCT was the appropriate -- was appropriate for use for MPI. Is that correct?"

Answer:

"I wouldn't say that it's not appropriate to use for MPI. The MCT is really just an output of a set of financial statements. My opinion is that it shouldn't serve as the – a hundred percent MCT shouldn't serve as the upper target for the RSR."

Now, do you recall being asked those questions?

MS. ANDREA SHERRY: Vaguely.

MR. MATTHEW GHIKAS: Okay. And do you recall giving those answers?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: And were they true?

MS. ANDREA SHERRY: Yes.

MR. MATTHEW GHIKAS: Thank you.

Based on this testimony, and all prior materials placed on the public record, the evidence is clear that the MCT does in fact assess the risks facing Basic. The claim that is does not, is unfounded.

MPI (CAC) 1-1 asked for further support to the claim that MCT 'is not linked to the specific risks facing MPI as a monopoly crown insurer'. The answer given was that the statement was 'taken out of context'[12], but the additional context given was that MCT is a solvency test, and therefore not applicable to a monopoly crown insurer. The answer did not elaborate on how the MCT is or is not 'linked to the specific risks facing MPI as a monopoly crown insurer'.

The response to MPI (CAC) 1-2 elaborates on this claim that MCT is a solvency test, and further claims that it is only possible for MPI to become insolvent if government of Manitoba were to become insolvent, which is unlikely.

Based on all of the above, the issue Dr. Simpson and Ms. Sherry appear to have with MCT is not that it "is not linked to risks facing MPI as a monopoly insurer", but rather that MPI should not rely on the MCT due to presumed inoculation from insolvency. There is a subtle, but important distinction between these two reasons for rejecting the MCT test. Essentially, they appear to be saying that MPI should not use standard industry practice as a means to assess actual risks facing MPI, because the government/taxpayers should be expected to bail MPI out of a crisis.

[12] Since this 'context' was not included in the original report, the quote in question is more properly described as 'provided out of context'

2.4 The 50/50 interest rate forecast recommendation Is a result of Recency bias from a misleading indicator

The recommendation of Dr. Simpson and Ms. Sherry to adopt the 50/50 interest rate forecast on the basis that the naïve is inferior to the 50/50 in recent years, amounts to engraining recency bias into the forecast, while rejecting the breadth of historical evidence.

The implicit claim that expected changes in the Bank of Canada overnight interest rate is a reliable proxy for changes in the 10 yr GoC bond rate, over the relevant time horizon is also incorrect.

2.4.1 The Bank of Canada overnight rate is not a reliable proxy for 10 year GoC bond rate

MPI fully acknowledges that over the long run there is a link between the Bank of Canada overnight rate and the yield on the 10 year Government of Canada bond.

However, the short run (1.0 – 1.5 years) is the relevant outlook period, as this is the outlook period for MPI's financial forecasts. Over this time horizon, the overnight rate is not a reliable proxy for the yield on the 10 year Government of Canada bond, as there can be significant and unpredictable lags between the two rates.

This fact has been clearly demonstrated in the response to CAC (MPI) 2-1, which showed that there are many periods when the overnight rate and the 10 year GoC bond yield have moved in opposite directions.

The evidence on the record simply does not support the assertion that, over the relevant time horizon, the overnight rate should be used a proxy or a leading indicator of the 10yr GoC bond rate. This leads to three obvious conclusions:

1. Actual Bank of Canada overnight rate policy adjustments should not inform the selection the interest rate forecast for rate setting

2. Speculation on future Bank of Canada overnight rate policy adjustments, should not inform the selection the interest rate forecast for rate setting

3. Historical data on the 10 Yr GoC interest rate itself should be used to assess the validity of the forecast

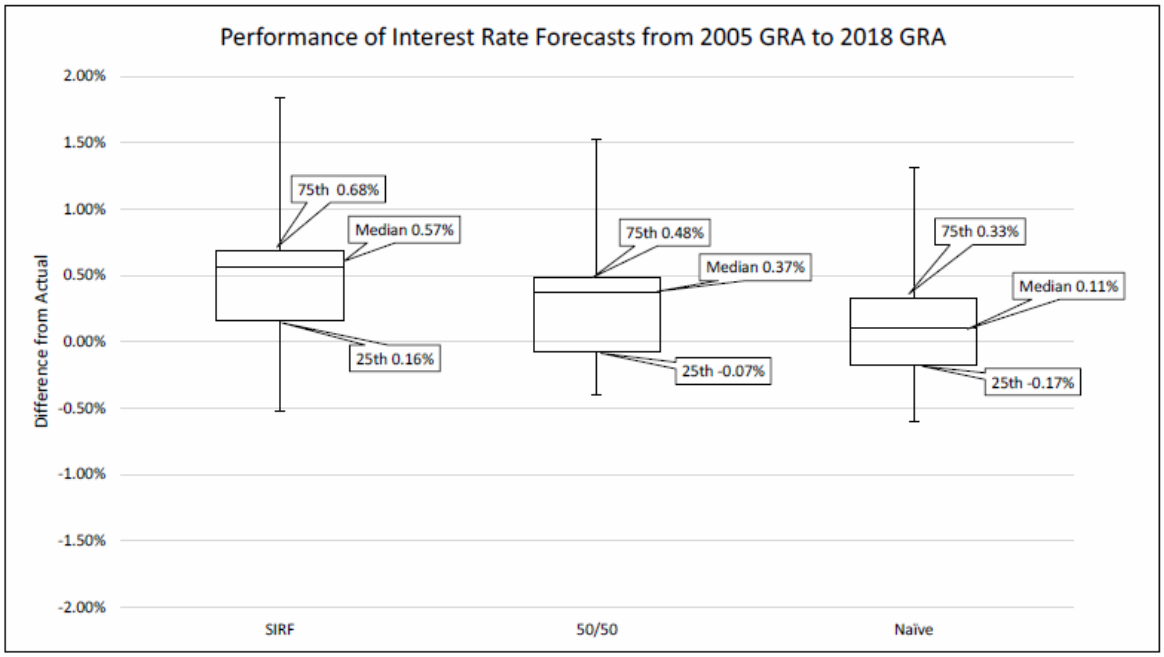
The wrong interest rate forecast can (and has) cost MPI millions in under collected premium. Adopting the recommendations of this evidence only serves to further the under-collection of premium, to the detriment of MPI, and the long term interests of its customers.

2.4.2 The Naïve Forecast is a best estimate

The evidence on the record of this proceeding supports the conclusion that the naïve forecast is a best estimate.

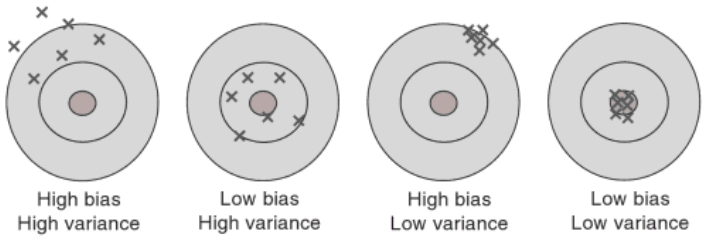
PUB (MPI) 1-11 lays out the first leg of the analytical basis for this claim. Over the past 14 years the 50/50 forecast has produced a forecast which has statistically significant bias when compared to the naïve forecast. This shows that the 50/50 forecast is a 'worse' forecast than the naïve forecast.

CAC (MPI) 1-6 lays out the second leg of the analytical basis for this claim, which is that the naïve forecast produces a forecast that is statistically the same as the actual. That is to say it is unbiased. The diagram in CAC (MPI) 1-4, reproduced below, visually depicts that the naïve forecast is more 'centered' around the zero difference from actual, than either the 50/50 or the SIRF.



That is to say, the naïve forecast is "more like the actual" than either the 50/50 or the SIRF. The variance of all three forecasts (% difference from actual) is material, however the naïve forecast does slightly outperform the 50/50 and the SIRF.

A useful diagram for understanding these concepts is provided below. While diagram exaggerates the scenarios for effect, it is reasonable to say that the Naïve forecast is most like the "low bias, high variance" example, while the 50/50 and SIRF forecasts are more like the "high bias, high variance" (or, less like the "low bias, high variance" example than the naïve forecast).



Bias Variance Decomposition. Figure 1. The bias-variance decomposition is like trying to hit the bullseye on a dart-board. Each dart is thrown after training our "dart-throwing" model in a slightly different manner. If the darts vary wildly, the learner is *high variance*. If they are far from the bullseye, the learner is *high bias*. The ideal is clearly to have both low bias and low variance; however this is often difficult, giving an alternative terminology as the bias-variance "dilemma" (*Dartboard analogy*, Moore & McCabe (2002))

The evidence on the record is clear:

i. The naïve forecast outperforms the 50/50 and SIRF forecasts

ii. Changes in the Bank of Canada overnight right are not a reliable leading indicator (or proxy) of changes in the 10 Yr GoC bond rate, over the relevant time horizon

iii. The recommendation of Dr. Simpson and Ms. Sherry to rely on the 50/50 interest rate forecast ignores this evidence, and engrains recency bias into the forecast.

3. Rebuttal to The Capital Maintenance Provision Proposal by Manitoba Public Insurance

This evidence appears to misunderstand or misrepresent several aspects of the Capital Maintenance Provision (CMP) proposal, points which will be clarified in the following sections.

3.1 MPI is applying for approval of the CMP as part of its 2019 GRA

The CMP is an element of the 2019 GRA for which MPI is seeking PUB approval. The CMP proposal does not require approval of the PUB to be included in the application, nor is a consensus among stakeholders required for the CMP to be included in the application.

MPI did not rely on an agreement from the participants at the technical conference as the basis to include a CMP proposal in its application. Nor does MPI expect that the position of parties, whatever they might be, to be prejudiced by any (dis)agreement expressed at a technical conference. The CMP proposal is reasonable, and can be judged on its own merits.

Further the GRA process is an open and public venue for testing the reasonableness of MPI's applications. Ms. Sherry and Dr. Simpson's concerns related to 'public vetting' should be assuaged by the Public Utilities Board application and hearing process.

3.2 Accepted Actuarial Practice is Silent on the Capital Maintenance

The response to MPI (CAC) 1-4, and PUB (CAC) 1-8 (b), indicates that the Actuarial Standards of Practice are silent on "how" capital should be maintained. In effect, determining the approach to maintaining capital is a management function, not an actuarial function, and MPI's proposal is consistent with this distinction. MPI's applied for breakeven rate increase, **consistent with AAP**, is 0.1%. MPI's applied for Net Capital Maintenance Provision, is 2.1%.

The assertion that the CMP does not align with Accepted Actuarial Practice in Canada[13], but is not "technically non-complaint"[14] is meaningless and illogical.

3.3 The MCT Ratio is a meaningful measure of capitalization around which to build a Capital Maintenance Provision

The claim that the MCT "has no basis in actual capital need but is an arbitrary figure used to force through a CMP in this application" [15] hints at a misunderstanding of the CMP as applied for in this application.

The MCT ratio is used to express the level of current capitalization and establish a measure against which the amount of capital to be collected can be determined. The 70% MCT figure is a meaningful expression of the current level of capital held by Basic to start the 2019/20 year. The Net CMP ensures that the MCT ratio, which compares capital available to capital required, at fiscal year-end 2019/20 does not deteriorate

[13] The Capital Maintenance Provision Proposal by Manitoba Public Insurance, page 3
[14] PUB (CAC) 1-8
[15] The Capital Maintenance Provision Proposal by Manitoba Public Insurance, page 4

(decrease) from fiscal year end 2018/19. The amount collected through the Net CMP is determined net of investment income earned on the Rate Stabilization Reserve (RSR).

By combining the investment income on the RSR and the capital maintenance requirement into a single 'Net CMP', MPI has separated the rate requirement for break-even AAP rates from the rate requirement for capital factors (i.e. investment income on the RSR, CMP).

In this regard, the CMP is not directly relevant to the determination of the amount of capital MPI **should** have, only how much it does have. The particular method for setting the upper and lower RSR targets has no bearing on the actual level of capital held by Basic. The RSR targets are abstract concepts, while the level of capitalization is a hard reality. The statement:

> *The RSR range will go up in dollar terms as the size of the Corporation increases. This negates the need for a CMP.*[16]

confuses the concept of an abstract target and the practical reality actual capitalization. When pressed on this point, the response to IRs PUB (CAC) 1-9 and MPI (CAC) 1-6 offer no explanation how changing capital targets will actually protect against the depletion of Basic's Capital **position**. Protecting against the depletion of Basic's capital position is precisely what the Net CMP is designed to do, and is consistent with PUB findings in Order 130/17:

> *the Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims.*[17]

[16] The Capital Maintenance Provision Proposal by Manitoba Public Insurance, page 5
[17] Manitoba Public Utilities Board Order 130/17 page 29

4. Rebuttal to MPI'S Investment Portfolio: Asset/Liability Analysis and Previous Recommendations

At page 12 of his report, Mr. Viola posits three key questions that are central to his concerns. These are reasonable questions to ask, and MPI offers the following response:

1. Have the real and inflation risks been **identified** clearly by those who are responsible for their management and oversight?

   Yes

2. Have these risks been **measured** as accurately as possible?

   Yes, as accurately as is reasonably needed

3. Are these risks being **managed** effectively?

   Yes, as effectively as is reasonably needed

Below, MPI elaborates on the factors that allow these conclusions to be reached.

4.1 The Difference between a nominal liability benchmark and a real liability benchmark

There are material differences between real and nominal liability benchmarks, and both can be appropriate depending upon the nature of the liabilities, and the outlook for inflation. But the key point here is that both factors matter, and must be considered.

A Nominal Liability Benchmark assumes a 2% inflation rate that is static throughout the modelling exercise. That is, it assumes no variability in inflation over time. Whereas, a Real Liability Benchmark assumes a variable inflation rate. This difference

has a material impact on modelling outcomes, but the tradeoffs between the two benchmarks is complicated.

The degree to which inflation is expected to vary matters in the selection of a liability benchmark, and is the core issue from MPI's perspective.

Based upon MPI's review of inflation forecasts from the Canadian chartered banks, Mercer, the Bank of Canada, and break-even inflation rates currently implied by real return bonds, all data indicates that inflation will be approximately 2.0% over the outlook period.

4.2 MPI chose to accept the threat of inflation volatility with good reason

A fact perhaps too easily overlooked is that MPI 'chose' to accept the risk of inflation volatility, and did so for the reasons outlined below. As alluded to above, there are also costs associated with hedging inflation risk, which are explored below.

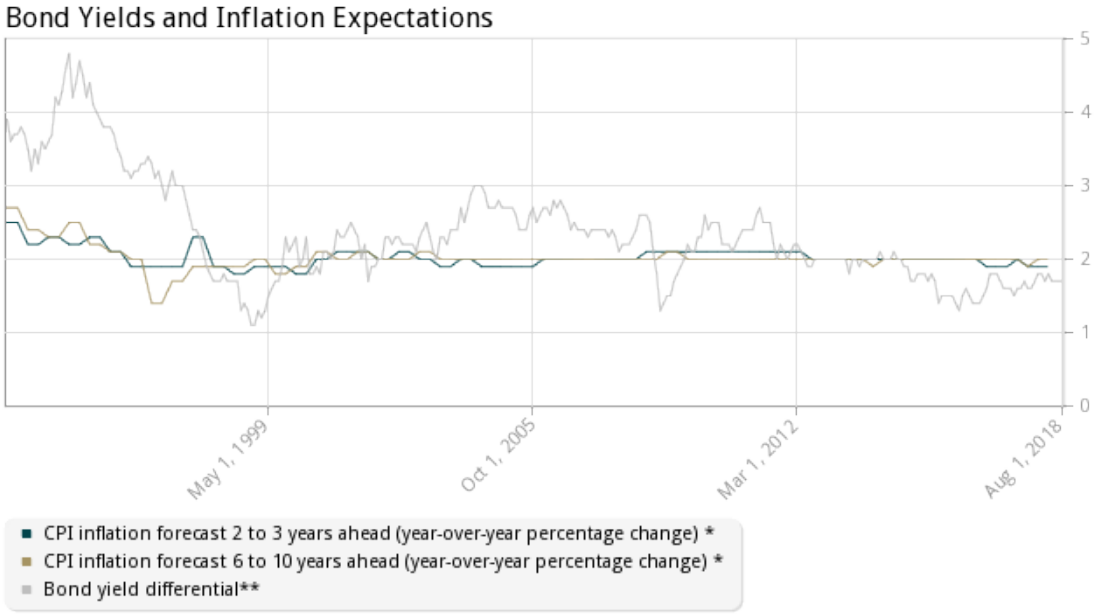
MPI's Board of Directors establishes the risk appetite for the Corporation, and on careful consideration, through the ALM process, decided to hedge nominal interest rate risk, and thereby 'chose' to accept the lesser threat of inflation volatility risk.

The Investment Committee of the Board of Directors is comprised of individuals with extensive expertise in investments, in fact characterized by Mr. Gary Steski as "very highly competent" under cross examination in the 2018 GRA[18], and further evidenced by the biographies of investment Committee members presented in Appendix 1 to this rebuttal evidence.

[18] 2018 GRA Transcript page 1403 to 1406

4.2.1 Inflation variability risk is the lesser threat

The Bank of Canada (BoC) is highly credible, in that it has been and is expected to continue to be successful in controlling inflation. The inflation expectation chart below from the BoC website shows that the consensus estimate[19] of inflation is expected to be at or below 2.0% for the next 10 years. The forecast is as of August 1, 2018. It is important to note that despite the recent increases in headline inflation, the mid and long-term consensus forecasts have not changed.



* *Source: Consensus Economics Inc. Prior to April 2014, forecasts were semi-annual (semi-annual values are shown for the two appropriate quarters in the graph above). Since then, they are available quarterly.*

It is also telling that Real Return Bonds (RRBs) have not increased in price[20] even with higher headline inflation – that is to say, the market isn't pricing in significant inflation in the future[21]. If the market consensus was for inflation to be persistently higher in

[19] https://www.bankofcanada.ca/rates/indicators/capacity-and-inflation-pressures/expectations/expectations-graph/

[20] The return on the FTSE TMX Canada RRB index in 2017 was 0.7% and to October 2, 2018 was 0.5%.
[21] The Break-Even Inflation Rate implied by RRBs was approximately 1.75% in August 2018.

the long-term, the price investors were willing to pay for RRBs, and the return holders of RRBs would have realized, would have been higher.

While it's a fact that headline inflation increased to 3.0% for July 2018 and then declined to 2.8% for August 2018, it is also true that the Bank of Canada expects inflation to return to its target of 2.0% in 2019[22] while the current consensus forecast by the Canadian chartered banks is 2.2%.

All evidence points to the view that inflation will return to approximately 2%, whether one looks to the markets, the Bank of Canada, or the Canadian chartered banks.

Further, MPI's inflation forecast has not been challenged by any evidence placed on the record of this proceeding, and the response to MPI (CAC) 1-11 is fairly characterized as a cautionary note about confidence in inflation forecasts over the medium to long term.

Insofar as investment beliefs and qualitative analysis matter, and MPI agrees they do, then MPI's belief in the inflation forecast (and the implicit belief in the Bank of Canada's commitment to control inflation within the published 1% range around the 2.0% target, resulting in low inflation volatility), indicates that modelling portfolios based upon the nominal liability benchmark is a very reasonable approach, particularly given the fact that the break-even inflation rate implied by RRB prices as of August 2018 was approximately 1.75%.

Main goal of ALM study was to mitigate nominal interest rate risk; since inflation is expected to be relatively low and stable over the outlook period the difference between nominal and real interest rates should be low and stable and hedging nominal interest rate risk is reasonable.

[22] BoC's July 2018 Monetary Policy Report, page 18.

4.2.2 Hedging inflation variability is not without a cost

While real return bonds can provide an effective hedge against variability in inflation, there is a cost to obtaining this insurance. The costs include:

- Making a significant allocation to RRBs reduces the set of investible assets. Leverage can be used to reduce this effect but MPI's Investment Committee was not comfortable with the use of leverage

- RRBs have a very low yield (relative to Provincial, municipal or corporate bonds) because they are issued by the Government of Canada (ie: RRBs have no credit spread). They are 'expensive' in the sense of foregone return.

- There are implementation issues as very few RRBs are available (it is difficult to construct a portfolio of RRBs that is well diversified across the term spectrum). Further, if MPI were to make a sizable allocation, it would have to patiently build its position or overpay for 'quicker' exposure.

These cost factors, when weighed against the low risk of inflation volatility, illustrate that the selection of a nominal liability benchmark is indeed reasonable.

4.2.3 The cost of inflation variability is low

MPI conducted further modelling on the impact of inflation on the pro forma financial statements to quantify the impact of the sustained high inflation. Given the Bank of Canada's inflation target range of 1 to 3%, it was assumed that a plausible worst case scenario for inflation was sustained 3.0% inflation over a four year forecast period.

Results of the modelling, **before** management action, show that the net income impact was an annual average loss of $19.7M. The majority of this impact is due to increased claims cost associated with coverages that are indexed to CPI.

In DCAT.5.8, MPI tested a 1-in-40 inflation scenario of 2.8% for 4 years and determined it was not a top three adverse scenario.

The conclusion to be drawn from this analysis is that sustained high inflation will have a negative impact on MPI's results and capitalization, but that impact is modest in the overall context of the basic investment portfolio, and comes with a low risk of being realized.

Appendix 1

MANITOBA PUBLIC INSURANCE BOARD OF DIRECTORS – INVESTMENT COMMITTEE MEMBERS

Domenic Grestoni

Domenic, also known as Dom, retired from Investors Group in June 2014, where he spent close to 40 years in various positions including audit operations, cash management, treasury operations and investment and portfolio management. He holds a CGA, CPA and a business administration degree from Red River College.

Domenic, CFP, was a Managing Partner, Senior Vice-President, Head of North American Equities, and Portfolio Manager at IG Investment Management, Ltd. Domenic provided key North American perspective combined with substantial financial analysis and investment knowledge expertise. Domenic was the lead manager of the $17-billion Investors Group Dividend fund for 11 years before his retirement. He holds both Certified General Accountant and Certified Financial Planner designations.

Daniel Bubis

Dan was the former president, chief investment officer and founder of Tetrem Capital Management. Prior to founding Tetrem in 2004, Daniel was the chief investment officer at Assante Asset Management Ltd., where he oversaw all investment management function. He holds an honours business administration degree from the University of Western Ontario and holds a chartered financial analyst designation.

Valerie Wowryk

Valerie is a chartered financial analyst and is a past president of the CFA Winnipeg, the local society of chartered financial analysts. She is Director of Wealth Management & Portfolio Manager with Richardson GMP and has more than 30 years of

experience in providing customized portfolio management, oversight and guidance to a diverse client base.

Valerie's investment career began at a leading Canadian trust company where she managed portfolios for the institutional and not-for-profit sectors, high net worth private clients, Estates and Trusts, and First Nations Communities. In 2001, she joined an independent investment counseling firm, mentoring with one of Canada's leading investment managers.

Valerie's full curriculum vitae is set out below:

1

Valerie G. Wowryk CFA, ICD.D

Pertinent Board Experience

- Manitoba Public Insurance Corporation – Appointed May 2016

Director, Governance and HR Committee Chair and Member of the Investment Committee

- CFA Winnipeg – the local Chapter of CFA Charterholders 1994 – 2008

Director holding various Board positions including President (1998-2000)

- Jewish Foundation of Manitoba – Investment Committee 2013 – Present

Pertinent Education

- Institute of Corporate Directors, ICD.D - May 2017
- ICD-Rotman, Directors Education Program – May 2017

The Institute of Corporate Directors is an organization dedicated to the education associated with corporate governance, policy and practice. The Institute strives to lead and demonstrate the value of excellence in directorship and enlightens directors to anticipate, influence and meet boardroom challenges.

- Chartered Financial Analyst Designation - The CFA Institute 1997

The Chartered Financial Analyst (CFA) Program is a professional credential offered internationally by the American-based CFA Institute. The CFA Program and its extensive Body of Knowledge provides a strong foundation of advanced investment analysis and the highest standards of ethics.

1

Pertinent Career Experience

- July 2011 to Present - Richardson GMP Limited.

Position and Key Responsibilities: Director, Wealth Management & Portfolio Manager
A fully accredited Portfolio Manager providing asset management to a select number of personal and institutional clients including; prominent families, estates and trusts, not-for profit organizations, pension plans and corporate portfolios.

- March 2001 to July 2011 – Goodman Investment Counsel Inc.

Position and Key Responsibilities: Portfolio Manager
Responsible for building the Winnipeg branch of the Toronto-based asset management firm.
Developed new client relationships and provided professional portfolio management.

- May 1981 to March 2001 – Royal Trust - RT Investment Counsel Inc.

Position and Key Responsibilities: Investment Officer, Royal Trust
Manager Prairie District, RT Investment Counsel
Managed the Investment Department for the Prairies District which included the development and supervision of personnel serving clients in Manitoba and Saskatchewan.

2019 General Rate Application Overview Presentation

Ben Graham
President and CEO

15 October 2018

Manitoba Public Insurance

Agenda

1) Mission and Values
2) Vision
3) Four Enablers
4) 2019 GRA Positive Themes
5) Ongoing Challenges
6) Conclusion

MPI Beyond the 2019 GRA

A new path forward

Manitoba Public Insurance

Our Mission & Values

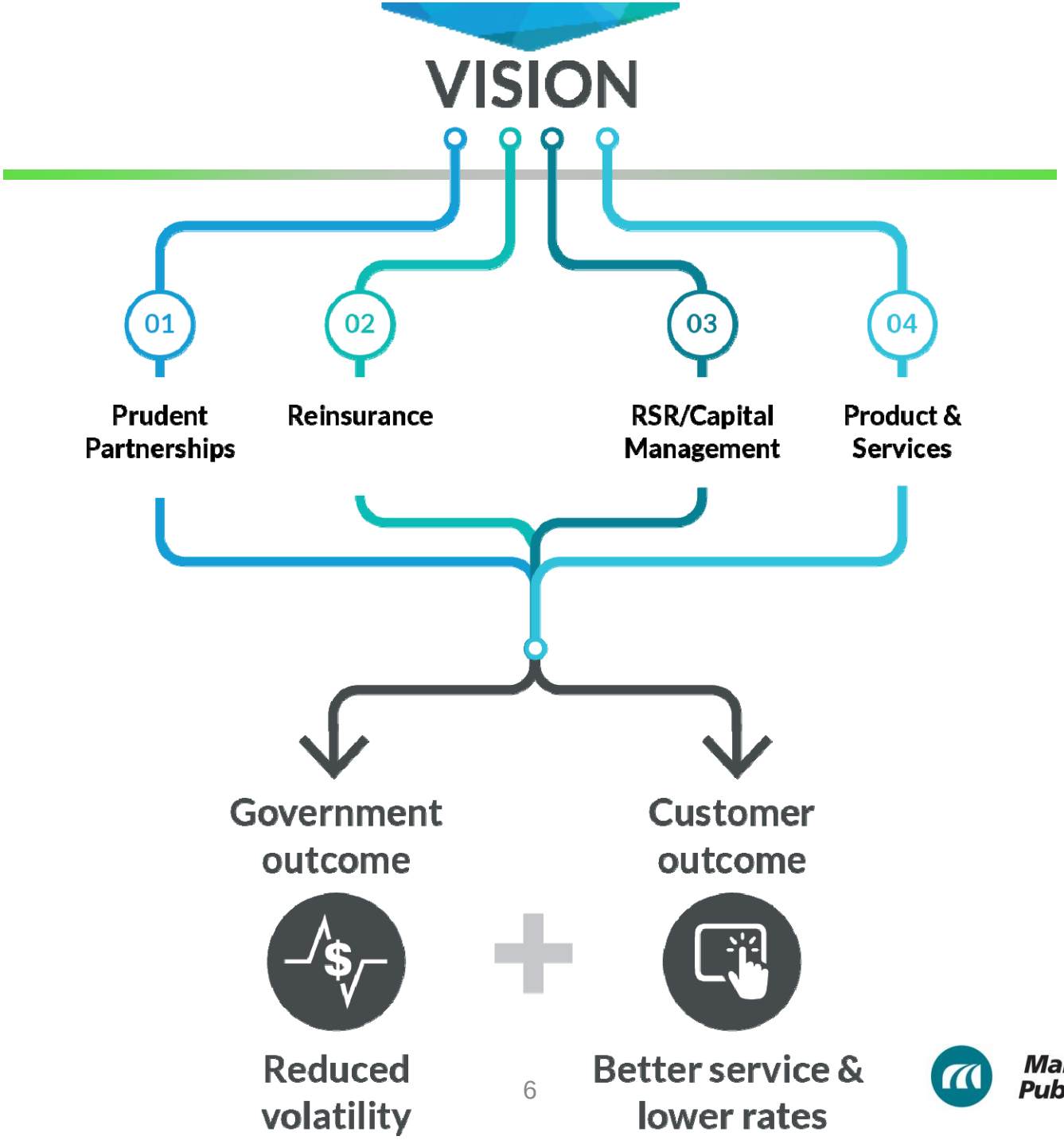
Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

- Striving for Excellence
- Providing Value to Manitobans
- Doing What's Right
- Investing in People

Living out our Mission:

Insurance Priorities

1. **Appropriate insurance rates / service for customers**
2. **Efficient operations**
3. **Fiscal prudence**
4. **Better predictability of MPI's forecasts**


VISION
01
02
03
04
Prudent Partnerships
Reinsurance
RSR/Capital Management
Product & Services
Government outcome
Customer outcome
Reduced volatility
Better service & lower rates
Manitoba Public Insurance

Enabler #1:
Ensure Prudent Partnerships

MPI will ensure our partnerships align with 'value for money' principles

- Negotiating key partnerships (ATA/IBAM/Chiro)
- MPI would like the outcomes of these negotiations to align with fiscal prudence and 'value for money' principles
- Aligned with our mission to provide value for Manitobans

Enabler #2:

Optimize Reinsurance

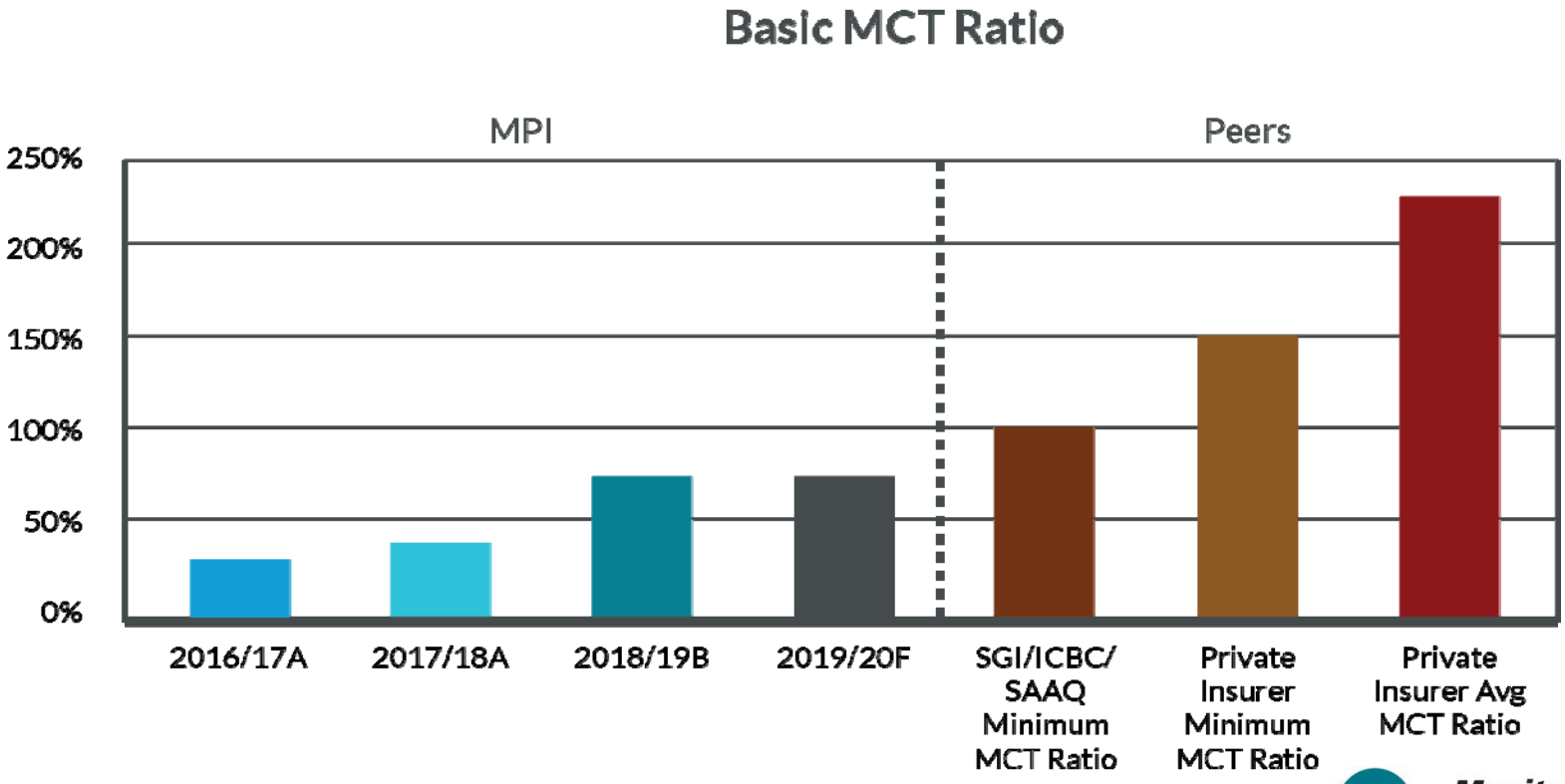
MPI will limit the volatility of financial results for both government and ratepayers by purchasing optimized or 'aggregate' reinsurance.

- MPI purchases reinsurance (i.e. insurance purchased by insurance companies) to protect the Corporation from catastrophic events.
- Aggregate reinsurance provides greater predictability in outcomes

Enabler #3:

Maintain Proper Capital

Appropriate Capital (RSR) means stable rates for customers and stable financial forecasts for government.



Enabler #4:

Modernize our Products

MPI will evolve our product offerings to align with current market practice and customer risk sharing principles

Product	Last updated	Current
Basic Deductible	1997	$500
Basic Maximum Insured Value	1998	$50,000
Minimum Third Party Liability	1983	$200,000

2019 General Rate Application

Progress to Date &
Challenges Before Us

Manitoba Public Insurance

2019 General Rate Application

Positive Themes

New Level of Transparency

- Insight into MPI's major decisions
- Access to corporate leadership

Basic is Moving Towards a Stable Footing

- Investment de-risking has moved the goal posts
- Basic forecast to have 70% MCT to start the rating year

Capital Maintenance Provision (CMP) Allows Basic to hold its ground

- 2.1% rate increase to maintain capital
- 0.1% increase to break-even cost of insurance

2019 General Rate Application

Positive Themes

Value Management is Operational Across MPI

- Adopted across the spectrum
  - All projects / initiatives >$25k
  - Legacy Modernization (multi year, transformative)
  - >$500k projects included in GRAs

Value Management in Action: CCRS Cancellation

- A thorough review halted to project activity
- Refocused efforts on well supported assumptions
- Established accountability for NPV and project results

2019 General Rate Application

Positive Themes

MPI is squarely focused on the core insurance business

- Claims (Physical Damage and Bodily Injury)
- Underwriting
- Fraud Management and Customer Risk Sharing
- Investments

IT Investment Dollars Target Mainstream Technologies

- Expanding channels (online / mobile) to serve customers
- Modernize legacy system (assessment underway)
- Off the Shelf solutions – minimize customization to save money

2019 General Rate Application

Ongoing Challenges

Investments / ALM & De-Risking Basic

- De-risking Basic responds firstly to the fundamental responsibility to ensure that existing claims will be honored in full
- Regulatory landscape has directly influenced the risk appetite for Basic
  - Capitalization and targets remain the lowest in Canada
  - Inaccurate interest rate forecasts resulted in significant and unnecessary pricing risk
- Segregation of portfolios allows each fund to be tailored to a particular purpose and circumstance

2019 General Rate Application

Ongoing Challenges

Capital Remains a Concern

- RSR Targets must be based on Best estimates
  - Minimum at 34% MCT ($143 million)
    - Threshold for unsatisfactory financial condition
  - Maximum at 85% MCT ($305 million)
    - 2-year, 1-in-40, no management action DCAT Scenario

- Are we different? No We Are Not
  - CEO tasked by Government and Board with implementing best practice
  - How do we compare with peers?
  - Lower MCT = short term volatility

2019 General Rate Application

Ongoing Challenges

Interest Rate Forecast

- Naïve Interest Rate forecast is a best estimate
  - MPI cannot place bets on interest rates
  - Appointed actuary supports the approach

- Inaccurate interest rate forecasts have cost Basic $163 million (under-collected premium)

- MPI supports updating the interest rate forecasts
  - 'Approved Methodology' + 'Dependable Inputs'
  - Minimize the risk of mispricing:
    - Customers pay the right price
    - Reduce unnecessary volatility

Summary and Key Requests

Our Mission is Clear - Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

Our Values facilitate our mission

- Striving for Excellence
- Value for Manitobans
- Doing What's Right
- Investing in People

We're making good progress

- Focusing on the Core Business
- Fiscal Prudence Guided by Value Management
- New Level of Transparency with the PUB

Summary and Key Requests (Cont'd)

Our Mission is Clear - Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

We Need PUB Action to get us the rest:

1. **Acceptable Capital Targets**
   - Based on Best Estimates
2. **Capital Maintenance Provision**
   - Step one: Allow Basic to hold its ground
3. **Interest Rate Forecast**
   - To limit the risk of mis-pricing break even policies

Investments, Rate Stabilization Reserve, and Capital Maintenance

October 2018

Manitoba Public Insurance

Agenda

1) Investments and the ALM Study
2) Rate Stabilization Reserve
3) Capital Maintenance Provision
4) Capital Management Plan

Investment and the ALM Study

Mr. Glenn Bunston, CFA
Manager, Investments

October 2018

Manitoba Public Insurance

Agenda

1) Investment Objectives
2) ALM Study
3) Implementation Plan
4) Interest Rate Forecast

Investment Objectives

October 2018

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Investment Objectives (MPI Board and Government)

- Reduced premium/rate volatility
- Directly match investments to liabilities
- Develop unique investment strategies for each portfolio
- Ensure that capital is available to pay claims when necessary
- Appropriate levels of risk for each portfolio driven by the purpose of each portfolio (as set out in the IPS and determined by the Board)

ALM Study Results and Actions

October 2018

Manitoba Public Insurance

ALM Study Background

- ALM Study was ordered by the PUB in PUB Order 162/16

  10.13: MPI obtain an updated ALM study to be filed in the 2018 GRA, which study shall address each of the 18 recommendations made by Mr. Viola, as set out in Appendix E hereto.

- Mercer was hired as the ALM consultant through an RFP process.
  - Phase 1 and Phase 2 was completed by December 2017
  - Phase 3 was completed January 2018

Key Recommendations from ALM Study

1. Segregate the assets of MPI's lines of business (Basic, SRE, EXT), RSR, & post-retirement benefits

2. Significantly de-risk the assets backing MPI's Basic liabilities (no equities or alternatives)

3. Diversify and lengthen MPI's fixed income portfolio

4. Diversify MPI's equity portfolio

5. Reduce MPI's allocation to Real Estate

Impacts of ALM Study

- **Overall Ratepayer impact:** Reduced risk and rate volatility for ratepayer over the long-term

- **2019/2020 Ratepayer Impact:** Minimal impact on 2019 breakeven AAP rate indication (0.2% rate increase)

- **Other Impacts:**
- Interest rate risk will be reduced by segmenting the portfolios
- Prudent asset mix in the RSR balances preservation of capital with opportunity to earn returns to enhance rate stability and/or lower rate indication

ALM Asset Mix Changes

Current Allocation (Co-mingled)

– Growth assets include equities and alternative asset classes.

	Fixed Income	Growth Assets
Co-Mingled	70%	30%

***Growth assets include equities and alternative asset classes**

New Allocations (Separated Portfolios)

	Fixed Income	Growth Assets
Basic	100%	0%
RSR	50%	50%
Pension	40%	60%
Consolidated	84%	16%

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Basic Claims Target Asset Mix

Asset Class	Target
Provincial Bonds	60%
Corporate Bonds	20%
Non-Marketable Bonds	20%
Total Fixed Income	**100%**
Total Public Equities	**0%**
Total Alternative Investments	**0%**

***Basic interest rate hedge ratio increases from 85% under the current allocation rules to 100% under the proposed policy.**

RSR Target Asset Mix

Asset Class	Current	Proposed
Provincial Bonds/(current: Government Bonds)	45%	20%
Corporate Bonds	5%	10%
Non-Marketable Bonds and Private Debt	20%	20%
Total Fixed Income	**70%**	**50%**
Canadian Equities	10%	12%
Global Equities/(current: U.S. Equities)	5%	13%
Global Low Volatility	n/a	10%
Total Public Equities	**15%**	**35%**
Canadian Real Estate	10%	10%
Infrastructure	5%	5%
Total Alternative Investments	**15%**	**15%**

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New Asset Classes in RSR & Pension Portfolios

- **Private debt**
  - Investment grade North American debt
  - Less liquid than public debt, resulting in an increased yield over public debt by an estimated 0.75%.
- **Global Equities**
  - Includes developed market equities and emerging market equities
- **Global Equities (Low Volatility)**
  - Diversified developed market equities with return volatility about 25% less than standard global equity benchmark index.
  - Offsets some of the volatility associated with global equity

Rejected Asset Classes/Strategies

- Diversified Growth Funds
- Private Equity
- High Yield Bonds
- Emerging Market Debt
- Mortgages
- Leverage
- Real Return Bonds

Real Return Bonds Not Recommended

- Real Return Bonds (RRBs) real yields are relatively low (0.6% as of Feb 2018);
- MPI's basic liabilities assume a 2% inflation rate. RRBs will only be worth their cost if inflation is well in excess of 2% for a sustained period;
- Duration and dollar matching is challenging with RRBs;
- RRBs are linked to Canadian CPI, while Basic Liabilities are indexed to other drivers.

Implementation Plan 2018/19

Asset Class	Action	Timing
Provincials	Sell Federal bonds and purchase Provincial bonds	Q1 2018/19
Corporate Bonds	Add 1-2 Mandates	Start manager search Q2/Q3 2018/19
MUSH	MUSH bonds mature and proceeds are used to fund other asset classes	Ongoing
Equities	Complete manager search for Global Equities and Global Low Vol	Q4 2018/19
Real Estate	Advise pooled real estate manager that sales are required	Q1 2018/19
Infrastructure	Begin process to liquidate some infrastructure in 2019/20	2018/19
Private Debt	Begin Manager Search Process	Q4 2018/19

Implementation Plan 2019/20

Asset Class	Action	Timing
Provincials	Increase allocation on a proportionate basis	Q1 2019/20
Corporate Bonds	Increase allocation on a proportionate basis	Q1 2019/20
MUSH	MUSH bonds mature and proceeds are used to fund other asset classes	Ongoing
Equities	Liquidate U.S. equities and a portion of CDN equities to fund Global Equities, Global Low Vol	Q1 2019/20
Real Estate	Liquidate a portion of the real estate pooled fund to reach 4% consolidated target weight	Q1 2019/20
Infrastructure	Liquidate a portion of infrastructure to get to 2% consolidated target weight	Q1 2019/20
Private Debt	Complete search and fund private debt over a period of time	Substantially complete by the end of Q4 2019/20

Rationale for Naïve Interest Rate

- Naïve interest rate provides a neutral, unbiased forecast
  - Going forward, the GoC 10 year bond could increase, decrease or remain flat
  - Naïve Forecast is a better predictor than 50/50, or SIRF

- Over the short term (1 to 1.5 years), the Bank of Canada overnight rate is not reliably predictive of the direction and magnitude of movements in the GoC 10 year bond rate.

- MPI's goal is to reduce pricing risk with the most accurate forecast

Conclusion

- Unique investment strategies are better aligned to the purpose and characteristics of the associated liabilities.
- Volatility of the Basic Claims portfolio will be reduced.
- Impact on rates is expected to be minimal (0.2%).
- The expected reduction in investment risk will have a positive impact on MPI's required capital.

Rate Stabilization Reserve and Capital Maintenance

Mr. Luke Johnston, FCIA
Chief Actuary, VP Product and Risk Management

October 2018

Manitoba Public Insurance

Agenda

1) What is the RSR
2) Why it Matters to MPI
3) Approaches to Calculating the RSR Targets
4) How MPI Compares to Industry
5) The Best Estimate Approach to DCAT
6) Reducing Risk
7) Capital Maintenance Provision
8) Capital Management Plan (Forthcoming)

Why Have a Rate Stabilization Reserve?

- Current definition of the Rate Stabilization Reserve (RSR):

  To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors

- Like any other insurer, MPI should have appropriate capital to manage the risks and volatility inherent in its business
- An appropriate RSR ensures that MPI can keep rates stable over time, rather than requesting funds from rate payers *after* an adverse event occurs

What makes MPI different?

- The Basic monopoly has no risk of loss to market share
- However, other risks applicable to insurance companies still exist for Basic (e.g. assets, liabilities, operational, credit, etc.)
- Certain risks are *greater* for MPI than for a private insurer, including:
  - No profit provision increases probability of deficient premiums
  - Extremely low capital targets compared to Canadian Peers
  - PIPP program requires billions dollars for long term claims reserves

DCAT and MCT Methodologies

- **Dynamic Capital Adequacy Testing (DCAT)**
  - Assesses the financial condition by modeling plausible adverse scenarios
  - Withstanding all adverse scenarios means Satisfactory Financial Condition (simplified explanation)
  - Actuary sets assumptions on scenario modeling, management and regulatory actions, plausibility etc

- **Minimum Capital Test (MCT)**
  - Standardized test of capital adequacy used by all insurers in Canada
  - Completely objective, with risk margins set by OSFI using assessment of risk from industry information
  - Measures Risks faced by all insurers, public or private

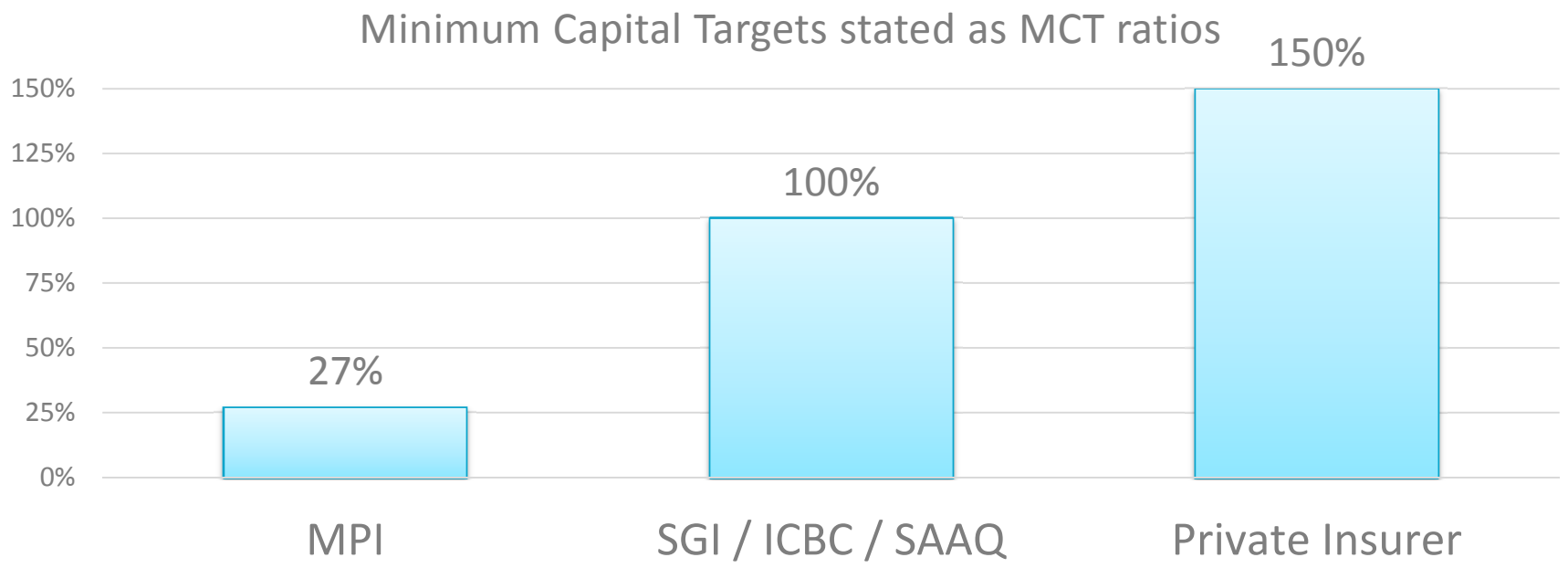
Reducing Risk Lowers the RSR Range

- Basic RSR (Total Equity) balance of $211 million or a 44% MCT ratio, at February 28, 2018
- Risk reduction measures through ALM significantly reduced DCAT based RSR Targets and 100% MCT

($millions)	2018 GRA		2019 GRA	
Target	Total Equity	MCT Ratio	Total Equity	MCT Ratio
Lower RSR Target (PUB)	$180	31%	$120	27%
Upper RSR Target (PUB)	$325	72%	$251	69%
100% MCT	$438	100%	$358	100%

Manitoba Public Insurance

Context: Capital Targets of MPI & CDN Peers



Modified DCAT
- Unique to MPI
- Significant subjectivity in assumptions
- Assumes capital transfers

MCT Based Targets
- Industry standard
- Objective, comparable
- Incorporates depth and breadth of Cdn industry experience

Satisfactory Financial Condition Cannot Assume Capital Transfers

- Basic's Lower RSR target is/should be an indicator of risk faced by Basic line of business.
  - Establishes the minimum level of capital required for satisfactory financial condition
- Modifying the DCAT to assume transfers from other lines, into Basic 'blurs' the assessment of risk facing basic
  - Risk assessment not consistent over time
  - Not prudent to assume transfers of funds (that may not exist)
- Without $214 million of transfers from Extension, Basic Total Equity would be <$0 (all else equal).
- Consideration of how/when to use transfers would be an important part of the Capital Management Plan.

MPI Collaboration on the Setting of Capital Targets

- MPI has collaborated with the PUB to create RSR targets based on a modified (iterative) DCAT approach
- 2019 GRA capital targets based on this methodology, ***except*** for the portion of the methodology that does not attempt to use 'best estimate' forecasting.

($millions)	2018 GRA		2019 GRA	
Target	Total Equity	MCT Ratio	Total Equity	MCT Ratio
Lower RSR Target (MPI)	$201	37%	**$143**	**34%**
Upper RSR Target (MPI)	$438	100%	**$305**	**85%**
Lower RSR Target (PUB)	$180	31%	$120	27%
Upper RSR Target (PUB)	$325	72%	$251	69%

Manitoba Public Insurance

Keeping Risk Low

Government View and MPI Board Actions

- The MPI Board has taken actions to significantly reduce the risk of Basic operations (mostly through investment portfolio)
  - Consistent with MB Government's desire for reduced volatility

MPI has taken significant steps in recent years to reduce risk, including:

- Segregated investment portfolios will reduce risk in 2019/20
- Accepted Actuarial Practice
- Improved Value Management Process
- Heightened importance of Risk Management in Organizational Structure
- Centralized PIPP Reserving
- Reinsurance (with more options being investigated for further risk reduction)

Keeping Risk Low (Cont'd)

Lower RSR Target is the Absolute Minimum for Basic

- 34% MCT (Best Estimate) > 27% MCT
- Further reducing the Lower RSR Target below satisfactory financial condition counteracts the risk reduction benefits of the Board's actions

Moving Forward

- MPI and PUB must work together to determine appropriate capital management framework given government's low appetite for risk

Capital Maintenance Provision

October 2018

Manitoba Public Insurance

Capital Maintenance Provision (CMP)

- A CMP is an additional amount applied to the rate indication in order to ensure capital is maintained (as a % of MCT) over the rating period
- That Mechanism is called the 'Net CMP'
  - 'Net' because it accounts for investment income on the RSR
- The Net CMP in the 2019/20 GRA is +2.1%.

Base Forecast ($millions)		2018/19	2019/20	2020/21	2021/22
With CMP	Total Equity	$254	$280	$307	$318
	MCT Ratio	70%	70%	70%	70%
Without CMP	Total Equity	$254	$258	$262	$250
	MCT Ratio	70%%	64%	58%	52%

Manitoba Public Insurance

Why does MPI need a Net CMP?

- With no natural means for Basic to maintain its capitalization level over time, Basic requires a mechanism in its rate setting methodology to maintain capital

- The Net CMP is the first component of an effective capital management plan.

- The Net CMP ensures that the ratemaking structure has a natural mechanism built in to maintain capitalization at current levels.

- The concept of *incremental* capital maintenance is consistent with MPI's break-even mandate for Basic insurance.

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Beyond the 2019 GRA: Capital Management Plan

October 2018

Manitoba Public Insurance

Capital Management Plan

- A capital management plan would include the following components:
  - Minimum, maximum, and/or target capital level for all lines of business
  - A capital maintenance provision build into ratemaking
  - A capital build and release methodology based on the capital targets
  - Clearly defined policy-based constraints on the speed and magnitude of the combined rate impact of rate changes, capital maintenance, capital build, and capital release provisions.
  - Clearly defined rules on the transfer of capital from other lines of business
  - Possibly other considerations

An Effective Capital Management Plan

What makes for an effective Capital Management Plan?

- Stable capital target methodology (e.g. 100% MCT target)
- Stable rate setting methodology (e.g. AAP, CMP, etc)
- Stable profit targets for all LOBs
- Stable constraints and rules for the operation of the Capital Management Plan
- Objectives measures, not forecasts (e.g. actual MCT score)
- Unbiased forecasting
- Transparency - including disclosure of capital management plans for other lines of business

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Conclusion

- Basic is De-risking through various means
  - Mostly through new Investment Portfolios
- DCAT Based RSR Targets need to accurately reflect risks
  - Must use Best Estimate Assumptions
- Capital Maintenance Provision prevents natural deterioration of Basic's Capital
  - Important First Step to Capital Management Plan

ASSET LIABILITY STUDY

PROJECT SUMMARY

2017 ASSET LIABILITY STUDY AND 2018 SUPPORT TO MPI AND THE GRA PROCESS

Manitoba Public Insurance

12 OCTOBER 2018

Dave Makarchuk, Partner, CFA, FSA, FCIA

OVERVIEW OF THIS PRESENTATION

- Our Engagement with MPI
- Team Members
- Project Milestones
- How Conclusions Were Reached
- Our October 2018 Perspective

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MERCER'S ENGAGEMENT WITH MPI

- RFP2785 was issued by MPI on 12 September 2017 for an Asset Liability Study
- We submitted questions and received answers from MPI as scheduled
- We responded to the RFP as scheduled (22 September 2017)
- MPI notified Mercer that we were the successful proponent on 29 September 2017
- Engagement documentation followed shortly thereafter
- We completed Phases 1-3 of the project by January 2018
- Throughout 2018 we have supported MPI with its GRA and follow-on information requests

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OUR MERCER TEAM



Each member of our team has significant experience advising institutional investors such as MPI

4 of us are FSA, FCIA

2 of us are CFA Charterholders

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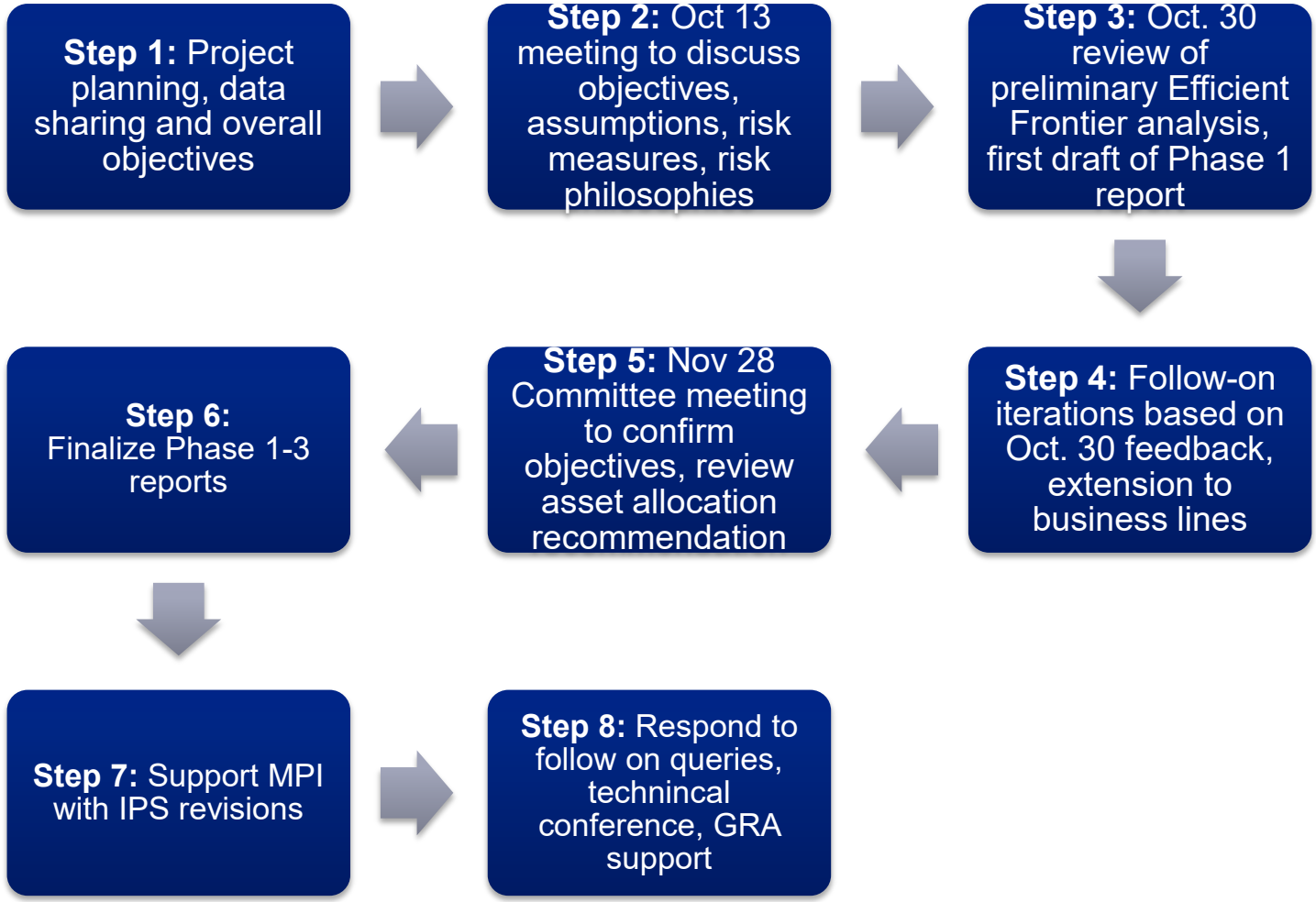
MERCER'S 2017/2018 ASSET LIABILITY STUDY FOR MPI

PROCESS STEPS



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HOW CONCLUSIONS WERE REACHED
HIGHLIGHTS OF THE NOVEMBER 28 INVESTMENT COMMITTEE DISCUSSION

We discussed the relative tradeoffs of key investment considerations …

EVERY INVESTMENT DECISION WE DO (OR DO NOT) MAKE IS DRIVEN BY 4 KEY FACTORS…



ARTICULATING THE OBJECTIVES FOR EACH BUSINESS HELPS CLARIFY THE PURPOSE OF THE ASSETS …AND PRIORITIZE THE RELATIVE IMPORTANCE OF EACH OF THESE 4 FACTORS

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STRATEGIC RECOMMENDATIONS AND EXPECTATIONS

Key Strategic Recommendations:

Segregate the assets of MPI's lines of business, RSR & pension
Significantly de-risk the assets backing MPI's Basic liabilities (no equities or alternatives)
Diversify and lengthen MPI's fixed income portfolio Diversify MPI's equity portfolio Reducing MPI's allocation to Real Estate

Key Expectations:

1. Cost: expected Returns will decline by 0.4% (or $11)/annum 2. Benefit: expected Risk will decline by 1.6% (surplus vol.) or $67M/annum (95th%ile Surplus at Risk)
3. Gradual implementation over a 24 month period

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And summarized the key recommendations and expectations

WE RECAPPED THE KEY LEARNINGS FROM THE PROJECT…

RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Should each business have a unique asset allocation?	The profile of the obligations and risk of each of the 5 businesses is unique. At a minimum, each business should be assessed individually. Preliminary recommendation is to adopt unique asset allocations.	Decision on whether to aggregate or segregate assets depends on dispersion of objectives.
What are MPI's Investment Goals?	The current IPS emphasizes mitigating risk resulting from interest rate variations and mitigating the risk of short-term premium volatility. It also indicates that minimizing premium levels is an objective. Clarifying investment goals for each business line is recommended.	Will define the purpose and objectives for each business line.
Inflation linkage of liabilities	Much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation.	Given low inflation expectations, hedge nominal, but not real, interest rate risk.

RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Merits of New Growth Portfolio Exposure	Reviewed the relative merits of International Equities, Global Equities, Low Volatility Global Equities, Emerging Markets, Private Equity, and Diversified Growth Funds.	Consider allocations to Global Equities (including Emerging Markets), Low Volatility Global Equities, and Private Equities.

RECAP OF PHASE 1
KEY LEARNINGS AND CONCLUSIONS

Topic	Analysis/Discussion	MPI Conclusion
Merits of New Fixed Income Exposure	Reviewed the relative merits of Federal Bonds, Real Return Bonds, Private Debt, Corporate Bonds Commercial Mortgages, Levered Bonds, Growth Fixed Income. Analysis considered historical and expected risk and returns, duration matching potential, cost, implementation considerations.	Consider private debt and corporate bonds as new asset classes.
Interest Rate Risk Management Strategy	Discussed the merits of duration matching, cashflow matching, and a hybrid approach.	Focus on duration matching for 100% of Basic liabilities.
Economic Assumptions	Mercer's long-term assumptions assume a gradual rise in interest rates to a long-term equilibrium state. Alternatively, we are comfortable assuming shifts in future yields implied by current forward rates.	Projections and analysis will be based on implied forward rates.

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… AND CONFIRMED THAT THE PHASE 2 OBJECTIVES HAD BEEN MET.

PHASE 2 OBJECTIVES

Objective	Comments
1.Analyze characteristics and risks of claim liabilities, pension liabilities, equities.	See phase 1 for initial analysis discussion. Further analysis/discussion herein.
2. Quantify risk and return under current and alternative mixes.	Included in the detailed report.
3. Assess available asset classes and impact of adding those new asset classes.	Available asset classes assessed in Phase 1. Impact of new asset classes assessed in the detailed report.
4.Evaluate probability of meeting expected returns under various economic scenarios.	Included in the detailed report.

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PHASE 2 OBJECTIVES

Objective	Comments
5. Assess asset class optimization with 1). Minimal constraints and 2). Practical implementation considerations.	Assessment with minimal constraints preceded this report. This report focuses on practical alternatives.
6. Recommend normal, minimum, and maximum allocations to each asset class.	This report focusses on normal allocations. Recommend +/- 3-5% for minimums/maximum's alongside rebalancing.
7. Recommend asset allocations that maximize the probability of achieving corporate goals within stated constraints.	Included in this report.
8. Recommend an allocation to Corporate Bonds	Included in this report.

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WE CONFIRMED OBJECTIVES FOR EACH BUSINESS LINE …

A SNAPSHOT OF MPI'S BASIC LIABILITIES

Liability Overview

- Basic universal compulsory automobile insurance for Manitoban drivers
- Rates are approved by the Public Utilities Board of Manitoba
- Obligations are a mix of:
  - Long-term payments (typically disability claims indexed to inflation), and
  - Short-term payments (typically physical damage repairs)

Claims liability estimates have risk from mortality, asset and liability mismatch, investment returns, technological improvements, societal/legal. The actuarial valuation includes an 18.1% (or $273M) risk load to account for these risks

Key Statistics

Liability: $1.79Billion
Duration: 10.5 years
Liability Benchmark

- Short Provincial Bonds 28%
- Mid Provincial Bonds 18%
- Long Provincial Bonds 54%

Asset Purpose:
Ensure that Basic claim liabilities are paid to claimants as they come due

Risk Tolerance
Very low. If RSR grows in future, risk tolerance could increase.

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ASSET CLASS OBJECTIVES
BASIC

Return

- Mitigating risk is more important than maximizing returns
- Willing to pursue modest incremental returns through diversified credit decisions
- Avoiding federal treasures (no credit reward)

Risk

- Mitigating risk is more important than maximizing returns
- Matching $ duration is key … no willingness to take interest rate risk
- Willing to take modest credit risk (so long as its diversified and cost effective)

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… AND OUTLINED THE ASSET CLASS RECOMMENDATION FOR EACH BUSINESS LINE

PROPOSED ASSET ALLOCATIONS FOR EACH BUSINESS

	Fixed Income		Equities		Alternatives		Total
Basic	$ 1,790M	100%	$ -	0%	$ -	0%	$ 1,790M
RSR	$ 49M	50%	$ 34M	35%	$ 15M	15%	$ 98M
Pension	$ 162M	40%	$ 142M	35%	$ 101M	25%	$ 405M
Total Target	$ 2,128M	83%	$ 265M	11%	$ 154M	6%	$ 2,547M

	Fixed Income		Equities		Alternatives	
Aug 31 2017	$1,732M	68%	$428M	17%	$387M	15%
Change	+$396M	+15%	-$163M	-6%	-$233M	-9%

Basic will become 100% Fixed Income
RSR will become 50% Fixed Income, 50% Growth
Pension will become 40% Fixed Income, 60% Growth

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FIXED INCOME ALLOCATIONS WOULD BE AS FOLLOWS:

	Provincials		Corporates		MUSH		Private Debt	
Basic	$ 1,074M	60%	$ 358M	20%	$358M	20%	$ - M	0%
RSR	$ 20M	20%	$ 10M	10%	$ 5M	5%	$ 15M	15%
Pension	$ -	0%	$ 81M	20%	$ 0M	0%	$ 81M	20%
Total Target	**$ 1,145M**	**45%**	**$ 475M**	**18%**	**$ 375M**	**15%**	**$ 134M**	**5%**

	Federals		Provincials		Corporates		MUSH		Private Debt	
Aug 31, 2017	$121M	5%	$921M	36%	$6M	0%	$648M	25%	$0M	0%
Change	-$121M	-5%	+$223M	+9%	+$462M	+18%	-$272M	-11%	+$134M	+5%

Modest additions to Provincials
Introduction of Corporates and Private Debt
MUSH bonds will take time to mature

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ASSET CLASS RECOMMENDATION FOR EACH BUSINESS LINE (CONTINUED)

EQUITY ALLOCATIONS WOULD BE AS FOLLOWS:

	Canadian		Global		Global Low Volatility	
Basic	$ 0M	0%	$ 0M	0%	$ 0M	0%
RSR	$ 12M	12%	$ 13M	13%	$ 10M	10%
Pension	$ 41M	10%	$ 73M	18%	$ 28M	7%
Total Target	**$ 83M**	**3%**	**$ 119M**	**5%**	**$ 63M**	**2%**

	Canadian		US		Global		Global LV	
Aug 31, 2017	$287M	11%	$144M	6%	0	0%	0	0%
Change	-$204M	-8%	-$144M	-6%	+$119M	+5%	+63M	+2%

Significant reductions to Canadian and US Equity
Introduction of Global Equities, Low Volatility Global Equities

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ALTERNATIVE ALLOCATIONS WOULD BE AS FOLLOWS:

	Real Estate		Infrastructure	
Basic	$ 0M	0%	$ 0M	0%
RSR	$ 10M	10%	$ 5M	5%
Pension	$ 61M	15%	$ 41M	10%
Total Target	**$ 96M**	**4%**	**$ 58M**	**2%**

	Real Estate		Private Equity		Infrastructure	
Aug 31, 2017	$297M	12%	$3M	0.1%	$89M	3%
Change	-$191M	-8%	-$3M	-0.1%	-$31M	-1%

Will take some time to reduce the allocations to Real Estate and Infrastructure

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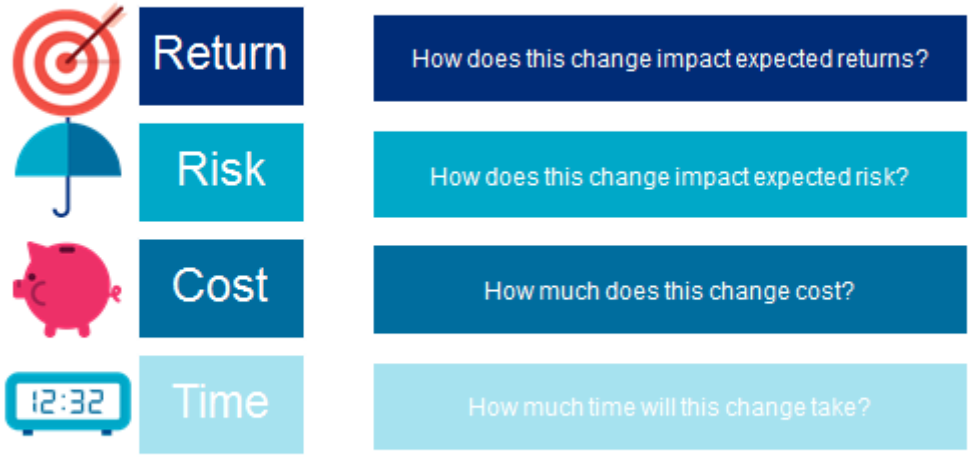
FINALLY WE REFRESHED ON OUR PROPOSED DECISION MAKING FRAMEWORK AND THE KEY METRICS

OUR PROPOSED FRAMEWORK TO HELP CLARIFY THE RATIONALE FOR THE RECOMMENDATIONS



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COMPARING RETURN AND RISK ALL BUSINESSES - CORPORATE

Return

	Current	Proposed
Expected Annual Total Return	4.3%	3.9% (-$11M)
Non-MUSH Yield – ALL	2.75%	3.02%
Non-MUSH Yield – Basic	2.75%	2.92%

Risk

	Current	Proposed
Expected Annual Surplus Volatility	3.4%	1.8% (-1.6%)
95th % ile Value at Risk (surplus)	-$142M	-$75M (+$67M)
Duration	7.27	8.70
Interest Rate Hedge Ratio	73%	87% (100% basic)

Shift to more bonds reduces expected annual return, but is offset by increased non-MUSH yield. Risk reduced significantly and greater amount of interest rate risk is hedged.

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DRIVERS OF COST AND TIME FURTHER ANALYSIS

Cost Time

	Proposed	Implementation Cost	Timing
Provincials	Duration shifting	Minimal	Q1 2018
Corporate Bonds	Add 1-2 mandates	Manager Search Inv Mgmt Fees	by Feb. 28, 2018
Private Debt	Add 1-2 mandate	Manager Search Inv Mgmt Fees	2019
MUSH	Manage liquidity	N/a	Slow over 24 months
Equities	Add 2 mandates	Manager Search Inv Mgmt Fees	2018

Implementation will be phased over 24 months

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OUR SUMMARY PERSPECTIVE ON THE SUBSTANTIVE ISSUES RAISED BY THE CAC/PUB IN 2018

Should liabilities have been modelled with a real benchmark?

- Acknowledge a real benchmark would have better reflected inflation volatility
- MPI clearly indicated willingness to accept inflation volatility and desire to hedge nominal risk, thus a nominal benchmark was used
- The 2% inflation assumption included in the liability cashflows is reasonable from our perspective

Should the recommended asset mix hedge inflation risk?

- Hedging inflation risk was not a stated investment objective
- Most peer investors accept inflation risk … those that hedge typically hedge only a portion for various reasons
- While headline inflation has risen since the study, the consensus expectation for long-term inflation doesn't yet suggest a long-term inflation rate in excess of that modelled during the study

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OUR SUMMARY PERSPECTIVE ON THE SUBSTANTIVE ISSUES RAISED BY THE CAC/PUB IN 2018

Should leverage/ overlays have been used to hedge inflation risk?

- Investors comfortable with leverage/overlays have generally realized returns (and volatility) in excess of levels achievable simply with physical assets.
- Not all investors are comfortable with leverage/overlays (for various reasons) regardless of their sophistication or asset size
- MPI's decision to exclude leverage/overlays does not place them as an outlier relative to peer investors

Was MPI too reliant on Quantitative Models?

- While quantitative models and inputs formed the basis of our analysis and discussions with MPI, from our perspective we would suggest that qualitative considerations were more than adequately reflected in the final asset mix recommendation

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OUR OCTOBER 2018 SUMMARY PERSPECTIVE

From our perspective, the Asset Liability Study we conducted with MPI was aligned with the Return, Risk, Cost, and Time objectives articulated by MPI. While other investors may have different objectives or alternate views on the relative risks of various asset classes and key economic metrics and reach different conclusions, in our opinion MPI's articulated objectives and final conclusions are consistent with those of many peers and strike a reasonable balance between enhancing returns, reducing risk, mitigating costs and making good use of governance time.

While we acknowledge that Canadian inflation rates have increased significantly since the beginning of the study (2.8% at August 2018 vs. 1.4% at August 2017), we continue to expect that over the long-term Canadian CPI will be at or below the 2.0% level modelled as part of the asset liability study, and that the merits of hedging the risk of higher inflation do not exceed the merits of hedging the risk of lower nominal yields over the long term.

Based on our understanding of MPI's investment objectives, we continue to support the recommend asset mixes for the various business lines as proposed.

Dave Makarchuk, Partner, CFA, FSA, FCIA

Angelo Di Noto, Principal

Pawel Piesowicz, Principal, CFA, FSA, FCIA

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Quarterly Financial Report

2nd QUARTER

Six months ended
August 31, 2018

Manitoba Public Insurance

Management Discussion and Analysis

Management's discussion and analysis provides a review of the financial results and future outlook of Manitoba Public Insurance. It should be read in conjunction with the unaudited condensed interim financial statements and supporting notes for the second quarter ended August 31, 2018 included herein and the annual audited financial statements and supporting notes and the Corporation's 2017 Annual Report available at mpi.mb.ca. Certain information in this report may consist of forward-looking statements. These statements are based on various techniques and assumptions including predictions about future events which may not occur. Actual results could deviate significantly from the forward-looking statements.

Q2 Corporate Performance Measures and Targets

Second quarter results 2018/19

MANITOBA PUBLIC INSURANCE

FINANCIAL PERFORMANCE

Net Premiums Earned

In millions

$643.0	$638.2	$598.9	$1,276.5
ACTUAL Q2 18/19	TARGET Q2 18/19	PAST Q2 17/18	ANNUAL TARGET 18/19

Net Claims Incurred

In millions

$471.4	$462.7	$465.2	$959.0
ACTUAL Q2 18/19	TARGET Q2 18/19	PAST Q2 17/18	ANNUAL TARGET 18/19

Corporate Claims Cost Ratio

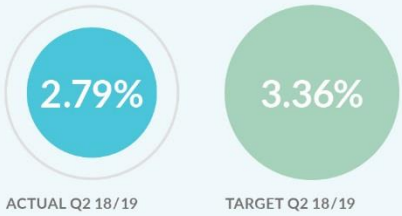
(Total Claims Cost / Net Premiums Earned)

85.3%	85.8%	90.7%	88.5%
ACTUAL Q2 18/19	TARGET Q2 18/19	PAST Q2 17/18	ANNUAL TARGET 18/19

Corporate Claims Cost Ratio excluding Catastrophic Claims

80.7%
ACTUAL Q2 18/19

Total Return — Investments



ACTUAL Q2 18/19	TARGET Q2 18/19	2.08% PAST Q2 17/18	4.62% ANNUAL TARGET 18/19

OPERATIONAL EXCELLENCE

Total Full-Time Equivalent (Average)



1,762	1,889	1,901	1,884
ACTUAL Q2 18/19	TARGET Q2 18/19	PAST Q2 17/18	ANNUAL TARGET 18/19

Operating Expense Ratio

(Operating Expenses / Net Premiums Earned)



ACTUAL Q2 18/19	TARGET Q2 18/19	10.0% PAST Q2 17/18	9.7% ANNUAL TARGET 18/19

CUSTOMER SERVICE

Customer Satisfaction Index



ACTUAL Q2 18/19	TARGET

Note: Manitoba Public Insurance is conducting a review of our Customer Experience metrics during the 2018/19 year.

ORGANIZATIONAL HEALTH

Employee Engagement



ACTUAL 2015	ACTUAL 2016	TARGET 2018

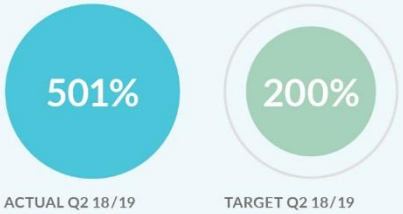
Capital Adequacy (Minimum Capital Test)

Basic



ACTUAL Q2 18/19	TARGET Q2 18/19	75–100% ANNUAL TARGET 18/19

Extension



ACTUAL Q2 18/19	TARGET Q2 18/19	200% ANNUAL TARGET 18/19

Special Risk Extension



ACTUAL Q2 18/19	TARGET Q2 18/19	300% ANNUAL TARGET 18/19

Results of Operations

Manitoba Public Insurance reported net income of $72.8 million for the six months ended August 31, 2018, compared to net income of $42.3 million for the same period last year. This includes net income of $39.4 million (2017 –$9.2 million) from the Basic insurance line of business. Corporate net income increased from the previous year by $30.5 million due to:

i) an increase in earned revenues of $44.8 million, offset by an increase in total expenses of $6.7 million;
ii) an increase in claims cost of $5.0 million;
iii) a decrease in investment income of $4.2 million mainly due to lower unrealized gains on Fair Value Through Profit or Loss bonds of $18.1 million offset primarily by higher gains on the sale of equities, gains on sale of Fair Value Through Profit or Loss bonds and gain on infrastructure investments of $13.9 million.

Current Year and Last Year

Total earned revenues for the six months ended August 31, 2018, increased from the previous year by $44.8 million. This increase is primarily attributed to motor vehicle earned revenues which increased by $35.1 million or 6.5%. The increase in earned revenues is primarily due to the growth in the number of vehicles on the road in Manitoba and the value of these vehicles as well as increases associated with demerit drivers on the Driver Safety Rating scale which resulted in higher premiums.

Claims costs for the six months ended August 31, 2018, increased by $5.0 million or 0.9% compared to last year due primarily to an increase of $11.8 million or 4.1% in physical damage claims incurred offset by a decrease of $5.6 million or 3.2% in bodily injury claims incurred. The increase in physical damage claims is primarily due to a major hail event which occurred June 14, 2018 which was mitigated by reinsurance in the amount of $14.6 million. The $5.6 million decrease in bodily injury claims was impacted by a $22.5 million favorable interest rate impact on unpaid claims offset by an increase in direct claims incurred of $25.7 million. Claims expenses decreased by $0.9 million or 1.2% from the previous year, road safety and loss prevention expenses also decreased by $0.2 million or 4.2%.

Total expenses increased by $6.7 million compared to last year due primarily to an increase of $2.5 million or 6.3% in commission expenses, $1.3 million or 7.3% in premium taxes and $2.9 million or 4.8% in operating expenses.

Retained Earnings

Net income of $72.8 million for the first six months ending August 31, 2018, increased retained earnings from $352.6 million to $425.4 million (August 31, 2017 – $303.8 million). Retained earnings are comprised of $210.3 million for Basic insurance (August 31, 2017 - $108.4 million) and $215.1 million for non-Basic lines (August 31, 2017 - $195.4 million).

Total Equity

Total equity of $475.5 million (August 31, 2017 – $372.2 million) are comprised of $425.4 million retained earnings and $50.1 million accumulated other comprehensive income (August 31, 2017 - $68.3 million).

The Corporation's Chief Actuary concluded that a minimum total equity level of $201.0 million would be required for Basic to achieve satisfactory future financial condition. At the end of the second quarter, Basic insurance reported total equity of $253.5 million (August 31, 2017 – $166.8 million). Extension's current capital target level for total equity is $64.0 million based on the Corporation's most recent Dynamic Capital Adequacy Test (DCAT) analysis. At the end of the second quarter, Extension insurance reported total equity of $129.3 million (August 31, 2017 - $121.8 million). Special Risk Extension's current capital target level for total equity is $65.0 million based on the Corporation's most recent DCAT analysis. At the end of the second quarter, Special Risk Extension insurance reported total equity of $93.6 million (August 31, 2017 - $85.2 million).

Outlook

The Corporation remains committed to achieving its Corporate goals. Actual results will be monitored, and corrective actions taken when necessary, to ensure that expected outcomes are realized.

As approved by the Public Utilities Board (PUB), effective March 1, 2018, there was a 2.6 per cent overall rate increase to average Basic insurance rates for the 2018/19 insurance year and the equivalent of a 1.8 per cent increase for demerit drivers.

For the 2019/20 insurance year, Manitoba Public Insurance is requesting a 2.2 per cent overall rate increase in its general rate application. All insurance companies hold funds to pay claims, as well as to maintain a buffer of capital to endure unexpected adverse circumstances. Manitoba Public Insurance's 'buffer' is known as the Rate Stabilization Reserve and to remain effective it must grow with the business. For the 2019/20 insurance year, the Corporation is proposing a Capital Maintenance Provision which accounts for 2.1 per cent of the overall 2.2 per cent increase.

Overall:

- 547,166 vehicles (excluding trailers and off-road vehicles) will receive increases in their Basic premium next year, with 39.5 per cent of these vehicles increasing by less than $50 per year.
- Approximately 37.7 per cent of all vehicle owners (excluding trailers and off-road vehicles) will see no change or a decrease in premium over 2018/19 rates.
- The average vehicle premium for Private Passenger Vehicle Class will be $1,138 if the 2019 rate application is approved
- Motorcycle rates (including moped and motor scooters) will increase 3.1 per cent
- If approved, rate changes will take effect March 1, 2019

Manitoba Public Insurance is committed to keeping rates stable over the long term. Manitoba Public Insurance continues to have one of the lowest rates of year-over-year premium increases of all Canadian provinces.

Condensed Interim Financial Statements

Condensed Interim Statement of Financial Position

(Unaudited - in thousands of Canadian dollars)	*Notes*	August 31, 2018	February 28, 2018
Assets			
Cash and cash equivalents	*5*	**149,018**	89,006
Investments	*5*	**2,737,641**	2,660,850
Investment property	*5*	**39,987**	40,646
Due from other insurance companies		**10**	3
Accounts receivable		**487,624**	477,908
Prepaid expenses		**5,260**	1,227
Deferred policy acquisition costs		**26,118**	24,727
Reinsurers' share of unearned premiums		**7,611**	133
Reinsurers' share of unpaid claims		**17,306**	2,452
Property and equipment		**114,090**	116,754
Deferred development costs		**65,512**	69,191
		3,650,177	3,482,897
Liabilities			
Due to other insurance companies		**3,936**	171
Accounts payable and accrued liabilities		**84,323**	69,217
Financing lease obligation		**4,041**	4,092
Unearned premiums		**630,889**	628,837
Provision for employee current benefits		**21,890**	22,373
Provision for employee future benefits		**453,627**	446,458
Provision for unpaid claims	*4*	**1,975,904**	1,912,734
		3,174,610	3,083,882
Equity			
Retained Earnings		**425,464**	352,608
Accumulated Other Comprehensive Income		**50,103**	46,407
Total Equity		**475,567**	399,015
		3,650,177	3,482,897

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Operations

(Unaudited - in thousands of Canadian dollars)	Notes	Three Months Ended August 31, 2018	Three Months Ended August 31, 2017	Six Months Ended August 31, 2018	Six Months Ended August 31, 2017
Earned Revenues					
Gross premiums written		**322,284**	302,075	**679,493**	634,592
Premiums ceded to reinsurers		**(37)**	(16)	**(15,144)**	(15,195)
Net premiums written		**322,247**	302,059	**664,349**	619,397
(Increase) decrease in gross unearned premiums		**10,940**	10,044	**(28,848)**	(27,984)
Increase (decrease) in reinsurers' share of unearned premiums		**(3,796)**	(3,822)	**7,478**	7,518
Net premiums earned		**329,391**	308,681	**642,979**	598,931
Service fees & other revenue		**9,074**	8,186	**17,890**	17,247
The Drivers and Vehicles Act operations recovery		**7,562**	7,563	**15,126**	15,054
Total Earned Revenues		**346,027**	324,430	**675,995**	631,232
Claims Costs					
Direct claims incurred - gross		**262,285**	211,357	**486,248**	465,669
Claims (recovered) incurred ceded to reinsurers		**(14,756)**	(267)	**(14,862)**	(440)
Net claims incurred		**247,529**	211,090	**471,386**	465,229
Claims Expense		**34,418**	35,430	**71,782**	72,676
Loss prevention/Road safety		**3,197**	3,024	**5,369**	5,606
Total Claims Costs		**285,144**	249,544	**548,537**	543,511
Expenses					
Operating		**30,593**	29,445	**62,744**	59,837
Commissions		**21,405**	20,090	**42,195**	39,698
Premium taxes		**9,996**	9,376	**19,520**	18,199
Regulatory/Appeal		**1,046**	1,011	**1,950**	1,942
Total Expenses		**63,040**	59,922	**126,409**	119,676
Underwriting income (loss)		**(2,157)**	14,964	**1,049**	(31,955)
Investment income (loss)	*6*	**41,287**	(11,507)	**70,048**	74,278
Gain (loss) on disposal of property		**(1)**	-	**1,759**	-
Net income (loss) from operations		**39,129**	3,457	**72,856**	42,323

Condensed Interim Statement of Comprehensive Income (Loss)

(Unaudited - in thousands of Canadian dollars)	Three Months Ended August 31, 2018	Three Months Ended August 31, 2017	Six Months Ended August 31, 2018	Six Months Ended August 31, 2017
Net income (loss) from operations	**39,129**	3,457	**72,856**	42,323
Other Comprehensive Income (Loss)				
Items that will be reclassified to income				
Unrealized gains (losses) on Available for Sale assets	**13,147**	(10,240)	**23,030**	(13,225)
Reclassification of net realized (gains) losses related to Available for Sale assets	**(18,738)**	(551)	**(19,334)**	(14,077)
Total Available for Sale assets	**(5,591)**	(10,791)	**3,696**	(27,302)
Other Comprehensive Income (Loss) for the period	**(5,591)**	(10,791)	**3,696**	(27,302)
Total Comprehensive Income (Loss)	**33,538**	(7,334)	**76,552**	15,021

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Changes in Equity

(Unaudited - in thousands of Canadian dollars)	Retained Earnings	Accumulated Other Comprehensive Income	Equity
Balance as at March 1, 2017	261,532	95,637	357,169
Net income (loss) from operations for the period	42,323	-	42,323
Other comprehensive income (loss) for the period	-	(27,302)	(27,302)
Balance as at August 31, 2017	**303,855**	**68,335**	**372,190**
Balance as at March 1, 2018	352,608	46,407	399,015
Net income (loss) from operations for the period	72,856	-	72,856
Other comprehensive income (loss) for the period	-	3,696	3,696
Balance as at August 31, 2018	**425,464**	**50,103**	**475,567**

The accompanying notes are an integral part of these financial statements.

Condensed Interim Statement of Cash Flows

(Unaudited - in thousands of Canadian dollars)	*Notes*	Six months ended August 31, 2018	August 31, 2017
Cash Flows from (to) Operating Activities:			
Net income (loss) from operations		**72,856**	42,323
Non-cash items:			
Depreciation of property and equipment		**2,311**	2,505
Amortization of deferred development costs		**11,600**	10,384
Amortization of bond discount and premium		**1,937**	1,906
(Gain) loss on sale of investments		**(27,458)**	(14,106)
Unrealized (gain) loss on Fair Value Through Profit or Loss bonds		**2,075**	(16,053)
Unrealized (gain) loss on investment in real estate		**(11,601)**	(12,584)
Unrealized (gain) loss on investment in infrastructure		**1,623**	2,176
Impairment of deferred development costs		**859**	-
		54,202	16,551
Net change in non-cash balances:			
Due from other insurance companies		**7**	17
Accounts receivable and prepaid expenses		**(13,749)**	(7,093)
Deferred policy acquisition costs		**(1,391)**	(1,471)
Reinsurers' share of unearned premiums and unpaid claims		**(22,332)**	(7,946)
Due to other insurance companies		**3,765**	3,780
Accounts payable and accrued liabilities		**15,106**	(8,028)
Unearned premiums		**2,052**	98
Provision for employee current benefits		**(483)**	(740)
Provision for employee future benefits		**7,169**	6,521
Provision for unpaid claims		**63,170**	36,923
		53,300	22,061
		107,502	38,612
Cash Flows from (to) Investing Activities:			
Purchase of investments		**(487,539)**	(431,119)
Proceeds from sale of investments		**448,526**	403,239
Acquisition of property and equipment net of proceeds from disposals		**354**	(3,671)
Financing lease obligation		**(51)**	(47)
Deferred development costs incurred		**(8,780)**	(8,924)
		(47,490)	(40,522)
Increase (decrease) in Cash and Cash Equivalents		**60,012**	(1,910)
Cash and short-term investments beginning of period		**89,006**	73,434
Cash and Cash Equivalents end of period	*5*	**149,018**	71,524

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

1) Status of the Corporation

The Manitoba Public Insurance Corporation (the "Corporation") was incorporated as a Crown Corporation under *The Automobile Insurance Act* in 1970. In 1974, *The Automobile Insurance Act* was revised and became *The Manitoba Public Insurance Corporation Act* (Chapter A180 of the continuing consolidation of the Statutes of Manitoba). In 1988, the Act was re-enacted in both official languages as Chapter P215 of the Statutes of Manitoba. The address of the Corporation's registered office is 234 Donald Street, Winnipeg, Manitoba.

Under the provisions of its Act and regulations, the Corporation operates an automobile insurance division and a discontinued general insurance division. The lines of business for the automobile insurance division provide for basic universal compulsory automobile insurance, extension and special risk coverages. For financial accounting purposes, the lines of business for the automobile insurance division and the discontinued general insurance division are regarded as separate operations and their revenues and expenses are allocated on a basis described in the summary of significant accounting policies. For financial reporting purposes, due to the immateriality of the financial results of the discontinued general insurance operations, the operations are reported as part of the Special Risk Extension line of business. The basic universal compulsory automobile insurance line of business rates are approved by the Public Utilities Board of Manitoba.

Under *The Drivers and Vehicles Act* (DVA), the Corporation is responsible for DVA operations pertaining to driver safety, vehicle registration and driver licensing, including all related financial, administrative and data processing services.

2) Basis of Reporting

Statement of Compliance

The financial statements of the Corporation are in such form as prescribed by Section 43(1) of The Manitoba Public Insurance Corporation Act and are presented in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

Basis of Presentation

The Corporation presents its Statement of Financial Position broadly in order of liquidity.

These statements are presented in thousands of Canadian dollars which is the Corporation's functional and presentational currency except as otherwise specified.

Seasonality

The automobile insurance business, which reflects the primary business of the Corporation, is seasonal in nature. While net premiums earned are generally stable from quarter to quarter, underwriting income is typically highest in the first and second quarter of each year and lowest in the fourth quarter of each year. This is driven mainly by weather conditions which may vary significantly between quarters.

Basis of Measurement

The Corporation prepares its financial statements as a going concern, using the historical cost basis, except for financial instruments and insurance contract liabilities and reinsurers' share of unpaid claims. Measurement of the financial instruments is detailed in Note 3 of the 2017 Annual Report. Insurance contract liabilities and reinsurers' share of unpaid claims are measured on a discounted basis in accordance with accepted actuarial practice (which in the absence of an active market provides a reasonable proxy for fair value).

Estimates and Judgments

The preparation of financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from these estimates.

3) Summary of Significant Accounting Policies

Refer to the 2017/18 Annual Audited Financial Statements for a summary outlining those accounting policies followed by the Corporation that have a significant effect on the condensed interim financial statements.

4) Provision for Unpaid Claims

The provision for unpaid claims, including adjustment expenses, represents an estimate for the full amount of all costs and the projected final settlement of claims incurred.

The provision for unpaid claims, including adjustment expenses, is subject to variability. This variability is related to future events that arise from the date the loss was reported to the ultimate settlement of the claims. Accordingly, short-tail claims such as physical damage claims tend to be more reasonably predictable than long-tail claims such as Personal Injury Protection Plan (PIPP) and public liability claims. Factors such as the receipt of additional claims information during the claims settlement process, changes in severity and frequencies of claims from historical trends, and effects of inflationary trends contribute to this variability.

The determination of the provision for unpaid claims, including adjustment expenses, relies on judgment, analysis of historical claim trends, investment rates of return and expectation on the future development of claims. The process of establishing this provision necessarily involves risks which could cause the actual results to deviate, perhaps substantially, from the best determinable estimate.

5) Cash and Investments

Cash consists of cash net of cheques issued in excess of amounts on deposit.

Cash equivalent investments have a total principal amount of $142.5 million (August 31, 2017 – $64.6 million) comprised of provincial short-term deposits with effective interest rates of 1.35% (2017 - 0.60%), with interest receivable at varying dates.

The Corporation has an unsecured operating line of credit with its principal banker in the amount of $5.0 million (2017 - $5.0 million). The unsecured operating line of credit remained unutilized at August 31, 2018 (2017 – nil).

Cash and Investments

As at August 31, 2018 (in thousands of Canadian dollars)	Financial Instruments			Non-Financial Instruments	Total Carry Value
	Classified as AFS	Classified as HTM	Classified as FVTPL		
Cash and cash equivalents	**149,018**	**-**	**-**	**-**	**149,018**
Bonds					
Federal	**-**	**-**	**28,533**	**-**	**28,533**
Manitoba:					
Provincial	**-**	**-**	**127,316**	**-**	**127,316**
Municipal	**-**	**27,027**	**32,641**	**-**	**59,668**
Schools	**-**	**569,737**	**-**	**-**	**569,737**
Other provinces:					
Provincial	**-**	**-**	**952,522**	**-**	**952,522**
Municipal	**-**	**-**	**69,884**	**-**	**69,884**
Corporations	**-**	**-**	**115,549**	**-**	**115,549**
	-	**596,764**	**1,326,445**	**-**	**1,923,209**
Other investments	**1,309**	**-**	**-**	**-**	**1,309**
Infrastructure	**-**	**-**	**100,233**	**-**	**100,233**
Equity investments	**438,268**	**-**	**-**	**-**	**438,268**
Pooled Real Estate Fund	**-**	**-**	**274,622**	**-**	**274,622**
Investments	**439,577**	**596,764**	**1,701,300**	**-**	**2,737,641**
Investment property	**-**	**-**	**-**	**39,987**	**39,987**
	588,595	**596,764**	**1,701,300**	**39,987**	**2,926,646**

As at August 31, 2017 (in thousands of Canadian dollars)	Financial Instruments			Non-Financial Instruments	Total Carry Value
	Classified as AFS	Classified as HTM	Classified as FVTPL		
Cash and cash equivalents	71,524	-	-	-	71,524
Bonds					
Federal	-	-	101,965	-	101,965
Manitoba:					
Provincial	-	-	138,788	-	138,788
Municipal	-	20,129	33,053	-	53,182
Schools	-	612,451	-	-	612,451
Other provinces:					
Provincial	-	-	782,533	-	782,533
Municipal	-	-	66,079	-	66,079
Corporations	-	-	56,396	-	56,396
	-	632,580	1,178,814	-	1,811,394
Other investments	1,493	-	-	-	1,493
Infrastructure	-	-	92,461	-	92,461
Equity investments	432,887	-	-	-	432,887
Pooled Real Estate Fund	-	-	246,566	-	246,566
Investments	434,380	632,580	1,517,841	-	2,584,801
Investment property	-	-	-	41,254	41,254
	505,904	632,580	1,517,841	41,254	2,697,579

Gross unrealized gains and gross unrealized losses included in accumulated other comprehensive income on available for sale equity and other investments are comprised as follows:

As at August 31, 2018

(in thousands of Canadian dollars)	**Book Value**	**Unrealized Gains/(Losses)**	**Fair Value**
Equity Investments			
With unrealized gains	**292,900**	**123,284**	**416,184**
With unrealized (losses)	**25,799**	**(3,715)**	**22,084**
Subtotal – Equity Investments	**318,699**	**119,569**	**438,268**
Other Investments			
With unrealized gains	**341**	**968**	**1,309**
With unrealized (losses)	**-**	**-**	**-**
Subtotal – Other Investments	**341**	**968**	**1,309**
Total AFS Equity and Other Investments	**319,040**	**120,537**	**439,577**

As at August 31, 2017

(in thousands of Canadian dollars)	Book Value	Unrealized Gains/(Losses)	Fair Value
Equity Investments			
With unrealized gains	292,606	112,786	405,392
With unrealized (losses)	31,166	(3,671)	27,495
Subtotal – Equity Investments	323,772	109,115	432,887
Other Investments			
With unrealized gains	28	1,126	1,154
With unrealized (losses)	371	(32)	339
Subtotal – Other Investments	399	1,094	1,493
Total AFS Equity and Other Investments	324,171	110,209	434,380

AFS financial assets where the investment's underlying cost is greater than the fair value, the loss has not been recognized in net income either because:

- there is no objective evidence of impairment, or
- the loss is not considered to be significant or prolonged.

Fair Value Measurement

Financial assets that are measured at fair value are classified by their level within the fair value hierarchy. The fair value hierarchy consists of three levels that are defined on the basis of the type of inputs used to measure fair value. The classification cannot be higher than the lowest level of input that is significant to the measurement:

Level 1 – Fair value is determined based on unadjusted quoted prices of identical assets in active markets. Inputs include prices from exchanges where equity and debt securities are actively traded.

Level 2 – Level 2 valuations utilize inputs other than quoted market prices included in Level 1 that are observable, directly or indirectly, for the asset. These inputs include quoted prices for similar assets in active markets and observable inputs other than quoted prices, such as interest rates and yield curves. The fair values for some Level 2 securities were obtained from a pricing service. Pricing service inputs may include benchmark yields, reported trades, broker/dealer quotes and bid/ask spreads.

Level 3 – Fair value measurements using significant inputs that are not based on observable market data are Level 3. This mainly consists of derivatives and private equity investments. In these cases prices may be determined by internal pricing models utilizing all available financial information, including direct comparison

and industry sector data. For some investments, valuations are obtained annually. For periods between valuations, management assesses the validity of the valuation for current reporting purposes.

The following table presents financial instruments measured at fair value in the Statement of Financial Position, classified by level within the fair value hierarchy.

As at August 31, 2018 (in thousands of Canadian dollars)	**Level 1**	**Level 2**	**Level 3**
FVTPL financial assets			
Bonds	**32,056**	**1,280,027**	**14,362**
Infrastructure	**-**	**-**	**100,233**
Pooled real estate	**-**	**274,622**	**-**
Total FVTPL financial assets	**32,056**	**1,554,649**	**114,595**
AFS financial assets			
Cash and cash equivalents	**149,018**	**-**	**-**
Other investments	**-**	**-**	**1,309**
Equity investments	**438,268**	**-**	**-**
Total AFS financial assets	**587,286**	**-**	**1,309**
Total assets measured at fair value	**619,342**	**1,554,649**	**115,904**

As at August 31, 2017 (in thousands of Canadian dollars)	Level 1	Level 2	Level 3
FVTPL financial assets			
Bonds	68,397	1,095,306	15,111
Infrastructure	-	-	92,461
Pooled real estate	-	246,566	-
Total FVTPL financial assets	68,397	1,341,872	107,572
AFS financial assets			
Cash and short term investments	71,524	-	-
Other investments	-	-	1,493
Equity investments	432,887	-	-
Total AFS financial assets	504,411	-	1,493
Total assets measured at fair value	572,808	1,341,872	109,065

Fair value measurement of instruments included in Level 3	FVTPL		AFS	
(in thousands of Canadian dollars)	**2018**	2017	**2018**	2017
Balance at March 1	**114,447**	110,121	**1,351**	1,493
Total gains/(losses)				
Included in net income	**(1,624)**	(2,176)	**-**	-
Included in other comprehensive income	**-**	-	**16**	-
Purchases	**30,635**	-	**-**	-
Sales	**(28,863)**	-	**(58)**	-
Return of Capital	**-**	(376)	**-**	-
Balance at August 31	**114,595**	107,572	**1,309**	1,493

The fair value of HTM bonds, which include schools and certain municipalities, is based on their carrying value, which approximates fair value.

6) Investment Income

(in thousands of Canadian dollars)	**August 31, 2018**	August 31, 2017
Interest income	**28,059**	25,920
Gain (loss) on sale of FVTPL bonds	**6,354**	2
Unrealized gain(loss) on FVTPL bonds	**(2,075)**	16,053
Unrealized gain (loss) on pooled real estate	**11,601**	12,584
Dividends on infrastructure investments	**832**	1,186
Realized gain on infrastructure investments	**1,771**	-
Unrealized gain (loss) on infrastructure investments	**(1,623)**	(2,176)
Dividend income	**6,005**	7,051
Gain (loss) on sale of equities and other investments	**19,333**	14,077
Gain (loss) on foreign exchange	**(32)**	(43)
Income from investment property	**1,824**	1,581
Investment management fees	**(2,001)**	(1,957)
Total Investment income (loss)	**70,048**	74,278

7) Employee Future Benefits Expense

The total benefits costs included in expenses are as follows:

(in thousands of Canadian dollars)	**August 31, 2018**	August 31, 2017
Pension benefits	**14,026**	13,874
Other post-employment benefits	**1,071**	937
Total	**15,097**	14,811

8) Depreciation and Amortization

The total depreciation and amortization included in expenses are as follows:

(in thousands of Canadian dollars)	**August 31, 2018**	August 31, 2017
Amortization – Deferred Development	**11,600**	10,384
Depreciation – Property and equipment	**2,311**	2,505
Total	**13,911**	12,889

For more information contact:

Manitoba Public Insurance
Stakeholder Engagement & Communications
Room 820, 234 Donald Street
P.O. Box 6300
Winnipeg, MB R3C 4A4



Revenues, Expenses and Ratemaking

Mark Giesbrecht CPA, CGA Vice President, Finance & Chief Financial Officer
Cynthia Campbell, MAcc, CPA, CA Corporate Controller
and
Luke Johnston, FCIA, FCAS, Chief Actuary

Manitoba Public Insurance

1

Agenda

Revenues

1. Break even methodology (no profit)
2. Growth happening through upgrades (volume growth, vehicle make/model, territory factors, etc.)

Expenses

3. Year over year decrease of 2%
4. Expenditure forecast holding flat (in real terms)
5. Expenses growing slower than revenues

Ratemaking

6. Done on a break even basis
7. 2019/20 rate indication is 0.1% (for continued break even rates)
8. Ratemaking process is proven and stable over time.
9. **CMP is separate and distinct, but part of overall rate

Manitoba Public Insurance

Key Issues

Revenues

- Service fees (awaiting government review)
- DSR (Upcoming in 2020/21 GRA)

Expenses

- Compensation (Staffing and FTEs)
- Impairments
- Cost reduction initiatives

Ratemaking

- Capital Maintenance Provision (covered under INV/RSR Panel)

1 – Revenues

Basic Premiums

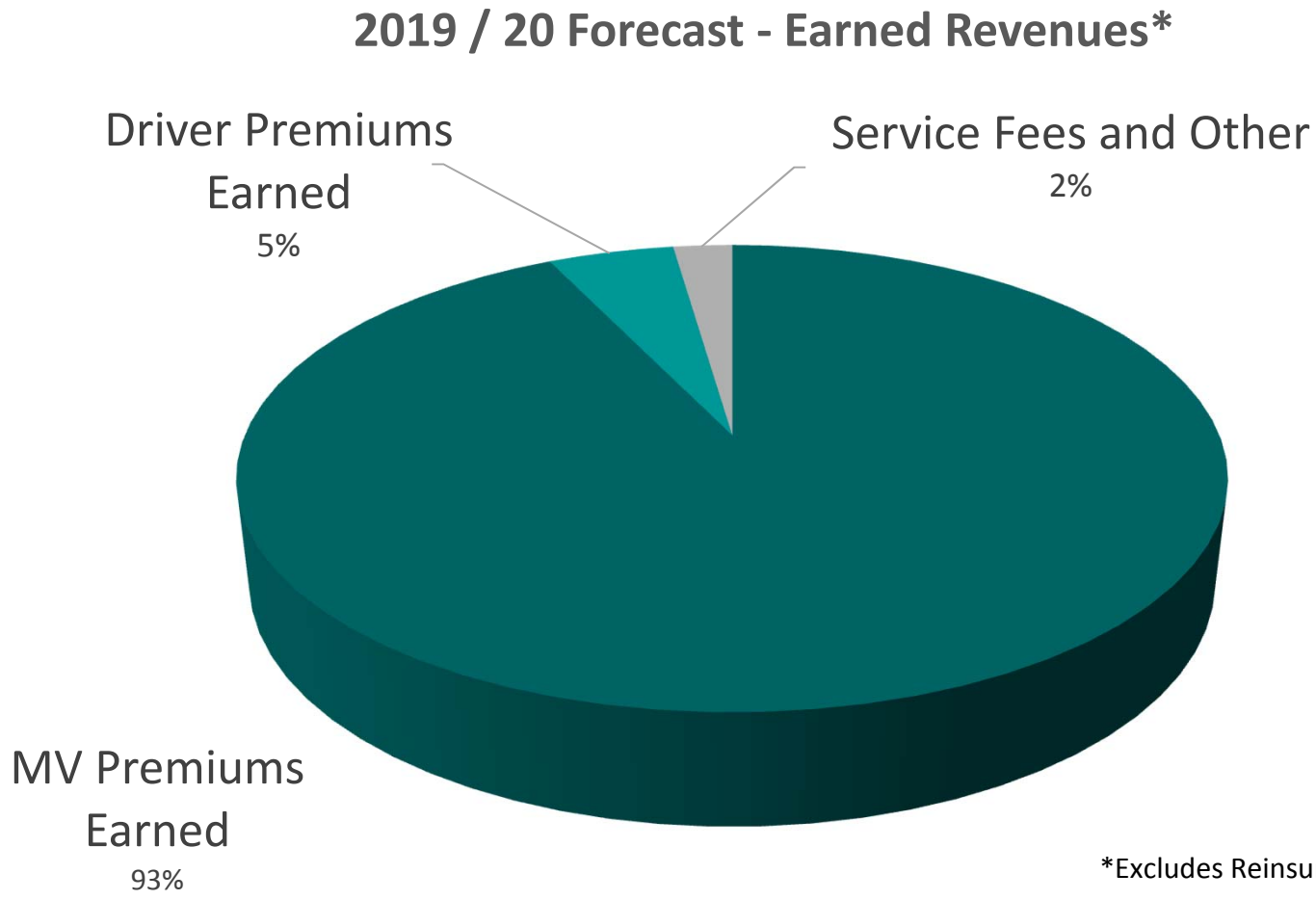
Drivers Premiums

Reinsurance Premiums

Service Fees

Manitoba Public Insurance

MPI Revenues at a Glance



*Excludes Reinsurance Ceded

Manitoba Public Insurance

Factors Impacting Revenues from Basic Premiums

Basic premiums are calculated based on the following drivers:

Rate

- Rate change ordered by the Public Utilities Board
- 2018/19 includes 2.6% increase ordered in 2018 GRA
- 2019/20 includes 2.2% applied for in 2019 GRA

Volume

- Growth in Basic earned vehicle units
- 1.50% assumption 2018/19 through to 2022/23

Upgrade

- 2.39% increasing to 2.54% in 2022/23

Other

- Anti theft discounts
- Fleet rebates

Manitoba Public Insurance

Forecasted Revenues from Basic Premiums

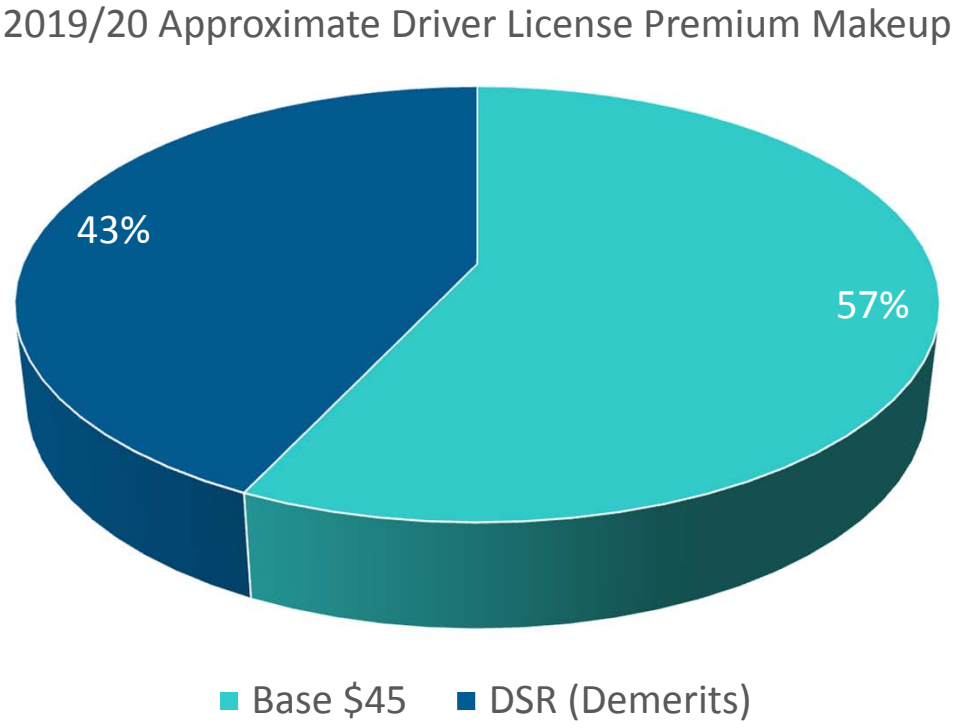
For the Years Ended February,

BASIC	2018A	2019B	2020F	2021F	2022F	2023F
Net Premiums Earned						
Motor Vehicles	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
Drivers	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	960,142	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
Service Fees & Other Revenues	22,849	23,832	25,839	27,613	29,525	31,617
Total Earned Revenues	982,991	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301

Revenues from Drivers Premiums

Drivers premiums are calculated based on the following :

- Basic driver's license insurance premium
- Drivers Safety Rating impacts



Drivers Premiums

For the Years Ended February,

BASIC	2018A	2019B	2020F	2021F	2022F	2023F
Net Premiums Earned						
Motor Vehicles	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
Drivers	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	960,142	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
Service Fees & Other Revenues	22,849	23,832	25,839	27,613	29,525	31,617
Total Earned Revenues	982,991	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301

Manitoba Public Insurance

Reinsurance Premiums

- Risk management strategy
- Premium paid to Reinsurers to accept risk on MPI behalf
- We assign two types of risk to other reinsurers:
  - Catastrophic (should any one event exceed $15M in claims, our Reinsurers will pay up to $250M)
  - Casualty (should any one incident exceed $5M in claims our Reinsurers will pay up to $45M)

Reinsurance Premiums

For the Years Ended February,

BASIC	2018A	2019B	2020F	2021F	2022F	2023F
Net Premiums Earned						
Motor Vehicles	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
Drivers	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	960,142	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
Service Fees & Other Revenues	22,849	23,832	25,839	27,613	29,525	31,617
Total Earned Revenues	982,991	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301

Manitoba Public Insurance

Service Fees & Other Revenue

- Comprised of interest revenues related to premium financing
  - Accounts for over 50% of the service fee and other revenue category

- Comprised of various service related fees
  - Approximately 25-30 basic related service fees
  - Largest service fee revenue items include short term policy fees and ownership document fees

- Service fee pricing currently under further review

Service Fees & Other Revenue

	For the Years Ended February,					
BASIC	2018A	2019B	2020F	2021F	2022F	2023F
Net Premiums Earned						
Motor Vehicles	922,617	991,058	1,054,643	1,109,287	1,154,898	1,202,165
Drivers	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	960,142	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
Service Fees & Other Revenues	22,849	23,832	25,839	27,613	29,525	31,617
Total Earned Revenues	982,991	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301

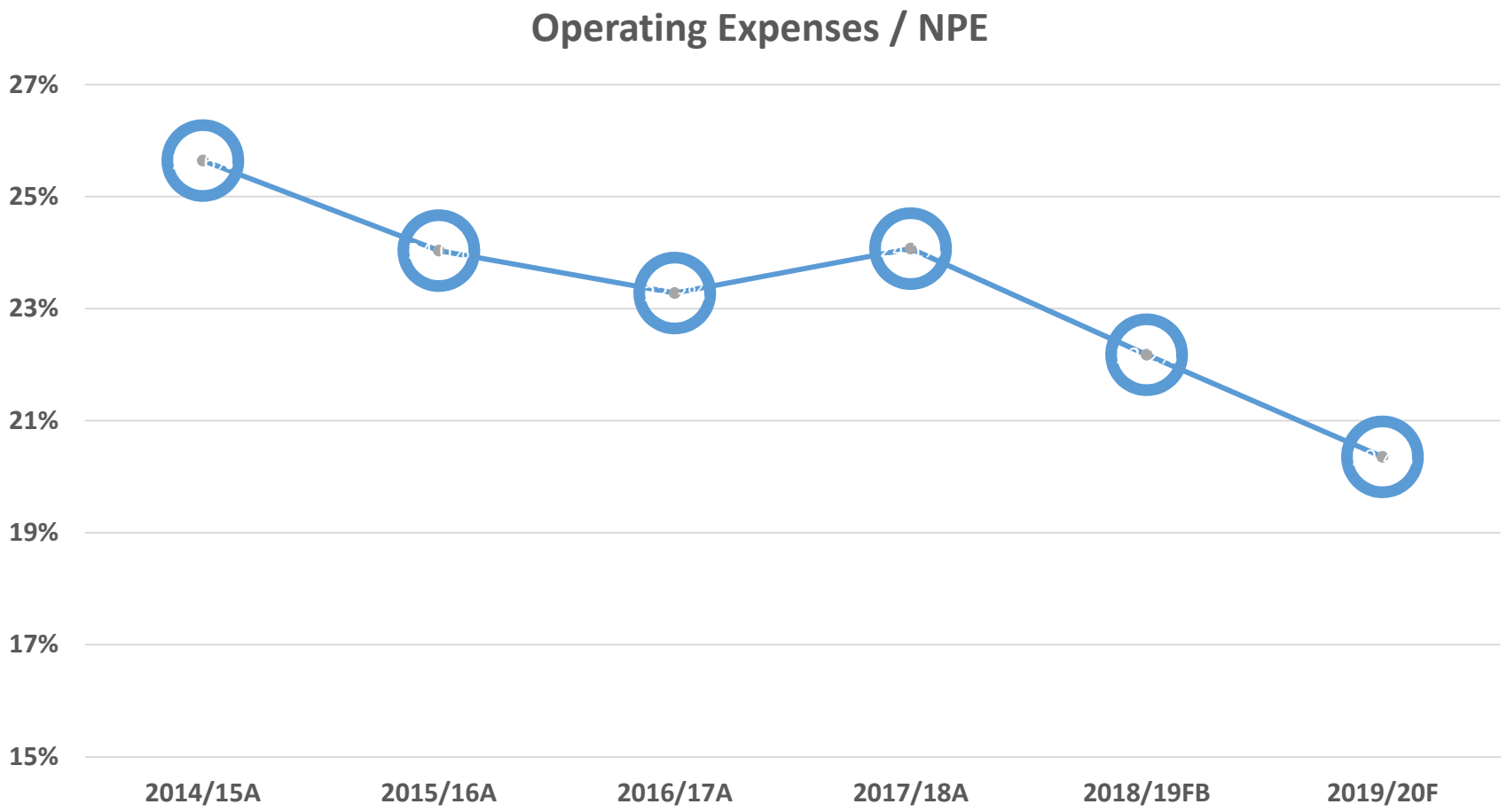
2 – Expenses

Manitoba Public Insurance

Prudent Fiscal Management

- Basic operating expense reductions of approximately 1% (despite mandatory contractual wage increases and CPI)
- Reduction of building expenses
- Expect 50 FTE reductions from 2017/18 budgeted levels to 2020/21 budgeted levels
- Achievement of 2017/18 Cost Containment initiatives
- Embedding Value Management Process across the Business

Prudent Fiscal Management (Cont'd)

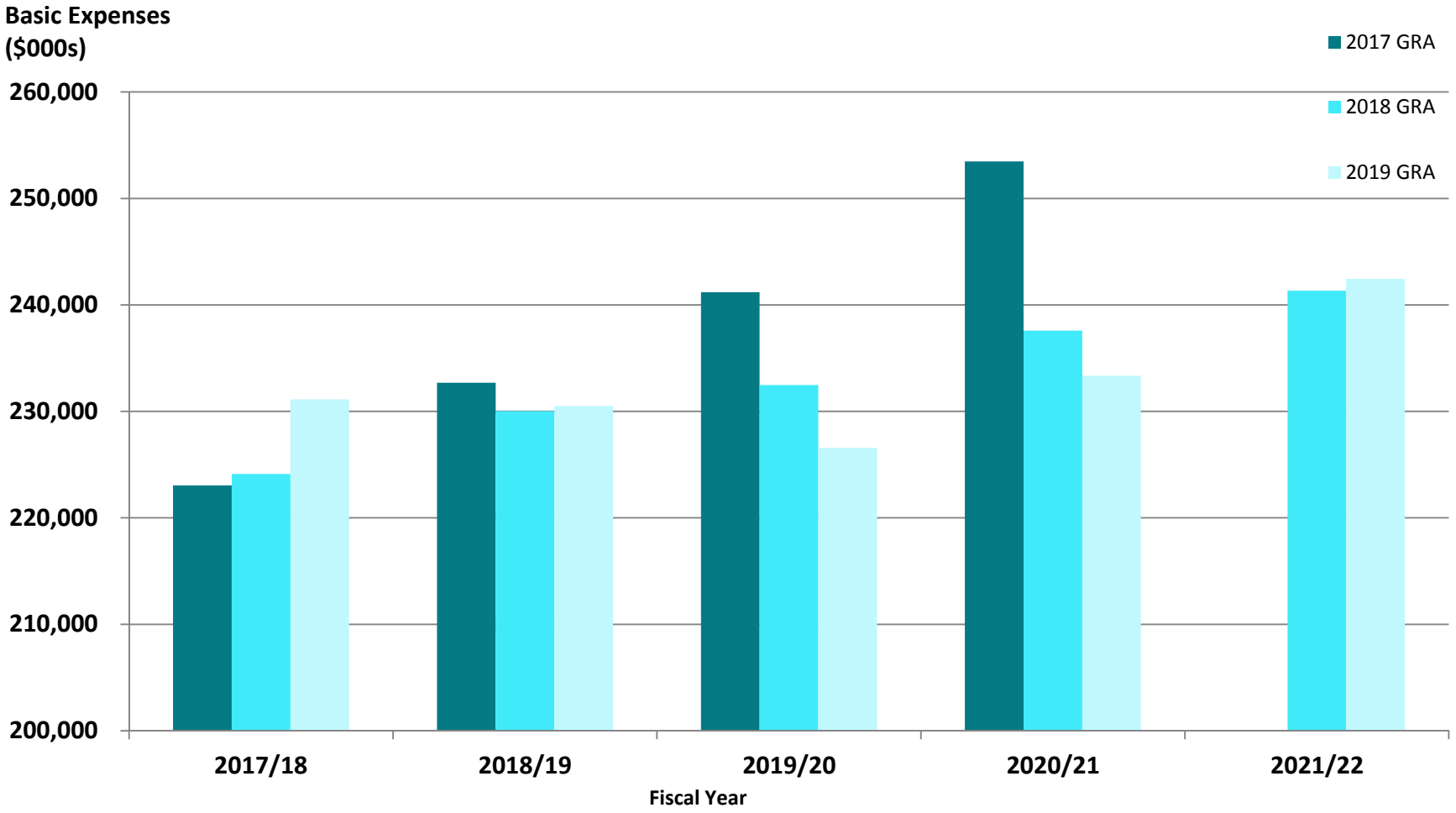


Prudent Fiscal Management (Cont'd)

	2019 GRA Avg. of Rating Yrs	2018 GRA Avg. of Rating Yrs	Change (2019-2018)	Change (Percent)
(C$ 000s, rounding may affect totals)				
Basic Allocated Corporate Expenses				
Claims Expense	137,322	141,326	(4,004)	-2.8%
Road Safety/Loss Prevention	12,755	13,079	(324)	-2.5%
Operating	74,959	76,366	(1,407)	-1.8%
Regulatory/Appeal	4,919	4,260	659	15.5%
Total Basic Allocated Corporate Expenses	229,955	235,031	(5,076)	-2.2%
Basic Direct Expenses				
Commissions	43,763	43,581	182	0.4%
Premium Taxes	34,586	34,246	340	1.0%
Total Basic Direct Expenses	78,349	77,827	522	0.7%
Total Basic Expenses	308,304	312,858	(4,554)	-1.5%

Manitoba Public Insurance

Prudent Fiscal Management (Cont'd)



Compensation

- Largest expense category comprising of approximately 58% of all corporate operating expenses

- Mandatory annual increases related to economic and merit
  - Per negotiations with MGEU
  - Basic salaries only expected to grow at an annual average of 2.9% from 2018/19 through to 2020/21

- Expected overtime reduced significantly over the past years and expected to remain flat throughout forecast

Compensation – Basic Expense Forecast

Expense	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
($000's, except where noted)					
Compensation - Salaries	101,798	104,474	108,025	109,758	112,634
Compensation - Overtime	1,441	1,436	1,433	1,432	1,437
Compensation - Benefits	25,044	25,571	26,262	26,805	27,688
Compensation - H & E Tax	2,183	2,237	2,287	2,329	2,388
Subtotal - Compensation	130,466	133,718	138,007	140,324	144,147
% increase over prior year		2.49%	3.21%	1.68%	2.72%

Manitoba Public Insurance

Project Impairments

Impairment of Deferred Development Costs

Total Corporate Initiatives	2017/18 Impairment
(C$000s, except where noted)	
Physical Damage Re-Engineering Main/Phase 3	993
Financial Re-engineering Inititiative	343
SRE Future State	55
High School Driver Education Phase 2	2,086
Enhanced DR Capabilities	681
Customer Claims Reporting System	15,624
PDR Opt Repair - Remote Estimating	229
HR Management System Phase 3 & 4	247
Total Impairment	**20,258**

3 – Ratemaking



Manitoba Public Insurance

Basic Rates

- The Basic ratemaking methodology is proven and stable over time.

- MPI continues to operate in a fiscally prudent manner to keep rate asks to a minimum. Compared to the 2018 GRA:
  - Expenses per vehicle unit are down by 0.5%
  - Claims costs per unit increased by only 2% per unit, which was less than natural premium upgrade of 2.2%

- AAP Rate Indication = +0.1%; Capital Maintenance Provision: +2.1%; Total Rate Ask: +2.2%

2.2% Vehicle Premium Rate Increase (Including Net CMP)

- Stable rate increases by Major Class
- Approximately 70% of vehicles have a rate change of less than +$50 or less than +5%.

RM -1: Indicated Rate Change*

Line No.	Major Class	Current Average Rate	Indicated Average Rate	Indicated Rate Change
1	**Private Passenger**	$1,111	$1,138	2.4%
2	**Commercial**	$780	$798	2.4%
3	**Public**	$2,003	$2,014	0.6%
4	**Motorcycles**	$797	$822	3.1%
5	**Trailers**	$81	$78	-4.7%
6	**Off-Road Vehicles**	$10	$8	-20.0%
7	**Overall**	$855	$874	2.2%

*As at the time of filing the 2019 GRA

Manitoba Public Insurance

Appendix - Breakeven Rate Indication

- The table below compares the undiscounted overall costs per vehicle (average) for the components making up the required rate.

Components	2018 Undiscounted AAP Rates, $	2019 Undiscounted AAP Rates, $	$ Change/ Impact on AAP Rates	% Change	$ Change as % of 2018 AAP Required Rate
Claims	753.32	768.57	15.25	2.0%	1.7%
Claims Expense	126.97	123.29	(3.68)	-2.9%	-0.4%
Road Safety/Loss Prevention	10.98	10.63	(0.35)	-3.2%	0.0%
Operating Expense	63.44	62.48	(0.97)	-1.5%	-0.1%
Regulatory Appeal	3.53	4.10	0.57	16.1%	0.1%
Commission	39.13	39.39	0.26	0.7%	0.0%
Premium Tax	30.99	31.29	0.30	1.0%	0.0%
Reinsurance	9.84	9.61	(0.23)	-2.3%	0.0%
Fleet Rebates	13.78	13.46	(0.32)	-2.3%	0.0%
Anti-Theft Discount	2.35	1.97	(0.38)	-16.1%	0.0%
Driver Premium	(58.50)	(59.09)	(0.58)	1.0%	-0.1%
Service Fees	(21.41)	(21.90)	(0.49)	2.3%	-0.1%
Total Undiscounted	974.43	983.80	9.37	1.0%	1.1%
Impact of Discounting	(93.12)	(81.97)	11.15	-12.0%	1.3%
AAP Required Rate	881.31	901.83	20.52	2.3%	2.3%
Natural Upgrade (Difference in forecasted upgrade plus upgrade for one additional year)					-2.1%
DSR Discounts for VFH Vehicles (Part V, Ratemaking, page 30)					-0.1%
Breakeven Rate Indication					0.1%

Manitoba Public Insurance

Drivers behind 2019/2020 Rate Change

2019 Basic Rate Indication

AAP Required Rate*	+2.30%
Vehicle Upgrade	-2.10%
Taxi Adjustment	-0.10%
Total AAP Rate Change	**+0.10%**
Capital Maintenance Provision	+2.10%
Total Overall Rate Change	**+2.20%**

- AAP required rate increased by 2.3% from 2018 GRA
  - Claims costs = +1.7%
  - Changes in Interest Rates (decrease) = +1.3%
  - Claims and operating expense improvements = -0.5%
  - Service Fee and Driver Premium Revenues = -0.2%

Summary of Key Themes

Revenues

- Based on break even ratemaking
- Steady growth from upgrade and other factors

Expenses

- Growing slower than revenues
- Holding flat through forecast

Ratemaking

- Proven process
- Resulting in 0.1% indication based on AAP (break even)
- CMP is main driver of 2.2% rate indication (discussed in detail on INV/RSR/CMP Panel)

PUB (MPI) Pre-Ask 1

Part and Chapter:		**Page No.:**	
PUB Approved Issue No:			
Topic:			
Sub Topic:			

Preamble to IR (If Any):

Since February 2018, the starting point used in the current GRA, the benchmark bond yield on Government of Canada 10-year bonds has risen about 20 basis points. The yield on Government of Canada 10-year bonds is a key driver of outcomes within the GRA, affecting among other things the pro-forma financial forecast, the DCAT base and plausible adverse scenarios, the rate indications determined in accordance with accepted actuarial practice in Canada, the Capital Maintenance Provision and the Basic Total Equity target capital thresholds.

Question:

To inform these proceedings using the latest information available, please prepare:

a) An updated interest rate forecast comparable to that shown in INV.14.1, reflecting actual market interest rates at the end of September 2018, and the latest available bank and Global Insight interest rate forecasts (Naïve, 50/50 and SIRF, with accompanying narrative as appropriate).

b) Updated "break-even" rate indications in accordance with accepted actuarial practice in Canada (both overall and by Major Class) reflecting each of the updated Naïve and 50/50 interest rate forecasts from a) above (with accompanying narrative and supporting schedules as appropriate).

c) Restatement of b) above to reflect rate indications in accordance with accepted actuarial practice in Canada (both overall and by Major Class) including provision for the expected return on investment assets supporting Basic Total Equity (Naïve and 50/50, with accompanying narrative and supporting schedules as appropriate).

d) Restatement of c) above to reflect rate indications in accordance with accepted actuarial practice in Canada (both overall and by Major Class) including a Capital Maintenance Provision (derived in a similar manner to the approach used in response to PUB (MPI) 1-76d)) reflecting the longer term (Naïve and 50/50, with accompanying narrative and supporting schedules as appropriate).

e) Updated pro-forma financial forecast exhibits reflecting the results of d) above (Naïve and 50/50, with accompanying narrative as appropriate).

f) An updated Basic Total Equity target capital analysis with no Capital Maintenance Provision in the base scenario forecast reflecting the results of b) above, applying the Board-approved iterative methodology for the lower and upper thresholds (lower threshold relative to Basic Total Equity remaining above $0 over a two-year time horizon at a 1-in-40-year outcome level after routine management / regulatory rate change and RSR Rebuilding Fee actions) (upper threshold relative to Basic Total Equity remaining above lower threshold over a two-year time horizon at a 1-in-40-year outcome level after routine management / regulatory rate change actions – i.e., no RSR Rebuilding Fee actions) (Naïve and 50/50, with accompanying narrative and supporting schedules as appropriate).

g) An updated Basic Total Equity target capital analysis including recognition of the expected return on investment assets supporting Basic Total Equity and a Capital Maintenance Provision in the base scenario forecast reflecting the results of d) above, applying the Board-approved iterative methodology for the lower and upper thresholds (lower threshold relative to Basic Total Equity remaining above $0 over a two-year time horizon at a 1-in-40-year outcome level after routine management / regulatory rate change and RSR Rebuilding Fee actions) (upper threshold relative to Basic Total Equity remaining above lower threshold over a two-year time

horizon at a 1-in-40-year outcome level after routine management / regulatory rate change actions – i.e., no RSR Rebuilding Fee actions) (Naïve and 50/50, with accompanying narrative and supporting schedules as appropriate).

RESPONSE:

Below MPI has provided responses to the information requests. However, many of the assumptions and inputs that MPI has been asked to model vary considerably from the best estimate assumptions contained in the methodology supporting the rates for which MPI has applied.

Apart from any update to specific relief requested by MPI, MPI does not endorse the use of the other methodologies or conclusions set out herein and further states that the alternative methodologies suggested herein do not mean the rates for which MPI has applied are not just and reasonable. Where appropriate, MPI has included the updates to its applied for methodology, based on end of September naïve interest rates.

a) *Figure 1* indicates the source of the bank forecasts, and the date they were published.

Figure 2 below shows the Naive interest rate forecast reflecting actual market interest rates, as of September 28, 2018, the last working day of the month, which is consistent with reporting requirements for MPI's financial statements, and past reporting of naïve interest rate forecasts.

Figure 2 also shows the latest available bank and Global Insight interest rate forecasts, which comprise the Standard Interest Rate Forecast (SIRF), and the 50/50 forecast. The difference between Naïve and 50/50 as of Q2 2019 (the point in time when we calculate the discount rate for rate setting) is only 17 bps. It does not appear that the banks' most recent forecasts have interest rates rising as significantly as once forecast.

Figure 1: Source and Dates for Interest Rate Forecast

Line No.	Sources	Short Term Date	Short Term Type	Long Term Date	Long Term Type
1	**BMO NM**	October 12, 2018	Average of Period	October 5, 2018	Average of Period
2	**CIBC**	October 4, 2018	End of Period	October 15, 2018	Annual Average
3	**Desjardins**	September 19, 2018	End of Period	October 3, 2018	End of Period
4	**Global Insight**	October 5, 2018	Average of Period	October 5, 2018	Average of Period
5	**National**	October 1, 2018	End of Period	October 1, 2018	Annual Average
6	**RBC**	September 1, 2018	End of Period	October 12, 2018	n/a
7	**Scotia**	October 15, 2018	End of Period	n/a	n/a
8	**TD**	September 17, 2018	End of Period	September 19, 2018	Annual End of Period

Figure 2: SIRF, Naive and 50/50 GoC 10 Year Bond Forecast

Line No.	Year	Quarter	BMO NB	CIBC	Desjardins	Global	National	RBC	Scotia	TD	Average (Modified SIRF)	Naïve	50/50
1	2018	Q3	2.28%	2.35%	2.40%	2.34%	2.43%	2.35%	2.43%	2.34%	2.37%	2.43%	2.40%
2		Q4	2.45%	2.55%	2.60%	2.65%	2.57%	2.60%	2.60%	2.50%	2.57%	2.43%	2.50%
3	2019	Q1	2.55%	2.75%	2.75%	2.76%	2.62%	2.70%	2.60%	2.60%	2.67%	2.43%	2.55%
4		Q2	2.65%	2.75%	2.85%	2.86%	2.96%	2.80%	2.70%	2.65%	2.78%	2.43%	2.60%
5		Q3	2.80%	2.70%	2.90%	2.94%	3.03%	2.90%	2.85%	2.70%	2.85%	2.43%	2.64%
6		Q4	2.90%	2.75%	2.95%	2.99%	3.10%	2.95%	3.00%	2.75%	2.92%	2.43%	2.68%
7	2020	Q1	3.00%	2.72%	3.00%	3.02%	3.16%	X.XX%		2.85%	2.99%	2.43%	2.71%
8		Q2	3.13%	2.75%	3.05%	3.05%	3.24%	X.XX%		2.85%	3.07%	2.43%	2.75%
9		Q3	3.18%	2.80%	2.80%	3.05%	3.21%	X.XX%		2.85%	3.05%	2.43%	2.74%
10		Q4	3.22%	2.85%	2.55%	3.05%	3.19%	X.XX%		2.85%	3.03%	2.43%	2.73%
11	2021	Q1	3.24%	2.90%	2.35%	3.05%	3.16%	X.XX%		2.85%	3.00%	2.43%	2.71%
12		Q2	3.20%	2.95%	2.25%	3.04%	3.13%	X.XX%		2.85%	2.98%	2.43%	2.71%
13		Q3	3.19%	2.96%	2.20%	3.04%	3.12%	X.XX%		2.85%	2.97%	2.43%	2.70%
14		Q4	3.24%	2.98%	2.20%	3.03%	3.11%	X.XX%		2.85%	2.97%	2.43%	2.70%
15	2022	Q1			2.20%	3.03%	3.09%	X.XX%		2.85%	2.90%	2.43%	2.67%
16		Q2			2.25%	3.03%	3.08%	X.XX%		2.85%	2.92%	2.43%	2.68%
17		Q3			2.35%	3.02%	3.07%	X.XX%		2.85%	2.92%	2.43%	2.67%
18		Q4			2.45%	3.02%	3.06%	X.XX%		2.85%	2.95%	2.43%	2.69%

b) Figure 3 below shows the overall rate indications under naïve and 50/50 interest rate forecasts from part (a) above. The table also shows the effect of the RSR Investment Income and the Net CMP on the breakeven rate indications.

Figure 3: Overall Rate Indications

Line No.	Description	Naïve	50/50
1	**New Money Yield as at Sept 1, 2019**	3.40%	3.57%
2	**Breakeven Rate Indication**	-0.26%	-0.60%
3	**Rate Indication Including RSR Investment Income**	-1.52%	-1.75%
4	**Effect of RSR Investment Income**	-1.26%	-1.15%
5	**Rate Indication Including Net CMP**	1.80%	1.00%
6	**Effect of Net CMP**	2.06%	1.60%
7	**Rate Indication Including Net CMP - SAF Methodology**	1.54%	1.20%
8	**Effect of Net CMP - SAF Methodology**	1.80%	1.80%

The rate indications including RSR Investment Income were calculated assuming 1.2% and 1.1% (for the naïve and 50/50 scenarios respectively) ratios of investment income earned on the RSR to the Basic Vehicle Written Premium for the 2019/20 fiscal year. The derivation of these ratios is shown in the table below.

Figure 4: Ratio of Investment Income on RSR to Basic Vehicle Written Premium

Line No.	Description	Naïve	50/50
1	**Basic Vehicle Written Premium**	1,061,339	1,061,339
2	**Investment Income from RSR**	12,306	11,325
3	**Vehicle Written Premium**	1.2%	1.1%

The derivation of the effect of the Net CMP on the breakeven rate indications based on the Saskatchewan Auto Fund approach is shown in the table below. The derivation of the capital required over the forecast period is shown in Appendix 1.

Figure 5: Net CMP based on Saskatchewan Auto Fund Approach

Line No.	Description	Naïve	50/50
1	**Capital Required Over the Forecast Period:**		
2	**2018/19**	301,762	302,206
3	**2019/20**	331,222	329,016
4	**2020/21**	347,724	344,706
5	**2021/22**	364,321	363,008
6	**2022/23**	382,457	381,949
7	**Growth in Capital Required Over the Forecast Period**	26.74%	26.39%
8	**Average Annual Growth in Capital Required**	6.1%	6.0%
9	**Required Increase in Capital Available (= 2018/19 Capital Required * Average Annual Growth)**	18,418	18,221
10	**Required Rate Increase**	1.8%	1.8%

The effect of the updated interest rate forecast reflecting information as of September 28, 2018 on the major classes' rate indications are summarized in the table below.

Figure 6: Rate Indications by Major Class

Line No.	Description	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	**Naïve**							
2	**Breakeven Rate Indication**	-0.3%	-0.1%	0.0%	-2.7%	0.2%	-6.7%	-37.7%
3	**Rate Indication Including RSR Investment Income**	-1.5%	-1.3%	-1.3%	-4.0%	-1.1%	-7.9%	-38.5%
4	**Rate Indication Including Net CMP**	1.8%	2.0%	2.1%	-0.6%	2.2%	-4.8%	-36.4%
5	**Rate Indication Including Net CMP - SAF Methodology**	1.5%	1.8%	1.8%	-0.9%	2.0%	-5.0%	-36.6%
6	**50/50**							
7	**Breakeven Rate Indication**	-0.6%	-0.4%	-0.4%	-3.1%	-0.6%	-6.8%	-38.0%
8	**Rate Indication Including RSR Investment Income**	-1.8%	-1.5%	-1.6%	-4.2%	-1.8%	-7.9%	-38.7%
9	**Rate Indication Including Net CMP**	1.0%	1.2%	1.2%	-1.5%	1.0%	-5.3%	-37.0%
10	**Rate Indication Including Net CMP - SAF Methodology**	1.2%	1.4%	1.4%	-1.3%	1.2%	-5.1%	-36.9%

Supporting schedules are provided in PUB (MPI) Pre Ask 1(b) Appendix 65.

c) Refer to (b) above.

d) Refer to (b) above.

e) Please refer to Appendix 2 for pro-forma financial forecast exhibits reflecting the results of the Rate indication including Net CMP as shown in d) under both SAF and MPI methodologies.

The effect of net CMP on the overall rate indication under both Naïve and 50/50 interest rate scenarios using SAF methodology was 1.8%.

The effect of net CMP on the overall rate indication under Naïve and 50/50 interest rate scenarios using the MPI methodology was 2.06% and 1.6%, respectively. The SAF methodology produces a consistent net CMP by nature of the averaging effect. However, the averaging effect also causes the CMP to underestimate the amount required in the current rating year – which is accurately measured by MPI's Net CMP approach, and equals 2.1%.

Further, the pro-forma in Appendix 2 show that Basic Total Equity target capital thresholds are nearly identical under both methodologies. As such, the likelihood of a subsequent net CMP on future rate changes is lower under the MPI methodology.

f) Please see g below.

g) The updated Basic Total Equity targets are outlined in table below. The interest rate forecast was updated as outlined in part (a) along with the appropriate rate indications as outlined in part (b) and part (d). The Corporation modelled the upper threshold based on the dollar threshold method (ensuring capital levels do not fall below the minimum target as expressed in Total Equity) and also on the MCT threshold method (ensuring capital levels do not fall below the minimum target as expressed in percentage MCT).

The Corporation also provided updated targets based on the methodology submitted in the DCAT.

Figure 7: Capital Targets (Interest Rate Forecast as of September 30, 2018)

	Interest Rate Forecast	Capital Maintenance Provision	Scenario #	Total Equity ($)	MCT (%)
PUB Lower Target	Naïve	No CMP	1	$121	27%
		SAF CMP	2	$120	26%
		MPI CMP	3	$120	26%
	50-50	No CMP	4	$122	27%
		SAF CMP	5	$122	27%
		MPI CMP	6	$122	27%
PUB Upper ($) Target	Naïve	No CMP	7	$243	67%
		SAF CMP	8	$243	66%
		MPI CMP	9	$242	66%
	50-50	No CMP	10	$250	69%
		SAF CMP	11	$250	69%
		MPI CMP	12	$250	69%
PUB Upper (%) Target	Naïve	No CMP	13	$273	76%
		SAF CMP	14	$272	75%
		MPI CMP	15	$272	75%
	50-50	No CMP	16	$280	78%
		SAF CMP	17	$280	78%
		MPI CMP	18	$279	78%
MPI Lower Target	Naïve	No CMP	19	$146	35%
	50-50	No CMP	20	$142	34%
MPI Upper Target	Naïve	No CMP	21	$315	88%
	50-50	No CMP	22	$318	89%

Appendix 1a

Minimum Capital Test: Capital (Margin) Required

2019/20 -0.26% Break even Rate Indication with September 2018 Naïve Interest Rate Forecast

Line No.	(All figures in $000s, unless otherwise noted)		2018 - 2019 Current Year	2019 - 2020 Forecast Base Year	2020 - 2021 Forecast Year	2021 - 2022 Forecast Year	2022 - 2023 Forecast Year
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	220,092	214,441	202,295	178,654
3	Phase-in of capital available	03					
4	Total Capital Available	09	218,283	220,092	214,441	202,295	178,654
5							
6	Assets Available:						
7	Net Assets Available (from page 30.92 - net assets available)	11					
8	Phase-in of net assets available	13					
9	Total Net Assets Available	19	218,283	220,092	214,441	202,295	178,654
10	Capital (Margin) Required at Target:						
11	Insurance Risk:						
12	*Premium liabilities*	20	94,659	98,243	102,231	106,294	110,542
13	*Unpaid claims*	22	192,187	200,631	209,162	217,424	225,570
14	*Catastrophes*	24					
15	*Margin required for reinsurance ceded to unregistered insurers*	26					
16	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
17	Market Risk:						
18	Interest rate risk	30	4,798	20,574	24,537	29,049	33,491
19	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,324
20	Equity risk	34	69,145	67,268	71,795	76,632	81,846
21	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
22	Other market risk exposures	38	0	0	0	0	0
23	Subtotal: Market risk margin	39	115,494	129,963	140,153	151,502	165,651
24	Credit Risk:						
25	Counterparty default risk for balance sheet assets	40	39,359	60,566	62,857	64,325	65,427
26	Counterparty default risk for off-balance sheet exposures	42					
27	Counterparty default risk for unregistered reinsurance collateral and SIRs	44					
28	Subtotal: Credit risk margin	49	39,359	60,566	62,857	64,325	65,427
29	Operational risk margin	50	64,469	69,550	72,817	76,119	79,686
30	Less: Diversification credit	52	53,525	62,120	65,633	69,182	73,190
31	Total Capital (Margin) Required at Target	59	452,643	496,833	521,587	546,482	573,686
32	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	331,222	347,724	364,321	382,457
33	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
34	Total Minimum Capital (Margin) Required	69	301,762	331,222	347,724	364,321	382,457
35	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	-83,479	-111,130	-133,283	-162,026	-203,803
36	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	66.45%	61.67%	55.53%	46.71%

Appendix 1b

Minimum Capital Test: Capital (Margin) Required

2019/20 -0.26% Break even Rate Indication with September 2018 Naïve Interest Rate Forecast

Line No.	*(All figures in $000s, unless otherwise noted)*		2018 - 2019 Current Year	2019 - 2020 Forecast Base Year	2020 - 2021 Forecast Year	2021 - 2022 Forecast Year	2022 - 2023 Forecast Year
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	225,199	224,288	217,770	199,717
3	Phase-in of capital available	03					
4	Total Capital Available	09	221,201	225,199	224,288	217,770	199,717
5							
6	Assets Available:						
7	Net Assets Available (from page 30.92 - net assets available)	11					
8	Phase-in of net assets available	13					
9	Total Net Assets Available	19	221,201	225,199	224,288	217,770	199,717
10	Capital (Margin) Required at Target:						
11	Insurance Risk:						
12	*Premium liabilities*	20	94,659	97,925	101,900	105,951	110,185
13	*Unpaid claims*	22	191,221	197,031	204,518	212,902	221,010
14	*Catastrophes*	24					
15	*Margin required for reinsurance ceded to unregistered insurers*	26					
16	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
17	Market Risk:						
18	Interest rate risk	30	6,468	21,726	25,600	29,355	34,758
19	Foreign exchange risk	32	15,640	15,260	16,262	17,838	20,919
20	Equity risk	34	69,313	67,256	71,783	79,552	84,976
21	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
22	Other market risk exposures	38	0	0	0	0	0
23	Subtotal: Market risk margin	39	117,404	131,141	141,244	155,278	170,690
24	Credit Risk:						
25	Counterparty default risk for balance sheet assets	40	39,383	60,210	62,400	63,916	65,125
26	Counterparty default risk for off-balance sheet exposures	42					
27	Counterparty default risk for unregistered reinsurance collateral and SIRs	44					
28	Subtotal: Credit risk margin	49	39,383	60,210	62,400	63,916	65,125
29	Operational risk margin	50	64,552	69,195	72,353	75,892	79,568
30	Less: Diversification credit	52	53,910	61,979	65,356	69,428	73,655
31	Total Capital (Margin) Required at Target	59	453,309	493,523	517,059	544,511	572,923
32	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	329,016	344,706	363,008	381,949
33	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
34	Total Minimum Capital (Margin) Required	69	302,206	329,016	344,706	363,008	381,949
35	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	-81,005	-103,817	-120,418	-145,238	-182,232
36	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	68.45%	65.07%	59.99%	52.29%

Appendix 65a

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates
Naïve Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	712.10	937.37	639.30	1,678.42	654.88	56.94	4.84
3	Claims Expense	114.19	150.32	102.52	269.15	105.02	9.13	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.18	83.47	83.47	83.47	83.47	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.60	38.92	26.87	68.54	26.58	2.58	0.19
8	Prem Tax: Vehicle	27.41	36.04	24.88	63.46	24.62	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.24	17.83	17.83	17.83	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.08	79.38	79.38	79.38	79.38	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	913.52	1,201.33	829.35	2,115.35	820.52	79.55	5.99
19	Req Rate (Bal)	898.34	1,181.36	815.56	2,080.19	806.88	78.23	5.89
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
24	Applied for Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		-0.1%	0.0%	1.1%	0.1%	-6.7%	-37.7%
27	Cred Wtd Req Rate		1,181.36	815.41	2,068.48	806.02	78.38	6.18
28	Cred Wtd Req Rate (Bal)	898.34	1,181.50	815.50	2,068.73	806.12	78.39	6.18
29	Cred Wtd Change (Bal)		-0.1%	0.0%	1.1%	0.2%	-6.7%	-37.7%
30	Selected Req Rate	897.49	1,181.50	815.50	1,990.96	806.12	78.39	6.18
31	Selected Change	-0.3%	-0.1%	0.0%	-2.7%	0.2%	-6.7%	-37.7%

Appendix 65b

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates Including Net CMP (MPI)

Naïve Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	712.10	937.37	639.30	1,678.42	654.88	56.94	4.84
3	Claims Expense	114.19	150.32	102.52	269.15	105.02	9.13	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.18	83.47	83.47	83.47	83.47	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.60	38.92	26.87	68.54	26.58	2.58	0.19
8	Prem Tax: Vehicle	27.41	36.04	24.88	63.46	24.62	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.24	17.83	17.83	17.83	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.08	79.38	79.38	79.38	79.38	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	913.52	1,201.33	829.35	2,115.35	820.52	79.55	5.99
19	Req Rate (Bal)	898.34	1,181.36	815.56	2,080.19	806.88	78.23	5.89
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
24	Applied for Change	1.9%	2.0%	2.1%	3.8%	2.3%	-5.0%	-39.4%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		2.0%	2.1%	3.2%	2.2%	-4.8%	-36.4%
27	Cred Wtd Req Rate		1,205.73	832.23	2,111.16	822.66	80.00	6.31
28	Cred Wtd Req Rate (Bal)	916.88	1,205.88	832.33	2,111.41	822.75	80.01	6.31
29	Cred Wtd Change (Bal)		2.0%	2.1%	3.2%	2.2%	-4.8%	-36.4%
30	Selected Req Rate	916.03	1,205.88	832.33	2,033.65	822.75	80.01	6.31
31	Selected Change	1.8%	2.0%	2.1%	-0.6%	2.2%	-4.8%	-36.4%

Appendix 65c

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates Including Net CMP (SAF)

Naïve Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	712.10	937.37	639.30	1,678.42	654.88	56.94	4.84
3	Claims Expense	114.19	150.32	102.52	269.15	105.02	9.13	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.18	83.47	83.47	83.47	83.47	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.60	38.92	26.87	68.54	26.58	2.58	0.19
8	Prem Tax: Vehicle	27.41	36.04	24.88	63.46	24.62	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.24	17.83	17.83	17.83	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.08	79.38	79.38	79.38	79.38	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	913.52	1,201.33	829.35	2,115.35	820.52	79.55	5.99
19	Req Rate (Bal)	898.34	1,181.36	815.56	2,080.19	806.88	78.23	5.89
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
24	Applied for Change	1.6%	1.7%	1.8%	3.5%	2.1%	-5.2%	-39.6%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		1.7%	1.8%	2.9%	2.0%	-5.0%	-36.6%
27	Cred Wtd Req Rate		1,202.66	830.11	2,105.78	820.56	79.80	6.30
28	Cred Wtd Req Rate (Bal)	914.54	1,202.80	830.21	2,106.03	820.65	79.81	6.30
29	Cred Wtd Change (Bal)		1.7%	1.8%	2.9%	2.0%	-5.0%	-36.6%
30	Selected Req Rate	913.69	1,202.80	830.21	2,028.26	820.65	79.81	6.30
31	Selected Change	1.5%	1.8%	1.8%	-0.9%	2.0%	-5.0%	-36.6%

Appendix 65d

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates 50/50 Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	710.23	935.00	637.02	1,673.69	649.29	56.91	4.82
3	Claims Expense	113.89	149.93	102.15	268.38	104.12	9.13	0.77
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.22	83.52	83.52	83.52	83.52	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.52	38.83	26.78	68.35	26.36	2.58	0.19
8	Prem Tax: Vehicle	27.34	35.95	24.79	63.28	24.41	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.96	4.96	4.96	4.96	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.23	17.82	17.82	17.82	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.13	79.45	79.45	79.45	79.45	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	911.19	1,198.37	826.50	2,109.45	813.58	79.52	5.96
19	Req Rate (Bal)	895.30	1,177.48	812.09	2,072.68	799.40	78.13	5.86
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.5%	-0.4%	-0.4%	1.3%	-0.7%	-7.0%	-41.0%
24	Applied for Change	-0.5%	-0.4%	-0.4%	1.3%	-0.7%	-7.0%	-41.0%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		-0.4%	-0.4%	0.7%	-0.6%	-6.8%	-38.0%
27	Cred Wtd Req Rate		1,177.44	811.99	2,061.11	799.73	78.28	6.15
28	Cred Wtd Req Rate (Bal)	895.28	1,177.55	812.06	2,061.30	799.81	78.29	6.15
29	Cred Wtd Change (Bal)		-0.4%	-0.4%	0.7%	-0.6%	-6.8%	-38.0%
30	Selected Req Rate	894.43	1,177.55	812.06	1,983.54	799.81	78.29	6.15
31	Selected Change	-0.6%	-0.4%	-0.4%	-3.1%	-0.6%	-6.8%	-38.0%

Appendix 65e

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates Including Net CMP (MPI)

50/50 Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	710.23	935.00	637.02	1,673.69	649.29	56.91	4.82
3	Claims Expense	113.89	149.93	102.15	268.38	104.12	9.13	0.77
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.22	83.52	83.52	83.52	83.52	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.52	38.83	26.78	68.35	26.36	2.58	0.19
8	Prem Tax: Vehicle	27.34	35.95	24.79	63.28	24.41	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.96	4.96	4.96	4.96	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.23	17.82	17.82	17.82	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.13	79.45	79.45	79.45	79.45	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	911.19	1,198.37	826.50	2,109.45	813.58	79.52	5.96
19	Req Rate (Bal)	895.30	1,177.48	812.09	2,072.68	799.40	78.13	5.86
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.5%	-0.4%	-0.4%	1.3%	-0.7%	-7.0%	-41.0%
24	Applied for Change	1.1%	1.2%	1.2%	2.9%	0.9%	-5.5%	-40.0%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		1.2%	1.2%	2.3%	1.0%	-5.3%	-37.0%
27	Cred Wtd Req Rate		1,196.38	825.05	2,094.25	812.59	79.54	6.25
28	Cred Wtd Req Rate (Bal)	909.68	1,196.49	825.12	2,094.45	812.67	79.54	6.25
29	Cred Wtd Change (Bal)		1.2%	1.2%	2.3%	1.0%	-5.3%	-37.0%
30	Selected Req Rate	908.83	1,196.49	825.12	2,016.69	812.67	79.54	6.25
31	Selected Change	1.0%	1.2%	1.2%	-1.5%	1.0%	-5.3%	-37.0%
32								

Appendix 65f

Rating Year 2019/20 Major Classification Required Rate Changes - Breakeven Rates Including Net CMP (SAF)

50/50 Interest Rate Scenario

Line No.	Coverage	Overall	Private Pass	Commercial	Public	Motorcycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	710.23	935.00	637.02	1,673.69	649.29	56.91	4.82
3	Claims Expense	113.89	149.93	102.15	268.38	104.12	9.13	0.77
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.22	83.52	83.52	83.52	83.52	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.52	38.83	26.78	68.35	26.36	2.58	0.19
8	Prem Tax: Vehicle	27.34	35.95	24.79	63.28	24.41	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.96	4.96	4.96	4.96	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.23	17.82	17.82	17.82	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.13	79.45	79.45	79.45	79.45	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	911.19	1,198.37	826.50	2,109.45	813.58	79.52	5.96
19	Req Rate (Bal)	895.30	1,177.48	812.09	2,072.68	799.40	78.13	5.86
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.5%	-0.4%	-0.4%	1.3%	-0.7%	-7.0%	-41.0%
24	Applied for Change	1.3%	1.4%	1.4%	3.1%	1.1%	-5.3%	-39.9%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		1.4%	1.4%	2.5%	1.2%	-5.1%	-36.9%
27	Cred Wtd Req Rate		1,198.74	826.68	2,098.40	814.20	79.69	6.26
28	Cred Wtd Req Rate (Bal)	911.48	1,198.86	826.76	2,098.60	814.28	79.70	6.26
29	Cred Wtd Change (Bal)		1.4%	1.4%	2.6%	1.2%	-5.1%	-36.9%
30	Selected Req Rate	910.63	1,198.86	826.76	2,020.83	814.28	79.70	6.26
31	Selected Change	1.2%	1.4%	1.4%	-1.3%	1.2%	-5.1%	-36.9%

Pro Forma-1: Appendix 2a

Statement of Operations

Multi-year - Statement of Operations

Line No.	*2019/20 Basic Rates +1.54% Rate Indication Including Net CMP - SAF Methodology using September 2018, Naive Interest Rates*					
	(C$ 000s, rounding may affect totals)	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
4	Drivers	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	1,076,987	1,137,442	1,183,942	1,231,352	1,280,907
7	Net Premiums Earned					
8	Motor Vehicles	991,058	1,050,815	1,102,006	1,147,321	1,194,279
9	Drivers	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	1,039,408	1,109,291	1,162,245	1,209,238	1,257,798
12	Service Fees & Other Revenues	23,832	25,710	27,471	29,370	31,448
13	Total Earned Revenues	1,063,240	1,135,001	1,189,716	1,238,608	1,289,246
14	Claims Incurred	853,862	896,227	942,762	991,755	1,043,924
15	DPAC \ Premium Deficiency Adjustment	(29,722)	(2,364)	(4,289)	4,018	7,959
16	(a) Claims Incurred - Interest Rate Impact	(34,905)	7,254	10,209	8,816	8,310
17	Total Claims Incurred	789,235	901,117	948,682	1,004,589	1,060,193
18	Claims Expense	137,168	135,301	139,089	144,204	146,667
19	Road Safety/Loss Prevention	13,606	12,680	12,805	12,990	13,268
20	Total Claims Costs	940,009	1,049,098	1,100,576	1,161,783	1,220,128
21	Expenses					
22	Operating	75,060	73,545	76,250	79,935	82,851
23	Commissions	40,338	42,591	44,599	46,364	48,188
24	Premium Taxes	31,518	33,621	35,217	36,634	38,098
25	Regulatory/Appeal	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	151,585	154,596	161,064	168,047	174,370
27	Underwriting Income (Loss)	(28,354)	(68,693)	(71,924)	(91,222)	(105,252)
28	Investment Income	192,209	84,840	88,380	91,783	94,747
29	(b) Investment Income - Interest Rate Impact	(20,781)	11	4	3	5
30	Net Investment Income	171,428	84,851	88,384	91,786	94,752
31	Net Income (Loss)	143,074	16,157	16,460	563	(10,500)
32	Total net Impact due to interest rate change (b) - (a)	14,124	(7,243)	(10,205)	(8,812)	(8,305)

Pro Forma-2: Appendix 2b

Statement of Financial Position

Multi-year - Statement of Financial Position

Line No.	*2019/20 Basic Rates +1.54% Rate Indication Including Net CMP - SAF Methodology using September 2018, Naive Interest Rates*					
	(C$ 000s, rounding may affect totals)	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets					
4	Cash and cash equivalents	28,746	60,406	68,212	70,977	60,126
5	Investments	2,487,626	2,578,282	2,687,490	2,801,045	2,916,394
6	Investment property	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	-	-	-	-	-
8	Accounts receivable	354,564	373,508	388,286	403,400	419,208
9	Prepaid expenses	-	-	-	-	-
10	Deferred policy acquisition costs	18,310	22,372	27,956	25,263	18,691
11	Reinsurers' share of unpaid claims	-	-	-	-	-
12	Property and equipment	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	43,654	47,117	59,170	61,184	63,216
14		3,036,661	3,186,283	3,333,663	3,463,964	3,583,108
15	Liabilities					
16	Due to other insurance companies	144	144	144	144	144
17	Accounts payable and accrued liabilites	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	341,796	358,128	374,219	390,320	406,730
22	Provision for unpaid claims	1,824,404	1,901,841	1,980,433	2,055,874	2,129,145
23		2,774,723	2,900,254	3,021,984	3,141,894	3,260,418
24	Equity					
25	Retained Earnings	314,049	330,205	346,665	347,229	336,729
26	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
27	Total Equity	261,938	286,029	311,679	322,070	322,690
28	Total Liabilities & Equity	3,036,661	3,186,283	3,333,663	3,463,964	3,583,108

Pro Forma-3: Appendix 2c

Statement of Changes in Equity

Multi-year - Statement of Changes in Equity

Line No.	*2019/20 Basic Rates +1.54% Rate Indication Including Net CMP - SAF Methodology using September 2018, Naive Interest Rates* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity					
4	Retained Earnings					
5	Beginning Balance	170,975	314,049	330,205	346,665	347,229
6	Net Income (Loss) from annual operations	143,074	16,157	16,460	563	(10,500)
7	Transfer (to) / from Non-Basic Retained Earnings	-	-	-	-	-
8	Total Retained Earnings	314,049	330,205	346,665	347,229	336,729
9	Total Accumulated Other Comprehensive Income					
10	Beginning Balance	39,870	(52,111)	(44,177)	(34,986)	(25,159)
11	Other Comprehensive Income for the Year	(91,981)	7,934	9,191	9,828	11,119
12	Total Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
13	Total Equity Balance	261,938	286,029	311,679	322,070	322,690
14	Total Equity					
15	Rate Stabilization Reserve					
16	Retained Earnings	314,049	330,205	346,665	347,229	336,729
17	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
18	Total Rate Stabilization Reserve	261,938	286,029	311,679	322,070	322,690
19	Retained Earnings	-	-	-	-	-
20	Total Equity Balance	261,938	286,029	311,679	322,070	322,690
21	RATE STABILIZATION RESERVE TARGETS					
22	PUB Lower Target (@27% MCT Ratio)	121,000	130,000	146,000	153,000	159,000
23	PUB Upper Target (@67% MCT Ratio) - Based on $ Target	243,000	266,000	289,000	302,000	316,000
24	PUB Upper Target (@76% MCT Ratio) - Based on % target	273,000	299,000	324,000	339,000	354,000
25	MPI Lower Target (@35% MCT Ratio)	146,000	159,000	176,000	184,000	192,000
26	MPI Upper Target (@88% MCT Ratio)	315,000	346,000	373,000	390,000	408,000
27	MCT RATIO (%)	72.3%	71.6%	72.1%	71.0%	67.1%

Pro Forma-1: Appendix 2d
Statement of Operations
Multi-year - Statement of Operations

Line No.	*2019/20 Basic Rates +1.20% Rate Indication Including Net CMP - SAF Methodology using September 2018, 50/50 Interest Rates* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
4	Drivers	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	1,076,987	1,133,773	1,180,122	1,227,377	1,276,770
7	Net Premiums Earned					
8	Motor Vehicles	991,058	1,048,843	1,098,256	1,143,418	1,190,217
9	Drivers	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	1,039,408	1,107,319	1,158,495	1,205,335	1,253,736
12	Service Fees & Other Revenues	23,845	25,719	27,572	29,576	31,778
13	Total Earned Revenues	1,063,253	1,133,038	1,186,067	1,234,911	1,285,514
14	Claims Incurred	853,863	895,954	941,834	990,674	1,042,968
15	DPAC \ Premium Deficiency Adjustment	(30,605)	(2,404)	(4,892)	4,230	7,879
16	(a) Claims Incurred - Interest Rate Impact	(44,539)	(18,684)	643	11,004	9,108
17	Total Claims Incurred	778,719	874,866	937,585	1,005,908	1,059,955
18	Claims Expense	137,168	135,259	138,932	144,009	146,487
19	Road Safety/Loss Prevention	13,606	12,676	12,790	12,970	13,249
20	Total Claims Costs	929,493	1,022,801	1,089,307	1,162,887	1,219,691
21	Expenses					
22	Operating	75,060	73,525	76,174	79,838	82,759
23	Commissions	40,338	42,541	44,477	46,238	48,056
24	Premium Taxes	31,518	33,562	35,104	36,516	37,976
25	Regulatory/Appeal	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	151,585	154,467	160,753	167,706	174,024
27	Underwriting Income (Loss)	(17,825)	(44,230)	(63,993)	(95,682)	(108,201)
28	Investment Income	192,131	87,068	92,757	97,119	100,477
29	(b) Investment Income - Interest Rate Impact	(28,313)	(24,536)	(7,429)	4,485	2,067
30	Net Investment Income	163,818	62,532	85,328	101,604	102,544
31	Net Income (Loss)	145,992	18,302	21,333	5,921	(5,657)
32	Total net Impact due to interest rate change (b) - (a)	16,226	(5,853)	(8,072)	(6,519)	(7,041)

Pro Forma-2: Appendix 2e

Statement of Financial Position

Multi-year - Statement of Financial Position

Line No.	*2019/20 Basic Rates +1.20% Rate Indication Including Net CMP - SAF Methodology using September 2018, 50/50 Interest Rates*					
	(C$ 000s, rounding may affect totals)	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets					
4	Cash and cash equivalents	28,914	58,909	64,447	64,446	50,936
5	Investments	2,479,860	2,546,318	2,651,130	2,775,056	2,898,494
6	Investment property	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	-	-	-	-	-
8	Accounts receivable	354,564	372,535	387,273	402,346	418,111
9	Prepaid expenses	-	-	-	-	-
10	Deferred policy acquisition costs	19,193	23,189	29,371	26,461	19,965
11	Reinsurers' share of unpaid claims	-	-	-	-	-
12	Property and equipment	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	43,654	47,120	59,185	61,207	63,242
14		3,029,946	3,152,669	3,293,955	3,431,611	3,556,221
15	Liabilities					
16	Due to other insurance companies	144	144	144	144	144
17	Accounts payable and accrued liabilites	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	341,796	356,990	372,680	389,283	405,983
22	Provision for unpaid claims	1,814,771	1,865,996	1,934,094	2,010,642	2,083,755
23		2,765,090	2,861,574	2,972,338	3,093,787	3,212,367
24	Equity					
25	Retained Earnings	316,967	335,269	356,602	362,523	356,867
26	Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
27	Total Equity	264,856	291,095	321,617	337,824	343,854
28	Total Liabilities & Equity	3,029,946	3,152,669	3,293,955	3,431,611	3,556,221

Pro Forma-3: Appendix 2f

Statement of Changes in Equity

Multi-year - Statement of Changes in Equity

2019/20 Basic Rates +1.20% Rate Indication Including Net CMP - SAF Methodology using September 2018, 50/50 Interest Rates

(C$ 000s, rounding may affect totals)

Line No.		For the Years Ended February,				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity					
4	Retained Earnings					
5	Beginning Balance	170,975	316,967	335,269	356,602	362,523
6	Net Income (Loss) from annual operations	145,992	18,302	21,333	5,921	(5,657)
7	Transfer (to) / from Non-Basic Retained Earnings	-	-	-	-	-
8	Total Retained Earnings	316,967	335,269	356,602	362,523	356,867
9	Total Accumulated Other Comprehensive Income					
10	Beginning Balance	39,870	(52,111)	(44,174)	(34,986)	(24,699)
11	Other Comprehensive Income for the Year	(91,981)	7,937	9,188	10,286	11,686
12	Total Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
13	Total Equity Balance	264,856	291,095	321,617	337,824	343,854
14	Total Equity					
15	Rate Stabilization Reserve					
16	Retained Earnings	316,967	335,269	356,602	362,523	356,867
17	Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
18	Total Rate Stabilization Reserve	264,856	291,095	321,617	337,824	343,854
19	Retained Earnings	-	-	-	-	-
20	Total Equity Balance	264,856	291,095	321,617	337,824	343,854
21	RATE STABILIZATION RESERVE TARGETS					
22	PUB Lower Target (@27% MCT Ratio)	122,000	131,000	147,000	154,000	161,000
23	PUB Upper Target (@69% MCT Ratio) - Based on $ Target	250,000	272,000	294,000	309,000	324,000
24	PUB Upper Target (@78% MCT Ratio) - Based on % target	280,000	304,000	328,000	345,000	362,000
25	MPI Lower Target (@34% MCT Ratio)	142,000	154,000	171,000	179,000	187,000
26	MPI Upper Target (@89% MCT Ratio)	318,000	346,000	372,000	391,000	411,000
25	MCT RATIO (%)	73.2%	73.6%	75.6%	75.6%	72.7%

Pro Forma-1: Appendix 2g
Statement of Operations
Multi-year - Statement of Operations

Line No.	*2019/20 Basic Rates +1.80% Rate Indication Including Net CMP - MPI Methodology using September 2018, Naive Interest Rates* *(C$ 000s, rounding may affect totals)*	For the Years Ended February,				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
4	Drivers	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	1,076,987	1,140,248	1,186,864	1,234,391	1,284,071
7	Net Premiums Earned					
8	Motor Vehicles	991,058	1,052,323	1,104,874	1,150,306	1,197,386
9	Drivers	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	1,039,408	1,110,799	1,165,113	1,212,223	1,260,905
12	Service Fees & Other Revenues	23,832	25,761	27,528	29,431	31,515
13	Total Earned Revenues	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
14	Claims Incurred	853,862	896,227	942,762	991,755	1,043,925
15	DPAC \ Premium Deficiency Adjustment	(29,722)	(3,604)	(4,316)	3,963	7,900
16	(a) Claims Incurred - Interest Rate Impact	(34,905)	7,261	10,174	8,904	8,217
17	Total Claims Incurred	789,235	899,884	948,620	1,004,622	1,060,042
18	Claims Expense	137,168	135,301	139,089	144,204	146,654
19	Road Safety/Loss Prevention	13,606	12,680	12,805	12,990	13,266
20	Total Claims Costs	940,009	1,047,865	1,100,514	1,161,816	1,219,962
21	Expenses					
22	Operating	75,060	73,545	76,250	79,935	82,844
23	Commissions	40,338	42,630	44,692	46,461	48,288
24	Premium Taxes	31,518	33,667	35,303	36,723	38,191
25	Regulatory/Appeal	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	151,585	154,681	161,243	168,233	174,556
27	Underwriting Income (Loss)	(28,354)	(65,986)	(69,116)	(88,395)	(102,098)
28	Investment Income	192,209	84,843	88,397	91,818	94,798
29	(b) Investment Income - Interest Rate Impact	(20,781)	11	4	5	3
30	Net Investment Income	171,428	84,854	88,401	91,823	94,801
31	Net Income (Loss)	143,074	18,868	19,285	3,428	(7,297)
32	Total net Impact due to interest rate change (b) - (a)	14,124	(7,249)	(10,170)	(8,898)	(8,214)

Pro Forma 2: Appendix 2h

Statement of Financial Position

Multi-year - Statement of Financial Position

2019/20 Basic Rates +1.80% Rate Indication Including Net CMP - MPI Methodology using September 2018, Naive Interest Rates

(C$ 000s, rounding may affect totals)

Line No.		For the Years Ended February,				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets					
4	Cash and cash equivalents	28,746	62,107	72,268	77,487	69,216
5	Investments	2,487,626	2,578,532	2,688,168	2,802,186	2,918,049
6	Investment property	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	-	-	-	-	-
8	Accounts receivable	354,564	374,252	389,061	404,206	420,047
9	Prepaid expenses	-	-	-	-	-
10	Deferred policy acquisition costs	18,310	23,693	29,306	26,672	20,163
11	Reinsurers' share of unpaid claims	-	-	-	-	-
12	Property and equipment	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	43,654	47,117	59,170	61,184	63,217
14		3,036,661	3,190,299	3,340,522	3,473,830	3,596,165
15	Liabilities					
16	Due to other insurance companies	144	144	144	144	144
17	Accounts payable and accrued liabilites	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	341,796	358,128	374,220	390,321	406,734
22	Provision for unpaid claims	1,824,404	1,901,848	1,980,404	2,055,933	2,129,113
23		2,774,723	2,901,559	3,023,307	3,143,361	3,261,853
24	Equity					
25	Retained Earnings	314,049	332,916	352,201	355,629	348,332
26	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
27	Total Equity	261,938	288,739	317,215	330,471	334,312
28	Total Liabilities & Equity	3,036,661	3,190,298	3,340,522	3,473,832	3,596,165

Pro Forma-3: Appendix 2i
Statement of Changes in Equity
Multi-year - Statement of Changes in Equity

2019/20 Basic Rates +1.80% Rate Indication Including Net CMP - MPI Methodology using September 2018, Naive Interest Rates

Line No.	*(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity					
4	Retained Earnings					
5	Beginning Balance	170,975	314,049	332,916	352,201	355,629
6	Net Income (Loss) from annual operations	143,074	18,868	19,285	3,428	(7,297)
7	Transfer (to) / from Non-Basic Retained Earnings	-	-	-	-	-
8	Total Retained Earnings	314,049	332,916	352,201	355,629	348,332
9	Total Accumulated Other Comprehensive Income					
10	Beginning Balance	39,870	(52,111)	(44,177)	(34,986)	(25,159)
11	Other Comprehensive Income for the Year	(91,981)	7,934	9,191	9,828	11,139
12	Total Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
13	Total Equity Balance	261,938	288,739	317,215	330,471	334,312
14	Total Equity					
15	Rate Stabilization Reserve					
16	Retained Earnings	314,049	332,916	352,201	355,629	348,332
17	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
18	Total Rate Stabilization Reserve	261,938	288,739	317,215	330,471	334,312
19	Retained Earnings	-	-	-	-	-
20	Total Equity Balance	261,938	288,739	317,215	330,471	334,312
21	RATE STABILIZATION RESERVE TARGETS					
22	PUB Lower Target (@27% MCT Ratio)	121,000	130,000	146,000	153,000	159,000
23	PUB Upper Target (@67% MCT Ratio) - Based on $ Target	243,000	266,000	289,000	302,000	316,000
24	PUB Upper Target (@76% MCT Ratio) - Based on % target	273,000	299,000	324,000	339,000	354,000
25	MPI Lower Target (@35% MCT Ratio)	146,000	159,000	176,000	184,000	192,000
26	MPI Upper Target (@88% MCT Ratio)	315,000	346,000	373,000	390,000	408,000
25	MCT RATIO (%)	73.2%	75.4%	79.0%	80.7%	79.4%

Pro Forma-1: Appendix 2j
Statement of Operations
Multi-year - Statement of Operations

Line No.	*2019/20 Basic Rates +1.00% Rate Indication Including Net CMP - MPI Methodology using September 2018, 50/50 Interest Rates* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
4	Drivers	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	1,076,987	1,131,614	1,177,875	1,225,038	1,274,337
7	Net Premiums Earned					
8	Motor Vehicles	991,058	1,047,683	1,096,049	1,141,121	1,187,828
9	Drivers	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	1,039,408	1,106,159	1,156,288	1,203,038	1,251,347
12	Service Fees & Other Revenues	23,845	25,680	27,529	29,531	31,728
13	Total Earned Revenues	1,063,253	1,131,839	1,183,817	1,232,569	1,283,075
14	Claims Incurred	853,863	895,953	941,834	990,674	1,042,968
15	DPAC \ Premium Deficiency Adjustment	(30,605)	(1,450)	(4,873)	4,278	7,921
16	(a) Claims Incurred - Interest Rate Impact	(44,539)	(18,687)	640	11,049	9,107
17	Total Claims Incurred	778,719	875,816	937,601	1,006,001	1,059,996
18	Claims Expense	137,168	135,259	138,934	144,009	146,487
19	Road Safety/Loss Prevention	13,606	12,676	12,790	12,970	13,249
20	Total Claims Costs	929,493	1,023,751	1,089,325	1,162,980	1,219,732
21	Expenses					
22	Operating	75,060	73,525	76,174	79,838	82,759
23	Commissions	40,338	42,511	44,406	46,163	47,979
24	Premium Taxes	31,518	33,527	35,038	36,448	37,904
25	Regulatory/Appeal	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	151,585	154,402	160,616	167,563	173,875
27	Underwriting Income (Loss)	(17,825)	(46,314)	(66,124)	(97,974)	(110,532)
28	Investment Income	192,131	87,066	92,742	97,098	100,449
29	(b) Investment Income - Interest Rate Impact	(28,313)	(24,535)	(7,428)	4,483	2,065
30	Net Investment Income	163,818	62,531	85,314	101,581	102,514
31	Net Income (Loss)	145,993	16,217	19,190	3,607	(8,018)
32	Total net Impact due to interest rate change (b) - (a)	16,226	(5,848)	(8,068)	(6,565)	(7,042)

Pro Forma-2: Appendix 2k

Statement of Financial Position

Multi-year - Statement of Financial Position

Line No.	*2019/20 Basic Rates +1.00% Rate Indication Including Net CMP - MPI Methodology using September 2018, 50/50 Interest Rates* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets					
4	Cash and cash equivalents	28,914	57,602	61,325	59,442	43,968
5	Investments	2,479,860	2,546,126	2,650,611	2,774,171	2,897,219
6	Investment property	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	-	-	-	-	-
8	Accounts receivable	354,564	371,962	386,677	401,725	417,465
9	Prepaid expenses	-	-	-	-	-
10	Deferred policy acquisition costs	19,193	22,173	28,333	25,373	18,832
11	Reinsurers' share of unpaid claims	-	-	-	-	-
12	Property and equipment	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	43,654	47,120	59,184	61,206	63,241
14		3,029,946	3,149,581	3,288,679	3,424,012	3,546,198
15	Liabilities					
16	Due to other insurance companies	144	144	144	144	144
17	Accounts payable and accrued liabilites	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	341,796	356,990	372,680	389,281	405,982
22	Provision for unpaid claims	1,814,771	1,865,993	1,934,087	2,010,680	2,083,793
23		2,765,090	2,860,572	2,971,292	3,092,741	3,211,278
24	Equity					
25	Retained Earnings	316,967	333,183	352,374	355,981	347,963
26	Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
27	Total Equity	264,856	289,009	317,389	331,273	334,921
28	Total Liabilities & Equity	3,029,946	3,149,581	3,288,681	3,424,014	3,546,199

Pro Forma-3: Appendix 2l

Statement of Changes in Equity

Multi-year - Statement of Changes in Equity

2019/20 Basic Rates +1.00% Rate Indication Including Net CMP - MPI Methodology using September 2018, 50/50 Interest Rates

(C$ 000s, rounding may affect totals)

	For the Years Ended February,				
	2019FB	2020F	2021F	2022F	2023F
BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
Total Equity					
Retained Earnings					
Beginning Balance	170,975	316,967	333,183	352,374	355,981
Net Income (Loss) from annual operations	145,992	16,216	19,191	3,607	(8,018)
Transfer (to) / from Non-Basic Retained Earnings	-	-	-	-	-
Total Retained Earnings	316,967	333,183	352,374	355,981	347,963
Total Accumulated Other Comprehensive Income					
Beginning Balance	39,870	(52,111)	(44,174)	(34,986)	(24,708)
Other Comprehensive Income for the Year	(91,981)	7,937	9,188	10,277	11,667
Total Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
Total Equity Balance	264,856	289,009	317,389	331,273	334,921
Total Equity					
Rate Stabilization Reserve					
Retained Earnings	316,967	333,183	352,374	355,981	347,963
Accumulated Other Comprehensive Income	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
Total Rate Stabilization Reserve	264,856	289,009	317,389	331,273	334,921
Retained Earnings	-	-	-	-	-
Total Equity Balance	264,856	289,009	317,389	331,273	334,921
RATE STABILIZATION RESERVE TARGETS					
PUB Lower Target (@27% MCT Ratio)	122,000	131,000	147,000	154,000	161,000
PUB Upper Target (@69% MCT Ratio) - Based on $ Target	250,000	272,000	294,000	309,000	324,000
PUB Upper Target (@78% MCT Ratio) - Based on % target	280,000	304,000	328,000	345,000	362,000
MPI Lower Target (@34% MCT Ratio)	142,000	154,000	171,000	179,000	187,000
MPI Upper Target (@89% MCT Ratio)	318,000	346,000	372,000	391,000	411,000
MCT RATIO (%)	73.2%	73.1%	74.4%	73.8%	70.5%

Appendix 3a
Updated Base Scenario #1
Statement of Operations

Line No.	*(C$ 000s, except where noted)*	*For the Years Ended February,*							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	84,813	88,268	91,549	94,615
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,823	88,271	91,551	94,619
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 3b
Updated Base Scenario #1
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	311,386	308,594	288,633
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	10,675
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
11	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865

Appendix 3c
Updated Base Scenario #1
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	48,628	40,072	25,785	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,576,553	2,682,810	2,793,177	2,902,041
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,215	390,308	406,707
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,840	1,980,340	2,055,792	2,129,627
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,266	3,012,531	3,132,065	3,250,745
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	311,386	308,594	288,633	256,348
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
27	Total Equity	231,003	181,000	210,845	261,938	267,209	273,608	263,475	241,865
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610

Appendix 3d
Updated Base Scenario #1
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	220,092	214,441	202,295	178,654
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	220,092	214,441	202,295	178,654
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	4,798	20,574	24,537	29,049	33,491
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,324
19	Equity risk	34	69,145	67,268	71,795	76,632	81,846
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	129,963	140,153	151,502	165,651
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,566	62,857	64,325	65,427
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,566	62,857	64,325	65,427
28	Operational risk margin	50	64,469	69,550	72,817	76,119	79,686
29	Less: Diversification credit	52	53,525	62,120	65,633	69,182	73,190
30	Total Capital (Margin) Required at Target	59	452,643	496,833	521,587	546,482	573,686
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	331,222	347,724	364,321	382,457
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	331,222	347,724	364,321	382,457
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(111,130)	(133,283)	(162,026)	(203,803)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	66.45%	61.67%	55.53%	46.71%

Appendix 3e
Updated Base Scenario #1
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,504	220,930	222,334	224,958
7	Total	726,240	767,976	844,425	890,928	936,300	985,903
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,684
10	Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,702	948,756	1,005,018	1,061,159

Appendix 3f

Updated Base Scenario #1

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 3g

Updated Base Scenario #1

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	(0)	0	(0)
3	Marketable Bonds	44,259	55,084	61,815	67,258	72,896
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,537	83,880	87,109	90,589
6	Dividend and other Income					
7	Canadian Equities	9,657	5,685	4,544	5,164	5,608
8	Global	4,218	5,969	4,878	5,490	5,877
9	Global LV	-	2,886	3,212	3,617	3,885
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,423	26,514	28,151	29,174
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(746)	(758)	(765)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	746	758	765
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,651	0	0	787
19	Global Equities Realized Gains	66,318	3,747	0	0	934
20	Global LV Realized Gains	-	457	-	-	817
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,900	10,475	11,085	14,268
24	Other					
25	Investment Fees Paid	(5,203)	(4,720)	(4,586)	(4,851)	(5,035)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,577	4,653	4,672
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,151)	(14,322)	(14,955)	(15,570)
30	Total Corporate Investment Income	199,910	103,709	106,547	111,390	118,461
31	Total Basic Investment Income	171,428	84,823	88,271	91,551	94,619
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,736	4,808	5,464	6,259
35	US Equities Unrealized Gains/(Losses)	7,537	9,306	7,279	8,193	8,770
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,385	4,938	5,305
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,042	12,087	13,657	15,030
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.7	1,886.0	2,034.0	2,186.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.7	146.9	165.9	181.2
43	Global Equities	166.6	168.1	189.8	212.6	231.8
44	Global LV Equities	96.5	114.7	129.6	145.2	156.2
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.5	3,249.2	3,421.5	3,589.7
49	Total Basic Assets	2,530.3	2,638.7	2,736.4	2,832.7	2,917.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.8%	5.0%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.5%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.4%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3h

Updated Base Scenario #1 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	84,813	88,268	91,549	94,615
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,823	88,271	91,551	94,619
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 4a
Modified Base Scenario #1
Statement of Operations

Line No.	*(C$ 000s, except where noted)*	*For the Years Ended February,*							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,285
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,255	10,117	8,829	8,879
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,703	948,754	1,005,019	1,061,164
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,684	1,100,694	1,162,259	1,221,145
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,487)	(91,060)	(111,512)	(126,909)
26	Investment Income	48,476	101,645	111,731	192,209	79,580	82,898	85,951	88,785
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	2	2	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	79,590	82,900	85,953	88,788
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(7,897)	(8,160)	(25,560)	(38,120)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,244)	(10,115)	(8,827)	(8,876)

Appendix 4b

Modified Base Scenario #1

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,804	176,189	185,173	183,631
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(7,897)	(8,160)	(25,560)	(38,120)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,245)	11,282	17,144	24,018	36,317
6	Total Retained Earnings	194,498	99,251	170,975	172,804	176,189	185,173	183,631	181,828
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,961)	(38,794)	(31,130)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,150	7,167	7,664	8,320
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,961)	(38,794)	(31,130)	(22,810)
11	Total Equity Balance	231,002	181,000	210,845	120,693	130,228	146,379	152,501	159,018
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,804	176,189	185,173	183,631	181,828
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,961)	(38,794)	(31,130)	(22,810)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,693	130,228	146,379	152,501	159,018
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,693	130,228	146,379	152,501	159,018

Appendix 4c
Modified Base Scenario #1
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	59,422	67,890	77,613	85,492
4	Equity investments	2,083,349	2,189,534	2,272,545	2,346,381	2,428,783	2,527,766	2,630,381	2,733,721
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	2,895,416	3,021,499	3,158,913	3,284,571	3,409,781
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,131	374,218	390,313	406,721
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,842	1,980,340	2,055,792	2,129,631
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,271	3,012,534	3,132,070	3,250,763
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,804	176,189	185,173	183,631	181,828
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,961)	(38,794)	(31,130)	(22,810)
27	Total Equity	231,003	181,000	210,845	120,693	130,228	146,379	152,501	159,018
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,895,416	3,021,499	3,158,913	3,284,571	3,409,781

Appendix 4d

Modified Base Scenario #1
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,038	83,111	87,212	91,321	95,807
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,038	83,111	87,212	91,321	95,807
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,632	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,875	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	2,532	12,468	16,086	20,244	24,323
18	Foreign exchange risk	32	13,064	12,595	13,418	14,296	16,870
19	Equity risk	34	56,432	53,946	57,563	61,425	65,586
20	Real estate risk	36	23,121	23,862	24,380	25,121	26,420
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,149	102,871	111,447	121,086	133,199
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,837	55,931	58,185	59,615	60,680
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,837	55,931	58,185	59,615	60,680
28	Operational risk margin	50	62,696	66,854	69,980	73,134	76,524
29	Less: Diversification credit	52	48,453	55,177	58,458	61,765	65,528
30	Total Capital (Margin) Required at Target	59	435,075	469,354	492,547	515,788	540,987
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,050	312,903	328,365	343,859	360,658
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,050	312,903	328,365	343,859	360,658
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,012)	(229,792)	(241,153)	(252,538)	(264,851)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.56%	26.56%	26.56%	26.56%	26.56%

Appendix 4e
Modified Base Scenario #1
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,506	220,928	222,334	224,961
7	Total	726,240	767,976	844,426	890,927	936,300	985,906
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,030	6,745	6,685
10	Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,703	948,754	1,005,018	1,061,164

Appendix 4f

Modified Base Scenario #1

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 4g

Modified Base Scenario #1

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	53	0	0	(2)
3	Marketable Bonds	44,259	54,990	61,796	67,195	72,280
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,404	83,861	87,047	89,972
6	Dividend and other Income					
7	Canadian Equities	9,657	5,850	4,555	5,194	5,847
8	Global	4,218	6,015	4,888	5,517	6,159
9	Global LV	-	2,888	3,223	3,641	4,062
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,636	26,546	28,232	29,872
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(17,522)	(745)	(757)	(755)
16	Marketable Bonds Realized Gains/(Loss)	13,969	17,522	745	757	755
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,838	0	0	0
19	Global Equities Realized Gains	66,318	3,813	0	0	1,905
20	Global LV Realized Gains	-	457	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	17,153	10,475	11,085	13,636
24	Other					
25	Investment Fees Paid	(5,203)	(4,737)	(4,589)	(4,854)	(5,075)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,435	4,576	4,649	4,635
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,174)	(14,326)	(14,962)	(15,647)
30	Total Corporate Investment Income	199,910	104,019	106,556	111,401	117,832
31	Total Basic Investment Income	171,428	79,590	82,900	85,953	88,788
32	% - Basic to Total Investment Income	85.75%	77%	78%	77%	75%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,932	4,819	5,496	6,526
35	US Equities Unrealized Gains/(Losses)	7,537	9,376	7,294	8,233	9,191
36	Global LV Unrealized Gains/(Losses)	-	4,202	4,400	4,971	5,546
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,307	12,113	13,729	15,717
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.5	1,884.3	2,030.6	2,189.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.9	147.5	167.2	186.7
43	Global Equities	166.6	168.3	190.5	214.0	219.4
44	Global LV Equities	96.5	115.0	130.3	146.4	161.9
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.9	3,249.6	3,422.1	3,591.4
49	Total Basic Assets	2,389.0	2,501.8	2,609.2	2,721.8	2,834.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.3%	61.0%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.9%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.3%	6.1%
56	Global LV	3.3%	3.7%	4.0%	4.3%	4.5%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5a
Adverse Scenario #1
Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,215	1,125,143	995,889	1,056,343
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,173	1,137,533	1,000,114	1,062,377
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,154	1,290,200	1,158,876	1,223,708
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,957)	(280,890)	(108,813)	(130,088)
26	Investment Income	48,476	101,645	111,731	192,209	63,490	59,116	57,137	55,746
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,960	102,282	(65)	(42)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,450	161,398	57,072	55,704
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(51,507)	(119,492)	(51,741)	(74,384)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	284,002	89,892	(4,289)	(6,077)

Appendix 5b
Adverse Scenario #1
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,804	132,579	30,231	2,508
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(51,507)	(119,492)	(51,741)	(74,384)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,245)	11,282	17,144	24,018	36,317
6	Total Retained Earnings	194,498	99,251	170,975	172,804	132,579	30,231	2,508	(35,559)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,899)	(46,239)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(99)	311	5,659	5,495
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,239)	(40,745)
11	Total Equity Balance	231,002	181,000	210,845	120,693	80,369	(21,668)	(43,732)	(76,304)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,804	132,579	30,231	2,508	(35,559)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,239)	(40,745)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,693	80,369	(21,668)	(43,732)	(76,304)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,693	80,369	(21,668)	(43,732)	(76,304)

Appendix 5c
Adverse Scenario #1
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	53,110	23,495	26,032	31,768
4	Equity investments	2,083,349	2,189,534	2,272,545	2,346,381	2,537,067	2,716,434	2,785,437	2,851,536
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	2,895,416	3,113,490	3,284,520	3,372,460	3,465,267
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,829	2,274,302	2,339,341	2,421,047
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,121	3,306,188	3,415,157	3,541,571
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,804	132,579	30,231	2,508	(35,559)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,239)	(40,745)
27	Total Equity	231,003	181,000	210,845	120,693	80,369	(21,668)	(43,732)	(76,304)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,895,416	3,113,490	3,284,520	3,371,425	3,465,267

Appendix 5d

Adverse Scenario #1
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,038	33,252	(80,789)	(104,811)	(139,394)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,038	33,252	(80,789)	(104,811)	(139,394)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,524	113,493
12	Unpaid claims	22	192,187	214,811	238,392	245,238	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,054	342,097	352,762	366,731
16	Market Risk:						
17	Interest rate risk	30	2,532	3,689	6,508	7,050	4,206
18	Foreign exchange risk	32	13,064	15,163	15,362	13,391	13,715
19	Equity risk	34	56,432	67,632	67,854	55,228	59,984
20	Real estate risk	36	23,121	23,862	24,380	25,121	26,420
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,149	110,346	114,104	100,790	104,325
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,837	55,449	58,219	60,308	61,606
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,837	55,449	58,219	60,308	61,606
28	Operational risk margin	50	62,696	68,653	72,819	73,936	76,751
29	Less: Diversification credit	52	48,453	57,668	60,904	58,643	60,564
30	Total Capital (Margin) Required at Target	59	435,075	489,834	526,335	529,153	548,849
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,050	326,556	350,890	352,769	365,899
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,050	326,556	350,890	352,769	365,899
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,012)	(293,304)	(431,679)	(457,580)	(505,293)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.56%	10.18%	-23.02%	-29.71%	-38.10%

Appendix 5e
Adverse Scenario #1
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,942	334,672	222,480	223,702
7	Total	726,240	767,976	966,495	1,042,339	936,151	984,830
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,434	6,774
10	Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(9)	10,563
13	Total Net Claims Incurred	767,240	789,235	1,062,172	1,137,534	1,000,113	1,062,377

Appendix 5f

Adverse Scenario #1

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
27	C. Equity in Unearned Premium										
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,430	464,050	490,480
31	11. Reinsurance PFAD					10	-	-	-	-	-
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,327	85,385	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	(7,884)	(6,573)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	31,896	33,197	34,560
38	Change					2,363	(20,876)	16,204	4,513	1,301	1,362
39	18. Premium Deficiency [c]					8,845	-	-	7,884	6,573	15,774
40	Change					2,001	(8,845)	-	7,884	(1,311)	9,201

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 5g

Adverse Scenario #1

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	0	(29)
3	Marketable Bonds	44,259	50,673	51,207	51,180	52,840
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,113	73,273	71,031	70,504
6	Dividend and other Income					
7	Canadian Equities	9,657	6,538	5,031	4,987	4,983
8	Global	4,218	6,735	5,466	5,458	5,442
9	Global LV	-	3,328	3,357	3,300	3,291
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,219	27,082	27,029	26,973
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,759	88,479	(14,183)	(11,881)
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,168	20,507	14,183	11,881
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,227)	282	1,129
19	Global Equities Realized Gains	66,318	154	(87)	934	873
20	Global LV Realized Gains	-	49	11	354	946
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,877	118,159	12,656	14,679
24	Other					
25	Investment Fees Paid	(5,203)	(4,903)	(4,783)	(4,900)	(4,962)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,312)	(12,548)	(14,561)	(14,264)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,087)	(31,644)	(34,218)	(34,433)
30	Total Corporate Investment Income	199,910	223,121	197,910	76,498	77,723
31	Total Basic Investment Income	171,428	188,450	161,398	57,072	55,704
32	% - Basic to Total Investment Income	85.75%	84%	82%	75%	72%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(975)	5,276	5,561
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,146	8,121
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,505	4,493
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,069)	13,422	13,682
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	(1.0)	-
40	Canadian Fixed Income	1,760.8	1,783.7	1,983.2	2,187.4	2,320.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.6	166.2	157.8	161.8
43	Global Equities	166.6	197.3	215.2	193.7	209.3
44	Global LV Equities	96.5	126.0	138.5	123.3	124.6
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.8	3,411.0	3,536.2	3,661.2
49	Total Basic Assets	2,389.0	2,603.7	2,753.5	2,825.2	2,898.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.1%	61.9%	63.4%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.6%
54	Canadian Equities	4.2%	4.7%	4.9%	4.5%	4.4%
55	US Equities	5.7%	6.2%	6.3%	5.5%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.5%	3.4%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.5%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5h

Adverse Scenario #1 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,124,894	1,170,787	1,218,832
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,186,131	1,233,629	1,283,278
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,094,196	1,149,558	1,196,607
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,514	29,420	31,504
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,181,949	1,240,894	1,291,629
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,215	1,115,216	995,640	1,055,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,173	1,127,606	999,864	1,061,923
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,587	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,154	1,280,273	1,158,582	1,223,224
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,323	44,265	46,437	48,263
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,983	36,701	38,167
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,843	168,877	175,144
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,957)	(259,167)	(86,565)	(106,739)
26	Investment Income	48,476	101,645	111,731	192,209	63,490	59,139	57,134	55,760
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,960	102,274	(70)	10
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,450	161,413	57,064	55,771
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(51,507)	(97,754)	(29,501)	(50,968)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	284,002	89,884	(4,295)	(6,024)

Appendix 5i

Adverse Scenario #1 with Management Action

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,804	132,579	51,968	46,485
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(51,507)	(97,754)	(29,501)	(50,968)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,245)	11,282	17,144	24,018	36,317
6	Total Retained Earnings	194,498	99,251	170,975	172,804	132,579	51,968	46,485	31,834
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,899)	(46,010)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(99)	311	5,888	5,973
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,010)	(40,037)
11	Total Equity Balance	231,002	181,000	210,845	120,693	80,369	69	475	(8,203)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,804	132,579	51,968	46,485	31,834
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,010)	(40,037)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,693	80,369	69	475	(8,203)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,693	80,369	69	475	(8,203)

Appendix 5j

Adverse Scenario #1 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	53,110	37,083	58,293	83,418
4	Equity investments	2,083,349	2,189,534	2,272,545	2,346,381	2,537,067	2,718,431	2,790,965	2,861,443
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	388,867	404,004	419,837
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	2,699	4,218	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,080	63,092
14		2,683,473	2,805,484	2,916,137	2,895,416	3,113,490	3,308,749	3,420,654	3,533,263
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	605,196	631,310	658,749
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,829	2,266,425	2,332,708	2,409,715
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,121	3,308,679	3,419,312	3,541,466
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,804	132,579	51,968	46,485	31,834
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,899)	(46,010)	(40,037)
27	Total Equity	231,003	181,000	210,845	120,693	80,369	69	475	(8,203)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,895,416	3,113,490	3,308,749	3,419,787	3,533,263

Appendix 5k

Adverse Scenario #1 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,038	33,252	(59,051)	(60,605)	(71,296)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,038	33,252	(59,051)	(60,605)	(71,296)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	104,170	108,313	113,479
12	Unpaid claims	22	192,187	214,811	238,393	245,232	253,235
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,054	342,563	353,545	366,714
16	Market Risk:						
17	Interest rate risk	30	2,532	3,689	5,250	7,916	8,970
18	Foreign exchange risk	32	13,064	15,163	15,373	13,553	13,404
19	Equity risk	34	56,432	67,632	67,918	56,165	55,373
20	Real estate risk	36	23,121	23,862	24,380	25,121	26,420
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,149	110,346	112,921	102,755	104,167
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,837	55,449	58,802	61,049	62,114
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,837	55,449	58,802	61,049	62,114
28	Operational risk margin	50	62,696	68,653	73,367	74,816	77,387
29	Less: Diversification credit	52	48,453	57,668	60,784	59,378	60,654
30	Total Capital (Margin) Required at Target	59	435,075	489,834	526,869	532,787	549,728
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,050	326,556	351,246	355,192	366,485
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,050	326,556	351,246	355,192	366,485
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,012)	(293,304)	(410,297)	(415,797)	(437,781)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.56%	10.18%	-16.81%	-17.06%	-19.45%

Appendix 5l

Adverse Scenario #1 with Management Action

Net Claims Incurred Summary

Line No.	*(C$ 000s, except where noted)*	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,942	334,676	222,446	223,714
7	Total	726,240	767,976	966,495	1,042,343	936,114	984,843
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,879	6,404	6,785
10	Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	2,463	(192)	10,085
13	Total Net Claims Incurred	767,240	789,235	1,062,172	1,127,606	999,864	1,061,924

Appendix 5m

Adverse Scenario #1 with Management Action
Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.04%	73.35%	74.34%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9446	0.9559	0.9894	1.0001	1.0045				
10	2021					0.9659	0.9989	1.0088	1.0125	1.0150			
11	2022						1.0047	1.0148	1.0186	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				76.83%	71.30%	72.47%	74.34%	77.39%			74.55%	81.12%
17	2021					72.05%	73.17%	74.99%	78.00%	74.45%		74.20%	80.96%
18	2022						73.60%	75.43%	78.46%	74.91%	75.44%	75.26%	82.24%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.18%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.72%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	557,054	579,209	602,361		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,075	463,994	490,427		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	15,128	15,613	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,262	85,375	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	2,699	4,218	(4,477)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	32,544	33,872	35,262		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	29,845	29,654	35,262		
38	Change					2,363	(20,876)	16,204	2,463	(192)	5,608		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,477		
40	Change					2,001	(8,845)	-	-	-	4,477		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 5n

Adverse Scenario #1 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	0	(12)
3	Marketable Bonds	44,259	50,673	51,259	51,288	53,066
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,113	73,326	71,139	70,748
6	Dividend and other Income					
7	Canadian Equities	9,657	6,538	5,060	5,155	5,302
8	Global	4,218	6,735	5,491	5,609	5,721
9	Global LV	-	3,328	3,376	3,411	3,527
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,219	27,155	27,459	27,807
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,759	88,527	(13,141)	2,375
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,168	20,459	13,141	(2,375)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,227)	266	1,228
19	Global Equities Realized Gains	66,318	154	(87)	924	797
20	Global LV Realized Gains	-	49	11	332	912
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,877	118,158	12,607	14,668
24	Other					
25	Investment Fees Paid	(5,203)	(4,903)	(4,789)	(4,938)	(5,040)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,312)	(12,588)	(14,711)	(14,500)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,087)	(31,690)	(34,406)	(34,747)
30	Total Corporate Investment Income	199,910	223,121	197,989	76,799	78,475
31	Total Basic Investment Income	171,428	188,450	161,413	57,064	55,771
32	% - Basic to Total Investment Income	85.75%	84%	82%	74%	71%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(975)	5,455	5,918
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,370	8,538
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,657	4,815
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,069)	13,825	14,455
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	(0.9)	-
40	Canadian Fixed Income	1,760.8	1,783.7	1,990.0	2,203.0	2,374.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.6	168.5	165.1	159.8
43	Global Equities	166.6	197.3	217.6	200.3	213.5
44	Global LV Equities	96.5	126.0	140.3	130.0	130.0
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.8	3,424.3	3,572.5	3,722.4
49	Total Basic Assets	2,389.0	2,603.7	2,769.1	2,863.0	2,960.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.1%	61.7%	63.8%
53	MUSH	19.4%	16.4%	13.9%	12.1%	10.4%
54	Canadian Equities	4.2%	4.7%	4.9%	4.6%	4.3%
55	US Equities	5.7%	6.2%	6.4%	5.6%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.6%	3.5%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 6a

Updated Base Scenario #2

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,862	938,472	995,774	1,051,883
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,209	8,816	8,310
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,117	948,682	1,004,589	1,060,193
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,098	1,100,576	1,161,783	1,220,128
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,694)	(71,923)	(91,223)	(105,252)
26	Investment Income	48,476	101,645	111,731	192,209	84,839	88,379	91,783	94,746
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	3	5
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,851	88,384	91,786	94,752
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,205)	(8,812)	(8,305)

Appendix 6b
Updated Base Scenario #2
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	330,205	346,665	347,229
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,119
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
11	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690

Appendix 6c
Updated Base Scenario #2
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,406	68,212	70,977	60,125
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,282	2,687,490	2,801,045	2,916,394
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,956	25,263	18,691
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,730
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,433	2,055,874	2,129,145
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,255	3,021,983	3,141,893	3,260,418
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	330,205	346,665	347,229	336,729
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
27	Total Equity	231,003	181,000	210,845	261,938	286,029	311,679	322,070	322,690
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108

Appendix 6d
Updated Base Scenario #2
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	238,912	252,509	260,886	259,473
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	238,912	252,509	260,886	259,473
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,171	217,432	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,151	325,547	337,959
16	Market Risk:						
17	Interest rate risk	30	4,798	20,791	25,111	30,016	32,905
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,317
19	Equity risk	34	69,145	67,268	71,795	76,632	85,251
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,180	140,727	152,469	168,463
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,755	64,102	65,654	66,740
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,755	64,102	65,654	66,740
28	Operational risk margin	50	64,469	70,299	73,627	76,996	80,742
29	Less: Diversification credit	52	53,525	62,537	66,138	69,784	74,137
30	Total Capital (Margin) Required at Target	59	452,643	500,252	525,469	550,882	579,767
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,501	350,313	367,255	386,512
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,501	350,313	367,255	386,512
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(94,589)	(97,804)	(106,369)	(127,039)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	71.64%	72.08%	71.04%	67.13%

Appendix 6e
Updated Base Scenario #2
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	221,007	222,324	224,481
7	Total	726,240	767,976	844,426	891,006	936,291	985,421
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,044	6,744	6,603
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,289)	4,018	7,959
13	Total Net Claims Incurred	767,240	789,235	901,117	948,682	1,004,590	1,060,193

Appendix 6f

Updated Base Scenario #2

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,042	445,470	470,041		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,208	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,956	25,263	18,691		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,814	4,525	8,544	16,503		
38	Change					2,363	(20,876)	(2,364)	(4,289)	4,018	7,959		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 6g

Updated Base Scenario #2

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,161	62,122	67,881	73,632
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,614	84,187	87,733	91,325
6	Dividend and other Income					
7	Canadian Equities	9,657	5,699	4,639	5,371	5,931
8	Global	4,218	5,986	4,962	5,675	6,235
9	Global LV	-	2,900	3,279	3,758	4,092
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,468	26,761	28,685	30,061
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(749)	(765)	(773)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	749	765	773
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,630	0	0	790
19	Global Equities Realized Gains	66,318	3,727	0	0	1,057
20	Global LV Realized Gains	-	457	-	-	834
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,858	10,475	11,085	14,411
24	Other					
25	Investment Fees Paid	(5,203)	(4,724)	(4,613)	(4,910)	(5,137)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,446	4,598	4,694	4,714
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,973)	(15,630)
30	Total Corporate Investment Income	199,910	103,790	107,095	112,530	120,168
31	Total Basic Investment Income	171,428	84,851	88,384	91,786	94,752
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,752	4,908	5,683	6,620
35	US Equities Unrealized Gains/(Losses)	7,537	9,332	7,406	8,469	9,304
36	Global LV Unrealized Gains/(Losses)	-	4,220	4,477	5,132	5,587
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,084	12,313	14,152	15,924
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.3	1,903.2	2,062.3	2,213.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.4	151.7	174.4	198.5
43	Global Equities	166.6	169.9	195.0	221.7	249.9
44	Global LV Equities	96.5	116.2	133.8	152.4	170.5
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.1	3,280.6	3,474.6	3,666.2
49	Total Basic Assets	2,530.3	2,652.2	2,769.3	2,885.8	2,991.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.8%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 7a
Modified Base Scenario #2
Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,863	938,470	995,775	1,051,885
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,255	10,167	8,859	8,354
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,118	948,637	1,004,633	1,060,239
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,207	146,669
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,099	1,100,531	1,161,830	1,220,176
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,695)	(71,879)	(91,270)	(105,300)
26	Investment Income	48,476	101,645	111,731	192,209	79,581	82,989	86,157	88,888
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	3	3	6
28	Net Investment Income	(4,038)	82,897	116,320	171,428	79,592	82,992	86,159	88,894
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	10,897	11,113	(5,111)	(16,406)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,244)	(10,164)	(8,856)	(8,348)

Appendix 7b

Modified Base Scenario #2

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,209	176,146	185,202	183,736
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	10,897	11,113	(5,111)	(16,406)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,840)	(6,959)	(2,058)	3,645	14,394
6	Total Retained Earnings	194,498	99,251	170,975	172,209	176,146	185,202	183,736	181,724
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,969)	(38,810)	(31,155)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,142	7,158	7,655	8,755
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,969)	(38,810)	(31,155)	(22,400)
11	Total Equity Balance	231,002	181,000	210,845	120,097	130,178	146,392	152,580	159,324
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,209	176,146	185,202	183,736	181,724
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,969)	(38,810)	(31,155)	(22,400)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,097	130,178	146,392	152,580	159,324
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,097	130,178	146,392	152,580	159,324

Appendix 7c
Modified Base Scenario #2
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	52,953	58,584	64,979	68,514
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,785	2,429,889	2,531,791	2,637,559	2,744,700
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,958	25,263	18,689
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	2,894,821	3,030,437	3,168,337	3,294,479	3,419,800
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,132	374,224	390,325	406,744
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,842	1,980,391	2,055,874	2,129,190
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,259	3,021,946	3,141,898	3,260,477
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,209	176,146	185,202	183,736	181,724
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,969)	(38,810)	(31,155)	(22,400)
27	Total Equity	231,003	181,000	210,845	120,097	130,178	146,392	152,580	159,324
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,821	3,030,437	3,168,337	3,294,479	3,419,800

Appendix 7d

Modified Base Scenario #2
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,443	83,061	87,221	91,397	96,108
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,443	83,061	87,221	91,397	96,108
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,167	217,432	225,526
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,147	325,547	337,963
16	Market Risk:						
17	Interest rate risk	30	2,563	12,653	16,631	21,169	23,698
18	Foreign exchange risk	32	13,053	12,583	13,406	14,284	16,848
19	Equity risk	34	56,379	53,889	57,503	61,360	68,924
20	Real estate risk	36	23,109	23,849	24,367	25,107	26,405
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,104	102,974	111,907	121,920	135,875
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,834	57,100	59,411	60,925	61,973
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,834	57,100	59,411	60,925	61,973
28	Operational risk margin	50	62,692	67,590	70,779	73,997	77,567
29	Less: Diversification credit	52	48,441	55,576	58,955	62,368	66,526
30	Total Capital (Margin) Required at Target	59	435,035	472,643	496,289	520,021	546,852
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,024	315,095	330,859	346,681	364,568
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,024	315,095	330,859	346,681	364,568
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,581)	(232,034)	(243,638)	(255,284)	(268,460)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.36%	26.36%	26.36%	26.36%	26.36%

Appendix 7e
Modified Base Scenario #2
Net Claims Incurred Summary

Line No.	*(C$ 000s, except where noted)*	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	220,970	222,360	224,518
7	Total	726,240	767,976	844,427	890,969	936,327	985,459
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,038	6,750	6,610
10	Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,291)	4,020	7,961
13	Total Net Claims Incurred	767,240	789,235	901,118	948,637	1,004,634	1,060,239

Appendix 7f

Modified Base Scenario #2

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,040	445,470	470,043		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,207	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,958	25,263	18,689		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,815	4,523	8,544	16,505		
38	Change					2,363	(20,876)	(2,364)	(4,291)	4,020	7,961		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 7g

Modified Base Scenario #2

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	53	(0)	0	(2)
3	Marketable Bonds	44,259	55,066	62,103	67,818	72,876
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,480	84,168	87,670	90,567
6	Dividend and other Income					
7	Canadian Equities	9,657	5,864	4,649	5,401	6,314
8	Global	4,218	6,032	4,972	5,702	6,439
9	Global LV	-	2,902	3,290	3,783	4,375
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,682	26,793	28,766	30,930
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(17,471)	(749)	(764)	(761)
16	Marketable Bonds Realized Gains/(Loss)	13,969	17,471	749	764	761
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,815	0	0	1,696
19	Global Equities Realized Gains	66,318	3,791	0	0	1,865
20	Global LV Realized Gains	-	457	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	17,108	10,475	11,085	15,291
24	Other					
25	Investment Fees Paid	(5,203)	(4,745)	(4,614)	(4,914)	(5,179)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,440	4,597	4,691	4,668
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,177)	(14,330)	(14,980)	(15,718)
30	Total Corporate Investment Income	199,910	104,093	107,106	112,541	121,071
31	Total Basic Investment Income	171,428	79,592	82,992	86,159	88,894
32	% - Basic to Total Investment Income	85.75%	76%	77%	77%	73%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,949	4,919	5,715	7,046
35	US Equities Unrealized Gains/(Losses)	7,537	9,402	7,420	8,510	9,609
36	Global LV Unrealized Gains/(Losses)	-	4,223	4,492	5,165	5,973
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,350	12,340	14,224	16,655
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.2	1,901.4	2,058.9	2,236.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.5	152.4	175.6	184.3
43	Global Equities	166.6	170.1	195.8	223.1	236.3
44	Global LV Equities	96.5	116.5	134.5	153.6	176.9
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.5	3,281.0	3,475.1	3,668.0
49	Total Basic Assets	2,388.4	2,496.4	2,603.9	2,716.3	2,828.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.2%	61.0%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.1%	5.0%
55	US Equities	5.7%	5.5%	6.0%	6.4%	6.4%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.8%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 8a

Adverse Scenario #2

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,474	29,376	31,454
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,719	1,238,614	1,289,252
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,644	1,124,963	995,384	1,055,987
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,601	1,137,353	999,609	1,062,021
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,587	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,582	1,289,976	1,158,327	1,223,322
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,391	168,737	174,998
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,178)	(261,648)	(88,450)	(109,068)
26	Investment Income	48,476	101,645	111,731	192,209	63,488	59,160	57,161	55,901
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,947	102,363	(79)	21
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,435	161,523	57,082	55,921
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(32,743)	(100,125)	(31,368)	(53,147)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	283,990	89,973	(4,303)	(6,014)

Appendix 8b
Adverse Scenario #2
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,209	132,506	30,324	2,601
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(32,743)	(100,125)	(31,368)	(53,147)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,840)	(6,959)	(2,058)	3,645	14,394
6	Total Retained Earnings	194,498	99,251	170,975	172,209	132,506	30,324	2,601	(36,152)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,898)	(45,964)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(98)	311	5,934	5,692
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,964)	(40,272)
11	Total Equity Balance	231,002	181,000	210,845	120,097	80,297	(21,575)	(43,364)	(76,424)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,209	132,506	30,324	2,601	(36,152)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,964)	(40,272)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,097	80,297	(21,575)	(43,364)	(76,424)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,097	80,297	(21,575)	(43,364)	(76,424)

Appendix 8c
Adverse Scenario #2
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	46,639	14,130	13,105	15,989
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,785	2,538,168	2,720,546	2,792,830	2,862,027
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,396	1,458	3,229	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,082	63,095
14		2,683,473	2,805,484	2,916,137	2,894,821	3,122,426	3,286,091	3,375,741	3,465,792
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,851	2,266,424	2,332,706	2,410,802
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,129	3,307,666	3,418,257	3,541,457
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,209	132,506	30,324	2,601	(36,152)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,964)	(40,272)
27	Total Equity	231,003	181,000	210,845	120,097	80,297	(21,575)	(43,364)	(76,424)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,821	3,122,426	3,286,091	3,374,893	3,465,033

Appendix 8d
Adverse Scenario #2
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,443	33,180	(80,698)	(104,446)	(139,519)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,443	33,180	(80,698)	(104,446)	(139,519)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	113,480
12	Unpaid claims	22	192,187	214,813	238,393	245,232	253,234
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	342,373	353,347	366,714
16	Market Risk:						
17	Interest rate risk	30	2,563	3,524	5,068	8,054	9,388
18	Foreign exchange risk	32	13,053	15,157	15,403	13,579	13,925
19	Equity risk	34	56,379	67,608	68,100	56,325	54,618
20	Real estate risk	36	23,109	23,849	24,367	25,107	26,405
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,104	110,138	112,938	103,065	104,336
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,834	56,617	58,645	60,914	62,265
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,834	56,617	58,645	60,914	62,265
28	Operational risk margin	50	62,692	69,364	73,285	74,757	77,355
29	Less: Diversification credit	52	48,441	57,994	60,739	59,413	60,737
30	Total Capital (Margin) Required at Target	59	435,035	492,861	526,502	532,670	549,933
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,024	328,574	351,001	355,113	366,622
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,024	328,574	351,001	355,113	366,622
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,581)	(295,394)	(431,699)	(459,559)	(506,141)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.36%	10.10%	-22.99%	-29.41%	-38.06%

Appendix 8e

Adverse Scenario #2

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,961	334,657	222,446	223,710
7	Total	726,240	767,976	966,514	1,042,324	936,114	984,838
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,875	6,404	6,781
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	12,233	(446)	10,192
13	Total Net Claims Incurred	767,240	789,235	1,053,602	1,137,353	999,608	1,062,021

Appendix 8f

Adverse Scenario #2

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	76.52%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9470	0.9583	0.9919	1.0121	1.0139				
10	2021					0.9677	1.0007	1.0203	1.0212	1.0150			
11	2022						1.0066	1.0263	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				77.03%	71.48%	72.66%	74.53%	77.58%			74.74%	81.33%
17	2021					72.18%	73.31%	75.13%	78.14%	74.59%		74.34%	81.10%
18	2022						73.73%	75.57%	78.61%	75.04%	75.58%	75.40%	82.40%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.13%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,792	447,396	463,997	490,428		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,976	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,321	85,375	90,239		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,396	1,458	3,229	(5,575)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	31,023	30,577	35,193		
38	Change					2,363	(20,876)	7,611	12,233	(446)	4,617		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	5,575		
40	Change					2,001	(8,845)	-	-	-	5,575		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 8g

Adverse Scenario #2

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	(0)	(25)
3	Marketable Bonds	44,259	50,734	51,407	51,497	53,412
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,174	73,474	71,349	71,081
6	Dividend and other Income					
7	Canadian Equities	9,657	6,554	5,138	5,264	5,236
8	Global	4,218	6,753	5,561	5,598	5,781
9	Global LV	-	3,343	3,432	3,485	3,458
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,269	27,358	27,632	27,732
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,858	88,907	(12,958)	2,405
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,070	20,334	12,958	(2,405)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,238)	817	555
19	Global Equities Realized Gains	66,318	154	(87)	790	856
20	Global LV Realized Gains	-	49	11	330	882
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,876	118,402	13,022	14,024
24	Other					
25	Investment Fees Paid	(5,203)	(4,908)	(4,806)	(4,953)	(5,051)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,328)	(12,692)	(14,886)	(14,688)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,108)	(31,811)	(34,596)	(34,946)
30	Total Corporate Investment Income	199,910	223,212	198,465	77,406	77,890
31	Total Basic Investment Income	171,428	188,435	161,523	57,082	55,921
32	% - Basic to Total Investment Income	85.75%	84%	81%	74%	72%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(986)	5,570	5,843
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,355	8,627
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,758	4,722
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,080)	13,925	14,471
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	(0.8)	(0.8)
40	Canadian Fixed Income	1,760.8	1,790.1	1,998.5	2,225.7	2,382.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.3	171.6	152.1	161.9
43	Global Equities	166.6	199.1	221.1	203.9	215.2
44	Global LV Equities	96.5	127.6	143.0	132.8	131.1
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.3	3,442.2	3,588.5	3,734.7
49	Total Basic Assets	2,388.4	2,598.4	2,748.2	2,819.7	2,893.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.1%	62.0%	63.8%
53	MUSH	19.4%	16.3%	13.9%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.2%	4.3%
55	US Equities	5.7%	6.2%	6.4%	5.7%	5.8%
56	Global LV	3.3%	4.0%	4.2%	3.7%	3.5%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 8h

Adverse Scenario #2 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,145,524	1,192,252	1,241,172
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,206,761	1,255,094	1,305,618
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,114,269	1,170,636	1,218,543
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,174,508	1,232,553	1,282,061
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,903	29,846	31,968
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,202,411	1,262,399	1,314,029
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,644	1,114,883	995,179	1,055,508
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,601	1,127,273	999,404	1,061,542
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,545	147,862
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,127	13,393
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,582	1,279,896	1,158,076	1,222,797
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,604	83,459
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,913	47,119	48,974
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,585	37,333	38,825
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	162,073	170,171	176,491
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,178)	(239,558)	(65,848)	(85,259)
26	Investment Income	48,476	101,645	111,731	192,209	63,488	59,203	57,119	55,920
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,947	102,331	(71)	(9)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,435	161,534	57,048	55,911
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(32,743)	(78,025)	(8,800)	(29,349)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	283,990	89,941	(4,296)	(6,044)

Appendix 8i

Adverse Scenario #2 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,209	132,506	52,424	47,268
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(32,743)	(78,025)	(8,800)	(29,349)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,840)	(6,959)	(2,058)	3,645	14,394
6	Total Retained Earnings	194,498	99,251	170,975	172,209	132,506	52,424	47,268	32,314
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,898)	(45,828)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(98)	311	6,070	6,476
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,828)	(39,352)
11	Total Equity Balance	231,002	181,000	210,845	120,097	80,297	525	1,440	(7,038)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,209	132,506	52,424	47,268	32,314
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,828)	(39,352)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,097	80,297	525	1,440	(7,038)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,097	80,297	525	1,440	(7,038)

Appendix 8j

Adverse Scenario #2 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	46,639	27,961	44,346	68,947
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,785	2,538,168	2,722,577	2,799,257	2,872,946
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	394,339	409,697	425,762
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,396	12,221	14,197	5,910
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,084	63,097
14		2,683,473	2,805,484	2,916,137	2,894,821	3,122,426	3,318,770	3,430,676	3,542,135
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	614,739	641,240	669,084
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,851	2,266,446	2,332,702	2,405,233
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,129	3,318,244	3,429,236	3,547,319
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,209	132,506	52,424	47,268	32,314
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,828)	(39,352)
27	Total Equity	231,003	181,000	210,845	120,097	80,297	525	1,440	(7,038)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,821	3,122,426	3,318,770	3,430,676	3,540,281

Appendix 8k
Adverse Scenario #2 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,443	33,180	(58,598)	(59,644)	(70,135)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,443	33,180	(58,598)	(59,644)	(70,135)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	105,954	110,170	114,574
12	Unpaid claims	22	192,187	214,813	238,395	245,232	253,234
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	344,349	355,402	367,808
16	Market Risk:						
17	Interest rate risk	30	2,563	3,524	4,839	7,952	9,506
18	Foreign exchange risk	32	13,053	15,157	15,414	13,851	13,501
19	Equity risk	34	56,379	67,608	68,165	57,893	59,262
20	Real estate risk	36	23,109	23,849	24,367	25,107	26,405
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,104	110,138	112,785	104,803	108,674
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,834	56,617	60,040	62,149	63,272
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,834	56,617	60,040	62,149	63,272
28	Operational risk margin	50	62,692	69,364	74,129	75,777	78,519
29	Less: Diversification credit	52	48,441	57,994	61,151	60,273	62,165
30	Total Capital (Margin) Required at Target	59	435,035	492,861	530,152	537,858	556,108
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,024	328,574	353,435	358,572	370,739
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,024	328,574	353,435	358,572	370,739
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,581)	(295,394)	(412,033)	(418,216)	(440,874)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.36%	10.10%	-16.58%	-16.63%	-18.92%

Appendix 8I

Adverse Scenario #2 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,973	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,589	5,393	5,472
6	PIPP	187,022	177,326	341,961	334,668	222,432	223,715
7	Total	726,240	767,976	966,514	1,042,336	936,099	984,844
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,886	6,392	6,786
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	2,130	(624)	9,702
13	Total Net Claims Incurred	767,240	789,235	1,053,602	1,127,273	999,404	1,061,542

Appendix 8m

Adverse Scenario #2 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	75.72%	72.10%	73.07%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9284	0.9395	0.9725	0.9923	1.0045				
10	2021					0.9494	0.9818	1.0010	1.0124	1.0150			
11	2022						0.9875	1.0069	1.0185	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				75.52%	70.08%	71.24%	73.07%	76.06%			73.27%	79.74%
17	2021					70.81%	71.92%	73.70%	76.66%	73.18%		72.93%	79.57%
18	2022						72.34%	74.14%	77.12%	73.62%	74.15%	73.97%	80.84%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,174,508	1,232,553	1,282,061		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.04%	8.02%	7.96%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.68%	2.67%	2.65%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.68%	2.66%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	566,597	589,138	612,695		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,792	447,045	463,956	490,386		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	15,185	15,607	16,158		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,256	85,368	90,231		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,396	12,221	14,197	5,910		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	33,141	34,493	35,908		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	20,920	20,296	29,999		
38	Change					2,363	(20,876)	7,611	2,130	(624)	9,702		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 8n

Adverse Scenario #2 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	0	(12)
3	Marketable Bonds	44,259	50,734	51,594	52,166	53,438
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,174	73,661	72,018	71,120
6	Dividend and other Income					
7	Canadian Equities	9,657	6,554	5,112	5,172	5,981
8	Global	4,218	6,753	5,538	5,623	6,363
9	Global LV	-	3,343	3,415	3,423	3,760
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,269	27,292	27,502	29,361
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,858	88,928	(12,514)	2,378
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,070	20,314	12,514	(2,378)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,238)	261	207
19	Global Equities Realized Gains	66,318	154	(87)	329	753
20	Global LV Realized Gains	-	49	11	250	225
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,876	118,402	11,925	12,915
24	Other					
25	Investment Fees Paid	(5,203)	(4,908)	(4,809)	(4,975)	(5,199)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,328)	(12,769)	(15,124)	(14,525)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,108)	(31,891)	(34,856)	(34,931)
30	Total Corporate Investment Income	199,910	223,212	198,506	76,589	78,465
31	Total Basic Investment Income	171,428	188,435	161,534	57,048	55,911
32	% - Basic to Total Investment Income	85.75%	84%	81%	74%	71%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(986)	5,472	6,675
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,392	9,496
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,674	5,134
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,080)	13,864	16,171
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	(1.9)
40	Canadian Fixed Income	1,760.8	1,790.1	2,024.5	2,226.2	2,371.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.3	167.3	169.6	191.9
43	Global Equities	166.6	199.1	216.4	221.3	240.5
44	Global LV Equities	96.5	127.6	139.4	134.2	151.1
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.3	3,455.5	3,626.2	3,797.9
49	Total Basic Assets	2,388.4	2,598.4	2,764.1	2,857.4	2,957.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.6%	61.4%	62.4%
53	MUSH	19.4%	16.3%	13.8%	11.9%	10.2%
54	Canadian Equities	4.2%	4.8%	4.8%	4.7%	5.1%
55	US Equities	5.7%	6.2%	6.3%	6.1%	6.3%
56	Global LV	3.3%	4.0%	4.0%	3.7%	4.0%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.5%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 9a

Updated Base Scenario #3

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,624	938,446	995,718	1,051,824
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,261	10,174	8,904	8,217
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,884	948,620	1,004,622	1,060,042
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,654
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,266
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,865	1,100,514	1,161,816	1,219,962
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,844
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,557
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,117)	(88,395)	(102,098)
26	Investment Income	48,476	101,645	111,731	192,209	84,843	88,397	91,817	94,798
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	5	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,854	88,401	91,823	94,801
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,249)	(10,170)	(8,898)	(8,214)

Appendix 9b
Updated Base Scenario #3
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	332,916	352,201	355,629
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,139
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
11	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312

Appendix 9c
Updated Base Scenario #3
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,107	72,268	77,487	69,216
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,532	2,688,168	2,802,186	2,918,049
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,672	20,163
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,217
14		2,683,473	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,220	390,321	406,734
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,848	1,980,404	2,055,933	2,129,113
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,559	3,023,307	3,143,359	3,261,853
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	332,916	352,201	355,629	348,332
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
27	Total Equity	231,003	181,000	210,845	261,938	288,739	317,215	330,471	334,312
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165

Appendix 9d
Updated Base Scenario #3
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	241,622	258,045	269,286	271,095
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	241,622	258,045	269,286	271,095
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,438	225,519
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,816	338,229
16	Market Risk:						
17	Interest rate risk	30	4,798	20,821	25,203	30,147	33,011
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,344
19	Equity risk	34	69,145	67,268	71,795	76,632	85,397
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,210	140,819	152,600	168,742
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,926	64,282	65,846	66,940
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,926	64,282	65,846	66,940
28	Operational risk margin	50	64,469	70,406	73,745	77,122	80,884
29	Less: Diversification credit	52	53,525	62,597	66,213	69,870	74,252
30	Total Capital (Margin) Required at Target	59	452,643	500,742	526,034	551,514	580,543
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,828	350,689	367,676	387,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,828	350,689	367,676	387,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(92,206)	(92,644)	(98,390)	(115,934)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	72.38%	73.58%	73.24%	70.05%

Appendix 9e
Updated Base Scenario #3
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,406
6	PIPP	187,022	177,326	215,511	220,977	222,398	224,403
7	Total	726,240	767,976	844,432	890,976	936,366	985,342
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,756	6,590
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,604)	(4,316)	3,963	7,900
13	Total Net Claims Incurred	767,240	789,235	899,884	948,620	1,004,622	1,060,042

Appendix 9f

Updated Base Scenario #3

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.68%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,468	470,034		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,035		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,486		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,672	20,163		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,222	15,122		
38	Change					2,363	(20,876)	(3,604)	(4,316)	3,963	7,900		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 9g

Updated Base Scenario #3

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,172	62,167	67,972	73,612
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,625	84,232	87,823	91,305
6	Dividend and other Income					
7	Canadian Equities	9,657	5,701	4,652	5,401	6,053
8	Global	4,218	5,988	4,975	5,702	6,296
9	Global LV	-	2,902	3,289	3,779	4,173
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,475	26,797	28,762	30,325
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(750)	(766)	(774)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	750	766	774
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,627	0	0	805
19	Global Equities Realized Gains	66,318	3,724	0	779	0
20	Global LV Realized Gains	-	457	-	-	848
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,852	10,475	11,864	13,384
24	Other					
25	Investment Fees Paid	(5,203)	(4,725)	(4,616)	(4,917)	(5,148)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,447	4,601	4,700	4,721
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,974)	(15,634)
30	Total Corporate Investment Income	199,910	103,802	107,175	113,476	119,380
31	Total Basic Investment Income	171,428	84,854	88,401	91,823	94,801
32	% - Basic to Total Investment Income	85.75%	82%	82%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,755	4,922	5,715	6,755
35	US Equities Unrealized Gains/(Losses)	7,537	9,335	7,424	8,509	9,396
36	Global LV Unrealized Gains/(Losses)	-	4,223	4,490	5,160	5,697
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,090	12,346	14,224	16,151
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,746.3	1,905.6	2,078.7	2,218.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.6	152.4	175.6	200.2
43	Global Equities	166.6	170.2	195.8	210.7	253.6
44	Global LV Equities	96.5	116.5	134.4	153.4	171.8
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,095.7	3,285.2	3,482.3	3,677.6
49	Total Basic Assets	2,530.3	2,654.2	2,774.0	2,893.4	3,002.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.7%	60.3%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	6.0%	6.1%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 10a

Modified Base Scenario #3

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,623	938,446	995,716	1,051,830
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,262	10,174	8,863	8,338
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,885	948,619	1,004,580	1,060,168
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,866	1,100,513	1,161,774	1,220,103
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,564
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,115)	(88,353)	(102,247)
26	Investment Income	48,476	101,645	111,731	192,209	79,590	83,011	86,197	88,930
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	3	3	6
28	Net Investment Income	(4,038)	82,897	116,320	171,428	79,601	83,014	86,199	88,936
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	13,615	13,898	(2,153)	(13,311)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,250)	(10,171)	(8,861)	(8,332)

Appendix 10b
Modified Base Scenario #3
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,343	176,362	185,428	183,977
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	13,615	13,898	(2,153)	(13,311)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,706)	(9,595)	(4,833)	703	11,327
6	Total Retained Earnings	194,498	99,251	170,975	172,343	176,362	185,428	183,977	181,994
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,967)	(38,807)	(31,150)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,144	7,160	7,657	8,777
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,967)	(38,807)	(31,150)	(22,373)
11	Total Equity Balance	231,002	181,000	210,845	120,232	130,395	146,621	152,828	159,621
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,343	176,362	185,428	183,977	181,994
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,967)	(38,807)	(31,150)	(22,373)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,232	130,395	146,621	152,828	159,621
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,232	130,395	146,621	152,828	159,621

Appendix 10c
Modified Base Scenario #3
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	52,019	57,231	63,141	66,153
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,920	2,430,280	2,532,615	2,638,851	2,746,513
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,674	20,159
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	2,894,955	3,031,959	3,169,932	3,296,151	3,421,562
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,132	374,224	390,325	406,743
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,849	1,980,404	2,055,892	2,129,192
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,563	3,023,311	3,143,323	3,261,941
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,343	176,362	185,428	183,977	181,994
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,967)	(38,807)	(31,150)	(22,373)
27	Total Equity	231,003	181,000	210,845	120,232	130,395	146,621	152,828	159,621
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,955	3,031,959	3,169,932	3,296,151	3,421,562

Appendix 10d
Modified Base Scenario #3
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,577	83,278	87,451	91,643	96,405
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,577	83,278	87,451	91,643	96,405
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,434	225,527
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,812	338,237
16	Market Risk:						
17	Interest rate risk	30	2,556	12,692	16,721	21,312	23,827
18	Foreign exchange risk	32	13,056	12,586	13,409	14,287	16,880
19	Equity risk	34	56,391	53,903	57,516	61,375	69,090
20	Real estate risk	36	23,111	23,852	24,370	25,110	26,409
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,114	103,033	112,016	122,084	136,206
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,835	57,276	59,595	61,122	62,177
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,835	57,276	59,595	61,122	62,177
28	Operational risk margin	50	62,693	67,701	70,898	74,127	77,715
29	Less: Diversification credit	52	48,443	55,645	59,038	62,466	66,662
30	Total Capital (Margin) Required at Target	59	435,045	473,162	496,872	520,679	547,673
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,030	315,441	331,248	347,119	365,115
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,030	315,441	331,248	347,119	365,115
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,453)	(232,163)	(243,797)	(255,476)	(268,710)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.40%	26.40%	26.40%	26.40%	26.40%

Appendix 10e

Modified Base Scenario #3

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,512	220,976	222,364	224,504
7	Total	726,240	767,976	844,432	890,976	936,331	985,445
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,750	6,607
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,603)	(4,316)	3,961	7,906
13	Total Net Claims Incurred	767,240	789,235	899,885	948,620	1,004,579	1,060,168

Appendix 10f

Modified Base Scenario #3

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.67%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,466	470,037		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,487		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,674	20,159		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,220	15,126		
38	Change					2,363	(20,876)	(3,603)	(4,316)	3,961	7,906		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 10g

Modified Base Scenario #3

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	53	(0)	0	(2)
3	Marketable Bonds	44,259	55,077	62,148	67,909	73,123
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,491	84,212	87,760	90,814
6	Dividend and other Income					
7	Canadian Equities	9,657	5,866	4,663	5,431	6,210
8	Global	4,218	6,034	4,984	5,729	6,483
9	Global LV	-	2,904	3,300	3,803	4,411
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,688	26,828	28,843	30,907
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(17,483)	(749)	(765)	(763)
16	Marketable Bonds Realized Gains/(Loss)	13,969	17,483	749	765	763
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,811	0	0	1,457
19	Global Equities Realized Gains	66,318	3,787	0	0	1,897
20	Global LV Realized Gains	-	457	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	17,101	10,475	11,085	15,084
24	Other					
25	Investment Fees Paid	(5,203)	(4,746)	(4,617)	(4,922)	(5,183)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,600	4,697	4,683
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,177)	(14,330)	(14,982)	(15,707)
30	Total Corporate Investment Income	199,910	104,103	107,186	112,706	121,099
31	Total Basic Investment Income	171,428	79,601	83,014	86,199	88,936
32	% - Basic to Total Investment Income	85.75%	76%	77%	76%	73%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,951	4,934	5,747	6,930
35	US Equities Unrealized Gains/(Losses)	7,537	9,405	7,438	8,549	9,675
36	Global LV Unrealized Gains/(Losses)	-	4,226	4,505	5,193	6,023
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,356	12,372	14,296	16,605
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,746.1	1,903.9	2,063.0	2,240.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.8	153.1	176.9	187.5
43	Global Equities	166.6	170.3	196.5	224.4	238.0
44	Global LV Equities	96.5	116.7	135.2	154.6	178.7
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,096.2	3,285.6	3,482.8	3,678.7
49	Total Basic Assets	2,388.6	2,495.8	2,603.4	2,715.8	2,827.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	57.9%	59.2%	60.9%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.7%	5.1%	5.1%
55	US Equities	5.7%	5.5%	6.0%	6.4%	6.5%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.9%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 11a

Adverse Scenario #3

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,531	29,438	31,521
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,644	1,241,660	1,292,426
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,414	1,124,933	995,314	1,055,945
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,371	1,137,323	999,538	1,061,980
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,352	1,289,943	1,158,253	1,223,281
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,570	168,923	175,192
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,473)	(258,868)	(85,516)	(106,047)
26	Investment Income	48,476	101,645	111,731	192,209	63,496	59,173	57,106	56,427
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,949	102,377	(83)	26
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,445	161,550	57,023	56,453
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(30,028)	(97,319)	(28,493)	(49,594)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	283,992	89,987	(4,308)	(6,008)

Appendix 11b
Adverse Scenario #3
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,343	132,719	30,568	2,778
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(30,028)	(97,319)	(28,493)	(49,594)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,706)	(9,595)	(4,833)	703	11,327
6	Total Retained Earnings	194,498	99,251	170,975	172,343	132,719	30,568	2,778	(35,489)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,898)	(45,869)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(99)	311	6,030	5,566
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,869)	(40,302)
11	Total Equity Balance	231,002	181,000	210,845	120,232	80,510	(21,330)	(43,091)	(75,791)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,343	132,719	30,568	2,778	(35,489)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,869)	(40,302)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,232	80,510	(21,330)	(43,091)	(75,791)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,232	80,510	(21,330)	(43,091)	(75,791)

Appendix 11c
Adverse Scenario #3
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	45,704	12,766	9,455	13,652
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,920	2,538,558	2,721,384	2,795,084	2,865,325
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	2,806	4,643	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,083	63,096
14		2,683,473	2,805,484	2,916,137	2,894,955	3,123,947	3,287,690	3,376,567	3,467,593
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,861	2,266,427	2,332,701	2,409,338
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,438	3,309,020	3,419,658	3,541,456
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,343	132,719	30,568	2,778	(35,489)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,869)	(40,302)
27	Total Equity	231,003	181,000	210,845	120,232	80,510	(21,330)	(43,091)	(75,791)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,955	3,123,947	3,287,690	3,376,567	3,465,666

Appendix 11d
Adverse Scenario #3
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,577	33,393	(80,454)	(104,174)	(138,887)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,577	33,393	(80,454)	(104,174)	(138,887)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	113,479
12	Unpaid claims	22	192,187	214,814	238,393	245,231	253,234
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	342,626	353,609	366,713
16	Market Risk:						
17	Interest rate risk	30	2,556	3,489	4,995	7,506	9,887
18	Foreign exchange risk	32	13,056	15,160	15,413	13,827	13,967
19	Equity risk	34	56,391	67,626	68,159	57,750	54,803
20	Real estate risk	36	23,111	23,852	24,370	25,110	26,409
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,114	110,127	112,937	104,193	105,066
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,835	56,793	58,828	60,888	62,342
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,835	56,793	58,828	60,888	62,342
28	Operational risk margin	50	62,693	69,468	73,395	74,949	77,502
29	Less: Diversification credit	52	48,443	58,047	60,798	59,707	60,946
30	Total Capital (Margin) Required at Target	59	435,045	493,320	526,988	533,932	550,677
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,030	328,880	351,325	355,955	367,118
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,030	328,880	351,325	355,955	367,118
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,453)	(295,487)	(431,779)	(460,129)	(506,005)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.40%	10.15%	-22.90%	-29.27%	-37.83%

Appendix 11e
Adverse Scenario #3
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,969	334,650	222,442	223,715
7	Total	726,240	767,976	966,523	1,042,317	936,109	984,844
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,107	27,875	6,400	6,786
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	12,210	(509)	10,141
13	Total Net Claims Incurred	767,240	789,235	1,052,371	1,137,323	999,538	1,061,980

Appendix 11f

Adverse Scenario #3

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	76.33%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9447	0.9560	0.9895	1.0110	1.0139				
10	2021					0.9653	0.9983	1.0191	1.0212	1.0150			
11	2022						1.0041	1.0252	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				76.84%	71.31%	72.48%	74.34%	77.39%			74.55%	81.13%
17	2021					72.00%	73.13%	74.94%	77.95%	74.40%		74.16%	80.90%
18	2022						73.55%	75.38%	78.42%	74.86%	75.40%	75.21%	82.19%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.11%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.70%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,391	463,991	490,423		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,985	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,320	85,374	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	2,806	4,643	(4,107)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	29,760	29,251	35,285		
38	Change					2,363	(20,876)	6,371	12,210	(509)	6,034		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,107		
40	Change					2,001	(8,845)	-	-	-	4,107		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 11g

Adverse Scenario #3

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	(0)	(12)
3	Marketable Bonds	44,259	50,743	51,437	51,548	53,312
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,183	73,504	71,399	70,993
6	Dividend and other Income					
7	Canadian Equities	9,657	6,556	5,153	5,299	5,364
8	Global	4,218	6,756	5,575	5,627	5,897
9	Global LV	-	3,346	3,443	3,508	3,547
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,276	27,398	27,718	28,065
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,859	88,967	(12,742)	2,408
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,069	20,312	12,742	(2,408)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,240)	825	684
19	Global Equities Realized Gains	66,318	154	(87)	795	1,012
20	Global LV Realized Gains	-	49	11	253	1,047
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,877	118,438	12,957	14,474
24	Other					
25	Investment Fees Paid	(5,203)	(4,908)	(4,812)	(4,960)	(5,070)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,330)	(12,713)	(14,927)	(14,706)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,110)	(31,838)	(34,644)	(34,983)
30	Total Corporate Investment Income	199,910	223,226	198,543	77,432	78,551
31	Total Basic Investment Income	171,428	188,445	161,550	57,023	56,453
32	% - Basic to Total Investment Income	85.75%	84%	81%	74%	72%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,606	5,987
35	US Equities Unrealized Gains/(Losses)	7,537	88	(95)	8,398	8,800
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,790	4,843
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,082)	14,004	14,787
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	(1.9)
40	Canadian Fixed Income	1,760.8	1,791.0	2,000.7	2,224.6	2,389.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.5	172.4	155.2	163.6
43	Global Equities	166.6	199.4	221.9	207.4	217.1
44	Global LV Equities	96.5	127.8	143.7	135.7	132.5
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.9	3,446.7	3,597.9	3,745.9
49	Total Basic Assets	2,388.6	2,597.8	2,747.7	2,818.3	2,894.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	-0.1%
52	Canadian Fixed Income	60.1%	55.9%	58.0%	61.8%	63.8%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.3%	4.4%
55	US Equities	5.7%	6.2%	6.4%	5.8%	5.8%
56	Global LV	3.3%	4.0%	4.2%	3.8%	3.5%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 11h

Adverse Scenario #3 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,148,504	1,195,353	1,244,399
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,209,741	1,258,195	1,308,845
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,117,169	1,173,681	1,221,711
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,177,408	1,235,598	1,285,230
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,960	29,908	32,036
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,205,368	1,265,506	1,317,266
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,414	1,114,838	995,107	1,055,445
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,371	1,127,228	999,331	1,061,479
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,545	147,862
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,127	13,393
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,352	1,279,848	1,158,003	1,222,734
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,604	83,459
21	Commissions	33,862	35,086	37,378	40,338	42,630	45,007	47,218	49,076
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,672	37,424	38,920
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	162,254	170,361	176,689
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,473)	(236,735)	(62,858)	(82,157)
26	Investment Income	48,476	101,645	111,731	192,209	63,496	59,218	57,135	55,807
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	124,949	102,346	(72)	(10)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	188,445	161,564	57,063	55,797
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(30,028)	(75,171)	(5,795)	(26,360)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	283,992	89,956	(4,296)	(6,044)

Appendix 11i

Adverse Scenario #3 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	172,343	132,719	52,716	47,624
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(30,028)	(75,171)	(5,795)	(26,360)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(141,706)	(9,595)	(4,833)	703	11,327
6	Total Retained Earnings	194,498	99,251	170,975	172,343	132,719	52,716	47,624	32,591
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,210)	(51,898)	(45,809)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(99)	311	6,089	6,492
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,809)	(39,316)
11	Total Equity Balance	231,002	181,000	210,845	120,232	80,510	817	1,815	(6,725)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	172,343	132,719	52,716	47,624	32,591
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,809)	(39,316)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	120,232	80,510	817	1,815	(6,725)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	120,232	80,510	817	1,815	(6,725)

Appendix 11j

Adverse Scenario #3 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	45,704	26,633	42,576	66,651
4	Equity investments	2,083,349	2,189,534	2,272,545	2,345,920	2,538,558	2,723,423	2,800,577	2,874,536
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	395,129	410,520	426,618
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	13,593	15,637	7,410
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,085	63,098
14		2,683,473	2,805,484	2,916,137	2,894,955	3,123,947	3,320,451	3,432,488	3,543,787
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	616,118	642,674	670,576
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,861	2,266,458	2,332,705	2,405,230
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,438	3,319,634	3,430,673	3,548,809
24	Equity								
25	Retained earnings	194,499	99,251	170,975	172,343	132,719	52,716	47,624	32,591
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,210)	(51,898)	(45,809)	(39,316)
27	Total Equity	231,003	181,000	210,845	120,232	80,510	817	1,815	(6,725)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,894,955	3,123,947	3,320,451	3,432,488	3,542,084

Appendix 11k
Adverse Scenario #3 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	76,577	33,393	(58,306)	(59,270)	(69,823)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	76,577	33,393	(58,306)	(59,270)	(69,823)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	106,213	110,437	114,853
12	Unpaid claims	22	192,187	214,814	238,396	245,232	253,234
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	344,609	355,669	368,087
16	Market Risk:						
17	Interest rate risk	30	2,556	3,489	4,772	8,060	9,659
18	Foreign exchange risk	32	13,056	15,160	15,425	13,865	13,997
19	Equity risk	34	56,391	67,626	68,224	57,969	59,348
20	Real estate risk	36	23,111	23,852	24,370	25,110	26,409
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,114	110,127	112,791	105,004	109,413
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,835	56,793	60,226	62,348	63,473
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,835	56,793	60,226	62,348	63,473
28	Operational risk margin	50	62,693	69,468	74,242	75,912	78,704
29	Less: Diversification credit	52	48,443	58,047	61,212	60,388	62,418
30	Total Capital (Margin) Required at Target	59	435,045	493,320	530,656	538,545	557,259
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	290,030	328,880	353,771	359,030	371,506
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	290,030	328,880	353,771	359,030	371,506
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(213,453)	(295,487)	(412,077)	(418,300)	(441,329)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.40%	10.15%	-16.48%	-16.51%	-18.79%

Appendix 11l

Adverse Scenario #3 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,973	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,589	5,393	5,472
6	PIPP	187,022	177,326	341,969	334,665	222,428	223,712
7	Total	726,240	767,976	966,523	1,042,334	936,095	984,841
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,107	27,889	6,388	6,783
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	2,084	(688)	9,645
13	Total Net Claims Incurred	767,240	789,235	1,052,371	1,127,228	999,332	1,061,480

Appendix 11m

Adverse Scenario #3 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	75.53%	71.92%	72.89%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9261	0.9372	0.9701	0.9912	1.0045				
10	2021					0.9470	0.9794	0.9999	1.0124	1.0150			
11	2022						0.9851	1.0058	1.0185	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				75.33%	69.91%	71.06%	72.89%	75.87%			73.09%	79.54%
17	2021					70.64%	71.74%	73.52%	76.47%	73.00%		72.75%	79.37%
18	2022						72.16%	73.96%	76.93%	73.44%	73.97%	73.79%	80.64%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,177,408	1,235,598	1,285,230		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.02%	8.00%	7.94%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.67%	2.67%	2.65%		
25	Selected					3.16%	2.99%	2.86%	2.70%	2.67%	2.66%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	567,975	590,572	614,188		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,043	463,952	490,380		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	15,193	15,607	16,158		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,256	85,367	90,230		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	13,593	15,637	7,410		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	33,227	34,583	36,002		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	19,634	18,946	28,592		
38	Change					2,363	(20,876)	6,371	2,084	(688)	9,645		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 11n

Adverse Scenario #3 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	79	2	(0)	(21)
3	Marketable Bonds	44,259	50,743	51,624	52,218	53,598
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,183	73,691	72,069	71,271
6	Dividend and other Income					
7	Canadian Equities	9,657	6,556	5,127	5,206	6,000
8	Global	4,218	6,756	5,552	5,654	6,380
9	Global LV	-	3,346	3,426	3,446	3,774
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,276	27,332	27,590	29,410
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	97,859	88,987	(12,455)	2,389
16	Marketable Bonds Realized Gains/(Loss)	13,969	38,069	20,291	12,455	(2,389)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(299)	(1,240)	260	170
19	Global Equities Realized Gains	66,318	154	(87)	328	709
20	Global LV Realized Gains	-	49	11	249	194
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,877	118,438	11,923	12,803
24	Other					
25	Investment Fees Paid	(5,203)	(4,908)	(4,814)	(4,986)	(5,214)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,330)	(12,790)	(15,164)	(14,590)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,110)	(31,917)	(34,907)	(35,011)
30	Total Corporate Investment Income	199,910	223,226	198,584	76,675	78,473
31	Total Basic Investment Income	171,428	188,445	161,564	57,063	55,797
32	% - Basic to Total Investment Income	85.75%	84%	81%	74%	71%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,508	6,696
35	US Equities Unrealized Gains/(Losses)	7,537	88	(95)	8,437	9,521
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,705	5,153
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,082)	13,945	16,216
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	(1.7)
40	Canadian Fixed Income	1,760.8	1,791.0	2,026.8	2,229.9	2,376.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.5	168.1	170.9	193.8
43	Global Equities	166.6	199.4	217.2	222.8	242.5
44	Global LV Equities	96.5	127.8	140.1	135.3	152.7
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.9	3,460.0	3,633.9	3,808.8
49	Total Basic Assets	2,388.6	2,597.8	2,763.6	2,856.9	2,956.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.6%	61.4%	62.4%
53	MUSH	19.4%	16.3%	13.8%	11.9%	10.1%
54	Canadian Equities	4.2%	4.8%	4.9%	4.7%	5.1%
55	US Equities	5.7%	6.2%	6.3%	6.1%	6.4%
56	Global LV	3.3%	4.0%	4.0%	3.7%	4.0%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.3%	4.2%	4.1%	4.2%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.5%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 12a

Updated Base Scenario #4

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,111	995,327	1,051,242
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,716)	655	11,121	9,453
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,417	937,766	1,006,448	1,060,695
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,352	1,089,534	1,163,473	1,220,477
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,989)	(83,244)	(116,087)	(129,635)
26	Investment Income	48,476	101,645	111,731	192,131	87,044	92,631	96,915	100,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,528)	(7,424)	4,473	2,029
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,515	85,206	101,387	102,402
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,812)	(8,079)	(6,648)	(7,424)

Appendix 12b
Updated Base Scenario #4
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	316,493	318,456	303,756
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,784)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,202	11,214
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
11	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953

Appendix 12c
Updated Base Scenario #4
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	47,134	36,299	19,279	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,544,598	2,646,458	2,767,091	2,874,836
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,761
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,677	389,271	405,961
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,964	1,934,073	2,010,737	2,084,197
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,555	2,962,957	3,084,134	3,202,656
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	316,493	318,456	303,756	276,523
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
27	Total Equity	231,003	181,000	210,845	264,856	272,319	283,470	278,972	262,953
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609

Appendix 12d
Updated Base Scenario #4
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	225,199	224,288	217,770	199,717
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	225,199	224,288	217,770	199,717
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,031	204,518	212,902	221,010
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
16	Market Risk:						
17	Interest rate risk	30	6,468	21,726	25,600	29,355	34,758
18	Foreign exchange risk	32	15,640	15,260	16,262	17,838	20,919
19	Equity risk	34	69,313	67,256	71,783	79,552	84,976
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,141	141,244	155,278	170,690
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	60,210	62,400	63,916	65,125
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	60,210	62,400	63,916	65,125
28	Operational risk margin	50	64,552	69,195	72,353	75,892	79,568
29	Less: Diversification credit	52	53,910	61,979	65,356	69,428	73,655
30	Total Capital (Margin) Required at Target	59	453,309	493,523	517,059	544,511	572,923
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	329,016	344,706	363,008	381,949
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	329,016	344,706	363,008	381,949
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(103,817)	(120,418)	(145,238)	(182,232)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	68.45%	65.07%	59.99%	52.29%

Appendix 12e
Updated Base Scenario #4
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,124	223,369	224,650
7	Total	726,240	759,725	821,952	882,030	937,339	985,583
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,630
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,272
13	Total Net Claims Incurred	767,240	778,719	883,418	937,767	1,006,447	1,060,694

Appendix 12f

Updated Base Scenario #4

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,761		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,679		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,272		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 12g

Updated Base Scenario #4

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,517	63,687	69,947	76,032
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,013	85,752	89,798	93,725
6	Dividend and other Income					
7	Canadian Equities	9,657	5,675	4,509	5,224	5,711
8	Global	4,218	5,958	4,843	5,540	5,968
9	Global LV	-	2,881	3,193	3,661	4,018
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,449	26,578	28,448	29,637
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,139)	(7,824)	2,711	578
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(40)	2,026	1,546
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,659	0	0	747
19	Global Equities Realized Gains	66,319	3,761	0	0	889
20	Global LV Realized Gains	-	459	-	-	908
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,818)	2,619	15,831	16,407
24	Other					
25	Investment Fees Paid	(5,204)	(4,706)	(4,555)	(4,835)	(5,034)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,796	7,626	7,682	7,391
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,782)	(11,242)	(11,910)	(12,850)
30	Total Corporate Investment Income	191,042	78,800	102,766	122,681	127,153
31	Total Basic Investment Income	163,818	62,515	85,206	101,387	102,402
32	% - Basic to Total Investment Income	85.75%	79%	83%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,724	4,771	5,528	6,373
35	US Equities Unrealized Gains/(Losses)	7,538	9,289	7,228	8,268	8,906
36	Global LV Unrealized Gains/(Losses)	-	4,193	4,359	4,999	5,487
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,013	11,999	13,796	15,280
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.5	1,990.6	2,149.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	127.9	145.4	168.7	184.2
43	Global Equities	166.7	167.1	188.1	215.5	234.8
44	Global LV Equities	96.6	114.2	128.6	147.7	158.1
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.1	3,203.9	3,385.2	3,559.5
49	Total Basic Assets	2,522.7	2,605.3	2,696.3	2,800.1	2,890.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	60.4%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.6%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.4%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 13a

Modified Base Scenario #4

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,112	995,327	1,051,240
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,714)	654	11,120	9,416
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,420	937,766	1,006,447	1,060,656
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,355	1,089,534	1,163,472	1,220,438
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,991)	(83,244)	(116,086)	(129,596)
26	Investment Income	48,476	101,645	111,731	192,131	81,764	87,106	90,962	94,243
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,110)	(7,296)	4,394	1,988
28	Net Investment Income	(4,038)	82,897	116,320	163,818	57,654	79,810	95,356	96,231
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(5,337)	(3,434)	(20,731)	(33,366)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,396)	(7,950)	(6,725)	(7,429)

Appendix 13b

Modified Base Scenario #4

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	173,752	177,022	185,905	184,553
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(5,337)	(3,434)	(20,731)	(33,366)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(143,215)	8,607	12,316	19,378	31,339
6	Total Retained Earnings	194,498	99,251	170,975	173,752	177,022	185,905	184,553	182,526
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,979)	(38,838)	(30,826)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,132	7,141	8,013	8,832
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,979)	(38,838)	(30,826)	(21,993)
11	Total Equity Balance	231,002	181,000	210,845	121,641	131,043	147,067	153,727	160,533
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	173,752	177,022	185,905	184,553	182,526
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,979)	(38,838)	(30,826)	(21,993)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,641	131,043	147,067	153,727	160,533
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,641	131,043	147,067	153,727	160,533

Appendix 13c
Modified Base Scenario #4
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	55,235	56,587	58,926	59,134
4	Equity investments	2,083,349	2,189,534	2,272,545	2,336,645	2,395,225	2,489,772	2,602,205	2,713,256
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,763
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	2,886,731	2,983,603	3,110,030	3,237,866	3,363,165
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,994	372,681	389,277	405,974
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,966	1,934,074	2,010,737	2,084,161
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,560	2,962,963	3,084,139	3,202,632
24	Equity								
25	Retained earnings	194,499	99,251	170,975	173,752	177,022	185,905	184,553	182,526
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,979)	(38,838)	(30,826)	(21,993)
27	Total Equity	231,003	181,000	210,845	121,641	131,043	147,067	153,727	160,533
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,886,731	2,983,603	3,110,030	3,237,866	3,363,165

Appendix 13d
Modified Base Scenario #4
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,986	83,923	87,885	92,525	97,296
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,986	83,923	87,885	92,525	97,296
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,032	204,519	212,902	221,006
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,957	306,419	318,853	331,191
16	Market Risk:						
17	Interest rate risk	30	979	13,655	17,244	20,605	25,614
18	Foreign exchange risk	32	13,062	12,562	13,383	14,768	17,425
19	Equity risk	34	56,424	53,782	57,388	64,173	68,532
20	Real estate risk	36	23,119	23,859	24,378	25,119	26,418
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,584	103,858	112,393	124,665	137,989
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,853	55,537	57,710	59,174	60,336
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,853	55,537	57,710	59,174	60,336
28	Operational risk margin	50	62,482	66,479	69,502	72,887	76,381
29	Less: Diversification credit	52	48,009	55,076	58,251	62,145	66,155
30	Total Capital (Margin) Required at Target	59	432,790	465,755	487,773	513,434	539,742
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,527	310,503	325,182	342,289	359,828
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,527	310,503	325,182	342,289	359,828
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,541)	(226,580)	(237,297)	(249,764)	(262,532)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.03%	27.03%	27.03%	27.03%	27.04%

Appendix 13e

Modified Base Scenario #4

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,251	212,123	223,368	224,619
7	Total	726,240	759,725	821,953	882,030	937,339	985,552
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,624
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,181	(4,722)	4,653	8,270
13	Total Net Claims Incurred	767,240	778,719	883,419	937,766	1,006,446	1,060,656

Appendix 13f

Modified Base Scenario #4

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,419		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,763		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,677		
38	Change					2,363	(21,760)	6,181	(4,722)	4,653	8,270		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 13g

Modified Base Scenario #4

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	78	(0)	0	(3)
3	Marketable Bonds	44,245	55,418	63,666	69,877	75,465
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	79,857	85,731	89,729	93,155
6	Dividend and other Income					
7	Canadian Equities	9,657	5,842	4,520	5,256	5,941
8	Global	4,218	6,005	4,853	5,568	6,238
9	Global LV	-	2,883	3,204	3,686	4,129
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,665	26,611	28,532	30,247
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(38,777)	(7,823)	2,711	600
16	Marketable Bonds Realized Gains/(Loss)	11,781	13,055	(41)	2,024	1,547
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,849	0	0	0
19	Global Equities Realized Gains	66,319	3,829	0	0	0
20	Global LV Realized Gains	-	459	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,533)	2,619	15,828	13,886
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,558)	(4,843)	(5,077)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,783	7,622	7,672	7,325
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,814)	(11,249)	(11,928)	(12,959)
30	Total Corporate Investment Income	191,042	79,113	102,771	122,674	124,563
31	Total Basic Investment Income	163,818	57,654	79,810	95,356	96,231
32	% - Basic to Total Investment Income	85.75%	73%	78%	78%	77%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,922	4,783	5,561	6,630
35	US Equities Unrealized Gains/(Losses)	7,538	9,360	7,243	8,309	9,309
36	Global LV Unrealized Gains/(Losses)	-	4,196	4,375	5,033	5,637
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,282	12,025	13,870	15,939
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.3	1,844.8	1,987.1	2,134.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	128.1	146.1	170.0	189.3
43	Global Equities	166.7	167.3	188.9	216.9	239.7
44	Global LV Equities	96.6	114.5	129.3	149.0	164.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.5	3,204.2	3,385.7	3,561.0
49	Total Basic Assets	2,379.5	2,464.0	2,559.9	2,674.9	2,787.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.7%	59.9%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.8%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.3%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.7%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.6%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 14a

Adverse Scenario #4

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,928	1,011,316	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,885	1,023,706	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,820	1,176,247	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,532)	(170,471)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	74,291	72,457	76,786	77,258
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,605	39,097	4,931	2,274
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,895	111,555	81,717	79,532
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(106,637)	(58,916)	(39,238)	(60,659)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,647	26,707	706	(3,760)

Appendix 14b
Adverse Scenario #4
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	173,288	75,258	28,659	8,798
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(106,637)	(58,916)	(39,238)	(60,659)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(143,215)	8,607	12,316	19,378	31,339
6	Total Retained Earnings	194,498	99,251	170,975	173,288	75,258	28,659	8,798	(20,522)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,605)	(51,918)	(45,410)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,494)	2,686	6,508	7,074
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,410)	(38,337)
11	Total Equity Balance	231,002	181,000	210,845	121,176	20,654	(23,260)	(36,612)	(58,858)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	173,288	75,258	28,659	8,798	(20,522)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,410)	(38,337)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,176	20,654	(23,260)	(36,612)	(58,858)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,176	20,654	(23,260)	(36,612)	(58,858)

Appendix 14c
Adverse Scenario #4
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	26,197	6,255	1,344	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,336,631	2,435,498	2,556,481	2,652,007	2,741,198
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	2,886,266	2,980,796	3,106,325	3,213,321	3,322,104
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,547	2,099,466	2,175,956	2,262,353
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,142	3,129,585	3,249,933	3,380,962
24	Equity								
25	Retained earnings	194,499	99,251	170,975	173,288	75,258	28,659	8,798	(20,522)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,410)	(38,337)
27	Total Equity	231,003	181,000	210,845	121,176	20,654	(23,260)	(36,612)	(58,858)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,886,266	2,980,796	3,106,325	3,213,321	3,322,104

Appendix 14d
Adverse Scenario #4
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,522	(26,467)	(82,392)	(97,724)	(121,989)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,522	(26,467)	(82,392)	(97,724)	(121,989)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,840	229,385	237,945
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,505	335,577	349,891
16	Market Risk:						
17	Interest rate risk	30	979	2,981	2,738	11,953	14,287
18	Foreign exchange risk	32	13,062	13,617	13,224	12,994	13,499
19	Equity risk	34	56,422	61,006	58,220	55,812	59,572
20	Real estate risk	36	23,118	23,859	24,378	25,118	26,418
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,581	101,463	98,560	105,877	113,776
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,808	54,091	56,435	58,351	60,038
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,808	54,091	56,435	58,351	60,038
28	Operational risk margin	50	62,478	67,136	69,670	72,641	75,887
29	Less: Diversification credit	52	47,997	54,850	55,628	58,564	61,697
30	Total Capital (Margin) Required at Target	59	432,750	474,366	492,542	513,882	537,895
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,500	316,244	328,361	342,588	358,596
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,500	316,244	328,361	342,588	358,596
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,978)	(342,711)	(410,753)	(440,312)	(480,585)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.87%	-8.37%	-25.09%	-28.53%	-34.02%

Appendix 14e
Adverse Scenario #4
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,765	278,213	232,391	231,660
7	Total	726,240	759,725	946,812	952,749	946,354	992,622
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,161	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,876	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,886	1,023,706	1,009,386	1,069,302

Appendix 14f

Adverse Scenario #4

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,746	458,059	483,537		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,465	84,283	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,087)	(1,288)	(9,418)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,087	1,288	9,418		
40	Change					2,001	(8,845)	3,478	609	(2,799)	8,130		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 14g

Adverse Scenario #4

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	2	0	(3)
3	Marketable Bonds	44,245	53,648	57,685	61,119	64,448
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,067	79,753	80,970	82,138
6	Dividend and other Income					
7	Canadian Equities	9,657	5,886	4,523	4,762	5,242
8	Global	4,218	6,004	4,613	4,822	5,288
9	Global LV	-	2,889	2,867	3,006	3,292
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,601	25,743	26,352	27,529
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,313	28,475	(1,199)	2,315
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,755	13,159	6,413	94
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,676)	(4,323)	84	0
19	Global Equities Realized Gains	66,318	(637)	(6,499)	106	0
20	Global LV Realized Gains	-	(99)	(4,074)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,708	37,221	16,568	14,148
24	Other					
25	Investment Fees Paid	(5,204)	(4,741)	(4,530)	(4,696)	(4,869)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(219)	(1,214)	(1,818)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,630)	(19,062)	(20,667)	(21,894)
30	Total Corporate Investment Income	191,037	131,746	128,381	103,755	102,163
31	Total Basic Investment Income	163,817	111,895	111,555	81,717	79,532
32	% - Basic to Total Investment Income	85.75%	85%	87%	79%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,841)	5,039	5,851
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,700)	7,196	7,891
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,278)	4,104	4,495
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,540)	12,234	13,742
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,693.0	1,869.1	2,032.0	2,158.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.1	142.8	150.1	167.0
43	Global Equities	166.7	171.2	174.6	183.9	203.3
44	Global LV Equities	96.6	110.5	113.7	118.7	131.3
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.2	3,202.0	3,354.0	3,500.3
49	Total Basic Assets	2,379.5	2,475.2	2,576.3	2,667.1	2,756.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.4%	60.6%	61.7%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.8%
55	US Equities	5.7%	5.6%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.5%	3.5%	3.8%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 14h

Adverse Scenario #4 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,120,997	1,166,733	1,214,612
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,182,234	1,229,574	1,279,058
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,090,405	1,145,576	1,192,463
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,440	29,337	31,414
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,178,084	1,236,830	1,287,396
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,928	1,001,467	1,004,773	1,062,819
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,885	1,013,857	1,008,997	1,068,853
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,040	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,076	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,820	1,166,398	1,167,113	1,229,645
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,353	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,273	44,142	46,308	48,129
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,869	36,581	38,043
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	160,551	168,356	174,652
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,532)	(148,866)	(98,640)	(116,901)
26	Investment Income	48,476	101,645	111,731	192,129	74,291	72,481	77,332	77,313
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,605	39,096	4,940	2,271
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,895	111,577	82,272	79,584
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(106,637)	(37,289)	(16,368)	(37,317)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,647	26,706	715	(3,763)

Appendix 14i

Adverse Scenario #4 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	173,288	75,258	50,286	53,297
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(106,637)	(37,289)	(16,368)	(37,317)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(143,215)	8,607	12,316	19,378	31,339
6	Total Retained Earnings	194,498	99,251	170,975	173,288	75,258	50,286	53,297	47,319
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,605)	(51,918)	(45,791)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,494)	2,686	6,127	6,861
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,791)	(38,931)
11	Total Equity Balance	231,002	181,000	210,845	121,176	20,654	(1,632)	7,505	8,388
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	173,288	75,258	50,286	53,297	47,319
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,791)	(38,931)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,176	20,654	(1,632)	7,505	8,388
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,176	20,654	(1,632)	7,505	8,388

Appendix 14j

Adverse Scenario #4 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	26,197	19,800	33,664	49,357
4	Equity investments	2,083,349	2,189,534	2,272,545	2,336,631	2,435,498	2,558,477	2,657,479	2,752,473
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	387,833	402,929	418,718
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	6,456	9,455	1,835
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,114	63,133
14		2,683,473	2,805,484	2,916,137	2,886,266	2,980,796	3,134,247	3,266,735	3,390,989
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	603,394	629,434	656,797
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,547	2,095,427	2,174,501	2,252,801
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,142	3,135,879	3,259,229	3,382,601
24	Equity								
25	Retained earnings	194,499	99,251	170,975	173,288	75,258	50,286	53,297	47,319
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,605)	(51,918)	(45,791)	(38,931)
27	Total Equity	231,003	181,000	210,845	121,176	20,654	(1,632)	7,505	8,388
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,886,266	2,980,796	3,134,247	3,266,735	3,390,989

Appendix 14k
Adverse Scenario #4 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	77,522	(26,467)	(60,765)	(53,608)	(54,745)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	77,522	(26,467)	(60,765)	(53,608)	(54,745)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	103,833	107,962	112,277
12	Unpaid claims	22	191,221	207,950	220,845	229,369	237,932
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	324,678	337,331	350,209
16	Market Risk:						
17	Interest rate risk	30	979	2,981	3,439	13,697	16,103
18	Foreign exchange risk	32	13,062	13,617	13,232	12,737	13,205
19	Equity risk	34	56,422	61,006	58,274	53,054	60,185
20	Real estate risk	36	23,118	23,859	24,378	25,118	26,418
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,581	101,463	99,323	104,606	115,911
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,808	54,091	57,393	59,629	60,457
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,808	54,091	57,393	59,629	60,457
28	Operational risk margin	50	62,478	67,136	70,474	73,372	76,735
29	Less: Diversification credit	52	47,997	54,850	56,120	58,659	62,338
30	Total Capital (Margin) Required at Target	59	432,750	474,366	495,748	516,279	540,974
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,500	316,244	330,499	344,186	360,649
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,500	316,244	330,499	344,186	360,649
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,978)	(342,711)	(391,264)	(397,794)	(415,394)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	26.87%	-8.37%	-18.39%	-15.58%	-15.18%

Appendix 14l

Adverse Scenario #4 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,916	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,342	5,395
6	PIPP	187,022	169,153	273,765	278,254	232,208	231,688
7	Total	726,240	759,725	946,812	952,790	946,170	992,651
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,967	6,988
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	(8,021)	(1,676)	9,005
13	Total Net Claims Incurred	767,240	779,170	1,038,886	1,013,857	1,008,997	1,068,853

Appendix 14m

Adverse Scenario #4 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.02%	73.59%	74.59%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9520	0.9625	0.9953	1.0032	1.0053				
10	2021					0.9722	1.0047	1.0122	1.0136	1.0155			
11	2022						1.0094	1.0174	1.0194	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				77.44%	71.79%	72.91%	79.63%	75.42%			75.25%	80.54%
17	2021					72.51%	73.60%	80.34%	76.05%	74.73%		74.79%	80.17%
18	2022						73.94%	80.76%	76.47%	75.19%	75.71%	75.79%	81.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.20%	8.16%	8.11%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.73%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.73%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	555,251	577,333	600,409		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,394	458,012	483,487		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	15,110	15,581	16,115		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,401	84,274	88,962		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	6,456	9,455	1,835		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	32,432	33,755	35,140		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	25,975	24,299	33,305		
38	Change					2,363	(21,308)	19,771	(4,543)	(1,676)	9,005		
39	18. Premium Deficiency [c]					8,845	-	3,478	-	-	-		
40	Change					2,001	(8,845)	3,478	(3,478)	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 14n

Adverse Scenario #4 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	3	(0)	(3)
3	Marketable Bonds	44,245	53,648	57,749	61,316	65,103
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,067	79,817	81,168	82,793
6	Dividend and other Income					
7	Canadian Equities	9,657	5,886	4,552	4,912	5,358
8	Global	4,218	6,004	4,639	4,955	5,434
9	Global LV	-	2,889	2,886	3,105	3,485
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,601	25,816	26,734	27,984
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,313	28,541	(481)	922
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,755	13,093	5,703	1,503
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,676)	(4,323)	411	0
19	Global Equities Realized Gains	66,318	(637)	(6,499)	278	0
20	Global LV Realized Gains	-	(99)	(4,074)	63	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,708	37,221	17,067	14,163
24	Other					
25	Investment Fees Paid	(5,204)	(4,741)	(4,539)	(4,733)	(4,913)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(227)	(1,258)	(1,981)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,630)	(19,079)	(20,748)	(22,101)
30	Total Corporate Investment Income	191,037	131,746	128,501	104,754	103,082
31	Total Basic Investment Income	163,817	111,895	111,577	82,272	79,584
32	% - Basic to Total Investment Income	85.75%	85%	87%	79%	77%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,841)	5,197	5,980
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,700)	7,394	8,110
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,278)	4,239	4,759
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,540)	12,591	14,090
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,693.0	1,876.0	2,059.4	2,187.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.1	145.0	149.3	181.7
43	Global Equities	166.7	171.2	176.9	187.6	211.3
44	Global LV Equities	96.6	110.5	115.5	124.6	140.7
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.2	3,215.2	3,390.2	3,560.8
49	Total Basic Assets	2,379.5	2,475.2	2,591.8	2,704.9	2,817.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.3%	60.7%	61.4%
53	MUSH	19.5%	17.2%	14.8%	12.8%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.4%	5.1%
55	US Equities	5.7%	5.6%	5.5%	5.5%	5.9%
56	Global LV	3.3%	3.6%	3.6%	3.7%	4.0%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 15a

Updated Base Scenario #5

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,904	1,050,847
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,684)	643	11,004	9,108
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,866	937,585	1,005,908	1,059,955
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,932	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,801	1,089,307	1,162,887	1,219,691
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,230)	(63,994)	(95,683)	(108,201)
26	Investment Income	48,476	101,645	111,731	192,131	87,069	92,756	97,119	100,477
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,536)	(7,429)	4,485	2,067
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,532	85,328	101,604	102,544
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,853)	(8,072)	(6,519)	(7,041)

Appendix 15b
Updated Base Scenario #5
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	335,269	356,602	362,523
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,699)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,286	11,686
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
11	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854

Appendix 15c
Updated Base Scenario #5
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	58,910	64,447	64,445	50,937
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,318	2,651,130	2,775,056	2,898,494
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,189	29,371	26,461	19,965
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,185	61,207	63,242
14		2,683,473	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,983
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,996	1,934,094	2,010,642	2,083,755
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,574	2,972,338	3,093,785	3,212,367
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	335,269	356,602	362,523	356,867
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
27	Total Equity	231,003	181,000	210,845	264,856	291,095	321,617	337,824	343,854
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221

Appendix 15d
Updated Base Scenario #5
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	243,975	262,432	276,617	280,612
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	243,975	262,432	276,617	280,612
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,965
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,044
16	Market Risk:						
17	Interest rate risk	30	6,468	21,932	26,165	29,932	34,203
18	Foreign exchange risk	32	15,640	15,260	16,262	17,953	20,895
19	Equity risk	34	69,313	67,256	71,783	80,213	88,365
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,347	141,809	156,631	173,500
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,398	63,645	65,227	66,439
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,398	63,645	65,227	66,439
28	Operational risk margin	50	64,552	69,943	73,161	76,798	80,623
29	Less: Diversification credit	52	53,910	62,394	65,858	70,094	74,586
30	Total Capital (Margin) Required at Target	59	453,309	496,935	520,928	549,225	579,020
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,290	347,285	366,150	386,013
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,290	347,285	366,150	386,013
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(87,315)	(84,853)	(89,533)	(105,401)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.64%	75.57%	75.55%	72.70%

Appendix 15e
Updated Base Scenario #5
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,277	212,114	223,270	224,355
7	Total	726,240	759,725	821,980	882,021	937,240	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,536	6,902	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,879
13	Total Net Claims Incurred	767,240	778,719	874,866	937,585	1,005,909	1,059,954

Appendix 15f

Updated Base Scenario #5

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.77%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,364		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,995		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,189	29,371	26,461	19,965		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,109		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,879		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 15g

Updated Base Scenario #5

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,595	64,011	70,511	76,775
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,092	86,075	90,362	94,468
6	Dividend and other Income					
7	Canadian Equities	9,657	5,689	4,604	5,457	6,047
8	Global	4,218	5,975	4,928	5,748	6,334
9	Global LV	-	2,896	3,260	3,820	4,241
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,494	26,825	29,048	30,560
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,165)	(7,848)	2,722	591
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(35)	2,044	1,566
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,638	0	0	757
19	Global Equities Realized Gains	66,319	3,740	0	0	1,012
20	Global LV Realized Gains	-	459	-	-	905
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,887)	2,599	15,860	16,569
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,580)	(4,899)	(5,141)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,806	7,676	7,767	7,491
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,779)	(11,217)	(11,889)	(12,857)
30	Total Corporate Investment Income	191,042	78,858	103,342	123,896	128,975
31	Total Basic Investment Income	163,818	62,532	85,328	101,604	102,544
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,740	4,871	5,774	6,748
35	US Equities Unrealized Gains/(Losses)	7,538	9,315	7,354	8,579	9,452
36	Global LV Unrealized Gains/(Losses)	-	4,214	4,451	5,216	5,790
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,055	12,225	14,353	16,200
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,711.0	1,863.7	2,016.0	2,176.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.6	150.3	178.2	201.5
43	Global Equities	166.7	168.9	193.4	225.8	253.0
44	Global LV Equities	96.6	115.7	132.8	155.8	172.4
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,056.7	3,235.3	3,438.4	3,636.4
49	Total Basic Assets	2,522.7	2,618.8	2,729.1	2,853.3	2,964.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.6%	59.9%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.6%	7.0%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 16a

Modified Base Scenario #5

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,905	1,050,851
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,683)	642	11,004	9,191
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,867	937,584	1,005,908	1,060,042
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,802	1,089,308	1,162,887	1,219,778
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,231)	(63,995)	(95,683)	(108,288)
26	Investment Income	48,476	101,645	111,731	192,131	81,815	87,256	91,197	94,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,121)	(7,302)	4,405	2,033
28	Net Investment Income	(4,038)	82,897	116,320	163,818	57,693	79,953	95,602	96,406
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	13,462	15,958	(81)	(11,882)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,438)	(7,944)	(6,598)	(7,158)

Appendix 16b
Modified Base Scenario #5
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	174,496	178,437	187,442	186,162
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	13,462	15,958	(81)	(11,882)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,471)	(9,522)	(6,953)	(1,199)	9,635
6	Total Retained Earnings	194,498	99,251	170,975	174,496	178,437	187,442	186,162	183,915
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,970)	(38,818)	(30,709)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,141	7,151	8,109	9,317
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
11	Total Equity Balance	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	174,496	178,437	187,442	186,162	183,915
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522

Appendix 16c
Modified Base Scenario #5
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	48,883	47,337	46,120	42,238
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,389	2,397,722	2,495,252	2,611,014	2,725,965
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,188	29,371	26,461	19,961
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	2,887,475	2,994,046	3,120,966	3,249,242	3,374,989
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,995	372,684	389,288	406,000
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,997	1,934,094	2,010,642	2,083,838
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,579	2,972,342	3,093,790	3,212,467
24	Equity								
25	Retained earnings	194,499	99,251	170,975	174,496	178,437	187,442	186,162	183,915
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
27	Total Equity	231,003	181,000	210,845	122,385	132,467	148,623	155,452	162,522
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,887,475	2,994,046	3,120,966	3,249,242	3,374,989

Appendix 16d
Modified Base Scenario #5
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,731	85,347	89,439	94,246	99,281
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,731	85,347	89,439	94,246	99,281
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,974
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,053
16	Market Risk:						
17	Interest rate risk	30	941	13,906	17,853	21,226	25,095
18	Foreign exchange risk	32	13,075	12,576	13,398	14,898	17,418
19	Equity risk	34	56,490	53,852	57,463	64,913	72,007
20	Real estate risk	36	23,133	23,875	24,395	25,136	26,437
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,639	104,209	113,109	126,173	140,957
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,856	56,750	58,979	60,509	61,674
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,856	56,750	58,979	60,509	61,674
28	Operational risk margin	50	62,487	67,241	70,325	73,808	77,452
29	Less: Diversification credit	52	48,024	55,542	58,814	62,894	67,207
30	Total Capital (Margin) Required at Target	59	432,838	469,299	491,770	518,259	545,929
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,559	312,866	327,847	345,506	363,953
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,559	312,866	327,847	345,506	363,953
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(209,828)	(227,519)	(238,408)	(251,260)	(264,672)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.28%	27.28%	27.28%	27.28%	27.28%

Appendix 16e
Modified Base Scenario #5
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,278	212,114	223,270	224,426
7	Total	726,240	759,725	821,981	882,020	937,240	985,357
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,535	6,902	6,592
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,883
13	Total Net Claims Incurred	767,240	778,719	874,867	937,584	1,005,908	1,060,042

Appendix 16f

Modified Base Scenario #5

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,367		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,188	29,371	26,461	19,961		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,113		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,883		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 16g

Modified Base Scenario #5

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	78	0	0	(3)
3	Marketable Bonds	44,245	55,497	63,990	70,442	76,068
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	79,936	86,055	90,293	93,758
6	Dividend and other Income					
7	Canadian Equities	9,657	5,855	4,615	5,488	6,415
8	Global	4,218	6,021	4,938	5,776	6,531
9	Global LV	-	2,898	3,271	3,845	4,447
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,709	26,857	29,132	31,331
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(38,868)	(7,848)	2,721	611
16	Marketable Bonds Realized Gains/(Loss)	11,781	13,118	(36)	2,042	1,565
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,825	0	0	1,636
19	Global Equities Realized Gains	66,319	3,806	0	0	1,794
20	Global LV Realized Gains	-	459	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,608)	2,599	15,857	17,346
24	Other					
25	Investment Fees Paid	(5,204)	(4,733)	(4,586)	(4,905)	(5,176)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,793	7,673	7,757	7,409
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,812)	(11,226)	(11,905)	(12,974)
30	Total Corporate Investment Income	191,042	79,163	103,344	123,890	129,696
31	Total Basic Investment Income	163,818	57,693	79,953	95,602	96,406
32	% - Basic to Total Investment Income	85.75%	73%	77%	77%	74%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,937	4,883	5,807	7,159
35	US Equities Unrealized Gains/(Losses)	7,538	9,386	7,369	8,620	9,746
36	Global LV Unrealized Gains/(Losses)	-	4,217	4,467	5,250	6,071
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,323	12,252	14,427	16,905
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.9	1,861.9	2,012.5	2,197.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.7	151.0	179.5	187.8
43	Global Equities	166.7	169.1	194.1	227.2	239.9
44	Global LV Equities	96.6	116.0	133.5	157.0	179.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,057.1	3,235.7	3,438.9	3,638.0
49	Total Basic Assets	2,380.2	2,460.2	2,556.1	2,670.9	2,783.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.5%	58.5%	60.4%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.7%	5.2%	5.2%
55	US Equities	5.7%	5.5%	6.0%	6.6%	6.6%
56	Global LV	3.3%	3.8%	4.1%	4.6%	4.9%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 17a

Adverse Scenario #5

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,403	29,296	31,367
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,185,898	1,234,630	1,285,103
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,328	1,011,023	1,004,605	1,062,967
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,285	1,023,413	1,008,830	1,069,001
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,220	1,175,910	1,166,959	1,229,793
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,101	168,229	174,512
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,724)	(151,114)	(100,557)	(119,202)
26	Investment Income	48,476	101,645	111,731	192,129	74,336	72,529	76,919	77,509
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,610	39,137	4,927	2,269
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,946	111,666	81,845	79,778
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(87,778)	(39,448)	(18,712)	(39,423)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,652	26,747	702	(3,766)

Appendix 17b
Adverse Scenario #5
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	174,032	76,733	30,331	10,420
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(87,778)	(39,448)	(18,712)	(39,423)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,471)	(9,522)	(6,953)	(1,199)	9,635
6	Total Retained Earnings	194,498	99,251	170,975	174,032	76,733	30,331	10,420	(19,368)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,610)	(51,918)	(45,200)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,499)	2,692	6,718	7,302
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,200)	(37,898)
11	Total Equity Balance	231,002	181,000	210,845	121,921	22,122	(21,587)	(34,780)	(57,266)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	174,032	76,733	30,331	10,420	(19,368)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,200)	(37,898)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,921	22,122	(21,587)	(34,780)	(57,266)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,921	22,122	(21,587)	(34,780)	(57,266)

Appendix 17c
Adverse Scenario #5
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	19,843	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,375	2,437,993	2,558,919	2,649,273	2,736,725
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	5,262	8,507	774
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	2,887,010	2,987,771	3,113,138	3,223,336	3,324,219
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,067	2,095,250	2,174,404	2,252,743
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,649	3,134,725	3,258,116	3,381,485
24	Equity								
25	Retained earnings	194,499	99,251	170,975	174,032	76,733	30,331	10,420	(19,368)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,200)	(37,898)
27	Total Equity	231,003	181,000	210,845	121,921	22,122	(21,587)	(34,780)	(57,266)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,887,010	2,987,771	3,113,138	3,223,336	3,324,219

Appendix 17d
Adverse Scenario #5
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,266	(24,998)	(80,722)	(95,896)	(120,401)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,266	(24,998)	(80,722)	(95,896)	(120,401)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	207,950	220,828	229,359	237,926
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	324,478	337,130	350,005
16	Market Risk:						
17	Interest rate risk	30	941	3,623	3,451	12,471	16,182
18	Foreign exchange risk	32	13,075	13,640	13,338	13,191	13,726
19	Equity risk	34	56,489	61,119	58,957	57,035	60,882
20	Real estate risk	36	23,133	23,875	24,395	25,136	26,436
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,638	102,257	100,141	107,833	117,226
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,811	54,956	57,269	59,536	60,490
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,811	54,956	57,269	59,536	60,490
28	Operational risk margin	50	62,483	67,850	70,463	73,566	76,775
29	Less: Diversification credit	52	48,012	55,308	56,283	59,421	62,653
30	Total Capital (Margin) Required at Target	59	432,800	477,311	496,068	518,644	541,843
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,533	318,207	330,712	345,762	361,229
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,533	318,207	330,712	345,762	361,229
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,267)	(343,205)	(411,434)	(441,658)	(481,630)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.13%	-7.86%	-24.41%	-27.73%	-33.33%

Appendix 17e
Adverse Scenario #5
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,764	278,105	232,277	231,721
7	Total	726,240	759,725	946,810	952,639	946,239	992,683
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,142	6,978	6,993
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	1,710	(1,924)	9,115
13	Total Net Claims Incurred	767,240	779,170	1,030,285	1,023,413	1,008,830	1,069,001

Appendix 17f

Adverse Scenario #5

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	74.51%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9544	0.9649	0.9977	1.0153	1.0146				
10	2021					0.9739	1.0065	1.0236	1.0224	1.0155			
11	2022						1.0112	1.0289	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				77.63%	71.97%	73.09%	79.83%	75.61%			75.44%	80.74%
17	2021					72.64%	73.73%	80.49%	76.18%	74.87%		74.93%	80.32%
18	2022						74.07%	80.90%	76.61%	75.32%	75.84%	75.93%	81.49%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.15%	8.18%	8.12%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%
25	Selected					3.16%	2.99%	2.87%	2.73%	2.72%	2.72%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	532,647	554,274	576,316	599,350
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	390,881	424,060	442,705	458,012	483,489
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	15,103	14,958	15,513	16,116
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,922	78,027	81,458	84,274	88,962
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,742	5,682	5,262	8,507	774
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	31,080	32,370	33,691	35,074
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	10,747	25,398	27,108	25,184	34,299
38	Change	2,363	(21,308)	14,651	1,710	(1,924)	9,115
39	18. Premium Deficiency [c]	8,845	-	-	-	-	-
40	Change	2,001	(8,845)	-	-	-	-

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 17g

Adverse Scenario #5

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	3	0	(3)
3	Marketable Bonds	44,245	53,716	57,873	61,496	65,083
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,135	79,941	81,347	82,773
6	Dividend and other Income					
7	Canadian Equities	9,657	5,900	4,644	5,023	5,639
8	Global	4,218	6,022	4,720	5,045	5,631
9	Global LV	-	2,905	2,952	3,183	3,558
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,650	26,056	27,013	28,534
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,305	29,304	(773)	2,342
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,763	12,435	6,004	72
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,674)	(4,371)	78	0
19	Global Equities Realized Gains	66,318	(629)	(6,547)	98	0
20	Global LV Realized Gains	-	(99)	(4,106)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,717	37,197	16,567	14,153
24	Other					
25	Investment Fees Paid	(5,204)	(4,743)	(4,566)	(4,764)	(4,968)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(250)	(1,293)	(1,958)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,632)	(19,129)	(20,814)	(22,133)
30	Total Corporate Investment Income	191,037	131,870	128,791	104,646	103,570
31	Total Basic Investment Income	163,817	111,946	111,666	81,845	79,778
32	% - Basic to Total Investment Income	85.75%	85%	87%	78%	77%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,887)	5,314	6,293
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,740)	7,529	8,404
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,311)	4,346	4,859
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,627)	12,844	14,696
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,699.4	1,883.1	2,054.9	2,193.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.8	148.7	160.4	181.4
43	Global Equities	166.7	173.0	180.6	194.6	218.5
44	Global LV Equities	96.6	112.1	118.8	127.4	143.4
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.8	3,233.0	3,406.7	3,576.3
49	Total Basic Assets	2,380.2	2,471.4	2,572.5	2,663.0	2,752.0
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.2%	60.3%	61.3%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.6%	4.7%	5.1%
55	US Equities	5.7%	5.7%	5.6%	5.7%	6.1%
56	Global LV	3.3%	3.7%	3.7%	3.7%	4.0%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 5h

Adverse Scenario #5 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,141,627	1,188,198	1,236,952
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,202,864	1,251,040	1,301,398
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,110,478	1,166,655	1,214,399
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,170,717	1,228,571	1,277,918
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,830	29,764	31,879
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,198,547	1,258,335	1,309,797
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,328	1,001,001	1,004,452	1,062,445
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,285	1,013,391	1,008,677	1,068,479
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,010	147,401
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,073	13,345
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,220	1,165,888	1,166,760	1,229,225
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,339	83,226
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,791	46,990	48,840
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,471	37,214	38,701
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,781	169,658	176,000
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,724)	(129,123)	(78,082)	(95,428)
26	Investment Income	48,476	101,645	111,731	192,129	74,336	72,554	77,001	77,709
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,610	39,136	4,928	2,267
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,946	111,690	81,929	79,976
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(87,778)	(17,433)	3,847	(15,451)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,652	26,746	704	(3,767)

Appendix 5i

Adverse Scenario #5 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	174,032	76,733	52,346	54,993
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(87,778)	(17,433)	3,847	(15,451)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,471)	(9,522)	(6,953)	(1,199)	9,635
6	Total Retained Earnings	194,498	99,251	170,975	174,032	76,733	52,346	54,993	49,177
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,610)	(51,918)	(45,142)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,499)	2,692	6,776	7,366
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,142)	(37,776)
11	Total Equity Balance	231,002	181,000	210,845	121,921	22,122	428	9,851	11,401
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	174,032	76,733	52,346	54,993	49,177
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,142)	(37,776)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,921	22,122	428	9,851	11,401
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,921	22,122	428	9,851	11,401

Appendix 5j

Adverse Scenario #5 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	19,843	10,643	21,291	33,377
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,375	2,437,993	2,564,100	2,666,422	2,765,463
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	393,305	408,622	424,643
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	15,990	19,433	12,221
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,117	63,138
14		2,683,473	2,805,484	2,916,137	2,887,010	2,987,771	3,145,721	3,278,980	3,404,316
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	612,937	639,364	667,132
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,067	2,095,299	2,174,470	2,252,780
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,649	3,145,294	3,269,129	3,392,915
24	Equity								
25	Retained earnings	194,499	99,251	170,975	174,032	76,733	52,346	54,993	49,177
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,610)	(51,918)	(45,142)	(37,776)
27	Total Equity	231,003	181,000	210,845	121,921	22,122	428	9,851	11,401
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,887,010	2,987,771	3,145,721	3,278,980	3,404,316

Appendix 5k
Adverse Scenario #5 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,266	(24,998)	(58,707)	(51,266)	(51,737)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,266	(24,998)	(58,707)	(51,266)	(51,737)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	105,617	109,819	114,209
12	Unpaid claims	22	191,221	207,950	220,832	229,366	237,930
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	326,449	339,185	352,139
16	Market Risk:						
17	Interest rate risk	30	941	3,623	3,661	12,940	17,126
18	Foreign exchange risk	32	13,075	13,640	13,346	13,249	13,793
19	Equity risk	34	56,489	61,119	59,013	57,376	61,248
20	Real estate risk	36	23,133	23,875	24,395	25,136	26,436
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,638	102,257	100,415	108,701	118,603
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,811	54,956	58,660	60,982	62,035
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,811	54,956	58,660	60,982	62,035
28	Operational risk margin	50	62,483	67,850	71,342	74,530	77,821
29	Less: Diversification credit	52	48,012	55,308	56,801	60,100	63,478
30	Total Capital (Margin) Required at Target	59	432,800	477,311	500,065	523,298	547,120
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,533	318,207	333,376	348,865	364,747
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,533	318,207	333,376	348,865	364,747
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,267)	(343,205)	(392,083)	(400,131)	(416,484)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.13%	-7.86%	-17.61%	-14.70%	-14.18%

Appendix 5I

Adverse Scenario #5 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,764	278,146	232,292	231,696
7	Total	726,240	759,725	946,810	952,681	946,254	992,659
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,149	6,981	6,989
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	(8,360)	(2,095)	8,622
13	Total Net Claims Incurred	767,240	779,170	1,030,285	1,013,392	1,008,676	1,068,480

Appendix 5m

Adverse Scenario #5 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	73.74%	72.33%	73.31%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9357	0.9460	0.9782	0.9954	1.0052				
10	2021					0.9555	0.9875	1.0043	1.0136	1.0155			
11	2022						0.9921	1.0094	1.0193	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				76.11%	70.56%	71.65%	78.27%	74.12%			73.96%	79.15%
17	2021					71.27%	72.33%	78.97%	74.74%	73.45%		73.51%	78.80%
18	2022						72.67%	79.37%	75.16%	73.90%	74.41%	74.49%	79.95%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,170,717	1,228,571	1,277,918		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.06%	8.02%	7.97%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.69%	2.67%	2.66%		
25	Selected					3.16%	2.99%	2.87%	2.71%	2.68%	2.66%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	564,794	587,263	610,743		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,060	442,354	457,976	483,448		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	15,166	15,577	16,110		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,027	81,393	84,268	88,954		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	5,682	15,990	19,433	12,221		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	33,028	34,376	35,786		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	25,398	17,038	14,943	23,565		
38	Change					2,363	(21,308)	14,651	(8,360)	(2,095)	8,622		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 5n

Adverse Scenario #5 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	4	0	(3)
3	Marketable Bonds	44,245	53,716	57,938	61,761	65,653
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,135	80,007	81,613	83,344
6	Dividend and other Income					
7	Canadian Equities	9,657	5,900	4,673	5,156	5,908
8	Global	4,218	6,022	4,746	5,163	5,871
9	Global LV	-	2,905	2,971	3,271	3,736
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,650	26,130	27,352	29,222
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,305	29,371	(499)	2,362
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,763	12,367	5,744	58
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,674)	(4,371)	74	0
19	Global Equities Realized Gains	66,318	(629)	(6,547)	94	0
20	Global LV Realized Gains	-	(99)	(4,106)	64	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,717	37,197	16,569	14,158
24	Other					
25	Investment Fees Paid	(5,204)	(4,743)	(4,572)	(4,799)	(5,039)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(257)	(1,332)	(2,053)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,632)	(19,142)	(20,888)	(22,299)
30	Total Corporate Investment Income	191,037	131,870	128,917	105,179	104,667
31	Total Basic Investment Income	163,817	111,946	111,690	81,929	79,976
32	% - Basic to Total Investment Income	85.75%	85%	87%	78%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,887)	5,455	6,594
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,740)	7,705	8,762
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,311)	4,466	5,102
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,627)	13,160	15,356
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,699.4	1,890.1	2,072.9	2,223.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.8	151.0	166.8	192.1
43	Global Equities	166.7	173.0	183.0	201.6	230.1
44	Global LV Equities	96.6	112.1	120.6	132.7	152.2
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.8	3,246.6	3,443.4	3,638.2
49	Total Basic Assets	2,380.2	2,471.4	2,588.3	2,701.5	2,814.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.2%	60.2%	61.1%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.6%	4.7%	4.8%	5.3%
55	US Equities	5.7%	5.7%	5.6%	5.9%	6.3%
56	Global LV	3.3%	3.7%	3.7%	3.9%	4.2%
57	Private Debt	0.0%	6.2%	6.0%	5.6%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 18a

Updated Base Scenario #6

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,953	1,050,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,687)	640	11,049	9,107
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,816	937,601	1,006,001	1,059,996
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,751	1,089,325	1,162,980	1,219,732
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,314)	(66,123)	(97,974)	(110,532)
26	Investment Income	48,476	101,645	111,731	192,131	87,066	92,743	97,098	100,449
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,535)	(7,428)	4,483	2,065
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,531	85,314	101,581	102,514
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,848)	(8,068)	(6,565)	(7,042)

Appendix 18b
Updated Base Scenario #6
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	333,183	352,374	355,981
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,708)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,277	11,667
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
11	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921

Appendix 18c
Updated Base Scenario #6
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	57,602	61,325	59,442	43,968
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,126	2,650,611	2,774,171	2,897,219
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,373	18,832
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,281	405,982
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,993	1,934,087	2,010,680	2,083,793
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,572	2,971,291	3,092,740	3,211,278
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	333,183	352,374	355,981	347,963
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
27	Total Equity	231,003	181,000	210,845	264,856	289,009	317,389	331,273	334,921
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200

Appendix 18d
Updated Base Scenario #6
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	241,889	258,204	270,067	271,680
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	241,889	258,204	270,067	271,680
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,896	220,969
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,465	332,838
16	Market Risk:						
17	Interest rate risk	30	6,468	21,908	26,102	29,860	34,120
18	Foreign exchange risk	32	15,640	15,260	16,262	17,940	20,872
19	Equity risk	34	69,313	67,256	71,783	80,140	88,240
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,323	141,746	156,473	173,269
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,266	63,507	65,082	66,286
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,266	63,507	65,082	66,286
28	Operational risk margin	50	64,552	69,860	73,071	76,698	80,511
29	Less: Diversification credit	52	53,910	62,347	65,802	70,019	74,497
30	Total Capital (Margin) Required at Target	59	453,309	496,555	520,497	548,699	578,407
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,037	346,998	365,799	385,605
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,037	346,998	365,799	385,605
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(89,148)	(88,794)	(95,732)	(113,925)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.07%	74.41%	73.83%	70.46%

Appendix 18e
Updated Base Scenario #6
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,274	212,112	223,308	224,355
7	Total	726,240	759,725	821,977	882,018	937,278	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,908	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,278	7,921
13	Total Net Claims Incurred	767,240	778,719	875,816	937,601	1,006,001	1,059,996

Appendix 18f

Updated Base Scenario #6

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,924	467,369		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,373	18,832		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,250	16,171		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,278	7,921		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 18g

Updated Base Scenario #6

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	(0)
3	Marketable Bonds	44,245	55,586	63,975	70,448	76,595
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,083	86,040	90,300	94,288
6	Dividend and other Income					
7	Canadian Equities	9,657	5,687	4,593	5,432	6,098
8	Global	4,218	5,973	4,918	5,725	6,302
9	Global LV	-	2,894	3,253	3,803	4,216
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,489	26,798	28,982	30,554
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,162)	(7,846)	2,721	598
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(36)	2,042	1,563
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,640	0	0	856
19	Global Equities Realized Gains	66,319	3,743	0	0	998
20	Global LV Realized Gains	-	459	-	-	890
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,879)	2,602	15,856	16,644
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,577)	(4,894)	(5,135)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,805	7,671	7,758	7,471
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,780)	(11,219)	(11,893)	(12,871)
30	Total Corporate Investment Income	191,042	78,850	103,278	123,759	128,849
31	Total Basic Investment Income	163,818	62,531	85,314	101,581	102,514
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,739	4,860	5,747	6,805
35	US Equities Unrealized Gains/(Losses)	7,538	9,312	7,340	8,544	9,404
36	Global LV Unrealized Gains/(Losses)	-	4,212	4,441	5,192	5,756
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,051	12,200	14,291	16,209
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.3	1,861.8	2,013.2	2,172.8
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.4	149.7	177.2	199.2
43	Global Equities	166.7	168.7	192.8	224.6	251.5
44	Global LV Equities	96.6	115.6	132.3	154.9	171.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.4	3,231.8	3,432.5	3,627.9
49	Total Basic Assets	2,522.7	2,617.3	2,725.5	2,847.4	2,956.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.7%	59.9%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.5%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 19a

Modified Base Scenario #6

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,951	1,050,892
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,686)	639	11,008	9,192
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,817	937,600	1,005,958	1,060,084
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,752	1,089,324	1,162,937	1,219,820
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,315)	(66,122)	(97,931)	(110,620)
26	Investment Income	48,476	101,645	111,731	192,131	81,807	87,237	91,168	94,336
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,120)	(7,301)	4,404	2,032
28	Net Investment Income	(4,038)	82,897	116,320	163,818	57,688	79,936	95,573	96,368
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	11,373	13,813	(2,359)	(14,252)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,434)	(7,940)	(6,604)	(7,160)

Appendix 19b
Modified Base Scenario #6
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	174,360	178,254	187,223	185,955
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	11,373	13,813	(2,359)	(14,252)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,607)	(7,478)	(4,844)	1,092	11,976
6	Total Retained Earnings	194,498	99,251	170,975	174,360	178,254	187,223	185,955	183,679
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,971)	(38,822)	(30,724)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,140	7,150	8,097	9,295
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,971)	(38,822)	(30,724)	(21,429)
11	Total Equity Balance	231,002	181,000	210,845	122,248	132,282	148,401	155,231	162,250
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	174,360	178,254	187,223	185,955	183,679
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,971)	(38,822)	(30,724)	(21,429)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	122,248	132,282	148,401	155,231	162,250
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	122,248	132,282	148,401	155,231	162,250

Appendix 19c
Modified Base Scenario #6
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	49,618	48,369	47,560	44,055
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,252	2,397,389	2,494,584	2,609,975	2,724,520
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,375	18,830
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	2,887,338	2,992,859	3,119,697	3,247,936	3,373,585
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,995	372,684	389,287	405,996
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,994	1,934,087	2,010,639	2,083,836
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,577	2,971,296	3,092,705	3,211,335
24	Equity								
25	Retained earnings	194,499	99,251	170,975	174,360	178,254	187,223	185,955	183,679
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,971)	(38,822)	(30,724)	(21,429)
27	Total Equity	231,003	181,000	210,845	122,248	132,282	148,401	155,231	162,250
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,887,338	2,992,859	3,119,697	3,247,936	3,373,585

Appendix 19d
Modified Base Scenario #6
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,594	85,162	89,216	94,025	99,009
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,594	85,162	89,216	94,025	99,009
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,892	220,973
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,461	332,842
16	Market Risk:						
17	Interest rate risk	30	948	13,875	17,783	21,155	25,004
18	Foreign exchange risk	32	13,073	12,573	13,395	14,882	17,393
19	Equity risk	34	56,478	53,840	57,449	64,826	71,871
20	Real estate risk	36	23,131	23,872	24,392	25,133	26,433
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,630	104,160	113,019	125,996	140,701
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,855	56,613	58,837	60,359	61,516
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,855	56,613	58,837	60,359	61,516
28	Operational risk margin	50	62,486	67,155	70,233	73,705	77,338
29	Less: Diversification credit	52	48,021	55,487	58,748	62,808	67,104
30	Total Capital (Margin) Required at Target	59	432,830	468,894	491,316	517,713	545,293
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,554	312,596	327,544	345,142	363,529
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,554	312,596	327,544	345,142	363,529
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(209,960)	(227,434)	(238,328)	(251,117)	(264,520)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.24%	27.24%	27.24%	27.24%	27.24%

Appendix 19e
Modified Base Scenario #6
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,275	212,111	223,273	224,426
7	Total	726,240	759,725	821,978	882,017	937,243	985,358
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,902	6,592
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,276	7,925
13	Total Net Claims Incurred	767,240	778,719	875,817	937,600	1,005,959	1,060,084

Appendix 19f

Modified Base Scenario #6

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,923	467,371		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,375	18,830		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,248	16,173		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,276	7,925		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 19g

Modified Base Scenario #6

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	78	0	0	(3)
3	Marketable Bonds	44,245	55,488	63,954	70,379	75,973
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	79,928	86,019	90,230	93,663
6	Dividend and other Income					
7	Canadian Equities	9,657	5,853	4,604	5,462	6,372
8	Global	4,218	6,019	4,928	5,753	6,495
9	Global LV	-	2,896	3,264	3,827	4,418
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,704	26,830	29,065	31,225
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(38,853)	(7,845)	2,720	612
16	Marketable Bonds Realized Gains/(Loss)	11,781	13,107	(36)	2,040	1,563
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,827	0	0	1,613
19	Global Equities Realized Gains	66,319	3,809	0	0	1,770
20	Global LV Realized Gains	-	459	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,599)	2,602	15,853	17,297
24	Other					
25	Investment Fees Paid	(5,204)	(4,731)	(4,584)	(4,898)	(5,166)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,791	7,667	7,747	7,398
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,812)	(11,230)	(11,908)	(12,975)
30	Total Corporate Investment Income	191,042	79,159	103,279	123,755	129,444
31	Total Basic Investment Income	163,818	57,688	79,936	95,573	96,368
32	% - Basic to Total Investment Income	85.75%	73%	77%	77%	74%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,936	4,872	5,780	7,112
35	US Equities Unrealized Gains/(Losses)	7,538	9,383	7,355	8,585	9,693
36	Global LV Unrealized Gains/(Losses)	-	4,215	4,457	5,226	6,032
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,319	12,226	14,365	16,805
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.1	1,860.0	2,009.7	2,193.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.5	150.4	178.5	186.6
43	Global Equities	166.7	168.9	193.5	226.1	238.6
44	Global LV Equities	96.6	115.8	133.1	156.1	178.0
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.8	3,232.2	3,433.0	3,629.4
49	Total Basic Assets	2,380.1	2,460.6	2,556.5	2,671.3	2,783.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.5%	58.5%	60.4%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.7%	5.2%	5.1%
55	US Equities	5.7%	5.5%	6.0%	6.6%	6.6%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.9%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 20a

Adverse Scenario #6

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,360	29,248	31,314
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,183,648	1,232,286	1,282,661
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,279	1,011,038	1,004,697	1,063,003
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,236	1,023,428	1,008,922	1,069,038
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,171	1,175,925	1,167,051	1,229,830
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,963	168,085	174,363
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,809)	(153,241)	(102,850)	(121,531)
26	Investment Income	48,476	101,645	111,731	192,129	74,329	72,519	76,898	77,475
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,609	39,132	4,926	2,269
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,938	111,651	81,824	79,744
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(89,871)	(41,589)	(21,027)	(41,787)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,652	26,742	702	(3,766)

Appendix 20b
Adverse Scenario #6
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	173,895	76,546	30,112	10,177
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(89,871)	(41,589)	(21,027)	(41,787)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,607)	(7,478)	(4,844)	1,092	11,976
6	Total Retained Earnings	194,498	99,251	170,975	173,895	76,546	30,112	10,177	(19,635)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,609)	(51,918)	(45,215)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,498)	2,691	6,703	7,287
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	(45,215)	(37,928)
11	Total Equity Balance	231,002	181,000	210,845	121,784	21,937	(21,806)	(35,038)	(57,563)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	173,895	76,546	30,112	10,177	(19,635)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	(45,215)	(37,928)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,784	21,937	(21,806)	(35,038)	(57,563)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,784	21,937	(21,806)	(35,038)	(57,563)

Appendix 20c
Adverse Scenario #6
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	20,578	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,239	2,437,659	2,559,287	2,649,678	2,737,111
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	4,225	7,419	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	2,886,874	2,986,583	3,111,872	3,222,033	3,323,185
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,063	2,095,242	2,174,440	2,253,132
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,645	3,133,677	3,257,071	3,380,748
24	Equity								
25	Retained earnings	194,499	99,251	170,975	173,895	76,546	30,112	10,177	(19,635)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	(45,215)	(37,928)
27	Total Equity	231,003	181,000	210,845	121,784	21,937	(21,806)	(35,038)	(57,563)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,886,874	2,986,583	3,111,872	3,222,033	3,323,185

Appendix 20d
Adverse Scenario #6
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,130	(25,183)	(80,941)	(96,153)	(120,698)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,130	(25,183)	(80,941)	(96,153)	(120,698)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,936
12	Unpaid claims	22	191,221	207,949	220,827	229,363	237,929
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	324,282	336,932	349,865
16	Market Risk:						
17	Interest rate risk	30	948	3,595	3,399	12,391	16,009
18	Foreign exchange risk	32	13,073	13,636	13,331	13,176	13,709
19	Equity risk	34	56,477	61,101	58,912	56,949	60,790
20	Real estate risk	36	23,130	23,872	24,391	25,133	26,433
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,628	102,204	100,033	107,649	116,941
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,810	54,820	57,127	59,386	60,367
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,810	54,820	57,127	59,386	60,367
28	Operational risk margin	50	62,482	67,764	70,370	73,463	76,668
29	Less: Diversification credit	52	48,009	55,252	56,210	59,329	62,547
30	Total Capital (Margin) Required at Target	59	432,791	476,904	495,602	518,101	541,294
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,527	317,936	330,402	345,401	360,863
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,527	317,936	330,402	345,401	360,863
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,397)	(343,119)	(411,343)	(441,554)	(481,561)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.08%	-7.92%	-24.50%	-27.84%	-33.45%

Appendix 20e
Adverse Scenario #6
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,760	278,102	232,314	231,716
7	Total	726,240	759,725	946,806	952,637	946,276	992,679
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,142	6,985	6,993
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	1,728	(1,876)	9,157
13	Total Net Claims Incurred	767,240	779,170	1,031,236	1,023,428	1,008,922	1,069,038

Appendix 20f

Adverse Scenario #6

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	74.66%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9562	0.9667	0.9996	1.0162	1.0146				
10	2021					0.9758	1.0084	1.0245	1.0224	1.0155			
11	2022						1.0131	1.0298	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				77.78%	72.11%	73.23%	79.99%	75.75%			75.58%	80.89%
17	2021					72.78%	73.87%	80.64%	76.33%	75.01%		75.07%	80.47%
18	2022						74.22%	81.06%	76.76%	75.47%	75.99%	76.07%	81.65%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.16%	8.19%	8.14%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.73%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,709	458,018	483,495		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,952	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,458	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	4,225	7,419	(358)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	28,081	26,205	35,003		
38	Change					2,363	(21,308)	15,606	1,728	(1,876)	8,799		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	358		
40	Change					2,001	(8,845)	-	-	-	358		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 20g

Adverse Scenario #6

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	3	0	(3)
3	Marketable Bonds	44,245	53,708	57,846	61,444	65,002
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,128	79,914	81,296	82,693
6	Dividend and other Income					
7	Canadian Equities	9,657	5,899	4,633	4,997	5,598
8	Global	4,218	6,020	4,710	5,022	5,595
9	Global LV	-	2,903	2,943	3,165	3,531
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,644	26,026	26,947	28,431
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,310	29,263	(812)	2,339
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,758	12,463	6,041	74
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,674)	(4,366)	79	0
19	Global Equities Realized Gains	66,318	(630)	(6,541)	99	0
20	Global LV Realized Gains	-	(99)	(4,103)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,716	37,199	16,566	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,743)	(4,561)	(4,757)	(4,956)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(247)	(1,285)	(1,944)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,632)	(19,121)	(20,799)	(22,107)
30	Total Corporate Investment Income	191,037	131,856	128,745	104,542	103,411
31	Total Basic Investment Income	163,817	111,938	111,651	81,824	79,744
32	% - Basic to Total Investment Income	85.75%	85%	87%	78%	77%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,882)	5,287	6,247
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,735)	7,495	8,350
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,307)	4,322	4,821
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,617)	12,782	14,598
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,698.7	1,881.3	2,052.1	2,189.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.6	148.2	159.3	179.9
43	Global Equities	166.7	172.8	180.0	193.5	216.9
44	Global LV Equities	96.6	111.9	118.3	126.5	142.1
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.5	3,229.6	3,400.8	3,567.9
49	Total Basic Assets	2,380.1	2,471.8	2,572.8	2,663.4	2,752.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.3%	60.3%	61.4%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.6%	4.7%	5.0%
55	US Equities	5.7%	5.7%	5.6%	5.7%	6.1%
56	Global LV	3.3%	3.7%	3.7%	3.7%	4.0%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 20h

Adverse Scenario #6 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,139,335	1,185,813	1,234,470
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,200,572	1,248,655	1,298,916
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,108,247	1,164,313	1,211,962
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,168,486	1,226,229	1,275,481
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,786	29,716	31,827
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,196,273	1,255,945	1,307,308
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,279	1,001,035	1,004,499	1,062,483
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,236	1,013,425	1,008,723	1,068,518
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,010	147,403
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,073	13,345
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,171	1,165,922	1,166,806	1,229,266
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,339	83,226
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,719	46,915	48,761
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,404	37,143	38,628
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	161,642	169,511	175,847
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,809)	(131,292)	(80,373)	(97,806)
26	Investment Income	48,476	101,645	111,731	192,129	74,329	72,541	-	-
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,609	39,131	-	-
28	Net Investment Income	(4,038)	82,897	116,320	163,817	111,938	111,672	-	-
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(89,871)	(19,620)	-	-
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,652	26,741	(4,224)	(6,035)

Appendix 20i

Adverse Scenario #6 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	173,895	76,546	52,082	-
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(89,871)	(19,620)	-	-
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,607)	(7,478)	(4,844)	1,092	11,976
6	Total Retained Earnings	194,498	99,251	170,975	173,895	76,546	52,082	-	-
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,609)	(51,918)	-
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,498)	2,691	-	-
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	-	-
11	Total Equity Balance	231,002	181,000	210,845	121,784	21,937	164	-	-
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	173,895	76,546	52,082	-	-
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	-	-
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	121,784	21,937	164	-	-
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	121,784	21,937	164	-	-

Appendix 20j

Adverse Scenario #6 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	20,578	11,656	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,239	2,437,659	2,563,421	-	-
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	392,697	407,989	423,985
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	14,932	18,325	11,068
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,117	63,138
14		2,683,473	2,805,484	2,916,137	2,886,874	2,986,583	3,144,389	-	-
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	611,876	638,261	665,983
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,063	2,095,291	2,174,463	2,252,768
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,645	3,144,226	3,268,018	3,391,754
24	Equity								
25	Retained earnings	194,499	99,251	170,975	173,895	76,546	52,082	-	-
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,609)	(51,918)	-	-
27	Total Equity	231,003	181,000	210,845	121,784	21,937	164	-	-
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,886,874	2,986,583	3,144,389	-	-

Appendix 20k
Adverse Scenario #6 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,130	(25,183)	(58,971)	0	0
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,130	(25,183)	(58,971)	0	0
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	105,419	109,612	113,995
12	Unpaid claims	22	191,221	207,949	220,832	229,365	237,929
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	326,251	338,977	351,924
16	Market Risk:						
17	Interest rate risk	30	948	3,595	3,608	0	0
18	Foreign exchange risk	32	13,073	13,636	13,339	0	0
19	Equity risk	34	56,477	61,101	58,968	0	0
20	Real estate risk	36	23,130	23,872	24,391	25,133	0
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,628	102,204	100,306	0	0
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,810	54,820	58,515	0	0
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,810	54,820	58,515	0	0
28	Operational risk margin	50	62,482	67,764	71,246	0	0
29	Less: Diversification credit	52	48,009	55,252	56,727	0	0
30	Total Capital (Margin) Required at Target	59	432,791	476,904	499,591	0	0
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,527	317,936	333,061	0	0
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,527	317,936	333,061	0	0
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(210,397)	(343,119)	(392,032)	0	0
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.08%	-7.92%	-17.71%	0.00%	0.00%

Appendix 20l

Adverse Scenario #6 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,760	278,143	232,292	231,692
7	Total	726,240	759,725	946,806	952,678	946,254	992,655
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,149	6,981	6,988
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	(8,323)	(2,049)	8,665
13	Total Net Claims Incurred	767,240	779,170	1,031,236	1,013,425	1,008,724	1,068,517

Appendix 20m

Adverse Scenario #6 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	73.88%	72.47%	73.45%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9374	0.9478	0.9800	0.9963	1.0052				
10	2021					0.9573	0.9893	1.0051	1.0136	1.0155			
11	2022						0.9940	1.0103	1.0193	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				76.25%	70.69%	71.79%	78.42%	74.26%			74.10%	79.30%
17	2021					71.41%	72.47%	79.12%	74.88%	73.59%		73.65%	78.95%
18	2022						72.81%	79.52%	75.31%	74.04%	74.55%	74.63%	80.10%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,168,486	1,226,229	1,275,481		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.08%	8.03%	7.98%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.69%	2.68%	2.66%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.69%	2.67%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	563,734	586,159	609,595		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,358	457,979	483,452		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	15,160	15,577	16,110		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,394	84,268	88,955		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	14,932	18,325	11,068		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,962	34,307	35,714		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	18,030	15,981	24,646		
38	Change					2,363	(21,308)	15,606	(8,323)	(2,049)	8,665		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 20n

Adverse Scenario #6 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	58	4	0	-
3	Marketable Bonds	44,245	53,708	57,911	61,710	-
4	MUSH	26,759	24,361	22,065	19,852	-
5	Total	71,259	78,128	79,980	81,561	-
6	Dividend and other Income					
7	Canadian Equities	9,657	5,899	4,662	5,130	-
8	Global	4,218	6,020	4,735	5,140	-
9	Global LV	-	2,903	2,963	3,253	-
10	Private Debt	-	3,761	10,045	10,061	-
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	-
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,644	26,100	27,285	-
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	19,310	29,331	-	-
16	Marketable Bonds Realized Gains/(Loss)	11,782	21,758	12,396	-	-
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,674)	(4,366)	-	-
19	Global Equities Realized Gains	66,318	(630)	(6,541)	-	-
20	Global LV Realized Gains	-	(99)	(4,103)	-	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	-
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,716	37,199	-	-
24	Other					
25	Investment Fees Paid	(5,204)	(4,743)	(4,569)	(4,792)	-
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(254)	-	-
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,632)	(19,136)	-	-
30	Total Corporate Investment Income	191,037	131,856	128,868	-	-
31	Total Basic Investment Income	163,817	111,938	111,672	-	-
32	% - Basic to Total Investment Income	85.75%	85%	87%	#DIV/0!	#DIV/0!
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,882)	5,427	-
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,735)	7,671	-
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,307)	4,442	-
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,617)	13,098	-
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,698.7	1,888.3	-	-
41	MUSH	569.3	522.8	477.0	432.3	-
42	Canadian Equities	123.3	140.6	150.4	-	-
43	Global Equities	166.7	172.8	182.4	-	-
44	Global LV Equities	96.6	111.9	120.1	-	-
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	-
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.5	3,243.1	-	-
49	Total Basic Assets	2,380.1	2,471.8	2,588.6	-	-
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.2%	0.0%	0.0%
53	MUSH	19.5%	17.1%	14.7%	0.0%	0.0%
54	Canadian Equities	4.2%	4.6%	4.6%	0.0%	0.0%
55	US Equities	5.7%	5.7%	5.6%	0.0%	0.0%
56	Global LV	3.3%	3.7%	3.7%	0.0%	0.0%
57	Private Debt	0.0%	6.2%	6.0%	0.0%	0.0%
58	Real Estate	4.6%	4.5%	4.4%	0.0%	0.0%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	0.0%	0.0%
60	Total	100.0%	100.0%	100.0%	0.0%	0.0%

Appendix 21a

Updated Base Scenario #7

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	84,813	88,268	91,549	94,615
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,823	88,271	91,551	94,619
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 21b
Updated Base Scenario #7
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	311,386	308,594	288,633
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	10,675
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
11	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865

Appendix 21c
Updated Base Scenario #7
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	48,628	40,072	25,785	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,576,553	2,682,810	2,793,177	2,902,041
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,215	390,308	406,707
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,840	1,980,340	2,055,792	2,129,627
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,266	3,012,531	3,132,065	3,250,745
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	311,386	308,594	288,633	256,348
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
27	Total Equity	231,003	181,000	210,845	261,938	267,209	273,608	263,475	241,865
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610

Appendix 21d
Updated Base Scenario #7
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	220,092	214,441	202,295	178,654
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	220,092	214,441	202,295	178,654
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	4,798	20,574	24,537	29,049	33,491
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,324
19	Equity risk	34	69,145	67,268	71,795	76,632	81,846
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	129,963	140,153	151,502	165,651
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,566	62,857	64,325	65,427
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,566	62,857	64,325	65,427
28	Operational risk margin	50	64,469	69,550	72,817	76,119	79,686
29	Less: Diversification credit	52	53,525	62,120	65,633	69,182	73,190
30	Total Capital (Margin) Required at Target	59	452,643	496,833	521,587	546,482	573,686
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	331,222	347,724	364,321	382,457
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	331,222	347,724	364,321	382,457
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(111,130)	(133,283)	(162,026)	(203,803)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	66.45%	61.67%	55.53%	46.71%

Appendix 21e
Updated Base Scenario #7
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,504	220,930	222,334	224,958
7	Total	726,240	767,976	844,425	890,928	936,300	985,903
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,684
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,702	948,756	1,005,018	1,061,159

Appendix 21f

Updated Base Scenario #7

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 21g

Updated Base Scenario #7

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	(0)	0	(0)
3	Marketable Bonds	44,259	55,084	61,815	67,258	72,896
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,537	83,880	87,109	90,589
6	Dividend and other Income					
7	Canadian Equities	9,657	5,685	4,544	5,164	5,608
8	Global	4,218	5,969	4,878	5,490	5,877
9	Global LV	-	2,886	3,212	3,617	3,885
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,423	26,514	28,151	29,174
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(746)	(758)	(765)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	746	758	765
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,651	0	0	787
19	Global Equities Realized Gains	66,318	3,747	0	0	934
20	Global LV Realized Gains	-	457	-	-	817
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,900	10,475	11,085	14,268
24	Other					
25	Investment Fees Paid	(5,203)	(4,720)	(4,586)	(4,851)	(5,035)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,577	4,653	4,672
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,151)	(14,322)	(14,955)	(15,570)
30	Total Corporate Investment Income	199,910	103,709	106,547	111,390	118,461
31	Total Basic Investment Income	171,428	84,823	88,271	91,551	94,619
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,736	4,808	5,464	6,259
35	US Equities Unrealized Gains/(Losses)	7,537	9,306	7,279	8,193	8,770
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,385	4,938	5,305
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,042	12,087	13,657	15,030
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.7	1,886.0	2,034.0	2,186.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.7	146.9	165.9	181.2
43	Global Equities	166.6	168.1	189.8	212.6	231.8
44	Global LV Equities	96.5	114.7	129.6	145.2	156.2
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.5	3,249.2	3,421.5	3,589.7
49	Total Basic Assets	2,530.3	2,638.7	2,736.4	2,832.7	2,917.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.8%	5.0%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.5%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.4%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 22a

Modified Base Scenario #7

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,448	938,637	996,190	1,052,288
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,118	8,829	8,957
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,755	1,005,019	1,061,246
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,695	1,162,259	1,221,227
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,061)	(111,512)	(126,990)
26	Investment Income	48,476	101,645	111,731	192,209	84,125	87,560	90,814	93,846
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	7
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,134	87,562	90,816	93,853
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(3,352)	(3,499)	(20,696)	(33,138)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,244)	(10,115)	(8,827)	(8,951)

Appendix 22b
Modified Base Scenario #7
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,458	310,508	324,513	327,944
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(3,352)	(3,499)	(20,696)	(33,138)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(18,591)	18,402	17,504	24,128	36,763
6	Total Retained Earnings	194,498	99,251	170,975	295,458	310,508	324,513	327,944	331,569
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,412)	(35,487)	(25,945)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,699	8,924	9,543	10,365
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,412)	(35,487)	(25,945)	(15,580)
11	Total Equity Balance	231,002	181,000	210,845	243,347	266,096	289,026	302,000	315,990
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,458	310,508	324,513	327,944	331,569
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,412)	(35,487)	(25,945)	(15,580)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	243,347	266,096	289,026	302,000	315,990
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	243,347	266,096	289,026	302,000	315,990

Appendix 22c
Modified Base Scenario #7
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	66,967	75,897	85,739	94,066
4	Equity investments	2,083,349	2,189,534	2,272,545	2,469,035	2,557,102	2,662,402	2,771,749	2,882,188
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,481
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,018,070	3,157,363	3,301,556	3,434,065	3,566,818
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,215	390,309	406,708
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,340	2,055,792	2,129,709
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,267	3,012,531	3,132,065	3,250,829
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,458	310,508	324,513	327,944	331,569
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,412)	(35,487)	(25,945)	(15,580)
27	Total Equity	231,003	181,000	210,845	243,347	266,096	289,026	302,000	315,990
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,018,070	3,157,363	3,301,556	3,434,065	3,566,818

Appendix 22d
Modified Base Scenario #7
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,692	218,979	229,858	240,820	252,779
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,692	218,979	229,858	240,820	252,779
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,578
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,120
16	Market Risk:						
17	Interest rate risk	30	3,833	19,504	23,424	27,890	32,269
18	Foreign exchange risk	32	15,272	14,911	15,889	16,932	19,867
19	Equity risk	34	67,471	65,514	69,922	74,630	79,706
20	Real estate risk	36	25,574	26,464	27,139	28,045	29,520
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,150	126,393	136,374	147,497	161,362
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,290	59,956	62,242	63,705	64,802
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,290	59,956	62,242	63,705	64,802
28	Operational risk margin	50	64,179	69,195	72,444	75,726	79,269
29	Less: Diversification credit	52	52,728	61,258	64,743	68,262	72,238
30	Total Capital (Margin) Required at Target	59	449,737	493,160	517,710	542,384	569,315
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,825	328,773	345,140	361,589	379,543
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,825	328,773	345,140	361,589	379,543
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,133)	(109,794)	(115,282)	(120,769)	(126,764)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.60%	66.60%	66.60%	66.60%	66.60%

Appendix 22e

Modified Base Scenario #7

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,762
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,778
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,505	220,929	222,334	225,028
7	Total	726,240	767,976	844,425	890,928	936,300	985,973
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,696
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,367
13	Total Net Claims Incurred	767,240	789,235	909,702	948,755	1,005,018	1,061,246

Appendix 22f

Modified Base Scenario #7

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,102		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,499		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,481		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,079		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,367		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 22g

Modified Base Scenario #7

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	87	(0)	0	(0)
3	Marketable Bonds	44,259	55,072	61,813	67,249	72,765
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,520	83,878	87,101	90,458
6	Dividend and other Income					
7	Canadian Equities	9,657	5,707	4,545	5,168	5,610
8	Global	4,218	5,975	4,879	5,493	5,947
9	Global LV	-	2,886	3,213	3,620	3,952
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,451	26,518	28,161	29,313
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(28,107)	(746)	(758)	(760)
16	Marketable Bonds Realized Gains/(Loss)	13,969	28,107	746	758	760
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,675	0	0	823
19	Global Equities Realized Gains	66,318	3,755	0	0	1,082
20	Global LV Realized Gains	-	457	-	-	995
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,932	10,475	11,085	14,631
24	Other					
25	Investment Fees Paid	(5,203)	(4,721)	(4,587)	(4,851)	(5,043)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,440	4,577	4,652	4,664
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,153)	(14,323)	(14,956)	(15,586)
30	Total Corporate Investment Income	199,910	103,750	106,548	111,392	118,816
31	Total Basic Investment Income	171,428	84,134	87,562	90,816	93,853
32	% - Basic to Total Investment Income	85.75%	81%	82%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,762	4,809	5,468	6,261
35	US Equities Unrealized Gains/(Losses)	7,537	9,315	7,281	8,198	8,876
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,387	4,942	5,396
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,077	12,090	13,666	15,136
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.6	1,885.8	2,033.5	2,211.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.8	147.0	166.1	173.2
43	Global Equities	166.6	168.2	189.9	212.8	222.5
44	Global LV Equities	96.5	114.7	129.7	145.4	148.7
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.5	3,249.2	3,421.6	3,589.9
49	Total Basic Assets	2,511.7	2,637.6	2,751.9	2,871.2	2,991.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	61.6%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.9%	4.8%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.2%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.1%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 23a

Adverse Scenario #7

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,909	1,056,325
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,133	1,062,359
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,895	1,223,690
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,833)	(130,070)
26	Investment Income	48,476	101,645	111,731	192,209	67,394	63,771	60,925	58,820
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,271	103,641	(49)	(16)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,664	167,411	60,876	58,804
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(45,290)	(113,481)	(47,956)	(71,265)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,313	91,251	(4,273)	(6,051)

Appendix 23b
Adverse Scenario #7
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,458	268,569	172,592	148,763
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(45,290)	(113,481)	(47,956)	(71,265)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(18,591)	18,402	17,504	24,128	36,763
6	Total Retained Earnings	194,498	99,251	170,975	295,458	268,569	172,592	148,763	114,260
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,341)	(51,875)	(44,032)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(229)	466	7,843	8,550
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
11	Total Equity Balance	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,458	268,569	172,592	148,763	114,260
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778

Appendix 23c
Adverse Scenario #7
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,626	29,267	29,926	35,864
4	Equity investments	2,083,349	2,189,534	2,272,545	2,469,035	2,665,409	2,853,047	2,928,990	3,002,524
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,018,070	3,249,348	3,426,905	3,519,908	3,620,350
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,361	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,177	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,458	268,569	172,592	148,763	114,260
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
27	Total Equity	231,003	181,000	210,845	243,347	216,229	120,717	104,731	78,778
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,018,070	3,249,348	3,426,905	3,519,908	3,620,350

Appendix 23d
Adverse Scenario #7
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,692	169,112	61,596	43,652	15,688
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,692	169,112	61,596	43,652	15,688
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	3,833	3,701	1,094	16,514	14,847
18	Foreign exchange risk	32	15,272	17,479	18,039	15,547	16,451
19	Equity risk	34	67,471	79,202	81,403	65,652	70,081
20	Real estate risk	36	25,574	26,464	27,139	28,045	29,520
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,150	126,846	127,675	125,758	130,899
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,290	59,491	62,250	64,346	65,822
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,290	59,491	62,250	64,346	65,822
28	Operational risk margin	50	64,179	70,399	74,315	76,402	79,368
29	Less: Diversification credit	52	52,728	62,289	65,037	65,748	68,140
30	Total Capital (Margin) Required at Target	59	449,737	507,500	541,300	553,522	574,680
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,825	338,333	360,867	369,014	383,120
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,825	338,333	360,867	369,014	383,120
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,133)	(169,221)	(299,271)	(325,362)	(367,432)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.60%	49.98%	17.07%	11.83%	4.09%

Appendix 23e

Adverse Scenario #7

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,488	223,695
7	Total	726,240	767,976	966,494	1,042,341	936,160	984,822
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,441	6,768
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(5)	10,559
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,137,536	1,000,133	1,062,359

Appendix 23f

Adverse Scenario #7

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
27	C. Equity in Unearned Premium										
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,430	464,053	490,480
31	11. Reinsurance PFAD					10	-	-	-	-	-
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,327	85,386	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	(7,884)	(6,577)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	31,896	33,197	34,560
38	Change					2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]					8,845	-	-	7,884	6,577	15,774
40	Change					2,001	(8,845)	-	7,884	(1,306)	9,197

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 23g

Adverse Scenario #7

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	112	(0)	0	(2)
3	Marketable Bonds	44,259	50,746	51,230	51,358	52,830
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,219	73,295	71,209	70,522
6	Dividend and other Income					
7	Canadian Equities	9,657	6,392	5,024	4,892	4,942
8	Global	4,218	6,699	5,459	5,320	5,466
9	Global LV	-	3,326	3,353	3,300	3,222
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,035	27,064	26,797	26,887
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	89,916	87,539	(13,968)	2,355
16	Marketable Bonds Realized Gains/(Loss)	13,969	46,012	21,456	13,968	(2,355)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(176)	(1,350)	530	0
19	Global Equities Realized Gains	66,318	181	(121)	539	510
20	Global LV Realized Gains	-	49	13	592	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,026	118,012	12,746	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,888)	(4,781)	(4,878)	(4,953)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,332)	(12,571)	(14,700)	(14,381)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,092)	(31,665)	(34,335)	(34,541)
30	Total Corporate Investment Income	199,910	223,188	197,747	76,417	75,109
31	Total Basic Investment Income	171,428	194,664	167,411	60,876	58,804
32	% - Basic to Total Investment Income	85.75%	87%	85%	80%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,176	5,516
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,940	8,157
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,506	4,400
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,116	13,673
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	1,985.9	2,215.8	2,328.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.8	141.2	157.9
43	Global Equities	166.6	197.2	214.8	191.7	204.9
44	Global LV Equities	96.5	125.8	138.6	116.0	128.8
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.1	3,539.6	3,664.7
49	Total Basic Assets	2,511.7	2,739.6	2,895.9	2,972.7	3,053.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.6%	63.5%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.3%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.5%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 23h

Adverse Scenario #3 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,909	1,056,325
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,133	1,062,359
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,895	1,223,690
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,833)	(130,070)
26	Investment Income	48,476	101,645	111,731	192,209	67,394	63,771	60,925	58,820
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,271	103,641	(49)	(16)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,664	167,411	60,876	58,804
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(45,290)	(113,481)	(47,956)	(71,265)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,313	91,251	(4,273)	(6,051)

Appendix 23i

Adverse Scenario #3 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,458	268,569	172,592	148,763
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(45,290)	(113,481)	(47,956)	(71,265)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(18,591)	18,402	17,504	24,128	36,763
6	Total Retained Earnings	194,498	99,251	170,975	295,458	268,569	172,592	148,763	114,260
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,341)	(51,875)	(44,032)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(229)	466	7,843	8,550
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
11	Total Equity Balance	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,458	268,569	172,592	148,763	114,260
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	243,347	216,229	120,717	104,731	78,778

Appendix 23j

Adverse Scenario #3 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,626	29,267	29,926	35,864
4	Equity investments	2,083,349	2,189,534	2,272,545	2,469,035	2,665,409	2,853,047	2,928,990	3,002,524
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,018,070	3,249,348	3,426,905	3,519,908	3,620,350
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,361	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,177	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,458	268,569	172,592	148,763	114,260
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,341)	(51,875)	(44,032)	(35,482)
27	Total Equity	231,003	181,000	210,845	243,347	216,229	120,717	104,731	78,778
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,018,070	3,249,348	3,426,905	3,519,908	3,620,350

Appendix 23k

Adverse Scenario #3 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,692	169,112	61,596	43,652	15,688
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,692	169,112	61,596	43,652	15,688
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	3,833	3,701	1,094	16,514	14,847
18	Foreign exchange risk	32	15,272	17,479	18,039	15,547	16,451
19	Equity risk	34	67,471	79,202	81,403	65,652	70,081
20	Real estate risk	36	25,574	26,464	27,139	28,045	29,520
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,150	126,846	127,675	125,758	130,899
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,290	59,491	62,250	64,346	65,822
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,290	59,491	62,250	64,346	65,822
28	Operational risk margin	50	64,179	70,399	74,315	76,402	79,368
29	Less: Diversification credit	52	52,728	62,289	65,037	65,748	68,140
30	Total Capital (Margin) Required at Target	59	449,737	507,500	541,300	553,522	574,680
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,825	338,333	360,867	369,014	383,120
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,825	338,333	360,867	369,014	383,120
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,133)	(169,221)	(299,271)	(325,362)	(367,432)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.60%	49.98%	17.07%	11.83%	4.09%

Appendix 23I

Adverse Scenario #3 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,488	223,695
7	Total	726,240	767,976	966,494	1,042,341	936,160	984,822
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,441	6,768
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(5)	10,559
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,137,536	1,000,133	1,062,359

Appendix 23m

Adverse Scenario #3 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,245	420,094	447,430	464,053	490,480
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,989	77,297	82,327	85,386	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,310	3,242	(7,884)	(6,577)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,179	27,382	31,896	33,197	34,560
38	Change	2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]	8,845	-	-	7,884	6,577	15,774
40	Change	2,001	(8,845)	-	7,884	(1,306)	9,197

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 23n

Adverse Scenario #3 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	112	(0)	0	(2)
3	Marketable Bonds	44,259	50,746	51,230	51,358	52,830
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,219	73,295	71,209	70,522
6	Dividend and other Income					
7	Canadian Equities	9,657	6,392	5,024	4,892	4,942
8	Global	4,218	6,699	5,459	5,320	5,466
9	Global LV	-	3,326	3,353	3,300	3,222
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,035	27,064	26,797	26,887
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	89,916	87,539	(13,968)	2,355
16	Marketable Bonds Realized Gains/(Loss)	13,969	46,012	21,456	13,968	(2,355)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(176)	(1,350)	530	0
19	Global Equities Realized Gains	66,318	181	(121)	539	510
20	Global LV Realized Gains	-	49	13	592	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,026	118,012	12,746	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,888)	(4,781)	(4,878)	(4,953)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,332)	(12,571)	(14,700)	(14,381)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,092)	(31,665)	(34,335)	(34,541)
30	Total Corporate Investment Income	199,910	223,188	197,747	76,417	75,109
31	Total Basic Investment Income	171,428	194,664	167,411	60,876	58,804
32	% - Basic to Total Investment Income	85.75%	87%	85%	80%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,176	5,516
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,940	8,157
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,506	4,400
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,116	13,673
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	1,985.9	2,215.8	2,328.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.8	141.2	157.9
43	Global Equities	166.6	197.2	214.8	191.7	204.9
44	Global LV Equities	96.5	125.8	138.6	116.0	128.8
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.1	3,539.6	3,664.7
49	Total Basic Assets	2,511.7	2,739.6	2,895.9	2,972.7	3,053.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.6%	63.5%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.3%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.5%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 24a

Updated Base Scenario #8

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,862	938,472	995,774	1,051,883
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,209	8,816	8,310
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,117	948,682	1,004,589	1,060,193
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,098	1,100,576	1,161,783	1,220,128
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,694)	(71,923)	(91,223)	(105,252)
26	Investment Income	48,476	101,645	111,731	192,209	84,839	88,379	91,783	94,746
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	3	5
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,851	88,384	91,786	94,752
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,205)	(8,812)	(8,305)

Appendix 24b
Updated Base Scenario #8
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	330,205	346,665	347,229
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,119
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
11	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690

Appendix 24c
Updated Base Scenario #8
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,406	68,212	70,977	60,125
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,282	2,687,490	2,801,045	2,916,394
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,956	25,263	18,691
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,730
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,433	2,055,874	2,129,145
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,255	3,021,983	3,141,893	3,260,418
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	330,205	346,665	347,229	336,729
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
27	Total Equity	231,003	181,000	210,845	261,938	286,029	311,679	322,070	322,690
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108

Appendix 24d
Updated Base Scenario #8
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	238,912	252,509	260,886	259,473
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	238,912	252,509	260,886	259,473
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,171	217,432	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,151	325,547	337,959
16	Market Risk:						
17	Interest rate risk	30	4,798	20,791	25,111	30,016	32,905
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,317
19	Equity risk	34	69,145	67,268	71,795	76,632	85,251
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,180	140,727	152,469	168,463
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,755	64,102	65,654	66,740
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,755	64,102	65,654	66,740
28	Operational risk margin	50	64,469	70,299	73,627	76,996	80,742
29	Less: Diversification credit	52	53,525	62,537	66,138	69,784	74,137
30	Total Capital (Margin) Required at Target	59	452,643	500,252	525,469	550,882	579,767
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,501	350,313	367,255	386,512
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,501	350,313	367,255	386,512
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(94,589)	(97,804)	(106,369)	(127,039)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	71.64%	72.08%	71.04%	67.13%

Appendix 24e
Updated Base Scenario #8
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	221,007	222,324	224,481
7	Total	726,240	767,976	844,426	891,006	936,291	985,421
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,044	6,744	6,603
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,289)	4,018	7,959
13	Total Net Claims Incurred	767,240	789,235	901,117	948,682	1,004,590	1,060,193

Appendix 24f

Updated Base Scenario #8

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,042	445,470	470,041		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,208	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,956	25,263	18,691		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,814	4,525	8,544	16,503		
38	Change					2,363	(20,876)	(2,364)	(4,289)	4,018	7,959		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 24g

Updated Base Scenario #8

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,161	62,122	67,881	73,632
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,614	84,187	87,733	91,325
6	Dividend and other Income					
7	Canadian Equities	9,657	5,699	4,639	5,371	5,931
8	Global	4,218	5,986	4,962	5,675	6,235
9	Global LV	-	2,900	3,279	3,758	4,092
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,468	26,761	28,685	30,061
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(749)	(765)	(773)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	749	765	773
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,630	0	0	790
19	Global Equities Realized Gains	66,318	3,727	0	0	1,057
20	Global LV Realized Gains	-	457	-	-	834
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,858	10,475	11,085	14,411
24	Other					
25	Investment Fees Paid	(5,203)	(4,724)	(4,613)	(4,910)	(5,137)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,446	4,598	4,694	4,714
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,973)	(15,630)
30	Total Corporate Investment Income	199,910	103,790	107,095	112,530	120,168
31	Total Basic Investment Income	171,428	84,851	88,384	91,786	94,752
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,752	4,908	5,683	6,620
35	US Equities Unrealized Gains/(Losses)	7,537	9,332	7,406	8,469	9,304
36	Global LV Unrealized Gains/(Losses)	-	4,220	4,477	5,132	5,587
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,084	12,313	14,152	15,924
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.3	1,903.2	2,062.3	2,213.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.4	151.7	174.4	198.5
43	Global Equities	166.6	169.9	195.0	221.7	249.9
44	Global LV Equities	96.5	116.2	133.8	152.4	170.5
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.1	3,280.6	3,474.6	3,666.2
49	Total Basic Assets	2,530.3	2,652.2	2,769.3	2,885.8	2,991.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.8%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 25a

Modified Base Scenario #8

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,862	938,472	995,774	1,051,883
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,209	8,816	8,310
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,117	948,682	1,004,589	1,060,193
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,098	1,100,576	1,161,783	1,220,128
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,694)	(71,923)	(91,223)	(105,252)
26	Investment Income	48,476	101,645	111,731	192,209	84,133	87,655	91,025	93,960
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	3	5
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,144	87,659	91,029	93,966
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	15,450	15,735	(194)	(11,286)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,205)	(8,812)	(8,305)

Appendix 25b
Modified Base Scenario #8
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,005	311,502	325,733	329,378
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	15,450	15,735	(194)	(11,286)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(19,044)	1,047	(1,504)	3,839	15,181
6	Total Retained Earnings	194,498	99,251	170,975	295,005	311,502	325,733	329,378	333,273
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,417)	(35,500)	(25,964)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,694	8,918	9,536	10,802
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,417)	(35,500)	(25,964)	(15,162)
11	Total Equity Balance	231,002	181,000	210,845	242,894	267,085	290,233	303,414	318,111
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,005	311,502	325,733	329,378	333,273
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,417)	(35,500)	(25,964)	(15,162)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	242,894	267,085	290,233	303,414	318,111
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	242,894	267,085	290,233	303,414	318,111

Appendix 25c
Modified Base Scenario #8
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	61,387	67,672	74,275	78,604
4	Equity investments	2,083,349	2,189,534	2,272,545	2,468,582	2,558,358	2,666,583	2,779,091	2,893,338
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,956	25,263	18,691
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	3,017,617	3,167,339	3,312,217	3,445,307	3,578,531
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,731
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,433	2,055,874	2,129,145
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,255	3,021,983	3,141,893	3,260,419
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,005	311,502	325,733	329,378	333,273
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,417)	(35,500)	(25,964)	(15,162)
27	Total Equity	231,003	181,000	210,845	242,894	267,085	290,233	303,414	318,111
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,017,617	3,167,339	3,312,217	3,445,307	3,578,531

Appendix 25d
Modified Base Scenario #8
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,239	219,968	231,063	242,230	254,895
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,239	219,968	231,063	242,230	254,895
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,171	217,432	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,151	325,547	337,959
16	Market Risk:						
17	Interest rate risk	30	3,810	19,699	23,971	28,828	31,672
18	Foreign exchange risk	32	15,263	14,902	15,880	16,922	19,852
19	Equity risk	34	67,430	65,471	69,877	74,581	83,059
20	Real estate risk	36	25,565	26,455	27,129	28,035	29,509
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,068	126,527	136,857	148,366	164,092
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,289	61,130	63,472	65,019	66,100
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,289	61,130	63,472	65,019	66,100
28	Operational risk margin	50	64,172	69,935	73,245	76,593	80,316
29	Less: Diversification credit	52	52,709	61,656	65,230	68,846	73,176
30	Total Capital (Margin) Required at Target	59	449,666	496,491	521,495	546,679	575,291
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,777	330,994	347,663	364,453	383,527
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,777	330,994	347,663	364,453	383,527
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,538)	(111,026)	(116,600)	(122,223)	(128,632)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.46%	66.46%	66.46%	66.46%	66.46%

Appendix 25e
Modified Base Scenario #8
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	221,007	222,324	224,481
7	Total	726,240	767,976	844,426	891,006	936,291	985,421
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,044	6,744	6,603
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,289)	4,018	7,959
13	Total Net Claims Incurred	767,240	789,235	901,117	948,682	1,004,590	1,060,193

Appendix 25f

Modified Base Scenario #8

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,042	445,470	470,041		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,208	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,956	25,263	18,691		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,814	4,525	8,544	16,503		
38	Change					2,363	(20,876)	(2,364)	(4,289)	4,018	7,959		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 25g

Modified Base Scenario #8

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	86	0	0	(0)
3	Marketable Bonds	44,259	55,148	62,120	67,873	73,492
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,596	84,185	87,724	91,185
6	Dividend and other Income					
7	Canadian Equities	9,657	5,721	4,640	5,375	6,025
8	Global	4,218	5,992	4,964	5,679	6,234
9	Global LV	-	2,901	3,280	3,762	4,164
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,497	26,765	28,696	30,226
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(28,068)	(749)	(764)	(772)
16	Marketable Bonds Realized Gains/(Loss)	13,969	28,068	749	764	772
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,654	0	0	950
19	Global Equities Realized Gains	66,318	3,735	0	0	1,102
20	Global LV Realized Gains	-	457	-	-	979
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,890	10,475	11,085	14,762
24	Other					
25	Investment Fees Paid	(5,203)	(4,727)	(4,615)	(4,913)	(5,141)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,445	4,598	4,694	4,706
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,154)	(14,330)	(14,976)	(15,642)
30	Total Corporate Investment Income	199,910	103,829	107,095	112,529	120,531
31	Total Basic Investment Income	171,428	84,144	87,659	91,029	93,966
32	% - Basic to Total Investment Income	85.75%	81%	82%	81%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,779	4,909	5,687	6,724
35	US Equities Unrealized Gains/(Losses)	7,537	9,341	7,408	8,475	9,303
36	Global LV Unrealized Gains/(Losses)	-	4,221	4,479	5,136	5,685
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,120	12,317	14,162	16,027
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.3	1,902.9	2,061.8	2,213.6
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.4	151.8	174.5	198.1
43	Global Equities	166.6	169.9	195.1	221.9	250.5
44	Global LV Equities	96.5	116.3	133.9	152.5	170.2
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.1	3,280.7	3,474.7	3,666.4
49	Total Basic Assets	2,511.2	2,633.3	2,747.8	2,867.1	2,987.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.3%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.8%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.6%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 26a

Adverse Scenario #8

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,474	29,376	31,454
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,719	1,238,614	1,289,252
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,643	1,124,975	995,365	1,055,987
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,600	1,137,365	999,589	1,062,021
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,581	1,289,988	1,158,304	1,223,322
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,391	168,737	174,998
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,177)	(261,659)	(88,427)	(109,068)
26	Investment Income	48,476	101,645	111,731	192,209	67,399	63,841	60,934	59,020
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,260	103,703	(28)	(45)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,660	167,543	60,906	58,975
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(26,518)	(94,116)	(27,521)	(50,094)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,303	91,312	(4,252)	(6,080)

Appendix 26b
Adverse Scenario #8
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,005	269,535	173,914	150,232
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(26,518)	(94,116)	(27,521)	(50,094)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(19,044)	1,047	(1,504)	3,839	15,181
6	Total Retained Earnings	194,498	99,251	170,975	295,005	269,535	173,914	150,232	115,319
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,340)	(51,875)	(43,757)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(229)	466	8,118	8,847
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
11	Total Equity Balance	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,005	269,535	173,914	150,232	115,319
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409

Appendix 26c
Adverse Scenario #8
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	55,044	20,978	18,342	20,400
4	Equity investments	2,083,349	2,189,534	2,272,545	2,468,582	2,666,659	2,857,322	2,936,573	3,013,680
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,397	1,455	3,232	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,083	63,095
14		2,683,473	2,805,484	2,916,137	3,017,617	3,259,323	3,429,713	3,524,725	3,621,857
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,850	2,266,432	2,332,699	2,410,792
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,128	3,307,674	3,418,250	3,541,448
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,005	269,535	173,914	150,232	115,319
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
27	Total Equity	231,003	181,000	210,845	242,894	217,194	122,040	106,475	80,409
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,017,617	3,259,323	3,429,713	3,524,725	3,621,857

Appendix 26d
Adverse Scenario #8
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,239	170,077	62,917	45,392	17,314
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,239	170,077	62,917	45,392	17,314
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	113,479
12	Unpaid claims	22	192,187	214,813	238,394	245,231	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	342,374	353,346	366,712
16	Market Risk:						
17	Interest rate risk	30	3,810	3,870	2,528	17,335	16,603
18	Foreign exchange risk	32	15,263	17,476	18,083	15,822	16,082
19	Equity risk	34	67,430	79,192	81,665	67,245	71,789
20	Real estate risk	36	25,565	26,455	27,129	28,035	29,509
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,068	126,993	129,405	128,437	133,983
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,289	60,664	62,680	64,953	66,146
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,289	60,664	62,680	64,953	66,146
28	Operational risk margin	50	64,172	71,140	75,028	77,257	80,205
29	Less: Diversification credit	52	52,709	62,693	65,544	66,541	68,926
30	Total Capital (Margin) Required at Target	59	449,666	510,840	543,943	557,452	578,120
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,777	340,560	362,628	371,634	385,414
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,777	340,560	362,628	371,634	385,414
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,538)	(170,483)	(299,711)	(326,242)	(368,100)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.46%	49.94%	17.35%	12.21%	4.49%

Appendix 26e
Adverse Scenario #8
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,960	334,661	222,438	223,710
7	Total	726,240	767,976	966,513	1,042,329	936,106	984,839
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,879	6,397	6,781
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	12,236	(451)	10,192
13	Total Net Claims Incurred	767,240	789,235	1,053,601	1,137,365	999,589	1,062,021

Appendix 26f

Adverse Scenario #8

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	76.52%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9470	0.9583	0.9919	1.0121	1.0139				
10	2021					0.9677	1.0007	1.0203	1.0212	1.0150			
11	2022						1.0066	1.0263	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				77.03%	71.48%	72.66%	74.53%	77.58%			74.74%	81.33%
17	2021					72.18%	73.31%	75.13%	78.14%	74.59%		74.34%	81.10%
18	2022						73.73%	75.57%	78.61%	75.04%	75.58%	75.40%	82.40%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.13%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,792	447,398	463,995	490,426		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,976	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,321	85,375	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,397	1,455	3,232	(5,573)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	31,026	30,575	35,193		
38	Change					2,363	(20,876)	7,611	12,236	(451)	4,619		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	5,573		
40	Change					2,001	(8,845)	-	-	-	5,573		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 26g

Adverse Scenario #8

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	112	(0)	0	(2)
3	Marketable Bonds	44,259	50,807	51,515	51,816	53,144
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,280	73,580	71,667	70,835
6	Dividend and other Income					
7	Canadian Equities	9,657	6,408	5,096	5,104	5,535
8	Global	4,218	6,717	5,524	5,563	5,874
9	Global LV	-	3,342	3,406	3,395	3,659
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,085	27,253	27,346	28,325
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	90,016	87,980	(12,899)	2,373
16	Marketable Bonds Realized Gains/(Loss)	13,969	45,912	21,270	12,899	(2,373)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(176)	(1,360)	265	766
19	Global Equities Realized Gains	66,318	181	(121)	334	1,211
20	Global LV Realized Gains	-	49	12	257	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,026	118,255	11,941	13,708
24	Other					
25	Investment Fees Paid	(5,203)	(4,896)	(4,800)	(4,944)	(5,078)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,347)	(12,737)	(14,972)	(14,490)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,115)	(31,850)	(34,673)	(34,775)
30	Total Corporate Investment Income	199,910	223,276	198,279	76,282	78,093
31	Total Basic Investment Income	171,428	194,660	167,543	60,906	58,975
32	% - Basic to Total Investment Income	85.75%	87%	84%	80%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(985)	5,400	6,177
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,302	8,767
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,636	4,996
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,080)	13,702	14,944
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,790.3	2,013.0	2,220.9	2,371.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.2	167.1	157.2	164.6
43	Global Equities	166.6	199.0	216.2	208.0	212.5
44	Global LV Equities	96.5	127.4	139.9	130.9	147.5
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.1	3,444.1	3,591.9	3,741.0
49	Total Basic Assets	2,511.2	2,735.3	2,891.9	2,968.7	3,049.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.4%	61.8%	63.4%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	4.9%	4.4%	4.4%
55	US Equities	5.7%	6.2%	6.3%	5.8%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.6%	3.9%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 26h

Adverse Scenario #8 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,474	29,376	31,454
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,719	1,238,614	1,289,252
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,643	1,124,975	995,365	1,055,987
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,600	1,137,365	999,589	1,062,021
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,581	1,289,988	1,158,304	1,223,322
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,391	168,737	174,998
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,177)	(261,659)	(88,427)	(109,068)
26	Investment Income	48,476	101,645	111,731	192,209	67,399	63,841	60,934	59,020
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,260	103,703	(28)	(45)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,660	167,543	60,906	58,975
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(26,518)	(94,116)	(27,521)	(50,094)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,303	91,312	(4,252)	(6,080)

Appendix 26i

Adverse Scenario #8 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	295,005	269,535	173,914	150,232
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(26,518)	(94,116)	(27,521)	(50,094)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(19,044)	1,047	(1,504)	3,839	15,181
6	Total Retained Earnings	194,498	99,251	170,975	295,005	269,535	173,914	150,232	115,319
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,340)	(51,875)	(43,757)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(229)	466	8,118	8,847
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
11	Total Equity Balance	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	295,005	269,535	173,914	150,232	115,319
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	242,894	217,194	122,040	106,475	80,409

Appendix 26j

Adverse Scenario #8 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	55,044	20,978	18,342	20,400
4	Equity investments	2,083,349	2,189,534	2,272,545	2,468,582	2,666,659	2,857,322	2,936,573	3,013,680
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,397	1,455	3,232	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,083	63,095
14		2,683,473	2,805,484	2,916,137	3,017,617	3,259,323	3,429,713	3,524,725	3,621,857
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,850	2,266,432	2,332,699	2,410,792
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,128	3,307,674	3,418,250	3,541,448
24	Equity								
25	Retained earnings	194,499	99,251	170,975	295,005	269,535	173,914	150,232	115,319
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,340)	(51,875)	(43,757)	(34,910)
27	Total Equity	231,003	181,000	210,845	242,894	217,194	122,040	106,475	80,409
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,017,617	3,259,323	3,429,713	3,524,725	3,621,857

Appendix 26k
Adverse Scenario #8 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	199,239	170,077	62,917	45,392	17,314
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	199,239	170,077	62,917	45,392	17,314
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	113,479
12	Unpaid claims	22	192,187	214,813	238,394	245,231	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	342,374	353,346	366,712
16	Market Risk:						
17	Interest rate risk	30	3,810	3,870	2,528	17,335	16,603
18	Foreign exchange risk	32	15,263	17,476	18,083	15,822	16,082
19	Equity risk	34	67,430	79,192	81,665	67,245	71,789
20	Real estate risk	36	25,565	26,455	27,129	28,035	29,509
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	112,068	126,993	129,405	128,437	133,983
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,289	60,664	62,680	64,953	66,146
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,289	60,664	62,680	64,953	66,146
28	Operational risk margin	50	64,172	71,140	75,028	77,257	80,205
29	Less: Diversification credit	52	52,709	62,693	65,544	66,541	68,926
30	Total Capital (Margin) Required at Target	59	449,666	510,840	543,943	557,452	578,120
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,777	340,560	362,628	371,634	385,414
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,777	340,560	362,628	371,634	385,414
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(100,538)	(170,483)	(299,711)	(326,242)	(368,100)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.46%	49.94%	17.35%	12.21%	4.49%

Appendix 26I

Adverse Scenario #8 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,960	334,661	222,438	223,710
7	Total	726,240	767,976	966,513	1,042,329	936,106	984,839
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,879	6,397	6,781
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	12,236	(451)	10,192
13	Total Net Claims Incurred	767,240	789,235	1,053,601	1,137,365	999,589	1,062,021

Appendix 26m

Adverse Scenario #8 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	76.52%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9470	0.9583	0.9919	1.0121	1.0139				
10	2021					0.9677	1.0007	1.0203	1.0212	1.0150			
11	2022						1.0066	1.0263	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				77.03%	71.48%	72.66%	74.53%	77.58%			74.74%	81.33%
17	2021					72.18%	73.31%	75.13%	78.14%	74.59%		74.34%	81.10%
18	2022						73.73%	75.57%	78.61%	75.04%	75.58%	75.40%	82.40%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.13%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,792	447,398	463,995	490,426		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,976	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,321	85,375	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,397	1,455	3,232	(5,573)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	31,026	30,575	35,193		
38	Change					2,363	(20,876)	7,611	12,236	(451)	4,619		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	5,573		
40	Change					2,001	(8,845)	-	-	-	5,573		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 26n

Adverse Scenario #8 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	112	(0)	0	(2)
3	Marketable Bonds	44,259	50,807	51,515	51,816	53,144
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,280	73,580	71,667	70,835
6	Dividend and other Income					
7	Canadian Equities	9,657	6,408	5,096	5,104	5,535
8	Global	4,218	6,717	5,524	5,563	5,874
9	Global LV	-	3,342	3,406	3,395	3,659
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,085	27,253	27,346	28,325
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	90,016	87,980	(12,899)	2,373
16	Marketable Bonds Realized Gains/(Loss)	13,969	45,912	21,270	12,899	(2,373)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(176)	(1,360)	265	766
19	Global Equities Realized Gains	66,318	181	(121)	334	1,211
20	Global LV Realized Gains	-	49	12	257	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,026	118,255	11,941	13,708
24	Other					
25	Investment Fees Paid	(5,203)	(4,896)	(4,800)	(4,944)	(5,078)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,347)	(12,737)	(14,972)	(14,490)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,115)	(31,850)	(34,673)	(34,775)
30	Total Corporate Investment Income	199,910	223,276	198,279	76,282	78,093
31	Total Basic Investment Income	171,428	194,660	167,543	60,906	58,975
32	% - Basic to Total Investment Income	85.75%	87%	84%	80%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(985)	5,400	6,177
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,302	8,767
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,636	4,996
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,080)	13,702	14,944
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,790.3	2,013.0	2,220.9	2,371.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.2	167.1	157.2	164.6
43	Global Equities	166.6	199.0	216.2	208.0	212.5
44	Global LV Equities	96.5	127.4	139.9	130.9	147.5
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.1	3,444.1	3,591.9	3,741.0
49	Total Basic Assets	2,511.2	2,735.3	2,891.9	2,968.7	3,049.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.4%	61.8%	63.4%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	4.9%	4.4%	4.4%
55	US Equities	5.7%	6.2%	6.3%	5.8%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.6%	3.9%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 27a

Updated Base Scenario #9

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,624	938,446	995,718	1,051,824
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,261	10,174	8,904	8,217
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,884	948,620	1,004,622	1,060,042
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,654
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,266
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,865	1,100,514	1,161,816	1,219,962
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,844
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,557
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,117)	(88,395)	(102,098)
26	Investment Income	48,476	101,645	111,731	192,209	84,843	88,397	91,817	94,798
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	5	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,854	88,401	91,823	94,801
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,249)	(10,170)	(8,898)	(8,214)

Appendix 27b
Updated Base Scenario #9
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	332,916	352,201	355,629
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,139
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
11	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312

Appendix 27c
Updated Base Scenario #9
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,107	72,268	77,487	69,216
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,532	2,688,168	2,802,186	2,918,049
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,672	20,163
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,217
14		2,683,473	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,220	390,321	406,734
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,848	1,980,404	2,055,933	2,129,113
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,559	3,023,307	3,143,359	3,261,853
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	332,916	352,201	355,629	348,332
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
27	Total Equity	231,003	181,000	210,845	261,938	288,739	317,215	330,471	334,312
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165

Appendix 27d
Updated Base Scenario #9
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	241,622	258,045	269,286	271,095
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	241,622	258,045	269,286	271,095
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,438	225,519
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,816	338,229
16	Market Risk:						
17	Interest rate risk	30	4,798	20,821	25,203	30,147	33,011
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,344
19	Equity risk	34	69,145	67,268	71,795	76,632	85,397
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,210	140,819	152,600	168,742
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,926	64,282	65,846	66,940
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,926	64,282	65,846	66,940
28	Operational risk margin	50	64,469	70,406	73,745	77,122	80,884
29	Less: Diversification credit	52	53,525	62,597	66,213	69,870	74,252
30	Total Capital (Margin) Required at Target	59	452,643	500,742	526,034	551,514	580,543
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,828	350,689	367,676	387,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,828	350,689	367,676	387,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(92,206)	(92,644)	(98,390)	(115,934)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	72.38%	73.58%	73.24%	70.05%

Appendix 27e
Updated Base Scenario #9
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,406
6	PIPP	187,022	177,326	215,511	220,977	222,398	224,403
7	Total	726,240	767,976	844,432	890,976	936,366	985,342
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,756	6,590
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,604)	(4,316)	3,963	7,900
13	Total Net Claims Incurred	767,240	789,235	899,884	948,620	1,004,622	1,060,042

Appendix 27f

Updated Base Scenario #9

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.68%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,468	470,034		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,035		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,486		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,672	20,163		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,222	15,122		
38	Change					2,363	(20,876)	(3,604)	(4,316)	3,963	7,900		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 27g

Updated Base Scenario #9

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,172	62,167	67,972	73,612
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,625	84,232	87,823	91,305
6	Dividend and other Income					
7	Canadian Equities	9,657	5,701	4,652	5,401	6,053
8	Global	4,218	5,988	4,975	5,702	6,296
9	Global LV	-	2,902	3,289	3,779	4,173
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,475	26,797	28,762	30,325
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(750)	(766)	(774)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	750	766	774
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,627	0	0	805
19	Global Equities Realized Gains	66,318	3,724	0	779	0
20	Global LV Realized Gains	-	457	-	-	848
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,852	10,475	11,864	13,384
24	Other					
25	Investment Fees Paid	(5,203)	(4,725)	(4,616)	(4,917)	(5,148)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,447	4,601	4,700	4,721
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,974)	(15,634)
30	Total Corporate Investment Income	199,910	103,802	107,175	113,476	119,380
31	Total Basic Investment Income	171,428	84,854	88,401	91,823	94,801
32	% - Basic to Total Investment Income	85.75%	82%	82%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,755	4,922	5,715	6,755
35	US Equities Unrealized Gains/(Losses)	7,537	9,335	7,424	8,509	9,396
36	Global LV Unrealized Gains/(Losses)	-	4,223	4,490	5,160	5,697
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,090	12,346	14,224	16,151
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,746.3	1,905.6	2,078.7	2,218.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.6	152.4	175.6	200.2
43	Global Equities	166.6	170.2	195.8	210.7	253.6
44	Global LV Equities	96.5	116.5	134.4	153.4	171.8
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,095.7	3,285.2	3,482.3	3,677.6
49	Total Basic Assets	2,530.3	2,654.2	2,774.0	2,893.4	3,002.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.7%	60.3%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	6.0%	6.1%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 28a

Modified Base Scenario #9

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,624	938,446	995,716	1,051,825
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,261	10,174	8,862	8,256
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,884	948,620	1,004,579	1,060,082
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,654
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,266
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,865	1,100,514	1,161,773	1,220,002
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,844
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,557
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,117)	(88,352)	(102,138)
26	Investment Income	48,476	101,645	111,731	192,209	84,084	87,620	91,007	93,947
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	3	6
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,095	87,624	91,010	93,952
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	18,109	18,507	2,658	(8,186)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,249)	(10,170)	(8,859)	(8,251)

Appendix 28b
Modified Base Scenario #9
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	293,616	310,193	324,395	327,992
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	18,109	18,507	2,658	(8,186)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(20,433)	(1,532)	(4,305)	939	12,093
6	Total Retained Earnings	194,498	99,251	170,975	293,616	310,193	324,395	327,992	331,899
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,435)	(35,537)	(26,022)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,676	8,898	9,515	10,799
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,435)	(35,537)	(26,022)	(15,224)
11	Total Equity Balance	231,002	181,000	210,845	241,505	265,758	288,858	301,969	316,675
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	293,616	310,193	324,395	327,992	331,899
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,435)	(35,537)	(26,022)	(15,224)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	241,505	265,758	288,858	301,969	316,675
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	241,505	265,758	288,858	301,969	316,675

Appendix 28c
Modified Base Scenario #9
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,503	66,343	72,499	76,308
4	Equity investments	2,083,349	2,189,534	2,272,545	2,467,193	2,557,154	2,665,735	2,778,628	2,893,313
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,674	20,163
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,217
14		2,683,473	2,805,484	2,916,137	3,016,228	3,167,317	3,312,164	3,445,286	3,578,521
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,731
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,848	1,980,404	2,055,891	2,129,109
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,559	3,023,306	3,143,317	3,261,847
24	Equity								
25	Retained earnings	194,499	99,251	170,975	293,616	310,193	324,395	327,992	331,899
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,435)	(35,537)	(26,022)	(15,224)
27	Total Equity	231,003	181,000	210,845	241,505	265,758	288,858	301,969	316,675
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,016,228	3,167,317	3,312,164	3,445,286	3,578,521

Appendix 28d
Modified Base Scenario #9
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	197,850	218,641	229,688	240,785	253,458
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	197,850	218,641	229,688	240,785	253,458
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,434	225,518
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,812	338,228
16	Market Risk:						
17	Interest rate risk	30	3,738	19,650	23,979	28,880	31,698
18	Foreign exchange risk	32	15,238	14,876	15,852	16,893	19,846
19	Equity risk	34	67,305	65,340	69,736	74,431	83,050
20	Real estate risk	36	25,537	26,425	27,098	28,002	29,474
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	111,818	126,291	136,665	148,206	164,068
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,284	61,256	63,606	65,165	66,253
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,284	61,256	63,606	65,165	66,253
28	Operational risk margin	50	64,151	70,016	73,334	76,691	80,429
29	Less: Diversification credit	52	52,649	61,652	65,237	68,865	73,224
30	Total Capital (Margin) Required at Target	59	449,450	496,708	521,769	547,009	575,754
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,633	331,138	347,846	364,673	383,836
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,633	331,138	347,846	364,673	383,836
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(101,783)	(112,497)	(118,158)	(123,888)	(130,378)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.03%	66.03%	66.03%	66.03%	66.03%

Appendix 28e

Modified Base Scenario #9

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,406
6	PIPP	187,022	177,326	215,511	220,977	222,363	224,435
7	Total	726,240	767,976	844,432	890,976	936,330	985,375
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,750	6,596
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,604)	(4,316)	3,961	7,902
13	Total Net Claims Incurred	767,240	789,235	899,884	948,620	1,004,578	1,060,082

Appendix 28f

Modified Base Scenario #9

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.67%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,466	470,034		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,035		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,486		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,674	20,163		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,220	15,122		
38	Change					2,363	(20,876)	(3,604)	(4,316)	3,961	7,902		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 28g

Modified Base Scenario #9

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	86	0	0	(0)
3	Marketable Bonds	44,259	55,158	62,164	67,962	73,628
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,606	84,229	87,814	91,321
6	Dividend and other Income					
7	Canadian Equities	9,657	5,725	4,654	5,405	6,072
8	Global	4,218	5,995	4,976	5,706	6,274
9	Global LV	-	2,903	3,290	3,782	4,195
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,506	26,801	28,774	30,344
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(27,948)	(750)	(765)	(773)
16	Marketable Bonds Realized Gains/(Loss)	13,969	27,948	750	765	773
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,652	0	0	971
19	Global Equities Realized Gains	66,318	3,732	0	0	1,123
20	Global LV Realized Gains	-	457	-	-	1,000
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,886	10,475	11,085	14,825
24	Other					
25	Investment Fees Paid	(5,203)	(4,729)	(4,616)	(4,919)	(5,154)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,446	4,601	4,700	4,714
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,155)	(14,328)	(14,976)	(15,647)
30	Total Corporate Investment Income	199,910	103,843	107,177	112,697	120,843
31	Total Basic Investment Income	171,428	84,095	87,624	91,010	93,952
32	% - Basic to Total Investment Income	85.75%	81%	82%	81%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,783	4,924	5,719	6,777
35	US Equities Unrealized Gains/(Losses)	7,537	9,345	7,426	8,515	9,362
36	Global LV Unrealized Gains/(Losses)	-	4,224	4,492	5,164	5,728
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,129	12,350	14,234	16,139
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,746.3	1,905.4	2,065.9	2,219.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.6	152.5	175.8	199.9
43	Global Equities	166.6	170.2	195.9	223.3	252.6
44	Global LV Equities	96.5	116.5	134.5	153.6	171.7
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,095.8	3,285.2	3,482.3	3,677.5
49	Total Basic Assets	2,509.8	2,631.2	2,745.6	2,864.9	2,984.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.3%	60.3%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	6.0%	6.4%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 29a

Adverse Scenario #9

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,531	29,438	31,521
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,644	1,241,660	1,292,426
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,413	1,124,944	995,304	1,055,934
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,370	1,137,334	999,528	1,061,969
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,584	147,889
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,396
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,351	1,289,954	1,158,243	1,223,254
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,473
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,570	168,923	175,185
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,472)	(258,880)	(85,506)	(106,013)
26	Investment Income	48,476	101,645	111,731	192,209	67,357	63,799	60,903	58,995
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,234	103,700	(29)	(45)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,591	167,498	60,874	58,950
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(23,881)	(91,382)	(24,632)	(47,063)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,277	91,310	(4,254)	(6,080)

Appendix 29b
Adverse Scenario #9
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	293,616	268,203	172,516	148,823
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(23,881)	(91,382)	(24,632)	(47,063)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(20,433)	(1,532)	(4,305)	939	12,093
6	Total Retained Earnings	194,498	99,251	170,975	293,616	268,203	172,516	148,823	113,853
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,339)	(51,875)	(43,764)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(228)	464	8,111	8,839
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
11	Total Equity Balance	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	293,616	268,203	172,516	148,823	113,853
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928

Appendix 29c
Adverse Scenario #9
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	54,161	19,669	16,583	18,126
4	Equity investments	2,083,349	2,189,534	2,272,545	2,467,193	2,665,455	2,856,464	2,936,107	3,013,632
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	2,804	4,643	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,083	63,096
14		2,683,473	2,805,484	2,916,137	3,016,228	3,259,300	3,429,670	3,524,717	3,620,375
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,860	2,266,435	2,332,701	2,409,327
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,436	3,309,028	3,419,658	3,541,446
24	Equity								
25	Retained earnings	194,499	99,251	170,975	293,616	268,203	172,516	148,823	113,853
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
27	Total Equity	231,003	181,000	210,845	241,505	215,864	120,642	105,059	78,928
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,016,228	3,259,300	3,429,670	3,524,717	3,620,375

Appendix 29d
Adverse Scenario #9
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	197,850	168,747	61,518	43,976	15,832
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	197,850	168,747	61,518	43,976	15,832
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	113,478
12	Unpaid claims	22	192,187	214,814	238,394	245,232	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	342,627	353,610	366,711
16	Market Risk:						
17	Interest rate risk	30	3,738	3,815	2,504	17,333	16,855
18	Foreign exchange risk	32	15,238	17,451	18,060	15,806	16,116
19	Equity risk	34	67,305	79,065	81,556	67,179	71,720
20	Real estate risk	36	25,537	26,425	27,098	28,002	29,474
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	111,818	126,756	129,218	128,320	134,165
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,284	60,790	62,812	65,095	66,153
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,284	60,790	62,812	65,095	66,153
28	Operational risk margin	50	64,151	71,222	75,118	77,357	80,299
29	Less: Diversification credit	52	52,649	62,686	65,548	66,564	68,970
30	Total Capital (Margin) Required at Target	59	449,450	511,061	544,227	557,818	578,358
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,633	340,707	362,818	371,879	385,572
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,633	340,707	362,818	371,879	385,572
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(101,783)	(171,960)	(301,300)	(327,903)	(369,740)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.03%	49.53%	16.96%	11.83%	4.11%

Appendix 29e
Adverse Scenario #9
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,968	334,655	222,438	223,711
7	Total	726,240	767,976	966,522	1,042,322	936,105	984,840
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,107	27,879	6,397	6,782
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	12,212	(511)	10,138
13	Total Net Claims Incurred	767,240	789,235	1,052,370	1,137,334	999,528	1,061,969

Appendix 29f

Adverse Scenario #9

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	76.33%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9447	0.9560	0.9895	1.0110	1.0139				
10	2021					0.9653	0.9983	1.0191	1.0212	1.0150			
11	2022						1.0041	1.0252	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				76.84%	71.31%	72.48%	74.34%	77.39%			74.55%	81.13%
17	2021					72.00%	73.13%	74.94%	77.95%	74.40%		74.16%	80.90%
18	2022						73.55%	75.38%	78.42%	74.86%	75.40%	75.21%	82.19%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.11%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.70%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,393	463,991	490,422		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,985	15,544	16,163		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,320	85,374	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	2,804	4,643	(4,104)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	29,762	29,251	35,285		
38	Change					2,363	(20,876)	6,371	12,212	(511)	6,034		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,104		
40	Change					2,001	(8,845)	-	-	-	4,104		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 29g

Adverse Scenario #9

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	111	(0)	(0)	(2)
3	Marketable Bonds	44,259	50,815	51,545	51,868	53,281
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,287	73,610	71,720	70,972
6	Dividend and other Income					
7	Canadian Equities	9,657	6,412	5,111	5,137	5,480
8	Global	4,218	6,720	5,537	5,592	5,917
9	Global LV	-	3,344	3,417	3,418	3,694
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,095	27,292	27,431	28,348
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	90,119	88,052	(12,832)	2,386
16	Marketable Bonds Realized Gains/(Loss)	13,969	45,808	21,234	12,832	(2,386)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(177)	(1,361)	264	621
19	Global Equities Realized Gains	66,318	181	(121)	333	1,237
20	Global LV Realized Gains	-	49	12	256	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,024	118,292	11,939	13,588
24	Other					
25	Investment Fees Paid	(5,203)	(4,897)	(4,804)	(4,953)	(5,086)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,349)	(12,758)	(15,011)	(14,569)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,118)	(31,875)	(34,721)	(34,862)
30	Total Corporate Investment Income	199,910	223,288	198,360	76,369	78,046
31	Total Basic Investment Income	171,428	194,591	167,498	60,874	58,950
32	% - Basic to Total Investment Income	85.75%	87%	84%	80%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,435	6,116
35	US Equities Unrealized Gains/(Losses)	7,537	88	(95)	8,346	8,831
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,667	5,044
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,081)	13,781	14,946
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,791.3	2,015.3	2,224.5	2,376.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.4	167.8	158.6	167.3
43	Global Equities	166.6	199.3	217.0	209.4	214.0
44	Global LV Equities	96.5	127.6	140.5	132.1	149.1
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.8	3,448.5	3,599.4	3,751.6
49	Total Basic Assets	2,509.8	2,733.2	2,889.7	2,966.4	3,047.0
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.4%	61.8%	63.3%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	4.9%	4.4%	4.5%
55	US Equities	5.7%	6.2%	6.3%	5.8%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.7%	4.0%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 29h

Adverse Scenario #9 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,531	29,438	31,521
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,644	1,241,660	1,292,426
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,413	1,124,944	995,304	1,055,934
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,370	1,137,334	999,528	1,061,969
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,584	147,889
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,396
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,351	1,289,954	1,158,243	1,223,254
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,473
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,570	168,923	175,185
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,472)	(258,880)	(85,506)	(106,013)
26	Investment Income	48,476	101,645	111,731	192,209	67,357	63,799	60,903	58,995
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,234	103,700	(29)	(45)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	194,591	167,498	60,874	58,950
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(23,881)	(91,382)	(24,632)	(47,063)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,277	91,310	(4,254)	(6,080)

Appendix 29i

Adverse Scenario #9 with Management Action

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	293,616	268,203	172,516	148,823
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(23,881)	(91,382)	(24,632)	(47,063)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(20,433)	(1,532)	(4,305)	939	12,093
6	Total Retained Earnings	194,498	99,251	170,975	293,616	268,203	172,516	148,823	113,853
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,339)	(51,875)	(43,764)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(228)	464	8,111	8,839
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
11	Total Equity Balance	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	293,616	268,203	172,516	148,823	113,853
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	241,505	215,864	120,642	105,059	78,928

Appendix 29j

Adverse Scenario #9 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	54,161	19,669	16,583	18,126
4	Equity investments	2,083,349	2,189,534	2,272,545	2,467,193	2,665,455	2,856,464	2,936,107	3,013,632
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	2,804	4,643	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,083	63,096
14		2,683,473	2,805,484	2,916,137	3,016,228	3,259,300	3,429,670	3,524,717	3,620,375
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,860	2,266,435	2,332,701	2,409,327
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,436	3,309,028	3,419,658	3,541,446
24	Equity								
25	Retained earnings	194,499	99,251	170,975	293,616	268,203	172,516	148,823	113,853
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,339)	(51,875)	(43,764)	(34,924)
27	Total Equity	231,003	181,000	210,845	241,505	215,864	120,642	105,059	78,928
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,016,228	3,259,300	3,429,670	3,524,717	3,620,375

Appendix 29k

Adverse Scenario #9 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	197,850	168,747	61,518	43,976	15,832
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	197,850	168,747	61,518	43,976	15,832
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	113,478
12	Unpaid claims	22	192,187	214,814	238,394	245,232	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	342,627	353,610	366,711
16	Market Risk:						
17	Interest rate risk	30	3,738	3,815	2,504	17,333	16,855
18	Foreign exchange risk	32	15,238	17,451	18,060	15,806	16,116
19	Equity risk	34	67,305	79,065	81,556	67,179	71,720
20	Real estate risk	36	25,537	26,425	27,098	28,002	29,474
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	111,818	126,756	129,218	128,320	134,165
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,284	60,790	62,812	65,095	66,153
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,284	60,790	62,812	65,095	66,153
28	Operational risk margin	50	64,151	71,222	75,118	77,357	80,299
29	Less: Diversification credit	52	52,649	62,686	65,548	66,564	68,970
30	Total Capital (Margin) Required at Target	59	449,450	511,061	544,227	557,818	578,358
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	299,633	340,707	362,818	371,879	385,572
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	299,633	340,707	362,818	371,879	385,572
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(101,783)	(171,960)	(301,300)	(327,903)	(369,740)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	66.03%	49.53%	16.96%	11.83%	4.11%

Appendix 29I

Adverse Scenario #9 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,968	334,655	222,438	223,711
7	Total	726,240	767,976	966,522	1,042,322	936,105	984,840
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,107	27,879	6,397	6,782
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	12,212	(511)	10,138
13	Total Net Claims Incurred	767,240	789,235	1,052,370	1,137,334	999,528	1,061,969

Appendix 29m

Adverse Scenario #9 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	76.33%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9447	0.9560	0.9895	1.0110	1.0139				
10	2021					0.9653	0.9983	1.0191	1.0212	1.0150			
11	2022						1.0041	1.0252	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				76.84%	71.31%	72.48%	74.34%	77.39%			74.55%	81.13%
17	2021					72.00%	73.13%	74.94%	77.95%	74.40%		74.16%	80.90%
18	2022						73.55%	75.38%	78.42%	74.86%	75.40%	75.21%	82.19%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.11%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.70%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,393	463,991	490,422		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,985	15,544	16,163		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,320	85,374	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	2,804	4,643	(4,104)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	29,762	29,251	35,285		
38	Change					2,363	(20,876)	6,371	12,212	(511)	6,034		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,104		
40	Change					2,001	(8,845)	-	-	-	4,104		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 29n

Adverse Scenario #9 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	111	(0)	(0)	(2)
3	Marketable Bonds	44,259	50,815	51,545	51,868	53,281
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,287	73,610	71,720	70,972
6	Dividend and other Income					
7	Canadian Equities	9,657	6,412	5,111	5,137	5,480
8	Global	4,218	6,720	5,537	5,592	5,917
9	Global LV	-	3,344	3,417	3,418	3,694
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,095	27,292	27,431	28,348
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	90,119	88,052	(12,832)	2,386
16	Marketable Bonds Realized Gains/(Loss)	13,969	45,808	21,234	12,832	(2,386)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(177)	(1,361)	264	621
19	Global Equities Realized Gains	66,318	181	(121)	333	1,237
20	Global LV Realized Gains	-	49	12	256	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,024	118,292	11,939	13,588
24	Other					
25	Investment Fees Paid	(5,203)	(4,897)	(4,804)	(4,953)	(5,086)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,349)	(12,758)	(15,011)	(14,569)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,118)	(31,875)	(34,721)	(34,862)
30	Total Corporate Investment Income	199,910	223,288	198,360	76,369	78,046
31	Total Basic Investment Income	171,428	194,591	167,498	60,874	58,950
32	% - Basic to Total Investment Income	85.75%	87%	84%	80%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,435	6,116
35	US Equities Unrealized Gains/(Losses)	7,537	88	(95)	8,346	8,831
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,667	5,044
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,081)	13,781	14,946
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,791.3	2,015.3	2,224.5	2,376.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.4	167.8	158.6	167.3
43	Global Equities	166.6	199.3	217.0	209.4	214.0
44	Global LV Equities	96.5	127.6	140.5	132.1	149.1
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.8	3,448.5	3,599.4	3,751.6
49	Total Basic Assets	2,509.8	2,733.2	2,889.7	2,966.4	3,047.0
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.4%	61.8%	63.3%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	4.9%	4.4%	4.5%
55	US Equities	5.7%	6.2%	6.3%	5.8%	5.7%
56	Global LV	3.3%	4.0%	4.1%	3.7%	4.0%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 30a

Updated Base Scenario #10

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,111	995,327	1,051,242
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,716)	655	11,121	9,453
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,417	937,766	1,006,448	1,060,695
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,352	1,089,534	1,163,473	1,220,477
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,989)	(83,244)	(116,087)	(129,635)
26	Investment Income	48,476	101,645	111,731	192,131	87,044	92,631	96,915	100,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,528)	(7,424)	4,473	2,029
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,515	85,206	101,387	102,402
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,812)	(8,079)	(6,648)	(7,424)

Appendix 30b
Updated Base Scenario #10
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	316,493	318,456	303,756
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,784)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,202	11,214
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
11	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953

Appendix 30c
Updated Base Scenario #10
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	47,134	36,299	19,279	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,544,598	2,646,458	2,767,091	2,874,836
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,761
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,677	389,271	405,961
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,964	1,934,073	2,010,737	2,084,197
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,555	2,962,957	3,084,134	3,202,656
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	316,493	318,456	303,756	276,523
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
27	Total Equity	231,003	181,000	210,845	264,856	272,319	283,470	278,972	262,953
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609

Appendix 30d
Updated Base Scenario #10
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	225,199	224,288	217,770	199,717
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	225,199	224,288	217,770	199,717
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,031	204,518	212,902	221,010
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
16	Market Risk:						
17	Interest rate risk	30	6,468	21,726	25,600	29,355	34,758
18	Foreign exchange risk	32	15,640	15,260	16,262	17,838	20,919
19	Equity risk	34	69,313	67,256	71,783	79,552	84,976
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,141	141,244	155,278	170,690
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	60,210	62,400	63,916	65,125
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	60,210	62,400	63,916	65,125
28	Operational risk margin	50	64,552	69,195	72,353	75,892	79,568
29	Less: Diversification credit	52	53,910	61,979	65,356	69,428	73,655
30	Total Capital (Margin) Required at Target	59	453,309	493,523	517,059	544,511	572,923
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	329,016	344,706	363,008	381,949
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	329,016	344,706	363,008	381,949
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(103,817)	(120,418)	(145,238)	(182,232)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	68.45%	65.07%	59.99%	52.29%

Appendix 30e
Updated Base Scenario #10
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,124	223,369	224,650
7	Total	726,240	759,725	821,952	882,030	937,339	985,583
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,630
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,272
13	Total Net Claims Incurred	767,240	778,719	883,418	937,767	1,006,447	1,060,694

Appendix 30f

Updated Base Scenario #10

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,761		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,679		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,272		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 30g

Updated Base Scenario #10

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,517	63,687	69,947	76,032
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,013	85,752	89,798	93,725
6	Dividend and other Income					
7	Canadian Equities	9,657	5,675	4,509	5,224	5,711
8	Global	4,218	5,958	4,843	5,540	5,968
9	Global LV	-	2,881	3,193	3,661	4,018
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,449	26,578	28,448	29,637
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,139)	(7,824)	2,711	578
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(40)	2,026	1,546
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,659	0	0	747
19	Global Equities Realized Gains	66,319	3,761	0	0	889
20	Global LV Realized Gains	-	459	-	-	908
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,818)	2,619	15,831	16,407
24	Other					
25	Investment Fees Paid	(5,204)	(4,706)	(4,555)	(4,835)	(5,034)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,796	7,626	7,682	7,391
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,782)	(11,242)	(11,910)	(12,850)
30	Total Corporate Investment Income	191,042	78,800	102,766	122,681	127,153
31	Total Basic Investment Income	163,818	62,515	85,206	101,387	102,402
32	% - Basic to Total Investment Income	85.75%	79%	83%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,724	4,771	5,528	6,373
35	US Equities Unrealized Gains/(Losses)	7,538	9,289	7,228	8,268	8,906
36	Global LV Unrealized Gains/(Losses)	-	4,193	4,359	4,999	5,487
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,013	11,999	13,796	15,280
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.5	1,990.6	2,149.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	127.9	145.4	168.7	184.2
43	Global Equities	166.7	167.1	188.1	215.5	234.8
44	Global LV Equities	96.6	114.2	128.6	147.7	158.1
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.1	3,203.9	3,385.2	3,559.5
49	Total Basic Assets	2,522.7	2,605.3	2,696.3	2,800.1	2,890.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	60.4%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.6%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.4%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 31a

Modified Scenario #10

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,112	995,327	1,051,244
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,715)	654	11,121	9,492
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,418	937,766	1,006,448	1,060,736
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,353	1,089,534	1,163,473	1,220,518
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,990)	(83,244)	(116,087)	(129,676)
26	Investment Income	48,476	101,645	111,731	192,131	86,493	92,056	96,296	99,732
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,485)	(7,411)	4,465	2,031
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,008	84,645	100,761	101,762
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(982)	1,401	(15,327)	(27,914)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,770)	(8,065)	(6,656)	(7,462)

Appendix 31b
Modified Scenario #10
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	302,103	315,947	329,728	334,255
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(982)	1,401	(15,327)	(27,914)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,863)	14,825	12,380	19,854	31,876
6	Total Retained Earnings	194,498	99,251	170,975	302,103	315,947	329,728	334,255	338,217
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,361)	(35,385)	(25,411)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,750	8,976	9,974	10,967
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,411)	(14,444)
11	Total Equity Balance	231,002	181,000	210,845	249,992	271,586	294,342	308,844	323,772
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	302,103	315,947	329,728	334,255	338,217
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,411)	(14,444)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,992	271,586	294,342	308,844	323,772
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,992	271,586	294,342	308,844	323,772

Appendix 31c
Modified Scenario #10
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	61,904	63,435	66,266	67,011
4	Equity investments	2,083,349	2,189,534	2,272,545	2,464,996	2,529,092	2,630,192	2,749,973	2,868,683
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,759
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	3,015,082	3,124,139	3,257,298	3,392,975	3,526,464
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,988	372,675	389,269	405,958
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,965	1,934,073	2,010,737	2,084,237
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,554	2,962,955	3,084,131	3,202,692
24	Equity								
25	Retained earnings	194,499	99,251	170,975	302,103	315,947	329,728	334,255	338,217
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,411)	(14,444)
27	Total Equity	231,003	181,000	210,845	249,992	271,586	294,342	308,844	323,772
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,015,082	3,124,139	3,257,298	3,392,975	3,526,464

Appendix 31d
Modified Scenario #10
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	206,338	224,465	235,160	247,642	260,536
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	206,338	224,465	235,160	247,642	260,536
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,032	204,518	212,902	221,014
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,957	306,418	318,853	331,199
16	Market Risk:						
17	Interest rate risk	30	5,695	20,885	24,732	28,447	33,805
18	Foreign exchange risk	32	15,372	14,980	15,963	17,519	20,555
19	Equity risk	34	67,975	65,857	70,289	77,955	83,269
20	Real estate risk	36	25,686	26,583	27,265	28,179	29,662
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,728	128,305	138,249	152,100	167,291
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,328	59,725	61,913	63,424	64,628
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,328	59,725	61,913	63,424	64,628
28	Operational risk margin	50	64,320	68,913	72,057	75,580	79,237
29	Less: Diversification credit	52	53,281	61,305	64,664	68,718	72,924
30	Total Capital (Margin) Required at Target	59	450,975	490,595	513,973	541,239	569,431
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,650	327,064	342,649	360,826	379,620
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,650	327,064	342,649	360,826	379,620
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,312)	(102,599)	(107,489)	(113,184)	(119,084)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.63%	68.63%	68.63%	68.63%	68.63%

Appendix 31e
Modified Scenario #10
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,753
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,123	223,369	224,683
7	Total	726,240	759,725	821,953	882,030	937,339	985,617
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,635
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,274
13	Total Net Claims Incurred	767,240	778,719	883,418	937,766	1,006,447	1,060,736

Appendix 31f

Modified Scenario #10

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,422		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,006		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,759		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,681		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,274		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 31g

Modified Scenario #10

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	129	(0)	(0)	(0)
3	Marketable Bonds	44,245	55,506	63,685	69,939	75,894
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	79,997	85,750	89,791	93,587
6	Dividend and other Income					
7	Canadian Equities	9,657	5,692	4,510	5,228	5,794
8	Global	4,218	5,963	4,844	5,543	6,035
9	Global LV	-	2,882	3,194	3,664	4,021
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,471	26,582	28,457	29,789
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(49,856)	(7,824)	2,711	574
16	Marketable Bonds Realized Gains/(Loss)	11,781	24,110	(40)	2,026	1,552
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,679	0	0	924
19	Global Equities Realized Gains	66,319	3,767	0	0	1,019
20	Global LV Realized Gains	-	459	-	-	943
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,789)	2,619	15,830	16,751
24	Other					
25	Investment Fees Paid	(5,204)	(4,710)	(4,557)	(4,838)	(5,046)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,795	7,626	7,681	7,375
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,787)	(11,244)	(11,914)	(12,878)
30	Total Corporate Investment Income	191,042	78,830	102,765	122,678	127,482
31	Total Basic Investment Income	163,818	62,008	84,645	100,761	101,762
32	% - Basic to Total Investment Income	85.75%	79%	82%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,745	4,772	5,531	6,466
35	US Equities Unrealized Gains/(Losses)	7,538	9,297	7,229	8,272	9,006
36	Global LV Unrealized Gains/(Losses)	-	4,193	4,361	5,003	5,490
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,041	12,001	13,803	15,472
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.4	1,990.2	2,173.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	128.0	145.5	168.9	175.5
43	Global Equities	166.7	167.2	188.2	215.6	225.9
44	Global LV Equities	96.6	114.2	128.7	147.8	151.6
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.1	3,203.9	3,385.2	3,559.7
49	Total Basic Assets	2,507.8	2,604.5	2,707.2	2,830.0	2,950.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	61.1%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	4.9%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.3%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.3%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 32a

Adverse Scenario #10

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,207	1,063,223
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,431	1,069,257
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,593	1,230,096
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(121,001)	(140,147)
26	Investment Income	48,476	101,645	111,731	192,129	78,346	75,435	82,367	81,781
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,367	39,626	5,021	2,321
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,714	115,061	87,388	84,101
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,817)	(55,457)	(33,612)	(56,045)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,410	27,236	797	(3,714)

Appendix 32b
Adverse Scenario #10
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,639	214,647	171,570	157,812
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,817)	(55,457)	(33,612)	(56,045)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,863)	14,825	12,380	19,854	31,876
6	Total Retained Earnings	194,498	99,251	170,975	301,639	214,647	171,570	157,812	133,642
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,483)	(51,918)	(44,772)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,372)	3,565	7,146	8,149
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
11	Total Equity Balance	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,639	214,647	171,570	157,812	133,642
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019

Appendix 32c
Adverse Scenario #10
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	32,850	15,956	11,523	8,164
4	Equity investments	2,083,349	2,189,534	2,272,545	2,464,983	2,567,355	2,689,737	2,791,570	2,888,957
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,014,617	3,119,305	3,249,283	3,363,063	3,478,027
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,047	2,262,399
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,250,024	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,639	214,647	171,570	157,812	133,642
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
27	Total Equity	231,003	181,000	210,845	249,528	159,164	119,652	113,040	97,019
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,617	3,119,305	3,249,283	3,363,063	3,478,027

Appendix 32d
Adverse Scenario #10
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,874	112,043	60,520	51,928	33,888
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,874	112,043	60,520	51,928	33,888
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,194	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,394	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,588	349,896
16	Market Risk:						
17	Interest rate risk	30	5,695	9,850	10,819	23,074	23,144
18	Foreign exchange risk	32	15,372	16,402	15,772	14,969	15,739
19	Equity risk	34	67,974	74,109	69,596	61,299	72,329
20	Real estate risk	36	25,685	26,583	27,265	28,179	29,661
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,726	126,944	123,452	127,521	140,873
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	58,249	61,044	63,004	64,453
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	58,249	61,044	63,004	64,453
28	Operational risk margin	50	64,316	69,655	72,179	74,878	78,566
29	Less: Diversification credit	52	53,270	61,578	62,603	64,749	68,983
30	Total Capital (Margin) Required at Target	59	450,935	499,796	517,582	536,242	564,805
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,623	333,197	345,055	357,494	376,537
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,623	333,197	345,055	357,494	376,537
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,749)	(221,154)	(284,535)	(305,566)	(342,649)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.48%	33.63%	17.54%	14.53%	9.00%

Appendix 32e
Adverse Scenario #10
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,807
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,427	231,623
7	Total	726,240	759,725	946,811	952,787	946,391	992,585
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	7,004	6,977
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,500)	9,486
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,432	1,069,257

Appendix 32f

Adverse Scenario #10

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,063	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,284	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,292)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,292	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,797)	8,128		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 32g

Adverse Scenario #10

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,728	57,662	61,282	64,978
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,180	79,727	81,134	82,671
6	Dividend and other Income					
7	Canadian Equities	9,657	5,740	4,486	4,618	4,752
8	Global	4,218	5,969	4,694	4,829	5,070
9	Global LV	-	2,887	2,838	2,906	3,175
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,418	25,758	26,115	26,704
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,171	28,017	(2,095)	(859)
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,897	13,567	7,319	3,303
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,624)	709	0
19	Global Equities Realized Gains	66,318	(609)	(6,610)	450	0
20	Global LV Realized Gains	-	(99)	(4,069)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,039	36,764	17,547	14,182
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,544)	(4,695)	(4,805)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(213)	(1,212)	(1,932)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,070)	(20,664)	(21,944)
30	Total Corporate Investment Income	191,037	132,023	127,905	104,665	101,855
31	Total Basic Investment Income	163,817	116,714	115,061	87,388	84,101
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	83%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	4,886	5,303
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,782)	7,207	7,567
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	3,968	4,336
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,620)	12,093	12,870
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,689.3	1,873.0	2,059.7	2,165.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.8	130.5	168.6
43	Global Equities	166.7	175.0	175.0	176.4	194.8
44	Global LV Equities	96.6	110.3	110.2	114.6	126.5
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.9	3,350.6	3,495.5
49	Total Basic Assets	2,507.8	2,613.8	2,719.2	2,816.9	2,912.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.6%	61.5%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.1%
54	Canadian Equities	4.2%	4.6%	4.3%	3.9%	4.8%
55	US Equities	5.7%	5.7%	5.5%	5.3%	5.6%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 32h

Adverse Scenario #10 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,207	1,063,223
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,431	1,069,257
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,593	1,230,096
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(121,001)	(140,147)
26	Investment Income	48,476	101,645	111,731	192,129	78,346	75,435	82,367	81,781
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,367	39,626	5,021	2,321
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,714	115,061	87,388	84,101
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,817)	(55,457)	(33,612)	(56,045)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,410	27,236	797	(3,714)

Appendix 32i

Adverse Scenario #10 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,639	214,647	171,570	157,812
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,817)	(55,457)	(33,612)	(56,045)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,863)	14,825	12,380	19,854	31,876
6	Total Retained Earnings	194,498	99,251	170,975	301,639	214,647	171,570	157,812	133,642
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,483)	(51,918)	(44,772)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,372)	3,565	7,146	8,149
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
11	Total Equity Balance	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,639	214,647	171,570	157,812	133,642
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,528	159,164	119,652	113,040	97,019

Appendix 32j

Adverse Scenario #10 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	32,850	15,956	11,523	8,164
4	Equity investments	2,083,349	2,189,534	2,272,545	2,464,983	2,567,355	2,689,737	2,791,570	2,888,957
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,014,617	3,119,305	3,249,283	3,363,063	3,478,027
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,047	2,262,399
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,250,024	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,639	214,647	171,570	157,812	133,642
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,483)	(51,918)	(44,772)	(36,623)
27	Total Equity	231,003	181,000	210,845	249,528	159,164	119,652	113,040	97,019
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,617	3,119,305	3,249,283	3,363,063	3,478,027

Appendix 32k
Adverse Scenario #10 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,874	112,043	60,520	51,928	33,888
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,874	112,043	60,520	51,928	33,888
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,194	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,394	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,588	349,896
16	Market Risk:						
17	Interest rate risk	30	5,695	9,850	10,819	23,074	23,144
18	Foreign exchange risk	32	15,372	16,402	15,772	14,969	15,739
19	Equity risk	34	67,974	74,109	69,596	61,299	72,329
20	Real estate risk	36	25,685	26,583	27,265	28,179	29,661
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,726	126,944	123,452	127,521	140,873
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	58,249	61,044	63,004	64,453
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	58,249	61,044	63,004	64,453
28	Operational risk margin	50	64,316	69,655	72,179	74,878	78,566
29	Less: Diversification credit	52	53,270	61,578	62,603	64,749	68,983
30	Total Capital (Margin) Required at Target	59	450,935	499,796	517,582	536,242	564,805
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,623	333,197	345,055	357,494	376,537
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,623	333,197	345,055	357,494	376,537
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,749)	(221,154)	(284,535)	(305,566)	(342,649)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.48%	33.63%	17.54%	14.53%	9.00%

Appendix 32l

Adverse Scenario #10 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,807
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,427	231,623
7	Total	726,240	759,725	946,811	952,787	946,391	992,585
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	7,004	6,977
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,500)	9,486
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,432	1,069,257

Appendix 32m

Adverse Scenario #10 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,063	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,284	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,292)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,292	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,797)	8,128		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 32n

Adverse Scenario #10 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,728	57,662	61,282	64,978
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,180	79,727	81,134	82,671
6	Dividend and other Income					
7	Canadian Equities	9,657	5,740	4,486	4,618	4,752
8	Global	4,218	5,969	4,694	4,829	5,070
9	Global LV	-	2,887	2,838	2,906	3,175
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,418	25,758	26,115	26,704
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,171	28,017	(2,095)	(859)
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,897	13,567	7,319	3,303
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,624)	709	0
19	Global Equities Realized Gains	66,318	(609)	(6,610)	450	0
20	Global LV Realized Gains	-	(99)	(4,069)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,039	36,764	17,547	14,182
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,544)	(4,695)	(4,805)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(213)	(1,212)	(1,932)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,070)	(20,664)	(21,944)
30	Total Corporate Investment Income	191,037	132,023	127,905	104,665	101,855
31	Total Basic Investment Income	163,817	116,714	115,061	87,388	84,101
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	83%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	4,886	5,303
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,782)	7,207	7,567
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	3,968	4,336
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,620)	12,093	12,870
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,689.3	1,873.0	2,059.7	2,165.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.8	130.5	168.6
43	Global Equities	166.7	175.0	175.0	176.4	194.8
44	Global LV Equities	96.6	110.3	110.2	114.6	126.5
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.9	3,350.6	3,495.5
49	Total Basic Assets	2,507.8	2,613.8	2,719.2	2,816.9	2,912.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.6%	61.5%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.1%
54	Canadian Equities	4.2%	4.6%	4.3%	3.9%	4.8%
55	US Equities	5.7%	5.7%	5.5%	5.3%	5.6%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 33a

Updated Base Scenario #11

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,904	1,050,847
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,684)	643	11,004	9,108
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,866	937,585	1,005,908	1,059,955
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,932	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,801	1,089,307	1,162,887	1,219,691
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,230)	(63,994)	(95,683)	(108,201)
26	Investment Income	48,476	101,645	111,731	192,131	87,069	92,756	97,119	100,477
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,536)	(7,429)	4,485	2,067
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,532	85,328	101,604	102,544
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,853)	(8,072)	(6,519)	(7,041)

Appendix 33b
Updated Base Scenario #11
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	335,269	356,602	362,523
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,699)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,286	11,686
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
11	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854

Appendix 33c
Updated Base Scenario #11
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	58,910	64,447	64,445	50,937
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,318	2,651,130	2,775,056	2,898,494
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,189	29,371	26,461	19,965
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,185	61,207	63,242
14		2,683,473	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,983
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,996	1,934,094	2,010,642	2,083,755
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,574	2,972,338	3,093,785	3,212,367
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	335,269	356,602	362,523	356,867
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
27	Total Equity	231,003	181,000	210,845	264,856	291,095	321,617	337,824	343,854
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221

Appendix 33d
Updated Base Scenario #11
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	243,975	262,432	276,617	280,612
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	243,975	262,432	276,617	280,612
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,965
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,044
16	Market Risk:						
17	Interest rate risk	30	6,468	21,932	26,165	29,932	34,203
18	Foreign exchange risk	32	15,640	15,260	16,262	17,953	20,895
19	Equity risk	34	69,313	67,256	71,783	80,213	88,365
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,347	141,809	156,631	173,500
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,398	63,645	65,227	66,439
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,398	63,645	65,227	66,439
28	Operational risk margin	50	64,552	69,943	73,161	76,798	80,623
29	Less: Diversification credit	52	53,910	62,394	65,858	70,094	74,586
30	Total Capital (Margin) Required at Target	59	453,309	496,935	520,928	549,225	579,020
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,290	347,285	366,150	386,013
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,290	347,285	366,150	386,013
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(87,315)	(84,853)	(89,533)	(105,401)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.64%	75.57%	75.55%	72.70%

Appendix 33e

Updated Base Scenario #11

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,277	212,114	223,270	224,355
7	Total	726,240	759,725	821,980	882,021	937,240	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,536	6,902	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,879
13	Total Net Claims Incurred	767,240	778,719	874,866	937,585	1,005,909	1,059,954

Appendix 33f

Updated Base Scenario #11

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.77%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,364		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,995		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,189	29,371	26,461	19,965		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,109		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,879		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 33g

Updated Base Scenario #11

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,595	64,011	70,511	76,775
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,092	86,075	90,362	94,468
6	Dividend and other Income					
7	Canadian Equities	9,657	5,689	4,604	5,457	6,047
8	Global	4,218	5,975	4,928	5,748	6,334
9	Global LV	-	2,896	3,260	3,820	4,241
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,494	26,825	29,048	30,560
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,165)	(7,848)	2,722	591
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(35)	2,044	1,566
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,638	0	0	757
19	Global Equities Realized Gains	66,319	3,740	0	0	1,012
20	Global LV Realized Gains	-	459	-	-	905
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,887)	2,599	15,860	16,569
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,580)	(4,899)	(5,141)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,806	7,676	7,767	7,491
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,779)	(11,217)	(11,889)	(12,857)
30	Total Corporate Investment Income	191,042	78,858	103,342	123,896	128,975
31	Total Basic Investment Income	163,818	62,532	85,328	101,604	102,544
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,740	4,871	5,774	6,748
35	US Equities Unrealized Gains/(Losses)	7,538	9,315	7,354	8,579	9,452
36	Global LV Unrealized Gains/(Losses)	-	4,214	4,451	5,216	5,790
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,055	12,225	14,353	16,200
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,711.0	1,863.7	2,016.0	2,176.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.6	150.3	178.2	201.5
43	Global Equities	166.7	168.9	193.4	225.8	253.0
44	Global LV Equities	96.6	115.7	132.8	155.8	172.4
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,056.7	3,235.3	3,438.4	3,636.4
49	Total Basic Assets	2,522.7	2,618.8	2,729.1	2,853.3	2,964.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.6%	59.9%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.6%	7.0%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 34a

Modified Base Scenario #11

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,904	1,050,847
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,684)	643	11,004	9,108
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,866	937,585	1,005,908	1,059,955
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,932	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,801	1,089,307	1,162,887	1,219,691
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,230)	(63,994)	(95,683)	(108,201)
26	Investment Income	48,476	101,645	111,731	192,131	86,520	92,183	96,503	99,847
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,493)	(7,416)	4,476	2,062
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,027	84,767	100,979	101,909
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	17,797	20,773	5,296	(6,292)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,810)	(8,058)	(6,527)	(7,046)

Appendix 34b
Modified Base Scenario #11
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	302,176	317,587	331,565	336,388
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	17,797	20,773	5,296	(6,292)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,791)	(2,386)	(6,795)	(473)	10,450
6	Total Retained Earnings	194,498	99,251	170,975	302,176	317,587	331,565	336,388	340,546
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,360)	(35,383)	(25,323)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,751	8,977	10,060	11,440
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,360)	(35,383)	(25,323)	(13,883)
11	Total Equity Balance	231,002	181,000	210,845	250,065	273,227	296,181	311,065	326,664
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	302,176	317,587	331,565	336,388	340,546
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,360)	(35,383)	(25,323)	(13,883)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	250,065	273,227	296,181	311,065	326,664
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	250,065	273,227	296,181	311,065	326,664

Appendix 34c
Modified Base Scenario #11
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	56,470	55,199	54,722	51,660
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,069	2,530,889	2,634,942	2,758,020	2,880,579
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,189	29,371	26,461	19,965
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,185	61,207	63,242
14		2,683,473	2,805,484	2,916,137	3,015,155	3,134,800	3,268,519	3,404,850	3,539,030
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,982
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,996	1,934,094	2,010,642	2,083,755
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,574	2,972,338	3,093,785	3,212,366
24	Equity								
25	Retained earnings	194,499	99,251	170,975	302,176	317,587	331,565	336,388	340,546
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,360)	(35,383)	(25,323)	(13,883)
27	Total Equity	231,003	181,000	210,845	250,065	273,227	296,181	311,065	326,664
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,015,155	3,134,800	3,268,519	3,404,850	3,539,030

Appendix 34d
Modified Base Scenario #11
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	206,411	226,106	236,996	249,858	263,422
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	206,411	226,106	236,996	249,858	263,422
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,965
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,044
16	Market Risk:						
17	Interest rate risk	30	5,699	21,099	25,301	29,027	33,260
18	Foreign exchange risk	32	15,374	14,982	15,964	17,636	20,534
19	Equity risk	34	67,981	65,864	70,296	78,624	86,667
20	Real estate risk	36	25,687	26,585	27,267	28,181	29,664
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,741	128,530	138,828	153,468	170,125
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,328	60,916	63,161	64,737	65,945
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,328	60,916	63,161	64,737	65,945
28	Operational risk margin	50	64,321	69,662	72,867	76,488	80,294
29	Less: Diversification credit	52	53,284	61,725	65,170	69,391	73,867
30	Total Capital (Margin) Required at Target	59	450,986	494,024	517,857	545,965	575,541
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,658	329,349	345,238	363,977	383,694
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,658	329,349	345,238	363,977	383,694
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,247)	(103,243)	(108,242)	(114,119)	(120,272)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.65%	68.65%	68.65%	68.65%	68.65%

Appendix 34e
Modified Base Scenario #11
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,277	212,114	223,270	224,355
7	Total	726,240	759,725	821,980	882,021	937,240	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,536	6,902	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,879
13	Total Net Claims Incurred	767,240	778,719	874,866	937,585	1,005,909	1,059,954

Appendix 34f

Modified Base Scenario #11

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.77%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,364		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,995		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,189	29,371	26,461	19,965		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,109		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,879		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 34g

Modified Base Scenario #11

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	129	(0)	0	0
3	Marketable Bonds	44,245	55,585	64,008	70,504	76,702
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,075	86,073	90,355	94,395
6	Dividend and other Income					
7	Canadian Equities	9,657	5,706	4,605	5,461	6,136
8	Global	4,218	5,980	4,929	5,751	6,333
9	Global LV	-	2,896	3,261	3,823	4,242
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,516	26,828	29,057	30,650
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(49,888)	(7,848)	2,722	597
16	Marketable Bonds Realized Gains/(Loss)	11,781	24,115	(35)	2,044	1,565
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,657	0	0	901
19	Global Equities Realized Gains	66,319	3,747	0	0	1,046
20	Global LV Realized Gains	-	459	-	-	935
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,859)	2,599	15,859	16,782
24	Other					
25	Investment Fees Paid	(5,204)	(4,716)	(4,583)	(4,901)	(5,143)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,804	7,676	7,766	7,483
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,784)	(11,220)	(11,892)	(12,867)
30	Total Corporate Investment Income	191,042	78,887	103,340	123,894	129,195
31	Total Basic Investment Income	163,818	62,027	84,767	100,979	101,909
32	% - Basic to Total Investment Income	85.75%	79%	82%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,761	4,872	5,778	6,848
35	US Equities Unrealized Gains/(Losses)	7,538	9,322	7,356	8,583	9,451
36	Global LV Unrealized Gains/(Losses)	-	4,214	4,453	5,220	5,791
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,083	12,228	14,361	16,300
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,711.0	1,863.5	2,015.6	2,176.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.6	150.4	178.4	200.9
43	Global Equities	166.7	168.9	193.4	225.9	253.4
44	Global LV Equities	96.6	115.8	132.9	155.9	172.7
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,056.7	3,235.3	3,438.4	3,636.5
49	Total Basic Assets	2,507.9	2,600.9	2,703.7	2,826.5	2,947.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.6%	59.8%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.6%	7.0%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 35a

Adverse Scenario #11

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,403	29,296	31,367
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,185,898	1,234,630	1,285,103
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,326	1,011,071	1,004,605	1,063,012
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,283	1,023,461	1,008,830	1,069,046
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,218	1,175,958	1,166,959	1,229,838
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,101	168,229	174,512
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,721)	(151,161)	(100,557)	(119,247)
26	Investment Income	48,476	101,645	111,731	192,129	78,368	75,496	81,527	82,230
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,369	39,662	5,000	2,298
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,737	115,158	86,526	84,528
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(82,984)	(36,003)	(14,031)	(34,719)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,411	27,272	775	(3,737)

Appendix 35b
Adverse Scenario #11
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,712	216,342	173,544	159,039
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(82,984)	(36,003)	(14,031)	(34,719)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,791)	(2,386)	(6,795)	(473)	10,450
6	Total Retained Earnings	194,498	99,251	170,975	301,712	216,342	173,544	159,039	134,771
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,484)	(51,918)	(43,602)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,373)	3,566	8,316	9,038
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
11	Total Equity Balance	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,712	216,342	173,544	159,039	134,771
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207

Appendix 35c
Adverse Scenario #11
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	27,412	7,673	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,055	2,569,156	2,694,504	2,799,536	2,894,288
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	5,260	8,505	770
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,014,690	3,126,504	3,256,394	3,373,597	3,481,778
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,065	2,095,293	2,174,448	2,252,829
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,647	3,134,768	3,258,160	3,381,571
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,712	216,342	173,544	159,039	134,771
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
27	Total Equity	231,003	181,000	210,845	249,601	160,857	121,625	115,437	100,207
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,690	3,126,504	3,256,394	3,373,597	3,481,778

Appendix 35d
Adverse Scenario #11
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,946	113,737	62,490	54,322	37,071
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,946	113,737	62,490	54,322	37,071
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	207,950	220,832	229,364	237,935
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	324,482	337,135	350,014
16	Market Risk:						
17	Interest rate risk	30	5,699	10,460	11,482	20,953	24,995
18	Foreign exchange risk	32	15,373	16,410	15,893	15,915	16,826
19	Equity risk	34	67,980	74,153	70,293	69,138	73,818
20	Real estate risk	36	25,687	26,584	27,266	28,180	29,663
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,739	127,607	124,934	134,186	145,302
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	59,092	61,863	64,173	65,165
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	59,092	61,863	64,173	65,165
28	Operational risk margin	50	64,317	70,357	72,962	76,201	79,560
29	Less: Diversification credit	52	53,273	61,973	63,179	66,580	70,101
30	Total Capital (Margin) Required at Target	59	450,946	502,639	521,062	545,115	569,940
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,631	335,093	347,375	363,410	379,960
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,631	335,093	347,375	363,410	379,960
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,685)	(221,356)	(284,885)	(309,088)	(342,889)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.50%	33.94%	17.99%	14.95%	9.76%

Appendix 35e
Adverse Scenario #11
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,762	278,143	232,277	231,757
7	Total	726,240	759,725	946,809	952,678	946,239	992,720
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,149	6,978	6,999
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	1,713	(1,924)	9,117
13	Total Net Claims Incurred	767,240	779,170	1,030,283	1,023,461	1,008,830	1,069,046

Appendix 35f

Adverse Scenario #11

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	74.51%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9544	0.9649	0.9977	1.0153	1.0146				
10	2021					0.9739	1.0065	1.0236	1.0224	1.0155			
11	2022						1.0112	1.0289	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				77.63%	71.97%	73.09%	79.83%	75.61%			75.44%	80.74%
17	2021					72.64%	73.73%	80.49%	76.18%	74.87%		74.93%	80.32%
18	2022						74.07%	80.90%	76.61%	75.32%	75.84%	75.93%	81.49%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.15%	8.18%	8.12%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%
25	Selected					3.16%	2.99%	2.87%	2.73%	2.72%	2.72%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	532,647	554,274	576,316	599,350
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	390,881	424,060	442,707	458,014	483,493
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	15,103	14,958	15,513	16,116
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,922	78,027	81,458	84,275	88,963
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,742	5,682	5,260	8,505	770
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	31,080	32,370	33,691	35,074
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	10,747	25,398	27,110	25,186	34,304
38	Change	2,363	(21,308)	14,651	1,713	(1,924)	9,117
39	18. Premium Deficiency [c]	8,845	-	-	-	-	-
40	Change	2,001	(8,845)	-	-	-	-

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 35g

Adverse Scenario #11

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,796	57,852	61,659	65,282
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,248	79,917	81,510	82,974
6	Dividend and other Income					
7	Canadian Equities	9,657	5,755	4,606	4,874	5,463
8	Global	4,218	5,987	4,802	5,059	5,631
9	Global LV	-	2,903	2,922	3,081	3,438
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,467	26,070	26,776	28,239
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,274	28,880	(1,633)	2,346
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,794	12,808	6,873	73
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,671)	78	0
19	Global Equities Realized Gains	66,318	(602)	(6,656)	99	702
20	Global LV Realized Gains	-	(99)	(4,102)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,046	36,743	16,577	14,859
24	Other					
25	Investment Fees Paid	(5,204)	(4,732)	(4,575)	(4,762)	(4,965)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(244)	(1,289)	(1,955)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,622)	(19,132)	(20,808)	(22,127)
30	Total Corporate Investment Income	191,037	132,140	128,324	104,587	104,187
31	Total Basic Investment Income	163,817	116,737	115,158	86,526	84,528
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,884)	5,157	6,096
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,822)	7,549	8,404
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,306)	4,206	4,695
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,706)	12,706	14,500
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,695.8	1,886.9	2,060.3	2,212.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.7	144.6	155.5	175.6
43	Global Equities	166.7	176.8	181.3	194.8	206.1
44	Global LV Equities	96.6	111.9	115.2	123.1	138.5
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.6	3,229.8	3,403.1	3,572.3
49	Total Basic Assets	2,507.9	2,610.1	2,715.7	2,813.3	2,909.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.4%	60.5%	61.9%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.6%	4.9%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 35h

Adverse Scenario #11 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,403	29,296	31,367
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,185,898	1,234,630	1,285,103
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,326	1,011,071	1,004,605	1,063,012
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,283	1,023,461	1,008,830	1,069,046
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,218	1,175,958	1,166,959	1,229,838
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,101	168,229	174,512
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,721)	(151,161)	(100,557)	(119,247)
26	Investment Income	48,476	101,645	111,731	192,129	78,368	75,496	81,527	82,230
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,369	39,662	5,000	2,298
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,737	115,158	86,526	84,528
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(82,984)	(36,003)	(14,031)	(34,719)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,411	27,272	775	(3,737)

Appendix 35i

Adverse Scenario #11 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,712	216,342	173,544	159,039
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(82,984)	(36,003)	(14,031)	(34,719)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,791)	(2,386)	(6,795)	(473)	10,450
6	Total Retained Earnings	194,498	99,251	170,975	301,712	216,342	173,544	159,039	134,771
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,484)	(51,918)	(43,602)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,373)	3,566	8,316	9,038
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
11	Total Equity Balance	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,712	216,342	173,544	159,039	134,771
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,601	160,857	121,625	115,437	100,207

Appendix 35j

Adverse Scenario #11 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	27,412	7,673	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,055	2,569,156	2,694,504	2,799,536	2,894,288
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	5,260	8,505	770
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,014,690	3,126,504	3,256,394	3,373,597	3,481,778
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,065	2,095,293	2,174,448	2,252,829
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,647	3,134,768	3,258,160	3,381,571
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,712	216,342	173,544	159,039	134,771
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,602)	(34,564)
27	Total Equity	231,003	181,000	210,845	249,601	160,857	121,625	115,437	100,207
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,690	3,126,504	3,256,394	3,373,597	3,481,778

Appendix 35k
Adverse Scenario #11 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,946	113,737	62,490	54,322	37,071
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,946	113,737	62,490	54,322	37,071
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	207,950	220,832	229,364	237,935
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	324,482	337,135	350,014
16	Market Risk:						
17	Interest rate risk	30	5,699	10,460	11,482	20,953	24,995
18	Foreign exchange risk	32	15,373	16,410	15,893	15,915	16,826
19	Equity risk	34	67,980	74,153	70,293	69,138	73,818
20	Real estate risk	36	25,687	26,584	27,266	28,180	29,663
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,739	127,607	124,934	134,186	145,302
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	59,092	61,863	64,173	65,165
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	59,092	61,863	64,173	65,165
28	Operational risk margin	50	64,317	70,357	72,962	76,201	79,560
29	Less: Diversification credit	52	53,273	61,973	63,179	66,580	70,101
30	Total Capital (Margin) Required at Target	59	450,946	502,639	521,062	545,115	569,940
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,631	335,093	347,375	363,410	379,960
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,631	335,093	347,375	363,410	379,960
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,685)	(221,356)	(284,885)	(309,088)	(342,889)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.50%	33.94%	17.99%	14.95%	9.76%

Appendix 35l

Adverse Scenario #11 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,762	278,143	232,277	231,757
7	Total	726,240	759,725	946,809	952,678	946,239	992,720
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,149	6,978	6,999
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	1,713	(1,924)	9,117
13	Total Net Claims Incurred	767,240	779,170	1,030,283	1,023,461	1,008,830	1,069,046

Appendix 35m

Adverse Scenario #11 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	74.51%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9544	0.9649	0.9977	1.0153	1.0146				
10	2021					0.9739	1.0065	1.0236	1.0224	1.0155			
11	2022						1.0112	1.0289	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				77.63%	71.97%	73.09%	79.83%	75.61%			75.44%	80.74%
17	2021					72.64%	73.73%	80.49%	76.18%	74.87%		74.93%	80.32%
18	2022						74.07%	80.90%	76.61%	75.32%	75.84%	75.93%	81.49%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.15%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,060	442,707	458,014	483,493		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,958	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,027	81,458	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	5,682	5,260	8,505	770		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	25,398	27,110	25,186	34,304		
38	Change					2,363	(21,308)	14,651	1,713	(1,924)	9,117		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 35n

Adverse Scenario #11 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,796	57,852	61,659	65,282
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,248	79,917	81,510	82,974
6	Dividend and other Income					
7	Canadian Equities	9,657	5,755	4,606	4,874	5,463
8	Global	4,218	5,987	4,802	5,059	5,631
9	Global LV	-	2,903	2,922	3,081	3,438
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,467	26,070	26,776	28,239
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,274	28,880	(1,633)	2,346
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,794	12,808	6,873	73
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,671)	78	0
19	Global Equities Realized Gains	66,318	(602)	(6,656)	99	702
20	Global LV Realized Gains	-	(99)	(4,102)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,046	36,743	16,577	14,859
24	Other					
25	Investment Fees Paid	(5,204)	(4,732)	(4,575)	(4,762)	(4,965)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(244)	(1,289)	(1,955)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,622)	(19,132)	(20,808)	(22,127)
30	Total Corporate Investment Income	191,037	132,140	128,324	104,587	104,187
31	Total Basic Investment Income	163,817	116,737	115,158	86,526	84,528
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,884)	5,157	6,096
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,822)	7,549	8,404
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,306)	4,206	4,695
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,706)	12,706	14,500
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,695.8	1,886.9	2,060.3	2,212.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.7	144.6	155.5	175.6
43	Global Equities	166.7	176.8	181.3	194.8	206.1
44	Global LV Equities	96.6	111.9	115.2	123.1	138.5
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.6	3,229.8	3,403.1	3,572.3
49	Total Basic Assets	2,507.9	2,610.1	2,715.7	2,813.3	2,909.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.4%	60.5%	61.9%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.6%	4.9%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 36a

Updated Base Scenario #12

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,953	1,050,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,687)	640	11,049	9,107
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,816	937,601	1,006,001	1,059,996
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,751	1,089,325	1,162,980	1,219,732
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,314)	(66,123)	(97,974)	(110,532)
26	Investment Income	48,476	101,645	111,731	192,131	87,066	92,743	97,098	100,449
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,535)	(7,428)	4,483	2,065
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,531	85,314	101,581	102,514
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,848)	(8,068)	(6,565)	(7,042)

Appendix 36b
Updated Base Scenario #12
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	333,183	352,374	355,981
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,708)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,277	11,667
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
11	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921

Appendix 36c
Updated Base Scenario #12
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	57,602	61,325	59,442	43,968
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,126	2,650,611	2,774,171	2,897,219
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,373	18,832
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,281	405,982
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,993	1,934,087	2,010,680	2,083,793
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,572	2,971,291	3,092,740	3,211,278
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	333,183	352,374	355,981	347,963
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
27	Total Equity	231,003	181,000	210,845	264,856	289,009	317,389	331,273	334,921
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200

Appendix 36d
Updated Base Scenario #12
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	241,889	258,204	270,067	271,680
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	241,889	258,204	270,067	271,680
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,896	220,969
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,465	332,838
16	Market Risk:						
17	Interest rate risk	30	6,468	21,908	26,102	29,860	34,120
18	Foreign exchange risk	32	15,640	15,260	16,262	17,940	20,872
19	Equity risk	34	69,313	67,256	71,783	80,140	88,240
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,323	141,746	156,473	173,269
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,266	63,507	65,082	66,286
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,266	63,507	65,082	66,286
28	Operational risk margin	50	64,552	69,860	73,071	76,698	80,511
29	Less: Diversification credit	52	53,910	62,347	65,802	70,019	74,497
30	Total Capital (Margin) Required at Target	59	453,309	496,555	520,497	548,699	578,407
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,037	346,998	365,799	385,605
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,037	346,998	365,799	385,605
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(89,148)	(88,794)	(95,732)	(113,925)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.07%	74.41%	73.83%	70.46%

Appendix 36e
Updated Base Scenario #12
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,274	212,112	223,308	224,355
7	Total	726,240	759,725	821,977	882,018	937,278	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,908	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,278	7,921
13	Total Net Claims Incurred	767,240	778,719	875,816	937,601	1,006,001	1,059,996

Appendix 36f

Updated Base Scenario #12

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,924	467,369		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,373	18,832		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,250	16,171		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,278	7,921		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 36g

Updated Base Scenario #12

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	(0)
3	Marketable Bonds	44,245	55,586	63,975	70,448	76,595
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,083	86,040	90,300	94,288
6	Dividend and other Income					
7	Canadian Equities	9,657	5,687	4,593	5,432	6,098
8	Global	4,218	5,973	4,918	5,725	6,302
9	Global LV	-	2,894	3,253	3,803	4,216
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,489	26,798	28,982	30,554
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,162)	(7,846)	2,721	598
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(36)	2,042	1,563
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,640	0	0	856
19	Global Equities Realized Gains	66,319	3,743	0	0	998
20	Global LV Realized Gains	-	459	-	-	890
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,879)	2,602	15,856	16,644
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,577)	(4,894)	(5,135)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,805	7,671	7,758	7,471
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,780)	(11,219)	(11,893)	(12,871)
30	Total Corporate Investment Income	191,042	78,850	103,278	123,759	128,849
31	Total Basic Investment Income	163,818	62,531	85,314	101,581	102,514
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,739	4,860	5,747	6,805
35	US Equities Unrealized Gains/(Losses)	7,538	9,312	7,340	8,544	9,404
36	Global LV Unrealized Gains/(Losses)	-	4,212	4,441	5,192	5,756
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,051	12,200	14,291	16,209
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.3	1,861.8	2,013.2	2,172.8
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.4	149.7	177.2	199.2
43	Global Equities	166.7	168.7	192.8	224.6	251.5
44	Global LV Equities	96.6	115.6	132.3	154.9	171.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.4	3,231.8	3,432.5	3,627.9
49	Total Basic Assets	2,522.7	2,617.3	2,725.5	2,847.4	2,956.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.7%	59.9%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.5%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 37a

Modified Base Scenario #12

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,953	1,050,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,687)	640	11,049	9,107
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,816	937,601	1,006,001	1,059,996
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,751	1,089,325	1,162,980	1,219,732
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,314)	(66,123)	(97,974)	(110,532)
26	Investment Income	48,476	101,645	111,731	192,131	86,515	92,168	96,480	99,812
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,492)	(7,415)	4,475	2,061
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,023	84,753	100,955	101,873
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	15,709	18,629	2,981	(8,659)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,805)	(8,055)	(6,573)	(7,046)

Appendix 37b
Modified Base Scenario #12
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	302,122	317,353	331,322	336,113
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	15,709	18,629	2,981	(8,659)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,845)	(478)	(4,660)	1,810	12,776
6	Total Retained Earnings	194,498	99,251	170,975	302,122	317,353	331,322	336,113	340,230
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,361)	(35,385)	(25,335)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,750	8,976	10,050	11,420
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,335)	(13,915)
11	Total Equity Balance	231,002	181,000	210,845	250,011	272,992	295,937	310,778	326,316
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	302,122	317,353	331,322	336,113	340,230
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,335)	(13,915)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	250,011	272,992	295,937	310,778	326,316
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	250,011	272,992	295,937	310,778	326,316

Appendix 37c
Modified Base Scenario #12
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	57,070	56,120	56,044	53,346
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,015	2,530,641	2,634,365	2,757,076	2,879,236
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,373	18,832
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	3,015,101	3,133,564	3,267,229	3,403,519	3,537,594
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,982
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,993	1,934,087	2,010,680	2,083,793
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,572	2,971,291	3,092,741	3,211,278
24	Equity								
25	Retained earnings	194,499	99,251	170,975	302,122	317,353	331,322	336,113	340,230
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,361)	(35,385)	(25,335)	(13,915)
27	Total Equity	231,003	181,000	210,845	250,011	272,992	295,937	310,778	326,316
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,015,101	3,133,564	3,267,229	3,403,519	3,537,594

Appendix 37d
Modified Base Scenario #12
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	206,356	225,872	236,753	249,572	263,074
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	206,356	225,872	236,753	249,572	263,074
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,896	220,969
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,465	332,838
16	Market Risk:						
17	Interest rate risk	30	5,696	21,072	25,236	28,953	33,173
18	Foreign exchange risk	32	15,373	14,981	15,963	17,622	20,509
19	Equity risk	34	67,976	65,859	70,290	78,545	86,536
20	Real estate risk	36	25,686	26,583	27,266	28,179	29,662
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,731	128,495	138,755	153,299	169,880
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,328	60,782	63,021	64,590	65,789
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,328	60,782	63,021	64,590	65,789
28	Operational risk margin	50	64,320	69,578	72,776	76,386	80,181
29	Less: Diversification credit	52	53,282	61,676	65,112	69,313	73,774
30	Total Capital (Margin) Required at Target	59	450,977	493,632	517,415	545,427	574,914
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,651	329,088	344,943	363,618	383,276
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,651	329,088	344,943	363,618	383,276
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,295)	(103,216)	(108,190)	(114,046)	(120,202)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.64%	68.64%	68.64%	68.64%	68.64%

Appendix 37e
Modified Base Scenario #12
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,274	212,112	223,308	224,355
7	Total	726,240	759,725	821,977	882,018	937,278	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,908	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,278	7,921
13	Total Net Claims Incurred	767,240	778,719	875,816	937,601	1,006,001	1,059,996

Appendix 37f

Modified Base Scenario #12

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,924	467,369		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,373	18,832		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,250	16,171		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,278	7,921		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 37g

Modified Base Scenario #12

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	129	0	0	0
3	Marketable Bonds	44,245	55,576	63,972	70,441	76,595
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,067	86,037	90,292	94,288
6	Dividend and other Income					
7	Canadian Equities	9,657	5,704	4,594	5,435	6,099
8	Global	4,218	5,978	4,919	5,728	6,301
9	Global LV	-	2,895	3,254	3,805	4,217
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,511	26,801	28,990	30,556
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(49,881)	(7,846)	2,721	598
16	Marketable Bonds Realized Gains/(Loss)	11,781	24,111	(36)	2,042	1,563
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,659	0	0	887
19	Global Equities Realized Gains	66,319	3,749	0	0	1,032
20	Global LV Realized Gains	-	459	-	-	922
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,851)	2,602	15,856	16,741
24	Other					
25	Investment Fees Paid	(5,204)	(4,716)	(4,578)	(4,893)	(5,132)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,803	7,670	7,757	7,470
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,785)	(11,221)	(11,893)	(12,869)
30	Total Corporate Investment Income	191,042	78,880	103,278	123,760	128,951
31	Total Basic Investment Income	163,818	62,023	84,753	100,955	101,873
32	% - Basic to Total Investment Income	85.75%	79%	82%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,759	4,861	5,750	6,806
35	US Equities Unrealized Gains/(Losses)	7,538	9,319	7,341	8,548	9,404
36	Global LV Unrealized Gains/(Losses)	-	4,212	4,443	5,196	5,757
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,078	12,203	14,299	16,210
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.3	1,861.6	2,012.8	2,172.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.4	149.8	177.3	199.5
43	Global Equities	166.7	168.7	192.9	224.8	251.8
44	Global LV Equities	96.6	115.6	132.4	155.0	171.5
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.4	3,231.8	3,432.5	3,628.0
49	Total Basic Assets	2,507.8	2,601.3	2,704.0	2,826.9	2,947.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.6%	59.9%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.5%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 38a

Adverse Scenario #12

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,360	29,248	31,314
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,183,648	1,232,286	1,282,661
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,276	1,011,085	1,004,651	1,063,048
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,234	1,023,475	1,008,876	1,069,083
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,169	1,175,972	1,167,005	1,229,875
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,963	168,085	174,363
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,807)	(153,288)	(102,804)	(121,577)
26	Investment Income	48,476	101,645	111,731	192,129	78,364	75,487	81,509	82,200
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,368	39,658	4,999	2,298
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,733	115,145	86,508	84,498
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(85,074)	(38,143)	(16,297)	(37,079)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,411	27,268	775	(3,736)

Appendix 38b
Adverse Scenario #12
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,658	216,106	173,303	158,816
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(85,074)	(38,143)	(16,297)	(37,079)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,845)	(478)	(4,660)	1,810	12,776
6	Total Retained Earnings	194,498	99,251	170,975	301,658	216,106	173,303	158,816	134,514
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,484)	(51,918)	(43,615)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,373)	3,566	8,303	9,024
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
11	Total Equity Balance	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,658	216,106	173,303	158,816	134,514
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923

Appendix 38c
Adverse Scenario #12
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	28,011	8,596	1,235	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,001	2,568,909	2,693,926	2,798,682	2,894,641
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	4,223	7,419	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,014,636	3,125,265	3,255,105	3,372,272	3,480,716
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,061	2,095,286	2,174,440	2,253,177
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,644	3,133,721	3,257,071	3,380,793
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,658	216,106	173,303	158,816	134,514
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
27	Total Equity	231,003	181,000	210,845	249,547	160,622	121,384	115,201	99,923
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,636	3,125,265	3,255,105	3,372,272	3,480,716

Appendix 38d
Adverse Scenario #12
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,892	113,502	62,249	54,085	36,787
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,892	113,502	62,249	54,085	36,787
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,936
12	Unpaid claims	22	191,221	207,949	220,831	229,363	237,934
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	324,286	336,932	349,870
16	Market Risk:						
17	Interest rate risk	30	5,696	10,436	11,434	20,888	24,837
18	Foreign exchange risk	32	15,372	16,408	15,887	15,902	16,810
19	Equity risk	34	67,975	74,143	70,257	69,060	73,735
20	Real estate risk	36	25,686	26,583	27,265	28,179	29,662
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,729	127,570	124,843	134,029	145,044
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	58,958	61,724	64,026	65,044
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	58,958	61,724	64,026	65,044
28	Operational risk margin	50	64,316	70,272	72,869	76,100	79,454
29	Less: Diversification credit	52	53,271	61,923	63,115	66,500	70,010
30	Total Capital (Margin) Required at Target	59	450,937	502,245	520,607	544,587	569,402
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,625	334,830	347,071	363,058	379,601
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,625	334,830	347,071	363,058	379,601
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,733)	(221,328)	(284,822)	(308,973)	(342,814)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.49%	33.90%	17.94%	14.90%	9.69%

Appendix 38e
Adverse Scenario #12
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,758	278,141	232,277	231,753
7	Total	726,240	759,725	946,805	952,676	946,239	992,716
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,148	6,978	6,999
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	1,730	(1,878)	9,159
13	Total Net Claims Incurred	767,240	779,170	1,031,234	1,023,475	1,008,876	1,069,083

Appendix 38f

Adverse Scenario #12

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	74.66%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9562	0.9667	0.9996	1.0162	1.0146				
10	2021					0.9758	1.0084	1.0245	1.0224	1.0155			
11	2022						1.0131	1.0298	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				77.78%	72.11%	73.23%	79.99%	75.75%			75.58%	80.89%
17	2021					72.78%	73.87%	80.64%	76.33%	75.01%		75.07%	80.47%
18	2022						74.22%	81.06%	76.76%	75.47%	75.99%	76.07%	81.65%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.16%	8.19%	8.14%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.73%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,710	458,018	483,496		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,952	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,459	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	4,223	7,419	(360)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	28,083	26,205	35,003		
38	Change					2,363	(21,308)	15,606	1,730	(1,878)	8,799		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	360		
40	Change					2,001	(8,845)	-	-	-	360		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 38g

Adverse Scenario #12

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,788	57,825	61,607	65,201
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,241	79,890	81,459	82,893
6	Dividend and other Income					
7	Canadian Equities	9,657	5,753	4,594	4,848	5,422
8	Global	4,218	5,985	4,791	5,036	5,595
9	Global LV	-	2,902	2,914	3,063	3,411
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,462	26,040	26,710	28,135
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,267	28,839	(1,677)	2,342
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,801	12,838	6,914	76
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,665)	79	0
19	Global Equities Realized Gains	66,318	(603)	(6,651)	99	679
20	Global LV Realized Gains	-	(99)	(4,098)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,046	36,745	16,575	14,836
24	Other					
25	Investment Fees Paid	(5,204)	(4,732)	(4,570)	(4,756)	(4,952)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(241)	(1,281)	(1,941)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,622)	(19,124)	(20,794)	(22,100)
30	Total Corporate Investment Income	191,037	132,126	128,277	104,482	104,007
31	Total Basic Investment Income	163,817	116,733	115,145	86,508	84,498
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,879)	5,130	6,052
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,817)	7,515	8,350
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,302)	4,182	4,658
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,697)	12,645	14,401
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,695.0	1,885.2	2,057.5	2,207.7
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.5	144.0	154.4	174.2
43	Global Equities	166.7	176.6	180.7	193.7	205.0
44	Global LV Equities	96.6	111.7	114.7	122.3	137.2
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.3	3,226.4	3,397.3	3,563.9
49	Total Basic Assets	2,507.8	2,610.5	2,716.1	2,813.7	2,909.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.4%	60.6%	61.9%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.9%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 38h

Adverse Scenario #12 with Management Action

Statement of Operations

Line No.	*(C$ 000s, except where noted)*	*For the Years Ended February,*							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,360	29,248	31,314
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,183,648	1,232,286	1,282,661
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,276	1,011,085	1,004,651	1,063,048
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,234	1,023,475	1,008,876	1,069,083
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,169	1,175,972	1,167,005	1,229,875
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,963	168,085	174,363
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,807)	(153,288)	(102,804)	(121,577)
26	Investment Income	48,476	101,645	111,731	192,129	78,364	75,487	81,509	82,200
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,368	39,658	4,999	2,298
28	Net Investment Income	(4,038)	82,897	116,320	163,817	116,733	115,145	86,508	84,498
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(85,074)	(38,143)	(16,297)	(37,079)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,411	27,268	775	(3,736)

Appendix 38i

Adverse Scenario #12 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	301,658	216,106	173,303	158,816
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(85,074)	(38,143)	(16,297)	(37,079)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(14,845)	(478)	(4,660)	1,810	12,776
6	Total Retained Earnings	194,498	99,251	170,975	301,658	216,106	173,303	158,816	134,514
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,484)	(51,918)	(43,615)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,373)	3,566	8,303	9,024
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
11	Total Equity Balance	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	301,658	216,106	173,303	158,816	134,514
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	249,547	160,622	121,384	115,201	99,923

Appendix 38j

Adverse Scenario #12 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	28,011	8,596	1,235	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,465,001	2,568,909	2,693,926	2,798,682	2,894,641
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	4,223	7,419	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,014,636	3,125,265	3,255,105	3,372,272	3,480,716
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,061	2,095,286	2,174,440	2,253,177
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,644	3,133,721	3,257,071	3,380,793
24	Equity								
25	Retained earnings	194,499	99,251	170,975	301,658	216,106	173,303	158,816	134,514
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,484)	(51,918)	(43,615)	(34,591)
27	Total Equity	231,003	181,000	210,845	249,547	160,622	121,384	115,201	99,923
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,014,636	3,125,265	3,255,105	3,372,272	3,480,716

Appendix 38k
Adverse Scenario #12 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	205,892	113,502	62,249	54,085	36,787
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	205,892	113,502	62,249	54,085	36,787
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,936
12	Unpaid claims	22	191,221	207,949	220,831	229,363	237,934
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	324,286	336,932	349,870
16	Market Risk:						
17	Interest rate risk	30	5,696	10,436	11,434	20,888	24,837
18	Foreign exchange risk	32	15,372	16,408	15,887	15,902	16,810
19	Equity risk	34	67,975	74,143	70,257	69,060	73,735
20	Real estate risk	36	25,686	26,583	27,265	28,179	29,662
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	114,729	127,570	124,843	134,029	145,044
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,283	58,958	61,724	64,026	65,044
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,283	58,958	61,724	64,026	65,044
28	Operational risk margin	50	64,316	70,272	72,869	76,100	79,454
29	Less: Diversification credit	52	53,271	61,923	63,115	66,500	70,010
30	Total Capital (Margin) Required at Target	59	450,937	502,245	520,607	544,587	569,402
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	300,625	334,830	347,071	363,058	379,601
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	300,625	334,830	347,071	363,058	379,601
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(94,733)	(221,328)	(284,822)	(308,973)	(342,814)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	68.49%	33.90%	17.94%	14.90%	9.69%

Appendix 38l

Adverse Scenario #12 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,758	278,141	232,277	231,753
7	Total	726,240	759,725	946,805	952,676	946,239	992,716
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,148	6,978	6,999
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	1,730	(1,878)	9,159
13	Total Net Claims Incurred	767,240	779,170	1,031,234	1,023,475	1,008,876	1,069,083

Appendix 38m

Adverse Scenario #12 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	74.66%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9562	0.9667	0.9996	1.0162	1.0146				
10	2021					0.9758	1.0084	1.0245	1.0224	1.0155			
11	2022						1.0131	1.0298	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				77.78%	72.11%	73.23%	79.99%	75.75%			75.58%	80.89%
17	2021					72.78%	73.87%	80.64%	76.33%	75.01%		75.07%	80.47%
18	2022						74.22%	81.06%	76.76%	75.47%	75.99%	76.07%	81.65%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.16%	8.19%	8.14%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.73%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,710	458,018	483,496		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,952	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,459	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	4,223	7,419	(360)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	28,083	26,205	35,003		
38	Change					2,363	(21,308)	15,606	1,730	(1,878)	8,799		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	360		
40	Change					2,001	(8,845)	-	-	-	360		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 38n

Adverse Scenario #12 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	91	0	0	(1)
3	Marketable Bonds	44,245	53,788	57,825	61,607	65,201
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,241	79,890	81,459	82,893
6	Dividend and other Income					
7	Canadian Equities	9,657	5,753	4,594	4,848	5,422
8	Global	4,218	5,985	4,791	5,036	5,595
9	Global LV	-	2,902	2,914	3,063	3,411
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,462	26,040	26,710	28,135
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	9,267	28,839	(1,677)	2,342
16	Marketable Bonds Realized Gains/(Loss)	11,782	31,801	12,838	6,914	76
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,372)	(4,665)	79	0
19	Global Equities Realized Gains	66,318	(603)	(6,651)	99	679
20	Global LV Realized Gains	-	(99)	(4,098)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,046	36,745	16,575	14,836
24	Other					
25	Investment Fees Paid	(5,204)	(4,732)	(4,570)	(4,756)	(4,952)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(241)	(1,281)	(1,941)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,622)	(19,124)	(20,794)	(22,100)
30	Total Corporate Investment Income	191,037	132,126	128,277	104,482	104,007
31	Total Basic Investment Income	163,817	116,733	115,145	86,508	84,498
32	% - Basic to Total Investment Income	85.75%	88%	90%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,879)	5,130	6,052
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,817)	7,515	8,350
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,302)	4,182	4,658
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,697)	12,645	14,401
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,695.0	1,885.2	2,057.5	2,207.7
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.5	144.0	154.4	174.2
43	Global Equities	166.7	176.6	180.7	193.7	205.0
44	Global LV Equities	96.6	111.7	114.7	122.3	137.2
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.3	3,226.4	3,397.3	3,563.9
49	Total Basic Assets	2,507.8	2,610.5	2,716.1	2,813.7	2,909.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.5%	58.4%	60.6%	61.9%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.9%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 39a

Updated Base Scenario #13

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	84,813	88,268	91,549	94,615
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,823	88,271	91,551	94,619
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 39b
Updated Base Scenario #13
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	311,386	308,594	288,633
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	10,675
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
11	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865

Appendix 39c
Updated Base Scenario #13
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	48,628	40,072	25,785	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,576,553	2,682,810	2,793,177	2,902,041
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,215	390,308	406,707
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,840	1,980,340	2,055,792	2,129,627
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,266	3,012,531	3,132,065	3,250,745
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	311,386	308,594	288,633	256,348
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
27	Total Equity	231,003	181,000	210,845	261,938	267,209	273,608	263,475	241,865
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610

Appendix 39d
Updated Base Scenario #13
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	220,092	214,441	202,295	178,654
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	220,092	214,441	202,295	178,654
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	4,798	20,574	24,537	29,049	33,491
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,324
19	Equity risk	34	69,145	67,268	71,795	76,632	81,846
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	129,963	140,153	151,502	165,651
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,566	62,857	64,325	65,427
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,566	62,857	64,325	65,427
28	Operational risk margin	50	64,469	69,550	72,817	76,119	79,686
29	Less: Diversification credit	52	53,525	62,120	65,633	69,182	73,190
30	Total Capital (Margin) Required at Target	59	452,643	496,833	521,587	546,482	573,686
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	331,222	347,724	364,321	382,457
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	331,222	347,724	364,321	382,457
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(111,130)	(133,283)	(162,026)	(203,803)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	66.45%	61.67%	55.53%	46.71%

Appendix 39e
Updated Base Scenario #13
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,504	220,930	222,334	224,958
7	Total	726,240	767,976	844,425	890,928	936,300	985,903
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,684
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,702	948,756	1,005,018	1,061,159

Appendix 39f

Updated Base Scenario #13

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 39g

Updated Base Scenario #13

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	(0)	0	(0)
3	Marketable Bonds	44,259	55,084	61,815	67,258	72,896
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,537	83,880	87,109	90,589
6	Dividend and other Income					
7	Canadian Equities	9,657	5,685	4,544	5,164	5,608
8	Global	4,218	5,969	4,878	5,490	5,877
9	Global LV	-	2,886	3,212	3,617	3,885
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,423	26,514	28,151	29,174
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(746)	(758)	(765)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	746	758	765
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,651	0	0	787
19	Global Equities Realized Gains	66,318	3,747	0	0	934
20	Global LV Realized Gains	-	457	-	-	817
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,900	10,475	11,085	14,268
24	Other					
25	Investment Fees Paid	(5,203)	(4,720)	(4,586)	(4,851)	(5,035)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,577	4,653	4,672
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,151)	(14,322)	(14,955)	(15,570)
30	Total Corporate Investment Income	199,910	103,709	106,547	111,390	118,461
31	Total Basic Investment Income	171,428	84,823	88,271	91,551	94,619
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,736	4,808	5,464	6,259
35	US Equities Unrealized Gains/(Losses)	7,537	9,306	7,279	8,193	8,770
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,385	4,938	5,305
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,042	12,087	13,657	15,030
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.7	1,886.0	2,034.0	2,186.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.7	146.9	165.9	181.2
43	Global Equities	166.6	168.1	189.8	212.6	231.8
44	Global LV Equities	96.5	114.7	129.6	145.2	156.2
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.5	3,249.2	3,421.5	3,589.7
49	Total Basic Assets	2,530.3	2,638.7	2,736.4	2,832.7	2,917.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.8%	5.0%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.5%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.4%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 40a

Modified Base Scenario #13

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	85,231	88,694	91,998	95,083
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	85,241	88,697	92,000	95,087
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,245)	(2,365)	(19,512)	(31,817)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 40b
Modified Base Scenario #13
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	325,326	343,280	358,556	363,221
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(2,245)	(2,365)	(19,512)	(31,817)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	11,278	20,199	17,641	24,177	36,795
6	Total Retained Earnings	194,498	99,251	170,975	325,326	343,280	358,556	363,221	368,198
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,034)	(34,682)	(24,682)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,077	9,352	10,000	10,863
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,034)	(34,682)	(24,682)	(13,819)
11	Total Equity Balance	231,002	181,000	210,845	273,215	299,246	323,874	338,539	354,379
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	325,326	343,280	358,556	363,221	368,198
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,034)	(34,682)	(24,682)	(13,819)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	273,215	299,246	323,874	338,539	354,379
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	273,215	299,246	323,874	338,539	354,379

Appendix 40c
Modified Base Scenario #13
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	68,866	77,960	87,852	96,213
4	Equity investments	2,083,349	2,189,534	2,272,545	2,498,903	2,588,351	2,695,187	2,806,173	2,918,339
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,047,938	3,190,511	3,336,404	3,470,602	3,605,121
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,127	374,214	390,306	406,703
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,840	1,980,340	2,055,792	2,129,627
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,265	3,012,529	3,132,063	3,250,741
24	Equity								
25	Retained earnings	194,499	99,251	170,975	325,326	343,280	358,556	363,221	368,198
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,034)	(34,682)	(24,682)	(13,819)
27	Total Equity	231,003	181,000	210,845	273,215	299,246	323,874	338,539	354,379
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,047,938	3,190,511	3,336,404	3,470,602	3,605,121

Appendix 40d
Modified Base Scenario #13
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	229,561	252,129	264,707	277,359	291,168
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	229,561	252,129	264,707	277,359	291,168
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	5,384	21,220	25,211	29,752	34,222
18	Foreign exchange risk	32	15,809	15,475	16,491	17,574	20,600
19	Equity risk	34	70,159	68,332	72,932	77,845	83,144
20	Real estate risk	36	26,171	27,098	27,811	28,758	30,275
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,523	132,125	142,445	153,929	168,241
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,401	60,936	63,230	64,700	65,806
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,401	60,936	63,230	64,700	65,806
28	Operational risk margin	50	64,645	69,765	73,044	76,358	79,939
29	Less: Diversification credit	52	54,002	62,634	66,165	69,731	73,757
30	Total Capital (Margin) Required at Target	59	454,413	499,066	523,947	548,974	576,341
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,942	332,711	349,298	365,983	384,227
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,942	332,711	349,298	365,983	384,227
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(73,381)	(80,582)	(84,591)	(88,624)	(93,059)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.78%	75.78%	75.78%	75.78%	75.78%

Appendix 40e
Modified Base Scenario #13
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,504	220,930	222,334	224,958
7	Total	726,240	767,976	844,425	890,928	936,300	985,903
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,684
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,702	948,756	1,005,018	1,061,159

Appendix 40f

Modified Base Scenario #13

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 40g

Modified Base Scenario #13

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	95	(0)	(0)	0
3	Marketable Bonds	44,259	55,092	61,817	67,263	72,896
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,548	83,882	87,114	90,589
6	Dividend and other Income					
7	Canadian Equities	9,657	5,672	4,543	5,162	5,608
8	Global	4,218	5,966	4,877	5,488	5,877
9	Global LV	-	2,886	3,211	3,615	3,885
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,406	26,512	28,144	29,173
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(30,684)	(746)	(758)	(765)
16	Marketable Bonds Realized Gains/(Loss)	13,969	30,684	746	758	765
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,637	0	0	763
19	Global Equities Realized Gains	66,318	3,742	0	0	908
20	Global LV Realized Gains	-	457	-	-	793
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,881	10,475	11,085	14,194
24	Other					
25	Investment Fees Paid	(5,203)	(4,719)	(4,587)	(4,850)	(5,034)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,577	4,653	4,672
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,323)	(14,954)	(15,569)
30	Total Corporate Investment Income	199,910	103,685	106,545	111,389	118,387
31	Total Basic Investment Income	171,428	85,241	88,697	92,000	95,087
32	% - Basic to Total Investment Income	85.75%	82%	83%	83%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,721	4,807	5,461	6,258
35	US Equities Unrealized Gains/(Losses)	7,537	9,300	7,278	8,190	8,771
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,384	4,935	5,304
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,021	12,085	13,651	15,029
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.7	1,886.2	2,034.2	2,187.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.7	146.8	165.8	181.0
43	Global Equities	166.6	168.1	189.7	212.5	231.5
44	Global LV Equities	96.5	114.7	129.6	145.1	156.0
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.4	3,249.2	3,421.5	3,589.6
49	Total Basic Assets	2,541.6	2,670.8	2,786.7	2,907.8	3,029.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.1%	59.5%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.8%	5.0%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.5%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.3%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 41a

Adverse Scenario #13

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,898	1,056,334
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,123	1,062,368
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,885	1,223,699
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,822)	(130,079)
26	Investment Income	48,476	101,645	111,731	192,209	68,345	64,904	61,865	59,831
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,833	103,972	(49)	(17)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,179	168,875	61,816	59,814
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(43,776)	(112,017)	(47,006)	(70,265)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,876	91,582	(4,273)	(6,052)

Appendix 41b
Adverse Scenario #13
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	325,326	301,749	207,373	184,543
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(43,776)	(112,017)	(47,006)	(70,265)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	11,278	20,199	17,641	24,177	36,795
6	Total Retained Earnings	194,498	99,251	170,975	325,326	301,749	207,373	184,543	151,074
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,372)	(51,869)	(43,520)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(261)	503	8,349	9,101
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
11	Total Equity Balance	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	325,326	301,749	207,373	184,543	151,074
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655

Appendix 41c
Adverse Scenario #13
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,521	30,786	31,491	37,459
4	Equity investments	2,083,349	2,189,534	2,272,545	2,498,903	2,696,663	2,886,315	2,963,707	3,038,804
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,047,938	3,282,496	3,461,692	3,556,190	3,658,226
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,350	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,167	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	325,326	301,749	207,373	184,543	151,074
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
27	Total Equity	231,003	181,000	210,845	273,215	249,377	155,504	141,023	116,655
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,047,938	3,282,496	3,461,692	3,556,190	3,658,226

Appendix 41d
Adverse Scenario #13
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	229,561	202,260	96,383	79,945	53,564
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	229,561	202,260	96,383	79,945	53,564
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	5,384	5,498	2,964	18,467	16,835
18	Foreign exchange risk	32	15,809	18,043	18,690	16,242	16,373
19	Equity risk	34	70,159	82,020	84,702	69,178	73,853
20	Real estate risk	36	26,171	27,098	27,811	28,758	30,275
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,523	132,659	134,167	132,645	137,336
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,401	60,475	63,234	65,335	66,817
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,401	60,475	63,234	65,335	66,817
28	Operational risk margin	50	64,645	70,977	74,950	77,071	80,000
29	Less: Diversification credit	52	54,002	63,735	66,711	67,548	69,846
30	Total Capital (Margin) Required at Target	59	454,413	513,429	547,737	560,267	581,038
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,942	342,286	365,158	373,511	387,358
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,942	342,286	365,158	373,511	387,358
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(73,381)	(140,026)	(268,775)	(293,566)	(333,794)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.78%	59.09%	26.39%	21.40%	13.83%

Appendix 41e
Adverse Scenario #13
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,484	223,699
7	Total	726,240	767,976	966,494	1,042,341	936,155	984,826
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,437	6,771
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(7)	10,561
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,137,536	1,000,123	1,062,369

Appendix 41f

Adverse Scenario #13

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,430	464,051	490,480		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,921	15,549	16,168		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,327	85,385	90,248		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	(7,884)	(6,575)	(15,774)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	31,896	33,197	34,560		
38	Change					2,363	(20,876)	16,204	4,514	1,301	1,362		
39	18. Premium Deficiency [c]					8,845	-	-	7,884	6,575	15,774		
40	Change					2,001	(8,845)	-	7,884	(1,309)	9,199		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 41g

Adverse Scenario #13

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	120	(0)	0	(1)
3	Marketable Bonds	44,259	50,763	51,236	51,455	52,762
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,244	73,301	71,307	70,454
6	Dividend and other Income					
7	Canadian Equities	9,657	6,357	5,022	4,840	4,994
8	Global	4,218	6,690	5,458	5,328	5,483
9	Global LV	-	3,326	3,351	3,205	3,274
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	22,991	27,058	26,657	27,007
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	87,892	87,384	(14,382)	2,348
16	Marketable Bonds Realized Gains/(Loss)	13,969	48,036	21,612	14,382	(2,348)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(146)	(1,380)	426	0
19	Global Equities Realized Gains	66,318	187	(129)	518	510
20	Global LV Realized Gains	-	49	13	413	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,063	117,976	12,442	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,883)	(4,781)	(4,880)	(4,957)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,337)	(12,576)	(14,777)	(14,338)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,092)	(31,670)	(34,414)	(34,502)
30	Total Corporate Investment Income	199,910	223,206	197,706	75,992	75,200
31	Total Basic Investment Income	171,428	196,179	168,875	61,816	59,814
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,121	5,573
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,951	8,182
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,375	4,470
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,072	13,755
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,784.0	1,986.7	2,211.9	2,324.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.7	142.8	159.5
43	Global Equities	166.6	197.2	214.7	192.3	205.5
44	Global LV Equities	96.5	125.7	138.5	117.9	130.7
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.6	3,539.8	3,665.2
49	Total Basic Assets	2,541.6	2,772.7	2,930.7	3,009.0	3,091.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.5%	63.4%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.4%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.6%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 41h

Adverse Scenario #13 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,898	1,056,334
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,123	1,062,368
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,885	1,223,699
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,822)	(130,079)
26	Investment Income	48,476	101,645	111,731	192,209	68,345	64,904	61,865	59,831
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,833	103,972	(49)	(17)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,179	168,875	61,816	59,814
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(43,776)	(112,017)	(47,006)	(70,265)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,876	91,582	(4,273)	(6,052)

Appendix 41i

Adverse Scenario #13 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	325,326	301,749	207,373	184,543
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(43,776)	(112,017)	(47,006)	(70,265)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	11,278	20,199	17,641	24,177	36,795
6	Total Retained Earnings	194,498	99,251	170,975	325,326	301,749	207,373	184,543	151,074
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,372)	(51,869)	(43,520)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(261)	503	8,349	9,101
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
11	Total Equity Balance	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	325,326	301,749	207,373	184,543	151,074
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	273,215	249,377	155,504	141,023	116,655

Appendix 41j

Adverse Scenario #13 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,521	30,786	31,491	37,459
4	Equity investments	2,083,349	2,189,534	2,272,545	2,498,903	2,696,663	2,886,315	2,963,707	3,038,804
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,047,938	3,282,496	3,461,692	3,556,190	3,658,226
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,350	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,167	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	325,326	301,749	207,373	184,543	151,074
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,372)	(51,869)	(43,520)	(34,419)
27	Total Equity	231,003	181,000	210,845	273,215	249,377	155,504	141,023	116,655
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,047,938	3,282,496	3,461,692	3,556,190	3,658,226

Appendix 41k
Adverse Scenario #13 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	229,561	202,260	96,383	79,945	53,564
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	229,561	202,260	96,383	79,945	53,564
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	5,384	5,498	2,964	18,467	16,835
18	Foreign exchange risk	32	15,809	18,043	18,690	16,242	16,373
19	Equity risk	34	70,159	82,020	84,702	69,178	73,853
20	Real estate risk	36	26,171	27,098	27,811	28,758	30,275
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,523	132,659	134,167	132,645	137,336
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,401	60,475	63,234	65,335	66,817
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,401	60,475	63,234	65,335	66,817
28	Operational risk margin	50	64,645	70,977	74,950	77,071	80,000
29	Less: Diversification credit	52	54,002	63,735	66,711	67,548	69,846
30	Total Capital (Margin) Required at Target	59	454,413	513,429	547,737	560,267	581,038
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,942	342,286	365,158	373,511	387,358
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,942	342,286	365,158	373,511	387,358
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(73,381)	(140,026)	(268,775)	(293,566)	(333,794)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.78%	59.09%	26.39%	21.40%	13.83%

Appendix 41l

Adverse Scenario #13 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,484	223,699
7	Total	726,240	767,976	966,494	1,042,341	936,155	984,826
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,437	6,771
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(7)	10,561
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,137,536	1,000,123	1,062,369

Appendix 41m

Adverse Scenario #13 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
27	C. Equity in Unearned Premium										
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,430	464,051	490,480
31	11. Reinsurance PFAD					10	-	-	-	-	-
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,327	85,385	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	(7,884)	(6,575)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	31,896	33,197	34,560
38	Change					2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]					8,845	-	-	7,884	6,575	15,774
40	Change					2,001	(8,845)	-	7,884	(1,309)	9,199

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 41n

Adverse Scenario #13 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	120	(0)	0	(1)
3	Marketable Bonds	44,259	50,763	51,236	51,455	52,762
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,244	73,301	71,307	70,454
6	Dividend and other Income					
7	Canadian Equities	9,657	6,357	5,022	4,840	4,994
8	Global	4,218	6,690	5,458	5,328	5,483
9	Global LV	-	3,326	3,351	3,205	3,274
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	22,991	27,058	26,657	27,007
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	87,892	87,384	(14,382)	2,348
16	Marketable Bonds Realized Gains/(Loss)	13,969	48,036	21,612	14,382	(2,348)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(146)	(1,380)	426	0
19	Global Equities Realized Gains	66,318	187	(129)	518	510
20	Global LV Realized Gains	-	49	13	413	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,063	117,976	12,442	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,883)	(4,781)	(4,880)	(4,957)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,337)	(12,576)	(14,777)	(14,338)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,092)	(31,670)	(34,414)	(34,502)
30	Total Corporate Investment Income	199,910	223,206	197,706	75,992	75,200
31	Total Basic Investment Income	171,428	196,179	168,875	61,816	59,814
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,121	5,573
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,951	8,182
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,375	4,470
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,072	13,755
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,784.0	1,986.7	2,211.9	2,324.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.7	142.8	159.5
43	Global Equities	166.6	197.2	214.7	192.3	205.5
44	Global LV Equities	96.5	125.7	138.5	117.9	130.7
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.6	3,539.8	3,665.2
49	Total Basic Assets	2,541.6	2,772.7	2,930.7	3,009.0	3,091.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.5%	63.4%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.4%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.6%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 42a

Updated Base Scenario #14

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,862	938,472	995,774	1,051,883
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,209	8,816	8,310
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,117	948,682	1,004,589	1,060,193
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,098	1,100,576	1,161,783	1,220,128
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,694)	(71,923)	(91,223)	(105,252)
26	Investment Income	48,476	101,645	111,731	192,209	84,839	88,379	91,783	94,746
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	3	5
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,851	88,384	91,786	94,752
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,205)	(8,812)	(8,305)

Appendix 42b
Updated Base Scenario #14
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	330,205	346,665	347,229
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	16,157	16,460	563	(10,500)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,119
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
11	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	330,205	346,665	347,229	336,729
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	286,029	311,679	322,070	322,690

Appendix 42c
Updated Base Scenario #14
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,406	68,212	70,977	60,125
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,282	2,687,490	2,801,045	2,916,394
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,956	25,263	18,691
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,730
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,433	2,055,874	2,129,145
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,255	3,021,983	3,141,893	3,260,418
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	330,205	346,665	347,229	336,729
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,039)
27	Total Equity	231,003	181,000	210,845	261,938	286,029	311,679	322,070	322,690
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,186,283	3,333,662	3,463,963	3,583,108

Appendix 42d
Updated Base Scenario #14
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	238,912	252,509	260,886	259,473
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	238,912	252,509	260,886	259,473
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,171	217,432	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,151	325,547	337,959
16	Market Risk:						
17	Interest rate risk	30	4,798	20,791	25,111	30,016	32,905
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,317
19	Equity risk	34	69,145	67,268	71,795	76,632	85,251
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,180	140,727	152,469	168,463
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,755	64,102	65,654	66,740
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,755	64,102	65,654	66,740
28	Operational risk margin	50	64,469	70,299	73,627	76,996	80,742
29	Less: Diversification credit	52	53,525	62,537	66,138	69,784	74,137
30	Total Capital (Margin) Required at Target	59	452,643	500,252	525,469	550,882	579,767
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,501	350,313	367,255	386,512
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,501	350,313	367,255	386,512
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(94,589)	(97,804)	(106,369)	(127,039)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	71.64%	72.08%	71.04%	67.13%

Appendix 42e
Updated Base Scenario #14
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	221,007	222,324	224,481
7	Total	726,240	767,976	844,426	891,006	936,291	985,421
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,044	6,744	6,603
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,289)	4,018	7,959
13	Total Net Claims Incurred	767,240	789,235	901,117	948,682	1,004,590	1,060,193

Appendix 42f

Updated Base Scenario #14

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,042	445,470	470,041		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,208	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,956	25,263	18,691		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,814	4,525	8,544	16,503		
38	Change					2,363	(20,876)	(2,364)	(4,289)	4,018	7,959		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 42g

Updated Base Scenario #14

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,161	62,122	67,881	73,632
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,614	84,187	87,733	91,325
6	Dividend and other Income					
7	Canadian Equities	9,657	5,699	4,639	5,371	5,931
8	Global	4,218	5,986	4,962	5,675	6,235
9	Global LV	-	2,900	3,279	3,758	4,092
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,468	26,761	28,685	30,061
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(749)	(765)	(773)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	749	765	773
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,630	0	0	790
19	Global Equities Realized Gains	66,318	3,727	0	0	1,057
20	Global LV Realized Gains	-	457	-	-	834
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,858	10,475	11,085	14,411
24	Other					
25	Investment Fees Paid	(5,203)	(4,724)	(4,613)	(4,910)	(5,137)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,446	4,598	4,694	4,714
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,973)	(15,630)
30	Total Corporate Investment Income	199,910	103,790	107,095	112,530	120,168
31	Total Basic Investment Income	171,428	84,851	88,384	91,786	94,752
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,752	4,908	5,683	6,620
35	US Equities Unrealized Gains/(Losses)	7,537	9,332	7,406	8,469	9,304
36	Global LV Unrealized Gains/(Losses)	-	4,220	4,477	5,132	5,587
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,084	12,313	14,152	15,924
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.3	1,903.2	2,062.3	2,213.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.4	151.7	174.4	198.5
43	Global Equities	166.6	169.9	195.0	221.7	249.9
44	Global LV Equities	96.5	116.2	133.8	152.4	170.5
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.1	3,280.6	3,474.6	3,666.2
49	Total Basic Assets	2,530.3	2,652.2	2,769.3	2,885.8	2,991.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.8%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 43a

Modified Base Scenario #14

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,471	29,370	31,448
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,716	1,238,607	1,289,246
13	Net Claims Incurred	742,604	869,023	783,040	824,140	893,862	938,472	995,776	1,051,882
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,254	10,209	8,857	8,272
15	Total Claims Incurred	666,404	860,035	767,239	789,235	901,117	948,682	1,004,633	1,060,154
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,667
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,268
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,049,098	1,100,576	1,161,827	1,220,089
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,851
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,064	168,047	174,370
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(68,694)	(71,923)	(91,267)	(105,213)
26	Investment Income	48,476	101,645	111,731	192,209	85,195	88,747	92,164	95,157
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	5	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	85,206	88,751	92,170	95,160
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	16,512	16,827	903	(10,053)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,205)	(8,852)	(8,269)

Appendix 43b
Modified Base Scenario #14
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,702	343,206	358,640	363,483
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	16,512	16,827	903	(10,053)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,654	2,992	(1,393)	3,940	15,347
6	Total Retained Earnings	194,498	99,251	170,975	323,702	343,206	358,640	363,483	368,777
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,055)	(34,726)	(24,750)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,056	9,329	9,975	11,280
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,055)	(34,726)	(24,750)	(13,471)
11	Total Equity Balance	231,002	181,000	210,845	271,591	299,151	323,915	338,733	355,307
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,702	343,206	358,640	363,483	368,777
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,055)	(34,726)	(24,750)	(13,471)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,591	299,151	323,915	338,733	355,307
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,591	299,151	323,915	338,733	355,307

Appendix 43c
Modified Base Scenario #14
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	63,430	69,852	76,558	81,064
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,279	2,588,381	2,698,085	2,812,170	2,928,079
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	22,372	27,956	25,261	18,691
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,216
14		2,683,473	2,805,484	2,916,137	3,046,315	3,199,406	3,345,898	3,480,667	3,615,731
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,732
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,841	1,980,433	2,055,915	2,129,150
23		2,452,472	2,624,484	2,705,292	2,774,723	2,900,255	3,021,983	3,141,934	3,260,424
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,702	343,206	358,640	363,483	368,777
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,055)	(34,726)	(24,750)	(13,471)
27	Total Equity	231,003	181,000	210,845	271,591	299,151	323,915	338,733	355,307
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,315	3,199,406	3,345,898	3,480,667	3,615,731

Appendix 43d
Modified Base Scenario #14
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,937	252,034	264,744	277,548	292,090
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,937	252,034	264,744	277,548	292,090
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	112,437
12	Unpaid claims	22	192,187	200,632	209,171	217,436	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,555	313,151	325,551	337,959
16	Market Risk:						
17	Interest rate risk	30	5,299	21,345	25,688	30,609	33,516
18	Foreign exchange risk	32	15,780	15,444	16,458	17,539	20,552
19	Equity risk	34	70,014	68,178	72,768	77,670	86,357
20	Real estate risk	36	26,139	27,064	27,775	28,719	30,234
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,232	132,031	142,689	154,537	170,659
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	62,071	64,421	65,976	67,065
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	62,071	64,421	65,976	67,065
28	Operational risk margin	50	64,620	70,483	73,821	77,199	80,956
29	Less: Diversification credit	52	53,934	62,978	66,593	70,251	74,614
30	Total Capital (Margin) Required at Target	59	454,159	502,162	527,489	553,012	582,025
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,773	334,775	351,659	368,675	388,017
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,773	334,775	351,659	368,675	388,017
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,836)	(82,741)	(86,915)	(91,127)	(95,927)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.28%	75.28%	75.28%	75.28%	75.28%

Appendix 43e
Modified Base Scenario #14
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,506	221,007	222,359	224,449
7	Total	726,240	767,976	844,426	891,006	936,326	985,389
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,044	6,750	6,598
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(2,364)	(4,289)	4,020	7,957
13	Total Net Claims Incurred	767,240	789,235	901,117	948,682	1,004,633	1,060,154

Appendix 43f

Modified Base Scenario #14

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.22%	72.57%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9229	0.9322	0.9460	0.9818	1.0047					
9	2020				0.9329	0.9470	0.9833	1.0066	1.0115				
10	2021					0.9568	0.9918	1.0136	1.0169	1.0132			
11	2022						0.9979	1.0194	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.46%	75.82%	70.56%	71.92%	72.55%				73.31%	77.83%
16	2020				75.88%	70.64%	72.03%	72.69%	73.41%			72.71%	77.27%
17	2021					71.36%	72.65%	73.20%	73.80%	74.45%		73.22%	77.87%
18	2022						73.10%	73.61%	74.18%	74.81%	75.48%	74.20%	78.97%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.09%	8.11%	8.06%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.70%	2.69%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.70%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,366	425,042	445,472	470,041		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,945	15,446	16,036		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,691	78,208	81,967	86,488		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	22,372	27,956	25,261	18,691		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	8,814	4,525	8,545	16,503		
38	Change					2,363	(20,876)	(2,364)	(4,289)	4,020	7,957		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 43g

Modified Base Scenario #14

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	94	(0)	(0)	0
3	Marketable Bonds	44,259	55,167	62,124	67,886	73,479
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,623	84,189	87,737	91,172
6	Dividend and other Income					
7	Canadian Equities	9,657	5,687	4,638	5,369	6,005
8	Global	4,218	5,983	4,962	5,673	6,256
9	Global LV	-	2,900	3,278	3,757	4,141
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,454	26,759	28,679	30,205
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(30,545)	(749)	(765)	(772)
16	Marketable Bonds Realized Gains/(Loss)	13,969	30,545	749	765	772
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,618	0	0	774
19	Global Equities Realized Gains	66,318	3,723	0	747	0
20	Global LV Realized Gains	-	457	-	-	816
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,842	10,475	11,832	13,321
24	Other					
25	Investment Fees Paid	(5,203)	(4,725)	(4,614)	(4,908)	(5,132)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,446	4,598	4,695	4,712
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,151)	(14,329)	(14,970)	(15,627)
30	Total Corporate Investment Income	199,910	103,769	107,093	113,278	119,071
31	Total Basic Investment Income	171,428	85,206	88,751	92,170	95,160
32	% - Basic to Total Investment Income	85.75%	82%	83%	81%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,739	4,907	5,681	6,702
35	US Equities Unrealized Gains/(Losses)	7,537	9,327	7,405	8,466	9,335
36	Global LV Unrealized Gains/(Losses)	-	4,220	4,476	5,129	5,654
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,066	12,312	14,147	16,037
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,745.3	1,903.3	2,074.4	2,212.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.4	151.7	174.3	198.1
43	Global Equities	166.6	169.9	195.0	209.8	251.3
44	Global LV Equities	96.5	116.2	133.8	152.3	170.1
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,094.0	3,280.6	3,474.6	3,666.5
49	Total Basic Assets	2,539.9	2,665.4	2,781.5	2,902.5	3,024.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.7%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	5.9%	6.0%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.6%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 44a

Adverse Scenario #14

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,474	29,376	31,454
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,719	1,238,614	1,289,252
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,642	1,124,965	995,394	1,055,968
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,599	1,137,355	999,619	1,062,003
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,580	1,289,978	1,158,334	1,223,304
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,391	168,737	174,998
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,176)	(261,650)	(88,457)	(109,050)
26	Investment Income	48,476	101,645	111,731	192,209	68,307	64,921	61,879	59,960
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,806	104,028	(66)	(24)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,113	168,948	61,813	59,937
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(25,063)	(92,701)	(26,644)	(49,113)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,849	91,638	(4,290)	(6,058)

Appendix 44b
Adverse Scenario #14
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,702	301,631	207,537	184,833
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(25,063)	(92,701)	(26,644)	(49,113)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,654	2,992	(1,393)	3,940	15,347
6	Total Retained Earnings	194,498	99,251	170,975	323,702	301,631	207,537	184,833	151,067
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,371)	(51,869)	(43,265)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(260)	502	8,604	9,376
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
11	Total Equity Balance	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,702	301,631	207,537	184,833	151,067
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178

Appendix 44c
Adverse Scenario #14
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	57,080	22,634	20,089	22,322
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,279	2,696,689	2,889,284	2,969,939	3,048,528
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,397	1,458	3,227	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,083	63,095
14		2,683,473	2,805,484	2,916,137	3,046,315	3,291,388	3,463,334	3,559,832	3,658,626
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,849	2,266,423	2,332,713	2,410,793
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,127	3,307,665	3,418,264	3,541,448
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,702	301,631	207,537	184,833	151,067
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
27	Total Equity	231,003	181,000	210,845	271,591	249,261	155,669	141,568	117,178
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,315	3,291,388	3,463,334	3,559,832	3,658,626

Appendix 44d
Adverse Scenario #14
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,937	202,143	96,546	80,485	54,083
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,937	202,143	96,546	80,485	54,083
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	113,479
12	Unpaid claims	22	192,187	214,813	238,393	245,233	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	342,373	353,348	366,712
16	Market Risk:						
17	Interest rate risk	30	5,299	5,602	4,336	19,207	18,501
18	Foreign exchange risk	32	15,780	18,018	18,709	16,490	16,843
19	Equity risk	34	70,014	81,899	84,835	70,633	75,412
20	Real estate risk	36	26,139	27,064	27,775	28,719	30,234
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,232	132,583	135,655	135,049	140,990
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	61,610	63,625	65,902	67,102
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	61,610	63,625	65,902	67,102
28	Operational risk margin	50	64,620	71,696	75,639	77,899	80,881
29	Less: Diversification credit	52	53,934	64,082	67,143	68,252	70,731
30	Total Capital (Margin) Required at Target	59	454,159	516,543	550,149	563,946	584,954
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,773	344,362	366,766	375,964	389,969
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,773	344,362	366,766	375,964	389,969
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,836)	(142,219)	(270,220)	(295,479)	(335,886)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.28%	58.70%	26.32%	21.41%	13.87%

Appendix 44e
Adverse Scenario #14
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,959	334,658	222,450	223,702
7	Total	726,240	767,976	966,512	1,042,325	936,118	984,831
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,875	6,407	6,775
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	12,233	(444)	10,188
13	Total Net Claims Incurred	767,240	789,235	1,053,599	1,137,355	999,619	1,062,002

Appendix 44f

Adverse Scenario #14

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	76.52%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9470	0.9583	0.9919	1.0121	1.0139				
10	2021					0.9677	1.0007	1.0203	1.0212	1.0150			
11	2022						1.0066	1.0263	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				77.03%	71.48%	72.66%	74.53%	77.58%			74.74%	81.33%
17	2021					72.18%	73.31%	75.13%	78.14%	74.59%		74.34%	81.11%
18	2022						73.73%	75.57%	78.61%	75.04%	75.58%	75.40%	82.40%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.13%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,791	447,396	463,999	490,426		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,976	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,321	85,376	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,397	1,458	3,227	(5,573)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	31,023	30,579	35,193		
38	Change					2,363	(20,876)	7,611	12,233	(444)	4,614		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	5,573		
40	Change					2,001	(8,845)	-	-	-	5,573		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 44g

Adverse Scenario #14

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	119	(0)	0	(1)
3	Marketable Bonds	44,259	50,824	51,491	51,636	53,302
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,304	73,556	71,487	70,994
6	Dividend and other Income					
7	Canadian Equities	9,657	6,374	5,099	5,161	5,316
8	Global	4,218	6,708	5,540	5,580	5,770
9	Global LV	-	3,341	3,407	3,427	3,488
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,042	27,274	27,452	27,831
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,074	87,674	(13,279)	2,414
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,854	21,357	13,279	(2,414)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(147)	(1,389)	535	0
19	Global Equities Realized Gains	66,318	179	(84)	580	510
20	Global LV Realized Gains	-	49	12	511	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,053	118,046	12,711	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,890)	(4,807)	(4,945)	(5,049)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,352)	(12,746)	(15,012)	(14,741)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,114)	(31,866)	(34,714)	(34,997)
30	Total Corporate Investment Income	199,910	223,286	198,050	76,936	76,069
31	Total Basic Investment Income	171,428	196,113	168,948	61,813	59,937
32	% - Basic to Total Investment Income	85.75%	88%	85%	80%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(985)	5,461	5,933
35	US Equities Unrealized Gains/(Losses)	7,537	88	(98)	8,327	8,612
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,679	4,763
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,083)	13,789	14,544
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.6	2,002.3	2,240.5	2,364.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.1	171.4	150.9	171.6
43	Global Equities	166.6	205.8	219.2	201.1	218.6
44	Global LV Equities	96.5	127.3	143.4	124.7	140.8
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.1	3,444.3	3,592.1	3,740.1
49	Total Basic Assets	2,539.9	2,767.3	2,925.5	3,003.8	3,086.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.7%	58.1%	62.4%	63.2%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.2%	4.6%
55	US Equities	5.7%	6.4%	6.4%	5.6%	5.8%
56	Global LV	3.3%	4.0%	4.2%	3.5%	3.8%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 44h

Adverse Scenario #14 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,077,959	1,122,705	1,168,510	1,216,461
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,137,442	1,183,942	1,231,351	1,280,907
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,050,815	1,102,006	1,147,321	1,194,279
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,710	27,474	29,376	31,454
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,135,001	1,189,719	1,238,614	1,289,252
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,212,642	1,124,965	995,394	1,055,968
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,053,599	1,137,355	999,619	1,062,003
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,752	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,201,580	1,289,978	1,158,334	1,223,304
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,591	44,599	46,364	48,188
22	Premium Taxes	26,205	27,563	29,143	31,518	33,621	35,217	36,634	38,098
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,597	161,391	168,737	174,998
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(221,176)	(261,650)	(88,457)	(109,050)
26	Investment Income	48,476	101,645	111,731	192,209	68,307	64,921	61,879	59,960
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,806	104,028	(66)	(24)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,113	168,948	61,813	59,937
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(25,063)	(92,701)	(26,644)	(49,113)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,849	91,638	(4,290)	(6,058)

Appendix 44i

Adverse Scenario #14 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,702	301,631	207,537	184,833
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(25,063)	(92,701)	(26,644)	(49,113)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,654	2,992	(1,393)	3,940	15,347
6	Total Retained Earnings	194,498	99,251	170,975	323,702	301,631	207,537	184,833	151,067
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,371)	(51,869)	(43,265)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(260)	502	8,604	9,376
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
11	Total Equity Balance	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,702	301,631	207,537	184,833	151,067
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,591	249,261	155,669	141,568	117,178

Appendix 44j

Adverse Scenario #14 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	57,080	22,634	20,089	22,322
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,279	2,696,689	2,889,284	2,969,939	3,048,528
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	373,508	388,286	403,400	419,208
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	12,397	1,458	3,227	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,123	61,083	63,095
14		2,683,473	2,805,484	2,916,137	3,046,315	3,291,388	3,463,334	3,559,832	3,658,626
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	578,831	604,184	630,256	657,653
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,849	2,266,423	2,332,713	2,410,793
23		2,452,472	2,624,484	2,705,292	2,774,723	3,042,127	3,307,665	3,418,264	3,541,448
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,702	301,631	207,537	184,833	151,067
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,265)	(33,889)
27	Total Equity	231,003	181,000	210,845	271,591	249,261	155,669	141,568	117,178
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,315	3,291,388	3,463,334	3,559,832	3,658,626

Appendix 44k
Adverse Scenario #14 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,937	202,143	96,546	80,485	54,083
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,937	202,143	96,546	80,485	54,083
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,923	103,980	108,115	113,479
12	Unpaid claims	22	192,187	214,813	238,393	245,233	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,736	342,373	353,348	366,712
16	Market Risk:						
17	Interest rate risk	30	5,299	5,602	4,336	19,207	18,501
18	Foreign exchange risk	32	15,780	18,018	18,709	16,490	16,843
19	Equity risk	34	70,014	81,899	84,835	70,633	75,412
20	Real estate risk	36	26,139	27,064	27,775	28,719	30,234
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,232	132,583	135,655	135,049	140,990
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	61,610	63,625	65,902	67,102
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	61,610	63,625	65,902	67,102
28	Operational risk margin	50	64,620	71,696	75,639	77,899	80,881
29	Less: Diversification credit	52	53,934	64,082	67,143	68,252	70,731
30	Total Capital (Margin) Required at Target	59	454,159	516,543	550,149	563,946	584,954
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,773	344,362	366,766	375,964	389,969
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,773	344,362	366,766	375,964	389,969
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,836)	(142,219)	(270,220)	(295,479)	(335,886)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.28%	58.70%	26.32%	21.41%	13.87%

Appendix 44l

Adverse Scenario #14 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,959	334,658	222,450	223,702
7	Total	726,240	767,976	966,512	1,042,325	936,118	984,831
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,105	27,875	6,407	6,775
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	7,611	12,233	(444)	10,188
13	Total Net Claims Incurred	767,240	789,235	1,053,599	1,137,355	999,619	1,062,002

Appendix 44m

Adverse Scenario #14 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.63%	76.52%	73.49%	74.48%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9267	0.9352	0.9482	0.9833	1.0053					
9	2020				0.9470	0.9583	0.9919	1.0121	1.0139				
10	2021					0.9677	1.0007	1.0203	1.0212	1.0150			
11	2022						1.0066	1.0263	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.77%	76.07%	70.73%	72.03%	74.02%				73.94%	79.43%
16	2020				77.03%	71.48%	72.66%	74.53%	77.58%			74.74%	81.33%
17	2021					72.18%	73.31%	75.13%	78.14%	74.59%		74.34%	81.11%
18	2022						73.73%	75.57%	78.61%	75.04%	75.58%	75.40%	82.40%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,109,291	1,162,245	1,209,237	1,257,798		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.21%	8.13%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	534,344	556,041	578,155	601,264		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,791	447,396	463,999	490,426		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,141	14,976	15,544	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,242	82,321	85,376	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	12,397	1,458	3,227	(5,573)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,186	32,481	33,806	35,193		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	18,790	31,023	30,579	35,193		
38	Change					2,363	(20,876)	7,611	12,233	(444)	4,614		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	5,573		
40	Change					2,001	(8,845)	-	-	-	5,573		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 44n

Adverse Scenario #14 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	119	(0)	0	(1)
3	Marketable Bonds	44,259	50,824	51,491	51,636	53,302
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,304	73,556	71,487	70,994
6	Dividend and other Income					
7	Canadian Equities	9,657	6,374	5,099	5,161	5,316
8	Global	4,218	6,708	5,540	5,580	5,770
9	Global LV	-	3,341	3,407	3,427	3,488
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,042	27,274	27,452	27,831
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,074	87,674	(13,279)	2,414
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,854	21,357	13,279	(2,414)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(147)	(1,389)	535	0
19	Global Equities Realized Gains	66,318	179	(84)	580	510
20	Global LV Realized Gains	-	49	12	511	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,053	118,046	12,711	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,890)	(4,807)	(4,945)	(5,049)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,352)	(12,746)	(15,012)	(14,741)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,114)	(31,866)	(34,714)	(34,997)
30	Total Corporate Investment Income	199,910	223,286	198,050	76,936	76,069
31	Total Basic Investment Income	171,428	196,113	168,948	61,813	59,937
32	% - Basic to Total Investment Income	85.75%	88%	85%	80%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(985)	5,461	5,933
35	US Equities Unrealized Gains/(Losses)	7,537	88	(98)	8,327	8,612
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,679	4,763
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,083)	13,789	14,544
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.6	2,002.3	2,240.5	2,364.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.1	171.4	150.9	171.6
43	Global Equities	166.6	205.8	219.2	201.1	218.6
44	Global LV Equities	96.5	127.3	143.4	124.7	140.8
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,201.1	3,444.3	3,592.1	3,740.1
49	Total Basic Assets	2,539.9	2,767.3	2,925.5	3,003.8	3,086.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.7%	58.1%	62.4%	63.2%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.2%	4.6%
55	US Equities	5.7%	6.4%	6.4%	5.6%	5.8%
56	Global LV	3.3%	4.0%	4.2%	3.5%	3.8%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 45a

Updated Base Scenario #15

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,624	938,446	995,718	1,051,824
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,261	10,174	8,904	8,217
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,884	948,620	1,004,622	1,060,042
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,654
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,266
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,865	1,100,514	1,161,816	1,219,962
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,844
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,557
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,117)	(88,395)	(102,098)
26	Investment Income	48,476	101,645	111,731	192,209	84,843	88,397	91,817	94,798
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	11	4	5	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,854	88,401	91,823	94,801
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,249)	(10,170)	(8,898)	(8,214)

Appendix 45b
Updated Base Scenario #15
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	332,916	352,201	355,629
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	18,868	19,285	3,428	(7,297)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	11,139
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
11	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	332,916	352,201	355,629	348,332
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	288,739	317,215	330,471	334,312

Appendix 45c
Updated Base Scenario #15
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,107	72,268	77,487	69,216
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,578,532	2,688,168	2,802,186	2,918,049
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,672	20,163
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,217
14		2,683,473	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,220	390,321	406,734
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,848	1,980,404	2,055,933	2,129,113
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,559	3,023,307	3,143,359	3,261,853
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	332,916	352,201	355,629	348,332
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,020)
27	Total Equity	231,003	181,000	210,845	261,938	288,739	317,215	330,471	334,312
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,190,298	3,340,522	3,473,830	3,596,165

Appendix 45d
Updated Base Scenario #15
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	241,622	258,045	269,286	271,095
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	241,622	258,045	269,286	271,095
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,438	225,519
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,816	338,229
16	Market Risk:						
17	Interest rate risk	30	4,798	20,821	25,203	30,147	33,011
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,344
19	Equity risk	34	69,145	67,268	71,795	76,632	85,397
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,210	140,819	152,600	168,742
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	61,926	64,282	65,846	66,940
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	61,926	64,282	65,846	66,940
28	Operational risk margin	50	64,469	70,406	73,745	77,122	80,884
29	Less: Diversification credit	52	53,525	62,597	66,213	69,870	74,252
30	Total Capital (Margin) Required at Target	59	452,643	500,742	526,034	551,514	580,543
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	333,828	350,689	367,676	387,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	333,828	350,689	367,676	387,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(92,206)	(92,644)	(98,390)	(115,934)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	72.38%	73.58%	73.24%	70.05%

Appendix 45e

Updated Base Scenario #15

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,406
6	PIPP	187,022	177,326	215,511	220,977	222,398	224,403
7	Total	726,240	767,976	844,432	890,976	936,366	985,342
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,756	6,590
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,604)	(4,316)	3,963	7,900
13	Total Net Claims Incurred	767,240	789,235	899,884	948,620	1,004,622	1,060,042

Appendix 45f

Updated Base Scenario #15

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.68%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,468	470,034		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,035		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,486		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,672	20,163		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,222	15,122		
38	Change					2,363	(20,876)	(3,604)	(4,316)	3,963	7,900		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 45g

Updated Base Scenario #15

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	0	0	(0)
3	Marketable Bonds	44,259	55,172	62,167	67,972	73,612
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,625	84,232	87,823	91,305
6	Dividend and other Income					
7	Canadian Equities	9,657	5,701	4,652	5,401	6,053
8	Global	4,218	5,988	4,975	5,702	6,296
9	Global LV	-	2,902	3,289	3,779	4,173
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,475	26,797	28,762	30,325
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(750)	(766)	(774)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	750	766	774
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,627	0	0	805
19	Global Equities Realized Gains	66,318	3,724	0	779	0
20	Global LV Realized Gains	-	457	-	-	848
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,852	10,475	11,864	13,384
24	Other					
25	Investment Fees Paid	(5,203)	(4,725)	(4,616)	(4,917)	(5,148)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,447	4,601	4,700	4,721
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,328)	(14,974)	(15,634)
30	Total Corporate Investment Income	199,910	103,802	107,175	113,476	119,380
31	Total Basic Investment Income	171,428	84,854	88,401	91,823	94,801
32	% - Basic to Total Investment Income	85.75%	82%	82%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,755	4,922	5,715	6,755
35	US Equities Unrealized Gains/(Losses)	7,537	9,335	7,424	8,509	9,396
36	Global LV Unrealized Gains/(Losses)	-	4,223	4,490	5,160	5,697
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,090	12,346	14,224	16,151
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,746.3	1,905.6	2,078.7	2,218.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.6	152.4	175.6	200.2
43	Global Equities	166.6	170.2	195.8	210.7	253.6
44	Global LV Equities	96.5	116.5	134.4	153.4	171.8
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,095.7	3,285.2	3,482.3	3,677.6
49	Total Basic Assets	2,530.3	2,654.2	2,774.0	2,893.4	3,002.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.7%	60.3%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.5%	6.0%	6.1%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 46a

Modified Base Scenario #15

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,528	29,431	31,515
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
13	Net Claims Incurred	742,604	869,023	783,040	824,140	892,624	938,446	995,716	1,051,828
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,261	10,174	8,862	8,298
15	Total Claims Incurred	666,404	860,035	767,239	789,235	899,884	948,620	1,004,579	1,060,126
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,089	144,204	146,654
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,805	12,990	13,266
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,047,865	1,100,514	1,161,773	1,220,046
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,250	79,935	82,844
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,243	168,233	174,557
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(65,986)	(69,117)	(88,352)	(102,182)
26	Investment Income	48,476	101,645	111,731	192,209	85,197	88,759	92,198	95,191
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	6	4	6
28	Net Investment Income	(4,038)	82,897	116,320	171,428	85,207	88,765	92,202	95,197
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	19,221	19,649	3,850	(6,985)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,251)	(10,168)	(8,859)	(8,292)

Appendix 46b
Modified Base Scenario #15
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,651	343,386	358,863	363,741
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	19,221	19,649	3,850	(6,985)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,603	514	(4,171)	1,028	12,363
6	Total Retained Earnings	194,498	99,251	170,975	323,651	343,386	358,863	363,741	369,120
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,056)	(34,727)	(24,753)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,056	9,328	9,975	11,299
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,056)	(34,727)	(24,753)	(13,453)
11	Total Equity Balance	231,002	181,000	210,845	271,540	299,330	324,136	338,989	355,666
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,651	343,386	358,863	363,741	369,120
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,056)	(34,727)	(24,753)	(13,453)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,540	299,330	324,136	338,989	355,666
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,540	299,330	324,136	338,989	355,666

Appendix 46c

Modified Base Scenario #15

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	62,652	68,651	74,899	78,984
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,228	2,588,577	2,698,705	2,813,248	2,929,672
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	23,693	29,306	26,674	20,161
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,170	61,184	63,217
14		2,683,473	2,805,484	2,916,137	3,046,264	3,200,889	3,347,442	3,482,305	3,617,554
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,219	390,320	406,731
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,848	1,980,404	2,055,891	2,129,151
23		2,452,472	2,624,484	2,705,292	2,774,723	2,901,559	3,023,306	3,143,317	3,261,888
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,651	343,386	358,863	363,741	369,120
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,056)	(34,727)	(24,753)	(13,453)
27	Total Equity	231,003	181,000	210,845	271,540	299,330	324,136	338,989	355,666
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,264	3,200,889	3,347,442	3,482,305	3,617,554

Appendix 46d
Modified Base Scenario #15
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,886	252,213	264,966	277,805	292,450
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,886	252,213	264,966	277,805	292,450
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	112,710
12	Unpaid claims	22	192,187	200,632	209,168	217,434	225,522
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	300,797	313,401	325,812	338,232
16	Market Risk:						
17	Interest rate risk	30	5,297	21,372	25,777	30,754	33,634
18	Foreign exchange risk	32	15,779	15,443	16,457	17,538	20,580
19	Equity risk	34	70,009	68,173	72,763	77,665	86,508
20	Real estate risk	36	26,138	27,063	27,773	28,718	30,233
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,223	132,051	142,770	154,675	170,955
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	62,241	64,600	66,166	67,263
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	62,241	64,600	66,166	67,263
28	Operational risk margin	50	64,619	70,590	73,937	77,326	81,100
29	Less: Diversification credit	52	53,932	63,035	66,665	70,337	74,731
30	Total Capital (Margin) Required at Target	59	454,151	502,644	528,043	553,642	582,819
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,767	335,096	352,028	369,095	388,546
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,767	335,096	352,028	369,095	388,546
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,881)	(82,883)	(87,062)	(91,290)	(96,096)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.27%	75.27%	75.27%	75.27%	75.27%

Appendix 46e
Modified Base Scenario #15
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,759
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,997
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,407
6	PIPP	187,022	177,326	215,511	220,977	222,363	224,470
7	Total	726,240	767,976	844,432	890,976	936,330	985,410
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,685	7,039	6,750	6,602
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	(3,604)	(4,316)	3,961	7,904
13	Total Net Claims Incurred	767,240	789,235	899,884	948,620	1,004,578	1,060,125

Appendix 46f

Modified Base Scenario #15

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.12%	72.39%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9205	0.9298	0.9435	0.9793	1.0034					
9	2020				0.9306	0.9447	0.9809	1.0054	1.0115				
10	2021					0.9544	0.9894	1.0125	1.0169	1.0132			
11	2022						0.9955	1.0182	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.27%	75.63%	70.38%	71.74%	72.37%				73.12%	77.63%
16	2020				75.69%	70.47%	71.85%	72.51%	73.22%			72.53%	77.08%
17	2021					71.19%	72.47%	73.02%	73.62%	74.27%		73.04%	77.67%
18	2022						72.92%	73.43%	74.00%	74.62%	75.29%	74.02%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.07%	8.09%	8.04%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.69%	2.70%	2.68%		
25	Selected					3.16%	2.99%	2.86%	2.71%	2.69%	2.69%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,324	425,036	445,466	470,036		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,954	15,446	16,035		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,684	78,207	81,966	86,487		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	23,693	29,306	26,674	20,161		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	7,575	3,259	7,220	15,124		
38	Change					2,363	(20,876)	(3,604)	(4,316)	3,961	7,904		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 46g

Modified Base Scenario #15

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	94	0	0	(0)
3	Marketable Bonds	44,259	55,178	62,150	68,016	73,711
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,634	84,214	87,868	91,404
6	Dividend and other Income					
7	Canadian Equities	9,657	5,690	4,651	5,399	5,976
8	Global	4,218	5,985	4,995	5,658	6,336
9	Global LV	-	2,902	3,288	3,777	4,122
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,460	26,815	28,715	30,237
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(30,540)	(749)	(766)	(774)
16	Marketable Bonds Realized Gains/(Loss)	13,969	30,540	749	766	774
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,615	0	0	785
19	Global Equities Realized Gains	66,318	3,555	267	0	1,047
20	Global LV Realized Gains	-	457	-	-	828
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,672	10,742	11,085	14,391
24	Other					
25	Investment Fees Paid	(5,203)	(4,725)	(4,620)	(4,911)	(5,154)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,447	4,600	4,703	4,719
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,150)	(14,333)	(14,965)	(15,642)
30	Total Corporate Investment Income	199,910	103,616	107,439	112,703	120,390
31	Total Basic Investment Income	171,428	85,207	88,765	92,202	95,197
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,742	4,921	5,712	6,669
35	US Equities Unrealized Gains/(Losses)	7,537	9,331	7,454	8,444	9,456
36	Global LV Unrealized Gains/(Losses)	-	4,223	4,489	5,157	5,628
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,072	12,376	14,157	16,125
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,739.0	1,907.3	2,068.1	2,220.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	130.6	152.4	175.5	200.4
43	Global Equities	166.6	177.4	194.3	221.4	250.8
44	Global LV Equities	96.5	116.5	134.4	153.3	172.0
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,095.7	3,285.2	3,482.2	3,677.2
49	Total Basic Assets	2,539.9	2,664.8	2,780.9	2,901.9	3,023.9
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.2%	58.1%	59.4%	60.4%
53	MUSH	19.4%	16.9%	14.5%	12.4%	10.5%
54	Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.4%
55	US Equities	5.7%	5.7%	5.9%	6.4%	6.8%
56	Global LV	3.3%	3.8%	4.1%	4.4%	4.7%
57	Private Debt	0.0%	6.1%	5.7%	5.4%	5.1%
58	Real Estate	4.6%	4.5%	4.4%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 47a

Adverse Scenario #15

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,531	29,438	31,521
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,644	1,241,660	1,292,426
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,412	1,124,935	995,333	1,055,905
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,369	1,137,325	999,558	1,061,940
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,584	147,889
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,396
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,350	1,289,945	1,158,273	1,223,225
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,473
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,570	168,923	175,185
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,471)	(258,870)	(85,536)	(105,984)
26	Investment Income	48,476	101,645	111,731	192,209	68,308	64,930	61,893	59,985
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,805	104,040	(68)	(24)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,113	168,970	61,824	59,961
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(22,358)	(89,901)	(23,711)	(46,024)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,847	91,649	(4,293)	(6,059)

Appendix 47b
Adverse Scenario #15
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,651	301,807	207,735	185,052
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(22,358)	(89,901)	(23,711)	(46,024)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,603	514	(4,171)	1,028	12,363
6	Total Retained Earnings	194,498	99,251	170,975	323,651	301,807	207,735	185,052	151,392
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,371)	(51,869)	(43,249)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(260)	502	8,620	9,394
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
11	Total Equity Balance	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,651	301,807	207,735	185,052	151,392
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537

Appendix 47c
Adverse Scenario #15
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	56,303	21,430	18,422	20,248
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,228	2,696,884	2,889,917	2,971,030	3,050,108
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	2,806	4,639	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,083	63,096
14		2,683,473	2,805,484	2,916,137	3,046,264	3,292,872	3,464,886	3,561,476	3,658,973
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,859	2,266,427	2,332,716	2,409,318
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,435	3,309,020	3,419,673	3,541,437
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,651	301,807	207,735	185,052	151,392
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
27	Total Equity	231,003	181,000	210,845	271,540	249,436	155,866	141,803	117,537
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,264	3,292,872	3,464,886	3,561,476	3,658,973

Appendix 47d
Adverse Scenario #15
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,886	202,319	96,743	80,719	54,441
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,886	202,319	96,743	80,719	54,441
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	113,478
12	Unpaid claims	22	192,187	214,814	238,393	245,233	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	342,626	353,611	366,711
16	Market Risk:						
17	Interest rate risk	30	5,297	5,626	4,391	19,291	18,846
18	Foreign exchange risk	32	15,779	18,018	18,716	16,506	16,912
19	Equity risk	34	70,009	81,899	84,874	70,726	75,513
20	Real estate risk	36	26,138	27,063	27,773	28,718	30,233
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,223	132,606	135,754	135,241	141,504
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	61,780	63,801	66,089	67,153
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	61,780	63,801	66,089	67,153
28	Operational risk margin	50	64,619	71,803	75,757	78,030	81,008
29	Less: Diversification credit	52	53,932	64,140	67,221	68,354	70,857
30	Total Capital (Margin) Required at Target	59	454,151	517,028	550,717	564,617	585,519
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,767	344,685	367,145	376,411	390,346
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,767	344,685	367,145	376,411	390,346
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,881)	(142,366)	(270,402)	(295,692)	(335,905)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.27%	58.70%	26.35%	21.44%	13.95%

Appendix 47e
Adverse Scenario #15
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,967	334,651	222,449	223,700
7	Total	726,240	767,976	966,521	1,042,318	936,118	984,828
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,106	27,876	6,407	6,772
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	12,210	(504)	10,131
13	Total Net Claims Incurred	767,240	789,235	1,052,369	1,137,325	999,558	1,061,940

Appendix 47f

Adverse Scenario #15

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	76.33%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9447	0.9560	0.9895	1.0110	1.0139				
10	2021					0.9653	0.9983	1.0191	1.0212	1.0150			
11	2022						1.0041	1.0252	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				76.84%	71.31%	72.48%	74.34%	77.39%			74.55%	81.13%
17	2021					72.00%	73.13%	74.94%	77.95%	74.40%		74.16%	80.91%
18	2022						73.55%	75.38%	78.42%	74.86%	75.40%	75.21%	82.19%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.11%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.70%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,391	463,994	490,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,985	15,544	16,163		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,320	85,375	90,237		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	2,806	4,639	(4,101)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	29,759	29,255	35,285		
38	Change					2,363	(20,876)	6,371	12,210	(504)	6,030		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,101		
40	Change					2,001	(8,845)	-	-	-	4,101		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 47g

Adverse Scenario #15

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	119	(0)	(0)	(1)
3	Marketable Bonds	44,259	50,833	51,521	51,687	53,391
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,313	73,586	71,539	71,083
6	Dividend and other Income					
7	Canadian Equities	9,657	6,376	5,114	5,194	5,360
8	Global	4,218	6,711	5,554	5,609	5,809
9	Global LV	-	3,344	3,418	3,449	3,517
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,050	27,313	27,536	27,943
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,087	87,741	(13,229)	2,422
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,840	21,328	13,229	(2,422)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(147)	(1,391)	540	0
19	Global Equities Realized Gains	66,318	179	(85)	586	510
20	Global LV Realized Gains	-	49	12	515	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,053	118,080	12,727	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,892)	(4,807)	(4,954)	(5,062)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,354)	(12,767)	(15,053)	(14,795)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,118)	(31,887)	(34,764)	(35,064)
30	Total Corporate Investment Income	199,910	223,297	198,133	77,037	76,203
31	Total Basic Investment Income	171,428	196,113	168,970	61,824	59,961
32	% - Basic to Total Investment Income	85.75%	88%	85%	80%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,495	5,981
35	US Equities Unrealized Gains/(Losses)	7,537	88	(98)	8,371	8,670
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,709	4,802
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,084)	13,866	14,651
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,784.5	2,004.5	2,244.9	2,370.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.4	172.2	152.0	173.2
43	Global Equities	166.6	206.0	220.1	202.3	220.4
44	Global LV Equities	96.5	127.6	144.1	125.6	142.2
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.7	3,448.8	3,599.6	3,750.9
49	Total Basic Assets	2,539.9	2,766.7	2,924.9	3,003.2	3,085.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.7%	58.1%	62.4%	63.2%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.2%	4.6%
55	US Equities	5.7%	6.4%	6.4%	5.6%	5.9%
56	Global LV	3.3%	4.0%	4.2%	3.5%	3.8%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 47h

Adverse Scenario #15 with Management Action

Statement of Operations

Line No.	*(C$ 000s, except where noted)*	*For the Years Ended February,*							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,140,248	1,186,863	1,234,391	1,284,071
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,052,323	1,104,874	1,150,306	1,197,386
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,761	27,531	29,438	31,521
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,136,560	1,192,644	1,241,660	1,292,426
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,211,412	1,124,935	995,333	1,055,905
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,052,369	1,137,325	999,558	1,061,940
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,749	145,584	147,889
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,871	13,131	13,396
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,200,350	1,289,945	1,158,273	1,223,225
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,576	80,625	83,473
21	Commissions	33,862	35,086	37,378	40,338	42,630	44,692	46,461	48,288
22	Premium Taxes	26,205	27,563	29,143	31,518	33,667	35,303	36,723	38,191
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,681	161,570	168,923	175,185
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(218,471)	(258,870)	(85,536)	(105,984)
26	Investment Income	48,476	101,645	111,731	192,209	68,308	64,930	61,893	59,985
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,805	104,040	(68)	(24)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	196,113	168,970	61,824	59,961
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(22,358)	(89,901)	(23,711)	(46,024)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,847	91,649	(4,293)	(6,059)

Appendix 47i

Adverse Scenario #15 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	323,651	301,807	207,735	185,052
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(22,358)	(89,901)	(23,711)	(46,024)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	9,603	514	(4,171)	1,028	12,363
6	Total Retained Earnings	194,498	99,251	170,975	323,651	301,807	207,735	185,052	151,392
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,371)	(51,869)	(43,249)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(260)	502	8,620	9,394
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
11	Total Equity Balance	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	323,651	301,807	207,735	185,052	151,392
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	271,540	249,436	155,866	141,803	117,537

Appendix 47j

Adverse Scenario #15 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	56,303	21,430	18,422	20,248
4	Equity investments	2,083,349	2,189,534	2,272,545	2,497,228	2,696,884	2,889,917	2,971,030	3,050,108
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	374,252	389,061	404,206	420,047
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,718	2,806	4,639	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,124	61,083	63,096
14		2,683,473	2,805,484	2,916,137	3,046,264	3,292,872	3,464,886	3,561,476	3,658,973
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	580,129	605,535	631,663	659,116
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,859	2,266,427	2,332,716	2,409,318
23		2,452,472	2,624,484	2,705,292	2,774,723	3,043,435	3,309,020	3,419,673	3,541,437
24	Equity								
25	Retained earnings	194,499	99,251	170,975	323,651	301,807	207,735	185,052	151,392
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,371)	(51,869)	(43,249)	(33,855)
27	Total Equity	231,003	181,000	210,845	271,540	249,436	155,866	141,803	117,537
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,046,264	3,292,872	3,464,886	3,561,476	3,658,973

Appendix 47k
Adverse Scenario #15 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	227,886	202,319	96,743	80,719	54,441
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	227,886	202,319	96,743	80,719	54,441
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	100,165	104,233	108,378	113,478
12	Unpaid claims	22	192,187	214,814	238,393	245,233	253,233
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	314,979	342,626	353,611	366,711
16	Market Risk:						
17	Interest rate risk	30	5,297	5,626	4,391	19,291	18,846
18	Foreign exchange risk	32	15,779	18,018	18,716	16,506	16,912
19	Equity risk	34	70,009	81,899	84,874	70,726	75,513
20	Real estate risk	36	26,138	27,063	27,773	28,718	30,233
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,223	132,606	135,754	135,241	141,504
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,395	61,780	63,801	66,089	67,153
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,395	61,780	63,801	66,089	67,153
28	Operational risk margin	50	64,619	71,803	75,757	78,030	81,008
29	Less: Diversification credit	52	53,932	64,140	67,221	68,354	70,857
30	Total Capital (Margin) Required at Target	59	454,151	517,028	550,717	564,617	585,519
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,767	344,685	367,145	376,411	390,346
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,767	344,685	367,145	376,411	390,346
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(74,881)	(142,366)	(270,402)	(295,692)	(335,905)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	75.27%	58.70%	26.35%	21.44%	13.95%

Appendix 47l

Adverse Scenario #15 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,967	334,651	222,449	223,700
7	Total	726,240	767,976	966,521	1,042,318	936,118	984,828
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,106	27,876	6,407	6,772
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,371	12,210	(504)	10,131
13	Total Net Claims Incurred	767,240	789,235	1,052,369	1,137,325	999,558	1,061,940

Appendix 47m

Adverse Scenario #15 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.53%	76.33%	73.31%	74.30%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9243	0.9328	0.9458	0.9808	1.0041					
9	2020				0.9447	0.9560	0.9895	1.0110	1.0139				
10	2021					0.9653	0.9983	1.0191	1.0212	1.0150			
11	2022						1.0041	1.0252	1.0273	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			75.58%	75.88%	70.55%	71.85%	73.83%				73.75%	79.23%
16	2020				76.84%	71.31%	72.48%	74.34%	77.39%			74.55%	81.13%
17	2021					72.00%	73.13%	74.94%	77.95%	74.40%		74.16%	80.91%
18	2022						73.55%	75.38%	78.42%	74.86%	75.40%	75.21%	82.19%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,110,799	1,165,113	1,212,223	1,260,905		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.20%	8.11%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.73%	2.70%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.86%	2.72%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	535,642	557,393	579,561	602,728		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	419,749	447,391	463,994	490,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,168	14,985	15,544	16,163		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,234	82,320	85,375	90,237		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,718	2,806	4,639	(4,101)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,268	32,566	33,894	35,285		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,550	29,759	29,255	35,285		
38	Change					2,363	(20,876)	6,371	12,210	(504)	6,030		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,101		
40	Change					2,001	(8,845)	-	-	-	4,101		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 47n

Adverse Scenario #15 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	119	(0)	(0)	(1)
3	Marketable Bonds	44,259	50,833	51,521	51,687	53,391
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,313	73,586	71,539	71,083
6	Dividend and other Income					
7	Canadian Equities	9,657	6,376	5,114	5,194	5,360
8	Global	4,218	6,711	5,554	5,609	5,809
9	Global LV	-	3,344	3,418	3,449	3,517
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,050	27,313	27,536	27,943
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,087	87,741	(13,229)	2,422
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,840	21,328	13,229	(2,422)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(147)	(1,391)	540	0
19	Global Equities Realized Gains	66,318	179	(85)	586	510
20	Global LV Realized Gains	-	49	12	515	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,053	118,080	12,727	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,892)	(4,807)	(4,954)	(5,062)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,354)	(12,767)	(15,053)	(14,795)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,118)	(31,887)	(34,764)	(35,064)
30	Total Corporate Investment Income	199,910	223,297	198,133	77,037	76,203
31	Total Basic Investment Income	171,428	196,113	168,970	61,824	59,961
32	% - Basic to Total Investment Income	85.75%	88%	85%	80%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(987)	5,495	5,981
35	US Equities Unrealized Gains/(Losses)	7,537	88	(98)	8,371	8,670
36	Global LV Unrealized Gains/(Losses)	-	147	67	4,709	4,802
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,084)	13,866	14,651
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,784.5	2,004.5	2,244.9	2,370.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	152.4	172.2	152.0	173.2
43	Global Equities	166.6	206.0	220.1	202.3	220.4
44	Global LV Equities	96.5	127.6	144.1	125.6	142.2
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,202.7	3,448.8	3,599.6	3,750.9
49	Total Basic Assets	2,539.9	2,766.7	2,924.9	3,003.2	3,085.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.7%	58.1%	62.4%	63.2%
53	MUSH	19.4%	16.3%	13.8%	12.0%	10.3%
54	Canadian Equities	4.2%	4.8%	5.0%	4.2%	4.6%
55	US Equities	5.7%	6.4%	6.4%	5.6%	5.9%
56	Global LV	3.3%	4.0%	4.2%	3.5%	3.8%
57	Private Debt	0.0%	5.9%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 48a

Updated Base Scenario #16

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,111	995,327	1,051,242
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,716)	655	11,121	9,453
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,417	937,766	1,006,448	1,060,695
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,352	1,089,534	1,163,473	1,220,477
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,989)	(83,244)	(116,087)	(129,635)
26	Investment Income	48,476	101,645	111,731	192,131	87,044	92,631	96,915	100,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,528)	(7,424)	4,473	2,029
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,515	85,206	101,387	102,402
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,812)	(8,079)	(6,648)	(7,424)

Appendix 48b
Updated Base Scenario #16
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	316,493	318,456	303,756
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,784)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,202	11,214
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
11	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953

Appendix 48c
Updated Base Scenario #16
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	47,134	36,299	19,279	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,544,598	2,646,458	2,767,091	2,874,836
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,761
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,677	389,271	405,961
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,964	1,934,073	2,010,737	2,084,197
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,555	2,962,957	3,084,134	3,202,656
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	316,493	318,456	303,756	276,523
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
27	Total Equity	231,003	181,000	210,845	264,856	272,319	283,470	278,972	262,953
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609

Appendix 48d
Updated Base Scenario #16
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	225,199	224,288	217,770	199,717
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	225,199	224,288	217,770	199,717
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,031	204,518	212,902	221,010
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
16	Market Risk:						
17	Interest rate risk	30	6,468	21,726	25,600	29,355	34,758
18	Foreign exchange risk	32	15,640	15,260	16,262	17,838	20,919
19	Equity risk	34	69,313	67,256	71,783	79,552	84,976
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,141	141,244	155,278	170,690
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	60,210	62,400	63,916	65,125
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	60,210	62,400	63,916	65,125
28	Operational risk margin	50	64,552	69,195	72,353	75,892	79,568
29	Less: Diversification credit	52	53,910	61,979	65,356	69,428	73,655
30	Total Capital (Margin) Required at Target	59	453,309	493,523	517,059	544,511	572,923
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	329,016	344,706	363,008	381,949
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	329,016	344,706	363,008	381,949
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(103,817)	(120,418)	(145,238)	(182,232)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	68.45%	65.07%	59.99%	52.29%

Appendix 48e
Updated Base Scenario #16
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,124	223,369	224,650
7	Total	726,240	759,725	821,952	882,030	937,339	985,583
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,630
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,272
13	Total Net Claims Incurred	767,240	778,719	883,418	937,767	1,006,447	1,060,694

Appendix 48f

Updated Base Scenario #16

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,761		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,679		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,272		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 48g

Updated Base Scenario #16

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,517	63,687	69,947	76,032
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,013	85,752	89,798	93,725
6	Dividend and other Income					
7	Canadian Equities	9,657	5,675	4,509	5,224	5,711
8	Global	4,218	5,958	4,843	5,540	5,968
9	Global LV	-	2,881	3,193	3,661	4,018
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,449	26,578	28,448	29,637
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,139)	(7,824)	2,711	578
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(40)	2,026	1,546
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,659	0	0	747
19	Global Equities Realized Gains	66,319	3,761	0	0	889
20	Global LV Realized Gains	-	459	-	-	908
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,818)	2,619	15,831	16,407
24	Other					
25	Investment Fees Paid	(5,204)	(4,706)	(4,555)	(4,835)	(5,034)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,796	7,626	7,682	7,391
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,782)	(11,242)	(11,910)	(12,850)
30	Total Corporate Investment Income	191,042	78,800	102,766	122,681	127,153
31	Total Basic Investment Income	163,818	62,515	85,206	101,387	102,402
32	% - Basic to Total Investment Income	85.75%	79%	83%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,724	4,771	5,528	6,373
35	US Equities Unrealized Gains/(Losses)	7,538	9,289	7,228	8,268	8,906
36	Global LV Unrealized Gains/(Losses)	-	4,193	4,359	4,999	5,487
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,013	11,999	13,796	15,280
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.5	1,990.6	2,149.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	127.9	145.4	168.7	184.2
43	Global Equities	166.7	167.1	188.1	215.5	234.8
44	Global LV Equities	96.6	114.2	128.6	147.7	158.1
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.1	3,203.9	3,385.2	3,559.5
49	Total Basic Assets	2,522.7	2,605.3	2,696.3	2,800.1	2,890.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	60.4%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.6%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.4%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 49a

Modified Base Scenario #16

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,111	995,327	1,051,243
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,716)	655	11,121	9,453
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,417	937,766	1,006,448	1,060,696
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,962	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,792	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,352	1,089,520	1,163,473	1,220,478
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,188	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,529	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,989)	(83,222)	(116,087)	(129,636)
26	Investment Income	48,476	101,645	111,731	192,131	87,593	93,211	97,535	101,014
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,572)	(7,438)	4,481	2,032
28	Net Investment Income	(4,038)	82,897	116,320	163,818	63,021	85,773	102,016	103,047
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	32	2,551	(14,071)	(26,589)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,856)	(8,093)	(6,639)	(7,421)

Appendix 49b
Modified Base Scenario #16
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,941	348,448	363,389	369,298
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	32	2,551	(14,071)	(26,589)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,975	16,474	12,390	19,981	32,006
6	Total Retained Earnings	194,498	99,251	170,975	331,941	348,448	363,389	369,298	374,715
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(43,985)	(34,583)	(24,152)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,126	9,402	10,431	11,463
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,985)	(34,583)	(24,152)	(12,689)
11	Total Equity Balance	231,002	181,000	210,845	279,830	304,463	328,806	345,146	362,026
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,941	348,448	363,389	369,298	374,715
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,985)	(34,583)	(24,152)	(12,689)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,830	304,463	328,806	345,146	362,026
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,830	304,463	328,806	345,146	362,026

Appendix 49c

Modified Base Scenario #16

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	63,659	65,251	68,210	69,091
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,834	2,560,214	2,662,839	2,784,330	2,904,813
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,032	16,676	9,761
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,183	61,203	63,237
14		2,683,473	2,805,484	2,916,137	3,044,920	3,157,016	3,291,761	3,429,277	3,564,678
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,988	372,675	389,269	405,958
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,964	1,934,073	2,010,737	2,084,197
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,553	2,962,955	3,084,131	3,202,652
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,941	348,448	363,389	369,298	374,715
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,985)	(34,583)	(24,152)	(12,689)
27	Total Equity	231,003	181,000	210,845	279,830	304,463	328,806	345,146	362,026
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,920	3,157,016	3,291,761	3,429,277	3,564,678

Appendix 49d
Modified Base Scenario #16
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	236,176	257,343	269,623	283,943	298,789
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	236,176	257,343	269,623	283,943	298,789
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,031	204,518	212,902	221,010
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
16	Market Risk:						
17	Interest rate risk	30	7,246	22,569	26,473	30,270	35,713
18	Foreign exchange risk	32	15,909	15,543	16,563	18,159	21,284
19	Equity risk	34	70,660	68,665	73,287	81,159	86,695
20	Real estate risk	36	26,282	27,216	27,936	28,890	30,416
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,097	133,993	144,259	158,478	174,108
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,438	60,699	62,890	64,412	65,626
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,438	60,699	62,890	64,412	65,626
28	Operational risk margin	50	64,785	69,479	72,651	76,206	79,901
29	Less: Diversification credit	52	54,536	62,647	66,044	70,133	74,380
30	Total Capital (Margin) Required at Target	59	455,664	496,480	520,174	547,816	576,450
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,776	330,987	346,783	365,211	384,300
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,776	330,987	346,783	365,211	384,300
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(67,600)	(73,644)	(77,160)	(81,268)	(85,511)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.75%	77.75%	77.75%	77.75%	77.75%

Appendix 49e
Modified Base Scenario #16
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,124	223,369	224,650
7	Total	726,240	759,725	821,952	882,030	937,339	985,583
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,630
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,273
13	Total Net Claims Incurred	767,240	778,719	883,418	937,766	1,006,447	1,060,695

Appendix 49f

Modified Base Scenario #16

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,869	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,032	16,676	9,761		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,406	24,679		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,273		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 49g

Modified Base Scenario #16

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	141	(0)	0	(0)
3	Marketable Bonds	44,245	55,527	63,689	69,954	76,096
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,029	85,754	89,805	93,789
6	Dividend and other Income					
7	Canadian Equities	9,657	5,657	4,508	5,221	5,710
8	Global	4,218	5,954	4,842	5,537	5,968
9	Global LV	-	2,881	3,192	3,659	3,957
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,426	26,575	28,440	29,574
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(52,431)	(7,824)	2,712	579
16	Marketable Bonds Realized Gains/(Loss)	11,781	26,679	(40)	2,026	1,548
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,640	0	0	716
19	Global Equities Realized Gains	66,319	3,754	0	0	855
20	Global LV Realized Gains	-	459	-	-	751
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,846)	2,619	15,831	16,188
24	Other					
25	Investment Fees Paid	(5,204)	(4,707)	(4,553)	(4,838)	(5,038)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,797	7,626	7,683	7,399
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,782)	(11,240)	(11,912)	(12,846)
30	Total Corporate Investment Income	191,042	78,766	102,767	122,678	126,938
31	Total Basic Investment Income	163,818	63,021	85,773	102,016	103,047
32	% - Basic to Total Investment Income	85.75%	80%	83%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,703	4,770	5,524	6,372
35	US Equities Unrealized Gains/(Losses)	7,538	9,282	7,226	8,264	8,907
36	Global LV Unrealized Gains/(Losses)	-	4,192	4,358	4,996	5,403
37	Total Corporate Unrealized Gains/(Losses)	19,652	15,985	11,996	13,788	15,279
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.7	1,991.0	2,149.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	127.9	145.4	168.6	183.8
43	Global Equities	166.7	167.1	188.0	215.3	234.4
44	Global LV Equities	96.6	114.2	128.5	147.6	158.5
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.0	3,203.8	3,385.1	3,559.4
49	Total Basic Assets	2,537.7	2,637.4	2,741.6	2,866.3	2,989.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	60.4%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.6%
56	Global LV	3.3%	3.7%	4.0%	4.4%	4.5%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 50a

Adverse Scenario #16

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	79,291	76,130	82,502	83,114
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,545	39,749	5,019	2,316
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,836	115,879	87,521	85,429
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(100,695)	(54,639)	(33,434)	(54,762)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,587	27,359	795	(3,719)

Appendix 50b
Adverse Scenario #16
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,477	247,257	205,008	191,554
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(100,695)	(54,639)	(33,434)	(54,762)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,975	16,474	12,390	19,981	32,006
6	Total Retained Earnings	194,498	99,251	170,975	331,477	247,257	205,008	191,554	168,798
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,688)	(51,918)	(43,346)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,577)	3,769	8,572	9,316
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
11	Total Equity Balance	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,477	247,257	205,008	191,554	168,798
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768

Appendix 50c
Adverse Scenario #16
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	34,601	17,733	13,427	10,201
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,821	2,598,008	2,721,398	2,824,790	2,924,669
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,044,455	3,151,710	3,282,720	3,398,187	3,515,776
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,001	2,262,398
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,249,978	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,477	247,257	205,008	191,554	168,798
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
27	Total Equity	231,003	181,000	210,845	279,366	191,569	153,089	148,208	134,768
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,455	3,151,710	3,282,720	3,398,187	3,515,776

Appendix 50d
Adverse Scenario #16
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,712	144,448	93,957	87,096	71,637
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,712	144,448	93,957	87,096	71,637
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,390	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,582	349,896
16	Market Risk:						
17	Interest rate risk	30	7,246	11,446	12,532	22,296	25,042
18	Foreign exchange risk	32	15,909	17,049	16,431	16,413	17,391
19	Equity risk	34	70,659	77,155	72,683	71,256	76,079
20	Real estate risk	36	26,282	27,216	27,936	28,890	30,416
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,096	132,866	129,582	138,855	148,928
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,393	59,215	62,040	64,009	65,741
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,393	59,215	62,040	64,009	65,741
28	Operational risk margin	50	64,781	70,241	72,784	75,926	79,360
29	Less: Diversification credit	52	54,525	63,026	64,167	67,440	70,984
30	Total Capital (Margin) Required at Target	59	455,625	505,822	523,749	546,932	572,941
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,750	337,215	349,166	364,621	381,961
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,750	337,215	349,166	364,621	381,961
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,038)	(192,767)	(255,209)	(277,525)	(310,324)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.60%	42.84%	26.91%	23.89%	18.76%

Appendix 50e
Adverse Scenario #16
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,390	231,659
7	Total	726,240	759,725	946,811	952,787	946,353	992,621
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,386	1,069,302

Appendix 50f

Adverse Scenario #16

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,061	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,283	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,290)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,290	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,799)	8,130		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 50g

Adverse Scenario #16

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	(0)	(1)
3	Marketable Bonds	44,245	53,747	57,643	61,272	64,643
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,207	79,708	81,123	82,336
6	Dividend and other Income					
7	Canadian Equities	9,657	5,706	4,484	4,612	5,061
8	Global	4,218	5,960	4,717	4,850	5,300
9	Global LV	-	2,887	2,836	2,901	3,168
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,375	25,777	26,126	27,235
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,411	28,038	(2,069)	2,318
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,657	13,534	7,292	95
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,302)	(4,694)	84	0
19	Global Equities Realized Gains	66,318	(602)	(6,635)	106	0
20	Global LV Realized Gains	-	(99)	(4,068)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,116	36,658	16,577	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,720)	(4,549)	(4,702)	(4,864)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(211)	(1,210)	(1,816)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,610)	(19,073)	(20,669)	(21,887)
30	Total Corporate Investment Income	191,037	132,089	127,796	103,689	102,078
31	Total Basic Investment Income	163,817	117,836	115,879	87,521	85,429
32	% - Basic to Total Investment Income	85.75%	89%	91%	84%	84%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,837)	4,879	5,648
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,801)	7,238	7,910
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,272)	3,961	4,325
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,639)	12,118	13,558
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.5	1,872.5	2,037.3	2,166.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.7	145.1	161.0
43	Global Equities	166.7	175.9	175.8	184.5	203.4
44	Global LV Equities	96.6	110.2	110.0	114.3	126.1
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.8	3,350.6	3,496.4
49	Total Basic Assets	2,537.6	2,646.2	2,752.7	2,852.0	2,950.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.8%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.3%	4.3%	4.6%
55	US Equities	5.7%	5.8%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 50h

Adverse Scenario #16 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	79,291	76,130	82,502	83,114
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,545	39,749	5,019	2,316
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,836	115,879	87,521	85,429
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(100,695)	(54,639)	(33,434)	(54,762)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,587	27,359	795	(3,719)

Appendix 50i

Adverse Scenario #16 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,477	247,257	205,008	191,554
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(100,695)	(54,639)	(33,434)	(54,762)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,975	16,474	12,390	19,981	32,006
6	Total Retained Earnings	194,498	99,251	170,975	331,477	247,257	205,008	191,554	168,798
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,688)	(51,918)	(43,346)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,577)	3,769	8,572	9,316
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
11	Total Equity Balance	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,477	247,257	205,008	191,554	168,798
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,366	191,569	153,089	148,208	134,768

Appendix 50j

Adverse Scenario #16 with Management Action

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	34,601	17,733	13,427	10,201
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,821	2,598,008	2,721,398	2,824,790	2,924,669
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,044,455	3,151,710	3,282,720	3,398,187	3,515,776
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,001	2,262,398
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,249,978	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,477	247,257	205,008	191,554	168,798
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,688)	(51,918)	(43,346)	(34,029)
27	Total Equity	231,003	181,000	210,845	279,366	191,569	153,089	148,208	134,768
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,455	3,151,710	3,282,720	3,398,187	3,515,776

Appendix 50k
Adverse Scenario #16 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,712	144,448	93,957	87,096	71,637
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,712	144,448	93,957	87,096	71,637
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,390	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,582	349,896
16	Market Risk:						
17	Interest rate risk	30	7,246	11,446	12,532	22,296	25,042
18	Foreign exchange risk	32	15,909	17,049	16,431	16,413	17,391
19	Equity risk	34	70,659	77,155	72,683	71,256	76,079
20	Real estate risk	36	26,282	27,216	27,936	28,890	30,416
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,096	132,866	129,582	138,855	148,928
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,393	59,215	62,040	64,009	65,741
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,393	59,215	62,040	64,009	65,741
28	Operational risk margin	50	64,781	70,241	72,784	75,926	79,360
29	Less: Diversification credit	52	54,525	63,026	64,167	67,440	70,984
30	Total Capital (Margin) Required at Target	59	455,625	505,822	523,749	546,932	572,941
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,750	337,215	349,166	364,621	381,961
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,750	337,215	349,166	364,621	381,961
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,038)	(192,767)	(255,209)	(277,525)	(310,324)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.60%	42.84%	26.91%	23.89%	18.76%

Appendix 50l

Adverse Scenario #16 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,390	231,659
7	Total	726,240	759,725	946,811	952,787	946,353	992,621
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,386	1,069,302

Appendix 50m

Adverse Scenario #16 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,061	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,283	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,290)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,290	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,799)	8,130		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 50n

Adverse Scenario #16 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	(0)	(1)
3	Marketable Bonds	44,245	53,747	57,643	61,272	64,643
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,207	79,708	81,123	82,336
6	Dividend and other Income					
7	Canadian Equities	9,657	5,706	4,484	4,612	5,061
8	Global	4,218	5,960	4,717	4,850	5,300
9	Global LV	-	2,887	2,836	2,901	3,168
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,375	25,777	26,126	27,235
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,411	28,038	(2,069)	2,318
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,657	13,534	7,292	95
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,302)	(4,694)	84	0
19	Global Equities Realized Gains	66,318	(602)	(6,635)	106	0
20	Global LV Realized Gains	-	(99)	(4,068)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,116	36,658	16,577	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,720)	(4,549)	(4,702)	(4,864)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(211)	(1,210)	(1,816)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,610)	(19,073)	(20,669)	(21,887)
30	Total Corporate Investment Income	191,037	132,089	127,796	103,689	102,078
31	Total Basic Investment Income	163,817	117,836	115,879	87,521	85,429
32	% - Basic to Total Investment Income	85.75%	89%	91%	84%	84%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,837)	4,879	5,648
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,801)	7,238	7,910
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,272)	3,961	4,325
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,639)	12,118	13,558
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.5	1,872.5	2,037.3	2,166.1
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.7	145.1	161.0
43	Global Equities	166.7	175.9	175.8	184.5	203.4
44	Global LV Equities	96.6	110.2	110.0	114.3	126.1
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.8	3,350.6	3,496.4
49	Total Basic Assets	2,537.6	2,646.2	2,752.7	2,852.0	2,950.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.8%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.3%	4.3%	4.6%
55	US Equities	5.7%	5.8%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 51a

Updated Base Scenario #17

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,904	1,050,847
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,684)	643	11,004	9,108
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,866	937,585	1,005,908	1,059,955
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,932	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,801	1,089,307	1,162,887	1,219,691
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,230)	(63,994)	(95,683)	(108,201)
26	Investment Income	48,476	101,645	111,731	192,131	87,069	92,756	97,119	100,477
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,536)	(7,429)	4,485	2,067
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,532	85,328	101,604	102,544
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,853)	(8,072)	(6,519)	(7,041)

Appendix 51b
Updated Base Scenario #17
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	335,269	356,602	362,523
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	18,302	21,333	5,921	(5,657)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,699)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,286	11,686
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
11	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	335,269	356,602	362,523	356,867
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	291,095	321,617	337,824	343,854

Appendix 51c
Updated Base Scenario #17
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	58,910	64,447	64,445	50,937
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,318	2,651,130	2,775,056	2,898,494
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,189	29,371	26,461	19,965
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,185	61,207	63,242
14		2,683,473	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,983
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,996	1,934,094	2,010,642	2,083,755
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,574	2,972,338	3,093,785	3,212,367
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	335,269	356,602	362,523	356,867
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,699)	(13,013)
27	Total Equity	231,003	181,000	210,845	264,856	291,095	321,617	337,824	343,854
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,152,669	3,293,954	3,431,609	3,556,221

Appendix 51d
Updated Base Scenario #17
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	243,975	262,432	276,617	280,612
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	243,975	262,432	276,617	280,612
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,965
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,044
16	Market Risk:						
17	Interest rate risk	30	6,468	21,932	26,165	29,932	34,203
18	Foreign exchange risk	32	15,640	15,260	16,262	17,953	20,895
19	Equity risk	34	69,313	67,256	71,783	80,213	88,365
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,347	141,809	156,631	173,500
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,398	63,645	65,227	66,439
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,398	63,645	65,227	66,439
28	Operational risk margin	50	64,552	69,943	73,161	76,798	80,623
29	Less: Diversification credit	52	53,910	62,394	65,858	70,094	74,586
30	Total Capital (Margin) Required at Target	59	453,309	496,935	520,928	549,225	579,020
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,290	347,285	366,150	386,013
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,290	347,285	366,150	386,013
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(87,315)	(84,853)	(89,533)	(105,401)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.64%	75.57%	75.55%	72.70%

Appendix 51e
Updated Base Scenario #17
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,277	212,114	223,270	224,355
7	Total	726,240	759,725	821,980	882,021	937,240	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,536	6,902	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,879
13	Total Net Claims Incurred	767,240	778,719	874,866	937,585	1,005,909	1,059,954

Appendix 51f

Updated Base Scenario #17

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.77%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,364		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,995		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,189	29,371	26,461	19,965		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,109		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,879		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 51g

Updated Base Scenario #17

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,595	64,011	70,511	76,775
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,092	86,075	90,362	94,468
6	Dividend and other Income					
7	Canadian Equities	9,657	5,689	4,604	5,457	6,047
8	Global	4,218	5,975	4,928	5,748	6,334
9	Global LV	-	2,896	3,260	3,820	4,241
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,494	26,825	29,048	30,560
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,165)	(7,848)	2,722	591
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(35)	2,044	1,566
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,638	0	0	757
19	Global Equities Realized Gains	66,319	3,740	0	0	1,012
20	Global LV Realized Gains	-	459	-	-	905
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,887)	2,599	15,860	16,569
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,580)	(4,899)	(5,141)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,806	7,676	7,767	7,491
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,779)	(11,217)	(11,889)	(12,857)
30	Total Corporate Investment Income	191,042	78,858	103,342	123,896	128,975
31	Total Basic Investment Income	163,818	62,532	85,328	101,604	102,544
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,740	4,871	5,774	6,748
35	US Equities Unrealized Gains/(Losses)	7,538	9,315	7,354	8,579	9,452
36	Global LV Unrealized Gains/(Losses)	-	4,214	4,451	5,216	5,790
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,055	12,225	14,353	16,200
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,711.0	1,863.7	2,016.0	2,176.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.6	150.3	178.2	201.5
43	Global Equities	166.7	168.9	193.4	225.8	253.0
44	Global LV Equities	96.6	115.7	132.8	155.8	172.4
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,056.7	3,235.3	3,438.4	3,636.4
49	Total Basic Assets	2,522.7	2,618.8	2,729.1	2,853.3	2,964.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.6%	59.9%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.6%	7.0%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 52a

Modified Base Scenario #17

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,941	994,907	1,050,843
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,684)	643	11,044	8,988
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,866	937,584	1,005,951	1,059,831
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,919	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,788	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,801	1,089,291	1,162,930	1,219,567
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,167	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,747	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,230)	(63,972)	(95,726)	(108,077)
26	Investment Income	48,476	101,645	111,731	192,131	87,613	93,326	97,729	101,138
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,579)	(7,442)	4,498	2,050
28	Net Investment Income	(4,038)	82,897	116,320	163,818	63,033	85,884	102,227	103,189
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	18,803	21,912	6,501	(4,888)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,896)	(8,085)	(6,547)	(6,938)

Appendix 52b
Modified Base Scenario #17
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,753	350,008	365,165	371,433
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	18,803	21,912	6,501	(4,888)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,786	(547)	(6,755)	(233)	10,533
6	Total Retained Earnings	194,498	99,251	170,975	331,753	350,008	365,165	371,433	377,078
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(43,987)	(34,588)	(24,075)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,124	9,400	10,512	11,932
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,987)	(34,588)	(24,075)	(12,144)
11	Total Equity Balance	231,002	181,000	210,845	279,642	306,021	330,578	347,358	364,934
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,753	350,008	365,165	371,433	377,078
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,987)	(34,588)	(24,075)	(12,144)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,642	306,021	330,578	347,358	364,934
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,642	306,021	330,578	347,358	364,934

Appendix 52c

Modified Base Scenario #17

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	58,415	57,231	56,997	54,030
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,646	2,561,739	2,667,306	2,792,079	2,916,399
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,189	29,371	26,460	19,969
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,186	61,207	63,242
14		2,683,473	2,805,484	2,916,137	3,044,731	3,167,595	3,302,915	3,441,183	3,577,225
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,984
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,996	1,934,094	2,010,682	2,083,677
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,574	2,972,338	3,093,826	3,212,291
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,753	350,008	365,165	371,433	377,078
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,987)	(34,588)	(24,075)	(12,144)
27	Total Equity	231,003	181,000	210,845	279,642	306,021	330,578	347,358	364,934
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,731	3,167,595	3,302,915	3,441,183	3,577,225

Appendix 52d
Modified Base Scenario #17
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,987	258,901	271,392	286,151	301,692
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,987	258,901	271,392	286,151	301,692
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,896	220,958
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,667	333,037
16	Market Risk:						
17	Interest rate risk	30	7,237	22,764	27,027	30,826	35,154
18	Foreign exchange risk	32	15,906	15,539	16,559	18,270	21,255
19	Equity risk	34	70,644	68,647	73,269	81,800	90,058
20	Real estate risk	36	26,279	27,212	27,932	28,886	30,411
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,066	134,162	144,787	159,782	176,878
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,438	61,881	64,129	65,717	66,934
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,438	61,881	64,129	65,717	66,934
28	Operational risk margin	50	64,783	70,223	73,455	77,108	80,951
29	Less: Diversification credit	52	54,529	63,053	66,535	70,785	75,295
30	Total Capital (Margin) Required at Target	59	455,638	499,854	524,007	552,489	582,505
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,759	333,236	349,338	368,326	388,337
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,759	333,236	349,338	368,326	388,337
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(67,772)	(74,335)	(77,946)	(82,175)	(86,645)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.69%	77.69%	77.69%	77.69%	77.69%

Appendix 52e
Modified Base Scenario #17
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,750
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,776
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,277	212,114	223,305	224,255
7	Total	726,240	759,725	821,980	882,021	937,275	985,184
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,536	6,908	6,563
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,893)	4,232	7,874
13	Total Net Claims Incurred	767,240	778,719	874,866	937,584	1,005,951	1,059,831

Appendix 52f

Modified Base Scenario #17

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.77%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,921	467,361		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,994		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,189	29,371	26,460	19,969		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	2,999	7,231	15,105		
38	Change					2,363	(21,760)	(2,404)	(4,893)	4,232	7,874		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 52g

Modified Base Scenario #17

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	141	(0)	0	0
3	Marketable Bonds	44,245	55,605	64,013	70,518	76,699
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,108	86,078	90,370	94,393
6	Dividend and other Income					
7	Canadian Equities	9,657	5,671	4,603	5,454	6,117
8	Global	4,218	5,970	4,927	5,746	6,354
9	Global LV	-	2,896	3,259	3,818	4,220
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,472	26,822	29,040	30,630
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(52,441)	(7,848)	2,722	588
16	Marketable Bonds Realized Gains/(Loss)	11,781	26,662	(35)	2,045	1,607
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,619	0	0	731
19	Global Equities Realized Gains	66,319	3,735	0	701	0
20	Global LV Realized Gains	-	459	-	-	776
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,914)	2,599	16,561	15,442
24	Other					
25	Investment Fees Paid	(5,204)	(4,710)	(4,581)	(4,899)	(5,139)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,807	7,677	7,769	7,495
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,775)	(11,217)	(11,887)	(12,851)
30	Total Corporate Investment Income	191,042	78,829	103,340	124,597	127,849
31	Total Basic Investment Income	163,818	63,033	85,884	102,227	103,189
32	% - Basic to Total Investment Income	85.75%	80%	83%	82%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,720	4,870	5,771	6,827
35	US Equities Unrealized Gains/(Losses)	7,538	9,308	7,352	8,574	9,482
36	Global LV Unrealized Gains/(Losses)	-	4,214	4,450	5,213	5,762
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,027	12,222	14,345	16,310
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,711.0	1,863.9	2,027.6	2,139.7
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.6	150.2	178.1	225.1
43	Global Equities	166.7	168.9	193.3	214.4	266.2
44	Global LV Equities	96.6	115.7	132.7	155.6	172.6
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,056.6	3,235.3	3,438.3	3,636.7
49	Total Basic Assets	2,537.5	2,633.7	2,738.1	2,862.8	2,985.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	59.0%	58.8%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	6.2%
55	US Equities	5.7%	5.5%	6.0%	6.2%	7.3%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 53a

Adverse Scenario #17

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,403	29,296	31,367
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,185,898	1,234,630	1,285,103
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,326	1,011,071	1,004,605	1,063,056
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,283	1,023,461	1,008,829	1,069,090
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,040	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,076	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,218	1,175,958	1,166,945	1,229,882
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,353	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,101	168,222	174,512
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,721)	(151,161)	(100,537)	(119,291)
26	Investment Income	48,476	101,645	111,731	192,129	79,306	76,185	82,607	83,339
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,545	39,784	5,013	2,300
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,851	115,969	87,620	85,639
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(81,871)	(35,192)	(12,916)	(33,652)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,587	27,394	789	(3,734)

Appendix 53b
Adverse Scenario #17
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,288	248,871	206,923	193,774
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(81,871)	(35,192)	(12,916)	(33,652)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,786	(547)	(6,755)	(233)	10,533
6	Total Retained Earnings	194,498	99,251	170,975	331,288	248,871	206,923	193,774	170,654
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,687)	(51,918)	(43,149)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,576)	3,768	8,769	9,531
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
11	Total Equity Balance	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,288	248,871	206,923	193,774	170,654
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036

Appendix 53c
Adverse Scenario #17
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	29,352	9,666	2,167	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,632	2,599,543	2,725,891	2,832,555	2,931,160
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	5,260	8,506	769
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,044,267	3,158,830	3,289,773	3,408,784	3,518,648
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,065	2,095,293	2,174,448	2,252,871
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,647	3,134,768	3,258,160	3,381,613
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,288	248,871	206,923	193,774	170,654
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
27	Total Equity	231,003	181,000	210,845	279,177	193,184	155,005	150,624	137,036
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,267	3,158,830	3,289,773	3,408,784	3,518,648

Appendix 53d
Adverse Scenario #17
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,523	146,063	95,870	89,508	73,900
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,523	146,063	95,870	89,508	73,900
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	207,950	220,832	229,364	237,939
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	324,482	337,135	350,018
16	Market Risk:						
17	Interest rate risk	30	7,237	12,042	13,180	22,744	26,853
18	Foreign exchange risk	32	15,906	17,052	16,546	16,613	17,620
19	Equity risk	34	70,642	77,172	73,353	72,408	77,314
20	Real estate risk	36	26,278	27,212	27,932	28,885	30,411
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,063	133,478	131,011	140,650	152,198
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,393	60,050	62,851	65,170	66,169
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,393	60,050	62,851	65,170	66,169
28	Operational risk margin	50	64,779	70,937	73,562	76,835	80,232
29	Less: Diversification credit	52	54,518	63,403	64,719	68,180	71,767
30	Total Capital (Margin) Required at Target	59	455,597	508,618	527,187	551,610	576,850
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,731	339,079	351,458	367,740	384,567
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,731	339,079	351,458	367,740	384,567
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,208)	(193,016)	(255,588)	(278,232)	(310,667)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.54%	43.08%	27.28%	24.34%	19.22%

Appendix 53e
Adverse Scenario #17
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,976
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,762	278,143	232,277	231,793
7	Total	726,240	759,725	946,809	952,678	946,239	992,756
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,149	6,978	7,005
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	1,713	(1,925)	9,119
13	Total Net Claims Incurred	767,240	779,170	1,030,283	1,023,461	1,008,829	1,069,091

Appendix 53f

Adverse Scenario #17

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	74.51%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9544	0.9649	0.9977	1.0153	1.0146				
10	2021					0.9739	1.0065	1.0236	1.0224	1.0155			
11	2022						1.0112	1.0289	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				77.63%	71.97%	73.09%	79.83%	75.61%			75.44%	80.74%
17	2021					72.64%	73.73%	80.49%	76.18%	74.87%		74.93%	80.32%
18	2022						74.07%	80.90%	76.61%	75.32%	75.84%	75.93%	81.49%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.15%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,060	442,707	458,014	483,494		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,958	15,513	16,115		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,027	81,458	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	5,682	5,260	8,506	769		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	25,398	27,110	25,186	34,305		
38	Change					2,363	(21,308)	14,651	1,713	(1,925)	9,119		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 53g

Adverse Scenario #17

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	0	(1)
3	Marketable Bonds	44,245	53,814	57,834	61,648	65,339
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,274	79,899	81,500	83,031
6	Dividend and other Income					
7	Canadian Equities	9,657	5,721	4,604	4,868	5,453
8	Global	4,218	5,979	4,825	5,079	5,579
9	Global LV	-	2,903	2,920	3,076	3,431
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,425	26,089	26,786	28,169
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,538	28,898	(1,607)	2,341
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,530	12,779	6,846	70
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,302)	(4,740)	78	568
19	Global Equities Realized Gains	66,318	(596)	(6,681)	99	512
20	Global LV Realized Gains	-	(99)	(4,100)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,122	36,638	16,576	15,230
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,580)	(4,764)	(4,959)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(242)	(1,287)	(1,968)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,135)	(20,808)	(22,134)
30	Total Corporate Investment Income	191,037	132,206	128,217	104,586	104,540
31	Total Basic Investment Income	163,817	117,851	115,969	87,620	85,639
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	82%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,884)	5,151	6,085
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,841)	7,580	8,326
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,305)	4,200	4,684
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,724)	12,731	14,411
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,694.9	1,886.4	2,060.1	2,221.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.7	144.5	155.2	164.4
43	Global Equities	166.7	177.7	182.1	195.5	208.4
44	Global LV Equities	96.6	111.8	115.0	122.9	138.1
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.6	3,229.8	3,403.1	3,572.1
49	Total Basic Assets	2,537.5	2,642.4	2,749.1	2,848.5	2,946.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.4%	60.5%	62.2%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.6%	4.6%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 53h

Adverse Scenario #17 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,645	27,403	29,296	31,367
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,132,964	1,185,898	1,234,630	1,285,103
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,189,326	1,011,071	1,004,605	1,063,056
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,030,283	1,023,461	1,008,829	1,069,090
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,040	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,076	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,178,218	1,175,958	1,166,945	1,229,882
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,353	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	161,101	168,222	174,512
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(199,721)	(151,161)	(100,537)	(119,291)
26	Investment Income	48,476	101,645	111,731	192,129	79,306	76,185	82,607	83,339
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,545	39,784	5,013	2,300
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,851	115,969	87,620	85,639
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(81,871)	(35,192)	(12,916)	(33,652)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,587	27,394	789	(3,734)

Appendix 53i

Adverse Scenario #17 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,288	248,871	206,923	193,774
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(81,871)	(35,192)	(12,916)	(33,652)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,786	(547)	(6,755)	(233)	10,533
6	Total Retained Earnings	194,498	99,251	170,975	331,288	248,871	206,923	193,774	170,654
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,687)	(51,918)	(43,149)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,576)	3,768	8,769	9,531
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
11	Total Equity Balance	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,288	248,871	206,923	193,774	170,654
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,177	193,184	155,005	150,624	137,036

Appendix 53j

Adverse Scenario #17 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	29,352	9,666	2,167	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,632	2,599,543	2,725,891	2,832,555	2,931,160
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	5,682	5,260	8,506	769
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,044,267	3,158,830	3,289,773	3,408,784	3,518,648
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,065	2,095,293	2,174,448	2,252,871
23		2,452,472	2,624,484	2,705,292	2,765,089	2,965,647	3,134,768	3,258,160	3,381,613
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,288	248,871	206,923	193,774	170,654
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,687)	(51,918)	(43,149)	(33,619)
27	Total Equity	231,003	181,000	210,845	279,177	193,184	155,005	150,624	137,036
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,267	3,158,830	3,289,773	3,408,784	3,518,648

Appendix 53k
Adverse Scenario #17 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,523	146,063	95,870	89,508	73,900
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,523	146,063	95,870	89,508	73,900
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	207,950	220,832	229,364	237,939
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,556	324,482	337,135	350,018
16	Market Risk:						
17	Interest rate risk	30	7,237	12,042	13,180	22,744	26,853
18	Foreign exchange risk	32	15,906	17,052	16,546	16,613	17,620
19	Equity risk	34	70,642	77,172	73,353	72,408	77,314
20	Real estate risk	36	26,278	27,212	27,932	28,885	30,411
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,063	133,478	131,011	140,650	152,198
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,393	60,050	62,851	65,170	66,169
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,393	60,050	62,851	65,170	66,169
28	Operational risk margin	50	64,779	70,937	73,562	76,835	80,232
29	Less: Diversification credit	52	54,518	63,403	64,719	68,180	71,767
30	Total Capital (Margin) Required at Target	59	455,597	508,618	527,187	551,610	576,850
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,731	339,079	351,458	367,740	384,567
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,731	339,079	351,458	367,740	384,567
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,208)	(193,016)	(255,588)	(278,232)	(310,667)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.54%	43.08%	27.28%	24.34%	19.22%

Appendix 53l

Adverse Scenario #17 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,976
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,762	278,143	232,277	231,793
7	Total	726,240	759,725	946,809	952,678	946,239	992,756
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,149	6,978	7,005
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	14,651	1,713	(1,925)	9,119
13	Total Net Claims Incurred	767,240	779,170	1,030,283	1,023,461	1,008,829	1,069,091

Appendix 53m

Adverse Scenario #17 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.63%	74.51%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9425	0.9485	0.9589	0.9916	1.0091					
9	2020				0.9544	0.9649	0.9977	1.0153	1.0146				
10	2021					0.9739	1.0065	1.0236	1.0224	1.0155			
11	2022						1.0112	1.0289	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.07%	77.15%	71.53%	72.64%	79.34%				75.62%	80.49%
16	2020				77.63%	71.97%	73.09%	79.83%	75.61%			75.44%	80.74%
17	2021					72.64%	73.73%	80.49%	76.18%	74.87%		74.93%	80.32%
18	2022						74.07%	80.90%	76.61%	75.32%	75.84%	75.93%	81.49%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.15%	8.18%	8.12%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.72%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,060	442,707	458,014	483,494		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,958	15,513	16,115		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,027	81,458	84,275	88,963		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	5,682	5,260	8,506	769		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	25,398	27,110	25,186	34,305		
38	Change					2,363	(21,308)	14,651	1,713	(1,925)	9,119		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 53n

Adverse Scenario #17 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	0	(1)
3	Marketable Bonds	44,245	53,814	57,834	61,648	65,339
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,274	79,899	81,500	83,031
6	Dividend and other Income					
7	Canadian Equities	9,657	5,721	4,604	4,868	5,453
8	Global	4,218	5,979	4,825	5,079	5,579
9	Global LV	-	2,903	2,920	3,076	3,431
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,425	26,089	26,786	28,169
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,538	28,898	(1,607)	2,341
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,530	12,779	6,846	70
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,302)	(4,740)	78	568
19	Global Equities Realized Gains	66,318	(596)	(6,681)	99	512
20	Global LV Realized Gains	-	(99)	(4,100)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,122	36,638	16,576	15,230
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,580)	(4,764)	(4,959)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(242)	(1,287)	(1,968)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,135)	(20,808)	(22,134)
30	Total Corporate Investment Income	191,037	132,206	128,217	104,586	104,540
31	Total Basic Investment Income	163,817	117,851	115,969	87,620	85,639
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	82%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,884)	5,151	6,085
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,841)	7,580	8,326
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,305)	4,200	4,684
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,724)	12,731	14,411
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,694.9	1,886.4	2,060.1	2,221.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.7	144.5	155.2	164.4
43	Global Equities	166.7	177.7	182.1	195.5	208.4
44	Global LV Equities	96.6	111.8	115.0	122.9	138.1
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,057.6	3,229.8	3,403.1	3,572.1
49	Total Basic Assets	2,537.5	2,642.4	2,749.1	2,848.5	2,946.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.4%	60.5%	62.2%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.6%	4.6%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.6%	3.6%	3.9%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.4%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 54a

Updated Base Scenario #18

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,953	1,050,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,687)	640	11,049	9,107
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,816	937,601	1,006,001	1,059,996
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,751	1,089,325	1,162,980	1,219,732
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,314)	(66,123)	(97,974)	(110,532)
26	Investment Income	48,476	101,645	111,731	192,131	87,066	92,743	97,098	100,449
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,535)	(7,428)	4,483	2,065
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,531	85,314	101,581	102,514
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,848)	(8,068)	(6,565)	(7,042)

Appendix 54b
Updated Base Scenario #18
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	333,183	352,374	355,981
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	16,216	19,191	3,607	(8,018)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,708)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,277	11,667
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
11	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	333,183	352,374	355,981	347,963
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	289,009	317,389	331,273	334,921

Appendix 54c
Updated Base Scenario #18
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	57,602	61,325	59,442	43,968
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,546,126	2,650,611	2,774,171	2,897,219
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,373	18,832
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,281	405,982
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,993	1,934,087	2,010,680	2,083,793
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,572	2,971,291	3,092,740	3,211,278
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	333,183	352,374	355,981	347,963
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,708)	(13,042)
27	Total Equity	231,003	181,000	210,845	264,856	289,009	317,389	331,273	334,921
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,149,581	3,288,680	3,424,012	3,546,200

Appendix 54d
Updated Base Scenario #18
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	241,889	258,204	270,067	271,680
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	241,889	258,204	270,067	271,680
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,896	220,969
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,465	332,838
16	Market Risk:						
17	Interest rate risk	30	6,468	21,908	26,102	29,860	34,120
18	Foreign exchange risk	32	15,640	15,260	16,262	17,940	20,872
19	Equity risk	34	69,313	67,256	71,783	80,140	88,240
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,323	141,746	156,473	173,269
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	61,266	63,507	65,082	66,286
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	61,266	63,507	65,082	66,286
28	Operational risk margin	50	64,552	69,860	73,071	76,698	80,511
29	Less: Diversification credit	52	53,910	62,347	65,802	70,019	74,497
30	Total Capital (Margin) Required at Target	59	453,309	496,555	520,497	548,699	578,407
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	331,037	346,998	365,799	385,605
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	331,037	346,998	365,799	385,605
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(89,148)	(88,794)	(95,732)	(113,925)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	73.07%	74.41%	73.83%	70.46%

Appendix 54e
Updated Base Scenario #18
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,274	212,112	223,308	224,355
7	Total	726,240	759,725	821,977	882,018	937,278	985,286
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,908	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,278	7,921
13	Total Net Claims Incurred	767,240	778,719	875,816	937,601	1,006,001	1,059,996

Appendix 54f

Updated Base Scenario #18

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,924	467,369		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,373	18,832		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,250	16,171		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,278	7,921		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 54g

Updated Base Scenario #18

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	(0)
3	Marketable Bonds	44,245	55,586	63,975	70,448	76,595
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,083	86,040	90,300	94,288
6	Dividend and other Income					
7	Canadian Equities	9,657	5,687	4,593	5,432	6,098
8	Global	4,218	5,973	4,918	5,725	6,302
9	Global LV	-	2,894	3,253	3,803	4,216
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,489	26,798	28,982	30,554
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,162)	(7,846)	2,721	598
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(36)	2,042	1,563
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,640	0	0	856
19	Global Equities Realized Gains	66,319	3,743	0	0	998
20	Global LV Realized Gains	-	459	-	-	890
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,879)	2,602	15,856	16,644
24	Other					
25	Investment Fees Paid	(5,204)	(4,713)	(4,577)	(4,894)	(5,135)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,805	7,671	7,758	7,471
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,780)	(11,219)	(11,893)	(12,871)
30	Total Corporate Investment Income	191,042	78,850	103,278	123,759	128,849
31	Total Basic Investment Income	163,818	62,531	85,314	101,581	102,514
32	% - Basic to Total Investment Income	85.75%	79%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,739	4,860	5,747	6,805
35	US Equities Unrealized Gains/(Losses)	7,538	9,312	7,340	8,544	9,404
36	Global LV Unrealized Gains/(Losses)	-	4,212	4,441	5,192	5,756
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,051	12,200	14,291	16,209
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.3	1,861.8	2,013.2	2,172.8
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.4	149.7	177.2	199.2
43	Global Equities	166.7	168.7	192.8	224.6	251.5
44	Global LV Equities	96.6	115.6	132.3	154.9	171.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.4	3,231.8	3,432.5	3,627.9
49	Total Basic Assets	2,522.7	2,617.3	2,725.5	2,847.4	2,956.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.7%	59.9%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.5%	6.9%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 55a

Modified Base Scenario #18

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,680	27,529	29,531	31,728
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,131,839	1,183,817	1,232,568	1,283,075
13	Net Claims Incurred	742,604	869,023	783,040	823,258	894,503	936,961	994,953	1,050,889
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,687)	640	11,049	9,111
15	Total Claims Incurred	666,404	860,035	767,239	778,719	875,816	937,601	1,006,001	1,060,000
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,023,751	1,089,325	1,162,980	1,219,736
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,616	167,562	173,876
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(46,314)	(66,123)	(97,974)	(110,536)
26	Investment Income	48,476	101,645	111,731	192,131	87,598	93,301	97,693	101,078
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,578)	(7,441)	4,496	2,065
28	Net Investment Income	(4,038)	82,897	116,320	163,818	63,020	85,860	102,190	103,143
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	16,706	19,737	4,215	(7,393)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,891)	(8,081)	(6,552)	(7,046)

Appendix 55b
Modified Base Scenario #18
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	331,449	349,473	364,618	370,809
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	16,706	19,737	4,215	(7,393)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,482	1,317	(4,591)	1,975	13,016
6	Total Retained Earnings	194,498	99,251	170,975	331,449	349,473	364,618	370,809	376,431
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(43,991)	(34,596)	(24,098)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,120	9,395	10,498	11,908
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,991)	(34,596)	(24,098)	(12,190)
11	Total Equity Balance	231,002	181,000	210,845	279,338	305,481	330,022	346,711	364,241
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	331,449	349,473	364,618	370,809	376,431
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,991)	(34,596)	(24,098)	(12,190)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	279,338	305,481	330,022	346,711	364,241
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	279,338	305,481	330,022	346,711	364,241

Appendix 55c
Modified Base Scenario #18
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	58,970	58,116	58,210	55,762
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,342	2,561,230	2,666,454	2,790,843	2,914,752
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	22,173	28,333	25,373	18,832
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	3,044,428	3,166,053	3,301,314	3,439,452	3,575,526
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,680	389,283	405,984
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,993	1,934,087	2,010,680	2,083,797
23		2,452,472	2,624,484	2,705,292	2,765,090	2,860,572	2,971,291	3,092,741	3,211,285
24	Equity								
25	Retained earnings	194,499	99,251	170,975	331,449	349,473	364,618	370,809	376,431
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,991)	(34,596)	(24,098)	(12,190)
27	Total Equity	231,003	181,000	210,845	279,338	305,481	330,022	346,711	364,241
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,044,428	3,166,053	3,301,314	3,439,452	3,575,526

Appendix 55d
Modified Base Scenario #18
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,683	258,361	270,838	285,505	301,000
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,683	258,361	270,838	285,505	301,000
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,869
12	Unpaid claims	22	191,221	197,034	204,520	212,896	220,969
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,453	307,975	320,465	332,838
16	Market Risk:						
17	Interest rate risk	30	7,221	22,723	26,947	30,745	35,026
18	Foreign exchange risk	32	15,901	15,533	16,553	18,251	21,225
19	Equity risk	34	70,616	68,618	73,238	81,695	89,903
20	Real estate risk	36	26,272	27,206	27,925	28,879	30,403
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,010	134,080	144,663	159,570	176,557
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,437	61,739	63,981	65,561	66,770
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,437	61,739	63,981	65,561	66,770
28	Operational risk margin	50	64,778	70,134	73,360	77,002	80,832
29	Less: Diversification credit	52	54,516	62,993	66,466	70,698	75,188
30	Total Capital (Margin) Required at Target	59	455,589	499,413	523,513	551,900	581,809
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,726	332,942	349,009	367,933	387,873
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,726	332,942	349,009	367,933	387,873
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,043)	(74,581)	(78,171)	(82,428)	(86,873)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.60%	77.60%	77.60%	77.60%	77.60%

Appendix 55e
Modified Base Scenario #18
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,540	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,995
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,274	212,112	223,308	224,358
7	Total	726,240	759,725	821,977	882,018	937,278	985,289
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,918	5,535	6,908	6,580
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(1,450)	(4,873)	4,278	7,921
13	Total Net Claims Incurred	767,240	778,719	875,816	937,601	1,006,001	1,060,000

Appendix 55f

Modified Base Scenario #18

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.42%	72.94%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9278	0.9372	0.9510	0.9871	1.0072					
9	2020				0.9377	0.9519	0.9884	1.0089	1.0115				
10	2021					0.9617	0.9969	1.0159	1.0169	1.0132			
11	2022						1.0031	1.0217	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.86%	76.23%	70.94%	72.31%	72.94%				73.70%	77.84%
16	2020				76.27%	71.00%	72.40%	73.06%	73.78%			73.08%	77.18%
17	2021					71.73%	73.03%	73.57%	74.18%	74.84%		73.59%	77.82%
18	2022						73.48%	73.99%	74.56%	75.19%	75.87%	74.58%	78.93%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.13%	8.14%	8.09%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.71%	2.71%	2.70%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.71%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,308	422,374	442,924	467,370		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,919	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,313	77,717	81,498	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	22,173	28,333	25,373	18,832		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	8,845	3,972	8,250	16,171		
38	Change					2,363	(21,760)	(1,450)	(4,873)	4,278	7,921		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 55g

Modified Base Scenario #18

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	141	0	0	0
3	Marketable Bonds	44,245	55,596	63,977	70,455	76,592
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,099	86,042	90,307	94,285
6	Dividend and other Income					
7	Canadian Equities	9,657	5,670	4,592	5,428	6,080
8	Global	4,218	5,969	4,917	5,722	6,322
9	Global LV	-	2,894	3,252	3,800	4,195
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,467	26,794	28,973	30,537
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(52,412)	(7,846)	2,721	600
16	Marketable Bonds Realized Gains/(Loss)	11,781	26,636	(36)	2,043	1,594
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,622	0	0	722
19	Global Equities Realized Gains	66,319	3,737	0	691	0
20	Global LV Realized Gains	-	459	-	-	767
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,906)	2,602	16,548	15,422
24	Other					
25	Investment Fees Paid	(5,204)	(4,710)	(4,576)	(4,893)	(5,127)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,806	7,671	7,759	7,482
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,776)	(11,218)	(11,891)	(12,852)
30	Total Corporate Investment Income	191,042	78,822	103,278	124,451	127,627
31	Total Basic Investment Income	163,818	63,020	85,860	102,190	103,143
32	% - Basic to Total Investment Income	85.75%	80%	83%	82%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,718	4,859	5,744	6,786
35	US Equities Unrealized Gains/(Losses)	7,538	9,305	7,338	8,540	9,435
36	Global LV Unrealized Gains/(Losses)	-	4,211	4,440	5,189	5,728
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,023	12,197	14,284	16,221
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.3	1,862.0	2,024.5	2,171.6
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.4	149.7	177.0	199.5
43	Global Equities	166.7	168.7	192.7	213.5	252.5
44	Global LV Equities	96.6	115.5	132.3	154.7	171.4
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,055.3	3,231.8	3,432.4	3,628.1
49	Total Basic Assets	2,537.2	2,633.7	2,738.1	2,862.8	2,985.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	59.0%	59.9%
53	MUSH	19.5%	17.1%	14.8%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.6%	5.2%	5.5%
55	US Equities	5.7%	5.5%	6.0%	6.2%	7.0%
56	Global LV	3.3%	3.8%	4.1%	4.5%	4.7%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 56a

Adverse Scenario #18

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,360	29,248	31,314
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,183,648	1,232,286	1,282,661
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,276	1,011,085	1,004,651	1,063,092
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,234	1,023,475	1,008,876	1,069,127
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,169	1,175,972	1,167,005	1,229,919
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,963	168,085	174,363
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,807)	(153,288)	(102,804)	(121,621)
26	Investment Income	48,476	101,645	111,731	192,129	79,294	76,169	82,578	83,299
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,543	39,779	5,013	2,301
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,836	115,948	87,591	85,600
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(83,970)	(37,340)	(15,214)	(36,021)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,585	27,389	788	(3,734)

Appendix 56b
Adverse Scenario #18
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	330,985	248,332	206,401	193,163
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(83,970)	(37,340)	(15,214)	(36,021)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,482	1,317	(4,591)	1,975	13,016
6	Total Retained Earnings	194,498	99,251	170,975	330,985	248,332	206,401	193,163	170,158
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,685)	(51,918)	(43,166)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,574)	3,766	8,752	9,512
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
11	Total Equity Balance	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	330,985	248,332	206,401	193,163	170,158
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504

Appendix 56c
Adverse Scenario #18
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	29,906	10,575	3,378	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,328	2,599,039	2,725,046	2,831,335	2,931,267
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	4,223	7,419	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,043,963	3,157,291	3,288,204	3,407,067	3,517,341
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,061	2,095,286	2,174,440	2,253,221
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,644	3,133,721	3,257,071	3,380,837
24	Equity								
25	Retained earnings	194,499	99,251	170,975	330,985	248,332	206,401	193,163	170,158
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
27	Total Equity	231,003	181,000	210,845	278,874	192,647	154,483	149,997	136,504
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,043,963	3,157,291	3,288,204	3,407,067	3,517,341

Appendix 56d
Adverse Scenario #18
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,219	145,527	95,348	88,881	73,368
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,219	145,527	95,348	88,881	73,368
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,936
12	Unpaid claims	22	191,221	207,949	220,831	229,363	237,938
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	324,286	336,932	349,874
16	Market Risk:						
17	Interest rate risk	30	7,221	12,005	13,118	22,664	26,678
18	Foreign exchange risk	32	15,900	17,045	16,534	16,593	17,598
19	Equity risk	34	70,615	77,137	73,292	72,302	77,201
20	Real estate risk	36	26,272	27,206	27,925	28,878	30,403
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,008	133,393	130,869	140,437	151,880
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,391	59,908	62,703	65,014	66,040
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,391	59,908	62,703	65,014	66,040
28	Operational risk margin	50	64,774	70,848	73,465	76,729	80,121
29	Less: Diversification credit	52	54,505	63,342	64,643	68,087	71,664
30	Total Capital (Margin) Required at Target	59	455,548	508,175	526,680	551,025	576,251
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,699	338,783	351,120	367,350	384,168
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,699	338,783	351,120	367,350	384,168
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,480)	(193,256)	(255,772)	(278,469)	(310,800)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.45%	42.96%	27.16%	24.20%	19.10%

Appendix 56e
Adverse Scenario #18
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,976
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,758	278,141	232,277	231,789
7	Total	726,240	759,725	946,805	952,676	946,239	992,752
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,148	6,978	7,005
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	1,730	(1,878)	9,161
13	Total Net Claims Incurred	767,240	779,170	1,031,234	1,023,475	1,008,876	1,069,127

Appendix 56f

Adverse Scenario #18

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	74.66%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9562	0.9667	0.9996	1.0162	1.0146				
10	2021					0.9758	1.0084	1.0245	1.0224	1.0155			
11	2022						1.0131	1.0298	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				77.78%	72.11%	73.23%	79.99%	75.75%			75.58%	80.89%
17	2021					72.78%	73.87%	80.64%	76.33%	75.01%		75.07%	80.47%
18	2022						74.22%	81.06%	76.76%	75.47%	75.99%	76.07%	81.65%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.16%	8.19%	8.14%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.73%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,710	458,018	483,498		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,952	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,459	84,275	88,964		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	4,223	7,419	(362)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	28,083	26,205	35,003		
38	Change					2,363	(21,308)	15,606	1,730	(1,878)	8,799		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	362		
40	Change					2,001	(8,845)	-	-	-	362		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 56g

Adverse Scenario #18

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	(0)	(1)
3	Marketable Bonds	44,245	53,807	57,806	61,597	65,255
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,266	79,871	81,448	82,948
6	Dividend and other Income					
7	Canadian Equities	9,657	5,720	4,592	4,843	5,413
8	Global	4,218	5,977	4,814	5,056	5,546
9	Global LV	-	2,901	2,912	3,058	3,404
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,420	26,058	26,720	28,068
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,554	28,857	(1,651)	2,338
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,514	12,809	6,888	73
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,303)	(4,734)	79	549
19	Global Equities Realized Gains	66,318	(597)	(6,676)	99	495
20	Global LV Realized Gains	-	(99)	(4,097)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,121	36,642	16,575	15,193
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,576)	(4,761)	(4,949)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(239)	(1,280)	(1,953)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,128)	(20,798)	(22,109)
30	Total Corporate Investment Income	191,037	132,192	128,170	104,478	104,344
31	Total Basic Investment Income	163,817	117,836	115,948	87,591	85,600
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	82%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,878)	5,124	6,040
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,836)	7,546	8,276
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,301)	4,176	4,648
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,715)	12,670	14,316
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,694.2	1,884.6	2,057.3	2,216.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.5	143.9	154.2	163.3
43	Global Equities	166.7	177.5	181.4	194.4	207.2
44	Global LV Equities	96.6	111.7	114.5	122.0	136.9
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.3	3,226.4	3,397.3	3,563.6
49	Total Basic Assets	2,537.1	2,642.5	2,749.2	2,848.5	2,946.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.4%	60.6%	62.2%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.6%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.5%	3.6%	3.8%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 56h

Adverse Scenario #18 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,072,131	1,116,638	1,162,196	1,209,891
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,131,614	1,177,874	1,225,038	1,274,337
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,047,683	1,096,049	1,141,121	1,187,828
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,606	27,360	29,248	31,314
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,131,765	1,183,648	1,232,286	1,282,661
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,190,276	1,011,085	1,004,651	1,063,092
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,031,234	1,023,475	1,008,876	1,069,127
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,637	145,052	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,860	13,077	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,179,169	1,175,972	1,167,005	1,229,919
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,521	80,360	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,511	44,406	46,163	47,979
22	Premium Taxes	26,205	27,563	29,143	31,518	33,527	35,038	36,448	37,904
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,403	160,963	168,085	174,363
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(201,807)	(153,288)	(102,804)	(121,621)
26	Investment Income	48,476	101,645	111,731	192,129	79,294	76,169	82,578	83,299
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,543	39,779	5,013	2,301
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,836	115,948	87,591	85,600
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(83,970)	(37,340)	(15,214)	(36,021)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,585	27,389	788	(3,734)

Appendix 56i

Adverse Scenario #18 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	330,985	248,332	206,401	193,163
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(83,970)	(37,340)	(15,214)	(36,021)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	14,482	1,317	(4,591)	1,975	13,016
6	Total Retained Earnings	194,498	99,251	170,975	330,985	248,332	206,401	193,163	170,158
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,685)	(51,918)	(43,166)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,574)	3,766	8,752	9,512
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
11	Total Equity Balance	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	330,985	248,332	206,401	193,163	170,158
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	278,874	192,647	154,483	149,997	136,504

Appendix 56j

Adverse Scenario #18 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	29,906	10,575	3,378	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,494,328	2,599,039	2,725,046	2,831,335	2,931,267
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	371,962	386,677	401,725	417,465
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	4,665	4,223	7,419	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,135	61,116	63,136
14		2,683,473	2,805,484	2,916,137	3,043,963	3,157,291	3,288,204	3,407,067	3,517,341
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	576,135	601,377	627,336	654,613
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,969,061	2,095,286	2,174,440	2,253,221
23		2,452,472	2,624,484	2,705,292	2,765,089	2,964,644	3,133,721	3,257,071	3,380,837
24	Equity								
25	Retained earnings	194,499	99,251	170,975	330,985	248,332	206,401	193,163	170,158
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,685)	(51,918)	(43,166)	(33,654)
27	Total Equity	231,003	181,000	210,845	278,874	192,647	154,483	149,997	136,504
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,043,963	3,157,291	3,288,204	3,407,067	3,517,341

Appendix 56k
Adverse Scenario #18 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	235,219	145,527	95,348	88,881	73,368
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	235,219	145,527	95,348	88,881	73,368
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,419	103,455	107,569	111,936
12	Unpaid claims	22	191,221	207,949	220,831	229,363	237,938
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	307,368	324,286	336,932	349,874
16	Market Risk:						
17	Interest rate risk	30	7,221	12,005	13,118	22,664	26,678
18	Foreign exchange risk	32	15,900	17,045	16,534	16,593	17,598
19	Equity risk	34	70,615	77,137	73,292	72,302	77,201
20	Real estate risk	36	26,272	27,206	27,925	28,878	30,403
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	120,008	133,393	130,869	140,437	151,880
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,391	59,908	62,703	65,014	66,040
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,391	59,908	62,703	65,014	66,040
28	Operational risk margin	50	64,774	70,848	73,465	76,729	80,121
29	Less: Diversification credit	52	54,505	63,342	64,643	68,087	71,664
30	Total Capital (Margin) Required at Target	59	455,548	508,175	526,680	551,025	576,251
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	303,699	338,783	351,120	367,350	384,168
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	303,699	338,783	351,120	367,350	384,168
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(68,480)	(193,256)	(255,772)	(278,469)	(310,800)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	77.45%	42.96%	27.16%	24.20%	19.10%

Appendix 56l

Adverse Scenario #18 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,508	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,976
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,966	5,343	5,395
6	PIPP	187,022	169,153	273,758	278,141	232,277	231,789
7	Total	726,240	759,725	946,805	952,676	946,239	992,752
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,452	14,148	6,978	7,005
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	15,606	1,730	(1,878)	9,161
13	Total Net Claims Incurred	767,240	779,170	1,031,234	1,023,475	1,008,876	1,069,127

Appendix 56m

Adverse Scenario #18 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	78.71%	74.66%	73.87%	74.86%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9444	0.9504	0.9608	0.9936	1.0100					
9	2020				0.9562	0.9667	0.9996	1.0162	1.0146				
10	2021					0.9758	1.0084	1.0245	1.0224	1.0155			
11	2022						1.0131	1.0298	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			77.22%	77.30%	71.67%	72.78%	79.50%				75.77%	80.65%
16	2020				77.78%	72.11%	73.23%	79.99%	75.75%			75.58%	80.89%
17	2021					72.78%	73.87%	80.64%	76.33%	75.01%		75.07%	80.47%
18	2022						74.22%	81.06%	76.76%	75.47%	75.99%	76.07%	81.65%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,106,159	1,156,288	1,203,038	1,251,347		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.23%	8.16%	8.19%	8.14%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.72%	2.73%	2.71%		
25	Selected					3.16%	2.99%	2.87%	2.73%	2.73%	2.72%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	531,648	553,234	575,235	598,225		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,094	442,710	458,018	483,498		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,082	14,952	15,513	16,116		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,033	81,459	84,275	88,964		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	4,665	4,223	7,419	(362)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,018	32,305	33,624	35,003		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	26,353	28,083	26,205	35,003		
38	Change					2,363	(21,308)	15,606	1,730	(1,878)	8,799		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	362		
40	Change					2,001	(8,845)	-	-	-	362		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 56n

Adverse Scenario #18 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
		Forecasted				
1	Interest Income During Period					
2	Cash/Short Term Investments	255	99	0	(0)	(1)
3	Marketable Bonds	44,245	53,807	57,806	61,597	65,255
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,266	79,871	81,448	82,948
6	Dividend and other Income					
7	Canadian Equities	9,657	5,720	4,592	4,843	5,413
8	Global	4,218	5,977	4,814	5,056	5,546
9	Global LV	-	2,901	2,912	3,058	3,404
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,420	26,058	26,720	28,068
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	6,554	28,857	(1,651)	2,338
16	Marketable Bonds Realized Gains/(Loss)	11,782	34,514	12,809	6,888	73
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,303)	(4,734)	79	549
19	Global Equities Realized Gains	66,318	(597)	(6,676)	99	495
20	Global LV Realized Gains	-	(99)	(4,097)	67	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,121	36,642	16,575	15,193
24	Other					
25	Investment Fees Paid	(5,204)	(4,725)	(4,576)	(4,761)	(4,949)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(239)	(1,280)	(1,953)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,615)	(19,128)	(20,798)	(22,109)
30	Total Corporate Investment Income	191,037	132,192	128,170	104,478	104,344
31	Total Basic Investment Income	163,817	117,836	115,948	87,591	85,600
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	82%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,878)	5,124	6,040
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,836)	7,546	8,276
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,301)	4,176	4,648
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,715)	12,670	14,316
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,694.2	1,884.6	2,057.3	2,216.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	140.5	143.9	154.2	163.3
43	Global Equities	166.7	177.5	181.4	194.4	207.2
44	Global LV Equities	96.6	111.7	114.5	122.0	136.9
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,056.3	3,226.4	3,397.3	3,563.6
49	Total Basic Assets	2,537.1	2,642.5	2,749.2	2,848.5	2,946.5
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.4%	60.6%	62.2%
53	MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.5%	4.6%
55	US Equities	5.7%	5.8%	5.6%	5.7%	5.8%
56	Global LV	3.3%	3.7%	3.5%	3.6%	3.8%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 57a

Updated Base Scenario #19

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,255	10,117	8,829	8,877
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,703	948,754	1,005,019	1,061,162
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,684	1,100,694	1,162,259	1,221,143
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,487)	(91,060)	(111,512)	(126,907)
26	Investment Income	48,476	101,645	111,731	192,209	80,536	83,879	86,975	89,847
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	2	2	3
28	Net Investment Income	(4,038)	82,897	116,320	171,428	80,547	83,881	86,977	89,850
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(6,941)	(7,179)	(24,535)	(37,056)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,244)	(10,115)	(8,827)	(8,874)

Appendix 57b
Updated Base Scenario #19
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	198,591	204,387	214,455	213,942
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(6,941)	(7,179)	(24,535)	(37,056)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(115,458)	12,737	17,246	24,022	36,358
6	Total Retained Earnings	194,498	99,251	170,975	198,591	204,387	214,455	213,942	213,244
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,635)	(38,099)	(30,040)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,476	7,536	8,059	8,750
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,635)	(38,099)	(30,040)	(21,290)
11	Total Equity Balance	231,002	181,000	210,845	146,480	158,752	176,356	183,902	191,954
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	198,591	204,387	214,455	213,942	213,244
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,635)	(38,099)	(30,040)	(21,290)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	146,480	158,752	176,356	183,902	191,954
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	146,480	158,752	176,356	183,902	191,954

Appendix 57c
Updated Base Scenario #19
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	60,969	69,559	79,288	87,207
4	Equity investments	2,083,349	2,189,534	2,272,545	2,372,168	2,455,761	2,556,074	2,660,105	2,764,936
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	2,921,203	3,050,023	3,188,890	3,315,971	3,442,711
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,131	374,218	390,313	406,717
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,842	1,980,340	2,055,792	2,129,629
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,271	3,012,534	3,132,069	3,250,757
24	Equity								
25	Retained earnings	194,499	99,251	170,975	198,591	204,387	214,455	213,942	213,244
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,635)	(38,099)	(30,040)	(21,290)
27	Total Equity	231,003	181,000	210,845	146,480	158,752	176,356	183,902	191,954
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,921,203	3,050,023	3,188,890	3,315,971	3,442,711

Appendix 57d
Updated Base Scenario #19
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	102,825	111,635	117,189	122,722	128,743
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	102,825	111,635	117,189	122,722	128,743
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,632	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,875	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	1,194	13,946	17,629	21,852	26,002
18	Foreign exchange risk	32	13,528	13,082	13,938	14,851	17,500
19	Equity risk	34	58,753	56,378	60,161	64,201	68,554
20	Real estate risk	36	23,636	24,409	24,960	25,736	27,072
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	97,111	107,815	116,688	126,640	139,128
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,932	56,777	59,038	60,475	61,546
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,932	56,777	59,038	60,475	61,546
28	Operational risk margin	50	62,871	67,346	70,498	73,679	77,102
29	Less: Diversification credit	52	48,975	56,516	59,843	63,197	67,009
30	Total Capital (Margin) Required at Target	59	436,785	474,297	497,774	521,315	546,879
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	291,190	316,198	331,850	347,543	364,586
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	291,190	316,198	331,850	347,543	364,586
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(188,365)	(204,563)	(214,661)	(224,821)	(235,843)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	35.31%	35.31%	35.31%	35.31%	35.31%

Appendix 57e

Updated Base Scenario #19

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,506	220,928	222,334	224,960
7	Total	726,240	767,976	844,426	890,927	936,300	985,905
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,030	6,745	6,685
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,703	948,754	1,005,018	1,061,162

Appendix 57f

Updated Base Scenario #19

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 57g

Updated Base Scenario #19

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	60	(0)	0	(2)
3	Marketable Bonds	44,259	55,007	61,800	67,206	72,404
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,429	83,865	87,058	90,095
6	Dividend and other Income					
7	Canadian Equities	9,657	5,820	4,553	5,189	5,838
8	Global	4,218	6,006	4,886	5,512	6,043
9	Global LV	-	2,887	3,221	3,636	4,055
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,597	26,540	28,217	29,739
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(19,747)	(746)	(757)	(756)
16	Marketable Bonds Realized Gains/(Loss)	13,969	19,747	746	757	756
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,803	0	0	0
19	Global Equities Realized Gains	66,318	3,801	0	0	1,562
20	Global LV Realized Gains	-	457	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	17,106	10,475	11,085	13,293
24	Other					
25	Investment Fees Paid	(5,203)	(4,732)	(4,588)	(4,852)	(5,067)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,436	4,576	4,650	4,643
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,168)	(14,325)	(14,959)	(15,631)
30	Total Corporate Investment Income	199,910	103,963	106,555	111,401	117,496
31	Total Basic Investment Income	171,428	80,547	83,881	86,977	89,850
32	% - Basic to Total Investment Income	85.75%	77%	79%	78%	76%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,896	4,817	5,490	6,515
35	US Equities Unrealized Gains/(Losses)	7,537	9,363	7,291	8,226	9,018
36	Global LV Unrealized Gains/(Losses)	-	4,202	4,397	4,965	5,537
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,259	12,108	13,715	15,534
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.6	1,884.6	2,031.2	2,188.2
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.9	147.4	167.0	186.3
43	Global Equities	166.6	168.3	190.4	213.7	220.8
44	Global LV Equities	96.5	114.9	130.2	146.2	161.6
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.8	3,249.5	3,422.0	3,591.0
49	Total Basic Assets	2,414.8	2,530.3	2,639.2	2,753.2	2,867.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.9%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.2%	6.1%
56	Global LV	3.3%	3.7%	4.0%	4.3%	4.5%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 58a

Adverse Scenario #19

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,898	1,056,334
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,123	1,062,368
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,885	1,223,699
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,822)	(130,079)
26	Investment Income	48,476	101,645	111,731	192,209	67,988	64,475	61,511	59,451
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,621	103,847	(49)	(17)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	195,608	168,322	61,462	59,434
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,663	91,457	(4,273)	(6,051)

Appendix 58b
Adverse Scenario #19
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	269,702	157,132	109,771
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,360)	(51,871)	(43,713)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(249)	489	8,158	8,893
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
11	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306

Appendix 58c
Adverse Scenario #19
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	42,285	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,684,864	2,866,857	2,920,233	2,963,915
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,351	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,167	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	269,702	157,132	109,771	39,127
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
27	Total Equity	231,003	181,000	210,845	261,938	217,342	105,260	66,058	4,306
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878

Appendix 58d
Adverse Scenario #19
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	170,225	46,140	4,979	(58,784)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	170,225	46,140	4,979	(58,784)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	4,798	4,820	2,259	17,730	16,086
18	Foreign exchange risk	32	15,606	17,830	18,444	15,980	16,881
19	Equity risk	34	69,145	80,956	83,457	67,847	72,429
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,465	131,717	130,046	135,386
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,104	62,863	64,961	66,441
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,104	62,863	64,961	66,441
28	Operational risk margin	50	64,469	70,759	74,711	76,819	79,802
29	Less: Diversification credit	52	53,525	63,194	66,085	66,874	69,317
30	Total Capital (Margin) Required at Target	59	452,643	511,187	545,303	557,716	579,043
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	340,791	363,535	371,811	386,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	340,791	363,535	371,811	386,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(170,566)	(317,395)	(366,832)	(444,813)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	49.95%	12.69%	1.34%	-15.23%

Appendix 58e
Adverse Scenario #19
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,484	223,698
7	Total	726,240	767,976	966,494	1,042,341	936,155	984,826
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,437	6,771
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(7)	10,561
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,137,536	1,000,123	1,062,369

Appendix 58f

Adverse Scenario #19

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
27	C. Equity in Unearned Premium										
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,430	464,051	490,480
31	11. Reinsurance PFAD					10	-	-	-	-	-
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,327	85,385	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	(7,884)	(6,575)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	31,896	33,197	34,560
38	Change					2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]					8,845	-	-	7,884	6,575	15,774
40	Change					2,001	(8,845)	-	7,884	(1,309)	9,199

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 58g

Adverse Scenario #19

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	117	(0)	0	(1)
3	Marketable Bonds	44,259	50,757	51,234	51,392	52,799
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,235	73,299	71,243	70,491
6	Dividend and other Income					
7	Canadian Equities	9,657	6,370	5,023	4,837	4,986
8	Global	4,218	6,693	5,458	5,325	5,476
9	Global LV	-	3,326	3,352	3,298	3,230
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,008	27,060	26,744	26,949
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,660	87,440	(14,235)	2,352
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,268	21,556	14,235	(2,352)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(157)	(1,368)	433	0
19	Global Equities Realized Gains	66,318	185	(126)	526	510
20	Global LV Realized Gains	-	49	13	575	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,049	117,989	12,619	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,884)	(4,783)	(4,874)	(4,955)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,335)	(12,574)	(14,728)	(14,361)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,091)	(31,670)	(34,359)	(34,523)
30	Total Corporate Investment Income	199,910	223,200	197,719	76,247	75,158
31	Total Basic Investment Income	171,428	195,608	168,322	61,462	59,434
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,118	5,565
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,947	8,172
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,503	4,410
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,065	13,737
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	1,986.4	2,214.0	2,326.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.8	142.5	159.3
43	Global Equities	166.6	197.2	214.7	192.1	205.2
44	Global LV Equities	96.5	125.8	138.6	116.3	129.0
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.4	3,539.8	3,665.1
49	Total Basic Assets	2,530.3	2,740.7	2,880.4	2,934.0	2,979.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.5%	63.5%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.3%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.5%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 58h

Adverse Scenario #19 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,124,894	1,170,787	1,218,832
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,186,131	1,233,629	1,283,278
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,094,196	1,149,558	1,196,607
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,514	29,420	31,504
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,181,949	1,240,894	1,291,629
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,115,229	995,630	1,055,880
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,127,619	999,854	1,061,914
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,280,286	1,158,569	1,223,215
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,323	44,265	46,437	48,263
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,983	36,701	38,167
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,843	168,877	175,144
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(259,180)	(86,552)	(106,730)
26	Investment Income	48,476	101,645	111,731	192,209	67,988	64,517	61,491	59,621
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,621	103,820	(32)	(47)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	195,608	168,338	61,460	59,574
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(44,346)	(90,842)	(25,092)	(47,155)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,663	91,430	(4,256)	(6,082)

Appendix 58i

Adverse Scenario #19 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	269,702	178,861	153,768
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(44,346)	(90,842)	(25,092)	(47,155)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	269,702	178,861	153,768	106,613
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,360)	(51,871)	(43,490)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(249)	489	8,381	9,134
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,490)	(34,355)
11	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	126,989	110,279	72,258
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	269,702	178,861	153,768	106,613
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,490)	(34,355)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	217,342	126,989	110,279	72,258
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	126,989	110,279	72,258

Appendix 58j

Adverse Scenario #19 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	42,285	6,688	2,051	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,684,864	2,875,756	2,956,143	3,025,312
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	388,867	404,004	419,837
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	2,696	4,218	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,080	63,093
14		2,683,473	2,805,484	2,916,137	3,036,661	3,250,461	3,435,677	3,529,591	3,613,715
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	605,196	631,310	658,749
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,266,433	2,332,708	2,409,705
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,308,687	3,419,312	3,541,457
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	269,702	178,861	153,768	106,613
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,490)	(34,355)
27	Total Equity	231,003	181,000	210,845	261,938	217,342	126,989	110,279	72,258
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,250,461	3,435,677	3,529,591	3,613,715

Appendix 58k
Adverse Scenario #19 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	170,225	67,869	49,198	9,165
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	170,225	67,869	49,198	9,165
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	104,170	108,313	113,479
12	Unpaid claims	22	192,187	214,810	238,394	245,232	253,234
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,564	353,545	366,713
16	Market Risk:						
17	Interest rate risk	30	4,798	4,820	3,514	18,454	17,932
18	Foreign exchange risk	32	15,606	17,830	18,455	16,206	16,557
19	Equity risk	34	69,145	80,956	83,521	69,153	73,829
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,465	133,047	132,302	138,308
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,104	63,445	65,702	66,805
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,104	63,445	65,702	66,805
28	Operational risk margin	50	64,469	70,759	75,473	77,723	80,687
29	Less: Diversification credit	52	53,525	63,194	66,541	67,604	70,062
30	Total Capital (Margin) Required at Target	59	452,643	511,187	547,988	561,668	582,451
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	340,791	365,326	374,445	388,301
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	340,791	365,326	374,445	388,301
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(170,566)	(297,457)	(325,247)	(379,136)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	49.95%	18.58%	13.14%	2.36%

Appendix 58l

Adverse Scenario #19 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,681	222,442	223,711
7	Total	726,240	767,976	966,494	1,042,349	936,110	984,840
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,883	6,401	6,782
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	2,466	(194)	10,083
13	Total Net Claims Incurred	767,240	789,235	1,062,170	1,127,619	999,854	1,061,914

Appendix 58m

Adverse Scenario #19 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.04%	73.35%	74.34%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9446	0.9559	0.9894	1.0001	1.0045				
10	2021					0.9659	0.9989	1.0088	1.0125	1.0150			
11	2022						1.0047	1.0148	1.0186	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				76.83%	71.30%	72.47%	74.34%	77.39%			74.55%	81.12%
17	2021					72.05%	73.17%	74.99%	78.00%	74.45%		74.20%	80.96%
18	2022						73.60%	75.43%	78.46%	74.91%	75.44%	75.26%	82.24%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.18%	8.16%	8.10%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.72%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	557,054	579,209	602,361		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,077	463,994	490,425		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	15,128	15,613	16,164		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,262	85,375	90,238		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	2,696	4,218	(4,475)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	32,544	33,872	35,262		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	29,848	29,654	35,262		
38	Change					2,363	(20,876)	16,204	2,466	(194)	5,608		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,475		
40	Change					2,001	(8,845)	-	-	-	4,475		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 58n

Adverse Scenario #19 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	117	(0)	0	(1)
3	Marketable Bonds	44,259	50,757	51,359	51,643	53,002
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,235	73,423	71,495	70,694
6	Dividend and other Income					
7	Canadian Equities	9,657	6,370	5,022	5,012	5,444
8	Global	4,218	6,693	5,458	5,480	5,802
9	Global LV	-	3,326	3,351	3,329	3,593
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,008	27,058	27,105	28,096
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,660	87,483	(13,250)	2,359
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,268	21,513	13,250	(2,359)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(157)	(1,368)	266	668
19	Global Equities Realized Gains	66,318	185	(126)	335	1,112
20	Global LV Realized Gains	-	49	13	258	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,049	117,989	11,945	13,511
24	Other					
25	Investment Fees Paid	(5,203)	(4,884)	(4,786)	(4,923)	(5,054)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,335)	(12,634)	(14,845)	(14,407)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,091)	(31,733)	(34,525)	(34,668)
30	Total Corporate Investment Income	199,910	223,200	197,778	76,019	77,633
31	Total Basic Investment Income	171,428	195,608	168,338	61,460	59,574
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	77%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,302	6,076
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,179	8,659
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,545	4,906
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,481	14,734
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	2,003.5	2,213.1	2,362.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	164.4	154.5	163.1
43	Global Equities	166.6	197.2	213.3	205.0	210.9
44	Global LV Equities	96.5	125.8	137.4	128.4	145.1
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,426.6	3,576.0	3,726.8
49	Total Basic Assets	2,530.3	2,740.7	2,896.0	2,972.0	3,040.6
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.5%	61.9%	63.4%
53	MUSH	19.4%	16.4%	13.9%	12.1%	10.4%
54	Canadian Equities	4.2%	4.7%	4.8%	4.3%	4.4%
55	US Equities	5.7%	6.2%	6.2%	5.7%	5.7%
56	Global LV	3.3%	3.9%	4.0%	3.6%	3.9%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.5%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 58o

Adverse Scenario #19 with Management Action - Minimum Total Equity

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,124,894	1,170,787	1,218,832
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,186,131	1,233,629	1,283,278
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,094,196	1,149,558	1,196,607
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,514	29,420	31,504
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,181,949	1,240,894	1,291,629
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,214	1,115,217	995,630	1,055,899
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,172	1,127,607	999,854	1,061,934
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,584	147,904
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,131	13,397
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,153	1,280,274	1,158,569	1,223,235
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,625	83,480
21	Commissions	33,862	35,086	37,378	40,338	42,323	44,265	46,437	48,263
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,983	36,701	38,167
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,843	168,877	175,144
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,956)	(259,168)	(86,552)	(106,749)
26	Investment Income	48,476	101,645	111,731	192,209	64,312	60,121	57,888	57,407
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	125,445	102,558	(72)	18
28	Net Investment Income	(4,038)	82,897	116,320	171,428	189,758	162,680	57,816	57,425
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(50,198)	(96,488)	(28,736)	(49,324)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	284,488	90,168	(4,297)	(6,017)

Appendix 58p

Adverse Scenario #19 with Management Action - Minimum Total Equit

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	198,580	148,382	51,894	23,158
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(50,198)	(96,488)	(28,736)	(49,324)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(115,469)	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	198,580	148,382	51,894	23,158	(26,167)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,237)	(51,894)	(45,472)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(126)	344	6,421	5,790
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,237)	(51,894)	(45,472)	(39,683)
11	Total Equity Balance	231,002	181,000	210,845	146,469	96,145	0	(22,315)	(65,849)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	198,580	148,382	51,894	23,158	(26,167)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,237)	(51,894)	(45,472)	(39,683)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	146,469	96,145	0	(22,315)	(65,849)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	146,469	96,145	0	(22,315)	(65,849)

Appendix 58q

Adverse Scenario #19 with Management Action - Minimum Total Equity

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	41,911	8,297	3,672	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,372,157	2,564,041	2,747,147	2,821,919	2,888,720
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	388,867	404,004	419,837
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	2,699	4,220	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,080	63,093
14		2,683,473	2,805,484	2,916,137	2,921,192	3,129,265	3,308,679	3,396,990	3,477,123
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	605,196	631,310	658,749
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,828	2,266,425	2,332,700	2,409,714
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,120	3,308,679	3,419,305	3,541,466
24	Equity								
25	Retained earnings	194,499	99,251	170,975	198,580	148,382	51,894	23,158	(26,167)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,237)	(51,894)	(45,472)	(39,683)
27	Total Equity	231,003	181,000	210,845	146,469	96,145	0	(22,315)	(65,849)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,921,192	3,129,265	3,308,679	3,396,990	3,475,617

Appendix 58r

Adverse Scenario #19 with Management Action - Minimum Total Equity Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	102,815	49,028	(59,121)	(83,395)	(128,942)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	102,815	49,028	(59,121)	(83,395)	(128,942)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	104,170	108,313	113,479
12	Unpaid claims	22	192,187	214,811	238,393	245,231	253,235
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,054	342,563	353,544	366,714
16	Market Risk:						
17	Interest rate risk	30	1,195	2,133	3,697	8,999	11,500
18	Foreign exchange risk	32	13,528	15,649	15,935	14,331	14,491
19	Equity risk	34	58,753	70,064	70,766	60,233	56,994
20	Real estate risk	36	23,636	24,409	24,960	25,736	27,072
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	97,112	112,255	115,358	109,299	110,057
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,932	56,298	59,645	61,687	63,182
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,932	56,298	59,645	61,687	63,182
28	Operational risk margin	50	62,871	68,888	73,646	75,426	77,978
29	Less: Diversification credit	52	48,975	58,312	61,578	61,194	62,439
30	Total Capital (Margin) Required at Target	59	436,786	492,183	529,634	538,762	555,492
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	291,191	328,122	353,089	359,175	370,328
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	291,191	328,122	353,089	359,175	370,328
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(188,376)	(279,094)	(412,210)	(442,570)	(499,270)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	35.31%	14.94%	-16.74%	-23.22%	-34.82%

Appendix 58s

Adverse Scenario #19 with Management Action - Minimum Total Equity

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,020	576,825
3	Comprehensive	69,497	99,943	103,860	99,957	118,338	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,941	334,676	222,442	223,718
7	Total	726,240	767,976	966,495	1,042,344	936,110	984,847
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,879	6,401	6,788
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	2,463	(194)	10,088
13	Total Net Claims Incurred	767,240	789,235	1,062,171	1,127,607	999,854	1,061,933

Appendix 58t

Adverse Scenario #19 with Management Action - Minimum Total Equity
Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1	A. Claims (Including External Adjustment Expense) Data												
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.04%	73.35%	74.34%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9446	0.9559	0.9894	1.0001	1.0045				
10	2021					0.9659	0.9989	1.0088	1.0125	1.0150			
11	2022						1.0047	1.0148	1.0186	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				76.83%	71.30%	72.47%	74.34%	77.39%			74.55%	81.12%
17	2021					72.05%	73.17%	74.99%	78.00%	74.45%		74.20%	80.95%
18	2022						73.60%	75.43%	78.46%	74.91%	75.44%	75.26%	82.24%

Line No.		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
19	B. Actual Data Other Than Losses										
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,154,435	1,211,474	1,260,126
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.18%	8.16%	8.10%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.72%	2.70%
25	Selected					3.16%	2.99%	2.88%	2.75%	2.72%	2.71%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%
27	C. Equity in Unearned Premium										
28	8. Net Unearned Premium					468,613	506,193	525,358	557,054	579,209	602,361
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	420,094	447,075	463,992	490,426
31	11. Reinsurance PFAD					10	-	-	-	-	-
32	12. Maintenance Expense [a]					13,837	14,989	14,951	15,128	15,613	16,164
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	77,297	82,262	85,374	90,238
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	3,242	2,699	4,220	(4,477)
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	32,544	33,872	35,262
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	27,382	29,845	29,652	35,262
38	Change					2,363	(20,876)	16,204	2,463	(194)	5,610
39	18. Premium Deficiency [c]					8,845	-	-	-	-	4,477
40	Change					2,001	(8,845)	-	-	-	4,477

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 58u

Adverse Scenario #19 with Management Action - Minimum Total Equity

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	86	0	0	(10)
3	Marketable Bonds	44,259	50,688	51,264	51,293	53,046
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,135	73,329	71,144	70,729
6	Dividend and other Income					
7	Canadian Equities	9,657	6,507	5,058	5,151	5,336
8	Global	4,218	6,727	5,490	5,605	5,757
9	Global LV	-	3,327	3,378	3,421	3,477
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,181	27,154	27,462	27,826
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	96,194	88,277	(13,657)	2,379
16	Marketable Bonds Realized Gains/(Loss)	13,969	39,734	20,711	13,657	(2,379)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(273)	(1,253)	266	1,445
19	Global Equities Realized Gains	66,318	160	(94)	888	1,077
20	Global LV Realized Gains	-	49	12	255	924
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	145,908	118,128	12,494	15,177
24	Other					
25	Investment Fees Paid	(5,203)	(4,896)	(4,788)	(4,933)	(5,046)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,317)	(12,593)	(14,716)	(14,526)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,085)	(31,694)	(34,406)	(34,779)
30	Total Corporate Investment Income	199,910	223,139	197,957	76,694	78,954
31	Total Basic Investment Income	171,428	189,758	162,680	57,816	57,425
32	% - Basic to Total Investment Income	85.75%	85%	82%	75%	73%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(975)	5,451	5,955
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	8,365	8,591
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,671	4,748
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,816	14,546
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	(1.5)
40	Canadian Fixed Income	1,760.8	1,783.7	1,990.2	2,198.4	2,377.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.6	168.4	166.6	157.7
43	Global Equities	166.6	197.3	217.5	202.7	211.3
44	Global LV Equities	96.5	126.0	140.7	132.2	130.7
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.7	3,424.8	3,574.7	3,721.3
49	Total Basic Assets	2,414.8	2,619.5	2,769.0	2,839.3	2,904.0
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.1%	61.5%	63.9%
53	MUSH	19.4%	16.4%	13.9%	12.1%	10.4%
54	Canadian Equities	4.2%	4.7%	4.9%	4.7%	4.2%
55	US Equities	5.7%	6.2%	6.4%	5.7%	5.7%
56	Global LV	3.3%	3.9%	4.1%	3.7%	3.5%
57	Private Debt	0.0%	5.9%	5.8%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.2%	4.3%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.6%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 59a

Updated Base Scenario #20

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,074,290	1,118,885	1,164,535	1,212,324
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,133,773	1,180,122	1,227,376	1,276,770
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,048,843	1,098,256	1,143,418	1,190,217
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,719	27,572	29,576	31,778
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,133,038	1,186,066	1,234,910	1,285,515
13	Net Claims Incurred	742,604	869,023	783,040	823,258	893,550	936,942	994,905	1,050,851
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,683)	642	11,004	9,191
15	Total Claims Incurred	666,404	860,035	767,239	778,719	874,867	937,584	1,005,908	1,060,042
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,934	144,009	146,487
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,790	12,970	13,249
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,022,802	1,089,308	1,162,887	1,219,778
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,174	79,838	82,759
21	Commissions	33,862	35,086	37,378	40,338	42,541	44,477	46,238	48,056
22	Premium Taxes	26,205	27,563	29,143	31,518	33,562	35,104	36,516	37,976
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,467	160,754	167,706	174,025
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(44,231)	(63,995)	(95,683)	(108,288)
26	Investment Income	48,476	101,645	111,731	192,131	81,815	87,256	91,197	94,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,121)	(7,302)	4,405	2,033
28	Net Investment Income	(4,038)	82,897	116,320	163,818	57,693	79,953	95,602	96,406
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	13,462	15,958	(81)	(11,882)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,438)	(7,944)	(6,598)	(7,158)

Appendix 59b
Updated Base Scenario #20
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	174,496	178,437	187,442	186,162
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	13,462	15,958	(81)	(11,882)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(142,471)	(9,522)	(6,953)	(1,199)	9,635
6	Total Retained Earnings	194,498	99,251	170,975	174,496	178,437	187,442	186,162	183,915
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(45,970)	(38,818)	(30,709)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	6,141	7,151	8,109	9,317
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
11	Total Equity Balance	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	174,496	178,437	187,442	186,162	183,915
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	122,385	132,467	148,623	155,452	162,522

Appendix 59c
Updated Base Scenario #20
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	48,883	47,337	46,120	42,238
4	Equity investments	2,083,349	2,189,534	2,272,545	2,337,389	2,397,722	2,495,252	2,611,014	2,725,965
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	372,535	387,273	402,346	418,111
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	23,188	29,371	26,461	19,961
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,184	61,206	63,241
14		2,683,473	2,805,484	2,916,137	2,887,475	2,994,046	3,120,966	3,249,242	3,374,989
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	577,134	602,416	628,418	655,739
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,995	372,684	389,288	406,000
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,997	1,934,094	2,010,642	2,083,838
23		2,452,472	2,624,484	2,705,292	2,765,090	2,861,579	2,972,342	3,093,790	3,212,467
24	Equity								
25	Retained earnings	194,499	99,251	170,975	174,496	178,437	187,442	186,162	183,915
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(45,970)	(38,818)	(30,709)	(21,393)
27	Total Equity	231,003	181,000	210,845	122,385	132,467	148,623	155,452	162,522
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,887,475	2,994,046	3,120,966	3,249,242	3,374,989

Appendix 59d
Updated Base Scenario #20
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	78,731	85,347	89,439	94,246	99,281
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	78,731	85,347	89,439	94,246	99,281
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	99,606	103,650	107,771	112,079
12	Unpaid claims	22	191,221	197,035	204,521	212,892	220,974
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	296,641	308,171	320,663	333,053
16	Market Risk:						
17	Interest rate risk	30	941	13,906	17,853	21,226	25,095
18	Foreign exchange risk	32	13,075	12,576	13,398	14,898	17,418
19	Equity risk	34	56,490	53,852	57,463	64,913	72,007
20	Real estate risk	36	23,133	23,875	24,395	25,136	26,437
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	93,639	104,209	113,109	126,173	140,957
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,856	56,750	58,979	60,509	61,674
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,856	56,750	58,979	60,509	61,674
28	Operational risk margin	50	62,487	67,241	70,325	73,808	77,452
29	Less: Diversification credit	52	48,024	55,542	58,814	62,894	67,207
30	Total Capital (Margin) Required at Target	59	432,838	469,299	491,770	518,259	545,929
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	288,559	312,866	327,847	345,506	363,953
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	288,559	312,866	327,847	345,506	363,953
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(209,828)	(227,519)	(238,408)	(251,260)	(264,672)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	27.28%	27.28%	27.28%	27.28%	27.28%

Appendix 59e
Updated Base Scenario #20
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,624	502,881	538,539	576,751
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,341	5,408
6	PIPP	187,022	169,153	193,278	212,114	223,270	224,426
7	Total	726,240	759,725	821,981	882,020	937,240	985,357
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,919	5,535	6,902	6,592
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	(2,404)	(4,892)	4,230	7,883
13	Total Net Claims Incurred	767,240	778,719	874,867	937,584	1,005,908	1,060,042

Appendix 59f

Updated Base Scenario #20

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.34%	72.80%	73.72%	74.72%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9260	0.9353	0.9491	0.9851	1.0062					
9	2020				0.9359	0.9501	0.9865	1.0080	1.0115				
10	2021					0.9599	0.9950	1.0151	1.0169	1.0132			
11	2022						1.0012	1.0208	1.0222	1.0179	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			75.71%	76.08%	70.80%	72.16%	72.80%				73.56%	77.69%
16	2020				76.13%	70.87%	72.27%	72.92%	73.64%			72.94%	77.03%
17	2021					71.60%	72.89%	73.43%	74.04%	74.69%		73.45%	77.67%
18	2022						73.34%	73.85%	74.42%	75.05%	75.72%	74.44%	78.78%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,107,319	1,158,495	1,205,334	1,253,736		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.22%	8.11%	8.12%	8.08%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.74%	2.70%	2.71%	2.69%		
25	Selected					3.16%	2.99%	2.87%	2.72%	2.71%	2.70%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	532,647	554,274	576,316	599,350		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,275	422,371	442,919	467,367		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	15,103	14,925	15,429	16,017		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,307	77,716	81,497	85,996		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	23,188	29,371	26,461	19,961		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	31,080	32,370	33,691	35,074		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	7,892	3,000	7,230	15,113		
38	Change					2,363	(21,760)	(2,404)	(4,892)	4,230	7,883		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 59g

Updated Base Scenario #20

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	78	0	0	(3)
3	Marketable Bonds	44,245	55,497	63,990	70,442	76,068
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	79,936	86,055	90,293	93,758
6	Dividend and other Income					
7	Canadian Equities	9,657	5,855	4,615	5,488	6,415
8	Global	4,218	6,021	4,938	5,776	6,531
9	Global LV	-	2,898	3,271	3,845	4,447
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,709	26,857	29,132	31,331
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(38,868)	(7,848)	2,721	611
16	Marketable Bonds Realized Gains/(Loss)	11,781	13,118	(36)	2,042	1,565
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,825	0	0	1,636
19	Global Equities Realized Gains	66,319	3,806	0	0	1,794
20	Global LV Realized Gains	-	459	-	-	0
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,608)	2,599	15,857	17,346
24	Other					
25	Investment Fees Paid	(5,204)	(4,733)	(4,586)	(4,905)	(5,176)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,793	7,673	7,757	7,409
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,812)	(11,226)	(11,905)	(12,974)
30	Total Corporate Investment Income	191,042	79,163	103,344	123,890	129,696
31	Total Basic Investment Income	163,818	57,693	79,953	95,602	96,406
32	% - Basic to Total Investment Income	85.75%	73%	77%	77%	74%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,937	4,883	5,807	7,159
35	US Equities Unrealized Gains/(Losses)	7,538	9,386	7,369	8,620	9,746
36	Global LV Unrealized Gains/(Losses)	-	4,217	4,467	5,250	6,071
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,323	12,252	14,427	16,905
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,710.9	1,861.9	2,012.5	2,197.9
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	129.7	151.0	179.5	187.8
43	Global Equities	166.7	169.1	194.1	227.2	239.9
44	Global LV Equities	96.6	116.0	133.5	157.0	179.3
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,057.1	3,235.7	3,438.9	3,638.0
49	Total Basic Assets	2,380.2	2,460.2	2,556.1	2,670.9	2,783.4
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.5%	58.5%	60.4%
53	MUSH	19.5%	17.1%	14.7%	12.6%	10.6%
54	Canadian Equities	4.2%	4.2%	4.7%	5.2%	5.2%
55	US Equities	5.7%	5.5%	6.0%	6.6%	6.6%
56	Global LV	3.3%	3.8%	4.1%	4.6%	4.9%
57	Private Debt	0.0%	6.1%	5.8%	5.4%	5.2%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 60a

Adverse Scenario #20

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	78,818	75,780	81,957	82,551
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,456	39,687	5,012	2,312
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,273	115,467	86,969	84,864
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,498	27,297	788	(3,722)

Appendix 60b
Adverse Scenario #20
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,503	215,245	160,194	126,208
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,585)	(51,918)	(43,575)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,474)	3,667	8,343	9,067
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
11	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372

Appendix 60c
Adverse Scenario #20
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	18,075	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,846	2,582,625	2,694,317	2,772,641	2,836,474
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,001	2,262,398
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,249,978	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,503	215,245	160,194	126,208	70,880
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
27	Total Equity	231,003	181,000	210,845	264,392	159,660	108,276	82,633	36,372
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380

Appendix 60d
Adverse Scenario #20
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	220,737	112,539	49,143	21,521	(26,759)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	220,737	112,539	49,143	21,521	(26,759)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,390	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,582	349,896
16	Market Risk:						
17	Interest rate risk	30	6,468	10,645	11,673	21,389	24,099
18	Foreign exchange risk	32	15,640	16,724	16,100	16,060	16,989
19	Equity risk	34	69,312	75,625	71,135	69,600	74,310
20	Real estate risk	36	25,983	26,898	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,403	129,892	126,507	135,582	145,435
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,338	58,730	61,540	63,505	65,232
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,338	58,730	61,540	63,505	65,232
28	Operational risk margin	50	64,548	69,947	72,480	75,605	79,020
29	Less: Diversification credit	52	53,900	62,304	63,388	66,629	70,135
30	Total Capital (Margin) Required at Target	59	453,269	502,791	520,649	543,645	569,448
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,179	335,194	347,100	362,430	379,632
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,179	335,194	347,100	362,430	379,632
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,442)	(222,655)	(297,957)	(340,909)	(406,391)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.05%	33.57%	14.16%	5.94%	-7.05%

Appendix 60e
Adverse Scenario #20
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,390	231,659
7	Total	726,240	759,725	946,811	952,787	946,353	992,621
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,386	1,069,302

Appendix 60f

Adverse Scenario #20

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,061	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,283	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,290)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,290	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,799)	8,130		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 60g

Adverse Scenario #20

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	95	0	0	(1)
3	Marketable Bonds	44,245	53,738	57,653	61,277	64,645
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,194	79,717	81,128	82,337
6	Dividend and other Income					
7	Canadian Equities	9,657	5,723	4,485	4,615	5,066
8	Global	4,218	5,964	4,706	4,840	5,291
9	Global LV	-	2,887	2,837	2,904	3,172
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,397	25,767	26,120	27,235
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	7,796	28,029	(2,082)	2,319
16	Marketable Bonds Realized Gains/(Loss)	11,782	33,272	13,550	7,305	95
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,337)	(4,659)	84	0
19	Global Equities Realized Gains	66,318	(605)	(6,622)	106	0
20	Global LV Realized Gains	-	(99)	(4,068)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,078	36,711	16,577	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,722)	(4,548)	(4,699)	(4,865)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(212)	(1,211)	(1,817)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,612)	(19,073)	(20,667)	(21,889)
30	Total Corporate Investment Income	191,037	132,056	127,849	103,691	102,078
31	Total Basic Investment Income	163,817	117,273	115,467	86,969	84,864
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	83%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	4,882	5,654
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,792)	7,223	7,896
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	3,965	4,330
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,629)	12,105	13,549
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.9	1,872.7	2,037.4	2,166.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.8	145.2	161.2
43	Global Equities	166.7	175.5	175.4	184.2	203.1
44	Global LV Equities	96.6	110.3	110.1	114.4	126.3
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.9	3,350.6	3,496.4
49	Total Basic Assets	2,522.7	2,614.2	2,707.9	2,786.4	2,851.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.8%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.3%	4.3%	4.6%
55	US Equities	5.7%	5.8%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 60h

Adverse Scenario #20 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,120,997	1,166,733	1,214,612
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,182,234	1,229,574	1,279,058
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,090,405	1,145,576	1,192,463
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,440	29,337	31,414
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,178,084	1,236,830	1,287,396
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,001,467	1,004,772	1,062,908
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,013,857	1,008,997	1,068,943
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,040	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,076	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,166,398	1,167,113	1,229,735
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,353	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,273	44,142	46,308	48,129
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,869	36,581	38,043
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	160,551	168,356	174,652
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(148,866)	(98,640)	(116,990)
26	Investment Income	48,476	101,645	111,731	192,129	78,818	75,806	81,995	82,726
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,456	39,686	5,008	2,300
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,273	115,492	87,002	85,026
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,258)	(33,374)	(11,637)	(31,964)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,498	27,296	783	(3,734)

Appendix 60i

Adverse Scenario #20 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,503	215,245	181,871	170,234
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,258)	(33,374)	(11,637)	(31,964)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,503	215,245	181,871	170,234	138,269
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,585)	(51,918)	(43,432)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,474)	3,667	8,486	9,223
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,432)	(34,210)
11	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	129,953	126,801	104,060
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,503	215,245	181,871	170,234	138,269
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,432)	(34,210)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,392	159,660	129,953	126,801	104,060
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	129,953	126,801	104,060

Appendix 60j

Adverse Scenario #20 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	18,075	2,362	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,846	2,582,625	2,707,498	2,810,437	2,897,589
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	387,833	402,929	418,718
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	6,456	9,455	1,831
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,114	63,133
14		2,683,473	2,805,484	2,916,137	3,029,481	3,119,801	3,265,831	3,386,030	3,486,745
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	603,394	629,434	656,797
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,095,426	2,174,499	2,252,885
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,135,878	3,259,228	3,382,685
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,503	215,245	181,871	170,234	138,269
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,432)	(34,210)
27	Total Equity	231,003	181,000	210,845	264,392	159,660	129,953	126,801	104,060
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,481	3,119,801	3,265,831	3,386,030	3,486,745

Appendix 60k
Adverse Scenario #20 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	220,737	112,539	70,820	65,688	40,926
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	220,737	112,539	70,820	65,688	40,926
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	103,833	107,962	112,277
12	Unpaid claims	22	191,221	207,950	220,845	229,369	237,940
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	324,678	337,331	350,217
16	Market Risk:						
17	Interest rate risk	30	6,468	10,645	12,384	21,737	25,851
18	Foreign exchange risk	32	15,640	16,724	16,110	16,206	17,156
19	Equity risk	34	69,312	75,625	71,193	70,441	75,211
20	Real estate risk	36	25,983	26,898	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,403	129,892	127,286	136,917	148,255
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,338	58,730	62,499	64,783	65,793
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,338	58,730	62,499	64,783	65,793
28	Operational risk margin	50	64,548	69,947	73,285	76,557	79,939
29	Less: Diversification credit	52	53,900	62,304	63,849	67,316	70,877
30	Total Capital (Margin) Required at Target	59	453,269	502,791	523,899	548,272	573,327
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,179	335,194	349,266	365,515	382,218
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,179	335,194	349,266	365,515	382,218
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,442)	(222,655)	(278,446)	(299,827)	(341,292)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.05%	33.57%	20.28%	17.97%	10.71%

Appendix 60l

Adverse Scenario #20 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,916	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,342	5,395
6	PIPP	187,022	169,153	273,764	278,254	232,208	231,761
7	Total	726,240	759,725	946,811	952,790	946,170	992,724
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,967	7,000
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	(8,021)	(1,676)	9,010
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,013,857	1,008,997	1,068,943

Appendix 60m

Adverse Scenario #20 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.02%	73.59%	74.59%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9520	0.9625	0.9953	1.0032	1.0053				
10	2021					0.9722	1.0047	1.0122	1.0136	1.0155			
11	2022						1.0094	1.0174	1.0194	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				77.44%	71.79%	72.91%	79.63%	75.42%			75.25%	80.54%
17	2021					72.51%	73.60%	80.34%	76.05%	74.73%		74.79%	80.17%
18	2022						73.94%	80.76%	76.47%	75.19%	75.71%	75.79%	81.35%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.20%	8.16%	8.11%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.73%	2.72%	2.70%
25	Selected					3.16%	2.99%	2.88%	2.75%	2.73%	2.71%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	523,661	555,251	577,333	600,409
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	390,881	424,368	442,394	458,012	483,491
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	14,913	15,110	15,581	16,115
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,922	78,084	81,401	84,274	88,962
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,742	(3,478)	6,456	9,455	1,831
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,518	32,432	33,755	35,140
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	10,747	30,518	25,975	24,299	33,309
38	Change	2,363	(21,308)	19,771	(4,543)	(1,676)	9,010
39	18. Premium Deficiency [c]	8,845	-	3,478	-	-	-
40	Change	2,001	(8,845)	3,478	(3,478)	-	-

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 60n

Adverse Scenario #20 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	95	0	(0)	(1)
3	Marketable Bonds	44,245	53,738	57,717	61,473	65,117
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,194	79,782	81,325	82,810
6	Dividend and other Income					
7	Canadian Equities	9,657	5,723	4,513	4,764	5,359
8	Global	4,218	5,964	4,731	4,974	5,552
9	Global LV	-	2,887	2,856	3,003	3,364
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,397	25,840	26,503	27,981
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	7,796	28,099	(1,250)	2,335
16	Marketable Bonds Realized Gains/(Loss)	11,782	33,272	13,480	6,482	79
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,337)	(4,659)	74	0
19	Global Equities Realized Gains	66,318	(605)	(6,622)	93	599
20	Global LV Realized Gains	-	(99)	(4,068)	63	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,078	36,711	16,553	14,751
24	Other					
25	Investment Fees Paid	(5,204)	(4,722)	(4,553)	(4,736)	(4,944)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(219)	(1,254)	(1,917)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,612)	(19,085)	(20,747)	(22,068)
30	Total Corporate Investment Income	191,037	132,056	127,974	104,167	103,716
31	Total Basic Investment Income	163,817	117,273	115,492	87,002	85,026
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	82%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	5,041	5,980
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,792)	7,422	8,285
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	4,100	4,594
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,629)	12,463	14,266
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.9	1,879.6	2,052.8	2,204.7
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	140.9	152.3	172.6
43	Global Equities	166.7	175.5	177.8	191.9	204.5
44	Global LV Equities	96.6	110.3	111.9	120.4	135.7
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,212.1	3,386.7	3,557.3
49	Total Basic Assets	2,522.7	2,614.2	2,723.4	2,824.2	2,912.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.6%	62.0%
53	MUSH	19.5%	17.2%	14.8%	12.8%	10.9%
54	Canadian Equities	4.2%	4.6%	4.4%	4.5%	4.9%
55	US Equities	5.7%	5.8%	5.5%	5.7%	5.7%
56	Global LV	3.3%	3.6%	3.5%	3.6%	3.8%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 60o

Adverse Scenario #20 with Management Action - Minimum Total Equity

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,120,997	1,166,733	1,214,612
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,182,234	1,229,574	1,279,058
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,090,405	1,145,576	1,192,463
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,440	29,337	31,414
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,178,084	1,236,830	1,287,396
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,928	1,001,467	1,004,727	1,062,864
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,885	1,013,857	1,008,952	1,068,898
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,040	147,443
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,076	13,349
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,820	1,166,398	1,167,068	1,229,690
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,353	83,247
21	Commissions	33,862	35,086	37,378	40,338	42,273	44,142	46,308	48,129
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,869	36,581	38,043
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	160,551	168,356	174,652
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,532)	(148,866)	(98,595)	(116,946)
26	Investment Income	48,476	101,645	111,731	192,129	74,960	72,973	77,602	78,227
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	37,731	39,183	4,937	2,272
28	Net Investment Income	(4,038)	82,897	116,320	163,817	112,690	112,156	82,539	80,499
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(105,842)	(36,710)	(16,056)	(36,447)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	196,773	26,793	712	(3,763)

Appendix 60p

Adverse Scenario #20 with Management Action - Minimum Total Equit

Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	194,469	88,628	51,918	35,863
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(105,842)	(36,710)	(16,056)	(36,447)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	(122,033)	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	194,469	88,628	51,918	35,863	(584)
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(54,750)	(51,918)	(44,918)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(2,639)	2,831	7,000	7,609
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,750)	(51,918)	(44,918)	(37,309)
11	Total Equity Balance	231,002	181,000	210,845	142,358	33,878	0	(9,055)	(37,893)
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	194,469	88,628	51,918	35,863	(584)
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,750)	(51,918)	(44,918)	(37,309)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	142,358	33,878	0	(9,055)	(37,893)
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	142,358	33,878	0	(9,055)	(37,893)

Appendix 60q

Adverse Scenario #20 with Management Action - Minimum Total Equity

Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	17,660	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,357,813	2,457,259	2,579,909	2,674,536	2,755,548
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	387,833	402,929	418,718
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	6,456	9,458	1,835
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,114	63,133
14		2,683,473	2,805,484	2,916,137	2,907,448	2,994,020	3,135,879	3,250,130	3,344,707
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	603,394	629,434	656,797
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,547	2,095,427	2,174,457	2,252,800
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,142	3,135,879	3,259,186	3,382,600
24	Equity								
25	Retained earnings	194,499	99,251	170,975	194,469	88,628	51,918	35,863	(584)
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(54,750)	(51,918)	(44,918)	(37,309)
27	Total Equity	231,003	181,000	210,845	142,358	33,878	0	(9,055)	(37,893)
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	2,907,448	2,994,020	3,135,879	3,250,130	3,344,707

Appendix 60r

Adverse Scenario #20 with Management Action - Minimum Total Equity Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	98,704	(13,242)	(59,132)	(70,169)	(101,026)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	98,704	(13,242)	(59,132)	(70,169)	(101,026)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	103,833	107,962	112,277
12	Unpaid claims	22	191,221	207,950	220,845	229,365	237,932
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	324,678	337,327	350,209
16	Market Risk:						
17	Interest rate risk	30	122	4,114	4,607	13,539	17,333
18	Foreign exchange risk	32	13,443	14,076	13,710	13,646	14,244
19	Equity risk	34	58,328	63,169	60,595	59,122	63,115
20	Real estate risk	36	23,542	24,309	24,854	25,623	26,953
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	95,435	105,668	103,766	111,930	121,645
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	38,886	54,777	58,071	60,314	61,289
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	38,886	54,777	58,071	60,314	61,289
28	Operational risk margin	50	62,642	67,552	70,910	74,053	77,293
29	Less: Diversification credit	52	48,490	56,019	57,386	60,617	63,913
30	Total Capital (Margin) Required at Target	59	434,353	478,504	500,039	523,007	546,523
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	289,569	319,003	333,359	348,671	364,348
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	289,569	319,003	333,359	348,671	364,348
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(190,865)	(332,245)	(392,491)	(418,840)	(465,374)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	34.09%	-4.15%	-17.74%	-20.12%	-27.73%

Appendix 60s

Adverse Scenario #20 with Management Action - Minimum Total Equity

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,745	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,916	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,342	5,395
6	PIPP	187,022	169,153	273,765	278,254	232,171	231,725
7	Total	726,240	759,725	946,812	952,790	946,132	992,687
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,960	6,994
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	(8,021)	(1,678)	9,007
13	Total Net Claims Incurred	767,240	779,170	1,038,886	1,013,857	1,008,952	1,068,898

Appendix 60t

Adverse Scenario #20 with Management Action - Minimum Total Equity
Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.02%	73.59%	74.59%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9520	0.9625	0.9953	1.0032	1.0053				
10	2021					0.9722	1.0047	1.0122	1.0136	1.0155			
11	2022						1.0094	1.0174	1.0194	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				77.44%	71.79%	72.91%	79.63%	75.42%			75.25%	80.54%
17	2021					72.51%	73.60%	80.34%	76.05%	74.73%		74.79%	80.17%
18	2022						73.94%	80.76%	76.47%	75.19%	75.71%	75.79%	81.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,150,643	1,207,492	1,255,982		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.20%	8.16%	8.11%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.73%	2.72%	2.70%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.73%	2.71%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	555,251	577,333	600,409		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,394	458,011	483,487		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	15,110	15,581	16,115		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,401	84,274	88,962		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	6,456	9,458	1,835		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	32,432	33,755	35,140		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	25,975	24,297	33,305		
38	Change					2,363	(21,308)	19,771	(4,543)	(1,678)	9,007		
39	18. Premium Deficiency [c]					8,845	-	3,478	-	-	-		
40	Change					2,001	(8,845)	3,478	(3,478)	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 60u

Adverse Scenario #20 with Management Action - Minimum Total Equity

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	64	3	(0)	(3)
3	Marketable Bonds	44,245	53,661	57,731	61,293	64,902
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,086	79,799	81,145	82,593
6	Dividend and other Income					
7	Canadian Equities	9,657	5,862	4,553	4,919	5,540
8	Global	4,218	5,998	4,656	4,972	5,564
9	Global LV	-	2,889	2,886	3,109	3,488
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,571	25,835	26,763	28,299
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	17,732	28,414	(571)	2,331
16	Marketable Bonds Realized Gains/(Loss)	11,782	23,335	13,212	5,791	78
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,626)	(4,372)	74	0
19	Global Equities Realized Gains	66,318	(632)	(6,517)	93	0
20	Global LV Realized Gains	-	(99)	(4,073)	63	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	47,762	37,146	16,543	14,147
24	Other					
25	Investment Fees Paid	(5,204)	(4,740)	(4,543)	(4,734)	(4,942)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,983	(225)	(1,257)	(1,919)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,629)	(19,081)	(20,748)	(22,068)
30	Total Corporate Investment Income	191,037	131,791	128,425	104,236	103,213
31	Total Basic Investment Income	163,817	112,690	112,156	82,539	80,499
32	% - Basic to Total Investment Income	85.75%	86%	87%	79%	78%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,840)	5,205	6,183
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,713)	7,420	8,304
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,277)	4,245	4,762
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,553)	12,625	14,487
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,692.4	1,875.1	2,046.8	2,186.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.1	145.3	157.4	178.5
43	Global Equities	166.7	171.8	177.6	192.2	216.1
44	Global LV Equities	96.6	110.5	115.7	124.7	140.8
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.2	3,215.5	3,390.5	3,561.6
49	Total Basic Assets	2,400.6	2,488.5	2,593.5	2,688.3	2,770.8
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.6%	58.3%	60.4%	61.4%
53	MUSH	19.5%	17.2%	14.8%	12.7%	10.8%
54	Canadian Equities	4.2%	4.6%	4.5%	4.6%	5.0%
55	US Equities	5.7%	5.6%	5.5%	5.7%	6.1%
56	Global LV	3.3%	3.6%	3.6%	3.7%	4.0%
57	Private Debt	0.0%	6.2%	6.0%	5.7%	5.5%
58	Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 61a

Updated Base Scenario #21

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,091	28,953	30,993
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,480	1,217,525	1,267,285
13	Net Claims Incurred	742,604	869,023	783,040	824,140	902,449	938,637	996,190	1,052,284
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(34,905)	7,253	10,119	8,829	8,875
15	Total Claims Incurred	666,404	860,035	767,239	789,235	909,702	948,756	1,005,019	1,061,160
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,131	144,246	146,709
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,809	12,994	13,272
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,057,683	1,100,696	1,162,259	1,221,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,271	79,956	82,873
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	159,846	166,778	173,049
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(87,486)	(91,062)	(111,512)	(126,904)
26	Investment Income	48,476	101,645	111,731	192,209	84,813	88,268	91,549	94,615
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	10	3	2	4
28	Net Investment Income	(4,038)	82,897	116,320	171,428	84,823	88,271	91,551	94,619
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,124	(7,243)	(10,116)	(8,827)	(8,871)

Appendix 61b
Updated Base Scenario #21
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	311,386	308,594	288,633
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(2,663)	(2,791)	(19,961)	(32,285)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,177)	(34,986)	(25,159)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,934	9,191	9,828	10,675
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
11	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	311,386	308,594	288,633	256,348
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	267,209	273,608	263,475	241,865

Appendix 61c
Updated Base Scenario #21
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	48,628	40,072	25,785	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,576,553	2,682,810	2,793,177	2,902,041
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	13,224	18,619	15,485	8,485
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,167	61,179	63,211
14		2,683,473	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	358,128	374,215	390,308	406,707
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	1,901,840	1,980,340	2,055,792	2,129,627
23		2,452,472	2,624,484	2,705,292	2,774,723	2,891,266	3,012,531	3,132,065	3,250,745
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	311,386	308,594	288,633	256,348
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,177)	(34,986)	(25,159)	(14,484)
27	Total Equity	231,003	181,000	210,845	261,938	267,209	273,608	263,475	241,865
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,158,475	3,286,139	3,395,539	3,492,610

Appendix 61d
Updated Base Scenario #21
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	220,092	214,441	202,295	178,654
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	220,092	214,441	202,295	178,654
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	102,231	106,294	110,542
12	Unpaid claims	22	192,187	200,631	209,162	217,424	225,570
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	298,874	311,393	323,718	336,112
16	Market Risk:						
17	Interest rate risk	30	4,798	20,574	24,537	29,049	33,491
18	Foreign exchange risk	32	15,606	15,262	16,264	17,332	20,324
19	Equity risk	34	69,145	67,268	71,795	76,632	81,846
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	129,963	140,153	151,502	165,651
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,566	62,857	64,325	65,427
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,566	62,857	64,325	65,427
28	Operational risk margin	50	64,469	69,550	72,817	76,119	79,686
29	Less: Diversification credit	52	53,525	62,120	65,633	69,182	73,190
30	Total Capital (Margin) Required at Target	59	452,643	496,833	521,587	546,482	573,686
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	331,222	347,724	364,321	382,457
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	331,222	347,724	364,321	382,457
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(111,130)	(133,283)	(162,026)	(203,803)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	66.45%	61.67%	55.53%	46.71%

Appendix 61e
Updated Base Scenario #21
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	469,723	502,927	538,542	576,761
3	Comprehensive	69,497	99,943	105,490	111,621	118,147	124,998
4	Property Damage	48,647	46,846	48,497	50,183	51,941	53,777
5	Public Liability - BI	4,680	5,032	5,210	5,268	5,337	5,408
6	PIPP	187,022	177,326	215,504	220,930	222,334	224,958
7	Total	726,240	767,976	844,425	890,928	936,300	985,903
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	6,684	7,031	6,745	6,684
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	6,222	(4,124)	4,436	8,363
13	Total Net Claims Incurred	767,240	789,235	909,702	948,756	1,005,018	1,061,159

Appendix 61f

Updated Base Scenario #21

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.90%	73.83%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9395	0.9490	0.9630	0.9995	1.0131					
9	2020				0.9491	0.9635	1.0004	1.0144	1.0115				
10	2021					0.9734	1.0091	1.0215	1.0169	1.0132			
11	2022						1.0153	1.0273	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			76.82%	77.19%	71.83%	73.22%	73.86%				74.63%	79.24%
16	2020				77.20%	71.87%	73.28%	73.95%	74.68%			73.97%	78.61%
17	2021					72.61%	73.92%	74.47%	75.08%	75.75%		74.49%	79.22%
18	2022						74.37%	74.89%	75.47%	76.11%	76.79%	75.49%	80.35%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.24%	8.25%	8.20%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.75%	2.75%	2.73%		
25	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.74%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	525,358	546,685	568,420	591,132		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	391,245	411,663	425,072	445,502	470,099		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,951	14,890	15,451	16,041		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,989	75,746	78,213	81,972	86,498		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,310	13,224	18,619	15,485	8,485		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,624	31,896	33,197	34,560		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	11,179	17,401	13,277	17,712	26,075		
38	Change					2,363	(20,876)	6,222	(4,124)	4,436	8,363		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		
41	Notes:												
42	[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin												
43	[b] Min((16) - (15), (16)) if greater than 0, otherwise 0												
44	[c] Negative of (15) if greater than 0, otherwise 0												

Appendix 61g

Updated Base Scenario #21

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	92	(0)	0	(0)
3	Marketable Bonds	44,259	55,084	61,815	67,258	72,896
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	79,537	83,880	87,109	90,589
6	Dividend and other Income					
7	Canadian Equities	9,657	5,685	4,544	5,164	5,608
8	Global	4,218	5,969	4,878	5,490	5,877
9	Global LV	-	2,886	3,212	3,617	3,885
10	Private Debt	-	3,822	10,187	10,180	10,173
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	21,423	26,514	28,151	29,174
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	(29,711)	(746)	(758)	(765)
16	Marketable Bonds Realized Gains/(Loss)	13,969	29,711	746	758	765
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,651	0	0	787
19	Global Equities Realized Gains	66,318	3,747	0	0	934
20	Global LV Realized Gains	-	457	-	-	817
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	16,900	10,475	11,085	14,268
24	Other					
25	Investment Fees Paid	(5,203)	(4,720)	(4,586)	(4,851)	(5,035)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	4,441	4,577	4,653	4,672
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(14,151)	(14,322)	(14,955)	(15,570)
30	Total Corporate Investment Income	199,910	103,709	106,547	111,390	118,461
31	Total Basic Investment Income	171,428	84,823	88,271	91,551	94,619
32	% - Basic to Total Investment Income	85.75%	82%	83%	82%	80%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,736	4,808	5,464	6,259
35	US Equities Unrealized Gains/(Losses)	7,537	9,306	7,279	8,193	8,770
36	Global LV Unrealized Gains/(Losses)	-	4,199	4,385	4,938	5,305
37	Total Corporate Unrealized Gains/(Losses)	19,651	16,042	12,087	13,657	15,030
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,738.7	1,886.0	2,034.0	2,186.5
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	128.7	146.9	165.9	181.2
43	Global Equities	166.6	168.1	189.8	212.6	231.8
44	Global LV Equities	96.5	114.7	129.6	145.2	156.2
45	Private Debt	-	188.7	188.7	188.7	188.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,082.5	3,249.2	3,421.5	3,589.7
49	Total Basic Assets	2,530.3	2,638.7	2,736.4	2,832.7	2,917.3
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	56.4%	58.0%	59.4%	60.9%
53	MUSH	19.4%	17.0%	14.7%	12.6%	10.8%
54	Canadian Equities	4.2%	4.2%	4.5%	4.8%	5.0%
55	US Equities	5.7%	5.5%	5.8%	6.2%	6.5%
56	Global LV	3.3%	3.7%	4.0%	4.2%	4.4%
57	Private Debt	0.0%	6.1%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.4%	4.4%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 62a

Adverse Scenario #21

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,898	1,056,334
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,123	1,062,368
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,885	1,223,699
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,822)	(130,079)
26	Investment Income	48,476	101,645	111,731	192,209	67,988	64,475	61,511	59,451
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,621	103,847	(49)	(17)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	195,608	168,322	61,462	59,434
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,663	91,457	(4,273)	(6,051)

Appendix 62b
Adverse Scenario #21
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	269,702	157,132	109,771
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,360)	(51,871)	(43,713)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(249)	489	8,158	8,893
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
11	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306

Appendix 62c
Adverse Scenario #21
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	42,285	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,684,864	2,866,857	2,920,233	2,963,915
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,351	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,167	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	269,702	157,132	109,771	39,127
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
27	Total Equity	231,003	181,000	210,845	261,938	217,342	105,260	66,058	4,306
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878

Appendix 62d
Adverse Scenario #21
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	170,225	46,140	4,979	(58,784)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	170,225	46,140	4,979	(58,784)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	4,798	4,820	2,259	17,730	16,086
18	Foreign exchange risk	32	15,606	17,830	18,444	15,980	16,881
19	Equity risk	34	69,145	80,956	83,457	67,847	72,429
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,465	131,717	130,046	135,386
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,104	62,863	64,961	66,441
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,104	62,863	64,961	66,441
28	Operational risk margin	50	64,469	70,759	74,711	76,819	79,802
29	Less: Diversification credit	52	53,525	63,194	66,085	66,874	69,317
30	Total Capital (Margin) Required at Target	59	452,643	511,187	545,303	557,716	579,043
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	340,791	363,535	371,811	386,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	340,791	363,535	371,811	386,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(170,566)	(317,395)	(366,832)	(444,813)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	49.95%	12.69%	1.34%	-15.23%

Appendix 62e
Adverse Scenario #21
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,484	223,698
7	Total	726,240	767,976	966,494	1,042,341	936,155	984,826
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,437	6,771
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(7)	10,561
13	Total Net Claims Incurred	767,240	789,236	1,062,170	1,137,536	1,000,123	1,062,369

Appendix 62f

Adverse Scenario #21

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,245	420,094	447,430	464,051	490,480
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,989	77,297	82,327	85,385	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,310	3,242	(7,884)	(6,575)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,179	27,382	31,896	33,197	34,560
38	Change	2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]	8,845	-	-	7,884	6,575	15,774
40	Change	2,001	(8,845)	-	7,884	(1,309)	9,199

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 62g

Adverse Scenario #21

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	117	(0)	0	(1)
3	Marketable Bonds	44,259	50,757	51,234	51,392	52,799
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,235	73,299	71,243	70,491
6	Dividend and other Income					
7	Canadian Equities	9,657	6,370	5,023	4,837	4,986
8	Global	4,218	6,693	5,458	5,325	5,476
9	Global LV	-	3,326	3,352	3,298	3,230
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,008	27,060	26,744	26,949
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,660	87,440	(14,235)	2,352
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,268	21,556	14,235	(2,352)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(157)	(1,368)	433	0
19	Global Equities Realized Gains	66,318	185	(126)	526	510
20	Global LV Realized Gains	-	49	13	575	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,049	117,989	12,619	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,884)	(4,783)	(4,874)	(4,955)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,335)	(12,574)	(14,728)	(14,361)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,091)	(31,670)	(34,359)	(34,523)
30	Total Corporate Investment Income	199,910	223,200	197,719	76,247	75,158
31	Total Basic Investment Income	171,428	195,608	168,322	61,462	59,434
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,118	5,565
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,947	8,172
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,503	4,410
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,065	13,737
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	1,986.4	2,214.0	2,326.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.8	142.5	159.3
43	Global Equities	166.6	197.2	214.7	192.1	205.2
44	Global LV Equities	96.5	125.8	138.6	116.3	129.0
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.4	3,539.8	3,665.1
49	Total Basic Assets	2,530.3	2,740.7	2,880.4	2,934.0	2,979.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.5%	63.5%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.3%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.5%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 62h

Adverse Scenario #21 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February, 2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,058,533	1,102,480	1,147,465	1,194,559
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,118,016	1,163,716	1,210,307	1,259,005
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,040,375	1,082,150	1,126,655	1,172,774
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,362	27,094	28,959	30,999
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,124,213	1,169,483	1,217,531	1,267,291
13	Net Claims Incurred	742,604	869,023	783,040	797,438	1,221,213	1,125,146	995,898	1,056,334
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	789,235	1,062,171	1,137,536	1,000,123	1,062,368
16	Claims Expense	118,614	120,972	143,337	137,168	135,301	139,792	145,626	147,931
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,680	12,875	13,136	13,400
18	Total Claims Costs	798,045	993,537	923,722	940,009	1,210,152	1,290,203	1,158,885	1,223,699
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,545	76,597	80,646	83,494
21	Commissions	33,862	35,086	37,378	40,338	42,323	43,956	45,695	47,491
22	Premium Taxes	26,205	27,563	29,143	31,518	33,308	34,621	36,014	37,452
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	154,016	160,173	167,469	173,671
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(28,355)	(239,955)	(280,893)	(108,822)	(130,079)
26	Investment Income	48,476	101,645	111,731	192,209	67,988	64,475	61,511	59,451
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(20,781)	127,621	103,847	(49)	(17)
28	Net Investment Income	(4,038)	82,897	116,320	171,428	195,608	168,322	61,462	59,434
29	Net Income (Loss)	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(12,578)	286,663	91,457	(4,273)	(6,051)

Appendix 62i

Adverse Scenario #21 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	314,049	269,702	157,132	109,771
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	143,074	(44,346)	(112,571)	(47,360)	(70,645)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(52,360)	(51,871)	(43,713)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(249)	489	8,158	8,893
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
11	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	314,049	269,702	157,132	109,771	39,127
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	261,938	217,342	105,260	66,058	4,306

Appendix 62j

Adverse Scenario #21 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,746	42,285	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,487,626	2,684,864	2,866,857	2,920,233	2,963,915
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	368,356	382,922	397,818	413,399
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,310	3,242	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,117	59,121	61,079	63,091
14		2,683,473	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	569,845	594,828	620,521	647,521
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,824,404	2,043,827	2,274,302	2,339,351	2,421,048
23		2,452,472	2,624,484	2,705,292	2,774,723	3,033,119	3,306,188	3,415,167	3,541,572
24	Equity								
25	Retained earnings	194,499	99,251	170,975	314,049	269,702	157,132	109,771	39,127
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(52,360)	(51,871)	(43,713)	(34,820)
27	Total Equity	231,003	181,000	210,845	261,938	217,342	105,260	66,058	4,306
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,036,661	3,250,461	3,411,448	3,481,225	3,545,878

Appendix 62k
Adverse Scenario #21 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	218,283	170,225	46,140	4,979	(58,784)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	218,283	170,225	46,140	4,979	(58,784)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,243	103,705	107,525	113,493
12	Unpaid claims	22	192,187	214,810	238,392	245,239	253,238
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	286,846	313,053	342,097	352,764	366,731
16	Market Risk:						
17	Interest rate risk	30	4,798	4,820	2,259	17,730	16,086
18	Foreign exchange risk	32	15,606	17,830	18,444	15,980	16,881
19	Equity risk	34	69,145	80,956	83,457	67,847	72,429
20	Real estate risk	36	25,945	26,859	27,557	28,489	29,990
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	115,494	130,465	131,717	130,046	135,386
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,359	60,104	62,863	64,961	66,441
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,359	60,104	62,863	64,961	66,441
28	Operational risk margin	50	64,469	70,759	74,711	76,819	79,802
29	Less: Diversification credit	52	53,525	63,194	66,085	66,874	69,317
30	Total Capital (Margin) Required at Target	59	452,643	511,187	545,303	557,716	579,043
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	301,762	340,791	363,535	371,811	386,029
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	301,762	340,791	363,535	371,811	386,029
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(83,479)	(170,566)	(317,395)	(366,832)	(444,813)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	72.34%	49.95%	12.69%	1.34%	-15.23%

Appendix 62l

Adverse Scenario #21 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,827	471,179	549,150	538,022	576,824
3	Comprehensive	69,497	99,943	103,860	99,957	118,339	125,048
4	Property Damage	48,647	46,846	46,704	53,972	51,916	53,784
5	Public Liability - BI	4,680	5,032	2,810	4,588	5,394	5,472
6	PIPP	187,022	177,326	341,940	334,674	222,484	223,698
7	Total	726,240	767,976	966,494	1,042,341	936,155	984,826
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	846	27,102	27,876	6,437	6,771
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(29,722)	16,204	12,397	(7)	10,561
13	Total Net Claims Incurred	767,240	789,236	1,062,170	1,137,536	1,000,123	1,062,369

Appendix 62m

Adverse Scenario #21 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	74.33%	77.85%	74.76%	75.78%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9434	0.9521	0.9653	1.0011	1.0138					
9	2020				0.9634	0.9750	1.0092	1.0200	1.0139				
10	2021					0.9845	1.0181	1.0282	1.0212	1.0150			
11	2022						1.0241	1.0344	1.0274	1.0212	1.0148		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.17%
15	2019			77.14%	77.44%	72.00%	73.33%	75.36%				75.27%	80.86%
16	2020				78.37%	72.72%	73.92%	75.82%	78.93%			76.04%	82.74%
17	2021					73.43%	74.58%	76.43%	79.50%	75.88%		75.63%	82.52%
18	2022						75.02%	76.89%	79.98%	76.35%	76.90%	76.71%	83.83%

19	B. Actual Data Other Than Losses										
20		Fiscal Year									
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,098,851	1,142,389	1,188,572	1,236,293
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.29%	8.27%	8.32%	8.26%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.76%	2.77%	2.75%
25	Selected					3.16%	2.99%	2.88%	2.76%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

27	C. Equity in Unearned Premium						
28	8. Net Unearned Premium	468,613	506,193	525,358	546,685	568,420	591,132
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,245	420,094	447,430	464,051	490,480
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	14,951	14,921	15,549	16,168
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,989	77,297	82,327	85,385	90,248
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,310	3,242	(7,884)	(6,575)	(15,774)
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,624	31,896	33,197	34,560
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,179	27,382	31,896	33,197	34,560
38	Change	2,363	(20,876)	16,204	4,514	1,301	1,362
39	18. Premium Deficiency [c]	8,845	-	-	7,884	6,575	15,774
40	Change	2,001	(8,845)	-	7,884	(1,309)	9,199

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 62n

Adverse Scenario #21 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	117	(0)	0	(1)
3	Marketable Bonds	44,259	50,757	51,234	51,392	52,799
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,273	75,235	73,299	71,243	70,491
6	Dividend and other Income					
7	Canadian Equities	9,657	6,370	5,023	4,837	4,986
8	Global	4,218	6,693	5,458	5,325	5,476
9	Global LV	-	3,326	3,352	3,298	3,230
10	Private Debt	-	3,558	9,533	9,583	9,626
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,135	1,182	1,249	1,318
13	Total	20,287	23,008	27,060	26,744	26,949
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(38,202)	88,660	87,440	(14,235)	2,352
16	Marketable Bonds Realized Gains/(Loss)	13,969	47,268	21,556	14,235	(2,352)
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(157)	(1,368)	433	0
19	Global Equities Realized Gains	66,318	185	(126)	526	510
20	Global LV Realized Gains	-	49	13	575	-
21	Real Estate (Pooled Fund)	16,307	5,598	5,842	6,192	6,564
22	Infrastructure	5,765	4,447	4,633	4,893	5,167
23	Total	133,380	146,049	117,989	12,619	12,241
24	Other					
25	Investment Fees Paid	(5,203)	(4,884)	(4,783)	(4,874)	(4,955)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,386)	(2,335)	(12,574)	(14,728)	(14,361)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,030)	(21,091)	(31,670)	(34,359)	(34,523)
30	Total Corporate Investment Income	199,910	223,200	197,719	76,247	75,158
31	Total Basic Investment Income	171,428	195,608	168,322	61,462	59,434
32	% - Basic to Total Investment Income	85.75%	88%	85%	81%	79%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(551)	(974)	5,118	5,565
35	US Equities Unrealized Gains/(Losses)	7,537	88	(94)	7,947	8,172
36	Global LV Unrealized Gains/(Losses)	-	147	66	4,503	4,410
37	Total Corporate Unrealized Gains/(Losses)	19,651	(464)	(1,068)	13,065	13,737
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,760.8	1,783.9	1,986.4	2,214.0	2,326.4
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.2	150.5	165.8	142.5	159.3
43	Global Equities	166.6	197.2	214.7	192.1	205.2
44	Global LV Equities	96.5	125.8	138.6	116.3	129.0
45	Private Debt	-	188.7	199.7	199.7	199.7
46	Real Estate	133.5	138.0	143.9	150.7	161.7
47	Infrastructure & Venture Capital	78.3	82.7	87.4	92.3	97.4
48	Total Ending Asset Values	2,928.3	3,189.6	3,413.4	3,539.8	3,665.1
49	Total Basic Assets	2,530.3	2,740.7	2,880.4	2,934.0	2,979.2
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.1%	55.9%	58.2%	62.5%	63.5%
53	MUSH	19.4%	16.4%	14.0%	12.2%	10.5%
54	Canadian Equities	4.2%	4.7%	4.9%	4.0%	4.3%
55	US Equities	5.7%	6.2%	6.3%	5.4%	5.6%
56	Global LV	3.3%	3.9%	4.1%	3.3%	3.5%
57	Private Debt	0.0%	5.9%	5.9%	5.6%	5.4%
58	Real Estate	4.6%	4.3%	4.2%	4.3%	4.4%
59	Infrastructure & Venture Capital	2.7%	2.6%	2.6%	2.6%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 63a

Updated Base Scenario #22

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,845	25,370	27,187	29,154	31,315
12	Total Earned Revenues	881,417	927,893	982,992	1,063,252	1,122,250	1,165,826	1,213,822	1,263,546
13	Net Claims Incurred	742,604	869,023	783,040	823,258	902,134	937,111	995,327	1,051,242
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(44,539)	(18,716)	655	11,121	9,453
15	Total Claims Incurred	666,404	860,035	767,239	778,719	883,417	937,766	1,006,448	1,060,695
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	138,974	144,051	146,529
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,794	12,974	13,253
18	Total Claims Costs	798,045	993,537	923,722	929,493	1,031,352	1,089,534	1,163,473	1,220,477
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,195	79,859	82,781
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,536	166,437	172,704
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(17,826)	(62,989)	(83,244)	(116,087)	(129,635)
26	Investment Income	48,476	101,645	111,731	192,131	87,044	92,631	96,915	100,373
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	(24,528)	(7,424)	4,473	2,029
28	Net Investment Income	(4,038)	82,897	116,320	163,818	62,515	85,206	101,387	102,402
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	16,226	(5,812)	(8,079)	(6,648)	(7,424)

Appendix 63b
Updated Base Scenario #22
Statement of Changes in Equity

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,967	316,493	318,456	303,756
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,992	(474)	1,963	(14,700)	(27,233)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(44,174)	(34,986)	(24,784)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	7,937	9,188	10,202	11,214
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
11	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,967	316,493	318,456	303,756	276,523
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,856	272,319	283,470	278,972	262,953

Appendix 63c
Updated Base Scenario #22
Balance Sheet

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	47,134	36,299	19,279	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,860	2,544,598	2,646,458	2,767,091	2,874,836
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	19,193	14,042	20,031	16,675	9,761
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,182	61,202	63,236
14		2,683,473	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	356,990	372,677	389,271	405,961
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,771	1,865,964	1,934,073	2,010,737	2,084,197
23		2,452,472	2,624,484	2,705,292	2,765,090	2,852,555	2,962,957	3,084,134	3,202,656
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,967	316,493	318,456	303,756	276,523
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(44,174)	(34,986)	(24,784)	(13,570)
27	Total Equity	231,003	181,000	210,845	264,856	272,319	283,470	278,972	262,953
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,946	3,124,874	3,246,428	3,363,106	3,465,609

Appendix 63d
Updated Base Scenario #22
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	221,201	225,199	224,288	217,770	199,717
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	221,201	225,199	224,288	217,770	199,717
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	97,925	101,900	105,951	110,185
12	Unpaid claims	22	191,221	197,031	204,518	212,902	221,010
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	294,956	306,418	318,853	331,195
16	Market Risk:						
17	Interest rate risk	30	6,468	21,726	25,600	29,355	34,758
18	Foreign exchange risk	32	15,640	15,260	16,262	17,838	20,919
19	Equity risk	34	69,313	67,256	71,783	79,552	84,976
20	Real estate risk	36	25,983	26,899	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,404	131,141	141,244	155,278	170,690
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,383	60,210	62,400	63,916	65,125
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,383	60,210	62,400	63,916	65,125
28	Operational risk margin	50	64,552	69,195	72,353	75,892	79,568
29	Less: Diversification credit	52	53,910	61,979	65,356	69,428	73,655
30	Total Capital (Margin) Required at Target	59	453,309	493,523	517,059	544,511	572,923
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,206	329,016	344,706	363,008	381,949
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,206	329,016	344,706	363,008	381,949
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,005)	(103,817)	(120,418)	(145,238)	(182,232)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.20%	68.45%	65.07%	59.99%	52.29%

Appendix 63e
Updated Base Scenario #22
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	469,623	502,881	538,540	576,752
3	Comprehensive	69,497	99,932	105,457	111,606	118,147	124,996
4	Property Damage	48,647	46,838	48,474	50,174	51,942	53,777
5	Public Liability - BI	4,680	5,009	5,148	5,245	5,342	5,409
6	PIPP	187,022	169,153	193,250	212,124	223,369	224,650
7	Total	726,240	759,725	821,952	882,030	937,339	985,583
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	2,914	5,537	6,918	6,630
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,605)	6,180	(4,722)	4,653	8,272
13	Total Net Claims Incurred	767,240	778,719	883,418	937,767	1,006,447	1,060,694

Appendix 63f

Updated Base Scenario #22

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	73.03%	74.07%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9427	0.9522	0.9663	1.0030	1.0148					
9	2020				0.9522	0.9667	1.0037	1.0159	1.0115				
10	2021					0.9766	1.0124	1.0230	1.0169	1.0132			
11	2022						1.0186	1.0289	1.0222	1.0180	1.0134		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.02%
15	2019			77.08%	77.46%	72.08%	73.47%	74.11%				74.89%	79.09%
16	2020				77.45%	72.10%	73.53%	74.20%	74.93%			74.22%	78.37%
17	2021					72.84%	74.16%	74.72%	75.33%	76.00%		74.73%	79.03%
18	2022						74.62%	75.14%	75.72%	76.36%	77.05%	75.74%	80.15%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.25%	8.27%	8.22%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.75%	2.76%	2.74%		
25	Selected					3.16%	2.99%	2.88%	2.76%	2.75%	2.75%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,499	409,571	422,404	442,958	467,420		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,870	15,434	16,023		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,852	75,361	77,722	81,504	86,005		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	19,193	14,042	20,031	16,675	9,761		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,295	16,476	11,754	16,407	24,679		
38	Change					2,363	(21,760)	6,180	(4,722)	4,653	8,272		
39	18. Premium Deficiency [c]					8,845	-	-	-	-	-		
40	Change					2,001	(8,845)	-	-	-	-		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 63g

Updated Base Scenario #22

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	259	135	0	0	0
3	Marketable Bonds	44,245	55,517	63,687	69,947	76,032
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,264	80,013	85,752	89,798	93,725
6	Dividend and other Income					
7	Canadian Equities	9,657	5,675	4,509	5,224	5,711
8	Global	4,218	5,958	4,843	5,540	5,968
9	Global LV	-	2,881	3,193	3,661	4,018
10	Private Debt	-	3,873	10,338	10,321	10,308
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,288	21,449	26,578	28,448	29,637
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,800)	(51,139)	(7,824)	2,711	578
16	Marketable Bonds Realized Gains/(Loss)	11,781	25,389	(40)	2,026	1,546
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	2,659	0	0	747
19	Global Equities Realized Gains	66,319	3,761	0	0	889
20	Global LV Realized Gains	-	459	-	-	908
21	Real Estate (Pooled Fund)	16,307	5,603	5,847	6,198	6,570
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	(8,818)	2,619	15,831	16,407
24	Other					
25	Investment Fees Paid	(5,204)	(4,706)	(4,555)	(4,835)	(5,034)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	5,796	7,626	7,682	7,391
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(12,782)	(11,242)	(11,910)	(12,850)
30	Total Corporate Investment Income	191,042	78,800	102,766	122,681	127,153
31	Total Basic Investment Income	163,818	62,515	85,206	101,387	102,402
32	% - Basic to Total Investment Income	85.75%	79%	83%	83%	81%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	6,724	4,771	5,528	6,373
35	US Equities Unrealized Gains/(Losses)	7,538	9,289	7,228	8,268	8,906
36	Global LV Unrealized Gains/(Losses)	-	4,193	4,359	4,999	5,487
37	Total Corporate Unrealized Gains/(Losses)	19,652	16,013	11,999	13,796	15,280
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,704.4	1,846.5	1,990.6	2,149.3
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	127.9	145.4	168.7	184.2
43	Global Equities	166.7	167.1	188.1	215.5	234.8
44	Global LV Equities	96.6	114.2	128.6	147.7	158.1
45	Private Debt	-	187.7	186.8	187.3	187.5
46	Real Estate	133.6	138.1	144.0	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.5	3,045.1	3,203.9	3,385.2	3,559.5
49	Total Basic Assets	2,522.7	2,605.3	2,696.3	2,800.1	2,890.1
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	56.0%	57.6%	58.8%	60.4%
53	MUSH	19.5%	17.2%	14.9%	12.8%	10.9%
54	Canadian Equities	4.2%	4.2%	4.5%	5.0%	5.2%
55	US Equities	5.7%	5.5%	5.9%	6.4%	6.6%
56	Global LV	3.3%	3.8%	4.0%	4.4%	4.4%
57	Private Debt	0.0%	6.2%	5.8%	5.5%	5.3%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.5%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 64a

Adverse Scenario #22

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	78,818	75,780	81,957	82,551
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,456	39,687	5,012	2,312
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,273	115,467	86,969	84,864
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,498	27,297	788	(3,722)

Appendix 64b
Adverse Scenario #22
Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,503	215,245	160,194	126,208
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,585)	(51,918)	(43,575)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,474)	3,667	8,343	9,067
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
11	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372

Appendix 64c
Adverse Scenario #22
Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	18,075	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,846	2,582,625	2,694,317	2,772,641	2,836,474
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,001	2,262,398
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,249,978	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,503	215,245	160,194	126,208	70,880
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
27	Total Equity	231,003	181,000	210,845	264,392	159,660	108,276	82,633	36,372
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380

Appendix 64d
Adverse Scenario #22
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	220,737	112,539	49,143	21,521	(26,759)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	220,737	112,539	49,143	21,521	(26,759)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,390	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,582	349,896
16	Market Risk:						
17	Interest rate risk	30	6,468	10,645	11,673	21,389	24,099
18	Foreign exchange risk	32	15,640	16,724	16,100	16,060	16,989
19	Equity risk	34	69,312	75,625	71,135	69,600	74,310
20	Real estate risk	36	25,983	26,898	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,403	129,892	126,507	135,582	145,435
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,338	58,730	61,540	63,505	65,232
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,338	58,730	61,540	63,505	65,232
28	Operational risk margin	50	64,548	69,947	72,480	75,605	79,020
29	Less: Diversification credit	52	53,900	62,304	63,388	66,629	70,135
30	Total Capital (Margin) Required at Target	59	453,269	502,791	520,649	543,645	569,448
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,179	335,194	347,100	362,430	379,632
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,179	335,194	347,100	362,430	379,632
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,442)	(222,655)	(297,957)	(340,909)	(406,391)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.05%	33.57%	14.16%	5.94%	-7.05%

Appendix 64e
Adverse Scenario #22
Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,390	231,659
7	Total	726,240	759,725	946,811	952,787	946,353	992,621
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,386	1,069,302

Appendix 64f

Adverse Scenario #22

Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

Line No.		Accident Year 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Selected Undisc	Selected Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%

B. Actual Data Other Than Losses

Line No.		Fiscal Year 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

Line No.							
28	8. Net Unearned Premium	468,613	506,193	523,661	544,918	566,581	589,219
29	9. Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	390,881	424,368	442,747	458,061	483,538
31	11. Reinsurance PFAD	10	-	-	-	-	-
32	12. Maintenance Expense [a]	13,837	14,989	14,913	14,903	15,518	16,120
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,922	78,084	81,466	84,283	88,971
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,742	(3,478)	(4,089)	(1,290)	(9,420)
36	16. Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,518	31,785	33,082	34,440
37	17. Write Down Deferred Policy Acquisition Expenses [b]	32,055	10,747	30,518	31,785	33,082	34,440
38	Change	2,363	(21,308)	19,771	1,267	1,297	1,358
39	18. Premium Deficiency [c]	8,845	-	3,478	4,089	1,290	9,420
40	Change	2,001	(8,845)	3,478	611	(2,799)	8,130

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 64g

Adverse Scenario #22

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	95	0	0	(1)
3	Marketable Bonds	44,245	53,738	57,653	61,277	64,645
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,194	79,717	81,128	82,337
6	Dividend and other Income					
7	Canadian Equities	9,657	5,723	4,485	4,615	5,066
8	Global	4,218	5,964	4,706	4,840	5,291
9	Global LV	-	2,887	2,837	2,904	3,172
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,397	25,767	26,120	27,235
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	7,796	28,029	(2,082)	2,319
16	Marketable Bonds Realized Gains/(Loss)	11,782	33,272	13,550	7,305	95
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,337)	(4,659)	84	0
19	Global Equities Realized Gains	66,318	(605)	(6,622)	106	0
20	Global LV Realized Gains	-	(99)	(4,068)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,078	36,711	16,577	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,722)	(4,548)	(4,699)	(4,865)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(212)	(1,211)	(1,817)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,612)	(19,073)	(20,667)	(21,889)
30	Total Corporate Investment Income	191,037	132,056	127,849	103,691	102,078
31	Total Basic Investment Income	163,817	117,273	115,467	86,969	84,864
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	83%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	4,882	5,654
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,792)	7,223	7,896
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	3,965	4,330
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,629)	12,105	13,549
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.9	1,872.7	2,037.4	2,166.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.8	145.2	161.2
43	Global Equities	166.7	175.5	175.4	184.2	203.1
44	Global LV Equities	96.6	110.3	110.1	114.4	126.3
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.9	3,350.6	3,496.4
49	Total Basic Assets	2,522.7	2,614.2	2,707.9	2,786.4	2,851.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.8%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.3%	4.3%	4.6%
55	US Equities	5.7%	5.8%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 64h

Adverse Scenario #22 with Management Action

Statement of Operations

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Motor Vehicles	854,170	886,998	955,941	1,019,281	1,054,863	1,098,659	1,143,490	1,190,422
3	Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
4	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
5	Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,114,346	1,159,896	1,206,332	1,254,868
6	Net Premiums Earned								
7	Motor Vehicles	827,703	871,173	922,617	991,058	1,038,403	1,078,400	1,122,752	1,168,712
8	Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
9	Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
10	Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231
11	Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,296	27,020	28,878	30,910
12	Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,122,175	1,165,659	1,213,546	1,263,141
13	Net Claims Incurred	742,604	869,023	783,040	787,372	1,197,927	1,011,363	1,005,162	1,063,268
14	(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
15	Total Claims Incurred	666,404	860,035	767,239	779,170	1,038,884	1,023,753	1,009,386	1,069,302
16	Claims Expense	118,614	120,972	143,337	137,168	135,259	139,677	145,082	147,485
17	Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,676	12,864	13,080	13,354
18	Total Claims Costs	798,045	993,537	923,722	929,944	1,186,819	1,176,294	1,167,548	1,230,141
19	Expenses								
20	Operating	71,641	72,785	70,201	75,060	73,525	76,541	80,374	83,268
21	Commissions	33,862	35,086	37,378	40,338	42,273	43,834	45,568	47,360
22	Premium Taxes	26,205	27,563	29,143	31,518	33,249	34,509	35,896	37,330
23	Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
24	Total Expenses	135,383	140,323	141,165	151,585	153,886	159,883	166,953	173,191
25	Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(18,289)	(218,531)	(170,518)	(120,955)	(140,192)
26	Investment Income	48,476	101,645	111,731	192,129	78,818	75,780	81,957	82,551
27	(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(28,313)	38,456	39,687	5,012	2,312
28	Net Investment Income	(4,038)	82,897	116,320	163,817	117,273	115,467	86,969	84,864
29	Net Income (Loss)	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
30	Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(20,110)	197,498	27,297	788	(3,722)

Appendix 64i

Adverse Scenario #22 with Management Actior

Statement of Changes in Equity

Line No.	*(C$ 000s, except where noted)*	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	Retained Earnings								
2	Beginning Balance	177,818	194,498	99,251	170,975	316,503	215,245	160,194	126,208
3	Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	145,528	(101,258)	(55,051)	(33,986)	(55,328)
4	Premium Rebate	-	-	-	-	-	-	-	-
5	Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	-	-	-	-	-
6	Total Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
7	Total Accumulated Other Comprehensive Income								
8	Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(55,585)	(51,918)	(43,575)
9	Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	(3,474)	3,667	8,343	9,067
10	Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
11	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
12	Total Equity								
13	Rate Stabilization Reserve								
14	Retained Earnings	194,498	99,251	170,975	316,503	215,245	160,194	126,208	70,880
15	Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
16	Total Rate Stabilization Reserve	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372
17	Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
18	Total Equity Balance	231,002	181,000	210,845	264,392	159,660	108,276	82,633	36,372

Appendix 64j

Adverse Scenario #22 with Management Action

Balance Sheet

Line No.	(C$ 000s, except where noted)	For the Years Ended February,							
		2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
1	BASIC								
2	Assets								
3	Cash and investments	29,114	61,606	72,998	28,914	18,075	-	-	-
4	Equity investments	2,083,349	2,189,534	2,272,545	2,479,846	2,582,625	2,694,317	2,772,641	2,836,474
5	Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
6	Due from other insurance companies	25	16	2	-	-	-	-	-
7	Accounts receivable	375,262	355,389	389,900	354,564	367,382	381,909	396,764	412,302
8	Prepaid expenses	-	-	-	-	-	-	-	-
9	Deferred policy acquisition costs	4,782	-	-	18,742	-	-	-	-
10	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
11	Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
12	Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
13	Deferred development costs	65,414	72,866	55,423	43,654	47,120	59,132	61,112	63,131
14		2,683,473	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380
15	Liabilities								
16	Due to other insurance companies	152	147	141	144	144	144	144	144
17	Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
18	Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
19	Unearned premiums and fees	453,389	472,041	508,089	547,303	568,147	593,060	618,683	645,607
20	Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
21	Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
22	Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,814,770	1,972,546	2,099,512	2,176,001	2,262,398
23		2,452,472	2,624,484	2,705,292	2,765,089	2,960,141	3,129,631	3,249,978	3,381,008
24	Equity								
25	Retained earnings	194,499	99,251	170,975	316,503	215,245	160,194	126,208	70,880
26	Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(55,585)	(51,918)	(43,575)	(34,508)
27	Total Equity	231,003	181,000	210,845	264,392	159,660	108,276	82,633	36,372
28	Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,029,481	3,119,801	3,237,906	3,332,611	3,417,380

Appendix 64k
Adverse Scenario #22 with Management Action
Minimum Capital Test

Line No.	*(All figures in $000s)*		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
1	Capital Available:						
2	Capital available (from page 30.62 - capital available)	01	220,737	112,539	49,143	21,521	(26,759)
3	Phase-in of capital available	03	0	0	0	0	0
4	Total Capital Available	09	220,737	112,539	49,143	21,521	(26,759)
5	Assets Available:						
6	Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
7	Phase-in of net assets available	13	0	0	0	0	0
8	Total Net Assets Available	19	0	0	0	0	0
9	Capital (Margin) Required at Target:						
10	Insurance Risk:						
11	Premium liabilities	20	94,659	98,576	102,665	106,192	111,946
12	Unpaid claims	22	191,221	207,950	220,845	229,390	237,950
13	Catastrophes	24	0	0	0	0	0
14	Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
15	Subtotal: Insurance risk margin	29	285,880	306,526	323,510	335,582	349,896
16	Market Risk:						
17	Interest rate risk	30	6,468	10,645	11,673	21,389	24,099
18	Foreign exchange risk	32	15,640	16,724	16,100	16,060	16,989
19	Equity risk	34	69,312	75,625	71,135	69,600	74,310
20	Real estate risk	36	25,983	26,898	27,599	28,533	30,037
21	Other market risk exposures	38	0	0	0	0	0
22	Subtotal: Market risk margin	39	117,403	129,892	126,507	135,582	145,435
23	Credit Risk:						
24	Counterparty default risk for balance sheet assets	40	39,338	58,730	61,540	63,505	65,232
25	Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
26	Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
27	Subtotal: Credit risk margin	49	39,338	58,730	61,540	63,505	65,232
28	Operational risk margin	50	64,548	69,947	72,480	75,605	79,020
29	Less: Diversification credit	52	53,900	62,304	63,388	66,629	70,135
30	Total Capital (Margin) Required at Target	59	453,269	502,791	520,649	543,645	569,448
31	Minimum Capital (Margin) Required (line 59 / 1.5)	60	302,179	335,194	347,100	362,430	379,632
32	Phase-in of Capital (Margin) Required	62	0	0	0	0	0
33	Total Minimum Capital (Margin) Required	69	302,179	335,194	347,100	362,430	379,632
34	Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(81,442)	(222,655)	(297,957)	(340,909)	(406,391)
35	MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	73.05%	33.57%	14.16%	5.94%	-7.05%

Appendix 64l

Adverse Scenario #22 with Management Action

Net Claims Incurred Summary

Line No.	(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Claims Incurred before Financial Provisions						
2	Collision	415,906	438,793	502,291	489,509	538,746	576,808
3	Comprehensive	69,497	99,932	112,591	131,638	117,917	124,975
4	Property Damage	48,647	46,838	49,741	49,423	51,957	53,785
5	Public Liability - BI	4,680	5,009	8,424	3,967	5,343	5,394
6	PIPP	187,022	169,153	273,764	278,251	232,390	231,659
7	Total	726,240	759,725	946,811	952,787	946,353	992,621
8	Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
9	Change in Internal Loss Adjustment Expense Provision	(2,219)	(537)	16,453	14,167	6,998	6,983
10	Change in Reinsurance Ceded Provisior	(676)	0	0	0	0	0
11	Other Financial Adjustments	(2,722)	0	0	0	0	0
12	Change in DPAC / Premium Deficiency Provision	4,364	(30,153)	23,249	1,878	(1,502)	9,488
13	Total Net Claims Incurred	767,240	779,170	1,038,885	1,023,753	1,009,386	1,069,302

Appendix 64m

Adverse Scenario #22 with Management Action

Deferred Policy Acquisition Expenses and Premium Deficiency

Line No.													
1	A. Claims (Including External Adjustment Expense) Data												
2		Accident Year										Selected	Selected
3		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
4	1. Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	79.38%	75.81%	75.01%	76.03%		
5	2. Trend/Rate Adjustment for Fiscal Year												
6	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
7	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
8	2019			0.9596	0.9657	0.9763	1.0095	1.0176					
9	2020				0.9710	0.9817	1.0151	1.0233	1.0147				
10	2021					0.9909	1.0241	1.0317	1.0224	1.0155			
11	2022						1.0289	1.0370	1.0282	1.0217	1.0150		
12	3. Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
13	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
14	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.10%
15	2019			78.46%	78.55%	72.82%	73.95%	80.78%				76.99%	81.95%
16	2020				78.98%	73.23%	74.36%	81.23%	76.92%			76.76%	82.15%
17	2021					73.91%	75.02%	81.89%	77.51%	76.17%		76.23%	81.72%
18	2022						75.37%	82.32%	77.95%	76.64%	77.17%	77.25%	82.92%
19	B. Actual Data Other Than Losses												
20		Fiscal Year											
21		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
22	4. Net Earned Premium	764,671	803,881	861,065	907,145	960,142	1,039,407	1,096,879	1,138,639	1,184,668	1,232,231		
23	5. Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.30%	8.29%	8.32%	8.27%		
24	6. Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.77%	2.76%	2.77%	2.76%		
25	Selected					3.16%	2.99%	2.88%	2.77%	2.77%	2.76%		
26	7. ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%		
27	C. Equity in Unearned Premium												
28	8. Net Unearned Premium					468,613	506,193	523,661	544,918	566,581	589,219		
29	9. Additional Expected Cost of Non-Proportional Reinsurance					5,598	5,710	5,824	5,941	6,059	6,059		
30	10. Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]					383,468	390,881	424,368	442,747	458,061	483,538		
31	11. Reinsurance PFAD					10	-	-	-	-	-		
32	12. Maintenance Expense [a]					13,837	14,989	14,913	14,903	15,518	16,120		
33	13. Internal Loss Adjustment Expense [Sheet 1, Row 11]					70,595	71,922	78,084	81,466	84,283	88,971		
34	14. Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement					3,950	3,950	3,950	3,950	3,950	3,950		
35	15. Equity in Unearned Premium [(8) - Sum((9) to (14))]					(8,845)	18,742	(3,478)	(4,089)	(1,290)	(9,420)		
36	16. Carried Deferred Policy Acquisition Expenses					32,055	29,489	30,518	31,785	33,082	34,440		
37	17. Write Down Deferred Policy Acquisition Expenses [b]					32,055	10,747	30,518	31,785	33,082	34,440		
38	Change					2,363	(21,308)	19,771	1,267	1,297	1,358		
39	18. Premium Deficiency [c]					8,845	-	3,478	4,089	1,290	9,420		
40	Change					2,001	(8,845)	3,478	611	(2,799)	8,130		

41 Notes:

42 [a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

43 [b] Min((16) - (15), (16)) if greater than 0, otherwise 0

44 [c] Negative of (15) if greater than 0, otherwise 0

Appendix 64n

Adverse Scenario #22 with Management Action

Summary of Corporate Investment Income

Line No.		2018/19	2019/20	2020/21	2021/22	2022/23
				Forecasted		
1	Interest Income During Period					
2	Cash/Short Term Investments	255	95	0	0	(1)
3	Marketable Bonds	44,245	53,738	57,653	61,277	64,645
4	MUSH	26,759	24,361	22,065	19,852	17,693
5	Total	71,259	78,194	79,717	81,128	82,337
6	Dividend and other Income					
7	Canadian Equities	9,657	5,723	4,485	4,615	5,066
8	Global	4,218	5,964	4,706	4,840	5,291
9	Global LV	-	2,887	2,837	2,904	3,172
10	Private Debt	-	3,761	10,045	10,061	10,075
11	Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
12	Infrastructure	1,472	1,136	1,183	1,249	1,319
13	Total	20,287	21,397	25,767	26,120	27,235
14	Gains During Period - Profit & Loss					
15	Marketable Bonds Unrealized Gains/(Loss)	(44,799)	7,796	28,029	(2,082)	2,319
16	Marketable Bonds Realized Gains/(Loss)	11,782	33,272	13,550	7,305	95
17	MUSH	-	-	-	-	-
18	Canadian Equities Realized Gains	69,223	(2,337)	(4,659)	84	0
19	Global Equities Realized Gains	66,318	(605)	(6,622)	106	0
20	Global LV Realized Gains	-	(99)	(4,068)	72	-
21	Real Estate (Pooled Fund)	16,307	5,602	5,847	6,198	6,569
22	Infrastructure	5,765	4,449	4,636	4,895	5,169
23	Total	124,596	48,078	36,711	16,577	14,152
24	Other					
25	Investment Fees Paid	(5,204)	(4,722)	(4,548)	(4,699)	(4,865)
26	Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
27	Amortization on Marketable Bonds (Prem) / Discount	(6,461)	2,982	(212)	(1,211)	(1,817)
28	Investment Write-Down	-	-	-	-	-
29	Total	(25,105)	(15,612)	(19,073)	(20,667)	(21,889)
30	Total Corporate Investment Income	191,037	132,056	127,849	103,691	102,078
31	Total Basic Investment Income	163,817	117,273	115,467	86,969	84,864
32	% - Basic to Total Investment Income	85.75%	89%	90%	84%	83%
33	Equity Unrealized Gains/(Losses)					
34	Canadian Equities Unrealized Gains/(Losses)	12,114	(3,158)	(3,838)	4,882	5,654
35	US Equities Unrealized Gains/(Losses)	7,537	(3,436)	(3,792)	7,223	7,896
36	Global LV Unrealized Gains/(Losses)	-	(1,895)	(2,273)	3,965	4,330
37	Total Corporate Unrealized Gains/(Losses)	19,651	(6,594)	(7,629)	12,105	13,549
38	Ending Asset Values for Corporate ($Millions)					
39	Cash/Short Term Investments	-	-	-	-	-
40	Canadian Fixed Income	1,751.6	1,688.9	1,872.7	2,037.4	2,166.0
41	MUSH	569.3	522.8	477.0	432.3	386.3
42	Canadian Equities	123.3	139.0	138.8	145.2	161.2
43	Global Equities	166.7	175.5	175.4	184.2	203.1
44	Global LV Equities	96.6	110.3	110.1	114.4	126.3
45	Private Debt	-	188.8	193.5	194.0	194.3
46	Real Estate	133.6	138.1	143.9	150.8	161.8
47	Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
48	Total Ending Asset Values	2,919.4	3,046.1	3,198.9	3,350.6	3,496.4
49	Total Basic Assets	2,522.7	2,614.2	2,707.9	2,786.4	2,851.7
50	Ending Rebalanced Allocations (%)					
51	Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
52	Canadian Fixed Income	60.0%	55.4%	58.5%	60.8%	62.0%
53	MUSH	19.5%	17.2%	14.9%	12.9%	11.0%
54	Canadian Equities	4.2%	4.6%	4.3%	4.3%	4.6%
55	US Equities	5.7%	5.8%	5.5%	5.5%	5.8%
56	Global LV	3.3%	3.6%	3.4%	3.4%	3.6%
57	Private Debt	0.0%	6.2%	6.0%	5.8%	5.6%
58	Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
59	Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.8%	2.8%
60	Total	100.0%	100.0%	100.0%	100.0%	100.0%

Information Technology, Physical Damage Reengineering, and Value Management

October 2018

Manitoba Public Insurance

Agenda

1) IT Strategy
2) IT Scorecard
3) IT Staffing Strategy
4) 2018/19 IT Capital Budget
5) Value Management
6) PDR & CCRS

Information Technology

Brad Bunko

Vice President IT, Business Transformation & CIO

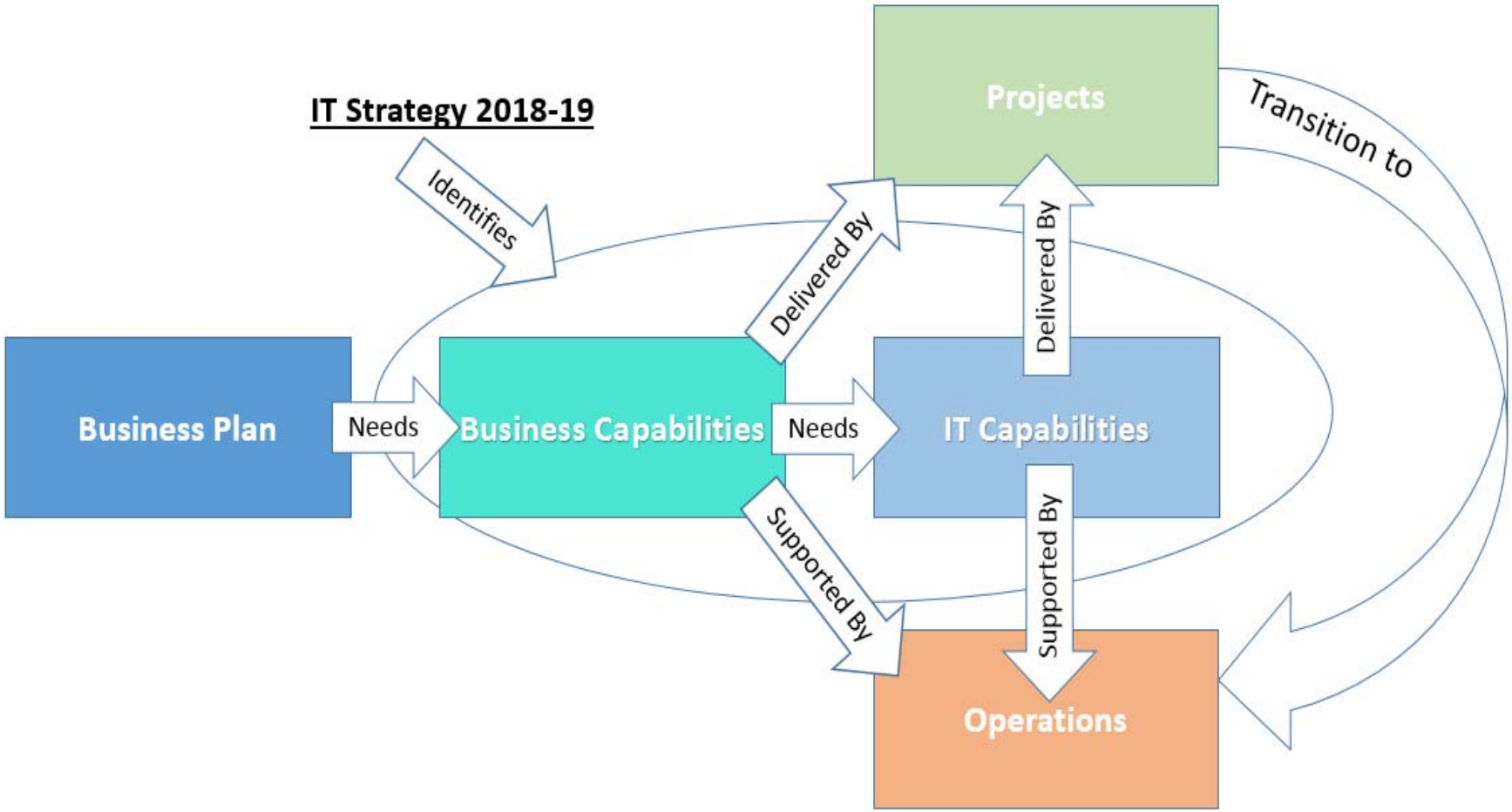
October 2018

Manitoba Public Insurance

IT Strategy: Overview

- The IT Strategy connects strategy and action at MPI
- The IT strategy was created in Q1 – 2018/19 leveraging the MPI business plan, and guidance from the Board of Directors
- The IT strategy focuses on the 2018/19 fiscal year, and provides guidance for future years. The IT strategy will be updated annually
- The outcome of the Legacy Modernization assessment will have a significant impact on the next IT Strategy

IT Strategy: Executive Summary



IT Strategy – Path Forward

Where we were…	Where we're headed…
Leaders in creating innovation	Adopt proven mainstream technology
Executed High risk projects	Identify all risks prior to project initiation and incorporate into project decision
Project Governance with non-business project sponsor for all projects	Project sponsor is the Operational Business Champion,
Customize out of the box software to suit our processes	Align, wherever possible, our processes to industry best practices that is incorporated in vendor provided software
Candidate projects were not vetted through a detailed value management process	Value management discipline becomes engrained in MPI process and culture
Technology driven change within the organization	IT capabilities are created to support Business Capabilities

IT Scorecard

What is the IT Scorecard?

- Formerly called the CIO Scorecard, now called IT Scorecard (By Gartner)
  - Independent assessment of MPI's IT progress and peer comparison

How MPI Uses the IT Scorecard

- MPI uses results to continuously improve.
- Targets for action and progress to plan is provided annually.
- Results are reflected in improvements to process maturity

MPI Performance

- Improving over time, and moving closer to the peer group in several key areas:
  - MPI's IT Spend as a % of Operating Expense (decreased 7.1% over 5 years)
  - MPI's IT maturity growing (3.9% over 5 years)

IT Staffing Strategy

Objective: More effective use of in-house vs. external contractors for IT

- **Target:**
  - Positions: 27 between 2016/17 and 2019/20
  - Savings: $2.4 million in annual savings

- **Actual:**
  - Positions: 20 positions have been transitioned
  - Savings: Between $2.4 and $3.0 million in annual savings (at completion)

Manitoba Public Insurance

2018/19 Financial Year Capital Projects

Project Name	2018/19 Capital Budget
Technology Risk Management	$ 4,500,000
Legacy Systems Modernization	$ 2,000,000
High School Driver Education Phase 3	$1,900,000
Customer Self-Service – Phase 1	$ 1,500,000
BI3/Fineos Upgrade 2020	$ 1,257,000
Credit Card Strategy	$ 1,000,000
Finance Re-engineering	$ 500,000

Value Management, PDR and CCRS

Curtis Wennberg
Vice President, Customer Service & COO

October 2018

Manitoba Public Insurance

Value Management

- All big projects go through expected rigor with all costs and all benefits as any normal business.
- Value management checkpoint is now engrained in the process
  - E.g. High School Driver's Education
- Not all business cases may reach positive NPV and yet still proceed for non-monetary reasons (eg compliance, business continuity)
- Even daily operational decision and/or industry partnership agreements require business acumen to proceed

PDR and CCRS Review

Context

- Board of Directors requested new NPV analysis from Executive
- Preliminary NPV on PDR delivered to Board of Directors in Feb 2018

Updated NPV on PDR: $13 million NPV down to -$53 million

CCRS Implications

- Executive recommended further review of CCRS go/no-go for April 2018
- Cancellation of CCRS April 2018
  - Open, multi-team review of strategic issues with CCRS

PDR and CCRS – Lessons Learned

1. Corporate culture and tone from the top is essential for integrity of project budgets, and post implementation reviews
2. Must stay open to revisiting weak assumptions
3. Third parties may not find all the weak assumptions or missing costs
4. MPI executive management has to be accountable for NPV integrity
5. Don’t need new technical skills to correct this historical issue at MPI

Summary

- Updated IT Strategy is aligned with our corporate mission
- Performance on IT is improving relative to our peers
- We've made some mistakes when it comes to managing large IT projects
- Our new Value Management Process is operational and has provided more industry standard approaches and results
- Legacy Modernization is underway and we're prepared to deliver

PDR Program Evaluation.

Presenter Name: Charles (Chuck) Henry
28/08/2019

Prepared for: Manitoba Public Insurance

Project Number: 330050285 Version #3

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Table of Contents

- Context and Background
- Team and Approach
- PDR History and Current State
- Comparison between 2017 and 2018
- Gartner Lessons Learned
- Gartner's View of MPI's CCRS Cancellation Decision
- Gartner Perspective 1: IT Project Success
  - Elements of IT project success gathered from our Project database
  - Observations for MPI
- Gartner Perspective 2: Digitalization of P&C

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Gartner

Context and Background

- Gartner has worked with MPI for over 7 years providing research and advisory insights to assist MPI in benchmarking the IT organization vs. peers and helping with the application of our PPM (Program and Portfolio Management) research to MPI
- In the last year, MPI has contracted Gartner to conduct an assessment of the PDR program as follows:
  - The PUB ordered that in the 2019 GRA, the Corporation shall file an update, prepared by Gartner, to its 2017 PDR report.
  - The 2017 Order required … *an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project.*

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Team

- Gartner assigned additional senior resources to conduct the updated assessment.
  - Team Lead: Charles (Chuck) Henry, Vice President, Solution and Pricing.
  - Supported by the established Gartner team that conducted the review in 2017.
- Chuck Henry
  - Chuck is a Vice President with Gartner Consulting with over 40 years of executive and consulting experiences in both public and private sector organizations.
  - From 2013 to 2015 Chuck was the Senior Managing Partner responsible for Gartner's consulting relationship with the Canadian Federal Government and Crown Corporations. Engagements included:
    - Project Reviews of Major Crown projects (i.e. over $100 Million in spend)
    - Development of the Cloud Strategy for the Government of Canada
    - Development of a digital maturity model for Service Canada (the "front door" to many Federal Government programs)
    - Development of the Government of Canada's Application Program management model (based on Gartner's T.I.ME. methodology).
  - From 2005 to 2009 Chuck was the Chief Technology Officer (CTO) of the Government of Canada Chuck and provided management oversight for the approximately $5 Billion per year of IT spend by the Government of Canada.
  - Prior to the Government, Chuck spent 30 years at IBM Canada as a Systems Engineer and Executive Consultant.

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Evaluation Approach

- Review of Key program artifacts:
  - An MPI Management presentation regarding the PDR Program to the MPI Board of Directors (dated April 19, 2018) restating the PDR cost and benefit projections.
  - MPI-generated value management analysis which provided data and analysis supporting the Management analysis and recommendations
  - Project status reports
- Interviews on site at MPI on April 19, 2018
- Ongoing telephone discussions with MPI and the previous team to gather additional documentation and clarify documents and spreadsheets
- Internal discussions with the team the delivered previous evaluations to MPI

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PDR History

- Over the past 5+ years MPI has been on a journey to improve service to Manitobans in three areas:
  1. Physical damage
  2. Loss prevention / road safety
  3. Customer service
- This evolved into a business case for PDR with projections for costs at $65M and the identification of a high level benefits stream. As the program evolved, two conditions developed:
  1. MPI had difficulties measuring/breaking out some of the ongoing costs, especially licensing, due to complex license schemes from vendors and components from multiple vendors being used, and re-used, across multiple projects.
  2. Senior executives led negotiations with the repair industry (savings) and solution vendors (costs) with limited engagement at the business unit level for developing, monitoring and delivering projected benefits. The resulting agreements sometimes limited the business unit's ability to achieve projected benefits.

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PDR Current State

- The overall business case (benefits – costs) has been analyzed and refined by MPI's value management team and the project team over the past year
- MPI management has recently conducted a detailed assessment of:
  - current costs/expenditures to date
  - the balance of the approved available budget
  - a detailed evaluation of the benefits that could be achieved from the expenditure of the remaining funds.
- **They concluded that the benefits to be achieved would not be supported by the cost to achieve them, and they have recommended to the MPI Board of Directors that the CCRS component of the PDR program be cancelled**

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PDR Comparison between 2017 and 2018

Gartner 2017	MPI 2018
NPV +$13.7M	NPV ($49.9M) with CCRS cancelled
Discount Rate 3%	Discount Rate 9.5%
Costs $65M	Costs $57M
Analysis period 2016/17 to 25/26	Analysis Period 2017/18 to 26/27

- **There is a significant difference in some of the costs and the benefits, and the overall Net Present Value (NPV), between the 2017 Gartner report and the 2018 MPI team restatement**. At the highest level there are three factors causing the changes:
  - Some costs that should have been attributed to the PDR Program were not included in the original analysis.
  - New evidence shows that some benefits of the PDR Program are planned to be lower than projected.
  - MPI is using a newly agreed upon risk-based standard discount rate of between 6.5% and 9.5% for NPV calculations to make project investment decisions.

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Gartner Lessons Learned

- Gartner made a number of requests for details regarding operating costs and the benefit projections in 2017 and we reported the costs and benefits stream based on the high level data provided by MPI. In retrospect:
  - **Gartner should have highlighted in the 2017 report that the report conclusions were based on high level numbers that had not been validated through detailed analysis.**
  - Gartner and MPI management have agreed that all analysis going forward will include consideration of detailed supporting data, and if the necessary level of detail is not available, that will be clearly stated.

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Gartner View of CCRS Cancellation Decision

- Gartner has reviewed the latest iteration of the PDR Value Management/Business Case data and related assumptions. It would appear that, in addressing the request from the Board**, MPI has followed the advice provided by Gartner and applied a much more rigorous approach to the PDR business case and application of the value management framework**. The MPI financial analysis is much more detailed, complete, and sophisticated than we have seen in the past. There is a much greater focus on value management and benefits realization which is a key driver for program success.
- **MPI has continued to mature its value management capabilities and is now formally tracking benefits**. This leads to a more holistic, and potentially more conservative, view of benefits than was previously the case due to the higher level of accountability and operational involvement across MPI for achieving the forecasted costs and benefits. We view this as a positive step forward for MPI.
- Gartner's independent analysis, based on the more detailed data available, supports the current value projections. **Gartner supports MPI's decision to terminate the CCRS component of the PDR program** and to finish the few remaining components in 2018/19.

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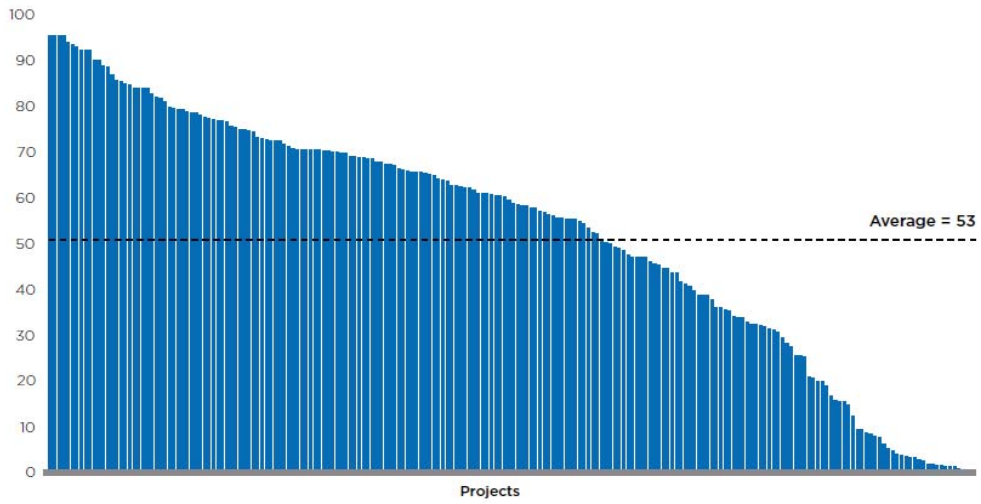
Gartner Perspective 1: IT Project Success

- A review of Gartner's project database shows that even among those projects that are delivered at least 90% on time and on budget, the majority fail to deliver business outcomes.
- The top-performing projects in terms of budget and schedule compliance attain an average of only 53% of their business outcome expectations
- Further: The Harvard Business Review found that one in six technology projects are "black swans" that fail spectacularly, with a cost overrun of 200 percent on average.



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Gartner Perspective 1: Observations for MPI

Continue to invest in Value Management.

- MPI has made significant progress in applying value management principles to its project portfolio. We'd recommend this focus be extended into project management teams and MPI's project management methodology. Specifically we recommend that MPI:
  - Emphasize general management capabilities when selecting a project manager
    - Ensure PMs have stakeholder management training and insights as it is the number one driver of sponsor satisfaction
  - Continue to explicitly link project objectives to organizational goals.
    - A project team and sponsor who can specifically link planned project outcomes to broader organizational goals can continually assess project effectiveness and make earlier and better decisions about changes in scope, timelines, budgets and overall project value.

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Gartner Perspective 1: Observations for MPI

- Further increase the focus of plans to business outcomes.
  - MPI's project resource management plans should include resources at project conception / initiation time that define project success in terms of business outcomes, and ensure there is a matching investment as project phases complete to ensure that benefits are harvested or realized.
    - This requires up front scope to be clear while allowing room for flexibility to manage uncertainties and changes to benefit profiles as the project evolves.
    - The up-front investment should endeavor to create leading indicators of benefits realization and imbed them into project health checks
- Harness the Power of Stakeholders.
  - Expand engagement with stakeholders at project conception and launch. That is the best time to foster collaboration and provide delivery flexibility to match stakeholder needs and constraints.
  - Educate sponsors into the issues they will need to take ownership of, and address, throughout the course of the projects.

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Gartner Perspective 2: Digitalization of P&C Insurance

- Gartner Research indicates that Digitalization is beginning to radically transform the worldwide property and casualty insurance industry.
- Understanding the impact of the most transformational technologies will be difficult for many P&C organizations given the large number of emerging technologies and the budgetary restrictions that are a reality for MPI and most P&C firms.

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Gartner Perspective 2: Digitalization of P&C Insurance

- Gartner sees technology advancing in these area that will affect MPI:
  - Mobility and customer support.
    - MPI's customers are no longer tethered to, nor expect service primarily from, a computer. Instead, they are tied to mobile devices, text messaging and social media.
  - Maturing use cases for Artificial Intelligence (AI).
    - In areas such as claims handling, where combinations of cognitive computing and Chatbot's are supporting touchless claims processing.
  - Continued evolution and adoption of telematics among worldwide auto insurers to support new business models.
    - This includes a growing focus on in-depth analytics, including the use of Internet of Things (IoT) data for behavioral modeling.
  - Greater acceptance of software as a service (SaaS) solutions by P&C insurers for policy administration.
  - Innovation centering on product development, including the development of on-demand insurance products and improvements in customer experience management.

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Undertaking # 3

MPI to provide an explanation for the decrease in Basic's share of income on pension assets from 2019/'20 to 2020/'21

RESPONSE:

The decrease in Basic's share of income on pension assets from 2019/20 to 2020/21 is due to the dynamic (automatic) rebalancing of investment assets within the portfolio from equities to marketable bonds as the equity asset classes were at the maximum weight for three consecutive quarters. This reduction in growth assets results in a lower forecasted investment return.

Undertaking # 4

MPIC to provide a black line version of the transitional investment policy statement.

RESPONSE:

A blacklined version of the Transitional Investment Policy Statement is attached at *Appendix 1*.

13. TRANSITIONAL INVESTMENT POLICY STATEMENT

Table of Contents

POLICY STATEMENT - GOVERNANCE 35

SECTION I – OVERVIEW 38

SECTION II – RESPONSIBILITIES 39

SECTION III – CONFLICT OF INTEREST 41

SECTION IV – LIABILITY CHARACTERISTICS 42

SECTION V – INVESTMENT OBJECTIVES 43

SECTION VI – PERMITTED INVESTMENTS 44

SECTION VII – ASSET ALLOCATION 47

SECTION VIII – INVESTMENT RISK 48

SECTION IX – VOTING RIGHTS 49

SECTION X – MONITORING 50

SECTION XI – WITHDRAWAL POLICY 24

SECTION XII – REVIEW 25

APPENDIX A - DEFINITIONS 26

Purpose

The purpose of this Policy is to provide comprehensive guidelines to the Investment Committee on considerations to be made in dealing with the Corporation's investments. This policy is transitional as the current 70% bond/30% growth asset allocation will be effective until February 28, 2019 and the five new investment portfolios will be effective after February 28, 2019 as a result of the Asset Liability Management study conducted in 2017/18. When the policy is reviewed in April 2019 the current 70% bond/30% growth asset allocation will be removed.

Effective Date

The Investment Policy Statement applies to investment activity on or after July 31, 2018.

Review

To be reviewed annually by the Investment Committee. The next scheduled review will occur in April 2019. The Investment Committee will be required to provide a written report on the results of its review, including assessment of the effectiveness of this Policy and recommendations for revisions.

Approval

This Policy is effective subject to approval by the Minister of Finance and will be applied by the Department of Finance.

General Policy Statement

The Manitoba Public Insurance Corporation Act requires the Corporation to pay to the Minister of Finance (the "Minister") the Corporation's investment assets (the "Fund") to be invested in accordance with The Financial Administration Act. The Minister recognizes that the Corporation has unique investment goals and desires the Department of Finance (the "Department") to work closely and cooperatively with the Corporation in ensuring that this Investment Policy Statement is followed to address both the need and objectives of the Corporation and the Minister, respectively.

The purpose of the five portfolios defined in Section 7.2 (collectively "the Fund") is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in ~~minimizing~~ stabilizing premiums payable by policyholders, in that order.

The Corporation must maintain significant long and short-term investment funds ~~(the "Fund")~~ to ensure satisfaction of its obligations to claimants. These assets must be managed in a manner which will maximize investment returns ~~while minimizing risk in an overall portfolio context~~for an appropriate level of risk. The Fund must also have sufficient liquidity to address all funding needs of the Corporation as they arise.

Total Return includes both the change in the price of a financial asset, over a set period of time, as well as any income or dividends paid by the asset. In a portfolio context, it is the weighted average of the change in price of the various asset classes.

Risk is the uncertainty of future outcomes. In a portfolio context, there is unsystematic risk which can be diversified away and systematic risk which cannot be eliminated. Systematic risk is essentially the risk inherent in securities markets. The minimum acceptable level of risk for the Corporation occurs when its assets have been sufficiently diversified so as to effectively eliminate unsystematic risk. Systematic risk may be controlled by investing in authorized asset classes and through the use of hedging strategies.

The Corporation considers the short-term volatility of premiums to be a primary concern. As such, mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations. The mismatch in the changes in assets and liabilities, as a result of changes in interest rates, is expected to be minimized by defining a narrow bandwidth around the actuarially determined duration of the Corporation's claim liabilities.

It is a statutory requirement that the Corporation, pursuant to the requirements of the Act, pay to the Minister of Finance (the "Minister"), all moneys in any reserves established under Section 18 of the Act and such additional moneys as are not immediately required for the purposes of the Corporation as are available for investment. The moneys paid will be invested in accordance with *The Financial Administration Act.* The Minister has charged the Department of Finance (the "Department") with the operational management of the Fund.

Any investment counsel, advisors or custodians that may be required to advise on the Corporation's investments will be engaged on a basis satisfactory to the Minister where applicable, subject to authorization by the Lieutenant Governor in Council.

The Minister and the Department recognize the need for participation and direction from the Corporation in determining the appropriate policies and strategies and parameters for investment of the Fund including the use of derivatives to mitigate investment risk or create a desired return (where no margin or borrowing is used). Derivatives are not to be used for speculative purposes.

The Investment Committee Working Group reviews the Investment Policy Statement at least once a year.

Statement of Investment Beliefs

The administrators of the Fund believe that:

i. Asset allocation is the most important factor in determining the performance of the Fund.
ii. Market timing at the strategic asset allocation level is generally not an effective strategy for consistently increasing returns.
iii. Identifying, measuring and monitoring risks within the portfolio are important.
iv. The success of active management varies on the efficiency of capital markets.
    a. In inefficient markets, active managers can add value net of fees over the long term.

b. In efficient markets, it is believed that active managers will tend to underperform net of fees over the long term.

v. Passive management may be appropriate to reduce active management risk and cost in both efficient and some inefficient markets.

vi. A liability sensitive approach to investing reduces the Fund's interest rate risk by matching the size and duration of the Corporation's liabilities with fixed income securities.

vii. Over the long-term, equities are expected to provide a return premium over bonds, with higher expected volatility. A meaningful allocation to foreign equities will increase portfolio diversification and thereby decrease portfolio risk while, at the same time, providing the potential for enhanced long-term returns.

viii. MUSH bonds benefit the Corporation without degrading the quality and return of the Fund's investment portfolio, while also benefiting Manitoba residents.

ix. Private debt benefits the Corporation by enhancing and diversifying the return of the Fund's investment portfolio without degrading the quality.

x. Alternative asset classes such as real estate and infrastructure provide income and potential capital growth, and are suited to offset inflation sensitive liabilities.

xi. Cash provides the lowest expected long-term return, and should be held in minimal amounts where possible.

Investment Fund Strategy Statement

The asset allocation contained in the Investment Policy Statement shall be adopted for investments of the Fund.

Equities

Equities include Canadian and foreign securities.

The Working Group shall annually review the risk, return and diversification of the equity holdings in the Fund, and will report the results to the Investment Committee.

Alternative Investments

Alternative Investments may include Canadian Real Estate, Private Equity and Infrastructure.

The Working Group shall annually review the risk, return and diversification of the Canadian Real Estate, Private Equity and Infrastructure holdings in the Fund, and will report the results to the Investment Committee.

Fixed Income

The Working Group shall annually review the risk, return and diversification of the fixed income holdings in the Fund, and will report the results to the Investment Committee.

The Fund's fixed income assets shall be primarily managed in a "buy and hold" strategy subject to changes in the duration of the claims liabilities. When it is advantageous, the Department may trade bonds to take advantage of various bonds that appear undervalued and to take advantage of the changing shape of the yield curve. The Department should not be taking significant actions based on views regarding the future direction of interest rates. Fixed income management will be governed by the accepted duration ranges as defined in section 8.4 of this Investment Policy Statement. The fixed income portfolio shall be diversified amongst federal, Manitoba, other provincial, municipal and corporate issues and also amongst a variety of maturities, and may include allocations to private placements (bonds and debentures) of various maturities to be funded over time.

Gains and Losses

The Corporation will account for gains and losses in accordance with International Financial Reporting Standards (IFRS).

Section I – Overview

1.1 This Investment Policy Statement ("the Statement") applies to the assets held in the Fund ("the Fund") in respect of the liabilities of the Manitoba Public Insurance Corporation ("the Corporation") under the Manitoba Public Insurance Corporation Act ("the Act"). The Statement contains investment objectives, investment guidelines, and monitoring procedures.

1.2 The Fund will be managed in accordance with all applicable legal requirements notwithstanding any indication to the contrary which might be construed from the Statement. The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

1.3 With respect to any portion of the Fund invested in pooled funds, provisions of the Investment Policy Statement of such pooled fund shall prevail over those of the Statement to the extent that they are in conflict.

1.4 Any investment counsel or other agent or advisor providing services in connection with the investment of the Fund shall accept and adhere to this Statement.

Section II – Responsibilities

2.1 The purpose of the Investment Committee ("the Committee"), as appointed by the Board of Directors of the Corporation ("the Board") shall be to assist the Board in:

i) recommending investment policies and strategies to the Board for subsequent consideration by the Minister;

ii) review matters relating to investment activities of the Fund;

iii) providing oversight and monitoring performance of the Fund;

iv) monitor the implementation of investment decisions consistent with policies and strategies approved by the Board; and

v) provide suggestions for consideration by the Working Group.

2.2 In accordance with the Section 12 of the Act, The Minister of Finance is responsible for the investments of the Corporation. Specifically, the Act provides:

INVESTMENTS
12(1) The corporation shall pay to the minister charged with the administration of The Financial Administration Act, for investment for the corporation, moneys in any reserve established under section 18 and such additional moneys as are not immediately required for the purposes of the corporation and are available for investment.

MONEYS TO BE CREDITED TO CORPORATION
12(2) Moneys paid under subsection (1) for investment shall form part of the trust and special division of the Consolidated Fund and may be invested in accordance with The Financial Administration Act, and the interest earnings thereon shall be credited to the account of the corporation in the trust and special division of the Consolidated Fund.

PAYMENT OF EARNINGS
12(3) Any earnings, whether alone or with the principal sum invested for the corporation under this section, or any part thereof, shall be paid over to the corporation by the minister charged with the administration of The Financial Administration Act on the request of the corporation."

RESERVES
18 The corporation shall establish and maintain reserves in such amounts that, at all times, it has sufficient funds to meet all the payments as may come payable under this Act and regulations.

2.3 Investment counsels, advisers and custodians may be hired by the Minister of Finance subject to authorization by the Lieutenant Governor in Council under The Executive Government Organization Act, Section 16 and 16(d) as follows:

AGREEMENTS WITH OTHER AUTHORITIES

16 The Lieutenant Governor in Council may authorize a minister, for and on behalf of the government, or an agency of the government, to enter into an agreement with

(d) any person or group of persons; for the benefit or purposes of the residents of Manitoba or any part thereof."

The Department is charged by the Minister with the operational management of the fund. Duties include establishing legal contracts with investment counsel, providing the Corporation with short term cash and treasury management services, managing the fixed income portfolio and providing input into the Investment Committee Working Group.

The Investment Committee Working Group is a joint committee of the Department and the Corporation. The role of the Investment Committee Working Group is:

a) Act as liaison between the Department and the Investment Committee;

b) Develop strategies for investment exposure for consideration by the Investment Committee and the Department;

c) Review, screen and recommend investment managers;

d) Monitor the performance of investment managers;

e) Prepare draft investment policies and annual strategies for the Fund for review and approval by the Investment Committee and the Department;

f) Implement investment policies and direction with the prior approval and concurrence of the Department;

g) Provide regular reports to the Investment Committee and the Department, as they shall require.

Quorum for the Investment Committee Working Group is met by one of MPI's Vice President, Finance & CFO or the Chief Actuary & Vice President, Product and Risk Management plus the Assistant Deputy Minister from the Department of Finance, or their respective designates in their absence.

MPI's Financial Services Department manages the treasury function of the Corporation in conjunction with the Department of Finance. This department is also responsible for all the accounting requirements of the Fund.

MPI's Investment Department monitors the outside investment counsel for compliance with the Statement and their contracts, works with any outside consultant for investment counsel searches, provides research and analysis on issues discussed by the Working Group, and develops and maintains relationships with members of the investment community and other provincial Crown insurance companies.

Section III – Conflict of Interest

3.1 A conflict of interest, whether actual, potential or perceived, is defined for the purposes of this Statement as any event in which the Corporation, an employee of the Corporation, an employee of the Department performing duties on behalf of the Corporation, any member of the Board or the Committee, any investment counsel or delegate, the Custodian, or any person or company directly related to any of the foregoing, may benefit materially from knowledge of, participation in, or by virtue of, an investment decision or holding of the Fund.

3.2 The Working Group shall satisfy itself that an appropriate policy regarding conflicts of interest exists and is followed by any investment counsel appointed. As a minimum, The Code of Ethics and The Standards of Professional Conduct adopted by the CFA Institute (formerly the Association of Investment Management Research or AIMR) shall be applied to such investment counsel.

3.3 A fiduciary, according to the CFA Institute, is one who holds a position of trust or confidence. A conflict of interest is deemed to exist when a fiduciary has an interest of sufficient substance and proximity to its duties and powers with respect to the Fund to impair its ability to render unbiased advice or to make unbiased decisions affecting the Fund.

3.4 A fiduciary, as described in section 3.3, must immediately disclose any conflict of interest in writing along with all relevant details to the chairperson of the Committee who, in turn, discloses it to all Committee members at the appropriate time.

3.5 No part of the Fund shall be loaned to any member of the Board, the Committee, an employee of the Department performing duties on behalf of the Corporation, or employee of the Corporation or any legal entity owned or controlled by any of the aforementioned. In addition, the Fund may not enter into a transaction with a related party unless:

a. The transaction is required for the operation or administration of the Fund and the terms and conditions of the transaction are not less favourable to the Fund than market terms and conditions; or
b. The securities of the related party are acquired through a public exchange, with the exception of MUSH bonds as noted in section 6.5.

Related party includes any officer, director or employee of the Corporation. It also includes the investment counsels and their employees, a union representing employees of the Corporation, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others.

Section IV – Liability and Retained Earnings Characteristics

4.1 The Corporation is a Manitoba Crown Corporation and is not subject to provincial or federal income taxes.

4.2 The Corporation's liabilities include both short-term and long-term liabilities arising from its insurance business as well as pension liabilities. In its insurance business, short-term liabilities are a result of all perils coverage, which have a short time frame between claim

reporting and claim settlement while long-term liabilities are a result of both PIPP coverage and tort coverage. The long-term nature of PIPP coverage arises mainly from lifetime benefits payable to eligible claimants. Tort coverage has a long-term nature mainly due to long settlement periods, which is a result of the more complicated nature of these claims. The following is a description of liabilities and retained earnings by business line:

4.2.1 **Basic Claims Liabilities** cover universal compulsory automobile insurance for Manitoban drivers. The rates for this coverage are approved by the Public Utilities Board of Manitoba. Obligations are a mix of long-term payments (typically disability claims indexed to inflation – Manitoba CPI), and short-term payments (typically physical damage repairs). Claim liability estimates have risk from mortality, asset liability mismatch, investment returns, technological improvements, and societal/legal factors. These liabilities comprise the great majority of the total business based on net claims incurred. These liabilities are long-term in nature and are subject to significant interest rate risk, while requiring a high level of liquidity to pay claims.

4.2.2 **Rate Stabilization Reserve** represents the Basic Claims investment assets in excess of liabilities, hence does not directly have backing liabilities, yet would transfer to back liabilities in the case of unfavourable Basic Claims experience. The purpose of the assets is to protect motorists from rate increases due to unexpected variances from forecasted results and non-recurring events.

4.2.3 **Special Risk Extension Liabilities** are with respect to an unregulated, competitive insurance line covering fleet insurance claims. These liabilities are short-term in nature, and are not inflation sensitive. Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims.

4.2.4 **Extension Liabilities** are with respect to unregulated, optional policies covering auto insurance claims. These liabilities are short-term in nature, and are not inflation sensitive. Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims.

4.2.5 **Employee Future Benefit Liabilities** are with respect to accrued employee pension, post-retirement and severance benefits for all lines of business in conjunction with MPI's unfunded portion of the Civil Service Superannuation Board of Manitoba ("CSSB") pension obligations. Employee Future Benefit Liabilities are subject to interest rate risk tied to high quality long-term corporate bond yields. These liabilities are long-term in nature and are subject to high interest rate risk.

4.3 The Corporation's cash needs are significant due to the uncertainties in the timing and amount of claims payments. This is offset by the high certainty of future premium income.

4.4 Benefits of the Personal Injury Protection Plan (PIPP) paid by the Corporation are indexed to inflation through the Manitoba consumer price index.

4.5 The assets supporting the Corporation's liability for the employer's portion of the employee's pension liability will no longer be co-mingled with other investments and will have their own asset allocation (see Section 7.2).

4.6 The duration of current liabilities of the Corporation are reviewed and calculated annually by MPI's Pricing and Economics Department.

Section V – Investment Objectives

5.1 To meet the Corporation's liability commitments, both short-term and long-term.

5.2 To maximize investment returns for an appropriate level of risk. Risk can be defined by the standard deviation of returns, the Sharpe Ratio, Value at Risk and other commonly used risk measures for the total MPI portfolio, or any component of the total portfolio, which are compared to the same measures for the relevant index. For more specific information on risk tolerances please see "Schedule B" of the relevant equity manager's contract.

5.3 Risk is also defined as the duration gap (or mismatch) between fixed income assets and claims liabilities. Duration is a measure of the sensitivity of the market value of fixed income assets and liabilities to changes in interest rates. Section 8.4 describes the duration bandwidth that the Corporation applies to manage its interest rate risk.

5.4 Given the different nature of liabilities, the investment objectives and risk tolerances for each portfolio backing the five segments (which are held to back liabilities, retained earnings or a combination of both) is as follows:

5.4.1 **Basic Claims Liabilities:** Objective is to back policyholder claims and ensure funds are available as liabilities come due and to minimize interest rate risk through duration matching. The funds are intended to pursue modest incremental returns while maintaining risk management as a top priority. The fund must maintain sufficient liquidity to support the Basic line of business as required. Physical damage claims are typically settled within one year and are funded by cash from premiums. Payments on PIPP claims made in the short-term (0-12 months) represent approximately 5%-10% of the overall PIPP liability and are funded from a combination of investment income and cash from premiums. The timing and amount of payments beyond 12 months are estimated and long-term investments are held to cover these liabilities.

5.4.2 **Rate Stabilization Reserve:** Objective is to ensure sufficient levels of capital are maintained such that the line of business remains healthy and in an actuarially determined state of satisfactory financial condition. The RSR portfolio must have sufficient capital to withstand plausible adverse events and to deliver rate stability and predictability. Given that there are no specific backing obligations duration management does not apply and the fund's objective is to generate real returns to facilitate stable premium rates. A moderate level of liquidity is required such that funds will be available in the event the Corporation experiences a series of adverse events and resulting financial losses which deteriorate its capital base. The RSR is currently designed to withstand adverse scenarios at the 1-in-40 year probability level

5.4.3 **Special Risk Extension:** Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. SRE claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing SRE contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

5.4.4 **Extension:** Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. Extension claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing Extension contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

5.4.5 **Employee Future Benefits Liabilities:** Objective is to ensure that pension and other obligations are paid as they become due. The duration of the Employee Future Benefits liability will be continually monitored to inform liquidity requirements and constraints of the pension fund. Current durations are such that minimal liquidity is required.

5.5 To protect the portfolio from loss of principal (book value).

5.6 To achieve a time weighted total return, before all investment management fees, at least equal to the following indices and according to the target allocation defined in section 7.1. Passive management strategies are not expected to earn a return above their respective benchmarks. The investment returns achieved by the investment managers will be measured and monitored on rolling four-year and ten-year periods.

Asset Class	Annual Expected Return
Cash and Equivalents	FTSE TMX 91-Day Treasury Bill Index
Canadian Bonds	
Provincial Short-term Bonds	FTSE TMX Short Term Provincial Bond Index
Provincial Mid-term Bonds	FTSE TMX Mid Term Provincial Bond Index
Provincial Long-Term Bonds	FTSE TMX Long Term Provincial Bond Index
Corporate Mid-term Bonds	FTSE TMX Mid Term Corporate Bond Index
Corporate Long-term Bonds	FTSE TMX Long Term Corporate Bond Index
Corporate Bonds	FTSE TMX Corporate Bond Index
Non-marketable (MUSH) Bonds	FTSE TMX Short Term Provincial Bond Index FTSE TMX Mid Term Provincial Bond Index
Private Debt	
Private Debt - Universe	FTSE TMX Universe Bond Index plus 75 bps over a rolling four year period annualized
Private Debt - Long	FTSE TMX Long Term Bond Index plus 50 basis points over a rolling four year period annualized

Canadian Equities	
Large Market Capitalization Equities	S&P/TSX Capped Composite Total Return Index plus 150 basis points over a rolling four year period annualized
Small to Mid Market Capitalization Equities	BMO Small Cap (Unweighted) Blended Index plus 150 basis points over a rolling four year period annualized[a]
Global Equities	
Global Equities	MSCI World Total Return Index plus 150 basis points over a rolling four year period annualized
Low Volatility Equities	MSCI World Total Return Index
Alternative Investments	
Canadian Real Estate	ICREIM/IPD Canadian Property Index
Infrastructure	CPI + 5%

[a] The unweighted index is an equally weighted average of the price of each member. The Blended index includes both equities and income trusts.

Section VI – Permitted Investments

6.1 The Investment Committee supports the Fund's annual commitment to new Manitoba School, Hospital and Municipal bonds and debentures. The Fund's annual commitment will be determined by the Department and reported to the Investment Committee.

6.2 The Investment Committee is committed to support Manitoba enterprise where, on the advice of the Minister of Finance, no degradation in investment yield or grade is evident. This mandate reflects the Investment Committee's commitment for the Fund investments to be socially responsible to Manitoba residents. The benchmark against which no degradation in yield or grade is allowed is defined as the ten-year Government of Canada bond at the time of the investment.

6.3 After meeting the commitments of 6.1 and 6.2, the Fund may only be invested in the following asset categories:

a) cash;

b) demand or term deposits, or similar instruments issued or unconditionally guaranteed by trust companies or banks;

c) short-term notes;

d) treasury bills;

e) bankers' acceptances;

f) commercial paper;

g) bonds and debentures or other debt instruments of government, government agencies, or corporations;

h) private placement bonds and debentures

i) Canadian and foreign publicly traded equities;

j) private equity and venture capital

k) real estate

l) infrastructure

m) pooled funds consisting of assets listed in a) through k) above.

6.4 Cash and equivalent investments include cash and fixed income investments having a maturity of less than one year at the time of purchase.

6.5 Bonds include all fixed income securities having a maturity of one year or more at the time of purchase and include Canada, Manitoba, provincial, municipal, corporate bonds, floating rate notes, and debentures that are tradable in the fixed income market and

Manitoba rural municipality, school division and health care facility bonds and debentures (MUSH bonds) which are not tradable in the fixed income market.

6.6 Private Debt includes investment grade debt covering private corporate debt, infrastructure debt, power & energy debt, real estate debt and other forms of private debt.

6.7 Canadian equities include securities traded on the TSX or common stocks, preferred stocks and convertible securities of Canadian issuers.

6.8 Foreign equities include common stocks, preferred stocks and convertible securities of foreign issuers.

6.9 Canadian Real Estate includes pooled funds and direct holdings of real estate.

6.10 Infrastructure includes pooled funds, segregated funds, direct holdings and co-investments.

6.11 Private Equity is an investment in an unlisted company, which is typically long-term and unregulated. Venture capital is a form of private equity which focuses on small to medium sized business with strong growth potential. Venture capital is designed to help entrepreneurs start up or develop a new business where a high degree of risk is involved. The Corporation has capped its investments in Private Equity and will make no new investments in this asset class.

6.11 The Fund may purchase derivative financial, commodity or currency related instruments such as forward contracts, options, futures or swaps provided that such participation is not for speculative purposes and are not purchased with the use of leverage. Use of derivatives should be consistent with the overall asset allocation and risk management of the Corporation. Use of a derivative is permitted only after the Working Group has reviewed the application of the derivative and determined that it meets or exceeds the defined investment objectives of this document. Derivative strategies also require the prior approval of the Committee.

6.12 Investment counsels shall not borrow money, pledge or otherwise encumber any of the Fund's assets except to the extent that a temporary overdraft may occur in the normal course of day to day portfolio management. The use of leverage associated with real estate pooled funds and infrastructure investments is acceptable and will be defined in the investment manager's contract.

6.13 The Investment Counsel shall assess the financial strength of borrowers by reference to published credit ratings and by their own analysis. The investment counsel's analysis should include all material factors relevant to assess the ability of the borrower to repay the debt instrument, to discharge interest obligations on the specified payment dates and to survive periods of financial adversity. New investments may not be made in debt obligations that are in default of principal or interest.

6.14 The Minister may enter into a written agreement with the Custodian for securities lending provided that readily marketable securities having a market value of at least 105%, of the market value of the securities lent, are maintained on at least a daily basis.

6.15 Investment counsels may use soft dollars (directed commissions) to pay for research related goods and services in accordance with the CFA Institute Soft Dollar Standards. Investment counsels shall disclose to the Corporation at least annually the total amount of commissions and the products and services obtained through soft dollar arrangements from the Corporation's account.

Section VII – Asset Allocation

7.1 Until February 28, 2019 (or any other date determined by the Investment Committee) the Fund's target asset allocation is the following:

Asset Class (Group)	Minimum	Normal	Maximum	Accounting Class**
Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
-Government Bonds	40.0%	45.0%	60.0%	FVTPL
-Corporate Bonds	0.0%	5.0%	10.0%	FVTPL
-Non-Marketable Bonds	15.0%	20.0%	25.0%	HTM
Total Debt	**60.0%**	**70.0%**	**80.0%**	
Public Equities				
-Canadian	7.0%	10.0%	13.0%	AFS
-U.S.	3.0%	5.0%	7.0%	AFS
Total Public Equities	**10.0%**	**15.0%**	**20.0%**	
Alternative Investments				
-Canadian Real Estate	7.0%	10.0%	13.0%	FVTPL
-Private Equity*	0.0%	0.0%	0.5%	AFS
-Infrastructure	2.0%	5.0%	8.0%	FVTPL
Total Alternative Investments	**9.0%**	**15.0%**	**21.5%**	

*represents net committed capital

**AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

7.2 After February 28, 2019 (or any other date determined by the Investment Committee) the target allocation for each portfolio is as follows:

Basic Claims

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Provincial Bonds	60% FTSE Mid Term Provincial Bond Index 40% FTSE Long Term Provincial Bond Index	50%	60%	70%	FVTPL
Corporate Bonds	50% FTSE TMX Mid Term Corporate Bond Index 50% FTSE TMX Long Term Corporate Bond Index	10%	20%	30%	FVTPL
Non-Marketable Bonds	FTSE TMX Provincial Bond Index	10%	20%	25%	HTM, FVTPL
Total Debt			100%		

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Objective is to back policyholder claims and ensure funds are available as liabilities come due and to minimize interest rate risk through duration matching. The funds are intended to pursue modest incremental returns while maintaining risk management as a top priority. The fund must maintain sufficient liquidity to support the Basic line of business as required. Physical damage claims are typically settled within one year and are funded by cash from premiums. Payments on PIPP claims made in the short-term (0-12 months) represent approximately 5%-10% of the overall PIPP liability and are funded from a combination of investment income and cash from premiums. The timing and amount of payments beyond 12 months are estimated and long-term investments are held to cover these liabilities.

Basic RSR, Extension, SRE

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Provincial Bonds	50% FTSE TMX Short Term Provincial Bond Index 50% FTSE TMX Mid Term Provincial Index	10%	20%	30%	FVTPL
Corporate Bonds	FTSE TMX Corporate Bond Index	0%	10%	20%	FVTPL
Non-Marketable Bonds	FTSE TMX Provincial Bond Index	0%	5%	10%	HTM, FVTPL
Private Debt	FTSE TMX Universe Bond Index	10%	15%	20%	FVTPL
Total Debt		40%	50%	60%	
Public Equities					
Canadian	85% S&P TSX Capped Composite Total Return Index 15% BMO Small Cap (Unweighted) Blended Index	7%	12%	17%	AFS
Global	MSCI World Total Return Index	8%	13%	18%	AFS
Global Low Volatility	MSCI World Total Return Index	5%	10%	15%	AFS
Total Public Equities		25%	35%	45%	
Alternative Investments					
Canadian Real Estate	REALPAC/IPD Canada Property Index	7%	10%	13%	FVTPL
Infrastructure	CPI +5%	2%	5%	8%	FVTPL
Venture Capital		0%	0%	1%	
Total Alternative Investments		10%	15%	20%	

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Rate Stabilization Reserve: Objective is to ensure sufficient levels of capital are maintained such that the line of business remains healthy and in an actuarially determined state of satisfactory financial condition. The RSR portfolio must have sufficient capital to withstand plausible adverse events and to deliver rate stability and predictability. Given that there are no specific backing obligations duration management does not apply and the fund's objective is to generate real returns to facilitate stable premium rates. A moderate level of liquidity is required such that funds will be available in the event the Corporation experiences a series of adverse events and resulting financial losses which

deteriorate its capital base. The RSR is currently designed to withstand adverse scenarios at the 1-in-40 year probability level

Special Risk Extension: Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. SRE claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing SRE contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

Extension: Objective is to achieve a real return target to remain competitive in the industry and stabilize premiums payable by policyholders, with a moderate risk tolerance given the nature of liabilities. Extension claims obligations have a short duration and are funded by cash generated from ongoing operations. The majority of assets backing Extension contain strategic liquidity or funds backing surplus, therefore minimal liquidity is required.

Employee Future Benefits

Asset Class	Benchmark	Minimum	Target	Maximum	Accounting Class*
Cash and Equivalents	FTSE TMX Canada 91 Day T-Bill Index	0%	0%	5%	AFS
Fixed Income					
Corporate Bonds	FTSE TMX Corporate Bond Index	10%	20%	30%	FVTPL
Private Debt	FTSE TSX Long Term Bond Index	10%	20%	30%	FVTPL
Total Debt		30%	40%	50%	
Public Equities					
Canadian	85% S&P TSX Capped Composite Total Return Index 15% BMO Small Cap (Unweighted) Blended Index	5%	10%	15%	AFS
Global	MSCI World Total Return Index	13%	18%	23%	AFS
Global Low Volatility	MSCI World Total Return Index	2%	7%	12%	AFS
Total Public Equities		25%	35%	45%	
Alternative Investments					
Canadian Real Estate	REALPAC/IPD Canada Property Index	12%	15%	18%	FVTPL
Infrastructure	CPI +5%	7%	10%	13%	FVTPL
Total Alternative Investments		20%	25%	30%	

*AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.

Investment Objectives:

Objective is to ensure that pension and other obligations are paid as they become due. The duration of the Employee Future Benefits liability will be continually monitored to inform liquidity requirements and constraints of the pension fund. Current durations are such that minimal liquidity is required.

7.3 The target asset allocations have been determined in order to meet the objectives of the relevant portfolio. They reflect risk/return tradeoffs selected by the Committee.

7.4 The target allocations are different in Section 7.1 and 7.2. As a result, the Working Group may, at its discretion, authorize actual asset class weights that are outside of the minimum/maximum ranges specified in either Section 7.1 or 7.2 while transitioning towards the target asset allocations in Section 7.2.

7.5 The Working Group, at its discretion, can allocate up to 20.0% from the Canadian equity asset class to the Canadian Small to Mid Cap equity asset class.

7.6 The target allocation to illiquid growth assets (Real Estate and Infrastructure) as a proportion of total growth assets (Canadian, Global and Global Low Volatility Equity, and U.S. equity, Real Estate and Infrastructure) should not exceed 50%.

7.7 The actual allocation to non-marketable bonds (MUSH bonds and private debt) should not exceed 25% of the total fund.

7.8 The Working Group will monitor the target asset allocation of the fund on a quarterly basis, at a minimum, and rebalance if necessary in accordance with the Working Group's rebalancing policy.

7.9 Securities held in a pooled fund are classified on the basis of the assets comprising the major portion of such pooled funds.

7.10 Derivative instruments along with any collateral held thereon are included in the asset class comprising the securities whose return or price serves as the basis for the pricing of such derivative instruments.

Section VIII – Investment Risk

8.1 Diversification between asset classes is provided through the asset allocation guidelines set forth in the Statement.

8.2 Diversification within each asset class is provided by limiting to 5% or less the percentage of the book value of Fund assets invested in a single security not issued or guaranteed by the Government of Canada, charged against the Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. Minimum and/or maximum percentage weight targets may be developed and implemented for corporate and provincial bond issuers (Province of Manitoba excluded) to assist in the diversification of the fixed income portfolio.

8.3 Diversification in equity investments is achieved by contracting with investment counsels that concentrate on specific equity market segments (large cap and small/mid cap) as well as investment style (value, growth and core). Managers will be selected based on their investment philosophy and internal investment policies.

8.4 Interest rate risk is managed by matching the duration of the fixed income portfolio, which includes marketable bonds and floating rate notes to the actuarially determined duration

of the Corporation's claims liabilities. If an allocation to floating rate notes is designated by the Working Group to fund other asset classes, then the designated amount can be excluded from the duration calculation.

8.5 When investments are made outside of Canada, consideration will be given to limiting exposure to foreign exchange risk by hedging where practical.

8.6 Quality is ensured by requiring that 100% of the market value of short-term securities have a minimum credit rating of R-1 (low) as assigned by Dominion Bond Rating Service Limited (DBRS), or its equivalent, and that 100% of other fixed income securities have a minimum credit rating of BBB (low), or its equivalent, as assigned by Standard & Poor's or Moody's Investors Service, or is a security issued or guaranteed by the Government of Canada, charged against the Consolidated Revenue Fund, issued by a Canadian province or a guarantee of a Canadian province. If a security has a split credit rating from the credit rating agencies the lower rating will be accepted.

8.7 In the event of a downgrade in the credit rating of a fixed income security by a recognized bond rating agency to a credit rating below the minimum as defined in Section 8.6, the Fixed Income Manager will follow the course of action set out below:

a) The Working Group will be notified of the downgrade at the earliest possible opportunity;

b) Within five business days of the downgrade, the Investment Counsel will advise the Working Group in writing of the course of action taken or to be taken by the Investment Counsel along with the rationales; and

c) The Investment Counsel will provide regular reporting to the Working Group on the status of the asset until such time as it matures, is sold, or is upgraded to a rating consistent with the minimum rating standards as defined in Section 8.6.

8.8 Trading and execution of the Fund will be done through the investment counsels who shall utilize their best efforts to obtain best execution of orders at the most favorable prices and competitive commission rates.

Section IX – Voting Rights

9.1 The responsibility of exercising and directing voting rights acquired through Fund investments is delegated to the investment counsels, who shall at all times act prudently and in the best interests of the Fund.

9.2 In case of doubt as to the best interests of the Fund, the investment counsel must request instructions from the Working Group and act in accordance with such instructions.

9.3 Investment counsels shall maintain a record of how Fund voting rights have been exercised.

9.4 Investment counsels shall advise the Working Group and provide details when:

a) the results of the vote are contrary to the investment counsel's recommendations;

b) the vote is related to anti-takeover charter and bylaw amendments or shareholder rights;

c) the voting rights have not been exercised.

9.5 Investment counsels shall not delegate voting rights unless the policy and procedures to be used when voting has been filed with the Minister of Finance and written approval of those policies and procedures have been granted.

Section X – Monitoring

10.1 Each quarter, investment counsels shall provide a letter indicating compliance with the Statement and the investment counsel's mandate and indicating all instances where the Statement and mandate were violated.

10.2 At the end of each quarter, the market value of each Fund investment is calculated. Investments that are not regularly traded are valued by the Custodian according to a methodology acceptable to the Committee. Any such investment that may represent more than 1% of the market value of the Fund is valued by a qualified independent appraiser or by the Committee through a resolution at least every three (3) years, except for non-marketable bonds as they are reported at book value.

10.3 Fund performance is evaluated at least quarterly in accordance with current Performance Presentation Standards established by the CFA Institute. Such evaluation is focused on objectives set in this document for the Fund and for the investment counsels.

10.4 Investment counsels report to the Committee at least annually in order to:

a) provide information concerning new developments affecting the firm and its services;

b) review the transactions in the latest period and the assets held at the end of the period and explain how they relate to the strategy advocated;

c) explain the latest performance;

d) provide an economic outlook along with a strategy under such circumstances.

10.5 The Corporation has a graduated investment manager compliance policy in accordance with this Investment Policy Statement with escalating action based upon the degree of non-compliance. The Corporation monitors the compliance of its active equity managers with their internal Investment Policy Statements on a monthly basis and reports to the Investment Committee Working Group on a quarterly basis. In addition, the Corporation evaluates the compliance with the defined duration bandwidth as defined in Section 8.4 on a monthly basis and reports to the Working Group on a quarterly basis.

COMPLIANCE RULES:

1. Maximum concentration in an individual holding
2. Sector weight limits (linked to index)
3. Market capitalization limits (min & max)
4. Minimum and maximum number of holdings
5. Cash restrictions:
    a. Less than 10% of each managers portfolio
    b. Holdings rated A1 or better
    c. Short-term cash equivalents (less than 1 year)

DEFINITIONS:

Non-compliance is defined as minor if the manager is less than 10% out of compliance, for compliance rules 1, 2, 3 and 5(c). All breaches of compliance rules 4, 5(a) and 5(b) are considered major.

ACTION:

For minor instances of non-compliance the relevant external manager is notified of the non-compliance with the Investment Policy Statement. For major issues of non-compliance the relevant manager is contacted and requested to rectify the non-compliance within 30 days. Minor issues of non-compliance will be addressed internally by the Corporation. Major issues of non-compliance will be brought to the attention of the Investment Committee Working Group at its next meeting.

REPORTING

All major and minor cases of non-compliance with the Investment Policy Statement, and any related action taken, will be reported to the Investment Committee and the Investment Committee Working Group. Compliance reports will be completed at the end of each calendar month by the Investment Department.

The Investment Committee Working Group has the authority to provide exemptions to these rules and will report to the Investment Committee whenever it exercises this authority.

Section XI – Withdrawal Policy

11.1 In order to support the financial health of the Fund, ensure necessary liquidity levels are maintained and adequate diversification by asset class and by manager is adhered to, the Corporation has established the following guidelines for cash withdrawals.

11.2 Withdrawals of corporate funds to fund corporate operations are permissible, provided that pension plan assets are not affected by the withdrawals. Cash management is the joint responsibility of the Investment Department and the Risk Control and Financial Forecasting Department. The withdrawals will be reported to the Investment Committee Working Group at the Committee's next scheduled meeting. Withdrawals shall be reported to the Investment Committee at the Committee's next scheduled meeting.

11.3 The cash withdrawal guidelines are intended to assist in managing the Fund and maintaining adherence to the target policy weights, to the extent possible. The dollar amount of each withdrawal will be calculated by the Risk Control and Financial Forecasting Department and implemented by the Investment Department, which shall exercise judgment in withdrawing cash based on the following factors:

1. withdrawals are to be from retained earnings only, which represent corporate assets;
2. the market value of the fixed income portfolio (excluding cash) must match (or exceed) the present value of the claim liabilities;
3. withdrawals from each asset class/ manager will be in order of greatest variance from the target, until the withdrawal amount is satisfied;
4. each asset class must remain within its min/max range as established in Section 7.1;
5. availability of liquidity within the portfolio;
6. current market conditions; and
7. future Fund strategies, and Corporate needs.

11.4 In order to reduce cost, the number of asset classes/managers involved in the transaction should be the fewest possible to raise the necessary amount. Illiquid asset classes such as real estate, infrastructure and private equity are generally exempt from normal course withdrawals.

11.5 The Working Group is required to advise the Investment Committee of any exceptions to this policy and state the reason(s) for the exception (s).

Section XII – Review

12.1 This Statement may be changed or modified at any time by action of the Board of Directors of the Corporation in consultation with the Minister of Finance.

12.2 This Statement shall be reviewed at least annually. Such review may be caused by:

a) a fundamental change in the business of the Corporation;

b) significant revisions to the expected long-term trade-off between risk and reward on key asset classes;

c) a major change in liabilities;

d) a significant shift in the financial risk tolerance of the Corporation;

e) shortcomings of the Statement that emerge in its practical application, or substantive modifications that are recommended to the Committee by a investment counsel;

f) applicable change in legislation.

Appendix A - Definitions

Alternative Asset Classes:
There are three primary asset classes: equities, bonds, and cash. Alternative asset classes refer to any other types of investments or collections of investment strategies that can be used to diversify investment portfolios. These investment strategies are generally aimed to provide meaningful growth, low correlation and lower volatility with equity markets. Some examples of alternative investments include: hedge funds, private equity, private debt, currencies, commodities, infrastructure and real estate.

Duration:
Duration is the weighted average time until the repayment of a fixed income instrument. In addition, it is also used to measure the price sensitivity of those instruments to changes in bond yields.

Fixed Income Securities:
An investment that provides a return in the form of fixed periodic payments and the return of the principal at maturity. Unlike a variable-income security, the payment amounts and dates of a fixed-income security are known in advance.

Investment Counsel:
Investment counsels are appointed by the Province of Manitoba to invest certain funds of the Corporation in accordance with and subject to the terms of an agreement with the Provincial government.

MUSH Bonds:
MUSH bonds are Manitoba rural municipality, school division and health-care facility bonds which are not tradable in the fixed income market and are managed by the Department of Finance at the Province of Manitoba.

Undertaking #1

To provide how much the yield rate on the Government of Canada 10-year bonds has changed over the period from February 2018 to September 2018 and show what changes to the claims discount rate occurred over that same period.

RESPONSE:

The Government of Canada 10 year bond yield increased by 19 bps from 2.24% as at February 28, 2018 to 2.43% as of September 30, 2018.

The new money yield used to discount future payments for the 2019/20 rating year increased by 19 bps from 3.21% (per Part V, Ratemaking, page 19) to 3.40%.

Undertaking #2

MPI to provide the proportion of the pension benefit portfolio based on the relative size of the payroll to be allocated to Basic

RESPONSE:

The allocation of the pension portfolio allocated to Basic is 74%. This is derived using the payroll cost ratio. The payroll cost ratio is based on the proportion of salary and benefit expense for each line of business as a percentage of corporate salary and benefit expense. Please also see CAC 1-81 b).

Undertaking #15

MPI to provide the increase in revenue associated from the higher DSR demerit premiums in dollars, through Q2 of the current fiscal year, i.e., show what the revenue would've been if MPI didn't change the scale, and then what the actual revenue turned out to be. The difference would be the effect on the new rates.

RESPONSE:

The increase in revenue associated from the higher DSR demerit premiums is approximate $8.4 million through Q2 of the current fiscal year. The estimated annualized impact is $16.8 million, which is in line with what MPI presented in the 2018 GRA Figure REV 34 ($17.5 million).

Undertaking #5

MPI to provide a table of the continuity of the capital maintenance provision over the forecast period. And included within that a breakout in PF-1, so pro forma 1, the annual written revenue being forecast to be collected in the net capital maintenance provision.

RESPONSE:

Please refer to *Appendix 1* for pro forma 1. The forecast assumes no change in capital maintenance provision throughout the 5 year forecast period.

Pro Forma-1: Appendix 1
Statement of Operations
Multi-year - Statement of Operations

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles excluding Capital Maintenance Provision	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
4	Capital Maintenance Provision		22,664	23,596	24,552	25,553
5	Drivers	68,902	70,903	72,885	74,723	76,565
6	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
7	Total Net Premiums Written	1,076,987	1,144,565	1,191,358	1,239,068	1,288,938
8	Net Premiums Earned					
9	Motor Vehicles excluding Capital Maintenance Provision	991,058	1,042,463	1,086,122	1,130,789	1,177,075
10	Capital Maintenance Provision		12,180	23,165	24,109	25,090
11	Drivers	59,546	69,896	71,887	73,798	75,638
12	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
13	Total Net Premiums Earned	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
14	Service Fees & Other Revenues	23,832	25,839	27,613	29,525	31,617
15	Total Earned Revenues	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301
16	Claims Incurred	853,863	896,982	943,502	992,469	1,044,612
17	DPAC \ Premium Deficiency Adjustment	(28,521)	(5,380)	(4,243)	3,999	7,997
18	(a) Claims Incurred - Interest Rate Impact	(8,203)	8,610	11,453	10,124	10,109
19	Total Claims Incurred	817,139	900,212	950,712	1,006,592	1,062,718
20	Claims Expense	137,168	135,428	139,216	144,330	146,780
21	Road Safety/Loss Prevention	13,606	12,693	12,818	13,003	13,279
22	Total Claims Costs	967,913	1,048,333	1,102,746	1,163,925	1,222,777
23	Expenses					
24	Operating	75,060	73,606	76,313	79,998	82,908
25	Commissions	40,338	42,690	44,835	46,610	48,443
26	Premium Taxes	31,518	33,736	35,435	36,861	38,334
27	Regulatory/Appeal	4,669	4,840	4,998	5,114	5,233
28	Total Expenses	151,585	154,872	161,581	168,583	174,918
29	Underwriting Income (Loss)	(56,258)	(64,247)	(67,188)	(86,168)	(100,394)
30	Investment Income	191,814	82,148	84,863	87,773	90,599
31	(b) Investment Income - Interest Rate Impact	-	-	-	-	-
32	Net Investment Income	191,814	82,148	84,863	87,773	90,599
33	Net Income (Loss)	135,556	17,901	17,675	1,605	(9,795)
34	Total net Impact due to interest rate change (b) - (a)	8,203	(8,610)	(11,453)	(10,124)	(10,109)

Undertaking #7

MPI to convert the MCT ratio of 75 percent to 100 percent, as depicted on page 2 of MPI Exhibit Number 24 to a dollar value As at August 31st, 2018.

RESPONSE:

As at August 31, 2018	@ 75% MCT	@ 100% MCT
($000s)		
Minimum Capital Required	270,036	360,048
Add: Assets requiring 100% Capital*	55,796	55,796
Total Equity Required	**325,832**	**415,844**

**For discussion on the MCT guideline and requirement to hold 100% capital for certain assets, see section RSR 4.5.3 of the 2019 GRA.*

Undertaking #9

MPI to confirm that the amount spent on motorcycle-specific road safety initiatives in the coming application is still only the budgeted amount of 227,000 for Basic's share.

RESPONSE:

CMMG (MPI) 1-8 stated that the Corporation spent $227,895 (Basic share) on motorcycle-specific road safety programs and initiatives. This IR provided some further information, as follows:

> "Total spending by the Corporation on overall road safety programs in 2017/18 was $13,145,000 (Basic share). As a result, specific motorcycle safety programs represents 1.73% of total road safety expenditures in 2017/18. On a per-vehicle basis, total spending on road safety programming is forecasted at $12.08/vehicle compared to $14.84/motorcycle on motorcycle specific initiatives."

Undertaking #10

Mercer to provide the volatility assumption for the real liability benchmark prepared for Appendix 17, Attachment (a

RESPONSE:

Mercer provided the following response:

The volatility of the real liability benchmark using the assumptions outlined in our Appendix to Appendix 17, Attachment A was 5.0%. Our volatility assumption for projections based on the forward curve was also 5.0%.

Undertaking #11

Mr. Makarchuk to provide an explanation of what the inflation volatility assumption of 2.6 percent, what model it applies for and what it is used for.

RESPONSE:

Mercer provided the following response:

As discussed in PUB 1-83, our inflation volatility assumption is based on our analysis of historical data on Canadian inflation. The historical distribution of inflation has tails fatter than a lognormal distribution (high kurtosis). It is also asymmetric (it is skewed to the right). Another key characteristic of inflation is its high serial correlation. Simply put, years of high inflation tend to be followed by years with similarly high inflation, and the same with periods of low inflation. Because of serial correlation, the modeled annualized volatility of a future period increases with the length of the period. 2.6% volatility corresponds to the compounded annualized volatility over the next 10 years.

The inflation volatility assumption of 2.6% is implicitly related to the capital market volatility assumptions outlined in Appendix 17, Attachment C (in particular, page 18) for each asset class. The inflation volatility assumption was not explicitly used in our modeling.

Undertaking #13

MPI to provide the analysis as referred to in PUB-MPI-1-86, based upon use of Mercer's standard interest rate forecast rather than the forward curve.

RESPONSE:

Please see “Part VI INV Appendix 17 Attachment E – Basic Efficient Frontiers – Standard Curve” for analysis based upon Mercer’s standard interest rate forecast.

Undertaking #18

MPI to provide an update on the progress the Corporation has made with respect to its DSR public consultation.

RESPONSE:

The DSR public consultations are currently in the initial planning stages to determine the full scope, required budget and timelines. A discussion paper is also being planned as a starting point from which to synthesize key information from the Technical Conference, evaluate the current system, and elaborate on alternative models and options.

The public consultation plan will ensure that interested Manitobans are able to provide their feedback to the Corporation through a number of different communication channels. Information will be gathered to determine perspectives and opinions on fairness, value, and ease of understanding – both on the current DSR model and potential alternative options. This information will then be analyzed by the Corporation's Customer Research department to determine overall trends, perceptions and next steps. The findings will also be made available publically via our website.

The Corporation expects to provide findings and a summary report in its next General Rate Application (2020 GRA) as previously planned.

Undertaking #14

MPI to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions.

RESPONSE:

Please refer to the figure below, which shows the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions is $4,496,843.

Figure 1: Management Reductions

	FTE's	Annual Salary	Benefits	Total Compensation
May 1, 2016	175	19,851,516	3,682,456	23,533,972
March 31, 2018	128	14,760,253	2,738,027	17,498,280
Change	**-47**	**(5,091,263)**	**(944,429)**	**(6,035,692)**
% Change	**-26.9%**			**-25.6%**

Figure 2: Staff Increases

	FTE's	Annual Salary	Benefits	Total Compensation
May 1, 2016	175	19,851,516	3,682,456	23,533,972
March 31, 2018	128	14,760,253	2,738,027	17,498,280
Change	**-47**	**(5,091,263)**	**(944,429)**	**(6,035,692)**
% Change	**-26.9%**			**-25.6%**

Undertaking #6

MPI to make the correction re: on the Basic target capital upper threshold in Board Order 130-17, the Board based its finding on including only rate change actions and currently it includes building fees.

RESPONSE:

The Corporation has revised PUB 1-16 (b) and its appendices to reflect the calculation of the Basic target capital upper threshold excluding RSR fees.

Oringinally the lower and upper targets were 27% to 69% MCT or $120 million to $251 million based on the 2-year Combined scenario. The result of removing the RSR fees from the upper target calculation is that the revised lower and upper targets are now 27% to 85% MCT or $120 million to $303 million based on the 3-year Combined scenario. By removing the RSR fees from management action, the 3-year Combined scenario became the most adverse scenario.

PUB (MPI) 1-16

Part and Chapter:	**VI RSR**	**Page No.:**	**4**
PUB Approved Issue No:	**7. Update of DCAT**		
Topic:	**Basic Total Equity Target Range Thresholds**		
Sub Topic:	**2018 GRA Board Approved Methodology**		

Preamble to IR (If Any):

The methodology ordered by the PUB in the 2018 GRA produces a 2019 lower RSR target of $120 million …

Question:

a) Please provide the usual scenario statement exhibits resulting from the Board approved **lower** threshold iterative methodology as cited here for each of the base scenario, the modified base scenario, and the selected adverse scenario (before and after routine management / regulatory actions). Please include a summary of the adverse scenario assumed routine management / regulatory actions.

b) Please provide the usual scenario statement exhibits resulting from the Board approved **upper** threshold iterative methodology relative to the lower threshold as cited here for each of the base scenario, the modified base scenario, and the selected adverse scenario (before and after routine management / regulatory rate change actions, i.e. excluding such RSR rebuilding fee actions). Please include a summary of the adverse scenario assumed routine management / regulatory rate change actions.

c) In reference to its approved iterative methodology, in Board Order 130/17 the PUB stated: The Board agrees that such transfers are not best estimate expectations, but rather sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about

Manitoba Public Insurance

Page 1 of 5

the proposed threshold level. [p. 78] In this context, what specific concerns does the Corporation have with respect to the Board approved iterative methodology?

Rationale for Question:

To assess the Corporation's decision to deviate from the Board approved methodology.

RESPONSE:

a) Please see Appendix 1 and Appendix 2. The assumed routine management/regulatory rate changes are outlined in *Figure 20* of *Part VI DCAT.5.1*, which has been reproduced below for convenience.

Figure DCAT- 20: Assumed Management and Regulatory Action for Combined Scenarios (Lower Target)

Line No.	Combined Scenarios	2019/20	2020/21	2021/22	2022/23
1	Base	0.1% Rate / 0% RSR			
2	1 year	0.1% Rate / 0% RSR	n/a	n/a	n/a
3	2 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	n/a	n/a
4	3 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	2% Rate / 2% RSR	n/a
5	4 year	0.1% Rate / 0% RSR	0% Rate / 2% RSR	3% Rate / 2% RSR	3% Rate / 2% RSR

b) Please see Appendix 3 and Appendix 4. The assumed routine management/regulatory rate changes are outlined below.

Figure 1: Assumed Management and Regulatory Action for Combined Scenarios (Upper Target)

Line No.	Combined Scenarios	2019/20	2020/21	2021/22	2022/23
1	Base	0.1% Rate / 0% RSR			
2	1 year	0.1% Rate / 0% RSR	n/a	n/a	n/a
3	2 year	0.1% Rate / 0% RSR	0% Rate / 0% RSR	n/a	n/a
4	3 year	0.1% Rate / 0% RSR	0% Rate / 0% RSR	2% Rate / 0% RSR	n/a
5	4 year	0.1% Rate / 0% RSR	0% Rate / 0% RSR	3% Rate / 0% RSR	3% Rate / 0% RSR

Manitoba Public Insurance Page 2 of 5

c) In *Part VI RSR.4*, the Corporation articulates its justification for the use of a different lower RSR target methodology than the one in PUB Order 130/17. The Corporation elaborates on these points below:

First, the Corporation cannot support a lower RSR target that is below the minimum amount required to maintain the future satisfactory financial condition of Basic, as calculated using accepted actuarial practice in Canada. For the fiscal year 2018/19, the Board of Directors (BoD) transferred $37.3 million from the Extension line of business to Basic, increasing the RSR balance from $173.5 million to $210.8 million. This transfer exceeded the amount required for satisfactory financial condition of Basic ($201 million) by $9.8 million.

In Order 130/17, the PUB approved $180 million as the lower RSR target for 2018/19. Basic would have an unsatisfactory financial condition had the MPI Board of Directors been unwilling or unable to transfer funds from Extension as noted above. Further, under the present RSR framework, the Corporation could not have sought the full amount of RSR rebuilding fees to achieve satisfactory financial condition, as the lower RSR target was less than and the minimum capital required for satisfactory financial condition of Basic. The timing of a request for regulatory approval of an RSR rebuilding fee would have also been deeply problematic had the MPI Board not intervened.

The intent of the lower RSR target is to establish the level of total equity (measured as a Minimum Capital Target percentage) below which a rebuilding fee is required. From the Corporation's perspective, a lower RSR target that is below the minimum percentage required for satisfactory financial condition could compromise the financial standing of Basic. Equally important is the fact that operating with an RSR balance at or near the minimum RSR target defeats the purpose of the RSR (i.e. stable rates) and increases the likelihood that the Corporation will face the difficult regulatory scenario identified above. To prevent the occurrence of this scenario, the Corporation will bring forward a Capital Management Plan in the 2020 GRA. The Corporation anticipates that this Plan will include build/release provisions designed to ensure that Basic would operate within the limits of the established RSR range.

Manitoba Public Insurance
Page 3 of 5

Second, the Corporation does not support the use of an RSR target methodology that uses improper/inaccurate forecasting assumptions (i.e. not best estimate assumptions). The Corporation has directed its collaborative efforts to date towards developing a universally acceptable lower RSR target methodology. RSR target methodologies must be based on best estimates, which the PUB recognized in Order 162/16, stating:

> *"The Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for purposes of setting Basic target capital levels, expressed in terms of Basic total equity.* ***This approach is consistent with the objective of setting Basic target capital levels to be specific to the risk profile of the Corporation's Basic insurance operations.***
>
> *…*
>
> ***It is the Board's expectation, and for that matter a requirement of accepted actuarial practice in Canada, that the Corporation's Basic Application, including the rate indications, the Basic DCAT investigation and the target capital analysis, be prepared on a best estimate basis. Doing otherwise complicates the regulatory review process."*** *[emphasis added]*

In Order 130/17, the PUB reversed its position, stating that the modelling approach did not reflect best estimate expectations, but provided no clear reasons for this conclusion The PUB did state however that it:

> *"…sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about the proposed threshold level"*

With respect, it is inappropriate to view the establishment and maintenance of Basic's satisfactory financial condition as a theoretical exercise. Further, the PUB's interest in setting a lower RSR target (in the context of testing Basic to adverse circumstances when operating around the lower RSR target) ignores the purpose of the RSR (in essence, to stabilize rates and protect ratepayers from rebuilding fees). The Corporation does not understand why the PUB now believes the

Manitoba Public Insurance Page 4 of 5

purpose of the RSR should be something other than what it identified its purpose as in Section 5.1 of Order 162/16.

Third, the lower RSR target methodology set out in Order 130/17 relies on a 50/50 interest rate forecast methodology. The Corporation cannot demonstrate that this interest rate forecast methodology is a best estimate, given the evidence available. The Corporation cannot support the use of an RSR methodology based on biased forecasting assumptions.

The RSR methodology in Order 130/17 produces a lower RSR target of $120 million for the 2019 GRA. This amount is well below the $143 million required to maintain satisfactory financial condition for Basic. For this reason and the reasons above, the Corporation cannot employ this methodology. The Corporation has opted instead to seek MCT based lower and upper RSR targets, based on DCAT modeling, using best estimate assumptions.

For 2019, The Corporation requests a lower RSR target of 34% MCT ($143 million based on current forecasts) for the 2019/20 fiscal year, as this target represents the absolute minimum MCT ratio required to maintain the financial condition of Basic.

Manitoba Public Insurance
Page 5 of 5

Appendix 2a
Base Scenario with 85% MCT
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,166	29,036	31,083
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,526	1,221,741	1,271,677
Net Claims Incurred	742,604	869,023	783,040	824,008	899,721	937,492	995,156	1,051,173
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(37,865)	(12,795)	(210)	7,244	5,422
Total Claims Incurred	666,404	860,035	767,239	786,143	886,926	937,282	1,002,399	1,056,595
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,019	144,093	146,543
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,798	12,979	13,255
Total Claims Costs	798,045	993,537	923,722	936,917	1,034,894	1,089,099	1,159,471	1,216,393
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,216	79,880	82,788
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,998	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,038	166,959	173,233
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(62,649)	(75,611)	(104,690)	(117,949)
Investment Income	48,476	101,645	111,731	192,404	87,866	92,813	97,238	100,825
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	(19,216)	(8,925)	290	(1,894)
Net Investment Income	(4,038)	82,897	116,320	169,377	68,650	83,889	97,528	98,931
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	6,001	8,278	(7,163)	(19,018)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	14,839	(6,421)	(8,715)	(6,954)	(7,315)

Appendix 2b
Base Scenario with 85% MCT
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	355,133	375,031	390,827	397,484
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	6,001	8,278	(7,163)	(19,018)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	40,043	13,896	7,518	13,820	25,460
Total Retained Earnings	194,498	99,251	170,975	355,133	375,031	390,827	397,484	403,927
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(43,681)	(33,930)	(23,183)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	8,430	9,750	10,747	12,115
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,681)	(33,930)	(23,183)	(11,068)
Total Equity Balance	231,002	181,000	210,845	303,022	331,350	356,896	374,301	392,859
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	355,133	375,031	390,827	397,484	398,068
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,681)	(33,930)	(23,183)	(11,068)
Total Rate Stabilization Reserve	231,002	181,000	210,845	303,022	331,350	356,896	374,301	387,000
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	5,859
Total Equity Balance	231,002	181,000	210,845	303,022	331,350	356,896	374,301	392,859

Appendix 2c
Base Scenario with 85% MCT
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	65,461	68,284	71,497	72,322
Equity investments	2,083,349	2,189,534	2,272,545	2,525,543	2,597,687	2,699,681	2,817,634	2,935,517
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	16,113	22,062	19,174	12,521
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,176	61,194	63,228
	2,683,473	2,805,484	2,916,137	3,074,785	3,200,363	3,335,746	3,470,528	3,603,623
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,169	372,680	388,919	405,317
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,878,748	1,946,323	2,019,397	2,089,010
	2,452,472	2,624,484	2,705,292	2,771,763	2,869,013	2,978,849	3,096,227	3,210,764
Equity								
Retained earnings	194,499	99,251	170,975	355,133	375,031	390,827	397,484	403,927
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(43,681)	(33,930)	(23,183)	(11,068)
Total Equity	231,003	181,000	210,845	303,022	331,350	356,896	374,301	392,859
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,074,785	3,200,363	3,335,746	3,470,528	3,603,623

Appendix 2d

Base Scenario with 85% MCT

Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	259,368	284,232	297,721	313,107	329,630
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	259,368	284,232	297,721	313,107	329,630
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	102,581	106,660	110,921
Unpaid claims	22	191,890	198,315	205,748	213,771	221,492
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	296,894	308,329	320,431	332,413
Market Risk:						
Interest rate risk	30	7,840	23,712	27,657	31,691	35,756
Foreign exchange risk	32	16,342	16,001	17,052	18,607	21,604
Equity risk	34	72,823	70,956	75,737	83,343	91,532
Real estate risk	36	26,763	27,726	28,477	29,463	31,023
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	123,768	138,395	148,923	163,104	179,915
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,502	61,936	64,091	65,575	66,654
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,502	61,936	64,091	65,575	66,654
Operational risk margin	50	65,160	70,312	73,508	77,037	80,798
Less: Diversification credit	52	55,418	63,917	67,338	71,359	75,735
Total Capital (Margin) Required at Target	59	459,561	503,620	527,513	554,788	584,045
Minimum Capital (Margin) Required (line 59 / 1.5)	60	306,374	335,747	351,675	369,858	389,363
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	306,374	335,747	351,675	369,858	389,363
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(47,006)	(51,515)	(53,954)	(56,751)	(59,733)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	84.66%	84.66%	84.66%	84.66%	84.66%

Appendix 2e
Base Scenario with 85% MCT
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	469,648	502,881	538,527	576,737
Comprehensive	69,497	99,940	105,465	111,606	118,143	124,991
Property Damage	48,647	46,844	48,480	50,174	51,939	53,774
Public Liability - BI	4,680	5,025	5,162	5,243	5,333	5,400
PIPP	187,022	174,815	198,429	211,669	220,323	221,387
Total	726,240	765,440	827,185	881,573	934,265	982,289
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	3,792	5,461	6,403	6,077
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	3,578	(4,673)	4,194	8,020
Total Net Claims Incurred	767,240	786,142	886,926	937,282	1,002,399	1,056,595

Appendix 2f
Base Scenario with 85% MCT
Deferred Policy Acquisition Expenses and Premium Deficiency

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	72.76%	73.57%	74.51%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9361	0.9456	0.9596	0.9960	1.0114					
	2020				0.9458	0.9602	0.9970	1.0128	1.0115				
	2021					0.9700	1.0056	1.0199	1.0169	1.0132			
	2022						1.0118	1.0257	1.0222	1.0180	1.0134		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			76.55%	76.91%	71.57%	72.96%	73.59%				74.37%	78.78%
	2020				76.93%	71.62%	73.03%	73.70%	74.42%			73.72%	78.09%
	2021					72.35%	73.66%	74.21%	74.82%	75.49%		74.23%	78.69%
	2022						74.12%	74.63%	75.21%	75.84%	76.53%	75.23%	79.78%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	#######	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.20%	8.21%	8.16%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.73%	2.74%	2.72%
	Selected					3.16%	2.99%	2.88%	2.75%	2.74%	2.73%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Incuding Ext Adj Expenses) [(8) - (9)) x (3)]	383,468	391,133	410,710	423,740	444,042	468,415
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,896	15,438	16,025
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	75,571	77,968	81,704	86,188
14.	Expected Claims (Incuding Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	16,113	22,062	19,174	12,521
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	14,624	9,951	14,145	22,165
	Change	2,363	(21,009)	3,578	(4,673)	4,194	8,020
18.	Premium Deficiency [c]	8,845	-	-	-	-	-
	Change	2,001	(8,845)	-	-	-	-

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 2g
Base Scenario with 85% MCT
Summary of Corporate Investment Income

		2019/20	2020/21	2021/22	2022/23
		Forecasted			
Interest Income During Period					
Cash/Short Term Investments	255	103	0	0	0
Marketable Bonds	44,346	55,451	63,167	69,397	75,306
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	79,915	85,232	89,248	92,999
Dividend and other Income					
Canadian Equities	9,646	5,632	4,542	5,274	5,805
Global	4,213	5,951	4,883	5,545	6,164
Global LV	-	2,886	3,214	3,693	4,011
Private Debt	-	3,853	10,278	10,262	10,249
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	21,384	26,611	28,474	29,859
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	(49,627)	(8,961)	(903)	(2,894)
Marketable Bonds Realized Gains/(Loss)	13,622	29,494	(440)	1,201	813
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	2,599	0	0	632
Global Equities Realized Gains	66,310	3,618	217	0	788
Global LV Realized Gains	-	458	-	-	672
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	(3,408)	1,296	11,389	11,748
Other					
Investment Fees Paid	(5,201)	(4,708)	(4,571)	(4,851)	(5,075)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	5,262	6,715	7,067	7,140
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(13,318)	(12,169)	(12,541)	(13,142)
Total Corporate Investment Income	197,519	83,823	99,868	116,604	121,283
Total Basic Investment Income	169,377	68,650	83,889	97,528	98,931
% - Basic to Total Investment Income	85.75%	82%	84%	84%	82%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	6,674	4,806	5,580	6,478
US Equities Unrealized Gains/(Losses)	7,529	9,278	7,287	8,274	9,198
Global LV Unrealized Gains/(Losses)	-	4,199	4,388	5,043	5,477
Total Corporate Unrealized Gains/(Losses)	19,628	15,952	12,092	13,854	15,677
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,712.8	1,863.0	2,007.3	2,153.2
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	128.6	147.0	170.6	191.0
Global Equities	166.7	173.3	188.4	216.1	241.0
Global LV Equities	96.6	114.7	129.9	149.3	164.4
Private Debt	-	188.0	186.9	186.9	186.8
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,061.1	3,223.6	3,405.5	3,581.9
Total Basic Assets	2,568.3	2,676.7	2,781.5	2,902.9	3,023.1
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	56.0%	57.8%	58.9%	60.1%
MUSH	19.5%	17.1%	14.8%	12.7%	10.8%
Canadian Equities	4.2%	4.2%	4.6%	5.0%	5.3%
US Equities	5.7%	5.7%	5.8%	6.3%	6.7%
Global LV	3.3%	3.7%	4.0%	4.4%	4.6%
Private Debt	0.0%	6.1%	5.8%	5.5%	5.2%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3a

Combined Scenario with 85% MCT before Management Action

Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,151,674	1,198,939
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,214,516	1,263,385
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,130,789	1,177,075
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,192,705	1,240,594
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,168	29,040	31,089
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,529	1,221,745	1,271,683
Net Claims Incurred	742,604	869,023	783,040	794,345	1,162,009	1,045,379	1,089,314	1,060,976
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,002,966	1,057,769	1,093,538	1,067,011
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,537	145,097	147,803
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,850	13,081	13,387
Total Claims Costs	798,045	993,537	923,722	936,917	1,150,934	1,210,156	1,251,716	1,228,201
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,472	80,381	83,431
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	45,829	47,630
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,138	37,581
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,295	167,462	173,876
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(178,688)	(196,923)	(197,432)	(130,393)
Investment Income	48,476	101,645	111,731	192,404	80,535	82,304	80,191	78,813
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,698	39,957	44,682	(2,359)
Net Investment Income	(4,038)	82,897	116,320	169,377	119,233	122,261	124,873	76,454
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(72,560)	(53,940)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,741	27,567	40,457	(8,394)

Appendix 3b
Combined Scenario with 85% MCT before Management Actio
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	355,133	309,574	242,430	183,691
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(72,560)	(53,940)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	40,043	13,896	7,518	13,820	25,460
Total Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	183,691	155,212
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(50,382)	(47,112)	(44,436)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	1,730	3,270	2,676	9,551
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,436)	(34,884)
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	139,255	120,327
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	183,691	155,212
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,436)	(34,884)
Total Rate Stabilization Reserve	231,002	181,000	210,845	303,022	259,192	195,319	139,255	120,327
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	139,255	120,327

Appendix 3c
Combined Scenario with 85% MCT before Management Actio
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	35,739	2,209	-	-
Equity investments	2,083,349	2,189,534	2,272,545	2,525,543	2,639,008	2,771,157	2,869,150	2,949,963
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	398,935	414,561
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	2,231	-	-	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,139	61,118	63,132
	2,683,473	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,431,297	3,533,129
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	622,468	649,547
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,947,798	2,089,973	2,214,279	2,290,252
	2,452,472	2,624,484	2,705,292	2,771,763	2,938,888	3,123,731	3,292,042	3,412,802
Equity								
Retained earnings	194,499	99,251	170,975	355,133	309,574	242,430	183,691	155,212
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,436)	(34,884)
Total Equity	231,003	181,000	210,845	303,022	259,192	195,319	139,255	120,327
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,431,297	3,533,129

Appendix 3d
Combined Scenario with 85% MCT before Management Actio
Minimum Capital Tes

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	259,368	212,075	136,179	78,137	57,195
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	259,368	212,075	136,179	78,137	57,195
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	103,554	109,057	114,810
Unpaid claims	22	191,890	205,937	220,227	232,856	239,703
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	304,516	323,781	341,913	354,513
Market Risk:						
Interest rate risk	30	7,840	16,385	14,059	21,107	25,339
Foreign exchange risk	32	16,342	18,722	19,577	19,472	19,681
Equity risk	34	72,823	82,030	85,658	83,673	83,101
Real estate risk	36	26,763	27,726	28,477	29,463	31,023
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	123,768	144,863	147,771	153,715	159,144
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,502	60,401	62,818	65,659	67,426
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,502	60,401	62,818	65,659	67,426
Operational risk margin	50	65,160	71,379	74,615	78,072	80,977
Less: Diversification credit	52	55,418	65,517	68,144	71,352	73,801
Total Capital (Margin) Required at Target	59	459,561	515,642	540,841	568,007	588,259
Minimum Capital (Margin) Required (line 59 / 1.5)	60	306,374	343,761	360,560	378,672	392,173
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	306,374	343,761	360,560	378,672	392,173
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(47,006)	(131,686)	(224,381)	(300,535)	(334,978)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	84.66%	61.69%	37.77%	20.63%	14.58%

Appendix 3e
Combined Scenario with 85% MCT before Management Action
Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	517,281	524,293	566,356	576,418
Comprehensive	69,497	99,940	100,631	125,381	136,397	124,767
Property Damage	48,647	46,844	53,069	51,704	55,449	53,739
Public Liability - BI	4,680	5,025	6,453	6,033	3,535	5,398
PIPP	187,022	174,815	242,328	270,939	252,586	231,270
Total	726,240	765,440	919,763	978,350	1,014,323	991,592
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	13,373	15,788	12,756	5,868
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	17,460	8,710	8,922	9,342
Total Net Claims Incurred	767,240	786,142	1,002,966	1,057,770	1,093,538	1,067,010

Appendix 3f
Combined Scenario with 85% MCT before Management Actio
Deferred Policy Acquisition Expenses and Premium Deficienc

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	76.62%	77.68%	76.99%	75.51%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9464	0.9538	0.9656	1.0000	1.0132					
	2020				0.9658	0.9761	1.0091	1.0207	1.0149				
	2021					0.9927	1.0241	1.0337	1.0256	1.0169			
	2022						1.0294	1.0398	1.0325	1.0244	1.0162		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.39%	77.58%	72.03%	73.25%	77.62%				76.07%	81.03%
	2020				78.56%	72.81%	73.92%	78.20%	78.84%			76.89%	82.33%
	2021					74.05%	75.02%	79.19%	79.68%	78.29%		77.50%	83.47%
	2022						75.40%	79.66%	80.21%	78.88%	76.74%	78.42%	84.56%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	#######	1,100,939	1,146,360	1,192,705	1,240,594
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.23%	8.26%	8.23%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.75%	2.74%
	Selected					3.16%	2.99%	2.88%	2.75%	2.75%	2.75%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	570,367	593,159
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	422,434	446,747	471,001	496,459
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,920	15,511	16,136
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	77,728	82,202	86,664	91,348
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	2,231	(5,203)	(12,819)	(20,794)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,319	34,687
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	28,506	32,013	33,319	34,687
	Change	2,363	(21,009)	17,460	3,507	1,306	1,367
18.	Premium Deficiency [c]	8,845	-	-	5,203	12,819	20,794
	Change	2,001	(8,845)	-	5,203	7,616	7,974

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 3g

Combined Scenario with 85% MCT before Management Action

Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	107	(0)	0	0
Marketable Bonds	44,346	53,246	56,687	58,855	61,150
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	77,715	78,751	78,706	78,843
Dividend and other Income					
Canadian Equities	9,646	5,913	4,692	4,832	4,855
Global	4,213	6,303	5,523	5,704	5,777
Global LV	-	3,049	3,033	3,124	3,117
Private Debt	-	3,746	10,007	10,040	10,067
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	22,073	26,950	27,401	27,447
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	5,166	35,022	33,430	(7,168)
Marketable Bonds Realized Gains/(Loss)	13,622	35,896	6,696	12,952	4,741
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	1,068	0	121	211
Global Equities Realized Gains	66,310	1,143	0	316	426
Global LV Realized Gains	-	307	-	291	367
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	53,630	52,198	58,201	10,314
Other					
Investment Fees Paid	(5,201)	(4,767)	(4,681)	(4,858)	(4,937)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,488	(726)	(4,339)	(5,709)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,151)	(19,720)	(23,954)	(25,853)
Total Corporate Investment Income	197,519	137,267	142,873	145,164	90,559
Total Basic Investment Income	169,377	119,233	122,261	124,873	76,454
% - Basic to Total Investment Income	85.75%	87%	86%	86%	84%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	1,105	943	1,027	5,418
US Equities Unrealized Gains/(Losses)	7,529	2,328	2,506	2,701	8,621
Global LV Unrealized Gains/(Losses)	-	1,445	1,531	1,670	4,256
Total Corporate Unrealized Gains/(Losses)	19,628	3,433	3,450	3,729	14,039
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,853.6	2,037.4	2,182.2
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	135.4	147.5	146.2	152.0
Global Equities	166.7	193.3	208.3	209.0	218.6
Global LV Equities	96.6	109.6	119.6	118.4	122.1
Private Debt	-	188.8	193.4	198.3	198.1
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,072.6	3,230.7	3,384.7	3,518.4
Total Basic Assets	2,568.3	2,688.3	2,786.9	2,882.9	2,965.2
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.4%	57.4%	60.2%	62.0%
MUSH	19.5%	17.0%	14.8%	12.8%	11.0%
Canadian Equities	4.2%	4.4%	4.6%	4.3%	4.3%
US Equities	5.7%	6.3%	6.4%	6.2%	6.2%
Global LV	3.3%	3.6%	3.7%	3.5%	3.5%
Private Debt	0.0%	6.1%	6.0%	5.9%	5.6%
Real Estate	4.6%	4.5%	4.5%	4.5%	4.6%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3h
Combined Scenario with 85% MCT after Management Actio
Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,143,367	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,205,284	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,168	29,503	31,596
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,529	1,234,786	1,296,109
Net Claims Incurred	742,604	869,023	783,040	794,345	1,162,009	1,045,379	1,078,986	1,060,360
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,002,966	1,057,769	1,083,211	1,066,394
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,537	145,097	147,761
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,850	13,081	13,383
Total Claims Costs	798,045	993,537	923,722	936,917	1,150,934	1,210,156	1,241,389	1,227,538
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,472	80,381	83,409
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	46,151	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,515	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,295	168,162	175,347
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(178,688)	(196,923)	(174,764)	(106,777)
Investment Income	48,476	101,645	111,731	192,404	80,535	82,304	80,211	78,591
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,698	39,957	44,676	(2,330)
Net Investment Income	(4,038)	82,897	116,320	169,377	119,233	122,261	124,888	76,261
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(49,877)	(30,516)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,741	27,567	40,452	(8,365)

Appendix 3i
Combined Scenario with 85% MCT after Management Actio
Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	355,133	309,574	242,430	206,374
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(49,877)	(30,516)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	40,043	13,896	7,518	13,820	25,460
Total Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(50,382)	(47,112)	(44,428)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	1,730	3,270	2,684	10,037
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Rate Stabilization Reserve	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928

Appendix 3j
Combined Scenario with 85% MCT after Management Actio
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	35,739	2,209	-	-
Equity investments	2,083,349	2,189,534	2,272,545	2,525,543	2,639,008	2,771,157	2,885,456	2,989,723
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	2,231	-	-	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,139	61,118	63,133
	2,683,473	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,453,812	3,579,351
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,947,798	2,089,973	2,203,275	2,278,604
	2,452,472	2,624,484	2,705,292	2,771,763	2,938,888	3,123,731	3,291,865	3,412,423
Equity								
Retained earnings	194,499	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Equity	231,003	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,453,812	3,579,351

Appendix 3k
Combined Scenario with 85% MCT after Management Actio
Minimum Capital Tes

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	259,368	212,075	136,179	100,828	103,795
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	259,368	212,075	136,179	100,828	103,795
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	103,554	109,014	114,809
Unpaid claims	22	191,890	205,937	220,227	232,861	239,666
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	304,516	323,781	341,875	354,475
Market Risk:						
Interest rate risk	30	7,840	16,385	14,059	22,677	26,430
Foreign exchange risk	32	16,342	18,722	19,577	19,483	19,997
Equity risk	34	72,823	82,030	85,658	83,734	84,801
Real estate risk	36	26,763	27,726	28,477	29,463	31,023
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	123,768	144,863	147,771	155,357	162,251
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,502	60,401	62,818	65,987	67,751
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,502	60,401	62,818	65,987	67,751
Operational risk margin	50	65,160	71,379	74,615	78,822	81,875
Less: Diversification credit	52	55,418	65,517	68,144	71,748	74,493
Total Capital (Margin) Required at Target	59	459,561	515,642	540,841	570,293	591,859
Minimum Capital (Margin) Required (line 59 / 1.5)	60	306,374	343,761	360,560	380,196	394,572
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	306,374	343,761	360,560	380,196	394,572
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Required	79	(47,006)	(131,686)	(224,381)	(279,368)	(290,777)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	84.66%	61.69%	37.77%	26.52%	26.31%

Appendix 3

Combined Scenario with 85% MCT after Management Action

Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	517,281	524,293	566,357	576,416
Comprehensive	69,497	99,940	100,631	125,381	136,397	124,766
Property Damage	48,647	46,844	53,069	51,704	55,449	53,738
Public Liability - BI	4,680	5,025	6,453	6,033	3,535	5,397
PIPP	187,022	174,815	242,328	270,939	252,629	230,910
Total	726,240	765,440	919,763	978,350	1,014,366	991,228
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	13,373	15,788	12,763	5,807
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	17,460	8,710	(1,455)	9,149
Total Net Claims Incurred	767,240	786,142	1,002,966	1,057,770	1,083,211	1,066,394

Appendix 3m

Combined Scenario with 85% MCT after Management Actio
Deferred Policy Acquisition Expenses and Premium Deficienc

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	76.62%	77.68%	76.19%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9464	0.9538	0.9656	1.0000	1.0132					
	2020				0.9658	0.9761	1.0091	1.0207	1.0149				
	2021					0.9733	1.0040	1.0134	1.0055	1.0074			
	2022						1.0099	1.0201	1.0130	1.0157	1.0162		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.39%	77.58%	72.03%	73.25%	77.62%				76.07%	81.03%
	2020				78.56%	72.81%	73.92%	78.20%	78.84%			76.89%	82.33%
	2021					72.60%	73.55%	77.64%	78.11%	76.76%		75.98%	81.83%
	2022						73.98%	78.16%	78.69%	77.38%	75.28%	76.94%	82.96%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	#######	1,100,939	1,146,360	1,205,284	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.23%	8.18%	8.07%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.73%	2.69%
	Selected					3.16%	2.99%	2.88%	2.75%	2.73%	2.71%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	422,434	446,747	470,628	496,398
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,920	15,726	16,202
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	77,728	82,202	86,596	91,337
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	2,231	(5,203)	(1,765)	(9,519)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	28,506	32,013	33,996	35,391
	Change	2,363	(21,009)	17,460	3,507	1,983	1,395
18.	Premium Deficiency [c]	8,845	-	-	5,203	1,765	9,519
	Change	2,001	(8,845)	-	5,203	(3,439)	7,754

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 3n

Combined Scenario with 85% MCT after Management Action

Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	107	(0)	(0)	0
Marketable Bonds	44,346	53,246	56,687	58,917	61,245
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	77,715	78,751	78,769	78,938
Dividend and other Income					
Canadian Equities	9,646	5,913	4,692	4,862	5,044
Global	4,213	6,303	5,523	5,731	5,946
Global LV	-	3,049	3,033	3,143	3,242
Private Debt	-	3,746	10,007	10,040	10,067
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	22,073	26,950	27,477	27,930
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	5,166	35,022	33,498	(5,549)
Marketable Bonds Realized Gains/(Loss)	13,622	35,896	6,696	12,885	3,146
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	1,068	0	120	156
Global Equities Realized Gains	66,310	1,143	0	313	315
Global LV Realized Gains	-	307	-	288	272
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	53,630	52,198	58,194	10,077
Other					
Investment Fees Paid	(5,201)	(4,767)	(4,681)	(4,862)	(4,977)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,488	(726)	(4,359)	(5,819)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,151)	(19,720)	(23,978)	(26,003)
Total Corporate Investment Income	197,519	137,267	142,873	145,271	90,749
Total Basic Investment Income	169,377	119,233	122,261	124,888	76,261
% - Basic to Total Investment Income	85.75%	87%	86%	86%	84%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	1,105	943	1,027	5,629
US Equities Unrealized Gains/(Losses)	7,529	2,328	2,506	2,701	8,873
Global LV Unrealized Gains/(Losses)	-	1,445	1,531	1,670	4,427
Total Corporate Unrealized Gains/(Losses)	19,628	3,433	3,450	3,729	14,502
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,853.6	2,044.7	2,194.5
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	135.4	147.5	148.5	160.8
Global Equities	166.7	193.3	208.3	211.5	228.1
Global LV Equities	96.6	109.6	119.6	120.3	129.3
Private Debt	-	188.8	193.4	198.3	198.1
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,072.6	3,230.7	3,398.6	3,556.4
Total Basic Assets	2,568.3	2,688.3	2,786.9	2,899.2	3,005.0
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.4%	57.4%	60.2%	61.7%
MUSH	19.5%	17.0%	14.8%	12.7%	10.9%
Canadian Equities	4.2%	4.4%	4.6%	4.4%	4.5%
US Equities	5.7%	6.3%	6.4%	6.2%	6.4%
Global LV	3.3%	3.6%	3.7%	3.5%	3.6%
Private Debt	0.0%	6.1%	6.0%	5.8%	5.6%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 3o

Combined Scenario with 85% MCT after Management Action - Minimum Total Equity

Statement of Operations

(C$ 000s, except where noted)	*For the Years Ended February,*							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Motor Vehicles	854,170	886,998	955,941	1,019,281	1,062,418	1,106,525	1,175,080	1,223,300
Drivers	46,619	48,426	49,946	68,902	70,903	72,885	74,723	76,565
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Written	888,366	923,789	994,593	1,076,987	1,121,901	1,167,761	1,237,922	1,287,746
Net Premiums Earned								
Motor Vehicles	827,703	871,173	922,617	991,058	1,042,463	1,086,122	1,143,367	1,200,994
Drivers	45,787	47,606	48,819	59,546	69,896	71,887	73,798	75,638
Reinsurance Ceded	(12,423)	(11,635)	(11,294)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
Total Net Premiums Earned	861,066	907,144	960,142	1,039,407	1,100,939	1,146,360	1,205,284	1,264,513
Service Fees & Other Revenues	20,351	20,749	22,849	23,832	25,432	27,168	29,503	31,596
Total Earned Revenues	881,417	927,893	982,992	1,063,240	1,126,371	1,173,529	1,234,786	1,296,109
Net Claims Incurred	742,604	869,023	783,040	794,345	1,162,009	1,045,379	1,078,986	1,060,360
(a) Claims Incurred - Interest Rate Impact	(76,200)	(8,988)	(15,801)	(8,203)	(159,043)	12,390	4,224	6,035
Total Claims Incurred	666,404	860,035	767,239	786,143	1,002,966	1,057,769	1,083,211	1,066,394
Claims Expense	118,614	120,972	143,337	137,168	135,289	139,537	145,097	147,761
Road Safety/Loss Prevention	13,027	12,530	13,146	13,606	12,679	12,850	13,081	13,383
Total Claims Costs	798,045	993,537	923,722	936,917	1,150,934	1,210,156	1,241,389	1,227,538
Expenses								
Operating	71,641	72,785	70,201	75,060	73,539	76,472	80,381	83,409
Commissions	33,862	35,086	37,378	40,338	42,377	44,084	46,151	48,405
Premium Taxes	26,205	27,563	29,143	31,518	33,371	34,740	36,515	38,299
Regulatory/Appeal	3,675	4,889	4,443	4,669	4,839	4,999	5,114	5,233
Total Expenses	135,383	140,323	141,165	151,585	154,126	160,295	168,162	175,347
Underwriting Income (Loss)	(52,011)	(205,968)	(81,896)	(25,262)	(178,688)	(196,923)	(174,764)	(106,777)
Investment Income	48,476	101,645	111,731	192,404	80,535	82,304	80,211	78,591
(b) Investment Income - Interest Rate Impact	(52,515)	(18,748)	4,589	(23,026)	38,698	39,957	44,676	(2,330)
Net Investment Income	(4,038)	82,897	116,320	169,377	119,233	122,261	124,888	76,261
Net Income (Loss)	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(49,877)	(30,516)
Total net Impact due to interest rate change (b) - (a)	23,685	(9,760)	20,390	(14,824)	197,741	27,567	40,452	(8,365)

Appendix 3p

Combined Scenario with 85% MCT after Management Action - Minimum Total Equit

Statement of Changes in Equity

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
Retained Earnings								
Beginning Balance	177,818	194,498	99,251	170,975	355,133	309,574	242,430	206,374
Net Income (Loss) from annual operations	(56,049)	(123,071)	34,424	144,115	(59,456)	(74,662)	(49,877)	(30,516)
Premium Rebate	-	-	-	-	-	-	-	-
Transfer (to) / from Non-Basic Retained Earnings	72,729	27,824	37,300	40,043	13,896	7,518	13,820	25,460
Total Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Total Accumulated Other Comprehensive Income								
Beginning Balance	35,262	36,504	81,748	39,870	(52,111)	(50,382)	(47,112)	(44,428)
Other Comprehensive Income for the Year	1,242	45,245	(41,878)	(91,981)	1,730	3,270	2,684	10,037
Total Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Total Equity								
Rate Stabilization Reserve								
Retained Earnings	194,498	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Accumululated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Rate Stabilization Reserve	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Retained Earnings in excess of Rate Stabilization Reserve	-	-	-	-	-	-	-	-
Total Equity Balance	231,002	181,000	210,845	303,022	259,192	195,319	161,946	166,928

Appendix 3q
Combined Scenario with 85% MCT after Management Action - Minimum Total Equi
Balance Sheet

(C$ 000s, except where noted)	For the Years Ended February,							
	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P
BASIC								
Assets								
Cash and investments	29,114	61,606	72,998	28,820	35,739	2,209	-	-
Equity investments	2,083,349	2,189,534	2,272,545	2,525,543	2,639,008	2,771,157	2,885,456	2,989,723
Investment property	35,789	35,615	34,720	13,906	13,548	13,553	13,760	15,246
Due from other insurance companies	25	16	2	-	-	-	-	-
Accounts receivable	375,262	355,389	389,900	354,564	369,386	383,995	405,143	421,022
Prepaid expenses	-	-	-	-	-	-	-	-
Deferred policy acquisition costs	4,782	-	-	18,443	2,231	-	-	-
Reinsurers' share of unearned premiums	-	-	-	-	-	-	-	-
Reinsurers' share of unearned claims	998	611	1,269	-	-	-	-	-
Property and equipment	88,740	89,847	89,280	89,855	91,050	88,996	88,335	90,227
Deferred development costs	65,414	72,866	55,423	43,654	47,118	59,139	61,118	63,133
	2,683,473	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,453,812	3,579,351
Liabilities								
Due to other insurance companies	152	147	141	144	144	144	144	144
Accounts payable and accrued liabilites	38,860	40,443	39,327	40,996	40,602	41,678	43,356	44,182
Financing lease obligation	3,278	3,239	3,125	2,925	2,843	2,743	2,634	2,518
Unearned premiums and fees	453,389	472,041	508,089	547,303	571,642	596,699	633,296	660,816
Provision for employee current benefits	16,871	16,919	16,633	17,155	17,865	18,583	19,310	20,046
Provision for employee future benefits	281,209	301,245	331,910	341,796	357,994	373,911	389,852	406,113
Provision for unpaid claims	1,658,713	1,790,450	1,806,067	1,821,444	1,947,798	2,089,973	2,203,275	2,278,604
	2,452,472	2,624,484	2,705,292	2,771,763	2,938,888	3,123,731	3,291,865	3,412,423
Equity								
Retained earnings	194,499	99,251	170,975	355,133	309,574	242,430	206,374	201,319
Accumulated Other Comprehensive Income	36,504	81,749	39,870	(52,111)	(50,382)	(47,112)	(44,428)	(34,391)
Total Equity	231,003	181,000	210,845	303,022	259,192	195,319	161,946	166,928
Total Liabilities & Equity	2,683,475	2,805,484	2,916,137	3,074,785	3,198,080	3,319,049	3,453,812	3,579,351

Appendix 3r

Combined Scenario with 85% MCT after Management Action - Minimum Total Equit Minimum Capital Test

(All figures in $000s)		2018 - 2019 Current Year (01)	2019 - 2020 Forecast Year (02)	2020 - 2021 Forecast Year (03)	2021 - 2022 Forecast Year (04)	2022 - 2023 Forecast Year (05)
Capital Available:						
Capital available (from page 30.62 - capital available)	01	259,368	212,075	136,179	100,828	103,795
Phase-in of capital available	03	0	0	0	0	0
Total Capital Available	09	259,368	212,075	136,179	100,828	103,795
Assets Available:						
Net Assets Available (from page 30.92 - net assets available)	11	0	0	0	0	0
Phase-in of net assets available	13	0	0	0	0	0
Total Net Assets Available	19	0	0	0	0	0
Capital (Margin) Required at Target:						
Insurance Risk:						
Premium liabilities	20	94,659	98,579	103,554	109,014	114,809
Unpaid claims	22	191,890	205,937	220,227	232,861	239,666
Catastrophes	24	0	0	0	0	0
Margin required for reinsurance ceded to unregistered insurers	26	0	0	0	0	0
Subtotal: Insurance risk margin	29	286,549	304,516	323,781	341,875	354,475
Market Risk:						
Interest rate risk	30	7,840	16,385	14,059	22,677	26,430
Foreign exchange risk	32	16,342	18,722	19,577	19,483	19,997
Equity risk	34	72,823	82,030	85,658	83,734	84,801
Real estate risk	36	26,763	27,726	28,477	29,463	31,023
Other market risk exposures	38	0	0	0	0	0
Subtotal: Market risk margin	39	123,768	144,863	147,771	155,357	162,251
Credit Risk:						
Counterparty default risk for balance sheet assets	40	39,502	60,401	62,818	65,987	67,751
Counterparty default risk for off-balance sheet exposures	42	0	0	0	0	0
Counterparty default risk for unregistered reinsurance collateral and SIRs	44	0	0	0	0	0
Subtotal: Credit risk margin	49	39,502	60,401	62,818	65,987	67,751
Operational risk margin	50	65,160	71,379	74,615	78,822	81,875
Less: Diversification credit	52	55,418	65,517	68,144	71,748	74,493
Total Capital (Margin) Required at Target	59	459,561	515,642	540,841	570,293	591,859
Minimum Capital (Margin) Required (line 59 / 1.5)	60	306,374	343,761	360,560	380,196	394,572
Phase-in of Capital (Margin) Required	62	0	0	0	0	0
Total Minimum Capital (Margin) Required	69	306,374	343,761	360,560	380,196	394,572
Excess Capital (Net Assets Available) over Minimum Capital (Margin) Requi	79	(47,006)	(131,686)	(224,381)	(279,368)	(290,777)
MCT (BAAT) Ratio (Line 09 or line 19 as a % of line 69)	90	84.66%	61.69%	37.77%	26.52%	26.31%

Appendix 3s

Combined Scenario with 85% MCT after Management Action - Minimum Total Equity

Net Claims Incurred Summary

(C$ 000s, except where noted)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Claims Incurred before Financial Provisions						
Collision	415,906	438,817	517,281	524,293	566,357	576,416
Comprehensive	69,497	99,940	100,631	125,381	136,397	124,766
Property Damage	48,647	46,844	53,069	51,704	55,449	53,738
Public Liability - BI	4,680	5,025	6,453	6,033	3,535	5,397
PIPP	187,022	174,815	242,328	270,939	252,629	230,910
Total	726,240	765,440	919,763	978,350	1,014,366	991,228
Unallocated Loss Adjustment Expenses	42,252	50,135	52,371	54,921	57,537	60,210
Change in Internal Loss Adjustment Expense Provision	(2,219)	421	13,373	15,788	12,763	5,807
Change in Reinsurance Ceded Provision	(676)	0	0	0	0	0
Other Financial Adjustments	(2,722)	0	0	0	0	0
Change in DPAC / Premium Deficiency Provision	4,364	(29,854)	17,460	8,710	(1,455)	9,149
Total Net Claims Incurred	767,240	786,142	1,002,966	1,057,770	1,083,211	1,066,394

Appendix 3t

Combined Scenario with 85% MCT after Management Action - Minimum Total Equit
Deferred Policy Acquisition Expenses and Premium Deficienc

A. Claims (Including External Adjustment Expense) Data

		Accident Year										Selected	Selected
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Undisc	Disc
1.	Ultimate Loss Ratio - Total All Coverage	83.09%	72.79%	81.77%	81.34%	74.59%	73.25%	76.62%	77.68%	76.19%	74.08%		
2.	Trend/Rate Adjustment for Fiscal Year												
	2017	0.9142	0.9259	0.9555	0.9697	0.9888							
	2018		0.9151	0.9384	0.9464	0.9589	0.9937						
	2019			0.9464	0.9538	0.9656	1.0000	1.0132					
	2020				0.9658	0.9761	1.0091	1.0207	1.0149				
	2021					0.9733	1.0040	1.0134	1.0055	1.0074			
	2022						1.0099	1.0201	1.0130	1.0157	1.0162		
3.	Adjusted Loss Ratio for Fiscal Year [(1) x (2)]												
	2017	75.96%	67.39%	78.12%	78.88%	73.76%						75.95%	80.85%
	2018		66.61%	76.73%	76.98%	71.52%	72.79%					73.68%	78.15%
	2019			77.39%	77.58%	72.03%	73.25%	77.62%				76.07%	81.03%
	2020				78.56%	72.81%	73.92%	78.20%	78.84%			76.89%	82.33%
	2021					72.60%	73.55%	77.64%	78.11%	76.76%		75.98%	81.83%
	2022						73.98%	78.16%	78.69%	77.38%	75.28%	76.94%	82.96%

B. Actual Data Other Than Losses

		Fiscal Year									
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4.	Net Earned Premium	764,671	803,881	861,065	907,145	960,142	#######	1,100,939	1,146,360	1,205,284	1,264,513
5.	Operating Expenses as % of Earned Premium	11.06%	11.14%	10.26%	9.94%	8.99%	8.98%	8.27%	8.23%	8.18%	8.07%
6.	Maintenance Expense Rate [(5) x 1/3]	3.69%	3.71%	3.42%	3.31%	3.00%	2.99%	2.76%	2.74%	2.73%	2.69%
	Selected					3.16%	2.99%	2.88%	2.75%	2.73%	2.71%
7.	ILAE Ratio to Losses - Selected					18.40%	18.40%	18.40%	18.40%	18.40%	18.40%

C. Equity in Unearned Premium

8.	Net Unearned Premium	468,613	506,193	527,155	548,556	581,194	604,428
9.	Additional Expected Cost of Non-Proportional Reinsurance	5,598	5,710	5,824	5,941	6,059	6,059
10.	Expected Claims (Including Ext Adj Expenses) [((8) - (9)) x (3)]	383,468	391,133	422,434	446,747	470,628	496,398
11.	Reinsurance PFAD	10	-	-	-	-	-
12.	Maintenance Expense [a]	13,837	14,989	14,988	14,920	15,726	16,202
13.	Internal Loss Adjustment Expense [Sheet 1, Row 11]	70,595	71,968	77,728	82,202	86,596	91,337
14.	Expected Claims (Including Ext Adj Expenses) - PIPP Enhancement	3,950	3,950	3,950	3,950	3,950	3,950
15.	Equity in Unearned Premium [(8) - Sum((9) to (14))]	(8,845)	18,443	2,231	(5,203)	(1,765)	(9,519)
16.	Carried Deferred Policy Acquisition Expenses	32,055	29,489	30,737	32,013	33,996	35,391
17.	Write Down Deferred Policy Acquisition Expenses [b]	32,055	11,046	28,506	32,013	33,996	35,391
	Change	2,363	(21,009)	17,460	3,507	1,983	1,395
18.	Premium Deficiency [c]	8,845	-	-	5,203	1,765	9,519
	Change	2,001	(8,845)	-	5,203	(3,439)	7,754

Notes:

[a] ((8) - (9)) x (6) x Discount to Valuation Date Without Margin

[b] Min((16) - (15), (16)) if greater than 0, otherwise 0

[c] Negative of (15) if greater than 0, otherwise 0

Appendix 3u

Combined Scenario with 85% MCT after Management Action - Minimum Total Equity

Summary of Corporate Investment Income

	2018/19	2019/20	2020/21	2021/22	2022/23
			Forecasted		
Interest Income During Period					
Cash/Short Term Investments	255	107	(0)	(0)	0
Marketable Bonds	44,346	53,246	56,687	58,917	61,245
MUSH	26,759	24,361	22,065	19,852	17,693
Total	71,361	77,715	78,751	78,769	78,938
Dividend and other Income					
Canadian Equities	9,646	5,913	4,692	4,862	5,044
Global	4,213	6,303	5,523	5,731	5,946
Global LV	-	3,049	3,033	3,143	3,242
Private Debt	-	3,746	10,007	10,040	10,067
Investment Properties (Cityplace)	4,940	1,926	2,512	2,452	2,312
Infrastructure	1,472	1,136	1,183	1,249	1,319
Total	20,271	22,073	26,950	27,477	27,930
Gains During Period - Profit & Loss					
Marketable Bonds Unrealized Gains/(Loss)	(40,474)	5,166	35,022	33,498	(5,549)
Marketable Bonds Realized Gains/(Loss)	13,622	35,896	6,696	12,885	3,146
MUSH	-	-	-	-	-
Canadian Equities Realized Gains	69,208	1,068	0	120	156
Global Equities Realized Gains	66,310	1,143	0	313	315
Global LV Realized Gains	-	307	-	288	272
Real Estate (Pooled Fund)	16,307	5,601	5,845	6,196	6,568
Infrastructure	5,765	4,448	4,635	4,894	5,168
Total	130,739	53,630	52,198	58,194	10,077
Other					
Investment Fees Paid	(5,201)	(4,767)	(4,681)	(4,862)	(4,977)
Pension Expense	(13,441)	(13,872)	(14,313)	(14,757)	(15,207)
Amortization on Marketable Bonds (Prem) / Discount	(6,209)	2,488	(726)	(4,359)	(5,819)
Investment Write-Down	-	-	-	-	-
Total	(24,851)	(16,151)	(19,720)	(23,978)	(26,003)
Total Corporate Investment Income	197,519	137,267	142,873	145,271	90,749
Total Basic Investment Income	169,377	119,233	122,261	124,888	76,261
% - Basic to Total Investment Income	85.75%	87%	86%	86%	84%
Equity Unrealized Gains/(Losses)					
Canadian Equities Unrealized Gains/(Losses)	12,099	1,105	943	1,027	5,629
US Equities Unrealized Gains/(Losses)	7,529	2,328	2,506	2,701	8,873
Global LV Unrealized Gains/(Losses)	-	1,445	1,531	1,670	4,427
Total Corporate Unrealized Gains/(Losses)	19,628	3,433	3,450	3,729	14,502
Ending Asset Values for Corporate ($Millions)					
Cash/Short Term Investments	-	-	-	-	-
Canadian Fixed Income	1,758.1	1,701.8	1,853.6	2,044.7	2,194.5
MUSH	569.3	522.8	477.0	432.3	386.3
Canadian Equities	123.3	135.4	147.5	148.5	160.8
Global Equities	166.7	193.3	208.3	211.5	228.1
Global LV Equities	96.6	109.6	119.6	120.3	129.3
Private Debt	-	188.8	193.4	198.3	198.1
Real Estate	133.5	138.1	143.9	150.7	161.8
Infrastructure & Venture Capital	78.3	82.8	87.4	92.3	97.5
Total Ending Asset Values	2,925.9	3,072.6	3,230.7	3,398.6	3,556.4
Total Basic Assets	2,568.3	2,688.3	2,786.9	2,899.2	3,005.0
Ending Rebalanced Allocations (%)					
Cash/Short Term Investments	0.0%	0.0%	0.0%	0.0%	0.0%
Canadian Fixed Income	60.1%	55.4%	57.4%	60.2%	61.7%
MUSH	19.5%	17.0%	14.8%	12.7%	10.9%
Canadian Equities	4.2%	4.4%	4.6%	4.4%	4.5%
US Equities	5.7%	6.3%	6.4%	6.2%	6.4%
Global LV	3.3%	3.6%	3.7%	3.5%	3.6%
Private Debt	0.0%	6.1%	6.0%	5.8%	5.6%
Real Estate	4.6%	4.5%	4.5%	4.4%	4.5%
Infrastructure & Venture Capital	2.7%	2.7%	2.7%	2.7%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Undertaking #8

MPI to provide information on what reserves they have and what each purpose and amount is.

RESPONSE:

In the discussion between Mr. Johnston and Mr. Oakes on transcript pages 579 through 581, Mr. Oakes asks what other types of reserves the corporation holds. For example, the discussion references the reserves held for claims liabilities. MPI's interpretation of this request is that Mr. Oakes would like to know what other risk provisions the Corporation holds *in addition to* the Rate Stabilization Reserve.

The most significant risk provisions held by the Basic line of business relate to claims liabilities and to provisions for employee current and future benefits (including pension). The Corporation's external appointed actuary and the Corporation's pension actuary are required by Accepted Actuarial Practice to conduct their valuations on a 'best estimate' basis and to then add provisions for adverse deviation to these estimates. While these provisions are 'reserves' in excess of the best estimate amounts, they are not available for the same purpose as the Rate Stabilization Reserve. For example, when an adverse event occurs, the Corporation would not release employee future benefit provisions to fund the losses or prevent RSR rebuilding fees.

The Corporation has other provisions, margins, and contingencies that are used for such things as accounts receivables. Details related to the areas of critical judgments and key sources of estimation uncertainty can be found on page 19 of the Universal Compulsory Automobile Insurance Annual Financial Statements that are included in Section VIII, Annual Reports, Appendix 1. These amounts are considered standard practice and would be significantly less in magnitude than the provisions on claims and the provisions for employee current and future benefits. Similarly, the Corporation would not be able to release these amounts as a means to recover from adverse events or prevent RSR rebuilding fees, and therefore, they should not be considered 'reserves' in the same manner as the Rate Stabilization Reserve.

Undertaking #12

Mercer to confirm whether or not the stress tests portrayed on Slide 24 of Appendix 17, Attachment (a) were undertaken, and if so, to provide them. And if they weren't done, if Mercer is aware of the reasons why they were not done.

RESPONSE:

Mercer provided the following response:

On review of our file notes, the stress tests outlined on Slide 24 of Appendix 17, Attachment A were discussed following the November 8, 2017 meeting. Due to time constraints, it was agreed on November 22, 2017 to first proceed with the following 3 scenarios.

- 1. Market Correction: 33% decline in equity return, decline in yields
- 2. Inflation Shock: High inflation, higher yields and lower P/E Ratios
- 6. Deflation

Unfortunately, we were unable to complete the stress tests in advance of the Investment Committee meeting on November 28, 2017. Our modeler indicated that there were quality control issues with the first three stress tests on November 28, 2017. Given that the investment committee meeting had occurred and given concerns regarding overall modeling costs, peer review of the results was not completed and the results were not finalized.

Mercer has recently completed the three stress tests identified above, and the results are provided in Appendix A.

HEALTH WEALTH CAREER

ASSET LIABILITY STUDY

PHASE 2 STRESS TESTS

Manitoba Public Insurance

OCTOBER 25, 2018

Dave Makarchuk
Pawel Piesowicz

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MPI ASSET LIABILITY STUDY
STRESS TESTING

- The stress tests outlined on Slide 24 of Appendix 17, Attachment A were discussed following the November 8, 2017 meeting. Due to time constraints, it was agreed on November 22, 2017 to first proceed with the following 3 scenarios.

    1. Market Correction: 33% decline in equity return, decline in yields
    2. Inflation Shock: High inflation, higher yields and lower P/E Ratios
    6. Deflation

Unfortunately, we were unable to complete the stress tests in advance of the Investment Committee meeting on November 28, 2017. Our modeller indicated that there were quality control issues with the first three stress tests on November 28, 2017. Given that the investment committee meeting had occurred and given concerns regarding overall modeling costs, peer review of the results was not completed and the results were not finalized.

- In October 2018 we returned to this project and finalized projections for Basic under the 3 scenarios above.

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STRESS TESTING

- We have performed the following stress tests of the current and alternative asset mixes*

Scenario	Description
Base Case	5-yr trend to “equilibrium” of inflation = 2.0% and growth = 1.9%
Market Correction	The market correction scenario is meant to capture a swift bear market in equities with a moderately paced recovery. Economic conditions do not change dramatically during the correction; it is mainly an equity market valuation event
Inflation Shock	The Inflation Shock scenario shows the effect of a sharp rise in inflation that is not caused directly by the business cycle, such as the early 1970s period caused by the OPEC oil embargo. As nominal interest rates rise sharply, bonds experience sharp losses. Economic growth slows as consumers and businesses adjust to the sharp price movements. Equity markets experience a sharp drop as valuations adjust to higher interest rates.
Deflation + Recession	This is a similar to the Great Depression of the 1930s or Japan of the 1990s. Economic growth slows and inflation drops near zero, leading to further slowing in economic growth, creating a vicious circle. The recovery period is long. Bond returns are high initially as rates fall, then are very low. Equity returns are very negative for a few years then turn sharply higher as a recovery builds

- The following charts show the impact on return and surplus under each of the above scenarios

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KEY STRESS TEST VARIABLES
MERCER ASSUMPTIONS (NOT FORWARD ASSUMPTIONS)

Scenario	Economic Variable	Year 1	Year 2	Year 3	Year 4	Year 5
Base Case	Inflation	2.0%	2.0%	2.0%	2.0%	2.0%
	Federal Long-term Yield	2.3%	2.3%	2.3%	2.4%	2.4%
	Overall Long-term Spread	0.8%	0.8%	0.8%	0.8%	0.7%
	Large Cap. Equity Return	6.5%	6.5%	6.5%	6.5%	6.5%
Market Correction	Inflation	2.7%	2.4%	2.0%	2.0%	2.0%
	Federal Long-term Yield	2.3%	2.4%	2.5%	2.5%	2.5%
	Overall Long-term Spread	0.8%	0.7%	0.7%	0.7%	0.7%
	Large Cap. Equity Return	-34.7%	37.1%	9.7%	6.5%	6.5%
Inflation Shock	Inflation	4.6%	7.1%	9.7%	5.9%	2.0%
	Federal Long-term Yield	4.8%	7.4%	10.0%	6.3%	2.5%
	Overall Long-term Spread	0.8%	0.7%	0.7%	0.7%	0.7%
	Large Cap. Equity Return	0.7%	3.4%	6.1%	34.5%	9.1%
Deflation + Recession	Inflation	0.1%	-0.9%	-1.8%	-1.2%	-0.5%
	Federal Long-term Yield	1.9%	1.5%	1.1%	1.3%	1.6%
	Overall Long-term Spread	1.1%	1.3%	1.5%	1.4%	1.2%
	Large Cap. Equity Return	-17.7%	-18.3%	-18.8%	39.7%	21.6%

- Asset gains/losses are reflected in the market value of assets each year
- Liability values are adjusted annually based on market value changes implied by the liability benchmark. They are also adjusted to reflect the difference (positive or negative) between the period-to-date inflation and 2%.

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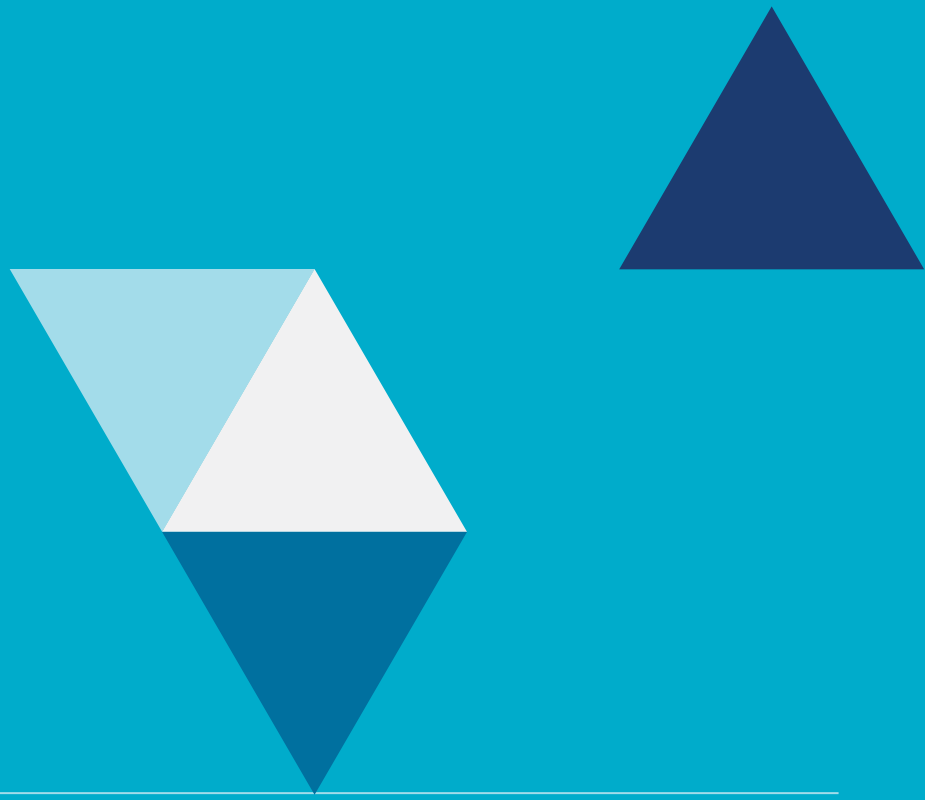
BASE CASE



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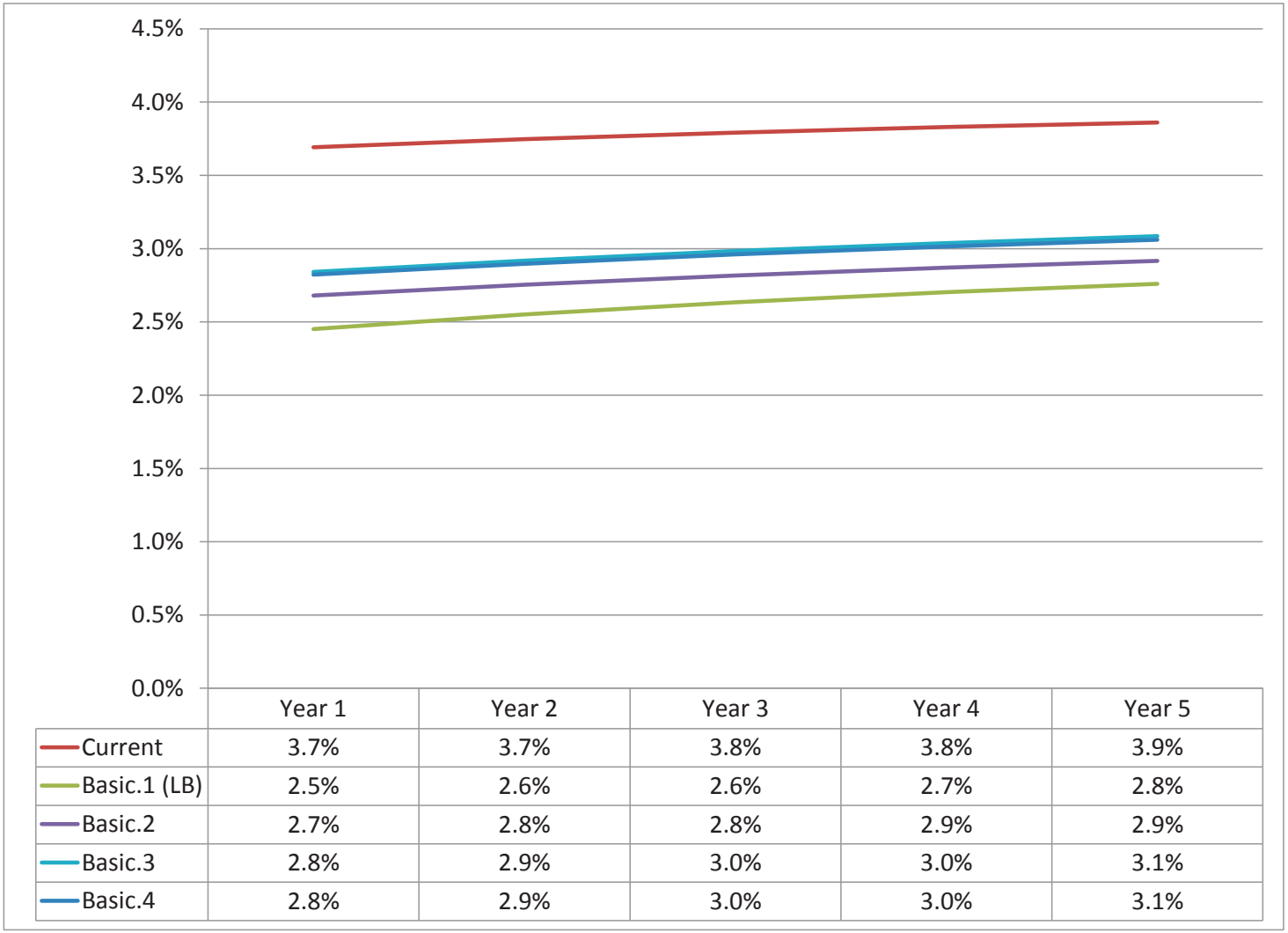
BASIC / BASE CASE / PORTFOLIO RETURN



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	3.7%	3.7%	3.8%	3.8%	3.9%
Basic.1 (LB)	2.5%	2.6%	2.6%	2.7%	2.8%
Basic.2	2.7%	2.8%	2.8%	2.9%	2.9%
Basic.3	2.8%	2.9%	3.0%	3.0%	3.1%
Basic.4	2.8%	2.9%	3.0%	3.0%	3.1%

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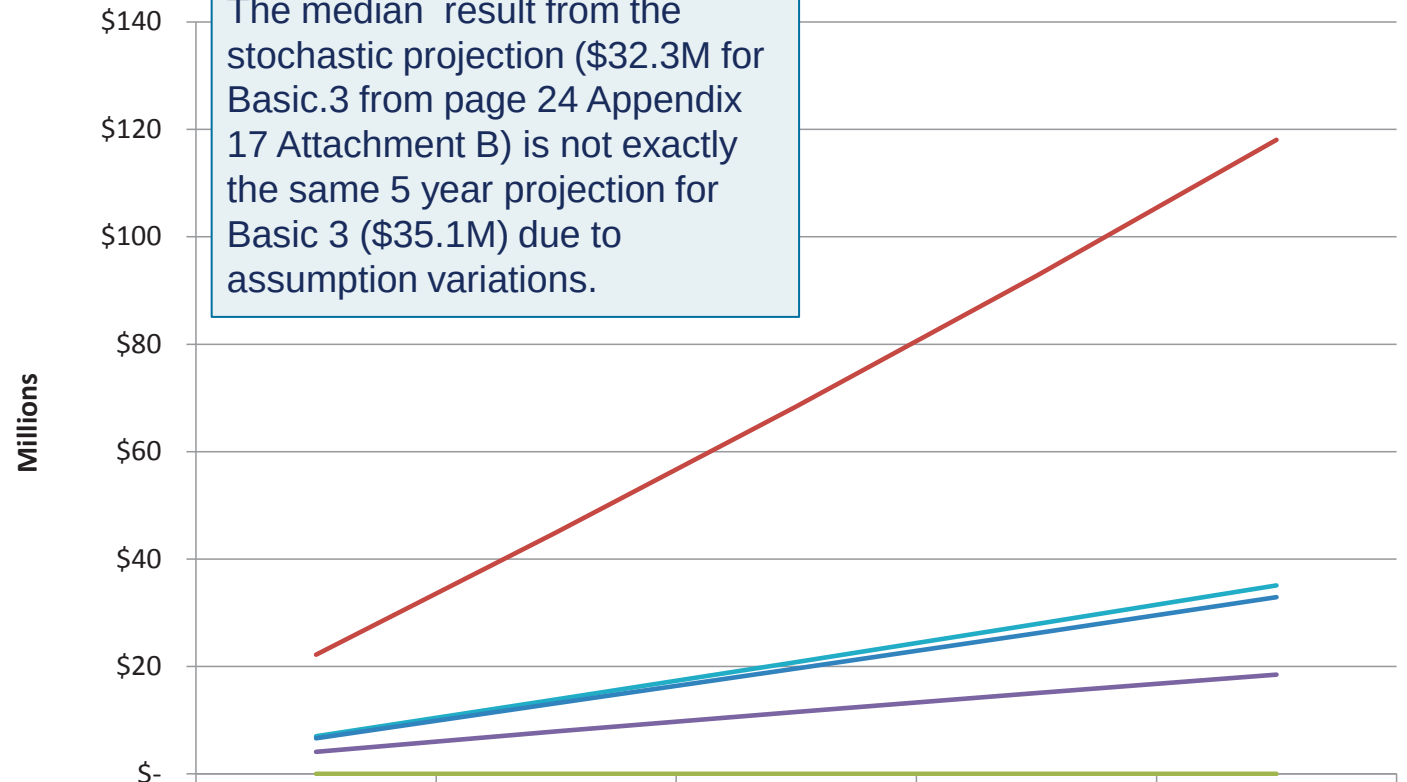
BASIC / BASE CASE / SURPLUS

The median result from the stochastic projection ($32.3M for Basic.3 from page 24 Appendix 17 Attachment B) is not exactly the same 5 year projection for Basic 3 ($35.1M) due to assumption variations.



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	22.2 M	44.9 M	68.4 M	92.7 M	118.0 M
Basic.1 (LB)	0.0 M	0.0 M	0.0 M	0.0 M	0.0 M
Basic.2	4.1 M	7.9 M	11.5 M	15.0 M	18.5 M
Basic.3	7.0 M	13.9 M	20.8 M	27.9 M	35.1 M
Basic.4	6.6 M	13.1 M	19.6 M	26.2 M	32.9 M

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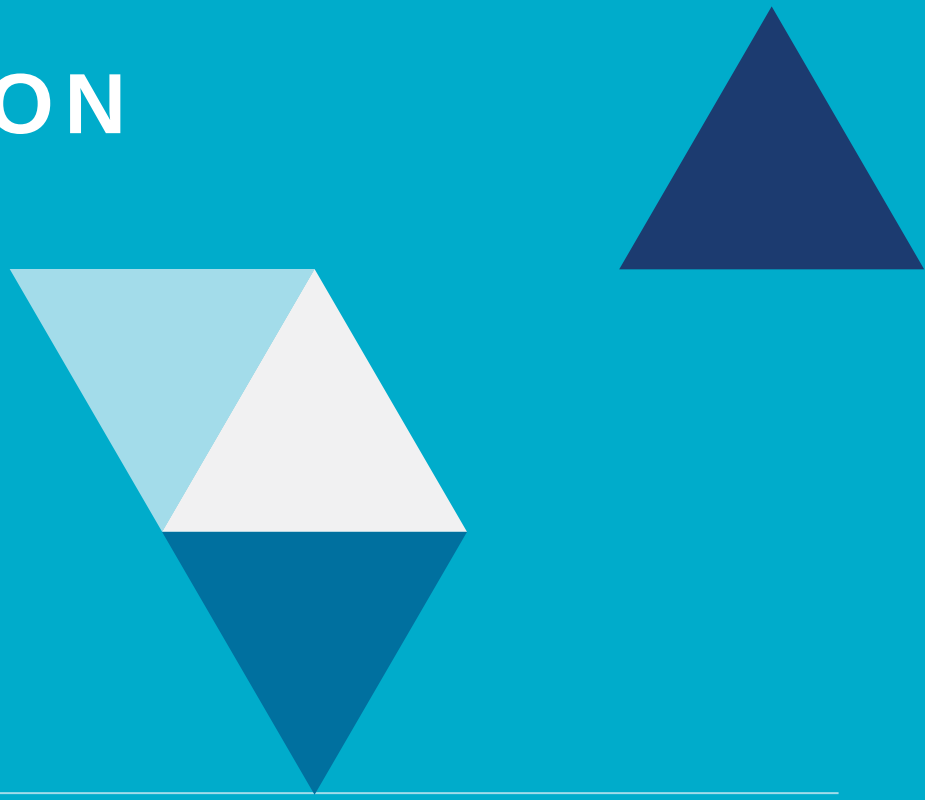
MARKET CORRECTION



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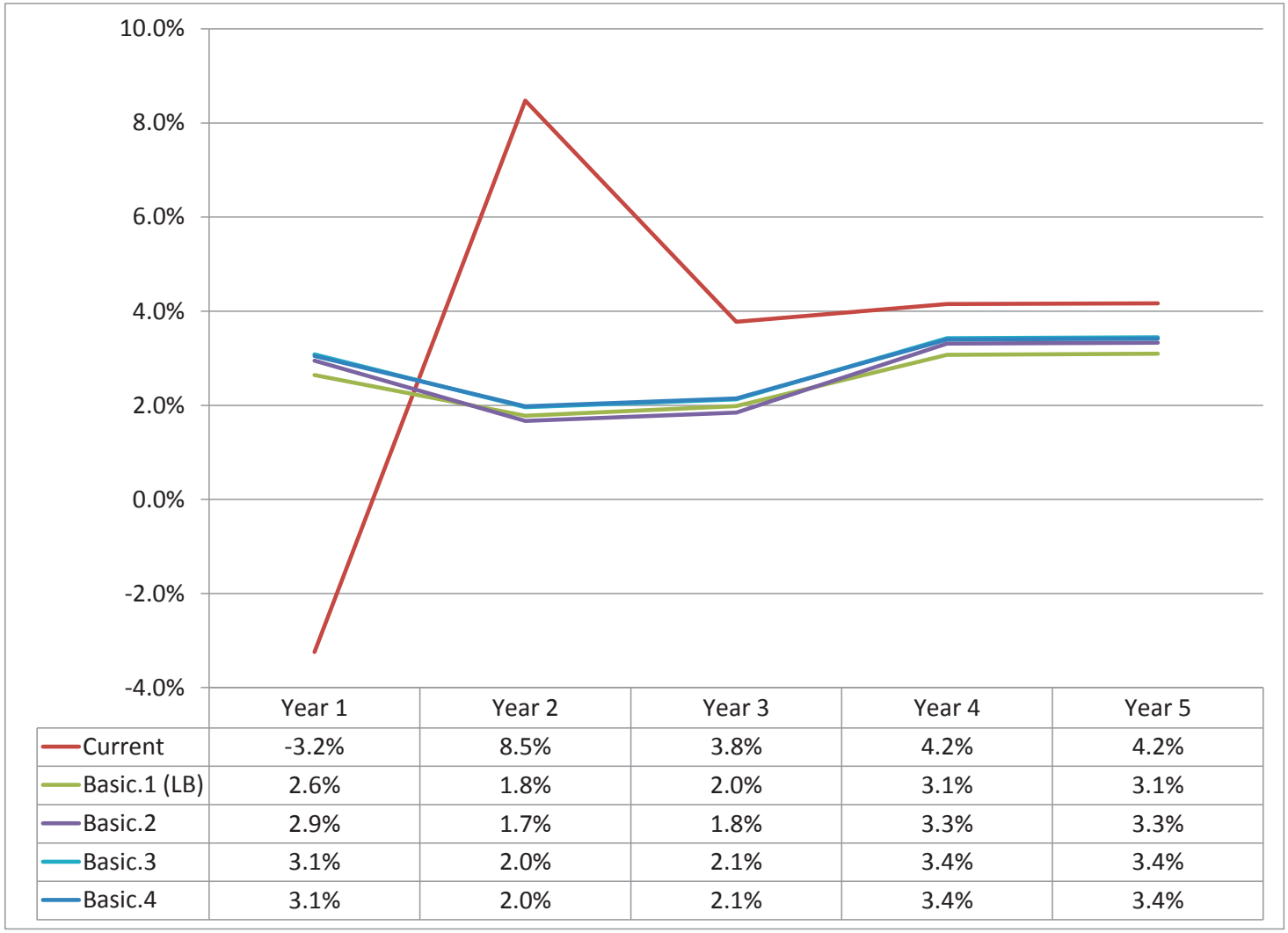
BASIC / MARKET CORRECTION / PORTFOLIO RETURN



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	-3.2%	8.5%	3.8%	4.2%	4.2%
Basic.1 (LB)	2.6%	1.8%	2.0%	3.1%	3.1%
Basic.2	2.9%	1.7%	1.8%	3.3%	3.3%
Basic.3	3.1%	2.0%	2.1%	3.4%	3.4%
Basic.4	3.1%	2.0%	2.1%	3.4%	3.4%

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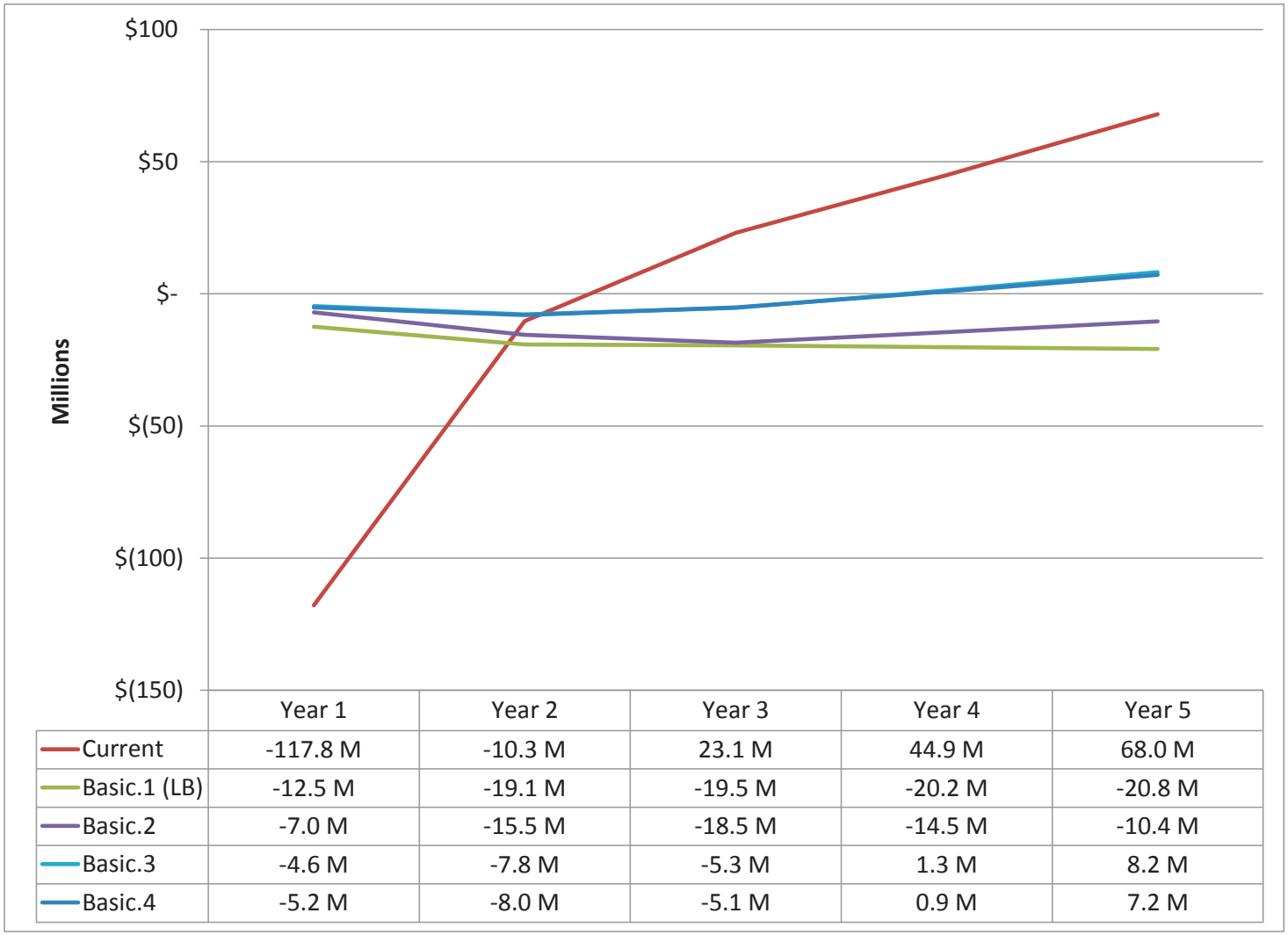
BASIC / MARKET CORRECTION / SURPLUS



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	-117.8 M	-10.3 M	23.1 M	44.9 M	68.0 M
Basic.1 (LB)	-12.5 M	-19.1 M	-19.5 M	-20.2 M	-20.8 M
Basic.2	-7.0 M	-15.5 M	-18.5 M	-14.5 M	-10.4 M
Basic.3	-4.6 M	-7.8 M	-5.3 M	1.3 M	8.2 M
Basic.4	-5.2 M	-8.0 M	-5.1 M	0.9 M	7.2 M

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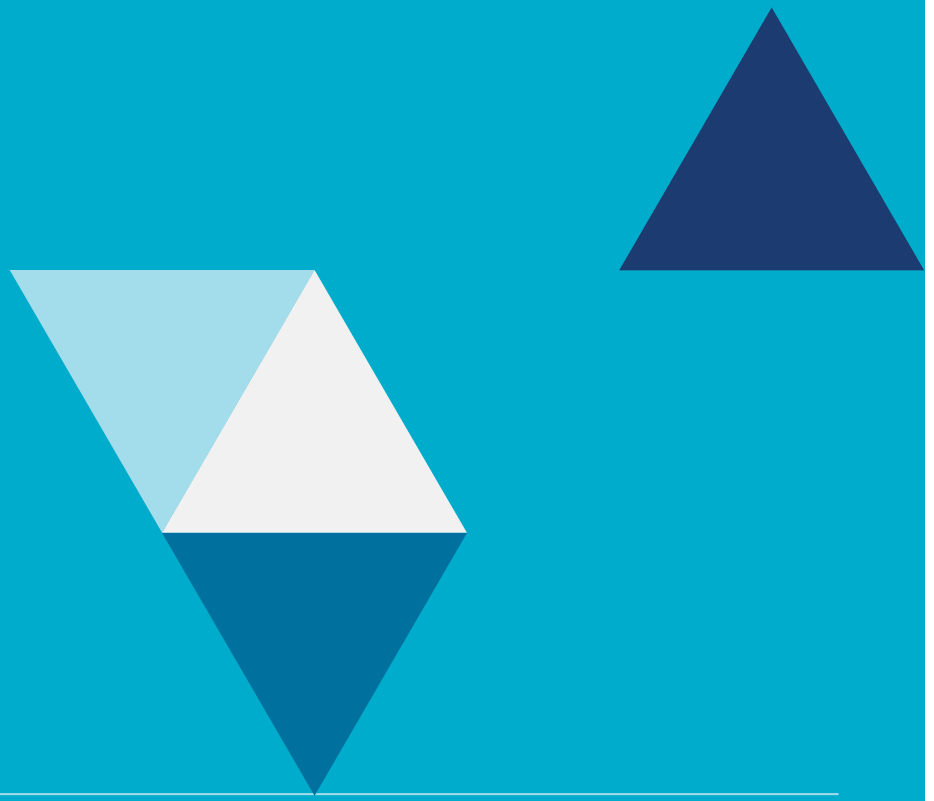
INFLATION SHOCK



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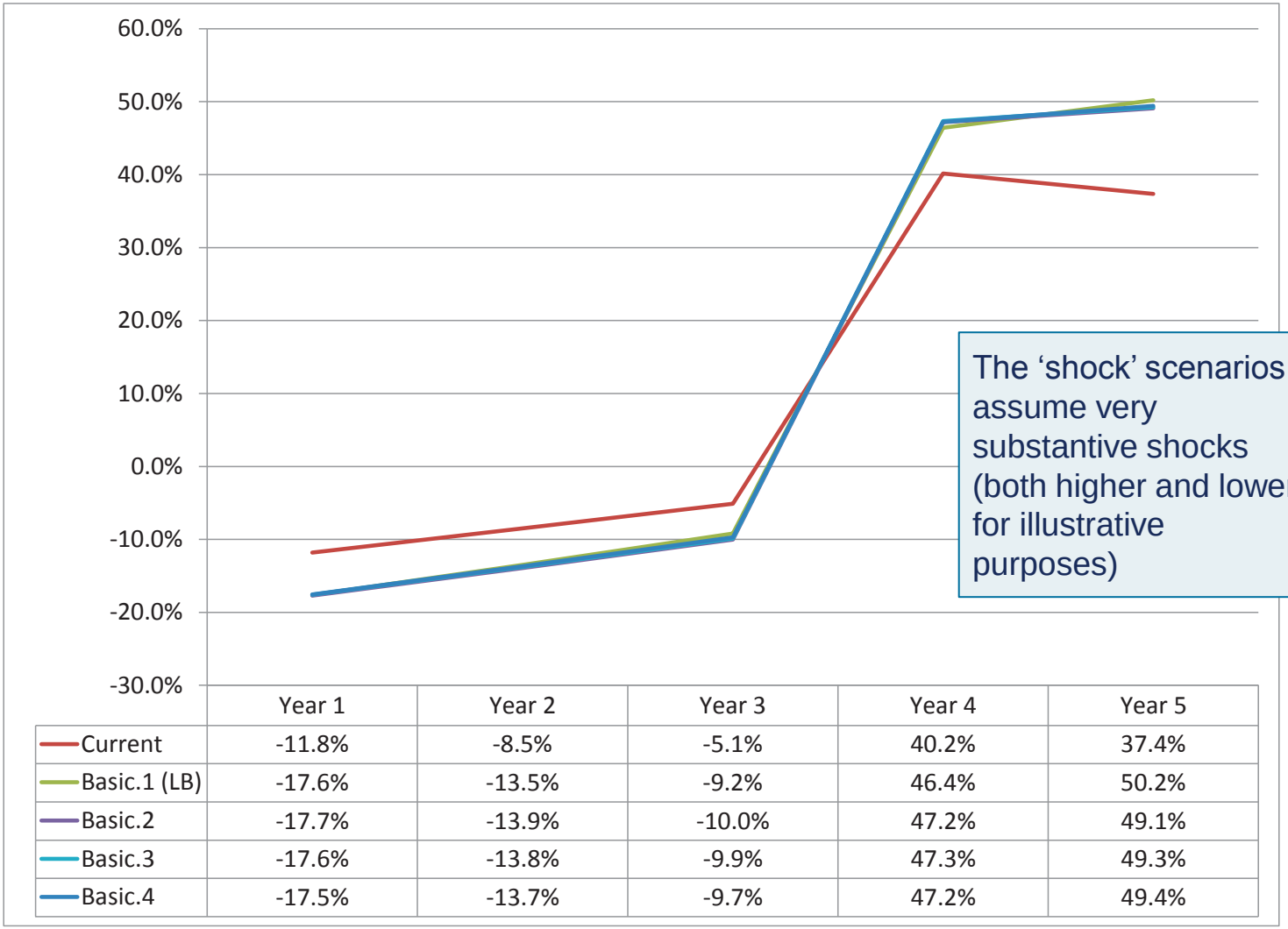
BASIC / INFLATION SHOCK / PORTFOLIO RETURN



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	-11.8%	-8.5%	-5.1%	40.2%	37.4%
Basic.1 (LB)	-17.6%	-13.5%	-9.2%	46.4%	50.2%
Basic.2	-17.7%	-13.9%	-10.0%	47.2%	49.1%
Basic.3	-17.6%	-13.8%	-9.9%	47.3%	49.3%
Basic.4	-17.5%	-13.7%	-9.7%	47.2%	49.4%

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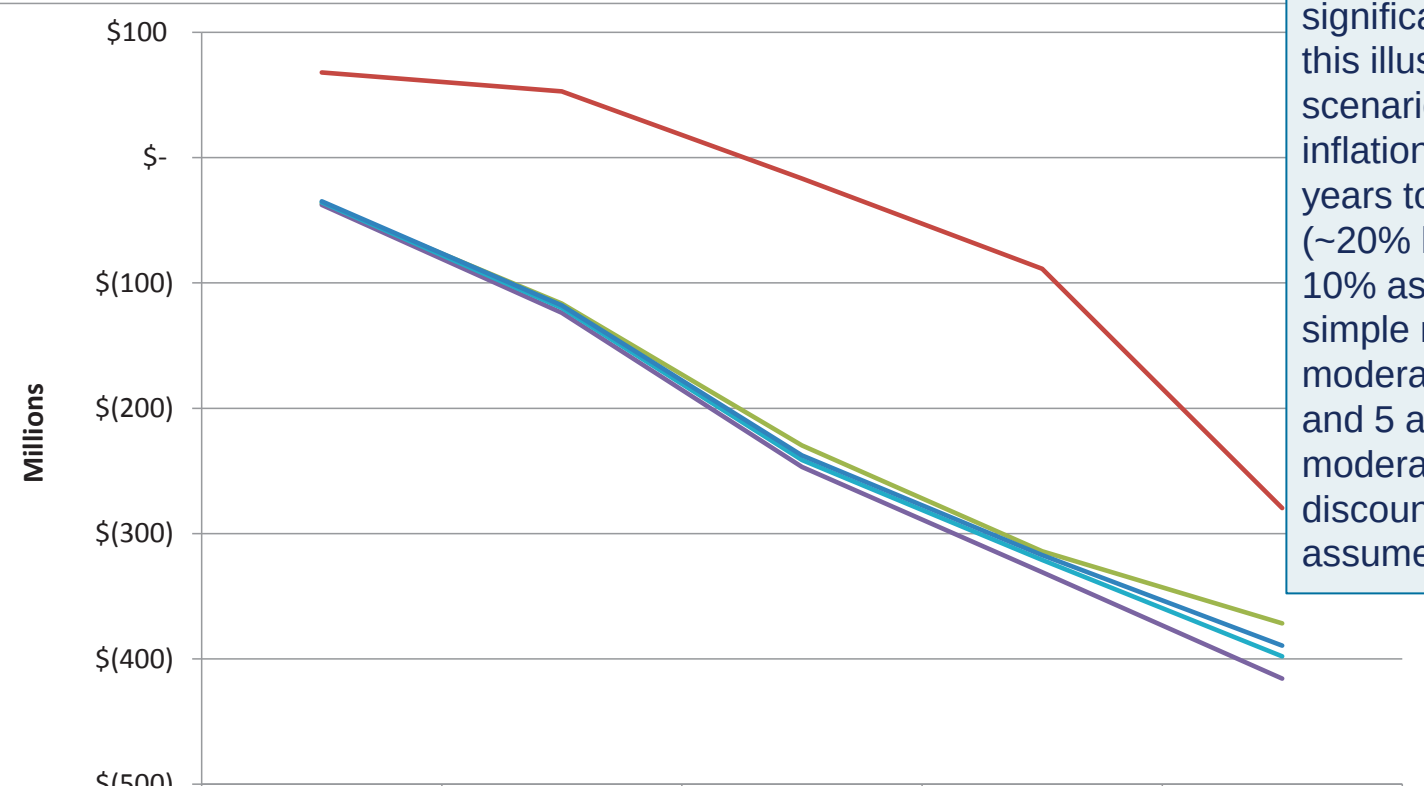
BASIC / INFLATION SHOCK / SURPLUS

Losses would emerge if inflation and rates significantly rise. In this illustrated scenario, cumulative inflation over the 5 years totals ~30% (~20% higher than the 10% assumed using simple math). Losses moderate in years 4 and 5 as inflation moderates, but the discount rate is assumed to fall.



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	67.9 M	52.8 M	-16.8 M	-88.6 M	-279.6 M
Basic.1 (LB)	-36.7 M	-116.5 M	-229.6 M	-314.1 M	-371.6 M
Basic.2	-37.8 M	-123.9 M	-246.9 M	-330.9 M	-415.6 M
Basic.3	-35.6 M	-119.9 M	-241.4 M	-321.0 M	-397.8 M
Basic.4	-34.9 M	-118.0 M	-237.7 M	-317.1 M	-389.4 M

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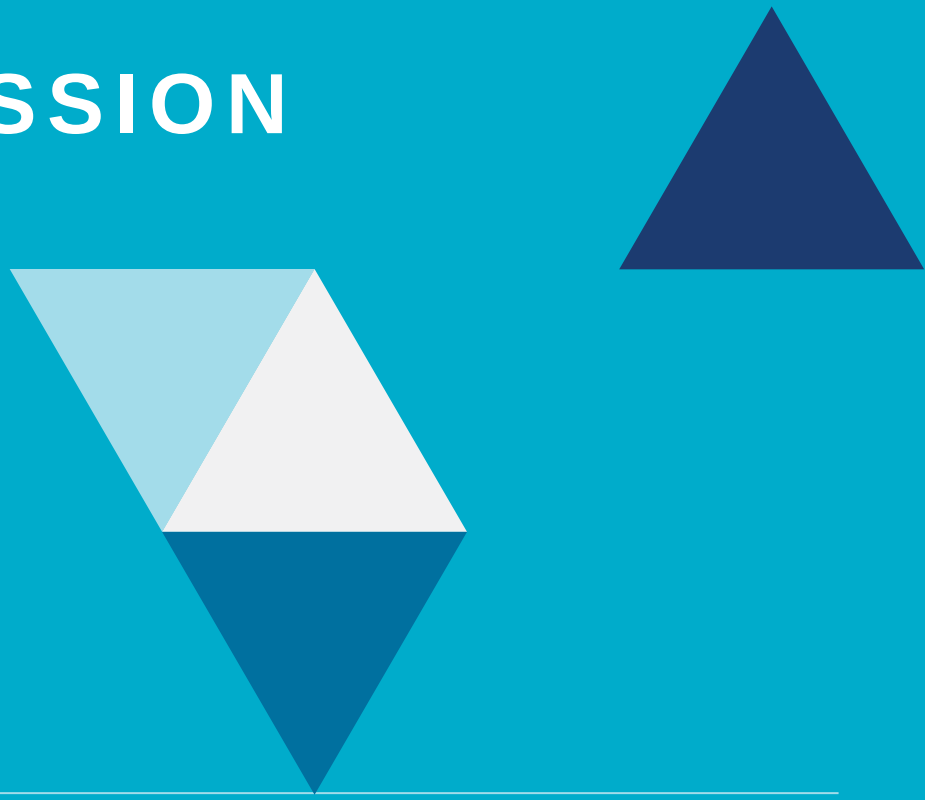
DEFLATION + RECESSION



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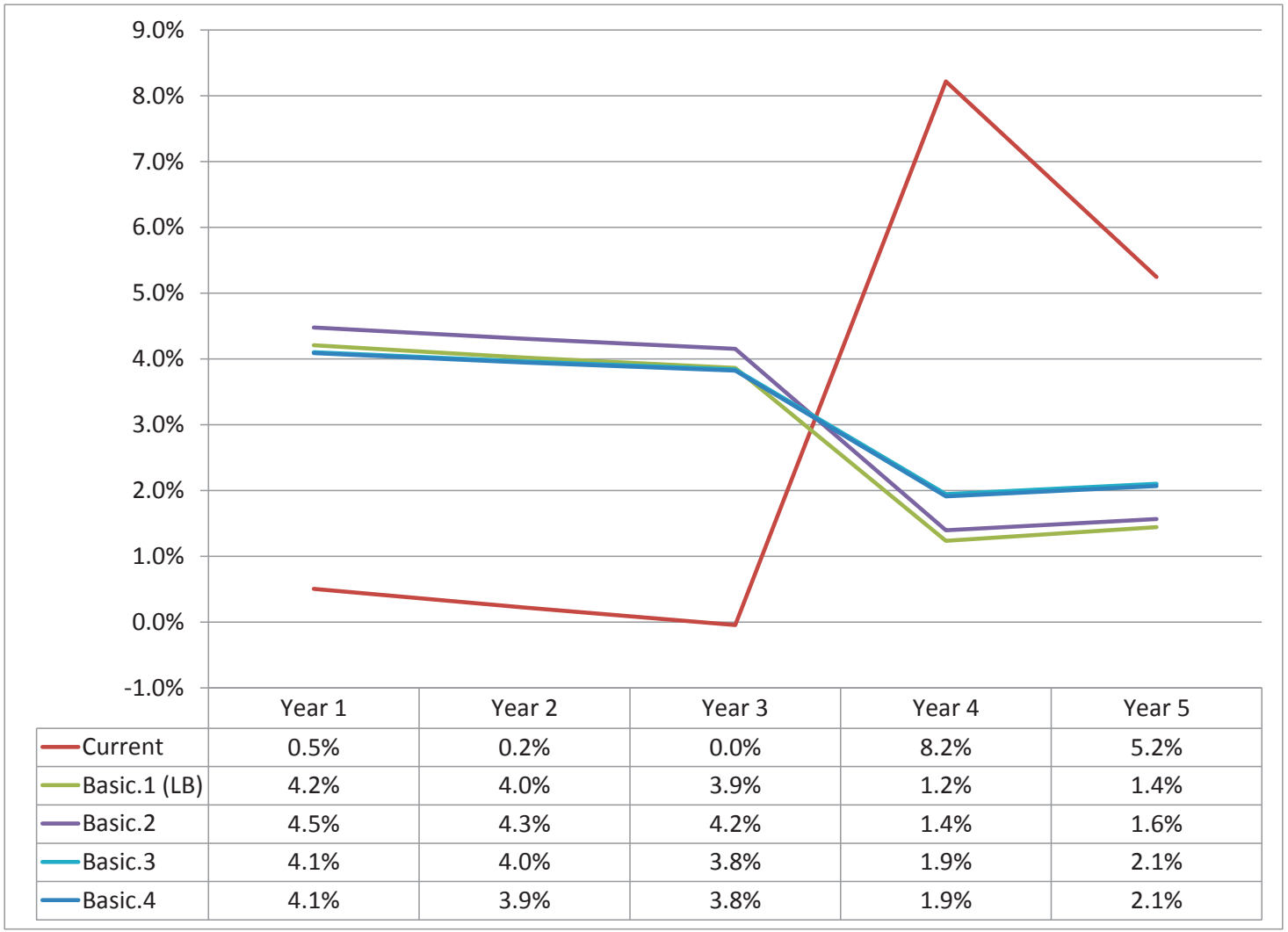
BASIC / DEFLATION + RECESSION / PORTFOLIO RETURN



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	0.5%	0.2%	0.0%	8.2%	5.2%
Basic.1 (LB)	4.2%	4.0%	3.9%	1.2%	1.4%
Basic.2	4.5%	4.3%	4.2%	1.4%	1.6%
Basic.3	4.1%	4.0%	3.8%	1.9%	2.1%
Basic.4	4.1%	3.9%	3.8%	1.9%	2.1%

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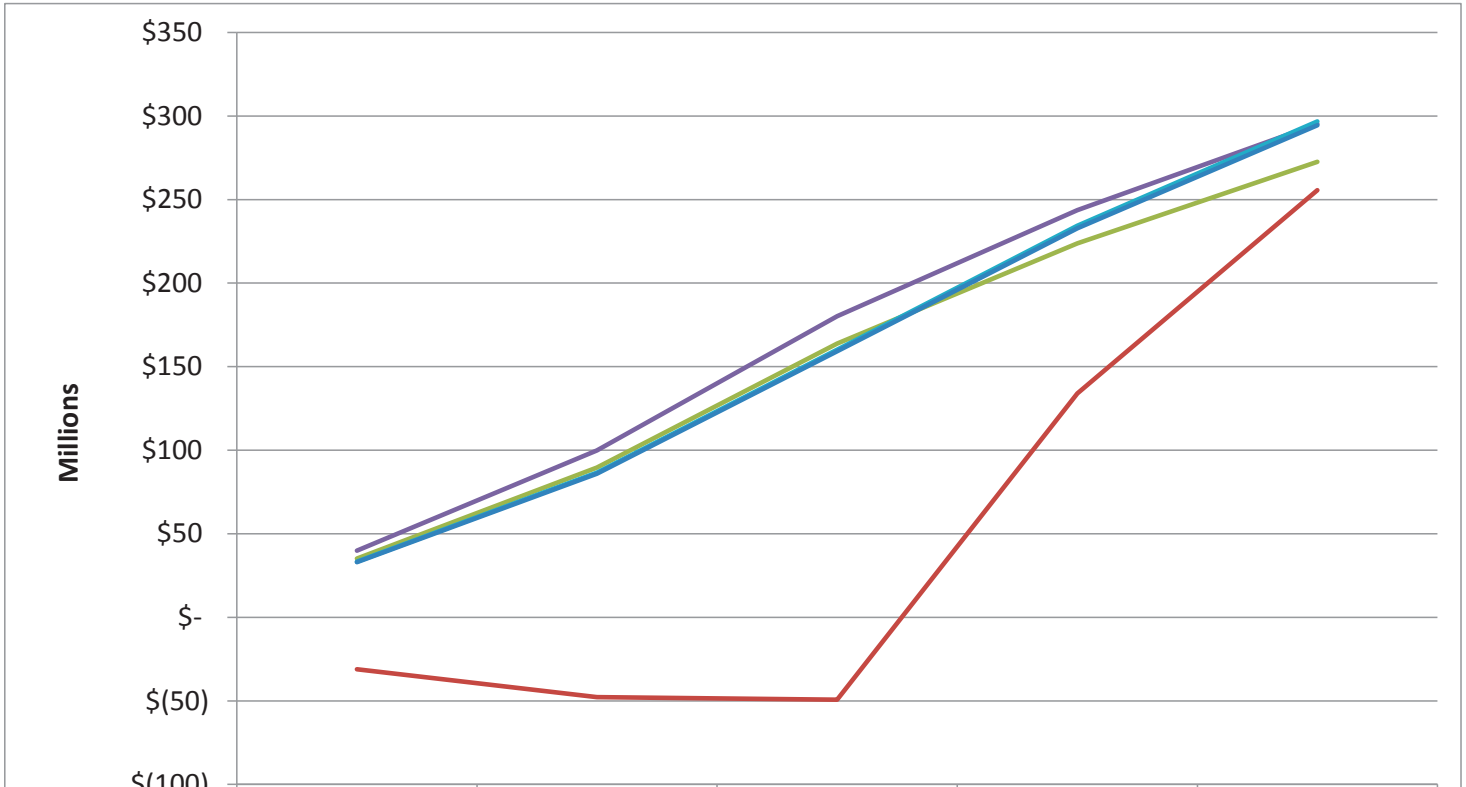
BASIC / DEFLATION + RECESSION / SURPLUS



	Year 1	Year 2	Year 3	Year 4	Year 5
Current	-31.2 M	-47.8 M	-49.3 M	133.9 M	255.6 M
Basic.1 (LB)	35.1 M	89.5 M	163.8 M	223.8 M	272.5 M
Basic.2	40.0 M	99.9 M	180.2 M	243.6 M	295.2 M
Basic.3	33.3 M	86.5 M	160.2 M	234.3 M	296.8 M
Basic.4	33.0 M	85.9 M	159.3 M	232.7 M	294.5 M

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Undertaking #16

MPI to provide the amount of the offsetting provision for investment expenses in the discount rate used for ratesetting.

RESPONSE:

The New Money Yield (the discount rate used for ratesetting) using the February 28, 2018 Naïve interest rate forecast was 3.21%. This yield did not include an offsetting provision for investment expenses.

If the New Money Yield were to include an offsetting provision for investment expenses, the provision would be 0.07%, and the (net) New Money yield would be 3.15% (due to rounding).

The effect on the breakeven rate indication of including the provision for investment expenses is an increase of 0.12% from 0.13% to 0.25%. There is, however, no impact on the rate indication including net CMP, which remains at 2.20%.

Undertaking #17

MPI to provide a fiscal year-to-date account of the actual revenue impact of the change, the rate level change and how close it is to being in line with the original estimate of a million dollars per year. And provide the premium and claims information and loss ratio for the four (4) vehicle for hire categories, latest available information MPI has.

RESPONSE:

MPI assumed that Taxi VFH would experience a $1 million reduction in premium relative to a written premium base of $5.7 million (before reduction). This adjustment reflects an approximately 17.5% reduction in premium. To-date, the average Taxi VFH has received a DSR discount of approximately 20.6%, which is slightly larger than anticipated by MPI. However, as outlined below, the claims costs for Taxi VFH have tracked closely with the premium reductions.

The table below shows the reported-to-date earned premium, claims incurred, and loss ratio for the four vehicle for hire categories. Although there are some general trends observed in the data, the reported-to-date experience should not be considered credible for the determination of 2019 rates. MPI will apply for updated rates for vehicle for hire categories using the existing PUB approved ratemaking methodology in the 2020 GRA.

Figure 1: Data as of September 1, 2018

	Policies	Earned Premiums	Claims	Claims Incurred	Loss Ratio
Accessible VFH	111	$56,247	25	$59,870	106.40%
Limo VFH	79	$76,832	9	$45,167	58.80%
Passenger VFH	497	$322,658	116	$406,380	125.90%
Taxicab VFH	554	$1,796,478	370	$1,294,321	72.00%
Grand Total	**1,241**	**$2,252,215**	**520**	**$1,805,738**	**80.20%**

The Board finds the Corporation's approach, in excluding the expected return on investment assets supporting Basic Total Equity, to be inconsistent with the break-even objective that has been a foundation of Basic rate-setting. The Corporation estimated that including this source of revenue in estimating the Basic overall rate indication reduces its estimate of the Basic overall rate indication from a 2.7% increase to a 1.6% increase, a decline of 1.1 percentage points, based on an assumed Basic capital level in line with the Application's financial forecast.

While the Board does consider this approach to be inconsistent with the break-even objective, the Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims. The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective.

Since the estimation of a Capital Maintenance Provision was not a focus of these proceedings and has not been fully considered by the Corporation, the Board believes it is premature to base its decision on inclusion of a Capital Maintenance Provision. Accordingly, and for this Application only, the Board accepts the Corporation's approach to estimating the Basic overall rate indication, excluding consideration of the expected return on investment assets supporting Basic Total Equity, which the Board considers to conceptually overlap with the Capital Maintenance Provision, as evidenced by the Corporation's early estimates of the longer term Capital Maintenance Provisions.

The Board therefore approves a Basic overall rate indication of a 2.6% rate increase as estimated above, reflecting adjustment of the Corporation's estimate to reflect the September 30, 2017 50/50 forecast for interest rates and use of an estimated new money rate for cash flow discounting purposes.

MPI Exhibit 48

Commercially Sensitive Information (CSI)

Pursuant to Board Order 89/18

October 26, 2018

MPI letter and response to CAC questions re:

MERCER re Appendix 17,

Attachment C – Slide 8

(Document is CSI and not available to the public)

MPI Exhibit 41

October 25, 2018 2019 GENERAL RATE APPLICATION
Clean Undertaking #14 Transcript Page 771

Undertaking #14

MPI to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions.

RESPONSE:

Please refer to the figure below, which shows the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions is $4,496,843.

Figure 1: Management Reductions

	FTE's	Annual Salary	Benefits	Total Compensation
May 1, 2016	175	19,851,516	3,682,456	23,533,972
March 31, 2018	128	14,760,253	2,738,027	17,498,280
Change	**-47**	**(5,091,263)**	**(944,429)**	**(6,035,692)**
% Change	**-26.9%**			**-25.6%**

Figure 2: Staff Increases

Classification	Actuals @ Feb. 28/17	Budget 2017/18		2017/18 Avg. Salary	Total Cost
Management	165.0	135.0	(30.0)		
Supervisory	137.0	142.0	5.0	75,032	375,160
Technical/Professional	1,054.3	1,066.1	11.8	69,404	818,967
Clerical	566.6	573.8	7.2	47,878	344,722
Total	**1,922.9**	**1,916.9**	**(6.0)**		**1,538,849**

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October 25, 2018 2019 GENERAL RATE APPLICATION
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CLOSING SUBMISSIONS

2019 GENERAL RATE APPLICATION

October 30, 2018

Manitoba Public Insurance

Table of Contents

1 Introduction and Summary 4
2 Setting the Direction 9
3 Capital Adequacy 13
4 Net Capital Maintenance Provision 14
4.1 Capital Maintenance Provision is a Just, Reasonable and Necessary Cost 14
4.2 MPI's Approach to Net CMP is both Accurate and Fair 15
4.3 Net CMP Accounts for the Investment income on the RSR 18
4.4 CMP Maintains Basic's Capital Position as a Percent of MCT 19
4.5 Net CMP does not 'Paper-Over' Mismanagement 20
4.6 CMP is the Reasonable First Step to a Capital Management Plan 21
5 Rate Stabilization Reserve 22
5.1 MPI is Expressing DCAT Based Capital Targets as an MCT Ratio 22
5.2 MCT Remains MPI's preferred expression of Capital Adequacy 23
5.3 MPI's RSR Targets Reflect the Results of the Collaborative Process 24
5.4 Satisfactory Financial Condition Must be Based on Best Estimates 25
5.5 The lower RSR Target Cannot be Set Below the Level for Satisfactory Financial Condition 28
5.5.1 Basic Remains the Most Thinly Capitalized Insurer in Canada 29
5.6 Prudent Fiscal Management Demands Adequate Capital 30
6 Interest Rate Forecasting 31
6.1 The Naïve Forecast is Relevant for Rate Setting 33
6.2 Sound Methodology and a Dependable Inputs Produce Just and Reasonable Rates 34
6.3 The Naïve Interest Rate Forecast is the Best Estimate 34
6.3.1 The Naïve Forecast is Unbiased and Efficient 37
6.3.2 MPI's Appointed Actuary Supports Naïve Forecast 39
6.4 The Bank of Canada Overnight Rate is not a reliable proxy of the GoC 10 Yr. Bond Yield 39
6.5 50/50 Forecast Introduces Avoidable Pricing Risk 42
7 Investments 44
8 IT Strategy and Projects 50

8.1 The IT Strategy is a Shift to Mainstream Proven Technologies 50
8.2 Value Management Drives New Initiatives 51
8.3 IT Operations Lead Peers in Many Measures 54
9 Breakeven Ratemaking: Expenses and Revenues 56
9.1 Revenues 56
9.2 Expenses 57
10 Conclusion 60

Part I
Introduction and Summary
2019 GENERAL RATE APPLICATION
Closing Submissions



Manitoba Public Insurance

1 Introduction and Summary

1 The 2019 General Rate Application (GRA) reflects the new direction taken by Manitoba Public Insurance's (MPI or the Corporation) new Board of Directors.

2 The 2017 GRA was provided to the Board of Directors for approval two weeks after their appointment. It could not reflect their vision of how the Corporation should operate. The 2018 GRA was a transitional rate application, as the Board of Directors began the process of assessing the affairs of the Corporation and implementing their direction. The 2019 GRA truly reflects the direction in which the Board of Directors intends the Corporation to operate.

3 As a result, this is the most open and transparent GRA in the history of MPI; it should be clear that MPI has made a genuine effort to identify and acknowledge mistakes and is demonstrating how those mistakes will not be repeated.

4 In 2018, the Board of Directors created a new Mission Statement for MPI:

> *"Exceptional coverage and service, affordable rates and safer roads through public automobile insurance."*

5 The Mission Statement is a declaration of the Corporation's core purpose and focus.

6 To attain the objectives of the Mission Statement, management must conduct the affairs of the Corporation in accordance with insurance industry best practice. Best practice is multi-faceted; it includes, but is not limited to:

i. the use of best estimates;

ii. the application of value and risk management;

iii. prudent fiscal management; and

iv. understanding the needs of both MPI's customers and its Minister Responsible, who is ultimately accountable to the Legislature for the universal compulsory automobile insurance program.

7 Recently hired executives bring international experience to MPI and ensure that the Corporation applies insurance industry best practice to its operations. Prior to joining the Corporation, Ben Graham, MPI's President and Chief Executive Officer, held a executive position with QBE Asia-Pacific, one of the largest multinational insurance company in the world. In addition, Curtis Wennberg, MPI's Vice-President, Customer Service & Chief Operating Officer, held senior positions with major corporations such as Boston Consulting Group, GE Capital, and HSBC. Last but not least, Mark Giesbrecht, Vice-President Finance & Chief Financial Officer has held senior financial officer positions with Western Financial Group (including property and casualty insurance).

8 Mr. Graham has been tasked by the Board of Directors to implement global best practice across MPI's operations. The rhetorical question is – "Why wouldn't MPI apply insurance industry best practice to its operations?"

9 Applying insurance industry best practice to all aspects of MPI's operations will result in stable, affordable rates for ratepayers and reduced volatility for the Consolidated Financial Statements of the Province. The application and use of insurance industry best practice is evident throughout this GRA. Examples include:

i. the use of best estimate forecasting;

ii. development of risk management capabilities;

iii. the application of the Value Management process to significant capital projects;

iv. enhancing reserving policies, and accountability;

v. adopting MCT as a measure of capital adequacy;

vi. maintaining capitalization through a Net CMP provision;

vii. improving Asset Liability Management (ALM), aimed at matching liabilities through appropriate portfolio segmentation; and

viii. de-risking the Basic claims portfolio, to ensure Basic can meet its existing obligations to claimants.

10 Discussed in prior GRAs, the following issues were again the focus of discussion in this year's GRA:

- Capital;
- Investments;
- Interest Rate Forecasting;
- Reserving;
- Long term liabilities (PIPP); and
- IT Projects.

11 The Corporation is applying insurance industry best practice to address these challenging issues. The results of doing so are self-evident. On June 15, 2018, MPI filed a GRA seeking an overall rate request of 2.2% consisting of:

i. 0.10% increase to the break-even cost of policies, and

ii. 2.10% increase for a Net Capital Maintenance Provision (CMP).

12 Although the Corporation will not move to amend its Application, it would endorse having its rate application varied by the PUB, to reflect the actual GoC 10 Yr. bond yields, as of September 28, 2018 (2.43%). MPI notes that, should the PUB decide to vary its GRA as indicated, the new overall rate request would be 1.8%, consisting of:

i. 0.26% decrease to the break-even cost of policies, and

ii. 1.80% increase for a Net Capital Maintenance Provision.

13 Assuming the PUB approves the 2019 GRA as applied for, MPI is presently forecasting a 0% breakeven rate indication, a 0% CMP and does not presently foresee a requirement for a capital build provision for the next 3 years. The rate stability that MPI is presently projecting is consistent with MPI's objectives, and is a result of the implementation of best practices, and prudent fiscal management.

14 Implementation of the direction from the Board of Directors leads to stable, affordable rates and lowers volatility in the Consolidated Financial Statements of the Government.

15 MPI has heard the position of interveners, but cautions the PUB against adopting a narrow a view of the insurance environment facing Basic. Intervener recommendations that focus on reducing rates today, drive short term volatility and rate instability.

16 MPI is pursuing its mandate by focusing on smaller incremental increases that support long term stability. This balances the needs of ratepayers today and tomorrow, and future proofs the business in a fiscally prudent manner.

Part II
Setting the Direction
2019 GENERAL RATE APPLICATION
Closing Submissions



Manitoba Public Insurance

2 Setting the Direction

18 The Framework Letter from 2016[1] references a review of the old *The Crown Corporations Public Review and Accountability Act*. This review resulted in the Legislature passing *The Crown Corporations Governance and Accountability Act* (*CCGA Act*) in June 2017.

19 The *CCGA Act* and *The Manitoba Public Insurance Corporation Act* (*MPIC Act*) are the cornerstones for the provision of Basic compulsory insurance program in Manitoba. Under the *new CCGA Act,* MPI must prepare an Annual Business Plan for approval by the Minister Responsible for MPI.

20 The Annual Business Plan is a legislative requirement. It is a key new component of the statutory framework set out in the *CCGA* Act related to the provision of universal compulsory automobile insurance. It is also the roadmap for the Corporation to attain its Mission Statement. The direction of the Board of Directors to focus the management of the Corporation towards industry best practice is apparent throughout the Annual Business Plan.

21 Key priorities, as stated in the Annual Business Plan directly impacting this GRA are:

a) The Basic compulsory insurance program must be operated on a self-sustaining basis with a sufficient capital reserve to absorb unforeseen variations in revenues, claims costs and investment revenues, and with insurance rates that are actuarially supported and established in accordance with Accepted Actuarial Principles.

b) The Basic compulsory insurance rates will be kept as stable, predictable and affordable as possible.

[1] CAC Exhibit-18

c) Products and services will continue to evolve to address the evolving needs of Manitobans, including services to Manitobans in rural, northern and remote communities.

d) The financial affairs of the Corporation will be managed in a manner that will not impair the consolidated financial statements of the Province.

e) Capital projects and major technological initiatives will focus on supporting and optimizing core business functions, including ensuring the Corporation's ability to adapt appropriately to changes in the auto insurance and registration environment. As much as possible, solutions will be sourced "off-the-shelf" and will limit customizations.

f) The Corporation will continue to demonstrate fiscal prudence and sound financial management practices while driving cost-containment, streamlining of operations and elimination of unnecessary operational expenses.

22 The statutory framework in which the PUB conducts its review of MPI's application to change rates for services is set out in the *CCGA Act*, the *MPIC Act* and *The Public Utilities Board Act*. The PUB's jurisdiction to review and approve changes in rates for service is set out in the *CCGA Act*; it is one component of the broader legislative scheme to provide Basic compulsory insurance.

23 This governance scheme has created distinct but complementary roles for the publicly appointed MPI Board of Directors, the Province, and the PUB that together ensure the success of Basic compulsory insurance.

24 Upon careful exercise of their responsibilities as set out in the statutory framework, MPI and its Board of Directors have developed a rate application that balances the interests of ratepayers and the Corporation's requirement to cover the costs of 2019/20 rating year policies. MPI's application has provided ample evidence, supported by detailed analysis, establishing the rate request as just and reasonable.

25 While minor points have been contested by interveners, it is fair to conclude that the forecasted costs to be incurred during the rating year are prudent and reasonable. It is well established regulatory law that MPI is allowed to recover these costs.

26 The totality of evidence before the PUB supports the conclusion that MPI's rate request is both prudent and consistent with MPI's objectives of rate stability and reduced volatility to bot ratepayes and government.

27 MPI supports the PUB's review of MPI's rates for service, and argues that a denial or variance of MPI's requested rate must be accompanied by findings, supported by evidence, that those requested rates are unjust and unreasonable.

28 The PUB, as a utility regulator under *The Public Utilities Board Act,* offers a unique set of skills and perspective. Its role is to review this GRA, in the public forum, and assist the Corporation by ensuring that the rates it establishes are just and reasonable.

29 MPI's Board of Directors and the Corporation itself each look forward to working constructively and collaboratively with the PUB to improve how the Corporation establishes its rates for service going forward.

Part III
Annual Challenges
Closing Submissions
2019 GENERAL RATE APPLICATION

Manitoba Public Insurance

3 Capital Adequacy

30 The issue of capitalization has, in one way or another, been a topic of significant discussion at general rate applications for the past number of years. Whether it is the depletion of the Rate Stabilization Reserve, requiring $250 million in capital transfers[2], debate over the methodology of how to calculate the range of the reserve targets or what is the appropriate size of the reserve, the discussion at its core is a discussion about capital.

31 The PUB in Order 130/17 made a significant observation when it stated:

> *"The Board nonetheless recognizes MPI's need to protect against the depletion of Basic's capital position, and finds that a Capital Maintenance Provision could be considered a legitimate necessary Basic expense for rate-setting purposes."*

32 This statement highlights a fundamental philosophical question about Basic rate setting that divides interveners and MPI. Should breakeven rates, based upon Actuarially Accepted Practice, be intentionally designed to reduce the amount of funds in the RSR as the Basic line of business grows, or should rates be designed to maintain the status quo of the reserve amount from the beginning of the rating period to the end?

33 A strategic objective of the Corporation is rate stability. Maintaining the status quo of the reserve levels is a cornerstone of rate stability.

[2] CAC(MPI) 2-19, and CAC(MPI) 2-11

4 Net Capital Maintenance Provision

34 The Corporation's request for a Net Capital Maintenance Provision (Net CMP) is simple, effective, and it directly supports the principles of a self-sustaining Basic program, rate predictability and stability, and reduced volatility.

35 The Corporation's method for determining the 2.1% Net CMP has been **incorrectly** characterized as:

a) A move backwards to rate setting based on accounting results

b) A provision to build capital

c) A means to hide mismanagement

36 MPI's application for a Net CMP is in the best interests of ratepayers who benefit from the protection afforded by a well-funded RSR, and is consistent with prudent fiscal management of Basic.

4.1 Capital Maintenance Provision is a Just, Reasonable and Necessary Cost

37 The 2018 GRA began to explore the concept of a capital maintenance provision, as an alternative to retaining RSR investment income for purpose of mitigating the depletion of Basic's capital position, as the business grows.

38 Basic's policies are priced without a profit provision, so without the benefit of the RSR investment income, or some reasonable alternative, Basic's capital position would deteriorate, as the risk profile increased.

39 PUB order 130/17 recognized the need to guard against the natural depletion in Basic's capitalization, stating:

> *The Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims. The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective.*[3]

40 The PUB ordered that a technical conference be held, with the objective that:

> *This Technical Conference shall seek consensus on an approach to estimating a Capital Maintenance Provision*[4]

41 MPI participated in the Technical Conference, and found the insights and experience of SGI, as well as moderated discussion to be helpful in informing the design of the Net CMP for Basic, applied for in this GRA.

4.2 MPI's Approach to Net CMP is both Accurate and Fair

42 MPI's method for calculating the Net CMP is accurate, in that it provides for the full amount of capital **actually required** to maintain the capital position of Basic in that particular rating year.

43 It is fair because each policy holder is being asked to contribute only the amount of capital required to maintain Basic's capitalization in that year. That is, policy holders end the year with the same capitalization as when they started the year. Each year, policy holders are asked to pay their way, for that year only, and so it is also fair, intergenerationally.

[3] Order 130/17, page 29
[4] Order 130/17, page 30

44 On this point, the Chief Actuary Luke Johnston elaborates[5]:

> *Okay, so capital maintenance, again, we've -- we've used the MCT as the basis for determining maintenance. We think that's appropriate.*
>
> *So, for the capital maintenance we're saying, again, that how -- the capital position that the policyholders come into the year with should be the same when they leave that policy year. And we do that by maintaining the MCT at the same level.* [6]

45 By averaging over multiple years, the SGI model is unchanged from year to year, but it is also more complex, and critically, it does not measure **the actual capital required to maintain capitalization in the rating year.** Accordingly, it is not as fair intergenerationally, and does not fully meet the intent of the MPI's Net CMP. Mr. Johnston explains that SGI's approach to a CMP is more difficult to predict and administer:

> *"Yeah. So -- so our main -- what we see as the main benefit of -- of the MPI model is that it just focuses on the -- the one (1) year, and what is needed to maintain capital in that one (1) -- in one (1) -- that one (1) fiscal policy year, I guess we can call it. That, in our view, makes sense in terms of what's a fair contribution to capital maintenance for a group of policyholders.*
>
> *If we start looking at the five (5) year forecast period, there are some questions on, you know, what if your risk profile changes, and -- or if there's things in the forecast that could cause swings up and down. To -- in -- in my view, that would be more difficult to normalize over a five (5) year outlook period than it would be to understand the most recent year that you're going in, and at least providing evidence here that the Cap -- Capital Maintenance Provision for that particular fiscal year is approp -- is appropriate."*[7]

[5] T: 693, lines 14-24
[6] T: 694-695, lines 6-25 and 1-4
[7] T: 712-713, lines 12-25 and 1-5

The observation that MPI's Net CMP is a return to rate setting based on accounting results has merit, but only in the superficial sense. A careful examination of MPI's Net CMP proposal reveals it is nuanced, and based on more reliable near term estimates of capital required in the coming year to maintain Basic's projected financial position. Mr. Johnston explains:

> *So now we're -- based on what we've just gone through, like, in -- in – through these examples, what we're really trying to goal seek our match to our MCT ratio. That -- and -- and so that is an accounting view. But again, if -- if we -- even under AAP, the big -- the big issue with our break-even rate-making methodology was largely related to interest rates. We were forecasting changes into the future, positive or negative, and then we were either giving people rate decreases or rate increases based on what was really prior years' experience. AAP fixed that issue.*
>
> *In terms of capital, though, we have -- it's pretty clear through the MCT and the DCAT what our capital targets are, and I -- I think it's also pretty clear what we would need to maintain them. And so from that perspective, I -- I don't really know what other option we would use other than something like the MCT ratio. So if -- yeah, I -- I can't think of a better option.*

46 Mr. Giesbrecht elaborates on the various components that comprise the CMP:

> *While the total equity would be based on, you know, accounting results, the required capital calculation under MCT is based on a number of actuarial, you know, computations based on the -- the risk charges that apply to different assets and different components. So it's not purely based on accounting. There are other factors.*[8]

[8] T: 516-518

4.3 Net CMP Accounts for the Investment income on the RSR

47 MPI's Net CMP explicitly considers forecast investment income on the RSR, and deducts those amounts from the total required to maintain the Basic's MCT as at March 1, 2019.

48 This is a direct benefit to ratepayers, ensuring that the Net CMP charged to ratepayers is no larger, or smaller than is needed. MPI's breakeven rates continue to be based only on the costs and revenues associated with issuing new policies, which is what ensures they are priced on a breakeven basis.

49 The investment income earned on the RSR balance is in no way associated with the costs or revenues of new policies, but is properly considered with Basic's capital. By factoring RSR investment returns into the Net CMP calculation, ratepayers benefit from the income, through a reduction in the capital maintenance provision, while the break-even cost of policies remains based on the costs and revenues associated with those policies.

50 In response to a question from PUB counsel about the need for a Net CMP in the context of RSR investment income accounted for in the rate calculation, Mr. Johnston explains that Basic's total equity must grow with the business:

> *So at least under current forecasts when we set rates based on accepted actuarial practice, we see explo -- well, especially if we return the investment income from the RSR as part of the rate calculation, we would see total equity stay approximately flat, which is what's shown in the second last row of this table.*
>
> *And to most people they would say, okay, well, what's the problem? You -- you know, the RSR is staying at the same level. The issue right now is that the business continues to grow, so -- again, use the example, if your assets are growing you would have, all else equal, say more equities, which means if there is a stock market crash, you could lose*

more. So the MCT and the DCAT and other measures would say you have more risk, you should have more capital."[9]

4.4 CMP Maintains Basic's Capital Position as a Percent of MCT

51 The purpose of the Capital Maintenance Provision is simply to maintain the Corporation's capital at the end of the rating year, to be the same as at the beginning of the rating year. This requires a 'measuring stick', and MPI's proposes the MCT ratio.

52 The proposed Net CMP for Basic is described as follows:

"The purpose of the Capital Maintenance Provision is to ensure that the RSR Balance, total equity as measured by the Minimum Capital Test (MCT) ratio, which compares capital available to capital required, at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19."[10]

53 Capital Maintenance Provision is **not** a capital build provision. Mr. Johnston explains that the reason why Basic's risk profile continues to grow is the that PIPP program has not yet fully matured:

"And the main reason right now is that assets and liabilities continue to grow, and based on that, they demand a -- a higher capital amount. As I mentioned yesterday, our liabilities are continuing to grow. We -- we expect that will plateau in the next five (5) to ten (10) years. But right now we're still seeing growth in the balance sheet. And again, if capital stays the same absolute value relative to a growing balance sheet, it -- it would show these declining capitalization rates."[11]

54 Because the CMP is calculated on a forecast basis, any evolution in the risk profile reflected in the MCT calculation is set and accounted for at the time the Net CMP requirement is calculated. The Net CMP's reference point is only the rating year's starting MCT percentage, and the year-end balance sheet as forecast at that time.

---

[9] T: 494-495, lines 16-25 and 1-17
[10] CAC (MPI)2-18
[11] T: 496, lines 15-24

4.5 Net CMP does not 'Paper-Over' Mismanagement

55 The Net CMP should not be seen as a means for Basic to maintain its capital in the face of management errors[12]. While it is true that management errors may ultimately impact the total equity balance of the corporation, at least in timing if not overall magnitude, MPI's management is applying a higher standard of care with respect to value management and risk management to reduce the potential for error. Mr. Giesbrecht elaborates:

> *"It -- you know, it could absorb other things, a cost overrun potentially. We are working very diligently on our expenses, and -- and we have shown and you walked us through it earlier, how our costs have been coming down and we continue to work on ensuring that we are having efficient operations."*[13]

> *"And we have seen examples in the past where we've had strategies or plans that maybe didn't work out as well as we would have hoped. However, the -- the intent of a CMP is by no means to take away the accountability or the responsibility of management. It is to manage appropriately as an insurance fund using best practice and ensure that we have the ability to manage capital to deliver on our mandate to Manitobans."*[14]

56 The additional capital amounts are not cushion for 'management largesse', but reflect the forecast growth in Basic's risk profile. This growth in risk, needs to be matched with capital in order to prevent Basic's capital position from deteriorating.

[12] T: 591, lines 8-21
[13] T: 590-591, lines 5-25 and 1
[14] T: 592, lines 7-15

4.6 CMP is the Reasonable First Step to a Capital Management Plan

57 MPI's proposal for a net CMP stands on its own merits, but it is also a reasonable component of a Capital Management Plan, which MPI intends to bring forth in a coming application.

58 The proposal to maintain capital in the face of a growing risk profile is just and reasonable, and does not require the detail of the Capital Management Plan to assess its reasonableness. To the contrary, the forthcoming Capital Management Plan can be properly assessed in the context of the Net CMP, and any other capital provisions will be designed with the Net CMP in mind.

5 Rate Stabilization Reserve

5.1 MPI is Expressing DCAT Based Capital Targets as an MCT Ratio

59 To say that MPI is applying to change the methodology used to calculate the upper and lower RSR Targets is false and misleading.

60 MPI has applied for capital targets that are based on best estimates, and are consistent with the approach developed through the collaborative process to create DCAT based Upper and Lower RSR Targets. MPI's application is seeking a Lower RSR Target of 34% MCT ($143 Million), and an Upper RSR Target of 85% MCT ($305 Million) to start the rating year on March 1, 2019.

61 MPI calculated the Upper and Lower RSR Targets based upon the DCAT analysis. The calculation produces a dollar amount. MPI then chose to **express** the dollar amount as an MCT ratio. The advantages of this approach are:

> *"The Dynamic Capital Adequacy Test (DCAT) provides a lower and upper target for a specific point in time, that being the beginning of the rating year (March 1, 2019). By converting the DCAT target numbers into a Minimum Capital Test (MCT) ratio, the Corporation can forecast lower and upper targets. The Corporation can also estimate what the lower and upper DCAT targets would be if circumstances (i.e. risk levels) change in the future.*
>
> *RSR Fig. 11 shows how the MCT ratio can be used to forecast future RSR targets. Specifically, this table shows how planned changes to the Corporation's investment portfolio affect the RSR targets. For both the lower and upper DCAT-calculated RSR targets, the equivalent MCT ratio remained essentially unchanged before and after the assumed transition to the lower risk investment portfolio."*[15]

[15] CAC(MPI) 2-12

62 To ensure clarity around the approach, MPI has stressed that the DCAT approach, developed through the collaborative process, is still the foundation of the applied-for RSR targets:

> *"The Corporation uses the MCT ratio as a means to forecast future DCAT-based RSR target calculations. The Corporation does not take the position that the MCT ratio can replace the DCAT exercise in 2020 and beyond.* ***The 34% MCT ratio is derived from the 1-in-40 DCAT scenario.****"*[16] *[Emphasis added]*

63 MPI explained that the MCT and DCAT approaches complement each other, as stated by Mr. Giesbrecht:

> *"…the MCT and the DCAT are not mutually exclusive. In -- in terms of target setting, the -- the DCAT is really what underpins the MCT, and they work hand-in-hand. And so they -- they are not two (2) different things, but they really work together to set your -- your target."*[17]

5.2 MCT Remains MPI's preferred expression of Capital Adequacy

64 MPI's preferred approach to **expressing** capital adequacy remains the MCT ratio. MPI has reflected this preference in past applications for an MCT based upper RSR target.

65 Management has also chosen to express its desired capital range in the quarterly financial statements as being between 75% and 100% MCT. Mr. Giesbrecht explains:

> *So this target range, which is published in the quarterly report is our -- our desired end state. It is not aligned to our current framework. It is a longer-term view towards what management and Board is looking for in terms of our -- our desired end state.*[18]

[16] CAC (MPI) 1-15
[17] T: p 678 line 11-17
[18] T: 523 line 6-11

66 MPI has routinely expressed the benefits of using MCT as a measure for capital adequacy, which include[19]:

- ease of estimation, at various periods of time, that incorporates changes in risk profile;
- ability to update based on the actual and forecast balance sheets;
- standardized test allows for comparability to peer insurers; and
- Assesses key risks such as insurance, market, credit and operational risks.

67 MPI continues to view MCT as the appropriate risk based measure of capital adequacy, and the management and operation of Basic continue to be informed by capital adequacy measured by MCT. The benefits to MPI were explained by Mr. Giesbrecht as:

> *"Firstly, the -- the MCT allows us to measure our capitalize -- capitalization level at any given month or quarter end; that it produces a dynamic number whereas a static number based on total equity or based on a DCAT modelling does not factor in market changes, growth in the business, if we've made changes to our lesson portfolio. And so, if we have a number to start any given year, that number may not be a fair representation of what we need to carry for adequate capital, six (6), nine (9) or twelve (12) months or eighteen (18) months down the road, given changes in the business or in the marketplace."*[20]

5.3 MPI's RSR Targets Reflect the Results of the Collaborative Process

68 MPI has applied for and upper and lower RSR Targets that reflect the results of the collaborative process, Technical Conferences and the Regulatory Hearing process to date, including:

i. utilizing a 1-in-40 risk tolerance;
ii. adjusting the assumptions of adverse scenarios (e.g. inflation, equity returns);

[19] 2019 GRA Part VI RSR.4.5.2
[20] T: 501-502, lines 1-4, 17-25, and 1-10

iii. using the PUB's iterative methodology;
iv. building, modifying, and sharing the Corporation's stochastic and financial models; and
v. adopting the 2 year time horizon for modelling response to adverse events in determining the upper RSR Target.

69 However, MPI is unable to adopt the assumption of capital transfers in the modelling of capital targets, as explained in the sections that follow.

5.4 Satisfactory Financial Condition Must be Based on Best Estimates

70 To date, MPI's DCAT modelling to determine satisfactory financial condition, and the establishment of the Lower RSR Target have been the same exercise. That is, the Lower RSR Target has reflected the threshold for satisfactory financial condition.

71 The capital target methodology adopted by the PUB in Order 130/17, decouples the lower RSR target from the threshold for satisfactory financial condition, by assuming capital transfers that adjust the Total Equity balance such that the resulting modified forecasted MCT ratio is forecasted to remain unchanged throughout the forecast period.

72 These 'adjustments' assume transfers from Extension totaling $48 million[21] over the 4 year modelling period. The assumption of these transfers is problematic because:

- it represents amounts that the Board of Directors may be unable, or unwilling to transfer, and so is not a best estimate assumption;
- it assumes a subsidization of Basic that is inconsistent with principle that Basic should stand on its own; and

[21] PUB (MPI) 1-16 (a) Appendix 1b

- it blurs the risk assessment of Basic, decoupling the determination of satisfactory financial condition from the lower RSR Target.

73 In Order 162/16 the PUB was explicit in its expectation that (i) the capital targets reflect the risk facing basic, and (ii) that they be based on best estimates, stating:

> *"The Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for purposes of setting Basic target capital levels, expressed in terms of Basic total equity.* ***This approach is consistent with the objective of setting Basic target capital levels to be specific to the risk profile of the Corporation's Basic insurance operations.***
>
> *…*
>
> ***It is the Board's expectation, and for that matter a requirement of accepted actuarial practice in Canada, that the Corporation's Basic Application, including the rate indications, the Basic DCAT investigation and the target capital analysis, be prepared on a best estimate basis****. Doing otherwise complicates the regulatory review process."*[22] *[Emphasis added]*

74 However, in Order 130/17, the PUB reversed its position, conceding that the modelling approach did not reflect best estimate expectations, stating:

> *"The Board agrees that such transfers are not best estimate expectations, but rather sees these transfers as a theoretical means to an end, that "end" being the testing of Basic's resilience to adverse circumstances when operating at about the proposed threshold level.*[23]

75 Two critical failings arise as a result of Order 130/17:

76 First, Basic's capital targets no longer reflect the risk profile of Basic. The true risks facing Basic are no longer measured in the DCAT based capital target analysis. Mr.

[22] Order 162/16 p. 60
[23] Order 130/17 p. 78

Johnston explains that the actual risk assessment of Basic becomes blurred by the assumption of capital transfers:

> *"We don't -- when we talk about the modified DCAT, assuming transfers from other lines of business, we don't want to show or -- or blur the assessment of Basic by capital transfers. We wanted to -- the -- the PUB and others to see this is the risk of Basic, you know, on its own. That's not to say that we -- we know we've transferred capital, but we -- we just want to have that independent measure."*[24]

77 Second, Basic's capital targets are no longer set on a best-estimate basis, an uncontested fact given MPI's objection to the assumption of transfers in the 2017 GRA, and the PUB's concession in Order 130/17.

78 A key reference point for the determination of satisfactory financial condition of Basic is the current RSR balance, not a hypothetical RSR balance. In response to PUB (MPI) 2-10, MPI explained in response to its assertion that "it is inappropriate to view the establishment and maintenance of Basic's satisfactory financial condition as a theoretical exercise"[25], as follows:

> *There is a difference between theoretical 'best estimate' scenario testing and arbitrary theoretical scenarios. With respect, the determination of the threshold for satisfactory financial condition of Basic by MPI's Chief Actuary is based on best estimates, not imagined base case scenarios. The PUB methodology for the determination of the lower RSR target is not based on best estimates and produces a minimum RSR target that is below the amount required for satisfactory financial condition of Basic. MPI does not support the PUB approach theoretically or in actuality.*[26]

79 Which Mr. Johnston elaborated on in his oral testimony:

> *So the second one is that we don't think the target capital methodology should include anything other than a best estimate assumption. So, the*

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[24] T: 278 and 279, lines 24 and 1-7
[25] PUB (MPI) 1-16(c)
[26] PUB (MPI) 2-10 (b)

> *-- the whole issue with capital transfers in the methodology, whether that -- that's seen as a modeling item or not, we're struggling with including that in there. So that -- that's the second one.*
>
> *On a similar topic, last year's RSR target methodology was based on a 50-50 interest rate forecast and using the same logic, we -- we want the -- the targets to be set on what we feel are best estimates."*[27]

80 The management actions of the Corporation (e.g. the need for rebuilding fees) and the behavior of the financial model (e.g. the amount invested in equities) will be different depending on the current RSR balance. Such impacts are not properly recognized when modeling imagined base case scenarios.

81 The PUB methodology for the determination of the lower RSR target is not based on best estimates and produces a minimum RSR target that is below the amount required for satisfactory financial condition of Basic. here is no evidence to justify not using a best estimate, and MPI does not support the PUB approach theoretically or in actuality.[28]

5.5 The lower RSR Target Cannot be Set Below the Level for Satisfactory Financial Condition

82 The Corporation cannot support a lower RSR target that is below the minimum amount required to maintain the satisfactory financial condition of Basic, as calculated using Accepted Actuarial Practice in Canada.

83 A lower RSR target that is below the minimum level required for satisfactory financial condition could compromise the financial standing of Basic.

84 For the fiscal year 2018/19, the Board of Directors transferred $37.3 million from the competitive lines of business to bring the Basic RSR Total Equity Balance to $210.8

[27] T: 548-550, lines 13-21, 17-25, and 1-4
[28] PUB (MPI) 2-10 (b) and (d)

million. This transfer exceeded the amount required for satisfactory financial condition of Basic ($201 million) by $9.8 million.

85 In Order 130/17, the PUB approved $180 million as the lower RSR target for 2018/19. Basic would have an unsatisfactory financial condition had MPI's Board of Directors been unwilling or unable to transfer those funds from Extension. Further, under the present RSR framework, the Corporation could not have sought the full amount of RSR rebuilding fees to achieve satisfactory financial condition, as the lower RSR target was less than the minimum capital required for satisfactory financial condition of Basic. The timing for a request for regulatory approval of an RSR rebuilding fee would have also been deeply problematic had the MPI Board not intervened in February of 2018.

5.5.1 Basic Remains the Most Thinly Capitalized Insurer in Canada

86 The state of Basic's capitalization, while materially improved over prior years still lags that of peer crown insurers. The Basic line of business remains thinly capitalized, and the RSR range remains below the minimum and/or target capital levels of peer insurance providers.

87 MPI is applying for a lower RSR target of 34% MCT, and an upper target of 85% MCT, while other crown insurers have capital targets (SGI, SAAQ), or lower thresholds (ICBC) of 100% MCT[29]. While MPI's capital level is projected to be 70% MCT to start the 2019/10 rating year, Mr. Graham put some context around that figure as follows:

> *"…we have the lowest capital of any operational insurance company in Canada; if not North America. If we were a private insurance company we would be technically insolvent. We would not be allowed to take on any further liabilities. We would be on a very strict regulatory management plan.*[30]

[29] T: 276, lines 4-7
[30] T: 123, lines 1-6

88 MPI is not applying for a 100% MCT capital target, nor is MPI arguing that a private sector capital target of 150% MCT is appropriate for a monopoly insurance provider like Basic.[31] However, the Board of Directors is intent on moving towards insurance industry best practice around risk-based solvency thresholds as measured by MCT. In its current state, the Board of Directors considers that Basic is insolvent given that the MCT measure of Capital Available is less than Capital Required.

5.6 Prudent Fiscal Management Demands Adequate Capital

89 Adequate capital in the RSR is crucial to allow MPI to deliver on our objective to provide stable and predictable rates. It allows MPI to effectively protect rate payers from rate increases that would otherwise be necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events and factors. It is fiscally prudent to plan for the future and prepare for adverse events that will occur, as they inevitably will, from time to time.

90 Being undercapitalized leaves MPI and its rate payers in a vulnerable position. The possibility of bad weather, adverse market movements, or a combination of adverse events, exposes Basic's ratepayers rebuilding fees, or in extreme circumstances government bail-outs.

91 Proverbially 'living paycheque to paycheque' is not consistent with prudent fiscal management. Unfortunately, Basic has found itself in this circumstance in the recent past, and if not for transfers of capital from other lines of business, rate payers would have been subject to significant rebuilding fees.

92 Without adequate funds in the RSR, Basic is dependent on luck; luck in weather, luck in claims experience, luck in financial markets. Luck is not a strategy, and relying on luck is not prudent fiscal management.

[31] T: 277, lines 8-14

6 Interest Rate Forecasting

93 In this application, MPI is seeking to set rates for service on the basis of the most current actual Government of Canada 10 Year (GoC 10 Yr.) bond yield (the naïve forecast).

94 For the past number of years, it has been challenging to forecast the future interest rates for setting Basic insurance rates at the GRAs. Incorrectly doing so has had material impacts on Basic's financial results.

95 While the move to AAP-based ratemaking through Order 162/16 served to reduce the impact of incorrect interest rate forecasts, it did not fully alleviate the pricing risk that occurs when inaccurate interest rate forecasts are used in rate setting.

96 Interest rate forecasting has been particularly challenging over the past decade. Rates moved lower than most could have predicted and consistently defied expectations 'that they could go no lower, and would have to rise'.

97 The Standard Interest Rate Forecast (SIRF), based on the major banks' interest rate forecast, were not up to the challenge as they persisted in modelling a simple mean revision. If there were any other economic considerations factored into the forecasts, they did not improve forecast accuracy.

98 Attempts to moderate the SIRF forecast, by judgmentally weighting the results against the naïve forecast, created the 50/50 forecast. The results of this forecast have also been inadequate.

99 The falling interest rate environment also exposed the negative impact of incorrect interest rate forecasts and lead to MPI under collecting a total of $163 million in premiums.[32]

100 The problem facing MPI, the PUB, and ratepayers is this – what interest rate forecast is going to most accurately price policies. MPI submits that the best estimate interest rate forecast for rate setting purposes is the current actual interest rate (i.e. the naïve interest rate forecast).

101 There are numerous opinions and endless speculation on what future interest rates will be, but the only certainty is what is known today, and no one knows what those rates will be.

102 History over the last two decades has shown that the methodology with the least error for predicting future interest rates is to use the current known actual interest rate throughout the rating period. This is the naïve forecast methodology.

103 Dr. Simpson correctly stated: "Those who cannot remember the past are condemned to repeat it."[33]

104 History has taught that errors have been made forecasting interest rates in General Rate Applications. MPI has taken the opportunity to learn from these errors.

105 Using the most current actual interest rate as the forecast (naïve forecast) further reduces pricing risk if it is updated as close to the time of the issuing policies (as is practical). Perhaps interest rates will change from the levels set by the most recent naïve interest rate forecast. While that pricing risk will remain, it will at least anchored in the information we know to be true today: an actual observed interest rate.

[32] MPI Exhibit 21, page 17
[33] T: 1181

106 The most current actual interest rate (naïve forecast) is also the conservative and prudent forecast. Given the significant premium shortfalls that have resulted from past interest rate forecasts, and the fact that but for capital transfers from competitive lines of business, Basic's RSR would be depleted, it is preferable to err to the conservative, than to return to ratepayers for significant rebuilding fees when optimistic forecasts do not materialize. This approach is prudent fiscal management, and is consistent with the intention of the Board of Directors of MPI to reduce volatility, and deliver predictable, stable rates to customers.

107 Is essence, it is better to have a good problem than a bad problem.

108 In what follows, MPI demonstrates that the naïve forecast is qualitatively a best estimate, as well as being a prudent estimate.[34]

6.1 The Naïve Forecast is Relevant for Rate Setting

109 MPI has applied for rates based on the naïve forecast because it is the best estimate of the GoC 10 Yr. Bond yield over the relevant time horizon of 11 to 18 months (until September 1, 2019).

110 The naïve forecast may not be the best estimate of interest rates over the full 5 year outlook period, but it does not have to be. The PUB is being asked to approve rates for service for the 2019/20 policy year, which are based on an interest rate forecast as at September 1, 2019.

111 Rates for service are no longer set on the basis of Proforma net income, and as such the Proforma net income, in 2019/20 through 2022/23 is not determinative of the rate request in this Application.

112 Insofar as the Naïve interest rate forecast factors into the DCAT analysis, MPI and its appointed actuary agree that the naïve interest rate forecast is an appropriate

[34] T: 700-701, lines 24-25 and 1-20

assumption in the Base Forecast, for DCAT modelling, and the purposes of determining target capital thresholds.

6.2 Sound Methodology and a Dependable Inputs Produce Just and Reasonable Rates

113 Similar to the 2018 GRA, MPI is asking the PUB to approve rates on the basis of a sound methodology, and dependable inputs.

114 Applying the naïve interest rate forecast to rate setting is a sound methodology, and a best estimate. The actual market yield for the GoC 10 Yr. Bond is a known and dependable input, outside of MPI, or any one single party's control. The GoC 10 Yr. Bond yield is determined in financial markets based on the independent actions of countless market participants, reflecting the full set of information available to the market at that point in time.

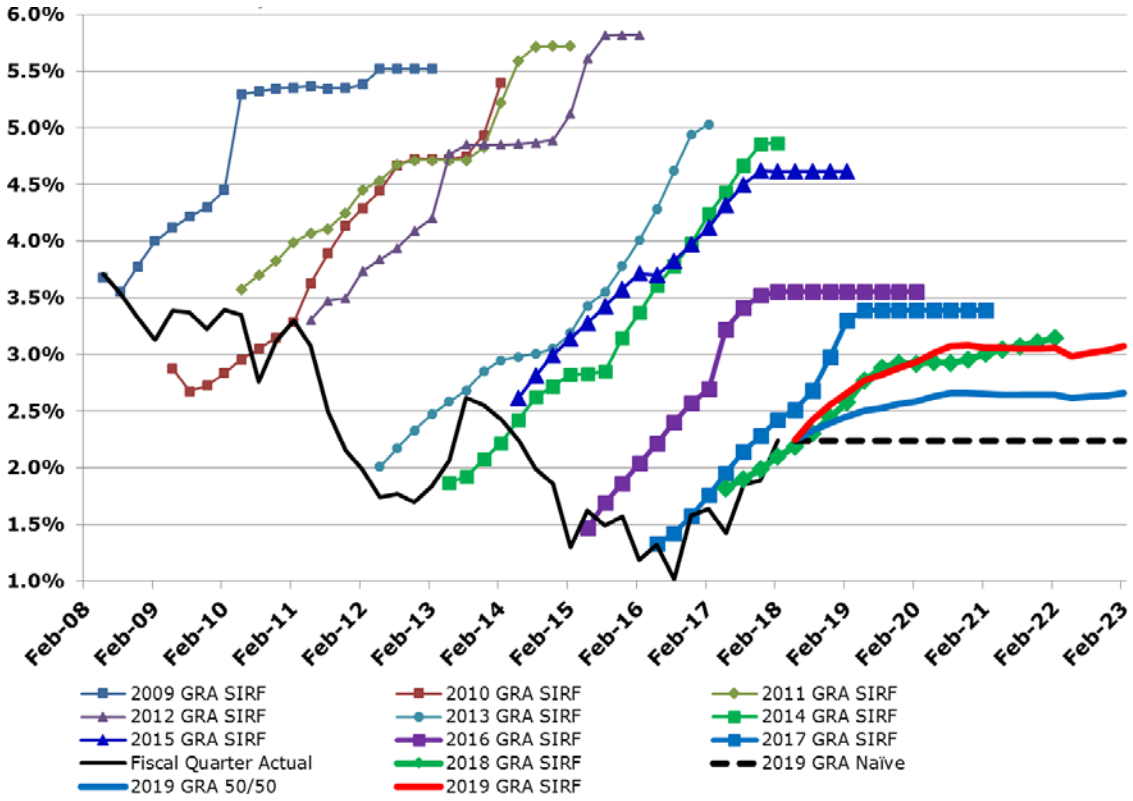
115 The entirety of MPI's application for rates for service is based on applying a sound methodology to dependable inputs. Updates to the rate indication, whether based on September actuals, or through a compliance filing using actual interest rates at a later date, is consistent with the approach used throughout MPI's application, and will result in just and reasonable rates for service.

6.3 The Naïve Interest Rate Forecast is the Best Estimate

116 MPI has produced evidence in the 2019 GRA that builds upon the evidence provided in the past, namely, that the Naïve forecast is a best estimate. The new evidence supporting the naïve forecast is provided below, but certain relevant facts in prior applications bear repeating.

117 First, the Banks forecasts, as reflected in the SIRF, have proven to be materially wrong, year after year. This is evidenced by the Figure 1 below.

Figure 1 – History of Interest Rate Forecasts



118 While a simple visual inspection confirms this fact, Mr. Johnston elaborates on the performance of the SIRF and Naïve forecasts over the past decade:

> *"The fact that the naive forecast perform better in that environment is the most extreme example I could give that the naive forecast is better, because everyone in the world, like apparently knew interest rates were going up and they didn't for the whole entire time.*
>
> *That should have been the -- the most likely scenario where your upward interest rate forecast was going to be correct and it wasn't and it still didn't do as good as the naive over that period. That tells you that, man, if we were in a regular period of time where the -- everyone*

wasn't saying 100 percent chance rates are going up, it would do even better would be my expectation."[35]

119 Mr. Johnston then explains further:

"I think there is overwhelming evidence here that banks aren't very good at predicting it. If this chart doesn't tell you that, I don't know what does. So again, naive is the current rate, we're suggesting we update it as late as possible. Whether these are up, down or straight I don't think it changes our opinion on that. We're not interested in making a bet based on performance that looks like this."[36]

120 Also, in the 2017 GRA, Dr. Sean Cleary's analysis demonstrated that using the naïve forecast "would have improved forecasting accuracy significantly, reducing the percentage forecast error by close to 60%.[37]

121 MPI's Investments Manager, Glen Bunston, summarizes the key points supporting the Naïve forecast as a best estimate:

"So in terms of interest rate forecasting, our -- our best estimate on interest rates relies on a naive interest rate forecast, and that's because it provides a neutral and unbiased forecast. So going forward the yield on the Government of Canada 10 year bond could increase, it could decrease, it could remain flat and the naïve forecast, essentially, uses current rates as the forecast going forward.

And we've presented evidence to show that -- that it is a better predictor and less biased than the 50-50 forecast or the standard interest rate forecast. Over the short term, which is -- we define as 1 to 1 1/2 years, which is the period that we forecast interest rates for for rate setting purposes. The Bank of Canada overnight rate is -- is not a reliable predictor of the direction and magnitude of movements in the 10 year bond rates, and we've presented a significant amount of historical evidence to -- to support that and to show that over the long term there is a relationship, but over the short term the relationship is

[35] T: 351, lines 7-20
[36] T: 346, lines 13-16
[37] CAC Exhibit 15

certainly not direct and, in fact, the two (2) rates have -- have often moved in opposite directions.

So our goal here is -- is to reduce pricing risk and to provide the most accurate forecast of interest rates possible."[38]

122 Mr. Bunston's points are elaborated on in the following sections.

6.3.1 The Naïve Forecast is Unbiased and Efficient

123 MPI has provided significant quantitative evidence that the Naïve Forecast is unbiased, efficient, and superior to the 50/50 forecast on both counts.

124 An efficient estimate is one with a low standard error, a measure of how variable a forecast is relative to actual. MPI has demonstrated that the standard error of the naïve forecast is lower than the 50/50 forecast in Figure INV-11.

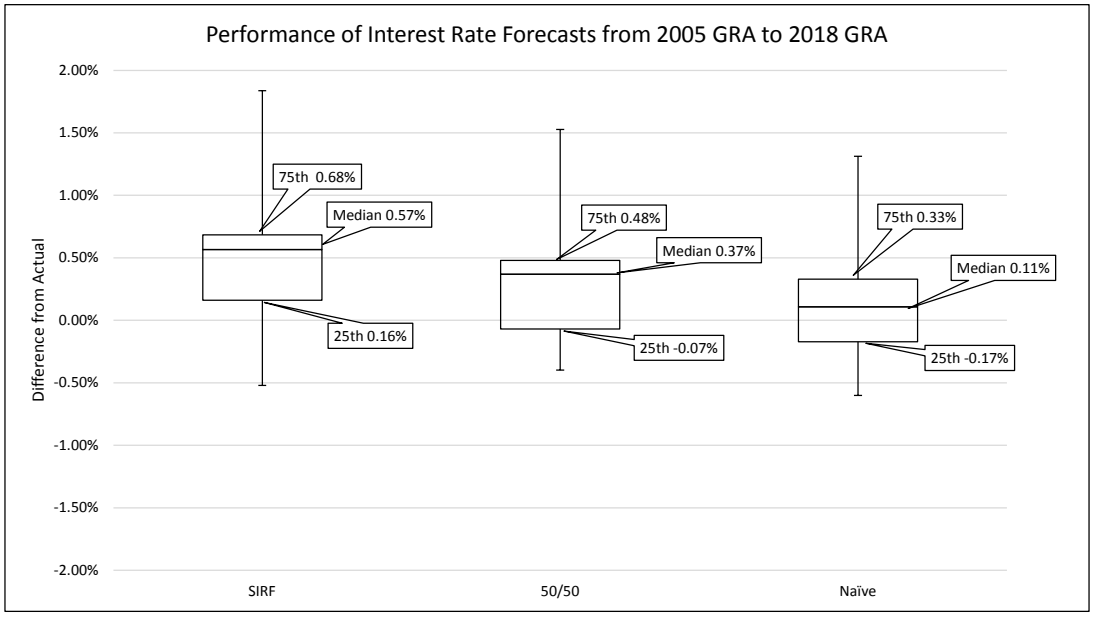
125 Actuarial standards define a Best Estimate as 'an unbiased forecast'[39].

126 MPI then demonstrated, based on 14 years of interest rate forecasts, that the naïve forecast produces an estimate that is statistically the same as the actual forecast. That is, the average difference of the naïve to the actual forecast is between 0.48% and -0.17%, with 95% confidence.[40]

127 To support this analysis MPI presented a schematic highlighting how each of the interest rate forecasts differ from actuals.

[38] T: 264-265, lines 8-25 and 1-9
[39] PUB (MPI) 1-11
[40] CAC (MPI) 1-6

Figure 2 – Statistical Performance of Interest Rate Forecasts



The figure below shows how each of the three interest rate forecasts differ from the actual. As indicated, there is marginal difference in the variance between the 50/50 and naïve forecast (as seen by the overall length of the 'whisker' in the box and whisker plot below). However, the naïve forecast is less biased than the 50/50 forecast (given the range of differences of the naïve forecast plots closer to the 'zero difference' line – that is, the 'box' in the box and whisker plot is more centered around the zero difference line) and, as seen in the Corporation's response to PUB (MPI) 1-11 (a), the naïve forecast is statistically less biased than the 50/50 forecast.

Further, the middle line of the 'box', the median, is closest to 0.00% in the naïve forecast, while the 50/50 forecast produced forecasts that are at least 37 basis points higher than actual, 50% of the time. [41]

[41] CAC (MPI) 1-4

6.3.2 MPI's Appointed Actuary Supports Naïve Forecast

128 MPI's appointed actuary, Joe Cheng, has also endorsed the Naïve forecast in the base scenario stating:

> *"In my opinion, a naïve interest rate assumption is appropriate for the base scenario. Notwithstanding the two recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naïve interest rate as a base case"*[42]

129 He further notes that any forecast other than the Naïve would require more work, but would not necessarily provide any benefit, and thereafter provides examples of 5 largest insurers he reviewed, indicating that three of the five assumed a naïve interest rate forecast in their recent DCATs.[43]

6.4 The Bank of Canada Overnight Rate is not a reliable proxy of the GoC 10 Yr. Bond Yield

130 MPI relies on the forecast of the GoC 10 Yr. bond yield, for forecasting and rate setting purposes. The GoC 10 Yr. Bond yield is a long term bond traded in financial markets, whose rate (yield) is determined by the actions of market participants.

131 The Bank of Canada's Overnight rate is a very different interest rate. It is a policy rate set by the Bank of Canada, and movements in one should not be confused for movements in the other.

132 MPI has produced evidence that the Bank of Canada's overnight rate is simply not a relevant consideration for selecting a best estimate interest rate forecast for rate setting purposes[44], by demonstrating that changes in the Bank of Canada overnight

[42] PUB (MPI) 1-11 Attachment A
[43] PUB (MPI) 1-11 Attachment A
[44] CAC (MPI) 1-6, CAC(MPI) 2-1

rate is not a reliable predictor of changes in the GoC 10 Yr. bond yield over the short term[45].

133 While it is true that there is a term structure to interest rates, and that long term bond yields eventually respond directionally to overnight interest rate movements, this relationship is not strong enough over 12 to 18 month timeframe to consider the overnight rate a reliable proxy or leading indicator for the GoC 10 Yr. bond yield.

134 Mr. Bunston summarized the historical data and patterns of movements in interest rates as follows:

> *"Well, there were other IRs asked on this topic, CAC-2–1 was one (1) of those where we provided data going back further than this. This is about a two-year period. And so we pointed out that there were many periods of time, as recently as 2010, when the overnight rate increased and the yield on the Government of Canada bond fell and the difference between the two (2) can be as large as 400 basis points.*
>
> *So there is -- there is no guarantee that a rising overnight rate will translate over the outlook period, the rate setting period of 1 to 1 1/2 years into an increase in the yield on the Canada 10-year bond."*[46]

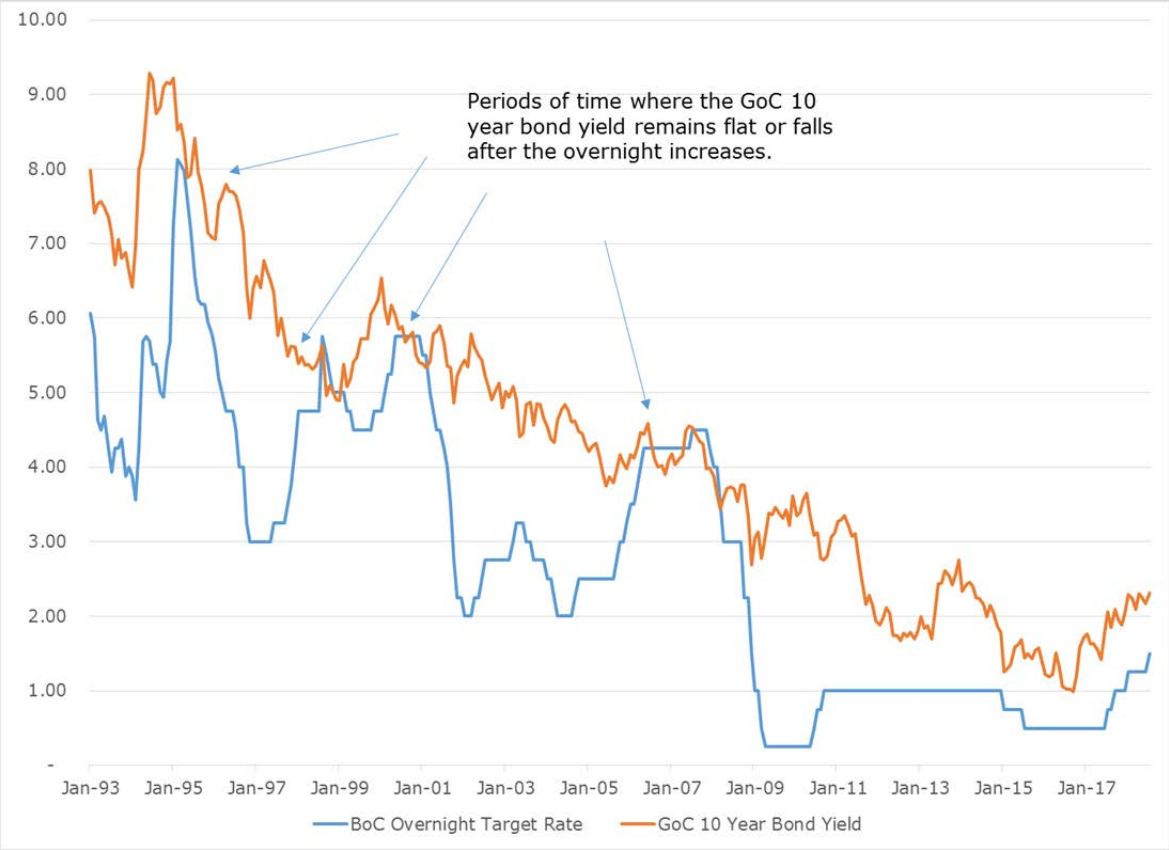
135 MPI notes six different annual periods since 1994 where the overnight rate and the GoC 10 Yr. bond yield **diverged** materially, between 1.36 and 2.92 percent[47]. MPI has also demonstrated that there have been periods of time where the overnight rate is unchanged, while the GoC 10 Yr. bond yield varies considerably.

136 This history of the GoC 10 Yr. Bond yield and the Bank of Canada Overnight rate is presented below.[48] MPI does not dispute that over the span of more than two

[45] CAC (MPI) 2-1
[46] T: 374-375, lines 13-25 and 1-8
[47] CAC (MPI) 2-11 Figure 2
[48] CAC(MPI) 2-1 Figure 1

decades, dating back to 1993, that both interest rates have trended in the same direction.

Figure 3



137 MPI also concedes that there are times, when the overnight rate and GoC 10 Yr. bond yield do move together in the near term. However, there are also periods in time where the two rates diverge, or otherwise move independently of one another. MPI's evidence demonstrates that this relationship is simply not dependable enough to inform the selection of a best estimate forecast.

138 Therefore, movements in the Overnight rate cannot reliably be used as a proxy, or leading indicator, of movements in the GoC 10 Yr. Bond yield over the relevant time horizon of 12 to 18 months. Accordingly, the PUB can place no weight on the evidence of 'expected' increases in the Bank of Canada's overnight rate.

6.5 50/50 Forecast Introduces Avoidable Pricing Risk

139 In the 2018 GRA, MPI characterized the risk around forecasting interest rates as "forecasting risk", and, in this GRA, it is further refining the description as "pricing risk". This is to say, that if rates are set based on a forecast, that proves to be wrong, then the policies have been mispriced, there is no protection or hedge for this risk.

140 Mr. Johnston characterized the risk of mispricing as follows:

> *"So my example I used yesterday, if naive was a $1000 rate and we want to be really optimistic and say, you know, rate should only be $950 because interest rates are going to go up, then it just stays the same, well we've lost $50 – we mispriced by $50 a policy and there's no getting that back. It's -- it's -- we just priced wrong."* [49]

141 MPI's goal in forecasting interest rates is to minimize the risk of mispricing policies. Using the most current actual interest rate information, i.e. the most recent naïve interest rate forecast, is the best approach to meet that goal. This pricing risk is different from the interest rate risk that has been fully neutralized by the ALM study, as Mr. Johnston explains:

> *For the most part, neutralizing interest rate risk to the claim liabilities themselves has been something that MPI's had in place for some time now, at least since 2014. That strategy does not shield us from the pricing risk of -- of optimistic interest rate forecasts. So as I talked about yesterday, we can match assets and liabilities as much is we want. We can go right to the cash flow basis, but if we use a poor assumption for pricing, there is no escaping that price that you -- you set here. If it's based on a really high interest rate and priced too low, we will get the consequences of that, and of course, vice versa."*[50]

[49] T: 371, lines 1-18
[50] T: 666-667, lines 8-17 and 12-25

142 This is consistent with the approach taken in other forecasts supporting the GRA. MPI proposes to set rates based on that which is known and observable today, which Mr. Johnston explained as follows:

> *"I would continue to suggest that we should update our rate indication based on the latest actuals, but I would not recommend making another bet on rising interest rates. A lot can change, just as fast as this change is an upper direction, it can go in the other direction.*
>
> *You know, we've talked -- if you put parallels to other forecasts we makes, so say we have a road safety initiative and we're expecting it's going to reduce claims or whatever, do we make the bet on that before it happens, or do we wait until we actually see it in evidence and then book that into the rates."*[51]

143 MPI supports updating the rate indication based on the most recent actual data, and continues to support the approach of further updating GoC 10 Yr. bond yield and the rate indication through a compliance filing to the PUB's order in the 2019 GRA. In the alternative, MPI would support updating the rate indication based on the actual GoC 10 Yr. bond yield as at September 28th, 2018, through PUB Pre-Ask 1.

[51] T: 376, lines 10-22

7 Investments

144 Section 18 of the *MPIC Act* contains the following direction to MPI:

> *"The corporation shall **establish and maintain reserves** in such amounts that, at all times, it has sufficient funds to meet all the payments as may become payable under this Act and regulations." [Emphasis added]*

145 Throughout the insurance industry, both private and public, capital reserves are held to protect companies from insolvency and ratepayers from rate shock.

146 Continuing within this statutory framework, section 12 of the *MPIC Act* requires MPI to pay these reserves to the Minister of Finance who is to then invest them for the benefit of the Corporation:

> *"The corporation shall pay to the minister charged with the administration of The Financial Administration Act, for investment for the corporation, moneys in any reserve established under section 18 and such additional moneys as are not immediately required for the purposes of the corporation and are available for investment."*

147 Following up on the recommendations included in the Asset Liability Management (ALM) Study undertaken by Mercer Canada (Mercer), the Corporation and its Board of Directors, in consultation with the Government, dramatically changed the Corporation's investment fund. The result of these changes has been to significantly reduce the risk profile of Basic, and establish portfolios suitable to the purpose of each reserve fund.

148 The Board of Directors, pursuant to section 18 of the *MPIC Act*, established five reserves, three of which are relevant to this Application:

i. the Basic Reserve;

ii. the RSR; and

iii. the Employee Future Benefits (Pension) Reserve.

149 As described by Mr. Bunston, the Corporation moved from a commingled investment portfolio to one that segregates the assets of MPI's lines of business into "buckets" -- namely, the Basic Claims Liability portfolio, the RSR portfolio, the Post-Retirement Benefits portfolio (along with the extension line of business and Special Risk Extension portfolios). Dave Makarchuk of Mercer, testified that this segregation is perhaps the biggest change to the Corporation's investment fund.[52]

150 The purpose of each Reserve is as follows:

i. The Basic Claims Liability Reserve:

This portfolio is to pay for insurance claims associated with accidents. Very little investing risk will be taken to jeopardize having the funds necessary to pay for future claims expenses.

ii. Rate Stabilization Reserve

The RSR is Basic's capital reserve. It is there to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and losses arising from non-recurring events. The RSR is in place to pay for these losses so that next year's ratepayers do not. Given the purpose of the RSR, the investment risk tolerance can vary. There will be minimal investment risk tolerance when the RSR balance is below the DCAT minimum; however, there will be

[52] T: 336, line 22-25.

moderate investment risk tolerance when the RSR is within the approved range.

iii. Employee Future Benefits (Pension) Reserve

This reserve is to ensure that pension and other obligations are paid as they become due, while earning investment returns that keep contribution rates at reasonable levels. This fund represents combined pension liabilities for all lines of business (approximately 85% allocated to Basic and 15% to the other lines of business). Because of this, the investment risk tolerance is moderate.

151 The Board of Directors, including the three members that comprise the Investment Committee, determined the risk tolerance specific to each reserve. They are overseen by the Department of Finance and have developed an Investment Policy Statement for investing these reserves. These investment decisions for these reserves were informed by the results of the Mercer ALM Study.

152 The Mercer ALM study, the Board of Directors' Investment Policy Statement and the implementation plan were all thoroughly discussed and reviewed before embarking on the new investment strategy. As it concerns the PUB's review of the new investment strategy in the 2019 General Rate Application, 440 pages of documents were submitted in the application, 82 investment questions were answered through IRs, and an MPI panel consisting of the Vice-President of Finance, the Chief Actuary, and the Manager of Investments, and an expert from Mercer (qualified as an expert in the areas of institutional investment planning and asset & liability matching) were presented to answer numerous questions under oath over the course of three days.

153 The new investment strategy, to be implemented fiscal year 2018/19 (ongoing), has shown immediate positive results. The total equity requirements for the Rate Stabilization Reserve have been reduced by approximately 30%, with MPI calculating the lower and upper targets for the upcoming fiscal year to be $143 million and $305

million. During last year's GRA, under the commingled investment fund, MPI calculated the lower and upper targets at $201 million and $438 million respectively.

154 The amount in the Rate Stabilization Reserve for the 2018/19 fiscal year was $211 million (as of February 28, 2019). In the absence of the new investment strategy, that would have been below the lower target this year, necessitating a rebuilding fee. However, as a direct result of the new investment strategy, there was no capital rebuild provision sought by the corporation in this year's GRA.

155 Another immediate and postitve impact, is that the new investment strategy provides 100% protection against 'interest rate risk' (the risk associated with changing interest rates)-- that is, the Basic Claims Liability portfolio contains an interest rate hedge ratio of 100%. The assets backing the Basic liabilities have been significantly de-risked under the new investment strategy, primarily as a result of the need to meet Basic's existing obligations to claimants, and Basic's low level of capitalization. Although the investment fund shows a lower expected annual return, the risk of loss is now significantly lower.

156 Throughout their testimony, the witnesses on the Investments panel repeatedly indicated that the chance of incurring losses due to 'interest rate risk' has been mitigated under the new investment strategy. Indeed, under cross-examination, the expert witnesses that testified as part of the case advanced by the Consumers Association of Canada (CAC), made admissions as follows:

> *"THE CHAIRPERSON: So, does the interest rate factor play as big a role as it did before when you had equities and the liabilities all co-mingled?*
>
> *DR. WAYNE SIMPSON: My general sense, and I profess no great expertise on the financial model, but as you run these scenarios through the financial model, these adverse scenarios, it will make a difference. Yes. They won't be as -- as severe as they would have been before, that's -- that's my sense of of the -- of the -- of some of the declining risk that's associated with the lower RSR thresholds.*

MS. ANDREA SHERRY: If that -- if the asset liability management is within the model that is used to perform the DCAT, then yes, it would lower the risk and therefore have an impact."

157 The MPI Board of Directors includes an Investment Committee comprised of three individuals that have spent their entire careers in the investment industry. Appendix 1 to the MPI Rebuttal Evidence[53] contains a summary of the credentials of Domenic Grestoni, Daniel Bubis and Valerie Wowryk. These individuals not only bring a wealth of investment experience to MPI, but are aware of the Corporation's recent financial history and the concerns and guidance expressed by the Department of Finance. Recommendations to the Minister of Finance concerning the Corporation's investment fund are made by the Board of Directors with a full understanding of all the information needed to make prudent decisions.

158 In compliance with section 12 of the *MPIC Act*, the Investment Committee Terms of Reference[54] include a Mandate that has the strategies and policies of the corporation's investment fund addressing the needs and objectives of both MPI and the Government.

159 Accordingly, the Investment Committee must recommend investment policies and strategies to the Board of Directors for subsequent consideration by the Minister of Finance. Once these investment policies and strategies are approved by the Board of Directors and the Minister of Finance, the Investment Committee must ensure their implementation.

160 A thorough and comprehensive review of MPI's new investment strategy was undertaken. Given net income losses of $250 million in recent years, it should come as no surprise to the outside observer that there is currently little appetite for risk as it concerns the corporation's investment fund. In all the circumstances, under the expertise of the Investment Committee, and with approval from the Minister of

[53] MPI Exhibit 19
[54] INV Appendix 8

Finance, the MPI Board of Directors has made reasonable investment decisions with full consideration to the recommendations in the ALM Study.

161 The evidence before the PUB is that there were many investment options available to investors. The absence or presence of any one investment cannot render the strategy unreasonable, particularly because the performance of any one investment is, by nature, speculative. On its whole, the objectives, risk tolerance and accompanying investments selected by the MPI Board of Directors are patently reasonable. More importantly, the investment decisions of the MPI Board of Directors were made within their legislative authority, meaning any assumptions or forecasts flowing from those decisions must be applied by the PUB.

8 IT Strategy and Projects

162 MPI's Information Technology (IT) Expenses and IT Projects exemplify the new direction given by the Board of Directors to conduct the affairs of the Corporation in accordance with insurance industry best practice.

163 To that end, MPI continues to increase its transparency by detailing the current state of IT Projects and IT expenses, responding to over 75 IT-related information requests and through its presentation of the Information Technology/Physical Damage Re-Engineering/Value Management Panel, a witness panel comprised of Mr. Graham, the President and CEO, Brad Bunko, Vice President of IT, Business Transformation & CIO, Mr. Wennberg, Vice President Customer Service & COO, Lawrence Lazarko, Director, Information Technology, John Remillard, Corporate Business Architect and Charles (Chuck) Henry, Vice President, Solutions and Pricing of Gartner Inc., for two full days of testimony before the PUB.

8.1 The IT Strategy is a Shift to Mainstream Proven Technologies

164 Aligning with industry best practice required a shift in the Corporation's approach to IT. MPI made this shift through its new IT Strategy, a plan that focuses less on specific IT projects and more on ensuring that the business needs of the Corporation are met by its IT and Business capabilities.

165 No longer does MPI view itself as a leader in developing new and innovative technology. MPI is, above all else, an insurance company focused on its core insurance business. MPI included a copy of its new IT Strategy in this year's GRA[55]. While its focus is on the 2018/19 fiscal year, the IT Strategy will continue to guide MPI in future years and will be updated annually.

[55] Part IV IT Appendix 2

8.2 Value Management Drives New Initiatives

166 Industry best practice also requires that decisions regarding new IT projects be informed and properly costed. Accordingly, MPI introduced the Value Management process into its decision making regarding IT capital projects and used this process to conduct cost benefit analyses of the completed Customer Claims Reporting System (CCRS) and Physical Damage Re-Engineering (PDR) capital projects. While Value Management required a shift in MPI's culture, the evidence establishes that it is now engrained in its practices.

167 Business cases are required for all projects costing $500,000 or more and business acumen must be established for even daily operational decisions. A newly formed Value Management Office (VMO) is now involved at every stage of the lifecycle of a project to evaluate, measure and validate the business value of corporate initiatives. Further, a new Operational Business Champion ensures accountability for key decisions made on these initiatives.

168 Unfortunately, MPI has made mistakes when it comes to deciding whether to undertake certain corporate initiatives. An extensive cost/benefit analysis of CCRS resulted in the cancellation of the project in April 2018 while a further review of PDR resulted in a decrease in the reported Net Present Value (NPV), from $13m to -$53m. MPI acknowledges and accepts these errors. It has learned lessons and has taken corrective action, which includes fundamentally changing its project governance structure. MPI does not ask ratepayers in this rate application year to bear the costs of these mistakes.

169 Mr. Wennberg explains that change at MPI starts from the top:

> *"On lessons learned for PDR and CCRS there's a few of them. One (1) is that corporate culture and the tone from the top is absolutely essential and -- and we need this, not just for the project budgeting upfront, but we need it for post- implementation reviews as it goes forward so that we really learn from what was rolled out and then you correct any mistakes.*

Part of the business case on PDR, for example, is recognizing what we did with eighty-one dollars ($81) and the value it's giving us or not giving us in our current negotiations and public stuff that we've put out to our trade. They know that we -- we can't afford the eighty-one dollars ($81) and it's not industry standard practice. So we're working our way out of that as an example.

2. It's gotta stay open to revisiting weak assumptions. So if the assumption, for example, was that we could get direct repair out in shops and do it for nothing but then we had to the eighty-one dollars ($81), you -- you just have to put it in your business case."[56]

170 While MPI's new approach to value management strives to ensure that the cost of corporate initiatives does not exceed their value, it would be misguided to view projects like PDR and CCRS as complete failures.

171 Mr. Wennberg elaborates on the nuance to this point in an exchange with PUB counsel:

"MS. KATHLEEN MCCANDLESS: Thank you. And Mr. Wennberg, this morning in your presentation, you made a comment to the effect that sometimes, the -- a -- a given project may not have a positive net

present value, but you still would recommend that the Corporation undertake the project. Do you recall saying that?

MR. CURTIS WENNBERG: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And with respect to the PDR project, what's MPI's perspective on it?

MR. CURTIS WENNBERG: Well, we also covered that a little bit this morning, too, when the-- the question came up of -- of is this worthwhile doing? And the magnitude of the loss, would you do it as an armchair quarterback today? Would you do the exact same thing? No, I think the this executive team and -- and Board wouldn't do that, without putting words in their mouth. But -- but the nuggets -- we have

[56] T: 914-915, lines 25 and 1-21

> *to understand that the nuggets of getting into a – a Mitchell-based or an estimating-based system that's software instead of faxes and paper, that made sense to do. And -- and what we need to do is streamline and really double check on some of the other components of PDR, and -- and make sure before we -- we -- particularly as you heard Brad say, before we innovate in-house, given our size, do we -- do we know where industry best practice is that we can lift and shift back in here for all Manitobans?"*[57]

172 Although there are elements of the PDR project that, with the benefit of value management, would not have included or would have done differently by MPI, other elements retained their value. When asked about how he would describe the PDR Program, Mr. Henry provided the following response, under oath:

> *"I can't comment on the -- on the whole program, but I can say that MPI had no choice but to get to some technology like Mitchell and standardize how estimating was being done across the project. Without that, things like fraud analysis is impossible because the -- the data wouldn't be reliable enough. So there is a huge amount of value in getting to, you know, a platform like Mitchell and having this common standard in place with the repair industry. And from there, lots of things are possible going forward.*
>
> *So by having the standard in place, having good data, you know, there's lots of possibilities of what MPI and the industry together can do with this that -- that was not possible in the past. So to me, that was essential. I can't comment on all the other components."*[58]

173 For CCRS, when asked whether MPI has completely abandoned the project by cancelling it, Mr. Wennberg testified:

> *"No, it hasn't. So there's some very good work done around the intellectual property of how we picture these accidents and -- and can visualize them to*

[57] T:1058-1059, lines 11-25 and 1-16
[58] T: 944-945, lines 16-25 and 1-9

customers. So as we watch this develop in the marketplace, we still have that body of work that we can rely on."[59]

174 Moving forward, MPI's approach to its Legacy Systems Modernization (LSM) future capital project will incorporate the Value Management process. This includes conducting independent assessments of the legacy systems risks, establishing a strategy to mitigate those risks, developing business cases, conducting financial analysis and preparing a roadmap and plan for project implementation. MPI expects to include detailed business cases supporting the plan for LSM in the 2020 GRA.

8.3 IT Operations Lead Peers in Many Measures

175 Last year, the Board recognized the progress made by MPI in controlling IT spending, reducing its reliance on external IT consultants and implementing the new Value Management Process. This year, MPI expands on that progress. MPI's IT Scorecard, the results of an independent evaluation by Gartner of how effective MPI's business needs are met by its IT organization, show that MPI continues to improve its performance to either better align with or exceed the capabilities of its peers.[60] For example, MPI has reduced its IT spend as a percentage of Operating Expenses by 7.1% over 5 years while increasing its IT maturity by 3.9% over the same period of time. IT maturity, which reflects a higher level of service delivery capability, typically costs more to achieve.[61]

176 Finally, MPI continues to make progress towards its goal of transitioning 27 external IT contractors to employees by the fiscal year 2019/20. To date, MPI has achieved 20 transitions, has approximately 2-3 additional transitions in progress and remains committed to completing all 27 transitions within the stated timeframe. MPI has also increased the projected savings of this initiative from $2.4m to $3m. MPI will also

[59] T: 921-922, lines 21-25 and 1
[60] MPI Exhibit 1, Pg. 261 (BMK Attachment A)
[61] T: 908, lines 3-10

explore the possibility of reducing its IT staff further through the adoption of newer technology as part of its LSM assessment.[62]

[62] T: 1070-1071, lines 20-25 and 1-8

9 Breakeven Ratemaking: Expenses and Revenues

177 The rate increase to the cost of breakeven policies is 0.1 percent (as filed); calculated in accordance to the Accepted Actuarial Practices (AAP), where "the process for determining breakeven rates is separate from the process of determining the level of capital required to maintain the current capital position."[63]

178 MPI ratemaking methodology is proven and stable over time, drawing accolades from Mr. Sherry in testimony:

> *"We've done a lot of work moving towards rate making on accepted actuarial practice. It's only been one (1) or two (2) years where we've actually had that.*
>
> *I think that that move was very important to help bring stability in terms of the projection period that you had to do to get to an indication."*[64]

179 There are no significant changes to the ratemaking methodology applied for this year other than the technical line and group changes specified in the RM.2 section of the Ratemaking chapter.[65]

9.1 Revenues

180 The 0.1% breakeven rate request (as filed) is based on four components:

i. a forecasted 1.5 percent increase in volume of vehicles;

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[63] CAC (MPI) 2-23
[64] T: 1276, lines 4-11
[65] RM.2 Rate model, Ratemaking p.5 of 58

ii. an upgrade factor forecasted in this application at 2.39 percent, which includes changes to makes and models of vehicles, insurance uses, and different territories;
iii. anti-theft discounts; and
iv. fleet rebates.

181 Mr. Giesbrecht explained fleet rebates in his direct evidence, as is a surcharge or a rebate that owners of ten or more vehicles may qualify for. Moreover, he explains that:

> *"…historically, rebates have hovered around $16 million, surcharge is at $2 million for a net rebate of roughly $14 million"*[66].

182 Mr. Giesbrecht further explained that the anti-theft program is in runoff and that will gradually diminish its impact on the revenues over the future years going forward. Nonetheless, it represents about a $2.4 million rebate to customers for this application year.

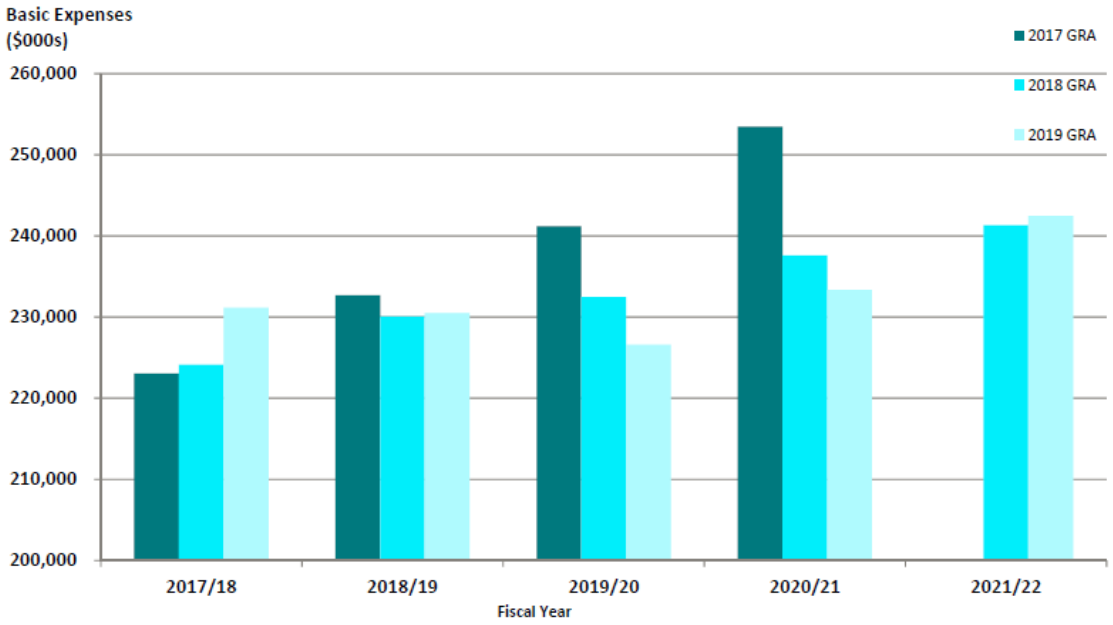
9.2 Expenses

183 Ms. Cynthia Campbell, the Corporate Controller, explained that "Expenses continue to be actively managed and they do not factor into any rate increase"[67]. This is prudent fiscal management, that is evident throughout this application.

184 Dependable control over expenses is essential to deliver predictable and stable rates. The following chart[68] illustrates this trend of improving outlooks on expenses over successive GRA applications:

[66] T: 731, lines 21-23
[67] T: 737, lines 2-3
[68] MPI Exhibit 25, slide 18

Figure 4 – Expense Projections from Current and Past GRAs



185 There is over a 2 percent reduction in operating expenses for the rating years compared to the prior year's rate application and, as a result, the operating expenses do not factor into the increase in this application.[69]

186 Regarding FTEs, MPI has demonstrated the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions is $4,496,843.[70]

187 MPI also continues to improve the management of long terms claims through a two-pronged approach that relies on the hire of 13 FTE to actively case manage claimants, and address issues around reserving and fraud management. This is expected to dampen the growth in long term BI claims experienced in recent years.

[69] T: 736, lines 21-25.
[70] MPI Exhibit 41, Undertaking 14

188 The Corporation will continue to demonstrate fiscal prudence and sound financial management practices while driving cost-containment, streamlining of operations and elimination of unnecessary operational expenses.

10 Conclusion

189 MPI has brought a rate request that is just and reasonable, and fully supported by the evidence before the PUB. MPI respectfully submits that the application should be approved based on the metholdogy requested, and based on the updated GoC 10 Yr. bond yield as at September 28, 2018.

190 MPI also submits that 2018/19 Vehicle For Hire (VFH) rates should be approved, and the final approval of 2016/17 and 2017/18 VFH rates should receive final approval.

191 MPI has presented a clear and compelling case, supported by increased transparency and access to corporate executives, that appropriately balances the needs of MPI and those of ratepayers.

192 ALL OF WHICH IS RESPECTFULLY SUBMITTED.

2019 General Rate Application Closing Submissions

Steve Scarfone & Anthony Guerra

October 30, 2018

Manitoba Public Insurance

1

Introduction

Steve Scarfone



Manitoba Public Insurance

The 2019 General Rate Application

- 2019 GRA sets tone for openness and transparency
- MPI applying industry best practice to all facets of its business
- This year's Application seeks (as at February 28, 2018):
  - 0.1% rate increase
  - 2.1% rate increase for Net Capital Maintenance Provision (CMP)
  - Rate Stabilization Reserve (RSR) Targets:
    - Upper = $305m (85% MCT)
    - Lower = $143m (34% MCT)*
  - Naïve interest rate forecast
  - 2018/2019 VFH rates based on current methodology
  - Final approval of 2017/2018 and 2018/2019 VFH rates

The 2019 General Rate Application

- Updated figures (as at September 30, 2018)
  - 0.26% decrease in rates
  - 1.80% increase in rates for a Net Capital Maintenance Provision
  - Rate Stabilization Reserve (RSR) Targets:
    - Upper = $315m (88% MCT)
    - Lower = $140m (34% MCT)
  - Naïve interest rate forecast (GoC 10-year bond yield)

Key Speaking Points

1. Just and Reasonable Rates

2. Net Capital Maintenance Provision (CMP)
   - ❑ greater stability, predictability and less volatility
   - ❑ MPI's approach is accurate and fair

3. Rate Stabilization Reserve (RSR)
   - ❑ targets set using collaborative DCAT approach
   - ❑ targets based on best estimates
   - ❑ Prudent fiscal management demands adequate capital

Key Speaking Points

4. Interest Rate Forecasting
   - ❑ best estimate for rate setting is current GoC 10-year bond yield
   - ❑ MPI has lost more than $163m using SIRF, over estimates
   - ❑ 50/50 is not a compromise, it is biased and inaccurate
   - ❑ BoC overnight rate is no proxy for GoC 10-year bond yield

5. Investments
   - ❑ MPI moves from a comingled to segregated portfolios
   - ❑ investment decisions were made by Government-appointed experts and informed by results of an independent study
   - ❑ Basic Portfolio + low capitalization + historic losses = no appetite for risk
   - ❑ Change in risk profile of Basic reduced amount required in RSR

Key Speaking Points

6. Revenues, Expenses and Ratemaking
   - ❑no significant changes proposed this year
   - ❑expenses do not factor into this rate increase
   - ❑MPI has improved its handling of long-term PIPP claims

7. Information Technology
   - ❑new IT Strategy – focus on core business of insurance
   - ❑value management ensures accountability for IT Projects
   - ❑mistakes made, learned lessons, solid plan to move forward
   - ❑MPI meets with or exceeds performance of its peers

Key Speaking Points

8. Vehicles for Hire (VFH)
   - ❑Final approval of 2017/2018 and 2018/2019 rates
   - ❑Approval of 2019/2020 rates

9. Ongoing Topics
   - ❑Driver Safety Rating (DSR)
   - ❑Service Fees

Just and Reasonable Rates

Steve Scarfone



Manitoba Public Insurance

Just and Reasonable Rates

- First GRA under new statutory framework
  - *The Manitoba Public Insurance Corporation Act* (MPIC Act)
  - *The Crown Corporations Governance and Accountability Act* (CCG Act)

- CCG and MPIC Acts define roles for MPI and its Board of Directors
  1. establishing & maintaining reserves (s. 18 MPIC Act)
  2. make and introduce new rates and changes (s. 25(1) CCG Act)

- CCG Act defines role of PUB (s. 25(1) CCG Act)
  1. review applications for new rates/changes to existing rates
  2. approve just and reasonable rates

Just and Reasonable Rates

- Roles of MPI and the PUB under s. 25(1) of the CCG Act:

  "25(1) Despite any other Act or law, rates for services provided by Manitoba Hydro and the Manitoba Public Insurance Corporation shall be reviewed by The Public Utilities Board under The Public Utilities Board Act and *no change in rates* for services shall be made and *no new rates* for services shall be introduced without the approval of The Public Utilities Board."

- MPI and PUB have distinct <u>but</u> complementary roles to play to ensure success of Basic compulsory insurance

Just and Reasonable Rates

- What makes rates just and reasonable?
  - CCG Act, s. 25(4) provides list of suggested considerations
  - balance the impacts of rate increases on consumers with the fiscal health of the Utility
  - lowest rates are not always just and reasonable
  - must also consider impact of unstable rates “rate shock”

- MPI makes rates that it considers to be just and reasonable
  - GRA balances interests of ratepayers with MPI’s requirement to cover cost of 2019/2020 policies

- This is where interveners fall short – positions do not strike a balance, recommendations focus only on reducing rates

Just and Reasonable Rates

- CCGA requires MPI to prepare an **Annual Business Plan**
  - is approved by Minister Responsible for MPI
  - is a roadmap for achievement of Mission Statement objectives

- MPI's new Mission Statement is:

"Exceptional coverage and service, affordable rates and safer roads through public automobile insurance."

- Direction set by MPI Board of Directors, approved by Government

Just and Reasonable Rates

- Key priorities of MPI as defined by the Annual Business Plan
  1. make Basic self-sustaining
  2. establish rates in accordance with Accepted Actuarial Practice
  3. keep Basic rates stable, predictable, affordable
  4. evolve products and services to meet needs of Manitobans
  5. do not impair Consolidated Financial Statements of Manitoba
  6. capital projects/IT initiatives support core business functions
  7. continue to demonstrate fiscal prudence

- Business Plan = Industry Best Practice = just and reasonable rates

Net Capital Maintenance Provision

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Net Capital Maintenance Provision

- What is a CMP?
  - Additional amount collected from ratepayers to maintain the capital level of Basic in the a particular fiscal year
  - Treated separately by MPI from the breakeven rate indication
  - MPI considers what is needed after factoring in income earned on RSR investments (Net CMP)

- MPI's CMP Proposal – change in rate indication

  +3.3% (to maintain capital in 2019/2020)
  -1.2% (interest earned on RSR investments)
  +2.1% (NET CMP)

- Based on September 30, 2018 GoC 10-year Bond Yields, NET CMP is +1.8%

Net Capital Maintenance Provision

- Need for a CMP
  - PUB Order 130/17, Page 29:

"The Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims. The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective." (emphasis added)

Net Capital Maintenance Provision

- Ms. Sherry testified that, in her opinion, MPI does not need a CMP
  - said if MPI holds capital within the RSR Range, it is adequately capitalized
  - said if MPI needs capital, it can seek rate increases
  - incorrectly claimed that CMP builds RSR capital until it exceeds upper target

- This ignores purpose of RSR, to prevent “rate shock”

Net Capital Maintenance Provision

- MPI's approach: a CMP that is **accurate** and **fair**
  - Accurate
    i. determines the capital required to maintain Basic in rating year
  - Fair
    i. policy holders end the year with Basic having same capitalization as it did at the start of the year
    ii. policy holders in this year are the ones who pay for the capital maintenance requirements of that year

Net Capital Maintenance Provision

- SGI's approach:
  - More complex
    - 5 year forecast (versus 1 year forecast MPI)
  - Less fair
    - Ratepayers not paying the full cost to maintain capital in that year
    - Growth in business is not static
      - Need to protect capital this year, for this year's growth
  - Limited sensitivity to changes in risk profile in the test year
    - Risk profile can change in the 5 year outlook

Rate Stabilization Reserve

Steve Scarfone

Manitoba Public Insurance

Rate Stabilization Reserve

- Dynamic Capital Adequacy Test (DCAT) establishes RSR targets
  - RSR Targets reflect results of collaborative process
  - MPI is not asking PUB to replace DCAT with MCT
  - DCAT produces a dollar value for each target which MPI then expresses as an MCT ratio
  - converting DCAT monetary targets to MCT ratios allows MPI to forecast them
  - MCT is simple, objective and works

- RSR targets must be based on best estimates
  - lower target must be minimum for satisfactory financial condition
    - improper to assume transfers from Extension
  - Current approach of PUB not based on best estimate, sets RSR lower target too low

Rate Stabilization Reserve

- Basic remains most thinly capitalized insurer in Canada
  - RSR Range remains below levels of peers
  - if MPI were a private insurer, it would be insolvent
- MPI does not seek a 100% MCT upper RSR target and does not ask to be treated like a private insurer
- MPI seeks RSR targets to ensure that it is adequately capitalized
- This is prudent fiscal management

Interest Rate Forecasting

Steve Scarfone

Manitoba Public Insurance

Interest Rate Forecasting

- Important Terminology to Consider:
  - **<u>Interest Rate Forecasting</u>** - predicting what **the Government of Canada 10-year bond yield** will be at a particular point in time
  - It is **<u>NOT</u>** a prediction of what the Bank of Canada's Overnight lending rate will be
  - They are NOT interchangeable

Interest Rate Forecasting

- Lessons learned:

- **Forecasting interest rates is hard**
  - impossible to do it accurately, bound to get it wrong
  - considering economic factors does not improve accuracy
  - the 2008 Great Recession has made it even more difficult

> *"22 MR. ANTHONY GUERRA: I see. Dr.*
> *23 Simpson, do you know what the interest rates are going*
> *24 to be on September 1st, 2019?*
>
> *25 DR. WAYNE SIMPSON: No."* (T: 1244)

- **Pricing Risk: Future ratepayers pay if forecasts are wrong**
  - MPI $163m less in premiums than it should have
  - Losses depleted the RSR
  - Impacts rate stability, predictability and volatility
  - Makes Basic less self-sufficient

Interest Rate Forecasting

- Forecasting Options:
  - Standard Interest Rate Forecast (SIRF) – i.e. speculation
  - 50/50 Interest Rate Forecast – i.e. compromised speculation
  - Naïve Interest Rate Forecast – i.e. going with what is known

- Impacts or has an influence on
  - how much MPI needs to collect from ratepayers to breakeven
  - the targets to be set for the RSR

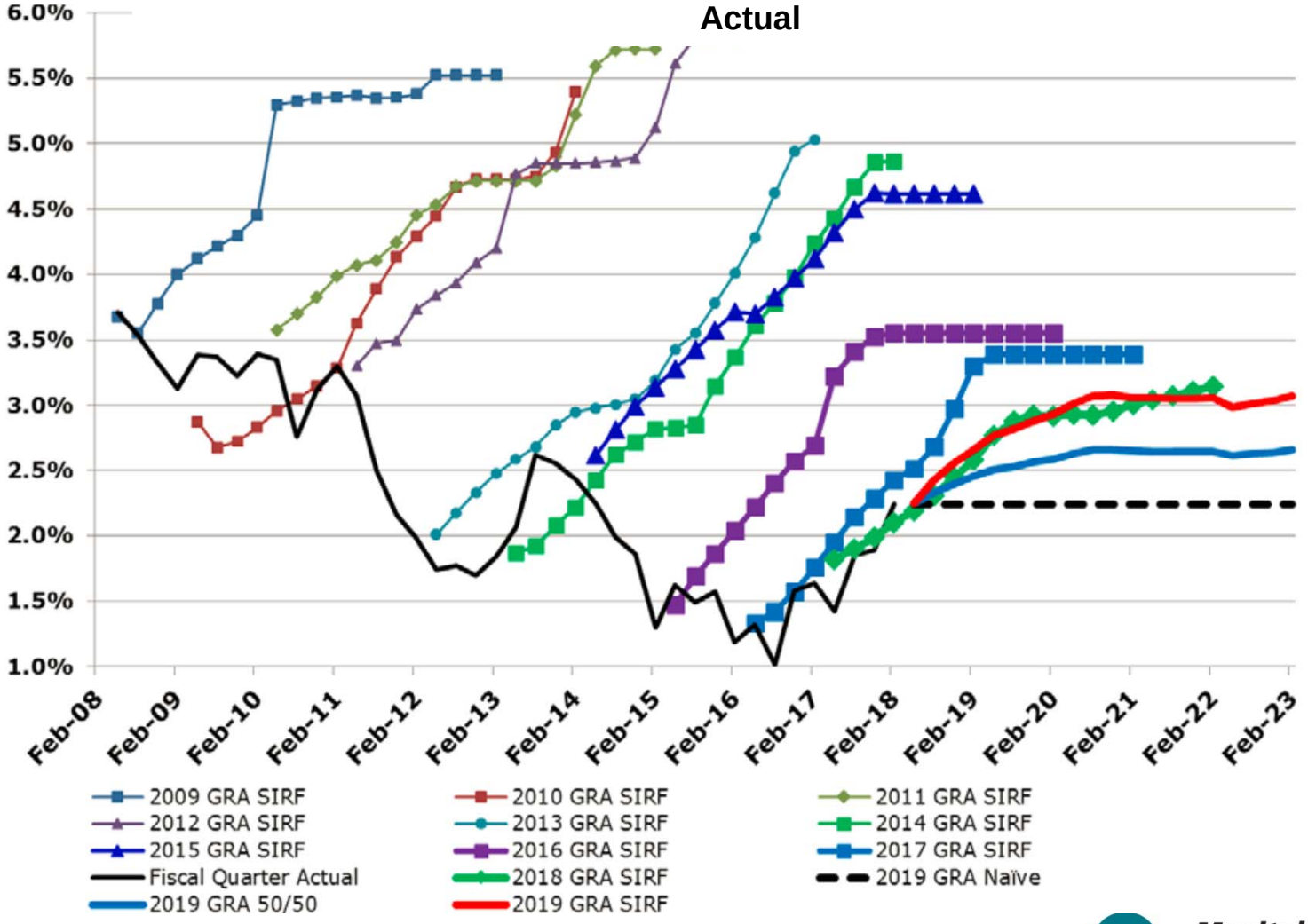
Interest Rate Forecasting

- Standard Interest Rate Forecast (SIRF)
  - uses forecasts of major banks
  - mean reversion model – considers economic factors
  - has a history of being biased and wrong

- 50/50 Interest Rate Forecast
  - weights results of SIRF against Naïve forecasts
  - attempt to improve forecasting through (judgmental) compromise
  - only half as accurate as Naïve
  - recent history suggest worse than SIRF

Interest Rate Forecasting

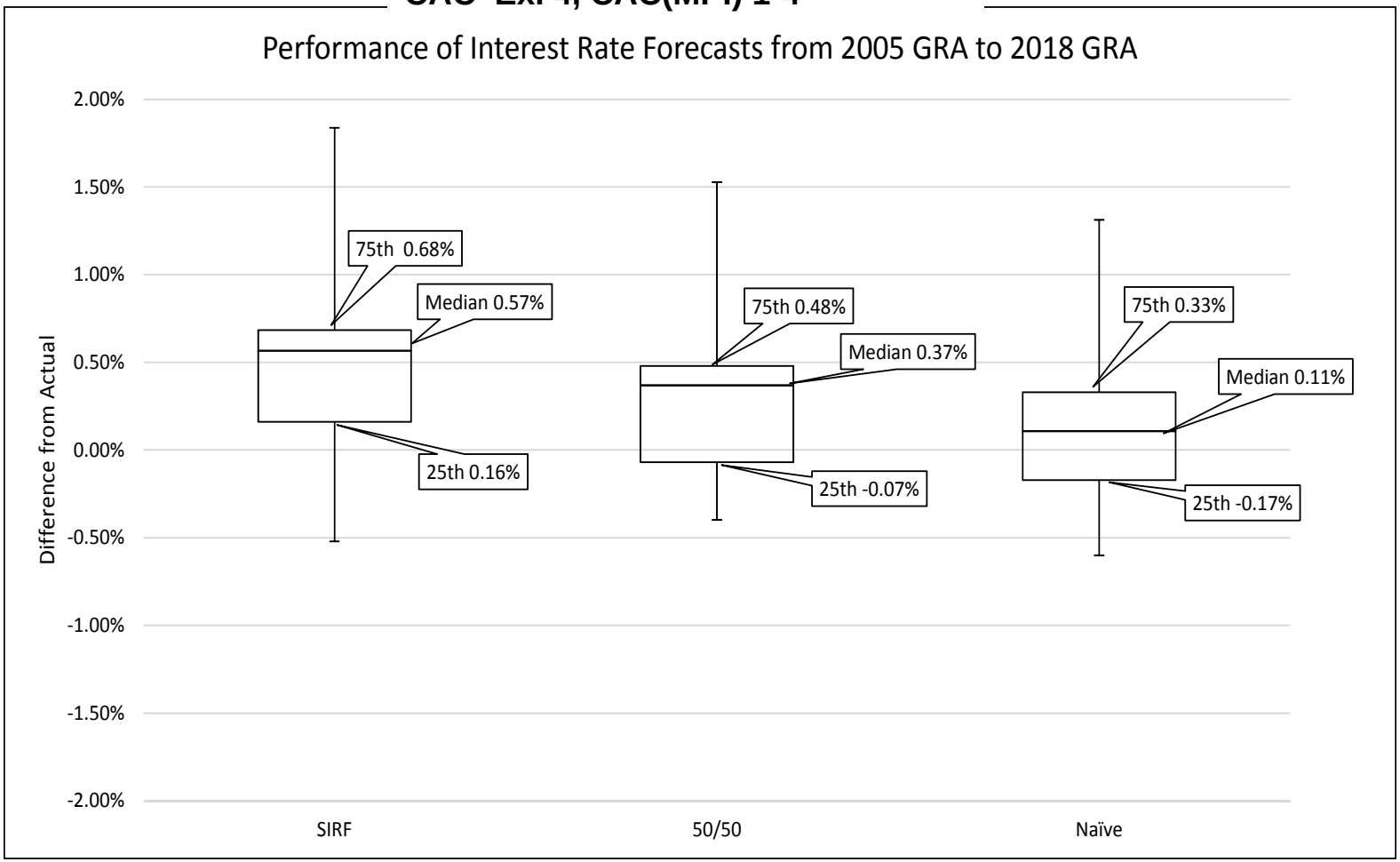
Figure INV- 10: GoC 10 Year Forecasted Rates from 2009 to 2019 GRA and Actual



Manitoba Public Insurance

Interest Rate Forecasting

CAC Ex. 4, CAC(MPI) 1-4



Manitoba Public Insurance

Interest Rate Forecasting

- Naïve Interest Rate Forecast
  - takes the current actual interest rate, assumes no change
  - forecast period – short vs. long term
    - Short Term: Naïve is least biased, more accurate
    - Long Term: Not relevant to ratemaking or DCAT

- Perhaps the terminology has caused confusion about what MPI is proposing

"10 THE CHAIRPERSON: Okay. What is the
11 upside or downside if instead of going -- we're going
12 to go naive or 50/50 or SIRF, that we just pick an
13 interest rate of a specific point now and say that's
14 the rate we're going to put into our projections,
15 we'll be back here a year from now and we'll see
16 whether we need to raise rates or lower rates to take
17 into account the rate we selected." (Transcript Page. 1332)

"4 DR. WAYNE SIMPSON: That is the naive
5 forecast." (T: 1333)

Interest Rate Forecasting

- MPI forecasts to September 1, 2019 – shortening forecast period improves accuracy and limits risk – options are:
  - use February 28, 2018 rate in GRA (18 months)
  - use September 30, 2018 rate (11 months)
  - use rate closest to rating period (compliance filing)

Interest Rate Forecasting

- Government of Canada (GoC) 10-year Bond Yields
  - MPI uses this to forecast new money yield
  - NOT the Bank of Canada's (BoC) Overnight Rate

- No meaningful link between GoC 10-Year Bond Yield and BoC Overnight Rate in short term (12-18 months)
  - short term is important for ratemaking purposes
  - sometimes BoC Overnight Rate goes up and GoC 10-Year Bond Yield goes down in short term
  - i.e. BoC increased its Overnight Rate October 24, 2018 and GoC 10-year bond yield is presently -0.2bps lower than forecast

Investments

Steve Scarfone

Manitoba Public Insurance

Investments

- New investment strategy for 2018/2019 materially reduces risk
  - comingled to 5 segregated portfolios
    - Basic Claims Liability Reserve
      - minimum investment risk
    - Rate Stabilization Reserve
      - minimum to moderate investment risk depending on balance
    - Employee Future Benefits (Pension) Reserve
      - moderate investment risk
  - Risk tolerance determined by Board of Directors (experts) and influenced by portfolio type, capitalization level and historic losses
    - MPI has lost over $250m in recent years
  - Investment decisions informed by results of Mercer's ALM Study

Investments

- Result of new investment strategy:
  - 30% reduction in RSR equity requirement
  - 100% protection against interest rate risk

- Non-selection of Real Return Bonds
  - MPI does not view inflation volatility as risk
  - ALM Study modelling does not support selection based on MPI's risk profile

Investments

- Evidence suggests a low and stable inflation environment:

Figure DCAT- 66: Canadian CPI

Line No.	Period	Mean	Standard Deviation
1	1915-1991	3.60%	5.40%
2	1992-2017	1.80%	0.70%

Viola:

- "if you look at the history and what's happened, **we're certainly in a very low -- a -- a stable inflation environment**" (T:1411)
- "And what you'll see is that inflation volatility has certainly come down, it's come down from 3 3/4 to 3 percent to .8. So we're living in unique times, **inflation is not volatile. It hasn't been historically**, but the question then is if you had to -- do you have a crystal ball to say it's going to stay like that in the future. (T:1453)

- If inflation will be high and volatile, then the DCAT doesn't reflect the risks to Basic
  - Removed 'stagflation period' from consideration
- Otherwise, MPI's assumption, and investment decisions are reasonable

Investments

Why Buy 'expensive' Insurance Against a Small Risk

Viola:

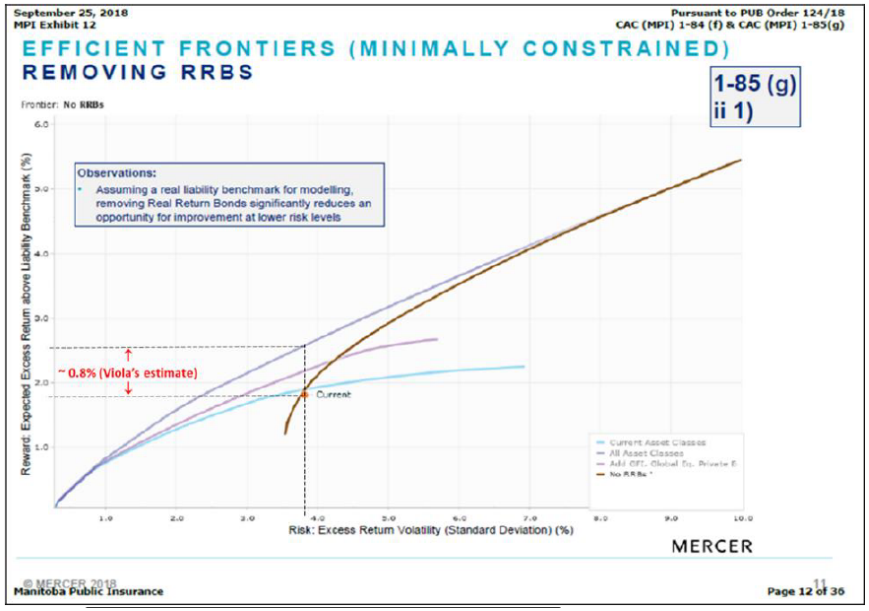
- "And the insurance cost of buying real return bonds to hedge long-term inflation risk and real rate risk varies through time. All interest rates do and so **does the cost of insurance, what you give up compared to taking more risk**. (T: 1443)
- "But to the more important point, the question is: Is it worth taking the extra risk when the **cost of insuring to hedge it seems like it's fair, even though it's more costly than it used to be**? That's the relevant question." (T: 1454)

Makarchuk:

- So if the decision was that MPI wanted to completely hedge inflation risk, the **expected returns would have been materially lower. The opportunity set for the investments would have been materially lower as well**. An investment allocation that completely hedged inflation risk as part of our preliminary modelling would have been roughly two-thirds (2/3) real return bonds. (T:324-325)

Investments

- Nominal Liability Benchmark
  - **Not a Simplifying Assumption**
  - Choice model static inflation, based on evidence
  - Real Liability Benchmark leads to portfolio laden with RRBs
- Viola's "cost of excluding RRBs" 0.8% opportunity cost is based on a portfolio that includes assets MPI rejected:
  - Private Debt
  - Private Equity
  - Growth Fixed Income
- **Not a fair comparison**
  - **increases other risks**



Viola:
"…Well, sorry, the 80 basis points would be lower for a more constrained portfolio that was illustrated by Mercer." (T:1575)

Manitoba Public Insurance

Investments

OUR SUMMARY PERSPECTIVE ON THE SUBSTANTIVE ISSUES RAISED BY THE CAC/PUB IN 2018

Should liabilities have been modelled with a real benchmark?

- Acknowledge a real benchmark would have better reflected inflation volatility
- MPI clearly indicated willingness to accept inflation volatility and desire to hedge nominal risk, thus a nominal benchmark was used
- The 2% inflation assumption included in the liability cashflows is reasonable from our perspective

Should the recommended asset mix hedge inflation risk?

- Hedging inflation risk was not a stated investment objective
- Most peer investors accept inflation risk … those that hedge typically hedge only a portion for various reasons
- While headline inflation has risen since the study, the consensus expectation for long-term inflation doesn't yet suggest a long-term inflation rate in excess of that modelled during the study

Ratemaking, Expenses and Revenues

Anthony Guerra

Manitoba Public Insurance

41

Ratemaking, Expenses and Revenues

- Ratemaking
  - rates are made in accordance with AAP
  - no major changes in the way rates are made this year
  - **breakeven rates are separate from CMP**
  - Breakeven = revenue and costs associated with new policies
  - CMP = amount to maintain capital of basic in policy year

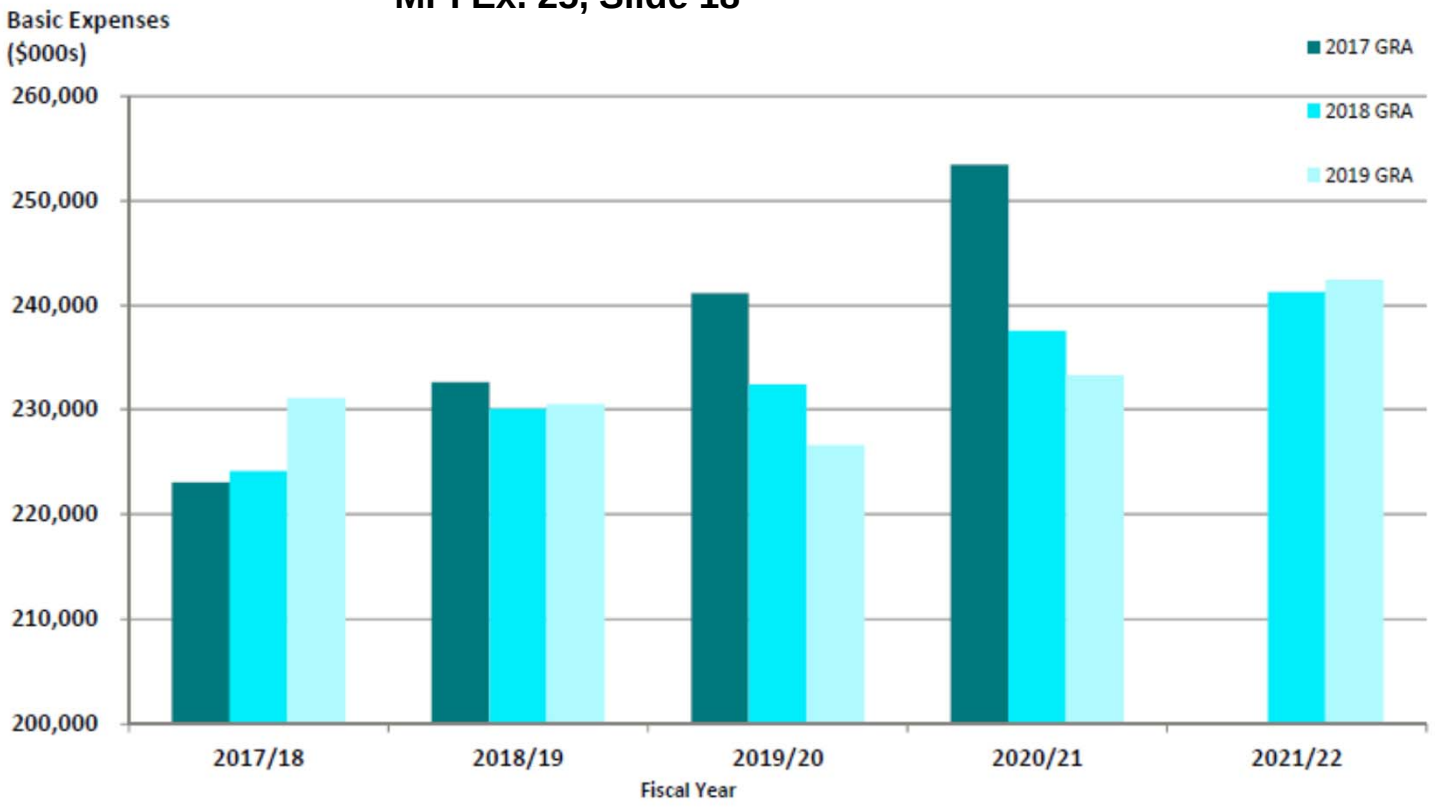
- MPI seeks a 0.1% increase in breakeven rates this year

- Using September 28, 2018 GoC 10-year bond yield results in a 0.26% rate decrease

Ratemaking, Expenses and Revenues

- Expenses
  - Do not factor into Basic rate indication this year

MPI Ex. 25, Slide 18



Ratemaking, Expenses and Revenues

- Long-Tail Bodily Injury Claims
  - Claims Intake and Triage
    - identifies complex claims earlier on
    - seeks to improve customer outcomes, close claims faster
    - resulted in an increase of 13 full-time employees
    - allows case managers to focus on tougher cases, not admin work
    - monitoring for improvement in claims costs
  - Centralized Reserving
    - case managers to centralized reserving unit
    - solves problem of optimistic reserving practices

Information Technology (IT)

Anthony Guerra

Manitoba Public Insurance

Information Technology (IT)

- PAST
  - Customer Claims Reporting System (CCRS)
  - Property Damage Re-Engineering (PDR)

- PRESENT
  - IT Strategy
  - Value Management
  - Gartner's Assessment
  - Staffing Strategy

- FUTURE
  - Legacy Modernization

Information Technology (IT)

- PAST
  - Customer Claims Reporting System (CCRS)
    - MPI's failed attempt to be an innovator
    - Cancelled April 2018
    - MPI retains intellectual property to rely on in future
  - Property Damage Re-Engineering (PDR)
    - MPI failed to adequately cost project, focused on benefits
    - Program has standardized and improved estimating process, opened up future possibilities

Information Technology (IT)

- PRESENT
  - IT Strategy
    - ensures business needs met by IT and business capabilities
    - shift in approach to IT, aligns with Industry Best Practice
    - “where we were” vs. “where we are heading” (next slide)

Information Technology (IT)

Where we were…	Where we're headed…
Leaders in creating innovation	Adopt proven mainstream technology
Executed High risk projects	Identify all risks prior to project initiation and incorporate into project decision
Project Governance with non-business project sponsor for all projects	Project sponsor is the Operational Business Champion,
Customize out of the box software to suit our processes	Align, wherever possible, our processes to industry best practices that is incorporated in vendor provided software
Candidate projects were not vetted through a detailed value management process	Value management discipline becomes engrained in MPI process and culture
Technology driven change within the organization	IT capabilities are created to support Business Capabilities

Information Technology (IT)

- PRESENT
  - Value Management
    - ensures new IT projects are properly informed and costed
    - applied to CCRS and PDR – results show its potential
    - required a change in culture but is now engrained
  - Staffing Strategy
    - 20 of 27 external IT consultants transitioned to employees
    - MPI continues to make progress towards goal
  - Gartner's Assessment (IT Score) – next slide

Information Technology (IT)

June 15, 2018

2019 GENERAL RATE APPLICATION
BMK Attachment A

IT Score

MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward. Opportunities exist for improvements in enterprise architecture and applications maturity.

	MPI 2016/17	Insurance Avg
Executive View	3.4	-
Applications Organization	2.4	2.4
Enterprise Architecture	2.3	3.0
Infrastructure & Operations	2.7	2.5
Vendor Management	3.0	2.5
Program and Portfolio Management	3.6	2.8
Security and Risk Management - Privacy	4.1	3.3
Security and Risk Management - Information Security	3.6	3.0
Enterprise	3.1	-

Observations:

- MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward.
- Enterprise Architecture maturity is lower than the peer group average

Recommendations:

- Focus initiatives for improvements on enterprise architecture

Note: Gartner does not provide benchmarks at the overall Enterprise level. The Enterprise and Executive score / assessments are based on a varying compilation of survey types across participants, not just a single survey.

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Gartner

Information Technology (IT)

- FUTURE
  - Legacy Modernization
    - MPI is still determining approach
    - will apply value management process
    - MPI will be open and transparent

Vehicles for Hire (VFH)

Anthony Guerra

Manitoba Public Insurance

Vehicles for Hire (VFH)

- MPI requires final approval of 2017/2018 and 2018/2019 VHF rates for service
- MPI also applies for VFH rates for 2019/2020
- Current state:
  - its Time Band model complies with existing regulatory process and appears to be working
  - MPI continues to amass data for analysis and modification of future rates if necessary
  - DSR incentives and loss prevention strategies will help to close the gap between Taxicab VFH rates and Passenger VFH rates

Ongoing Topics

Anthony Guerra

Manitoba Public Insurance

Ongoing Topics

- Driver Safety Rating (DSR)
  - PUB 130/17 approved a 1.8% increase in driver premiums through the demerit side of the DSR Scale
  - Technical conference ordered and held on March 20, 2018
  - DSR based driver premiums should be actuarially sound
  - MPI is considering options for alternative models and will consult with the public
  - MPI plans to provide update or results of analysis in 2020 GRA

Ongoing Topics

- Service Fees
  - MPI is not seeking changes for any services fees in this GRA
  - MPI is not seeking to introduce any new service fees in this GRA
  - Conducted service fee review in 2017/2018
  - Results included with 2019 GRA
  - MPI is waiting for decision on changes by Manitoba to Driver Vehicle Act (DVA) service fees
  - Will provide update in 2020 GRA

Conclusions

Anthony Guerra

Manitoba Public Insurance

Conclusions

1. MPI's Basic rate indication is **just** and **reasonable**
   - PUB must decide whether to use rates as at
     a. February 28, 2018
     b. September 28, 2018 or
     c. date selected for compliance filing

2. 2018/2019 VFH rates should be approved based on current methodology

3. Final approval should be given to 2017/2018 and 2018/2019 VHF rates

All of which is respectfully submitted.

Steve Scarfone & Anthony Guerra,
Legal Counsel for MPI

Manitoba Public Insurance

2019 GRA
MPI Reply Submission

October 31, 2018

Manitoba Public Insurance

Hearing Efficiencies

- MPI is obliged to demonstrate the value of every dollar spent
- CAC needs to demonstrate the value of expanding the process
- MPI has thrown the books open, to increase transparency

More Process is Not the Solution

- CAC proposes Tech Conference on Legacy Modernization
  - Legacy Mod (and initiatives generally) is the domain of Management and Board of Directors

- No clear outcomes expected
  - Without outcomes, can't assess value
  - Does not make sense to add to project costs

- PUB **will** be kept informed as it relates to revenue requirements and rate approvals
  - MPI accepts guidance from PUB on process

MPI is Moving Forward with Best Practice

CAC insinuates Out of Control IT Mismanagement

- Assumptions were relevant at the time
- Those assumptions have changed,
  - MPI is responding to a changing reality

- MPI acknowledged no longer focused on bespoke systems
  - we are no different than any other insurance company

Contradictions on ALM

- CAC has no apparent objection to De-risking of the portfolio
  - As a result of the ALM
- Can't have it both ways
  - CAC Rejects the conclusion that De-Risking must be accomplished through lower risk investments
- Recommend 0.5% **ongoing** reduction for "foregone investment opportunities"
  - Clearly at odds with the approval of prudent costs in the regulatory context

MPI's ALM Is Reasonable

- Mercer did detailed work
  - Met with the investor, conducted due diligence, explored a suite of alternatives

- Mr. Viola Did Not
  - "I'm not -- again, **my background isn't in insurance**, but I understand the nature of the liabilities" [T: 1591]
  - "I'm not an expert on the liabilities side" [T1591]

- CAC appears to ask the PUB substitute it's opinion for that of the Board of Directors and Investment Committee
  - A number of reasonable outcomes
  - MPI's is as reasonable as any other

- MPI's Board has jurisdiction over Investments

Net CMP

- CAC misunderstands the application (much like its experts)
  - Purpose of the CMP is unrelated to operational risk
    - MCT is appropriate measure for setting the CMP
    - MCT is a globally accepted measure, industry best practice
      - We are no different here either
  - Purpose of the CMP is not to "prevent rate shock"

- MPI cannot drift towards 1$ above satisfactory financial condition

- CAC is relying on red herring to deny the Net CMP
  - Can't challenge Net CMP on its merits

- MPI's approach is prudent fiscal management and consistent with industry best practice

Rate Shock

- This is a “General” Rate Application
- Capping rules have been in place for years
  - CAC only now recognizes that individuals pay premiums?
- Ratepayers need to pay costs of their insurance (in the context of a break-even and undercapitalized program)
  - Premiums should match exposure

Conclusion

1. MPI has present facts evidence

2. MPI is open and transparent

3. PUB Cannot reject the application on trivial objections

PUBLIC UTILITIES BOARD (PUB)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
Notice of Public Hearing and Pre Hearing Conference – dated June 15, 2018	1	19	Jun 25
The Public Utilities Board Rules of Practice and Procedure	2	19	Jun 25
2019 GRA Timetable	3	19	Jun 25
Letter to all parties re: 2019-2020 GRA dated June 18, 2018	4	19	Jun 25
Letter to all parties re: Pre-Qualifications of Expert Witnesses dated June 22, 2018	5	19	Jun 25
Public Utilities Board Order No. 61-18 containing Preliminary Issues List	6	20	Jun 25
Pre Hearing Conference Transcript	7	67	Oct 15
Board Order 82-18 - MPI Procedural Order (2019/20 Rates and Premiums for Compulsory Driver and Vehicle Insurance) Timetable for Public Hearing, approval of Interveners and Approval of Issues	8	67	Oct 15
PUB to MPI Round I IRs	9	67	Oct 15
Board Order 89-18 - Motion by MPI seeking Confidential Treatment of certain information in the 2019/2020 GRA	10	67	Oct 15
PUB to MPI Round II IRs	11	67	Oct 15
Board Order 123-18 - Motion by MPI Seeking Confidential Treatment of Certain Responses to Round I IRs in the 2019/2020 GRA	12	67	Oct 15
Board Order 124-18 - Motion by Consumers' Association of Canada (Manitoba) Inc. for an Order Compelling Certain Responses to IRs in the 2019/2020 GRA	13	67	Oct 15

PUBLIC UTILITIES BOARD (PUB)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
Reminder Notice of Public Hearing - dated September 15, 2018	14	68	Oct 15
Public Utilities Board Order No. 130-18 - Motion by MPI Seeking Confidential Treatment of Certain Responses to Round II IRs in the 2019/2020 GRA	15	68	Oct 15
PUB to Consumers' Association of Canada (Manitoba) IRs – October 5, 2018	16	68	Oct 15
Book of Documents - October 15, 2018	17	68	Oct 15
Figure EXP-43: 6.1 Basic Capital Expenditures from MPI 2018 GRA	18	789	Oct 18
VOL I - 05 - PDR - Attachment A - Project Evaluations from 2017 MPI GRA - October 22, 2018	19	1020	Oct 22
Martin Geffen Presentation from 2018 MPI GRA - October 22, 2018	20	1027	Oct 22

Public Utilities Board

Régie des services publics

Notice of Public Hearing and Pre-Hearing Conference

Applicant: Manitoba Public Insurance Corporation

HEARING:

The Public Utilities Board (Board) anticipates holding a public hearing of an application from Manitoba Public Insurance Corporation (MPI) for approval of rates and premiums for compulsory vehicle and driver insurance as of March 1, 2019. The hearing would take place at the Board's Hearing Room, 4th Floor, 330 Portage Avenue, Winnipeg, MB (commencing at 9:00 a.m.) on October 15, 2018. A Pre-Hearing Conference is to be convened by the Board in its offices at 9:00 a.m. on June 25, 2018.

RATE IMPACT:

The Corporation is requesting approval for Basic Autopac vehicle insurance rates and premiums effective March 1, 2019, which, if approved, will result in 2.2% overall increase in MPI's Basic vehicle premium revenue (in addition to the revenue impact of vehicle upgrades and an increased overall driver and vehicle population).

MPI proposes that this rate increase be comprised of two elements: i) a 0.1% increase to the break-even cost of policies, and ii) a 2.1% increase for a Net Capital Maintenance Provision to maintain Basic's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision recognizes the impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position.

MPI is also seeking final approval of 2017/18 and 2018/19 Vehicles for Hire rates, approved by the Board on an interim basis by Order 11/18 on January 15, 2018. MPI is not proposing any changes to the Driver Safety Rating system in the 2019 General Rate Application.

Individual vehicle and driver premiums would vary depending on claim and driving experience, insurance use, territory and vehicle rate group. Full particulars, including the rate impact and application, can be found on the Manitoba Public Insurance website www.mpi.mb.ca.

PRE-HEARING CONFERENCE:

Those seeking Intervener status should notify the Board of their intention, by applying to the Board Secretary before the now scheduled Pre-Hearing Conference of June 25, 2018. Interveners may be entitled to financial assistance, and the Board's Rules of Practice and Procedure (Rules) provide the related guidelines, which can be seen at the Board's website: www.pubmanitoba.ca or obtained on request to the Board, by either emailing (publicutilities@gov.mb.ca), writing or calling the Board Secretary (204-945-2638 or 1-866-854-3698, toll free). Parties wishing to submit a brief or to express comments at the hearing should also contact the PUB via the Board's on-line comment tool.

GENERAL INFORMATION:

Interested parties should take note that the Board does not have jurisdiction over the MPI lines of business denoted as Extension or SRE, or as to MPI's Driver and Vehicle Licensing operation.

Persons seeking further information as to MPI's application, or with respect to the Board's process, and/or wishing to address the public hearing in French should notify the Board Secretary by September 1st, 2018. As well, interested parties may examine MPI's application and supporting materials, either at the offices of the Corporation, on its website, or in the Board's office.

The Manitoba Ombudsman has recently issued privacy guidelines for administrative tribunals. The Board is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed unless it is appropriate and necessary to do so. However, the Board advises participants that these proceedings are public and that as a result, personal information protections are reduced.

CONTACT INFORMATION:

The Public Utilities Board
400 - 330 Portage Avenue
Winnipeg, MB R3C 0C4
Website: www.pubmanitoba.ca
Telephone: 204-945-2638
Toll-Free: 1-866-854-3698
Email: publicutilities@gov.mb.ca

DATED this 15th day of June, 2018.

"Original Signed By:"

D. Christle
Secretary and Executive Director
The Public Utilities Board

Five days notice required.

Wheelchair access is available.

Manitoba

THE PUBLIC UTILITIES BOARD

RULES OF PRACTICE AND PROCEDURE

Title

1. These Rules may be cited as the Rules of Practice.

Definition

2. In these Rules:

a) "ACT" means *The Public Utilities Board Act*, R.S.M. 1987 Chapter P 280 as amended from time to time;

b) "AFFIDAVIT" means either a sworn or affirmed statement of facts, based on personal knowledge or on information and belief, and in writing, made voluntarily before an officer having authority to administer such oath or affirmation;

c) "APPLICANT" means a party who has filed an application with the Board under the Act or its Regulations;

d) "APPLICATION" means a written request to the Board to exercise its statutory power in respect of matters referred to in the application;

e) "BOARD" means The Public Utilities Board and where the context requires, includes a panel of the Board;

f) "COMPLAINT" means a written request to the Board to exercise its statutory power in respect of matters referred to in the complaint;

g) "DOCUMENTS" include written documentation, films, photographs, charts, maps, graphs, plans, surveys, books of account, transcripts, videotapes, audio tapes, and information stored by means of an electronic storage and retrieval system;

h) “ELECTRONIC HEARING” means a hearing held by conference telephone or some other form of electronic technology allowing persons to communicate with one another;

i) “HEARING” means a proceeding before the Board wherein a party or parties provide submissions to the Board which submissions may, in the Board’s

discretion, be preceded by the provision of information and/or evidence to the Board, and includes an Electronic Hearing, an Oral Hearing and a Written Hearing;

j) "INFORMATION REQUEST" means any request made in writing by a party for information or particulars directed to a party in a proceeding;

k) "INTERVENER" means a party other than the applicant who has formally filed for registration in respect of a proceeding and who intends to participate in the production and testing of evidence and whose registration has been approved by the Board pursuant to Rule 27;

l) "MOTION" means a request for a ruling or order in a proceeding or a pending proceeding;

m) “ORAL HEARING” means a hearing at which the parties or their representatives attend before the Board in person;

n) "PARTY" means either an applicant, an Intervener and for the purpose of these Rules, any other person whom the Board determines to be a party to a proceeding;

o) "PRESENTER" means any person who makes an unsworn or unaffirmed statement concerning an application to the Board in respect of a proceeding;

p) "PRE-HEARING CONFERENCE" means a meeting, which may be held before a Hearing, to set a timetable for the Proceeding, to finalize what matters may be discussed and to identify Interveners;”

q) "PROCEEDING" means a process to decide a matter brought before the Board, including a matter commenced by application ;

r) "SECRETARY" means the Secretary or Acting Secretary of the Board;

s) “WRITTEN HEARING” mean a Hearing in which the proceeding before the Board is conducted entirely in writing.

PART 1
GENERAL

Application of Rules

3. (1) These Rules apply to all proceedings of the Board.

(2) In any proceeding, the Board may dispense with, vary or supplement any of the provisions of these Rules.

(3) The Board has all the powers of a Court of Queen's Bench or a Judge thereof in respect of the attendance and examination of witnesses, the amendment of proceedings, the production and inspection of documents, the enforcements of its Orders and all other matters necessary or proper for the due exercise of its powers, except as otherwise provided in *The Public Utilities Board Act* [Section 24(4), *The Public Utilities Board Act*].

Direction on Procedure

4. (1) In any proceeding, the Board may issue directions on procedure which will govern the conduct of that proceeding and will prevail over any provision of these Rules that is inconsistent with those directions.

(2) The Board may recommend or order that Interveners with similar interests present a joint intervention.

(3) Any person intending to make an application to the Board may, prior to filing the application, apply by ex parte motion to the Board for the issuing of directions on procedure relating to the proposed application.

Service On Interested Parties

5. (1) Subject to subsection (2), a document required to be served under these Rules or by the Board may be served on a person:

(a) by personal delivery;

(b) by courier service, ordinary mail, fax or electronic means to the last known address or such other address given by the person; or

(c) by such other method as the Board directs.

(2) A document may only be served by electronic means if the person being served has the information technology, equipment, software and processes for receiving or retrieving the document. Where a person expresses a preference to be served electronically in accordance with Rule 27(1)(d) or otherwise, that person may register that preference with the Board and service in accordance with such preference shall be deemed effective unless notice to the contrary is given to the Board.

(3) The date of service of a document is the day on which the person being served receives the document unless it is received after 5 o'clock in the afternoon Central Standard Time, in which case the date of service is deemed to be the next business day. Where a document is served by ordinary mail, the date of service shall be five days after placing it in the mail.

(4) The Board may require a person to file an affidavit of service setting out on whom a document was served and the means taken to effect service.

(5) When an oral hearing or electronic hearing is in progress, a party entering a document as an exhibit shall provide copies of the document to the Board, the Board staff attending the hearing and the other parties.

(6) The Board may serve, or direct the applicant to serve, a notice issued by the Board either in accordance with this section or by public advertisement in a daily or weekly newspaper in circulation in the community affected by the proceeding as determined by the Board.

(7) Any document required to be served on a party under these Rules may be served on the party's representative.

Filing With the Board

6. (1) Filing of any document with the Board may be effected by personal delivery, registered mail, telefacsimile, electronic means or otherwise as the Board may direct.

(2) Where any document is required to be filed with the Board, the date of filing shall be the date of actual receipt by the Secretary or anyone authorized by the Secretary to receive such documents; but when a hearing is in progress, any document which is required to be filed shall be filed with the Secretary at the hearing and with the Interveners of record.

Affidavits

7. (1) The Board may, in its discretion, accept and act upon evidence by Affidavit which evidence shall be filed with the Secretary.

(2) Where an Affidavit is made on the basis of information and belief, the source of the information and the grounds of belief shall be set out therein.

Verification

8. (1) The Board may, at any time and on notice, require the whole or any part of any document filed with the Board to be verified by Affidavit or oral testimony.

(2) Unless the Board otherwise directs, if the notice given under Subsection (1) is not complied with, the document in question, or any part thereof not verified in accordance with the notice, shall be struck from the record.

Failure to Comply

9. Where a party to a proceeding has not complied with any requirement of these Rules or any direction of procedure or order issued by the Board, the Board may stay the proceedings until satisfied that such requirement has been complied with or take such other steps as it considers just and reasonable, including the withdrawal of status of any Intervener in the proceeding.

Formulation of Issues

10. In any proceeding,

a) where the documents filed with the Board do not sufficiently address the matters at issue in the proceeding; or

b) where it would assist the Board in the conduct of the proceeding; or

c) where it would assist parties to participate more effectively in the proceeding;

the Board may formulate issues which shall be considered by it in the proceeding and, for this purpose, may direct parties to propose issues which, if not agreed to by all parties, shall be settled by the Board.

Conferences on the Receipt of an Application

11. (1) To facilitate the hearing process a pre-hearing conference may be held to consider:

a) a statement of the issues;

b) the necessity or desirability of amending an application for the purpose of clarification, amplification or limitation;

c) the setting of dates for the orderly exchange of documents and information requests;

d) the procedures to be adopted in the proceeding;

e) any other matters that may aid in the simplification and disposition of the proceeding; and

f) registration of Interveners, where possible.

(2) Where, in the opinion of the Board, the amount, level of detail and complexity of material so warrants, the Board may direct the parties to participate in a non-evidentiary technical conference for the purpose of considering:

a) a tutorial presentation for interested parties;

b) a discussion or workshop style conference to gain an understanding or clarification on a matter; or

c) any other presentation or conference style arrangement that will assist the understanding of the Board and interested parties.

Production of Documents

12. (1) Where, in an application, intervention, motion or response to an information request, a party refers to a document which the party intends to rely on in the proceeding, that party shall attach a copy of that document to its evidence.

(2) The Board, on its own initiative or upon motion by any party may order any person or party in a proceeding to produce any document relating to the proceeding.

(3) Any party who fails to comply with an order pursuant to subsection (2) shall be deemed to be in breach of the said order.

Confidentiality

13. (1) Where, a document is filed with the Board by a party in relation to any proceeding, the Board shall, subject to subsection (2), place the document on the public record.

(2) The Board may receive information in confidence on any terms it considers appropriate in the public interest,

a) if the Board is of the opinion that disclosure of the information could reasonably be expected

(i) to result in undue financial loss or gain to a person directly or indirectly affected by the proceeding; or

(ii) to harm significantly that person's competitive position.

or

b) if

(i) the information is personal, financial, commercial, scientific or technical in nature; or

(ii) the information has been consistently treated as confidential by a person directly affected by the proceeding; and

(iii) the Board considers that the person's interest in confidentiality outweighs the public interest in the disclosure of the information.

(3) Where disclosure of any document is refused due to a claim for confidentiality and a claim for public disclosure of such documents has been made, the Board shall hear such claim on a motion made under Rule 22, and may

a) order the document be placed on the public record, subject to Subsection13(5);

b) order the document not be placed on the public record, with such conditions on access imposed as the Board considers appropriate;

c) order an abridged version of the document to be placed on the public record; or

d) make any other order the Board finds to be in the public interest.

(4) For purposes of hearing a motion in respect of a disputed claim under Subsection (3), the Board may examine the document or other evidence in question to ascertain whether or not the claim for confidentiality or the claim for public disclosure will be sustained.

(5) Where the Board has decided to place on the public record any part of a document that was filed in confidence in accordance with Subsection 13(2) and 13(3), the party who filed the document shall be given an opportunity to request that it be withdrawn prior to its placement on the public record.

Information Requests

14. (1) Where, in any proceeding, the Board permits information requests to be directed to a party for the purpose of a satisfactory understanding of the matters to be considered, such information requests shall be identified by the inquiring party's designated prefix and be:

a) addressed to the party from whom the response is sought;

b) numbered consecutively in respect of each item of information requested;

c) relevant to the proceeding; and

d) served, where the Board has directed a time limit, within the time limit directed by the Board.

(2) A copy of any information request directed to a party pursuant to Subsection (1) shall be filed with the Secretary and served on all interested parties to the proceeding.

Response to Information Requests

15. (1) Subject to Subsection (2), where an information request has been directed to a party and served on that party in accordance with the Board's directions, the party shall:

a) provide a full and adequate response to each information request on a separate page or pages, or, by agreement between the parties by electronic means; and

b) file a written copy of the responses with the Secretary and serve a written or electronic copy of the responses on all parties to the proceedings as directed by the Board.

(2) Where there is a dispute with respect to the adequacy of a response to an information request, the Board may orally or in writing direct all parties:

a) to appear before the Board or a member of the Board at a specified time and place for a conference; or

b) to submit in writing their position and views on the matter for the purpose of assisting the Board.

16. A party who is unable or unwilling to provide a full and adequate response to an interrogatory shall file and serve a response:

a) where the party contends that the interrogatory is not relevant, setting out specific reasons in support of that contention;

b) where the party contends that the information necessary to provide an answer is not available or cannot be provided with reasonable effort, setting out the reasons for the unavailability of such information, as well as any alternative available information in support of the response that the party considers would be of assistance to the party making the information requests;

c) where the party contends that the information sought is of a confidential nature, setting out the reasons why it is considered confidential and any harm that would be caused by making it public; or

d) otherwise explaining why such a response cannot be given.

Evidence

17. (1) The Board may receive evidence by:

a) sworn testimony or testimony solemnly affirmed; or

b) the report of any person directed by the Board to so report; or

c) such other manner as may be deemed appropriate by the Board.

(2) Witnesses at a hearing shall be examined orally under oath or affirmation unless otherwise directed by the Board.

(3) Counsel may communicate with his or her witness who is being cross examined, unless otherwise directed by the Board.

(4) Any party who wishes to present evidence at a public hearing shall, prior to the appearance of the witnesses and within the time limit prescribed by the Board, file a copy of the proposed evidence with the Secretary and serve a copy of it on all parties.

(5) Pre-filed written evidence may be received in evidence at the hearing with the same force and effect as if it were stated orally by the witness, provided that the witness shall be present at the hearing and that the witness:

a) testifies as to his/her qualifications;

b) confirms that the written material was prepared under his/her direction and control and is accurate to the best of his/her knowledge and belief; and

c) submits to cross-examination on the same.

(6) Where the Board has prescribed a time limit for the filing of written evidence, supplementary written evidence may be filed after the time prescribed only with leave of the Board.

(7) Should any party seek to challenge the admissibility of the pre-filed evidence of any other party, such a challenge shall be brought by way of a motion under Rule 22 prior to the commencement of the public hearing.

(8) The Board may issue commissions to take evidence outside of Manitoba and may make all proper orders for that purpose and for the return and use of the evidence so obtained.

Evidence in Other Proceedings

18. Evidence received in another proceeding before the Board or before any other provincial or federal regulatory body or any report, decision, finding or order made in respect thereof, may, by leave of the Board, be received as evidence in a proceeding.

Examination

19. The procedure for presenting evidence shall be the same for applicants, interveners

and independent witnesses and shall be as follows:

(1) Pre-filed written evidence:

a) Applicants shall provide pre-filed written evidence in support of the application;

b) Interveners' witnesses/independent witnesses shall provide pre-filed written evidence in response to the applicant's pre-filed written evidence; or

c) Applicants may provide written pre-filed rebuttal evidence to address issues raised in the interveners'/independent witnesses' pre-filed written evidence.

(2) Applicant's oral evidence:

a) Applicant's direct oral evidence shall include oral testimony on its pre-filed evidence and its pre-filed rebuttal evidence in accordance with Rule 19(4);

b) cross-examination of applicant's witnesses on pre-filed evidence, pre-filed rebuttal evidence and/or direct oral evidence; and

c) Applicant's re-examination to clarify issues that were first raised during the cross-examination of the applicant.

(3) Intervener/Independent witnesses' evidence:

a) Intervener/independent witnesses shall provide direct oral evidence, including oral testimony on their pre-filed written evidence, and response(s) to the applicant's written and oral testimony;

b) cross-examination of the interveners/independent witnesses on their pre-filed evidence and direct oral evidence;

c) Intervener/independent witnesses re-examination to clarify issues that were first raised during the cross-examination of the intervener/independent witnesses; and

d) Subsections (3) a), b) and c) shall be repeated for each intervener/independent witness.

(4) Applicant's oral rebuttal evidence:

a) Applicant's oral rebuttal evidence to address issues raised for the first time during Interveners'/Independent witnesses' oral testimony;

b) cross-examination of the applicant's oral rebuttal evidence; and

c) Applicant's re-examination of rebuttal witnesses to clarify points that were first raised during the cross-examination of the rebuttal witnesses.

Attendance of Witnesses (Subpoenas)

20. (1) The Board or party who requires the attendance of a person as a witness before the Board may serve the person with a subpoena requiring him or her to attend the hearing at the time and place stated in the subpoena and the subpoena may also require the person to produce at the hearing the documents or other things in his/her possession, control or power relating to the matters in question in the hearing that are specified in the subpoena.

(2) Any party served with a subpoena and who has an objection to filing a document or to attending the hearing stated in the subpoena may proceed for an order by way a motion pursuant to Rule 22.

(3) The subpoena for a witness to produce a document or to attend a hearing shall be signed by the Secretary of the Board.

Amendments

21. In any proceeding the Board may, on condition or otherwise:

a) allow any amendment to any document;

b) order to be amended or struck out, any document or any part thereof which may tend to prejudice, embarrass or delay the fair hearing of an application on its merits; and

c) order such other amendment as may be necessary for the purpose of hearing and determining the real questions and issues in the proceeding.

Motion

22. (1) Any matter which arises in the course of a proceeding that requires a decision or order of the Board, shall be brought before the Board by a motion.

(2) A motion shall be in writing, in any form, provided it contains a clear and concise statement of the facts, the order or the decision sought and the reasons for such an order or decision.

(3) A motion shall be filed and served on all interested parties at least 6 days before the motion is heard.

(4) Any party who wishes to respond to a motion shall file and serve on all parties a written answer no later than 2:00 p.m. two days before the day the motion is heard.

(5) Any document which a party may wish to submit in support of a motion or response shall accompany the notice or response and shall be filed and served on all parties.

(6) Notwithstanding subsections (2) to (5), a motion may be made orally or in writing at any time during the course of a hearing and shall be disposed of in accordance with such procedures as the Board may direct.

(7) When hearing a motion, the Board may permit oral evidence in addition to any affidavit or other supporting material.

PART II
HEARING PROCEDURE

Application to the Board

23. An application shall:

a) contain a clear and concise statement of the facts;

b) set forth the reasons for the application;

c) set forth the nature of the order sought;

d) shall submit with the application any schedule of rates or any other material relevant to the application;

e) contain all Minimum Filing Requirement information prescribed by the Board and contain full disclosure of the application together with all supporting documents to be attached at the time of filing;

f) contain a detailed index of the entire application, which may be updated regularly throughout the public hearing process by the Board , to include the information in the application, the subject matter of all information requests, intervener evidence and rebuttal evidence;

g) be signed by the applicant or his/her authorized agent or representative; and

h) state the name, mailing address, e-mail address and telephone number of the applicant or of the authorized agent or representative of the applicant to whom communications shall be sent and/or upon whom documents shall be served.

Hearing of the Application

24. (1) On receipt of an application, the Board may set a hearing date after the date of the pre-hearing conference or at any other date fixed by the Board.

(2) An application for an interim ex-parte order shall only be made:

(a) if emergency circumstances exist; or

(b) if there is urgency where, in the Board's opinion, when balancing the interest of providing notice of an application with the financial health of

the Applicant, it is deemed just and reasonable to proceed ex parte; or

(c) for purposes of efficiency; or

(d) for such other special circumstances as may be determined by the Board; and

(e) If the applicant provides full disclosure as to why the application should proceed ex parte.

Publication of Notice of Hearing

25. (1) Where an application or any other matter is to be dealt with by means of a public hearing for which the Board issues a public notice, the applicant shall:

a) forthwith publish the public notice in the form approved by the Secretary, in the newspapers specified by the Board;

b) forthwith serve a copy of the public notice upon such persons as the Board may direct;

c) provide a notice of the forthcoming public hearing to each subscriber or customer in such monthly bill or bills as the Board may direct;

d) provide for radio and TV public announcement of a forthcoming public hearing in communities outside of Winnipeg as the Board may direct; and

e) publish a further reminder notice, if so directed by the Board.

(2) The applicant shall file with the Secretary proof, by affidavit, of publication pursuant to subsection (1) a) and of service pursuant to subsection (1) b).

(3) Notices shall state the time and place of the hearing and any pre-hearing conference and shall contain a clear and concise statement of the substance of the application, including any proposed rate changes in sufficient detail and in plain language for the public's clear understanding of the substance of the application.

Applicant's Evidence

26. (1) The information contained in an application and the information submitted by an applicant to the Board, pursuant to Rules 17, 19, 21 and 23, shall be deemed to constitute the written evidence of the applicant and the applicant shall not, except with leave of the Board, be at liberty to submit additional written evidence.

(2) Any document purporting to have been issued by a corporation or any officer, agent or employee of a corporation for or on its behalf, may be received in evidence without calling the author as a witness.

(3) In the case of a corporation, the applicant shall present such witnesses as are competent in the issues before the Board, including a senior officer to be available for questioning on policy issues and related matters.

Intervention

27. (1) Where a notice of a public hearing has been published, any interested person or organization may request to intervene in respect of the proceeding by filing with the Secretary and serving on the applicant, on or before the date prescribed, a written request to intervene [Intervener Request Form, Appendix I] that:

a) clearly identifies the specific issue(s) on which that prospective intervener seeks Board approval to intervene;

b) where seeking an award of costs, clearly quantifies the cost of the proposed intervention, by issue;

c) states clearly the intervener's intention to appear at the public hearing and to participate in the leading and the testing of evidence; and

d) sets out the name, mailing address, e-mail address and address for personal service and telephone number of the Intervener or agent authorized to receive documents on that person's behalf, and the preference for the method of receiving information.

(2) Before determining whether to award intervener status to any person, the Board will review the written request for intervention to determine:

a) a clear understanding of the issues to be addressed and purpose for the requested intervention;

b) any relevant information that may be useful in explaining or supporting the views of the person requesting intervention; and

c) the extent of the requested intervention in the information request, evidentiary and argument procedures.

(3) Should any party object to the intervention by any other party, such objection and challenge to the Intervener status shall be made by way of a motion under Rule 22, prior to the commencement of the public hearing.

(4) Unless the Board directs otherwise, the applicant shall serve each intervener with:

a) a copy of the application or other document initiating the proceeding; and

b) any pre-filed written evidence or material submitted to the Board.

(5) Interveners are to avoid duplication of evidence, and subject to Rule 4 (2) are to consider joint interventions with other interveners.

Presentation

28. Where a notice of a public hearing has been published, any interested persons or organizations who do not wish to intervene in respect of the proceeding but who wish to make their views regarding the application known to the Board, may provide their views in writing to the Board in advance of the public hearing or may appear during that portion of the public hearing that has been set aside by the Board to hear the views of presenters.

Information Request

29. (1) Any party to the proceeding may address an information request to any other party in the proceeding, in accordance with Rule 14.

(2) Where the Board has directed a time limit, additional information requests may be addressed after the date prescribed only with leave of the Board or with the consent of the party to whom the information request is addressed.

Hearing of Evidence

30. (1) At hearings, parties will be afforded an opportunity to present their evidence

and to examine and cross-examine witnesses. Because all proposed evidence is to be pre-filed in accordance with Rule 17 (4), the direct oral evidence given at the hearing should be in summary form.

(2) The written evidence of an applicant and an intervener shall be deemed to include its pre-filed evidence and any responses to information requests by that applicant or intervener.

(3) A party may update or revise their evidence, only with leave of the Board.

Argument

31. At the conclusion of the examination of evidence at the hearing, the Board may direct that oral argument be presented and establish the time for it, or it may order written argument to be filed with the Board and served on parties by a certain date, or both.

Summary Application

32. (1) The Board may grant an order permitting and directing an applicant to proceed by way of summary application.

(2) An order granted by the Board to proceed by way of summary application shall only be made after public notice of the proposed procedure and after holding a public hearing to consider the terms of the order of the summary procedure.

(3) An order permitting an applicant to proceed under summary application shall, in all events, provide for:

a) notice to all effected parties as directed by the Board;

b) notice of the Board's intention to grant the application without a public hearing on the written evidence, unless a complaint or request is filed and accepted by the Board requesting a public hearing; and

c) such other terms as the Board may provide.

4) Notwithstanding a summary application order issued by the Board, the Board shall have in its absolute discretion the right at any time to order the cancellation or variance of any summary application order in respect to any matter coming or to come before it.

Sittings, Facilities and Translation

33. (1) The Board shall hold hearings at such times and places as it chooses and shall conduct its proceedings in a manner convenient for the timely and effective dispatch of the application.

(2) All sittings of the Board to hear applications are open to the public.

(3) The Board may direct advisors to assist interveners in matters of procedure and conduct if requested.

(4) The Board shall, whenever practicable, conduct hearings in buildings open to the public with wheelchair accessibility.

(5) The Board will arrange signing translation for hearing impaired persons upon five days notice.

(6) The Board will arrange for simultaneous French translation to hear any person using the French language upon reasonable prior notice.

Transcripts

34. (1) The Board may retain reporters to supply transcripts of its proceedings.

(2) A copy of the transcript of a proceeding will be available for review at the Board's office following the hearing.

(3) During the hearing, the Board shall provide one copy of the daily transcript to interveners on a shared basis, if so requested.

Issuance of an Order

35. (1) On any application, the Board may make an order granting the whole or part only of the application or may grant such further or other relief in addition to or in substitution for that applied for, as fully and in all respects as if the application had been for such partial, further or other relief. [Section 44(1) of the Act]

(2) The Board shall provide written reasons for the orders it issues at the time of the issuing of such orders or as soon thereafter as is practical.

Review

36. (1) The Board may, on its own initiative or on application by a person, review, rescind, change, alter or vary any decision or order by it.

(2) An application for a review under subsection (1) must be in writing and contain the following:

a) a clear and concise statement of facts relevant to the application;

b) the grounds on which the application is made;

c) a brief explanation as to the nature of the prejudice or damage that has resulted or will result from the order, decision or direction;

d) a brief description of the remedy sought; and

e) the applicant's name, address in Manitoba, telephone number, fax number and, if available, e-mail address.

(3) An application for a review must be filed and served on the parties to the proceeding for which the order or decision of the Board was made within 30 days of the date of the order or decision.

(4) The Board shall determine, with or without a hearing, in respect of an application for review, the preliminary question of whether the matter should be reviewed and whether there is reason to believe the order or decision should be rescinded, changed, altered or varied.

(5) After determining the preliminary question under subsection (4), the Board may:

a) dismiss the application for review if,

i) in the case where the applicant has alleged an error of law or jurisdiction or an error in fact, the Board is of the opinion that the applicant has not raised a substantial doubt as to the correctness of the Board's order or decision; or

ii) in the case where the applicant has alleged new facts not available at the time of the Board's Hearing that resulted in the order or decision sought to be reviewed or a change of circumstances, the Board is of the opinion that the applicant has not raised a reasonable possibility that the new facts or the change in circumstances as the case may be, could lead the

Board to materially vary or rescind the Board's order or decision;

or

b) grant the application; or

c) order a hearing or proceeding be held.

(6) If the Board orders a hearing be held under subsection (5), it shall issue a Notice of Review, and a new hearing or proceeding will be held in accordance with these rules as determined by the Board.

(7) A notice of review under subsection (6) must contain the same information as is contained in a notice of hearing.

(8) No application for review may be made in respect of:

a) a decision or order made by the Board as a result of a review under this section; or

b) a decision or order of the Board which has been appealed to the Court of Appeal.

(9) The Board may at any time, without a hearing or notice of review correct typographical errors, errors of calculation and similar errors made in any of its orders or decisions.

PART III
OTHER PROCEDURES

The following are excerpts from the Act:

Initiation of Inquiries

37. The Board may of its own motion and shall upon the request of the Legislature or the Lieutenant Governor in Council, inquire into, hear and determine any matter or thing within its jurisdiction [Section 27(1)].

Reports by One Member

38. The Board or the Chairman may authorize a member to report to the Board upon any question or matter arising in connection with the business of the Board; and that member, where so authorized, has all the powers of the Board for the purpose of taking evidence or acquiring the necessary information for the purpose of the report; and, upon the report being made to the Board, the Board may adopt it as the order of the Board or otherwise deal with in the absolute discretion of the Board [Section 16].

Hearing by Single Member

39. A single member may hear an application, petition, matter or complaint over which the Board has jurisdiction under this or any other Act of the Legislature; and after the hearing, the member shall report thereon fully to the Board; and the Board may thereupon deal with the application, petition, matter or complaint as if the hearing had been before the full Board [Section 31(1)].

Review of Orders

40. (1) The Board may require a re-hearing of an application before making any decision thereon [Section 44(2)].

(2) The Board may review, rescind, change, alter or vary any decision or order made by it [Section 44(3)].

Interim Ex Parte Orders

41. The Board may, if the special circumstances of any case so require, make an interim ex parte order authorizing, requiring or forbidding anything to be done that the Board would be empowered on application, petition, notice and hearing to authorize, require or forbid; but no such order shall be made for any longer time than the Board deems necessary to enable the matter to be heard and determined on such application, petition, notice or hearing [Section 45].

Interim Order

42. The Board may, instead of making an order final in the first instance, make an interim order and reserve further directions, either for an adjourned hearing of the matter or for further application [Section 47(2)].

PART IV
AWARDING OF COSTS

Criteria

43. In any proceeding the Board may award costs to be paid to any Intervener who has:

a) made a significant contribution that is relevant to the proceeding and contributed to a better understanding, by all parties, of the issues before the Board;

b) participated in the hearing in a responsible manner and cooperated with other Interveners who have common objectives in the outcome of the proceedings in order to avoid a duplication of intervention;

c) insufficient financial resources to present the case adequately without an award of costs; and

d) a substantial interest in the outcome of the proceeding and represents the interests of a substantial number of the ratepayers.

44. In determining the amount of costs to be awarded to a intervener, the Board may consider whether the intervener did one or more of the following:

a) asked questions on cross-examination that were unduly repetitive of questions previously asked by another intervener;

b) made reasonable efforts to ensure that the intervener's evidence was not unduly repetitive of evidence presented by another intervener;

c) made reasonable efforts to cooperate with other interveners to reduce the duplication of evidence and questions or to combine the intervener's submission with that of similarly interested interveners;

d) presented in oral evidence significant new evidence that was available to the intervener at the time that intervener pre-filed its written evidence but was not filed at that time;

e) failed to comply with a direction of the Board, including a direction on the filing of the evidence;

f) submitted evidence and argument on issues that were not relevant to the proceeding;

g) needed legal or technical assistance to take part in the proceeding;

h) engaged in conduct that unnecessarily lengthened the duration of the proceeding or resulted in unnecessary costs;

i) the intervener took part in the proceeding for the sole purpose of protecting the intervener's business interests; or

j) such other factor(s) as the Board considers relevant.

Costs

45. (1) Costs awarded under this section:

a) may include the fees of consultants, expert witnesses and counsel associated with the intervention but shall not include indirect expenses relating to an Intervener's own time, such as wages lost by attendance at the hearing;

b) may include disbursements, the amounts allowed under the Manitoba Government employee rates, approved from time to time, for travel, meals and accommodation. Consideration will be given to providing for different amounts if they can be justified; and

c) shall be at the sole discretion of the Board.

(2) The Board may award only a portion of the costs being sought by an Intervener.

Procedures

46. (1) For purposes of awarding costs to any party, the Board may establish a tariff of fees and disbursements.

(2) A party applying for costs shall so inform the Board when filing the form requesting to intervene, as in Appendix I.

(3) An intervener seeking an award of costs should attend any pre-hearing conference to confer with other interveners and avoid duplication of intervention as referred to under Rule 4(2).

(4) The Board may hear submissions regarding the awarding of costs to interveners during final argument, or may direct such submissions to be

made in writing following final argument.

(5) Any intervener applying for an award of costs under subsection 45(1) shall provide the Board with a breakdown of costs, reasonably and necessarily incurred, within 30 days of the last day of the hearing and in the form of the attached Appendix II, "Budget and Cost Summary Sheet", and serve a copy on the applicant.

(6) The applicant may forward any comments or objections for costs, as set out on the "Budget and Cost Summary Sheet" form, to the respective Intervener and to the Board within 10 working days after receipt thereof.

(7) The intervener seeking costs shall have a further period of 10 working days, after receipt of any comments by the applicant under Subsection (6), to submit a response to the Board with a copy to the applicant.

(8) The Board shall issue an order in response to each application for costs, and if costs are awarded, the party ordered to pay the costs shall pay such costs within 15 days of the Board's cost order.

Originally Adopted June 1, 2006
Revised March 14, 2007

Manitoba

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX I"

INTERVENER REQUEST FORM

1. Application Re Hearing:		
2. Name of Requesting Party:		
3. Address of Requesting Party:		
4. Phone Number:	Business:	Residence
	Fax Number:	E-mail:
5. Contact Person(s):		
6. Address:		
7. Phone Number:	Business:	Residence:
	Fax Number:	E-mail:
8. State reasons for the proposed intervention (please be specific).		

9. State nature of proposed intervention.		
a) Do you intend	Yes	No
(i) to appear throughout the hearing:		
(ii) to participate in the production of evidence:		
(iii) to participate in the testing of evidence:		
(iv) to present final argument:		

b) Do you intend to call witnesses:	Yes	No

c) If yes to No. 9b), please provide witness':	
(i) Name:	
(ii) Address:	
(iii) Qualifications:	
(iv) Subject of submission (please note date for filing submission):	

10. Will you be applying for costs:	Yes	No

If yes: Refer to Section 43 of Rules of Practice and Procedure.
Provide detailed budget as per the attached Appendix II.

11. Comments and other information:

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX II"

INTERVENER BUDGET AND COST SUMMARY SHEET

To be used to prepare a budget for the Intervener Request Form, Item 10, and to make a claim for an Award of Costs.

Prepared by:		Date:
Hearing:		
Period Covered:		
Intervener's Name:		
Contact Person or Persons:		
Address:		
Phone Number:	Business:	Residence:
	Fax Number:	E-mail:

See Costs on Page 2.

FEES – to be completed for legal counsel or experts

				COSTS
PREPARATION:	Hours	Days	Rate	
APPEARANCE:	Hours	Days	Rate	
ARGUMENT & REPLY	Hours	Days	Rate	
FEES TOTAL	Hours	Days		

DISBURSEMENTS

				COSTS
TRAVEL (AUTO)	Kms		Rates	
TRAVEL (OTHER)				
ACCOMMODATION	Nights		Rates	
MEALS	Number			
MISCELLANEOUS	Taxis	Telephone	Supplies	
DISBURSEMENTS TOTAL				

TOTAL FEES AND DISBURSEMENTS	

NOTE: Receipts must be attached for all disbursements.

MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION

PROPOSED TIMETABLE

-DRAFT-

	ITEM	Date	Day of the Week	Elapsed Working Days
1	Application Filed	June 15, 2018	Friday	**0**
2	Notice of Public hearing Published	June 16, 2018	Saturday	**0**
3	PUB Issues Workshop	June 22, 2018	Friday	**5**
	Intervener Registration Deadline	June 22, 2018	Friday	**5**
4	Procedural Conference	June 25, 2018	Monday	**6**
5	PUB Procedural Order Issued	July 04, 2018	Wednesday	**13**
6	Round One Information Requests Filed	July 09, 2018	Monday	**15**
7	Round One Information Responses Filed	August 03, 2018	Friday	**34**
8	Parties to file motions on Round 1 IRs	August 07, 2018	Tuesday	**35**
9	Board to hear Motions	August 10, 2018	Friday	**38**
10	Round Two Information Requests Filed	August 17, 2018	Friday	**43**
11	Round Two Information Responses	September 14, 2018	Friday	**62**
12	Reminder Notice of Public Hearing Published	September 15, 2018	Saturday	**62**
13	Parties to file any motions	September 17, 2018	Monday	**63**
14	Board to hear all motions	September 19, 2018	Wednesday	**65**
15	Interveners to file pre-filed testimony to all parties	September 24, 2018	Monday	**68**
16	Information Requests on Intervener Evidence	September 27, 2018	Thursday	**71**
17	Interveners Information Responses	October 03, 2018	Wednesday	**75**
18	MPI Rebuttal Evidence	October 09, 2018	Tuesday	**78**
19	Oral Hearing			
		October 15 to 19	Monday to Friday	**5 days**
		October 22 to 26	Monday to Friday	**5 days**
	If Required	*October 29 to Nov 2*	*Monday to Friday*	***5 days***
19	PUB Order Released	December 03, 2018	Monday	**117**

Public Utilities Board

Régie des services publics

June 18, 2018

SENT BY EMAIL

Interveners of Past Record
(2018 General Rate Application)

Re: Manitoba Public Insurance 2019/20 General Rate Application

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Background

The 2019/20 GRA of MPI was filed on Friday, June 15, 2018. Electronic copies are to be posted to the MPI website and MPI is to maintain and regularly update this website with a fully searchable version of the GRA.

Intervener Responsibilities

The Board requests that past Interveners immediately collaborate and review the GRA when filed, so as to determine which of the issues set out in the Preliminary Issues List in Board Order 61/18 will be reviewed and tested by Interveners should they be granted status at the Pre-Hearing Conference. Interveners should be prepared to discuss these issues at the Pre-Hearing Conference. Following the Pre-Hearing Conference, the Board will approve the Final Issues List for the GRA in its Procedural Order.

Where more than one Intervener identifies the same issue to be addressed and tested in the GRA, the Board expects Interveners to work collaboratively, with one Intervener being identified as primarily responsible for that issue in terms of Information Requests, expert evidence, cross examination and closing submissions.

All Intervener Applications should therefore include the specific issues to be addressed by Interveners, and their proposed budgets.

Application Overview Workshop - June 22, 2018

An Application Overview Workshop will take place on June 22, 2018 at 9:00 a.m. The Board expects that past and prospective Interveners will attend, having familiarized themselves and their consultants with the content of the GRA materials.

The Workshop will be used to discuss the Preliminary Issues List, identifying which issues are acknowledged by the Parties to be included within the scope of the Final Issues List for the GRA, identify which issues are acknowledged by the Parties to be out of scope, and identify any new issues proposed for inclusion in the Final Issues List. Disagreements as to scope should be noted and explained in the Applications for Intervener Status that are to be filed with the Board and Manitoba Public Insurance prior to the Pre-Hearing Conference. The Board intends to hear

from the Parties at the Pre-Hearing Conference and make a determination as to any variations from the Preliminary Issues to the Final Issues List, to be approved in the Board's Procedural Order following the Pre-Hearing Conference.

Minimum Filing Requirements

The Board has prepared a list of Minimum Filing Requirements (MFRs) for MPI, a copy of which is attached, and which was previously circulated on May 7, 2018. The MFRs identify information that should be included in MPI's GRA filing, with a corresponding benefit of reducing Information Requests of MPI.

Pre-Hearing Conference - June 25, 2018 at 9:00 a.m.

The traditional purposes of the Pre-Hearing Conference (PHC) include identifying Interveners, seeking collaborative efforts by Interveners on common issues, finalizing a Timetable and scheduling an oral public hearing. In addition, as in last year's GRA, the PHC for the 2019 GRA will include a pre-qualification process for any expert witnesses the Parties intend to call at the public hearings.

Prior to attending the PHC for this GRA, the Board expects (and will seek confirmation from Interveners) that they have reviewed Order 61/18 and the Preliminary Issues List. The Board also expects that prospective Interveners will meet prior to the PHC for the purpose of identifying issues of common and divergent interest, and for preparing proposals to be advanced at the PHC for efficiently presenting evidence and cross examinations.

Prior to the PHC, the Parties will have had an opportunity to meet at the Application Overview Workshop. Through this process, MPI is to determine which of those issues set out in the Preliminary Issues List should by consensus remain in, be removed from, or be added to the Final Issues List. MPI should also provide information as to any disagreements about whether or not certain issues should remain within scope. MPI is to circulate this information to all Parties as soon as possible following the conclusion of the Workshop. Parties may speak to any disputed issues at the PHC and expect adjudication by the Board in its Procedural Order.

Attached hereto is the Timetable proposed by MPI. Any Party proposing an alternative Timetable to the one attached hereto should provide copies to all Parties prior to the PHC, and address the matter at the PHC.

For purposes of planning the oral public hearing, all Parties at the PHC will be asked to estimate their hearing time required for direct evidence, cross examinations and closing submissions.

Information Request (IR) Format

In an effort to make all IRs electronically searchable and to provide rationale for the question (or the refusal to fully answer the question - as the case may be), the Board has adopted a standardized format for IRs. This format has been used successfully since the 2016 GRA.

If MPI determines that it will not be fully answering an IR, it should immediately notify the Party making the request and attempt to resolve any dispute on an informal basis. If the dispute cannot be resolved informally, the Board will adjudicate the dispute. Please note that per the attached Timetable, Parties wishing to file any motions arising out of disputes related to First Round IRs must do so by August 7, 2018.

Other Matters

Should any Party have additional matters to be addressed at this time, please contact the Board. Thank you for your anticipated cooperation in continuing to implement improvements in the regulatory process.

Yours truly,

"Original Signed By:"

Darren Christle
Secretary/Executive Director

DC/aw

Attachments:
1. Timetable
2. PUB Minimum Filing Requirements
3. Draft Information Request Format

cc: Mike Triggs and Steve Scarfone, MPI
Kathleen McCandless, Board Counsel
Roger Cathcart, Board Advisor
Brian Pelly, Board Advisor

MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION

PROPOSED TIMETABLE

-DRAFT-

	ITEM	Date	Day of the Week	Elapsed Working Days
1	Application Filed	June 15, 2018	Friday	**0**
2	Notice of Public hearing Published	June 16, 2018	Saturday	**0**
3	PUB Issues Workshop	June 22, 2018	Friday	**5**
	Intervener Registration Deadline	June 22, 2018	Friday	**5**
4	Procedural Conference	June 25, 2018	Monday	**6**
5	PUB Procedural Order Issued	July 04, 2018	Wednesday	**13**
6	Round One Information Requests Filed	July 09, 2018	Monday	**15**
7	Round One Information Responses Filed	August 03, 2018	Friday	**34**
8	Parties to file motions on Round 1 IRs	August 07, 2018	Tuesday	**35**
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19	PUB Order Released	December 03, 2018	Monday	**117**

PUB/MPI Minimum Filing Requirements ("MFRs") - 2019 GRA

These MFRs build upon the MFRs issued in respect of the 2018 GRA, with the expectation that information should be provided in a similar format, if the MFR is otherwise unchanged. MFR items shown in gray font are **not** required for this GRA, but are preserved in the document to allow for possible changing areas of PUB focus in future GRAs.

Where older historical information is not directly comparable to more recent historical information due to changes in corporate organizational structure, accounting changes or other reasons, the information should still be provided but be annotated with any required explanations.

All of the information filed pursuant to these MFRs should be cross-referenced within a distinct section of the GRA.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	General			
A.1	Value Proposition	5	Please advise of any enhanced value or benefits flowing to Manitobans from MPI aligned with the Corporate Strategic Plan (this information can be contained with the Costs Containment section of the GRA).	To assess the value received by Manitobans in exchange for payment of rates, and in particular any requested rate increase.
A.2	Cross Canada Rate Comparison	11	To the extent that the Corporation asserts that Manitoba has among the lowest vehicle and/or motorcycle rates in Canada, please provide a schedule reflecting the maximum, 75th percentile, median, 25th percentile and minimum rates underlying each representative rate cited in each jurisdiction relied upon.	To provide context for the Corporation's assertion regarding its rates compared with other jurisdictions.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	General (continued)			
A.3	Pro-Formas	4	Please provide all Pro-Forma statements separating the vehicle premiums from any RSR Rebuilding Fees, and separating out amounts relating to any premium deficiency reserves. Where necessary, expand the pro-forma statements to show the requested itemizations, showing $0 as needed.	To clearly document the financial impact of RSR Rebuilding Fees and changes in rate level adequacy.
A.4	Financial Statement	9	Please file a link to the Audited Corporate Financial Statements.	To understand the full financial disclosure related to MPI's last fiscal year financial results.
A.5	Risk Assessment and Management	14	Risk Management Evaluation table in a similar format as that filed in response to Information Request (CAC) 2-38 in the 2017 GRA.	To understand the nature and significance of any changes in risk (Eg. Inherent risk assessments/ratings, risk management processes, responsibilities, and residual risks)

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Net Income			
B.1	Quarterly Reports	9	Please file the Corporation's quarterly reports as available.	To assess the financial strength of MPI for rate setting purposes.
B.2	Financial Overview	4	Please file updated financial forecast comparisons for the most recently completed fiscal year and the current fiscal year with what was forecast at the last GRA, including detailed explanations of variances.	To assess budgeted v. actual financial information and updated budgets.
B.3	Pro-Formas	4	Please provide a complete set of restated Pro-Forma statements reflecting each of the following: a) As proposed but excluding any proposed rate level change; b) As proposed but excluding any proposed RSR Rebuilding Fee; c) As proposed but excluding both any proposed rate level change and any proposed RSR Rebuilding Fee.	To clearly document the separate financial impact of the proposed rate level change and the proposed RSR Rebuilding Fee.
B.4	Service Fees & Other Revenue	15	Please provide support for any proposed changes or for proposing no change.	To provide context for any decision to change or any decision to preserve the status quo.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Investments			
C.1	Investment Management	8	Please provide a description of all aspects of the investment functions of MPI's portfolio highlighting any recent changes.	To gain an understanding of the decision-making process and to assess MPI's investment income.
C.2	Equity Holdings & Impaired Investments	9	Please provide a schedule of the Corporation's equity investment holdings and impaired investments, both written off and currently held and including original book value, revised book value and current book value.	To understand the performance of MPI's investment portfolio and to assess MPI's investment income.
C.3	Investment Income Allocation	6	Please update the table of investment income allocation weightings including any changes in the basis of allocation among the lines of business, RSR and Pension.	To understand the basis of allocation of MPI investment income between Basic and other lines.
C.4	Actual v. Benchmark Returns	8	Please provide a comparison by asset class of actual returns with the annual expected return benchmarks set out in the Investment Policy Statement for the last five years.	To assess the Corporation's investment returns against its benchmarks.

No.	Topic	Preliminary Issues List	Information Request	Rationale
C.5	Investment Returns	4	Please provide a 5-year comparison of the Corporation's total annual investment return rates with the corresponding annual return rates of: a) the Workers' Compensation Board, b) the Teachers' Retirement Allowances Fund, c) the Civil Service Superannuation Board of Manitoba d) Insurance Corporation of British Columbia, and e) Saskatchewan Auto Fund, and please provide commentary on any significant differences.	To assess the Corporation's investment returns against its peers.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Basic Expenses			
D.1	Benchmarking	4	Please file a complete trend analysis for Basic & the Corporation as a whole for the last five historical years through the outlook period, including all expenditures, showing compound annual growth rates separately for the historical period and for the outlook period.	To test and assess the reasonableness of Basic Expenses for rate setting purposes.
D.2	Benchmarking	4	Please provide a trend analysis since the inception of PIPP for the last five historical years through the outlook period, including growth in Claims Expenses, Operating Expenses, Claims Expenses per Claim and Operating Expenses per Policy relative to CPI.	To assess the growth of claims and operating expenses relative to inflation.
D.3	Benchmarking	4	Please provide an update of the performance indicators for the last five fiscal years through the outlook period. Please indicate all BI[3] Benchmarks and any other new indicators developed.	To assess changes in trends related to performance indicators and efficiency of operations for rate setting purposes.
D.4	Cost Allocation Methodology	6	Please advise of any changes in allocators, groupings of accounting units or purification adjustments used within MPI's Cost Allocation Methodology including any changes in the basis of allocation among the lines of business, RSR and Pension.	To understand any changes in the allocation of costs among the Corporation's lines of business.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Claims Costs			
E.1	Claims Incurred	10	Please provide a breakdown of the number of individual claims and their severity by Major Class over dollar thresholds of $100,000, $250,000, $500,000, $1,000,000 and $2,000,000 for each of the last ten years.	To understand the distribution of claims costs by severity.
E.2	PIPP Costs	10	Please provide a breakdown of PIPP costs by component coverage since the inception of PIPP, in both dollars and percentages.	To understand the distribution and change patterns of PIPP costs by component.
E.3	PIPP Claims	10	Please provide a table of frequencies and severities by type of claim, since the inception of PIPP through to the forecast for the current fiscal year.	To understand the nature of PIPP claims incurred.
E.4	Claims Forecasting	10	Please file a table for the last ten years showing original projected, revised forecast, and final actual frequencies/ severities/ claims incurred, broken down by coverage and for all coverages combined.	To provide context for discussion of claims forecasting accuracy and any evidence of systemic bias in such forecasts.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Operating & Administrative Expenses			
F.1	Operating Expenses	4	Please include the detail of the MPI operating expenses by category for the last five fiscal years through the outlook period, showing compound annual growth rates separately for the historical period and for the outlook period.	To test and assess the reasonableness of Operating Expenses for rate setting purposes.
F.2	Operating Expenses	4	Please provide schedule(s) by expense category for the last five fiscal years through the outlook period for Basic total operations, and Basic normal operations, showing compound annual growth rates separately for the historical period and for the outlook period.	To assess the historical trend and the reasonableness of Operating Expenses for rate setting purposes.
F.3	Operating Expenses	4	Please provide a summary of Basic expenses by category for the last two fiscal years and through the outlook period, broken down between Claims Expenses, Operating Expenses, Road Safety Expenses, Regulatory/Appeal Expenses and in total, and shown separately for Normal Operations, Improvement Initiatives and in total.	To review the trends and changes in Operating Expense categories to identify changes in cost allocation to Basic.
F.4	Expense Details	9	Please provide a detailed breakdown by cost category of actual Basic Claims, Operating and Road Safety expenses for the last five fiscal years.	To review the trends and changes in cost categories.
F.5	Capital Expenditures	9	Please provide a comparison between actual capital expenditures in the last fiscal year and that forecast at the last GRA and explain all material differences, including a breakdown of deferred development costs by project.	To assess budgeted v. actual financial information and updated budgets.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Operating & Administrative Expenses (continued)			
F.6	Deferred Development Costs	4	Please provide a continuity schedule of deferred development costs and amortization costs by project for the last ten fiscal years through the outlook period.	To assess the impact of deferred development costs and amortization costs for rate setting.
F.7	IT Expenses	19	Please provide a schedule detailing IT costs by major capital project for the last ten fiscal years through the outlook period, and identify internal v. external costs for the historical period and for the outlook period.	To assess the amount spent on information technology and the reasonableness of costs forecast for rate setting.
F.8	IT Expenses	19	Please provide Information Technology Costs broken down between Normal Operations, Initiative Implementation and Initiative Ongoing expenses, for the last five fiscal years and through the outlook period.	To assess the amount spent on information technology and the reasonableness of costs forecast for rate setting.
F.9	IT Expenses	19	Please provide number of consultants supporting operating activities, general operating activities, compared to the number of consultants that are supporting improvement initiatives and their related annual costs for the last five fiscal years and forecast through each year in the outlook period.	To assess the extent MPI's reliance on external consultants impact operations.
F.10	IT Expenses	19	Please provide IT expenses for the last ten fiscal years and through the outlook period, and include two columns providing the compound annual growth rate separately for the historical period and for the outlook period.	To assess the amount spent on information technology and the reasonableness of costs forecast for rate setting.

No.	Topic	Preliminary Issues List	Information Request	Rationale
F.11	Project Costs	9	Please provide a budget comparison of BTO/BPR projects by major component this year with the budget provided last year.	To provide context for amounts spent on IT projects and the relationship to revenue requirement.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Operating & Administrative Expenses (continued)			
F.12	Gartner Group Recommendations	9	Please provide an update detailing the status of all recommendations made by the Gartner Group, including any new recommendations, and highlight any changes in the recommendations or MPI's actions flowing from the recommendations from that provided last year.	To assess whether IT spending is just and reasonable.
F.13	Staffing Levels	9	Please file a corporate staffing analysis for Normal Operations.	To understand actual and forecast changes in staffing levels.
F.14	Staffing Levels	9	Provide a comparison of the prior GRAs staffing (Basic and Corporate) budget to actual staffing for the 2017/18 year.	To understand actual and forecast changes in staffing levels.
F.15	Staffing Levels	9	Please provide a schedule of Basic and Corporate Staffing Levels for the 2018/19 year.	To understand actual and forecast changes in staffing levels.
F.16	Compensation	4	Please file an updated schedule of Basic compensation increases by category for the last five fiscal years through the outlook period.	To assess whether any increases in compensation costs are just and reasonable.
F.17	Compensation	4	Please file an updated schedule of average salary levels by classification for the last ten fiscal years through the outlook period, showing compound annual growth rates separately for the historical period and the outlook period.	To assess whether any increases in salary levels are just and reasonable.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Operating & Administrative Expenses (continued)			
F.18	Salary Expenses	4	Please file a table reflecting each of: a) Corporate Compensation Analysis - Normal Operations; b) Corporate Compensation/Payroll Costs - Normal Operations; c) Corporate Annual Compensation Changes - Normal Operations; d) Corporate Compensation Analysis - Corporate Total; e) Corporate Compensation/Payroll Costs - Corporate Total; and f) Corporate Annual Compensation Changes - Corporate Total. Please also file a similar analysis for Basic.	To understand the changes in total compensation for the Corporation and its impact on Basic.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Road Safety & Loss Prevention			
G.1	Actual v. Budgeted Expenditures	22	Please provide a five year comparative history of actual v. budgeted expenditures by Road Safety and Loss Prevention program category.	To assess budgeted v. actual financial information.
G.2	Expense Forecast	22	Please provide a detailed forecast of Road Safety and Loss Prevention expenses by program through the outlook period.	To assess the amount spent on Road Safety.
G.3	Loss Prevention	9	Please provide a detailed Road Safety and Loss Prevention budget for the current year by specific program and compare that to actual spending for the last fiscal year.	To assess the amount spent and previously forecast to be spent on Road Safety.
G.4	Hot Maps	22	Please file updated Accident Maps.	To assess the Road Safety budget and expenditures in the context of collision frequency at specific locations.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Ratemaking			
H.1	Indicated and Proposed Rate Level Changes	2	Please provide a table reflecting the indicated rate change by Major Class together with the applied for rate changes. Please prepare an exhibit, with accompanying explanatory narrative, illustrating the transition from rate requirement indicators to requested revenue adjustments by Major Class.	To provide context for any differences between indicated and proposed rate level changes by Major Class.
H.2	Regressions	10	For all selected regressions included in the ratemaking analysis, please provide a graphical representation, including display of actual data and fitted and selected trend lines, accompanied by the customary regression diagnostics.	To provide context for visually and statistically assessing the strength of the selected regressions.
H.3	Significant Changes to Methodology or Basis of Selection of Assumptions	10	Relative to the prior GRA, please provide a summary, with supporting rationale, for any significant changes to methodology or significant changes to the basis of selection of assumptions used in the derivation of the indicated changes in rate level in accordance with accepted actuarial practice in Canada, both overall and at the classification level.	To clearly document any sources of change in the derivation of rate indications.
H.4	Composition of Overall Required Rate	2	Please provide a comparative table for the current GRA and most recent prior GRA of the estimated $ composition of the Income Sources and Expenditures, with accompanying narrative on any significant deviations in a similar format as PUB (MPI) 1-10 from the last GRA.	To assess the stability of the rate setting forecasts.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Driver Safety Rating			
I.1	Prospective Modeling Assumptions	17	Please provide documentation of the DSR prospective modeling assumptions for each of the forecast years. Please display the forecasted number of Earned Drivers by DSR level for each of the forecast years.	To provide context for assessing the revenue sensitivity of any changes to the DSR schedule.
I.2	Significant Changes to Methodology or Basis of Selection of Assumptions	17	Relative to the prior GRA, please provide a summary, with supporting rationale, for any significant changes to methodology or significant changes to the basis of selection of assumptions used in the derivation of the DSR indications.	To clearly document any sources of change in the derivation of indications.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	Valuation of Policy Liabilities			
J.1	Runoff	12	In a single table, please provide the breakdown by insurance year and valuation line of business of the latest complete fiscal year Basic – Total (Net) – PIPP (undiscounted) runoff.	To document the financial impact of prior year claims activity on current fiscal year incurred claims.
J.2	Sources of Runoff	12	With respect to the latest complete fiscal year Basic – Total (Net) – PIPP (undiscounted) runoff, please provide a separation of the total amount of runoff into the portion attributable to changes in experience vs. the portion attributable to changes in valuation methodology vs. the portion attributable to changes in valuation assumptions, including commentary on the basis for this separation and the nature of and rationale for the changes.	To provide context for discussion of changes in valuation methodology or basis of selection of assumptions.
J.3	Regressions	10	For all selected regressions included in the valuation, please provide a graphical representation, including display of actual data and fitted and selected trend lines, accompanied by the customary regression diagnostics.	To provide context for visually and statistically assessing the strength of the selected regressions.
J.4	Actuarial Specialist Report	10	Please provide a copy of the actuarial specialist report on the Basic actuarial valuation prepared as audit evidence in support of the audit opinion provided by PricewaterhouseCoopers LLP for the latest audited financial statements.	To get the benefit of the review undertaken by the PwC actuarial specialist in support of the audit.

No.	Topic	Preliminary Issues List	Information Request	Rationale
	DCAT and Target Capital Scenarios			
K.1	GRA Forecast vs. DCAT Base Scenario	7	Please identify and justify all significant differences in modeling assumptions between the GRA Basic forecast and the DCAT Base Scenario, and indicate which forecast represents the Corporation's best estimate projection of Basic operations.	To augment the GRA Basic forecast with any significant improvements to that forecast arising from the DCAT process.
K.2	DCAT External Peer Review	7	Please provide the latest available external peer review of a Basic DCAT investigation.	To get the full benefit of available perspectives on the strengths and weaknesses of the Basic DCAT investigation.
K.3	MCT Ratio	7	For all modeled scenarios (base or adverse), please include in the summary of scenario results the modeled MCT ratio based on OSFI's current MCT Guideline.	To provide context for consideration of the MCT ratio as a basis for assessing changes in MPI Basic's financial strength, given the Board's earlier expressed understanding of "the merits of the MCT for providing a relatively simple, convenient and objective metric of Basic's relative financial strength".

No.	Topic	Preliminary Issues List	Information Request	Rationale
	DCAT and Target Capital Scenarios (continued)			
K.4	MCT Ratio	10	If there has been a change in the OSFI MCT Guideline being used relative to the prior GRA, please include supporting details for the impact of the resulting change in the MCT ratio calculation for each historical and forecast year included in the modeled base scenario.	To provide context for consideration of the MCT ratio as a basis for assessing changes in MPI Basic's financial strength, given the Board's earlier expressed understanding of "the merits of the MCT for providing a relatively simple, convenient and objective metric of Basic's relative financial strength".
K.5	Target Capital Scenario Testing	7	File the indicated upper and lower target capital thresholds based on the methodology approved by the Board in Order 130/17 Directives 11.20 & 11.21.	To update target capital thresholds for Basic.

Volume:		**Page No.:**	
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

QUESTION:

RATIONALE FOR QUESTION:

RESPONSE:

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Public Utilities Board

Régie des services publics

June 22, 2018

Mr. Michael Triggs
General Counsel and Corporate Secretary
Manitoba Public Insurance Corporation
912-234 Donald Street
Winnipeg, MB R3C 4A4

VIA EMAIL

-and-

Interveners of Record
(2018 GRA – per attached list)

Re: Manitoba Public Insurance 2019/20 General Rate Application - Pre-Qualification of Expert Witnesses

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Please be advised that the Public Utilities Board will again be providing parties with an opportunity to pre-qualify expert witnesses at the Pre-Hearing Conference. The intention of this process, which was introduced in the 2018 GRA, is to increase the efficiency of the hearings by dispensing with the need to examine the expert witness on his or her qualifications in the public hearings.

The process will be as follows:

1. A party intending to call expert witness(es) in the GRA hearings shall give notice to the Board of its intention to have the witness(es) pre-qualified at the Pre-Hearing Conference, and provide the curriculum vitae of the witness to the Board along with the proposed area(s) of qualification for the witness(es).

2. At the Pre-Hearing Conference, the party shall make submissions to the Board as to the qualifications of the witness(es) and request pre-qualification of the Board. The witness need not be called to give viva voce evidence at the Pre-Hearing Conference.

3. Other parties may make submissions to the Board regarding the request for pre-qualification.

4. If there are no objections from other parties to the request for pre-qualification, the Board will issue its decision on pre-qualification in the procedural order following the Pre-Hearing Conference.

400 – 330 Portage Avenue
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T 204-945-2638 / 1-866-854-3698
F 204-945-2643
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Téléc. 945-2643
Courriel : publicutilities@gov.mb.ca
Site Web: www.pubmanitoba.ca

5. If the Board grants the request for pre-qualification, there will be no need to qualify the expert when called to testify in the public hearings.

6. If there are objections to pre-qualification, or if the Board declines the request for pre-qualification, the witness will need to be examined on his or her qualifications at the public hearings.

Any party wishing to make a request to the Board for pre-qualification is required to give notice to the Board in accordance with Item No. 1 above, no later than **Sunday, June 24, 2018.**

Yours truly,

"Original Signed By:"

Darren Christle
Secretary/Executive Director

DC/aw

cc: Kathleen McCandless, Board Counsel

Reminder Notice of Public Hearing

Applicant: Manitoba Public Insurance Corporation

HEARING:

The Public Utilities Board (Board) anticipates holding a public hearing of an application from Manitoba Public Insurance Corporation (MPI) for approval of rates and premiums for compulsory vehicle and driver insurance as of March 1, 2019. The hearing would take place at the Board's Hearing Room, 4th Floor, 330 Portage Avenue, Winnipeg, MB (commencing at 9:00 a.m.) on October 15, 2018.

RATE IMPACT:

MPI is requesting approval for Basic Autopac vehicle insurance rates and premiums effective March 1, 2019, which, if approved, will result in 2.2% increase in MPI's Basic vehicle premium revenue (in addition to the revenue impact of vehicle upgrades and an increased overall driver and vehicle population).

MPI proposes that this rate increase be comprised of two elements: i) a 0.1% increase to the break-even cost of policies, and ii) a 2.1% increase for a Net Capital Maintenance Provision to maintain Basic's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision recognizes the impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position.

MPI is also seeking final approval of 2017/18 and 2018/19 Vehicles for Hire rates, approved by the Board on an interim basis by Order 11/18 on January 15, 2018. MPI is not proposing any changes to the Driver Safety Rating system in the 2019 General Rate Application.

Individual vehicle and driver premiums would vary depending on claim and driving experience, insurance use, territory and vehicle rate group. Full particulars, including the rate impact and application, can be found on the MPI website: https://www.mpi.mb.ca/en/Newsroom/Pages/rateapplication.aspx.

PARTICIPATION:

Parties wishing to submit a brief or to express comments at the hearing should contact the PUB via the Board's on-line comment tool, or by either emailing (publicutilities@gov.mb.ca), writing or calling the Board Secretary (204-945-2638 or 1-866-854-3698, toll free). Parties wishing to submit a brief or to express comments at the hearing should also contact the PUB via the Board's on-line comment tool.

GENERAL INFORMATION:

Interested parties should take note that the Board does not have jurisdiction over the MPI lines of business denoted as Extension or SRE, or as to MPI's Driver and Vehicle Licensing operation.

Persons seeking further information as to MPI's application, or with respect to the Board's process, may examine MPI's application and supporting materials on its website, or in the Board's office. Interested parties wishing to address the public hearing in French should notify the Board Secretary by **September 21, 2018**.

The Manitoba Ombudsman has recently issued privacy guidelines for administrative tribunals. The Board is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed unless it is appropriate and necessary to do so. However, the Board advises participants that these proceedings are public and that as a result, personalinformation protections are reduced.

CONTACT INFORMATION:

The Public Utilities Board
400 – 330 Portage Avenue
Winnipeg, MB R3C 0C4
Website: www.pubmanitoba.ca
Telephone: 204-945-2638
Toll-Free: 1-866-854-3698
Email: publicutilities@gov.mb.ca

DATED this 15th day of September, 2018.

D. Christle
Secretary and Executive Director
The Public Utilities Board


Five days notice required.


Wheelchair access is available.

Manitoba

BOOK OF DOCUMENTS

MANITOBA PUBLIC INSURANCE
2019/2020 GENERAL RATE APPLICATION

PUBLIC UTILITIES BOARD COUNSEL

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PITBLADO LLP

2500 - 360 Main Street
Winnipeg, Manitoba
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October 2018

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INDEX

Tab

1. Legal Application (LA)
2. Rating Year 2019/20 Major Classification Indicated Rate Change (RM-1, page 4)
3. Distribution Reports (RM-13, RM-14, RM-15, RM-16, pages 41, 52-53)
4. Vehicles For Hire (VFH, pages 1-22)
5. Statement of Operations - 2.2% Rate Change (PF.1)
6. Statement of Financial Position - 2.2% Rate Change (PF.2)
7. Statement of Changes in Equity - 2.2% Rate Change (PF.3)
8. Statement of Operations (2017/18 Comparative) (PF.4)
9. Statement of Operations (2018/19 Comparative) (PF.5)
10. Statement of Operations (2019/20 Comparative) (PF.6)
11. Interest Rate Scenario Pro Formas (INV Appendix 11, PF.1, PF.2, PF.3)
12. Summary of Basic Expenses by Category (EXP Appendix 2, pages 1 to 3)
13. 10-Year Summary Basic Total Expenses by Category (EXP Appendix 3, pages 1 to 3)
14. Capital Maintenance Provision (RM.4.2.7, pages 30-31))
15. Gartner's Recommendation - Status Update (BMK Appendix 1, BMK Attachment A)
16. Information Technology Costs (EXP Appendix 19, pages 1-4)
17. Information Technology Strategy (IT Appendix 2, pages 1-25)
18. PDR Status Update (PUB (MPI) 1-72)
19. ALM Study - Phase One (INV Appendix 12, pages 1-33)
20. ALM Study - Phase Two (INV Appendix 13, pages 1-19)
21. ALM Study - Phase Three (INV Appendix 14, pages 1-13)

LEGAL APPLICATION

2019 GENERAL RATE APPLICATION

June 15, 2018

Manitoba Public Insurance

LEGAL APPLICATION

Manitoba Public Insurance (the Corporation, or MPI) hereby applies to the Public Utilities Board (the PUB, or Board) for approval of the Corporation's premiums charged with respect to compulsory driver and vehicle insurance (rates for service), in accordance with the provisions of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act.*

In the 2019 General Rate Application (GRA) for Basic Autopac the Corporation is requesting that the PUB approve the premiums charged with respect to compulsory driver and vehicle insurance (rates for service) effective March 1, 2019, including:

1. A 2.2% overall increase in Basic vehicle premium revenue (including Vehicles for Hire rates for service) comprised of:

    i. 0.1% increase to the break-even cost of policies
    ii. 2.1% increase for a Net Capital Maintenance Provision to maintain MPI's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision accounts for the positive impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position

2. A minimum (lower) RSR target of 34% Minimum Capital Test (MCT), (total equity equivalent of $143 million as at February 28, 2019), based on a 1-in-40 probability Dynamic Capital Adequacy Test (DCAT) scenario.

3. A maximum (upper) range RSR target of 85% Minimum Capital Test (MCT), (total equity equivalent of $305 million as at February 28, 2019), based on a 2 year, 1-in-40 DCAT scenario with no management action.

4. No changes to Miscellaneous Permits and Certificates

5. No changes to driver premiums through the Driver Safety Rating (DSR) system, and no change to Vehicle Premium Discounts

6. No changes to Basic Autopac Service and Transaction Fees

7. No Changes to Fleet Rebates and Surcharges

8. Consistent with the 2018 Vehicles for Hire (VFH) Interim Application, the continued:

    a) Eligibility of vehicles for hire for vehicle premium discounts
    b) Waiving of service fees for change of insurance for vehicles for hire

Tables detailing the requested rates and fees are presented in *Part VIII – ART Application Rate Tables*. Experience-based rate adjustments ranging from -15% to +15%, as shown in *Part V(ii) RM Ratemaking Appendix 3* based on adjustment rules shown in *Part V(ii) RM Ratemaking RM.5*. Combined classification offsets for all vehicles except off-road vehicles, to achieve revenue neutrality in implementing rate group, rate line and classification changes for 2019/20, as shown in *Part V(ii) RM Ratemaking Appendix 2.*

Discussion and analysis of the applied for Rate Stabilization Reserve (RSR) capital targets, and the Net Capital Maintenance Provision is provided in *Part VI RSR Rate Stabilization Reserve*.

In the 2019 GRA the Corporation is also requesting final approval of VFH rates for service, approved on an interim basis by PUB Order 11/18.

Bill 30, establishing *The Local Vehicles for Hire Act* ("the VFH Act"), received Royal Assent on November 10th, 2017. The VFH Act eliminates regulation of the taxi industry in Winnipeg through the Taxicab Board and transfers regulatory responsibilities for all vehicles for hire to each municipality in the Province of Manitoba. The VFH Act came into force on February 28, 2018 and allows for a new class of vehicles for hire in addition to the existing taxicab/livery service.

To offer compulsory insurance for vehicles for hire, MPI sought and obtained the Board's interim approval of premium rates both for this new class of vehicles for hire, and for new premium rates for the existing classes of vehicles for hire (taxicabs, limos and wheelchair accessible vehicles).

The Corporation is requesting final approval of the premiums charged with respect to compulsory vehicles for hire insurance (rates for service), effective March 1, 2018 including:

iii. Vehicles for hire rates for service for both the 2017/18 and 2018/19 insurance year in this application, based on rates approved in PUB Orders 162/16 and 130/17 respectively
iv. Changes to eligibility for vehicle premium discounts for vehicles for hire
v. Waiving of service fees for change of insurance for vehicles for hire
vi. A mechanism for refunding/collecting any variance between interim and final approved vehicles for hire Rates for Service

Rate tables for interim vehicles for hire rates for service are provided as Appendix 1 and Appendix 2 to the Interim Vehicles for Hire Application, included in this 2019 GRA as *Part V(ii) VFH Vehicles for Hire Appendix 1*.

RATEMAKING

RM.1 CERTIFICATE OF THE ACTUARY

I, Luke Johnston, a Fellow of the Canadian Institute of Actuaries, certify that:

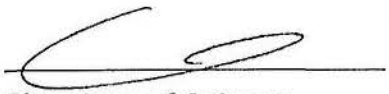
1. I have derived the indicated rate(s) in accordance with Accepted Actuarial Practice in Canada, on behalf of Manitoba Public Insurance (MPI or the Corporation) , for the Basic Autopac program (Basic) for rates effective March 1, 2019 for new and renewal business.

2. I have reviewed the data underlying this rate application for reasonableness and consistency, and I believe the data is reliable and sufficient for the determination of the indicated rate changes.

3. The indicated rate changes, shown in the table below, have been calculated in accordance with Accepted Actuarial Practice in Canada. These indicated rate changes assume a 0% profit provision, and include a net capital maintenance provision (CMP).

Figure RM- 1: Indicated Rate Change

Line No.	Major Class	Current Average Rate	Indicated Average Rate	Indicated Rate Change
1	**Private Passenger**	$1,111	$1,138	2.4%
2	**Commercial**	$780	$798	2.4%
3	**Public**	$2,003	$2,014	0.6%
4	**Motorcycles**	$797	$822	3.1%
5	**Trailers**	$81	$78	-4.7%
6	**Off-Road Vehicles**	$10	$8	-20.0%
7	**Overall**	$855	$874	2.2%



Signature of Actuary | June 11, 2018 (Date) | Winnipeg, Manitoba (Location)

RM.6 SUMMARY AND DISTRIBUTION REPORTS

By major class, the proposed rate changes differ slightly from experience rate changes due to capping rules. A 15% increase/decrease cap is applied to experience-based indicators and all final rates are capped at a 20% increase/decrease.

Figure RM- 14 Major Class Summary Report

Line No.	Major Class	Vehicle Count	Current Average Rate	Proposed Average Rate	Proposed Rate Change	Experience Rate Change*
1	**Private Passenger**	801,726	$1,111	$1,138	2.4%	2.4%
2	**Commercial**	46,246	$780	$798	2.4%	2.6%
3	**Public**	12,630	$2,003	$2,014	0.6%	-0.2%
4	**Motorcycles**	17,023	$797	$822	3.1%	3.2%
5	**Trailers**	200,677	$81	$78	-4.7%	-4.6%
6	**Off-Road Vehicles**	70,838	$10	$8	-20.0%	-36.0%
7	**Overall**	1,149,140	$855	$874	2.2%	2.2%
8	*Per Figure RM-12					

The following tables show the distribution of vehicles by dollar and percent changes after all adjustments. The proposed rate changes result in a rate decrease for 40.2% of vehicles, no change in rates for 7.5% of vehicles, and a rate increase for 52.3% of vehicles. 38.6% of vehicles experience a rate change of +/- $20 or less (including vehicles receiving a $0 change in rates) and 43.9% of vehicles experience a rate change of +/- 5% or less (including vehicles receiving no change in rates). More detailed tables can be found in *RM.6 Summary* and *RM.6 Dollar/Percentage Distribution*.

Figure RM- 15 Dollar Distribution Table

Line No.	$ Change	# of Vehicles	% of Vehicles
1	**Decrease $300 or more**	73	0.01%
2	**Decrease $200 to $299**	390	0.03%
3	**Decrease $150 to $199**	1,824	0.16%
4	**Decrease $100 to $149**	18,739	1.63%
5	**Decrease $50 to $99**	106,669	9.28%
6	**Decrease $20 to $49**	134,207	11.68%
7	**Decrease $1 to $19**	200,294	17.43%
8	**No Change**	85,620	7.45%
9	**Increase $1 to $19**	158,175	13.76%
10	**Increase $20 to $49**	111,974	9.74%
11	**Increase $50 to $99**	203,910	17.74%
12	**Increase $100 to $149**	98,298	8.55%
13	**Increase $150 to $199**	20,562	1.79%
14	**Increase $200 to $299**	8,081	0.70%
15	**Increase $300 or more**	*324	0.03%
16	**GRAND TOTAL**	**1,149,140**	**100%**
17	*Of those 324 units, 313 are Taxicab Vehicle-for-Hire 4 in Territory 1 & 3		

Figure RM- 16 Percent Distribution Table

Line No.	% Change	# of Vehicles	% of Vehicles
1	**Decrease 20% or more**	70,850	6.17%
2	**Decrease 15% to 20%**	324	0.03%
3	**Decrease 10% to 15%**	49,069	4.27%
4	**Decrease 5% to 10%**	158,593	13.80%
5	**Decrease less than 5%**	183,360	15.96%
6	**(No Change)**	85,620	7.45%
7	**Increase less than 5%**	235,366	20.48%
8	**Increase 5% to 10%**	289,618	25.20%
9	**Increase 10% to 15%**	40,524	3.53%
10	**Increase 15% to 20%**	35,787	3.11%
11	**Increase 20% or more**	29	0.00%
12	**GRAND TOTAL**	**1,149,140**	100%

VEHICLES FOR HIRE

2019 GRA APPLICATION

June 15, 2018

Manitoba Public Insurance

Table of Contents

VEHICLES FOR HIRE 3
VFH.1 MPI APPLIED FOR INTERIM APPROVAL OF VFH RATES 3
VFH.2 PUB BOARD ORDER 11-18 APPROVES INTERIM APPLICATION 5
VFH.3 MPI APPLIES FOR FINAL VFH RATES FOR SERVICE 9
VFH.3.1 MPI's Automated Re-Rating Process 9
VFH.4 MPI's VFH RATING MODEL BEST MEETS SUCCESS CRITERIA 10
VFH.5 MPI ESTABLISHED VFH COVERAGE CONSISTENT WITH BASIC 12
VFH.6 MPI ESTABLISHES VFH RATE SETTING FRAMEWORK 13
VFH.6.1 Taxi VFH vs. Passenger VFH 14
VFH.7 DATA COLLECTION – RATE MAKING 15
VFH.8 MPI'S COMMUNICATION TO CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE 17
VFH.8.1 Communication with VFH Customers 17
VFH.8.2 Communication with "Outliers" 17
VFH.9 MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY 19
VFH.10 MPI CONTINUES STAKEHOLDER ENGAGEMENT 22

Appendix 1 Interim Vehicles for Hire Application
Appendix 2a Winnipeg Free Press
Appendix 2b Global News

1

VEHICLES FOR HIRE

VFH.1 MPI APPLIED FOR INTERIM APPROVAL OF VFH RATES

On December 15, 2017, Manitoba Public Insurance ("MPI" or "the Corporation") applied to the Manitoba Public Utilities Board ("PUB" or "Board") for interim approval of premiums charged with respect to compulsory vehicles for hire (VFH) insurance, in accordance with the provisions of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act.*

Bill 30, establishing *The Local Vehicles for Hire Act* ("the VFH Act"), received Royal Assent on November 10th, 2017. The VFH Act eliminates regulation of the taxi industry in Winnipeg through the Taxicab Board and transfers regulatory responsibilities for all VFHs to each municipality in the Province of Manitoba. The VFH Act came into force on February 28, 2018 and allowed for a new class of VFH in addition to the existing taxicab/livery service.

To offer compulsory insurance for VFH, MPI sought the Board's approval of premium rates both for this new class of VFH, and for new premium rates for the existing classes of VFH (taxicabs, limos and wheelchair accessible vehicles).

The Corporation requested interim approval of the following rates for service effective March 1st, 2018:

- The premiums charged with respect to compulsory VFH Rates for Service, effective March 1, 2018.
    - Interim VFH Rates for Service are being requested for both the 2017/18 and 2018/19 insurance year in this application, as reflected in Appendix 1 and Appendix 2 of the Interim Application, based on rates approved in PUB Orders 162/16 and 130/17 respectively.
- Changes to eligibility for vehicle premium discounts for VFHs, also as reflected in Appendix 1 and Appendix 2 of the Interim Application.

- Waiving of service fees for change of insurance for VFHs
- A mechanism for refunding/collecting any variance between interim and final approved VFH Rates for Service, as determined through the 2019 General Rate Application (GRA)

Further, MPI proposed:

- Other than as specified above, no change to service fees for changing coverage
- No change to Miscellaneous permits and certificates
- No change to driver license premiums
- No change to fleet rebates and surcharges

Rate tables for Interim VFH Rates for Service were included as Appendix 1 and Appendix 2 in the Vehicles for Hire 2018 Interim Application. The Interim Application can be found in Appendix 1.

VFH.2 PUB BOARD ORDER 11-18 APPROVES INTERIM APPLICATION

The PUB approved the Interim Application for interim 2017/18 and 2018/19 VFH premium rates. The Board found that Transportation Network Companies (TNCs) are a new business model in North America, and accordingly, there is a lack of experience upon which insurance rating models and rates can be developed. The Board took this into account in approving the rates applied for by the Corporation. However, the Board issued a number of directives to MPI (responses in bold font) including the following:

6.1 The Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years, as set out in Appendix 1 and Appendix 2 to the Vehicles for Hire 2018 Interim Application filed by Manitoba Public Insurance on December 15, 2017, BE AND HEREBY ARE APPROVED on an interim basis, effective March 1, 2018.

6.2 The Corporation shall apply for final Rates for Service for vehicles for hire for the 2017/18 and 2018/19 insurance years in the 2019 General Rate Application.

See VFH.3 – MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

6.3 The Corporation shall refund or collect any variance between interim Rates for Service hereby approved and the Rates for Service finally approved through the 2019 General Rate Application (GRA).

See VFH.3 – MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

6.4 Vehicles for hire in all categories of the vehicles for hire pool shall be eligible for Driver Safety Rating vehicle premium discounts if registered by individual customer.

6.5 The waiving of service fees for changes of insurance coverage for vehicles for hire BE AND HEREBY IS APPROVED.

6.6 The Corporation shall inform vehicles for hire customers, in advance of placement of coverage, of the possibility of a refund or the collection of additional premiums due to a re-rating resulting from the final approval of Rates for Service for vehicles for hire through the 2019 GRA.

See VFH.8 – MPI'S COMMUNICATION WITH CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE

6.7 The Corporation shall develop and report on a plan for the collection of data specific to the vehicles for hire pool and shall file the report in the 2019 GRA. The plan the Corporation is to develop will include collection of information as to:

6.7.1 A new vehicles for hire insurance use pool so that experience suitable for ratemaking can be tracked separately from other Basic vehicle classes;

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.2 Tracking of ratemaking experience (e.g., exposures, premiums, and claim counts and amounts) within the vehicles for hire pool, separated by each sub-category within the vehicles for hire pool (e.g., use category, number of time bands, territory), as well as separated by each time band;

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.3 Forecasting of claims incurred for the vehicles for hire pool; and a means of allocating to the appropriate time band those claims occurring during any overlap of time bands in which the customer has selected both of the overlapping time bands.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.7.4 The Corporation shall gather data on the number and frequency of changes made to insurance policies for vehicles for hire and provide a report in that regard in the 2019 GRA.

See VFH.7 – DATA COLLECTION – RATE MAKING

6.8 In the 2019 GRA, the Corporation shall provide information as to the total cost resulting from the vehicles for hire rating model. The total cost information shall include, but will be not be limited to:

6.8.1 The financial impact of changes on the Corporation's pro forma financial forecast;

6.8.2 Driver safety rating premium discounts;

6.8.3 Reduced deductible from $600.00 to $500.00 for taxicabs, limousines and accessible vehicles for hire;

6.8.4 One-time and ongoing information technology costs related to upgrading or modifying the AOL and CARS programs to accommodate vehicles for hire; and

6.8.5 Broker commission and service fees relating to transactions associated with vehicle for hire registration and time band selection.

See Part V (i) Expense Appendix 20

6.9 In the 2019 GRA, the issue of Passenger VFH insurance rates as compared to the Taxicab VFH insurance rates be reviewed.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.10 In the 2019 GRA, the Corporation shall examine the issue of whether, for insurance purposes, the Taxicab vehicles for hire category should be

eliminated such that Taxicabs would fall within another vehicles for hire use category.

See VFH.6 – MPI ESTABLISHES VFH RATE MAKING FRAMEWORK

6.11 The Corporation shall monitor best practices and standards of the TNC industry and present the results of its monitoring in the 2019 GRA.

See VFH.9 – MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY

6.12 In the 2019 GRA, the Corporation shall file a report on engagement that it has conducted relating to vehicles for hire with any stakeholders such as the City of Winnipeg, other municipalities, TNCs, consumer groups, representatives of the taxicab industry and disability groups.

See VFH.10 – MPI CONTINUES WITH STAKEHOLDER ENGAGEMENT

6.13 Included among the issues to be examined in the 2019 Road Safety Technical Conference directed in Order 130/7 shall be:

6.13.1 Safety for drivers and clients of VFH:

6.13.2 Safety and training standards for all VFH drivers; and

6.13.3 Safety issues relating to persons with disabilities and VFH

6.14 The road safety information filed by the Corporation in the 2019 GRA include information regarding emerging road safety issues as a result of the introduction of TNCs in Manitoba

See Part VII – Working towards Safer Roads through Effective Public Insurance of 2019 GRA

VFH.3 MPI APPLIES FOR FINAL VFH RATES FOR SERVICE

As part of the 2019 GRA, MPI is applying for final approval of 2017/18 and 2018/19 VFH Rates for Service, as well as 2019/20 VFH Rates for Service. For the 2019/20 rates for VFH vehicles, the Corporation utilized the same methodology as was used for setting the 2018/19 rates as presented in *Part V(ii) Vehicles for Hire Appendix 1 Interim VFH Application*.

Should the Board's final determination on 2017/18 and 2018/19 VFH rates in the 2019 GRA Order have any variance to the interim approved VFH rates, any difference in rates will be rebated or collected on a customer by customer basis by the process explained in the following section.

VFH.3.1 MPI's Automated Re-Rating Process

MPI currently has an automated process to trigger a "re-rating" of an insurance policy without requiring a customer visit to a broker or service centre. If the PUB approves final VFH Rates for Service for the 2017/18 and 2018/19 insurance years that differ from the approved interim rates, MPI will identify all VFH customers and initiate a re-rating of the insurance policy. This will complete a new insurance rating calculation process and the new approved rates will be used to determine the appropriate insurance premium that should have been collected. In the event of either an increase or reduction in premium, the associated balance will be applied to the respective customer account and a letter will be sent to each customer with an explanation. This avoids the risk of customers paying higher than required rates and MPI charging inadequate rates.

VFH.4 MPI's VFH RATING MODEL BEST MEETS SUCCESS CRITERIA

MPI initially examined nine insurance solution models/options. They were evaluated at a conceptual level using nine criteria and from these nine options, the top three models were selected for further evaluation and rated based on the following three success criteria:

1. That the rating model is fair and equitable
2. That the rating model is actuarially-based
3. That the rating model is flexible enough to accommodate different regulatory frameworks throughout the province as a result of Bill 30

MPI selected the Time Restriction (Time Band) model because it complies with the existing regulatory process and it best satisfied the three success criteria overall.

Under the Time Band model, the VFHs pool consists of four 4 categories:

1. Taxicab VFH
2. Limousine VFH
3. Accessible VFH
4. Passenger VFH

The insurance policies are based on time bands permitting VFH operation. Each of the 4 categories have the same 4 time bands available to them. Customers can self-select any combination of 4 time bands and premiums are based on the number of time bands selected. Customers have the option to purchase 1, 2, 3, or all 4 time bands. At 4 time bands, a vehicle for hire has the flexibility to operate 24 hours a day, seven days a week.

Figure VFH - 1: Time Bands for Insured VFH Commercial Operation

Line No.	Time Bands	Time of Insured Commercial Operation
1	**A**	Monday through Friday 10:00 am to 3:00 pm and Sunday through Thursday from 7:00 pm to 11:00 pm
2	**B**	Nightly 11:00 pm to 7:00 am
3	**C**	Monday through Friday 7:00 am to 10:00 am and 3:00 pm to 7:00 pm
4	**D**	Friday 6:00 pm through Sunday 11:00 pm

Outside of the time bands, VFHs are insured for non-commercial operation. If a vehicle for hire fare originates during the selected time band, but extends beyond the time band and completes during a non-commercial operation time period, insurance coverage for VFHs operation will extend to cover the duration of that fare.

The insured times of each time band were designed to accommodate the hours of operation that VFHs drivers might prefer, such as weekends, or evenings, while balancing the increased level of exposure from operation between the four time bands. As the selection of time bands is flexible, customers can tailor their operating periods and related insurance costs to fit their availability and desired part-time or full-time VFH participation level. The designed overlap in time between the Overnight and Weekends time bands also provides further flexibility for customers who may not want to select more than one time band. The time bands are intended to provide TNC operators more options but for those operators who want complete flexibility they can purchase all four time bands.

As data accumulates for the various VFH insurance uses, MPI will monitor the trends. If any of the time bands deviate too far from the ~25% of overall claims incurred, MPI will determine the action necessary (i.e. possibly adjusting the time bands).

VFH.5 MPI ESTABLISHED VFH COVERAGE CONSISTENT WITH BASIC

In keeping with the intent of the VFH Act, all VFH will have the following Basic insurance coverage consistent with Basic's all-purpose passenger vehicle coverage:

- $200,000 Third Party Liability
- $50,000 Maximum Insured Value
- $500 deductible

As a result of this change, taxicabs, limousines and livery vehicles (former 'x-plate' vehicles) will see Basic deductible reduced by $100. MPI is not proposing to increase VFHs Basic insurance rates due to the decrease in deductible level from $600 (deductible level for previously 'x-plate' vehicles) to $500 (VFHs deductible level). The policy decision to lower the deductible level is meant to align VFHs with the rest of Basic, and is justified based on an expectation of reduced risk exposure in these classes.

Comprehensive no-fault bodily injury coverage will continue to apply to Manitobans injured in motor vehicle accidents including VFH accidents.

VFH.6 MPI ESTABLISHES VFH RATE SETTING FRAMEWORK

The Corporation set different rates for the four categories of VFHs (Passenger VFH, Taxi VFH, Limousine VFH, and Accessible VFH). Since many customers would still have had rates from the 2017/18 policy year in effect at the time that the VFH insurance uses came into effect, the Corporation prepared 2017/18 equivalent rates for each of the new insurance uses. The methodology utilized for those rates was identical to the methodology used to calculate the 2018/19 rates but using 2017/18 Board-approved rates.

The interim rates for Taxicab, Limousine, and Accessible VFH classes were based on the existing rates for these classes with an adjustment to account for the introduction of time bands, Driver Safety Rating (DSR), and competition from Passenger VFH. MPI believes the rates for these classes, on an overall basis, are reasonably close to the eventual experienced based rates under the new VFH model.

For Passenger VFH, MPI recognized that there were no historical claims experience for this rating classification. Given the lack of MPI data on Passenger vehicles for hire loss experience, the proposed initial rates for Passenger vehicle for hire were set based on the percentage difference between All Purpose and Passenger vehicles for hire rates used in other jurisdictions (8% to 24%). Therefore, the interim rates were calculated based on modifications to the existing PUB approved, Major Class 1, All-Purpose Insurance Use rates by rate group. MPI judgmentally applied a "load" to these actuarially-based rates to account for the assumed increase in exposure from varying levels of VFH exposure. The percentage premium increase is based on the number of time bands selected with each time band selected resulting in a premium increase of 5% (i.e. selecting all 4 time bands results in a premium increase of 20%). The 'percentage increase' method was assumed to best reflect the difference in coverage and loss experience in Manitoba.

Going forward, as experience data becomes available (i.e. in the 2020 GRA), the proposed rates for all VFH categories will be adjusted based on actual claims experience utilizing the existing PUB approved rate making methodology. MPI will then perform a separate relativity calculation within each of these VFH uses to determine

the relative rates by Level (1, 2, 3, 4). By setting rates based on the overall VFH experience in each VFH use (rather than for each level separately) there will be more credible data from which to modify rates.

Please see page 13 of *Part V(ii) Vehicles for Hire Appendix 1 - Interim VFH Application* for a detailed explanation of the VFH Rate Setting Framework.

VFH.6.1 Taxi VFH vs. Passenger VFH

The Corporation acknowledges that there is a significant difference in rates between the Passenger VFH category and the Taxi VFH category. However, MPI believes that offering DSR incentives, when combined with the industry's public comments about focusing on safety, and the loss prevention strategies MPI is working collaboratively with the taxi industry on will have a positive effect on loss experience.

The VFH framework is such that loss experience for each of the VFH categories will be tracked separately. As experience data becomes available, the Corporation will continue to ensure that the rates assigned to each VFH group is reflective of the risk and actuarially supported. The Corporation will also be in a better position to determine if Taxicabs should fall within another VFH category. However, at this time there is no basis for the Corporation to make a change to the current rating model.

VFH.7 DATA COLLECTION – RATE MAKING

The primary means of limiting cross subsidization between VFH, and the rest of Basic, is through the creation of a new pool to track the VFH claims experience. MPI is collecting the same information on VFH policy claims as it does for all other policies. The claims experience for VFH classes will be tracked separately, through the use of an additional field in MPI's system. These separately tracked claims will form the 'VFH pool' that will be used to set actuarially sound rates for VFH policies. Once a customer is a VFH policy holder, all claims under that policy will fall into the VFH pool. For example, a collision occurring outside the VFH time bands will still be tracked within the VFH pool. Also, since rates are determined based on the number of time bands purchased, not the specific time bands, there is no consequence of having overlapping time bands for actuarially sound rates.

Apart from establishing a separate pool, as outlined above, MPI will continue to employ its processes to ensure that claimants are correctly insured at the time of a claim, for example, ensuring that VFH drivers are correctly insured under a VFH policy, and under the appropriate sub category (passenger, taxi, limo, accessible).

These processes are similar to those already in place for detecting and ensuring coverage for the date/time of loss, and adherence to all conditions (such as vehicle use for purposes not intended under the policy).

As of April 30, 2018 the number of insured VFH vehicles (all territories) are as follows:

Figure VFH - 2: Insured VFH vehicles (all territories)

	Number of Time Bands				
VFH Category	1	2	3	4	**Total**
Accessible	1	1	5	28	**35**
Limo	3	0	0	33	**36**
Passenger	12	12	4	276	**304**
Taxi	5	3	4	485	**497**
Total	**21**	**16**	**13**	**822**	**872**

As of May 22, 2018 there have been a total of 191 VFH related claims. The breakdown is as follows:

Figure VFH - 3: VFH related claims

	Number of Time Bands				
VFH Category	1	2	3	4	**Total**
Accessible	0	0	0	5	**5**
Limo	0	0	0	3	**3**
Passenger	0	0	4	43	**47**
Taxi	0	0	0	136	**136**
Total	**0**	**0**	**4**	**187**	**191**

The number of customers who changed their VFH insurance (as of April 30, 2018) (i.e. changed the number of time bands or VFH category) is as follows:

- Increased the number of time bands (same VFH category) – 20
- Decreased the number of time bands (same VFH category) – 9
- Changed the VFH category – 5

VFH.8 MPI'S COMMUNICATION TO CUSTOMERS HAS BEEN THOROUGH AND EFFECTIVE

VFH.8.1 Communication with VFH Customers

Also, with the issuance of new VFH insurance uses, MPI created a custom training program for MPI agents such as insurance brokers and frontline staff involved in the sale of VFH insurance policies. Training was mandatory and, in compliance with the PUB order 6.6, all MPI agents are required to advise customers in advance of purchasing VFH insurance policies the possibility exists that a refund or the collection of additional premiums due to a re-rating resulting from the final approval of Rates for Service for VFHs through the 2019 GRA. MPI agents are required to leave a comment on the Policy Application, which is signed by the customer, indicating that they have informed the customer.

VFH.8.2 Communication with "Outliers"

The dissolution of the Taxicab Board and the VFH Act definition of 'vehicle for hire' resulted in certain outliers. Previously 'x-plated' taxi/livery vehicles with seating capacity of 11 or more were not captured under the VFH Act, and did not qualify for VFH insurance policies. However these vehicles must still change registration class and insurance use due to the discontinuance of the 'x-plated' registration class. Based on the customer's declared use of the vehicle, existing registration classes such as Regulated Passenger Vehicle (AR) and Public Service Vehicle (PSV) and existing insurance uses such as Common Carrier, Charter Bus – Local, Disabled Persons Bus, and Private/Business Bus will be used for vehicles that fall outside of the VFH Act definition of 'vehicle for hire' . There were fewer than 100 policies affected and though there may be changes in premiums charged, in the vast majority of cases it is expected that there will not be a negative financial impact to these customers. MPI worked in coordination with the Province of Manitoba to communicate the changes to existing taxi/livery policy holders. MPI mailed letters to all existing taxi and livery customers (x-plated vehicles) informing them of the changes. Information provided to

customers that met the VFH definition detailed the availability of new VFH insurance post March 1st 2018, changes to deductibles and the eligibility for DSR discounts for individuals. For taxis and livery vehicles that did not meet the VFH definition, MPI advised customers by letter of their registration and insurance options.

VFH.9 MPI EVALUATES BEST PRACTICES IN TNC INDUSTRY

Rating models used in other Canadian jurisdictions were not considered suitable with Manitoba's public insurance environment given the compulsory nature of Basic and as of the time of this application's preparation, British Columbia and Saskatchewan have not permitted the operation of TNCs. As such, the ongoing review of existing VFH frameworks does not include any public insurers comparable to MPI. Figures 4 and 5 present the results of the updated scan as per Order 6.11.

Figure VFH - 4: TNC – Jurisdictional Insurance Comparison / Availability (Ontario)

	Ontario				
Insurance Provider	Intact	Aviva		Northbridge Insurance	Pembridge Insurance
TNC Companies	Uber	All Rideshare	Lyft	Ride co, InstaRyde, Facedrive, ecoRides, DriveHER, Uride	All Rideshare
Policy Type	Blanket	Individual (Endorsement)	Blanket endorsement for Lyft drivers (Commercial)	Blanket	Individual (Endorsement)
Coverage Period	From login to passenger delivery	From login to passenger delivery	From login to passenger delivery	From login to passenger delivery	N/A
Contact for Claim	Uber	Aviva	Lyft	Northbridge Insurance	N/A
Policy	• Policy	• NPCF 6TN Endorsement Transportation Network endorsement (NPCF 6TN - Permission to Carry Paying Passengers for a Transportation Network)	• Aviva Lyft Commercial Policy	• Policy	
Details	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect	• Maximum of 20 hours per week • Contracted with a transportation network company • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • No commercial use, such as delivery of goods, including food or courier services • Not registered as a taxi or limousine or other public transportation	• No maximum on ridesharing hours. • If operating less than 20 hours per week, and purchased the NPCF-6TN Endorsement, any enhanced coverage on personal policy will extend to Lyft policy if insured with an Aviva underwriter • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • Not registered as a taxi or limousine or other public transportation. • No commercial use, such as delivery of goods, including food or courier services.	• Automatic coverage but personal policy must allow for rideshare usage.	N/A
Coverage	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • Family protection	• This coverage is an endorsement that permits the vehicle to be used to carry paying passengers. • Extends all policy coverage available to the vehicle	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • If NPCF-6TN endorsement purchased, personal auto policy enhancements are extended to ridesharing policy	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • $1,500 Loss of use (post acceptance) • No depreciation on new vehicle (post acceptance)	N/A

Figure VFH - 5: TNC – Jurisdictional Insurance Comparison / Availability (Alberta)

	Alberta				Quebec
Insurance Provider	Intact	Northbridge Insurance	Pembridge Insurance	Aviva	Intact
TNC Companies	Uber	TappCar	All Rideshare	All Rideshare	Uber
Policy Type	Blanket	Blanket	Individual (Endorsement)	Individual (Endorsement)	Blanket
Coverage Period	From login to passenger delivery	From login to passenger delivery	N/A	From login to passenger delivery	From login to passenger delivery
Contact for Claim	Uber	Northbridge Insurance	N/A	Aviva	Uber
Policy	• Policy	• Policy	Provincial government requires Alberta Standard Automobile Form – Transportation Network S.P.F. No. 9 (SPF9)	• NPCF 6TN Endorsement • Transportation Network endorsement (NPCF 6TN - Permission to Carry Paying Passengers for a Transportation Network)	• Policy
Details	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect	N/A	N/A	• Maximum of 20 hours per week • Contracted with a transportation network company • 6 years minimum licensed (G2 or higher) driving experience in Canada or U.S. • Carries 8 people max. (7 passengers + driver) • No commercial use, such as delivery of goods, including food or courier services • Not registered as a taxi or limousine or other public transportation	• Automatically applies to all Uber drivers regardless of personal auto policy/provider • When not available to pick up rides, personal auto policy is in effect
Coverage	• Up to $2M TPL • Standard AB • $1,000 deductible for Comp/Collision paid by driver • Family protection	• Up to $5M TPL • $1,500 deductible All perils • Loss of Use • Family Protection • Limited Waiver of Depreciation	N/A	• This coverage is an endorsement that permits the vehicle to be used to carry paying passengers. • Extends all policy coverage available to the vehicle	• Up to $1M TPL • Coverage is provided for collision and upset, comprehensive, etc., if the driver has the coverage on his/her own personal auto policy. The coverage and deductible payable by the driver are those included in his/her personal auto policy.

Currently in Canada, only Alberta, Ontario and Quebec allow ridesharing (vehicle for hire) for compensation. Insurance for ridesharing vehicles in these jurisdictions is provided by either individual endorsement or a blanket policy with the particular TNC. In all three jurisdictions, automobile insurance is sold privately and subject to limited accident benefits[1] (injury), third party liability coverage and tort action. First party physical damage coverage is optional in all three jurisdictions.

The legislative scheme in Manitoba requires residents who wish to operate a motor vehicle in Manitoba to register that vehicle and purchase universal compulsory automobile insurance (Basic Insurance) which is primary to any other insurance that may apply. This includes mandatory first party coverage. Basic Insurance also provides Personal Injury Protection Plan benefits as well as third party liability and all perils physical damage coverage.

Alternative insurance models used in other jurisdictions would, if adopted in Manitoba, result in coverage outside of Basic Insurance. A consequence of which would be that the premiums charged for VFH insurance would be outside the jurisdiction of the Public Utilities Board. The Corporation submits that it would not be in the public interest to intentionally design compulsory insurance coverage for passenger vehicle operations that is outside of Basic and therefore outside of regulatory oversight.

The universal compulsory nature of the program does not contemplate, nor does the legislation permit, that Basic compulsory insurance coverage become secondary, based on temporary (or part time) change in vehicle use from a passenger vehicle to a VHF. Across the Basic compulsory program, the rates charged for the vehicle are based upon the type of vehicle, its use, and its location (territory). Basic coverage remains constant in all cases, and the only change is in the rate charged, reflecting the use, type and territory of the vehicle. VFH is a new use and it is appropriate that Basic rates be set for that type/use.

Use of an umbrella policy with a TNC or individual endorsement is not appropriate for providing compulsory coverage under the Basic program. Providing Basic insurance to

[1] With exception of Quebec, which has pure no-fault injury coverage

TNCs through an umbrella policy also creates the risk that individual operators would not incur their true incremental cost of insurance; as they will under MPI's proposed model that accounts for vehicle type and driver safety. In addition, the use of an umbrella policy would not be fair and equitable to existing VFHs, such as taxis and limos.

In summary, a VFH is required to have Basic Insurance. The requirement to hold the coverage and the obligation of the Basic coverage to respond as primary in the event of a loss does not change based upon the use, type, or territory of the vehicle.

VFH.10 MPI CONTINUES STAKEHOLDER ENGAGEMENT

MPI conducted initial discussions with a number of stakeholders including:

- The Winnipeg Community Taxi Coalition
- Uber
- Lyft
- City of Winnipeg
- Manitoba Infrastructure
- Manitoba Crown Services
- Indigenous and Municipal Relations
- Motor Transport Board
- Taxicab Board

At these discussions, MPI reviewed a number of topics including:

- The overall VFH rating model
- Relevant legislation related to the basic, compulsory insurance program in Manitoba, including first-party coverage extended to all Manitoba residents and occupants of Manitoba-registered vehicles injured in motor vehicle collisions.
- The rate-making and regulatory framework in Manitoba, including the role of the PUB in approving basic insurance rates
- Creation of a separate insurance use for VFH and sub-categories within that classification to ensure rates charged are actuarially sound and to prevent no cross-subsidization within the pool or by other vehicle classes
- The time bands framework
- Changes to the vehicle registration model and plating requirements for VFH
- Adjustments to DSR eligibility and vehicle premium discounts
- Service fees

Although discussions between MPI and stakeholders have been substantial to date, they remain ongoing, particularly with those in the taxi and TNC industries.

As reported in the media, feedback from operating TNCs has been positive. Please see *Part V(ii) Vehicles for Hire Appendix 2*.

PF.1 STATEMENT OF OPERATIONS – 2.2% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*		*For the Years Ended February,*					
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	**Total Net Premiums Written**	994,593	1,076,138	1,076,987	1,144,565	1,191,358	1,239,068	1,288,938
7	**Net Premiums Earned**							
8	Motor Vehicles	922,617	988,774	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	**Total Net Premiums Earned**	960,142	1,036,190	1,039,408	1,113,119	1,169,526	1,216,815	1,265,684
12	Service Fees & Other Revenues	22,849	23,322	23,832	25,839	27,613	29,525	31,617
13	**Total Earned Revenues**	982,991	1,059,512	1,063,240	1,138,958	1,197,139	1,246,340	1,297,301
14	Claims Incurred	783,040	870,564	853,863	896,982	943,502	992,469	1,044,612
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(28,521)	(5,380)	(4,243)	3,999	7,997
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(8,203)	8,610	11,453	10,124	10,109
17	**Total Claims Incurred**	767,239	831,017	817,139	900,212	950,712	1,006,592	1,062,718
18	Claims Expense	143,337	136,975	137,168	135,428	139,216	144,330	146,780
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,693	12,818	13,003	13,279
20	**Total Claims Costs**	923,722	981,835	967,913	1,048,333	1,102,746	1,163,925	1,222,777
21	**Expenses**							
22	Operating	70,201	73,799	75,060	73,606	76,313	79,998	82,908
23	Commissions	37,378	40,407	40,338	42,690	44,835	46,610	48,443
24	Premium Taxes	29,143	31,445	31,518	33,736	35,435	36,861	38,334
25	Regulatory/Appeal	4,443	4,666	4,669	4,840	4,998	5,114	5,233
26	**Total Expenses**	141,165	150,317	151,585	154,872	161,581	168,583	174,918
27	**Underwriting Income (Loss)**	(81,896)	(72,640)	(56,258)	(64,247)	(67,188)	(86,168)	(100,394)
28	**Investment Income**	111,731	82,203	191,814	82,148	84,863	87,773	90,599
29	(b) Investment Income - Interest Rate Impact	4,589	-	-	-	-	-	-
30	**Net Investment Income**	116,320	82,203	191,814	82,148	84,863	87,773	90,599
31	**Net Income (Loss)**	34,424	9,563	135,556	17,901	17,675	1,605	(9,795)
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	8,203	(8,610)	(11,453)	(10,124)	(10,109)

PF.2 STATEMENT OF FINANCIAL POSITION – 2.2% RATE CHANGE

Line No.	*2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change* *(C$ 000s, rounding may affect totals)*		*For the Years Ended February,*						
1			2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	**BASIC**		2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	**Assets**								
4		Cash and cash equivalents	72,998	11,929	28,178	63,651	77,095	85,793	81,355
5		Investments	2,272,545	2,451,402	2,508,579	2,597,256	2,703,872	2,814,348	2,925,883
6		Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7		Due from other insurance companies	2	-	-	-	-	-	-
8		Accounts receivable	389,186	357,114	354,564	375,397	390,253	405,447	421,338
9		Prepaid expenses	714	-	-	-	-	-	-
10		Deferred policy acquisition costs	-	9,628	17,110	24,394	29,940	27,275	20,674
11		Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
12		Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
13		Deferred development costs	55,423	72,551	43,654	47,106	59,150	61,159	63,190
14			2,916,137	3,025,250	3,055,846	3,212,402	3,362,859	3,496,117	3,617,913
15	**Liabilities**								
16		Due to other insurance companies	141	2,642	144	144	144	144	144
17		Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
18		Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
19		Unearned premiums and fees	508,089	548,406	547,303	582,126	607,614	633,826	661,368
20		Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
21		Provision for employee future benefits	331,910	316,773	341,796	357,994	373,915	389,863	406,134
22		Provision for unpaid claims	1,806,067	1,920,634	1,851,107	1,930,655	2,011,231	2,088,693	2,164,452
23			2,705,292	2,840,245	2,801,426	2,932,229	3,055,908	3,177,826	3,298,844
24	**Equity**								
25		Retained Earnings	170,975	134,734	306,531	324,432	342,107	343,712	333,916
26		Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
27	**Total Equity**		210,845	185,005	254,420	280,173	306,951	318,291	319,069
28	**Total Liabilities & Equity**		2,916,137	3,025,250	3,055,846	3,212,402	3,362,859	3,496,117	3,617,913

PF.3 STATEMENT OF CHANGES IN EQUITY – 2.2% RATE CHANGE

2019/20 Basic Rates +0.1% Break Even & +2.1% Net Capital Maintenance Provision Rate Change
(C$ 000s, rounding may affect totals)

Line No.		For the Years Ended February, 2018A	2019B	2019FB	2020F	2021F	2022F	2023F
1								
2	**BASIC**	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	**Total Equity**							
4	**Retained Earnings**							
5	Beginning Balance	99,251	125,171	170,975	306,531	324,432	342,107	343,712
6	Net Income (Loss) from annual operations	34,424	9,563	135,556	17,901	17,675	1,605	(9,795)
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	**Total Retained Earnings**	170,975	134,734	306,531	324,432	342,107	343,712	333,916
9	**Total Accumulated Other Comprehensive Income**							
10	Beginning Balance	81,749	49,148	39,870	(52,111)	(44,259)	(35,155)	(25,421)
11	Other Comprehensive Income for the Year	(41,879)	1,123	(91,981)	7,853	9,103	9,734	10,573
12	**Total Accumulated Other Comprehensive Income**	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
13	**Total Equity Balance**	**210,845**	**185,005**	**254,420**	**280,173**	**306,951**	**318,291**	**319,069**
14	**Total Equity**							
15	**Rate Stabilization Reserve**							
16	Retained Earnings	170,975	134,734	306,531	324,432	342,107	343,712	333,916
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,259)	(35,156)	(25,421)	(14,847)
18	**Total Rate Stabilization Reserve**	210,845	185,005	254,420	280,173	306,951	318,291	319,069
19	Retained Earnings	-	-	-	-	-	-	-
20	**Total Equity Balance**	**210,845**	**185,005**	**254,420**	**280,173**	**306,951**	**318,291**	**319,069**
21	**RATE STABILIZATION RESERVE TARGETS**							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	**MCT RATIO (%)**	44%	28%	70%	70%	70%	70%	66%

PF.4 STATEMENT OF OPERATIONS – 2017/18 COMPARATIVE

Line No.	(C$ 000s, except where noted)	2018 GRA 2017-18FB	2019 GRA 2017-18A	Inc (dec)	Ref.	Increase / (Decrease)
1		$	$	$		%
2	**Net Premiums Written**					
3	Motor Vehicles	958,740	955,941	(2,799)		(0.29)
4	Drivers	50,334	49,946	(388)		(0.77)
5	Reinsurance Ceded	(11,291)	(11,294)	(3)		0.03
6	**Total Net Premiums Written**	**997,783**	**994,593**	**(3,190)**	(1)	(0.32)
7						
8	**Net Premiums Earned**					
9	Motor Vehicles	925,950	922,617	(3,333)		(0.36)
10	Drivers	49,265	48,819	(446)		(0.91)
11	Reinsurance Ceded	(11,291)	(11,294)	(3)		0.03
12	**Total Net Premiums Earned**	**963,924**	**960,142**	**(3,782)**		(0.39)
13	Service Fees & Other Revenues	22,204	22,849	645		2.90
14	**Total Earned Revenues**	**986,128**	**982,991**	**(3,137)**		(0.32)
15	**Net Claims Incurred**	827,183	783,040	(44,143)		(5.34)
16	DPAC \ Premium Deficiency Adjustment	(12,127)	-	12,127		(100.00)
17	(a) Claims Incurred - Interest rate impact	(75,641)	(15,801)	59,840		(79.11)
18	**Total Claims Incurred**	**739,415**	**767,239**	**27,824**	(2)	3.76
19	Claims Expense	134,294	143,337	9,043	(4)	6.73
20	Road Safety/Loss Prevention	13,210	13,146	(64)	(4)	(0.48)
21	**Total Claims Costs**	**886,919**	**923,722**	**36,803**		4.15
22	**Expenses**					
23	Operating	72,563	70,201	(2,362)	(4)	(3.26)
24	Commissions	37,655	37,378	(277)		(0.74)
25	Premium Taxes	29,256	29,143	(113)		(0.39)
26	Regulatory/Appeal	4,054	4,443	389	(4)	9.60
27	**Total Expenses**	**143,528**	**141,165**	**(2,363)**		(1.65)
28	**Underwriting Income (Loss)**	**(44,319)**	**(81,896)**	**(37,577)**		84.79
29	**Investment Income**	101,827	111,731	9,904		9.73
30	(b) Investment Income - Interest rate impact	-	4,589	4,589		-
31	**Total Investment Income**	**101,827**	**116,320**	**14,493**	(3)	14.23
32	**Net Income (Loss)**	**57,508**	**34,424**	**(23,084)**		(40.14)
33	**Allocated Corporate Expenses**					
34	Claims Expense	134,294	143,337	9,043		6.73
35	Road Safety/Loss Prevention	13,210	13,146	(64)		(0.48)
36	Operating	72,563	70,201	(2,362)		(3.26)
37	Regulatory/Appeal	4,054	4,443	389		9.60
38	**Total Allocated Corporate Expenses**	224,121	231,127	7,006		3.13
39	**Allocated Corporate Expenses**					
40	Normal Operations	221,706	210,897	(10,809)	(4)	(4.88)
41	Initiatives Implementation	2,444	20,230	17,786	(4)	727.74
42	Initiatives Ongoing	(29)	-	29	(4)	(100.00)
43	**Total Allocated Corporate Expenses**	224,121	231,127	7,006		3.13
44	*Total net positive impact due to interest rates	75,641	20,390	(55,251)		(73.04)

Explanation of Significant Variances – 2017/18 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	**997,783**	2018 GRA
2			(588)	Lower than expected premium related to volume
3			(3,755)	Lower motor vehicle premium upgrade due to fewer new vehicles
4			(105)	Lower premium due to rate change
5			1,671	Lower than expected fleet rebate
6			(388)	Lower driver premiums primarily due to lower volume
7			(25)	Other
8			**994,593**	2019 GRA
9	*detailed explanations along with commentary found in Part V-Revenues			
10	(2)	Net Claims Incurred	**739,415**	2018 GRA
11			59,840	Lower growth in interest rates
12			(34,845)	Lower Physical Damage claims (Low hail counts)
13			(4,187)	Lower PIPP and Liability claims
14			(6,686)	Lower ILAE
15			47	Higher ULAE
16			16,492	Higher Write Down DPAC/Premium Deficiency
17			(2,837)	Other (Allowance for Doubtful Accts, Reinsurance Ceded)
18			**767,239**	2019 GRA
19	*detailed explanations along with commentary found in Part V-Claims Incurred			
20	(3)	Investment Income	**101,827**	2018 GRA
21			4,589	Higher than expected ALM impact due to interest rate forecast
22			1,384	Higher than expected interest income
23			(7,971)	Lower than expected equity investment income
24			13,995	Higher than expected alternative investment income
25			428	Higher than expected fees
26			8,616	Higher than expected amortization
27			(6,029)	Lower than expected pension expense
28			(519)	Other
29			**116,320**	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	**221,706**	2018 GRA
32		(Normal Operations)	(2,415)	Lower than expected regular salaries
33			(602)	Lower than expected overtime
34			(1,359)	Lower than expected benefits
35			(785)	Lower than expected data processing expense
36			(2,273)	Lower than expected building expenses
37			(1,175)	Lower than expected safety/loss prevention expense
38			(1,010)	Lower than expected furniture and equipment expense
39			(562)	Lower than expected credit card fees
40			(628)	Other
41			**210,897**	2019 GRA
42	(4)	Allocated Corporate Expenses	**2,444**	2018 GRA
43			996	Higher than expected salaries
44			16,818	Higher than expected data processing
45			(28)	other
46			**20,230**	2019 GRA
47	(4)	Allocated Corporate Expenses	**(29)**	2018 GRA
48		(Initiatives Ongoing)	29	other
49			-	2019 GRA
50	*detailed explanations along with commentary found in Part V-Expenses			

PF.5 STATEMENT OF OPERATIONS – 2018/19 COMPARATIVE

Line No.	(C$ 000s, except where noted)	2018 GRA 2018-19F	2019 GRA 2018-19FB	Inc (dec)	Ref.	Increase / (Decrease)
2		$	$	$		%
3	**Net Premiums Written**					
4	Motor Vehicles	1,025,482	1,019,281	(6,201)		(0.60)
5	Drivers	69,148	68,902	(246)		(0.36)
6	Reinsurance Ceded	(11,517)	(11,196)	321		(2.79)
7	**Total Net Premiums Written**	**1,083,113**	**1,076,987**	**(6,126)**	(1)	(0.57)
8	**Net Premiums Earned**					
9	Motor Vehicles	994,660	991,058	(3,602)		(0.36)
10	Drivers	59,702	59,546	(156)		(0.26)
11	Reinsurance Ceded	(11,517)	(11,196)	321		(2.79)
12	**Total Net Premiums Earned**	**1,042,845**	**1,039,408**	**(3,437)**		(0.33)
13	Service Fees & Other Revenues	24,328	23,832	(496)		(2.04)
14	**Total Earned Revenues**	**1,067,173**	**1,063,240**	**(3,933)**		(0.37)
15	**Net Claims Incurred**	865,295	853,863	(11,432)		(1.32)
16	DPAC \ Premium Deficiency Adjustment	(9,474)	(28,521)	(19,047)		201.04
17	(a) Claims Incurred - Interest rate impact	8,465	(8,203)	(16,668)		(196.90)
18	**Total Claims Incurred**	**864,286**	**817,139**	**(47,147)**	(2)	(5.46)
19	Claims Expense	137,885	137,168	(717)	(4)	(0.52)
20	Road Safety/Loss Prevention	13,090	13,606	516	(4)	3.94
21	**Total Claims Costs**	**1,015,261**	**967,913**	**(47,348)**		(4.66)
22	**Expenses**					
23	Operating	74,921	75,060	139	(4)	0.19
24	Commissions	40,593	40,338	(255)		(0.63)
25	Premium Taxes	31,631	31,518	(113)		(0.36)
26	Regulatory/Appeal	4,132	4,669	537	(4)	13.00
27	**Total Expenses**	**151,277**	**151,585**	**308**		0.20
28	**Underwriting Income (Loss)**	**(99,365)**	**(56,258)**	**43,107**		(43.38)
29	**Investment Income**	78,109	191,814	113,705		145.57
30	(b) Investment Income - Interest rate impact	(0)	(0)	(0)		172.00
31	**Total Investment Income**	**78,109**	**191,814**	**113,705**	(3)	145.57
32	**Net Income (Loss)**	**(21,256)**	**135,556**	**156,812**		(737.73)
33	**Allocated Corporate Expenses**					
34	Claims Expense	137,885	137,168	(717)		(0.52)
35	Road Safety/Loss Prevention	13,090	13,606	516		3.94
36	Operating	74,921	75,060	139		0.19
37	Regulatory/Appeal	4,132	4,669	537		13.00
38	**Total Allocated Corporate Expenses**	230,028	230,503	475		0.21
39	**Allocated Corporate Expenses**					
40	Normal Operations	222,267	227,083	4,816	(4)	2.17
41	Initiatives Implementation	2,566	3,420	854	(4)	33.28
42	Initiatives Ongoing	5,195	-	(5,195)	(4)	(100.00)
43	**Total Allocated Corporate Expenses**	230,028	230,503	475		0.21
44	*Total net positive impact due to interest rates	(8,465)	8,203	16,668		(196.90)

Explanation of Significant Variances – 2018/19 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	**1,083,113**	2018 GRA
2			(4,447)	Lower than expected 2017/18 actual premiums
3			(1,168)	Lower rate change due to 2.7 % vs 2.6% Rate Increase
4			(67)	Lower than expected premium related to volume
5			(1,303)	Lower motor vehicle premium upgrade due to less new vehicles
6			723	Lower than expected fleet rebate
7			60	Lower than expected Immobilizer discounts
8			(246)	Lower driver premiums
9			322	Lower than expected reinsurance premiums and other
10			**1,076,987**	2019 GRA
11	*detailed explanations along with commentary found in Part V-Revenues			
12	(2)	Net Claims Incurred	**864,286**	2018 GRA
13			(16,668)	Higher forecasted growth in interest rates
14			(18,538)	Lower forecast for Physical Damage claims
15			474	Higher forecast for PIPP and Liability claims
16			408	Higher forecasted ILAE
17			6,223	Higher forecasted ULAE
18			(19,047)	Lower forecasted Write Down DPAC/Premium Deficiency
19			1	Other
20			**817,139**	2019 GRA
21	*detailed explanations along with commentary found in Part V-Claims Incurred			
22	(3)	Investment Income	**78,109**	2018 GRA
23			4,800	Higher than expected interest income
24			106,146	Higher than expected equity investment income
25			1,361	Higher than expected alternative investment income
26			479	Higher than expected fees
27			465	Higher than expected amortization
28			455	Higher than expected pension expense
29			**191,814**	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	**222,267**	2018 GRA
32		(Normal Operations)	(300)	Lowere than expected salaries
33			1,290	Higher than expected data processing
34			1,559	Higher than expected special services
35			(1,238)	Lower than expected building expenses
36			818	Higher than expected safety loss prevention
37			2,139	Higher "Other" expenses primarily due to stretch target
38			1,936	Higher than expected amortization expenses
39			(634)	Lower than expected capital depreciation
40			(754)	Other
41			**227,083**	2019 GRA
42	(4)	Allocated Corporate Expenses	**2,566**	2018 GRA
43		(Initiatives Implementation)	854	Higher than expected data processing
44			**3,420**	2019 GRA
45	(4)	Allocated Corporate Expenses	**5,195**	2018 GRA
46		(Initiatives Ongoing)	938	Higher than expected salaries
47			(2,013)	Lower than expected data processing
48			(4,077)	Lower than expected amortization expense
49			(43)	Other
50			-	2019 GRA
51	*detailed explanations along with commentary found in Part V-Expenses			

PF.6 STATEMENT OF OPERATIONS – 2019/20 COMPARATIVE

Line No.	(C$ 000s, except where noted)	2018 GRA 2019-20F	2019 GRA 2019-20F	Inc (dec)	Ref.	Increase / (Decrease)
2		$	$	$		%
3	**Net Premiums Written**					
4	Motor Vehicles	1,068,082	1,085,082	17,000		1.59
5	Drivers	71,252	70,903	(349)		(0.49)
6	Reinsurance Ceded	(11,747)	(11,420)	327		(2.78)
7	**Total Net Premiums Written**	**1,127,587**	**1,144,565**	**16,978**	(1)	1.51
8	**Net Premiums Earned**					
9	Motor Vehicles	1,048,409	1,054,643	6,234		0.59
10	Drivers	70,196	69,896	(300)		(0.43)
11	Reinsurance Ceded	(11,747)	(11,420)	327		(2.78)
12	**Total Net Premiums Earned**	**1,106,858**	**1,113,119**	**6,261**		0.57
13	Service Fees & Other Revenues	26,431	25,839	(592)		(2.24)
14	**Total Earned Revenues**	**1,133,289**	**1,138,958**	**5,669**		0.50
15	**Net Claims Incurred**	908,455	896,982	(11,472)		(1.26)
16	DPAC \ Premium Deficiency Adjustment	2,471	(5,380)	(7,851)		(317.73)
17	(a) Claims Incurred - Interest rate impact	1,930	8,610	6,679		346.01
18	**Total Claims Incurred**	**912,856**	**900,212**	**(12,644)**	(2)	(1.39)
19	Claims Expense	139,841	135,428	(4,413)	(4)	(3.16)
20	Road Safety/Loss Prevention	12,947	12,693	(254)	(4)	(1.96)
21	**Total Claims Costs**	**1,065,644**	**1,048,333**	**(17,311)**		(1.62)
22	**Expenses**					
23	Operating	75,469	73,606	(1,863)	(4)	(2.47)
24	Commissions	42,723	42,690	(33)		(0.08)
25	Premium Taxes	33,558	33,736	178		0.53
26	Regulatory/Appeal	4,217	4,840	623	(4)	14.77
27	**Total Expenses**	**155,967**	**154,872**	**(1,095)**		(0.70)
28	**Underwriting Income (Loss)**	**(88,322)**	**(64,247)**	**24,075**		(27.26)
29	**Investment Income**	80,017	82,148	5,880		7.35
30	(b) Investment Income - Interest rate impact	-	(1)	(0)		-
31	**Total Investment Income**	**80,017**	**82,147**	**5,880**	(3)	7.35
32	**Net Income (Loss)**	**(8,305)**	**17,900**	**29,955**		(360.69)
33	**Allocated Corporate Expenses**					
34	Claims Expense	139,841	135,428	(4,413)		(3.16)
35	Road Safety/Loss Prevention	12,947	12,693	(254)		(1.96)
36	Operating	75,469	73,606	(1,863)		(2.47)
37	Regulatory/Appeal	4,217	4,840	623		14.77
38	**Total Allocated Corporate Expenses**	232,474	226,567	(5,907)		(2.54)
39	**Allocated Corporate Expenses**					
40	Normal Operations	220,404	221,926	1,522	(4)	0.69
41	Initiatives Implementation	2,602	757	(1,845)	(4)	(70.91)
42	Initiatives Ongoing	9,468	3,884	(5,584)	(4)	(58.98)
43	**Total Allocated Corporate Expenses**	232,474	226,567	(5,907)		(2.54)
44	*Total net positive impact due to interest rates	(1,930)	(8,610)	(6,680)		346.02

Explanation of Significant Variances – 2019/20 Comparative

Line No.	Ref.	Category	(C$ 000s)	Explanation
1	(1)	Net Premiums Written	**1,127,587**	2018 GRA
2			(6,984)	Lower starting base due to lower than expected 2018/19 rate increase
3			23,743	Higher Premiums due to applied for 2.2% rate increase
4			(105)	Lower than expected premium related to volume factor
5			(516)	Lower motor vehicle premium upgrade due to less new vehicles
6			758	Lower than expected fleet rebate
7			104	Lower than expected Immobilizer discounts
8			(349)	Lower driver premiums primarilary due to DSR impact
9			327	Lower than expected reinsurance premiums and other
10			**1,144,565**	2019 GRA
11	*detailed explanations along with commentary found in Part V-Revenues			
12	(2)	Net Claims Incurred	**912,856**	2018 GRA
13			6,680	Forecasted decrease in claims discount rate
14			(18,892)	Lower forecast for Physical Damage claims
15			776	Higher forecast for PIPP and Liability claims
16			174	Higher forecasted ILAE
17			6,469	Higher forecasted ULAE
18			(7,851)	Lower forecasted Write Down DPAC/Premium Deficiency
19			**900,212**	2019 GRA
20	*detailed explanations along with commentary found in Part V-Claims Incurred			
21	(3)	Investment Income	**80,017**	2018 GRA
22			16,742	Higher than expected interest income
23			(18,763)	Lower than expected equity investment income
24			(20,788)	Lower than expected alternative investment income
25			2,982	Higher than expected fees
26			14,802	Higher than expected amortization
27			6,167	Higher than expected pension expense
28			987	Other
29			**82,147**	2019 GRA
30	*detailed explanations along with commentary found in Part VI-Investments			
31	(4)	Allocated Corporate Expenses	**220,404**	2018 GRA
32		(Normal Operations)	(1,372)	Lower than expected salaries
33			923	Higher than expected data processing
34			(915)	Lower than expected postage
35			2,342	Higher than expected other
36			(583)	Lower than expected capital depreciation
37			1,750	Higher than expected amortization expenses
38			(623)	Other
39			**221,926**	2019 GRA
40	(4)	Allocated Corporate Expenses	**2,602**	2018 GRA
41		(Initiatives Implementation)	(1,845)	Lower than expected data processing
			757	2019 GRA
42	(4)	Allocated Corporate Expenses	**9,468**	2018 GRA
43		(Initiatives Ongoing)	1,997	Higher than expected salaries
44			(1,078)	Lower than expected data processing
45			(6,225)	Lower than expected amortization expenses
46			(278)	Other
46			**3,884**	2019 GRA
48	*detailed explanations along with commentary found in Part V-Expenses			

PF.1

STATEMENT OF OPERATIONS

Manitoba Public Insurance
Multi-year - Statement of Operations

Line No.	*50 50 Interest Rate Forecast with 2.2% RI* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	**BASIC**	**2017/18A**	**2018/19B**	**2018/19FB**	**2019/20F**	**2020/21F**	**2021/22F**	**2022/23F**
3	Motor Vehicles	955,941	1,018,965	1,019,281	1,085,082	1,130,121	1,176,226	1,224,492
4	Drivers	49,946	69,148	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	**Total Net Premiums Written**	**994,593**	**1,076,138**	**1,076,987**	**1,144,565**	**1,191,358**	**1,239,068**	**1,288,938**
7	**Net Premiums Earned**							
8	Motor Vehicles	922,617	988,774	991,058	1,054,643	1,109,287	1,154,898	1,202,165
9	Drivers	48,819	59,391	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,294)	(11,975)	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	**Total Net Premiums Earned**	**960,142**	**1,036,190**	**1,039,408**	**1,113,119**	**1,169,526**	**1,216,815**	**1,265,684**
12	Service Fees & Other Revenues	22,849	23,322	23,845	25,915	27,787	29,814	32,039
13	**Total Earned Revenues**	**982,991**	**1,059,512**	**1,063,253**	**1,139,034**	**1,197,313**	**1,246,629**	**1,297,723**
14	Claims Incurred	783,040	870,564	853,862	896,143	942,167	990,961	1,043,152
15	DPAC \ Premium Deficiency Adjustment	-	(15,750)	(30,306)	(6,883)	(3,712)	2,549	7,509
16	(a) Claims Incurred - Interest Rate Impact	(15,801)	(23,797)	(37,865)	(12,710)	(296)	7,196	5,336
17	**Total Claims Incurred**	**767,239**	**831,017**	**785,691**	**876,550**	**938,159**	**1,000,706**	**1,055,997**
18	Claims Expense	143,337	136,975	137,168	135,286	138,962	144,038	146,501
19	Road Safety/Loss Prevention	13,146	13,843	13,606	12,679	12,792	12,973	13,250
20	**Total Claims Costs**	**923,722**	**981,835**	**936,465**	**1,024,515**	**1,089,913**	**1,157,717**	**1,215,748**
21	**Expenses**							
22	Operating	70,201	73,799	75,060	73,539	76,188	79,852	82,767
23	Commissions	37,378	40,407	40,338	42,690	44,835	46,610	48,443
24	Premium Taxes	29,143	31,445	31,518	33,736	35,435	36,861	38,334
25	Regulatory/Appeal	4,443	4,666	4,669	4,839	4,998	5,114	5,233
26	**Total Expenses**	**141,165**	**150,317**	**151,585**	**154,804**	**161,456**	**168,437**	**174,777**
27	**Underwriting Income (Loss)**	**(81,896)**	**(72,640)**	**(24,797)**	**(40,285)**	**(54,056)**	**(79,525)**	**(92,802)**
28	**Investment Income**	111,731	82,203	192,405	86,465	91,437	95,843	99,484
29	(b) Investment Income - Interest Rate Impact	4,589	-	(23,026)	(19,127)	(8,895)	297	(1,886)
30	**Net Investment Income**	**116,320**	**82,203**	**169,379**	**67,338**	**82,542**	**96,140**	**97,598**
31	**Net Income (Loss)**	**34,424**	**9,563**	**144,582**	**27,053**	**28,486**	**16,615**	**4,796**
32	Total net Impact due to interest rate change (b) - (a)	20,390	23,797	14,839	(6,417)	(8,599)	(6,899)	(7,222)

PF.2

STATEMENT OF FINANCIAL POSITION

Manitoba Public Insurance
Multi-year - Statement of Financial Position

Line No.	*50 50 Interest Rate Forecast with 2.2% RI* *(C$ 000s, rounding may affect totals)*				*For the Years Ended February,*			
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	**Assets**							
4	Cash and cash equivalents	72,998	11,929	28,822	65,199	79,676	89,126	85,483
5	Investments	2,272,545	2,451,402	2,485,514	2,558,019	2,661,510	2,781,149	2,900,977
6	Investment property	34,720	35,916	13,906	13,548	13,553	13,760	15,246
7	Due from other insurance companies	2	-	-	-	-	-	-
8	Accounts receivable	389,900	357,114	354,564	375,397	390,253	405,447	421,338
9	Prepaid expenses	-	-	-	-	-	-	-
10	Deferred policy acquisition costs	-	9,628	18,894	27,681	32,696	31,480	25,368
11	Reinsurers' share of unearned premiums	-	-	-	-	-	-	-
12	Reinsurers' share of unpaid claims	1,269	-	-	-	-	-	-
13	Property and equipment	89,280	86,710	89,855	91,050	88,996	88,335	90,227
14	Deferred development costs	55,423	72,551	43,654	47,118	59,181	61,201	63,236
15		2,916,137	3,025,250	3,035,209	3,178,012	3,325,865	3,470,498	3,601,875
16	**Liabilities**							
17	Due to other insurance companies	141	2,642	144	144	144	144	144
18	Accounts payable and accrued liabilites	39,327	31,906	40,996	40,602	41,678	43,356	44,182
19	Financing lease obligation	3,125	2,931	2,925	2,843	2,743	2,634	2,518
20	Unearned premiums and fees	508,089	548,406	547,303	582,126	607,614	633,826	661,368
21	Provision for employee current benefits	16,633	16,953	17,155	17,865	18,583	19,310	20,046
22	Provision for employee future benefits	331,910	316,773	341,796	357,172	372,687	388,935	405,346
23	Provision for unpaid claims	1,806,067	1,920,634	1,821,445	1,878,834	1,946,325	2,019,351	2,088,878
24		2,705,292	2,840,245	2,771,764	2,879,586	2,989,774	3,107,556	3,222,482
25	**Equity**							
26	Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
27	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
28	**Total Equity**	210,845	185,005	263,445	298,426	336,090	362,943	379,394
29	**Total Liabilities & Equity**	2,916,137	3,025,250	3,035,209	3,178,012	3,325,864	3,470,499	3,601,876

PF.3

STATEMENT OF CHANGES IN EQUITY

Manitoba Public Insurance
Multi-year - Statement of Changes in Equity

Line No.	*50 50 Interest Rate Forecast with 2.2% RI* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*						
1		2018A	2019B	2019FB	2020F	2021F	2022F	2023F
2	BASIC	2017/18A	2018/19B	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity							
4	Retained Earnings							
5	Beginning Balance	99,251	125,171	170,975	315,556	342,609	371,095	387,711
6	Net Income (Loss) from annual operations	34,424	9,563	144,581	27,053	28,486	16,615	4,797
7	Transfer (to) / from Non-Basic Retained Earnings	37,300	-	-	-	-	-	-
8	Total Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
9	Total Accumulated Other Comprehensive Income							
10	Beginning Balance	81,748	49,148	39,870	(52,111)	(44,183)	(35,005)	(24,768)
11	Other Comprehensive Income for the Year	(41,878)	1,123	(91,981)	7,928	9,178	10,237	11,655
12	Total Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
13	Total Equity Balance	**210,845**	**185,005**	**263,445**	**298,426**	**336,090**	**362,943**	**379,394**
14	Total Equity							
15	Rate Stabilization Reserve							
16	Retained Earnings	170,975	134,734	315,556	342,609	371,095	387,711	392,507
17	Accumulated Other Comprehensive Income	39,870	50,271	(52,111)	(44,183)	(35,005)	(24,768)	(13,113)
18	Total Rate Stabilization Reserve	210,845	185,005	263,445	298,426	336,090	362,943	379,394
19	Retained Earnings	-	-	-	-	-	-	-
20	Total Equity Balance	**210,845**	**185,005**	**263,445**	**298,426**	**336,090**	**362,943**	**379,394**
21	RATE STABILIZATION RESERVE TARGETS							
22	PUB RSR Target	180,000	180,000	180,000	180,000	180,000	180,000	180,000
23	DCAT Total Equity Lower Target (*@34% MCT Ratio)	201,000	201,000	143,000*	155,000*	173,000*	180,000*	188,000*
24	DCAT Total Equity Upper Target (**@85% MCT Ratio)	442,000	442,000	305,000**	337,000**	363,000**	380,000**	397,000**
25	MCT RATIO	44%	28%	73%	75%	79%	82%	82%

Appendix 2: SUMMARY OF BASIC EXPENSES BY CATEGORY

Normal Operations

5 Year Summary of Basic Expenses by Category - Normal Operations Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
1	*($000's, except where noted)*															
2	Compensation - Salaries	66,417	66,794	69,168	71,060	73,443	30,993	29,116	30,278	31,179	32,278	1,762	1,891	1,978	1,848	1,906
3	Compensation - Overtime	1,047	644	1,133	1,128	1,127	193	154	292	291	290	14	2	13	13	13
4	Compensation - Benefits	15,201	15,718	17,031	17,407	17,870	7,374	7,140	7,456	7,639	7,854	352	447	465	431	441
5	Compensation - H & E Tax	1,421	1,429	1,485	1,524	1,558	689	648	649	667	683	33	41	41	38	38
6	Subtotal - Compensation	84,086	84,585	88,817	91,119	93,998	39,249	37,058	38,675	39,776	41,105	2,161	2,381	2,497	2,330	2,398
7	Data Processing	12,945	12,544	14,108	13,933	14,563	6,008	5,487	5,837	5,771	6,039	11	14	16	-	-
8	Special Services	1,973	2,314	2,325	1,794	1,788	2,905	3,218	3,682	2,837	2,810	118	90	263	175	172
9	Building Expenses	6,239	5,794	5,768	6,522	6,492	2,591	2,293	2,364	2,679	2,672	99	100	105	104	103
10	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
11	Telephone/Telecommunications	1,234	1,162	1,199	1,221	1,256	585	518	533	543	558	-	-	-	-	-
12	Public Information/Advertising	53	16	15	15	16	240	95	243	247	254	2,328	1,825	2,081	2,108	2,156
13	Printing, Stationery, Supplies	799	468	947	919	873	556	552	695	675	641	49	60	57	55	52
14	Postage	1	1	1	-	1	2,995	3,241	2,886	2,174	2,279	-	-	-	-	-
15	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Travel and Vehicle Expense	724	524	746	757	775	211	138	174	177	181	5	7	11	10	11
17	Driver Education Program	-	-	-	-	-	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
18	Grants in Lieu of Taxes	1,059	1,065	1,018	1,053	1,101	439	422	417	433	453	17	18	18	17	18
19	Furniture & Equipment	142	182	677	555	599	324	307	598	490	529	-	-	-	-	-
20	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893	-	-	-	-	-
21	Other	929	793	1,177	1,214	1,239	3,544	3,080	3,543	3,645	3,715	101	87	187	188	192
22	Subtotal - Other Expenses	26,098	24,863	27,981	27,983	28,703	28,584	27,811	30,147	29,210	30,024	10,258	8,830	10,975	9,648	9,722
23	Depreciation-Capital Assets	2,723	2,641	2,721	3,054	3,396	1,220	1,074	1,250	1,553	1,802	56	113	134	120	103
24	Amortization-Deferred Development	10,540	13,760	15,415	10,705	9,370	3,617	3,338	3,802	1,588	1,593	-	-	-	-	-
25	Total	123,447	125,849	134,934	132,861	135,467	72,670	69,281	73,874	72,127	74,524	12,475	11,324	13,606	12,098	12,223
26	**Rounding may affect totals*															

	Expense	Regulatory 2016/17A	Regulatory 2017/18A	Regulatory 2018/19FB	Regulatory 2019/20F	Regulatory 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
27	($000's, except where noted)										
28	Compensation - Salaries	247	240	374	387	398	99,419	98,041	101,798	104,474	108,025
29	Compensation - Overtime	4	5	3	4	3	1,258	805	1,441	1,436	1,433
30	Compensation - Benefits	59	59	92	94	97	22,986	23,364	25,044	25,571	26,262
31	Compensation - H & E Tax	6	5	8	8	8	2,149	2,123	2,183	2,237	2,287
32	Subtotal - Compensation	316	309	477	493	506	125,812	124,333	130,466	133,718	138,007
33	Data Processing	-	-	-	-	-	18,964	18,045	19,961	19,704	20,602
34	Special Services	-	1	1	-	-	4,996	5,623	6,271	4,806	4,770
35	Building Expenses	-	6	6	7	6	8,929	8,193	8,243	9,312	9,273
36	Safety/Loss Prevention Programs	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
37	Telephone/Telecommunications	-	-	-	-	-	1,819	1,680	1,732	1,764	1,814
38	Public Information/Advertising	-	-	-	-	-	2,621	1,936	2,339	2,370	2,426
39	Printing, Stationery, Supplies	1	-	1	1	1	1,405	1,080	1,700	1,650	1,567
40	Postage	-	-	-	-	-	2,996	3,242	2,887	2,174	2,280
41	Regulatory/Appeal	4,555	4,122	4,179	4,334	4,479	4,555	4,122	4,179	4,334	4,479
42	Travel and Vehicle Expense	1	1	1	1	1	941	670	932	945	968
43	Driver Education Program	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
44	Grants in Lieu of Taxes	-	1	1	1	1	1,515	1,506	1,454	1,504	1,573
45	Furniture & Equipment	-	-	-	-	-	466	489	1,275	1,045	1,128
46	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893
47	Other	16	1	1	1	2	4,590	3,961	4,908	5,048	5,148
48	Subtotal - Other Expenses	4,573	4,132	4,190	4,345	4,490	69,513	65,636	73,293	71,186	72,939
49	Depreciation-Capital Assets	-	2	2	2	2	3,999	3,830	4,107	4,729	5,303
50	Amortization-Deferred Development	-	-	-	-	-	14,157	17,098	19,217	12,293	10,963
51	Total	4,889	4,443	4,669	4,840	4,998	213,481	210,897	227,083	221,926	227,212
52	**Rounding may affect totals*										

Initiatives

5 Year Summary of Basic Expenses by Category - Initiative Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
	($000's, except where noted)															
1	Compensation - Salaries	(3,356)	15	-	(258)	(258)	(568)	25	-	-	-	-	-	-	-	-
2	Compensation - Overtime	2	21	-	-	-	2	12	-	-	-	-	-	-	-	-
3	Compensation - Benefits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Compensation - H & E Tax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Subtotal - Compensation	(3,354)	36	-	(258)	(258)	(566)	37	-	-	-	-	-	-	-	-
6	Data Processing	820	17,243	2,234	952	1,056	679	878	1,186	799	848	18	1,822	-	243	243
7	Special Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Building Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Printing, Stationery, Supplies	12	3	-	-	-	-	-	-	-	-	35	-	-	-	-
13	Postage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Grants in Lieu of Taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Furniture & Equipment	-	188	-	-	-	-	-	-	-	-	1	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Other	39	7	-	-	-	2	4	-	-	-	1	-	-	-	-
21	Subtotal - Other Expenses	872	17,441	2,234	952	1,056	681	883	1,186	799	848	55	1,822	-	243	243
22	Depreciation-Capital Assets	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Amortization-Deferred Development	-	-	-	1,873	2,951	-	-	-	680	941	-	-	-	352	352
24	Total	(2,475)	17,488	2,234	2,567	3,749	115	920	1,186	1,479	1,789	55	1,822	-	595	595
25	*Rounding may affect totals*															

	Expense	Regulatory Appeal 2016/17A	Regulatory Appeal 2017/18A	Regulatory Appeal 2018/19FB	Regulatory Appeal 2019/20F	Regulatory Appeal 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
	($000's, except where noted)										
26	Compensation - Salaries	-	-	-	-	-	(3,924)	40	-	(258)	(258)
27	Compensation - Overtime	-	-	-	-	-	4	33	-	-	-
28	Compensation - Benefits	-	-	-	-	-	-	-	-	-	-
29	Compensation - H & E Tax	-	-	-	-	-	-	-	-	-	-
30	Subtotal - Compensation	-	-	-	-	-	(3,920)	73	-	(258)	(258)
31	Data Processing	-	-	-	-	-	1,517	19,943	3,420	1,994	2,147
32	Special Services	-	-	-	-	-	-	-	-	-	-
33	Building Expenses	-	-	-	-	-	-	-	-	-	-
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
36	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-
37	Printing, Stationery, Supplies	-	-	-	-	-	47	3	-	-	-
38	Postage	-	-	-	-	-	-	-	-	-	-
39	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
40	Travel and Vehicle Expense	-	-	-	-	-	1	1	-	-	-
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	-	-	-	-	-	-	-	-	-	-
43	Furniture & Equipment	-	-	-	-	-	1	188	-	-	-
44	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
45	Other	-	-	-	-	-	42	11	-	-	-
46	Subtotal - Other Expenses	-	-	-	-	-	1,608	20,146	3,420	1,994	2,147
47	Depreciation-Capital Assets	-	-	-	-	-	7	11	-	-	-
48	Amortization-Deferred Development	-	-	-	-	-	-	-	-	2,905	4,244
49	Total	-	-	-	-	-	(2,305)	20,230	3,420	4,641	6,133
50	*Rounding may affect totals*										

Total

5 Year Summary of Basic Expenses by Category - Total Expenses

Line No.	Expense	Claims 2016/17A	Claims 2017/18A	Claims 2018/19FB	Claims 2019/20F	Claims 2020/21F	Operating 2016/17A	Operating 2017/18A	Operating 2018/19FB	Operating 2019/20F	Operating 2020/21F	Road Safety 2016/17A	Road Safety 2017/18A	Road Safety 2018/19FB	Road Safety 2019/20F	Road Safety 2020/21F
	($000's, except where noted)															
1	Compensation - Salaries	63,061	67,695	69,168	70,802	73,185	30,425	29,172	30,278	31,179	32,278	1,762	1,930	1,978	1,848	1,906
2	Compensation - Overtime	1,049	665	1,133	1,128	1,127	195	166	292	291	290	14	2	13	13	13
3	Compensation - Benefits	15,201	15,718	17,031	17,407	17,870	7,374	7,140	7,456	7,639	7,854	352	447	465	431	441
4	Compensation - H & E Tax	1,421	1,429	1,485	1,524	1,558	689	648	649	667	683	33	41	41	38	38
5	Subtotal - Compensation	80,732	85,507	88,817	90,861	93,740	38,683	37,126	38,675	39,776	41,105	2,161	2,420	2,497	2,330	2,398
6	Data Processing	13,765	28,895	16,342	14,885	15,619	6,687	6,334	7,023	6,570	6,887	29	1,796	16	243	243
7	Special Services	1,973	2,314	2,325	1,794	1,788	2,905	3,218	3,682	2,837	2,810	118	90	263	175	172
8	Building Expenses	6,239	5,794	5,768	6,522	6,492	2,591	2,293	2,364	2,679	2,672	99	100	105	104	103
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
10	Telephone/Telecommunications	1,234	1,162	1,199	1,221	1,256	585	518	533	543	558	-	-	-	-	-
11	Public Information/Advertising	53	16	15	15	16	240	95	243	247	254	2,328	1,825	2,081	2,108	2,156
12	Printing, Stationery, Supplies	811	471	947	919	873	556	552	695	675	641	84	60	57	55	52
13	Postage	1	1	1	-	1	2,995	3,241	2,886	2,174	2,279	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	725	529	746	757	775	211	139	174	177	181	5	8	11	10	11
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
17	Grants in Lieu of Taxes	1,059	1,065	1,018	1,053	1,101	439	422	417	433	453	17	18	18	17	18
18	Furniture & Equipment	142	370	677	555	599	324	307	598	490	529	1	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893	-	-	-	-	-
20	Other	968	801	1,177	1,214	1,239	3,546	3,084	3,543	3,645	3,715	102	87	187	188	192
21	Subtotal - Other Expenses	26,970	41,418	30,215	28,935	29,759	29,265	28,663	31,333	30,009	30,872	10,313	10,613	10,975	9,891	9,965
22	Depreciation-Capital Assets	2,730	2,652	2,721	3,054	3,396	1,220	1,074	1,250	1,553	1,802	56	113	134	120	103
23	Amortization-Deferred Development	10,540	13,760	15,415	12,578	12,321	3,617	3,338	3,802	2,268	2,534	-	-	-	352	352
24	Total	120,972	143,337	137,168	135,428	139,216	72,785	70,201	75,060	73,606	76,313	12,530	13,146	13,606	12,693	12,818
25	**Rounding may affect totals*															

	Expense	Regulatory Appeal 2016/17A	Regulatory Appeal 2017/18A	Regulatory Appeal 2018/19FB	Regulatory Appeal 2019/20F	Regulatory Appeal 2020/21F	Total 2016/17A	Total 2017/18A	Total 2018/19FB	Total 2019/20F	Total 2020/21F
	($000's, except where noted)										
26	Compensation - Salaries	247	240	374	387	398	95,495	99,037	101,798	104,216	107,767
27	Compensation - Overtime	4	5	3	4	3	1,262	838	1,441	1,436	1,433
28	Compensation - Benefits	59	59	92	94	97	22,986	23,364	25,044	25,571	26,262
29	Compensation - H & E Tax	6	5	8	8	8	2,149	2,123	2,183	2,237	2,287
30	Subtotal - Compensation	316	309	477	493	506	121,892	125,362	130,466	133,460	137,749
31	Data Processing	-	-	-	-	-	20,481	37,025	23,381	21,698	22,749
32	Special Services	-	1	1	-	-	4,996	5,623	6,271	4,806	4,770
33	Building Expenses	-	6	6	7	6	8,929	8,193	8,243	9,312	9,273
34	Safety/Loss Prevention Programs	-	-	-	-	-	4,131	3,029	4,358	3,106	3,044
35	Telephone/Telecommunications	-	-	-	-	-	1,819	1,680	1,732	1,764	1,814
36	Public Information/Advertising	-	-	-	-	-	2,621	1,936	2,339	2,370	2,426
37	Printing, Stationery, Supplies	1	-	1	1	1	1,452	1,083	1,700	1,650	1,567
38	Postage	-	-	-	-	-	2,996	3,242	2,887	2,174	2,280
39	Regulatory/Appeal	4,555	4,122	4,179	4,334	4,479	4,555	4,122	4,179	4,334	4,479
40	Travel and Vehicle Expense	1	1	1	1	1	942	677	932	945	968
41	Driver Education Program	-	-	-	-	-	3,399	3,600	3,879	3,885	3,974
42	Grants in Lieu of Taxes	-	1	1	1	1	1,515	1,506	1,454	1,504	1,573
43	Furniture & Equipment	-	-	-	-	-	467	677	1,275	1,045	1,128
44	Merchant Fees & Bank Charges	-	-	-	-	-	8,186	8,460	9,175	9,539	9,893
45	Other	16	1	1	1	2	4,632	3,973	4,908	5,048	5,148
46	Subtotal - Other Expenses	4,573	4,132	4,190	4,345	4,490	71,121	84,826	76,713	73,180	75,086
47	Depreciation-Capital Assets	-	2	2	2	2	4,006	3,841	4,107	4,729	5,303
48	Amortization-Deferred Development	-	-	-	-	-	14,157	17,098	19,217	15,198	15,207
49	Total	4,889	4,443	4,669	4,840	4,998	211,176	231,127	230,503	226,567	233,345
50	**Rounding may affect totals*										

Appendix 3: 10-YEAR SUMMARY BASIC TOTAL EXPENSES BY CATEGORY

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
						Claims Expenses					
	($000's, except where noted)										
1	Compensation - Salaries	58,886	61,090	64,266	63,061	66,809	69,168	70,802	73,185	74,195	76,194
2	Compensation - Overtime	1,911	1,389	1,147	1,049	665	1,133	1,128	1,127	1,126	1,130
3	Compensation - Benefits	13,294	13,448	15,323	15,201	15,718	17,031	17,407	17,870	18,241	18,853
4	Compensation - H & E Tax	1,209	1,271	1,354	1,421	1,429	1,485	1,524	1,558	1,586	1,627
5	Subtotal - Compensation	75,300	77,198	82,090	80,732	84,621	88,817	90,861	93,740	95,148	97,804
6	Data Processing	14,650	13,274	12,468	13,765	29,787	16,342	14,885	15,619	17,630	18,168
7	Special Services	2,287	2,200	2,157	1,973	2,314	2,325	1,794	1,788	1,808	1,874
8	Building Expenses	6,315	6,523	6,709	6,239	5,794	5,768	6,522	6,492	6,608	6,781
9	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
10	Telephone/Telecommunications	1,742	1,387	1,319	1,234	1,162	1,199	1,221	1,256	1,280	1,312
11	Public Information/Advertising	55	17	3	53	16	15	15	16	16	16
12	Printing, Stationery, Supplies	996	769	789	811	471	947	919	873	889	911
13	Postage	1,581	-	-	1	1	1	-	1	1	1
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	820	758	742	725	524	746	757	775	789	809
16	Driver Education Program	-	-	-	-	-	-	-	-	-	-
17	Grants in Lieu of Taxes	939	966	1,026	1,059	1,065	1,018	1,053	1,101	1,121	1,150
18	Furniture & Equipment	604	471	189	142	370	677	555	599	610	625
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
20	Other	922	443	900	968	800	1,177	1,214	1,239	1,262	1,293
21	Subtotal - Other Normal Operating Expenses	30,911	26,808	26,302	26,970	42,304	30,215	28,935	29,759	32,014	32,940
22	Depreciation-Capital Assets	3,359	3,384	2,998	2,730	2,652	2,721	3,054	3,396	3,323	2,985
23	Amortization-Deferred Development	4,982	9,188	7,225	10,540	13,760	15,415	12,578	12,321	13,845	13,051
24	Subtotal - Depreciation / Amortization	8,341	12,572	10,223	13,270	16,412	18,136	15,632	15,717	17,168	16,036
25	Total Expenses	114,552	116,578	118,615	120,972	143,337	137,168	135,428	139,216	144,330	146,780

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
						Operating Expenses					
	($000's, except where noted)										
26	Compensation - Salaries	28,308	29,533	29,813	30,425	29,141	30,278	31,179	32,278	32,700	33,519
27	Compensation - Overtime	520	354	270	195	166	292	291	290	290	291
28	Compensation - Benefits	6,569	6,769	7,440	7,374	7,140	7,456	7,639	7,854	8,014	8,268
29	Compensation - H & E Tax	597	639	656	689	648	649	667	683	695	712
30	Subtotal - Compensation	35,994	37,295	38,179	38,683	37,095	38,675	39,776	41,105	41,699	42,790
31	Data Processing	7,767	7,440	5,799	6,687	6,365	7,023	6,570	6,887	7,818	8,046
32	Special Services	2,677	3,258	4,148	2,905	3,218	3,682	2,837	2,810	2,855	2,926
33	Building Expenses	2,643	2,755	2,717	2,591	2,293	2,364	2,679	2,672	2,718	2,785
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	846	680	622	585	518	533	543	558	569	583
36	Public Information/Advertising	405	470	225	240	95	243	247	254	260	268
37	Printing, Stationery, Supplies	751	667	687	556	552	695	675	641	653	668
38	Postage	1,050	2,945	3,072	2,995	3,241	2,886	2,174	2,279	2,322	2,379
39	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
40	Travel and Vehicle Expense	349	295	231	211	139	174	177	181	184	189
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	395	416	420	439	422	417	433	453	461	472
43	Furniture & Equipment	456	330	339	324	307	598	490	529	539	552
44	Merchant Fees & Bank Charges	6,671	7,339	7,570	8,186	8,460	9,175	9,539	9,893	10,091	10,294
45	Other	3,632	4,004	3,889	3,546	3,084	3,543	3,645	3,715	3,786	3,878
46	Subtotal - Other Normal Operating Expenses	27,642	30,598	29,719	29,265	28,694	31,333	30,009	30,872	32,256	33,040
47	Depreciation-Capital Assets	1,510	1,533	1,311	1,220	1,074	1,250	1,553	1,802	1,856	1,780
48	Amortization-Deferred Development	2,836	4,857	2,429	3,617	3,338	3,802	2,268	2,534	4,187	5,298
49	Subtotal - Depreciation / Amortization	4,346	6,390	3,740	4,837	4,412	5,052	3,821	4,336	6,043	7,078
50	Total Expenses	67,982	74,283	71,638	72,785	70,201	75,060	73,606	76,313	79,998	82,908

Road Safety Expenses

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Compensation - Salaries	1,407	1,220	1,597	1,762	1,891	1,978	1,848	1,906	1,939	1,987
2	Compensation - Overtime	19	15	6	14	2	13	13	13	13	13
3	Compensation - Benefits	311	286	317	352	447	465	431	441	451	465
4	Compensation - H & E Tax	28	27	28	33	41	41	38	38	39	40
5	Subtotal - Compensation	1,765	1,548	1,948	2,161	2,381	2,497	2,330	2,398	2,442	2,505
6	Data Processing	59	102	309	29	1,836	16	243	243	243	243
7	Special Services	102	146	414	118	90	263	175	172	175	179
8	Building Expenses	91	95	99	99	100	105	104	103	105	108
9	Safety/Loss Prevention Programs	4,963	3,725	3,897	4,131	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
11	Public Information/Advertising	2,023	1,947	2,348	2,328	1,825	2,081	2,108	2,156	2,197	2,250
12	Printing, Stationery, Supplies	51	41	100	84	60	57	55	52	53	54
13	Postage	29	-	-	-	-	-	-	-	-	-
14	Regulatory/Appeal	-	-	-	-	-	-	-	-	-	-
15	Travel and Vehicle Expense	12	14	6	5	7	11	10	11	11	11
16	Driver Education Program	3,200	3,256	3,378	3,399	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	12	13	14	17	18	18	17	18	18	18
18	Furniture & Equipment	8	1	-	1	-	-	-	-	-	-
19	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
20	Other	371	367	443	102	87	187	188	192	195	201
21	Subtotal - Other Normal Operating Expenses	10,921	9,707	11,008	10,313	10,652	10,975	9,891	9,965	10,148	10,389
22	Depreciation-Capital Assets	129	104	73	56	113	134	120	103	61	33
23	Amortization-Deferred Development	-	-	-	-	-	-	352	352	352	352
24	Subtotal - Depreciation / Amortization	129	104	73	56	113	134	472	455	413	385
25	Total Expenses	12,815	11,359	13,029	12,530	13,146	13,606	12,693	12,818	13,003	13,279

Regulatory/Appeal Expenses

Line No.	Expense	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
26	Compensation - Salaries	-	-	-	247	240	374	387	398	407	417
27	Compensation - Overtime	-	-	-	4	5	3	4	3	3	3
28	Compensation - Benefits	-	-	-	59	59	92	94	97	99	102
29	Compensation - H & E Tax	-	-	-	6	5	8	8	8	9	9
30	Subtotal - Compensation	-	-	-	316	309	477	493	506	518	531
31	Data Processing	-	-	-	-	-	-	-	-	-	-
32	Special Services	99	-	-	-	1	1	-	-	-	-
33	Building Expenses	-	-	-	-	6	6	7	6	7	7
34	Safety/Loss Prevention Programs	-	-	-	-	-	-	-	-	-	-
35	Telephone/Telecommunications	-	-	-	-	-	-	-	-	-	-
36	Public Information/Advertising	-	-	-	-	-	-	-	-	-	-
37	Printing, Stationery, Supplies	-	-	-	1	-	1	1	1	1	1
38	Postage	-	-	-	-	-	-	-	-	-	-
39	Regulatory/Appeal	3,667	3,935	3,675	4,555	4,122	4,179	4,334	4,479	4,582	4,689
40	Travel and Vehicle Expense	-	-	-	1	1	1	1	1	1	1
41	Driver Education Program	-	-	-	-	-	-	-	-	-	-
42	Grants in Lieu of Taxes	-	-	-	-	1	1	1	1	1	1
43	Furniture & Equipment	-	-	-	-	-	-	-	-	-	-
44	Merchant Fees & Bank Charges	-	-	-	-	-	-	-	-	-	-
45	Other	-	-	-	16	1	1	1	2	2	1
46	Subtotal - Other Normal Operating Expenses	3,766	3,935	3,675	4,573	4,132	4,190	4,345	4,490	4,594	4,700
47	Depreciation-Capital Assets	-	-	-	-	2	2	2	2	2	2
48	Amortization-Deferred Development	-	-	-	-	-	-	-	-	-	-
49	Subtotal - Depreciation / Amortization	-	-	-	-	2	2	2	2	2	2
50	Total Expenses	3,766	3,935	3,675	4,889	4,443	4,669	4,840	4,998	5,114	5,233

Line No.	Expense	Total Expenses 2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
	($000's, except where noted)										
1	Compensation - Salaries	88,602	91,843	95,676	95,495	98,081	101,798	104,216	107,767	109,241	112,117
2	Compensation - Overtime	2,450	1,758	1,423	1,262	838	1,441	1,436	1,433	1,432	1,437
3	Compensation - Benefits	20,174	20,503	23,080	22,986	23,364	25,044	25,571	26,262	26,805	27,688
4	Compensation - H & E Tax	1,834	1,937	2,038	2,149	2,123	2,183	2,237	2,287	2,329	2,388
5	Subtotal - Compensation	113,060	116,041	122,217	121,892	124,406	130,466	133,460	137,749	139,807	143,630
6	Data Processing	22,476	20,816	18,576	20,481	37,988	23,381	21,698	22,749	25,691	26,457
7	Special Services	5,165	5,604	6,719	4,996	5,623	6,271	4,806	4,770	4,838	4,979
8	Building Expenses	9,049	9,373	9,525	8,929	8,193	8,243	9,312	9,273	9,438	9,681
9	Safety/Loss Prevention Programs	4,963	3,725	3,897	4,131	3,029	4,358	3,106	3,044	3,102	3,178
10	Telephone/Telecommunications	2,588	2,067	1,941	1,819	1,680	1,732	1,764	1,814	1,849	1,895
11	Public Information/Advertising	2,483	2,434	2,576	2,621	1,936	2,339	2,370	2,426	2,473	2,534
12	Printing, Stationery, Supplies	1,798	1,477	1,576	1,452	1,083	1,700	1,650	1,567	1,596	1,634
13	Postage	2,659	2,945	3,072	2,996	3,242	2,887	2,174	2,280	2,323	2,380
14	Regulatory/Appeal	3,667	3,935	3,675	4,555	4,122	4,179	4,334	4,479	4,582	4,689
15	Travel and Vehicle Expense	1,180	1,067	979	942	671	932	945	968	985	1,010
16	Driver Education Program	3,200	3,256	3,378	3,399	3,600	3,879	3,885	3,974	4,049	4,147
17	Grants in Lieu of Taxes	1,346	1,395	1,460	1,515	1,506	1,454	1,504	1,573	1,601	1,641
18	Furniture & Equipment	1,068	802	528	467	677	1,275	1,045	1,128	1,149	1,177
19	Merchant Fees & Bank Charges	6,671	7,339	7,570	8,186	8,460	9,175	9,539	9,893	10,091	10,294
20	Other	4,926	4,815	5,232	4,632	3,972	4,908	5,048	5,148	5,245	5,373
21	Subtotal - Other Normal Operating Expenses	73,239	71,050	70,704	71,121	85,782	76,713	73,180	75,086	79,012	81,069
22	Depreciation-Capital Assets	4,998	5,021	4,382	4,006	3,841	4,107	4,729	5,303	5,242	4,800
23	Amortization-Deferred Development	7,818	14,045	9,654	14,157	17,098	19,217	15,198	15,207	18,384	18,701
24	Subtotal - Depreciation / Amortization	12,816	19,066	14,036	18,163	20,939	23,324	19,927	20,510	23,626	23,501
25	Total Expenses	199,115	206,155	206,957	211,176	231,127	230,503	226,567	233,345	242,445	248,200

RM.4.2.6 DSR Discounts for Vehicle-for-Hire (VFH) Vehicles

The Local Vehicles for Hire Act came into force on February 28, 2018, and allowed for a new class of Vehicles For Hire (VFH) in addition to the existing taxicab/livery service.[4]

One outcome of this change is the introduction of DSR discounts for certain vehicles previously not eligible for these discounts, specifically taxis, limousines, and wheelchair livery. With the reclassification of these vehicles as taxi VFH, limousine VFH and accessible VFH, these vehicles are now eligible for DSR discounts (if registered to an individual customer) similar to the new class of VFH vehicles i.e. passenger VFH.

To account for the introduction of DSR discounts for these vehicles (taxi VFH, limousine VFH and accessible VFH), an adjustment was made to the required rate change. The adjustment was necessary since the required rate change was determined excluding a corresponding potential reduction in loss exposure for these vehicles. The adjustment removed the required rate increase, which would have been applicable to all vehicles, as a result of providing Driver Safety Rating (DSR) discounts to specific vehicles.

The adjustment was calculated assuming a $1,000,000 reduction in premiums, which reflects the approximate reduction as a result of providing the DSR discounts. This is equivalent to approximately a 0.1% decrease in the required rate change, reducing the required rate change from 0.2% to 0.1%.

RM.4.2.7 Net Capital Maintenance Provision

For rating year 2019/20, MPI is applying for a Net CMP equivalent to an additional 2.1% required rate increase. The Net CMP is required to maintain capital adequacy in fiscal year 2019/20. Specifically, the Net CMP ensures that the Minimum Capital Test

[4] For a detailed discussion of this, refer to *Part V(ii) Vehicle for Hire*.

(MCT) ratio, which compares capital available to capital required, at fiscal year-end 2019/20 is unchanged from fiscal year-end 2018/19.

The Net CMP of 2.1% is comprised of a 1.2% decrease in the required rate change from the investment income earned on the Rate Stabilization Reserve (RSR), offset by a 3.3% increase in the required rate change to maintain capital adequacy in fiscal year 2019/20.

To determine the 1.2% decrease from the investment income earned on the RSR, we first looked at the ratio of the investment income earned on the RSR to the Basic Vehicle Written Premium for the 2019/20 fiscal year. This calculation is presented in the table below.

Figure RM- 8: Ratio of Investment Income on RSR to Basic Vehicle Written Premium

Line No.	Description	Source	Fiscal Year 19/20
1	Basic Vehicle Written Premium	Part V(i) Proformas, Page 15	1,061,339
2	Investment Income from RSR	Part VI Investments, INV.19	11,830
3	Investment Income from RSR as percent of Basic Vehicle Written Premium		1.1%

We then applied the ratio of 1.1% as a cost offset to the required rates. This has the effect of decreasing the required rate change by 1.2% from 0.1% (per *Ratemaking RM.4.2.6*) to -1.1%.

After applying the required rate change of -1.1%, we compared the MCT ratio at fiscal year-end 2019/20 to fiscal year-end 2018/19. To ensure that the MCT ratio at fiscal year-end 2019/20 remains unchanged from fiscal year-end 2018/19, we had to revise the required rate change to 2.2%, which reflects an increase of 3.3% (from -1.1%).

Including the additional 2.1% required rate increase from the Net CMP results in a final required rate change of 2.2%.

Appendix 1: GARTNER'S RECOMMENDATIONS – STATUS UPDATE

As part of the annual scorecard review, Gartner provides MPI with recommendations to further improve process maturity where it concerns Information Technology (IT). These recommendations reflect industry best practices based upon Gartner research. Gartner provides recommendations for all subject areas, meaning that the presence of a recommendation does not represent an area where MPI is deficient (in several cases, Gartner has provided recommendations to areas where MPI exceeds its peer group). MPI reviews and acts upon these recommendations as part of its operational and project activities. All recommendations in this report, and changes made to previously provided recommendations are investigated and applied as resources (staff time and budget) allow. For readability, recommendations marked as rejected, complete or operational in the *2018 GRA information request PUB (MPI) 1-50* have not been included in this document.

As noted in *Part IV(i) BMK Benchmarking Attachment A, page 15* Gartner transitioned from the CIO Dashboard to the IT Score assessment tool. As part of this, Gartner conducted a review of all outstanding recommendations provided using the CIO Dashboard tool and confirmed that they remained appropriate and measurable using the IT Score tool. This resulted in the following changes:

- Where Gartner identified a recommendation as no longer applicable to MPI, it is identified as "Recommendation withdrawn by Gartner" in the table below.
- Where Gartner identified a new recommendation, based on a recommendation which was in the *2018 GRA*, it will be referenced in the Comments.
- Where Gartner identified a new recommendation, not based on previous recommendations, it will be found in *section 5 - New recommendations from IT Score*

The update of the Gartner Scorecard occurred in Q4 2017/18. In past years Gartner performed this exercise in Q3. The change in timing of the Gartner Scorecard results was due to resource constraints and prioritization of corporate initiatives and planning. Completing this scorecard requires input from several key leaders who were all

involved in the re-planning and strategy development that has been occurring. Management is working to move the timeline back from Q4 to Q3 in 2018/19.

Appendix 1: GARTNER'S RECOMMENDATIONS – STATUS UPDATE

#	Description	2019 Application Status	2018 Application Status	Current Status
1. In order for Manitoba Public Insurance (MPI) to better support running the business, MPI should consider:				
1.26	Benchmark service catalog to enhance transparency to the business and drive better IT Economics.	Recommendation withdrawn by Gartner	In Progress (Q4 – 2017-18)	MPI continues to document its key IT services and ensure that they are being delivered effectively. MPI has not been able to find sufficient data to facilitate external benchmarking of these services. At this time, this recommendation has been withdrawn by Gartner as part of their review of all outstanding recommendations.
2. In order for Manitoba Public Insurance (MPI) to better support growing the business, MPI should consider:				
2.06	Consider the acquisition and deployment of dependency mapping tools that connect the relationships between applications and infrastructure resources to business processes in order to ensure appropriate IT resources to support growth.	Recommendation withdrawn by Gartner	Deferred	This recommendation has been withdrawn by Gartner. Based upon a preliminary review of internal capabilities (existing tools and data sources) MPI does not see sufficient value in a tool purchase at this time.

2. In order for Manitoba Public Insurance (MPI) to better support growing the business, MPI should consider *(cont'd):*

#	Description	2019 Application Status	2018 Application Status	Current Status
2.07	Ensure the information needs meet the context of regulatory requirements in order to effectively support new projects.	Recommendation withdrawn by Gartner	New Request, To be evaluated (Q4 2017/18)	Upon further review with Gartner, MPI has confirmed that regulatory requirements are considered in projects. At this time, this recommendation has been withdrawn by Gartner as part of their review of all outstanding recommendations. MPI considers this complete and does not plan to review further.
2.08	Evaluate Bimodal approach that balances 'traditional and efficient' delivery of IT with 'fast and flexible' to address the needs of innovation.	Recommendation revised by Gartner	New Request, To be evaluated (Q4 2017/18)	Please see recommendation 5.08
2.09	Determine if the skills required for digital transformation exist within the organization or are needed from the outside (adaptive sourcing).	Complete	New Request, To be evaluated (Q4 2017/18)	Ensuring the organization has the right skills for current and future needs is an ongoing activity that MPI continues to undertake

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.02	Increase the span of Enterprise Architecture's (EA) influence throughout business areas by ensuring that governance processes exist and their importance is clearly communicated such that they are not circumvented. Often this involves building up stakeholder support.	See recommendation 5.02	Reworded by Gartner see 3.05	Gartner has consolidated this recommendation into 5.02 going forward.
3.03	Clearly communicate the value of enterprise architecture (EA), or its content, to the key stakeholders in terms that relate to their issues and proactively address their opportunities. This includes business management, key business stakeholders, key IT stakeholders and the overall enterprise architecture community. Look to build business outcome oriented deliverables and communicate success to drive ongoing support for EA.	See recommendation 5.02	Reworded by Gartner see 3.06	Gartner has consolidated this recommendation into 5.02 going forward.
3.04	Ensure that a culturally appropriate future state architecture exists, that a baseline of your current state exists, and a gap analysis is performed.	See recommendation 5.02	Reworded by Gartner see 3.07	Gartner has consolidated this recommendation into 5.02 going forward.

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.05	Plan the future state architecture to support MPI's goals of access and support for existing and new services.	See recommendation 5.02	On Hold (Review again Q4-2017/18)	Gartner has withdrawn this recommendation and includes the key points in recommendation 5.02. MPI is considering this recommendation as part of the Legacy Modernization business case.
3.06	Perform a baseline of the current state, and perform gap analyses as the architecture is implemented.	See recommendation 5.02	On Hold (Review as part of the budgeting process Q3-2017/18)	Gartner has withdrawn this recommendation and includes the key points in recommendation 5.02. MPI is considering this recommendation as part of the Legacy Modernization business case.
3.07	Continue to increase the span of EA's influence throughout business areas by ensuring that governance processes (as measured by process maturity) and their importance is clearly communicated such that they are not circumvented. Often this involves building up stakeholder support and requires clear communications regarding EA's value to the business.	See recommendation 5.02	In progress (Q4-2017/18)	Gartner has consolidated this recommendation into 5.02 going forward.

3. In order for Manitoba Public Insurance (MPI) to better support transforming the business, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
3.08	Evolve contracts with IT service providers so that these are aligned to business outcomes, transformation deliverables, and process performance. Consider a balanced scorecard approach to monitor and track progress.	See recommendation 5.09	To be evaluated (Q4-2017/18)	MPI did not complete an additional review of this recommendation, prior to the changes from Gartner. Gartner has consolidated this recommendation into 5.09 going forward.

4. In order for Manitoba Public Insurance (MPI) to be more effective and innovative, MPI should consider:

4.09	Communicate technical debt to IT and business leadership and develop a long-term program to remove it from the MPI environment (e.g. through increased adherence to technology standards and application re-use) and track the success of those efforts	See recommendation 5.01	In Progress (Q4 - 2017/18)	IT leaders presented an update on Application Portfolio Management to Executive in Q1 – 2018/19 which aligns to this recommendation. Additionally, MPI continues to invest in the Technology Risk Management program which is specifically focused on addressing technical debt. Going forward, this recommendation has been replaced by recommendation 5.01.
4.10	Develop 3 year staffing model to ensure key skills are available in-house to reduce reliance on contractors and consultants	In Progress (Q1 – 2019/20) – please see recommendation 5.04 going forward	In Progress (Q1 - 2019/20)	MPI continues to execute its External labor strategy. Going forward, this recommendation has been replaced by recommendation 5.04.

4. In order for Manitoba Public Insurance (MPI) to be more effective and innovative, MPI should consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
4.12	Review compensation strategies to ensure that MPI is competitive with market rates and can attract the talent it needs to deliver on its mission.	Complete	In Progress (Q3 - 2017/18)	MPI completed a comprehensive review of the majority of IT positions in Q3 2017/18 and will be implementing changes in Q1 2018/19 based on these findings.
4.13	Use a Pace-Layered Application strategy to balance maturity based ITIL and CMMI processes with evolution towards Agile, DevOps, and Automation Reusable used in development for cloud implementation.	In progress (Q4-2018/19)	To be evaluated (Q4-2017/18)	MPI currently leverages ITIL based processes in the delivery of IT services. MPI is looking for an opportunity to pilot Agile / DevOps on a 2018/19 project or operational activity to determine pros / cons over current approaches. An update on this specific recommendation will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider:

5.01	Continue to Maintain Technology Currency: With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years. Make periodic assessments of technology investments and report findings to executive leadership for I&O.	New	4.09	This recommendation references recommendation 4.09. This is currently being addressed by the Technology Risk Management Program which involves an annual review of IT assets and creation of projects to invest in technology refreshes and other work to maintain said assets. In 2018/19 the spend limit is $4.5M in a combination of IT operational expense and IT operational capital. These initiatives leverage the Value Management process. MPI will continue to assess its technology spend annually and report to Executive as part of the Gartner IT score process. MPI considers this recommendation implemented.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.02	Continue to Improve Enterprise Architecture Maturity: EA requires stronger relationships with business stakeholders, because it involves finding opportunities to deliver transformative value to the business operations by applying information technology to back and front office processes, business information assets, new products and services. Human collaboration and networked relationships should be tested and exploited. Establish reporting for the EA program using metrics to track value delivered to the organization and business outcomes as well as metrics to track continuous improvement of the EA practice itself. Ensure metrics are quantitative (linked to the business outcomes) and qualitative (measuring the perceptions of its stakeholders). Build future state models linked with current state models, ensuring that the future state is consistent with the relevant architecture principles. Integrate Applications into EA by involving enterprise architects in the Applications strategy. Utilize EA principles as a way to ensure the Applications strategy is linked to a business strategy which delivers measurable business value.	New	3.02 to 3.07	This recommendation references recommendations 3.02, 3.03, 3.04, 3.05, 3.06, and 3.07. Expanding Enterprise Architecture capabilities within MPI is a priority in 2018/19 and will be built into the Legacy Modernization program implementation and amendments, and will be part of the corporate strategic planning process. An update on this specific recommendation will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.03	Improve IT Governance Maturity: Improve IT governance maturity by continuing the existing process which matches IT services to business demand and by capturing better metrics to measure the achievement of business outcomes. The governance structure needs to be made more explicit, and should incorporate multiple levels within the organization that are capable of resolving process and policy discrepancies. Governance decisions should be mapped to balancing IT investments against run, grow and transform allocations.	New	N/A	There is anticipated to be additional cost associated with this recommendation (governance, approval layers) without clear net benefit. Further review will occur with Gartner in 2018/19 to better understand this opportunity with an update in the 2020 GRA

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.04	Improve People & Skills Management: Implement process roles within the organization and address collaboration and innovation culture required to improve the relationship with the business. Skills development and training should be improved for all areas of IT, especially for Infrastructure and Operations (I&O). Build a comprehensive strategic workforce plan with specific goals. Establish formalized training policies, mentoring programs and training development plan across all roles. Track employees' skills and competencies, documenting gaps. Define skills requirements and acquire people skills necessary to meet commitments. Utilize the skills inventory to ensure vendor management skills are in place to effectively oversee external providers. Continue to integrate "process" as an organizing construct to complement functional, product and geographical orientation within the organization.	New	4.10	MPI is conducting work force planning activities at the directorate level which will incorporate many of the recommendations listed, as related to training and development. MPI continues to invest in the development of corporate culture and focuses on both innovation and collaboration in those activities. Gartner's recommendations will be included in the appropriate department level work plans. Further review required to determine the potential cost / benefit associated with these changes. This will occur in 2018/19 with an update available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.04 *(cont'd)*	Employees should be able to anticipate the impact of change beyond the processes they participate in and the constituents affected by the processes. Employees should be able to anticipate the impact of change beyond the processes they participate in and the constituents affected by the processes. Ensure that collaboration becomes second nature and resistance to change should be deemed inappropriate. Develop a culture of innovation.			
5.05	Improve the IT Strategic Plan: Implement the following improvements to the IT strategic plan: Ensure the I&O component of the IT strategic plan is documented and formally approved to serve as the basis for annual operational plans and major upgrade initiatives. Ensure business objectives, strategies, plans and needs drive the I&O component of the IT strategic plan and that business needs are defined in sufficient detail to drive investment decisions. Improve alignment between IT and business strategic planning processes.	New	N/A	The IT Strategy and major corporate initiatives address the first and fourth parts of this recommendation. Further exploration of infrastructure operations (including operational plans linked to corporate strategy) will be reviewed further in 2018/19 with an update provided in the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.06	Improve the Use of Standards: Ensure standards are consistently used, measured and monitored. Implement standard, documented processes for Application Development. Maintain a standardized operating environment and work with IBM to increase standardization within the infrastructure	New	N/A	MPI is refining its project delivery processes in 2018/19 which includes the standardization of many deliverables used in Application Development. Additional standardization of deliverables will be reviewed at the completion of this activity. MPI actively engages with IBM to ensure the enterprise computing environment is standardized and appropriately documented. Remediation of any discrepancies found, occurs operationally, or as part of major projects. Further review required to determine the potential cost / benefit associated with these changes. This will occur in 2018/19 with an update available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.07	Improve IT Financial Management Disciplines and Key Performance Indicators (KPIs): Realign cost accounting and financial management away from the asset focused paradigms of a cost center, toward the activity based costing of the service, value and outcome oriented paradigms of a business. IT Financial Management approaches should therefore be based on IT as a service provider which utilizes analytics based asset tracking, chargeback based on volumes and usage and service line trending. For Applications, MPI should continue to improve financial transparency. Develop KPIs for financial management of business applications and categorize spending to develop tighter links to business capability delivery. Include total life cycle costing for Applications that includes operations spending.	New	N/A	MPI is reviewing in 2018/19 to determine potential benefits associated with these changes. An update available for the 2020 GRA reflecting the findings of this review.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.07 *(cont'd)*	For I&O, create business based financial management and performance reporting. Implement tools for business management as well as improved financial management. MPI should continue work on asset/license management, track asset utilization and usage and implement allocation of specific service costs based upon simple IT user metrics (e.g. number of users, PCs, phone sets) as well as unit cost metrics (e.g. cost per Windows Instance).			
5.08	Implement Bimodal Service Delivery Capabilities: Implement bimodal service delivery by creating differentiated processes for predictable Mode 1 work and developing more agile processes for exploratory or experimental Mode 2 work.	New	2.08	This recommendation references recommendation 2.08. MPI is piloting this capability in 2018/19 to better understand the associated cost / benefit of this model. An update will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.09	Improve Vendor Management Capabilities: Implement consistent vendor management approaches, expand vendor management to all vendors and departments and develop standard terms and templates for contracts. Work with vendors to develop better service level agreements (SLAs), and look at ways to integrate IT operations management tools. Create a formalized vendor engagement model, with defined vendor management processes which are implemented for all vendor interactions. Segment vendors that require centralized management and delegate responsibilities for those vendors that do not require sophisticated management. Put in place reporting capabilities for spending management and demand management that support vendor management. Identify vendor performance metrics, track the metrics using tools and enforce consistently across all spending categories.	New	3.08	This recommendation references recommendation 3.08. In July 2017/18 MPI consolidated IT Vendor Management into one team. In 2018/19 the vendor management team will be creating a strategy which will include many of the Gartner recommendations noted in 5.09; An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.10	Reduce the Risk associated with Privacy Issues: This should be accomplished by ensuring that policies and processes and other defined elements of the enterprise privacy program are reviewed regularly, with solicitation of feedback concerning policy acceptance and performance. Solicit involvement from marketing, employee representatives, external auditors and compliance officers and develop a plan for measuring the success of the enterprise's privacy awareness program. Work to link disparate and currently disjointed elements of the established privacy program and ensure privacy policies apply to all business units and locations.	New	N/A	MPI has a comprehensive privacy program, but will review these specific recommendations for opportunities to improve further. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.11	Reduce Information Security Risks: This should be accomplished by creating a formal cross-organizational committee to collaborate on information security issues focused on realistic, actionable metrics for measuring the success and challenges of the security program. Ensure TVM (Threat and Vulnerability Management) processes are documented and formalized, with associated RASCI charts and performance metrics, integrated with the IT change management process and increase the resources allocated to performing formal threat research. Define a formal risk management process using controls assessment tools and services and continue practice of reporting risks to technical staff and perform updated assessment using a 3rd party.	New	N/A	MPI has a comprehensive Information Security program which transitioned from project to operations in 2018/19. MPI will review the operation of this program with Gartner, and confirm that all recommendations are fully addressed. An update on the progress of these activities will be available for the 2020 GRA.
5.12	Explore the Utilization of Cloud Services: Explore dynamic resource sharing (e.g. Cloud) Become the broker of best fit solutions – Cloud and Internal	New	N/A	This recommendation references recommendation 1.27 which was reported as complete in GRA 2018, but needs to be re-evaluated in 2018/19 fiscal. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.13	Pursue Improvements in IT Service Management Processes: Establish common processes and ensure they are consistently followed across all teams. Formalize process improvement programs. Invest in process discovery technologies, such as business process analysis, and start building a business process framework and architecture. The IT organization should work with relevant groups within MPI to apply BPM techniques using iterative methods with process owners driving iterations. These methods should be a collection of best practices drawn from Six Sigma, Lean and other methodologies. Pilot use of process modeling and build support for this practice. Build cross-platform IT Service Management processes for incident management, problem management and change management. Formalize release, capacity and service level management. Improve service level management by formulating comprehensive end to end SLAs with customers.	New	N/A	This recommendation references recommendation 1.21 which was reported as complete in GRA 2018. MPI currently has operational IT processes which are consistently applied across all teams. These include incident and change management. Process improvement occurs regularly within each process (conducted by the process leader as opposed to a centralized team). In Q4 – 2017/18 a group of senior leaders presented a proposal to improve BPM (Business Process Management) maturity. This proposal is not planned for implementation within 2018/19 fiscal year due to higher priority work. All other recommendations require further review, which will occur by Q3 – 2018/19. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

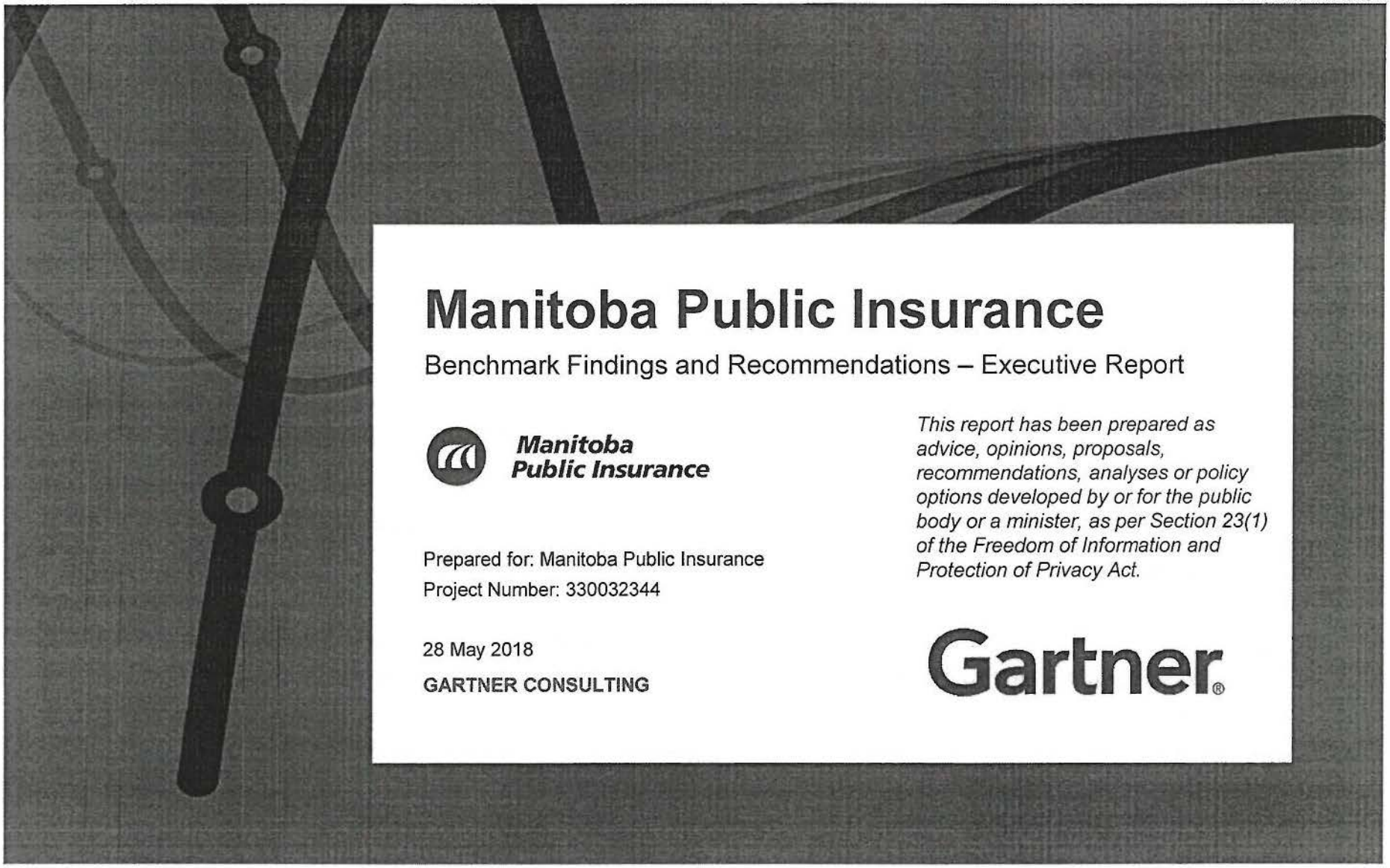
#	Description	2019 Application Status	2018 Application Status	Current Status
5.13 (cont'd)	Define and implement process ownership roles. Define and implement business service management processes and tools. Focus IT processes on automating and optimizing individual service delivery and support processes and perform continuous IT process optimization through trending.			
5.14	Improve Project Portfolio Management (PPM) Maturity through the use of tools: Expand the use of tools which were recently implemented for strategy development and resource management, decision support and risk modelling. Standardize the use of tools where multiple tools exist.	New	N/A	MPI is actively pursuing increased adoption of its PPM tools and processes in 2018/19. An update on the progress of these activities will be available for the 2020 GRA.

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.15	Determine improvements that can be made to the information management strategy. Starting in 2017/18, information management maturity will be measured using the data and analytics survey in the IT Score survey.	New	N/A	A draft data strategy was created in Q1, 2018/19 for use in Q1-Q3 2018/19. This document will be updated in Q3 2018/19 for use in the 2019/20 fiscal year and will incorporate these recommendations. MPI plans to leverage the Gartner Enterprise Information Maturity (EIM) model to measure the effectiveness of its Data and Analytics capabilities. An update on the progress of these activities will be available for the 2020 GRA

5. Using the IT Score tool set, Gartner recommends MPI consider *(cont'd)*:

#	Description	2019 Application Status	2018 Application Status	Current Status
5.16	Replace the CIO Scorecard with Gartner's IT Score Methodology: Replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis. Add two additional surveys (Strategy & Execution, Data & Analytics) to the IT Score methodology to assess the maturity of the IT Strategy and information management disciplines. The addition of these two surveys will also increase the overall confidence level of the enterprise view.	New	N/A	MPI has replaced the CIO Scorecard with Gartner's IT Score methodology and included it in the 2019 GRA. MPI anticipates completing the 2 additional areas, recommended by Gartner, and including the findings as part of the report filed in the 2020 GRA.



Manitoba Public Insurance

Benchmark Findings and Recommendations – Executive Report

Manitoba Public Insurance

This report has been prepared as advice, opinions, proposals, recommendations, analyses or policy options developed by or for the public body or a minister, as per Section 23(1) of the Freedom of Information and Protection of Privacy Act.

Prepared for: Manitoba Public Insurance
Project Number: 330032344

28 May 2018

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Background

Background

- Manitoba Public Insurance (MPI) is a non-profit Crown Corporation that has provided basic automobile coverage since 1971. MPI provides driver and vehicle licensing services, and insurance services through a broker network and throughout MPI in claim centres and customer service centres.
- MPI originally engaged Gartner to prepare CIO and IT Budget Scorecards using 2010/11 budget data. MPI repeated this analysis in 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, and has continued its program in 2016/17.
- The current engagement is using 2016/17 actual financial results.

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Objectives

MPI has retained Gartner to conduct an annual review of the IT service delivery capability (organization, processes, and infrastructure)

Four Structure Evaluation Instruments

1. IT Budget Assessment
2. CIO Dashboard Survey
3. Infrastructure & Operations (I&O) Scorecard
4. IT Score Survey

Outcomes

- Evaluate the relative maturity of the IT organization in critical IT disciplines
- Assess the IT organization's ability to react to rapidly changing business requirements and make calculated IT investments
- Compare relative funding levels of IT at MPI and the distribution of those expenditures
- Compare MPI's infrastructure and operations costs, staffing and service levels with those of similar enterprises and document findings.
- Establish a baseline for infrastructure and operations spending, staffing and service levels, providing an indicator of where improvements are possible

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MPI's Mission and level of Project Investment required some additional normalizations and peer group modifications in the Gartner Analysis

Analysis Challenge	Analysis Risk	Analysis Mitigation
MPI is a hybrid organization – it is an Insurer, but its public mission is to serve Manitobans, not maximize revenues	If MPI is successful in its Mission - returning more benefits to Manitobans while driving down prices – revenues will be lower than those of similar organizations who focus on profit maximization	▪ Included 2 Canadian Provincial & Local Government Peers ▪ As government entities do not report revenue and MPI revenue are impacted by investments, focus is placed on IT spend as a % of operating expense.

A total of 12 peer organizations are included in the 2016/17 comparison. It is important to note that the peer group changes from year-to-year as organizations do not necessarily participate every year. Six of the peer organizations from 2015/16 updated their data and this updated data is used in the 2016/17 peer analysis. Year-to-year changes in peer results are reflective of changes in the peer group as well as changes to the individual organisations' data.

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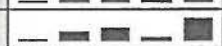
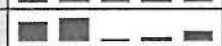
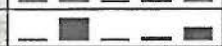
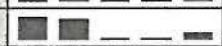
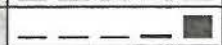
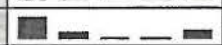
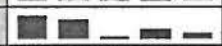
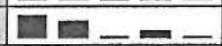
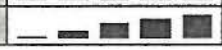
MPI's Enterprise Metrics from 2012/13 to 2016/17

	5 Year Trend	CAGR	2016/17	2015/16 - 2016/17 Growth
MPI Revenue		4.6%	$ 1,287,470,000	14.5%
MPI Expenses		5.1%	$ 1,372,674,000	18.8%
MPI IT Budget		-2.4%	$ 74,755,663	5.8%
MPI Run The Business IT Cost		1.3%	$ 44,105,841	4.0%
MPI Change the Business IT Investment		-6.6%	$ 30,649,822	8.4%
MPI Employees		0.5%	1,971	1.9%
MPI IT FTEs		-1.5%	336	3.7%
MPI IT as a % or Revenue		-6.6%	5.8%	-7.6%
MPI IT as a % of Operating Expense		-7.1%	5.4%	-10.9%
MPI Enterprise Maturity Score		3.9%	3.52	2.9%

Observations:

- Revenue has increased while business costs associated with running the business have also increased
- The IT Budget has increased, but to a lesser extent than business OPEX
- MPI's IT Spending as a % of Revenue has decreased by 7.6% year over year and has decreased by 6.6% during the last 5 years
  - Business revenue from policies is higher due to growth in the number of vehicles on the road in Manitoba
- MPI's IT Spending as a % of Operating Expense has decreased by 10.9% year over year and has decreased by 7.1% over the last 5 years
- MPI continues to improve its Maturity (3.9% over 5 years using CIO Dashboard), driving effectiveness
- In 2016/17, overall personnel spending and staffing were higher than Peers

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Key takeaways from the analysis

Key Findings

- Personnel spending and staffing levels remain higher than peers, with a slight increase in IT to Company FTE ratio (16.7% to 17%)
- Similar to previous years, the focus for MPI IT investment is on reliability, availability, and lowering risk. These investments, along with initiatives to provide better access and a better user experience, increase the IT footprint, resulting in higher steady-state IT expenses.
- MPI improved its overall Maturity rating from 3.42 in 2015/16 to 3.52 in 2016/17.
- Similar to previous years, MPI spends 62% of the IT budget on Personnel vs. 45% for the peers. 32% of MPI's IT staff is made up of contractors vs. 24% for the peers. Higher staffing levels relative to peers is particularly evident in Infrastructure and Operations.
- Business Process Management and Enterprise Architecture maturity remains generally low and appears to be an opportunity for improvement.

Implications and Recommendations

- With the accomplishment of modernization and technical updates, MPI should maintain IT assets and continue to invest in technology refreshes to avoid significant capital outlays in future years.
- MPI's IT organization should focus on establishing linkages through enterprise architecture and focus future investments on delivering transformative value to the business operations.
- MPI should develop stronger relationships with business stakeholders.
- Maturity improvements should be focused on governance and metrics to track value delivered to the business and achievement of business outcomes.
- MPI should continue the efforts currently underway to review the size of its retained staff and the number of contractors as it increases its use of third-party support for infrastructure services.
- Internal skills development and training should be a priority.
- MPI should replace the CIO Scorecard with Gartner's IT Score methodology which compares MPI with the insurance industry in similar areas and new ones that expand the scope of the analysis.

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MPI's IT spending has become more stable in recent years and with an improved ratio vs. business operating expense.

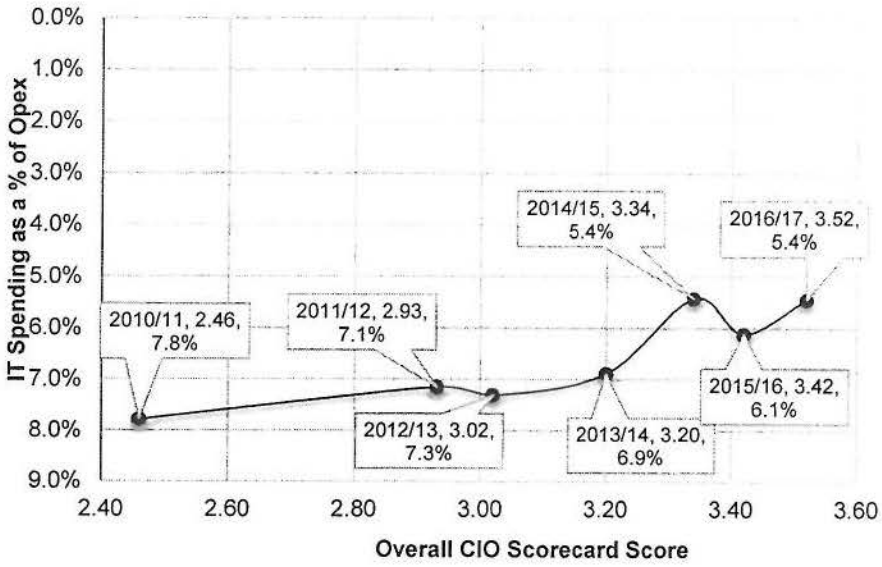
Observations:

- IT spending as a percentage of business operating expense is a better performance indicator for MPI. MPI is supporting a growing business workload with modest increases in IT spending (OPEX increased by 18.8% but IT spending only increased 5.8%.)
- IT Maturity continues to improve and should help MPI contain costs providing leverage in new initiatives.
- Six of the peer organizations from 2015/16 updated their data and this updated data is used in the 2016/17 peer analysis. IT Spending as a % of OPEX has been trending lower for the peer group.

Implications:

- OPEX spending is higher due to higher claims payouts*. Gartner has observed that mature IT operations contribute towards business efficiencies (lower overall operating expense) in the enterprise. MPI IT should unlock efficiency to the business, which will in turn contribute towards a reduction in OPEX spending (not withstanding other non-IT related expenses.)
- Continuing to work on process maturity will assist in improved efficiency in the IT operations and the delivery of additional value to the organization's business operations.

* **Source:** Manitoba Public Insurance 2016 Annual Report



	Maturity Score	IT as a % of Opex
2010/11	2.46	7.8%
2011/12	2.93	7.1%
2012/13	3.02	7.3%
2013/14	3.20	6.9%
2014/15	3.34	5.4%
2015/16	3.42	6.1%
2016/17	3.52	5.4%
2016/17 Peer	2.84	4.8%

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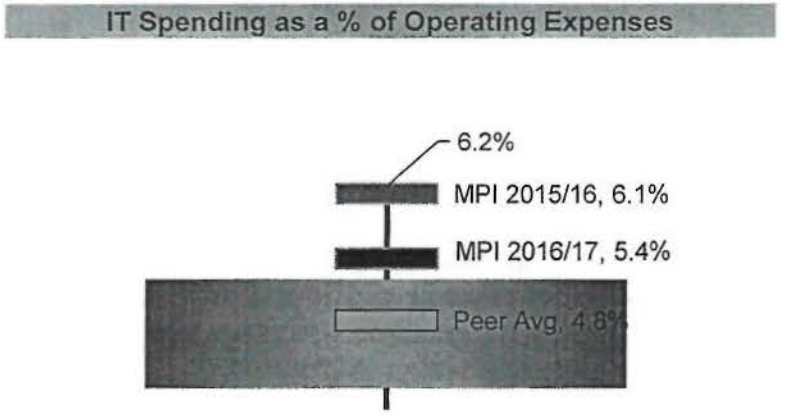
MPI's IT Spend as a % of OPEX is lower compared with 2015/16, but higher than the peer group average



Observations:

- MPI's spending as a percentage of OPEX is lower compared with the previous year's measurement
- MPI's spending as a percentage of OPEX is higher than the peer group

Implications:

- MPI should continue to invest in strong governance over third-party service providers and continue its continuous improvement initiatives to ensure it receives the expected benefits from its optimization programs.

Cylinder denotes the median 50% of responses

= Peer Range
= Peer Middle Quartiles
= Peer Average
= MPI

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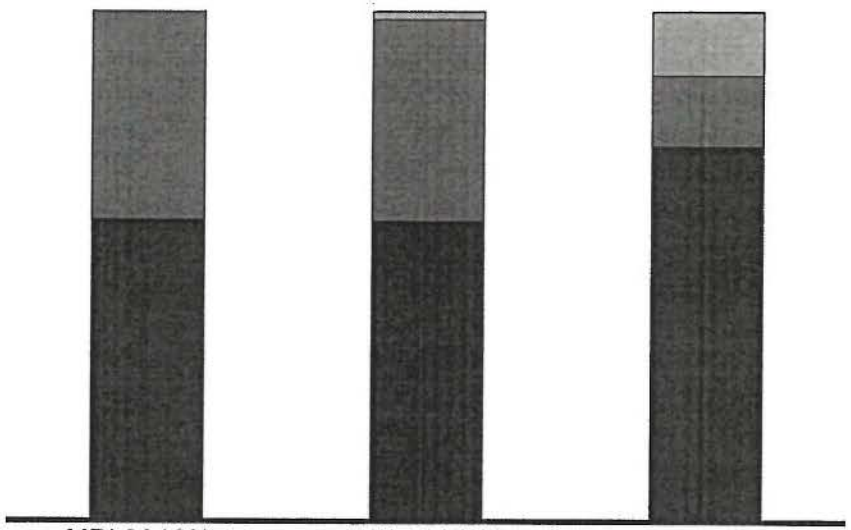
MPI has maintained its "Change the Business" % of its budget and is higher than Peers. IT Spending is focused on internal improvements and delivering new capabilities.

IT Spending to Run, Grow and Transform the Business



		MPI 2016/17	MPI 2015/16	Peer Avg
Change the business	Transform	0.0%	1.6%	12.5%
	Grow	41.0%	39.7%	14.0%
	Run	59.0%	58.8%	73.5%

Run: Run-the-business IT initiatives are aimed at essential (and generally non-differentiated) business processes. The objective of a run-the-business initiative is to improve or maintain the desired balance among cost, quality and risk for these essential processes.

Grow the business: This is an indicator of how much of the IT resource is consumed and focused on developing and enhancing IT systems in support of business growth (typically organic growth).

Transform the business: This is an indicator of how much of the IT resource is consumed and focused on implementing technology systems that enable the enterprise to enact new business models

Observations:

- MPI spending on running the business is lower than the peer group average
- MPI spending on growing the business is higher than the peer group average
- MPI spending on transforming the business is lower than the peer group average
- As the core infrastructure "catch-up" investments end, the run the business metric has remained flat
- MPI has been making investments to continue to support customer service improvements to Manitobans.

Implications:

- Lower spending on running the business frees up more IT budget to enable growth
- As MPI continues to make technology investments, it should focus on proper execution of these investments to maximize benefits realization

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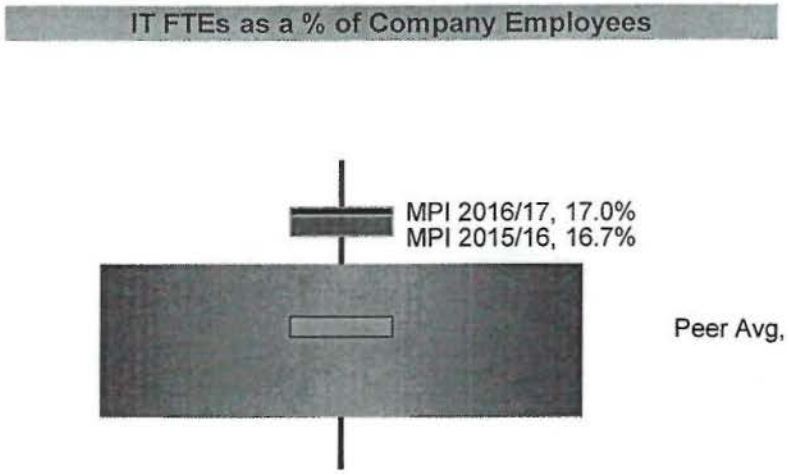
MPI has more IT FTEs as a percentage of total company employees than peers



Observations:

- MPI's overall staffing level rose slightly from 324 FTEs to 336 FTEs (16.7% to 17%)
- MPI's staffing level is 33% higher than the peers
- MPI continues to transition to third-party services for a number of areas within Infrastructure and Operations
- The benchmark measured a high level of availability for infrastructure functions (service levels increased year over year and are better than peer averages)

Implications:

- High staffing levels may be due to business growth which limits the ability to optimize costs
- Higher staffing levels may be an enabler of the high levels of service offered by IT to the business
- With the move to third party services come additional requirements for oversight and operational process staff in managing the vendor

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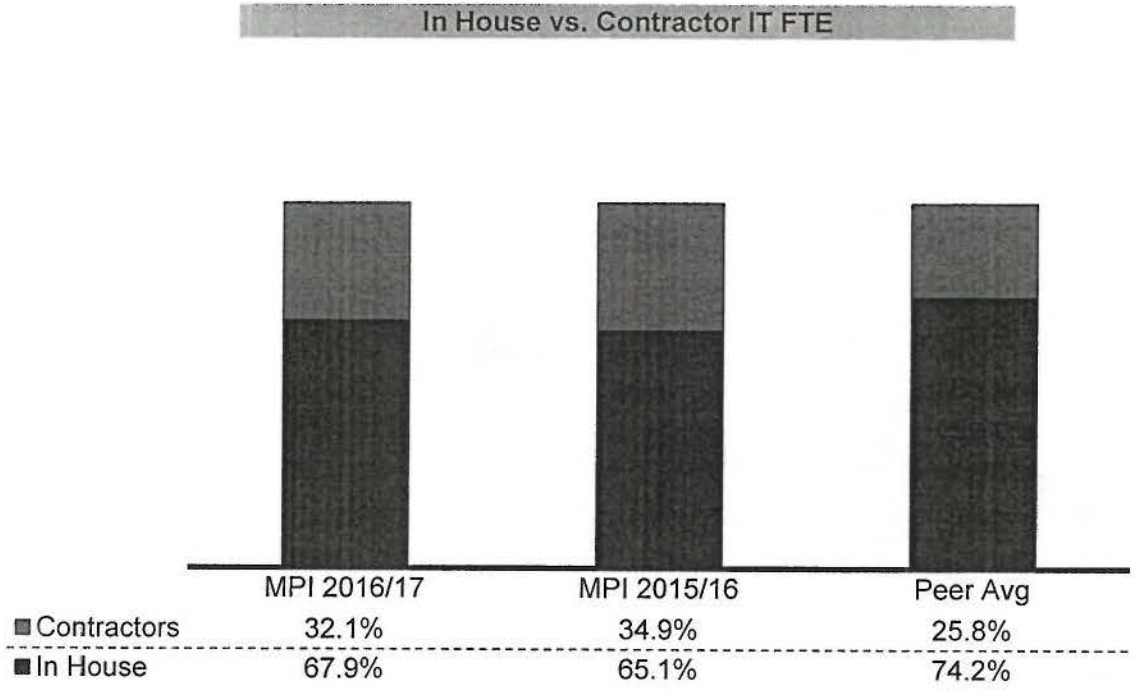
MPI's proportion of contractors is higher than the peer group average



Observations:

- MPIs proportion of contractors is higher than the peer group average but lower than the previous year's measurement

Implications:

- MPI continues to transition to outsourced services for a number of areas within Infrastructure, making use of contractors to bridge skills gaps
- MPI should continue to monitor skills gaps, looking for opportunities to build internal skills as a way to contain increases in average labour costs

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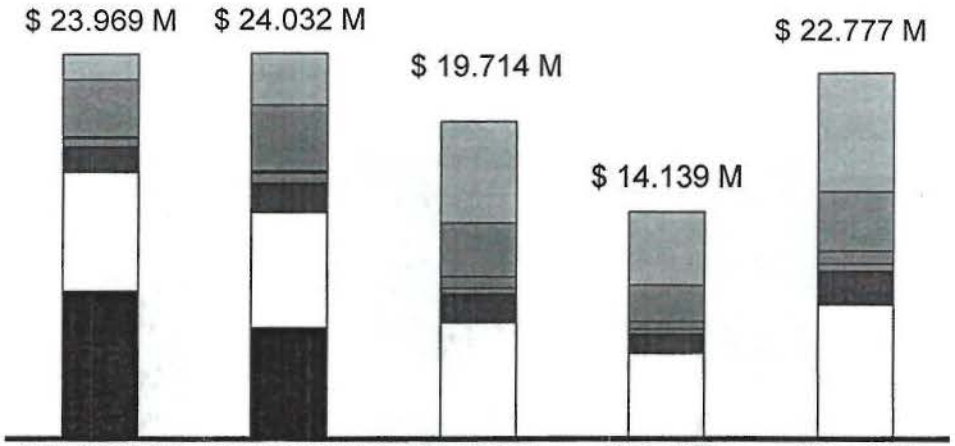
At $24 M, MPI's overall Infrastructure & Operations Spending is $4.3 M or 22% higher than the peer group average, driven by higher outsourcing costs. MPI should continue to review this area.

I & O Total Spending by Cost Category



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Hardware	$ 1.602 M	$ 3.257 M	$ 6.271 M	$ 4.525 M	$ 7.388 M
Software	$ 3.582 M	$ 4.095 M	$ 3.293 M	$ 2.275 M	$ 3.661 M
Disaster Recovery	$ 0.116 M	$ 0.150 M	$ 0.701 M	$ 0.468 M	$ 0.778 M
Occupancy	$ 0.528 M	$ 0.625 M	$ 0.391 M	$ 0.294 M	$ 0.459 M
Transmission	$ 1.542 M	$ 1.769 M	$ 1.780 M	$ 1.195 M	$ 2.078 M
Personnel	$ 7.366 M	$ 7.171 M	$ 7.277 M	$ 5.382 M	$ 8.412 M
Unallocated	$ 9.233 M	$ 6.965 M	$ 0.000 M	$ 0.000 M	$ 0.000 M
Total	$ 23.969 M	$ 24.032 M	$ 19.714 M	$ 14.139 M	$ 22.777 M

Observations:

- IT Spending is 22% higher than Workload Peers
- The gap between MPI and peers has narrowed from 2015/16 to 2016/17 (35% to 22%)
- Variances to peers are highest in Occupancy (35%) and Software (9%)
- The unallocated amount of $9.2M is the outsourcing amount after transmission and personnel is removed assuming 30% of the outsourced amount is for personnel. Outsourcing for the peer group is included within the allocated categories.

Implications:

- Occupancy and software costs provide potential opportunities for cost savings.

Note:

- Approximately $482K previously included for software was determined to be out of scope for Infrastructure and operations according to Gartner's consensus model and was removed fro 2016/17. These amounts were included in previous years.

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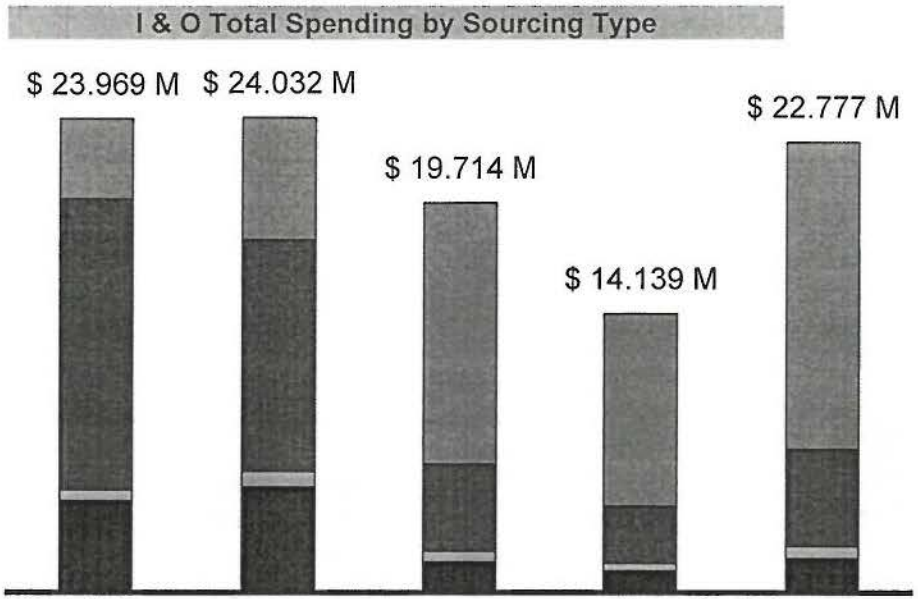
MPIs spending outsourcing and maintenance is significantly higher than the peer group average for Infrastructure and Operations



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Insourced	$ 4.057 M	$ 6.182 M	$ 13.195 M	$ 9.763 M	$ 15.521 M
Outsourced	$ 14.732 M	$ 11.719 M	$ 4.448 M	$ 2.904 M	$ 4.943 M
Contractor	$ 0.549 M	$ 0.783 M	$ 0.530 M	$ 0.357 M	$ 0.579 M
Maintenance	$ 4.631 M	$ 5.349 M	$ 1.541 M	$ 1.116 M	$ 1.734 M
Total	$ 23.969 M	$ 24.032 M	$ 19.714 M	$ 14.139 M	$ 22.777 M

Observations:

- Outsourced spending is 3.3X higher than the peer group average
- Maintenance costs are 3X higher than the peer group average
- MPI's outsourcing costs include a prepayment for future upgrades as part of a 'vitality' clause in the IBM contract which avoids large single year increases, but presents a higher yearly cost than might be expected.

Implications:

- MPI may benefit from an assessment of the competitiveness of the outsourcing and maintenance agreements

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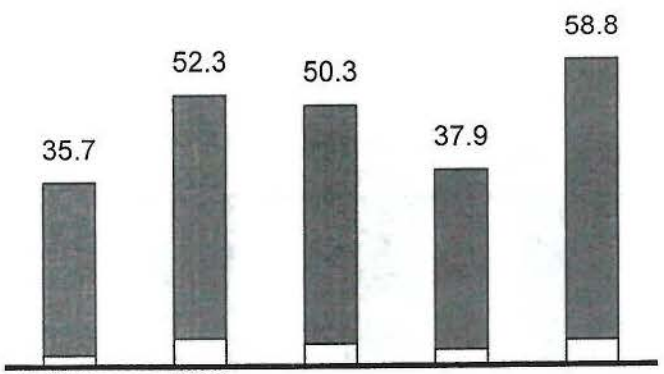
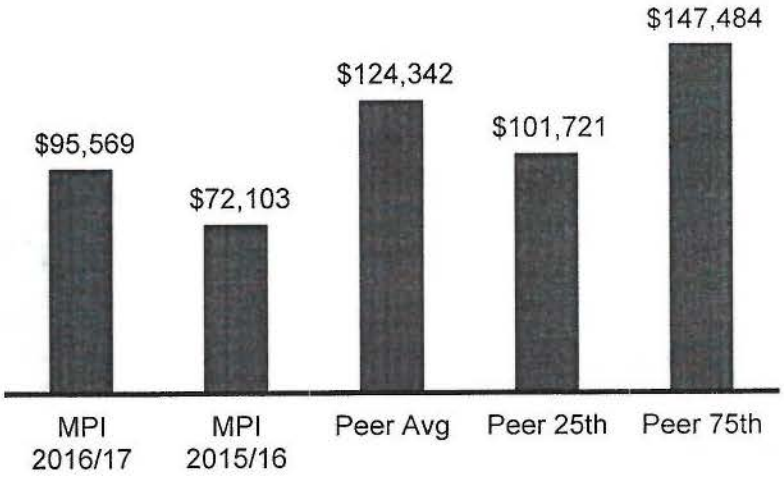
MPI's staffing levels for I&O are lower than in 2015/16 and lower than the peer group, however, the staffing levels need to be considered in the context of the high level of outsourcing.

In House vs. Contractor IT FTE



	MPI 2016/17	MPI 2015/16	Peer Avg	Peer 25th	Peer 75th
Insourced	33.5	46.9	46.1	34.8	53.9
Contractor	2.2	5.4	4.3	3.1	5.0
Total	35.7	52.3	50.3	37.9	58.8

Cost per blended FTE



Observations:

- Insourced headcount for I&O has decreased since 2015/16
- MPI has embraced outsourcing for 8 of 10 I&O functions, including Windows Server, Unix Server, Linux Servers, Storage, LAN, WAN, Internet Access Servers, Voice Premises Technology. Service Desk and End-User Computing are retained by MPI.

Implications:

- MPI should evaluate the size of the retained organization in support of IT functions that are handed by the outsourced service provider
- The need for oversight and operational process staff for vendor management may limit staff reduction opportunities

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MPI previously used the Gartner CIO Dashboard to assess MPI's process maturity which has been discontinued. Gartner recommends transitioning to IT Score for 2017/18.

	CIO Dashboard	IT Score
Toolset Overview	• Previously used to assess MPI's process maturity. • This tool has been discontinued by Gartner.	• MPI provided data for 2016/17. • Current tool used by Gartner to perform in-depth maturity assessments.
Comparison Data	• While the framework provides a way to perform year on year comparisons of MPI's maturity level, the peer data should be considered out of date.	• Provides a way to perform year on year comparisons • Current peer data is available for the Insurance industry
Scoring	• MPI's maturity level assessed at level 3.52 using CIO Dashboard methodology during the 2016/17 period.	• IT Score is a different methodology with different weightings in the assessment domains. • MPI's maturity level assessed at level 3.10 using IT Score methodology during 2016/17 period.
Assessment Framework	• Infrastructure and Operations • Applications Organization • Business Process Management • Enterprise Architecture • Cost Containment • Open Innovation Readiness • Effectiveness / Innovation Enterprise Viewpoint • Effectiveness / Innovation IT Organization Viewpoint • Overall Score	• Infrastructure & Operations • Applications Organization • Enterprise Architecture • Vendor Management • Program and Portfolio Management • Security and Risk Management - Privacy • Security and Risk Management - Information Security • Enterprise View

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BMK Attachment A

CIO Dashboard

MPI saw significant improvements in process maturity in Application Organization, Infrastructure and Operations and Cost Containment

	MPI 2016/17	MPI 2015/16	MPI 2014/15	MPI 2013/14	MPI 2012/13	MPI 2011/12	Insurance Avg
Infrastructure & Operations	3.14	2.98	2.85	2.64	2.32	2.32	2.20
Cost Containment	3.21	3.10	2.97	2.79	2.38	2.15	2.51
Applications Organization	3.17	2.94	2.83	2.81	2.66	2.70	2.76
Business Process Management	1.60	1.60	1.60	1.40	1.40	1.20	1.76
Enterprise Architecture	3.18	3.18	3.18	3.05	2.84	2.73	2.53
Open Innovation Readiness	4.13	4.13	3.75	3.75	3.75	3.63	2.46
Effectiveness/Innovation Enterprise Viewpoint	4.09	4.09	4.00	4.00	4.00	4.00	3.23
Effectiveness/Innovation IT Organization Viewpoint	3.89	3.89	3.78	3.67	3.67	3.44	3.17
Overall Score	**3.52**	**3.42**	**3.34**	**3.20**	**3.02**	**2.93**	**2.82**

Evaluation Criteria: MPI compares itself against seven key criteria that evaluate the effectiveness of the IT organization to deliver to the needs of the business. Comparisons are made to previous years and Gartner's IT Score for the CIO role as the CIO Dashboard has been discontinued. The insurance average had not shown material change over the past few years and can still be considered relevant.

Observations: MPI has improved over 2015/16, especially in Applications (+8%) and Infrastructure & Operations (+6%), but opportunities still remain to improve. Business Process Management is unchanged from last year and is still very low. MPI's overall IT Score was 3.52 (+3% over 2015/16)

Implications: MPI has increased its Maturity across the board, but can still improve in areas such as Business Process Management Increasing Maturity in these areas will improve the efficiency and effectiveness of both IT and MPI overall.

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IT Score

MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward. Opportunities exist for improvements in enterprise architecture and applications maturity.

	MPI 2016/17	Insurance Avg
Executive View	3.4	-
Applications Organization	2.4	2.4
Enterprise Architecture	2.3	3.0
Infrastructure & Operations	2.7	2.5
Vendor Management	3.0	2.5
Program and Portfolio Management	3.6	2.8
Security and Risk Management - Privacy	4.1	3.3
Security and Risk Management - Information Security	3.6	3.0
Enterprise	3.1	-

Note: Gartner does not provide benchmarks at the overall Enterprise level. The Enterprise and Executive score / assessments are based on a varying compilation of survey types across participants, not just a single survey.

Observations:

- MPI's Executive View score is 3.4 and the Enterprise Score is 3.1. These scores will be used for year over year comparisons going forward.
- Enterprise Architecture maturity is lower than the peer group average

Recommendations:

- Focus initiatives for improvements on enterprise architecture

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Reconciling CIO Dashboard with IT Score

How does Business Process Management, as measured in CIO Dashboard map to the IT Score survey?

- In the CIO Dashboard survey, Business Process Management was assessed in various domains with MPI having low maturity in Organization and Culture and Metrics and Measures. It should be noted that the peer data within is outdated, meaning that MPI was being compared to the industry as it was, several years ago.
- In addition, within the insurance industry, IT organizations have shifted from business process maturity to a focus on improving the partnership between IT and the business.
- The newer IT Score Methodology is based on Gartner research* which finds that Enterprise IT maturity is more than the sum of individual IT functions and technical capabilities. *All* enterprise leaders (not just CIOs and IT leaders) must adapt and drive change in order to mature overall maturity beyond level 3 which is a critical step in surviving and exploiting digital business.
- Instead of simply measuring business process management as a separate domain, the IT Score methodology consists of an executive view which is separate from the IT domains. Rather than a focus on business processes, the domains within the executive view reflect the current focus areas with regard to enabling IT as an enabler for business value.

Why is Enterprise Architecture assessed with a high score in the CIO Dashboard survey and a low score in the IT Score survey?

- In the CIO Dashboard survey, enterprise architecture consisted of multiple domains with MPI being assessed as relatively weak in architecture impact, but stronger in every other domain.
- Similar to business process management, the scope and maturity level of enterprise architecture has changed for IT organizations within the entire insurance industry.
- In the newer IT Score survey, enterprise architecture consists of 7 domains which reflect the current best practice focus areas for modern IT organizations. MPI was assessed with a lower level of maturity in the current domains, most notably governance and metrics. Comparisons are made to recent peer data.

** Source: ITScore for the Enterprise - G00343561*

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In Summary, MPI continues to improve in most dimensions measured, but opportunities for continuous improvement remain.

Spending	Spending Allocation	Alignment and Maturity
▪ IT Spending as a % of Revenue dropped from 6.3% to 5.8% – compared with 3.7% for peers ▪ IT Spending as a % of Operating Expense dropped from 6.1% to 5.4% – compared with 4.8% for peers	▪ MPI has moved out of it's "catch up" stage and the balance of spending for growth is decreasing. ▪ MPI continues to spend more on Contractors and external third-parties, which increases spending. ▪ MPI's "Run the Business" spending is lower than the Peers.	▪ MPI improved in many process areas as measured using the CIO Dashboard survey ▪ The overall IT Maturity score increased using the CIO Dashboard survey ▪ Measurements have been made using the new IT Score methodology which will enable ongoing year on year comparisons and comparisons to peer organizations

- MPI's mission is to serve Manitobans, not maximize revenues, which has an effect on metrics reported as a % of revenue. Spending as a % of overall operating expense compares well with peers.
- Improving MPI's long-term IT cost position is reliant on managing outsourced service provider costs and decreasing dependence on outside contractors.
- MPI will increase value to the business through improvements in enterprise architecture which will enable transformative value to the enterprise.
- MPI will enable future maturity and efficiency improvements through a focus on skills development and training.
- MPI will transition to the IT Score survey which reflects priorities and best practices for modern IT organizations and enables peer comparisons

Appendix 19: INFORMATION TECHNOLOGY COSTS

The following tables provide a comprehensive analysis of Corporate Information Technology (CIT) expenses and capital expenditures. This includes both historical actual from 2013/14 to 2017/18 and the forecast period from 2018/19 to 2022/23.

The first table provides a summary, including compounded annual growth rates for all corporate expense costs related to IT within MPI.

Figure EXP App 19 – 1: Information Technology Costs (Corporate)

Line No.	Summary	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/232F	Compound Annual Growth 13/14A-17/18A (5 years)	Compound Annual Growth 18/19B-22/23F (5 years)
	(C$000s, except where noted)												
1	Total IT Expenses	61,237	64,170	57,479	64,289	85,093	76,218	70,813	74,372	82,656	84,255	8.6%	2.5%
2	Deferred Development Costs	29,819	17,079	20,847	27,671	204	10,902	25,757	33,409	26,500	25,250		
3	Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625		
4	Total IT Costs	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875		

The following two tables provide detail for the summary showing budgeted and forecasted amounts for the three IT related departments within the Corporation as well as all of the capital IT costs within the Corporation.

Figure EXP App 19 – 2: Total Information Technology Expenses

Line No.	IT Expenses	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F
1	*($C 000s, except where noted)*										
2	CIT Departmental Expenses:										
3	Data processing:										
4	Computer Costs	377	14	-	-	-	-	-	-	-	-
5	Licence Charges	6,431	5,698	6,219	5,826	7,408	8,126	8,342	8,720	8,894	9,072
6	Computer Maintenance	1,683	1,348	1,371	1,484	1,787	1,689	1,715	1,748	1,783	1,819
7	Software	1,668	702	277	805	176	352	258	258	263	268
8	IBM Data Centre	-	6,080	7,276	9,550	9,176	9,790	9,972	10,558	10,769	10,984
9	IBM Security Operations Centre	-	-	-	-	-	550	550	550	561	572
10	External Labour										
11	AOL	3,145	2,955	2,313	2,305	1,230	2,201	1,887	1,887	1,924	1,963
12	CARS	793	739	578	576	308	624	535	535	546	557
13	Other	3,832	2,414	1,522	2,324	1,672	730	634	627	639	659
14	**Total Data Processing**	**17,929**	**19,950**	**19,556**	**22,870**	**21,756**	**24,062**	**23,893**	**24,883**	**25,379**	**25,894**
15	Compensation	10,382	9,388	10,044	11,231	11,521	13,314	14,100	14,511	14,764	15,056
16	Training	103	144	142	132	127	129	140	143	146	149
17	Special Services	1,203	969	766	991	1,024	926	944	963	982	1,002
18	Printing, Stationery and Supplies	596	338	295	231	169	582	564	225	229	234
19	Telephone and Telecommunications	3,049	2,562	2,377	2,221	2,054	2,121	2,174	2,231	2,275	2,321
20	Computer Equipment Expense	645	674	289	167	295	1,161	878	969	989	1,008
21	Miscellaneous	291	115	30	116	42	80	81	83	84	86
22	**Total CIT Dept Exp (before Dep'n/Amort)**	**34,198**	**34,140**	**33,499**	**37,959**	**36,989**	**42,375**	**42,774**	**44,008**	**44,848**	**45,750**
23	Depreciation - Data Processing Equipment	1,847	826	1,075	672	411	813	1,526	2,176	2,176	2,176
24	Amortization of Deferred Dev Costs	-	7,941	8,534	9,415	12,702	14,573	6,125	6,125	2,835	1,683
25	**Total CIT Direct Departmental Expenses**	**36,045**	**42,907**	**43,108**	**48,046**	**50,103**	**57,761**	**50,425**	**52,309**	**49,859**	**49,609**
26	Allocated Building Expenses	1,264	1,293	1,292	1,309	1,112	1,311	1,347	1,362	1,384	1,406
27	Allocated Corporate Benefits	2,786	2,870	2,951	3,092	3,304	3,997	4,119	4,196	4,275	4,275
28	DP - Microfiche	42	44	43	43	43	44	44	45	46	46
29	DP - External Labour - Other	118	247	376	264	244	310	310	316	323	323
30	**Total CIT Departmental Expenses including allocations**	**40,255**	**47,361**	**47,770**	**52,754**	**54,806**	**63,423**	**56,245**	**58,228**	**55,887**	**55,659**
31	Implementation Expense:										
32	Licence Charges	10	52	33	12	243	5	-	-	-	-
33	Computer Maintenance	-	-	-	-		-	-	-	-	-
34	IBM Data Centre	-	-	-	150	161	500	500	500	500	500
35	Software	-	-	5	-		500	-	-	-	-
36	Deferred Development Impairment					20,258	-	-	-	-	-
37	External Labour	4,955	5,707	4,891	4,290	1,571	3,050	350	350	350	350
38	**Total Implementation Expense**	**4,965**	**5,759**	**4,929**	**4,452**	**22,233**	**4,055**	**850**	**850**	**850**	**850**
39	Ongoing expense:										
40	Licence Charges	-	-	-	205	-	-	233	308	955	955
41	Amortization of Deferred Dev Costs	-	-	-	-	-	-	3,477	6,052	15,676	21,376
42	Computer Maintenance	-	-	-	-	-	-	-	-	-	-
43	Software	-	-	-	-	-	-	50	50	50	50
44	IBM Data Centre	7,170	1,513	1,808	-	-	-	1,217	1,630	4,136	4,432
45	**Total Ongoing Expense**	**7,170**	**1,513**	**1,808**	**205**	**-**	**-**	**4,977**	**8,041**	**20,817**	**26,812**
						-					
46	**Total other CIT Exp**	**16,345**	**11,726**	**11,399**	**9,365**	**26,936**	**9,717**	**11,647**	**14,810**	**27,695**	**33,712**
47	Depreciation - Data Processing	-	903	-	-	-	-	-	-	-	-
48	Amortization of Deferred Dev Costs	8,847	8,634	2,972	6,878	8,055	8,740	8,740	7,253	5,102	934
49	**Total CIT other Exp (after Dep'n/Amort)**	**25,192**	**21,263**	**14,371**	**16,243**	**34,991**	**18,457**	**20,388**	**22,063**	**32,797**	**34,646**
50	**Total IT Expenses**	**61,237**	**64,170**	**57,479**	**64,289**	**85,093**	**76,218**	**70,813**	**74,372**	**82,656**	**84,255**

Figure EXP App 19 – 3: Corporate Capital Expenditures - Deferred Development Costs

Line No	Project Description	2013/14A	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F	2020/21F	2021/22F	2022/23F	Unassigned Capital
1	*(C$000s, except where noted)*											
2	Projects that do not impact Basic	-	135	533	3,154	31	2,000	3,029	-	1,500	-	-
3	Projects that impact Basic											-
5	IT Optimization	2,688	-	-	46	-	-	-	-	-	-	-
6	Disaster Recovery	11,826	-	-	14	-	-	-	-	-	-	-
7	HR Management System Phase 1 & 2	2,945	(302)	-	1,579	-	-	-	-	-	-	-
8	HR Management System Phase 3 & 4	102	145	-	-	-	-	-	-	-	-	-
9	Physical Damage Re-engineering	-	1,674	-	390	-	-	-	-	-	-	-
10	PDR Opt Repair - Collaborative Estimating & JSST	-	9,676	387	688	-	-	-	-	-	-	-
11	PDR Opt Repair - Distributed	-	1,296	1,593	2,343	2	-	-	-	-	-	-
12	Physical Damage Re-engineering Main/Phase 3	11,350	(4,529)	4,707	(2,434)	282	-	-	-	-	-	-
13	PDR Opt Repair - Remote Estimating	-	1	42	70	115	-	-	-	-	-	-
14	BI3 Fineos Upgrade 2016	257	1,462	2,002	577	-	-	-	-	-	-	-
15	BI3 Fineos Upgrade 2020	-	-	-	-	-	1,257	1,020	-	-	-	-
16	BI3 Fineos Upgrade 2024	-	-	-	-	-	-	-	-	-	1,250	-
17	Enterprise Data Masking	651	1,189	1,077	3	-	-	-	-	-	-	-
18	High School Driver Education Phase 2	-	314	327	1,333	112	-	-	-	-	-	-
19	High School Driver Education Phase 3	-	-	-	-	681	900	-	-	-	-	(882)
20	Infor/Lawson Upgrade	-	172	978	1,258	1,101	-	-	-	-	-	31
21	Infor Major Upgrade 2022	-	-	-	-	-	-	-	2,000	1,000	-	-
22	ITO - High Availability	-	2,919	4,881	938	-	-	-	-	-	-	-
23	Legal Management Project	-	1,086	1,536	(8)	-	-	-	-	-	-	-
24	Predictive Analytics	-	1,578	600	1	-	-	-	-	-	-	-
25	Corporate Learning Management	-	263	-	1,123	1,406	250	-	-	-	-	129
26	Physical Damage - Centre of	-	-	537	283	-	-	-	-	-	-	-
27	Information Security Strategy and Road Map Phase 1	-	-	1,298	1,934	130	-	-	-	-	-	11
28	Information Security Strategy and Road Map Phase 2	-	-	337	659	1,756	-	-	-	-	-	206
29	Technology Innovation & Capabilities	-	-	12	(12)	-	-	-	-	-	-	-
30	Technology Risk Management -	-	-	-	2,213	145	-	-	-	-	-	25
31	Technology Risk Management - 2017	-	-	-	-	2,902	228	-	-	-	-	325
32	Technology Risk Management - 2018	-	-	-	-	-	3,772	-	-	-	-	-
33	Technology Risk Management - 2019	-	-	-	-	-	-	4,000	-	-	-	-
34	Technology Risk Management - 2020	-	-	-	-	-	-	-	4,000	-	-	-
35	Technology Risk Management - 2021	-	-	-	-	-	-	-	-	4,000	-	-
36	Technology Risk Management - 2022	-	-	-	-	-	-	-	-	-	4,000	-
37	Appointment Manager	-	-	-	2	1,402	-	-	-	-	-	-
38	Customer Claims Reporting System	-	-	-	10,592	5,032	-	-	-	-	-	-
39	Enhanced DR Capabilities	-	-	-	292	1,422	-	-	-	-	-	658
40	Partner Portal	-	-	-	291	2,256	-	-	-	-	-	(140)
41	Financial Re-Engineering Initiative	-	-	-	342	1	-	6,708	6,409	-	-	-
42	Customer Self Service	-	-	-	-	1,679	1,500	1,000	1,000	-	-	(709)
43	Credit Card Strategy	-	-	-	-	255	995	-	-	-	-	249
44	Legacy Systems Modernization	-	-	-	-	-	-	10,000	20,000	20,000	20,000	-
45	Total Deferred Development Costs	29,819	17,079	20,847	27,671	20,710	10,902	25,757	33,409	26,500	25,250	(97)
46	Impairment of Deferred Development	-	-	-	-	(20,506)	-	-	-	-	-	-
46	Data Processing Equipment:											
47	Provision for New and Replacement	1,019	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	
48	Projects that impact Basic											
49	IT Optimization	136	-	-	-	-	-	-	-	-	-	
50	Total Data Processing Equipment	1,155	1,029	624	110	142	2,485	2,928	1,653	1,230	1,625	-
51	Total Capital Requirements for IT	30,974	18,108	21,471	27,781	346	13,387	28,685	35,062	27,730	26,875	(97)

The table below provides the number of Consultants supporting IT operational activities as well as Consultants utilized on projects. The subsequent Basic Program costs for these Consultant activities are also provided. Improvement Initiative Costs do not include deferred development costs.

Figure EXP App 19 – 4: Summary of Consultant Costs and FTE

Line No.	Consultants - Corporate[1]	2013/14A[3]	2014/15A	2015/16A	2016/17A	2017/18A	2018/19B	2019/20F[4]	2020/21F[4]
1	IT Operational Activities	49	40	37	31	17	16	20	20
2	Improvement Initiatives	71	70	77	76	90	66	60	60
3	Total	120	110	114	107	107	82	80	80
4	Consulting Costs - Basic only								
5	IT Operational Activities[2]	6,311	5,084	3,831	4,376	2,568	2,880	2,480	2,480
6	Improvement Initiatives	23,100	14,553	17,214	15,528	11,778	8,637	7,853	7,854
7	Total	29,411	19,637	21,045	19,904	14,346	11,517	10,333	10,334

(1) Contractor counts vary throughout the year. For this table on September of each fiscal year (mid-point) thus 2016-17 actuals do not reflect all contractor conversions in Q3 and Q4. Please see GRA 2017 Volume I, Chapter 8, IT.2 for details on this.

(2) Basic IT Operational Activites are estimated at 80% of Corporate

(3) Adjusted as the improvement initiatives total had previously included IT Operational Activities, some license fees and software maintenance.

(4) Any changes to the planned improvement initiatives for 2019/20 and 2020/21 will impact the number of consultants.

MANITOBA PUBLIC INSURANCE

INFORMATION TECHNOLOGY STRATEGY

Published: June 1, 2018

Effective Year: 2018-19 Fiscal

Next Full Review: Q1 - 2019/20

Table of Contents

Message from the Chief Information Officer at MPI 3
1. Executive Summary 4
2. Introduction 7
3. Business Context 9
4. Business Objectives and Strategies 10
5. Major Influences 12
6. Guiding Principles 15
7. Developing Business and IT Capabilities 16
8. Required Business and IT Capabilities 18
9. Applying the IT Strategy 23

Message from the Chief Information Officer at MPI

Manitoba Public Insurance's Information Technology Strategy establishes the strategic direction for information technology (IT) investments within the corporation for the foreseeable future. At its core, the strategy is intended to guide which IT capabilities will be created to support the business capabilities required to meet the Corporation's business objectives. This will result in the delivery of better products and services, and ultimately enhancing the value being offered to Manitobans.

At MPI, business and technology decisions need to envision beyond the corporation and consider the extended enterprise of business partners while continuing to align to the service of our customers. The goal of this alignment is to support the persistent optimization of core business functions, including ensuring the Corporations' ability to adapt to changes in the auto insurance and registration environment.

The maturing of value management within the corporation has created a more formalized process in the selection of candidate initiatives. Included in this are specific actions designed to strengthen current enterprise governance, a key to our success going forward.

This year, MPI is performing an assessment of our legacy systems to see if they are a candidate for modernization based upon their ability to meet the needs of the corporation into the future. Some of the drivers of this assessment are the evolving customer expectations on service delivery, product and service flexibility and agility, and application risk. Given the pervasiveness of our legacy systems within our technology infrastructure, the outcome of this assessment may have a significant impact on our IT roadmap and how IT capabilities are created for the next several years.

On an annual basis, the Information Technology and Business Transformation division (ITBT) will update this strategy to reflect the progress made and any changes required to maintain alignment to the Corporation's business plan.

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Brad Bunko

Vice President, IT, Business Transformation & Chief Information Officer

1. Executive Summary

This IT Strategy marks the start of a fundamental shift in how MPI views new technology and how new technology will be implemented. Over the last two years (since our last IT Strategy) there has been careful consideration by Management and our Board as to how we need to evolve to increase our effectiveness at introducing the technology needed for business transformation. The following table summarizes the significant changes we have adopted in our strategy by indicating what our past practice was, what are new practice is and how we will ensure our change has been effective.

Where we were	Where we are going	How we are going to measure success
Leaders in creating innovation and pursuing unproven technologies	Adopt proven mainstream technology	Through the maturity of the products and solutions we implement
Executed High risk projects	Identify all risks prior to project initiation and incorporate into project decision	Risks initially unaccounted for do not surface during or post project delivery. Projects attain value benefits stream projections
Project Governance with non-business project sponsor for all projects	Project sponsor is the Operational Business Champion, will have shared accountability with the Business Transformation Office and has a long term stake in ensuring the benefits stream is met	Ongoing benefit realization is achieved through the Operational Business Champion.
Customize out of the box software to suit our processes	Align, wherever possible, our processes to industry best practices that is incorporated in vendor provided software	Reduced software costs and adoption of industry best practices
Candidate project were not vetted through a detailed value management process	Value management discipline becomes engrained in MPI process and culture and participates through the project lifecycle and beyond	Project decisions are based on the Value Management Process. IT expenditures will only be incurred after a value management assessment has been completed.
Technology driven change within the organization	IT capabilities are created to support Business Capabilities that are needed in pursuit of a Business Objective	Business value for IT expenditures

Within MPI's Annual Business Plan (published April 30, 2018) MPI outlines its mandate and strategic direction. This plan highlights MPI's key priorities and considerations (internal/external environment, and associated risks) as well as key metrics and targets, budgetary and human resource requirements, and capital plans.

The Annual Business Plan effectively sets the corporate direction for the 2018/19 fiscal year, and provides guidance for future years. It does this by highlighting the priorities which have been traditionally found in many supporting documents such as detailed budgets, schedules, briefing notes and business cases; and providing clear guidance on the path forward for the Corporation. The Annual Business Plan outlines strategies and specific activities that will support the achievement of the following business objectives and related strategies.

Business Objectives; with a focus on core Auto Insurance and DVA:

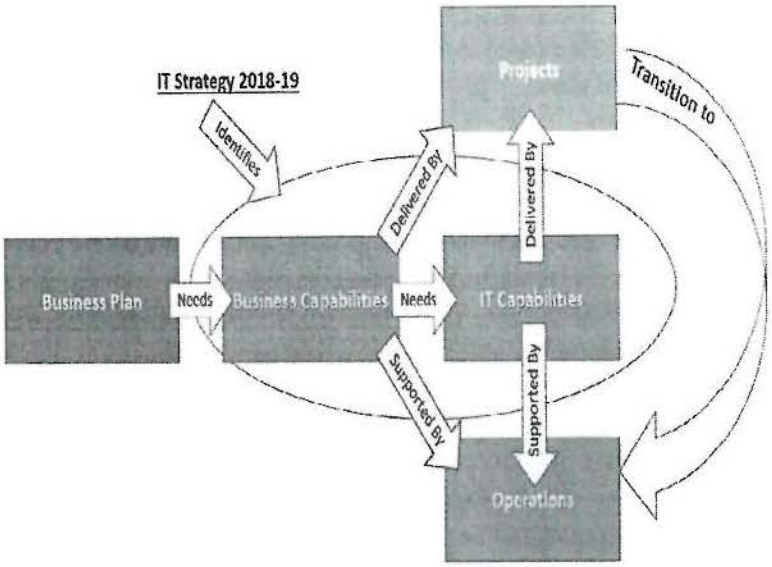
- Rate Stability and Predictability
- Operational Excellence
- Product and Service leadership

The IT Strategy fulfills a similar purpose, providing corporate IT direction for 2018/19 fiscal year and guidance for future years. Its primary purpose is to support the business objectives and strategies outlined in the Annual Business Plan; outlining which business and IT capabilities are needed to achieve these, and which specific capabilities need to be added, changed or improved to ensure MPI is successful in achieving its business objectives. The IT Strategy outlines how the practice of Enterprise Architecture will be used to ensure that the right set of capabilities are developed, at the right time, for the right cost.

This IT Strategy is a considerable evolution from an earlier version (June 2015) with significant emphasis on supporting the MPI business. This IT Strategy also reflects improved process maturity in several key areas:

- Enterprise Architecture: Increased emphasis on definition and alignment of capabilities.
- Information Security: Increased alignment to industry frameworks and best practices have brought structure and focus to this domain.
- Value Management: Improved focus on business cases and linking projects to business objectives and strategies.

By design, the IT Strategy sets the technology path forward based on the business context, business objectives, and business strategies for the current fiscal year and for future years. The IT strategy then applies guiding principles and considers major influences to develop the business capabilities and IT capabilities required to be successful. Business and IT capabilities are delivered by projects. Successfully implemented projects result in the transfer of business and IT capabilities to operational areas, which leverage and maintain these capabilities.



The Value Management process provides oversight to these projects to ensure they deliver appropriate business value for the investment made, as documented in the business case.

The Legacy Modernization Assessment project will have a significant influence on the future direction of IT within MPI. This assessment will review the feasibility and cost of replacing our core Insurance and Driver/Vehicle Registration systems and will complete at the end of Fiscal Year 2018/19. For this reason, this version of the IT Strategy will provide direction for the current year and guidance for foreseeable future years, with the understanding that significant change may be driven by the Legacy Modernization Assessment and will need to be factored into future versions of the IT Strategy.

The value of Legacy Modernization is derived from supporting the current and future needs of the Insurance and Driver/Vehicle registation businesses. Potential solutions will be evaluated for upfront value (business and IT capabilities gained by modifying existing processes and avoiding customization) and long term cost effectiveness .

There are also changes to the business context, objectives and strategies which need to be reviewed and considered on an ongoing basis. To ensure continuous alignment to the business direction, the IT Strategy will be reviewed, updated and communicated annually.

2. Introduction

Manitoba Public Insurance (MPI) has demonstrated a dedication to cost containment and a commitment to providing Manitobans with automobile insurance rates that continue to be among the lowest in Canada. Given the continuous advance in technology and the changing automotive industry, the Corporation also continues to refine and adapt our products and services with our customers and business partners in mind. By continuing to focus on our existing value proposition, as well as exploring new ways to create value for our customers, by consistently providing exceptional coverage and services, MPI can achieve its mission and maintain control of costs.

Exceptional coverage and service when combined with a focus on cost control is challenging when using legacy technologies. For a time, legacy systems can be stretched and strained beyond their original designs, but there is a price - incrementally increasing costs with each major enhancement. However, moving away from these legacy systems, without proper planning and diligence, can have significant cost implications and not deliver the required business value. Legacy system modernization requires major decisions to be made: such as, whether to build or buy, what technology to grow or replace, what change is critical now, and what change can be deferred. These major changes cannot be considered in isolation. They must be confirmed as appropriate for the business environment, aligned to current and future business needs, and consider the current technology environment and parallel technology priorities. The focus of this IT Strategy to provide clarity and focus on IT matters, in a way that is continually aligned to business needs.

This IT Strategy uses the concept of capabilities (combinations of people, processes, and technologies to achieve a business outcome), to ensure there are effective links between major documents such as the Annual Business Plan to the Corporate Capital Master Summary. The advantage of this approach is that it results in continuity and consistency across multiple parallel initiatives. This approach can be adjusted based upon the approved program portfolio, and complements the Value Management process / business cases which illustrate the proposed projects are prudent and necessary.

The IT Strategy is focused on the current and future needs of the business, and captures the key context, considerations and principles which frame this understanding. To ensure a full and comprehensive view, business needs must be examined at the highest level (Annual Business Plan), then specific strategies and objectives based on the business plan, then specific plans to impliment those strategies and achieve the objectives (operational and capital projects).

The IT Strategy then outlines the capabilities needed to meet these needs and the approach to integrate these capabilities into projects and operations in the 2018/19 fiscal year. The information is organized as follows:

- Business Context, Business Objectives, and Strategies; highlights the current context, objectives, and strategies for business success which will be considered in this IT strategy
- Major Influences and Guiding Principles; describes several major influencers that need to be considered in the strategy and reflects experiences and best practices which are used to guide all IT decisions and shape the development of business and IT capabilities
- Developing Business and IT Capabilities and Required capabilities; defines and explains the business and IT capabilities which are required for development through active or yet to be planned projects (aligned to key business objectives and strategies)
- Applying the IT Strategy to Projects and Operations; provides an overview of the methodology, and highlights how the strategy is expected to impact both business and IT capabilities, and the organization in general

3. Business Context

These external drivers will shape our business over the foreseeable future include:

- *Changing customer expectations:*
  Customers expect enhanced service capabilities that are oriented toward the customer experience they have grown accustomed to from online retailers. These enhanced service capabilities affect the speed (faster responses from insurance companies), access to and quality of service (more self-service and better analytical insight into customer preferences), and product features (more-individualized products and services). These customer expectations vary based upon demographics and require MPI to refine its methods for measuring customer expectations and engagement, and further developing analytic capabilities. The introduction of new channels adds complexity to the service delivery model and increase expectations for service availability for any technology solution.

- *Partnerships and the extended enterprise:*
  Product delivery through insurance brokers and physical damage claims services provided by the repair industry are critical to the MPI service delivery model. MPI will continue to be an extended enterprise, reliant upon partners to provide services directly to customers with IT systems acting as the conduit between all parties. These systems need to interoperate with an increasing volume and variety of partner and customer technologies.

- *Traffic Safety Culture:*
  MPI, in partnership with Manitoba Infrastructure, is pursuing the goal of having the safest roads in Canada and pursuing the objective of significantly reducing fatalities on our roadways. This goal is challenged by new trends such as "texting and driving" which impacts claims frequency, as well as potential impacts as a result of the legalization of cannabis. MPI continues to invest in education, control, and awareness programs. Integrating technology solutions into these programs allows MPI to reach customers in new ways. Through the use of analytics, program results can be further quantified and improved.

- *Vehicle technology changes:*
  New technologies, such as partial and full autonomous vehicles and the Internet of Things (IoT), are changing the risk landscape for insurance companies. With the potential to affect premiums going forward there is the need to monitor these changes and take appropriate actions to mitigate their associated risks. The near term impact can be seen in Physical Damage costs as new technologies (ex. automatic parking, pedestrian emergency braking) reduce the frequency of accidents but result in higher severity (aluminum alloys require special tools and training; and in vehicle technologies increase the cost and complexity of repairs). This requires the technology behind estimating and adjusting solutions to be flexible, continuously updated, and consistently available – connecting MPI and its repair partners.

- *Insurance Industry Requirements:*
  The insurance industry is facing changing regulations and in some cases, more supervision by regulators at the federal or global level. This results in stricter solvency capital regulations that are forcing insurers to set aside more capital for the business that they are underwriting, and to increase investments in information/cyber security. MPI needs to continue to monitor these regulatory changes to be prepared for, and to ensure compliance as required.

4. Business Objectives and Strategies

Our corporate mission statement outlines the foundation for how MPI will be successful as a business:

Exceptional coverage and service, affordable rates and safer roads through public auto insurance.

This will be accomplished through a focus on the effective management of claims, underwriting and investment income. This cannot be done in isolation. In order to meet the diverse needs of our geographically dispersed customers, MPI must incorporate effective partnerships in the delivery of products, programs and services, as well as a deep understanding and adaptation to ongoing industry changes. This will require new technical capabilities which must be secure, reliable, and cost effective but also responsive to the needs of customers and partners and adaptable to the changes in products, services, and programs.

Objective 1: Rate Stability and Predictability

Strategy: The Basic compulsory insurance program must be operated on a self-sustaining basis with sufficient capital reserves, while maintaining stability, predictability and affordability. Strategic focus will be on risks, opportunities, and threats which materially impact this goal such as agreement negotiations with Brokers and the Repair Industry, Investment and Capitalization strategies, Claims control programs, and management of enterprise risk and related safeguards such as reinsurance.

Objective 2: Operational Excellence

Strategy: The Corporation will continue to demonstrate fiscal prudence and sound financial management practices while driving cost-containment, streamlining of operations and elimination of unnecessary operational expenses. This strategy will be supported by Capital projects and major technological initiatives will focus on supporting and optimizing core business functions, including ensuring the Corporation's ability to adapt appropriately to changes in the auto insurance and registration environment. These enterprise wide activities include creating an overall roadmap for online products and services, corporate wide efforts to enable a high performing culture, and new reporting and dashboards. This also includes division level optimization of key processes (appeals, financial management, information technology, and facilities).

Objective 3: Product and Service Leadership

Strategy: The Corporation will continue to evolve to address the changing needs of Manitobans including services to Manitobans in rural, northern, and remote communities. This will be facilitated through analysis of current stakeholders, the review and refinement of the existing product suite, and the implementation of a customer needs and experience framework. Opportunities will be explored to deliver the technical components of these initiatives in a timely fashion using new agile processes.

Clearly defined business objectives, backed by strategies to achieve them, are the first step in defining the business capabilities required for success. Section 6 outlines key considerations which help MPI guide the selection and prioritization of new capabilities. Section 8, outlines those capabilities and the need for changes and improvements needed to ensure success.

To ensure a full and comprehensive view needs must inform strategies, which must inform plans. At the highest level business needs must be consistent with the Annual Business Plan. Then specific strategies and objectives must then be developed based on the business plan. Finally, the specific plans to impliment those strategies and achieve the objectives (operational and capital projects) must be devised. For example, the following of Corporate Strategic Priorities focus on achieving core business objectives, and were considered in the development of capabilities (or needs, see section 8), but also need to be evaluated for the potential impact on the strategy to achieve Legacy Modernization.

ALM Implementation	Repair Negotiation	Online Self Service
Broker Negotiation	Risk Appetite	Performance Culture
Capitalization Autopac	Appeal Process Review	Reinsurance
Claims Cost Control	DVA Review	Reports / Dashboards
Customer Experience	Finance Re-Engineering	Space Plan
Product Suite Review	IT Legacy Update	Stakeholder Agenda Analysis

*Dark shading denotes Legacy Modernization impact, light shading denotes potential Legacy Modernization impact

5. Major Influences

The following pre-existing projects and processes have a significant impact on many business and IT capabilities proposed in this strategy. A brief summary of each and their impacts is highlighted here:

Legacy Modernization

A Legacy Modernization assessment has been established to determine how our existing application infrastructure can be modernized to be successful in meeting the current, new and known future business requirements. Potential solutions will be evaluated for upfront value (business and IT capabilities gained by modifying existing processes and avoiding customization) and long term cost effectiveness. The core objectives of the project are:

- Perform a detailed assessment of our core systems and their associated business processes.
- Perform an industry survey of available technologies in both the Property & Casualty Insurance policy issuance and claims administration, and in the Driver and Vehicle Administration domain.
- Create a set of recommendations and guidelines defining how to transform MPI's legacy systems to meet long term business needs and close identified gaps in business and IT capabilities.
- Create an Application Strategy that outlines how MPI will address the proposed recommendations for transforming MPI's legacy systems to meet long term business needs
- Create a detailed comprehensive Business Case that outlines the costs, benefits, and risks for implementing and then operationalizing the solution defined by the Application Strategy.

The results from the assessments and the industry surveys will be used as input into developing a detailed business case which will be presented to MPI's Board of Directors. During the process of completing these assessments, MPI will gain detailed, third party, insight into the business and IT capabilities provided by key systems. These insights may have a significant impact in how business and IT capabilities are created for the foreseeable future and may significantly shape the 2019/20 IT strategy and 2019/20 project portfolio.

Information Security and IT Risk Management Processes

Mature Information Security and IT Risk management are critical to the success of the modern corporation due to the complex and changing IT and information security risk landscapes. Effective governance and oversight must exist, continually identifying threats, evaluating risks, and enhancing controls and capabilities. To guide these activities, MPI has formed the Information Security Office (ISO) which manages three key governance functions: Information Security, IT Risk Management and Information Security Architecture.

The ISO has established the IT Risk Management practice through a framework for defining and measuring key IT risks in the areas of application, infrastructure, security and compliance, resourcing, and project management. IT Risk Management ensures that appropriate information technology and business process and controls are in place, measured, effective, and aligned to defined risk tolerances.

The role of ISO is critical to maintaining compliance to information security standards, requirements, evolving customer and regulatory expectation and requirements, evolving contractual commitments and controls with strategic business partners, while ensuring technology change are aligned to risk practices and measures, including monitoring and aligning our Information Security maturity targets.

Data and Analytics Processes

To maximize the business value found within its data, MPI consolidated four operational departments and centralized them within one directorate in Q2, 2017/18. In the short term this created operational efficiencies and improved service delivery on data and analytic initiatives. A second step has been the creation of a draft Data Strategy which outlines a corporate level governance structure over data and analytics, and a roadmap for incremental improvements in people, processes and technology. To support the business strategies, this area will focus on the implementation of standardized dashboards and consistency in reporting key performance indicators (KPIs) for strategic priorities and corporate performance measures. As part of the Legacy Modernization program, this area will ensure that the proposed system solutions incorporate the data and analytics capabilities required to produce accurate reporting and actionable business insights upon implementation and in the future.

Technology Risk Management Program

The Technology Risk Management (TRM) program provides regular investment in technology systems and processes. This ensures that existing technologies stay on supported versions and technology risks are addressed through process and technology improvements. Investments are identified and prioritized annually. The 2018/19 program budget will be spread across 4 key areas: Application Risk Management, Infrastructure Risk Management, Information Security Risk Management and Risk Registry Remediation. Investments in 2018/19 include the increased adoption / deployment of Information Security technologies and the upgrade and/or replacement of significant parts of the IBM managed IT infrastructure (including network, security, and storage devices). These projects will require careful planning and coordination to minimize any downtime associated with the changes.

Value Management Process

MPI has continued to increase its use of the Value Management process to effectively identify, qualify, quantify, and evaluate projects. Value Management begins with business cases which; outline the goals and scope of an initiative, highlight the associated cost and benefit estimates, and present the monetary impact using a consistent set of financial measures. The process continues over the duration of the project, with emphasis on delivery to the business case and review of any project changes which materially impact the business case. At the completion of projects, Value Management confirms attainment of business case goals, including attainment of financial measures. The Value Management process also includes steps to review candidate projects for potential synergies or conflicts. The outcome of this review is recorded in the Enterprise Architecture section of the business case and looks for conflicts on a business, technical or security architecture perspective.

Enterprise Architecture Process

Enterprise Architecture (EA) is the discipline of proactively and holistically managing business and IT capabilities by identifying and analyzing the execution of change toward the desired business vision and outcomes. EA delivers value by presenting business and IT leaders with complete recommendations for adjusting processes and projects to achieve business outcomes that align to the business plan. MPI is actively pursuing improvements to its EA process maturity as a way to reduce the risk and cost associated with implementation of the key business strategies. EA involves Business Architecture, Technical / Data Architecture, and the ISO and is a key input to upcoming major initiatives (there is a specific focus on EA within Legacy Modernization). EA actively integrates business plans, business capabilities, IT capabilities, and leverages industry best practices and MPI guiding principles to ensure consistency and efficiency across the enterprise. EA is a critical process to the development and maintenance of the IT Strategy.

6. Guiding Principles

Guiding principles represent distilled organizational knowledge and best practices acquired through experience and are used to support the organizational decision making. This knowledge was collected and considered as part of the preparation of this strategy, and will be used to guide the development of business and IT capabilities.

- Enterprise Architecture shall align solutions with the Corporation's mission and vision to maximize business value while providing business agility, reducing complexity and total cost of ownership
- IT services of the Corporation shall be governed and managed centrally.
- IT services and solutions shall align and evolve with the Corporation's security, privacy and business continuity policies, standards and requirements to ensure information is appropriately safeguarded.
- Technology solutions shall leverage industry proven technologies and shall be maintained such that they operate within the vendors' supported set of technologies.
- Commercial software shall be considered before in-house custom development.
- MPI will seek to standardize its products and processes, where prudent, to avoid uneconomical customization of commercial software.

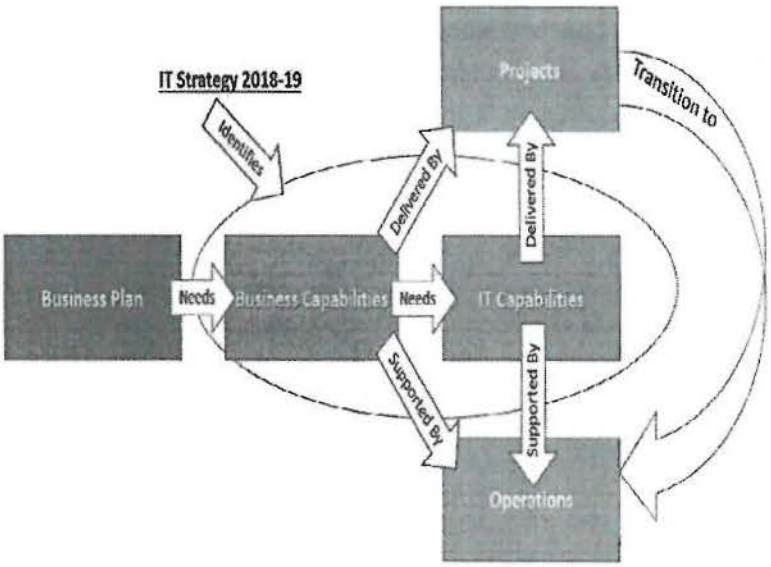
7. Developing Business and IT Capabilities

Enterprise Architecture identifies two concepts (Business Capability and IT Capability) which enable the connection between business strategy, objectives and specific IT initiatives:

- Business Capability: A business capability refers to a combination of resources (people, organizational structures, assets, systems, technologies and partnerships) that is necessary to reach the future state described by the business strategy. For MPI, the business strategy is included in the 2018/19 Annual Business Plan.
- Information Technology Capability: An IT capability refers to a combination of resources (people, organizational structures, assets, systems, technologies and partnerships) that is necessary to support a business capability. For MPI, IT projects are completed to add or change IT capabilities.

MPI is investing significant operational effort in establishing and advancing Enterprise Architecture based upon recommendations from Gartner and comparison to peer organizations.

The MPI Annual Business Plan summarizes the needs of the corporation for the next fiscal year. These needs are met using a combination of people, processes and technology to achieve the intended business result. Within this IT Strategy, MPI has shared the business and IT capabilities which will achieve the top business objectives. The next section illustrates that business capabilities may exist independently, or may be supported by one or more technology solutions, each with their own requirements for people, process, and technology. These have been referred to in this strategy as IT capabilities. MPI deploys new capabilities via projects, and then transfers ongoing support, maintenance and continuous improvement of capabilities to operational departments.



The IT Strategy illustrates how business goals, objectives and strategies (outlined in the Annual Business Plan), translate into business capabilities and IT capabilities, and will be delivered by projects and supported by operations. Each major project in the Corporate Capital Master Summary has a business

case associated with it, which outlines the specific needs of the business. These needs can be translated into business capabilities which can be linked back to this IT Strategy.

8. Required Business and IT Capabilities

The following key capabilities are under development, with most starting within the 2018/2019 fiscal year.

8.1 Introduction of internet customer self-service channel for purchasing products and services

Business Objective: Operational Excellence

Business Capabilities: In FY18/19, MPI will introduce a new secure internet based customer self-service channel for purchasing products and services which are high volume and low complexity in nature (i.e. appointment based services like knowledge and road tests). MPI intends to expand these service offerings and capabilities over the next several years.

IT Capabilities: A secure customer self-service channel requires new technologies which effectively manage a customer identity and provide secure ways to interact with MPI, including information lookup and payment. These new interactions need to ensure the right balance of security and functionality, and have appropriate measures to log / track the transaction for quality assurance purposes. Information must be accessible on demand, but must also ensure the appropriate privacy controls are in place to prevent unauthorized disclosure. Legacy Modernization assessment will further guide this activity as the IT capabilities required on current platforms versus newer industry solutions could be very different.

Related Project(s): Customer Self-Service; Legacy Modernization Assessment

8.2 Introduction of secure customer messaging and electronic documents to increase customer communication channels and reduce ongoing mailing costs

Business Objective: Product and Service Leadership

Business Capabilities: In conjunction with the internet customer self-service channel, MPI will be introducing secure customer messaging via email and / or SMS text messages, as well as electronic document distribution via a secure MPI customer portal 'inbox'. MPI will be utilizing email and / or SMS text messages as a communication medium in conjunction with the new driver's education program to provide drivers with reminder messages, driving and testing feedback, and to increase overall communications between MPI, instructor and the students. Incrementally, MPI will utilize the new secure 'inbox' as a means to transform MPI customer communications from a paper-based mailing medium to electronic documents. Initially, this service will be an optional service offering to customers.

IT Capabilities: A secure method of communication with customers and partners needs significant Information Technology capabilities. These new interactions need to have the right balance of security timeliness and functionality, be built on platforms that are designed for higher availability, and able to handle spikes in transaction volume around peak business times. Diligence is also required to link digital and physical transactions (started by SMS, continued by e-mail, finished in person). This complexity along with the rapidly expanding number of devices and communication platforms results in additional efforts for testing on the deployment and continued support of new transaction types.

Related Project(s): Customer Self-Service Project; High School Driver's Education Program

8.3 Introduction of customer feedback and survey mechanisms as part of customer self-service experience

Business Objective: Product and Service Leadership

Business Capabilities: As part of the customer self-service channel, MPI will be introducing new real-time customer feedback tools with the capability to capture feedback and opinions regarding our products and the customer's overall service experience. This capability will also be extended to the MPI public website to provide Manitobans with an incremental customer feedback and survey mechanism for all future customer service experiences.

IT Capabilities: The ability to measure and report on customer feedback requires several different technologies. The first focuses on the secure capture of information, and includes the appropriate mechanisms for a customer to "opt-out" which will be consistent across connections. The second ensures information provided by customers is analyzed and reported in a timely, secure and consistent way with the appropriate privacy controls. Finally, information that is no longer required needs to be securely disposed of.

Related Project(s): Customer Self-Service project is a prerequisite. A separate business case and project will be required to deliver this capability.

8.4 Enhanced performance measurements and real-time dashboard reporting

Business Objectives: Operational Excellence, Product and Service Leadership

Business Capabilities: In FY18/19, MPI will be establishing performance measurements which will serve as corporate KPI's into the future. Once established, it is envisioned that real-time dashboard reporting of these KPI's will be operationalized and made available to all key MPI stakeholders.

IT Capabilities: Online customer experience management and real-time dashboard creation require the expansion of existing capabilities and technologies to analyze and consolidate existing and new data sources. Capabilities gained in this activity can be leveraged to enhance both pre-existing and new internal operational reporting. Legacy Modernization assessment will further guide this activity as the IT capabilities required on current platforms versus newer industry solutions could be very different.

Related Project(s): Customer Self-Service project is a prerequisite. A separate business case and project will be required to deliver this capability. Legacy Modernization Assessment will guide the capabilities considered in this area.

8.5 Increase efficiency and effectiveness of corporate financial reporting processes and controls

Business Objective: Operational Excellence

Business Capabilities: MPI intends to complete an assessment of its current financial reporting processes and controls in the near term. As a starting point, the Corporation will utilize the recently completed (2015) Finance study and re-validate and adjust findings based on current and future corporate needs. The assessment will also determine the corporate impacts, gaps and remediation priorities to ensure the corporation is in compliance to IFRS 17 accounting standards and requirements, prior to the January 2021 financial reporting deadline. Additionally, MPI will assess and confirm the future viability and alignment of the existing financial technology suite based on the findings of the Legacy Modernization Assessment engagement.

IT Capabilities: The existing financial platform will be further reviewed to confirm it can perform the business functions required, and can be augmented with additional solutions as required and feasible. As part of this assessment, vendor and industry best practices will be reviewed to identify opportunities to meet business needs and further leverage platform capabilities. IT capabilities will include technology solutions to facilitate self-service capabilities and process automation opportunities. These activities need to be closely aligned to the Legacy Modernization Assessment.

Related Project(s): Finance Re-engineering; Legacy Modernization Assessment

8.6 Transform the Driver's Education Program to modern learning tools, media and introduce social media collaboration

Business Objective: Product and Service Leadership

Business Capabilities: In spring 2019, MPI intends to launch a new driver's education program which will transform the existing program from a lecture and paper-based medium for training, to a more modern demographically focused medium which leverages video, computer based simulation exercises, gamification, social media collaboration and the mobile platform as the primary technology base. This will result in:

- Improved driver education program and services
- New channel for driver education for instructors, students, and related customers
- Supports for the implementation of social media with appropriate policies, controls and oversight

IT Capabilities: These business capabilities require new skill sets within MPI (web development for mobile devices, including standards for accessibility) and new technical capabilities (enhanced testing on mobile devices). These platforms also have a higher expectation for availability (24/7 operation), which requires different types of support and transaction processing which avoid downtime. These activities also generate new types of transactions and related meta-data which requires different solutions to track and manage in ways that are secure and efficient.

Related Project(s): High School Driver's Education Program

8.7 Further streamline key Physical Damage processes to maintain effective cost control

Business Objective: Rate Stability and Predictability

Business Capabilities: Further streamline the core business capabilities, processes and administration to enable better management of claims costs. This will be completed by enhancing claims cost controls related to the different factors which affect claim severity. This involves a review and potential changes to estimating processes and standards, repair processes and guidelines, and changes to repair certification and related training. This also requires the capability to continually evolve all these areas as manufacturer requirements and vehicle composition (ex. advanced metals, increasingly complex onboard computing) changes.

IT Capabilities: Ensure that the existing vendor supplied platforms can be updated where existing IT capabilities have been replaced with updated products (such as estimating standards) without incurring significant cost and / or with limited business process disruption. This technology management capability needs to apply to both MPI and Repair Shops. This also requires the introduction of a new commercial parts sourcing solution which will replace a current MPI custom solution.

Related Project(s): Enhanced DR Capabilities (Parts, LOU)

8.8 Ensure consistent and necessary investments in Information Security Resiliency and IT Risk Management

Business Objectives: Rate Stability and Predictability, Operational Excellence

Business Capabilities: Continue to monitor and evolve information and cyber security risks, and IT security defense plans, measures and actions. Maintain effective operational controls to ensure the timely completion of threat identification, threat response and ongoing preventative measures. Assess the effectiveness of measures and safeguards, and optimize over time.

IT Capabilities: This requires the introduction of new IT capabilities throughout the lifecycle of a system. This begins with requirements, design, and development, including security requirements and review throughout. It continues into testing and through implementation, ensuring no security gaps exist when a project is deployed into production. This continues with regular reviews to ensure operational activities (ex. system patching, defect fixes) reduce risks consistently, and do not create new security vulnerabilities. Monitoring capabilities are enhanced to look for known threats and unusual patterns of behavior (emerging, not reported, threats or MPI specific attacks). The Legacy Modernization assessment has the potential to make recommendations which could significantly change the focus of these investments.

Related Project(s): Technology Risk Management; Credit Card Strategy; BI3 Fineos Upgrade; Legacy Modernization Assessment

8.9 Complete market and stakeholder analysis to ensure continued product excellence

Business Objectives: Product and Service Leadership

Business Capabilities: A review of product suites and the needs of key stakeholders will occur in the 2018/19 fiscal year. It is anticipated that changes to products and services may be recommended from this review. Changes to Business Capabilities may / may not require changes to IT capabilities. A recent example of this type of change has been the introduction of Transportation Network Companies, which is leveraging existing IT capabilities in new ways.

IT Capabilities: The identification of impacts to IT capabilities will be determined based on the outcome of the product suite review. This will be updated in the 2019/20 IT Strategy and may include new business cases and related initiatives

Related Project(s): AOL PUB Release; SRE

9. Applying the IT Strategy

Overview

The MPI Annual Business Plan summarized three business objectives and their related strategies.

- Rate Stability and Predictability
- Operational Excellence
- Product and Service Leadership

The IT Strategy outlines both the business and IT capabilities which will be required to achieve these objectives. The Strategy provides the framework for evaluating, planning and building MPI business and IT capabilities necessary to ensure MPI is successful in attaining these objectives.

Organizational Impact

Executing the portfolio of initiatives necessary to achieve MPI's business objectives will have a major impact on the MPI corporate culture, and will require higher levels of collaboration, and accountability within divisions and between departments. To facilitate this, the corporation has reorganized its divisions to recognize its increased emphasis on risk management, align operational functions and to improve the management of claims. Examples of key areas of change include:

- Continued development and formalization of Value Management processes are being adopted across the corporation.
- Strategic Projects have an additional leadership role; Operational Business Champion (OBC). This role is accountable for making key decisions (in consultation with Executive Sponsors), on the initiative.
- Project and Operational financial reporting, as well as technology procurement have been consolidated and transitioned to the Finance division.
- The Data and Analytics team has been formed and is responsible for the maturing of corporate data and analytics competencies and standards, as well as development, implementation, and ongoing maintenance of corporate dashboards, thereby increasing the transparency on strategic priorities and key corporate metrics.
- The Application Services group has been successfully integrated into the Enterprise System Support directorate resulting in end to end operational support capabilities for critical corporate applications.
- The Information Security Office has expanded its scope of responsibilities, providing services at a corporate level.

Changing roles, skills, and priorities to support business and IT capabilities

Delivering the business capabilities and related IT capabilities will require changes to employee skill sets. There will be an increasing emphasis on analytical skills, technical skills (newer coding practices optimized for web development), and business, technical and security architectural skills. MPI is active in the development of internal staff through project and operational opportunities. MPI is also executing an External Labour strategy to ensure MPI transitions knowledge and skills from external contractors / consultants to internal staff.

Prioritization is also occurring to ensure there are sufficient resources to develop the required capabilities. Select non-critical operational work was deferred until the end of Q1-2018/19 allowing more internal resources to participate in key projects. This is a balance, because as significant changes are implemented, the importance of operational processes which quickly identify and resolve application defects, remains critical to the integrity and availability of key corporate systems. These operational processes must not be negatively impacted by any changes in staffing allocation to build capabilities, doing so would increase risk to the stability of key platforms.

As MPI considers the future of its core system (Legacy Modernization Assessment), MPI will revalidate the long term mix of analytical, technical, and architectural consultants required to support its critical applications and propose a staffing strategy to align to the long term corporate requirements. It will also continue to evaluate the requirement for, and priority of, operational work related to Legacy platforms.

Delivering projects which result in new / enhanced IT and Business capabilities

To support the deployment of the business and IT capabilities identified in section 8, some projects will require an additional delivery approach which provides more agility and improves time to deliver. The existing delivery model focuses on structure, rigor and consistency and has a formal progression of steps including:

- Production of detailed business requirements
- Detailed technical requirements and solution designs
- Comprehensive testing and implementation
- Solution delivery and warranty

MPI is currently exploring an additional methodology which can operate in parallel (An Agile methodology) which focuses on rapid, small deliveries. This would be used to bring solutions to production more quickly, often using pilots to provide proof of value before embarking on a full project using the traditional 'waterfall' delivery methodology. This also provides MPI with practical experience in alternate delivery models which are seeing increased adoption in the insurance industry. This broader experience allows MPI to better partner with current and future strategic technology providers, leveraging and learning their best practices.

Ongoing Oversight and Governance

Developing this IT Strategy has provided MPI with the opportunity to confirm the alignment of the business plan, business capabilities, IT capabilities and IT projects. The result is a single document which succinctly links the MPI business plan, business strategy, key business process documentation, and project documents (such as business cases and project / program charters) resulting in increased transparency and clarity. This document is used within MPI to guide project and operational teams.

Enterprise Architecture concepts and practices have been critical to the development of this strategy. MPI continues to develop its Enterprise Architecture process maturity, with assistance from Gartner research and experts, and through initiatives such as the Legacy Modernization assessment. As Enterprise Architecture process maturity continues to improve, and further clarity on future business and IT capabilities emerge, updates to this document will be required.

On an annual basis, MPI will update this strategy to reflect the progress made and any changes required to maintain alignment to the Corporation's business plan.

PUB (MPI) 1-72

Part and Chapter:	IV IT	Page No.:	
PUB Approved Issue No:	19. Current IT Strategic Plan and IT Expenses and Projects		
Topic:	IT Management		
Sub Topic:			

Preamble to IR (If Any):

Question:

a) Please file an update to PUB/MPI I-29 Appendix 1 and I-29 (c) from the 2018 GRA.
b) Please file an update to PUB/MPI 2-16 (a) & (b) from the 2018 GRA.

Rationale for Question:

To provide an update on project status.

RESPONSE:

a) Please see Appendix 1: Status of Corporate Strategic Initiatives. With respect to PUB/MPI I-29 (c) from the 2018 GRA, the Value Management Post Implementation Review template has not changed except for the addition of a section entitled "PIR Methodology" which will outline what procedures were undertaken to perform the review (i.e. interviews, verification procedures).

b) Please see the tables below for update to PUB(MPI) 2-16 from the 2018 GRA:

Figure 1: Listing of Active and Future Initiatives – Total Corporate

Line No.	Active and Future Projects - (completed and closed projects not shown)	Budget	Business Case Development Phase	Business Case Approved (Y/N)	Delivery Phase	Notes
1	*(C$000s, except where noted)*					
2	High School Driver Education Phase 2	1,982	Completed	Y	Elaboration	
3	High School Driver Education Phase 3	2,018	Completed	Y	Elaboration	
4	HR Managenent System Phase 3 & 4	446	Not started	N	Start up	
5	BI3 Fineos Upgrade 2020	2,277	Completed	Y	Not Started	
6	BI3 Fineos 2024	1,250	Not started	N	Not Started	
7	Financial Re-engineering Initiatives	13,960	In Progress	N	Start up	Note 1
8	Legacy Systems Modernization	72,000	In Progress	N	Inception	Note 1
9	Infor/Lawson Upgrade	4,505	N/A	N/A	Warranty	Note 2
10	Infor Major Upgrade 2022	3,000	Not Started	N	Not Started	
11	Technology Risk Management - 2017	4,525	Completed	Y	Various Phases	
12	Technology Risk Management - 2018	4,272	Completed	Y	Various Phases	
13	Technology Risk Management - 2019	4,500	Not Started	N	Not Started	
14	Technology Risk Management - 2020	4,500	Not Started	N	Not Started	
15	Technology Risk Management - 2021	4,500	Not Started	N	Not Started	
16	Technology Risk Management - 2022	4,500	Not Started	N	Not Started	
17	Enhanced DR Capabilities	2,989	PDR	N/A	Various Phases	Note 2
18	Customer Self Service	4,870	Completed	Y	Various Phases	
19	AOL PUB Release	2,672	Completed	Y	Inception	
20	Credit Card Strategy	1,701	In Progress	N	Various Phases	
21	Non-Basic Projects	7,090	Various	Various	Various Phases	
22	Total Project Budget	147,557				

Note 1: Initial Phase of project includes completion of detailed business case for approval before proceeding to full project phase.

Note 2: Project approved prior to full implementation of Value Management Process

Figure 2: Listing of PDR Related Projects

Line No.	Project name	Basic Deferred Development Project*
1	*(C$000s, except where noted)*	
2	Physical Damage Re-Engineering Phase 1 & 2	1,888
3	Physical Damage Re-Engineering Main/Phase 3	11,639
4	PDR Opt Repair - Remote Estimating	212
5	Appointment Manager	1,297
6	Customer Claims Reporting System	14,412
7	Enhanced DR Capabilities	2,189
8	Partner Portal	2,223
9	Total Project	33,860

**Impairment of Deferred Developmen excluded Basic Deferred Development reference Appendix 18*

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August 20, 2018
MPI Exhibit 9

2019 GRA Information Requests - Round 1
PUB (MPI) 1-72 Appendix 2

Project	Infor/Lawson Upgrade				
Start Date	December 2014		Projected End Date		June 2018
Status	Budget		Schedule		Overall

Project Description

This initiative includes a full platform upgrade of the Infor (formerly Lawson) Financial, Payroll and Time Entry components in addition to the Human Resource Management System. Major goals of the upgrade are to (i) fulfill the existing requirement for future dating functionality; (ii) enable additional employee self-serve functionality; and (iii) remain on mainstream maintenance and support from the vendor.

Understanding of the functionality changes included in the new versions of the software is crucial as it is anticipated that modifications to existing business processes, documentation and change management will be required. The project was initially expected to be completed by end of 2016/17 fiscal year. The project encountered significant issues with the Infor/Lawson product and with the setup of the pre-production testing environment. With Executive review and approval, go-live was postponed to April 23, 2018 in order to add increased quality assurance to the configuration of the Production Support and Production environments. Setup and testing functionality in the Production Support environment was successfully concluded as well as the implementation dry run in Production. System went live April 23. Warranty Period has been extended to June 15 to address additional defects, and stabilize the Systems Integration Test environment. Exit criteria for warranty is under review.

Timeline

Phase - Warranty	Target Date	
Warranty Period Extended	June 15	
Exit Criteria In Reivew with Executive Steering Committee	June 12	
Decision whether to extend warranty past June 15	June 13	

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Infor Upgrade went live April 23/18.	System Integration Test environment stabilized
"Go-Live" incident reporting was closed May 28, the team is shifting focus from resolving incidents occurring in prodcution to fixing defects on the workaround list.	Resolve prioritized defects – time boxed for completion on June 15
Executive Steering Committee has extended the warranty period from May 18 to June 15 with a focus on stabilization, reduction of reliance on incremental resources and successful transition.	Executive Committee Meeting to validate and approve the recommended Warranty Exit Criteria
	Transition the Project to Production Support – TBD pending approval of exit from Warranty

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Continue monitoring production to identify system stability issues	Issue	Determine the tools required to monitor production	In Progress
Stabilize System Integration Test (SIT) environment	Issue	Vendor to be onsite to re-install SIT	In progress

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	121,679	392,796
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,504,600	3,663,130	3,934,247

The following is a summary of the PDR Spinoff projects initiated March 1 2017.

Project	PDR Spinoff - Customer Claims Reporting System				
Start Date	July 2014		Projected End Date		April 2018
Status	Budget		Schedule		Overall

After a thorough review of the business case and technology factors, a decision has been made to not pursue the implementation of Customer Claims Reporting System (CCRS) at this time.
The CCRS project was one of the last initiatives of the Physical Damage Re-engineering (PDR) Program. The goal of CCRS was to create an online claims reporting option for our customers by 2019. While this project is not moving forward, the project has already helped create efficiencies in the claims reporting and liability assessment processes, and created a clear vision for a future customer self-service process.

Timeline

Project closed

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Project close out activities	N/A
Resource reassignment	

Project Risks/Issues

Description	Type	Mitigation Plan	Status

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
7,200,000	766,959	775,979
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
23,388,041	16,399,175	16,408,195

Project	PDR Spinoff - Loss of Use (LOU)						
Status	Budget	Schedule	Overall	Start Date	Mar 2017	Projected End Date	Feb 2019

The goal fo the LOU Program is to move the responsibility for managing rental vehicle use to the shops on a per claim basis. This will occur in parallel with establishing more robust control structures within MPI. MPI will establish standard and fixed spend per repair. This will allow shops to deal directly with rental agencies to source and provide replacement vehicles. The rental companies will bill the repair shops instead of MPI and MPI will reimburse the shops based on the fixed rate for the repair, not based on the actual which pass the risk of repair delays to the shops.

Phase 1 of LOU was implemented February 24th 2018, and warranty has been closed. Phase 1 included the LOU Automated Approval for Rental Agencies based on current touch times. Work on CR-LOU-05 (Deferred Functionality) has started and is in SIT (System Integration Testing). Deferred Functionality has an implementation date of June 24th, 2018. This implementation includes 5 tasks deferred from Phase 1.

Phase 2 will contain the balance of the original LOU scope and will be implemented in fiscal 18/19- dependent upon the negotiation outcome with the Repair trade.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Completed Design / Development	Complete SIT (System Integration Testing)
Started SIT (System Integration Testing)	Complete UAT (User Acceptance Testing)
	Complete implementation and warranty

Project Risks/Issues

Description	Type	Mitigation Plan	Status
No Risks or issues at this time			

Project	PDR Spinoff - Parts Solution						
Status	Budget	Schedule	Overall	Start Date	April 2018	Projected End Date	2018/19

The solution will implement software commonly used in the recycled parts market to identify recycled parts for MPI claims. The new solution will replace the legacy in-house Claims Response System (CRS) which limits parts and pricing. This will influence the OEM and Aftermarket industries. Much of the work to be conducted serves the purpose of removing current barriers to the utilization of recycled parts in repairs. The solution comprises a combination of organizational (structure, process, people) and technological changes.

Mitchell uParts, Mitchell QRP, and Mitchell Parts solutions have been assessed and it has been determined they are not viable options for MPI to implement as a Recycled Part Sourcing solution. A comprehensive solution for Recycled Part Sourcing was presented, and Executive Streeing Committee (ESC) accepted the solution April 25th. The project commenced on April 26th and is scheduled to complete at the end of December. There will be at least one key touchpoint relating to the implementation of Mitchell Estimate advisor once the Mitchell roadmap is confirmed. A key dependency is successful negotiations with ARM (Automotive Recyclers of Manitoba), and that the Manitoba recyclers will agree to use Car Part and list their inventory.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Start Schedule for critical path	ESC approval for new set of policies
Begin Recycler engagement activities	Decision on project direction when the Mitchell roadmap is available for Estimate Advisor (if required)
Begin software setup for review of closed files and testing	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Mitchell Roadmap for Estimate Advisor not yet known- may impact schedule/budget	Risk		

Financials (LOU & Car Parts Pro/uParts)

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
500,000	169,099	1,263,483
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
2,989,314	1,886,918	2,981,302

Project	PDR Spinoff - Appointment Manager						
Status	Budget	Schedule	Overall	Start Date	March 2017	Projected End Date	April 2018

The Appointment Manager project web-enables the existing appointment management functionality for use by internal staff and extends appointment management capabilities to support future customer self-service booking of appointments as well as usage by repair shops to self manage their availability for direct booking of estimate appointments through the new FNOL applications.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Appointment Manager/Appointment Viewer functionality testing (User Acceptance Testing) completed	Project implementation and closeout activities completed.
Implemented on February 25, 2018.	
Post go-live Warranty and transition to Operations completed.	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
All risks and issues are addressed and closed			

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	41,087	41,087
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
1,404,440	1,445,355	1,445,355

Project	PDR Spinoff - Partner Portal						
Status	Budget	Schedule	Overall	Start Date	Oct 2015	Projected End Date	February 2018

MPI is replacing the existing Partners Portal to provide MPI partners a new web and mobile based platform to interact and engage with MPI.
Partner Portal will provide a new experience to MPI Partners to communicate with the respective service areas and perform various self managed activities using different service applications/Communities and utilize online tools and knowledge guides.

Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Transition to Operations complete	Project is completed – no further reporting will be provided
Close out documentation	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
All risks and issues are addressed and closed			

Financials

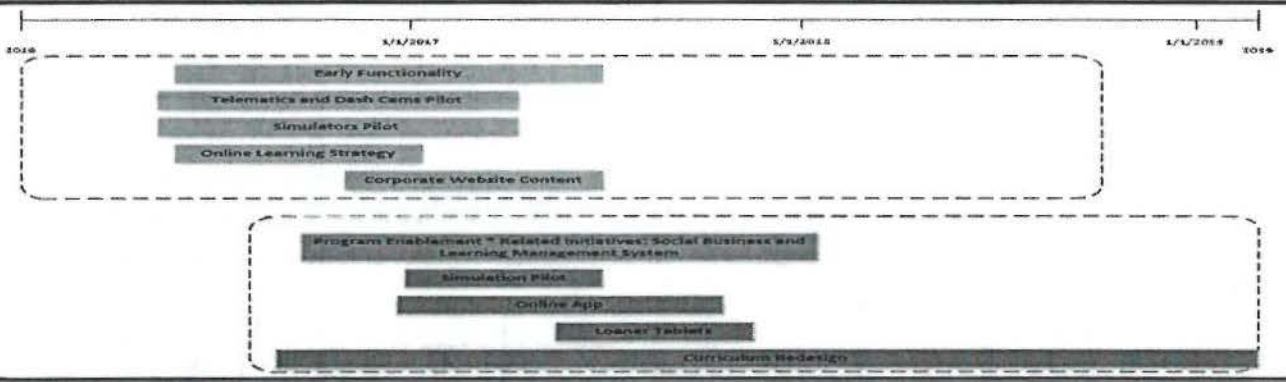
Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
0	27,740	40,740
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
2,406,770	2,573,828	2,586,828

Project	High School Drivers Education (HSDE)				
Start Date	April 2016		Projected End Date	February 2019	
Status	Budget		Schedule		Overall

The purpose of the program is to redevelop of the High School Driver Education program. The final phase of the program has been initiated with a focus on curriculum redevelopment. The outcomes of the curriculum redesign focus on higher order learning concepts and better utilization of classroom hours by shifting some 'knowledge- based' program content to online computer-based learning. This can be leveraged further with our other audiences including: first nations, northern communities, adult driver education, etc. This is intended to enhance the student experience and further engage guardian/parent/Co-pilot involvement.

The Board approved $1 million in additional funding as well as additional time, extending the project end date from June 2018 to the end of February 2019. The curriculum development is planned to be complete by June 2018, with some video assets to be completed by the end of August. The technical solution concepts are being validated and developed. Testing is expected to begin fall 2018.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
CR approved for additional funding and new project end date of Feb 2019	Competency model and training with learning for HSDE instructors being developed for facilitation and coaching.
Technical & Security resources assigned. Security Risk Assessment complete	Security audit planning
Architecture Design solution being validated. Business & System Requirements being gathered and prioritized	Architecture Design solution validated and development underway
Video development, approvals, and filming underway	All video assets complete and loaded into the system
Project plan and schedule revised. Business Case revised	Curriculum design/development and Competency Model complete
Instructor Advisory Committee Workshop held for HSDE Instructors to introduce new program	Training approach and plan developed. Training material development

Project Risks/Issues

Description	Type	Mitigation Plan	Status
CLMS may not meet solution requirements	Risk	Assessment and Proof of concept underway	On Track
CSS timelines may not meet HSDE's needs for authentication	Issue	Assessment underway	On Track
Budget and Schedule have no contingency	Risk	Prioritization of technical pieces with business input to deliver the most value for the budget and the timeline	On Track
Parallel streams of work need to be integrated with coordination between different business units.	Risk	Project teams being co-located to increase communication amongst teams	

Financials

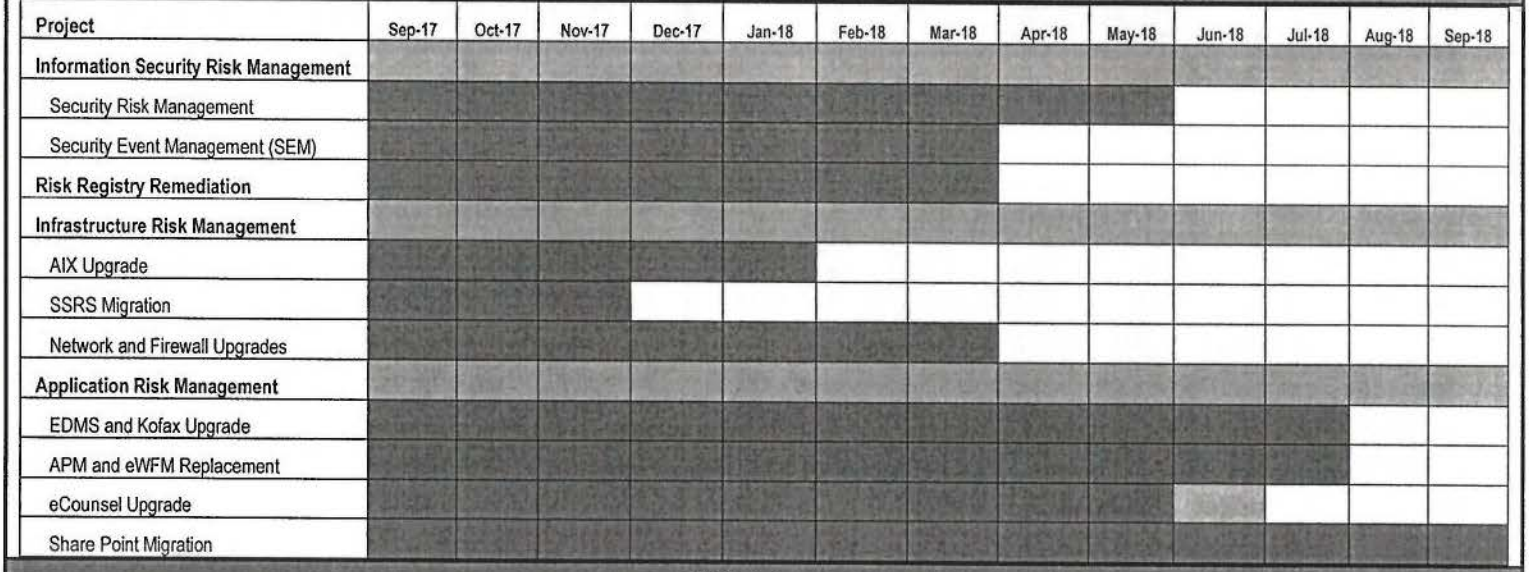
Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
900,000	251,346	2,229,857
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,000,000	3,021,490	5,000,000

Program	Technology Modernization Program - Technology Risk Management (2017/18 Program)		
Start Date	March 2017	Projected End Date	September 2018
Status On Track	Budget	Schedule	Overall

The Technology Risk Management program will evaluate, identify and/or implement technologies to reduce technology risk leveraging technologies and best practice where applicable. The initiatives 10 new initiatives under the 2017/18 portfolio:

- EDMS and Kofax Upgrade
- Risk Registry Remediation
- APM and eWFM Replacement
- **[Redacted]** Upgrade
- eCounsel Upgrade
- SSRS Migration
- SharePoint Migration
- Network and Firewall Upgrade
- Security Risk Management
- Security Event Management (SEM)

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Security Risk Management – Pilot completed	**EDMS and Kofax Upgrade:** A key project resource has being fully leveraged by a parallel project impacting schedule. The conflict is resolved and the team is confident they can meet the July 31, 2018 delivery date.
Security Event Management (SEM) completed	**Risk Registry Remediation:** Data Masking and access control recommendations are completed. Project Completed.
	eCounsel Upgrade: The project is fully resourced and the team has started work in the development environment. The timeline for user testing may be extended due to business user availability. The project is reporting as yellow based on this risk to the June 30, 2018 delivery date.
	APM and eWFM Replacement: Project is fully resourced and has engaged the product vendor. Project is on track to complete by July 31, 2018
	[Redacted] Upgrade: Project complete
	SSRS Migration: Project complete
	Share Point Migration: Project is progressing with site collection and departmental site migrations. Due to site complexities discovered during the migrations and scheduling challenges the project will extend to September 30 2018.

	Network and Firewall Upgrades: Firewall monitoring / management software has been purchased and implemented. Outstanding configuration work will be transitioned to TRM-2018 allowing the project to close.
	Security Risk Management: The project has completed all in-scope deliverables. Project is in the process of obtaining final approvals on deliverables and completing the project closure report.
	Security Event Management (SEM): Project complete.

Project Risks/Issues
No significant risks or issues at this time.

Financials		
Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
228,295	593,260	1,512,145
Total Project Budget as at Mar 1, 2018	LTD Actual	Total Forecast @ Completion
4,524,676	4,281,594	5,200,479

The following is a summary of the projects under this program.

Program	Technology Risk Management – 2017/18 Initiatives						
Project	EDMS and Kofax Upgrade						
Status	Budget	Schedule	Overall	Start Date	June 2017	Projected End Date	July 2018
Upgrade the Electronic Document Management System applications to the latest version offered by the vendors, ensuring continued supportability and reducing the cost of future upgrades.							
Project	Risk Registry Remediation						
Status	Budget	Schedule	Overall	Start Date	March 2017	Projected End Date	March 2018
Complete the Data Masking initiative resulting in the masking of the production databases and the implementation of processes which support MPI data security policies. Identify and document process for implementing access controls in the production support environment, and implementing these controls on one application to ensure the processes are valid and can be re-used.							
Project	APM and eWFM Replacement						
Status	Budget	Schedule	Overall	Start Date	March 2017	Projected End Date	July 2018
Replace end-of-life applications used to manage the Contact Centre, ensuring that the technologies used are vendor supported.							
Project	[Redacted] Upgrade						
Status	Budget	Schedule	Overall	Start Date	March 2017	Projected End Date	March 2018
Upgrade our current **[Redacted]** reducing operational risk. This operating system supports the database solution, used by the AOL / CARS applications.							
Project	eCounsel Upgrade						
Status	Budget	Schedule	Overall	Start Date	Sept 2017	Projected End Date	June 2018
Maintain the software at a current version to ensure continued vendor support and provide the ability to decommission non-standard components.							

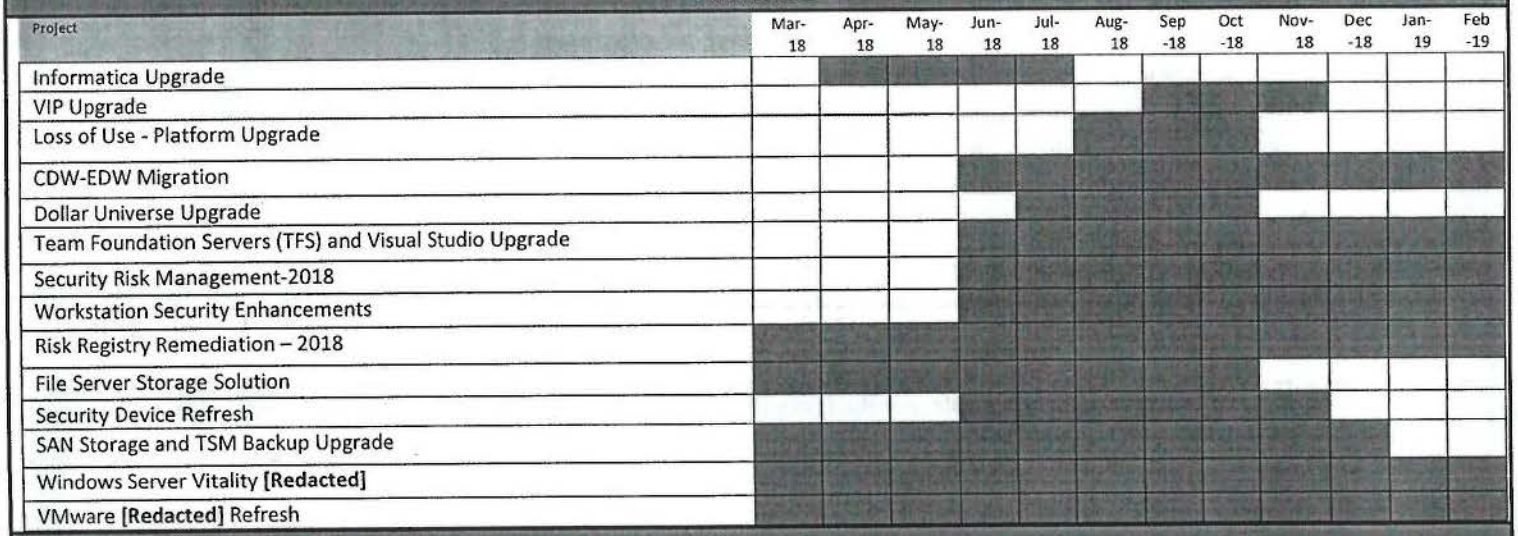
Project	SSRS Migration						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	December 2017
Convert and migrate the remaining SSRS reports off of aging non-supported environments (namely **[Redacted]**) to fully supported environments.							
Project	**Share Point Migration**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	September 2018
Migrate all of the approximately 150 project, department and executive SharePoint site collections. This allows the decommissioning of the legacy environments, and improved capabilities for SharePoint users.							
Project	**Network and Firewall Upgrades**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	April 2017	**Projected End Date**	June 2018
Ensure the continued manageability of firewall devices, by optimizing the network and firewall configurations to ensure consistency between different MPI environments (production, test, development).							
Project	**Security Risk Management**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	May 2018
Address security gaps identified during the implementation, and on-going security assessment of the Information Security Strategy & Road Map Program.							
Project	**Security Event Management (SEM)**						
Status	**Budget**	**Schedule**	**Overall**	**Start Date**	March 2017	**Projected End Date**	March 2018
Engage a third party to monitor security events, conduct investigation and coordinate remediation of security incidents, identified through new security technologies.							

Program	Technology Modernization Program - Technology Risk Management (2018/19 Program)				
Start Date			Projected End Date		
Status On Track	Budget	On Track	Schedule	On Track	Overall

The Technology Risk Management program will evaluate, identify and/or implement technologies to reduce technology risk leveraging technologies and best practice where applicable. The initiatives 14 new initiatives under the 2018/19 portfolio:

- Informatica Upgrade
- VIP Upgrade
- Loss of Use – Platform Upgrade
- CDW-EDW Migration
- Dollar Universe Upgrade
- Team Foundation Servers(TFS) and Visual Server Upgrade
- VMware **[Redacted]** Refresh
- Security Risk Management-2018
- Workstation Security Enhancements
- Risk Registry Remediation
- File Server Storage Solution
- Security Device Refresh
- SAN Storage and TSM Backup Upgrade
- Windows Server Vitality **[Redacted]**

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Informatica Upgrade – Project Delivery Log approved	**Informatica Upgrade:** Project is completing the planning documents to complete the inception phase and move to elaboration where final schedule is to be confirmed.
File Server Storage Solution – Inception Phase complete	**File Server Storage Solution:** Project is moving into elaboration phase and is focusing on more detailed planning documentation and schedule
SAN Storage and TSM Backup Upgrade - Inception Phase complete	**SAN Storage and TSM Backup Upgrade:** Project is in elaboration phase and is focusing on more detailed planning documentation and schedule
Windows Server Vitality **[Redacted]** – Inception phase started	**Windows Server Vitality [Redacted]:** Project is in inception phase and is completing the deliverables to proceed to elaboration
VMware **[Redacted]** Refresh – Project Charter approved	**VMware [Redacted] Refresh:** Project is in inception phase and is completing the deliverables to proceed to elaboration

Project Risks/Issues

No significant risks or issues at this time.

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
4,271,705	90,293	3,516,919
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,271,705	90,293	3,516,919

The following is a summary of the projects under this program.

Program	Technology Risk Management – 2018/19 Initiatives						
Project	Informatica Upgrade						
Status	Budget	Schedule	Overall	Start Date	April 2018	Projected End Date	July 2018
Upgrade Informatica to **[Redacted]** will be supported until 2020 (or later). Informatica is used in the extraction, transformation, and loading (ETL) of data which populates the enterprise data warehouse. It is critical for report generation. This upgrade is covered under an existing maintenance agreement with the vendor and is planned to be completed by leveraging internal MPI resources.							
Project	File Server Storage Solution						
Status	Budget	Schedule	Overall	Start Date	March 2018	Projected End Date	October 2018
Redefine the file storage environment in order to reduce operational costs while improving efficiencies and accommodating MPI's evolving business needs.							
Project	SAN Storage and TSM Backup Upgrade						
Status	Budget	Schedule	Overall	Start Date	March 2018	Projected End Date	December 2018
Modernize storage and backup solutions to ensure supportability, capacity, and value.							
Project	Windows Server Vitality (2009 to 2016)						
Status	Budget	Schedule	Overall	Start Date	March 2018	Projected End Date	December 2018
Reduce the risks associated with running End of Life software in our environment. Execute on IBM contractual agreement to perform a major Operating System upgrade every 4 years and validate the changes through formal testing processes.							
Project	VMware [Redacted] Refresh						
Status	Budget	Schedule	Overall	Start Date	March 2018	Projected End Date	December 2018
VMWare [Redacted] (Vitality) To eliminate and reduce Business impact (IT Security and IT Availability) associated with running End of Life Support platforms in our environment. End of general support for **[Redacted]** is 2018/09/19. To remain current on all major Data Centre platforms and to execute on IBM contractual agreement to upgrade Operating Systems and Middleware once every 4 years.							

Project	Customer Self Service (CSS)				
Start Date	April 2017	Projected End Date		July 2018	
Status	Budget	Schedule		Overall	

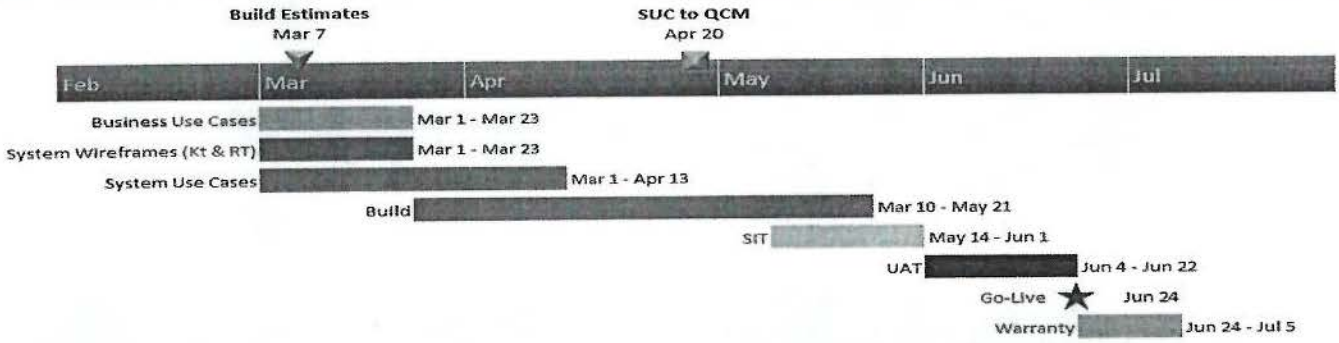
To enhance service and control costs, MPI is extending self-service options beyond the existing Online Credit Card payment functionality. Providing an online self-serve option for customers to perform transactions historically handled at either an Autopac agent or MPI service centre will reduce the transaction count at physical locations. This is a multi-year project with functionality to be built on yearly depending on business needs.

For the first release, the project has been revised to incorporate three main components:

1. "Low" authentication
2. Self-serve user functionality (Booking of Knowledge Test & Road Test)
3. Online payments (PCI Compliant)

Release 1 being tested and it is expected to be implemented by the end of June. Planning of subsequent releases is underway.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Revised Scope/Approach to CSS initial release 1 (R1)	Complete R1 SIT
Refocus design and analysis activities.	Complete R1 UAT
Completed Project Plan & Schedule	R1 Go-Live and Warranty
Architecture Definition, Business and Systems Analysis	Begin work on Release 2
	Begin work on Release 3

Project Risks/Issues

Description	Type	Mitigation Plan	Status
No contingency in the schedule	Risk	Ask project team to work overtime to complete tasks ahead of schedule to build in schedule contingency.	On Track
PCI compliance for Online Credit Card Payments introduces additional scope	Risk	Implement CSS-specific functionality relevant to PCI compliance. Ensure Credit Card Strategy project is aware of CSS timelines and provides PCI-compliance deliverables when required.	On Track
System Testing & User Acceptance are time-boxed in order to meet schedule targets.	Risk	Prioritize testing, and perform in parallel as much as possible.	On Track
CSS & Credit Card Strategy need UAT cycles to align	Risk	Close coordination with Credit Card Strategy project.	On Track

Financials

Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
1,500,000	891,317	1,998,933
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
4,869,613	2,570,811	4,584,000

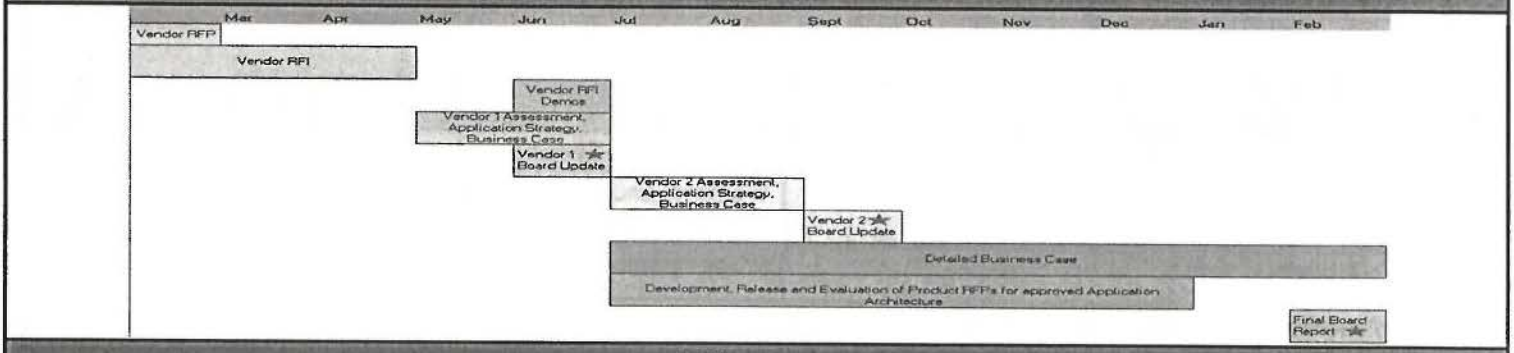
Project	Legacy System Modernization				
Start Date	March 2018		Projected End Date	February 2019	
Status	Budget		Schedule		Overall

Project Description

The purpose of the Legacy System Modernization assessment is to provide MPI with direction on how to manage and evolve MPI legacy systems so that gaps in the legacy system capabilities are addressed allowing for the technology to meet the long term business goals.

The project will deliver an assessment that will determine if MPI is a good candidate for a modernization program and provide recommendations and a strategy on how to address the gaps in MPI's legacy systems, in order to support of the long term business needs. The project will also develop, release, and evaluate product RFPs and complete a detailed business case for review at the February 2019 Board meeting depending on outcome of assessement and Board directiong in June 2018.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Project start & kickoff meeting. Project resources assigned	Board presentation (Vendor #1)
Legacy System Modernization Assessment Request for Pricing (RFP) Awarded - Vendor #1 (Deloitte). Master Services Agreement and Statement of Work signed	Legacy System Modernization Assessment Request for Pricing (RFP) Awarded - Vendor #2 (Avasant). Master Services Agreement and Statement of Work signed
Vendor #1 Legacy System Modernization Assessment and Business Case underway	Vendor #2 Legacy System Modernization Assessment underway
Request for Information (RFI) Application Architecture solution Vendors selected & product demos booked	Application Architecture Vendor demonstrations and evaluation
Vendor #1 Legacy System Modernization proposed Application Strategy solution in progress	Development, Release and Evaluation of Product RFPs for approved Application Architecture

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Ability for MPI to provide information to support Deloitte Assessment in a timely manner	Risk	Working with Project Sponsor and Deloitte team to ensure that clear questions are asked so they are more easily answered	
MPI resource allocation to meet competing project needs	Risk		
Coordination of second Assessment Vendor. Timing, effort, and cost unknown	Risk	Currently being assessed	

Financials

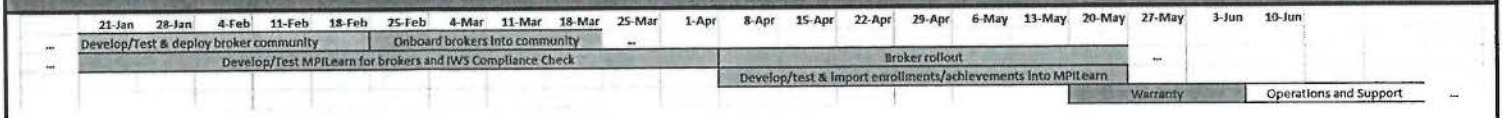
Project Budget for 18/19	YTD Actual	Forecasted Current Year Spend
2,000,000	8,901	1,991,099
Total Project Budget as at Mar 1, 2018	**LTD Actual**	**Total Forecast @ Completion**
72,000,000	8,901	72,000,000

Project	Corporate Learning Management System (CLMS)				
Start Date	March 21, 2016		Projected End Date		June 4, 2018
Status	Budget		Schedule		Overall

Project Description

The purpose of the CLMS project is to provide a central location for all MPI related training and development for internal MPI staff, business partners, and customers. In doing so, the corporation will benefit from reduced administration costs, improved training compliance, better access to training, and enhanced employee career development - all of which align with the Corporate Values, Mission, Vision, and Goals. The project has been extended until the end of June 2018 to provide for warranty and knowledge transfer, and a Project Change Request is in place the explains the budget variance.

Timeline



Milestones

Milestones – First Quarter 2018/19 (Mar-May)	Milestones – Second Quarter 2018/19 (June-August)
Brokers on boarded to new community – March 16 (99% complete)	Warranty and transition complete
Broker rollout begins – April 8	Project closeout
HRMS enrollments/achievements import complete – May 24	

Project Risks/Issues

Description	Type	Mitigation Plan	Status
Simplistic system response to OpenText timeouts and technical issues can cause IWS compliance check to fail occasionally	Issue	Improve error handling, including allowing compliance check to succeed if technical errors are encountered	In progress
Data Migration related to achievements and IWS compliance is more complex and more effort than anticipated.	Issue	Revisit data conversion requirements and simplify as appropriate. Rework data transformation code and retest. Prioritize conversion and stage import of data.	Resolved

Financials

Project Budget for 17/18	YTD Actual	Forecasted Current Year Spend
250,000	427,872	553,179
Total Project Budget as at Mar 1, 2017	**LTD Actual**	**Total Forecast @ Completion**
3,128,141	3,414,785	3,540,092

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 12

HEALTH WEALTH CAREER

ASSET LIABILITY STUDY MAJOR PROJECTS

PHASE ONE

UPDATED TO DECEMBER 21, 2017

Manitoba Public Insurance

CONTENTS

1. Merits of Unique Asset Allocations 1

2. Merits of New Fixed Income Exposure 5

3. Assess Interest Rate Risk Management Strategy 12

4. Address Phase One CAC Recommendations 19

1
MERITS OF UNIQUE ASSET ALLOCATIONS

5.02 (a) An analysis of the merits of adopting a unique asset allocation and Investment Policy Statement (i.e. segregating the assets) for each of the Corporation's three lines of business (Basic, Extension, SRE), excess capital/retained earnings/Rate Stabilization Reserve (RSR) and its pension assets.

BACKGROUND

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan ("Pension") (together the "components"). Our analysis considers the advantages and disadvantages of the current commingled asset approach versus an approach that would segregate the assets of each component and develop a distinct asset allocation policy for each based on its goals and characteristics. Developing optimal asset allocation policies for each component does not preclude MPI from commingling certain components with similar goals and characteristics.

Reviewing whether each component is best served by common or separate asset mix policies is part of good due diligence. Mercer analysed and compared the liability characteristics of each component to assess whether there were sufficient similarities across components to support a common asset allocation policy. This analysis considered the appetite for risk that can be borne by MPI across the various components and other requirements such as liquidity needs.

In PUB Order No. 162/16 (December 15, 2016), Mr. Valter Viola made recommendations that are addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Mr. Viola made the following recommendation #18:

"The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund."

ANALYSIS

The primary distinguishing characteristic of the components are:

Item	Basic	Extension	SRE	RSR	Pension
Purpose	Pay Basic Claims	Pay Extension Claims	Pay SRE Claims	Stabilization of Insurance Rates	Pay Employee Pension Benefits
Investment Goals (from MPI Investment Policy Statement at April 27, 2017)	The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.				
Liquidity needs	Sufficient liquid assets for Basic claims	Sufficient liquid assets for Extension claims	Sufficient liquid assets for SRE claims	Sufficient liquid assets to dampen shocks in rates	Sufficient liquid assets for pension payments
Assets[1] ($ Millions at 02/28/2017)	$2,189	$134	$172	$99	$353
Sensitivity to Interest Rate Changes (Duration[2])	10.5[3]	1.1[3]	2.7[3]	0.0	15.6[4]
Sensitivity to Inflation Rate Changes (Duration[2])	10.4[3]	0.0[3]	0.0[3]	0.0	12.6[4]

1. Source: MPI Financial Statements as at Feb 28 2017.

2. Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

3. Based on MPI duration calculations including Provision for Adverse Deviation ("PfAD") and Internal Loss Expense Adjustment ("ILEA").

4. Based on financial statements' disclosures and additional sensitivity tests provided by the actuary.

Approach	Advantages	Disadvantages
❑ Comingled	• Single set of documentation and oversight. • Some cost savings and efficiencies.	• Investment performance of the comingled assets may not necessarily align with the component's liability/risk profile and may create unintended financial results when the component is examined in isolation. • Impractical to meet a common investment objective with a single asset allocation when components have significantly different sensitivities to interest rate and inflation changes.
☑ Unique **MERCER RECOMMENDED**	• A unique asset allocation for each component would permit the reflection of each component's: - Duration and liability/risk profile - Liquidity needs/constraints - Goals and objectives - Minimum return considerations • Investment performance of segregated assets could be accounted by component. • The assets for each line can be monitored and re-allocated, as needed • Investment managers' fees may still be calculated on aggregated assets. • Investment manager performance reviews can continue to be reviewed in aggregate	• Requires a significant change to MPI internal accounting system • Relatively minor charge for additional accounts from manager and custodian. • Increased documentation • Oversight and review of each component's asset allocation and performance could add to the review process.

IMPLEMENTATION CONSIDERATIONS

The conclusions and recommendations of the Asset Liability Study will help develop the rationale for changing the structure from a comingled asset basis to some degree of asset segregation. That is, the study may reveal that it is prudent to have some components comingled; whereas other components should be segregated.

Currently, the MPI internal accounting system is designed to accommodate a commingled asset approach. In order to more fully understand the implementation implications of segregating assets, MPI should investigate the following:

1. Board approval process to accommodate the transition.
2. Cost of elected transition. These costs should consider both internal and external costs (e.g., custodial, legal, audit)
3. Transition timeline that allows for sufficient time to develop and test the new accounting system and to obtain the appropriate level of input from external providers involved in the transition.

RECOMMENDATION

This preliminary review strongly supports the consideration of unique asset allocations by component for the following reasons:

1. Better alignment of the asset allocation policy with characteristics and needs of each component.
2. Better alignment with respective metrics to assist in accountability and pricing.
3. Better visibility of each component's portfolio while maintaining the ability to re-allocate assets between components, as each component's obligations evolve.

Once the Asset Liability Study is complete (November 30, 2017), the study will have provided the rationale on which components should be comingled. MPI should consider the implementation considerations noted above before it proceeds with the transition to the new structure.

2
MERITS OF NEW FIXED INCOME EXPOSURE

5.02 (b) Examine the merits of adding exposure to types of fixed income not currently included in the portfolio (e.g. mortgages, private debt, foreign debt, etc.).

BACKGROUND

Currently, MPI has a target weight of 70% to fixed income investments. Within this allocation, there is a 50% target weight to Marketable Bonds and a 20% target weight to Non-Marketable Bonds. MPI's current fixed income structure is dominated by Manitoba Schools ("MUSH") bonds and Non-Manitoba Provincial bonds. Approximately 4% resides in Federal and Corporate bonds. There is currently no allocation to real return bonds within the portfolio. There is currently no allocation outside of Canada.

The Canadian bond market is represented by the FTSE TMX Canada Universe Index. As at September 30, 2017, the Canadian bond market was composed of:

SECTOR	WEIGHT (%)
Federal	37.00
Provincial	33.71
Municipal	1.92
Corporate	27.37
Total	**100.00**

The decision to explore exposure to types of fixed income not currently included in the portfolio will be reviewed, as part of the Asset Liability Study commissioned in early October 2017. The review will consider the advantages and disadvantages of various fixed income asset classes and investment strategies.

REVIEWING FUNDAMENTAL OBJECTIVES

Given current bond yield levels and the uncertainty surrounding fixed income markets, there are valid reasons to question the key fundamental objectives that have traditionally lead investors toward fixed income:

- **For Capital Preservation:** The risk of negative returns over the short/medium term is perhaps higher than ever before (since yields are so low)
- **For Income and Real Return:** Given current yields and inflation expectations, it is difficult to foresee significant real returns from traditional core fixed income portfolios
- **For Liquidity:** While domestic government bond liquidity remains likely, many portfolios have migrated toward more active positions with higher allocations to corporate bonds
- **To Provide Hedge on Interest Rate Risk Exposure:** Fixed income represents a matching asset that aligns with the nature of liabilities (insurance, pension and other fixed liabilities).

It is good governance practice to take a step back and re-confirm investment strategy and the implementation approach to fixed income in consideration of the challenges and opportunities in the current market environment.

ASSET CLASSES TO CONSIDER

We believe the following types of liquid and illiquid products may have a valuable role to play as part of MPI's allocation and are worth modelling as part of the Asset Liability Study. However, the appropriateness of different strategies will depend on MPI's return objectives, risk tolerance, overlap with existing asset exposure, tolerance for illiquidity and complexity, desire for liability matching characteristics, and governance arrangements. Our discussion assumes that MPI's current objectives are as follows from the April 27, 2017 Investment Policy Statement: "The purpose of the Fund is to pay the liabilities of the Corporation as they come due and to provide investment income from interest, dividends and capital gains that will assist in minimizing premiums payable by policyholders, in that order.

To aid in assessing each option, we provide general guidance on the relative ability of each asset class to fulfil these objectives.

ASSET CLASS	ABILITY TO MATCH DURATION	ABILITY TO ENHANCE INVESTMENT RETURNS	ABILITY TO PROTECT PRINCIPAL
Federal/Provincial Bonds	Very strong. Diverse set of duration and terms to choose from.	Weak. Modest real return expectations at best.	Excellent, particularly for shorter-duration federal bonds.
Real Return Bonds	Strong for MPI's inflation linked liabilities.	Weak. Will only perform well if Canadian inflation is high.	Principal may erode as interest rates rise and/or inflation expectations change.
Private Debt (Investment Grade)	Modest. Limited issuances available.	Strong.	Weak. Interest rate sensitive.
Commercial Mortgages	Modest.	Modest	Moderate. Interest rate sensitive.
Levered Bonds (Generally 3 times exposure. Available for Canadian Long Bonds and RRBs)	Very Strong Capital efficient approach.	Depends on underlying bonds. RRBs have a greater ability than long bonds.	Weak. Interest rate sensitive.
Growth Fixed Income (includes Global Bonds, US High Yield, and Emerging Markets Debt)	Very Weak	Strong	Variable (vehicle dependent).

FEDERAL/PROVINCIAL BONDS

A diversified portfolio of nominal bonds issued by the Government of Canada and the Provinces constitutes 70% of the Canadian bond universe and forms the backbone of most institutional investors fixed income portfolios. Federal issues are extremely liquid, provide significant flexibility to match duration, and are of the highest quality. Provincial issues currently deliver higher returns than federal issues (with yields varying by credit quality of each province).

From our perspective, while real yields from federals and provincials are modest, we still believe that these bonds should form the foundation of a fixed income portfolio. A strong foundation allows investors to more confidently pursue excess returns in other areas of the sector.

REAL RETURN BONDS

Real Return Bonds ("RRBs") have the components of a conventional bond, coupon payments and return of principal at maturity. The distinguishing feature of the RRB is that both the periodic coupon payments and the return of principal at maturity are linked to the consumer price index ("CPI") over the respective term. The real yield (i.e., the yield in excess of CPI) is known at date of issue. The coupon payments and adjusted principal repayment depend on future inflation. This makes RRBs an explicit hedge against inflation risk.

The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.

RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns (except when used in an overlay approach where the long term credit spread between federal and provincial bonds is included). Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical[1] real estate, physical infrastructure).

PRIVATE DEBT

Private Debt (also known as Direct lending or Private Credit) is a broad term that refers to any investment in privately negotiated debt. Private debt is similar to a loan in that it is capital provided (as an investment) to an entity in exchange for interest (and possibly other payments) and the return of the original principal at a defined point in the future.

Private debt encompasses corporate debt, real estate debt, and infrastructure debt, as well as some opportunistic credit strategies. For each form of debt, exposure can be via senior loans or subordinated/mezzanine loans. Issuers may be investment grade, but on the whole, the private debt market is sub investment grade and similar in some regards to the syndicated/bank loan and high-yield markets, though typically with higher yields, additional return sources, and different market dynamics.

The debt is also not widely held, and is customized to the borrower's requirements, thus rendering it illiquid. We note that private debt investments have existed for a number of years, but were, for a long time, the preserve of a minority of investors, of which banks were the most significant. Today, private debt is an asset class increasingly considered by a broad range of institutional investors.

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[1] Physical real estate investment means actually investing in a physical property that produces income and capital gains or losses. This should not be confused with real estate investments that invest in the stocks of real estate companies.

Borrowers often choose private debt financing because it can be customised to their specific needs or when public debt is not available to them. Given the illiquidity of the underlying asset, investors may choose to access private debt through their private market allocation.

The attractiveness of the private debt market is often linked to the aftermath of the global financial crisis, overleveraged banks, shrinking balance sheets, and the impact of international banking regulation on banks' lending activity. Although there's a positive tailwind from the changed market dynamics (particularly in Europe), we believe there's a strategic role for private debt in institutional portfolios. With the long-term nature of liabilities, pension funds and other institutional investors are in a position to offer liquidity to the market and thereby realize an illiquidity premium. Considering the attractive return potential of private debt, it's one manner in which investors can diversify from equities and yet maintain a similar level of expected return.

COMMERCIAL MORTGAGES

A commercial mortgage is a mortgage loan secured by commercial property, such as an office building, shopping centre, industrial warehouse, or apartment complex. The proceeds from a commercial mortgage are typically used to acquire, refinance, or redevelop commercial property.

Commercial mortgages are structured to meet the needs of the borrower and the lender and generally subject to extensive underwriting and due diligence prior to closing.

Canada's institutional commercial mortgage market has seen remarkable growth, keeping pace with the expansion of the directly held real estate sector. The player pool is also growing. Mortgage lending and investing has been dominated by chartered banks, credit unions and life insurance companies, but recently, non-bank mortgage lending companies have increased their market share.

In light of stable real estate market conditions, commercial mortgages should continue to serve as an effective alternative investment within Canadian institutional fixed income portfolios. Institutional investors have earned higher risk-adjusted spreads with minimal volatility. For investors seeking long-duration assets to meet long-tail liabilities, commercial mortgages can also offer better relative value than comparable fixed-income instruments with a similar duration. Added to these benefits is the higher degree of control investors exert over the structure and underlying credit risk of commercial mortgages versus corporate bonds, allowing investors to potentially manage the downside risk throughout the cycle.

OVERLAY BONDS

Implementing an interest rate hedging strategy does not always require a reduction in the allocation to return seeking assets, as it is possible to synthetically increase exposure to bonds through borrowing. Funding can be obtained through various mechanisms through the derivatives market. Pooled funds offering this type of strategy typically focus on the:

1. FTSE TMX Long Term Provincial Index (duration around 15 years) or

2. FTSE TMX Real Return Bond Index.

Canadian bond managers offer pooled funds that typically provide a 3 times leveraged approach (i.e., one dollar invested provides three dollars of exposure to the underlying bonds less borrowing costs).

By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.

Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds. When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

GROWTH FIXED INCOME

We define Growth-oriented fixed income as fixed-income assets and strategies expected to generate returns in excess of government bonds and investment-grade credit, but do not have effective interest rate risk hedging properties when MPI liabilities are considered.

Growth Fixed Income generally refers to mandates that take long, strategic, and tactical positions in government bonds, corporate bonds, high yield, currencies and a number of other asset classes within developed and emerging markets. Approaches are generally unconstrained in approach and can allocate to areas of the global fixed income marketplace that a manager believes to be most attractive.

HIGH YIELD

High yield bonds refers to bonds that are rated below investment grade (i.e., have a credit rating that is lower than BBB- or equivalent). These bonds have a higher chance of failing than investment grade bonds and therefore are subject to more default risk. Although these bonds are publicly traded, they are generally less liquid than investment grade corporate bonds.

In terms of risk and return profile, High Yield falls between equity and investment grade bond investing. High yield bonds tend to outperform other fixed income assets in the recovery phase of the economic cycle, and should be expected to underperform when an economy moves into recession. Relative to equity investments, high yield bonds provide superior downside protection under negative economic scenarios. Over time we would expect the asset class will produce positive returns without adding excessive risk to a well-diversified portfolio.

High yield bond are typically issued by:

- Emerging companies raising capital for expansion

- More mature companies with relatively weak balance sheets
- Companies taking on debt for acquisitions or leveraged buyouts

The asset class has traditionally been centered in the US where the market remains more developed. The European market has made considerable progress over the last ten years and now represents around 20% of the global market. Mercer's preference is to pursue a global allocation within High yield bonds.

EMERGING MARKET DEBT

Emerging Market Debt ("EMD") generally refers to bonds issued by the governments of less developed countries. Debt can be issued in the currency of the country ("local currency") or in a "hard currency", historically US Dollars, but now also in the Euro and occasionally Japanese Yen.

The risk premium available to investors is the compensation for being exposed to credit risk and for the unhedged investor, currency (for debt denominated in local currency) risk.

Advantages of local-currency EMD:

- Appreciation of emerging market currencies as emerging market economies mature;
- A "deeper" market and a higher average credit quality;
- Structural real yield advantage ("positive carry").

However, emerging market countries are more vulnerable to crises with numerous examples of currency devaluations and inflation, so some investors may prefer the perceived security of hard-currency debt. As such, we can also see some advantages to appointing a manager who has expertise in both and allowing them discretion to set the local / hard allocation.

3

ASSESS INTEREST RATE RISK MANAGEMENT STRATEGY

5.02 (c) Study the Corporation's current interest rate risk management strategy (duration matching) relative to the alternatives (including a cash flow matching strategy and a hybrid/bucketed approach in respect of claim liabilities). Provide the pros and cons of changing our strategy, practical implementation issues to consider, etc.

BACKGROUND

MPI's business lines' (i.e., Basic, Extension and Special Risk Extension) liabilities and pension liabilities are sensitive to changes in interest rates, which is summarized as follows:

Item	Basic	Extension	SRE	RSR	Pension
Assets[1] ($ Millions at 02/28/2017)	$2,189	$134	$172	$99	$353
Sensitivity to Interest Rate Changes (Duration[2])	10.5[3]	1.1[3]	2.7[3]	0.0	15.6[4]
Sensitivity to Inflation Rate Changes (Duration[2])	10.4[3]	0.0[3]	0.0[3]	0.0	12.6[4]

Source: MPI Financial Statements as at Feb 28 2017.

2. Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

3. Based on MPI duration calculations including Provision for Adverse Deviation ("PfAD") and Internal Loss Expense Adjustment ("ILEA").

4. Based on financial statements' disclosures and additional sensitivity tests provided by the actuary.

Short-term volatility of premiums is a primary concern therefore mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations. As a result, MPI has historically maintained a well-structured approach to interest rate risk management.

MPI's current interest rate risk management policy is summarized as follows:

- Duration[2] matching fixed income portfolio strategy to closely match claims liabilities in both dollar amount and duration.
- Fixed income manager will have *market value* of duration matching portfolio within *+/- $100M* of the *present value of claims liabilities*[3] in the previous month end.
- Duration matching portfolio will be within +/- 0.25 years of claims liability duration including the Provision for Adverse Deviation ("PfAD").
- Claims liability duration is based on previous fiscal quarter.
- Modified duration used unless effective duration is a more appropriate measure.

Interest rate risk management can be categorized into 3 approaches:

1. Duration matching (i.e., matching bond and liabilities within a specified tolerance)
2. Cash flow matching (i.e., matching bond cash flows to claims/benefits cash flows)
3. Hybrid bucket matching (i.e., hybrid of 1. and 2.)

The decision to elect a particular interest rate risk management strategy will depend upon the impact of each approach on security, affordability and efficiency. Each of the three options have varying levels of precision to hedging interest rate risk. Analysis was conducted to develop reasonable rationale on the go forward approach.

In discussions with investment managers that have a significant number of P&C general asset mandates, we understand that most mandates are based on duration matching without dollar matching constraints. Some mandates are based on hybrid bucket matching. In rare cases, the mandate is to follow a cash flow matching approach. The reasons for not adopting a cash flow matching approach are 1. the liability cash flows are projected expectations and actual experience can be materially different, and 2. cash flow matching has an opportunity cost as matching cash flows takes priority over maximizing yield given credit rating, liquidity and concentration constraints.

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[2] Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

[3] $1.9 Billion as at February 28, 2017. Source is MPI Financial Statements as at February 28, 2017.

On December 15, 2016 at a meeting of the Public Utilities Board, Mr. Valter Viola made recommendations, which are addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Mr. Viola made the following recommendation #15:

"Effectiveness of Duration Policy: The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations."

ANALYSIS

In general, there are 3 approaches that institutional investors use to manage interest rate risk, as summarized below:

Approach	Pros	Cons
Duration Matching	Cost effective approach. Protects against parallel shift in yield curve. Provides more flexibility with regard to investment vehicles, particularly if return enhancement is a priority.	Does not protect as well against non-parallel shifts in comparison to other approaches.
Cash Flow Matching	Higher resolution matching Protects against reinvestment risk, including non-parallel yield curve shifts	Precision of claims/benefits projections may not merit high resolution matching, as projected cash flows can be materially different from actual. Generally, most costly approach from return and fees trade-off viewpoint.
Hybrid/ Bucket Approach	Cheaper than cash flow match Some protection against non-parallel yield curve shifts	Less protection against interest rate risk than cash flow matching approach. In terms of return and fees trade off, in between duration matching and cash flow matching.

A hybrid/bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) with cashflow matching. It 'buckets' obligations into various tranches and builds an asset portfolio that has expected cashflows that are substantively similar to each 'bucket'. Relative to duration matching, it improves the robustness of the interest rate matching, but is not as precise as a cashflow matching approach.

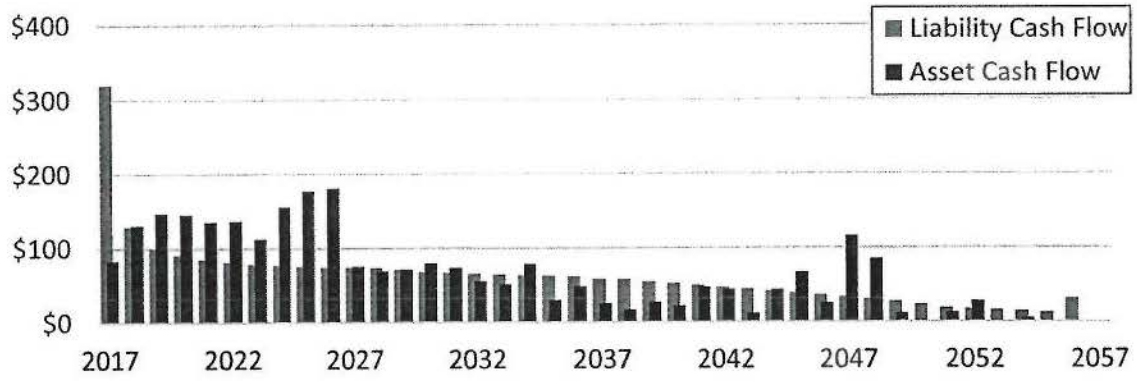
A hybrid/bucket approach is generally more costly to implement and administer than duration matching approaches, but has the added benefit of matching convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve and is most pronounced when unusual changes in yields happen. While we acknowledge that a hybrid/bucket approach more precisely immunizes convexity risk, we also observe that:

1. Convexity risk is generally equally likely to result in a gain or a loss to an investor, and
2. Gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time.

For investors with very limited tolerance for risk over the short term and sufficient scale to warrant a sophisticated matching program, we support a hybrid/bucket approach and/or a cashflow matching approach. But for investors who can tolerate modest levels of risk over the short term and target excess returns from active management, we are comfortable recommending a duration matching approach which allows for more efficient implementation and a broader opportunity set.

PROJECTED CASHFLOWS: CURRENT ASSET ALLOCATION

Assuming future inflation will match the 2% annual target, the current interest rate risk management approach provides relatively good coverage of the expected claim payments. The following chart compares the expected liability cash flows (claim payments) to the cash flows from the current bond portfolio:

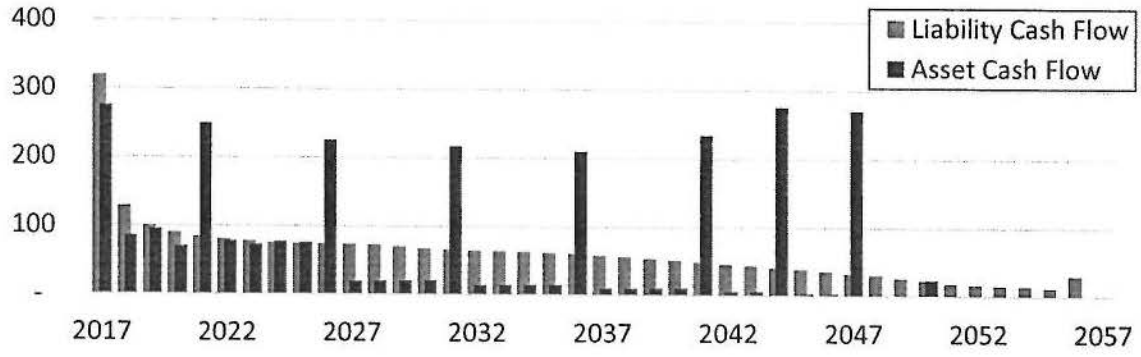


Dollars in millions.

THE CHALLENGES OF ELIMINATING INFLATION RISK

The current strategy exposes MPI to the risk of inflation increases in excess of 2% per annum. Unfortunately, it is virtually impossible to construct a portfolio that would match the expected claim payments in any future inflation scenario. This is in part due to the limited issuance of Real Return Bonds (RRBs). Although the RRB market is fairly large and liquid, there are currently only about 15 bonds. Eight were issued by the Government of Canada (good liquidity) and 7 are provincial bonds (poor liquidity). One could argue that the task of cash flow matching with RRBs could be made easier if the RRB bonds were stripped. (Stripping bonds is the process of breaking down a bond into individual coupons and a maturity payment). RRB stripping would allow for better matching as the breaking down the RRB bond into smaller pieces makes fitting the cash flows easier; however, RRB stripping is a rare occurrence as most investors prefer to buy the entire bond and pricing of the components can be very difficult given the unknown of actual inflation at various points in the future.

The following chart shows cash flows from a portfolio consisting of 34% nominal short and mid-term bonds and 66%[4] RRBs (roughly reflecting the discount rate and inflation sensitivity of the claim payments stream) compared to the expected liability cash flows. The chart illustrates the challenge of achieving inflation-sensitive cash flow matching due to the limited number of RRB issues and their specific maturity dates.



Dollars in millions.

IMPLEMENTATION CONSIDERATIONS

Given the circumstances outlined in the analysis, it is reasonable to take a measured approach to including RRBs rather than trying to hedge all of the inflation risk. Depending on whether MPI decides to assign the RRB mandate internally or externally the implementation approach may differ. If the mandate were handled externally, the most efficient and affordable approach would be to invest in a passively managed RRB fund or a levered RRB fund for better capital efficiency and return potential. If the mandate is managed internally, MPI's investment bond team could consider an RRB portfolio approach that would fit the liability cash flows better than the first method.

RECOMMENDATION

One of MPI's key investment objectives is to match interest rate risk:

> *Short-term volatility of premiums is a primary concern therefore mitigating short-term changes in the relative value of assets and liabilities is a major investment objective, particularly those generated by interest rates variations.*

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[4] FTSE TMX RRB Index has a duration of about 15; whereas the MPI Basic liabilities have a real duration of about 10. This means a 66% RRB allocation would provide a real duration of 10 (i.e., 66% x 15 = 10).

MPI's current approach is a duration matching approach with a dollar matching constraint. From our perspective, Duration matching is the most cost effective and flexible approach to mitigating interest rate risk. Given MPI's willingness to accept modest levels of credit and liquidity risk, we recommend continuing with duration matching. While cash flow matching, or a hybrid/bucketed approach may be more precise, the incremental costs and complexity ought to be considered carefully, since often times the convexity risk (which these approaches help mitigate) tend to work themselves out naturally over time.

4

ADDRESS PHASE ONE[5] CAC RECOMMENDATIONS

5.03 (h) Address the recommendations made by the Consumer's Association of Canada (CAC) as per Schedule G of the RFP. The following eight (8) recommendations shall be addressed in Phase One:

5. Risk/Return Definitions for Asset Mix Decisions
7. Min/Max Asset Class Constraints
11. Canadian Equities Minimum Asset Allocation
12. No International Equities
14. Exclusion of Real Return Bonds
15. Effectiveness of Duration Policy[6]
16. Integration of real estate/infrastructure liabilities in duration management
18. Pension Fund[7]

On December 15, 2016 at a meeting of the Public Utilities Board, Mr. Valter Viola made recommendations to be addressed in this study. Mr. Viola, in the submission, represented the Consumers' Association of Canada ("CAC"). Phase One of the study answers CAC recommendations # 5, 7, 11, 12, 14, 16 and 18.

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[5] This was originally slated for Phase Two as described in the *"Request for Proposal #2785 for Asset Liability Study"*. By mutual agreement between MPI and Mercer, it was moved to Phase One for greater project efficiency.

[6] See this report's section entitled: *"Assess Interest Rate Risk Management Strategy"*.

[7] See this report's section entitled: "Merits of Unique Asset Allocations".

5. RISK/RETURN DEFINITIONS FOR ASSET MIX DECISIONS

BACKGROUND

The CAC recommendation was:

"MPI should re-define return/risk used to inform its long-term asset mix decisions to be based on valuations that reflect market values, rather than accounting ones (which may be materially different). At a minimum, net income should be replaced by comprehensive income in the numerator (return) and retained earnings should be expanded to include accumulated other comprehensive income (AOCI) in the denominator (risk). In the long term, market returns and market risks will determine average long-term premium rates, regardless of how assets and liabilities are accounted for under GAAP."

RESPONSE

We agree that asset mix decisions should be based on market values. The 2017 asset liability study is based on market values.

7. MIN/MAX ASSET CLASS CONSTRAINTS BACKGROUND

BACKGROUND

The CAC recommendation was:

"The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit."

The 2017 Asset Liability Study will develop optimal asset allocations on both a minimally constrained and constrained basis. The minimally constrained basis considers the fact that MPI requires a reasonable level of investment liquidity to ensure cash is available to pay claims or pension benefits. The constrained basis will employ practical implementation considerations that cannot be modelled without constraints. Each of these constraints will be clearly documented and explained. For example MUSH bonds will have a minimum constraint as these bonds are not liquid and over the foreseeable future an allocation to MUSH will remain even if the study's results were to conclude that MUSH bonds should be eliminated.

RECOMMENDATION

The Asset Liability Study will review both minimally constrained and practical implementation constraints that will be well documented and explained.

11. CANADIAN EQUITIES' 10% MINIMUM ASSET ALLOCATION

BACKGROUND

The CAC recommendation was:

"The appropriateness and prudence of having a 10% minimum weight to Canadian Equities ("to retain a meaningful exposure to home markets") should be reconsidered, given the different interests of different stakeholders (e.g., employees through the pension plan), the concentrated nature of Canada's equity market, and other such relevant considerations."

ANALYSIS

Based on the MPI investment policy statement effective April 27, 2017, the asset allocation for Canadian equity has a policy weight of 10%, which is 67% of the 15% total policy allocation to public equities. Most institutional investors have significantly diversified their public equity portfolios such that allocations to Canadian equities are typically between 25% to 33% of total public equities. Such allocations still represent a modest home country bias (since Canadian equities are ~ 4-5% of total global equities), but are much more diversified than the current MPI allocation. Some Canadian institutional investors have completely eliminated any home country bias.

Investors who choose to maintain a healthy home country bias typically do so because of inertia, lower investment management fees, to reduce currency risks, or since correlation with Canadian inflation is slightly higher than for non-Canadian equities. Overall, we view the diversification benefits of a globally diversified public equity portfolio to be compelling.

IMPLEMENTATION CONSIDERATIONS

The 2017 Asset Liability Study will review the expansion of the equity portfolio to consider:

1. EAFE[8] Equities (often referred to as International Equities) which represents approximately 36% of the developed world's capital markets.

2. Global Low Volatility Equities which are global equity mandates that target between 20% - 30% reduction in return volatility as compared to the MSCI Global Equity Index.

RECOMMENDATION

We expect our recommendation will be to reduce the allocation of Canadian equities to be 25-33%[9] of total public equities.

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[8] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

[9] Based on no constraints on allocations to Canadian equity.

12. NO INTERNATIONAL EQUITIES

BACKGROUND

The CAC recommendation was:

"The appropriateness and prudence of having no exposure to International Equities should be reconsidered, given the large size of non-US foreign markets, the return opportunities that are potentially available from those missed opportunities and the effects of increased international diversification on long-term market risks."

ANALYSIS

As part of the Asset Liability Study conducted by Mercer in late 2017, the asset allocation policy is being revisited. To date, the review has discussed the relatively concentrated nature of Canada's equity market. The aim of the asset allocation policy review is to develop an asset allocation policy that is optimal in light of the appropriate level of risk. EAFE[10] Equities (often referred to as International Equities) represents approximately 36% of the developed world's capital markets. We fully support reviewing the diversification of the equity portfolio by including International Equities.

IMPLEMENTATION CONSIDERATIONS

Transitioning to a non-Canadian equity portfolio is relatively straightforward, particularly if suitable pooled funds are available

The alternative to optimizing allocations to US Equity and EAFE Equity is to bundle these two mandates into one mandate (typically referred to as 'global equities' and typically benchmarked to the MSCI World index). This is supported by the fact the lines are blurred when it comes to categorizing a stock as US Equity or EAFE Equity when you consider the level of corporate globalization. For example, categorizing Microsoft as US Equity and ignoring it's non-US operations does not make sense. At the same time, combining the mandates into one mandate allows the investment manager to select a best in class stock regardless of questionable geographical classification. This in turn, provides the manager with an additional lever to outperform market returns. An extension of this idea is to combine US Equity, EAFE Equity and Emerging Markets equity into a single mandate known as an All Country mandate, which is typically benchmarked to the All Country World Index ("ACWI"). ACWI mandates are currently composed of about 52% US, 32% EAFE, and 12% Emerging Markets Equities. Note that the decomposition of ACWI into geographical regions is considered irrelevant to many ACWI investment managers, given the level globalization present in the world. Also, note that Emerging Markets Equities include companies such as Samsung, TenCent and Alibaba (all of which have a market cap of over $200Billion).

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[10] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

RECOMMENDATION

We expect our recommendation to include an allocation to international equities. Note that the 2017 Asset Liability Study will not constrain the allocation to international equities.

14. EXCLUSION OF REAL RETURN BONDS

BACKGROUND

The CAC recommendation was:

"The role that RRBs can play in effectively managing relevant risks should be discussed, with consensus achieved regarding the effectiveness of RRBs from a risk management perspective (i.e., independent of the cost of any "insurance" as measured by RRB yields and their expected returns)."

Real Return Bonds ("RRBs") have the components of a conventional bond, coupon payments and return of principal at maturity. The distinguishing feature of the RRB is that both the periodic coupon payments and the return of principal at maturity are linked to the consumer price index ("CPI") over the respective term. The real yield (i.e., the yield in excess of CPI) is known at date of issue. The coupon payments and adjusted principal repayment depend on future inflation. This makes RRBs an explicit hedge against inflation risk.

The inflation sensitivities of MPI's three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan ("MPI components") measured by duration are summarized in the table below:

Item	Basic	Extension	SRE	RSR	Pension
Sensitivity to Inflation Rate Changes (Duration[3])	10.4[2]	0.0[2]	0.0[2]	0.0[2]	12.6[1]

Duration is a measure of interest rate sensitivity. A real duration of 10 means a 1% decrease (increase) in the real interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability. The duration of Canadian RRB market is currently approximately 15. Hedging a duration of 10 would simply mean having a 66%[11] allocation to RRBs.

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[11] FTSE TMX RRB Index has a duration of about 15; whereas the MPI Basic liabilities have a real duration of about 10. This means a 66% RRB allocation would provide a real duration of 10 (i.e., 66% x 15 = 10).

ANALYSIS

RRBs are the most direct hedge to inflation, but provide no opportunity for additional real returns. Investors looking to balance return enhancement with inflation hedging often look to obtain an implicit or indirect inflation hedge using real assets, which are expected to deliver inflation sensitive returns (e.g., physical[12] real estate, physical infrastructure).

The Canadian RRB market is fairly large and liquid. There are currently 15 outstanding issuances, among which eight were issued by the Government of Canada and 7 are provincial issuances.

RRBs issued by the Government of Canada are the most liquid and currently have a total market value of about $72 Billion.

IMPLEMENTATION CONSIDERATIONS

Typically, RRB investment mandates are best handled by a passive manager with significant assets in RRBs relative to peer managers as this could aid in sourcing the less liquid RRB issues. These passive managers provide broad RRB market exposure at fee levels significantly lower than conventional bond mandates.

Due to the limited number of RRB issues and their specific maturity dates, developing a portfolio to match the inflation risk in the MPI components can be challenging. The challenge arises from trying to achieve a closely matching inflation-sensitive cash flow between assets and the respective component's projected claims or pension payments.

RECOMMENDATION

We agree that RRBs can provide an effective hedge against CPI linked obligations MPI has approved the inclusion of RRBs in the 2017 Asset Liability Study.

16. INTEGRATION OF REAL ESTATE/INFRASTRUCTURE LIABILITIES IN DURATION MANAGEMENT

BACKGROUND

The CAC recommendation was:

"MPI should consider the liabilities arising from all sources (i.e., including real estate and infrastructure) in its interest rate risk management practices (duration), to be consistent with its management of risks arising from insurance, pension and other liabilities. The financial leverage assumptions used in Asset-Liability Studies that support long-term asset mix decisions should be

[12] Physical real estate investment means actually investing in a physical property that produces income and capital gains or losses. This should not be confused with real estate investments that invest in the stocks of real estate companies.

made consistent with the leverage actually used in the portfolio, removing the ~ 4% difference related to real estate debt."

MPI's real estate investment is a direct investment in property, as opposed to an investment in real estate corporation stocks. Similarly, MPI's infrastructure investment is direct rather than investing in infrastructure corporations.

ANALYSIS

While it is true that interest rate risk exists in Real Estate and Infrastructure, we suspect that the duration will be relatively short when compared to MPI liabilities as debt terms in these investments can be short in term and interest rates can be floating. As such, it is extremely rare to consider duration risk of the underlying liability in these investments.

The following illustration provides a sense of the level of materiality:

Target Allocation to Real Estate	10%
Leverage used in Greystone real estate fund	25%
Assumed Duration of Debt	4*
Duration of Real Estate as a portion of overall MPI portfolio	0.10

*** Provided by Greystone on October 27, 2017.**

Analysis as at June 30, 2017

RECOMMENDATION

The Asset Liability Study will consider the use of leverage in the Real Estate and Infrastructure and how it may influence the overall duration of the portfolio. At this point, we do not expect it to be material nor worthy of hedging.

18. PENSION FUND

BACKGROUND

The CAC recommendation was:

> *"The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund."*

Currently, MPI commingles the assets of the three lines of business (Basic, Extension and Special Risk Extension ("SRE")), the Rate Stabilization Reserve ("RSR") and its employee pension plan (the "components").

As per the Actuarial Valuation Report as at December 31, 2016 – Pension Liabilities of Manitoba Public Insurance (As a result of participation of its employees in the Civil Service Superannuation Act):

> *"At present, MPI is contributing to the CSSF[13] based on the pay-as-you-go method of funding. Under this method, no advance funding payments for the employer share of the cost of pensions are made to the CSSF. MPI has, however, established a reserve against general assets which is being increased to match the increase in its pension liabilities."*

As per Note 16 of MPI's Annual Financial Statements for the Fiscal Year Ended February 28, 2017 ("MPI 2017 Annual Report"):

> *"The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities."*

The current approach to Pension Fund assets is as follows:

1. The accounting basis liability for MPI's pension obligations is calculated by an independent actuary in accordance with International Financial Reporting Standards – International Accounting Standard 19.

2. An amount equal to 1. is carved out of the commingled assets and is assigned as pension assets supporting the liability determined in 1.

Under the current approach, where the performance of commingled assets differs from the change in pension liabilities, a gain (or loss) is incurred by the commingled fund and impacts the assets remaining for other Components. The primary economic drivers of changes in pension liabilities are changes in long-term interest rates and inflation expectations. For example:

- a decrease in applicable interest rates will increase the size of the pension liabilities, which in turn will increase the size of the provision against general assets; and
- an increase in applicable interest rates will decrease the size of the pension liabilities, which in turn will decrease the size of the provision against general assets.

OBSERVATIONS

The characteristics of the pension liabilities are different than MPI's three lines of business (Basic, Extension and SRE) and the RSR liabilities. The following is a non-exhaustive list of differences:

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[13] CSSF is the Civil Service Superannuation Fund.

- Sensitivity to interest rates and which interest rates are used to determine the liability, and therefore the provision against general assets
- Sensitivity to rates of inflation and pensionable earnings
- Longevity of current and future retirees (but impractical to hedge using financial assets)
- Rates of retirement, termination of employment and disability of employees participating in the pension plan (but impractical to hedge using financial assets)

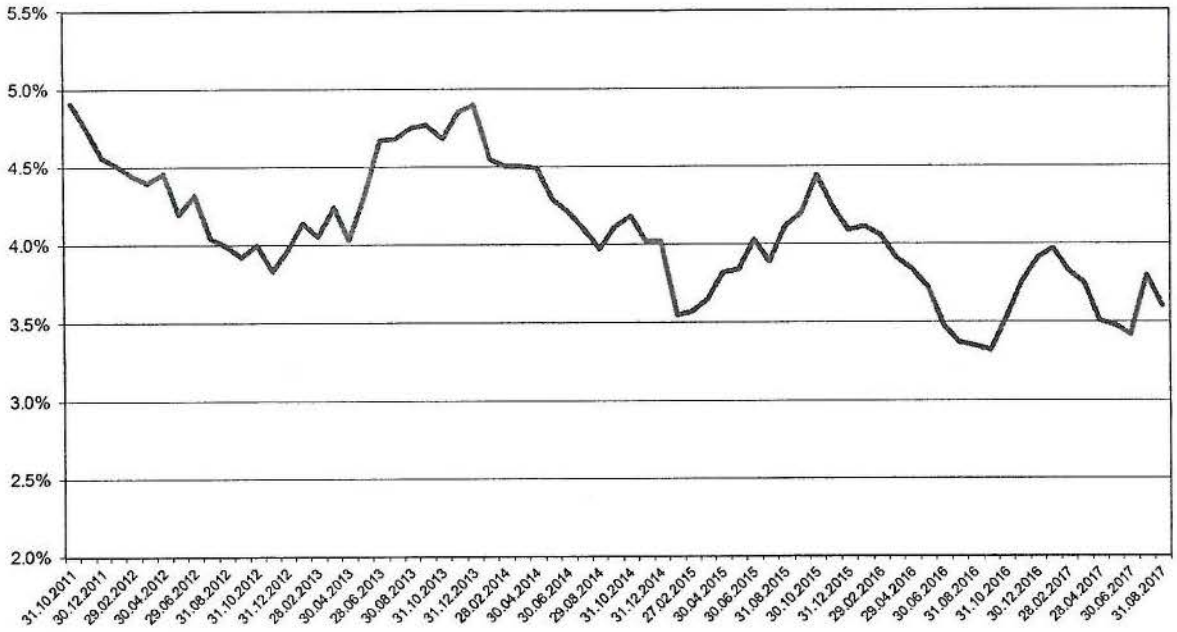
The following table summarizes certain sensitivities disclosed in the MPI 2017 Annual Report.

	Results in '000s			% Change Relative to the Defined Benefit Obligation at 3.89%		
February 28, 2017	Pension	Other Benefits	Total	Pension	Other Benefits	Total
Defined benefit obligation at 3.89%	$353,052	$52,006	$405,058			
Discount rate sensitivities						
• Defined benefit obligation at 4.89%	$298,855	$47,836	$346,691	(15.4%)	(8.0%)	(14.4%)
• Defined benefit obligation at 2.89%	$423,887	$56,120	$480,009	20.0%	7.9%	18.5%
Other sensitivities						
• Defined benefit obligation with +1 year to life expectancy	$358,699	$52,485	$411,184	1.6%	0.9%	1.5%
• Inflation indexing (2/3rds COLA) +1%	$384,071	$52,006	$436,077	8.8%	-	7.7%
• Inflation indexing (2/3rds COLA) -1%	$325,547	$52,006	$377,553	(7.8%)	-	(6.8%)
• Health care cost inflation +1%	$353,052	$57,461	$410,513	-	10.5%	1.3%
• Health care cost inflation -1%	$353,052	$47,823	$400,875	-	(8.0%)	(1.0%)

As per the above results, the defined benefit obligation for pension is most sensitive to changes in the applicable discount rate and the duration of MPI's pension obligations is in the range of 15.5-18. It is our understanding that the discount rate used is a single rate that approximates the present value of MPI's pension benefit obligation cash flows to the present value of those cash flows using the Canadian Institute of Actuaries' ("CIA") model yield curve for financial reporting purposes.

The following is a chart that displays the evolution of CIA discount rates since October 31, 2011 to September 29, 2017 for a sample pension plan with duration of 16.

Evolution CIA Discount Rates Over Time for Sample Plan with Duration of 16
(new CIA model (CIA 2.0) starting on November 30, 2016)



The following table is a summary of MPI's defined benefit obligations at each fiscal year end from February 28, 2011 to February 28, 2017:

Fiscal year ending	Duration	Discount rate	Change in discount rate	Defined benefit obligation (Results in '000s)		
				Pension	Other benefits	Total
Feb. 28, 2011	Not disclosed	4.85%		$218,872	$38,940	$257,812
Feb. 28, 2012	Not disclosed	4.20%	(0.65%)	$260,415	$40,847	$301,262
Feb. 28, 2013	Not disclosed	3.90%	(0.30%)	$285,360	$46,475	$331,835
Feb. 28, 2014	16.0	4.20%	0.30%	$285,326	$47,812	$333,138
Feb. 27, 2015	17.15	3.60%	(0.60%)	$339,334	$51,785	$391,119
Feb. 29, 2016	16.29	4.05%	0.45%	$328,390	$49,727	$378,117
Feb. 28, 2017	15.6	3.89%	(0.16%)	$353,052	$52,006	$405,058

As can be seen from the previous chart and the above table, the discount rate used to determine MPI's pension obligations is volatile and therefore the provision against general assets for pension is correspondingly volatile. Over the past 7 fiscal year ends, the average discount rate is 4.10%, the minimum discount rate is 3.6% and the maximum discount rate is 4.85%. We estimate that the impact of the 60 basis point decrease in discount rate from 4.2% to 3.6% at February 27, 2015 was an increase in pension obligations, or a loss, of approximately $33-$35 million (assuming all else being equal).

RECOMMENDATION

Given the above observations and assuming that MPI will continue with its current policy with respect to the pay-as-you-go method of funding, MPI should consider segregating its pension assets from its insurance related assets. This will allow for:

- An asset allocation that considers the characteristics of the pension liabilities in isolation and the risk appetite of MPI;
- Enhanced transparency with respect to MPI's pension portfolio and possible re-allocations to or from MPI's three lines of business (Basic, Extension and SRE) and the RSR, if applicable;
- MPI's three lines of business (Basic, Extension and SRE) to have metrics that could be independent of the pension portfolio and can assist in accountability.

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June 15, 2018

HEALTH WEALTH CAREER

ASSET LIABILITY STUDY

PHASE TWO

DECEMBER 8 2017

Manitoba Public Insurance

CONTENTS

1. Introduction 2
- Background on the fund 2
- Purpose of Study 2
- Overview of MPI's obligations 3

2. Key Recommendations 5
- Consolidation vs. segregation 5
- New asset classes 5
- Excluded asset classes 7
- New asset allocations 8

3. Implementation Considerations 10
- Consolidation vs Segregation 10
- Recommended asset allocations 10

Appendix A: RFP Items 12

Appendix B: 10-Year forward looking Capital Market Assumptions 13
- Asset Class Returns and volatility 13

Appendix C: Summary of Phase One 15

Appendix D: Supporting Analysis 17

1 INTRODUCTION

BACKGROUND ON THE FUND

Manitoba Public Insurance ("MPI") maintains investment funds (the "Fund") in respect of the liabilities of MPI in accordance with the Manitoba Public Insurance Corporate Act (the "Act"). As of August 31, 2017, assets of the Fund totaled $2,695Million as summarized below:

Fixed Income		Equities		Alternatives	
$1,852.2M	68.7%	$434.9M	16.1%	$408.7M	15.2%
Cash	0.5%	Canadian	11.2%	Real Estate	11.6%
Federal Bonds	4.5%	US	4.9%	Infrastructure	3.5%
Provincial Bonds	34.2%			Private Equity	0.1%
Corporate Bonds	6.0%				
MUSH Bonds	24.1%				

The Fund's asset allocation policy (the "Policy") is the most important factor driving Fund performance. The Policy has been determined in light of the Fund objectives. The Policy reflects the characteristics of the underlying obligations and a risk/return tradeoff selected by the MPI Investment Committee ("Committee"). The Policy aims to maximize return while minimizing risk in an overall portfolio context, while considering practical investment implementation implications.

PURPOSE OF STUDY

In September 2017, MPI undertook a Policy review (the "Study") following an order by the Public Utilities Board ("PUB"). The current Policy was last set approximately 3 years ago. The primary purpose of the Study was to identify and recommend Policy allocations that reflect MPI's risk and return objectives, asset size, and governance structure. In addition, the Study was to respond to a number of recommendations submitted by the Consumers' Association of Canada.

MPI retained Mercer to assist in this Study. Mercer provides expertise in the development of an asset allocation policy through asset liability studies. Mercer worked with the staff and management of MPI throughout the study and authored this report. All figures related to MPI in this report were provided to Mercer by MPI.

OVERVIEW OF MPI'S OBLIGATIONS

For the purpose of the Study, obligations of MPI were segmented amongst the following 5 components ("Components"):

	BASIC	EXT	SRE	RSR	PENSION
What's included	Compulsory: auto insurance claims	Optional: auto insurance claims	Competitive: fleet insurance claims & Provincial Facilities	Retained earnings from Basic	Employee Benefits
Size[1]	$1,790M	$106M	$147M	$97M	$405M
Purpose	Pay claims as they come due			Stabilize rates	Fund pension benefits
Return Expectation/ Risk Tolerance	Very low risk tolerance. Could grow in future.	Moderate	Moderate	Moderate	Moderate
Interest Rate Sensitivity (Duration)	High (10.5)	Low (1.1)	Low (2.7)	Not applicable	Very high (15.6)

Basic Claims Liabilities are subject to significant interest rate risk and require a high level of liquidity to pay claims. Given that the Basic insurance business:

1. comprises approximately 88% of the total business based on net claims incurred, and
2. that no new rates or fees for Basic services can be introduced without the approval of the PUB,

the risk tolerance for assets supporting Basic is very low. To meet these objectives and reflect the nature of Basic, MPI's proposed Policy for Basic is to attempt to hedge substantially all of its nominal interest rate risk by investing in bonds with nominal interest rate duration that matches[2] the

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[1] Source: Financial Statement at February 28, 2017.

[2] Most Basic liabilities are subject to inflation risk. After considering the cost of hedging inflation risks and the likelihood of future increases in inflation, MPI decided to hedge the nominal interest rate risk of Basic liabilities assuming that inflation linked obligations increase at 2% per annum. By matching the duration of assets to the duration of liabilities, MPI will be able to efficiently construct portfolios that allow for return enhancement. A fully cash flow matched asset portfolio would mitigate both duration and convexity risk, but would require MPI to sacrifice opportunities to diversify its fixed income portfolio and enhance yields. We are supportive of MPI's strategy decision in the regard.

duration of Basic liabilities. Given MPI's low tolerance for risk, the proposed Policy for Basic will not include equities or alternative investments.

SRE and Extension Claims Liabilities are subject to low interest rate risk and require a high level of liquidity to pay claims. The risk tolerance for SRE and Extension Claims Liabilities are moderate. Given the moderate tolerance for risk, MPI's proposed Policy for these lines reflects a balanced portfolio of bonds, equities and alternative investments. MPI's proposed Policy for SRE and Extension Claim bonds includes modestly higher allocations to non-government bonds than the more conservative Basic Policy.

The RSR is essentially surplus assets excluding accumulated other comprehensive income ("AOCI"). The intent of the RSR is to protect motorists from rate increases made necessary by unexpected events and losses arising from non-recurring events or factors. There is no underlying obligation therefore there is no targeted interest rate risk hedge. The size of the RSR dictates the capacity to stabilize rate increases. Currently, MPI's risk tolerance for RSR is moderate. Given the moderate tolerance for risk, MPI's proposed Policy for these lines reflects a balanced portfolio of bonds, equities and alternative investments. MPI's proposed Policy for SRE and Extension Claim bonds includes modestly higher allocations to non-government bonds than the more conservative Basic Policy.

Pension assets support MPI employee pension liabilities in conjunction with MPI's unfunded portion of the Civil Service Superannuation Board of Manitoba ("CSSB") pension obligations. Pension liabilities are subject to interest rate risk tied to high quality long-term corporate bond yields. Risk tolerance is moderate. CSSB has an asset allocation policy that allocates approximately 30% to bonds and 70% to equities and alternative asset classes. MPI's proposed Policy for these pension assets is an allocation slightly less aggressive than that of CSSB (40% to bonds and 60% to equities and alternative asset classes).

2
KEY RECOMMENDATIONS

CONSOLIDATION VS. SEGREGATION

Currently, MPI commingles the assets of the Components with the same Policy mix applying to each. This Study recommends the identification and segregation of unique asset allocations by Component for the following reasons:

1. Better alignment of the Policy with characteristics and needs of each Component.
2. Better attribution of investment income and gains/losses across each Component to assist in accountability and pricing.
3. Better visibility of each Component's portfolio while maintaining the ability to re-allocate assets between components as their obligations evolve.

MPI has recommended unique Policy allocations for the Basic and Pension Components, along with a consistent Policy allocation for each of RSR/SRE/Extension. Segregation of the assets of each Component will likely take some time to fully implement as MPI makes necessary changes to internal accounting and attribution systems.

NEW ASSET CLASSES

As part of the overall review of MPI's risk and return objectives, several new asset classes were considered to assess the extent to which they would be expected to improve the risk/reward trade-off of the Fund relative to the underlying obligations. The following two tables summarize the new asset classes included, and excluded, from MPI's recommended Policy and a brief discussion of the rationale for each:

ASSET CLASS	RATIONALE FOR INCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Corporate Bonds	Investment grade Canadian corporate bonds. Corporate bonds generally increase yields over Provincial bonds; however, the credit spread varies by issuer (some Corporates are higher quality than some Provinces) and over time. Corporate bonds are available in various maturities to help hedge interest rate risk of underlying obligations, which vary in duration. Careful due diligence of corporate bond issuers and diversification of credit risks are key to delivering excess returns, as over the last 5 years, the median Canadian corporate manager has significantly outperformed the passive index by 39 basis points.
Private Debt	Investment grade North American debt covering private corporate debt, infrastructure debt, power & energy debt and other forms of private debt. Typically, fully hedges US currency risk and yield curve changes. Since private debt is less liquid than public debt, it generally results in an increased yield over a comparable Canadian bond index[3] of about 0.75%. An allocation to North American private debt further diversifies credit risk beyond those of Canadian provinces and Canadian publicly traded bonds
All Country World Index Equities (ACWI)	Includes developed world market equities and emerging market equities to improve portfolio diversification. Allows an active investment manager the ability to select best in class stocks regardless of the relevant stock exchange geography. The standard ACWI benchmark is composed of approximately 52% US, 32% EAFE[4], and 12% Emerging Markets Equities.
Global Equity (Low Volatility)	Well-diversified developed world equities with return volatility of about 25% less than the standard global equity benchmark index. Offsets some of the ACWI equity volatility.

[3] Currently FTSE/TMX Canada Universe Bond Index yield is 2.3%

[4] Europe Australasia Far East as defined by investment industry wide used benchmark provider MSCI.

EXCLUDED ASSET CLASSES

These asset classes were considered as part of the Study, but excluded from the Policy recommendation:

ASSET CLASS	RATIONALE FOR EXCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Real Return Bonds	Real return bonds ('RRBs') are inflation-linked bonds that are typically used to hedge inflation risk. While basic claim liabilities and pension liabilities are indexed to inflation; a number of factors contributed to the exclusion of RRBs from the Policy recommendation, including: 1. RRB real yields are relatively low, averaging ~0.6% through November 2017. 2. MPI's Basic liabilities assume a 2% inflation rate. If future inflation is near this rate, these obligations can be most efficiently hedged with traditional bonds. RRBs will only be worth their cost if inflation is well in excess of 2%, but will cause MPI to incur losses if inflation is flat. 3. Duration and dollar matching liabilities is challenging with RRBs. The Canadian RRB market consists of 15 issues of which only 7 are liquid and all are government issued. 4. RRBs are traditionally indexed to the Canadian Consumer Price Index, while Basic Liabilities are indexed to other drivers.
Levered Bonds	Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). Levered bonds can be implemented directly or via institutional pooled funds which helps to diversify their counterparty risks. Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio. Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.
Diversified Growth Funds	Diversified Growth Funds come in a variety of forms, but generally combine a diversified set of return drivers in an attempt to provide a more efficient return than traditional balanced funds. They typically use a combination of derivative positions as well as direct holdings. While many diversified growth funds are less expensive than traditional hedge funds, they can be more expensive than direct holdings. Given MPI's desire to reduce, rather than increase, exposure to growth assets, they are not included in the Policy recommendation.

ASSET CLASS	RATIONALE FOR EXCLUSION IN RECOMMENDED ASSET ALLOCATIONS
Private Equity	Private equity can provide institutional investors opportunities to enhance long-term returns by committing capital for longer periods to entities that are not subject to public market reporting requirements and/or are smaller with respect to market capitalization. Given MPI's desire to reduce, rather than increase exposure to growth assets, they are not included in the Policy recommendation.

NEW ASSET ALLOCATIONS

Following a thorough review of the relative merits of the asset classes noted above and after considering the purpose of each business line and MPI's risk tolerance and return requirements, Mercer modeled multiple combinations of asset classes utilizing efficient frontier concepts as well as stochastic projections of both assets and MPI's obligations utilizing the economic assumptions outlined in Appendix B.

Based on this analysis, MPI management recommended the following Policy portfolios for each business line and Pension obligations:

	CURRENT	PROPOSED BASIC	PROPOSED SRE/EXT RSR	PROPOSED PENSION
Fixed Income	**70%**	**100%**	**50%**	**40%**
Short-term Bonds (Prov.)	6.5%	0%	10%	0%
Mid-term Bonds (Prov.)	12%	28%	10%	0%
Long-term Bonds (Prov.)	29.5%	32%	0%	0%
Short-term Bonds (Corp.)	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0%	9%	10%	0%
Long-term Bonds (Corp.)	2%	11%	0%	20%
MUSH Bonds	20%	20%	5%	0%
Private Debt - Universe	0%	0%	15%	0%
Private Debt - Long	0%	0%	0%	20%
Public Equities	**15%**	**0%**	**35%**	**35%**
Canadian Equity	10%	0%	12%	10%
U.S. Equity	5%	0%	0%	0%
All Country World Equity	0%	0%	13%	18%
Global Equity (Low Volatility)	0%	0%	10%	7%
Alternatives	**15%**	**0%**	**15%**	**25%**
Real Estate	10.%	0%	10%	15%
Infrastructure	5%	0%	5%	10%

The recommended asset allocation policies have the following overall impact:

RETURN

	CURRENT	PROPOSED	IMPACT
Expected Annual Total Return	4.3%	3.9%	$11M p.a. reduction in expected return
Non-MUSH Yield – ALL	2.75%	3.02%	$6M p.a. increase
Non-MUSH Yield – Basic	2.75%	2.92%	Liability decrease of $40M

RISK

	CURRENT	PROPOSED	IMPACT
1 in 20 year downside event impact on surplus	-$142M	-$75M	Improved by $67M
Interest Rate Risk Hedged	73%	87% (100% for Basic)	Significant reduction in interest rate risk.

3
IMPLEMENTATION CONSIDERATIONS

CONSOLIDATION VS SEGREGATION

The Study recommends segregation of Component assets; however, the MPI internal accounting system is designed to accommodate a consolidated asset approach. MPI is considering the implications of moving to a segregated assets model.

In the meantime, we recommend that MPI roll-up the new asset allocation policies for each Component into a consolidated policy as follows:

ASSET CLASS (GROUP)	MINIMUM	NORMAL	MAXIMUM	ACCOUNTING CLASS[5]
Cash and short-term	0.0%	0.0%	5.0%	AFS
Fixed Income				
Provincial Bonds	35%	45%	55%	FVTPL
Corporate Bonds	6%	19%	23%	FVTPL
Non-Marketable Bonds[6]	10%	20%	25%	HTM, FVTPL
Total Fixed Income	**70%**	**84%**	**90%**	
Public Equities				
Canadian Equity	0%	3%	10%	AFS
Global Equity[7]	0%	5%	10%	AFS
Global Low Volatility Equity	0%	2%	5%	AFS
Total Public Equity	**0%**	**10%**	**20%**	
Alternative Investments				
Canadian Real Estate	0%	4%	12%	FVTPL
Infrastructure	0%	2%	5%	FVTPL
Total Alternative Investments	**0%**	**6%**	**12%**	

RECOMMENDED ASSET ALLOCATIONS

As at February 28, 2017, MPI's investment assets totalled $2,547Million. Based on this amount, the recommended asset allocations are as follows:

	FIXED INCOME		EQUITIES		ALTERNATIVES		TOTAL
Basic	$ 1,790M	100%	$ -	0%	$ -	0%	$ 1,790M
SRE	74M	50%	52M	35%	$ 22M	15%	$ 148M

[5] AFS – Available for Sale, HTM – Held to Maturity, FVTPL – Fair Value Through Profit and Loss.
[6] Consists of Municipal University Schools Hospital ("MUSH") Bonds and Private Debt.
[7] Includes U.S., EAFE and to a lesser extent Emerging Market Equities.

	FIXED INCOME		EQUITIES		ALTERNATIVES		TOTAL
RSR	49M	50%	34M	35%	$ 15M	15%	$ 98M
Extension	53M	50%	37M	35%	$ 16M	15%	$ 106M
Pension	162M	40%	142M	35%	$ 101M	25%	$ 405M
Total Target	**$ 2,128M**	**84%**	**$ 265M**	**10%**	**$ 154M**	**6%**	**$ 2,547M**

Implementation of the asset class changes are expected to be phased in over a 2-year period. Assuming no change in asset values, implementation of the recommended asset allocations would require the following changes relative to the current overall asset allocation:

	FIXED INCOME		EQUITIES		ALTERNATIVES	
MPI Balance as at Aug 31 2017	$1,732M	68%	$428M	17%	$387M	15%
Change	+$396M	+15%	-$163M	-6%	-$233M	-9%

A summary of the proposed changes to the portfolio and anticipated timing are summarized as follows:

	PROPOSED	TIMING
Provincials	Duration shifting	Q1 2018
Corporate Bonds	Add 1-2 mandates	by Feb. 28, 2019
Private Debt	Add 1-2 mandate	2019
MUSH Bonds	Manage liquidity	Gradually over 24 months
Equities	Add 2 mandates	2018

APPENDIX A

RFP ITEMS

On September 12, 2017, MPI issued a Request for Proposal #2785 For Asset Liability Study. Section 5.03 list items to be addressed in the Study during Phase Two. The table below lists these items and indicates where the item is discussed in this report.

SECTION	DESCRIPTION	ADDRESSED IN
5.03(a)	Analyse risks of liabilities in context of corporate goals	Section 1. Overview of MPI's obligations.
5.03(b)	Quantification of risk/return parameters	Section 2. New Allocations.
5.03(c)	Investment characteristics of new asset classes and impact of new asset classes	Section 2. New Asset Classes, Excluded Asset Classes.
5.03(d)	Evaluation of probability of meeting expectations under various scenarios	Appendix D
5.03(e)	Asset class optimization	Section 2. New Asset Classes, Excluded Asset Classes.
5.03(f)	Recommend asset allocation	Section 2. New Allocations.
5.03(g)	Recommend allocation to corporate bonds	Section 2. New Allocations.

APPENDIX B

10-YEAR FORWARD LOOKING CAPITAL MARKET ASSUMPTIONS

ASSET CLASS RETURNS AND VOLATILITY

Asset Class	Median 10 year return	Standard deviation
1 Treasury Bills	1.4%	1.5%
2 Federal short-term bonds	1.9%	3.5%
3 Federal mid-term bonds	2.1%	6.5%
4 Federal long-term bonds	2.0%	8.5%
5 Real return bonds	2.7%	7.5%
6 Provincial short-term bonds	2.3%	3.5%
7 Provincial mid-term bonds	2.8%	6.5%
8 Provincial long-term bonds	3.0%	8.5%
9 Corporate short-term bonds	2.8%	3.5%
10 Corporate mid-term bonds	3.5%	6.5%
11 Corporate long-term bonds	3.8%	8.5%
12 Global bonds	0.8%	8.6%
13 High yield bonds	3.9%	9.5%
14 Emerging debt	6.8%	12.0%
15 Canadian equity (large cap.)	6.7%	19.5%
16 U.S. equity (large cap.)	6.7%	17.0%
17 Int'l equity (large cap.)	6.7%	17.1%
18 Global equity (large cap.)	6.7%	16.1%
19 Global low vol equity	6.1%	13.0%
20 Emerging equity	8.7%	25.0%
21 Private equity	10.1%	25.0%
22 Real estate	5.4%	13.0%
23 Diversified Growth Fund	4.9%	9.8%
24 Direct Infrastructure	6.2%	13.0%
25 MUSH Bonds	3.0%	6.5%
26 Commercial Mortgages	2.7%	3.5%
27 Long Commercial Mortgages	2.5%	5.3%
28 Private Debt - Universe	3.3%	5.4%
29 Private Debt - Long	3.5%	8.5%

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

Inflation: 2.0%
Fixed income returns based on projected yields implied by the current forward yield curve.

Asset Class Correlations

	Correlations																											
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

APPENDIX C
SUMMARY OF PHASE ONE

TOPIC	ANALYSIS/DISCUSSION	MPI CONCLUSION
Should each business have a unique asset allocation?	The profile of the obligations and risk of each of the 3 lines of business, RSR and Pension is unique. At a minimum, each business should be assessed individually. Preliminary recommendation is to adopt unique asset allocations.	Decision on whether to aggregate or segregate assets depends on dispersion of objectives.
What are MPI's Investment Goals?	The current IPS emphasizes mitigating risk resulting from interest rate variations and mitigating the risk of short-term premium volatility. It also indicates that minimizing premium levels is an objective. Clarifying investment goals for each business line is recommended.	Will define the purpose and objectives for each business line.
Inflation linkage of liabilities	Much of MPI's obligations are linked to future levels of inflation. Real return bonds are the best hedge for future inflation.	Given low inflation expectations, hedge nominal, but not real, interest rate risk.[8]
Merits of New Fixed Income Exposure	Reviewed the relative merits of Federal Bonds, Real Return Bonds, Private Debt, Corporate Bonds Commercial Mortgages, Levered Bonds, and Growth Fixed Income. Analysis considered historical and expected risk and returns, duration matching potential, cost, and implementation considerations.	Consider private debt and corporate bonds as new asset classes.
Interest Rate Risk Management Strategy	Discussed the merits of duration matching, cashflow matching, and a hybrid approach.	Focus on duration matching for 100% of Basic liabilities.

[8] See "Excluded Asset Classes" for a fuller discussion on this item.

TOPIC	ANALYSIS/DISCUSSION	MPI CONCLUSION
Economic Assumptions	Mercer's long-term assumptions assume a gradual rise in interest rates to a long-term equilibrium state. Alternatively, we are comfortable assuming shifts in future yields implied by current forward rates.	Projections and analysis will be based on implied forward rates.
Merits of New Growth Portfolio Exposure	Reviewed the relative merits of International Equities, Global Equities, Low Volatility Global Equities, Emerging Markets, Private Equity, and Diversified Growth Funds.	Consider allocations to Global Equities (including Emerging Markets), Low Volatility Global Equities, and Private Equities.

APPENDIX D
SUPPORTING ANALYSIS

The MPI Investment Committee selected the following portfolios for each line and Pension, in order to reduce investment risk for Basic claims, and develop balanced portfolios for SRE/Extension, RSR and Pension.

The following tables summarizes the Current and Recommended asset allocations and provides the risk and return metrics for each:

	CURRENT	RECOMMENDED			
	CONSOLIDATED	CONSOLIDATED	BASIC	SRE, EXT, RSR	PENSION
Fixed Income	70%	84%	100%	50%	40%
Public Equities	15%	10%	0%	35%	35%
Alternatives	15%	6%	0%	15%	25%
Risk/Return Metrics					
Expected Annual Total Return	4.29%	3.9%	3.12%	5.15%	5.69%
Non-MUSH Yield	2.75%	3.02%	2.92%	2.73%	3.72%
1 in 20 year downside event impact on surplus	-$142M	-$75M	-$38M	-$36M	-$54M
Interest Rate Risk Hedged	73%	86%	100%	Not applicable	36%
Probability of positive real return in 5yrs	80%	74%	64%	83%	83%
Probability of surplus in 5 years	76%	82%	71%	84%	62%

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HEALTH WEALTH CAREER

ASSET LIABILITY MANAGEMENT STUDY

PHASE THREE

16 JANUARY 2018

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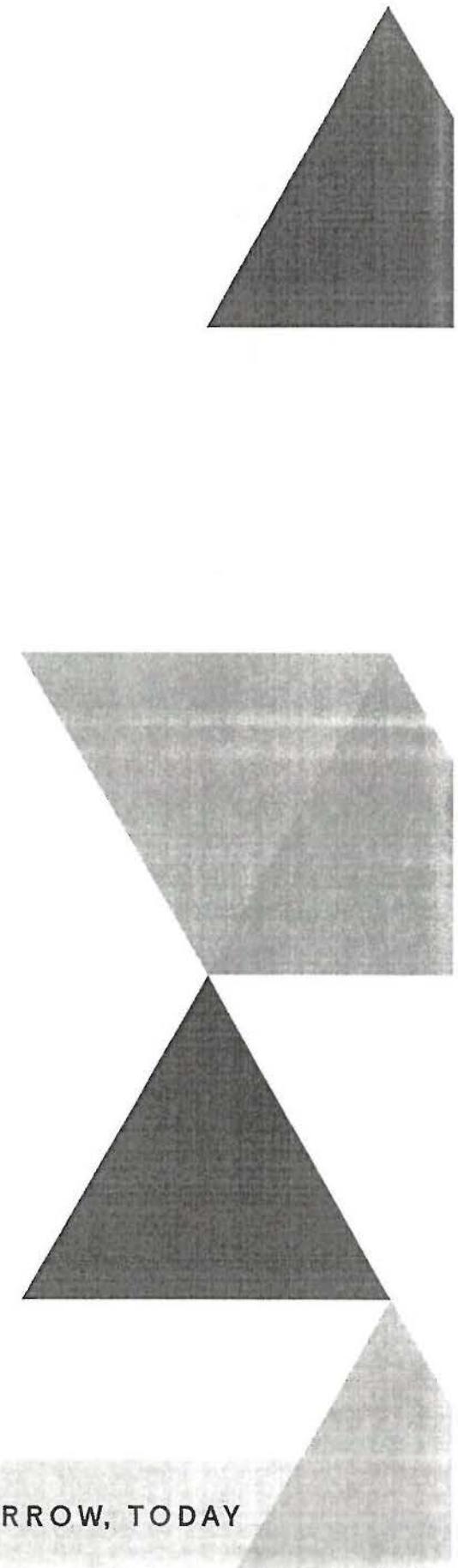

CONTENTS

1. Fixed Income Benchmark and Attribution Recommendations 1

2. Unique Asset Allocation and IPS 7

3. PUB order 11.17 8

4. PUB order 11.21 10

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1

FIXED INCOME BENCHMARK AND ATTRIBUTION RECOMMENDATIONS

(a) A review of the benchmark for the Corporation's fixed income portfolio with particular focus on ways to implement fixed income attribution analysis. The current benchmark is liability based. Provide the considerations related to switching to a market based benchmark.

BACKGROUND

MPI's fixed income portfolio is geared towards matching the interest rate sensitivity (i.e. duration) of liabilities. MPI's current interest rate risk management policy, which drives the construction of the fixed income portfolio, is outlined in MPI's Asset Liability Management policy and is summarized as follows:

- Duration[1] matching fixed income portfolio strategy to closely match claims liabilities in both dollar amount and duration.
- Fixed income manager will have *market value* of duration matching portfolio within *+/- $100M* of the *present value of claims liabilities*[2] in the previous month end.
- Duration matching portfolio will be within +/- 0.25 years of claims liability duration including the Provision for Adverse Deviation ("PfAD").

The duration of MPI's liabilities can be summarized as follows:

Duration Measure	Basic	Extension	SRE	RSR	Pension
Sensitivity to Interest Rate Changes	10.5	1.1	2.7	0.0	15.6
Sensitivity to Inflation Rate Changes	10.4	0.0	0.0	0.0	12.6

[1] Duration is a measure of interest rate sensitivity. A duration of 10 means a 1% decrease (increase) in the interest rate used to calculate the liability will result in a 10% increase (decrease) in the liability.

[2] $1.9 Billion as at February 28, 2017 for all insurance lines. Source is MPI Financial Statements as at February 28, 2017.

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The annual expected return of the fixed income portfolio and its benchmark is outlined in the Investment Policy Statement (IPS), is as follows:

- Return on the present value of the Corporation's claim liability cash flows over the measurement period.

MPI's current fixed income portfolio is benchmarked against the present value of cashflow obligations. Given the dynamic nature of its obligations, this makes attribution very challenging.

Why establish benchmarks?

An effective benchmark serves two primary purposes:

1. Provide the investment manager with an appropriate investment management objective for managing the investment portfolio.
2. Acts as a standard against which the performance of the investment manager can be measured.

In order to effectively fulfill these two purposes, a benchmark should be:

1. **Specified in advance**. The benchmark is specified at the start of the mandate or evaluation period and is known to both the investment manager and the investor.
2. **Appropriate**. The benchmark is consistent with the investor's desired approach and style, as well as with the approach, style, knowledge and expertise of the appointed investment manager.
3. **Unambiguous**. The benchmark's composition (i.e. its constituents and their weights) is clearly defined.
4. **Measurable**. The benchmark's composition and return can be determined on a reasonably frequent basis.
5. **Accountable**. The investment manager accepts the applicability of the benchmark and agrees to accept that differences in performance between the portfolio and the benchmark are caused only by their active management.
6. **Investable**. It is possible to forgo active management and instead passively replicate the benchmark.

In terms of performance measurement, in addition to being used as a reference against which portfolio performance can be compared, a benchmark can also be used to help identify and quantify the sources of the portfolio's return through attribution analysis.

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When it comes to conducting performance attribution analysis for a fixed income portfolio there is no single standard method. As a result, approaches taken to dissect fixed income returns can vary in terms of the number of factors looked at and the degree of precision.

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Here is an example of attribution for diversified bond portfolio over a 1 year period:

Factor	Measure Impact of...	Numerical Example
Beta (Asset Allocation Decisions)		
Expected Interest Rate Effect	Market performance due only to interest rate movements had interest rates moved as predicted by the forward curve	0.44%
Unexpected Interest Rate Effect	Performance during the period due to interest rates that was not predicted by the forward curve	0.54%
Alpha (Investment Manager Decisions)		
Interest Rate Management Effect	Manager's portfolio positioning with respect to interest rates (e.g. duration, convexity)	0.17%
Sector/Quality Management Effect	Manager's portfolio positioning with respect to spreads	-0.11%
Security Selection	Actual securities selected by the manager	0.05%
Trading Activity	Any additional unexplained portion of the portfolio's return; which is attributed to the manager's trading activity	-0.02%
Total		**1.07%**

When conducting fixed income performance attribution, a benchmark portfolio of securities is required in order to calculate the investment manager's relative positioning with respect to, and assess the movement coming from, certain sources of return. One of these sources of return is the effect of interest rate movements (i.e. changes to the yield curve) on the investor's fixed income portfolio. A benchmark portfolio allows for the assessment of the investment manager's success in positioning the portfolio not only for parallel shifts in the yield curve, but also for steepening,

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flattening or other changes in shape of the yield curve. A valid and relevant benchmark portfolio is therefore a key input for performance attribution.

The two most intuitive ways to build a benchmark portfolio are by using broad market indices (e.g. FTSE TMX Canada Universe Bond Index) or by using custom securities aligned with the mandate. The tradeoffs between these two approaches are outlined as follows:

Approach	Pros	Cons
Broad Market Indices	Well recognized and easy to understand and implement Unambiguous, measurable, usually investible, and can be specified in advance	May not be appropriate or accountable if the available broad market indices do not align perfectly with the investor's objective for their fixed income portfolio or if forcing a manager to use them as a reference point would in some way hinder their ability to achieve their objective
Custom Securities	Can allow for a benchmark to meet all of the benchmark validity criteria (i.e. unambiguous, measurable, investible, specified in advance, appropriate and accountable)	Can be difficult and expensive to construct and maintain

Given the above, the more common approach to constructing a benchmark portfolio, primarily on account of simplicity and cost, is to use broad market indices, but to tailor the portfolio as much as possible to the particular investment objective.

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ANALYSIS & IMPLEMENTATION CONSIDERATIONS

For a benchmark to be appropriate and accountable, it must be in-line with the objective of the investment portfolio. Given that the overall objective of MPI's fixed income portfolio is to match the duration and dollars of liabilities within specified allowable ranges[3], the portfolio's benchmark should have a link to liabilities and reflect the asset class restrictions imposed on the manager.

To link the benchmark to liabilities, we recommend a benchmark portfolio that is consistent with the duration of liabilities. If the mandate is specifically constrained to a certain sector (i.e. Provincial bonds), it would be appropriate to construct the benchmark from indices within this sector.

RECOMMENDATION

We recommend MPI transition to a market-based benchmark for its fixed income portfolio, with unique market-based benchmarks for each component of the allocation:

	RECOMMENDED BENCHMARK
Fixed Income	
Short-term Bonds (Prov.)	FTSE TMX Short Term Provincial Bond Index
Mid-term Bonds (Prov.)	FTSE TMX Mid Term Provincial Bond Index
Long-term Bonds (Prov.)	FTSE TMX Long Term Provincial Bond Index
Short-term Bonds (Corp.)	FTSE TMX Short Term Corporate Bond Index
Mid-term Bonds (Corp.)	FTSE TMX Mid Term Corporate Bond Index
Long-term Bonds (Corp.)	FTSE TMX Long Term Corporate Bond Index
MUSH Bonds	FTSE TMIX Provincial Bond Indices matching liabilities in accordance with the ALM Policy
Private Debt - Universe	FTSE TMX Universe Bond Index
Private Debt - Long	FTSE TMX Long Term Bond Index

[3] See the MPI ALM Policy for further details.

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2
UNIQUE ASSET ALLOCATION AND IPS

(b) If the Corporation decides to adopt a unique asset allocation for the three (3) lines of business, excess capital/retained earnings/Rate Stabilization Reserve (RSR) and pension assets, the Successful Vendor shall provide assistance in developing new Investment Policy Statements for each unique asset allocation.

A revised Investment Policy Statement identifying the unique asset allocations is provided under separate cover.

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4
PUB ORDER 11.17

11.17 Add additional analysis/discussion of the bucket matching approach.

In Phase 1 of our analysis, we contrasted 3 approaches that institutional investment managers utilize to manage interest rate risk:

Approach	Pros	Cons
Duration Matching	Cost effective approach. Protects against parallel shift in yield curve. Provides more flexibility with regard to investment vehicles, particularly if return enhancement is a priority.	Does not protect as well against non-parallel shifts in comparison to other approaches.
Cash Flow Matching	Higher resolution matching Protects against reinvestment risk, including non-parallel yield curve shifts	Precision of claims/benefits projections may not merit high resolution matching, as projected cash flows can be materially different from actual. Generally, most costly approach from return and fees trade-off viewpoint.
Hybrid/ Bucket Approach	Cheaper than cash flow match Some protection against non-parallel yield curve shifts	Less protection against interest rate risk than cash flow matching approach. In terms of return and fees trade off, in between duration matching and cash flow matching.

A hybrid/bucket approach combines the merits of duration matching (low cost effective matching of interest rate risk) with cashflow matching. It 'buckets' obligations into various tranches and builds an asset portfolio that has expected cashflows that are substantively similar to each 'bucket'. Relative to duration matching, it improves the robustness of the interest rate matching, but is not as precise as a cashflow matching approach.

A hybrid/bucket approach is generally more costly to implement and administer than duration matching approaches, but has the added benefit of matching convexity risk more closely than duration matching. Convexity risk is the risk of non-parallel shifts in the yield curve and is most

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pronounced when unusual changes in yields happen. While we acknowledge that a hybrid/bucket approach more precisely immunizes convexity risk, we also observe that:

1. Convexity risk is generally equally likely to result in a gain or a loss to an investor, and
2. Gains/losses resulting from non-parallel shifts often works themselves out over modest periods of time.

For investors with very limited tolerance for risk over the short term and sufficient scale to warrant a sophisticated matching program, we support a hybrid/bucket approach and/or a cashflow matching approach. But for investors who can tolerate modest levels of risk over the short term and target excess returns from active management, we are comfortable recommending a duration matching approach which allows for more efficient implementation and a broader opportunity set.

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5
PUB ORDER 11.21

11.21 Would our modelling and recommendation for the asset mix backing RSR have differed if the upper limit for the RSR was reduced from $438Million to $325Million, as per PUB order 130-17?

Our analysis and eventual recommendation for the assets backing RSR obligations holds so long as MPI's risk tolerance is moderate and the total assets of MPI are in the $2-4Billion range. In other words, our recommended asset mix for RSR would have been the same whether the RSR maximum limit was $438Million or $325Million.

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MARSH & McLENNAN COMPANIES

Figure EXP- 43: 6.1 Basic Capital Expenditures

Line No		2016/17A	2017/18FB	2018/19F	2019/20F	2020/21F	2021/22F	Unassigned Capital
1	*(C$000s except where noted)*							
2	**Deferred Development**	21,462	13,890	20,983	23,867	21,068	16,314	5,916
3	**Capital**	2,240	2,301	-	-	-	-	(188)
4	**Implementation Expenses**	(2,305)	2,444	2,566	2,601	2,047	1,981	1,363
5	**Subtotal**	**21,397**	**18,635**	**23,549**	**26,468**	**23,115**	**18,295**	**7,091**
6	**Land and Buildings**	3,102	3,756	2,786	2,307	1,110	1,151	-
7	**Automobiles**	745	1,118	1,134	611	451	807	-
8	**Furniture and Equipment**	307	1,838	2,872	3,099	1,688	911	-
9	**Subtotal**	**4,154**	**6,712**	**6,792**	**6,017**	**3,249**	**2,869**	**-**
10	**Investment Capital**	993	1,040	1,401	942	748	803	-
11	**Other Initiatives**	-	-	-	-	-	-	-

A Report for

Manitoba Public Insurance

Physical Damage Re-Engineering (PDR) Program Evaluation

6 June 2016
Engagement: 330031341

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Table of Contents

Executive Summary **1**
Context and Background **4**
Physical Damage Re-engineering Program Overview 4
Program Objectives 5
Expected Program Outcomes 5
Gartner Perspective on PDR Program Alignment with Industry Trends **7**
PDR Program Planning **11**
Program Structure **13**
Evaluation Approach **17**
Progress to Date and Timing of Full Implementation **18**
Projected Program Schedule 18
Progress of Pilots 19
Overall Progress 21
Project Costs and Savings / Benefits **22**
Cost 22
Benefits 23
Program Risks Constraints / Challenges **25**

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Executive Summary

Context and Background

In response to an order from the Public Utilities Board (PUB), MPI has contracted Gartner to conduct an assessment of the Physical Damage Re-engineering (PDR) program.

The PUB Order 128/15 – 10.6 is as follows: *MPI file at next year's GRA an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be delivered.*

The PDR Program

The Physical Damage Re-engineering (PDR) program will introduce a number of changes to MPI's operating environment in order to enhance MPI's ability to settle physical damage claims effectively in the emerging marketplace environment.

The PDR Program goal is to transform the physical damage claims operation to enhance the MPI Value Equation by providing measurable sustainable benefits to customer satisfaction and the claims cost structure.

The PDR program is made up of five programs (related groupings of projects) and 20 projects within those programs. Some are heavily dependent on technology, and others are more focused on changes to operating practices and processes, and on the relationship among MPI and a range of stakeholders including, for example, customers, repair shops, and industry associations.

Industry Impacts

The PDR Program has been designed to address the changing nature of the automobile and repair industries. Since 2010, significant changes have occurred in the automobile industry which are driving ongoing structural changes to the repair industry. These changes have impacted, and will continue to impact, repair methods, tools, technology and training required in order to properly repair the more complex vehicles that are beginning to dominate the marketplace. Manitoba Public Insurance and its repair industry partners need to continue to make ongoing adjustments to the operational model, repair and quality assurance methods and service delivery channels at a more rapid pace than in the past. The PDR Program is part of MPI's and its repair industry partners' active approach to adopt a more flexible operational model that will become the new operational 'normal'.

Gartner Industry Perspective

The PDR Program is aligned with what Gartner is observing and projecting for the Property and Casualty Insurance Industry.

Digital insurance is the application of information and technology to enable new capabilities across the insurance value chain for optimizing and transforming existing business processes, products, services and revenue sources, as well as creating new ones.

There is little dispute that digital insurance holds the promise to foster innovation and literally transform the industry by enabling new products, services and delivery channels that can

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generate new revenue, add value across the entire insurance value chain, and improve customer acquisition and retention.

Evaluation Approach

Gartner reviewed a number of key program artifacts and interviewed a number of key individuals. Gartner applied its proven risk and readiness methodology to address the four key questions raised in the PUB order and to identify overall Program challenges and risks.

The PUB order specified four key areas to be addressed: Progress of pilots to date, Timing of full implementation, Project costs, Savings / benefits to be realized.

Projected Program Schedule

Progress has been steady but slow due to a number of changes in direction regarding the definition of the actual projects required to deliver the objectives of the overall Program, and due to a number of shifts in the overall Program delivery structure.

Of the 20 projects that make up the PDR program 4 have been completed, 10 are in progress, and 6 are scheduled to start in the future.

One of the key Program approaches is to, where applicable, utilize Pilot Tests to validate and test system functionality, workflows, processes, effort, and impacts.

To date, Pilot Tests have been performed, and have contributed to, the successful delivery of Collaborative Estimating, Distributed Estimating and AutocheX. Other Pilot Tests are in progress or are being planned for subsequent projects within the PDR Program.

Based on reviews of the Program charter and project plans, the schedules for the ten in-progress projects appear to be reasonable and achievable. However, to achieve that schedule, the Program must address a number of known issues.

Cost

The overall program budget has been consistently $65M (in 2012 dollars) throughout all changes in direction and approach. Approximately $32.8M has been spent on the Program to date with $32.6M remaining to complete the project.

As is to be expected in a program of the duration and complexity of PDR, and given the rapid changes in automotive and repair technologies, the Program continues to undergo scoping, planning and mapping of outcomes to projects. This has the benefit of realigning the project scope and objectives to achieve optimal business, consumer, and industry benefits. However, it also introduces the potential for additional cost, extended timeline and deferred benefits realization.

Benefits

At a very high level, the Program is structured as an investment of about $65M (in 2012 dollars) over about 9 years, which will generate a steady flow of benefits starting in year 7 and ramping up to approximately $13.65M starting in 2020/21 (year 11).

While actual activities have changed to address a dramatic shift in automobile technology since 2012, and to address new insights into the readiness of the industry, the Program spending and benefits realization actuals are proceeding as per the original plan that was presented to, and approved by, the Board of Directors in 2012. As such, the Program is on track with respect to the original approved budget, and started to deliver benefits last year (a year earlier than projected).

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The Program, as planned and approved, shows a lengthy payback period, an Internal Rate of Return of 8% and a Net Present Value of $18M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

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Context and Background

In response to an order from the Public Utilities Board (PUB), MPI has contracted Gartner to conduct an assessment of the Physical Damage Re-engineering (PDR) program.

The PUB Order 128/15 – 10.6 is as follows: *MPI file at next year's GRA an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be delivered.*

Gartner Consulting provides fact-based consulting services to help clients use and manage IT to enable business performance by bringing together research insight, benchmarking data, problem-solving methodologies and hands-on experience to improve the return on IT investment.

The Gartner report addresses the issues raised in the PUB and also identifies project constraints / challenges and makes recommendations to address them.

Physical Damage Re-engineering Program Overview

The Physical Damage Re-engineering (PDR) program will introduce a number of changes to MPI's operating environment in order to enhance MPI's ability to settle physical damage claims effectively in the emerging marketplace environment.

The vision for the PDR Program is to address the following:

- Technology changes being adopted by vehicle manufacturers which are leading to significantly increased complexity in repairs management that drives a need for business and systems transformation by MPI and some of its partners.
- Rising consumer expectations which are driving MPI to not only have an online presence but also the ability to interact using mobile and on-line devices for key transactions.

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Program Objectives

The PDR Program goal is to transform the physical damage claims operation to enhance the MPI Value Equation by providing measurable sustainable benefits to customer satisfaction and the claims cost structure. This will be achieved by streamlining existing workflows, eliminating low/no value work, leveraging existing and emerging technologies, creating a business model that allows customers to do business with MPI when and how they want and empowering both customers and business partners to take more ownership of the PD claims experience.

PDR is being implemented to satisfy MPI's business objective to deliver a number of capabilities and levels of service to:

- Ensure vehicles are repaired in a safe and cost-effective manner both in Manitoba, and throughout North America
- Deliver and orchestrate the full lifecycle of physical damage claims management services, in partnership with the extended repair industry, to meet customers' evolving needs for quality, safety, cost control and service.
- Work with business partners to promote a local collision repair industry that is healthy and sustainable in both economic and environmental terms.
- Work with the global industry to foster safe and cost-effective vehicle repair and occupant protection.
- Be responsive to the needs and expectations of its customer base which is increasing in diversity and subject to unique geographic challenges and constraints. Ensure that customers are kept informed throughout the claim and repair process.
- Triage claims to involve Loss Prevention resources earlier in the process resulting in more denials/recoveries.

Expected Program Outcomes

The PDR program is expected to deliver the following:

- Reduction of 50% physical (PD) claims effort in Contact Centre activity.
- Direction of nearly 50% of estimates to distributed estimating (DE) shops
- Correct Repair shop will be identified 98+% of time.
- Once a vehicle is at repair shop, claim is ready for repairs 98% of the time—no waiting for customer or shop.
- Customers and shops are not required to repeat work already performed, as measured by new process design and customer service experience
    - Measured by Number of abandoned sessions in First Notice of Loss (FNOL): less than 2% abandon rate
    - Measured by number of cross supplements in RepairCenter: less than 1% cross supplement rate
- Lower overall claims spend in comparison to current operations which will also preserve relative claims costs in relation to SGI
- Less hands-on MPI involvement for most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new First Notice of Loss (FNOL) claims
- Smaller MPI operational footprint achieved through decommissioning and / or repurposing MPI service centres

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- Mitigation of leakage risks through ongoing claims financials management, forecasting, audit and monitoring
- Continued health of the overall Repair industry measured by the continued profitability of the Manitoba repair industry.
- Vehicle repairs meet relevant standards as defined and measured by quality of repairs standards and KPI's.

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Gartner Perspective on PDR Program Alignment with Industry Trends

The PDR Program is aligned with what Gartner is observing and projecting for the Property and Casualty Insurance Industry.

Recently published research from Gartner includes the following findings and projections that are directly relevant to a Program such as PDR:

- Digital insurance is the application of information and technology to enable new capabilities across the insurance value chain for optimizing and transforming existing business processes, products, services and revenue sources, as well as creating new ones.
- There is little dispute that digital insurance holds the promise to foster innovation and literally transform the industry by enabling new products, services and delivery channels that can generate new revenue, add value across the entire insurance value chain, and improve customer acquisition and retention.
- Some key Digital Business use cases in this industry include:
    - Mobile FNOL
    - Fraud analytics
    - Mobile wallets
    - App stores
    - Customer communications management
    - Usage-based insurance
- Gartner research shows that those insurance companies that are digital leaders (that is, those with a progressive digital strategy) are significantly more successful — as determined by real-world financial measures — than their less advanced competitors.
- While marketing and sales improvements can be achieved through digital business transformation, most insurers have yet to either achieve it or to have business models that include benefits in these areas. Actually, most early adopters have focused more on improving internal performance through digitalization than anything associated with marketing or sales. The Gartner study found that internal efficiencies and operational improvements were the top benefits expected from digitalization.
- Digital business is forcing business and IT leaders to establish an ecosystem of partners to transform and extend their insurance value chains
- We are convinced that business and IT leaders in insurance won't be able to digitally transform their current value proposition on their own. One approach to this transformation is to build an extensive and diversified partner ecosystem, transform their value drivers, and orchestrate this ecosystem. This partner ecosystem should not be limited to channel partners, but should also include service, technology, content, data or innovation incubation partnerships.
- The key to digital business in an information economy is making data work for the organization. Therefore, analytics remains at the top of CIOs' stated technology priorities in 2015 among all industries and insurance.
- Leading insurers are implementing predictive and prescriptive analytics capabilities and investing in big data to provide a competitive advantage. Business units or discrete analytics organizations within the business often and increasingly lead analytics capabilities and initiatives.

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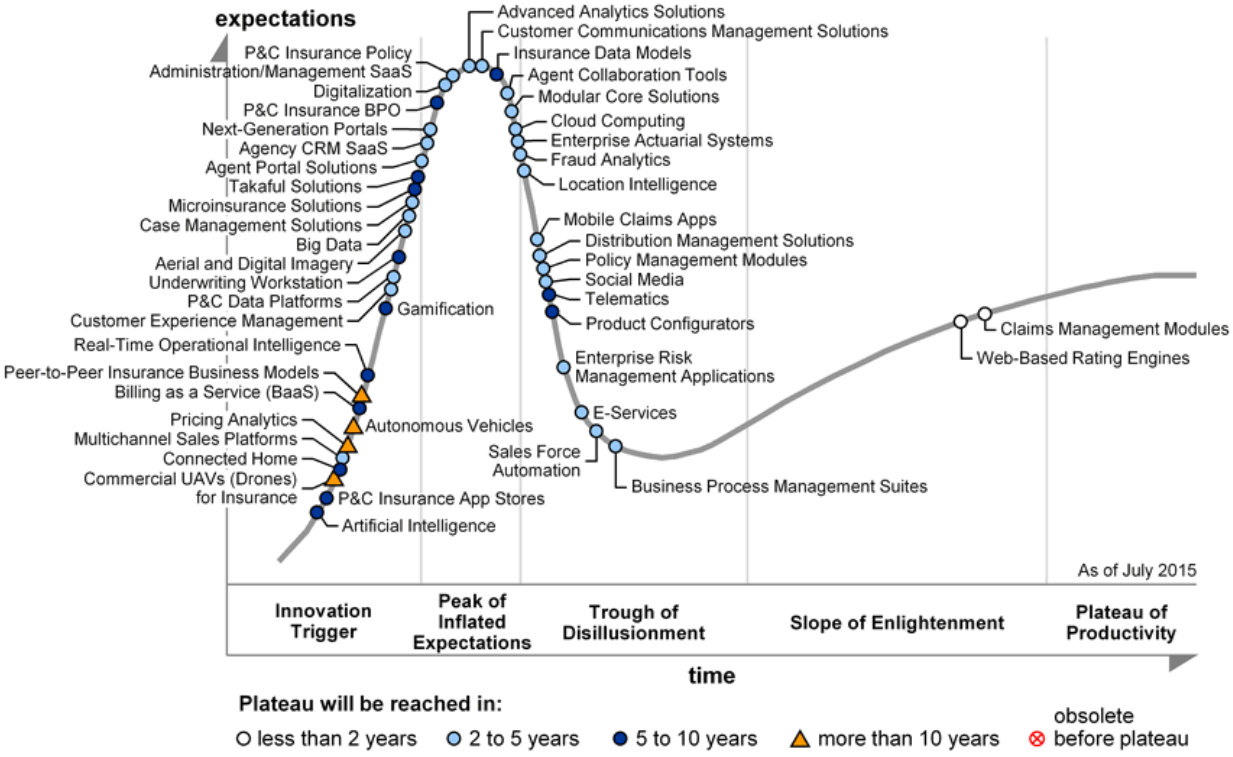
- Gartner is tracking two items on its Hype Cycle which are explicitly addressed in the PDR Program – Advanced Analytics, and Mobile Claims Apps.



- Gartner's projections for these items are as follows:
  - Mobile Claims Apps –applications created for mobile devices to support claims handling and processing by adjusters, partners and policyholders for various property and casualty (P&C) product lines. Mobile claims apps provide users with the ability to perform various tasks, such as submitting claims with supporting data (for example, pictures), receiving new claim assignments, requesting repair services and tracking the status of claims.
    - Position and Adoption Speed Justification: Many insurers worldwide have launched mobile apps to provide consumers with roadside assistance, first notice of loss (FNOL) and other functions. Insurers continue to expand the range of supported transactions and tap mobile device capabilities that allow the user to take photos, record audio and video, and capture signatures. There also has been increasing interest in the use of mobile apps post catastrophe, wherein the media tablet form factor lends itself well to being used by claims adjusters. In addition, there is growing interest in mobile apps for e-procurement, which enables adjusters to order replacement parts, issue debit cards, and request repairs or other services. These apps support pre-negotiated discounts and make claims handling more efficient when rapid response is critical. Adoption of mobile claims apps has surged in mature markets, such as North America and Europe — primarily within personal lines of business — and there is strong interest worldwide. However, consumer adoption remains low.

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- User Advice: To ensure that mobile claims apps provide compelling value, CIOs should develop specific scenarios for how they will be used by different users — such as adjusters, customers and supply partners — to complete tasks and procure services or goods during normal claims adjustments and post catastrophe. For each scenario, CIOs should identify how frequently it is likely to occur, which form factor (smartphone or media tablet) would be most desirable and whether additional connectivity options (for example, via satellite) may be needed.
- Business Impact: Mobile claims applications have the potential to provide insurers with a number of key benefits:
    - Immediate FNOL with more complete data, such as real-time pictures from accident sites, in order to speed up claims handling and improve fraud management and adjusting
    - Reduced data entry costs as customers supply more electronic data with their claims
    - Improved productivity through the enabling of real-time assignments from the home office to field adjusters, and the submission of documents, photos and video
    - Improved catastrophe management through faster loss notification and on-site claims processing
    - Improved customer satisfaction and retention through faster and more transparent claims processing
- Benefit Rating: High

- Advanced Analytics Solutions use sophisticated quantitative methods (for example, data mining, prediction, simulation and optimization) to produce insights that traditional approaches are unlikely to discover. They include a range of technologies, but mostly are focused on forward-looking, predictive outcomes as well as prescriptive indicators to help organizations with actionable outcomes.
    - Position and Adoption Speed Justification: Advanced analytics is becoming one of the most strategic technologies of 2015, being adopted by leading insurers to support competitive differentiation and advantage, and cited by insurance CIOs as the most important technology priority for 2015. Today, these solutions are used for actuarial, marketing and finance, but have great potential for new use cases and in new business units such as underwriting, claims, sales and special investigation (fraud). While adoption is currently projected to be between 5% and 20% of the target market and applications are immature, adoption is rising over the next two to five years.
    - Business Impact: There are numerous benefits of advanced analytics solutions in P&C and life insurance. They include:
        - Loss avoidance and reduction, especially around claims and fraud losses
        - Improved revenue through better risk selection, interactive and real-time direct marketing, and customer sales interactions
        - Improved customer satisfaction as a result of improved interactions that fit their segment, preference and behavioural model
        - Churn prevention and reduction as proactive outreach programs are launched

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    - Faster claims processing due to early modeling and identification of impacted customers
    - Improved agent satisfaction due to the ability to provide them with improved customer intelligence, information on local market insurance needs and prospects with buying appetite and next best action outcome scores
    - Tap into sensor and device data from the Internet of Things to create alerts or take immediate action based upon real-time, digitally derived data
- Benefit Rating: High

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PDR Program Planning

The PDR program started in 2013. In late 2013 / early 2014 MPI conducted a comprehensive assessment to confirm that the program would still provide the projected benefits. The assessment identified new requirements, opportunities, and constraints based on changes in the overall industry and in technology trends and capabilities. As such a "Business Re-Visioning" project was initiated in June 2014 to re-plan PDR to ensure desired benefits as defined in the business case were achievable. This initiative, started in June 2014, was completed in early 2015 with the end vision of PDR remaining the same but a need identified for the following:

- Vertical integration with the repair trade
- Introduction of automation in estimating and adjusting to deliver lower cost of current claims administration through the following:
  - Reduction of claims handling effort at the contact centre by 50%.
  - 50% of claims to be handled through the Distributed Estimating (DE) channel.

Key outcomes of the "Business Re-Visioning" was a new set of insights and decisions including (but not limited to):

- Need for a new holistic Service Delivery Model (SDM) to achieve all core objectives of the PDR program.
- Service centre changes as envisioned originally were only feasible with a new adjusting model and re-platforming of the CARS application.
- DE will only be feasible with a First-Notice-of-Loss (FNOL) customer self-serve model.
- Loss-of-Use (LOU) requires a fair allocation approach in order to net incremental benefits.
- Savings feasible through dynamic alignment of salvage values to Total-Loss (TL) valuation process.

To address the new insights and decisions a Change Request (CR) was raised and approved in May 2016. The purpose of this change request was to document changes to the project savings, scope and approach. The CR redefined the PDR Program scope to include the following:

Physical Damage/Customer Service Projects:

- Optimized Repair Project
- First Notice of Loss (FNOL) and Adjusting Model
- Loss Prevention

Knowledge Management Project:

- Website Redesign and Portal Consolidation

The CR included updated anticipated annual operational cost savings from the PDR Program.

Cost Savings Area	Cost Savings	Operating Expenses	Claims Incurred
Process Improvement (Internal)	$ 2,500,000	$ 2,500,000	
Repair Shop Process Improvement	$ 3,000,000		$ 3,000,000

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Parts Sourcing	$ 2,800,000		$ 2,800,000
Loss Prevention	$ 1,000,000		$ 1,000,000
Loss of Use	$ 3,000,000		$ 3,000,000
TL Valuation with Salvage	$ 1,000,000		$ 1,000,000
Total	**$ 13,300,000**	**$ 2,500,000**	**$ 10,800,000**

The CR specifies that while some savings are expected to be realized in earlier years, full realization of the benefits will occur by fiscal year 2021/22.

There is no expected change to the original budget of $65,485,774.

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Program Structure

The PDR program is made up of five programs (related groupings of projects) and 20 projects within those programs. Some are heavily dependent on technology, and others are more focused on changes to operating practices and processes, and on the relationship among MPI and a range of stakeholders including, for example, customers, repair shops, and industry associations.

A brief description of each of the projects which make up the PDR program is provided in Table 1 below:

Table 1. PDR Projects

Program / Project	Description
Program Management	
Mitchell Data Services (Tableau) - MDS	MPI is taking advantage of an offering from a long-standing business partner, Mitchell International, that will allow MPI consistent, and quicker insight into the data partners collect from MPI business operations. The project entails the implementation of the Tableau product in two phases: 1. An external view which compares MPI to other jurisdictions in North America 2. An internal view which allows MPI management to better understand trends that drive their position on cost and productivity.
Website Redesign and Portal Consolidation	This project includes the following: • Amalgamating content from several web sites into one partner portal and decommissioning redundant technology and infrastructure • Redesigning websites and migrating content to a supported version of SharePoint and to improve search functionality for Strategy & Innovation, Brokers Online, and the Intranet • Updating all existing SharePoint 2010 environments to SharePoint 2013 • Updating Authentication technology as it directly relates to Portal consolidation
Optimized Repair	
Collaborative Estimating (CE)	Bringing MPI and Repair Shops onto a common platform by implementing Mitchell's WorkCentre and Repair Centre product suite with the following capabilities: • Creating an estimate that can be shared electronically between MPI and the repair shops • Compliance checks at Repair Shops • Streamlining the supplements process by allowing repair shops to work collaboratively with MPI • Ensure customers and staff are kept informed of the repair status • The automatic maintenance of a "gold copy" estimate which eliminates the need for manual reconciliation between repair shops and MPI, enabling the automation of payments to repair shops • Implementing a robust and proactive quality assurance program to ensure quality repairs are being performed • Increasing customer satisfaction by providing repair status to customers electronically

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Program / Project	Description
Distributed Estimating (DE)	This project includes: • Implementing a Distributed Estimating model allowing repair shops to assess the initial damage to a vehicle and produce estimates directly for MPI Customers • Designing and implementing a proactive quality assurance program to ensure quality repairs are being performed • Implementing required estimating standards for Repair Shops to follow to ensure consistent creation of the first estimate • Loss of Use (LOU), which includes: ▪ Implementation of Repair Shop administration of loss of use (vehicle rental) for customers with repairable vehicles. ▪ Create and implement agreed upon processes and tools which provide repair shops a fixed level of funding based on the projected time for the repair. ▪ Provide repair shops with the incentive to not only meet projected timelines, but to shorten timelines since if they manage better, they can keep the excess and alternatively, if they manage poorly, they will be responsible for any shortfalls
Accreditation	Support the accreditation and rates negotiation process with the repair shops. Develop, obtain agreement on, and implement tools and process which use mathematical models to determine different rate scenarios. • By building these models, the project will be able to depict the impact to total spend created by the tiered accreditation model. • Each tier and the composition of benefits accrued to the tier as well as capabilities will result in a potential rate change. • Each likely rate change will be modeled with forecasts of the shops that are expected to be part of the tier.
Shop Support Administration (SSA)	This project includes: • Implementing a robust system of key performance indicators to measure the abilities and success of Repair Shops • Creating an internal team to work closely with Repair Shops to address ongoing needs and ensure success in the new Collaborative and Distributed Estimating model
Remote Estimating	Allow remote and rural repair shops to participate in a collaborative estimating process. Largely achieved by equipping rural repair shops with technology to share digital imaging with MPI estimators. • When vehicles are brought in for estimates at these locations, the shop will review the damage with an MPI estimator using digital imaging technology while the estimator writes the estimate. • The shop will then be able to utilize this estimate to order the parts and proceed with the repair. • Unlike Distributed Estimating partners, Remote Estimating partners will not have any authority to repair claims without express MPI approval today.
Out of Province Estimating	Develop an approach to use existing solutions when dealing with out of Province repair shops and repair scenarios.
Interim Shop Search	Implement an online search functionality for repair shops that will assist customers in finding and choosing shops that can perform the required repairs based on their specific requirements including body type, location, satisfaction rating, etc.

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Program / Project	Description
	Shape customer and repair shop behaviour by ordering results based on a composite KPI score, so as to induce customers to choose repair shops that best meet MPI's goals.
Optimized Adjusting	
First Notice of Loss (FNOL) and Adjusting	This project includes the following: • First Notice of Loss: ▪ Creating defined Accident profiles ▪ Implementing a profile-based mobile platform customer self-serve FNOL channel ▪ Implementing a profile-based FNOL into the contact centre channel • Adjusting Process Improvements: ▪ Leverage opportunities for efficiencies made available by profile-based FNOL ▪ Implementation of a customer self-serve total loss valuation solution to ensure vehicles are valued consistently and accurately ▪ Implementation of Repair Shop administration of loss of use (vehicle rental) for customers with repairable vehicles
FNOL – Self Service Analytics	Combination of internal analytics of data collected via interaction with MPI claims management system, and channel analytics provided from Mitchell indicating customer behaviour in the mobile FNOL channel
Towing	This project includes development of a solution interface for towing operators. Through this interface new work will be assigned to tow operators, tow incidents will be captured and recorded, for both contract and non-contract bases. The scope of the project may include changes to Vehicle Tracking and FNOL applications and processes.
Enhanced Registration Card	This project entails electronic capture and verification of customer contact information followed by the generation and imprinting of a barcode on the customer registration card based on the customer profile
Enhanced Accident Profiling	This project includes the enhancement of previously defined accident profiles to determine the amount and type of post FNOL effort (No Touch/Low Touch/High Touch).
Physical Damage Support	
Shop Training Management	This project provides support to the repair shops training program based on the Center of Excellence's (COE) defined training requirements. This entails development of training, scheduling and delivering the training to shops, and maintaining the shops training records.
Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI)-BIIC/COI	The development and deployment of a solution to digitally capture and store Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI) linked to online repair records.
Parts	Increase recycled parts usage through expansion of the recycler network by: • Improving the recycled parts process through automation whereby recyclers provide their inventories online and repair estimates include

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Program / Project	Description
	those parts automatically • Reducing administration required for recycled parts through process automation • Expanding the catalogue of certified aftermarket parts
Others	
Autochex	A 3rd-party solution for the implementation of a survey tool which will collect data and provide specific and aggregate reports on customer satisfaction regarding their experience at particular repair shop
Predictive Analytics / Loss Prevention	Improve fraud detection and recoveries through the use of predictive analytics
Centre of Excellence (COE)	This project will setup the infrastructure and mechanisms (people & processes) to provide support and leadership to operational areas of MPI, as well as the Manitoba collision repair industry involved in the Automotive Physical Damage Claims Administration and Repair processes

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Evaluation Approach

Gartner reviewed a number of key program artifacts including the following:

- The PDR Program Charter which documents program objectives.
- The vision document which provides an explanation of problem and opportunities.
- The Physical Damage Re-Engineering Financial Report which includes an itemization of initiatives and explains the expected timing and budget.
- The PDR Business Case which clarifies business interventions and includes estimates of expected financial benefits and timing.
- The Change Request which documented changes to the project savings, scope and approach due to new insights and decisions made during the project elaboration phase.

Gartner interviewed a number of key individuals including the PDR Program Executive Director, a number of the project managers and business relationship managers, and senior members of the MPI program and project organization including the Business Transformation Office, Corporate Initiatives, and Value Management.

Gartner applied its proven risk and readiness methodology to address the key questions raised in the PUB order and to identify overall Program challenges and risks.

The PUB order specified four key areas:

- Progress of pilots to date
- Timing of full implementation
- Project costs
- Savings / benefits to be realized

The following sections address these key issues in light of the key risk areas identified in the Gartner risk and readiness methodology described below.



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Progress to Date and Timing of Full Implementation

Projected Program Schedule

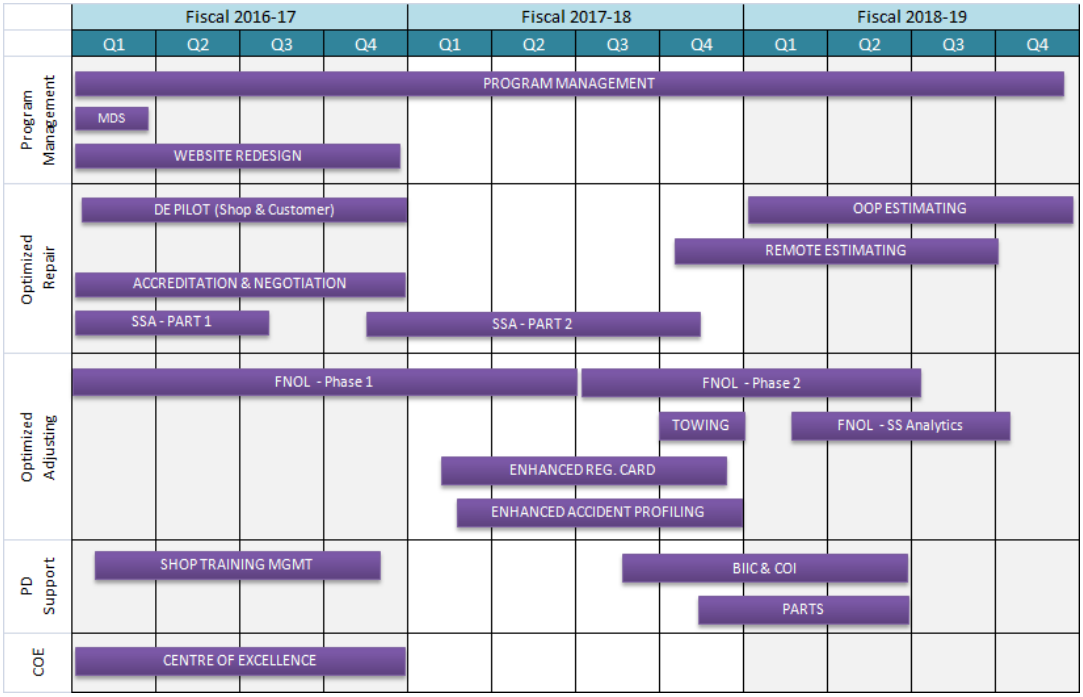
Progress has been steady but slow due to a number of changes in direction regarding the definition of the actual projects required to deliver the objectives of the overall Program, and due to a number of shifts in the overall Program delivery structure.

Early in 2016, an Executive Director was appointed and he has created clear structures for Program governance, delivery, and overall project structure. These changes are being implemented and they are having a noticeable effect on the clarity around timelines and deliverables, and on the pace of delivery.

The overall Program Charter has been documented and approved. The Program approach is to build out Project Plans for each of the identified projects which make up the overall Program. Current project plans and schedules are mostly at a macro level. Project plans and detailed schedules are not available for several of the projects or sub-projects.

While project plans and schedules will continue to change as several projects are undergoing scoping, planning and mapping of program outcomes to individual projects / sub-projects, the most current schedule for the PDR Program has been determined to be as follows:

Figure 1. PDR Schedule



Of the 20 projects that make up the PDR program 4 have been completed, 10 are in progress, and 6 are scheduled to start in the future as described in Table 2 below:

Table 2. Current Status

Program	Project	Status	Qrtr	Fiscal Year

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Program Management	Collaborative Estimating (CE)	Completed		
Program Management	Interim Shop Search	Completed		
Others	Predictive Analytics / Loss Prevention	Completed		
Optimized Adjusting	Towing	Scheduled	Q4	2017-2018
Optimized Adjusting	Enhanced Registration Card	Scheduled	Q4	2017-2018
Optimized Adjusting	Enhanced Accident Profiling	Scheduled	Q4	2017-2018
Physical Damage Support	Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI)- BIIC/COI	Scheduled	Q2	2018-2019
Physical Damage Support	Parts	Recently initiated	Q4	2016-2017
Program Management	Remote Estimating	Scheduled	Q3	2018-2019
Program Management	Out of Province Estimating	Scheduled	Q4	2018-2019
Optimized Adjusting	FNOL – Self Service Analytics	Scheduled	Q4	2018-2019
Others	Autochex	Complete	Q2	2015-2016
Program Management	Mitchell Data Services (Tableau) - MDS	In-progress	Q1	2016-2017
Program Management	Shop Support Administration (SSA) Phase 1	In-progress	Q3	2016-2017
Physical Damage Support	Shop Training Management	In-progress	Q4	2016-2017
Program Management	Website Redesign and Portal Consolidation	In-progress	Q4	2016-2017
Program Management	Distributed Estimating (DE)	In-progress	Q4	2016-2017
Program Management	Accreditation	In-progress	Q4	2016-2017
Others	Centre of Excellence (COE)	In-Progress	Q4	2016-2017
Program Management	Shop Support Administration (SSA) Phase 2	In-progress	Q4	2017-2018
Optimized Adjusting	First Notice of Loss (FNOL) and Adjusting	In-progress	Q3	2018-2019

Progress of Pilots

The PD Re-engineering program includes a number of projects that span a time period of 5 years. One of the key approaches to these projects is to, where applicable, utilize Pilot Tests to validate and test system functionality, workflows, processes, effort, and impacts.

To date, Pilot Tests have been performed, and have contributed to, the successful delivery of Collaborative Estimating, Distributed Estimating, and AutocheX (Customer Service Surveys tracking the Net Promoter Score).

Other Pilot Tests are in progress or are being planned for subsequent projects within the PDR Program, as summarized in the table below.

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Project/Initiative	*Pilot Test Duration*	*Status*
Collaborative Estimating (CE)	Mar 2014 – Jun 2014	Complete
AutocheX	Aug 2015 – Jan 2016	Complete
Distributed Estimating (DE)	Jul 2015 – Dec 2016 (planned)	In Progress
Quality of Repair	May 2016 – Oct 2016	In Progress
Remote Estimating	June 2016 – Nov 2016	Planning

Some of the key outcomes and learnings from the Pilots include:

- Collaborative Estimating
    - 11 Repair Shops participated in the Pilot, deployed in 2 waves;
    - Validation of workflow and opportunities identified to improve overall processes;
    - Identification of technology faults early and were able to resolve quickly;
    - Established a refined implementation approach for all participating Repair Shops including operational procedures, training, and communications

- AutocheX
    - 45 Repair Shops selected to participate in 2 waves
    - Technology tested and validated with the Vendor
    - Identified opportunity for improved information flow and reduced effort
    - Effectiveness of communication to Repair Shops
    - Establishment of automated reporting

- Distributed Estimating (in Progress)
    - 17 Repair Shops selected and actively participating
    - Strong customer take up on the offer to go directly to a shop for the first estimate (~600 claims +90% uptake when offered)
    - Repair Shops can estimate per MPI standards (~10,300 estimates performed to date in conjunction with MPI performed estimates)
    - Shop performance tracked objectively
    - Phased approach with strategic increase in claim complexity is allowing incremental learnings and risk mitigation
    - Pilot results continue to be monitored and shared with the participating shops
    - Pilot Test expected to continue to the end of the year (Dec 2016)

Quality of Repair

- Three repair shops have been selected to participate
- Currently establishing and monitoring quality-of-repair practices and procedures

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Overall Progress

Based on reviews of the Program charter and project plans, the schedules for the ten in-progress projects appear to be reasonable and achievable. However, to achieve that schedule, the Program must address a number of known issues:

- The program continues to undergo scoping, planning and mapping of outcomes to projects and the scope of several of the projects are still to be confirmed – projects in progress need to be confirmed, and those yet to start will naturally evolve based on the outcomes and insights gained from prior projects
- Coordination and collaboration of several vendors (Mitchell, HP, IBM)
- Mitchell's ability to develop and deploy the FNOL product meeting MPI's requirements
- Resourcing the overall program with the appropriate skills and in a timely manner:
  - Several projects are running concurrently
  - Resources with relevant skills and experience in the legacy applications are limited
  - The Program will experience peak periods when there will be a large demand for skilled and experienced Business Analysts and Business Architects
  - A strong reliance on Mitchell resources as well as contracted resources from HP

One of the key risks is Mitchell's ability to deliver the expected outcomes of the FNOL project. This is due to the innovation and complexity specified by MPI and due to the fact that Mitchell has a dual interest in delivering to MPI's requirement and to create a commercially viable product. One of the ways that MPI can manage this risk is to ensure that Mitchell is taking an iterative approach to developing and demonstrating to MPI interim FNOL functionality.

In general, MPI can reduce the risk of delays by finalizing scope and project plans, and managing each project / sub-project according to a detailed project plan inclusive of project schedule. In addition, MPI should ensure that there is clear and explicit agreement on roles and responsibilities among all stakeholders including vendors, and that dependencies among projects and resources are clearly identified and managed.

The level of specification and planning for the seven scheduled projects is at such a high level, that the end dates are, at face value, realistic and achievable. However, it is possible that these schedules will likely be revisited and revised to achieve optimal business outcomes, as MPI learns more through the projects that are currently underway.

There is work underway to investigate the possibility of completing the in-progress projects earlier than the current schedule. Based on the available project documentation and on the planning exercises to date, it is unlikely that these projects can be completed on a faster schedule than currently projected with the full scope that is currently in place. While the time lines for the scheduled projects seems to be reasonable given the high level understanding of the scope and approach for those projects, there is a reasonable likelihood that these projects could be re-scoped based on the experience of and learnings from in progress projects. The timing for the overall project will depend on the outcomes of the in-progress projects and the scope for the scheduled projects may change, thus changing the overall Program schedule.

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Project Costs and Savings / Benefits

Cost

The overall program budget has been consistently $65M (in 2012 dollars) throughout all changes in direction and approach. This excludes the re-platforming of the CARS application which was rejected as being costly and complex early in the discovery process. Approximately $32.8M has been spent on the Program to date with $32.6M remaining to complete the project.

The Collaborative Estimating (CE) project (including Autochex) was completed for an overall cost of $10.8M (about $0.3M less than the $11.1M budget). The Distributed Estimating project is under way and is the other major set of pilot projects. With a high level of confidence, it has a projected completion at a cost of $5.6M ($1.4M less than the original $7M budget).

As is to be expected in a program of the duration and complexity of PDR, and given the rapid changes in automotive and repair technologies, the program continues to undergo scoping, planning and mapping of outcomes to projects. This has the benefit of realigning the project scope and objectives to achieve optimal business, consumer, and industry benefits. However, it also introduces the potential for additional cost, extended timeline and deferred benefits realization.

Some of the key risk areas for cost extension include:

- The scope of several projects are still to being finalized
- The FNOL project entails the implementation of an innovative and fairly complex accident profiling approach which is new to the industry and requires the development of net new software to support same
- Mitchell, a long-standing MPI partner will be developing the FNOL functionality, it is a net new business area for them
- There is currently no budget for ongoing support.
- Some of the ongoing projects do not have detailed project plans and schedules
- Some of the project plans and schedules will continue to change as they are planned in more detail and as individual projects / sub-projects are mapped to program outcomes

There has been an allocation of funding from the original Optimized Adjusting Project to a number of other projects which were conceived of and developed after the PDR Program assessment. Approximately $29M has been reallocated from the Optimized Adjusting Project to address:

- The FNOL project which original had a minimal budget and is now forecast for approximately $8.9M
- A projected $4M overage in Program Management (likely due to the extended duration of the Program)
- A projected $1.8M overage in Optimized Repair – Remote Estimating
- A projected $1.3M overage in the Enhanced Registration Card project
- A number of projects which were not in the original budget as follows:

• Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI)- BIIC/COI	$2.6M

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• Enhanced Account Profiling	$1.9M
• Joint Services Support Team	$0.1M
• Parts	$1.4M
• PDR - Mitchell Claims Workbook	$0.1M
• PDR - SSA-Part 1 (Vendor Management)	$1.5M
• PDR – Interim Shop Search	$0.1M
• PDR Accreditation and Support	$0.7M
• Self Service and FNOL	$0.9M
• Shop Training Management	$1.7M
• SSA - Part 2	$3.6M
• Towing	$0.2M
• Optimized Repair - Distributed Est.	$5.6M

The reporting for the Program has been aligned to the actual projects which make up the Program (as described above). This makes the budget and spending reporting transparent and effective.

At this time the vast majority of projects are projecting on (or below budget) completion. Two projects are projecting to be materially over budget: PDR - SSA-Part 1 (Vendor Management) which is projected to be completed for $1.1M than the budget and Distributed Estimating which is projected to be completed for $0.4M over the budget. These are offset by the large number of projects which are projected to be delivered for les than the projected budget, the most material of which are Shop Accreditation and Negotiation and FNOL and Adjusting Model both projected to be complete for $0.6M under budget. Given the historic experience, the project reporting, and the relatively recent re-baselining there is a high level of confidence that the overall Program will be completed within the original $65.5M budget.

Benefits

At a very high level, the Program is structured as an investment of about $65M over about 9 years, which will generate a steady flow of benefits starting in year 7 and ramping up to approximately $13.65M starting in 2020/21 (year 11).

The projected benefit stream is as follows (in millions of dollars):

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Program Component (in $,000,000)	*2016/17*	*2017/18*	*2018/19*	*2019/20*	*2020/21*	*2021/22*
Process Improvements (internal)	$ .75	$ .75	$ 3.25	$ 3.25	$ 3.25	$ 3.25
Repair Shop Process Improvements	-	-	$3.0	$3.0	$3.0	$3.0
Parts Sourcing	$.9	$.9	$1.5	$2.4	$2.8	$2.8
Loss Prevention (PA)	-	-	$.5	$1.0	$1.0	$1.0
Loss of Use	-	-	-	$1.4	$2.6	$2.6
TL Valuation with Salvage	-	-	-	$1.0	$1.0	$1.0
Total Est. Savings	***$1.65***	***$1.65***	***$8.25***	***$12.05***	***$13.65***	***$13.65***

In general, each project contributes to multiple benefits streams. And the Program is starting to provide the expected benefits:

- 2016 Internal Efficiencies Realized ($750K) – the successful deployment of CE, resulted in reduction of the FTE's from the Estimating System Clerical group from 21 to 4 – at an average loaded cost of ~$45.5K per FTE
- 2016 Parts Savings Realized ($910K) – a portion of the overall Parts Strategy was deployed in 2015 resulting in an increase in alternate part usage. Such activities as: increasing the number of recyclers, enhancements to the recycling application to improve part sourcing/timing of requests, and the introduction of Diamond Standard Parts resulted in savings in repair costs

In addition to the above-mentioned savings, a further benefit will be achieved by the recent repurposing of the Pembina Highway Service Centre. This will allow MPI to reduce operational costs for project team members, resulting in additional savings of $680K in 2018/19, and continuing to future years.

The overall Program spend and benefit stream is as follows:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Fiscal Year	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Benefits							$ 1,650	$ 1,650	$ 8,250	$ 12,050	$ 13,020	$ 13,650	$ 13,650	$ 13,650	$ 13,650	$ 13,650
Cost																
Actual or Budget	$ 40	$ 1,346	$ 3,788	$ 11,831	$ 8,550	$ 7,304	$ 9,872	$ 11,756	$ 10,100							
Unallocated Budget**										$ 899						
Total	$ (40)	$ (1,346)	$ (3,788)	$ (11,831)	$ (8,550)	$ (7,304)	$ (8,222)	$ (10,106)	$ (1,850)	$ 11,151	$ 13,020	$ 13,650	$ 13,650	$ 13,650	$ 13,650	$ 13,650

Program spending and benefits realization actuals are proceeding as per the original plan that was presented to, and approved by, the Board of Directors in 2012.

The Program, as planned and approved, shows a lengthy payback period and an Internal Rate of Return of 8% and a Net Present Value of $18M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

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Program Risks Constraints / Challenges

Gartner applied our risk and readiness methodology to identify risks and issues. The program is largely past the Strategy stage, is mostly in the Planning stage, and is entering the Execute stage (with CE and Predictive Analytics being in the Manage stage). Gartner assessed the Program on the most relevant areas in the following framework:



Key findings from that analysis include the following key risks and issues.

Planning

- The program continues to undergo scoping, planning and mapping of outcomes to projects
- Different perspectives regarding the level of project definition available and the level required by key stakeholders
- Managing the interdependencies among the several PDR projects / work streams as well as interdependencies between the PDR program and other MPI projects
- While there is a budget for the one-time expense of implementing the program, there is not an estimate for ongoing support / maintenance cost
- Benefits realization documentation and practice is yet to be aligned with the MPI approved Value Management process which has been in place for about a year. The PDR Program is working to implement the process by the end of 2016
- Individual(s) responsible for delivering business benefits while not currently clearly identified will be identified as part of the implementation of the Value Management process
- The Program business case presents projected benefits in aggregate since they are dependent on multiple projects, the Value Management process will need to develop a process to map specific project benefits

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Execution

- Achieving adoption of the new SDM will have direct impact on trade partners and the general public with downstream risks such as:
  - External stakeholders will have broader access to customer information and broader access to MPI functionality, all with the potential for lapses in the level of discipline and excellence in customer service
  - Extended features and functionality to enhance customer service will change the way external stakeholders interact with MPI
  - Any service interruption will have a direct and noticeable impact on external suppliers, partners and customers
- Managing scope of the program and associated project to alleviate scope creep.
- Coordination and collaboration of several vendors (Mitchell, HP, IBM) involved in this program
- Mitchell's ability to develop and deploy the FNOL product meeting MPI's requirements — implementing accident profiling is a concept that is new to the industry
- Resourcing the overall program with the appropriate skills – several projects are running concurrently
- Changing existing behaviours to support the new Service Delivery Model (SDM)
- It is possible that the Mitchell offering will not deliver to the functionality and quality expected by MPI
  - FNOL is a new set of features that Mitchell plans to develop and distribute as a net addition to their strategic product plan
  - MPI's needs are being tempered by Mitchell's assessment of commercial viability
  - Implementing the innovative concept of "profiles" that MPI has put forward as a design framework is complex and may be challenging to implement
  - There have been prior challenges working with Mitchell as a SaaS vendor including:
    - Inconsistent solution deployment and updates to technical environments
    - Configuring user devices

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Manitoba Public Insurance

Public Utilities Board (PUB) Presentation
October 10, 2017

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Gartner

Overview

- IT Score and Benchmark
  - Operating costs increased year over year
  - The gap with peers is decreasing
  - Maturity levels increasing

- PDR Program Review
  - Pilots complete, but for Remote Estimating
  - Project pace expedited, most completed by the end of this fiscal year
  - Costs are consistent with projections
  - Benefit projections consistent, longer duration to realization
  - Maintenance accounted for in operating budgets

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IT Benchmark and scorecard Background

MPI has retained Gartner to conduct an annual review of the IT service delivery capability (organization, processes, and infrastructure)

Three structured evaluation instruments

- IT Spend Analysis
- CIO Scorecard
- Infrastructure & Operations Scorecard

Provide the following outcomes

- Compare relative funding levels of IT at MPI
- Compare MPI's infrastructure and operations costs, staffing and service levels with those of similar enterprises
- Evaluate the relative maturity of the IT organization
- Assess the IT organization's ability to react to rapidly changing business requirements

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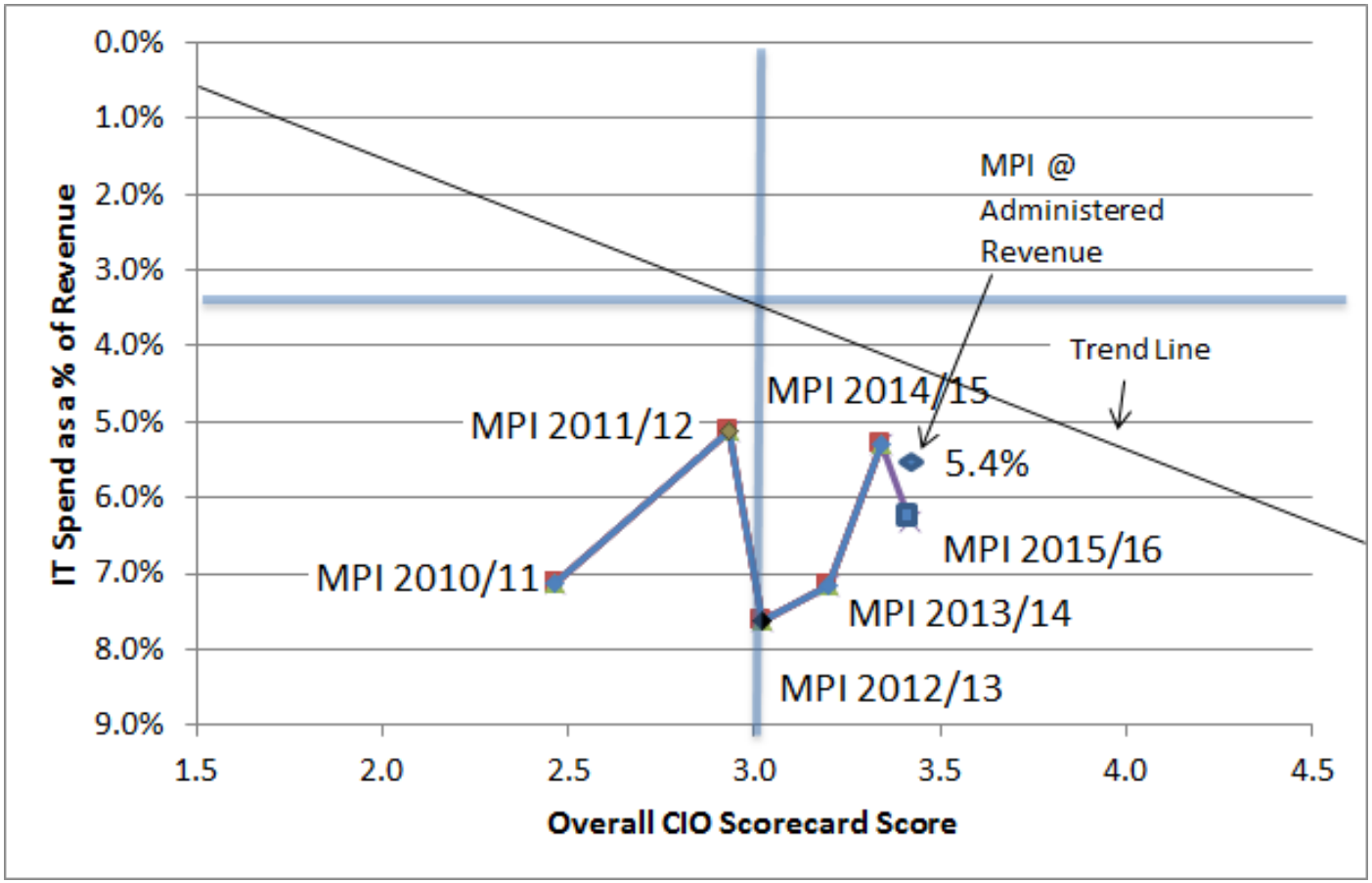
IT Benchmark and Scorecard Summary



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IT Benchmark and Scorecard Key Observations

Spending

- IT Spend as a % of Revenue rose from 5.3%% to 6.3%
- IT Spend as a % of Revenue is
  - 6.3% vs. 4.4% for the Peers
- IT Spend as a % of Operating Expense rose from 5.4% to 6.1%
  - 6.1% vs 5.6% for the Peers

Spending Allocation

- "Catch-up" spending has stabilized and the focus is now on business improvement
- MPI's overall staffing level rose slightly and is higher than the peers', however it is continuing to transition from third-party services for a number of areas
- MPI continues to spend more on Contractors and external third-parties, which increases spending
- MPI's "Run the Business" spending is in line with the Peers

Alignment and Maturity

- MPI improved in almost all Process Maturity areas.
- The overall IT Maturity score increased 2.4% from last year to this year.

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PDR Program Review
Context and Background

- Goal: Transform the physical damage claims operation to enhance the MPI Value Equation

- Transitioned from a complex initiative made up of five programs and 20 projects within those programs
  - Completed eight projects
  - Cancelled seven projects after determining that they are not strategic and do not add to the business case.
  - Created five restructured projects which now comprise the remainder of the PDR program

- Evaluation Approach
  - Reviewed key program artifacts and interviewed key individuals.
  - Applied a proven risk and readiness methodology to address the five key questions raised in the PUB order
  - Developed the report

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The PUB order specified five key areas to be addressed:

1 Progress of pilots to date

- The PDR program has completed all but one of its pilots and moved the piloted solutions into production.
- The Remote Estimating pilot is on hold
  - The business case for the current program is not as strong as was projected
  - MPI is combining this into an overall Rural Strategy
- The PDR Program is currently comprised of the following projects:
  1. Appointment Manager – ability to support external partners and customer self-service
  2. Enhanced Direct Repair Capabilities – complete what was originally known as Distributed Estimating
  3. Partner Portal – authentication and authorization for external partner access to MPI services
  4. Remote Estimating – support remote and rural repair shops to participate in a collaborative estimating
  5. Customer Claims Reporting System (CCRS) – rebranding of the initial IFAM / FNOL project (Optimized Adjusting, and co-development of the Mitchell solution)

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The PUB order specified five key areas to be addressed:
2 Timing of full implementation

- There have been a number of changes to vision, direction, and scope of PDR
- While progress had been relatively slow prior to the last assessment, a number of significant components have been put in place over the last year
- The sharpened focus of the program should enable an ability to maintain the pace of project completions and transition to operations
- While the overall documented and approved Program Charter has not been updated, all changes have been documented in approved Change Requests.
- The MPI team is projecting that of the five remaining projects
  - Three will be completed in the 2017/18 fiscal year
  - The CCRS project will be completed in fiscal year 2019/20
  - The Remote Estimating project is on hold pending outcome of the Rural Support Strategy

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The PUB order specified five key areas to be addressed:

3 Project costs

- The overall program budget has been consistently $65.5M (in 2012 dollars)
- While some projects required more than the original budget, others were under budget, and yet other originally planned projects were cancelled due to value projections being lower than originally projected
- Approximately $43.4M has been spent on the program to date with $18.1M remaining to complete the program
- The PDR Program is currently projected to be complete by the end of fiscal 2019 / 2020, for a total projected spending of $61.5M, $4.0M less than the approved $65.5M PDR budget
- Given the current slate of five projects, the scope clarity for each of the five projects, and how far they are into their overall lifecycle, there is a high level of confidence in the projected spending
- The program is unlikely to undergo further scoping with respect to functionality and business capabilities

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The PUB order specified five key areas to be addressed:
4 Savings / benefits to be realized

- The Program is now structured as an investment of about $65.5M
- Investment period is 9 years
- Benefits started to be realized in 2016 / 2017
- There is a slow but steady ramp up in benefits
  - Benefits started to be realized in FY 2016/17 (year 7 of the program)
  - Ramping up to a steady state ongoing $13.65M annual benefit
  - The steady state is achieved in 2021/22 (year 12 of the program)
  - The program returns an Internal Rate of Return of 7% and a Net Present Value of $13.7M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live (2026/27)
  - The pay back period is achieved in 2023/24 (year 14 of the program)

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The PUB order specified five key areas to be addressed:

5 ## Maintenance Costs

- MPI has accounted for ongoing maintenance and support in IT and Line of Business Operating budgets

- MPI has used a range of approaches to implement and operationalize the PDR projects, each of which has different maintenance and support structures
  - Software as a Service (SaaS)
  - Commercially available off the shelf (COTS) solutions
  - Custom developed software

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The PUB order specified five key areas to be addressed:

5

Maintenance Costs

- Software as a Service (SaaS)
  - No upgrade, support, or maintenance fees and the maintenance and upgrade charges are included in the SaaS subscription agreement
- Commercially available off the shelf (COTS) solutions
  - Require the customer to pay an ongoing license fee for ongoing support and maintenance and the rights to install any new versions or upgrades
  - MPI pays ongoing license fees for all such products out of the IT operating budget
- Custom developed software
  - Gartner estimates that the cost for maintaining software that was custom developed within the PDR program is likely to be about $300k per year
  - MPI reports a budget for ongoing support of custom developed software in its overall IT operating budget
- Some of the PDR solutions have an ongoing need for development or a physical asset replacement cycle
  - MPI has budgeted for this kind of support in the operating budgets of the line of business organizations most affected by production operations

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Summary

- IT Score and Benchmark
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  - Benefit projections consistent, longer duration to realization
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CANADIAN AUTOMOBILE ASSOCIATION (CAA)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
CAA Intervener Request	1	--	--

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX I"

INTERVENER REQUEST FORM

1. Application Re Hearing:		
2019 General Rate Application for Manitoba Public Insurance		
2. Name of Requesting Party:		
CAA Manitoba		
3. Address of Requesting Party:		
870 Empress Street, Winnipeg, MB R3C 2Z3		
4. Phone Number:	Business:	Residence
	204-262-6134	
	Fax Number:	E-mail:
	204-775-9989	erikam@caamanitoba.com
5. Contact Person(s):		
Erika Miller, Liz Kulyk		
6. Address:		
870 Empress Street, Winnipeg, MB R3C 2Z3		
7. Phone Number:	Business:	Residence:
	204-262-6134	
	Fax Number:	E-mail:
	204-775-9989	erikam@caamanitoba.com
8. State reasons for the proposed intervention (please be specific).		
CAA Manitoba represents over 200,000 Manitobans - the large majority being motorists. CAA seeks to intervene in this process because our members expect us to advocate on their behalf when it comes to fair Autopac rates, but also on a wide range of road safety initiatives.		

9. State nature of proposed intervention.		
a) Do you intend	Yes	No
(i) to appear throughout the hearing:	×	
(ii) to participate in the production of evidence:		×
(iii) to participate in the testing of evidence:		×
(iv) to present final argument:	×	
b) Do you intend to call witnesses:	Yes	No
		×
c) If yes to No. 9b), please provide witness':		
(i) Name:		
(ii) Address:		
(iii) Qualifications:		
(iv) Subject of submission (please note date for filing submission):		
10. Will you be applying for costs under Board Order No. 163/87:	Yes	No
		×
If yes: Refer to Section 43 of Rules of Practice and Procedure. Provide detailed budget as per the attached Appendix II.		
11. Comments and other information:		
We would like leeway to ask questions if any arise.		

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX II"

INTERVENER BUDGET AND COST SUMMARY SHEET

To be used to prepare a budget for the Intervener Request Form, Item 10, and to make a claim for an Award of Costs.

PAGE 1 OF 2

Prepared by:		Date:
Hearing:		
Period Covered:		
Intervener's Name:		
Contact Person or Persons:		
Address:		
Phone Number:	Business:	Residence:
	Fax Number:	E-mail:

See Costs on Page 2.

FEES – to be completed for legal counsel or experts

				COSTS
PREPARATION:	Hours	Days	Rate	
APPEARANCE:	Hours	Days	Rate	
ARGUMENT & REPLY	Hours	Days	Rate	
FEES TOTAL	Hours 0.00	Days 0		$0.00

DISBURSEMENTS

					COSTS
TRAVEL (AUTO)	Kms		Rates		
TRAVEL (OTHER)					
ACCOMMODATION	Nights		Rates		
MEALS	Number				
MISCELLANEOUS	Taxis	Telephone		Supplies	
DISBURSEMENTS TOTAL					$0.00

TOTAL FEES AND DISBURSEMENTS	$0.00

NOTE: **Receipts must be attached for all disbursements.**

CONSUMERS' ASSOCIATION OF CANADA (CAC)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
CAC Intervener Request	1-1	--	--
Attachment A - Overview	1-2	--	--
Attachment B -Draft Budget	1-3	--	--
CV of Andrea Sherry	1-4	--	--
CV of Valter Viola	1-5	--	--
CV of Wayne Simpson	1-6	--	--
CAC Comments, re: MPI Rule 13 Motion - July 5, 2018	2	--	--
CAC Motion re: Compel MPI to response to Round I IRs	3-1	--	--
CAC Motion additional materials - August 15, 2018	3-2	--	--
CAC Motion - Book of Documents - August 16, 2018	3-3	--	--
CAC (Manitoba) Coalition to MPI Round 1 IRs	4	--	--
CAC (Manitoba) Coalition to MPI Round 2 IRs	5	--	--
CAC Comments on MPI Rule 13 Motion, re: Round I IRs	6	--	--
CAC letter re: MPI Response to CAC Motion to Compel Responses to CAC Round I IRs - August 28, 2018	7-1	--	--
CAC Memo in response to MPI Affidavit of Glenn Bunston and Motion Brief - August 28, 2018	7-2	--	--
CAC Response to MPI Rule 13 Motion, re: Round II IRs	8	--	--
DCAT Report, Pre-Filed Testimony of Dr. Wayne Simpson and Ms. Andrea Sherry - October 1, 2018	9	--	--

CONSUMERS' ASSOCIATION OF CANADA (CAC)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
Capital Maintenance Provision Proposal - Pre-Filed Testimony of Dr. Wayne Simpson and Ms. Andrea Sherry - October 1, 2018	10	--	--
Pre-Filed Testimony of Mr. Valter Viola with Attachments A,B and C - October 3, 2018	11-0	--	--
Revision 1 Pre-Filed Testimony of Mr. Valter Viola (Clean) October 10, 2018	11-1	--	--
Revision 2 Pre-Filed Testimony of Mr. Valter Viola (Clean) October 10, 2018	11-2	--	--
Revised PUB-CAC-I-5 - October 10, 2018	12	--	--
CAC Opening Statement - October 15, 2018	13	88	Oct 15
Bank of Canada raises overnight rate target to 1 1/2 per cent October 17, 2018	14	657	Oct 17
Interest Rate Forecast Issues from October 2016 by Dr. Sean Cleary - October 17 2018	15	657	Oct 17
Excerpts from Board Orders 128/15, 162/16 and 130/17 October 17, 2018	16	657	Oct 17
Excerpts from PUB Board Order No. 151/00 dated December 4, 2000 - October 17, 2018	17	658	Oct 17
Manitoba Government Releases Framework Letter for Crown Agencies - October 18, 2018	18	1109	Oct 23
Letter to MPI re Framework Letter - October 18, 2018	19	1109	Oct 23
PDR Program Charter from 2015 MPI GRA. October 23, 2018	20	1109	Oct 23
PUB-MPI-I-75 from 2015 MPI GRA - October 23, 2018	21	1110	Oct 23

CONSUMERS' ASSOCIATION OF CANADA (CAC)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
PUB-MPI-I-2 -Appendix 1 from 2018 MPI GRA pg. 17 - October 23, 2018	22	1110	Oct 23
PUB-MPI-I-2 -Appendix 1 from 2018 MPI GRA pg. 3 - October 23, 2018	23	1111	Oct 23
Excerpts from Board Orders 151/13, 134/14, 128/15, 162/16 and 130/17 - October 23, 2018	24	1111	Oct 23
PDR Program Evaluation from 2018 MPI GRA - October 23, 2018	25	1139	Oct 23
RSR, DCAT and Interest Rate Forecasting Presentation by Dr. Wayne Simpson and Ms. Andrea Sherry - October 26, 2018	26	1175	Oct 26
Capital Maintenance Provision Proposal by Dr. Wayne Simpson and Ms. Andrea Sherry Presentation - October 26, 2018	27	1175	Oct 26
Mr. Valter Viloa Public Presentation - October 29, 2018	28	1389	Oct 29
Ontario Teacher's Pension Plan - website pages - October 30, 2018	29	1662	Oct 30
CAC Closing Submissions Presentation - October 31, 2018	30	1768	Oct 31

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX I"

INTERVENER REQUEST FORM

1. Application Re Hearing:		
Manitoba Public Insurance 2019/2020 General Rate Application		
2. Name of Requesting Party:		
Consumers' Association of Canada, Manitoba Branch		
3. Address of Requesting Party:		
c/o Public Interest Law Centre of Legal Aid Manitoba, 200-393 Portage Avenue, Winnipeg, MB R3B 3H6		
4. Phone Number:	Business:	Residence
	204-985-8533 OR 204-985-8540 (general office)	
	Fax Number:	E-mail:
	204-385-8544	bywil@pilc.mb.ca, kadil@pilc.mb.ca, ambea@pilc.mb.ca
5. Contact Person(s):		
Byron Williams / Katrine Dilay		
6. Address:		
Same as above		
7. Phone Number:	Business:	Residence:
	Fax Number:	E-mail:
8. State reasons for the proposed intervention (please be specific).		
Please see Attachment A		

9. State nature of proposed intervention.		
a) Do you intend	Yes	No
(i) to appear throughout the hearing:	×	
(ii) to participate in the production of evidence:	×	
(iii) to participate in the testing of evidence:	×	
(iv) to present final argument:	×	
b) Do you intend to call witnesses:	Yes	No
	×	
c) If yes to No. 9b), please provide witness':		
(i) Name:		
(ii) Address:		
(iii) Qualifications:		
(iv) Subject of submission (please note date for filing submission):		
Please see Attachment A		
10. Will you be applying for costs under Board Order No. 163/87:	Yes	No
	×	
If yes: Refer to Section 43 of Rules of Practice and Procedure. Provide detailed budget as per the attached Appendix II.		
11. Comments and other information:		
Please see Attachment A.		

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX II"

INTERVENER BUDGET AND COST SUMMARY SHEET

To be used to prepare a budget for the Intervener Request Form, Item 10, and to make a claim for an Award of Costs.

PAGE 1 OF 2

Prepared by:		Date:
Byron Williams		
Hearing:		
Manitoba Public Insurance 2019/2020 General Rate Application		
Period Covered:		
Intervener's Name:		
Consumers' Association of Canada, Manitoba Branch		
Contact Person or Persons:		
Address:		
Phone Number:	Business:	Residence:
	Fax Number:	E-mail:

See Costs on Page 2.

FEES – to be completed for legal counsel or experts

				COSTS
PREPARATION:	Hours	Days	Rate	Attachment B
APPEARANCE:	Hours	Days	Rate	
ARGUMENT & REPLY	Hours	Days	Rate	
FEES TOTAL	Hours 0.00	Days 0		$0.00

DISBURSEMENTS

					COSTS
TRAVEL (AUTO)	Kms		Rates		
TRAVEL (OTHER)					
ACCOMMODATION	Nights		Rates		
MEALS	Number				
MISCELLANEOUS	Taxis	Telephone		Supplies	
DISBURSEMENTS TOTAL					$0.00

TOTAL FEES AND DISBURSEMENTS	$0.00

NOTE: Receipts must be attached for all disbursements.

Attachment A
CAC Manitoba Application to Intervene: MPI 2019 GRA

1) Overview

This document provides background to the proposed intervention of the Manitoba Branch of the Consumers' Association of Canada (CAC Manitoba) by outlining:

- who is CAC Manitoba?
- reasons for Proposed Intervention (question 8 of the Intervener Request Form);
- nature of the Proposed Intervention (question 9 of the Intervener Request Form);
- a brief overview of the proposed team of legal advisors and consulting experts (question 9 of the Intervener Request Form);
- preliminary outline of proposed areas of analysis and evidence (question 9 of the Intervener Request Form); and
- overview of costs application.

2) Who is the Manitoba Branch of the Consumers' Association of Canada?

CAC Manitoba is a volunteer, non-profit, independent organization working to inform and empower consumers and to represent the consumer interest in Manitoba. Formed in 1947, the organization is governed by a volunteer Board of Directors elected annually at a general meeting of its membership. It is a branch of the national Consumers' Association of Canada but is financially separate and separately incorporated.

CAC Manitoba represents the interests of consumers across Manitoba in a number of areas including financial services, food safety and security, patient rights, environmental sustainability and the regulatory review of utilities and Crown's delivering services and products to consumers.

The organization seeks input on its policy positions from consumers through engagement, which includes the innovative use of focus groups-style sessions, workshops, surveys, and through its ongoing services to the public. For example, in 2016-2017, it had contact with approximately 13,000 consumers though its consumer education/information programs, services and consumer research. In addition, the organization seeks other perspectives on relevant issues through the use of policy community advisory committees and interviews

CAC Manitoba aims to protect and reconcile the interests of all Manitoba Public Insurance consumers with a particular emphasis on members of the private passenger class. It seeks to present an evidence-based intervention guided by a principled consideration of the consumer interest. It is represented by the Public Interest Law

Centre.[1]

The organization's policy is guided by its understanding of generally accepted consumer rights including:

- **The right to satisfaction of basic needs** - To have access to basic, essential goods and services: adequate food, clothing, shelter, health care, education, public utilities, water and sanitation.
- **The right to safety –** to be protected against products, production processes and services that are hazardous to health or life.
- **The right to be informed –** To be given the facts needed to make an informed choice, and to be protected against dishonest or misleading advertising or labelling.
- **The right to choose –** To be able to select from a range of products and services, offered at competitive prices with an assurance of satisfactory quality.
- **The right to be heard** - To have consumer interests represented in the making and execution of government policy, and in the development of products and services.
- **The right to redress –** To receive a fair settlement of just claims, including compensation for misrepresentation, shoddy goods or unsatisfactory services.
- **The right to consumer education –** To acquire knowledge and skills needed to make informed, confident choices about goods and services, while being aware of basic consumer rights and responsibilities and how to act on them.
- **The right to a healthy environment** -To live and work in an environment that is non-threatening to the well-being of present and future generations.

CAC Manitoba is also guided by the following consumer responsibilities:

- **Critical awareness** - consumers must be awakened to be more questioning about the provision of the quality of goods and services.
- **Involvement or action** - consumers must assert themselves and act to ensure that they get a fair deal.
- **Social responsibility** - consumers must act with social responsibility, with concern and sensitivity to the impact of their actions on other citizens, in particular, in relation to disadvantaged groups in the community and in relation to the economic and social realities prevailing.
- **Ecological responsibility** - there must be a heightened sensitivity to the impact of consumer decisions on the physical environment, which must be developed to a harmonious way, promoting conservation as the most critical factor in improving the real quality of life for the present and the future.
- **Solidarity** - the best and most effective action is through cooperative efforts through the formation of consumer/citizen groups who together can have the strength and influence to ensure that adequate attention is given to the consumer interest.

1 An independent office of Legal Aid Manitoba.

Bringing a Consumer Voice

For CAC Manitoba, bringing the voice of consumers directly to the Public Utilities Board is of primary importance in the independent rate-setting process. The organization places a priority on direct consumer input through focus groups, engagement sessions and stakeholder panels.

In preparation for the upcoming Manitoba Public Insurance (MPI) General Rate Application, CAC Manitoba will meet with a number of potential stakeholders representing various Manitoba perspectives. It will conduct at least two focus groups with Manitoba consumers on issues relevant to public auto insurance. In addition, the organization will seek to better educate consumers about the rate application through the use of a variety of public engagement tools including social media.

A prominent role in regulatory proceedings

Over the past 25 years, CAC Manitoba has been active in rate regulation matters relating to Manitoba Public Insurance, Manitoba Hydro, Centra Gas, government cheque cashing and payday lending rates. In addition, the organization has extensive and intersecting regulatory experience at the Canadian Radio-television and Telecommunications Commission and the Manitoba Clean Environment Commission. It takes pride in its long-standing record of quality, evidence-based advocacy.

Over the past twenty-five years, CAC Manitoba has been particularly engaged in regulatory matters relating to Manitoba Public Insurance including every General Rate Application and technical conference as well as the Driver Safety Rating proceeding.

CAC Manitoba has a mandate to provide Manitoba consumers with unbiased information. Through interventions at rate hearings, the organization represents the consumer interest on prices and quality of service ("rates for service").

In recent regulatory proceedings before the Public Utilities Board on Manitoba Public Insurance matters, CAC Manitoba has played an active role in issues such as:

- ratemaking in accordance with accepted actuarial practice;[2]
- an evidence based approach to interest rate forecasting;[3]
- the need for increased rigour in information technology expenditures and demonstrable benefits for ratepayers including a post project review of expenditures related to the personal injury protection plan technology management system;[4]
- risks and opportunities for Manitoba ratepayers relating to the Physical Damage Re-engineering project;[5]

2 *Public Utilities Board Order 162-16*, p. 5, 16, 18-19, 31-32, 35, 65-67; *Public Utilities Board Order 130-17,* p 25-26.

3 *162-16*, p. 6, 16, 18, 46, 50, 54-56; *130-17,* p 65-66, 69.

4 *162-16*, p. 6, 31-32, 33-34, 36; *130-17,* p 51-53.

5 *162-16*, p. 22, 28 -29, 32, 34, 36; *130-17,* p 56.

- efficiency in expenditures on staffing;[6]
- a modern approach to road safety investments that provides good value to ratepayers and enhances protection for all Manitobans;[7]
- the necessity for a modernized approach to the Corporation's investment portfolio that better balances risk and reward;[8]
- an evidence based approach to setting reasonable reserves;[9]
- the importance of a fair and effective Driver Rating System.[10]

3) Reasons for the proposed intervention

This rate application is of considerable importance to Manitoba consumers, with the Corporation seeking an overall rate increase of 2.2%. As well, many of the issues that will be explored during this General Rate Application are a continuation of issues that were explored in last year's application and in follow-up processes, including:

- the Interim Rate Application for Vehicles for Hire;
- the technical conference on the need for and methodology for setting a Capital Maintenance Provision;
- the technical conference on the Asset Liability Management Study, and associated risk management and investment income.

CAC Manitoba has participated in the follow-up processes on all these issues and intends to test Manitoba Public Insurance's evidence in the upcoming proceeding.

CAC Manitoba seeks to protect the interests of Manitoba Public Insurance ratepayers with a particular focus on the private passenger class. It will assert their right to just, reasonable and sustainable rates that are determined in a publicly accessible and transparent process.

Given the short time frame between the filing of the application and the pre-hearing conference as well as the uncertainty occasioned by the limited response of the Corporation to key directives of its independent regulator, the overview of issues and budgets is necessarily preliminary.

4) Proposed areas of analysis, evidence and expert witnesses

The intervention of CAC Manitoba in this proceeding will be guided by the Public Utilities Board criteria for the consideration of just and reasonable rates. Pursuant to its jurisdiction and the statutory framework in which it operates, the Public Utilities Board has characterized the key elements of its independent review function and rate-setting

6 *162-16*, p. 26.
7 *162-16*, p. 7, 70, 80 -82; *130-17,* p 87.
8 *162-16*, p. 6, 15-16, 44-45, 50; *130-17,* p 66,
9 *162-16* p. 7, 59, 61 – 63; *130-17,* p 75-77, 79.
10 *162-16*, p. 14; *130-17,* p 33.

role as follows:

- Ensuring that forecasts are reasonably reliable;
- Ensuring that actual and projected costs incurred are necessary and reasonable;
- Assessing the reasonable revenue needs of an applicant in the context of its overall general health (including reserves);
- Determining an appropriate allocation of costs between and within classes; and
- Setting just and reasonable rates in accordance with statutory objectives.[11]

CAC Manitoba proposes to provide analysis and evidence from a team of experts coordinated by the Public Interest Law Centre and Mr. Peter Dyck. Information on the Public Interest Law Centre and Peter Dyck will be provided at the end of the Overview of Costs Application section.

Reasonably Reliable Forecasting

In terms of forecasting, CAC Manitoba proposes to review the various operating, capital, revenue, claims and investment income forecasts. It will ask:

- are the assumptions reasonable, justifiable and supported statistically?
- are vehicle volume and upgrade factors reliable based on trends and past experience?
- are efficiencies achieved to mitigate costs?
- can the stakeholders have confidence in forecasts and forecasting procedures?

The organization expects to review the Corporate and Basic Insurance Feb 28/18 annual reports (2017/18) and assess the annual performance and its impact on forecasts going forward. With the 2017/18 financial performance as a backdrop, the organization intends to examine the following:

- review the Claims Forecast (Part V Claims Incurred);
- review the Revenue Forecast (Part V Revenues);
- review the Actuary's Report as at October 31, 2017 and February 28, 2018 (Part VIII); and
- review the Rate Setting Framework, process and results (Part V).

CAC Manitoba will examine changes in the development factors from previous reports. It will also examine any changes to assumptions (interest/discount rates) and how the changed assumptions may affect future projections. It will also review forecasting data to ensure data integrity.

In particular, CAC Manitoba will review MPI's interest rate forecasts given historic challenges and whether the Corporation is compliant with recent PUB direction, as well

11 *Public Utilities Board Order 98/14* at p 28, 37; PUB Order 5/12 at p 27. See also the *Crown Corporations Public Review and Accountability Act*, *C.C.S.M. c.* C336, the *Public Utilities Board Act*, *C.C.S.M. c. P280* and the Manitoba Public Insurance Corporation Act, C.C.S.M. c. P215

as certain elements of the investment forecast including whether the estimate of the investment risk premium is reasonable.

At this point in time, CAC Manitoba is considering whether the call evidence related to the implications for the reliability of the GRA forecast and DCAT modelling of the Corporation's reliance on the naive interest rate forecast, especially in light of developments in the US and Canadian marketplace as well as the most recent PUB order. This evidence would be developed by Dr. Wayne Simpson with a peer review by Ms Andrea Sherry. Details regarding the qualifications of Ms Sherry and Dr. Simpson will be provided at the end of the Costs Application section.

The reasonableness and justifications for operating, maintenance and administration costs

Regarding cost control, operating and claims expenses, staffing and cost containment, CAC Manitoba intends to:

- Review the expense report, benchmarking report and staffing report to determine impact of the current cost containment process and progress made;
- Perform an expense account analysis to determine and obtain explanations for any material variances from approved budgets;
- Ascertain the use of consultants and costs, including examining the Terms of Reference for consultants;
- Review staffing levels;
- Examine whether all service provider fees are negotiated and set out in a contract or whether they are pending negotiations, including reviewing the status of the repair industry agreements;
- Reviewing whether the organizational structure changed recently and what is the current structure;
- Examine whether there performance bonuses paid to management and or consultants; and
- Whether there are there any accounting adjustments anticipated that are not reported in the 2019 GRA that would need to be accounted for in the next fiscal year.

As part of its Corporate Mission in its 2018/19 Business Plan, MPI appears to be undertaking a review of its coverages to ensure it is delivering on its core business and thus building value. As part of its intervention, CAC Manitoba plans to review the potential financial impact and the impact on future rates and forecasts of the coverage review.

CAC Manitoba intends to review the extensive Benchmarking report filed in Part IV as BMK and assess improvements made year over year and initiatives to be undertaking going forward. It also intends to assess MPI’s operational and organizational efficiencies compared to their peers.

In collaboration with the Coalition of Manitoba Motorcycle Groups (CMMG) CAC Manitoba intends to test the business case and economic value of Road Safety and Loss Prevention initiatives, including of any new initiatives being launched by the Corporation.

CAC Manitoba intends to review MPI's Value Management report and the associated projects' business cases to assess the return on investment and the value to MPI and the Autopac system. In light of the Customer Claims Reporting System (CCRS) cancellation, it will also explore the number of previous projects that have been cancelled and/or modified to provide a positive Return on Investment, including the sunk costs of failed IT projects in the past and any “take aways” for future management.

In 2019, it appears that MPI has refocused its IT Strategy to align business objectives and IT investment. CAC Manitoba intends to review and assess the IT direction MPI is taking in 2019 and beyond and how it aligns with the Annual Business Plan. For example, some of the issues the organization intends to examine are:

- IT as a core business of MPI vs IT as a tool;
- is MPI on a sustainable direction in terms of IT investments and expenditures;
- apparent transition away from leading edge technology and moving to proven mainstream technology, which represents a a new business direction.

At this point in time, the Manitoba Branch of CAC Manitoba does not intend to call evidence in this area. In terms of its analysis in this area, it intends to rely upon Mr. Dyck, with the possibility of also retaining Mr. Wallace Pitt (see Attachment B, proposed Budget). The qualifications of Mr. Dyck and Mr. Pitt are set out in the Costs Application section.

Overall health of the corporation including reserves

Under this heading, CAC Manitoba proposes to examine the appropriateness of core elements of the rate application including the necessity of the 2.2% in premium increases, as well as issues relating to the methodology and appropriateness of the proposed Rate Stabilization Reserve. In this context, CAC Manitoba also intends to examine particular risks and opportunities flowing to ratepayers from the Corporation's investment portfolio management practices.

In terms of the appropriateness of the 2.2% requested overall rate increase, CAC Manitoba notes that it appears MPI’s financial bottom line is forecasted to improve quite impressively since last year. CAC Manitoba intends to investigate the causes of this financial turnaround, including examining actuarial assumption changes, improved investment income, lower than expected claims volume, write-offs of sunk IT costs.

In terms of risks, risk management and appropriate reserves, CAC Manitoba will consider:

- the 2017/18 annual report and assess the financial condition and impact on

future revenue requirements;
- an analysis of the various significant accounts where amounts, year over year, have changed materially should be examined to determine the reason for the changes and the financial impact these changes may have on the proposed 2019 GRA – Basic Insurance rates, if any.
- accounting policy changes (review financial statements for impacts of accounting policy changes; if any, management judgements and how they impact the 2019/20 General Rate Application);
- implications for the Rate Stabilization Reserve of the Corporation's statutory monopoly on basic and practical monopoly on extension;
- the appropriate range of the Rate Stabilization Reserve taking into account evidence based analysis flowing from Dynamic Capital Adequacy Testing;
- whether the Corporation's proposed lower and upper end target for the reserve based on the Minimum Capital Test follow the PUB's directive from the last General Rate Application;
- the financial sustainability of the Corporation on a going forward basis including whether significant risks are being being mitigated cost effectively.

MPI appears to have developed and proclaimed a New Corporate Mission Statement and new Corporate Value Statements to align with the new Mission. Areas of inquiry will include reviewing the updated Corporate Strategic Plan, the Annual Business Plan, reviewing the the *Crown Corporation Governance and Accountability Act* (CGAA) and its impact on MPI operations and potential impact of MPI's relationship with PUB, if any.

In terms of the investment portfolio, CAC Manitoba participated extensively in this area during the 2017 GRA and intends to assess MPI's progress since then in this proceeding.

The Manitoba Branch of the Consumers' Assocation of Canada intends to examine the following issues relating to MPI's investments:

- the proposed changes in asset mix, including whether it will create more concentration of various risks within fixed income, rather than equities and other assets;
- whether proposed changes to the portfolio will lead to risk reduction or whether there are keys risks that are not being measured as accurately as they could be;
- progress made on the 18 recommendations made by Mr. Valter Viola during the 2017 GRA, including a number of recommendations which the Manitoba Branch of the Consumers' Association do not believe have been fully addressed (i.e. de-linking discount rates, min/max asset class constraints, minimum risk portfolio, no over-reliance on quantitative modeling, exclusion of Real Return Bonds, effectiveness of duration policy);
- The Investment Policy Statement, including whether there are any changes and what is the impact;
- the annual yield return per the Investment Performance report compared to the reported/forecasted investment income.

In terms of the overall health of the corporation, CAC Manitoba proposes to bring evidence in this area. At this point in time, it is expected that Mr. Viola will present evidence with reference to the investment-related issues, including the Asset Liability Management Study, changes to the asset mix and MPI's overall investment portfolio. CAC Manitoba is also considering evidence related to the merits of the capital maintenance surcharge provision, including but not limited to the analysis underlying the proposed 70% MCT maintenance objective and its intergenerational implication. Ms Andrea Sherry may be asked to develop this evidence, with a peer review by Dr. Wayne Simpson.

Appropriate allocation of costs between and within classes

CAC Manitoba proposes to focus its attention on the Vehicles for Hire rates including:

- the interplay between the *Vehicles for Hire Act*, the Regulations and the insurance rating model;
- rates for taxicabs versus passenger vehicles for hire;
- the financial impact of the vehicles for hire rating model on the Corporation;
- DSR premium discount impacts, if any;
- information technology costs;
- forecasting of claims incurred;
- road safety and loss prevention, especially relating to safety and training standards and requirements for vehicles for hire operating in Manitoba;
- monitoring of industry standards and best practices; and
- stakeholder engagement.

CAC Manitoba also will canvass relevant issues relating to Driver Safety Rating as they arise.

Ratemaking

CAC Manitoba intends to focus on whether the proper actuarial principles are in place for the indicated rate and rate making exercise. In particular, it will consider the proposed treatment of investment income on total equity for the purposes of the rate indication.

It is expected that Ms Sherry and Mr. Dyck will share the lead in this area.

5) Overview of Costs Application

The proposed intervention budget of the Manitoba Branch of the Consumers' Association of Canada is comparable to its budget for the 2018 GRA, taking into account the technical conferences and a slightly longer hearing.

The Manitoba Branch of the Consumers' Association of Canada had not anticipated retaining experts relating to interest rate forecast and IT. However, given its preliminary review of MPI's application and its methodology for interest rate forecasting as compared to PUB Order 130-17 and an apparent change in direction for IT, it has included a contingency in its proposed budget for retaining experts in these areas to assist in its analysis. Should CAC Manitoba decide to retained experts in these areas, it would propose submitting a revised detailed budget at a later date.

The proposed costs application also includes the budgets for the Interim Vehicles for Hire Rate Application and the three technical conferences that have already taken place earlier in 2018.

The Public Interest Law Centre

The Public Interest Law Centre is an independent office of Legal Aid Manitoba that represents groups and individual on systemic issues or issues that affect the broader population. The Public Interest Law Centre's areas of practice include:

- Consumer law; [12]
- Environmental law;
- Human rights law;
- Indigenous law; and
- Poverty law.

The Public Interest Law Centre has acted as legal counsel for private vehicle consumers in proceedings relating to Manitoba Public Insurance at the Public Utilities Board for more than 25 years.

Peter Dyck

Peter Dyck received his Diploma of Technology in Financial Management Technology (Accounting Option) in June 1973 from the British Columbia Institute of Technology. In 1976 he received his Certified General Accountants Association of Canada designation (CGA). In 2005 the Certified General Accountants Association of Canada honoured him with the fellowship designation (FCGA) for outstanding contribution to the Association, accounting profession and community. With the amalgamation of the accounting associations he now holds the FCPA, FCGA designations. In 2006, Mr. Dyck was certified as a professional Corporate Director (ICD.D) by the Institute of Corporate Directors.

Peter has worked in the property and casualty insurance industry since 1973 in various positions and capacities. The most recent position was as Director of Finance and Corporate Controller at the Manitoba Public Insurance Corporation where he was responsible for financial and risk management, strategic planning, forecasting,

12 Under section 4(2) of the *Legal Aid Manitoba Act,* groups can be found eligible for Legal Aid where the matter involves an objective or interest (a) common to the members of the group; and (b) relating to an issue of public interest including, without restricting the generality of the foregoing, any **consumer or environmental issue**. [emphasis added]

regulatory activities, budgeting, accounting, reinsurance accounting, financial controls and reporting. Currently he is President of Oakwood Strategy Group Inc. providing consulting services in regulatory support, estate planning and management and financial planning advice.

Since 2016 he serves on the Board of Directors of the Workers Compensation Board of Manitoba as Director and he also serves on the Audit Committee as Chair and is a member of the Prevention Committee. Since 2008 he serves on the Board of Directors of the Concordia Hospital Foundation Inc. as Director and he also serves as Treasurer. He also served on the Bethania Group Board of Directors as Director for nine years.

Peter has worked in the Property & Casualty insurance industry for over 34 years and will rely on all of the expertise he has gained, with particular emphasis on forecasting, financial reporting, financial sustainability and risk mitigation.

Wallace Pitt

Mr. Pitt has 25 years of Technology Governance and Risk Management Consulting experience. He has a strong professional services background, with expertise in IT Governance, Technology Risk Assessment along with IT Security Governance. Wallace has significant experience in the pragmatic and effective review and assessment of Information Technology and Cybersecurity controls for both large and medium-sized enterprises

Mr. Pitt brings significant exposure to an organization's Enterprise Technology and Business Architecture, with experience performing review and assessment of technology and security architecture. He is expert in the assessment of IT Architecture Solutions,and performing compliance reviews against IT architecture standards. In his various senior roles, Wallace developed and led effective information security & risk management program initiatives.

In his leadership role as Chief Information Security Officer for Symcor Inc., Wallace created and led an effective information risk management program, consistent with the organization's strategic business plan. He planned and executed the delivery of several key compliance initiatives (including SAS70 and PCI DSS). He demonstrated expertise in the pragmatic use of these frameworks to provide the basis for risk management and risk reporting. This has also been applied in his experience with utility companies (BellCanada, Ontario Power Generation and HydroOne), as well as in Financial Services (Scotiabank, TD Bankand CIBC).

Andrea Sherry

Andrea Sherry received her Bachelor of Commerce (Honors) in December 1990 from the University of Manitoba with a major in Actuarial mathematics. She became a Fellow of the Casualty Actuarial Society and Fellow of the Canadian Institute of Actuaries in 2000. Andrea became a Fellow Chartered Insurance Professional and received her Canadian Risk Management designation in 2005. She became a Certified Management

Accountant in 2008 and is now a Chartered Professional Accountant, Certified Management Accountant.

Andrea is currently Vice President, Insurance Solutions at The Wawanesa Mutual Insurance Company in Winnipeg. Her current role is responsible for the company's actuarial pricing, product development and maintenance, as well as head office personal lines underwriting. Prior roles include work in solvency and capital, enterprise risk management and investments. Andrea has had appointed actuary and valuation actuary roles prior to joining Wawanesa. She has worked on Dynamic Capital Adequacy Testing and internal models to satisfy the regulatory requirements in the United Kingdom (where internal models to determine capital adequacy are used by larger companies). She has also been involved in the preparation of an Own Risk Solvency Assessment.

Andrea has worked in the Property & Casualty insurance industry for over 25 years and will rely on all of the expertise she has gained, with particular emphasis on her expertise in actuarial work and investments. She has provided expert evidence to the Manitoba Public Utilities Board on issues related to risk and ratemaking.

Wayne Simpson

Dr. Wayne Simpson has a PhD from the London School of Economics (1977) and is a Full Professor in the Department of Economics at the University of Manitoba, where he has taught since 1979. His areas of academic expertise include applied econometrics, applied microeconomics, quantitative methods, and economic and social policy analysis. He has authored or co-authored three books and more than fifty peer-reviewed articles on these and related topics, including two papers on the impact of risk on the behaviour of the firm.

Dr. Simpson is currently on the editorial board of Canadian Public Policy, Canada's foremost peer-reviewed academic journal for economic and social policy, and the executive council of the Canadian Economics Association. He was a 2014 recipient of the McCracken award for the development and analysis of economic statistics from the Canadian Economics Association.

Dr. Simpson's expertise in applied microeconomics and econometrics are especially relevant to this hearing on Manitoba Public Insurance rates. Applied microeconomics is the study of the behaviour of individual agents (e.g., firms and households) in the market using modern theory and empirical methods. It seeks to apply the analysis to practical problems such as risk management and investment strategies. Applied econometrics uses specific statistical techniques, particularly regression methods, to analyze and predict economic behaviour and apply it to practical social problems.

Dr. Simpson has significant extensive experience provided expert evidence at the Public Utilities Board including the 2007, 2010, 2013, 2014 and 2016 Manitoba Public Insurance Rate Applications on issues such as the Rate Stabilization Reserve and investment strategy. Dr. Simpson will rely on his expertise in applied econometrics and

applied microeconomics in this proceeding.

Valter Viola

Mr. Valter Viola is a portfolio, research and risk management professional with 24 years of experience in institutional investment management (mostly defined benefit pension plans). He held executive and senior management roles in portfolio management, risk management, investment research and economics for 12 years at two of Canada's largest institutional investors (CPP Investment Board and Ontario Teachers' Pension Plan). For the past 12 years, he has been an advisor to Boards, Investment Committees and Management Teams at some of the largest institutional investors (primarily North America).

In 2016, Mr. Viola was engaged by the Public Interest Law Centre on behalf of the Consumers' Association of Canada (Manitoba Branch), and was an expert witness during the 2017/2018 MPI GRA. Under PUB Order 10.13, the PUB ordered MPI to obtain an updated ALM study, which was to address each of the 18 recommendations made by Mr. Viola.

Mr. Viola holds a Bachelors of Commerce degree from the University of Toronto, MBA from the Ivey School of Business (Western University), practiced as a Chartered Accountant and is a CFA charterholder.

Consumers' Association of Canada, Manitoba Branch
Draft Budget
Overview of Budget Estimate*

Fees	Hours	Rate/Hour	Total
Byron Williams	268	$285.00	$76,380.00
Katrine Dilay	12	$100.00	$1,200.00
Andrea Sherry	93	$250.00	$23,250.00
Peter Dyck (Oakwood Strategy Group Inc.)	200	$240.00	$48,000.00
Valter Viola	146	$240.00	$35,040.00

Fees Total

$183,870.00

Disbursements

Miscellaneous:

Photo copying, transcripts and materials (including disbursements charged by experts)	$2,000.00
Disbursements Total	**$2,000.00**

Total Fees and Disbursements

$185,870.00

Potential Contingencies

Plus contingency of 2.5% $4,646.75

Second Pre-Hearing Conference or Issues Meeting

Katrine Dilay	10 – 15	$100.00	$1,000.00 - $1,500.00

Prepare submissions on issues list, attend hearing

Expert Fees

Wayne Simpson*	80	$175.00	$14,000.00
Wallace Pitt* (Alleyne Inc.)	78	$175.00	$13,650.00

*****Neither Dr. Simpson or Mr Pitt have been retained for this hearing. It was not anticipated that Dr. Simpson would be retained because it was assumed that MPI would be presenting a 50/50 interest rate forecast rather than a naive forecast. Mr. Pitt was not retained because the magnitude of changes with the Corporation's information technology plan was not anticipated and it was not anticipated that the Gartner group would be called to testify. CAC Manitoba also contemplated that a capital maintenance provision would not be introduced until 2020/21.

Total (including contingency) $219,166.75 – $219,666.75

* The budget is preliminary given the relatively short time frame to review the application.

Estimated Budget MPI 2019/20 – Public Interest Law Centre

Submission on Vehicle for Hire

Byron Williams 1.2 hours **(not billed)**

Review draft submission and participate in meeting

Katrine Dilay 12 hours x $100/hr

Review materials, consult with clients and expert and prepare submissions

Attend and participate MPI Technical Conferences

Byron Williams 28 hours x $285/hr

Prepare for and attend MPI Technical conferences (March 2, 2018, (8.8 hours), March 14, 2018 (11.2 hours) and March 20, 2018 (8 hours)) including consult with expert, meet client, review draft material, attend meeting and follow up

Katrine Dilay 20 hours **(not billed)**

Prepare for and attend MPI Technical conferences (March 2, 2018, March 14, 2018, March 20, 2018) including consult with expert, meet client, review draft material, attend meeting and follow up

MPI GRA

Byron Williams 240 hours x $285.00/hr

12 hearings days with an estimated 20 hours billed per hearing day (preparation prior to the hearing, preparation during the hearing and attendance)*

Katrine Dilay 200 hours **(not billed)**

Preparation prior to the hearing, preparation during the hearing and attendance

Estimated Fees

Byron Williams 268 x $285/hr = $76,380.00

Katrine Dilay 12 x $100/hr = $1,200.00

Second Pre-Hearing Conference or Issues Meeting – Contingency

Byron Williams 5 hours **(not billed)**

Review materials and submissions

Katrine Dilay 10 - 15 hours x $100/hr

Prepare submissions on issues list, attend hearing

Estimated Fees (including contingency)

Byron Williams 268 x $285/hr = $76,380.00

Katrine Dilay 22 – 27 x $100/hr = $2,200.00 - $2,700.00

*****At a high level given issues relating to Asset Liability Matching, Vehicles for Hire, significant changes in information technology expenditures, ongoing issues relating to interest rate forecasting – we estimate roughly 12 days. A more detailed breakdown of estimates suggests - PUB cross MPI panel (3 days), CAC MB cross MPI panel (2 days), CMMG cross MPI panel (0.5 days), MPI redirect (1 hour), Gartner Group witness (direct and cross (1 day), ALM Witnesses of MPI and CAC/MB (2.5 days), Vehicle for Hire Issues (1 – 2 days), Closing (1 day) days Contingency (1 day)

Andrea Sherry

Activity	Time (Hours)	Cost (x $250/hr)
Assist Interim Vehicle Hire Rates and Technical Conferences	15	$3,750.00
Review of overall indication (actuarial report including long tail experience, claims forecast, actuarial rate indication calculation)	10	$2,500.00
Driver Safety Rating - review of rates and methodology	2	$500.00
Vehicles for Hire - review of rates and methodology	5	$1,250.00
Capital Maintenance Provision - critical review of	2	$500.00
Asset Liability Management study - review for reasonableness and industry comparison	2	$500.00
Develop First Round IRs	10	$2,500.00
Review RSR/DCAT submission	6	$1,500.00
Review of first round IR responses	8	$2,000.00
Develop Second Round IRs	10	$2,500.00
Review second round info request responses	3	$750.00
Hearing Preparation	20	$5,000.00
Total	**93**	**$23,250.00**

Oakwood Strategy Group Inc. - Peter Dyck

Activity	Time (Hours)	Cost (x $240/hr)
Review 2017 Annual Report, Preliminary review of 2019 GRA, Prepare draft Issues list and overview report for review, Review PUB Order 130/17 and 61/18-prepare list of items for review.	25	$6,000.00
Detailed review of 2019 GRA, including DCAT and MCT reports; Claims, Revenue and Expense forecasts, IT projects and portfolio expenditures and benefits realization, Investment strategy and results, operational efficiency.	50	$12,000.00
Draft round 1 IR's and review late submitted reports, if any.	40	$9,600.00
Review round 1 IR's responses and draft round 2 IR's	35	$8,400.00
Critically review intervener evidence and reports	5	$1,200.00
Prepare briefing notes	30	$7,200.00
Review transcripts and provide notes	15	$3,600.00
Total	**200**	**$48,000.00**

Valter Viola

Activity	Time (Hours)	Cost (x $240/hr)
Prepare technical conference, review application, prepare initial case memos (March 2018 and June 2018), attend lawyer training session May 2018, prepare first round information requests and case memo (August 2018)	91	$21,840.00
Prepare second round irs and update case memo	15	$3,600.00
Finalize evidence	20	$4,800.00
Prepare for and attend hearing and respond to undertakings	20	$4,800.00
Total	**146**	**$35,040.00**

Wayne Simpson*

Activity	Time (Hours)	Cost (x $175/hr)
Review file, prepare information requests, file evidence if necessary and appear – interest rate forecasting methodology and changed circumstances since 2018/19 General Rate Application	80	$14,000.00
Total	**80****	**$14,000.00*****

*Neither Dr. Simpson or Mr Pitt have been retained for this hearing. It was not anticipated that Dr. Simpson would be retained because it was assumed that MPI would be presenting a 50/50 interest rate forecast rather than a naive forecast. Mr. Pitt was not retained because the magnitude of changes with the Corporation's information technology plan was not anticipated and it was not anticipated that the Gartner group would be called to testify. CAC Manitoba also contemplated that a capital maintenance provision would not be introduced until 2020/21.

**The 80 hours is consistent with Dr. Simpson's approved bill of costs from the last general rate application

***A more detailed budget will be submitted in the event that the Dr. Simpson is retained.

Alleyne Inc. - Wallace Pitt*

Activity	Time (Hours)	Cost (x $175/hr)
Review file, prepare information requests, prepare case memos on issues relating to material change in information technology strategy and material changes in Physical Damage Re-engineering project including write offs of certain projects, assist with cross examination of Gartner Group	78	$13,650.00
Total	**78****	**$13,650.00*****

*****Neither Dr. Simpson or Mr Pitt have been retained for this hearing. It was not anticipated that Dr. Simpson would be retained because it was assumed that MPI would be presenting a 50/50 interest rate forecast rather than a naive forecast. Mr. Pitt was not retained because the magnitude of changes with the Corporation's information technology plan was not anticipated and it was not anticipated that the Gartner group would be called to testify. CAC Manitoba also contemplated that a capital maintenance provision would not be introduced until 2020/21.

**The 78 hours is consistent with Mr. Pitt's approved bill of cost from the last general rate application

***A more detailed budget will be submitted in the event that the Mr. Pitt is retained.

ANDREA SHERRY

628 Fairmont Road
Winnipeg, MB
Canada
R3R 1B1
204-223-3847
andreawsherry@gmail.com

PROFESSIONAL AFFILIATIONS:

Certified Management Accountant 2008
Fellow Chartered Insurance Professional (FCIP) 2005
Canadian Risk Management (CRM) 2005
Fellow of the Canadian Institute of Actuaries (FCIA) 2000
Fellow of the Casualty Actuarial Society (FCAS) 2000

EXPERIENCE:

1/11 – Present **The Wawanesa Mutual Insurance Company** – Winnipeg, MB

11/15 – Present Vice President, Insurance Solutions

- Responsible for the actuarial pricing and product development for all jurisdictions across Canada and the US
- Manage the actuarial pricing and products teams with 7 Managers and 1 Director as direct reports
- Research, develop and implement new pricing methodologies to ensure profitability and competitiveness
- Research, develop and bring to market new or revised product offerings
- Present analysis results to branch offices and work with their teams to implement changes
- Responsible for underwriting structure and function across the organization, including head office underwriting

1/11 – 11/15 Vice President, Actuarial Pricing

- Responsible for the actuarial pricing for all jurisdictions across Canada and the US
- Manage the actuarial pricing team
- Research, develop and implement new pricing methodologies to ensure profitability and competitiveness
- Present analysis results to branch offices and work with their teams to implement changes
- Work with the Director, Enterprise Risk Management (ERM) on the implementation of an ERM environment
- Work on project teams for data warehouse development and improvement and large system changes required for rating changes

3/08 –1/11 **Aviva Canada Inc –** Toronto, ON and Winnipeg, MB

Vice President, Solvency II

Manage two teams – Solvency II and Economic Capital– with the following responsibilities:

- Solvency II implementation for Aviva Canada, ensuring that the use test is passed, both for Aviva Canada and Aviva plc.
- Work within an Enterprise Risk Management framework to ensure the continued viability of the company on both a regulatory and economic capital basis
- Quarterly updates of Economic Capital position.
- Economic Capital projections and stress/scenario testing
- Ensuring synergies between Solvency II and IFRS 4 were accounted for in system changes and accounting changes made for Solvency II requirements
- Appointed Actuary for Traders, one of our insurance companies, responsible for signing off on year end valuations and Dynamic Capital Adequacy Reports

ANDREA SHERRY
628 Fairmont Road
Winnipeg, MB
Canada
R3R 1B1
204-223-3847
andreawsherry@gmail.com

Vice President, Corporate Actuary

- Manage two teams – Capital and Investment Compliance and Corporate – with the following responsibilities:
  - The determination of the trend, loss ratio and other inputs to the planning model, ensuring the smooth running of the model with adjustments to the model as required, as well as supporting the business units throughout the planning process.
  - Preparation of the capital stress testing results and report to ensure the long term viability of the business plan
  - Economic capital calculation and reporting
  - Provide the capital framework and discipline (regulatory and economic) to assist in identifying value enhancers and value destroyers
  - The continuous monitoring of capital levels and the investment portfolio
  - Implementation of a reinsurance plan to level the capital available among the legal entities
  - Investment compliance with regulation
  - Investment reporting and monitoring, including chairing the Credit Committee
  - Investigating and reporting on investment portfolio decisions
  - Appointed Actuary for Traders, one of our insurance companies, responsible for signing off on year end valuations and Dynamic Capital Adequacy Reports

11/04 – 3/08 **Saskatchewan Government Insurance –** Winnipeg, MB

Assistant Vice President and Corporate Actuary

- Valuation actuary for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Interim valuations for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Responsible for initial rate application to write auto business in Alberta
- Responsible for regular rate indications and rate filings in Alberta for Saskatchewan Government Insurance Canada Insurance Services Ltd.
- Responsible to ensure that rate changes are accurately made in the system
- Responsible for implementation of CLEAR for the Auto Fund's basic coverage – involved combining Saskatchewan experience with the Canadian CLEAR experience
- Responsible for actuarial portion of the rate application to the Saskatchewan Rate panel for a change to the Saskatchewan Auto Fund's basic coverage rates
- Responsible for termination rate analysis in the Long Term Reserving model as well as ensuring implementation of the recommended termination rate changes
- Responsible for the yearly by product budget for the Saskatchewan Auto Fund and Saskatchewan Government Insurance Canada Insurance Services Ltd. – both premiums and claims amounts
- Manage five actuarial students

01/99 – 11/04 **Federated Insurance Company of Canada** – Winnipeg, MB

Actuary

- Responsible for setting up actuarial systems and methodologies as I was the first in house actuary
- Responsible for all rate changes – including calculation of indications, rate filings with regulators and implementation in the system – in all of the provinces in which the company writes insurance
- Project manager of team that ensured system and rate changes required in response to Alberta regulation changes that occurred in 2003 were made with no business interruption or negative implications
- Monitor IBNR adequacy monthly
- Member of Senior Management Team
- Manage team of six

ANDREA SHERRY

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01/91 – 01/98 **Manitoba Public Insurance** – Winnipeg, MB

Associate Actuary

- Calculate policy liabilities, forecast premiums and claims amounts
- Prepare Autopac Extension Rates Report and the Ratemaking Methodology Report (basic coverage), involving the calculation of final premiums and preparation of all amounts and exhibits underlying premiums
- Prepare Claims Forecasting Report
- Compile and prepare all appendices and exhibits for claims valuation report
- Ensure proper documentation of all work and supply and explain records for external auditors as requested
- Assist in preparation of Public Utility Board application
- Build and manage automated systems using APL, Paradox, Lotus and SAS to reduce manual work for systems including IBNR, discounting, quarterly variance analysis, etc.
- Manage actuarial student on targeted projects
- Work in concert with Finance and Corporate Information Systems on a regular basis

EDUCATION:

UNIVERSITY OF MANITOBA
Bachelor of Commerce (Honors), December 1990
Major in Actuarial Mathematics

VALTER VIOLA

PROFILE

Consultant with 25 years of institutional portfolio management, investment research, and risk management experience (mostly defined benefit pension plans)

- *Consultant to institutional investors, advising boards, investment committees and client staff on investment strategies, investment risk management, and governance (primarily North America)*
- *Former executive and senior management roles in portfolio management, risk management, investment research, and economics at two of the world's largest institutional investors*

PROFESSIONAL EXPERIENCE

Since 2016 **Cortex Applied Research**, Toronto
Managing Director and Principal

- Advise pension funds, foundations and other institutional investors on governance matters, including fiduciary education and search services for investment consultants/outsourced chief investment officers (OCIOs)

2014 – 2016 **MaPLE** Toronto, Santiago
Partner in a private energy and infrastructure venture in Chile

2005 – 2014 **Holland Park** Toronto
President, Founder

- Advised institutional investors on investment risk governance, management and measurement practices, including:
  - developing investment/risk frameworks;
  - drafting investment/risk management policies/ procedures; and
  - developing risk budgets to support the management of surplus (assets and liabilities) and active management (performance vs. benchmarks)
- Provided risk monitoring and reporting services to pension funds, including:
  - managing third party risk analytics and related data;
  - recommending and implementing methodologies; and
  - reporting to boards and executives about investment risks

2000 – 2005 **CPP Investment Board** Toronto
Vice President, Research and Risk Management

- First executive responsible for total portfolio research, design and investment risk management of the largest single purpose pool of capital in Canada
- Led a growing team of professionals, focused on the total portfolio, including:
  - investment risk management (relative to liabilities and benchmarks);
  - policy asset mix and currency hedging;
  - active management; and
  - other investment policies
- Collaborated with the CEO/CIO, VP Private Markets, and VP Public Markets in the development and implementation of investment strategies
- Collaborated with other executives to develop and implement strategies and business plans, policies and procedures, including leading the development of an investment/risk management framework that took into account the unique circumstances of the CPP and CPPIB (e.g. large unfunded liability, non-marketable bonds, large cash inflows)

1993 – 2000 **Ontario Teachers' Pension Plan** Toronto
Director, Portfolio Manager, Analyst (Research and Economics)

- Member of the Investment Planning Committee, with shared responsibilities to advise the CIO on the tactical management of the total portfolio (shorter-term horizon, broad asset class allocations and currency hedging)
- Supported strategic/policy and tactical asset mix/currency hedging and other total fund decisions through independent research, including:
  - developing the fund's first asset/liability model, which supported the fund's asset mix transition shortly after the fund's inception;
  - conducting research to support new asset class introductions; and
  - recommending appropriate benchmarks
- Managed the tactical asset allocation portfolio, a portfolio that had one of the largest value added targets for the fund
- Managed the inflation-linked bond portfolio, including closing the largest single investment in the fund's history ($650 million private placement of inflation-linked bonds to finance the 407 Electronic Toll Road)

1992 – 1993 **Wilfrid Laurier University and York University** Waterloo, Toronto
Lecturer in Investments, Finance and Accounting

1990 – 1992 **Corporate Planning Associates** Toronto
Financial Advisor

1986 – 1988 **Price Waterhouse** Toronto
Auditor

PENSION ASSOCIATIONS/COMMITTEES

2006 – 2009 **Healthcare of Ontario Pension Plan (HOOPP)**
External Advisor to Investment Committee

- Advised the Investment Committee of a large, Canadian defined benefit plan on matters related to the management of the total portfolio

2003 – 2005 **Pension Investment Association of Canada (PIAC)**
Member of Investment Practices Committee

- Shared non-proprietary investment practices with peers as a member of an industry association
- Led the publication of a paper ("Risk Budgeting") to meet the needs of member organizations

EDUCATION

1995 ***Chartered Financial Analyst***
1990 ***Master of Business Administration***, Western University
1989 ***Chartered Accountant***
1986 ***Bachelor of Commerce***, University of Toronto

WAYNE SIMPSON

CURRICULUM VITAE March, 2017

Contact: Dept of Economics, University of Manitoba, Winnipeg MB R3T 5V5 Canada
Tel: (204)474-6174/474-9207 **Fax**: (204)474-7681 **E-mail**: simpson@ms.umanitoba.ca

Background: **Education**: Ph.D. Economics, London School of Economics, 1977
M.Sc. Economics, London School of Economics, 1974
Certificate in Economics (High Honours) University of Saskatchewan, 1971
Certificate in Mathematics (Honours) University of Saskatchewan, 1970
B.A. (Great Distinction) University of Saskatchewan, 1969

Employment: Head (1997-2008), Professor (1991-), Associate Professor (1984-1991), Assistant Professor (1979-84), Department of Economics, University of Manitoba.
Economist, Centre for the Study of Inflation and Productivity, Economic Council of Canada, Feb-Aug, 1979
Economist, Labour Canada, 1977-79
Sessional Lecturer in Labour Economics and Industrial Relations, Department of Economics, Carleton University, 1977-79
Teaching Assistant in Mathematics and Statistics for Economists, Department of Economics, London School of Economics, 1976-77
Operations Analyst, Bank of Canada, 1971-73

Academic Affiliations: Research Fellow, School of Public Policy, University of Calgary, 2013-16; Research Fellow, Education Policy Research Institute, University of Ottawa, 2012-; Research Associate, Center for Comparative Immigration Studies, University of California San Diego, 2009-; Visiting Scholar, CCIS, UCSD, March, 2009; Visiting Professor, University of Wollongong, Australia, January-April, 2005 and February, 2016; Fellow and Faculty Associate, Lincoln Institute of Land Policy (Cambridge, Mass.), 1991-92; St.John's College Visiting Fellow, 1985-86

Academic Honours: Mike McCracken Award for Economic Statistics, Canadian Economics Association, 2014 (with Derek Hum and Evelyn Forget); John Vanderkamp Prize (best article in *Canadian Public Policy* with Derek Hum), 1999; University of Manitoba Centre on Aging Research Fellowship, 1999-2000; University of Manitoba Certificate of Teaching Excellence, 1996; University of Manitoba Merit Award (Research), 1992; University of Manitoba Merit Award (Research and Service), 1991; S.S.H.R.C. Leave Fellowship, 1985-86; Canada Council Doctoral Fellowship, 1974-77; George Robertson Memorial Scholarship, 1973-76; C.M.H.C. Fellowship, 1973-74; University of Saskatchewan Honours Scholarship, 1969-71; University of Saskatchewan Entrance Scholarship, 1966-70.

Research - Publications:

Books/Monographs:

Maintaining a Competitive Workforce: Employer-Based Training in the Canadian Economy (Monograph

Series on Education no.6). Montreal: Institute for Research on Public Policy, 1996 (with D. Hum)

Urban Structure and the Labour Market: Analysis of Worker Mobility, Commuting and Underemployment in Cities, Oxford University Press, 1992

Income Maintenance, Work Effort and the Canadian Mincome Experiment, Ottawa: Economic Council of Canada, 1991 (with D. Hum)

Articles in Books:

"The Provincial Sales Tax and the 2016 Manitoba Election: A Pivotal Issue with Lessons for Future Governments" in *Understanding the Manitoba Election 2016: Campaigns, Participation, Issues, Place*, Karine Levasseur, Andrea Rounce, Barry Ferguson and Royce Koop (eds.), University of Manitoba Press

"Social Assistance in Manitoba," in Daniel Beland and Pierre-Marc Daigneault (eds.) *Welfare Reform in Canada: Provincial Social Assistance in Comparative Perspective*, University of Toronto Press, 2015, 193-208

"Manitoba in the Middle: A Mutual Fund Balanced for Steady Income," in Paul Thomas and Curtis Brown (eds.) *Manitoba Politics and Government: Issues, Institutions, Traditions*, University of Manitoba Press, 2010, 293-305 (with D. Hum)

"The Retirement Prospects of Immigrants" in Abbott, Michael, Charles Beach, Robin Boadway and James MacKinnon (eds.) *Retirement Policy Issues in Canada* , McGill-Queen's University Press, 2009, 429-450 (with D. Hum)

"Revisiting Equity and Labour: Immigration, Gender, Minority Status and Income Differentials in Canada," in Sean Hier and B. Singh Bolaria (eds.) *Race and Racism in 21st Century Canada: Continuity, Complexity and Change* Broadview Press, 2007, 89-109 (with D. Hum)

"The Impact of Health on Labour Supply in Panel Data" in *Global Business and Economics Anthology Volume I*, December, 2006, 185-196 (with D. Hum and E. Fissuh Ghebretsadik)

"The Cost of Eliminating Poverty in Canada: Basic Income with an Income Test Twist," in Lewis, M., S. Pressman, & K. Widerquist (eds) *The Ethics and Economics of Basic Incomes* London: Ashgate Press, September, 2005 (with D. Hum)

"What are Canadians Doing After School? An Analysis of Postschool Training Activity" in J. Gaskell and K. Rubenson (eds.) *Educational Outcomes for the Canadian Workplace: New Frameworks for Policy and Research*, University of Toronto Press, 2004, 89-117 (with D. Hum)

"Reinterpreting the performance of immigrant wages from panel data" in Badi Baltagi (ed.) *Panel Data: Theory and Applications*, Heidelberg and New York: Physica-Verlag, 2004, 129-148 (with D. Hum)

"Discussion of 'Downward Nominal Wage Rigidity: A Critical Assessment and Some New Evidence for Canada' by Jean Farés and Thomas Lemieux'," in *Price Stability and the Long-run*

Target for Monetary Policy, Ottawa: Bank of Canada, 2001, 40-48

"Training and Unemployment" in Ken Battle and Andrew Sharpe (eds.) *Employment Policy Options*, Ottawa: Caledon Institute of Social Policy, 1999, 71-106 (with D. Hum)

"Reducing Inflation in an Era of Low Inflationary Expectations" in Wolfgang Filc (ed.) *Macroeconomic Causes of Unemployment: Diagnosis and Policy Recommendations*, Berlin: Duncker & Humblot, 1999, 271-88 (with D. Hum and N. Cameron)

"The View from the Less-Affluent West" in John McCallum (ed.) *From East and West: Regional Views on Reconfederation*, Ottawa: C.D. Howe Institute, 1991 (with N. Cameron and D. Hum)

"Can Government-Sponsored Training Reduce Unemployment in Canada?" in *Transitions to Work*, Institute for Social and Economic Research, 1985, 281-90

"La Formation Industrielle au Canada et au Québec: Une Analyse Economique" in Claude Montmarquette and Rachel Houle (eds.) *Les Ressources Humaines et la Croissance Economique*, Les Cahiers de l'ACFAS no. 23, Les Presses de l'Université du Québec, 1983, 181-20

"An Evaluation of Existing Canadian Data Bases to Support Research into Women and Work" in *Women and Work*, Winnipeg: Institute for Social and Economic Research, 1983

Articles in Refereed Journals:

"Payday Lending and Micro Credit: Two Faces of the Same Problem?" *Journal of International Development* (forthcoming with Khan Islam)

"Toward a National Universal Guaranteed Basic Income," *Canadian Public Policy* 43(2), 2017 (forthcoming with Harvey Stevens)

"The Manitoba Basic Annual Income Experiment: Lessons Learned 40 Years Later," *Canadian Public Policy* 43(1), 2017, 85-104 (with Greg Mason and Ryan Godwin)

"Dynamics of the Location of Financial Institutions: Who is Serving the Inner City?" *Economic Development Quarterly* 30 (November 2016), 358-370; first published online August 31, 2016 doi:10.1177/0891242416665908 (with J. Buckland)

"Balanced Budget Legislation for Manitoba: Principles and Prospects," *Manitoba Law Journal: Underneath the Golden Boy* 37, no.2, 2015, 229-258

"Canadian Economics in Decline: Implications for Canada's Economics Journals," *Canadian Public Policy XXXVIII* no.4, 2012, 445-470 (with J. C. H. Emery)

"Effective tool or effectively hollow? Balanced budget legislation in Western Canada," *Canadian Public Policy XXXVIII* no.3, 2012, 291-313 (with J. Wesley)

"Information Technology and the Changing Workplace in Canada: Firm Level Evidence," *Industrial and Corporate Change 20* no.6, 2011, 1601-1636 (with S. Moshiri)

"Explaining Declining Social Assistance Participation Rates: A Longitudinal Analysis of Manitoba Administrative and Population Data," *Canadian Public Policy XXXVII* no.2, 2011, 163-181 (with H. Stevens and S. Frankel)

"The Declining Retirement Prospects of Immigrant Men" *Canadian Public Policy XXXVI* no.3, 2010, 287-306 (with D. Hum)

"Examining Evidence of Financial & Credit Exclusion in Canada from 1999-2005," J*ournal of Socio-Economcs* vol. 38, 2009, 966-976 (with J. Buckland), available online at: http://dx.doi.org/10.1016/j.socec.2009.06.004

"Taking Account of Context: How Important are Household Characteristics in Explaining Adult Health Seeking Behaviour: The Case of Vietnam," *Health Policy and Planning* vol.23, 2008, 397-407 (with A. Sepehri, S. Moshiri, and S. Sarma)

"How important are individual, household and commune characteristics in explaining utilization of maternal health services in Vietnam?" *Social Science and Medicine*, vol. 67, 2008, 1009-1017 (with A. Sepehri, S. Moshiri and S. Sarma)

"A Panel Multinomial Logit Analysis of Elderly Living Arrangements: Evidence from Aging in Manitoba Longitudinal Data," *Social Science and Medicine*, vol. 65, 2007, 2539-2552 (with S. Sarma)

"The Influence of Health Insurance on Hospital Admission and the Length of Stay - the Case of Vietnam," *Social Science and Medicine*, vol. 63, 2006, 1757-1770 (with A. Sepehri and S. Sarma)

"The Legacy of Immigration: Labour Market Performance and Education in the Second Generation," *Applied Economics*, vol.39, no. 15, 2007, 1-25 (with D. Hum)

"Does Non-profit Health Insurance Reduce Financial Burden? Evidence from the Vietnam Living Standards Survey Panel," *Health Economics*, vol. 15, no. 6, 2006, 603-616 (with A. Sepehri and S. Sarma)

"A Microeconometric Analysis of Canadian Health Care Utilization," *Health Economics*, vol. 15, no. 3, 2006, 219-239 (with S. Sarma).

"Economic Integration of Immigrants to Canada: A Short Survey," *Canadian Journal of Urban Research*, vol. 13, no. 1, 2004, 46-61 (with D. Hum)

"Reinterpreting the Performance of Immigrant Wages from Panel Data," *Empirical Economics*, vol. 29, no. 1, 2004, 129-147 (with D. Hum)

"Job-Related Training Activity by Immigrants to Canada," *Canadian Public Policy* vol. 29, no.4, 2003, 469-489 (with D. Hum)

"Labour Market Training of New Canadians and Limitations to the Intersectionality Framework," *Canadian Ethnic Studies*, vol. 35, no. 3, 2003, 56-69 (with D. Hum)

"Selectivity and Immigration in Canada: A Research Note," *Journal of International Migration*

and Integration, vol. 3, no. 1, 2002, 107-127 (with D. Hum)

"Public Training Programs in Canada: A Meta-evaluation," *Canadian Journal of Program Evaluation*, vol. 17, no. 1, 2002, 119-138 (with D. Hum)

"Disability Onset Among Aging Canadians: Evidence from Panel Data, " *Canadian Journal on Aging*, vol. 21, no. 1, 2002, 117-136 (with D. Hum)

"Closing the Wage Gap: Economic Assimilation of Canadian Immigrants Reconsidered," *Journal of International Migration and Integration*, vol. 1, no. 4, Fall, 2000, 427-441 (with D. Hum)

"Intermittent Work Activity and Earnings," *Applied Economics*, vol. 32, 2000, 1777-1786

"The Production Responses of the Competitive Firm to Three Conventional Distributional Shifts: Towards an Integrated Perspective," *Metroeconomica* , vol. 51, no.2, May, 2000 (with R. Sproule)

"Wage Opportunities for Visible Minorities in Canada,"*Canadian Public Policy*, vol. 25, no.3, 1999, 379-394 (with D. Hum)

"Is Hypoinflation Good Policy?" *Canadian Public Policy*, vol. 24, no.3, 1998, 291-308 (with N. Cameron and D. Hum)

"Canadians with Disabilities and the Labour Market" *Canadian Public Policy*, vol. 22, no.3, 1996, 285-299 (with D. Hum)

"Stylized facts and Stylized Illusions: Inflation and Productivity Revisited," *Canadian Journal of Economics*, vol.29, no.1, 1996, 152-162 (with N. Cameron and D. Hum)

"Reducing Spending and Increasing Equity: How Far Can Refundable Tax Credits Take Us?", *Canadian Public Administration*, vol.38, no.4 (Winter), 1995, 598-612 (with D. Hum)

"Can the Sufficient Conditions Used to Sign the Global Effect of Risk Be Used to Sign the Marginal Effect?" *Bulletin of Economic Research*, vol. 47, no.4, 1995, 305-319 (with R. Sproule and D. Hum)

"Labour Supply Estimation and Public Policy," *Journal of Economic Surveys*, vol. 8, no.1, 1994, 57-81 (with D. Hum)

"Whatever Happened to the Guaranteed Income Project in Canada?" *Canadian Public Administration 36*, vol. 36, no.3, 1993, 442-450 (with D. Hum)

"Economic Response to a Guaranteed Annual Income: Experience from Canada and the United States," *Journal of Labor Economics*, vol. 11, no.1, part 2, 1993, S263-S296; also issued as discussion paper no.25, Centre for Labour and Social Policy, University of Trier, 1991 (with D. Hum)

"The Economics of Commuting and the Urban Labour Market: A Survey," *Journal of Economic Surveys 6:1*, vol. 6, no. 1, 1992, 45-62 (with A. van der Veen)

"Starting Even? Job Mobility and the Wage Gap Between Young Single Males and Females," *Applied Economics*, vol. 22, June, 1990, 723-737

"Workplace Location, Residential Location, and Urban Commuting," *Urban Studies*, vol. 24, April, 1987, 119-28

"Analysis of Part-time Pay in Canada, *Canadian Journal of Economics*, vol. 19, November, 1986, 798-807

"Unions, Industrial Concentration, and Wages: A Re-examination," *Applied Economics*, vol. 18, March, 1986, 305-17

"The Impact of Unions on the Structure of Canadian Wages: An Empirical Analysis with Microdata," *Canadian Journal of Economics*, vol. 18, February, 1985, 164-81

"An Econometric Analysis of Industrial Training in Canada," *Journal of Human Resources*, vol. 19, Fall, 1984, 435-51

"On the Appropriate Spatial Unit for Labour Market Analysis and Policy Design," *Urban Studies*, vol. 20, November, 1983, 487-9

"The Economics of Mileage Restrictions for Railway Workers in Western Canada," *Relations Industrielles*, vol. 38, no. 1, 1983, 95-103 (with F. Peters)

"The Off-farm Work Behaviour of Farm Operators," *The American Journal of Agricultural Economics*, vol. 65, November, 1983, 801-5 (with M. Kapitany)

"Job Search and the Effect of Urban Structure on Unemployment and Married Female Participation Rates,"*Applied Economics*, vol. 14, April, 1982, 153-65

"A Simultaneous Model of Workplace and Residential Location Incorporating Job Search," *Journal of Urban Economics*, vol. 8, 1980, 330-49

Other Articles:

"The Decline of Canadian Economics," *Policy Options*, September-October, 2013, 4-5 (with H. Emery and S. Tapp)

"Adult Immigrants: How Well Are They Trained?" ***Education Quarterly Review***, vol.9, no.3, 2003, 17-22 (with D. Hum)

"Do Immigrants Catch Up Economically?" *Policy Options*, vol.22, no.30, March, 2002, 47-50 (with D. Hum)

"Adult Training in Canada: Snapshots from the Nineties," *Education Quarterly Review*, vol.8, no.2, 2002, 26-32 (with D. Hum)

"A Guaranteed Annual Income? Mincome to the Millennium," *Policy Options*, January/February, 2001, 78-82 (with D. Hum)

"Not All Visible Minorities Face Labour Market Discrimination" *Policy Options*, vol. 21, December, 2000, 45-48 (with D. Hum)

"*Aspects of Labour Market Behaviour: Essays in Honour of John Vanderkamp* (Louis N. Christofides, E. Kenneth Grant and Robert Swidinsky, eds.)" *Canadian Public Policy*, vol. 22, no.4, 1996, 379-380

"Can Training Reduce Unemployment?" *Policy Options*, vol. 17, no.6, July/August, 1996, 59-64 (with D. Hum)

"Employment Equity and People with Disabilities: The Need for Separate Treatment," *Policy Options*, vol. 14, 1993, 30-32 (with D. Hum)

"No Hope for Citizens Income in Canada?," *BIRG: Basic Income Research Group* Bulletin No. 16, July, 1993, 26-27 (with D. Hum)

"Demogrant Transfers in Canada and the Basic Income Standard," *BIRG: Basic Income Research Group*, Bulletin No. 15, July, 1992, 9-11 (with D. Hum)

"Whither Unemployment? A Review of Yoram Weiss and Gideon Fishelson (eds.), *Advances in the Theory and Measurement of Unemployment* (New York: St. Martin's Press, 1990) and Ralf Hussmanns, Farhad Mehran and Vijay Verma *Surveys of Economically Active Population, Employment, Unemployment and Underemployment: An ILO Manual on Concepts and Methods (Geneva: International Labour Office, 1990)*," *The Review of Income and Wealth*, vol. 38, no. 3, September, 1992, 355-359.

"Variations to Work Incentive Plans: A Simulation of the Manitoba Case," *Western Economic Review* , vol. 3, March, 1984, 26-48 (with D. Hum)

"The Interpretation and Application of Tobit Regression," *Western Economic Review*, vol. 3, July, 1984, 84-9

"Work Incentives and Welfare: Evidence from the Mincome Baseline for Adult Males," *Western Economic Review*, vol. 2, December, 1983, 17-25 (with J. Ehnes)

Research Reports and Technical Papers:

"The Disability Tax Credit: Why It Fails and How to Fix It" University Calgary School of Public Policy Research Paper, vol. 9, issue 24, June 2016 (with H. Stevens) at http://policyschool.ucalgary.ca/sites/default/files/research/disability-tax-credits-simpson-stevens.pdf and at the Social Science Research Network (SSRN) at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2844453

"The Impact of Converting Federal Non-Refundable Tax Credits Into Refundable Credits" University Calgary School of Public Policy Research Paper, vol. 8, issue 30, August 2015 (with H. Stevens) on the Social Science Research Network (SSRN) at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2658748

"Immigrant Retirement Prospects: From Bad to Worse?" Center for Comparative

Immigration Studies Working Paper No. 183, University of California San Diego, March, 2009 (with D. Hum) at: http://ccis.ucsd.edu/2010/01/immigrant-retirement-prospects-from-bad-to-worse-working-paper-183/

"The Legacy of Immigration: Labour Market Performance of the Second Generation," Prairie Centre of Excellence for Research on Immigration and Integration Working Paper Series, University of Alberta, June, 2005 (with D. Hum)

Participation in Adult Training by Canadians in the 1990s: A Multivariate Analysis Using AETS Data, Series R-01-9-SE. Ottawa: Applied Research Branch, Human Resources Development Canada, 2002 (with D. Hum)

"Analyzing the Economic Assimilation of Canadian Immigrants Using Panel Data," Working Paper 75F0002MIE - 01009, Income Statistics Division, Statistics Canada, October, 2001 (with D. Hum)

Microeconomic Theory and Its Applications I 018.245, Distance Education Program, Continuing Education Division, University of Manitoba, 1999

Microeconomic Theory and Its Applications II 018.246, Distance Education Program, Continuing Education Division, University of Manitoba, 1999

"Wage Opportunities for Visible Minorities in Canada," SLID Working Paper no. 98-17, Statistics Canada, Ottawa, November, 1998 (with D. Hum)

"Econometric Analysis of Canadian Self-Employment Using SLID," SLID Working Paper no. 98-16, Statistics Canada, Ottawa, November, 1998 (with R. Sproule)

"Labour Market Intermittency and Earnings in Canada," SLID Working Paper no. 97-12, Statistics Canada, Ottawa, 1997

Microeconomic Theory and Its Applications II 018.246, Distance Education Program, Continuing Education Division, University of Manitoba, 1996

"Sources of Income for Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, 1994 (with D. Hum)

"Life Cycle Incidence and Employment of Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, 1994 (with D. Hum)

"The Economic Well-Being and Labour Market Activity of Persons with Disabilities in Canada," Employment Equity Data Program, Statistics Canada, Ottawa, May, 1993 (with D. Hum)

"Which Employers Train? Sectoral Evidence on Employer-Based Training in Canada," a study prepared for Labour Market and Policy Analysis, Strategic Policy and Planning, Employment and Immigration Canada, Ottawa, March, 1993 (with D. Hum)

"Life Cycle Incidence and Employment of Persons with Disabilities in Canada," a study prepared for the Employment Equity Data Program, Statistics Canada, Ottawa, April, 1993

(with D. Hum)

"Sources of Income of Persons with Disabilities in Canada," a study prepared for the Employment Equity Data Program, Statistics Canada, Ottawa, April, 1993 (with D. Hum)

"Employer-Based Training in Canada: Is There Enough?" A study prepared for Labour Market and Policy Analysis, Strategic Policy and Planning, Employment and Immigration Canada, Ottawa, June, 1992 (with D. Hum)

"Design Proposal for an Experimental Wage Subsidy Program," a study prepared for the Innovations Program, Employment and Immigration Canada, Ottawa, February, 1991 (with D. Hum and D. Sabourin)

"Employer-Based Training in Canada: A Survey of the Information and Issues," prepared for Strategic Policy and Planning, Employment and Immigration Canada, December, 1988

"An Exploration of the Microfoundations of Internal Migration in Manitoba," prepared for the Review of Demography and the Implications for Economic and Social Policy, September, 1988 (with G. Mason)

"Implications of Demographic Changes for the Labour Market: Labour Supply, Unemployment, and Earnings," prepared for the Federal Government Task Force on the Review of Demography and Implications for Economic and Social Policy, Health and Welfare Canada, October, 1986

"An Economic Analysis of Industrial Training in Canada," Discussion Paper No. 224, Economic Council of Canada, 1983.

"The Manitoba Work Incentives Plan: An Assessment of Administrative Issues and Possible Design Variations,"commissioned by the Manitoba Task Force on Social Assistance, June, 1983 (with D. Hum)

"The Relationship Between Wages and Family Income in Canada," Labour Canada Discussion Paper, January, 1981

"Wage Structure and Stagflation in the 1970s," Discussion Paper No. 161, Economic Council of Canada, February, 1980

Unpublished Conference/Seminar Papers:

"Towards a National Universal Guaranteed Basic Income," paper presented to the North American Basic Income Group conference, Winnipeg, May 14, 2016 (with H. Stevens)

"Social Assistance in Manitoba," paper presented to the conference on Welfare Reform in Canada: Provincial Social Assistance in Comparative Perspective sponsored by the Johnson-Shoyama Graduate School of Public Policy, Regina, October 24-25, 2013

"Banking Relocation and the Inner City," paper presented to the Canadian Economics Association annual meeting, Montreal, May, 2013; also appearing as "The Dynamics of Financial Institution Location in Toronto: Who Is Serving the Inner City?" SSRN working

paper available online at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2371931

"The Decline of Canadian Economics: Implications for Canada's Economics Journals," Canadian Public Policy lecture (invited), Canadian Economics Association, Calgary, June, 2012

"The Effectiveness of Balanced Budget Legislation: Lessons from Western Canada," invited seminar at the Johnson Shoyama Graduate School of Public Policy, University of Saskatchewan and at the Manitoba Association of Business Economists, April, 2012

"Promise Meets Reality: Balanced Budget Legislation in Western Canada, 1991-2010" paper presented at the annual meeting of the Canadian Political Science Association, Wilfrid Laurier University, May 16, 2011 (with J. Wesley)

"The Retirement Prospects of New Immigrants – From Bad to Worse?" paper presented to the Manitoba Association of Business Economists, Dec. 4, 2008 (with D. Hum)

"The Impact of Health on Labour Supply Over the Life Cycle," paper presented to joint sessions of the Canadian Labour Market and Skills Researcher Network (CLSRN) and the Canadian Economics Association, Vancouver, June 5, 2008, and to the Oxford Business and Economics Conference 2008, Oxford, June 23, 2008, submitted to the *Journal of Human Resources* (with D. Hum and E. Fissuh)

"Finding the Best NCB Program Mix," paper prepared for the Federal/Provincial /Terrirtorial National Child Benefit Evaluation Workshop Expert Panels, Toronto, June 13-15, 2006

"Modelling Immigrant Prospects Using Microdata: Modern Issues and Applications," paper presented at EcoMod2005 International Conference on Policy Modeling, Istanbul, June 29-July 1, 2005 (with D. Hum)

"Determinants of Elderly Living Arrangements: Evidence from Aging in Manitoba Longitudinal Data, 1971-96," paper presented at the Canadian Health Economists Study Group Meetings, Toronto, May 25-26, 2005 (with S. Sarma)

"Assessing the Prospects of Immigrants to Canada: Evidence from Microdata on Immigrant Integration," paper presented at the University of Melbourne Institute of Applied Economic and Social Research, January, 2005 and at the Departments of Economics of the Universities of Woolongong and Western Sydney (Campbelltown), March, 2005

"Immigrant Integration in the Labour Market," invited seminar, Centre for International Governance and Innovation, University of Waterloo/Wilfrid Laurier University, Oct 15, 2004

"Does Non-profit Health Insurance Reduce Financial Burden? Evidence from the Vietnam Living Standards Survey Panel," paper presented to the Canadian Economics Association meetings, Toronto, June 4-6, 2004 (with A. Sepehri and S. Sarma)

"Assessing Immigrant Economic Performance using Panel Data," paper presented to the Workshop on Recent Immigrant Labour Market Performance: An International Perspective,

8th International Metropolis Conference, Vienna, Austria, September 15-19, 2003 (with D. Hum)

"An Analysis of the Quality of Life in Canada and Germany," UM/Trier Conference, Trier, Germany, May 12-13, 2003 (with D. Hum)

"Analysis of the Performance of Immigrant Wages Using Panel Data," paper presented to the 10th International Conference on Panel Data, German Institute for Economic Research, Berlin, Germany, July 5-6, 2002 (with D. Hum)

"Training Activity by Adult Immigrants in Canada," paper presented to the Canadian Employment Research Forum Conference on Immigration, Canadian Economics Association meeting, Calgary, May30-31, 2002 (with D. Hum)

"Selectivity and Immigration in Canada," paper presented to the PCERII Conference on "Building on Strength: Supporting Policy and Practice Through Immigration and Integration Research," Winnipeg, November 8-10, 2001 (with D. Hum)

"Wages and Labour Supply of Immigrants and Visible Minorities," paper presented at the CERF/IRPP conference on "Creating Canada's Advantage in an Information Age," Ottawa, May 4-6, 2000 (with D. Hum)

"Transition and Skills Development Through Education, Training and Work Experiences: A Follow-up Study of Seven Oaks School Division," paper presented to the 3rd annual meeting of the Western Research Network on Education and Training, University of British Columbia, February 26, and to the Annual Meeting of the American Educational Research Association, Montreal, April 19-23, 1999 (with L. Taylor, K. McClure, B. Graham and B. Levin)

"The Personal and the Economic: the Effects of Gender, Family and Culture on Education and Employment," presented to the plenary session of the 2nd annual meeting of the Western Research Network on Education and Training, University of British Columbia, January 24, 1998

"A Microeconometric Analysis of Canadian Self-Employment," seminar presented at the Department of Economics, the University of Manitoba, October, 1998 (with R. Sproule)

"Reducing Unemployment in an Era of Low Inflationary Expectations," paper presented at the Symposium of the Institut fur Empirische Wirtschaftsforschung, Berlin, March 19-20, 1998 (with D. Hum and N. Cameron)

"The Production Responses of the Competitive Firm to Three Conventional Distributional Shifts: Towards an Integrated Perspective," seminar presented to the Universities of Stockholm, Orebro, and Jonkoping, Sweden, April-May, 1998 (with R. Sproule)

"Evaluating Farm Income Distribution and Stabilization Programs," seminar at Agriculture Canada, Ottawa, March, 1995 (with D. Hum and D. Kraft)

"Revisiting the GAI: Fair and Affordable Income Security for all Canadians," paper prepared for the Conference on Economic Policy at Laurentian University and the Economic Seminar

at the University of Manitoba, March, 1995 (with D. Hum)

"Analysis of On-the-Job Training Incidence from Household Microdata," paper presented to the Bank of Canada Research Department, July 26, 1994

"Profile of Persons with Disabilities in Canada," paper presented to the Canadian Paraplegic Association, Winnipeg, May, 1994

"A Guaranteed Annual Income: Some Design Issues for Persons with Disabilities," paper presented to the Canadian Paraplegic Association, Winnipeg, May, 1994

"Dimensions and Causes of Unemployment," 1994 Paulinian Conference, St. Paul's College, University of Manitoba, February 18, 1994

"The Statistical Methodology of Mincome," presented to the Statistical Association of Manitoba, November, 1991

"Residential and Workplace Location and Wage Gradients," presented to the 31st European Congress of the Regional Science Association, Lisbon, Portugal, August, 1991 (with A. van der Veen)

"Estimating Labour Supply Functions: The Relative Contribution of Econometric Refinements and Data Improvements," presented to the Economic Council of Canada, Ottawa, September, 1989 (with D. Hum)

"Urban Mobility and Workplace Choice: Theory and Applications," presented to the 29th European Congress of the Regional Science Association, Cambridge, U.K., August, 1989

"Where There's a Way is There a Will? Public Policy and Income Inequality in Canada," presented to the Conference on Trends in Social Inequality, University of Western Ontario, October, 1986 (with D. Hum)

"Estimation of Family Labour Supply from Canadian Microdata," presented to the annual meeting of the Canadian Economics Association, May, 1986 (with D. Hum)

"Farm Wealth and Income Data Requirements: An Economic Perspective," presented to the Statistics Canada Workshop on the Theory and Practice of Agricultural Wealth Accounts, Ottawa, February, 1985

"Longitudinal Labour Supply Studies Using Mincome Data," presented to the special session on Mincome at the Learned Societies Meetings, June, 1984

"Risk, Job Search, and Wage Variation," presented to the annual meeting of the Canadian Economics Association, June, 1980

Unpublished Papers:

"Promise Meets Reality: Balanced Budget Legislation in Western Canada, 1990-2010, submitted to *Parliamentary Affairs*, July, 2011 (with J. Wesley)

"Disability Benefits and Disability Conversion: Evidence from a Canadian Provincial Welfare Program," submitted to the *Journal of Human Resources*, January, 2011 (with H. Stevens and S. Frankel)

"The Sensitivity of Life Cycle Labor Supply Parameter Estimates to Sample Selection," University of Manitoba, August, 2009 (with E.Fissuh)

"The Sensitivity of Health Effects on Wages to Individual Heterogeneity and Sample Selection Correction: Panel Data Evidence from Canada," University of Manitoba, January, 2009, submitted to the *Journal of Health Economics* (with E. Fissuh)

"The Healthy Immigrant Effect and the Canadian Exception," University of Manitoba, November, 2008 (with D. Hum)

"An Analysis of the Demand for Health Capital in Canada," mimeo, University of Manitoba, December, 2003 (with S. Sarma)

"The human capital model of the demand for health: empirical findings from NPHS data," mimeo, University of Manitoba, October, 2002 (with S. Sarma)

"Competitive Production and Risk-Response Equilibria," mimeo, U of Manitoba, 1997 (with R. Sproule)

"The Structure of Opportunity in Canadian Labour Markets: Colour, Hue and Birthplace," seminar at the University of Manitoba, 1997 (with D. Hum)

"Freeze but Don't Cut: Wage Setting in an Environment of Low Inflation," mimeo, University of Manitoba, April, 1997 (with N. Cameron and D. Hum)

"Which Sectors Train? An Analysis of Employer-Based Training in Canada," mimeo, University of Manitoba, September,1996 (with D. Hum)

"Specification of On-the-Job Training Incidence," mimeo, University of Manitoba, August, 1994 (with R. Sproule and D. Hum)

"Portfolios with One Safe and One Risky Asset: The Marginal Effect in the Large and in the Small," mimeo, University of Manitoba, 1994 (with R. Sproule)

"A Limit Theorem Regarding the Equivalence of the Sign of the Marginal and Global Effects of Risk in a Two-Asset Portfolio," mimeo, February, 1994 (with R. Sproule)

"A Sign-Correspondence Theorem for the Marginal and Global Effects of Risk: The Case of Two-Argument Utility Functions," mimeo, University of Manitoba, June, 1993 (with R. Sproule)

"Signing the Marginal Effect of Risk by Restricting the Functional Form of the Outcome Variable," mimeo, University of Manitoba, 1993 (with R. Sproule)

"A Restriction-Free Approach to Signing the Marginal Effect of Output-Price Risk for the Cooperative Firm," mimeo, University of Manitoba, May, 1993 (with R. Sproule)

"The Relationship Between the Marginal and the Global Effects of Risk, and its Implication," mimeo, University of Manitoba, May, 1993 (with R. Sproule)

"Risk Always Reduces Output: Signing the Marginal Effect of Output-Price Risk for the Competitive Firm," paper presented to the University of Manitoba Department of Economics, Feb. 26, 1993 (with R. Sproule and D. Hum)

"Social and Employment Policy: A North American Perspective," paper presented to the Macro Economic Research Group and the Department of Economics, University of the Witwatersrand, Johannesburg, South Africa, February, 1993

"Signing the Marginal Effect of Multiplicative Risk from First Principles: The Case of Two-Argument Utility Functions," mimeo, University of Manitoba, November, 1992 (with R. Sproule)

"Labour Supply Analysis of an Income Maintenance Experiment: Results from Mincome," January, 1992 (with D. Hum)

"Employer-Based Training Policy in Canada," May, 1990 (with D. Stambrook)

"Family Labour Supply Behaviour of Low-income Families in the Manitoba Basic Annual Income Experiment," December, 1987 (with D. Hum, A. Basilevsky, and D. Sabourin)

"Seasonal Variation in Interest Rates Revisited," November, 1986 (with R. Sproule)

"Equilibrium and Labour Market Theory," June, 1986

"The Antipoverty Impact of Income-Tested Transfers and Wage Subsidies," April, 1986 (with D. Hum)

"Wealth Accumulation, Off-farm Income, and the Well-Being of Canadian Farmers: A Test of the Life Cycle Perspective," March, 1986 (with D. Freshwater)

"Sectoral Employment Shifts and Unemployment in Canada," June, 1985 (with K. Prystawski)

"Why Larger Establishments Have Higher Labour Productivity and Wage Rates: A Theory," February, 1984

"What is Union Density Doing in Wage and Union Status Equations?" August, 1984

"A Test for the A-J Effect in the Operations of Bell Canada, 1952-76," 1983 (with R. Sproule and R. Clement)

"Estimates of the Impact of Productivity Increases on Corporate Profits in the Telecommunications Industry: The Case of Bell Canada, 1952-76," 1983 (with R. Sproule and R. Clement)

"Tax Evasion and Labour Supply under Risk Neutrality," 1983 (with R. Sproule)

"Technological Efficiency of Full- and Part-time Farmers: Saskatchewan, 1978," 1982 (with D. Freshwater)

"Factors Impeding the New Technological Wave: An Economic Perspective," 1982

"An Analysis of the Structure of Canadian Wages, 1974 and 1979," 1981

"A Hedonic Approach to the Analysis of Wage Structure: Toward a Reconciliation of Orthodox and Unorthodox Theories," University of Manitoba Working Paper 197907, October, 1979

"The Effects of Establishment Size on Wage Rates: Some Further Evidence," University of Manitoba Working Paper 197906, September, 1979

"Evolutionary Theory and Limited Knowledge in a Dynamic Model of the Firm in Urban Space," November, 1978

"A Framework for the Evaluation of the Economic Effects of Minimum Wages," Economic Analysis Branch, Labour Canada, February, 1978

"Manpower Policy: An Economist's Perspective," Economic Analysis Branch, Labour Canada, February, 1978

"Limited Knowledge, Urban Structure and Labour Markets," PhD dissertation, London School of Economics, December, 1977

Research Grants:

(2011-2012) Canadian Public Policy/Analyse de Politiques, "Canadian Academics and Canadian Economics: Is the Publishing Landscape Changing?" $5,000

(2008-2010) Prairie Metropolis Centre Research Grant, "The Retirement Prospects of Immigrants: Will it Require a New Social Contract?" $12,000 (with D. Hum)

(2005-2008) CIHR Grant, "Town With No Poverty: Assessing the Long-term Consequences of a Canadian Guaranteed Income Experiment," $60,447 (with E. Forget (PI), N. Roos, and D. Hum)

(2005-2006) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Immigrant Health Status and Work Activity," $14,100 (with D. Hum)

(2004-2005) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Economic assimilation of Canadian immigrants: cross-sectional vs panel data estimates," $14,540 (with D. Hum)

(2003-2005) SSHRC/Canadian Centre for Policy Alternatives (Manitoba) Research Grant, "The Economic Theory of Community Economic Development and the New Economy," $20,000 (with J. Loxley and I. Hudson)

(2003-2004) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Short-term, Medium-term and Long-term Performance of Immigrants," $63,412 (with P. Li, R. Wanner, S. Halli, L. Wilkinson, and D. Hum)

(2002-2003) SSHRCC New Economy Research Grant, "Education, Training and Job Outcomes in the New Economy," $15,000 (with I. Hudson)

(1996-2001) SSHRCC Strategic Research Network Grant in Education and Training Outcomes, $225,000 for five years (with B. Levin at U of Manitoba as well as collaborators at UBC, U of Victoria and U of Alberta)

(2001-2002) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Immigrant Training," $15,000 (with D. Hum)

(2000-2001) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Immigrants and Selectivity," $9,000 (with D. Hum)

(1999-2000) Prairie Centre of Excellence for Research on Immigration and Integration Research Grant, "Earnings and Employment of Visible Minority Immigrants," $11,794 (with D. Hum)

(1999-2000) Centre on Aging Research Grant, "Disability, Aging and Work," $1,000 (with D. Hum)

(1989) UM/SSHRC International Conference Travel Grant to attend the 29th European Congress of the Regional Science Association, Cambridge, U.K., August 29-September 1, $997.

(1988-90) SSHRC Research Grant, "Analysis of Short Run Growth in Earnings and Hours in Canada," $10,200.

(1987-9) Review of Demography and its Implications for Economic and Social Policy Research Grant, "The Demographic Structure of Prairie Canada: a Micro Analysis," $40,000 (with Greg Mason).

(1985-8) SSHRC Research Grant, "Analysis of Labour Supply Behaviour in the Manitoba Basic Annual Income Experiment," $86,905.68 (with A. Basilevsky and D. Hum)

(1984-5) UM/SSHRC Research Grant, "Analysis of Job Search, Workplace Location and Urban Labour Market Dynamics with Particular Application to Canada," $1700.

(1984-5) Labour Canada-Universities Research Grant, "The Relationship Between Wages and Family Income: Further Evidence and Policy Application," $3500 (with Derek Hum).

(1983-4) SSHRC Research Grant, "Economic Analysis of the Structure of Canadian Wages," $10,238.

(1982-3) Agriculture Canada Grant with David Freshwater, "The Distribution of Income and Wealth in Canadian Agriculture," $10,800.

(1982-3) UM/SSHRC Research Grant, "Economic Data Retrieval and Analysis System," $520.

(1981-2) Agriculture Canada Grant, "Relative Efficiency of Full- and Part-time Farmers," $7500 (with David Freshwater)

(1980-1) Labour Canada-University Research Grant, "The Determinants of Canadian Occupational Wage Structure, 1974-79," $4000.

Administrative Responsibilities

Dept. of Economics, U. of Manitoba

Steering Committee, chair, 2009-11, 2012-13
Head, 1997-2008
Acting Head, 1987-8, 1991-2
Associate Head, 1984-5, 1988-91, 1992-6, 2013-15, 2016-
Graduate Studies Committee, 1980; chair, 1986-7, 1989-91, 1993
Appointments and Renewals Committee, 1986-7
Research Committee, 1986-7
Computer Committee, 1981-4 and 1988-9
General Studies Committee, 1980-3; chair, 1981-2
Labour Studies Committee, 1981-2
Library Committee, chair, 1979-80

Faculty of Arts, U. of Manitoba -

Faculty of Arts Executive Committee, 2012-14
Faculty of Arts Tenure and Promotion Committees (6), 2012-13
Hiring Committee for Econometrics, Department of Economics, 2012
University Senate Representative, Faculty of Arts 2009-12
Faculty of Arts Executive Committee, 2012-15
Strategic Enrolment Management Committee, 2011
Nominating Committee, 2007-09
Centre on Aging Scholarship Adjudication Committee, 2003-4
Professor of the Year Award Committee, 2002
Head Search Committee, Department of Sociology, 2002
Head Search Committee, Department of Linguistics, 2001
Head Search Committee, Department of Native Studies, 1999-2000
Inquiry into the Climate in the Dept. of Political Studies, 1995
Policy Committee, 1994-5
Appeals Committee, 1994-5
Headship Search Committee for Sociology, 1992
Nominating Committee, 1991-3
Ad Hoc Committee on Undergraduate Enrollment, 1991-2
Headship Selection Committee for Economics, 1984 and 1987
Executive Board, Institute for Social and Economic Research, 1984-6
Research Committee, 1983-4
Computer Users' Committee, 1982-4

Other University of Manitoba

Tenure Committee, Asper School of Business, 2009
Interim Management Team, University of Manitoba Research Data Centre, 2003-4
Presidential Committee to Appoint Dean of Arts, 1998-9
Presidential Committee for Appointment of Dean of Management, 1998-9
Head Search Committee, Department of Family Studies, Faculty of Human Ecology, 1998-9
University Staff Benefits Committee 2000-2002
UMFA Staff Benefits Committee, 2000-
UM/UMFA Joint Scholarship Program Committee, 1998-99
UM/UMFA Joint Salary Structure Committee, 1999-
UM/UMFA Promotion Appeal Committee, chair, 1995
U of Manitoba Research Grants Committee, 1994-6
Agricultural Economics Program Committee, 1994
UMFA/UM Systemic Differences Committee, 1992-
University Collective Bargaining Team with CUEW, 1990
UMFA Collective Agreements Committee, 1984-5, 1989-90, 1993-94, 1998-; chair, 1986-7
UMFA Salaries Committee chair, 1980-6
UMFA Bargaining Advisory Committee, 1983
UMFA Board of Representatives, 1980-3
UMFA Executive, 1981-2
UMFA Collective Bargaining Team, 1981

Other Professional Activities

Affiliated Researcher, Education Policy Research Initiative, University of Ottawa
Executive Council, Canadian Economics Association, 2013-
Purvis Prize Committee for contribution to Canadian economic policy, Canadian Economics Association, 2009-10
Editorial Advisory Board, *Canadian Public Policy*, 2008-
Executive Committee of the Board of Governors, Prairie Metropolis Centre, 2008-2011
Board of Governors, Prairie Metropolis Centre, 2007-2011
Ontario Council of Graduate Studies Appraiser for Ottawa/Carleton PhD, Wilfrid Laurier MABE, and Lakehead University MA, 2009-10
Premiers Economic Advisory Committee Competitiveness Task Group, April, 2005-
Visiting Professor, University of Wollongong, Australia, January-April, 2005
External Reviewer, Department of Economics, Lakehead University, 2003
External Reviewer, Department of Economics, University of Winnipeg, 2001
Fellow and Faculty Associate, Lincoln Institute of Land Policy (Cambridge, Mass.), December, 1991-
Editorial Board, *Canadian Journal of Economics*, 1986-9
Referee for: *Review of Economics and Statistics*, *Journal of Human Resources*, *Applied Economics*, *Canadian Journal of Economics*, *Canadian Public Policy*, *Regional Science and Urban Economics*, *Urban Studies*, *Journal of Regional Science*, *American Journal of Agricultural Economics*, *Journal of International Migration and Integration*, *Education Economics*, *Economics of Education Review, Relations Industrielles/Industrial Relations*, *Canadian Ethnic Studies*, *Environment and Planning A*, *Papers in Regional Science*, McGill-Queen's University Press, Economic Council of Canada, Queen's-University of Ottawa Economic Projects, Addison-Wesley Publishers, SSHRCC, Alberta Heritage Foundation for Medical Research

SSHRC Doctoral Fellowships Committee, 1986-8; chair, 1988
SSHRC Research Grants Committee on the Integration of Persons with Disabilities, 1995
Economic Consultant to the Private Practice Physiotherapists of Manitoba, 1987-8
Social Planning Council of Winnipeg Ad Hoc Committee on Employment, 1985-6
Editorial Board, *Western Economic Review*, 1982-3
Consulting Editor, *Worklife Magazine*, 1979-80

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July 5, 2018

Manitoba Public Utilities Board
Darren Christle
Secretary and Executive Director
400-330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr Christle:

Re: Manitoba Public Insurance General Rate Application 2019/20 – CAC Manitoba Response to MPI Rule 13 Motion

The Manitoba Branch of the Consumers' Association of Canada (CAC Manitoba) has reviewed the motion filed by Manitoba Public Insurance (MPI) under Rule 13 of the Public Utilities Board (PUB) Rules of Practice and Procedure.

Pursuant to Rule 22(4) of the PUB Rules of Practice and Procedure,[1] the purpose of this letter is to provide CAC Manitoba's response to MPI's motion.

Overall, CAC Manitoba's does not object to MPI's request that the PUB receive in confidence the following three documents:

1. the business case for the Five Year Strategic Space Plan (the "Space Plan Business Case");
2. the document identified as "attachment C" to Appendix 17 of the Investment Chapter under Part IV of the 2019 GRA (the "Mercer Methodology"); and
3. Mercer (Canada) Limited's ("Mercer") response to MPI's request for proposals ("RFP"), which details the Mercer Methodology (the "Response to RFP").[2]

CAC Manitoba acknowledges that treating these documents as confidential will impair the public interest in the disclosure of the information as they will not be disclosed on the public record. Based upon its review of MPI's materials, however, CAC Manitoba believes that MPI's proposed conditions on access constitute minimal impairment to the public interest in the disclosure of the information.

In order to clarify the process for the treatment of confidential information where an intervener files evidence, CAC Manitoba recommends one

1 22(4): Any party who wishes to respond to a motion shall file and serve on all parties a written answer no later than 2:00 p.m. two days before the day the motion is heard.
2 See MPI Motion Brief at page 5.

amendment to the approach contemplated by MPI, as follows:

- If CAC Manitoba (or another intervener) files a report as evidence in this proceeding that is based on, refers to or contains confidential information, the evidence should be filed in confidence with the PUB and MPI on the filing deadline (i.e. Monday September 24, 2018 as per PUB Order 82/18). In consultation with MPI, CAC Manitoba (or any other intervener) would subsequently determine the need for and prepare a redacted version for public disclosure, if applicable, to be filed within two business days (by Wednesday September 26, 2018).

CAC Manitoba recognizes the efforts made by MPI to ensure that the Corporation's Rule 13 motion is limited in scope and that the proposed conditions on access contemplate disclosure to the appropriate interveners to ensure minimal impairment to the public interest in the disclosure of the information.

CAC Manitoba appreciates the opportunity to make these comments regarding MPI's motion pursuant to Rule 13 of the PUB Rules of Practice and Procedure.

Yours truly,

Katrine Dilay
Attorney
KD/

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8 August 2018

Darren Christle
Board Secretary
400 330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr. Christle:

Re: Manitoba Public Insurance – 2019 General Rate Application (2019 GRA)

Overview

Pursuant to s. 15 and 16 of the PUB *Rules of* Practice, CAC Manitoba is applying for an order compelling Manitoba Public Insurance to undertake the analysis requested in CAC Manitoba IR 84 f) and 85 g) on the grounds that:

- the information sought is relevant to the Public Utilities Board in its assessment of the Asset Liability Management Study as outlined under issue 21 of *Order 82-18* as it goes to overall credibility of the study and whether the analysis was biased by the choices made by MPI;
- MPI has failed to provide any response much less a full and adequate response to a relevant information request within the meaning of s. 15 and 15 of the *Rules of Practice*; and,
- it is more cost effective to have the information prepared by Mercer's for MPI than it is for the expert witness of CAC MB to attempt to replicate the analysis.

CAC Manitoba notes that the PUB has directed that August 10, 2018 be the date for hearing motions. Neither Mr. Williams or Ms Dilay will be in Winnipeg on August 10, 2018 for the hearing of this motion. However, Mr. Williams would be pleased to present his arguments via conference call.

Mr. Williams also observes that MPI has indicated in email correspondence today that while its motion for confidentiality has been made returnable for August 10, 2018 it is unlikely to be in a position to file its supporting affidavit on that date. In the event the PUB chooses to reschedule the oral argument, counsel for CAC MB are available on any other days other than August 13, 2018 or August 14, 2018. Alternatively, the Board may wish to consider the motion based on written submissions.

The Rules of Practice

Section 15 1) a) of *The Rules of* Practice imposes an obligation on MPI to provide full and adequate responses to information requests except in circumstances where it contends the information request is not relevant, the answer is not available or cannot be provided with reasonable effort, the information is confidential or where it relies on other grounds.[1]

1 *Rules of Practice*, s. 16.

The Information Request and the Reasons for Refusal

In information requests 84 f) and 85 g), CAC Manitoba asked Mercers to rerun its efficient frontier model under different assumptions. In refusing the information request, MPI does not appear to argue that the information request is not relevant. Rather MPI appears to rely on the suggestion that it would cost approximately $20,000 to respond to 84 f) and $10,000 to respond to 85 g).

MPI references an email exchange with CAC Manitoba in which it asked that the intervenor provide "evidence that Mercer's inflation forecast used in the ALM study was sufficiently inaccurate, or flawed in some way, so as to call into doubt the results of the ALM study" before it agreed to provide the informatio sought.

MPI does not reference an earlier email from CAC Manitoba in which detailed reasons were presented suggesting the information was relevant and material. MPI also does not reference a subsequent email from CAC Manitoba in which it was indicated that MPI and CAC MB would have to agree to disagree.

The Information Requested is Relevant and Material

The information sought will assist the PUB in its assessment of Issue 21 as set out in PUB Order 82-18:

> Asset Liability Management Study, including **review of all aspects of the Study recommendations** and implementation thereof, the basis for and evaluation of risk and return, **alternative portfolio compositions**, proposed portfolio segregation and **recommended composition of the investment portfolio(s)**, forecast investment performance and changes to the Investment Policy Statement." (emphasis added)

As the PUB will be aware the modelling of efficient frontiers for the purposes of investment decisions can be highly susceptible to key assumptions including assumptions relating to interest rates.

The purpose of the questions posed is to test the decisions made regarding key assumptions on which the ALM study is based. If the qualitative rationale to support a key decision (such as liability characteristics) is flawed, the value of the ALM study may come into question.

In this case, based on our review of the material, the ALM study is potentially vulnerable given the simplifying assumption about the nature of the liabilities (nominal vs real). Given this reality, it is important to understand the implications of that assumption.

The liability modeling "simplification" does not just impact the apparent attractiveness of Real Return Bonds as an asset class. It also impacts the return/risk relationships for all assets, and therefore the relative attractiveness of all asset classes - with particularly notable impacts on other real assets (i.e. real estate and infrastructure). Given the liability assumptions used in the ALM study, it appears that the model will "prefer" nominal bonds, and will tend to not prefer RRBs, real estate and infrastructure. That is a material outcome related to three asset classes.

If different liability assumptions were used, it is possible that alternative portfolio compositions would have been recommended. This is central to Issue 21 being examined by the PUB.

As noted above, IRs CAC 1-85(g) and 1-84(f), along with the other sub-parts to those IRs, are attempting to test whether the assumptions and constraints imposed in the Mercer's ALM study were appropriate. Specifically:

- Were **liabilities** modeled as accurately as possible (by including RRBs in the liability benchmark portfolio)? If not, this can make RRBs (as an asset class) look inferior to nominal bonds, which means the model will not like RRBs as much as nominal bonds. A more subtle but important point is that the liability modeling assumption makes other real asset classes (like real estate and infrastructure) look less attractive too, not just RRBs. The liability benchmark portfolio definition is fundamental to the whole analysis.
- Were **RRBs (as an asset class)** inappropriately excluded from consideration as an asset class to consider (constrained weight = 0%)? If so, this can bring into question the results of the ALM study.

In terms of issues relating to inflation, CAC Manitoba notes that inflation is not completely flat (some volatility) in the MPI projection models, and time horizon may be too short (5 years versus decades). However, this was not modeled, and models are very sensitive to assumptions.

A Response to IR 84 f) and 85 g) by Mercers is the most cost effective way to obtain reliable information

We note that CAC Manitoba and its consultants could do the analysis, using the first method of single period optimization to get efficient frontiers, for less than $10,000 by downloading an Excel optimization model from the web and using Mercer's capital market assumptions as inputs to the model. However, there are two difficulties with this option that would likely make it more efficient for MPI/Mercer's to conduct the analysis:

1. MPI and the PUB would likely want to check our calculations, and it is possible that Mercer's would decide to do the analysis themselves directly and compare the results; and
2. We cannot replicate the second method (multi-period scenarios), at least not without a lot more work/cost, and assumptions could differ from those that were actually used by Mercer under the Nominal approach. Based on our review of the material, the second method was likely the basis for the final decision (the first method being "preliminary" to start eliminating some asset classes and adding others to the study).

Conclusion

Thank you for your consideration of this motion.

Yours truly,

BYRON WILLIAMS
DIRECTOR

BW/vs

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August 15, 2018

The Public Utilities Board of Manitoba
Attention: Mr. Darren Christle
Executive Director and Board Secretary
400-330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr. Christle:

Re: MPI GRA 2019/20 additional materials relied upon in support of motion to compel responses to information requests 84 f) and 85 g)

Pursuant to Rules 15, 16 and 22 of the PUB *Rules of* Practice, CAC Manitoba is providing notice that in support of its motion to compel responses to information requests 84 f) and 85 g), it intends to rely on the assertions made in its motion as well as the following additional information:

- Excerpts of Pre-filed evidence of Mr. Valter Viola (September 26, 2016) in the 2017-18 General Rate Application - p. 16, 17,18 which highlight his opinion on the importance of establishing a minimum risk portfolio as a proxy for the liabilities of MPI that appropriately models: 1) real interest risk and, ii) inflation risk - p. 41 which identifies the concerns of Mr. Viola about the widely known sensitivy of optimization model results to their base assumptions;
- October 2006 article of Mr. Viola at www.benefitscanada.com which was filed as part of Mr. Viola's qualifications during the 2017/18 GRA and which details the appropriate elements of a risk strategy framework including the potential role of real return bonds in terms of reducing risks;
- October 2016 Power Point filed in support of Mr. Viola's oral evidence - p. 3 which highlights his opinion that the MPI portfolio provides poor liability protection against unexpected inflation and real rate risk - p. 10, 15, 16 and 22 which discuss the role of real return bonds - p. 29 – 35 which highlight the vigourous debate in the 2017-18 GRA proceeding regarding real interest rate risk and inflation risk - p. 46 which focuses on the sensitivity of asset allocation models to assumptions;
- *Order 162/16* - p. 44, 45 and 50 which highlight the qualifications of Mr. Viola as well as the ongoing debate about whether MPI is assuming an undue level of risk for an inadequate return due to its failure to appropriately hedge against real interest rate risk and inflation risk in its portfolio; and
- Response to CAC Manitoba IR I-84 c) which confirms that the basis for making the simplying assumptions uses a five year horizon;

The intent of this material is:

i) to establish that the debate over the appropriate approach to real interest rate risk and inflation risk is a long standing one before the PUB in which the opinion of the independent expert of CAC Manitoba versus the position taken by MPI has differed; and,

ii) given the sensitivity of optimization models to long term assumptions including volatility around the mean inflation rate, to identify the real possibility that the optimized portfolio would have had a materially different look if it was based upon a minimum risk portfolio (liability proxy) that reflected the real interest rate and inflation sensitivity of the underlying liabilities.

Rather than filing these materials in their entirety this evening and to assist the PUB, MPI and Intervenors in reviewing this material, CAC Manitoba will provide a electronic version of the excerpts of these materials tomorrow including an index and page numbers.

Thank you for your consideration of these materials.

Yours truly,

BYRON WILLIAMS
DIRECTOR

BW/ab

cc: Board Counsel
Manitoba Hydro
Approved Interveners

CAC Manitoba – Book of Documents
MPI GRA 2019/20

Tab	Documents	Page #
1	CAC Manitoba Motion to compel information requests 84 f) and 85 g) filed on August 8, 2018	3
2	Letter to PUB from CAC Manitoba citing additional materials to be relied upon in support of motion to compel, dated August 15, 2018	7
3	Excerpts of Pre-filed evidence of Mr. Valter Viola (September 26, 2016) in the 2017-18 General Rate Application - p. 16, 17,18 which highlight his opinion on the importance of establishing a minimum risk portfolio as a proxy for the liabilities of MPI that appropriately models: 1) real interest risk and, ii) inflation risk - p. 41 which identifies the concerns of Mr. Viola about the widely known sensitivity of optimization model results to their base assumptions	10
4	October 2006 article of Mr. Viola at www.benefitscanada.com which was filed as part of Mr. Viola's qualifications during the 2017/18 GRA and which details the appropriate elements of a risk strategy framework including the potential role of real return bonds in terms of reducing risks	15
5	October 2016 Power Point filed in support of Mr. Viola's oral evidence - p. 3 which highlights his opinion that the MPI portfolio provides poor liability protection against unexpected inflation and real rate risk - p. 10, 15, 16 and 22 which discuss the role of real return bonds - p. 29 – 35 which highlight the vigourous debate in the 2017-18 GRA proceeding regarding real interest rate risk and inflation risk - p. 46 which focuses on the sensitivity of asset allocation models to assumptions	20
6	*Order 162/16* - p. 44, 45 and 50 which highlight the qualifications of Mr. Viola as well as the ongoing debate about whether MPI is assuming an undue level of risk for an inadequate return due to its failure to appropriately hedge against real interest rate risk and inflation risk in its portfolio	35
7	Response to CAC Manitoba IR I-84 c) which confirms that the basis for making the simplying assumptions uses a five year horizon	40

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8 August 2018

Darren Christle
Board Secretary
400 330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr. Christle:

Re: Manitoba Public Insurance – 2019 General Rate Application (2019 GRA)

Overview

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Conclusion

Thank you for your consideration of this motion.

Yours truly,

BYRON WILLIAMS
DIRECTOR

BW/vs

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August 15, 2018

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Thank you for your consideration of these materials.

Yours truly,

BYRON WILLIAMS
DIRECTOR

BW/ab

cc: Board Counsel
Manitoba Hydro
Approved Interveners

3

Manitoba Public Insurance
2017/18 GRA

MPI's Investment Portfolio
Risk, Return and Good Practice

Prepared for Consumers' Association of Canada, (Manitoba) Inc.
Submitted by the Public Interest Law Centre

Valter Viola

September 26, 2016

Beliefs that Informed Evidence and Questions

The first "inconvenient truth" is that **we need to make investment decisions but we do not know very much in the field of investments due to the low signal/noise (return/risk) ratio**. As a result, we need to rely on beliefs and I believe that it is important to be transparent about those beliefs. (MPI has included some of its beliefs in its Investment Policies, and I list five of mine below.)

The five beliefs listed below were developed by a former colleague of mine at CPPIB, whom I consider to be a global thought leader in investment management[4].

Belief #1: SUSTAINABILITY: The major stakeholder risk is that the current provisions will not be sustainable in the future (recognizing that investment returns are one of many factors which will contribute, positively or negatively, towards sustainability).

This belief is important because "lack of focus or clear mission" was cited by almost ½ of surveyed pension executives as being a large barrier to excellence (3rd largest challenge).

I believe that investment programs need to focus on the risk of long-term sustainability, and to develop the key metrics (starting with risk) that clearly define the primary risk (i.e., primary risk metric, and time horizon).

Belief #2 (MINIMUM RISK PORTFOLIO): Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio.

This belief is important because "poor process" was cited by almost 100% of surveyed pension executives as being the largest (#1) barrier to excellence. I believe that investment programs need to have better processes for communicating the primary risk and the structures to support the management of that primary risk (i.e., metrics that define return/risk tradeoffs, with a long-term perspective).

I believe that MPI's minimum risk portfolio (MRP) should include at least some long-duration real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure). Note, however, that Belief #2 simply supports the definition of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these follow-on questions requires additional beliefs, starting with the next two beliefs below (taken together).

[4] Donald Raymond led the development of these beliefs as Vice President, Public Markets at CPP Investment Board. These beliefs were approved by the CPPIB Board of Directors, and reviewed by three other external advisors who were considered to be thought leaders as well.

Belief #3 (ADDITIONAL RISK): Taking additional risk beyond the Minimum Risk Portfolio should be done only if the expected additional returns justify doing so.
AND

Belief #4 (TOTAL PORTFOLIO): The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the Minimum Risk Portfolio is taken.
Together, Beliefs #3 and #4 imply that the attractiveness of any asset class should be assessed, not in isolation, but in the context of the other assets that are in the portfolio or contemplated to be in the portfolio, and the MRP that is defined in Belief #1 and #2.

The rationale for taking a total portfolio approach stems from the "inconvenient truth", mentioned earlier, and re-stated below.

> The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because correlations are not perfect.

In questions related to RRBs, MPI said:

> *"Real return bonds were excluded ... because they were deemed to be expensive. Aon Hewitt's ... assumptions showed real return bonds to have significant volatility and down side risk* with modest returns relative to nominal bonds .... Also, page 17 of the Phase 1 report Aon concluded that "RRBs are not a good inflation hedge"."* [5]
>
> * Emphasized by me, not MPI, to highlight a fundamental difference in beliefs.

When asked if MPI agreed with AON's conclusion that **RRBs are not a good inflation hedge**, MPI said:

> *"The Corporation accepts Aon's belief that there are other inflation hedging asset classes available (i.e.: real estate and infrastructure) with greater expected returns ... At the time of the ALM study the real yields on RRBs were below 40 bps for 20 year terms and below 10 bps for 10 years and shorter terms. Real yields for the same terms are currently negative."*

Asked why Aon believes RRBs are not a good inflation hedge for MPI, Aon's response was:

> *"RRBs are not a good inflation hedge for MPI for the following reasons:*
>
> 1. *The underlying inflation according to nominal and real return bonds do not match the inflation used to value liabilities (which is based on a survey of Canadian banks);*
> 2. *RRBs suffer from a limited offering;*
> 3. *Supply and demand for RRBs have a large impact on the market value; and*
> 4. *Therefore, the economics of the inflation protection from RRBs do not match the financial impact to MPI on a year by year basis."* [6]
>
> * Emphasized by me, not Aon, and discussed on the next page.

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[5] Source: CAC (MPI) 1-77

[6] Source: CAC (MPI) 2-39

My observations related to Aon's four points are:

1. this is a problem with the method for valuing the liabilities (survey of Canadian banks), which is not a market-based method, not a problem with the hedging properties of RRBs against a market-valued set of liabilities;
2. while RRBs suffer from a limited offering (liquidity), larger funds have managed to accumulate significant exposures (e.g., the average PIAC fund has 3%);
3. while supply and demand for RRBs may have a large impact on market value, presumably this is a one-time market impact acquisition cost – a small price to pay if RRBs are considered a buy-and-hold asset class, with little turnover; and
4. Aon appears to concede that RRBs do offer inflation protection (despite their earlier comment to the contrary) but that RRBs do not match the financial impact to MPI on a year by year basis. This last point represents the symptom of a bigger problem, which relates to the next belief (constraints).

When asked if Aon could list one or two asset classes that offer better inflation hedges than RRBs for MPI, and offer any evidence to support that belief, Aon said it could not, adding:

> *"There is no asset class that we know that can hedge the short term inflation risk ... Over the long term, where RRB's are held to maturity, shorter term price sensitivity is less relevant and inflation experienced over the period would result in higher cash flows and an inflation hedge*. It is a commonly accepted belief ... that higher inflation would gradually be reflected in nominal bond yields, equity returns through higher profits, real estate through increased rents and infrastructure, especially where regulated, through increased tariffs ..."*
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4

alternative

PRACTICAL

Plan sponsors need to consider risk-based budgeting as a way to weather economic and stock market turbulence.

By Valter Viola

In 2000, Nortel Networks represented an 'index-distorting' one-third of the TSE 300 Index, creating undue risk for many funds. Some funds managed this risk by underweighting Nortel, which created active risk relative to their policy portfolio. Others chose a policy response, adopting a capped index that limited how much could be invested in a single stock. Both the active management and policy responses were band-aid solutions that treated the symptom of undue risk, but not the problem. The underlying problem was that asset-based processes—those that set target weights and minimum/maximum position limits, although simple, had become less effective in dealing with today's complicated and evolving portfolios.

A more effective and timely way to deal with the Nortel problem would have been to adopt a risk-based approach to portfolio management. Such an approach would have involved measuring risk more frequently, setting limits on risk and rebalancing the portfolio based on risk/return assessments rather than asset mix targets. In its 2001 annual report, the Canada Pension Plan Investment Board described how it avoided more than $500 million in potential losses, on average assets of $5 billion, related to Nortel through a "risk management initiative" that moved the fund from passive to "partially active" investing. It's remarkable how uncommon this approach was at the time, and still is, but that's about to change.

THE PROCESS

Risk budgeting is the process of allocating risk in an explicit way. Like all budgeting processes, it allocates a scarce resource (risk) to meet an objective (maximize returns). It has the same goal as asset-based processes, but that's where the similarities end. In risk budgeting, the focus is on risk and return, and the asset mix is a by-product. For asset-based processes, it's the other way around—the focus is on assets and returns.

Companies that define their processes in terms of "why" (objectives) rather than "how" (means) are more likely to evolve with changing times. That's why XEROX calls itself a document management company—not a company that makes photocopiers. It's also why risk budgeting is better than asset-based processes. Risk budgeting acknowledges that a constant asset mix has a changing risk profile (as the Nortel example illustrates) and that rebalancing should be based on risk and return assessments, rather than asset weights.

Another costly asset-based constraint is the "long-only" constraint, which imposes a minimum (0%) and maximum (100%) allocation to assets. The constraint is designed to mitigate potentially large losses from short selling. The large cost of the constraint, which is widely acknowledged, could be reduced if risks were controlled directly using risk-based limits.

The popular 50% currency hedge ratio represents a further asset-based constraint that may impose a cost. If

hedge ratios are limited to be between 0% and 100%, the selection of 50% is convenient for those who want to maximize the room for active management. Unfortunately, having the same hedge ratio for all currencies may not be optimal in the long term. It may be the case—depending on a fund's liabilities—that certain funds should adopt different hedge ratios for different currencies, just as they have different asset allocations for different asset classes.

PROS AND CONS

Asset-based processes have one redeeming quality. They're simple. A typical process might involve finding the asset mix that meets a return objective, while minimizing surplus at risk (the risk that assets rise less than liabilities). Unfortunately, the process is too simple. The surplus at risk and active risks that flow from this process might be discussed, but these risks are not reviewed and updated regularly to reflect changes in market conditions. As a result, those who manage and oversee the fund are less likely to appreciate the dynamics of the risks that the fund takes through time. The greater focus on returns (rather than risk) provides a false sense of comfort—especially when you consider that returns are less predictable than risks. When bad things happen, as they surely will, a frequent reaction is one of shock—at either the severity or frequency with which certain losses occur.

Risk-based processes are harder to understand, but are more effective and will result in higher risk-adjusted returns (more efficient portfolios) because better (risk) measurement will lead to better (risk) management. Processes that rebalance based on risk assessments relative to return expectations will avoid undue risk more often than processes that rebalance based on fixed asset targets.

To implement risk budgeting in practice, pension funds need to answer at least five questions:

1. What risks should we manage?

2. How much return do we need for risks that we take?

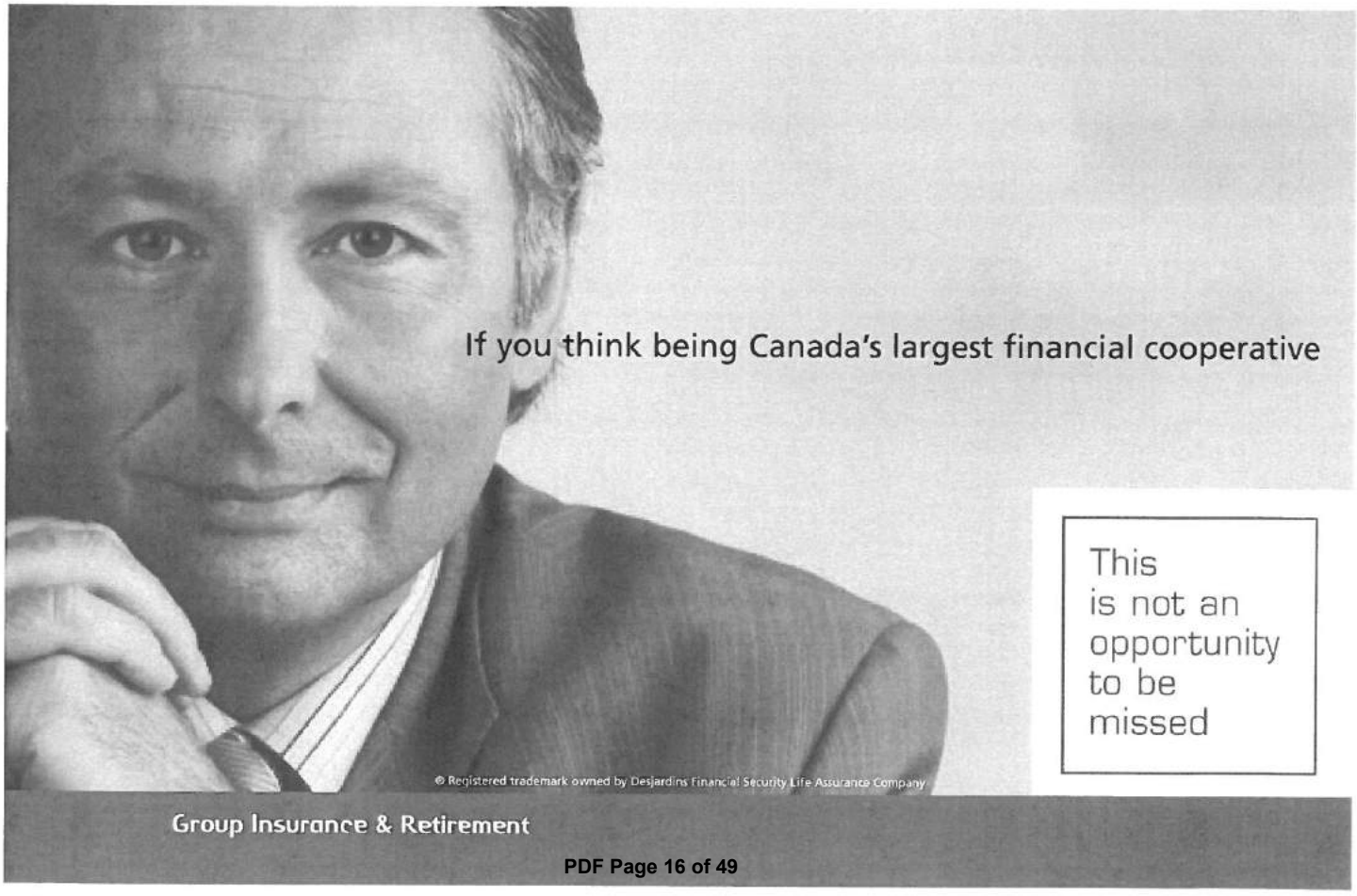
3. How much risk is too much?

4. Where should we take risk?

5. Did we get paid enough for the risks we took?

The answers to these questions could flow from a risk management framework that provides a link between a fund's investment strategy and its mission, values and beliefs. Such a risk framework should include at least five elements:

- A **minimum risk portfolio** (MRP) that becomes the primary benchmark for assessing risk and performance.



- A **cost of risk capital** that acknowledges risk as a scarce resource that has a cost (risk premium), and that a higher return is required for activities that involve incrementally higher risk.
- **Risk limit(s)** that replace, or at least supplement, asset-based limits that are too costly and inconsistent in their treatment of different portfolios over time.
- A **risk budget** that allocates the target level of risk to various assets and managers to produce a required return in the most efficient way possible.
- An **assessment process** that measures economic value added that takes into account returns and risk on a regular basis (i.e. monthly or quarterly).

The MRP is the policy portfolio if risk budgeting is applied to active management. For surplus management ("liability-driven investing"), the MRP is the liabilities, as represented by a portfolio of securities (mostly fixed income).

The cost of risk capital might depend on the equity risk premium, in the case of surplus management. In an active management context, the cost of risk capital at the total portfolio level would depend on the number of active programs and their size.

A starting point for developing risk limits is to calculate what surplus and active risks are implied by the current portfolio. In other words, calculate what the maximum surplus and active risk would be using the asset-based policy targets and minimum/maximum limits as constraints. A typical 60/40 asset mix, for example, might have a surplus at risk of 11%—one year in 10 or 10% of the time, assets might be expected to grow less than liabilities by 11% or more. One year in 100 or 1% of the time, assets might underperform liabilities by 22% or more. The active risk limits implied for the total portfolio would depend on the range of the minimum/maximum bands for asset classes and the extent to which active management is pursued within asset classes and other activities.

Funds that applied risk budgeting processes in the past few years were probably less surprised (or not at all surprised) by the severity and frequency of losses during the recent "perfect (pension) storm", where assets did poorly and liabilities rose with falling real interest rates. Such funds were likely better prepared for the storm and may have decided to react differently once the storm subsided.

The risk budget is the risk-based equivalent of a target allocation, except that the allocation is expressed in terms of risk rather than assets. This can be presented in many ways but the most informative way is to measure and compare the impact of small changes in asset allocations on both risk and return. A risk budget presented on a surplus basis might have shown Nortel contributing a great deal of risk in 2000—more than could be justified by any reasonable

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return expectation for the stock. That risk budget might also have shown that real return bonds looked very attractive because they reduced risk much more than they reduced expected returns, given their low allocation in most portfolios.

The assessment process involves measuring risk as frequently as returns. Ideally, someone is held accountable for this performance by linking risk-adjusted performance to compensation. This is easier said than done, and it's easier to do in an active management context, where correlations are low, than surplus management ("liability-driven investing" or LDI), where correlations are higher. Why is it harder for LDI? Because LDI is the ultimate team sport—where individual specialists (fixed income) may be asked to play a total portfolio game.

Canada's two largest DB plans, the Ontario Teachers' Pension Plan and the Canada Pension Plan Investment Board, have applied these frameworks and processes in managing both surplus and active risk. But is it time for smaller plans to implement risk-based processes? Maybe. The benefit of doing so increases over time as portfolios become more complex. In 1990, the average Canadian DB plan had two-thirds of its assets in fixed income. Portfolio management was easier because two asset classes (Canadian stocks and bonds) represented 90% of the portfolio. Today, half of the bonds (about one-third of the total portfolio) is in other, more complex, assets—a fact that makes risk measurement much harder.

Fortunately, the costs of maintaining the risk systems and data needed to implement risk budgeting in practice are falling. They're still big, but much smaller than the cost associated with undue risk—risk that is higher than it has to be or risk that is not well understood and which could lead to poor portfolio choices.

We may have reached the point where smaller funds have the comparative advantage over larger funds when it comes to risk budgeting. When the Canada Pension Plan avoided large losses on Nortel in 2000/01, its investment department consisted of two people—the chief executive officer and its vice-president of research and risk management. Today, this fund—with closer to two hundred people than two—would have more resources at its disposal than in 2000, but it would have other challenges to overcome if it were to implement risk budgeting from scratch. Portfolio management is a team sport and no paradigm shift is ever easy, but having fewer cats to herd makes it easier. **BC**

Valter Viola is president of Holland Park Risk Management Inc. in Toronto. vviola@hollandpark1.com



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SYMPTOMS VS PROBLEMS

SYMPTOMS	SHAKY GOALIE	**No Real Return Bonds** • Poor liability protection against unexpected inflation, real rate risk • Less effective duration management
	PUCK HOG	**Canadian Equities** • Larger-than average home bias • Concentrated sectors/stocks
	SHORT-HANDED	**No International Equities** • Missed opportunities to add value, diversify portfolio
PROBLEMS	FOCUS	**Short-term Rate Stability** • At cost of lower long-term level
	PROCESS	**"Smoothed" Accounting** • Rather than "volatile" market value **Asset-Based Rebalancing** • Rather than risk **A-L Studies Every 4 Years** • Rather than annual/quarterly risk-informed discussions

BARRIERS TO EXCELLENCE

REMEDIES →

FRAMEWORK

RISK BUDGETING

3

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FRAMEWORK

- Provides FOCUS (barrier to excellence)
- Context, cohesion, link between vision, mission, objectives and strategies

Example

- Want to earn actuarial (real) rate, which no asset guarantees
  - Closest: RRBs yielding < actuarial rate
  - Take risk to maximize returns
- Avoid undue risk, be paid for risks taken
- Measure/attribute risks to sources, improve understanding/management

10

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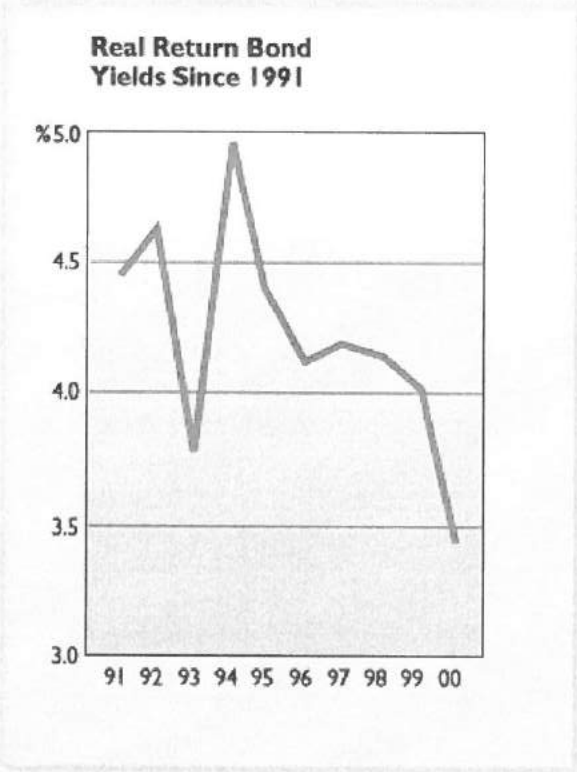
MATCHING ASSETS AND LIABILITIES



Real return yields declined by 59 basis points in 2000, after remaining within a 10 basis point range for the three previous years.

Source: Teachers' 2000 Annual Report, page 19

MATCHING ASSETS AND LIABILITIES

To create a funding surplus we manage the relationship between investment assets and pension liabilities. Our goal is an asset mix that balances risks and rewards, avoids excessive volatility, and maintains stable contribution rates.

Because both assets and liabilities are sensitive to interest rate changes, one of our goals is to reduce the risk that liabilities will increase more than assets in response to lower real interest rates. Unfortunately, that is what happened in 2000. The sharp decline in real rates of return increased the value of total liabilities by $3 billion. During the year, we shifted assets from fixed-income and equity portfolios to real-rate products and real estate. Debt securities, along with inflation-sensitive assets, outperformed total equities to produce the healthy accounting surplus.

15

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MRP AND RRBS

- Some liabilities resemble RRBs (zero-coupon real cash flows)
- RRBs could closely match risks in real liabilities
- "Insurance" cost varies with yield
- Nominal bonds only good fit if inflation stable

Tendency to ignore portfolio risk interdependence

- Assets risky in isolation, safer when combined with other assets/liabilities (long RRB duration risky on its own, not with long liabilities)
- Diversification makes management a team sport: appetite to take risk in one asset depends on risks in other assets and liabilities

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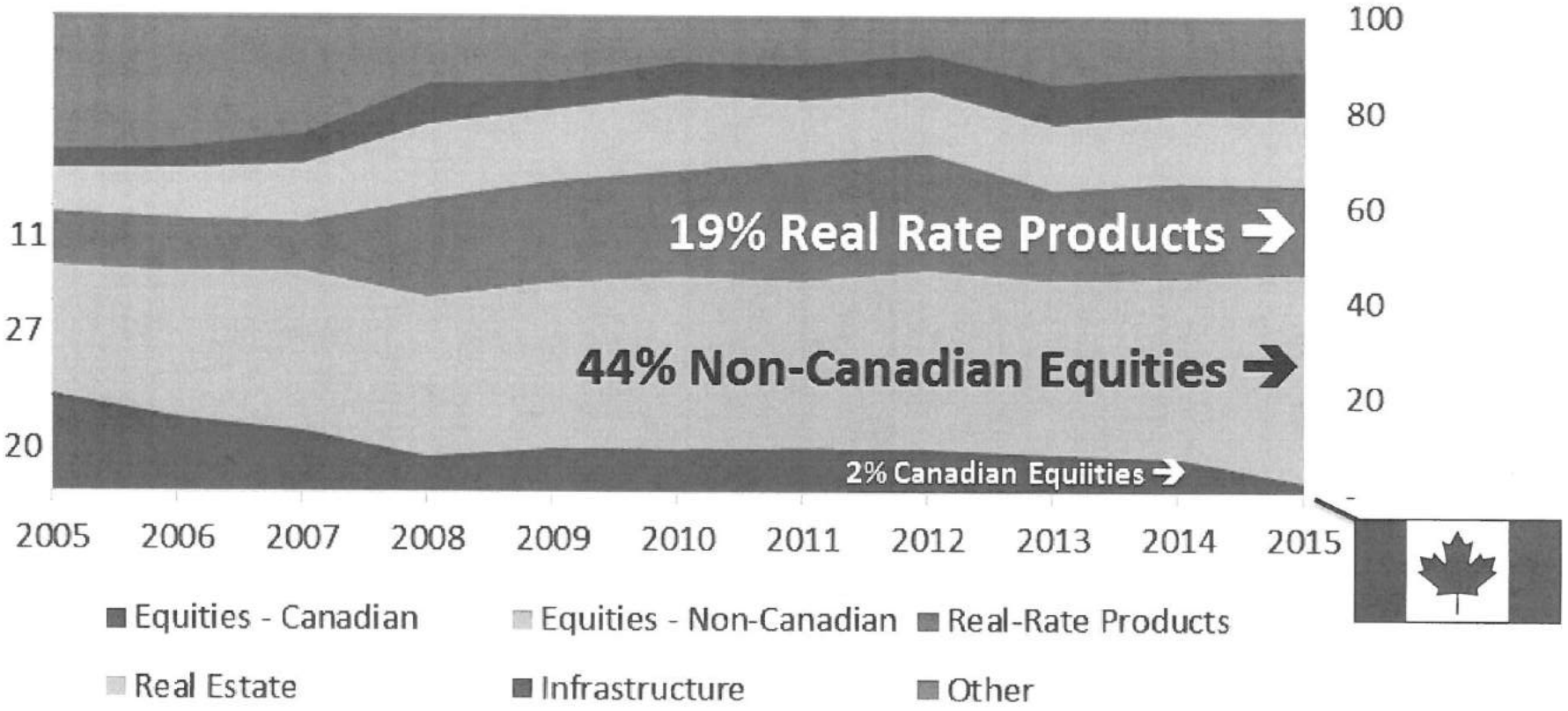
TEACHERS' IN 2015

Teachers' RRBs = 19%, Non-Canadian Equities = 44%, Canadian Equities = 2%



Source: Graphed using data from Teachers' 2015 Annual Report, page 71

22

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10. MINIMUM RISK PORTFOLIO

minimum risk portfolio ... should be ... defined ... aligned with ... stakeholders ...

- MRP should reflect risk in cash flows re: insurance, pension and other liabilities (e.g., real rates, inflation)
- MRP should include some RRBs
- MRP definition ("benchmark" for risk and surplus growth) says nothing about whether to buy RRBs

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14. EXCLUSION OF REAL RETURN BONDS

role that RRBs can play in … managing … risks should be discussed, with consensus … regarding … effectiveness … from a risk … perspective … independent of … cost of … "insurance" … measured by RRB yields and … expected returns

- Consensus should be achieved on RRB's effectiveness in hedging liability risks (insurance vs pensions) compared to other assets (e.g., cash, "nominal" bonds, real estate, infrastructure) on a market value basis
- Consensus should be achieved on RRB's efficiency in a total portfolio context, and on a market value basis

30

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MPI'S VIEW

In questions related to RRBs, MPI said:

> *"Real return bonds were excluded ... because they were deemed to be expensive. Aon Hewitt's ... assumptions showed* ***real return bonds to have significant volatility and down side risk**** *with modest returns relative to nominal bonds .... Also, page 17 of the Phase 1 report Aon concluded that "RRBs are not a good inflation hedge"."*[5]

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[6] Source: CAC (MPI) 2-39

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MY VIEW

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1. this is a problem with the method for valuing the liabilities (survey of Canadian banks), which is not a market-based method, not a problem with the hedging properties of RRBs against a market-valued set of liabilities;
2. while RRBs suffer from a limited offering (liquidity), larger funds have managed to accumulate significant exposures (e.g., the average PIAC fund has 3%);
3. while supply and demand for RRBs may have a large impact on market value, presumably this is a one-time market impact acquisition cost – a small price to pay if RRBs are considered a buy-and-hold asset class, with little turnover; and
4. Aon appears to concede that RRBs do offer inflation protection (despite their earlier comment to the contrary) but that **RRBs do not match the financial impact to MPI on a year by year basis**. This last point represents the symptom of a bigger problem, which relates to the next belief (constraints).

33

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AON AGREES

When asked if Aon could list one or two asset classes that offer better inflation hedges than RRBs for MPI, and offer any evidence to support that belief, Aon said it could not, adding:

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15. EFFECTIVENESS OF DURATION POLICY

duration policy should be reviewed, given … inherent risks of changing real … rates and … inflation …, and exposure to … nominal … rates in … portfolio (… bonds without inflation protection)

- MPI agrees that duration matching is not as effective if inflation turns out to differ from expectations
- "Accepted short term inflation risk and … accounted for risk through margins and reserve"
- "Excess portfolio was designed to provide some protection against inflation"

35

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13. NO OVER-RELIANCE ON QUANTITATIVE MODELING

be vigilant about … over-reliance on quantitative considerations, given … high sensitivity of optimal asset allocations to … assumptions (returns, volatilities and correlations) and … large number of inputs

44 Assumptions	• optimal solutions from quantitative portfolio optimizations are very sensitive to the capital market assumptions used; and • there are at least 44 such assumptions in the Asset-Liability Study, involving MPI's 8-asset class portfolio, as calculated below. **44 Important Assumptions (estimates, but "unknowns")** 8 average return assumptions (1 for each asset class) 8 volatility assumptions 28 correlations (= 8 x 7 ÷ 2) 44 "unknowns" Source: Evidence, page 41
A-L Studies Every 4 Years	• Too infrequent, considering "dynamic risks" in static asset mix

46

6

Public Utilities Board

Régie des services publics

Order No. 162/16

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2017/2018 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 15, 2016

BEFORE: Robert Gabor, Q.C., Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Allan Morin, B.A., ICD.D., Member

allocation. Proceeding in this manner would ensure that growth portfolio was not entirely in illiquid assets and that it had some diversification into more liquid asset classes.

As observed by AON, duration matching of investments and claims liabilities would not mean that net income is fully immunized against interest rate changes, as only average durations are being matched, not the cash flows underlying those durations. Also, over 35% of the fixed income portfolio supporting the interest rate sensitive claim liabilities was invested in non-marketable (i.e. MUSH) bonds, which are not interest rate sensitive and do not fluctuate with changes in interest rates. This large investment in non-marketable bonds would make it difficult for MPI to fully protect at the Basic level its net income exposure to changes in interest rates.

MPI implemented the ALM duration matching at the Corporate level, as it provides a better risk versus return profile. The Corporation indicated that undertaking the matching at the Basic level would increase the indicated rate increase in this Application from the initially proposed 2% to 3.7%.

The Corporation stated that fully matching the duration of the fixed income portfolio and claims liabilities does not completely eliminate all interest rate risk to the Corporation, nor would it eliminate what it considered to be the need for an IRFRF. In the Application, the Corporation stated that the net interest rate impact was $16.0 million on average over the rating years, compared to $18.1 million using last year's assumptions, a $2.1 million difference.

Mr. Valter Viola was called as an expert witness in the hearing, on behalf of CAC. Mr. Viola is a Chartered Financial Analyst and holds a Masters in Business Administration and a Bachelor of Commerce degree. He provides consulting services to institutional investors, Boards, Investment Committees and Management Teams on investment strategies and investment risk management. The focus of Mr. Viola's evidence, and his report filed as an exhibit in the GRA, was to discuss investment portfolio management and the risk/reward framework, and to provide several recommendations related to MPI's investment portfolio design. Mr. Viola was qualified to give evidence in the hearing as an expert in (1) investment portfolio management; (2) investment portfolio research, economics and risk management; and (3) quantitative asset liability modelling.

Mr. Viola questioned the reliance on accounting metrics based on net income, which metrics were used by AON for the asset portfolio design for MPI. Those metrics would not capture

changes in the market value of material assets such as equities or MUSH bonds, or changes in the value of pension liabilities. Mr. Viola recommended that MPI make elections that minimize the discrepancy between net income and comprehensive income for asset/liability modelling purposes, even if only on a notional basis.

Mr. Viola also recommended that MPI redefine return risk, to inform its long-term asset mix decisions based on valuations that reflect market values rather than accounting values, which may be materially different. Regardless of the accounting convention, for portfolio management and asset mix decision making, according to Mr. Viola, there needs to be an adjustment to assets and liabilities to the extent that the accounting is not market-value based.

Mr. Viola also questioned the high concentration of Canadian equities in the Corporation's portfolio. Mr. Viola indicated that international diversification was important to Canadian investors given the concentrated nature the Canadian Market with three (of ten) sectors in Canada where Financial Services, Energy and Materials represent a very large portion of the Canadian market. He noted that MPI had no investments in international equities, a large part of the global market. He further stated that there is a potential for missed opportunities to add value, have higher returns, and to diversify the portfolio. Mr. Viola stated his belief that through its focus on short-term rate stability, MPI is losing the opportunity for long-term lower premium rate levels.

4.5. Investment Income Forecasting

At the 2014 GRA, the Corporation proposed a new methodology to forecast its investment income. This methodology measured the impact of interest rate changes on investment income and claims liabilities, whereas the methodology employed by the Corporation previously did not do so. MPI now models changes in the fair market value of its marketable bonds and the changes to bond values flow through Basic's net income because those assets are categorized as Fair Value Through Profit and Loss. Basic's operating results are very sensitive to interest rate changes, including the timing and the amount of the interest rate changes. Because it is difficult to predict the amount and timing of assumed interest rate changes, Basic net income is very difficult to forecast accurately.

4.6. *Interveners' Positions*

CAC

CAC suggested that Mr. Viola's recommendations regarding the Corporation's investment portfolio be given a significant amount of weight. The AON ALM study, according to CAC, has limited utility in allowing the Corporation to make portfolio decisions, given the return/risk metrics and excessive constraints, and remarked that Mr. Viola's evidence was that he viewed the ALM study as understating the risks of the Corporation, being market risks. CAC stated that the weight assigned to Canadian equities in the Corporation's portfolio is not consistent with evidence of the historic advice of experts. CAC asked the Board to find there is reason to be concerned the Corporation's portfolio is not adequately protected against interest rate risk. Furthermore, an emphasis by MPI on short-term rate stability leads to an excessive level of risk for the investment returns gained. CAC followed Mr. Viola's evidence, that one should look to the use of Real Return Bonds as a starting point for a benchmark portfolio with minimum risk. CAC noted that one of the factors of a major loss in the Corporation's investment portfolio was a $28.5 million write-down in Canadian equities. Accordingly, CAC argued that MPI is putting itself at risk by being too heavily weighted in favour of Canadian equities.

With all of that in mind, CAC argued that a new ALM study is required. CAC expressed concern that undue risk is being placed on Manitoba consumers as a result of investment portfolio selections. The ALM study conducted by AON in 2014 was based on accounting metrics which were driven by concern with short-term volatility, and Accumulated Other Comprehensive Income (AOCI) was excluded from the metrics. As a result, as stated by Mr. Viola, MPI's portfolio design is being driven by inappropriate selection of risk and return metrics, understating the risk, and unduly constraining the portfolio outcomes.

On the issue of interest rate forecasting, CAC stated that interest rate forecasting has been challenging since the financial crisis of 2008. CAC argued that the Naïve forecast should not be adopted as a sustainable best estimate, and that it could not find a precedent for the 50-50 forecast proposed by the Corporation. CAC stated that the evidence in the hearing did not favour reliance on the 50-50 forecast, and that the SIRF should be adopted. CAC argued that the Corporation had not met its onus to establish that the 50-50 interest rate forecast is the best estimate.

7

CAC (MPI) 1-84

Part and Chapter:	**PART VI INV**	**Page No.:**	**1459-1462; 1654; 1755; 1749; 1765**
PUB Approved Issue No:	**21. Asset Liability Management Study**		
Topic:	**CAC's 18 Recommendations**		
Sub Topic:	**Recommendation #13. No Over-Reliance on Quantitative Modeling**		

Preamble to IR (If Any):

Recommendation #13

> MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.

Mercer's response:

> Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. **The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.**

On page 1,654, Mercer said:

> While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling ...

Capital Market Assumptions for the Liability Benchmark

Page 1,765 (INV Appendix 17, Attachment A) shows the assumptions related to the components of the liability benchmark, which CAC summarized below (Basic and Pension only).

	Components of Liability Benchmarks	Return	SD
1	Treasury Bills	1.50%	1.50%
2	Short-Term Provincial Bonds	2.40%	3.50%
3	Mid-Term Provincial Bonds	3.00%	6.50%
4	Long-Term Provincial Bonds	3.30%	8.50%
5	Long-Term Corporate Bonds	4.20%	8.50%
6	Real Return Bonds	3.00%	7.50%

	Correlations					
	1	2	3	4	5	6
Treasury Bills	1.00					
Short-Term Provincial Bonds	0.31	1.00				
Mid-Term Provincial Bonds	0.02	0.87	1.00			
Long-Term Provincial Bonds	(0.14)	0.61	0.89	1.00		
Long-Term Corporate Bonds	(0.38)	0.14	0.51	0.69	1.00	
Real Return Bonds	(0.19)	0.39	0.65	0.70	0.62	1.00

The significant difference between the nominal and real bases are shown below for both Basic and Pension liabilities.

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

The GRA included many efficient frontiers using the **Nominal** Liability Benchmark, showing for example, the effects of adding different asset classes one step at a time ("stepped approach") so the effects on return/risk could be seen. (Fewer such analyses were provided using the **Real** Liability Benchmark, and no "steps" were shown in the GRA on this basis.)

The table below shows how material the Liability Benchmark decision is on return/risk and asset allocation. (The supporting tables, A to C, are on the next two pages. They show the different implications reported by Mercer arising from the selection of a different Liability Benchmark – i.e., nominal vs. real).

Table	Content	Materiality of Liability Benchmark Choice
A	**Table A shows return/risk metrics** for a portfolio that has the same expected return as the current portfolio (~ 4.2%), but is more efficient than the current portfolio (i.e. less risk); **The asset allocations** are also shown	The main difference between the optimizations relates to the inclusion of **RRBs in the portfolio under the real optimization**; The total fixed income allocation is the same (~ 75%) under both real and nominal optimizations
B	**Table B shows the current portfolio's return/risk metrics**	n/a
C	**Table C shows the improved efficiency** (less risk, same return) of the optimized portfolio, compared to the current portfolio (i.e. C = A minus B)	**Surplus volatility falls more when the real liability proxy is used (1.1% risk reduction, rather than 0.4%)**

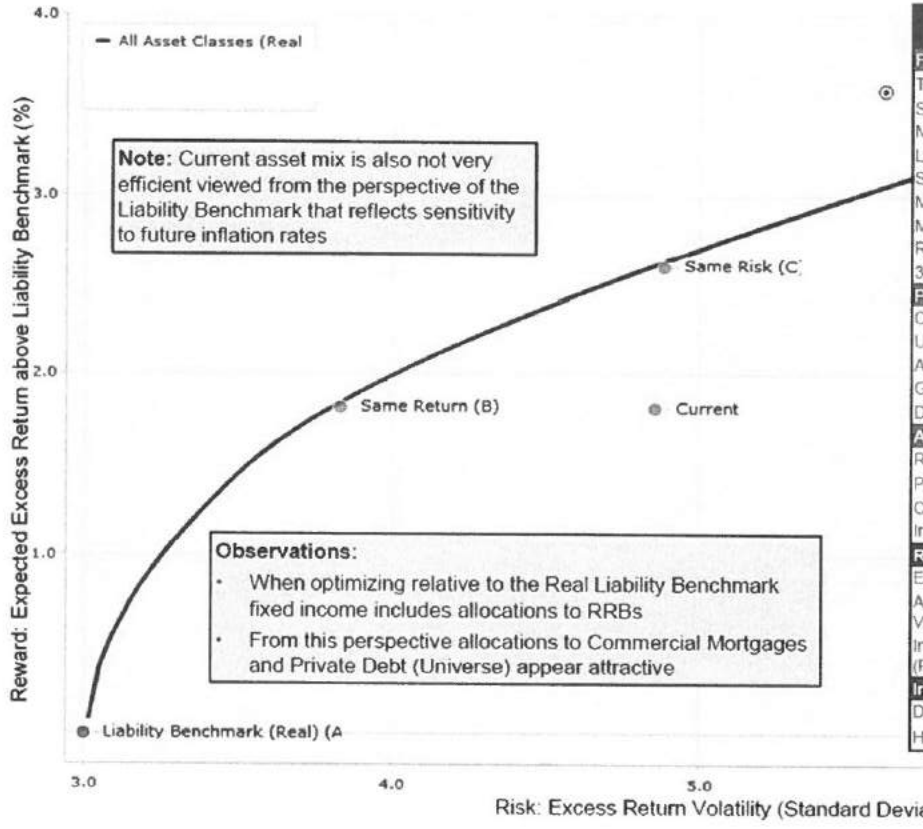
B	**Current Portfolio**	Real	Nominal	
	Expected 10-Year Return:			
	Portfolio	4.2	4.2	
	Liability Benchmark Portfolio	2.4	2.8	
	Excess Return	1.8	1.4	
	Anticipated Surplus Volatility	4.9	5.0	
	Excess Return/Anticipated Surplus Volatility	0.37	0.28	
	Information Ratio (Return/Risk)	0.37	0.27	
	Difference	- 0.00	0.01	
C	**Improved Efficiency (Same Return)**	Real	Nominal	C = A - B
	Expected 10-Year Return:			
	Portfolio	-	- 0.1	No change in return (except rounding)
	Liability Benchmark Portfolio	-	-	
	Excess Return	-	- 0.1	
	Anticipated Surplus Volatility	**- 1.1**	**- 0.4**	More measured risk reduction with Real Liability
	Excess Return/Anticipated Surplus Volatility	0.11	0.00	
	Information Ratio (Return/Risk)	0.11	0.03	
	Difference	- 0.00	- 0.03	

The source for the above data is on the following two pages.

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



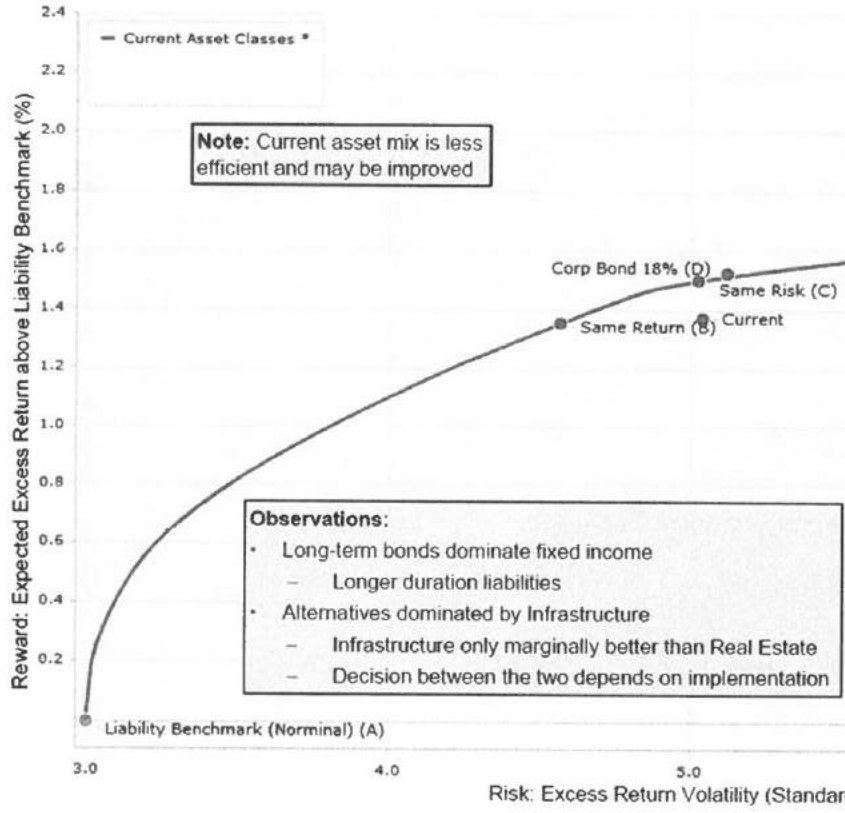
	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	--	26%	--	--
Short-term Bonds (Prov.)	6.5%	8%	27%	--
Mid-term Bonds (Prov.)	12%	--	--	--
Long-term Bonds (Prov.)	29.5%	--	--	--
Short-term Bonds (Corp.)	--	--	3%	15%
Mid-term Bonds (Corp.)	2%	--	--	--
MUSH Bonds	20%	--	10%	10%
Real Return Bonds	--	66%	--	--
3X Real Return Bonds	--	--	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	--	4%	6%
U.S. Equity	5%	--	--	--
All-Country World Equity	--	--	4%	5%
Global Equity (low vol)	--	--	4%	7%
Diversified Growth Fund	--	--	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	--	8%	8%
Private Debt - Universe	--	--	3%	13%
Commercial Mortgage	--	--	13%	3%
Infrastructure	5%	--	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

"Real" Liability Benchmark (page 1,755)

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY



	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.8%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

"Nominal" Liability Benchmark (page 1,749)

Questions:

a. **Quantitative vs. Qualitative:** To what extent were the results of the **quantitative** analyses relied upon to inform asset allocation decisions (as compared to **qualitative** considerations)?

b. **Practical Considerations:** What "practical considerations", if any, were used to justify the use of a Liability Benchmark based on **nominal** rather than real metrics?

c. **Time Horizon:** What time horizon did the "current market environment" refer to in the concluding phase of the ALM process?
   i. Next 5 years, or less?
   ii. Longer?

d. **Correlations:**
   i. Why do Treasury Bills have a negative correlation with both long-term bonds (Provincial and Corporate) and RRBs?
   ii. What is the significance of these negative correlations on optimal asset allocations, particularly as it relates to treasury bills, long-term fixed income (including RRBs), and the attractiveness of "leverage"?

e. **Basis Risk ("Tracking Error"):** Would MPI and Mercer agree that there is material tracking error* or basis risk between the Nominal Liability Benchmark and the Real Liability Benchmark for:
   i. Basic liabilities?
   ii. Pension liabilities?

   * **Tracking error** measures the standard deviation of the return difference between two groups of assets or liabilities (e.g. actual portfolio vs. benchmark). Basis risk refers to the risk that two portfolios (including liability benchmarks) will experience different performance/growth, arising from imperfect correlations (not = 1.0), for example.

f. **More Detailed Analysis for Real Scenarios:** Was the same "stepped" analysis that was performed using the **Nominal** Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the **Real** Liability Benchmark?
   i. If so, provide the analysis and commentary (at least for Basic and Pensions).

ii. If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions)

Rationale for Question:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

RESPONSE:

Mercer provided the following responses:

a) MPI relied on both quantitative analyses and qualitative considerations to inform asset allocation decisions. From Mercer's perspective, MPI's reliance on both quantitative analyses and qualitative considerations was reasonable and prudent given the situation and consistent with other like investors.

b) During the early stages of the project, MPI advised that they were comfortable with a fixed 2% inflation assumption and that they were less concerned with inflation risk (in particular, the risk of long-term inflation materially exceeding 2%) than nominal interest rate risk (in particular, the risk of buying fixed income securities with duration much shorter than liabilities). Accordingly, it was agreed to model liabilities assuming 2% inflation and utilize a nominal liability benchmark.

c) When the "current market environment" was referred to, it was the next 5 years, or less.

d)

i. Our correlation assumptions are based on analyzing quarterly total returns during the last 2 decades for the respective FTSE TMX bond indices. Treasury Bills have exhibited a consistently negative correlation with both long-term bonds (Provincial and Corporate) and RRBs.

ii. The negative correlations of Treasury Bills with long-term bonds and RRBs were of very little significance, if any, to the recommended portfolios. MPI preferred to manage interest rate risk using physical securities (rather than leverage) for a variety of reasons and the early stages of the Asset Liability Study indicated this was possible.

e) There is tracking error or basis risk any time one uses a portfolio of marketable fixed income securities to proxy liabilities. Whether the tracking error/basis risk is 'material' depends on one's interpretation of what is 'material'. Given MPI's overall risk tolerance, return objectives, modelling budget, asset class constraints and the scope of the project, Mercer is supportive with MPI's decision to make its asset allocation decisions based off of the liability benchmarks analysis used.

f) Please see Rationale for Refusal.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Mercer estimates that re-running the modelling of efficient frontiers will take approximately a week, and cost in excess of $20,000. The requested analysis is predicated on inflation forecast assumptions that Mercer and the Corporation rejected, in early stages of the ALM study, as not probable.

In an email exchange with counsel for the CAC, the Corporation suggested it would consider having Mercer conduct the requested analysis if the CAC could provide some evidence that Mercer's inflation forecast used in the ALM study was sufficiently inaccurate, or flawed in some way, so as to call into doubt the results of the ALM study.

As that evidence was not forthcoming from the CAC, the Corporation does not expect the requested analysis to add any meaningful evidence to the record, but will instead satisfy academic interest. When weighed against the costs of having Mercer conduct the analysis, the Corporation cannot establish that it is prudent to incur those costs.

PUBLIC INTEREST LAW CENTRE

CENTRE JURIDIQUE DE L'INTÉRÊT PUBLIC

AN INDEPENDENT SERVICE OF LEGAL AID MANITOBA

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August 22, 2018

Manitoba Public Utilities Board
Darren Christle
Secretary and Executive Director
400-330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr Christle:

Re: Manitoba Public Insurance General Rate Application 2019/20 – CAC Manitoba Response to MPI Round 1 Information Requests Rule 13 Motion

The Manitoba Branch of the Consumers' Association of Canada (CAC Manitoba) has reviewed the motion filed by Manitoba Public Insurance (MPI) under Rule 13 of the Public Utilities Board (PUB) Rules of Practice and Procedure regarding certain first round information request responses.

Pursuant to Rule 22(4) of the PUB Rules of Practice and Procedure[1] and to Board counsel's email of August 13, 2018, the purpose of this letter is to provide CAC Manitoba's response to MPI's motion.

Overall, CAC Manitoba's does not object to MPI's request that the PUB receive in confidence the documents identified in MPI's motion.

CAC Manitoba acknowledges that treating these documents as confidential will impair the public interest in the disclosure of the information as they will not be disclosed on the public record. Based upon its review of MPI's materials, however, CAC Manitoba believes that MPI's proposed conditions on access constitute minimal impairment to the public interest in the disclosure of the information.

Similarly to its recommendation regarding MPI's previous Rule 13 motion, which was accepted in Board Order 89/18, CAC Manitoba would request that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the confidential documents, that evidence would be filed in confidence with the Board and MPI on September 24, 2018, per Procedural Order 82/18. The Intervener would then consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by September 26, 2018.

CAC Manitoba recognizes the efforts made by MPI to ensure that the

1 22(4): Any party who wishes to respond to a motion shall file and serve on all parties a written answer no later than 2:00 p.m. two days before the day the motion is heard.

Corporation's first round information requests Rule 13 motion is limited in scope, including re-filing certain redacted information requests, and that the proposed conditions on access contemplate disclosure to the appropriate interveners to ensure minimal impairment to the public interest in the disclosure of the information.

CAC Manitoba appreciates the opportunity to make these comments regarding MPI's motion pursuant to Rule 13 of the PUB Rules of Practice and Procedure regarding first round information requests.

Yours truly,

Katrine Dilay
Attorney
KD/

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August 28, 2018

The Public Utilities Board of Manitoba
Attention: Mr. Darren Christle
Executive Director and Board Secretary
400-330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr. Christle:

Re: CAC Manitoba Motion to Compel Responses to CAC 1-84 f) and 1-85 g)

On Monday, August 20, 2018, Manitoba Public Insurance (MPI) filed a motion brief and affidavit in response to the CAC Manitoba motion to compel responses to information requests CAC 1-84 f) and CAC 1-85 g).

While the material filed by MPI was extremely lengthy, it is not particularly helpful because of its single minded and mistaken focus on capital market assumptions about inflation. However, the concern of CAC Manitoba as exemplified by the information requests is the failure by MPI to appropriately characterize the risks facing its liabilities.

Attached to this letter is a brief memo which attempts to redirect the attentions of MPI to the real issues at stake. As set out in the memo:

> *It is the **basis** for describing the risks in the liabilities that the CAC questions, and which has a material impact on the optimal portfolios (and return/risk) – not the capital market assumptions about inflation per se.*

The concern of CAC Manitoba is that the preternatural focus of MPI on the inflation component sidesteps the larger and more volatile issue of capital gain/duration effects. As set out in the memo:

> *While MPI provides information about expected inflation and inflation volatility, there is little mention of **real** interest rates and the related **real** risks (which are material). Given the high duration (interest rate sensitivity) of the liabilities, it is important to focus on the long-term duration or "capital gain" effects related to both fixed income assets and the liabilities as well.*

MPI's approach focuses on the inflation component only, not the (larger) capital gain/duration effects. This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile).

To similar effect, the memo states that:

*The standard deviation of the **nominal** interest rate depends on:*

- *standard deviation of **inflation**, which the CAC does not question;*
- *standard deviation of **real** rates (related to duration), which is not discussed by MPI; and*
- ***correlation** between **real** rates and inflation, also not discussed by MPI.*

Moving beyond the characterization of liability risk, to asset allocation selection, CAC Manitoba has a preliminary concern that the process used was circular in that:

*The outputs (portfolios) of its preliminary "real" analyses, which used the **Real** Liability Benchmark, were used to inform the **inputs/model** (capital market assumptions/ characteristics of the Liability Benchmark Portfolio).*

In essence, the preliminary view of CAC Manitoba is that the record currently before the PUB raises the concern that the understanding of the liability risk faced by the MPI is "unsatisfactory" and that the process used in asset allocation is "unreasonable". The information requests posed will clarify the current record before the PUB by enhancing our understanding of the:

1. effectiveness of interest rate risk management practices, clearly distinguishing between the two components of nominal interest rates: i) inflation expectations and ii) real interest rates; and
2. decision-making standard and process for selecting asset allocations to support liabilities.

Allowing for variance in risk tolerance, the information sought will assist in understanding the various asset allocations which would flow from a more analytically sound assessment of the risks associated with the liabilities. This is hardly an academic question given the materiality of the liabilities, the significance of the asset allocation questions and the low frequency of asset/liability studies.

Thank you for your consideration of these comments.

Yours truly,

Katie Dilay

for: BYRON WILLIAMS
DIRECTOR
BW/ab

cc: Board Counsel
Manitoba Public Insurance
Approved Interveners

Unsatisfactory Understanding, and Unreasonable Decision-making Standard and Process

August 28, 2018

Submitted by Consumers' Association of Canada, (Manitoba) Inc.

It is the view of the Consumers' Association of Canada, (Manitoba) Inc. ("CAC") that **MPI's understanding of the interest rate risks facing MPI is unsatisfactory**, and that both **the decision-making standard and process used by MPI for selecting its asset allocations is unreasonable**.

The CAC is questioning the **basis** for modeling the risks in the liabilities ("model"), and not the capital market assumptions ("inputs") about the level or volatility of inflation per se.

The information requests ("IRs") that the CAC has made, and which MPI has not provided, were designed to achieve two primary objectives, and these are to clarify our understanding of the:

1. **effectiveness of interest rate risk management**, clearly distinguishing between the two components of nominal interest rates: i) inflation expectations and ii) real interest rates; and
2. **decision-making standard and process for selecting asset allocations** to support liabilities.

The CAC believes the benefits of answering the CAC's questions exceed the costs of doing so, given:

- **Liability Benchmark Portfolio** is the starting point, basis, or framework for the analysis;
- **materiality of the Liability Benchmark Portfolio** from a risk measurement perspective;
- **materiality of the asset allocation decision** on long-term returns and risks, since allocations are based on the Liability Benchmark Portfolio; and
- **low frequency of asset/liability studies** (every three to four years).

Footnote references to the "Affidavit" and "Motion" relate to:

- the Affidavit of Glenn Bunston; and
- the Motion Brief of MPI.

CONTENTS

Reasonableness and Materiality Tests 3
Purpose of Information Requests 3
Materiality of Liability Characteristics 3
Effectiveness of Interest Rate Risk Management 4
Inflation Risk 4
Elevated Inflation Today 4
What about Real Interest Rate Risk? 4
Inflation Sensitivity of Assets and Liabilities 4
Equity Risk Analogy: Focused on Risk from Dividends (not Capital Gains) 4
Materiality of Basis Risk: What Difference Does It Make? 5
Decision-making Standard and Process for Selecting Asset Allocations 6
MPI's "Circular" Process 6
Long-Term Opportunity Costs Matter More 6

Reasonableness and Materiality Tests

Purpose of Information Requests

MPI described the purpose of IRs, which is to provide "… a **satisfactory understanding** of the matters to be considered".[1]

Unsatisfactory understanding

MPI added:

- "if the PUB is to grant the Order sought, it must be satisfied that the decision to conduct the ALM Study in the manner chosen was **unreasonable**", adding "there is no evidence before the PUB to suggest that this was the case"[2]; and
- "the PUB should measure MPI's decisions on a **standard of reasonableness**."

Unreasonable standard

Unreasonable process

The CAC believes that MPI's understanding of the interest rate risks facing MPI is unsatisfactory and that both the decision-making standard and process used by MPI for selecting its asset allocations is unreasonable.

Materiality of Liability Characteristics

MPI said that the CAC seeks information that "will have no impact upon the determination of the 2019 GRA or on the investment decisions of the BoD/Department of Finance."[3]

The CAC disagrees. The Liability Benchmark Portfolio is the starting point for the analysis. We know that models are very sensitive to the assumptions used for both the assets and liabilities. In the case of the liabilities, the modeling assumptions are very different as illustrated in CAC (MPI) 1-83 (below). Here, the CAC showed how different the two bases for describing the nature of the liabilities are, as represented by two possible Liability Benchmark Portfolios that were being considered (i.e., Nominal vs. Real) for Basic Liabilities (left) and Pension Liabilities (right).

Material impacts

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**11**	- 6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

These two different proxies for the liabilities are materially different, with the Real Liability Benchmarks for both Basic Liabilities and Pension Liabilities showing very large exposures to:

- **real** interest rate risk (as distinct from **nominal** interest rate risk); and
- inflation risk.

The different **bases** for optimizations (real vs. nominal) have a material impact on the composition of the optimal asset allocations along the efficient frontier, and these allocations largely determine long-term returns/risks.

[1] Motion Part V item 12, page 13
[2] Motion Part V item 23, page 17
[3] Motion Part V item 6, page 11

Effectiveness of Interest Rate Risk Management

Inflation

Inflation Risk

"MPI agrees that an inflation forecast predicting significantly elevated and/or prolonged inflation (should such a forecast exist), would no doubt lead to an optimal portfolio with inflation protection in the form of Real Return Bonds (RRBs). However, absent such a forecast, exploring these portfolio options becomes purely an academic exercise."[4] The CAC disagrees with the above statements.

Elevated Inflation Today

The 3%[5] inflation rate reported in July 2018 represents the highest year over year change in years, and is above the Bank of Canada's 2% target.

What about Real Interest Rate Risk?

Significantly elevated and/or prolonged inflation are **not** required to demonstrate that an optimal portfolio (for a wide range of risk tolerances) would include inflation protection in the form of RRBs (and possibly other real assets). The analyses based on the CAC's IRs would show this.

It is the **basis** for describing the risks in the liabilities that the CAC questions, and which has a material impact on the optimal portfolios (and return/risk) – not the capital market assumptions about inflation per se. Exploring these portfolio options is not an academic exercise, but an exercise in common sense. If MPI waits for "elevated and/or prolonged inflation", the cost of hedging will be higher than it is today (lower returns).

The relationship between nominal rates, **expected** inflation, and real rates is summarized below.

Fisher Equation: nominal interest rate (yield) = real interest rate (yield) + expected inflation

Unsatisfactory understanding – expected vs. actual inflation

Inflation Sensitivity of Assets and Liabilities

While MPI provides information about expected inflation and inflation volatility, there is little mention of **real** interest rates and the related **real** risks (which are material). Given the high duration (interest rate sensitivity) of the liabilities, it is important to focus on the long-term duration or "capital gain" effects related to both fixed income assets and the liabilities as well.

Equity Risk Analogy: Focused on Risk from Dividends (not Capital Gains)

MPI's approach focuses on the inflation component only, not the (larger) capital gain/duration effects. This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile). Note how the Dividend Discount Model (below) looks very similar to the Fisher Equation above.

Dividend Discount Model: return on stocks = dividend yield + capital gain (loss)

[4] Motion Part V item 4, page 11
[5] Statistics Canada, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000413

Materiality of Basis Risk: What Difference Does It Make?

The standard deviation (not shown) of the **nominal** interest rate depends on:

- standard deviation of **inflation**, which the CAC does not question;
- standard deviation of **real** rates (related to duration), which is not discussed by MPI; and
- **correlation** between **real** rates and inflation, also not discussed by MPI.

In CAC (MPI) 1-84 (e), below, the CAC sought an understanding of the materiality of the "basis risk" between the Nominal Liability Benchmark and the Real Liability Benchmark, but MPI's response did not really answer the question.

Question about Basis Risk ("Tracking Error"):

Would MPI and Mercer agree that there is material tracking error* or basis risk between the Nominal Liability Benchmark and the Real Liability Benchmark for:
i. Basic liabilities? ii. Pension liabilities?
* Tracking error measures the standard deviation of the return difference between two groups of assets or liabilities (e.g. actual portfolio vs. benchmark). Basis risk refers to the risk that two portfolios (including liability benchmarks) will experience different performance/growth, arising from imperfect correlations (not = 1.0), for example.

MPI's Answer in CAC (MPI) 1-84 (e):

There is tracking error or basis risk any time one uses a portfolio of marketable fixed income securities to proxy liabilities. Whether the tracking error/basis risk is 'material' depends on one's interpretation of what is 'material'. Given MPI's overall risk tolerance, return objectives, modelling budget, asset class constraints and the scope of the project, Mercer is supportive with MPI's decision to make its asset allocation decisions based off of the liability benchmarks analysis used.

If materiality is interpreted in terms of the significance of return/risk differences across the opportunity sets (tradeoffs along the efficient frontier), then CAC believes that the basis risk described above is material, and that the analyses requested in the IRs would reveal that.

This is particularly true given MPI's stated risk tolerances (e.g., very low for Basic).

Decision-making Standard and Process for Selecting Asset Allocations

Unreasonable standard or process

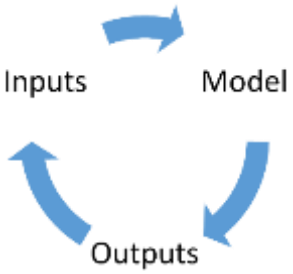
MPI's "Circular" Process

MPI's decision-making process related to asset allocation is summarized below.

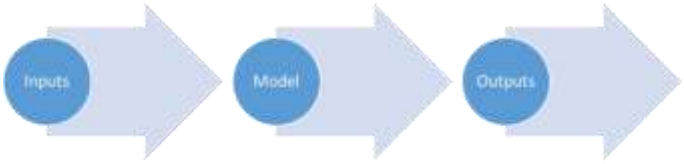
> "Based on the deficiencies in the portfolios generated by the Real Liability Benchmark modelling, and … inflation forecast, **MPI decided against further modelling** and examination of high inflation scenarios or other portfolios based upon the real liability ..."[6]

While MPI claims its decision-making and strategy are "reasonable"[7], the CAC believes the process used was "circular". i.e. The **outputs** (portfolios) of its preliminary "real" analyses, which used the **Real** Liability Benchmark, were used to inform the **inputs/model** (capital market assumptions/ characteristics of the Liability Benchmark Portfolio). This is illustrated below, and contrasted with a more standard "linear" process.

MPI's Process ("Circular"):



Standard Process ("Linear"):



A standard approach would start with inputs, then modeling, but it would exclude any feedback effect. (The linear process reduces the possibility of reverse-engineering desired outcomes that might not otherwise appear optimal under a more neutral perspective.)

Time is money

Long-Term Opportunity Costs Matter More

MPI said the "effort (and cost) … to answer IRs exceeds the anticipated value …"[8] and that MPI "plans to conduct an ALM study every three to four years, meaning it will revisit these forecasts and … portfolios in the near future. Should actual inflation materialize above the forecast before the next ALM study, MPI's Investment Committee will respond appropriately."[9]

If this point is reached, it would be too late (buying insurance after the adverse experience). In other words, it would be more costly to better hedge inflation risk at that time. Meanwhile, the portfolio would face inefficient return/risk tradeoffs (lower returns and/or higher risks).

[6] Affidavit item 17, page 7
[7] Motion issue 1: ii), page 9
[8] Motion issue 1: iv), page 9
[9] Motion Part V item 5, page 11

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September 18, 2018

Manitoba Public Utilities Board
400-330 Portage Avenue
Winnipeg, MB R3C 0C4

Attention: Darren Christle, Secretary and Executive Director

Dear Mr Christle:

Re: Manitoba Public Insurance General Rate Application 2019/20 – CAC Manitoba Response to MPI Round 2 Information Requests Rule 13 Motion

The Manitoba Branch of the Consumers' Association of Canada (CAC Manitoba) has reviewed the motion filed by Manitoba Public Insurance (MPI) under Rule 13 of the Public Utilities Board (PUB) Rules of Practice and Procedure regarding one second round information request response.

Pursuant to Rule 22(4) of the PUB Rules of Practice and Procedure[1] and to Board counsel's email of September 16, 2018, the purpose of this letter is to provide CAC Manitoba's response to MPI's motion.

Overall, CAC Manitoba does not object to MPI's request that the PUB receive in confidence the documents identified in MPI's motion.

CAC Manitoba acknowledges that treating these documents as confidential will impair the public interest in the disclosure of the information as they will not be disclosed on the public record. Based upon its review of MPI's materials, however, CAC Manitoba believes that MPI's proposed conditions on access constitute minimal impairment to the public interest in the disclosure of the information.

Similarly to its recommendation regarding MPI's previous Rule 13 motions, which was accepted in Board Orders 89/18 and 123/18, CAC Manitoba would request that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the confidential documents, that evidence would be filed in confidence with the Board and MPI on October 3, 2018, per Order 123/18. The Intervener would then consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by October 9, 2018, per Order 123/18.

CAC Manitoba recognizes the efforts made by MPI to ensure that the Corporation's second round information requests Rule 13 motion is limited in

1 22(4): Any party who wishes to respond to a motion shall file and serve on all parties a written answer no later than 2:00 p.m. two days before the day the motion is heard.

scope and that the proposed conditions on access contemplate disclosure to the appropriate interveners to ensure minimal impairment to the public interest in the disclosure of the information.

CAC Manitoba appreciates the opportunity to make these comments regarding MPI's motion pursuant to Rule 13 of the PUB Rules of Practice and Procedure regarding one second round information request.

Yours truly,

Katrine Dilay
Attorney
KD/ab

cc: Board Counsel
MPI
Interveners

The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA

Manitoba Public Insurance

2019/20 GRA

Consumers' Association of Canada (Manitoba)

Submitted by the Public Interest Law Centre

Co-Authored by Dr. Wayne Simpson

and Ms Andrea Sherry

September 27, 2018

The Role of the DCAT and Interest Rate Forecasting in the 2019 MPI GRA

1. Introduction

This report looks at two significant features of the 2019 MPI GRA. The first is renewed emphasis on attaching the Minimum Capital Test (MCT) to the determination of the Rate Stabilization Reserve (RSR). The second is the continued application of a naïve approach to interest rate forecasting to establish a break even rate indication and conduct Dynamic Capital Adequacy Testing (DCAT). While Wayne Simpson has taken primary writing leadership on this report, it reflects the views of both co-authors, Dr. Simpson and Ms. Sherry.

2. How Should the RSR be Set? A Chronology of Proposals

The 1988 Autopac Review Commission (Kopstein Report) provides the modern foundation for MPI rate applications.[1] It provides for the PUB to set rates for Universal Compulsory Automobile (Basic) Insurance. These rates are to be set to break even on forecasted net income, allowing for staggered renewals. To absorb variances around the break even forecast, the Kopstein Report recommended a retained surplus target of about 15% of premiums (Kopstein, 1988, 64). The same recommendation 7.11 recommended that, "if the Autopac surplus falls below ten percent or exceeds 20 percent of premiums, the corporation should and would be expected to take remedial action."

This recommendation provided the foundation for the establishment of what is now referred to as the Rate Stabilization Reserve (RSR) in a range of 10% to 20% of annual premiums to protect motorists from rate increases associated with unexpected events and losses arising from non-recurring events or factors. While this percentage of premiums (POP) methodology provides a simple and transparent mechanism that is effectively indexed to the size of the enterprise, concerns were expressed that the POP method bore no relationship to the actual risks facing MPI, which could well be increasing or decreasing through time.

The first attempt to devise a strategy to set the RSR on the basis of risk assessment was the Risk Analysis Approach (RAA), introduced by MPI in the 2000 GRA and subsequently known as the Operational and Investment Risk Analysis or RA/VaR. The RA/VaR approach would have used statistical analysis of the pattern of underwriting income to retrieve an objective measure of risk, the 95% or 97.5% confidence intervals associated with the historical experience of the volatility of MPI's operations. This approach was discussed at several GRAs between 2000 and 2009 but MPI raised concerns that the annual data available for this analysis was too limited and did not reflect current operations and risks.[2]

The RA/VaR approach, while never formally implemented to set the RSR range, did serve one useful purpose. It redirected the discussion of risk analysis to a more scientific approach

1 2017 GRA – MPI Exhibit #14 at http://www.pubmanitoba.ca/v1/pdf/mpi17/mpi-14.pdf

2 In principle, the hypothesis of growing (or declining) risk could be tested within the RA/VaR framework as a rise (or decline) in the net income volatility, but the limited number of annual data points (well under 30) hampered the reliability of such testing.

involving the specification of a risk tolerance level, corresponding to the confidence level used in the RA/VaR statistical analysis. A confidence level commonly adopted is 97.5%, which would correspond to an event having a 2.5% annual chance of occurring, or a one-in-forty year event. This standard has been endorsed by Board Order No. 150/07 which accepted that the "RSR should be large enough to be able to withstand an unforeseen loss of a magnitude not anticipated to occur more than once in 40 years."

MPI introduced the Minimum Capital Adequacy Test (MCT) in the 2005 GRA to establish a target for the RSR. The MCT is relatively easy to calculate and associates risks with the current financial statements of MPI. It is recognized by the Office of the Superintendent of Financial Institutions (OSFI). Discussions at the time of its introduction revolved around the fact that it does not address the specific risks facing MPI, since the MCT was designed to assess the capital required for a private company in a competitive industry to forestall insolvency. The MCT methodology uses a common risk assessment of the insurance industry despite the differing risk profiles and insolvency concerns of private insurers in competitive insurance markets and crown corporation monopolies like MPI that are protected from insolvency by the government and the same taxpayers who purchase vehicle insurance. Thus, MPI's recommended RSR target range of 50% to 100% MCT in the 2007 GRA lacked any analytical method or direct evidence that related this recommendation to the risks facing a crown monopoly insurance provider.

Board Order 157/08 indicated a desire to bring about "a consensus on a RSR target range that can be accepted by all parties." MPI's response was to once again change emphasis in the 2010 GRA to favour use of the Dynamic Capital Adequacy Test (DCAT) to establish a RSR target. The DCAT reports were initially commissioned by MPI to assess the future financial condition of Basic insurance operations but the report was now to be relied upon to substantiate MPI's proposed RSR target level. Reservations about the DCAT rested, at least in part, on the choice of plausible adverse scenarios. Initially, a large catastrophe scenario equal to twice the largest adverse event experienced by MPI and a second scenario assuming that inflation increased by 3% per year for five years were analyzed, although the plausibility of scenarios of this nature in terms of established risk tolerance standards such as the 97.5% confidence level (a one-in-forty years event) could not established. While these scenarios illustrate that it is not difficult to imagine highly implausible scenarios or stress tests that would present serious risk to MPI, a more informative if more challenging approach would be to develop scenarios that are plausible according to established risk tolerance levels and consistent with applicable historical evidence.

MPI acknowledged in the DCAT report for the 2010 GRA (p.4) that previous DCAT scenarios "were generic and not formulated with significant input from management regarding the company's specific circumstances and specific management action" and that the DCAT analysis would now be "closely integrated with the risk identification process." Moreover, the DCAT procedures would henceforth be performed "in house" rather than commissioned to an outside agency, allowing for greater integration of the DCAT with MPI's operational risk issues. In subsequent GRA hearings and technical conferences, this approach appeared to achieve a significant degree of consensus, provided that the methodology was transparent and consistent with established risk tolerance preferences (centered around the 1-in-40 year standard).

Preference for the DCAT over previous approaches rested on the direct connection of specific and justifiable risks, posed as adverse events grounded in the analysis of historical evidence, to the future financial condition of MPI. One drawback was that the DCAT, unlike the POP and

RA/VaR approaches, provided only a RSR target and not a range. The POP originating from the Kopstein Report had been retained to this point to establish an RSR range, while the other three methodologies (RA/VaR, MCT and DCAT) were provided as additional information. The implication of the POP range was that ratemaking action should be taken to restore the RSR when it fell short of the minimum (10% of premiums, currently about $108M) and to reduce the RSR when it exceeded the maximum (20% of premiums, currently about $215M). While the DCAT process did not naturally produce a RSR range, a range could be produced by setting low and high risk tolerance levels for the specified adverse scenarios. MPI proposed instead a hybrid approach in which the DCAT produced an RSR target, effectively a minimum or lower threshold, and the RSR maximum or upper threshold would be set to provide an MCT of 100%. This hybrid approach has not been accepted by the PUB or stakeholders. PUB Order 162/16 (pp. 60-61) rejects the use of the MCT criterion to set RSR thresholds in favour of a consistent application of the DCAT:

> "The Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for the purposes of setting Basic target capital levels, expressed in terms of Basic total equity. . . For purposes of setting the upper threshold of the Basic target capital range, the Board withdraws its support for the use of the MCT and a MCT threshold ratio of 100%."

In this chronology of events it is difficult to understand how proposals in the current GRA and DCAT Report that relate the RSR targets to specific MCT levels represents a step forward. Rather, it raises the old issues. The MCT is designed to assess the capital required for a private company in a competitive industry to forestall insolvency. As such, it is not linked to the specific risks facing MPI as a monopoly crown insurer except insofar as an MCT level can be determined from RSR target levels calculated in the DCAT analysis. The DCAT is able to capture specific financial risks as they evolve while the MCT approach cannot. Moreover, it raises again the questions around the setting of appropriate MCT levels for a monopoly crown corporation that does not face the competitive and insolvency challenges of the private insurance industry. In other words, what would be the justification for a RSR range associated with MCT levels of 34% and 85% in the 2019 GRA (RSR.2, p.3) or previous recommendations for an upper RSR target of 100%, other than their connection to specific DCAT scenarios? Indeed, there is little to recommend the MCT methodology over the longstanding Percentage of Premiums approach, since both approaches are indexed to the size of MPI's operation but both lack any apparent link to the justifiable risks that the Corporation would face.

A considerable amount of time has been devoted this decade to developing a transparent and collaborative DCAT process for risk assessment as the basis, along with the traditional POP methodology, for the RSR range. What has occurred to the risk profile of MPI, beyond what is captured in the DCAT methodology, that would argue for consideration of yet another approach to setting the RSR range? Absent such events, the current POP and DCAT methodologies should continue to inform the setting of the RSR range.

3. Interest Rate Forecasting in the 2019 DCAT Report

The purpose of the RSR continues to be to "protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors." The focus is on risk to MPI as we would normally understand it in a statistical sense, i.e. unexpected and non-recurring adverse events that would lead to significant losses requiring substantial and unanticipated rate increases. As the current GRA indicates, a strong collaborative effort has been made since 2010 to develop an in-house DCAT methodology to assess these risks as input to determining an appropriate RSR target range. Indeed, MPI now claims that "it is optimistic that both parties are close to reaching a consensus on a permanent and stable RSR methodology" (RSR.4, p.4). It is therefore curious to see the apparent reversion to expressing RSR targets in terms of specific MCT levels that reflect neither the risks assessed in the DCAT analysis nor the circumstances of a monopoly crown insurer, as discussed in the previous section.

The collaborative effort on the DCAT has produced tangible results, including general agreement on appropriate adverse scenarios and the methodology to assess them. The DCAT report in this GRA reflects those general understandings, albeit in the context of an unusual period of low interest rates. One consequence of the low-interest rate era has been an interest rate decline scenario that necessarily lacks grounding in historical evidence and continues to be based on *ad hoc* assumptions, as has been discussed in previous PUB hearings.

Another consequence of the era of low interest rates in the aftermath of the recession of 2008 has been a challenging period for interest rate forecasting. The DCAT methodology relies on a base scenario that includes "a realistic set of assumptions that are used to forecast the insurer's financial position over the forecast period" (DCAT.1.2, p.6), including assumptions about interest rates going forward. In statistical terms, this "realistic set of assumptions" should provide the most likely outcome that is not biased toward less likely adverse or favourable outcomes.

The interest rate assumptions have traditionally been based on the Standard Interest Rate Forecast (SIRF) that is a simple average of the forecasts from Canadian financial institutions (the 5 major Canadian Banks and Global Insight) that have a strong track record, substantial forecasting resources, and significant vested interests devoted to providing good interest rate forecasts. Since the 2008 recession, the SIRF has predicted that interest rates will rise going forward as the economy recovers. In hindsight, the SIRF has been too optimistic about economic recovery and has overestimated interest rates, as the now familiar Fig. Inv-10 (Inv2.3.1, p.28) illustrates. The foundation for rising interests remains solid, as there are limitations on the extent to which interest rates can fall without severe monetary disruption and economic recovery has historically been associated with rising interest rates to prevent an excessively rapid economic expansion and undue inflationary pressure. Those foundations remain and the SIRF continues to predict rising interest rates, albeit at a slower pace than earlier forecasts.

The current GRA continues to argue for a naïve interest rate forecast that keeps the 10-year Government of Canada benchmark bond yield at its value as of February 28, 2018 (2.24%) until the fourth quarter of 2022. MPI argues that the naive interest rate forecast is superior to both the SIRF and a 50/50 forecast that averages the SIRF and the naïve forecast because the naïve forecast has a smaller standard forecast error of 0.15 compared to 0.16 for the 50-50 forecast and

0.18 for the SIRF. These differences in forecasting accuracy are modest, as MPI acknowledges (2019 GRA Information Requests – Round 1 CAC (MPI) 1-4 (a)). Moreover, as the economy begins to recover in a more typical fashion in the previous two years, the SIRF has clearly outperformed the naïve forecast (Figure INV-11, INV2.3.1, p.29). In the 2017 GRA, the SIRF forecast of 1.76% for the 10-year bond rate only differed from the realized rate of 1.64% by 0.12%, whereas the naïve forecast of 1.19% underestimated the rate by 0.45%. In the 2018 GRA, the SIRF forecast of 2.10% missed the actual rate of 2.24% by 0.14%, whereas the naïve forecast of 1.64% again underestimated the rate, this time by 0.60%. The SIRF has actually been quite close to the actual rate both years, while the naïve forecast has consistently underestimated it.

In response to the previous GRA, the PUB directed that MPI use a 50/50 interest rate forecast for rate setting and target capital (PUB Order 130/17 Directive 11.19). It is therefore difficult to understand why MPI would continue to advocate the naïve interest rate forecast, since it has done worse than both the 50/50 and SIRF forecasts in recent years. Reliance on the naïve interest rate forecast for 2019 GRA also ignores recent developments in which the Bank of Canada has already twice raised the overnight lending rate this year, labelling the Bank of Canada's "policy rate" to be "not material" (2019 GRA Information Requests – Round 1 CAC (MPI) 1-6). This response flies in the face of both common knowledge about the conduct of modern monetary policy and the Bank of Canada's clear official position, based on leading research:

> "Following the announcement of the Bank's policy action to increase its target for the overnight rate, the actual overnight interest rate adjusts almost instantly. As the overnight interest rate rises, two responses are observed. First, the hike in the overnight rate leads to an increase in longer-term interest rates in Canada. This increase occurs because there is an entire spectrum of financial assets, ranging from overnight loans to 30-year bonds, and their rates tend to move together."[3]

Indeed, each quarterly *Monetary Policy Report* begins with a discussion of Canada's inflation control strategy which reads:

> "The Bank carries out monetary policy through changes in the target for the overnight rate of interest. These changes are transmitted to the economy through their influence on market interest rates, domestic asset prices and the exchange rate, which affect total demand for Canadian goods and services. The balance between this demand and the economy's production capacity is, over time, the primary determinant of inflation pressures in the economy."[4]

We should not expect these increases in the policy rate, and their influence on longer term bond yields in the future, to stop. At the latest meeting on the policy rate, the Bank of Canada concluded that: "Recent data reinforce Governing Council's assessment that higher interest rates will be warranted to achieve the inflation target. We will continue to take a gradual approach, guided by incoming data. In particular, the Bank continues to gauge the economy's reaction to

3 "Monetary Policy: How It Works, and What it Takes" (https://www.bankofcanada.ca/publications/books-and-monographs/why-monetary-policy-matters/4-monetary-policy/ , section 4.1)

4 *Monetary Policy Report July 2018* at https://www.bankofcanada.ca/wp-content/uploads/2018/07/mpr-2018-07-11.pdf but this is repeated in every quarterly issue.

higher interest rates,"[5] a theme that has been repeated consistently in the Bank of Canada's *Monetary Policy Reports* throughout 2018.[6] The same report notes that the Canada's annual inflation rate rose to 3% in July which was "higher than expected." It was also the highest inflation figure since 2011,"[7] which provides yet another indication that further increases in the policy interest rate to counter rising inflation are likely to occur quite soon. The naïve interest rate forecast used by MPI explicitly ignores this important information from our central banking authority and other sources (2019 GRA Information Requests – Round 1 CAC (MPI) 1-8 (b)).

Equally puzzling is MPI's claim that the naïve forecast is unbiased since it "produces an estimate that is statistically the same as the actual forecast. That is, the actual difference of the naïve to the actual forecast is between 0.48% and -0.17%, with 95% confidence (2019 GRA Information Requests – Round 1 CAC (MPI) 1-6 (c))." This reference to forecasting accuracy provides no information about bias, since even an accurate forecast would be biased if it had a low standard error of forecast and consistently overpredicted or underpredicted interest rates. But recent naïve forecasts, which have underpredicted interest rates by 0.45% and 0.60%, and recent economic events, all of which point toward higher interest rates as the economy approaches full capacity, imply a much higher probability that the naïve forecast will underpredict than overpredict interest rates. In that sense, the naïve forecast is more likely to be biased in the current economic environment than the forecasts of modestly rising interest rates provided by the SIRF and 50/50 forecast methodologies.

Choice of the naïve interest rate forecast in the 2019 GRA against the PUB's latest directive and recent economic and monetary policy developments has important implications. Figure INV-12 (INV2.3.2, p.29) shows that the break even rate indication is 0.1% under the naïve interest rate forecast but -0.5% under the 50/50 forecast and -1.0% under the SIRF. Since the 50/50 forecast used in previous hearings and the SIRF both seem to be better forecasts today, the current GRA seriously overstates break even rate requirements.

CAC (MPI) 1-18 suggests that the 50/50 interest rate forecast slightly improves MPI's financial position, as Total Equity is higher under the 50/50 forecast than the naïve forecast throughout, but the basis of this comparison is the proposed rate increase of 0.1% under the naïve forecast for both base scenarios and ignores the break even rate increase of -0.5% implied by the 50/50 forecast. Nonetheless, it suggests that the finding of satisfactory financial condition for Basic under the naïve forecast (DCAT.1, p.4) will not be adversely affected by adoption of the 50/50 or SIRF forecasts.

It is not clear what effect the use of the 50/50 interest rate forecast or SIRF in place of the naïve forecast might have on the DCAT analysis of the four adverse scenarios used to inform the setting of the RSR range. There are, however, two interesting developments in the DCAT report to note:

(1) The high loss ratio scenario has replaced the equity decline and interest rate decline scenarios as the most important individual adverse event (Figure RSR-2, RSR4.5.1.2,

5 https://www.bankofcanada.ca/2018/09/fad-press-release-2018-09-05/
6 The quarterly *Monetary Policy Reports* for January through July, 2018 are at https://www.bankofcanada.ca/publications/mpr/
7 https://www.ctvnews.ca/business/annual-inflation-rate-jumped-to-3-per-cent-in-july-highest-reading-since-2011-1.4056819

p.12). This seems, at least in part, to reflect a degree of success in management action to reduce interest rate and investment risk through the Asset and Liability Management (ALM) program (RSR4.6, p.19).

(2) The levels of risk implied by the calculated RSR thresholds in the DCAT have fallen. The lower RSR threshold in the 2019 DCAT is $120M compared to $201M in the 2018 DCAT using the same methodology. MPI has rejected this result, arguing that the lower threshold must be $143 million for "satisfactory financial condition," but this is still a considerable decline over the 2018 DCAT. The upper RSR threshold is now $305M compared to a requested $438M in the previous DCAT, but the $305M represents a change in "methodology" (or, more correctly, a change in the arbitrary benchmark unrelated to the DCAT analysis of risk) from a 100% MCT for the upper threshold in 2018 to 85% in 2019. This still appears to indicate declining risk.

4. Recommendations

(1) The current POP and DCAT methodologies should continue to inform the setting of the RSR range. MCT levels should not inform the RSR range.

(2) The 50/50 interest rate forecast should be used for the break even rate indication and the DCAT analysis. The naïve interest rate forecast is only marginally superior to the 50/50 forecast over the period since 2005 and inferior in recent years. The naïve interest rate forecast ignores recent monetary policy and economic events that indicate rising interest rates that are more consistent with the Standard Interest Rate Forecast.

References

Kopstein, Robert L. (1988) *Report of the Autopac Review Commission Volume 1: Summary of Main Conclusions and Recommendations*, submitted to the Honurable Glen Cummings, Minister responsible for the Manitoba Public Insurance Corporation, Winnipeg

Appendix A:

Statement of Qualification and Duties – Dr. Wayne Simpson

Qualifications

Dr. Wayne Simpson has a PhD from the London School of Economics (1977) and is a Full Professor in the Department of Economics at the University of Manitoba, where he has taught since 1979. His areas of academic expertise include labour economics, applied econometrics, applied microeconomics, quantitative methods, and economic and social policy analysis.[8] He has authored or co-authored three books and more than sixty peer-reviewed articles on these and related topics, including two papers on the impact of risk on the behaviour of the firm. He is currently on the editorial board of *Canadian Public Policy*, Canada's foremost peer-reviewed academic journal for economic and social policy, and served on the executive council of the Canadian Economics Association. He was a 2014 recipient of the McCracken award for the development and analysis of economic statistics from the Canadian Economics Association. Dr. Simpson's expertise in applied microeconomics and econometrics are especially relevant to this hearing on Manitoba Public Insurance ("MPI") rates. Applied microeconomics is the study of the behavior of individual agents (e.g., firms and households) in the market using modern theory and empirical methods. It seeks to apply the analysis to practical problems such as risk management and investment strategies. Applied econometrics uses specific statistical techniques, particularly regression methods, to analyze and predict economic behavior and apply it to practical social problems.

In addition to his academic career, Dr. Simpson has worked at the Bank of Canada, the federal Department of Labour, and the Economic Council of Canada. He has also served as a consultant to the private sector and government, primarily in the areas of labour economics and policy evaluation. In recent years, he has served as an expert advisor to Prairie Research Associates (PRA) Inc. and Human Resources and Skill Development Canada as well as to CAC Manitoba through the Public Interest Law Centre.

Wayne Simpson has provided expert evidence at the Public Utilities Board including at the 2014 Needs for and Alternatives to Review of Manitoba Hydro's Preferred Development Plan, the 2007-2008 and 2016 hearings to determine maximum fees for payday loans and the 2007, 2010, 2013, 2014, 2016 and 2017 Manitoba Public Insurance Rate Applications on the Rate Stabilization Reserve and investment strategy. He also provided written evidence in the 2013 payday loan review.

Wayne Simpson relies on his expertise in applied econometrics, applied microeconomics, and social policy application and analysis in this proceeding. Dr. Simpson's curriculum vitae was filed with the Manitoba Branch of the Consumers' Association of Canada's application to intervene in this proceeding.

8 His professional expertise in applied microeconomics and applied econometrics provides a foundationfor the analysis of issues related to the management of risk by firms and to the assessment of risk using modern economic and statistical techniques. His expertise also provides a framework to assess the contributions of equities, bonds and interest rates to investment risk.

Duties

The following duties were assigned to Dr. Simpson in the MPI General Rate Application. The Public Interest Law Centre retained Dr. Simpson's services to assist CAC Manitoba with its participation in the Public Utilities Board review of MPI's Application on issues related to ratemaking and interest rates.

Dr. Simpson's duties include:

- Reviewing the application
- Preparing first round information requests
- Reviewing responses to first round information requests and preparing second round information requests
- Preparing memos to client and legal counsel
- Preparing written evidence, and
- Preparing for and attending the hearing

Dr. Simpson's retainer letter also includes that his duty in providing assistance and giving evidence is to help the Public Utilities Board. This duty overrides any obligation to CAC Manitoba.

Appendix B:

Statement of Qualification and Duties – Ms. Andrea Sherry

Qualifications

Andrea Sherry received her Bachelor of Commerce (Honors) in December 1990 from the University of Manitoba with a major in Actuarial mathematics. She became a Fellow of the Casualty Actuarial Society and Fellow of the Canadian Institute of Actuaries in 2000. She became a Fellow Chartered Insurance Professional and received her Canadian Risk Management designation in 2005. She became a Certified Management Accountant in 2008 and is now a Chartered Professional Accountant, Certified Management Accountant.

Andrea Sherry is currently Vice President, Insurance Solutions at The Wawanesa Mutual Insurance Company in Winnipeg. In her current role, she is responsible for the company's actuarial pricing, product development and maintenance, as well as head office personal lines underwriting. Prior roles include work in solvency and capital, enterprise risk management and investments. She has had appointed actuary and valuation actuary roles prior to joining Wawanesa. She has worked on Dynamic Capital Adequacy Testing and internal models to satisfy the regulatory requirements in the United Kingdom (where internal models to determine capital adequacy are used by larger companies). She has also been involved in the preparation of an Own Risk Solvency Assessment.

Andrea has worked in the Property & Casualty insurance industry for over 25 years and will rely on all of the expertise she has gained, with particular emphasis on her expertise in actuarial work and investments.

Ms. Sherry's curriculum vitae was filed with the Manitoba Branch of the Consumers' Association of Canada's application to intervene in this proceeding.

Duties

The following duties were assigned to Ms. Sherry in the MPI General Rate Application. The Public Interest Law Centre retained Ms. Sherry's services to assist the Manitoba Branch of the Consumers' Association of Canada with its participation in the Public Utilities Board review of MPI's Application on issues related to actuarial ratemaking. Ms. Sherry's duties include:

- Assist in Interim Vehicle Hire Rates and Technical Conferences;
- Review of overall indication (actuarial report including long tail experience, claims forecast, actuarial rate indication calculation);
- Review of rates and methodology of Driver Safety Rating;
- Review of rates and methodology of Vehicles for Hire;
- Critical Review of Capital Maintenance Provision;
- Review for reasonableness and industry comparison of Asset Liability Management study;
- Develop first round Information Requests;

- Review RSR/DCAT submission;
- Review of first round Information Request responses;
- Develop second round Information Requests;
- Review second round Information Request responses; and
- Hearing preparation.

Ms. Sherry's retainer letter includes that she is to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within her area of expertise; and
- to provide such additional assistance as the Public Utilities Board may reasonably require to determine an issue.

The Capital Maintenance Provision Proposal by Manitoba Public Insurance

Manitoba Public Insurance

2019/20 GRA

Consumers' Association of Canada (Manitoba)

Submitted by the Public Interest Law Centre

Co-Authored by Dr. Wayne Simpson

and Ms. Andrea Sherry

September 27, 2018

The Capital Maintenance Provision Proposal by Manitoba Public Insurance 2019 General Rate Application

This report reviews the appropriateness of the introduction of the concept of a Capital Maintenance Provision (CMP) in the 2019 Manitoba Public Insurance (MPI) General Rate Application (GRA). This report is related to Dr. Wayne Simpson's evidence "The Role of the DCAT and Interest Rate Forecasting in the 2019 MPI GRA" because the CMP is a new complication in the journey to consensus on the setting of MPI's Rate Stabilization Reserve (RSR) range. The introduction of the new concept of a CMP is contrary to the work that has been done to date on this subject.

Relying on a naïve forecast of interest rates, MPI, in its 2019 GRA to the Public Utilities Board (PUB), has applied for a 2.2% overall increase in Basic vehicle premiums. This increase is comprised of a 1.1% decrease based on Accepted Actuarial Practice in Canada (including a 1.2% decrease in the required rate change due to the investment income earned on the Rate Stabilization Reserve (RSR)) and a 3.3% increase for the newly introduced CMP.

The CMP is calculated based on a projected Minimum Capital Test ratio for fiscal year end 2019/20 that remains unchanged from the projected MCT ratio at fiscal year-end 2018/19. The MCT ratio forecasted for the fiscal year end 2018/19 includes the applied for rate change of -1.1%.

There are several issues with the introduction of a Capital Maintenance Provision to the 2019 GRA which are outlined below.

1. **The CMP was never approved by the PUB nor was consensus reached on it by the stakeholders.**

A technical conference was held on March 2, 2018 with the goal of reaching consensus on a Capital Maintenance Provision, as well as seeking consensus on certain matters relating to the interpretation of rate setting in accordance with Accepted Actuarial Practice in Canada. On review of the transcript of this technical conference and the notes distributed it is clear that no consensus was reached and the exchanges did not indicate that MPI would introduce a CMP in the 2019 GRA. In Order 130/17 the PUB expressed some support for the concept of a CMP but did not direct the Corporation to include this in the 2019 GRA. From Page 5 of Order 130/17 the PUB asks that "a technical Conference be held on the issue, and any findings therefrom be incorporated into the 2019 General Rate Application (GRA)." The technical conference did not conclude that a CMP was required in addition to the RSR. Therefore, it was not appropriate to rely on a claim of consensus to introduce a CMP in the 2019 GRA. In response to CAC (MPI) 1-72 the Corporation states "After hearing from PUB advisers and representatives from SGI and the CAC, the Corporation agreed that it was appropriate to include a Capital Maintenance Provision in the 2019 GRA." A full review of the transcript of the technical conference held gives no indication that the Consumers Association of Canada (CAC) supports the use of a CMP.

2. The CMP has not been vetted by the public.

When asked in Information Request CAC (MPI) 1-1 what steps had been take to engage with Manitoba consumers/ratepayers on the concept of the capital maintenance provision the Corporation responded that they "did not consult ratepayers/consumers on any of the above noted issues". The Corporation stated reasons for this such as "Anyone wishing to voice support or opposition to the requested rate change can do so through the PUB's online comment tool, in writing, or in person at the public hearing itself. Anyone wishing to test the rate request can apply for standing as an intervener or, presumably, seek to have an existing intervener advance any concerns on their behalf." and that complex issues "are unlikely to garner constructive feedback through a public consultation process." In response to CAC (MPI) 2-25 MPI states "Broader public understanding and/or support for the rate requests, while desirable, does not influence MPI's decision to apply for rates or capital provisions as mandated by the Act."

The introduction of the CMP into the 2019 GRA is a significant change in the requested rate change calculations and theoretical approach to capital by the Corporation. The public deserves to have its voice heard on this significant change. We would argue that the concept is not overly complex and that a lay person would be very clear on it if explained in non-technical language.

The use of a CMP was supported by the use of one by Saskatchewan Government Insurance (SGI). This is not valid because SGI does not put through rate changes every year and their methodology has only been reviewed in one rate program (2014). It has not been put through any sort of public review in Saskatchewan, as indicated by Chris McCulloch of SGI during the technical conference. The last rate change in Saskatchewan was effective August 31, 2014 when the government of Saskatchewan approved a 3.4% rate increase by SGI plus a 1.0% increase to the capital amount for a total overall average increase of 4.4%. SGI's rate and capital needs cannot be compared to MPIs because SGI's rates are not reviewed annually and increases taken annually when warranted.

3. The CMP does not align with Accepted Actuarial Practice in Canada.

In response to CAC (MPI) 1-78 the Corporation states that it "is not aware of the existence of any industry, gray and peer-reviewed literature regarding the need for and the methodology to establish a Capital Maintenance Provision (CMP) for non-profit, monopoly, public auto insurers, and therefore did not review any. The CMP is simply a tool for maintaining capitalization from year-to-year, based on a standard industry measure of capitalization (i.e. the Minimum Capital Test ratio). Even if such literature existed, the Corporation does not believe it was necessary, in the circumstances, to review it in order to recognize the need for a CMP and to establish the methodology."

This response makes it clear that the use of a CMP is not normal actuarial practice and is not supported by any type of analysis or research in the industry.

4. The use of an MCT target to set a CMP level is arbitrary and not board approved.

In response to CAC (MPI) 1-74 the Corporation states that it "does not believe that the use of an MCT ratio equal to the projected ratio is the "ideal" MCT ratio to rate to. In this case, it is simply the MCT ratio at which capitalization is maintained for the 2019/20 fiscal year, the year the rates applied for are written. It is inappropriate to target a capital maintenance provision (CMP) beyond the fiscal year 2019/20, as any rate changes approved in the 2020 GRA could affect the 2020/21 fiscal year."

This response makes the point that the MCT used to calculate the proposed CMP in the 2019 GRA has no basis in actual capital need but is an arbitrary figure used to force through a CMP in this application. The application does not put forth a clear explanation for the use of an MCT ratio that would be appropriate to determine a rate increase.

The Board has shown support for setting the required capital range for the Corporation based on the DCAT analysis. From Board Order 130/17 Page 79 "the Board understands the merits of the MCT for providing a relatively simple, convenient and objective metric of Basic's relative financial strength. Nevertheless, the Board continues to prefer to have the upper threshold determined in a like manner to the lower threshold, thereby directly reflecting Basic's risk profile through scenario testing substantially modeled from Basic's own experience."

The determination of a required rate increase to ensure a constant MCT is contrary to the PUB's preference that the DCAT analysis be used to determine rate need based on the Corporation's risk profile.

5. The CMP does not align with the Board approved methodology for calculating the amount of capital the Corporation requires nor is it consistent with work to date.

Board Order 130/17 directive 11.20 states "For fiscal year 2017/18, the lower threshold for the Basic Total Equity will be $180 million, based on the iterative modelling approach over a two-year time horizon at a 1-in-40-year (97.5th percentile) outcome level after routine management / regulatory actions". Board Order 130/17 directive 11.21 states "For fiscal year 2017/18, the upper threshold for Basic Total Equity will be $325 million, based on the iterative modeling of a 1-in-40-year scenario over a two-year time horizon after routine management / regulatory actions."

The proposed CMP does not align with this directive and has not been approved for use by the Board.

From Board Order 130/17 page 29: "The Board finds the Corporation's approach, in excluding the expected return on investment assets supporting Basic Total Equity, to be inconsistent with the break-even objective that has been a foundation of Basic rate-setting. The Corporation estimated that including this source of revenue in estimating the Basic overall rate indication reduces its estimate of the Basic overall rate indication from a 2.7% increase to a 1.6% increase, a decline of 1.1 percentage points, based on an assumed Basic capital level in line with the Application's financial forecast. While the Board does consider this approach to be inconsistent with the break-even objective, the Board appreciates the need to protect Basic's capital position

against depletion due to the natural growth in Basic's risk profile, i.e., the expectation for Basic claim liabilities (and investment portfolio) to grow over time since the addition of new claims is expected to outpace the settlement and closing of old claims. The Board believes a properly constituted Capital Maintenance Provision, loosely based on that developed by Saskatchewan Auto Fund, can legitimately be considered as a necessary Basic expense cash flow for rate-setting purposes while remaining consistent with the break-even objective."

When reviewing this excerpt it is important to consider that the RSR balance goes from an actual of $211 million in 2017/18 to forecasts of $254 million and $280 million in 2018/19 and 2019/20, respectively, with MPI's proposal. The profit of the Corporation is forecast to be $18 million in 2019/20 based on MPI's proposal (PF.1). MPI's capital position is such that even with no rate increase the forecasted RSR balance at the end of 2019/20 is at 84% ($257/$305) using the method MPI is suggesting and at 102% ($257/$251) using the PUB approved method as a percentage of the top end of the RSR range. This indicates that there is no urgency to implement any sort of capital build provision. These figures are not consistent with a break even objective.

In response to CAC (MPI) 2-20 a) the Corporation states "The forecasted implementation of the Corporation's new investment portfolio has lowered the minimum of the RSR range as of February 28, 2019. However, a Capital Maintenance Provision is required to offset the decline in the MCT ratio from February 28, 2019 to February 29, 2020." and in b) "The Corporation is applying for a 0.1% rate increase with a 2.1% Capital Maintenance Provision. The Corporation believes that the 2.1% Capital Maintenance Provision is fair to rate payers because: i) it represents the increased risk associated with the natural growth of the business as a result of the new policy holders; and ii) it maintains the capital level that protects rate payers from potential rate shock from future unforeseen adverse events." It is difficult to reconcile these assertions with the reality that the DCAT analysis has shown that the risk profile of the Corporation requires a decrease in the RSR range. The RSR range will go up in dollar terms as the size of the Corporation increases. This negates the need for a CMP.

6. The introduction and basis for a CMP in the 2019 GRA is incomplete.

In response to CAC (MPI) 1-74 the Corporation states that "The use of a CMP, as calculated in the current rate application, does not result in the need for a rebate in the future. Rebates would be determined based on the upper RSR target and/or the application of a Capital Release provision (presently not in place). Regardless of the capitalization level of Basic, the Corporation still calculates the appropriate CMP for the policyholders in a particular year. The Corporation then determines the need for a build (surcharge) or release (rebate), based on the current level of the MCT, relative to the lower and upper RSR targets. If the MCT ratio were above the upper RSR target range, the Corporation would likely request a rebate. The Corporation is currently developing a Capital Management Plan to, among other things, address this question. However, for the current GRA, the 2018/19 MCT ratio is within the calculated lower and upper RSR target. As a result, the Corporation did not request either a rebate or surcharge."

The CMP was introduced in the 2019 GRA without complete review and analysis of the Corporation's actual capital plan and needs. Neither a Capital Release provision nor a Capital Management plan have been reviewed and analyzed.

Further, the introduction of a CMP to the process is contrary to the work that has occurred in prior years to bring the DCAT and RSR range discussion to the point it is now. The Board has shown support for the use of the DCAT adverse scenarios to set the lower and upper targets for the RSR. The DCAT links the Corporation's risk profile to the amount of capital it should hold to withstand plausible adverse scenarios. In response to CAC (MPI) 2-18 the Corporation states "In short, while the RSR target levels will move over time based on changes to the Company's risk profile and resulting DCAT analysis – the CMP is needed to ensure that the actual capital position does not deteriorate with changes in Basic's risk profile, as measured by the MCT ratio." This suggests that the use of the DCAT to set the RSR range will adjust to any changes in the Corporation's risk profile and, therefore, go up as needed to fit that profile. A CMP is not needed on top of a carefully analyzed DCAT and resulting RSR range.

7. **The introduction of a CMP in the 2019 GRA would introduce intergenerational inequity.**

With a CMP in place the Corporation is building capital by collecting extra premium from those policyholders in place during the rating year in question. The capital collected is built up until a rebate is required. This creates a separation from those rate payers who contributed the dollars to build the Corporation's capital up and those who would receive the rebate.

In response to CAC (MPI) 2-11 a) MPI argues that "Prudent fiscal management requires MPI build capital in advance of adverse events, so as to protect ratepayers against rebuilding fees, and insulate the province's consolidated financial statements." We would argue that going through the DCAT analysis yearly, determining the true capital need of the Corporation based on adverse scenario analysis, determining the RSR range based on the adverse scenario results and holding capital within the RSR range is prudent fiscal management and that holding capital on top of what is held within the RSR range is improper use of rate payers money.

Conclusion

The recommendations below are based upon the belief that MPI should hold capital within a RSR range determined by a fully vetted DCAT process and charge rates that will keep capital within that range until the next DCAT process determines a new range. This will allow policyholders to have confidence in MPI's continued strong financial position.

Recommendations:

1. The PUB order that the CMP be removed from the 2019 GRA.
2. The DCAT methodology should be used to set the RSR range.
3. The PUB approve a decrease in rates based on the 50/50 interest rate forecast and Accepted Actuarial Practice in Canada, that would include the investment income on the RSR.

Appendix A:

Statement of Qualification and Duties – Dr. Wayne Simpson

Qualifications

Dr. Wayne Simpson has a PhD from the London School of Economics (1977) and is a Full Professor in the Department of Economics at the University of Manitoba, where he has taught since 1979. His areas of academic expertise include labour economics, applied econometrics, applied microeconomics, quantitative methods, and economic and social policy analysis.[1] He has authored or co-authored three books and more than sixty peer-reviewed articles on these and related topics, including two papers on the impact of risk on the behaviour of the firm. He is currently on the editorial board of Canadian Public Policy, Canada's foremost peer-reviewed academic journal for economic and social policy, and served on the executive council of the Canadian Economics Association. He was a 2014 recipient of the McCracken award for the development and analysis of economic statistics from the Canadian Economics Association. Dr. Simpson's expertise in applied microeconomics and econometrics are especially relevant to this hearing on Manitoba Public Insurance ("MPI") rates. Applied microeconomics is the study of the behavior of individual agents (e.g., firms and households) in the market using modern theory and empirical methods. It seeks to apply the analysis to practical problems such as risk management and investment strategies. Applied econometrics uses specific statistical techniques, particularly regression methods, to analyze and predict economic behavior and apply it to practical social problems.

In addition to his academic career, Dr. Simpson has worked at the Bank of Canada, the federal Department of Labour, and the Economic Council of Canada. He has also served as a consultant to the private sector and government, primarily in the areas of labour economics and policy evaluation. In recent years, he has served as an expert advisor to Prairie Research Associates (PRA) Inc. and Human Resources and Skill Development Canada as well as to CAC Manitoba through the Public Interest Law
Centre.

Wayne Simpson has provided expert evidence at the Public Utilities Board including at the 2014 Needs for and Alternatives to Review of Manitoba Hydro's Preferred Development Plan, the 2007-2008 and 2016 hearings to determine maximum fees for payday loans and the 2007, 2010, 2013, 2014, 2016 and 2017 Manitoba Public Insurance Rate Applications on the Rate Stabilization Reserve and investment strategy. He also provided written evidence in the 2013 payday loan review.

Wayne Simpson relies on his expertise in applied econometrics, applied microeconomics, and social policy application and analysis in this proceeding. Dr. Simpson's curriculum vitae was

1 His professional expertise in applied microeconomics and applied econometrics provides a foundationfor the analysis of issues related to the management of risk by firms and to the assessment of risk using modern economic and statistical techniques. His expertise also provides a framework to assess the contributions of equities, bonds and interest rates to investment risk.

filed with the Manitoba Branch of the Consumers' Association of Canada's application to intervene in this proceeding.

Duties

The following duties were assigned to Dr. Simpson in the MPI General Rate Application. The Public Interest Law Centre retained Dr. Simpson's services to assist the Manitoba Branch of the Consumers' Association of Canada with its participation in the Public Utilities Board review of MPI's Application on issues related to ratemaking and interest rates.
Dr. Simpson's duties include:

- Reviewing the application;
- Preparing first round information requests;
- Reviewing responses to first round information requests and preparing second round information requests;
- Preparing memos to client and legal counsel;
- Preparing written evidence; and
- Preparing for and attending the hearing.

Dr. Simpson's retainer letter also includes that his duty in providing assistance and giving evidence is to help the Public Utilities Board. This duty overrides any obligation to CAC Manitoba.

Appendix B:

Statement of Qualification and Duties – Ms. Andrea Sherry

Qualifications

Andrea Sherry received her Bachelor of Commerce (Honors) in December 1990 from the University of Manitoba with a major in Actuarial mathematics. She became a Fellow of the Casualty Actuarial Society and Fellow of the Canadian Institute of Actuaries in 2000. She became a Fellow Chartered Insurance Professional and received her Canadian Risk Management designation in 2005. She became a Certified Management Accountant in 2008 and is now a Chartered Professional Accountant, Certified Management Accountant.

Andrea Sherry is currently Vice President, Insurance Solutions at The Wawanesa Mutual Insurance Company in Winnipeg. In her current role, she is responsible for the company's actuarial pricing, product development and maintenance, as well as head office personal lines underwriting. Prior roles include work in solvency and capital, enterprise risk management and investments. She has had appointed actuary and valuation actuary roles prior to joining Wawanesa. She has worked on Dynamic Capital Adequacy Testing and internal models to satisfy the regulatory requirements in the United Kingdom (where internal models to determine capital adequacy are used by larger companies). She has also been involved in the preparation of an Own Risk Solvency Assessment.

Andrea has worked in the Property & Casualty insurance industry for over 25 years and will rely on all of the expertise she has gained, with particular emphasis on her expertise in actuarial work and investments.

Ms. Sherry's curriculum vitae was filed with the Manitoba Branch of the Consumers' Association of Canada's application to intervene in this proceeding.

Duties

The following duties were assigned to Ms. Sherry in the MPI General Rate Application. The Public Interest Law Centre retained Ms. Sherry's services to assist the Manitoba Branch of the Consumers' Association of Canada with its participation in the Public Utilities Board review of MPI's Application on issues related to actuarial ratemaking.

Ms. Sherry's duties include:

- Assist in Interim Vehicle Hire Rates and Technical Conferences;
- Review of overall indication (actuarial report including long tail experience, claims forecast, actuarial rate indication calculation);
- Review of rates and methodology of Driver Safety Rating;
- Review of rates and methodology of Vehicles for Hire;
- Critical Review of Capital Maintenance Provision;
- Review for reasonableness and industry comparison of Asset Liability Management study;
- Develop first round Information Requests;

- Review RSR/DCAT submission;
- Review of first round Information Request responses;
- Develop second round Information Requests;
- Review second round Information Request responses; and
- Hearing preparation.

Ms. Sherry's retainer letter includes that she is to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within her area of expertise; and
- to provide such additional assistance as the Public Utilities Board may reasonably require to determine an issue.

MPI'S INVESTMENT PORTFOLIO:
ASSET/LIABILITY ANALYSIS
AND PREVIOUS RECOMMENDATIONS

MANITOBA PUBLIC INSURANCE 2019/20 GRA

MANITOBA BRANCH OF THE CONSUMERS' ASSOCIATION OF CANADA
(CAC MANITOBA)

SUBMITTED BY THE PUBLIC INTEREST LAW CENTRE
AUTHORED BY VALTER VIOLA

OCTOBER 3, 2018

Contents

Introduction 2
Executive Summary of Recommendations 6
Part I. Support for Recommendations 7
Part II. Recommendations from Two Years Ago 23
Appendices 26
Attachments 43
References 44

INTRODUCTION

TERMS OF REFERENCE AND DUTIES

I was retained by the Manitoba Branch of the Consumers' Association of Canada ("CAC Manitoba" or the "CAC") to advise and assist on issues related to MPI's portfolio. As stated in my terms of retainer, it is my duty to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within my area of expertise; and
- provides such additional assistance as the Public Utilities Board ("PUB") may reasonably require to determine an issue.

My duties include: preparation and attendance, via telephone, of the Asset Liability Management Study Technical Conference in March 2018; conducting a detailed review of the 2019-20 General Rate Application ("GRA"); preparing first round information requests ("IRs"); reviewing responses to first round IRs and preparing second round IRs; reviewing second round IR responses; preparing written evidence; and preparing for and attending the hearing.

I understand that my duty in providing assistance and giving evidence is to help the PUB, and this duty overrides any obligation to the CAC.

RATE APPLICATION MATERIALS REVIEWED

My review of the GRA focused on the investment portfolio, in particular:

- MPI's Investment Policies;
- the Asset/Liability Study conducted by Mercer (the "Mercer Study" or "Study"), and MPI's recommended changes to the portfolio that were based on the Study; and
- MPI Exhibit 12 (attached), filed by MPI on September 25, 2018 under PUB Order 124-18.

OTHER CONSIDERATIONS

I reviewed and considered the **information responses** prepared by MPI and/or Mercer to questions relating to the portfolio, as well as two documents that are included as attachments:

- a paper called ***MPI's Investment Portfolio: Risk, Return and Good Practice***, which I authored and filed as evidence two years ago; and
- a presentation called ***Testimony***, which I made in oral testimony during the GRA Process two years ago.

AUTHOR BACKGROUND

RELEVANT EXPERIENCE

With 25 years of experience in the institutional fund management sector, I have 12 years of combined executive, senior management, and other professional investment experience at two of Canada's largest institutional investors:

- CPP Investment Board (2000 to 2005; $367 billion today); and
- Ontario Teachers' Pension Plan (1993 to 2000; $176 billion today).

I also have more than a decade of consulting experience as an advisor to some of North America's largest institutional investors on various aspects of investment/risk management, risk measurement, and governance. Clients have included, for example, Canadian pension funds with assets under management that are about the same as those managed by MPI.

My specific expertise includes:

- investment research, economics, and risk management;
- portfolio management; and
- quantitative asset/liability modelling.

My curriculum vitae is in **Appendix 1**, and my relevant experience is described in **Appendix 2**.

P&C EXPERIENCE

As noted in the evidence that I presented two years ago, I did not have any prior work experience with property and casualty ("P&C") insurers prior to being engaged by the CAC in 2016.

ORGANIZATION OF THIS DOCUMENT

This paper consists of two parts. **Part I** contains the support for my **current recommendations** based on my review of **this year's GRA**, while **Part II** looks at any recommendations from my review of the **GRA two years ago** that have not been addressed fully by MPI.

These recommendations are grouped into the four (4) categories below.

Framework
Portfolio
Metrics
Oversight

Before looking at the recommendations, I provide some **background** information related to them. This includes re-stating two **investment beliefs** that are described more fully in Attachment A (GRA evidence from two years ago) and providing an **overview** related to **interest rate risk**, covering such topics as term risk ("duration"), and risks related to inflation, credit, and liquidity.

Attachments provide more detailed information, including the paper that I authored and filed as evidence during two years ago, and the related presentation which I made in oral testimony. **MPI Exhibit 12**, which was filed by PUB Order 124-18, is also attached. This exhibit supports many of my recommendations, and the reader should consider reading MPI Exhibit 12 first. The exhibit was filed by MPI on September 25, 2018, and was not included in the GRA.

Appendices include the preambles, written by me, and other information related to two questions[1] that prompted Mercer's analysis in MPI Exhibit 12. An appendix on "leverage" provides some context for this concept, and its inclusion in the appendix (rather than the main document) is to not detract from the paper's main points.

[1] The two questions are CAC (MPI) 84 (f) and CAC (MPI) 85 (g).

BACKGROUND TO RECOMMENDATIONS

2017/18 GRA

18 recommendations

Two years ago, I provided evidence and testimony which included 18 recommendations[2] related to MPI's investment practices.

PUB Order 124-18

The PUB ordered[3] MPI to consider these 18 recommendations, including an order to conduct a new Asset/Liability Study.

2018/19 GRA

Delay in A/L Study

Mercer was engaged to complete the Study, and Mercer's findings were included in this year's GRA (but not available for inclusion in last year's GRA).

2019/20 GRA

3 concerns:

1. *inflation risk;*
2. *real interest rate risk; and*
3. *constraints*

In the first round of this year's IRs, MPI refused to answer two questions posed by the CAC related to some analysis in the Mercer Study.[4] Both questions were motivated by my concern about the long-term risks of inflation and changing **real** interest rates, as well as the cost of imposing certain constraints (i.e., min/max limits for certain asset classes).

PUB Order 124-18 compelled MPI to answer these questions, and the answers appear in MPI Exhibit 12. The questions requested more detailed analysis about the impact on return/risk of adding RRBs to the portfolios if a **"Real"** Liability Benchmark were used in the analysis, rather than the **Nominal** Liability Benchmark that MPI relied upon to support its recent asset allocation recommendations.

The information request included a "stepped" or incremental analysis to illustrate the impacts on efficient frontiers of adding or removing different asset classes to both the Basic and Pension Portfolios using the **"Real"** Liability Benchmark, similar to the analysis that was done using the **Nominal** Liability Benchmark and described in the GRA.

Today's evidence

That brings us to today.

[2] Attachments include my evidence and testimony from two years ago.
[3] See PUB ORDER 124-18.
[4] See CAC (MPI) 84 (f) and 85 (g).

EXECUTIVE SUMMARY OF RECOMMENDATIONS

Framework	**1. Real Liability Benchmark** Re-examine the reliance on a **Nominal** Liability Benchmark, rather than a **Real** Liability Benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities. **2. Leverage Constraint** Re-examine the constraint prohibiting the use of "leverage", given the lower risk-adjusted returns that would result.
Portfolio	**3. Duration Policy "Basis" Risk** Re-examine the effectiveness of the **duration policy**, which uses (nominal) bonds as the basis for matching the inflation and real interest rate sensitivity of Basic and Pension Liabilities, since inflation **volatility** is not zero. **4. Lengthening Nominal Duration** Re-examine the decision to **lengthen** the **nominal** duration in the Basic Portfolio, given: MPI's "defensive" (lower risk) strategy; Mercer's return assumptions for bonds and RRBs; and concerns about the effectiveness of the duration policy noted above ("basis" risk). **5. Real Return Bonds** Re-examine the decision to exclude **RRBs** from both the Basic and Pension portfolios, given the better hedging characteristics of RRBs (compared to bonds), recognizing the long-term inflation and real interest rate risks inherent in the liabilities. **6. Other Real Assets** Re-examine MPI's recommended reduction in **other real assets** (real estate and infrastructure), given the low inflation protection that exists in the current portfolio and lower diversification that would result. **7. Fixed Income Risk Concentration** Re-examine the decision to concentrate risk in fixed income, rather than better diversify the sources of risk across the whole portfolio, and avoid "crowding out" risk-reducing RRBs.
Metrics	See Duration Policy "Basis" Risk
Oversight	**8. Quantitative Models** Continue to be vigilant about placing too much reliance on quantitative considerations, particularly if risk tolerances are low, given the high sensitivity of optimal asset allocations to capital market assumptions and the large number of inputs involved.

PART I. SUPPORT FOR RECOMMENDATIONS

INVESTMENT BELIEFS

My recommendations take into consideration the **five (5) investment beliefs** that are described in the evidence that I provided two years ago (Attachment A). Two of these beliefs are particularly relevant this year, and are described below.

By definition, investment beliefs have varying degrees of empirical support and theoretical justification. They are important because there is little that can be proven conclusively in the field of investments, which means we need beliefs to answer difficult questions about risk, for example, to better inform our investment strategies.

The first belief relates to the **Minimum Risk Portfolio** (called the "Liability Benchmark Portfolio" in this year's GRA and Mercer Study), and the second belief relates to **constraints**. The significance of these beliefs is summarized below.

Belief:	**MINIMUM RISK PORTFOLIO**	**CONSTRAINTS**
	*Determining the **Minimum Risk Portfolio** is the first step towards responsible long-term management of the portfolio.*	***Constraints** never increase expected risk-adjusted returns.*
Significance: (stated two years ago)	… MPI's minimum risk portfolio (MRP) should include … some … real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure). … Belief #2 simply supports the **definition** of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these … questions requires additional beliefs ...	… there appear to be two very binding constraints that may cause MPI to have lower risk-adjusted returns. These … constraints relate to: 1. HOW RISK IS DEFINED …; and 2. HOW ASSET CLASSES ARE CONSTRAINED Minimum/maximum asset allocations in optimizations conducted as part of the most recent Asset-Liability Study[5] … are overly restrictive ...
(this year)	• **Real Liability Benchmark** (Recommendation #1) • **Duration Policy "Basis" Risk** (#3) • **Lengthening Nominal Duration** (#4) • **Real Return Bonds** (#5)	• **Leverage Constraint** (Recommendation #2)

[5] This reference was to the AON Study (not MERCER Study).

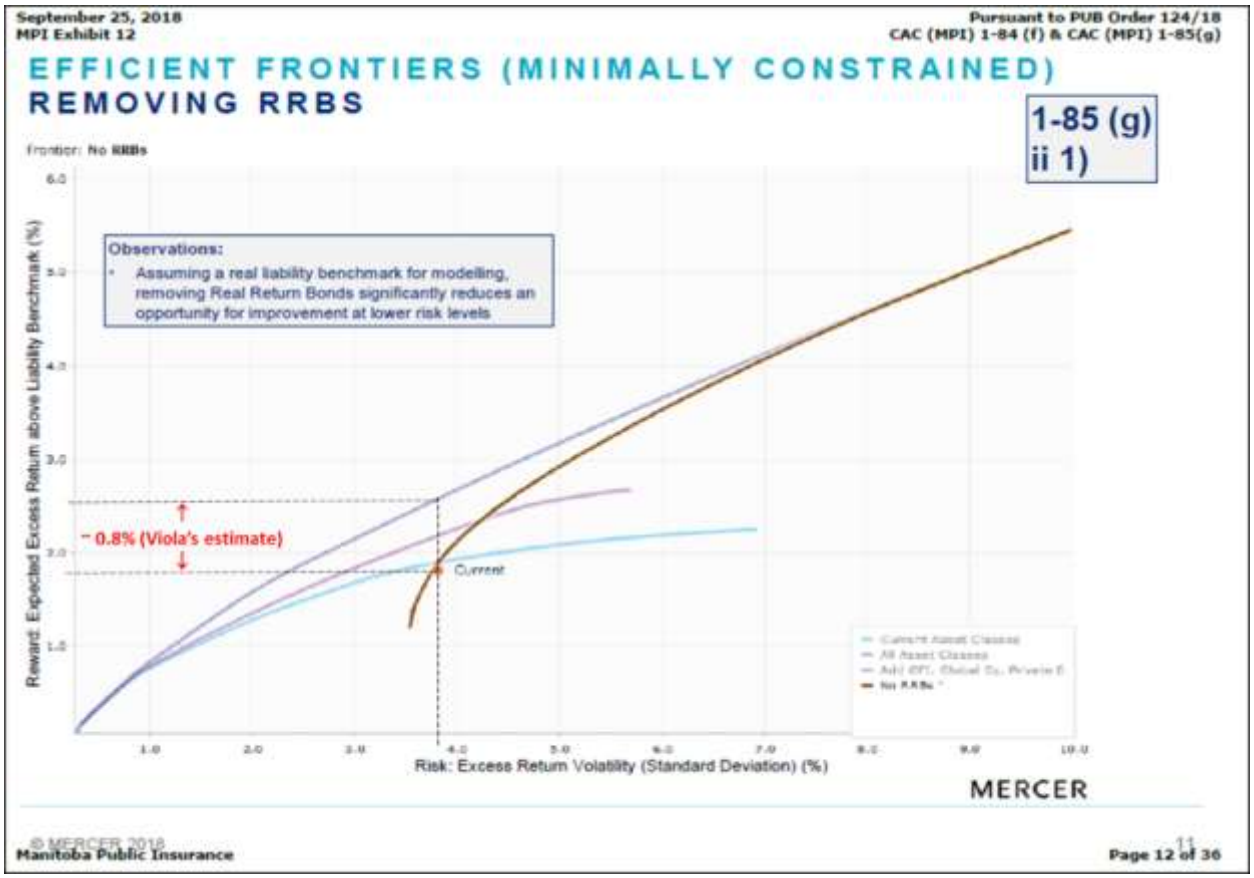
THE "REAL" STORY IN MPI EXHIBIT 12

At this stage, the reader should consider reading MPI Exhibit 12 (Attachment C), which shows the "real" analysis that is fundamental to my recommendations. In it, Mercer concludes (for example) that:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."*[6]

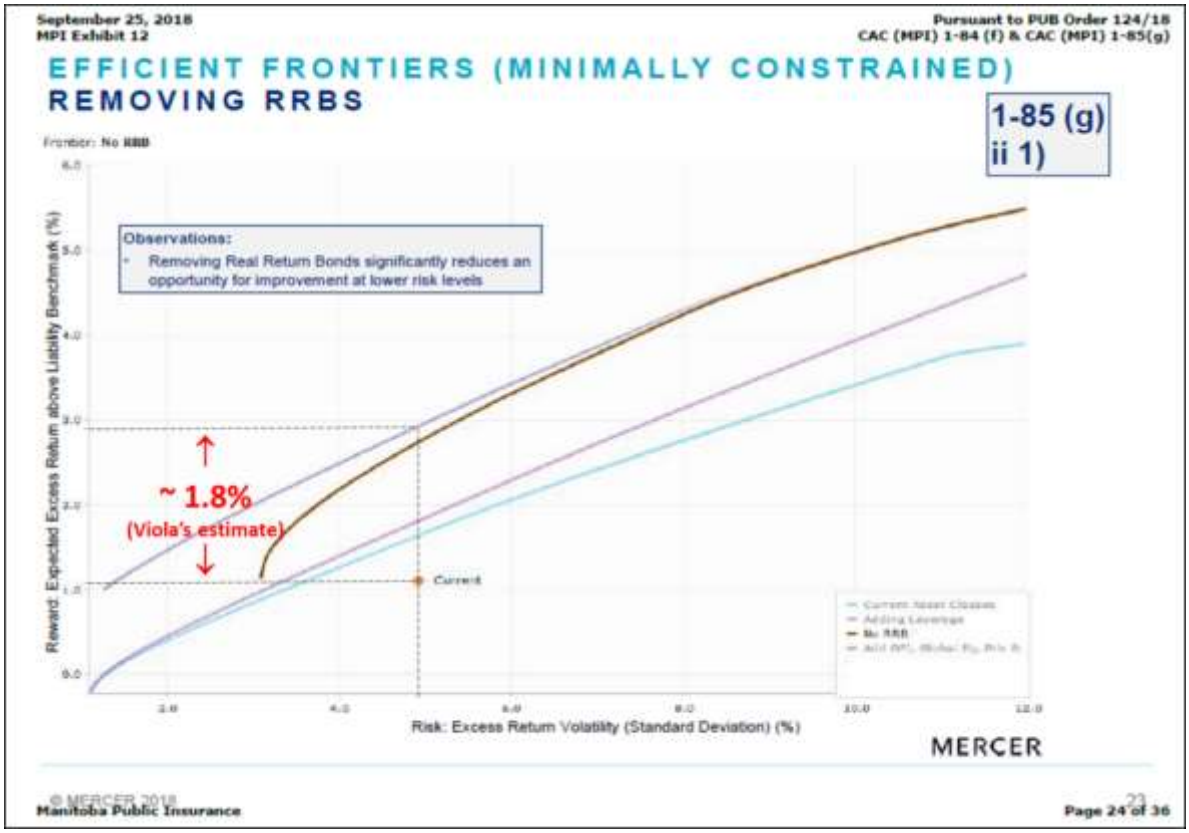
Mercer's finding is illustrated below for the **Basic** Portfolio, and on the next page for the **Pension** Portfolio.

Basic Portfolio



[6] MPI Exhibit 12, page 12 of 36

Pension Portfolio



REAL AND NOMINAL LIABILITY BENCHMARKS

The Mercer Study presented two possible liability benchmark portfolios for both Basic and Pensions. These four (4) liability benchmark portfolios are summarized below, and are clearly very different.

Table 1. Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	- **11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

In the case of Basic, for example, the **Nominal** Liability Benchmark includes a 54% allocation to long-term provincial bonds while the **Real** Liability Benchmark has 66% in RRBs. The differences in the case of pensions is even larger. This is significant because it is my understanding that MPI informed its asset allocation recommendations using the **Nominal** Liability Benchmark, which has a 0% allocation to RRBs.

GENERAL OVERVIEW

THREE (3) OLD SYMPTOMS

In my review of the MPI portfolio two years ago, I identified a few problems and three (3) main "symptoms" that arose from those problems. Those symptoms, and their consequences, were:

1. a **Canadian Equity** portfolio that was concentrated;
    - larger-than average home bias; and
    - concentrated sectors/stocks;
2. no **International Equities** (i.e., outside North America); and
3. no **Real Return Bonds ("RRBs") in the portfolio**;
    - poor liability protection against unexpected inflation and real rate risk; and
    - less effective duration management.

While MPI's recent recommended changes in the portfolio have addressed the first two symptoms (equities), the third symptom (no RRBs) remains.

THREE (3) NEW SYMPTOMS

I would suggest that three (3) new symptoms have emerged, and they are:

4. no **RRBs in the Liability Benchmark Portfolio** that was used to inform MPI's asset allocations;
    - this understates the risk of unexpected inflation and **real** interest rate risk;
    - this also makes duration management less effective;
5. reduced allocations to other "real" assets (**real estate and infrastructure**);
    - this reduces any inflation protection that currently exists in the portfolio;
    - this also reduces diversification; and
6. more concentrated risk within the **bond** portfolio as a result (inflation, credit, and liquidity risk)[7].

In the next section, I review the third and fourth symptoms more closely, focused on the long-term risks of inflation and changing **real** interest rates that impact both sides of the balance sheet (assets and liabilities).

[7] This is a minor consideration, and is included only because of an ongoing concern regarding the impact of accounting (e.g., future IFRS changes) on portfolio decisions.

THE "REAL" STORY (MPI EXHIBIT 12)

As noted in my evidence two years ago, RRBs could play a significant role in hedging the long-term risks of inflation and changes in **real** interest rates that are inherent in MPI's liabilities. To see this, it is important to **examine MPI Exhibit 12 (Attachment C), which contains the "real" story**. By this I mean that the exhibit describes the efficient frontiers in a way that better reflects the "real" interest rate and inflationary risks inherent in MPI's liabilities. MPI's recommended changes in the portfolio that are described in the GRA relied on a Liability Benchmark Portfolio that is defined in **nominal**, rather than **real**, terms and I believe there is a material risk and cost in doing so. MPI Exhibit 12 explains why.

The main theme of the "real" story is that Mercer's model "loves" RRBs across the risk spectrum. According to Mercer:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."* [8]

The model loves RRBs so much that it would borrow to buy more RRBs (i.e., "leverage"), if permitted to do so. This is illustrated where Mercer shows the return/risk tradeoffs of having a 15% allocation to an asset class called "3X Real Return Bonds", as noted below. This is equivalent to having a 45% "gross" exposure to RRBs, given the 3:1 leverage ratio.

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum."* [9] [10]

By excluding RRBs, return/risk tradeoffs are significantly reduced, particularly at the lower levels of risk that MPI finds acceptable in the **Basic** Portfolio.

The model's "love" for RRBs is even stronger in the **Pension** Portfolio.

Mercer's analysis shows that **by removing RRBs from an "optimized" portfolio at current risk levels, returns are expected to be ~ 0.8% lower in the Basic Portfolio and ~ 1.8% lower in the Pension Portfolio**.

[8] MPI Exhibit 12, page 12 (Basic) and 24 (Basic) of 36
[9] MPI Exhibit 12, page 11 of 36
[10] Mercer modelled "leverage" by defining an asset called "3X Real Return Bonds". This asset consists of "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". Mercer also defined an asset called "3X Long Provincial Bonds".

"LEVERAGE"

Mercer illustrates how returns would be 0.3% higher[11] in the **Basic** Portfolio at current risk levels if MPI were to remove the restriction related to leverage. "Leverage" involves financing the acquisition of an asset (e.g., RRB or bond) by directly or indirectly borrowing (e.g., "shorting" T Bills).

MPI's policy to prohibit leverage is not a *major* concern of mine. Many funds impose such a constraint because of a **perceived** risk related to leverage. While some risks are real, others are not and/or are manageable. Like many constraints that are self-imposed by investors, a constraint that prohibits the use of some types of leverage has a material cost, and MPI Exhibit 12 measures how big this cost is (~ 0.3% lower return, in the case of the **Basic** Portfolio).

Appendix 5 describes how "leverage" can be viewed differently, and when viewed that other way it can be seen as a "positive" (not negative) tool. For example, while leverage has the effect of increasing the duration of the "net" RRB portfolio to ~ 45 (from 15, given the 3:1 ratio), an optimist might describe the effect as "de-leveraging" the liabilities from ~ 10.3 to ~ 8.0 in the case of the Basic line of business. (This calculation is in the appendix.)

Simply put, "leverage" is not a four-letter word, and MPI should consider the return/risk implications of imposing a constraint related to its use, given the cost of doing so.

BOTTOM LINE: THREE (3) QUESTIONS

I believe that MPI should give more weight to the "real" analysis in MPI Exhibit 12, instead of relying on a "Liability Benchmark Portfolio" that is defined in **nominal** terms. Unless inflation has zero **volatility**, it is important to distinguish between nominal interest rate risk, and the real and inflation components that make it up. Changes in these two components can have different impacts on the returns for (nominal) bonds and RRBs, given the long time horizon that we should be concerned about.

From my perspective, the key issue boils down to questions about risk **oversight**, risk **measurement**, and risk **management**, which are listed below.

1. Have the real and inflation risks been **identified** clearly
   by those who are responsible for their management and oversight?
2. Have these risks been **measured** as accurately as possible?
3. Are these risks being **managed** effectively?

[11] Returns would increase from 4.6% to 4.9% at current risk levels (3.8% surplus volatility).

INTEREST RATE RISK OVERVIEW

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

"It is important to understand the multiple dimensions of the interest rate risk exposure."[12]

TERM RISK ("DURATION")

The first dimension of interest rate risk relates to time horizon, and a common risk metric for measuring the risk of changing interest rates is "duration". Simply put, duration measures the sensitivity of a bond or liabilities, as the case may be, to changes in interest rates. Other things equal, bonds or liabilities with longer terms to maturity are more sensitive to changing interest rates. They have longer/higher durations.

For example, a bond that has a duration of 10 will rise (fall) by ~ 10% if interest rates ("yields") decrease (increase) by 1%. This inverse relationship between changing yields (Δ yield) and the resulting percentage (%) change in the value of an asset (A), such as a bond, or liability (L) is approximately equal to the product of the change in yield and duration.

$$\% \Delta \text{ in A or L} \sim - \Delta \text{ Yield} \times \text{Duration} \quad \text{(1): Duration Equation}$$

This yield/price relationship is not "linear", so this Duration Equation is accurate only for small changes in interest rates. For larger changes, "convexity" needs to be taken into account. Convexity measures the rate of change in duration, and takes into account the "curvature" or convexity effect that is bigger for larger changes in interest rates.[13]

[12] Page 13-1, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

[13] Interest rates don't simply shift up or down vertically. They may involve "twists" in the yield curve. A more accurate interest rate formula would add a second term to the Duration Equation above, shown in **red** below.

$$\% \Delta \text{ in A or L} \sim (- \Delta \text{ Yield} \times \text{Duration}) + \mathbf{\tfrac{1}{2}(\Delta \text{ Yield})^2 \times \text{Convexity}}$$

INFLATION RISK

Until now, we have not distinguished between "nominal" and "real" interest rates, but it is important to do so. The Fisher Equation, below, shows the relationship between a **nominal** interest rate or yield (n) and its two components, which are the **real** interest rate (r) and **inflation** (π).

$$n \sim r + \pi \quad \text{(2): Fisher Equation}$$

Simply put, the Fisher Equation says that the expected nominal rate (n) depends on inflation expectations (π) and the expected real rate (r). In other words, inflation protection is needed to maintain real purchasing power.

While the Fisher Equation describes expectations (i.e., average/mean) about the **level** of inflation (π), the volatility equation below shows how inflation **volatility** (σ_π) and its **correlation** ($\rho_{r,\pi}$) with real interest rates are factored into the risk discussion.

$$\sigma_n = \sqrt{(\sigma_r^2 + \sigma_\pi^2 + 2\rho_{r,\pi}\sigma_r\sigma_\pi)} \quad \text{(3): Interest Rate Volatility Equation}$$

The Volatility Equation says that the volatility of **nominal** interest rates depends on three factors:

- volatility of **real** interest rates (σ_r);
- volatility of inflation (σ_π); and
- correlation between **real** interest rates and inflation ($\rho_{r,\pi}$).

Only when inflation **volatility** is zero ($\sigma_\pi = 0$) can we safely ignore the distinction between nominal and real interest rates when hedging risk. That is when real interest rate risk and nominal interest rate risk are the same ($\sigma_n = \sigma_r$).

The correlation assumptions used by Mercer in the Study show how inflation volatility (σ_π) and "less than perfect correlations" (ρ) can impact the return distributions of RRBs and bonds. The table on the next page shows the correlation assumptions that were used in the Mercer Study.

Mercer's correlation matrix, below, shows how closely the returns on various asset classes are related. Along the shaded diagonal, for example, the correlation is +1.00 ("perfectly positive") because an asset class is perfectly correlated with itself.

The triangle above the shaded diagonal is a mirror image of the triangle below the diagonal because the "order" of the correlations between two asset classes doesn't matter. In other words, the 0.57 correlation between RRBs in **column 5** and federal bonds (row 4) is the same when you look at its mirror image in **column 4** and row 5.

Table 2. Correlations

	Correlations				
Asset Class	1	2	3	4	5
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62
12 Global bonds	0.16	0.86	0.83	0.72	0.13
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35
14 Emerging debt	0.10	0.27	0.26	0.24	0.22

Note that the matrix shows a lower correlation between RRBs (column 5) and other bonds, compared to say federal long-term bonds (column 4). In other words, **inflation volatility matters**.

The use of "nominal" bonds to hedge "real" liabilities may be fine over very short time horizons if both the level and volatility of inflation are reasonably predictable over these short periods. However, a duration policy that does not differentiate between the real and inflation components over a longer time horizon is less effective. In other words, it is important to match the "basis" for hedging interest rate risk because the "basis risk" may be material.

A key question, then, is how stable or predictable is inflation over the long term? According to the MPI external actuary:

> *"Nobody can forecast interest rates (especially long term bonds) accurately and consistently."*
> Source: Mr. Cheng, on page 1,469 of the GRA

An Analogy: The Really "Risky" Component of the Dividend Discount Model

My concern about MPI's duration policy can be better appreciated, perhaps, by seeing how the Dividend Discount Model ("DDM"), shown below, compares to the Fisher Equation (2) described earlier.

MPI's approach **appears to** focus more on the **shorter-horizon** and on the inflation component (less risky), rather than the capital gain/duration effects from **longer-term** changes related to **both inflation and changing "real" interest rates** ("really" risky). This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile). This is summarized below.

nominal yield	~	real yield	+	inflation	(2): Fisher Equation

return on stocks	=	capital gain (loss)	+	dividend yield	(4): Dividend Discount Model ("DDM")
		↑		↑	
		"Really" Risky		**Less** Risky	

INCREASED INFLATION TODAY

Finally, it is important to note that the 3%[14] inflation rate reported in July 2018 represented the highest year over year change in years, and is above the Bank of Canada's 2% target.

CREDIT RISK

Bonds with greater credit risk require higher yields.

Credit risk is the risk of suffering a loss from a "credit event" (e.g., failure by an issuer to meet a coupon payment or principal repayment on a bond that we own). Bonds issued by the Federal Government, for example, have less credit risk than those issued by the Provinces, and corporate bonds generally have even greater credit risk.

LIQUIDITY

Investors also need to be compensated for holding less liquid bonds, such as private debt.

[14] Statistics Canada, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000413

SUMMARY: RISK PREMIA "BUILDING BLOCKS"

The table below summarizes the various risk premia or building blocks for fixed income assets.

- **T Bills** have the lowest return, given their **low duration** (< 1 year) and **low inflation risk**;
- **RRBs**, which hedge longer-term inflation risk by inflation-protecting the principal, have higher returns than T Bills, given their higher duration and an upward-sloping yield curve (most typical);
- **Bonds** don't provide inflation protection, and have higher yields than RRBs to compensate for inflation risk that erodes their purchasing power;
- **Provincial and corporate bonds** have even higher yields, given their higher credit risk; and
- **Private debt** has a higher yield, given its lower liquidity.

Time Horizon	Risk
Longer	Illiquidity
	Credit
	Inflation
	Term/Duration
Short	

Asset Class	Return[15]	Risk Premium "Building Blocks"
Private Debt	↑	+1.8%
Corporate Bonds	3.8%	
Provincial Bonds	↑	+0.6%
Federal Bonds	2.0%	
Federal RRBs	↑	
T Bills	1.4%	

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

> *"One of the greatest challenges facing … insurance companies has been the … low interest rate environment. … Many … insurers started chasing yield, decreasing … credit quality … and increasing the allocation to riskier asset classes. The … pressure for higher yield has resulted in more risk …*
>
> *… There have been three main ways … to increase … yield ...*
>
> 1. ***Add credit spread[16]*** *… by decreasing the credit quality … and taking on more credit risk …, and often aiming to capture the illiquidity premium ...*
> 2. ***Increase expected return*** *… by increasing the allocation to riskier assets ...*
> 3. ***Increase yield to maturity*** *… by selling shorter assets that have a lower yield … and buying longer assets that have a higher yield …"*[17]

[15] Mercer's Median 10 Year Return
[16] Companies may use risk-adjusted yields but may for example seek to exploit the illiquidity premium.
[17] Page 13-5 to 13-6, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

WALKING THROUGH THE "REAL" STORY IN MPI EXHIBIT 12

A **Real** Liability Benchmark is used to measure surplus volatility in MPI Exhibit 12.

FLIPPING THE STORY BOOK ON "BASIC"

The table on the next page shows the seven (7) incremental "steps" taken by Mercer in MPI Exhibit 12 to show the effects on return/risk for the **Basic Portfolio** by including (or excluding) different asset classes.

Starting from the Current Portfolio, the first step is to "re-optimize" the portfolio based on the current asset classes in the portfolio using updated capital market assumptions, and perhaps constraints.

These steps, using Mercer's terminology, are:

1. CURRENT ASSET CLASSES;
2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY;
3. ADDING MORTGAGES AND PRIVATE DEBT;
4. ADDING DIVERSIFIED GROWTH FUND;
5. ADDING LEVERAGE (BOND OVERLAY);
6. REMOVING RRBS; and
7. RESTRICTING PUBLIC EQUITIES.

The table on the next page walks through Mercer's "observations", showing the incremental steps in the first column. (The reader can walk through these steps by flipping through the graphs in MPI Exhibit 12.)

The other columns show the returns and return/risk ratios calculated by Mercer, along with the role that RRBs played in achieving those returns (i.e., % allocation of RRBs in the portfolio). All figures reflect the same level of risk (3.8% surplus volatility), and are therefore comparable.

The question that prompted the creation of MPI Exhibit 12 is below.

> ***84 f) More Detailed Analysis for Real Scenarios:*** *Was the same "stepped" analysis that was performed using the* ***Nominal*** *Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the* ***Real*** *Liability Benchmark?*
>
> *84 f) i. If so, provide the analysis and commentary (at least for Basic and Pensions).*

Table 3. Return/Risk Impact from Different Asset Allocation "Steps"

Mercer's Observations (pages 7 - 13 of 36)	RRB Allocation[18]	Return +/- Impact	Excess Return/Risk[19]
STEP 1. CURRENT ASSET CLASSES ONLY 1. Long-term bonds dominate fixed income, some RRBs a. Long duration liabilities b. Low expected returns on RRBs 2. Alternatives dominated by Infrastructure a. Infrastructure only marginally better than Real Estate b. Decision between the two depends on implementation	**18.0%**	**4.2%**	**0.49**
STEP 2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY 3. Long-term bonds dominate fixed income, some RRBs a. Long duration liabilities b. Low expected returns on RRBs 4. Alternatives dominated by Infrastructure a. Infrastructure only marginally better than Real Estate b. Decision between the two depends on implementation	**41.5%**	**4.5%** ***+ 0.3%***	**0.57**
STEP 3. ADDING MORTGAGES AND PRIVATE DEBT 5. Adding Mortgages does not appear to benefit 6. Adding Private Debt provides an opportunity for return enhancement	**40.5%**	**4.6%** ***+ 0.1%***	**0.60**
STEP 4. ADDING DIVERSIFIED GROWTH FUND 7. Adding Diversified Growth Fund does not appear to benefit at this stage	**40.5%**	**4.6%** **–**	**0.60**
STEP 5. ADDING LEVERAGE (BOND OVERLAY) 8. Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum	**45.0%**[20]	**4.9%** ***+ 0.3%***	**0.68**
STEP 6. REMOVING RRBS 9. Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels	**0%**	**~ 4.1%** ***~ - 0.8%***[21]	**Not shown by Mercer**

[18] These optimized allocations are at the "current" level of risk. Optimized RRB allocations would be even higher at the lower levels of risk that MPI has chosen for the Basic Portfolio.

[19] Mercer defines an Excess Return/Risk, where the excess component represents the difference in return between the portfolio and the return of the Liability Benchmark.

[20] MPI Exhibit 12 shows a 15% allocation to "3X RRBs". This "net" exposure is equivalent to a gross exposure to RRBs of 45% (3 x 15%), as shown below.

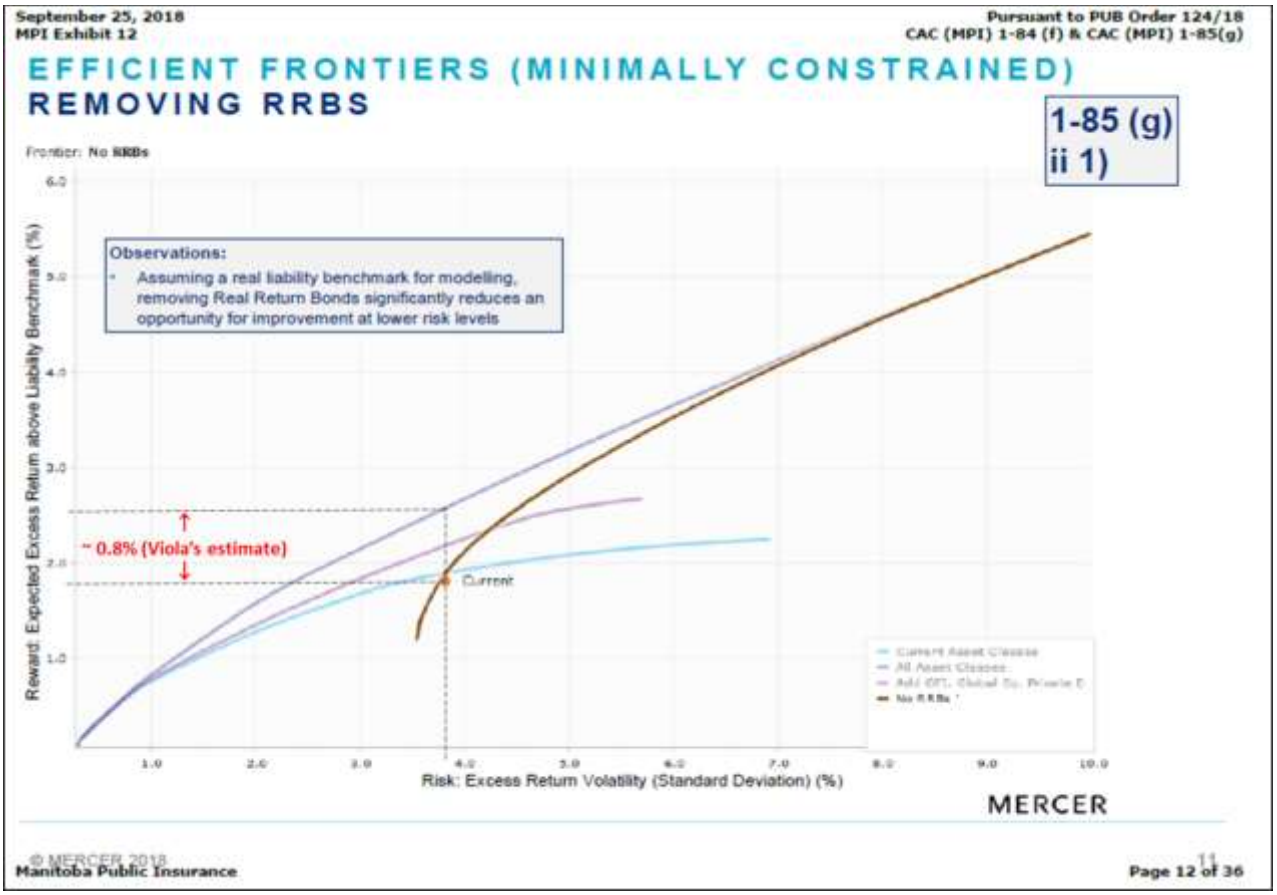
+45% "Gross" RRBs
- 30% Treasury Bills
+15% "3X RRBs"

[21] This is my estimate based on a visual inspection of the graph in MPI Exhibit 12 (page 12 of 36).

The effect of removing RRBs from the **Basic Portfolio** is illustrated by Mercer below.

Mercer did not report the impact on various statistics in this graph, so I estimated the impact from a visual inspection of the graph and concluded that **returns would be lower by ~ 0.8%**, measured at the "Current" risk level of 3.8%.

*Table 4. Removing RRBs in the **Basic** Portfolio*



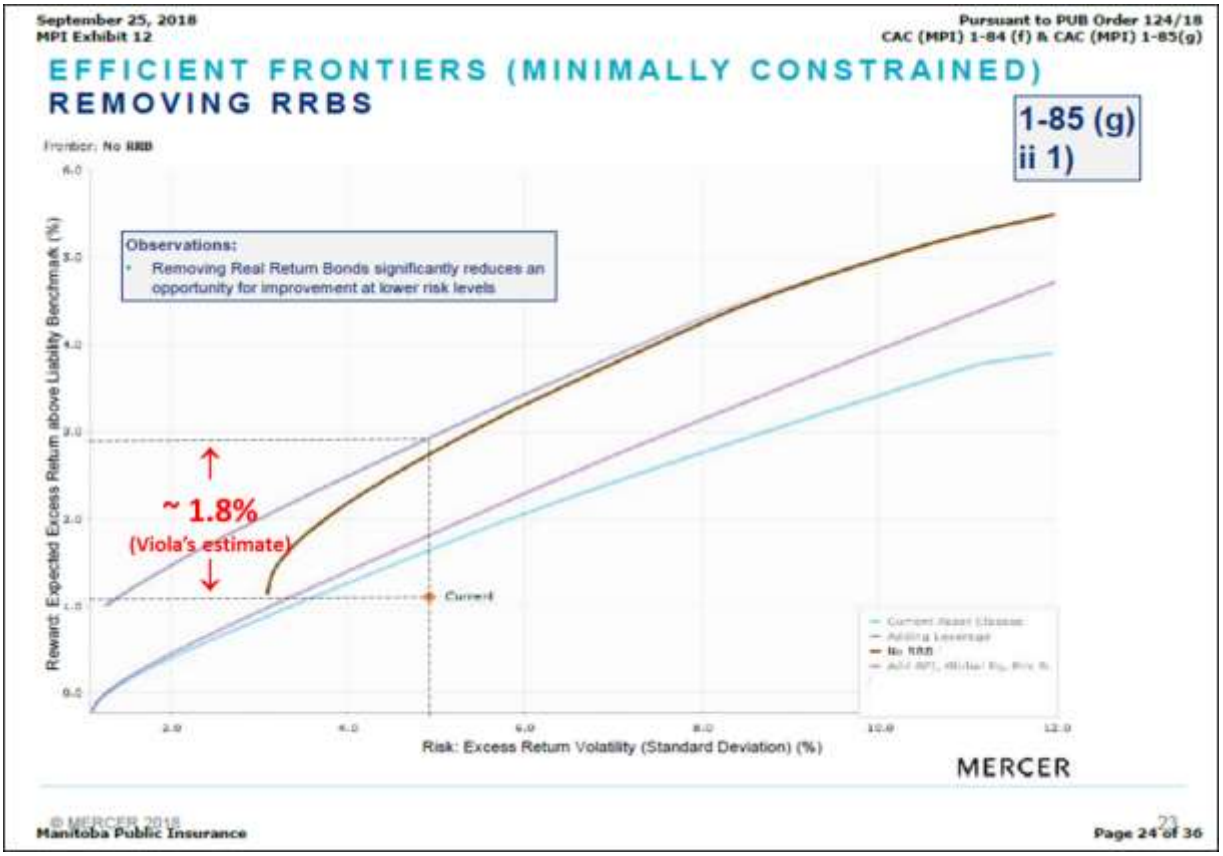
Mercer's Observations	Note
STEP 7. RESTRICTING PUBLIC EQUITIES (P 13 OF 36) 10. The unrestricted frontier (purple) contains higher allocations to Canadian equities at lower risk levels and higher allocations to Emerging Markets equities at higher risk levels 11. Restricting public equities based on the MPI recommended weights appears to slightly reduce the reward to risk trade-offs (the orange frontier is below the other lines) 12. The ACWI* weight restriction appears to further reduce the reward to risk trade-offs (green frontier is at the bottom) 13. Privates + ACWI* (0% fixed income) plots to the far right of the efficient frontier (iii) * All-Country World Index	**A table showing the quantitative impact at current risk levels was not reported by Mercer, and is hard to quantify from the graph alone**

FLIPPING THE STORY BOOK ON "PENSIONS"

The analysis so far has focused on the **Basic** Portfolio. A similar analysis is available for the **Pension** Portfolio[22]. While levels of risk in the Pension Portfolio are higher (4.9% currently) than those in the Basic Portfolio (3.8%), similar conclusions can be reached.

The graph below, for example, shows that **returns are lower by ~ 1.8% when RRBs are excluded from the Pension Portfolio** at the "current" risk level.

*Table 5. Removing RRBs in the **Pension** Portfolio*



The higher risk in the Pension Portfolio arises for two reasons. First, the asset allocations are different (e.g., the MPI-recommended Pension Portfolio has equities but the Basic Portfolio does not). Second, the Pension Liabilities have a longer duration than the Basic Liabilities (~ 16 vs. ~ 10 respectively).

[22] MPI Exhibit 12, pages 18 – 25 of 36

THE "REAL" STORY, COMPARED TO THE "NOMINAL" STORY

The main difference in asset allocations, measured at current risk levels, appears to be the mix within fixed income.

The big difference, of course, is that the MPI Recommended portfolio has no RRBs, while Exhibit 12 shows that an optimal portfolio would have at least 48.5% in RRBs **at the same level of risk** – and likely more than ½ of the portfolio in RRBs, given MPI's decision to reduce risk below the current level.

MPI'S LOWER RISK TOLERANCE

While the earlier analysis shows the impact of adding or removing different asset classes **at the same level of risk**, the table below looks briefly at **MPI's recommended portfolio**, which **purports**[23] to take less risk than the "Current" portfolio.

Portfolio		Asset Allocation	Return[24]	Impact
M	**M**PI-Proposed Basic Portfolio	100% Fixed Income	3.1%	↓ 0.8% vs. **C**urrent ↓ 1.8% vs. **R**eal
C	**C**urrent Portfolio	70% Fixed Income 15% Equities 15% Other Real Assets[25]	3.9%	
R	"Minimally Constrained" Portfolio[26] (using **R**eal Liability Benchmark)	70.0% Fixed Income 21.5% Equities[27] 8.5% Other Real Assets	4.9%	

[23] In my oral testimony two years ago, I described the concept of a "risky bucket" and a "risk-free" or "minimum risk" bucket. Simply put, I believe MPI has a "leak", or two, in its Liability Benchmark Portfolio (minimum risk bucket).
[24] The 3.1% and 3.9% figures are my calculations, using Mercer's capital market assumptions.
[25] Real estate and infrastructure
[26] MPI Exhibit 12, page 11 of 36
[27] Includes 6.5% private equity

PART II. RECOMMENDATIONS FROM TWO YEARS AGO

The table below shows my 18 recommendations from the GRA Process two years ago, and whether I believe they have been addressed, deferred, or remain ongoing concerns.

		Addressed	Deferred	Ongoing Concern
Framework	6. De-Linking Discount Rates	Mostly		
	7. Min/Max Asset Class Constraints	☑		
	8. Evolved Risk Framework		☒	
	9. Explicit Risk Management Goals		☒	
	5. Return/Risk Definitions for Asset Mix Decision	☑		
	10. Minimum Risk Portfolio	Partially		
Portfolio	14. Exclusion of Real Return Bonds			☒
	15. Effectiveness of Duration Policy			☒
	16. Integration of Real Estate/Infrastructure Liabilities in Duration Management	☑		
	11. Canadian Equities' 10% Minimum Allocation	☑		
	12. No International Equities	☑		
Metrics	1. Clarity of Accounting Choices			n/a
	2. Adoption of More Comparable Accounting Principles			n/a
	3. AFS and HTM Accounting			n/a
	4. Pension Liability Accounting	☑		
Oversight	17. Removal of 105% Rule in Investment Policies	☑		
	13. No Over-Reliance on Quantitative Modeling			☒
	18. Pension Fund	☑		

DE-LINKING DISCOUNT RATES (#6)

While the Liability Benchmark Portfolios break the recursive[28] link between liability valuations and the yield on some assets for asset allocation decision-making, a link may still exist that creates an incentive to concentrate risk within fixed income. That is why this issue is "mostly" addressed. If the yield on the bonds **owned** is used to value liabilities, there may be an incentive to take more risk in fixed income (e.g., inflation and credit risk, less liquidity) to reduce the valuation of liabilities (higher discount rate). This may result in less diversification, and lower risk-adjusted returns.

EVOLVED RISK FRAMEWORK (#8) AND EXPLICIT RISK MANAGEMENT GOALS (#9)

I understand that the development of an Enterprise Risk Management ("ERM") Framework is a key corporate priority in fiscal 2018/19, and that an ERM Framework will be filed in the next GRA. I assume that these issues will be addressed once this corporate goal is met.

MINIMUM RISK PORTFOLIO (#10)[29]

While minimum risk portfolios were clearly defined for each segment (e.g., Basic and Pensions), the final definitions used by MPI were based on **nominal** definitions rather than **real** ones, as discussed in Part I. Accordingly, this issue is only partially addressed.

EXCLUSION OF REAL RETURN BONDS (#14), EFFECTIVENESS OF DURATION POLICY (#15)

My ongoing concerns related to RRBs and duration policy are covered in Part I of this paper.

NO OVER-RELIANCE ON QUANTITATIVE MODELING (#13)

My ongoing concern related to a possible over-reliance on quantitative modeling is covered in Part I of this paper. On a qualitative basis, a case can be made that a fund with long-term, inflation-sensitive liabilities should invest some of its assets in similarly long duration, inflation-sensitive assets (i.e. have > 0% in RRBs, and hold more, rather than less, real estate and infrastructure – other things equal).

[28] A recursive link is like a circular reference in Excel, where cell "G4" equals "A1", and A1 is recursively set to equal G4 again. This circular reference is not a "hit" as far as Excel is concerned, and Excel will warn you that a formula refers to a cell dependent on its own cell value – and this could sink the analysis in your YouSunkMyBattleship.xls file. (Another way of saying this is that it's the classic chicken/egg problem in the field of poultry management.)
[29] The Minimum Risk Portfolio is called "Liability Benchmark Portfolio" in the GRA and Mercer Study.

ACCOUNTING METRICS (#1 TO 4)

Given the other changes made by MPI, and reflected in the Mercer Study, I have less concern about accounting metrics. For example, by addressing Recommendation #5 (using market, not accounting return/risk metrics in the Mercer Study), and partially addressing #10, my concern about accounting is less important – but not unimportant. Accounting may still be driving some investment decisions, as described above (de -linking discount rates).

APPENDICES

APPENDIX 1. CURRICULUM VITAE – VALTER VIOLA

Consultant with 25 years of institutional portfolio management, investment research, and risk management experience (mostly defined benefit pension plans)

- *Consultant to institutional investors, advising boards, investment committees and client staff on investment strategies, investment risk management, and governance (primarily North America)*
- *Former executive and senior management roles in portfolio management, risk management, investment research, and economics at two of the world's largest institutional investors*

PROFESSIONAL EXPERIENCE

Since 2016 **Cortex Applied Research**, Toronto

Managing Director and Principal

- Advise pension funds, foundations and other institutional investors on governance matters, including fiduciary education and search services for investment consultants/outsourced chief investment officers (OCIOs)

2014 – 2016 **MaPLE** Toronto, Santiago

Partner in a private energy and infrastructure venture in Chile

2005 – 2014 **Holland Park** Toronto

President, Founder

- Advised institutional investors on investment risk governance, management and measurement practices, including:
  - developing investment/risk frameworks;
  - drafting investment/risk management policies/ procedures; and
  - developing risk budgets to support the management of surplus (assets and liabilities) and active management (performance vs. benchmarks)
- Provided risk monitoring and reporting services to pension funds, including:
  - managing third party risk analytics and related data;
  - recommending and implementing methodologies; and
  - reporting to boards and executives about investment risks

2000 – 2005 **CPP Investment Board** Toronto

Vice President, Research and Risk Management

- First executive responsible for total portfolio research, design and investment risk management of the largest single purpose pool of capital in Canada
- Led a growing team of professionals, focused on the total portfolio, including:
  - investment risk management (relative to liabilities and benchmarks);
  - policy asset mix and currency hedging;
  - active management; and
  - other investment policies
- Collaborated with the CEO/CIO, VP Private Markets, and VP Public Markets in the development and implementation of investment strategies
- Collaborated with other executives to develop and implement strategies and business plans, policies and procedures, including leading the development of an investment/risk management framework that took into account the unique circumstances of the CPP and CPPIB (e.g. large unfunded liability, non-marketable bonds, large cash inflows)

1993 – 2000 **Ontario Teachers' Pension Plan** Toronto

Director, Portfolio Manager, Analyst (Research and Economics)

- Member of the Investment Planning Committee, with shared responsibilities to advise the CIO on the tactical management of the total portfolio (shorter-term horizon, broad asset class allocations and currency hedging)
- Supported strategic/policy and tactical asset mix/currency hedging and other total fund decisions through independent research, including:
  - developing the fund's first asset/liability model, which supported the fund's asset mix transition shortly after the fund's inception;
  - conducting research to support new asset class introductions; and
  - recommending appropriate benchmarks
- Managed the tactical asset allocation portfolio, a portfolio that had one of the largest value added targets for the fund
- Managed the inflation-linked bond portfolio, including closing the largest single investment in the fund's history ($650 million private placement of inflation-linked bonds to finance the 407 Electronic Toll Road)

1992 – 1993 **Wilfrid Laurier University and York University** Waterloo, Toronto

Lecturer in Investments, Finance and Accounting

1990 – 1992 **Corporate Planning Associates** Toronto

Financial Advisor

1986 – 1988 **Price Waterhouse** Toronto

Auditor

PENSION ASSOCIATIONS/COMMITTEES

2006 – 2009 **Healthcare of Ontario Pension Plan (HOOPP)**

External Advisor to Investment Committee

- Advised the Investment Committee of a large, Canadian defined benefit plan on matters related to the management of the total portfolio

2003 – 2005 **Pension Investment Association of Canada (PIAC)**

Member of Investment Practices Committee

- Shared non-proprietary investment practices with peers as a member of an industry association
- Led the publication of a paper ("Risk Budgeting") to meet the needs of member organizations

EDUCATION

1995 ***Chartered Financial Analyst***

1990 ***Master of Business Administration***, Western University

1989 ***Chartered Accountant***

1986 ***Bachelor of Commerce***, University of Toronto

APPENDIX 2. RELEVANT PRIOR EXPERIENCE

The author's relevant prior experience, as described in the author's evidence during the GRA Process two years ago, is shown below.

CPP Investment Board

I was the first executive officer responsible for research and risk management of CPP Investment Board ("CPPIB"), the largest single purpose pool of capital in Canada with assets under management of ~ $290 billion today. As VP, Research and Risk Management I reported to the CEO/Chief Investment Officer over a five year period and was the chief risk officer responsible for all aspects of investment risk management. Research responsibilities covered a broad range of investment issues, including long-term asset allocation, currency hedging and investment policies. As one of four investment executive officers, I was involved in investment strategy specifically and the management of the organization generally.

Ontario Teachers' Pension Plan

I held a variety of roles over a seven year career at Ontario Teachers' Pension Plan ("Teachers'"), the largest single-profession pension plan in Canada with ~ $170 billion of assets under management today. Teachers' is considered a global leader in pension/risk management.

As the first analyst in the Research and Economics Department, I developed Teachers' first Asset-Liability Model to support long-term asset allocation strategies (e.g., allocation between equities, bonds and other asset classes). As a Director of Research, my responsibilities included conducting research to support the introduction of new asset classes, currency hedging policies, as well as broad asset allocation decisions on both a strategic (policy/long-term) and tactical (active/short-term) basis.

As a member of Teachers' Investment Planning Committee, I participated in shorter-horizon (tactical/active) decisions regarding asset allocation and currency hedging. As the first Portfolio Manager of Teachers' Tactical Asset Allocation ("TAA") portfolio, I was responsible for managing one of the most "active" programs at Teachers'[2]. I was also the Portfolio Manager of the real return bond ("RRB") portfolio[3].

Pension Investment Association of Canada (PIAC)

I was also a member of the Investment Practices Committee of the Pension Investment Association of Canada ("PIAC").

No P&C Experience

I have not worked with property and casualty ("P&C") insurers, but I have been an advisor to workers' compensation funds in Canada and asset managers who manage assets for workers' compensation funds in both Canada and the United States.

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[2] Performance of the TAA portfolio exceeded value added targets and resulted in the maximum bonus multiplier allowed under Teachers' performance incentive system.

[3] As RRB portfolio manager, I was part of a team that greatly increased the size of Teachers' RRB portfolio. In the year that I left Teachers' to join CPPIB (2000), Teachers' increased its exposure from $8.6 billion to $20.6 billion.

Teaching, Applied Research and Education

I received the Chartered Accountant (CA) designation and taught accounting as well as finance/investments at Wilfrid Laurier University and York University respectively before starting my career in applied research and portfolio/risk management in the Research and Economics Department at Teachers', where I qualified as a Chartered Financial Analyst ("CFA").

I am an MBA graduate from the Richard Ivey School of Business (Western University) and graduated from the University of Toronto with distinction (BComm).

APPENDIX 3. CAC (MPI) 1-84(F)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-84 (f). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #13

> MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.

Mercer's response:

> Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. **The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.**

On page 1,654, Mercer said:

> While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling …

Capital Market Assumptions for the Liability Benchmark

Page 1,765 (INV Appendix 17, Attachment A) shows the assumptions related to the components of the liability benchmark, which CAC summarized below (Basic and Pension only).

Table 6. Components of Liability Benchmarks

	Components of Liability Benchmarks	Return	SD
1	Treasury Bills	1.50%	1.50%
2	Short-Term Provincial Bonds	2.40%	3.50%
3	Mid-Term Provincial Bonds	3.00%	6.50%
4	Long-Term Provincial Bonds	3.30%	8.50%
5	Long-Term Corporate Bonds	4.20%	8.50%
6	Real Return Bonds	3.00%	7.50%

Table 7. Correlations

	Correlations					
	1	2	3	4	5	6
Treasury Bills	1.00					
Short-Term Provincial Bonds	0.31	1.00				
Mid-Term Provincial Bonds	0.02	0.87	1.00			
Long-Term Provincial Bonds	(0.14)	0.61	0.89	1.00		
Long-Term Corporate Bonds	(0.38)	0.14	0.51	0.69	1.00	
Real Return Bonds	(0.19)	0.39	0.65	0.70	0.62	1.00

The significant difference between the nominal and real bases are shown below for both Basic and Pension liabilities.

Table 8. Difference in Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

The GRA included many efficient frontiers using the **Nominal** Liability Benchmark, showing for example, the effects of adding different asset classes one step at a time ("stepped approach") so the effects on return/risk could be seen. (Fewer such analyses were provided using the **Real** Liability Benchmark, and no "steps" were shown in the GRA on this basis.)

The table below shows how material the Liability Benchmark decision is on return/risk and asset allocation. (The supporting tables, A to C, are on the next two pages. They show the different implications reported by Mercer arising from the selection of a different Liability Benchmark – i.e., nominal vs. real).

Table 9. Materiality of Liability Benchmark Choice

Table	Content	Materiality of Liability Benchmark Choice
A	**Table A shows return/risk metrics** for a portfolio that has the same expected return as the current portfolio (~ 4.2%), but is more efficient than the current portfolio (i.e. less risk); **The asset allocations** are also shown	The main difference between the optimizations relates to the inclusion of **RRBs in the portfolio under the <u>real</u> optimization**; The total fixed income allocation is the same (~ 75%) under both real and nominal optimizations
B	**Table B shows the current portfolio's return/risk metrics**	n/a
C	**Table C shows the improved efficiency** (less risk, same return) of the optimized portfolio, compared to the current portfolio (i.e. C = A minus B)	**Surplus volatility falls more when the <u>real</u> liability proxy is used (1.1% risk reduction, rather than 0.4%)**

Table 10. Return/Risk Metrics and Asset Allocations

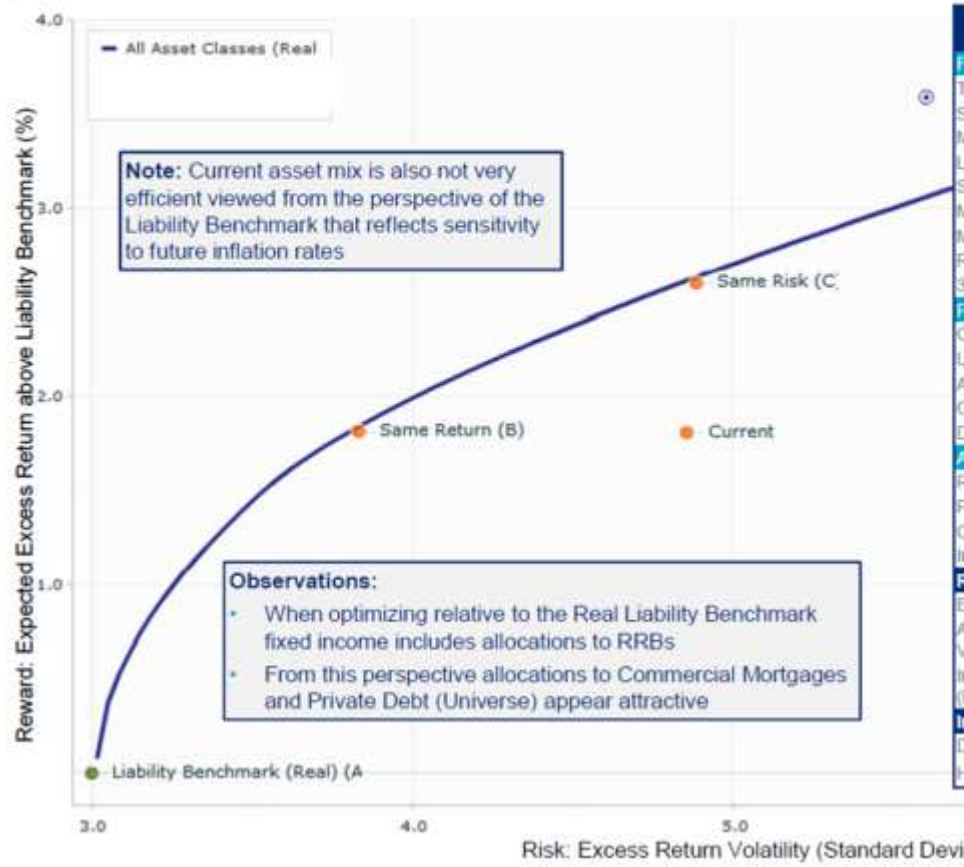
B	**Current Portfolio**	Real	Nominal	
	Expected 10-Year Return:			
	Portfolio	4.2	4.2	
	Liability Benchmark Portfolio	2.4	2.8	
	Excess Return	1.8	1.4	
	Anticipated Surplus Volatility	4.9	5.0	
	Excess Return/Anticipated Surplus Volatility	0.37	0.28	
	Information Ratio (Return/Risk)	0.37	0.27	
	Difference	- 0.00	0.01	
C	**Improved Efficiency (Same Return)**	Real	Nominal	C = A - B
	Expected 10-Year Return:			
	Portfolio	-	- 0.1	No change in return (except rounding)
	Liability Benchmark Portfolio	-	-	
	Excess Return	-	- 0.1	
	Anticipated Surplus Volatility	- **1.1**	- **0.4**	More measured risk reduction with Real Liability
	Excess Return/Anticipated Surplus Volatility	0.11	0.00	
	Information Ratio (Return/Risk)	0.11	0.03	
	Difference	- 0.00	- 0.03	

The source for the above data is on the following two pages.

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	--	26%	--	--
Short-term Bonds (Prov.)	6.5%	8%	27%	--
Mid-term Bonds (Prov.)	12%	--	--	--
Long-term Bonds (Prov.)	29.5%	--	--	--
Short-term Bonds (Corp.)	--	--	3%	15%
Mid-term Bonds (Corp.)	2%	--	--	--
MUSH Bonds	20%	--	10%	10%
Real Return Bonds	--	66%	--	--
3X Real Return Bonds	--	--	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	--	4%	6%
U.S. Equity	5%	--	--	--
All-Country World Equity	--	--	4%	5%
Global Equity (low vol)	--	--	4%	7%
Diversified Growth Fund	--	--	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	--	6%	8%
Private Debt - Universe	--	--	3%	13%
Commercial Mortgage	--	--	13%	3%
Infrastructure	5%	--	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

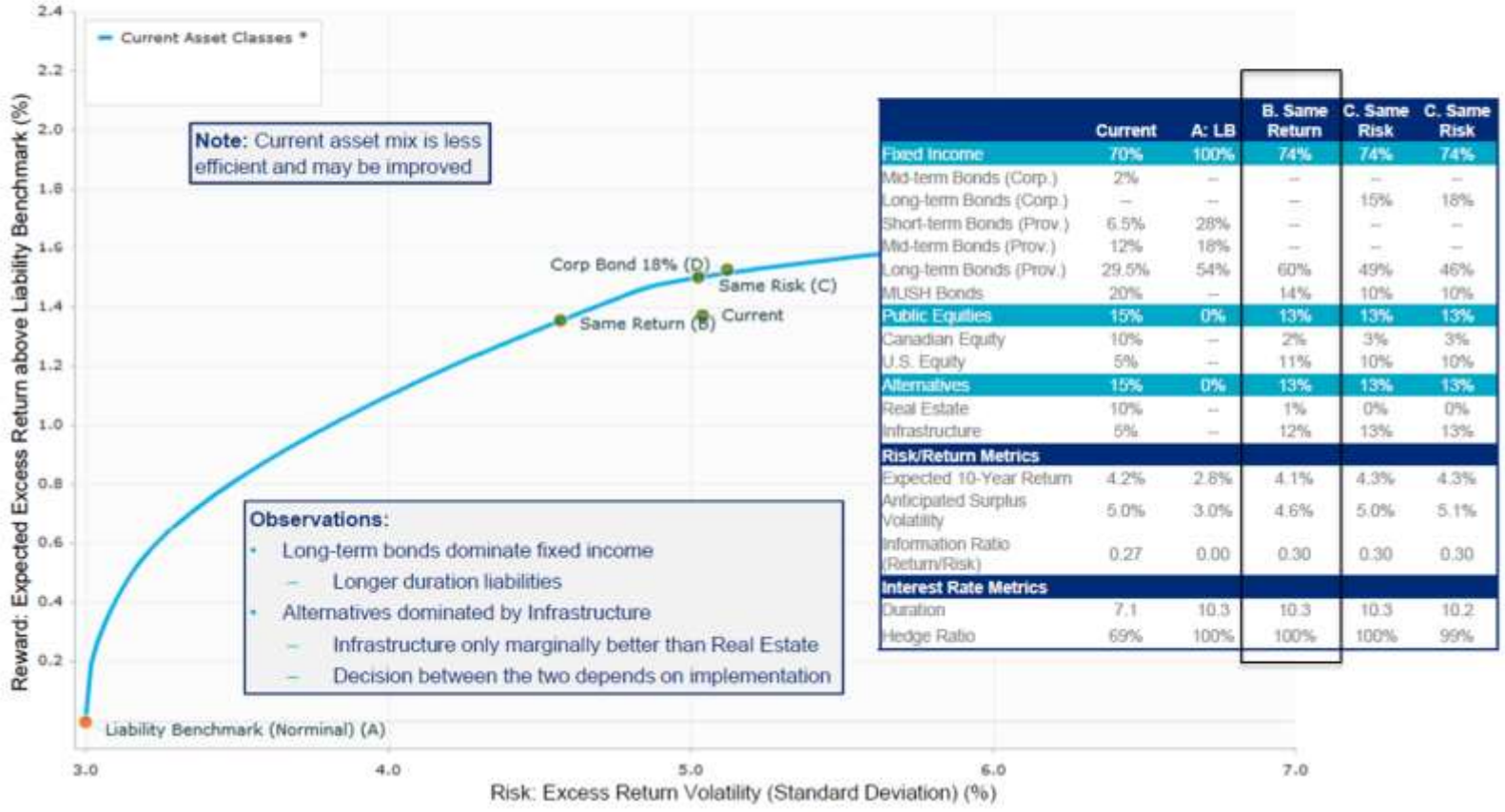
Table 11. "Real" Liability Benchmark (page 1,755)

"Real" Liability Benchmark (page 1,755)

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY



	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.8%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

Table 12. "Nominal" Liability Benchmark

"Nominal" Liability Benchmark (page 1,749)

QUESTION 84 f): MORE DETAILED ANALYSIS FOR REAL SCENARIOS

More Detailed Analysis for Real Scenarios: Was the same "stepped" analysis that was performed using the **Nominal** Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the **Real** Liability Benchmark?

i. If so, provide the analysis and commentary (at least for Basic and Pensions).

If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions).

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

APPENDIX 4. CAC (MPI) 1-85 (G)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-85 (g). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #7

> The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit.

Mercer's response (page 1,460):

> The ALM study had minimally constrained and practical implementation constraints.

Leverage Constraint

The Liability Benchmarks developed by Mercer included negative (short) exposures related to TBills in both the nominal and real representations of the Pension Liability (17% and 11% short respectively), as summarized by CAC on the right.

Table 13. Pension Liability Benchmark Portfolio (Real vs. Nominal)

	Pension Liability		
	Nominal	Real	Diff
Treasury Bills	- 17	- 11	6
Short-Term Provincial Bonds			-
Mid-Term Provincial Bonds			-
Long-Term Provincial Bonds		30	30
Long-Term Corporate Bonds	117		- 117
Real Return Bonds		81	81
	100	100	-

Benefits of Leverage

On page 1,753, Mercer said "adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum".

On page 1,588, Mercer said this about overlay bonds:

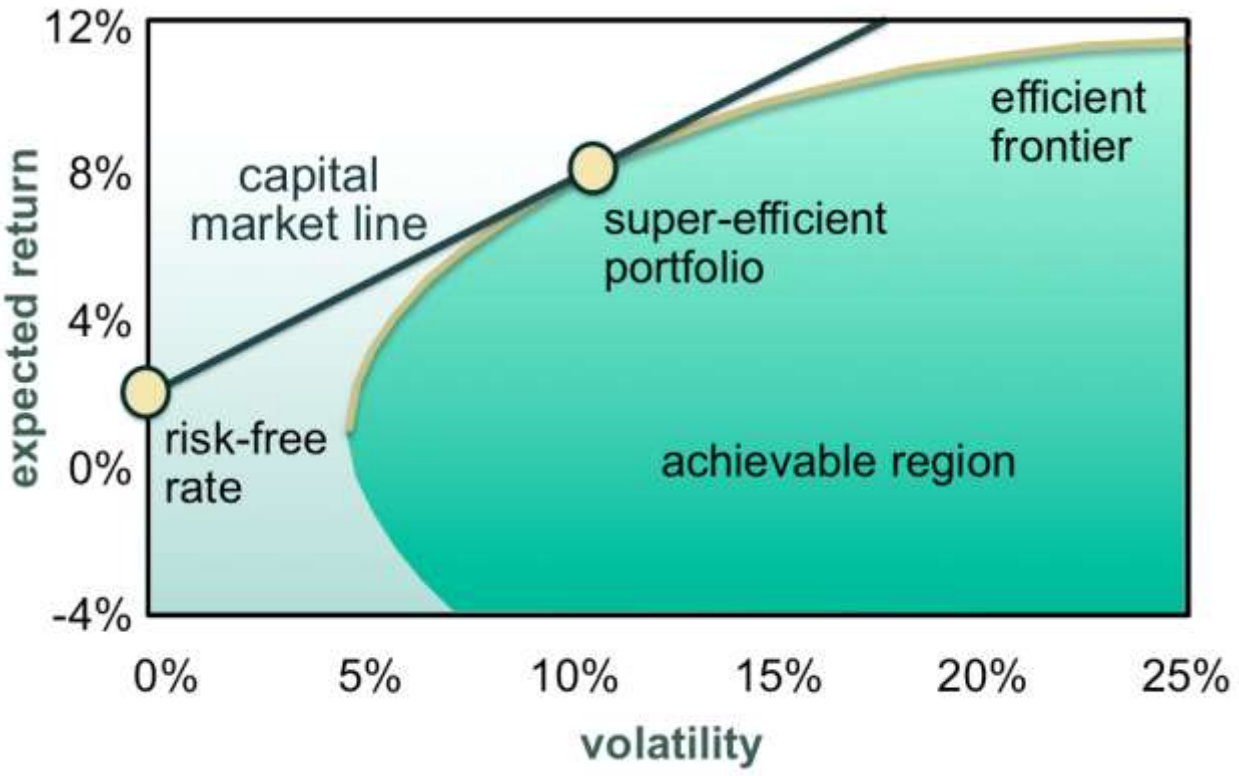
> By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.
>
> Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds.

When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

Capital Market Line Theory

In an asset-only context (i.e. ignoring liabilities), the Capital Market Line illustrated below shows how the introduction of a risk-free asset (e.g. Government of Canada TBills in an asset-only context) expands the efficient frontier.

Figure 1. Capital Market Line



While many assumptions underlie the Capital Market Line in the broader CAPM[30] theory, two implications for "asset-only" investors are:

- All investors (regardless of risk tolerance) hold the "market portfolio"; and
- The proportion of an investor's portfolio held in the risk-free asset reflects their risk tolerance, with the balance invested in the market portfolio.

Exclusion of Leverage

On page 1,618, the rationale for excluding "Levered Bonds" was provided:

> Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). …
>
> Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio.
>
> **Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.**

On page 1,719, Mercer's report said RRBs and leveraged bond funds (RRBs & Provincial bonds) were rejected from consideration because they were "either deemed too risky or the expected returns were too low".

[30] CAPM: Capital Asset Pricing Model

QUESTION 85 G): EFFICIENT FRONTIERS

Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (Real Liability Benchmark, not Nominal Liability Benchmark, and not TBills)?

i. The analysis should show the effects of allowable leverage **for fixed income assets only** (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:
    1) Set 0% maximum in RRBs
    2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) individual steps for:
        1) Canadian Equity
        2) Emerging Markets Equity
        3) Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:
        1) Real estate, infrastructure, and private equity using MPI's recommended weights
        2) Public equity in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI))

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension.

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to constraints (established in 2017 GRA).

APPENDIX 5. LEVERAGE

This note describes financial leverage because the Mercer Study demonstrates its use by including an asset called "3X Real Return Bonds"[31], which represents a leverage factor of 3:1.

HOW IS LEVERAGE DEFINED?

Mercer defined this asset as "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". This "Levered RRB" portfolio is no different than a real estate portfolio that has borrowed money to finance more real property acquisitions. Real estate is typically shown "net of debt" (rather than "gross of bricks and mortar").

HOW DOES THE "3X" LEVER IMPACT RETURN/RISK?

Financial leverage works much the same way as a crowbar works in a physical context. Simply put, crowbars allow us to get a desired/better result with fewer resources (e.g., lift a heavy object).

The characteristics of Mercer's Levered RRBs are shown below, with leverage shown as a "short" T Bill (-200%) exposure, and the resulting net "longer" RRB exposure of +300%. On a net basis, Mercer calls this "3X RRBs" (+100% = 300% - 200%).

Using Mercer's return assumptions, the table shows how leverage "lifts" returns higher (almost 2%, from 2.7% to 4.6%). This return lift comes at a small leverage cost (0.7%). In other words, crowbars aren't free.

Table 14. "Levered RRBs" Portfolio

Asset Allocations	Composition	Median 10 Year Return	Duration
Treasury Bills	-200%	1.4%	0.1
RRBs	300%	2.7%	15.0
3X RRBs	100%	5.3%	**44.8**
Less Leverage Cost		-0.7%	
Total		4.6%	

For both the Basic Portfolio and Pension Portfolio, Mercer says:

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum"[32].*

[31] Another portfolio, involving Provincial Bonds, was also considered.
[32] MPI Exhibit 12, pages 11 and 23 of 36

WHY PUT A CONSTRAINT ON LEVERAGE?

One motivation for prohibiting the use of leverage is to limit the potential losses from price movements. For example, stocks can double in price (100% gain), but they can't fall below $0 (negative 100%). As a result, selling a stock "short" (one we don't own) comes with a risk because we need to buy it back to close out the position, and the cost of doing so may rise substantially if its price rises enough.

Another form of leverage is simply to borrow funds and use the proceeds to buy more assets. A similar risk arises – the cost of your financing (short) could rise and/or the value of your (larger) assets could fall.

MOVING LEVERAGE DOWN THE BALANCE SHEET

If Mercer's model could speak for itself, it might agree with my description about asset "leverage" below, because the model focuses on "surplus" (assets and liabilities).

> "One asset's 'leverage' is another liability's 'hedge'."
> Valter Viola

While asset "leverage" increases the net duration of RRBs to ~ 45[33] (and may seem "high"), this is too narrow a view because the return/risk profile of asset classes should never be viewed in "isolation". We should always take a total portfolio perspective by consider all assets together, and we should also take into account both sides of the balance sheet (i.e., liabilities).

On the next page, we show how the leverage contemplated by Mercer could be re-classified on the balance sheet from RRBs to Bonds (top panel). (This re-grouping of T Bills from real to nominal bonds is better because T Bills are a "nominal" product.[34])

The bottom panel shows a third way of looking at asset "leverage", by moving the "short" T Bill (borrowing equivalent) to the other side of the balance sheet – with other liabilities – where it naturally belongs. This treatment is consistent with my recommendation two years ago (Recommendation #16) related to real estate borrowing, and recognizes that a short T Bill exposure is equivalent to "borrowing short-term (say < 90 day term to maturity)".

[33] This assumes a 15 duration for the RRB Index, and TBills at ~ 0.1. Using the "3X" factor, the leverage increases the net duration of RRBs from ~ 15 to ~ 45 (3X).

[34] T Bills don't provide inflation indexation per se, though given the short time to maturity, real purchasing power would typically be maintained on T Bills.

Table 15. Re-classifying "Leverage" from RRBs to Bonds

The table below shows how leverage could be re-classified to show a 45% exposure to RRBs (3 X 15%).[35]

Assets (A)	(1) Per Mercer	(2) Show Asset Leverage	(3) Re-classify TBill Leverage	(4) = (1) + (2) + (3) Assets (A)		
RRBs (Gross)	-	+30.0	-	RRBs (Gross)	45.0	← *45% RRBs*
T Bills	-	-30.0	+30.0			
RRBs (Net)	15.0	0.0	+30.0			
Bonds	53.0	-	-30.0	Bonds (Net)	23.0	← *23% Bonds*
Other Assets	32.0	-	-	Other Assets	32.0	
Total Assets	**100.0**	**0.0**	**0.0**	**Total Assets**	**100.0**	

The table below shows how **liabilities** are "**de-leveraged**" by including "3X RRBs". If T Bill and Basic Liability durations are ~ 0.1 and ~ 10.3 respectively, liability duration (including short T Bills) **falls** to 8.0 (from 10.3). In other words, asset leverage can reduce surplus risk. This way, "leverage" starts to sound less "risky".

Table 16. Re-classifying "Leverage" to the Liability Side of the Balance Sheet

	(4) From Above		(5) Show Liability De-Leverage	(6) = (4) + (5) Sub-Total	(7) = (6)/130% Express as % of 100	Duration	
	Assets (A)						
45% →	RRBs (Gross)	45.0	-	45.0	35.0		
23% →	Bonds (Net)	23.0	+30.0	53.0	41.0		
	Other Assets	32.0	-	32.0	24.0		
	Total Assets	**100.0**	**30.0**	**130.0**	**100.0**		
	Liabilities (L)						
	Basic Liabilities	100.0	-	100.0	77.0	~ 10.3	
	Short-term Borrowing	0.0	30.0	30.0	23.0	~ 0.1	
	Total Liabilities	**100.0**	**30.0**	**130.0**	**100.0**	**~ 8.0**	← *Lower Duration*

[35] MPI Exhibit 12, page 12 of 36

ATTACHMENTS

ATTACHMENT A. EVIDENCE FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT B. TESTIMONY FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT C. MPI EXHIBIT 12 (MERCER'S "REAL" EFFICIENT FRONTIER ANALYSIS)

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Manitoba Public Insurance
2017/18 GRA

MPI's Investment Portfolio
Risk, Return and Good Practice

Prepared for Consumers' Association of Canada, (Manitoba) Inc.
Submitted by the Public Interest Law Centre

Valter Viola

September 26, 2016

CONTENTS

INTRODUCTION 5
Terms of Reference 5
Rate Application Materials Reviewed 5
Other Considerations 5
Organization of this Document 6
Terminology 7
AUTHOR BACKGROUND 7
Relevant Experience 7
CPP Investment Board 8
Ontario Teachers' Pension Plan 8
Pension Investment Association of Canada (PIAC) 8
No P&C Experience 8
Teaching, Applied Research and Education 9
EXECUTIVE SUMMARY 10
Recommendations 10
I. OVERVIEW AND OVERSIGHT/GOVERNANCE 13
Principles that Informed Evidence and Questions 13
Principle #1: The Valuation Basis Should Reflect the Specific Need 13
Principle #2: Common Barriers to Excellence Should Be Acknowledged and Addressed 13
Beliefs that Informed Evidence and Questions 16
Belief #1: SUSTAINABILITY: The major stakeholder risk is that the current provisions will not be sustainable in the future (recognizing that investment returns are one of many factors which will contribute, positively or negatively, towards sustainability). 16
Belief #2 (MINIMUM RISK PORTFOLIO): Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio. 16
Belief #3 (ADDITIONAL RISK): Taking additional risk beyond the Minimum Risk Portfolio should be done only if the expected additional returns justify doing so. 17
Belief #4 (TOTAL PORTFOLIO): The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the Minimum Risk Portfolio is taken. 17
Belief #5 (CONSTRAINTS): Constraints never increase expected risk-adjusted returns. 19
II. MEASUREMENT 20

Background 20
Different Users of Financial Information Have Different Needs 20
Useful Information Has Key Characteristics 21
Accountants, Actuaries and Portfolio/Risk Managers are Guided by Different Principles 21
GAAP, ASOP and GARP are All Important, But They Answer Different Questions 22
Accountants 23
Actuaries 23
Portfolio/Risk Managers 23
Many Discount Rates, Each to Meet a Different Need 23
Terminology Can Be Confusing, Given Different Bases for Measurement 24
MPI's Balance Sheet (GAAP) Needs "Adjustments" for Portfolio/Risk Management 25
Equities (18% of Assets) and HTM Bonds (25%) Require the Biggest Adjustments 27
Employee benefits (15%) and Unpaid Claims (70%) Require Adjustments Too 27
Q&A with MPI about Accounting and Portfolio/Risk Management Dependencies 28
Reconciling Market Values, Accounting Values and the Nature of their Risks 28
Accounting as a Potential "Tool" 29
MPI Has Some Discretion re: Accounting, But It Is Not Clear What That Is 29
Asset Accounting is Not Comparable Across the Portfolio 30
Asset Accounting: AFS Assets 30
Asset Accounting: HTM Assets 31
Liability Accounting: "Remeasurement" of Employee Benefits (Excluded from Risk Metric) 31
Greater Volatility in Comprehensive Income than Net Income 35
MPI's Return/Risk Metric is a Less "Comprehensive" Accounting Metric 36
MPI Elects to Use Net Income/Retained Earnings in Return/Risk Definition 37
Short-Term vs Long-Term Tradeoffs 37
Comprehensive Income is Better than Net Income (for Risk Management), But Not Best 37
Market Values are More Relevant than Accounting Values for Portfolio Decision-Making 38
Market Risks Do Not Depend on How Assets and Liabilities are Measured by Accountants 39
Three "Theoretical" Questions About the Interdependence of Accounting and Portfolio Design 40
1st Question: Changes in Asset Accounting 40
2nd Question: Changes in Liability Accounting 40
3rd Question: Changes in Asset Mix 40
MPI's Response to Questions 1, 2 and 3 40

III. MANAGEMENT 41
The Cost of Constraints 41
Reliance on Quantitative Models 41
Minimum/Maximum Constraints in Optimizations 42
10% Minimum Weight to Canadian Equities to Retain a Meaningful Exposure to Home Markets 42
Equity Risk Concentration 44
Duration 46
Borrowing (Interest Rate Risk) in Real Estate 46
Commingling of Employee Benefit Plans 47
APPENDIX A: VALTER VIOLA'S CURRICULUM VITAE 48
APPENDIX B: GLOSSARY OF TERMS 51

INTRODUCTION

Terms of Reference

I was retained by the Consumers' Association of Canada Manitoba ("CAC") to advise and assist on issues related to the MPI investment portfolio (the "Portfolio"), including a good practice consideration of issues related to risk versus return and prudent, reasonable and appropriate management of the portfolio.

As stated in my terms of retainer, it is my duty to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within my area of expertise; and
- provides such additional assistance as the Public Utilities Board ("PUB") may reasonably require to determine an issue.

I understand that my duty in providing assistance and giving evidence is to help the PUB. This duty overrides any obligation to CAC.

Rate Application Materials Reviewed

My review of the Rate Application focused on information related to the portfolio, including:

- Asset-Liability Studies;
- MPI's Investment Policies; and
- MPI's Financial Statements and Accounting Principles.

Other Considerations

I also reviewed and considered the following other information:

- MPI's most recent annual report;
- Information responses prepared by MPI and/or Aon to CAC questions relating to its investment portfolio;
- annual reports/websites of selected other funds;
- selected information from Rate Applications related to prior years;
- Report on Canadian Economic Statistics to 2013[1]; and
- Asset Mix Survey of Canadian defined benefit ("DB") pension plans prepared by Pension Association of Canada ("PIAC").

To a lesser extent, I reviewed information about MPI's capital adequacy (reserves). I also read the IRFRF Technical Conference Materials and participated in the session by phone.

[1] The latest report was not used. Instead, data from 2013 was used since this data would have been the data available when the 2014 asset-liability study was completed by Aon.

Organization of this Document

This document consists of these three sections:

I. OVERVIEW AND OVERSIGHT/GOVERNANCE;
II. MEASUREMENT; and
III. MANAGEMENT.

This document takes into account three (3) inconvenient truths, and their consequences, which are illustrated below.

TRUTH	**We don't know very much**	**Beneficiaries/ owners ≠ managers**	**Correlations are not perfect**
	Low signal/noise (return/risk) ratio	*Institutions manage $ for clients/beneficiaries*	*Risks don't add (1 + 1 ≠ 2)*
Truth and Consequence	We need to make investment decisions but **we don't know very much**	The interests of stakeholders[1] may not be aligned because **beneficiaries/owners are not the same as managers**	The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because **correlations are not perfect**
HELPFUL TOOLS	**BELIEFS[2]**	**CAPITAL/REGULATORY FRAMEWORK[3]**	**RISK FRAMEWORK[3]**

1. Stakeholders include MPI, rate-payers and Manitoba Finance.
2. Beliefs support long-term portfolio design (e.g., asset mix).
3. Capital/Risk/Regulatory Frameworks provide a focus (clarity in mission) and process to overcome common barriers to excellence.

BELIEFS: In Section I (OVERVIEW AND OVERSIGHT/GOVERNANCE) my beliefs related to risk management are summarized, along with a list of common challenges ("barriers to excellence") among organizations generally, and asset management firms in particular. I believe that two of the top three challenges facing asset management firms relate to their **focus and process**, and the beliefs help to address these challenges.

The third challenge relates to resources, which in MPI's case, includes a portfolio that is closer to $2 billion than $200 billion. Simply put, practices that are appropriate and prudent for a $200 billion fund may not be available to a $2 billion fund, though the beliefs and principles that are deemed to be appropriate and prudent for both funds may be the same.

FRAMEWORKS FOR RISK/CAPITAL MANAGEMENT: The second and third truths (including their consequences), inform **Measurement** (Section II) and **Management** (Section III) – i.e., long-term asset mix decision-making.

Terminology

Appendices include a glossary of terms to facilitate discussions, including the terms listed below. Not all of these terms may appear in this document, but all terms were defined in either CAC (MPI) 1-67 or CAC (MPI) 2-34.

• Accounting reports • Actuarial reports • Asset risk • Assumptions • Available for sale (AFS) • Duration • Financial assets and liabilities at Fair value through profit or loss (FVTPL) • Held to maturity (HTM)	• Inherent risk • Investment risk • Liability from Basic Claims • Liability from pension plan • Liquidity risk • Market interest rate • Market reports • Market risk • Other comprehensive income (OCI)	• Reinvestment rate risk • Risk • Risk (as defined in Asset-Liability Study) • Risk-free rate • Risk profile • Surplus risk • Unrealized gains and losses • Valuation methodology • Value

Appendices include other information that is referenced in one or more sections.

AUTHOR BACKGROUND

Relevant Experience

With over 20 years of experience in the institutional fund management sector, I have 12 years of combined executive, senior management and other experience at two of Canada's largest institutional investors:

- ~ $290 billion CPP Investment Board (2000 to 2005); and
- ~ $170 billion Ontario Teachers' Pension Plan (1993 to 2000).

I have a decade of consulting experience (Holland Park Risk Management, since 2005) advising some of North America's largest institutional investors (boards, investment committees, executives and other staff) on various aspects of investment risk management, measurement and governance. Clients have also included Canadian pension funds with assets under management that are about the same as those managed by MPI.

My specific expertise includes:

- investment research, economics and risk management;
- portfolio management; and
- quantitative asset-liability modelling.

My curriculum vitae is in Appendix A.

CPP Investment Board

I was the first executive officer responsible for research and risk management of CPP Investment Board ("CPPIB"), the largest single purpose pool of capital in Canada with assets under management of ~ $290 billion today. As VP, Research and Risk Management I reported to the CEO/Chief Investment Officer over a five year period and was the chief risk officer responsible for all aspects of investment risk management. Research responsibilities covered a broad range of investment issues, including long-term asset allocation, currency hedging and investment policies. As one of four investment executive officers, I was involved in investment strategy specifically and the management of the organization generally.

Ontario Teachers' Pension Plan

I held a variety of roles over a seven year career at Ontario Teachers' Pension Plan ("Teachers'"), the largest single-profession pension plan in Canada with ~ $170 billion of assets under management today. Teachers' is considered a global leader in pension/risk management.

As the first analyst in the Research and Economics Department, I developed Teachers' first Asset-Liability Model to support long-term asset allocation strategies (e.g., allocation between equities, bonds and other asset classes). As a Director of Research, my responsibilities included conducting research to support the introduction of new asset classes, currency hedging policies, as well as broad asset allocation decisions on both a strategic (policy/long-term) and tactical (active/short-term) basis.

As a member of Teachers' Investment Planning Committee, I participated in shorter-horizon (tactical/active) decisions regarding asset allocation and currency hedging. As the first Portfolio Manager of Teachers' Tactical Asset Allocation ("TAA") portfolio, I was responsible for managing one of the most "active" programs at Teachers'[2]. I was also the Portfolio Manager of the real return bond ("RRB") portfolio[3].

Pension Investment Association of Canada (PIAC)

I was also a member of the Investment Practices Committee of the Pension Investment Association of Canada ("PIAC").

No P&C Experience

I have not worked with property and casualty ("P&C") insurers, but I have been an advisor to workers' compensation funds in Canada and asset managers who manage assets for workers' compensation funds in both Canada and the United States.

[2] Performance of the TAA portfolio exceeded value added targets and resulted in the maximum bonus multiplier allowed under Teachers' performance incentive system.

[3] As RRB portfolio manager, I was part of a team that greatly increased the size of Teachers' RRB portfolio. In the year that I left Teachers' to join CPPIB (2000), Teachers' increased its exposure from $8.6 billion to $20.6 billion.

Teaching, Applied Research and Education

I received the Chartered Accountant (CA) designation and taught accounting as well as finance/investments at Wilfrid Laurier University and York University respectively before starting my career in applied research and portfolio/risk management in the Research and Economics Department at Teachers', where I qualified as a Chartered Financial Analyst ("CFA").

I am an MBA graduate from the Richard Ivey School of Business (Western University) and graduated from the University of Toronto with distinction (BComm).

EXECUTIVE SUMMARY

This paper has been informed by:

- principles that are generally accepted and relevant in the circumstances;
- investment beliefs that, by definition have varying degrees of empirical support and theoretical justification, but which I hold and consider to be reasonable and relevant in the circumstances; and
- facts from a variety of sources, including:
    - MPI (e.g., the Rate Application, audited financial statements and responses to CAC questions); and
    - Aon (e.g., Asset-Liability Study and responses to CAC questions related to it).

Recommendations

Clarity of Accounting Choices	MPI should clarify what flexibility it has regarding the accounting for assets and liabilities, while remaining GAAP-compliant, and the factors it takes into account in electing to use one method/assumption over others.
Adoption of More Comparable Accounting Principles	In measuring its investment portfolio and liabilities, MPI should consider adopting accounting principles, where GAAP allows MPI to make such elections, that reduce the discrepancy between net income and comprehensive income (as these terms are currently defined by MPI), to improve comparability across all assets as well as liabilities. Comparability would be improved, for example, by accounting for more assets in a way that is consistent with the treatment of financial assets and liabilities at fair value through profit or loss ("FVTPL").
AFS and HTM Accounting	Unrealized gains and losses for AFS assets (~ 20% of assets), for example, are reported as "other comprehensive income (OCI)" and are excluded from net income until realized, making the net income recognition for unrealized gains on equities (~ 18% of assets) inconsistent with FVTPL assets. The treatment of HTM Bonds (25%), recorded at amortized cost, should also be re-considered. Market valuations are generally more comparable, relevant, transparent, understandable and subject to less potential bias than valuations in reports that are based on MPI's current accounting practices.
Pension Liability Accounting	Reconsideration should also include the remeasurement of employee benefits (~ 15% of liabilities and equities) which is considered OCI. The remeasurement of employee benefits is large (given the long duration of pension liabilities), but OCI arising from changing interest rates that impact the value of pension liabilities is not recognized through transfers to net income under current practices.
Return/Risk Definitions for Asset Mix Decision	MPI should re-define return/risk used to inform its long-term asset mix decisions to be based on valuations that reflect market values, rather than accounting ones (which may be materially different). At a minimum, net income should be replaced by comprehensive income in the numerator (return) and retained earnings should be expanded to include accumulated other comprehensive income (AOCI) in the denominator (risk). In the long term, market returns and market risks will determine average long-term premium rates, regardless of how assets and liabilities are accounted for under GAAP.

De-Linking Discount Rates	For purposes of long-term asset allocation decision-making, MPI should consider "breaking the link" (recursive) between liability valuations and the yield on some of its assets. Economic theory suggests this approach is more appropriate.
Min/Max Asset Class Constraints	The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit.
Evolved Risk Framework	An evolved risk framework should be considered to improve portfolio/risk measurement, management and/or governance.

Explicit Risk Management Goals	Among other things, the risk framework could include explicit goals related to market risk management (as well as goals related to other types of risk if those require enhancement). One goal might be to avoid "undue risk", which is risk that is taken:
	• unknowingly, not having been identified (unaware); or
	• knowingly, but which:
	  ○ cannot be managed prudently, given current capacities (ineffective);
	  ○ exceeds risk tolerances (prohibited);
	  ○ is higher than it needs to be (inefficient); or
	  ○ is not understood (uninformed).
	
	Another goal might be to get paid better/well for those risks that are desired, with incentive systems that encourage desired behaviours that achieve desired outcomes and controls that monitor compliance with limits that discourage/prevent undesired behaviours and prevent undesired outcomes.

Minimum Risk Portfolio	A minimum risk portfolio (for market risk) should be clearly defined. It should be aligned with the interests of relevant stakeholders, with clarity regarding the short-term and long-term factors that impact rate sustainability and other important outcomes.
Canadian Equities' 10% Minimum Allocation	The appropriateness and prudence of having a 10% minimum weight to Canadian Equities ("to retain a meaningful exposure to home markets") should be reconsidered, given the different interests of different stakeholders (e.g., employees through the pension plan), the concentrated nature of Canada's equity market, and other such relevant considerations.
No International Equities	The appropriateness and prudence of having no exposure to International Equities should be reconsidered, given the large size of non-US foreign markets, the return opportunities that are potentially available from those missed opportunities and the effects of increased international diversification on long-term market risks.
No Over-Reliance on Quantitative Modeling	MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.
Exclusion of Real Return Bonds	The role that RRBs can play in effectively managing relevant risks should be discussed, with consensus achieved regarding the effectiveness of RRBs from a risk management perspective (i.e., independent of the cost of any "insurance" as measured by RRB yields and their expected returns).
Effectiveness of Duration Policy	The effectiveness of the duration policy should be reviewed, given the inherent risks of changing real interest rates and unexpected inflation arising from MPI's liabilities, and exposure to changes in nominal interest rates in the MPI portfolio (i.e., nominal bonds

	without inflation protection). More specifically, MPI should re-assess the effectiveness of its duration-matching strategy since inflation (actual and/or expected) may differ from current expectations.
Integration of Real Estate/Infrastructure Liabilities in Duration Management	MPI should consider the liabilities arising from all sources (i.e., including real estate and infrastructure) in its interest rate risk management practices (duration), to be consistent with its management of risks arising from insurance, pension and other liabilities. The financial leverage assumptions used in Asset-Liability Studies that support long-term asset mix decisions should be made consistent with the leverage actually used in the portfolio, removing the ~ 4% difference related to real estate debt.
Removal of 105% Rule in Investment Policies	MPI should remove from its Investment Policies the ability to request external managers to realize gains (losses) ("105% Rule"), which MPI says "is no longer relevant". This would remove an ability by MPI to cause a manager to realize gains (losses) for the sole purpose of having an impact on net income, without yielding any economic value, reducing risk or otherwise conferring another benefit on MPI.
Pension Fund	The interests of all relevant stakeholders should inform decisions regarding both the accounting for and management of the assets and liabilities related to the pension plan and other employee benefits. A desirable outcome is to have greater clarity around the appropriateness and prudence of maintaining different types of assets and liabilities commingled in one fund.

I. OVERVIEW AND OVERSIGHT/GOVERNANCE

Principles that Informed Evidence and Questions

Principle #1: The Valuation Basis Should Reflect the Specific Need

The basis for valuing assets and liabilities, and recognizing revenues, expenses, gains and losses, should reflect the specific need (i.e., decision). Some needs are common to all stakeholders (e.g., assessment of past performance) and can be met by the application of generally accepted accounting principles (GAAP), with perhaps minor adjustments, while other needs are better met using other bases for measurement that require much larger adjustments to GAAP.

I believe that long-term, asset mix decisions in particular requires the use of market valuations in calculations of returns and risks rather than ones that are based on accounting valuations.

Principle #2: Common Barriers to Excellence Should Be Acknowledged and Addressed

Institutional investors face common challenges ("barriers to excellence"). For example, over 20 years ago senior executives responsible for managing defined benefit pension plans cited the following three largest barriers to excellence:

1. Poor **process** (almost 100%):
    a. Structure;
    b. **Communication**;
    c. Inertia;
2. Inadequate resources (~ ½); and
3. Lack of **focus** or clear mission (almost ½).

This evidence and questions I posed were informed by the first and third common challenge noted above. i.e., process (#1), including communication (i.e., accounting) and focus (#3), including how return/risk is defined.

Given the nature and scope of my terms of reference, I include no observations regarding resources (#2 challenge).

The next page shows the source for these common barriers, including the rest of the "Top 10" list of barriers, with "conservatism" being #4.

Table 2.2 Barriers to Excellence in Pension Fund Management: The Views of 50 Senior Pension Executives

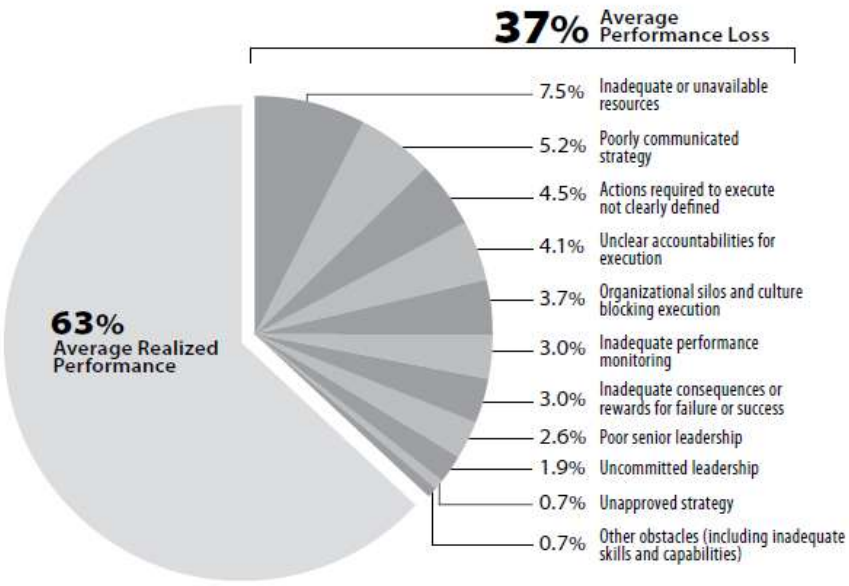
Rank	Barrier	Cited (%)
1	Poor process (including structure, communication, and inertia)	98
2	Inadequate resources	48
3	Lack of focus or of clear mission	43
4	Conservatism	35
4	Insufficient skills	35
6	Inadequate technology	13
7	Conflicting beliefs	8
7	Difficult markets	8
9	Lack of innovation	5
9	Suppliers	5

Source: Excellence Shortfall in Pension Fund Management: Anatomy of a Problem, by K. Ambachtsheer, C. Boice, D. Ezra, and J. McLaughlin, unpublished Research Paper, October 1995.

A Harvard Review article (2005) made similar observations (below) regarding organizational performance generally (i.e., not just pension funds or other types of institutional investors), describing "where the performance goes" and how average realized performance falls short (only 63%, per graph below).

Where the Performance Goes

This chart shows the average performance loss implied by the importance ratings that managers in our survey gave to specific breakdowns in the planning and execution process.



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Beliefs that Informed Evidence and Questions

The first "inconvenient truth" is that **we need to make investment decisions but we do not know very much in the field of investments due to the low signal/noise (return/risk) ratio**. As a result, we need to rely on beliefs and I believe that it is important to be transparent about those beliefs. (MPI has included some of its beliefs in its Investment Policies, and I list five of mine below.)

The five beliefs listed below were developed by a former colleague of mine at CPPIB, whom I consider to be a global thought leader in investment management[4].

Belief #1: SUSTAINABILITY: The major stakeholder risk is that the current provisions will not be sustainable in the future (recognizing that investment returns are one of many factors which will contribute, positively or negatively, towards sustainability).

This belief is important because "lack of focus or clear mission" was cited by almost ½ of surveyed pension executives as being a large barrier to excellence (3rd largest challenge).

I believe that investment programs need to focus on the risk of long-term sustainability, and to develop the key metrics (starting with risk) that clearly define the primary risk (i.e., primary risk metric, and time horizon).

Belief #2 (MINIMUM RISK PORTFOLIO): Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio.

This belief is important because "poor process" was cited by almost 100% of surveyed pension executives as being the largest (#1) barrier to excellence. I believe that investment programs need to have better processes for communicating the primary risk and the structures to support the management of that primary risk (i.e., metrics that define return/risk tradeoffs, with a long-term perspective).

I believe that MPI's minimum risk portfolio (MRP) should include at least some long-duration real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure). Note, however, that Belief #2 simply supports the definition of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these follow-on questions requires additional beliefs, starting with the next two beliefs below (taken together).

[4] Donald Raymond led the development of these beliefs as Vice President, Public Markets at CPP Investment Board. These beliefs were approved by the CPPIB Board of Directors, and reviewed by three other external advisors who were considered to be thought leaders as well.

Belief #3 (ADDITIONAL RISK): Taking additional risk beyond the Minimum Risk Portfolio should be done only if the expected additional returns justify doing so.

AND

Belief #4 (TOTAL PORTFOLIO): The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the Minimum Risk Portfolio is taken.

Together, Beliefs #3 and #4 imply that the attractiveness of any asset class should be assessed, not in isolation, but in the context of the other assets that are in the portfolio or contemplated to be in the portfolio, and the MRP that is defined in Belief #1 and #2.

The rationale for taking a total portfolio approach stems from the "inconvenient truth", mentioned earlier, and re-stated below.

> The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because correlations are not perfect.

In questions related to RRBs, MPI said:

> *"Real return bonds were excluded … because they were deemed to be expensive. Aon Hewitt's … assumptions showed **real return bonds to have significant volatility and down side risk*** with modest returns relative to nominal bonds …. Also, page 17 of the Phase 1 report Aon concluded that "RRBs are not a good inflation hedge"."*[5]
>
> *** Emphasized by me, not MPI, to highlight a fundamental difference in beliefs.**

When asked if MPI agreed with AON's conclusion that **RRBs are not a good inflation hedge**, MPI said:

> *"The Corporation accepts Aon's belief that there are other inflation hedging asset classes available (i.e.: real estate and infrastructure) with greater expected returns … At the time of the ALM study the real yields on RRBs were below 40 bps for 20 year terms and below 10 bps for 10 years and shorter terms. Real yields for the same terms are currently negative."*

Asked why Aon believes RRBs are not a good inflation hedge for MPI, Aon's response was:

> *"RRBs are not a good inflation hedge for MPI for the following reasons:*
>
> 1. *The underlying inflation according to nominal and real return bonds do not match the inflation used to value liabilities (which is based on a survey of Canadian banks);*
> 2. *RRBs suffer from a limited offering;*
> 3. *Supply and demand for RRBs have a large impact on the market value; and*
> 4. *Therefore, the economics of the inflation protection from **RRBs do not match the financial impact to MPI on a year by year basis**."*[6]
>
> *** Emphasized by me, not Aon, and discussed on the next page.**

[5] Source: CAC (MPI) 1-77

[6] Source: CAC (MPI) 2-39

My observations related to Aon's four points are:

1. this is a problem with the method for valuing the liabilities (survey of Canadian banks), which is not a market-based method, not a problem with the hedging properties of RRBs against a market-valued set of liabilities;
2. while RRBs suffer from a limited offering (liquidity), larger funds have managed to accumulate significant exposures (e.g., the average PIAC fund has 3%);
3. while supply and demand for RRBs may have a large impact on market value, presumably this is a one-time market impact acquisition cost – a small price to pay if RRBs are considered a buy-and-hold asset class, with little turnover; and
4. Aon appears to concede that RRBs do offer inflation protection (despite their earlier comment to the contrary) but that **RRBs do not match the financial impact to MPI on a year by year basis**. This last point represents the symptom of a bigger problem, which relates to the next belief (constraints).

When asked if Aon could list one or two asset classes that offer better inflation hedges than RRBs for MPI, and offer any evidence to support that belief, Aon said it could not, adding:

> *"There is no asset class that we know that can hedge the short term inflation risk … Over the long term,* ***where RRB's are held to maturity, shorter term price sensitivity is less relevant and inflation experienced over the period would result in higher cash flows and an inflation hedge*.*** *It is a commonly accepted belief … that higher inflation would gradually be reflected in nominal bond yields, equity returns through higher profits, real estate through increased rents and infrastructure, especially where regulated, through increased tariffs ..."*
>
> *** Emphasized by me, not Aon, to note the tradeoff between shorter term price sensitivity (less relevant according to Aon, with which I agree) and inflation experienced over the period which would result in higher cash flows and an inflation hedge.**

Belief #5 (CONSTRAINTS): Constraints never increase expected risk-adjusted returns.

This belief is important because there appear to be two very binding constraints that may cause MPI to have lower risk-adjusted returns.

These very binding constraints relate to:

1. **HOW RISK IS DEFINED** (i.e., with focus on the short term)
   "The short-term volatility of the premium rate requirement is a primary concern"[7]; and

2. **HOW ASSET CLASSES ARE CONSTRAINED**
   Minimum/maximum asset allocations in optimizations conducted as part of the most recent Asset-Liability Study, for example, are overly restrictive.

   The constrained optimization problem results in a "pre-determined" allocation to ≥ 80% of the portfolio, leaving little room to optimize return/risk tradeoffs (i.e., allocating ≤ 20% of the remaining assets). This is discussed further in another section.

[7] Source: CAC (MPI) 1-73

II. MEASUREMENT

The Measurement Section consists of two parts:

- Background; and
- Q&A with MPI about Accounting and Portfolio/Risk Management Dependencies.

Background

Different Users of Financial Information Have Different Needs

There are a variety of stakeholders who have an interest in MPI, including:

- MPI;
- consumers, who are premium/rate-payers; and
- Manitoba Finance.

Each stakeholder has common information needs regarding MPI's financial affairs, as well as unique ones that reflect their unique interest or relationship with MPI as well as their unique roles/responsibilities.

To meet the information needs of such a varied group of stakeholders, it is not reasonable to expect one set of reports to satisfy all needs of all stakeholders. That is why different kinds of reports are provided by different types of professionals, including:

- accountants;
- actuaries; and
- portfolio/risk managers.

These three information providers, and the bases for their reporting, are summarized below to facilitate discussions and avoid potential confusion. While accountants, actuaries and portfolio/risk managers use similar terms (e.g., "assets" and "liabilities"), the bases for assigning values to assets and/or liabilities often varies and these differences can be material.

This is important because the appropriateness and prudence of relying on a particular set of metrics (e.g., those prepared in accordance with GAAP) depends on the circumstances (i.e., the intended use of the information). In MPI's case, for example, MPI defines return/risk using accounting metrics ("net income/retained earnings"), rather than metrics based on market values. As a portfolio/risk manager on the one hand and former professional accountant on the other hand, I appreciate the usefulness of different measurement bases for different purposes and the potential for confusion among stakeholders that may arise.

Before reviewing the methods/assumptions used by each provider of information, and the circumstances under which one method or source is more appropriate and prudent than others, it is important to understand the characteristics of information that make it more useful in decision-making.

Useful Information Has Key Characteristics

The quality of information varies depending on many factors, and an assessment of information quality starts with clarity and agreement on the specific need (decision support) and the relevance of the information in meeting that need. Some of the characteristics of information that make it more useful are listed below. To inform the development of GAAP, for example, the accounting profession suggests that information is more useful if it is more:

- relevant;
- neutral/unbiased;
- free from error;
- comparable over time and across assets and liabilities;
- verifiable; and
- timely.

Tradeoffs exist, so choices need to be made. For example, information that is most relevant (e.g., about an uncertain future) may be less reliable compared to the past (no uncertainty, since it happened).

Accountants, Actuaries and Portfolio/Risk Managers are Guided by Different Principles

Each type of professional is guided by principles and standards that are considered appropriate and prudent in their profession.

Accountants are guided by **generally accepted accounting principles ("GAAP").**

Actuaries are guided by **actuarial standards of practice ("ASOP")**.

Portfolio/risk managers are guided by **generally accepted risk principles ("GARP")**.

GAAP, ASOP and GARP are All Important, But They Answer Different Questions

GAAP, ASOP and GARP have similarities, but also many differences. As the table below illustrates, reports prepared by accountants, actuaries and portfolio/risk managers differ in at least three respects:

- time period (past, present and future);
- basis for valuation and conservatism (e.g., historic/amortized cost, market value, etc.); and
- single valuation, compared to a range.

Role	Principles/ Standards	Relative[8] Focus (Scale from 1 to 10)			Perspective	Questions ↓ Decisions	Key Outputs (Answers)
		Past	Present	Future			
Accountant	**GAAP**	5 ●●●●●	4 ●●●●	1 ●	Today and Past (last 2 years)	What happened? ↓ Performance Assessment	GAAP-compliant Financial Statements (balance sheet, income statement)
Actuary	**ASOP**	0	3 ●●●	7 ●●●●●●●	Today and Future (decades)	What is expected to happen? ↓ Funding (Premiums/ Rates)	ASOP - compliant Rate-Setting Processes, Analyses and Valuations
Portfolio/ Risk Manager	**GARP**	0	2 ●●	8 ●●●●●●●●	Today and Future (decades)	What could happen (good and bad)? ↓ Return/Risk Profile (Asset Mix)	Efficient Frontiers (Expected Returns/Risks[9])

[8] Numbers are indicative and designed to illustrate different time perspectives.

[9] The author believes strongly that return/risk metrics should be based on the market value (as distinct from accounting value) of assets and liabilities.

The following observations are intended to distinguish between the perspectives of accountants, actuaries and portfolio/risk managers to facilitate discussions. The observations are not meant to be a complete list of how the three professionals satisfy the requirements of their profession.

Accountants

Accountants prepare accounting balance sheets (statements of financial position) at a point in time (the present), and income/cash flow statements about the recent past (prior two years).

While some values related to "present valuations" involve expected future cash flows, most reporting relates to the present financial condition as well as the results of operating, investing and financing activities from the recent past.

The present valuation of future cash flows, for the purpose of assigning a value to assets and/or liabilities, is prescribed under GAAP with GAAP-compliant practices that vary between different types of organizations (public sector vs private sector), different jurisdictions (Canada vs United States) and different sectors (insurance companies, pension plans, etc.).

Actuaries

Actuaries prepare actuarial valuations at a point in time (the present), and project income/cash flows into the future (decades). Their actuarial reports help to inform decisions about the sufficiency of assets in relation to the liabilities at a point in time and possibly the sustainability (i.e., rate adequacy) of an insurance plan or pension plan, as the case may be, over the longer term.

Portfolio/Risk Managers

Portfolio/risk managers prepare valuations at a point in time (the present) and assessments of the market value at risk arising from potential future scenarios that vary in terms of their likelihood/probability as well as severity/attractiveness (adverse vs favourable related to assets, liabilities or both).

Unlike accountants, portfolio/risk managers measure opportunity costs, as well as actual or projected costs. For example, a portfolio manager may consider the return of a benchmark portfolio (e.g., S&P 500) and a risk manager may consider risks in relation to that same benchmark portfolio ("tracking error" or active risk) as well as in relation to a minimum risk portfolio that serves as a proxy for underlying liabilities ("surplus at risk" or funding risk).

Many Discount Rates, Each to Meet a Different Need

For accounting purposes, MPI uses a discount rate for valuing liabilities that depends on yields related to MPI's assets. For actuarial purposes, MPI uses a discount rate that reflects the principles and standard for that profession. For portfolio/risk management purposes, discount rates should reflect market opportunities, and these rates may differ significantly from both accounting and actuarial discount rates.

Terminology Can Be Confusing, Given Different Bases for Measurement

The next page starts with MPI's balance sheet, prepared in accordance with GAAP, to facilitate discussions and to contrast GAAP (accounting perspective) on the one hand with GARP (portfolio/risk management perspective) on the other hand.

A glossary of terms is included in Appendix B.

> For example, "comprehensive income" is the sum of "net income" and "other comprehensive income (OCI)".

These definitions are important because MPI uses accounting definitions for return/risk analyses that support long-term asset mix decisions, and these are not the same as market-based definitions (which the author believes are more relevant to support long-term asset mix decisions).

The next page illustrates the "adjustments" that a portfolio/risk manager might make to MPI's accounting values, to meet his/her asset allocation/risk management needs, using information from MPI's financial statements that MPI confirmed (in a later section) was correctly interpreted by me.

MPI's Balance Sheet (GAAP) Needs "Adjustments" for Portfolio/Risk Management

The table below shows accounting values as a percentage (%) of the total portfolio from MPI's recent financial statements, including three (3) types of assets – each with a different accounting basis.

Three colours highlight the extent to which the bases for accounting differ from market valuations (red = larger potential difference, yellow = more modest differences, green = immaterial differences, if any).
To appreciate differences between accounting and market valuations, the table below groups assets vertically based on MPI's accounting (FVTPL, AFS, HTM) and horizontally based on market volatility[10].
Assets are sorted on an accounting basis, with asset groups characterized as having smaller differences between market values and accounting values (green) at the top and larger differences (red) below. Assets are sorted on a market volatility basis with the least volatile assets on the left. Liabilities are grouped similarly, noting that the duration of employee benefits (including the pension) is higher than for unpaid claims (i.e., greater volatility).

Accounting Asset Group		Difference Between Market and Accounting Value	
FVTPL	Financial assets and liabilities at fair value through profit or loss	**Immaterial, if any**	
AFS	Available for sale	**More modest**	
HTM	Held to maturity + non-financial	**Largest potentially**	

Accounting Asset (Liability)		A GAAP	B Reclassify	A + B Reclassified GAAP	*Lowest* Market Volatilities *Highest* Cash	Bonds	Real Estate	Infra-structure	Equities
FVTPL	Infrastructure	3[3]	*	3				3	
	Real Estate – Pool	9	4*	13			13		
	Liabilities – Real Estate		(4)*	(4)		(4)			
	FVTPL Bonds[11]	42		42		42			
AFS	Cash[12]	2		2	2				
	Equities	18		18					18
HTM[13]	HTM Bonds	25	0	25		25			
	Real Estate – Property	1		1			1		
	Total Portfolio	100	0	100	2	63	14	3	18
Non-Portfolio Liabilities									
	Unpaid Claims	(70)		(70)		(70)			
	Employee Benefits	(15)		(15)					(15)
	Total Equity	15		15					

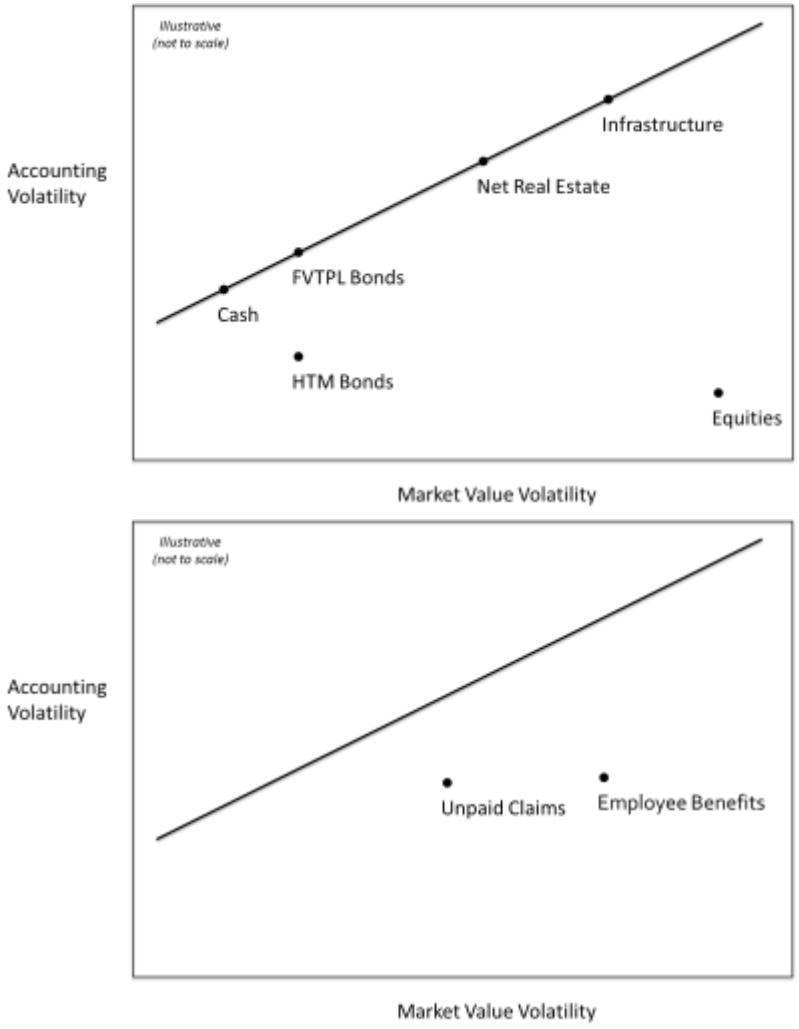
* Liabilities arising from real estate are reclassified for presentation purposes to "bonds" (by 4%) to be more consistent with assumptions used in Asset-Liability Studies. For simplicity, a similar adjustment could be made, but has not been, for liabilities arising from infrastructure given its smaller size and consistent treatment between asset-liability studies and implementation in practice.

[10] The order of market volatilities, from left to right, reflects the assumptions used in Aon's Asset-Liability Study.
[11] Includes Federal, Other Manitoba, Other Provinces and Corporates.
[12] Includes other assets (not material at ~ 0.1%).
[13] Accounting is assumed to be HTM. If this is not correct, the discrepancy is immaterial (only a 1% allocation).

The biggest differences between market values and accounting values are illustrated below, with assets shown in the top panel and liabilities in the bottom.

The X axis shows market volatility while the Y axis shows accounting value volatility.

If there were no differences between the bases for measuring assets/liabilities for accounting purposes on the one hand and portfolio/risk management purposes (market value based) on the other hand, assets and liabilities would plot along a straight 45 degree line (Y = X; i.e., no difference).



Assets/liabilities plotting below the line have market valuations that are more likely to deviate from their accounting valuations, on average. The larger the vertical gap from the line, the larger the difference is likely to be between accounting and market-based metrics. Portfolio/risk managers, including the author, may make adjustments to accounting values in their analyses to reflect these differences.

In MPI's case, notable differences from the above graphs arise for several items.

Equities (18% of Assets) and HTM Bonds (25%) Require the Biggest Adjustments

Equities (18%) are the most volatile assets, but the material component of equity volatility is recognized in net income only when gains/losses are realized through sales (i.e., unrealized gains/losses are included as OCI, not net income). HTM bonds (25%) are recorded at amortized cost for accounting purposes, which differs from market value.

Employee benefits (15%) and Unpaid Claims (70%) Require Adjustments Too

Employee benefits (15%) are the most volatile liabilities, given their long duration, but remeasurement of Employee Future Benefits Gains/Losses do not get recognized in net income (only OCI). Liabilities related to Unpaid Claims are valued for accounting purposes using a discount rate that is based on certain assets in MPI's portfolio, rather than a market rate that would be used by a portfolio/risk manager.

Q&A with MPI about Accounting and Portfolio/Risk Management Dependencies

This section reviews some of the questions that CAC posed and the responses from MPI and/or Aon. The questions were designed to better understand the dependencies, or lack thereof, between portfolio/risk management on the one hand (e.g., asset mix choice) and the basis for measurements (values of assets and liabilities, return/risk) on the other hand.

Reconciling Market Values, Accounting Values and the Nature of their Risks

The table below shows accounting values as a percentage (%) of the total portfolio using accounting values from a recent MPI balance sheet, consistent with those shown earlier.

	Portfolio[1]	FVTPL	AFS	HTM+Non-Financial
18	Equities		18	
10	Real Estate	9		1
3	Infrastructure	3		
42	FVTPL Bonds	42		
25	HTM Bonds			25
2	Cash		2	
100	**Total Portfolio**	**54**	**20**	**26**
		↓	↓	
	Unrealized Gains/Losses to:	Net Income	OCI	n/a
	Liabilities	**"Sticky" Yield[2]**	**"AA" Yield**	
70	Unpaid Claims	→ Net Income		
15	Employee Benefits	→	OCI	
85	**Total Liabilities**			
	Equity			
13	Retained Earnings			
2	Accumulated OCI			
15	**Total Equity**			
100	**Total Liabilities and Equity**			

[1] Other assets, net of other liabilities, are ~ 1% of the Total Portfolio (not shown).
[2] This represents the yield on the bond portfolio.

MPI confirmed that our understanding of the accounting, as depicted above, was correct by saying:

> *"your understanding is correct for the liabilities; however, please note that it is only the remeasurement of the employee future benefits that is put to Other Comprehensive Income (OCI), other items relating to employee future benefits is expensed to net income."*[14]

[14] Source: MPI's response to CAC (MPI) 1-71

I interpret this to mean that the (less uncertain/volatile) accrual related to employee future benefits is reflected in net income (and therefore included in the risk metric, as defined in the Asset-Liability Study), but that the (more uncertain/volatile) component arising from changing interest rates is not reflected in MPI's risk metric. (As noted in the notes to MPI's financial statements, the duration or interest rate sensitivity that results in "remeasurement" is high at 16 years – a topic discussed again in more detail in another section).

MPI did not comment on the "asset" side of the depiction above, so I assume that MPI is in general agreement with both the nature and size of the components of the assets, using the accounting-based valuations from MPI's financial statements.

Accounting as a Potential "Tool"

MPI was asked if one "general" tool that is either being used by MPI now, or could be used by MPI in the future, is the "choice" of metrics ("basis for measurement") for valuing assets, liabilities and income recognition. MPI said:

> "The "choice in metrics" for "valuing assets, liabilities and income recognition" is determined by … IFRS ... These items are not at … MPI … discretion."[15]

MPI Has Some Discretion re: Accounting, But It Is Not Clear What That Is

MPI was asked what flexibility it has in choosing accounting valuation methods for assets and liabilities and what their implications for net income and OCI are. MPI said:

> *"… MPI … is required to adhere to … IFRS ... Where there are choices within an IFRS standard, the Corporation evaluates the options and determines which is most appropriate for the Corporation."*[16]

MPI also said:

> *"certain interest rate movement can be elected to be in either Comprehensive Income or Net Income."*[17]

[15] Source: MPI's response to CAC (MPI) 2-34
[16] Source: MPI's response to CAC (MPI) 1-72
[17] Source: MPI's response to CAC (MPI) 2-34 f)

Asset Accounting is Not Comparable Across the Portfolio

The inconsistent valuation and treatment of unrealized gains and losses across asset classes is an undesirable characteristic of MPI's accounting metrics (lower transparency, less comparability), from the perspective of an external stakeholder (e.g., CAC). Some of this inconsistency may be due to the required application of GAAP in order to be GAAP-compliant while some of it may arise from MPI's election(s) to choose one method where GAAP provides such choice(s).

Asset Accounting: AFS Assets

Net income under GAAP is a metric that is influenced (positively or negatively) by both:

- the underlying transactions ("reality"); and
- how transactions are reported (i.e., accounting policies, which change over time, vary by industry/sector and region, and may provide some discretion or election to choose between two or more practices that are generally accepted and GAAP-compliant).

The adoption by MPI of AFS accounting for equities (~ 18% of assets), for example, implies that only realized gains will impact net income while unrealized gains will impact OCI. This means that net income depends on equity "turnover", which is controllable directly by the manager and indirectly by MPI. (Comprehensive income would not change as a result of turnover alone, except for the related transaction costs.) The potential for MPI to impact net income in this way, without adding real value as a result of the transaction, is a governance feature that can be improved upon.

The Investment Policy Statement says:

> *"The Corporation may … request external equity investment counsels to realize capital gains that have accumulated …. The ability to realize gains is subject to the ratio of the market value to book value of the total of both the Canadian and U.S. equity portfolios (in their native currencies) exceeding 105%. The market value to book value ratio must not fall below 105% as a result of the gains taking process."*[18]

When asked what circumstances would cause MPI to request managers to realize gains that had accrued and about the significance of the "105% rule", MPI replied:

> *"The Corporation has not requested equity managers to realize capital gains for several years and does not foresee any reasons to request the managers to realize capital gains in the future. The 105% rule was added to the Investment Policy Statement (IPS) during the 2005 IPS Review. The rule was established to provide a buffer from equity market volatility. This rule is no longer relevant to the management of the investment portfolio."*

[18] Source: CAC (MPI) 1-89

Asset Accounting: HTM Assets

Because HTM assets are carried at amortized cost in MPI's financial statements[19], some of the market risks for a significant portion of the portfolio (~ ¼ of MPI's assets) are not captured in the risk definition used by MPI in long-term asset-liability studies (i.e., the risk definition is an accounting one, which "under-reports" the true market volatility for HTM assets, among other assets and liabilities, as noted elsewhere in this document).

Liability Accounting: "Remeasurement" of Employee Benefits (Excluded from Risk Metric)

MPI said:

> "it is only the remeasurement of the employee future benefits that is put to … OCI … other items relating to employee future benefits is expensed to net income"[20].

When asked if remeasurement of the employee future benefits that is put to OCI is more volatile than the "other items relating to employee future benefits", MPI said:

> *"The response to this question requires a definition of 'volatility'. The split between remeasurement of employee future benefits and other items relating to employee future benefits is based on accounting standards. Both are actuarially determined and fluctuate year over year."*

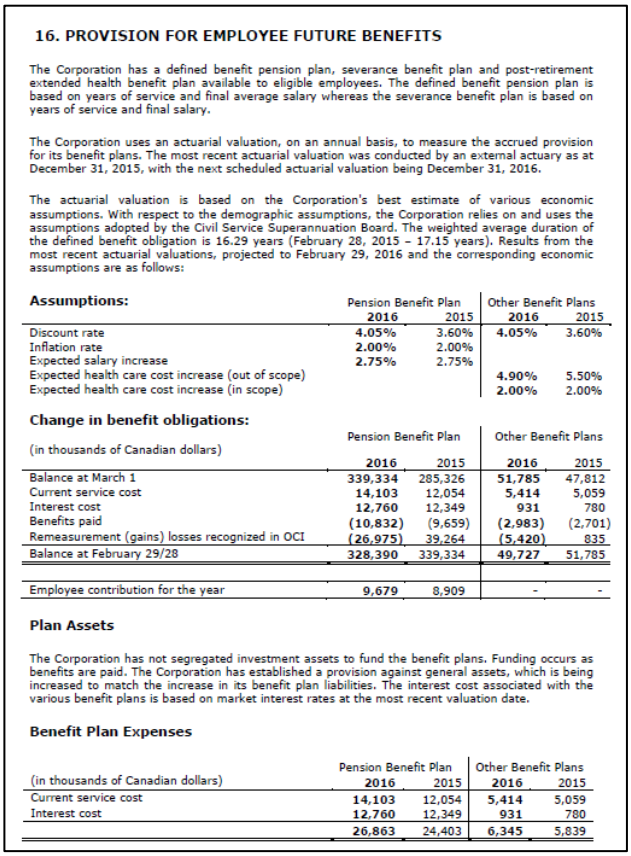
MPI was asked if it agreed that "remeasurement of employee future benefits (as defined in Note 21 of MPI's financial statements") will never impact "net income" nor "retained earnings" as those terms are used in the definition of "return" and "risk" in the Asset-Liability Study. MPI's response is below.

> *"The Corporation does not strictly agree …, as accounting standards related to the remeasurement of employee future benefits could change in the future. The Corporation … follows all relevant accounting guidelines (IAS 19) …, but has no control over prospective changes in those guidelines. Accordingly the Corporation cannot agree … that remeasurement of employee future benefits will never impact net income."*
>
> *In response to i) AON offers the following:*
>
> *We agree that the inherent economic or market risk arising from employee future benefits (reflected in the re-measurement of employee future benefits) is not reflected in the return/risk metrics in the Asset-Liability Study.*
>
> *There is a tenuous link between retained earnings and re-measurement of employee future benefits. Re-measurement … impacts … AOCI … AOCI is considered in the calculation of surplus distributions/special contributions. Surplus distributions/special contributions impact retained earnings. However, the impact is likely very small."*
>
> *Re-measurement of employee future benefits does not impact net income.*
>
> *The impact of changes in the present value of pension liabilities is modeled and flows into the AOCI."*

[19] Source: MPI's audited financial statements (Feb 2015)
[20] Source: MPI's response to CAC (MPI) 1-71

Based on these responses, I conclude that the inherent economic or market risk arising from employee future benefits (reflected in the re-measurement of employee future benefits), which I believe to be material, is not reflected in the return/risk metrics in the Asset-Liability Study and therefore not appropriately considered in asset mix decisions. As noted in MPI's financial statements "the weighted average duration of the defined benefit obligation is 16.29 years"[21]. This means that a 1% change in the discount rate used to value the liabilities would cause the value of the liability to change by approximately 16% in the opposite direction.

From MPI's financial statements (below, enlarged on the next two pages), the 0.45% increase in discount rate (to 4.05%) resulted in a remeasurement gain of ~ $27 million last year, consistent with MPI's sensitivity analysis (next page) which shows an expected $51 million gain[22] for a 1% increase (~ double the 0.45% actually reflected).



16. PROVISION FOR EMPLOYEE FUTURE BENEFITS

The Corporation has a defined benefit pension plan, severance benefit plan and post-retirement extended health benefit plan available to eligible employees. The defined benefit pension plan is based on years of service and final average salary whereas the severance benefit plan is based on years of service and final salary.

The Corporation uses an actuarial valuation, on an annual basis, to measure the accrued provision for its benefit plans. The most recent actuarial valuation was conducted by an external actuary as at December 31, 2015, with the next scheduled actuarial valuation being December 31, 2016.

The actuarial valuation is based on the Corporation's best estimate of various economic assumptions. With respect to the demographic assumptions, the Corporation relies on and uses the assumptions adopted by the Civil Service Superannuation Board. The weighted average duration of the defined benefit obligation is 16.29 years (February 28, 2015 – 17.15 years). Results from the most recent actuarial valuations, projected to February 29, 2016 and the corresponding economic assumptions are as follows:

Assumptions:

	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Discount rate	**4.05%**	3.60%	**4.05%**	3.60%
Inflation rate	**2.00%**	2.00%		
Expected salary increase	**2.75%**	2.75%		
Expected health care cost increase (out of scope)			**4.90%**	5.50%
Expected health care cost increase (in scope)			**2.00%**	2.00%

Change in benefit obligations:

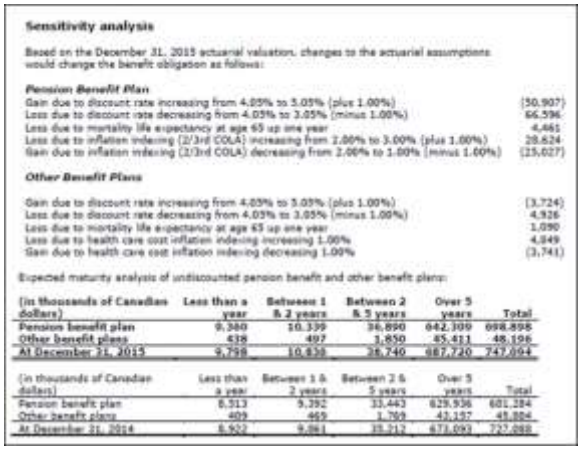
(in thousands of Canadian dollars)	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Balance at March 1	**339,334**	285,326	**51,785**	47,812
Current service cost	**14,103**	12,054	**5,414**	5,059
Interest cost	**12,760**	12,349	**931**	780
Benefits paid	**(10,832)**	(9,659)	**(2,983)**	(2,701)
Remeasurement (gains) losses recognized in OCI	**(26,975)**	39,264	**(5,420)**	835
Balance at February 29/28	**328,390**	339,334	**49,727**	51,785
Employee contribution for the year	**9,679**	8,909	-	-

Plan Assets

The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities. The interest cost associated with the various benefit plans is based on market interest rates at the most recent valuation date.

Benefit Plan Expenses

(in thousands of Canadian dollars)	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Current service cost	**14,103**	12,054	**5,414**	5,059
Interest cost	**12,760**	12,349	**931**	780
	26,863	24,403	**6,345**	5,839



Sensitivity analysis

Based on the December 31, 2015 actuarial valuation, changes to the actuarial assumptions would change the benefit obligation as follows:

Pension Benefit Plan

Gain due to discount rate increasing from 4.05% to 5.05% (plus 1.00%)	(50,907)
Loss due to discount rate decreasing from 4.05% to 3.05% (minus 1.00%)	66,596
Loss due to mortality life expectancy at age 65 up one year	4,461
Loss due to inflation indexing (2/3rd COLA) increasing from 2.00% to 3.00% (plus 1.00%)	28,624
Gain due to inflation indexing (2/3rd COLA) decreasing from 2.00% to 1.00% (minus 1.00%)	(25,027)

Other Benefit Plans

Gain due to discount rate increasing from 4.05% to 5.05% (plus 1.00%)	(3,724)
Loss due to discount rate decreasing from 4.05% to 3.05% (minus 1.00%)	4,926
Loss due to mortality life expectancy at age 65 up one year	1,090
Loss due to health care cost inflation indexing increasing 1.00%	4,849
Gain due to health care cost inflation indexing decreasing 1.00%	(3,741)

Expected maturity analysis of undiscounted pension benefit and other benefit plans:

(in thousands of Canadian dollars)	Less than a year	Between 1 & 2 years	Between 2 & 5 years	Over 5 years	Total
Pension benefit plan	9,380	10,339	36,890	642,309	698,898
Other benefit plans	418	497	1,850	45,411	48,196
At December 31, 2015	9,798	10,836	38,740	687,720	747,094

(in thousands of Canadian dollars)	Less than a year	Between 1 & 2 years	Between 2 & 5 years	Over 5 years	Total
Pension benefit plan	8,513	9,392	33,443	629,936	681,284
Other benefit plans	409	469	1,769	43,157	45,804
At December 31, 2014	8,922	9,861	35,212	673,093	727,088

[21] Source: MPI's audited financial statements

[22] $51 million gain ~ 16 year duration x 1% change x $312 million average value of pension benefits in the year).

16. PROVISION FOR EMPLOYEE FUTURE BENEFITS

The Corporation has a defined benefit pension plan, severance benefit plan and post-retirement extended health benefit plan available to eligible employees. The defined benefit pension plan is based on years of service and final average salary whereas the severance benefit plan is based on years of service and final salary.

The Corporation uses an actuarial valuation, on an annual basis, to measure the accrued provision for its benefit plans. The most recent actuarial valuation was conducted by an external actuary as at December 31, 2015, with the next scheduled actuarial valuation being December 31, 2016.

The actuarial valuation is based on the Corporation's best estimate of various economic assumptions. With respect to the demographic assumptions, the Corporation relies on and uses the assumptions adopted by the Civil Service Superannuation Board. The weighted average duration of the defined benefit obligation is 16.29 years (February 28, 2015 – 17.15 years). Results from the most recent actuarial valuations, projected to February 29, 2016 and the corresponding economic assumptions are as follows:

Assumptions:

	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Discount rate	**4.05%**	3.60%	**4.05%**	3.60%
Inflation rate	**2.00%**	2.00%		
Expected salary increase	**2.75%**	2.75%		
Expected health care cost increase (out of scope)			**4.90%**	5.50%
Expected health care cost increase (in scope)			**2.00%**	2.00%

Change in benefit obligations:

(in thousands of Canadian dollars)	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Balance at March 1	**339,334**	285,326	**51,785**	47,812
Current service cost	**14,103**	12,054	**5,414**	5,059
Interest cost	**12,760**	12,349	**931**	780
Benefits paid	**(10,832)**	(9,659)	**(2,983)**	(2,701)
Remeasurement (gains) losses recognized in OCI	**(26,975)**	39,264	**(5,420)**	835
Balance at February 29/28	**328,390**	339,334	**49,727**	51,785
Employee contribution for the year	**9,679**	8,909	-	-

Plan Assets

The Corporation has not segregated investment assets to fund the benefit plans. Funding occurs as benefits are paid. The Corporation has established a provision against general assets, which is being increased to match the increase in its benefit plan liabilities. The interest cost associated with the various benefit plans is based on market interest rates at the most recent valuation date.

Benefit Plan Expenses

(in thousands of Canadian dollars)	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Current service cost	**14,103**	12,054	**5,414**	5,059
Interest cost	**12,760**	12,349	**931**	780
	26,863	24,403	**6,345**	5,839

Note 16 is continued below.

Sensitivity analysis

Based on the December 31, 2015 actuarial valuation, changes to the actuarial assumptions would change the benefit obligation as follows:

Pension Benefit Plan	
Gain due to discount rate increasing from 4.05% to 5.05% (plus 1.00%)	(50,907)
Loss due to discount rate decreasing from 4.05% to 3.05% (minus 1.00%)	66,596
Loss due to mortality life expectancy at age 65 up one year	4,461
Loss due to inflation indexing (2/3rd COLA) increasing from 2.00% to 3.00% (plus 1.00%)	28,624
Gain due to inflation indexing (2/3rd COLA) decreasing from 2.00% to 1.00% (minus 1.00%)	(25,027)
Other Benefit Plans	
Gain due to discount rate increasing from 4.05% to 5.05% (plus 1.00%)	(3,724)
Loss due to discount rate decreasing from 4.05% to 3.05% (minus 1.00%)	4,926
Loss due to mortality life expectancy at age 65 up one year	1,090
Loss due to health care cost inflation indexing increasing 1.00%	4,849
Gain due to health care cost inflation indexing decreasing 1.00%	(3,741)

Expected maturity analysis of undiscounted pension benefit and other benefit plans:

(in thousands of Canadian dollars)	**Less than a year**	**Between 1 & 2 years**	**Between 2 & 5 years**	**Over 5 years**	**Total**
Pension benefit plan	**9,360**	**10,339**	**36,890**	**642,309**	**698,898**
Other benefit plans	**438**	**497**	**1,850**	**45,411**	**48,196**
At December 31, 2015	**9,798**	**10,836**	**38,740**	**687,720**	**747,094**

(in thousands of Canadian dollars)	Less than a year	Between 1 & 2 years	Between 2 & 5 years	Over 5 years	Total
Pension benefit plan	8,513	9,392	33,443	629,936	681,284
Other benefit plans	409	469	1,769	43,157	45,804
At December 31, 2014	8,922	9,861	35,212	673,093	727,088

Greater Volatility in Comprehensive Income than Net Income

MPI was asked if "comprehensive income" (i.e., including OCI) is more volatile than "net income" (i.e., excluding OCI). MPI said:

> "the answer depends on the definition of volatility and nature of volatility being assumed. If there is more potential for fluctuation due to valuation changes in equities and employee future benefits, then agreed."

A portfolio/risk manager's definition of volatility would be based on the market valuations of assets and liabilities (as distinct from accounting valuations), implying that comprehensive income is more volatile than net income as a result of investments in equities and employee benefits (mainly the pension plan's liabilities).

This greater volatility in comprehensive income, compared to net income, arises because comprehensive income includes OCI, but net income does not, for:

- unrealized gains and losses from changes in the market value of equities (AFS assets, which includes equities), noting that equities have higher market volatility compared to other assets; and
- unrealized gains and losses from changing interest rates that impact the value of pension liabilities, noting that the long duration (16 years, per MPI's financial statements) of pension liabilities makes these liabilities very sensitive to changes in interest rates.

MPI was asked if "comprehensive income" is closer to a market-based definition of "income" than is "net income", as these terms are currently defined. MPI's response is below.

> *"This question is theoretical in nature and the response requires a definition of 'market based'. Comprehensive Income and Net Income are determined based on adherence to Accounting Standards and available elections under the accounting standards. Certain interest rate movement can be elected to be in either Comprehensive Income or Net Income. Other actuarial valuations based on interest rates are required to be in comprehensive income based on accounting standards."*

I do not agree with MPI regarding the theoretical nature of the question. I believe that comprehensive income, as currently defined, is more volatile than net income, as illustrated in MPI's most recent audited financial statements below[23].

[23] Source: MPI's audited financial statements (Feb 2016)

Statement of Comprehensive Income (Loss)

For the years ended February 29/28 (in thousands of Canadian dollars)	Notes	2016	2015
Net income (loss) from operations	*24*	**(31,314)**	57,578
Other Comprehensive Income (Loss)	*16&21*		
Items that will not be reclassified to income			
Remeasurement of Employee Future Benefits		**32,395**	(40,099)
Items that will be reclassified to income			
Unrealized gains (losses) on Available for Sale assets		**(66,316)**	34,689
Reclassification of net realized (gains) losses related to Available for Sale assets		**33,771**	(28,064)
Net unrealized gains (losses) on Available for Sale assets		**(32,545)**	6,625
Other Comprehensive Loss for the year		**(150)**	(33,474)
Total Comprehensive Income (Loss)		**(31,464)**	24,104

OCI is the difference between Net Income and Comprehensive Income, which consists of:

- "items that **will not be** reclassified to income"
  – i.e., Remeasurement of Employee Future Benefits Gain (Loss); and
- "items that **will be** reclassified to income"
  – i.e., Unrealized gains (losses) on Available for Sale assets (inclusion + reversal or reclassification to AFS when realized as a result of a sale/turnover).

When asked if MPI agreed that "total equity" (i.e., including AOCI) has more volatility than "retained earnings" (i.e., excluding AOCI), MPI said "the answer depends on the definition of volatility and nature of volatility being assumed. If there is more potential for fluctuation due to valuation changes in equities and employee future benefits, then agreed."[24]

MPI's Return/Risk Metric is a Less "Comprehensive" Accounting Metric

"Return" and "risk" are measured in Aon's Asset-Liability Study on an "accounting" basis:

- "net income", on the return (Y) axis; and
- "average annual volatility of retained earnings", on the risk (X) axis.

MPI confirmed that:

> *"'return' and 'risk' metrics in the Asset-Liability Study reflect the accounting definitions for 'net income' and 'retained earnings' (i.e., they exclude … OCI … and … AOCI) in 'return' and 'risk' respectively)".*[25]

[24] Source: MPI's response to CAC (MPI) 2-34
[25] Source: CAC (MPI) 1-73

MPI Elects to Use Net Income/Retained Earnings in Return/Risk Definition

MPI said that it is not required, but elects to use "net income" and/or "retained earnings" (excluding AOCI), rather than "comprehensive income" (including OCI) or "total equity" (including AOCI), respectively, in "how return and/or risk are defined in Asset-Liability Studies".[26]

The decision to use net income/retained earnings in Asset-Liability Studies has the effect of under-reporting the volatility in Asset-Liability Studies compared to the underlying volatility that is actually inherent in those assets and liabilities on a market value basis.

Short-Term vs Long-Term Tradeoffs

MPI was asked if there is a trade-off between short-term rate stability on the one hand and long-term accuracy of market risk assessments that arises from using the same basis for measurement for both of these two purposes. MPI responded:

> "As stated on the PUB (MPI) 1-20 (a) Attachment B Phase II - Part A ALM Study page 5, MPI's Basic compulsory program is required to break even rather than to target profits. The objective of the ALM study was that "the short-term volatility of the premium rate requirement is a primary concern". Therefore, the benefits of long-term accuracy of market return and risk through comprehensive net income are not as important compared to reducing the short-term volatility of the premium rate requirement."[27]

MPI said that "short term volatility of the premium rate" is a primary concern, which was echoed by Aon in the Asset-Liability Study, by saying Aon perceived that "MPI has a low risk tolerance resulting from the mandate to break even instead of targeting profit, the extensive process to change targeted levels of reserve and the lack of control of MPI over premium rates."

MPI said that "for these organizations in year performance is less critical as they do not set annual rates as does MPI. As a result, these organizations are able to take more investment risk and have a much higher allocation to equities than MPI (an average of 50.8% vs. 18.5% in 2015). The average allocation to fixed income by these organizations is 31.7%, while MPI had 66.4% in fixed income."[28]

Comprehensive Income is Better than Net Income (for Risk Management), But Not Best

When asked if MPI believes that comprehensive income is a better or worse metric than net income, as these terms are currently defined, MPI said:

> "MPI would not define one measure as better than another. The two measures show different views of the corporation's activities which does not necessitate superiority of one over the other. One may be more suited to an analysis than the other, depending on what is being analyzed." [29]

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[26] Source: MPI's response to CAC (MPI) 2-34(c)(ii)
[27] Source: MPI's response to CAC (MPI) 2-36(b)(ii)
[28] Source: Volume II – Investment Income, page 25
[29] Source: MPI's response to CAC (MPI) 2-34(n)

I believe that the better metric depends on the principles/beliefs used to inform decision-making and the purpose for which the metrics are used. For the following reasons, I believe comprehensive income is better than net income, but still not the best, for the purpose of long-term asset allocation decision-making.

- **Comprehensive income is more relevant** than net income, reflecting OCI components that bring it closer to a market value basis;
- **Comprehensive income is more "comprehensive"** or complete than net income, because it includes unrealized gains and losses on AFS assets (20% of assets, including equities which are more volatile than other assets) and employee future benefits gains/losses (which have a high sensitivity to interest rates), while net income does not;
- **Comprehensive income is more neutral** because it is not impacted (as net income is) by portfolio turnover; and
- **Comprehensive income is more consistent/comparable and understandable**, by including more (but not all) assets and liabilities on the same valuation basis – market value, as distinct from an accounting basis that currently includes some but not all of unrealized gains/losses in income.

Any increased reliance on comprehensive income would likely involve higher costs (e.g., market valuations), but these costs are likely to be small compared to the benefits which would flow from its use (risk management generally, but long-term asset allocation specifically).

Market Values are More Relevant than Accounting Values for Portfolio Decision-Making

GAAP is designed to meet the common information needs of a variety of users who have different needs. GAAP measures of assets and liabilities may be appropriate for some purposes but are less relevant for others despite being "generally accepted" for accounting purposes.

Also, accounting (and actuarial) principles may differ from one jurisdiction to another, and they may change over time. These differences and changes, however, are unrelated to the underlying factors that create the inherent market risks related to the assets and liabilities. Simply put, measuring something differently does not change its characteristics.

Portfolio/risk managers generally agree that market values (rather than accounting values) are more relevant for informing investment/risk management decisions. This explains why portfolio/risk managers make various "adjustments" to net income or asset/liability valuations in making decisions about long-term portfolio designs (e.g., asset mix).

Market Risks Do Not Depend on How Assets and Liabilities are Measured by Accountants

MPI was asked if the market risk (e.g., volatility or other appropriate market risk metric) of MPI's liabilities depends on the principles, valuation methodologies, assumptions and/or values developed by actuaries.

MPI responded by referring to its earlier response (CAC (MPI) 1-72 (f)), where MPI was asked if the inherent market risks arising from the liabilities (viewed in isolation, not in relation to assets) can only be changed by changing the nature of the cash flows that underlie the liabilities (e.g., by changing their degree of indexation to inflation or other such basis), and not through the adoption of different "valuation" methodologies (including "smoothing").

In 1-72 f), MPI said:

> "*The Corporation agrees that inherent market risks arising from liabilities can be changed by changing the nature of cash flows underlying the liabilities. However, such change can also occur by the adoption of a different 'valuation' methodology. E.g. If the 'valuation' methodology required the use of a risk-free interest rate to discount the liabilities, then the inherent market risk would be reduced. However, the tradeoff is that MPI would have to hold a higher amount of liabilities. As stated in the responses above, the Corporation's current 'valuation' methodology is in adherence to IFRS and is in accordance with current accepted actuarial practice*".

MPI's responses to CAC (MPI) 1-72 e) appears to contradict its response to 1-72 f) regarding the dependency of market risks and their basis for measurement. In 1-72 e), MPI agreed that the "*'actual' market risks arising from MPI's liabilities do not depend on how those liabilities are valued (by either accountants or actuaries)"*.

The underlying or inherent risks related to assets and liabilities do not depend on how they are accounted for, in the same way that using a Celsius thermometer (rather than Fahrenheit) leaves the temperature unchanged despite having different readings on the two scales.

MPI's long-term portfolio decisions (e.g., asset mix) are influenced by return/risk accounting-based metrics, and these accounting metrics may differ materially from those that are "market-based".

Three "Theoretical" Questions About the Interdependence of Accounting and Portfolio Design

MPI was asked if it agreed with the following three statements, the first two relating to potential changes in accounting for asset and liabilities, and the third to the impact such accounting changes might have (e.g., lead to more, less or about the same allocation to equities, as compared to bonds).

1st Question: Changes in Asset Accounting

- Assuming that GAAP were to change and require MPI to use market interest rates/prices for valuing assets (i.e., 100% of unrealized gains and losses would impact net income):
  - net income for accounting purposes would become more volatile;
  - rates (i.e., premiums) would become more volatile (explain why; e.g., through the effects on both net income and the fact that the rate-setting formula is based on net income); and
  - the inherent (market) risk, as defined above, of the assets that would be subject to the revised accounting treatment would remain unchanged. If not, why not?

2nd Question: Changes in Liability Accounting

MPI was asked if it agreed with the following statements, assuming that GAAP were to change and require MPI to use market interest rates/prices for valuing liabilities:

- net income for accounting purposes would become more volatile;
- rates (i.e., premiums) would become more volatile. If so, please explain why;
- the inherent (market) risk, as defined above, of the liabilities that would be subject to the revised accounting treatment would remain unchanged; and
- if not, please explain why not?

3rd Question: Changes in Asset Mix

MPI was asked if the changes to GAAP related to either the assets, liabilities or both described above had been in place when the latest Asset-Liability Study was completed, what impact would the change(s) likely have had (e.g., likely lead to more, less or about the same allocation to equities, as compared to bonds)? Please explain briefly.

MPI's Response to Questions 1, 2 and 3

MPI's response to all these questions is below.

> *"This question is theoretical in nature and the request is to comment on potential currently undrafted accounting changes that may or may not occur. However, please note that MPI currently uses market interest rates and prices for valuing assets and liabilities where required under current accounting standards."*

My question may be theoretical, but I believe it is an important one to ask.

Also, MPI does have some discretion regarding its accounting choices (as discussed elsewhere).

An article, funded by the Rotman International Centre for Pension Management (ICPM), that illustrates how and why accounting matters (for better or worse) is included as a reference in the footnote below[30].

[30] See *Pension Fund Asset Allocation and Liability Discount Rates: Camouflage and Reckless Risk Taking by U.S.*

III. MANAGEMENT

The Cost of Constraints

As noted in the beliefs section, "constraints never increase expected risk-adjusted returns".

Nevertheless, there may be good reasons for imposing constraints, including some of the following perhaps:

- Legislation or regulation (e.g., maximum foreign property);
- Market risk management (e.g., avoid concentration by setting a maximum);
- Liquidity risk management (e.g., set a maximum for illiquid assets as a group and/or at the asset class level for real estate, infrastructure and private equity);
- Return expectations (e.g., maximum for low-yielding assets);
- Insufficient internal/external asset management capabilities; and
- Concerns about the accuracy of modelling methodologies and/or assumptions, and the (widely-known) sensitivity of optimization results to assumptions re: returns, risks, correlations, etc.

Reliance on Quantitative Models

On this last point above, it important to note that:

- optimal solutions from quantitative portfolio optimizations are very sensitive to the capital market assumptions used; and
- there are at least 44 such assumptions in the Asset-Liability Study, involving MPI's 8-asset class portfolio, as calculated below.

44 Important Assumptions (estimates, but "unknowns")

8 average return assumptions (1 for each asset class)
8 volatility assumptions
28 correlations (= 8 x 7 ÷ 2)
44 "unknowns"

It goes without saying, perhaps, that an over-reliance on the quantitative results of optimizations is inappropriate and imprudent, given the large number of "unknowns" and other considerations.

Public Plans? at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2070054.

Minimum/Maximum Constraints in Optimizations

The min/max constraints for asset classes in the Asset-Liability Study, listed below, are very binding. By establishing them, the constrained optimization problem results in a "pre-determined" allocation to ≥ 80% of the portfolio, leaving little room to optimize return/risk tradeoffs (i.e., allocating ≤ 20% of the remaining assets).

80% of the portfolio is constrained[31] as follows.

≥ 10% Canadian Equities
≥ 10% Real Estate
≥ 5% Infrastructure
≥ 55% Liability Matching
≥ 80% of the portfolio is "pre-determined" by minimum constraints

10% Minimum Weight to Canadian Equities to Retain a Meaningful Exposure to Home Markets

MPI said that the minimum weight of 10% for Canadian equities was set "to retain a meaningful exposure to our home equity markets".[32]

It is not clear why it is important for MPI to maintain a "meaningful" exposure to Canadian equities unless it relates to a regulatory requirement or return/risk consideration.

Pension plans and other institutional investors have generally acknowledged a "home bias" when it comes to investing (i.e., overweighting domestic equity markets relative to the domestic market's global capitalization %), and they have been diversifying their portfolios internationally to remove the bias and improve risk-adjusted returns.

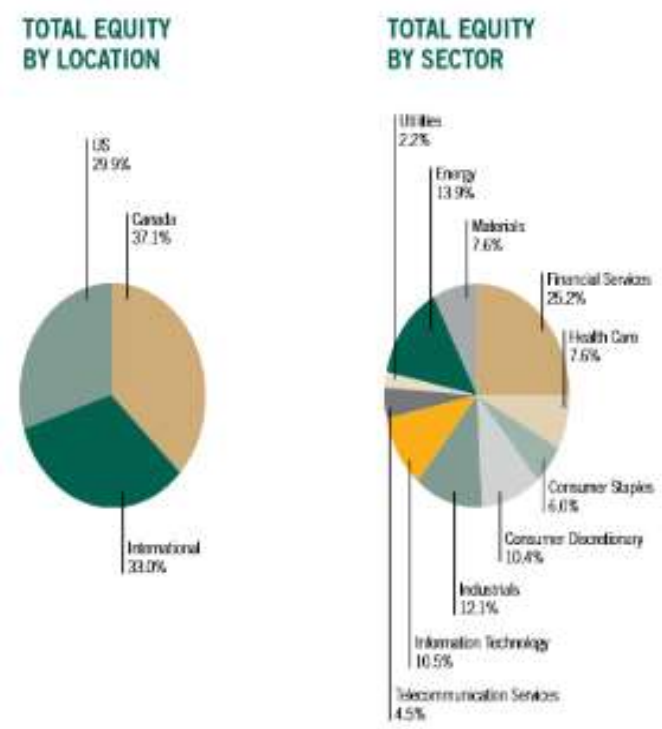
This international diversification has been more important for Canadian investors, given the concentrated nature of our market. Three (of 10) sectors in Canada, for example, typically represent a very large proportion of the TSX market cap:

- Financials > ⅓;
- Energy ~ 20%; and
- Materials ~10%.

Canadian equities are underrepresented in health care and information technology (< 3%), and Canada represents a very small (~ 3%) portion of the world's market capitalization of publicly-traded stocks.

[31] Source: MPI's response to CAC (MPI) 1-77

[32] Source: MPI's response to CAC (MPI) 2-39



Manitoba's TRAF (Teachers' Retirement Allowances Fund), for example, has a higher allocation of equities in International Equities (33%) than US Equities (30%) and a combined foreign exposure (63%) that is two times higher than in Canada (37%) (far left).[33]

TRAF's allocation by sector (near left) shows a more diversified portfolio on a sector basis as a result of having more foreign exposure.

When asked if MPI was comfortable with its concentration in Canadian Equities (⅔ of total equities), given Canada's small size (~ 3% of the world's market cap) and concentrated exposure to three (of 10 GICS) sectors (Financials, Energy and Materials), MPI said it was "comfortable with the current exposure to Canadian equities. The current portfolio was selected from the efficient frontier developed during the Asset Liability Management (ALM) study completed in January 2015".[34]

[33] Source: TRAF's annual report

[34] Source: MPI's response to CAC (MPI) 1-83

Equity Risk Concentration[35]

Most institutional investors have a significant allocation to International Equities (i.e., excluding Canada and US), but MPI has 0%.

Saskatchewan Auto Fund, administered by Saskatchewan Government Insurance ("SGI"), for example, has almost ¼ of its public equities in International Equities as illustrated on the right.[36]

Public Equity Mix	MPI	SGI	Diff
Canadian Equity	67	47	20
US Equity	33	31	2
International Equity	-	23	(23)
	100	100	-

The average defined benefit pension plan, as surveyed by the Pension Investment Association of Canada (PIAC[37]), has an even higher allocation to International Equities (> ⅓ of equites), with non-Canadian Equities (US + International) representing almost ¾ of total public equities and Canadian Equities ~ ¼ as illustrated on the right.

Public Equity Mix	MPI	PIAC	Diff
Canadian Equity	67	24	42
US Equity	33	38	(5)
International Equity	-	37	(37)
	100	100	-

PIAC's 2015 asset mix report is on the next page.

[35] Source: CAC (MPI) 1-83

[36] These figures were included in CAC's questions and have not been updated since then.

[37] Source: PIAC website, at http://www.piacweb.org/publications/asset-mix-report.html

Asset Mix Report

Year :

2015

ASSET MIX OF DB PLANS OF SPONSOR ORGANIZATIONS REPRESENTED BY MEMBERS AS AT DEC 31, 2015	MILLIONS $	PERCENT OF TOTAL
CASH AND SHORT TERM	-8,172.19	-0.52%
CANADIAN NOMINAL BONDS	356,548.27	22.68%
REAL RETURN BONDS	49,546.23	3.15%
MORTGAGES	18,595.23	1.18%
FOREIGN FIXED INCOME	54,448.24	3.46%
CANADIAN EQUITIES	136,838.97	8.70%
U.S. EQUITIES	74,399.22	4.73%
EAFE EQUITIES	58,694.80	3.73%
EMERGING MARKETS EQUITIES	64,784.40	4.12%
GLOBAL EQUITIES	262,033.44	16.66%
REAL ESTATE	172,358.72	10.96%
VENTURE CAPITAL/PRIVATE EQUITY	151,721.50	9.65%
INFRASTRUCTURE	88,018.50	5.60%
OTHER ASSETS	58,685.20	3.73%
HEDGE FUNDS - used as part of portable alpha strategy	11,083.52	0.70%
HEDGE FUNDS - not used as part of portable alpha strategy	22,814.17	1.45%
TOTAL ASSETS AT MARKET	$1,572,398.22	100.0%
NOTE: TOTAL ASSETS DO NOT INCLUDE ASSETS OF NON-REPORTING FUNDS		
TOTAL ASSETS OF ALL DB FUNDS $1,572,303.60 MILLION		

Duration

MPI was asked if the duration-matching strategy would be as effective if future inflation (actual and/or expected) turns out to differ from current expectations. MPI replied:

> "MPI … agrees that the duration matching strategy is not as effective if future inflation turns out to differ from current expectations … MPI "has accepted short term inflation risk and has accounted for this risk through margins and reserve. The 'excess portfolio' was also designed to provide some long-term protection against inflation." The excess portfolio includes real estate and infrastructure."[38]

Borrowing (Interest Rate Risk) in Real Estate

The Real Estate Fund has leverage of ~ 30%, while Aon assumed an unlevered real estate investment (i.e., zero debt), which means the gross and net (of debt) metrics differ between what was modeled by Aon on the one hand in supporting the long-term asset mix decision and what was implemented in practice on the other hand – a difference of 4% below.

	Pooled Real Estate Fund		
% EV			% AUM
100%	Gross Enterprise Value (EV)	317,000	13%
30%	Debt	95,000	4%
70%	Net	222,000	9%

MPI agreed that this implies a 4% difference between the actual exposures implemented by MPI and the assumptions for "real estate" and "fixed income" in the Asset-Liability Study (i.e., gross real estate exposure is closer to 13% than 9%, and exposure to fixed income is 4% lower – i.e., by the amount of debt within the real estate portfolio). MPI added that it "reports the holding on a net basis in keeping with the Net Asset Value reported by the fund manager. Therefore, it is not necessary to split out the debt associated with the fund and report it separately".[39]

When asked if the 4% difference (~ $95 million) was material, and whether the difference should be reflected somehow for greater clarity (e.g., investment policy min/max constraints and targets) and reflected in duration and/or other calculations, MPI said:

> "The real estate pooled fund is reported net of debt as this represents the proceeds that would be realized … upon liquidation ... Real estate investments are reported at their estimated fair values as provided by the external manager in the audited financial statements for the fund.
>
> The use of leverage in the real estate pooled fund represents a liability to that fund and is integral to the manager's strategy and cannot be separated. Because of these facts, there is no need to consolidate the debt associated with the investment in GREF with the Corporation's fixed income portfolio and therefore no impact on duration.

[38] Source: MPI's response to CAC (MPI) 76
[39] Source: CAC (MPI) 76

> When the real estate pooled fund is measured on a net basis, the overall exposure to real estate (pooled real estate fund and CityPlace) as of February 2016 was 11.3%, which is within the min/max range defined for that asset class (7% - 13%). The rebalancing policy defines the monitoring of the target allocation on a fiscal quarterly basis, at a minimum, and rebalancing back to target within six months, if the weight of any asset class falls outside the allowable range. Because the real estate pooled fund is reported on a net basis there is no need for additional clarification of the investment policy min/max constraints and targets."

For greater clarification, here are a few observations.

- There is a 4% difference between what was modeled by Aon (and presumably the basis for the policy allocations implemented) and what was actually implemented in practice:
  - Real estate's gross exposure (excluding debt) is 4% higher than Aon's recommendation;
  - Net exposure to interest rates, at the total portfolio level, is 4% lower even though the effect of leverage is accounted for within the real estate asset class;
- MPI did not answer our question regarding the materiality of the 4% difference, where (though not stated) implicitly materiality refers to the effect that the 4% difference might have on portfolio decision-making or design as distinct from how items might be accounted for;
  - Given MPI's duration policy and interest rate risk management practices, which are very detailed, the risk management (as distinct from the accounting) treatment for liabilities arising from real estate activities is inconsistent with those for the liabilities arising from providing auto insurance (and pensions);
- I disagree with MPI's answer that "because the real estate pooled fund is reported on a net basis there is no need for additional clarification of the investment policy min/max constraints and targets". I would note that the policy min/max constraints and targets approved are therefore not consistent with the results and recommendations from the Asset-Liability Study
  - Greater clarity and consistency of treatment between the Asset-Liability Study and the policies would seem both more appropriate and prudent.

Commingling of Employee Benefit Plans

When asked if the creation of a separate trust for the pension plan would "trigger" a realization (recognition in net income) of "remeasurement of employee future benefits", MPI said:

> *"This question is theoretical in nature and therefore not relevant to the rates setting process. Further, without discussion on the nature of the trust and the type of transaction to create and fund the trust, an accurate answer can not be provided."*[40]

I believe strongly that the portfolio design of the whole portfolio (including the pension plan) should not be influenced by how the parts (insurance vs pension liabilities) are accounted for.

[40] Source: CAC (MPI) 2-34

APPENDIX A: VALTER VIOLA'S CURRICULUM VITAE

VALTER VIOLA

50 De Vere Gardens, Toronto, ON M5M 3E7 | vviola@hollandparkrisk.com 416 819 2307

PROFILE

Portfolio, research and risk management professional with over 20 years of experience in institutional investment management (mostly defined benefit pension plans)

- *Executive and senior management roles in investment research, economics and risk management at two of Canada's largest institutional investors*
- *Consultant to large North American institutional investors, advising Boards, Investment Committees and Management Teams on investment strategies and investment risk management*

PROFESSIONAL EXPERIENCE

2014 – 2016 **MaPLE** Toronto, Santiago

Partner

- Participating in private energy and infrastructure opportunities in South America, starting with power generation and related infrastructure in Chile

2005 – 2014 **Holland Park** Toronto

President, Founder

- Advised defined benefit pension plans, workers' compensation funds and other institutional investors on investment risk governance, management and measurement practices, including:
  - Board education;
  - developing investment/risk frameworks;
  - drafting investment/risk management policies and procedures that were prudent and appropriate in the circumstances and took into account relevant principles and leading practices; and
  - developing risk budgets to support the management of surplus (assets and liabilities) and active management programs (performance vs benchmarks)
- Provided investment risk monitoring and reporting services to pension funds, including:
  - managing third party risk analytics, clients' holdings and benchmark data, proxies for liabilities and market data;
  - recommending and implementing generally accepted and appropriate risk measurement methodologies; and
  - preparing and presenting reports to Boards and executive management teams to meet their needs for relevant, reliable and timely information about investment risks

VALTER VIOLA

2000 – 2005 **CPP Investment Board** Toronto

Vice President, Research and Risk Management

- First executive responsible for total portfolio research, design and investment risk management of the largest single purpose pool of capital in Canada
- Led a growing team of professionals, focused on the total portfolio including:
  - investment risk management (relative to liabilities and benchmarks);
  - policy asset mix and currency hedging;
  - active management;
  - other investment policies
- Collaborated with the CEO/CIO, VP Private Markets and VP Public Markets in the development and implementation of investment strategies
- Collaborated with other executives to develop and implement strategies and business plans, policies and procedures, including leading the development of an investment/risk management framework that took into account the unique circumstances of the CPP and CPPIB (e.g., large unfunded liability, non-marketable bonds, large cash inflows)

1993 – 2000 **Ontario Teachers' Pension Plan** Toronto

Director, Portfolio Manager, Analyst (Research and Economics)

- Member of the Investment Planning Committee, with shared responsibilities to advise the CIO on the tactical management of the total portfolio (shorter-term horizon, broad asset class allocations and currency hedging decisions)
- Supported strategic/policy and tactical asset mix/currency hedging and other total fund decisions through independent research, including:
  - developing the fund's first asset/liability model, which supported the fund's asset mix transition shortly after the fund's inception;
  - conducting research to support new asset class introductions; and
  - recommending appropriate benchmarks
- Managed the tactical asset allocation portfolio, a portfolio that had one of the largest value added targets for the fund
- Managed the real return bond portfolio, including closing the largest single investment in the fund's history ($650 million private placement of inflation-linked bonds that financed the 407 Electronic Toll Road)

1992 – 1993 **Wilfrid Laurier University and York University**

Lecturer in Investments, Finance and Accounting

- Conducted lectures in the undergraduate programs at two universities

1990 – 1992 **Corporate Planning Associates**

Financial Advisor

- Advised high net worth individuals (portfolio management, tax planning, etc.)

1986 – 1988 **Price Waterhouse**

Auditor

- Completed audit and related work for corporate clients in various industries, as well as organizations in non-profit and other sectors

VALTER VIOLA

OTHER EXPERIENCES

PENSION ASSOCIATIONS/COMMITTEES

2006 – 2009 **Healthcare of Ontario Pension Plan (HOOPP)**

External Advisor to Investment Committee

- Advised the Investment Committee of a large, Canadian defined benefit plan on matters related to the management of the total portfolio

2003 – 2005 **Pension Investment Association of Canada (PIAC)**

Member of Investment Practices Committee

- Shared non-proprietary investment practices with peers as a member of an industry association
- Led the publication of a paper ("Risk Budgeting") to meet the needs of member organizations

VOLUNTEER

2013 – 2016 **Enbridge Ride to Conquer Cancer**

Fundraiser, Co-Captain

2004 – 2007 **North Toronto Soccer**

Coach

1988 – 1989 **New Visions Toronto**

Board Member

EDUCATION

1995 ***Chartered Financial Analyst***

1990 ***Master of Business Administration***, University of Western Ontario

1989 ***Chartered Accountant***

1986 ***Bachelor of Commerce***, University of Toronto

APPENDIX B: GLOSSARY OF TERMS

The table below includes the definitions of commonly used terms.

Concept	Definition
Accounting reports	Reports prepared by accountants to meet specific needs (which may differ from the needs of users of other types of reports). The basis of measurement in MPI's accounting reports is "historical cost … except for financial instruments and insurance contract liabilities and reinsurers' share of unpaid claims ... Insurance contract liabilities … are measured on a discounted basis in accordance with accepted actuarial practice (which in the absence of an active market provides a reasonable proxy for fair value) ..."
Actuarial reports	Reports prepared by actuaries to meet specific needs (which may differ from the needs of users of other types of reports).
Asset risk	Market risk related to assets measured in an absolute sense (i.e., not relative to a benchmark or liabilities).
Assumptions	The inputs used in a valuation.
Available for sale (AFS)	As defined in MPI's Financial Statements, AFS assets represent ~ 20% and include: • Equity Investments • Cash and Cash Equivalents • Other Investments (not material).
Duration	Market risk metric that measures the price sensitivity of a security or portfolio to changes in interest rates.
Financial assets and liabilities at fair value through profit or loss (FVTPL)	As defined in MPI's Financial Statements, FVTPL assets represent ~ 54% and include: • Other Bonds (Federal, Other Manitoba, Other Provinces, Corporates) • Infrastructure • Pooled Real Estate Fund.
Held to maturity (HTM)	As defined in MPI's Financial Statements, HTM assets represent ~ 25% and include: • Bonds – Manitoba • Municipal • Bonds – Manitoba, Schools.

Concept	Definition
Inherent risk	The “true” market risk of an asset or liability.
Investment risk	Risk of loss associated with investment activities, including: • market risk (including credit risk) • liquidity risk.
Liability from Basic Claims	Liability or provision at a point in time arising from providing basic auto insurance coverage.
Liability from pension plan	Liability or provision at a point in time arising from providing defined benefit pension coverage to employees.
Liquidity risk	Risk of not being able to generate sufficient cash or its equivalent to meet commitments as they come due in a way that is: • timely and • cost effective.
Market interest rate	A rate used to value an asset or liability based on an assessment of the inherent market risk of a security and/or its underlying cash flows
Market reports	Reports prepared to support market risk management, including portfolio design (e.g., asset mix). Reports are prepared using “best estimates” (i.e., no bias towards conservatism).
Market risk	Risk of loss in the market value of assets and/or liabilities due to changes in security prices, interest rates, currencies or other such factors in either absolute (e.g., assets only) or relative terms (e.g., vs benchmarks or liabilities, known as active risk/tracking error and surplus risk respectively).
Other comprehensive income (OCI)	As defined in MPI’s Financial Statements.
Reinvestment rate risk	Risk that reinvested income will be insufficient to meet a goal.
Risk	An outcome which has some (non-zero) probability of having an adverse impact on one or more stakeholders.
Risk (as defined in Asset-Liability Study)	An important consideration in portfolio design (i.e., asset mix).
Risk-free rate	A term used by MPI in response to a Round 1 question; not a term to be used in responses to questions below, unless “risk-free rate” is clearly defined by MPI and distinguished from other “rates”.

Concept	Definition
Risk profile	Risk level and/or risk allocation (composition).
Surplus risk	Market risk related to the difference between assets and liabilities.
Unrealized gains and losses	Gains and losses, representing differences between the cost (accounting or book value) of one or more assets and their fair value for accounting purposes.
Value	The quantitative assessment of an asset or liability based on the application of a valuation methodology and related assumptions (e.g., book value, accounting value, actuarial value, market value).
Valuation methodology	The method, excluding the assumptions used to implement the method, to value assets or liabilities for one or more purposes (e.g., discounted cash flow or present value methodology).

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TESTIMONY

Manitoba Public Insurance
2017/18 GRA

Valter Viola
President, Holland Park
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1. OVERVIEW	SYMPTOMS VS PROBLEMS	3
	TERMINOLOGY	4
	TRUTHS AND CONSEQUENCES	5
	BARRIERS TO EXCELLENCE	6
	INVESTMENT BELIEFS	7
2. REMEDIES	FRAMEWORK	10
	RISK BUDGETING	13
3. EVIDENCE	RECOMMENDATIONS	23

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SYMPTOMS VS PROBLEMS

SYMPTOMS	SHAKY GOALIE	**No Real Return Bonds** • Poor liability protection against unexpected inflation, real rate risk • Less effective duration management
	PUCK HOG	**Canadian Equities** • Larger-than average home bias • Concentrated sectors/stocks
	SHORT-HANDED	**No International Equities** • Missed opportunities to add value, diversify portfolio
PROBLEMS	FOCUS	**Short-term Rate Stability** • At cost of lower long-term level
	PROCESS	**"Smoothed" Accounting** • Rather than "volatile" market value **Asset-Based Rebalancing** • Rather than risk **A-L Studies Every 4 Years** • Rather than annual/quarterly risk-informed discussions
	BARRIERS TO EXCELLENCE	

REMEDIES →

FRAMEWORK

RISK BUDGETING

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TERMINOLOGY

Term	Definition
Valter	Best proxy for "Walter" (no "W" in Italian alphabet)
Risk	Potential future loss (absolute or relative)
Value at Risk	Market value that could be lost
VaR	See value at risk
Duration	Measure of interest rate risk • 16 year duration: 1% increase (decrease) in interest rate causes a ~ 16% decrease (increase) in asset/liability (accurate for small changes)
Inflation (i)	Annualized rate of change of prices
Nominal Interest Rate (n)	Approximately equal to sum of real rate (r) and inflation (i) n = r + i; e.g., 3% = 1% + 2%
Real Interest Rate (r)	Rate, net of inflation (r = n - i; e.g., 1% = 3% - 2%)
Nominal Bond	Bond (without inflation protection) • Market value changes with nominal rates
Real Return Bond	Bond with inflation protection • Market value changes with real rates • Principal "indexed to inflation" (e.g., $100 principal rises to $102 after 1 year if inflation = 2%); real coupon is applied to (rising) indexed base, assuming inflation > 0%
RRB	See real return bond

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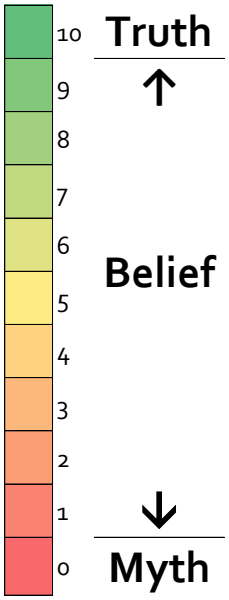
TRUTHS AND CONSEQUENCES



TRUTH	We don't know very much	Beneficiaries/ owners ≠ managers	Correlations are not perfect
	Low signal/noise (return/risk) ratio	*Institutions manage $ for clients/beneficiaries*	*Risks don't add (1 + 1 ≠ 2)*
Truth and Consequence	We need to make investment decisions but **we don't know very much**	The interests of stakeholders[1] may not be aligned because **beneficiaries/owners are not the same as managers**	The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because **correlations are not perfect**
HELPFUL TOOLS	BELIEFS[2]	CAPITAL/REGULATORY FRAMEWORK[3]	RISK FRAMEWORK[3]

1. Stakeholders include MPI, rate-payers and Manitoba Finance.
2. Beliefs support long-term portfolio design (e.g., asset mix).
3. Capital/Risk/Regulatory Frameworks provide a focus (clarity in mission) and process to overcome common barriers to excellence.

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BARRIERS TO EXCELLENCE

Lack of **focus** or clear mission

Poor **process**

- Structure
- Communication
- Inertia

Inadequate resources

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INVESTMENT BELIEFS

SUSTAINABILITY: 1. Major risk is provisions will not be **sustainable**

MRP: 2. Determining **Minimum Risk Portfolio** is first step

ADDITIONAL RISK: 3. Taking **additional risk** beyond MRP should be done only if expected additional returns justify doing so

TOTAL PORTFOLIO: 4. **Additional risk to Total Portfolio** is relevant risk to consider if risk beyond MRP is taken

CONSTRAINTS: 5. **Constraints** never increase expected risk-adjusted returns

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MARKET EFFICIENCY

#6 MARKET EFFICIENCY

Markets are very efficient at pricing securities relative to one another, but are not perfectly efficient due to information and execution costs

- Implicit in recommendations re: Canada/US/International "risky" portfolio mix
- "Risky" sub-portfolios should reflect global market caps, other things equal
  - "Separation theorem", may go by other name(s)
  - Investors should (generally) hold same mix of risky assets, (Canada/US/International Equities), but different allocations between risky and risk-free assets to reflect different risk tolerances
- Common principle applied in portfolio management

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FOCUS!
WHY FRAMEWORK MATTERS

PROBLEMS	
FOCUS	**Short-term Rate Stability** • At cost of lower long-term level
PROCESS	**"Smoothed" Accounting** • Rather than "volatile" market value **Asset-Based Rebalancing** • Rather than risk **A-L Studies Every 4 Years** • Rather than annual/quarterly risk-informed discussions

BARRIERS TO EXCELLENCE

REMEDIES →

FRAMEWORK

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FRAMEWORK

- Provides FOCUS (barrier to excellence)
- Context, cohesion, link between vision, mission, objectives and strategies

Example

- Want to earn actuarial (real) rate, which no asset guarantees
  - Closest: RRBs yielding < actuarial rate
  - Take risk to maximize returns
- Avoid undue risk, be paid for risks taken
- Measure/attribute risks to sources, improve understanding/management

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FRAMEWORK

Elements:

- Primary goal: risk-adjusted net value added (RANVA), not net income (market returns compensated for risks taken, costs incurred)
- MRP: benchmark for RANVA (e.g., Scotia Capital RRB Index at CPPIB*)
- Risk adjustment (cost of risk capital)
- Limits
- Budget linked to goal(s)

* Definitions and parameters may have changed (were in place 2000/01 to 2005)

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PROCESS!
WHY RISK BUDGETING MATTERS



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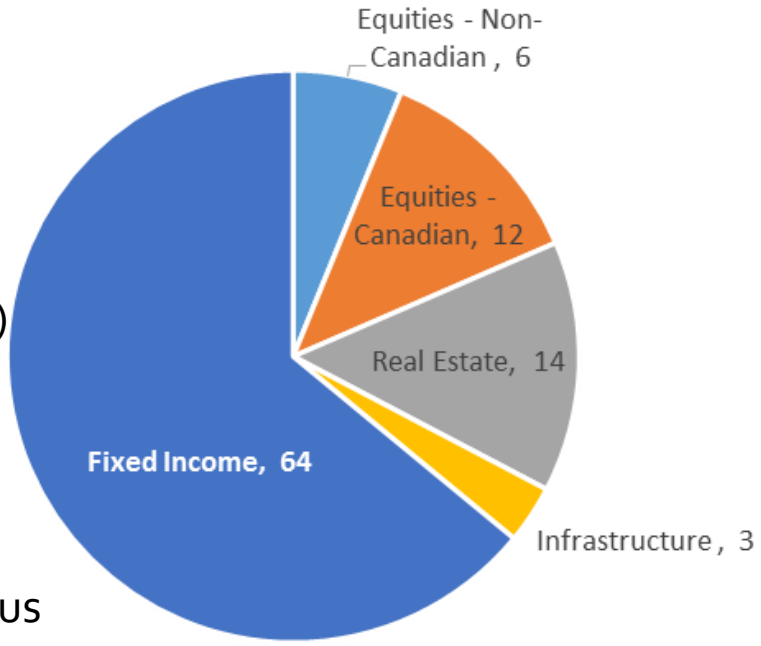
RISK BUDGETING

- Risk: a "good" to budget (like any resource)
  - Targets + limits
  - Discuss big issues (surplus return/risk)
  - Integrate > 1 risk (e.g., surplus, tracking error)
- Traditional "asset mix" process needs updating (> focus on why, not how) – i.e., asset mix (right ➔) says nothing about value <u>at risk</u>
  - Need "pie chart" of risk contributions/mix
- Risk measurement shocks people (size), but measurement does not create it (corollary true)
- Hope measurement de-emphasizes short-term focus
- Standardizes/simplifies metrics and comparison across asset classes
- Emphasizing faults like *"being in Stone Age, discovering iron, complaining about rust"*
- 20% to 60% solution – less to do with risk estimates than frequent reporting and disciplined return/risk discussions



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TEACHERS' FOCUS: SURPLUS RISK METRIC: VALUE AT RISK (VAR)

RISKS AND RISK MANAGEMENT

We manage **surplus risk** using a Value at Risk (VaR) methodology. VaR has forced us to think of surplus risk as the aggregate of liability risk, asset-mix policy risk, and active management risk, taking into account correlation and diversification between the components.

The main source of **liability risk** is a drop in real interest rates, which increases the present value of future pensions accumulated up to that point. It makes new pension liabilities more difficult to finance, and puts upward pressure on contribution rates. Higher real interest rates have the opposite effect.

Asset-mix policy risk would be the mirror image of liability risk, and surplus risk would be zero, if investments perfectly matched the plan's long-term objective that asset growth will average a real rate of about 4.5 percent plus inflation. Real return bonds come close, but fall a bit short on yield.

The absence of a perfectly matching asset forces us to consider assets that individually do not always behave like our pension promise, but collectively give us the best trade-off between longer term expected surplus return and acceptable short-term surplus risk. Consequently, our asset mix is heavily weighted to equities because they meet our long-term goals, while our inflation-sensitive investments give more modest real returns but dampen surplus risk.

Source: Teachers' 2000 Annual Report, page 22

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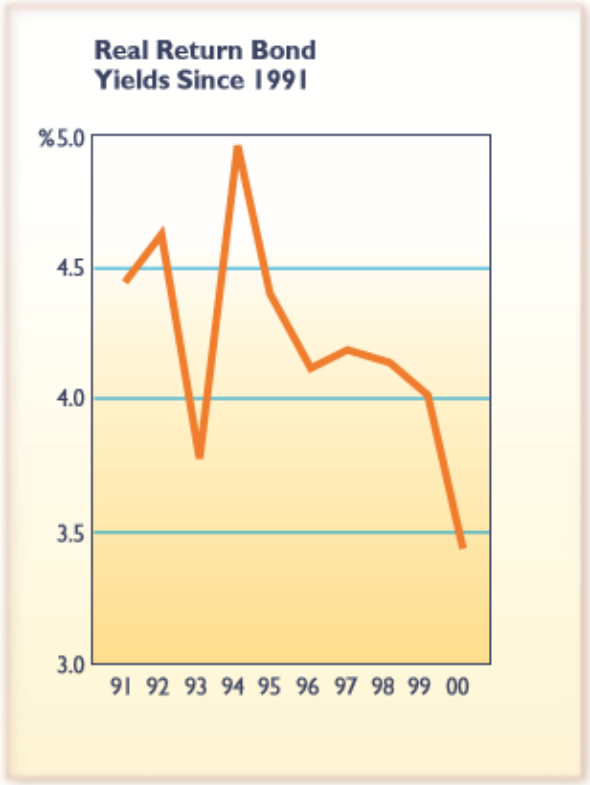
MATCHING ASSETS AND LIABILITIES



Real return yields declined by 59 basis points in 2000, after remaining within a 10 basis point range for the three previous years.

Source: Teachers' 2000 Annual Report, page 19

MATCHING ASSETS AND LIABILITIES

To create a funding surplus we manage the relationship between investment assets and pension liabilities. Our goal is an asset mix that balances risks and rewards, avoids excessive volatility, and maintains stable contribution rates.

Because both assets and liabilities are sensitive to interest rate changes, one of our goals is to reduce the risk that liabilities will increase more than assets in response to lower real interest rates. Unfortunately, that is what happened in 2000. The sharp decline in real rates of return increased the value of total liabilities by $3 billion. During the year, we shifted assets from fixed-income and equity portfolios to real-rate products and real estate. Debt securities, along with inflation-sensitive assets, outperformed total equities to produce the healthy accounting surplus.

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MRP AND RRBS

- Some liabilities resemble RRBs (zero-coupon real cash flows)
- RRBs could closely match risks in real liabilities
- "Insurance" cost varies with yield
- Nominal bonds only good fit if inflation stable

Tendency to ignore portfolio risk interdependence

- Assets risky in isolation, safer when combined with other assets/liabilities (long RRB duration risky on its own, not with long liabilities)
- Diversification makes management a team sport: appetite to take risk in one asset depends on risks in other assets and liabilities

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RISK BUDGETING, NOT INFREQUENT ASSET MIX REBALANCING

- Teachers' asset mix policy reviewed annually (not every 4 years)
- Risk in static policy asset mix changes (constant asset mix ≠ constant risk)
- In 2000, Teachers' reduced exposure to stocks and fixed income and added inflation-sensitive assets (stocks, especially in Canada, overvalued)

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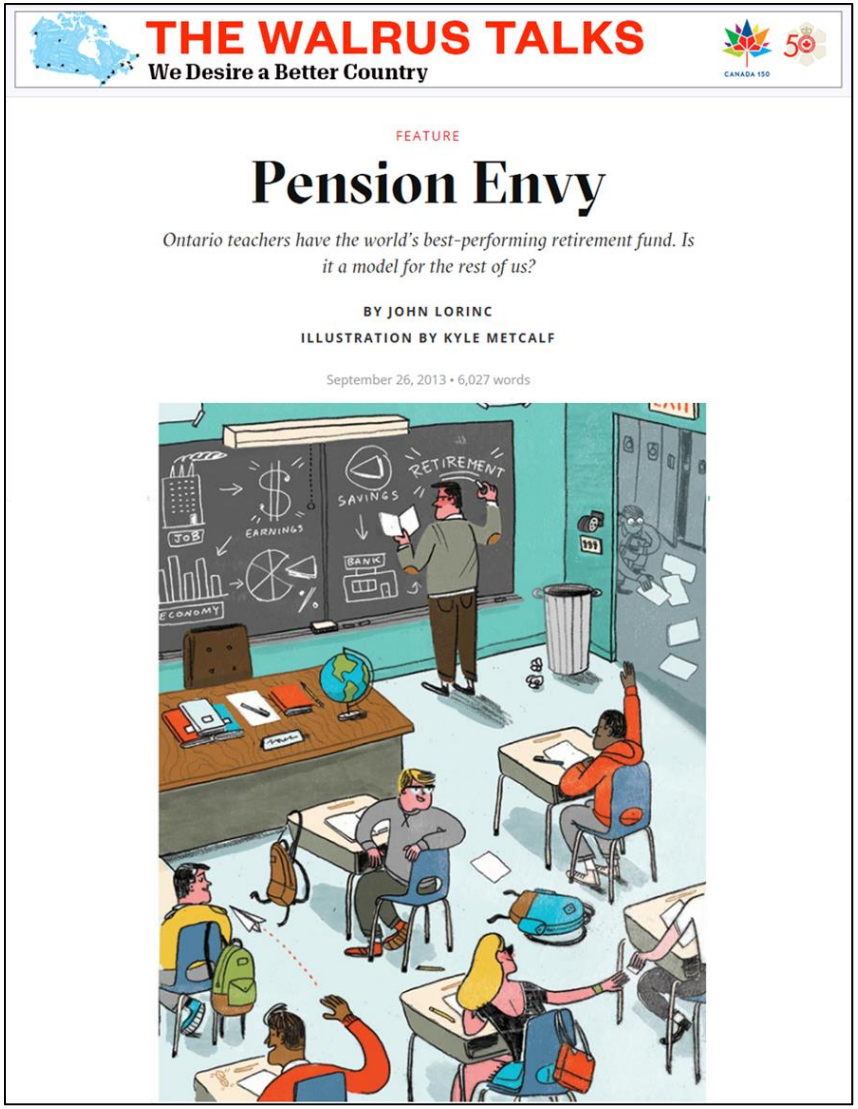
TEACHERS' RANKED #1 IN WORLD "BEST-PERFORMING RETIREMENT FUND"



THE WALRUS TALKS
We Desire a Better Country

FEATURE

Pension Envy

Ontario teachers have the world's best-performing retirement fund. Is it a model for the rest of us?

BY JOHN LORINC

ILLUSTRATION BY KYLE METCALF

September 26, 2013 • 6,027 words

Source:
Teachers' website and The Walrus

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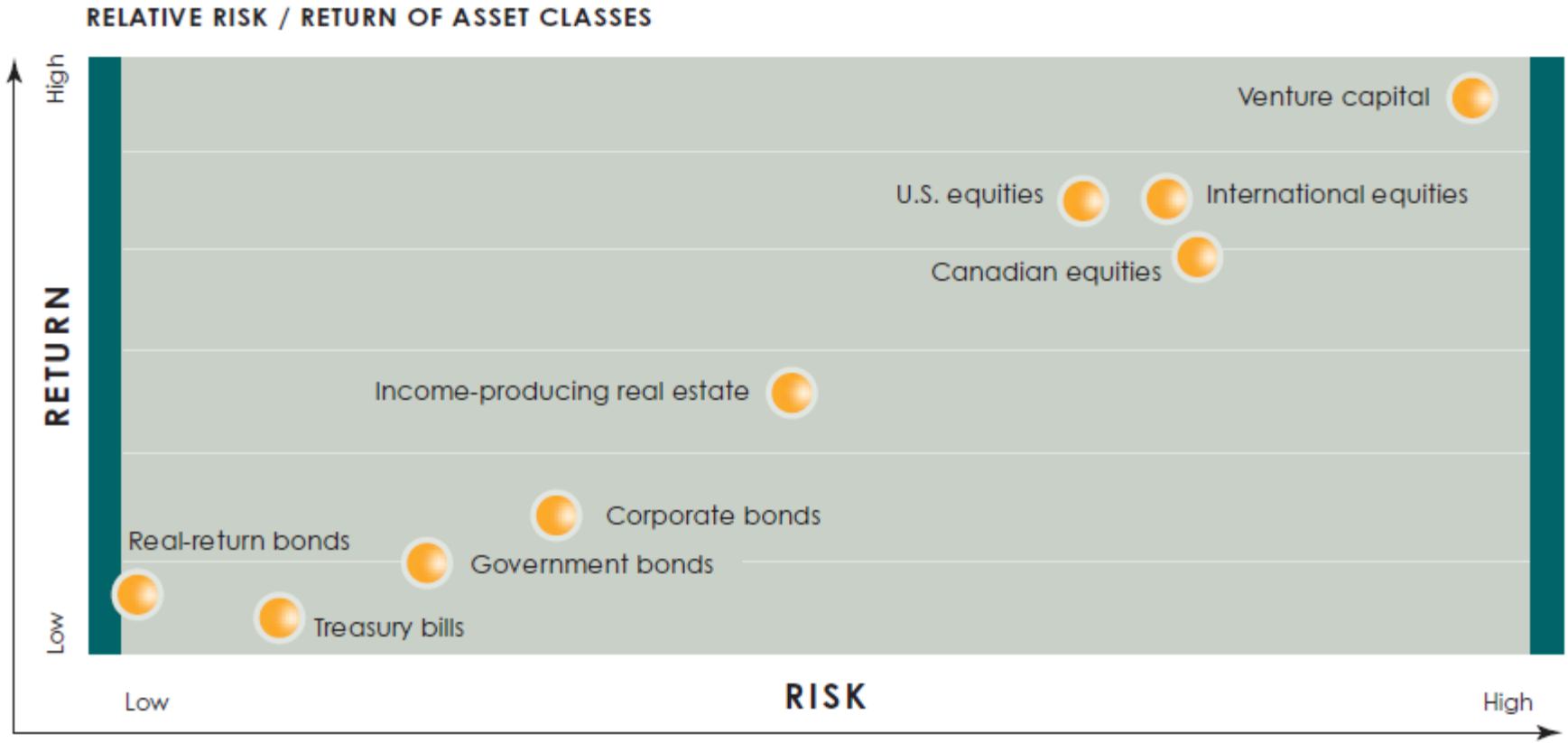
RETURN/RISK FRAMEWORK AT CPPIB (2001)



Source: CPPIB's Annual Report (March 2001), page 11

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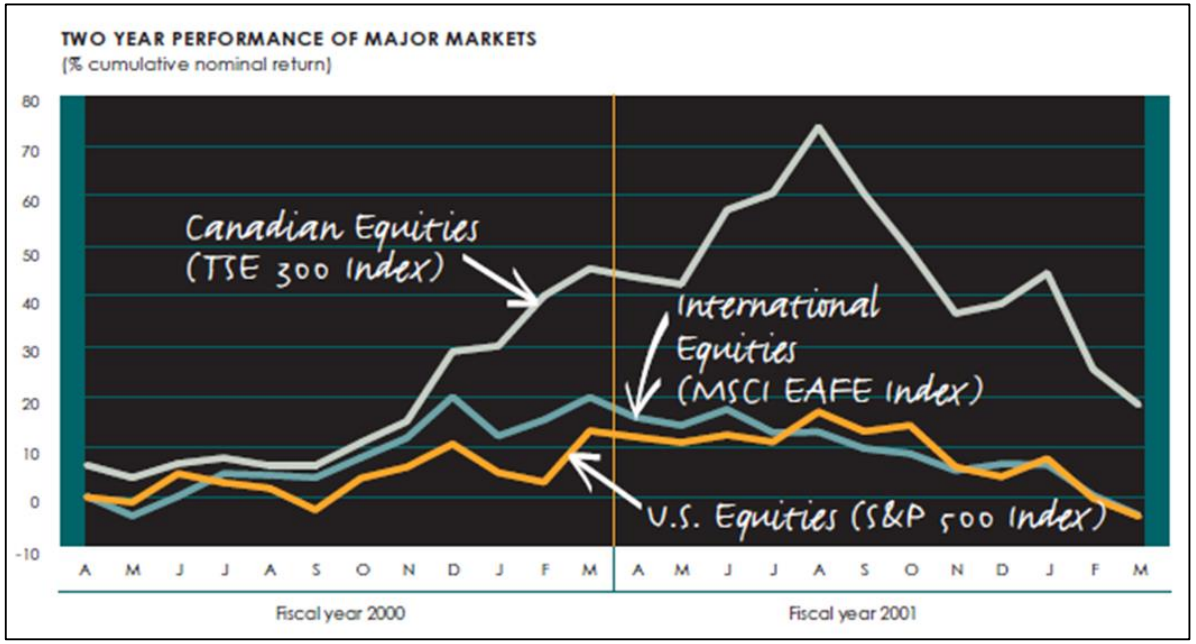
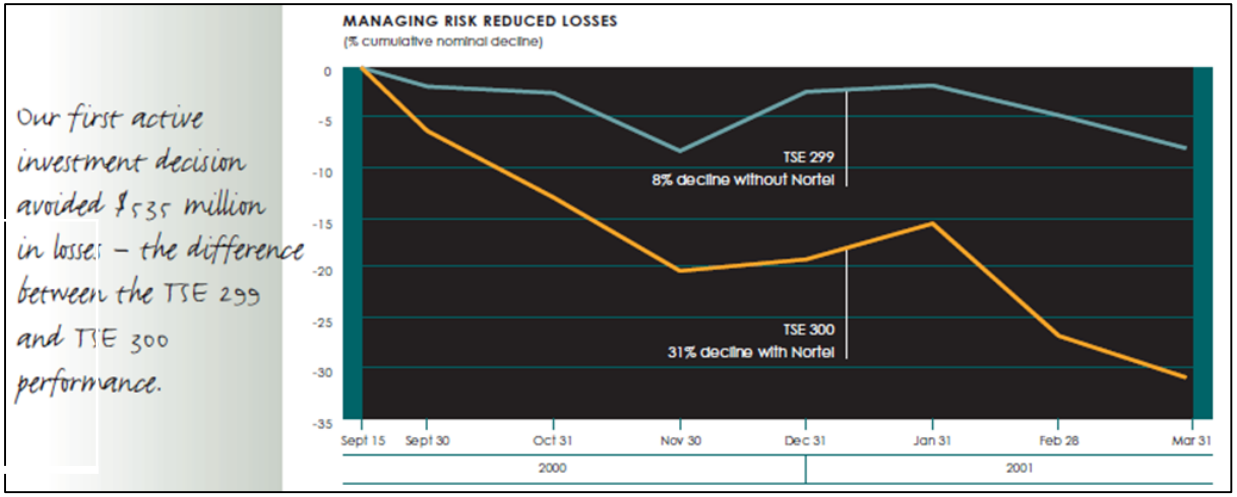
CANADIAN EQUITY CONCENTRATION

%	Fiscal year 2001
ACTUAL RESULTS	
Canadian equities	(7.7)
Foreign equities	(17.5)
Total portfolio	(9.4)
BENCHMARK RESULTS	
Canadian equities	(18.6)
Foreign equities	(18.2)
Total portfolio	(17.8)
Chief actuary's assumption	6.6
Long-term required return	7.9



Source:
CPPIB's Annual Report (March 2001), pages 6, 15, 18



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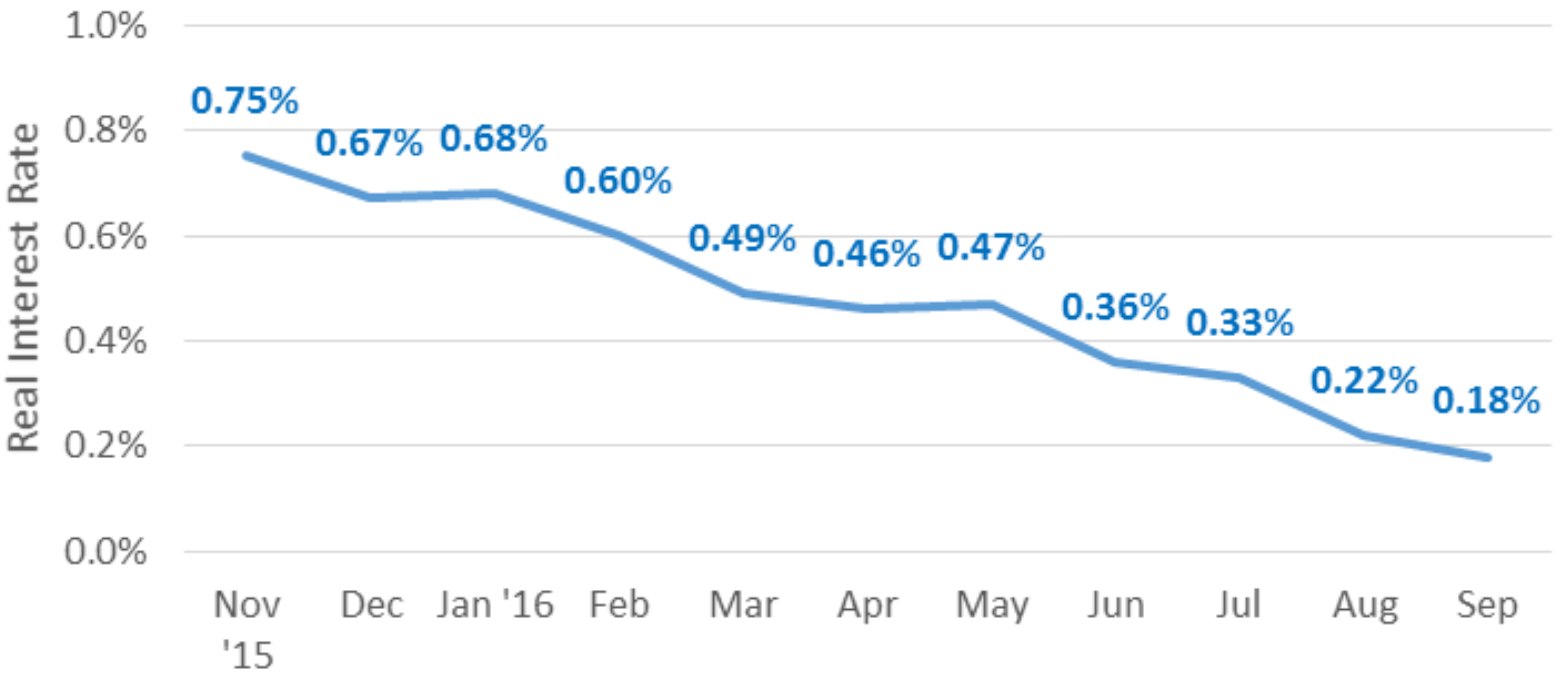
REAL YIELDS: ~ 0% NOW



Source: Graphed using data from Bank of Canada, Real Return Bond series V122553

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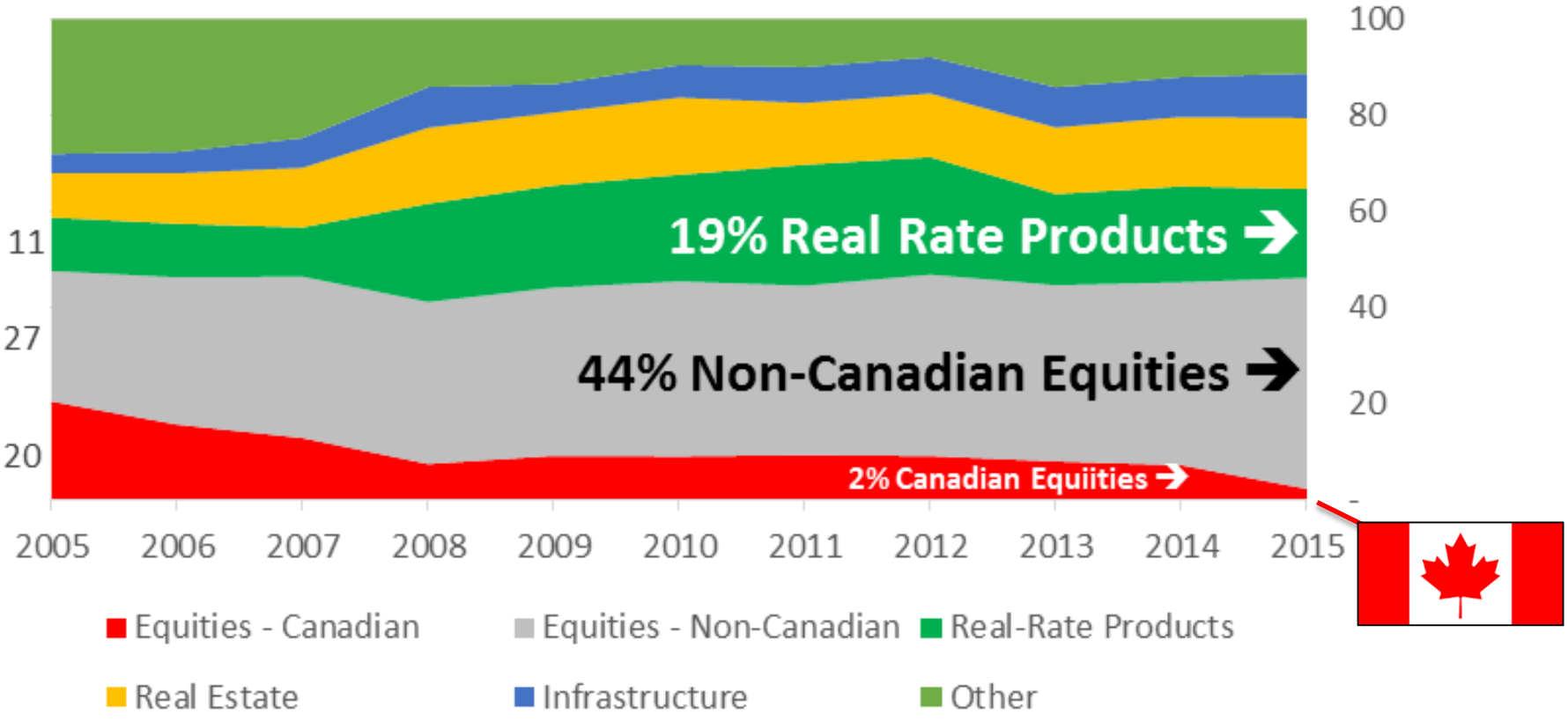
TEACHERS' IN 2015

Teachers' RRBs = 19%, Non-Canadian Equities = 44%, Canadian Equities = 2%



Source: Graphed using data from Teachers' 2015 Annual Report, page 71

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RECOMMENDATIONS

FRAMEWORK	6. De-Linking Discount Rates 7. Min/Max Asset Class Constraints 8. Evolved Risk Framework 9. Explicit Risk Management Goals 5. Return/Risk Definitions for Asset Mix Decision 10. Minimum Risk Portfolio
PORTFOLIO	14. Exclusion of Real Return Bonds 15. Effectiveness of Duration Policy 16. Integration of Real Estate/Infrastructure Liabilities in Duration Management 11. Canadian Equities' 10% Minimum Allocation 12. No International Equities
METRICS	1. Clarity of Accounting Choices 2. Adoption of More Comparable Accounting Principles 3. AFS and HTM Accounting 4. Pension Liability Accounting
OVERSIGHT	17. Removal of 105% Rule in Investment Policies 13. No Over-Reliance on Quantitative Modeling 18. Pension Fund

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6. DE-LINKING DISCOUNT RATES

For … asset allocation decision-making, … consider "breaking … link" (recursive) between liability valuations and … yield on … assets … theory suggests … approach is more appropriate	
Need to Model Market "Volatility"	• Market value of liabilities does not depend on portfolio composition (only cash flows from insurance, pensions, etc.) • "Linking" may mask market value at risk in liabilities • If A-L modeling doesn't reflect long-term returns/risks, optimizations won't yield best long-term return/risk tradeoffs

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7. MIN/MAX ASSET CLASS CONSTRAINTS

constraints … should be reviewed and relaxed, to avoid … lower risk-adjusted returns …

rationale for … constraints should be … explicit

- See 5th belief: "Constraints never increase expected risk-adjusted returns"

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8. EVOLVED RISK FRAMEWORK
9. EXPLICIT RISK MANAGEMENT GOALS

8.
evolved risk framework should be considered to improve portfolio/risk measurement, management and/or governance

9.
framework could include … goals … avoid "undue risk", … risk … taken:

- unknowingly, … (unaware); or
- knowingly, …:
  - cannot be managed …, given … capacities (ineffective);
  - exceeds … tolerances (prohibited);
  - … higher than … needs to be (inefficient); or
  - … not understood (uninformed) …

- See earlier discussion re: Framework

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5. RETURN/RISK DEFINITIONS FOR ASSET MIX DECISION

re-define return/risk … to inform … asset mix … based on … market values, rather than accounting … At a minimum, net income … replaced by comprehensive income in … return … and retained earnings … expanded to include … AOCI … in … risk …
In … long term, market returns and market risks … determine average long-term premium rates, regardless of how assets and liabilities are accounted for …

Market Value
≠
Accounting Value
⬇
Market Risk
>
Accounting Risk
	• Accounting risk definition (volatility in retained earnings) understates market volatility (excludes largest market risks)
	  • Remeasurement of pension liabilities (~ 16 duration) never impacts net income/retained earnings (permanent AOCI)
	  • Equity unrealized gains/losses (temporary AOCI)
	• Makes RRBs look unattractive from risk perspective
	• Reality: RRBs hedge long-term real rate/inflation risk best
	• Adoption of comprehensive income/AOCI better (not best)
	• See next page

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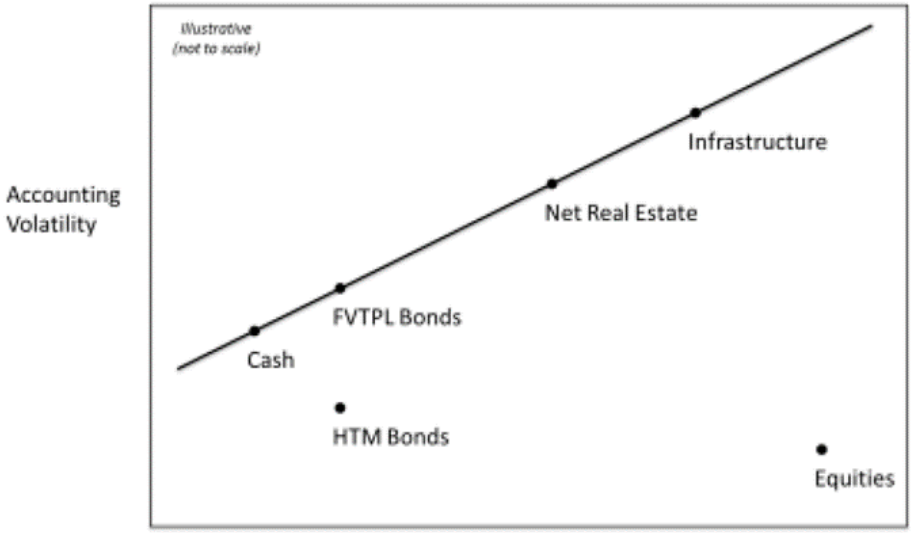
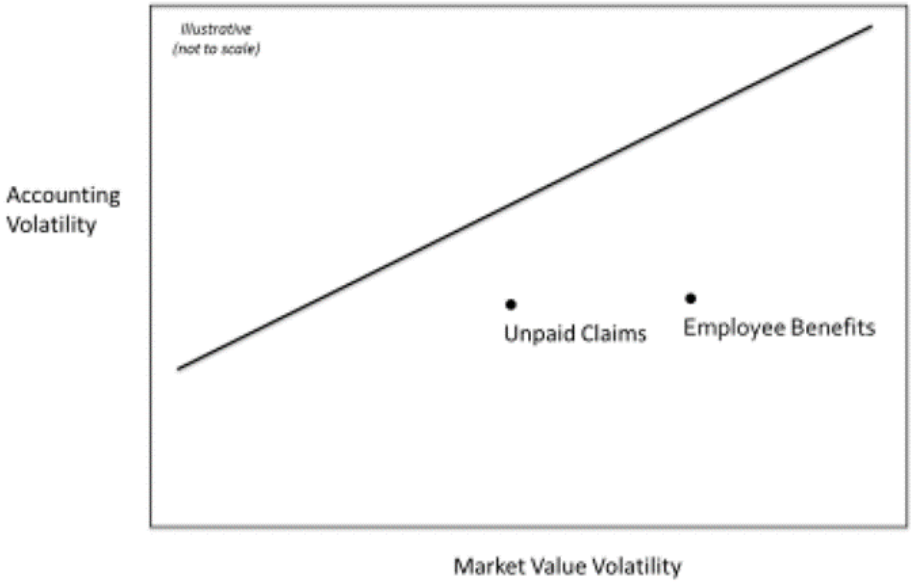
ACCOUNTING VS MARKET VOLATILITY





Illustrative
(not to scale)

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10. MINIMUM RISK PORTFOLIO

minimum risk portfolio … should be … defined … aligned with … stakeholders …

- MRP should reflect risk in cash flows re: insurance, pension and other liabilities (e.g., real rates, inflation)
- MRP should include some RRBs
- MRP definition ("benchmark" for risk and surplus growth) says nothing about whether to buy RRBs

holland park

14. EXCLUSION OF REAL RETURN BONDS

role that RRBs can play in … managing … risks should be discussed, with consensus … regarding … effectiveness … from a risk … perspective … independent of … cost of … "insurance" … measured by RRB yields and … expected returns

- Consensus should be achieved on RRB's effectiveness in hedging liability risks (insurance vs pensions) compared to other assets (e.g., cash, "nominal" bonds, real estate, infrastructure) on a market value basis
- Consensus should be achieved on RRB's efficiency in a total portfolio context, and on a market value basis

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MPI'S VIEW

In questions related to RRBs, MPI said:

> *"Real return bonds were excluded … because they were deemed to be expensive. Aon Hewitt's … assumptions showed* ***real return bonds to have significant volatility and down side risk**** *with modest returns relative to nominal bonds …. Also, page 17 of the Phase 1 report Aon concluded that "RRBs are not a good inflation hedge"."*[5]

*** Emphasized by me, not MPI, to highlight a fundamental difference in beliefs.**

[5] Source: CAC (MPI) 1-77

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MPI'S VIEW

When asked if MPI agreed with AON's conclusion that **RRBs are not a good inflation hedge**, MPI said:

> *"The Corporation accepts Aon's belief that there are other inflation hedging asset classes available (i.e.: real estate and infrastructure) with greater expected returns … At the time of the ALM study the real yields on RRBs were below 40 bps for 20 year terms and below 10 bps for 10 years and shorter terms. Real yields for the same terms are currently negative."*

AON'S VIEW

Asked why Aon believes RRBs are not a good inflation hedge for MPI, Aon's response was:

> *"RRBs are not a good inflation hedge for MPI for the following reasons:*
>
> 1. *The underlying inflation according to nominal and real return bonds do not match the inflation used to value liabilities (which is based on a survey of Canadian banks);*
> 2. *RRBs suffer from a limited offering;*
> 3. *Supply and demand for RRBs have a large impact on the market value; and*
> 4. *Therefore, the economics of the inflation protection from* ***RRBs do not match the financial impact to MPI on a year by year basis.***"[6]
>
> *** Emphasized by me, not Aon, and discussed on the next page.**

[6] Source: CAC (MPI) 2-39

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MY VIEW

My observations related to Aon's four points are:

1. this is a problem with the method for valuing the liabilities (survey of Canadian banks), which is not a market-based method, not a problem with the hedging properties of RRBs against a market-valued set of liabilities;
2. while RRBs suffer from a limited offering (liquidity), larger funds have managed to accumulate significant exposures (e.g., the average PIAC fund has 3%);
3. while supply and demand for RRBs may have a large impact on market value, presumably this is a one-time market impact acquisition cost – a small price to pay if RRBs are considered a buy-and-hold asset class, with little turnover; and
4. Aon appears to concede that RRBs do offer inflation protection (despite their earlier comment to the contrary) but that **RRBs do not match the financial impact to MPI on a year by year basis**. This last point represents the symptom of a bigger problem, which relates to the next belief (constraints).

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AON AGREES

When asked if Aon could list one or two asset classes that offer better inflation hedges than RRBs for MPI, and offer any evidence to support that belief, Aon said it could not, adding:

> *"There is no asset class that we know that can hedge the short term inflation risk … Over the long term,* ***where RRB's are held to maturity, shorter term price sensitivity is less relevant and inflation experienced over the period would result in higher cash flows and an inflation hedge****. It is a commonly accepted belief … that higher inflation would gradually be reflected in nominal bond yields, equity returns through higher profits, real estate through increased rents and infrastructure, especially where regulated, through increased tariffs …"*

*** Emphasized by me, not Aon, to note the tradeoff between shorter term price sensitivity (less relevant according to Aon, with which I agree) and inflation experienced over the period which would result in higher cash flows and an inflation hedge.**

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15. EFFECTIVENESS OF DURATION POLICY

duration policy should be reviewed, given … inherent risks of changing real … rates and … inflation …, and exposure to … nominal … rates in … portfolio (… bonds without inflation protection)

- MPI agrees that duration matching is not as effective if inflation turns out to differ from expectations
- "Accepted short term inflation risk and … accounted for risk through margins and reserve"
- "Excess portfolio was designed to provide some protection against inflation"

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16. INTEGRATION OF REAL ESTATE/ INFRASTRUCTURE LIABILITIES IN DURATION MANAGEMENT

consider … liabilities … from all sources …, including real estate … in … duration … financial leverage … in Asset-Liability Studies … should be … consistent with … leverage actually used …, removing … ~ 4% difference related to … debt

- Materiality of4% difference depends on the marginal contribution to return/risk, measured on a market value basis, of real estate vs fixed income

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11. CANADIAN EQUITIES' 10% MINIMUM ALLOCATION

10% minimum … to Canadian Equities ("to retain … meaningful exposure to home …") should be reconsidered, given … different interests of … employees through … pension …, … concentrated … market …

- Common home country bias
- Canada small (3 - 5% of world) and concentrated
- MPI's concentration particularly high
- See Nortel example earlier and 5th belief (constraints)

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12. NO INTERNATIONAL EQUITIES

having no exposure to International … should be reconsidered, given … large size of … foreign markets, … return opportunities … and … diversification …	
Portfolio Theory	• Theory: funds should be close to global market cap
Unique Allocation	• Most investors have significant International • SGI: ~ ¼ of public equities • PIAC > ⅓ of equites • See next page

Public Equity Mix	MPI	SGI	Diff
Canadian Equity	67	47	20
US Equity	33	31	2
International Equity	-	23	23
	100	100	-

Public Equity Mix	MPI	PIAC	Diff
Canadian Equity	67	24	42
US Equity	33	38	5
International Equity	-	37	37
	100	100	-

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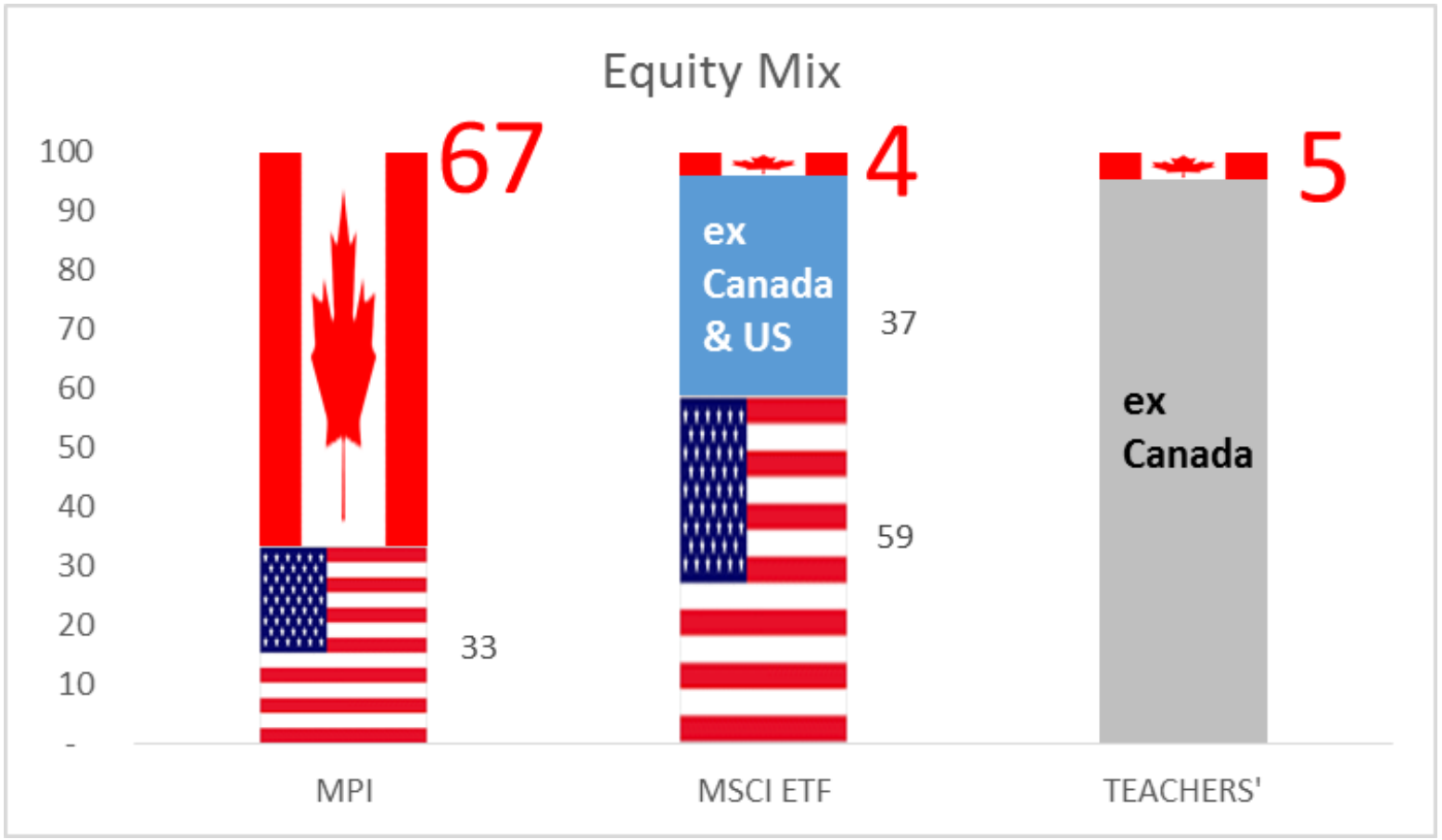
GLOBAL EQUITY MARKET CAPS: 59/37/4 US/INTERNATIONAL/CANADA



Source: Graphed using data from Teachers' 2015 Annual Report, page 71 and iShares MSCI World Index ETF (Oct 18, 2016) on next page

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MSCI WORLD INDEX

iShares MSCI World Index ETF

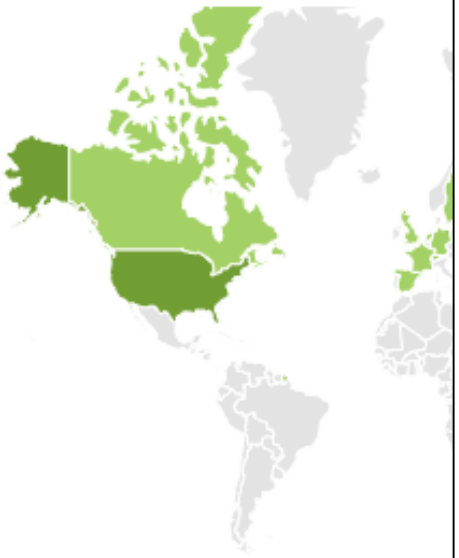
Holdings are subject to change.

Exposure Breakdowns

Geography | Sector

as of 18-Oct-2016

United States	58.97%
Japan	8.95%
United Kingdom	6.68%
France	3.63%
Canada	3.62%
Germany	3.35%
Switzerland	3.29%
Australia	2.77%
Hong Kong	1.32%
Netherlands	1.23%
Spain	1.14%
Sweden	1.04%
Other	4%



Source: iShares MSCI World Index ETF (Oct 18, 2016)

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1. CLARITY OF ACCOUNTING CHOICES

clarify … flexibility … regarding … accounting for assets and liabilities, while remaining GAAP-compliant, and … factors it takes into account in electing to use one method/assumption over others

- See #5. RETURN/RISK DEFINITIONS FOR ASSET MIX DECISION
- Market risk understated by use of accounting metrics
  - Volatile equities
  - Volatile pension remeasurement

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2. ADOPTION OF MORE COMPARABLE ACCOUNTING PRINCIPLES

consider adopting … principles, where GAAP allows … elections, that reduce … discrepancy between net income and comprehensive income …, to improve comparability … by accounting for more … at … "FVTPL"

- Important for portfolio/risk management only if return/risk for asset mix decision-making is based on accounting (without "adjustments") rather than market value

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3. AFS AND HTM ACCOUNTING

Unrealized gains and losses for AFS assets … are reported as "… OCI …" and … excluded from net income until realized, making … net income recognition … inconsistent with FVTPL assets …

HTM Bonds … at amortized cost, should also be re-considered.
Market valuations are … more comparable, relevant, transparent, understandable and subject to less … bias than valuations … based on … current accounting

- Unrealized gains and losses are the largest component of total returns on equities (the other being dividend yield), and the most volatile component

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4. PENSION LIABILITY ACCOUNTING

Reconsideration should … include … remeasurement of employee benefits … which is … OCI …

remeasurement … is large (… long duration of pension liabilities), but OCI … from changing interest rates that impact … liabilities is not recognized through … net income

- Make "adjustments", for portfolio/risk management purposes, for differences between market and accounting risk

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17. REMOVAL OF 105% RULE IN INVESTMENT POLICIES

remove … ability to request … managers to realize gains (losses) …, which MPI says "… no longer relevant" …

remove … ability … to cause a manager to realize gains (losses) for … sole purpose of having … impact on net income, without yielding … economic value, reducing risk or … conferring … benefit …

- Applaud that MPI agrees to make change

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13. NO OVER-RELIANCE ON QUANTITATIVE MODELING

be vigilant about … over-reliance on quantitative considerations, given … high sensitivity of optimal asset allocations to … assumptions (returns, volatilities and correlations) and … large number of inputs

44 Assumptions	• optimal solutions from quantitative portfolio optimizations are very sensitive to the capital market assumptions used; and • there are at least 44 such assumptions in the Asset-Liability Study, involving MPI's 8-asset class portfolio, as calculated below. **44 Important Assumptions (estimates, but "unknowns")** 8 average return assumptions (1 for each asset class) 8 volatility assumptions 28 correlations (= 8 x 7 ÷ 2) 44 "unknowns" Source: Evidence, page 41
A-L Studies Every 4 Years	• Too infrequent, considering "dynamic risks" in static asset mix

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18. PENSION FUND

interests of … stakeholders should inform decisions regarding … accounting for and management of … assets and liabilities related to … pension plan … desirable outcome is … greater clarity around … appropriateness and prudence of assets and liabilities commingled	
Risky Component not Considered	• Material market risk from employee benefits (re-measurement) not reflected in return/risk in A-L Study • Not appropriately considered in asset mix decisions • See next page

Unbundling Pensions	• Pension plan "unbundling" may result in <u>accounting</u> recognition of material remeasurement losses (to be confirmed by accountant(s))
	• Recognition depends on:
	  • **Pension liability** (~ 18% of assets on accounting basis)
	  • **Duration** (> 16)
	  • **Change in discount rate** (adoption of different accounting)
	  • **Convexity/other** (bigger for larger rate changes, lower rates)

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MATERIALITY

Change in Pension Liability	Net Income	OCI
Current service cost	Low Volatility	
Interest cost		
Benefits paid		
Remeasurement (gains) losses recognized in OCI		**High Volatility**

"OCI not reflected in return/risk in A-L Study, not considered in asset mix decisions

Source:
MPI's financial statements, Note 16

"not reflected"

assumptions adopted by the Civil Service Superannuation Board. The weighted average duration of the defined benefit obligation is 16.29 years (February 28, 2015 – 17.15 years). Results from the most recent actuarial valuations, projected to February 29, 2016 and the corresponding economic assumptions are as follows:

Assumptions:	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Discount rate	**4.05%**	3.60%	**4.05%**	3.60%
Inflation rate	**2.00%**	2.00%		
Expected salary increase	**2.75%**	2.75%		
Expected health care cost increase (out of scope)			**4.90%**	5.50%
Expected health care cost increase (in scope)			**2.00%**	2.00%

Change in benefit obligations:

(in thousands of Canadian dollars)	Pension Benefit Plan		Other Benefit Plans	
	2016	2015	**2016**	2015
Balance at March 1	**339,334**	285,326	**51,785**	47,812
Current service cost	**14,103**	12,054	**5,414**	5,059
Interest cost	**12,760**	12,349	**931**	780
Benefits paid	**(10,832)**	(9,659)	**(2,983)**	(2,701)
Remeasurement (gains) losses recognized in OCI	**(26,975)**	39,264	**(5,420)**	835
Balance at February 29/28	**328,390**	339,334	**49,727**	51,785
Employee contribution for the year	**9,679**	8,909	**-**	-

ASSET LIABILITY STUDY

EFFICIENT FRONTIER ANALYSIS FOR BASIC INSURANCE & PENSION COMPONENTS

ASSUMPTIONS BASED ON FORWARD YIELD CURVE & REAL LIABILITY BENCHMARKS

CAC (MPI) 1-84(f) , 1-85(g) RESPONSES

Manitoba Public Insurance

SEPTEMBER 25, 2018

Dave Makarchuk
Pawel Piesowicz
Angelo DiNoto

INTRODUCTION

The analysis provided in this document is in accordance with:

Order No. 124/18

Motion by Consumers' Association of Canada (Manitoba) Inc. for an Order Compelling Certain Responses to Information Requests in the 2019/2020 General Rate Application

September 14, 2018

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ASSET CLASSES CONSIDERED

	Return Seeking	Inflation Sensitive	Interest Rate Sensitive
Broad Markets	**Canadian Equity** US Equity **EAFE Equity**	Real Return Bonds 3x Real Return Bonds	Cash MUSH Bonds Provincial Bonds Federal Bonds Canadian Corporate Bonds 3X Long Provincial Bonds
Other Markets	Emerging Markets Equity Global Low Volatility Equity		Global Bonds High Yield Bonds Emerging Market Debt
Alternative Investments	Private Equity Diversified Growth Fund	Infrastructure – Direct Global Real Estate - Direct Cdn	Private Debt – Universe Private Debt – Long Commercial Mortgages Long Comm. Mortgages

Asset classes already included in the target asset mix

Additional asset classes included in the analysis as suggested by Mercer (approved by MPI Investment Committee)

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ASSET CLASSES TO CONSIDER
CONSTRAINTS

- Practical and reasonable modelling approaches and constraints are necessary. Mercer recommendations on modelling are as follows:

  ✓ U.S./EAFE/Emerging Markets Equity should be bundled into a single ACWI[1] equity mandate
  - Single ACWI mandate provides greater mandate efficiency, affordability
  - Expands equities to include Emerging Markets Equity (note: Samsung is an example)
  - Allows the manager to select best in class stocks without artificial geographic boundaries (i.e., attaching a multinational company to a single country)

  ✓ Global Bonds/High Yield Bonds/Emerging Market Debt (one-third each), hereafter referred to as Growth Fixed Income
  - Diversified package of liquid bonds which diversifies return and risk sources of the Growth Portfolio

ACWI is All Country World Index. MSCI ACWI is currently about 54% US, 32% EAFE, 12% Emerging Markets and 3% Canadian Equity.

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ASSET CLASSES TO CONSIDER
MINIMALLY CONSTRAINED APPROACH - PARAMETERS

Current

Asset Class	Single	Group
MUSH Bonds	Max. 25% of total portfolio	
Real Estate and Infrastructure		Not exceed 50% of U.S. Equity, Real Estate, Infrastructure

Proposed by Mercer

Asset Class	Single	Group
MUSH Bonds Private Debt Commercial Mortgages	Min. 10% of total portfolio	Max. 25% of total portfolio
Real Estate Infrastructure Private Equity Growth Fixed Income		Not exceed Equity portfolio

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ANALYSIS
EFFICIENT FRONTIERS
BASIC INSURANCE
– REAL LIABILITY BENCHMARK



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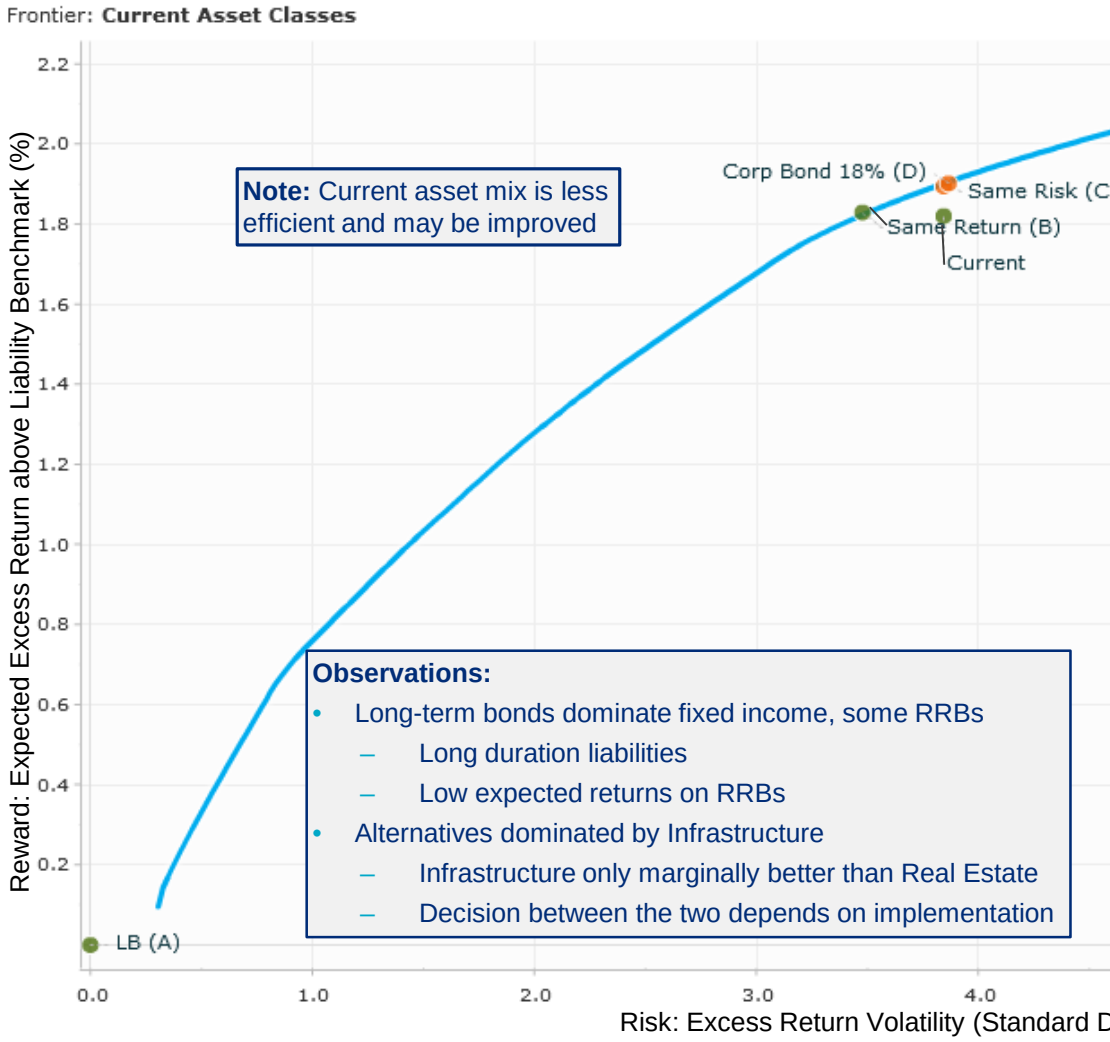
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY

1-84 (f)



	Current	A: LB	B. Same Return	C. Same Risk	D. Corp Bond 18%
Fixed Income	70%	100%	74%	75%	75%
Treasury Bills	--	26.0%	--	--	--
Real Return Bonds	--	66.0%	30.0%	18.0%	18.0%
Short-term Bonds (Prov)	6.5%	8.0%	--	--	--
Mid-term Bonds (Prov)	12.0%	--	--	--	--
Long-term Bonds (Prov)	29.5%	--	23.5%	30.0%	29.0%
Mid-term Bonds (Corp)	2.0%	--	--	--	--
Long-term Bonds (Corp)	--	--	10.5%	17.0%	18.0%
MUSH Bonds	20.0%	--	10.0%	10.0%	10.0%
Public Equities	15%	0%	13%	12.5%	12.5%
Canadian Equity	10%	--	10.0%	11.5%	11.5%
U.S. Equity	5%	--	3.0%	1.0%	1.0%
Alternatives	15%	0%	13%	12.5%	12.5%
Real Estate	10%	--	1%	--	--
Infrastructure	5%	--	12%	12.5%	12.5%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.4%	4.2%	4.2%	4.2%
Surplus Volatility	3.8%	N/A	3.5%	3.8%	3.9%
Information Ratio (Excess Return/Risk)	0.47	N/A	0.53	0.49	0.49
Interest Rate Metrics					
Duration	7.3	10.3	10.3	10.3	10.3
Hedge Ratio	86%	100%	100%	100%	100%

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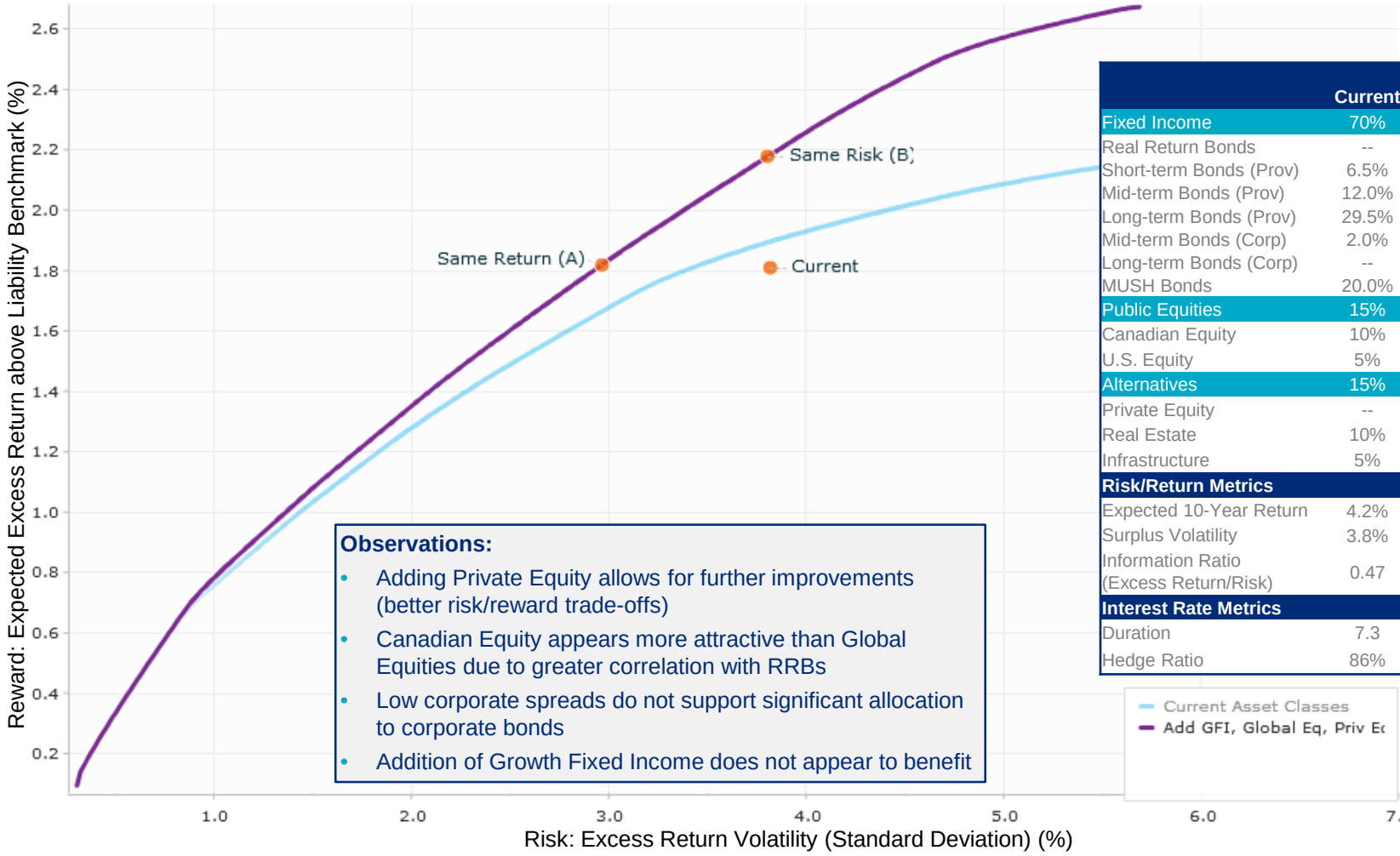
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EOUITY

1-84 (f)

Frontier: **Add GFI, Global Eq, Priv Eq**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	79.5%	74.5%
Real Return Bonds	--	48.0%	41.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	1.0%	--
Long-term Bonds (Prov)	29.5%	9.5%	20.0%
Mid-term Bonds (Corp)	2.0%	--	--
Long-term Bonds (Corp)	--	1.0%	1.0%
MUSH Bonds	20.0%	20.0%	12.0%
Public Equities	15%	10%	12.5%
Canadian Equity	10%	10.0%	12.5%
U.S. Equity	5%	--	--
Alternatives	15%	10.5%	13%
Private Equity	--	7%	9%
Real Estate	10%	--	--
Infrastructure	5%	3.5%	4%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.5%
Surplus Volatility	3.8%	3.0%	3.9%
Information Ratio (Excess Return/Risk)	0.47	0.61	0.57
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding Private Equity allows for further improvements (better risk/reward trade-offs)
- Canadian Equity appears more attractive than Global Equities due to greater correlation with RRBs
- Low corporate spreads do not support significant allocation to corporate bonds
- Addition of Growth Fixed Income does not appear to benefit

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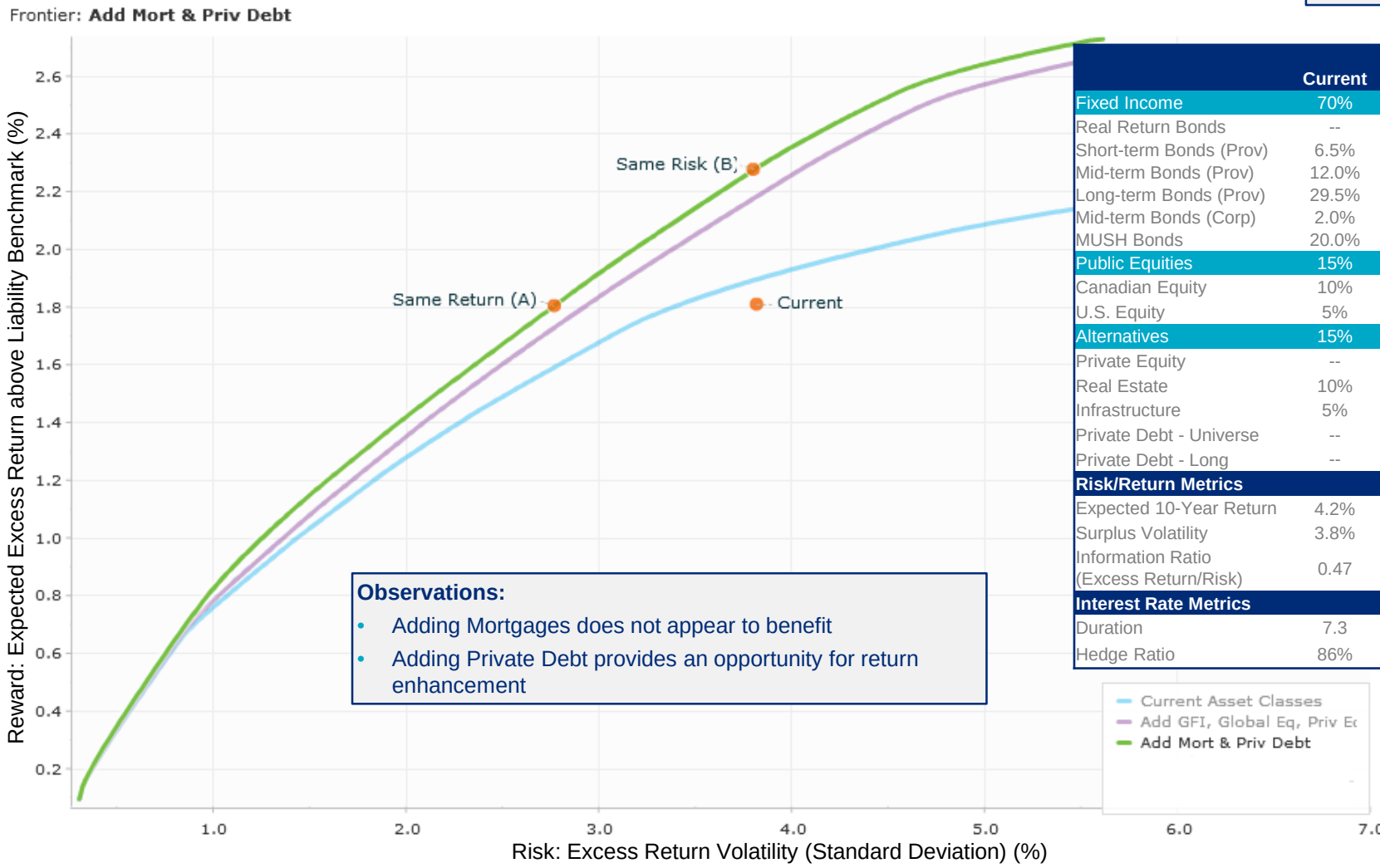
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT

1-84 (f)



Observations:

- Adding Mortgages does not appear to benefit
- Adding Private Debt provides an opportunity for return enhancement

	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	58.5%
Real Return Bonds	--	46.0%	40.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	8.5%	--
Long-term Bonds (Prov)	29.5%	--	8.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10%	13%
Canadian Equity	10%	10.0%	13.0%
U.S. Equity	5%	--	--
Alternatives	15%	25.5%	28.5%
Private Equity	--	5.5%	8.5%
Real Estate	10%	1.0%	--
Infrastructure	5%	4.0%	5.0%
Private Debt - Universe	--	1.5%	--
Private Debt - Long	--	13.5%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.6%
Surplus Volatility	3.8%	2.8%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.65	0.60
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

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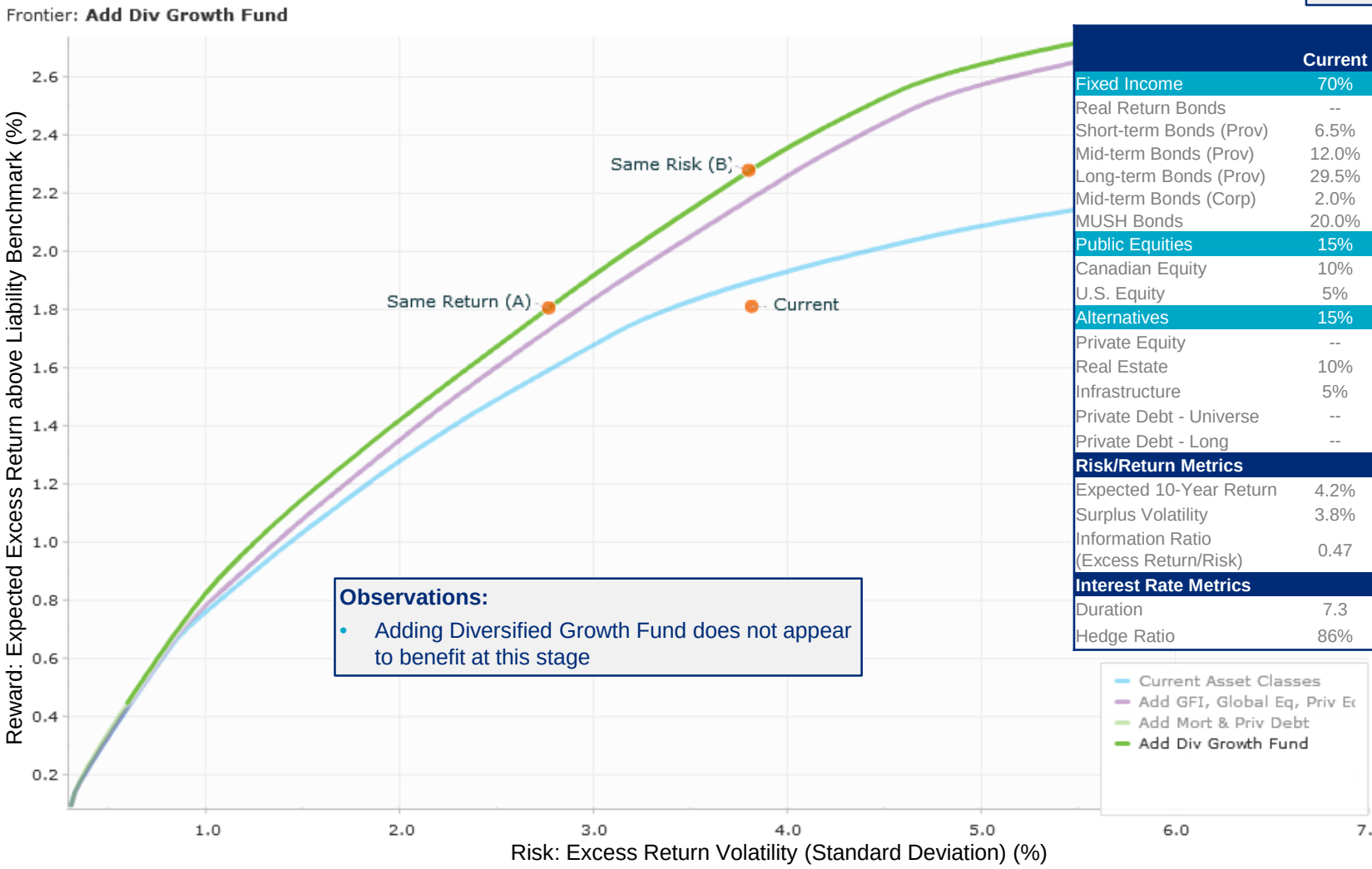
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING DIVERSIFIED GROWTH FUND

1-84 (f)



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	58.5%
Real Return Bonds	--	46.0%	40.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	8.5%	--
Long-term Bonds (Prov)	29.5%	--	8.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10%	13%
Canadian Equity	10%	10.0%	13.0%
U.S. Equity	5%	--	--
Alternatives	15%	25.5%	28.5%
Private Equity	--	5.5%	8.5%
Real Estate	10%	1.0%	--
Infrastructure	5%	4.0%	5.0%
Private Debt - Universe	--	1.5%	--
Private Debt - Long	--	13.5%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.6%
Surplus Volatility	3.8%	2.8%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.65	0.60
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding Diversified Growth Fund does not appear to benefit at this stage

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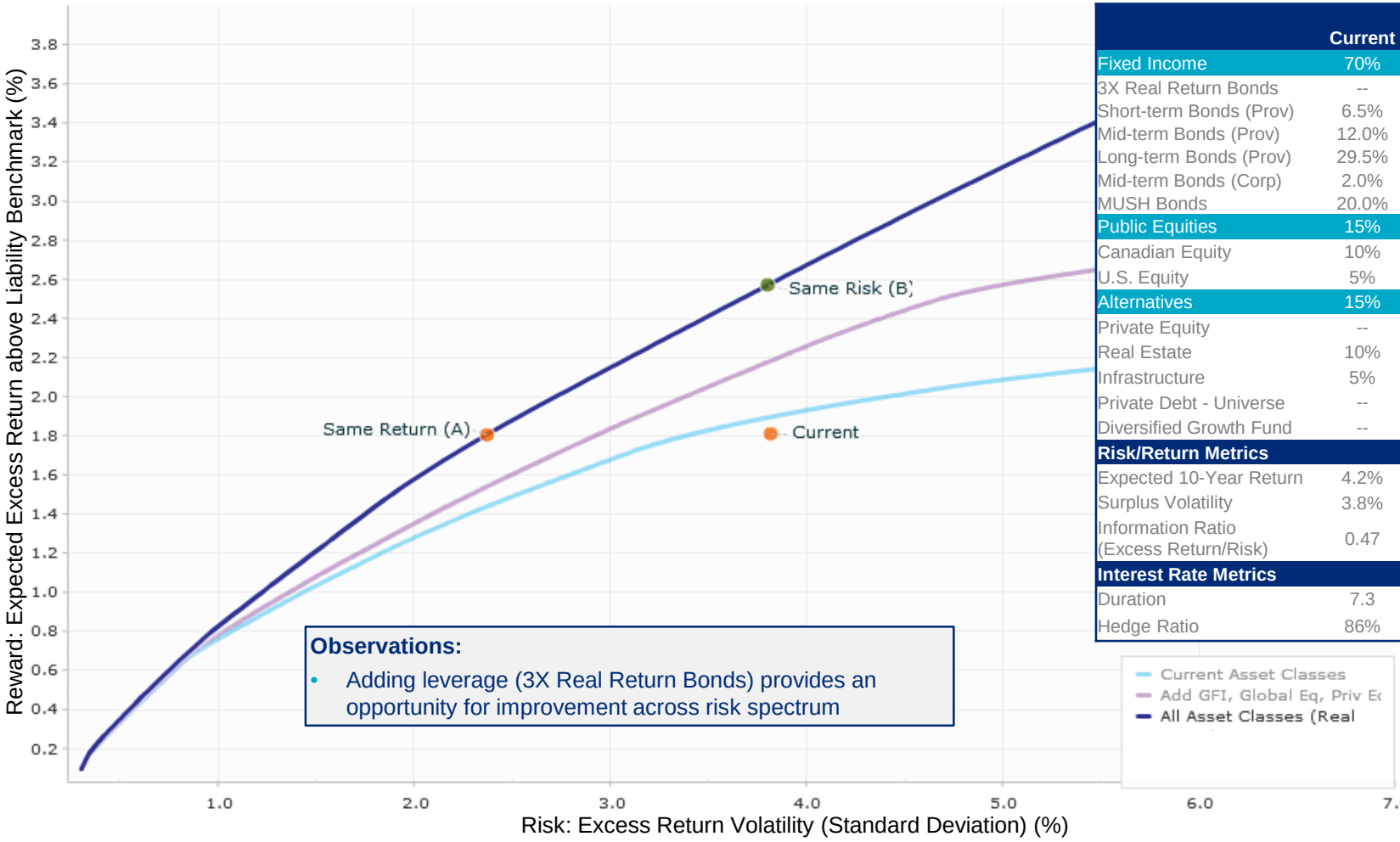
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING LEVERAGE (BOND OVERLAY)

1-84 (f) **1-85 (g) i**

Frontier: **All Asset Classes (Real)**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	62.5%	53%
3X Real Return Bonds	--	17.0%	15.0%
Short-term Bonds (Prov)	6.5%	35.5%	3.5%
Mid-term Bonds (Prov)	12.0%	--	24.5%
Long-term Bonds (Prov)	29.5%	--	--
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	15%
Canadian Equity	10%	10.5%	15.0%
U.S. Equity	5%	--	--
Alternatives	15%	27%	32%
Private Equity	--	3.0%	6.5%
Real Estate	10%	6.5%	5.5%
Infrastructure	5%	1.5%	3.0%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	2.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.9%
Surplus Volatility	3.8%	2.4%	3.8%
Information Ratio (Excess Return/Risk)	0.47	0.76	0.68
Interest Rate Metrics			
Duration	7.3	10.3	10.3
Hedge Ratio	86%	100%	100%

Observations:

- Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum

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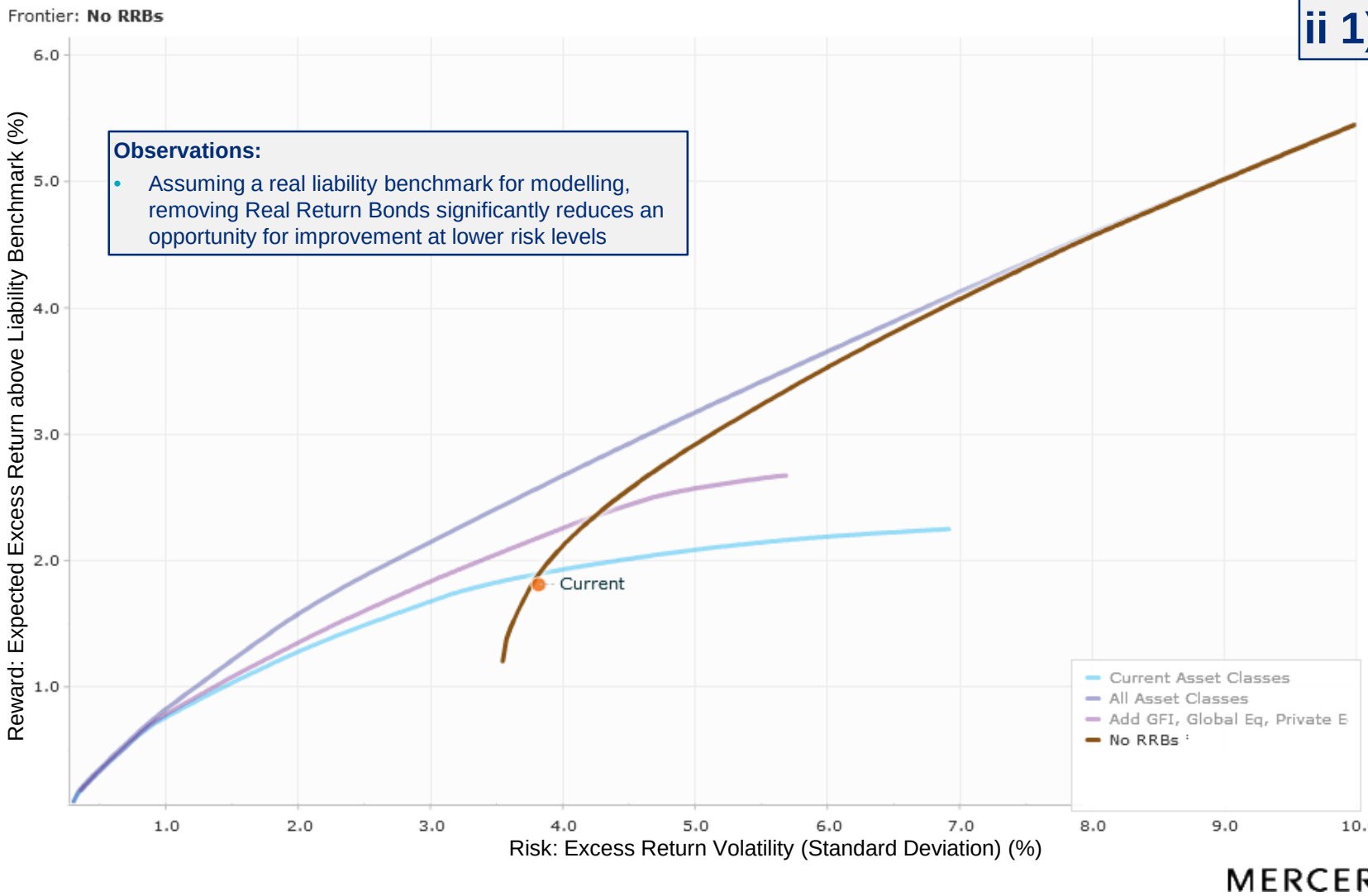
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REMOVING RRBS

1-85 (g) ii 1)



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1-85 (g) ii 2), iii)

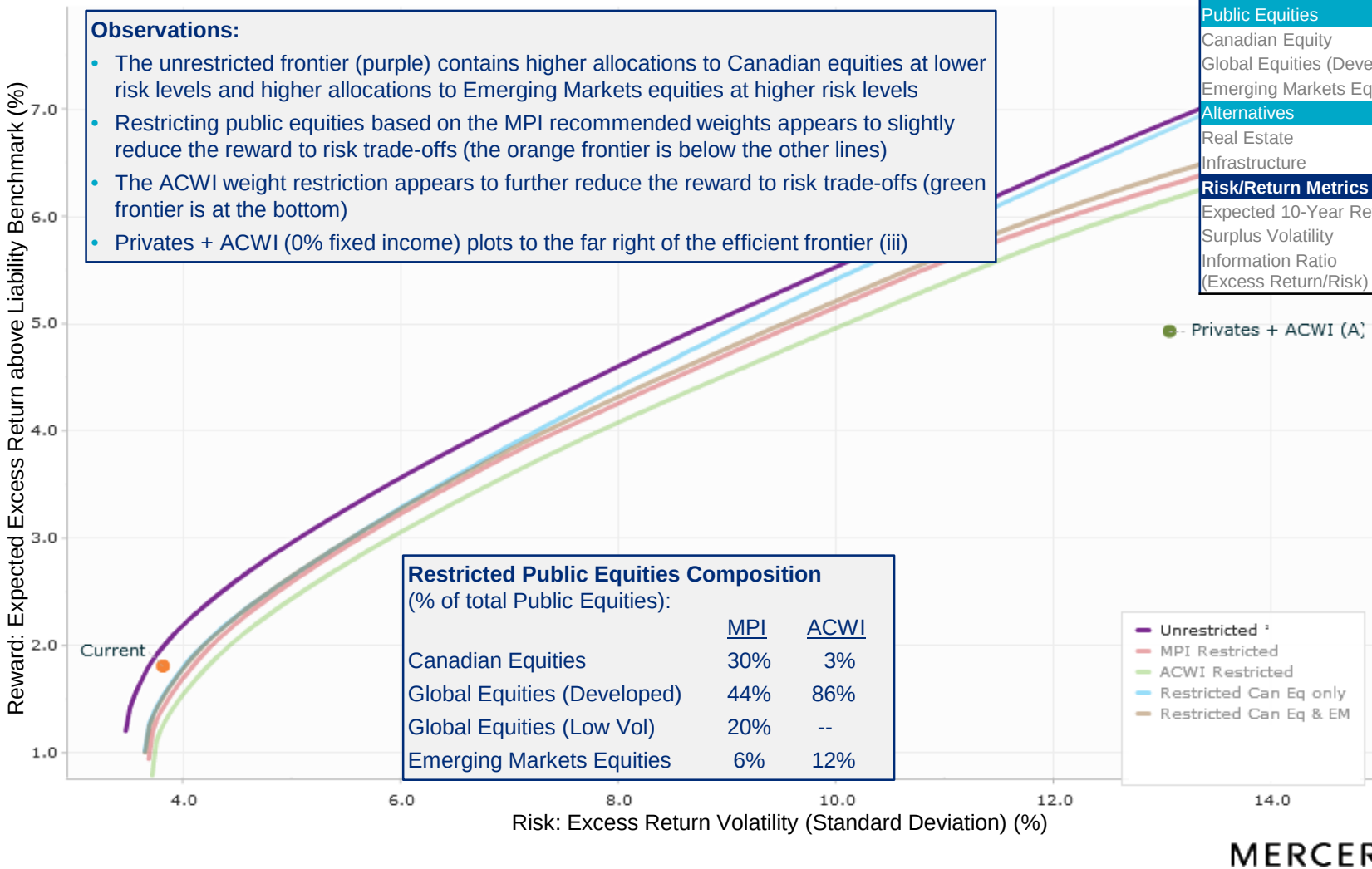
EFFICIENT FRONTIERS (NO RRBS)
RESTRICTING PUBLIC EQUITIES

Frontier: **Unrestricted**

Observations:

- The unrestricted frontier (purple) contains higher allocations to Canadian equities at lower risk levels and higher allocations to Emerging Markets equities at higher risk levels
- Restricting public equities based on the MPI recommended weights appears to slightly reduce the reward to risk trade-offs (the orange frontier is below the other lines)
- The ACWI weight restriction appears to further reduce the reward to risk trade-offs (green frontier is at the bottom)
- Privates + ACWI (0% fixed income) plots to the far right of the efficient frontier (iii)

	A:Privates + ACWI
Fixed Income	--
Public Equities	62.5%
Canadian Equity	1.9%
Global Equities (Developed)	53.4%
Emerging Markets Equities	7.2%
Alternatives	37.5%
Real Estate	25.0%
Infrastructure	12.5%
Risk/Return Metrics	
Expected 10-Year Return	6.8%
Surplus Volatility	13.1%
Information Ratio (Excess Return/Risk)	0.38



Restricted Public Equities Composition
(% of total Public Equities):

	MPI	ACWI
Canadian Equities	30%	3%
Global Equities (Developed)	44%	86%
Global Equities (Low Vol)	20%	--
Emerging Markets Equities	6%	12%

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1-85 (g) iv
1790 of GRA

ASSET MIX OPTIONS
BASIC

	Current	Basic.1	Basic.2	Basic.3	Basic.4
	Commingled	Min. Risk Portfolio (No MUSH)	80% Provis, 20% MUSH	60% Provis 20% Corps 20% MUSH	60% Provis 10% Corps 20% MUSH 10% Prv Dbt
Fixed Income	**70%**	**100%**	**100%**	**100%**	**100%**
Short-term Bonds (Prov.)	6.5%	28%	0%	0%	0.0%
Mid-term Bonds (Prov.)	12.0%	18%	40%	28%	28%
Long-term Bonds (Prov.)	29.5%	54%	40%	32%	32%
Short-term Bonds (Corp.)	0.0%	0%	0%	0%	0%
Mid-term Bonds (Corp.)	0.0%	0%	0%	9%	0%
Long-term Bonds (Corp.)	2.0%	0%	0%	11%	10%
MUSH Bonds	20.0%	0%	20%	20%	20%
Private Debt - Universe	0%	0%	0%	0%	10%
Public Equities	15%	0%	0%	0%	0%
Alternatives	15%	0%	0%	0%	0%

100% Fixed Income

All options match nominal Basic liability duration.

No Growth Assets proposed to Basic

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1-85 (g) iv

ASSET MIX ANALYSIS – SUMMARY RESULTS

BASIC.3 VS REAL LIABILITY BENCHMARK PRODUCES THE HIGHEST RETURN VS THE PREVIOUSLY ANALYSIS ASSET MIX OPTIONS

	Current Mix	Alternative Asset Mixes			
		Basic.1	Basic.2	Basic.3	Basic .4
		No MUSH	Add MUSH	Add Corps	Add PD
Expected return	4.29%	2.80%	2.93%	3.12%	3.09%
Excess return over liability benchmark	1.86%	0.38%	0.51%	0.70%	0.67%
1-Year Surplus volatility	3.84%	4.48%	4.91%	4.45%	4.57%
Excess return/Surplus volatility	0.484	0.085	0.104	0.156	0.146
1-year Median Surplus	$33.3 M	5.7 M	7.7 M	12.1 M	11.6 M
1-year 90th Percentile VaR	-87 M	-100 M	-109 M	-99 M	-102 M
1-year 95th Percentile VaR	-112 M	-128 M	-139 M	-126 M	-130 M
1-year 97.5th Percentile VaR	-134 M	-152 M	-164 M	-150 M	-154 M
Interest Rate Risk Hedge Ratio	85%	**100%**	**100%**	**100%**	**100%**
Median Surplus in 5 years	$185 M	30 M	42 M	63 M	60 M
5-Year Surplus volatility	10.00%	11.26%	12.48%	11.39%	11.68%
Prob. of Surplus in 5 years	86%	56%	58%	63%	62%
Prob. of 5-year positive real return	83%	60%	61%	64%	63%
Non-MUSH Yield	2.75%	2.55%	2.71%	2.92%	2.91%

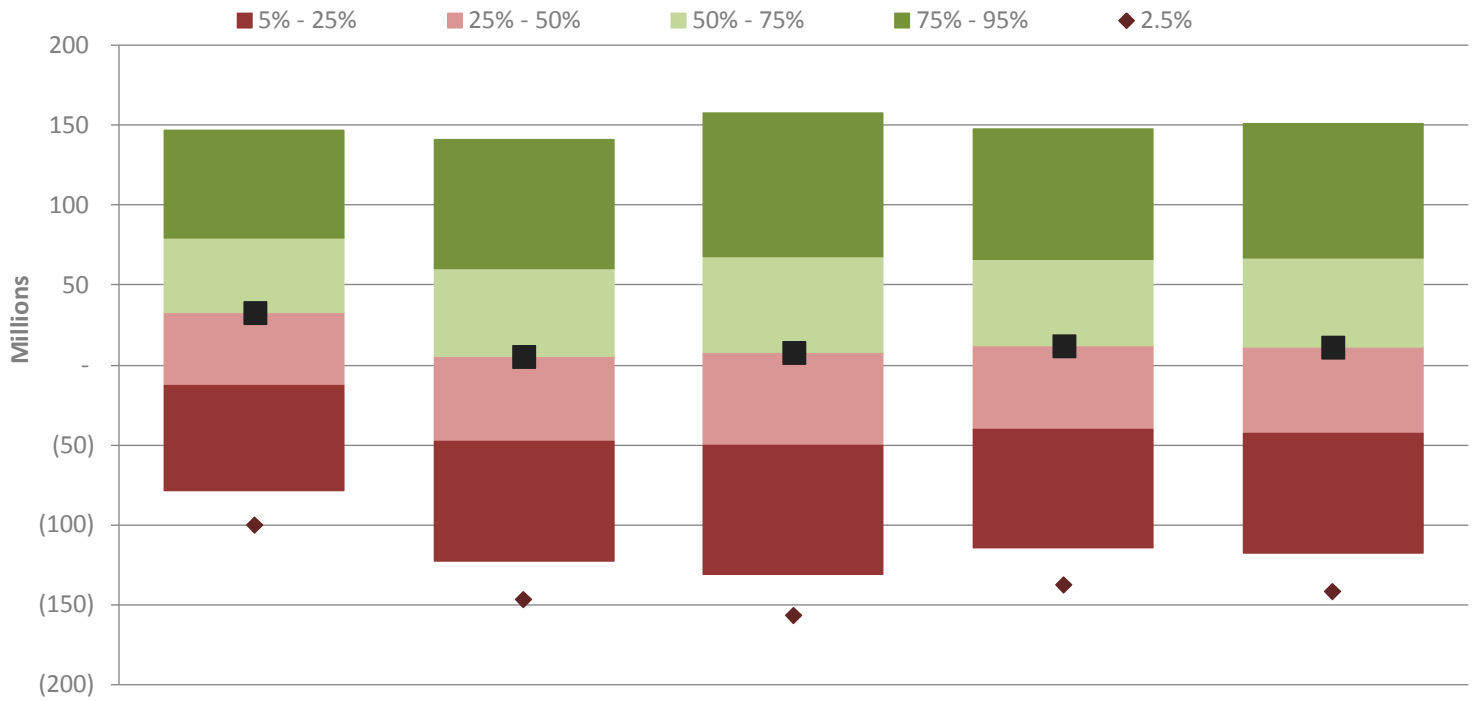
Return Metrics

Risk Metrics

© MERCER 2018 Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

EXPECTED SURPLUS GROWTH
BASIC- 1 YEAR PROJECTIONS

1-85 (g) iv



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	147.1 M	140.9 M	158.0 M	147.7 M	150.8 M
75th	79.6 M	60.1 M	67.7 M	66.4 M	67.4 M
50th	33.3 M	5.7 M	7.7 M	12.1 M	11.6 M
25th	-12.9 M	-47.6 M	-50.4 M	-40.7 M	-42.6 M
5th	-79.0 M	-122.5 M	-130.9 M	-114.4 M	-118.0 M
2.5th	-100.5 M	-146.4 M	-156.4 M	-137.8 M	-142.1 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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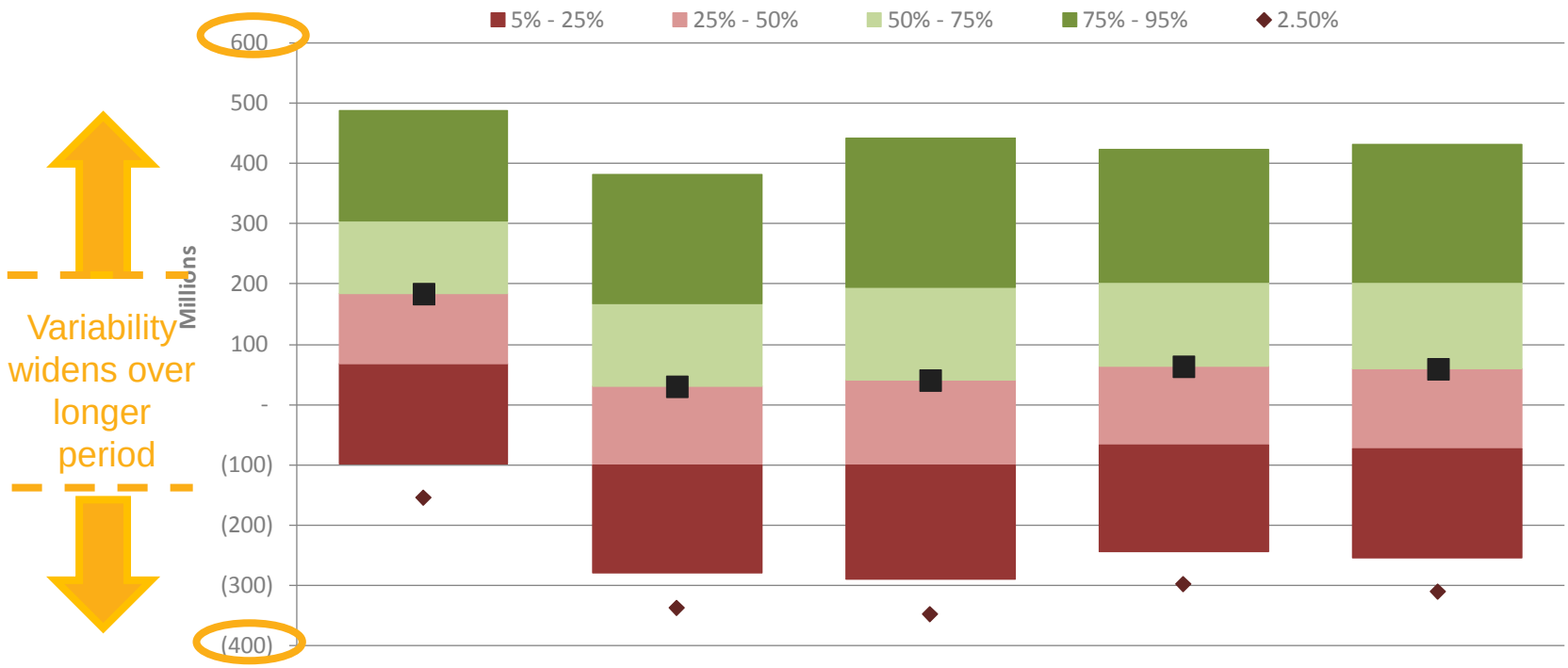
1-85 (g) iv

EXPECTED SURPLUS GROWTH
BASIC- 5 YEAR PROJECTIONS



Percentile	Current	Basic.1	Basic.2	Basic.3	Basic.4
95th	488.5 M	381.5 M	441.2 M	424.1 M	430.8 M
75th	305.8 M	167.2 M	194.8 M	202.1 M	202.8 M
50th	185.2 M	30.3 M	41.8 M	62.7 M	59.9 M
25th	67.8 M	-99.6 M	-99.7 M	-67.4 M	-73.3 M
5th	-99.2 M	-279.2 M	-289.3 M	-243.4 M	-253.4 M
2.5th	-153.8 M	-336.9 M	-349.0 M	-299.1 M	-310.4 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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ANALYSIS
EFFICIENT FRONTIERS
PENSION PLAN
– REAL LIABILITY BENCHMARK



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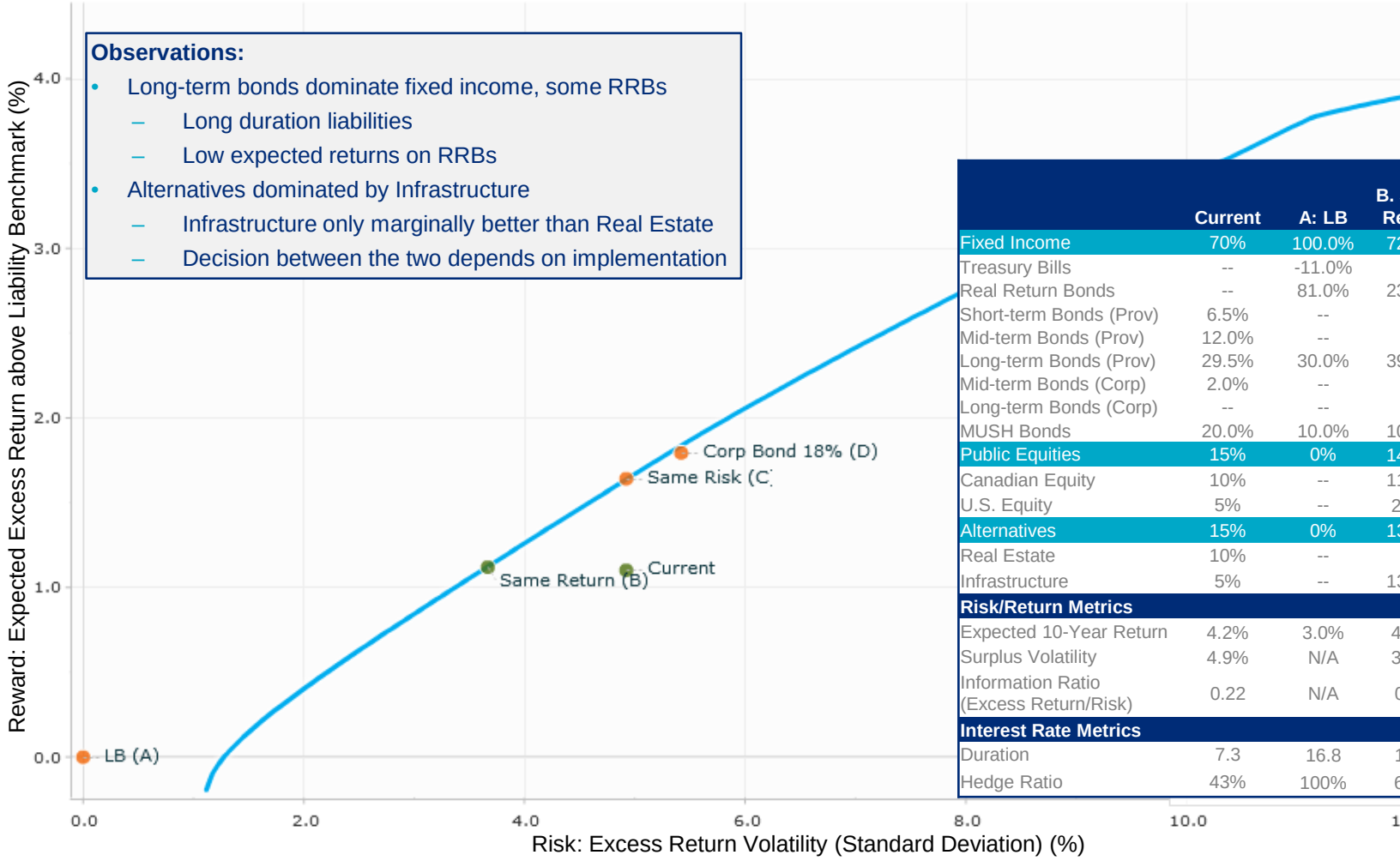
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY

1-84 (f)

Frontier: **Current Asset Classes**

Observations:

- Long-term bonds dominate fixed income, some RRBs
  - Long duration liabilities
  - Low expected returns on RRBs
- Alternatives dominated by Infrastructure
  - Infrastructure only marginally better than Real Estate
  - Decision between the two depends on implementation



	Current	A: LB	B. Same Return	C. Same Risk	D. Corp Bond 18%
Fixed Income	70%	100.0%	72.5%	61.5%	61.5%
Treasury Bills	--	-11.0%	--	--	--
Real Return Bonds	--	81.0%	23.5%	3.5%	3.5%
Short-term Bonds (Prov)	6.5%	--	--	--	--
Mid-term Bonds (Prov)	12.0%	--	--	--	--
Long-term Bonds (Prov)	29.5%	30.0%	39.0%	48.0%	30.0%
Mid-term Bonds (Corp)	2.0%	--	--	--	--
Long-term Bonds (Corp)	--	--	--	--	18.0%
MUSH Bonds	20.0%	10.0%	10.0%	10.0%	10.0%
Public Equities	15%	0%	14.0%	19.0%	19.0%
Canadian Equity	10%	--	11.5%	15.5%	15.5%
U.S. Equity	5%	--	2.5%	3.5%	3.5%
Alternatives	15%	0%	13.5%	19.5%	19.5%
Real Estate	10%	--	--	--	--
Infrastructure	5%	--	13.5%	19.5%	19.5%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	3.0%	4.2%	4.7%	4.8%
Surplus Volatility	4.9%	N/A	3.7%	4.9%	5.4%
Information Ratio (Excess Return/Risk)	0.22	N/A	0.31	0.33	0.33
Interest Rate Metrics					
Duration	7.3	16.8	10.3	8.7	8.3
Hedge Ratio	43%	100%	61%	52%	49%

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EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

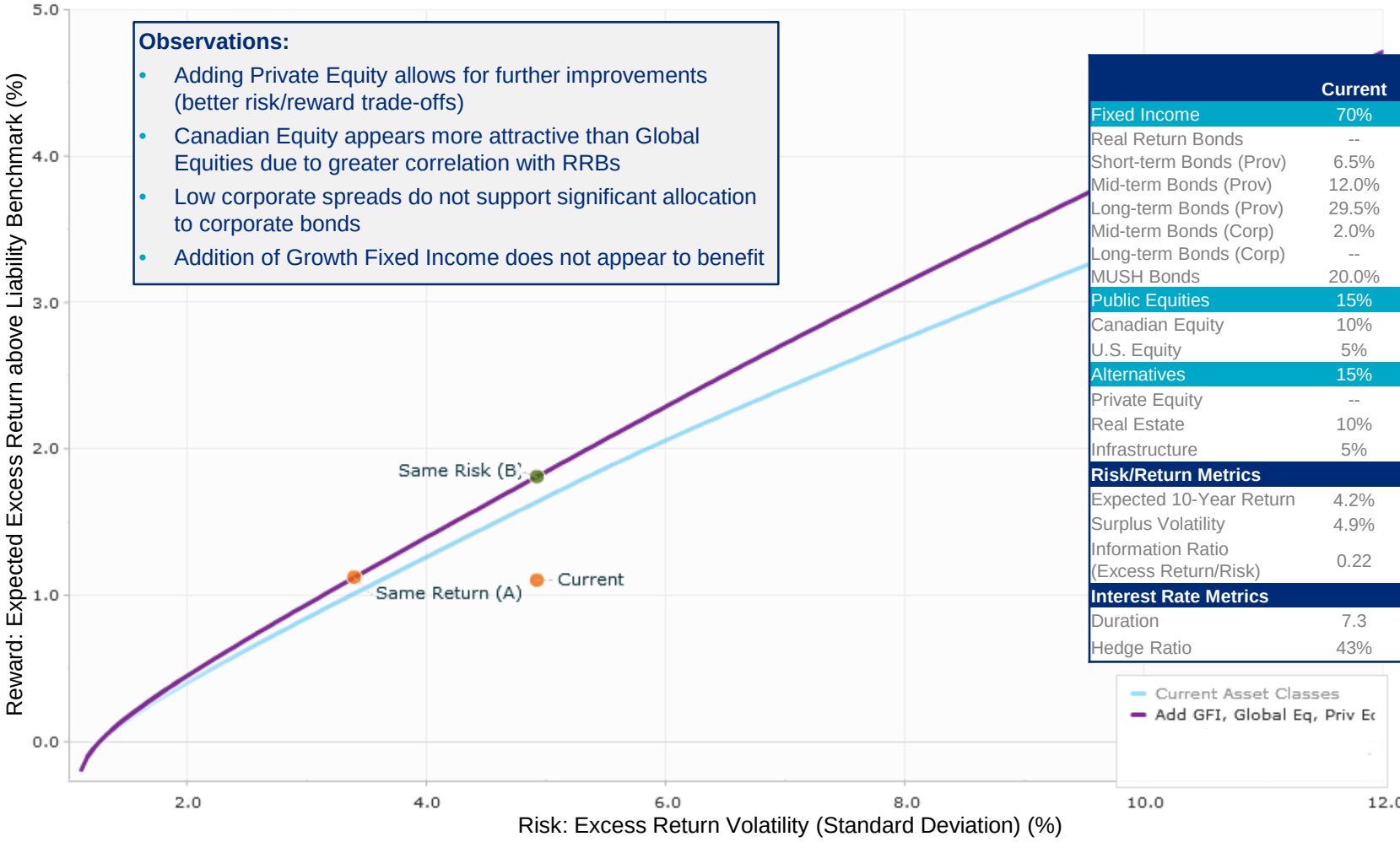
ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EOUITY

1-84 (f)

Frontier: **Add GFI, Global Eq, Priv Eq**

Observations:

- Adding Private Equity allows for further improvements (better risk/reward trade-offs)
- Canadian Equity appears more attractive than Global Equities due to greater correlation with RRBs
- Low corporate spreads do not support significant allocation to corporate bonds
- Addition of Growth Fixed Income does not appear to benefit



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	78.5%	67.0%
Real Return Bonds	--	34.0%	14.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	34.5%	42.5%
Mid-term Bonds (Corp)	2.0%	--	--
Long-term Bonds (Corp)	--	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	11.0%	16.5%
Private Equity	--	5.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	8.5%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	4.9%
Surplus Volatility	4.9%	3.4%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.33	0.37
Interest Rate Metrics			
Duration	7.3	11.2	9.5
Hedge Ratio	43%	66%	56%

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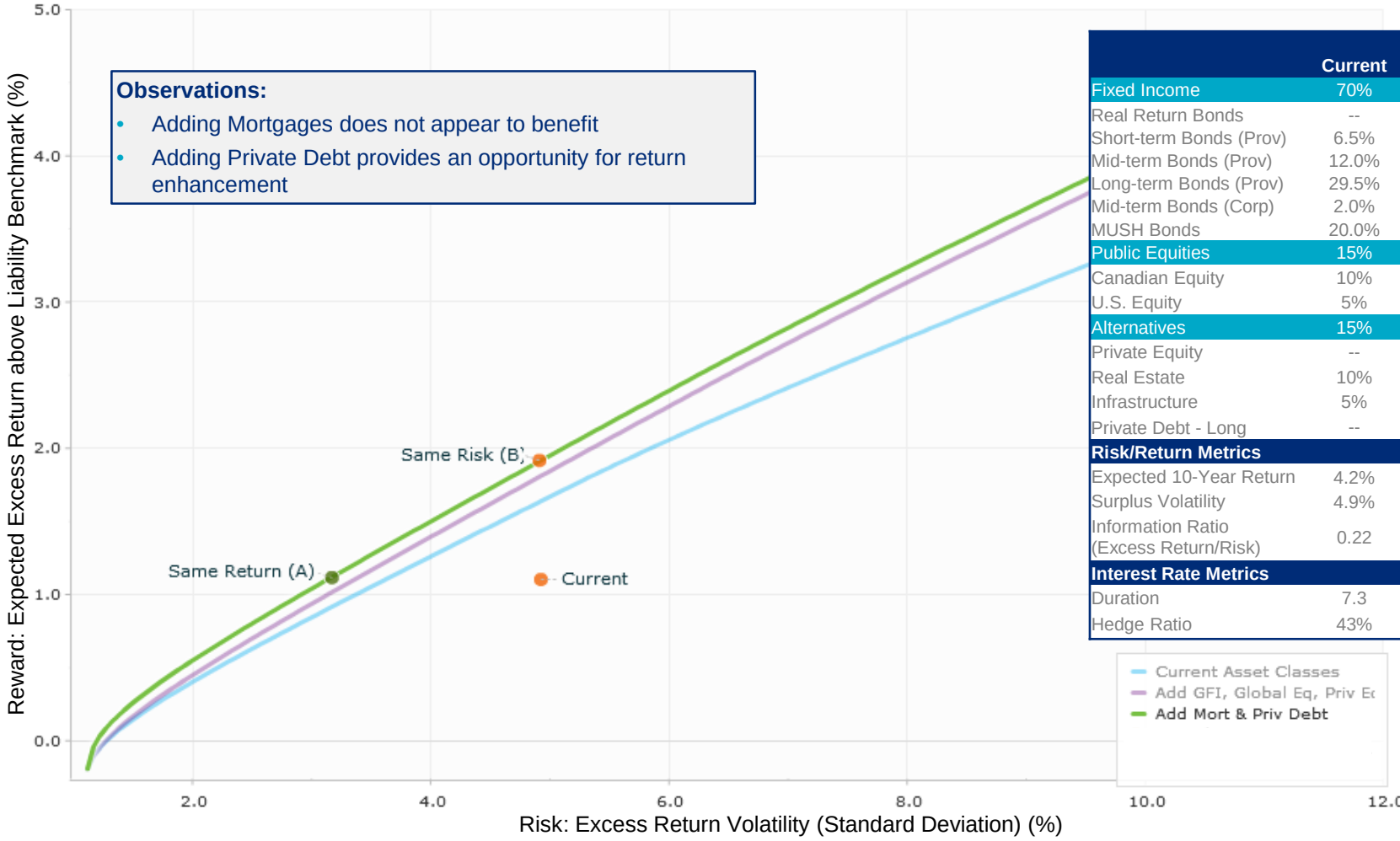
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
ADDING MORTGAGES AND PRIVATE DEBT

1-84 (f)

Frontier: **Add Mort & Priv Debt**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	51.5%
Real Return Bonds	--	35.5%	13.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	19.0%	28.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	25.0%	32.0%
Private Equity	--	4.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	9.0%
Private Debt - Long	--	15.0%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	5.0%
Surplus Volatility	4.9%	3.2%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.35	0.39
Interest Rate Metrics			
Duration	7.3	11.2	9.3
Hedge Ratio	43%	67%	56%

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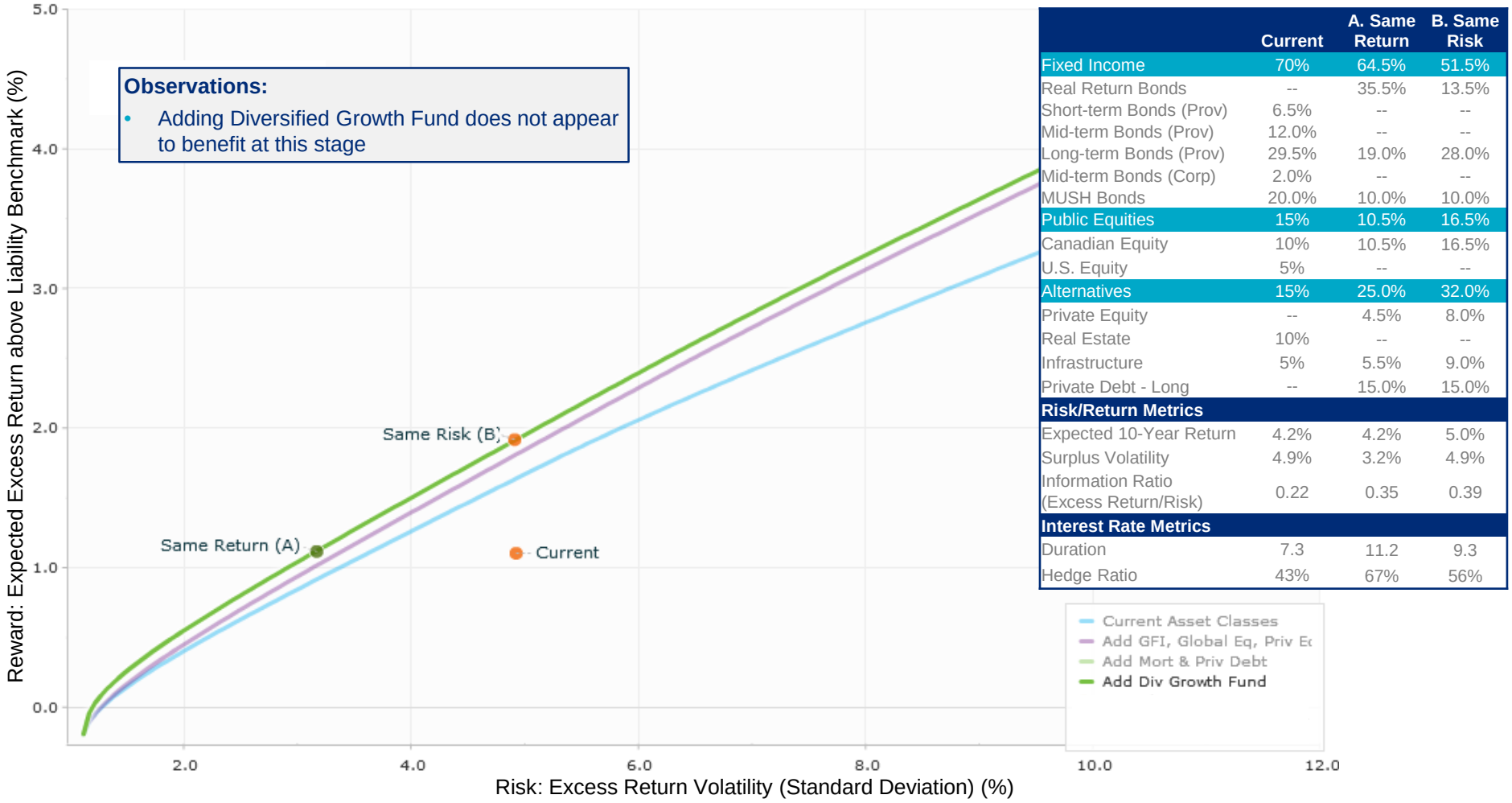
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING DIVERSIFIED GROWTH FUND

1-84 (f)

Frontier: **Add Div Growth Fund**



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	64.5%	51.5%
Real Return Bonds	--	35.5%	13.5%
Short-term Bonds (Prov)	6.5%	--	--
Mid-term Bonds (Prov)	12.0%	--	--
Long-term Bonds (Prov)	29.5%	19.0%	28.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	10.5%	16.5%
Canadian Equity	10%	10.5%	16.5%
U.S. Equity	5%	--	--
Alternatives	15%	25.0%	32.0%
Private Equity	--	4.5%	8.0%
Real Estate	10%	--	--
Infrastructure	5%	5.5%	9.0%
Private Debt - Long	--	15.0%	15.0%
Risk/Return Metrics			
Expected 10-Year Return	4.2%	4.2%	5.0%
Surplus Volatility	4.9%	3.2%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.35	0.39
Interest Rate Metrics			
Duration	7.3	11.2	9.3
Hedge Ratio	43%	67%	56%

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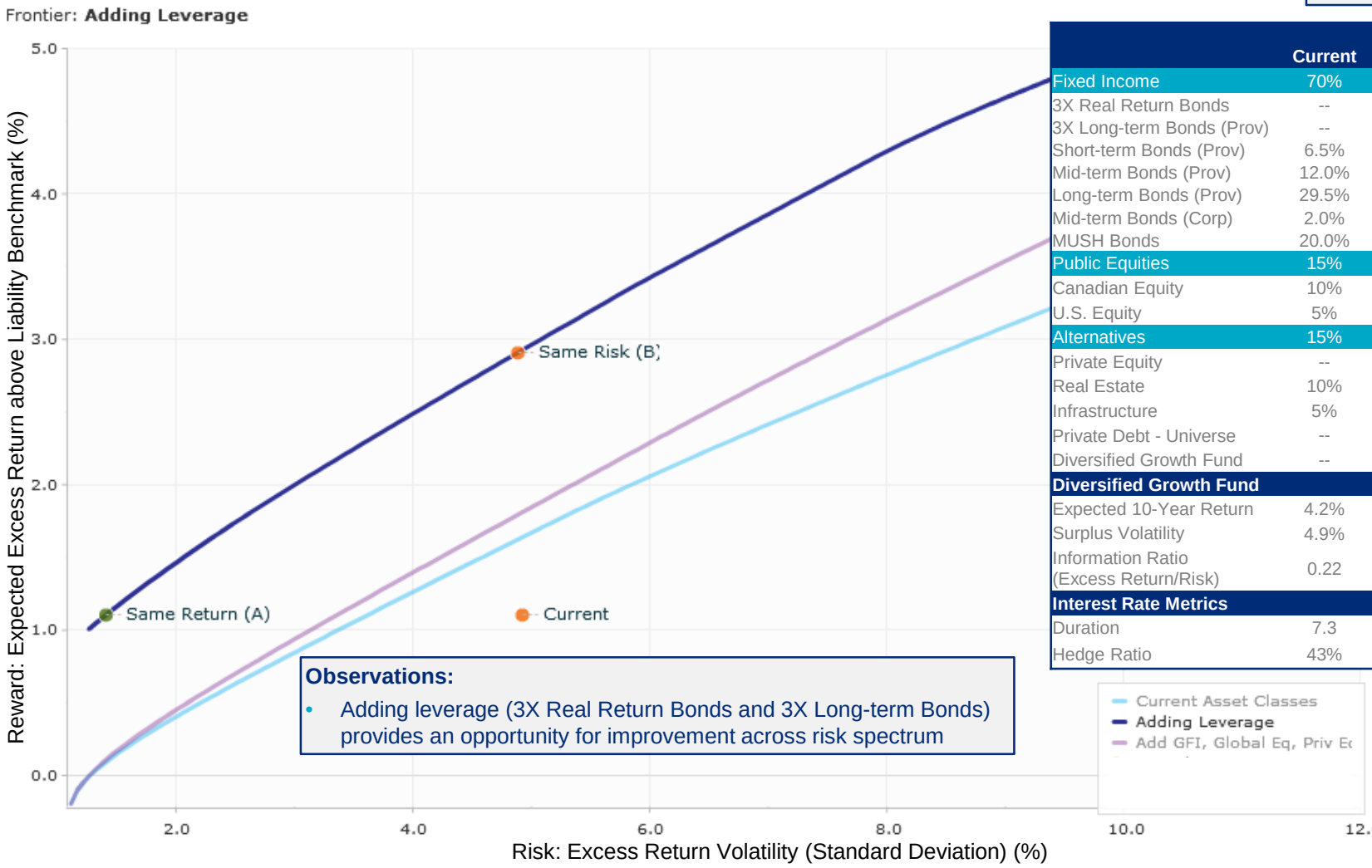
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)

ADDING LEVERAGE (BOND OVERLAY)

1-84 (f)



	Current	A. Same Return	B. Same Risk
Fixed Income	70%	69.0%	47.5%
3X Real Return Bonds	--	23.0%	15.0%
3X Long-term Bonds (Prov)	--	6.0%	15.0%
Short-term Bonds (Prov)	6.5%	29.0%	--
Mid-term Bonds (Prov)	12.0%	--	6.5%
Long-term Bonds (Prov)	29.5%	1.0%	1.0%
Mid-term Bonds (Corp)	2.0%	--	--
MUSH Bonds	20.0%	10.0%	10.0%
Public Equities	15%	7.5%	18.5%
Canadian Equity	10%	7.5%	18.5%
U.S. Equity	5%	--	--
Alternatives	15%	23.5%	34%
Private Equity	--	1.5%	10.5%
Real Estate	10%	5.0%	1.0%
Infrastructure	5%	1.0%	7.5%
Private Debt - Universe	--	15.0%	15.0%
Diversified Growth Fund	--	1.0%	--
Diversified Growth Fund			
Expected 10-Year Return	4.2%	4.0%	5.7%
Surplus Volatility	4.9%	1.4%	4.9%
Information Ratio (Excess Return/Risk)	0.22	0.78	0.59
Interest Rate Metrics			
Duration	7.3	15.8	16.0
Hedge Ratio	43%	94%	95%

Observations:

- Adding leverage (3X Real Return Bonds and 3X Long-term Bonds) provides an opportunity for improvement across risk spectrum

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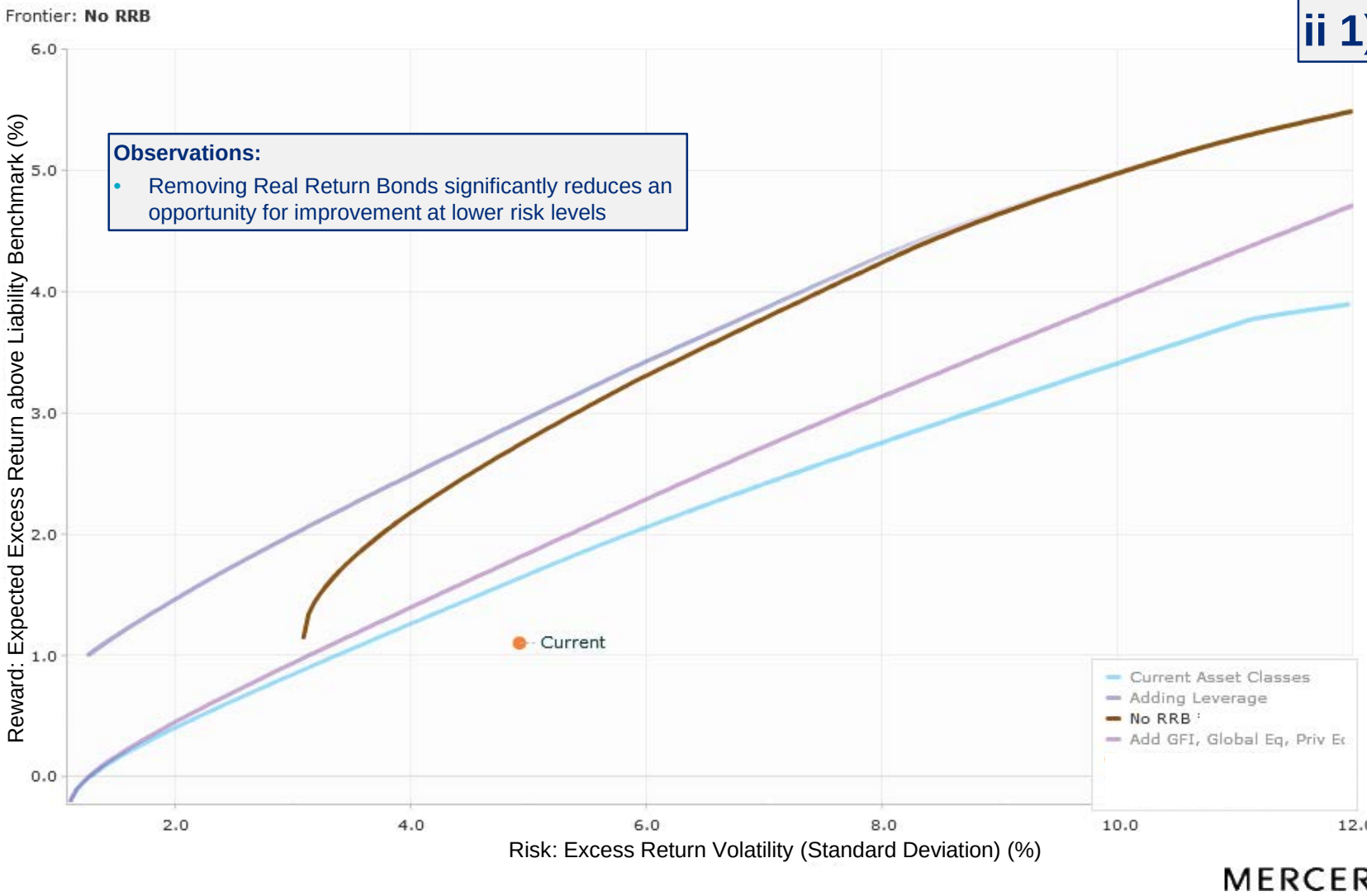
EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REMOVING RRBS

1-85 (g) ii 1)



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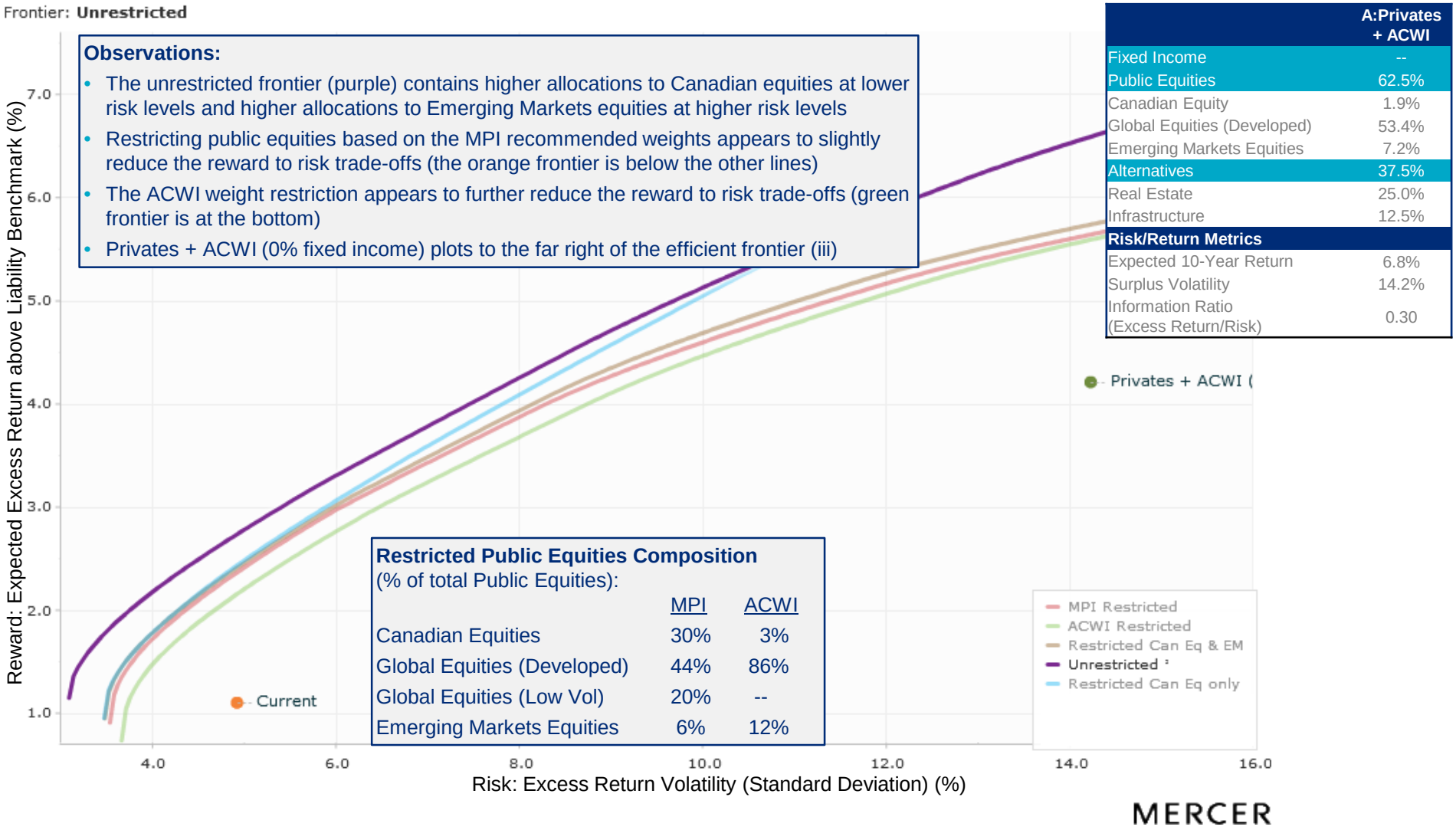
1-85 (g) ii 2), iii)

EFFICIENT FRONTIERS (NO RRBS) RESTRICTING PUBLIC EQUITIES



	A:Privates + ACWI
Fixed Income	--
Public Equities	62.5%
Canadian Equity	1.9%
Global Equities (Developed)	53.4%
Emerging Markets Equities	7.2%
Alternatives	37.5%
Real Estate	25.0%
Infrastructure	12.5%
Risk/Return Metrics	
Expected 10-Year Return	6.8%
Surplus Volatility	14.2%
Information Ratio (Excess Return/Risk)	0.30

Restricted Public Equities Composition
(% of total Public Equities):

	MPI	ACWI
Canadian Equities	30%	3%
Global Equities (Developed)	44%	86%
Global Equities (Low Vol)	20%	--
Emerging Markets Equities	6%	12%

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ASSET CLASS OPTIONS
PENSION

GROWTH ASSETS INCREASE

1-85 (g) iv GRA pg.

	Current	CSSB	Pension.1	Pension.2	Pension.3
		For reference	Balanced	Growth	Aggressive
Fixed Income	70%	27%	40%	30%	20%
T-Bills	0%	1%	-	-	-
Mid-term Bonds (Corp.)	2%	-	-	-	-
Long-term Bonds (Corp.)	0%	-	20%	20%	20%
Short-term Bonds (Prov.)	6.5%	-	-	-	-
Mid-term Bonds (Prov.)	12%	-	-	-	-
Long-term Bonds (Prov.)	29.5%	-	-	-	-
MUSH Bonds	20%	-	-	-	-
Private Debt – Long	0%	-	20%	10%	0%
Overall – Universe	0%	17.5%	-	-	-
Overall – Long	0%	8.5%	-	-	-
Public Equities	15%	55%	35%	46%	55%
Canadian Equity	10%	19%	10%	13%	18%
U.S. Equity	5%	15%	-	-	-
EAFE Equity	0%	21%	-	-	-
All-Country World Equity	0%	-	18%	18%	20%
Global Equity (Low Volatility)	0%	-	7%	14%	17%
Alternatives	15%	18%	25%	25%	25%
Private Equity	0%	4%	0%	0%	0%
Real Estate	10%	10%	15%	15%	15%
Infrastructure	5%	4%	10%	10%	10%

Emphasize Corporate Bonds and Private Debt to enhance returns.

Remove MUSH.

Diversify Equities.

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ASSET MIX ANALYSIS – SUMMARY RESULTS

PENSION

1-85 (g) iv

Metric	Current Mix	Alternative Approaches			
		Reference CSSB	Balanced Pension.1	Growth Pension.2	Aggressive Pension.3
Expected return	4.3%	6.1%	5.7%	5.9%	6.2%
Excess return over liability benchmark	1.3%	3.2%	2.7%	3.0%	3.3%
Surplus volatility	4.9%	11.4%	8.4%	9.6%	11.1%
Excess Return / Surplus Volatility	0.26	0.28	0.32	0.31	0.29
1 Year Median Surplus	$0.4 M	8.4 M	7.3 M	8.2 M	9.2 M
90th Percentile VaR	-27 M	-58 M	-44 M	-50 M	-57 M
95th Percentile VaR	-35 M	-74 M	-57 M	-64 M	-73 M
97.5th Percentile VaR	-43 M	-89 M	-68 M	-77 M	-87 M
Interest Rate Risk Hedge Ratio	47%	17%	36%	27%	17%
Median Surplus in 5 years	$6.2 M	52.7 M	44 M	50 M	57 M
5-Year Surplus volatility	13.4%	32.1%	23.3%	27.1%	31.8%
Prob. of surplus in 5 years	55%	67%	68%	68%	68%
Prob. of 5-year positive real return	83%	84%	87%	86%	85%
Non-MUSH Yield	2.75%	2.48%	3.72%	3.77%	3.86%

Return Metrics

Risk Metrics

Interest Rate Risk Hedge Ratio = [Portfolio Duration] / [Liability Duration]

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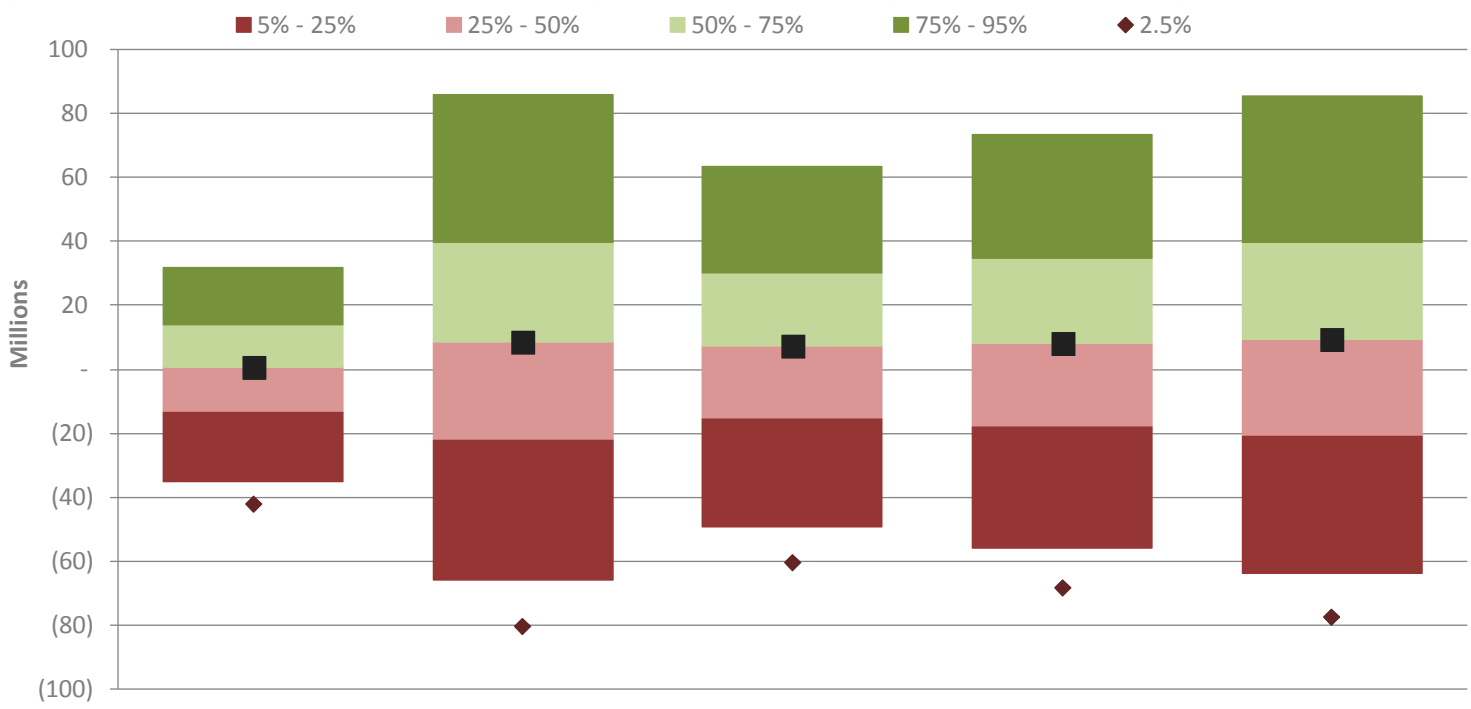
1-85 (g) iv

EXPECTED SURPLUS GROWTH
PENSION - 1 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	32.0 M	85.8 M	63.5 M	73.3 M	85.4 M
75th	13.8 M	39.5 M	30.3 M	34.7 M	39.9 M
50th	0.4 M	8.4 M	7.3 M	8.2 M	9.2 M
25th	-13.6 M	-22.3 M	-15.7 M	-18.0 M	-20.9 M
5th	-35.0 M	-66.0 M	-49.4 M	-55.9 M	-63.7 M
2.5th	-42.4 M	-80.3 M	-60.5 M	-68.3 M	-77.6 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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EXPECTED SURPLUS GROWTH
PENSION - 5 YEAR PROJECTIONS



Percentile	Current	CSSB	Pension.1	Pension.2	Pension.3
95th	83.3 M	278.3 M	199.2 M	235.3 M	281.1 M
75th	39.7 M	139.6 M	105.7 M	122.6 M	142.9 M
50th	6.2 M	52.7 M	43.7 M	50.0 M	56.9 M
25th	-31.3 M	-30.0 M	-18.0 M	-20.6 M	-24.5 M
5th	-93.9 M	-147.6 M	-110.5 M	-123.8 M	-139.7 M
2.5th	-116.9 M	-186.8 M	-142.3 M	-158.7 M	-178.0 M

Median

Downside

Assets are assumed to equal liabilities at the start of the projection period. Liabilities are modelled using the Real Liability Benchmark. It implies that the expected inflation assumption will be changing in line with the BEIR (the difference between Canada nominal and RRB yields).

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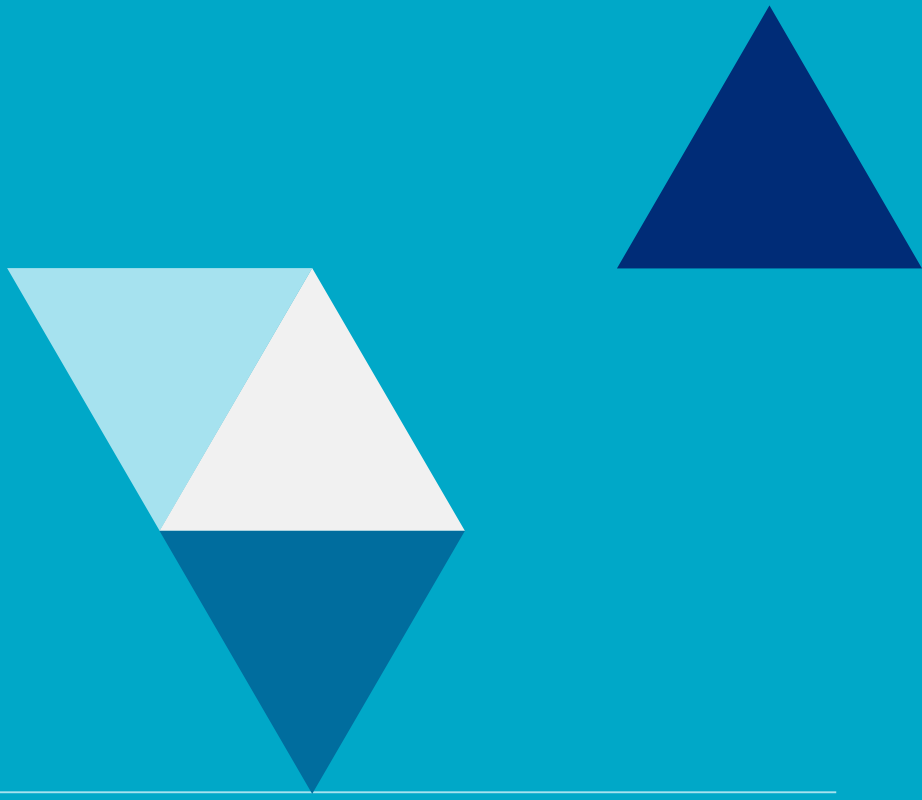
APPENDIX
CAPITAL MARKET ASSUMPTIONS



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CAPITAL MARKET ASSUMPTIONS
10-YEAR ASSUMPTIONS

	Asset Class	Median 10 year return	Standard deviation
1	Treasury Bills	1.4%	1.5%
2	Federal short-term bonds	1.9%	3.5%
3	Federal mid-term bonds	2.1%	6.5%
4	Federal long-term bonds	2.0%	8.5%
5	Real return bonds	2.7%	7.5%
6	Provincial short-term bonds	2.3%	3.5%
7	Provincial mid-term bonds	2.8%	6.5%
8	Provincial long-term bonds	3.0%	8.5%
9	Corporate short-term bonds	2.8%	3.5%
10	Corporate mid-term bonds	3.5%	6.5%
11	Corporate long-term bonds	3.8%	8.5%
12	Global bonds	0.8%	8.6%
13	High yield bonds	3.9%	9.5%
14	Emerging debt	6.8%	12.0%
15	Canadian equity (large cap.)	6.7%	19.5%
16	U.S. equity (large cap.)	6.7%	17.0%
17	Int'l equity (large cap.)	6.7%	17.1%
18	Global equity (large cap.)	6.7%	16.1%
19	Global low vol equity	6.1%	13.0%
20	Emerging equity	8.7%	25.0%
21	Private equity	10.1%	25.0%
22	Real estate	5.4%	13.0%
23	Diversified Growth Fund	4.9%	9.8%
24	Direct Infrastructure	6.2%	13.0%
25	MUSH Bonds	3.0%	6.5%
26	Commercial Mortgages	2.7%	3.5%
27	Long Commercial Mortgages	2.5%	5.3%
28	Private Debt - Universe	3.3%	5.4%
29	Private Debt - Long	3.5%	8.5%

Inflation: 2.0%

Fixed income returns based on projected yields implied by the current yield curve.

Source: Mercer's Canadian long-term capital market assumptions (August 31, 2017). Expected return represents expected return over the next 10 years.
Note: 3X Long Provincial Bonds is defined as 300% Provincial Long Bonds less 200% Treasury Bills and a 0.7% leverage cost. 3X Real Return Bonds is defined as 300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost.

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CAPITAL MARKET ASSUMPTIONS
STANDARD MERCER CORRELATIONS

	Correlations																												
Asset Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)	0.31	0.02	(0.14)	(0.03)	(0.34)	(0.38)	0.16	(0.47)	0.10	(0.19)	(0.41)	(0.19)	(0.32)	(0.27)	(0.12)	(0.10)	0.27	(0.11)	0.15	0.02	0.10	0.10	0.00	(0.15)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25	0.96	0.79	0.52	0.47	0.07	(0.05)	0.86	(0.23)	0.27	(0.65)	(0.48)	(0.38)	(0.45)	(0.12)	(0.42)	(0.15)	(0.27)	0.14	0.03	0.79	0.41	0.41	0.75	0.54
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46	0.91	0.92	0.75	0.46	0.23	0.19	0.83	(0.14)	0.26	(0.62)	(0.40)	(0.38)	(0.41)	0.00	(0.44)	(0.07)	(0.19)	0.17	0.08	0.92	0.33	0.33	0.90	0.78
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57	0.77	0.92	0.89	0.40	0.32	0.38	0.72	(0.02)	0.24	(0.50)	(0.27)	(0.29)	(0.30)	0.09	(0.33)	0.01	(0.13)	0.19	0.11	0.92	0.26	0.26	0.93	0.91
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00	0.39	0.65	0.70	0.53	0.62	0.62	0.13	0.35	0.22	0.22	(0.03)	0.04	0.01	0.08	0.21	(0.01)	(0.09)	0.04	0.47	0.65	0.48	0.48	0.66	0.70
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39	1.00	0.87	0.61	0.64	0.28	0.14	0.82	(0.08)	0.32	(0.53)	(0.41)	(0.28)	(0.36)	(0.05)	(0.30)	(0.16)	(0.32)	0.12	0.10	0.87	0.50	0.50	0.84	0.63
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70	0.61	0.89	1.00	0.53	0.60	0.69	0.48	0.24	0.26	(0.12)	0.00	0.03	0.02	0.32	0.04	0.04	(0.07)	0.15	0.23	0.89	0.26	0.26	0.92	0.99
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53	0.64	0.68	0.53	1.00	0.85	0.66	0.33	0.49	0.39	0.06	(0.10)	0.13	0.02	0.15	0.25	(0.22)	(0.41)	(0.02)	0.14	0.68	0.63	0.63	0.69	0.55
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62	0.28	0.55	0.60	0.85	1.00	0.94	0.03	0.68	0.30	0.35	0.18	0.31	0.26	0.34	0.44	(0.09)	(0.28)	(0.01)	0.16	0.55	0.41	0.41	0.60	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62	0.14	0.51	0.69	0.66	0.94	1.00	(0.04)	0.66	0.25	0.38	0.25	0.33	0.31	0.42	0.45	0.01	(0.12)	0.01	0.17	0.51	0.21	0.21	0.58	0.69
12 Global bonds	0.16	0.86	0.83	0.72	0.13	0.82	0.69	0.48	0.33	0.03	(0.04)	1.00	0.00	0.41	(0.63)	(0.26)	(0.22)	(0.25)	0.09	(0.40)	0.21	(0.20)	0.48	0.08	0.69	0.37	0.37	0.67	0.52
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35	(0.08)	0.13	0.24	0.49	0.68	0.66	0.00	1.00	0.42	0.48	0.55	0.57	0.59	0.60	0.58	0.49	(0.03)	0.50	0.25	0.13	0.31	0.31	0.20	0.26
14 Emerging debt	0.10	0.27	0.26	0.24	0.22	0.32	0.30	0.26	0.39	0.30	0.25	0.41	0.42	1.00	0.20	0.28	0.47	0.40	0.45	0.42	0.39	0.09	0.39	0.52	0.30	0.42	0.42	0.34	0.28
15 Canadian equity (large cap.)	(0.19)	(0.65)	(0.62)	(0.50)	0.22	(0.53)	(0.34)	(0.12)	0.06	0.35	0.38	(0.63)	0.48	0.20	1.00	0.59	0.74	0.70	0.35	0.86	0.15	0.21	(0.03)	0.40	(0.34)	0.00	0.00	(0.30)	(0.17)
16 U.S. equity (large cap.)	(0.41)	(0.48)	(0.40)	(0.27)	(0.03)	(0.41)	(0.24)	0.00	(0.10)	0.18	0.25	(0.26)	0.55	0.28	0.59	1.00	0.78	0.94	0.80	0.60	0.56	0.27	0.35	0.19	(0.24)	(0.21)	(0.21)	(0.19)	(0.05)
17 Int'l equity (large cap.)	(0.19)	(0.38)	(0.38)	(0.29)	0.04	(0.28)	(0.14)	0.03	0.13	0.31	0.33	(0.22)	0.57	0.47	0.74	0.78	1.00	0.94	0.70	0.83	0.42	0.19	0.28	0.45	(0.14)	(0.02)	(0.02)	(0.11)	(0.01)
18 Global equity (large cap.)	(0.32)	(0.45)	(0.41)	(0.30)	0.01	(0.36)	(0.20)	0.02	0.02	0.26	0.31	(0.25)	0.59	0.40	0.70	0.94	0.94	1.00	0.79	0.76	0.52	0.25	0.33	0.34	(0.20)	(0.12)	(0.12)	(0.16)	(0.03)
19 Global low vol equity	(0.27)	(0.12)	0.00	0.09	0.08	(0.05)	0.16	0.32	0.15	0.34	0.42	0.09	0.60	0.45	0.35	0.80	0.70	0.79	1.00	0.43	0.62	0.19	0.49	0.27	0.16	(0.13)	(0.13)	0.19	0.29
20 Emerging equity	(0.12)	(0.42)	(0.44)	(0.33)	0.21	(0.30)	(0.15)	0.04	0.25	0.44	0.45	(0.40)	0.58	0.42	0.86	0.60	0.83	0.76	0.43	1.00	0.25	0.21	0.13	0.42	(0.15)	0.14	0.14	(0.10)	0.00
21 Private equity	(0.10)	(0.15)	(0.07)	0.01	(0.01)	(0.16)	(0.08)	0.04	(0.22)	(0.09)	0.01	0.21	0.49	0.39	0.15	0.56	0.42	0.52	0.62	0.25	1.00	0.48	0.81	0.30	(0.08)	(0.22)	(0.22)	(0.05)	0.04
22 Real estate	0.27	(0.27)	(0.19)	(0.13)	(0.09)	(0.32)	(0.21)	(0.07)	(0.41)	(0.28)	(0.12)	(0.20)	(0.03)	0.09	0.21	0.27	0.19	0.25	0.19	0.21	0.48	1.00	0.15	0.27	(0.21)	(0.36)	(0.36)	(0.23)	(0.11)
23 Diversified Growth Fund	(0.11)	0.14	0.17	0.19	0.04	0.12	0.12	0.15	(0.02)	(0.01)	0.01	0.48	0.50	0.39	(0.03)	0.35	0.28	0.33	0.49	0.13	0.81	0.15	1.00	0.20	0.12	0.13	0.13	0.18	0.19
24 Direct Infrastructure	0.15	0.03	0.08	0.11	0.47	0.10	0.18	0.23	0.14	0.16	0.17	0.08	0.25	0.52	0.40	0.19	0.45	0.34	0.27	0.42	0.30	0.27	0.20	1.00	0.18	(0.36)	(0.36)	0.17	0.19
25 MUSH Bonds	0.02	0.79	0.92	0.92	0.65	0.87	1.00	0.89	0.68	0.55	0.51	0.69	0.13	0.30	(0.34)	(0.24)	(0.14)	(0.20)	0.16	(0.15)	(0.08)	(0.21)	0.12	0.18	1.00	0.41	0.41	0.98	0.91
26 Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
27 Long Commercial Mortgages	0.10	0.41	0.33	0.26	0.48	0.50	0.41	0.26	0.63	0.41	0.21	0.37	0.31	0.42	0.00	(0.21)	(0.02)	(0.12)	(0.13)	0.14	(0.22)	(0.36)	0.13	(0.36)	0.41	1.00	1.00	0.41	0.27
28 Private Debt - Universe	0.00	0.75	0.90	0.93	0.66	0.84	0.98	0.92	0.69	0.60	0.58	0.67	0.20	0.34	(0.30)	(0.19)	(0.11)	(0.16)	0.19	(0.10)	(0.05)	(0.23)	0.18	0.17	0.98	0.41	0.41	1.00	0.95
29 Private Debt - Long	(0.15)	0.54	0.78	0.91	0.70	0.63	0.91	0.99	0.55	0.62	0.69	0.52	0.26	0.28	(0.17)	(0.05)	(0.01)	(0.03)	0.29	0.00	0.04	(0.11)	0.19	0.19	0.91	0.27	0.27	0.95	1.00

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Mercer's capital market assumptions are intended to represent reasonable expectations for the next 10 to 20 years and incorporate a wide range of considerations including:
  - Historical return, risk and correlation statistics of broad indices
  - Fixed income returns based on projected yields implied by the current yield curve
  - Estimation of component returns to develop total equity returns, using as starting points such items as
    - Current level of equity earnings yield
    - Inflation expectations
    - Expected economic growth
  - Expected relative relationships between asset classes
  - Some forward-looking judgment
- In general, we assume that future returns will be consistent with assumed risk levels
- Our assumptions have not been developed in the sense of an economic forecast, but rather, to the extent possible, a reading of the market

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CAPITAL MARKET ASSUMPTIONS
BASIS OF MERCER'S ECONOMIC ASSUMPTIONS

- Note that:
  - All foreign asset class return, risk and correlation assumptions are based on unhedged foreign currency exposures
  - Publicly traded asset class returns are assumed to be index returns
  - Alternative asset class returns are assumed to be inclusive of median alpha (i.e., active management value-added) and net of median fees

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MPI'S INVESTMENT PORTFOLIO:
ASSET/LIABILITY ANALYSIS
AND PREVIOUS RECOMMENDATIONS
(REVISED[1])

MANITOBA PUBLIC INSURANCE 2019/20 GRA

MANITOBA BRANCH OF THE CONSUMERS' ASSOCIATION OF CANADA
(CAC MANITOBA)

SUBMITTED BY THE PUBLIC INTEREST LAW CENTRE
AUTHORED BY VALTER VIOLA

OCTOBER 3, 2018

Contents

Introduction 2
Executive Summary of Recommendations 6
Part I. Support for Recommendations 7
Part II. Recommendations from Two Years Ago 23
Appendices 26
Attachments 43
References 44

[1] "Mercer's Observations" in Step 1 of Table 3 were duplicated, in error, in Step 2 of the table. This has been corrected to show Mercer's observations related to Step 2. (The related figures for Step 2 were correctly reported, only the description was incorrect.)

INTRODUCTION

TERMS OF REFERENCE AND DUTIES

I was retained by the Manitoba Branch of the Consumers' Association of Canada ("CAC Manitoba" or the "CAC") to advise and assist on issues related to MPI's portfolio. As stated in my terms of retainer, it is my duty to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within my area of expertise; and
- provides such additional assistance as the Public Utilities Board ("PUB") may reasonably require to determine an issue.

My duties include: preparation and attendance, via telephone, of the Asset Liability Management Study Technical Conference in March 2018; conducting a detailed review of the 2019-20 General Rate Application ("GRA"); preparing first round information requests ("IRs"); reviewing responses to first round IRs and preparing second round IRs; reviewing second round IR responses; preparing written evidence; and preparing for and attending the hearing.

I understand that my duty in providing assistance and giving evidence is to help the PUB, and this duty overrides any obligation to the CAC.

RATE APPLICATION MATERIALS REVIEWED

My review of the GRA focused on the investment portfolio, in particular:

- MPI's Investment Policies;
- the Asset/Liability Study conducted by Mercer (the "Mercer Study" or "Study"), and MPI's recommended changes to the portfolio that were based on the Study; and
- MPI Exhibit 12 (attached), filed by MPI on September 25, 2018 under PUB Order 124-18.

OTHER CONSIDERATIONS

I reviewed and considered the **information responses** prepared by MPI and/or Mercer to questions relating to the portfolio, as well as two documents that are included as attachments:

- a paper called ***MPI's Investment Portfolio: Risk, Return and Good Practice***, which I authored and filed as evidence two years ago; and
- a presentation called ***Testimony***, which I made in oral testimony during the GRA Process two years ago.

AUTHOR BACKGROUND

RELEVANT EXPERIENCE

With 25 years of experience in the institutional fund management sector, I have 12 years of combined executive, senior management, and other professional investment experience at two of Canada's largest institutional investors:

- CPP Investment Board (2000 to 2005; $367 billion today); and
- Ontario Teachers' Pension Plan (1993 to 2000; $176 billion today).

I also have more than a decade of consulting experience as an advisor to some of North America's largest institutional investors on various aspects of investment/risk management, risk measurement, and governance. Clients have included, for example, Canadian pension funds with assets under management that are about the same as those managed by MPI.

My specific expertise includes:

- investment research, economics, and risk management;
- portfolio management; and
- quantitative asset/liability modelling.

My curriculum vitae is in **Appendix 1**, and my relevant experience is described in **Appendix 2**.

P&C EXPERIENCE

As noted in the evidence that I presented two years ago, I did not have any prior work experience with property and casualty ("P&C") insurers prior to being engaged by the CAC in 2016.

ORGANIZATION OF THIS DOCUMENT

This paper consists of two parts. **Part I** contains the support for my **current recommendations** based on my review of **this year's GRA**, while **Part II** looks at any recommendations from my review of the **GRA two years ago** that have not been addressed fully by MPI.

These recommendations are grouped into the four (4) categories below.

Framework
Portfolio
Metrics
Oversight

Before looking at the recommendations, I provide some **background** information related to them. This includes re-stating two **investment beliefs** that are described more fully in Attachment A (GRA evidence from two years ago) and providing an **overview** related to **interest rate risk**, covering such topics as term risk ("duration"), and risks related to inflation, credit, and liquidity.

Attachments provide more detailed information, including the paper that I authored and filed as evidence during two years ago, and the related presentation which I made in oral testimony. **MPI Exhibit 12**, which was filed by PUB Order 124-18, is also attached. This exhibit supports many of my recommendations, and the reader should consider reading MPI Exhibit 12 first. The exhibit was filed by MPI on September 25, 2018, and was not included in the GRA.

Appendices include the preambles, written by me, and other information related to two questions[2] that prompted Mercer's analysis in MPI Exhibit 12. An appendix on "leverage" provides some context for this concept, and its inclusion in the appendix (rather than the main document) is to not detract from the paper's main points.

[2] The two questions are CAC (MPI) 84 (f) and CAC (MPI) 85 (g).

BACKGROUND TO RECOMMENDATIONS

2017/18 GRA

18 recommendations

Two years ago, I provided evidence and testimony which included 18 recommendations[3] related to MPI's investment practices.

PUB Order 124-18

The PUB ordered[4] MPI to consider these 18 recommendations, including an order to conduct a new Asset/Liability Study.

2018/19 GRA

Delay in A/L Study

Mercer was engaged to complete the Study, and Mercer's findings were included in this year's GRA (but not available for inclusion in last year's GRA).

2019/20 GRA

3 concerns:

1. *inflation risk;*
2. *real interest rate risk; and*
3. *constraints*

In the first round of this year's IRs, MPI refused to answer two questions posed by the CAC related to some analysis in the Mercer Study.[5] Both questions were motivated by my concern about the long-term risks of inflation and changing **real** interest rates, as well as the cost of imposing certain constraints (i.e., min/max limits for certain asset classes).

PUB Order 124-18 compelled MPI to answer these questions, and the answers appear in MPI Exhibit 12. The questions requested more detailed analysis about the impact on return/risk of adding RRBs to the portfolios if a **"Real"** Liability Benchmark were used in the analysis, rather than the **Nominal** Liability Benchmark that MPI relied upon to support its recent asset allocation recommendations.

The information request included a "stepped" or incremental analysis to illustrate the impacts on efficient frontiers of adding or removing different asset classes to both the Basic and Pension Portfolios using the **"Real"** Liability Benchmark, similar to the analysis that was done using the **Nominal** Liability Benchmark and described in the GRA.

Today's evidence

That brings us to today.

[3] Attachments include my evidence and testimony from two years ago.
[4] See PUB ORDER 124-18.
[5] See CAC (MPI) 84 (f) and 85 (g).

EXECUTIVE SUMMARY OF RECOMMENDATIONS

Framework	**1. Real Liability Benchmark** Re-examine the reliance on a **Nominal** Liability Benchmark, rather than a **Real** Liability Benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities. **2. Leverage Constraint** Re-examine the constraint prohibiting the use of "leverage", given the lower risk-adjusted returns that would result.
Portfolio	**3. Duration Policy "Basis" Risk** Re-examine the effectiveness of the **duration policy**, which uses (nominal) bonds as the basis for matching the inflation and real interest rate sensitivity of Basic and Pension Liabilities, since inflation **volatility** is not zero. **4. Lengthening Nominal Duration** Re-examine the decision to **lengthen** the **nominal** duration in the Basic Portfolio, given: MPI's "defensive" (lower risk) strategy; Mercer's return assumptions for bonds and RRBs; and concerns about the effectiveness of the duration policy noted above ("basis" risk). **5. Real Return Bonds** Re-examine the decision to exclude **RRBs** from both the Basic and Pension portfolios, given the better hedging characteristics of RRBs (compared to bonds), recognizing the long-term inflation and real interest rate risks inherent in the liabilities. **6. Other Real Assets** Re-examine MPI's recommended reduction in **other real assets** (real estate and infrastructure), given the low inflation protection that exists in the current portfolio and lower diversification that would result. **7. Fixed Income Risk Concentration** Re-examine the decision to concentrate risk in fixed income, rather than better diversify the sources of risk across the whole portfolio, and avoid "crowding out" risk-reducing RRBs.
Metrics	See Duration Policy "Basis" Risk
Oversight	**8. Quantitative Models** Continue to be vigilant about placing too much reliance on quantitative considerations, particularly if risk tolerances are low, given the high sensitivity of optimal asset allocations to capital market assumptions and the large number of inputs involved.

PART I. SUPPORT FOR RECOMMENDATIONS

INVESTMENT BELIEFS

My recommendations take into consideration the **five (5) investment beliefs** that are described in the evidence that I provided two years ago (Attachment A). Two of these beliefs are particularly relevant this year, and are described below.

By definition, investment beliefs have varying degrees of empirical support and theoretical justification. They are important because there is little that can be proven conclusively in the field of investments, which means we need beliefs to answer difficult questions about risk, for example, to better inform our investment strategies.

The first belief relates to the **Minimum Risk Portfolio** (called the "Liability Benchmark Portfolio" in this year's GRA and Mercer Study), and the second belief relates to **constraints**. The significance of these beliefs is summarized below.

Belief:	**MINIMUM RISK PORTFOLIO**	**CONSTRAINTS**
	*Determining the **Minimum Risk Portfolio** is the first step towards responsible long-term management of the portfolio.*	***Constraints** never increase expected risk-adjusted returns.*
Significance: (stated two years ago)	… MPI's minimum risk portfolio (MRP) should include … some … real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure). … Belief #2 simply supports the **definition** of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these … questions requires additional beliefs ...	… there appear to be two very binding constraints that may cause MPI to have lower risk-adjusted returns. These … constraints relate to: 1. HOW RISK IS DEFINED …; and 2. HOW ASSET CLASSES ARE CONSTRAINED Minimum/maximum asset allocations in optimizations conducted as part of the most recent Asset-Liability Study[6] … are overly restrictive ...
(this year)	• **Real Liability Benchmark** (Recommendation #1) • **Duration Policy "Basis" Risk** (#3) • **Lengthening Nominal Duration** (#4) • **Real Return Bonds** (#5)	• **Leverage Constraint** (Recommendation #2)

[6] This reference was to the AON Study (not MERCER Study).

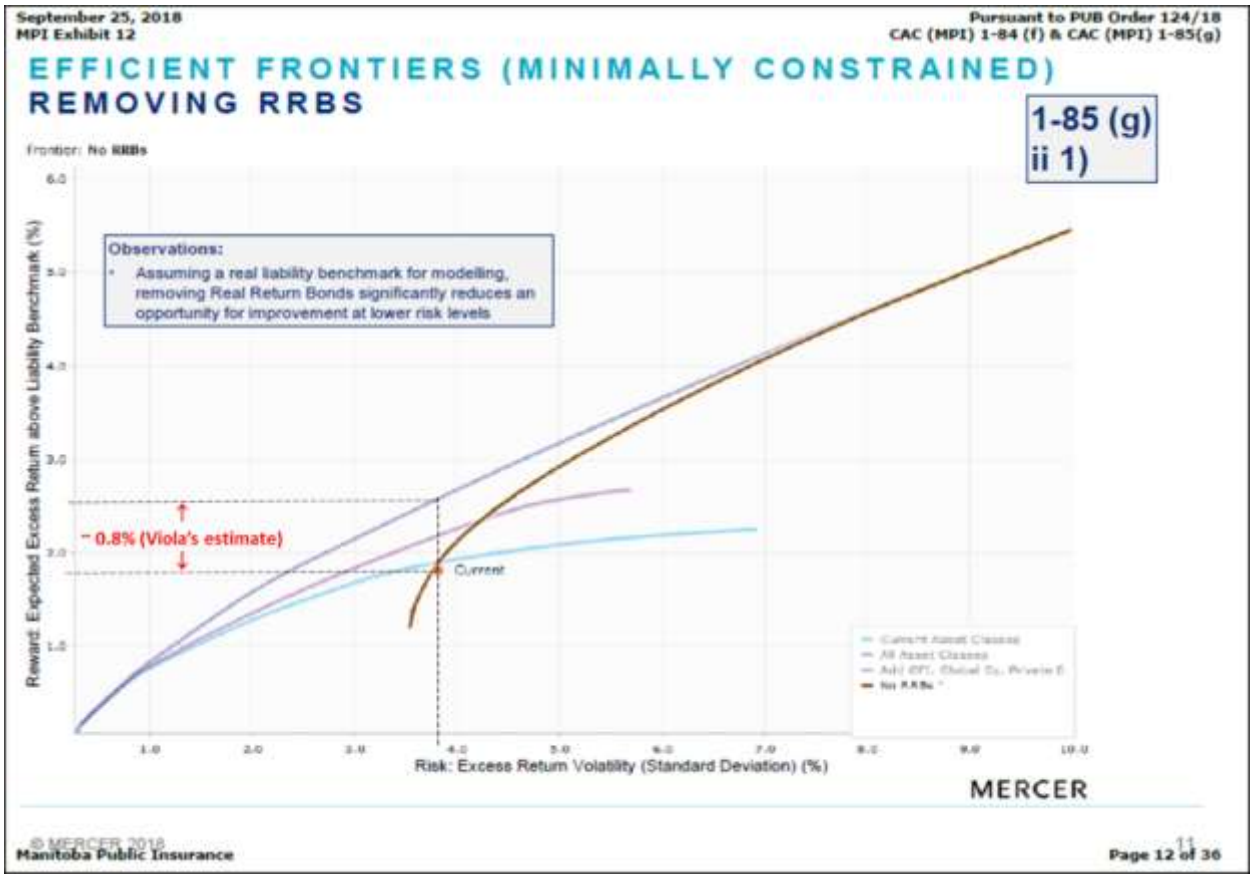
THE "REAL" STORY IN MPI EXHIBIT 12

At this stage, the reader should consider reading MPI Exhibit 12 (Attachment C), which shows the "real" analysis that is fundamental to my recommendations. In it, Mercer concludes (for example) that:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."*[7]

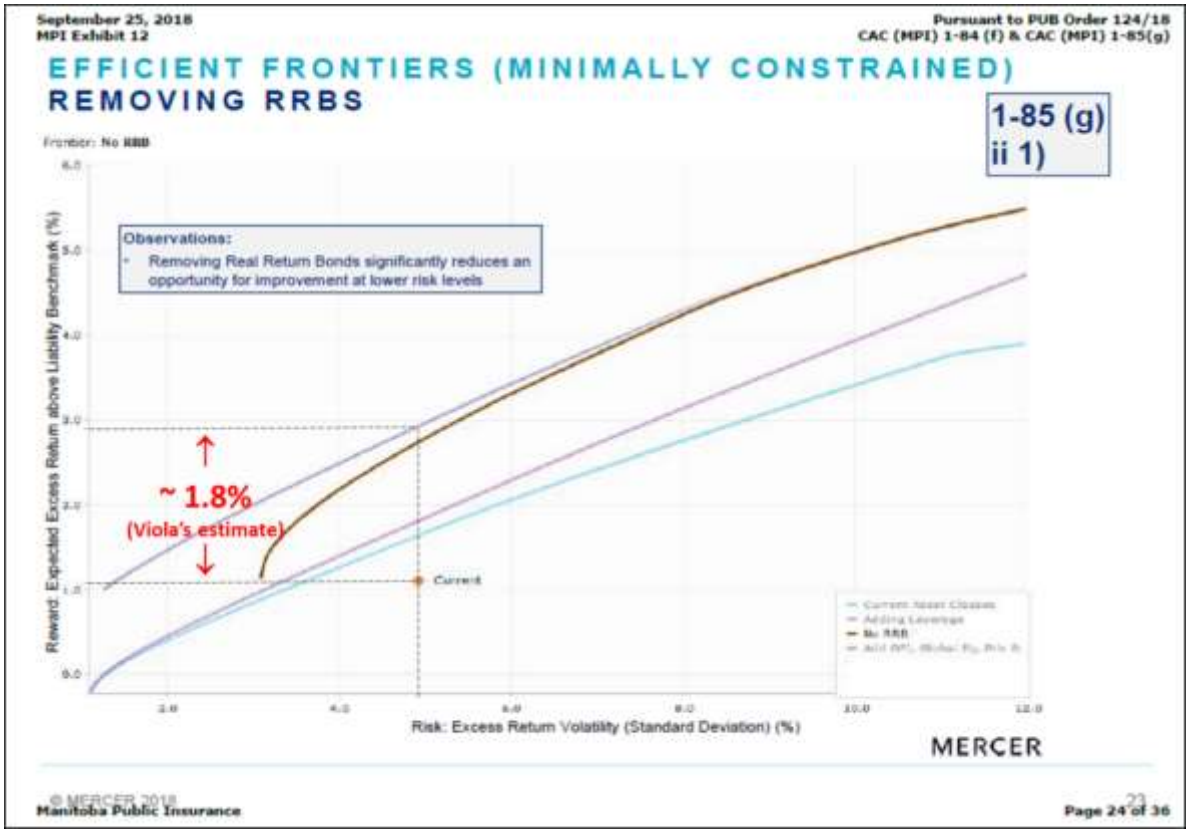
Mercer's finding is illustrated below for the **Basic** Portfolio, and on the next page for the **Pension** Portfolio.

Basic Portfolio



[7] MPI Exhibit 12, page 12 of 36

Pension Portfolio



REAL AND NOMINAL LIABILITY BENCHMARKS

The Mercer Study presented two possible liability benchmark portfolios for both Basic and Pensions. These four (4) liability benchmark portfolios are summarized below, and are clearly very different.

Table 1. Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	- **11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

In the case of Basic, for example, the **Nominal** Liability Benchmark includes a 54% allocation to long-term provincial bonds while the **Real** Liability Benchmark has 66% in RRBs. The differences in the case of pensions is even larger. This is significant because it is my understanding that MPI informed its asset allocation recommendations using the **Nominal** Liability Benchmark, which has a 0% allocation to RRBs.

GENERAL OVERVIEW

THREE (3) OLD SYMPTOMS

In my review of the MPI portfolio two years ago, I identified a few problems and three (3) main "symptoms" that arose from those problems. Those symptoms, and their consequences, were:

1. a **Canadian Equity** portfolio that was concentrated;
    - larger-than average home bias; and
    - concentrated sectors/stocks;
2. no **International Equities** (i.e., outside North America); and
3. no **Real Return Bonds ("RRBs") in the portfolio**;
    - poor liability protection against unexpected inflation and real rate risk; and
    - less effective duration management.

While MPI's recent recommended changes in the portfolio have addressed the first two symptoms (equities), the third symptom (no RRBs) remains.

THREE (3) NEW SYMPTOMS

I would suggest that three (3) new symptoms have emerged, and they are:

4. no **RRBs in the Liability Benchmark Portfolio** that was used to inform MPI's asset allocations;
    - this understates the risk of unexpected inflation and **real** interest rate risk;
    - this also makes duration management less effective;
5. reduced allocations to other "real" assets (**real estate and infrastructure**);
    - this reduces any inflation protection that currently exists in the portfolio;
    - this also reduces diversification; and
6. more concentrated risk within the **bond** portfolio as a result (inflation, credit, and liquidity risk)[8].

In the next section, I review the third and fourth symptoms more closely, focused on the long-term risks of inflation and changing **real** interest rates that impact both sides of the balance sheet (assets and liabilities).

[8] This is a minor consideration, and is included only because of an ongoing concern regarding the impact of accounting (e.g., future IFRS changes) on portfolio decisions.

THE "REAL" STORY (MPI EXHIBIT 12)

As noted in my evidence two years ago, RRBs could play a significant role in hedging the long-term risks of inflation and changes in **real** interest rates that are inherent in MPI's liabilities. To see this, it is important to **examine MPI Exhibit 12 (Attachment C), which contains the "real" story**. By this I mean that the exhibit describes the efficient frontiers in a way that better reflects the "real" interest rate and inflationary risks inherent in MPI's liabilities. MPI's recommended changes in the portfolio that are described in the GRA relied on a Liability Benchmark Portfolio that is defined in **nominal**, rather than **real**, terms and I believe there is a material risk and cost in doing so. MPI Exhibit 12 explains why.

The main theme of the "real" story is that Mercer's model "loves" RRBs across the risk spectrum. According to Mercer:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."* [9]

The model loves RRBs so much that it would borrow to buy more RRBs (i.e., "leverage"), if permitted to do so. This is illustrated where Mercer shows the return/risk tradeoffs of having a 15% allocation to an asset class called "3X Real Return Bonds", as noted below. This is equivalent to having a 45% "gross" exposure to RRBs, given the 3:1 leverage ratio.

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum."* [10] [11]

By excluding RRBs, return/risk tradeoffs are significantly reduced, particularly at the lower levels of risk that MPI finds acceptable in the **Basic** Portfolio.

The model's "love" for RRBs is even stronger in the **Pension** Portfolio.

Mercer's analysis shows that **by removing RRBs from an "optimized" portfolio at current risk levels, returns are expected to be ~ 0.8% lower in the Basic Portfolio and ~ 1.8% lower in the Pension Portfolio**.

[9] MPI Exhibit 12, page 12 (Basic) and 24 (Basic) of 36
[10] MPI Exhibit 12, page 11 of 36
[11] Mercer modelled "leverage" by defining an asset called "3X Real Return Bonds". This asset consists of "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". Mercer also defined an asset called "3X Long Provincial Bonds".

"LEVERAGE"

Mercer illustrates how returns would be 0.3% higher[12] in the **Basic** Portfolio at current risk levels if MPI were to remove the restriction related to leverage. "Leverage" involves financing the acquisition of an asset (e.g., RRB or bond) by directly or indirectly borrowing (e.g., "shorting" T Bills).

MPI's policy to prohibit leverage is not a *major* concern of mine. Many funds impose such a constraint because of a **perceived** risk related to leverage. While some risks are real, others are not and/or are manageable. Like many constraints that are self-imposed by investors, a constraint that prohibits the use of some types of leverage has a material cost, and MPI Exhibit 12 measures how big this cost is (~ 0.3% lower return, in the case of the **Basic** Portfolio).

Appendix 5 describes how "leverage" can be viewed differently, and when viewed that other way it can be seen as a "positive" (not negative) tool. For example, while leverage has the effect of increasing the duration of the "net" RRB portfolio to ~ 45 (from 15, given the 3:1 ratio), an optimist might describe the effect as "de-leveraging" the liabilities from ~ 10.3 to ~ 8.0 in the case of the Basic line of business. (This calculation is in the appendix.)

Simply put, "leverage" is not a four-letter word, and MPI should consider the return/risk implications of imposing a constraint related to its use, given the cost of doing so.

BOTTOM LINE: THREE (3) QUESTIONS

I believe that MPI should give more weight to the "real" analysis in MPI Exhibit 12, instead of relying on a "Liability Benchmark Portfolio" that is defined in **nominal** terms. Unless inflation has zero **volatility**, it is important to distinguish between nominal interest rate risk, and the real and inflation components that make it up. Changes in these two components can have different impacts on the returns for (nominal) bonds and RRBs, given the long time horizon that we should be concerned about.

From my perspective, the key issue boils down to questions about risk **oversight**, risk **measurement**, and risk **management**, which are listed below.

1. Have the real and inflation risks been **identified** clearly
   by those who are responsible for their management and oversight?
2. Have these risks been **measured** as accurately as possible?
3. Are these risks being **managed** effectively?

[12] Returns would increase from 4.6% to 4.9% at current risk levels (3.8% surplus volatility).

INTEREST RATE RISK OVERVIEW

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

"It is important to understand the multiple dimensions of the interest rate risk exposure."[13]

TERM RISK ("DURATION")

The first dimension of interest rate risk relates to time horizon, and a common risk metric for measuring the risk of changing interest rates is "duration". Simply put, duration measures the sensitivity of a bond or liabilities, as the case may be, to changes in interest rates. Other things equal, bonds or liabilities with longer terms to maturity are more sensitive to changing interest rates. They have longer/higher durations.

For example, a bond that has a duration of 10 will rise (fall) by ~ 10% if interest rates ("yields") decrease (increase) by 1%. This inverse relationship between changing yields (Δ yield) and the resulting percentage (%) change in the value of an asset (A), such as a bond, or liability (L) is approximately equal to the product of the change in yield and duration.

$$\% \Delta \text{ in A or L} \sim - \Delta \text{ Yield} \times \text{Duration} \quad \text{(1): Duration Equation}$$

This yield/price relationship is not "linear", so this Duration Equation is accurate only for small changes in interest rates. For larger changes, "convexity" needs to be taken into account. Convexity measures the rate of change in duration, and takes into account the "curvature" or convexity effect that is bigger for larger changes in interest rates.[14]

[13] Page 13-1, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

[14] Interest rates don't simply shift up or down vertically. They may involve "twists" in the yield curve. A more accurate interest rate formula would add a second term to the Duration Equation above, shown in **red** below.

$$\% \Delta \text{ in A or L} \sim (- \Delta \text{ Yield} \times \text{Duration}) + \mathbf{\tfrac{1}{2}(\Delta \text{ Yield})^2 \times \text{Convexity}}$$

INFLATION RISK

Until now, we have not distinguished between "nominal" and "real" interest rates, but it is important to do so. The Fisher Equation, below, shows the relationship between a **nominal** interest rate or yield (n) and its two components, which are the **real** interest rate (r) and **inflation** (π).

$$n \sim r + \pi \quad \text{(2): Fisher Equation}$$

Simply put, the Fisher Equation says that the expected nominal rate (n) depends on inflation expectations (π) and the expected real rate (r). In other words, inflation protection is needed to maintain real purchasing power.

While the Fisher Equation describes expectations (i.e., average/mean) about the **level** of inflation (π), the volatility equation below shows how inflation **volatility** (σ_π) and its **correlation** ($\rho_{r,\pi}$) with real interest rates are factored into the risk discussion.

$$\sigma_n = \sqrt{(\sigma_r^2 + \sigma_\pi^2 + 2\rho_{r,\pi}\sigma_r\sigma_\pi)} \quad \text{(3): Interest Rate Volatility Equation}$$

The Volatility Equation says that the volatility of **nominal** interest rates depends on three factors:

- volatility of **real** interest rates (σ_r);
- volatility of inflation (σ_π); and
- correlation between **real** interest rates and inflation ($\rho_{r,\pi}$).

Only when inflation **volatility** is zero ($\sigma_\pi = 0$) can we safely ignore the distinction between nominal and real interest rates when hedging risk. That is when real interest rate risk and nominal interest rate risk are the same ($\sigma_n = \sigma_r$).

The correlation assumptions used by Mercer in the Study show how inflation volatility (σ_π) and "less than perfect correlations" (ρ) can impact the return distributions of RRBs and bonds. The table on the next page shows the correlation assumptions that were used in the Mercer Study.

Mercer's correlation matrix, below, shows how closely the returns on various asset classes are related. Along the shaded diagonal, for example, the correlation is +1.00 ("perfectly positive") because an asset class is perfectly correlated with itself.

The triangle above the shaded diagonal is a mirror image of the triangle below the diagonal because the "order" of the correlations between two asset classes doesn't matter. In other words, the 0.57 correlation between RRBs in **column 5** and federal bonds (row 4) is the same when you look at its mirror image in **column 4** and row 5.

Table 2. Correlations

	Correlations				
Asset Class	1	2	3	4	5
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62
12 Global bonds	0.16	0.86	0.83	0.72	0.13
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35
14 Emerging debt	0.10	0.27	0.26	0.24	0.22

Note that the matrix shows a lower correlation between RRBs (column 5) and other bonds, compared to say federal long-term bonds (column 4). In other words, **inflation volatility matters**.

The use of "nominal" bonds to hedge "real" liabilities may be fine over very short time horizons if both the level and volatility of inflation are reasonably predictable over these short periods. However, a duration policy that does not differentiate between the real and inflation components over a longer time horizon is less effective. In other words, it is important to match the "basis" for hedging interest rate risk because the "basis risk" may be material.

A key question, then, is how stable or predictable is inflation over the long term? According to the MPI external actuary:

> *"Nobody can forecast interest rates (especially long term bonds) accurately and consistently."*
> Source: Mr. Cheng, on page 1,469 of the GRA

An Analogy: The Really "Risky" Component of the Dividend Discount Model

My concern about MPI's duration policy can be better appreciated, perhaps, by seeing how the Dividend Discount Model ("DDM"), shown below, compares to the Fisher Equation (2) described earlier.

MPI's approach **appears to** focus more on the **shorter-horizon** and on the inflation component (less risky), rather than the capital gain/duration effects from **longer-term** changes related to **both inflation and changing "real" interest rates** ("really" risky). This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile). This is summarized below.

nominal yield	~	real yield	+	inflation	(2): Fisher Equation

return on stocks	=	capital gain (loss)	+	dividend yield	(4): Dividend Discount Model ("DDM")
		↑		↑	
		"Really" Risky		**Less** Risky	

INCREASED INFLATION TODAY

Finally, it is important to note that the 3%[15] inflation rate reported in July 2018 represented the highest year over year change in years, and is above the Bank of Canada's 2% target.

CREDIT RISK

Bonds with greater credit risk require higher yields.

Credit risk is the risk of suffering a loss from a "credit event" (e.g., failure by an issuer to meet a coupon payment or principal repayment on a bond that we own). Bonds issued by the Federal Government, for example, have less credit risk than those issued by the Provinces, and corporate bonds generally have even greater credit risk.

LIQUIDITY

Investors also need to be compensated for holding less liquid bonds, such as private debt.

[15] Statistics Canada, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000413

SUMMARY: RISK PREMIA "BUILDING BLOCKS"

The table below summarizes the various risk premia or building blocks for fixed income assets.

- **T Bills** have the lowest return, given their **low duration** (< 1 year) and **low inflation risk**;
- **RRBs**, which hedge longer-term inflation risk by inflation-protecting the principal, have higher returns than T Bills, given their higher duration and an upward-sloping yield curve (most typical);
- **Bonds** don't provide inflation protection, and have higher yields than RRBs to compensate for inflation risk that erodes their purchasing power;
- **Provincial and corporate bonds** have even higher yields, given their higher credit risk; and
- **Private debt** has a higher yield, given its lower liquidity.

Time Horizon	Risk
Longer	Illiquidity
	Credit
	Inflation
	Term/Duration
Short	

Asset Class	Return[16]	Risk Premium "Building Blocks"
Private Debt	↑	+1.8%
Corporate Bonds	3.8%	
Provincial Bonds	↑	+0.6%
Federal Bonds	2.0%	
Federal RRBs	↑	
T Bills	1.4%	

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

> *"One of the greatest challenges facing … insurance companies has been the … low interest rate environment. … Many … insurers started chasing yield, decreasing … credit quality … and increasing the allocation to riskier asset classes. The … pressure for higher yield has resulted in more risk …*
>
> *… There have been three main ways … to increase … yield ...*
>
> 1. ***Add credit spread***[17] *… by decreasing the credit quality … and taking on more credit risk …, and often aiming to capture the illiquidity premium ...*
> 2. ***Increase expected return*** *… by increasing the allocation to riskier assets ...*
> 3. ***Increase yield to maturity*** *… by selling shorter assets that have a lower yield … and buying longer assets that have a higher yield …"*[18]

[16] Mercer's Median 10 Year Return
[17] Companies may use risk-adjusted yields but may for example seek to exploit the illiquidity premium.
[18] Page 13-5 to 13-6, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

WALKING THROUGH THE "REAL" STORY IN MPI EXHIBIT 12

A **Real** Liability Benchmark is used to measure surplus volatility in MPI Exhibit 12.

FLIPPING THE STORY BOOK ON "BASIC"

The table on the next page shows the seven (7) incremental "steps" taken by Mercer in MPI Exhibit 12 to show the effects on return/risk for the **Basic Portfolio** by including (or excluding) different asset classes.

Starting from the Current Portfolio, the first step is to "re-optimize" the portfolio based on the current asset classes in the portfolio using updated capital market assumptions, and perhaps constraints.

These steps, using Mercer's terminology, are:

1. CURRENT ASSET CLASSES;
2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY;
3. ADDING MORTGAGES AND PRIVATE DEBT;
4. ADDING DIVERSIFIED GROWTH FUND;
5. ADDING LEVERAGE (BOND OVERLAY);
6. REMOVING RRBS; and
7. RESTRICTING PUBLIC EQUITIES.

The table on the next page walks through Mercer's "observations", showing the incremental steps in the first column. (The reader can walk through these steps by flipping through the graphs in MPI Exhibit 12.)

The other columns show the returns and return/risk ratios calculated by Mercer, along with the role that RRBs played in achieving those returns (i.e., % allocation of RRBs in the portfolio). All figures reflect the same level of risk (3.8% surplus volatility), and are therefore comparable.

The question that prompted the creation of MPI Exhibit 12 is below.

> ***84 f) More Detailed Analysis for Real Scenarios:*** *Was the same "stepped" analysis that was performed using the* ***Nominal*** *Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the* ***Real*** *Liability Benchmark?*
>
> *84 f) i. If so, provide the analysis and commentary (at least for Basic and Pensions).*

Table 3. Return/Risk Impact from Different Asset Allocation "Steps"

Mercer's Observations (pages 7 - 13 of 36)	RRB Allocation[19]	Return +/- Impact	Excess Return/Risk[20]
STEP 1. CURRENT ASSET CLASSES ONLY 1. Long-term bonds dominate fixed income, some RRBs a. Long duration liabilities b. Low expected returns on RRBs 2. Alternatives dominated by Infrastructure a. Infrastructure only marginally better than Real Estate b. Decision between the two depends on implementation	**18.0%**	**4.2%**	**0.49**
STEP 2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY 3. Adding Private Equity allows for further improvements(better risk/reward trade-offs) 4. Canadian Equity appears more attractive than Global Equities due to greater correlation with RRBs 5. Low corporate spreads do not support significant allocation to corporate bonds 6. Addition of Growth Fixed Income does not appear to benefit	**41.5%**	**4.5%** ***+ 0.3%***	**0.57**
STEP 3. ADDING MORTGAGES AND PRIVATE DEBT 7. Adding Mortgages does not appear to benefit 8. Adding Private Debt provides an opportunity for return enhancement	**40.5%**	**4.6%** ***+ 0.1%***	**0.60**
STEP 4. ADDING DIVERSIFIED GROWTH FUND 9. Adding Diversified Growth Fund does not appear to benefit at this stage	**40.5%**	**4.6%** **–**	**0.60**
STEP 5. ADDING LEVERAGE (BOND OVERLAY) 10. Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum	**45.0%**[21]	**4.9%** ***+ 0.3%***	**0.68**
STEP 6. REMOVING RRBS 11. Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels	**0%**	**~ 4.1%** ***~ - 0.8%***[22]	**Not shown by Mercer**

[19] These optimized allocations are at the "current" level of risk. Optimized RRB allocations would be even higher at the lower levels of risk that MPI has chosen for the Basic Portfolio.

[20] Mercer defines an Excess Return/Risk, where the excess component represents the difference in return between the portfolio and the return of the Liability Benchmark.

[21] MPI Exhibit 12 shows a 15% allocation to "3X RRBs". This "net" exposure is equivalent to a gross exposure to RRBs of 45% (3 x 15%), as shown below.

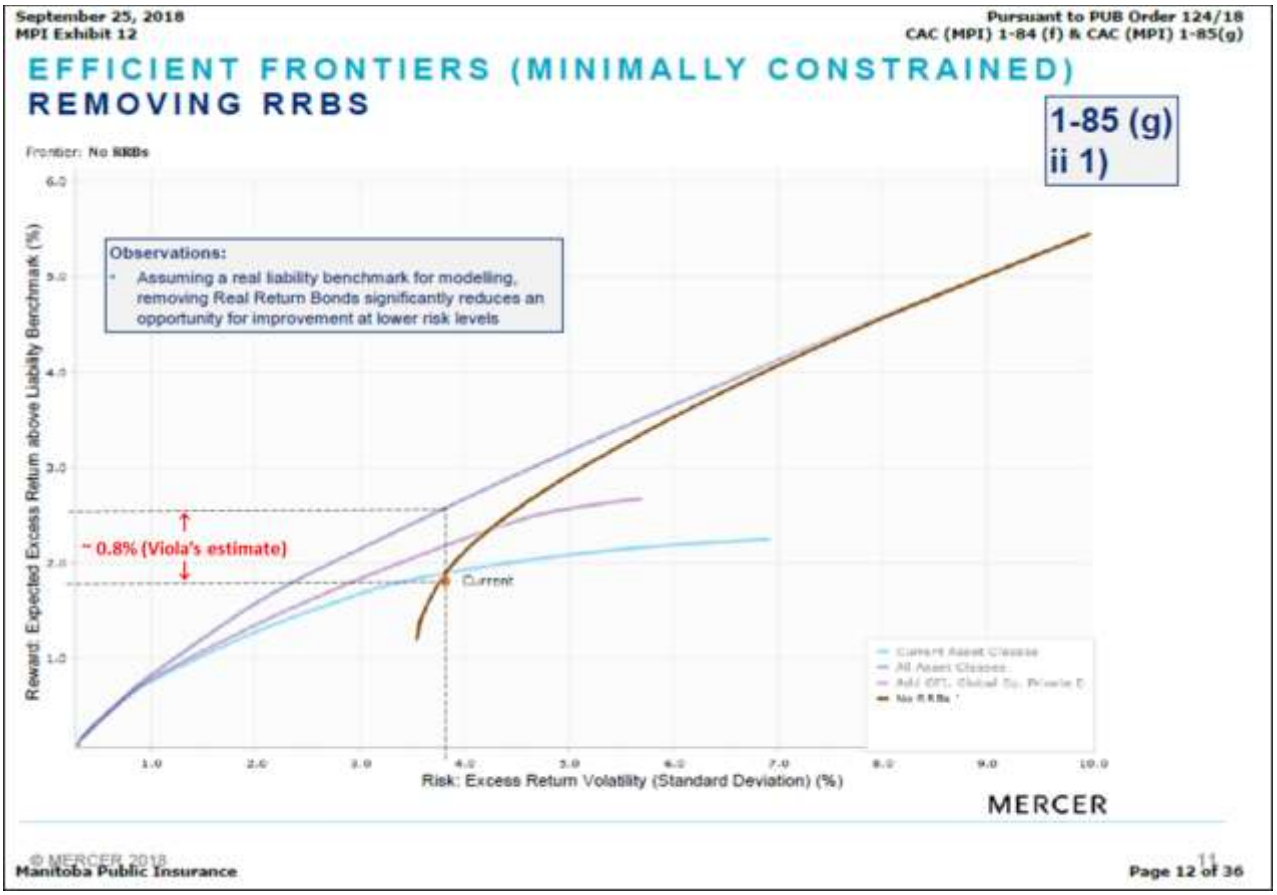
+45% "Gross" RRBs
- 30% Treasury Bills
+15% "3X RRBs"

[22] This is my estimate based on a visual inspection of the graph in MPI Exhibit 12 (page 12 of 36).

The effect of removing RRBs from the **Basic Portfolio** is illustrated by Mercer below.

Mercer did not report the impact on various statistics in this graph, so I estimated the impact from a visual inspection of the graph and concluded that **returns would be lower by ~ 0.8%**, measured at the "Current" risk level of 3.8%.

*Table 4. Removing RRBs in the **Basic** Portfolio*



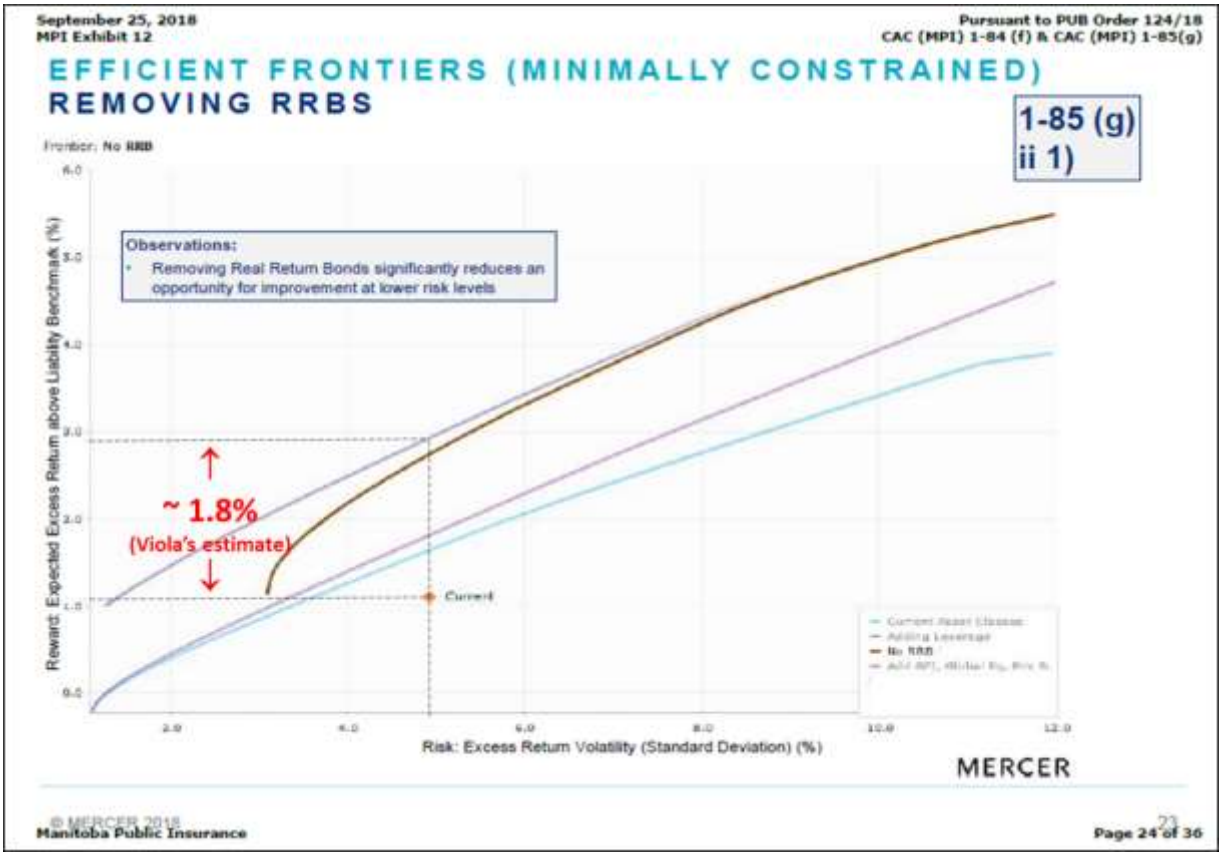
Mercer's Observations	Note
STEP 7. RESTRICTING PUBLIC EQUITIES (P 13 OF 36) 12. The unrestricted frontier (purple) contains higher allocations to Canadian equities at lower risk levels and higher allocations to Emerging Markets equities at higher risk levels 13. Restricting public equities based on the MPI recommended weights appears to slightly reduce the reward to risk trade-offs (the orange frontier is below the other lines) 14. The ACWI* weight restriction appears to further reduce the reward to risk trade-offs (green frontier is at the bottom) 15. Privates + ACWI* (0% fixed income) plots to the far right of the efficient frontier (iii) * All-Country World Index	**A table showing the quantitative impact at current risk levels was not reported by Mercer, and is hard to quantify from the graph alone**

FLIPPING THE STORY BOOK ON "PENSIONS"

The analysis so far has focused on the **Basic** Portfolio. A similar analysis is available for the **Pension** Portfolio[23]. While levels of risk in the Pension Portfolio are higher (4.9% currently) than those in the Basic Portfolio (3.8%), similar conclusions can be reached.

The graph below, for example, shows that **returns are lower by ~ 1.8% when RRBs are excluded from the Pension Portfolio** at the "current" risk level.

*Table 5. Removing RRBs in the **Pension** Portfolio*



The higher risk in the Pension Portfolio arises for two reasons. First, the asset allocations are different (e.g., the MPI-recommended Pension Portfolio has equities but the Basic Portfolio does not). Second, the Pension Liabilities have a longer duration than the Basic Liabilities (~ 16 vs. ~ 10 respectively).

[23] MPI Exhibit 12, pages 18 – 25 of 36

THE "REAL" STORY, COMPARED TO THE "NOMINAL" STORY

The main difference in asset allocations, measured at current risk levels, appears to be the mix within fixed income.

The big difference, of course, is that the MPI Recommended portfolio has no RRBs, while Exhibit 12 shows that an optimal portfolio would have at least 48.5% in RRBs **at the same level of risk** – and likely more than ½ of the portfolio in RRBs, given MPI's decision to reduce risk below the current level.

MPI'S LOWER RISK TOLERANCE

While the earlier analysis shows the impact of adding or removing different asset classes **at the same level of risk**, the table below looks briefly at **MPI's recommended portfolio**, which **purports**[24] to take less risk than the "Current" portfolio.

Portfolio		Asset Allocation	Return[25]	Impact
M	**M**PI-Proposed Basic Portfolio	100% Fixed Income	3.1%	↓ 0.8% vs. **C**urrent ↓ 1.8% vs. **R**eal
C	**C**urrent Portfolio	70% Fixed Income 15% Equities 15% Other Real Assets[26]	3.9%	
R	"Minimally Constrained" Portfolio[27] (using **R**eal Liability Benchmark)	70.0% Fixed Income 21.5% Equities[28] 8.5% Other Real Assets	4.9%	

[24] In my oral testimony two years ago, I described the concept of a "risky bucket" and a "risk-free" or "minimum risk" bucket. Simply put, I believe MPI has a "leak", or two, in its Liability Benchmark Portfolio (minimum risk bucket).
[25] The 3.1% and 3.9% figures are my calculations, using Mercer's capital market assumptions.
[26] Real estate and infrastructure
[27] MPI Exhibit 12, page 11 of 36
[28] Includes 6.5% private equity

PART II. RECOMMENDATIONS FROM TWO YEARS AGO

The table below shows my 18 recommendations from the GRA Process two years ago, and whether I believe they have been addressed, deferred, or remain ongoing concerns.

		Addressed	Deferred	Ongoing Concern
Framework	**6. De-Linking Discount Rates**	**Mostly**		
	7. Min/Max Asset Class Constraints	☑		
	8. Evolved Risk Framework		☒	
	9. Explicit Risk Management Goals		☒	
	5. Return/Risk Definitions for Asset Mix Decision	☑		
	10. Minimum Risk Portfolio	**Partially**		
Portfolio	**14. Exclusion of Real Return Bonds**			☒
	15. Effectiveness of Duration Policy			☒
	16. Integration of Real Estate/Infrastructure Liabilities in Duration Management	☑		
	11. Canadian Equities' 10% Minimum Allocation	☑		
	12. No International Equities	☑		
Metrics	1. Clarity of Accounting Choices			n/a
	2. Adoption of More Comparable Accounting Principles			n/a
	3. AFS and HTM Accounting			n/a
	4. Pension Liability Accounting	☑		
Oversight	17. Removal of 105% Rule in Investment Policies	☑		
	13. No Over-Reliance on Quantitative Modeling			☒
	18. Pension Fund	☑		

DE-LINKING DISCOUNT RATES (#6)

While the Liability Benchmark Portfolios break the recursive[29] link between liability valuations and the yield on some assets for asset allocation decision-making, a link may still exist that creates an incentive to concentrate risk within fixed income. That is why this issue is "mostly" addressed. If the yield on the bonds **owned** is used to value liabilities, there may be an incentive to take more risk in fixed income (e.g., inflation and credit risk, less liquidity) to reduce the valuation of liabilities (higher discount rate). This may result in less diversification, and lower risk-adjusted returns.

EVOLVED RISK FRAMEWORK (#8) AND EXPLICIT RISK MANAGEMENT GOALS (#9)

I understand that the development of an Enterprise Risk Management ("ERM") Framework is a key corporate priority in fiscal 2018/19, and that an ERM Framework will be filed in the next GRA. I assume that these issues will be addressed once this corporate goal is met.

MINIMUM RISK PORTFOLIO (#10)[30]

While minimum risk portfolios were clearly defined for each segment (e.g., Basic and Pensions), the final definitions used by MPI were based on **nominal** definitions rather than **real** ones, as discussed in Part I. Accordingly, this issue is only partially addressed.

EXCLUSION OF REAL RETURN BONDS (#14), EFFECTIVENESS OF DURATION POLICY (#15)

My ongoing concerns related to RRBs and duration policy are covered in Part I of this paper.

NO OVER-RELIANCE ON QUANTITATIVE MODELING (#13)

My ongoing concern related to a possible over-reliance on quantitative modeling is covered in Part I of this paper. On a qualitative basis, a case can be made that a fund with long-term, inflation-sensitive liabilities should invest some of its assets in similarly long duration, inflation-sensitive assets (i.e. have > 0% in RRBs, and hold more, rather than less, real estate and infrastructure – other things equal).

[29] A recursive link is like a circular reference in Excel, where cell "G4" equals "A1", and A1 is recursively set to equal G4 again. This circular reference is not a "hit" as far as Excel is concerned, and Excel will warn you that a formula refers to a cell dependent on its own cell value – and this could sink the analysis in your YouSunkMyBattleship.xls file. (Another way of saying this is that it's the classic chicken/egg problem in the field of poultry management.)
[30] The Minimum Risk Portfolio is called "Liability Benchmark Portfolio" in the GRA and Mercer Study.

ACCOUNTING METRICS (#1 TO 4)

Given the other changes made by MPI, and reflected in the Mercer Study, I have less concern about accounting metrics. For example, by addressing Recommendation #5 (using market, not accounting return/risk metrics in the Mercer Study), and partially addressing #10, my concern about accounting is less important – but not unimportant. Accounting may still be driving some investment decisions, as described above (de -linking discount rates).

APPENDICES

APPENDIX 1. CURRICULUM VITAE – VALTER VIOLA

Consultant with 25 years of institutional portfolio management, investment research, and risk management experience (mostly defined benefit pension plans)

- *Consultant to institutional investors, advising boards, investment committees and client staff on investment strategies, investment risk management, and governance (primarily North America)*
- *Former executive and senior management roles in portfolio management, risk management, investment research, and economics at two of the world's largest institutional investors*

PROFESSIONAL EXPERIENCE

Since 2016 **Cortex Applied Research**, Toronto

Managing Director and Principal

- Advise pension funds, foundations and other institutional investors on governance matters, including fiduciary education and search services for investment consultants/outsourced chief investment officers (OCIOs)

2014 – 2016 **MaPLE** Toronto, Santiago

Partner in a private energy and infrastructure venture in Chile

2005 – 2014 **Holland Park** Toronto

President, Founder

- Advised institutional investors on investment risk governance, management and measurement practices, including:
  - developing investment/risk frameworks;
  - drafting investment/risk management policies/ procedures; and
  - developing risk budgets to support the management of surplus (assets and liabilities) and active management (performance vs. benchmarks)
- Provided risk monitoring and reporting services to pension funds, including:
  - managing third party risk analytics and related data;
  - recommending and implementing methodologies; and
  - reporting to boards and executives about investment risks

2000 – 2005 **CPP Investment Board** Toronto

Vice President, Research and Risk Management

- First executive responsible for total portfolio research, design and investment risk management of the largest single purpose pool of capital in Canada
- Led a growing team of professionals, focused on the total portfolio, including:
  - investment risk management (relative to liabilities and benchmarks);
  - policy asset mix and currency hedging;
  - active management; and
  - other investment policies
- Collaborated with the CEO/CIO, VP Private Markets, and VP Public Markets in the development and implementation of investment strategies
- Collaborated with other executives to develop and implement strategies and business plans, policies and procedures, including leading the development of an investment/risk management framework that took into account the unique circumstances of the CPP and CPPIB (e.g. large unfunded liability, non-marketable bonds, large cash inflows)

1993 – 2000 **Ontario Teachers' Pension Plan** Toronto

Director, Portfolio Manager, Analyst (Research and Economics)

- Member of the Investment Planning Committee, with shared responsibilities to advise the CIO on the tactical management of the total portfolio (shorter-term horizon, broad asset class allocations and currency hedging)
- Supported strategic/policy and tactical asset mix/currency hedging and other total fund decisions through independent research, including:
  - developing the fund's first asset/liability model, which supported the fund's asset mix transition shortly after the fund's inception;
  - conducting research to support new asset class introductions; and
  - recommending appropriate benchmarks
- Managed the tactical asset allocation portfolio, a portfolio that had one of the largest value added targets for the fund
- Managed the inflation-linked bond portfolio, including closing the largest single investment in the fund's history ($650 million private placement of inflation-linked bonds to finance the 407 Electronic Toll Road)

1992 – 1993 **Wilfrid Laurier University and York University** Waterloo, Toronto

Lecturer in Investments, Finance and Accounting

1990 – 1992 **Corporate Planning Associates** Toronto

Financial Advisor

1986 – 1988 **Price Waterhouse** Toronto

Auditor

PENSION ASSOCIATIONS/COMMITTEES

2006 – 2009 **Healthcare of Ontario Pension Plan (HOOPP)**

External Advisor to Investment Committee

- Advised the Investment Committee of a large, Canadian defined benefit plan on matters related to the management of the total portfolio

2003 – 2005 **Pension Investment Association of Canada (PIAC)**

Member of Investment Practices Committee

- Shared non-proprietary investment practices with peers as a member of an industry association
- Led the publication of a paper ("Risk Budgeting") to meet the needs of member organizations

EDUCATION

1995 ***Chartered Financial Analyst***

1990 ***Master of Business Administration***, Western University

1989 ***Chartered Accountant***

1986 ***Bachelor of Commerce***, University of Toronto

APPENDIX 2. RELEVANT PRIOR EXPERIENCE

The author's relevant prior experience, as described in the author's evidence during the GRA Process two years ago, is shown below.

CPP Investment Board

I was the first executive officer responsible for research and risk management of CPP Investment Board ("CPPIB"), the largest single purpose pool of capital in Canada with assets under management of ~ $290 billion today. As VP, Research and Risk Management I reported to the CEO/Chief Investment Officer over a five year period and was the chief risk officer responsible for all aspects of investment risk management. Research responsibilities covered a broad range of investment issues, including long-term asset allocation, currency hedging and investment policies. As one of four investment executive officers, I was involved in investment strategy specifically and the management of the organization generally.

Ontario Teachers' Pension Plan

I held a variety of roles over a seven year career at Ontario Teachers' Pension Plan ("Teachers'"), the largest single-profession pension plan in Canada with ~ $170 billion of assets under management today. Teachers' is considered a global leader in pension/risk management.

As the first analyst in the Research and Economics Department, I developed Teachers' first Asset-Liability Model to support long-term asset allocation strategies (e.g., allocation between equities, bonds and other asset classes). As a Director of Research, my responsibilities included conducting research to support the introduction of new asset classes, currency hedging policies, as well as broad asset allocation decisions on both a strategic (policy/long-term) and tactical (active/short-term) basis.

As a member of Teachers' Investment Planning Committee, I participated in shorter-horizon (tactical/active) decisions regarding asset allocation and currency hedging. As the first Portfolio Manager of Teachers' Tactical Asset Allocation ("TAA") portfolio, I was responsible for managing one of the most "active" programs at Teachers'[2]. I was also the Portfolio Manager of the real return bond ("RRB") portfolio[3].

Pension Investment Association of Canada (PIAC)

I was also a member of the Investment Practices Committee of the Pension Investment Association of Canada ("PIAC").

No P&C Experience

I have not worked with property and casualty ("P&C") insurers, but I have been an advisor to workers' compensation funds in Canada and asset managers who manage assets for workers' compensation funds in both Canada and the United States.

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[2] Performance of the TAA portfolio exceeded value added targets and resulted in the maximum bonus multiplier allowed under Teachers' performance incentive system.

[3] As RRB portfolio manager, I was part of a team that greatly increased the size of Teachers' RRB portfolio. In the year that I left Teachers' to join CPPIB (2000), Teachers' increased its exposure from $8.6 billion to $20.6 billion.

Teaching, Applied Research and Education

I received the Chartered Accountant (CA) designation and taught accounting as well as finance/investments at Wilfrid Laurier University and York University respectively before starting my career in applied research and portfolio/risk management in the Research and Economics Department at Teachers', where I qualified as a Chartered Financial Analyst ("CFA").

I am an MBA graduate from the Richard Ivey School of Business (Western University) and graduated from the University of Toronto with distinction (BComm).

APPENDIX 3. CAC (MPI) 1-84(F)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-84 (f). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #13

> MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.

Mercer's response:

> Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. **The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.**

On page 1,654, Mercer said:

> While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling …

Capital Market Assumptions for the Liability Benchmark

Page 1,765 (INV Appendix 17, Attachment A) shows the assumptions related to the components of the liability benchmark, which CAC summarized below (Basic and Pension only).

Table 6. Components of Liability Benchmarks

	Components of Liability Benchmarks	Return	SD
1	Treasury Bills	1.50%	1.50%
2	Short-Term Provincial Bonds	2.40%	3.50%
3	Mid-Term Provincial Bonds	3.00%	6.50%
4	Long-Term Provincial Bonds	3.30%	8.50%
5	Long-Term Corporate Bonds	4.20%	8.50%
6	Real Return Bonds	3.00%	7.50%

Table 7. Correlations

Correlations	1	2	3	4	5	6
Treasury Bills	1.00					
Short-Term Provincial Bonds	0.31	1.00				
Mid-Term Provincial Bonds	0.02	0.87	1.00			
Long-Term Provincial Bonds	(0.14)	0.61	0.89	1.00		
Long-Term Corporate Bonds	(0.38)	0.14	0.51	0.69	1.00	
Real Return Bonds	(0.19)	0.39	0.65	0.70	0.62	1.00

The significant difference between the nominal and real bases are shown below for both Basic and Pension liabilities.

Table 8. Difference in Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

The GRA included many efficient frontiers using the **Nominal** Liability Benchmark, showing for example, the effects of adding different asset classes one step at a time ("stepped approach") so the effects on return/risk could be seen. (Fewer such analyses were provided using the **Real** Liability Benchmark, and no "steps" were shown in the GRA on this basis.)

The table below shows how material the Liability Benchmark decision is on return/risk and asset allocation. (The supporting tables, A to C, are on the next two pages. They show the different implications reported by Mercer arising from the selection of a different Liability Benchmark – i.e., nominal vs. real).

Table 9. Materiality of Liability Benchmark Choice

Table	Content	Materiality of Liability Benchmark Choice
A	**Table A shows return/risk metrics** for a portfolio that has the same expected return as the current portfolio (~ 4.2%), but is more efficient than the current portfolio (i.e. less risk); **The asset allocations** are also shown	The main difference between the optimizations relates to the inclusion of **RRBs in the portfolio under the real optimization**; The total fixed income allocation is the same (~ 75%) under both real and nominal optimizations
B	**Table B shows the current portfolio's return/risk metrics**	n/a
C	**Table C shows the improved efficiency** (less risk, same return) of the optimized portfolio, compared to the current portfolio (i.e. C = A minus B)	**Surplus volatility falls more when the real liability proxy is used (1.1% risk reduction, rather than 0.4%)**

Table 10. Return/Risk Metrics and Asset Allocations

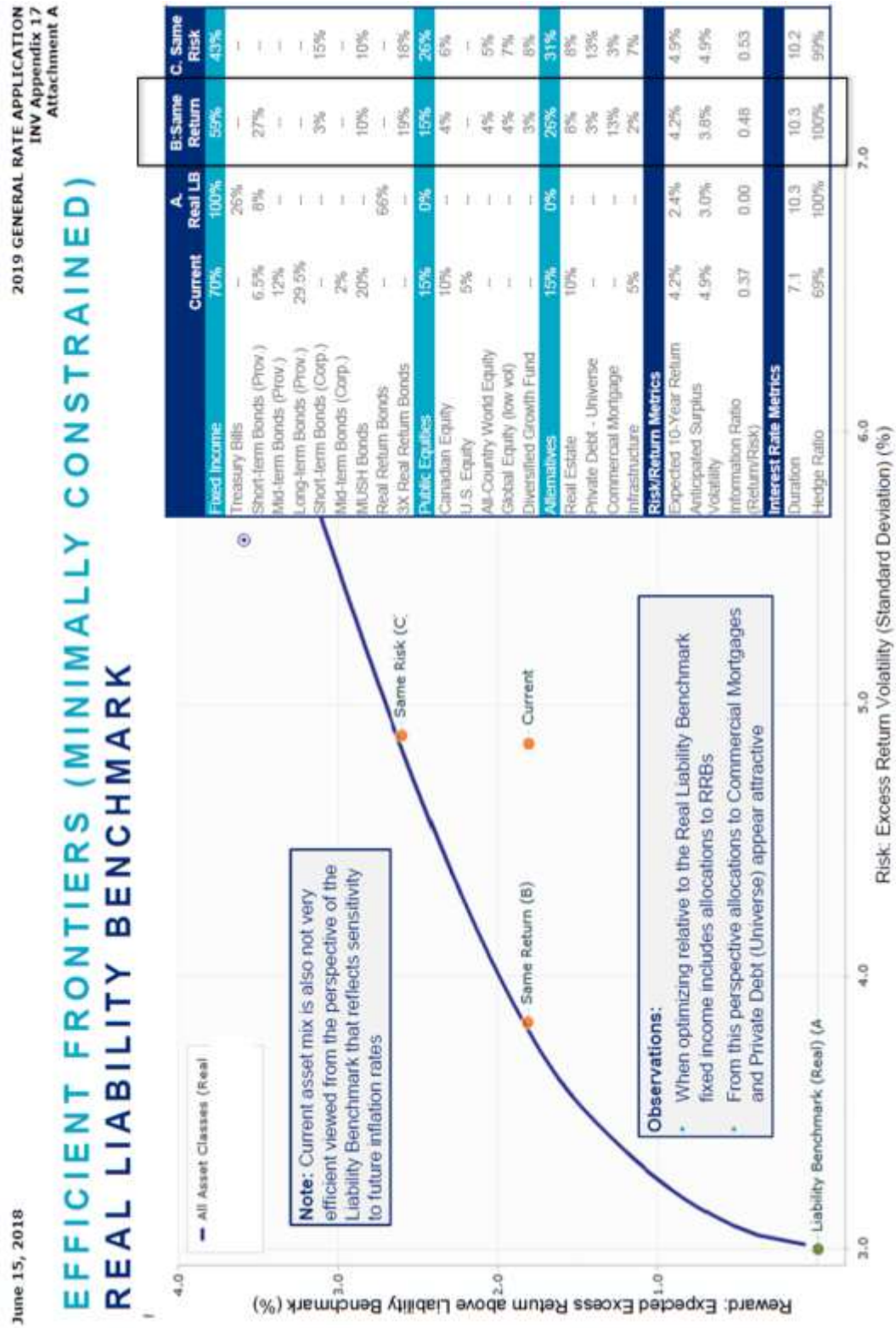
B	**Current Portfolio**	Real	Nominal	
	Expected 10-Year Return:			
	Portfolio	4.2	4.2	
	Liability Benchmark Portfolio	2.4	2.8	
	Excess Return	1.8	1.4	
	Anticipated Surplus Volatility	4.9	5.0	
	Excess Return/Anticipated Surplus Volatility	0.37	0.28	
	Information Ratio (Return/Risk)	0.37	0.27	
	Difference	- 0.00	0.01	

C	**Improved Efficiency (Same Return)**	Real	Nominal	C = A - B
	Expected 10-Year Return:			
	Portfolio	- -	0.1	No change in return (except rounding)
	Liability Benchmark Portfolio	-	-	
	Excess Return	- -	0.1	
	Anticipated Surplus Volatility	- **1.1** -	**0.4**	More measured risk reduction with Real Liability
	Excess Return/Anticipated Surplus Volatility	0.11	0.00	
	Information Ratio (Return/Risk)	0.11	0.03	
	Difference	- 0.00 -	0.03	

The source for the above data is on the following two pages.

Table 11. "Real" Liability Benchmark (page 1,755)

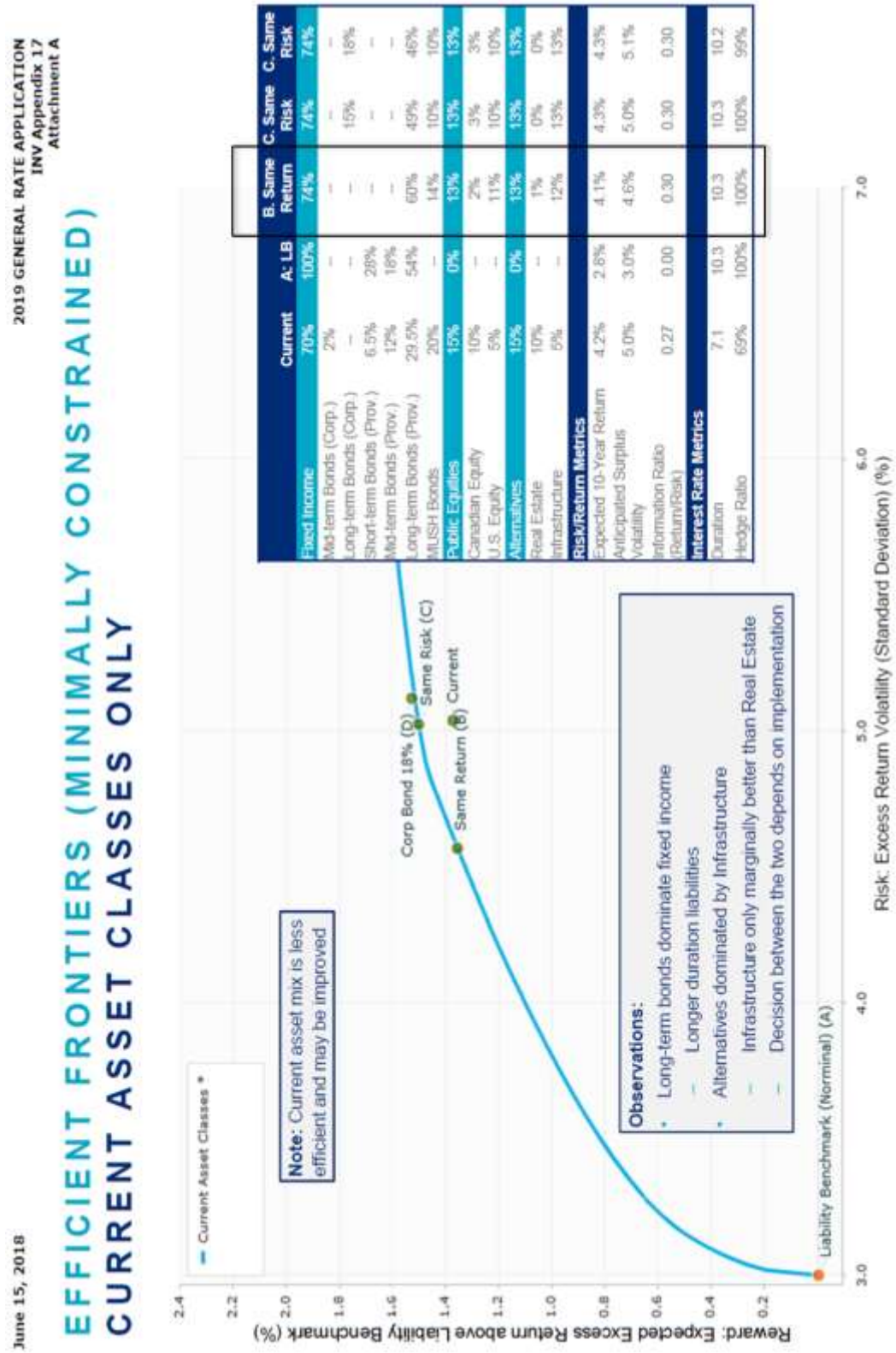
"Real" Liability Benchmark (page 1,755)



	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	–	26%	–	–
Short-term Bonds (Prov.)	6.5%	8%	27%	–
Mid-term Bonds (Prov.)	12%	–	–	–
Long-term Bonds (Prov.)	29.5%	–	–	–
Short-term Bonds (Corp.)	–	–	3%	15%
Mid-term Bonds (Corp.)	2%	–	–	–
MUSH Bonds	20%	–	10%	10%
Real Return Bonds	–	66%	–	–
3X Real Return Bonds	–	–	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	–	4%	6%
U.S. Equity	5%	–	–	–
All-Country World Equity	–	–	4%	5%
Global Equity (low vol)	–	–	4%	7%
Diversified Growth Fund	–	–	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	–	6%	8%
Private Debt - Universe	–	–	3%	13%
Commercial Mortgage	–	–	13%	3%
Infrastructure	5%	–	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

Table 12. "Nominal" Liability Benchmark

"Nominal" Liability Benchmark (page 1,749)



	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.6%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

QUESTION 84 f): MORE DETAILED ANALYSIS FOR REAL SCENARIOS

More Detailed Analysis for Real Scenarios: Was the same "stepped" analysis that was performed using the **Nominal** Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the **Real** Liability Benchmark?

i. If so, provide the analysis and commentary (at least for Basic and Pensions).

If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions).

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

APPENDIX 4. CAC (MPI) 1-85 (G)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-85 (g). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #7

> The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit.

Mercer's response (page 1,460):

> The ALM study had minimally constrained and practical implementation constraints.

Leverage Constraint

The Liability Benchmarks developed by Mercer included negative (short) exposures related to TBills in both the nominal and real representations of the Pension Liability (17% and 11% short respectively), as summarized by CAC on the right.

Table 13. Pension Liability Benchmark Portfolio (Real vs. Nominal)

	Pension Liability		
	Nominal	Real	Diff
Treasury Bills	- 17	- 11	6
Short-Term Provincial Bonds			-
Mid-Term Provincial Bonds			-
Long-Term Provincial Bonds		30	30
Long-Term Corporate Bonds	117		- 117
Real Return Bonds		81	81
	100	100	-

Benefits of Leverage

On page 1,753, Mercer said "adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum".

On page 1,588, Mercer said this about overlay bonds:

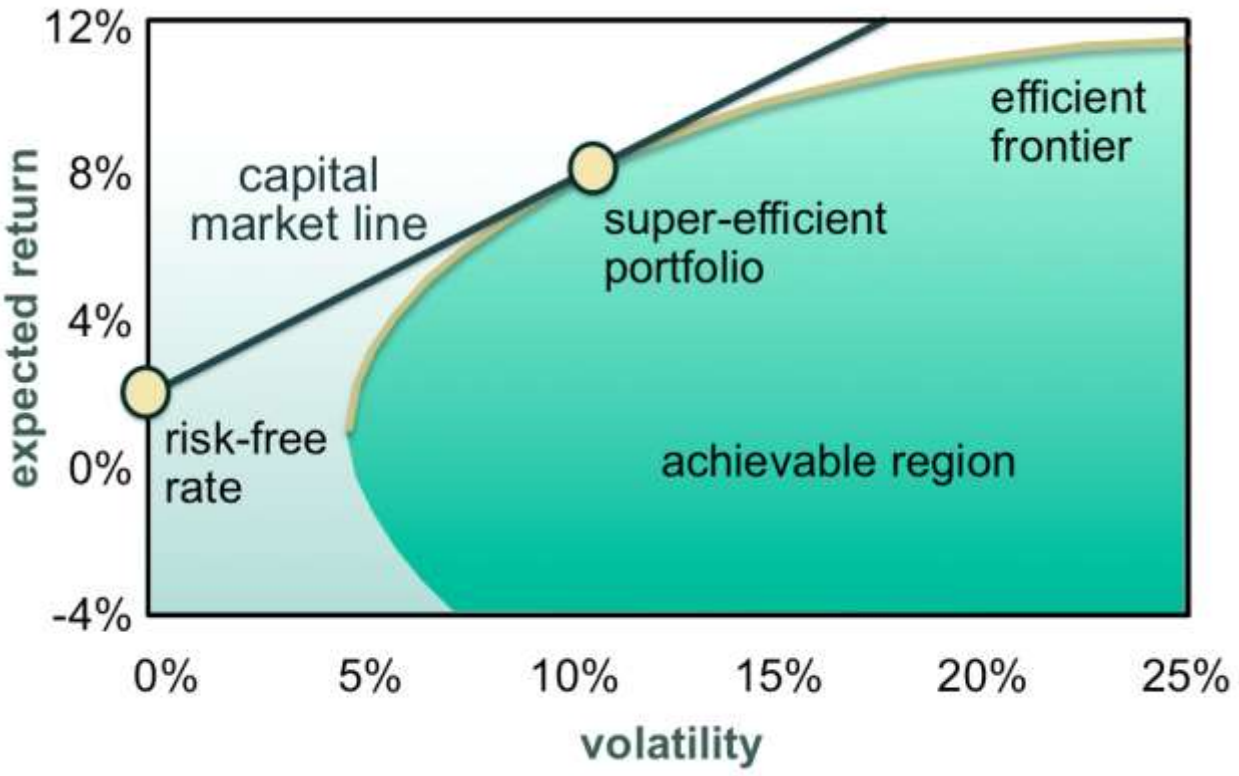
> By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.
>
> Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds.

When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

Capital Market Line Theory

In an asset-only context (i.e. ignoring liabilities), the Capital Market Line illustrated below shows how the introduction of a risk-free asset (e.g. Government of Canada TBills in an asset-only context) expands the efficient frontier.

Figure 1. Capital Market Line



While many assumptions underlie the Capital Market Line in the broader CAPM[31] theory, two implications for "asset-only" investors are:

- All investors (regardless of risk tolerance) hold the "market portfolio"; and
- The proportion of an investor's portfolio held in the risk-free asset reflects their risk tolerance, with the balance invested in the market portfolio.

Exclusion of Leverage

On page 1,618, the rationale for excluding "Levered Bonds" was provided:

> Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). …
>
> Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio.
>
> **Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.**

On page 1,719, Mercer's report said RRBs and leveraged bond funds (RRBs & Provincial bonds) were rejected from consideration because they were "either deemed too risky or the expected returns were too low".

[31] CAPM: Capital Asset Pricing Model

QUESTION 85 G): EFFICIENT FRONTIERS

Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (Real Liability Benchmark, not Nominal Liability Benchmark, and not TBills)?

i. The analysis should show the effects of allowable leverage **for fixed income assets only** (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:
    1) Set 0% maximum in RRBs
    2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) individual steps for:
        1) Canadian Equity
        2) Emerging Markets Equity
        3) Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:
        1) Real estate, infrastructure, and private equity using MPI's recommended weights
        2) Public equity in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI))

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension.

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to constraints (established in 2017 GRA).

APPENDIX 5. LEVERAGE

This note describes financial leverage because the Mercer Study demonstrates its use by including an asset called "3X Real Return Bonds"[32], which represents a leverage factor of 3:1.

HOW IS LEVERAGE DEFINED?

Mercer defined this asset as "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". This "Levered RRB" portfolio is no different than a real estate portfolio that has borrowed money to finance more real property acquisitions. Real estate is typically shown "net of debt" (rather than "gross of bricks and mortar").

HOW DOES THE "3X" LEVER IMPACT RETURN/RISK?

Financial leverage works much the same way as a crowbar works in a physical context. Simply put, crowbars allow us to get a desired/better result with fewer resources (e.g., lift a heavy object).

The characteristics of Mercer's Levered RRBs are shown below, with leverage shown as a "short" T Bill (-200%) exposure, and the resulting net "longer" RRB exposure of +300%. On a net basis, Mercer calls this "3X RRBs" (+100% = 300% - 200%).

Using Mercer's return assumptions, the table shows how leverage "lifts" returns higher (almost 2%, from 2.7% to 4.6%). This return lift comes at a small leverage cost (0.7%). In other words, crowbars aren't free.

Table 14. "Levered RRBs" Portfolio

Asset Allocations	Composition	Median 10 Year Return	Duration
Treasury Bills	-200%	1.4%	0.1
RRBs	300%	2.7%	15.0
3X RRBs	100%	5.3%	**44.8**
Less Leverage Cost		-0.7%	
Total		4.6%	

For both the Basic Portfolio and Pension Portfolio, Mercer says:

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum"[33].*

[32] Another portfolio, involving Provincial Bonds, was also considered.
[33] MPI Exhibit 12, pages 11 and 23 of 36

WHY PUT A CONSTRAINT ON LEVERAGE?

One motivation for prohibiting the use of leverage is to limit the potential losses from price movements. For example, stocks can double in price (100% gain), but they can't fall below $0 (negative 100%). As a result, selling a stock "short" (one we don't own) comes with a risk because we need to buy it back to close out the position, and the cost of doing so may rise substantially if its price rises enough.

Another form of leverage is simply to borrow funds and use the proceeds to buy more assets. A similar risk arises – the cost of your financing (short) could rise and/or the value of your (larger) assets could fall.

MOVING LEVERAGE DOWN THE BALANCE SHEET

If Mercer's model could speak for itself, it might agree with my description about asset "leverage" below, because the model focuses on "surplus" (assets and liabilities).

> "One asset's 'leverage' is another liability's 'hedge'."
> Valter Viola

While asset "leverage" increases the net duration of RRBs to ~ 45[34] (and may seem "high"), this is too narrow a view because the return/risk profile of asset classes should never be viewed in "isolation". We should always take a total portfolio perspective by consider all assets together, and we should also take into account both sides of the balance sheet (i.e., liabilities).

On the next page, we show how the leverage contemplated by Mercer could be re-classified on the balance sheet from RRBs to Bonds (top panel). (This re-grouping of T Bills from real to nominal bonds is better because T Bills are a "nominal" product.[35])

The bottom panel shows a third way of looking at asset "leverage", by moving the "short" T Bill (borrowing equivalent) to the other side of the balance sheet – with other liabilities – where it naturally belongs. This treatment is consistent with my recommendation two years ago (Recommendation #16) related to real estate borrowing, and recognizes that a short T Bill exposure is equivalent to "borrowing short-term (say < 90 day term to maturity)".

[34] This assumes a 15 duration for the RRB Index, and TBills at ~ 0.1. Using the "3X" factor, the leverage increases the net duration of RRBs from ~ 15 to ~ 45 (3X).
[35] T Bills don't provide inflation indexation per se, though given the short time to maturity, real purchasing power would typically be maintained on T Bills.

Table 15. Re-classifying "Leverage" from RRBs to Bonds

The table below shows how leverage could be re-classified to show a 45% exposure to RRBs (3 X 15%).[36]

Assets (A)	(1) Per Mercer	(2) Show Asset Leverage	(3) Re-classify TBill Leverage	(4) = (1) + (2) + (3) Assets (A)		
RRBs (Gross)	-	+30.0	-	RRBs (Gross)	45.0	← *45% RRBs*
T Bills	-	-30.0	+30.0			
RRBs (Net)	15.0	0.0	+30.0			
Bonds	53.0	-	-30.0	Bonds (Net)	23.0	← *23% Bonds*
Other Assets	32.0	-	-	Other Assets	32.0	
Total Assets	**100.0**	**0.0**	**0.0**	**Total Assets**	**100.0**	

The table below shows how **liabilities** are "**de-leveraged**" by including "3X RRBs". If T Bill and Basic Liability durations are ~ 0.1 and ~ 10.3 respectively, liability duration (including short T Bills) **falls** to 8.0 (from 10.3). In other words, asset leverage can reduce surplus risk. This way, "leverage" starts to sound less "risky".

Table 16. Re-classifying "Leverage" to the Liability Side of the Balance Sheet

	(4) From Above		(5) Show Liability De-Leverage	(6) = (4) + (5) Sub-Total	(7) = (6)/130% Express as % of 100	Duration	
	Assets (A)						
45% →	RRBs (Gross)	45.0	-	45.0	35.0		
23% →	Bonds (Net)	23.0	+30.0	53.0	41.0		
	Other Assets	32.0	-	32.0	24.0		
	Total Assets	**100.0**	**30.0**	**130.0**	**100.0**		
	Liabilities (L)						
	Basic Liabilities	100.0	-	100.0	77.0	~ 10.3	
	Short-term Borrowing	0.0	30.0	30.0	23.0	~ 0.1	
	Total Liabilities	**100.0**	**30.0**	**130.0**	**100.0**	**~ 8.0**	← *Lower Duration*

[36] MPI Exhibit 12, page 12 of 36

ATTACHMENTS

ATTACHMENT A. EVIDENCE FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT B. TESTIMONY FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT C. MPI EXHIBIT 12 (MERCER'S "REAL" EFFICIENT FRONTIER ANALYSIS)

REFERENCES

Gilbert, Charles (2016) *Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)*, paper produced and approved by the Insurance Regulation Committee of the IAA on 24 October 2016

Viola, Valter (2016) *MPI's Investment Portfolio: Risk, Return and Good Practices*, written evidence prepared for Consumers' Association of Canada, (Manitoba) Inc. and submitted by the Public Interest Law Centre on September 26, 2016

Viola, Valter (2016) *Testimony*, presentation slides of testimony prepared for Consumers' Association of Canada, (Manitoba) Inc. and presented by Valter Viola two years ago

MPI'S INVESTMENT PORTFOLIO:
ASSET/LIABILITY ANALYSIS
AND PREVIOUS RECOMMENDATIONS
(TWO REVISIONS [1] [2])

MANITOBA PUBLIC INSURANCE 2019/20 GRA

MANITOBA BRANCH OF THE CONSUMERS' ASSOCIATION OF CANADA
(CAC MANITOBA)

SUBMITTED BY THE PUBLIC INTEREST LAW CENTRE
AUTHORED BY VALTER VIOLA

OCTOBER 3, 2018

Contents

Introduction 2
Executive Summary of Recommendations 6
Part I. Support for Recommendations 7
Part II. Recommendations from Two Years Ago 23
Appendices 26
Attachments 43
References 44

[1] **First Revision:** "Mercer's Observations" in Step 1 of Table 3 were duplicated, in error, in Step 2 of the table. This has been corrected to show Mercer's observations related to Step 2. (The related figures for Step 2 were correctly reported, only the description was incorrect.)

[2] **Second Revision:** By removing RRBs from an "optimized" portfolio at **current** risk levels, returns are expected to be **~ 0.2%** lower in the Pension Portfolio, **not ~ 1.8%** as reported. (1.8% represents the difference in return between the optimized portfolio (**including RRBs**) and **current** portfolio (rather than optimized portfolio **excluding RRBs**).) The graph illustrating this effect, which appeared twice, has also been updated.

INTRODUCTION

TERMS OF REFERENCE AND DUTIES

I was retained by the Manitoba Branch of the Consumers' Association of Canada ("CAC Manitoba" or the "CAC") to advise and assist on issues related to MPI's portfolio. As stated in my terms of retainer, it is my duty to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within my area of expertise; and
- provides such additional assistance as the Public Utilities Board ("PUB") may reasonably require to determine an issue.

My duties include: preparation and attendance, via telephone, of the Asset Liability Management Study Technical Conference in March 2018; conducting a detailed review of the 2019-20 General Rate Application ("GRA"); preparing first round information requests ("IRs"); reviewing responses to first round IRs and preparing second round IRs; reviewing second round IR responses; preparing written evidence; and preparing for and attending the hearing.

I understand that my duty in providing assistance and giving evidence is to help the PUB, and this duty overrides any obligation to the CAC.

RATE APPLICATION MATERIALS REVIEWED

My review of the GRA focused on the investment portfolio, in particular:

- MPI's Investment Policies;
- the Asset/Liability Study conducted by Mercer (the "Mercer Study" or "Study"), and MPI's recommended changes to the portfolio that were based on the Study; and
- MPI Exhibit 12 (attached), filed by MPI on September 25, 2018 under PUB Order 124-18.

OTHER CONSIDERATIONS

I reviewed and considered the **information responses** prepared by MPI and/or Mercer to questions relating to the portfolio, as well as two documents that are included as attachments:

- a paper called ***MPI's Investment Portfolio: Risk, Return and Good Practice***, which I authored and filed as evidence two years ago; and
- a presentation called ***Testimony***, which I made in oral testimony during the GRA Process two years ago.

AUTHOR BACKGROUND

RELEVANT EXPERIENCE

With 25 years of experience in the institutional fund management sector, I have 12 years of combined executive, senior management, and other professional investment experience at two of Canada's largest institutional investors:

- CPP Investment Board (2000 to 2005; $367 billion today); and
- Ontario Teachers' Pension Plan (1993 to 2000; $176 billion today).

I also have more than a decade of consulting experience as an advisor to some of North America's largest institutional investors on various aspects of investment/risk management, risk measurement, and governance. Clients have included, for example, Canadian pension funds with assets under management that are about the same as those managed by MPI.

My specific expertise includes:

- investment research, economics, and risk management;
- portfolio management; and
- quantitative asset/liability modelling.

My curriculum vitae is in **Appendix 1**, and my relevant experience is described in **Appendix 2**.

P&C EXPERIENCE

As noted in the evidence that I presented two years ago, I did not have any prior work experience with property and casualty ("P&C") insurers prior to being engaged by the CAC in 2016.

ORGANIZATION OF THIS DOCUMENT

This paper consists of two parts. **Part I** contains the support for my **current recommendations** based on my review of **this year's GRA**, while **Part II** looks at any recommendations from my review of the **GRA two years ago** that have not been addressed fully by MPI.

These recommendations are grouped into the four (4) categories below.

Framework
Portfolio
Metrics
Oversight

Before looking at the recommendations, I provide some **background** information related to them. This includes re-stating two **investment beliefs** that are described more fully in Attachment A (GRA evidence from two years ago) and providing an **overview** related to **interest rate risk**, covering such topics as term risk ("duration"), and risks related to inflation, credit, and liquidity.

Attachments provide more detailed information, including the paper that I authored and filed as evidence two years ago, and the related presentation which I made in oral testimony. **MPI Exhibit 12**, which was filed by PUB Order 124-18, is also attached. This exhibit supports many of my recommendations, and the reader should consider reading MPI Exhibit 12 first. The exhibit was filed by MPI on September 25, 2018, and was not included in the GRA.

Appendices include the preambles, written by me, and other information related to two questions[3] that prompted Mercer's analysis in MPI Exhibit 12. An appendix on "leverage" provides some context for this concept, and its inclusion in the appendix (rather than the main document) is to not detract from the paper's main points.

[3] The two questions are CAC (MPI) 84 (f) and CAC (MPI) 85 (g).

BACKGROUND TO RECOMMENDATIONS

2017/18 GRA

18 recommendations

Two years ago, I provided evidence and testimony which included 18 recommendations[4] related to MPI's investment practices.

PUB Order 124-18

The PUB ordered[5] MPI to consider these 18 recommendations, including an order to conduct a new Asset/Liability Study.

2018/19 GRA

Delay in A/L Study

Mercer was engaged to complete the Study, and Mercer's findings were included in this year's GRA (but not available for inclusion in last year's GRA).

2019/20 GRA

3 concerns:

1. *inflation risk;*
2. *real interest rate risk; and*
3. *constraints*

In the first round of this year's IRs, MPI refused to answer two questions posed by the CAC related to some analysis in the Mercer Study.[6] Both questions were motivated by my concern about the long-term risks of inflation and changing **real** interest rates, as well as the cost of imposing certain constraints (i.e., min/max limits for certain asset classes).

PUB Order 124-18 compelled MPI to answer these questions, and the answers appear in MPI Exhibit 12. The questions requested more detailed analysis about the impact on return/risk of adding RRBs to the portfolios if a **"Real"** Liability Benchmark were used in the analysis, rather than the **Nominal** Liability Benchmark that MPI relied upon to support its recent asset allocation recommendations.

The information request included a "stepped" or incremental analysis to illustrate the impacts on efficient frontiers of adding or removing different asset classes to both the Basic and Pension Portfolios using the **"Real"** Liability Benchmark, similar to the analysis that was done using the **Nominal** Liability Benchmark and described in the GRA.

Today's evidence

That brings us to today.

[4] Attachments include my evidence and testimony from two years ago.
[5] See PUB ORDER 124-18.
[6] See CAC (MPI) 84 (f) and 85 (g).

EXECUTIVE SUMMARY OF RECOMMENDATIONS

Framework	**1. Real Liability Benchmark** Re-examine the reliance on a **Nominal** Liability Benchmark, rather than a **Real** Liability Benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities. **2. Leverage Constraint** Re-examine the constraint prohibiting the use of "leverage", given the lower risk-adjusted returns that would result.
Portfolio	**3. Duration Policy "Basis" Risk** Re-examine the effectiveness of the **duration policy**, which uses (nominal) bonds as the basis for matching the inflation and real interest rate sensitivity of Basic and Pension Liabilities, since inflation **volatility** is not zero. **4. Lengthening Nominal Duration** Re-examine the decision to **lengthen** the **nominal** duration in the Basic Portfolio, given: MPI's "defensive" (lower risk) strategy; Mercer's return assumptions for bonds and RRBs; and concerns about the effectiveness of the duration policy noted above ("basis" risk). **5. Real Return Bonds** Re-examine the decision to exclude **RRBs** from both the Basic and Pension portfolios, given the better hedging characteristics of RRBs (compared to bonds), recognizing the long-term inflation and real interest rate risks inherent in the liabilities. **6. Other Real Assets** Re-examine MPI's recommended reduction in **other real assets** (real estate and infrastructure), given the low inflation protection that exists in the current portfolio and lower diversification that would result. **7. Fixed Income Risk Concentration** Re-examine the decision to concentrate risk in fixed income, rather than better diversify the sources of risk across the whole portfolio, and avoid "crowding out" risk-reducing RRBs.
Metrics	See Duration Policy "Basis" Risk
Oversight	**8. Quantitative Models** Continue to be vigilant about placing too much reliance on quantitative considerations, particularly if risk tolerances are low, given the high sensitivity of optimal asset allocations to capital market assumptions and the large number of inputs involved.

PART I. SUPPORT FOR RECOMMENDATIONS

INVESTMENT BELIEFS

My recommendations take into consideration the **five (5) investment beliefs** that are described in the evidence that I provided two years ago (Attachment A). Two of these beliefs are particularly relevant this year, and are described below.

By definition, investment beliefs have varying degrees of empirical support and theoretical justification. They are important because there is little that can be proven conclusively in the field of investments, which means we need beliefs to answer difficult questions about risk, for example, to better inform our investment strategies.

The first belief relates to the **Minimum Risk Portfolio** (called the "Liability Benchmark Portfolio" in this year's GRA and Mercer Study), and the second belief relates to **constraints**. The significance of these beliefs is summarized below.

Belief:	**MINIMUM RISK PORTFOLIO**	**CONSTRAINTS**
	*Determining the **Minimum Risk Portfolio** is the first step towards responsible long-term management of the portfolio.*	***Constraints** never increase expected risk-adjusted returns.*
Significance: (stated two years ago)	… MPI's minimum risk portfolio (MRP) should include … some … real return bonds (RRBs), given the nature of MPI's liabilities (long term, with some inflation exposure). … Belief #2 simply supports the **definition** of the primary risk, but says nothing about whether to buy any assets that make up the MRP (e.g., RRBs). The belief says nothing about how much risk should be taken in relation to it. Appropriate and prudent answers to these … questions requires additional beliefs ...	… there appear to be two very binding constraints that may cause MPI to have lower risk-adjusted returns. These … constraints relate to: 1. HOW RISK IS DEFINED …; and 2. HOW ASSET CLASSES ARE CONSTRAINED Minimum/maximum asset allocations in optimizations conducted as part of the most recent Asset-Liability Study[7] … are overly restrictive ...
(this year)	• **Real Liability Benchmark** (Recommendation #1) • **Duration Policy "Basis" Risk** (#3) • **Lengthening Nominal Duration** (#4) • **Real Return Bonds** (#5)	• **Leverage Constraint** (Recommendation #2)

[7] This reference was to the AON Study (not MERCER Study).

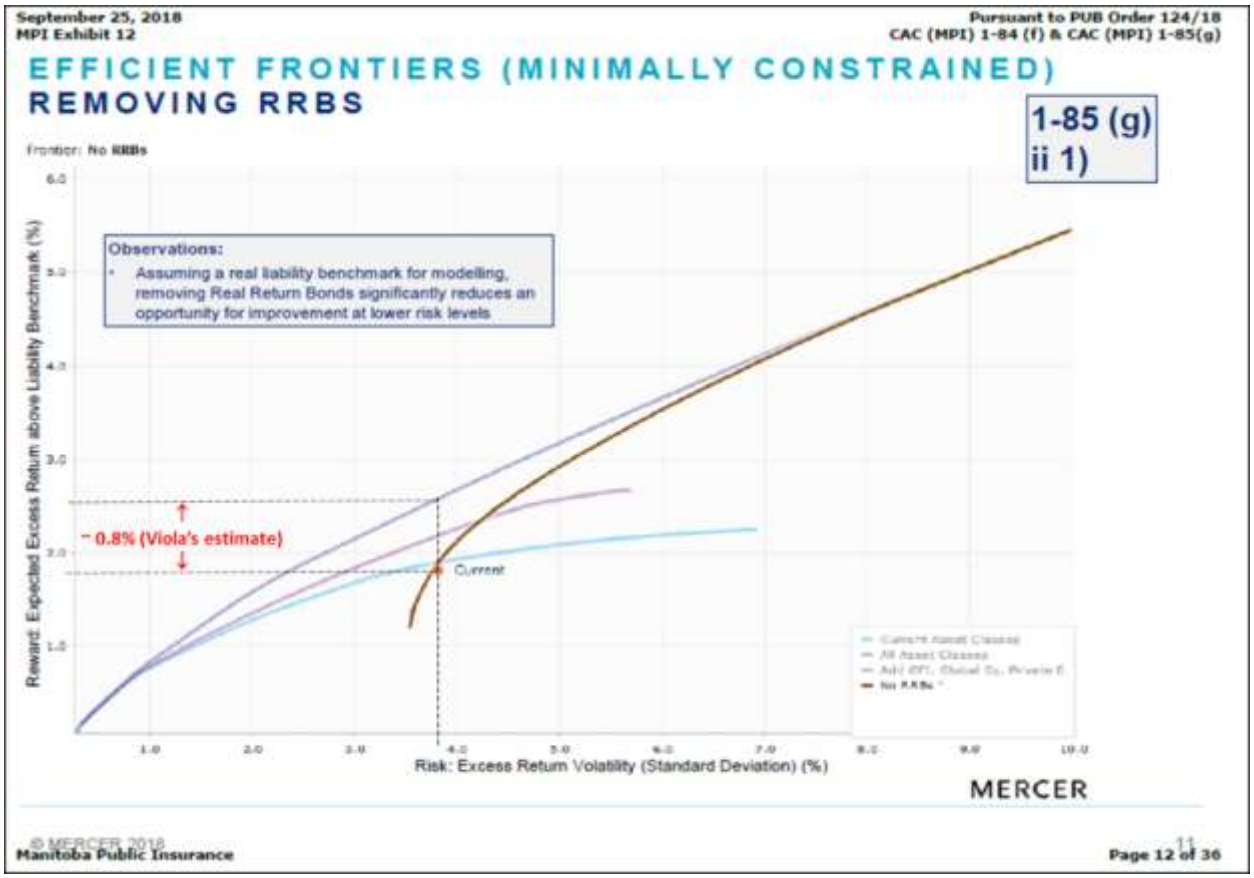
THE "REAL" STORY IN MPI EXHIBIT 12

At this stage, the reader should consider reading MPI Exhibit 12 (Attachment C), which shows the "real" analysis that is fundamental to my recommendations. In it, Mercer concludes (for example) that:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."*[8]

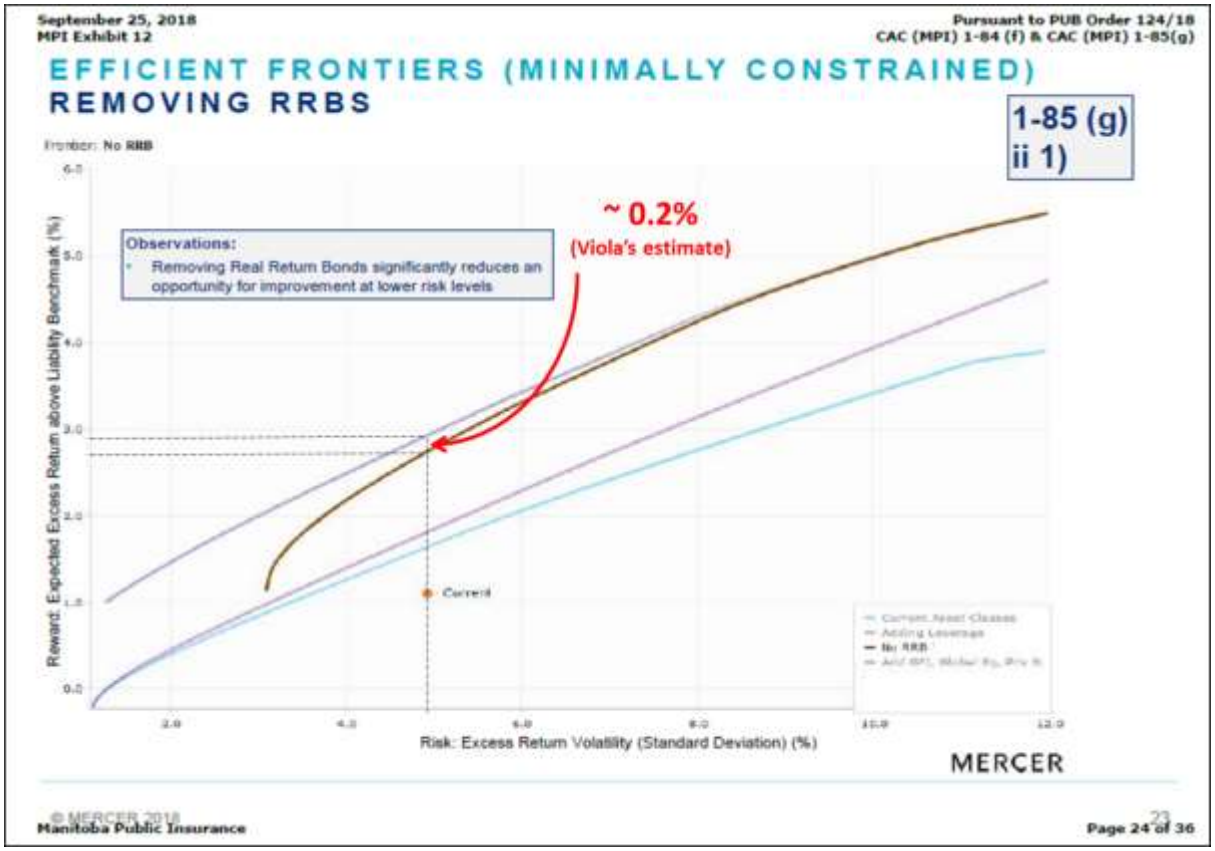
Mercer's finding is illustrated below for the **Basic** Portfolio, and on the next page for the **Pension** Portfolio.

Basic Portfolio



[8] MPI Exhibit 12, page 12 of 36

Pension Portfolio



REAL AND NOMINAL LIABILITY BENCHMARKS

The Mercer Study presented two possible liability benchmark portfolios for both Basic and Pensions. These four (4) liability benchmark portfolios are summarized below, and are clearly very different.

Table 1. Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

In the case of Basic, for example, the **Nominal** Liability Benchmark includes a 54% allocation to long-term provincial bonds while the **Real** Liability Benchmark has 66% in RRBs. The differences in the case of pensions is even larger. This is significant because it is my understanding that MPI informed its asset allocation recommendations using the **Nominal** Liability Benchmark, which has a 0% allocation to RRBs.

GENERAL OVERVIEW

THREE (3) OLD SYMPTOMS

In my review of the MPI portfolio two years ago, I identified a few problems and three (3) main "symptoms" that arose from those problems. Those symptoms, and their consequences, were:

1. a **Canadian Equity** portfolio that was concentrated;
    - larger-than average home bias; and
    - concentrated sectors/stocks;
2. no **International Equities** (i.e., outside North America); and
3. no **Real Return Bonds ("RRBs") in the portfolio**;
    - poor liability protection against unexpected inflation and real rate risk; and
    - less effective duration management.

While MPI's recent recommended changes in the portfolio have addressed the first two symptoms (equities), the third symptom (no RRBs) remains.

THREE (3) NEW SYMPTOMS

I would suggest that three (3) new symptoms have emerged, and they are:

4. no **RRBs in the Liability Benchmark Portfolio** that was used to inform MPI's asset allocations;
    - this understates the risk of unexpected inflation and **real** interest rate risk;
    - this also makes duration management less effective;
5. reduced allocations to other "real" assets (**real estate and infrastructure**);
    - this reduces any inflation protection that currently exists in the portfolio;
    - this also reduces diversification; and
6. more concentrated risk within the **bond** portfolio as a result (inflation, credit, and liquidity risk)[9].

In the next section, I review the third and fourth symptoms more closely, focused on the long-term risks of inflation and changing **real** interest rates that impact both sides of the balance sheet (assets and liabilities).

[9] This is a minor consideration, and is included only because of an ongoing concern regarding the impact of accounting (e.g., future IFRS changes) on portfolio decisions.

THE "REAL" STORY (MPI EXHIBIT 12)

As noted in my evidence two years ago, RRBs could play a significant role in hedging the long-term risks of inflation and changes in **real** interest rates that are inherent in MPI's liabilities. To see this, it is important to **examine MPI Exhibit 12 (Attachment C), which contains the "real" story**. By this I mean that the exhibit describes the efficient frontiers in a way that better reflects the "real" interest rate and inflationary risks inherent in MPI's liabilities. MPI's recommended changes in the portfolio that are described in the GRA relied on a Liability Benchmark Portfolio that is defined in **nominal**, rather than **real**, terms and I believe there is a material risk and cost in doing so. MPI Exhibit 12 explains why.

The main theme of the "real" story is that Mercer's model "loves" RRBs across the risk spectrum. According to Mercer:

> *"Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."* [10]

The model loves RRBs so much that it would borrow to buy more RRBs (i.e., "leverage"), if permitted to do so. This is illustrated where Mercer shows the return/risk tradeoffs of having a 15% allocation to an asset class called "3X Real Return Bonds", as noted below. This is equivalent to having a 45% "gross" exposure to RRBs, given the 3:1 leverage ratio.

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum."* [11] [12]

By excluding RRBs, return/risk tradeoffs are significantly reduced, particularly at the lower levels of risk that MPI finds acceptable in the **Basic** Portfolio.

The model's "love" for RRBs is even stronger in the **Pension** Portfolio.

Mercer's analysis shows that **by removing RRBs from an "optimized" portfolio at current risk levels, returns are expected to be ~ 0.8% lower in the Basic Portfolio and ~ 0.2% lower in the Pension Portfolio**.

[10] MPI Exhibit 12, page 12 (Basic) and 24 (Basic) of 36
[11] MPI Exhibit 12, page 11 of 36
[12] Mercer modelled "leverage" by defining an asset called "3X Real Return Bonds". This asset consists of "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". Mercer also defined an asset called "3X Long Provincial Bonds".

"LEVERAGE"

Mercer illustrates how returns would be 0.3% higher[13] in the **Basic** Portfolio at current risk levels if MPI were to remove the restriction related to leverage. "Leverage" involves financing the acquisition of an asset (e.g., RRB or bond) by directly or indirectly borrowing (e.g., "shorting" T Bills).

MPI's policy to prohibit leverage is not a *major* concern of mine. Many funds impose such a constraint because of a **perceived** risk related to leverage. While some risks are real, others are not and/or are manageable. Like many constraints that are self-imposed by investors, a constraint that prohibits the use of some types of leverage has a material cost, and MPI Exhibit 12 measures how big this cost is (~ 0.3% lower return, in the case of the **Basic** Portfolio).

Appendix 5 describes how "leverage" can be viewed differently, and when viewed that other way it can be seen as a "positive" (not negative) tool. For example, while leverage has the effect of increasing the duration of the "net" RRB portfolio to ~ 45 (from 15, given the 3:1 ratio), an optimist might describe the effect as "de-leveraging" the liabilities from ~ 10.3 to ~ 8.0 in the case of the Basic line of business. (This calculation is in the appendix.)

Simply put, "leverage" is not a four-letter word, and MPI should consider the return/risk implications of imposing a constraint related to its use, given the cost of doing so.

BOTTOM LINE: THREE (3) QUESTIONS

I believe that MPI should give more weight to the "real" analysis in MPI Exhibit 12, instead of relying on a "Liability Benchmark Portfolio" that is defined in **nominal** terms. Unless inflation has zero **volatility**, it is important to distinguish between nominal interest rate risk, and the real and inflation components that make it up. Changes in these two components can have different impacts on the returns for (nominal) bonds and RRBs, given the long time horizon that we should be concerned about.

From my perspective, the key issue boils down to questions about risk **oversight**, risk **measurement**, and risk **management**, which are listed below.

1. Have the real and inflation risks been **identified** clearly
   by those who are responsible for their management and oversight?
2. Have these risks been **measured** as accurately as possible?
3. Are these risks being **managed** effectively?

[13] Returns would increase from 4.6% to 4.9% at current risk levels (3.8% surplus volatility).

INTEREST RATE RISK OVERVIEW

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

"It is important to understand the multiple dimensions of the interest rate risk exposure."[14]

TERM RISK ("DURATION")

The first dimension of interest rate risk relates to time horizon, and a common risk metric for measuring the risk of changing interest rates is "duration". Simply put, duration measures the sensitivity of a bond or liabilities, as the case may be, to changes in interest rates. Other things equal, bonds or liabilities with longer terms to maturity are more sensitive to changing interest rates. They have longer/higher durations.

For example, a bond that has a duration of 10 will rise (fall) by ~ 10% if interest rates ("yields") decrease (increase) by 1%. This inverse relationship between changing yields (Δ yield) and the resulting percentage (%) change in the value of an asset (A), such as a bond, or liability (L) is approximately equal to the product of the change in yield and duration.

$$\% \Delta \text{ in A or L} \sim - \Delta \text{ Yield} \times \text{Duration} \quad \text{(1): Duration Equation}$$

This yield/price relationship is not "linear", so this Duration Equation is accurate only for small changes in interest rates. For larger changes, "convexity" needs to be taken into account. Convexity measures the rate of change in duration, and takes into account the "curvature" or convexity effect that is bigger for larger changes in interest rates.[15]

[14] Page 13-1, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

[15] Interest rates don't simply shift up or down vertically. They may involve "twists" in the yield curve. A more accurate interest rate formula would add a second term to the Duration Equation above, shown in **red** below.

$$\% \Delta \text{ in A or L} \sim (- \Delta \text{ Yield} \times \text{Duration}) + \mathbf{\tfrac{1}{2}(\Delta \text{ Yield})^2 \times \text{Convexity}}$$

INFLATION RISK

Until now, we have not distinguished between "nominal" and "real" interest rates, but it is important to do so. The Fisher Equation, below, shows the relationship between a **nominal** interest rate or yield (n) and its two components, which are the **real** interest rate (r) and **inflation** (π).

$$n \sim r + \pi \quad \text{(2): Fisher Equation}$$

Simply put, the Fisher Equation says that the expected nominal rate (n) depends on inflation expectations (π) and the expected real rate (r). In other words, inflation protection is needed to maintain real purchasing power.

While the Fisher Equation describes expectations (i.e., average/mean) about the **level** of inflation (π), the volatility equation below shows how inflation **volatility** (σ_π) and its **correlation** ($\rho_{r,\pi}$) with real interest rates are factored into the risk discussion.

$$\sigma_n = \sqrt{(\sigma_r^2 + \sigma_\pi^2 + 2\rho_{r,\pi}\sigma_r\sigma_\pi)} \quad \text{(3): Interest Rate Volatility Equation}$$

The Volatility Equation says that the volatility of **nominal** interest rates depends on three factors:

- volatility of **real** interest rates (σ_r);
- volatility of inflation (σ_π); and
- correlation between **real** interest rates and inflation ($\rho_{r,\pi}$).

Only when inflation **volatility** is zero ($\sigma_\pi = 0$) can we safely ignore the distinction between nominal and real interest rates when hedging risk. That is when real interest rate risk and nominal interest rate risk are the same ($\sigma_n = \sigma_r$).

The correlation assumptions used by Mercer in the Study show how inflation volatility (σ_π) and "less than perfect correlations" (ρ) can impact the return distributions of RRBs and bonds. The table on the next page shows the correlation assumptions that were used in the Mercer Study.

Mercer's correlation matrix, below, shows how closely the returns on various asset classes are related. Along the shaded diagonal, for example, the correlation is +1.00 ("perfectly positive") because an asset class is perfectly correlated with itself.

The triangle above the shaded diagonal is a mirror image of the triangle below the diagonal because the "order" of the correlations between two asset classes doesn't matter. In other words, the 0.57 correlation between RRBs in **column 5** and federal bonds (row 4) is the same when you look at its mirror image in **column 4** and row 5.

Table 2. Correlations

	Correlations				
Asset Class	1	2	3	4	5
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62
12 Global bonds	0.16	0.86	0.83	0.72	0.13
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35
14 Emerging debt	0.10	0.27	0.26	0.24	0.22

Note that the matrix shows a lower correlation between RRBs (column 5) and other bonds, compared to say federal long-term bonds (column 4). In other words, **inflation volatility matters**.

The use of "nominal" bonds to hedge "real" liabilities may be fine over very short time horizons if both the level and volatility of inflation are reasonably predictable over these short periods. However, a duration policy that does not differentiate between the real and inflation components over a longer time horizon is less effective. In other words, it is important to match the "basis" for hedging interest rate risk because the "basis risk" may be material.

A key question, then, is how stable or predictable is inflation over the long term? According to the MPI external actuary:

> *"Nobody can forecast interest rates (especially long term bonds) accurately and consistently."*
> Source: Mr. Cheng, on page 1,469 of the GRA

An Analogy: The Really "Risky" Component of the Dividend Discount Model

My concern about MPI's duration policy can be better appreciated, perhaps, by seeing how the Dividend Discount Model ("DDM"), shown below, compares to the Fisher Equation (2) described earlier.

MPI's approach **appears to** focus more on the **shorter-horizon** and on the inflation component (less risky), rather than the capital gain/duration effects from **longer-term** changes related to **both inflation and changing "real" interest rates** ("really" risky). This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile). This is summarized below.

nominal yield	~	real yield	+	inflation	(2): Fisher Equation

return on stocks	=	capital gain (loss)	+	dividend yield	(4): Dividend Discount Model ("DDM")
		↑		↑	
		"Really" Risky		**Less** Risky	

INCREASED INFLATION TODAY

Finally, it is important to note that the 3%[16] inflation rate reported in July 2018 represented the highest year over year change in years, and is above the Bank of Canada's 2% target.

CREDIT RISK

Bonds with greater credit risk require higher yields.

Credit risk is the risk of suffering a loss from a "credit event" (e.g., failure by an issuer to meet a coupon payment or principal repayment on a bond that we own). Bonds issued by the Federal Government, for example, have less credit risk than those issued by the Provinces, and corporate bonds generally have even greater credit risk.

LIQUIDITY

Investors also need to be compensated for holding less liquid bonds, such as private debt.

[16] Statistics Canada, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000413

SUMMARY: RISK PREMIA "BUILDING BLOCKS"

The table below summarizes the various risk premia or building blocks for fixed income assets.

- **T Bills** have the lowest return, given their **low duration** (< 1 year) and **low inflation risk**;
- **RRBs**, which hedge longer-term inflation risk by inflation-protecting the principal, have higher returns than T Bills, given their higher duration and an upward-sloping yield curve (most typical);
- **Bonds** don't provide inflation protection, and have higher yields than RRBs to compensate for inflation risk that erodes their purchasing power;
- **Provincial and corporate bonds** have even higher yields, given their higher credit risk; and
- **Private debt** has a higher yield, given its lower liquidity.

Time Horizon	Risk
Longer	Illiquidity
	Credit
	Inflation
	Term/Duration
Short	

Asset Class	Return[17]	Risk Premium "Building Blocks"
Private Debt	↑	+1.8%
Corporate Bonds	3.8%	
Provincial Bonds	↑	+0.6%
Federal Bonds	2.0%	
Federal RRBs	↑	
T Bills	1.4%	

As noted in a 2016 paper produced and approved by the Insurance Regulation Committee of the International Actuarial Association ("IAA"):

> *"One of the greatest challenges facing … insurance companies has been the … low interest rate environment. … Many … insurers started chasing yield, decreasing … credit quality … and increasing the allocation to riskier asset classes. The … pressure for higher yield has resulted in more risk …*
>
> *… There have been three main ways … to increase … yield ...*
>
> 1. ***Add credit spread[18]*** *… by decreasing the credit quality … and taking on more credit risk …, and often aiming to capture the illiquidity premium ...*
> 2. ***Increase expected return*** *… by increasing the allocation to riskier assets ...*
> 3. ***Increase yield to maturity*** *… by selling shorter assets that have a lower yield … and buying longer assets that have a higher yield …"[19]*

[17] Mercer's Median 10 Year Return
[18] Companies may use risk-adjusted yields but may for example seek to exploit the illiquidity premium.
[19] Page 13-5 to 13-6, Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)

WALKING THROUGH THE "REAL" STORY IN MPI EXHIBIT 12

A **Real** Liability Benchmark is used to measure surplus volatility in MPI Exhibit 12.

FLIPPING THE STORY BOOK ON "BASIC"

The table on the next page shows the seven (7) incremental "steps" taken by Mercer in MPI Exhibit 12 to show the effects on return/risk for the **Basic Portfolio** by including (or excluding) different asset classes.

Starting from the Current Portfolio, the first step is to "re-optimize" the portfolio based on the current asset classes in the portfolio using updated capital market assumptions, and perhaps constraints.

These steps, using Mercer's terminology, are:

1. CURRENT ASSET CLASSES;
2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY;
3. ADDING MORTGAGES AND PRIVATE DEBT;
4. ADDING DIVERSIFIED GROWTH FUND;
5. ADDING LEVERAGE (BOND OVERLAY);
6. REMOVING RRBS; and
7. RESTRICTING PUBLIC EQUITIES.

The table on the next page walks through Mercer's "observations", showing the incremental steps in the first column. (The reader can walk through these steps by flipping through the graphs in MPI Exhibit 12.)

The other columns show the returns and return/risk ratios calculated by Mercer, along with the role that RRBs played in achieving those returns (i.e., % allocation of RRBs in the portfolio). All figures reflect the same level of risk (3.8% surplus volatility), and are therefore comparable.

The question that prompted the creation of MPI Exhibit 12 is below.

> ***84 f) More Detailed Analysis for Real Scenarios:*** *Was the same "stepped" analysis that was performed using the* ***Nominal*** *Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the* ***Real*** *Liability Benchmark?*
>
> *84 f) i. If so, provide the analysis and commentary (at least for Basic and Pensions).*

Table 3. Return/Risk Impact from Different Asset Allocation "Steps"

Mercer's Observations (pages 7 - 13 of 36)	RRB Allocation[20]	Return +/- Impact	Excess Return/Risk[21]
STEP 1. CURRENT ASSET CLASSES ONLY 1. Long-term bonds dominate fixed income, some RRBs a. Long duration liabilities b. Low expected returns on RRBs 2. Alternatives dominated by Infrastructure a. Infrastructure only marginally better than Real Estate b. Decision between the two depends on implementation	**18.0%**	**4.2%**	**0.49**
STEP 2. ADDING GROWTH FIXED INCOME, GLOBAL EQUITIES & PRIVATE EQUITY 3. Adding Private Equity allows for further improvements(better risk/reward trade-offs) 4. Canadian Equity appears more attractive than Global Equities due to greater correlation with RRBs 5. Low corporate spreads do not support significant allocation to corporate bonds 6. Addition of Growth Fixed Income does not appear to benefit	**41.5%**	**4.5%** ***+ 0.3%***	**0.57**
STEP 3. ADDING MORTGAGES AND PRIVATE DEBT 7. Adding Mortgages does not appear to benefit 8. Adding Private Debt provides an opportunity for return enhancement	**40.5%**	**4.6%** ***+ 0.1%***	**0.60**
STEP 4. ADDING DIVERSIFIED GROWTH FUND 9. Adding Diversified Growth Fund does not appear to benefit at this stage	**40.5%**	**4.6%** **–**	**0.60**
STEP 5. ADDING LEVERAGE (BOND OVERLAY) 10. Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum	**45.0%**[22]	**4.9%** ***+ 0.3%***	**0.68**
STEP 6. REMOVING RRBS 11. Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels	**0%**	**~ 4.1%** ***~ - 0.8%***[23]	**Not shown by Mercer**

[20] These optimized allocations are at the "current" level of risk. Optimized RRB allocations would be even higher at the lower levels of risk that MPI has chosen for the Basic Portfolio.

[21] Mercer defines an Excess Return/Risk, where the excess component represents the difference in return between the portfolio and the return of the Liability Benchmark.

[22] MPI Exhibit 12 shows a 15% allocation to "3X RRBs". This "net" exposure is equivalent to a gross exposure to RRBs of 45% (3 x 15%), as shown below.

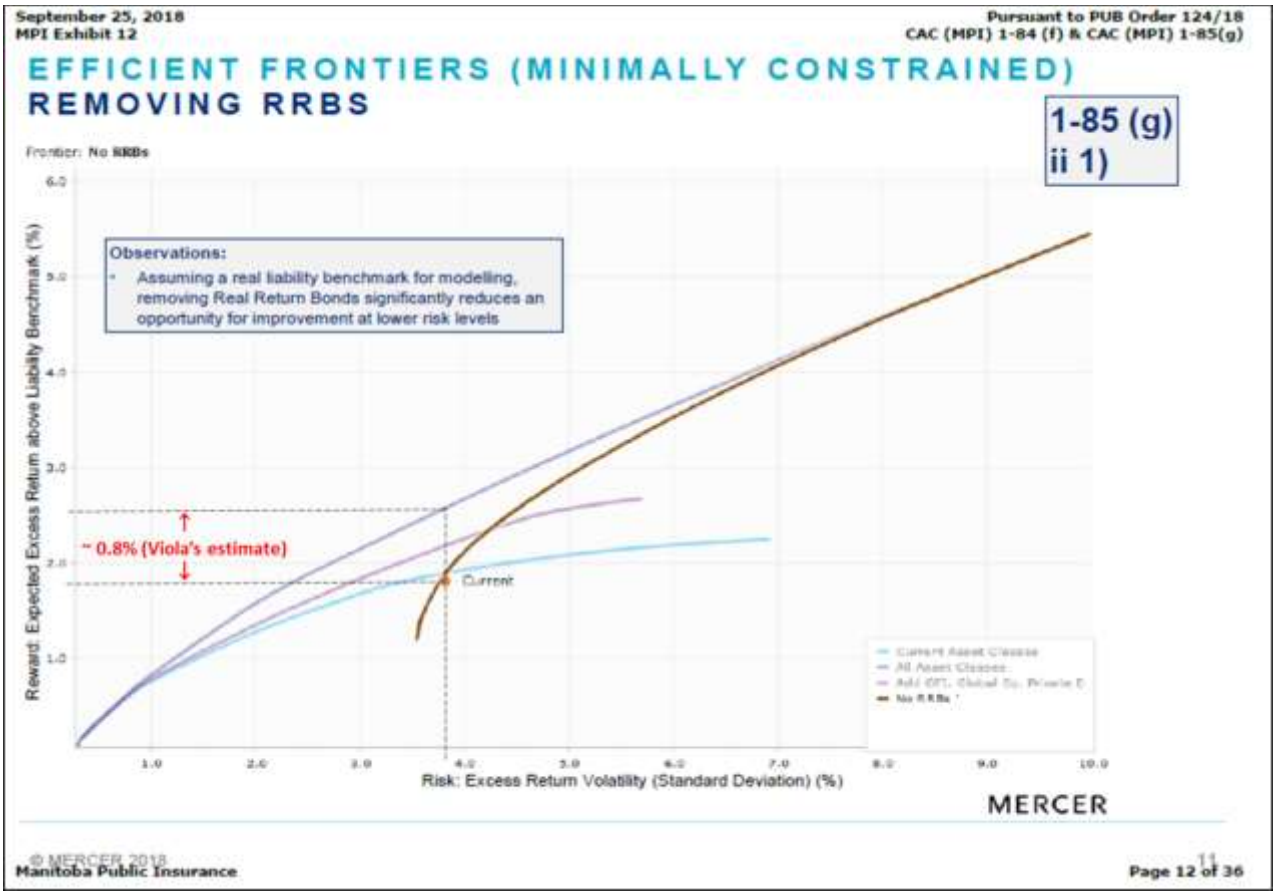
+45% "Gross" RRBs
- 30% Treasury Bills
+15% "3X RRBs"

[23] This is my estimate based on a visual inspection of the graph in MPI Exhibit 12 (page 12 of 36).

The effect of removing RRBs from the **Basic Portfolio** is illustrated by Mercer below.

Mercer did not report the impact on various statistics in this graph, so I estimated the impact from a visual inspection of the graph and concluded that **returns would be lower by ~ 0.8%**, measured at the "Current" risk level of 3.8%.

*Table 4. Removing RRBs in the **Basic** Portfolio*



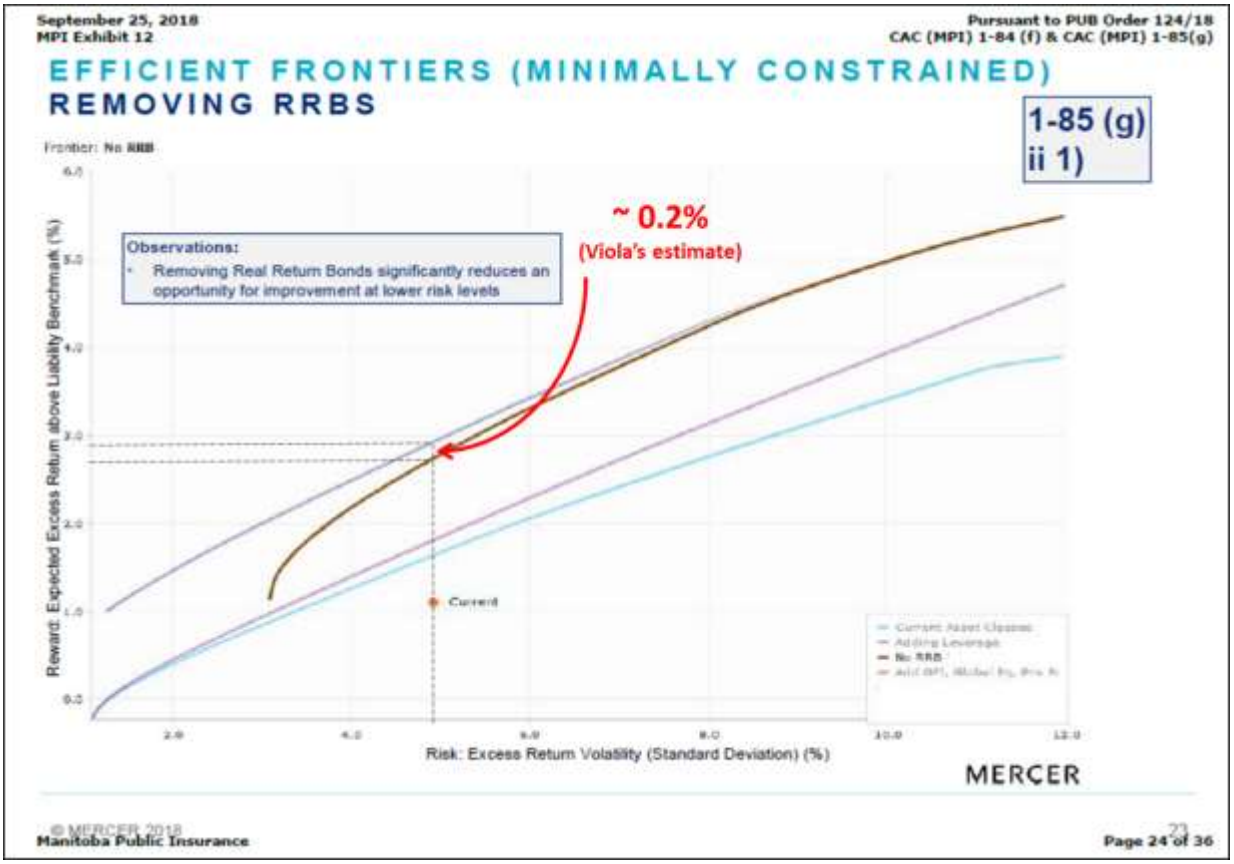
Mercer's Observations	Note
STEP 7. RESTRICTING PUBLIC EQUITIES (P 13 OF 36) 12. The unrestricted frontier (purple) contains higher allocations to Canadian equities at lower risk levels and higher allocations to Emerging Markets equities at higher risk levels 13. Restricting public equities based on the MPI recommended weights appears to slightly reduce the reward to risk trade-offs (the orange frontier is below the other lines) 14. The ACWI* weight restriction appears to further reduce the reward to risk trade-offs (green frontier is at the bottom) 15. Privates + ACWI* (0% fixed income) plots to the far right of the efficient frontier (iii) * All-Country World Index	**A table showing the quantitative impact at current risk levels was not reported by Mercer, and is hard to quantify from the graph alone**

FLIPPING THE STORY BOOK ON "PENSIONS"

The analysis so far has focused on the **Basic** Portfolio. A similar analysis is available for the **Pension** Portfolio[24]. While levels of risk in the Pension Portfolio are higher (4.9% currently) than those in the Basic Portfolio (3.8%), similar conclusions can be reached.

The graph below, for example, shows that **returns are lower by ~ 0.2% when RRBs are excluded from the Pension Portfolio** at the "current" risk level.

*Table 5. Removing RRBs in the **Pension** Portfolio*



The higher risk in the Pension Portfolio arises for two reasons. First, the asset allocations are different (e.g., the MPI-recommended Pension Portfolio has equities but the Basic Portfolio does not). Second, the Pension Liabilities have a longer duration than the Basic Liabilities (~ 16 vs. ~ 10 respectively).

[24] MPI Exhibit 12, pages 18 – 25 of 36

THE "REAL" STORY, COMPARED TO THE "NOMINAL" STORY

The main difference in asset allocations, measured at current risk levels, appears to be the mix within fixed income.

The big difference, of course, is that the MPI Recommended portfolio has no RRBs, while Exhibit 12 shows that an optimal portfolio would have at least 48.5% in RRBs **at the same level of risk** – and likely more than ½ of the portfolio in RRBs, given MPI's decision to reduce risk below the current level.

MPI'S LOWER RISK TOLERANCE

While the earlier analysis shows the impact of adding or removing different asset classes **at the same level of risk**, the table below looks briefly at **MPI's recommended portfolio**, which **purports**[25] to take less risk than the "Current" portfolio.

Portfolio		Asset Allocation	Return[26]	Impact
M	**M**PI-Proposed Basic Portfolio	100% Fixed Income	3.1%	↓ 0.8% vs. **C**urrent ↓ 1.8% vs. **R**eal
C	**C**urrent Portfolio	70% Fixed Income 15% Equities 15% Other Real Assets[27]	3.9%	
R	"Minimally Constrained" Portfolio[28] (using **R**eal Liability Benchmark)	70.0% Fixed Income 21.5% Equities[29] 8.5% Other Real Assets	4.9%	

[25] In my oral testimony two years ago, I described the concept of a "risky bucket" and a "risk-free" or "minimum risk" bucket. Simply put, I believe MPI has a "leak", or two, in its Liability Benchmark Portfolio (minimum risk bucket).
[26] The 3.1% and 3.9% figures are my calculations, using Mercer's capital market assumptions.
[27] Real estate and infrastructure
[28] MPI Exhibit 12, page 11 of 36
[29] Includes 6.5% private equity

PART II. RECOMMENDATIONS FROM TWO YEARS AGO

The table below shows my 18 recommendations from the GRA Process two years ago, and whether I believe they have been addressed, deferred, or remain ongoing concerns.

		Addressed	Deferred	Ongoing Concern
Framework	6. De-Linking Discount Rates	Mostly		
	7. Min/Max Asset Class Constraints	☑		
	8. Evolved Risk Framework		☒	
	9. Explicit Risk Management Goals		☒	
	5. Return/Risk Definitions for Asset Mix Decision	☑		
	10. Minimum Risk Portfolio	Partially		
Portfolio	14. Exclusion of Real Return Bonds			☒
	15. Effectiveness of Duration Policy			☒
	16. Integration of Real Estate/Infrastructure Liabilities in Duration Management	☑		
	11. Canadian Equities' 10% Minimum Allocation	☑		
	12. No International Equities	☑		
Metrics	1. Clarity of Accounting Choices			n/a
	2. Adoption of More Comparable Accounting Principles			n/a
	3. AFS and HTM Accounting			n/a
	4. Pension Liability Accounting	☑		
Oversight	17. Removal of 105% Rule in Investment Policies	☑		
	13. No Over-Reliance on Quantitative Modeling			☒
	18. Pension Fund	☑		

DE-LINKING DISCOUNT RATES (#6)

While the Liability Benchmark Portfolios break the recursive[30] link between liability valuations and the yield on some assets for asset allocation decision-making, a link may still exist that creates an incentive to concentrate risk within fixed income. That is why this issue is "mostly" addressed. If the yield on the bonds **owned** is used to value liabilities, there may be an incentive to take more risk in fixed income (e.g., inflation and credit risk, less liquidity) to reduce the valuation of liabilities (higher discount rate). This may result in less diversification, and lower risk-adjusted returns.

EVOLVED RISK FRAMEWORK (#8) AND EXPLICIT RISK MANAGEMENT GOALS (#9)

I understand that the development of an Enterprise Risk Management ("ERM") Framework is a key corporate priority in fiscal 2018/19, and that an ERM Framework will be filed in the next GRA. I assume that these issues will be addressed once this corporate goal is met.

MINIMUM RISK PORTFOLIO (#10)[31]

While minimum risk portfolios were clearly defined for each segment (e.g., Basic and Pensions), the final definitions used by MPI were based on **nominal** definitions rather than **real** ones, as discussed in Part I. Accordingly, this issue is only partially addressed.

EXCLUSION OF REAL RETURN BONDS (#14), EFFECTIVENESS OF DURATION POLICY (#15)

My ongoing concerns related to RRBs and duration policy are covered in Part I of this paper.

NO OVER-RELIANCE ON QUANTITATIVE MODELING (#13)

My ongoing concern related to a possible over-reliance on quantitative modeling is covered in Part I of this paper. On a qualitative basis, a case can be made that a fund with long-term, inflation-sensitive liabilities should invest some of its assets in similarly long duration, inflation-sensitive assets (i.e. have > 0% in RRBs, and hold more, rather than less, real estate and infrastructure – other things equal).

[30] A recursive link is like a circular reference in Excel, where cell "G4" equals "A1", and A1 is recursively set to equal G4 again. This circular reference is not a "hit" as far as Excel is concerned, and Excel will warn you that a formula refers to a cell dependent on its own cell value – and this could sink the analysis in your YouSunkMyBattleship.xls file. (Another way of saying this is that it's the classic chicken/egg problem in the field of poultry management.)
[31] The Minimum Risk Portfolio is called "Liability Benchmark Portfolio" in the GRA and Mercer Study.

ACCOUNTING METRICS (#1 TO 4)

Given the other changes made by MPI, and reflected in the Mercer Study, I have less concern about accounting metrics. For example, by addressing Recommendation #5 (using market, not accounting return/risk metrics in the Mercer Study), and partially addressing #10, my concern about accounting is less important – but not unimportant. Accounting may still be driving some investment decisions, as described above (de -linking discount rates).

APPENDICES

APPENDIX 1. CURRICULUM VITAE – VALTER VIOLA

Consultant with 25 years of institutional portfolio management, investment research, and risk management experience (mostly defined benefit pension plans)

- *Consultant to institutional investors, advising boards, investment committees and client staff on investment strategies, investment risk management, and governance (primarily North America)*
- *Former executive and senior management roles in portfolio management, risk management, investment research, and economics at two of the world's largest institutional investors*

PROFESSIONAL EXPERIENCE

Since 2016 **Cortex Applied Research**, Toronto

Managing Director and Principal

- Advise pension funds, foundations and other institutional investors on governance matters, including fiduciary education and search services for investment consultants/outsourced chief investment officers (OCIOs)

2014 – 2016 **MaPLE** Toronto, Santiago

Partner in a private energy and infrastructure venture in Chile

2005 – 2014 **Holland Park** Toronto

President, Founder

- Advised institutional investors on investment risk governance, management and measurement practices, including:
  - developing investment/risk frameworks;
  - drafting investment/risk management policies/ procedures; and
  - developing risk budgets to support the management of surplus (assets and liabilities) and active management (performance vs. benchmarks)
- Provided risk monitoring and reporting services to pension funds, including:
  - managing third party risk analytics and related data;
  - recommending and implementing methodologies; and
  - reporting to boards and executives about investment risks

2000 – 2005 **CPP Investment Board** Toronto

Vice President, Research and Risk Management

- First executive responsible for total portfolio research, design and investment risk management of the largest single purpose pool of capital in Canada
- Led a growing team of professionals, focused on the total portfolio, including:
  - investment risk management (relative to liabilities and benchmarks);
  - policy asset mix and currency hedging;
  - active management; and
  - other investment policies
- Collaborated with the CEO/CIO, VP Private Markets, and VP Public Markets in the development and implementation of investment strategies
- Collaborated with other executives to develop and implement strategies and business plans, policies and procedures, including leading the development of an investment/risk management framework that took into account the unique circumstances of the CPP and CPPIB (e.g. large unfunded liability, non-marketable bonds, large cash inflows)

1993 – 2000 **Ontario Teachers' Pension Plan** Toronto

Director, Portfolio Manager, Analyst (Research and Economics)

- Member of the Investment Planning Committee, with shared responsibilities to advise the CIO on the tactical management of the total portfolio (shorter-term horizon, broad asset class allocations and currency hedging)
- Supported strategic/policy and tactical asset mix/currency hedging and other total fund decisions through independent research, including:
  - developing the fund's first asset/liability model, which supported the fund's asset mix transition shortly after the fund's inception;
  - conducting research to support new asset class introductions; and
  - recommending appropriate benchmarks
- Managed the tactical asset allocation portfolio, a portfolio that had one of the largest value added targets for the fund
- Managed the inflation-linked bond portfolio, including closing the largest single investment in the fund's history ($650 million private placement of inflation-linked bonds to finance the 407 Electronic Toll Road)

1992 – 1993 **Wilfrid Laurier University and York University** Waterloo, Toronto

Lecturer in Investments, Finance and Accounting

1990 – 1992 **Corporate Planning Associates** Toronto

Financial Advisor

1986 – 1988 **Price Waterhouse** Toronto

Auditor

PENSION ASSOCIATIONS/COMMITTEES

2006 – 2009 **Healthcare of Ontario Pension Plan (HOOPP)**

External Advisor to Investment Committee

- Advised the Investment Committee of a large, Canadian defined benefit plan on matters related to the management of the total portfolio

2003 – 2005 **Pension Investment Association of Canada (PIAC)**

Member of Investment Practices Committee

- Shared non-proprietary investment practices with peers as a member of an industry association
- Led the publication of a paper ("Risk Budgeting") to meet the needs of member organizations

EDUCATION

1995 ***Chartered Financial Analyst***

1990 ***Master of Business Administration***, Western University

1989 ***Chartered Accountant***

1986 ***Bachelor of Commerce***, University of Toronto

APPENDIX 2. RELEVANT PRIOR EXPERIENCE

The author's relevant prior experience, as described in the author's evidence during the GRA Process two years ago, is shown below.

CPP Investment Board

I was the first executive officer responsible for research and risk management of CPP Investment Board ("CPPIB"), the largest single purpose pool of capital in Canada with assets under management of ~ $290 billion today. As VP, Research and Risk Management I reported to the CEO/Chief Investment Officer over a five year period and was the chief risk officer responsible for all aspects of investment risk management. Research responsibilities covered a broad range of investment issues, including long-term asset allocation, currency hedging and investment policies. As one of four investment executive officers, I was involved in investment strategy specifically and the management of the organization generally.

Ontario Teachers' Pension Plan

I held a variety of roles over a seven year career at Ontario Teachers' Pension Plan ("Teachers'"), the largest single-profession pension plan in Canada with ~ $170 billion of assets under management today. Teachers' is considered a global leader in pension/risk management.

As the first analyst in the Research and Economics Department, I developed Teachers' first Asset-Liability Model to support long-term asset allocation strategies (e.g., allocation between equities, bonds and other asset classes). As a Director of Research, my responsibilities included conducting research to support the introduction of new asset classes, currency hedging policies, as well as broad asset allocation decisions on both a strategic (policy/long-term) and tactical (active/short-term) basis.

As a member of Teachers' Investment Planning Committee, I participated in shorter-horizon (tactical/active) decisions regarding asset allocation and currency hedging. As the first Portfolio Manager of Teachers' Tactical Asset Allocation ("TAA") portfolio, I was responsible for managing one of the most "active" programs at Teachers'[2]. I was also the Portfolio Manager of the real return bond ("RRB") portfolio[3].

Pension Investment Association of Canada (PIAC)

I was also a member of the Investment Practices Committee of the Pension Investment Association of Canada ("PIAC").

No P&C Experience

I have not worked with property and casualty ("P&C") insurers, but I have been an advisor to workers' compensation funds in Canada and asset managers who manage assets for workers' compensation funds in both Canada and the United States.

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[2] Performance of the TAA portfolio exceeded value added targets and resulted in the maximum bonus multiplier allowed under Teachers' performance incentive system.

[3] As RRB portfolio manager, I was part of a team that greatly increased the size of Teachers' RRB portfolio. In the year that I left Teachers' to join CPPIB (2000), Teachers' increased its exposure from $8.6 billion to $20.6 billion.

Teaching, Applied Research and Education

I received the Chartered Accountant (CA) designation and taught accounting as well as finance/investments at Wilfrid Laurier University and York University respectively before starting my career in applied research and portfolio/risk management in the Research and Economics Department at Teachers', where I qualified as a Chartered Financial Analyst ("CFA").

I am an MBA graduate from the Richard Ivey School of Business (Western University) and graduated from the University of Toronto with distinction (BComm).

APPENDIX 3. CAC (MPI) 1-84(F)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-84 (f). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #13

> MPI should be vigilant about its potential over-reliance on quantitative considerations, given the high sensitivity of optimal asset allocations to seemingly small changes in capital market assumptions (returns, volatilities and correlations) and the large number of inputs.

Mercer's response:

> Mercer agrees that investors should not rely solely on quantitative modeling. The ALM process began with projections of the risk, return, and correlation of a variety of asset classes. **The ALM process concluded with a thorough discussion of practical considerations and observations regarding the current market environment.**

On page 1,654, Mercer said:

> While quantitative models can be instructive and useful, we very much agree that investors should never rely solely on quantitative modeling …

Capital Market Assumptions for the Liability Benchmark

Page 1,765 (INV Appendix 17, Attachment A) shows the assumptions related to the components of the liability benchmark, which CAC summarized below (Basic and Pension only).

Table 6. Components of Liability Benchmarks

	Components of Liability Benchmarks	Return	SD
1	Treasury Bills	1.50%	1.50%
2	Short-Term Provincial Bonds	2.40%	3.50%
3	Mid-Term Provincial Bonds	3.00%	6.50%
4	Long-Term Provincial Bonds	3.30%	8.50%
5	Long-Term Corporate Bonds	4.20%	8.50%
6	Real Return Bonds	3.00%	7.50%

Table 7. Correlations

Correlations	1	2	3	4	5	6
Treasury Bills	1.00					
Short-Term Provincial Bonds	0.31	1.00				
Mid-Term Provincial Bonds	0.02	0.87	1.00			
Long-Term Provincial Bonds	(0.14)	0.61	0.89	1.00		
Long-Term Corporate Bonds	(0.38)	0.14	0.51	0.69	1.00	
Real Return Bonds	(0.19)	0.39	0.65	0.70	0.62	1.00

The significant difference between the nominal and real bases are shown below for both Basic and Pension liabilities.

Table 8. Difference in Liability Benchmark Portfolios (Basic and Pension)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	**- 11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

The GRA included many efficient frontiers using the **Nominal** Liability Benchmark, showing for example, the effects of adding different asset classes one step at a time ("stepped approach") so the effects on return/risk could be seen. (Fewer such analyses were provided using the **Real** Liability Benchmark, and no "steps" were shown in the GRA on this basis.)

The table below shows how material the Liability Benchmark decision is on return/risk and asset allocation. (The supporting tables, A to C, are on the next two pages. They show the different implications reported by Mercer arising from the selection of a different Liability Benchmark – i.e., nominal vs. real).

Table 9. Materiality of Liability Benchmark Choice

Table	Content	Materiality of Liability Benchmark Choice
A	**Table A shows return/risk metrics** for a portfolio that has the same expected return as the current portfolio (~ 4.2%), but is more efficient than the current portfolio (i.e. less risk); **The asset allocations** are also shown	The main difference between the optimizations relates to the inclusion of **RRBs in the portfolio under the <u>real</u> optimization**; The total fixed income allocation is the same (~ 75%) under both real and nominal optimizations
B	**Table B shows the current portfolio's return/risk metrics**	n/a
C	**Table C shows the improved efficiency** (less risk, same return) of the optimized portfolio, compared to the current portfolio (i.e. C = A minus B)	**Surplus volatility falls more when the <u>real</u> liability proxy is used (1.1% risk reduction, rather than 0.4%)**

Table 10. Return/Risk Metrics and Asset Allocations

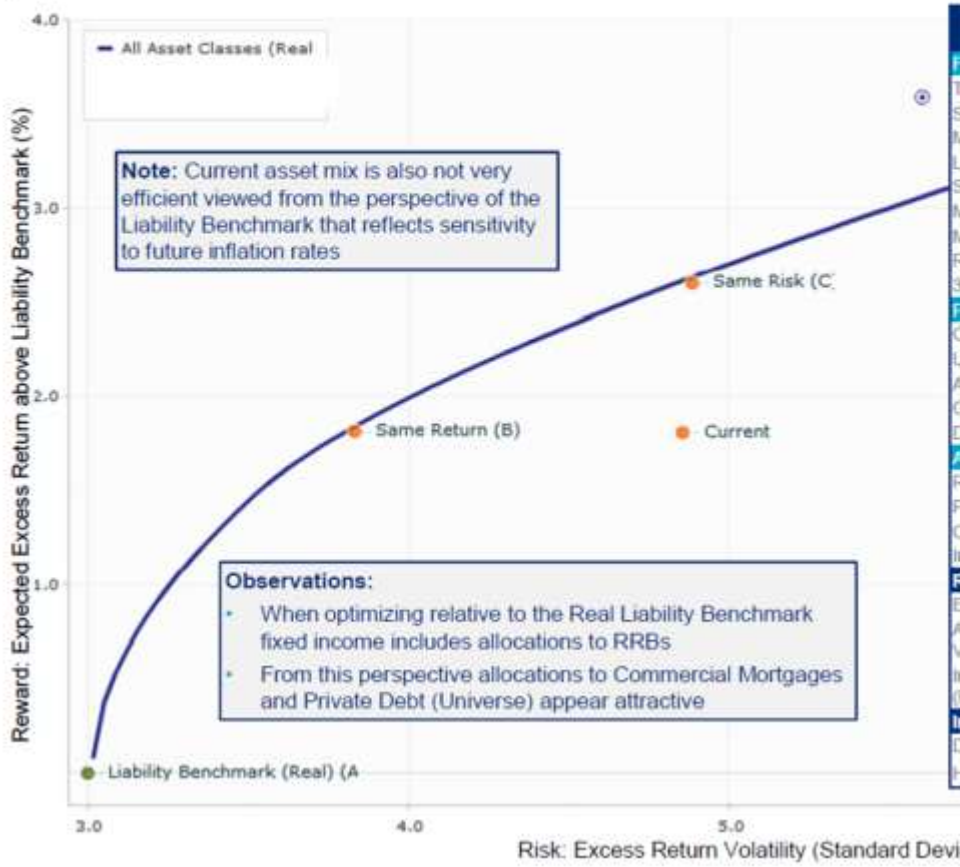
B	**Current Portfolio**	Real	Nominal	
	Expected 10-Year Return:			
	Portfolio	4.2	4.2	
	Liability Benchmark Portfolio	2.4	2.8	
	Excess Return	1.8	1.4	
	Anticipated Surplus Volatility	4.9	5.0	
	Excess Return/Anticipated Surplus Volatility	0.37	0.28	
	Information Ratio (Return/Risk)	0.37	0.27	
	Difference	- 0.00	0.01	
C	**Improved Efficiency (Same Return)**	Real	Nominal	C = A - B
	Expected 10-Year Return:			
	Portfolio	- -	0.1	No change in return (except rounding)
	Liability Benchmark Portfolio	-	-	
	Excess Return	- -	0.1	
	Anticipated Surplus Volatility	- **1.1**	- **0.4**	More measured risk reduction with Real Liability
	Excess Return/Anticipated Surplus Volatility	0.11	0.00	
	Information Ratio (Return/Risk)	0.11	0.03	
	Difference	- 0.00	- 0.03	

The source for the above data is on the following two pages.

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
REAL LIABILITY BENCHMARK



	Current	A. Real LB	B:Same Return	C. Same Risk
Fixed Income	70%	100%	59%	43%
Treasury Bills	--	26%	--	--
Short-term Bonds (Prov.)	6.5%	8%	27%	--
Mid-term Bonds (Prov.)	12%	--	--	--
Long-term Bonds (Prov.)	29.5%	--	--	--
Short-term Bonds (Corp.)	--	--	3%	15%
Mid-term Bonds (Corp.)	2%	--	--	--
MUSH Bonds	20%	--	10%	10%
Real Return Bonds	--	66%	--	--
3X Real Return Bonds	--	--	19%	18%
Public Equities	15%	0%	15%	26%
Canadian Equity	10%	--	4%	6%
U.S. Equity	5%	--	--	--
All-Country World Equity	--	--	4%	5%
Global Equity (low vol)	--	--	4%	7%
Diversified Growth Fund	--	--	3%	8%
Alternatives	15%	0%	26%	31%
Real Estate	10%	--	6%	8%
Private Debt - Universe	--	--	3%	13%
Commercial Mortgage	--	--	13%	3%
Infrastructure	5%	--	2%	7%
Risk/Return Metrics				
Expected 10-Year Return	4.2%	2.4%	4.2%	4.9%
Anticipated Surplus Volatility	4.9%	3.0%	3.8%	4.9%
Information Ratio (Return/Risk)	0.37	0.00	0.48	0.53
Interest Rate Metrics				
Duration	7.1	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	99%

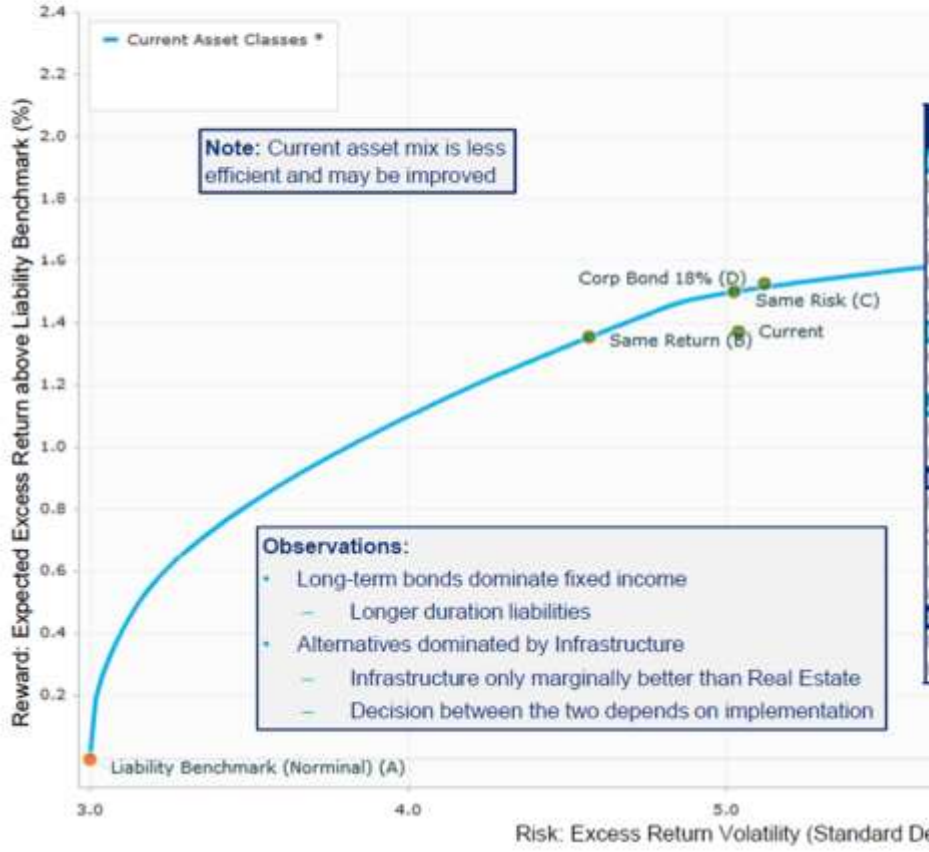
Table 11. "Real" Liability Benchmark (page 1,755)

"Real" Liability Benchmark (page 1,755)

June 15, 2018

2019 GENERAL RATE APPLICATION
INV Appendix 17
Attachment A

EFFICIENT FRONTIERS (MINIMALLY CONSTRAINED)
CURRENT ASSET CLASSES ONLY



	Current	A: LB	B. Same Return	C. Same Risk	C. Same Risk
Fixed Income	70%	100%	74%	74%	74%
Mid-term Bonds (Corp.)	2%	--	--	--	--
Long-term Bonds (Corp.)	--	--	--	15%	18%
Short-term Bonds (Prov.)	6.5%	28%	--	--	--
Mid-term Bonds (Prov.)	12%	18%	--	--	--
Long-term Bonds (Prov.)	29.5%	54%	60%	49%	46%
MUSH Bonds	20%	--	14%	10%	10%
Public Equities	15%	0%	13%	13%	13%
Canadian Equity	10%	--	2%	3%	3%
U.S. Equity	5%	--	11%	10%	10%
Alternatives	15%	0%	13%	13%	13%
Real Estate	10%	--	1%	0%	0%
Infrastructure	5%	--	12%	13%	13%
Risk/Return Metrics					
Expected 10-Year Return	4.2%	2.8%	4.1%	4.3%	4.3%
Anticipated Surplus Volatility	5.0%	3.0%	4.6%	5.0%	5.1%
Information Ratio (Return/Risk)	0.27	0.00	0.30	0.30	0.30
Interest Rate Metrics					
Duration	7.1	10.3	10.3	10.3	10.2
Hedge Ratio	69%	100%	100%	100%	99%

Table 12. "Nominal" Liability Benchmark

"Nominal" Liability Benchmark (page 1,749)

QUESTION 84 f): MORE DETAILED ANALYSIS FOR REAL SCENARIOS

More Detailed Analysis for Real Scenarios: Was the same "stepped" analysis that was performed using the **Nominal** Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the **Real** Liability Benchmark?

i. If so, provide the analysis and commentary (at least for Basic and Pensions).

If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions).

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to the assumptions (established in 2017 GRA), including assumptions related to the Liability Benchmark used to measure a key metric (surplus risk).

APPENDIX 4. CAC (MPI) 1-85 (G)

This appendix contains the preamble, prepared by me, and other information related to question CAC (MPI) 1-85 (g). (This question has been answered by MPI in MPI Exhibit 12.)

PREAMBLE TO IR (IF ANY):

Recommendation #7

> The minimum/maximum and other constraints imposed on the portfolio (e.g., when asset-liability studies are conducted) should be reviewed and relaxed, to avoid costly constraints (lower risk-adjusted returns). The rationale for imposing any such constraints should be made explicit.

Mercer's response (page 1,460):

> The ALM study had minimally constrained and practical implementation constraints.

Leverage Constraint

The Liability Benchmarks developed by Mercer included negative (short) exposures related to TBills in both the nominal and real representations of the Pension Liability (17% and 11% short respectively), as summarized by CAC on the right.

Table 13. Pension Liability Benchmark Portfolio (Real vs. Nominal)

	Pension Liability		
	Nominal	Real	Diff
Treasury Bills	- 17	- 11	6
Short-Term Provincial Bonds			-
Mid-Term Provincial Bonds			-
Long-Term Provincial Bonds		30	30
Long-Term Corporate Bonds	117		- 117
Real Return Bonds		81	81
	100	100	-

Benefits of Leverage

On page 1,753, Mercer said "adding leverage (Bond Overlay) provides an opportunity for improvement across risk spectrum".

On page 1,588, Mercer said this about overlay bonds:

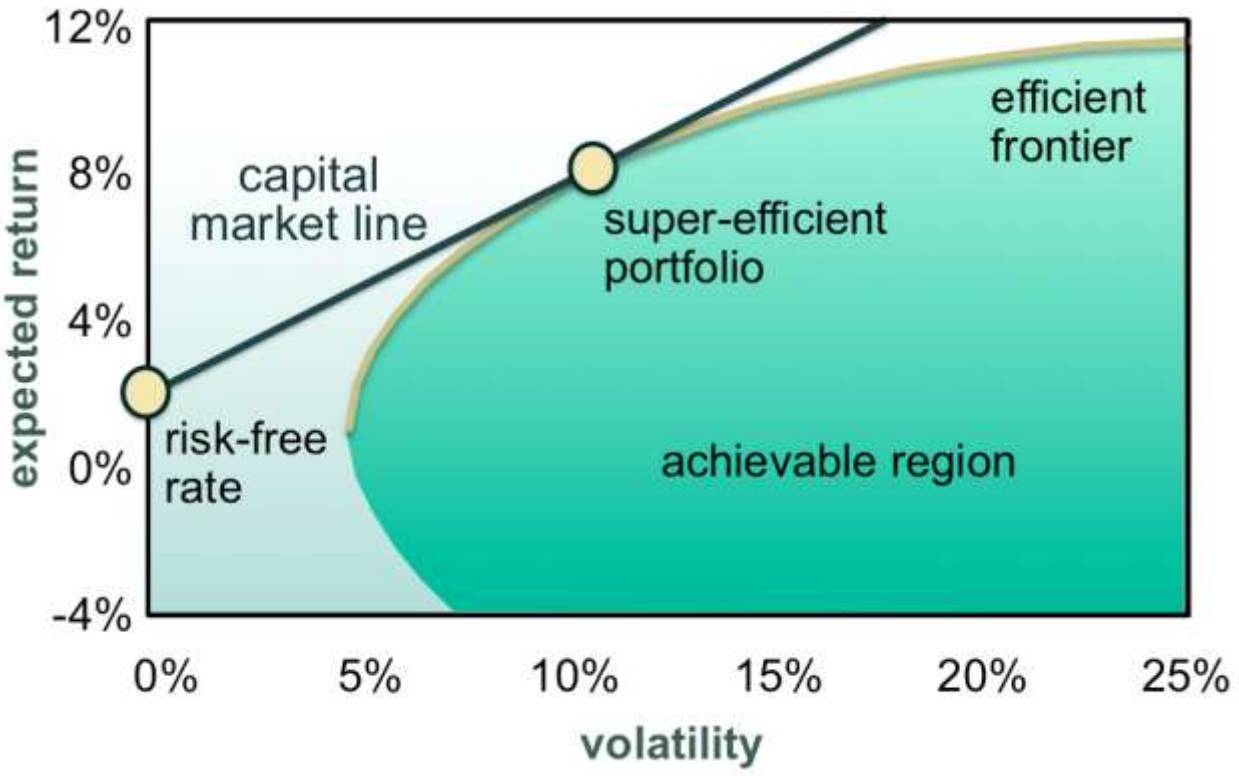
> By synthetically increasing exposure to bonds, investors can track liabilities in a capital efficient manner as market interest rates change.
>
> Since funding costs are currently lower than the yield-to-maturity on the underlying bonds, a long bond overlay strategy comes with a positive expected return. In addition, an RRB overlay strategy normally includes a return enhancer equal to the long term spread between federal and provincial bonds.

When all other assets are kept unchanged, adding a bond overlay strategy will typically increase the Plan's expected return.

Capital Market Line Theory

In an asset-only context (i.e. ignoring liabilities), the Capital Market Line illustrated below shows how the introduction of a risk-free asset (e.g. Government of Canada TBills in an asset-only context) expands the efficient frontier.

Figure 1. Capital Market Line



While many assumptions underlie the Capital Market Line in the broader CAPM[32] theory, two implications for "asset-only" investors are:

- All investors (regardless of risk tolerance) hold the "market portfolio"; and
- The proportion of an investor's portfolio held in the risk-free asset reflects their risk tolerance, with the balance invested in the market portfolio.

Exclusion of Leverage

On page 1,618, the rationale for excluding "Levered Bonds" was provided:

> Levered bonds allow investors to increase their exposure to longer duration securities via derivative contracts. Typically, investors pledge capital and pay a borrowing cost (typically short-term rates) and receive returns from a longer-term fixed income index (such as Long-Term Provincial Bonds or RRBs). …
>
> Levered bonds can provide capital efficient matching of desired duration or inflation exposures and are well suited for investors who are looking to match interest rate risk while maintaining healthy allocations to a growth portfolio.
>
> **Given MPI's preference to avoid equity exposure or additional types of risk within the Basic Portfolio, Levered Bonds are not included in the Policy recommendation. For the other Components, the desire is not to use leverage in the Portfolio.**

On page 1,719, Mercer's report said RRBs and leveraged bond funds (RRBs & Provincial bonds) were rejected from consideration because they were "either deemed too risky or the expected returns were too low".

[32] CAPM: Capital Asset Pricing Model

QUESTION 85 G): EFFICIENT FRONTIERS

Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (Real Liability Benchmark, not Nominal Liability Benchmark, and not TBills)?

i. The analysis should show the effects of allowable leverage **for fixed income assets only** (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:
    1) Set 0% maximum in RRBs
    2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) individual steps for:
        1) Canadian Equity
        2) Emerging Markets Equity
        3) Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:
        1) Real estate, infrastructure, and private equity using MPI's recommended weights
        2) Public equity in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI))

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension.

RATIONALE FOR QUESTION:

While MPI and/or Mercer have responded to CAC's 18 Recommendations, CAC respectfully disagrees that certain responses have been "completed in full", as suggested by MPI. Accordingly, CAC has clarifying/additional questions.

Model optimizations are very sensitive to constraints (established in 2017 GRA).

APPENDIX 5. LEVERAGE

This note describes financial leverage because the Mercer Study demonstrates its use by including an asset called "3X Real Return Bonds"[33], which represents a leverage factor of 3:1.

HOW IS LEVERAGE DEFINED?

Mercer defined this asset as "300% Real Return Bonds less 200% Treasury Bills and a 0.7% leverage cost". This "Levered RRB" portfolio is no different than a real estate portfolio that has borrowed money to finance more real property acquisitions. Real estate is typically shown "net of debt" (rather than "gross of bricks and mortar").

HOW DOES THE "3X" LEVER IMPACT RETURN/RISK?

Financial leverage works much the same way as a crowbar works in a physical context. Simply put, crowbars allow us to get a desired/better result with fewer resources (e.g., lift a heavy object).

The characteristics of Mercer's Levered RRBs are shown below, with leverage shown as a "short" T Bill (-200%) exposure, and the resulting net "longer" RRB exposure of +300%. On a net basis, Mercer calls this "3X RRBs" (+100% = 300% - 200%).

Using Mercer's return assumptions, the table shows how leverage "lifts" returns higher (almost 2%, from 2.7% to 4.6%). This return lift comes at a small leverage cost (0.7%). In other words, crowbars aren't free.

Table 14. "Levered RRBs" Portfolio

Asset Allocations	Composition	Median 10 Year Return	Duration
Treasury Bills	-200%	1.4%	0.1
RRBs	300%	2.7%	15.0
3X RRBs	100%	5.3%	**44.8**
Less Leverage Cost		-0.7%	
Total		4.6%	

For both the Basic Portfolio and Pension Portfolio, Mercer says:

> *"Adding leverage (3X Real Return Bonds) provides an opportunity for improvement across risk spectrum"[34].*

[33] Another portfolio, involving Provincial Bonds, was also considered.
[34] MPI Exhibit 12, pages 11 and 23 of 36

WHY PUT A CONSTRAINT ON LEVERAGE?

One motivation for prohibiting the use of leverage is to limit the potential losses from price movements. For example, stocks can double in price (100% gain), but they can't fall below $0 (negative 100%). As a result, selling a stock "short" (one we don't own) comes with a risk because we need to buy it back to close out the position, and the cost of doing so may rise substantially if its price rises enough.

Another form of leverage is simply to borrow funds and use the proceeds to buy more assets. A similar risk arises – the cost of your financing (short) could rise and/or the value of your (larger) assets could fall.

MOVING LEVERAGE DOWN THE BALANCE SHEET

If Mercer's model could speak for itself, it might agree with my description about asset "leverage" below, because the model focuses on "surplus" (assets and liabilities).

> "One asset's 'leverage' is another liability's 'hedge'."
> Valter Viola

While asset "leverage" increases the net duration of RRBs to ~ 45[35] (and may seem "high"), this is too narrow a view because the return/risk profile of asset classes should never be viewed in "isolation". We should always take a total portfolio perspective by consider all assets together, and we should also take into account both sides of the balance sheet (i.e., liabilities).

On the next page, we show how the leverage contemplated by Mercer could be re-classified on the balance sheet from RRBs to Bonds (top panel). (This re-grouping of T Bills from real to nominal bonds is better because T Bills are a "nominal" product.[36])

The bottom panel shows a third way of looking at asset "leverage", by moving the "short" T Bill (borrowing equivalent) to the other side of the balance sheet – with other liabilities – where it naturally belongs. This treatment is consistent with my recommendation two years ago (Recommendation #16) related to real estate borrowing, and recognizes that a short T Bill exposure is equivalent to "borrowing short-term (say < 90 day term to maturity)".

[35] This assumes a 15 duration for the RRB Index, and TBills at ~ 0.1. Using the "3X" factor, the leverage increases the net duration of RRBs from ~ 15 to ~ 45 (3X).
[36] T Bills don't provide inflation indexation per se, though given the short time to maturity, real purchasing power would typically be maintained on T Bills.

Table 15. Re-classifying "Leverage" from RRBs to Bonds

The table below shows how leverage could be re-classified to show a 45% exposure to RRBs (3 X 15%).[37]

Assets (A)	(1) Per Mercer	(2) Show Asset Leverage	(3) Re-classify TBill Leverage	(4) = (1) + (2) + (3) Assets (A)		
RRBs (Gross)	-	+30.0	-	RRBs (Gross)	45.0	← *45% RRBs*
T Bills	-	-30.0	+30.0			
RRBs (Net)	15.0	0.0	+30.0			
Bonds	53.0	-	-30.0	Bonds (Net)	23.0	← *23% Bonds*
Other Assets	32.0	-	-	Other Assets	32.0	
Total Assets	**100.0**	**0.0**	**0.0**	**Total Assets**	**100.0**	

The table below shows how **liabilities** are "**de-leveraged**" by including "3X RRBs". If T Bill and Basic Liability durations are ~ 0.1 and ~ 10.3 respectively, liability duration (including short T Bills) **falls** to 8.0 (from 10.3). In other words, asset leverage can reduce surplus risk. This way, "leverage" starts to sound less "risky".

Table 16. Re-classifying "Leverage" to the Liability Side of the Balance Sheet

	(4) From Above		(5) Show Liability De-Leverage	(6) = (4) + (5) Sub-Total	(7) = (6)/130% Express as % of 100	Duration	
	Assets (A)						
45% →	RRBs (Gross)	45.0	-	45.0	35.0		
23% →	Bonds (Net)	23.0	+30.0	53.0	41.0		
	Other Assets	32.0	-	32.0	24.0		
	Total Assets	**100.0**	**30.0**	**130.0**	**100.0**		
	Liabilities (L)						
	Basic Liabilities	100.0	-	100.0	77.0	~ 10.3	
	Short-term Borrowing	0.0	30.0	30.0	23.0	~ 0.1	
	Total Liabilities	**100.0**	**30.0**	**130.0**	**100.0**	**~ 8.0**	← *Lower Duration*

[37] MPI Exhibit 12, page 12 of 36

ATTACHMENTS

ATTACHMENT A. EVIDENCE FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT B. TESTIMONY FROM VALTER VIOLA (TWO YEARS AGO)

ATTACHMENT C. MPI EXHIBIT 12 (MERCER'S "REAL" EFFICIENT FRONTIER ANALYSIS)

REFERENCES

Gilbert, Charles (2016) *Asset Liability Management Techniques and Practices for Insurance Companies (IAA Risk Book, Chapter 13)*, paper produced and approved by the Insurance Regulation Committee of the IAA on 24 October 2016

Viola, Valter (2016) *MPI's Investment Portfolio: Risk, Return and Good Practices*, written evidence prepared for Consumers' Association of Canada, (Manitoba) Inc. and submitted by the Public Interest Law Centre on September 26, 2016

Viola, Valter (2016) *Testimony*, presentation slides of testimony prepared for Consumers' Association of Canada, (Manitoba) Inc. and presented by Valter Viola two years ago

Public Utilities Board (PUB)

2019 GRA Information Requests on Intervener Evidence

October 5, 2018

PUB (CAC) 1-5

Revision to PUB (CAC) 1-5: The graph showing the return reduction from not introducing RRBs in the Pension Portfolio has been updated, along with the calculation, to show that the effect is **~ 0.2%** (not **~ 1.8%** as reported). (1.8% represents the difference in return between the optimized portfolio (including RRBs) and current portfolio (rather than optimized portfolio excluding RRBs).)

Document:	MPI'S Investment Portfolio: Asset / Liability Analysis and Previous Recommendations	**Page No.:**	9, 21
PUB Approved Issue No.:	8. Performance of the Investment Portfolio 21. Asset Liability Management Study		
Topic:	Asset Mix		
Sub-Topic:			

Preamble to IR (If Any):

Mr. Viola has provided an estimate of the impact of removing Real Return Bonds (RRBs) from the portfolio, to demonstrate Mercer's observation that their absence removes an opportunity for improvement at lower levels of risk.

Question:

Please explain the estimates provided of the impact of removing Real Return Bonds on returns of the portfolio.

Rationale for Question:

To understand the implications of excluding RRBs from MPI's Basic and Pension portfolios.

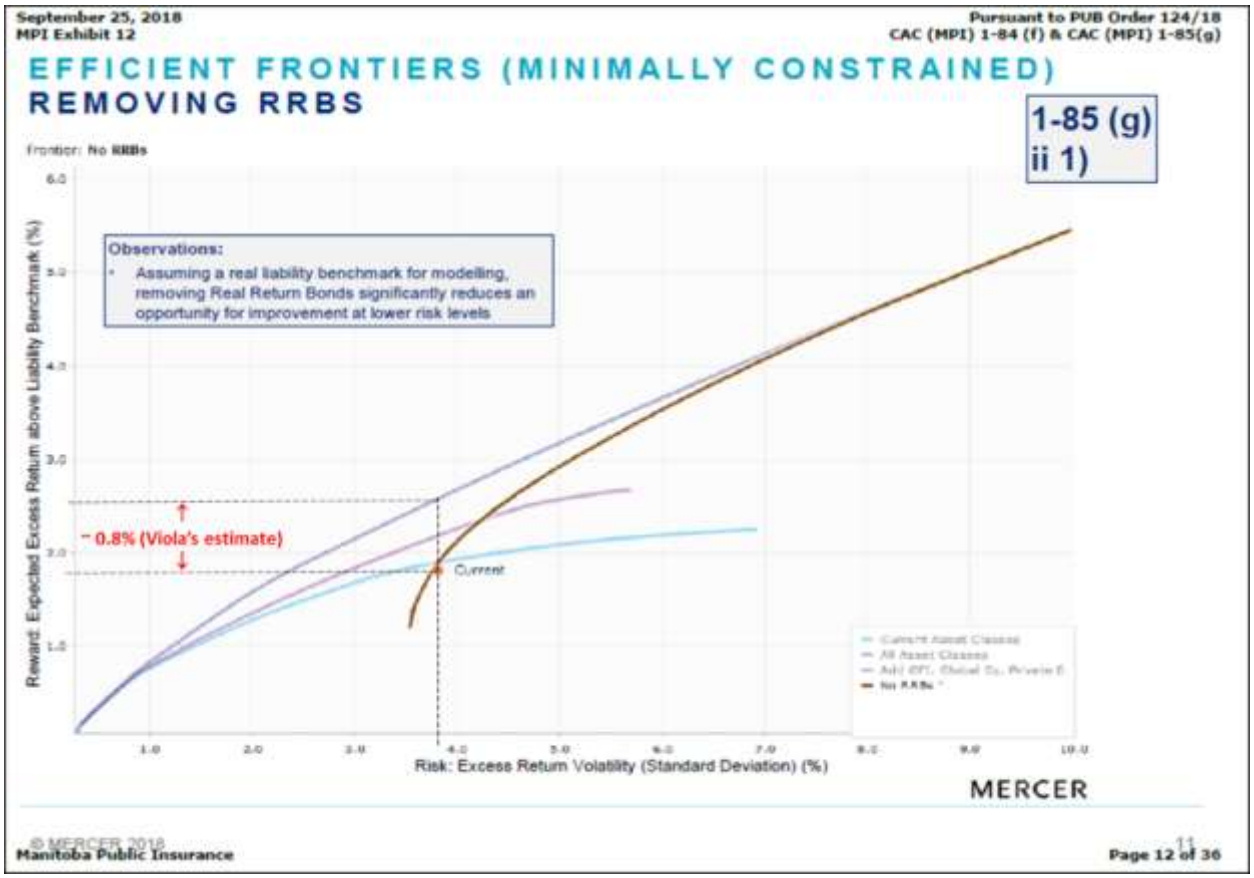
RESPONSE:

Mercer's "observations" in MPI Exhibit 12 indicate that "removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels."[1]

[1] MPI Exhibit 12, page 12 of 36

0.8% Return Reduction in Basic Portfolio

The 0.8% adverse impact of removing RRBs from the **Basic** Portfolio is inferred from Mercer's analysis in MPI Exhibit 12, page 12 of 36 (below).



At "current" risks levels (vertically at x = Risk = 3.8%), Mercer's efficient frontier suggests that the expected excess return above the Liability Benchmark drops by ~ 0.8%, from a visual inspection of the graph. In other words, the upper efficient frontier is the most efficient, while the one labelled "No RRBs" excludes RRBs. The vertical distance between those two graphs (measured at the current risk level of 3.8%) measures the cost of removing RRBs (lower "excess return above Liability Benchmark"). Mercer did not include a "table" of statistics for returns in the above graph, so the vertical difference or cost of the constraint appears to be ~ 0.8% as the difference calculated below.

~ 2.6% "Excess return", **including** RRBs (X = top dotted horizontal line)

~ 1.8% "Excess return", **excluding** RRBs (Y= bottom dotted horizontal line)

~ 0.8% Cost **excluding** RRBs (X – Y = vertical distance, at 3.8% risk)

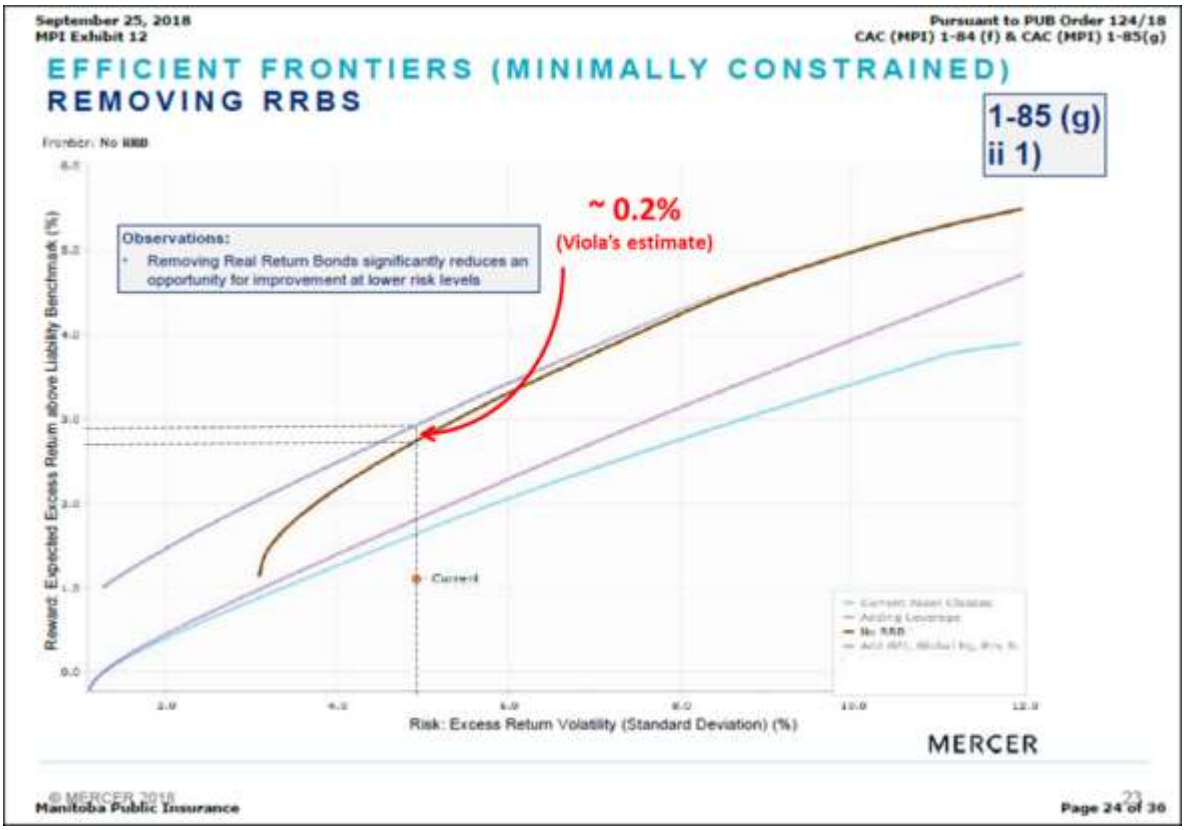
0.2% Return Reduction in Pension Portfolio

Similarly, for the **Pension** Portfolio, the return reduction appears to be ~ 0.2% from a visual inspection of the graph below (page 24 of 36 in MPI Exhibit 12).

~ 2.9% "Excess return", **including** RRBs (X = top dotted horizontal line)

~ 2.7% "Excess return", **excluding** RRBs (Y= bottom dotted horizontal line)

~ 0.2% Cost **excluding** RRBs (X – Y = vertical distance, at 4.9% risk)



Opening Statement of the Public Interest Law Centre on behalf of the Consumers Association of Canada (Manitoba Branch)

2019/20 MPI GRA
October 15, 2018

CAC Manitoba

- Over two decades of rate hearings
- Core Consumer Rights
  - To be informed
  - To choose (or be involved in the regulatory process as a proxy for choice)
  - To have a voice in marketplace decision-making
  - To consumer education

Consumers' Association of Canada
Association des consommateurs du Canada
Manitoba

Developing the CAC Manitoba Position

- Day to day consumer contact
- Consumer Engagement
- CAC Manitoba Board
- Advice from expert advisors

Experts who are highly qualified and independent

- It is your duty to provide evidence that:
  - Is fair, objective and non-partisan;
  - Is related only to matters that are within your area of expertise; and
  - Your duty in providing assistance and giving evidence is to help the Public Utilities Board. This duty overrides any obligation to the Manitoba Branch of the Consumers' Association of Canada.

The Test

- Just and reasonable rates

[Public Utilities Board Act, s 77] [Crown Corporations Governance and Accountability Act,s 25]

- *The burden of proof to show that any such increases, changes, or alterations are just and reasonable is upon the owner seeking to make the increases, changes or alterations*

[Public Utilities Board Act, s 84(2)]

Setting Just and Reasonable Rates

- Ensuring that forecasts are reasonably reliable
- Ensuring that actual and projected costs incurred are necessary and prudent (justified)
- Assessing the reasonable revenue needs of an applicant in the context of its overall general health (including necessary reserves, if any)
- Determining an appropriate allocation of costs between classes (and between drivers and vehicle owners)
- Setting just and reasonable rates in accordance with statutory objectives

[PUB Order 98/14, p.28]

Ensuring that forecasts are reasonably reliable

Are Interest Rate Forecasts Reasonably Reliable?

Given that interest rates have begun to rise in recent months, the Board does not accept that the naïve forecast should be relied on for rate-setting purposes.

The only expert testimony before the Board on interest rate forecasting was from CAC Manitoba's expert, Dr. Simpson. The Board accepts the evidence of Dr. Simpson that the 50/50 interest rate forecast is the appropriate approach for rate-setting and target capital purposes at this time.

[Order 130/17, s.6.8]

Are Interest Rate Forecasts Reasonably Reliable?

- Does the selection of a naïve forecast unreasonably inflate the revenue requirement?
- Has MPI presented new evidence sufficient to disturb prior findings by the PUB rejecting the use of naïve forecast of interest rates?
- Alternatively, have events over the past years simply reinforced the unsuitability of naïve interest rate forecasts for future looking rate setting and DCAT modelling purposes?

What are the implications of central reserving on forecasts of Personal Injury Protection Plan [PIPP] claims?

Necessary and Justified [prudent] management

Necessary and Justified Managements of the Investment Fund

- *Ultimate responsibility for the Fund rests with MPI*

[Order 130/17, s.6.8, p.67]

- Has MPI assumed undue risk with its basic insurance investment portfolio while foregoing significant opportunities?
- In optimizing its basic portfolio, has MPI justified its decision to assume away real interest rate risk and focus on nominal interest rate risk?

The Investment Fund – a Hockey Analogy

A Team: Great forwards and a great goalie

B Team: A lousy goalie and good defencemen

Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels

[MPI Exhibit 12]

Challenges in Addressing Complex, Long Term Personal Injury Files

- In terms of complex, long term Personal Injury Protection Plan (PIPP) claims, what were the factors that led to existing guidelines “not being followed post-B13 implementation”?

[CAC (MPI) 1-37]

- What, if any, institutional challenges occurred in diagnosing the failure to follow existing guidelines or in implementing the Centralized Reserving team remedy on a timely basis?

Significant Write-offs of Information Technology Investments

What are the factors leading to the closing down of the Customer Claims Report Systems (CCRS) and to significant write-offs of information technology investments related to CCRS (in excess of $15 M) and High School Driver Education Phase 2 (in excess of $2 M)? (PUB 1-63)

A Negative Business Case for the Physical Damage Re-Engineering Project

- What are the explanations for the fundamental shift in the assessment of the Net Present Value (NPV) of the Physical Damage Re-Engineering project (PDR) from positive ($13 M) to materially negative?
- What was the role of external evaluators such as Gartner Group in evaluating the PDR and what, if any, lessons have been learned about the limits of the reliability of these evaluations?
- Has MPI demonstrated through external bench marking that its information business process are reasonably mature?

A Flawed Light Vehicle Accreditation Agreement

A key flaw in the $81 premium is that MPI is required to pay it on all jobs performed by a DR repair shop, not just DR jobs. Paying a premium for the roughly 80% of non-DR jobs creates a direct mismatch in costs and benefits, when no efficiencies are created.

[PUB 1-37]

A Flawed Light Vehicle Accreditation Agreement

- Can payments to the repair industry of the $81 premium in the period between 2017 and 2019 be considered prudent and reasonable?
- To the extent that these expenditures are imprudent and unreasonable, what is the magnitude of these payments?

How do information technology staffing levels compare to benchmarks?

Has MPI demonstrated through external bench marking that information technology staffing levels (overall as well as consultants) are reasonably consistent with industry norms or do they appear to be unreasonably high?

Acknowledging Risks to Ratepayers from Legacy Information Technology Projects

Given:

the potential magnitude of future investments in Legacy systems such as CARS and AOL; and

demonstrated challenges of the Corporation in managing the PDR project and delivering net positive value to ratepayers;

how, if at all, does MPI intend to update the PUB regarding its investment decisions outside the formal rate hearing process?

Exploring the Supporting Evidence for the High School Driver Education business case?

- Does the value management business cases associated with High School Driver Education reasonably assess the veracity and strength of the available evidence that the training program is likely to reduce teen driver crashes?
- Or should caution be taken in interpreting the results of the cost-benefit analysis?

Overall Health of the Corporation – Including Risk

Has MCT become the dominant driver of the Rate Stabilization Reserve (RSR) Level?

- Does the Capital Maintenance Provision (CMP) proposed by MPI effectively reintroduce the previously rejected Minimum Capital Test (MCT) as the dominant tool for determining the actual level of the Rate Stabilization Reserve?
- Has MPI offered any new evidence to suggest that the rejected MCT is appropriate for determining the actual level of a Rate Stabilization Reserve for a regulatory Crown monopoly that does not face the type of insolvency risk of a private company in a competitive marketplace?

Does the MCT serve to cushion poor management decisions?

- Does the MCT analysis by incorporating a significant cushion for operational risk effectively incorporate protection for poor management that is inconsistent with the stated purpose of the RSR?
- In the context of the current rate application, does the CMP cushion serve to shield MPI from accountability for unreasonable or imprudent management choices?

Has the hypothesis of ever increasing risk for the corporation been demonstrated?

Has the overall risk for basic program ratepayers been reduced as suggested by the most recent Dynamic Capital Adequacy testing results?

Does the term “consensus” exclude the consumer perspective

- For technical conference purposes, does the word “consensus” imply only a meeting of minds between MPI and PUB advisors or does “consensus” envision the intervener perspective?
- If the PUB intend the term “consensus” to include MPI, Board Advisors and interveners, why does MPI persist in maintaining that a “consensus” flowed from CMP deliberations?

Has MPI introduced a flawed measure of risk to its Asset Liability Matching analysis?

Does the proposed RSR range comply with PUB direction?

- Are the lower and upper bounds of the RSR target range consistent with PUB directions from the last General Rate Application?
- To the extent that the proposed RSR target range diverges from the PUB directions, has MPI met its onus of demonstrating the case for non-compliance?

An appropriate allocation of costs between classes (and between drivers and vehicle owners)

What are the next steps for Driver Safety Rating?

What are the Corporation's plans for consumer and stakeholder dialogue and engagement?

Setting just and reasonable rates in accordance with statutory objectives

Has MPI unreasonably overstated its revenue requirement?

- Does the MPI application unreasonably inflate the revenue requirement by relying upon a naïve interest rate forecast?
- Does the MPI application unreasonably inflate the revenue requirement by relying upon a capital maintenance provision?

Other Key Themes

- Reconciling transparency and improved disclosure of information
- Good Practice Consumer and Stakeholder Engagement in the Rate Setting Process

Thank you

BANK OF CANADA
BANQUE DU CANADA

FOR IMMEDIATE RELEASE
July 11, 2018

CONTACT: Media Relations
613 782-8782

Bank of Canada raises overnight rate target to 1 ½ per cent

OTTAWA – The Bank of Canada today increased its target for the overnight rate to 1 ½ per cent. The Bank Rate is correspondingly 1 ¾ per cent and the deposit rate is 1 ¼ per cent.

The Bank expects the global economy to grow by about 3 ¾ per cent in 2018 and 3 ½ per cent in 2019, in line with the April *Monetary Policy Report* (MPR). The US economy is proving stronger than expected, reinforcing market expectations of higher policy rates and pushing up the US dollar. This is contributing to financial stresses in some emerging market economies. Meanwhile, oil prices have risen. Yet, the Canadian dollar is lower, reflecting broad-based US dollar strength and concerns about trade actions. The possibility of more trade protectionism is the most important threat to global prospects.

Canada's economy continues to operate close to its capacity and the composition of growth is shifting. Temporary factors are causing volatility in quarterly growth rates: the Bank projects a pick-up to 2.8 per cent in the second quarter and a moderation to 1.5 per cent in the third. Household spending is being dampened by higher interest rates and tighter mortgage lending guidelines. Recent data suggest housing markets are beginning to stabilize following a weak start to 2018. Meanwhile, exports are being buoyed by strong global demand and higher commodity prices. Business investment is growing in response to solid demand growth and capacity pressures, although trade tensions are weighing on investment in some sectors. Overall, the Bank still expects average growth of close to 2 per cent over 2018-2020.

CPI and the Bank's core measures of inflation remain near 2 per cent, consistent with an economy operating close to capacity. CPI inflation is expected to edge up further to about 2.5 per cent before settling back to 2 per cent by the second half of 2019. The Bank estimates that underlying wage growth is running at about 2.3 per cent, slower than would be expected in a labour market with no slack.

As in April, the projection incorporates an estimate of the impact of trade uncertainty on Canadian investment and exports. This effect is now judged to be larger, given mounting trade tensions. The July projection also incorporates the estimated impact of tariffs on steel and aluminum recently imposed by the United States, as well as the countermeasures enacted by Canada. Although there will be difficult adjustments for some industries and their workers, the effect of these measures on Canadian growth and inflation is expected to be modest.

Governing Council expects that higher interest rates will be warranted to keep inflation near target and will continue to take a gradual approach, guided by incoming data. In particular, the Bank is monitoring the economy's adjustment to higher interest rates and the evolution of capacity and wage pressures, as well as the response of companies and consumers to trade actions.

Information note:

The next scheduled date for announcing the overnight rate target is September 5, 2018. The next full update of the Bank's outlook for the economy and inflation, including risks to the projection, will be published in the MPR on October 24, 2018.

Interest Rate Forecast Issues

October 2016

Dr. Sean Cleary, CFA
Bank of Montreal Professor of Finance
Smith School of Business
Queen's University

Why a 50/50 Approach as a "Best Estimate"?

- Recall:
  - SIRF: avg. error -1.72% / avg. % error -92.9%
  - Naïve: avg. error -0.73% / avg. % error -39.5%
  - 50/50: avg. error – 1.22% / avg. % error -66.2%
- So why not Naïve?
  - Rates are likely to increase at some point in the future – it is the magnitude and timing that is difficult to predict; although a decline can never be ruled out (just look at the recent evidence)
  - 50/50 weight minimizes the chance of being "way off" in terms of what future rates turn out to be – essentially establishing forecasts as one limit (upper limit today) and existing rates as other limit (bottom limit today) – and then choosing the mid-point of this range as the most likely.
- Given the issues with both SIRF or Naïve in predicting the future, a 50/50 approach should minimize forecasting error

Conclusions

- Over the last eight years, the standard interest rate forecasts (SIRF) have exceeded actual 10-year Canada yields by a wide margin – 1.7% on average, representing a forecasting error percentage of -93% of the actual yields – **almost double the actuals.**
- This presents a **real risk** whenever such forecasts are relied upon.
- While not fully addressing forecasting risk, naïve forecasts using existing 10-year Canada yields would have improved forecasting accuracy significantly, reducing percentage forecast error by close to 60%.
- I recommend that the existing level of 10-year yields be used as one limit and the SIRF be used as the other limit, and that a 50/50 approach be used to obtain the "best estimate."

MPI 2019 GRA – CAC Exhibit #16

Excerpts from PUB Board Orders

INDEX

TAB

1 Order 128/15
- Section 4.4 – 4.7

2 Order 162/16
- Section 4.4 – 4.7

3 Order 130/7
- Section 6.5 – 6.8

TAB 1

MANITOBA	)	
	)	
THE PUBLIC UTILITIES BOARD ACT	)	Order 128/15
	)	
THE MANITOBA PUBLIC INSURANCE ACT	)	
	)	December 1, 2015
THE CROWN CORPORATIONS PUBLIC REVIEW AND ACCOUNTABILITY ACT	)	

Before: Régis Gosselin, B ès Arts, M.B.A., C.P.A., C.G.A, Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair, Acting Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Susan Proven, P.H.Ec., Member
Allan Morin, B.A., ICD.D., Member

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2016/2017 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

is forecast at about $12.9 million annually. The low level of investment income is negatively impacted by the ($75.9) million in average losses on the marketable bond portfolio due to the rising interest rates being forecasted. If total losses on marketable bonds from the rising interest rates forecast were excluded, Basic would realize, on average, $88.8 million over this time period ($85.3 million in 2016/17 and $92.1 million in 2017/18). The subject of interest rate risk to the Corporation and to Basic is addressed in the following section.

4.4 Interest Rate Risk

Last year, at the request of MPI, PricewaterhouseCoopers (PWC) reviewed the issue of interest rate risk to the Corporation. PWC defined interest rate risk as follows:

> Interest rate risk represents the risk of economic loss resulting from market changes in interest rates and the impact on interest rate sensitive assets and liabilities. Interest rate risk arises due to the volatility and uncertainty of future interest rates.

The Corporation acknowledged that historically, small changes in interest rates have had a significant impact upon investment income. Within MPI's investment portfolio, due to its weighting to long-term bonds, some of which are marketable, investment returns are impacted materially by changes in interest rates. In particular, if interest rates increase, marketable bond values fall, as do the discounted value of the claim liabilities. If interest rates decrease, bond values and claims liabilities increase. The effect of these changes can, to a large extent, offset each other if managed appropriately so that the net impact on financial results is neutralized. For example, if there is a mismatch between the duration of claims liabilities and supporting investment assets, as was the case historically, the net effect can mean increased gains or losses relative to a neutral situation, including a negative impact on net income. The same is true if there is a mismatch between the underlying forecasted cash flows (claims liabilities vs. supporting investment assets), even if the durations are matched.

If interest rates decrease relative to the forecast used to support a rate application, mismatching of durations will have an adverse effect if claims liabilities are longer in

duration than the supporting investment assets, as was the case last year. When the increase in the value of the bonds is less than the increase in the value of claims liabilities, financial results will be worse than anticipated and, as a consequence, could lead to a need for increased Basic insurance rates.

MPI models changes in the fair market value of its marketable bonds and the changes to bond values flow through Basic's net income because those assets are categorized as Fair Value Through Profit and Loss. Basic's operating results have been very sensitive to interest rate changes, including the timing and the amount of the interest rate changes. Because it is difficult to predict the amount and timing of assumed interest rate changes, Basic net income has been very difficult to forecast accurately.

MPI managed interest rate risk last year pursuant to a +/- 1 year duration match, and this year, based on the recommendation of AON Hewitt (AON), implemented full duration matching and has included that assumption in the forecasts in the Application. Duration matching of investments and claims liabilities does not mean that net income is fully immunized against interest rate changes, since only average durations are being matched, not the cash flows underlying those durations. Matching cash flows is a more complex and a more effective alternative in order to immunize net income, but there are practical limitations to cash flow matching, and adverse consequences for investment returns.

The effectiveness of duration matching for the Corporation is also complicated by the fact that its investment portfolio is managed for the Corporation as a whole, rather than Basic's portfolio being separately managed. Further, over 37% of the fixed income portfolio supporting the claims liabilities is invested in non-marketable (i.e. MUSH) bonds, which are not interest rate sensitive (their value does not fluctuate with changes in interest rates).

MPI has stated in the past that the longer the duration mismatch (with assets shorter term than liabilities), the more favourable the results for the Corporation if interest rates rise (the drop in value of the assets is less than the decrease in liabilities). Moving to full duration

matching has lowered the impact upon net income of changes in interest rates but has not eliminated the impact.

Last year PWC, in reviewing the practices of Property and Casualty insurance companies in managing interest rate risk, found that cash flow matching is the predominant methodology employed among its sample group. The majority of companies/branches sampled matched their assets to the claims liabilities to minimize interest rate risk.

The Board stated in Order 151/13, on p. 32:

> It is the view of the Board that the Corporation's current approach to duration mismatching makes it too vulnerable to interest rate risk. The Board believes that the Corporation should match exposures, including cash flow, beyond duration matching on a go-forward basis. The Board directs MPI to submit a discussion paper of the duration matching of its claims liabilities and investments as part of the next GRA.

Last year, MPI provided a Duration Matching Discussion Paper in which it evaluated the interest rate risk faced by MPI. MPI found that the interest rate risk to the Corporation was more significant with a larger duration bandwidth and changed the duration gap from +/- 2 years to +/- 1 year on or about August 31, 2014. MPI characterized this change as a stopgap measure pending the completion of the ALM Study underway at the time, which was to address the merits of cash flow matching within the Corporation.

The Board in Order 135/14, on page 43, stated that:

> MPI should seek to substantially immunize itself from the impact of changing interest rates....
>
> The Board also notes that if the Corporation's interest rate risk is eliminated or substantially mitigated, there will be an impact upon the Combined

> Scenario in the Dynamic Capital Adequacy Testing (DCAT) report such that required rate reserve levels could be decreased....
>
> Once the ALM Study is completed MPI must take steps to substantially mitigate interest rate risk, and the Board directs MPI to provide, at next year's GRA, the details of the steps that MPI has taken to do so.

The second aspect of the ALM study filed in the Application, as referenced above, related to duration matching. AON recommended full duration matching along with a change in the composition of the investment portfolio rather than cash flow matching or a hybrid matching approach, due in part to reduced investment returns from the alternatives relative to the interest rate risk protection afforded. As a result of the ALM study, and to better mitigate interest rate risk, the Corporation's duration matching strategy was changed such that the duration of the fixed income portfolio will match the claims liabilities duration including all actuarial provisions.

The Corporation has stated that full matching of the duration of the fixed income portfolio and claims liabilities does not completely eliminate all interest rate risk. In the Application, the Corporation states that the net interest rate impact was $18.1 million on average over the rating years, compared to $24.0 million using last year's assumptions; a $5.9 million difference.

The Corporation stated also that the combined impact of the change to the duration matching strategy and the new asset allocation on Basic net income over the rating years was relatively small. In particular, the forecasted Basic net income in the Application was $1.2 million lower on average in the rating years compared to last year's duration and asset allocation assumptions.

4.5 Investment Income Forecasting

At the 2014 GRA, the Corporation proposed a new methodology by which to forecast its investment income, which measured the impact of interest rate changes on investment income and claims liabilities, whereas the methodology employed by the Corporation previously did not do so. In addition, the methodology proposed by the Corporation at the 2014 GRA utilized a five-year interest rate growth forecast from the five major Banks and Global Insight but stretched that forecast growth over ten years, effectively halving the growth rate (Low Growth Rate Forecasting Methodology).

At the 2014 GRA, the Board concluded that there should be more discussion and analysis with respect to interest rate forecasting and pursuant to Order 151/13 ordered that a technical conference take place for that purpose. After learning that the Corporation would attend a technical conference but would not bring forward expert evidence, the Board varied Order 151/13, withdrew the requirement of a technical conference and ordered that at the 2015 GRA the following evidence be filed:

- the particulars of the interest rate forecasting methodology preferred by MPI and relied upon in the Application;
- the particulars of the research, review and analysis conducted by MPI in ascertaining the details of its preferred interest rate forecasting methodology; and
- expert evidence regarding a reasonable and appropriate interest rate forecasting methodology to be used by MPI.

The Corporation has acknowledged that it does not have expertise in interest rate forecasting but stated that it has an in-depth understanding of the interest rate risks which it faces. The Corporation acknowledges that the GRA must be prepared on a best estimate basis.

The Corporation has stated that it uses only one long-term interest rate forecast because other long-term forecasts do not provide timely or monthly forecast changes, or cannot be disclosed publicly.

4.6 Interveners' Positions

CAC

CAC noted that there has been a challenge with the Corporation's interest rate forecasting for many years. CAC questioned whether the Corporation's interest rate forecasting methodology should be revisited and whether there is now sufficient immunization for the Corporation's investment portfolio. In particular, Basic suffered losses of $30.8 million in 2011/12 and $38.1 million in 2014/15 due to the negative impact of interest rates when the marketable bond yield fell by 0.33% and 0.53% respectively. CAC also noted MPI's evidence that if the Application had been based upon the Bank industry forecast as at September 30, 2015, a 1.6% overall rate increase would have been requested by the Corporation.

CAC expressed the concern that the Corporation has not done enough to mitigate interest rate risk, even after implementation of the recommendations on duration matching found within the ALM Study, and stated that MPI's ongoing exposure to significant interest rate risk must be addressed in the near future, perhaps through a comparison with other organizations.

CAC noted also that there was an unrealized opportunity for investment in higher yield corporate bonds and queried how MPI's investment portfolio is performing relative to other significant organizations in Manitoba. CAC recommended that AON be brought in to review the yields earned by these similar organizations and comment on performance to date.

4.7 Board Findings

With respect to the composition of the Corporation's investment portfolio and its management of interest rate risk, the Board was pleased to receive the ALM Study completed by AON Hewitt, but notes that the GRA process would have been enhanced if appropriate witness(es) from AON Hewitt were produced by the Corporation to discuss the Study. The Board directs MPI to bring an expert witness to the 2017 GRA hearing to testify with respect to its current asset mix, duration matching strategy and strategy to manage Basic interest rate risk, and that this expert provide a report regarding those issues, to be filed together with the 2017 GRA. In addition, the Board seeks an update on the status of the use of corporate bonds in the bond portfolio including insight on the performance of those bonds.

The Board notes that there are other entities in Manitoba with substantial investment portfolios under the control of the Government of Manitoba, such as the Workers' Compensation Board, the Teachers' Retirement Allowances Fund and the Civil Service Superannuation Board of Manitoba. The Board orders MPI to prepare and file at next year's GRA a study with respect to the composition and performance of the investment portfolios of each of those entities for review.

The Board notes that volatility in the value of the investment portfolio is one of the major risks faced by the Corporation and that pursuant to its current approach, the Corporation, and in particular Basic, are not fully immunized from interest rate risk. The Board recognizes that significant improvements have been implemented by the Corporation relative to the approach that it utilized in years past, but in the view of the Board, the interest rate risk remains at a level that requires further review and analysis.

The Board also notes that if the Corporation's interest rate risk is eliminated or substantially mitigated, there will be an impact upon the Combined Scenario in the DCAT report such that required rate reserve levels could be decreased.

The Board has in the past expressed the view that the standard interest rate forecast prepared by the 5 major Banks and Global Insight is the best information that is available with respect to interest rate forecasts, other than longer term forecasts available for purchase, which MPI has not done. It is the view of the Board that MPI should utilize at least one additional longer term forecast to enhance the accuracy of the information on which MPI relies to prepare its interest rate forecast on which the GRA is based. As such, the Board orders that next year, MPI file its application on the basis of the interest rate forecasting methodology used currently, and that it also file on the basis of an Olympic style average (i.e. excluding each of the highest and lowest values of the non-long term standard interest rate forecasts utilized), and utilizing at least one additional longer term forecast.

The Board notes that if the updated September 2015 standard interest rate forecast materializes, MPI's revenues will decrease in 2015/16 and following, such that the net result for 2016/17 and 2017/18 would not be a break even position. This is the case even after the implementation of full duration matching as at August 31, 2015.

5.0 RATE STABILIZATION RESERVE

5.1 *RSR Balance*

The stated purpose of the RSR is to protect motorists from rate increases made necessary by unexpected events and losses arising from non-recurring events or factors. The RSR balance was $102.3 million as at February 28, 2015, after a net income in Basic of $2.4 million, which was increased to $177.8 million after a transfer of $75.5 million from non-Basic retained earnings. With Accumulated Other Comprehensive Income (AOCI), Basic Total Equity was $213 million as at February 28, 2015; the minimum Total Equity target set by the Corporation. AOCI represents an aggregate of the difference between net income reflected in an income statement and total comprehensive income, and includes unrealized gains or losses on available for sale securities.

TAB 2

Public Utilities Board

Régie des services publics

Order No. 162/16

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2017/2018 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 15, 2016

BEFORE: Robert Gabor, Q.C., Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Allan Morin, B.A., ICD.D., Member

In Order 128/15, the Board requested a comparison of investment returns with other entities in Manitoba. The Board stated:

> *The Board notes that there are other entities in Manitoba with substantial investment portfolios under the control of the Government of Manitoba, such as the Workers' Compensation Board, the Teachers' Retirement Allowances Fund and the Civil Service Superannuation Board of Manitoba. The Board orders MPI to prepare and file at next year's GRA a study with respect to the composition and performance of the investment portfolios of each of those entities for review.*

Based on the comparison, MPI's investment portfolio earned a return of 2.5% in 2015, while the average of the returns earned by the Teachers' Retirement Allowances Fund (TRAF), the Civil Service Superannuation Board of Manitoba (CSSB) and the Workers' Compensation Board (WCB) was 7.9%. MPI attributed 2.5 percentage points of the 5.4 percentage points difference to the difference in asset allocations. MPI indicated that the 3 percentage points remaining underperformance represented about $12.1 million in lower investment income returns for 2015.

MPI indicated CSSB and TRAF are pension plans, which have a much longer investment time horizon due to their very long duration liabilities. As a result, these organizations are able to take more investment risk and have a much higher allocation to equities than MPI. Over the last ten years MPI's portfolio has underperformed CSSB by 0.4%, WCB by 1.2% and TRAF by 1.7%. MPI indicated that adjusting the asset allocations of CSSB, TRAF and WCB similar to that of MPI's allocation would reduce or potentially eliminate the difference in performance between MPI and those organizations.

4.4. Interest Rate Risk

MPI submitted that the objective of reducing exposure to interest rate movement is key for a property and casualty insurer like MPI. In the absence of MPI's actions to match liabilities, MPI would face significant risk of financial losses. Small changes in interest rates have had a significant impact upon investment income. MPI's investment portfolio is weighted heavily to long-term bonds. A large portion of the bonds are marketable, which means investment returns can be impacted materially by changes in interest rates. In particular, if interest rates increase, marketable bond values fall, as do the discounted value of the claim liabilities. If interest rates

decrease, bond values and claims liabilities increase. The effect of these changes can, to a large extent, largely offset each other if managed appropriately so that the net impact on financial results is neutralized. The situation is complicated by the presence of the MUSH bonds which also support the claims liabilities but are not interest rate sensitive.

In Order 151/13, the Board directed MPI to have the composition of its investment portfolio reviewed by an external expert consultant, with a view to determining whether the current asset mix should continue, or should be revised.

The Board stated the review should encompass an examination that generates recommendations for improving the management of the portfolio, including strategies to manage the volatility of the portfolio, given that the volatility in the value of the investment portfolio is one of the major risks faced by the Corporation.

As stated above, MPI engaged AON to complete the ALM Study in 2014, and filed the study at last year's 2016 GRA. MPI did not put forward a witness from AON last year to speak to its report.

In Order 128/15 the Board stated:

> *The Board notes that volatility in the value of the investment portfolio is one of the major risks faced by the Corporation and that pursuant to its current approach, the Corporation, and in particular Basic, are not fully immunized from interest rate risk. The Board recognizes that significant improvements have been implemented by the Corporation relative to the approach that it utilized in years past, but in the view of the Board, the interest rate risk remains at a level that requires further review and analysis.*

The Board directed MPI to bring an expert witness to the 2017 GRA hearing to testify with respect to its current asset mix, duration matching strategy and strategy to manage Basic interest rate risk. This expert was to provide a report regarding those issues, which would be filed with the 2017 GRA.

In addition, the Board sought an update on the status of the use of corporate bonds in the bond portfolio, including insight on the performance of those bonds. In response, the Corporation indicated that it had not implemented the recommendation, previously made by AON to add a

specific allocation to corporate bonds, as the Corporation was of the view that non-marketable (MUSH) bonds were a reasonable substitute for corporate bonds.

MPI advised that it had engaged AON to study the issue further and, in the Application, provided a report from AON on the issue. The AON study noted that as a Crown Corporation, MPI has a commitment to invest in Manitoba, which it fulfills by investing in MUSH bonds. AON commented on the benefits MUSH bonds bring to a fixed income portfolio: having comparable yields across the front half of the yield curve, where the majority of corporate bonds are issued; attractive long-term returns, effective high credit quality, and an absence of historical defaults. The disadvantages of MUSH bonds were noted by AON as: a lack of liquidity, a lack of sector and/or credit diversification, a lack of market price discovery, and a lack of options as to terms and features. AON concluded that, assuming that MPI's objective is to employ a duration matching strategy, if the Corporation's desired portfolio return and duration is achievable with a combination of federal, provincial and MUSH bonds, replacement of the existing bonds with corporate bonds would not be necessary. AON did state, however, that it maintains its recommendations from the 2014 ALM study, and would still recommend that the Government of Manitoba and MPI agree upon an acceptable range for corporate bonds, to facilitate tactical allocations within the overall duration matching strategy.

Julianna Spiropoulos of AON appeared at the hearing to provide evidence in respect of the 2014 ALM Study, for which she was responsible. Ms. Spiropoulos holds a Bachelor of Science degree in Actuarial Science, a Masters in Business Administration, and is a Chartered Financial Analyst. Ms. Spiropoulos stated that AON used MPI-selected metrics based on the ten-year average Basic net income to measure "reward" and ten year average standard deviation of Basic RSR to measure "risk". She noted that MPI's primary concern is to address short-term volatility of the premium rate requirement.

In terms of the asset mix, Ms. Spiropoulos stated that MPI's risk tolerance was low given MPI's mandate to break even rather than targeting for profit. As well, there is an extensive process to change the targeted levels of reserve and MPI does not have direct control over the premium rates. Therefore, AON had recommended that MPI adopt a specific portfolio at the lower end of the risk spectrum with a significant allocation to real estate and infrastructure. This would provide some inflation protection over the long-term, and a balance of more liquid equity

allocation. Proceeding in this manner would ensure that growth portfolio was not entirely in illiquid assets and that it had some diversification into more liquid asset classes.

As observed by AON, duration matching of investments and claims liabilities would not mean that net income is fully immunized against interest rate changes, as only average durations are being matched, not the cash flows underlying those durations. Also, over 35% of the fixed income portfolio supporting the interest rate sensitive claim liabilities was invested in non-marketable (i.e. MUSH) bonds, which are not interest rate sensitive and do not fluctuate with changes in interest rates. This large investment in non-marketable bonds would make it difficult for MPI to fully protect at the Basic level its net income exposure to changes in interest rates.

MPI implemented the ALM duration matching at the Corporate level, as it provides a better risk versus return profile. The Corporation indicated that undertaking the matching at the Basic level would increase the indicated rate increase in this Application from the initially proposed 2% to 3.7%.

The Corporation stated that fully matching the duration of the fixed income portfolio and claims liabilities does not completely eliminate all interest rate risk to the Corporation, nor would it eliminate what it considered to be the need for an IRFRF. In the Application, the Corporation stated that the net interest rate impact was $16.0 million on average over the rating years, compared to $18.1 million using last year's assumptions, a $2.1 million difference.

Mr. Valter Viola was called as an expert witness in the hearing, on behalf of CAC. Mr. Viola is a Chartered Financial Analyst and holds a Masters in Business Administration and a Bachelor of Commerce degree. He provides consulting services to institutional investors, Boards, Investment Committees and Management Teams on investment strategies and investment risk management. The focus of Mr. Viola's evidence, and his report filed as an exhibit in the GRA, was to discuss investment portfolio management and the risk/reward framework, and to provide several recommendations related to MPI's investment portfolio design. Mr. Viola was qualified to give evidence in the hearing as an expert in (1) investment portfolio management; (2) investment portfolio research, economics and risk management; and (3) quantitative asset liability modelling.

Mr. Viola questioned the reliance on accounting metrics based on net income, which metrics were used by AON for the asset portfolio design for MPI. Those metrics would not capture

changes in the market value of material assets such as equities or MUSH bonds, or changes in the value of pension liabilities. Mr. Viola recommended that MPI make elections that minimize the discrepancy between net income and comprehensive income for asset/liability modelling purposes, even if only on a notional basis.

Mr. Viola also recommended that MPI redefine return risk, to inform its long-term asset mix decisions based on valuations that reflect market values rather than accounting values, which may be materially different. Regardless of the accounting convention, for portfolio management and asset mix decision making, according to Mr. Viola, there needs to be an adjustment to assets and liabilities to the extent that the accounting is not market-value based.

Mr. Viola also questioned the high concentration of Canadian equities in the Corporation's portfolio. Mr. Viola indicated that international diversification was important to Canadian investors given the concentrated nature the Canadian Market with three (of ten) sectors in Canada where Financial Services, Energy and Materials represent a very large portion of the Canadian market. He noted that MPI had no investments in international equities, a large part of the global market. He further stated that there is a potential for missed opportunities to add value, have higher returns, and to diversify the portfolio. Mr. Viola stated his belief that through its focus on short-term rate stability, MPI is losing the opportunity for long-term lower premium rate levels.

4.5. Investment Income Forecasting

At the 2014 GRA, the Corporation proposed a new methodology to forecast its investment income. This methodology measured the impact of interest rate changes on investment income and claims liabilities, whereas the methodology employed by the Corporation previously did not do so. MPI now models changes in the fair market value of its marketable bonds and the changes to bond values flow through Basic's net income because those assets are categorized as Fair Value Through Profit and Loss. Basic's operating results are very sensitive to interest rate changes, including the timing and the amount of the interest rate changes. Because it is difficult to predict the amount and timing of assumed interest rate changes, Basic net income is very difficult to forecast accurately.

The Corporation acknowledged that it does not have expertise in interest rate forecasting but stated that it has an in-depth understanding of the interest rate risks which it faces. The Corporation acknowledges that the GRA must be prepared on a best estimate basis.

In Order 128/15, the Board directed the Corporation to file the Application on the basis of the interest rate methodology that it uses currently, as well as on the basis of an Olympic style average (i.e., excluding each of the highest and lowest values of the non-long term standard interest rate forecasts utilized), and utilizing at least one additional longer term forecast.

In this GRA, MPI stated that in its view, its Standard Interest Rate Forecast (SIRF), which is based on an average of the forecasts for the 10-year Government of Canada interest rate from the five major banks and Global Insight, is not a best estimate forecast. Based on the experience of the last several years, the forecasted changes in interest rates determined by the SIRF have been materially different from actual interest rate changes since 2008.

The Corporation stated that it uses only one long-term forecast because other long-term forecasts do not provide timely or monthly forecast changes, or cannot be disclosed publicly. It also filed additional forecast information including the long term forecasts from the five major banks which are not generally readily available for public disclosure. In response to the Board's information requests and undertakings, MPI filed an updated long-term interest rate forecast, incorporating additional confidential Bank long term forecast forecasts from the five major banks and excluding Global Insight. MPI also adjusted the forecast, eliminating the high forecast in each forecast quarter for the determination of the average.

MPI has indicated that based on the current SIRF, net income will be impacted positively in 2017/18 and 2018/19 by about $32 million. If the interest rates do not increase as forecast, there will be a shortfall. This loss alone, without accounting for any other cost pressures, would require a 5% rate increase. In light of this risk, the Corporation requested the IRFRF be incorporated in the Application.

MPI led a Technical Conference on Interest Rate Forecasting in August of 2016. The report prepared by its expert witness, Dr. Sean Cleary, was filed in this GRA. Dr. Cleary is the BMO Professor of Finance at the Smith School of Business at Queen's University and holds a Ph.D. in Finance from the University of Toronto. Dr. Cleary is also a Chartered Financial Analyst. Dr. Cleary was called as a witness for MPI to present the results of his research on interest rate

forecasting issues. Dr. Cleary was qualified as an expert in finance and capital markets, specifically with respect to the predictive power of different interest rate forecasting approaches, and risks to the forecasting of interest rates.

Dr. Cleary's evidence was that, based on the historical 10-Year Government of Canada bond data, the Naïve forecast approach (based on assuming no future change in interest rates) was better than the SIRF. Based on his historical analysis, the weighted average percentage forecasting error was -39.5% for Naïve versus -92.9% forecasting error for the SIRF.

Dr. Cleary recommended employing a "50-50" interest rate forecast, representing the midpoint between the SIRF and the Naïve forecasts. The use of such a forecast, according to Dr. Cleary, would minimize forecasting error as the 50-50 interest rate forecast in the long run would reflect the fact that interest rates may increase soon, but it may not happen as quickly as anticipated. In Dr. Cleary's opinion, it would also help to adjust for the errors in timing of changes in interest rates.

MPI filed an updated interest rate forecast as of August 2016 based on Dr. Cleary's recommended, and MPI's proposed 50-50 interest rate forecast. It indicated that interest rates would decrease from 1.19% at the end of 2015/16 to 1.11% at the end of 2016/17, a decrease of eight basis points during the year. This compared to the original March forecast increase of 57 basis points based on the SIRF.

Based upon this updated forecast, MPI advised that Basic's forecasted net loss in 2016/17 would increase by $21 million, from an originally forecast net loss of $13.4 million to a net loss of $34.4 million. The forecast also indicated a net loss of $10.8 million for 2017/18 and a net income of $24.1 million for 2018/19. Break-even rates based on the 50-50 interest rate forecast method raised the requested rate increase from 2% to 4.3%; the additional 2.3 percentage points attributable to the IRFRF.

The forecasted change in interest rates based on the Application, an updated August forecast, an expanded base forecast and MPI's 50-50 interest rate forecast proposal were as follows:

Government of Canada 10-Year Interest Rate Forecast

Fiscal Year	Application Standard Forecast	August Update Standard Forecast	August Expanded Standard Forecast	August Revised Application 50-50 Interest Rate Forecast
2015/16A	1.19%	1.19%	1.19%	1.19%
2016/17	1.76%	1.20%	1.17%	1.11%
2017/18	2.43%	1.72%	1.62%	1.37%
2018/19	3.30%	2.77%	2.39%	1.90%
Basis Point Change (2019-2016)	211 BPS	158 BPS	120 BPS	71 BPS

MPI submitted that the SIRF presented in the Application, reflected in the first column of the above table, was predicting a significant interest rate increase during the next three years. Relative to historical interest rate movements over three years, the forecast represents a 1-in-29 year interest rate movement. Even with a best estimate, interest rate forecasting risk remains. Interest rates have declined in recent months, they could remain flat through the forecast period, or as the markets currently predict, rise less aggressively than the 50-50 interest rate forecast predicts. Risk remains with any forecast, but MPI's position was that the 50-50 interest rate forecast reduces this risk on a forward looking basis.

As stated above, the Corporation requested the IRFRF be incorporated in the Application, and re-filed a 4.3% Basic rate change based on an August 50-50 interest rate forecast. The net interest rate impact is reduced from $16.0 million based on the originally filed Application to $10.2 million on average over the rating years.

CAC called as witnesses in the hearing, Dr. Wayne Simpson and Ms. Andrea Sherry. The focus of their evidence was on the proposed IRFRF, as well as on the DCAT.

Dr. Simpson is a Professor of Economics at the University of Manitoba, and was qualified as an expert in applied econometrics and applied microeconomics. Ms. Sherry was qualified as an

expert in actuarial matters, and specifically: (1) in valuation, including the calculation of policy liabilities, forecast premiums, and claims amounts based upon trends; and (2) in solvency and economic capital, including oversight of capital stress testing and economic capital calculations; and actuarial pricing and product development.

On the issue of the IRFRF, Dr. Simpson was of the view that the arguments made by MPI in support of the IRFRF mirror those made in support of the DCAT, and repeat those used to justify holding retained earnings in the RSR, which is determined by the DCAT. Dr. Simpson commented that it is noteworthy that no other insurance company or jurisdiction in Canada or North America uses a concept such as the suggested IRFRF. Dr. Simpson expressed concern with the use of the IRFRF as a result, taking into account what he referred to as the extensive collaborative efforts made by MPI to develop its version of the DCAT methodology. He also identified what he viewed as concerns with the methodology employed by Dr. Cleary in his report that recommended the 50-50 interest rate forecast method.

In Dr. Simpson's opinion, the risks associated with a forecast overstating the growth of interest rates between 2017/18 and 2020/21 is already addressed in the DCAT Report, which identifies the three most important risk factors facing the corporation, one of which is the interest rate decline scenario. And, because the scenario considers sustained low interest rates relative to a base forecast of interest rates rising according to a consensus bank forecast, this is exactly the same risk scenario cited for the IRFRF. The interest rate decline scenario is also an important component of the combined scenario which is ultimately used to justify an RSR minimum target level for total equity. Further, Dr. Simpson commented that the methodologies used to calculate the IRFRF and the DCAT interest rate decline scenario involve exactly the same elements.

In his view, prediction of interest rates carries inherent risk. As there is no precedent for an IRFRF rate adjustment elsewhere, and, given that MPI already employs a methodology which takes into account interest rate risk, Dr. Simpson's view was that MPI's proposal for an IRFRF should be abandoned.

4.6. Interveners' Positions

CAC

CAC suggested that Mr. Viola's recommendations regarding the Corporation's investment portfolio be given a significant amount of weight. The AON ALM study, according to CAC, has limited utility in allowing the Corporation to make portfolio decisions, given the return/risk metrics and excessive constraints, and remarked that Mr. Viola's evidence was that he viewed the ALM study as understating the risks of the Corporation, being market risks. CAC stated that the weight assigned to Canadian equities in the Corporation's portfolio is not consistent with evidence of the historic advice of experts. CAC asked the Board to find there is reason to be concerned the Corporation's portfolio is not adequately protected against interest rate risk. Furthermore, an emphasis by MPI on short-term rate stability leads to an excessive level of risk for the investment returns gained. CAC followed Mr. Viola's evidence, that one should look to the use of Real Return Bonds as a starting point for a benchmark portfolio with minimum risk. CAC noted that one of the factors of a major loss in the Corporation's investment portfolio was a $28.5 million write-down in Canadian equities. Accordingly, CAC argued that MPI is putting itself at risk by being too heavily weighted in favour of Canadian equities.

With all of that in mind, CAC argued that a new ALM study is required. CAC expressed concern that undue risk is being placed on Manitoba consumers as a result of investment portfolio selections. The ALM study conducted by AON in 2014 was based on accounting metrics which were driven by concern with short-term volatility, and Accumulated Other Comprehensive Income (AOCI) was excluded from the metrics. As a result, as stated by Mr. Viola, MPI's portfolio design is being driven by inappropriate selection of risk and return metrics, understating the risk, and unduly constraining the portfolio outcomes.

On the issue of interest rate forecasting, CAC stated that interest rate forecasting has been challenging since the financial crisis of 2008. CAC argued that the Naïve forecast should not be adopted as a sustainable best estimate, and that it could not find a precedent for the 50-50 forecast proposed by the Corporation. CAC stated that the evidence in the hearing did not favour reliance on the 50-50 forecast, and that the SIRF should be adopted. CAC argued that the Corporation had not met its onus to establish that the 50-50 interest rate forecast is the best estimate.

CAC argued that the evidence of Dr. Cleary, in support of the 50-50 interest rate forecast, should be given limited weight given the absence of statistical tests and the lack of any robust foundation for his conclusions. By contrast, CAC argued that its expert witness, Dr. Wayne Simpson (although not retained by CAC to provide comment on the predictive accuracy of the interest rate forecast) offered evidence-based recommendations in that regard. CAC characterized the Technical Conference on interest rate forecasting which took place in August of 2016 as not reflective of true collaboration. CAC recommended a further Technical Conference on the issue of interest rate forecasting, including MPI and Manitoba Hydro to set a precedent for both of these Crown Corporations and their customers, involving a literature review and a review of regulatory practice in other jurisdictions.

CMMG

CMMG expressed the view that the IRFRF is not necessary, and that the DCAT adequately addresses interest rate risk. CMMG questioned whether the Corporation was adequately matching investments to claims liabilities, and suggested that a more diversified portfolio would assist in that regard. CMMG characterized the IRFRF as a creative way for MPI to collect more funds from ratepayers to allow a wider margin for the Corporation to make errors in its forecasting.

CAA

CAA was supportive of CAC's position, that MPI should investigate and adopt a conservative, properly balanced, and diversified portfolio with the aim of reducing the risk of financial shortfalls.

4.7. Board Findings

The Board remains concerned with the Corporation's continued exposure to interest rate risk. The Corporation's reliance on interest rate forecasting to make accurate financial forecasts is challenging, it requires not only the quantum, but also the timing of interest rate changes. This makes it very difficult for MPI to provide a reasonable forecast of net income for rate-setting purposes. Although the Corporation has, through its AON-recommended ALM strategy, provided the Corporation an investment portfolio mix that provides substantial protection from changes in interest rates, the risk to Basic and its ratepayers remains material.

The Board notes that MPI maintains a material portion of its fixed income securities used to meet its claims liabilities in non-interest-sensitive MUSH bonds. In fact, its holdings in MUSH bonds are set at the maximum proportion allowable under its Investment Policy Statement. This hampers MPI's ability to protect the Corporation's Basic net income from changes in interest rates. This pool of capital being provided to Manitoba entities has an indirect and material impact on Basic net income. The Board also understands that, given the manner in which the Corporation's investment portfolio is managed, that MPI is limited in the extent to which it can direct the composition of its investment portfolio. However, the Board is finds that further study of the Corporation's portfolio is warranted, with a view to informing the Corporation and the ICWG as to the optimal investment portfolio that might be recommended for approval by the Department of Finance. The current Investment Policy Statement filed in the Application excludes International equities as a permitted investment class.

The Board finds that an ALM study should take place more frequently than has been the practice with the Corporation. The Board finds there is a need to update the ALM study, given that now the RSR target is based on total equity. The ALM study filed in the 2016 GRA used a constraint based on retained earnings that excluded AOCI, a significant component of total equity. The Board directs that MPI obtain an updated ALM study to be filed in the 2018 GRA, which study shall address each of the 18 recommendations made by Mr. Viola, which are set out in Appendix E of this Order.

With respect to interest rate forecasting, the Board has considered the evidence of Dr. Cleary along with the evidence filed in this Application as to interest rate forecasting generally. While the Board recognizes that Dr. Cleary has expertise, it is not satisfied on the basis of the report filed and the testimony in this hearing that MPI has met its onus to establish the 50-50 interest rate forecast as a best estimate. The Board therefore does not approve the use of the 50-50 interest rate forecast for rate-setting purposes. Although the proposed approach might, from time to time, temper the forecasted bank interest rate increases, it represents neither a generally accepted nor a widely used interest rate forecasting methodology.

The Board recognizes that bank forecasts have struggled with accuracy in the last several years, due to global economic circumstances which have seen interest rates at historically low levels. Dr. Cleary has observed that over the last eight years, the standard interest rate forecasts based on Bank forecasts have exceeded actual 10-year Canada bond yields by a

wide margin – 1.7% on average, representing a forecasting error percentage of -93% of the actual yields. The Naïve forecast was the closest to accurate over the past eight years, but no expert recommended its use. The Board did not find any of the experts provided compelling evidence of the best estimate in interest rate forecasting. The evidence before the Board to date has not provided clarity to it on the issue of interest rate forecasting.

The Board finds that the Technical Conference on interest rate forecasting which took place in August of 2016 did not represent optimal conditions for true collaboration. As a result, and rather than employing any of the proposed interest rate forecast methodologies, the Board directs that MPI participate in a further Technical Conference on interest rate forecasting. The Board anticipates that this Technical Conference will allow for further opportunity to critically examine current interest rate forecasting methodology, and to allow for further, more rigorous collaboration. This should result in a reasonable opportunity for exchange of written materials and/or expert reports prior to the conference taking place. The Technical Conference will be organized by the Board with the input of intervenors and MPI. The Technical Conference shall take place on a date mutually agreed upon as between the Board and MPI, which date shall be sufficiently early such that the information shared in the Technical Conference will be included in the 2018 GRA.

MPI reported a net investment loss in Basic of $4.0 million in 2015/16. The net investment loss incurred by MPI in 2015/16 was impacted by a $33.4 million investment impairment write-off in Canadian equities, much of which were related to energy resource investments. The Board finds that the Canadian economy is highly concentrated in a limited number of sectors including Financial, Energy and Material natural resources, which increases the risk of underperformance for the MPI portfolio by overweighting in Canadian equity investments.

MPI's investment portfolio, with an overall return in 2015 of 2.5%, is not performing favourably when compared to the other Manitoba entities reviewed (CSSB, WCB and TRAF), which had an average return of 7.9%. While MPI has attributed 2.5 percentage points of this difference to portfolio design, the Board notes that 3 percentage points of it relate to comparative returns, which represent in MPI's calculations approximately $12.1 million in lower investment income which is a material amount.

The Board wishes to point out that had the performance of the Corporation's investment portfolio more closely matched that of its peers, a rate increase might not have been necessary. Further, while the Corporation has argued that CSSB and TRAF have much longer investment time horizons due to their long duration liabilities, the Board notes that SGI had a portfolio which includes a public equity mix where almost ¼ is in International equities, while MPI has limited its equity investments to Canadian and US equities. The Board considers these lower comparative returns to be attributable to the current investment asset mix employed by the Corporation, which includes a large proportion in Canadian equities with no exposure to International equities, outside the U.S.

TAB 3

Public Utilities Board

Régie des services publics

Order No. 130/17

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2018/2019 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 4, 2017

BEFORE: Robert Gabor, Q.C., Chair
Carol Hainsworth, Member
Allan Morin, B.A., ICD.D., Member
Robert Vandewater, B.A., FCSI, CPA (Hon), CA (Hon), KStJ., C.D., Member
Michael Watson, Member

SAF also employs two distinct invesment portfolios: a matching portfolio comprised of mortgage securities, and a return-seeking portfolio that includes equities, real estate, and infrastructure investments.

6.5. Interest Rate Risk

In Order 151/13, the Board directed MPI to have the composition of its investment portfolio reviewed by an external expert consultant, with a view to determining whether the current asset mix should continue, or should be revised. MPI engaged AON to complete an Asset Liability Management study in 2014, and filed the study in the 2016 GRA. In the 2017 GRA, the Corporation brought forward a witness from AON to speak to the report. CAC called Mr. Valter Viola to discuss investment portfolio management and the risk/reward framework, and to provide several recommendations related to MPI's investment portfolio design.

In Order 162/16, the Board expressed its concern with the Corporation's continued exposure to interest rate risk and found an ALM study should be conducted more frequently than has been the practice with the Corporation. The Board directed MPI to obtain an updated ALM study to be filed in the 2018 GRA, which study was to address each of 18 recommendations that had been made by Mr. Viola.

The Corporation did not file an updated ALM study in this Application. The Corporation stated that it was not "logistically possible" to do so in time for the 2018 GRA. The Corporation further advised that an updated ALM study could not be usefully and purposefully be completed in the absence of RSR capital targets.

In the hearing the Corporation advised that, since the filing of the Application in June 2017, it had issued a Request for Proposals for the Study on September 12, 2017, and had engaged Mercer Canada to deliver the Study by November 30, 2017. The Corporation put in place an accelerated process to have a study produced in that time frame. The Corporation further advised that Mercer Canada was aware of the RSR capital targets for which it had applied in this Application.

6.6. Investment Income Forecasting

At the 2014 GRA, the Corporation proposed a new methodology to forecast its investment income. This methodology measured the impact of interest rate changes on investment income and claims liabilities, whereas the methodology employed by the Corporation previously did not do so. MPI now models changes in the fair market value of its marketable bonds and the changes to bond values flow through the allocation of net income to Basic because those assets are categorized as Fair Value Through Profit and Loss.

In the 2017 GRA, the Corporation put forward a request for the 50/50 interest rate forecast. In Order 162/16, the Board found that there was no compelling evidence that persuaded it to accept the 50/50 forecast, and, citing the challenges in interest rate forecasting in recent years, directed the Corporation that a Technical Conference on Interest Rate Forecasting be held to further explore that issue. The Corporation reported on those aspects of the discussion in the Technical Conference that were incorporated into its forecasting methodology.

MPI's Board of Directors has rejected the SIRF for budgeting purposes, as it has proven to be inaccurate, and produces financial forecasts that bear little resemblance to reality. The bank forecasting approach(s) are proprietary, but MPI observed that they appear to rely on a mean reversion approach. The long-term average yield of long term bonds is higher than current yields, producing an upward bias that has been both inaccurate and detrimental to MPI's financial health. Utilization of the bank interest rate forecasts in the 2014/15 through 2016/17 GRAs resulted in a $163 million premium deficiency (relative to what would have been charged based on the actual interest rates). The majority of this risk is created from the forecasting process rather than from the inherent risk of interest rate movements. MPI accordingly submitted that the Naïve forecast presented in the Application should be used for rate-setting purposes, which indicated that interest rates had increased to 2.10%, a 46 basis point increase from when the Application was filed. Last year MPI had indicated that risk remains with any forecast, but MPI's position was that the 50/50 interest rate forecast reduced this risk on a forward looking basis.

The forecasted changes in interest rates based on the Application, an updated September forecast, and an expanded base forecast and MPI's 50/50 interest rate forecast proposal were as follows:

Government of Canada 10-Year Interest Rate Forecast

Fiscal Year	Application			SEPTEMBER 30th UPDATE		
	Naïve Forecast Application	Expanded SIRF	50-50 Forecast	Naïve Forecast Update	Expanded SIRF	50-50 Forecast
2016/17A	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%
2017/18	1.64%	2.10%	1.87%	2.10%	2.20%	2.15%
2018/19	1.64%	2.58%	2.11%	2.10%	2.72%	2.41%
2019/20	1.64%	2.92%	2.28%	2.10%	3.10%	2.60%
Basis Point Change (2020-2017)	0 BPS	128 BPS	64 BPS	46 BPS	146 BPS	96 BPS

In his testimony, Mr. Steski stated that provision was made in the Government of Manitoba's 2017 budget for an increase in interest rates.

6.7. Interveners' Positions

CAC

Along with Andrea Sherry, CAC called Dr. Wayne Simpson as a witness in this hearing. Dr. Simpson is a Professor of Economics at the University of Manitoba, and was pre-qualified in Order 73/17 as an expert in applied econometrics, applied microeconomics, and quantitative methods.

Dr. Simpson and Ms. Sherry prepared a report on the RSR target capital range, and in the context of that report, addressed interest rate assumptions. Dr. Simpson also testified in the public hearings as to interest rate assumptions. Dr. Simpson noted that the SIRF has continued to predict that interest rates would begin to rise and accordingly, the Naïve forecast would be unrealistic. The Bank of Canada announced increases in the overnight interest rate to 0.75% on July 12, 2017, and 1% on September 6, 2017. This was followed by increases at Canadian banks and in bond markets, with the Government of Canada bond rate rising to 2.07% as of September 14, 2017, as compared to 1.64% in the Naïve forecast. Dr. Simpson's opinion was that there is now good reason to believe

that interest rates will continue to rise. Accordingly, Dr. Simpson was supportive of the use of the 50/50 interest rate forecast, as a cautious approach to interest rate forecasting, taking into account what appears to be a trend of increasing interest rates.

CAC was critical of the Corporation's approach in responding to the ALM study ordered by the Board. In particular, it was critical of the fact that the Corporation had initially suggested that it would require a six month period to complete the study, and then managed to compress the schedule to approximately two and a half months. Further, CAC expressed concern that the analysis to be conducted by Mercer Canada will be unduly constrained, because it has been provided with the Corporation's intended RSR targets as a key constraint.

With respect to MPI's investment portfolio, CAC stated that there are grounds to be concerned that the Corporation is accepting undue investment risk for insufficient benefit, and that the equities portfolio is unduly concentrated in Canadian equities when compared with SAF. There may be opportunities to reduce portfolio risk through diversification and maintain or improve returns. CAC made the overall comment that MPI does not look like other "well regarded portfolios". Further, CAC was of the view that the Corporation had delayed the implementation of an unrealized opportunity for investment in higher yield corporate bonds, which was recommended by AON in 2014.

With respect to the decision-making process for the investment portfolio, CAC noted that key decisions made by MPI do not require approval from the Minister. CAC commented that there may be a significant opportunity for the Corporation to invest in corporate bonds, noting that Mr. Steski was of the view that the Department of Finance would be supportive of further investment in corporate bonds.

With respect to interest rate forecasting, although made in the context of comments regarding the RSR total target capital range, CAC stated that the Corporation's proposal to use the Naïve forecast had been overtaken by actual fluctuations in interest rates since the filing of the Application. Based on the evidence of Dr. Simpson, CAC was supportive of the use of at least the 50/50 interest rate forecast for forecasting of its revenue requirement, but also indicated that it would not object to the use of the SIRF.

CMMG

CMMG commented that the Corporation is showing reasonably robust returns in its investment portfolio for fiscal year 2017/2018 through to 2021/2022. Accordingly, CMMG was of the view that the Corporation is not in any vulnerable financial position and given the increases in interest rates since the filing of the application and expected further increases in rates, this should have a positive impact on the Corporation's financial position.

CAA

CAA was of the view that the Corporation could take some simple steps to improve its financial outlook by enhancing its investment portfolio, which it in turn believed would significantly assist in reducing costs to ratepayers.

6.8. Board Findings

The Board has previously expressed its view that the Corporation should be investing in corporate bonds. The Board notes that the Corporation took the step in the Investment Policy Statement to include reference to corporate bonds, and is supportive of the Corporation's intention to increase its allocation to corporate bonds to 18% of its investment portfolio.

The Board recognizes that this increased allocation to corporate bonds is contingent on approval by the Minister of Finance. However, the Board refers to the testimony of Mr. Steski, which served to clarify for the Board the role of the Corporation and the Department of Finance in decision-making regarding MPI's investment portfolio generally. In Order 151/13, the Board had commented, based on the testimony of the previous Assistant Deputy Minister, that the ICWG seeks consensus between the Department and MPI on recommendations to be provided to the Minister of Finance on investment decisions, that the ICWG was responsible for the investment returns, but the ultimate responsibility rested with the Minister of Finance. Mr. Steski's testimony provided the helpful distinction between those investment decisions falling within *The Financial Administration Act* and those falling outside it. The Board accepts Mr. Steski's testimony and finds that the ICWG is a forum for discussion, with investment decisions being driven by the Investment Committee of the MPI Board of Directors, and that ultimate responsibility for the Fund rests with MPI.

The Board also finds that the Corporation's investment returns do not compare favourably with those of SAF. The Board notes the diversification in the SAF portfolio as compared to that of the

Corporation, and accepts that the lack of diversification in the current composition of MPI's investment portfolio is contributing to its lower returns. The Board expects that there will be further opportunity for the Corporation to explore diversification of its investment portfolio, following the results of the ALM study, due to be complete by November 30, 2017.

With respect to the ALM study, MPI failed to comply with the Board's directives in Order 162/16, to have the study complete and filed in this Application. Considering that MPI is now of the view that it will be able to have the process completed in under three months, the Board rejects the Corporation's response that it would not have been logistically possible to comply with the Board's directive. Further, the Board is concerned the study may be of limited utility in that it will be issued after this hearing and the Corporation has provided constraints to Mercer Canada based on an RSR range that, until the issuance of this Order, remained under consideration by the Board. By delaying the ALM study, this unfortunately creates a perception that the Corporation was intending to influence the Board's decision on the RSR range, because the results of the study would not prove useful if the Board were to order a range other than that applied for by MPI. Nevertheless, the Board hereby orders the Corporation to file the Mercer Canada ALM study with the Board concurrently with its delivery to the MPI Board of Directors, and the Board further orders that:

- The Corporation shall require Mercer Canada to update the ALM study as necessary in order to take into account the directives issued in this Order, and to add an analysis of the bucket matching approach similar to that used by SAF;

- The Corporation shall require Mercer Canada to update the ALM study as necessary in order to address each of the 18 recommendations made by Mr. Viola in the 2017 GRA, which recommendations are set out in Appendix E to Order 162/16; and

- That a Technical Conference be held on the ALM study, on a date to be mutually agreed upon by the Board and MPI, but early enough so the information shared in the Technical Conference will be included in the 2019 GRA.

With respect to interest rate forecasting, the Board notes that a Technical Conference was held in accordance with the directive in Order 162/16 and that the Corporation has reported that it incorporated some of the discussions into its forecasting. In Order 162/16, the Board commented on the challenges associated with interest rate forecasting due to the economic climate of the previous number of years. In this Application, the evidence was that the economic climate is now changing; in particular, the Board would point out that interest rates have risen on two occasions since the Application was filed. As reported by the Corporation, the actual market interest rate as of September 30, 2017 was 2.10%, which reflected an increase of 0.46% from 1.64% when the 2018 GRA was filed.

Given that interest rates have begun to rise in recent months, the Board does not accept that the Naïve forecast should be relied on for rate-setting purposes. The Board has difficulty with the Corporation having proposed a 50/50 interest forecast last year, when interest rates were flat, and in this Application, proposing a Naïve forecast, and continuing to do so after recent increases in interest rates. However, the Board refers to its previous finding in Order 162/16 that the bank forecasts in the previous years were inaccurate. As interest rates have not risen in some time until recently, the Board expresses caution in reliance on the SIRF at this time.

The Board also notes the evidence of Mr. Steski, that in its most recent budget, the Government of Manitoba took into account an increase in interest rates.

The only expert testimony before the Board on interest rate forecasting was from CAC's expert, Dr. Simpson. The Board accepts the evidence of Dr. Simpson that the 50/50 interest rate forecast is the appropriate approach for rate-setting and target capital purposes at this time. The Board acknowledges that this is a departure from its findings in Order 162/16, and grounds its decision in this regard on the recent change in interest rates, the lack of accuracy in the SIRF, and the evidence of Dr. Simpson and Mr. Steski.

As the Board has endorsed the 50/50 interest rate forecast, the Compliance Filing process requested by the Corporation is rendered moot.

MPI 2019 GRA - CAC Exhibit #17

MANITOBA

THE PUBLIC UTILITIES BOARD ACT

THE MANITOBA PUBLIC INSURANCE ACT

THE CROWN CORPORATIONS PUBLIC REVIEW AND ACCOUNTABILITY ACT

Board Order 151/00

December 4, 2000

Before: G. D. Forrest, Chairman
P. Britton, Member
E. Jorgensen, Member

AN APPLICATION BY MANITOBA PUBLIC INSURANCE FOR AN ORDER APPROVING COMPULSORY DRIVER AND VEHICLE INSURANCE PREMIUMS FOR THE YEAR ENDED FEBRUARY 28, 2002

At February 28, 2000, the Corporation had total retained earnings, including extension and SRE, of $180.7 million.

7.2 Risk Analysis History

In the 1998 General Rate Application ("GRA") the Corporation prepared a Risk Analysis in support of its RSR target. Using a statistical variance approach, the Corporation considered five risk factors (revenue risk, investment risk, claims costs, claims expenses, and operating expenses) to determine the appropriate level of the RSR. The level of reserve required for each risk factor at various confidence levels was determined. The study considered each risk factor to be perfectly correlated and positive. Investment risk was excluded because of uncertainty arising due to recent changes to the investment portfolio. Based on this methodology, the RSR target ranged from $78 to $105 million at a 95% confidence level. The Corporation's Board of Directors adopted an RSR target of $80 to $100 million for fiscal 2001 to fiscal 2003, noting that the previous approach of aligning an RSR target to either unpaid claims or premiums written would necessitate rate changes simply to keep the RSR at the target level as premium revenue increased. Therefore, a target range of $80 to $100 million based on long-term stability, and not tied to an increasing formula, was more appropriate.

In Board Order 154/98 the Board did not agree that each risk component is perfectly correlated or additive. Instead, an actual correlation was to be used. Furthermore, the Board directed that investment risk should be included as a risk factor, and at least some operating expenses should be excluded, as these were controllable by management. The Board directed that, until these matters are fully addressed, the existing 15% of premiums written was to continue as the RSR target methodology.

The following year the Corporation submitted its Risk Analysis to update the risk factors and respond to the Board's concerns. Applying the actual correlations and including operating expenses, the recommended RSR requirement at a 95% confidence level was $78 million. With operating expenses removed, this decreased to $67 million. The Corporation viewed its

approach and methodology to be statistically sound as it was based on a variance of costs and revenues from long-term averages rather than the accounting variance of budget-to-actual as proposed by CAC/MSOS. It was the Corporation's view that any budget-to-actual variance would render the methodology to one of stress testing to identify budgeting errors rather than a statistical variance of costs and revenues. The Risk Analysis also included pre-PIPP data since there was not enough PIPP data to be statistically valid according to the Corporation. A Value at Risk Analysis to measure the maximum predicted loss for the Corporation's investment portfolio over a time horizon, determined that at the three year time horizon the appropriate investment risk would be $0.

In Board Order 177/99, the Board considered the Corporation's proposed $80 to $100 million range to be excessive for various reasons, including the consideration in the Risk Analysis of operating expenses, pre-PIPP data and the variance of cost and revenues from long term averages instead of a variance of budget-to-actual amounts. In both Board Orders 154/98 and 177/99 the Board stated the inclusion of all operating expenses was inappropriate as these were at least partially controllable by management. With respect to pre-PIPP data, the Board directed the Risk Analysis be prepared excluding pre-PIPP data and then using the ten-year data to include pre-PIPP data to allow the Board to gauge the responsiveness of the target range to the PIPP experience. The Board also expected that the future Risk Analysis would take into account the variance between forecast and actual amounts that directly impact the RSR. The Board expected the Risk Analysis would still use the methodology and statistical approach currently used, but that some of the variable inputs would be changed.

7.3 Current Risk Analysis

In the current application, the Corporation provided an updated Risk Analysis to review its basis of selection of a Basic insurance RSR target and to address the concerns expressed by the Board in Board Order 177/99.

News Release - Manitoba

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June 15, 2016

MANITOBA GOVERNMENT RELEASES FRAMEWORK LETTERS FOR CROWN AGENCIES

Letters Reflect Terms of Engagement, Ensure Transparency: Schuler

The Manitoba government has released framework letters provided to Manitoba Hydro, Manitoba Public Insurance and Manitoba Liquor and Lotteries, Crown Services Minister Ron Schuler announced today.

"Manitobans expect Crown corporations to provide top-notch services efficiently and effectively," said Schuler. "These framework letters outline the terms of engagement for the Crowns and outline, in an open and transparent manner, how our government will work with these corporations, without political interference, to further improve services for Manitobans."

As a first step, the province will work with the three agencies and other key stakeholders to review the Crown Corporations Public Review and Accountability Act to assess the current governance framework, find ways to improve transparency and more clearly define the government and corporation roles and responsibilities, the minister said.

Following the governance piece, the work will focus on reducing red tape, improving procurement/tendering practices, and developing stronger advertising and sponsorship models, he added.

"Our government believes Manitobans deserve to have open, transparent and accountable Crown services," said Schuler. "By working together, we will ensure the Crown corporations continue to provide high-quality services for Manitobans."

Framework letters will be posted at www.gov.mb.ca/government/proactive_disclosure.html.

- 30 -

For more information:

- Public information, contact Manitoba Government Inquiry: 1-866-626-4862 or 204-945-3744.
- Media requests for general information, contact Communications Services Manitoba: 204-945-3765.
- Media requests for ministerial comment, contact Communications and Stakeholder Relations: 204-945-4916.

Mr. Brent VanKoughnet
Chair, Manitoba Public Insurance

Dear Mr. Brent VanKoughnet:

Manitobans have elected a government that is committed to improving the province of Manitoba. Our priorities include restoring prudent fiscal management, creating jobs, improving health care and education, improving our partnerships and relationships with business and communities, and increasing openness and transparency of our government. We are focused on achieving results on behalf of Manitobans.

Manitoba Public Insurance (MPI) provides Manitobans with access to affordable auto insurance rates and driver services. Making our roadways safer for Manitobans through standards for drivers and vehicles and by raising awareness is integral to the corporation's role. MPI's Board of Directors is responsible for carrying out the duties, powers and functions of the corporation including those outlined in *The Manitoba Public Insurance Corporation Act*. As you know, leading and improving in the best interests of Manitobans is an important part of these responsibilities.

Manitobans expect a high quality of service delivered by their public crown corporations. The Crown Corporations Public Review and Accountability Act was enacted to ensure public confidence and accountability in Manitoba's Crown Corporations, and to strengthen their accountability mechanisms.

In the coming months, our government will review this legislation with our partners and stakeholders, including MPI. Together, we will assess the current governance framework with a view to improving transparency and more clearly defining the respective roles of government and the Boards of Directors of Manitoba's major Crown Corporations. We want to find the right balance between our responsibility to ensure performance and results with the need for operational independence for our Crown Corporations.

Our government is committed to reducing red tape, providing quality service, strengthening accountability and delivering value for the money

that Manitobans invest in all government services. I know that these principles of value, quality, efficiency, and effectiveness are important to MPI. Once we have developed the right governance model, I look forward to working with you to improve procurement/ tendering practices, advertising and sponsorship models with the goal of ensuring competitiveness, transparency, efficiency and cost-effectiveness across government.

I know you and your colleagues on the Board understand that it is an important responsibility to guide and oversee Manitoba's publicly owned corporations. And I know I can count on your hard work and dedication to fulfill your Board's duties and responsibilities. I look forward to hearing your advice and recommendations and to working together on achieving results that will make Manitoba the Most Improved Province.

Yours sincerely,

Honourable Ron Schuler
Minister of Crown Services

c: Valerie Wowryk
Dan Bubis
Domenic Grestoni
Edna Nabess
Jeff Wharton
Richard Chale

Manitoba Public Insurance

PD Re-engineering Program Charter

Version: 1.0

Date: May 20, 2014

Table of Contents

1 INTRODUCTION 3
2 PROGRAM PURPOSE 3
3 PROGRAM OBJECTIVES 3
4 PROGRAM SCOPE DEFINITIONS 4
PD Re-engineering Program Scope of Work 4
WORK NOT IN SCOPE (EXCLUSIONS) 6
RELATED DEPENDENCIES 6
5 PROGRAM STRATEGY (HOW) 6
6 PROGRAM ASSUMPTIONS 8
7 PROJECT BUDGET 8
8 PROGRAM ORGANIZATION (WHO) 9
ROLES AND RESPONSIBILITIES 10
9 AUTHORIZATION 13
10 APPENDIX A 14

1 INTRODUCTION

This Program Charter summarizes the business and management aspects of the PD Re-engineering Program. When signed by the sponsor(s), this charter serves as an agreement between the business and the project groups, formally authorizes the existence of the project, and gives authorization for the Project Manager to engage resources in the planning and execution of the project activities, based on the conditions established.

2 PROGRAM PURPOSE

MPI was made aware of the challenges the collision repair industry would be facing over the next decade, and how these would in turn create difficulties for MPI regarding the following:

- MPI's ability to ensure vehicles were properly repaired
- Ensuring the customers could be properly supported throughout the province
- Ensuring that customer service expectations could be met
- Ensuring that MPI remains relevant to its customers when it comes to processing physical damage claims and the service they receive while getting their vehicles repaired

3 PROGRAM OBJECTIVES

MPI's business objective is to deliver a number of capabilities and levels of service over the next five years.

- Ensure vehicles are repaired in a safe and cost-effective manner both in Manitoba, and throughout North America

- Provide customer service in a manner that is relevant to the population of Manitoba and is responsive to the needs and expectations of its customer base.
    - This allows, for the first time, market segmentation options to ensure relevancy – for channels depending on customer choice. The key concept is that MPI is departing from a one size fits all approach.

- Ensure that the local collision repair industry remains healthy and sustainable, and that customers will be able to have their vehicles repaired regardless of where they live in Manitoba

- Deliver and orchestrate the full lifecycle of physical damage claims management services, in partnership with the extended repair industry, to meet our customers' evolving needs for quality, safety, cost control and service

- Work with our business partners to promote a local collision repair industry that is healthy and sustainable in both economic and environmental terms
- MPI will work with the global industry to foster safe and cost-effective vehicle repair and occupant protection
- MPI will be responsive to the needs and expectations of its customer base which is increasing in diversity and subject to unique geographic challenges and constraints. Ensure that customers are kept informed throughout the claim and repair process
- Triage claims to involve Loss Prevention resources earlier in the process resulting in more denials/recoveries

The following annual operational cost savings are anticipated at the conclusion of the PDR program:

Cost Savings Area	Cost Savings	Operating Expenses	Claims Incurred
Process Improvement (Internal)	$ 3,500,000	$ 3,500,000	
Repair Shop Process Improvement	$ 3,000,000		$ 3,000,000
Parts Sourcing	$ 3,000,000		$ 3,000,000
Loss Prevention	$ 2,500,000		$ 2,500,000
Total	**$ 13,300,000**	**$ 3,500,000**	**$ 9,800,000**

4 PROGRAM SCOPE DEFINITIONS

PD Re-engineering Program Scope of Work

The following projects will be initiated under the PD Re-engineering Program to deliver to the Program purpose and objectives;

Physical Damage/Customer Service Projects:

1. Optimized Repair Project (First Priority)
   - Collaborative Estimating
   - Parts Sourcing
2. Optimized Adjusting Project
   - First Notice of Loss Process
   - Adjusting
   - Replacement of Claims legacy software (CARS)
3. Loss Prevention Project
   - Implement Predicitive Analytics software

Knowledge Management Project:

4. Website Redesign and Portal Consolidation
    - Amalgamate content from several sites into one partners portal and decommission redundant technology and infrastructure
    - Update all existing SharePoint 2010 environments to SharePoint 2013 and migrate content from existing websites
    - Update Authentication technology as it relates to Portal consolidation

Please see Appendix A for details

Work Not in Scope (Exclusions)

N/A

Related Dependencies

None.

5 PROGRAM STRATEGY (HOW)

Optimized Repair Project

Interaction with the Repair Shops

It has been determined that the best approach to deliver the Optimized Repair Project is to use pilots and proof of concept implementations.

Proof of concept implementations will be conducted to determine the feasibility, risks, and benefits of the initiative. Pilots will be used where outcomes of the initiative are more predictable.

The following two pilots are related to the Collaborative Estimating and are expected to start in fourth quarter of 2013 and the third quarter 2014.

- Collaborative Estimating
- Distributed Estimating Proof of Concept

The first pilot is called Collaborative Estimating. It will bring the Corporation and the repair shops onto a common platform by implementing Mitchell's WorkCentre and Repair Centre product suite. The focus of the pilot is on online estimate sharing, including collaborative estimating for electronic supplement processing. It also includes the automatic maintenance of a "gold copy" estimate between the repair shop and MPI. This eliminates the need for manual reconciliation between repair shops and Manitoba Public Insurance, enabling the automation of payments to repair shops. This pilot will also implement a robust and proactive quality assurance program to ensure quality repairs are being performed. It will also increase customer satisfaction by optionally providing the actual repair status to customers electronically.

The second pilot will potentially involve moving to a Distributed Estimating model, allowing repair shops to write estimates directly for the Corporation's customers. The pilot must demonstrate that repair shops can perform initial estimates in a cost-effective manner. It must also prove that customer visits can be reduced due to a collapsing the parts ordering and repair process. The team will use corporate data/experience to triage vehicles based on reparability. The team expects to start with non-driveable vehicles to test Distributed Estimating workflows/system functionality, and will then extend the pilot to driveable vehicles to test end-to-end Distributed Estimating process.

This pilot will be considered successful when the following can be demonstrated:

- MPI reduces both incurred claims and claims expenses
- Repair shops reduce administrative expenses
- Improved Customer Service
- Repair cycle times are faster

If the pilot is successful, and the business decision is made to move forward, the Corporation will make Distributed Estimating optional for all repair shops subject to accreditation standards. The repair shops will choose if they want to provide estimates directly to the Corporation's customers.

Optimized Adjusting Project

Replacing our Claims legacy system

In order to streamline the First Notice of Loss process through better claim triaging, significant changes would be required to the existing CARS legacy system.

As FINEOS is currently used by the Corporation for Bodily Injury Claims, a fit assessment was conducted with FINEOS to determine fit for both First Notice of Loss and CARS legacy system replacement functionality. FINEOS recently conducted a demo on their Physical Damage module, which is currently being used in Europe with very good success. This module also has components for First Notice of Loss that MPI could leverage that would provide customers with the ability to start a claim online using self-service functionality. FINEOS would then provide the Corporation with a common platform for both Bodily Injury and Physical Damage Claims. This would strengthen the integration between Estimates and Adjusting that would improve the overall Claims processing.

FINEOS was determined to be a good fit as a CARS legacy system replacement platform. Therefore, a business decision was made to proceed with FINEOS and the project scope would include a CARS replacement, which would also include a new First Notice of Loss solution.

The replacement of CARS will be grouped together with the First Notice of Loss changes under the Optimized Adjusting Project.

Loss Prevention Project

The Corporation recently completed an RFP process with the purpose of acquiring and implementing predictive analytics software. This software will primarily be leveraged to predict claims fraud cases with the anticipation of increasing claim recoveries associated with claims fraud.

6 PROGRAM ASSUMPTIONS

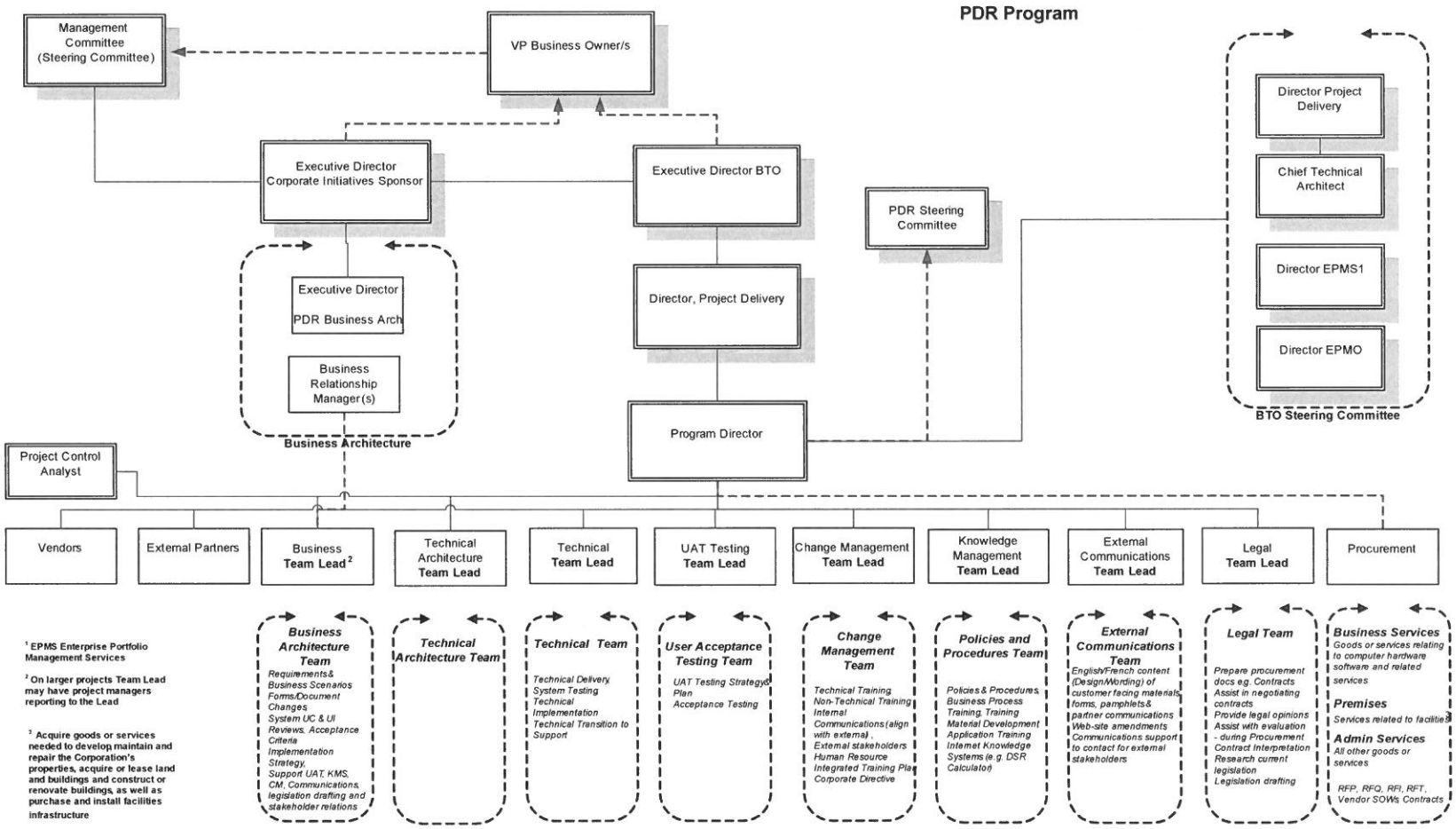
N/A

7 PROJECT BUDGET

Physical Damage Re-engineering Program	$65, 485,774

8 PROGRAM ORGANIZATION (WHO)

PDR Program - Organizational Structure



Roles and Responsibilities

Executive Director, Corporate Initiative Sponsor

The Executive Sponsor is the champion of the program and is the principal interface between the program and the business community. The Sponsor has the authority to accept all deliverables and resolve all project issues.

Responsibilities include:

- Authorize and approve adequate budget and resources to successfully complete the program.
- Promote the benefits of the program so as the gain buy-in from stakeholders
- Provide strategic direction
- Overall acceptor of key Project Deliverables

VP Business Owner

- Support business sponsorship of Projects
- Provide oversight on Program direction, risks, issues
- Facilitate cross organization dialog

Executive Director, Business Transformation

The Executive Director, Business Transformation is accountable for the planning and successful implementation of strategic initiatives.

Responsibilities include:

- Provide overall direction and guidance for the program and ensure alignment with overall corporate objectives
- Expedite decisions for the program and help to remove roadblocks that could potentially negatively impact the program

Executive Director, PDR Program

- Provide business direction and guidance for the program and ensure alignment with overall corporate objectives
- Expedite business and policy decisions for the program

Director, Project Delivery

The project director is accountable for providing direction to program manager to ensure the successful implementation of the program.

Responsibilities include:

- Provide overall direction and guidance for the program and ensure alignment with overall corporate objectives
- Expedite decisions for the program and help to remove roadblocks that could potentially negatively impact the program

Program Director

The program manager provides the centralized coordinated management of the program to achieve the program's strategic objectives and benefits.

Responsibilities include:

- As a key focus, ensures that the program achieves the outcomes for which the program is being initiated. This may involve the creation of new projects, recommendation of scope changes to projects, cancellation of projects, and review/consulting on dotted line projects.
- Monitoring business outcomes being met
- Project issues being resolved in a timely manner and delivery timelines for all the projects being met
- Provide project managers with support and guidance on individual projects
- Ensure alignment of the projects with the program and organizational performance objectives
- Ensure that the overall program structure and program management processes enable the project teams to successfully complete their work
- Ensure that the project deliverables are addressing the program benefits and objectives
- Ensure projects are organized and executed in a consistent manner and/or fulfilled within the established standards
- Leverage resources among the program's projects
- Evaluate total ownership costs, requirements and configuration management across projects

PMO Support

PMO Support provides support to the Project Director and Project Managers by ensuring standard processes exist and are adhered to and assisting with tracking and monitoring status.

Responsibilities include:

- Consolidate and manage issues, risks, assumptions, CR and DR's
- Ensure compliance to established guidelines and standards for schedule management
- Ensure governance and controls are being adhered to
- Provide support to the Program Manager to ensure projects are being delivered on-time and on-budget
- Work with team leads and project managers to facilitate and coordinate project planning
- Consolidate the team project schedules to ensure schedules are integrated at the project level
- Assist project managers with creating and updating project schedules and producing timesheets, if required
- Assist team leads/project managers with update to project status report
- Record and distribute project meeting minutes, as required
- Point of contact for Program Manager and Team Leads/Project Managers for posting to SharePoint

Project Managers

The Project Managers are responsible for the timely completion of all deliverables within their team, and planning and management of the work to complete delivery.

Responsibilities include:

- Participate in planning and re-planning
- As per MPI EPMO standards, apply disciplined project management tools, techniques and methods
- Create and maintain project schedule
- Support issue and risk management processes
- Identify and resolve Project issues/risks and escalate to the Team Lead or Program Manager, if required
- Ensure quality of deliverables
- Defining and managing and controlling scope
- Manage and coordinate resources within the team
- Identify additional Resource needs to Team Lead/Program Manager
- Monitor and report Team progress

9 Authorization

PDR Steering Committee

10 Appendix A

PROJECT	PROJECT DESCRIPTION
Optimized Repair Project	**Collaborative Estimating** • Bringing MPI and Repair Shops onto a common platform by implementing Mitchell's WorkCentre and RepairCentre product suite • Creating an estimate that can be shared electronically between MPI and the repair shops • Compliance checks at Repair Shops • Streamlining the supplements process by allowing repair shops to work collaboratively with MPI • Ensure customers and staff are kept informed of the repair status • The automatic maintenance of a "gold copy" estimate which eliminates the need for manual reconciliation between repair shops and MPI, enabling the automation of payments to repair shops • Implementing a Remote Estimating solution to reduce road runs • Implementing a robust and proactive quality assurance program to ensure quality repairs are being performed • Increasing customer satisfaction by providing repair status to customers electronically • Implementing a Distributed Estimating model allowing repair shops to write estimates directly for MPI customers **Parts Sourcing** • Increasing recycled parts usage through expansion of the recycler network • Improving the recycled parts process through automation whereby recyclers provide their inventories online and repair estimates include those parts automatically • Reduce administration required for recycled parts through process automation • Expanding the catalogue of certified aftermarket parts

PROJECT	PROJECT DESCRIPTION
Optimized Adjusting Project	First Notice of Loss • Implementing a customer self-serve First Notice of Loss solution Replacing the Claims legacy system • Implement the FINEOS Claims Platform to handle all of MPI's Physical Damage claims management Integration of the Mitchell Solution with the FINEOS Solution Project team will be conducting a series of scoping workshops and scope of this project will be determined at that time
Loss Prevention Project	• Improved fraud detection and recoveries through predictive analytics
Website Redesign and Portal Consolidation Project	• Amalgamate content from several sites into one partners portal and decommission and redundant technology and infrastructure • Redesign the following websites and migrate content to supported version SharePoint 2013 and improve search functionality o Strategy & Innovation o Brokers Online o Intranet • Update all existing SharePoint 2010 environments to SharePoint 2013 • Update Authentication technology as it directly relates to Portal consolidation

PUB (MPI) 1-75

Reference: E4.2 p. 24, Physical Damage Reengineering AI.10 pp. 4, 8

a) Please provide a detailed description and supporting calculations in respect of the anticipated savings of $13.3 million in operating and claims incurred related to the PDR project.

b) Please file a detailed budget in support of the $65.5 million PDR project cost and provide a comparison of the budget established in the Project Charter with the actual and forecast expenditures on the project found in E.4.2.

c) Please provide a comparison to the $56.4 million budgeted for the project last year (PUB/MPI 2-33 Attachment) and explain the reason for the increase.

d) Please describe the nature of expenditures being expensed on the Physical Damage Re-engineering project.

e) Please provide details of each contract issued, by consultant, and amount of contract related to the PDR.

RESPONSE:

a) The detailed breakdown of the projected costs savings for the PDR program are as follows:

Cost Savings Area	Cost Savings	Operating Expenses	Claims Incurred
Process Improvement			
Process Improvement (Internal)			
FNOL	$ 300,000		
Adjusting	$ 1,750,000		
Estimating	$ 1,450,000		
Process Improvement (Internal)	$ 3,500,000	$ 3,500,000	
Repair Shop Process Improvement			
Adminstrative Savings	$ 1,100,000		
Cycle Time Improvement	$ 1,500,000		
Courtesy Car Reduction	$ 400,000		
Repair Shop Process Improvement	$ 3,000,000		$ 3,000,000
Total Process improvement	$ 6,500,000		
Loss of Use	$ 1,300,000		$ 1,300,000
Parts Sourcing			
Recycled Parts	$ 1,400,000		
Aftermarket Parts	$ 1,600,000		
Parts Sourcing	$ 3,000,000		$ 3,000,000
Loss Prevention	$ 2,500,000		$ 2,500,000
Total	**$ 13,300,000**	**$ 3,500,000**	**$ 9,800,000**

b) The detailed breakdown of the detailed project budget and project forecasts for the PDR program are as follows:

Initiative	Year 1 2011/12	Year 2 2012/13	Year 3 2013/14	Year 4 2014/15	Year 5 2015/16	Year 6 2016/17	Year 7 2017/18	7-Year Program Total
PDR Phase 1	$ 1,385,744	$ 60,402	$ -	$ -	$ -	$ -	$ -	**$ 1,446,146**
PD Industry Study	$ -	$ 130,483	$ -	$ -	$ -	$ -	$ -	**$ 130,483**
Optimized Repair	$ -	$ 2,072,148	$ 7,454,057	$ 2,817,709	$ 2,944,065	$ 2,488,875	$ 716,501	**$ 18,493,355**
Optimized Adjusting	$ -	$ 45,609	$ 2,240,862	$ 8,903,591	$ 12,475,270	$ 4,690,080	$ 4,282,680	**$ 32,638,092**
Business Re-visioning	$ -	$ -	$ -	$ 250,000	$ -	$ -	$ -	**$ 250,000**
Loss Prevention	$ -	$ -	$ -	$ 1,473,246	$ 1,208,039	$ -	$ -	**$ 2,681,285**
CCUC Phase 1	$ -	$ 684,945	$ 10,416	$ -	$ -	$ -	$ -	**$ 695,361**
Estimatics	$ -	-	$ 3,996	$ 15,340	$ 80,664	$ -	$ -	**$ 100,000**
Website re-design	$ -	$ 369,141	$ 824,010	$ 3,000,000			$ 716,033	**$ 4,909,184**
Implementation Costs (pgm mgmnt)	$ -	$ 425,347	$ 1,297,397	$ 844,210	$ 675,568	$ 899,348	$ -	**$ 4,141,870**
Total Project Costs	**$ 1,385,744**	**$ 3,788,075**	**$ 11,830,738**	**$ 17,304,096**	**$ 17,383,606**	**$ 8,078,303**	**$ 5,715,214**	**$ 65,485,776**

c) As previously filed.
The $56.4 million budget stated in PUB (MPI) 2-23 from the 2013 General Rate Application was the deferred development aspect of the project budget, not the entire project budget of $65.5 million.

d) As previously filed.
The expenses on the PDR program incurred to date are associated with the following categories:

- Compensation
- Travel
- Training
- Miscellaneous

e) As previously filed.
Manitoba Public Insurance has not issued contracts with individual consultants for the PDR program. The Corporation secures labour through various Master Services Agreements that cannot be disclosed.

PUB (MPI) 1-75

Reference: **E4.2 p. 24,**
Physical Damage Reengineering AI.10 pp. 4, 8

a) Please provide a detailed description and supporting calculations in respect of the anticipated savings of $13.3 million in operating and claims incurred related to the PDR project.

b) Please file a detailed budget in support of the $65.5 million PDR project cost and provide a comparison of the budget established in the Project Charter with the actual and forecast expenditures on the project found in E.4.2.

c) Please provide a comparison to the $56.4 million budgeted for the project last year (PUB/MPI 2-33 Attachment) and explain the reason for the increase.

d) Please describe the nature of expenditures being expensed on the Physical Damage Re-engineering project.

e) Please provide details of each contract issued, by consultant, and amount of contract related to the PDR.

REPLACED

RESPONSE:

a) Please see PUB (MPI) 1-3.

b) Please see PUB (MPI) 1-3.

c) The $56.4 million budget stated in PUB (MPI) 2-23 from the 2013 General Rate Application was the deferred development aspect of the project budget, not the entire project budget of $65.5 million.

d) The expenses on the PDR program incurred to date are associated with the following categories:

- Compensation
- Travel
- Training
- Miscellaneous

e) Manitoba Public Insurance has not issued contracts with individual consultants for the PDR program. The Corporation secures labour through various Master Services Agreements that cannot be disclosed.

REPLACED

Board of Directors - Committee Meeting

AUDIT, FINANCE & RISK COMMITTEE MINUTES

[redacted]

Gartner Strategic Initiative Assessment

Mr. Martin Geffen presented Agenda Item B.1 "Gartner Strategic Initiative Assessment". As part of the IT oversight, Gartner provided advice on security and risk management of IT, along with a risk assessment of strategic initiatives. Following discussion, Members received the report as information.

[redacted]

[redacted]

Planning & Technology Committee Report – Mitchell Contract Renewal	17-023	Moved by Mr. Chale and seconded by Ms. Wowryk that the Members ratify the recommendation of the Planning & Technology Committee authorizing Management to: • Finalize negotiations to extend the term of the Master Services Agreement between Manitoba Public Insurance and Mitchell International for an additional 5 years. • Finalize negotiations for a co-development agreement under the Master Services Agreement to create a Customer Claims Reporting System (CCRS). The costs are to total [redacted] • Enter into a co-development agreement and extend the Master Service Agreement with Mitchell International for a 5 year term ending on April 4, 2023 at a total [redacted] CARRIED

[redacted]

[redacted]

Excerpts from PUB Board Orders

INDEX

TAB

1 Order 151/13
- Section 3.4 – 3.7

2 Order 135/14
- Section 3.5 – 3.9

3 Order 128/15
- Section 3.5 – 3.8

4 Order 162/16
- Section 3.5 – 3.8

5 Order 130/17
- Section 5.5 – 5.9

TAB 1

MANITOBA	)	
	)	
THE PUBLIC UTILITIES BOARD ACT	)	**Order 151/13**
	)	
THE MANITOBA PUBLIC INSURANCE ACT	)	
	)	**December 16, 2013**
THE CROWN CORPORATIONS PUBLIC REVIEW AND ACCOUNTABILITY ACT	)	

Before: Régis Gosselin, B ès Arts, MBA, CGA, Chair
The Hon. Anita Neville, P.C., BA Hons., Member
Karen Botting, BA, B.Ed, M.Ed, Member

MANITOBA PUBLIC INSURANCE CORPORATION (MPI): COMPULSORY 2014/2015 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

3.4 Information Technology Expenses

Over the course of the last year, MPI has pursued IT projects targeted towards upgrading current IT infrastructure, reliability, business continuity, disaster recovery, future service delivery and physical damage reengineering. In addition, MPI has pursued an HRMS (Human Resource Management System) project to bring its payroll processes in-house, which cost 60% more than the budget presented at last year's GRA ($16 million versus $10 million), and which cost the Corporation approximately $8,261 per employee.

MPI's IT spending continues to exceed that of its peer groups, as reflected in the Gartner Benchmarking Study filed by MPI, although the disparity between MPI's spending and that of its peers has, on the whole, improved over past years. Gartner has recommended that MPI implement strategies to sunset redundant technologies.

MPI stated that it has a record of extremely successful management of over $150 million in IT projects over the last several years and that the HRMS project is the only one which has not shared that record. MPI acknowledged that its IT expenses are higher than the comparators in the Gartner report, but states that its overall expenses are lower than benchmark as reflected in the Ward Group report. MPI stated that enhanced and stable IT systems (replacing its outdated systems), will ensure that it will be able to provide customers with uninterrupted service and an improved network infrastructure that can support future demands. MPI stated that its IT platforms are now almost up to date and stable so that the Physical Damage Re-engineering Program can be launched to enhance customer service and reduce costs.

3.5 Benchmarking

The Board has commented in many past Orders that MPI should conduct some form of benchmarking with respect to its expenses. The Corporation has stated that it has historically utilized three benchmarks to gauge its performance, as follows:

- Charge rates that are on average lower than those charged by private insurance companies for a comparable price and coverage;
- Ensure that Basic returns at least 85% of premium revenue to Manitobans in the form of claims benefits; and
- Ensure that the Corporation's annual increases in the Consumer's Price Index for auto insurance are less than those of the rest of Canada.

In Order 157/12, the Board ordered the Corporation to develop productivity factors to enable the assessment of the cost containment measures. The Board does not quarrel with the three benchmarks referenced above, but again notes that none of these benchmarks relate to cost controls, and it is benchmarking in that particular area that the Board believes is necessary. This year, the Corporation provided a report prepared by the Ward Group, reflecting a comparison of the Corporation to other auto insurers. The Ward Group report shows that the Corporation's Total Operating Expenses as a percentage of premiums written are below the comparators' (the Canadian Auto Group). The Corporation's Support Expenses, relative to Human Resources and Information Technology, are, however, in excess of those of the Canadian Auto Group, and, in the case of Information Technology, are well in excess (MPI is at 5.05% compared to the Canadian Auto Group at 3.43%). Almost every metric presented by the Ward Group relative to Information Technology expenses reflects that MPI is outperformed by the Canadian Auto Group.

The Corporation also provided this year an updated Gartner report including the CIO Scorecard, reflecting benchmarking in respect of various elements of Information Technology costs. Although MPI's position has improved from last year, it remains above the Peer Group in terms of spending. In particular, MPI's IT spending per company employee is $43,243, compared with the Peer Group for whom spending is $21,248, such that MPI's spending is 50.9% higher than the Peer Group. MPI's "Change the Business" IT budget is 49.8% above the Peer Group while the IT "Run the Business "spending was 10% above the Peer Group. Gartner also noted that as MPI's offerings and customer service capabilities become more technology dependent, the number of IT FTE's will increase to support a larger IT footprint.

The Corporation also cites Internal Trending - a productivity-based key performance indicator framework to evaluate its key customer processes and cost control measures. The productivity factors that the Corporation has identified are in the following areas: Injury Claims Management, Contact Centre and Physical Damage Management.

With respect to Injury Claims Management, the Corporation implemented the BI3 initiative in 2010, designed to enable MPI staff and service providers to manage claims more efficiently. The Corporation has identified that timeliness of payments, accessibility and injury recovery are the elements that directly influence customer satisfaction and experience ratings with MPI. Key performance indicators have yet to be provided.

With respect to Contact Centre, the Corporation is tracking volume and duration of calls and has consolidated the systems available at its help desk.

With respect to Physical Damage Management, the Corporation is tracking new claims reported as well as estimates completed and related metrics. Key performance indicators have yet to be provided.

3.6 Interveners' Positions

CAC

CAC stated that there may be issues with the IBNR ("Incurred But Not Reported") provision within the Corporation's unpaid claim liabilities, resulting from changes to case reserves for bodily injury.

CAC stated that MPI's controllable expenses are growing in excess of inflation and noted a projected 60% increase in operating expenses over 6 years from 2008/09. CAC stated that traditionally for regulated utilities, the rate of inflation should provide guidance relative to increases in operating costs, and expressed concern that the growth of MPI's operating and claims costs far exceeds inflation. CAC stated that going forward, it is very important that inflation guidance be brought back into the analysis of MPI's operating costs. CAC noted that operating costs are within MPI's control, and stated that MPI is not fulfilling its onus to maximize benefits to ratepayers.

With respect to Risk Management and the IT systems implemented by MPI, CAC questioned whether MPI's management can maintain the new IT systems once the external consultant has left. CAC asked that the Board direct MPI to file a detailed framework in terms of identifying, quantifying, mitigating and monitoring its risk, including how it plans on managing IT systems in-house once consultants depart. CAC expressed concern that the level of IT expenditures by MPI have not resulted in any staffing savings and noted that with respect to Process Management and Cost Containment, MPI scored poorly on the Gartner Report.

CAC stated that the cost of the HRMS system was exorbitant, and that the result has provided insufficient benefits to the Corporation relative to the cost of the project. With respect to IT

expenditures as a whole, CAC noted that the costs growth is quite stark, representing a CAGR of 10.8%pa, and that IT costs are projected to increase to $74.8 million through 2017/18.

CAC questioned the benefit to ratepayers arising from these expenses and questioned whether productivity and efficiency savings may be found, particularly given that there has been no corresponding staffing reduction.

CAC asked that MPI be directed to develop an IT five year strategic plan, including cost-benefit analyses, justifying its current and future expenses. CAC also recommended that the Board find that there is room for improvement for MPI in terms of cost containment and business process management and that the Corporation has yet to demonstrate appropriate financial payback to ratepayers from its projected IT expenditures. Lastly, CAC recommended that the Board express concern with the ongoing growth in operating and claims costs well in excess of inflation and that the PUB express the expectation that future operating costs will track to inflation.

With respect to benchmarking, CAC stated that it was not impressed with MPI's progress, given that the key performance indicator framework has not been finalized with respect to Injury Claims Management and Physical Damage Management. CAC expressed uncertainty regarding whether Board Order 157/12 will be complied with by MPI. CAC also noted that with respect to the BI3 initiative, the Board had expressed an expectation that the information would be used to accurately benchmark the outcomes of MPI with other similar organizations. The Board expected that the Corporation would be able to reduce disability durations and to optimize claimants' recovery time.

CAC recommended that the Board direct MPI to file at the next GRA a benchmarking framework along with benchmarking indicators to which the Corporation intends to be held accountable.

CMMG

CMMG stated that there is a conservative bias that is affecting negatively all motorists in Manitoba and cited the historical release of $250 million in case reserves. CMMG stated further that there is ongoing conservatism as evidenced by the Corporation's stated target for an RSR balance of $172 million.

CMMG stated also that a review of loss ratios shows that the current methodology is not accurate, the result almost always being that too much premium is collected. CMMG also cites case reserving, developmental factors, PFADs for interest rates, PFADs for collection of receivables and a number of other sources as "pads" enjoyed by MPI.

3.7 Board Findings

It is the view of the Board that MPI must examine its claim liabilities regarding ongoing conservatism within its forecasting, and directs MPI to file the valuation treatment of the results of the early 2013/14 case reserve review at next year's GRA.

With respect to Operating Expenses, in Order 162/11, the Board expressed its keen interest in reviewing the Corporation's operating expenses and assessing them for prudence and reasonableness, in conjunction with the fulfillment of its mandate. The Board also expressed the view that both service delivery and cost containment can co-exist and stated that cost restraint is imperative. The Board stated that it was apparent that MPI had not taken significant steps to restrain costs and in fact had not only increased its costs in some areas but planned for further staff complement increases. The Board noted that it was concerned about MPI's operating and personnel compensation costs increasing well in excess of inflation, particularly given the restraints being implemented in other areas of public service. The Board also expressed the view that the Corporation did not have close controls on its operating expenses, and that it did not appear that cost control was a significant priority for the Corporation.

Despite all of the foregoing having been stated by the Board in its prior Order, the Corporation's approach to operating expenses appears to have remained unchanged. The Board continues to have significant concerns that there have been no savings in operating expenses over the last two years, and that the growth rate continues to be higher than inflation. It is the view of the Board that the Corporation must control its expenses, and reverse the trend of ongoing growth in expenses over time. The Board also has concerns with respect to the Corporation's staffing levels, which have continued to increase.

The Board requires that the Corporation review its efficiencies on a go-forward basis, and the Board believes that the Corporation can take steps to rein in its operating expenses. The Board is of the view that the Corporation can take steps to reduce its expenses to compensate for the lower rate increase being approved by the Board. The Board orders that MPI file with the Board staffing and cost control results at the next GRA.

With respect to IT expenditures, in Order 157/12, the Board expressed concern with respect to MPI's level of spending; although savings have been identified, the Board stated that MPI needed to remain vigilant in controlling its IT spending. The Corporation did not provide evidence at this year's GRA that it is controlling or attempting to restrain its IT costs, and the Board is very concerned about cost overruns. The Gartner report filed this year indicated that MPI has poor control over its IT spending versus peer groups; even though its relative position has improved over past years, it remains at the high end of the peer group with respect to spending. MPI has not demonstrated the benefits of its IT investments, including any financial paybacks.

The Board directs MPI to file at next year's GRA a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures.

With respect to benchmarking, the Board acknowledges that the Corporation is doing more than it has before, but the Corporation does not have a cost containment framework in place to the same extent as it does a service commitment framework. The Board continues to be of the view that there is a clear need for further benchmarking within the Corporation, and notes, with respect to BI3, that the Board had indicated previously an expectation that the information gleaned by MPI would be used to benchmark its outcomes with those of similar organizations, with a view to reducing claimants' disability durations and optimizing their recovery time. This has not yet occurred, and the Board orders that MPI file, at the next GRA, a benchmarking framework, along with benchmarking indicators to which the Corporation intends to be held accountable. It is the view of the Board that the most appropriate benchmark relative to operating expenses is for the Corporation to compare itself with other public insurers. In addition, MPI needs to benchmark the productivity of its employees both in relation to their own performance over time and in comparison with employees of other public insurers.

The Board must also continue to examine MPI's Operating Expenses and IT Expenses in the context of services and products available to Basic ratepayers and any improvements to those services and products. In other words, what benefits, advantages or conveniences accrue to Basic ratepayers on account of the expenses incurred by MPI? The Board directs MPI to include in the next GRA filing the details of steps that it has taken or intends to take to improve or enhance the services and products being offered to Basic ratepayers.

TAB 2

MANITOBA	)	
	)	
THE PUBLIC UTILITIES BOARD ACT	)	Order 135/14
	)	
THE MANITOBA PUBLIC INSURANCE ACT	)	
	)	December 5, 2014
THE CROWN CORPORATIONS PUBLIC REVIEW AND ACCOUNTABILITY ACT	)	

Before: Régis Gosselin, B ès Arts, C.G.A., M.B.A., Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair, Acting Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Susan Proven, P.H.Ec., Member
Allan Morin, B.A., ICD.D., Member

**MANITOBA PUBLIC INSURANCE CORPORATION (MPI):
COMPULSORY 2015/2016 DRIVER AND VEHICLE INSURANCE PREMIUMS
AND OTHER MATTERS**

In addition, MPI has restricted all out-of-province travel and conference participation for its staff, for an indeterminate period of time, that it has restricted internal staff meeting costs and that it has formed a committee of senior managers to identify, investigate and implement operating cost reduction initiatives and further cut discretionary spending. MPI has realized $109,000 in savings in the first six months of 2014/15 and anticipates that those savings may double for the year. MPI stated that it has shown fiscal prudence in managing its operating costs and that convenience and service for its customers are its priority.

3.5 Information Technology Expenses

MPI has pursued IT projects targeted towards modernizing its IT footprint, including the following initiatives: Data Centre Optimization, IT Optimization, Driving Ahead in Real Time (DART), Information Security Strategy, Broker Refresh, Physical Damage Re-engineering, Human Resource Management as well as other initiatives.

MPI's total Corporate IT expenses, including operating expenses and capital investments, have increased from $31.3 million in 2005/06 to $87.2 million in 2013/14, with a compounded annual growth rate of 13.7 %and are forecast to increase to $96.4 million in 2018/19. In 2013/14, approximately 42% of the Corporation's spending was directed to strategic IT initiatives. MPI has engaged approximately 120 to 140 external consultants to assist in delivering on its IT initiatives at a cost of approximately $30 million per year.

MPI's major capital IT initiative is the Physical Damage Re-engineering Project (PDR Project). The strategy of the PDR Project is to employ a distributed enterprise model whereby MPI embeds technology into repair facilities to work collaboratively with its partners in streamlining collision repair processes to realize claims cost savings. MPI estimates that the PDR Project will cost approximately $65 million to implement, and will be put into service by 2017/18. MPI expects that it will realize $13 million in annual savings as a result of the PDR Project which will be offset by $5 million in additional software licensing and other costs for a net annual savings of $8 million when the initiative is put into service. At last year's GRA, MPI advised that the final cost of its Human Resource Management System was $16 million; 60% higher than the $10 million budget provided previously. In Order 151/13, the Board stated that it was very concerned about cost overruns, and that MPI had not demonstrated the benefits of its IT investments, including financial payback. The Board ordered MPI to file, at this year's GRA, a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures.

3.6 Benchmarking

In Order 151/13, the Board ordered that MPI file at this GRA:

- staffing and cost control results;
- a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures; and
- a benchmarking framework, along with benchmarking indicators to which the Corporation intends to be held accountable.

MPI has acknowledged the importance of benchmarking, to identify improvement opportunities for managing expenses and the efficiencies of its operations to move forward successfully. The Corporation filed with the Board a benchmarking framework reflecting four subject areas: Operational Efficiency, IT Service Delivery, Serving Manitobans and Community Impact.

In addition, MPI filed with the Board an Operational Efficiency document reflecting information obtained by the Corporation from the Ward Group, including a comparison of the Corporation to other auto insurers.

The Ward Group comparison shows that the Corporation's total gross expenses as a percentage of gross premiums written and per policy in force are below the comparators, including the Canadian Auto Group (includes 2 public insurers), the Canadian Benchmark Group (includes 2 public insurers) and the U.S. Personal Auto Group. The Corporation's FTEs per $100 million of gross premiums written are, however, in excess of each of the comparator groups by 28 - 50 FTEs, and the Corporation's ratio of staff to management is lower than the comparator groups, meaning that the Corporation has more managers and less staff than the comparator groups, which leads to higher compensation costs.

MPI filed a benchmarking study relative to its IT expenditures, and an updated CIO Scorecard prepared by The Gartner Group (Gartner), reflecting benchmarking of various elements of IT costs. Gartner stated that MPI's overall IT maturity had improved from the prior year. Gartner noted that while there were some improvements in MPI's ratings as compared with its peer group, MPI spent 8% more on personnel, 9% more on outsourcing and used 12% more contractors than its peers. The disparity between MPI's spending and that of its peer group has, on the whole, improved over past years though MPI remains above its peer group in certain aspects of spending.

In particular, MPI's IT spending per company employee is $44,046 (increased from $43,243 last year), compared with the peer group for which average spending is $27,073. Similarly, MPI's total IT spending, as a percentage of revenue, is down to 7.2% from 7.6% last year, compared with the peer group average of 4.6%. Gartner also noted that MPI's public mission to serve Manitobans, and not to maximize revenues, has an effect on the metrics reported as a percentage of revenue. Gartner has stated that as MPI adds more customer convenience capabilities and conducts more business over digital channels, its IT footprint will expand, resulting in higher steady-state IT expenses.

Gartner stated that improving MPI's long-term IT cost position is reliant upon retiring and/or eliminating duplicate functionality on an ongoing basis, in addition to regularly investing in updates to avoid significant capital outlays in future years. As well, it is critical that modernization and rationalization of IT are an ongoing part of MPI's governance process and investment strategies. Gartner has stated also that as the modernization efforts ramp down, staffing plans should be developed to ensure a core of key skills remain in-house at MPI to reduce contractor dependence, increase staff satisfaction and maintain costs.

Gartner has made a series of recommendations to MPI in the past, which MPI has not yet implemented, in some instances because MPI has rejected the recommendation, and in others because MPI lacks the resources to implement the recommendation. MPI has stated that it is continuing to work towards evaluation and implementation of many of Gartner's outstanding recommendations.

The Corporation did not file with the Board a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures, as ordered last year. Rather, the Corporation advised the Board that its IT strategy is integrated with its overall business strategy, and that it is conducting two strategy development exercises for its business, each of which includes an IT component. The first relates to the management of physical and property damage claims with a view to developing an overall strategy to enhance service. The second is the development of an overall vision and strategy for the Corporation for the next five years, to be developed by the Corporation's Board of Directors and Management Committee. The Board orders MPI to file, at next year's GRA, any reports generated relative to its vision and strategy development exercises.

3.7 Recycled Parts

The Board granted intervener status to the Automotive Recyclers of Manitoba (ARM), an organization that sought to bring forward important and cost-sensitive issues, and to critically evaluate the PDR Project, review cost containment initiatives relative to recycled parts, review environmental controls in the resale of total loss vehicles, and suggest improvements to reduce physical damage costs.

Since 2008 there has been a downward trend in the use of both aftermarket and recycled parts, in favour of the use of new or Original Equipment Manufacturers' (OEM) parts. The amounts spent on new, aftermarket and recycled parts from 2008 to 2013 is as follows:

Vehicle Parts Costs ($ millions)

	New		Aftermarket		Recycled	
Year	%	$	%	$	%	$
2008	56%	$44.6	33%	$26.4	11%	$8.6
2009	55%	$44.9	34%	$27.4	11%	$9.1
2010	59%	$44.8	30%	$24.7	10%	$9.0
2011	61%	$51.2	30%	$27.6	9%	$9.6
2012	62%	$48.7	29%	$26.2	8%	$8.3
2013	67%	$59.4	27%	$24.2	7%	$7.5

In the past, the Corporation had an agreement with ARM whereby the Corporation provided annual funding for the operation of the Recyclers' Central Office ("RCO") administered by ARM. The RCO acts as a clearing-house for all recycled parts requested by the Corporation, and automobile repair shops contact the RCO to determine the availability of recycled parts for the repair of damaged vehicles. MPI's agreement with ARM relative to the RCO expired on November 30, 2012, after which MPI took over the operation of the RCO.

Aftermarket parts are manufactured and supplied by sources other than the OEM. The Corporation has negotiated pricing, warranties, delivery time and business rules with the major parts suppliers, such that aftermarket parts are obtained at a discount off of the OEM suggested list price, resulting in cost savings to MPI.

The Corporation has observed the following industry trends impacting the availability of cost-effective alternative parts. OEMs have increased their new model marketing and introduced a much wider variety of models. These changes have reduced the interchangeability of parts among vehicles. The widened variety of models also impacts recyclers. For instance, a specific auto model in a recycler's inventory may not be compatible with the current model of the same vehicle being repaired.

Another major trend is the erosion of the relative dominance of North American vehicle brands as offshore vehicle manufacturers continue to grow their market share. Offshore brands have significantly different supply chain policies and methods and the ability of aftermarket suppliers to obtain the necessary information to produce comparable alternative parts is more constrained than for the North American brands. The Corporation sees that as more offshore brands grow their market share, the opportunity to purchase alternative parts has been and will continue to be reduced.

OEMs have introduced competitive strategies for price matching aftermarket and recycled parts and if the price is the same, customers have shown a preference for OEM parts. In addition, OEM Certified Repair Programs are further limiting repair facilities from using aftermarket or recycled parts and require the use of OEM parts only.

MPI has stated that it is committed to safe, reliable and cost-effective repairs to customer vehicles, and that while cost-effectiveness is important, MPI must also ensure that the parts used are of the appropriate quality. If market trends continue to reduce the ability of the local parts industry to provide qualified parts, MPI will have no option but to authorize the use of OEM supply parts. These trends have the potential to increase claims costs and will need to be factored into MPI's overall insurance program.

MPI stated that it works with 16 auto recyclers and that when the Corporation started the PDR Project, it met with these recyclers to discuss changes in technology, parts procurement and supply chain and the sustainability of the recycling industry. MPI stated that if market trends continue, auto recyclers are going to be defunct within five years given the aggressive aftermarket business. MPI stated that it will be required to make a policy decision whether to support the recycling industry, after weighing the impact on ratepayers and issues of sustainability.

3.8 Interveners' Positions

CAC

CAC questioned whether MPI's IT investments are delivering value to Manitobans as promised, and whether the core strengths of MPI, including claims management and cost control, are being neglected in MPI's rush to IT solutions. In particular, CAC stated that from 2009/10 to 2013/14, the Corporation's IT costs increased by $27 million; a compounded annual growth rate of almost 18%, and that from 2013/14 to 2018/19 there are expected increases of an additional $23 million; a compounded annual growth rate of 7.1%. CAC noted that the forecast through 2018/19 does not include an additional $3.5 million to be expended relative to the purchase of software pursuant to the PDR Project.

CAC stated that MPI is not conducting itself in a manner consistent with having suffered losses of $133 million in the last two fiscal years, particularly given its compensation costs, including costs for outside consultants ($30 million per year), the budget for which MPI stated clearly would not be changed.

CAC expressed the view that MPI seems to be moving sharply away from service centre control over the estimating process, and to management by exception, such that Board may wish to direct MPI to provide an updated estimate of the projected costs and benefits associated with the PDR Project including empirical information assessing this approach. CAC also recommended that MPI be directed to give advice to the Board on how barriers (including training) to cost-effective estimating and collision repair are being addressed. CAC identified this as an important risk mitigation issue.

CAC recommended also that MPI be directed to provide, at the next GRA, baselines in terms of duration of repair shop contact with MPI as well as preliminary metrics by which to assess cost containment achievements of the PDR Project.

CAC noted that last year the Board expressed a concern that the Corporation did not have in place a cost containment framework, although the BI^3 Project was implemented in September 2010 and continues to function today. CAC submitted that the BI^3 Project has not led to any success in controlling claims costs, increased consistency in claims handling between case managers or reductions in claims leakage as promised by MPI, and that in fact there has been deterioration in the Corporation's performance compared to pre-BI^3 benchmarks.

CAC pointed to the following issues encountered relative to the BI^3 Project, which issues it states affect PIPP reserving estimates and therefore cast doubt upon the credibility and reliability of some of the ultimate PIPP forecasts:

- Double reserving resulting in overstatement of certain reserves (addressed in November 2012);
- Lag in complying with case reserving guidelines gave rise to gaps in reserving that were more extensive than expected;
- Lag in complying with case reserving guidelines was identified by actuaries not claims managers through monthly reporting; and
- Deterioration in duration performance compared to pre-BI^3 benchmarks.

CAC stated that there is still opportunity for improvement pursuant to the BI^3 Project, but that in its view, MPI has not established that the BI^3 Project has demonstrated its ability to control claims costs, or that there has been value received for the funds expended on the BI^3 Project. CAC asked that MPI be directed to provide an update at the next GRA relative to the duration issue and management of PIPP claims that includes whether pre-BI^3 benchmarks are being achieved, when higher post-BI^3 benchmarks will be implemented and what those benchmarks will be.

CAC also requested that consideration be given to MPI undertaking an external, independent review of the management and oversight of PIPP claims pursuant to the BI^3 Project.

CMMG

CMMG stated that MPI is not focused on controlling its costs. Rather it continues to pursue expensive IT projects.

ARM

ARM stated that recycled parts provide to MPI the largest discount by percentage of any other replacement part option. In particular, recycled parts are priced at between 45% and 60% of OEM rates, which represent savings passed on to ratepayers in their insurance premiums. At one time, MPI had a "recycle first" policy to ensure maximum savings on recycled parts and since the removal of that policy, MPI's costs for replacement parts have increased significantly. ARM asked the Board to recommend that a "recycle first" policy be maintained in any future arrangements between auto recyclers and MPI.

ARM stated that there has been a significant decline in the quantity of recycled parts sold, from 11% of all replacement parts purchased by MPI in 2008 to 7% in 2013, with a concurrent increase in the use of new (OEM) parts. ARM advised that it would like to work with MPI to reverse this trend or reduce the decline in the use of recycled parts, and to continue to offer a viable alternative to new parts. ARM asked the Board to recommend that MPI adopt a strong initiative to both foster and assist the auto recycling industry to assist it to remain viable and sustainable.

ARM also asked the Board to recommend that the development of the PDR Project be done by MPI in a co-operative and considered manner, together with ARM, including the automation of the parts processing and repair estimates. ARM stated that auto recyclers can work with MPI to reduce the parts-ordering timeline, and to eliminate redundancies within the system. ARM stated that recyclers can provide parts quickly and cheaply, to the benefit of all ratepayers.

ARM stated that when MPI took over responsibility for running the RCO in December 2012, it was on the basis that there would be a greater and more efficient use of recycled parts. ARM states that no such improvement has materialized, and asked the Board to recommend that MPI meet its pledge, and work with ARM to revisit operation of the RCO to ensure transparency and efficiency.

ARM advised that it has met with MPI to determine what changes can be made to the Canadian Automotive Recyclers' Environmental Code (CAREC) computer system, that effectively shuts out recyclers where there is a glass component in an insurance claim (or where the word "glass" is referenced relative to any replacement part), and where a required part is stored by recyclers as part of an assembly, rather than an individual part. ARM has stated that MPI has agreed to review and resolve these issues in consultation with ARM.

In addition, ARM is in discussions with MPI relative to reviewing the process by which the use of recycled parts can be rejected by body shops in Manitoba in favour of the use of OEM parts, which may increase the profit margin to the shops. ARM expressed confidence that MPI will resurrect its policy of monitoring the rejection of recycled parts that has contributed substantially to the decline in the use of recycled parts in Manitoba.

ARM stated that these types of joint activities as between it and MPI are critical to ensure that ratepayers receive the benefit of the use of the least expensive replacement parts, and maintain critical safety parameters. ARM also cited the importance of ARM and MPI working together to ensure a consistent set of practices that are aligned with applicable laws and regulations as well as within product and industry stewardship programs.

The Board also heard a presentation on behalf of ARM, by Mr. Stephen Fletcher, which is summarized in section 9.0 below.

IBAM

Mr. David Schioler, the CEO of IBAM, testified before the Board that IBAM represents 2,000 broker members from all communities in Manitoba, who are the sole distributors of MPI products, and that MPI sales represent approximately 33% to 35% of all insurance transactions processed by brokers in Manitoba. In 2013, brokers processed over $3.7 million in transactions for MPI, for about 900,000 customers.

IBAM sought to raise awareness with the Board regarding the complexity of selling MPI's Basic and Extension products and to ensure that MPI has the funding envelope required to ensure the viability of professional insurance brokers. IBAM has worked collaboratively with MPI over the last eight years to ensure that costs would be managed effectively both at brokerage offices and at MPI without reducing the level of service that Manitobans expect. IBAM stated that ensuring that MPI has appropriate funding to facilitate training and product development, and to improve broker conditions will ensure the viability of brokers and provide protection and proper service to Manitobans.

IBAM stated that alternative delivery models such as MPI selling directly to consumers would surely prove cost-prohibitive and would be unacceptable in terms of the level of accessibility and service that Manitobans have come to expect.

IBAM stated that MPI has a shared responsibility to ensure that Manitoba customers are adequately covered with the best-fit insurance products for their needs, and that to do so, MPI must be in a position to manage effectively, to respond to changes in process, and to support brokers through research, training and feedback. IBAM stated that any rate premium deficiency must be addressed and that adequate capital requirements are very important for MPI.

With respect to MPI's dominant position in the Extension line of business, IBAM stated that MPI offers a good Extension product and that Basic customers are familiar with MPI and choose MPI's Extension products because they are attached to the Basic product.

3.9 Board Findings

The Board has in the past characterized one of the key elements of its independent review function and rate-setting role as ensuring that actual and projected costs incurred are necessary and prudent, in the context of setting just and reasonable Basic rates. The Board's jurisdiction to do so is derived from *The Crown Corporations Public Review and Accountability Act* and in particular s. 26 thereof, as reflected in Order 98/14 issued in this proceeding.

With respect to Operating Expenses, in last year's Order 151/13, the Board expressed the view that the Corporation's approach to operating expenses appeared to be unchanged from prior years. The Board expressed significant concern that there were no savings in operating expenses over the two years previous, and that the growth rate of expenses continued to be higher than inflation. The Board stated that the Corporation must control its expenses, and reverse the trend of ongoing growth in expenses over time. The Board also expressed concerns with respect to the Corporation's staffing levels, which had continued to increase.

The Board ordered the Corporation to review its efficiencies on a go-forward basis, and take steps to rein in its operating expenses. The Board ordered MPI to file with the Board staffing and cost control results at this GRA.

The Board accepts that in the last year, the Corporation has made more effort to contain costs than previously, and that it has established a specific set of strategies to do so including the creation of a cost containment committee, the implementation of a hiring freeze and the modification of certain internal expense policies. The Board is hopeful that these initiatives will moderate cost increases.

With respect to compensation, the Board recognizes that the collective agreement into which the Corporation entered with the MGEU in 2012 is a significant driver of cost increases in 2015/16, and that staff will receive step in scale increases as they gain seniority and progress in their employment by MPI. The Board finds that the hiring freeze and reduction in positions implemented by MPI have partially mitigated the Board's concerns about operating expenses as expressed in the past, though the Board expects to see MPI meet its minimum target of 30 FTE reductions by next year.

The Board notes MPI's submission that the increase in its normal operating expenses from 2014/15 to 2015/16 is 1.31%, less than inflation, and looks forward to seeing the outcome of MPI's cost savings initiatives next year, including the work of the cost containment committee formed this year.

With respect to IT expenditures, in last year's Order 151/13, the Board expressed significant concern about cost overruns, given the Gartner report filed which reflected that MPI had poor control over its IT spending versus peer groups and that even though its relative position has improved over past years, it remained at the high end of the peer group with respect to spending. The Board directed MPI to file at this GRA a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures which MPI did not do. The Board orders MPI to file an update at next year's GRA with respect to all initiatives that may have IT cost implications for Basic, including the five-year IT strategic plan and cost-benefit analysis as directed in Order 151/13.

With respect to the PDR Project, the Board orders that MPI file with the Board at next year's GRA:

- both the terms of reference and the outcome of the pilot project on "management by exception" collision estimating;
- an updated estimate of the projected costs and benefits associated with the PDR project including empirical information assessing the success of management by exception in terms of collision estimating as compared to other collision claims control options;
- an update on how barriers (including training) to cost effective estimating and collision repair are being addressed; and
- baselines in terms of duration of repair shop contact with MPI and preliminary metrics by which to assess cost containment achievements of the PDR Project.

With respect to benchmarking generally, the Board acknowledges that the Corporation has made progress again this year, and is doing more than it has before, including the presentation of a benchmarking framework as requested by the Board. Moreover, the benchmarking results presented by the Corporation from the Ward Group and Gartner reflect that its position relative to peers has improved from last year, for which the Board commends the Corporation.

With respect to the BI^3 Project, the Board accepts that duration benchmarks are not being met, and that the Corporation has had challenges meeting pre-BI^3 initiative duration expectations, as well as compliance in reserving guidelines. The Board directs MPI to provide, at next year's GRA, an update on the claim duration issue including whether pre-BI^3 benchmarks are being achieved and when post BI^3 benchmarks will be implemented and what those benchmarks will be.

The Board also orders MPI to undertake an external, independent review of the management and oversight of PIPP claims in the context of post-BI^3 implementation, to learn whether the initiative is providing the desired impact, and file the result of the review at next year's GRA.

The Board encourages MPI to continue to conduct benchmarking relative to Serving Manitobans and Community Impact, and directs MPI to file updated results relative to that benchmarking with the Board at next year's GRA.

With respect to the use by MPI of recycled parts in the context of vehicle repairs, the Board recognizes the significant cost savings available to MPI, and strongly encourages MPI to work with ARM to address the ongoing use of recycled parts in Manitoba, to maximize savings to MPI, and in turn to ratepayers, wherever possible. In addition, the Board recognizes the benefit to MPI of the availability of recycled parts as an alternative parts source to OEM or aftermarket parts.

The Board accepts that joint activities as between ARM and MPI are needed to ensure that ratepayers receive the benefit of the use of the least expensive replacement parts, and maintain critical safety parameters. In addition, the Board supports ARM and MPI working together to ensure a consistent set of practices that are aligned with applicable laws and regulations as well as within product and industry stewardship programs.

Given the potential for cost savings to MPI arising from the ongoing and increased use of recycled parts, the Board accepts the submissions of ARM and recommends that:

- a "recycle first" policy be maintained in any future arrangements between auto recyclers and MPI, to ensure maximum savings relative to the use of recycled parts;
- MPI adopt a strong initiative to both foster and assist the auto recycling industry to assist it to remain viable and sustainable;
- the development of the PDR Project be done by MPI in a co-operative and considered manner, that engages ARM, including the automation of the parts processing and repair estimates; and
- MPI meet its pledge relative to the RCO, and discuss and examine the operations of the RCO with ARM to ensure transparency and efficiency.

4.0 INVESTMENTS

4.1 Investment Portfolio

As reflected in Section 2.4 above, the funds available for investment by the Corporation are primarily the assets supporting the unearned premium reserves and unpaid claims reserves. The Corporation's overall investment portfolio was over $2.4 billion as at February 28, 2014.

Management of MPI's assets must be done in accordance with the Investment Policy Statement approved by its Board of Directors. The composition of the investment portfolio at February 28, 2014, and forecast for 2015/16 are as follows:

	2013/14 Actual		2015/16 Forecast	
	Ending Asset Values (C$ millions)	**Ending Rebalanced Allocation (%)**	**Ending Asset Values (C$ millions)**	**Ending Rebalanced Allocation (%)**
Cash/Short Term Investments	93	3.8	25	1.0
Canadian Fixed Income	970	39.7	792	32.3
MUSH Non-Marketable Bonds*	581	23.7	614	25.1
Total Long Term Bonds	**1,551**	**63.4**	**1,406**	**57.4**
Canadian Equities	381	15.6	439	17.9
US Equities	139	5.7	160	6.5
Real Estate	231	9.4	305	12.5
Infrastructure & Venture Capital	52	2.1	114	4.7
Total	**$2,447**	**100.0%**	**$2,449**	**100.0%**

** MUSH bonds are Manitoba rural municipality, school division and healthcare facility bonds and ventures which are not tradable in the fixed income market. MUSH bonds are held at book value and the portfolio's value does not vary with changes in interest rates.*

TAB 3

MANITOBA	)	
	)	
THE PUBLIC UTILITIES BOARD ACT	)	Order 128/15
	)	
THE MANITOBA PUBLIC INSURANCE ACT	)	
	)	December 1, 2015
THE CROWN CORPORATIONS PUBLIC REVIEW AND ACCOUNTABILITY ACT	)	

Before: Régis Gosselin, B ès Arts, M.B.A., C.P.A., C.G.A, Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair, Acting Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Susan Proven, P.H.Ec., Member
Allan Morin, B.A., ICD.D., Member

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2016/2017 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

Containment Committee is ongoing and the Committee continues to reinforce the Corporation's responsibility to identify areas where processes can be improved and costs can be avoided or reduced.

MPI stated also that its ability to reduce the 2015/16 operating expense budget by $8.5 million enabled it to avoid seeking a Basic rate increase in the Application.

3.5 Basic Information Technology Expenses

Over the last number of years MPI has pursued IT projects targeted towards modernizing its IT footprint, including the following initiatives: Data Centre Optimization, IT Optimization, Driving Ahead in Real Time (DART), Information Security Strategy, Broker Refresh, PDR, Human Resource Management System (HRMS) as well as other initiatives. This year MPI reported to the Board with respect to the following projects: PDR Project, Information Technology Optimization Application High Availability Project, Information Security Strategy and Roadmap Program, HRMS Phases 3 & 4, Enterprise Data Masking Project, Legal Management Project, Predictive Analytics Project, Corporate Learning Management System Project and High School Driver Education Redevelopment Project.

MPI's total Corporate IT expenses, including Operating Expenses and capital investments, have increased from $49.3 million in 2010/11 to $76.5 million in 2014/15, representing a compounded annual growth rate of 12.3%. The same expenses are forecast to be $76.9 million in 2015/16 and are forecast to increase to $97.5 million in 2019/20, representing a compounded annual growth rate of 2.5%.

MPI utilizes internal FTEs relative to its IT needs and it has also engaged external consultants for that purpose. In 2014/15, there were 210 internal FTEs working on IT delivery, together with 110 external consultants, for a total of 320 FTEs. These levels represent a decrease from 2012/13 when the Corporation had 356 FTEs (227 internal and 129 external) committed to IT delivery. The Corporation advised the Board at the GRA hearing that it would be a challenge to bring additional IT service providers on staff with the

Corporation due to the salary levels that the market would demand, as compared with what the Corporation, as a Crown Corporation, can pay.

In Order 135/14, the Board ordered that MPI file at this GRA, an update with respect to all initiatives that may have IT cost implications for Basic, including the five-year IT strategic plan and cost-benefit analysis as directed previously in Order 151/13, together with any reports generated relative to MPI's IT vision and strategy development exercises. The Corporation provided this information as part of the Application.

MPI's major capital IT initiative is the PDR Project. The strategy of the PDR Project is to employ a distributed enterprise model whereby MPI embeds technology into repair facilities to work collaboratively with its partners in streamlining collision repair processes to realize claims cost savings. MPI estimates that the PDR Project will cost approximately $65 million to implement, and will be put into service by 2019/20, two years later than anticipated initially, due to the results of pilot projects which indicated a need to refine the details of the initiative. MPI expects that it will realize $13.3 million in annual savings as a result of the PDR Project which will include savings in Operating Expenses and Claims Incurred.

MPI also advised the Board that it is budgeting for technology modernization costs of $33.3 million over the next four years, to ensure its existing systems are fully supported. MPI has advised that there will be no formal project charter for this project and that it will provide further detail of the nature of the spending when budgets become more formalized.

3.6 Benchmarking

MPI has acknowledged the importance of benchmarking, to identify improvement opportunities for managing expenses and the efficiencies of its operations to move forward successfully. The Corporation again filed with the Board its benchmarking framework reflecting four subject areas: Operational Efficiency, IT Service Delivery, Serving Manitobans and Community Impact.

In Order 135/14, the Board ordered that MPI file at this GRA:

- an update on the claim duration issue including whether pre-BI^3 benchmarks are being achieved and when post-BI^3 benchmarks will be implemented and what those benchmarks will be;

- an external, independent review of the management and oversight of PIPP claims in the context of post-BI^3 implementation, to learn whether the initiative is providing the desired impact; and

- updated results relative to Serving Manitobans and Community Impact benchmarking.

The Corporation advised that as BI^3 was implemented in September 2010 and is now entering its fifth year post-implementation, it is too early to finalize post-BI^3 benchmarks as open post-BI^3 claims are not yet fully developed. The Corporation anticipates that while it will take seven years for the initiative to be fully functioning and achieving desired outcomes, it recognizes the importance of establishing performance measures and benchmarks and will do so as information becomes available.

The Corporation advised that an external, independent review of the management and oversight of PIPP claims in the context of post-BI^3 implementation would take two years to complete, based upon its experience with an audit of PIPP conducted by the Office of the Auditor General in 2012, which audit led to 23 recommendations being made to MPI. The Corporation stated that another review of the management and oversight of PIPP claims at this time would be non-conclusive given that BI^3 will not be fully implemented for another two years.

MPI did file with the Application an update relative to Serving Manitobans and Community Impact as well as an Operational Efficiency document reflecting information obtained by the

Corporation from the Ward Group, including a comparison of the Corporation to other auto insurers.

The Ward Group comparison reflects, as was the case last year, that the Corporation's total gross expenses, both as a percentage of gross premiums written and per policy in force are below the comparators, including the Canadian Personal Auto Group (includes 2 public insurers), the Canadian Benchmark Group (includes 2 public insurers) and the U.S. Personal Auto Group. There are several other categories in which the Corporation continues to outperform the comparators. The Corporation's FTEs per $100 million of gross premiums written, however, continue to be in excess of each of the comparator groups by 35 - 48 FTEs.

Historically, MPI has filed a benchmarking study relative to its IT expenditures, including a CIO Scorecard prepared by The Gartner Group (Gartner), reflecting benchmarking of various elements of IT costs. This year, the Corporation advised that in order to align the benchmarking information provided by the Ward Group and Gartner, new Gartner information would not be available until after the GRA hearing. The Corporation advised that this Gartner information will be included in next year's filing on the same annual basis as that provided by the Ward Group.

Gartner has made a series of recommendations to MPI in the past, some of which MPI has not yet implemented, in some instances because MPI has rejected the recommendation, and in others because MPI lacks the resources to implement the recommendation. MPI has stated that it is continuing to work towards evaluation and implementation of many of Gartner's outstanding recommendations.

3.7 Interveners' Positions

CAC

CAC recognized and acknowledged both the operational costs savings achieved by MPI in the short-term and the significant growth of those expenses, particularly since 2010/11.

CAC commented upon the prudence and reasonableness of both the BI^3 and PDR Projects, noting that each is a significant, transformative project very heavily reliant upon IT in terms of the opportunities and risks that each program offers.

With respect to BI^3, CAC stated that MPI has repositioned, and sought to bring the Board's attention back to the representations made by the Corporation in earlier hearings. In particular, CAC noted:

- the Corporation advised in a 2012 analysis that anticipated savings were $42 million, including 75% relative the reduction of claims leakage ($33.4 million) and 25% to savings in operating costs ($8.6 million);

- the Corporation now states that claims leakage is less of a factor or perhaps not a factor at all and that more significant operating costs savings are anticipated;

- the original value proposition from 2006 related to lowering claims duration; and

- last year the Corporation stated that it seeks to meet and then exceed BI^3 benchmarks and that claims durations were longer than the Corporation anticipated.

CAC stated that there are risks associated with IT intensive projects such as BI^3, in terms of both short-term cost overruns and MPI's ability to deliver what was promised and the consequences for longer term costs, including amortization. CAC acknowledged that there have been benefits from BI^3 but questioned whether the risks outweigh those benefits.

CAC suggested that the lessons learned from BI^3 should be considered relative to PDR; another transformative project with opportunities and risks which MPI has stated are much more significant than anticipated originally. In particular, MPI has identified that there will be higher than anticipated costs for retooling, and some repair shops will be left behind. Also, PDR will lead to a transformation of the estimating process and there will be changes in

terms of demand for Service Centres. MPI reported that, in its discussions with the repair industry, all issues may be on the table including funding for retooling and estimating.

CAC noted MPI's evidence that the changes to the industry are much more significant than MPI anticipated, yet MPI has made no changes to its business plan for PDR, in terms of the magnitude of the costs or the savings. CAC stated that PDR will have yet unknown implications for the rate-setting process that must be considered by the Board. CAC questioned whether MPI should ever spend on for-profit businesses, which gives rise to a public policy issue of the potential contribution of ratepayers to private business infrastructure. CAC noted that PDR has significant upside and downside potential for collision costs, such that the Board should consider an in-camera briefing of the results of the distributed estimating pilot project prior to the next GRA.

CAC stated that MPI's IT staffing has been a long-standing issue, and that historically the benchmarking provided by the Gartner Group has reflected that the Corporation has had more external contractors and more overall IT staff than its peers. CAC stated also that MPI needs to bring itself in line with its peer comparators, and justify that its expenditures are prudent and reasonable, especially with respect to external contractors. CAC stated that MPI's expenses with respect to external contractors should be an area for potential cost savings, given the Corporation's evidence relative to its growing costs in this area and to the need to address this issue. CAC stated that it looks forward to further dialogue on IT staffing levels.

CAC stated that the Ontario Energy Board has been noted for the leadership role which it has played in a dialogue about benchmarking in core areas, and that this type of opportunity should be pursued in Manitoba. CAC noted that there seems to be some openness on the part of MPI to regulator facilitated deliberations on benchmarking. CAC suggested that to move this recommendation forward would require structure and creativity, including ground rules set by the Board and the involvement of an independent facilitator.

CAC stated also that in its view there remain unresolved issues within MPI's claims forecasting, which issues have given rise to a long-standing source of instability in rate-setting for Basic. In particular, Ms. Andrea Sherry, CAC's actuarial expert witness, testified with respect to the robustness of MPI's trending process, indicating that:

- MPI should base claims forecasts on statistically significant fitted trends wherever possible;
- MPI should take advantage of the detailed data available to it to explore coverage trends at a more granular level; and
- MPI should base claims forecasts on accident year trends, rather than fiscal year trends.

In addition, CAC stated that:

- MPI has difficulty with mortality estimation because it does not have enough claimants and data to build its own mortality table;
- As a result, within PIPP there remains a gap between expected and actual terminations of claims;
- MPI is attempting to phase in adjustments to the termination gap but there is a lack of actual experience data and positive developments are being recognized gradually; and
- MPI should seek to gain insight on longer tail experience from outside, and in particular from Société de l'assurance automobile du Québec (SAAQ).

CMMG

CMMG stated that it has difficulty understanding and evaluating the evidence of the Corporation relative to its IT consultants, and in particular the statement that MPI cannot make these consultants employees and disclose their salaries in the public GRA forum. CMMG characterized this issue as a difficult one.

IBAM

Mr. David Schioler testified on behalf of the Insurance Brokers' Association of Manitoba (IBAM).
IBAM expressed its support for the Corporation's Application and highlighted some issues from its perspective.

According to Mr. Schioler's evidence, approximately 33 percent of all insurance transactions conducted in Manitoba by insurance brokers involve MPI, and as such, appropriate rate-setting and the overall viability of MPI is important to IBAM's membership. Insurance brokers processed approximately 4 million transactions for MPI in 2014.

IBAM stated that private insurers are concerned with appropriate capital levels and premiums moving forward, given that catastrophic losses are becoming more frequent. As such, some private insurers are carrying surpluses beyond their regulatory requirements due to these concerns. With respect to MPI, IBAM expressed its view that it is important to ensure that MPI has adequate capital and to address any rate premium deficiency. Taking steps to address these issues will, according to IBAM, allow MPI to deal with structural challenges in the automobile industry and increasing claims costs.

IBAM stated that the insurance brokers in Manitoba have worked with MPI to improve operating standards, which address broker licensing and movement of broker licenses between locations. The operating standards were developed by a joint committee comprised of five experienced insurance brokers and five representatives of MPI. IBAM stated also that MPI is now meeting regularly with insurance brokers in order to ensure coordination and proper service to customers.

3.8 Board Findings

The Board has in the past characterized one of the key elements of its independent review function and rate-setting role as ensuring that actual and projected costs incurred are

necessary and prudent, in the context of setting just and reasonable Basic rates. The Board's jurisdiction to do so is derived from *The Crown Corporations Public Review and Accountability Act* and in particular s. 26 thereof.

With respect to Operating Expenses, the Board has expressed the view previously that the Corporation's approach to Operating Expenses appeared to be unchanged from prior years, that there were no savings in Operating Expenses and that the growth rate of expenses continued to be higher than inflation. The Board stated that the Corporation must control its expenses, and reverse the trend of ongoing growth in expenses over time. The Board also expressed concerns with respect to the Corporation's staffing levels, which have continued to increase. The Board recognizes that the Corporation has heard the Board's concerns, and has taken specific steps to contain costs with which the Board is very pleased.

The Board is impressed with the ongoing efforts of the Corporation to contain costs, and is optimistic that the Corporation can continue to identify and implement ongoing savings beyond the $8.5 million identified in 2015/16. As set out above, the Board has granted the 0.0% rate change applied for by MPI in part because of these savings, and looks to the Corporation to continue that trend.

With respect to compensation, the Board recognizes that the collective agreement into which the Corporation entered with the MGEU in 2012 has continued to be a significant driver of cost increases, and that staff will receive step in scale increases as they gain seniority and progress in their employment by MPI, at least through September 2016. The Board acknowledges the Corporation's elimination of 30 FTEs which contributed in large part to the $8.5 million in savings in 2015/16, and expects to see the Corporation's efforts continue in 2016/17. The Board orders that MPI include in next year's GRA filing an update with respect to additional cost containment efforts relative to staffing levels and compensation expenses.

The Board is of the view that while MPI already does a significant amount of work on trends in claims forecasting, the robustness of its trending process can be improved. In particular,

because MPI is focused on fiscal year trends, the statistical significance of the selected trends becomes unknown, and only an intuitive sense of reasonableness is possible. Relying more directly on accident year trends, and focusing upon the analysis of those trends to explain the patterns being observed, should only improve claims forecasting. As such, the Board orders that:

- MPI should base claims forecasts on statistically significant fitted trends wherever possible;
- MPI should take advantage of the detailed data available to it to explore coverage trends at a more granular level; and
- MPI should base claims forecasts on accident year trends, rather than fiscal year trends.

The Board also orders that MPI should seek to gain insight on longer tail experience from outside, and in particular from Société de l'assurance automobile du Québec (SAAQ).

With respect to IT expenditures, the Board has historically expressed significant concern about cost overruns, particularly given the Gartner reports filed in the past which have reflected that MPI had poor control over its IT spending versus peer groups and that despite some improvement, it remained at the high end of the peer group with respect to spending. The Board is concerned about MPI's costs relative to external IT consultants, and orders that MPI assess opportunities for savings relative to external IT consultants, including a review of whether savings can be gleaned by bringing any of those consultants in-house. The Board orders that MPI file the results of that assessment with the Board at next year's GRA.

The Board notes the Corporation's plans for IT Modernization and the anticipated, associated cost of $33.3 million over the next four years. The Board requires that MPI file, at next year's GRA, the details of the IT Modernization initiative and the corresponding budget.

Given the significant budgeted PDR project cost ($65 million), the Board is concerned about the impact of the delay in full implementation to 2019/20, including the risks to the Corporation should further difficulties be encountered. The Board orders that MPI file with the Board at next year's GRA an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project. Prior to proceeding with this independent assessment, the Board orders MPI to file with the Board the proposed Terms of Reference of the assessment for approval by the Board.

The Board understands MPI's reluctance to share information that may impact its negotiations with the industry and will proceed with an in-camera briefing as requested by CAC, relative to the results of the distributed estimating pilot project prior to the next GRA, and no later than May 31, 2016. The Board makes this order because of the significant expected PDR Project cost and the delay disclosed by the Corporation.

With respect to benchmarking generally, the Board acknowledges that the Corporation has made further progress with its benchmarking, including the presentation of a benchmarking framework as requested by the Board and the continued provision of the Ward Group analysis. The Board looks forward to the receipt of the Gartner report next year.

The Board is aware of the work of the Ontario Energy Board and the leadership role which it has played in benchmarking utility performance. The Board may develop a broader benchmarking framework relative to all utilities in the future, perhaps initially outside the GRA process, or the Board may pursue a benchmarking framework unique to MPI.

4.0 INVESTMENTS

4.1 Investment Portfolio

As reflected in Section 2.4 above, the funds available for investment by the Corporation are primarily the assets supporting the unearned premium reserves and unpaid claims

TAB 4

Public Utilities Board

Régie des services publics

Order No. 162/16

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2017/2018 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 15, 2016

BEFORE: Robert Gabor, Q.C., Chair
Karen Botting, B.A., B.Ed., M.Ed., Vice Chair
The Hon. Anita Neville, P.C., B.A. (Hons.), Member
Allan Morin, B.A., ICD.D., Member





expenses. Budgets are reviewed monthly, and possible variances are investigated at the earliest possible stage and managed proactively. The Corporation advised that innovative strategies and processes will continue to be identified in order to contain and/or reduce corporate operating expenses.

3.5. Information Technology Expenses

MPI's total Corporate IT expenses, including operating expenses and capital projects, have increased from $50.9 million in 2011/12 to $74.0 million in 2015/16, representing a compounded annual growth rate of 6.4%. IT expenses are forecast to be $84.5 million in 2016/17 and to increase to $99.5 million in 2020/21, representing a compounded annual growth rate of 7.2%.

Over the last number of years, MPI has pursued IT capital projects targeted towards modernizing its IT infrastructure, including the following initiatives: Data Centre Optimization, IT Optimization, Driving Ahead in Real Time (DART), Information Security Strategy, Broker Refresh, PDR, Human Resource Management System (HRMS), as well as other initiatives. This year, MPI provided detailed information on the PDR and IT Modernization projects, including Gartner's PDR Evaluation Report and Terms of Reference for the PDR project, and the Program Financial budget for the IT Modernization project.

MPI's largest current major capital IT initiative is the PDR Project. The strategy of the PDR Project is to employ a distributed enterprise model whereby MPI embeds technology into repair facilities to work collaboratively in streamlining collision repair processes in order to realize claims cost savings. Originally the PDR project was to be completed in 2017 but was reported last year to be delayed to 2020 due to changes in scope and direction to the project. MPI estimates that the PDR Project cost remains unchanged at $65 million (based on 2012 dollars), and is now expected to be completed in 2021, which is a further one-year delay.

In Board Order 128/15, the Board directed MPI to file an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived. In response, MPI filed a report prepared by the Gartner Group, entitled Physical Damage Re-Engineering (PDR) Program Evaluation.

Martin Geffen of Gartner Group appeared as a witness called by MPI in the hearings, and addressed Gartner Group's PDR Program Evaluation, and the CIO Scorecard and Infrastructure Benchmark (CIO Scorecard). Mr. Geffen is a Vice President of Gartner Group and provides consulting services in the areas of technology planning, architecture, design and implementation issues. Mr. Geffen was qualified to testify as an expert in the area of the use and planning of information technology, and information technology governance.

As indicated by Mr. Geffen, Gartner had found that the overall total budget of the PDR Project had not been changed, but that costs had been reallocated among various components of the projects. Of the budget, $32.8 million, or 50%, had been spent on the project. Mr. Geffen noted that Gartner has found that, in programs as large and complex as the PDR project, it is not unexpected to have a course correction, because at the outset of a project it is not unusual for an organization to expect to progress more quickly with a project than is the reality.

With respect to the savings and benefits of the PDR project, Mr. Geffen noted that Gartner had determined the net present value benefit overall of the project of $18 million. The cost/benefit analysis conducted by Gartner did not include the cost of maintaining the program. Gartner estimated the maintenance cost, based on industry standards, to be 18 to 20% per annum.

In the 2016 GRA, the Corporation advised the Board that it was budgeting for IT Modernization costs of $33.3 million over the next four years, to ensure its existing systems are fully supported. MPI revised the budget in this Application, to $40 million. MPI has advised that there will be no formal project charter for this project and that it will provide further detail of the nature of the spending when budgets become more formalized. To date, no quantified financial benefits for this project have been identified, as it is primarily designed to maintain the current IT assets and avoid significant future costs.

MPI utilizes both internal FTEs and external consultants to maintain MPI's IT systems and deliver on IT capital projects. MPI's IT actual and forecast staffing levels including consultants are as follows:

IT Staff Complement (FTE)

	Actual					Forecast		
Year Ended February 28/29	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Internal FTE	215	227	212	210	223	236*	249*	251*
Consultants	98	129	120	110	114	116	107	91
Total	313	356	332	320	336	352	356	342
% IT Consultants	31%	36%	36%	34%	34%	33%	30%	27%

* rounded.

In Board Order 128/15, the Board directed MPI to assess opportunities for savings relative to external IT consultants, including bringing consultants in-house. In response to this directive, the Corporation advised the Board that MPI made a conscious effort to reduce the number of external consultants eventually, by replacing them with permanent IT staff. MPI undertook a comprehensive review to develop an approach that optimizes the use of internal and external resources. The proposed approach, to transition up to 27 positions from external resources to internal staff over the next three years, is expected to achieve $2.4 million annual recurring cost savings in 2019/20. MPI indicated that it has internalized 12 IT positions previously filled by consultants in 2016/17.

Mr. Geffen, in his testimony, also explained what he would consider challenges to MPI's ability to employ IT staff internally as opposed to relying on IT consultants. First, he indicated that skilled IT resources are very difficult to acquire in the marketplace. In addition, organizations are often looking for flexibility to be able to ramp up skills and experience to address needs of a specific project, or on a term basis. Lastly, based on compensation structures, some organizations cannot attract resources to carry out the specific roles and responsibilities. The solution is to go out and contract those types of resources when they are needed on staff.

3.6. Benchmarking

MPI has acknowledged the importance of benchmarking to identify improvement opportunities for managing expenses and the efficiencies of its operations to move forward successfully. The Corporation again filed with the Board its benchmarking framework reflecting four subject areas: Operational Efficiency, IT Service Delivery, Serving Manitobans, and Community Impact. MPI uses the benchmarking results to identify opportunities to reduce costs, effective management approaches, and efficient resource allocation.

In Order 135/14, the Board ordered that MPI file in the 2016 GRA:

> 11.5 - An update on the claim duration issue including whether pre-BI^3 benchmarks are being achieved, and when post-BI^3 benchmarks will be implemented and what those benchmarks will be; and
>
> 11.6 - An external, independent review of the management and oversight of PIPP claims in the context of post-BI^3 implementation, to learn whether the initiative is providing the desired impact.

As stated in Order 128/15, MPI indicated last year that it was not in a position to fully comply with the above directives and advised that an external, independent review of the management and oversight of PIPP claims in the context of post-BI^3 implementation would take two years to complete. The Corporation stated that a review of the management and oversight of PIPP claims at this time would be non-conclusive given that BI^3 at that time would not be fully implemented for another two years. A full review would be considered at that time.

As also stated in Order 128/15, the Corporation advised that as BI^3 was implemented in September 2010 and, at that time was entering its fifth (now sixth) year post-implementation, it was too early to finalize post-BI^3 benchmarks as open post-BI^3 claims are not yet fully developed. MPI stated that the BI^3 business case indicated that it will take at least seven years for the initiative to be fully functioning and achieving desired outcomes.

In Order 128/15, the Board had directed MPI to seek to gain insight on longer tail experience from outside the Province of Manitoba, and in particular, from the Société de l'assurance automobile du Québec (SAAQ). The Corporation advised that it did not undertake the review as directed, and has indicated that it will conduct a review of mortality assumptions in the coming

year, on the assumption that SGI and SAAQ are willing to share their mortality experience with the Corporation.

MPI engaged the Ward Group to provide an independent perspective on how the Corporation compares to other companies, identify and prioritize improvement opportunities, set performance expectations and monitor performance. Ward identified the most meaningful indicators of operational efficiency for corporate performance and claims performance.

The Ward Group's 2014/15 comparison that the Corporation's total gross expenses, both as a percentage of gross premiums written and per policy in force, are below the comparators including the Canadian Personal Auto Group (which includes two public insurers), the Canadian Benchmark Group (which includes two public insurers) and the U.S. Personal Auto Group. MPI compared well on several different metrics against peer groups. MPI's performance on FTEs per $100 million of Gross Premiums Written (GPW) has improved since 2011/12 moving from $150.6 to $140.4 in 2014/15, yet remains materially higher than its peers.

MPI filed a benchmarking study relative to its 2014/15 IT expenditures, including the CIO Scorecard prepared by the Gartner Group, reflecting benchmarking of various elements of IT costs. Mr. Geffen provided testimony at the hearings on the CIO Scorecard, and commented that MPI had improved its overall IT maturity: seven of eight of its measures were as good or better than its peers, and in only one area, business process management, was MPI below its peers. To improve business process management, Mr. Geffen suggested that the use of workflow technologies or analytics technologies for process management will assess inefficiencies of a business process. In his view, increasingly efficient business process would drive down costs.

Gartner's CIO Scorecard report also showed that MPI spends 63% of its IT budget on personnel, versus 44% among its peers. Mr. Geffen, in his testimony, explained that the variance was attributable to the fact that 34% of MPI's IT staff is made up contractors, and among its peer group, 17% is comprised of IT contractors.

Mr. Geffen testified that Gartner will be finalizing its review of 2015/16 IT spending this fall. The Board anticipates that the results of Gartner's review will be filed in the 2018 GRA.

Gartner has, in recent years, made a series of recommendations to MPI, several of which MPI has adopted and/or are in the process of being implemented, while others remain to be evaluated. In particular, two recommendations from 2015 have been rearticulated in Gartner's most recent evaluation and read as follows:

> 3.05 Plan the future state architecture to support MPI's goals of access and support for existing and new services; and
>
> 3.06 Perform a baseline of the current, and perform gap analyses as the architecture is implemented.

The Corporation stated that it is continuing to work towards evaluation and implementation of many of Gartner's outstanding recommendations. It has also indicated that it will be evaluating the above two recommendations in the current year.

3.7. Interveners' Positions

CAC

CAC commented upon the prudence and reasonableness of the Corporation's spending on initiatives with significant IT components, including BI^3, PDR, and the Financial Re-Engineering Project. CAC also provided comments on the Corporation's staffing on IT and the findings in the Gartner Group evaluations of IT and the PDR project.

CAC recommended that the Board make certain findings regarding the Corporation's IT expenditures: first, that IT staffing and capital expenditures have been a significant driver of current and future cost pressures on the Corporation; and second, that significant challenges still exist regarding the rollout of BI^3. CAC characterized some of those challenges as follows:

- One of the three drivers of the budget variance in 2015/16 was higher non-interest-related adverse developments related to PIPP, in the range of $34 to $35 million.
- The Corporation is six years in to BI^3, which created profound changes in reserving practices in four areas: initial reserves, subsequent reserves to align with rehabilitation planning, step reserving after 24 months, and the reserving calculator.

- BI^3 case reserves do not reflect its exposure, and the duration benchmarks exceed pre-BI^3 benchmarks.

- The primary savings from BI^3 were to flow from leakage savings, based in large part on the duration expectations. BI^3 reserve practices may not fully reflect the risk exposure.

With respect to PDR, CAC referred to the Corporation's statement that the project would generate leakage costs as well. The experience with BI^3 to date should inform the Board on the likelihood of savings generated by PDR. CAC also asked the Board to find that the original design of PDR failed to follow the value management gatekeeping process, which was not in place at the outset of the project. CAC observed what it characterized as continuing significant risks associated with PDR:

- The First Notification of Loss (FNOL) and advanced analytics, technologies which are central to the PDR project, are not mature technologies.

- Whether the oversight approach based on advanced analytics will be effective, given a different business model: previously, most estimating was done by the Corporation initially; this will change with distributed estimating, which is anticipated to take place with 70-75% of estimates.

- Concentration within the industry, which could affect MPI's negotiating power.

CAC also commented on the compound annual growth rate of the amortization expense for the Technology Innovation, Technology Risk Management, and PDR. CAC argued that the increase in the annual growth rate from 2.5% in the 2016 GRA to 7.5% out to 2020/21 in the Application was an indication that IT is putting pressure on rates. In addition, CAC referenced the information from Gartner that the number of FTE staff in IT increased by 6.4% compounded year over year, between 2010/11 and 2014/15, and that MPI is spending more on IT FTEs than its peers. CAC argued that MPI relies on a disproportionate amount of contractors for IT. Reasonable and prudent IT management would include: (1) good gatekeeping that would be established prior to spending; (2) mature benefits realization metrics which would include an understanding of a baseline; and (3) the use of business cases to justify IT spending. It stated that there is a lack of financial metrics in business cases, against which MPI can assess new IT projects. As an example, the business charter related to the Financial Re-Engineering Project

does not contain financial metrics. CAC stated that an adverse inference must be drawn as a result of what it characterized as MPI's failure to justify the business case for its IT portfolio. CAC argued that the Board cannot have confidence in the cost/benefit analysis that has been supplied in support of the PDR. For example, the cost/benefit analysis performed by Gartner did not take into account the costs for maintaining the system. There should be an analysis of total cost of ownership of the program. CAC also made a number of recommendations regarding MPI's IT expenses.

CAC also stated that, in its view, there remain unresolved issues within MPI's claims forecasting, which issues have given rise to a long-standing source of instability in rate-setting for Basic. MPI should base claims forecasts on accident year trends rather than on fiscal year trends. CAC reiterated its recommendation from the 2016 GRA, that MPI should seek to gain insight on longer tail experience from outside, and in particular from SAAQ. CAC recommended that the Board require MPI to report back on its consultations, in terms of terminations and long-term claimants, including implications for liabilities and forecasts. This would assist in understanding the data which indicate that terminations are earlier than MPI has expected.

3.8. Board Findings

The Board has in the past characterized one of the key elements of its independent review function and rate-setting role as ensuring that actual and projected costs incurred are necessary and prudent, in the context of setting just and reasonable Basic rates. The Board's jurisdiction to do so is derived from *The Crown Corporations Public Review and Accountability Act*, and in particular, s. 26 thereof.

With respect to compensation, the Board recognizes that the collective agreement into which the Corporation entered with the MGEU in September 2016 will continue to be a driver of cost increases, and that staff will receive step in scale increases as they gain seniority and progress in their employment by MPI. The Board acknowledges MPI's efforts in internalizing IT staff and that long term savings will be realized from this approach. The Board directs the Corporation to continue its efforts to find further savings beyond the over $9 million identified in 2017/18 and 2018/19. The Board orders that MPI include in next year's GRA filing an update with respect to additional cost containment efforts relative to staffing levels and compensation expenses.

The Board understands that MPI uses a vacancy allowance mechanism to demonstrate its control on staffing levels. The Board finds the actual 2016/17 staffing level should form the basis of budgeting staffing levels for next GRA. The Board directs that in the 2018 GRA, MPI provide a zero based budget for staffing, using that actual figure as a starting point for forecasting purposes. The Board directs MPI to demonstrate the targeted staffing level reductions identified by the Corporation on that basis.

The Board notes that MPI does not specifically track targeted savings embedded in the overall operating budgets. To assess whether the actual targeted savings has been realized, MPI relies on an overall budget to actual comparisons. The Board finds that relying on overall budget attainment does not represent effective control over targeted costs, as other either savings or cost overruns could impact a global comparison. To improve transparency of operating expense control efforts, the Board directs MPI, in the 2018 GRA, to report on specific targeted savings forecast in the Application and compare with actual results to allow the Board to assess how MPI has controlled budgeted costs.

The Board remains concerned about MPI's costs relative to both the level of IT staff and the level of external IT consultants. The Board notes that Gartner has observed that MPI's overall personnel spending and staffing are higher than peers. As MPI increases its use of third-party support for infrastructure services, it should review the size of its retained staff.

The Board directs MPI to assess further opportunities for savings relative to external IT consultants, including a review of whether further savings can be achieved by bringing any of those consultants in-house and optimizing IT staffing levels in general. The Board orders that MPI file the results of its IT in-sourcing efforts at next year's GRA.

In Order 151/13, the Board had ordered that MPI file, in the 2015 GRA, a five-year IT strategic plan, including a cost-benefit analysis, justifying its current and future IT expenditures. MPI did not file a strategic plan in the 2015 GRA, but rather, advised the Board that the Corporation's IT strategy is integrated with its overall business strategy. The Board then required, in Order 135/14, that MPI file in the 2016 GRA, any reports generated relative to its vision and strategy development exercises. This was not done. The Board highlights this history to note that the Board continues to express concern about cost overruns with respect to IT expenditures. The Board finds there is a lack of business cases in the IT area.

The Corporation's plan for IT Modernization spending has increased to $40 million over the next four years from the associated cost reported in the 2016 GRA, which was $33.3 million. The Board understands that the scope of the PDR has changed with reduced functionality, yet there is no change in the overall budget. The Board orders an update to the Gartner report on the project be filed at the next GRA. The Board remains concerned that a complex multi-year project has the potential to run over budget unless appropriately managed.

Given the Board's concern with the potential for cost overruns and the lack of business cases in the IT area, the Board directs that in the 2018 GRA, MPI file an overall five-year strategic plan with respect to its IT projects. The plan shall include all major projects, including the IT Modernization and PDR projects, full business cases with cost/benefit financial metrics for each of the projects, shall clearly articulate the benefits of the projects, and provide updates on their progress to implementation.

The Board appreciated the in-camera briefing provided on the distributed estimating pilot. The Board directs MPI to provide an updated briefing on that and any other pilot of this multi-pronged project at the next GRA, to take place no later than May 31, 2017, given the significant expected PDR Project cost and the delay reported by the Corporation.

The Board points out that the Corporation did not comply with last year's directive requiring MPI to seek to gain outside insight on longer tail experience. As such, the Board again orders that MPI seek insight on longer tail experience from outside, and in particular from SAAQ. The Board also directs MPI to provide a full set of preliminary benchmarks to assess the performance of BI^3 for the Board's review at the next GRA.

TAB 5

Public Utilities Board

Régie des services publics

Order No. 130/17

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2018/2019 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 4, 2017

BEFORE: Robert Gabor, Q.C., Chair
Carol Hainsworth, Member
Allan Morin, B.A., ICD.D., Member
Robert Vandewater, B.A., FCSI, CPA (Hon), CA (Hon), KStJ., C.D., Member
Michael Watson, Member

MPI's actual Normal Operations staffing levels have been consistently below budgets as follows:

Fiscal Year	Actual	Budget	Over/(Under) Variance
2008/09	1,732.9	1,796.3	(63.4)
2009/10	1,752.9	1,783.8	(30.9)
2010/11	1,822.8	1,850.1	(27.3)
2011/12	1,862.9	1,926.5	(63.6)
2012/13	1,894.7	1,936.7	(42.0)
2013/14	1,890.3	1,934.7	(44.4)
2014/15	1,874.8	1,927.7	(52.9)
2015/16	1,866.7	1,898.7	(32.0)
2016/17	1,898.9	1,927.5	(28.6)
2017/18 Budget		1,910.0	

The consistent under budget variance is a reflection of the Corporation's Vacancy Management Program, which as discussed above, is used as a means to control costs.

5.5. Information Technology Expenses

The Corporation currently has a number of active or future Information Technology (IT) projects, with the total Corporate budgeted cost for these projects at $167.1 million.

Total Corporate IT expenses, including operating expenses and capital projects, have increased from $62.8 million in 2012/13 to $64.3 million in 2016/17, representing a compounded annual growth rate of 0.6%. IT expenses are forecast to be $69.3 million in 2017/18 and to increase to $77.0 million in 2021/22, representing a compounded annual growth rate of 2.7%.

In Order 162/16, the Board noted concern with the MPI's expenditures on IT and directed the Corporation to file an overall five-year strategic plan with respect to its IT projects. The Corporation responded in the Application that its ability to comply with that directive was limited by the fact that its corporate strategic direction had not been established by its new Board of Directors. The Corporation is expecting strategic direction from its Board of Directors in December of 2017, after which it will be able to apply the strategic direction to shape an IT strategic plan. Accordingly, MPI indicated in this Application that the IT Strategic Plan it filed in the 2016 GRA continued to be in place.

The Corporation advised that it has a limited set of IT investments planned during the rating years for this Application, which are a continuation or completion of existing projects, or to address a technical requirement to be completed. Those IT projects are: Human Resources Management System Phase 3 & 4, Customer Claims Reporting System, Customer Self Service, Technology Risk Management, and AOL/CARS Replacement.

In this Application, MPI provided detailed information about one of its major IT initiatives, the PDR program. The PDR program has been in progress since 2010/11 and is now scheduled for completion in 2019/20. MPI filed an evaluation of the PDR project prepared by Gartner Consulting, the Physical Damage Re-Engineering (PDR) Program Evaluation (Gartner Report). The Gartner Report was a follow-up to a report filed by the Corporation in the 2017 GRA, in response to Board Order 128/15, which directed the Corporation to file an independent assessment on the development and roll-out of the PDR project. In Order 162/16, the Board ordered that the Corporation file an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project. The analysis was to incorporate all maintenance costs.

The Gartner Report filed in this Application found that in the past year the program had "made significant strides in completing some projects, and reevaluating and cancelling others that would provide low value." The Gartner Report also found that a number of significant components had been put into place over the previous year. There are five IT projects required to complete the PDR project, with four scheduled to be completed in 2017/18 and the fifth and final project, the Customer Claims Reporting System, to be completed in 2019/20. The original PDR program contained 20 projects, seven of which Gartner found had been cancelled. Eight of the IT projects contained within the PDR program are complete.

The Gartner Report found that the overall program budget had been consistent at $65.5 million, with $43.4 million spent to date and $18.1 million remaining to complete the program. The total projected spending would be $61.5 million, or $4 million less than the approved budget amount. The PDR program is expected to generate an internal rate of return of 7%, with a net present value of $13.7 million over the period from inception until ten years after full implementation. The Gartner Report found that the PDR program was starting to produce measurable benefits.

Martin Geffen of Gartner Group appeared as a witness called by MPI in the hearings, as he did in the 2017 GRA. He addressed the Gartner Report along with Gartner's CIO Scorecard and Infrastructure Benchmark (CIO Scorecard). Mr. Geffen is a Vice President of Gartner Group and provides consulting services in the areas of technology planning, architecture, design and implementation issues. Mr. Geffen was pre-qualified by Order 73/17, following the Pre-Hearing Conference, to testify as an expert in the area of the use and planning of information technology, and information technology governance.

In the 2017 GRA, Gartner had assessed that the PDR program had a net present value benefit overall of $18 million, with an internal rate of return of 8%. The cost/benefit analysis conducted by Gartner for the 2017 GRA did not include the cost of maintaining the program. Mr. Geffen testified in this Application that the updated calculation of the net present value of $13.7 million was conducted by MPI. The reason for the reduction in the net present value and internal rate of return was explained by Gartner as being due mainly to a reduction in the pace of the benefits realization. The Corporation also advised of its IT Modernization project, which is aimed at replacing legacy IT programs such as the Autopac Online (AOL) and Claims Administration and Reporting System (CARS). The IT Modernization project has a total corporate budget of $62 million.

MPI utilizes both internal FTEs and external consultants to maintain MPI's IT systems and deliver on IT capital projects. MPI's IT actual and forecast staffing levels including consultants are as follows:

IT Staff Complement

	Actual					Forecast		
Year Ended February 28/29	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Internal FTE	227	212	210	223	236*	248*	253*	249*
Consultants	129	120	110	114	107	92	81	80
Total	356	332	320	337	343	340	334	329
% IT Consultants	36%	36%	34%	34%	31%	27%	24%	24%

* rounded.

In Board Order 128/15, the Board directed MPI to assess opportunities for savings relative to external IT consultants, including bringing consultants in-house. In response, MPI undertook a comprehensive review and developed an approach to transition up to 27 positions from external to internal over the 2016/17 to 2019/20 fiscal years. This is expected to achieve $2.4 million in annual cost savings by 2019/20. In Order 162/16, the Board directed the Corporation to assess further opportunities for savings relative to external IT consultants, including a review of whether further savings can be achieved by bringing any of those consultants in-house and optimizing IT staffing levels in general. In response, the Corporation provided a summary of the progress made in the 2016/17 fiscal year:

- 15 positions were converted from external to internal;
- A further review of the external labour strategy resulted in the adjustment of priorities, resulting in four additional opportunities to replace consultants with staff being incorporated in the strategy, and four opportunities to replace consultants with staff identified for action in 2017/18 being deferred;
- The target remains at 27 external positions being converted to internal; and
- MPI is using students and third-party service providers to manage internal and external labour costs.

MPI advised it is "hawkish" on cost containment, and testified that it is now employing a formal Value Management Process (VMP) to manage new IT investments. The VMP will apply to all new initiatives with a budget of $500,000 or more. The VMP consists of the following components:

- Business case development: The first phase is a thin business case, which is a high-level presentation of the initiative. If the initiative is approved by the Corporation's leadership, further time is spent in determining the qualitative and quantitative elements of the proposal. The second phase involves developing a detailed business case in accordance with the template developed by the Corporation;
- Business case approval;

- Business Transformation Office (BTO) Project Delivery. The initiative will move through seven phases of project delivery, overseen by the BTO; and

- Post-Implementation Reviews. The Corporation advised that it is developing a template that will be used to conduct post-implementation reviews on all approved business cases. The reviews may be conducted by independent third-parties, depending on their size.

5.6. Benchmarking

As in previous GRAs, the Corporation filed with the Board its benchmarking framework reflecting four subject areas: Operational Efficiency, IT Service Delivery, Serving Manitobans and Community Impact. MPI uses the benchmarking results to identify opportunities to reduce costs, effective management approaches, and efficient resource allocation.

MPI engaged the Ward Group, as it has done previously, to provide an independent perspective on how the Corporation compares to other companies and monitor performance. The Ward benchmarking process involves on-site best practice analyses at MPI, and on-site meetings with MPI management to review customized results developed for MPI. The Corporation advised that after the second year of collecting information, a trend analysis report is prepared annually to assist MPI management in monitoring year-to-year performance improvement. Ward compared MPI to three benchmark groups:

- 10 Canadian insurers for the Canadian Personal Auto Benchmark Group;

- 10 Canadian insurers for the Canadian Benchmark Group; and

- 9 US insurers for the US Personal Auto Benchmark Group.

The Ward Group's 2015/16 comparison showed that the Corporation's total gross expenses, both as a percentage of gross premiums written and per policy in force, are below the comparators including the three benchmark groups listed. MPI's performance on FTEs per $100 million of Gross Premiums Written (GPW) has improved since 2011/12 moving from 150.6 to 130.9 in 2015/16; however, it remains materially higher than its peers, which range from 103.2 to 107.6. The Corporation explained that this is due to its business model, where customer service is performed by MPI employees. This requires more employees than other models, which use out-sourced call

centres or damage estimates handled by repair shops. With respect to the latter, the Corporation has targeted staff reductions associated with the completion of the PDR program.

The Ward benchmarking also indicated that MPI's personnel expenses are lower than the comparators, which MPI attributed to lower base salaries and the fact that MPI does not pay employee bonuses.

The key observations from the Gartner CIO Scorecard, which was filed in this Application in respect of MPI's 2015/16 IT expenditures and staffing, were the following:

- MPI's IT expenditures as a percentage of revenue increased by 4.7% over the previous five years, while its peers increased their IT spending as a percentage of revenue by 5.1% from 2012/13 to 2015/16;
- MPI's IT expenditures as a percentage of operating expenses decreased by 4.5% over the last five years;
- Personnel expenses and staffing levels by MPI remain higher than its peers;
- MPI spends 63% of the IT budget on personnel, compared to 44% for its peers;
- MPI is focusing IT investment on reliability, availability and lowering risk;
- MPI improved its overall maturity rating from 3.34 in 2014/15 to 3.42 in 2015/16; and
- Business process management remains generally low, at 1.60 compared to 1.78 for MPI's peers.

In his testimony, Mr. Geffen commented on MPI's efforts to transition third-party contractors to staff, which he described as a positive step. When it comes to IT expenditures, MPI is spending more than its peers on initiatives to grow the business, and its spending is in line with peers on IT initiatives associated with running its business. Mr. Geffen indicated that MPI had improved its overall IT maturity score, which was a positive trend.

Mr. Geffen also commented on certain recommendations that Gartner had made to the Corporation in respect of IT in previous years, and how they might affect MPI's business process management. In particular, Mr. Geffen commented on the following recommendations:

- 3.05: Plan the future state architecture to support MPI's goals of access and support for existing and new services.

Mr. Geffen commented that future state architecture could include workflow management tools and other business process analytics tools, to achieve better business process management.

- 3.06: Perform a baseline of the current state, and perform gap analyses as the architecture is implemented.

Similarly, Mr. Geffen commented that the purpose of this recommendation would be for the Corporation to develop a baseline to establish whether the Corporation had any kind of business process in place, any workload tools, or any analytics in place to assess effectiveness of business processes, and from there develop a gap analysis and a plan to close any gaps.

- 3.07: Continue to increase the span of Enterprise Architecture's influence throughout business areas by ensuring that governance processes (as measured by process maturity) and their importance is clearly communicated such that they are not circumvented. Often this involves building up stakeholder support and requires clear communications regarding Enterprise Architecture's value to the business.

Lastly, the purpose of the third recommendation would be to ensure that the Enterprise Architecture organization has the requisite authority or influence to drive the changes that are required.

The Corporation had advised its progress on the implementation of these three recommendations, which was:

- 3.05: the progress was on hold, to be reviewed in the fourth quarter of fiscal year 2017/18;
- 3.06: the progress was on hold, to be reviewed as part of the budgeting process in the third quarter of fiscal year 2017/18; and
- 3.07: In progress.

In Order 128/15, the Board had directed MPI to seek to gain insight on longer tail experience from outside the Province of Manitoba, and in particular, from the Société de l'assurance automobile du Québec (SAAQ). In the 2017 GRA, the Corporation advised that it did not undertake the review as directed, and has indicated that it will conduct a review of mortality assumptions in the coming year, on the assumption that SGI and SAAQ are willing to share their mortality experience with the Corporation. As a result, in Order 162/16 the Board again directed the Corporation seek to gain insight on longer tail experience from SAAQ, and report back on the results of its efforts in the 2018 GRA. The Corporation did not comply with this directive, and advised that the Chief Actuary had begun discussions with outside parties, but was unable to complete this task prior to the 2018 GRA filing due to other priorities.

5.7. Business and Injury Improvement Initiative (BI3)

The Business Improvement and Injury Initiative (BI^3) was implemented by the Corporation in 2010. The purpose of BI^3 was to implement a new claims management system for the Corporation's Personal Injury Protection Program (PIPP). Central to BI^3 was the implementation of injury claims management software and a document management system, along with resulting organizational changes.

In Order 135/14, the Board ordered that MPI file in the 2016 GRA:

> 11.5 - An update on the claim duration issue including whether pre-BI^3 benchmarks are being achieved, and when post-BI^3 benchmarks will be implemented and what those benchmarks will be; and





11.6 - An external, independent review of the management and oversight of PIPP claims in the context of post-BI³ implementation, to learn whether the initiative is providing the desired impact.

MPI indicated in the 2016 GRA that it was not in a position to fully comply with the Board's directives and advised that an external, independent review of the management and oversight of PIPP claims in the context of post-BI³ implementation would take two years to complete. The Corporation advised at the time that as BI³ was implemented in September 2010 and, at that time was entering its fifth year post-implementation, it was too early to finalize post-BI³ benchmarks as open post-BI³ claims were not yet fully developed. MPI stated that the BI³ business case indicated that it would take at least seven years for the initiative to be fully functioning and achieving desired outcomes. Accordingly, in Order 162/16, the Board directed MPI in this Application, now seven years post-implementation, to provide a full set of preliminary benchmarks to assess the performance of BI³.

In response, the Corporation filed the Post-Implementation Review of the Business and Injury Improvement Initiative (BI³), prepared by Ernst & Young LLP (Ernst & Young Report), dated April 27, 2017.

The Ernst & Young Report has concluded that the BI³ initiative has met or exceeded its anticipated benefits. The findings of the Ernst & Young Report are summarized as follows:

- Qualitative Benefits - IT Systems Renewal: the purpose of BI³ was to implement a "best in class" claims management system, in order to minimize organizational and financial risk to PIPP. Ernst & Young found that the functionality as envisioned in the business case was in place and meeting the Corporation's stated business goals;

- Qualitative Benefits - Organizational Effectiveness: Ernst & Young found that the document management and case management capabilities had generated benefits across all identified areas;

- Quantitative Benefits - Productivity Savings: Ernst & Young calculated actual savings to the Corporation of $9.53 million associated with the implementation of BI³; and

- Quantitative Benefits - Leakage Savings: Ernst & Young found favourable claim duration reductions in excess of the Corporation's 4-day benchmark target, as a result of processing efficiencies.

MPI stressed the following with respect to IT:

- That IT is essential in any modern business and that MPI pursues IT initiatives that ensure security, and system reliability, as well as enhance the customer experience. IT initiatives support the business strategy, and MPI has a demonstrated track record of delivering IT initiatives on time and on budget;
- The VMP is maturing and formalizing elements such as business cases;
- That MPI's IT initiatives deliver value and reduce risks, but IT expenditures have many drivers and initiatives are often not discretionary; and
- That Gartner has found that MPI's overall IT maturity is improving and that MPI is successfully implementing an external staffing strategy. The PDR program is on track, and although it has evolved, its original objectives have been preserved and project costs have been consistent.

5.8. Interveners' Positions

CAC

CAC was critical of the Corporation's IT expenditures. It noted that MPI continues to operate at a low level of business processes maturity and is investing significantly more in infrastructure and operations than its peers, including significantly higher investments in staffing, outsourcing and software.

CAC commented that IT personnel levels remain relatively high and MPI compares unfavourably with its peers in respect of staffing expenditures. There should be further opportunities to reduce staff over time.

With respect to PDR, CAC stated that the program was initiated in the absence of a well-articulated business case and the program has changed dramatically in scope. CAC noted this resulted in the cancellation of projects which had been part of the original PDR program, and the replacement of the CARS program, originally part of the PDR budget, has now been removed from the program. CAC was also critical that key projects forming the PDR program, such as the Customer Claims Reporting System, lack independent business cases. CAC further stated that there is not much available information on what transpired with the Remote Estimating pilot, except that the program is at risk and on hold, which would have significant implications for rural Manitobans. In addition, operating and maintenance costs have been excluded from the calculation of the PDR project costs. With respect to the budget for PDR, CAC observed that in addition to the overall budget, there are projects which have been described by Gartner as linked with the PDR program but have been excluded from the budget, including Predictive Analytics at a budget of $2.2 million and Centre of Excellence at a budget of $6.3 million.

CAC made recommendations for certain findings in respect of PDR:

That, notwithstanding the exclusion of capital costs of the Predictive Analytics project from the cost side of the cost/benefit analysis, the savings from that program have been included on the benefit side;

That the assessment of the business case for the PDR program is not consistent with good practice because it did not incorporate the Corporation's weighted cost of capital; and

That the calculation of the net present value of the PDR program cannot be relied upon.

With respect to other aspects of IT, CAC suggested that MPI has not demonstrated that it is practicing modern IT portfolio management or optimization, and there is an absence of financial information related to a large expenditure, the replacement of the AOL/CARS systems. With respect to AOL/CARS, there is currently no project charter or business case, nor does the Corporation have an estimate of the cost of maintenance of these programs.

CAC recommended that for the next GRA, the Corporation file an analysis of the financial impact of IT costs on rates, and for IT Modernization (the replacement of AOL/CARS), the Corporation file a

detailed calculation of the total cost of ownership, a net present value analysis, and an internal rate of return analysis.

CAC also recommended that in the next GRA, MPI file an articulation of how it conducts project portfolio management and demonstrate how projects are aligned to strategic organizational objectives, as well as an update on opportunities to achieve savings in software and staffing.

CAC observed that depreciation and amortization account for approximately 10% of all Basic expenses for fiscal year 2017/18, and the compound annual growth rate from 2013/14 to 2016/17 was 17.5%. The forecast for 2017/18 through to 2019/20 is a compound annual growth rate of 13.3%. Amortization and deferred development has been growing rapidly at the Corporate level, and a significant proportion of total project costs are borne by Basic.

5.9. Board Findings

The Board has in the past characterized one of the key elements of its independent review function and rate-setting role as ensuring that actual and projected costs incurred are necessary and prudent, in the context of setting just and reasonable Basic rates. The Board's jurisdiction to do so is derived from *The Crown Corporations Governance and Accountability Act*, and in particular, s. 25 thereof.

The Board notes that the Corporation has stressed that it is continuing to make efforts to control and reduce costs. The Board is keenly interested in the Corporation's operating expenses and cost containment efforts and intends to review them in detail in the 2019 GRA.

The Board points out that the Corporation again did not comply with last year's directive requiring MPI to seek to gain insight on longer tail experience in other jurisdictions. As such, the Board again expects that in the 2019 GRA, MPI will be in a position to report back on its efforts to seek insight on longer tail experience from outside, and in particular from SAAQ, and directs the Corporation to do so.

The Board notes MPI's comments that its IT initiatives make up a small proportion of its overall expenses. Nonetheless, the Board finds that strategic and appropriate IT expenditures can serve to create efficiencies and reduce future costs to the Corporation, as was found by Ernst & Young with respect to BI[3]. IT projects that are not subject to rigorous controls or oversight can result in cost overruns to the Corporation.

In Order 162/16, the Board expressed concern about MPI's costs relative to both the level of IT staff and the level of external IT consultants. The Board notes that Gartner has observed that MPI's overall personnel spending and staffing are higher than peers. The Board is encouraged by the Corporation's efforts to continue to reduce reliance on IT consultants and reduce the number of IT staff overall. The Board notes that the Corporation has targeted further staff reductions associated with the completion of the PDR program and anticipates that the Corporation will be able to demonstrate achievements in that respect in the future.

The Board directed in Order 162/16 that in this Application, MPI file an overall five-year strategic plan with respect to its IT projects, including all major projects, full business cases with cost/benefit financial metrics for each of the projects, and articulating the benefits of the projects, with updates on their progress to implementation. This was not done, as the Corporation advised that it was awaiting strategic direction from its Board of Directors in the fourth quarter of 2017/18.

Accordingly, the Board expects to receive a new IT Strategic Plan from the Corporation, and directs that it be filed with the Board forthwith following its approval by the MPI Board of Directors, which the Board understands will take place following its presentation to the Board of Directors in December 2017. The Board looks forward to receiving the IT Strategic Plan and anticipates that this will be an important issue, which will be subject to a thorough review, or "deep dive", in the 2019 GRA.

In Order 162/16, the Board expressed concern at the lack of business cases in the IT area. The Board notes the implementation of the Value Management Process, which it understands will apply to all new initiatives with a budget of $500,000 or more, and expects that this process will bring in valuable controls and contribute to better business process management in IT. However, the Board expresses some concern over the fact that business cases will not be created for any IT projects currently "in-flight", that do not already have business cases.

With respect to PDR, the Board finds that although Gartner's evaluation has indicated that the program will be completed under the initial budget of $65.5 million, there have been significant budgetary adjustments such that MPI has not clearly established that the program is in fact operating within its original budget. Most significantly, the Board finds that the Optimized Adjusting project, which had an original budget of $32.6 million, and was conceived as a replacement for the CARS / First Notice of Loss systems, has now been removed from the PDR program budget. Accordingly, notwithstanding Gartner's observations, a further, more detailed review of the evolution of the PDR budget leads the Board to the conclusion that the Corporation has been challenged in reining in spending on the PDR program. The Board further finds that the net present value and internal rate of return calculations for the PDR program are of limited value as they do not take into account the costs of operating and maintaining the program and utilize a 3% discount rate, which may not reflect the risks of the project. The Board also notes that there has been a deterioration in the assessed benefits of the PDR program since the Gartner analysis filed in the 2017 GRA.

The Board finds, as was stated by CAC, that the PDR program was initiated in the absence of a well-articulated business case and the program has changed dramatically in scope. The Board is also concerned with the fact that there are projects that are linked with the PDR program but have been excluded from the budget. In addition, the Corporation has not disclosed the costs to operate the PDR program. The Board views this information as a critical component in assessing the costs and benefits associated with the program and accordingly orders that in the 2019 GRA, the Corporation file a detailed breakdown of its analysis on the costs to operate and maintain the PDR program. Further, the Board finds that there is a lack of information on the costs and benefits of the IT Modernization program. Therefore, the Board also orders that in the 2019 GRA, the Corporation file:

- An update, prepared by Gartner, to the PDR Program Evaluation;
- A cost/benefit analysis of the five remaining projects to be completed as part of the PDR program, if no such cost/benefit analyses form part of the new IT Strategic Plan. The discount rate used in the cost/benefit analysis should be higher than the 3% previously used in the PDR project cost benefit evaluation. The Board finds that 3% discount rate is not fully reflective of the risks associated with the program. The Board will expect the Corporation to select and justify the use of an appropriate discount rate consummate to the risks inherent in the project; and
- A business case and a cost/benefit analysis for the IT Modernization project, specific to the AOL and CARS redevelopment or replacement.

A Report for
Manitoba Public Insurance

Physical Damage Re-Engineering (PDR) Program Evaluation

26 May 2017
Engagement: 330041936

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Table of Contents

Executive Summary **1**
Report Context and Background **4**
Evaluation Approach **5**
Physical Damage Re-engineering Program **6**
Overview 6
Objectives 6
PDR Program Planning 7
Program Structure and Project Costs **8**
Progress to Date and Timing of Full Implementation **12**
Projected Program Schedule 12
Progress of Pilots 12
Overall Progress 14
PDR Program Costs **15**
Project Cost 15
Maintenance Costs 15
Benefits **17**
Appendix A – Original PDR Programs and Projects **20**

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Executive Summary

Context and Background

In response to an order from the Public Utilities Board (PUB) in 2016, MPI contracted Gartner to conduct an update of the Physical Damage Re-engineering (PDR) program.

PUB Order No. 162/16 dated December 15, 2016, states: *In the 2018 GRA, MPI file an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project. This project cost/benefit analysis shall incorporate all maintenance costs in the program evaluation.*

Gartner is pleased to provide this update as requested by MPI.

Evaluation Approach

Gartner reviewed a number of key program artifacts and interviewed a number of key individuals. Gartner applied its proven risk and readiness methodology to address the five key questions raised in the PUB order.

The PUB order specified five key areas: Progress of pilots to date; Timing of full implementation; Project costs; Maintenance costs; and Savings / benefits to be realized.

Program Structure

The Physical Damage Re-engineering (PDR) program is in the process of introducing a number of changes to MPI's operating environment in order to enhance MPI's ability to manage and resolve physical damage claims effectively in the emerging marketplace environment. It continues to focus on addressing necessary business transformation in response to two key drivers:

- Significantly increased complexity in repairs management.
- Rising consumer expectations.

The PDR program has made significant progress over the past year. It has transitioned a number of projects into production and has simplified the overall program structure as follows:

- Eight PDR projects have been completed.
- Seven PDR projects have been cancelled. MPI determined that they are not strategic and do not add to the business case.
- Five projects now comprise the remainder of the PDR program.

Progress to Date and Timing of Full Implementation

In the past year, the program made significant strides in completing some projects, and reevaluating and cancelling others that would provide low value. While progress had been relatively slow prior to the last assessment, a number of significant components have now been put in place over the last year. A number of projects have been completed, gone into

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production, and transitioned to operations. This has enabled MPI to begin the transformation to the new business model with the launch of Direct Repair.

The PDR program has completed all but one of its pilots and moved the piloted solutions into production. The Remote Estimating pilot is nearing completion and will be moved into production in the coming months.

The MPI team is projecting that of the five remaining projects, four are tightly scoped and will be completed in the 2017/18 fiscal year, and the CCRS project will be completed in fiscal year 2019/20.

PDR Program Costs

The overall program budget has been consistently $65.5M (in 2012 dollars) throughout all changes in direction and approach. While some projects required more than the original budget, others were under budget, and yet other originally planned projects were cancelled due to value projections being lower than originally projected.

Approximately $43.4M has been spent on the program to date with $18.1M remaining to complete the program. The PDR Program is currently projected to be complete by the end of fiscal 2019 / 2020, for a total projected spending of $61.5M, $4.0M less than the approved $65.5M PDR budget.

Given the current constrained slate of five projects, the scope clarity for each of the five projects, and how far they are into their overall lifecycle, there is a high level of confidence in the projected spending. Prior concerns about the potential for additional cost, extended timeline and deferred benefits realization are much reduced.

Maintenance Costs

MPI has operationalized a large number of the PDR projects and the ongoing operations of the solutions are funded through existing MPI operating budget. There are a number of ways that MPI has addressed maintenance costs of the technical solutions which can be estimated in a number of ways.

First, solutions that are provided on a Software as a Service (SaaS) have no upgrade, support, or maintenance fees and the maintenance and upgrade charges are included in the SaaS subscription agreement.

Second, solutions which are acquired from a vendor require the customer to pay an ongoing license fee for ongoing support and maintenance and the rights to install any new versions or upgrades. MPI pays ongoing license fees for all such products.

Third, Gartner estimates that the cost for maintaining software that was custom developed within the PDR program is likely to be about $300k per year. MPI budgets for ongoing support of custom developed software in its overall IT operating budget.

PDR has also introduces a set of solutions that not only have a software maintenance component, but also an ongoing need for development or a physical asset replacement cycle. MPI has budgeted for this kind of support in the operating budgets of the organizations most affected by production operations.

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Benefits

The PDR program is projected to deliver a number of qualitative and quantitative benefits. The MPI value management program has established a process for monitoring and measuring those benefits.

At a very high level, the Program is now structured as an investment of about $65.5M over about 9 years, which will generate a steady flow of benefits starting in year 7 and ramping up to approximately $13.65M starting in 2021/22 (year 12).

The latest projections show a slower ramp up of savings in the earlier years, and a delay of 1 year in getting to the more significant savings and achieving the projected steady state.

The Program, is currently showing a lengthy payback period, an Internal Rate of Return of 7% and a Net Present Value of $13.7M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

The Program is on track with respect to the original approved budget, and is delivering measurable benefits.

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Report Context and Background

In response to an order from the Public Utilities Board (PUB) in 2016, MPI contracted Gartner to conduct an assessment of the Physical Damage Re-engineering (PDR) program. In its Order No. 162/16 dated December 15, 2016, the PUB summarized the Gartner feedback as follows:

> " … Originally the PDR project was to be completed in 2017 but was reported last year to be delayed to 2020 due to changes in scope and direction to the project. MPI estimates that the PDR Project cost remains unchanged at $65 million (based on 2012 dollars), and is now expected to be completed in 2021, which is a further one-year delay. …Gartner had found that the overall total budget of the PDR Project had not been changed, but that costs had been reallocated among various components of the projects. Of the budget, $32.8 million, or 50%, had been spent on the project. Mr. Geffen noted that Gartner has found that, in programs as large and complex as the PDR project, it is not unexpected to have a course correction, because at the outset of a project it is not unusual for an organization to expect to progress more quickly with a project than is the reality. With respect to the savings and benefits of the PDR project, Mr. Geffen noted that Gartner had determined the net present value benefit overall of the project of $18 million. The cost/benefit analysis conducted by Gartner did not include the cost of maintaining the program. Gartner estimated the maintenance cost, based on industry standards, to be 18 to 20% per annum."

As part of the same document, the PUB ordered an update to the Gartner report as follows: *In the 2018 GRA, MPI file an independent assessment on the development and roll-out of the PDR Project, including the progress of the pilots, the timing of full implementation, the costs of the project and the anticipated savings to be derived from the project. This project cost/benefit analysis shall incorporate all maintenance costs in the program evaluation.*

Gartner is pleased to provide this update as requested by MPI. Gartner Consulting provides fact-based consulting services to help clients use and manage IT to enable business performance by bringing together research insight, benchmarking data, problem-solving methodologies and hands-on experience to improve the return on IT investment.

The Gartner report addresses the issues raised in the PUB and also provides an update to the project constraints / challenges identified in the previous report.

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Evaluation Approach

Gartner reviewed a number of key program artifacts including the following:

- Update project status reports
- The original PDR Program Charter which documents program objectives.
- The original vision document which provides an explanation of problem and opportunities.
- The original PDR Business Case which clarifies business interventions and includes estimates of expected financial benefits and timing.
- A number of Change Requests which documented changes to the project structure and funding, added resources, confirmed completion or cancellation of some projects.

Gartner interviewed a number of key individuals including a number of the project managers and business relationship managers, and senior members of the MPI program and project organization including the Enterprise Architect, solution architects, the Business Transformation Office, Business Architecture, and Value Management.

Gartner applied its proven risk and readiness methodology, as described in the figure below, to address the key questions raised in the PUB order.



The PUB order specified five key areas:

- Progress of pilots to date
- Timing of full implementation
- Project costs
- Maintenance costs
- Savings / benefits to be realized

The following sections address these key issues in light of the key risk areas identified.

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Physical Damage Re-engineering Program

Overview

The Physical Damage Re-engineering (PDR) program is in the process of introducing a number of changes to MPI's operating environment in order to enhance MPI's ability to manage and resolve physical damage claims effectively in the emerging marketplace environment.

It continues to focus on addressing two key areas:

- Technology changes being adopted by vehicle manufacturers which are leading to significantly increased complexity in repairs management that drives a need for business and systems transformation by MPI and some of its partners.
- Rising consumer expectations which are driving MPI to not only have an online presence but also the ability to interact using mobile and on-line devices for key transactions.

Objectives

PDR continues to focus on satisfying MPI's business objective to deliver enhanced capabilities and levels of service in the following areas:

- Ensure vehicles are repaired in a safe and cost-effective manner
- Deliver and orchestrate the full lifecycle of physical damage claims management services, in partnership with the extended repair industry, to meet customers' evolving needs for quality, safety, cost control and service.
- Work with business partners to promote a local collision repair industry that is healthy and sustainable in both economic and environmental terms.
- Work with the global industry to foster safe and cost-effective vehicle repair and occupant protection.
- Be responsive to the needs and expectations of its customer base which is increasing in diversity and subject to unique geographic challenges and constraints. Ensure that customers are kept informed throughout the claim and repair process.
- Triage claims to involve Loss Prevention resources earlier in the process resulting in more denials/recoveries.

The PDR program expected outcomes have not changed since the previous assessment. It is expected to deliver the following:

- Reduction of 50% physical (PD) claims effort in Contact Centre activity.
- Direction of nearly 85% of estimates to distributed estimating (DE) shops
- Correct Repair shop will be identified 98+% of the time.
- Once a vehicle is at repair shop, claim is ready for repairs 98% of the time—no waiting for customer or shop.
- Customers and shops are not required to repeat work already performed, as measured by new process design and customer service experience
    - Measured by Number of abandoned sessions in First Notice of Loss (FNOL): less than 2% abandon rate
    - Measured by number of cross supplements in RepairCenter: less than 1% cross supplement rate

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- Lower overall claims spend in comparison to current operations which will also preserve relative claims costs in relation to industry
- Less hands-on MPI involvement for most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new First Notice of Loss (FNOL) claims
- Smaller MPI operational footprint achieved through decommissioning and / or repurposing MPI service centres
- Mitigation of leakage risks through ongoing claims financials management, forecasting, audit and monitoring
- Continued health of the overall Repair industry measured by the continued profitability of the Manitoba repair industry.
- Vehicle repairs meet relevant standards as defined and measured by quality of repairs standards and KPI's.

PDR Program Planning

The PDR program started in 2013. In late 2013 / early 2014 MPI conducted a comprehensive assessment to confirm that the program would still provide the projected benefits. A "Business Re-Visioning" project completed in early 2015 defined an approach which would focus on key outcomes which would drive achievement of the overall business case. Through the experience and knowledge achieved from execution and implementation of the various PDR projects, MPI has once again been able to refine the overall program.

As such toward the end of fiscal 2016/2017, MPI has restructured the PDR program in the following way:

- Eight PDR projects have been completed.
- Seven PDR projects have been cancelled. MPI determined that they are not strategic and do not add to the business case.
- Five projects now comprise the remainder of the PDR program. Some of these were components of the original PDR projects and some have been added to the program.

All of these changes to the PDR program have been documented in approved formal Change Request (CRs). These changes have had an effect on the timing, but not on the projected levels, of the benefits stream. They have not increased the budget, beyond the original $65.5M. The program is currently projected to be completed well below the original approved budget.

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Program Structure and Project Costs

The PDR program has made significant progress over the past year. It has transitioned from the relatively complex structure made up of five sub-programs (related groupings of projects) and 20 projects within those programs. The original five sub-programs and their related projects are described in Appendix A. The PDR program now consists of the following five projects:

1. Appointment Manager – The current Appointment Manager requires a technology refresh as well as the ability to be exposed to external partners over the internet and the ability to support customer self-service. This project will re-platform the application with the additional functionality to support the new requirements. This project will be completed in 2018/19.
2. Customer Claims Reporting System (CCRS) – The CCRS is a rebranding of the initial IFAM / FNOL project. It will include Optimized Adjusting, co-development of the Mitchell solution, building out the CARS solution, managing the change management for the delivered solutions, and building out the analytics tools to monitor and manage the new service delivery channel. This project will be completed in 2019/20.
3. Enhanced Direct Repair Capabilities – will complete what was originally known as Distributed Estimating. It will deliver the ability for certified shops to process a broader set of more complex claims and repair types. It also delivers the loss of use functionality, and the Car Parts Pro enhancements. This project will be completed in 2017/18.
4. Partner Portal – will provide the technical platform for provisioning and management of authentication and authorization for external partner access to MPI services. This project will be completed in 2017/18.
5. Remote Estimating – the completion of the project which will allow remote and rural repair shops to participate in a collaborative estimating process by equipping rural repair shops with technology to share digital imaging with MPI estimators. This project will be completed in 2017/18.

In addition, there will be some continuing costs for overall PDR Program Management, and the Centre of Excellence project will continue focused on changes to operating practices and processes. As of March 31, 2017, the ongoing costs for these five projects and program management are projected to be as follows:

Table 1. Ongoing PDR Projects

Project	Spend to Date	2017 / 2018	2018 / 2019	2019 / 2020	Total
Appointment Manager	$1,849	$1,524,537	$46,830		$1,573,216
Customer Claims Reporting System (CCRS) – previously FNOL	$10,600,109	$4,440,672	$6,800,000	$1,547,261	$23,388,042
Enhanced Direct Repair	$291,961	$1,157,118			$1,449,079
Partner Portal	$290,535	$1,397,982			$1,688,517
Remote Estimating	$124,658	$1,031,418			$1,156,076
PDR Program Management	$5,203,718	$238,690			$5,442,408

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Total PDR Budget for Ongoing Projects	$16,512,830	$9,790,417	$6,846,830	$1,547,261	$34,697,338
Related Project: Centre of Excellence	$3,889,612	$2,339,895			$6,229,507

A number of projects which were on the portfolio for the last review have been completed, as described in the table below. With the successful completion of these projects, the PDR program has reached the point whereby significant components of the program have been moved into operations and MPI is starting the transformation to the envisioned Direct Repair model.

Table 2. Completed PDR Projects

Program / Project	As of March 31, 2017
Program Management	
Mitchell Data Services (Tableau) - MDS	$150,600
Website Redesign and Portal Consolidation	$4,557,631
Optimized Repair	
Collaborative Estimating (CE) & Autochex	$10,801,062
Direct Repair (DR) – previously Distributed Estimating (DE)	$5,159,184
Accreditation	$1,117,032
Shop Support Administration (SSA)	$1,702,326
Interim Shop Search	$103,096
Physical Damage Support	
Shop Training Management	$123,636
Parts	Partially complete – completion carried over into Direct Repair project
Others	
Predictive Analytics / Loss Prevention	Completed prior to previous assessment $2,189,598
Autochex	Completed prior to previous assessment – spending included in the Collaborative Estimating costs above
Total	$25,904,165

After completing further due diligence, planning and refined implementation costs projections, the following projects, which were on the portfolio for the last review, have been cancelled due to lack of contribution to the benefits as follows:

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Table 3. Cancelled PDR Projects

Project	MPI Cancellation Rationale
Out of Province Estimating	• An updated analysis determined that the volume of claims does not warrant implementation costs and effort.
FNOL – Self Service Analytics	• MPI has determined that it is not possible to determine requirements, or detailed benefits, without 18-24 months of history. • A new business case will be created at that time to evaluate cost-benefit.
Towing	• Mitchell CCRS towing solution will not meet MPI's business requirements. • Volume of claims do not warrant an MPI custom build solution.
Enhanced Registration Card	• Mitchell CCRS solution capabilities do not include document bar code scanning requirements at this time. • MPI has elected to accept the Mitchell CCRS solution without MPI customizations.
Enhanced Accident Profiling	• MPI has concluded that the 2,000 current Accident Profiles developed will meet PDR program requirements, and no further profiles are required.
Body Integrity Inspection Certificate (BIIC) and Certificates of Inspection (COI)	• A positive return on investment would not be realized based on refined implementation costs projections

In summary:

- The program planning and revisioning activities were completed with a budget of $3.1M
- The Predictive Analytics project, budgeted separately from PDR but tightly related to achieving PDR success, was completed with a cost of $2.2M.
- A number of PDR projects were completed since the last review at a cost of $23.7M. These projects were completed for $73K less than the projected budget.
- The five remaining projects are projected to be completed within a budget of $34.7M including costs for program management.
- The Centre of Excellence project, budgeted separately from PDR but tightly related to achieving PDR success, will be completed at a forecasted cost of $6.3M (within budget).
- The PDR Program is projected to be complete by the end of fiscal 2019 / 2020, for a total projected spending of $61.5M, $4.0M less than the approved $65.5M PDR budget.

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Given the current constrained slate of five projects, the scope clarity for each of the five projects, and how far they are into their overall lifecycle, there is a high level of confidence in the projected spending.

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Progress to Date and Timing of Full Implementation

Projected Program Schedule

There have been a number of changes to vision, direction, and scope of PDR. However, given the scale of the PDR Program and the overall size, duration, budget, and complexity, MPI has demonstrated effective project and program management.

While progress had been relatively slow prior to the last assessment, a number of significant components have been put in place over the last year. A number of projects have been completed, gone into production, and transitioned to operations. This has enabled MPI to begin the transformation to the new business model with the launch of Direct Repair.

The narrowing of focus (through cancellation of projects as per Table 3 above, and through clearly defining the five carry-over projects) should enable an ability to maintain the pace of project completions and transition to operations.

The program has been restructured. There is no longer an Executive Director for the program, but it is being managed by an experienced Project Director charged with closing projects and focusing on expedited delivery of the remaining projects.

Under this leadership, and with the intensive oversight of the Director, Business Architecture and of the Director, Business Transformation Office, the MPI team has been very focused on completing projects, on ensuring that they moved into production to start generating benefits, and on structuring the remaining projects to expedite successful completion.

While the overall documented and approved Program Charter has not been updated, all changes have been documented in approved Change Requests.

The general Program approach has been to build out Project Plans for each of the identified projects which make up the overall Program. Detailed project plans and detailed schedules are currently in development for these projects.

The MPI team is projecting that the CCRS project will be completed in fiscal year 2019 / 2020. And that all the other projects, which are smaller in scope and effort, will be completed in this fiscal year – 2017 / 2018 or early fiscal year 2018/19.

Progress of Pilots

The PD Re-engineering program has completed all but one of its pilots and moved the piloted solutions into production. The Remote Estimating pilot is nearing completion and currently in vendor negotiations and planning for implementation stage.

During the pilots, the PDR team identified a number of opportunities for enhancement, and implemented them during the project phase, or has provided direction to the operations group for future enhancements that could be considered.

The pilot project implementation schedule is as follows:

Project/Initiative	*Pilot Test Duration*	*Status*
Collaborative Estimating (CE)	Mar 2014 – Jun 2014	Complete
AutocheX	Aug 2015 – Jan 2016	Complete

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Distributed Estimating (DE) – Rebranded as Direct Repair	Jul 2015 – Dec 2016	Complete
Quality of Repair	Feb 2016 – Oct 2016	Complete
Remote Estimating	May 2016 – Feb 2017	Business Case Refinement & Implementation planning stage

Some of the key outcomes from the Pilots include:

- Collaborative Estimating
  - Established a refined implementation approach for all participating Repair Shops including operational procedures, training, and communications
  - Enabled the move to Distributed Estimating, now Direct Repair

- AutocheX
  - Enhanced effective communication to Repair Shops
  - Established automated reporting

- Distributed Estimating – renamed Direct Repair in production
  - Distributed Estimating was rebranded the Direct Repair Program and moved from pilot to production launched on March 1, 2017.
  - All Distributed Estimating Pilot shops were converted to Direct Repair shops and MPI started offering the Direct Repair option to all qualifying claims and all qualifying shops.
  - Since going live, MPI has received applications from a number of additional repair shops interested in the program. As of May 31st, 53 shops have qualified for the program and have been scheduled into the on-boarding process, representing roughly 40% of the Manitoba repair capacity
  - The volume of claims becoming eligible for Direct Repair is on target at just over 30%.
  - The number of claims that are eligible for Direct Repair will grow with the release of the Direct Repair Plus program which will be introduced in three waves through the balance of 2017.
  - When offered the Direct Repair option, 45% of customers are accepting the offer. This acceptance rate is expected to go up as more shops become available and as communications with consumers increases through Direct Repair shop advertising, which begins in June 2017.
  - Direct Repair has started to have the effect of smoothing out appointment booking – providing better experiences for consumers and shops.

Quality of Repair

- Three repair shops were selected to participate

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- The pilot leveraged remote estimating video capture and streaming equipment to complete a quality of repair inspection remotely without having to travel to the repair shop.
- The pilot demonstrated that MPI could effectively review the most relevant complex repairs through the use of technology rather than on site presence.
- Further due diligence is however required by the Physical Damage Management team to incorporate and define the specific utilization scenarios with respect to the Quality of Repair program implementation.
- Physical Damage Management will operationally roll-out Quality of Repair program in fall 2017.

Remote Estimating

- The project proved the technical and functional viability of the Remote Estimating concept using specialized video capture and streaming equipment, revised work processes, and enhanced communication and collaboration between MPI and shop staff.
- The business model will streamline processes for repair shops and for MPI estimators by eliminating the need to travel to repair shops to complete a repair estimate.
- At this time the project is working to negotiate agreements for the technology and also to develop formalized approaches to working with shops who could potentially register and be certified for this service.

Overall Progress

In the past year, the program made significant strides in completing some projects, and reevaluating and cancelling others that would provide low value. It has restructured and focused the overall program on five key projects. Four of them are tightly scoped and will start to deliver value by the end of the current fiscal year.

The fifth, CCRS, is projected to continue for three years and has the broadest scope and budget. A number of risks with CCRS (previously FNOL / IFAM) have been addressed. There is now a formal commitment by Mitchell to deliver on a detailed and well-defined set of requirements, to offer that to the market, and maintain it as part Mitchell's ongoing commercial offering.

There are, however, still a number of issues that MPI will need to monitor closely:

- There will continue to be a need to coordinate collaboration among several vendors – Mitchell, DXC (formerly HP), IBM.
- Mitchell's ability to develop and deploy the product meeting MPI's requirements relatively complex and innovative requirements
- Mitchell's continued commitment to make the solution one that is supported as part of the standard commercial offering

To address these, MPI has implemented the following:

- Mutually agreed upon, and formally signed off requirements by MPI and Mitchell;

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- Amendments to the Master Services Agreement to include escalating financial penalties to be paid by Mitchell, if MPI does not have access to functionality at the agreed upon implementation milestones.
- Governance structure and escalation provisions to ensure visibility and intervention by MPI/Mitchell senior management
- Application of MPI standard practice to negotiate a 5 year vendor agreement, with a maximum increase in fees of CPI, and with an elective 5 year renewal term provision.

MPI continues to remain focused on completing the in-progress projects earlier than the current schedule. However, based on the current understanding of the availability of financial and human resources, it is unlikely that the project schedule can (or should be) further compressed.

PDR Program Costs

Project Cost

The overall program budget has been consistently $65.5M (in 2012 dollars) throughout all changes in direction and approach. This excludes the re-platforming of the CARS application which was rejected as being costly and complex early in the discovery process.

While some projects required more than the original budget, others were under budget, and yet other originally planned projects were cancelled due to value projections being lower than originally projected.

Approximately $43.4M has been spent on the program to date with $18.1M remaining to complete the program. While the program is maintaining the original budget for contingency, it is projecting that it will be completed approximately $4.0M under budget.

The program is unlikely to undergo further scoping with respect to functionality and business capabilities. Prior concerns about the potential for additional cost, extended timeline and deferred benefits realization are much reduced. Given that, there are a few risk areas related to cost as follows:

- The CCRS claim and accident profiles are innovative and fairly complex, and it is yet to be proven that Mitchell can deliver to the specifications, or that the approach will work in production.
- Some of the project plans and schedules for the remaining projects, and especially for CCRS will continue to change as they are planned in more detail.

Maintenance Costs

MPI has operationalized a large number of the PDR projects. The ongoing operations of the solutions are funded through existing MPI operating budget. The maintenance of the technical solutions can be estimated in a number of ways.

First, solutions that are provided on a Software as a Service (SaaS) should have no upgrade, support, or maintenance fees. These charges should all be included in the SaaS subscription agreement.

This includes solutions such as:

- Customer Claims Reporting System (CCRS) – previously FNOL
- Enhanced Direct Repair

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- Mitchell Data Services (Tableau) - MDS
- Collaborative Estimating (CE)
- Distributed Repair (DR) – previously Distributed Estimating (DE)
- Parts
- Autochex
- Remote Estimating

For each of these solutions MPI pays an ongoing fee (based on usage or number of users). The current fee, and projected future fees should be specified in the vendor agreement and should be completely transparent and accounted for in MPI's operating budget. Gartner has not reviewed each of these agreements to confirm that this is the case for all of these agreements and what the pricing amount and structure is for each.

Second, solutions which are acquired from a vendor will usually require the customer to pay an ongoing license fee which provides ongoing support and maintenance and the rights to install any new versions or upgrades. The industry standard cost for these licensing fees is usually 18% - 20% of the original license fees. There are also usually internal and external costs for the effort and services to apply upgrades or implement new versions. The PDR program has no applications in this grouping.

Similarly, we have seen that custom developed software has a life cycle cost which can be as much as 20% per year to maintain and enhance. The following solutions fall into this category:

- Appointment Manager
- Partner Portal
- Shop Support Administration (SSA)
- Interim Shop Search
- Shop Training Management

For the PDR projects, only some proportion of the overall spend was on the software development. The rest of the budget would have been process design, organizational change management (e.g. process design, training, communications, etc.).

Given that the budget for these projects is $4.9M and assuming that 30% of the budget was for software design, development and deployment, then MPI should be budgeting $300K per year for ongoing maintenance and enhancement of these solutions. MPI has included budget for this ongoing support and maintenance in its IT operating budget.

A third set of solutions not only have a software maintenance component, but also an ongoing need for development or a physical asset replacement cycle

- Remote Estimating: Will require software maintenance and support, which is likely to be part of a SaaS agreement with the vendor. However, it is dependent on physical assets such as high quality video capture and streaming devices. These will need to be replaced, likely on a three year cycle at a repair shops expense. MPI projects that that the repair shops will incur these initial and ongoing replacement expenses. As part of its ongoing planning, the project should ensure that these costs are identified, it is clear which organization(s) will be responsible for them, and that they have been accounted for in the plans of those organizations.
- Website Redesign and Portal Consolidation: Not only will the website and portal software need to be maintained and supported. In order for the web sites and portals to continue to deliver value, they will need to be continually refreshed and updated with

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new content. MPI reports that there is an existing operating budget allocated to both supporting the website and portal software, and also to updating and enhancing its content and functionality.

- Predictive Analytics / Loss Prevention: Similarly, the Predictive Analytics / Loss Prevention software needs to be maintained and supported. But the real value is in the assessment of model outcomes, conducting analyses, and either revising existing models or developing new models. MPI reports that there is an operating budget allocated to both supporting the software itself, and also to analysis and model development.

Finally, there are a number of PDR projects that have had little software development and thus, while they will require operating budget for ongoing support and benefits realization, they will have little or no maintenance and support costs. The PDR projects which fall into this category include:

- Centre of Excellence
- PDR Program Management
- Accreditation

Benefits

The PDR program documented a number of quantitative benefits. Some of these are currently being measured and reported on. Others are too early in the lifecycle to report on.

Of the benefits listed in the PDR Program Objectives section above, MPI reports that they are experiencing the following beneficial outcomes. These are all, at least to some degree, attributable to the PDR program:

- Smaller MPI operational footprint achieved through decommissioning and / or repurposing MPI service centres and the decommissioning of the Pembina Highway Service Centre
- Direction of nearly 15% of estimates to distributed estimating (DE) shops.
- Introduction of collaborative estimating and direct repair have reduced estimate effort and provided efficiencies for MPI and repair shops
- Delivered value to repair industry partners through improved processes and faster payments
- Vehicle repairs meet relevant standards as defined and measured by quality of repairs standards and KPI's.
- The new shop relationship management model and KPI's are now operational, and new Accreditation and estimating standards are in place.
- There is a continued health of the overall Repair industry measured by the continued profitability of the Manitoba repair industry.

Some of the projected outcomes that will require more time to surface include:

- Reduction of 50% physical (PD) claims effort in Contact Centre activity.
- Direction of nearly 85% of estimates to distributed estimating (DE) shops
- Correct Repair shop will be identified 98+% of time.
- Once a vehicle is at repair shop, claim is ready for repairs 98% of the time—no waiting for customer or shop.

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- Customers and shops are not required to repeat work already performed, as measured by new process design and customer service experience
    - Measured by Number of abandoned sessions in First Notice of Loss (FNOL): less than 2% abandon rate
    - Measured by number of cross supplements in Repair Center: less than 1% cross supplement rate
- Less hands-on MPI involvement for most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new First Notice of Loss (FNOL) claims
- Claims severity per repair is stable for Direct Repair work relative to non-Direct Repair work.

At a very high level, the Program is now structured as an investment of about $65.5M over about 9 years, which will generate a steady flow of benefits starting in year 7 and ramping up to approximately $13.65M starting in 2021/22 (year 12).

The latest projections show a slower ramp up of savings in the earlier years, and a delay of 1 year in getting to the more significant savings and achieving the projected steady state.

The current projected benefit stream is as follows (in millions of dollars):

Program Component	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Internal Efficiencies / Process Improvements	0.38	0.23	0.38	0.75	2.04	2.65
Labour Rate / Repair Shop Savings		3	3	3	3	3
Parts Sourcing Savings	0.74	1.05	1.37	2.17	2.48	2.8
Loss Prevention / Predictive Analytics			0.5	1	1	1
Loss of Use				1.05	2.25	3
Total Loss Valuation with Salvage					1.2	1.2
Total	1.12	4.28	5.25	7.97	11.97	13.65

Program spending and benefits realization actuals are proceeding slower than the plan that was presented to, and approved by, the Board of Directors in 2012. The changes in the projections from the prior report are largely a result of delayed implementation of some of the functionality.

The overall Program spend and benefit stream is as follows:

Fiscal Year	Year 1 Actual 2010/11	Year 2 Actual 2011/12	Year 3 Actual 2012/13	Year 4 Actual 2013/14	Year 5 Actual 2014/15	Year 6 Actual 2015/16	Year 7 Actual 2016/17	Year 8 Forecast 2017/18	Year 9 Forecast 2018/19	Year 10 Forecast 2019/20	Year 11 Forecast 2020/21	Year 12 Forecast 2021/22
Benefits							$ 1,120	$ 4,280	$ 5,250	$ 7,970	$ 11,970	$ 13,650
Cost												
Actual and Forecast	$ 40	$ 1,346	$ 3,788	$ 11,831	$ 8,550	$ 7,304	$ 10,476	$ 9,790	$ 6,847	$ 1,547		
Unallocated Budget										$ 3,965		
Total	$ (40)	$ (1,346)	$ (3,788)	$(11,831)	$ (8,550)	$ (7,304)	$ (9,356)	$ (5,510)	$ (1,597)	$ 2,458	$ 11,970	$ 13,650

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Given the program duration and timing of benefits, the Program, is currently showing a lengthy payback period, an Internal Rate of Return of 7% and a Net Present Value of $13.7M (using a 3% cost of capital), over the period from inception (2010/11) until 10 years after go-live when benefits start to accrue in 2016/17.

The projected return on the Program has reduced since the last assessment, when it had an 8% IRR, and an $18.0M NPV over the same period.

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Appendix A – Original PDR Programs and Projects

Program / Project	Description
Program Management	
Mitchell Data Services (Tableau) - MDS	MPI is taking advantage of an offering from a long-standing business partner, Mitchell International, that will allow MPI consistent, and quicker insight into the data partners collect from MPI business operations. The project entails the implementation of the Tableau product in two phases: 1. An external view which compares MPI to other jurisdictions in North America 2. An internal view which allows MPI management to better understand trends that drive their position on cost and productivity.
Website Redesign and Portal Consolidation	This project includes the following: • Amalgamating content from several web sites into one partner portal and decommissioning redundant technology and infrastructure • Redesigning websites and migrating content to a supported version of SharePoint and to improve search functionality for Strategy & Innovation, Brokers Online, and the Intranet • Updating all existing SharePoint 2010 environments to SharePoint 2013 • Updating Authentication technology as it directly relates to Portal consolidation
Optimized Repair	
Collaborative Estimating (CE)	Bringing MPI and Repair Shops onto a common platform by implementing Mitchell's WorkCentre and Repair Centre product suite with the following capabilities: • Creating an estimate that can be shared electronically between MPI and the repair shops • Compliance checks at Repair Shops • Streamlining the supplements process by allowing repair shops to work collaboratively with MPI • Ensure customers and staff are kept informed of the repair status • The automatic maintenance of a "gold copy" estimate which eliminates the need for manual reconciliation between repair shops and MPI, enabling the automation of payments to repair shops • Implementing a robust and proactive quality assurance program to ensure quality repairs are being performed • Increasing customer satisfaction by providing repair status to customers electronically
Distributed Estimating (DE)	This project includes: • Implementing a Distributed Estimating model allowing repair shops to assess the initial damage to a vehicle and produce estimates directly for MPI Customers • Designing and implementing a proactive quality assurance program to ensure quality repairs are being performed • Implementing required estimating standards for Repair Shops to follow to ensure consistent creation of the first estimate • Loss of Use (LOU), which includes: ▪ Implementation of Repair Shop administration of loss of use (vehicle rental) for customers with repairable vehicles.

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Program / Project	Description
	▪ Create and implement agreed upon processes and tools which provide repair shops a fixed level of funding based on the projected time for the repair. ▪ Provide repair shops with the incentive to not only meet projected timelines, but to shorten timelines since if they manage better, they can keep the excess and alternatively, if they manage poorly, they will be responsible for any shortfalls
Accreditation	Support the accreditation and rates negotiation process with the repair shops. Develop, obtain agreement on, and implement tools and process which use mathematical models to determine different rate scenarios. • By building these models, the project will be able to depict the impact to total spend created by the tiered accreditation model. • Each tier and the composition of benefits accrued to the tier as well as capabilities will result in a potential rate change. • Each likely rate change will be modeled with forecasts of the shops that are expected to be part of the tier.
Shop Support Administration (SSA)	This project includes: • Implementing a robust system of key performance indicators to measure the abilities and success of Repair Shops • Creating an internal team to work closely with Repair Shops to address ongoing needs and ensure success in the new Collaborative and Distributed Estimating model
Remote Estimating	Allow remote and rural repair shops to participate in a collaborative estimating process. Largely achieved by equipping rural repair shops with technology to share digital imaging with MPI estimators. • When vehicles are brought in for estimates at these locations, the shop will review the damage with an MPI estimator using digital imaging technology while the estimator writes the estimate. • The shop will then be able to utilize this estimate to order the parts and proceed with the repair. • Unlike Distributed Estimating partners, Remote Estimating partners will not have any authority to repair claims without express MPI approval.
Out of Province Estimating	Develop an approach to use existing solutions when dealing with out of Province repair shops and repair scenarios.
Interim Shop Search	Implement an online search functionality for repair shops that will assist customers in finding and choosing shops that can perform the required repairs based on their specific requirements including body type, location, satisfaction rating, etc. Shape customer and repair shop behaviour by ordering results based on a composite KPI score, so as to induce customers to choose repair shops that best meet MPI's goals.
Optimized Adjusting	
First Notice of Loss (FNOL) and Adjusting	This project includes the following: • First Notice of Loss: ▪ Creating defined Accident profiles ▪ Implementing a profile-based mobile platform customer self-serve FNOL channel ▪ Implementing a profile-based FNOL into the contact centre

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Program / Project	Description
	channel • Adjusting Process Improvements: ▪ Leverage opportunities for efficiencies made available by profile-based FNOL ▪ Implementation of a customer self-serve total loss valuation solution to ensure vehicles are valued consistently and accurately ▪ Implementation of Repair Shop administration of loss of use (vehicle rental) for customers with repairable vehicles
FNOL – Self Service Analytics	Combination of internal analytics of data collected via interaction with MPI claims management system, and channel analytics provided from Mitchell indicating customer behaviour in the mobile FNOL channel
Towing	This project includes development of a solution interface for towing operators. Through this interface new work will be assigned to tow operators, tow incidents will be captured and recorded, for both contract and non-contract bases. The scope of the project may include changes to Vehicle Tracking and FNOL applications and processes.
Enhanced Registration Card	This project entails electronic capture and verification of customer contact information followed by the generation and imprinting of a barcode on the customer registration card based on the customer profile
Enhanced Accident Profiling	This project includes the enhancement of previously defined accident profiles to determine the amount and type of post FNOL effort (No Touch/Low Touch/High Touch).
Physical Damage Support	
Shop Training Management	This project provides support to the repair shops training program based on the Center of Excellence's (COE) defined training requirements. This entails development of training, scheduling and delivering the training to shops, and maintaining the shops training records.
Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI)-BIIC/COI	The development and deployment of a solution to digitally capture and store Body Integrity Inspection Certificates (BIIC) and Certificates of Inspection (COI) linked to online repair records.
Parts	Increase recycled parts usage through expansion of the recycler network by: • Improving the recycled parts process through automation whereby recyclers provide their inventories online and repair estimates include those parts automatically • Reducing administration required for recycled parts through process automation • Expanding the catalogue of certified aftermarket parts
Others	
Autochex	A 3rd-party solution for the implementation of a survey tool which will collect data and provide specific and aggregate reports on customer satisfaction regarding their experience at particular repair shop
Predictive Analytics / Loss Prevention	Improve fraud detection and recoveries through the use of predictive analytics

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Program / Project	Description
Centre of Excellence (COE)	This project will setup the infrastructure and mechanisms (people & processes) to provide support and leadership to operational areas of MPI, as well as the Manitoba collision repair industry involved in the Automotive Physical Damage Claims Administration and Repair processes

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1) Role of the DCAT and 2) Interest Rate Forecasting in the 2019 GRA

Consumers' Association of Canada (Manitoba)

Submitted by the Public Interest Law Centre

Co-Authored by Dr. Wayne Simpson

and Ms Andrea Sherry

The Role of the DCAT and Interest Rate Forecasting in the 2019 GRA

- two significant features in 2019 MPI GRA:
  1) renewed emphasis on attaching Minimum Capital Test (MCT) to the determination of the Rate Stabilization Reserve (RSR)
  2) continued application of a naïve approach to interest rate forecasting to establish a breakeven rate indication and conduct the Dynamic Capital Adequacy Testing (DCAT) to inform the RSR target range.

How Should the RSR be Set? A Chronology of Proposals

1) 1988 Autopac Review Commission (Kopstein Report)

- recommended retained surplus target of about 15% of premiums around the breakeven net income (percentage of premiums of POP approach)
- if surplus falls below 10% or exceeds 20% of premiums, MPI "should and would be expected to take remedial action" (recommendation 7.11)
- foundation for the Rate Stabilization Reserve (RSR) range of **10% to 20% of annual premiums** to protect motorists from rate increases associated with unexpected events and losses arising from non-recurring events or factors
- simple and transparent mechanism indexed to operational size but not directly linked to actual risks facing MPI, which could well be increasing or decreasing through time

How Should the RSR be Set? A Chronology of Proposals

2) 2000 Risk Analysis Approach (RAA), subsequently Operational and Investment Risk Analysis (RA/VaR)

- statistical analysis of the historical experience of the volatility of underwriting income to retrieve the 95% or 97.5% confidence intervals
- redirected risk analysis to a more scientific approach, specifying a risk tolerance level corresponding to the confidence level used in the RA/VaR statistical analysis of 97.5%
- 97.5% CI corresponds to an event with a 2.5% annual chance of occurring, or a **one-in-forty year event**, a standard endorsed by Board Order 150/07: the "RSR should be large enough to be able to withstand an unforeseen loss of a magnitude not anticipated to occur more than once in 40 years"
- MPI introduced the RA/VaR but raised concerns that the series was too short and might not reflect current operations and risks

How Should the RSR be Set? A Chronology of Proposals

3) 2005 Minimum Capital Adequacy Test (MCT)

- MPI recommended RSR range of 50% to 100% MCT (2007 GRA)
- recognized by OSFI to assess the capital required for a **private** company in a **competitive** industry to forestall insolvency
- Concerns expressed that private insurers in competitive markets have different risk profiles and insolvency concerns than crown corporation monopolies
- MCT does not address the specific risks facing MPI
- Board Order 157/08: indicated a desire for “a consensus on a RSR target range that can be accepted by all parties.”

How Should the RSR be Set? A Chronology of Proposals

4) 2010 Dynamic Capital Adequacy Test (DCAT)

- Initially commissioned to assess future financial condition of Basic but now to substantiate MPI's proposed RSR target
- Reservations about the choice of adverse scenarios
  - Plausible but improbable catastrophe scenarios not grounded in historical evidence vs.
  - Plausible scenarios based on evidence and established risk tolerance levels
- Henceforth "in house" and "closely integrated with risk identification process"
- Consensus built on a methodology that would be transparent and consistent with established risk tolerance preferences (1-in-40 year standard)
- Direct connection of specific and justifiable risks, posed as adverse events grounded in historical evidence, to future financial condition

How Should the RSR Range be Set?

- RSR range could be produced by setting low and high risk tolerance levels for the specified adverse scenarios e.g. [1/10,1/200] or [1/20,1/100]
- MPI proposed hybrid approach using DCAT to produce lower threshold and MCT of 100% to set upper threshold
- Order 162/16: “Board continues to favour the use of scenario testing adapted from the annual Basic DCAT investigation for the purposes of setting Basic target capital levels, expressed in terms of Basic total equity. . . For purposes of setting the upper threshold of the Basic target capital range, the Board withdraws its support for the use of the MCT and a MCT threshold ratio of 100%.”

How Should the RSR be Set? What Does the MCT Offer?

- MCT assesses capital required for a **private** company in a **competitive** industry, not a monopoly crown insurer, to forestall insolvency
- Difficult to attach an meaning to specific MCT levels (50%? 100%? 34%% 85%] in terms of specific risks and associated tolerance levels, except as a product of the DCAT
- DCAT captures specific financial risks as they evolve according to evidence and established risk assessment practices, while the MCT approach cannot
- Adopting yet another approach to set the RSR range would invalidate the considerable time devoted this decade to a transparent and collaborative DCAT process for risk assessment to inform RSR range

How Should the RSR be Set? What is the Process Now?

PUB (CAC) 1-2

- **Preamble to IR (If Any):** ". . . POP and DCAT methodologies should continue to inform the setting of the RSR range."
- **Question:** Please explain why Dr. Simpson and Ms. Sherry believe the POP methodology is currently informing the setting of the RSR range.
- **Rationale for Question:** To understand the assertion that POP is currently used for setting the RSR range.
- **RESPONSE:** We are not aware of any PUB decision that explicitly asserts that the POP would no longer be used to set the RSR range with or without the use of other information, although we would acknowledge that recent emphasis and discussion has concentrated on the use of the DCAT to inform, if not set, the RSR range.

Recommendation #1

Current POP and DCAT methodologies, not MCT levels, should continue to inform the setting of the RSR range

- Lower RSR threshold in the 2019 DCAT is $120M, indicating declining risk which the MCT cannot detect or evaluate
  - Lower POP threshold is $108M based on net premiums written of $1.08B (PF.1, p.4, Statement of Operations)
- Upper threshold using PUB approved methodology is $251M
  - Upper POP threshold is $215M

2) Interest Rate Forecasting in the 2019 DCAT Report

- Collaborative DCAT has produced tangible results, including general agreement on appropriate adverse scenarios and their assessment
- Recent DCATs conducted in an unusual period of low interest rates
  - interest rate decline scenario necessarily lacks historical evidence and continues to be based on *ad hoc* assumptions, as discussed in previous GRAs
  - challenging period for interest rate forecasting to establish the DCAT base scenario and set the breakeven rate indication
    - **SIRF** has been too optimistic about economic recovery and rising interest rates since 2008
    - MPI advocates **naïve** interest rate forecast or constant GoC 10-year rate from February 28, 2018 (2.24%) until 2022 Q4
    - Order 130/17: **50/50** forecast to be used for rate setting and target capital

Interest Rate Forecasting (2019): Is the Naïve Forecast Now Superior?

- standard forecast error slightly smaller for naïve forecast (0.15) than 50-50 forecast (0.16) and SIRF (0.18)
- SIRF has clearly outperformed naïve forecast in 2017 and 2018 as economy recovers
  - Figure INV-11:

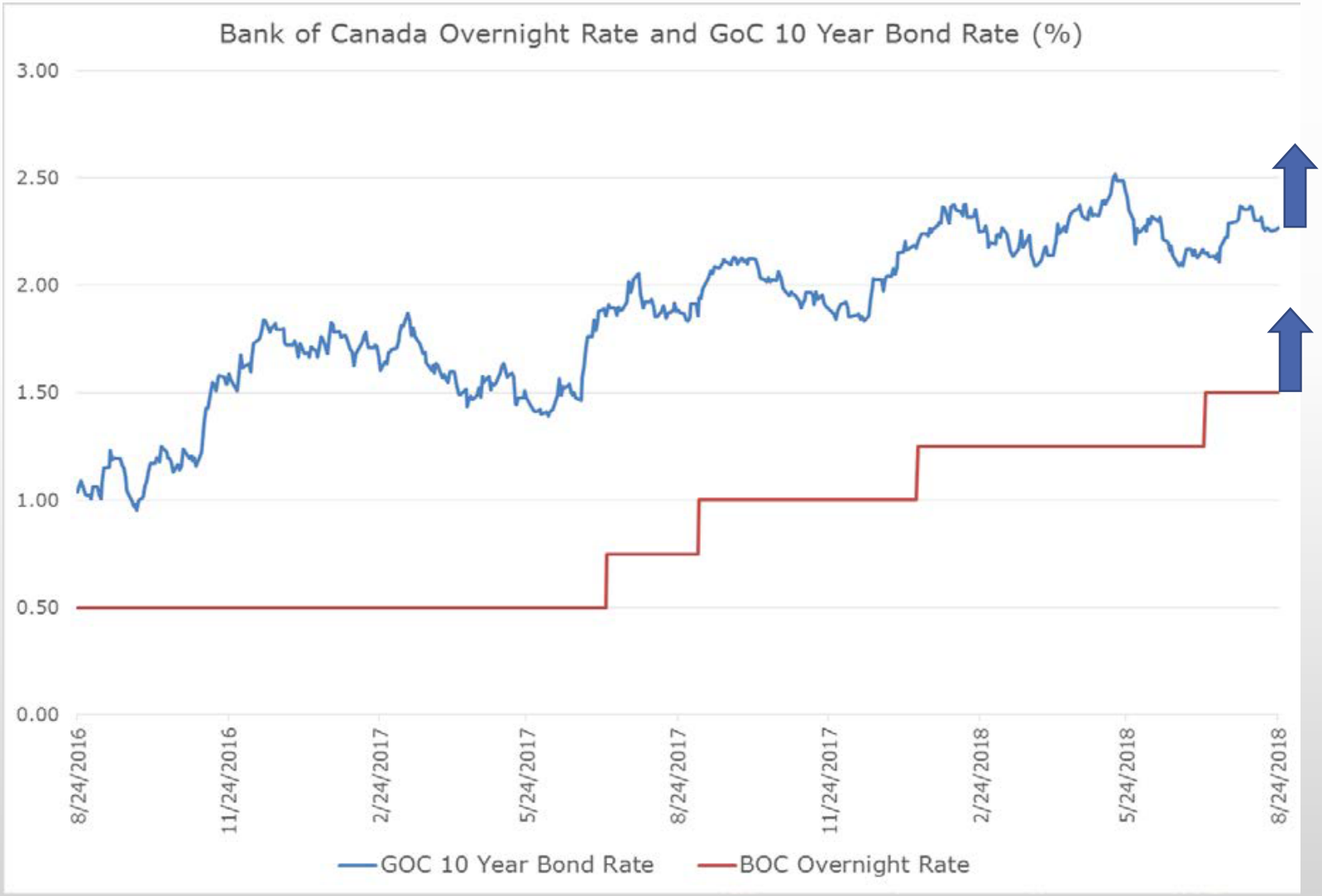
	SIRF	Actual	Diff	Naïve	Actual	Diff
2017 GRA	1.76%	1.64%	0.12%	1.19%	1.64%	-0.45%
2018 GRA	2.10%	2.24%	-0.14%	1.64%	2.24%	-0.60%

  - SIRF also pays attention to other economic signs of recovery and domestic monetary policy response by the Bank of Canada

What Monetary Policy Response and Why Consider It?

- "The Bank carries out monetary policy through changes in the target for the overnight rate of interest. These changes are transmitted to the economy through their influence on market interest rates . . ." (*Bank of Canada Monetary Policy Reports)*
- Bank of Canada has already raised the overnight lending rate three times this year (Jan17,Jul11,Oct22) following two increases last year (Jul12,Sep6); the policy rate as of Wed. stands at 1.75%
- "Recent data reinforce Governing Council's assessment that higher interest rates will be warranted to achieve the inflation target" (Bank of Canada Press Release, Sep 5, 2018); more increases on the way?
- CAC (MPI) 1-6: Bank of Canada's policy rate "not material" but GoC 10 year rate tracking upward movement of BoC policy rate closely, i.e. policy rate is "material" and naïve forecast will be biased downward

Fig 1: BOC Overnight Rate and GoC 10 Yr Bond Rate over the last 2 years (Source: PUB (MPI) 2-39



Does the interest rate forecast matter? Yes and No

- Yes (Figure INV-12): breakeven rate indication is 0.1% under naïve forecast but -0.5% under the 50/50 forecast and -1.0% under the SIRF
- No (CAC (MPI) 1-18): Total Equity is higher under 50/50 than naïve forecast, suggesting satisfactory financial condition for Basic (DCAT.1, p.4) will not be adversely affected by adoption of 50/50 or SIRF

Recommendations

1) **Current POP and DCAT methodologies, not MCT levels, should continue to inform the setting of the RSR range.**
2) **50/50 interest rate forecast should be used for the breakeven rate indication and the DCAT analysis**
   - naïve forecast inferior to 50/50 and SIRF forecasts recently
   - naïve forecast ignores recent monetary policy and economic events that indicate rising interest rates as forecast by the SIRF

The Capital Maintenance Provision Proposal by Manitoba Public Insurance October 26, 2018

Consumers' Association of Canada (Manitoba)
Submitted by the Public Interest Law Centre
Co-Authored by Dr. Wayne Simpson
and Ms. Andrea Sherry

Overview

- Relying on a naïve forecast of interest rates, MPI, in its 2019 GRA to the Public Utilities Board (PUB), has applied for a 2.2% overall increase in Basic vehicle premiums comprised of
  - A 1.1% decrease based on Accepted Actuarial Practice in Canada (including a 1.2% decrease in the required rate change due to the investment income earned on the Rate Stabilization Reserve (RSR)) and
  - A 3.3% increase for the newly introduced CMP.
- The CMP is calculated based on a projected Minimum Capital Test ratio for fiscal year end 2019/20 that remains unchanged from the projected MCT ratio at fiscal year-end 2018/19. The MCT ratio forecasted for the fiscal year end 2018/19 includes the applied for rate change of -1.1%.
- We would argue that going through the DCAT analysis yearly, determining the true capital need of the Corporation based on adverse scenario analysis, determining the RSR range based on the adverse scenario results and holding capital within the RSR range is prudent fiscal management and that the CMP is not necessary.

The CMP was never approved by the PUB nor was consensus reached on it by the stakeholders

- In response to CAC (MPI) 1-72 the Corporation states "After hearing from PUB advisers and representatives from SGI and the CAC, the Corporation agreed that it was appropriate to include a Capital Maintenance Provision in the 2019 GRA."
- A full review of the transcript of the technical conference held March 2nd gives no indication that the consensus was reached by the stakeholders

The CMP has not been vetted by the public

- The introduction of the CMP into the 2019 GRA is a significant change in the requested rate change calculations and theoretical approach to capital by the Corporation.
- The public deserves to have its voice heard on this significant change.
- We would argue that the concept is not overly complex and that a lay person would be very clear on it if explained in non-technical language.

The CMP does not align with Accepted Actuarial Practice in Canada

- The Actuarial Standards of Practice are silent on the addition of a capital load onto a rate indication
- In response to CAC (MPI) 1-78 the Corporation states that it "is not aware of the existence of any industry, gray and peer-reviewed literature regarding the need for and the methodology to establish a Capital Maintenance Provision (CMP) for non-profit, monopoly, public auto insurers, and therefore did not review any. "

The use of an MCT target to set a CMP level is arbitrary and not board approved

- MPI is not regulated by OSFI, therefore there is no set MCT level that MPI is required to be above, nor a way to determine one
- The board has shown support for the determination of the RSR range based on the DCAT analysis

The CMP does not align with the Board approved methodology for calculating the amount of capital the Corporation requires nor is it consistent with work to date.

- A great deal of work has been done on the use of the DCAT to set the RSR range
- The Board has shown support for this approach

The introduction and basis for a CMP in the 2019 GRA is incomplete.

- In response to CAC (MPI) 1-74 the Corporation states that “The Corporation is currently developing a Capital Management Plan to, among other things, address this question. However, for the current GRA, the 2018/19 MCT ratio is within the calculated lower and upper RSR target. As a result, the Corporation did not request either a rebate or surcharge.”

The introduction of a CMP in the 2019 GRA would introduce intergenerational inequity

- The introduction of a CMP would increase the rates for the policyholders in the 2019/20 rating year to the benefit of those policyholders in place in future years
- Given the yearly application process in place it is unnecessary to ask for the extra premium

Recommendations

- The PUB order that the CMP be removed from the 2019 GRA.
- The DCAT methodology should be used to set the RSR range.
- The PUB approve a decrease in rates based on the 50/50 interest rate forecast and Accepted Actuarial Practice in Canada, that would include the investment income on the RSR.

TESTIMONY

Manitoba Public Insurance
2019/20 GRA
Valter Viola

PART I (OVERVIEW)	SYMPTOMS VS PROBLEMS	3-5
	TERMINOLOGY	6-8
	TRUTHS AND CONSEQUENCES	9
	BARRIERS TO EXCELLENCE	10
	INVESTMENT BELIEFS AND OTHER CONSIDERATIONS	11-21
PART II	8 RECOMMENDATIONS	22

Overview and Recommendations

This presentation consists of two parts.

Part I. Overview

The Overview distinguishes between **problems** and **symptoms**, and provides context for the recommendations in Part II. The Overview includes materials presented two years ago, with some *additional comments* in some cases. The Overview:

- defines key **terms**;
- describes some inconvenient **truths** (and consequences) re: portfolio/risk management;
- acknowledges **barriers to excellence** commonly faced by **all** institutional investors; and
- describes the **beliefs** and **other considerations** that support the recommendations.

Part II. 8 Recommendations

The **recommendations** are then reviewed, along with the rationale (e.g., beliefs from Part I).

SYMPTOMS VS PROBLEMS[1]







SYMPTOMS	SHAKY GOALIE	**No Real Return Bonds** • Poor liability protection against unexpected inflation, real rate risk • Less effective duration management
	PUCK HOG	**Canadian Equities** • Larger-than average home bias • Concentrated sectors/stocks
	SHORT-HANDED	**No International Equities** • Missed opportunities to add value, diversify portfolio
PROBLEMS	FOCUS	**Short-term Rate Stability** • At cost of lower long-term level
	PROCESS	**"Smoothed" Accounting** • Rather than "volatile" market value **Asset-Based Rebalancing** • Rather than risk **A-L Studies Every 4 Years** • Rather than annual/quarterly risk-informed discussions

BARRIERS TO EXCELLENCE

REMEDIES →

FRAMEWORK

RISK BUDGETING

Note 1:
As presented 2 years ago (2017/18 GRA)

CHANGES (MADE OR PLANNED)[2]

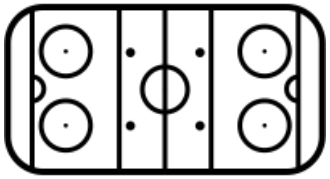
SYMPTOMS	☒	SHAKY GOALIE	**No Real Return Bonds** • Poor liability protection against unexpected inflation, real rate risk • Less effective duration management
	☑	~~PUCK HOG~~	~~**Canadian Equities**~~ ~~• Larger-than average home bias~~ ~~• Concentrated sectors/stocks~~
	☑	~~SHORT-HANDED~~	~~**No International Equities**~~ ~~• Missed opportunities to add value, diversify portfolio~~
PROBLEMS	☒	FOCUS	**Short-term Rate Stability** • At cost of lower long-term level
	n/a	PROCESS	~~**"Smoothed" Accounting**~~ ~~• Rather than "volatile" market value~~ ~~**Asset-Based Rebalancing**~~ ~~• Rather than risk~~ ~~**A-L Studies Every 4 Years**~~ ~~• Rather than annual/quarterly risk-informed discussions~~

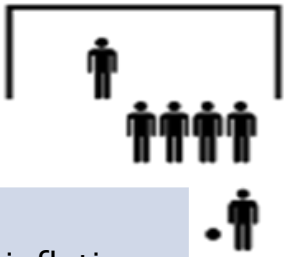
Note 2:
MPI made or plans to make changes (since 2017/18 GRA):

- ☑ Less Canadian equity concentration
- ☑ More international diversification

Accounting less of a concern if market values inform investment/risk decisions (not accounting)

TODAY





SYMPTOMS	Carry Over	SHAKY GOALIE	**No Real Return Bonds** • Poor liability protection against unexpected inflation, <u>real</u> rate risk • Less effective duration management
	New	FEWER "STRONG" DEFENSEMEN	**Fewer Real Assets** (real estate, infrastructure) • Less diversification
		CROWDING OUR NET	**Risk Concentrated in Fixed Income** • Inflation risk, credit risk, some illiquidity
		UNDER-ESTIMATING OPPONENT	**No RRBs in Liability Benchmark Portfolio (LBP)** • Understates risk of inflation and **<u>real</u>** interest rate risk • Makes duration management less effective
PROBLEMS	Carry Over	FOCUS	**Short-term Rate <u>Stability</u>** • At cost of lower long-term <u>level</u>
	New		• At risk of higher long-term rate <u>instability</u>
	New	PROCESS	**LBP Composition should <u>not</u> Depend on Capital Market Expectations** • LBP: long term and inflation-sensitive • Decision to accept or hedge risk quite separate

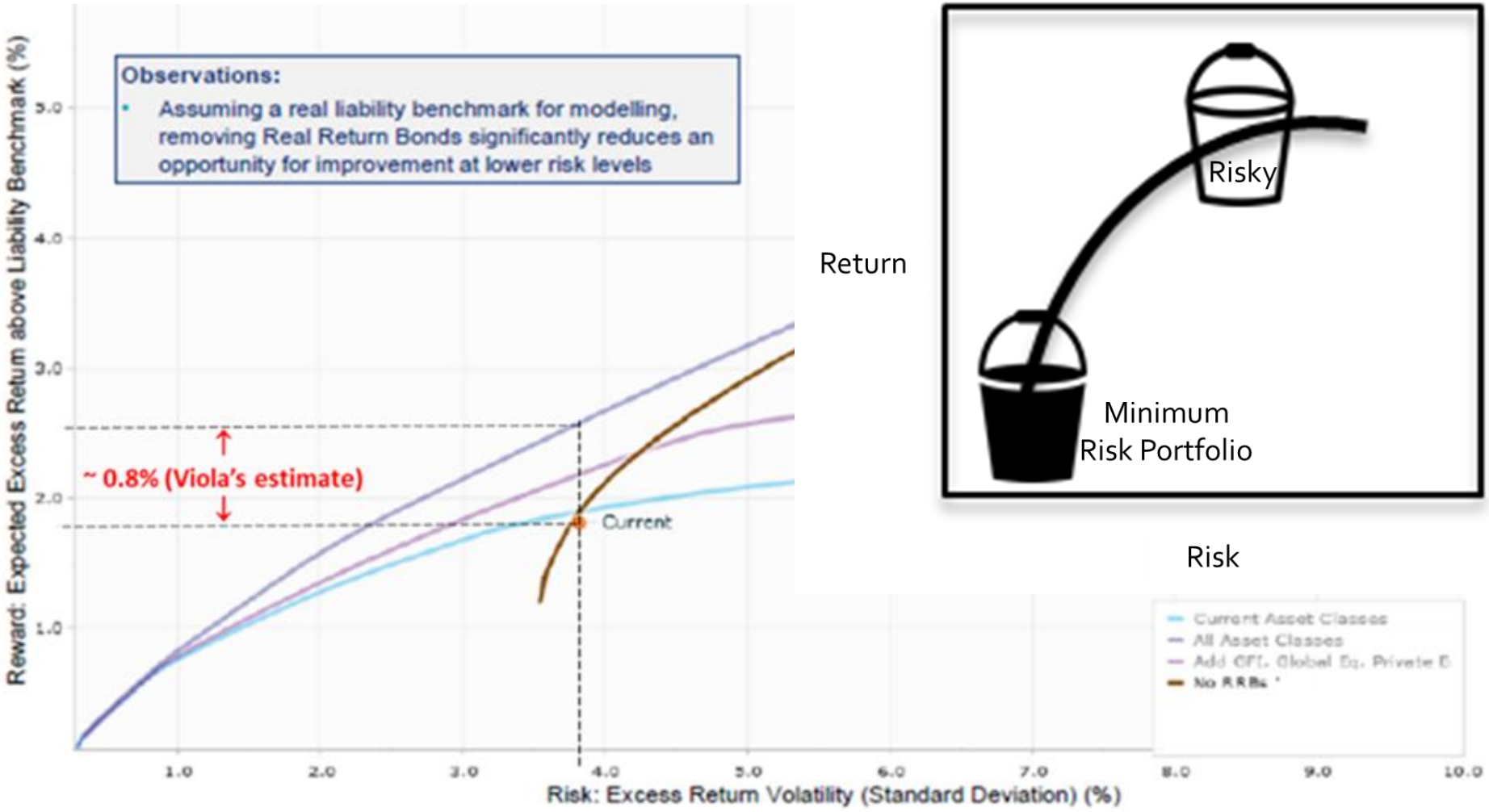
TERMINOLOGY: RATES AND RISKS

Term	Definition
Risk	Potential future adverse outcome (absolute or relative)
Duration	Measure of interest rate risk • % Δ in asset (A) or liability (L) ~ - Δ Yield x Duration • 10 year duration: 1% increase in interest rate causes a ~ 10% decrease in A or L (accurate for small changes) • Weighted average "time" of future cash flows, where weight reflects proportional % of future cash flows in present value terms • Implication: Basic Pension Liability duration (~ 10 years) has ~ ½ of cash flows beyond 10 years
Inflation (π)	Annualized rate of change of prices (expected or realized)
Nominal Interest Rate (n)	~ Sum of real rate (r) and expected inflation (π) (Fisher Equation) $n \sim r + \pi$; e.g., 3% = 1% + 2%
Real Interest Rate (r)	Rate, net of expected inflation ($r \sim n - \pi$; e.g., 1% = 3% - 2%)
Volatility (σ)	Standard deviation, a common measure of risk
Correlation (ρ)	Statistic measuring the strength of a relationship between 2 variables
Nominal Interest Rate Volatility (σ_n)	$\sigma_n = \sqrt{(\sigma_r^2 + \sigma_\pi^2 + 2\rho_{r,\pi}\sigma_r\sigma_\pi)}$, where volatility of nominal interest rate depends on: • volatility of real interest rates (σ_r); • volatility of inflation (π_r); and • correlation between real interest rates and inflation ($\rho_{r,\pi}$)

TERMINOLOGY: ASSETS AND LIABILITIES

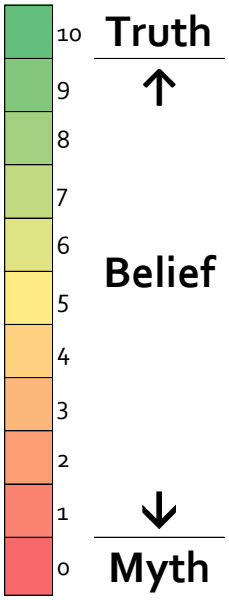
Term	Definition
Nominal Bond	Bond (without inflation protection) • Market value changes with nominal rates
Real Return Bond (RRB)	Bond with inflation protection • Market value changes with real rates • Principal "indexed to inflation" (e.g., $100 principal rises to $102 after 1 year if inflation = 2%); real coupon applies to (rising) indexed base, assuming inflation > 0%
Liability Benchmark Portfolio (LBP)	• aka "Minimum Risk Portfolio" or "Risk-free Portfolio" (more generic) • In MPI context, LBP is (per Mercer) "fixed income portfolio that reproduces fluctuations of liabilities" • Purpose: "Evaluate financial risks, portfolios that minimize them"
Excess Return Volatility	Risk metric used in Mercer's A/L Study (assets vs. Liability Benchmark)
Tracking Error	Standard deviation of return difference between two groups of assets or liabilities (e.g., actual portfolio vs. benchmark)
Basis Risk	Risk that two portfolios (including liability benchmarks) experience different performance/growth, arising from imperfect correlations (not = 1.0), for example

BIG PICTURE: 2 BUCKETS



TRUTHS AND CONSEQUENCES

Correlations *make investing a "team sport"*
(no "I" in TEAM) ↓



TRUTH	We don't know very much	Beneficiaries/ owners ≠ managers	Correlations are not perfect
	Low signal/noise (return/risk) ratio	*Institutions manage $ for clients/beneficiaries*	*Risks don't add (1 + 1 ≠ 2)*
Truth and Consequence	We need to make investment decisions but **we don't know very much**	The interests of stakeholders[1] may not be aligned because **beneficiaries/owners are not the same as managers**	The effect of an investment on total portfolio risk depends on the characteristics of other assets in the portfolio because **correlations are not perfect**
HELPFUL TOOLS	BELIEFS[2]	CAPITAL/REGULATORY FRAMEWORK[3]	RISK FRAMEWORK[3]

1. Stakeholders include MPI, rate-payers and Manitoba Finance.
2. Beliefs support long-term portfolio design (e.g., asset mix).
3. Capital/Risk/Regulatory Frameworks provide a focus (clarity in mission) and process to overcome common barriers to excellence.

"Risk Framework" *an outstanding issue from 2017/18 Recommendations* ↑

BARRIERS TO EXCELLENCE

Lack of **focus** or clear mission

Poor **process**

- Structure
- Communication
- Inertia

Inadequate resources

Barriers are common
to all institutional investors
(not unique to MPI)

LBP determined 1st (Belief #1 and #2) and independently of: i) capital market expectations, and ii) risk tolerance (Belief #3, etc.)

INVESTMENT BELIEFS

SUSTAINABILITY: 1. Major risk is provisions will not be **sustainable**

MRP/LBP: 2. Determining **Minimum Risk Portfolio** (MRP) is first step (i.e., Liability Benchmark Portfolio (LBP) composition)

ADDITIONAL RISK: 3. Taking **additional risk** beyond LBP should be done only if expected additional returns justify doing so

TOTAL PORTFOLIO: 4. **Additional risk to Total Portfolio** is relevant risk to consider if risk beyond LBP is taken

- "Marginal" concept, not viewed in isolation (i.e., correlations/betas matter)

CONSTRAINTS: 5. **Constraints** never increase expected risk-adjusted returns

#2 MINIMUM RISK PORTFOLIO BELIEF

Determining the Minimum Risk Portfolio is the first step towards responsible long-term management of the portfolio.

- MRP defined as "Liability Benchmark Portfolio" (LBP) in Mercer Study
- LBP should include some RRBs, given liabilities (long term, inflation exposure)
- Belief #2 simply supports definition of MPI's primary investment risk
- Says nothing about whether to buy assets that make it up (e.g., RRBs)
- Belief says nothing about how much risk should be taken in relation to LBP
- Answers to these questions requires additional beliefs

BIG *SIMPLIFICATIONS BY BOTH MPI AND MERCER:*

MPI: *based … low risk assessment of inflation primarily upon … expected* ***level*** *rather than …* ***volatility*** *of inflation (CAC (MPI) 2-2);*

Mercer: *support to "hedge* ***nominal*** *… risk before …* ***real*** *… driven more by … views on … expected* ***level*** *of future inflation than …* ***volatility****" (CAC (MPI) 2-4)*

But *risk depends on* ***volatilities and correlations*** *(not* ***levels/averages****);*

4.5% tracking error *from simplification material, especially given MPI's low risk tolerance (i.e., 4.5% error ÷ ~ 3.8% volatility or risk = 118% difference)*

#3 ADDITIONAL RISK AND #4 TOTAL PORTFOLIO

#3 Taking additional risk beyond the Liability Benchmark Portfolio (LBP) should be done only if the expected additional returns justify doing so.

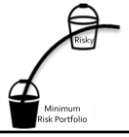
#4. The additional risk to the Total Portfolio is the relevant risk to consider if risk beyond the LBP is taken.

- Rationale for taking a total portfolio approach from "inconvenient truth"
  - Effect of investment on total portfolio risk depends on characteristics of **other assets** (e.g., equities, real estate, and infrastructure) because correlations not perfect
- Correlations harder to interpret, perhaps harder to estimate accurately, but critical
- Particularly important in defining LBP (i.e., correlation of inflation with real rates), especially over longer horizons

#6 MARKET EFFICIENCY BELIEF

Markets are very efficient at pricing securities relative to one another, but are not perfectly efficient due to information and execution costs	

2 Years Ago	• Implicit in recommendations re: Canada/US/International "risky" portfolio mix
	• "Risky" sub-portfolios should reflect global market caps, other things equal
	  • "Separation theorem", may go by other name(s)
	  • Investors should (generally) hold same mix of risky assets, (Canada/US/International Equities), but different allocations between risky and risk-free assets to reflect different risk tolerances
	• Common principle applied in portfolio management

Today	• *"Risk-free" assets (LBP) should reflect risks in liabilities (e.g., duration, inflation)* • *Allocation **between** LBP (risk-free) and riskier assets (equities, etc.) should reflect risk tolerances and return/risk tradeoffs (i.e., capital market assumptions)* • ***Composition** of LBP should **NOT** depend on capital market assumptions* • *See Belief #2 (MPI/Mercer simplifications re: LBP and material implications)*
	• *Significance of Belief #6 discussed 2 years ago (equity mix in "**Risky** Bucket")* • *MPI's process for defining contents of "**Risk-free** Bucket" very questionable*

FRAMEWORK (CPPIB CASE STUDY)

- Provides FOCUS (barrier to excellence)
- Context, cohesion, link between vision, mission, objectives and strategies

Example

- Want to earn actuarial (real) rate, which no asset guarantees
  - Closest: RRBs yielding < actuarial rate
  - Take risk to maximize returns
- Avoid undue risk, be paid for risks taken
- Measure/attribute risks to sources, improve understanding/management

FRAMEWORK (CPPIB CASE STUDY)

Elements:

- Primary goal: risk-adjusted net value added (RANVA), not net income (market returns compensated for risks taken, costs incurred)
- MRP: benchmark for RANVA (e.g., Scotia Capital RRB Index at CPPIB*)
- Risk adjustment (cost of risk capital)
- Limits
- Budget linked to goal(s)

* Definitions and parameters may have changed (were in place 2000/01 to 2005)

"SURPLUS RISK" FOCUS (TEACHERS' CASE STUDY)

*"main source of liability risk is a drop in **real** interest rates, which increases … present value of … pensions …, and … upward pressure on contribution rates. Higher … rates … opposite effect".*

RISKS AND RISK MANAGEMENT

We manage **surplus risk** using a Value at Risk (VaR) methodology. VaR has forced us to think of surplus risk as the aggregate of liability risk, asset-mix policy risk, and active management risk, taking into account correlation and diversification between the components.

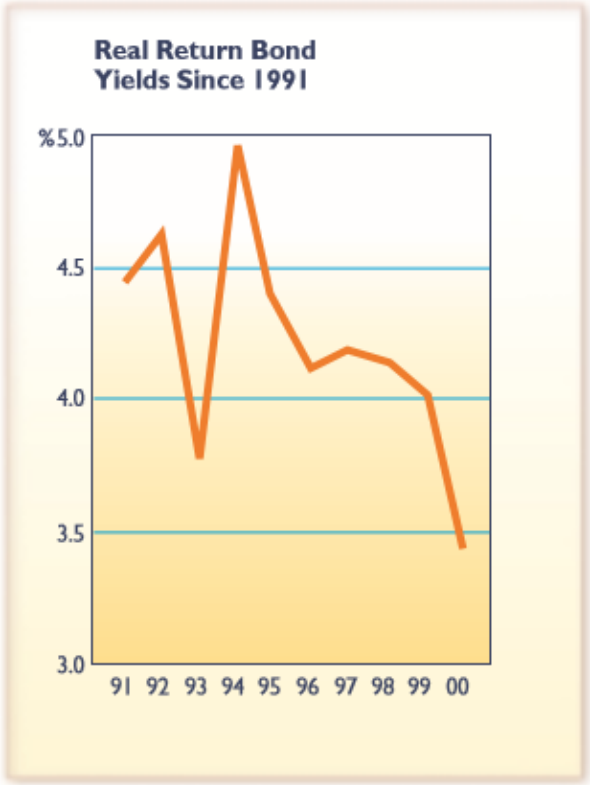
The main source of **liability risk** is a drop in real interest rates, which increases the present value of future pensions accumulated up to that point. It makes new pension liabilities more difficult to finance, and puts upward pressure on contribution rates. Higher real interest rates have the opposite effect.

Asset-mix policy risk would be the mirror image of liability risk, and surplus risk would be zero, if investments perfectly matched the plan's long-term objective that asset growth will average a real rate of about 4.5 percent plus inflation. Real return bonds come close, but fall a bit short on yield.

The absence of a perfectly matching asset forces us to consider assets that individually do not always behave like our pension promise, but collectively give us the best trade-off between longer term expected surplus return and acceptable short-term surplus risk. Consequently, our asset mix is heavily weighted to equities because they meet our long-term goals, while our inflation-sensitive investments give more modest real returns but dampen surplus risk.

Source: Teachers' 2000 Annual Report, page 22

MATCHING REAL ASSETS AND LIABILITIES



Real return yields declined by 59 basis points in 2000, after remaining within a 10 basis point range for the three previous years.

Source: Teachers' 2000 Annual Report, page 19

MATCHING ASSETS AND LIABILITIES

To create a funding surplus we manage the relationship between investment assets and pension liabilities. Our goal is an asset mix that balances risks and rewards, avoids excessive volatility, and maintains stable contribution rates.

Because both assets and liabilities are sensitive to interest rate changes, one of our goals is to reduce the risk that liabilities will increase more than assets in response to lower real interest rates. Unfortunately, that is what happened in 2000. The sharp decline in real rates of return increased the value of total liabilities by $3 billion. During the year, we shifted assets from fixed-income and equity portfolios to real-rate products and real estate. Debt securities, along with inflation-sensitive assets, outperformed total equities to produce the healthy accounting surplus.

LIABILITY BENCHMARK AND RRBS

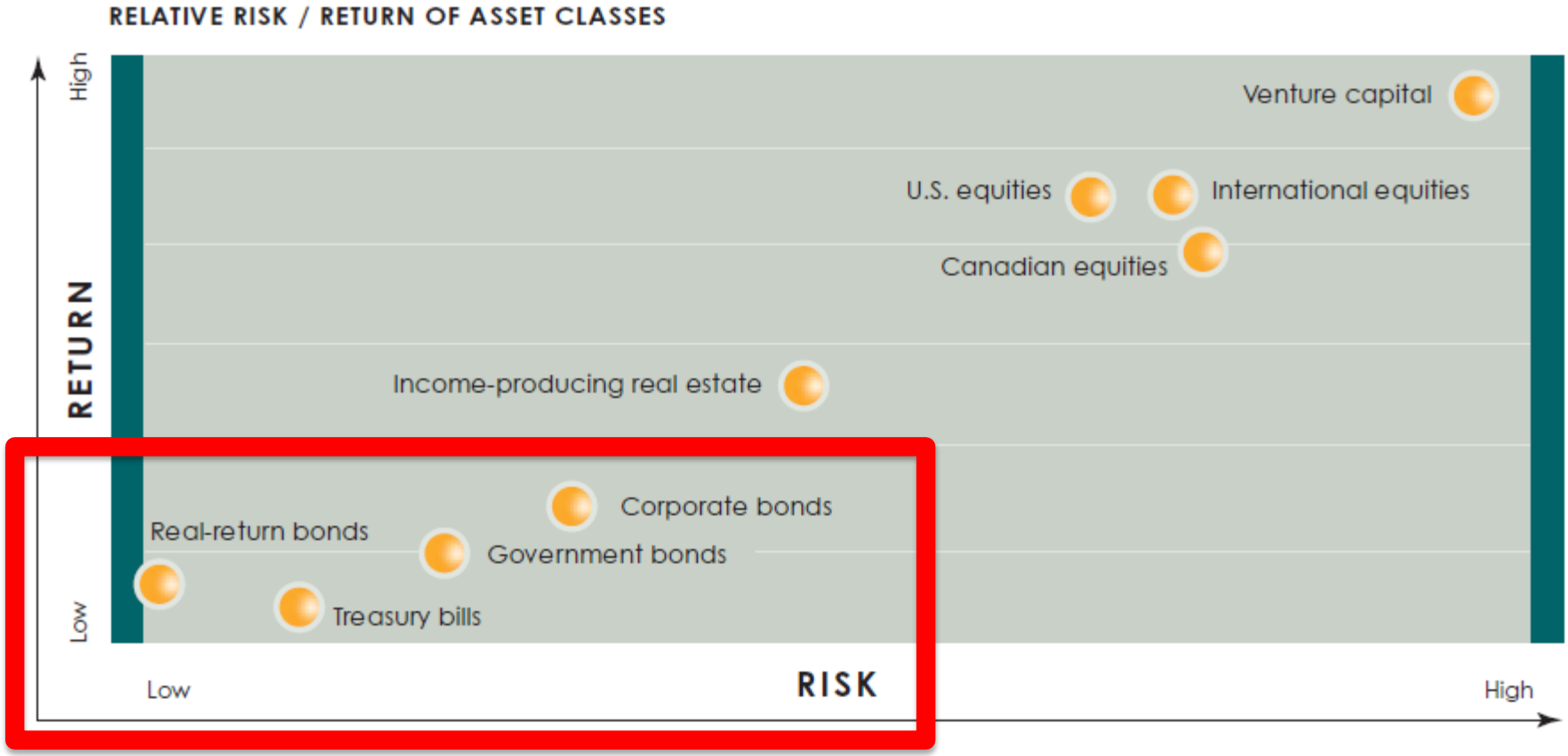
- Some liabilities resemble RRBs (zero-coupon real cash flows)
- RRBs could closely match risks in real liabilities
- "Insurance" cost varies with yield
- **Nominal bonds only good fit if inflation stable**

Tendency to ignore portfolio risk interdependence

- Assets risky in isolation, safer when combined with other assets/liabilities (long RRB duration risky on its own, not with long liabilities)
- **Diversification makes management a team sport: appetite to take risk in one asset depends on risks in other assets and liabilities**

RETURN/RISK FRAMEWORK AT CPPIB (2001)

Note Return/Risk of RRBs vs. Bonds

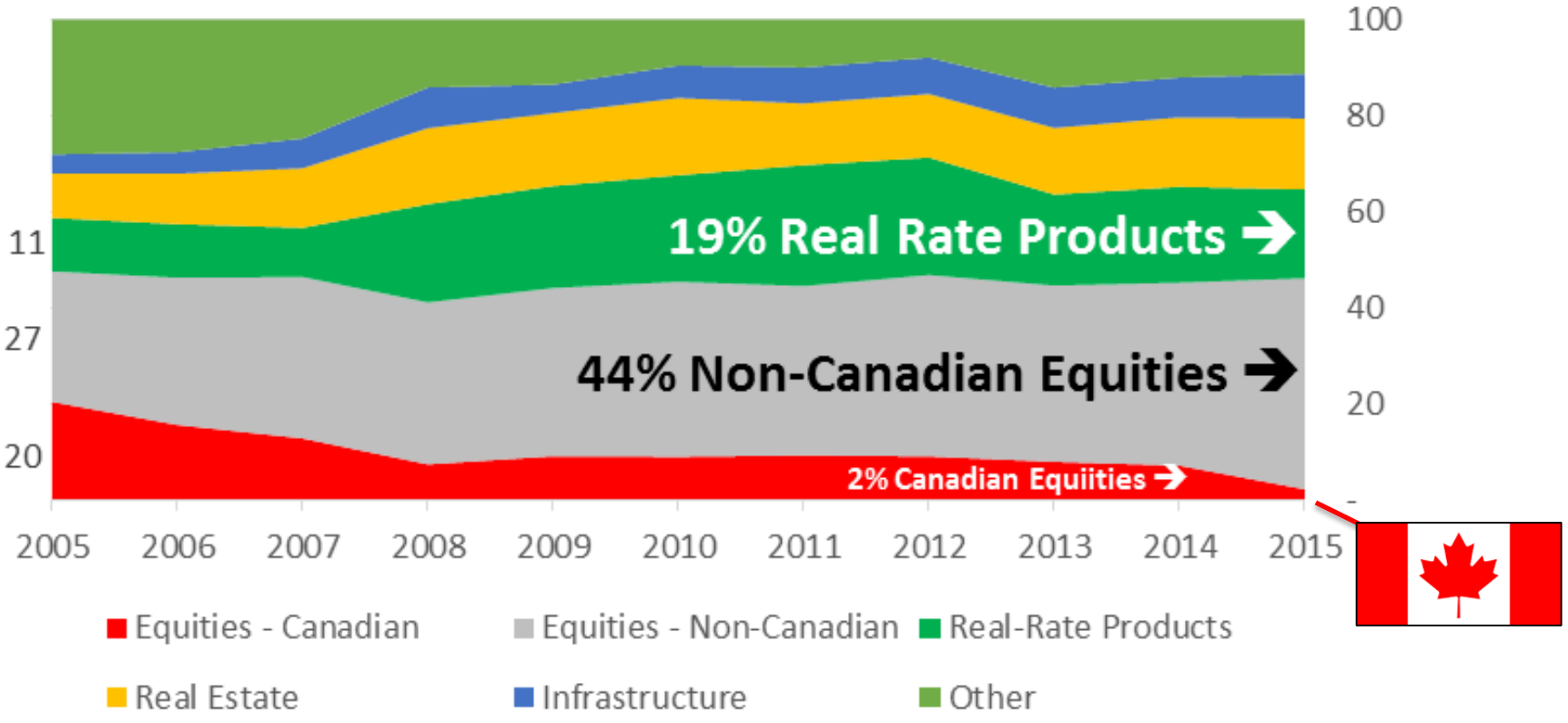


Source: CPPIB's Annual Report (March 2001), page 11

TEACHERS' IN 2015

Note High RRB allocation, even at higher risk

Teachers' RRBs = 19%, Non-Canadian Equities = 44%, Canadian Equities = 2%



Source: Graphed using data from Teachers' 2015 Annual Report, page 71

2019/20 RECOMMENDATIONS

FRAMEWORK	1. Real Liability Benchmark 2. Leverage Constraint
PORTFOLIO	3. Duration Policy "Basis" Risk 4. Lengthening Nominal Duration 5. Real Return Bonds 6. Other Real Assets 7. Fixed Income Risk Concentration
METRICS	See Duration Policy "Basis" Risk
OVERSIGHT	8. Quantitative Models

1. REAL LIABILITY BENCHMARK

Re-examine … Nominal Liability Benchmark, rather than … Real …, given … understatement of … long-term risk of inflation and … real … rates		
*Basic (Real)**	Duration ~ 10	66% RRBs 26% T Bills 8% short-term (nominal) provincial bonds
*Pension (Real)**	Duration ~ 16	81% RRBs 30% long-term (nominal) provincial bonds -11% (short) T Bills
Inflation-hedges	• **T Bills** hedge ***very well*** short-term inflation risk (mature in < 1 year; duration < 1), and better when inflation volatility is low • **RRBs** hedge ***perfectly (100%)*** inflation risk over all maturity horizons (longest RRB matures in > 30 years)	
No RRBs in Nominal	No RRBs in nominal LBP understates risk of unexpected inflation and real risk, making duration management less effective (under-estimate opponent)	
Constraint	No "requirement" to replicate FTSE TMX Canada RRB Index (custom benchmarks widely used)	

* See next slide for comparison of Real vs. Nominal LBPs

MATERIAL TRACKING ERROR

- 4.5% tracking error between Real/Nominal LBPs for Basic "material" (Mercer agrees)
- Could be bigger for Pensions, given longer duration (~ 16 vs. ~ 10), and larger differences in weights (below)

	Basic			Pension		
	Nominal	**Real**	Diff	Nominal	**Real**	Diff
Treasury Bills		**26**	26	- 17	- **11**	6
Short-Term Provincial Bonds	28	**8**	- 20			-
Mid-Term Provincial Bonds	18		- 18			-
Long-Term Provincial Bonds	54		- 54		**30**	30
Long-Term Corporate Bonds			-	117		- 117
Real Return Bonds		**66**	66		**81**	81
	100	**100**	-	100	**100**	-

FOCUS/PROCESS CONCERN

- Policy focused more on shorter-horizon and inflation component (less risky), rather than capital gain/duration effects from longer-term changes related to both inflation and changing "real" interest rates ("really" risky)

- Like focusing on dividend yield component of stock returns (low and stable), rather than capital gain component (larger and more volatile), per below

nominal yield	~	real yield	+	inflation	(2): Fisher Equation

return on stocks	=	capital gain (loss)	+	dividend yield	(4): Dividend Discount Model ("DDM")
		↑		↑	
		"Really" Risky		**Less** Risky	

MPI (CAC) 1-9 (Real Interest Rate Risk)

b) … provide … documentation … that supports … assertion … real yields are "really risky"

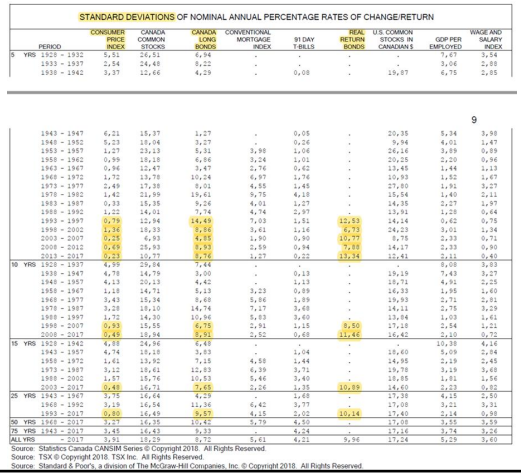
Table shows standard deviation ("volatility") in inflation, Bonds, and RRBs (yellow) (see next page for enlarged image)

Over ~ 25 years:

- Inflation volatility~ 0.8% (well below prior ~ 3% to ~ 4% in prior ¼ centuries)
- 10.1% RRB volatility
- 9.6% Canada Long Bond volatility

Over 5-year periods:

- Falling volatility in Bonds (14.5% to 8.8%)
- Falling inflation volatility
- No trend in RRB volatility (12.5% by 1997, 13.3% by 2017)



STANDARD DEVIATIONS OF NOMINAL ANNUAL PERCENTAGE RATES OF CHANGE/RETURN

	PERIOD	CONSUMER PRICE INDEX	CANADA COMMON STOCKS	CANADA LONG BONDS	CONVENTIONAL MORTGAGE INDEX	91 DAY T-BILLS	REAL RETURN BONDS	U.S. COMMON STOCKS IN CANADIAN $	GDP PER EMPLOYED	WAGE AND SALARY INDEX
5 YRS	1928 - 1932	5,51	26,51	6,94	.	.	.	.	7,67	3,54
	1933 - 1937	2,54	14,48	5,22	.	.	.	.	3,06	2,88
	1938 - 1942	3,37	12,66	4,29	.	0,08	.	19,87	6,75	2,85
	1943 - 1947	6,21	15,37	1,27	.	0,05	.	20,35	5,34	3,98
	1948 - 1952	5,23	18,04	3,27	.	0,26	.	9,94	4,01	1,47
	1953 - 1957	1,27	13,13	5,31	3,98	1,06	.	26,16	3,89	0,89
	1958 - 1962	0,99	15,18	6,86	3,24	1,01	.	20,25	2,20	0,96
	1963 - 1967	0,96	12,47	3,47	2,76	0,62	.	13,45	1,44	1,13
	1968 - 1972	1,70	13,78	10,24	6,97	1,76	.	10,93	1,52	1,47
	1973 - 1977	2,49	17,38	8,01	4,85	1,45	.	27,80	1,91	3,27
	1978 - 1982	1,42	21,89	19,61	9,75	4,18	.	15,84	1,40	2,11
	1983 - 1987	0,93	15,35	9,26	4,01	1,27	.	14,35	2,27	1,97
	1988 - 1992	1,22	14,01	7,74	4,74	2,97	.	13,91	1,28	0,64
	1993 - 1997	0,79	12,94	14,49	7,03	1,51	12,53	14,14	0,62	0,75
	1998 - 2002	1,36	19,33	9,96	3,61	1,16	6,73	24,23	3,01	1,34
	2003 - 2007	0,25	6,93	4,85	1,90	0,90	10,77	8,75	2,33	0,71
	2008 - 2012	0,69	25,93	8,93	2,59	0,94	7,88	14,17	2,33	0,90
	2013 - 2017	0,23	10,77	8,76	1,57	0,22	13,24	10,51	2,11	0,40
10 YRS	1928 - 1937	4,99	29,84	7,44	.	.	.	.	8,08	3,83
	1938 - 1947	4,78	14,79	3,00	.	0,13	.	15,19	5,43	3,27
	1948 - 1957	4,13	20,13	4,42	.	1,13	.	18,71	4,91	2,25
	1958 - 1967	1,18	14,71	5,13	3,23	0,89	.	16,33	1,95	1,60
	1968 - 1977	3,43	15,34	8,68	5,86	1,89	.	19,93	2,71	2,81
	1978 - 1987	3,28	18,10	14,74	7,17	3,68	.	14,11	2,75	3,29
	1988 - 1997	1,72	14,30	10,96	5,83	3,60	.	13,84	1,03	1,61
	1998 - 2007	0,93	15,55	6,75	2,91	1,15	8,50	17,18	2,54	1,21
	2008 - 2017	0,49	18,94	8,91	2,52	0,68	11,46	16,42	2,10	0,72
15 YRS	1928 - 1942	4,58	24,96	6,48	.	.	.	.	10,38	6,16
	1943 - 1957	4,74	18,18	3,83	.	1,04	.	18,60	5,09	2,84
	1958 - 1972	1,61	13,92	7,15	4,58	1,44	.	14,95	2,19	2,45
	1973 - 1987	3,12	19,61	12,63	6,39	3,71	.	19,78	3,19	3,68
	1988 - 2002	1,57	15,76	10,53	5,46	3,40	.	18,85	1,81	1,56
	2003 - 2017	0,45	16,71	7,65	2,26	1,35	10,89	14,60	2,23	0,82
25 YRS	1943 - 1967	3,75	16,44	4,29	.	1,68	.	17,38	4,15	2,50
	1968 - 1992	3,19	16,54	11,36	6,42	3,77	.	17,08	3,21	3,31
	1993 - 2017	0,80	16,49	9,57	4,15	2,02	10,14	17,40	2,14	0,98
50 YRS	1968 - 2017	3,27	16,35	10,42	5,79	4,50	.	17,08	3,55	3,59
75 YRS	1943 - 2017	3,45	16,43	9,33	.	4,24	.	17,16	3,74	3,26
ALL YRS	- 2017	3,91	15,29	8,72	5,61	4,21	9,96	17,24	5,29	3,60

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MPI (CAC) 1-9 (Real Interest Rate Risk)

STANDARD DEVIATIONS OF NOMINAL ANNUAL PERCENTAGE RATES OF CHANGE/RETURN

	PERIOD	CONSUMER PRICE INDEX	CANADA COMMON STOCKS	CANADA LONG BONDS	CONVENTIONAL MORTGAGE INDEX	91 DAY T-BILLS	REAL RETURN BONDS	U.S. COMMON STOCKS IN CANADIAN $	GDP PER EMPLOYED	WAGE AND SALARY INDEX
5 YRS	1928 - 1932	5,51	26,51	6,94	.	.	.	.	7,67	3,54
	1933 - 1937	2,54	24,48	8,22	.	.	.	.	3,06	2,88
	1938 - 1942	3,37	12,66	4,29	.	0,08	.	19,87	6,75	2,85

9

	1943 - 1947	6,21	15,37	1,27	.	0,05	.	20,35	5,34	3,98
	1948 - 1952	5,23	18,04	3,27	.	0,26	.	9,94	4,01	1,47
	1953 - 1957	1,27	23,13	5,31	3,98	1,06	.	26,16	3,89	0,89
	1958 - 1962	0,99	18,18	6,86	3,24	1,01	.	20,25	2,20	0,96
	1963 - 1967	0,96	12,47	3,47	2,76	0,62	.	13,45	1,44	1,13
	1968 - 1972	1,72	13,78	10,24	6,97	1,76	.	10,93	1,52	1,67
	1973 - 1977	2,49	17,38	8,01	4,55	1,45	.	27,80	1,91	3,27
	1978 - 1982	1,42	21,99	19,61	9,75	4,18	.	15,54	1,40	2,11
	1983 - 1987	0,33	15,35	9,26	4,01	1,27	.	14,35	2,27	1,97
	1988 - 1992	1,22	14,01	7,74	4,74	2,97	.	13,91	1,28	0,64
	1993 - 1997	0,79	12,94	14,49	7,03	1,51	12,53	14,14	0,62	0,75
	1998 - 2002	1,36	18,33	8,86	3,61	1,16	6,73	24,23	3,01	1,34
	2003 - 2007	0,25	6,93	4,85	1,90	0,90	10,77	8,75	2,33	0,71
	2008 - 2012	0,69	25,93	8,93	2,59	0,94	7,88	14,17	2,33	0,90
	2013 - 2017	0,23	10,77	8,76	1,27	0,22	13,34	12,41	2,11	0,40
10 YRS	1928 - 1937	4,99	29,84	7,44	.	.	.	.	8,08	3,83
	1938 - 1947	4,78	14,79	3,00	.	0,13	.	19,19	7,43	3,27
	1948 - 1957	4,13	20,13	4,42	.	1,13	.	18,71	4,91	2,25
	1958 - 1967	1,18	14,71	5,13	3,23	0,89	.	16,33	1,95	1,60
	1968 - 1977	3,43	15,34	8,68	5,86	1,89	.	19,93	2,71	2,81
	1978 - 1987	3,28	18,10	14,74	7,17	3,68	.	14,11	2,75	3,29
	1988 - 1997	1,72	14,30	10,96	5,83	3,60	.	13,84	1,03	1,61
	1998 - 2007	0,93	15,55	6,75	2,91	1,15	8,50	17,18	2,54	1,21
	2008 - 2017	0,49	18,94	8,91	2,52	0,68	11,46	16,42	2,10	0,72
15 YRS	1928 - 1942	4,88	24,96	6,48	.	.	.	.	10,38	4,16
	1943 - 1957	4,74	18,18	3,83	.	1,04	.	18,60	5,09	2,84
	1958 - 1972	1,61	13,92	7,15	4,58	1,44	.	14,95	2,19	2,45
	1973 - 1987	3,12	18,61	12,83	6,39	3,71	.	19,78	3,19	3,68
	1988 - 2002	1,57	15,76	10,53	5,46	3,40	.	18,85	1,81	1,56
	2003 - 2017	0,48	16,71	7,65	2,26	1,35	10,89	14,60	2,23	0,82
25 YRS	1943 - 1967	3,75	16,64	4,29	.	1,68	.	17,38	4,15	2,50
	1968 - 1992	3,19	16,54	11,36	6,42	3,77	.	17,08	3,21	3,31
	1993 - 2017	0,80	16,49	9,57	4,15	2,02	10,14	17,40	2,14	0,98
50 YRS	1968 - 2017	3,27	16,35	10,42	5,79	4,50	.	17,08	3,55	3,59
75 YRS	1943 - 2017	3,45	16,43	9,33	.	4,24	.	17,16	3,74	3,26
ALL YRS	- 2017	3,91	18,29	8,72	5,61	4,21	9,96	17,24	5,29	3,60

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CORRELATIONS (CAC (MPI) 1-84(F))

- 0.57 correlation between RRBs and federal bonds (row 4)
- Lower correlation between RRBs (column 5) and other bonds (e.g., federal long-term bonds in column 4) ➔ **inflation volatility matters**
- Using "nominal" bonds to hedge "real" liabilities may be fine over <u>very short</u> horizons if **both inflation level and volatility** reasonably predictable, but long-term "basis risk" material

	Correlations				
Asset Class	1	2	3	4	5
1 Treasury Bills	1.00	0.38	0.18	0.01	(0.19)
2 Federal short-term bonds	0.38	1.00	0.91	0.76	0.25
3 Federal mid-term bonds	0.18	0.91	1.00	0.94	0.46
4 Federal long-term bonds	0.01	0.76	0.94	1.00	0.57
5 Real return bonds	(0.19)	0.25	0.46	0.57	1.00
6 Provincial short-term bonds	0.31	0.96	0.91	0.77	0.39
7 Provincial mid-term bonds	0.02	0.79	0.92	0.92	0.65
8 Provincial long-term bonds	(0.14)	0.52	0.75	0.89	0.70
9 Corporate short-term bonds	(0.03)	0.47	0.46	0.40	0.53
10 Corporate mid-term bonds	(0.34)	0.07	0.23	0.32	0.62
11 Corporate long-term bonds	(0.38)	(0.05)	0.19	0.38	0.62
12 Global bonds	0.16	0.86	0.83	0.72	0.13
13 High yield bonds	(0.47)	(0.23)	(0.14)	(0.02)	0.35
14 Emerging debt	0.10	0.27	0.26	0.24	0.22

2. LEVERAGE CONSTRAINT

Re-examine … constraint prohibiting … "leverage", given … lower risk-adjusted returns that would result
Not a major concern in the context of prohibiting bond/RRB leverage (should be addressed in duration policy; next slides)
CONFIDENTIAL ADDITIONAL COMMENT

3. DURATION POLICY "BASIS" RISK

Re-examine … duration …, which uses (nominal) bonds … for matching … inflation and real … rate sensitivity …, … inflation volatility … not zero	
MPI's View	MPI agreed duration matching not as effective if inflation differs from expectations; "Accepted short term inflation risk and … accounted for risk through margins and reserve; Excess portfolio … designed to provide some protection against inflation" (2017/18 GRA Evidence)
Rate Risk	$\sigma_n = \sqrt{(\sigma_r^2+\sigma_\pi^2+2\rho_{r,\pi}\sigma_r\sigma_\pi)}$; depends on **volatility/correlation**, not **levels**
4.5% Error	4.5% "tracking error" between Nominal and Real Liability Benchmark Portfolios a big number (especially given low risk tolerance)
Customized Policy?	Would a **customized** duration policy be more effective, reflecting: 1. less predictable **long-term** risks, 2. more predictable **short-term**?
Constraints?	No "requirement" to be "indexed" to FTSE TMX Canada RRB Index; Many institutional investors have custom benchmarks to reflect needs

4. LENGTHENING NOMINAL DURATION (PUBLIC INFORMATION)

Re-examine … decision to lengthen … nominal duration in … Basic …, given: … lower risk … strategy; … return assumptions for bonds and RRBs; … concerns about … effectiveness of … duration policy … ("basis" risk)

Return Scenarios:
↑ *better*
↓ *worse*

	Inflation > Expected	Real Yields Rise	Nominal Yields Rise
RRBs	↑ RRBs do well (inflation protected)	↓	
T Bills	↑ T Bills do well (reinvest short-term maturities at ↑ rates)		
Bonds	↓ Bonds do poorly (worse if longer)		↓

Mercer's 10Y Forecast: Rising Rates

	Yield Change	Annualized Return	Conclusions (Details Confidential)
RRBs	**CONFIDENTIAL**		***Do we expect a better goalie (RRBs) to both make more saves and also score more goals than some players in the next period (10 years)?***
T Bills			
Bonds			

Conclusions

Lengthening nominal duration increases long-term rate instability if liabilities are inflation-sensitive

APPENDIX 17, ATTACHMENT C, SLIDE 8 (CONFIDENTIAL INFORMATION)

PUB (MPI) CSI 2-6 (CONFIDENTIAL INFORMATION)

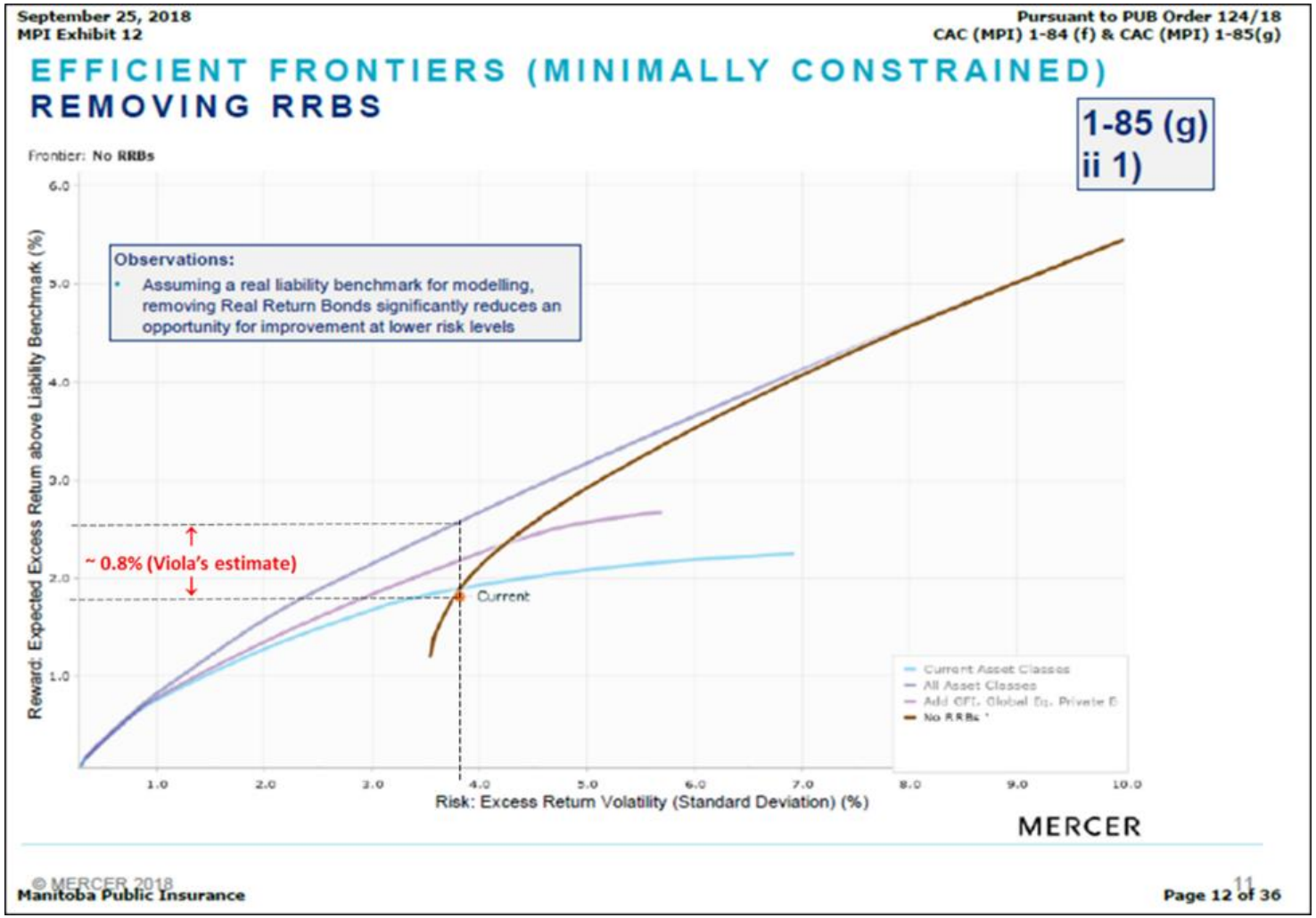
PUB (MPI) CSI 2-6 (CONFIDENTIAL INFORMATION)

5. REAL RETURN BONDS

Re-examine … decision to exclude RRBs from … portfolios, given … better hedging … of RRBs (compared to bonds), recognizing … long-term inflation and real interest rate risks … in … liabilities	
Mercer's Observations	• "Assuming a real liability benchmark for modelling, removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels" (see next slides) • Removing RRBs reduces returns at current risk levels (~ 0.8% in Basic, ~ 0.2% in Pension)

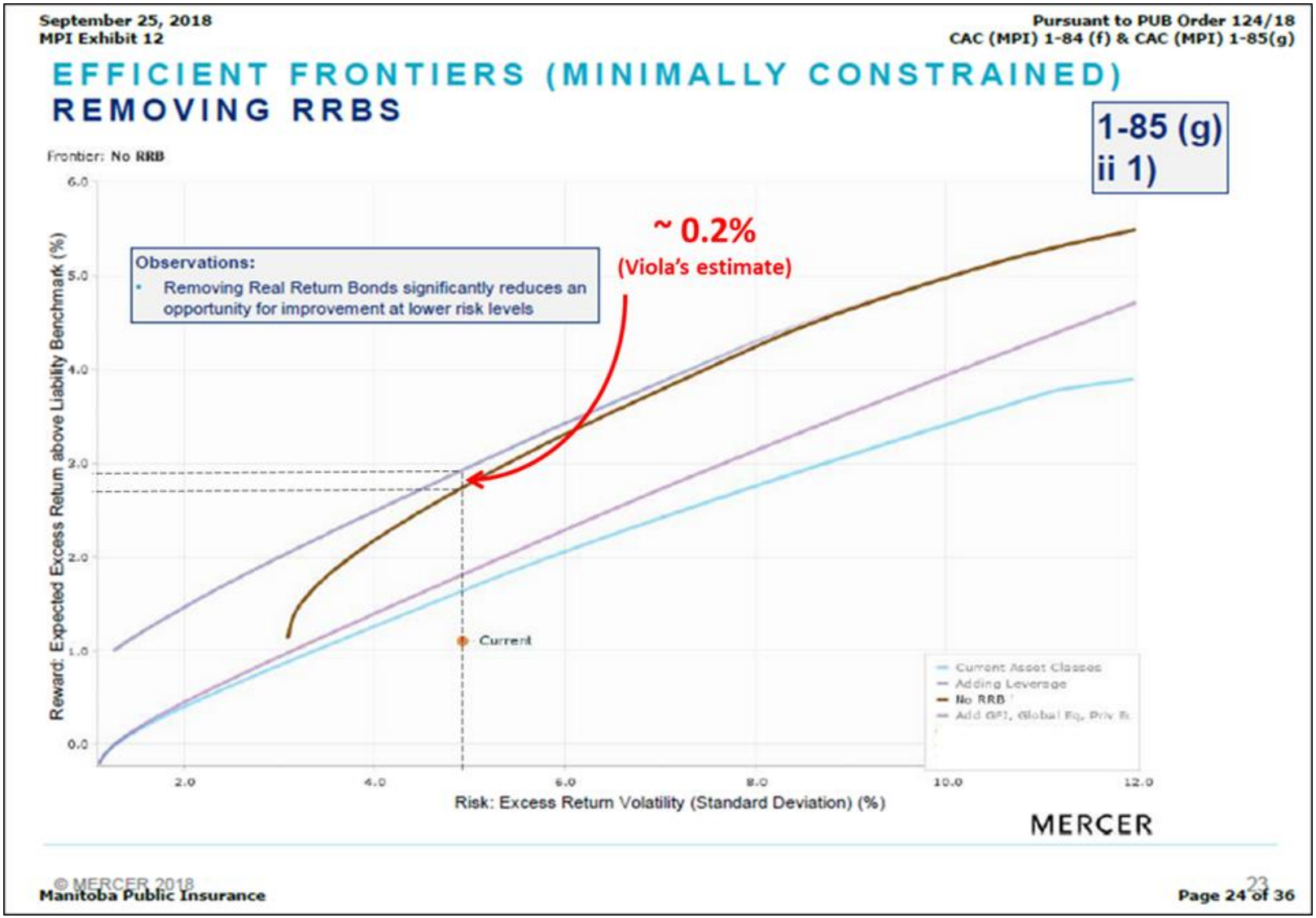
PUB (CAC) 1-7 (REAL RETURN BONDS)

Basic:
At "current" risks levels (vertically at x = Risk = 3.8%) Mercer's efficient frontier suggests that the expected excess return above the Liability Benchmark drops by ~ 0.8% when RRBs are removed, from a visual inspection of the graph



PUB (CAC) 1-7 (REAL RETURN BONDS)

Pensions:



PUB (CAC) 1-7 (CONTINUED)

a) … any concerns about … availability of RRBs for MPI's portfolio, … now or … future?
Current Market Size: 14 RRBs in FTSE TMX Canada RRB Index; $84B market value; Average 25 year term; ~ 15 duration; Not as large as bond market; Trading/turnover likely lower ("buy-and-hold" RRBs as long-term hedge); As long-term, "buy-and-hold" investment, any "premium" cost to acquire RRBs initially small ("one time" cost "amortized" over decades); Small annualized extra cost; "Releases" risk capital in other areas to increase returns on total portfolio

	Index Level (TR)	# of Issues	MktVal (Billions)	Effective Term
Real Return Bond Indices				
Real Return Bond	559.0	14	84.2	25.00
Real Return Federal Non-Agency Bond	329.2	8	74.9	25.93

Future Market Size: No view on future RRB supplies nor investor demand; Changes in annual demand limited to:
i) **rebalance** (buy when RRBs underperform; small),
ii) **new capital** to invest (small % of assets under management)

PUB (CAC) 1-7 (REAL RETURN BONDS)

b) … any concerns about … inclusion of RRBs on … returns … from … Basic or Pension portfolios?

No, when viewed on a total portfolio basis and after adjusting for the risk reduction that RRBs have on the portfolios, other things equal; PUB (CAC) 1-5 shows RRBs improve total portfolio returns at all levels of risk according to Mercer (efficient frontier that includes RRBs is higher than one that excludes them)

6. OTHER REAL ASSETS

Re-examine … reduction in other real assets (real estate and infrastructure), given … low inflation protection … in … current portfolio and lower diversification

7. FIXED INCOME RISK CONCENTRATION

Re-examine … decision to concentrate risk in fixed income … and … "crowding out" risk-reducing RRBs	

Concentration	• More concentrated risk within fixed income
	  • Inflation
	  • Credit
	  • Liquidity risk
	• See concentration on next page

PUB (CAC) 1-4 (ASSET MIX)

Asset Class Breakdown

	(C) Current	(B) Same Risk	(P) Proposed	(P)-(B) Difference
Private Debt	-	15.0	-	15.0
Corporate Bonds	2.0	-	20.0	20.0
Provincial Bonds [1]	68.0	38.0	80.0	42.0
Federal Bonds [2]	-	-	-	-
Federal RRBs	-	45.0	-	45.0
T Bills	-	30.0	-	30.0
Fixed Income	70.0	68.0	100.0	32.0
				-
Equities [3]	15.0	23.5	-	23.5
Real Estate	10.0	5.5	-	5.5
Infrastructure	5.0	3.0	-	3.0
	100.0	100.0	100.0	-
Return	4.2	4.9		
Surplus Volatility	3.8	3.8		

8. QUANTITATIVE MODELS

… be vigilant about … too much reliance on quantitative considerations, particularly if risk tolerances … low, given … high sensitivity of optimal asset allocations to … assumptions and … large number of inputs …	
Long Time Horizon	"Nobody can forecast interest rates (especially long term bonds) accurately and consistently" Mr. Cheng (GRA page 1,469)
44 Assumptions	• optimal solutions from quantitative portfolio optimizations are very sensitive to the capital market assumptions used; and • there are at least 44 such assumptions in the Asset-Liability Study, involving MPI's 8-asset class portfolio, as calculated below. **44 Important Assumptions (estimates, but "unknowns")** 8 average return assumptions (1 for each asset class) 8 volatility assumptions 28 correlations (= 8 x 7 ÷ 2) 44 "unknowns" Source: 2017/18 GRA Evidence, page 41

2019/20 RECOMMENDATIONS

FRAMEWORK	**1. Real Liability Benchmark:** Re-examine … Nominal Liability Benchmark, rather than … Real …, given … understatement of … long-term risk of inflation and … real … rates **2. Leverage Constraint:** Re-examine … constraint prohibiting … "leverage", given … lower risk-adjusted returns that would result
PORTFOLIO	**3. Duration Policy "Basis" Risk:** Re-examine … duration …, which uses (nominal) bonds … for matching … inflation and real … rate sensitivity …, … inflation volatility … not zero **4. Lengthening Nominal Duration:** Re-examine … decision to lengthen… nominal duration in … Basic …, given: … lower risk … strategy; … return assumptions for bonds and RRBs; … concerns about … effectiveness of … duration policy … ("basis" risk) **5. Real Return Bonds:** Re-examine … decision to exclude RRBs from … portfolios, given … better hedging … of RRBs (compared to bonds), recognizing … long-term inflation and real interest rate risks … in … liabilities **6. Other Real Assets:** Re-examine … reduction in other real assets (real estate and infrastructure), given … low inflation protection … in … current portfolio and lower diversification **7. Fixed Income Risk Concentration:** Re-examine … decision to concentrate risk in fixed income … and … "crowding out" risk-reducing RRBs
METRICS	**See Duration Policy "Basis" Risk**
OVERSIGHT	**8. Quantitative Models:** … be vigilant about … too much reliance on quantitative considerations, particularly if risk tolerances … low, given … high sensitivity of optimal asset allocations to … assumptions and … large number of inputs …

ELEVEN-YEAR FINANCIAL REVIEW

(Canadian $ billions)	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
CHANGE IN NET ASSETS											
Income											
Investment income	**$16.98**	$7.00	$19.67	$16.26	$13.72	$14.75	$11.74	$13.27	$10.89	$(19.03)	$4.68
Contributions											
Members/transfers	**1.71**	1.70	1.67	1.63	1.55	1.48	1.41	1.35	1.29	1.13	1.06
Province of Ontario	**1.68**	1.66	1.64	1.59	1.53	1.46	1.41	1.35	1.43	1.18	1.08
Total income	**20.37**	10.36	22.98	19.48	16.80	17.69	14.56	15.97	13.61	(16.72)	6.82
Expenditures											
Benefits paid	**5.93**	5.72	5.54	5.31	5.15	4.92	4.66	4.50	4.39	4.20	4.02
Investment expenses	**0.47**	0.45	0.43	0.41	0.36	0.30	0.29	0.29	0.21	0.15	0.23
Member Services expenses	**0.06**	0.06	0.05	0.05	0.05	0.04	0.05	0.05	0.04	0.04	0.04
Total expenditures	**6.46**	6.23	6.02	5.77	5.56	5.26	5.00	4.84	4.64	4.39	4.29
Increase/(decrease) in net assets	**$13.91**	$4.13	$16.96	$13.71	$11.24	$12.43	$9.56	$11.13	$8.97	$(21.11)	$2.53
NET ASSETS											
Investments											
Equity											
Publicly traded	**$35.13**	$38.97	$49.85	$48.27	$47.62	$48.43	$40.35	$36.74	$32.86	$26.74	$42.38
Non-publicly traded	**31.94**	26.98	27.69	20.58	14.27	11.08	11.32	10.75	8.32	8.19	7.66
Fixed income											
Bonds	**41.41**	43.53	37.98	35.19	30.53	28.87	26.50	22.73	15.46	14.22	22.91
Real-rate products	**19.96**	31.72	31.13	30.36	26.37	31.14	29.29	23.24	19.88	17.41	11.06
Inflation sensitive											
Commodities	**11.08**	4.18	4.00	9.03	8.21	6.97	5.64	5.22	1.94	1.25	3.02
Natural resources	**6.55**	6.28	6.25	2.87	2.62	2.17	2.17	2.22	2.34	2.80	2.12
Inflation hedge	**8.92**	–	–	–	–	–	–	–	–	–	–
Real assets											
Real estate	**25.51**	26.47	24.86	22.09	19.24	16.86	14.96	16.86	14.21	13.48	13.41
Infrastructure	**18.74**	17.83	15.66	12.66	11.68	9.65	8.71	7.07	5.57	7.23	6.72
Real-rate products	**1.45**	–	–	–	–	–	–	–	–	–	–
Credit	**13.58**	–	–	–	–	–	–	–	–	–	–
Absolute return strategies	**10.73**	13.28	17.76	15.84	12.20	12.27	12.33	11.38	11.67	14.75	12.30
Overlay	**(0.27)**	0.51	–	–	–	–	–	–	–	–	–
Money market	**(39.38)**	(37.67)	(46.93)	(44.50)	(33.84)	(40.18)	(35.01)	(31.49)	(18.74)	(20.97)	(13.58)
Net investments	**185.35**	172.08	168.25	152.39	138.90	127.26	116.26	104.72	93.51	85.10	108.00
Receivable from Province of Ontario	**3.31**	3.27	3.21	3.10	2.97	2.83	2.72	2.63	2.52	2.19	1.84
Other assets	**1.59**	1.21	0.44	0.22	0.14	0.50	0.51	0.57	0.63	0.40	0.36
Other liabilities	**(0.77)**	(0.99)	(0.46)	(1.23)	(1.25)	(1.07)	(2.39)	(0.39)	(0.26)	(0.25)	(1.65)
Net assets	**189.48**	175.57	171.44	154.48	140.76	129.52	117.10	107.53	96.40	87.44	108.55
Accrued pension benefits	**204.32**	189.40	173.27	172.73	148.57	166.01	162.59	146.89	131.86	118.14	115.46
Deficit	**$(14.84)**	$(13.83)	$(1.83)	$(18.25)	$(7.81)	$(36.49)	$(45.49)	$(39.36)	$(35.46)	$(30.70)	$(6.91)
PERFORMANCE (percent)											
Total-fund net return	**9.7**	4.0	12.7	11.5	10.6	12.7	10.9	14.0	12.7	(18.1)	4.3
Benchmark	**8.2**	3.5	10.1	10.1	9.3	11.0	9.8	9.8	8.8	(9.6)	2.3
ASSUMPTIONS USED FOR FINANCIAL STATEMENT VALUATION											
As at December 31 (percent)											
Discount rate	**2.95**	3.25	3.25	3.35	4.20	3.40	3.40	4.05	4.60	4.00	4.65
Salary escalation rate	**2.70**	2.80	2.50	2.70	3.00	3.00	3.05	3.40	3.55	2.35	3.20
Inflation rate	**1.70**	1.80	1.50	1.70	2.00	2.00	2.05	2.40	2.55	1.35	2.20
Real rate[1]	**1.25**	1.40	1.70	1.65	2.20	1.40	1.35	1.65	2.05	2.65	2.45

[1] Effective December 31, 2015, real rate shown as the geometric difference between the discount rate and the inflation rate. Previously, the real rate shown was based on the arithmetic difference between the discount rate and the inflation rate.

Performance

Investing to Ensure Retirement Security for Ontario's Teachers – Today and Tomorrow

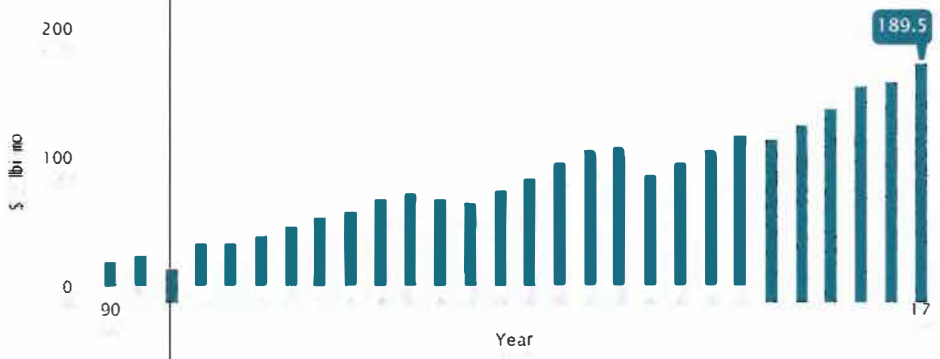
Ontario Teachers' invests around the world, in virtually every sector of the investment universe. Wherever we invest our goal is clear: to increase the value of our assets so the plan can pay pensions and meet its long-term funding needs. To do this, we use investment strategies and our experience as responsible investors, gained in markets around the world.

We report publicly on our investment performance on an annual basis following the end of each calendar year. Our most recent annual report was for the year ended December 31, 2017.

The graphs and tables below summarize key aspects of our assets and performance.

Strong Net Asset Growth Since Inception

As at December 31



	2017	2016	4-year	5-year	10-year	Since Inception
Total-fund net return	9.7	4.0	9.4	9.6	7.6	9.9
Benchmark return	8.2	3.5	7.9	8.2	6.9	8.0
Return above benchmark	1.5	0.5	1.5	1.4	0.7	1.9

Net Investments and Rates of Return by Asset Class

As at December 31

	Net Investments (Canadian $ billions)	Rates of Return (percent)					
		1-year		4-year		5-year	
	2017	Actual	BM*	Actual	BM*	Actual	BM*
Equity		17.6	15.4	13.3	12.0	16.0	14.8
Publicly traded	35.2	15.9	15.9	10.3	11.4	13.5	13.9
Non-publicly traded	31.9	18.8	14.6	19.1	13.6	20.6	17.4
Fixed Income		2.6	2.6	5.2	5.3	2.5	2.5
Bonds	41.4	3.6	3.6	4.0	4.1	2.6	2.6
Real-rate products	20.0	0.6	0.6	6.5	6.5	2.3	2.3

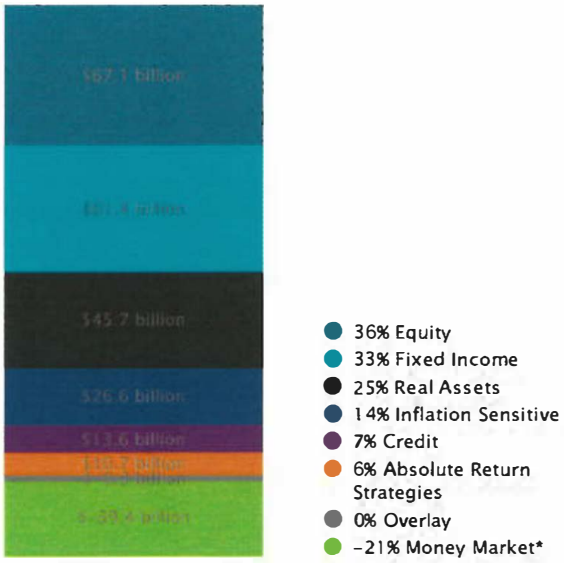
Performance - Ontario Teachers' Pension Plan

	Net Investments (Canadian $ billions)	Rates of Return (percent)					
		1-year		4-year		5-year	
	2017	Actua	BM*	Actual	BM*	Actual	BM*
Inflation sensitive		(3 2)	(4.0)	(4.4)	(6.3)	(2.8)	(4 3)
Commodities	11 1	(4.3)	(4.3)	(11.6)	(11 7)	(9.3)	(9 3)
Natural resource	6.6	1 3	(1 4)	11 0	7 2	12 0	8 8
Inflation hedge s	8 9	(6.7)	(6.7)				
Real Assets		10 9	7.1	10 7	6 8	11.5	7 6
Real Estate	25.5	6.9	7 3	9 6	7 5	10 3	8 4
Infrastructure	18 7	18 2	8 0	12 5	6 3	13 3	7 2
Real rate produ ts	1 5						
Credit	13.6	1 7	1 1	–	–	–	–
Absolute Return Strategies	10.7			–	–	–	–
Overlay	(0 3)						
Money Market	(39.4)						
Total-fund net return	185 4	9 7	8 2	9 4	7 9	9 6	8 2

Benchmark

Diversified Asset Reflect Our Asset Mix Strategy

As at December 31 2 17



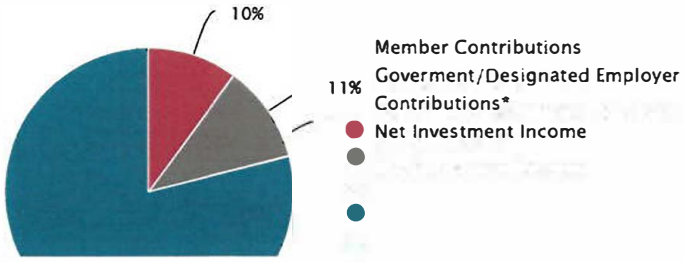
Total $185.4 Bn

*Money market provides funding for investments in other asset classes, including the Liability Driven Investment program.

Learn more about Asset Mix Strategy

Active Management Adds to the Plan's Assets

As at December 31



Additional 1% above e 10% member contributions is related to funding of the original plan deficit

Learn more about th ctive Management

ONTARIO TEACHERS' PENSION PLAN

Cushions, Comfort and Accountability: Regulatory Independence and Captive Rate Payers

Closing Submissions of the Public Interest Law Centre on Behalf of CAC Manitoba

October 31, 2018

2

Part 1: Irony

An Ironic Application

- MPI seeks a $20 M rate cushion (the CMP) during the same GRA it announces a $20 M write-off of imprudent information technology expenditures
- A monopoly that claims a commitment to fiscal prudence calculates the $20 M CMP via a MCT target that expressly provides an eight figure cushion for "inadequate or failed internal processes"
- A crown monopoly entering a "new age" of accountability and transparency presents an "It Wasn't Me" information technology panel

The Irony is Not Lost on our Clients

- External experts who consumers trust to be independent forego basic elements of a "fulsome" NPV calculation (Gartners) or allow their best estimates of future interest rates to be materially suborned by their client's choices (Mercers)
- A crown monopoly which professes a low risk tolerance for its investment decisions assumes away long term inflation and real interest rate risk in the portfolio generally and the bond portfolio specifically without testing the consequences of its decisions (failing to test for "material" tracking error and choosing not to undertake the stress tests recommended by Mercers)
- An era of "operational independence" and freedom from "political interference" for Manitoba Crowns is accompanied by overt hints to the PUB that it should follow the wishes of the MPI Board and the Government exercising its independent rate setting function (CAC Exhibit 18 and CAC Exhibit)

Crown Monopolies and Captive Ratepayers

- Basic and extension consumers – highly vulnerable:
  - Statutory monopoly basic
  - De facto market dominance extension

Efficiency Signals are Muted for Crown Monopolies

Two key consequences of Crown Monopoly:

1. Consumer choice is effectively nullified
2. Efficiency signals are muted for a crown monopoly as compared to publicly traded, private sector companies in a competitive marketplace:
   a) No risk of ratepayer flight – unlike OSFI regulated entities (Graham, 216)
   b) No efficiency signals sent through price of shares in the marketplace (Graham, 217)
   c) Sole shareholder subject to many political pressures

Ratepayers rely upon their independent regulator

- To ensure that monopoly power is not abused through unjust and unreasonable rates
- To send the efficiency signals that the market place cannot

Regulatory Independence and Monopoly

- The Public Utilities Board of Manitoba (PUB) is an **independent, quasi-judicial administrative tribunal** (http://pubmanitoba.ca/v1/about-pub/index.html) (See also Graham 218-219)
- No change in rates for services shall be made and no new rates for services shall be introduced without the approval of The Public Utilities Board (CCGAA, 25(1))
- *The Public Utilities Board Act* applies with any necessary changes to a review pursuant to this Part of rates for services (CCGAA, 25(3))
- The board may, by order in writing after notice to, and hearing of, the parties interested fix just and reasonable rates (PUB, s. 77a)

9

The Just and Reasonable Standard

- The Board has characterized the key elements of its independent review function and rate-setting role as follows:
  - Ensuring that forecasts are reasonably reliable;
  - Ensuring that actual and projected costs incurred are necessary and prudent;
  - Assessing the reasonable revenue needs of an applicant in the context of its overall general health;
  - Determining an appropriate allocation of costs between classes; and
  - Setting just and reasonable rates in accordance with statutory objectives. (Order 98/14, p.28)

10

The Puzzling Case Theory of Manitoba Public Insurance

- Forgive us for the myriad and expensive challenges in the management of complex claims and information technology projects because we acknowledge past mistakes
- Insulate us from accountability for future mistakes by giving us a $20 M rate cushion notwithstanding provincial concerns with fiscal prudence
- Give us a cushion for stable rates as we define them because the provincial government has concerns about net income volatility
- Take a hands off approach to the investment portfolio because our Board claims to have low risk tolerance

11

Crowns are entitled to make imprudent mistakes:

- To rely on BI3 technology and take a passive approach to complex claims management
- To have IT staffing levels far higher than the industry average
- To enter into lengthy information technology adventures relating to Physical Damage Re-engineering (including CCRS) without appropriate business cases and without disclosing material information to external third party advisor who with the Public Utilities Board and consumers are trusting to provide "independent" advice
- To assume away real interest rate risk in the design of its minimum risk portfolio (nominal liability benchmark) without testing for tracking error or undertaking stress tests recommended by its external third party advisor
- To cherry pick an interest rate forecast other than the preferred estimate of its external third party advisor

12

But the PUB is not obliged to pass those costs on to ratepayers

- The independent regulatory is not obliged:
  - To build a cushion for imprudence into the rates; or
  - To pass on imprudent and unreasonable costs on to ratepayers

13

Outline of Submissions

- Implication of Rate Application for individual consumers
- Ensuring that forecasts are reasonably reliable;
- Ensuring that actual and projected costs incurred are necessary and prudent;
- Assessing the reasonable revenue needs of an applicant in the context of its overall general health;
- Determining an appropriate allocation of costs between classes; and
- Moving forward on consumer engagement
- Setting just and reasonable rates in accordance with statutory objectives (Order 98/14, p.28).

Part 2: Implications of the Rate Application for Individual Consumers

15

Price and Value Proposition for MB Ratepayers

- Price related variables have strong impact in the value proposition for MB ratepayers (Oct 18, Giesbrecht, 848)
- The strongest driver is stable and fair rates (Oct 18, Giesbrecht, 848)
- But MPI has not explored how Manitobans define stable rates (Giesbrecht, 840-841) and whether the concern relates to the individual ratepayer or on average (Oct 18, Giesbrecht, 847)
- Another important driver of the value proposition is the cost of vehicle insurance (Oct 18, Giesbrecht, 848-849)

16

MPI has no formal definition of rate shock despite the avowed purpose of the RSR – Five Percent as a Proxy for Rate Shock

- We put 5 percent in the DCAT. So the only kind of guidance I have is that those DCAT assumptions (Johnston, 877-878)

17

Rate Shock is an Individual Experience not an Average

- *But I'm not going to pretend that, you know, 5 percent or a hundred dollar increase for a customer isn't a – tough for them to swallow* (Johnston, 838)
- *So I would guess that consumers are most – more concerned about their own bills* (Johnston, 839)

18

Rates for 300,000 vehicles will increase over 5%

- Almost 290,000 vehicles or 25 percent of the vehicle population will experience a premium increase of between 5 and 10 percent
- Another 40,000 vehicles will experience increases of between 10 to 15 percent
- Whether one looks in terms of the percent change over 5% or premium increases over $50 that accounts for over 25 percent of vehicles

(Johnston, 834-836)

19

The CMP is making a significant contribution to rate shock

- *Let's say we didn't do the capital maintenance provision which maybe what you're interested in, would all shift down by 2 percent essentially* (Johnston, 837)

20

Recommended Findings

- Rate shock is an individual experience, not an average
- Over 300,000 vehicles will experience rate shock level increases if the rate application is approved with the CMP load being a significant factor

Part 3: Ensuring that forecasts are reasonably reliable

22

Interest Rates – has MPI met its onus?

What change in circumstance or new evidence is the Corporation aware of that would support its position in the use of the naïve interest rate forecast?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I'm struggling with the right answer to – like, how to give this answer, but like our is – is responsible for all the forecasting, not – not the banks

,,,,

Mr. MARK GIESBRECHT:….there is not really any significant changes maybe in the environment of the marketplace…(McCandless to Johnston, Giesbrecht 365-367, emphasis added)

CAC Manitoba begs to differ

- There has been further changes in marketplace which cast additional doubt on the naïve interest rate forecast:
  a) Rapid US Growth (CAC 14)
  b) Bank of Canada rate has moved upwards five times in the last two years and twice in the last four months (CAC 26, slide 13)
  c) Canadian economy approaching full capacity (Simpson, 1314-1315)
  d) Lowered trade tension with US
  e) Bank of Canada concern about inflation more palpable as is its willingness to increase rates (Simpson, 1314-1315)

24

Dr. Simpson on the Material Change of Circumstances

Do you believe then that this latest pattern is a meaningful departure from that of the earlier periods?

DR. WAYNE SIMPSON: Yes, I think there's no question in the sense that the long period of a low policy rate and low interest rates has ended and the last two (2) years the period where the – the overnight rate or policy rate has begun to rise. The economy has moved – moved towards capacity and listening to the latest comments by the Bank of Canada Governor, Stephen Poloz, is pretty much considered to be at capacity now and inflationary pressures are beginning to drive concerns that interest rates need to be higher (Watchman to Simpson, 1314-1315, emphasis added)

25

The Material Change in Circumstances Reflected in Recent Forecasting Results

Here are the last two (2) years, the 2017/18 GRAs, the SIRF has clearly outperformed the naïve forecast which you would expect because this is the period when interest rates have begun to recover in the fashion that's been predicted for a long period of time by the SIRF and the results of that is going to be that naïve forecast is going to be an understatement of interest rates

…

So not only has the naïve forecast being considerably – the errors have been considerable larger, the forecast errors, but they've also been consistently in the direction of underestimating interest rate growth as the economy recovers

(Simpson, 1202-1203, emphasis added)

26

MPI Advisors on Interest Rates

- Only Cleary (2016) has spoken to rate forecasting

Cleary

Dr. Cleary's advice was 50/50 (Bunston, 671) (CAC Exhibit 15, slides 17 & 18)

Cheng

Mr. Cheng confirmed that his opinion on the use of the naïve forecast was in the context of a DCAT investigation of Basic satisfactory financial condition and specifically not on a Basic rate setting context (Johnston, 355-356)

27

Mercer rejects a naïve forecast for asset liability modelling

Dr. Byron Williams: In doing an analysis like this, as opposed to using the forward curve or the standard interest rate forecast, Mercers would not recommend using – doing such analysis – analysis, assuming that interest rates stayed flat?

MR. DAVID MAKARCHUK: We would not recommend doing analysis, assuming interest rates stay flat or constant

DR. BYRON WILLIAMS: Why not?

MR. DAVID MAKARCHUK: The curve is made up of many different points, our expectation – our standard interest rate forecast, which all of our investment professionals or actuarial professionals across Canada use are based on our national assumptions. They were part of the package. We assume as a firm that there will be a gentle rise in the yield curve over the next few years returning to equilibrium, at some point, that's our firms view (Williams to Makarchuk, 649, emphasis added)

28

Dr. Simpson's Recommendation

The SIRF is better than the naïve forecast, and that it should be part of the interest rate forecast and that existing Board order for 50/50 is certainly better than the naïve for that reason (Simpson, 1256)

Responding to the existing conditions, which is, is the Board Order for 50/50. And perhaps a little bit of caution, as I said in presentation, if I were allowed to pick weights, that they probably wouldn't be 50/50. But I would give more weight to the SIRF than the naïve (Simpson, 1257-1258)

When I wrote this it was slightly less apparent to me that events were moving towards a higher – immediate higher interest rates. Since then, we've had an actual rate increase. We've had some very good economic news in terms of growth an unemployment. We've also had some news that inflation is beginning to push the 3 percent boundary, at least the consumer price index. And so that information wasn't available to me at the time, I suspect – I can say that if I wrote this today I would – I would argue for the standard interest rate forecast rather than the 50/50 (Simpson, 1320-1321)

29

Care should be taken with claims that MPI undertook a vigorous response to interest rate risk

- MPI was ill equipped from a financial modelling perspective to confront the great recession and unexpected changes to interest rates
- MPI didn't even have the capability to model interest rate impacts, and that was a concern of the PUB and MPI (Johnston, 661)

30

MPI had to be Pushed by the PUB

- It is reasonable to conclude that over a number of years the PUB had to push MPI:
  a) To address the asset/liability mismatch
  b) To cease gambling on the mismatch in the hopes that interest rates would rise
  c) To improve protection for basic as opposed to corporate
  d) To provide a proper ALM study rather than the compromised AON study
  e) To provide a new ALM study (Mercer) on a timely basis (CAC Exhibit 16)

PUB Concerns 2013-2017

- **2013**
  - Order 151-13 expressed the view that Corporation's current approach to duration mismatching was making it too vulnerable to interest rate risk (Johnston, 663)
- **2014**
  - Order 135-14 advised MPI to seek to substantially immunize itself from the impact of changing interest rates (Johnston, 663)
- **2016**
  - Order 162/16 – ongoing concern with exposure to interest rate risk of Manitoba Public Insurance (Johnston, 664) especially as it relates to Basic (Johnston, 664)
- **2017**
  - Order 130/17 – concern with continued exposure to interest rate risk and a view that an ALM study should be conducted more frequently (Johnston, 665)
  - Manitoba Public Insurance did not file an updated asset liability matching study (Johnston, 665)

32

Recommended Finding

- MPI has not discharged its onus to demonstrate that the naïve forecast should replace the 50/50 forecast for rate setting purposes
- A material change in circumstances over the last two years suggests that greater reliance should be placed on the SIRF than the naïve forecast

Part 4: Ensuring that actual and projected costs incurred are necessary and prudent

34

Critical Issues of Prudence and Reasonableness

a) Is the proposed MPI investment portfolio for basic and pensions biased in favour of short-term rate stability at a risk of higher long-term rate instability and the cost of lower average rate level?

b) Are MPI ratepayers facing current and ongoing rate pressures as a consequence of the corporation's passive approach to long term claims management in the aftermath of BI3?

c) Are information technology staffing budget levels excessive as compared to relevant peers?

d) Did MPI imprudently manage large information technology projects related to Physical Damage Re-engineering and the Customer Claims Reporting Service?

4) a) Asset Liability Matching

36

Liability Risk: Cash flows well beyond 10 years – Viola – Mercer and Johnson agree

- A lot of the cash flows we're worried about are longer than ten years - *roughly half of them are shorter than ten (10) years, and roughly half of them are longer than ten* (10) - some claimants are still quite young, probably some could be as long as fifty years (MAKARCHUK, 639/40)
- Forty eight percent of total ultimate paid for accident benefits, weekly indemnity (indexed) extends beyond ten years (Johnston, 640-641)
- Thirty nine percent of the total ultimate paid accident benefit other indexed ten (10) years and beyond (Johnston, Oct 17, 640-641)

37

Liability Risk: Many long lived liabilities linked to inflation – Viola, Makarchuck and Johnston agree

Much of the obligation -- many of the obligations were linked to future inflation (Makarchuck, 313)

a significant portion would be tied to Manitoba's CPI, but there's other benefits that are tied to industrial average wage, but I would say the -- the vast majority would be Manitoba's -- like, so, income replacement benefits indexation (Johnston, 480-481)

38

Viola, Mercer, and CPPIB agree that Minimum Risk (Liability Benchmark) Portfolios are a critical first step

- Determining Minimum Risk Portfolio (MRP) is first step (i.e., Liability Benchmark Portfolio (LBP) composition) (CAC Exhibit 28, slide 11)
- MRP: benchmark for RANVA* (e.g., Scotia Capital RRB Index at CPPIB*), (CAC Exhibit 28, slide 161)
- One element is the development of a liability benchmark portfolio as a proxy for liabilities to identify and measure the risks [MAKARCHUK, p. 641-642]

*Risk adjusted net value added

39

The Purpose of developing a liability benchmark is to identify and measure the risk of the liabilities

- "Risk-free" assets (LBP) should reflect risks in liabilities (e.g., duration, inflation) (CAC Exhibit 28, slide 14)
- Liability benchmark portfolio is for "the purpose of identifying and measuring risk" (MAKARCHUK, p. 624)

40

The Liability Portfolio is not an investment decision – it is a reflection of reality

- We were trying to find a liability benchmark that best represented the obligation (MAKARCHUK, p. 625)

41

Do not conflate the design of the Liability benchmark with the ultimate portfolio selected

- LBP Composition should not depend on Capital Market Expectations (CAC Exhibit 28, slide 5)
- The ultimate choice in optimizing the portfolio may be not to invest in the same assets as those in the liability benchmark portfolio (MAKARCHUK, Oct 17, p. 641-642)

DR. BYRON WILLIAMS: And so it's important to maintain analytic distinction between those two (2) steps, sir?

MR. DAVID MAKARCHUK: Right. The liability and modeling decision is separate from the asset class investment decisions. (MAKARCHUK, Oct 17, p. 641-642)

42

The Liability Benchmark is Critical to the Outcome of the Optimizing Exercise

MR. DAVID MAKARCHUK: The liability benchmark is an important foundation for the discussion of an optimized portfolio (MAKARCHUK, Oct 17, p. 641-642)

The optimal asset allocations that flow from an optimizing process depends materially on whether a nominal or real liability benchmark is selected **(not a direct quote but there is information on this from Monday)**

(Viola)

43

Risk has been misidentified and mismeasured in the nominal liability portfolio

- BIG SIMPLIFICATIONS BY BOTH MPI AND MERCER:
  - MPI: based ... low risk assessment of inflation primarily upon ... expected level rather than ... volatility of inflation (CAC (MPI) 2-2);
  - Mercer: support to "hedge nominal ... risk before ... real ... driven more by ...views on ... expected level of future inflation than ... volatility" (CAC (MPI) 2-4)
  - But risk depends on volatilities and correlations (not levels/averages);
  - A 4.5% tracking error from simplification is material as admitted by Mercers (CAC/MPI 2-3)
  - Especially given MPI's low risk tolerance (i.e., 4.5% error ~ 3.8% volatility or risk = 118% difference) (CAC Exhibit 28, slide 12)

44

Assuming away risk does not mean less risk

By not capturing this inflation risk properly we're not properly measuring the true risk of having nominal bonds support real liabilities. (Viola, 1460)

MPI's process for defining contents of "Risk-free Bucket" very questionable (CAC Exhibit 28, slide 14)

In the context of a inflation linked asset of long duration, Ontario Teachers concludes:

Main source of liability risk is a drop in real interest rates (CAC Exhibit 28, slide 17)

45

Modeling liabilities is not an investment choice

MR. STEVE SCARFONE: And one (1) of the decisions, as we've heard, that had to be made before selecting asset classes for the Basic claim liability portfolio, was whether to model the liabilities using a real liability benchmark versus using a nominal liability benchmark.

That too was an investment decision.

MR. VALTER VIOLA: I disagree.

MR. STEVE SCARFONE: Okay. You won't go with me on that one?

MR. VALTER VIOLA: That goes back to the framework, I would suggest. It's -- it's -- in my words, the liabilities are what they are, regardless of how you decide to take risk in relation to them. (Viola, 1516)

46

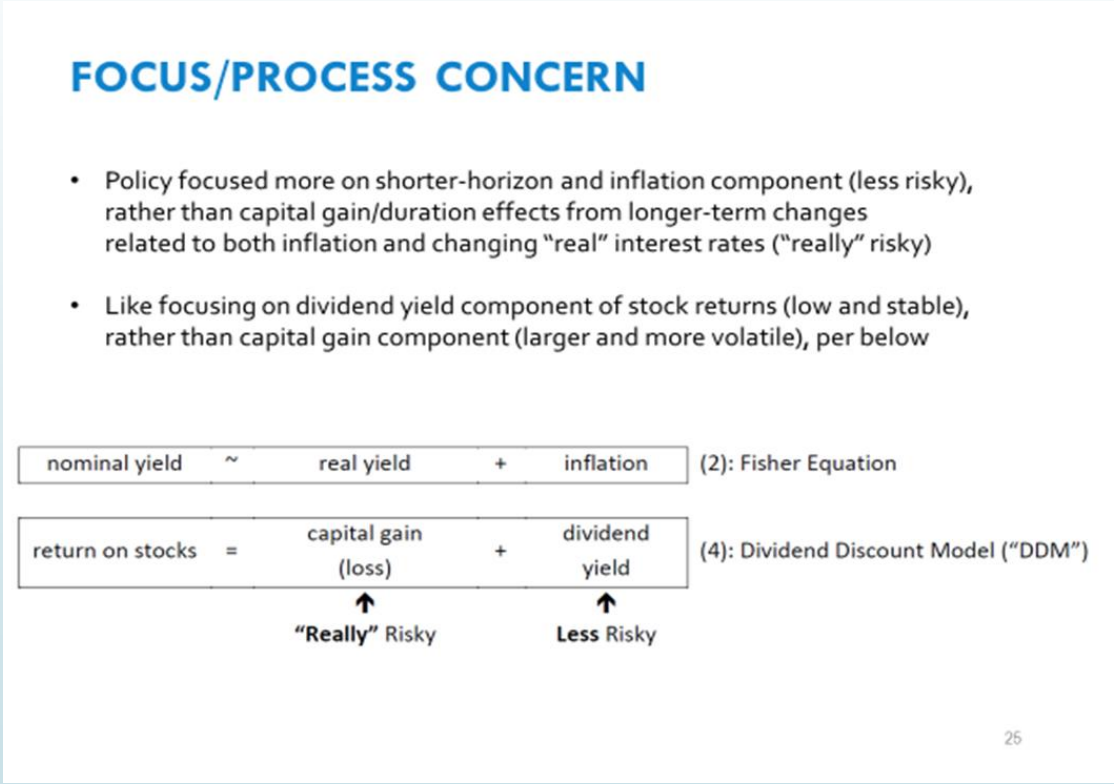
The Focus on Nominal Interest Rate Risk misses the Greater Risk of Real Interest Rate Risk and long term inflation risk

Changes in real yields –
important because of longer horizon

Longer duration fixed income portfolio –
if inflation is higher than expected or real yields do not behave the same way, nominal bonds will do poorly in that environment (Viola, Oct 30)

Policy focused more on shorter-horizon and inflation component (less risky), rather than capital gain/duration effects from longer-term changes related to both inflation and changing "real" interest rates ("really" risky)

Like focusing on dividend yield component of stock returns (low and stable), rather than capital gain component (larger and more volatile),



47

Tracking Error not Considered

- The tracking error or the variation in future returns between the nominal liability benchmark and the real Liability benchmark as summarized via the anticipated volatility (MAKARCHUK, Oct 15, 644)
- *I don't believe we specifically calculated the difference in the volatility between the two* (MAKARCHUK, Oct 15, 645)
- Tracking error not analyzed until response to CAC 2-3
- Focusing on the long term risk associated with inflation linked assets MPI is taking a material gamble in the design of a liability benchmark portfolio by ignoring real interest rate risk and long term inflation risk

48

Due Diligence Stress Tests not Undertaken

Mercer provided the following response:

On review of our file notes, the stress tests outlined on Slide 24 of Appendix 17, Attachment A were discussed following the November 8, 2017 meeting. Due to time constraints, it was agreed on November 22, 2017 to first proceed with the following 3 scenarios.

- 1. Market Correction: 33% decline in equity return, decline in yields
- 2. Inflation Shock: High inflation, higher yields and lower P/E Ratios
- 6. Deflation

Unfortunately, we were unable to complete the stress tests in advance of the Investment Committee meeting on November 28, 2017. Our modeler indicated that there were quality control issues with the first three stress tests on November 28, 2017. Given that the investment committee meeting had occurred and given concerns regarding overall modeling costs, peer review of the results was not completed and the results were not finalized. (MPI Exhibit 44)

Sophisticated Porfolios are not afraid of Real Return Bonds

- Teachers' long standing commitment between 16 and 19 percent over recent years (Exhibit 28, Exhibit 29)
- SAAQ investment portfolio about 10 percent in real return bonds (Johnston, 650)
- If an investor wants to guarantee a real return then -- and a real return bond is an excellent way to ensure that they get that real return, that after inflation return. (Makarchuk, 612-613)
- If an investor indicated to me that protecting themselves to inflation risk was a priority, my first recommendation would be real return bonds as a starting point. (Makarchuk, 481)

50

Based upon a proper measurement of risk – real return bonds significantly improve performance at lower levels of risk

Assuming a real liability benchmark for modelling removing Real Return Bonds significantly reduces an opportunity for improvement at lower risk levels (MPI Exhibit 15, p. 12)

At "current" risk levels Mercer's efficient frontier suggests that the expected excess return above the Liability Benchmark drops by ~ 0.8% when RRBs are removed (CAC Exhibit 28, slide 36)

When I see break-even inflation of something south of two (2), that means that if you actually get inflation of two (2), which is what the Bank of Canada assumes, you're actually doing better by buying the real return bonds, as I understand their definition of break-even. So while it's not turning 4 percent or 5 percent real, it's the spread between nominal that matters, and the break-even tells you that issue. And it -- to me it looks like it's not a huge cost for taking risk off the table and taking it elsewhere, and getting better returns. (Viola, 1564-65)

51

MPI is gambling that Mercer's preferred interest rate forecast is wrong

Mercer's standard interest rate forecast not accepted by MPI

Forecast based upon the forward curve was substituted (Makarchuck, 646)

Use of Mercer's standard interest rate forecast resulted in capital losses for the fixed income holdings.

Agreed?

MR. DAVID MAKARCHUK: Correct. (MAKARCHUK, 646)

52

MPI is gambling that Mercer's preferred interest rate forecast is wrong

The curve is made up of many different points, our expectation -- our standard interest rate forecast, which all of our investment professionals or actuarial professionals across Canada use are based on our national assumptions. We assume as a firm that there will be a gentle rise in the yield curve over the next few years returning to equilibrium, at some point, that's our firm view (Makarchuk, 649)

Expected 10 year return of nominal liability portfolio assuming Mercers assumption is 2.1 (Bunston, 1382-1384)

Expected 10 year return of nominal liability portfolio with MPI substituted view 2.8 (Bunston, 1382-1384)

A 33% difference in expected outcomes (.7/2.1) due to rejected of external experts' preferred view

53

Viola's Ultimate Assessment – the MPI "risk free" bucket has material risk over the long term

Two key challenges

a) the Minimum Risk Portfolio is fundamentally compromised by a misidentification and mis-estimate of risk - No RRBs in Liability Benchmark Portfolio (LBP) - understates risk of inflation and real interest rate risk - Makes duration management less effective

b) LBP Composition was compromised by Capital Market Expectations – liabilities define themselves – they are not a function of risk tolerance - LBP: long term and inflation-sensitive - decision to accept or hedge risk quite separate (CAC 28, slide 5)

But I think it's questionable, very questionable, to link your forecast about inflation, either the level or the volatility, with how you define what that risky bucket is. (Viola, 1435-1436)

54

The MPI bucket is a risky bucket over the long term

Any constraint shifts the curve (Viola, 1528-1529, emphasis added)

Elements of higher risk

No Real Return Bonds leads to poor liability protection against unexpected inflation, real rate risk and less effective duration management

The real risk for an inflation sensitive portfolio with roughly half its liabilities beyond 10 years is not 3 percent inflation for four years but less amounts over a longer duration (modelling assumption is appropriate for DCAT given time duration and purpose of RSR – not appropriate for analyzing risks to portfolio)

Fewer Real Assets (real estate, infrastructure) yields less diversification

Real rate risk, inflation risk, credit risk and, some illiquidity risk concentrated in Fixed Income (CAC 28, slide 5)

From a total portfolio perspective, low-risk assets and really risky assets together usually give -- not usually, they do give better risk return trade-offs than being concentrated in either one (1) bucket -- within a bucket, a risky bucket (Viola, 1435-1436, emphasis added)

55

Short term focus at the expense of long term risk and long term rates

Short-term Rate Stability at cost of long-term opportunity and at risk of higher long-term rate instability (CAC 28, slide 5)

We noted that there seemed to be a focus more on the short-term, as opposed to the long- term, and -- and particular concern about rate stability at the expense of a longer-term horizon that perhaps had a focus of the full portfolio designed to mitigate longer horizon risks and get higher returns by taking different kinds of risks in a prudent fashion (Viola, 1397, emphasis added)

I would be worried about a lesser change but sustained for longer period of time (Viola, Oct 30 Tr)

56

MPI has not demonstrated mastery of investment issues

- MPI explanation of modelling exercise in rebuttal is contradicted by Mercer analysis - the inflation volatility assumption of 2.6% is implicitly related to the capital market volatility assumptions outlined in Appendix 17, Attachment C (in particular, page 18) for each asset class (Viola, Oct 30) (MPI Exhibit 38)

57

MPI has not demonstrated mastery of investment issues

DR. BYRON WILLIAMS: Thank you. And, sir, in your initial affidavit you had suggested that the ra -- rejected portfolio really being the real liability benchmark had a much higher risk of 3 perfect; agreed?

MR. GLENN BUNSTON: Agreed.

DR. BYRON WILLIAMS: And you subsequently amended that assessment to suggest that the real liability benchmark showed a risk of 0 percent; agreed?

MR. GLENN BUNSTON: Correct.

DR. BYRON WILLIAMS: And, sir, with that amended information when you compared the -- in this affidavit being paragraph 3, the estimated risk of the real liability benchmark of 0 percent as against the risk of the nominal portfolio selected of 1.32 percent, you concluded that the risk related to the real liability benchmark was lower?

MR. GLENN BUNSTON: It is lower, yes.

DR. BYRON WILLIAMS: Sir, just directing your attention to paragraph 5 for a second. Here again, sir, you're clarifying and correcting your suggestion that the MPI selected portfolio had lower risk when it -- what you're suggesting here, in fact, it had higher risk?

MR. GLENN BUNSTON: That's correct. (Bunston, 610-611)

Assessment of Expertise:

Viola

- Many of 2016 recommendations adopted
- Teachers and CPIB – among most sophisticated
- Highly regarded North American practice

Mercer

- Reasonable qualifications
- Role circumscribed
- Best estimate of future interest rates rejected
- Did not test for tracking error
- Scenario testing not undertaken
- Compromised by assuming away inflation risk and real interest rate risk based upon inflation level rather than inflation volatility

MPI Board

- Constrained inputs – constrained outputs (return/risk tradeoffs)
- Not qualified for this proceeding as experts or subject to testing of views

Asset Liability Management – A Significant Gamble

- Without even testing for tracking error between nominal and real liability benchmarks or undertaking scenario testing, assume away interest rate risk
- Substitute its judgement for best judgement of Mercer on interest rates

Recommended Findings

- ALM was not conducted in a reasonable and prudent manner:
  Assumptions:
  - It is not prudent to assume away inflation risk in the liabilities
  - It is not prudent to fail to even test for tracking error (basis risk) between the real and nominal benchmark portfolios
  - It is not prudent to conflate the purpose of Liability Benchmark and to insert capital market assumptions into the Liability Benchmark
    It is not prudent to fail to undertake risk scenarios for your ALM

  Characterization or Construction:
  - It is not prudent to substitute your opinion for the best estimates of your experts regarding future interest rates
  - It is not prudent to concentrate risk (i.e. inflation, credit risk and illiquidity) within fixed income in the Basic portfolio, rather than to diversify the sources of risk (real assets as well as equities)
- There are significant risks of long term rate instability as well as the likely prospect of lower returns associated with MPI's proposed asset allocations resulting from the ALM process

61

4 b) Are MPI ratepayers facing current and ongoing rate pressures as a consequence of the corporation's passive approach to long term claims management in the aftermath of BI3?

62

Adverse Experience on Long Term Claims

- Corporation is experiencing adverse experiences in the post-BI3 era in terms of claims that are longer than twenty-four (24) months (Johnston 852-853)
- Growth in retained claims has been occurring since 2008. Influences include the implementation of BI3, a reduction in staff, and challenges with complex claims
- Claims with psychological factors have increased by 10% from 2009 to 2016 (Appendix to CAC 1-36 a)

63

Challenges in claims management and reserving flowed from BI 3 initiative

- Claims staff cut, not proactive in recoveries (CAC 1-36, Appendix, slide 8,)

64

There are ongoing costs to adverse claims

- Claims that lasts longer, whether through anyone's fault or not, all other things being equal, that means more costs to the Corporation, (Johnston 853)

65

Passive Claims Management

Corporation believes incremental claims costs were incurred as a result of reducing case management employee base and the process changes, that created a more passive approach to injury management since 2010 (CAC 1-57 c) (See also Johnston, 854)

There was very clear evidence that there were less employees in this area number of positions eliminated immediately on implementation of the system in 2010, and there some under -- other indicators that indicate that a more passive strategy, or less -- or the opposite, less aggressive claims management strategy was being employed at that time. (Johnston 854)

66

Passive Claims Management Affects Claims Retention and Costs

- Complex claims were only being actively managed in the later stages of the claim (Johnston, 862)
- The idea if you don't get on these claims early and immediately they will become issues. (Johnston, 862)
- Not getting on the claims early affects claim retention and there is a cost to claims retention (Johnston 862)

Challenges with Complex Case Management Skill Set

- Majority of current case managers come from physical damage, primarily adjusters and are ill-equipped to manage the complexity of claims (Appendix to CAC 1-36 a)

68

MPI Still Struggling with Complex Claims Closure Rates

Despite efforts to improve complex claims management:

> *I can tell you that at least in the area I'm most concern with the -- the longer term, I'm not seeing any substantial improvements, at least to date.* (Johnston, 863)

A Benchmarking Framework is Being Created

- A more formal kind of monitoring compliance, benchmarking framework is being created
- Which Manitoba Public Insurance would be in a position to share that for the purposes of the next General Rate Application (Johnston 865-866)

Recommended Findings

- MPI ratepayers are facing current and ongoing rate pressures as a consequence of the corporation's passive approach to long term claims management in the aftermath of BI3

Complex Claim Recommendations

That:

- MPI provide an update for the next General Rate Application on steps to improve the handling of complex claims and status of complex claims as measured against pre-BI3 benchmarks or existing benchmarks
- MPI provide the complex claim or PIPP claim benchmarking framework discussed at transcript 865-866 as part of its next GRA filing

4 c) Are information technology staffing budgets excessive as compared to relevant peers?

- MPI spends 62 percent of the IT budget on personnel, as compared to 45 percent for peers
- 32 percent of MPI IT staff is made up of contractors versus 24 percent for the peers (Lazarko, 1064)

Recommended finding

That:

- As compared to peers, MPI information technology staffing budgets appear excessive

74

4) d) Did MPI imprudently manage large information technology projects related to Physical Damage Re-engineering and the Customer Claims Reporting Service?

75

Modern Value Management Principles are not Rocket Science

- *us adopting a bit more an industry standard approach to how ops will actually work on some of these projects and -- and work with our IT groups* (Wennberg, 975-976)

- *all big projects now go through some expected rigour where we look internally for all costs and all benefits to be -- to be explicit* (Wennberg, 909-910)

- *MPI exec management have to be accountable for the NPV integrity* (Wennberg, 912)

76

Failed Projects have real impacts on retained earnings, foregone opportunities and wasted ratepayer money

WILLIAMS: […] You recall a conversation you had with the Chairperson regarding the impairment of deferred development costs in the range of $20 million?

MS. CYNTHIA CAMPBELL: Yes.

DR. BYRON WILLIAMS: And following that impairment those items are no longer assets of Manitoba Public Insurance; agreed?

MS. CYNTHIA CAMPBELL: Correct.

DR. BYRON WILLIAMS: And, in essence, that is reflected in a writeoff or reduction of equity, correct?

MS. CYNTHIA CAMPBELL: Correct. (Campbell, 832-833)

77

CCRS is a failed project

MS. KATHLEEN MCCANDLESS: And so I understand that if MPI determined that there was no future value related to the expenditure, or if the expenditure rate -- rate -- related to investigative platform or software the company had decided not to go forward with then it was part of the -- the differed or the impairment, yes?

MR. JOHN REMILLARD: Correct.

…

MS. KATHLEEN MCCANDLESS: And the vast majority of the writeoff at line 4 relates to customer claims reporting system, yes?

MR. JOHN REMILLARD: It does, yes.

MS. KATHLEEN MCCANDLESS: That's $15.6 million for the record, yes?

MR. JOHN REMILLARD: Correct (Remillard, 1046-47)

78

PDR - a very deep negative

- MR. CURTIS WENNBERG: *PDR -- the overall PDR is -- is a $65 million project. I'd say the core of it was moving off a paper basis of estimating and faxes -- we're getting faxes back and forth from our repair shops, and that just didn't make sense…*

- *And this is easy to say as an armchair quarterback a few years later down into the road of this project, but -- but that's probably the summary of it, that the overall, it's a -- it's a very deep negative.*

(Wennberg, 918-919)

The $81 Premium is Unreasonable

- This type of premium payment is not undertaken by other Crown or private jurisdictions; (Wennberg, 1145-1146)
- While other Crown and private jurisdictions preceded MPI in implementing similar programs, they did so without similar premium payments. (PUB (MPI) 2-29)
- industry standard is not to pay a premium for this type of estimating service (PUB 1-67)

80

Lost Opportunities - we are still waiting on a CARS legacy project

We should update our system. It is in dire need. (Graham, 119)

DR. BYRON WILLIAMS: And what this -- MPI had also undertook a -- a fit assessment with FINEOS to determine it's fit both for a first notice of loss application, as well as replacement of the C-A-R-S, CARS, legacy system replacement; agreed?

MR. JOHN REMILLARD: At that time, that's correct.

- (Remillard, 1119-1120)

81

CARS replacement was to be almost half of initial PDR budget?

DR. BYRON WILLIAMS: And if we go out to the extreme right we'll see that the estimate for -- for optimized adjusting at that point in time was around $32.6 million, sir?

MR. JOHN REMILLARD: Correct.

DR. BYRON WILLIAMS: Almost half of the total project cost?

MR. JOHN REMILLARD: Agreed. (Remillard, 1120-1121)

82

Consensus that Operating Costs should be included in a NPV Calculation for IT projects

Henry

but yes, to be a fulsome NPV analysis it -- it should include the ongoing operating costs. (Henry, 1133-1134)

Graham

THE CHAIRPERSON: We just heard that the business case didn't include operating costs. From your experience was that something you saw as normal, or did you find that surprising?

MR. BEN GRAHAM: I would find that surprising. (Graham, 1149-1150)

Bunko

in my mind a -- a full business case needs to include all the associated initiative and ongoing costs for the program.(Bunko, 950-951)

83

Major Capital Projects did not include an evaluation of operating costs as part of the evaluation of the total costs of operation

- *With respect to business cases. I guess the -- the difficulty or -- in answering that question is that right or wrong, we weren't incorporating those [operational] costs.*

(Remillard, 971-972)

84

Operational Costs were not included in the PDR NPV Analysis of Gartner Group

MS. KATHLEEN MCCANDLESS: So with -- with that in mind, having review those two (2) Board Orders, it appears then that MPI or Gartner did not include the cost of operating and maintaining the PDR program in the -- in the two (2) analyses filed previously to the one that you authored; is that right?

MR. CHARLES HENRY: Yeah, correct. (Henry, 1018-1020)

85

Should Gartner group have filed a NPV analysis to the PUB knowing that a fundamental building block was missing?

Gartner acknowledges

- *the lesson learned for us is that we should have been much clearer in our conclusions that the high level numbers showed, you know, the 13.7 million NPV, but that further analysis was required, and we should have been stronger in making the point* (Henry, 1025-1026)

87

Gartner evaluations went from positive in 2016 and 2017 to highly negative

- *So obviously, there's a significant difference in some of the costs, and the benefits, and the overall NPV. And there's three (3) things: Obviously, some cost that should have been attributed to PDR in the past weren't.*

- *Secondly, that new evidence shows that some of the benefits of the PDR were -- are going to be lower than what was projected.*

- *And thirdly, that MPI's using this 6 1/2 or 9 1/2 percent discount rate, 9 1/2 percent for high risk projects, and that causes the NPV numbers to change. So those are the -- kind of the three (3) big changes between our '17 analysis and MPI's '18 analysis.*

  (Henry, 931)

88

A Failure to Identify and Disclose Relevant Information to the Third Party Evaluator

THE CHAIRPERSON: Mr. Henry, Gartner, in your testimony, Gartner said -- Gartner -- sorry. In your testimony, you indicated Gartner didn't receive requested details.

MR. CHARLES HENRY: Correct.

THE CHAIRPERSON: You also said that Gartner was not aware of some of the ongoing costs, is that correct?

MR. CHARLES HENRY: That's correct.

THE CHAIRPERSON: Further, you weren't aware of the eighty-one dollar ($81) premium.

MR. CHARLES HENRY: In 2017, that's correct.

(Henry, 1154-1155)

89

Who was responsible for the failure to provide the needed information to Gartner Group

MS. KATHLEEN MCCANDLESS: So it's a -- it was the responsibility and continues to be the responsibility of MPI to provide the information that Gartner requires?

MR. CHARLES HENRY: Correct.

(Henry, 1025-1026)

90

The Explanation for Non-Compliance

THE CHAIRPERSON: If I could ask MPI, and I don't know -- I don't know if it's Mr. Bunko or Mr. Remillard, why was Gartner not provided that information? The requested details, ongoing costs, included eighty-one dollar ($81) premium impending CCRS decision. Those are pretty big items.

. . .

Mr. Remillard:

. . .

Ultimately, when we looked at our -- our business case for PDR at that time, we were very benefit stream oriented. Right or wrong, that was how we were measuring success. We did have some of the costs in the background available to us. Ultimately, there was some contractual aspects of the licensing agreements that at that time didn't allow us to -- to share it. We were trying to -- to work on that. Could that have been expedited? Potentially, sir.

(Remillard, 1155-1157)

91

It is difficult to reconcile the Corporate response on PDR (including CCRS) with the warnings of the PUB and Stakeholders

2015

DR. BYRON WILLIAMS: And, sir, would it be fair to say that before Gartner did its first report, i.e., the 2016 Report, concerns were being expressed about the PDR business case by the Public Utilities Board? Would that how you -- would that be how you interpret the decision, sir?

MR. BRAD BUNKO: I do see you requesting definitely more analysis on the project (Bunko, 1125)

. . .

DR. BYRON WILLIAMS: So does that mean, sir, you were not concerned with the status of PDR in terms of the feasibility of its business case [in 2015]?

MR. BRAD BUNKO: That's correct. (Bunko, 1126-1127)

92

It is difficult to reconcile the Corporate response on PDR (including CCRS) with the warnings of the PUB and Stakeholders

2016

DR. BYRON WILLIAMS: Turning to page 37 of that same decision, Mr. Bunko, in the second paragraph there, you would -- you see the Board expressing concerns with the lack of business cases in the IT area, sir? MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And at the top of that page you also saying -- see the Board expressing its understanding that the scope of the PDR has changed, yet there's no -- no change in the overall budget, sir? Do you see that reference?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And Mr. Bunko, from your perspective the findings of the -- sorry, not the findings but the observations of the Board did not cause you to question the viability of the PDR business plan case, generally?

MR. BRAD BUNKO: Again, the -- the benefit stream still looked very positive, which was the -- culturally the focus at MPI. The -- the need for improved business cases I believe had started to be evaluated and it was probably the early stages and us maturing business case methodology.

(Bunko, 1134-1137)

93

There were sufficient caveats in the Gartner Group reports for senior managers and board members to identify issues

DR. BYRON WILLIAMS: And sir, so as we look at the Gartner report in its totality, we have both observations about it, a net present value analysis, as well as warnings that -- that there is not an estimate for ongoing support and maintenance cost underlaying that analysis, would that be fair?

MR. CHARLES HENRY: Correct.

. . .

DR. BYRON WILLIAMS: And sir, I'm not speaking about what was actually done, but in that type of role, providing advice to MPI management.

MR. CHARLES HENRY: So I can say, yes, in other circumstances where I have been engaged we would say that there's elements missing of the analysis.

(Henry, 1133-1134)

94

The Board of Directors had opportunities to become knowledgeable about PDR

PUB decisions are publicly available (CAC Exhibit 24)

Gartner's 2016 and 2017 report have sufficient warnings

One of the key risks is Mitchell's ability to deliver the expected outcomes of the FNOL Project. (2016 Report, PUB Exhibit 19, p. 21)

> *The FNOL project entails the implementation of an innovative and fairly complex accident profiling approach which is new to the industry and requires the development of net new software to support same* (2016 Report, PUB Exhibit 19, p. 21)

> *While there is a budget for the one-time expense of implementing the program, there is not an estimate for ongoing support / maintenance cost* (2016 Report, PUB Exhibit 19, p. 25)

95

Geffen presents to Committee in January 2017

- AUDIT, FINANCE & RISK COMMITTEE MINUTES Gartner Strategic Initiative Assessment January 26, 2017
- 2 of 9
- *Mr. Martin Geffen presented Agenda Item B.1 "Gartner Strategic Initiative Assessment". As part of the IT oversight, Gartner provided advice on security and risk management of IT, along with a risk assessment of strategic initiatives. Following discussion, Members received the report as information*. (CAC Exhibit 22)
- See also Board of Directors Minutes, Minute 17-023, (CAC Exhibit 22)

96

Significant Expenditures took place after there was ample warning in the public domain

- $3.4 M in 16/17
- $5.0 M in 17/18 (PUB 2-25)

97

There is an ongoing need to improve business maturity

- MPI has increased its Maturity across the board, but can still improve in areas such as Business Process Management Increasing Maturity in these areas will improve the efficiency and effectiveness of both IT and MPI overall. (BMK Attachment A, slide 16)

Recommended Findings

That:

- there was a failure to adhere to standard good business practices in the development and evolution of the PDR business
- as a consequence, the CCRS was a failed project and PDR is best characterized as a "deep negative" project with a significant negative NPV
- the $81 premium for the 2018/19 year payable to repair industry is not consistent with industry practice and is inconsistent
- the quality of NPV analysis presented to the PUB by MPI and the Gartner group was not consistent with the expectations of the Board
- MPI has taken a number of steps to introduce standard good business practices to its management of IT expenditures including the application of more robust NPV analysis to the PDR including the CCRS

Part 5: Assessing the reasonable revenue needs of an applicant in the context of its overall general health

100

Client Belief No. 1 - The Corporation as a whole is strong

- *de jure* monopoly on the basic side
- *de facto monopoly* on the extension side
- access to the legislature in the event it experiences adverse developments (ie no fault legislation) (complex claims initiatives)
- significant reserves in basic
- reserves significantly over target for Extension and SRE
- *And the 96 percent market share that we enjoy, basically, stems from the fact that if people were to go and make a claim, they understand that it is just a lot easier to go to MPI to make a claim as compared to recover on Basic and then recover from somebody else for the other component of their insurance coverage* (Graham, 235)

101

Client Belief No. 2 - Another Manitoba Advantage is Vigourous, Independent Regulation

a) Regular, Evidence based - self-correcting mechanism for overall revenue requirement– regular unlike Saskatchewan – less politicized with government directives than BC

b) Evidence based – self correcting mechanism in terms of rate relationship among ratepayers – sends powerful signals and is credible and seen as independent (evidence based, defensible position for consumer volatility concerns)

c) Evidence based DCAT to set RSR – based on Manitoba data – responds to Manitoba risks rather than formulaic MCT

d) PUB aversion to rewarding bad management bad management (CAC Exhibit 17, Board Order 151/00)

102

Client Belief No. 3 – Rate Setting Stays Healthy When Government Stays out of Rate Setting

- *Government who have been very clear to our Board and to myself that they want a reduction in volatility.* (Graham, 120)

- *I can guarantee you that there has never been a discussion in relation to [rates], what those [rates] should be and we are very much in compliance with the Crown Corporation Governance and Accountability Act.* (Graham, 1112-1114)

103

Client Belief No. 4 – A Well Cushioned Crown Monopoly is Bad for Efficiency

- Absence of financial models in the early 2010s
- Asset/Liability Duration Mismatch of the early 2010s
- Struggles to respond to Great Recession
- Ill managed BI3 and PDR by-products of the over-collection era
- Absence of standard value management protocols

104

The Over-Collection Era – 04/05 – 2010/11

Fiscal Year Net Income (b)

2003/04	$3,358,000
2004/05*	$59,943,000
2005/06	$85,703,000
2006/07	$47,783,000
2007/08	$69,040,000
2008/09	($8,165,000)
2009/10	$87,773,000
2010/11*	$283,855,000
2011/12	$22,278,000
2012/13*	($63,103,000)
2013/14	($69,162,000)
2014/15	$2,440,000
2015/16	($56,050,000)
2016/17	($123,070,000)
2017/18	$34,424,000

*Restated

CMMG 1-11 (excerpt)

105

Volatility in this Proceeding is Poorly Defined

- Ratepayer's perspective – what they pay on their bill
- Crown Monopoly's perspective – the optics of an overall average rate increase (why they conflate a RSR rebuilding fee with rate shock)
- Government's perspective – annual results (Graham, 1112-1114) – no evidence from MPI that adverse results are affecting affordable access to capital (Order 59/18)

106

Client Belief No. 5 – Some Volatility is Inescapable and Good Management is the Best Response to Volatility

- Volatility in terms of individual rates is a natural result of CLEAR and DSR
- Over collection of rates from present day consumers is not an appropriate response to concerns about revenue volatility
- From a regulatory perspective, the best answer to volatility whether up or down is good practice forecasting and prudent management
- Over-collection is not a long term solution

107

Client Belief No. 6 - The RSR is to prevent rate shock not rate volatility

- The RSR is to prevent rate shock
- Moderate RSR rebuilding fees are not rate shock
- And few ratepayers reject rebates

108

Client Belief No. 7 - After a thoughtful and evidence based dialogue we have arrived at the DCAT

- *The consensus was then built on this methodology that would be something that was transparent and consistent with established risk tolerance practices, again, centered around this 1:40 year standard. And the DCAT -- its strength, I think, is it provides a direct connection of specific and justifiable risks posed as these adverse events that are based on the historical evidence to future financial condition. And I think we've had some very productive both technical conferences and exchanges in proceedings that have helped to clarify what evidence is useful and what evidence is not and where the best scenario constructions are -- are more compelling than in others.* (Simpson, 1187-1188)

109

But MPI has linked the CMP linked to MCT

- Capital Maintenance Provision, it is not linked to the DCAT. It is linked exclusively to the MCT ratio. (Johnston, 678)

110

Client Belief No. 8: The MCT calculation is not appropriate for the purpose of the RSR

- it addresses a different problem for a different marketplace (insolvency, consumer flight and economic disruption)
- given the solvency concerns, it shields imprudent behaviour such as operational risks which are controllable with good management
- by necessity its risk tolerances are calibrated to insolvency questions and risk scenarios are more extreme - *OSFI has elected 99% of the expected shortfall (conditional tail expectation or CTE 99%) over a one-year time horizon as a target confidence level* (Johnston, 683-684) (see also OSFI, 1.1.1)
- as compared to the DCAT – it does not dynamically respond to evolving Manitoba risk or provide insight into the evolutions of those risks

111

The MCT has been rejected by the PUB for Good Reason

- *2005 MPI introduced the Minimum Capital Adequacy Test, the MCT, and recommended an RSR range of 50 to 100 percent MCT in the 2007 GRA. It was pointed out then, and it's still pointed out, that it -- the MCT is recognized by OSFI to assess capital required for a private company in a competitive industry to forestall insolvency.*

- *At that time, concerns were expressed and still are expressed that it's not clear how something that applies to private insurers in competitive markets has much to say about the risk profile faced MPI which is a Crown corporate monopoly.*

- *In addition to that, the MCT does not address the specific risk faced by MPIC. It certainly doesn't itemize them and evaluate them.*

  (Simpson, 1186)

112

The MCT has been rejected by the PUB for Good Reason

- *The MCT is formulaic with risk margins that are set to ensure private companies do not go insolvent and this is to protect the Canadian economy.*

- *The risk margins within the MCT were not set for a monopoly Crown Corporation. Again, they were set for private companies to ensure they don't go insolvent.* (Sherry, 1197)

113

The MCT has been rejected by the PUB for Good Reason

- *And it's difficult using MCT levels whether they be 50 and 100 percent or 35 percent and 85 percent to attach any meaning in terms of specific risks and associated risk tolerance levels that are consistent with some sort of a statistical or scientific approach to risk assessment.* (Simpson, 1188-1190)

114

MCT Provides a Significant Cushion for Imprudent Operational Behaviour

- Office of the Superintendent of Financial Institutions defines operational risk is the risk of loss resulting from inadequate or failed internal processes, people, and system, or from external events. (Johnston, 679)

- Operational risk margin ranging from 64.6 million to 77.3 million, recognizing proviso of a divide by one point-five (Johnston, 680)

115

A Failed IT Project is Shielded by the MCT

DR. BYRON WILLIAMS:

So the -- as the MCT contemplates it, sir, operational risk is associated with a failed information technology program? Would that be contemplated?

MR. LUKE JOHNSTON:

At my fingertips, I don't recall everything included in there as described by OSFI. But my understanding is it would be for things like -- of that nature. (Johnston, 682-683)

116

But MPI says the RSR should not go to funding bad choices

- *the intent of a CMP is by no means to take away the accountability or the responsibility of management.* (Giesbrecht, 514, lines 11 – 24)

- *So if -- if we did something that deteriorated our -- our MCT ratio, it wouldn't be right to ask ratepayers to pay for that, like, in -- in the maintenance provision, because that's -- that's a conscious choice by us* (Johnston, 514)

117

And the PUB says the RSR is not intended to fund matters within the control of MPI

- *In Board Order 154/98 the Board did not agree that each risk component is perfectly correlated or additive. Instead, an actual correlation was to be used. Furthermore, the Board directed that investment risk should be included as a risk factor, and at least some operating expenses should be excluded, as these were controllable by management.*

- *In both Board Orders 154/98 and 177/99 the Board stated the inclusion of all operating expenses was inappropriate as these were at least partially controllable by management.*

  (CAC Exhibit 20)

118

Objectivity with limited relevance is of limited value

- as we learned during the Hydro GRA, simplistic mechanisms such as debt equity ratios offer little insight into the health of Corporations unless we dig deeper

- telling us that BC has a MCT target of 100% MCT tells us little about the health of the corporation or whether its ratepayers are vulnerable to rate shock (ie have they been setting rates properly or setting rates politically)

119

Was there an evidence based process leading to the adoption of the MCT targets in Saskatchewan, BC and Quebec?

- or were there political processes and cabinet directives?

120

The CMP is intended to address a problem MPI has not defined?

DR. BYRON WILLIAMS: . . . we're switching to issues related to the Capital Maintenance Provision and CAC-2-20(b). And to the second page of that response, without asking MPI to elaborate, and focusing on part 2(b)(2), one (1) of the described purposes of maintaining a certain capital level associated with the Capital Maintenance Provi -- Provision is to protect ratepayers from potential rate shock from future unforeseen adverse events. You see that reference?

MR. LUKE JOHNSTON: I do.

DR. BYRON WILLIAMS: And Mr. Johnston, for the purposes of this application, how is Manitoba Public Insurance defining rate shock?

[…]

MR. LUKE JOHNSTON: We -- we don't have a -- a formal definition of what defines a rate shock for MPI.

121

A RSR Rebuilding Fee is not Rate Shock

DR. BYRON WILLIAMS: Mr. Johnston, would it be fair to say that Manitoba Public Insurance does not consider a 2 percent rate increase to equate with rate shock?

MR. LUKE JOHNSTON: That -- that's fair, yes.

DR. BYRON WILLIAMS: Assuming a zero overall rate increase and a 2 percent RSR rebuilding fee, would it be fair to suggest that Manitoba Public Insurance does not consider that type of event to be rate shock?

MR. LUKE JOHNSTON: I would not consider a 2 percent combined rate increase and capital maintenance fee to be considered rate shock. I think -- although we -- we -- we'll do our --obviously, do our best to control costs, that is basically inflationary type increase (Johnston, 675-677)

122

Pre-collecting for the CMP is inconsistent with Intergenerational Equity

But again, due to the yearly process in Manitoba if that does occur, then they can ask -- MPI could ask for a rate increase at that time to increase their capital instead of asking for it now which separates the capital need from the people -- the policies that would be in place in the year that the capital need is actually required. (Sherry, 1198-1199) (see also Sherry, 1296- 1298)

123

Is it analytically credible to characterize MPI portfolio risk as ever increasing?

what the DCAT is showing in recent years is precisely that that's not correct. In other words, you said other things held the same ceteris paribus assumption, but other things are not the same. The risk challenges facing MPI are changing and the claims scenario, the high loss ratio scenario has now become the most important scenario in place of the interest rate decline scenario, which in turn replaced the equity decline scenario. (Simpson, 1233-1236)

124

The Saskatchewan CMP Cushion is not Analogous

MS. ANDREA SHERRY: *So really speaks to my main point is that MPI comes to the Public Utilities Board every year with the full analysis of their results, a full analysis of their capital position and can every year ask the Public Utility Board for a rate increase if they need more capital, or -- really, if they need more capital. So -- or their rates are inadequate at that time.*

My point is that the SGI, the Saskatchewan Government Insurance, they do not go every year to any sort of Public Utility Board for a rate increase or to do a full analysis of their program. They don't have an application anywhere near of the -- anywhere near the thoroughness of MPI's and, again, they don't -- they don't produce any application every year.

So I can't speak to Saskatchewan Government Insurance's particular situation but they don't get that opportunity every year to ask for a rate increase. So, potentially, they need some sort of Capital Maintenance Provision because there are years between rate applications. It's -- it's two (2) very different situations. (Sherry, 1271-1272)

125

The CAC Manitoba Interdisciplinary Approach

- inter-disciplinary approach - applied micro-economics (theory of the firm and risk), econometrics, the actuarial sciences – not just math (Simpson and Sherry)
- experience with risk analysis with other regulated industries (Simpson)
- extensive (and senior) experience both with crown monopolies and firms that are not insulated from the market place – firms that have to face insolvency and consumer flight risk (Sherry)
- actuarial experience with the broader North American marketplace and with private sector property and casualty firms that are larger than MPI (Sherry)
- Significant weight should be given to their findings

Recommended Findings:

That:

- A Shield for Bad Management is Not Appropriate for the RSR
- Given the purpose of the RSR, confirm the MCT analysis should not be linked to any determination of rates associated with the RSR
- The CMP cushion developed for Saskatchewan was developed in a very different context for a very different regulatory process
- The goals of efficiency and intergenerational equity are better served by rejecting the CMP cushion

Part 6: Determining an appropriate allocation of costs between classes

128

The DSR Review and Dramatic Disruption

- the logic of the residual risk model is that it would be aimed at the risk associated with driver behaviour (Johnston, 870)

- *the idea that maybe more of the premium should be charged on an individual's driver's license, perhaps a lot more, would be pretty dramatic change to this model and it would -- you know, it would take some -- we would have to be very cautious in its implementation*. (Johnston, 867-868)

- *So if you were getting at the driver ability through the license [via a residual risk model], then agreed that the need for a vehicle premium percentage discount would likely be dramatically reduced.*
  (Oct 18, Johnston, 869)

Driver Safety – Customer Research

- The Corporation will conduct customer research before proposing any significant changes to the Driver Safety Rating Program. (CAC (MPI) 1-51)
- The potential for dramatic disruption heightens the impetus for engagement with stakeholders and consumers

130

Part 7: Going Forward on Consumer Engagement

131

An Archaic Approach to Consumer Engagement Related to Rate setting

- The rate setting process and accompanying technical conferences are an important part of accountability and good practice engagement
- But what is missing largely is ratepayer engagement
- Engagement is more than an opinion poll, a 15 minutes consumer presentation (after trying to make sense of a 5,000 page rate filing)
- Are there evolving good practices in other jurisdictions?

132

Engaging with Ratepayers is not a Primary Focus

- Engaging with its ratepayers in terms of the rate setting process and application is not "a primary part" of the MPI examination of the customer experience (Wennberg, Oct 15, 221)

Advice on how to engage with ratepayers on issues related to rates is just a phone call away

Part 8: Setting just and reasonable rates in accordance with statutory objectives

135

- **Recommendation that the PUB adopt Standard Interest Rate Forecast (SIRF) or 50/50 interest rate forecast:**
  - Issue settled by PUB in 2018 GRA, supplemented by expert evidence in 2019 GRA
- **Recommended range for the Reserve Stabilization Reserve: $122M-$250M**
  - Based on Exhibit MPI-26, Figure 7, PUB approved methodology, 50/50 interest rate forecast

- **Recommendation regarding ALM study:**
  - MPI Board should be asked to revise current ALM study in light of Mr. Viola's 8 recommendations
  - If MPI chooses not to revise current ALM study – a 0.5% annual reduction in rates should be ordered until such time as MPI can establish it selected investment portfolio in a reasonable and prudent manner (does not reflect opportunity cost at comparable risk)
  - Further external experts retained by MPI who are testifying before PUB should be directed to identify whether in their professional judgment the methodology is consistent with professional best practice

- **Recommendation that the Capital Maintenance Provision (CMP) be rejected:**
  - Provides an inappropriate cushion for a monopoly Crown corporation which is inconsistent with prior regulatory direction:
    - Tied to Minimum Capital Test which is expressly linked in part to a formulaic allocation that is a solvency measure to hold management accountable and to protect consumers in the context of private P&C companies.
  - It effectively allows for the MCT to replace the DCAT as the primary driver of rates relating to capital reserves, notwithstanding the express rejection of the MCT by the PUB
  - For 2019/20 fiscal year, total equity is forecast to be above the RSR range (PUB approved methodology and 50/50 interest rate forecast) with a 0% rate increase.
    - See PF.10: with a 0% rate increase, total equity is projected to be $257,241

- **Recommendations regarding Complex Claims:**
  - MPI provide an update for the next General Rate Application on steps to improve the handling (adjudicating, reserving, and managing the return to health process) of complex PIPP claims and status of complex PIPP claims as measured against pre-BI3 benchmarks or existing benchmarks
  - MPI provide the PIPP claim benchmarking framework (complex claims) discussed at transcript pages 865-866 as part of its next GRA filing

- **Recommendation regarding Information Technology (IT):**
  - Given material challenges with the implementation of major IT programs including BI3 and PDR and ongoing effects on ratepayers, that MPI be directed to report to a technical conference on the business case for Legacy IT Systems (ie. AOL, CARS, etc. including the interfaces to other systems) renewal prior to the next GRA filing. The Legacy IT Systems renewal business case should include examples of NPV analysis demonstrating adherence to good business practice.

140

- **Recommendation that MPI be directed to report back to the PUB on efforts to bring staffing budgets in line with peers**

- **Recommendation regarding Driver Safety Rating (DSR):**
  - Given the potential dramatic changes to DSR which could result from the residual risk approach, MPI should be directed to engage with stakeholders, including CAC Manitoba, CMMG, CAA and Bike Winnipeg, regarding best practices for consumer engagement and their recommendations on DSR.

- **Recommendation regarding experts:**
  - In the future, any external expert retained by MPI and providing evidence to the PUB should be directed to expressly identify any aspects of their evidence that do not conform with best practice

- **Recommendation regarding engagement with consumers:**
  - Prior to the next GRA, MPI should be directed to consult with stakeholders, including CAC Manitoba and CMMG, on potential tools to better engage ratepayers outside the formal hearing process (i.e. focus groups on pricing issues such as stable rates)
    - Good practice includes:
      - Consumer engagement before (when an issue arises), during (ideas are put to consumers on how to resolve the issue) and after (feedback is sought on how the solution is performing).
      - Consumer and stakeholder input should be recorded and, where ideas are not or cannot be used, explanations of why not should be made publicly available for accountability and transparency purposes.
  - Budget approvals for interveners should contemplate costs for public engagement presented to the PUB as evidence

142

- **Recommended rate: - 1.75%**
  - See Exhibit MPI-26:
    - Figure 3: Breakeven rate indication using 50/50 interest rate forecast and including RSR investment income is -1.75%
  - Recommended rate takes into account the rejection of the CMP, the use of the SIRF or 50/50 and the inclusion of the RSR investment income
  - A further rate reduction could be ordered based on foregone investment opportunities.

COALITION OF MANITOBA MOTORCYCLE GROUPS (CMMG)

2019 GENERAL RATE APPLICATION

Exhibit List

Description of Exhibit	Number Assigned	Transcript Page	Date
CMMG Intervener Request	1	--	--
CMMG to MPI - Round I Information Requests	2	--	--
CMMG to MPI - Round II Information Requests	3	--	--

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BRIAN KELSCH (Retired)

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File No.: 18-0205-RPO

June 21, 2018

Darren Christle
The Public Utilities Board
400 - 330 Portage Avenue
Winnipeg, Manitoba
R3C 0C4

Via E-Mail (publicutilities@gov.mb.ca)

Dear Sir:

Re: 2019-2020 MPI General Rate Application

Further to the above noted matter, please find attached hereto Intervener Request Form together with Intervener Budget and Cost Summary Sheet.

Yours truly,
BOOTH, DENNEHY LLP
Per:

RAYMOND P. OAKES
RPO/jf/encl.

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX I"

INTERVENER REQUEST FORM

1. Application Re Hearing:		
Raymond P. Oakes		
2. Name of Requesting Party:		
Coalition of Manitoba Motorcycle Groups Inc. (CMMG)		
3. Address of Requesting Party:		
c/o 387 Broadway, Winnipeg, Manitoba, R3C 0V5		
4. Phone Number:	Business:	Residence
	204-957-1717	
	Fax Number:	E-mail:
		roakes@boothdennehy.com
5. Contact Person(s):		
Raymond P. Oakes		
6. Address:		
387 Broadway, Winnipeg, Manitoba, R3C 0V5		
7. Phone Number:	Business:	Residence:
	204-957-1717	
	Fax Number:	E-mail:
		roakes@boothdennehy.com
8. State reasons for the proposed intervention (please be specific).		
To assist the Board in critically evaluating the GRA, testing the evidence and raising issues of concern and interest to the motorcycling public specifically and Manitoba rate payers generally. The issues examined will relate to the following topics: 1.Rate methodology; 2.Loss experience; 3.Investment returns; 4.Road safety; 5.New initiatives for motorcycle insurance.		

9. State nature of proposed intervention.

a) Do you intend	Yes	No
(i) to appear throughout the hearing:	X	
(ii) to participate in the production of evidence:	X	
(iii) to participate in the testing of evidence:	X	
(iv) to present final argument:	X	

b) Do you intend to call witnesses:	Yes	No
		X

c) If yes to No. 9b), please provide witness':

(i) Name:	
(ii) Address:	
(iii) Qualifications:	
(iv) Subject of submission (please note date for filing submission):	

10. Will you be applying for costs under Board Order No. 163/87:	Yes	No
	X	

If yes: Refer to Section 43 of Rules of Practice and Procedure.
Provide detailed budget as per the attached Appendix II.

11. Comments and other information:

The Public Utilities Board
400 – 330 Portage Ave
Winnipeg, MB R3C 0C4

"APPENDIX II"

INTERVENER BUDGET AND COST SUMMARY SHEET

To be used to prepare a budget for the Intervener Request Form, Item 10, and to make a claim for an Award of Costs.

Prepared by:		Date:
Raymond P. Oakes		June 21, 2018
Hearing:		
2019/2020Rate Application		
Period Covered:		
Intervener's Name:		
Coalition of Manitoba Motorcycle Groups Inc. (CMMG)		
Contact Person or Persons:		
Raymond P. Oakes		
Address:		
387 Broadway, Winnipeg, Manitoba, R3C 0V5		
Phone Number:	Business:	Residence:
	204-957-1717	
	Fax Number:	E-mail:
		roakes@boothdennehy.com

See Costs on Page 2.

FEES – to be completed for legal counsel or experts

				COSTS
PREPARATION:	Hours 120.00	Days	Rate 285.00	34,200.00
APPEARANCE:	Hours 40.00	Days	Rate 285.00	11,400.00
ARGUMENT & REPLY	Hours 8.00	Days	Rate 285.00	2,280.00
FEES TOTAL	Hours 168.00	Days 0		$47,880.00

DISBURSEMENTS

				COSTS
TRAVEL (AUTO)	Kms	Rates		
TRAVEL (OTHER)				
ACCOMMODATION	Nights	Rates		
MEALS	Number			
MISCELLANEOUS	Taxis	Telephone	Supplies 200.00	200.00
DISBURSEMENTS TOTAL				$200.00

TOTAL FEES AND DISBURSEMENTS	$48,080.00

NOTE: Receipts must be attached for all disbursements.

GST	2,404.00
RST	3,830.40
TOTAL:	$54,314.40

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

Undertaking List

Undertaking Number	Description of Undertaking	Witness	Date Undertaken	Transcript Page	Date Filed / Answered	Exhibit Number Assigned
1.	To provide how much the yield rate on the Government of Canada 10-year bonds has changed over the period from February 2018 to September 2018 and show what changes to the claims discount rate occurred over that same period.	Luke Johnston	Oct 15	158	Oct 26	31
2.	MPI to provide the proportion of the pension benefit portfolio based on the relative size of the payroll to be allocated to Basic	Glenn Bunston	Oct 16	396	Oct 26	32
3.	MPI to provide an explanation for the decrease in Basic's share of income on pension assets from 2019/'20 to 2020/'21	Glenn Bunston	Oct 16	400	Oct 23	29
4.	MPIC to provide a black line version of the transitional investment policy statement".	Steve Scarfone	Oct 16	409	Oct 23	30
5.	MPI to provide a table of the continuity of the capital maintenance provision over the forecast period. And included within that a breakout in PF-1, so pro forma 1, the annual written revenue being forecast to be collected in the net capital maintenance provision.	Mark Giesbrecht	Oct 17	555	Oct 26	34

Undertaking Number	Description of Undertaking	Witness	Date Undertaken	Transcript Page	Date Filed / Answered	Exhibit Number Assigned
6.	MPI to make the correction re: on the Basic target capital upper threshold in Board Order 130-17, the Board based its finding on including only rate change actions and currently it includes building fees.	Luke Johnston	Oct 17	557	Oct 26	42
7.	MPI to convert the MCT ratio of 75 percent to 100 percent, as depicted on page 2 of MPI Exhibit Number 24 to a dollar value As at August 31st, 2018.	Mark Giesbrecht	Oct 17	559	Oct 26	35
8.	MPI to provide information on what claims reserves they have and what each purpose and amount is.	Luke Johnston	Oct 17	581	Oct 26	43
9.	MPI to confirm that the amount spent on motorcycle-specific road safety initiatives in the coming application is still only the budgeted amount of 227,000 for Basic's share.	Luke Johnston	Oct 17	601	Oct 26	36
10.	Mercer to provide the volatility assumption for the real liability benchmark prepared for Appendix 17, Attachment (a	Steve Scarfone	Oct 17	629	Oct 26	37

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

Undertaking List

Undertaking Number	Description of Undertaking	Witness	Date Undertaken	Transcript Page	Date Filed / Answered	Exhibit Number Assigned
11.	Mr. Makarchuk to provide an explanation of what the inflation volatility assumption of 2.6 percent, what model it applies for and what it is used for	Steve Scarfone	Oct 17	631	Oct 26	38
12.	Mercer to confirm whether or not the stress tests portrayed on Slide 24 of Appendix 17, Attachment (a) were undertaken, and if so, to provide them. And if they weren't done, if Mercer is aware of the reasons why they were not done.	Steve Scarfone	Oct 17	635	Oct 26	44
13.	MPI to provide the analysis as referred to in PUB-MPI-1-86, based upon use of Mercer's standard interest rate forecast rather than the forward curve.	Steve Scarfone	Oct 17	648	Oct 26	39
14.	MPI to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions.	Cynthia Campbell	Oct 17	771	Oct 26 Oct 29 - (Correction)	41 49
15.	MPI to provide the increase in revenue associated from the higher DSR generic premiums in dollars, through Q2 of the current fiscal year, i.e., show what the revenue would've been if MPI didn't change the scale, and then what the actual revenue turned out to be. The difference would be the effect of the new rates.	Mark Giesbrecht	Oct 18	783	Oct 26	33

MANITOBA PUBLIC INSURANCE

2019 GENERAL RATE APPLICATION

Undertaking List

Undertaking Number	Description of Undertaking	Witness	Date Undertaken	Transcript Page	Date Filed / Answered	Exhibit Number Assigned
16.	MPI to provide the amount of the offsetting provision for investment expenses in the discount rate used for ratesetting.	Luke Johnston	Oct 18	798	Oct 26	45
17.	MPI to provide a fiscal year-to-date account of the actual revenue impact of the change, the rate level change and how close it is to being in line with the original estimate of a million dollars per year. And provide the premium and claims information and loss ratio for the four (4) vehicle for hire categories, latest available information MPI has.	Luke Johnston	Oct 18	800	Oct 26	46
18.	MPI to provide an update on the progress the Corporation has made with respect to its DSR public consultation.	Luke Johnston	Oct 18	826	Oct 26	40

MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION
TRANSCRIPTS

- **Pre-Hearing Conference Transcipt**

  June 25, 2018

- **Hearing Transcripts**

Day1	October 15, 2018
Day 2	October 16, 2018
Day 3	October 17, 2018
Day 4	October 18, 2018
Day 5	October 22, 2018
Day 6	October 23, 2018
Day 7	October 26, 2018
Day 8	October 29, 2018
Day 9	October 30, 2018
Day 10	October 31, 2018

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

PRE-HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

June 25, 2018

Pages 1 to 93

APPEARANCES

Kathleen McCandless)Board Counsel
Robert Watchman)Board Counsel
Roger Cathcart)Consultant
Candace Martyszenko)Consultant
Brian Pelly)Consultant

Steven Scarfone (np))Manitoba Public
Michael Triggs)Insurance
Antony Guerra)

Byron Williams)CAC (Manitoba)
Katrine Dilay)

Raymond Oakes)CMMG
Charlotte Meek)
(Articling student)

Erika Miller) CAA Manitoba

Diane Rodgers (by phone)) Uber Canada
Joe Messina (by phone))
Chris Schafer (by phone))

TABLE OF CONTENTS

Page No.
List of Exhibits 4
Opening remarks by The Chairperson 6
Opening comments by Board Counsel 16
Opening comments by MPI 21
Opening comments by CAC (Manitoba) 29
Opening comments by CMMG 39
Opening comments by CAA Manitoba 42
Opening comments by Uber Canada 43
Reply by MPI 45
Reply by CAC (Manitoba) 48
Reply by Uber Canada 51
MPI's comments on remaining issues 54
CAC (Manitoba) comments on remaining issues 57
CMMG's comments on remaining issues 64
CAA Manitoba's comments on remaining issues 66
Uber Canada's comments on remaining issues 66
Reply by MPI 67
Discussion 69
Certificate of Transcript 93

LIST OF EXHIBITS

EXHIBIT NO. DESCRIPTION PAGE NO.
PUB-1 Notice of Public Hearing and Pre-Hearing Conference, dated June 15, 2018 19
PUB-2 Board's Rules of Practice and Procedure. 19
PUB-3 Proposed Hearing Timetable 19
PUB-4 Letter from the Board's secretary, Mr. Christle, to MPI and all prospective Intervenors, dated June 18, 2018, with attachments. 19
PUB-5 Letter dated June 22, 2018 from Mr. Christle to MPI and all prospective Intervenors. 19
PUB-6 Preliminary issues list that was found and approved at Board Order 61/'18 20
MPI-1 MPI GRA Application 21
MPI-2 Customer Service Business case. 25
MPI-3 Two (2) corrected appendices, Expense Appendix Number 19 and IT Appendix Number 1. 54
MPI-4 Curriculum vitae of Charles Henry 79
MPI-5 Curriculum vitae of David Makarchuk 80

LIST OF EXHIBITS (Cont'd)

EXHIBIT NO. DESCRIPTION PAGE NO.
MPI-6 Proposed timetable submitted by MPI 87

6

--- Upon commencing at 9:13 a.m.

THE CHAIRPERSON: Good morning, ladies and gentlemen. Welcome to the pre-hearing conference for MPI's 2019/2020 General Rate Application, which was June 15, 2018. My name is Robert Gabor, I'm the chair of the Public Utilities Board. Joining me today are Board members Irene Hamilton, Robert Vandewater and Carol Hainsworth.

The panel is assisted in this hearing by today secretary Rachel McMillin, hearing assistant Kristen Schubert, our legal counsel Kathleen McCandless and Robert Watchmen. As in prior hearings, the Board is also assisted by technical advisors from Cathcart Advisors and Brian Pelly of Ekler Partners.

The Public Utilities Board's mandate is to set just and reasonable rates that are in the public interest. The public interest has been defined by the Manitoba Court of Appeal as balancing the impacts of rate increases on consumers with the fiscal health of the Utility. In order to set just and reasonable rates that are in the public interest, the Board will need to hear and consider all of the evidence that is adduced on the record of this proceeding and hear submissions from Manitoba Public

7

Insurance and all approved Intervenors.

Manitoba Public Insurance is applying to the Board for approval of its premiums charged with respect to compulsory driver and vehicle insurance. The General Rate Application will be conducted in accordance with the provisions of the Crown Corporations Governance and Accountability Act and the Public Utilities Board Act. We will employ throughout the process the Board's Rules of Practice and Procedure, which can be viewed on the Board's website. Any questions in terms of locating the rules can be posed to the Board office.

In its application MPI proposes new premium rates to take effect on March 1, 2019, which, if granted, would represent a 2.2 percent overall rate increase over the current insurance year. MPI is also seeking the continued eligibility of vehicles for higher or VFH for vehicle premium discounts and the waiving of service fees for change of insurance for VFH, consistent with its 2018 VFH interim application.

MPI is also seeking final approval of its VFH rates for service, effective March 1, 2018, which were approved on an interim basis by the Board on January 15, 2018 in Order 11/'18.

As always, MPI bears the onus in this

8

proceeding of satisfying the Board that its application should be granted on the whole of the evidence that it provides. Our objectives for today's pre-hearing conference are: To identify prospective Intervenors; to learn the reasons for their intervention; to hear submissions on the issues to be included in the scope of the General Rate Application, more particularly, any variations from the preliminary issues list, which was approved by the Board on May 7, 2018 in its interim procedural Order Number 61/'18; to hear requests from MPI or any proposed Intervenors for pre-qualification of expert witnesses they intend to call at the public hearings; to gain an appreciation of any costs awards that may be sought by Intervenors and the approximate quantum of any such cost orders; and to discuss and arrive at a timetable for the orderly exchange of evidence and information throughout this GRA process.

The Board welcomes participation and there are several ways for the public to participate and to communicate with the Board. Individuals or groups may provide written comments to the Board through the Board's website. Another method of communicating comments to the Board would be by attending before the Board to provide an oral

9

presentation. As part of that process, the Board will also consider what weight, if any, should be attached to information received from members of the public, which is not sworn or subject to cross-examination.

All parties and their representatives and consultants should be aware that the Board intends to live stream the public hearing proceedings through a link accessible on the Board's website; as such, the use of acronyms is to be discouraged. This would be not only for the benefit of persons watching the live streaming of the proceedings, but also for the benefit of Board members. It will assist in the Panel's and the public's understanding of the issues and evidence if acronyms are avoided.

The Board appreciates that some potential Intervenors, which will be seeking cost awards at this time, may not have provided detailed budgets as the approval of Intervenor status and approval of the issues for each Intervenor have not been given. After the Board issues its procedural Order approving Intervenor status and issues, approved Intervenors will be required to file their detailed budgets. The date for filing will be discussed when we talk about schedule.

The Board will review the detailed

10

budget and provide preliminary approval. Final approval will only be granted with the Board determination of the cost awards application after the hearing. In reviewing the cost awards application, the Board will consider a number of different factors including, without limitation, whether the Intervenor participated in the hearing process in a responsible manner and whether the Intervenor made a significant contribution that assisted the Board in achieving a better understanding of the issues before it. Intervenors should review Part IV awarding costs of the Board under the Board's Rules of Practice and Procedures that can be found on the Board website.

Should any approved Intervenors seeking an award of costs determine that their approved preliminary budget will be exceeded by 10 percent or more, that Intervenor is to immediately notify the Board before exceeding the preliminary budget; explain the reason for the need to revise the budget and also propose the amount of additional funding being sought. The Board has the discretion to approve or reject all additional costs above the preliminary budget where prior approval is not first obtained.

For Intervenors seeking an award of costs, please undertake to file with the Board within

11

two (2) business days from today demonstration of the Intervenor's financial need for assistance to Intervenor, including filing the Intervenor's most recent financial statements.

Last year's GRA the Board instituted for the first time a pre-qualification process for expert witnesses. The Board is continuing with this process again this year. Experts may no longer need to be qualified in the same manner as previous MPI GRA hearings. In her opening remarks, PUB counsel Ms. McCandless will read the process into the record. Ultimately, the Board will determine what weight, if any, to attach to each expert's testimony.

Likewise, members of the public who appear before the Board as presenters will be afforded the opportunity to speak to the Board as to the facts of their specific circumstances and issues related to MPI's General Rate Application. The information received from presenters that is sworn and subject to questions will be considered as evidence in the proceedings. The Board will determine what weight, if any, to attach to the presentation from members of the public. Parties can expect more direction from the Board on this topic in the near future. And as always, you're welcome -- your comments are welcome.

12

The Manitoba Ombudsman has issued privacy guidelines for administrative tribunal -- tribunals. The PUB is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed until -- unless it is appropriate and necessary to do so. However, the PUB advises participants that these proceedings are public and that as a result, personal information protections are reduced.

I will now call on Board counsel for introductions, followed by MPI's counsel. I believe Mr. Triggs will be speaking -- pardon me, to introduce the representatives of MPI that are present after which I will call on the prospective Intervenors that are present to introduce themselves.

Once we have heard all introductions, I will call on Board counsel to make opening comments. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Thank you, Mr. Chair, members of the panel. Good morning. Kathleen McCandless and Robert Watchmen, PUB counsel. To my left is Roger Cathcart and Candace Martyszenko with Cathcart Advisors.

13

MR. ANTHONY GUERRA: Good morning, Mr. Chair and Panel. It's Anthony Guerra for MPI, legal counsel. Mr. Steve Scarfone, who's also jointly legal counsel is unfortunately not present today and sends his regards, but I can indicate to my right we have Mark Giesbrecht, who is our vice-president of Finance and our Chief Financial Officer; Mr. Michael Triggs, who is our General Counsel and corporate secretary; Mr. Jeff Crozier, who is our Director of Regulatory Affairs. Behind me, we have Tadeu Meira, who is a regulatory analyst; beside him is Bunthan Prak, who is also a regulatory analyst; and also Daniela Esquivel, who is our rate application clerk. Thank you.

THE CHAIRPERSON: Thank you, sir. For the record can you spell your last name?

MR. ANTHONY GUERRA: Yes, of course. G-U-E-R-R-A.

THE CHAIRPERSON: Thank you, sir.

MR. ANTHONY GUERRA: Thank you.

THE CHAIRPERSON: Ms. Dilay...?

MS. KATRINE DILAY: Good morning. Katrine Dilay, from the Public Interest Law Centre and to my left, Byron Williams, also from the Public Interest Law Centre and we represent the Manitoba branch of the Consumers Association of Canada.

14

I can note that Ms. Gloria DeSorcy will be here shortly and she's the Executive Director of CAC Manitoba.

(BRIEF PAUSE)

MS. DIANE RODGERS (by phone): Good Morning, it's one (1) of the Intervenors, Uber, Diane Rodgers. Just to let you know, the sound is fading in and out a little bit so I'm not sure if you asked the -- the Intervenors to identify ourselves and we just didn't hear that.

THE CHAIRPERSON: Well, we're in -- sorry, we're in the process right now of doing that.

MS. DIANE RODGERS: Okay.

THE CHAIRPERSON: Okay. We will get to you in a moment. We apologize, we had some technical problems this morning. We had power surges in the building apparently over the weekend so we're having some technical --

MS. DIANE RODGERS: Okay.

THE CHAIRPERSON: -- technical difficulty with the -- with our sound and video.

MS. DIANE RODGERS: Okay.

THE CHAIRPERSON: Mr. Oakes...?

15

MR. RAYMOND OAKES: Good morning, Mr. Chairman, members of the board, ladies and gentlemen. My name is Raymond Oakes of the law firm Booth Dennehy. I'm here representing the Coalition of Manitoba Motorcycle Groups. I'm assisted this morning by our firm's articling student Charlotte Meek.

THE COURT REPORTER: Speak up please, you faded out.

MR. RAYMOND OAKES: Certainly. Raymond Oakes, on behalf of the CMMG, assisted this morning by Ms. Charlotte Meek, our articling student. Thank you.

THE CHAIRPERSON: Ms. Miller...?

MS. ERIKA MILLER: Good morning, everybody. I'm Erika Miller, public and media relations specialist with CAA Manitoba and we're applying for Intervenor status, again, on behalf of our 200,000 plus members in Manitoba.

THE CHAIRPERSON: Thank you.

MS. DIANE RODGERS (by phone): Good, morning, it's Diane Rodgers from Uber. We're also applying for Intervenor status and I'm joined this morning by my colleagues Joe Messina and Chris Schafer.

THE CHAIRPERSON: Thank you very much, Ms. Rodgers.

16

We'll proceed to opening comments at this time. We'll start with Ms. McCandless and then go in the same order as we followed for the introductions. Ms. McCandless...?

OPENING COMMENTS BY BOARD COUNSEL

MS. KATHLEEN MCCANDLESS: Thank you. Good morning. And just before my opening comments, I would point out that on the screens before you is the agenda for this morning's pre-hearing conference. And just one (1) comment on that, within item number 3, opening comments, we would ask that the Intervenors at that point make their submissions on their applications for intervention.

At item 4, we will have a discussion on the issues for the GRA. So if there's a discussion of the preliminary issues list that's been approved by the Board, I would recommend that the parties then direct their submissions on those issues to item number 4 on the agenda. Thank you.

First, I would like to enter exhibits for the record. As PUB Exhibit Number 1, the Notice of public hearing and pre-hearing conference dated June 15, 2018.

17

As Exhibit Number 2, the Board's Rules of Practice and Procedure.

As PUB Exhibit Number 3, the proposed hearing timetable.

As PUB Exhibit Number 4, a letter from the Board secretary Mr. Christle to MPI and all prospective Intervenors dated June 18, 2018, with attachments. And those attachments addressed such issues as Intervenor -- or the letter addresses issues such as Intervenor responsibilities and it contained attachments with the MFRs, the minimum filing requirements, information about the pre-hearing workshop, today's pre-hearing conference and there are also a format to be used for the Information Requests and the proposed hearing timetable.

As PUB Exhibit Number 5, a letter dated June 22, 2018 from Mr. Christle to MPI and all prospective Intervenors. And this letter related to the pre-qualification request for expert witnesses. And I will read the process into the record for the parties here today.

The process is as follows: Any party intending to call an expert witness in the GRA hearings shall give notice to the Board of its intention to have the witnesses or witness pre-

qualified at the pre-hearing conference and provide the curriculum vitae of the witness to the Board, along with the proposed areas of qualification for the witnesses.

At the pre-hearing conference, the parties shall make submissions to the Board as to the qualifications of the witnesses and request pre-qualification of the Board. The expert witness that's proposed need not be called to give viva voce evidence at the pre-hearing conference. The other parties present may make submissions to the Board regarding the request for pre-qualification. If there are no objections from any of the parties regarding the request for pre-qualification, the Board will issue its decision on pre-qualification in the procedural Order following today's pre-hearing conference.

If the Board grants the request for pre-qualification, there will be no need to qualify the expert when the expert testifies in the public hearings. If there are objections to pre-qualification or if the Board declines the request for pre-qualification, the witness will need to be examined on his or her qualifications at the public hearings. That is the process to be employed.

And then I expect you will hear today,

members of the Panel, submissions regarding the preliminary issues list and that was found and approved at Board Order 61/'18 which I would ask be entered as PUB Exhibit Number 6.

Those are the exhibits to be entered today on behalf of the PUB.

--- EXHIBIT NO. PUB-1: Notice of public hearing and pre-hearing conference dated June 15, 2018.

--- EXHIBIT NO. PUB-2: Board's Rules of Practice and Procedure.

--- EXHIBIT NO. PUB-3: Proposed hearing timetable.

--- EXHIBIT NO. PUB-4: Letter from the Board secretary Mr. Christle to MPI and all prospective Intervenors dated June 18, 2018, with attachments.

--- EXHIBIT NO. PUB-5: Letter dated June 22, 2018 from Mr. Christle to MPI and all prospective Intervenors.

--- EXHIBIT NO. PUB-6: Preliminary issues list that was found and approved at Board Order 61/'18

MS. KATHLEEN MCCANDLESS: Now, prior to hearing from prospective Intervenors this morning, I confirmed that each should provide the following information to the Board in order that the Board can deliberate on and decide inter -- intervention.

First, an indication of their constituency and interests.

Second, an outline of the areas of MPI's application that they intend to test.

Third, their reasons for requesting Intervenor status.

Fourth, their plans to call evidence at the hearing.

And fifth, whether they intend to seek an award of costs, of course, bearing in mind that the proposed budget is to be provided to the Board in accordance with the direction provided by the Chair in

his opening comments.

As always, the Board will apply the criteria set out in the Board's rules with respect to the awarding of costs, such decisions being at the sole discretion of the Board.

Now lastly, as I mentioned, there is a preliminary issues list that the Board has approved already at the pre-hearing workshop which took place on Friday, June 22. The issues list was discussed and I expect you will hear further comments on that issues list today.

The Panel will be asked following today's pre-hearing conference, and as part of the Order following the pre-hearing conference, to approve a final issues list for the GRA.

Those are my submissions. Thank you.

THE CHAIRPERSON: Thank you. Mr. Guerra...?

OPENING COMMENTS BY MPI:

MR. ANTHONY GUERRA: Thank you, Mr. Chair. To begin, MPI requests that the 2019/2020 General Rate Application be filed as Exhibit 1.

--- EXHIBIT NO. MPI-1: 2019/2020 General Rate

Application

MR. ANTHONY GUERRA: There are key themes from the -- the General Rate Application that I'd like to highlight for -- for consideration today, including the themes of change, transparency and prudent fiscal management. While these themes provide guidance to MPI, the hope is that they will similarly influence the application in the hearing process in this and in future years.

Change, in this context, means improving -- improving by evaluating prior rate applications and by changing aspects of the process which either did not work or did not work or could have -- sorry, could have been better. For example, for the first time this year MPI will employ the use of witness panels. These groups of witnesses will have direct knowledge of the material and will be able to provide more detailed and accurate answers improving the overall experience.

Transparency, has and will always be an important element of this process. The Board is open and a transparent body. It encourages public participation in the process. Indeed, the prospective Intervenors present today represent different cross-

sections of the public interest. However, the Board also understands the balance that must be struck between maintaining open hearings and protecting commercially sensitive information. To maintain this balance, the Board has developed a special process to determine which documents claimed as 'confidential' will be so protected.

MPI also values transparency, and is increasing its efforts to improve the public's understanding of its operations and its justification for rate -- the rates it seeks. With its 2019/2020 General Rate Application, MPI has adopted or maintained a number of specific practices designed to foster transparency. For example, an FTP site.

This year, MPI provided access to application materials to interested persons, prospective Intervenors, consultants, legal counsel, and to the Board through a file transfer protocol, and will ensure that its Excel workbooks are available and made through this process. The process -- sorry, the move increases access to materials and makes it easier for parties to scrutinize MPI's data.

Business cases. MPI has or will file seven (7) business cases prepared through a more robust value management process. The provision of

these business cases gives parties greater access to information and to the rationales behind some of MPI's biggest decisions.

Confidential material. Although MPI seeks to increase the amount of information it shares publicly, there exists, and as always, some information that is too commercially sensitive to share in an open forum. MPI will seek confidential status on only those documents which absolutely require this designation, and will further seek restrictions on those documents which are necessary to preserve their confidential status. The customer self-service business case provides a prime example of MPI's approach -- excuse me -- MPI's approach to confidentiality.

Initially, MPI reviewed the business case and determined that it contained potentially confidential information. However, MPI conducted a further review to be sure that this was the case. Upon further review, and desirous of being as transparent as possible, MPI determined that the business case should be made available and non-redacted. Therefore, MPI will not seek leave to file this business case confidential -- excuse me -- confidentially. MPI now seeks to file the customer

service business case as Exhibit 2.

--- EXHIBIT NO. MPI-2: Customer Service Business case.

MR. ANTHONY GUERRA: Witness panels. This year, MPI will seek to change the way in which its witnesses testify before the Board. Groups of witnesses will testify on specific topics and will be available for cross-examination. One (1) of the goals of the witness panel system is to increase transparency by increasing the number of questions answered by -- excuse me -- by decreasing the number of questions answered by undertaking and increasing the number of answers provided orally and tested through cross-examination.

Prudent fiscal management. With the 2019/2020 GRA, MPI builds on its efforts to prudently manage its finances through the use of premiums based on actual -- actuarial -- excuse me -- actuarially accepted practices, effective and efficient operations, and adequately maintained capital reserves. To improve the efficacy and efficiency of the application and hearing process, MPI will bring a -- a motion under rule 13(2) of the Board's Rules of

26

Practice and Procedure to seek confidential receipt by the Board of certain information documents that must remain confidential.

Unfortunately, the mod -- excuse me. Unfortunately, the module was not used as it should have in prior years, and MPI appreciates the Board's desire that the process be utilized as designed. Doing so will require an overlay on the proposed timetable, which we'll speak about further in our discussion. That is a parallel timetable to minimize disruption and allow full discovery on confidential materials.

As discussed, MPI will use witness panels. One (1) of the advantages of using these panels is that because the panels are -- are organized by topic, attentions are focused, which should result in a more efficient use of hearing time, reduce the amount of hearing time required that might otherwise be required, and hopefully reduce costs.

Pre-qualifying experts. Last year, the Board introduced a process that allows some expert witnesses to be pre-qualified at a pre-hearing conference -- that would be today -- the intention being to increase the efficiency of the hearing process by dispensing with the need to examine certain

27

experts -- witnesses on their qualifications at the public hearings. As it did last year, MPI will seek to have two (2) of its expert witnesses qualified in advance of the oral hearing.

Is there anything else that can be done to increase the efficiency of the application and hearing processes? MPI submits that there are specific things the Board can do immediately to further this goal.

One (1), develop a hearing issues list. Simply, a hearing issues list is a list of the issues that may be spoken to or questioned on at the oral hearing. The list defines the scope of the hearing and provides direction to the parties. Although the Board will approve a final issues list when it issues its procedural Order, MPI believes that there is merit in conducting a further review once the Information Requests have been made and answered, and once Intervenor rebuttal evidence has been submitted. This review would be conducted by way of a second pre-conference -- sorry, pre-hearing conference, orally or in writing, and the res -- and the results would be a second procedural Order, focusing the oral hearing on the matters of most importance and the matters outstanding to the determination of just and

28

reasonable rates for service.

MPI expects that it will become clear to the parties involved which issues have been adequately addressed through the General Rate Application itself and through the two (2) rounds of Information Requests. MPI's goal would be to present a unified position to the Board at the second pre-hearing conference. However, if unity cannot be achieved, MPI anticipates that it will be necessary for the Board to make a determination as to whether any of those issues should be further addressed at ora -- at an oral hearing.

The necessity for a further pre-conference hearing and an order setting out the final issues list is simple. It reduces the number of issues for the oral hearing, which could reduce the number of hearing days ultimately required. The process also places emphasis on and, therefore, increases the importance of the Information Request process, as it would be hard to justify maintaining an issue on the list if no questions were asked in respect of it during the second round of Information Requests. Pressure is placed on MPI to provide open, direct, and thorough answers on its Information Requests.

29

MPI looks forward to working with the Board and the Intervenors to implement a process that is considerate of the need for change, transparency, and prudal -- prud -- excuse me -- prudent fish -- prudent fiscal management. With that, I would like to thank the Board and yield my time.

THE CHAIRPERSON: Thank you. We'll go to the Intervenors, and as Ms. McCandless indicated in her opening comments, if you could comment on the subject matters that were raised in her opening comments. Mr. Williams...?

OPENING COMMENTS BY CAC (Manitoba):

DR. BYRON WILLIAMS: Yes, and good morning, members of the Board, Chairperson Gabor. Welcome back, members Hainsworth and Vandewater, and welcome new member Hamilton.

My name is Byron Williams. I'm appearing on behalf of the Public Interest Law Centre and -- on behalf of CAC (Manitoba). And if I could have pulled up the revised Attachment A to our Intervenor application, which was filed -- the revised version was filed this morning.

And just by -- in terms of intro -- introducing our clients -- just one second, please.

30

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Just while we're waiting for Attachment A to be pulled up, I'll -- I'll indicate that our clients, the Consumers' Association of Canada, seek to represent the interests of the private passenger class, and they've been intervening at regulatory proceedings. If we go -- thank you, Kristen -- just a bit farther down this page, under who is the Manitoba branch of the Consumers' Association, our clients have been around since 1947. I want to assure you I have not been around that long, but our clients, in terms of Manitoba Public Insurance rate applications, been here since the -- the late '80s, early '90s.

And if you look at the third paragraph before you, under 2 on page 1 of Attachment A, you'll see how our client develops its position for these hearings. They deal extensively with consumers. They use focus group style discussions with specific hearing topics in order to -- to develop their positions, and they also meet with other stakeholders.

And I can indicate to the Board, in preparing for this hearing, our client has had conversations with our friends from the Motorcycle

31

Coalition, brief conversations with CAA, and also with our friends from Bike Winnipeg, who we understand will be focused -- will not be seeking Intervenor status in this hearing, but will be focused on a pending technical conference.

If we go to page 3 of this, and towards the bottom, Kristen -- thank you -- right there's... You'll see some of the issues that our client has been involved with over the long term in rate applications, making sure that rates were in accordance with accepted actuarial prin -- principles, that we're do -- taking an evidence-based approach to interest rate forecasting, that information technology expenditures prudently deliver value for consumers and don't simply run up costs. And as we flip to the next page at the top, you'll see as well a long-standing focus, the third bullet on that page, in terms of Manitoba Public Insurance investment portfolio, the better balance is risk and reward as well as an evidence-based approach to setting reserves for the Corporation.

In terms of our clients reasons for intervening, a 2.2 percent rate application is obviously of significant concern for the residential class, as are issues related to vehicles for hire, the methodology for setting a capital maintenance

32

provision, and certainly the asset liability management study.

Turning to page 5, and towards the middle of the page, this panel will be aware that the Board, in looking at whether rates proposed are just and reasonable, looks at five (5) key criteria. The first key criteria is -- relates to the reasonableness of the forecasts.

And we put in extensive discussion of it, but if we go towards the bottom of the page, Kristen, and then onto the top of the next page, we thought this issue might have been put to bed last year in terms of interest rate forecasts, and certainly the Board, for the purposes of that General Rate Application, focused on a 50/50 approach to interest rate forecasts. But we note that underlying Manitoba Public Insurance's application is a -- a naive forecast, both in terms of the overall rate forecast, as well as -- as we understand it, the dynamic capital adequacy testing.

This is -- I note that this is not a revised application to intervene. This is the one that we filed on Friday. So I'll just indicate that our client is contemplating calling evidence related to forecasting issues, and whether, given the Board's

33

Order last year, as well as changes in the North American marketplace, both in Canada and the United States, whether it is appropriate or overly conservative to use the naive forecast.

And certainly, our client would be likely to call Dr. Wayne Simpson, who's been qualified by this Board on numerous occasions as an expert in applied econometrics and microeconomics, with some support from Ms. -- Ms. Sherry, who is a well-recognized and qualified actuary.

In terms of the reasonableness and justifications for the Corporation's -- just go down on this page, page 6, Kristen, just -- thank you. The second key criteria that this Board looks at is the reasonableness and justifications for operating, maintenance, and administration costs. And we put a detailed explanation on this page, but if Kristen could move to page 7, and towards the top of page 7, you'll see the -- the second and third paragraphs, our clients particular interest relates to the Corporation's value managed report, as well as changes, significant changes included in some of the information technology portfolio and expenditures.

And we note that there's been a significant write-off in expenditures related to the

34

customer claims reporting system, and our client is certainly interested in understanding the role of the value management report, as well as what went wrong in terms of the Corporation's significant expenditures in this regard.

Towards the bottom of page 7 is what may be from the bottom line, the most important issues for the -- for ratepayers in this hearing, and that's the overall health of the Corporation, including reserves. And our client will have two (2) areas of particular interest in this regard. The first will be with regard to the Corporation's asset liability matching of its investment portfolio.

And fundamental questions our client will ask in that regard is whether the Corporation is accepting undue risk for future ratepayers, with the trade-off being undue or a lack of appropriate reasonable benefits for today's ratepayers. So our client has significant concerns in this regard that we'll be proposing to pre-qualify as an expert witness Mr. Valter Viola, who spoke to these issues during the course of the two (2) general rate applications previously, and who Mercers has been retained to respond to his recommendations.

Going to the -- onto this page as well,

35

towards the top of page 9 -- keep going, please. Thank you. The other key issue, from our client's perspective, is the proposed capital maintenance provision, or as our client would term it, the surcharge of 2.2 percent, and which the Corporation purports to tie to a -- a target of 70 percent of the minimum capital test. And our client does intend, with the Board's permission, to vigorously explore the merits of this proposal, both in terms of why that particular target, but as well, its intergenerational implications, and whether it is fair to current ratepayers as proposed or not. And again, our client looks to a team of Ms. Sherry, who is -- has well-recognized expertise in the actuarial sciences or art, and Dr. Wayne Simpson.

In terms of -- going down on page 9, in terms of the appropriate allocation of costs between and within classes, our main focus here will be on the vehicles for higher application, and most of our client's concerns are self-evident on this page. Mr. Chair and members of the panel, the third last bullet, as I look at it, speaks to road safety and loss prevention, and it may be that that is not an appropriate consideration for this hearing, but more appropriately moved to the technical conferences. So

36

I'll -- I'll flag that for the Board's consideration, and we will certainly be open to the guidance of the Board in that regard.

Finally, in terms of rate making, our client, as we go to the bottom of the page, will take an overall look at the application in terms of the Board's criteria of whether these are just and reasonable rates, both in terms of their balance between ratepayers and the Corporation, as well as the relationship between various classes of ratepayers.

In terms of our costs and as the Board Chairperson has noted, this is a preliminary budget. I can take you to revised Appendix B to our application to give the Board a high level look -- thank you -- of our proposed budget. And I would note that you see a number of hours at the top for -- for Mr. Williams. That would be me talking in the third person.

I -- I would suggest that this is quite consistent with what we've done in the past. The one (1) difference from last year's rate application is that I omitted to put in time for the technical conferences, which didn't leave my boss very happy. So we've included the time that we've expended.

I'll also note that you -- you'll see a

37

-- a modest contribution for Ms. Dilay. If you go to the next page -- we don't need to go there now, that's okay, Kristen, just leave it here -- you'll see that the she actually will be spending over two hundred (200) hours on this hearing, but part of that -- the time expended is in -- in learning about the application so that you get to listen to me less in future hearings and more to her.

We put in the estimate of Ms. Sherry, which is consistent with, and actually lower than what she presented in last year's General Rate Application, as well as the application of Mr. Dyck, which is consistent with last year's application, and actually lower than what he billed. And finally, the estimate of Mr. Viola, which, given his expertise and what the Board would have seen of his quality two (2) year -- two (2) years ago, we think is tremendous value.

As -- as we scroll down this page, you'll see that we've also put in some modest contingencies in terms of our overall application. We're mindful that the Board says 10 percent. We are -- from our client, we will hold ourselves, assuming we have the same number of hearing days, to a contingency of 2.5 percent.

Our client did not originally retain a

Mr. Simps -- Dr. Simpson or Mr. Pitt for this hearing, but -- and we only did receive Manitoba Public Insurance's full application a little over a week ago. But in looking at the Corporation's forecast, we have added time for -- potential time for Dr. Simpson related to both the capital asset maintenance provision, as -- as well as the interest rate forecasting. I will note that the hours here are simply a -- a placeholder from what he did in last year's rate application, so they're not an -- an actual estimate.

And we also note, Wallace Pitt, who's done tremendous work for our clients on information technology we put in some potential time for him as well. He's been very valuable in assisting our corporate -- our clients to look at the Corporation's approach to physical damage re-engineering. Many of the concerns our clients have raised have come from Mr. Pitt, as well as the Corporation's overall approach to value management. Again, we've simply put in a placeholder budget, pending a retainer of those witnesses.

The last thing in terms of our clients budget, Mr. Chair, if I could go to page 3, just to direct the panel's attention to the substantial amount

of hours not billed, and scroll down a little bit, from the legal team. And again, as I explained previously, this is part of the learning curve for Ms. Sherry and for Mr. -- Mr. Williams.

Members of the panel, that's a -- our overview. I'm happy to answer any questions the Board may have at this time. At some point in time our client would appreciate the opportunity to talk about the second proposed pre-hearing conference, but I'll leave that to the Board whether that's more appropriate for the schedule, or whether it's more appropriate now. And subject to that, I'm happy to answer any questions.

THE CHAIRPERSON: Thank you. I think we'll -- we'll deal with it as part of -- as part of number 4. Thank you. Mr. Oakes...?

OPENING COMMENTS BY CMMG:

MR. RAYMOND OAKES: Thank you, Mr. Chairman. With respect to the background of the CMMG, the CMMG was formed in 1992 in response to massive MPI insurance increases. It was -- one (1) of the founders was Robyn Gray, who tragically passed on May 24th of this year in a motorcycle accident. And perhaps at an appropriate time, such as the portion of

the hearing dealing with presenters, we could make a small presentation at that point with respect to the loss of Mr. Gray.

The CMMG comprises itself of several hundred paid members, and a larger Facebook and other supportive community in the low two thousand (2,000) member range. With respect to its efforts, it is one (1) of the stakeholders that's involved with MPI providing information and input as to its constituency and community support. It is a nonprofit voluntary organization. At some early point to this week I'll be sending the financial statements of CMMG as they become available. It does not have the resources to present the case adequately and I'll speak to that in terms of costs.

In terms of the areas of inquiry, I'm having a bit of a deja vu, we see a 2.2 percent general increase sought, which is similar to last year. But I'm more mindful of the fact that motorcyclists are being asked to pay an increase of 3.1 percent, so approximately 50 percent more than the overall rate indication.

We see this in the context of a net income of the Corporation of over $91 million. We see increases in their revenues of over 65 million. We

see an increase in investment income of over $38 million, and we see overall claims costs decreasing by over $72 million.

So obviously, the intervention of the CMMG would be along the lines of issues 1 and 2 on the requested vehicle rates and the rate indication for those classes. In addition to the items number 4, 7, and 8 will necessarily be involved. The majority of the rate increase, of course, is the CMP related to the reserve stabilization reserves, and that would account for 2.1 percent of the increase.

There will be questions relative to the reasonability of those forecasts and also, as indicated by Mr. Williams, we're quite concerned with the intergenerational inequity that results from these massive reserves being garnered by the Corporation. Investment returns, again, will be a serious area of inquiry, given that they are a massive part of the Corporation's revenues each year.

With respect to the evidence, the CMMG has filed its application before this Board and will be seeking to assist the Board in critically evaluating the GRA, as we have done for the past twenty-five (25), years testing the evidence, and raising issues of concern and interest of the

42

motorcycle public specifically, and Manitoba ratepayers generally.

The CMMG will not be providing expert evidence and we'll be seeking costs. We have filed a budget with this Board going forward, although we have approximated something for the technical conferences that were attended by the CMMG earlier this year, and also Friday's conference. And there is talk going forward of another type of mini-conference in late September. If that's the case, there might be some upward movement in the Intervenor budget, but likely within the 10 percent increase that's anticipated or contemplated in the rules of the Board. We look forward to testing the evidence before this Board, and those are my comments this morning, Mr. Chairman.

THE CHAIRPERSON: Thank you. Ms. Miller...?

OPENING COMMENTS BY CAA MANITOBA:

MS. ERIKA MILLER: Thank you. Good morning. On behalf of CAA Manitoba, we're interested in proceeding again this year with a watching brief. We represent over two hundred thousand (200,000) Manitobans, the large majority being motorists, of course. And we have undertaken Intervenor status in

43

this hearing for the last over twenty (20) years, and we continue to do so because our members expect us to advocate on their behalf.

We do not plan on calling any expert witnesses and we do not -- we are not applying for -- for costs either. So the only caveat I would add would be that we would ask for leeway to ask questions during the hearings.

(BRIEF PAUSE)

THE CHAIRPERSON: Thank you. Ms. Rodgers...?

OPENING COMMENTS BY UBER CANADA:

MS. DIANE RODGERS (BY PHONE): Good morning. So I'm calling on behalf of Uber Canada. And going down the list of items that the Board asked us to address, our constituency and interest is that Uber is not presently operating in Manitoba. And the reason we're not presently operating in Manitoba is that we are not of the view that the structure of the private hire vehicle insurance policy that MPI has put together works for our business model. And so we would like to make submissions about alternate models

44

that we think would work better, so that we would be able to enter the province.

In terms of areas that we would like to rest, you know, I think our -- our submissions differ a little bit in that we're not actually looking to, you know, test rates or the rationale behind the rates, but rather to discuss the structure of the product more generally.

In terms of evidence, I don't think we need to lead any evidence. We'd be happy to make submissions on the structure of products in other markets across North America, rather than leading evidence. And we will not be seeking costs.

THE CHAIRPERSON: Sorry, Ms. Rodgers, can I just ask you a question? How do -- how do you not lead evidence but get in evidence about structures in other jurisdictions?

MS. DIANE RODGERS (BY PHONE): At the interim hearing I think we did that, just by way of written submissions. But if it's preferable to do that by way of evidence, then we can actually put in an affidavit or have a witness attend to talk about those structures.

THE CHAIRPERSON: Okay. Thank you. Thank you very much. I'm just wondering, Mr. Guerra,

45

if you have any comments in relation to the submissions of the Intervenors?

MR. ANTHONY GUERRA: Yes, thank you, Mr. Chair. We do, with respect to the submissions --

MS. KATHLEEN MCCANDLESS: Sorry, if I wouldn't mind just interrupting one (1) second. We did receive --

THE CHAIRPERSON: Sorry. Yes?

MS. KATHLEEN MCCANDLESS: I'm over here. It's -- it's McCandless, speaking. Yes. Just to point out to the Board that this morning the Board did receive a further Intervenor request form from the Manitoba Used Car Dealers Association.

THE CHAIRPERSON: Okay.

MS. KATHLEEN MCCANDLESS: I just wanted to confirm that there was no one here on their behalf to make any submissions this morning. Appears not. Okay. Thank you.

THE CHAIRPERSON: Thank you, Ms. McCandless. Your voice is amazingly similar to Ms. Schubert's voice, so. Sorry, Mr. Guerra, back to you.

REPLY BY MPI:

MR. ANTHONY GUERRA: Thank you, Mr. Chair. And -- and appreciate the -- the highlight of

46

that as well. We -- we did receive that this morning, and I can comment on our position with respect to that application as well. But to begin, I'd like to address the application filed by the Canadian Association of Consumers on behalf -- by the Public Interest Law Centre.

MPI does not oppose the application. The only comments that we'd like to make with respect to the application are in relation to the proposed budget. And I appreciate that some of the information provided by My Friend this morning was of a placeholder nature. But, nonetheless, MPI's position with respect to the budget is important to set out.

I would note that the anticipated time for Mr. Viola is approximately half the time for Mr. Williams. And Mr. Viola is -- is only slated for a -- slated, rather, for a single narrow issue. So obviously MPI has some concerns with respect to the -- the allotment of time to Mr. Viola.

With respect to the time allotted for Mr. Simpson and Ms. Sherry, the -- the issues we'd note have been dealt with many times in the past. So at this point we would expect to have some efficiencies with -- with respect to the use of their time and the proposed budgets don't necessarily

47

reflect that. So we would want to make sure that that is -- is raised as well. And with res -- so other than that there is -- there's no opposition to the application.

With respect application raised -- or filed, rather, by the Coalition of Manitoba Motorcycle Groups, or CMMG, again, there is -- there's no opposition the application or to the budget on -- sorry, by MPI. With respect to the application filed by CAA, no -- no opposition, no objections there.

Now, with respect to the two (2) applications that were received relatively recently, that being from Uber and from Manitoba Used Car Dealers Association, I'll address those in turn. On -- on the application filed by Uber, we note that the issues raised by Uber are with respect to the structure of the -- the vehicle for hire insurance product. That is a -- more of a legislative issue rather than a specific rate issue, in the -- in the view of MPI and therefore MPI's position is that this is not an issue that should be dealt with at this -- this rate application. And, therefore, we would oppose the -- the application filed by -- by Uber in that regard.

With respect to the final application

48

by the Manitoba Used Car Dealers Association, we note that the application states that there -- there would be virtually no participation by the Association in the -- in the hearing, no evidence to be called. And -- and it seems to me that the request is more of a -- of an interest-based request, that being interest in -- - in the -- in the nature of the proceedings generally and -- and -- but without any specific intent to -- to raise any concerns or issues or challenge any evidence. So with that, it's difficult for MPI to see any real benefits for the Association to be involved as an Intervenor. And on that basis we would oppose the application.

THE CHAIRPERSON: Thank you. I just want to apologize to the party for that -- this noise. I'm going to see at the break if we can do something about it. They're doing renovations on the floor immediately below us.

I'd ask any of the Intervenors -- I apologize to the people in San Francisco, since you're not in the room, but I asked if any of the Intervenors have a response to any of the new matters raised by MPI. And I'll -- I'll start with Mr. Williams.

REPLY BY CAC (MANITOBA)

49

DR. BYRON WILLIAMS: Thank you, Mr. Chair. And in terms of the -- we will, when we provide a final budget, certainly provide insight into the time required of Mr. Viola. But if -- just -- the Board which would have looked at -- at expert witness budgets for Manitoba Hydro would note that a cost in the range of thirty-five (35) -- to thirty (30) to forty thousand (40,000) are very modest compared to what you might see in a Hydro hearing.

If -- if one goes to the big picture, this is a $2 billion portfolio. There is a detailed asset liability matching study. More importantly, there are detailed preliminary works by Mercers, which are frankly more interesting than the final report. And this is an ambitious endeavour. And so from our client's perspective in -- in this -- in this price range is very good value for the Board's money, especially someone who brings the experience as Mr. Viola does, whether from Ontario teachers, or the Canada pension plan.

In terms of Dr. Simpson in and Ms. Sherry, I would note that from our clients' perspective, our Learned Friend has made one (1) factual error. The issues of capital -- the capital management provision or surcharge have really barely

50

been canvassed before this -- this Board. There was a bit of a cross-examination by Board counsel in last year's General Rate Application. It has not been the subject of evidence either by Ms. Sherry or Dr. Simpson.

In terms of issues relating to interest rate forecast, our client certainly agrees that they've been canvassed, and is somewhat troubled that the issue is coming up again by Manitoba Public Insurance. That being said, there have been substantial changes in the marketplace in terms of both the Government of Canada, in terms of what they've done with interest rates, the overnight rate, as well as with the United States Government that certainly will require some -- some work. There has been a material change in the mer -- cir -- in the marketplace, which certainly will require attention.

And similarly, if you look at the total draft budget of doc -- of Ms. Sherry, coupled with the placeholder of Dr. Simpson, less than four (4) weeks work on some very weighty issues, noting as well that Ms. Sherry is also providing insight to the Corp -- to Ma -- to CAC (Manitoba) on novel issues such as vehicles for hire.

Finally, Mr. Chair, and if -- if -- I'm

51

-- I'm going to ask the Board's permission to comment on the Uber application, if -- if you will grant it. But if -- that's up to the Board whether it's appropriate for an Intervenor to -- to comment on another one (1) or not on the vehicles for hire issue.

THE CHAIRPERSON: Go ahead.

DR. BYRON WILLIAMS: Mr. Chair, just -- and if -- if Kristen has it nearby, Appendix 8 again of our clients' intervention. The vehicles for hire issue is -- is of significant importance to Manitoba ratepayers. And certainly, as our client -- page 9 -- as our client understands the Board's jurisdiction, it is rates for service. And so while this is ultimately a rate approval function by the Board, the underlying type of service is also of -- of relevance to the Board.

And certainly our client is -- while we may not be supportive of the position of Uber, certainly think that the issues that they bring to the table are important to the Board as it adjudicates upon rates for service, and would -- would consider it a prudent use of ratepayers' money in terms of the hearing time associated with it. Thank you.

THE CHAIRPERSON: Thank you. Mr. Oakes, any further comments?

52

MR. RAYMOND OAKES: I have none, Mr. Chairman.

THE CHAIRPERSON: Ms. Miller...?

MS. ERIKA MILLER: None.

THE CHAIRPERSON: Ms. Rodgers, any comments to the issues -- any new issues raised by MPI?

REPLY BY UBER CANADA:

MS. DIANE RODGERS (BY PHONE): I do. I would echo the comments of my fellow Intervenor. And so, you know, I think we're -- we're quite transparent by the fact that we're not challenging the rates themselves, but we are interested in ensuring that the Board has a full view of the different options for services that could potentially be in play.

So I think it's accurate to say that in MPI's view, they are limited in the product structure that they can put in place. That's a view with which we respectfully disagree, and we think there are alternate structures that could be used that would be better for Manitoba ratepayers and would more accurately reflect and spread the risk of ridesharing in the province.

53

And as a result, while we're not directly challenging the rates, I do think we have some important views to put forth on the structure of the product that -- and up, perhaps, impacting rate and ensuring that the risk is probably -- properly spread out amongst the stakeholders in the province.

THE CHAIRPERSON: Thank you. We're moving to item 4 on the agenda, but I don't want to have a break when we get into it. So I'm going to suggest that we take a fifteen (15) minute break right now and I'm going to see if we can talk to the people on the third floor. So we'll take fifteen (15) minutes right now. Thank you.

--- Upon recessing at 10:14 a.m.

--- Upon resuming at 10:31 a.m.

THE CHAIRPERSON: Okay, we'll proceed to number 4 on the agenda. I understand the drilling is done, but I have a feeling we may hear some other noise from below. Hopefully, it won't be as bad as the drilling.

So, Mr. Guerra, if you want to start with your submission on item number 4.

MPI'S COMMENTS ON REMAINING ISSUES:

MR. ANTHONY GUERRA: Thank you very much, Mr. Chair. So the -- the first order of business with respect to procedural matters, there are -- there are two (2) appendices that MPI will be seeking to file -- sorry, corrected appendices, expense appendix number 19 and IT appendix number 1. We will be asking that these be filed as MPI Exhibit Number 3, and they're presented in a clean and black-lined versions. This is simply an error or an omission on the appendices so we wanted to correct the record on that.

-- EXHIBIT NO. MPI-3: Two (2) corrected appendices, Expense Appendix Number 19 and IT Appendix Number 1.

MR. ANTHONY GUERRA: The next item is the pre-qualification of expert witnesses -- sorry, with respect to the -- the hearing issues, MPI discussed the issues' list -- the preliminary issues' list with the Intervenors -- sorry, with some of the Intervenors at the workshop that was held on Friday morning and from MPI's perspective, there -- there

aren't any issues on the preliminary list that -- that cannot be on the final issues list. This is obviously subject to our submissions on the availability or the appropriateness of a hearing issues list and, therefore, we -- we would reserve the right to make comments on what should be part of that list.

THE CHAIRPERSON: Well, my standing is now is the time for you to make those comments.

MR. ANTHONY GUERRA: Well, sorry, with respect, Mr. Chair, the -- the issue of a hearing list -- issue list, rather, would be a list of those issues which should be at the -- the hearing. After -- after the two (2) rounds of informal -- Information Requests have been made and after the parties have exchanged the rebuttal evidence.

THE CHAIRPERSON: We'll deal with that but we have a preliminary list now.

MR. ANTHONY GUERRA: Right.

THE CHAIRPERSON: We will -- you know, just hold on for a second.

MR. ANTHONY GUERRA: Sure.

(BRIEF PAUSE)

THE CHAIRPERSON: We'll deal with that

but the problem is, I believe, the Interveners may make comments about the list that's before us now. We don't have your comments on it. What we have is your comments that you want a later either pre-hearing conference or some other process. I don't want to wait until -- we're going to make a decision. I don't want to be in a position where we make a decision and you then say, we didn't have an opportunity to talk about the list because we thought there was going to be a later pre-hearing conference. There is no decision there.

So in terms of the list that's before you now, I think we need to hear your comments on that list and we'll deal with the other matter as part of our decision in terms of whether there's a second pre-hearing conference or -- or whatever, but, you know, I'd like to hear your comments on -- on the list as it is before -- before you now.

MR. ANTHONY GUERRA: Absolutely, Mr. chair, and my apologies if I was not as clear as I should've been in my -- my initial remarks.

MPI's position is that the preliminary issues list need not change.

THE CHAIRPERSON: That's fine.

MR. ANTHONY GUERRA: Thank you.

THE CHAIRPERSON: Thank -- thank you. I may have misunderstood but -- and in relation to -- to procedural matters, any comments there or in relation to the schedule that's been proposed.

MR. ANTHONY GUERRA: Yes. So obviously --

THE CHAIRPERSON: You know what, I apologize. I see at the -- I apologize, I see number 6 is a separate issue on the time table.

MR. ANTHONY GUERRA: Yes.

THE CHAIRPERSON: So we'll deal with that at that time.

MR. ANTHONY GUERRA: Thank you.

THE CHAIRPERSON: Thank you. Mr. Williams...?

CAC (MANITOBA) COMMENTS ON REMAINING ISSUES:

DR. BYRON WILLIAMS: Thank you. In terms of the issues list, our client is in agreement with issues --

THE CHAIRPERSON: We're going to take a break. Just hold on for five (5) minutes.

--- Upon recessing at 10:37 a.m.
--- Upon resuming at 10:39 a.m.

58

THE CHAIRPERSON: My apologies again. Sorry, to Uber in San Francisco, we've had some problems here because they're renovating the floor below us. We may have a little noise -- they're actually outside working on the exterior of the building. The people below us, we've been told have stopped. Are now stopped.

So, Mr. Williams...?

DR. BYRON WILLIAMS: Yes and I'll note that Ms. DeSorcy from the Consumers Association of Canada, the Manitoba branch is here and in the -- my second row.

And just in terms of the issues list, our client -- in terms of the issues list, our client accepts issues 1 to 21. I'll just direct your attention on this first page. Stay here for a minute, please, of item 4c which is update of the interest rate forecast based upon methodology approved in Board Order 130/'17. And, of course, this could be a matter for debate, but looking to Order 130/'17 and, in particular, page 8, our client notes that it appears, or at least it's strongly arguable, that in that Order the Board adopted a 50/50 interest rate forecast not a naive forecast.

If we could go back to the issues list

59

now. Down to item number 7, which is an update of the Dynamic Capital Adequacy Testing, or DCAT, based upon a methodology approved in Board Order 130/'17, I will come back to that in just one second.

And then the item 21, which includes a -- a look at the asset liability management study, including the proposed portfolio segregation. And again, our clients will come back to that.

So as we look to the issues list in terms of the suggestion that the primary issues list suggests four (4) matters might be dete -- deferred to future applications, item 22 being road safety other than costs and budgets, our client does not object to the deferral of road safety to future proceedings, recognizing that costs and budgets will be in play in this hearing. Recognizing as well, a technical conference is proposed for the first quarter of 20 -- of the next year.

In terms of the interest rate forecast, though, our clients' concern and we -- we would suggest that the interest rate forecast has to be squarely within the issues list because, once again, we have the issue of whether we should be relying upon the naive forecast as proposed by the Corporation or what our client would suggest is the Board approved

60

methodology of the 50/50 approach.

So from our clients' perspective, this issue is fully in play, we would suggest to the Board, and not in the limited manner proposed in item 4c.

In terms of target capital methodology, our client agrees that many of the issues related to Dynamic Capital Adequacy Testing have been addressed, but they would note three -- three (3) matters of concern for the Board. One (1) is that the upper target for the Dynamic Capital Adequacy Testing, which our client understands to be proposed by the Board, at least as we understand it, was proposed with no management action and from our clients' perspective, last year's Board Order provided at -- certainly at page 79 and 80 of 104 that the upper threshold should be after routine management regulatory rate change action.

So, to the extent that the proposed upper limit of Manitoba Public Insurance may be inconsistent with last year's Board Order, our client believes it is appropriate to examine the issue.

Secondly, when one looks to the lower target capital methodology of MPI, the -- our clients' understanding is that it's -- or what our client seeks to understand is the -- the lower target is based on a

61

minimum RSR target of 34 percent of the minimum capital test, purporting to be based on a 1:40 DCAT scenario.

And our client simply wishes to understand, in that regard, whether the 143 million is, indeed, consistent with the Dynamic Capital Adequacy Testing results, or whether the results yield a different figure.

And finally, on dynamic -- or target capital methodology, there is the underlying issue of what interest rate forecast underlies the target capital methodology; whether it should be a 50/50 approach consistent with last year's Board Order or a naive forecast consistent with what appears to be Manitoba Public Insurance application or -- or some other approach.

So from our clients' perspective, our client is not suggesting that we re-open the DCAT analysis in its totality, but we are suggesting that there are three (3) specific issues; (a) whether -- or 1, whether Manitoba Public Insurance is actually in compliance with the Board Order in terms of the upper limit; (b) or 2, whether the lower limit is consistent with the results flowing from the DCAT; and 3, the implications, if any, of using a naive forecast as

62

opposed to a 50/50 forecast.
In terms of item number 25, integrated cost allocation methodology, our clients do not see any issues relevant and -- and necessary on the cost side. The one issue from the revenue side is how the proposed investment portfolio, including the segregation of the investment returns is treated.
So generally, we're in agreement with the Board that there is a -- no need in this hearing to re-visit the cost allocation methodology other than what we do with investment revenues.
Mr. Chair, if it is appropriate in terms of the second pre-hearing conference, I can speak to it -- no, we're going to leave that to schedule. So I'll defer my comments until then.
THE CHAIRPERSON: I think you might speak to it now because the problem is we're going to be dealing with a schedule --
DR. BYRON WILLIAMS: Okay.
THE CHAIRPERSON: -- before we actually make a determination on the request so. So if you want to talk about the second pre-hearing conference.
DR. BYRON WILLIAMS: Our clients' views on the second pre-hearing conference are mixed.

63

Certainly, our client would have had no objection if Manitoba Public Insurance was proposing a -- a casual conversation among legal counsel aimed at narrowing the issues for the hearing.
And our client is in general agreement with the objective of looking at our hearing processes and making sure that they're efficient. Our client does not have a lot of confidence in the second pre-hearing conference as a tool for efficiency. We think that we've already had thoughtful deliberations on -- on an issues list. By the very active narrowing the scope of our Information Requests and -- and preparing for cross-examination, there is a natural winnowing of issues from our clients' perspective in any event, and I can ensure the Board that our client does not appreciate us any more than this Board does asking questions that are irrelevant or unnecessary.
So from our clients' perspective, the second pre-hearing conference is a useful thought experiment but unlikely to add significantly to hearing efficiency. We have not adjusted our budgets downward. In fact, we've added extra hours because I fear, from our client's perspective, that we may get into an epic battle on scope at the second pre-hearing conference and no member of the Board was part of

64

this, but in -- in the proceedings leading up to hearing, the 2014 hearing, we had a major battle on Information Requests, leading to Order 98/'14. And so from our clients' perspective, we may end up in another major battle on scope, and frankly, our clients think that that time would be better spent fine-tuning our -- our cross examinations.
Again, a useful thought experiment by Manitoba Public Insurance. Our clients are not of the view that it will add materially to the hearing value. As an alternative, we would certainly be open to a meeting between legal -- legal counsel, which would notify Manitoba Public Insurance of our intended cross-examination hearing issues, assist them in preparing their witness panels and also in, hopefully, addressing some of those efficiency issues.
Thank you for the opportunity to make comments, Mr. Chair and members of the Panel.
THE CHAIRPERSON: Thank you. Mr. Oakes...?

CMMG'S COMMENTS ON REMAINING ISSUES:
MR. RAYMOND OAKES: Thank you, Mr. Chairman. In my opening comments I did address the issues list and indicated that issues 1 and 2, 4, 7

65

and 8 would bear the majority of our inquiry.
With respect to the issue 22, road safety, I do understand the benefit to having a technical conference specifically dealing with road safety. There is one (1) filing relative to the wildlife collision study of MPI that's in the application. So, I will be having discussions with Board counsel and MPI counsel as well to determine whether that's still fair game for inquiry during the hearing, or whether that too should be put over to the technical conference.
Generally, I would propose cautionary wording in terms of proceeding with a very strict issues list, to echo the comments of My Learned Friend Mr. Williams, that sometimes in this restriction of issues, gives rise to more time spent administratively rather than less time.
THE CHAIRPERSON: Thank you. Ms. Miller...?
MR. RAYMOND OAKES: Just one (1) further --
THE CHAIRPERSON: Oh, sorry, I thought you were done, Mr. Oakes. Go ahead.
MR. RAYMOND OAKES: One (1) further comment, Mr. Chairman, would be that certainly in this

66

room we're mindful of the requirements of administrative law, and that requires a full hearing of the issues and adherence to fundamental justice and I think that it behooves the parties to have some flexibility with respect to areas of inquiry instead, of merely concentrating on the objections. Thank you.

THE CHAIRPERSON: Thank you. Ms. Miller...?

CAA MANITOBA'S COMMENTS ON REMAINING ISSUES:

MS. ERIKA MILLER: I would echo the same thing is as -- as our Learned Friends and I would note that in terms of the issues list, we're -- we're fine with everything up to number 22, where we would add that we are okay with the road safety issue being moved to a technical conference, provided the technical conference goes forward.

THE CHAIRPERSON: Thank you. Ms. Rodgers, any comments?

UBER CANADA'S COMMENTS ON REMAINING ISSUES:

MS. DIANE RODGERS (by phone): I think our only comment on the issues list -- and -- and I, you know, I think it sort of comes out generally through the issues, but if it, you know, if it needs

67

to get added on to discuss the -- the structure of the product and options for the structuring of the product, that may produce more accurate rating.

THE CHAIRPERSON: Thank you. Mr. Guerra, any comments on their comment?

REPLY BY MPI:

MR. ANTHONY GUERRA: Yes, thank you, Mr. Chair. With respect to the -- MPI's position is clear on -- with respect to the issues list, the prelim -- preliminary issues list. I'd -- I'd need not go further on that. But where I will go further is with respect to the -- the need for a -- a second pre-hearing conference.

And I would just elaborate what I had mentioned earlier, which is the benefits of -- of what we say is a potentially useful procedure that could be used this year and -- and in the future. It may not. It may be that the parties, you know, are -- are not able to come to an arrangement on -- on the hearing issues, and -- but what -- what it does provide is it provides a -- a mechanism to -- to require parties to turn their minds to -- to that, and -- and then maybe then it can be resolved very easily, that the parties, after having reviewed the second round of IRs, and the

68

-- the provision of new rebuttal evidence, are -- are on the same page, and -- and that this second procedural hearing can -- can be conducted very easily and maybe by consent. That would be the hope.

But certainly what it does is it provides a mechanism to -- to turn the parties to the importance of -- of making the requests for information fully and early, and for MPI to answer questions through the information process as completely as possible, because if -- if it doesn't, then what we're going to run into is a situation where issues are still live for an oral hearing.

So we'd like to use the -- the process -- we'd like to make the process as efficient as possible. We see this as a potential tool for doing that. And, you know, with respect to the issue of whether or not this can be dealt with by way of an informal meeting of -- of counsel, I think that -- that -- what that does, is it -- it stresses the importance of having some type of discussion with respect to which issues really are live. It's important for MPI to be able to -- to know what the -- those live issues are so it can prep its witnesses accordingly.

And, you know, a discussion about what

69

-- what may or may not become a focus area at the hearing in an informal basis doesn't provide any real comfort or guidance to -- to the parties, or at least to MPI on that. So there -- there are many reasons why we see the second pre-hearing conference as -- as a -- as an important tool, and we -- we would stress that efforts should be made to at least see if this year, we -- we can make advan -- we can take advantage of that. So those are my submissions on that issue.

DISCUSSION

THE CHAIRPERSON: Does the panel have any questions?

I'd just -- I'd just like to ask a -- a few questions in relation to this specific topic. There was a meeting of counsel on Friday. The Board isn't present because we wanted a -- a frank discussion among counsel.

As I see it, there are essentially two (2) options that you're looking at. One (1) is after the IR process is complete, have a similar meeting with counsel, where you discuss -- discuss are there issues we can take off the table? Are we narrowing that?

The whole reason we went this way is

70

because we were trying to remove issues that we thought were not required to be dealt with every single year, or issues similar to the safety issue which the Board views as a very serious matter, which, quite frankly, the Board is concerned that it's not getting the level of attention at a General Rate Application that it deserves. And from the last hearing, we heard that there were a lot of efforts because of the new marijuana legislation. And at the time, we thought there's a lot of focus on this. The legislation we thought would be coming into effect. Interestingly, it will -- it appears to come into effect at the time that we're having the conference. So we thought it would be done that way. But efficiencies were there -- were the driving force.

If we have an actual pre-hearing conference after the IRs, is the Board not put in the position that we have to start making decisions based on materials before us that isn't sworn evidence at the hearing? There has been no opportunity for cross-examination.

If you -- I mean, it sounds like what you're contemplating is, We think these issues should be off because we've answered them in the IRs, so there shouldn't be cross-examination. That will

71

shorten the process. But at that point, as I see it, we're going to have to get submissions from you as to why issues should be off, and the Board's going to be asked to prejudge evidence for which there has not been cross-examination.

Now, I'd like your comment on that, because in my mind, that is -- that is a concern. The informal process, I understand, and if the parties can, you know, narrow the issues down, the Board would certainly like to -- to hear that.

If we're talking about another conference like this, where we're going through the list and MPI takes the position, We shouldn't have to answer -- this issue shouldn't be on the list because you've already -- you filed the IRs; we answered the IRs, round 2 IRs; we answered the -- you know, you've got -- you've got that information. But there's a difference between the IR process and actually testing it at a hearing. So if you could answer that question, I would be -- I'd certainly appreciate it.

MR. ANTHONY GUERRA: Thank you, Mr. Chair. Those -- those are excellent questions, and I understand your concerns.

And what I would say to that is -- is this. You -- you are right. If -- the -- the

72

Information Request process does not permit cross-examination. So some of the evidence that is presented to the Board through that process would be unchallenged. However, it would be our expectation that following two (2) rounds of Information Requests, it should be fairly obvious to the parties as to what issues should fall by the wayside.

We would expect that if a second pre-hearing conference were to take place in late September or early October, rather, that it would be because the parties -- there is a fundamental disagreement. We would expect that not to be the case, because it should, like I said, be fairly evident to the parties what issues are really at the core of -- of this application after both IR rounds have been completed.

For MPI and to maintain the position at a pre-hearing conference that issues should be taken off of the slate, it would have to present a -- a very comprehensive argument to that effect. Similarly, if -- if it had presented that type of evidence, the -- the responding Intervenors would have to satisfy the -- the panel. We would submit that -- that these issues are live, notwithstanding the fact that they had been provided with two (2) opportunities to obtain

73

answers from -- from MPI, and -- and it -- believe that those answers were insufficient.

So the value that we see here -- and yes, there -- there would be a measure of prejudging, but the value here is to place emphasis and the importance of the Information Request rounds so that parties are making the most use of that, including MPI.

What we would not want to see is a situation where a party Intervenor, for example, did not make a significant request for information during either of those two (2) rounds, and -- and then came to the hearing expecting that to be the first instance where they really get to -- to challenge the information. That -- really, what that does is it -- it sends the message that the Information Request rounds are -- are not of importance.

And they are. They certainly are to MPI, because those Information Request rounds give MPI an opportunity to consider those -- those questions in -- in the most comprehensive way possible. It's -- it's difficult, as you know, for -- for witnesses to -- to be able to recite off the top of their heads some of this -- the detailed information that they would be expected to.

74

We're hoping to adapt to that by having the witness panels, but the Information Request stage are very important for MPI as well. We think that they provide the best clear answers. So we really want to encourage the parties to take -- and to make use of those -- those Information Request rounds.

And -- and so the -- the function of the pre-hearing -- the second pre-hearing conference is to really provide a -- a stage of the proceedings where the parties can reassess. And if they -- and if they cannot come to an agreement, then perhaps there -- there is a -- a hearing like we have today. The hope that -- is that we wouldn't have to go that route, because it would be either apparent to MPI that all the issues are alive, or it should be apparent to the -- the Intervenors that some of the issues should fall by the wayside and that this matter can be dealt with rather informally or by consent. So that would be MPI's submissions with respect to that.

THE CHAIRPERSON: To put it in simple terms, I take it you don't want to be ambushed; that's part of it?

MR. ANTHONY GUERRA: Speaking as a litigator, in my private practice, yes.

THE CHAIRPERSON: Yeah.

75

MR. ANTHONY GUERRA: We don't want to be ambushed.

THE CHAIRPERSON: Okay.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: And right -- I mean, ambushed, but also wanting to use the hearing process as efficiently -- and -- and, you know, we want to make most use of everyone's time.

THE CHAIRPERSON: If -- if we end up with, effectively, a motion -- that's -- that's what it would be, is motions day, dealing with the pre-hearing list -- we may not have part of the Intervenors' case, which is their expert evidence. So once again, we'll have evidence simply for the IRs. We won't have their expert evidence, and we won't have cross-examination, even if you've done two (2) rounds of IRs on yours.

MR. ANTHONY GUERRA: Absolutely, and there -- there may be instances where that's the case. MPI would take that information into consideration when it deliberates and determines which issues it should -- it would advocate be -- be not part of the hearing issues list. Like I said, MPI would not advocate for the removal of any issues that it -- it didn't believe had a basis to argue for, so.

76

THE CHAIRPERSON: Okay. Sir, the other question I have is your comment was that you were in agreement -- agreement with the prindle -- preliminary list. Item 4c off the preliminary list refers to an update of interest rate forecast based on the methodology approved in Board Order 130/'17. Board Order 130/'17 said the Board didn't accept the naive forecast, but your application's based on nai -- naive forecast.

So the problem I'm having is with the statement saying you agree with the list, but then you're using the forecast that we didn't follow last time. So it -- it appears to me that you either have to say, we don't agree with this, we intend to challenge the interest rate forecast basis, or -- or decide that you're going to switch it. I mean, it's, you know, the -- the -- it was done on the basis that -- when the Board made the Order, it said we were going to accept 50/50, but now you've come forward with naive. I don't know how you can say at the same time you agree with the pre -- the issues list, but you're using a different way of -- of doing the interest rate forecast.

77

MR. ANTHONY GUERRA: Mr. Chair, the -- the position that was advanced by My Friend from CAC is that there has not been compliance with Board Order 130-'17. MPI's position is that there has been compliance with that Order. So to the extent that the issue is whether or not there has been compliance, that would be the issue for debate, and MPI certainly would be taking the position that there has been.

You know, to that -- to that extent, it is a live issue. We recognize it's a live issue. We -- we believe it can be dealt with by presenting the Board with the reasons why we believe that we have complied with the Order.

THE CHAIRPERSON: I appreciate you doing it, but under 4c, as it was written, it was simply an update on the forecast using the methodology in the last Order, but the methodology in the last Order was not naive forecast. And what the Board wanted to do was to try and get to a situation where we didn't re-argue the same arguments every single year. Interestingly, sometimes with the parties changing their position between year to year and arguing the position that the other side said, because we are trying to save time.

4c, as -- as I understand it, is you're

simply going to provide an update, but you're going to do it based on 50/50. You're doing it on naive. So is it that you don't agree with the list, or is it that you're going to switch it from 50/50 to naive? It's got to be one or the other.

MR. ANTHONY GUERRA: MPI's position would be that it would provide a -- the interest rate forecast update based upon the requirements as MPI interprets it from Board Order number 130-'17. I think the -- the position from MPI is going to be that we are in compliance with that Order, notwithstanding the fact that our update will be based on the naive methodology.

THE CHAIRPERSON: Okay.

(BRIEF PAUSE)

THE CHAIRPERSON: Any questions...?

(BRIEF PAUSE)

THE CHAIRPERSON: Okay. Okay. If we could go on to pre-qualification of expert witnesses.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: Sorry, one moment.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: Thank you, Mr. Chair. On the issue of pre-qualifying expert witnesses, two (2) -- well, one (1) party and one (1) prospective Intervenor have presented the Board today with an indication that they -- they plan to have expert witnesses qualified through this process.

MPI has two (2) witnesses that it wishes to pre-qualify. The first is a Charles, also known as Chuck, Henry, and his curriculum vitae is Exhibit number 4.

--- EXHIBIT NO. MPI-4: Curriculum vitae of Charles Henry

MR. ANTHONY GUERRA: I would note that Mr. Henry is the vice-president of solutions and pricing for Gartner Consulting. There are reports in the General Rate Application from Gartner. It's an integral part of -- of the application. And we'd be asking that Mr. Henry be qualified as an expert in the

area of the use and planning of information technology and information technology governance.

I'm not aware of any opposition to Mr. Henry's quali -- being qualified as a -- pre-qualified as an expert witness, but certainly, we would answer any questions that may be asked on that issue.

The -- the second expert witness would be a David Makarchuk, a partner at Mercer Investments. His CV -- there actually are two (2) aspects of his CV, one (1) a little more detailed than the -- the first that we were provided. That will be filed as MPI Exhibit number 5.

--- EXHIBIT NO. MPI-5: Curriculum vitae of David Makarchuk

MR. ANTHONY GUERRA: And we would be asked -- sorry, we would ask, rather, that Mr. Makarchuk be pre-qualified as an expert in institutional investment planning, and as well as asset and liability matching. And I don't believe there are any -- there's any opposition to that request as well.

We -- we are not opposing the pre-qualified experts, sorry, the experts presented for

pre-qualification by the Canadian Association of Consumers.

THE CHAIRPERSON: Thank you, sir. Comments on the MPI experts, Mr. Williams?

DR. BYRON WILLIAMS: Our clients take no issues with the pre-qualification scope of either of the witnesses presented -- intended to be presented by Manitoba Public Insurance.

THE CHAIRPERSON: Thank you. Mr. Oakes...?

MR. RAYMOND OAKES: No objections at all, Mr. Chairman.

THE CHAIRPERSON: Ms. Miller...?

MS. ERIKA MILLER: None from CAA.

THE CHAIRPERSON: Ms. Rodgers...?

MS. DIANE RODGERS (BY PHONE): None from Uber.

THE CHAIRPERSON: Thank you. Mr. Williams, do you want to go through your pre-qualification?

DR. BYRON WILLIAMS: Yes. And I can indicate at the outset, I haven't had a chance to chat with Uber, but my understanding is that -- that Manitoba Public Insurance or the CMMG or CAA do not take issue with the proposed scope of our witnesses'

82

qualifications. And I'll just -- just for the Board's information, if -- Kristen, if you can move down -- keep -- keep moving down, please. I'll just note that kind of between pages 9 and 12, we have put kind of short precis of our experts' qualifications. And we have also pre-filed the curriculum vitae of these witnesses.

I'd like to start with Mr. Viola, and if we could go back to page -- I think it's 12. Page 13 actually, Kristen. Thank you. I'll note that Mr. Viola has been pre-qualified by this Board in 2016, and that we are asking that he be qualified as an expert in investment portfolio management, investment portfolio research economics and risk management, and quantitative asset liability modelling. And again, his work with the CPP and Ontario Teachers is -- is on this -- this page. And there is a two (2) page curriculum vitae filed as well.

Going to page -- page 11 of these materials, you'll see Ms. Sherry appearing on both pages 11 and 12. And we are proposing that she be qualified in the area of actuarial analysis with a particular focus on pricing, rate-making, and risk related to automobile insurance -- insurers generally, including Crown-owned automobile insurers. That's

83

consistent with prior cases in 2016 in terms of where Ms. Sherry was qualified. And we would ask that she be accepted under -- on similar grounds as well.

And in terms of Dr. Simpson, who appears on page 12, you can see that he is an award-winning scholar who has appeared both before the PUB on MPI matters as well as Hydro matters. Our client is asking that for the purposes of his evidence his expertise in applied econometrics, applied micro-economics, and quantitative methods be recognized. And for those of you who struggle like I do with what applied econometrics mean, there's a handy definition on it on the second last page of page 12.

Mr. Chair and members of the panel, we are happy to go through the qualifications in further degree, but I'm -- I'm at the direction of the Board in that regard.

THE CHAIRPERSON: Thank you. I just want to confirm, Mr. Guerra, do you have any problem with the qualification of -- Mr. Williams indicated that he had spoken to you. I actually would like on the record the position of MPI.

MR. ANTHONY GUERRA: That's right. We don't take any -- any position opposing that. I think I did refer to Mr. -- sorry, to Dr. Simpson as Mr.

84

Simpson previously. So I apologize to that -- for that. And, yes, we take no position against that.

THE CHAIRPERSON: Yes. I -- I realize you -- you stated that before, but that was before he indicated their area of expertise.

So, Mr. Oakes, you're fine? Is that correct?

MR. RAYMOND OAKES: That's correct, Mr. Chairman.

THE CHAIRPERSON: Okay. And, Ms. Miller...?

MS. ERIKA MILLER: We have no objections.

THE CHAIRPERSON: Okay. And Ms. Rodgers...? Okay. Mr. Oakes, you're not call --

MS. DIANE RODGERS (BY PHONE): No objection.

THE CHAIRPERSON: Thank you. Mr. Oakes, you're not calling any expert evidence, any expert witnesses?

MR. RAYMOND OAKES: That's correct, Mr. Chairman.

THE CHAIRPERSON: Ms. Miller, you're not calling any. And as I understand it, Ms. Sherry -- sorry, Ms. Rodgers, you wouldn't call any expert

85

evidence?

MS. DIANE RODGERS (BY PHONE): No experts. No.

THE CHAIRPERSON: Oh, oh, cer -- well, my under -- well, you would provide -- I -- I apologize. You would provide evidence of structures in other jurisdictions. We would need to know who you would call prior to the hearing, if you are approved --

MS. DIANE RODGERS (BY PHONE): Okay.

THE CHAIRPERSON: -- if you're approved as an Intervenor. Okay. The last item is the timetable that was produced. My understanding is by -- by counsel, this is the timetable prior to dealing with your issue, Mr. Guerra, of an additional either meeting or pre-hearing conference. And the Board would certainly have to deal with the matter if there's a decision later to do it. But for the -- for the purpose of what we have right now, prior to dealing with that issue, I'd ask for comments on the -- on the schedule.

DR. BYRON WILLIAMS: Mr. Chair, sorry to interrupt. It's Byron Williams for the Consumers Association of Canada, the Manitoba branch, or CAC (Manitoba). Just in terms of the -- the proposed

witness from Uber, it would be helpful to us -- we're not -- it's not clear to us whether they are seeking this person to be recognized as an expert or not.

And it would be helpful, at least, for our client to know in preparing for the hearing, the qualifications of that -- that expert. We may -- or that witness. we make our that witness. I'm not sure if it's an expert. It's unclear to me. So just -- it would be helpful from our client's perspective to have some time frame in terms of when we can expect that material.

THE CHAIRPERSON: If -- if -- we will have to deal with the issue of who's accepted as Intervenors. If Uber is accepted as an Intervenor, we will request that they provide the name and the resume or CV of that person within a specified period of time so that all the parties have an opportunity to see it.

MS. DIANE RODGERS (BY PHONE): Which we'll be happy to do. We'll be happy to comply with that and provide the name and qualifications.

THE CHAIRPERSON: Thank you. Thank you very much, Ms. Rodgers. Mr. Guerra, in terms of the schedule?

MR. ANTHONY GUERRA: Thank you, Mr. Chair. What should have been circulated earlier this

morning was a -- an updated proposed timetable, which would include a -- a -- the procedure to be the second pre-hearing conference for the hearing issues list. I'd like to have that filed as MPI Exhibit Number 6, if I may.

--- EXHIBIT NO. MPI-6: Proposed timetable submitted by MPI

MR. ANTHONY GUERRA: There -- there are two (2) issues that would -- would have an impact on the -- the timetable had -- has been proposed previously. The first is the motion that MPI intends to file to seek confidential status of some documents. We -- we would submit that that doesn't necessarily change the -- the timetable as reflected presently. It -- what it does, though, is it does create an overlay, a -- a parallel timetable, if you will. What we would envision is that that motion be filed by the end of the week this week, so June 29th, with -- with the matter being heard on or about July 6 of this year.

What that would do is, it would create a situation where IR or Information Requests could be made on both the infor -- excuse me, both the

confidential and non-confidential information, meaning that some information that is confidential may be subject to a different series of requests and -- and answers by MPI.

The goal would be to maintain the first request for a con -- sorry, first Information Round Requests by July 11th, with the first round for confidential material on July 20th. The response from MPI on both sets of Information Requests would still be on the August 8th date that was previously canvassed with -- with the Intervenors. And that would allow the parties to be in sync once again after -- after that time.

You'll see on our updated proposed timetable that we are proposing that a second pre-hearing conference take place on Friday, September 20th, with a finalized hearing issues list on September 26th. And that would be the only other real change to the proposed timetable, with the exception...

(BRIEF PAUSE)

MR. ANTHONY GUERRA: Right. Sorry. Number -- number 7, item number 7 on the -- the first

proposed timetable had round one Information Requests filed by August 3rd, 2018. On the updated draft number 7, we have it says August 8th, 2018. And so that does -- that does change some of the dates. Number 8 changes from August 7th to August 9th, but that's to accommodate requests from -- from the Intervenors.

THE CHAIRPERSON: Do we have the list? I'm just wondering, we're looking at the old list. Was it provided to the Board this morning?

MR. ANTHONY GUERRA: It should have been. It -- it has the proposed timetable and then right underneath it, it says "Draft includes hearing issues list." If that is not before the panel, my apologies. And we should to be able to circulate that around.

THE CHAIRPERSON: Okay. Do you have -- do we have copies for everybody? Yeah, go -- go make copies. Do the Intervenors have copies as well? Okay.

MR. ANTHONY GUERRA: Yes, they should.

THE CHAIRPERSON: We'll -- we'll make copies right now. I believe -- I believe that you referred to September 20th as a Friday. I think it's actually a Thursday.

MR. ANTHONY GUERRA: September 21st.
THE CHAIRPERSON: 21st. Okay.
MR. ANTHONY GUERRA: Yes.
THE CHAIRPERSON: Okay.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: My -- my understanding was that there was a package that was presented this morning. And t should be the top page on that package.
THE CHAIRPERSON: Mr. Williams, any comments on the schedule?
DR. BYRON WILLIAMS: Thank you. First of all, we appreciate the consideration, Manitoba Public Insurance. One (1) of the changes, moving from July 9th to Wednesday, July 11th was at our request. So we do appreciate their consideration.
I'll note that there is, from our client's perspective, a risk that I will not be available on October 17th and 18th due to a potential commitment in another province for a judicial proceeding. We don't see that as a -- it's just something to be scheduled around, not a barrier to the time frame.

And we would note the -- going to item number 14, we could work with that schedule being the pre-hearing conference. The issue, again, goes to that -- that is prior to when our pre-filed testimony would be available to the Board, and that might inform the scope of the proceeding. So the problem I think that both MPI and ourselves face in terms of timing is if you move much beyond September 21st, it may pose real challenges for witness preparation.
So our -- our client that is uncomfortable with the pre-hearing conference concept, including the need to weigh evidence. We could work with this schedule, but we do maintain our -- our resistance to the concept.
And finally, in terms of number of hearing days, the Board is made provision for -- for fifteen (15) days. From our client's perspective that's enough. Our preliminary estimate was twelve (12) with the contingency for one (1) more. That was before we actually knew that Uber was coming, but I think somewhere between ten (10) and thirteen (13) days for the hearing is probably a reasonable estimate. So I think there's enough time from our client's perspective, but not a lot. Not -- not a lot too much, inelegantly worded as that is.

THE CHAIRPERSON: Thank you, Mr. Williams. Mr. Oakes...?
MR. RAYMOND OAKES: Thank you, Mr. Chairman. Generally, the CMMG has no difficulty with the schedule as it's been amended. With respect to the date of September 21st, I do have pre-existing plans to be swilling some beer in Munich for Oktoberfest, which may be a conflict. But I'll send my regards at that time if that's the case.
THE CHAIRPERSON: We'll send a camera. Ms. Miller...?
MS. ERIKA MILLER: No objections from CAA.
THE CHAIRPERSON: Ms. Rodgers...?
MS. DIANE RODGERS (BY PHONE): No objection from Uber.
THE CHAIRPERSON: Okay. Okay. That completes the schedule for today. Are there any other matters to be brought forth by anyone today? If not, we'll adjourn the hearing. I thank everybody for their participation. Mr. Guerra, congratulations. You did well the first time, so.
MR. ANTHONY GUERRA: Thank you, Mr. Chair.
THE CHAIRPERSON: Thank you, all.

Thank you in San Francisco. We will -- we'll have our decision out as soon as possible. Thank you.
MS. DIANE RODGERS (BY PHONE): Thank you. that as soon as possible.
MS. ERIKA MILLER: Thank you.

--- Upon adjourning at 11:26 a.m.

Certified Correct,

_____
Cheryl Lavigne, Ms.

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$2 49:11

$38 41:1

$72 41:3

$91 40:24

1

1 1:24 4:23 7:14,22 14:8 16:12,23 21:23 25:10 26:14 27:10 30:17 36:21 39:22 40:8 41:5 45:6 49:23 51:5 54:7,17 58:15 60:9 61:21 64:25 65:5,20,24 69:20 79:8 80:10 90:16 91:19

1:40 61:2

10 10:16 37:21 42:12 91:21

10:14 53:15

10:31 53:16

10:37 57:24

10:39 57:25

104 60:15

11 82:19,21

11/'18 7:24

11:26 93:7

11th 88:7 90:17

12 82:4,9,21 83:5,13 91:19

13 82:10 91:21

13(2 25:25

130/'17 58:19,20 59:3 76:8,9

130-'17 77:4 78:9

14 91:2

143 61:5

15 4:5 6:6 7:24 16:25 19:10 53:10,12 91:17

16 3:6

17th 90:21

18 4:12 17:7 19:21

18th 90:21

19 4:5,7,8,12,15,22 54:7,16

1947 30:11

1992 39:21

2

2 4:21 11:1 17:1 25:1 27:3 28:5 30:17 34:10,22 37:16,17 41:5 47:11 54:5,14 55:13 61:23 64:25 69:20 71:16 72:5,25 73:12 75:18 79:8,12 80:9 82:17 87:11

2,000 40:6

2.1 41:11

2.2 7:15 31:22 35:5 40:17

2.5 37:24

20 4:18 43:1 59:17

200 37:5

200,000 15:18 42:23

2014 64:2

2016 82:11 83:1

2018 1:23 4:5,12,13 6:6 7:20,22,24 8:10 16:25 17:7,17 19:10,22,24 89:2,3

2019 7:14

2019/2020 1:6 6:5 21:22,25 23:11 25:18

20th 88:8,17 89:24

21 3:7 4:19 58:15 59:5

21st 90:1,2 91:8 92:6

22 4:13 17:17 19:24 21:9 59:12 65:2 66:14

24th 39:24

25 1:23 4:20 41:24 62:2

26th 88:18

29 3:8

29th 87:20

3

3 16:12 17:3 31:6 38:24 54:9 60:8 61:20,24

3.1 40:21

30 49:7

330 1:21

34 61:1

35 49:7

39 3:9

3rd 89:2

4

4 3:3 16:16,21 17:5 39:16 41:7 50:20 53:8,19,24 59:11 64:25 79:15

40,000 49:8

400 1:21

42 3:10

43 3:11

45 3:12

48 3:13

4c 58:17 60:4 76:6 77:15,25

5

5 17:16 32:3,6 57:22 80:12

50 40:21

50/50 32:15 58:23 60:1 61:12 62:1 76:21 78:2,4

51 3:14

54 3:15 4:23

57 3:16

6

6 3:4 19:4 33:13 57:9 87:4,21

61/'18 4:18 8:10 19:3 20:7

64 3:17

65 40:25

66 3:18,19

67 3:20

69 3:21

7

7 8:9 23:24 33:18 34:6 41:7 59:1 64:25 88:25 89:3

70 35:6

79 4:24 60:15

7th 89:5

8

8 41:8 51:8 58:21 65:1 89:5

80 4:25 60:15

80s 30:15

87 5:3

8th 88:10 89:3

9

9 35:1,16 51:11 82:4

9:13 6:1

90s 30:15

93 1:24 3:23

98/'14 64:3

9th 89:5 90:17

A

a.m 6:1 53:15,16 57:24,25 93:7

able 22:18 44:2 67:20 68:22 73:23 89:15

absolutely 24:9 56:19 75:20

accept 76:9,21

accepted 25:21 31:11 83:3 86:13,14

accepting 34:16

accepts 58:15

access 23:15,21 24:1

accessible 9:8

accident 39:24

accommodate 89:6

accordance 7:6 20:25 31:10

accordingly 68:24

account 41:11

Accountability 7:7

accurate 22:19 52:18 67:3

accurately 52:24

achieved 28:9

achieving 10:9

acronyms 9:9,14

across 44:12

Act 7:7,8

action 60:13,17

active 63:11

actual 25:20 38:11 70:16

actually 37:4,10,13 44:5,21 58:5 61:21 62:21 71:18 80:9 82:10 83:21 89:25 91:20

actuarial 25:20 31:11 35:14 82:22

actuarially 25:20

actuary 33:10

adapt 74:1

add 43:6 63:20 64:10 66:15

added 38:5 63:22 67:1

addition 41:7

additional 10:20,22 85:15

address 43:19 46:4 47:14 64:24

addressed 17:8 28:4,11 60:7

addresses 17:9

addressing 64:16

adduced 6:24

adequacy 32:20 59:2 60:7,10 61:7

adequately 25:22 28:4 40:14

adherence 66:3

adjourn 92:20

adjourning 93:7

adjudicates 51:20

adjusted 63:21

administration 33:16

administrative 12:2 66:2

administrat ively 65:16

adopted 23:12 58:23

advan 69:8

advance 27:4

advanced 77:2

advantage 69:8

advantages 26:14

advises 12:8

advisors 6:14,15 12:25

advocate 43:3 75:24 76:1

Affairs 13:10

affidavit 44:22

afforded 11:15

against 84:2

agenda 16:11,21 53:8,19

ago 37:17 38:3

agreement 57:19 62:8 63:5 74:11 76:5

ahead 51:6 65:23

aimed 63:3

alive 74:15
allocation 35:17 62:3,10
allotment 46:19
allotted 46:20
allow 26:11 88:12
allows 26:21
already 21:8 63:10 71:15
alternate 43:25 52:22
alternative 64:11
amazingly 45:20
ambitious 49:15
ambushed 74:21 75:2,8
amended 92:5
America 44:12
American 33:2
among 63:3 69:18
amongst 53:6
amount 10:20 24:5 26:18 38:25
analysis 61:19 82:22
analyst 13:11,12
answer 39:6,13 68:8 71:14,19 80:5
answered 25:13,14 27:18 70:24 71:15,16
answers 22:19 25:15 28:24 73:1,2 74:4 88:4
Anthony 13:1,2,16,19 21:21 22:3 25:6 45:3,24 54:2,19 55:9,18,21 56:19,25 57:5,10,13 67:8 71:21 74:23 75:1,7,20 77:1 78:6 79:1,6,20 80:17 83:23 86:24 87:10 88:24 89:11,21 90:1,3,8 92:23
anticipated 42:12 46:14
anticipates 28:9
Antony 2:11
anyone 92:19
anything 27:5
apologies 56:20 58:1 89:15
apologize 14:17 48:15,20 57:8 84:1 85:6
apparent 74:14,15
apparently 14:19
Appeal 6:19
appear 11:15
APPEARANCES 2:1
appeared 83:6
appearing 29:19 82:20
appears 45:17 58:21 61:14 70:12 76:15 83:5
appendices 4:21 54:5,6,11,15
appendix 4:22 36:13 51:8 54:7,16,17
application 1:6 4:19 6:5 7:5,13,20 8:2,7 10:3,4 11:18 12:5 13:13 20:17 21:23 22:1,4,9 23:12,16 25:24 27:6 28:5 29:22 31:22 32:15,17,22 35:19 36:6,14,21 37:7,11,12,13,20 38:3,10 41:21 46:3,4,7,9 47:4,5,8,9,15,22,23,25 48:2,13 50:3 51:2 61:15 65:7 70:7 72:15 79:23,24
applications 16:15 22:13 30:14 31:9 34:22 47:12 59:12
application's 76:10
applied 33:8
applying 7:2 15:17,22 43:5
appreciate 39:8 45:25 46:10 63:16 71:20 77:14 90:15,18
appreciates 9:15 26:6
appreciation 8:14
approach 24:14 31:12,19 32:15 38:17,20 60:1 61:13,16
appropriate 12:7 33:3 34:17 35:17,24 39:11,12,25 51:4 60:21 62:12
appropriately 35:25
appropriateness 55:4
approval 7:3,21 9:18,19 10:1,2,23 51:14
approve 10:21 21:14 27:15 83:9,12
apply 21:2

approved 4:17 7:1,23 8:9 9:21 10:14,15 16:18 19:3 20:6 21:7 58:18 59:3,25 76:8 85:8,12

approving 9:21

approximate 8:15

approximated 42:6

approximately 40:21 46:15

area 41:17 69:1 80:1 82:22 84:5

areas 18:3 20:16 34:10 40:16 44:3 66:5

aren't 55:1

arguable 58:22

argue 76:2

arguing 77:23

argument 72:20

arguments 77:20

arrangement 67:20

arrive 8:16

art 35:14

articling 2:18 15:6,11

aspects 22:13 80:9

asset 32:1 34:12 38:6 49:12 59:6 80:21 82:15

assist 9:12 41:22 64:14

assistance 11:2

assistant 6:11

assisted 6:10,14 10:9 15:5,10

assisting 38:15

associated 51:23

Association 13:25 30:5,11 45:13 46:5 47:14 48:1,3,11 58:10 81:1 85:24

assuming 37:22

assure 30:12

attach 11:13,22

attached 9:2

Attachment 29:21 30:4,17

attachments 4:12 17:8,11 19:22

attend 44:22

attended 42:7

attending 8:25

attention 38:25 50:17 58:16 70:6

attentions 26:16

August 88:10 89:2,3,5

automobile 82:24,25

availability 55:3

available 23:19 24:22 25:10 40:13 90:21 91:5

Avenue 1:21

avoided 9:14

award 10:15,24 20:23 83:5

awarding 10:11 21:4

awards 8:14 9:17 10:3,4

aware 9:6 32:4 80:3

B

background 39:20

bad 53:21

balance 23:2,5 31:18 36:8

balancing 6:19

barely 49:25

barrier 90:24

based 25:19 58:18 59:2 60:25 61:2 70:18 76:7,10 78:2,8,12

basis 7:23 48:12 69:2 76:2,17,19

battle 63:24 64:2,5

bear 65:1

bearing 20:23

bears 7:25

become 28:2 40:13 69:1

bed 32:12

beer 92:7

begin 21:22 46:3

behalf 15:10,17 19:6 29:19,20 42:21 43:3,17 45:17 46:5

behind 13:10 24:2 44:6

behooves 66:4

believe 12:13 56:1 73:1 76:2 77:11,12 80:21 89:23

believes 27:16 60:21

benefit 9:10,11 65:3

benefits 34:18 48:11 67:16

beside 13:11

best 74:4

better 10:10 22:15 31:18 44:1 52:23 64:6

beyond 91:8

biggest 24:3

Bike 31:2

billed

37:14
39:1

billion
49:11

bit 14:10
30:9 39:1
40:17
44:5 50:2

black 54:9

board
1:1,12,13
,14,15,16
,20 2:3,4
3:6 4:17
6:7,8,14,
23
7:3,8,12,
23
8:1,9,19,
21,22,24,
25
9:1,6,12,
15,20,25
10:2,5,9,
12,13,18,
21,25
11:5,7,12
,15,16,21
,24
12:12,19
15:2
16:7,19
17:6,24
18:2,6,8,
11,14,17,
21
19:3,18
20:6,12,2
4
21:2,5,7
22:22
23:1,5,18
25:8
26:2,21
27:8,15
28:7,10
29:2,6,15
30:23
32:5,14
33:7,14
36:3,11,1
4
37:16,21
39:6,10
41:21,22
42:5,13,1
4 43:18
45:11
49:5
50:1,2
51:3,14,1
6,20
52:15
58:18,23
59:3,25
60:3,9,11
,14,20
61:13,22
62:9
63:15,16,
25 65:8
69:16
70:4,5,17
71:9 72:3
76:8,9,20
77:3,12,1
8 78:9
79:9
82:11
83:16
85:17
89:10
91:5,16

Board's
4:6,9
6:16
7:9,10
8:23 9:8
10:12
17:1
19:12
21:3
25:25
26:6
32:25
35:8
36:1,7
49:17
51:1,12
71:3 82:1

body 22:23

Booth 15:3

boss 36:23

bottom 31:7
32:10
34:6,7
36:5

branch
13:25
30:10
58:11
85:24

break 48:16
53:9,10
57:22

Brian 2:7
6:15

brief 14:5
30:1 31:1
42:22
43:10
55:23
75:5
78:16,20,
25 79:4
88:22
90:6

bring 25:24
51:19

brings
49:18

brought
92:19

budget
10:1,16,1
8,19,22
20:24
36:12,15
38:21,24
42:5,11
46:10,13
47:8 49:3
50:19

budgets
9:18,23
46:25
49:6
59:13,15
63:21

building
14:19
58:6

builds
25:18

bullet
31:17
35:21

Bunthan
13:11

business
4:20 11:1
23:23,24
24:1,13,1
6,22,24
25:1,3
43:24
54:4

Byron 2:13
13:23
29:14,18
30:3 49:1
51:7
57:18
58:9
62:19,24
81:5,21
85:22,23
90:14

C

CAA 2:20
3:10,18
15:16
31:1
42:19,21
47:10
66:10
81:14,24
92:13

CAC 2:13
3:8,13,16
14:3
29:13,20
48:25
50:23
57:17
77:2
85:24

camera
92:10

Canada 2:22
3:11,14
13:25
30:6 33:2
43:15,17
49:20
50:12
52:9
58:11
85:24

Canada's
3:19
66:21

Canadian
46:4 81:1

Candace 2:6
12:24

canvassed
50:1,8
88:11

capital
25:22
31:25
32:20
35:3,7
38:6
49:24
59:2
60:5,7,10
,23
61:2,6,10
,12

Car 45:13
47:13
48:1

Carol 1:15
6:9

case 4:20
24:13,17,
19,22,24
25:1,4

40:14
42:10
72:13
75:15,21
92:9

cases
23:23,24
24:1 83:1

casual 63:2

Cathcart
2:5 6:15
12:24,25

cautionary
65:12

caveat 43:6

Centre
13:22,24
29:19
46:6

cer 85:4

certain
26:2,25

certainly
15:9
32:1,14
33:5 34:2
36:2 49:3
50:7,15,17
51:11,17,19 60:14
63:1
64:11
65:25
68:5
71:10,20
73:18
77:7 80:5
85:17

Certificate
3:23

Certified
93:9

chair 6:7
12:22
13:2
20:25
21:22
35:21
38:24
45:4,25
49:2
50:25
51:7 54:3
55:10
56:20
62:12
64:18
67:9
71:22
77:1 79:7
83:14
85:22
86:25
92:24

Chairman
15:2
39:20
42:15
52:2
64:24
65:25
81:12
84:9,22
92:4

Chairperson
1:13 3:4
6:3
13:14,18,20
14:13,16,22,25
15:13,19,25 21:17
29:7,15
36:12
39:14
42:16
43:12
44:14,24
45:8,14,19 48:14
51:6,24
52:3,5
53:7,18
55:7,16,19,25
56:24
57:1,7,11,14,21
58:1
62:16,20
64:19
65:18,22
66:7,18
67:4
69:12
74:20,25
75:3,11
76:3
77:14
78:14,18,22
81:3,9,13,15,18
83:18
84:3,10,14,18,23
85:4,11
86:12,21
89:8,17,22
90:2,4,12
92:1,10,14,17,25

challenge
48:9
73:14
76:17

challenges
91:9

challenging
52:13
53:2

chance
81:22

change 7:19
22:6,11
25:7 29:3
50:16
56:23
60:16
87:16
88:19
89:4

changes
33:1,22
50:11
89:5
90:16

changing
22:13
77:22

charged 7:3

Charles
4:24
79:13,18

Charlotte
2:17
15:6,11

chat 81:22

Cheryl
93:13

Chief 13:7

Chris 2:24
15:23

Christle
4:10,14
17:6,17
19:19,25

Chuck 79:14

cir 50:16

circulate
89:15

circulated
86:25

circumstances 11:17

claimed
23:6

claims 34:1
41:2

class 30:7
31:24

classes
35:18
36:10
41:7

clean 54:9

clear 28:2
56:20
67:10
74:4 86:2

clerk 13:13

client
30:18,24
31:8
32:24
33:5
34:1,10,14,19
35:4,7,12
36:5
37:22,25
39:8 50:7
51:11,12,17 57:19
58:14,21
59:13,25
60:6,11,20,24
61:4,18
63:1,5,7,15 83:7
86:5
91:10

clients
29:25
30:5,11,13 31:21
33:20
38:13,16,18,23
49:22
51:9
59:8,20
60:2,13,23 61:17
62:3,24
63:14,18
64:4,6,9
81:5

client's
35:2,20
49:16
63:23
86:9

90:20
91:17,24

CMMG 2:16
3:9 15:10
39:18,20,
21
40:4,12
41:5,20
42:3,7
47:7
81:24
92:4

CMMG's 3:17
64:22

CMP 41:9

Coalition
15:4 31:1
47:6

colleagues
15:23

collision
65:6

comes 66:24

comfort
69:3

coming 50:9
70:11
91:20

commencing
6:1

comment
16:12
29:9 46:2
51:1,4
65:25
66:23
67:5 71:6
76:4

comments
3:6,7,8,9
,10,11,15
,16,17,18
,19
8:22,24
11:25
12:19
16:2,7,9,
13
21:1,10,2
0
29:9,11,1
3 39:18
42:15,19
43:15
45:1 46:8
51:25
52:6,11
54:1
55:6,8
56:2,3,4,
13,17
57:3,17
62:15
64:18,22,
24 65:14
66:10,19,
21 67:5
81:4
85:20
90:13

commerciall
y 23:4
24:7

commitment
90:22

communicate
8:21

communicati
ng 8:24

community
40:6,10

compared
49:8

complete
69:21

completed
72:16

completely
68:10

completes
92:18

compliance
61:22
77:3,5,6
78:11

complied
77:13

comply
86:19

comprehensi
ve 72:20
73:21

comprises
40:4

compulsory
7:4

con 88:6

concentrati
ng 66:6

concept
91:11,14

concern
31:23
41:25
59:20
60:9 71:7

concerned
41:14
70:5

concerns
34:19
35:20
38:18
46:18
48:9
71:23

conducted
7:5 24:18
27:20
68:3

conducting
27:17

conference
4:4 6:4
8:4
16:11,24
17:13
18:1,5,10
,16 19:9
21:13,14
26:23
27:21
28:8,14
31:5 39:9
42:8
56:5,10,1
6 59:17
62:13,23,
25
63:9,19,2
5 65:4,11
66:16,17
67:14
69:5
70:13,17
71:12
72:9,18
74:8
85:16
87:3
88:16
91:3,11

conferences
35:25
36:23
42:6

confidence
63:8

confidentia
l 23:6
24:4,8,12
,18,24
26:1,3,11
87:14
88:1,2,8

confidentia
lity
24:15

confidentia
lly 24:25

confirm
45:16
83:19

confirmed
20:11

conflict
92:8

congratulat
ions
92:21

consent
68:4
74:18

conservativ
e 33:4

consider
6:23 9:2
10:5
51:21
73:20

considerate
29:3

considerati
on 22:5
35:24
36:1
75:22
90:15,18

considered
11:20
12:5

consistent
7:20
36:20
37:10,13
61:6,13,1
4,23 83:1

constituenc
y 20:15
40:9
43:19

Consultant
2:5,6,7

consultants
9:6 23:17

Consulting
79:22

consumers
6:20
13:25
30:5,10,1
9 31:14

46:5
58:10
81:2
85:23

contained
17:11
24:17

Cont'd 5:1

contemplated 42:13

contemplating 32:24
70:23

CONTENTS
3:1

context
22:11
40:23

contingencies 37:20

contingency
37:24
91:19

continue
43:2

continued
7:17

continuing
11:7

contributio n 10:9
37:1

conversatio n 63:3

conversatio ns 30:25
31:1

copies
89:18,19,
23

core 72:15

Corp 50:22

corporate
13:8
38:16

Corporation
1:5 31:20
34:9,15
35:5 36:9
40:24
41:16
59:24

Corporation s 7:7

Corporation 's
33:12,21
34:4,12
38:4,16,1
9 41:19

correct
54:11
84:7,8,21
93:9

corrected
4:21
54:6,14

cost 8:16
9:16
10:3,4
49:6
62:3,4,10

costs 8:14
10:11,15,
22,25
20:23
21:4
26:19
31:15
33:16
35:17
36:11
40:15
41:2 42:4
43:6
44:13
59:13,15

counsel
2:3,4 3:6
6:12
11:10
12:12,13,
19,23
13:3,4,8
16:7
23:17
50:2 63:3
64:12
65:8
68:18
69:16,18,
22 85:14

coupled
50:19

course
13:16
20:23
34:22
41:9
42:25
58:19

Court 6:19
15:7

CPP 82:16

create
87:17,23

criteria
21:3
32:6,7
33:14
36:7

critically
41:22

cross 22:25
64:7
70:20
72:1

cross- examinati on 9:4
25:10,16
50:2
63:13
64:14
70:25
71:5
75:18

Crown 7:6

Crown-owned
82:25

Crozier
13:9

current
7:16
35:11

curriculum
4:24,25
18:2
79:14,17
80:14
82:6,18

curve 39:3

customer
4:20
24:12,25
25:3 34:1

CV 80:9,10
86:16

D

damage
38:17

Daniela
13:12

data 23:22

date 9:23
88:10
92:6

dated
4:4,11,13
16:24
17:7,16
19:10,21,
24

dates 89:4

David 4:25
80:8,14

day 75:13

days 11:1
28:17
37:23
91:16,17,
22

DCAT 59:2
61:2,18,2
4

deal 30:19
39:15
55:16,25
56:14
57:11
85:17
86:13

Dealers
45:13
47:14
48:1

dealing
40:1
62:18
65:4
75:13
85:15,20

dealt 46:22
47:21
68:17
70:2
74:17
77:11

debate
58:20
77:7

decide
20:13
76:18

decision
18:15
56:6,7,11
,15 85:18
93:2

decisions
12:4 21:4
24:3
70:18

declines
18:21

decreasing
25:13
41:2

defer 62:15

deferral 59:14
deferred 59:11
defined 6:18
defines 27:13
definition 83:12
degree 83:16
deja 40:17
deliberate 20:13
deliberates 75:23
deliberations 63:10
deliver 31:14
demonstration 11:1
Dennehy 15:4
DESCRIPTION 4:2 5:2
deserves 70:7
designation 24:10
designed 23:13 26:7
desire 26:7
desirous 24:20
DeSorcy 14:1 58:10
detailed 9:17,22,25 22:19 33:17 49:11,13 73:24 80:10
dete 59:11
determination 10:3 27:25 28:10 62:21
determine 10:15 11:12,21 23:6 65:8
determined 24:17,21
determines 75:23
develop 27:10 30:21
developed 23:5
develops 30:18
Diane 2:22 14:7,8,15,21,24 15:20,21 43:16 44:18 52:10 66:22 81:16 84:16 85:2,10 86:18 92:15 93:3
differ 44:4
difference 36:21 71:18
different 10:5 22:25 52:15 61:8 76:24 88:3
difficult 48:10 73:22
difficulty 14:23 92:4
Dilay 2:14 13:20,21,22 37:1
direct 16:20 22:18 28:24 38:25 58:15
direction 11:23 20:25 27:14 83:16
directly 53:2
Director 13:9 14:2
disagree 52:21
disagreement 72:12
disclosed 12:7
discounts 7:18
discouraged 9:9
discovery 26:11
discretion 10:21 21:5
discuss 8:16 44:7 67:1 69:22
discussed 9:23 21:9 26:13 54:22
discussion 3:21 16:16,17 26:10 32:9 68:20,25 69:11,18
discussions 30:20 65:7
dispensing 26:25
disruption 26:11
doc 50:19
documents 23:6 24:9,11 26:2 87:14
done 27:5 36:20 38:13 41:23 50:13 53:20 65:23 70:14 75:18 76:19
downward 63:22
Dr 29:14 30:3 33:6 35:15 38:1,5 49:1,21 50:4,20 51:7 57:18 58:9 62:19,24 81:5,21 83:4,25 85:22 90:14
draft 50:19 89:2,13
drilling 53:19,22
driver 7:4
driving 70:15
due 90:21
during 28:22 34:21 43:8 65:9 73:11
Dyck 37:12
dynamic 32:20 59:2 60:7,10 61:6,9

E

earlier 42:7 67:16 86:25
early 30:15 40:11 68:8 72:10
easier 23:21
easily 67:24 68:3
echo 52:11 65:14 66:11
econometrics 33:8 83:9,12

economics 82:14 83:10
effect 7:14 70:11,13 72:20
effective 7:22 25:21
effectively 75:12
efficacy 25:23
efficiencies 46:24 70:15
efficiency 25:23 26:24 27:6 63:9,21 64:16
efficient 25:21 26:17 63:7 68:14
efficiently 75:9
efforts 23:9 25:18 40:7 69:7 70:8
either 22:14 43:6 50:4 56:4 73:12 74:14 76:15 81:6 85:16
Ekler 6:15
elaborate 67:15
element 22:22
eligibility 7:17
else 27:5
emphasis 28:18 73:5
employ 7:8 22:16
employed 18:24
encourage 74:5
encourages 22:23
endeavour 49:15
ensure 23:19 63:15
ensuring 52:14 53:5
enter 16:22 44:2
entered 19:4,5
envision 87:19
epic 63:24
Erika 2:20 15:14,15 42:20 52:4 66:11 81:14 84:12 92:12 93:5
error 49:24 54:10
especially 49:18
Esquivel 13:12
essentially 69:19
estimate 37:9,14 38:11 91:18,23
evaluating 22:12 41:23
event 63:14
everybody 15:15 89:18 92:20
everyone's 75:10
everything 66:14
evidence 6:24 8:3,17 9:13 11:20 18:9 20:20 27:19 32:24 41:20,24 42:4,14 44:9,10,13,16,21 48:4,10 50:4 55:15 68:1 70:19 71:4 72:2,21 75:15,16,17 83:8 84:19 85:1,6 91:12
evidence-based 31:12,19
evident 72:14
examination 70:21 72:2
examinations 64:7
examine 26:25 60:21
examined 18:23
example 22:15 23:14 24:13 73:10
exceeded 10:16
exceeding 10:18
Excel 23:19
excellent 71:22
exception 88:20
exchange 8:17
exchanged 55:15
excuse 24:14,24 25:13,20 26:4 29:4 87:25
Executive 14:2
Exhibit 4:2 5:2 16:23 17:1,3,5,16 19:4,8,12,15,18,24 20:4 21:23,25 25:1,3 54:8,14 79:15,17 80:12,14 87:4,7
exhibits 3:3 4:1 5:1 16:22 19:5
exists 24:6
expect 11:23 18:25 21:10 43:2 46:23 72:8,12 86:10
expectation 72:4
expected 73:25
expecting 73:13
expects 28:2
expended 36:24 37:6
expenditures 31:13 33:23,25 34:4
expense 4:21 54:7,15
experience 22:20 49:18
experiment 63:20 64:8
expert 8:12 11:7 17:19,23

18:8,19 26:21 27:3 33:7 34:20 42:3 43:4 49:5 54:20 75:15,17 78:23 79:7,11,25 80:5,7,19 82:13 84:19,20,25 86:3,6,8

expertise 35:14 37:15 83:9 84:5

experts 26:20 27:1 80:25 81:4 82:5 85:3

expert's 11:13

Experts 11:8

explain 10:18

explained 39:2

explanation 33:17

explore 35:8

extensive 32:9

extensively 30:19

extent 60:18 77:5,9

exterior 58:5

extra 63:22

F

face 91:7

Facebook 40:5

fact 40:19 52:13 63:22 72:24 78:12

factors 10:5

facts 11:16

factual 49:24

faded 15:8

fading 14:9

fair 35:11 65:9

fairly 72:6,13

fall 72:7 74:17

farther 30:9

fear 63:23

feeling 53:20

fees 7:19

fellow 52:11

fifteen 53:10,12 91:17

fifth 20:22

figure 61:8

file 9:22 10:25 23:18,23 24:23,25 54:6 87:14

filed 21:23 29:22,23 32:23 41:21 42:4 46:4 47:6,9,15,23 54:8 71:15 80:11 82:18 87:4,19 89:2

filing 9:23 11:3 17:12 65:5

final 7:21 10:1 21:15 27:15 28:14 47:25 49:3,14 55:2

finalized 88:17

finally 36:4 37:14 50:25 61:9 91:15

Finance 13:6

finances 25:19

financial 11:2,4 13:7 40:12

fine 56:24 66:14 84:6

fine-tuning 64:7

firm 15:3

firm's 15:6

first 10:23 11:6 16:22 20:14 22:16 32:7 34:11 54:3 58:16 59:17 73:13 79:13 80:11 87:13 88:5,6,7,25 90:14 92:22

fiscal 6:20 22:7 25:17 29:5

fish 29:4

five 32:6 57:22

flag 36:1

flexibility 66:5

flip 31:15

floor 48:17 53:12 58:3

flowing 61:24

focus 30:20 31:16 35:18 69:1 70:10 82:23

focused 26:16 31:3,4 32:15

focusing 27:23

force 70:15

forecast 32:18,19 33:4 38:4 50:7 58:18,23,24 59:19,21,24 61:11,14,25 62:1 76:7,10,11,14,17,25 77:16,18 78:8

forecasting 31:13 32:25 38:8

forecasts 32:8,13,16 41:13

form 45:12

format 17:14

formed 39:21

forth 53:3 92:19

forty 49:8

forum 24:8

forward 29:1 42:5,9,14 66:17 76:21

foster 23:14

founders 39:23

Fourth 20:20

frame 86:10

90:25
Francisco 48:20 58:2 93:1
frank 69:17
frankly 49:14 64:5 70:5
Friday 21:9 32:23 54:24 69:16 88:16 89:24
Friday's 42:8
Friend 46:11 49:23 65:14 77:2
friends 30:25 31:2 66:12
FTP 23:14
full 26:11 38:3 52:15 66:2
fully 60:3 68:8
function 51:14 74:7
fundamental 34:14 66:3 72:11
funding 10:20
future 11:24 22:10 34:16 37:8
59:12,14 67:18

G

Gabor 1:13 6:6 29:15
gain 8:13
game 65:9
garnered 41:16
Gartner 79:22,23
general 1:6 6:5 7:5 8:7 11:18 13:8 21:23,25 22:4 23:12 28:4 32:14 34:22 37:11 40:18 50:3 63:5 70:6 79:23
generally 42:2 44:8 48:7 62:8 65:12 66:24 82:24 92:4
gentlemen 6:4 15:2
getting 70:6
Giesbrecht 13:6
given 9:20 32:25 37:15 41:18
gives 24:1 65:16
Gloria 14:1
goal 27:9 28:6 88:5
goals 25:10
governance 7:7 80:2
Government 50:12,14
GRA 4:19 8:18 11:5,9 16:17 17:23 21:15 25:18 41:23
grant 51:2
granted 7:15 8:2 10:2
grants 18:17
Gray 39:23 40:3
greater 24:1
grounds 83:3
group 30:20
groups 8:22 15:5 22:17 25:8 47:7
Guerra 2:11 13:1,2,16,19 21:18,21 22:3 25:6 44:25 45:3,21,24 53:23 54:2,19 55:9,18,21 56:19,25 57:5,10,13 67:5,8 71:21 74:23 75:1,7,20 77:1 78:6 79:1,6,20 80:17 83:19,23 85:15 86:22,24 87:10 88:24 89:11,21 90:1,3,8 92:21,23
G-U-E-R-R-A 13:17
guidance 22:8 36:2 69:3
guidelines 12:2,4,6

H

Hainsworth 1:15 6:9 29:16
half 46:15
Hamilton 1:14 6:8 29:17
handy 83:12
happy 36:23 39:6,12 44:10 83:15 86:19
hard 28:20
haven't 81:22
having 14:20 40:17 65:3,7 67:25 68:20 70:13 74:1 76:12
heads 73:23
health 6:21 34:9
hear 6:23,25 8:6,11 14:12 18:25 21:10 53:20 56:13,17 71:10
heard 12:18 70:8 87:21
hearing 4:3,4,8 6:10,11 9:7 10:4,7 16:24 17:4,15 19:8,15 20:10,21 22:9 25:24 26:17,18,24 27:4,7,10,11,13,23 28:8,12,14,16,17 30:21,24 31:4 34:8 35:24 37:5,23 38:1 40:1 43:1 44:19 48:4 49:9 51:23 54:21 55:4,10,12 56:16 59:16 62:9 63:4,6,9,

21
64:2,10,14 65:10 66:2 67:20 68:3,12 69:2 70:8,20 71:19 72:9 73:13 74:12 75:8,14,25 85:8 86:5 87:3 88:16,17 89:13 91:16,22 92:20

hearings 6:13 8:13 11:10 17:24 18:20,24 23:3 27:2 30:19 37:8 43:8

held 1:19 54:24

helpful 86:1,4,9

Henry 4:24 79:14,18, 21,25

Henry's 80:4

He's 38:15

high 36:14

higher 7:18 35:19

highlight 22:5 45:25

hire 31:24 43:23 47:17 50:24 51:5,9

hold 37:22 55:20 57:22

hope 22:8 68:4 74:13

hopefully 26:19 53:21 64:15

hoping 74:1

hours 36:16 37:5 38:8 39:1 63:22

hundred 37:4 40:5 42:23

Hydro 49:6,9 83:7

I

I'd 22:5 46:3 48:19 56:17 67:11 69:14 71:6,20 82:8 85:20 87:4

identify 8:4 14:11

I'll 30:4 32:23 36:1,25 39:9 40:11,14 47:14 48:23 58:9,15 62:15 82:1,3,10 90:19 92:8

I'm 6:6 14:10 15:4,5,15 ,22 29:18 39:6,12 40:16,19 43:17 44:25 45:9 48:16 50:25 51:1 53:9,11 76:12 80:3 83:16 86:7 89:9

immediately 10:17 27:8 48:18

impact 87:11

impacting 53:4

impacts 6:20

implement 29:2

implications 35:11 61:25

importance 27:24 28:19 51:10 68:7,20 73:6,17

important 22:22 34:7 46:13 51:20 53:3 68:22 69:6 74:3

importantly 49:12

improve 23:9 25:23

improving 22:12,20

include 87:2

included 8:7 33:22 36:24

includes 59:5 89:13

including 10:6 11:3 22:6 34:9 59:7 62:6 73:7 82:25 91:12

income 40:24 41:1

inconsistent 60:20

increase 7:16 24:5 25:11 26:24 27:6 40:18,20 41:1,9,11 42:12

increases 6:20 23:21 28:19 39:22 40:25

increasing 23:9 25:12,14

indeed 22:24 61:6

indicate 13:5 30:5,23 32:23 81:22

indicated 29:8 41:14 64:25 83:20 84:5

indication 20:14 40:22 41:6 79:10

Individuals 8:21

inelegantly 91:25

inequity 41:15

influence 22:9

infor 87:25

inform 91:5

informal 55:13 68:18 69:2 71:8

informally 74:18

information 8:17 9:3 11:18 12:6,10 17:12,14 20:12 23:4 24:2,5,7, 18 26:2 27:17 28:6,19,22,24 31:13

33:23
38:13
40:9
46:10
55:13
63:12
64:3
68:8,9
71:17
72:1,5
73:6,11,15,16,19,24 74:2,6
75:22
80:1,2
82:2
87:24
88:1,2,6,9 89:1

initial 56:21

Initially 24:16

input 40:9

inquiry 40:16
41:18
65:1,9
66:5

insight 49:3
50:22

instance 73:13

instances 75:21

instead 66:5

instituted 11:5

institutional 80:20

insufficient 73:2

insurance 1:5 2:10
7:1,2,4,16,19
30:13
31:18
39:22
43:23
47:17
50:10
60:19
61:15,21
63:2
64:9,13
81:8,24
82:24
90:16

Insurance's 32:17
38:3

insurers 82:24,25

integral 79:24

integrated 62:2

intend 8:12
20:17,22
35:7
76:16

intended 64:13
81:7

intending 17:23

intends 9:6
87:13

intent 48:8

intention 17:25
26:23

inter 20:13

interest 6:18,22
13:22,24
23:1
29:19
31:12
32:13,16
33:20
34:11
38:7
41:25
43:19
46:6 48:6
50:6,13
58:17,23
59:19,21
61:11
76:7,17,25 78:7

interest-based 48:6

interested 23:16
34:2
42:21
52:14

interesting 49:14

Interestingly 70:12
77:21

interests 20:15
30:6

intergenerational 35:10
41:15

interim 7:20,23
8:10
44:19

interprets 78:9

interrupt 85:23

interrupting 45:6

intervene 32:22

Interveners 56:1

intervening 30:7
31:22

Intervenor 9:18,19,21
10:6,8,17
11:3
15:17,22
17:9,10
20:19
27:19
29:22
31:3
42:11,25
45:12
48:12
51:4
52:11
73:10
79:9
85:12
86:14

Intervenors 4:11,15
7:1
8:5,11,15
9:16,22
10:11,14,24 12:16
14:8,11
16:13
17:7,18
19:21
20:2,10
22:25
23:17
29:2,8
45:2
48:19,21
54:23,24
72:22
74:16
75:15
86:14
88:11
89:7,19

Intervenor's 11:2,3

intervention 8:6
16:15
20:13
41:4 51:9

intro 29:24

introduce 12:14,17

introduced 26:21

introducing 29:25

introductions 12:13,18
16:5

investment 31:18
34:13
41:1,17
62:6,7,11
80:20
82:13

Investments 80:8

involved 28:3 31:9
40:8 41:8
48:11

IR 69:21
71:18
72:15
87:24

Irene 1:14
6:8

irrelevant 63:17

IRs 67:25
70:17,24
71:15,16
75:16,19

isn't 69:17
70:19

issue 18:14

28:21
32:12
35:2
46:17
47:18,19,21 50:9
51:5,10
55:10,11
57:9
59:23
60:3,21
61:10
62:5 65:2
66:15
68:16
69:9 70:3
71:14
77:6,7,10
79:7 80:6
81:25
85:15,20
86:13
91:3

issued 12:1

issues
3:15,16,17,18,19
4:16
8:6,9
9:13,19,20,21
10:10
11:17
16:17,18,20
17:9,10
19:2 20:4
21:7,9,10,15
27:10,11,15
28:3,11,15,16
31:8,24
32:25
34:7,21
41:5,25
46:21
47:16
48:9
49:24
50:6,21,23 51:19
52:6
54:1,21,22
55:1,2,4,12 56:23
57:17,19,20
58:13,14,15,25
59:9,10,22 60:6
61:20
62:4
63:4,11,14
64:14,16,22,25
65:14,16
66:3,10,13,21,23,25
67:10,11,21
68:12,21,23 69:23
70:1,3,23
71:3,9
72:7,14,18,24
74:15,16
75:23,25
76:1,23
81:6
87:3,11
88:17
89:14

item
16:12,16,20
53:8,24
54:19
58:17
59:1,5,12
60:4 62:2
76:6
85:12
88:25
91:1

items 41:7
43:18

IV 10:11

J

January
7:24

Jeff 13:9

Joe 2:23
15:23

joined
15:22

Joining 6:7

jointly
13:3

judicial
90:22

July 87:21
88:7,8
90:17

June 1:23
4:5,11,13
6:6 16:25
17:7,17
19:10,21,24 21:9
87:20

jurisdiction 51:12

jurisdictions 44:17
85:7

justice
66:3

justification 23:10

justifications
33:12,15

justify
28:20

K

Kathleen
2:3 6:12
12:21,23
16:8 20:9
45:5,9,15

Katrine
2:14
13:21,22

key 22:3
32:6,7
33:14
35:2

knew 91:20

knowledge
22:18

known 79:14

Kristen
6:12 30:9
31:7
32:11
33:13,17
37:3 51:8
82:2,10

L

lack 34:17

ladies 6:3
15:2

large 42:24

larger 40:5

last 11:5
13:15
26:20
27:2
32:12
33:1
35:21
36:21
37:11,13
38:9,23
40:18
43:1 50:2
60:14,20
61:13
70:7
76:14
77:17
83:13
85:12

lastly 21:6

late 30:14
42:9 72:9

later
56:4,10
85:18

Lavigne
93:13

law
13:22,24
15:3
29:19
46:6 66:2

lead
44:10,16

leading
44:12
64:1,3

learn 8:5

Learned
49:23
65:14
66:12

learning
37:6 39:3

least 58:22
60:12
69:3,7
86:4

leave 24:23
36:23
37:3
39:10
62:14

leeway 43:7

legal 6:12
13:2,3
23:17
39:2 63:3
64:12

legislation
70:9,11

legislative

47:18
less 37:7
50:20
65:17
letter
4:9,13
17:5,9,16
,18
19:18,24
level 36:14
70:6
liability
32:1
34:12
49:12
59:6
80:21
82:15
likely 33:6
42:11
Likewise
11:14
limit 60:19
61:23
limitation
10:6
limited
52:19
60:4
line 34:7
lined 54:10
lines 41:5
link 9:8
list 3:3
4:1,16
5:1 8:9
16:18
19:2 20:4
21:7,9,11
,15
27:10,11,
13,15
28:15,21
43:18
54:22,23
55:1,2,4,
6,11,17
56:2,9,12
,14,17,23
57:19
58:13,14,
25
59:9,10,2
2 63:11
64:25
65:14
66:13,23
67:10,11
71:13,14
75:14,25
76:6,13,2
3 78:3
87:3
88:17
89:8,9,14
listen 37:7
litigator
74:24
little
14:10
38:3 39:1
44:5 58:4
80:10
live 9:7,10
68:12,21,
23 72:24
77:10
locating
7:11
long 30:12
31:9
longer 11:8
long-
standing
31:16
loss 35:22
40:3
lot 63:8
70:8,10
91:24
low 40:6
lower
37:10,14
60:22,25
61:23

M

Ma 50:23
main 35:18
maintain
23:4
72:17
88:5
91:13
maintained
23:13
25:22
maintaining
23:3
28:20
maintenance
31:25
33:16
35:3 38:6
major
64:2,5
majority
41:8
42:24
65:1
Makarchuk
4:25
80:8,15,1
9
manage
25:19
managed
33:21
management
22:7
23:25
25:17
29:5 32:2
34:3
38:20
49:25
59:6
60:13,16
82:13,14
mandate
6:16
Manitoba
1:1,5,22
2:9,13,20
3:8,10,13
,16
6:19,25
7:2 12:1
13:24
14:3
15:5,16,1
8
29:13,20
30:10,13
31:17
32:17
38:2
42:1,19,2
1
43:20,21
45:13
47:6,13
48:1,25
49:6
50:9,23
51:10
52:23
57:17
58:11
60:19
61:15,21
63:2
64:9,13
81:8,24
85:24,25
90:15
Manitobans
42:24
Manitoba's
3:18
66:10
manner 10:8
11:9 60:4
March
7:14,22
marijuana
70:9
Mark 13:6
marketplace
33:2
50:11,17
markets
44:12
Martyszenko
2:6 12:24
massive
39:21
41:16,18
matching
34:13
49:12
80:21
material
22:18
24:4
50:16
86:11
88:8
materially
64:10
materials
23:16,21
26:12
70:19
82:20
matter
56:14
58:19
70:4
74:17
85:17
87:21
matters
27:24
29:10
48:22
54:4 57:3
59:11
60:8 83:7
92:19
may
8:9,14,22

9:17 11:8 18:11 27:12 34:7 35:23 39:7,23 51:18 53:20 56:1 57:2 58:4 60:19 63:23 64:4 67:3,18,19 69:1 75:14,21 80:6 86:6 87:5 88:2 91:8 92:8

maybe 67:23 68:4

McCandless 2:3 6:13 11:11 12:20,21,23 16:3,5,8 20:9 29:8 45:5,9,10,15,20

McMillin 6:11

mean 70:22 75:8 76:18 83:12

meaning 88:1

means 22:11

measure 73:4

mechanism 67:22 68:6

media 15:15

Meek 2:17 15:6,11

meet 30:22

meeting 64:12 68:18 69:16,21 85:16

Meira 13:10

member 1:14,15,16 29:17 40:7 63:25

members 6:8 9:3,12 11:14,22 12:22 15:2,18 19:1 29:15,16 35:21 39:5 40:5 43:2 64:18 83:14

mentioned 21:6 67:16

mer 50:16

Mercer 80:8

Mercers 34:23 49:13

merely 66:6

merit 27:16

merits 35:9

message 73:16

Messina 2:23 15:23

method 8:23

methodology 31:25 58:18 59:3 60:1,5,23 61:10,12 62:3,10 76:8 77:16,17 78:13

methods 83:10

MFRs 17:11

Michael 2:10 13:7

micro 83:9

microeconomics 33:8

middle 32:4

Miller 2:20 15:13,14,15 42:17,20 52:3,4 65:19 66:8,11 81:13,14 84:11,12,23 92:11,12 93:5

million 40:24,25 41:2,3 61:5

mind 20:23 45:6 71:7

mindful 12:3 37:21 40:19 66:1

minds 67:23

mini-conference 42:9

minimize 26:10

minimum 17:11 35:7 61:1

minute 53:10 58:16

minutes 53:13 57:22

misunderstood 57:2

mixed 62:25

mod 26:4

model 43:24

modelling 82:15

models 43:25

modest 37:1,19 49:8

module 26:5

moment 14:17 79:2

money 49:17 51:22

morning 6:3 12:22 13:1,21 14:8,18 15:1,5,11,14,21,23 16:9 20:10 29:15,23 42:15,21 43:17 45:11,17 46:1,11 54:25 87:1 89:10 90:10

morning's 16:11

motion 25:25 75:12 87:13,19

motions 75:13

motorcycle 15:5 30:25 39:24 42:1 47:6

motorcyclists 40:20

motorists 42:24

move 23:21 33:18 82:2 91:8

moved 35:25 66:16

movement 42:11

moving 53:8 82:3 90:16

MPI 1:5 3:7,12,20 4:10,14,19 5:3 7:13,16,21,25 8:11 11:9 12:15 13:2 17:6,17 19:20,25 21:20,22 22:8,16 23:8,12,15,23 24:4,8,16,18,21,23,25 25:7,18,24 26:6,13 27:2,7,16 28:2,9,23

29:1
39:21
40:8
43:23
45:23
46:7,18
47:9,20
48:10,23
52:7
54:5,8,21
60:23
65:6,8
67:7
68:8,22
69:4
71:13
72:17
73:1,8,19
74:3,14
75:22,25
77:7
78:8,10
79:12
80:12
81:4
83:7,22
87:4,8,13
88:4,9
91:7

MPI-1 4:19
21:25

MPI-2 4:20
25:3

MPI-3 4:21
54:14

MPI-4 4:24
79:17

MPI-5 4:25
80:14

MPI-6 5:3
87:7

MPI's 3:15
6:5 11:18
12:13
20:17
23:22
24:2,14
28:6
46:12
47:20
52:19
54:1,25
56:22
67:9
74:19
77:4 78:6

Munich 92:7

N

nai 76:10

naive 32:18
33:4
58:24
59:24
61:14,25
76:10,11,
22 77:18
78:2,4,12

narrow
46:17
71:9

narrowing
63:3,11
69:23

natural
63:13

nature
46:12
48:7

nearby 51:8

necessarily
41:8
46:25
87:15

necessary
12:8
24:11
28:9 62:4

necessity
28:13

net 40:23

noise 48:15
53:21
58:4

non 24:22

non-confidential 88:1

none 52:1,4
81:14,16

nonetheless
46:12

nonprofit
40:10

North 33:1
44:12

note 14:1
32:16,21
33:24
36:15,25
38:8,12
46:14,22
47:15
48:1
49:6,22
58:9 60:8
66:13
79:20
82:3,10
90:19
91:1

noted 36:12

notes 58:21

notice 4:3
16:23
17:24
19:8

notify
10:17
64:13

noting
50:21

notwithstanding
72:24
78:11

novel 50:23

np 2:9

numerous
33:7

O

Oakes 2:16
14:25
15:1,3,9,
10
39:16,19
51:25
52:1
64:20,23
65:20,23,
24
81:10,11
84:6,8,15
,19,21
92:2,3

object
59:13

objection
63:1
84:17
92:16

objections
18:13,20
47:10
66:6
81:11
84:13
92:12

objective
63:6

objectives
8:3

obligations
12:3

obtain
72:25

obtained
10:23

obvious
72:6

obviously
31:23
41:4
46:18
55:2 57:6

occasions
33:7

October
72:10
90:21

office 7:12

Officer
13:7

oh 65:22
85:4

okay
14:15,16,
21,24
37:3
44:24
45:14,18
53:18
62:19
66:15
75:3 76:3
78:14,22
84:10,14,
15
85:10,12
89:17,20
90:2,4
92:17

Oktoberfest
92:8

old 89:9

Ombudsman
12:1

omission
54:11

omitted
36:22

Ontario
49:19
82:16

onto 32:11
34:25

onus 7:25

open 22:22
23:3 24:8
28:23
36:2

64:11
opening 3:4,6,7,8,9,10,11 11:10 12:19 16:2,7,9,13 21:1,20 29:9,10,13 39:18 42:19 43:15 64:24
operating 33:15 43:20,21
operations 23:10 25:22
opportunities 72:25
opportunity 11:16 39:8 56:8 64:17 70:20 73:20 86:17
oppose 46:7 47:23 48:12
opposed 62:1
opposing 80:24 83:24
opposition 47:3,8,10 80:3,22
options 52:16 67:2 69:20
ora 28:11
oral 8:25 27:4,12,23 28:12,16 68:12
orally 25:15 27:21
order 4:17 6:21 7:24 8:10 9:21 16:4 18:16 19:3 20:6,12 21:14 27:16,23 28:14 30:21 33:1 54:3 58:19,20,22 59:3 60:14,20 61:13,22 64:3 76:8,9,20 77:3,5,13,17,18 78:9,11
orderly 8:17
orders 8:16
organization 40:11
organized 26:15
originally 37:25
otherwise 26:18
ourselves 14:11 37:22 91:7
outline 20:16
outset 81:22
outside 58:5
outstanding 27:25
overall 7:15 22:20 32:18 34:9 36:6 37:20 38:19 40:22 41:2
overlay 26:8 87:18
overly 33:3
overnight 50:13
overview 39:6

P

package 90:9,11
page 3:2 4:2 5:2 30:9,17 31:6,15,17 32:3,4,10,11 33:13,17,18 34:6,25 35:1,16,20 36:5 37:2,18 38:24 51:11 58:16,21 60:15 68:2 82:9,17,19 83:5,13 90:10
pages 1:24 82:4,21
paid 40:5
panel 1:12 6:10 12:22 13:2 19:1 21:12 25:11 32:4 35:21 39:5 64:18 69:12 72:23 83:14 89:14
panels 22:17 25:6 26:14,15 64:15 74:2
panel's 9:12 38:25
paragraph 30:16
paragraphs 33:19
parallel 26:10 87:18
pardon 12:14
participants 12:9
participate 8:20
participated 10:7
participation 8:19 22:24 48:3 92:21
particular 33:20 34:11 35:10 58:21 82:23
particularly 8:8
parties 9:5 11:23 16:19 17:21 18:6,10,13 23:22 24:1 27:14 28:3 55:14 66:4 67:19,22,24 68:6 69:3 71:8 72:6,11,14 73:7 74:5,10 77:21 86:17 88:12
partner 80:8
Partners 6:15
party 17:22 48:15 73:10 79:8
passed 39:23
passenger 30:7
past 36:20 41:23 46:22
PAUSE 14:5 30:1 43:10 55:23

75:5
78:16,20,
25 79:4
88:22
90:6

pay 40:20

Pelly 2:7
6:15

pending
31:4
38:21

pension
49:20

people
48:20
53:11
58:6

percent
7:15
10:16
31:22
35:5,6
37:21,24
40:17,21
41:11
42:12
61:1

perhaps
39:25
53:4
74:11

period
86:16

permission
35:8 51:1

permit 72:1

person
36:18
86:3,16

personal
12:6,10

persons
9:10
23:16

perspective
35:3
49:16,23
54:25
60:2,13
61:17
63:14,18,
23 64:4
86:9
90:20
91:17,24

phone
2:22,23,2
4 14:7
15:20
43:16
44:18
52:10
66:22
81:16
84:16
85:2,10
86:18
92:15
93:3

physical
38:17

picture
49:10

Pitt
38:1,12,1
9

placed
28:23

placeholder
38:9,21
46:12
50:20

places
28:18

plan 43:4
49:20
79:10

planning
80:1,20

plans 20:20
92:7

play 52:17
59:15
60:3

please
10:25
15:7
29:25
35:1
58:17
82:3

plus 15:18

point
16:10,14
39:7
40:2,11
45:11
46:23
71:1

policy
43:23

Portage
1:21

portfolio
31:18
33:23
34:13
49:11
59:7 62:6
82:13,14

portion
39:25

pose 91:8

posed 7:12

position
28:7
30:18
46:2,12
47:20
51:18
56:7,22
67:9
70:18
71:13
72:17
77:2,4,8,
22,23
78:6,10
83:22,24
84:2

positions
30:22

possible
24:21
68:10,15
73:21
93:2,4

potential
9:16
38:5,14
68:15
90:21

potentially
24:17
52:16
67:17

power 14:18

practice
4:6 7:9
10:12
17:2
19:12
26:1
74:24

practices
23:13
25:21

Prak 13:11

pre 4:3
17:25
18:7,20
27:20
28:7,13
56:15
63:8 72:8
75:13
76:23
80:24
81:19
88:15

precis 82:5

pre-existing
92:6

preferable
44:20

pre-filed
82:6 91:4

pre-hearing
1:7 6:4
8:4
16:11,24
17:12,13
18:1,5,10
,16 19:9
21:8,13,1
4 26:22
27:21
39:9
56:4,10
62:13,22,
25
63:19,24
67:14
69:5
70:16
72:18
74:8
85:16
87:3
91:3,11

prejudge
71:4

prejudging
73:4

prelim
67:11

preliminary
4:16 8:8
10:1,16,1
8,22
16:18
19:2 20:4
21:7
36:12
49:13
54:22
55:1,17
56:22
67:11
76:6
91:18

premium
7:14,18

premiums 7:3 25:19
prep 68:23
preparation 91:9
prepared 23:24
preparing 30:24 63:12 64:15 86:5
pre-qualification 8:12 11:6 17:19 18:12,14, 15,18,22 54:20 78:23 81:1,6
pre-qualified 26:22 80:4,19 82:11
pre-qualify 34:20 79:13
pre-qualifying 26:20 79:7
present 12:15,17 13:4 18:11 22:25 28:6 40:14 69:17 72:19
presentation 9:1 11:22 40:2
presented 37:11 54:9 72:3,21 79:9 80:25 81:7 90:10
presenters 11:15,19 40:1
presenting 77:11
presently 43:20,21 87:16
preserve 24:12
Pressure 28:23
prevention 35:23
previous 11:9
previously 34:23 39:3 84:1 87:13 88:10
price 49:16
pricing 79:22 82:23
primary 59:10
prime 24:13
prin 31:11
principles 31:11
prindle 76:5
prior 6:13 10:23 20:9 22:12 26:6 83:1 85:8,14,1 9 91:4
privacy 12:2
private 30:7 43:23 74:24
probably 53:5 91:22
problem 56:1 62:17 76:12 83:19 91:6
problems 14:18 58:3
procedural 8:10 9:20 18:15 27:16,23 54:4 57:3 68:3
procedure 4:7 7:10 17:2 19:13 26:1 67:17 87:2
Procedures 10:13
proceed 16:2 53:18
proceeding 6:25 8:1 42:22 65:13 90:23 91:6
proceedings 9:7,11 11:21 12:9 30:8 48:7 59:14 64:1 74:9
process 7:9 8:18 9:1 10:7 11:6,8,11 14:14 17:20,22 18:24 22:9,13,2 2,24 23:5,20,2 5 25:24 26:7,21,2 5 28:18,20 29:2 56:5 68:9,13,1 4 69:21 71:1,8,18 72:1,3 75:9 79:11
processes 27:7 63:6
produce 67:3
produced 85:13
product 44:8 47:18 52:19 53:4 67:2,3
products 44:11
properly 53:5
proposal 35:9
propose 10:20 65:12
proposed 4:8 5:3 8:11 17:3,15 18:3,9 19:15 20:24 26:8 32:5 35:3,12 36:15 39:9 46:9,25 57:4 59:7,17,2 4 60:4,11,1 2,18 62:6 81:25 85:25 87:1,7,12 88:14,19 89:1,12
proposes 7:13
proposing 34:20 63:2 82:21 88:15
prospective 4:11,14 8:4 12:16 17:7,18 19:20 20:1,10 22:24 23:17 79:9
protected 23:7
protecting 23:3
protections 12:10
protocol 23:18
provide

8:22,25
10:1 18:1
20:11
22:7,19
28:23
49:3
67:21
69:2
74:4,9
78:1,7
85:5,6
86:15,20

provided
9:17
20:24,25
23:15
25:15
46:11
60:14
66:16
72:25
80:11
89:10

provides
8:3 24:13
27:14
67:22
68:6

providing
40:9 42:3
50:22

province
44:2
52:25
53:6
90:22

provision
23:25
32:1 35:4
38:7
49:25
68:1
91:16

provisions
7:6

prud 29:4

prudal 29:4

prudent
22:7
25:17
29:4,5
51:22

prudently
25:18
31:14

PUB 11:10
12:3,8,23
16:23
17:3,5,16
19:4,6
83:6

PUB-1 4:3
19:8

PUB-2 4:6
19:12

PUB-3 4:8
19:15

PUB-4 4:9
19:18

PUB-5 4:13
19:24

PUB-6 4:16
20:4

public
1:1,5,20
2:9 4:3
6:7,16,18
,22,25
7:2,8
8:13,20
9:3,7
11:14,23
12:9
13:22,23
15:15
16:24
18:19,23
19:8
22:23
23:1 27:2
29:19
30:13
31:17
32:17
38:2 42:1
46:5 50:9
60:19
61:15,21
63:2
64:9,13
81:8,24
90:16

publicly
24:6

public's
9:13 23:9

pulled
29:21
30:4

purporting
61:2

purports
35:6

purpose
85:19

purposes
32:14
83:8

Q

Q.C 1:13

quali 80:4

qualificati on
18:3,8,21
81:20
83:20

qualificati ons
18:7,23
27:1
82:1,5
83:15
86:6,20

qualified
11:9 18:1
27:3
33:6,10
79:11,25
80:4,25
82:12,22
83:2

qualify
18:18

quality
37:16

quantitativ e 82:15
83:10

quantum
8:15

quarter
59:17

question
44:15
71:20
76:4

questioned
27:12

questions
7:11
11:20
25:12,14
28:21
34:14
39:6,13
41:12
43:7
63:17
68:9
69:13,15
71:22
73:20
78:18
80:6

quite 36:19
41:14
52:12
70:5

R

Rachel 6:11

raise 48:9

raised
29:10
38:18
47:2,5,16
48:22
52:6

raising
41:25

range 40:7
49:7,17

rate 1:6
6:5,20
7:5,15
8:7 11:18
13:13
21:23,25
22:4,12
23:11,12
28:4
30:14
31:9,12,2
2
32:13,15,
16,18
34:22
36:4,21
37:11
38:7,10
40:22
41:6,9
47:19,22
50:3,7,13
51:14
53:4
58:18,23
59:19,21
60:16
61:11
70:6
76:7,17,2
5 78:7
79:23

rate-making
82:23

ratepayers
34:8,16,1
8 35:12
36:9,10
42:2
51:11,22
52:23

rates
6:17,22
7:14,22

23:11
28:1
31:10
32:5 36:8
41:6
44:6,7
50:13
51:13,21
52:14
53:2

rather
44:7,12
46:17
47:6,19
55:11
65:17
72:10
74:18
80:18

rating 67:3

rationale
44:6

rationales
24:2

Raymond
2:16
15:1,3,9,
10 39:19
52:1
64:23
65:20,24
81:11
84:8,21
92:3

Re 1:5

real 48:11
69:2
88:18
91:9

realize
84:3

really
49:25
68:21
72:14
73:14,15
74:4,9

re-argue
77:20

reason
10:19
43:21
69:25

reasonabili
ty 41:13

reasonable
6:17,22
28:1 32:6
34:18
36:8
91:22

reasonablen
ess 32:7
33:11,15

reasons 8:5
20:18
31:21
69:4
77:12

reassess
74:10

rebuttal
27:19
55:15
68:1

receipt
26:1

receive
38:2
45:7,12
46:1

received
9:3 11:19
47:12

recent 11:4

recently
47:12

recessing
53:15
57:24

recite
73:23

recognize
77:10

recognized
33:10
35:14
83:10
86:3

recognizing
59:15,16

recommend
16:19

recommendat
ions
34:24

record 6:24
11:11
13:15
16:23
17:20
54:12
83:22

redacted
24:23

reduce
26:17,19
28:16

reduced
12:11

reduces
28:15

re-
engineeri
ng 38:17

refer 83:25

referred
89:24

refers 76:7

reflect
47:1
52:24

reflected
87:16

regard
34:5,11,1
2,15,19
36:3
47:24
61:5
83:17

regarding
18:11,13
19:1

regards
13:5 92:9

regulatory
13:9,11,1
2 30:8
60:16

reject
10:21

related
11:17
17:18
31:24
32:24
33:25
38:6 41:9
60:6
82:24

relates
32:7
33:20

relating
50:6

relation
45:1 46:9
57:2,4
69:15

relations
15:16

relationshi
p 36:10

relative
41:12
65:5

relatively
47:12

relevance
51:15

relevant
62:4

relying
59:23

remain 26:3

remaining
3:15,16,1
7,18,19
54:1
57:17
64:22
66:10,21

remarks 3:4
11:10
56:21

removal
76:1

remove 70:1

renovating
58:3

renovations
48:17

re-open
61:18

Reply
3:12,13,1
4,20
45:23
48:25
52:9 67:7

report
33:21
34:3
49:14

REPORTER
15:7

reporting
34:1

reports
79:22

represent
7:15
13:24
22:25
30:6
42:23

representatives 9:5 12:15

representing 15:4

request 17:19 18:7,12,14,17,21 28:19 45:12 48:5,6 62:21 72:1 73:6,11,16,19 74:2,6 80:23 86:15 88:6 90:17

requested 41:6

requesting 20:18

requests 8:11 17:14 21:22 27:18 28:6,23,25 55:14 63:12 64:3 68:7 72:5 87:24 88:3,7,9 89:1,6

require 24:10 26:8 50:15,17 67:22

required 9:22 26:18,19 28:17 49:4 70:2

requirements 17:12 66:1 78:8

requires 66:2

res 27:22 47:2

research 82:14

reserve 41:10 55:5

reserves 25:23 31:20 34:10 41:10,16

residential 31:23

resistance 91:14

resolved 67:24

resources 40:13

respect 7:4 12:4 21:3 28:22 39:20 40:2,7 41:20 45:4 46:2,8,13,18,20,24 47:5,9,11,16,25 54:4,21 55:10 65:2 66:5 67:9,10,13 68:16,21 74:19 92:5

respectfully 52:21

respond 34:24

responding 72:22

response 39:21 48:22 88:8

responsibilities 17:10

responsible 10:7

rest 44:4

restriction 65:15

restrictions 24:11

result 12:10 26:16 53:1

results 27:22 41:15 61:7,24

resume 86:15

resuming 53:16 57:25

retain 37:25

retained 34:23

retainer 38:21

returns 41:17 62:7

revenue 62:5

revenues 40:25 41:19 62:11

review 9:25 10:11 24:19,20 27:17,20

reviewed 24:16 67:25

reviewing 10:4

revise 10:19

revised 29:21,22 32:22 36:13

re-visit 62:10

reward 31:19

ridesharing 52:24

rise 65:16

risk 31:19 34:16 52:24 53:5 82:14,23 90:20

road 35:22 59:12,14 65:2,4 66:15

Robert 1:13,16 2:4 6:6,8,13 12:23

robust 23:25

Robyn 39:23

Rodgers 2:22 14:7,9,15,21,24 15:20,21 16:1 43:13,16 44:14,18 52:5,10 66:19,22 81:15,16 84:15,16,25 85:2,10 86:18,22 92:14,15 93:3

Roger 2:5 12:24

role 34:2

room 48:21 66:1

round 28:22 67:25 71:16 88:6,7 89:1

rounds 28:5 55:13 72:5,15 73:6,12,17,19 74:6 75:18

route 74:14

routine 60:16

row 58:12

RSR 61:1

rule 25:25

rules 4:6 7:9,11 10:12 17:1 19:12 21:3 25:25 42:13

run 31:15 68:11

S

safety 35:22 59:12,14 65:3,5 66:15 70:3

San 48:20 58:2 93:1

satisfy 72:22

satisfying 8:1

save 77:24

Scarfone 2:9 13:3

scenario 61:3

Schafer 2:24 15:24

schedule 9:24 39:11 57:4 62:15,18 85:21 86:23 90:13 91:2,13 92:5,18

scheduled 90:24

scholar 83:6

Schubert 6:12

Schubert's 45:21

sciences 35:14

scope 8:7 27:13 63:12,24 64:5 81:6,25 91:6

screens 16:10

scroll 37:18 39:1

scrutinize 23:22

second 20:16 27:20,23 28:7,22 29:25 33:14,19 39:9 45:6 55:20 56:15 58:12 59:4 62:13,22,25 63:8,19,24 67:13,25 68:2 69:5 72:8 74:8 80:7 83:13 87:2 88:15

Secondly 60:22

secretary 4:9 6:11 13:8 17:6 19:19

sections 23:1

seek 20:22 24:8,10,23 25:7 26:1 27:2 30:6 87:14

seeking 7:17,21 9:16 10:14,24 31:3 41:22 42:4 44:13 54:6 86:2

seeks 23:11 24:5,25 60:24

seems 48:5

seen 37:16

segregation 59:7 62:7

self-evident 35:20

self-service 24:13

send 92:8,10

sending 40:12

sends 13:4 73:16

sensitive 12:5 23:4 24:7

separate 57:9

September 42:10 72:10 88:16,18 89:24 90:1 91:8 92:6

series 88:3

serious 41:17 70:4

service 4:20 7:19,22 25:1,3 28:1 51:13,15,21

services 52:16

sets 88:9

setting 28:14 31:20,25

seven 23:24

several 8:20 40:4

share 24:8

shares 24:5

Sherry 33:9 35:13 37:9 39:4 46:21 49:22 50:4,19,22 82:20 83:2 84:24

she's 14:2

short 82:5

shorten 71:1

shortly 14:2

should've 56:21

significant 10:8 31:23 33:22,25 34:4,19 51:10 73:11

significantly 63:20

similar 40:18 45:20 69:21 70:3 83:3

similarly 22:8 50:18 72:20

simple 28:15 74:20

simply 27:11 31:14 38:9,20 54:10 61:4 75:16 77:16 78:1

Simps 38:1

Simpson 33:6 35:15 38:1,5 46:21 49:21 50:5,20 83:4,25 84:1

single 46:17 70:3 77:20

sir 13:14,18 76:3 81:3

site 23:14

situation 68:11 73:10 77:19 87:24

slate 72:19

slated 46:16,17

small 40:2

sole 21:5

solutions

79:21
someone 49:18
somewhat 50:8
somewhere 91:21
sorry 14:14 22:15 23:20 27:21 44:14 45:5,8,21 47:9 54:6,20,23 55:9 58:2 65:22 79:1 80:18,25 83:25 84:25 85:22 88:6,24
sort 66:24
sought 8:14 10:20 40:18
sound 14:9,23
sounds 70:22
speak 11:16 15:7 26:9 40:14 62:14,17
speaking 12:14 45:10 74:23
speaks 35:22
special 23:5
specialist 15:16
specific 11:17 23:13 25:9 27:8 30:20 47:19 48:8 61:20 69:15
specifically 42:1 65:4
specified 86:16
spell 13:15
spending 37:4
spent 64:6 65:16
spoke 34:21
spoken 27:12 83:21
spread 52:24 53:6
squarely 59:22
stabilization 41:10
stage 74:2,9
stakeholders 30:22 40:8 53:6
standing 55:7
start 16:3 48:23 53:23 70:18 82:8
stated 84:4
statement 76:13
statements 11:4 40:12
states 33:3 48:2 50:14
status 9:18,21 15:17,22 20:19 24:9,12 31:3 42:25 87:14
Stay 58:16
Steve 13:3
Steven 2:9
stopped 58:7
stream 9:7
streaming 9:11
stress 69:6
stresses 68:19
strict 65:13
strongly 58:22
struck 23:2
structure 43:22 44:7,11 47:17 52:19 53:3 67:1
structures 44:16,23 52:22 85:6
structuring 67:2
struggle 83:11
student 2:18 15:6,11
style 30:20
subject 9:4 11:19 29:10 39:12 50:4 55:3 88:3
submission 53:24
submissions 6:25 8:6 16:14,20 18:6,11 19:1 21:16 43:25 44:4,11,20 45:2,4,17 55:3 69:9 71:2 74:19
submit 72:23 87:15
submits 27:7
submitted 5:3 27:19 87:8
substantial 38:25 50:11
suggest 36:19 53:10 59:21,25 60:3
suggesting 61:18,19
suggestion 59:10
suggests 59:11
support 33:9 40:10
supportive 40:6 51:18
surcharge 35:5 49:25
sure 14:10 24:19 31:10 47:1 55:21 63:7 86:7
surges 14:18
swilling 92:7
switch 76:18 78:4
sworn 9:4 11:19 70:19
sync 88:12
system 25:11 34:1

T

table 3:1 51:20 57:9 69:23
Tadeu 13:10
taking 31:12 77:8
talk 9:24 39:8 42:8 44:22 53:11 56:8

62:22
talking
36:17
71:11
target
35:6,10
60:5,10,23,25
61:1,9,11
teachers
49:19
82:16
team 35:13
39:2
technical
6:14
14:18,20,22 31:5
35:25
36:22
42:6
59:16
65:4,11
66:16,17
technology
31:13
33:23
38:14
80:1,2
ten 91:21
term 31:9
35:4
terms 7:11
29:24
30:13
31:17,21
32:13,18
33:11
34:4
35:9,16,17
36:4,6,8,11 37:20
38:23
40:15,16
44:3,9
49:2,21
50:6,11,12 51:22
56:12,15
57:19
58:13,14
59:10,19
60:5
61:22
62:2,13
65:13
66:13
74:21
83:1,4
85:25
86:10,22
91:7,15
test 20:17
35:7 44:6
61:2
tested
25:15
testifies
18:19
testify
25:8,9
testimony
11:13
91:4
testing
32:20
41:24
42:14
59:2
60:7,10
61:7
71:18
thank 12:21
13:13,14,18,19
15:12,19,25
16:8,21
21:16,17,21 29:6,7
30:8 31:7
33:13
35:2
36:15
39:14,16,19
42:16,20
43:12
44:24,25
45:3,18,19,24
48:14
49:1
51:23,24
53:7,13
54:2
56:25
57:1,13,14,18
64:17,19,23 65:18
66:6,7,18
67:4,8
71:21
79:6
81:3,9,18
82:10
83:18
84:18
86:21,24
90:14
92:1,3,20,23,25
93:1,2,3,5
themes
22:4,6,7
themselves
12:17
52:14
therefore
24:23
28:18
47:20,22
55:5
there's
16:17
31:7
33:24
47:3,7
56:15
70:10
71:17
80:22
83:12
85:18
91:23
they're
38:10
48:17
54:9
58:3,4
63:7
they've
30:7
50:8,13
third 20:18
30:16
31:17
33:19
35:21
36:17
53:12
thirteen
91:21
thirty 49:7
thirty-five
49:7
thorough
28:24
thoughtful
63:10
thousand
40:6
42:23
49:8
threshold
60:15
throughout
7:8 8:18
Thursday
89:25
tie 35:6
timetable
4:8 5:3
8:16
17:4,15
19:16
26:9,10
85:13,14
87:1,7,12,16,18
88:15,19
89:1,12
today
6:7,11
11:1 13:4
17:21
18:25
19:6
21:11
22:5,25
26:23
74:12
79:9
92:18,19
today's 8:3
17:13
18:16
21:13
34:18
tool 63:9
68:15
69:6
top 31:16
32:11
33:18
35:1
36:16
73:23
90:10
topic 11:24
26:16
69:15
topics 25:9
30:21
total 50:18
totality
61:19
towards
31:6
32:3,10
33:18
34:6 35:1
trade-off
34:17
tragically

39:23
Transcript 3:23
transfer 23:18
transparency 22:6,21 23:8,14 25:12 29:3
transparent 22:23 24:21 52:13
treated 62:7
tremendous 37:17 38:13
tribunal 12:2
tribunals 12:3
Triggs 2:10 12:14 13:7
troubled 50:8
try 77:19
trying 70:1 77:24
turn 47:14 67:23 68:6
Turning 32:3
twelve 91:18
twenty 43:1
twenty-five 41:24
type 42:9 51:15 68:20
72:21

U

Uber 2:22 3:11,14,19 14:8 15:21 43:15,17,20 47:13,15,16,23 51:2,18 52:9 58:2 66:21 81:17,23 86:1,14 91:20 92:16
ultimately 11:12 28:17 51:13
unchallenged 72:4
unclear 86:8
uncomfortable 91:11
underlies 61:11
underlying 32:16 51:14 61:10
underneath 89:13
understand 31:2 32:19 53:19 60:12,25 61:5 65:3 71:8,23 77:25 84:24
understanding 9:13 10:10 23:10 34:2 60:24 81:23 85:13 90:9
understands 23:2 51:12 60:11
undertake 10:25
undertaken 42:25
undertaking 25:14
undue 34:16,17
unfortunately 13:4 26:4,5
unified 28:7
United 33:2 50:14
unity 28:8
unless 12:7
unlikely 63:20
unnecessary 63:17
update 58:17 59:1 76:7 77:16 78:1,8,12
updated 87:1 88:14 89:2
upon 6:1 24:20 51:21 53:15,16 57:24,25 58:18 59:2,23 78:8 93:7
upper 60:9,15,19 61:22
upward 42:11
useful 63:19 64:8 67:17
Utilities 1:1,20 6:7,16 7:8
Utility 6:21
utilized 26:7

V

Valter 34:21
valuable 38:15
value 23:25 31:14 33:21 34:3 37:17 38:20 49:17 64:10 73:3,5
values 23:8
Vandewater 1:16 6:8 29:16
variations 8:8
various 36:10
vehicle 7:4,18
vehicles 7:17 31:24 35:19 50:24 51:5,9
version 29:23
versions 54:10
VFH 7:18,20,22
vice-president 13:6 79:21
video 14:23
view 43:22 47:20 52:15,19,20 64:10
viewed 7:10
views 53:3 62:25 70:4
vigorously 35:8
Viola 34:21 37:15 46:15,16,19 49:4,19 82:8,11
virtually 48:3
vitae 4:24,25 18:2 79:14,17 80:14 82:6,18

viva 18:9
voce 18:9
voice 45:20,21
voluntary 40:10
vu 40:17

W

wait 56:6
waiting 30:4
waiving 7:19
Wallace 38:12
watching 9:10 42:22
Watchman 2:4
Watchmen 6:13 12:23
Wayne 33:6 35:15
ways 8:20
wayside 72:7 74:17
website 7:10 8:23 9:8 10:13
we'd 44:10 46:8,21 68:13,14 79:24
Wednesday 90:17
week 38:3 40:11 87:20
weekend 14:19
weeks 50:20
weigh 91:12
weight 9:2 11:12,21
weighty 50:21
welcome 6:4 11:25 29:16,17
welcomes 8:19
we'll 16:2,3 26:9 29:7 34:20 39:15 42:4 53:12,18 55:16,25 56:14 57:11 75:16 86:19 89:22 92:10,20 93:1
we're 14:13,14,19 15:16,21 30:3 31:11 37:21 41:14 42:21 43:21 44:5 52:12,13 53:1,7 56:6 57:21 62:8,14,17 66:1,13 68:11 70:13 71:2,11,12 74:1 86:1 89:9
we've 36:20,24 37:19 38:20 58:2,6 63:10,22 70:24
whatever 56:16
whether 10:6,8 20:22 28:10 32:5,25 33:3 34:15 35:11 36:7 39:10,11 49:19 51:3 56:15 59:23 61:5,7,12,20,21,23 65:9,10 68:17 77:6 86:2
whole 8:2 69:25
who's 13:3 33:6 38:12 86:13
wildlife 65:6
Williams 2:13 13:23 29:11,14,18 30:3 36:17 39:4 41:14 46:16 48:23 49:1 51:7 57:15,18 58:8,9 62:19,24 65:15 81:4,5,19,21 83:20 85:22,23 90:12,14 92:2
winning 83:6
Winnipeg 1:22 31:2
winnowing 63:13
wishes 61:4 79:13
witness 17:23,25 18:2,8,22 22:17 25:6,11 26:13 34:20 44:22 49:5 64:15 74:2 80:5,7 86:1,7 91:9
witnesses 8:12 11:7 17:19,25 18:4,7 22:17 25:8,9 26:22 27:1,3 38:22 43:5 54:20 68:23 73:22 78:23 79:8,11,12 81:7,25 82:7 84:20
wondering 44:25 89:9
worded 91:25
wording 65:13
work 22:14 38:13 44:1 50:15,21 82:16 91:2,12
workbooks 23:19
working 29:1 58:5
works 43:24 49:13
workshop 17:13 21:8 54:24
write-off 33:25
writing 27:22
written 8:22 44:20 77:15
wrong 34:3

Y

year's 11:5 36:21 37:11,13 38:10 50:3 60:14,20 61:13
yield 29:6 61:7
you'll

30:17
31:8,16
33:19
36:25
37:3,19
82:20
88:14

yours 75:19

you've
71:15,16,
17 75:18
76:21

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 15, 2018

Pages 1 to 237

APPEARANCES

Kathleen McCandless	)Board Counsel
Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
Anthony Guerra	)Insurance
Byron Williams	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

	Page No.
List of Exhibits	5
List of Undertakings	55
Opening remarks by The Chairperson	56
Opening comments by Board Counsel	65
Opening comments by MPI	72
Opening comments by CAC (Manitoba)	88
Opening comments by CMMG	105
Opening comments by CAA Manitoba (as read)	109
MPI WITNESS PANEL 1 - OVERVIEW PANEL:	
LUKE JOHNSTON, Sworn	
BEN GRAHAM, Sworn	
BRAD BUNKO, Sworn	
CURTIS WENNBERG, Sworn	
MARK GIESBRECHT, Sworn	
WARD KEITH, Sworn	
Examination-in-Chief by Mr. Steve Scarfone	111
Cross-Examination by Ms. Kathleen McCandless	135
Public Presentation by Manitoba	
Used Car Dealers Association	184

TABLE OF CONTENTS (cont'd)

	Page No.
Question period	
Public Presentation by TappCar	192
Public Presentation by Mr. Charles Reesink	203
MPI WITNESS PANEL 1 - OVERVIEW PANEL - Resumed	
LUKE JOHNSTON, Previously Sworn	
BEN GRAHAM, Previously Sworn	
BRAD BUNKO, Previously Sworn	
CURTIS WENNBERG, Previously Sworn	
MARK GIESBRECHT, Previously Sworn	
WARD KEITH, Previously Sworn	
Cross-examination by Dr. Byron Williams	213
Certificate of Transcript	237

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
PUB-1	Notice of Public Hearing and Pre-Hearing conference issued by the Board and dated June 15, 2018 (Filed at PHC)	
PUB-2	The Public Utilities Board's Rules of Practice and Procedures (Filed at PHC)	
PUB-3	Timetable for 2019-2020 Manitoba Public Insurance General Rate Application (filed at PHC)	
PUB-4	PUB letter to all parties re: Manitoba Public Insurance 2019 General Rate Application - June 18, 2018 with attachments (filed at PHC)	
PUB-5	PUB letter to all parties re: Expert Witness status - June 22, 2018 (filed at PHC)	
PUB-6	Board Order 61-18 re: MPI Interim Procedural Order Respecting Preliminary Issues List for 2019 GRA for compulsory 2019/2020 drive and vehicle insurance premiums and other	

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
	matters - May 7, 2018 (filed at PHC)	
PUB-7	Pre-Hearing Conference transcript - June 25, 2018	
PUB-8	Board Order 82-18 re: MPI - Procedural Order (2019/2020 rates and premiums for compulsory driver and vehicle insurance - timetable for a public hearing, approval of Interveners and approval of issues - July 29, 2018	
PUB-9	PUB to MPI Information Requests - Round 1	
PUB-9-1	PUB to MPI Information Requests - Round 1 - OV - Audit Committee and Investment Committee working group meeting minutes.	
PUB-9-2	PUB to MPI Information Requests - Round 1 RM - Changes in methodology.	
PUB-9-3	PUB to MPI Information Requests - Round 1 - Cash flow discount rate.	
PUB-9-4	PUB to MPI Information Requests - Round 1 - RM - vehicle drift	

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
PUB-9-5	PUB to MPI Information Requests - Round 1 - RM - expected return investment assets supporting Basic Total Equity.	
PUB-9-6	PUB to MPI Information Requests - Round 1 - COM - Board Order 130-17 - 11.23	
PUB-9-7	PUB to MPI Information Requests - Round 1 - INV turnover Assumption.	
PUB-9-8	PUB to MPI Information Requests - Round 1 - FFM - Update for ALM changes	
PUB-9-9	PUB to MPI Information Requests - Round 1 - 1.1-1.2, REV-5 - Motor Vehicle Premiums - Volume and Upgrade factors.	
PUB-9-10	PUB to MPI Information Requests - Round 1 - IRF - 2.2 percent rate change (PF 1-3)	
PUB-9-11	PUB to MPI Information Requests - Round 1 - INV - Use of Naive Interest Rate Forecast	

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
PUB-9-12	PUB to MPI Information Requests - Round 1 - AR - Financial Forecast - Interest rate impact	
PUB-9-13	PUB to MPI Information Requests - Round 1 - EXP - Cost allocation.	
PUB-9-14	PUB to MPI Information Requests - Round 1 - EXP - Changes to Cost Allocation	
PUB-9-15	PUB to MPI Information Requests - Round 1 - EXP - total IT expenses	
PUB-9-16	PUB to MPI Information Requests - Round 1 - RSR - 2018 GRA Board approved methodology	
PUB-9-17	PUB to MPI Information Requests - Round 1 - RSR - Treatment of Capital Maintenance Provisions (CMP)	
PUB-9-18	PUB to MPI Information Requests - Round 1 - DCAT - Combined scenario	
PUB-9-19	PUB to MPI Information Requests - Round 1 - DCAT - Policy Liabilities Risk and Inflation Risk Scenarios	
PUB-9-20	PUB to MPI Information Requests - Round 1 - DCAT - Stochastic Modeling	

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
PUB-9-21	PUB to MPI Information Requests - Round 1 - INV - Major Asset Class - Global Equity Returns	
PUB-9-22	PUB to MPI Information Requests - Round 1 - INV - Major Asset Class - Corporate Bonds	
PUB-9-23	PUB to MPI Information Requests - Round 1 - INV - ALM study outcomes.	
PUB-9-24	PUB to MPI Information Requests - Round 1 - INV - Accommodation of Commingled portfolio.	
PUB-9-25	PUB to MPI Information Requests - Round 1 - INV - Interest rate forecasting	
PUB-9-26	PUB to MPI Information Requests - Round 1 - INV - Allocation of investment income to lines of business	
PUB-9-27	PUB to MPI Information Requests - Round 1 - INV - Interest rate forecast - mst recent version	
PUB-9-28	PUB to MPI Information Requests - Round 1 - INV - Basic Interest rate with naive forecast	

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
PUB-9-29	PUB to MPI Information Requests - Round 1 - INV - Investment policy statement - material changes	
PUB-9-30	PUB to MPI Information Requests - Round 1 - INV - Benchmarking performance	
PUB-9-31	PUB to MPI Information Requests - Round 1 - INV - Review of investment policy statement.	
PUB-9-32	PUB to MPI Information Requests - Round 1 - INV - Five optimized portfolios - definition of risk.	
PUB-9-33	PUB to MPI Information Requests - Round 1 - INV - Investment Portfolio composition.	
PUB-9-34	PUB to MPI Information Requests - Round 1 - INV - Mercer ALM Alternatives and Board Risk Tolerance.	
PUB-9-35	PUB to MPI Information Requests - Round 1 - INV - Mercer's interest rate forecasts	
PUB-9-36	PUB to MPI Information Requests - Round 1 - SDM - Direct Repair program	

LIST OF EXHIBITS

NO.	DESCRIPTION	PAGE NO.
PUB-9-37	PUB to MPI Information Requests - Round 1 - SDM - Cost containment measures.	
PUB-9-38	PUB to MPI Information Requests - Round 1 - SDM - Claims expenses - B13 Claims management	
PUB-9-39	PUB to MPI Information Requests - Round 1 - SDM - Cost containment measures - customer experience framework	
PUB-9-40	PUB to MPI Information Requests - Round 1 - EXP - Cost containment - expenses variances	
PUB-9-41	PUB to MPI Information Requests - Round 1 - EXP - Expenses - Basic Capital Expenditure by project.	
PUB-9-42	PUB to MPI Information Requests - Round 1 - EXP - Basic total expenses - compounded annual growth rates.	
PUB-9-43	PUB to MPI Information Requests - Round 1 - EXP - Other expenses - cost containment measures	

LIST OF EXHIBITS

NO.	DESCRIPTION	PAGE NO.
PUB-9-44	PUB to MPI Information Requests - Round 1 - EXP - staffing levels - staff reduction strategy.	
PUB-9-45	PUB to MPI Information Requests - Round 1 - Basic capital expenditures.	
PUB-9-46	PUB to MPI Information Requests - Round 1 - LP - road safety expenses - savings from predictive analytics.	
PUB-9-47	PUB to MPI Information Requests - Round 1 - AR - staffing levels.	
PUB-9-48	PUB to MPI Information Requests - Round 1 - CI - Comprehensive hail.	
PUB-9-49	PUB to MPI Information Requests - Round 1 - BMK - Corporate and claims performance	
PUB-9-50	PUB to MPI Information Requests - Round 1 - REV - Adequacy current service fee - comparison of total service fees.	
PUB-9-51	PUB to MPI Information Requests - Round 1 - DSR - Conclusions and next steps - public consultation efforts	

LIST OF EXHIBITS

NO.	DESCRIPTION	PAGE NO.
PUB-9-52	PUB to MPI Information Requests - Round 1 - VFH - Data collection - rate making - insured VFH vehicles.	
PUB-9-53	PUB to MPI Information Requests - Round 1 - VFH - Stakeholder engagement	
PUB-9-54	PUB to MPI Information Requests - Round 1 - VFH - Passenger VFH	
PUB-9-55	PUB to MPI Information Requests - Round 1 - BMK - IT spending vitality clause.	
PUB-9-56	PUB to MPI Information Requests - Round 1 - BMK - It spending.	
PUB-9-57	PUB to MPI Information Requests - Round 1 - VM - Information Security risk management - reasonableness of IT capital spending.	
PUB-9-58	PUB to MPI Information Requests - Round 1 - VM - Legacy systems modernization.	
PUB-9-59	PUB to MPI Information Requests - Round 1 - VM - customer self service - Phase 1, 2 and 3	

LIST OF EXHIBITS

NO.	DESCRIPTION	PAGE NO.
PUB-9-60	PUB to MPI Information Requests - Round 1 - VM - Credit card strategy	
PUB-9-61	PUB to MPI Information Requests - Round 1 - VM - Cost benefit analysis customer claims reporting system (CCRS)	
PUB-9-62	PUB to MPI Information Requests - Round 1 - VM - PDR Project - changes in the cost benefit analysis	
PUB-9-63	PUB to MPI Information Requests - Round 1 - VM - Deferred development costs - impaired deferred development cost	
PUB-9-64	PUB to MPI Information Requests - Round 1 - VM - HSDE Business case - cost benefit analysis	
PUB-9-65	PUB to MPI Information Requests - Round 1 - VM - PDR Project-IT expenses.	
PUB-9-66	PUB to MPI Information Requests - Round 1 - VM - PDR	
PUB-9-67	PUB to MPI Information Requests - Round 1 - VM - IT spending - PDR Project costs	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-9-68	PUB to MPI Information Requests - Round 1 - VM - changes in PDR business case cost/benefit analysis	
PUB-9-69	PUB to MPI Information Requests - Round 1 - VM - IT spending, PDR Gartner	
PUB-9-70	PUB to MPI Information Requests - Round 1 - VM - IT Expenses - PDR Projects - Impairment charges for IT expenditures.	
PUB-9-71	PUB to MPI Information Requests - Round 1 - VM - Capital Project Evaluation - Impaired securities - CCRS Customer Claims Reporting System	
PUB-9-72	PUB to MPI Information Requests - Round 1 - IT - IT Management - Update on project status.	
PUB-9-73	PUB to MPI Information Requests - Round 1 - IT - IT Strategy - impact on staffing, processes, technology and cost	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-9-74	PUB to MPI Information Requests - Round 1 - EXP - IT Expenses - allocation of IT project expenses to Basic.	
PUB-9-75	PUB to MPI Information Requests - Round 1 - EXP - IT Expenses - external consulting expense.	
PUB-9-76	PUB to MPI Information Requests - Round 1 - RM - Capital Maintenance Provision	
PUB-9-77	PUB to MPI Information Requests - Round 1 - INV - Revised Investment Policy Statement.	
PUB-9-78	PUB to MPI Information Requests - Round 1 - INV - Operational Asset Liability Management Policy - Changes to ALM	
PUB-9-79	PUB to MPI Information Requests - Round 1 - INV - Mercer ALM Study - New Asset Allocation - Stochastic Modelling and Analysis.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-9-80	PUB to MPI Information Requests - Round 1 - INV - Completion of Recommendations Details	
PUB-9-81	PUB to MPI Information Requests - Round 1 - INV - ALM - Efficient Frontiers	
PUB-9-82	PUB to MPI Information Requests - Round 1 - INV - ALM - impact of changes on accounting standards on interest rate risk.	
PUB-9-83	PUB to MPI Information Requests - Round 1 - INV - Inflation volatility assumption	
PUB-9-84	PUB to MPI Information Requests - Round 1 - INV - ALM - utilizing Mercer's standard interest rate forecast on optimization Basic investment.	
PUB-9-85	PUB to MPI Information Requests - Round 1 - INV - Minimum risk portfolios assumptions.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-9-86	PUB to MPI Information Requests - Round 1 - INV - Min/Max Asset Allocation Constraints.	
PUB-10	Board Order 89-18 re: Motion of MPI seeking confidential treatment of certain information in the 2019/2020 General Rate Application -July 12, 2018	
PUB-11	PUB to MPI Information Requests - Round 2	
PUB-11-1	PUB to MPI Information Requests - Round 2 - Financial Overview - impact on Basic reported income and balance sheet	
PUB-11-2	PUB to MPI Information Requests - Round 2 - FO - documents approved by Board of Directives, including asset allocation	
PUB-11-3	PUB to MPI Information Requests - Round 2 - FO- PDR Business case and customer claims reporting system (CCRS) next steps.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-11-4	PUB to MPI Information Requests - Round 2 - Financial Forecast Model - 28.1 percent allocation to corporate bonds.	
PUB-11-5	PUB to MPI Information Requests - Round 2 - Rate making in accordance with accepted actuarial practice - cash flow discount rate.	
PUB-11-6	PUB to MPI Information Requests - Round 2 - 50/50 interest rate forecast - cash flow discount rate selection.	
PUB-11-7	PUB to MPI Information Requests - Round 2 - Canadian Equities - turnover assumption - responsibleness of Basic financial forecast assumptions.	
PUB-11-8	PUB to MPI Information Requests - Round 2 - Financial Forecast Model - update for ALM changes - investment portfolio buckets.	
PUB-11-9	PUB to MPI Information Requests - Round 2 - Interest rate forecasting - use of naive interest rate forecast - Gov of Can 10 year bond yield	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-11-10	PUB to MPI Information Requests - Round 2 - Basic total equity target range thresholds - 2018 GRA approved methodology.	
PUB-11-11	PUB to MPI Information Requests - Round 2 - DCAT modified base scenario - Treatment of capital maintenance provision (CMP)	
PUB-11-12	PUB to MPI Information Requests - Round 2 - Investment portfolio - major asset class	
PUB-11-13	PUB to MPI Information Requests - Round 2 - Investments - accommodation of commingled portfolio	
PUB-11-14	PUB to MPI Information Requests - Round 2 - Investment policy statement - material changes - discount rate methodology change	
PUB-11-15	PUB to MPI Information Requests - Round 2 - Investments - benchmarking performance - corporation's investment portfolio	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-11-16	PUB to MPI Information Requests - Round 2 - Investments - accommodation of commingled portfolio - optimal investment portfolios.	
PUB-11-17	PUB to MPI Information Requests - Round 2 - Investment income - investment portfolio composition - current performance of investment portfolio.	
PUB-11-18	PUB to MPI Information Requests - Round 2 - Direct repair program process	
PUB-11-19	PUB to MPI Information Requests - Round 2 - claims expenses - B13 Claims management.	
PUB-11-20	PUB to MPI Information Requests - Round 2 - Expenses - Basic capital expenditures - Corporation's cost containment efforts.	
PUB-11-21	PUB to MPI Information Requests - Round 2 - Data Collection - rate making - insured VFH vehicles	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-11-22	PUB to MPI Information Requests - Round 2 - VFH - proposed passenger VFH rates	
PUB-11-23	PUB to MPI Information Requests - Round 2 - IT spending - IT FTE costs.	
PUB-11-24	PUB to MPI Information Requests - Round 2 - Deferred development costs - impaired deferred development cost - Mitchell International agreement/statement.	
PUB-11-25	PUB to MPI Information Requests - Round 2 - Deferred development costs - impaired deferred development cost - writeoffs.	
PUB-11-26	PUB to MPI Information Requests - Round 2 - Deferred development costs - impaired deferred development cost - discontinued projects.	
PUB-11-27	PUB to MPI Information Requests - Round 2 - HSDE Business case - cost benefit analysis - reduction in road safety expenditures.	

LIST OF EXHIBITS

PUB-11-28	PUB to MPI Information Requests - Round 2 - PDR - changes to value management (VM) process
PUB-11-29	PUB to MPI Information Requests - Round 2 - IT spending - PDR - premiums by year, relation to non-direct repairs claims.
PUB-11-30	PUB to MPI Information Requests - Round 2 - IT spending - PDR - details of each costs that were excluded.
PUB-11-31	PUB to MPI Information Requests - Round 2 - IT spending - PDR - Direct repair premium - NPV analysis
PUB-11-32	PUB to MPI Information Requests - Round 2 - IT Expenses - PDR Project - external labour costs incurred by year.
PUB-11-33	PUB to MPI Information Requests - Round 2 - Capital project evaluation - impaired securities online services.
PUB-11-34	PUB to MPI Information Requests - Round 2 - IT consultant staffing - breakdown of staff related to information security risk management business case.

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-11-35	PUB to MPI Information Requests - Round 2 - Expenses - IT expenses - consulting professional service firms.	
PUB-11-36	PUB to MPI Information Requests - Round 2 - Expenses - IT expenses - increase in IBM data centre costs - related operations or developmental costs	
PUB-11-37	PUB to MPI Information Requests - Round 2 - Capital Maintenance Provision (CMP)	
PUB-11-38	PUB to MPI Information Requests - Round 2 - Mercer ALM study - New asset allocations - Stochastic modelling and analysis - expected surplus growth	
PUB-11-39	PUB to MPI Information Requests - Round 2 - Naive interest rate forecast	
PUB-12	Board Order 123-18 re: Seeking confidential treatment of certain responses to information requests in the 2019/2020 General Rate Application - September 12, 2018	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-13	Board Order 124-18 re: Motion by Consumers' Association of Canada (Manitoba) Inc. For an Order compelling certain responses to Information Requests in the 2019/2020 General Rate Application.	
PUB-14	Reminder notice of public hearing dated September 15, 2018	
PUB-15	Board Order 130-18 re: Motion by Manitoba Public Insurance - seeking confidential treatment of certain responses to Information Requests in the 2019/2020 General Rate Application - September 24, 2018	
PUB-16	PUB to CAC Information Requests.	
PUB-16-1	PUB to CAC Information Requests. DCAT - Update of interest rate forecast and justification for use of naive forecast	
PUB-16-2	PUB to CAC Information Requests. DCAT - setting equity target range.	
PUB-16-3	PUB to CAC Information Requests. Investment portfolio - minimum risk portfolio.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
PUB-16-4	PUB to CAC Information Requests. Investment Portfolio - asset mix - fixed income.	
PUB-16-5	PUB to CAC Information Requests. Investment Portfolio - asset mix - removing real return bonds.	
PUB-16-6	PUB to CAC Information Requests. Investment Portfolio - asset mix - investment classes other than RRBs	
PUB-16-7	PUB to CAC Information Requests. INV - real return bonds.	
PUB-16-8	PUB to CAC Information Requests. Capital Maintenance Provisions (CMP) - CMP and accepted actuarial practice.	
PUB-16-9	PUB to CAC Information Requests. CMP - CMP and capital preservation.	
MPI-1	Manitoba Public Insurance Corporation 2019 General Rate Application (filed at PHC)	
MPI-2	Manitoba Public Insurance business case - 2019 GRA-VM Appendix 3 (filed at PHC)	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
MPI-3	2019 GRA Corrections - Part IV - Information technology (IT) Appendix 1 and Part V - Expenses (EXP) Appendix 19 (filed at PHC)	
MPI-4	CV of Charles E. (Chuck) Henry (filed at PHC)	
MPI-5	C of David (Dave) Makarchuk (filed at PHC)	
MPI-6	Revised timetable for 2019 General Rate Application (filed at PHC)	
MPI-7	2019 Application - Part V - Expenses (EXP) - Appendix 16 Revised - August 8, 2018	
MPI-8	2019 Application - Part V - Expenses (EXP) - Appendix 11 Revised - August 8, 2018	
MPI-9	Refiling of redacted Round 1 Information Requests and responses - PUB-MPI 1-58(a), PUB-MPI 1-59(a)(b), PUB-MPI 1-61(b)(d), PUB-MPI 1-61 (App. 3-4), PUB-MPI 1-72(a)(b)(App.1), CAC-MPI 1-60(a)	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
MPI-10	Revised Round 1 Information Request CAC-MPI-1-54.	
MPI-11-1	Manitoba Public Insurance - Rule 13 Notice of motion	
MPI-11-2	Manitoba Public Insurance - Rule 13 Motion - motion brief	
MPI-12-1	MPI Motion regarding Round 1 Information Requests - Notice of Motion - June 29, 2018.	
MPI-12-2	MPI Motion regarding Round 1 Information Requests - motion brief - June 29, 2018	
MPI-12-3	MPI Motion regarding Round 1 Information Requests - Affidavit of Service - Notice of Motion and Motion Brief dated June 29, 2018	
MPI-13-1	MPI Motion Brief regarding CAC Motion to compel answers to Round 1 Information Requests - August 20, 2018	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
MPI-13-2	MPI Motion Brief regarding CAC Motion to compel answers to Round 1 Information Requests - August 20, 2018 - Affidavit of Glenn Bunston - August 20, 2018	
MPI-13-3	MPI Motion Brief regarding CAC Motion to compel answers to Round 1 Information Requests - August 20, 2018 - supplemental affidavit of Glenn Bunston - September 7, 2018	
MPI-14-1	MPI motion regarding Round II Information Requests - Notice of Motion - September 14, 2018	
MPI-14-2	MPI motion regarding Round II Information Requests - Notice of Motion - September 14, 2018 - Motion brief of MPI Round II Information Requests - September 17, 2018.	
MPI-15	MPI responses to Information Requests Round 1 CAC-MPI-1-84(f)-85(g) in response to Board Order 124-18 - September 25, 2018	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
MPI-16	MPI revised response to Information Request Round II PUB-MPI-II-24 - October 1, 2018	
MPI-17	MPI revised response to Information Request Round I PUB-MPI-1-27 - October 1, 2018	
MPI-18	MPI to CAC Information Requests.	
MPI-18-1	MPI to CAC Information Requests. DCAT - minimum capital test	
MPI-18-2	MPI to CAC Information Requests. DCT - MCT - Crown Corp. Vs. Private Insurance industry.	
MPI-18-3	MPI to CAC Information Requests. DCAT - Interest rate forecast - long term yields relationship monetary policy.	
MPI-18-4	MPI to CAC Information Requests. CMP - Alignment with international best practices.	
MPI-18-5	MPI to CAC Information Requests. CMP - Update of DCAT.	
MPI-18-6	MPI to CAC Information Requests. CMP- Alignment with international best practices - RSR Range.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
MPI-18-7	MPI to CAC Information Requests. CMP - DCAT methodology should be used to set the RSR range.	
MPI-18-8	MPI to CAC Information Requests. Investment portfolio - dollar and duration matching - length of nominal duration.	
MPI-18-9	MPI to CAC Information Requests. Investment portfolio - real interest rate risk.	
MPI-18-10	MPI to CAC Information Requests. Investment portfolio - liability benchmark portfolio	
MPI-18-11	MPI to CAC Information Requests. Investment Portfolio - recommendations - inflation expectations.	
MPI-19	MPI Investment Policy Statement - October 12, 2018.	
MPI-20	MPI Rebuttal evidence - October 12, 2018	
MPI-21	MPI - CEO Overview Presentation - October 12, 2018	
CAA-1	CAA Intervenor Application.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-1-1	CAC Intervenor Application.	
CAC-1-2	CAC Intervenor Application. Attachment A - Overview.	
CAC-1-3	CAC Intervenor Application. Attachment B - draft budget	
CAC-1-4	CAC Intervenor Application. CV of Andrea Sherry.	
CAC-1-5	CAC Intervenor Application. CV of Valter Viola	
CAC-1-6	CAC Intervenor Application. CV of Wayne Simpson	
CAC-2	CAC respond to MPI Rule 12 motion - July 5, 2018	
CAC-3-1	CAC motion to compel MPI responses to CAC-MPI-1-84(f) - August 8, 2018	
CAC-3-2	CAC additional information to compel MPI responses to CAC-MPI-1-84(f) and 85(g) - August 15, 2018	
CAC-3-3	CAC additional information to compel MPI responses to CAC-MPI-1-84(f) and 85(g) - August 15, 2018, Book of documents.	
CAC-4	CAC to MPI Information Requests-Round 1	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-1	CAC to MPI Information Requests - Round 1, LA/OV - Consumer/Ratepayer engagement.	
CAC-4-1	CAC to MPI Information Requests - Round 1, LA/OV - consumer/ratepayer engagement.	
CAC-4-2	CAC to MPI Information Requests - Round 1, REV - Upgrade factors - vehicle age.	
CAC-4-3	CAC to MPI Information Requests - Round 1, AR - gross unearned premiums - compulsory automobile insurance statement of operations.	
CAC-4-4	CAC to MPI Information Requests - Round 1, INV - historical analysis of the naive, 50/50 and SIRF forecasts.	
CAC-4-5	CAC to MPI Information Requests - Round 1, RSR - best interest rate forecast estimate.	
CAC-4-6	CAC to MPI Information Requests - Round 1, DCAT - naive interest rate forecast.	
CAC-4-7	CAC to MPI Information Requests - Round 1, INV - naive interest rate forecast - not using 50/50 interest rate.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-8	CAC to MPI Information Requests - Round 1, INV - naive interest rate forecast - naive interest rate forecast.	
CAC-4-9	CAC to MPI Information Requests - Round 1, OV - New mission statement - achieving the new mission of MPI	
CAC-4-10	CAC to MPI Information Requests - Round 1, CM - investing in people - employee opinion survey.	
CAC-4-11	CAC to MPI Information Requests - Round 1, BAC - Corporate priority review - product suite review.	
CAC-4-12	CAC to MPI Information Requests - Round 1, RSR - lower threshold.	
CAC-4-13	CAC to MPI Information Requests - Round 1, RSR - Minimum RSR target.	
CAC-4-14	CAC to MPI Information Requests - Round 1, RSR - establishing MCT ratio as a dynamic RSR target	
CAC-4-15	CAC to MPI Information Requests - Round 1, DCAT - Recommendation Number 3 - MCT ratio.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-16	CAC to MPI Information Requests - Round 1, DCAT - Significant adverse claims costs event.	
CAC-4-17	CAC to MPI Information Requests - Round 1, DCAT - Maximum capital target	
CAC-4-18	CAC to MPI Information Requests - Round 1, RSR - DCAT modified based scenario and treatment of capital maintenance provision (CMP)	
CAC-4-19	CAC to MPI Information Requests - Round 1, OV - investment risk tolerance	
CAC-4-20	CAC to MPI Information Requests - Round 1, OV - RSR amount as at February 28, 2018 for 2018/19	
CAC-4-21	CAC to MPI Information Requests - Round 1, RSR - lower RSR target, satisfactory financial condition and best estimates.	
CAC-4-22	CAC to MPI Information Requests - Round 1, RSR - MCT.	
CAC-4-23	CAC to MPI Information Requests - Round 1, DCAT - maximum capital target.	
CAC-4-24	CAC to MPI Information Requests - Round 1, DCAT - IFRS 17.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-25	CAC to MPI Information Requests - Round 1, DCAT - Impact of IFRS changes on DCAT.	
CAC-4-26	CAC to MPI Information Requests - Round 1, BAC - cost avoidance and cost control.	
CAC-4-27	CAC to MPI Information Requests - Round 1, EXP - staffing and economic negotiated salary increases - retention of skilled staff.	
CAC-4-28	CAC to MPI Information Requests - Round 1, EXP - special services	
CAC-4-29	CAC to MPI Information Requests - Round 1, EXP - building closures.	
CAC-4-30	CAC to MPI Information Requests - Round 1, EXP - basic capital expenditures by projects.	
CAC-4-31	CAC to MPI Information Requests - Round 1, EXP - impairment of various projects	
CAC-4-32	CAC to MPI Information Requests - Round 1, Public compensation report - public sector compensation Disclosure Act and auditor's report.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-33	CAC to MPI Information Requests - Round 1, AR - employee future benefits.	
CAC-4-34	CAC to MPI Information Requests - Round 1, VM - capital space plan.	
CAC-4-35	CAC to MPI Information Requests - Round 1, EAR - increase in weekly indemnity ultimates - impact on rate indication.	
CAC-4-36	CAC to MPI Information Requests - Round 1, SDM - current status of PIPP, Mental Health and Chronic Plan - growth in retained claims	
CAC-4-37	CAC to MPI Information Requests - Round 1, SDM - centralized reserving.	
CAC-4-38	CAC to MPI Information Requests - Round 1, AR - Journey of renewal - focus on core business.	
CAC-4-39	CAC to MPI Information Requests - Round 1, EAR - PIPP review.	
CAC-4-40	CAC to MPI Information Requests - Round 1, Pro Formas - DPAC/Premium deficiency adjustments.	

LIST OF EXHIBITS

CAC-4-41	CAC to MPI Information Requests - Round 1, Pro Formas - claims incurred - interest rate impact and investment income-interest rate impact.
CAC-4-42	CAC to MPI Information Requests - Round 1, 2018 GRA - CAC(MPI) 1-27, shop-specific KPI.
CAC-4-43	CAC to MPI Information Requests - Round 1, BMK - IT service delivery capability.
CAC-4-44	CAC to MPI Information Requests - Round 1, BMK - infrastructure and operations spending by cost category - unallocated cost category
CAC-4-45	CAC to MPI Information Requests - Round 1, BMK - project delivery process.
CAC-4-46	CAC to MPI Information Requests - Round 1, BMK - CIO scorecard versus Gartner's IT score methodology.
CAC-4-47	CAC to MPI Information Requests - Round 1, BMK - IT FTEs.
CAC-4-48	CAC to MPI Information Requests - Round 1, BMK - IT outsourcing and maintenance.

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-49	CAC to MPI Information Requests - Round 1, Pro Formas - MPI risk profile changes, if any.	
CAC-4-50	CAC to MPI Information Requests - Round 1, SDM - driver licensing initiative - failing road test.	
CAC-4-51	CAC to MPI Information Requests - Round 1, DSR - primary driver model.	
CAC-4-52	CAC to MPI Information Requests - Round 1, DSR - residual risk model.	
CAC-4-53	CAC to MPI Information Requests - Round 1, VFH - vehicle for hire rating model	
CAC-4-54	CAC to MPI Information Requests - Round 1, OV - technology company - application of value management caused projects to be cancelled.	
CAC-4-55	CAC to MPI Information Requests - Round 1, VM - Legacy system modernization.	
CAC-4-56	CAC to MPI Information Requests - Round 1, VM - Technology risk management life cycle.	
CAC-4-57	CAC to MPI Information Requests - Round 1, VM - B13 IT projects.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-58	CAC to MPI Information Requests - Round 1, VM - customer self-service.	
CAC-4-59	CAC to MPI Information Requests - Round 1, VM - B13/Fineos Upgrade 2020	
CAC-4-60	CAC to MPI Information Requests - Round 1, VM - finance re-engineering project.	
CAC-4-61	CAC to MPI Information Requests - Round 1, IT - corporate re-organization.	
CAC-4-62	CAC to MPI Information Requests - Round 1, IT - external IT resources.	
CAC-4-63	CAC to MPI Information Requests - Round 1, IT - IBM master service agreement and HP master service agreement.	
CAC-4-64	CAC to MPI Information Requests - Round 1, BMK - application of value management caused projects to be cancelled - IT strategic plan.	
CAC-4-65	CAC to MPI Information Requests - Round 1, VM - Legacy system modernization.	
CAC-4-66	CAC to MPI Information Requests - Round 1, BMK - IT process maturity - item 4.09-IT investment performance reporting.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-67	CAC to MPI Information Requests - Round 1, VM - appendices 1a-1d - manage risk	
CAC-4-68	CAC to MPI Information Requests - Round 1, VM - monitor project performance against forecast - IT value management.	
CAC-4-69	CAC to MPI Information Requests - Round 1, BMK - IT benchmark and maturity assessment - executive report - Gartner analysis.	
CAC-4-70	CAC to MPI Information Requests - Round 1, VM - B13/Fineos upgrade 2020	
CAC-4-71	CAC to MPI Information Requests - Round 1, Pro Formas - capital maintenance provision - DPAC related to this need.	
CAC-4-72	CAC to MPI Information Requests - Round 1, OV - consensus of requirement of CMP.	
CAC-4-73	CAC to MPI Information Requests - Round 1, OV - on-going CMP requirement - 5 year plan.	
CAC-4-74	CAC to MPI Information Requests - Round 1, RM - capital maintenance methodology - MCT ratio.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-75	CAC to MPI Information Requests - Round 1, RM - accounting for RSR and CMP.	
CAC-4-76	CAC to MPI Information Requests - Round 1, DCA - capital maintenance provision in best scenario.	
CAC-4-77	CAC to MPI Information Requests - Round 1, DCAT - modified base scenario.	
CAC-4-78	CAC to MPI Information Requests - Round 1, LA/OV - need for and methodology to establish capital maintenance provision.	
CAC-4-79	CAC to MPI Information Requests - Round 1, INV - de-risking Basic claims portfolio, no equities in investment portfolio.	
CAC-4-80	CAC to MPI Information Requests - Round 1, INV - duration matching - dollar weighted yield, claims discount rate.	
CAC-4-81	CAC to MPI Information Requests - Round 1, INV - Five unique investment portfolios - reporting and disclosure.	
CAC-4-82	CAC to MPI Information Requests - Round 1, INV - performance report.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-83	CAC to MPI Information Requests - Round 1, INV - CAC recommendations - Number 10 - minimum risk portfolio	
CAC-4-84	CAC to MPI Information Requests - Round 1, INV - CAC Recommendations - Number 13 no over reliance on quantitative modelling	
CAC-4-85	CAC to MPI Information Requests - Round 1, INV - CAC recommendations - number 7 min/max asset class constraints.	
CAC-4-86	CAC to MPI Information Requests - Round 1, INV - CAC recommendations - Number 15 effectiveness of duration policy.	
CAC-4-87	CAC to MPI Information Requests - Round 1, INV - operational ALM policy - designated amount of floating rate notes.	
CAC-4-88	CAC to MPI Information Requests - Round 1, INV - CAC recommendations - Number 14, exclusion of real return bonds.	
CAC-4-89	CAC to MPI Information Requests - Round 1, INV - fixed income: increased risk concentration.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-4-90	CAC to MPI Information Requests - Round 1, INV - emerging markets equity.	
CAC-4-91	CAC to MPI Information Requests - Round 1, INV - ALM study process	
CAC-4-92	CAC to MPI Information Requests - Round 1, INV - decision-making framework	
CAC-4-93	CAC to MPI Information Requests - Round 1, 2018 GRA - CAC(MPI) 1-85 - AR - Accounting policy changes IFRS 7, 9, 17	
CAC-4-94	CAC to MPI Information Requests - Round 1, 2018 GRA - CAC(MPI) 1-85 - AR - OSFI Guidance on changes in accounting policy disclosure.	
CAC-4-95	CAC to MPI Information Requests - Round 1, INV - CAC recommendations - Number 1 and 2 - accounting.	
CAC-4-96	CAC to MPI Information Requests - Round 1, INV - risk management - risk tolerance in Basic and pension.	
CAC-5	CAC to MPI Information Requests- Round 2.	

LIST OF EXHIBITS

CAC-5-1	CAC to MPI Information Requests- Round 2. Naive interest rate forecast - Bank of Canada policy rate and Government of Canada bond rates
CAC-5-2	CAC to MPI Information Requests- Round 2. INV - CAC recommendation Number 10 - nominal over real benchmark.
CAC-5-3	CAC to MPI Information Requests- Round 2. INV - CAC recommendation Number 13 - tracking error between nominal and real liability benchmark.
CAC-5-4	CAC to MPI Information Requests- Round 2. INV - CAC recommendation Number 15 - heading.
CAC-5-5	CAC to MPI Information Requests- Round 2. INV - risk management - risk tolerance Basic and pension.
CAC-5-6	CAC to MPI Information Requests- Round 2. INV - Investment policy statement - material changes - MUSH bonds.
CAC-5-7	CAC to MPI Information Requests- Round 2. Risk Management - risk tolerance in Basic and pension - cash liquidity requirements.

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-5-8	CAC to MPI Information Requests- Round 2. DSR - primary driver model.	
CAC-5-9	CAC to MPI Information Requests- Round 2. DSR - residual risk model - non-owner premium used in rate indication.	
CAC-5-10	CAC to MPI Information Requests- Round 2. DSR - movement of drivers down the DSR scale.	
CAC-5-11	CAC to MPI Information Requests- Round 2. RSR - update of DCAT, RSR lower threshold.	
CAC-5-12	CAC to MPI Information Requests- Round 2. RSR - use of MCT as a RSR target.	
CAC-5-13	CAC to MPI Information Requests- Round 2. Applicability of the MCT ratio as basis for calculation of Corporation's requested rate increase.	
CAC-5-14	CAC to MPI Information Requests- Round 2. RSR - lower RSR target, satisfactory financial condition and best estimates.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-5-15	CAC to MPI Information Requests- Round 2. DCAT - maximum capital target.	
CAC-5-16	CAC to MPI Information Requests- Round 2. OV - consensus on the requirement for a capital maintenance provision.	
CAC-5-17	CAC to MPI Information Requests- Round 2. Capital maintenance provision.	
CAC-5-18	CAC to MPI Information Requests- Round 2. RM - Capital maintenance methodology required if DCAT is used to set RSR band.	
CAC-5-19	CAC to MPI Information Requests- Round 2. Rate increase required to prevent depletion in forecast RSR balance.	
CAC-5-20	CAC to MPI Information Requests- Round 2. Capital maintenance provision - necessary when DCAT RSR range is significantly decreasing - lower corporate risk.	
CAC-5-21	CAC to MPI Information Requests- Round 2. CMP - impact of CMP proposal assuming that investment income earned by the RSR.	

LIST OF EXHIBITS

CAC-5-22	CAC to MPI Information Requests- Round 2. Projected financial condition under various rate change scenarios.
CAC-5-23	CAC to MPI Information Requests- Round 2. CMP - merits of phasing in major changes to the rate-setting methodology.
CAC-5-24	CAC to MPI Information Requests- Round 2. Approach to seek regulatory review and approval of CMP.
CAC-5-25	CAC to MPI Information Requests- Round 2. Consumer/Ratepayer engagement.
CAC-5-26	CAC to MPI Information Requests- Round 2. Increase in weekly indemnity ultimates.
CAC-5-27	CAC to MPI Information Requests- Round 2. Centralized reserving - new reserving methodology.
CAC-5-28	CAC to MPI Information Requests- Round 2. Bodily injury claims.
CAC-5-29	CAC to MPI Information Requests- Round 2. De-risking the Basic claims portfolio; no equities in investment portfolio.

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-5-30	CAC to MPI Information Requests- Round 2. Satisfactory financial condition and best estimates - ASOP	
CAC-5-31	CAC to MPI Information Requests- Round 2. Staffing and economic negotiated salary increases - retention of skilled staff.	
CAC-5-32	CAC to MPI Information Requests- Round 2. Decrease in investment income - 1st quarter May 31, 2018	
CAC-5-33	CAC to MPI Information Requests- Round 2. Customer self-service - customer survey and focus groups.	
CAC-5-34	CAC to MPI Information Requests- Round 2. IT spending - PDR - loss of use models.	
CAC-5-35	CAC to MPI Information Requests- Round 2. Monitoring and reporting of project objectives and benefits - VM process	
CAC-5-36	CAC to MPI Information Requests- Round 2. Incident management and business continuity processes.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CAC-5-37	CAC to MPI Information Requests- Round 2. IT benchmarking and maturity assessment - key takeaways from the analysis.	
CAC-5-38	CAC to MPI Information Requests- Round 2. IT benchmarking and maturity assessment - spending on outsourcing and maintenance.	
CAC-5-39	CAC to MPI Information Requests- Round 2. Customization of off-the-shelf (COTS) software products.	
CAC-6	CAC comments regarding MPI motion Rule 13 - Round 1 Information Requests - August 22, 2018.	
CAC-7-1	CAC motion to compel MPI response to CAC Round 1 Information Request letter dated August 28, 2018	
CAC-7-2	CAC memo in response to MPI affidavit and motion - August 28, 2018	
CAC-8	CAC responses to MPI Round II Information Requests Rule 13 motion - September 18, 2018	

LIST OF EXHIBITS

CAC-9	Role of DCAT and interest rate forecasting - Dr. Wayne Simpson and Ms. Andrea Sherry pre-filed testimony - October 1, 2018
CAC-10	Capital maintenance provision proposal - Dr. Wayne Simpson and Ms. Andrea Sherry pre-file3d testimony - October 1, 2018.
CAC-11	Pre-filed testimony of Valter Viola - October 3, 2018.
CAC-11-1	Revision 1 pre-filed testimony of Valter Viola - October 3, 2018.
CAC-11-2	Revision 2 pre-filed testimony of Valter Viola - October 10, 2018 (Clean)
CAC-12	Revised PUB-CAC-1-5 - October 10, 2018
CAC-13	CAC Opening statement.
CMMG-1	CMMG Intervenor Application.
CMMG-2	CMMG to MPI Information Requests - Round 1.
CMMG-2-1	CMMG to MPI Information Requests - Round 1. Motorcyclists increase.
CMMG-2-2	CMMG to MPI Information Requests - Round 1. Program changes/methodology changes.

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CMMG-2-3	CMMG to MPI Information Requests - Round 1. Breakdown of increased $65 million revenue.	
CMMG-2-4	CMMG to MPI Information Requests - Round 1. Comparison of projected v actual losses (2007-2017)	
CMMG-2-5	CMMG to MPI Information Requests - Round 1. Loss distributions for anomalies.	
CMMG-2-6	CMMG to MPI Information Requests - Round 1. Loss trends - applied v. rates approved.	
CMMG-2-7	CMMG to MPI Information Requests - Round 1. Loss trends - actual loss ratios/claim frequency for private passenger and motorcycle.	
CMMG-2-8	CMMG to MPI Information Requests - Round 1. Investment in motorcycle road safety.	
CMMG-2-9	CMMG to MPI Information Requests - Round 1. Comparison with other provinces - 50 year old men with two vehicles 2004 Harley/GMC.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CMMG-2-10	CMMG to MPI Information Requests - Round 1. Progress with new initiatives on experience rider program.	
CMMG-2-11	CMMG to MPI Information Requests - Round 1. RSR Basic program amounts over 15 years.	
CMMG-2-12	CMMG to MPI Information Requests - Round 1. Percentage of decreases in expenses.	
CMMG-2-13	CMMG to MPI Information Requests - Round 1. Sources and factors of RSR increase.	
CMMG-2-14	CMMG to MPI Information Requests - Round 1. Capital maintenance provisions (CMP) delay.	
CMMG-2-15	CMMG to MPI Information Requests - Round 1. Wildlife collision program and initiatives.	
CMMG-3	CMMG to MPI Information Requests - Round 2.	
CMMG-3-1	CMMG to MPI Information Requests - Round 2. PIPP losses - motorcycle incurred losses.	

LIST OF EXHIBITS

Exhibit No.	Description	Page No.
CMMG-3-2	CMMG to MPI Information Requests - Round 2. ITF and ITOF, interest transfer from retained earnings 2009-2013	
CMMG-3-3	CMMG to MPI Information Requests - Round 2. Averaged rates of private insurers in Alberta.	
PUB-17	Book of documents of PUB counsel.	67
CAC-13	CAC PowerPoint presentation	87

List of Undertakings

No.	Description	Page No.
1	To provide how much the yield rate on the Government of Canada 10-year bonds has changed over the period from February 2018 to September 2018 and show what the claims discount rate has changed over that same period	157

--- Upon Commencing at 9:03 a.m.

THE CHAIRPERSON: Good morning, everyone. My name is Robert Gabor. I'm the Chair of the Public Utilities Board. I now call this 2019 Manitoba Public Insurance Corporation General Rate Application herein to order.

I'm joined by three (3) other Board members at this hearing. Board members are Irene Hamilton, on my left, your right; Robert Vandewater and Carol Hainsworth. Also with us today is Darren Christle, the secretary of the Board, Kristen Schubert who will manage our electronic document system. Cheryl Lavigne will act as our court reporter. Transcripts of this hearing will be recorded by Digi-Tran and made available on our website.

Before we proceed with the application, I would like to acknowledge, for the record, the passing of Robyn Gray; a larger-than-life figure who appeared regularly before the Board at MPI General Rate Applications where he spoke on behalf of motorcyclists. Tragically, Robyn was killed in a motorcycle crash in May of this life.

I would like to call upon Ray Oakes to say a few words about Robyn.

MR. RAYMOND OAKES: Thank you very much, Mr. Chairman, for this opportunity to speak publically in recognition of the life of Robyn Sefton Gray who left us at the age of 71 on May 24th, 2018.

Robyn was, indeed, a larger-than-life and colourful figure. He was an outlaw biker; a successful businessman; an advocate for motorcycle safety and the founder of the CMMG. He was a libertarian who took it quite seriously to fight on behalf of the rights of the individual against what he saw as large, and sometimes too powerful organizations including government and other organizations. There was a two-page spread in the Free Press entitled Legendary Biker Even Greater Man. I would hope that when I pass I'd merit some -- some recognition. It certainly wouldn't be two (2) pages in Winnipeg's newspaper.

Robyn founded the CMMG in 1992 and pretty much attended every Public Utilities Board hearings since that time. He was a president of the Spartan Motorcycle Club. He started Winnipeg's first Harley Davidson franchise in 1978 and carried that business on successfully for generations. I was shocked to receive a text the next morning that Robyn had passed killed by not one (1) but two (2) cars and

his loss leaves all of us a little poorer and a little less colourful. Thank you, Mr. Chairman.

THE CHAIRPERSON: Thank you, Mr. Oakes. MPI has applied to the Public Utilities Board for approval of its premiums to take effect on March 1, 2019. This hearing will be conducted in accordance with the provisions of the Crown Corporation's Governance and Accountability Act, the Public Utilities' Board Act and the Board's Rules of Practice and Procedure. These rules are available for review on the Board's website.

In its application MPI is seeking a 2.2 percent overall increase in basic vehicle premium revenue, including vehicle-for-hire rates for service for the 2019/2020 insurance year.

This overall increase is comprised of a 0.1 percent increase to the breakeven cost of policies and a 2.1 percent increase for a net capital maintenance provision to maintain MPI's capital provision through the rate year -- through the rating year as measured by the minimum capital test.

We will begin the hearing on each hearing date at 9:00 a.m. and adjourn at approximately 4:00 p.m. Each day will include a mid morning lunch and mid afternoon break.

The Public Utilities Board -- the Public Utilities Board's mandate is to set just and reasonable rates that are in the public interest. The public interest has been defined by the Manitoba Court of Appeal as balancing the impacts of rate increases on consumers with the fiscal health of the Utility. In order to set just and reasonable rates that are in the public interest, the Board will need to hear and consider all of the evidence that is adduced on the record of this proceeding and hear submissions from Manitoba Public Insurance and all approved Intervenors.

Following closing arguments, the Panel will sequester itself and deliber -- deliberate to make our final determinations on the matters before us. In the end, we may accept, deny or vary MPI's application.

In reaching our decision, we would be guided by the evidence, written or oral, in our determination of what represents the public's interest. The Board takes its obligation and mandate of protecting the public interest very seriously. We are concerned no only with the short-term economic impact of MPI's operations on both ratepayers and MPI itself, but also the fairness of that impact on MPI's

long-term fiscal and operational well-being. In addition, the Board views this process as one which should ensure transparency in terms of the Corporation's operations and financial position.

In its procedural Order 82/'18 issued following the pre-hearing conference which took place on June 25th, 2018, the Board approved a final issues list for this hearing. In accordance with that Order, the Board looks forward to hearing evidence and submissions from the parties with respect to the following issues which are before the Board, among others.

The rate Order sought by MPI, namely, an overall 2.2 percent rate increase, no rate stabilization reserve, rebuilding fee and no chang -- changes to other fees and discounts.

MPI's financial position, including its financial forecasting accuracy and projected financial results.

The Dynamic Capital Adequacy Test Methodology utilized by MPI, together with the appropriate target capital range for MPI's rate stabilization reserve or RSR and total equity.

Final rates for vehicles-for-hire. MPI's expenses and cost containment efforts. MPI's

claims forecasting and runoff of prior year's claims. bench marking conducted by MPI. MPI's investment portfolio performance, the composition of the portfolio and the asset liability management study conducted by Mercer. MPI's quarter -- sorry, MPI's corporate strategic plan and MPI's IT strategic plan and IT expenses and projects.

We trust the participants at this hearing will be mindful of cost effectiveness and will employ a cooperative approach, the common goal being to put forward useful evidence to assist the Panel in reaching sound decisions on the matters before it.

We have significant and complex issues before us and I'm confident that we will approach this process with a view to benefitting the public interest.

The Manitoba Ombudsman has issued privacy guidelines for administrative tribunals. The Public Utilities Board is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed until it is appropriate and necessary to do so, however, the Board advises participants that these proceedings are public and that as a result, personal

information protections are reduced.

In addition, two (2) matters of housekeeping: First, please ensure that all cellular phones are off or on mute throughout the hearing; second, all parties and the representatives and consultants should be aware that the Board hearings are live-streamed through a link accessible on the Board's website. As such, for the benefit of the public, the use of acronyms is to be discouraged. It will assist in the public's understanding of the issues and evidence if acronyms are avoided.

I will now call on Ms. McCandless for introductions, followed by the introductions by MPI and the Intervenors. Ms. McCandless will then give her introductory remarks, after which I will call on MPI and the Intervenors to provide their opening remarks. We will then proceed with the swearing in of the MPI panel and commence the evidentiary portion of the hearing.

Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Thank you, Mr. Chair. Good morning. It's Kathleen McCandless, Board counsel. To my immediate left is my co-counsel Robert Watchman. We also have with us today Roger Cathcart and Candace Martyszenko, accounting advisors

to the Board and Mr. Brian Pelly. The actuarial advisor to the Board is not here today. I believe he is following the proceeding through the live stream and he will be with us later this week. Thank you.

MR. STEVE SCARFONE: Good morning, Mr. Chairperson, members of the Board. My name is Steve Scarfone, counsel for Manitoba Public Insurance. There's a number of people from MPIC here today so I'd like to go through each of them and introduce them for the Board.

To my immediate left is Luke Johnston, he's the chief actuary of MPIC and vice-president of product and risk management. To his left is president and chief executive officer, Ben Graham; beside him is Brad Bunko, vice-president pf information technology, business transformation and the chief information officer. Next to him is Curtis Wennberg. Mr. Wennberg is vice-president, customer service, and chief operations officer. Next to him is Mark Giesbrecht. Mr. Giesbrecht is vice-president of finance and the chief financial officer for Manitoba Public Insurance. Immediately behind me is Satvir Jatana. She is vice-president of Human Resources and corporate services of MPIC. Beside her is Mr. Keith Ward -- Mr. Ward Keith, I apologize. You'll recognize

him. He's vice-president of business development and connections and the Chief Administrative Officer. Next to him is Mike Triggs. MPIC's vice-president and corporate secretary and general counsel. Just so I have everybody straight, that's my co-counsel beside Mr. Triggs; that's Anthony Guerra Lafontaine (sic). And beside him is Mr. Jeff Crozier, he's director of Regulatory Affairs. I the analyst beside him is Ted Meira. He's the analyst of director -- of regulatory affairs. I apologize.

THE CHAIRPERSON: Thank you, Mr. Scarfone.

MR. STEVE SCARFONE: Thank you.

THE CHAIRPERSON: Just for people who have not appeared, we have the microphones which have buttons that are impossible to put on. You have to press it hard until the red light -- until the red light comes on. Thank you.

Mr. Williams -- oh, Ms. Dilay...?

MR. KATRINE DILAY: Thank you, Mr. Chair. Good morning, Board members. My name is Katrine Dilay, lawyer with the Public Interest Law Centre and together with Mr. Byron Williams to my left who is the director of the Public Interest Law Centre. We represent the Manitoba branch of the Consumers

Association of Canada and Ms. Gloria DeSorcy, Executive Director of CAC (Manitoba) is sitting behind us. Thank you.

THE CHAIRPERSON: Thank you.

Mr. Oakes...?

MR. RAYMOND OAKES: Good morning, Mr. Chairman. Again, Raymond Oakes, Booth Dennehy & Associates on behalf of the Coalition of Manitoba Motorcycle Groups known as the CMMG.

THE CHAIRPERSON: Thank you.

Ms. McCandless...?

OPENING COMMENTS BY BOARD COUNSEL:

MS. KATHLEEN MCCANDLESS: Thank you. Manitoba Public Insurance is applying to the Public Utilities Board for approval of premiums to be charged with respect to compulsory vehicle insurance for the insurance year 2019 and '20. The rates would take effect on March 1st, 2019 and are based on overall 2.2 percent rate increase, comprised of a .1 percent increase to the break-even cost of policies and a 2.1 percent increase for a net capital maintenance provision.

MPI is also applying for final approval of premiums charged with respect to compulsory

vehicles for hire rates for insurance effective March 1, 2018, including vehicles for hire rates for service for both the 2017/'18 and 2018/'19 insurance year, based on the rates previously approved by this Board in Order 162-16 and 130-17.

With respect to the evidence filed in this proceeding, I note that there were five (5) exhibits entered on the record at the prehearing conference in this matter and that prehearing conference was held on June 25, 2018. Those exhibits were PUB-1, the Notice of public hearing and prehearing conference dated June 15, 2018.

PUB-2, the Board's Rules of Practice and Procedure.

PUB-3, the proposed hearing timetable for this GRA.

PUB-4, a letter from Mr. Christle to MPI and all prospective Intervenors dated June 18, 2018, with attachments.

PUB-5, a letter from Mr. Christle to MPI and all prospective Intervenors, dated June 22, 2018.

I should say that was six (6) exhibits entered on the record at the procedural hearing. The sixth exhibit was 61-18, contained the preliminary

issues list for this GRA.

Now, in addition, I would like to enter the following exhibits for the record today. PUB-7, which is the transcript of the prehearing conference held on June 25, 2018.

PUB-8, the Board's procedural Order 82/'18, dated June 29, 2018, with appendices which Order approved the final issues list for this GRA.

Exhibits PUB-9-1 to 9-86, the PUB first round Information Request and MPI's responses to those requests.

PUB-10, which was PUB Order 89/'18 in respect of a motion filed by MPI seeking confidential treatment of certain information in the GRA.

Exhibits PUB-11-1 to 11-39, the PUB second round Information Requests and MPI's responses to those requests.

PUB Order 123-18 in respect of a motion filed by MPI seeking confidential treatment of certain responses to round 1 Information Requests in this GRA.

PUB-13, Board Order 124-18 in respect of a motion filed by Consumers Association of Canada Manitoba Inc. for an order compelling certain responses to Information Requests in this GRA.

Exhibit PUB-14, the reminder notice of

the public hearing dated September 15, 2018.

PUB-15, PUB Order 130-18 in respect of a motion by Manitoba Public Insurance, seeking confidential treatment of certain responses to round 2 Information Requests in this GRA.

And Exhibits PUB-16-1 to 16-9, the PUB Information Requests of CAC and CAC's responses to those requests.

Lastly, we circulated this morning and, Panel members, you should have copies before you of the book of documents of PUB counsel, which I would ask that be entered as PUB-17.

--- EXHIBIT NO. PUB-17: Book of documents of PUB counsel.

MS. KATHLEEN MCCANDLESS: With respect to the cross-examination to be conducted on behalf of the Board over the next number of days, the following major issues will be addressed: The background to the rate applied for MPI's financial position; the Dynamic Capital Adequacy Testing Methodology and the Rate Stabilization Reserve; MPI's expenses and cost containment efforts; MPI's claims forecasting; bench marking conducted by MPI; MPI's investment portfolio

and the Asset Liability Management Study conducted by Mercer; MPI's corporate -- corporate strategic plan and MPI's IT strategic plan, expen -- IT expenses and projects; as well as other topics that may arise.

I would now refer to the procedural outline which was distributed this morning and, in particular, to the bottom of the first page, running to the second page, in particular, where the order of the matters to be heard are reflected. Please note that there is a change in the proceedings this year. MPI will be putting forward issue specific witness panels and so at item number 3, on page 2 of the procedural outline at the top of the page, this is the first panel from which we will hear today.

Tomorrow, at Item 5, we will hear from the MPI investments capital maintenance provision rate stabilization reserve, Dynamic Capital Adequacy Testing panel and that panel will also include Mr. Dave Makarchuk of Mercer. He is appearing to testify as to the Mercer ALM study. Mr. Makarchuk, as you will recall, was pre-qualified as an expert witness in the Board's procedural Order.

With respect to the next panel at item 6, we expect to have the revenue expenses rate-making panel. Per the procedural outline, they are scheduled

to appear on Friday of this week, but depending on when the previous panel wraps up, they may start prior to then.

Then beginning at Monday of next week at item number 7, we have the IT physical damage re-engineering project value management panel. That Panel will include Mr. Chuck Henry of Gartner to speak to the physical Damage Re-engineering Project evaluation and Mr. Henry was also pre-qualified as an expert in the Board's procedural Order.

Following that panel there may be a need for a cleanup cross-examination based on answers to undertakings and once the MPI panels are complete, we will hear from CAC witnesses, first, Dr. Wayne Simpson and Andrea Sherry on Friday, October 26th and Valter Viola on Monday, October 29th. We will then hear closing submissions.

In addition, there will be the opportunity for members of the public to present to this hearing beginning this afternoon and to finish this afternoon at 1:30 p.m. We are expecting three (3) presenters to appear today. As the hearing proceeds changes to the schedule may be required, but we will do our best to follow the anticipated schedule.

One last item, on Friday of last week we heard from Erika Miller of CAA. She advised that she would not be present at today's hearing nor would CAA be in attendance throughout the proceedings this year. CAA did apply for and was granted Intervenor status in this hearing and so, accordingly, it is still listed in the procedural outline as an Intervenor.

Ms. Miller submitted written remarks for this morning which I will read into the record following the opening statements made by the other Intervenors this morning. Those are -- are my opening remarks, Mr. Chair. Thank you.

THE CHAIRPERSON: Thank you, Ms. McCandless. I'm just wondering in terms of the schedule perhaps counsel can get together at some point and determine if they want a break between the evidence and submissions so that we know as we move forward rather than waiting til the end of the hearing if -- if we're going to have submissions immediately following the -- the close of testimony or if there's going to be a -- a -- a day or -- or -- or whatever, so. It'd be nice to know, you know, at the end of this week or sometime next week rather than wait til the end of the hearing.

MS. KATHLEEN McCANDLESS: We will advise. Thank you.

THE CHAIRPERSON: Thank you. Mr. Scarfone...?

OPENING REMARKS BY MPI:

MR. STEVE SCARFONE: Thank you, Mr. Chairperson. Mr. Chairperson, members of the Board, one (1) year ago I was before this Board at the start of the 2018 General Rate Application and spoke of prudent fiscal management and rate stability. Not surprisingly, those two (2) themes will again form part of the 2019 General Rate Application and I expect those same two (2) themes to re-appear at next year's General Rate Application.

However, Mr. Chairperson, there is a difference between this year and last. Last year you will recall that the Corporation had faced significant financial challenges in recent years and was seeking a rate increase of 2.7 percent which management had reduced through a number of strong actions from an additional -- from an initial 7.7 percent rate indication.

This year the Corporation is seeking an increase of .1 percent to the break-even cost of

policies. That's just one-tenth (1/10) of a percentage point. The Corporation has said in its overview section that financial stability at MPIC appears promising this year.

Of course, as mentioned earlier, the Corporation is also seeking a additional 2.1 percent increase for a net capital maintenance provision for an overall increase of 2.2 percent.

And I will return to the capital maintenance provision momentarily, but I want to highlight to -- for you, Mr. Chairperson and Board members, the reasons why MPIC brings a more optimistic message before the Board this year.

Last year the Corporation made a rather bold prediction provided MPIC was properly capitalized that it had sufficient funds in its rate stabilization reserve as mandated under Section 18 of the Manitoba Public Insurance Corporations Act, the Corporation could return before this Board year after year seeking little or no rate increases except in exceptional circumstances. And the reason for that I would suggest, Mr. Chairperson, is the means by which the Corporation naturally grows its revenue through increases to the driver and vehicle numbers, along with customers upgrading their vehicles; that revenue

growth is 4 percent. So provided expenses and costs are lower than 4 percent, there will be no need for a rate increase. And that I would suggest is what's before the Board this year, delivery on a promise of little or no rate increases.

Again, there is this year just a .1 percent increase sought for the cost of issuing policies. Having said that, Mr. Chairperson, the issue of capital is not yet fully resolved.

In the Order that followed last year's hearing the Board made two (2) important findings in our view. The first was the recognition of lower and upper capital targets; the two (2) of which the Corporation could operate its reserve fund unfettered. And the second was allowing the Corporation to retain the RSR investment income as a means of building the rate stabilization reserve.

Prior to the retention of RSR investment income which amounted to approximately $12 million last year, the balance in the RSR was comprised entirely of money transferred MPI's competitive lines of business. This was not acceptable to MPIC.

As of February 28th, 2019 the balance in the rate stabilization reserve was $211 million.

The board of directors having transferred $37 million from the extension line of business to provide the RSR with a $10 million buffer above the minimum amount required for financial status -- satisfactory financial status for the 2018/'19 fiscal year. That is $10 million above the two hundred and one dollar ($201) -- $200 million lower target.

This year, Mr. Chairperson, I would suggest that Manitobans are beginning to see the benefit of the PUB assisting Manitoba Public Insurance in its capitalization goals. In short order you will hear from people much smarter than -- than myself about why a net capital maintenance provision is needed to maintain the minimum capital required from fiscal year end 2018/'19 to fiscal year end 2019/'20.

That is the reason why Basic's capital is expected to deplete if not propped up by a capital maintenance provision. Indeed, in the Board Order last year it stated as follows at page 29:

> "The Board appreciates the need to protect Basic's capital position against depletion due to the natural growth in Basic's risk profile."

And so the application this year will also ask for a 2.1 percent increase for a capital

maintenance provision.

It's important to note, Mr. Chairperson, that there are no expected variances -- if there are no expected variances in the next five (5) years, there will not be an ongoing requirement for capital maintenance provision, capital build requirements or transfers from the extension line of business.

In Mr. Johnston's DCAT section of the application, the Chief Actuary writes that the Corporation's business plan, with approval of the 2.2 percent overall increase assumes no additional rate changes, RSR rebuilding fees or capital maintenance provisions for policy years 2020 and 2022/'23.

So again, Mr. Chairperson, if this application is approved and forecasted rates are left alone, as it were, there will be no additional rate increases or additional CMP in the 2020 GRA and 2021 GRA. So that is the story that MPIC were presenting this year on capital.

As you may recall, again from last year, adequate capital reserves are an essential part of MPI's commitment to proven fiscal management. The other two (2) being appropriate premiums and effective and efficient operations. You will hear shortly from

MPI's new President and Chief Executive Officer, Ben Graham and he will speak more eloquently than I can on these tenets, but suffice to say that expenses are, again, this year being managed quite effectively by MPIC.

And one good exa -- example of that, Mr. Chairperson, our expenses are expected to decrease by over $5 million when compared against last year's forecast. And I would suggest, Mr. Chairperson, that the good news and optimism does not end there because MPIC has a new investment strategy to reveal this year - this year on the heels of the Asset Liability Management Study completed in January of this past year.

You have before you and will hear evidence about how the Corporation has gone from a co-mingled investment portfolio to one that segregates the investment fund into buckets, a Basic claims portfolio, a portfolio for the rate stabilization reserve, et cetera.

And we'll also hear evidence about how the new investment strategy selected a portfolio that offers considerable protection against the perils of inaccurate interest rate forecasting. In addition, the new strategy will have the effect of lowering the

capital required to keep MPIC in satisfactory financial status.

And for reasons that will be later explained by MPI's Chief Actuary, Luke Johnston, MPI calculates the lower and upper targets for the upcoming year to be a hundred and forty-three million and three hundred and five million as the upper target. This is a reduction of approximately 30 percent in the RSR range, a direct result, you will hear, of the new investment strategy.

MPIC is aware that the ALM study and the new investment strategy will be live issues during the course of this hearing. And while MPIC will present witnesses including Dave Makarchuk, the author of the ALM study, to answer questions the Board and Intervenors may have, the Corporation asked the Board to bear in mind two (2) very important considerations where it concerns the investment strategy:

1. The investment expertise MPIC had available to it when deciding upon a new investment strategy; and

2. Whether that investment strategy selected by MPIC is a reasonable strategy.

MPIC will be asking the Board to defer to the expertise of its investment committee and its

Board of Directors and make a final that the investment strategy is eminently reasonable. The Government of Manitoba in whose name the investments are held also believes the investment strategy to be reasonable.

You will hear evidence, Mr. Chairperson, that the new investment strategy was based upon the risk tolerance as decided upon by the government appointed MPIC Board of Directors. And while we may hear evidence from other witnesses during the course of this proceeding, the challenge of some of the investment decisions made by MPIC none of those witnesses, with respect, are able to speak to what the appropriate risk tolerance for MPIC should be.

Similarly, while not at this time challenging the credentials of Intervenor witnesses, this Board need only turn to Appendix 1 of Exhibit 19 in the MPIC rebuttal evidence to appreciate the investment credentials of the Investment Committee, Domenico Grestoni, Daniel Bubis, Valerie Wowryk.

And I mention these individuals by name, Mr. Chairperson, to impress upon you their expertise and why this Board should defer to the Investment Committee. To use but one (1) example from that appendix, Mr. Grestoni before he retired managed

a $17 billion Investors Group dividend fund for eleven (11) years.

By comparison, the MPIC investment fund is valued at approximately $3.3 billion. But I don't expect you to take my word for it, Mr. Chairperson and Panel members, you may recall from last year the testimony of Gary Steski, Assistant Deputy Minister at Manitoba Finance and you will recall that Mr. Steski who is co-chair of the MPIC Investment Committee Working Group described the Investment Committee as very qualified and highly competent.

Simply put, MPI and its Board of Directors under the direction of the Government of Manitoba had a lower risk appetite when deciding upon the new portfolios particularly as it concern Basic and this should not come as a surprise to the PUB.

MPIC has made significant transfers for four (4) consecutive years from extension line of business. Transfers totaling $213 million due to the depletion of the Rate Stabilization Reserve. In addition, MPIC in compliance with directives from the Board on interest rate forecasting suffered net income losses of a hundred and sixty-three million (163,000,000) between 2013 and 2016.

And so, Mr. Chairperson, the portfolio

selected by MPIC and its Board of Directors is one (1) with -- one (1) -- a hundred percent hedge ratio. And what that means, members of the Board, is that there is 100 percent protection against interest rate risk in the new investment portfolio.

There are, I would suggest, new investment portfolios and investments available to any given investor. Ultimately, however, it comes down to risk tolerance, and the evidence of the investment witnesses will repeat that premise again and again.

And given the Corporation's risk tolerance, can it reasonably arg -- be argued that the portfolio selected by MPI is unreasonable? We would suggest not. Could the new investment strategy have maintained a commingled portfolio and decided against the segregation? Sure. And could the new investment strategy have increased real estate holdings, rather than decreased the real estate holdings? Perhaps. And again, could the new investment strategy have included the purchase of real return values to protect against long-term rising inflation? Maybe.

But that isn't what MPIC and its Board of Directors went with. And that does not make the strategy unreasonable. And perhaps in a few years, when another ALM study is performed, the purchase of

real return values will be indicated, or maybe not. But there is no evidence to support anything but inflation in -- in -- at or about 2 percent. And so a portfolio that included real return -- real return bonds did not make sense in 2018.

Again, there are a myriad of investment options available. I encourage you, Mr. Chairperson, to revisit Appendix 1 to the rebuttal evidence of MPIC and think about the expertise in that investment committee.

For the reasons already stated, the Corporation is strongly opposed to forecasting interest rates in anything but the naive forecast. The Corporation complied with Board Order 130/17 and made adjustments based on the 50/50 forecast. However, for the 2018 General Application, MPIC is again forecasting rates using the Government -- Government of Canada ten (10) year bond yield rate as of February 28th, 2018.

Having said that, to ensure the interest rate used is as accurate as possible, the Corporation is not opposed to updating the forecast, just as it will under PUB pre-asked number 1, which requested the bench mark bond yield would be updated to the end of September.

From MPI's perspective, this should not be an entry -- this should not be an issue, interest rate risk forecasting. Quite simply, Mr. Chairperson, if interest rates go up, rates will be adjusted. Customers will pay less next year. If interest rates go down, rates again would be adjusted, and customers will pay more next year, either directly or through the RSR.

However, and this is the important point, if rates are forecast based on rise in interest rates, and rates happen to fall, there could be a significant shortfall. The naive forecast avoids this from again happening.

These are a few of the live issues left for discussion at this year's General Rate Application. Others include, as Ms. McCandless has identified, the Physical Damage Re-Engineering Program, and other information technology capital projects.

Having said that, the Corporation is also of the view that the Board has before it a full and unbiased record, and that questions be limited to those not already in evidence, and those which could not reasonably have been asked during the Information Request process. The Board will hear from panels this

year, rather than individual witnesses, as in past years, and the presentation will form part of each panel.

And of course, first up today will be the executive panel, who will begin momentarily. And the MPI executive will speak to the overview section of the application, offering the high-level perspective of MPI's decision making, along with the direction the Corporation intends to go.

Many of the executives on today's panel will reappear on other panels to speak to issues within their areas of expertise and responsibility. And the panel for the balance of the week will speak to investments, the CMP, the rate stabilization reserve, and the Dynamic Capital Adequacy Test. You will hear from Mr. Johnston, Mr. Giesbrecht, the CFO, and Mr. Bunston, who is the manager of investments.

As Ms. McCandless indicated, alongside that panel will be Mr. Makarchuk of Mercer Canada. He's been pre-qualified to give expert opinion evidence on institutional investment planning. Early next week, the panel will deal with information technology, physical damage re-engineering and value management, and we'll hear from Brad Bunko, Ben Graham, Curtis Wennberg, John Remillard, and Lawrence

Lazarko of the Information Technology department.

Chuck Henry of Gartner Consultant will be alongside that panel, and he will speak to the updated Physical Damage Re-Engineering Report as ordered last year by this Board. Mr. Henry has been prequalified to give opinion evidence on the use and the planning of information technology.

And lastly, Mr. Chairperson, the third panel scheduled for the second half of next week will deal with revenues, expenses, and rate making, and you will hear again from Mr. Giesbrecht, Mr. Johnston, and Cynthia Campbell, the Corporation's controller.

As in years past, there will be back row support to assist the panel members while giving evidence. The intention will be for myself and my co-counsel, Mr. Guerra, to introduce the back row personnel at the outset of each appearance.

And in conclusion, Mr. Chairperson and panel members, the relief sought in this application can be located in the legal application section of the application, Part 1, which is the very first section of the application, and includes the following, as indicated. A 2.2 percent overall increase, including 2.1 percent for capital maintenance, a lower RSR target of 34 percent MCT, which is the equivalent to

$143 million, an upper RSR target of 85 percent MCT, or minimum capital test, the equivalent to $305 million, and again, as Mr. Chairperson had indicated, final approval of the rates for vehicles for hire in the interim order dated January 15, 2018.

And subject any questions the Chair or the panel members may have, that concludes the opening remarks for MPIC.

THE CHAIRPERSON: Thank you, Mr. Scarfone. I've just got one (1) question: Which is the second panel? Is the second panel the revenue and expenses, or the -- we're going by the procedural outline, and -- and I -- I saw it as the revenue and expenses panel.

MR. STEVE SCARFONE: No, I do believe that the second panel is the investments, capital maintenance provision, RSR, and the DCAT, which is -- begins tomorrow.

MS. KATHLEEN MCCANDLESS: And -- yes. And just to --

THE CHAIRPERSON: Sorry, the -- what -- what follows that one? Is it --

MR. STEVE SCARFONE: That one, then, is followed by information technology. So the expenses one is the very last panel, Mr. Chairperson.

MS. KATHLEEN MCCANDLESS: I --

THE CHAIRPERSON: Which differs from the outline?

MS. KATHLEEN MCCANDLESS: Yes. I -- I believe what --

THE CHAIRPERSON: Yeah.

MS. KATHLEEN MCCANDLESS: -- will happen is because the -- the second panel will not take the balance of the week, that revenue, expenses, and rate -- and rate making is ready to go at the end of this week. That's why the procedural outline is written the way it is.

MR. STEVE SCARFONE: I see. Okay.

THE CHAIRPERSON: And -- okay. Well, no, as long as -- as counsel can --

MS. KATHLEEN MCCANDLESS: Yes.

THE CHAIRPERSON: -- figure it out. I just noticed the -- the difference.

MR. STEVE SCARFONE: Ms. McCandless is on top of these things, Mr. Chairperson, is --

THE CHAIRPERSON: Yes. Believe me, I know. Thank you.

Now, I -- I'm a little skittish now as to -- Mr. Williams will speak. Thank you.

OPENING REMARKS BY CAC:

DR. BYRON WILLIAMS: Yes. Good morning, and I'm pleased to appear on behalf of the Consumers' Association of Canada, the Manitoba branch.

And just to get a bit of housekeeping out of the way before we start, the Board will have already recorded CAC (Manitoba) Exhibits 1 through 12, so I would ask those -- that those be entered and accepted as exhibits. And we have a PowerPoint presentation for this morning, which I would ask be marked as CAC Exhibit 13. Just wait for that to be pulled up.

--- EXHIBIT NO. CAC-13: CAC PowerPoint presentation

DR. BYRON WILLIAMS: I -- I think Kristen may be in charge of it right now.

So just by way of introduction to our clients, CAC (Manitoba), while I've got here noted that they've been at rate hearings for about two (2) decades, it's actually getting closer to three (3) decades. I want to assure you that I have not been here for all those hearings, although My Friend, Mr. Oakes, may have been here for all those hearings.

Our client, in their Interventions before the Public Utilities Board, are guided by certain consumer rights and responsibilities. Those rights include the right to be informed, the right to choose, or in this case where we have a regulated market monopoly, the right to participate in the regulatory process as a proxy for choice, the right to have a voice in marketplace decision-making, and the right to consumer education.

Our clients are often asked how they developed their position, and as stated in our clients' notice of application to intervene, they do so through day-to-day consumer contact, through what they call now consumer engagement, which the Board may know better as consumer focus groups, through the guidance of the CAC (Manitoba) Board, as well as from advice from its expert advisors.

And it's worth noting in terms of this hearing, the commitment that each expert witness for CAC (Manitoba) is asked to undertake, Dr. Simpson, Ms. Sherry, and Mr. Viola have all been asked to confirm their duty to provide evidence that is fair, objective, and nonpartisan, and reminded that their duty in this hearing is not ultimately to CAC (Manitoba), but to the Public Utilities Board as

independent expert witnesses.

As the Board Chair adverted to in his opening comments, the test before this Board, the ultimate determination is whether rates are just and reasonable. And that involves a balancing act between ratepayers and the Utility, or the monopoly, as well as between different classes of ratepayers. And the burden of proof rests with Manitoba Public Insurance by virtue of Section 84(2) of the Public Utilities Board Act.

This Board has given us guidance on the five (5) key elements of determining just and reasonable rates, and these key elements will serve as an outline for the rest of our opening submission, but will also guide our clients' ultimate position.

Element 1 is ensuring that forecasts are reasonably reliable. And you heard counsel from Manitoba Public Insurance this morning say, Don't worry too much about interest rate forecasts. We'll make it up sooner or later, whether through the RSR, or subsequent rates. That's not how the regulatory process works, with respect. The burden on all of us in this hearing is to make estimates that are best estimates based upon this Board's ultimate discretion and judgment.

A second key element in this proceeding is ensuring that actual and projected costs are necessary and prudent. I put in the word 'justified', which I think better reflects Section 24 -- excuse me, Section 25(4) of the Crown Governance Act. But that -- that prudence of tests of cost is an -- a critical and necessary element.

A third element is assessing the reasonable revenue needs of the applicant in the context of its overall general health. And that's where questions such as appropriate reserves come into play.

The fourth critical element is the appropriate allocation of cost between classes, as well as between driver and vehicle owners.

And finally, the ultimate job -- the ultimate duty on this Board is setting just and reasonable rates in accordance with the statutory guidance.

In terms of ensuring that forecasts are reasonably reliable, the key question in this hearing is the interest rate forecast. And before this Board, on slide 8 of our PowerPoint, we put some insight from the Board from last year's hearing, where the Board expressly rejects the naive forecast for rate-setting

purposes and accepts the evidence of Dr. Simpson expressing a pref -- preference for the 50/50 interest rate forecast.

So the question for this hearing is -- ultimately, one (1) of the key questions is: Does the selection of a naive forecast unreasonably inflate the revenue requirement? And given this Board's findings last year, has there been any new evidence presented by Manitoba Public Insurance sufficient to disturb the Board's findings from last year which expressly rejected the naive forecast? Alternatively, have, indeed, effect -- events over the past year simply reinforced the unsuit -- suitability of naive interest rate forecasts on a going-forward rate -- rate-setting basis?

Another issue in terms of forecasting, although it's less critical, in our clients' submission, to this GRA, as to keep an eye on for future GRAs, is the implications of central reserving on forecasts of Personal Injury Protection Plan costs and claims. And if we go back to that slide for just a -- a moment, Ms. Dilay is much more organized than me. Just in terms of this issue, MPI has clearly had some challenges in terms of their forecast and in terms of their management of Personal Injury

Protection Plan claims. The move to central reserving is a relatively new one. It will take a few years, we suspect, to understand how that plays out into future costs and into future forecasts.

From our clients' perspective, necessary and justified expenditures and management are a key element of this hearing, and one (1) of the most critical questions relates to the investment fund. As this Board found last year, the ultimate responsibility for that fund rests with Manitoba Public Insurance, and the most critical question in this hearing, from our clients' perspective, is whether the design of the asset liability portfolio for Manitoba Public Insurance and the analysis was based on a fundamental, and unreasonable, and erroneous measure of risk.

Ultimately, our clients will ask in this quest -- in this hearing: Has MPI assumed undue risk with its Basic insurance investment portfolio while foregoing significant opportunities? And in particular, at the bottom of slide 12, has it justified its decision to assume away real interest rate risk and focus only on nominal interest rate risk? It's a fundamental question on which much of the -- the determinations of this hearing may turn.

Mr. Viola, who this Board has accepted as an expert evidence for the purpose of this hearing, and certainly relied on his guidance in the past, likes hockey analogies. Not everyone here loves hockey analogies, but I kind of do. And really, one (1) of the key questions in this hearing will be: Will we be picking -- sorry, whether the decision of Manitoba Public Insurance to pick the B team, good defenceman, i.e., its fixed income portfolio, but a lousy goalie, inadequate protection for real interest rate risk, was reasonable and justified, or whether an alternative as set out in may -- MPI Exhibit 12, really, the A team, a great forward, and a great goalie, is preferable.

And MPI Exhibit 12, which was compelled by virtue of the Board's disclosure order, has critical evidence and conclusions from Mercers, assuming a real liability benchmark from modelling, when moving return bonds significantly reduces an opportunity for improvement at lower risk levels, highlighting the fundamental nature of the -- what our client suggests is MPI's error in terms of measuring risk in the design of its investment portfolio.

In the course of this proceeding, and really, towards the end of -- of last year's process,

we -- we came to better understand some of the challenges that MPI has experienced in terms of Complex Long-term Personal Injury Plan claims. And certainly there's information on -- on the record in this proceeding that existing guidelines were not being followed following the BI3 implementation.

So our client, in this hearing, is seeking to understand the institutional challenges, if any, which lead to the failure to follow existing guidelines, and whether there were challenges, as well, in -- in implementing the centralized reserving team, that remedy, on a timely basis.

A key issue in this hearing relates to the significant writeoff of information technology investments. This Board, and our client, has been expressing concerns about the customer claims reporting system for a number of years and, certainly, there was a writeoff for the '17/'18 year of -- in excess of $15 million. There's also a significant writeoff in terms of the high school driver education fees too. And these are factors that our client wishes to explore and understand.

Not only to understand those specific arguably and prudent choices but also to understand where MPI is on a going-forward basis.

The physical damage re-engineering project was briefly mentioned by MPI in its opening statement but there's really been a fundamental shift in what we have been told by this Crown corporation in terms of the net present value of this project. $13 million to the positive last year to materially, materially negative this year.

And from our clients' perspective that raises fundamental concerns and fundamental issues about what are the role of external evaluators such as the Gartner Group in evaluating programs like physical damage re-engineering? Those types of questions for external evaluators may also extend to Mercers. And what, if any, lessons have been learned about the limits of the reliability of these evaluations?

And from our clients' perspective, one (1) of the most telling elements in this application has actually been the commentary of Gartner in terms of PDR, which is recommended reading for all in this process.

Ultimately, our clients will ask: Has MPI demonstrated through external benchmarking that its information business processes are reasonably mature?

Affecting customers last year, this

year and next year, is the $81 premium that MPI is required to pay on all jobs performed by a direct repair shop, not just direct repair jobs? And certainly, our client has concerns with the flawed light vehicle accreditation agreement and its impacts on consumers.

Can the payments to the repair industry of that $81 premium in the period between 2017 and 2019 March to March be considered prudent and reasonable? To the extent that these expenditures are imprudent and unreasonable, what is their magnitude?

Our client in -- in the vein of information technology also wants to look at staffing level benchmarks. And whether MPI has demonstrated to the satisfaction of this Board that its information technology staffing both overall and in terms of external consultants are reasonable consistent with industry norms, or are they unreasonably high.

Going forward, there is no doubt that there are significant costs and significant risks related to two (2) important MPI information technology programs, CARS and AOL. AOL standing for Autopac Online and CARS I would be testing my memory to address that acronym properly.

What our client is asking this hearing

is given the demonstrable challenges that MPI has demonstrated in managing the physical damage re-engineering project, and delivering net positive value to ratepayers, how is it all that MPI intend to update the Public Utilities Board regarding its investment decisions outside the formal rate hearing process?

And if we could stop here for a second, Ms. Dilay. If this Public Utilities Board thinks back to its prudent oversight behaviour with regard to physical damage re-engineering, the Board flagged the risks associated with that ambitious program early on and while the ultimate expenditure decisions rest with Manitoba Public Insurance, the Board was alive to the risk of that program and demanded significant vigilance through the rate-setting process. And our client is asking: Given the risks associated with CARS and with Autopac Online, these legacy systems, how is the dialogue, the regulatory dialogue, intended to proceed?

In terms of the value management process developed at Manitoba Public Insurance, there are a few examples of business cases that were filed in support of this application. Without offering a judgment on the merits of the high school driver education business case at this point in time, our

client does want to explore that business case is an exemplar of the value management process. And in particular, whether or not that business case reasonably assesses the voracity and strength of the available evidence that the training program is likely to reduce teen driver crashes or whether caution should be taken in interpreting the results of the cost benefit analysis.

Turning to the overall health of the Corporation, the third critical factor, we've had an ongoing debate over more than a decade about how the rate stabilization reserve and the appropriate levels should be calculated. Our client certainly have interpreted the Board's decisions to suggest that the dominant tool should be Dynamic Capital Adequacy Testing. And have interpreted the Board's past decisions as, in essence, rejecting the minimum capital test as a primary tool for determining the rate stabilization reserve.

What our client, though, is asking in this hearing, is whether Manitoba Public Insurance, through the Capital Maintenance Provision, is essentially introducing the previously rejected minimum capital test through the back door as the dominant tool for determining the actual level of the

rate stabilization reserve. That's certainly how our client interprets the Capital Maintenance Provision methodology put forward by Manitoba Public Insurance.

And in light of that, our client asks whether MPI has offered any new evidence to suggest that the rejected ma -- minimum capital test is appropriate for determining the actual level of a rate stabilization reserve in the context of a Crown monopoly that does not face the type of insolvency risk of a private company in a competitive marketplace.

Still focusing on that minimum capital test as the dominant driver for the level of the Rate Stabilization Reserve as presented in this application, our client asks: Does the MCT analysis, by incorporating a significant cushion for operational risk, effectively incorporate protection for poor management that is inconsistent with the stated purpose of the RSR?

And ultimately our client asks: Does the Capital Maintenance Provision serve to unreasonably shield Manitoba Public Insurance from accountability for unreasonable or imprudent management choices?

Our client has struggled with the

inconsistency -- analytic inconsistency of the MPI application, as well as its opening statements today. On the one hand there is this image of ever-growing risk for the -- for the health of the Corporation suggesting that reserves should be rising. And then there are the actual results of the Dynamic Capital Adequacy Testing for this hearing.

So our client is asking ha -- whether the hypothesis of ever-increasing risk for the Corporation has been demonstrated, alternatively, has the overall risk for Basic program ratepayers been reduced, as suggested by the most recent dynamic capital adequacy testing results.

One (1) last comment in terms of the Capital Maintenance Provision. Our client certainly will be testing what is the meaning of the word "consensus"; whether it implies only a meeting of minds between MPI and PUB advisors, or does "consensus" envision the intervener perspective as well.

And certainly if the PUB intends consensus to include MPI Board advisors and Intervenors, our client asks why Manitoba Public Insurance persists in maintaining that a consensus flowed from the CMP deliberations.

This goes back to slide 27, we ask, because MPI introduced a flawed measure of risk in its asset liability matching analysis, and this of course goes to the issue of whether the liability of the Corporation and that benchmark should be designed based upon nominal interest rate risk or real interest rate risk.

Finally, in terms of the proposed RSR range presented by Manitoba Public Insurance, our client asks whether the lower and upper bounds are consistent with PUB -- Public Utility Board directions, from the last General Rate Application.

And to the extent that the proposed range diverges from the PUB directions, our client asks whether MPI has met its onus of demonstrating the case for non-compliance.

In terms of the appropriate allocation of costs between classes or between drivers and vehicle owners, from our clients' perspective, well, this issue is always important. It will assume less importance from our clients' intervention in this hearing.

We will -- we will look at what is up next for driver safety rating, which is a critical tool in terms of the allocation of costs between

drivers and vehicle owners, as well as for road safety. But that's really a dialogue that will take more prominence in next year's General Rate Application. For the context of this hearing, our clients will be focused on MPI's plans to engage both with stakeholders, as well as with consumers.

The final element of the test, in terms of setting just and reasonable rates is -- we come to now on slides 31 and 32, and we ask: Has MPI unreasonably overstated its revenue requirement?

And in particular, does its application inflate the revenue requirement by relying upon a naive interest rate forecast, and does it inflate the revenue requirement by relying upon a Capital Maintenance Provision, especially as dictated by MCT analysis.

Two (2) other key themes that will appear at -- time to time during this hearing are -- one (1) relates to reconciling transparency and im -- improved disclosure of information. And in this context our client truly appreciates the sincere efforts of Manitoba Public Insurance to use the Public Utility Board Rules of Procedure, Rule 13, to share with the Public Utilities Board and stakeholders important information that -- that MPI believes is --

is commercially sensitive.

So certainly that's an important step forward that this process has taken over the last two (2) or three (3) years and our clients generally applaud it.

They do warn, and -- and -- and certainly as our client looks forward to closing argument, it's quite possible that for the first time ever in terms of closing argument, our clients, some of its submissions, may -- may need to be made in confidence given the undertaking they have made.

And that does raise issues for us outside this hearing as we move to future proceedings about public transparency. Our clients don't say this in a negative way. Our clients simply say that as we experiment with improved disclosure, including the improved use of Rule 13, there are challenges in terms of transparency that certainly we look forward to grappling with.

And finally, our clients look forward to a dialogue about good practice consumer and stakeholder engagement in the rate setting process, not just during the public hearing process, but in advance of the public hearing process.

And what does that look like? What

should it look like? What are best practice jurisdictions in Canada currently undertaking?

Our client does appreciate the opportunity to participate in this hearing and the support of participant funding as well.

Subject to any questions, those are our client's submissions.

THE CHAIRPERSON: Thank you, Mr. Williams.

Mr. Oakes...?

OPENING REMARKS BY CMMG:

MR. RAYMOND OAKES: Thank you, Mr. Chairperson, Members of the Board.

This is the CMMG's 26th year as an Intervenor before this Board. Again, we are asking this Board to exercise its statutory duties and powers wisely, fairly and equitably and not deferring to anyone contrary to the suggestion this morning by MPI.

We ask this Board to be vigilant and recognize the vested interest that's being demonstrated in this GRA and the Corporation holding on to more premium cash than is necessary, contrary to the interests of Manitoba consumers.

This application seeks a substantial

increase of 3.1 percent for motorcyclists, despite the rate indication of actuarially indicated calculations indicating only a rate increase of 1.1 percent.

Two-thirds of the rate sought for motorcyclists is for something called a CMP. Well, we know that that's not a Capital Maintenance Provision because the Board doesn't have a capital management plan and we haven't seen anything from them in that respect. I suggest that we respond with the same creativity that they have for cr -- creating these new cash grabs by calling it the "collect more pesos" initiative.

And they're looking to get additional funds in this fashion, just like in the previous year, where they came before this Board with some new initiative called the IRFR, an Interest Rate Forecast Risk, only for us a year later to hear that interests or risks are not something that should cause the consumers any concern, and this Board doesn't have to worry about an interest rate risk, despite the fact that they had this category and told us how important that was.

We hear that the Corporation wants us to adopt a -- a naive interest rate approach, which in our opinion would be naive. We have seen rising

interest rates in Canada already. We've heard the pronouncements of the Fed last week that sent the equity and bond markets into some disarray and suggest that that's an inappropriate test, just as indicated by the Board last year. In fact, it's a much better indication that -- this year than last that that is not the appropriate test.

So this new CMP, this cushion, my Learned Friend Dr. Williams put it well this morning that the CMP could shield the MPI management from poor choices or just bad luck. This 18 to 20 million dollar slush fund would certainly relieve them of difficulties in coming back to this Board to explain why they need money in future rate applications.

Mr. Scarfone pointed this morning to the good news and the optimism, and I would suggest that this Corporation is already in that enviable place. In fact, it's ripe for release of funds to preserve the generational equity going forward for consumers.

Just to be clear, the CMMG does not -- is not a proponent of reserves and rebates. The last time that it happened when the -- some quarter-million dollars was found unexpectedly in the reserves of the Corporation, that release and rebate cost about a

quarter million dollars to issue those cheques. Just to put that in perspective, that's far more than MPI spends on motorcycle safety initiatives.

With respect to the financial environment of the Corporation that comes before this Board with this year, we saw retained earnings increasing from 261 million to 352 million in the financial statement. We saw an increase of $65.3 million in revenues. We saw a decrease, as Mr. Scarfone pointed out this morning, of $5 million in Basic operating expenses. We saw 38.2 million in investment increase. We saw overall claims costs decreased by 72.5 million, and overall net income of the Corporation, $91.1 million.

So the CMMG is asking this Board to deny any increase attributable to the CMP as not being fair, equitable in the -- or in the public's interests.

We have similar comments about the RSR that will be forthcoming during the course of this hearing. This is a hearing in which the -- many of the issues CMMG is usually involved in, the testing of evidence, aren't part of this year's proceedings. There is little in the way of motorcycle program changes. A large part of our initiative, our

intervention, is road safety, and of course that's being postponed to a technical conference this winter.

In any event though, the CMMG looks forward to testing the Corporation's case and assisting the Board and representing Manitoba Motorcyclists to the best of our abilities.

In closing, I would ask the Board to acknowledge the exhibits of the CMMG and we look forward to participating. Thank you.

THE CHAIRPERSON: Thank you, Mr. Oakes.

Ms. McCandless, did you want to deal with CAA?

MS. MCCANDLESS: Thank you.

These are the opening comments submitted on behalf of CAA Manitoba.

(AS READ)

OPENING COMMENTS BY CAA MANITOBA (AS READ)

MS. KATHLEEN MCCANDLESS:

"Good morning, everyone. CAA Manitoba's representative at these hearings, Ms. Erika Miller, sends her sincere regrets that she cannot

be here today due to business commitments. She has asked me to share the following comments with you.

CAA Manitoba has engaged in this annual process for over two (2) decades, and once again appreciates this opportunity to participate. However, due to a change in format that removes road safety from the hearings to be covered in a technical conference in 2019, CAA Manitoba will be engaged in the technical conference rather than the hearings this year.

Like our friends at Bike Winnipeg, we participate chiefly as an Intervenor in the interest of road safety. We do this on behalf of our members who come to us for information on the topic.

CAA Manitoba looks forward to engaging more in the aspects of road safety at the technical conference, especially as issues such as

cannabis and distracted driving continue to be important in our community.

CAA thanks the Board, Board Counsel and our learned Intervenor colleagues again for this opportunity.

Thank you."

THE CHAIRPERSON: Thank you.

I think it would be an appropriate time to take the morning break so that we don't affect the testimony of MPI.

So we will break for fifteen (15) minutes and then we'll return and have the witnesses of MPI sworn in. Thank you.

--- Upon recessing at 10:20 a.m.

--- Upon resuming at 10:40 a.m.

THE CHAIRPERSON: I would indicate I was just admonished for not speaking loudly enough into the microphone so I will warn you to -- to do the same.

Mr. Christle, could you swear the witnesses in, please.

MPI WITNESS PANEL 1 - OVERVIEW PANEL:

LUKE JOHNSTON, Sworn
BEN GRAHAM, Sworn
BRAD BUNKO, Sworn
CURTIS WENNBERG, Sworn
MARK GIESBRECHT, Sworn
WARD KEITH, Sworn

THE CHAIRPERSON: Mr. Scarfone...?

EXAMINATION-IN-CHIEF BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you, Mr. Chairperson. So, Mr. Chairperson, the six (6) members just sworn in will be providing some evidence this morning on what's been called an overview presentation by the executive of Manitoba Public Insurance; that particular presentation will be given by MPIC President and Chief Executive Officer Ben Graham.

Just before he begins, I'd like to ask him a few questions, if I could, because I know the Board members aren't to familiar with Mr. Graham. This is his first appearance before the -- the PUB.

And Mr. Graham, welcome, sir. If I could, Mr. Graham, could you provide for the benefit

of the Board and its members, a little bit of information about your background and experience.

MR. BEN GRAHAM: Thanks, Dave. I have a number of years of consulting experience be it through Protiviti (phonetic) and Deloitte. I'm obviously not from around here, as you can obviously tell.

In the insurance industry I've had direct experience outside of consulting by taking up the role of chief risk officer of the Abu Dhabi Insurance Company in the Middle East and I was in that role for approximately 5 1/2 years. Subsequent to that for two (2) years I was chief risk officer of QBE Asia-Pacific. QBE, as you may know, is about the 12th largest insurance company globally. Large consumer and commercial exposures across the world. And that role was a responsibility for not just risk management but technical underwriting for sixteen (16) countries.

The reason why I'm here, is because I lost an argument with my wife about where I should move to. She's Canadian and hence I have taken on this role with MPI and have been very grateful for the opportunity.

MR. STEVE SCARFONE: Thank you, Mr.

Graham. And, Mr. Chairperson, what I intend to with respect to the other members of the executive panel, most of whom will appear on -- on other panels, on IT and such is hold my comments or my introductory remarks about each of those individuals until they re-appear on some of the other panels and just proceed directly into Mr. Graham's presentation if that -- if that pleases the Board.

THE CHAIRPERSON: That's fine. Thank you.

MR. STEVE SCARFONE: Thank you.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Mr. Graham, I understand you have a presentation to present to the Board this morning?

MR. BEN GRAHAM: I do.

MR. STEVE SCARFONE: And do you, sir, adopt the presentation as part of the evidence that this panel will give this morning?

MR. BEN GRAHAM: I do.

MR. STEVE SCARFONE: All right. And you're ready to proceed?

MR. BEN GRAHAM: Yes.

MR. STEVE SCARFONE: Okay, thank you.

MR. BEN GRAHAM: Good morning, Chair and the Board. I was hoping that I'd be introducing some new information but obviously after the Intervenors and Steve have spoken there's not really too much to talk about.

But I'm planning on about a 20 to 25 minute presentation. The agenda for the meeting will be broken up into two (2) major components. The first three (3) parts of this will be on the strategic direction that I foresee MPI undertaking in the few years ahead and what needs to be done to achieve that vision; as well as some more specific GRA topics and discussion on those points that are more relevant to this -- to this hearing.

First and foremost, I want to state for the record that MPI is evolving. We're not in -- in a stage or revolution. It is basically I re-focus on our core insurance fundamentals. We are a three and a half billion dollar organization. We pay $3 million of claims per working day of which we process twelve hundred (1200) claims per day.

I've been given very strict guidance from the Board of Directors, of which the Chair is represented here today, that we are to re-focus on our fundamentals of core insurance. I've also been very

clearly tasked by the board, as well as the government, to re-evaluate MPI from best practice principles; be that from Canadia -- from Canadian experience, from the Middle East, from Australia, from Asia, look at best practice and see where it can be implemented within MPI.

I've spoken to the term, since joining around a culture of excellence and what best practice is, and that means that we should ask questions. We should not be scared to make change where appropriate and we even make mistakes. I'm sure that some people in this hearing over the next couple of weeks will discuss the mistakes that we have made as a Corporation but everyone in this room has made mistakes at some time in their life. A culture of excellence make sure that we learn from those mistakes; make the changes to make sure it doesn't happen again. To me, that's a culture of excellence.

One (1) of the first things that I -- I looked at when I first took on the role of CEO was to look at the mission of the organization, as well as the values in which we would undertake that mission. We made some minor tweaks to the mission. And if you look at the three (3) streams of corporate governance where the government provides us with a mandate for

the services that we must provide, the board then applies a strategy against the achievement of that mission. And the panel in front of you today, the executive of MPI are responsible for the execution of that strategy.

So in short, the mission unfolds strategic decisions or direction that we must undertake. And if you read the new mission, it's actually fairly close to the original mission of MPI when it was first established in 1971. So we've, effectively, come full circle.

From that -- or I've asked the organization to implement a number -- or act through a number of values: striving for excellence, provide value to Manitobans, do what's right and invest in people. The old values were quite long and convoluted. These are simple and easy to understand.

Striving for excellence is about the exceptional coverage and service that we should provide Manitobans. We've been given a very important mandate and we should do our best to achieve that. That also means that we -- means that we should always look at continuous improvement and we need to evolve to meet customer needs. And we will talk a little bit later about what that means from an on-line strategy.

Unfortunately, here in Manitoba, we are a long way behind when it comes to online functionality, when it comes to service provision. We need to do what's right. We need to be transparent, and we need to be accountable. Again, we will admit our mistakes and we will make them but we need everyone's support to make sure that we don't do them again.

I'd like to think that there has been greater transparency from MPI throughout this process and I think Mr. Williams mentioned that when he was speaking originally. And we plan on paying the right claims. And what I mean by that, is we don't aim -- if someone is -- they should be paid a thousand dollars, we will pay them a thousand dollars. We're not going to pay them twelve hundred (1200) to keep them happy. We're not going to pay them eight hundred (800) because we are the big bad monopoly, we will pay them the thousand dollars ($1,000) that they deserve. That also means that we will focus on paying the right claims from a forward management perspective.

We need to empower and invest in our people to achieve excellence and empower them to do that. That also means that we need to invest more time and understand the needs of the government, our

stakeholders and partners, as well as the community in which we serve.

Which leads to the insurance priorities that inform the vision for the organization. The first one is appropriate insurance rates and service to customers. Key components of that we will be looking at our product offerings and re-introducing what I believe is a fundamental on insurance:

The concept of risk sharing. We will focus on paying right claims. The right amount for the right claim. We will be tougher on fraud and we should be able to provide great online functionality and provide better service to customers.

Point 2: Efficient operations. We should update our system. It is in dire need. We need to be off-the-shelf. When we need to buy an Accord not a Ferrari. We need to look what the impact that would have on FTEs and we're introducing stronger process management through laying principles. We will continue to focus on expenses, expenses that have decreased by 15 percent over the last five (5) years.

Fiscal prudence. Mr. Scarfone was very clear that we need to be fiscally prudent. Internally our board of directors has made it very clear to me

and the executive that all expenditure must be justified and quantified to the highest degree.

We also need to demonstrate that each of these expenditures are meeting the greater customer need. So we are learning more about the requirements of our customers and the evolution of that as we move forward. But that also means fiscal prudence from our partnerships. We, as a corporation, have put an obligation on our partners to demonstrate every dollar that they earn provides better customer service and better value to the community.

We also need to be more predictable in our forecasting; that would probably mean a change in re-insurance structure. It means that we need to look at stronger at technical pricing and we also need to look at capital management; something that's already been discussed earlier this morning.

So to try and make all that information look a bit prettier, you will see that we have our four (4) insurance priorities or the vision of the organization at the top. Underneath that we have four (4) key enablers: Prudent partnerships, re-insurance, capital and management and products and services.

We are looking at two (2) very key outcomes. The first one is to government who have

been very clear to our Board and to myself that they want a reduction in volatility. And our customers, through the provision of better services, ideally through online functionality, as well as lower or more proven rights. Some of the enablers we are working on now. Some of them are in the future. Government outcome on reduced volatility, again, we will look at things around re-insurance, processing models, MCT and potential system updates. While a customer outcome will be focused on product suites, prudent partnerships and online functionality. And same with strategic term, I'll continue to walk through some of the enablers.

So we have been expected by our board and by government to demonstrate fiscal prudence so it should be fair that we expect the same from all of our partners. We are in the process of five (5) key partnership negotiations of which three (3) have been closed or have been agreed in principle, and we are now just waiting final sign-off; two (2) of those are ongoing.

We are no longer stating a number and then reverse engineering how that money should be paid. We are applying value for money principles. We are paying money for service. And we are asking each

of our partners to quantify what is the cost benefit to our customers here in Manitoba.

We need to look at our re-insurance structure. I had this conversation when I first interviewed with the board almost a year ago and one (1) of the things that stood out to me was that we could look at our re-insurance structure. And what do I mean by that? We are currently on a risk event versus an aggregate re-insurance program. To pain a picture, if next year we were to have three (3) storms in one (1) year, hailstorms, one of 14, one of 30 and one of $12 million, on a risk event basis those gross losses would equal $56 million. We would recover fifteen (15) of that because it's on a risk event basis with a $2 million re-instatement cost on the $30 million event, leading to a $13 million recovery on the 56 million dollar of losses. Through an aggregate program the gross loss, again, would be $56 million but with a $25 million retention and a stop-plus of twenty-five (25), we would recover $41 million. Now again, that re-insurance coverage will cost a little more but it will reduce a volatility in our earnings.

I know that we'll be talking a lot over the next couple of weeks when it comes to capital management but we are the lowest -- we have the lowest

capital of any operational insurance company in Canada; if not North America. If we were a private insurance company we would be technically insolvent. We would not be allowed to take on any further liabilities. We would be on a very strict regulatory management plan.

Through the work of the board, we are getting closer to the higher end of the MCT calculation because of the ALM strategy. But once again, the government wants a reduction in volatility; not the idea of bailing out insurance companies.

MPI needs to modernize its products. We cannot have a $500 deductible on Basic and while this is not a conversation for this GRA application, it is something that we need to consider into the future.

The concept of risk sharing is one (1) that I mentioned very much early on and it's something that we need to look at. What I mean by risk sharing is that if you were to have a deductible of a thousand dollars ($1,000), you would take more responsibility and share that risk and take care of that risk more than if you only had a $500 deductible. If CPI was applied to the $500 deductible, we would currently be at $723.

Other considerations will also be looked at. Again, we are reaching out to our customer base to understand what it is that they want and that might be the use of OEM parts on cars for a higher premium, yes. But it's an option and it's something that we should provide to customers.

Now we finish the boring part of the presentation, we'll speak more to the issues at hand in relation to this GRA. A lot has been discussed and a lot of what we will talk about today and that's why the -- the executive panel is here with me today, a lot of the questions will be regarding decision or conversations that were made before my appointment. And I'm very happy to talk about what I see the future being for MPI but the panel is, obviously, here to support me in any of those questions.

I want to talk about some of the things that we've been working on as we move along, and some of the key changes that we see continuing into the future, if not addressed here.

I believe that we have a new level of transparency. I -- I wasn't here in the past, but there is definitely a mindset now that if an Information Request comes through, the first question is why would we not provide that. We should provide

everything.

I am hoping that that gives greater insight to the type of decisions that we are making. Again, I'd like to think that 99.5 percent of them are accurate and correct, but any guidance on those others is greatly appreciated.

The PUB has greater access to corporate leadership, which is evident through the panel that we are presenting here today. And I know that through conversations through -- with our Board, and as well as the executive, we continue to value the role of the PUB as we go on this journey.

Transparency, however, does not mean always greater granularity. Again, we are a $3.5 billion organization. The questions here should be based on what are the big-ticket items when it comes to setting rates as compared to the number of parking spaces we have in Cityplace.

Basic is moving towards stable footing. Again, through the great work of our Board and our investment team. There has been an incremental change on an actuals basis, but through the modeled outcome we have shifted our MCT, or we will shift our MCT, much higher in that range. Again, not because of the actual amount that we have in our RSR but because

effectively the ranch has shifted from here back to here when we look at all of those components around market, credit, insurance and operational risk.

We have also followed on from some of the discussions that we have had with the PUB in the past and technical conferences on the conversations around the CMP. And we feel that a CMP provides Basic's ability to hold its ground independent of the other lines of business.

I don't -- I think it would be remiss of me not to be -- make an admission that MPI has not always accurately quantified or validated assumptions when it comes to strategic projects. Again, we all make mistakes.

Some of those assumptions, and we'll talk about things like PDR, are conversations that occurred in 2012. However, we are here to discuss them with you.

When it comes to legacy modernization another mistake of MPI in the past, as we have got a consultant on board and we put that one up as the gospel according to Deloitte, PWC, Gartner, whoever it is.

For such a strategic project of merger, of legacy modernization, we have engaged two (2)

consultants. And I believe that you have both of those reports with you.

One (1) of them has assessed our potential for legacy modernization from a more business approach, and the other one from a strong technical background.

I'll be very clear, this is not Deloitte's business plan, this is not Allianz' business plan. We will own this business plan and we will be accountable for it.

Trust me when I tell you, that we have to be, because the gentleman over there to my right, Mr. Vankeran (phonetic) is on my case, very strongly, when it comes to driving value management across the organization.

We will focus on car insurance. We're not going to look at products outside of our core. We're not going to look at starting to underwrite business outside of our province. We need to get our ducks in a row here.

We're looking at forward management and risk sharing. It will not only be with our insureds, but it will also be with our business partners and service providers.

Our RT investment dollars will target

mainstream technologies. We will no longer be in the business of building base-spoke systems to meet our needs and our processes.

We are not special, and I've said this since day one. We need an off-the-shelf solution with as little customization as possible.

If a software assistant has been implemented in five hundred (500) companies, and we're 501, I'd like to think that some of our processes can change to meet the system and not vice-versa.

We need to move online and some of the key discussions with our government friends have been on our ability to move more of our transactions online, and our customers are demanding it.

In a recent customer e-panel, it was noted that 80 percent of our customers would prefer to do simple transactions online. For a change of address, why should they wait fifteen (15) minutes in a broker office or in one (1) of our service centers, including a commute and wait time for something that can be done in two (2) minutes online from the comfort of their own home.

However, we need to be clear, that our customer base is immature when it comes to the understanding of insurance. There is a few, when it

comes to bonding new insurance policies, and it is noted that only 35 percent would prefer online at the bonding of a new insurance policy, yet 75 percent would be comfortable renewing their policy online. That is a hurdle that we will need to overcome and educate the community as we go through the online journey.

Now let’s talk about some of the ongoing challenges. We have significantly reduced risk and it is very clear that investment portfolios, as Mr. Scarfone pointed out, can be sliced and diced in a hundred different ways.

We are very happy to hear expert evidence and learn from others that can provide a different point of view. I also have great confidence in the capability of our Board, our investment team and our government advisors when it comes to developing and approving our investment strategy.

Yes, we do risk. On our models we expect income could potentially reduce by approximately 8 percent. The upside of that is a 47 percent reduction in volatility on a 1:20 year VAR. Eight percent reduction for 47 percent reduction in volatility. That's pretty good math in anyone's eyes. And ultimately the need to do risk because with a low

MCT that clearly defines our appetite for risk.

With myself and Mr. Johnston went to visit one (1) of Winnipeg's sunny casinos and I had a thousand dollars ($1,000) in my pocket and Mr. Johnston had a hundred dollars ($100) in his pocket, we would fundamentally have different appetites of risk, both when we walked through the door and when we put our money down on the table. Let's just keep that in mind when we talk about our risk appetite when it comes to investments and where we sit from an MCT calculation.

I was tasked by the Board to implement best practice. I believe that we are starting that journey, especially when it comes to things around technical underwriting, online capability and claims management. So I guess the question that I've been asking is: Why is our MCT not best practice?

Is Manitoba so unique to the rest of the world or to the rest of our Crown peers? No, they should not.

When I hear about the government being able to bail out MPI if we were to have a bad year, an interesting topic that I've discussed with the Board is that in my previous role, as I mentioned I was responsible for the underwriting and risk management

for sixteen (16) countries, in the South Pacific they would have a number of very small countries and we were in agreement with the Australian Government that we were pretty much mandated as the largest commercial insurer to provide insurance coverage in those countries. Minimal profitability, high risk exposure. My first reaction when I took that role was we need to exit those nations immediately, Vanuatu, Fiji, New Caledonia, et cetera.

The company was mandated by the government to provide reinsurance and economic stability in those countries. We did not just have a low MCT, and expect the government, through storm relief, to bail us out. We had MCTs in the range of 600 to 1,000 percent. We also had appropriate reinsurance coverage. Those two (2) things meant that we had a proven approach to those exposures, despite the guarantees of the government for bailout.

While I understand Manitoba is not exactly Fiji, as I look out the window, and I recently learned that Manitoba accepts pesos, there are some lessons that can be learned through this example.

No one at this table would like to walk with their tail between their legs to the ledge and ask for a couple hundred million dollars.

Where would I like this to go? I would like us to have a target. And again, this is not for this GRA specifically, but in the future I would like us to have a target. Not a range, a target.

If that target is 100 MCT, as is prescribed with other Crown corporations in Canada, we would then be working with the PUB to calculate the formulas in which we would move around that 100 MCT, be it through building up capital back to that target, or releasing capital to get back to a hundred.

Risk management principles when it comes to interest rate forecasting. I -- from every discussion that I have had with my team, we have never disputed that interest rates could rise. We've never disputed that fact.

But we cannot make assumptions when it comes to our Basic insurance program. We must be prudent in the context of it is a break-even program. It is not for profit. And our appetite is low because of our low MCT. Our focus should be to rely on a reduction in volatility, both for the government and ratepayers.

Those three (3) topics that I've just mentioned will be discussed at length through individual panels over the next couple of weeks.

So where does that leave us? Our mission is very clear. I feel that both MPI and the PUB and aligned when it comes to the mandate of providing value to Manitobans. If we can strive for excellence, do what's right and invest in our people, I believe that inherently we will do that.

We're making good progress, especially when it comes to focussing on the core business and insurance principles are first and foremost, and I believe that with the makeup of the new executive, some of us with a lot more private industry experience, some of us with long experience with MPI and public insurance experience, as well as looking at what our peers are doing and seeing if it can fit in the Manitoba landscape, that we will continue on this journey into the future.

Volatility is key. If I had a dollar for every time that I heard the term "volatility" over the ledge, I probably wouldn't need this job.

We need acceptable capital targets. We are not unique. It should be based on best practice and best estimates. The Capital Maintenance Provision allows Basic to hold its ground, and that's an ask that we have in this GRA.

Again, a reduction in volatility must

be looked at when we look at interest rate forecasts, instead of betting on something that may or may not happen.

I now look forward to any questions. Again, this is my first GRA so I hope that I can answer, and if I can't I have a heap of people to my left and right who will be happy to jump forward and answer your questions. Thank you.

THE CHAIRPERSON: Thank you, Mr. Graham. I -- I just -- before we go further, I just want to confirm with the Board secretary that this presentation's already filed as an exhibit.

(BRIEF PAUSE)

MR. DARREN CHRISTLE: Yes, Mr. Chair, it is.

THE CHAIRPERSON: Okay. And what number is it?

(BRIEF PAUSE)

THE CHAIRPERSON: Is that --

MR. DARREN CHRISTLE: MPI-21.

THE CHAIRPERSON: Thank you. Okay. I

didn't have it marked. Okay. Ms. McCandless...?

CROSS-EXAMINATION BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. Good morning, Mr. Graham and members of the MPI panel.

Mr. Scarfone, before I begin, I understand that the members of this panel are prepared to answer questions regarding the rate applied for and the financial overview?

MR. STEVE SCARFONE: That's correct, Ms. McCandless. I might just remind My Learned Friends that with the exception of Mr. Keith, all of the panel members, including Mr. Graham, will re-appear at some later point to speak directly to the issues on the issues list, but your understanding is correct.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. My first set of questions is for you, Mr. Graham. I take it that the Corporation accepts that it bears the onus of proof to substantiate the General Rate Application?

MR. BEN GRAHAM: Yes, I do.

MS. KATHLEEN MCCANDLESS: And that the

Corporation bears the onus of establishing that the proposed rates and fees are just and reasonable?

MR. BEN GRAHAM: Absolutely.

MS. KATHLEEN MCCANDLESS: Another way of stating the test is that the rates are to be actuarially sound and statistically driven?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. Just some questions with respect to the rate application to confirm for the record.

The Corporation is seeking a 2.2 percent increase in Basic vehicle premium revenue, effective March 1, 2019?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And a minimum lower rate stabilization reserve total equity target of 34 percent minimum capital test, that's total equity equivalent of 143 million as at February 29, 2019?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And that is based on a 1:40 probability Dynamic Capital Adequacy Test scenario, yes?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And a legal

application is before you for your assistance at item 3, a maximum upper rate stabilization reserve target of 85 percent minimum capital test, a total equity equivalent -- equivalent of $305 million as at February 28, 2019?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And that is based on a two (2) year 1:40 Dynamic Capital Adequacy Test scenario with no management action; "yes"?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. There are also no changes to miscellaneous permits and certificates?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: At item 5, no changes to driver premiums through the driver safety rating system?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And no changes to vehicle premium discounts?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And we also see at item 7, there are no changes to fleet rebates, and surcharges?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And at item 8, consistent with the 2018 Vehicles for Hire Interim Application, the continued eligibility of vehicles for higher vehicle premium discounts?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: And the waiving of service fees for change of insurance for vehicles for hire; "yes"?

MR. BEN GRAHAM: Yes.

MS. KATHLEEN MCCANDLESS: Thank you. Now, I have some questions about your presentation this morning, Mr. Graham.

MR. BEN GRAHAM: Yes.

MS. KATHLEEN MCCANDLESS: And if we could pull up MPI Exhibit Number 21, and slide 7. You spoke about the four (4) enablers this morning. I just have some questions about enabler number 1, ensure prudent partnerships.

MR. BEN GRAHAM: Yes.

MS. KATHLEEN MCCANDLESS: You had mentioned that you had -- or the Corporation had closed three (3) key partnerships?

MR. BEN GRAHAM: Updated, yes. Yes.

MS. KATHLEEN MCCANDLESS: And two (2) are ongoing; "yes"?

MR. BEN GRAHAM: Yes. Correct.

MS. KATHLEEN MCCANDLESS: Could you perhaps just elaborate a little bit on what those partnerships are?

MR. BEN GRAHAM: Well, the -- the five (5) key partnerships, the two (2) larger ones are with the broker community through IBAN, and that's Alberta Compensation Accord. The other one is with the Automotive Trades Association and the motor dealers, and that is for the repair industry.

We've also looked at renegotiating with the Chiropractic Association, on which we have closed; with the -- with the Commercial Trucking Association for the repair of commercial trucks; and we have also renegotiated our rental fleet rates, and for the most part, all of them have been negotiated at a zero or a decrease.

MS. KATHLEEN MCCANDLESS: And so just to clarify, among those five (5) key partnerships, which are the three (3) that have closed, and which are ongoing?

MR. BEN GRAHAM: Commercial trucking, chiros, and rental rates. The -- the big ones are the two (2) remaining ones, and they are ongoing as we speak.

MS. KATHLEEN MCCANDLESS: And do you have any idea as to when they might be closed?

MR. BEN GRAHAM: Both of those accords need to be updated by March 1.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to slide 10, which is with respect to enabler number 4, modernizing the Corporation's product offerings. And you had mentioned that -- that the Corporation was looking at issues such as the deductible, and that type of thing.

Is there public consultation being undertaken on a review of these issues?

MR. BEN GRAHAM: Again, this is a more long-term view of the types of things that we would like to look at, and at time, we will obviously be in discussion with government and the community to walk through what that would mean for them.

MS. KATHLEEN MCCANDLESS: So this is in its infancy at this point then?

MR. BEN GRAHAM: Yes.

MS. KATHLEEN MCCANDLESS: Does the Corporation have any timeline at this point as to when this issue might be reviewed in more detail?

MR. BEN GRAHAM: At the moment, no. There's a lot of quantification that needs to go into

potential impacts and impact on rates. So when we have a greater picture on that, that's probably something that we could probably have a technical committee with the PUB to get greater understanding on, and we'd like to be as transparent as possible on that.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to slide 14. In your evidence this morning, Mr. Graham, you had spoken about the expanding of channels, online or mobile channels to serve customers, and perhaps you could just elaborate somewhat on what it means operationally to trend -- to move into an online or mobile service.

What types of programs is the Corporation looking at at this time?

MR. BEN GRAHAM: So I think if we were to break it up into two (2) sort of core offerings, one (1) of them would be the more simple transactional-based things, and there would be change of addresses, or change of coverage, or more administrative types of things, booking road tests, for example. So what we need to do for the most part is we need to have the IT capability to provide that online, and we are a long way behind.

If you look at SGI, they have moved to

a very strong online presence. I -- I remember twenty (20) years ago, buying insurance online, and yet we still can't do it here in Manitoba. So we need to engage with not only getting the right IT system in place to make that change as streamlined and as efficient as possible, but also engaging with customers and our distribution channels, such as the broker community, to make sure that that goes as smooth as possible.

MS. KATHLEEN MCCANDLESS: Thank you. And we may have some more questions specific to those issues when we hear from the IT panel next week.

MR. BEN GRAHAM: Yeah. Sounds good. Thank you.

MS. KATHLEEN MCCANDLESS: We've also heard at slide 4 about the Board of Directors' new mission statement, which is before you there, exceptional coverage in service, affordable rates, and safer roads through public auto insurance. And the Corporation was asked about this mission statement at CAC/MPI-1-9. If we could please pull that up, Kristen.

(BRIEF PAUSE)

THE CHAIRPERSON: Kathleen, can you repeat the exhibit number?

MS. KATHLEEN MCCANDLESS: CAC/MPI-1-9.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So at the bottom of page 2, the Corporation was asked about the mission statement. And if we look to the -- bear with me for one (1) moment. I'll just -- this doesn't look like the reference that I was looking for.

MR. BEN GRAHAM: I was hoping there was no real yields in our mission statement.

MS. KATHLEEN MCCANDLESS: Okay. There is it. Yes. At the bottom of page 2, MPI identified eight (8) strategic priorities for 2018/'19. You see those there before you, broker negotiations claims, repair trade associations claims, customer experience, underwriting claims, products suite review, underwriting, ALM implementation investments, claims cost control, claims capitalization investments, and risk appetite underwriting claims, and investments?

I appreciate there are a number of different priorities before you, but perhaps you could just advise the Board as to what the Corporation's

timeline is generally for implementing these priorities?

MR. BEN GRAHAM: I'm not going to try and pull this out of thin air. A number of these are probably more short-term. So I'll -- I'll give an example. When it comes to risk appetite, I believe that we have strong risk management principles in practice at MPI, but there is a process in formalizing those. So that's probably the middle of next year.

Capitalization, again, is an ongoing discussion, and we'll have that discussion here over the next couple of weeks.

Claims cost control is an ongoing process, and -- and Curtis has been doing a great job in driving claims cost control across the Company, but that's about looking at and looking at all of the assumptions in which our claims methodology is based and seeing where we can improve.

ALM implementation, I think you're all aware that's ongoing. It's something that we are closely monitoring both through the investment committee, as well as the Board of Directors. The product suite review is being led by Luke Johnston, and Luke will be looking at all of our products across the portfolio, be it from Basic, to Extension, to SRA.

That's also around one (1) of those types of deductibles that we've spoken about when it comes to Basic, but also other types of coverage that we could potentially offer customers based on customer feedback across those other products. That review of where we could potentially go as a strategic direction, that should be done early in the new year.

Customer experience is ongoing, but we have fundamentally changed the way that we reach out to our customers. That's through the implementation of things like the E-panel. The broker negotiations and the repair trade negotiations are both lengthy, and politically sensitive, and quite heated at times, but we are again looking to close both of those, ready for a new accord commencing March 1 of 2019.

MS. KATHLEEN MCCANDLESS: Thank you. Another question with respect to the Corporation's mission at CAC/MPI-1-38.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: The question here was that the Corporation was asked about the steps it is taking to control physical damage claims incurred, to further inform and improve the financial

forecasting process and reduce pressure on Basic insurance rates; "yes"? You see the question in front of you?

MR. BEN GRAHAM: Correct.

MS. KATHLEEN MCCANDLESS: If we go to the response, just from -- at the very top of the page, 2 lines down, there's a sentence that starts:

> "Internally, the Corporation monitors severity and identifies priority" --

Scroll back up. Yeah.

> "...identifies opportunities for improvement in policies and shop performance."

Do you see that before you, Mr. Graham?

MR. BEN GRAHAM: Yes, I do.

MS. KATHLEEN MCCANDLESS: Can you just tell the Board how often that monitoring is taking place?

MR. CURTIS WENNBERG: I can answer that question.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. CURTIS WENNBERG: So we will monitor what is happening, both with the direct repair, and then overall severity on a month-to-month

basis. We'll -- we'll look at severity on a -- on a per claim, and even the number of claims. So when we look at our monthly results coming in, we can -- we can see how that works.

When it talks about the specific shop key performance indicators just below that, what we have now is a new series of measurements that we use. And we also monitor those that come out in a quarterly -- a quarterly snapshot report.

We'll also provide that back. Those KPIs go individually now back to the shops, and we talk to them about -- about how they performed, and -- and this is important to them now, because they can get kicked out of the direct repair program. So -- and -- and not just that program, but also they can earn certain autonomy levels so that we can streamline and do some more straight, you know, straight through processing of claims and estimates. And so doing well on these KPIs is important.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Graham, I -- I believe this might be the last question I have for you in particular. In the -- in the context of your evidence this morning, you -- in speaking about the naive interest rate forecast, you've mentioned something to the effect that the

Corporation can't make a bet on what will or will not happen. I don't know if you recall specifically making that comment, but if you disagree, perhaps you could advise.

MR. BEN GRAHAM: No, no. I don't disagree. Yeah. It was based on the -- the risk management principles around the fact that we -- it is a break-even program. We currently have a low MCT, lower than best practice, and it is a nonprofitable line of business.

MS. KATHLEEN MCCANDLESS: If the naive forecast is used, and interest rates rise, would that not increase volatility in a similar but opposite manner to using a 50/50 forecast, having interest rates remain static?

MR. LUKE JOHNSTON: I'll chime in, here. So the naive interest rates are in our hand right now. We know what they are. It's the observed rate. What's been happening the last six (6), seven (7), eight (8) years is banks have been expecting rates to rise and revert to historical levels, and it hasn't happened. So we really are -- I get that it's the banks, and they're supposed to be the experts, and -- and we'd like to rely on them, but it just hasn't happened, right?

And so from our perspective, you know, we have the current rates right now. We've even come to the PUB and said, We'll wait as long as we possibly can, like, right till you approve the order to use the latest rates, and if they go up, down, or whatever, we'll adjust the rate accordingly. But this whole idea of betting on rates to go back to they were -- where they were, you know, twenty (20) years ago is not good practice for us, and -- and we don't really have anything to show that it's a better estimate than just using today's rate. So that's -- that's where we stand on that one.

MS. KATHLEEN MCCANDLESS: So, Mr. Johnston, if I'm to understand your response, that it's not that volatility could be similar but opposite, in the event that a 50/50 forecast is used and interest rates mean static?

MR. LUKE JOHNSTON: I'm sorry. I -- I didn't answer your question completely, there, but what we're saying is the -- definitely in recent years, we've exposed ourself to a different kind of risk that isn't even related to interest rates. We're -- it's really forecasting risk.

We've taken someone else's forecast, assume it's going to go up two hundred (200) basis

points, expose ourself to tens of million dollars of pricing risk, and that's not even the really -- the risk of interest rate movements. We -- it's the risk of that forecast being wrong.

If we stuck to naive interest rate forecasts, we can say, you know, as we have in some of our evidence, you know, interest rates, you know, have never moved more than fifty (50) basis points over twelve (12) months. You know, maybe they go up, maybe they go down. That would cost us money, but that is the real risk of interest rates, not the risk that someone else is -- that goes horribly wrong.

And we're willing to accept that risk and model it. We're not willing to let the bank tell us, you know, we should assume rates from twenty (20) years ago and make that bet in -- in pricing. That -- that's really all we're -- we're saying.

MS. KATHLEEN MCCANDLESS: Thank you. My --

MR. MARK GIESBRECHT: And sorry, I'll just add to that real -- real quickly. When you look at all the key assumptions that we have in our -- our forecast, and our financial modelling, we always look at our -- our experience, our most recent trending experience, and this is one (1) area where we're now

trying to forecast the future, not looking at what has happened in -- in the past, but trying to guess what -- what do we think is going to take place in the movement of interest rates?

And -- and so that's a -- that's a deviation from our -- our core practice from all of our other inputs that are going to the financial model, and so that's an area that is -- it -- it is different than all other key assumptions in our model.

MR. LUKE JOHNSTON: And -- and just -- just to provide some extra clarity, this morning, we talked about the hedging of interest rate risk. So once we have the claims from a given year, and we know kind of our expected cost of that, then we can buy matching bonds and hedge that risk going forward.

From the pricing side, though, we haven't sold any of those policies. There's no way for us to hedge that. We just made a -- a poor pricing estimate. We can't escape that. We can't protect ourself from something we don't have yet. If we -- if we have a thousand dollar ($1,000) rate today, and we decide that we think interest rates are going to go up two hundred (200) basis points, and instead, we price to be nine hundred dollars ($900), there's no hedge for that. We've just misplaced by a

hundred dollars ($100).

If we stuck at naive, followed it through, the claims come in, we match it, then we can hedge all risk going forward. So all, you know, old PIPP policies, we fully hedge that completely. It's the pricing risk that we can't complete hedge, and that's -- that's why we're so adamant about using naive.

MS. KATHLEEN MCCANDLESS: Thank you. My next set of questions are probably directed to Mr. Johnston or Mr. Giesbrecht.

Just to confirm, with respect to the 2.2 percent overall change in Basic vehicle premium revenue, that is comprised first of .1 percent overall change to cover the break-even cost of policies; "yes"?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And that's combined with a 2.1 percent overall change for a net capital maintenance permission, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And the 2.1 percent for the net capital maintenance provision is aimed at preserving Basic's capital position over the coming rating year. Is that correct?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And with respect to the 2.1 percent net capital maintenance provision, I understand it's actually comprised of two (2) components. Would that be right?

MR. LUKE JOHNSTON: That's right. So we've -- what we tried to do, and we talked about this quite a bit last year about splitting all the pieces so the -- the Board and any other stakeholders could see the components.

So we have the -- what we call the break-even accepted actual practice method that is purely just the new policy costs, you know, how much premium do we get, how much did they cost us in expenses. That's the 0.1 percent rate increase.

Then we talked a lot last year about investment income earned on the rate stabilization reserve. That is revenue to the Basic program. The question was: What we do with it? So before this capital maintenance topic became a -- a topic at -- at the hearings, MPI's argument was we need some way to build the RSR with the organization, investment income. The RSR is one (1) of those ways. We think it should stay in there and not be used to reduce rates. So we made that argument.

As part of that argument, at this hearing, we said that, well, we're not really necessarily looking to keep the investment income on the RSR. We -- we're really looking to maintain capital.

So we recognize that other insurers would use investment income on capital to -- to lower rates. We're not disputing that. But at the end of the day, our rate-making methodology, including that, would have our capital deter -- deteriorate over time, and we -- we don't think that's a prudent way to set rates.

So what we're proposing in terms of net capital maintenance is a new policyholder in that particular year would get the investment income on the RSR, but they would also contribute to whatever costs there was to maintain -- keep MPI in the same position from a capitalization perspective, where they start -- where they, you know, when -- when they got the policy.

That doesn't necessarily have to be a positive number. In the future, that could be negative, and -- and Mr. Scarfone talked about, it doesn't look like we need to ask for that in the coming years. So it's quite possible it would be

negative, but right now, it's 2.1 percent net of those two (2) numbers.

MS. KATHLEEN MCCANDLESS: Right. And just to clarify, so the -- the net is -- the first is the provision for the expected return on investment assets supporting Basic total -- total equity, and that's at a negative 1.2 percent overall change, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And then the positive 3.3 percent overall change for a capital maintenance provision, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Thank you. And I -- I think it's clear on the record that the rate change proposal is predicated on the use of the naive interest rate forecast?

MR. LUKE JOHNSTON: I apologize. I was having a little discussion, here, so I missed your question. Yeah. Yeah, yeah.

MS. KATHLEEN MCCANDLESS: Yes?

MR. LUKE JOHNSTON: I -- I'm ready now. I didn't -- I didn't hear the question. I'm sorry.

MS. KATHLEEN MCCANDLESS: The -- I think it is clear before the -- the Board today that

the rate change proposal is predicated on the naive interest rate forecast as adopted by MPI's Board of Directors and management, yes?

MR. LUKE JOHNSTON: That's correct, and -- and despite some of the other things that you've heard, we are making that and all forecasts on what we believe is the best estimate.

MS. KATHLEEN MCCANDLESS: And could you confirm that the naive interest rate forecast in this instance would assume the February 28, 2018 Government of Canada ten (10) year bond yield rate of 2.24 percent and that it would continue unchanged until -- throughout the five (5) year forecast period?

MR. LUKE JOHNSTON: I am -- I'll leave the actual number subject to check, but it -- yes, it would lock in that number over the forecast period.

MS. KATHLEEN MCCANDLESS: Are you able to tell us about by how much the Government of Canada ten (10) year bonds has changed over the period from February 2018 to September 2018?

MR. LUKE JOHNSTON: We can definitely provide an update on that number at any time. I don't have it at my fingertips, but just one moment.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I pre -- I don't have that right now, but I would be happy to provide it later today or as part of the investment panel.

MS. KATHLEEN MCCANDLESS: Yes. If we could have an undertaking then to provide the -- how much the yield rate on the Government of Canada 10-year bonds has changed over the period from February 2018 to September 2018.

MR. STEVE SCARFONE: Yes, Counsel, we will make that undertaking.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. LUKE JOHNSTON: Not that I like to add undertakings. Since our actual rates are set based on our claims discount rate, I would suggest that we show what the claims discount rate has changed over that same period because that's -- that's our actual portfolio that we invest in.

So it would be good for you to see how that's changed.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. STEVE SCARFONE: So we will include that, Ms. McCandless, as part of that one (1) undertaking.

MS. MCCANDLESS: Thank you.

--- UNDERTAKING NO. 1: To provide how much the yield rate on the Government of Canada 10-year bonds has changed over the period from February 2018 to September 2018 and show what the claims discount rate has changed over that same period

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Mr. Johnston, you would agree that the rate indication, among other aspects of the GRA, is sensitive to movements, whether actual or assumed, in the 10-year Government of Canada bond yields?

MR. LUKE JOHNSTON: Definitely.

MS. KATHLEEN MCCANDLESS: And if we could pull up PUB/MPI 1-11, at question (e), the Corporation was asked whether it anticipated amending its application to reflect an updated interest rate forecast reflecting market activity up to September 30, 2018 or thereabouts.

And we heard from your counsel this

morning in his submissions that the pre-asked number 1 will provide interest rate updates.

Now, if we scroll to page 3, the Corporation's response is that the Corporation does not anticipate filing an amendment to its application at this time. The Corporation would consider doing so if a material change in circumstances required immediate action to rectify the present application.

Do you see that there, Mr. Johnston?

MR. LUKE JOHNSTON: So I'm going to defer part of this question, but just to be clear, we have no issue with telling you what the updated rate indication is based on whatever the latest interest rates are. So that's easy for us to do.

Re-running the entire DCAT analysis is not so easy, so that's going to come up, we'll have to maybe discuss off-line. That takes a lot more work. But in terms of amending the application I'll let maybe Mr. Scarfone talk about that.

MR. STEVE SCARFONE: With respect to that particular response, Ms. McCandless, I think the reticence that the Corporation indicates there is more in line with having to file a formal amendment to re-serve the application, if amended and perhaps even procedurally have witnesses reappear to answer

questions on the amended application.

So I think that is what forms the basis of that particular response. But as Mr. Johnston has indicated, to the extent that it would be helpful to the Board and Intervenors, to update the application as it concerns interest rates and the rates that the Corporation will have set going forward, that I think is what the Corporation and Mr. Johnston are agreeable to doing.

MS. KATHLEEN MCCANDLESS: I understand those updates will be provided at some point in this GRA process.

So just to clarify then, the Corporation will provide the updates but does not anticipate for -- filing any formal amendment to its application?

MR. STEVE SCARFONE: That's correct.

MS. KATHLEEN MCCANDLESS: Thank you.

Just to follow up on that then, does the Corporation have -- anticipate what would be considered a material change in circumstances that would require a formal refiling of the application? Or formal amendment to the application.

(BRIEF PAUSE)

MR. STEVE SCARFONE: So just caucusing with our general counsel, Ms. McCandless, I think it would depend in large part upon the -- the essence of the changes that are being contemplated. I don't know if there's any particular threshold that would result in a formal amendment to the Corporation's application, but I don't know if we're discussing anything other than updating the interest rate forecasts at the end of September.

So that particular change, if you will, doesn't meet the Corporation's threshold, in our view, to result in an amendment to the -- to the formal application itself.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. STEVE SCARFONE: I hope that helps with your question.

MS. KATHLEEN MCCANDLESS: It somewhat clarifies, yes.

MR. STEVE SCARFONE: Okay, thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Now, if we could turn to RM-13, that's found in the Book of Documents at Tab 3 on the first page. To assist you, Kristen, that's also found at page 41 of the rate-

making section of the filing.

So, Mr. Johnson, this is a table showing the required rate changes based on the application filed; yes?

MR. LUKE JOHNSTON: Are you there? Yes, okay. That's correct. And really, it's just showing everyone that -- every item that feeds into the rates.

MS. KATHLEEN MCCANDLESS: And that includes the net capital maintenance provision and breakeven rates, as we see at the top of the table, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Now, if we scroll down to line 24, we see the applied for change here; yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And that's the rate change by major class. So if we scroll to the top of the table we see that it's broken down by major class, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And so that would be the indicated rate change?

MR. LUKE JOHNSTON: That is the

indicated rate change, inclusive of the Capital Maintenance Provision, so you see one line above that it says "full credibility required rate change" and all "full credibility" means is that if we just ignore the sizes of the groups and just took their data like 100 percent as is, some groups like private passenger has hundreds of thousands of vehicles, that's not an issue, but other groups are smaller.

When we talk about the .1 percent overall rate change, that's where that's coming from. So after applying PUB rules and caps and other things, that number becomes .1 percent.

We've essentially put in the applied for change at 2.3 based on the net capital maintenance provision and proportionally adjusted all rates up by major class to get -- to achieve the -- the overall change.

MS. KATHLEEN MCCANDLESS: Thank you.

At line 29, that would be the experience rate change, so that is the change after the capping rules are applied?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And for the benefit of the Board, these are a series of capping rules that are in place that are intended to prevent

large variations in rate changes within each class, is that right?

MR. LUKE JOHNSTON: Yes. There is -- there's some really obvious ones and then there's a lot of other ones that are, for lack of a better word, kind of buried in the methodology, but I'll explain.

So the experience changes -- experience-based changes are capped at 15 percent, plus or minus. All changes, including balancing and other things we talk about here are plus or minus 20 percent caps.

When I say there's other rules that control volatility buried in the methodology, so credibility of a way to, you know, move things slower based on the credibility of the data, the -- also all our, you know, rating relativities, rate groups and such like -- of those -- those types of things have rules about how quickly we move the data, you know, longer-term averages, things like that that also ensure that rates are -- that the rate changes are credible, you know, there's not extreme rate shock. So it's not just this.

But I can say if -- if a class was indicating say a 10 percent rate increase, there's a lot of indicators that that's a very credible number

and we should move to it based on the methodology we have.

MS. KATHLEEN MCCANDLESS: Thank you.

And I understand that the applied for rate changes would be averages, so within each class there would be increases and decreases.

Is that right?

MR. LUKE JOHNSTON: Absolutely, yes.

MS. KATHLEEN MCCANDLESS: At the top of the table, under line 1, we see overall, and I understand that that means that the -- the number of units in the fleet is 1.2 million vehicles, is that right?

MR. LUKE JOHNSTON: That's correct.

So -- and then, yeah, along that row you can see the different classes and how many are -- units are in there.

So if we -- trailers and ORVs are not really on -- you know, on the road type of -- like, the highway type of vehicles. You can see there's quite a few trailers. If we take out the trailers there's about a million vehicles on the road.

MS. KATHLEEN MCCANDLESS: Thank you.

And the fleet increases year after year, is that right?

MR. LUKE JOHNSTON: It has, in my career, not a guarantee, but generally about 1 1/2 percent a year.

MS. KATHLEEN MCCANDLESS: Thank you.

With respect to the motorcycle rates, we have 17,600 units for 1920. The Corporation uses a ten (10) year averaging for motorcycle class, is that right?

MR. LUKE JOHNSTON: What we do on -- on motorcycle pricing is about 85 percent or so of the costs of motorcycle claims are related to the -- to injuries, and approximately half of injury costs are related to serious losses.

So when you -- when motorcyclists say that, you know, they're good drivers and they don't have a lot of claims, that is actually a true statement. There are really a handful that influence the pricing as -- so what we do, recognizing that there is a small number of claims with very big numbers, you know, losses, we average out over a 10-year period for all the injury claims to create stability for that class.

MS. KATHLEEN MCCANDLESS: Thank you.

If we could go to RM-15, which is also at Tab 3 of the Book of Documents. Kristen, you can

also find it at page 53 of the rate-making section.

This is the dollar distribution table and this shows the proposed change on a dollar basis, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: So if we look to the largest percentage based on the application as filed, that would be at line 11. So 17.74 percent of the fleet would see an increase of $50 to $99, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And that's followed quite closely by line 7, which would be that 17.43 percent of the fleet would see a decrease of $1 to $19 dollars, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And then if we look to .03 percent of the vehicles, so at line 15 will receive an increase of $300 or more, there is an asterisk there, it says of those 324 units, 313 are taxicab vehicle for hire, four (4) in territory 1 and 3, yes?

MR. LUKE JOHNSTON: Yes. There's -- I obviously wish it wasn't the case, but taxi premiums are nearly $10,000 in -- in Winnipeg. So it doesn't

take a very large rate increase on a percentage basis to create a $300 plus increase.

But as -- we will likely talk about this later in the hearing, but as you know, we did make some adjustments to taxi rates for recognizing that they're going to likely lost market share with vehicle for hire, get DSR discounts, et cetera.

So the reality for -- for these folks is likely not a $300 plus rate increase, assuming they have some sort of DSR discount.

MS. KATHLEEN MCCANDLESS: Thank you. And we may have more questions on that topic later in the hearing.

If we scroll to the bottom of the page, at figure RM-16, this is the percent distribution table. So this just breaks down the applied for change on a percentage basis, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And so we see that at line 8, 25.2 percent of vehicles, that's 289,618 will see an increase of 5 percent to 10 percent, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And then 20.48 percent at line 7 will see an increase of less

than 5 percent?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: 15.96 percent at line 5 will see a decrease of less than 5 percent?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: 13.8 percent at line 4 will see a decrease of 5 percent to 10 percent?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And 7.45 percent at line 6 would see no change?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Thank you.

Just for the benefit of the panel, I do have some questions about the financial overview. It will take more than five (5) minutes, but I can certainly get started now, or we can break and resume after the break.

THE CHAIRPERSON: Well, if we have -- we have the presenters at 1:30, so why don't we continue now and then we'll -- we'll have a slightly longer lunch, but we don't need an hour. Sorry, we don't need an hour and a half lunch. So why don't you start right now?

MS. KATHLEEN MCCANDLESS: Thank you.

Kristen, if you could please pull up pro forma 1, so that's PF-1, page 4. It's also found in the Book of Documents at Tab 5.

So the table provided here indicates the Corporation's actual results for Basic for 2017/'18, which was the subject of last year's GRA, as well as the years being addressed in this application, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: Thank you.

And the two (2) years impacted by this years rate application would be 2020F and 2021F, yes, that's forecast?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: Now, if we scroll to the bottom of the table, under 2020 forecast, we see that the forecast for 2020 is a net income of $17.9 million, yes? That's at line 31?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And then for 2021, which is the next column to the right, forecast of $17.7 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And this

table also provides some outlook beyond 2021, we don't need to go back up to the table quite yet, but for 2022 forecast and 2023 forecast, yes?

MR. MARK GIESBRECHT: That is correct.

MS. KATHLEEN MCCANDLESS: And that's, as I understand it, an indication of what the model shows, but it doesn't include any assumptions on rate changes, is that correct?

MR. MARK GIESBRECHT: That's right, it includes a 0 percent rate increase for those years.

MS. KATHLEEN MCCANDLESS: Now, if we look to the line 31, the left-most column for net income we see that for -- the actual results for 2018, the Corporation recorded net income of $34 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: Then if we go to pro forma number 4, so PF-4, that's at Tab 8 of the Book of Documents. Now this Statement of Operations for the Corporation shows a comparison of what was forecast at last year's GRA for 2017/'18 fiscal with the actual results for 2017/'18, which is reported this year, correct?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And if we go

to the 2019 GRA column, so this year's application and line 14, we see total earned revenues for 2018 and after claims incurred, claims processing costs and other operating expenses.

We see that -- pardon me, line 28, that MPI recorded an underwriting loss of $81.9 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And that's against total earned revenues of $982.9 million at line 14?

MR. MARK GIESBRECHT: That is correct.

MS. KATHLEEN MCCANDLESS: On the second page of the pro forma, there are some notes here, at line 12 would indicate that a contributing factor to the net income was lower physical damages claims of about $34.8 million less than forecast, is that right?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And we see there that's due to lower hail claims than forecast, yes?

MR. MARK GIESBRECHT: That was a component of it, yes.

MS. KATHLEEN MCCANDLESS: And then we

see another factor, pardon me. Another factor was lower corporate expenses at $10.8 million.

So that's if we subtract -- go back to the previous table. If we subtract line 41 on the table here, from line 31, there is a difference of $10.8 million for corporate allocated expenses, yes?

MR. MARK GIESBRECHT: Without recalculating, I'll take your word for it, yes.

MS. KATHLEEN MCCANDLESS: Now, in the case of the underwriting loss of $81.9 million, that's -- is that common from MPI's forecasting standpoint?

MR. MARK GIESBRECHT: Given that we are based on a break-even rate-making process, prior to including or investment income, it can be quite common that you would expect an underwriting loss.

MS. KATHLEEN MCCANDLESS: And MPI would look to the investment income then to cover the underwriting deficiency, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And if we look to the middle column at line 31, we see that in 2018 Basic earned investment income of $116.3 million, yes?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And the

investment portfolio is approximately $2.4 billion dollars?

MR. MARK GIESBRECHT: Sounds about right, yes.

MS. KATHLEEN MCCANDLESS: Now, if we turn to pro forma 5, which is at Tab 9 of the Book of Documents, so the application last year dealt with the 2019 budget, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And this pro forma looks at what was forecast at last year's GRA for fiscal 2018/'19 and compares it with the forecast budget as of this GRA, yes?

MR. MARK GIESBRECHT: That's right.

MS. KATHLEEN MCCANDLESS: So we see the forecast from last year on the left-hand side of the table and then the second column in is the forecast budget this year?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: And in last year's Corporation, the Corporation application -- pardon me, the Corporation requested a 2.7 percent change in premium revenue.

Do you recall that?

MR. MARK GIESBRECHT: Yes, I believe

so.

MS. KATHLEEN MCCANDLESS: And if we look to line 32, so if we scroll down, on the left-most column, we see that at last year's GRA the Corporation was forecasting a net loss of $21.3 million, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: And if we jump ahead to pro forma 6, which is at Tab 10 of the Book of Documents, line 32, we see that the Corporation was forecasting a net loss of $8.3 million in 2020?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: So back -- if we go back to pro forma 5, which we were just looking at previously, if we scroll down to line 32, again, we see the Corporation has updated its forecast this year for 2019, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And it's now indicating a net income of $135.6 million, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: So it's an improvement of $156.8 million from what was forecast last year?

MR. MARK GIESBRECHT: That's right.

MS. KATHLEEN MCCANDLESS: If we scroll up again, Kristen, thank you for going back and forth for me here, on the right-most column of the table here, at line 12, we see there was a reduction in net premiums earned, $.4 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And at line 21 we see a decrease in forecasted claims costs of $47.3 million, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: Scrolling to the notes on the second page of the pro forma, with respect to the net claims incurred at line 13 and we see that there is a change primarily due to higher than forecast changes in interest rates.

Do you see that there?

MR. MARK GIESBRECHT: I do.

MS. KATHLEEN MCCANDLESS: And that's at -- of $16.7 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And lower than forecast physical damage claims at 18.5 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: Now, if we scroll back to the table at pro forma 5 and line 29, on the right-most column we see for -- and if we scroll up just a little bit here, to the very top of the table, we'll see that the difference in the investment income and back down to line 31, I think we can see it just at the very bottom here, so now the Corporation is forecasting to have $113.7 million more in investment income than was forecast last year, yes?

MR. MARK GIESBRECHT: That is correct.

MS. KATHLEEN MCCANDLESS: And I understand that's primarily due to realizing gains on both the U.S. and Canadian equity portfolios?

MR. MARK GIESBRECHT: Yes, in conjunction with our ALM strategy, as we enact that strategy we will be selling off a portion of our equity portfolio to fund the fixed income portfolio, and that will lead to a crystalization of the gain. So these gains are currently sitting on our balance sheet in the form of AOCI, which is Accumulated Other Comprehensive Income.

So these values are factored into our financials, however, they're sitting outside of net income until they become crystalized when we actually sell those assets to fund the -- the purchase of

bonds.

MS. KATHLEEN MCCANDLESS: And we will be discussing all of that later in this process.

MR. MARK GIESBRECHT: For sure.

MS. KATHLEEN MCCANDLESS: Now, if we could please go to pro forma 6, which is at Tab 10 of the Book of Documents.

We looked at this briefly a moment ago. So this forecasts or compares what was forecast for fiscal 2019/'20 at last year's GRA to now what is being forecast for 2019/'20.

And last year, as mentioned, there was a net loss forecast of $8.3 million at line 32.

Now, the Corporation is forecasting a net income of $17.9 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: So the difference is nearly $30 million from what was forecast last year, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: Now, this year the Corporation is requesting a rate increase of 2.2 percent.

How much additional revenue does the Corporation expect to receive from the proposed rate

increase?

MR. MARK GIESBRECHT: 2.2. would be approximately 20 million.

MS. KATHLEEN MCCANDLESS: And how much would be earned in 2019/'20 and 20 -- 2021?

MR. MARK GIESBRECHT: Subject to check, but typically I would expect we would earn about 54 percent of that, given the -- assuming an even monthly distribution.

MS. KATHLEEN MCCANDLESS: So 54 percent?

MR. MARK GIESBRECHT: Yes. That's rough numbers, assuming even distribution of policy renewals.

MS. KATHLEEN MCCANDLESS: Thank you.

And so the pro formas that we just reviewed, Mr. Giesbrecht, they're based on the Corporation using the naive forecast, yes?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: Now, if we could refer to the investments appendices, Appendix 11, it's found at the Book of Documents at Tab 11.

The pro formas here for Statement of Operations, PF-2 is for Statement of Changes in Financial Position and PF-3 is for a statement for

changes in equity for Basic.

These are based on using a 50/50 interest rate, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: Now, Kristen, would it be possible to pull up pro forma 1, which was from Tab 5 of the Book of Documents and pro forma 1 that is in front of us right now, and put them side-by-side.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Thank you very much. This is just to look at some of the difference in the results based on the change in interest rates.

So on the right-hand side of the page we have the pro forma based on the naive interest rate. And on the left-hand side of the screen we have the 50/50 interest rate.

So as an example, Mr. Giesbrecht, if we looked to the -- to line 31.

And column under the 2019 FB, so the forecast budget for 2019, the net income or loss we see with the 50/50 interest rate that the Corporation

would forecast net income of $144.6 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And on the right-hand side of the screen, we see that line 32 based on a naive interest rate, we have net income of $135.6 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: So a difference of roughly $9.1 million?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: Thank you.

Then for 2020, at line 31 we see with -- on the left-hand side of the screen a forecast net income of $27 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: Pardon me, that's at 50/50. And then on the right-hand side of the screen, if we could just --

MR. LUKE JOHNSTON: Do we need to scroll up on the right side to the actual matching statements? Because you have the comparative up there right now, but I'm thinking you want the -- I don't want to put words in your mouth, but I think you want the same look at the left side, is that --

MS. KATHLEEN MCCANDLESS: That's

right, thank you. That's why I --

MR. LUKE JOHNSTON: Keep going.

MS. KATHLEEN MCCANDLESS: -- was confused by what I was looking at here.

MR. MARK GIESBRECHT: PF-1.

MR. LUKE JOHNSTON: Yeah, PF-1, yeah.

MS. KATHLEEN MCCANDLESS: PF-1.

MR. MARK GIESBRECHT: There we go.

MR. LUKE JOHNSTON: Is that what you want? Just -- just --

MS. KATHLEEN MCCANDLESS: Yes. Pardon me.

So then if we're looking at 2020, on the left-hand side of the page -- the screen, pardon me, at line 31 we have 50/50 and that would be $27.1 million in net income, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And then if we look to the right-hand side of the page for 2020, based on the naive interest rate, we would have a net income of $17.9 million, yes?

MR. MARK GIESBRECHT: That's right.

MS. KATHLEEN MCCANDLESS: Then on the left-hand side of the page -- of the screen, pardon me, at line 31 for 2021, we have net income of $28.5

million?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And on the right-hand side of the screen, for 2021, we see $17.7 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And 2022, at a 50/50 interest rate we see $16.7 million -- pardon me, $16.6 million?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: And $1.6 million for 2022, based on a naive interest rate forecast, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: Those are my questions for the overview panel. Thank you.

THE CHAIRPERSON: Thank you.

We will adjourn until 1:30. Thank you.

(PANEL RECESSED)

--- Upon recessing at 12:12 p.m.

--- Upon resuming at 1:32 p.m.

THE CHAIRPERSON: If we could go on

the record, my apologies to the reporter. We're going to interrupt the -- the MPI panel to deal with -- to receive presentations from members of the public. The first one is from Mr. Delaurier (phonetic), although I'm not sure if he's here or not. I could ask the secretary.

MR. DARREN CHRISTLE: Mr. Chair, I can confirm that Mr. Delaurier has another engagement and will not be appearing.

THE CHAIRPERSON: Thank you.

MR. DARREN CHRISTLE: Thank you.

THE CHAIRPERSON: Mr. Roberts...? The way it works, Mr. Roberts, is you have approximately fifteen (15) minutes, and if there are any questions, we'll -- we'll ask you questions.

MR. NICK ROBERTS: Okay. No, we'll be --

THE CHAIRPERSON: Thank you very much, sir.

MR. NICK ROBERTS: -- we'll be well done before fifteen (15) minutes.

THE CHAIRPERSON: Thank you, sir.

PUBLIC PRESENTATION BY MANITOBA USED CAR DEALERS ASSOCIATION:

MR. NICK ROBERTS: Good afternoon, Mr. Chairman, and members of the panel. I don't know if this has ever happened to you, but I hate it when I drop my ice cream cone. It's a hot day. I'm looking to cool off. I wait in a long line at an ice cream stand. At last, I have the vanilla cone piled high with ice cream.

As I step away from the ice cream stand, I fumble and my cone splats onto the ground. For a moment, time stops while my brain toys with the idea of bursting into tears and calling for my mommy. As if sensing my impending tantrum, the ice cream vendor called out and reassuringly said, Don't worry, I'll give you a new cone.

That not only pleased my inner child, but it also was excellent customer service. The ice cream vendor was effectively offering insurance against clumsiness. This gesture would put me back into the position that I would have been in if I hadn't dropped my ice cream cone on the pavement.

And that's the assurance that every vehicle owner wants for Manitoba Public Insurance. When an insured vehicle sustains damage, the owner of that vehicle expects his or her insurer to put the owner back into the position that she -- he or she

would have been in if the damage had not occurred.

For the most part, Manitoba Public Insurance does, in fact, compensate vehicle owners for the direct loss arising from the damage of insured vehicles sustained -- sustains damage from either a collision or other circumstance to the repairs for that damage. The vehicle owner emerges from the collision with a vehicle that is more or less the same as the vehicle before the collision. That's what insured owners expect, and for the most part, that's what they get from Manitoba Public Insurance.

However, there is a more than just the immediate loss as a vehicle involved in an accident today will be worth less when it is sold tomorrow than a comparable vehicle that was never in an accident. That's true even if the damage arising from the -- an accident is flawlessly repaired. Buyers simply don't want to pay full price for a vehicle that has an accident history.

I can't really blame anyone who thinks that way. Imagine if, instead of replacing my dropped ice cream cone with a new one, the ice cream vendor had instead merely picked up my cone from the pavement, scooped off the gravel stuck in the ice cream, added a new -- a little new ice cream to make

up for it, and then handed me back the repaired cone. I might have thrown it at him.

Manitoba Public Insurance thinks that reduced valuations arising from damage are beyond what the insurer should compensate. Vehicle owners would mostly disagree, at least they would disagree if they knew the position that Manitoba Public Insurance had just put them in due to a significant damage repair.

While it's true that Section 50(1) of the Automobile Insurance Coverage Regulation limits coverage to direct and accidental loss or damage, Manitoba Public Insurance has wrongly interpreted "direct loss" to mean only the physical damage to a vehicle. To MPI, direct loss doesn't include the immediate reduction in value that a vehicle sustains as soon as it is involved in a collision of any significance.

Manitoba Public Insurance isn't alone in taking this approach. Other insurers have adopted several -- similar interpretations, but the courts have increasingly pushed back. It's the expectation of vehicle owners that they are protected against financial loss arising out of a collision. The devaluation of a vehicle involved in an accident is a loss that is direct, flowing in a foreseeable and

predictable way from the collision damage.

This Board is not the place to argue about the statutory interpretation of MPI's governing legislation, but this Board is the correct place to test the impact upon Manitoba Public Insurance's bottom line that would result if MPI began to pay out claims on the basis that vehicle owners likely expect, and that, at least in our submission, the regulation requires. At the very least, the Board is the correct body to underline the current and arguably wrong disconnection between the expectations of Manitoba Public Insurance's customers and the practices of MPI relating to coverage for vehicle devaluation following an accident.

It might surprise the panel that this submission comes to -- through a presentation by the Manitoba Used Car Dealers Association. After all, Mr. Guerra, on behalf of the applicant, had written off the Manitoba Used Car Dealers Association as an interested-based Intervenor when on June 25th, Manitoba Public Insurance opposed our application for standing as an Intervenor in these proceedings. And that comes at page 48 of the transcript, line 6.

It is true that the Manitoba Used Car Dealers Association is the organization that advances

the interests and concerns of its members, the used car dealers Manitoba. The Manitoba Used Car Dealers Association was founded in 1992. The majority of the largest used car dealers from across Manitoba, as well as some new car dealers, are members of the Manitoba Used Car Dealers Association. We are the largest trade association representing the automobile dealers of Manitoba.

However, the protection of the public interest very much coincides with the advancement of our members. The long-standing mission of the Manitoba Used Car Dealers Association is the enhancement and improvement of the automobile industry in Manitoba for the benefit of the Province's consumers.

A quick visit to the Manitoba Used Car Dealers Association website shows that it is aimed at ordinary buyers of used cars. For example, there are pages of information on buying from a dealer, buying privately, the danger of curbside sellers, how to conduct a search for vehicles that have been recalled, understanding vehicle and seller warranties, and consumer protection laws and complaint mechanisms for consumers.

In addition, the Manitoba Used Car

Dealers Association is very involved in the development of new consumer protection legislation, working at both the ministerial and administrative levels to ensure the buyers of motor vehicles get what they paid for. The Manitoba Used Car Dealers Association also works with MPI, and I expect that it seems like not a week goes by when at least one (1) member of the Manitoba Public Insurance witness panel does talk or correspond with me in my role as executive director.

Manitoba Used Car Dealers Association was, therefore, disappointed not to be given standing to participate in this year's hearing before the Board. Although it has been involved in past hearings going back almost a decade, the Manitoba Used Car Dealers Association also understands the position that Manitoba Public Insurance -- Insurance put on the record on June the 25th.

Mr. Guerra correctly noted that the Association's application was rather thin, and it did not set out any particular issues or intentions to challenge the evidence. However, this did not reflect disinterest. Instead, the Manitoba Used Car Dealers Association was hoping to review the evidence and lay the foundation for a future and more substantive

participation.

The Manitoba Used Car Dealers Association is already looking forward to the 2020 Rate Application. We have already retained a lawyer experienced before this Board in MPI rate applications. It is the Manitoba Used Car Dealers Association intention to apply again next year for Intervenor status relating to several public interest concerns that we would outline in due course. We would hope to be permitted to be a full participant, leading our own evidence, and testing and challenging the written and oral evidence of the applicant.

On behalf of the Manitoba Used Car Dealers Association, thank you for your attention today. Failing any questions from the panel, that concludes my submission.

QUESTION PERIOD:

THE CHAIRPERSON: Thank you, sir. Are there any questions? Board members...?

I have a question, sir. You make the comment about the direct loss doesn't include reduction in value. What -- what is your estimate? Is there a percentage estimate that you think the values reduce that isn't captured?

MR. NICK ROBERTS: Yes, sir. There are some numbers out there. I don't know how -- how -- I -- I did read one. There was a percentage -- would have been a percentage of Black Book value, but we'll have way more information for -- for the Board next year. We'll -- we'll make sure we -- we give you all the -- all the facts and details.

THE CHAIRPERSON: Thank you, sir. We appreciate your -- your attendance today. Thank you.

The next witness is TappCar. Gentlemen, if you could go there.

(BRIEF PAUSE)

THE CHAIRPERSON: Gentlemen, if you could identify your -- your name and position, and the name of the company? And as indicated with the previous witness, you have approximately fifteen (15) minutes.

(BRIEF PAUSE)

PRESENTATION BY TAPPCAR:

MR. JONATHON WESCOTT: Thank you, Mr. Chairman, members of the Board, and my name is

Jonathon Wescott. I am one (1) of the co-founders of TappCar, and with me is Mr. Shayne Saskiw, the other co-founder of TappCar.

We would like to start with just a brief outline, and we will start with a short summary of TappCar, and its history, and how it came about, a summary of our current operations for the last few months, and the impacts that the current MPI product has on our operations, and then round off with a little bit of anecdotal from some of the drivers that we have here, and take any questions that you might have.

First and foremost, myself and Shayne are both lawyers by trade, and not in -- normally involved in the transportation industry. We arose and TappCar arose out of -- out of actually, it's unfortunate circumstances. We also, in addition to running a law firm, run a government relations firm, and we were hired by one (1) of the nationals to do some government relations, or lobbyist work for them.

At the time, this -- this particular provider had refused to be compliant with current legislation, and refused to cease operations despite being outside of the framework of the laws in place at the time. We both come from Edmonton, so we're

locally -- Alberta and Western Canadian based, and all of TappCar is owned by small owners in -- in and around the Edmonton area, but the majority by Shane and myself.

After we had turned down the opportunity for government relations work from this national, we had been engaged by a number of drivers, not the broker industry, but the actual drivers, most of which were new Canadians, most of which were making minimum wage, working extensive hours, usually six (6) days a week. It became apparent that the legislative framework that was in place -- or that was coming forward by city counsel at the City of Edmonton was pretty much the leader in -- in Canada at the time in terms of getting what we call private transportation providers, or transportation networking companies, or whatever term you'd like to use, the Uber/Lyft/TappCar style models to market.

Edmonton had delayed its bylaw twice, and had implemented some regulations to help level the playing field between the for vehicle -- the for hire vehicle market, and the TappCar/Uber market. And at the time the legislation was put into place, the number of the drivers that were represented in the government relations project that we had came back to

us after, and we said about -- our job is done here. We've lobbied as best as we can for you, and we've implemented regulations as, you know, along with the City, and provided substantive feedback. And they said, Right, so what do we do next?

And we said, Well, it's not really for us to say. It's, you know, well, we'll help you as best as we can. And they left, and came back out a week later, and said, We're still right where we were a week ago.

So Shayne and I sat down at the Board room table thought, How can we help these drivers? And what came out of it was TappCar. It was the ability to take an off-the-shelf application at the time with a little bit of customization, make it fully compliant with the legislation in place, and launch a PTP/TNC networking company.

Since that time, TappCar has been now around for about two and a half (2.5), almost three (3) years. They've completed over 3 million rides, and we've been operating here in Winnipeg since March.

MR. SHAYNE SASKIW: Yeah, and our -- our rides to date in Winnipeg area have been over a hundred thousand (100,000) rides, so I think the -- the residents in the City of Winnipeg have caught on

to the -- the concept of -- of ride sharing, and app-based technology.

We also did expand into -- through a pilot project into Steinbach, a smaller municipality to see whether or not we could provide some services to the rural areas. For example, the -- the senior that wants to get to the hospital or something like that. Sometimes there's not enough taxi services available for those services, and then we do have the ability to provide accessible services, so through a -- our vehicle choices of -- for transit, which is modified to allow for wheelchair accessible drivers.

The other thing we primarily focus on in our businesses, full compliance with city bylaws, as well as Provincial legislation. So we work very constructively with the City of Winnipeg enforcement agency, as well as the -- the managers there, and thus far, we've gone back and forth, and even helped design some of the -- kind of the regulations that are -- are being implemented.

We do have a license agreement with the Winnipeg airport, so we do operate there, and -- and do a fair amount of rides leaving the airport and dropping off. And one (1) thing that we've also focused on, if you want to talk about the

ambassadorship.

MR. JONATHON WESCOTT: As part of TappCar's mandate to be fully compliant with legislation, it's also to be a good corporate citizen. So that includes, when working with our corporate partners to do things like put in place new programs and education for the drivers and for the staff, in particular, in being good ambassadors for the City, we were working with YES! Winnipeg quite extensively to do everything from providing news updates to the drivers so that they have an idea of what's going on, so that when they're talking to passengers, hopefully it's about the Jets game, and how they're going to lose to the Oilers tomorrow night, or it's -- and not about the potholes.

It also helps us in terms of educating drivers on sensitive issues, depending on the municipalities. So for instance, we are well -- well through our way of an Indigenous training program and sensitivity training program for our drivers, so -- and that -- it's not just ambassadorship, but it's also driver training; whether it's sensitivity, or whether it's driving skills as well.

The -- the MPI insurance product that was put into place has been a leading product, in our

opinion. We've done research in a whole host of jurisdictions across North America. I've been everywhere from about five (5) other -- six (6) of the United States, various states and cities on -- on their operations.

We, in Alberta, of course, operate in a private insurance market. We've done research and consolation with Saskatchewan and SGI, but the normal product that was brought forward by MPI has a whole host of very substantial what I'd call product-based advantages for the drivers and for the -- and for the company itself.

In particular, in terms of pricing for the product model that's out there, as you're probably aware, it's done in four (4) different time bands, and each of those time bands attracts a 5 percent premium. Our drivers have found that -- most of them have purchased the full band width of all four (4) bands regardless, because they like the flexibility in being able to go whenever they want. But some of our lower income drivers who, you know, have more demanding full-time jobs and prefer to only go on Friday and Saturday nights, or things of that nature, they only purchase the one (1) or two (2) time bands.

At the 5 percent of the regular cost of

-- of their base policy, they find that it's more than affordable. For our average driver, that's about two hundred dollars ($200) to three hundred dollars ($300) a year. So it really works out to about twenty (20) bucks a month. When you look at our drivers average online, our average drivers -- we have many full-time drivers, and a large number of part-time drivers -- the average driver is on the road about eighty (80) hours a month, and average income anywhere between twelve hundred (1,200) and sixteen (16) -- eighteen hundred (1,800) dollars, so about a fifteen hundred (1,500) median. With that being the case, it's usually about eighteen dollars ($18) or in excess of eighteen dollars ($18) an hour, plus the tips that they get from their customers along the way.

So you can see that they are able to afford, very easily, the current product that's put in place, and by having the driver bear the burden of the cost of the insurance, at least for the main part -- of course, as TappCar, we have our own MPI insurance coverage, both for third party property and others -- it allows the driver to take better care of their vehicle.

Using the private market as a comparison that we have in Alberta, we drive

substantially -- well, historically, we've driven more, and now about the same kilometres as we do in -- as -- as we do in Manitoba, and our loss ratios are considerably higher in Alberta, especially when we look at single-vehicle accidents and vehicles that are unattended.

So we had a number of drivers at the time who have single-vehicle accidents, or they have a door dent that they get while parked in front of their home, things of that nature, and our private market at the time had to cover those.

In the entire eight (8) months, roughly, that we've been operating here in Winnipeg, we have had that we know of one (1) reported single-vehicle accident with one (1) passenger. I can tell you that it's about ten (10) times that in the private market.

So the current product, we find, has been very, very unique, very successful in lowering losses, because we find that the drivers are taking better care of their vehicles, and it's been very affordable.

MR. SHAYNE SASKIW: And -- and the other thing that it has done is it has fostered a local competition in the marketplace. So in -- in

Edmonton, where we -- when -- where we operate, there's just two (2) of us. It's ourselves and a -- a large international player, and in the City of Winnipeg, I believe there is four (4) different operators, all local based, and some of them having unique attributes. There's one (1) operator, I believe that focuses primarily on -- on women; another operator focuses on Indigenous persons.

So the ability -- this -- the -- the insurance product that MPI has offered has allowed whole growth of small companies to operate and compete in the market and give people in -- in Winnipeg an area -- different -- diff -- different options. And with that, I think...

MR. JONATHON WESCOTT: The product has also allowed flexibility for the drivers not only to choose which -- whatever shifts, but be able to move from jurisdiction to jurisdiction. So if they want to drive that Steinbach to Winnipeg trip and whatnot and back, it seems to be working very, very well.

I guess our final -- our final point might be: Looking at the average driver, there is no incumbent on him to maintain working for as long as he wants, or it's -- it's very flexible in that he may purchase the insurance for -- for the year term and

whatnot, but the financing that's available for it for twenty dollars ($20) a month, give or take, allows him to go on holidays and not worry about additional premiums, and things that are, you know, adding up on the back end for them.

But subject to any questions that you have, we'd be happy to answer them.

THE CHAIRPERSON: Thank you, Mr. Wescott and Mr. Saskiw.

Are there any questions from anyone, any comments, Board questions?

Thank you for coming. I'm afraid that you're mistaken on two (2) things, though. Number 1, one (1) of them is the Jets game, and -- and number 2 is if you think Winnipeggers will stop complaining about potholes.

Thank you -- thank you for attending today. We appreciate it.

MR. JONATHON WESCOTT: Thank you very much.

THE CHAIRPERSON: The -- your final presenter that we have is Charles Reesink. Mr. Reesink, could you go sit where the -- where the mic is on?

(BRIEF PAUSE)

THE CHAIRPERSON: And you've got -- Mr. Reesink, if you could just read in your -- your name for the --

MR. CHARLES REESINK: Push that thing first, right?

THE CHAIRPERSON: Yeah. It's on. That's on. Now you've turned it off. He left it on. Just press the button until the red light comes on. There. That -- it's on.

MR. CHARLES REESINK: Okay.

THE CHAIRPERSON: And then you've got about fifteen (15) minutes.

PRESENTATION BY MR. CHARLES REESINK:

MR. CHARLES REESINK: Sorry. My name is misspelled. It's R-E-E-S-I-N-K, pronounced Reesink. I'm from Dutch background. And I'll take this opportunity, thank you for the Board to give me an opportunity to voice and express myself. Thank you very much.

I read this -- I am a 30 year old resident of Manitoba, lived in Paris five (5) years, and New York five (5) years.

And the issue I want to raise is noise. Paris -- Paris has taken issues against noise, Madam Medelgo (phonetic), and Paris is not as noisy as -- New York is -- is quieter than Paris, but I think Winnipeg is -- it's an epidemic in this City.

And I'm a pedestrian. I'll give you a few demographics, here. I'm a 65 year old individual. I drove. My best decision was to give up my car twenty-five (25) years ago, and I'm so proud of myself, having given up the car. So I'm trying to claim my space, here, next to this gentleman, who is a motorcyclist, and obviously, he pays a premium. I pay a premium too, but I try to claim my space as a resident of the City, as a pedestrian, assaulted, and that's the best word I have, by the decibels.

And what I put on the table here, I think Mr. -- the secretary put a -- a sheet there, right? There's only one (1) complaint that I want to address, see the economic clause to the campaign -- awareness campaign I want to raise, which is to attach a fee to any Manitoba Public Insurance increase.

I pay the -- I pay the increase because it's my only ID, right? And this pec -- the piggy-backing of an ID to a drivers is very ironic. I hope you recognize that. You register vehicles, and you --

you register vehicles, and what the other thing, you -- you license the drivers, right? So there is a split, there.

I am only talking to the registration of a vehicle first whereby you would add a clause, which I've put not to the Board but I'll repeat it again, or as the purchaser of this product -- quote-unquote, product, insurance, and I don't like the word 'product' -- acknowledge that for the duration of this contract with MPI, I agree and acknowledge that my vehicle will produce so many decibels for the duration of its exercise.

And because health costs are tremendously impacted by noise to the point -- I can give you one (1) statistic. Switzerland has 10 million people, spends $10 million on noise-related costs. And it's about time that if we want to listen to one another, we can hear one another.

And I feel very bad for the kids who cannot listen to their chaperones when they go to school. The chaperones cannot talk to the children. The kids cannot listen to one another.

Next time I renew my ID, and I hope -- I will have to sign this -- well, I won't have to, because I don't buy a car anymore. As long as the --

I -- and that's one (1) of the issue I wanted to raise. Are we -- as it -- the Board going to consider, why should MPI have the right to decline my identity? I mean, it should be given to another Crown agency, or whoever. Why should it be them, number 1? I mean, you know, it's -- it's kind of ironic, and I'll go on. That's only one (1) point, administratively speaking, that I think -- I'm not a driver, but I -- the only way I can give my identity is with a driver's licence. I mean, there's something wrong here.

I am not a Leftist. I am not a Green person at all. You know, don't be worried. I am not argumentative. I am only trying to voice sixty (60) years of experience, and the tremendous assault. I just met my nurse, and I had to -- to try to get from her that I was talking to a community nurse vis-a-vis a public health nurse. I didn't know until today that there was a difference between the two (2).

I managed to convince her that public and community overlaps, and she said yes. Well, we all know we're ruled by the algorithms, right? My presentation is not formal to you. It's only a cry to the fact that drivers are privileged cash cows, and we are completely ignored, except when I take the bus, I

see MPI has commercials on this -- on the bus. It's not directed to me. It says the roads killed one hundred (100) Manitobans per year. Well, I said, we bus people, we -- you know, what is it of concern to me?

Is the money spent properly to -- I mean, it may, or it may not be, but why is MPI kind of casually rolling out its advertising budget, advertising on the buses, our roads -- well, we know that. What's the point of, as we say in French, De Francis de port du vet (phonetic)? We know that roads are killers, potholes or no potholes, motorcyclists or not, roads kill.

My concern is the noise. I live on Ness Avenue, twenty-five thousand (25,000) vehicles per day. Do you know how many decibel that is? Too many.

Now, the economic clause is only one (1) component. The only aspect I wanted to reach out to the Board -- through the Board would be to see if other agencies -- public agencies, like the Department of Education, could not introduce a noise awareness certificate. I understand that MP -- that says young drivers -- something -- licence program, right? Young drivers something, package, or product, or whatever

you call it. Your terminology is confusing, and I -- I am a translator. I look at terminology very closely. Words are very important. When you call it a product, it makes me cringe. It makes me cringe.

Number 2, the younger drivers should have a certificate for the kids. I -- I approach the school division. They don't care. They play deaf. Nobody listens. So I said, Well, okay, I'll approach the Board and see if I can be heard by the Board to introduce a Provincial-wide -- I understand Edmonton or Calgary's doing a noise awareness program. And I said, Why should Winnipeg lag behind Calgary or -- or Edmonton? They have noise awareness measures in place.

And if MPI -- they have the shoulders to -- and the wherewithals, and the CEOs, and the costumes, and the ties to just have a chat with the Department of Education's -- or the -- their parties, and say, Okay, let's do this. Say, We will look good with the Department of Education noise awareness. These young kids who drive a car have a cell phone, by the way, have the technology to measure how many decibels they're exposed to. They could tweet the data, and they could personalize what they are exposed to every day, including the fee -- that they -- that -

- that they wear.

I'm pretty sure -- I'm not an acoustics PhD, I'm a humanities, you know, a humanities person, but I think broadly, and I think it's time that education is -- I mean, these young drivers should be made aware of the noise that they're exposed to, or they produce. So that's the educational component.

I've approached the 2 percent fee. If the next fee would include a declaration of statement in both official languages -- or in three (3); I see no reason why First Nations should not be in their own language, be addressed in their own language as well, but that's another issue altogether.

I'm saying that the next fee should include an acknowledgment by the purchaser of this product that they agree and acknowledge that they're going to produce so many decibels. That's my point. I'm ready to pick it up from there any which way you want.

Of course, words interest me because public insurance, public health, I touched on that, public health vis-a-vis community, you know, that kind of thing. Public is a very important word, and two (2) peop -- they play it fast and -- what's the word for that? Fast and da da da? Do you know what I

mean? Fast and...?

MR. STEVE SCARFONE: Fast and loose.

THE CHAIRPERSON: Fast and loose.

MR. CHARLES REESINK: Fast and loose. Thank you very much. Because, you know, it -- English is not my first language, and I -- I -- some expressions will not come to me. Thank you for helping me in this. Fast and loose. Where was I with this? Remind me.

(BRIEF PAUSE)

MR. CHARLES REESINK: Okay. Well, let -- let -- this concludes my presentation. I'm very happy that I had a chance to express myself, and to -- yes, well, the last -- the last component is -- okay, economic, that clause, educational, a certificate of noise awareness, and the third one would be to approach if not the cell phone users directly to measure their things, why not put decibel meters in certain areas, Portage and Main, which is a big issue in Winnipeg by Portage and Main, that we -- or put it or not, but why not install a meter and everybody can know, like, the temperature, or the -- the -- how many meter -- how many decibels are there at Portage and

Main at a given time?

And people publicly are aware of it, and most people want to tweak it and know, you know, how much they're exposed to. The pregnant mother who is expecting, if I were -- if I were expecting, I would be extremely worried that my kid would be exposed to that kind of thing right there.

And all, you know, and -- okay, let me stop.

THE CHAIRPERSON: Thank you, sir. Are there any questions? Okay. Thank you very much, sir.

MR. CHARLES REESINK: Thank you.

THE CHAIRPERSON: I appreciate it.

(BRIEF PAUSE)

THE CHAIRPERSON: That concludes the public presentations, and now we will return to the cross-examination. I don't -- MPI, I don't know if it's CAC, or -- or -- Mr. Oakes, I don't know who -- which -- if you've had discussions as to who will be going first.

MR. RAYMOND OAKES: If Dr. Williams can proceed, I actually don't have any questions for this panel.

THE CHAIRPERSON: Thank you. Dr. Williams...?

MPI WITNESS PANEL 1 - OVERVIEW PANEL - Resumed

LUKE JOHNSTON, Previously Sworn

BEN GRAHAM, Previously Sworn

BRAD BUNKO, Previously Sworn

CURTIS WENNBERG, Previously Sworn

MARK GIESBRECHT, Previously Sworn

WARD KEITH, Previously Sworn

DR. BYRON WILLIAMS: Thank you, and good afternoon. And with the Board's indulgence, just -- we won't have that many questions for this panel. We'll reserve most of them for the -- the more technical panels to come. I -- we did wish to ask, on behalf of our clients, permission just to acknowledge Mr. Keith in the back row who has been a tremendous public servant through MPI, I think, for thirty-four (34) years, and who we understand is approaching retirement come December. I think before this Board, he appears with the high-vaunted title of vice president, business development and communications, as well as chief administrative officer.

Our client obviously got to know him

through the, at least, I think, ten (10) years that he served in terms of the Register of Motor Vehicles, as well as critical roles in driver safety. So, on behalf of our clients, we just wish to -- wish bon voyage for -- for Mr. Keith.

THE CHAIRPERSON: Thank you. Mr. Keith won't be bon voyaging until after the hearing. We will have -- the Board will have some comments about Mr. Keith after MPI concludes its case, and prior to putting in final submission. We -- we look forward to making some comments about -- about Mr. Keith.

So with that, Dr. Williams, if you want to --

DR. BYRON WILLIAMS: Yes, and --

THE CHAIRPERSON: -- resume with cross-examination.

CROSS-EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Thank you. And Kristen, if you can go just down to the bottom of this page, being the -- and the top of the next page, being the response to Public Utilities Board Information Request to MPI-1-39(b), and Mr. Graham, I believe both of my questions are for you, but you can certainly

direct them down the -- the road, if -- if you so choose.

Without asking you to elaborate at this point in time, it's fair to say that MPI is seeking to establish a customer -- customer experience framework, sir?

MR. BEN GRAHAM: Correct. I'll -- I'll elaborate on that a little bit, actually, Mr. Williams. We -- as a Corporation, we probably need to do a better job of listening to our customers. I think we've acknowledged that, and through work that's being run through Curtis's team, we are looking at enhancing what that customer feedback cycle would look like.

DR. BYRON WILLIAMS: Okay. Thank you. And you're looking -- or hoping to have at least the framework completed by the end of the current fiscal year. Is that correct, sir?

MR. BEN GRAHAM: Correct.

DR. BYRON WILLIAMS: And just if you need to be reminded, although I think this is unlikely, one (1) of the metrics that the Corporation is exploring is a customer loyalty metric, such as the likelihood of customers engaging the Corporation's services, sir, agreed?

MR. BEN GRAHAM: Customer loyalty?

DR. BYRON WILLIAMS: Yes, and specifically, the likelihood of customers engaging the Corporation's services. It's right there in front of -- in front of you, sir, on the screen.

MR. BEN GRAHAM: Sorry about that. Yeah. Sure.

DR. BYRON WILLIAMS: And another that the Corporation seeks to examine is the likelihood of customers speaking positively about MPI to other people, correct?

MR. BEN GRAHAM: Yeah. There's two (2) components to that. The first one (1) is, do Manitobans speak positively to other Manitobans? That's probably a different measure than if they're speaking to some -- to our friends from a different province.

DR. BYRON WILLIAMS: Fair enough. And sir, you'd agree that MPI enjoys a monopoly in the provision of Basic service?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And it's owned by the Province of Manitoba, obviously?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And the Province

of Manitoba does not offer for sale shares of Manitoba Public Insurance to others to purchase?

MR. BEN GRAHAM: Correct.

DR. BYRON WILLIAMS: And sir, you were formerly head of risk for QBE Insurance Asia Pacific, agreed?

MR. BEN GRAHAM: Correct. Yes.

DR. BYRON WILLIAMS: And it's part of QBE Insurance Group Limited, agreed?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And your former firm operated in the competitive marketplace. Is that correct, sir?

MR. BEN GRAHAM: Yes, it did.

DR. BYRON WILLIAMS: And so within that competitive marketplace, customers could choose whether to stay with the particular firm or take their insurance dollars elsewhere, agreed?

MR. BEN GRAHAM: Yes. Correct.

DR. BYRON WILLIAMS: And for firms in a competitive marketplace, that choice as expressed by consumer dollars is a powerful source of information?

MR. BEN GRAHAM: Correct.

DR. BYRON WILLIAMS: In fact, it's the ultimate source of accountability, agreed?

MR. BEN GRAHAM: I think there's a number of measures in relation to the fact that it might not just be financially driven. When you're in a competitive marketplace, you are able to compare products and features, and the payer networks, et cetera. So premium is one (1) of the measures, but there are a number of other measures that can ascertain success in the marketplace.

DR. BYRON WILLIAMS: Okay. And -- and we'll bring it back to MPI in just a second --

MR. BEN GRAHAM: That -- that's good.

DR. BYRON WILLIAMS: -- sir, just not quite yet. And QBA -- QBE Insurance Group Limited also was publicly traded, sir?

MR. BEN GRAHAM: Yes, they are.

DR. BYRON WILLIAMS: And as a publicly traded entity, shareholders can voice their perspective regarding the performance of the company through the purchaser sale -- sale of shares, agreed?

MR. BEN GRAHAM: And they often do.

DR. BYRON WILLIAMS: And for a firm that's publicly traded. a powerful source of information is the signal sent in the marketplace by the value of their shares, agreed?

MR. BEN GRAHAM: Sure.

DR. BYRON WILLIAMS: Obviously in terms of Basic insurance, Manitoba Public Insurance, by virtue of its mon -- monopoly, is not subject to the risk that customers will choose another company to provide Basic insurance?

MR. BEN GRAHAM: Correct.

DR. BYRON WILLIAMS: And so in terms of the customer experience framework performance indi -- in terms of that framework, sir, performance indicators such as the likelihood of customers engaging the Corporation's services are less applicable, I'll suggest to you, to the Basic monopoly because customers have no choice but to get their insurance from MPI?

MR. BEN GRAHAM: True.

DR. BYRON WILLIAMS: In the absence of the discipline of the marketplace, sir, the Basic monopoly of MPI is subject to the rate-setting authority of the Public Utilities Board, agreed?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And you understand, sir, that the Public Utilities Board is to provide an independent process of decision-making on rates independent from government?

MR. BEN GRAHAM: Sure. I'm still

learning about the PUB, so bear with me.

DR. BYRON WILLIAMS: So sure was a "yes"?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And I heard you say earlier today, sir, that is -- that you were retained by your Board to instill a culture of best practices.

I'm not quoting you directly, sir, but you recall a statement to that effect, sir?

MR. BEN GRAHAM: Absolutely.

DR. BYRON WILLIAMS: And certainly in the customer experience framework in the response to PUB 1-39A, MPI's indicated that it may also benchmark to other industries, where relevant.

Agreed, sir?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And to your knowledge, sir, has Manitoba Public Insurance sought insight from other industries such as the energy industry, about the steps, if any, they take in engaging with customers before the filing of a rate application in terms of the rate setting process?

MR. BEN GRAHAM: Did you want to speak about the knowledge that Carol gained and we're using?

MR. CURTIS WENNBERG: Yes, I can perhaps help out a bit, and I think maybe if we could take it back to a higher level, we're getting stuck here a little bit around the wording of likelihood of customers engaging the Corporation services.

What we're really looking at doing is taking what other companies do, including other Crown insurers, as they've taken a look at customer index scores, plus then other insurers like USA, which has a very high customer satisfaction with their overall services, and we're going to take a look at different touch points, if you will, that a customer may have with us. Let's say having a bodily injury claim, or making a claim on your car or getting a license or renewing -- just even getting the letter of renewal of your insurance and asking the customer, well, making sure that we're comfortable with what that experience looks like, but asking the customer what's their likelihood of recommending MPI from that -- from that experience with us to friends or colleagues. That would be a traditional net promoter score question.

Those are -- maybe that summary of the likelihood of customers to engage with us and promote us to others as the language is confusing, but we cannot, as a monopoly business, take for granted the

experience of our customers in all these touch points. So we're benchmarking ourselves to all kinds of different industries.

Energy, I'm not sure if it's specifically one, but we're definitely across other -- other insurance companies and we're using a third party to help us do that so that we get the very accurate benchmarks that would be industry standard.

DR. BYRON WILLIAMS: Where I'm going, sir, and I'm hoping to explore just for a couple of moments, is in terms of how Manitoba Public Insurance engages with its ratepayers in terms of the rate setting process and application.

Is that part of your examination of the customer experience framework?

MR. CURTIS WENNBERG: That wouldn't be a primary part so as -- as Mr. Graham was pointing out, were on the front end of the journey where we're going to setup the overall program.

We -- right now we have a fairly established program for measuring customer service standards that's been there for -- for a number of years, 20 years and we're relooking at the overall program.

Right away the most important thing is

to get the critical touch points done and measured in a way that we would compare those to industry standard measurements, like someone in a bodily injury and recovering from bodily injury and returning to work.

The rate setting process is further down the track and we would use mathematics and formula driven stuff with the actuary department, particularly, whereas I -- I think it's -- because we'd be more using the actuarial pieces and -- and informing you and the PUB process to do -- to do that aspect of it.

DR. BYRON WILLIAMS: You're suggesting, sir, that the rate setting process is too complicated to engage with consumers?

MR. CURTIS WENNBERG: No, no, I didn't say that. I think the end result is going to affect them, they'll see that in the renewal notices, but what you'll see across all of North America is -- is slowly or medium rising insurance rates because of bodily injury costs because of physical damage costs going up overall, generally, and MPI, if our costs are only going up by 2 percent or -- or, you know, fairly minimal amounts relative to competitors then the -- getting the customer viewpoint of that specific piece will be less important than -- than doing this

process.

MR. BEN GRAHAM: Can I just -- sorry, can I just touch on something there?

DR. BYRON WILLIAMS: Absolutely, sir.

MR. BEN GRAHAM: As part of the E-panel that we have already rolled out, there are questions in there about the value that you receive by the products that are offered by MPI, which is effectively a by-product of the premiums that they are charged for the services that they provide and the premiums that are adjudicated within this forum.

So whilst the process might not be as clearly explained, the by-product or the result of it, which is displayed through the premiums in which they are charged, they are asked about the value that they receive from those premiums.

DR. BYRON WILLIAMS: So just to go back to the question I've been attempting to ask, in terms of the actual rate setting process and dialogue directly with consumers prior to the rate application has MP -- Manitoba Public Insurance explored best practice, North American best practice and how...

(BRIEF PAUSE)

THE CHAIRPERSON: I will just tell everyone, one (1) week ago we had water leaking in this room and we've had it tested. We've had the equipment tested but there is a possibility -- we had a flood here from the 6th floor, a pipe broke and they cleaned everything out and tested it, but if we -- if we have a problem that may be it, but hopefully it's not, so maybe we can test those -- use other mics.

(BRIEF PAUSE)

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: So focusing on rate setting, and specifically consumer engagement prior to the filing of the application, I take it that Manitoba Public Insurance is not exploring North American best practice at this time?

MR. STEVE SCARFONE: Mr. Williams, and I hate to just interrupt your cross-examination, but in fairness to the witnesses I know the CAC has asked these questions, both in an Information Request at 11 and again at 2-25, so it may be helpful to have those particular Information Requests before the witnesses when put in the consumer --

DR. BYRON WILLIAMS: I respectfully

disagree, sir. I don't care if you pull it up for your witnesses, but I'm trying to ask what, if any, steps Manitoba Public Insurance has taken to explore North American best practice when it comes to engagement with consumers prior to -- to the filing of a rate application, which is not the subject of those Information Requests.

MR. STEVE SCARFONE: And -- and I'm not quarreling with you on that point and I know that the witnesses are prepared to answer those questions, I just thought it might be helpful if they had before them the questions that your client has put to the Corporation already on these issues, that's all.

DR. BYRON WILLIAMS: It's up to you.

So Mr. Wennberg, just -- and if you're unable to answer ---

MR. STEVE SCARFONE: Yes, could we do that, please, have CAC-11 and CAC-225 ---

THE CHAIRPERSON: You're asking in context of PUB-139 that you brought up?

DR. BYRON WILLIAMS: I think I was, sir.

MR. STEVE SCARFONE: Thank you, Mr. Wennberg.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Mr. Wennberg, my question is quite simple, and then we'll ask it and you can either answer or choose not to if its -- if you're -- if you don't have the knowledge.

But is the Corporation exploring North American best practice as it relates to consumer engagement with utilities or Crown corporations prior to the filing of the rate application?

MR. CURTIS WENNBERG: I think the answer on 1-1 basically is the answer from MPI and -- and I don't think I have anything further to add on that.

DR. BYRON WILLIAMS: Mr. Chairman, Members of the Panel, I have no further questions for this panel.

THE CHAIRPERSON: Thank you.

Does the Panel have any questions? No?

MS. KATHLEEN MCCANDLESS: I believe those are the questions then from counsel.

THE CHAIRPERSON: I have a couple of questions, Mr. Graham.

And you may want to talk to Mr. Johnston about this. I sort of feel like it's the

movie Groundhog Day, every year we come back and revisit the same issues over and over again. The only difference is the positions seem to change.

I want to understand something. Two (2) years ago, -- is it cut out?

(BRIEF PAUSE)

THE CHAIRPERSON: Two years ago we were dealing with the issue of --

(BRIEF PAUSE)

THE CHAIRPERSON: Two (2) years ago when the issue arose as to what would be the appropriate methodology to use, whether it be naive, 50/50 or SIRF, the very strong position of MPI was that it should be 50/50, that naive was not the applicable tool to use for forecasting, notwithstanding we had eight (8) years of no interest rate increases.

And MPI was adamant it was 50/50. CAC took the position it was SIRF, the Board disagreed with both and chose naive based on the fact that it was -- we had no interest rates. You may want to talk

to Mr. Johnston whose memory is probably better than mine.

The argument put forward was notwithstanding we haven't had an interest rate increase in eight (8) years, there eventually had to be a rate increase, and that's why we should go to 50/50.

We're now faced with a situation, and this is clearly part of it, a major part of the MPI case, where MPI is saying, you know, if you look at the period of time and naive is the best -- best approach.

Well, I don't know how long a period of time we're supposed to look, but if I look at the last two (2) years from when MPI hired the professor from Queen's University who -- who originated the concept of 50/50, interest rates are going up.

So I'm having difficulty understanding why the Corporation takes the position, it should be -- it should be 50/50 when interest rates are not going up, and clearly now in the past year where interest rates are going up, that 50/50 is not the applicable standard, it's naive, which in my mind appears contradictory.

So I don't know if I'm missing

something or there's a change in methodology or there are different factors, but we keep wandering to the situation where parties change their position in different years. And quite frankly, it's something I'd like to deal with and, you know, put to bed.

But I'm just wondering, you know, Mr. Johnston is going to answer this it appears, but is there a change in methodology, is there a change in approach, was it just a mistake or what? Because I really am having trouble getting over this complete -- this complete change.

MR. LUKE JOHNSTON: Yeah, no, we're -- we're definitely with the Board on the -- on the issues surrounding interest rate forecasting.

So if you can imagine this cycle that we've gone through where interest rates, you know, reached historic lows and, you know, we kept having this expectation they were going to come back, going to come back. As the Corporation's chief actuary going in to meet with our Board and telling them that, you know, the rates have fallen 200 basis points and now we're going to have to have a rate increase.

But, you know, what the banks are saying, It's going to come back and, you know, like, Don't worry about it, we can, you know, apply for a

lower rate, like you -- you know, those types of -- of discussions are -- are -- are difficult, right?

But where we are today, we've seen how all that's turned out, right? We've been at the stage where, well, they'll never be at this level, and then we've been, you know, two (2) years in and they're even lower. And we're losing money, we're losing money, right?

We've got to the point we're, like, well, maybe that's standard interest rate forecast is a bit too aggressive. Let's slow it down a bit. Right? Because we can't keep doing this.

And then, that 50-50 idea came. Even earlier, we had called it the "low growth", just please, like, slow the pace of this -- these assumptions done. Seven (7) years or so into this, and there -- what -- really there's hundreds of millions of dollars of -- of losses in terms of premium deficiencies. We moved to an approach that said, Can we do some sort of compliance filing even, and just try to get this little more right, you know, within a few months of issuing the policies, that was, I guess, last year?

And, that's where we're -- really where we're sitting today. It's just too -- it's so big of

a risk. We keep getting the promise of, you know, higher rates, higher rates, higher rates, and we're getting it again. And I -- I agree there are some -- there's some information that suggests that's more probable, but, you know how these things go. We've -- you've heard this story many times before that they're on their way up again, and then it doesn't happen.

So, based on everything we have today, we -- we're sticking with naive. We're definitely supportive of this idea that we should update it later in the process if we can, but we just can't keep taking that bet. Especially with no profit buffer, and at least in the more recent past pretty low capital levels. It's -- it just doesn't make sense for us.

So, I get if you were to just look at the history, it looks like a confusing mess of -- of assumptions, and -- and forecasts, and I think our appointed actuary said it well when he said, Anybody who thinks they can forecast this, is -- is fooling themselves. They have no clue. What -- like -- and that's why he suggested naive.

(BRIEF PAUSE)

THE CHAIRPERSON: So, Mr. Johnston, how do you deal with what we have had two (2) in -- interest rate increases, and there is one (1) projected for next month?

I mean, I understand your argument -- sorry, I understand your comments in relation to -- we need to be cautious and that it's a very conservative and I -- I understand and appreciate it. But we -- we make decisions based on evidence and facts. The facts are there have been two (2) interest rate increases. You know, we could ignore what they're saying for the future, but the immediate past is there have been two (2) rates. The Bank of Canada interest rates are going up -- have gone up in the last two (2) forecasts. I mean, how do you get over that?

MR. LUKE JOHNSTON: So, we talked a little bit this morning about -- about -- what's the term...

(BRIEF PAUSE)

MR. LUKE JOHNSTON: So, we talked this morning about amending the entire application. That's -- I won't pretend to understand the complexity of that, but my understanding in the history is this --

this year would -- wouldn't be any different than past where we've given the Board an update. And the Board can use that information as they see fit.

So, we -- we're definitely not suggesting naive because we think we have something to win out of this process. We -- if -- by all means, if the rates go up a hundred basis points, I'm sure everyone, including the government, will be thrilled if we can announce a rate decrease, or something like -- because of that. But we -- we sure -- sure can't, you know, make that promise and then go back and say, Oh well, we lost $50 million because we were betting on the interest rates to go up again and it didn't happen for the sixth or seventh time in a row. Like I can't -- that's not our -- a story that I want to stand behind anymore.

So, to -- to me, the approach of continuing to update as late as we can would be the -- my recommended one.

MR. CURTIS WENNBERG: And Lu -- Luke and Mr. Chairperson, if I may, the average claims liability that we have within the book of PIPP that we run is roughly about a ten-year -- about a ten-year duration.

And so, what you'll have seen announced

is a short-term; the overnight Canada -- Bank of Canada rates. But sometimes, those short-term rates don't affect the long-term part of the curve and -- and then affect our liabilities as well.

So -- so there could be, you know, short term stuff coming up just doesn't affect the ten-year average that we're talking about which will, once we resubmit, or whatever, it will be including in that ten year.

THE CHAIRPERSON: Thank you. Second question, Mr. Graham, is -- is there a repeat that started way before me, which is on extension coverage and extension reserves and that there's a comment about the transfer from extension reserves to Basic, which has incurred a number of times.

We've heard in previous applications, that Manito -- that MPI enjoys about -- it's either 95 percent or 96 percent of the -- of the extension coverage from Manitobans, and -- and, there is the extension reserve. It has been used to cover -- to transfer funds for Basic.

And I guess the question is: If -- if the numbers work so that Basic doesn't have to draw upon the extension reserve, what's the extension reserve used for?

You're going to have a pool of money that keeps growing up year after year; what -- what it's actually used for?

MR. BEN GRAHAM: The -- inherently, the profitability that's derived from the extension product has had to have been transferred to cover the losses on Basic. It's had to, otherwise, gone to zero.

So it has -- to be very clear, the net ratio on our extension book is not out of line with what you could probably see in most other private insurance companies for that type of business. We're not -- we're not running the 50 percent encore. We're running at -- at an 80 to 82 percent encore.

So, it's not as though we're gouging the market by any means. And the 96 percent market share that we enjoy, basically, stems from the fact that if people were to go and make a claim, they understand that it is just a lot easier to go to MPI to make a claim as compared to recover on Basic and then recover from somebody else for the other component of their insurance coverage.

THE CHAIRPERSON: Sorry, in no way am I suggesting you're gauging the public whatsoever, and I and probably most of the people in this room use

the MPI extension coverage.

But, if the Basic -- if we come up with the right formula, so that we don't have to use reserves from extension, you have reserves from extension, which if extension -- the extension business is run properly, which I assume it will be, will be increasing. What will the reserves be used for?

I mean, you -- you -- you'll have a pool of money on previously -- on occasion, it has been used to transfer, if we get it right, so it isn't required then what will it be used for?

(BRIEF PAUSE)

MR. BEN GRAHAM: Because it is a separate product, you would still need some reserves there. Now, when it comes to the level of those reserves, they would not continue to grow, because once Basic is in a stable and independent state, then those transfers would no longer be required. Hence, the rates on extension would most probably reduce.

THE CHAIRPERSON: Okay, so the answer is that -- is that then. If you don't need it, as you're say -- as the -- safety and for Basic, you have

the opportunity to reduce the rates for -- for the extension coverage -- for the --

MR. BEN GRAHAM: That could be an outcome, yes.

THE CHAIRPERSON: Okay, thank you. Those are my questions. I don't know if anybody else have any questions. If not, thank you very much.

I guess that concludes -- sorry, unless you have re-direct, Mr. Scarfone?

MR. STEVE SCARFONE: I do not have any re-direct, Mr. Chairperson. But, thank you for asking, but that will, in fact, conclude this panel's --

THE CHAIRPERSON: Thank you very much. Thank you.

And we'll see you, I guess, panel number 2 is at 9:00 a.m. tomorrow morning. That concludes this session. Thank you.

--- Upon adjourning at 2:37 p.m.

Certified correct,

_____

Cheryl Lavigne, Ms.

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 16, 2018

Pages 1 to 482

APPEARANCES

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Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
Anthony Guerra	)Insurance
Byron Williams (np)	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

	Page No.
List of Exhibits	5
List of Undertakings	55
MPI WITNESS PANEL 2 - MPI INVESTMENTS/CAPITAL MAINTENANCE PROVISION/RATE STABILIZATION RESERVE/DYNAMIC CAPITAL ADEQUACY TESTING PANEL	
LUKE JOHNSTON, Previously Sworn	
GLENN BUNSTON, Affirmed	
MARK GIESBRECHT, Previously Sworn	
DAVE MAKARCHUK, Sworn	
Examination-in-Chief by Mr. Steve Scarfone	245
Cross-examination by Ms. Kathleen McCandless	370
Certificate of Transcript	482

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
MPI-22	Presentation from the members of MPI who are giving the investment rate stabilization reserve and capital maintenance provision presentation	244
MPI-23	Presentation from Mr. Makarchuk from Mercer.	244
MPI-24	Quarter to financial report from MPI	245

LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
2	MPI to provide the proportion of the pension benefit portfolio based on the relative size of the payroll to be allocated to Basic	396
3	MPI to provide an explanation for the decrease in Basic's share of income on pension assets from 2019/'20 to 2020/'21	400
4	MPIC to provide a black line version of the transitional investment policy statement	409

--- Upon commencing at 9:03 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless, could you go through today.

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair, members of the Panel. Today we have the MPI Panel Number 2, which is found at Item 5 on page 2 of the procedural outline. It's the testimony of the MPI investments, capital maintenance provision, rate stabilization reserve and Dynamic Capital Adequacy Testing panel.

We will hear from them in their direct this morning and then we'll continue with cross-examination, which I expect will go to the end of the day and run into tomorrow, thank you.

THE CHAIRPERSON: Thank you. Mr. Scarfone..?

MR. STEVE SCARFONE: Thank you, Mr. Chair. Good morning, Panel members. Just before MPIC begins with its witnesses, Mr. Guerra has a few exhibits that we need to file this morning.

MR. ANTHONY GUERRA: Yes, good morning, Chair and members of the Board. MPI does have three (3) exhibits that it wishes to tender this morning. The first is MPI Exhibit Number 22. Sorry, MPI

Exhibit Number 22, which is the presentation from the members of MPI who are giving the investment rate stabilization reserve and capital maintenance provision presentation, and that's been circulated amongst the members present today.

--- EXHIBIT NO. MPI-22: Presentation from the members of MPI who are giving the investment rate stabilization reserve and capital maintenance provision presentation

MR. ANTHONY GUERRA: MPI Exhibit Number 23, which is the presentation from Mr. Makarchuk from -- from Mercer, which has also been circulated amongst the members today.

--- EXHIBIT NO. MPI-23: Presentation from Mr. Makarchuk from Mercer.

MR. ANTHONY GUERRA: And then finally Exhibit Number 24, which is the quarter to financial report from MPI which I understand is being -- is in the process of being circulated. So, MPI wishes to

mark all those as exhibits this morning.

--- EXHIBIT NO. MPI-24: Quarter to financial report from MPI

MR. STEVE SCARFONE: And, Mr. Chairperson, before I begin with the introductions of the panel members, if Mr. Christle wants to swear the witnesses in, including Mr. Makarchuk, please.

MPI WITNESS PANEL 2 - MPI INVESTMENTS/CAPITAL MAINTENANCE PROVISION/RATE STABILIZATION RESERVE/DYNAMIC CAPITAL ADEQUACY TESTING PANEL

LUKE JOHNSTON, Previously Sworn
GLENN BUNSTON, Affirmed
MARK GIESBRECHT, Previously Sworn
DAVE MAKARCHUK, Sworn

EXAMINATION-IN-CHIEF BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Very good. So before we begin, just to reit -- Ms. McCandless indicated that today's panel will be speaking to the issues of investment, the rate stabilization reserve, the Dynamic Capital Adequacy Test and the capital maintenance provision. I'll begin with introductions

on my far left. Mr. Giesbrecht, of course, was on the executive panel yesterday, but he is also new to the General Rate Application process this year.

And so, Mr. Giesbrecht, if I could, sir, could you just briefly describe for the Panel members what your job title is and your job duties with Manitoba Public Insurance.

MR. MARK GIESBRECHT: Certainly. So my title is VP Finance and Chief Financial Officer. I'm responsible for the teams that handle financial reporting, accounts payable, accounts receivable, payroll, banking and treasury, budgeting, as well as the value management office, regulatory affairs and our segregation and special accounts.

MR. STEVE SCARFONE: Thank you, sir. And prior to your arrival at Manitoba Public insurance, what is your experience in terms of both education and work experience, please.

MR. MARK GIESBRECHT: I've been with MPI about one (1) year now. Prior to joining MPI, I was Vice-President of Finance at Western Financial Group where I was responsible for three (3) business units, two (2) were federally related insurance companies, one (1) life and one (1) P&C and I was also responsible for a niche P&C broker. Prior to that --

that was from 2014 to 2017. From 2011 to 2014 I was Vice-President Finance for Western Life Insurance which also is a subsidiary of Western Financial Group, and I first got into the insurance industry about eighteen (18) years ago as a independent broker selling life insurance and financial products.

MR. STEVE SCARFONE: Thank you, Mr. Giesbrecht. And finally, sir, as part of this year's General Rate Application did you have a hand in authoring any portions of the application itself?

MR. MARK GIESBRECHT: My primary role was more of a reviewer. I would have had some authoring but primary as a reviewer of the materials.

MR. STEVE SCARFONE: And that would've been the investments and other related matters?

MR. MARK GIESBRECHT: Correct.

MR. STEVE SCARFONE: Thank you. And next to Mr. Giesbrecht is Mr. Johnston.

Sir, you're the chief actuary for MPIC, correct?

MR. LUKE JOHNSTON: That's correct.

MR. STEVE SCARFONE: And, sir, you've had a hand, obviously, in preparing a number of documents that are before the Board in this year's application?

MR. LUKE JOHNSTON: Yes, definitely.

MR. STEVE SCARFONE: Including the Dynamic Capital Adequacy Test?

MR. LUKE JOHNSTON: Correct.

MR. STEVE SCARFONE: And all the information related to the capital maintenance provision as I understand it, correct?

MR. LUKE JOHNSTON: That's right.

MR. STEVE SCARFONE: Is there anything else that was the focus of your -- of your work as it concerned the application?

MR. LUKE JOHNSTON: Well, in -- in this particular panel investments -- the investment department also reports me in the -- in the organizational chart and actuarial. So, these are very much in my realm.

MR. STEVE SCARFONE: Okay, thank you, Mr. Johnston.

And to Mr. Johnston's right is Glenn Bunston, sir. You're the manager investments for Manitoba Public Insurance?

MR. GLENN BUNSTON: Yes, that's correct.

MR. STEVE SCARFONE: And how long have you been managing the investments at MPIC, sir?

MR. GLENN BUNSTON: I've worked at MPIC for almost 15 1/2 years and been manager of the investment department for about 12 1/2 years.

MR. STEVE SCARFONE: Thank you. And what are your designations, sir?

MR. GLENN BUNSTON: So I'm a chartered financial analyst and also have a second designation in risk management. I'm a chartered alternative investment analyst.

MR. STEVE SCARFONE: Okay. And just briefly could you describe what your duties, your day-to-day duties would be as manager investments?

MR. GLENN BUNSTON: Sure. So I -- responsible for a small group of individuals. We oversee the investment portfolio. We report on the performance and risk of the portfolio to senior management at MPI and the Board of Directors, and we also conduct research to assist the investment committee in -- and -- and the Assistant Deputy Minister of Finance of the province in making strategic and policy type decisions regarding our investments.

MR. STEVE SCARFONE: Thank you. And so I understand, sir, that you sit as a member of the investors group -- or sorry, the working group for the

investment committee?

MR. GLENN BUNSTON: Yes. So my group prepares all of the material for that committee, and I attend every meeting and present the material to the committee members.

MR. STEVE SCARFONE: And have you been in that role since you've been manager of investments?

MR. GLENN BUNSTON: Yes, I have.

MR. STEVE SCARFONE: All right. And I understand, Mr. Bunston, that you'll be presenting today on the new investment strategy that MPIC plans to implement; is that correct?

MR. GLENN BUNSTON: That's correct, yeah.

MR. STEVE SCARFONE: And do you adopt this particular presentation as part of your direct evidence here this morning?

MR. GLENN BUNSTON: Yes, I do.

MR. STEVE SCARFONE: And, Mr. Johnston, I was remiss in asking you, sir, I understand you have a role in today's presentation as well?

MR. LUKE JOHNSTON: Yes, I do.

MR. STEVE SCARFONE: And do you adopt what you will be presenting to the Board as part of

your direct examination?

MR. LUKE JOHNSTON: Yes.

MR. STEVE SCARFONE: Okay, thank you. And so, Mr. Chairperson, what I propose to do is have the MPIC witnesses first presented to the Board and then when Mr. Makarchuk is up we'll go through briefly his qualifications because he's been prequalified.

THE CHAIRPERSON: Thank you.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you. So, gentlemen, are you ready to begin?

MR. GLENN BUNSTON: Yes, I am.

Well, I'm pleased to be here and present. I've attended the meetings in the past in the back row, but this is my first opportunity to testify, so, it's my -- my pleasure today to speak to you about the investment strategy at Manitoba Public Insurance.

And so you can see from the agenda before you we'll be talking about our investments and the Asset Liability Management Study that we completed. Sorry, actually if you could turn to the next slide. This is the -- yes. And one (1) more slide.

Okay, so we'll be talking about the -- the objectives for our investment portfolio. The Asset Liability Management Study that we completed; the implementation of the new investment strategy that resulted from the ALM study and, finally, our -- our interest rate forecast.

So next slide, please. So our investment objectives were determined by our Board of Directors and approved by the government and our strategy, essentially, is to try to reduce the volatility of the premium that we charged to customers and we plan to do that by directly matching our investments to our liabilities and specifically developing unique investment strategies for each portfolio.

And, really, the goal is to ensure that we have capital available to pay for claims when necessary. And finally, the goal is to have appropriate levels of risk for each portfolio which is driven by the purpose of each portfolio which are quite distinct and those purposes and risk levels are set out in our investment policy statement which were determined by our Board of Directors.

So as you know, this Board ordered us to complete the Asset Liability Management Study. We

hired Mercer to complete that study and worked with them in the fall of 2017. There were three (3) phases. The first two (2) phases were completed by December and the final phase, the third phase, was completed in January of 2018.

So the -- the recommendations coming out of the study was to -- to segregate the assets within our portfolio. We currently have a co-mingled portfolio that supports all of our lines of business and so going forward, we will have unique investment strategies for each of our line -- three (3) lines of business, as well as for our RSR and for post-retirement benefits, which is primarily pension obligations.

Secondly, we plan to significantly de-risk the assets backing our liabilities by removing equities and alternative investments from that portfolio.

Thirdly, we will diversify and lengthen the duration of our fixed income portfolio to be a better match to our liabilities and to provide additional yield. And then we plan to diversify our equity portfolio by adding exposure to global equities and, finally, will reduce our allocation to real estate in order to fund the purchase of additional

fixed income assets.

MR. STEVE SCARFONE: Mr. Bunston, just a question on that last slide, sir, sorry to interrupt but what -- can you explain for the benefit of the Panel members, what you mean by "matching of liabilities and assets"?

MR. GLENN BUNSTON: So our strategy has always been to match the dollar amount and duration of our fixed income portfolio to our claims liabilities to the Basic claims' liabilities and that will continue to be our strategy going forward.

However, in the past because we had a co-mingled portfolio and we allocated all of our investments to the different lines of business, it did cause some structural mismatches and -- in that the dollar amount of the fixed income portfolio that was allocated to the Basic line of business was slightly smaller than the dollar value of the claims' liabilities and so going forward that will be corrected so that there will be an exact dollar match and the hedge ratio will -- will increase to -- to approximately a hundred percent going forward.

MR. STEVE SCARFONE: Thank you. And so the effect of all of that would be, as I understand it, to derisk the portfolio?

MR. GLENN BUNSTON: Correct. We should be, and we will be, we expect less impacted by interest rate changes going forward, whether they be increases or decreases.

MR. STEVE SCARFONE: Okay, thank you. Sorry, carry on.

MR. GLENN BUNSTON: So the impacts of the -- of the Asset Liability Management Study. Overall, there will be reduced risk and less rate volatility to the ratepayers over the long term.

The impact on -- on premiums charged to customers in -- in the rating year, in 2019, will be minimal. Approximately a 20 basis point increase in rates as a result of the new investment strategy.

And interest rate risk is going to be reduced by segmenting the portfolios for the reasons that I -- that I just mentioned.

And finally, in the -- in the retained earnings portfolio, or the RSR, it is a balanced portfolio. And so it -- the goals there are a combination of preservation of capital and risk seeking assets. And so the portfolio -- the 50-50 portfolio reflects those goals.

So this slide shows the current asset mix. So we have 70 percent allocated to fixed income

assets and 30 percent to growth assets being equities, real estate and infrastructure.

Under the -- the second table at the bottom shows the -- the asset allocations for the new portfolios. So Basic will be a hundred percent fixed income going forward. RSR or retained earnings will be a balanced portfolio with a 50 percent in fixed income, 50 percent in growth assets and then pension will be 60 percent in growth assets, 40 percent in fixed income.

And so that rolls up on a consolidated basis to 84 percent in fixed income and 16 percent in growth assets.

Now, the Basic claims portfolio within that, 60 percent will be in -- in provincial bonds, 20 percent in corporate bonds and 20 percent in nonmarketable or what we call MUSH funds. There will be no equities or other growth assets. And as I mentioned earlier, the -- the hedge ratio, the amount of interest rate risk that is protected by that portfolio relative to the liabilities will increase from 85 percent to 100 percent.

So for the RSR portfolio, it -- it will change from a 70/30 split between bonds and growth assets to a 50-50 split with the -- the amount set out

on this -- on this table and, as I mentioned, we are adding exposure to global equities so we'll have about 23 percent in total within this portfolio in -- invested in global equities.

And so we will be adding new asset classes to the portfolio. One (1) of those is private debt and we anticipate investing in investment grade or equivalent to investment grade private debt that is unlisted basically issued by North American issuers. It's less liquid than public debt and as a result, there is a yield premium. We're estimating about 75 basis points for investing in private debt.

Next we'll add global equities so that will be in investments in equities in developed markets and there is a typo here it says, "and emerging mark -- market equities," it should say, "and no emerging-market equities." So we will not be investing in emerging markets.

And then we will also make a small allocation to low volatility global equities. So this is -- these are low equity -- sorry, global equities that the manager will select will have less volatility than the standard global equity securities and the strategy is to -- to try to reduce the overall risk of our equity portfolio.

So we considered many asset classes when we did the study, and some of them were rejected for various reasons and so we have a list of them here. So diversified growth funds was considered and ultimately rejected. This is a -- a strategy that allows the manager significant discretion in terms of what asset classes to invest in. They can -- they can go long and short. They can use leverage and it's very similar to a -- to a hedge fund and so we decided that that was not something that our investment committee was interested in making an allocation to.

We have invested in private equity in the past, although we haven't made new investments in private equity for many years and so we decided not to invest in private equity going forward.

High-yield bonds or these would be below investment grade bonds rated below triple B, decided those were not appropriate for our portfolio. Emerging-market debt, again, decided those were with -- outside of our -- our risk targets.

Commercial mortgages, those were not considered also or rejected.

Strategies involving leverage were considered briefly and decided not to invest in those.

And finally, real return bonds, we

consider those, but also rejected those.

MR. STEVE SCARFONE: Just before -- just before you move on to the next slide, Mr. Bunston, a quick question.

Firstly, these rejected asset classes, were those rejected for the Basic claims portfolio, the RSR portfolio or all of the segregated portfolios?

MR. GLENN BUNSTON: These asset classes were rejected for all of the portfolios.

MR. STEVE SCARFONE: Okay. And the second question, sir, on the last rejected asset class at the bottom, real return bonds, there's been some dispute about whether those -- that asset class should have been included.

Just briefly, sir, what is a real return bond and what does it serve to do in an investment portfolio?

MR. GLENN BUNSTON: So, real return bonds provide a return and then that return is adjusted for actual inflation. So both the principal payments and the interest payments are adjusted by inflation every six (6) months. And so the net result is you -- the return that you get is protected for -- from changes in inflation. So you -- you get a -- the return that you expect to get at the beginning, the

real return is unchanged or not impacted by inflation. And they -- they are issued generally by the Government of Canada. There are some provinces that issue them as well. And there are relatively few issuances in Canada.

MR. STEVE SCARFONE: Thank you. So is it fair to say that the real return bonds then protect against rising inflation; is that -- or is that making -- simplifying it too much.

MR. GLENN BUNSTON: That's basically true. They provide a real return. So the -- the return that you -- when you purchase them, the return that is -- the coupon rate is the rate that you will realize at the end of the investment because it is adjusted for actual inflation.

MR. STEVE SCARFONE: Okay, thank you.

MR. GLENN BUNSTON: So the next slide sets out the reasons why real return bonds were ultimately not recommended for investment. So, first of all, the real yield on those bonds is very low at -- it was 60 Basis Points in February of 2018 and are -- our Basic liabilities assume a 2 percent inflation rate, and we have reserves to protect us against that level of inflation and real return bonds will really only add value if inflation significantly exceeds 2

percent for a sustained period of time.

And dollar and duration matching is -- is difficult with real return bonds because there are so few available and so it's hard to get the correct term that you would need to -- to provide the correct duration match.

And finally, they're linked to Canadian CPI while our Basic liabilities are indexed to other drivers such as Manitoba CPI and the Manitoba industrial average wage.

So in terms of our implementation plan, we anticipated taking proximally two (2) years to -- to make these significant changes to our portfolio. One (1) of the first things we need to do is -- is make significant revisions and changes to our investment accounting systems so that they can accommodate the -- the new portfolios and so that is -- is underway. And we -- we can't make those changes to our accounting systems until the end of our fiscal year, so that can't happen until March 1st of 2019.

And on the investment side, we will -- we will and have been reducing our allocation to Government of Canada bonds. It was low to begin with, but the strategy is to invest in -- in provincial bonds. We may have some Government of Canada's just

because they provide liquidity to the -- to bond manager.

Corporate bonds. We have begun a search for a corporate bond manager. We have a consultant we're working with on that, and it is underway.

Our nonmarketable bonds, the plan is to not make new investments in those. There are very few available going forward and so we'll collect the principal and interest payments as they -- as they come in and use those to fund the purchase of the -- the new asset classes or the asset classes that are increasing in allocation.

Equities, so we also are in the process of searching for a global equity manager and we'll need to reduce our allocation to Canadian and US equities as well.

On the real estate side, we have advised our real estate manager, the manager of the pooled fund that we need to make a significant reduction to our investment in real estate.

On infrastructure, we need to make a modest reduction there. And so we have identified some investments that -- that we could potentially liquidate or reduce and so we'll begin that in the --

in the new fiscal year.

And then private debt. We anticipate that search beginning early in 2019, again, with the same consultant that we've selected for the other searches.

So we'll increase our allocation to provincial bonds as appropriate within the portfolios. Similarly, corporate bonds we'll increase that allocation once we have the manager selected and -- and approved and in place. We anticipate that starting in -- in the first quarter of our next fiscal year.

Again, nonmarketable bonds we'll have continued to collect coupon and interest payments and use that to fund our investment in the new asset classes.

Equities we'll -- we'll need to completely liquidate our exposure to US equities and we'll either do that at the end of this fiscal year, or the beginning of next fiscal year and we'll make a significant reduction to our Canadian equity portfolio.

Real estate, like I said, we have informed our manager that we need to make a reduction and that will be happening in I believe April of 2019.

On infrastructure, we'll start working in the new year on making the modest reduction that we need to there.

And then private debt, once we have the manager selected and in place, we'll start funding that strategy. We expect that to take probably all of the next fiscal year 2019/'20.

So in terms of interest rate forecasting, our -- our best estimate on interest rates relies on a naive interest rate forecast, and that's because it provides a neutral and unbiased forecast. So going forward the yield on the Government of Canada 10 year bond could increase, it could decrease, it could remain flat and the naive forecast, essentially, uses current rates as the forecast going forward.

And we've presented evidence to show that -- that it is a better predictor and less biased than the 50-50 forecast or the standard interest rate forecast. Over the short term, which is -- we define as 1 to 1 1/2 years, which is the period that we forecast interest rates for for rate setting purposes. The Bank of Canada overnight rate is -- is not a reliable predictor of the direction and magnitude of movements in the 10 year bond rates, and we've

presented a significant amount of historical evidence to -- to support that and to show that over the long term there is a relationship, but over the short term the relationship is certainly not direct and, in fact, the two (2) rates have -- have often moved in opposite directions.

So our goal here is -- is to reduce pricing risk and to provide the most accurate forecast of interest rates possible.

So in -- inn conclusion, we are going to develop unique investment strategies for each of the new portfolios that will provide a better match and alignment to the purpose and characteristics of the liabilities associated with that portfolio.

We expect the volatility of the Basic claims portfolio to be reduced since it will contain only fixed income assets going forward.

The impact on -- on rates charged to customers asked is expected to be minimal at 20 basis point increase.

And finally, the expected reduction in investment risk will have a positive impact on our required capital.

MR. MARK GIESBRECHT: And just before moving on, I want to just clarify one (1) point

regarding the impact of the strategy on -- on rates.

So we've heard that the impact on this year's application is an increase of about 20 basis points. What we're not factoring in is last year in our application we did have a preliminary step to increase corporate bonds and so that strategy had a reduction in rates of about .7 or .8.

And so that's really considered, you know, phase I or an initial step towards our ALM. So the ALM plan substantiated the increase in corporate bonds and so when you factor in that rate decrease last year with this point .2 this year, the net impact going forward to ratepayers is about a .5 percent decrease. So, it actually -- it's a benefit to ratepayers in the long run, but for this year's application it is a .2 increase.

MR. STEVE SCARFONE: Thank you, Mr. Giesbrecht and Mr. Bunston. So I think Mr. Johnston is going to present next on the other topics.

MR. LUKE JOHNSTON: Thank you. Okay, so moving on to the rate stabilization reserve or MPI's capital targets. Just a quick agenda there, we'll talk about the RSR, the approaches that we use, how MPI compares to the industry, and we'll talk about some of the -- how the new investment portfolio has

impacted some of our capital targets and -- and then at the end we'll touch on some new items, capital maintenance provision and the forthcoming capital management plan.

So as you all know, MPI has a rate stabilization reserve. We have this definition in place. Basically, which says, you know, if -- if bad scenarios happen, we need a fund to pay for those items so we don't just pass along those costs to ratepayers and ask them to, you know, have a big rate increase or -- or a rebuilding fee.

Putting aside that definition, M -- MPI is really no different than any other insurer. We should have capital to manage the risks and volatility in our business and I'm -- when I say that, I don't mean that MPI is the same as every other insurer, so. We -- we all know that Basic is a monopoly so they're -- not all the risk are the same. So in that -- in this case, competition risk is zero, but the majority of other risks that MPI has, for example, in -- in the investment portfolio are no different than -- than any other insurer that buys stocks or bonds.

The -- the last point really is that -- the point of having the RSR, obviously to withstand those scenarios. But the other big reason is for rate

stability. So if we don't maintain that RSR, and we just wait till it collapses and then ask people for money or wait -- let it grow really big and then give rebates, it's -- it hasn't really served its purpose so we'll talk about that today.

MR. STEVE SCARFONE: Mr. Johnston, could you just provide a couple examples, if you could, of what type of scenario might draw down the RSR? What -- what are we talking about?

MR. LUKE JOHNSTON: Yeah, so there -- some of the more obvious scenarios would be a stock market crash, hail is -- is a risk, but for the most part we do by reinsurance coverage to protect ourselves from that. Interest rates have historically been a risk factor. And then other items relate to, you know, if we have bad winters we get more PIPP claims in a year than usual. We could have adverse development on our claim liabilities.

What we found through a lot of the modelling is there are a few really big scenarios like a stock market crash would be an example but for the most part in our modelling and in our actual results, it's a combination of things. You know, the stock market goes down a little bit, interest rates go down, you have a bad winter, all of a sudden you've lost a

100 plus million dollars, right and -- and we don't make a profit or not -- not by design, anyways.

So when you have a billion dollars of premium and several billion of liabilities, you know, some interest rate changes and a bad winter and a few other things can easily hit a 100 plus million like that and that wouldn't even be considered a 1:40 year; that might be like a, you know, 1:20 or something like that so.

MR. STEVE SCARFONE: Okay, thank you.

MR. LUKE JOHNSTON: Okay, so when we talk about capital targets, what -- like what makes MPI different than -- than other insurers. So, obviously, we talked about the monopolies, that's not a -- that's not a risk and we're -- we're not pretending that -- that it is.

But again, pretty much all other risks that we have are applicable to MPI. I keep hearing the word "solvency" get thrown around, especially when -- whenever MPI mentions anything at all about the MCT, the Minimum Capital Test. We -- we understand that. The government is there, but at the same time we're not going to design a program that, you know, that has us fail and ask for government bailouts. We want to set up Basic to be managed like a -- like a

way a prudent insurance company would -- would be managed or run.

There are risks that I would argue that -- or MPI has that make it a greater risk than a typical insurer. So we -- we don't -- on Basic we don't make a profit. So if we're a little bit off on our ratesetting, we lose money immediately. It's not that, like, we make 10 percent profit, oh, now we only made 8 percent. We are off at all, we're losing money.

We do -- there's no other way to say, we have extremely low capital targets relative to anyone. So we'll talk about that.

And then the -- our Personal Injury Protection Program is -- is unique. Like SGI Quebec have no faults injury programs, but pretty much every other P&C insurer wouldn't have several billion dollars of long-tail liability sitting on their books. So that -- that's a big risk for us and you can see the steps we've taken on the investment side to try -- to try and neutralize that.

Just so everybody's familiar with the methodologies that -- that I'm talking about. So there is the Dynamic Capital Adequacy Test which we call DCAT and, really, this is like a -- this is what

we -- we use a modified version of this to set the capital targets based on the current Board approved method. Really what this is is a series of scenarios, you call them stress tests on the MPI's base case forecast. And then we, essentially, model these scenarios and say, what would MPI need today in terms of RSR to withstand the scenarios.

So that has -- that has been a lot the -- the -- this collaboration we talk about with -- with PUB and the other stakeholders, this is what we're talking. How to design those scenarios; how to build the models, et cetera.

There is -- there are -- there are definitely a lot of assumptions in these models. So, you know, the actuary, being me, has to, you know, decide on a lot of these assumptions, but management action, how fast to respond to scenarios, what's an appropriate rate increase in response to scenarios are an example of some of -- some of those things.

The -- to my knowledge, I'm not aware of anybody that says we use -- we modify the DCAT to determine the capital target but that -- that doesn't mean that there are people that do that.

MR. STEVE SCARFONE: Just on -- on that point, Mr. Johnston, what is it about the

modified Dynamic Capital Adequacy Test that makes it different than the normal, if I can use that word, Dynamic Capital Adequacy Test.

MR. LUKE JOHNSTON: Yeah, the DCAT test would normally just be used to determine if the insurer has satisfactory financial condition and all that means is that, you know, you run the scenarios that we talked about here and basically see if the insurer has enough capital to withstand those adverse scenarios and then the actuary would say yes, based on our modelling, you know, they meet the regular -- regulator's minimum capital requirements and they can, you know, withstand all these adverse scenarios. That would be the -- the typical use of the DCAT.

We've modified it here as a way to -- it's definitely a measure of MPI's risks so we've used that modelling and -- as a way to create RSR targets for the Corporation.

MR. STEVE SCARFONE: No, I understand that, sir, but how has it been modified? Input factors, if any, are different.

MR. LUKE JOHNSTON: The -- so one (1) of the collaborative pieces we did was this iteration exercise. The one (1) kind of modification that MPI struggles with is -- is -- is really this last step

where you see transfers from the other lines of business to kind of -- as part of the modelling and -- and MPI just doesn't agree with that piece at all. And I'll talk a little bit about it more later.

MR. STEVE SCARFONE: Okay. Thank you for that, sorry.

MR. LUKE JOHNSTON: The other methodology -- not the -- there may be others, but the two (2) main ones that we talk about here is the Minimum Capital Test and this really is a complete -- completely standardized test of capital adequacy. It appears that every insurer in Canada, P&C uses this test and their capital targets are based on Minimum Capital Test targets.

The -- the test really is completely objective. We -- as long as we have a balance sheet, there's a little other work behind the scenes, but for the most part, it's is not influenced by assumptions made by myself, or anyone, really. And yeah, it measures the -- the risk for all insurers, public or private. And I guess the other thing that it does really well is it gives the -- everyone a -- a way to compare companies.

So if -- from -- if I go to our Board and say, you know, we -- we came out of the PUB

hearings with A $180 million RSR target, they might say, Well, how does that compare to SGI? That -- for me to tell them SGI has a $200 million target would be meaningless. The MCT will give you that standardized ratio where I can say, you know, We're 30 percent. SGI is 80 percent. Like, that -- and you can compare the different companies.

Okay. So this table here is really showing the impact of the proposed investment portfolios on the targets. So maybe we'll start with the hundred percent MCT tests. Our -- by modelling out the impact of the new portfolios, the minimum capital test is saying that the capital required at a hundred percent MCT has fallen from 438 million to 358 million. So completely objective, independent test of MPI. I can go to our Board and say, If we do this, you know, MCT is indicating that the 100 percent MCT target would essentially drop by about twenty (20) plus -- you know, about 25 percent.

Our DCAT is also supposed to measure risk. So we would expect to see a similar type of decline in our own modelling, and have you seen -- as you see here, we -- we have -- so the dollars, using the PUB methodology, for lower target -- the target fall from one eighty (180) to one twenty (120). And

you'll notice that the MC -- the equivalent MCT ratio is about the same.

So it -- the good thing that we found from this result is that our DCAT, while it's not a hundred percent MCT, it's tracking really well with MCT scores, which tells us that, okay, you know, we're -- we're probably doing, you know, things right, here. I just wanted to make that clear that MPI has really reduced its -- its dollar -- absolute dollar ask considerably in this application, and that is -- is through things like the -- the ALM study.

Okay. So this is a high-level comparison of our peers in terms of capital targets. Everyone is aware that MPI has come here in multiple hearings in the past and asked or suggested that a hundred percent MCT might be a reasonable target for MPI. We -- in order to compare to other insurers, we need to put the targets on a MCT basis. Otherwise, it's very difficult for me to show that in this comparison. So 27 percent is -- is MPI's current calculated minimum capital target in this application, the -- based on the -- the last PUB order.

So just as the slide says, it is a unique approach, and I think everybody knows that. This is a -- a made -- made-in-Manitoba solution for

the most part, and the DCAT itself has been modified to -- in some respects.

SGI, ICBC, SAAQ, the Quebec public insurer, they all have some form -- they -- they all latch onto a hundred percent MCT in -- in some form, whether they target and move to that, or that's their stated minimum. But they'll -- they'll all use that.

For -- for private insurer, the regulatory target would be a minimum 150 percent. Most would operate well above that. The -- the latest average I saw was about 220, 225 percent.

MR. MARK GIESBRECHT: Yeah. And just to add to private industry, so I -- I come from private industry, where I work with a life insurance company and a -- a P&C insurer. And so on this slide, you see the -- the 150 percent, and that's the supervisory minimum. And in the private market, you would then, through your DCAT modelling and your stress testing, determine what do you need in excess of that to ensure you never come down to that range?

And so just by way of example of the companies that I worked for in the past, we had targets of 230 and 300 percent. Just to give you an example of what -- and as Luke mentioned, currently averaging the P&C market is about 225 percent. So it

is definitely above that -- that one fifty (150).

That -- that's a target that a -- a private insurer would never want to approach, because that means that the regulator OFSI would be all over them in terms of a management plan and wanting to stand what are you doing to get away from this level, because it's, in their eyes, far too low.

MR. LUKE JOHNSTON: And -- and just to be clear, MPI has never come here and said we need private sector capital targets at 150 percent MCT. So we recognize the monopoly position, but again, if you can take my perspective, going to our Board or government and showing them the slide, and they would -- would say, Well, what -- what are you guys doing? Like, we want, you know, we told you to run, you know, this like an insurance company. It looks -- it doesn't look good. Right?

So we're not asking for 150 percent MCT, but an appropriate capital target for -- for MPI, and -- and again, for some of the comments I hear from Intervenors, like, we're taking people's money, or -- like -- or -- things like that, I -- I don't see any base in -- in those -- basis in those arguments.

MR. STEVE SCARFONE: Mr. Johnston, just on that backslide, are there any differences that

you're aware of between MPIC and the other public insurers on the slide that would suggest they require a higher MCT?

MR. LUKE JOHNSTON: I won't -- I won't pretend to know the -- the regulatory environment, or the government environment in those jurisdictions. MPI, from a coverage and -- and balance sheet basis is very similar to SGI, and our PIPP program would be very similar to the SAAQ as well. There are different rules in those jurisdictions about, you know, how the regulatory environment to -- who sets the targets and things like that, but I don't see why we would differ considerably in terms of our targets. At every -- every area has different reasons for what they've selected.

So this slide -- it says, "Satisfactory condition cannot assume capital transfers." And I'll explain that. So we want a Basic capital target to be an indicator of the risk of Basic insurance. So if you think back to the earlier slide where we showed how the risk of Basic fell when we implemented the investment portfolios, that's a really good example of showing how we've, you know, to our Board and PUB -- and the PUB how we've lowered risk.

We don't -- when we talk about the

modified DCAT, assuming transfers from other lines of business, we don't want to show or -- or blur the assessment of Basic by capital transfers. We wanted to -- the -- the PUB and others to see this is the risk of Basic, you know, on its own. That's not to say that we -- we know we've transferred capital, but we -- we just want to have that independent measure.

So to the -- to Mr. Chair's question yesterday about the -- about the capital transfers from Extension, obviously, we -- it isn't a -- a process that we want to continue to do, but to your point, you had -- we had $200 million to transfer, and so what do you do? Why do we even have that much? And I -- I get what you're saying, but I'll get into the Capital Management Plan.

But that's where we really -- we would like to lock down our -- our capital targets for all lines of business, our profitability and rate-setting methodologies for all lines of business. And if we have confidence and certainty in that, I think we can go to government and PUB and say, Look, these are the rules that -- that we'd like to follow for the different lines, you know, under these conditions, you know, Extension transfers may occur, and things like that. We don't have all the answers to those yet, but

that would be, like, an optimal scenario, from our perspective.

And -- and when it comes to Extension, I know this isn't the place for it, but that's not -- like -- like, the -- the probability targets of the -- government wants, or -- or things like that is -- I'm told, like, that's -- this is what we're doing. Basic -- the mandate is clear. There's no profit. Like, there's a -- there's a clear mandate. So I can't really tell you what the decisions will out of that process, but step 1 would be to really lock down all the targets and -- and methodologies.

Okay. So this looks a lot like an earlier slide you saw. The PUB targets based on the last order are calculated and shown in -- in the bottom two (2) rows. So you've seen the -- the expectation of the investment portfolio changing has dropped those targets considerably. So instead of one eighty (180) to three twenty five (325), it's now 120 million to 251 million.

MPI's only objection to the -- the current Board Order methodology is what the -- this assumption of how that iterative methodology is calculated, basically assuming transfers of money from Extension. That's the only difference in the -- the

way we've calculated it. So our applied-for range in this application is 143 million to 305 million.

We would prefer to state that as an MCT target of thirty-four (34) to eighty-five (85). And one (1) of the -- one (1) of the big reasons that we like to do that is we can update everybody on that target, like, at any time, because we can calculate an MCT ratio in any month, and it's a little harder to rerun DCATs and -- and things like that on the fly, so the -- the MCT targets are more -- more dynamic in that way.

So you heard Mr. Graham talk a lot about the direction he's received to reduce volatility, not just for Basic, but for all MPI operations or lines of business. So that -- that volatility is really in -- in absolute terms. So -- so we -- we showed earlier that, you know, our risk of -- on the investment portfolio drops in -- both in dollars and percentage terms.

So some examples of what MPI has done recently to do -- to -- to control volatility. So the investment portfolios have been talked about. We -- we worked with the PUB on accepted actual practice. So that was a -- a big chunk of the interest rate risk issue that we were dealing with.

You've heard in recent years about some of the issues around projects, so improving the value management process was a big -- a big thing that had to happen. The -- the new Board and -- and our new CEO definitely had a -- a much heightened importance on risk management.

So my title has changed. I am now the VP of product and risk management. So risk management is in the executive office. We have -- we're setting up an enterprise risk management function, which we really should have. A company this size, to not have that is -- is not a good thing. Full accountability for reserving, it's -- now reports to me as well. So you see the fifth bullet there, and it talks about centralized PIPP reserving, but the Board obviously recognizes that the biggest risk we have is the -- basically, the $2 billion of claim liabilities and the investments backing them, so they've been taking steps to improve that.

And then the last piece, which we're not really showing anything new in our forecast this year, is that we're going to investigate the reinsurance options more thoroughly. So we -- we really just have protection for big hailstorms right now. We're going to look at other things. That could

include, as Mr. Graham talked about, aggregate on coverage, but there are also other products. For example, there is adverse development protection on liabilities. There is other kind of net income smoothing type of products that we've talked about, but they all have cost-benefit, so we have to investigate those.

One (1) of the struggles that -- that I have, especially when talking to our -- some of, like, our Board members, is that the Board believes that we're doing all these things to reduce risk, and so the -- use investment portfolio as an example, we do all those things, and then the targets -- well, then I tell them, Well, we lowered all the targets. So they -- it kind of feels like you've counteracted, you know. So I -- I went in a -- a year or so ago. I said, Well, we have a minimum target of 200 million.

And -- and then they say, Why? And I tell them all the things that are -- that are risky to MPI. They'd approve a bunch of things, like the investment portfolio and other risk reduction efforts, and obviously expect that that's going to reduce risk MPI, and it does. But then I come back and say, Well, I lowered your target to a hundred and twenty (120). So they kind of feel like it -- it nullifies a lot of

that benefit. That's kind of how it works, but it -- it feels that way to them. So just -- just so you understand that piece. But, yeah, the point being that going forward, we -- we really need to work with PUB to -- to achieve this kind of low risk appetite that the government has.

Okay. Moving on to the Capital Maintenance Provision. So the -- the CMP is really an additional amount that we're asking to apply to the annual rate indication in order to maintain capital in a given policy year. So another way to think about this is we calculate -- we've always talked about calculating breakeven rates here, and -- and the one (1) time we looked at net income and said, How do we keep that at zero? And then we moved to AAP, the actuarial -- accepted actuarial practice rate making, said, Let's keep that net zero.

What came up last year is this idea that we can't have our capital deteriorate by design in the rate-setting process. So what we're saying is, Well, we agree, and that we think the most fair way to do this is to ask ratepayers for the incremental cost of maintaining capital as part of the rate-setting methodology. And we call that the net CMP.

So to -- a really simple example is

shown below. The bottom two (2) rows show you MPI's forecast if we did not include the CMP in the rate ask. And so if -- if you don't make any net income, you can see the total equity balance basically stays the same the whole time, however, the Company continues to grow, so the MCT score says, you know, you -- relative to the size of business, your -- your capitalization is falling, so from seventy (70) falling to fifty-two (52).

Our proposal is to ensure that the pol -- the policyholder comes in with a 70 percent MCT, they leave with a 70 percent MCT, and -- and they pay -- a -- a fair way to pay their kind of contribution. The alternative is to use the bottom set of rows, let the capital decline until it reach -- reaches kind of dire straits, and then ask that group of policyholders for a bunch of money, or ask them to rebuild it. And if I was that policyholder, I would say, Well, that makes no sense. Why didn't we just, you know, build and maintain all along, right? So that's -- that's the concept that we're -- we're proposing.

So I've already talked about the first bullet point. Net -- the -- the -- this Capital Maintenance Provision is really step 1 of -- of a capital management plan. So this is just -- just the

maintain part. Whether we're at 30 percent MCT, or 80 percent MCT, all we ask ratepayers for is to keep it the same, not build a release in -- in the -- in the Capital Maintenance Provision.

And yeah, next slide, please. Yeah.

MR. MARK GIESBRECHT: I just want to add one (1) comment. I -- I think it could be useful to add an analogy. The way I look at it is our -- our current environment is like we're -- we're living paycheck to paycheck, and we're -- we're then vulnerable if we have a big expense come up. And that's kind of like our current level of capital.

If we have no means to maintain capital, we're vulnerable to those adverse events, that -- that bad storm, that bad combination of market factors, the stock market, like we've talked about. And so it -- it really is important, that way that we, you know, we take away that vulnerability by having a means to protect capital.

MR. LUKE JOHNSTON: Okay. So -- so the Capital Management Plan is -- is not being proposed by MPI in this application. We don't believe that the CMP -- the maintenance provision and the Capital Management Plan have to come together. The -- the Capital Maintenance Provision can stand on its

own.

But per some of my earlier comments about the other lines of business, in order to have a -- a capital management plan, we -- we would need to have targets for all the lines of business and really understand the rate-making rules and triggers on those lines.

So again, if you're -- so Mr. Graham mentioned, you know, maybe one (1) consideration is that Extension rates could go down as a -- as a -- a possibility. Well, I need to know that, and then need to know the rules of, you know, when -- when can you transfer, and when -- when you can't. Otherwise, you can't really make a plan.

The -- the Capital Management Plan -- like, SGI came and talked about their plan. Really, we're talking about making rules about how you build and release, and always move towards your target. So don't wait until it's in, again, dire straits. Let's con -- sis -- like, so, SGI's a hundred percent. Let's work with the PUB and other stakeholders to figure out how fast you should move to that -- to that target.

So there is some issues in ICBC -- ICBC right now, where they -- they have a capital

management plan. It doesn't seem like the -- they want to follow the rules, like, right? So we -- we want to -- because it may be the -- the impact is too large. So we would want to work with the Board to come with a plan that we think we'd actually follow. So -- so DCAT, for example, assumes we would never charge people more than 2 percent for a rebuilding fee in one (1) -- in one (1) year. So why make a capital management plan that assumes you can just ask people for a 10 percent rate increase? Like, that's not really meeting the purpose of the -- the RSR.

Okay. Yeah. And I think I -- I talked about -- about all of these items. Maybe just to touch on the unbiased forecasting line, when we talked about interest rates earlier, and I talked about this a little bit yesterday. We have a current interest rate right now in our hand. It can go up, and it can go down. Our issue -- when -- when we say something's biased, we are forecasting interest rates to go up, and if they don't, there's only one (1) scenario for us, and it's loss.

If -- if we use the current naive interest rate, RSR could take a -- you know, we -- we could get an unfavourable move. We could get a favourable move. RSR has a provision for that.

That's like any other forecast, but on the interest rate one, we're just saying, Let's not take the high number, where really, the expectation is you either get it, or you -- or you lose. It doesn't -- it's not really the 50/50, like, probability that we look for in most of our forecasts. So that's -- that's what we mean when we say unbiased forecasting.

Okay. So in conclusion, so Mr. Bunston's talked about de-risking. So we're doing that through our investment portfolios, but we're definitely looking in other ways to do that on claims, and -- and projects, and things like that.

The DCAT targets -- I've talked about MCT today. MPI has not applied for a hundred percent MCT in this application, but we do want risk-based targets, and we'd like them latched onto MCT scores so we can compare and -- and dynamically use that information.

And then lastly, the Capital Maintenance Provision would be step 1 of what we think is a -- a fair break-even rate-making methodology, and then -- yeah, step 1 of the Capital Management Plan.

MR. STEVE SCARFONE: Thank you, Mr. Johnston. I know we're close, if not already there at our morning break. I just have a couple follow-up

questions, Mr. Chair, to the panel members on -- on the presentation that we just heard.

So gentlemen, I'm going to kind of put you on the spot here a little bit, because as I understand it, the -- the new Basic claims portfolio has been the de-risked. Is that right?

MR. GLENN BUNSTON: Yes, that's correct. And as I mentioned, it's only fixed income going forward in that portfolio.

MR. STEVE SCARFONE: Yes, and so in the RSR -- the new RSR portfol -- portfolio, as compared against to -- the Basic claims portfolio has more risk -- risky investments. Is that also right? Is that accurate?

MR. GLENN BUNSTON: Yes, it's a balanced portfolio. So half of that portfolio is invested in -- or will be invested in growth assets.

MR. STEVE SCARFONE: So I'm trying to reconcile how, under the new investment strategy, the rate indication would go up by .2 percent, but it also has the effect of lowering the capital requirements under the Rate Stabilization Reserve.

MR. LUKE JOHNSTON: It's a -- so if -- if you lowered risk on the investment side, generally you expect a -- slightly less return. So in this

case, Mr. Graham talked yesterday about taking -- that's a relatively small hit on the return for a very substantial risk reduction, which I -- I believe was about 40 to 45 percent. So that's a trade-off we were quite willing to make.

And then again, as Mr. Giesbrecht mentioned this morning, that -- that increase in rate is relative to kind of that midterm strategy where we talked about buying 18 percent corporate bonds. Ignoring that strategy and going back a couple years ago, this new approach actually would have lowered the rate indication by about fifty (50) basis points because it does invest in -- more in corporate bonds and -- and other types of bonds that have -- that have higher yields.

MR. STEVE SCARFONE: Okay. Thank you. And -- and then one (1) other question. Yesterday in my opening statement, I had indicated that there would be an explanation for the Board on how capital can deplete without a Capital Maintenance Provision. And -- and the reason that I -- I said that is because I don't understand -- there's $211 million in the Rate Stabilization Reserve, and presumably, that money is being invested. There would be an increase in the amount.

How is it that the reserve would deplete if properly invested?

MR. LUKE JOHNSTON: Okay. So there's a -- there's a few pieces to this, I guess. So let's just say we -- we're starting with $200 million in the Rate Stabilization Reserve. One (1) of the things we talked about last year and again this year, I guess, is the investment income earned on the RSR, and what to do with it.

So in -- in the absence of any of the capital maintenance discussion, the suggestion was we should use the lower rates. So that's -- that is a -- an option, but obviously, if you do that, the 200 million stays exactly the same, because its only real source of growth besides good luck was that investment income, because we don't make a profit.

So in a growing business, which we still are, we would have growing PIPP liabilities, or other assets would grow. All else equal, there's bigger risk -- there's greater risk of a loss on those items when they're, you know, bigger in size, so our MCT ratio would fall.

If we had really good luck and everything worked out perfectly, the RSR would just stay at 200 million forever, but the business would be

going like this, and relative to the size of business, it wouldn't be as adequate as it was prior to that.

MR. STEVE SCARFONE: This is -- so is it fair to say that the liabilities, then, that the Corporation has would outpace the growth in the RSR? That's the -- is that too -- again, is that too simple an explanation?

MR. LUKE JOHNSTON: No, we are -- no, it's not. The -- the -- our -- our liabilities are continuing to grow. We -- we do expect to plateau at some point. The -- the reason our claim liabilities keep growing is because of the PIPP program.

So we're going to reach a stage where -- so we -- we've had PIPP since 1994, so we're twenty (20) plus years into the program. Right now, we're adding between fifty (50) and a hundred (100) lifetime claimants every year to that program, and -- and those can cost a couple million dollars each, some -- and -- and -- or -- for the big ones.

At some point, there's going to be more than 50 to 100 million people dying from the existing population, that -- more than we're adding. At that point, it'll stop growing, but right now, the add is greater than what's falling off.

So if we could show you the whole

history of PIPP you'd see, you know, a hundred million dollars just growing, growing, growing, growing, but the rate of growth is slowing, and it -- it should -- it should plateau soon. At that point, we wouldn't expect liabilities to grow much anymore, and it is quite possible that as I said men -- yesterday, these net Capital Maintenance Provisions or build and release is the -- there's no reason they have to be positive all the time. They could -- they could definitely turn into a -- a negative, or a -- or a rate decrease.

MR. STEVE SCARFONE: Thank you, Mr. Johnston. So Mr. Chairperson, those are my questions for the panel members.

THE CHAIRPERSON: Okay. We will break at 10:30, then I assume we will be dealing with Mercer 10:30?

MR. STEVE SCARFONE: That's correct.

THE CHAIRPERSON: Okay. We'll break till 10:30. Thank you.

--- Upon recessing at 10:13 a.m.

--- Upon resuming at 10:35 a.m.

THE CHAIRPERSON: Mr. Scarfone...?

MR. STEVE SCARFONE: Thank you, Mr. Chairperson.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: We're ready to move to the next witness which is, of course, Dave Makarchuk. He's here from Mercer Canada.

Mr. Makarchuk, we have already sworn you in so I have a few questions just to ask of you before we begin. We have up on the screen MPIC Exhibit Number 5 which is Mr. Makarchuk's curriculum vitae.

Mr. Makarchuk, sir, can you please briefly describe your background in terms of both education and work experience for the -- for the Board.

MR. DAVID MAKARCHUK: Sure and good morning, everyone. I'll chronologically follow the -- the CV that's on the screen. My foundation is a Bachelor of Commerce, as well as a Bachelor of Science in actuarial science, at the University of Calgary in 1992. My professional designations are a Fellow of Society of Actuaries, Fellow of the Canadian Institute of Actuaries and a Chartered Financial Analyst Charterholder in 2008.

I should go from the bottom in terms of this CV because it's kind of a bit of a build. I actually began my career on the insurance side working for Crown Life Insurance in Regina, working in both the -- the pension asset accumulation, as well as the corporate actuarial dysfunction and so, you know, I have some familiarity with solvency testing. It's interesting to see how it's evolved and its application of the property-casualty side.

Some of my exams as a training actuary were certainly -- touched on P&C topics as well. Moved to -- returned to what was mostly home Calgary with Watson Wyatt as a pension consultant. The next six (6) years after my Watson Wyatt time was with Mercer as a pension actuary, assigning actuary. I transitioned -- if we can go back upward, please, thank you to investment consulting in 2006. Began my CFA Charterholder examinations then. My primary area of consulting now is on the investment consulting side advising clients really across Canada, mostly, funds of a billion dollars and up, with regards to strategy decisions, manager structure decisions, manager selection and things like that.

So, with regard to asset liability studies, which is the purpose of today I've probably

worked on dozens if perhaps maybe a 100 over my career. Many for insurance agent -- or organizations like this, many for pension plans, some other organizations as well.

MR. STEVE SCARFONE: Thank you, Mr. Makarchuk. So I see there that you were with Mercer for a number of years and then left the company, is that correct, to work as a consultant?

MR. DAVID MAKARCHUK: No, it was continuous from 1999 to today, different roles in different cities. There was a two-year period probably the date at which you were at the CV that I was based primarily in Toronto. My current primary area of work -- or location of work is in Calgary that was only a month or two (2) ago that we made that transition so. But practically speaking, I work across Canada.

MR. STEVE SCARFONE: Yes, and you've been with Mercer then since 1999, correct?

MR. DAVID MAKARCHUK: Correct.

MR. STEVE SCARFONE: And what's your title currently, sir, with Mercer if you didn't already say?

MR. DAVID MAKARCHUK: So -- yes, so not on this piece. So my primary title is the leader

of our wealth business in Western Canada, so Vancouver through -- through or BC through Manitoba. Our wealth business includes the actuarial services that we provide to clients, as well as the investment services that we provide to clients as well.

MR. STEVE SCARFONE: Thank you. And so, Mr. Chair and Panel members, as you're aware Mr. Makarchuk has been qualified already as an expert to give opinion evidence on two (2) areas, one (1) of which is institutional investment planning, which expect speaks for itself, but the second area that you're allowed, sir, to give evidence opinion evidence on is in the area of asset and liability matching.

Just before you begin your presentation, can you explain for us laypeople what that means.

MR. DAVID MAKARCHUK: Sure. I think that while some investors still have the luxury today of investing without regard to a particular obligation, most institutional investors have an obligation they're looking to -- to discharge or meet at some point in the future when we talk about an asset liability study or asset liability modelling or matching, essentially, what we're doing is considering the nature of the liabilities or the obligations,

modelling those out in an appropriate way and then looking at different asset classes, the -- the -- the -- how those assets we expect to behave in the future, how we expect the liabilities to behave in the future and the relative trade-offs between different things.

And so, often times those are insurance assets, sometimes they're pension assets. You know, individuals could do them for personal financial planning as well. So there's a broad application that one (1) could do asset liability studies. The study that we did for MPI is -- is one (1) that's typically -- one (1) of the many kinds that we do within Mercers group.

MR. STEVE SCARFONE: Okay, thank you. And then just one (1) further question or a couple questions about your qualifications as -- as an expert, Mr. Makarchuk, you understand that your role in this proceeding is -- is not to advocate for MPIC but to assist the Board in understanding the study that you're about to present?

MR. DAVID MAKARCHUK: That's my understanding, yes.

MR. STEVE SCARFONE: And so there's no further questions, Mr. Makarchuk. You're going to present on the asset liability study that your firm

was engaged to conduct for MPIC.

Do you adopt this particular presentation, Mr. Makarchuk, as part of your direct evidence this morning?

MR. DAVID MAKARCHUK: I do.

MR. STEVE SCARFONE: Okay. Very good then if you are ready to proceed.

MR. DAVID MAKARCHUK: Sure. So this is just a short overview of the work that we've done at the request of MPI over the last twelve-ish (12) months or so. I'm just going to quickly summarize the engagement that we agreed to, the members of my Mercer team that help me in this regard.

Some of our key milestones along the ways, talk about the conclusion -- or how the conclusions were ultimately reached, what Mercer's role was, what MPI management and staffs' role was, what the committee and the Board as well. As well just a bit of an update on our current perspective. Markets have moved somewhat over the last twelve (12) months. We've certainly have had some good questions as part of the dialogue in 2018. So just give an update as to what our perspective is today materially twelve (12) months after we began the project.

This is a summary of the engagement

with MPI. We received an RFP on September 12th. It was clearly indicated that time was of the essence in the RFP and that -- that MPI was motivated to conduct this relatively quickly.

We had a number of questions which MPI responded to promptly. We responded to the RFP as scheduled. And by the end of September MPI notified that we were the successful vendor.

We moved quickly to engagement documentation because MPI indicated a motivation to -- to move forward with this relatively quickly. There was a lot of work on the MPI side; a lot of work for myself and my team as well but materially completed the project as scheduled and throughout the balance of 2018, we have supported MPI, both with regard to the General Rate Application, as well as the following Information Requests that -- that resulted.

This is our overall team as it was presented in our response to Request For Proposal. My technical role is as an executive sponsor -- technical -- that was the -- the labelled role. My role expands to peer review, presentation at the investment committee level, as well as participation in all of the -- the management meetings that occurred, as well as authoring much of the response to the Intervenor

requests, as well as drafting a number of the different reports.

Angelo DiNoto is a senior consultant at Mercer as well, probably 25 plus years experience. He was the overall project manager and the day-to-day contact for MPI management throughout the project.

Pawel Piesowicz was our senior and primary modelling specialist. So, essentially, the -- the grinder of the numbers. Whenever Angelo or myself requested them, he had direct interaction with MPI staff on certain things as well.

Mariusz Wielocha, was the other of the -- the -- the modellers as well.

If there were certain questions that were pension related or pension specific Jared Mickall who is based here in Winnipeg advised and supported our team on the pension specific things.

And there were specific questions that were more fixed income oriented and so Samatha Cleyn was our specialist in that regard.

So over all, four (4) of us are actuaries by background, two (2) of us are CFA charterholders. All of us had institutional insurance experience prior to this engagement.

This page is just a -- a brief summary

of the different steps that -- that occurred over the project and, you know, the -- as soon as we were appointed, data sharing happened fairly quickly, project planning as well. There was weekly cant (phonetic) charts and updates as such.

It is important in any asset liability study to -- to establish discussion and dialogue in terms of what are our overall objectives. It was clear at the outset that there was some things that MPI was looking to achieve. It was clear at the outset that there was definitely some topics that they were seeking and looking for education before they actually made a decision. And so I think we learned that in step 1.

Step 2 was our first meeting, our first in-person meeting here in Winnipeg to discuss the objectives, the assumptions, the risk measures and risk philosophies. That was a great opportunity to educate MPI, share some of our expert perspective, also get some of their perspective on what they want to achieve, why they were doing the asset liability study, kind of what our success measures otherwise might look like.

October 30th, we had done our first review of some the efficient frontier analysis. There

was a first draft of phase -- of the phase I report; that was a -- a long meeting, close to full day as well just in terms of education, hearing MPI's perspective, starting to shape directionally which asset classes would be of interest and understanding, I think by then, you know, the commitment that segregation assets was something they wanted to work toward.

And that's where the step 4, you know, extending our analysis to the other business lines, you know, from a legacy perspective assets were not segregated. When we took on the asset liability study it was not clear that assets would be or would not be segregated and so midway through the project that decision was directionally made by -- by management subject, of course, to confirmation by the investment committee and the board.

And so there's a lot of modelling that happened through the month of November as well, back and forth between ourselves and MPI staff. Our major investing committee meeting was on November 28th and so both Angelo and I were there in person and we'll show you some slides from -- from that presentation today. That was, you know, very important just in terms of confirming at the -- at the oversight level

that the investment committee and the board were directionally in favour of the management recommendations that were otherwise coming before them.

Finalizing and documenting everything in the phases 1 to 3 reports. Certainly they started drafting in -- in October. They were finalized all by January. We supported MPI in terms of making the necessary changes to investment policies, statements and that was step 7.

And throughout 2018, we've responded to the follow-on queries and the technical conference earlier in the spring, as well as the GRA support, as well as today.

I wanted to highlight kind of how conclusions were reached and some of the challenges that similar groups have sometimes in terms of making investment decisions. And so the slide top right is a slide that we used often with all of our investors who are making strategic decisions and it's challenging because not every human being, not every investor believes the same thing, invests the same way, ends up in the same result.

But based on our analysis and research and -- and in thought process after reviewing the

governance structures of a lot of different entities, I think all of us as human beings we make decisions in this space for four (4) main reasons. We make decisions because of returns. We make decisions because of risk. We make decisions because of cost. And we make decisions because of time.

But it's challenging because even everybody in this room today doesn't perceive all those things the same way and we need to -- we believe that our perspective as consultants is to make sure we have good education on all of these topics so that we can synthesize the relative, you know, implications of whatever decision is going to be made and as best we can, that we can articulate what our objectives are before we do our analysis so that all stakeholders, whether it's management, whether it's an oversight body or whether it's external -- external advis -- external people that are impact -- impacted by the assets, they understand why decisions were made, and that they can kind of coo -- carry forward going forward.

And so, so we walk that through. We certainly walked management and staff through that prior to the committee. I believe the framework resonated with MPI as well as the committee also and

then so we summarized for the committee during that meeting the key recommendations and the expectations.

Mr. Bunston summarized some of these already. The decisions to segregate the assets. The decision to derisk the Basic liabilities. The decision to lengthen the fixed income portfolio; to diversify as well; to reduce the allocation in real estate.

The headline numbers from -- from our Mercer perspective -- again, these are all slides just taken from the November 2017 presentation was, at that time, to reduce, you know -- you know, we want -- wanted to be transparent. That one understood what are the return implications, what are the risk implications and what are the costs and time implications.

And so, you know, the headline number that returns would be decreased by .4 percent and it's $11 million not just $11 per annum but the -- the risk would also go down as well in terms of the surplus volatility, as well as what we called the surplus at risk would go down by $67 million per annum. And then -- but this would also take some time. This is not a situation where one (1) can wave their magic wand. It would take roughly twenty-four (24) months to

implement the recommendations MPI was bringing.

MR. STEVE SCARFONE: Mr. Makarchuk, sorry to interrupt you, sir. So we see there on slide I believe it's 5, the key recommendations that your firm made to MPIC, but earlier I think on the slide earlier, you indicated that at step 1 that MPIC came forth with some very clear objectives for your firm during this engagement.

Can you say -- can you recall what those objectives were?

MR. DAVID MAKARCHUK: Sure. So there -- there definitely, you know, from the very beginning risk mitigation was -- was clear on -- clearly on the mind of -- of management and staff that's working on this from -- from the outset. Exactly how that was going to happen, and to what extent, that still wasn't clear that was for the facilitation and an education discussion.

But that was, you know, I think the objectives was very much education. We were aware of the eighteen (18) different areas that the CAC had asked to be included in the study. So, you know, being new to the conversation is understanding, well, why are those on the list? How do we work those into the -- to the piece? Where do we need education?

Some of those eighteen (18) areas were not necessarily in Mercer's wheelhouse in terms of expertise, but most of them were and we were able to opine on -- on most of them so.

But to be clear, the recommendation that was brought to the committee that was, you know, based on, you know, the work that we did with management and staff throughout October and November. I would phrase it as a joint recommendation of MPI management and staff, along with the work that Mercer had already done for them on that path.

THE CHAIRPERSON: I'm sorry, to interrupt you, but I just wanted to clarify that point because I had understood your earlier testimony that MPI had come and said, we want to derisk. We want to segregate and that was given to you and then when I read this table it -- it sort of comes across as in, those are your recommendations.

Can -- can you just clarify that because I thought the starting point was MPIC said, here are the things we're looking at.

MR. DAVID MAKARCHUK: Correct.

THE CHAIRPERSON: They came to you, you discuss it with them, you evaluate them and now it sounds -- you come up with some -- some joint

recommendation, I think you said.

But can you -- I just want to know --

MR. DAVID MAKARCHUK: Sure.

THE CHAIRPERSON: -- if the starting point is MPI coming to you and saying, here are the things we want as objectives or if it is you saying, you should be derisking, segregating and -- and that.

MR. DAVID MAKARCHUK: So it's good. Let me try and clarify that one (1) more time. So one (1) of our very first steps in step 1 and in to step 2 is Mercer facilitating discussion on what are your projectives, how are we going to get to them, what are we going there -- and there'd be a slide almost certainly in our proposal, but it's one that I've used dozens of times as well is that, whenever we come into an asset mix conversation for any client, whether it's pensions, insurance or whatever, it's really important that we are agnostic, that we are indifferent. Whether you're going to be a return seeking investor; whether you're a risk mitigating investor; whether you're trying to make better use of costs, time, or whatever.

I have clients right now that are re-risking. I have clients that are derisking. I have clients that are moving back into equities. I have

clients that are lengthy in duration. It's not for Mercer to singlely decide what our client should be doing. It was facilitation -- and even on the segregation piece, MPI was not committed to segregation at that point, they wanted some analysis and some expert opinion as to whether they should be -- whether they should segregate the assets based on what others were doing.

So to clarify, our job was to facilitate, give expert perspective, understand what MPI is trying to achieve and then we, alongside management and staff, brought a recommendation to the committee that in my opinion was in line with the education and the objectives that management and staff had.

Does that answer your question? Okay.

(BRIEF PAUSE)

MR. DAVID MAKARCHUK: So these were, you know, so, you know, the topics from phase 1 and so many of these questions or topics were either -- came straight from the CAC recommendation, or perhaps they're MPI's as well but there was important questions and, number 1 was: Should there be a unique

asset allocation. The analysis discussion, essentially, was our executive summary in fifty (50) words or less which is sometimes tricky to do. You can appreciate that often times there were supporting documentation that -- that supported here.

But again and at this point it was a decision that -- very much depended on the dispersion of objectives because our perspective was, if each bucket has more or less the same objectives we don't necessarily see the merits in terms of segregation, but if each bucket very much has different objectives then we'd recommend you segregate.

And it's to MPI, it's ball and bat not mine, it's MPI to decide are the decisions -- or the recommendations distinct enough based on what we learned over the couple of months that we worked on this. We think they were and we supported their recommendation to segregate.

The investment goals, one (1) of the first things we did once we were hired was to take the current investment policy to read it, to try and summarize what we read into it and you see those in the -- in the centre box there, that risk mitigation was important, minimizing premium levels was important as well, but that our conclusion, the MPI conclusion,

was to do this at the business line level because the investment policy did not have business line specific investment objectives.

The inflation linkage of liabilities, it was, you know, we learned early on -- early on that much of the obligation -- many of the obligations were linked to future inflation. We were very transparent from the very beginning that real return bonds are the best hedge for future inflation, but that given low inflation expectations MPI made a decision to hedge nominal but not real interest rate risk. We'll be speaking about that more today I'm sure. We supported that recommendation at the time. We continue to support that recommendation based on where markets are, based on what peer practice is, based on the relative pricing of different assets.

We talked about the merits of new growth profile exposure. MPI provided a list of asset classes they were otherwise intrigued by and wanted more education on. Glenn summarized some of them already. We provided some education on each of them, including both those that were included and the recommendation, as well as many like diversified growth funds that were assessed but, ultimately, decided not to go forward with

And so, that covers the left-hand side of the slide. We talked about a wide spectrum of fixed income options as well. We talked about levered bonds. We talked about commercial mortgages, as well as those that were included. MPI just chose to implement private debt and corporate bonds as part of their recommendation. We talked about the interest rate risk management strategy. Again, the duration, the nominal duration to match 100 percent of the Basic liabilities was the decision that was made.

There's different ways to do the projections. We talked about cashflow matching. We talked about duration matching. As MPI developed -- developed out its systems, as technology has moved -- and technology has moved an awful long way. One can be more sophisticated in terms of how one projects its obligations and then does the modelling.

The liability to benchmarks methodology that we used for this particular study is a very efficient way to do a projection, both in terms of time, as well as cost. There are ways to do projections policy by policy. They are more time-consuming. They are more costly to do as well. And so I just want to make sure that we understand the trade-off that was made there. Materially, I don't

think that impacted the conclusion that was -- that was raised, but there are different ways to do risk mitigation in that regard or model it anyway.

Let's talk about assumptions. So Mercer has a core set of assumptions that we use for all of our Canadian clients, whether they are insurance based, pension based, endowments, what have you. We introduced those to MPI as we would with any one (1) of our clients. MPI is a more sophisticated institutional investor than many of other clients who otherwise running a widget business that does -- really not in the financial space.

So MPI had its -- some of its own views and it made sense both to them as well as to us to have a interest rate projection that was consistent with their overall business model. We reviewed it. We agreed that it was professionally reasonable. It wasn't exactly the same as our projection, but it was certainly plausible and so we agreed that implied forward rates would be used for our projection work rather than Mercer's long-term assumptions set.

Phase 2 objectives, some of them are a little bit redundant and I'm going to spend less time in this slide today, but it was to, you know, look at the risk of the different kinds of liabilities,

quantify and show things under different asset mixes.

So the ultimate recommendation that the investment committee approved was the end product of many, many different iterations of different charts and graphs and slides that MPI saw throughout the process. And so there definitely was a lot of quantitative modelling that happened through the piece. There was an awful lot of qualitative input that happened as well. And so, you know, that -- there's a lot of analysis that happened along the way.

We talked about availability and implementation ability, you know, the fund here is large, but it's certainly not the Canada pension plan, it's not a massive plan and so there's some practical limitations that have to happen as well. And, you know, so we considered that also.

On the right-hand side we, you know, also talked about the ranges for the different asset classes. We talked about, you know, some specific things in terms of what the corporate allocation should be. We talked about, you know, linking things with the corporate objectives overall. And so, that was a very full meeting where we walked things through. It was clear that the investment committee had pre-read a lot of our material. Their questions

were very much on point and we had a number of healthy discussions on most of the topics on the last couple of slides.

The next few slides were important as well. I'm just showing the -- the slides here for Basic. Again, this is all about, you know, defining the purpose of all our diff -- different buckets and also articulating the return risk, costs and time objectives as well. And so, the bottom right is a sample as the articulated return and risk objectives that MPI and Mercer worked together to articulate and so in the bottom right here. Again, this is very transparent to the investment committee, to the board and everyone in terms of: What are we trying to achieve from a return perspective? What is trying to be achieved from a risk perspective? And so there was willingness to accept some credit risk. Matching dollar duration was key and that it was clear that mitigating risk was more important than maximizing returns.

And so, the top left of the steps show the liabilities. I'm not going to go over that for the group today, but it's important to make sure we're all grounded just in terms of we knew how much was in scope as we went through the different groups, where

we are right now and how the liabilities work.

Glenn's already covered the actuarial allocation. This is how it looked back in November 2017. The recommendation was substantially was -- is unchanged from what was recommended in November to what was brought forward to you today.

The Basic portfolio being 100 percent fixed income with no private debt. RSR being a more diversified portfolio with half fixed income, half equities and alternatives.

Glenn summarized, you know, some fairly significant changes in terms of selling out the Federals in the bottom right. Adding to the provincials in the corporate somewhat significantly. The MUSH bonds going down eventually and private debt having to increase somewhat.

This is a bit more detail on the equity allocation, the alternative allocation. Again, having no impact on the Basic line of business. For RSR, you see kind of what the target was. All these numbers were as of August 2017. I'm sure they've update -- they'll update somewhat once the time -- gets time for implementation. But you'll see in the bottom right in the red, you know, definitely a reduction in real estate, private equity and infrastructure.

To finish a reading with kind of recap just in terms of what are the key questions that we believe -- and the slide on the left-hand side we use for pretty much all our clients, regardless of whether we're doing a manager search, whether we're doing an asset liability study, but I encourage all fiduciaries and even the Public Utility Board as well as terms of -- all right, if a change is going to be made, how does that impact the expected return? How does it impact expected risk? How much is this change going to cost? And how much time it's going to take?

And so, as we walked those through and we tried to summarize in our return, risk, costs and time framework on the right-hand side, what the headline implications were on -- on those different elements, as well as realistically what's the cost implications and realistically what's the timeline implications as well. And so, I was quite satisfied that we had had a -- a thorough discussion at the committee level. I was satisfied that MPI understood the implications of all those different decisions.

The CAC and P -- the PUB have raised a number of substantive issues over the last few months, and as part of my opening presentation, I just want to address what I'll suggest are the four (4) topics that

I think were the most prevalent.

And the first one is, you know, should liabilities have been modelled with a real benchmark? I think we're all on the same page but I just want to make sure we understand the difference between a nominal benchmark and a real benchmark.

And so, a nominal benchmark -- maybe I'll start with the real one. A real benchmark is a benchmark that, essentially, assumes that inflation will be volatile into the future. When we talk about a real return bond, a real return bond guarantees a real return. Generally you're going to get the .6-ish percent that they yield, plus whatever inflation is going forward. So if inflation is higher, you'll get more; if inflation is lower you'll get less. You'll always get that real return of .6, but you'll never get more or less than that .6 that you otherwise are going to get from the time you buy the bond.

When you but a nominal bond or if you use a nominal benchmark, it's a total return and it doesn't differentiate between the real or the after inflation component, or -- and the inflation components. So, essentially, there's two (2) different components there.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Sorry, to interrupt again, Mr. Makarchuk. So that is one (1) of the questions that I had for you at the end of the presentation but I think this might be a good opportunity for it because there's a number of different concepts that all sound the same to me, one (1) of which is the nominal liability benchmark versus the real liability benchmark and then yesterday we heard counsel for an Intervenor that MPIC hedged nominal real interest rate -- or nominal interest rate and not real interest rate risk. And there's also the concept of real return versus nominal return.

MR. DAVID MAKARCHUK: Right.

MR. STEVE SCARFONE: So are all of these concepts the same as what you've just described where it concerned nominal versus real?

MR. DAVID MAKARCHUK: Right. I think in real simple -- I didn't mean to use the word "real" there. In simple terms nominal returns are the total return an investor receives from an investment and we'll try and keep things to bonds here.

A real return is the after inflation return. The issue I think that's been discussed here is: Should the MPI yil -- liabilities have assumed

variable levels of inflation as part of the liability modelling? We definitely want to acknowledge, from an education perspective for the entire group, and I think MPI very much understands as well, that a real liability benchmark would have better reflected inflation volatility.

MPI as part of our initial discovery -- and you'll see as part of the -- the -- the evidence that was -- was provided as part of the technical conference, cooly indicated by the end of October that after education on inflation, volatility, and the infla -- in education on different levels of risk, a willingness to accept inflation, volatility, to model its liabilities, assuming a more conservative 2 percent level of inflation, and to hedge nominal risk, in other words, total interest rate risk as opposed to only hedging the inflation risk, which you otherwise would have achieved through modelling with real return bonds.

Real return bonds at the time of our study had an implied level of inflation. When I say it's implied, it's the difference between what an investor would pay and yield for a long-term Canadian nominal bond and a long-term Canadian real bond. There's a price difference there that essentially says

this is what the market's assuming inflation's going to be.

And for those that has investing background, and I'll try and be rather simple, here, there's otherwise an arbitrage opportunity if there's a price gap between what one expects inflation to be and how those two (2) different securities are otherwise priced.

And so at the time that we did the study, bonds -- real return bonds and nominal bonds were implying future inflation at about 1.6 percent. The gap today, as of a least a week or two (2) ago, was about 1.7, maybe 1.75 percent. From our perspective, professionally, at the time when we did the study, we said, All right. The market's pricing inflation at 1.6 percent. MPI is going to project its liabilities with a more conservative 2 percent inflation assumption. From our perspective, that's a more conservative expectation, because the market is telling us inflation is probably going to be only 1.6 percent.

We were satisfied that that liability modelling method had a level of conservatism that we felt was professionally appropriate. MPI had indicated they were willing to accept inflation

volatility, in part because of the pricing gap that was otherwise there, and that they clearly had an investment belief, they clearly -- clearly had an investment objective that they wanted to hedge nominal rather than real risk.

And so we would definitely acknowledge that if one was motivated and one clearly had an objective to hedge inflation risk, that a real liability benchmark would have been a better choice. But that was not the decision that MPI otherwise made.

I'll give you some context on other investors in -- in my -- in my final slide, but I just wanted to clarify that perspective on -- on that point.

MR. STEVE SCARFONE: Thank you. Thank you. So -- and I'm sorry, I -- I have one (1) more question: Had the Corporation decided to hedge real interest rate risk, and not the nominal that you've just described, how would that have impacted the returns on the portfolio, if at all?

MR. DAVID MAKARCHUK: Sorry. So if the decision was that MPI wanted to completely hedge inflation risk, the expected returns would have been materially lower. The opportunity set for the investments would have been materially lower as well.

An investment allocation that completely hedged inflation risk as part of our preliminary modelling would have been roughly two-thirds (2/3) real return bonds. MPI had made it clear that they were not interested in using leverage to achieve -- and I'll talk about that in a moment -- that they do not want to use leverage to achieve that. And so the diversified portfolio of provincials, of corporates, private debt, would not have been achievable in this situation, and MPI otherwise would have accepted a lower level of return.

We didn't do an awful lot of analysis on real return bonds at the time after MPI made that decision because, you know, cost miti -- you know, there was -- there were time limitations of cost mitigations as well. Over the last month or two (2), at the CAC's request, we reproduced some of that analysis, but, you know, given MPI's objectives stated at the time, that was the -- the resulting recommendation.

MR. STEVE SCARFONE: Thank you.

MR. DAVID MAKARCHUK: So that extends -- actually, go back one (1), just to the bottom, there. They extended quest -- you know, piece is, should the asset mix of include -- hedged -- should

have -- should have a hedge inflation risk? The top one is just about how should the liabilities be modelled? The ultimate decision is, you know, should we have used assets to hedge inflation risk?

And so, again, that was not a stated objective of MPI. When we look at many pure investors, whether they're similar insurance investors, whether they're pension funds as well, most pure investors accept inflation risk, and those that do hedge typically only hedge a portion.

There's a number of reasons for that. In general, real return bonds are relatively expensive compared to best estimate expectations of inflation. There are only so many that are out there. They don't trade as frequently as investors otherwise would like. And -- and so, in particular, given that it was not a stated objective, it wouldn't have made sense. And when we did the modelling, real return bonds fell off rather quickly if one has a nominal liability.

We acknowledge that headline inflation has certainly risen since the study, but the consensus expectation for long-term inflation has not. So from our perspective, there is still some margin between where consensus inflation will be over the long term, and what MPI has modelled, so we continue to remain

comfortable supporting the recommendation that was concluded back in the fall of 2017.

There's a discussion on overlays, whether they should have been used to hedge inflation risk as well. I'm not -- I just want to make sure the group has a reasonable level of comfort of what leverage overlays are. Essentially, it allows an investor to borrow -- lever -- their portfolio to get more exposure than they otherwise would be able to simply with direct investments.

Some investors are very comfortable borrowing to invest. Some investors are very uncomfortable borrowing to invest, either in their personal portfolio, or in the corporate portfolio, or the institutional portfolio, they are otherwise able to oversee. I'll acknowledge that sometimes that those perspectives are based on academic persp -- academic research, and sometimes they are based on just personal experience, or personal perception, or just the -- one's overall risk tolerance.

MPI decided they were not comfortable with leverage or overlays. That decision does not place them as an outlier relative to pure investors. Many pure investors are not comfortable with leverage, as illustrated in some of the different efficient

frontier studies. Some investors are, and some investors have done quite well as a result of it, but there are risks associated with leverage and overlays, and MPI indicated they were not prepared to take those on.

And finally, it was writ -- MPI, too, relying on quantitative models. From our perspective, while quantitative models certainly were the foundation for a lot of the work that we did, there definitely was a healthy dose of qualitative input that came both from management and staff, from the investing committee as well, and from our perspective, especially when you look at all the different peer asset liability studies that I have done over my career, I would suggest that quality considerations were more than adequately recommend -- or reflected in the final asset mix recommendation.

My final slide is just going to reaffirm some of the things I already talked today, but it's cosigned by each of Angelo, Pawel, and myself. We facilitate a discussion with regard to return, risk, cost, and time, both with management and staff, as well as the investment committee as well. And from our perspective, we certainly acknowledge that different investors can and will draw different

conclusions on those different -- on those different factors, but that we believe that based on our understanding of MPI's business, our understanding of MPI's overall objectives, that the recommendation they brought forward is a reasonable and prudent recommendation that balances those four (4) objectives: Enhancing returns, mitigating risks, mitigating costs, and making good use of time.

We'll definitely acknowledge that inflation has moved since we did this study. That having been said, we continue to believe that a 2 percent projection of inflation over the long-term is prudent and reasonable, and that the merits of hedging inflation risk do not exceed the merits of hedging nominal risk over the long term.

I think that's my last slide. Yes.

MR. STEVE SCARFONE: Thank you, Mr. Makarchuk. Just a couple follow-up questions, if I may.

Sir, in your -- in your presentation, during your presentation, you indicated that Mercer -- or you said you didn't do a lot of analysis of real return bonds at the time. I understand that following the preparation of the study, your firm was again engaged to do some further modelling. Is that right?

MR. DAVID MAKARCHUK: That's correct.

MR. STEVE SCARFONE: And that, I understand, was in fact to take into account -- or do an analysis of purchasing real return bonds for the investment portfolio. Is that right?

MR. DAVID MAKARCHUK: I think the primary -- the -- the initial purpose was to model the liabilities using a real liability benchmark, and then it was plausible that real return bonds perhaps would be an asset class that would come out of the recommendation. So I think the -- the starting point was to model.

MR. STEVE SCARFONE: Right. So without -- without making use of a real liability benchmark, you can't have real return bonds. Is that fair?

MR. DAVID MAKARCHUK: One could still choose to invest in real return bonds, even if you had a nominal benchmark. Those are separate decisions. They just -- the real return bonds would model very poorly relative to a nominal objective, and that's why they -- real return bonds were never excluded from the asset class options in 2017, but as soon as we started running an efficient frontier model with a nominal benchmark, there were clearly other asset classes that

had better characteristics.

When we re-did the analysis last month, and if a real liability benchmark was used, real return bonds then do become part of a recommended asset class strategy going forward, and then the percentage one would have -- it would depend on how much inflation risk one was trying to mitigate.

MR. STEVE SCARFONE: I see. And do you recall, sir, if the -- if the recommendation to do modelling on the real liability benchmark, if that request included all of the four (4) factors that you identified that you say should be considered when providing investment advice, that is the cost, risk, return and time?

MR. DAVID MAKARCHUK: Yeah. We would have talked about all of those as we -- as we went through the -- the conversation with -- with management in terms of what are the expected returns from real return bonds? What are the risks? What's the volatility of those as well?

The time piece is more about governance and implementation. It would take longer to build a real return bond portfolio, given their liquidity issues, than perhaps for -- for corporates or the like. And again, if one wanted to build them quickly,

there are some cost implication also.

So we would have talked about all of those factors. I think Glenn could tell you he's sick of me hearing -- saying return, risk, cost, and time, over and over throughout the project.

MR. STEVE SCARFONE: Also during your presentation, Mr. Makarchuk, you mentioned that part of the engagement was to have Mercer consider the eighteen (18) recommendations that I think you understood to come from Mr. Valter Viola. Is that correct?

MR. DAVID MAKARCHUK: Correct. Those were provided to us at the outset.

MR. STEVE SCARFONE: Yes. And in your estimation, Mr. Makarchuk, does the study and the recommendations made by Mercer fully take into account the eighteen (18) recommendations of Mr. Viola?

MR. DAVID MAKARCHUK: Yeah. They were all addressed in -- in different levels of detail. Throughout -- throughout the study, we needed some input from MPI to -- to ground ourself on -- on a couple of them. Some of them were a bit outside of -- or of -- of Mercer's day-to-day consulting expertise, but we were definitely able to offer perspective on each of the eighteen (18).

MR. STEVE SCARFONE: And you may have mentioned this, but I just want to confirm -- or get your thoughts on whether MPIC's projections of the volatility of inflation were in line with Mercer's projections on inflation.

MR. DAVID MAKARCHUK: I don't specifically recall exactly what the delta was in terms of ours versus theirs. I do recall that they were materially consistent.

One needs to consider our starting point for inflation, and where the federal, you know, federal bank, central banks are. There was inflation volatility from the '70s and '80s that I don't think is relevant in our -- today's starting point session, but materially, I think we are in the same -- in the same ballpark, there.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Just give me one moment.

MR. DAVID MAKARCHUK: Okay.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Yes, you did mention at the outset about the experience level -- or the experience that your firm has, and you personally, in the preparation of ALM studies, Asset Liability Management Studies.

For a sophisticated institutional client like Manitoba Public Insurance, Mr. Makarchuk, how often would your firm recommend having such a study performed?

MR. DAVID MAKARCHUK: Sorry, that's a good question. And so a general rule of thumb on -- on strategy, like, this is a starting point of four (4) years, sometimes as short as three (3), sometimes perhaps five (5). Whenever we're doing asset mix studies, one (1) of our first statements -- and we'll try and guide as long as Canada's trying not to let short-term noise impact long-term decisions.

And MPI was fairly clear at the beginning that they were looking to make a long-term strategy decision. We were definitely supportive of that. Studies like this you shouldn't have to refresh every six (6) to twelve (12) months. If you do, you probably have some governance issues you need to sort out, but I also appreciate that if you need to review it every six (6) to twelve (12) months, you're more of

a tactical investor as opposed to a long-term strategic investor.

And the tools that we probably used aren't really meant for investors who are shifting every six (6) to twelve (12) months. These are studies that should be done every four-ish, four (4) or five (5) years and implemented over time.

MR. STEVE SCARFONE: Thank you. And so if the Corporation was to engage your firm again for an ALM Study in four (4) or five (5) years, as -- as you have said, is there any bars or anything that would prevent MPIC from purchasing different investments under the strategy that now -- that's now been implemented and proposed?

MR. DAVID MAKARCHUK: I'm not sure I understand the question. Can you --

MR. STEVE SCARFONE: Well, certainly, there -- there seems to be some suggestion that other asset classes could have been considered, perhaps maybe even modelling on a -- on a real liability benchmark.

Do any of these factors -- or -- or is the Corporation pre -- precluded under the new investment strategy from adopting any such modelling in the next -- in a -- in a study that might occur in

four (4) or five (5) years?

MR. DAVID MAKARCHUK: No, I don't think so. I think the -- the asset classes that you're otherwise recommending, particularly for Basic, but also for RSR as well, are all relatively liquid. The private debt allocation might take a bit of time to unwind if, for whatever reason, you were to change your mind, but there's no real recommendations in terms of where you're going in terms of an asset class decision that you would be able -- would not be able to undo four (4) or five (5) years from now. Is that what you're getting at?

MR. STEVE SCARFONE: It -- it was, yeah --

MR. DAVID MAKARCHUK: Okay.

MR. STEVE SCARFONE: -- in terms of liquidation, and changing the mix, and -- and so my final question, sir: So the -- the -- if -- I think you might agree that the big change would be from the co-mingled portfolio to one that's segregated.

Is that fair?

MR. DAVID MAKARCHUK: For -- yeah, there's definitely one (1) of the bigger ones. I'm thinking which the biggest one would be. That -- that's one (1) of the biggest ones. Yeah.

MR. STEVE SCARFONE: Yes. And -- and so is that a common thing in -- that -- in your experience that you've seen with institutional clients, where they move into segregated portfolios, where before, they'd been in a co-mingled state?

MR. DAVID MAKARCHUK: Some other clients have been segregated for a long period of time, so I'm not sure how many have shifted recently. I've advi -- advised insurance clients a lot smaller than you. I've advised insurance clients a lot larger than -- than the situation.

I think more and more, as reporting standards have grown, as risk mitigation standards have grown, segregation makes a whole lot of sense, and co-mingling is tougher and tougher to defend, unless you have a really simple business strategy, maybe just one (1) line of business.

MR. STEVE SCARFONE: Thank you. So, Mr. Chairperson, I said that was my last. I do have one (1) further the question about -- I just wanted your thoughts, sir, on what role or how important the risk tolerance that your firm was provided was in the strategy that reco -- that was ultimately recommended by Mercer?

MR. DAVID MAKARCHUK: How important

the risk tolerance was?

MR. STEVE SCARFONE: Yes.

MR. DAVID MAKARCHUK: So this certainly is very important for us, as quickly as we can when we are introduced to a new client -- we weren't actively working with MPI prior to our engagement, so we had to get to know management and staff. We had to get to know, you know, what the management's perspective, and what the Board would accept, and what they wouldn't. We need to figure that out really quickly, in -- in terms of having a -- an efficient and successful engagement in the context of our independent education, as well.

As I mentioned before, it's not for us to decide on the risk tolerance an investor should have. This was a -- clearly a situation that MPI was motivated to -- to mitigate risk. So yes, it was certainly very important in the situation.

MR. STEVE SCARFONE: Thank you. Those are all my questions for Mr. Makarchuk, Mr. Chair.

THE CHAIRPERSON: Thank you, Mr. Scarfone. Are -- are there any other people who are going to be testifying for this panel, or -- or is that the end of this panel?

MR. STEVE SCARFONE: That is the end

of the panel, and I was just reminded by my co-counsel to -- Mr. Makarchuk is available for cross-examination both this afternoon, and again tomorrow.

THE CHAIRPERSON: Good.

MR. STEVE SCARFONE: Yeah.

THE CHAIRPERSON: Okay. Well, I -- I understand the entire panel is.

MR. STEVE SCARFONE: Okay. Yeah. Yes.

THE CHAIRPERSON: Yes. We have this quarterly financial that's already been in, is a -- an exhibit. Is this for the next panel?

MR. ANTHONY GUERRA: Mr. Chair, that is filed in response to minimum file -- filing -- excuse me --

THE CHAIRPERSON: Okay.

MR. ANTHONY GUERRA: -- minimum filing requirement 4(a).

THE CHAIRPERSON: So there is no direct testimony on this, then? This is simply in response to a filing requirement --

MR. ANTHONY GUERRA: That's correct --

THE CHAIRPERSON: -- and then reply? Okay.

MR. ANTHONY GUERRA: -- Mr. Chair.

Thank you.

THE CHAIRPERSON: Ms. McCandless --

MS. KATHLEEN MCCANDLESS: Thank you.

THE CHAIRPERSON: -- would you prefer to start now, or would you prefer to have the lunch break now?

MS. KATHLEEN MCCANDLESS: I would suggest that I start -- pardon me. I can start now. I have one (1) section that will probably take me to the lunch break, so.

THE CHAIRPERSON: Okay. Okay.

CROSS-EXAMINATION BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And so, Mr. Makarchuk, thank you for your presentation. I will have questions for you this afternoon. We do have a fair amount of ground to cover with this panel, so just so that the panel's aware, a roadmap of my cross-examination. I will start with interest rate forecasting. That will probably take me to the lunch break. After the lunch break, I will get into the area of investments, and following investments, we'll have questions of Mr. Makarchuk.

Depending how long that tech -- takes, that may take me to the end of the day. If not, then

I will continue on with Capital Maintenance Provision, and some other DCAT and RSR questions. But my -- my cross may run into tomorrow morning.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So thank you. Following on that, I will start with some questions about interest rate forecasting, about which we spoke a little bit yesterday and heard again from you this morning, Mr. Bunston.

Kristen, could you please pull up -- you have it in front of me, here. A few steps ahead of me. Thank you.

So in support of its position -- in favour of using the naive interest rate forecast, the Corporation did prepare this -- what would be a historical analysis of interest rate forecasting over the period spanned by the 2005 GRA to the 2018 GRA, yes?

MR. GLENN BUNSTON: Yes, this is the chart that we've prepared and presented for several years now on interest rates.

MS. KATHLEEN MCCANDLESS: And if we just scroll down to the narrative, here, three (3)

lines down, it says:

"Over twelve (12) months, the naive forecast had a lower standard error compared to the 50/50 forecast and the SIRF."

Yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: Then scrolling onto the next page, at figure INV-11, you see that before you?

MR. GLENN BUNSTON: I see that.

MS. KATHLEEN MCCANDLESS: And that's the historical analysis of the SIRF, so the Standard Interest Rate Forecast 50/50 and naive forecast from 2005 to 2018 GRA?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Now, from the table, I can see that the naive forecast has a standard error of .15 percent. That's on the right-hand side, at line 15?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And -- line 19, pardon me. And the 50/50 forecast has a standard

error of .16 percent. That's the centre at line 19, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Just for the education of the panel, what is standard error, and what does it tell us?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So the -- the standard error just simply measures the -- the average deviation between one (1) set of data versus the -- the other set of data.

MS. KATHLEEN MCCANDLESS: And so is the difference between the two (2) standard error statistics, here, so being .15 percent and .16 percent, relatively large or relatively small in this particular context?

MR. GLENN BUNSTON: Well, the standard errors are quite similar at point-one-five (.15) versus point-one-six (.16), but I would point out that the average differences are significantly different, at point three-four (.34) versus .15 percent.

MS. KATHLEEN MCCANDLESS: So in other words then, did the naive forecast perform

significantly better than the 50/50 forecast or only marginally better?

MR. GLENN BUNSTON: Well, in terms of the standard errors, they're not significantly different, but the naive forecast also has less bias in that it is closer, on average, to the -- to the actual number while the 50-50 forecast is biased in an upward direction.

MS. KATHLEEN MCCANDLESS: Thank you.

When I scan my eye down one (1) of the actual columns in figure INV-11, it appears that with respect to the pattern of change in the 10 year Government of Canada bond yield at least up to and including the 2016 GRA, it's dominated by downward movements, yes?

MR. GLENN BUNSTON: Yes, interest rates from 2005 decreased up until 2016.

MS. KATHLEEN MCCANDLESS: And it appears that, in fact, over those eleven (11) years the 10-year Government of Canada bond yields only increased twice, correct?

MR. STEVE SCARFONE: Perhaps, Ms. McCandless, just because I don't think he was expecting that, can you identify the years in which they increased?

MS. KATHLEEN MCCANDLESS: Lines 10 and 14. Pardon me, 2010 and 2014.

MR. GLENN BUNSTON: Yes, it appears that the yield on that -- the actual yield on the Government of Canada 10-year bond increased twice during that period of time.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you.

And if we returned to the previous figure, INV-10, over the same period, it appears the banks have been persistently forecasting an upward movement in interest rates, yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: So what we can take from this then, it seems that the naive forecast is almost bound to have a lower standard error than anything tied to the bank forecasts, like the 50-50 forecast.

MR. GLENN BUNSTON: Yes, that's our position. That's why we recommended the naive forecast.

MS. KATHLEEN MCCANDLESS: However, if a longer history could be assembled for this type of an analysis, it's possible that a different conclusion

would be reached, yes?

MR. GLENN BUNSTON: Certainly that's possible if more data was used, they might have a different conclusion.

MR. LUKE JOHNSTON: And just stepping in. Depending on how you're suggesting we make that decision. If you're suggesting that we take this chart of history and measured standard error, then -- then perhaps.

But the long-term moves on interest rates are very much -- about 50 percent chance of going up, 50 percent chance of going down.

I think there is overwhelming evidence here that banks aren't very good at predicting it. If this chart doesn't tell you that, I don't know what does.

So again, naive is the current rate, we're suggesting we update it as late as possible. Whether these are up, down or straight I don't think it changes our opinion on that. We're not interested in making a bet based on performance that looks like this.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could you please pull up MPI Exhibit 20, page 14. This is the Corporation's rebuttal evidence files

to the prefiled evidence of Dr. Simpson and Ms. Sherry for CAC.

And you see under 2.4 at line 1 it starts:

> "The recommendation of Dr. Simpson and Ms. Sherry to adopt the 50-50 interest rate forecast on the basis of the naive is inferior to the 50-50 in recent years, amounts to ingraining recency bias into the forecast while rejecting the breadth of historical evidence."

Do you see that before you?

MR. GLENN BUNSTON: Yes, I see that.

MS. KATHLEEN MCCANDLESS: Can you explain what is meant by "recency bias" here?

MR. GLENN BUNSTON: That would refer to taking into -- providing a larger weight to recent data than to older data.

MS. KATHLEEN MCCANDLESS: Would it be possible that the Corporation's use of only the latest 14 years for this analysis, say compared to the history of -- basically since its inception, would also be subject to recency bias?

MR. GLENN BUNSTON: That's possible,

but the reason that we haven't gone back further is because we don't have bank forecasts going back further. So while we would like to provide that data, it's just not available.

MS. KATHLEEN MCCANDLESS: Now at PUB-MPI-1-11A, the Corporation was asked to discuss the statistical significance of a sighted improvement in standard error using the naive forecast over the 50-50 forecast, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And then in its response to this Information Request at pages 2 to 3, the Corporation introduces the concepts of bias and efficiency of estimates, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Can you explain what both of those terms mean?

MR. GLENN BUNSTON: So my understanding is that efficiency is how disbursed and scattered the -- the forecast is, and bias is whether it tends to be above or below the -- the actual number.

MS. KATHLEEN MCCANDLESS: Now, if we scroll down, this response includes a statistical test at figure 1. Do you see that before you?

MR. GLENN BUNSTON: Yes, I see that.

MS. KATHLEEN MCCANDLESS: And this is a paired sample T test on the sample mean to determine if the differences between the 50-50 forecast and the naive forecasts are statistically significant, yes?

MR. GLENN BUNSTON: Right.

MS. KATHLEEN MCCANDLESS: Could you please just explain what is shown in this analysis?

(BRIEF PAUSE)

MR. STEVE SCARFONE: Ms. McCandless, so the person who provided this figure is sitting behind the gentleman, if they could caucus with him for a second so they can understand it.

MS. MCCANDLESS: Yes, that's fine.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Hi, just chiming in here. Sorry, I had to bring up the question.

So yeah, like per the -- per the answer we're -- we're basically using a statistical test of the difference it means to see if there's a statistically valid difference, or if it's just a

random occurrence.

And per the -- per the -- per the response, it did show that the naive forecast, at least for this set of data, is significantly different result than the 50-50 forecast at 99 percent confidence.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: The significant difference, does that go to efficiency or to bias?

MR. LUKE JOHNSTON: It would be, again, per the question, how variable the forecast is relative to the -- to the actual.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Thank you.

This analysis uses the same 14-year history when the banks were persistently forecasting upward movement while interest rates were predominantly falling, is that right?

MR. LUKE JOHNSTON: That's correct. And not to cut off your line of questioning, but I -- when you talk about recency bias, I actually think the

opposite of what you're talking right now is true.

So we've heard Dr. Simpson come here and say, you know, it doesn't take a genius to predict that interest rates are going to go up when we're at the lowest levels of all time. And I -- I would agree with him. Like, where are they going to go, right?

The fact that the naive forecast perform better in that environment is the most extreme example I could give that the naive forecast is better, because everyone in the world, like apparently knew interest rates were going up and they didn't for the whole entire time.

That should have been the -- the most likely scenario where your upward interest rate forecast was going to be correct and it wasn't and it still didn't do as good as the naive over that period. That tells you that, man, if we were in a regular period of time where the -- everyone wasn't saying 100 percent chance rates are going up, it would do even better would be my expectation.

So I think the recency bias actually benefits the 90 forecast, not the -- not the other one.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, can you please pull up MPI Exhibit 20, page

16, this is again the rebuttal evidence filed by MPI. And if we scroll to the bottom of the page there's a graphic of a dartboard analogy, do you see that?

Could you just please describe what this graphic depicts?

MR. GLENN BUNSTON: So this graphic is -- is trying to illustrate the difference between bias and -- and variance.

So, as I mentioned, a forecast with a high bias is going to be significantly different than the actual or the -- which is depicted here by the bulls-eye.

A low bias would be very close to the -- to the actual figures and then variance just indicates how different the very -- the forecasts are from each other. So we se them on the left-hand side, they're scattered and less concentrated.

And then in the second chart there we see that there's high variance, but low bias. So their forecasts are scattered, but they're clustered around the -- the actual figure or the bull's-eye.

MS. KATHLEEN MCCANDLESS: So where would both of the 50-50 and the naive forecasts fit within this graphic?

MR. GLENN BUNSTON: So the 50-50

forecast has a higher bias than the naive, and the -- the naive has a -- has a low variance, since it's one number. And the -- the 50-50 forecast, since it comes from several different forecasters would have a higher variance.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, can we please turn to page 28 of the investment section.

At the top of the page, current page 26 here, so if we go to page 28. Pardon me. Go back up, I think I saw the reference I was looking for. Yes.

So at the top of the page here, starting at line 1, the Corporation sites the support of its external actuary, Mr. Joe Chang, for the use of the naive forecast, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And then Mr. Cheng in his October 2017 external review of the prior Basic DCAT investigations, so that's at DCAT section attachment A, page 7 at item 1.

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Mr. Cheng says:

> "This report introduces a naive interest rate assumption throughout

the forecast period. Previous increasing rate assumptions have proved to be incorrect compounding forecasting errors. In my opinion, a naive interest rate assumption is appropriate for the base scenario. Notwithstanding the two (2) recent rate hikes by the Bank of Canada, I do not see any material risk in assuming a naive interest rate as a base case. My initial guess is an increase in interest rates should strengthen the financial position of Basic."

Yes?

MR. LUKE JOHNSTON: Yes, from -- from this quote on the previous page. So I think Mr. Cheng is saying what we're saying, is that people don't forecast interest rates very well. And -- and I think we're pretending if we think that these bank forecasts are incredibly accurate. So he just came out and said nobody can forecast this, so -- right?

And then this -- on this report, obviously, he -- if there's two (2) recent hikes, we know about it. So it would be silly for him to say

that, you know, the old naive forecast remains valid if he knows of two (2) interest rate hikes, right.

But that's really the same thing we're saying here too. Of course, we can update our forecast for new information and if rates do rise 50-60 basis points we would be happy to provide updated forecasts and rate indications just beyond that, I'm assuming large increases doesn't seem like the best estimate or -- or good practice for MPI.

MS. KATHLEEN MCCANDLESS: So just to take you back, Mr. Johnston, the Corporation cited Mr. Cheng as support for the naive and then I've taken you to item number one in the DCAT attachment, page 7.

So my question is: Is what's included in item number 1 here, the cornerstone or the foundation for the Corporation's evidence of Mr. Chang's support for the naive forecast?

MR. LUKE JOHNSTON: I would have to look if -- I know we had conversations with Mr. Cheng on interest rates. I'm feeling that there's another source that we're pulling from, but I can't recall it, but we'll look at that and if I do have anything else, I'll bring it after the break or let you know that I don't. This is one (1) of the sources though.

MS. KATHLEEN MCCANDLESS: Thank you.

I do have some other questions about what Mr. Cheng has written, so it may tweak your memory. But if we could go back for a minute to PUB-MPI-1-11C, attachment A, page 1 at the bottom of the page.

This is again from Mr. Cheng and in this response to this IR, Mr. Cheng confirmed that his opinion on the use of the naive forecast was in the context of a DCAT investigation of Basic satisfactory financial condition and specifically not on a Basic ratesetting context, yes?

MR. LUKE JOHNSTON: That's correct. I will say though that MPI's base case is also its ratesetting forecast.

MS. KATHLEEN MCCANDLESS: Then -- sorry to make you jump around, Kristen, but if we could go back to page 7 of the DCAT attachment.

And if we go back to the last sentence of Mr. Chang's observation at 1, which was:

> "My initial guess is an increase in interest rates should strengthen the financial position of Basic."

Do you see that before you?

MR. LUKE JOHNSTON: That is generally true and we have evidence that supports that in lots of previous hearings.

As we segregate the portfolios the benefit will be a little bit less. Like in the old -- if you recall from prior hearings when interest rates went up, Basic did well and the competitive lines did poorly.

Now that we've segregated the portfolio, there's more of a hedge, but there is still a -- there's obviously a benefit of getting higher yields like on your new investments and such. So there is a, hey, he's right, there is a pause -- a strengthening or an increase in net income.

MR. GLENN BUNSTON: If I could just add to that. The investment section of the GRA does speak to this specifically. Figure INV-9 talks about the impact of 100 basis point increase in -- in interest rates on the Basic line of business. This is page 27, INV-9.

And so before we made the -- sorry, in last years GRA the average impact of a 100 basis point increase in interest rates was around $35 million. And in this year's GRA, because of the changes to our investment strategy, the average impact is $300,000.

So that is because of the new investment strategy and because of the new -- the better interest rate risk management from that

strategy.

MS. KATHLEEN MCCANDLESS: Thank you. I was going to take the panel to that figure in a moment. I will have some questions in a minute about that.

I just would like to take the panel back to that sentence that Mr. Cheng had stated, which was:

> "My initial guess is an increase in interest rates should strengthen the financial position of Basic."

My understanding is that Mr. Cheng is saying here that the use of the naive forecast effectively raises the bar for Basic to meet the requirements for a satisfactory financial condition, which is fine in a solvency-based DCAT.

Would you agree?

MR. LUKE JOHNSTON: I might have to ask you to repeat that one.

MS. KATHLEEN MCCANDLESS: Essentially my interpretation of what Mr. Cheng is saying here is that the use of the naive forecast would effectively raise the bar for Basic to meet the requirements for satisfactory financial condition, which would be appropriate in a solvency-based DCAT -- solvency-

focused DCAT.

MR. LUKE JOHNSTON: I do not get that interpretation. I would hope that Mr. Cheng would evaluate our base case on accepted actuarial practice and not -- you know, and let us know if -- if he thought that base case was biased in any way. So I'm not -- I'm not getting that interpretation from -- from him.

If Mr. Cheng said, you know, a reduction and collision frequency would strengthen Basic's financial position. That would also be true, but that wouldn't be a best estimate forecast either. So I just -- I didn't interpret it that way.

MS. KATHLEEN MCCANDLESS: If we could go to page 3 of this attachment.

The table here, Mr. Cheng provided a high-level summary of the interest rate forecasting practices of the five (5) largest insurers for which he reviewed DCAT investigations in 2017, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And we see from the table that a -- it's ranked -- the five (5) insurers are ranked by the size of their annual premium. So the third column in.

MR. LUKE JOHNSTON: I didn't hear that

last part, but I -- I see the ranking and I agree, yes.

MS. KATHLEEN MCCANDLESS: And then we also have the fourth column and is the ranking by fixed income portfolio, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: If we look to insurers 1 and 2, which would be the two (2) largest and then we go to the rightmost side of the table under Interest Rate Forecast, we see that they both chose to forecast rising interest rates, yes?

MR. LUKE JOHNSTON: So there is a -- there's a somewhat short term view. But again, not surprising given that at the time of this report interest rates were about as low as they've ever really been. That would be the expectation, yes.

MS. KATHLEEN MCCANDLESS: And their fixed income portfolios would be broadly comparable to MPI, yes?

MR. LUKE JOHNSTON: That I don't -- I don't know.

MS. KATHLEEN MCCANDLESS: In size only.

MR. LUKE JOHNSTON: In -- possibly in size and interest rate sensitivity, probably not,

because ours is designed to -- to match the liabilities. I doubt theirs would have that same profile, but possible.

MS. KATHLEEN MCCANDLESS: Just with respect to size was...

MR. LUKE JOHNSTON: Size, yes. Dollar size, yes.

But that is a diff -- a different -- if I have a billion dollars and really short-term fixed income, I'm not as concerned or sensitive to interest rate movements as MPI, which has a very interest rate-sensitive portfolio.

MS. KATHLEEN MCCANDLESS: Thank you.

And then the three (3) smaller insurers, so insurers 3, 4 and 5 opted for a naive forecast beyond any actual year-to-date movement, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Now, at the bottom of page 2 in this IR response, so in the attachment, pardon me, Mr. Cheng also says:

> "Most insurers review what the large chartered banks and the Conference Board of Canada are forecasting in terms of future interest rates and making a subjective judgment."

Do you see that?

MR. LUKE JOHNSTON: I see that.

MS. KATHLEEN MCCANDLESS: Would you say that this is what the Corporation does as well?

MR. LUKE JOHNSTON: Make a subjective judgment? So we're definitely saying we don't know. We're not pretending that we're expert interest rate forecasters, but we're also not pretending that the banks are very good at it either, because that's -- pretty clear that they're not.

What you will notice in the table that you just looked at, that was showing insurers by size, the -- you can see that they are not forecasting 100, 200 basis point increases in interest rates like some of the -- the standard interest rate forecasts were doing a few years ago.

There is some near term changes and I think in the near term, that those -- some of the predictions are valid because we know a lot of, you know, things better in a three (3) to six (6) month period than we would three (3) years from now.

But you can see beyond a quarter point or so, we're generally talking very little change by any of these com0panies.

MPI's response to this would be from

pricing perspective, yes, we're quite willing to update for these near term changes, but doesn't appear anybody else is willing to bank on huge increases over the long term, it would be the same.

MS. KATHLEEN MCCANDLESS: Just so I understand your evidence then, Mr. Johnston, it is that the bank forecasts are of some relevance to the Corporation?

MR. GLENN BUNSTON: Maybe I could just add that we do collect the forecasts from -- the interest rate forecasts from the banks, we do review that information.

And you know, we've used our judgment to rely on a naive forecast because of the poor forecasting history of the banks. But there is no judgment in terms of the -- setting the naive forecast. It is what the current rate is.

And I would also say from this -- the takeaway that I have from this chart here shows that three (3) out of these five (5) financial institutions have forecasted no change in interest rates, they're using the naive forecast.

So, regardless of their size, 3 out of the 5 are expecting no change or forecasting no change and the other two (2), a modest increase in interest

rates.

MS. KATHLEEN MCCANDLESS: Thank you.

Mr. Chair, just to let you know, I'm maybe five (5) more minutes of this area. Thank you.

So is the Corporation aware of any reason why the Canadian chartered banks would prepare their interest rate forecasts on anything other than a best estimate basis?

MR. GLENN BUNSTON: No, we're not. Our understanding of the methodology followed by the chartered banks is basically mean reversion over a relatively short period of time. And again, you can see from the chart of their performance that over the last ten (10) years that that has not performed very well.

We did have a presentation from the Deputy Chief of Commerce from the Bank of Montreal recently and he did speak to this point, and he acknowledged the poor performance of -- of their forecasting history and the fact that they're not happy with it and it causes issues for them internally within the bank.

So I don't think -- I think they want to get it right, but they -- we can clearly see they have -- have not got it right.

MS. KATHLEEN MCCANDLESS: And as the Corporation would be aware, the issue with respect to interest rate forecasting in this GRA is any change in circumstances that would justify deviation from the use of the 50-50 forecast, which was approved by the Board in last year's Order, yes?

MR. STEVE SCARFONE: I just asked if they understood the question, because I didn't.

Maybe you could rephrase it?

MS. KATHLEEN MCCANDLESS: I'm simply reiterating what's in the issues list, so we can pull up the issues list if the panel needs it but....

MR. LUKE JOHNSTON: I would just like to hear it again. I want to make sure I got it.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: If we turn to -- it's Order 82/''18, there's an issues list at the end of the Order.

If we -- it's issue 4(d), which is justification for the use of the naive forecast for ratesetting and target capital purposes. In particular, any change in circumstances, since the issuance of Order 130/''17 that would warrant the use of the naive interest rate forecast.

And I'm simply putting that on the record so that the panel's aware of the basis for my next question, which is apart from what we've discussed thus far, what change in circumstances or new evidence is the Corporation aware of that would support its position in the use of the naive interest rate forecast?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I'm struggling with the right answer to -- like, how to give this answer, but like our team is -- is responsible for all the forecasting, not -- not the banks.

I'm accountable to -- to the results of the Corporation. Naive is the best estimate, in my view, and maybe we didn't think that three (3) or four (4) years ago in light of where we were.

But given our -- if I was talking to my Board, and again I'm accountable for the results, naive is the best estimate and the willingness of MPI to update that forecast for pricing purposes as late as possible further reduces that volatility for our board and government. But that -- that's really all I can say.

MR. MARK GIESBRECHT: Additionally we do have new members of our executive team that bring a new outlook to this topic.

So while there is not really any significant changes maybe in the environment of the marketplace, there are executives that have a different viewpoint and that support which -- what Mr. Johnston spoke to in terms of best estimates.

MS. KATHLEEN MCCANDLESS: So does the fact that an estimate proves to be wrong necessarily mean that it was not a best estimate?

MR. MARK GIESBRECHT: The best estimate, you know, it can be described in different ways depending on who's asked and what the definition of that is.

What it boils down to is that, yes, definitely it could be wrong, even though it was a consensus best estimate, and the reality is no one is going to get these things right 100 percent of the time and actually even what we've proven to see is any of the time. And so best estimate based on academics and theory quite often turn out radically different than reality.

MR. GLENN BUNSTON: Maybe if I could just add to that.

We -- there was an IR on this, CAC-1-7. And part B, and the question was: What is the definition of a best estimate?

Our response was "it means an unbiased forecast," which again is the rest -- the reason that we're putting forward the naive as the best estimate at this time.

MR. LUKE JOHNSTON: Just sort of my struggle with this particular issue, is why is everybody thinking that we need to use this rising interest rate forecast? What evidence -- and like, I know that the onus is on us to -- to support our forecast, but what evidence do other parties have that I should be using this forecast, and if I'm reporting to my board and saying you know what, we should really use this standard interest rate forecast and I showed them that graph and they'd be like what do you mean, why -- why would you recommend that?

I have no support for that other forecast, I have nothing to show that it's a good forecast. So why would I recommend that to our Board?

So like, I -- if I had something great to show you that said interest rates would go up and it's a better estimate then -- then I would consider bringing that here but I don't have that.

MS. KATHLEEN MCCANDLESS: Thank you.

Kirsten, could you please turn to page 27 of the investment section under 2.3, just briefly in this section of the GRA the Corporation stated that interest rate forecasting risk is a significant concern for MPI as an accurate forecasts have made -- have had material impacts on the financial results of the Basic line of business.

Would the Corporation agree that the capital transfers from competitive lines and into Basic, which have been undertaken by the Corporation over recent years, have largely been made necessary -- been made necessary by interest rate forecasting error?

MR. LUKE JOHNSTON: A large chunk of them, and just to be fair to all -- all parties involved, the way we calculated the losses from interest rates was really just to say here is what -- here is the interest rates were used in pricing. Here's what they would've been if we would've just use naive and calculate the premium difference.

I'm not suggesting that anybody would ever get that perfectly right every time. But in this particular case, especially in the years where SIRF was considered, we really took a leap beyond what

current rates would've been and that cost us a lot of -- a lot of money.

MS. KATHLEEN MCCANDLESS: Thank you. If we scroll up to the top of the page, this was the figure that, Mr. Bunston, you spoke about a moment ago and explained how -- how this figure shows basic sensitivity to interest rate risk.

So my question is: Now does the fact that Basic is now much less sensitive to interest rate risk lessen the Corporation's concern over the choice of the interest rate forecasting approach?

MR. LUKE JOHNSTON: This is actually a good -- a good -- very good question. I touched on it briefly yesterday.

So these -- the move to a segregated portfolio will eliminate this issue we had before with how investment income was allocated to different lines of business and there could be winners and losers from -- based on how interest rates moved.

So by segmenting a separate Basic claims portfolio and dollar duration matching that portfolio, once we have the claim liabilities we can, not perfectly, but neutralize the impact of interest rates better than the results would've been in the past.

So that -- for that piece, absolutely we've reduced interest rate risk considerably and that shows up in -- in the Mercer report as well.

On the pricing side, there is no liabilities yet, you're just setting out a price there for policies, and if you get that wrong and it's, say, you know, a $20 million impact, there is no hedge to that. We just put the wrong price out on -- on the market based on a biased or flawed assumption, or maybe not, maybe just bad luck. That we can't hedge ourselves from.

So my example I used yesterday, if naive was a $1000 rate and we want to be really optimistic and say, you know, rate should only be $950 because interest rates are going to go up, then it just stays the same, well we've lost $50 -- we mispriced by $50 a policy and there's no getting that back. It's -- it's -- we just priced wrong.

Does that make sense? We can't -- we can't hedge that piece.

MS. KATHLEEN MCCANDLESS: Depending on what the forecast is, though, you could be wrong on either the upside or the downside, yes?

MR. LUKE JOHNSTON: And that part we're definitely willing to accept based on the

current rate.

So there's lots -- although we don't have historical forecasts from the banks, there is decades and decades worth of how interest rates have moved from their current levels. And that's what we modelled in the DCAT, you know, what -- what's the probability if you go up 50, down 50 from its current level? You know, what protection do we need from that?

That can be modelled and put in the DCAT and -- and tested. How do we vary from this outside external number that's just placed 100 basis points higher than current day's rates, like, how do we measure the risk of that? That just seems to be a really high -- like already biased up number that it's very unlikely that we're going to do better than that number.

So we've essentially biased our forecast, increasing the likelihood that we're going to have poor results as opposed to neutral.

MR. MARK GIESBRECHT: And just adding to that, so while it can go either direction, just putting it in very simple terms, we don't want to count our eggs before they hatch. Rates, they may rise, they may fall. If we expect that they're going

to rise and that does not take place, but we price with that assumption, then we're going to have that loss and there's no way to recover that.

So again, we don't want to count those eggs before they hatch. Simply put.

MS. KATHLEEN MCCANDLESS: Okay, this will be my last two (2) questions. Kristen, if you could please just pull up Figure 1 from page 3 of PUB-MPI-2-39.

So figure 1 in this IR response shows movement in the Government of Canada 10-year bond rate -- bond yield and the Bank of Canada overnight rate over about the last two (2) years. Yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And I don't know if it's Mr. Bunston or Mr. Johnston that will -- or Mr. Giesbrecht that would answer this question, but from among you one could agree that there is a clear predominantly upward pattern to both lines on this graph, yes?

MR. GLENN BUNSTON: If you just look at it in general, both have moved upwards, but it would say that it's not always been in lockstep and that the yield on the Canada 10-year bond in some

cases has gone up and then come back down, so there's not been a one-to-one relationship between the two (2).

MS. KATHLEEN MCCANDLESS: Yes.

Now, would you agree that there are still reported expectations in the business press, including from the Bank of Canada, of more increases to come in the overnight rate?

MR. GLENN BUNSTON: Yes, I think the expectation is that the Bank of Canada will continue to increase the overnight rate gradually over the next twelve (12) months.

MS. KATHLEEN MCCANDLESS: So in the face of this information, does the Corporation believe that it is reasonable at this time to assume that interest rates will not rise over the full five-year forecast period of this GRA? From February 20 -- 2018.

MR. GLENN BUNSTON: Well, there were other IRs asked on this topic, CAC-2-1 was one (1) of those where we provided data going back further than this. This is about a two-year period.

And so we pointed out that there were many periods of time, as recently as 2010, when the overnight rate increased and the yield on the

Government of Canada bond fell and the difference between the two (2) can be as large as 400 basis points.

So there is -- there is no guarantee that a rising overnight rate will translate over the outlook period, the rate setting period of 1 to 1 1/2 years into an increase in the yield on the Canada 10-year bond.

MR. LUKE JOHNSTON: And again, we've -- we've been talking about this story for a long time now, about the, you know, for sure a rise in interest rates that's going to happen. Why? Why would we, when it happens, let's lower rates when -- until then, I don't see why we would -- we would do that.

So again, to the -- call it whatever you want, counting your eggs before they hatch, whatever, but I just don't see why we would continue to make this bet -- updated based on the lat -- latest rates for sure. If we get a great big increase in interest rates, let's update the rates next year immediately, but I don't see any certainty that that's going to happen based on, you know, my experience anyways.

MS. KATHLEEN MCCANDLESS: So just to clarify, the question was with respect to at this

point.

So now, going forward, would it not be reasonable to assume that interest rates will rise based on what is in figure 1 before you?

MR. STEVE SCARFONE: Ms. McCandless, just to clarify, are you talking about the overnight rate or the 10-year bond yield?

MS. KATHLEEN MCCANDLESS: Ten-year bond yield, but since February 2018.

MR. LUKE JOHNSTON: I would continue to suggest that we should update our rate indication based on the latest actuals, but I would not recommend making another bet on rising interest rates. A lot can change, just as fast as this change is an upper direction, it can go in the other direction.

You know, we've talked -- if you put parallels to other forecasts we makes, so say we have a road safety initiative and we're expecting it's going to reduce claims or whatever, do we make the bet on that before it happens, or do we wait until we actually see it in evidence and then book that into the rates.

We're saying let's see it happen and let's stop making this bet, which has turned out bad pretty much every single time for the last seven (7)

years.

Maybe we had one (1) or two (2) years were it wasn't too bad, but I got at least 160 million reasons to not like it.

MS. KATHLEEN MCCANDLESS: Thank you.

I apologize for my inaccurate estimate of time, but I am concluding now the questioning in this area. Thank you.

THE CHAIRPERSON: Thank you.

We will adjourn for an hour. Thank you.

--- Upon recessing at 12:19 p.m.

--- Upon resuming at 1:27 p.m.

THE CHAIRPERSON: Good afternoon. Ms. McCandless...?

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. So for to the panel, I'm now going to move into some questions in the area of the investment portfolio and investment perform -- income.

And, of course, we've heard from the panel that as a result of the recently completed ALM

study the Corporation intends to incorporate the results and implement the five (5) new investment portfolios which are Basic claims, RSR, employee future benefits, SRE and extension, yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And if we could go to slide 12 of MPI Exhibit Number 21, that was the presentation from this morning.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So for the Basic claims the target asset mix we see 100 percent in total fixed income securities, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And the Basic portfolio is designed to mitigate interest rate risk. So that's 100 percent fixed income with no growth assets, yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And I understand that -- that transition is expected to occur at the end of Q4 in 2018/'19?

MR. GLENN BUNSTON: Right. It -- it's

expected to occur -- occur in the first quarter of our next fiscal year in 2019/'20.

MS. KATHLEEN MCCANDLESS: Okay. Now if we could go to figure INV-8, that's page 25 of the investment section.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So this is a table depicting the ALM impact on Basic line of business, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And as of the end of 2018/'19, if we see at line 4, Basic net income is forecasted to increase by $95 million, yes?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And so I understand this is largely due to the result of realization of capital gains that were included in -- in accumulated other comprehensive income on equity assets?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Then if we can go to figure INV-38, that's page 69 of the investment section. And if we scroll down to the

bottom. So this is 2018 GRA investment income for Basic.

So the second column in is the -- if you scroll to the top -- sorry, Kristen, to make you jump around -- we see 2018/'19 forecast. And then at the very bottom of the page at line 31 we see for the Basic line of business total -- this is page 68, pardon me, we should keep going to page 69 and to the bottom.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Can we scroll up to the top of the page just for a minute. So this 40, we should be going to 38, pardon me. I think the page numbers may be different than what I've got. Right.

Okay, so at the bottom there for Basic line of business total we see $191.8 million for Basic, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And the second quarter financial report was filed today as MPI Exhibit Number 24, and perhaps we could pull up page 6 of that exhibit. If we could scroll down, keep going.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So if we look at investment income on the far left-hand side of the table -- Kristen, if you could please scroll up -- we see for the three (3) months ended August 31, 2018 and so that would be for the end of the second quarter. Yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: For investment income, we see $41.2 million for the three (3) months ended August 31, 2018?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And then for the six (6) months ended August 31, 2018 that's 70 million, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And this is on a corporate level?

MR. GLENN BUNSTON: I believe so, yes.

MS. KATHLEEN MCCANDLESS: So with respect to the Basic line of business approximately 86 percent of that investment income would be allocated to Basic, is that right?

MR. GLENN BUNSTON: About 85 percent, yep.

MS. KATHLEEN MCCANDLESS: So, rough math approximately $60 million for the six (6) months ended August 31, 2018, yes?

MR. GLENN BUNSTON: Sounds about right.

MS. KATHLEEN MCCANDLESS: Thank you. So halfway through the fiscal year then we saw that the forecast for 2018/'19 was 191.8 million. Based on these second quarter financial results, how are we tracking for meeting that forecast?

MR. GLENN BUNSTON: Well, a significant portion of that $191 million was the realization of equity gains, as you had mentioned, that hasn't happened yet. It -- that likely will happen in the last quarter of the fiscal year, when we get the global equity manager selected and in place and we will liquidate our US equities and significant portion of our Canadian equities and, of course, anything can happen between now and then. So the unrealized gain could increase or decrease between now and then.

So that represents I think about $95 million of the expected net income. And so...

(BRIEF PAUSE)

MR. MARK GIESBRECHT: Yes, so I'll just jump in here and to speak to our investment income through six (6) months and how we're tracking to -- to plan.

So we -- we are ahead of where we expected to be at this point in the year. Part of that did come from some realized gains that we had triggered already. We know there's a big portion to come later this year or early next year but we have realized about $17 million through the sale of a portion of our Canadian equities and so that has -- that's a one-time gain that is, you know, helping -- can of push us over our -- our prior year levels.

One (1) thing to keep in mind when looking at our investment income is there is interest rate impacts based on where the market moves in our -- our -- what that does to our unrealized gains on our bond portfolio.

And so just looking at that impact, we see that relative to last year was $18 million lower as a result, and you won't see that in the -- in the financial report, but I'm just looking at some of our internal reporting and so that is playing an impact

into that -- that number, but we are tracking in general to how we had expected if we normalize for these market impacts and do expect to be close to that forecasted number.

MS. KATHLEEN MCCANDLESS: Thank you. What is the outlook for net income for Basic based on the Q2 results.

MR. MARK GIESBRECHT: Yeah, so we are expecting to -- sorry, I'm thinking consolidated numbers in my head. We -- in terms of Basic we are tracking ahead of our plan. I don't have with me exact forecasted number -- if you are looking for exact forecast. However, we are -- have -- had experiencing favourable claims this year. And so we are on track to what we had expected.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could you please pull up INV-6.6. It should be page 48 of the investment section.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: No, you'll have to scroll up for whatever reason our page references are different. There we go.

Okay. So this section of the filing

relates to the turnover rate -- ratio. As programed in the model indicates how often equity holdings are sold and based on what's written here a 20 percent turnover ratio was used for 2018/'19.

After separation of asset classes in the financial model, the forecasted turnover rate will be 0 percent as it is expected that equity holdings will be held in pooled funds, yes?

MR. GLENN BUNSTON: Yes, that's what the section says.

MS. KATHLEEN MCCANDLESS: Is there a forecasted turnover used in each individual portfolio for the pooled funds?

MR. GLENN BUNSTON: Well, there may be turnover within the pooled fund, but those gains or losses won't be distributed to -- to the unitholders so the -- it would only be sales of the actual units that would trigger a gain or loss from MPI's accounting perspective.

So a turnover within the fund would cause the unit price to increase which would cause our -- our market value to increase, but wouldn't trigger a realized gain from MPI's perspective.

MS. KATHLEEN MCCANDLESS: Okay.

MR. GLENN BUNSTON: So sorry, to

answer your question directly, we don't forecast the turnover within the pooled funds because it's not relevant from our accounting perspective.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Could you please go to figure INV-27, Kristen, thank you.

So this is a real estate summary table and at the bottom at line 8, we see investment property income for 2018/'19 at $4.23 million. And then it's forecasted to drop to $642,000 the following year in 2019/'20, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And so what is the reason for the significant decrease there?

MR. GLENN BUNSTON: Well, our allocation to real estate is going to be dropping significantly going forward.

MS. KATHLEEN MCCANDLESS: Now, Kristen, could you please pull up PUB-MPI-1-24, and at question (b) the Corporation was asked to explain what options were considered to minimize transactional costs related to the portfolio segregation, yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: At item (b) the response. The Corporation indicated that it would fund the new asset classes, including private debt purchases using MUSH bond maturities. Yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And MUSH bonds and redemptions from the Greystone Real Estate Fund are estimated to be 52 percent of the withdrawals required to segregate the assets into the five (5) new portfolios, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: So in follow-up to this IR, PUB-MPI-2-13, the Corporation was asked at question (c) how it intends to find the remaining 48 percent or assets required to segregate the portfolio and the expected transactional impacts, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And the response at (c), the Corporation indicated that it is estimated that the remaining 48 percent of the new investments will be funded by selling 55 percent of Canadian equities, 100 percent of US equities and 23

percent of infrastructure. Yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And that a transition manager will be engaged in order to oversee the transition, yes?

MR. GLENN BUNSTON: That's the expectation, yes.

MS. KATHLEEN MCCANDLESS: How long is it expected for the -- this transition to take?

MR. GLENN BUNSTON: So on the public equities it should be very short. They're -- they're quite liquid and so we can implement that change as soon as the global equity manager is selected and approved by our investment committee and the Minister of Finance. We expect that that will either happen in the -- toward the very end of this fiscal year or the very beginning of the next fiscal year. I would say that that can be done in a matter of days, maybe -- maybe a week.

On the infrastructure because that's a private investment, that's a little more difficult and so we'll have to work with some of the -- the general partners that manage our investments to determine if they have other investors who are willing to or interested in purchasing our positions. So we'll have

to have discussions with them so that could take longer, but optimistically that could take a quarter maybe.

MS. KATHLEEN MCCANDLESS: Okay, thank you. At PUB-MPI-2-17 at question (a), the Corporation was asked why the separation of assets into unique portfolios hesitates the triggering of the gains on the portfolio. Yes?

MR. GLENN BUNSTON: That's right, yeah.

MS. KATHLEEN MCCANDLESS: And the response at (a) was that 70 percent of equity holdings were liquidated to implement the new investment strategy causing gains to be realized, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And it appears that the remaining 30 percent will be transitioned to the pooled funds which will cause a gain to be realized as well, yes?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Are the positions going to be sold to buy units in pooled funds?

MR. GLENN BUNSTON: That remains to be determined. We may be able to do a in-kind transfer

where the securities are transferred into the pooled fund and we receive units in the pooled fund in exchange for the securities, but, we anticipate that we will transition in to pooled funds because our allocations within each of the four (4) portfolios that have equities will be quite small and, therefore, I think there was another IR on this that the dollar amounts would not meet the minimum required to qualify for segregated accounts with our managers and so, therefore, pooled funds are -- are necessary.

MS. KATHLEEN MCCANDLESS: Okay, thank you. If we scroll down to figure (c), we see that approximately $18 million in gains are realized as of July 2018?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And when does the Corporation expect to complete the transition?

MR. GLENN BUNSTON: Within the equity portfolio?

MS. KATHLEEN MCCANDLESS: Yes.

MR. GLENN BUNSTON: Like I said, as soon as the search for the global equity manager is complete and the manager's approved then we'll move to begin the transition. So either -- either February or

March of 2019.

MS. KATHLEEN MCCANDLESS: And we understand from the presentation this morning that the manager search is underway?

MR. GLENN BUNSTON: It is, yes.

MS. KATHLEEN MCCANDLESS: Thank you. If we could please go to figure INV-14.

Now, this is a figure depicting the total marketable bond summary table broken down by fiscal year. At -- at the top of the figure we see... -- just bear with me for one moment. I've got a different reference up.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: All right, with respect to line 6, with the separation into unique portfolios it's expected that total marketable bonds will make up 67 percent of the portfolio in 2018/'19, yes?

MR. GLENN BUNSTON: Yes. So this is for the Basic claims portfolio and the RSR portfolios combined together, which make up the Basic line of business.

MS. KATHLEEN MCCANDLESS: Okay, thank

you. And they will increase to 75.3 percent for up to 2022/'23, yes?

MR. GLENN BUNSTON: That's right, yes.

MS. KATHLEEN MCCANDLESS: Thank you. Now, f we can turn to figure INV-2. Now, his is with respect to the Basic line of business investment income. We see that for the 2018/'19 forecast budget, at line 6, that interest income will increase as a result of the change from approximately $61 million in the current year through to 73.4 when fully implemented in 2019/'20, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And at line 13 dividend income is expected to be less than a third of what was previously earned; is that right?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And is this due to fewer equity investments over all?

MR. GLENN BUNSTON: Yes, the allocation to equities within the Basic line of business will be decreasing within the Basic claims portfolio, which is by far the biggest portion of the Basic line of business will be zero, and within the RSR portfolio I believe it's 25 percent.

MS. KATHLEEN MCCANDLESS: Now, the

2018/'19 fiscal year applies a methodology consistent with the prior year's forecast so net equity allocation formula?

MR. GLENN BUNSTON: Sorry, could you repeat that question?

MS. KATHLEEN MCCANDLESS: For the 2018/'19 fiscal year, it applies a methodology consistent with the prior year's forecast, so, a net equity allocation formula?

MR. GLENN BUNSTON: That's right. Investment income is allocated in a current year as it has been in the past.

MS. KATHLEEN MCCANDLESS: And for 2018/'19 MPI's proposing to allocate investment income based on the net equity related to each portfolio?

MR. GLENN BUNSTON: The net equity of each line of business. Yes.

MS. KATHLEEN MCCANDLESS: And, Kristen, is two (2) steps ahead of me again. So at figure INV-31, this is a line of business allocation. Based on this methodology we see at line 17 that MPI is allocating 86.28 percent of investment income this year?

MR. GLENN BUNSTON: That's right, 86.28 percent of the investment income is allocated to

the Basic line of business, yes.

MS. KATHLEEN MCCANDLESS: And allocating $116.3 million of 134.8 million of corporate investment income at line 18, yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: I understand this will no longer be required next year with the tracking of separate portfolios; is that right?

MR. GLENN BUNSTON: That's right. There would no -- be no need for allocations because each portfolio will be directly matched to a line of business and so this will not be necessary.

MS. KATHLEEN MCCANDLESS: Thank you. I also understand the Corporation plans to track investment returns through something called the support portfolio asset management?

MR. GLENN BUNSTON: We have investment -- an investment accounting system, which we will continue to use to track the -- our investment holdings. We were going to have to make significant changes to it to accommodate the new portfolios that's underway right now, but, yes, we'll continue to use that system going forward.

MS. KATHLEEN MCCANDLESS: Thank you. Could we please pull up PUB-MPI-2-13. There's a table

at the second page.

And this is a summary of Basic line of business investment income as a proportion of corporate investment income. At line 30 of the table we see that based on this new methodology for the forecast 2019/'20, under Basic forecast MPI will be allocating approximately $81.2 million of investment income?

MR. GLENN BUNSTON: In '20 -- '19/'20 the table shows $82.1 million for Basic investment income.

MS. KATHLEEN MCCANDLESS: Yes, or 87 percent as depicted on the percentage column?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Thank you. Does this negate the need for an allocation of investment income?

MR. GLENN BUNSTON: Right. As I said previously, we won't be allocating investment income because we'll have a portfolio that's dedicated to the Basic line of business.

MS. KATHLEEN MCCANDLESS: With respect to the Basic share of pension assets, how will they be allocated?

MR. GLENN BUNSTON: So my

understanding is that pension will be allocated based on employees who are directly working on each line of business.

MS. KATHLEEN MCCANDLESS: And do you know what that percentage will be?

MR. GLENN BUNSTON: Sorry, I don't know the number off the top of my head. We will get back to you with that.

MS. KATHLEEN MCCANDLESS: If you can provide that information by way of undertaking that would be appreciated. Thank you.

MR. GLENN BUNSTON: Certainly.

MS. KATHLEEN MCCANDLESS: Yes, it will be the proportion of the pension benefit portfolio based on the relative size of the payroll to be allocated to Basic.

--- UNDERTAKING NO. 2: MPI to provide the proportion of the pension benefit portfolio based on the relative size of the payroll to be allocated to Basic

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: So in this figure 2 here at page 2 of PUB-MPI-2-13, we see that the Basic line of business is not forecasted to be receiving a share of realized gains or losses. Yes?

MR. GLENN BUNSTON: Sorry, what was the line reference again?

MS. KATHLEEN MCCANDLESS: Bear with me for one (1) moment. It's line 18 through 20.

(BRIEF PAUSE)

MR. GLENN BUNSTON: Could you just repeat your question for me, please.

MS. KATHLEEN MCCANDLESS: It appears that the Basic line of business is not being forecasted to receive a share of realized gains or losses, can you explain?

MR. GLENN BUNSTON: Yes. So, for -- in relation to the equity portfolios, as I mentioned, it's anticipated that our investments will be in pooled funds, and therefore, as I mentioned earlier, for -- for accounting purposes we're not planning to sell any units and, therefore, there would be no -- no realized gains triggered because we need a sale of the units to trigger the gains.

So while there may be trading within the pooled fund that -- that wouldn't cause a realized gain from an accounting perspective for MPI.

MS. KATHLEEN MCCANDLESS: There are forecasted future gains on equities, yes?

MR. GLENN BUNSTON: While we forecast our equity investments to grow, we forecast the total rate of return of 7.2 percent, but from an accounting perspective, we only can realize gains when there is turnover. So when there's a sale of the -- of the either the security or the units, so in this case we're not forecasting a sale of the units.

MS. KATHLEEN MCCANDLESS: And so all the unrealized gains are in AOCI?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: Thank you. If we look to the far right column here on this figure 2, at line 26 there is an allocation of investment fees paid. It appears that Basic is being charged 47 percent of investment expenses, is that right?

MR. GLENN BUNSTON: Yes, that's what the table shows.

MS. KATHLEEN MCCANDLESS: And what is Basic incurring the investment fees from?

MR. GLENN BUNSTON: So those are fees

charged by the investment managers. So, in this case, the fixed income managers for the provincial bond portfolio, the nonmarketable bond portfolio and the corporate bond managers who are in the process of selecting.

MS. KATHLEEN MCCANDLESS: Thank you. If we scroll to figure 1, in this IR response, it's the Basic line of business investment earnings summary. At line 4, we see that Basic's share of income of pension assets declines from $15.2 million in 2019/'20 to $13.9 million in 2020/'21, yes?

MR. GLENN BUNSTON: Yes, I see that.

MS. KATHLEEN MCCANDLESS: And can you explain why that's the case?

(BRIEF PAUSE)

MR. GLENN BUNSTON: We'll have to look into that and get back to you on the reason for that decrease.

MS. KATHLEEN MCCANDLESS: Okay, if we could have that by way of undertaking then to provide an explanation for the decrease in Basic's share of income on pension assets from 2019/'20 to 2020/'21.

MR. GLENN BUNSTON: Yes, certainly.

MS. KATHLEEN MCCANDLESS: Thank you.

--- UNDERTAKING NO. 3: MPI to provide an explanation for the decrease in Basic's share of income on pension assets from 2019/'20 to 2020/'21

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: So as is clear on the record from earlier today, if interest rates change, there will be an impact based on the ALM strategy that's being implemented by the Corporation, yes?

MR. GLENN BUNSTON: As was indicated earlier, the impact of interest rates on Basic will be significantly reduced to, essentially, zero going forward.

MS. KATHLEEN MCCANDLESS: But nonetheless there will be an impact.

MR. GLENN BUNSTON: There will be a small impact, yes.

MS. KATHLEEN MCCANDLESS: So if we could look at PUB-MPI-1-25, on page 2, figure 1. This

table shows the financial impact to the Basic line of business based on a March 2018 50-50 interest rate forecast. Yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And it shows the impact on net income by the ALM strategy as well. So we see the following, if we look to line 4 there's a difference of $4 million in investment income for 2019/'20 as compared to 2018/'19, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And at line 8, we see that Basic investment income will be $7.5 million lower in 2019/'20 as compared to 2018/'19, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And at line 12, we see Basic total income will be $7.3 million lower in 2019/'20 compared to 2018/'19, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And at line 16 the Basic MCT ratio will be higher by 16 percent. Yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: Now, if we assume that interest rates will increase based on

Mercer's standard interest rate forecast so at figure 2 on page 3. This is -- this depicts the financial impact to the Basic line of business for Mercer's SIRF.

Based on the results here, would you agree that the changes in income are less significant in 2019/'20 as compared to the table we just reviewed?

MR. GLENN BUNSTON: Sorry, is your question, is the difference between the GRA forecast under ALM versus non-ALM, is that difference smaller than in the previous table?

MS. KATHLEEN MCCANDLESS: Yes. We can discuss specific references if --

MR. GLENN BUNSTON: Could we scroll back to the previous table?

(BRIEF PAUSE)

MR. GLENN BUNSTON: And then back to the second. So in 1920, yes, the impact is -- is smaller.

MS. KATHLEEN MCCANDLESS: Thank you. So, for example, at line 4, we see that the -- the difference is $2.3 million, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And roughly $5 million for -- at line 8, yes?

MR. GLENN BUNSTON: Yes, line 8 is 5 million approximately.

MS. KATHLEEN MCCANDLESS: And at line 12 we see a difference of $5.5 million, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: For total equity. Now, if we could pull up PUB-MPI-1-28 and figure 2 on page 3.

So this table depicts Basic investment and claims net interest rate impact with a 50-50 forecast as at July 2018. Yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And as a result of using a 50-50 interest rate investment income declines as a result of forecast changes in the marketable bond yield, yes?

MR. GLENN BUNSTON: Yes, investment income is decreasing going forward after 2018/'19.

MS. KATHLEEN MCCANDLESS: So at line 8 of the table under the 2018/'19 forecast budget, we see losses of $13.5 million, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And for 2019/'20, $21.2 million?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And for 2020/'21 $11.1 million, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And claims' liability declines as well?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So net claims incurred is -- is increasing, but the -- the interest rate impact on line 12 is -- is decreasing.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So if we look to line 17 of the table then, this is moving forward from 2018/'19, that's the net impact of the new ALM strategy, yes?

MR. GLENN BUNSTON: Yes, line 17 shows that the net impact of interest rates is dramatically reduced going forward from -- ranging from 6, 7

million to as high as 75 million but going forward it's under $10 million.

MS. KATHLEEN MCCANDLESS: It was -- it's 12 million positive for 2018 forecast budget and then moving forward it's negative, yes?

MR. GLENN BUNSTON: Yes, it's negative moving forward but I'd just point out that the -- in absolute value terms the -- the volatility is much less and the numbers are smaller.

MS. KATHLEEN MCCANDLESS: If we could pull up Figure INV-48. At this table we see the impact of a 100 basis point increase in interest rates on the 2018 as compared to the 2019 GRA, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And it appears from these results that a 100 basis point increase in interest rates would have a negative impact on MPI, yes?

MR. GLENN BUNSTON: The table shows in 2020/'21 and 2021/'22 small negative impacts, yes.

MS. KATHLEEN MCCANDLESS: All right, thank you. I now have some questions about the investment policy statement. And in the filing we have the April 30, 2018 investment policy statement, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And then MPI recently filed as Exhibit 19 the transitional investment policy statement as well, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Now I understand that among the material changes in the investment policy statement as of April 30, 2018 was that to include that the minimum credit rating was changed from A to BBB, is that right?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And that was to conform to the standard definition of investment-grade securities which includes triple B investments?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Now, if we could put pull up PUB-MPI-1-22, Figure 1.

This table depicts MPI's investments in corporate bonds as of June 30, 2018. Yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And it appears that at least as of that date that MPI had not invested in any triple B rated bonds, correct?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Are any

triple B investments held to date?

MR. GLENN BUNSTON: Not right now, no. So the province of Manitoba is currently managing our fixed income portfolio including corporate bonds. It's not their core area of competency and so they have agreed that they're not going to buy any more corporate bonds for us until we've hired the external manager, at which point, the external manager will have the freedom to buy tripe B rated bonds if they so choose.

MS. KATHLEEN MCCANDLESS: Thank you. If we could pull up PUB-MPI-2-12, Figure 1.

The Corporation provided a forecasted yield on corporate bonds for 2018 and '19 -- pardon me, 2018/'19 and 2019/'20?

MR. GLENN BUNSTON: The table shows the expected market value of our holdings in corporate bonds.

MS. KATHLEEN MCCANDLESS: And is the goal still to have, by the end of this year, 21 percent, or approximately $619 million in corporate bonds, as depicted in line 3?

MR. GLENN BUNSTON: No. That is -- is not our goal. As I said earlier, we need to have our accounting systems revised to accommodate the -- the

new portfolios, and that can't happen until our -- until our fiscal year is concluded. So that work is underway, and -- so the new portfolios will be implemented in the system and be ready for March 1st of 2019.

MS. KATHLEEN MCCANDLESS: Thank you. Now if we could look to the transitional investment policy statement, which is MPI Exhibit 19. And as I understand this document, it -- it reflects revisions to the initial investment policy statement included in the filing, and it's incorporating the implementation of the ALM Plan. Is that right?

MR. GLENN BUNSTON: Yes. So it includes the current asset allocation for the co-mingled portfolio, the 70/30 split between bonds and -- and growth assets, and then the asset allocation for the five (5) new portfolios, starting on March 1st.

MS. KATHLEEN MCCANDLESS: Thank you. Is a black line version of this policy statement available?

MR. GLENN BUNSTON: We could make one available, if that would be helpful.

MS. KATHLEEN MCCANDLESS: That would be helpful, thank you, if you could undertake to provide that.

MR. STEVE SCARFONE: Yes, the MPIC will make that undertaking.

MS. KATHLEEN MCCANDLESS: Yeah. That's to provide a black line version of the transitional investment policy statement.

MR. STEVE SCARFONE: Yes. Thank you for repeating that, and the earlier undertaking, we -- we were remiss in not asking that it be repeated, but I think we'll check the transcript tonight.

--- UNDERTAKING NO. 4: MPIC to provide a black line version of the transitional investment policy statement

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Now, I understand that this investment policy statement, the transitional -- I understand the transitional investment policy statement has been approved by the Minister of Finance as of -- or as effective July 31, 2018?

(BRIEF PAUSE)

MR. GLENN BUNSTON: It's been approved by our investment committee, and I believe that approval by the Minister is -- is still pending.

MS. KATHLEEN MCCANDLESS: Okay. Thank you. Now, will it ultimately be the intent of the Corporation to file separate investment policy statements for each of the portfolios, or will they -- will they all be contained in one (1) document?

MR. GLENN BUNSTON: So we did consider having separate documents. In the end, we decided that one (1) document was easier to administer, since there is -- would be significant overlap between the documents, and so our plan is to have one (1) investment policy statement going forward.

MS. KATHLEEN MCCANDLESS: Thank you. At the bottom of page 3 and running into page 4 of the transitional investment policy statement, there's a list of the statements of investment beliefs. I understand that there have been some updates, but that 1 through 6 remain unchanged from the previous investment policy statement. Are you able to confirm?

(BRIEF PAUSE)

MR. GLENN BUNSTON: I can't recall

right now what changes, if any, were made to this, so I think once the black line version is -- is produced, then it will be apparent to everybody what changes were made.

MS. KATHLEEN MCCANDLESS: Yes, that makes sense. Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: If we could turn to page 10 of the transitional investment policy statement. And again, Mr. Bunston, if it's going to be too difficult to answer these questions in the absence of a black line, let me know.

With respect to item 5.4, I gather that it has now been broken up into subparts as listed below to recognize the different port -- portfolios that were proposed by Mercer. Is that right?

MR. GLENN BUNSTON: Yes, that's right. So significant edits were made to this portion of the investment policy statement, because previously, it referred to just the commingle portfolio.

MS. KATHLEEN MCCANDLESS: So I will ask some questions about the subparagraphs here, then. With respect to Basic claims liabilities, right at the

beginning of that section, it indicates that the objective is to back policyholder claims and to ensure funds are available as liabilities come due, and to minimize interest rate risk through duration matching. The funds are intended to pursue modest incremental returns while maintaining risk management as a top priority, yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: Can you explain what is meant by a modest return?

MR. GLENN BUNSTON: So the portfolio has only fixed income assets in it, and we have increased the allocation to corporate bonds to 20 percent of that portfolio, and that is an effort to increase the yield of the portfolio. We also have nonmarketable bonds in that portfolio which have a higher yield than marketable Province of Manitoba bonds. So those are those are -- those are efforts to try to ensure that the yield of the portfolio is -- is increased on a reasonable basis.

MS. KATHLEEN MCCANDLESS: Thank you. The last sentence at section 5.4.1 states:

"The -- the timing and amount of payments beyond twelve (12) months are

estimated, and long-term investments are held to cover these liabilities."

So just to confirm, there are no equities, then?

MR. GLENN BUNSTON: No, there's no equities within the Basic claims portfolio.

MS. KATHLEEN MCCANDLESS: With respect to the 5.4.2, that's in respect of the Rate Stabilization Reserve, the objective is to ensure sufficient levels of capital are maintained such that the line of business remains healthy and in an actuarially-determined state of satisfactory financial condition.

The RSR port -- portfolio must have sufficient capital to withstand plausible adverse events and to deliver rate stability and predictability, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: Perhaps you could just explain what this means.

MR. GLENN BUNSTON: So this portfolio needs to have some liquidity so that if there -- if there is a -- a net loss by the Corporation, that money is available to fund that net loss. And on the other hand, we also want the portfolio to have some

growth. So that's why it's a -- it's a balanced portfolio going forward, with 50 percent in fixed income and 50 percent in -- in growth assets.

MS. KATHLEEN MCCANDLESS: And then in the middle of the section, there is a sentence that starts, "Given" -- it's just at the very right, four (4) lines down. It states:

> "Given that there are no specific backing obligations, duration management does not apply, and the fund's objective is to generate real returns to facilitate stable premium rates."

Can you explain what is meant by facilitating stable premium rates?

MR. GLENN BUNSTON: Well, it means that if there is a net loss, that funds can be transferred from the RSR to -- to Basic to -- to ensure that we don't have to go back to customers to cover that loss.

MS. KATHLEEN MCCANDLESS: Thank you. And what's meant by real return in this sentence?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So the portfolio has, as I said, an allocation of 50 percent to growth assets, so that will include Canadian equities, global equ -- global equities, infrastructure, and real estate, and those asset classes provide, obviously, expected over the long term, higher total rates of return than fixed income.

The use of the word 'real return' here was not meant to refer to real return bonds, and it was -- it was not meant to be a -- a statement linking to inflation protection.

MS. KATHLEEN MCCANDLESS: So if, for example, the Corporation lost $20 million in Basic, would it not -- it wouldn't have the intention of selling any investments to cover that loss?

MR. GLENN BUNSTON: Well, the intention would be to have liquid investments, i.e., fixed income investments that have regular payment to principal and interest, and likely some money in cash that could be used, but we might have to liquidate some of the parts of the fixed income portfolio.

MS. KATHLEEN MCCANDLESS: If we scroll to page 11, at 5.6, here, the -- the table here, I understand, depicts the benchmarks that the Corporation is going to use to measure its expen --

its success, pardon me, and they've been expanded. Is that right?

MR. GLENN BUNSTON: Yes, this sets out the benchmarks for the fixed income -- well, for all the parts of the portfolio, yes.

MS. KATHLEEN MCCANDLESS: And the benchmarks were developed with Mercer. Is that right?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Now, on the left-hand side of the table here, under "asset class," we see Canadian bonds. I understand with the expansion of fixed income investments, the benchmarking will be against specific indexes matched to the characteristics of those investments? Is that right?

MR. GLENN BUNSTON: Yes. So the plan is to have blended benchmarks that will provide us with durations that are similar to the durations of the underlying liabilities.

MS. KATHLEEN MCCANDLESS: With respect to private debt, how did the Corporation establish the expected annual return for private debt? So that's based on a universal bond index plus seventy-five (75) basis -- basis points?

MR. GLENN BUNSTON: So that was set in

-- in conjunction with Mercer, and by our research into the expected yield of private debt. And again, we're looking at private debt that's on the lower end of the risk spectrum, so investment grade, and so the -- the yield pick up there is seventy-five (75) basis points, much lower than you would expect from private debt that is higher risk and higher return seeking. And again, this is to try to obtain some diversification and some additional yield for the portfolios.

MS. KATHLEEN MCCANDLESS: Can you give an example of the investment grade?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So it could be debt that's issued by an infrastructure project, for example. It could be corporate debt, and it -- it could be real estate related debt. So will -- our plan is to select a manager and the manager will select the specific securities on our behalf.

MS. KATHLEEN MCCANDLESS: Thank you. With respect to Canadian equities, which are on this -- the next page, am I correct in understanding that the benchmark is the same as that which was used

previously?

MR. GLENN BUNSTON: Yes, the S&P/TSX Cap -- Composite is the current benchmark, and this will be used going forward.

MS. KATHLEEN MCCANDLESS: Okay. And with respect to global equities, the MSCI World Total Return Index plus one hundred and fifty (150) basis points over a rolling four (4) year period annualized, can you please explain this index?

MR. GLENN BUNSTON: Yes. So this is the common benchmark used for global equities. It includes equities from developed markets only, and I can't name all the countries, but I believe it's members of the OECD, the Organization for Economic Cooperation and Development, so about thirty (30) countries would be included.

MS. KATHLEEN MCCANDLESS: And so why use a rolling four (4) year average?

MR. GLENN BUNSTON: So that is what we've always used for our equity managers. It's meant to try to capture a full market cycle from market bottom to market peak, just reflect -- reflecting the fact that some managers outperform at different periods of time in the -- in the investment cycle than others, and so we look at -- we always look at

performance over rolling four (4) year periods for equities.

MS. KATHLEEN MCCANDLESS: Thank you. And then with respect to alternative investments at the bottom of the table, again, am I correct in understanding there is no change from the previous investment policy statement?

MR. GLENN BUNSTON: That's right. The IPD index is what we all -- we've always used for Canadian real estate, and infrastructure has always been CPI plus 5 percent.

MS. KATHLEEN MCCANDLESS: Thank you. At page 15 of section 7, we see the asset allocation until February 28, 2019 in the table below that section 7.1, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And then on the next page, at 7.2, I understand this is the target allocation for each portfolio after February 28, 2019, for Basic, yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Scrolling back up to page 15, we see that with respect to government bonds, the range was previously 40 percent as a minimum to 60 percent as a maximum, with a normal

level of 45 percent, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And then if we -- sorry, Kristen, to make you keep going back and forth. If we scroll down to 7.2, under "fixed income provincial bonds," this would be equivalent to previous government bonds, correct?

MR. GLENN BUNSTON: More or less. It's anticipated that we'll reduce our allocation to federal bonds and have primarily provincial bonds going forward.

MS. KATHLEEN MCCANDLESS: And we see the minimum target allocation here, 50 percent, to a maximum of 70 percent, with a mid target of 60 percent, yes?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And then corporate bonds we see previously had a range of zero percent to 10 percent, with a normal target of 5 percent, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And if we scroll down, then, to 7.2, we see that has been expanded to a minimum of 10 percent, a target of 20 percent, and a maximum of 30 percent, yes?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And the nonmarketable bonds depicted here at the bottom of the table, under "asset class," those would be MUSH bonds?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And I understand that the target ranges have been lowered from what was previously the target. On the table before you, you see a minimum of 10 percent, and the target level is at 20 percent, but the maximum remains at 25 percent. Is that right?

MR. GLENN BUNSTON: The target and the maximum are unchanged. The minimum has decreased from 15 to 10 percent.

MS. KATHLEEN MCCANDLESS: Is it the intent of the Corporation to maintain MUSH bonds at a level of 20 percent?

MR. GLENN BUNSTON: No, it is not. The reason is because new MUSH bonds are very limited in terms of issuance going forward. That's because the Province has changed how it funds schools, and they were the primary issuer of MUSH bonds in the past, so it's in the future, municipalities issuing them only, and so they're just not available. So they will be -- as they mature, we will not be able to

replace them.

MS. KATHLEEN MCCANDLESS: Thank you. Page 17 shows the target allocation for Basic, RSR, Extension, and SRE portfolios, yes?

MR. GLENN BUNSTON: Yes, it does.

MS. KATHLEEN MCCANDLESS: So the transitional investment policy statement, then, it groups these three (3) portfolios together, yes?

MR. GLENN BUNSTON: That's right. They all have the same asset allocation at this time.

MS. KATHLEEN MCCANDLESS: Is it the intent to monitor separate investment portfolios with the same target levels reached?

MR. GLENN BUNSTON: Yes, we will have separate portfolios for each of these lines of business, and RSR, and we'll monitor them going forward, and it may be possible in the future -- we may modify the asset allocation targets for some of these, and they could be different in the future.

MS. KATHLEEN MCCANDLESS: And these portfolios will carry fixed income instruments, yes?

MR. GLENN BUNSTON: Correct, yeah, 50 percent fixed income.

MS. KATHLEEN MCCANDLESS: Yeah. And that would include MUSH?

MR. GLENN BUNSTON: Yes, it will.

MS. KATHLEEN MCCANDLESS: Is it the intent to segregate the MUSH portfolio and assign some of the -- those issues outside of the Basic claims portfolio, to be held by these other portfolios?

MR. GLENN BUNSTON: Yes, we will have to identify specific securities that will be held in the separate portfolios.

MS. KATHLEEN MCCANDLESS: And right now, do you know the total amount that is going to be allocated?

MR. GLENN BUNSTON: Off the top of my head, I -- I do not. We have started that exercise. We've been working with our investment accounting team to, on a preliminary basis, identify fixed income securities that would be allocated to the different portfolios, mainly based on the duration of those securities in relation to -- and trying to match the duration of the underlying liabilities, where there are. So that was for -- for modelling purposes, really, so the investment accounting team could begin to make modifications they need to the investment accounting system.

MS. KATHLEEN MCCANDLESS: And who will be managing that?

MR. GLENN BUNSTON: Transitioning the portfolio from the commingle to the future? Well, myself and my team will be, in conjunction with the fixed income manager at the Province of Manitoba.

MS. KATHLEEN MCCANDLESS: Thank you. If we see the maximum allocation on the right-hand side of the table here, at public equities, up to 17 percent of the portfolio will be in Canadian equities. Is that right?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And it appears also that just two (2) lines below global and global low vola -- volatility equities will have a prominent weighting in the portfolio, yes?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And those global and global low volatility equities, they will have a significant level of exposure to US investments?

MR. GLENN BUNSTON: Yes, about 50 percent of the MSCI world index is allocated to the US market.

MS. KATHLEEN MCCANDLESS: And for total public equities, we see the new portfolios will have a range of 25 percent as the minimum, 35 percent

as the target, and 45 percent as the maximum for equity exposure, yes?

MR. GLENN BUNSTON: That's right. Yes.

MS. KATHLEEN MCCANDLESS: And I understand previously the range for the commingle portfolio was 10 percent at the minimum, fifteen (15) at the target, and 20 percent at the maximum, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: Now if we could go to INV-3 from the investment section of the filing. And this is a table depicting the investment portfolio asset val -- values for the Basic line of business.

Under 2017/'18 actual, at line 6, we see that the portfolio had $226 million in Canadian equities, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And at line 7, we see $124 million in US equities, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And then at 2018/'19 forecast budget, with the new allocation targets into the separate portfolios, we see Canadian equities at line 6 is now $40 million, yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And US global equities is $43 million at line 7?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And low global volatility equities are $33 million at line 8?

MR. GLENN BUNSTON: Global low volatility equities are 33 million, yes.

MS. KATHLEEN MCCANDLESS: So in total, that's $116 million?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: Or a third (1/3) of the size of exposure to growth assets, then, in 2019?

MR. GLENN BUNSTON: Sorry, you're saying that the total of the -- of equities is one-third (1/3) of growth assets?

MS. KATHLEEN MCCANDLESS: Yes.

(BRIEF PAUSE)

MR. GLENN BUNSTON: Well, growth assets includes real estate, infrastructure, and equities. So the target weight to equities is 35 percent of the total portfolio. The target to

alternatives is fifteen (15), so equities is about two-thirds (2/3) of the growth portfolio. Sorry, it's 70 percent of the growth portfolio.

MS. KATHLEEN MCCANDLESS: If we could go back to the transitional investment policy statement at section 8.6. By this section, we see that the Finance Department -- or we expect the Finance Department will approve the Corporation investing in bonds with credit ratings below A, yes?

MR. GLENN BUNSTON: Yes. We were informed recently that that recommendation has been sent to Minister of Finance, and we expect it to be approved shortly.

MS. KATHLEEN MCCANDLESS: And at this time, can you provide any insight into what percentage of the portfolio the Corporation intends to invest in those types of issues?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So the modelling that we did in the past was that we expected to have about 30 -- I'm sorry, 38 to 40 percent of the corporate bond portfolio in triple B rated bonds, and that number is approximately equal to the -- the

market weight within the -- within the benchmark to triple B rated bonds. But that will depend somewhat on the manager we select, and their investment strategy, so it remains to be determined.

MS. KATHLEEN MCCANDLESS: Thank you. I understand that Mercer recommended no emerging -- emerging markets exposure. Is that right?

MR. GLENN BUNSTON: Mercer recommended that we include emerging markets in our global equity exposure.

MS. KATHLEEN MCCANDLESS: And emerging markets would be BRIC? So that's an acronym for?

MR. GLENN BUNSTON: Those are some emerging markets. Those are four (4) of the --

MS. KATHLEEN MCCANDLESS: Brazil, Russia, India, and China?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: So -- now you mentioned previously that finance was going to be managing the bond portfolio. Is that only a portion of the bond portfolio?

MR. GLENN BUNSTON: The Department of Finance currently manages a hundred percent of our fixed income portfolio. Our plan is to hire an external manager for corporate bonds, and -- and that

-- that's -- process is underway. We have -- we're working with a consultant right now to select an external manager for corporate bonds.

MS. KATHLEEN MCCANDLESS: I just have a handful more of -- more questions for the MPI members of the panel before I'll move on to Mr. Makarchuk. So I think we can probably break after that, if that works. Okay.

Kristen, can you please refer to PUB/MPI-1-30, figure 1 on page 2. And this is with respect to benchmarking performance of MPI's investment portfolio.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So this table depicts a comparison of investment returns for MPI as against the Civil Service Superannuation Board, Teachers Retirement Fund, Worker's Compensation Board, and Saskatchewan General Insurance for 2013 to 2017, yes?

MR. GLENN BUNSTON: That's right.

MS. KATHLEEN MCCANDLESS: If we look at the average annualized return over six (6) years, so at line 6, the other organizations have higher

levels of return on average compared to MPI's, yes?

MR. GLENN BUNSTON: Yes, the other organizations have higher returns.

MS. KATHLEEN MCCANDLESS: And from MPI's standpoint, are these entities considered comparable?

MR. GLENN BUNSTON: Well, not entirely. SGI would be most comparable, since they're in the same business as us and their liabilities are similar to ours. Their portfolio, I believe, is -- has more equities than ours slightly.

So -- and then the first two (2), our Civil Service Superannuation Board and Teachers Retirement Allowance Fund, both of those are pension plans, and so their risk profiles and durations are different than ours, so they're not directly comparable. They have larger allocations to growth assets than we do, which is the reason you see the outperformance.

And -- and then the Worker's Compensation Board, more similar to us than a pension plan, but again, they're not auto insurance, so they have some differences. So SGI would be the best comparator, in our mind.

MS. KATHLEEN MCCANDLESS: Thank you.

And at lines 11 to 13 of figure 1, MPI provided a value-added asset allocation adjusted return, yes?

MR. GLENN BUNSTON: Right. So we adjusted the asset allocation of the -- our peers to -- to match ours.

MS. KATHLEEN MCCANDLESS: Okay. And so can you just explain what adjustments were made, or why MPI made those adjustments?

MR. GLENN BUNSTON: So we've got the returns for each asset class that each of the -- each of the peers, here, earned, and then we weighted those assets -- the returns within each asset class by our target asset allocation, so the 70/30 split, so that the asset allocation was the same across all -- everybody, and therefore the only difference was the returns within each asset class.

MS. KATHLEEN MCCANDLESS: Thank you. Those are my questions for this section of cross-examination.

THE CHAIRPERSON: So we will take fifteen (15) minutes for the afternoon break.

--- Upon recessing at 2:36 p.m.

--- Upon resuming at 2:58 p.m.

THE CHAIRPERSON: Thank you. We'll resume, Ms. McCandless.

MS. KATHLEEN MCCANDLESS: Thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: I now have some questions for Mr. Makarchuk on the Mercer ALM study. Mr. Makarchuk, thank you for being with us today. Kristen, if you could please pull up investment section 2.1 from the filing, just for the record to refresh everyone's memory.

This is with respect to the ALM study and it was broken down into three (3) phases about which we heard this morning. So phase 1 was to analyze the merits of adopting unique asset allocation and investment policy statement for Basic, extension, SRE, RSR and pension.

Phase 2 included a discussion of new asset classes along with the rationale for inclusion and exclusion, proposed asset allocations for each portfolio, including estimates of risk and return and implementation consider -- considerations were addressed in phase II.

And then Phase 3 was to finalize responses to CAC's eighteen (18) recommendations, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. Now if we could pull up investments Appendix 12. It's also found in the book of documents at Tab 19. This is from the Phase I report, Mr. Makarchuk?

MR. DAVID MAKARCHUK: Yes, looks like it.

MS. KATHLEEN MCCANDLESS: And as I understand this table, Mercer outlines asset classes that could be considered or could have been considered by MPI to aid in assessing each option and providing general guidance on the relative ability of each asset class to fulfil the objectives at the top, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: I'm not sure if we can shrink it down, Kristen, so that it all fits into one (1) screen? Thank you.

Mr. Makarchuk, could you just elaborate or explain what's on the table before you?

MR. DAVID MAKARCHUK: Sure. So this would have been part of the education phase in October where we were going over the relative merits of different fixed income investments as broad asset classes and, again, in one (1) page, ideally, to summarize primarily the ability to match, in other

words, mitigate or eliminate risk; the ability to enhance investment returns and the ability to protect principle. Investors on fixed income typically are on fixed income for some --- ideally all but practically very difficult to do all three (3) of those objectives. And so it shows asset class by asset class, the relative merits of each. Again, this was very early in our project before we had done any modelling.

Did you want me to go asset class by asset class?

MS. KATHLEEN MCCANDLESS: As an overview that's fine, thank you.

With respect to the Phase 2 report, Kristen, if we could pull up investment's Appendix 13 and this is a table here with respect to an overview of MPI's obligations. Yes?

MR. DAVID MAKARCHUK: Correct and this would have been a little bit later in the project.

MS. KATHLEEN MCCANDLESS: Okay. And, again, if you could just at a high level explain what's depicted on the table here.

MR. DAVID MAKARCHUK: Sure. So this is a point of the project where collectively we had discussed the relative objectives of each of the

business lines, understanding the relative size, understanding the relative purpose of the different asset classes. MPI were experts in this regard. This was grounding us in terms of -- in order for us to provide best practice advice, but also help MPI in terms of articulating their objectives in that regard.

And so near the end we had facilitated and documented what MPI's return expectations were for each bucket, the risk tolerance as well. You'll notice it is generally moderate with the extension -- with the exception of Basic at the time and then the interest rate sensitivity or duration which was calculated based on data that MPI would have provided to us.

And so you'll see that the duration of the different buckets varies considerably, and that helped ground the discussion in terms of risk tolerance and fixed income matching as it made sense.

MS. KATHLEEN MCCANDLESS: Thank you. At page 5 of the report -- or it could be page 6 of the PDF. It's section 2 of the Phase 2 report. Yes, thank you.

This the key recommendation section and the first recommendation is directly below the heading there, Consolidation versus Segregation, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And Mercer recommended the identification and segregation of unique asset allocations by component with three (3) reasons provided, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And perhaps you could just elaborate on Mercer's recommendation to segregate the portfolio.

MR. DAVID MAKARCHUK: Sure and so -- I don't think we need to go back to the table you just showed but I think it demonstrated that the relative obligations were fairly different, and both in terms of size, in terms of purpose, in terms of duration. To some extent, you know, Basic was very different than the rest in terms of risk tolerance and return expectations as well.

And so, after we had facilitated that discussion and understanding, we facilitated and discussed with MPI the recommendation that you had just shown which is, these are different enough that we think that it makes sense to segregate them.

MS. KATHLEEN MCCANDLESS: Thank you. If we go back to the narrative just below number 3, Mercer wrote that MPI has recommended unique policy

allocations for the Basic and pension components along with a consistent policy allocation for each of RSR, SRE and extension.

And from Mercer's perspective why should they be a similar portfolio allocation for RSR, SRE and extension?

MR. DAVID MAKARCHUK: So we can go back to the -- the chart just to twig but from memory they were smaller, the duration -- yeah, so these are the smaller buckets. Their duration is either low or not really applicable at all. So RSR, the reason the duration there is shown as not applicable and so there's no specific obligation that RSR is covering that one could measure or forecast into the future.

But from our perspective -- and again, it was, you know, MPI's decision but we were supportive that extension, SRE and RSR were close enough in aggregate to have three (3) modest sized buckets as opposed to -- I'm not sure what they would've achieved by having five (5) distinct buckets.

MS. KATHLEEN MCCANDLESS: Thank you. Under "new asset classes" under key recommendations, Mercer stated:

> "As part of the overall review of MPI's risk and return objectives,

several new asset classes were considered to assess the extent to which they would be expected to improve the risk/reward/trade-off of the fund relative to the underlying obligations."

And then if we continue down on to the next page we see a table depicting asset class and then the rationale for inclusion and recommended asset allocations, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And then the following page we have another table sorted by asset class with a rationale for exclusion and recommended asset allocations, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: Perhaps again at a high level, you could walk through these tables and explain.

MR. DAVID MAKARCHUK: Sure. Do you want to go back to the included one?

MS. KATHLEEN MCCANDLESS: Yes, please.

MR. DAVID MAKARCHUK: Sure. So here by asset class we've gone through the ones that ultimately made the recommendation. The decision to

include would've been based on some of the efficient frontier work that we've done, some of the qualitative observations that you see here. And this list where the asset class is chosen by MPI in terms of the asset mix is going forward.

For example, corporate bonds we kind of noted -- and, again, this is somewhat of an executive summary, you know, what type of corporate bonds we're thinking about here. So, practically speaking, these are investment-grade corporate bonds. These are not below investment-grade corporate bonds that were otherwise under consideration. We otherwise would have bucketed those in high yield which I think are in the excluded bucket that follows.

And so, we get some insight just in terms of the duration opportunities that are there; some commentary in terms of this isn't just simply buying index corporate bonds. We think that due diligence is important, making sure you maximize the value of credit spreads, things like that. And there is a observation in terms of excess returns recently.

Similarly, for private debt global equities and low volatility equities. You'll see, you know, the different recommendations and discussion on each of the asset classes. There are different kinds

of private debt that investors may choose. MPI indicated a preference for less risky private debt. And so the preference here that MPI had indicated was North American. Some of our clients might prefer a global portfolio of private debt. At the time recommended an all country world index equity portfolio that included emerging markets.

Subsequently MPI made a decision to exclude emerging market equities and then there's the marital low volatility equities in the -- in the bottom box.

MS. KATHLEEN MCCANDLESS: Thank you. Just to clarify then, it was Mercer's recommendation to include emerging markets, yes?

MR. DAVID MAKARCHUK: Correct. I think Mr. Bunston indicated that earlier so. That was an MPI decision to exclude it.

MS. KATHLEEN MCCANDLESS: And then with respect to the excluded asset classes?

MR. DAVID MAKARCHUK: Sure. So here we go asset class by asset class. Again, this was after discussion with MPI in terms of which asset classes fit for their investment objectives, for their return objectives, for the risk objectives. Cost and time to some extent as well.

So real return bonds are first on the list acknowledging that there is a link to inflation of Basic and pension liabilities but based on the fact that yields were relatively low, based on the fact that Basic liabilities already included a fixed 2 percent inflation rate and, in general, real return bonds will really only be worth their cost if inflation over the long term is higher than 2 percent.

If duration -- there are some challenges with matching duration with real return bonds. There is only so many issues. Only seven (7) of them really trade. None of them practically speaking are linked to Manitoba CPI, which is our understanding of the primary bogy for MPI's obligations.

We talked about levered bonds as well. I've talked about leverage briefly before. They do provide investors the opportunity to increase their allocation to an asset class, whether it's a matching asset class like fixed income or an asset class like equities or something as well. And so MPI had indicated and the investment committee reiterated that while they understand the relative merits of levered portfolios, they weren't comfortable with the taking on additional leverage within their portfolio at this

time.

Talked about diversified growth funds as well, which are perhaps more prevalent outside of North America than in Canada. They do provide balanced return drivers but there is a limited opportunity set that a fund of this size can then put in and if Basic wasn't going to use growth assets, I think that's the primary reason why diversify growth funds fell off the table.

I think this chart maybe spills on to another page from memory.

MS. KATHLEEN MCCANDLESS: Yes, it does.

MR. DAVID MAKARCHUK: And then there's a discussion on private equity. Again, a great return enhancer but again if Basic was not going to have private equity within it, practically speaking, there's just not enough assets in the other buckets to -- from our perspective to warrant -- and MPI's as well, to warrant the governance effort with additional allocations to private equity.

MS. KATHLEEN MCCANDLESS: Thank you. With respect to real return bonds, several reasons were provided for the exclusion of real return bonds and you spoke about them a fair bit this morning.

Just with respect to Mercer's work in other jurisdictions, is it typical to exclude real return bonds from portfolio allocation?

MR. DAVID MAKARCHUK: So when we say "exclude" here, this is MPI's decision to not include, right. So they were included in the analysis and it would be typical in any asset liability study to include it as a plausible asset class, unless we knew for sure that the liabilities had no indexed provision.

But generally for clients that do have an indexed provision, whether it's full CPI or partial CPI, it will be on the table. I can think of many sponsors, most of Mercer's -- many of Mercer's clients are pension sponsors, but others are similar to MPI in that regard that have either fully or partially CPI index obligation. Many of them have no CPI -- or no RRBs in their portfolio at all, some that do would only have a small subset.

I'm not sure I can personally identify any that fully match the inflation risk that otherwise is part of their liability obligation.

MS. KATHLEEN MCCANDLESS: Thank you. And I believe you indicated in your presentation this morning that two-thirds level of real return bonds

would provide 100 percent protection from inflation, would that be accurate?

MR. DAVID MAKARCHUK: More or less. So in the sum -- the follow-up work -- and it's actually is even part of the work that we did back in the fall of 2017. The liability benchmark portfolio, which was identified and, you know, we identified a nominal liability benchmark and a real liability benchmark in October of 2017 and walked MPI through that.

From memory it was 66 percent real return bonds, but also a healthy dose of cash, partly because the duration of the real return bond index would be too long for the obligations that MPI has in terms of its -- its policy obligations. And so if MPI's objective was to fully eliminate inflation risk parallel to its other objective to fully eliminate nominal interest rate risk, by our calculation at the time a portfolio of roughly two-thirds real return bonds would have been required.

MS. KATHLEEN MCCANDLESS: And what would be the current level of protection afforded by real return bonds?

MR. DAVID MAKARCHUK: The portfolio does not have real return bonds.

MS. KATHLEEN MCCANDLESS: So for other portfolios of which you are aware that would have real return bonds.

MR. DAVID MAKARCHUK: Okay. Most often 0 percent, occasionally small 5 percent, maybe 10 percent allocations. I can think of many more index sponsors that have no RRBs than some that do. Some do certainly, but I haven't placed RRBs for a client in years.

MS. KATHLEEN MCCANDLESS: For those clients for which you have, what -- what do they do to protect against inflation?

MR. DAVID MAKARCHUK: Right. So, again, a lot of our clients are pension -- pension related. They have longer-term horizons. Perhaps have capital requirements that are different than -- than the MPI.

They will look to a diversified portfolio perhaps of equities; perhaps domestic real estate; sometimes to infrastructure, but I'd otherwise caution that diversify global infrastructure has a very loose connection with Canadian CPI, Manitoba, in particular. Those sponsors are willing to accept -- and I use the term "basis risk" in perhaps a different way than the -- than the CAC and the PUB have used the

term "basis risk," but basis risk in terms of a different kind of inflation protection that comes from assets that generally do better in an inflation environment, not just RRBs.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go further down the page on page 9 and this is the recommended policy portfolios by business line and pension obligations. Yes?

MR. DAVID MAKARCHUK: Yes.

MS. KATHLEEN MCCANDLESS: And, again, at a high level, if you could just describe what's depicted on the table here.

MR. DAVID MAKARCHUK: Sure. So the column on the left-hand side looks like an exhaustive list of asset classes either currently in the portfolio or proposed in the portfolio. This was our summary piece and so there's the asset allocation for Basic, the family of three (3) smaller buckets and then for pensions on the right-hand side.

And so you see the allocation of each row by row. Definitely some moving parts in the chart.

MS. KATHLEEN MCCANDLESS: So with respect to the proposed Basic allocation there, we see that there was a recommendation that Basic move from

70 percent fixed income to 100 percent fixed income, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And explain how that came about?

MR. DAVID MAKARCHUK: Sure. So if you recall from the nine (9) different steps for my -- my opening presentation, the end of October was -- October 30th was one (1) of the -- substantially the last educational presentation that we otherwise made talking about the different merits of the different asset classes, engaging MPI in terms of the investment return objectives, risk objectives and things like that.

The follow-on immediately after that meeting was to determine some straw-dog or straw-man portfolios that take the learnings from all of the different efficient frontier, qualitative assessments, return risk, cost and time consideration, what the efficient frontier has taught us as well and how we blend together those qualitative considerations with the quantitative considerations in terms of what might prob -- possible portfolios be.

And I think it was part of the GRA package, there was -- you know, the actual

recommendation was not part of the October 30th analysis; that taught us which asset classes were beneficial which ones were not.

And then we went away and I think you'll see four (4) different asset classes -- or at recommenda -- or straw-dog's call it I think Basic point 1, Basic point 2, Basic point 3, Basic point 4 which were candidates for further testing, which we did a number of different iterations through the month of November and Basic 1 through Basic 4 was subsequently presented to the investment committee on November 28th, if I recall.

MS. KATHLEEN MCCANDLESS: Thank you. If we scroll to page 10 which is just the next page on here. So I understand that the tables here show the recommended asset allocation policies overall impact, yes?

MR. DAVID MAKARCHUK: I can't see the top of this one, but this looks like everything together, yep.

MS. KATHLEEN MCCANDLESS: And so the first table shows an impact on the right-hand side of an $11 million per annum reduction and expected return, yes?

MR. DAVID MAKARCHUK: This is totally

MPI, now I'm grounded. Thank you.

MS. KATHLEEN MCCANDLESS: And then a $6 million per annum increase in non-MUSH yield, yes?

MR. DAVID MAKARCHUK: The -- yes, correct. Of the fixed income that they otherwise would have, the non-MUSH yield would go up to 3.02.

MS. KATHLEEN MCCANDLESS: And then a liability decrease of $40 million for non-MUSH yields, yes?

MR. DAVID MAKARCHUK: That's what it says. That would've come from MPI. We don't calculate their liabilities so.

MS. KATHLEEN MCCANDLESS: Thank you. I understand that MPI had imposed a constraint in the determination of the Basic claims' liability portfolio to minimize substantially all nominal interest rate exposure -- interest rate risk exposure, yes?

MR. DAVID MAKARCHUK: Say that one (1) more time. I think the answer is yes.

MS. KATHLEEN MCCANDLESS: That MPI had imposed a constraint in the Basic claims' liability portfolio to minimize substantially all nominal interest rate risk exposure?

MR. DAVID MAKARCHUK: MPI chose to mitigate, if not eliminate, interest rate risk.

Perhaps that's a constraint. I think the answer is yes.

MS. KATHLEEN MCCANDLESS: Okay. And if not for this direction or constraint or however you might want to characterize it, would the Basic claims' portfolio have had a different asset mix?

MR. DAVID MAKARCHUK: Quite plausibly. They indicated that matching, as best they could, the nominal interest rate risk for the entire Basic portfolio and not having asset classes that couldn't help match the Basic portfolio were requirements for the asset mix going forward, which is why equity for examples was not in the final recommendation.

MS. KATHLEEN MCCANDLESS: But it might have been otherwise then?

MR. DAVID MAKARCHUK: Sure, if they told me that we were willing to accept a hedge ratio of, say, 80 percent or 50 percent, then yes, that would be quite plausible.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Now, you mentioned the efficient frontier analysis, and perhaps you could just explain what the efficient frontier

analysis means.

MR. DAVID MAKARCHUK: Sure. So the efficient frontier was a -- introduced to the world or the economic world by a gentleman by the name of Harry Markowitz in the mid-'50s. It seems like a fairly simple concept now, but like everything that was invented, it was rather novel at the time.

It essentially indicates that -- that if we assume a level of return and a level of risk for different asset classes -- and it could even be separate securities but that if we pooled together two (2) different securities or multiple securities or asset classes that are less than fully correlated then potentially we can in -- enhance the overall efficiency of a portfolio by finding asset classes that are less than perfectly correlated.

And so, in fairly simple terms, we can draw a scatterplot, a risk versus return and I'm sure you could find one in the many pages of -- of illustration, the goal ideally is to either choose a level of risk that an investor's comfortable with and find a portfolio that optimizes the return or, conversely, find a level of return that investor is looking to find and find the portfolio that is the lowest level of risk.

If your asset assumptions are all perfect and you trust them completely, then perhaps you choose to go with an asset allocation that is exactly on the efficient frontier. If you appreciate, which we do, that our assumptions are sometimes imperfect, or that investors have some practical limitations, for example, in this case the MUSH yield -- or the MUSH bonds where perhaps not on the efficient frontier but we're kind of stuck with them for a little while. Sometimes that means, well, you just can't get to the efficient frontier.

Is that long enough? I'd really rather not go longer.

MS. KATHLEEN MCCANDLESS: Yes, that's fine. Thank you. And so just following on that, so Mercer modelled multiple combinations of asset classes utilizing different efficient frontier -- frontier concepts, as well as stochastic projections of both assets and MPI's obligations, yes?

MR. DAVID MAKARCHUK: Right. Our starting point was efficient frontier concepts. We shared qualitative perspective as well. Once we got to the straw-dog or straw-man portfolios, then we introduced some stochastic projections as well, which are stronger than efficient frontier's.

Efficient frontier is helpful in terms of an educational point and some learnings, but they don't live in a dollar world, they live in a academic percentage world and for me, especially for my strategic clients, they mostly make their decisions in a dollar context as opposed to a basis point context and so part of the illustrations, for example, we're still on this page, understanding that it's a $11 million number. For some stakeholders is a lot more tangible than telling them that's a 40 basis point change. Different investors have different references.

MS. KATHLEEN MCCANDLESS: Thank you. And so MPI Appendix 16 from the investment section is MPI's ALM implementation plan. It does contain a graphic depicking efficient frontiers. I'm not sure if you're able to speak to this, Mr. Makarchuk. If you're familiar with it, or if the questions are better directed to members of the MPI panel?

MR. DAVID MAKARCHUK: It's one (1) of ours so I should be able to --

MS. KATHLEEN MCCANDLESS: That's what I figured so.

MR. DAVID MAKARCHUK: I should be able to carry the conversation at least a little ways.

MS. KATHLEEN MCCANDLESS: Okay, thank you. So what I understand from looking at Appendix F, so the -- the graphic there in front of you, that the efficient frontier is based on the nominal liability benchmark for the Basic claims' liability?

MR. DAVID MAKARCHUK: Correct. This is work we would've done back in the fall, correct. Yep.

MS. KATHLEEN MCCANDLESS: And the frontiers shown are constrained to allow only the fixed income asset classes shown in the table in order to achieve MPI's objective of minimizing interest rate risk; is that right?

MR. DAVID MAKARCHUK: That looks correct, yes.

MS. KATHLEEN MCCANDLESS: And then the current mix as denoted by the orange dot at the top of the chart, that applies to -- currently applies to all business lines, the RSR and the pension fund and includes equities and alternatives; is that right?

MR. DAVID MAKARCHUK: Yes. It's somewhat unfortunate that there's three (3) orange dots on this page, but it's the orange one way off in the top right --

MS. KATHLEEN MCCANDLESS: Which states

current --

MR. DAVID MAKARCHUK: -- that you're referring to. Yes.

MS. KATHLEEN MCCANDLESS: Okay. And then the line representing the blue efficient frontier includes fixed income asset classes in current?

MR. DAVID MAKARCHUK: Yes. Not being able to read what we wrote in the green line, no -- I'm not sure what that said, but the blue line does appear to be the asset classes nominal with constraints maybe. Yeah, that's probably what that says there, right.

And so if you don't mind just rolling up so I can see what's in Basic 4 please. Stop a tiny bit -- or, sorry, I guess it's down. This way.

All right, there's some private debt in there. So, there was an additional constraint eventually that private debt would not be part of Basic which is why Basic d -- Basic 4 was higher than the other three (3).

MS. KATHLEEN MCCANDLESS: Okay.

MR. DAVID MAKARCHUK: So essentially the green line has private debt in it. The blue line does not have private debt, but it's otherwise the fixed income asset classes with which MPI currently

invests.

MS. KATHLEEN MCCANDLESS: And the green light has private debt and mortgages?

MR. DAVID MAKARCHUK: Perhaps. I'd have to subject to check on that one, so. Mortgages generally didn't model very well. So if mortgages were included, it probably wouldn't move the line, from memory.

MS. KATHLEEN MCCANDLESS: Thank you. Now, I understand that after analyzing the stochastic projections and the summary results that it was Basic .3 that was recommended? And you can see it's referred to at the bottom of the page there.

MR. DAVID MAKARCHUK: Right, it's probably a culmination of a few different things, right. This is an efficient frontier projection. Subsequently there's charts that included stochastic projections as well. I think they all happened together. There was probably some discussion with MPI where we said, okay, well, here's the dollar implications, here's the percent implications.

But you're right, Basic 3 is the one that was ultimately agreed on as to what would be recommended to the investment committee to go forward.

MS. KATHLEEN MCCANDLESS: Right. And

just for the reference of the Board, Basic 3 is depicted at the bottom of the page, at least as far as a reference. So if we scroll, we see the current portfolio Basic 1, Basic 2, Basic 3 and Basic 4 as you mentioned.

MR. DAVID MAKARCHUK: Yep. Basic 3C in the chart.

MS. KATHLEEN MCCANDLESS: Now I understand that private debt was not included in the Basic claims' portfolio in order to limit risk within the portfolio.

MR. DAVID MAKARCHUK: Yes. It potentially is lower -- you'll see it's to the left here. It's actually lower risk so I'm not sure that -- say the question again because that may not have been a "yes" answer.

MS. KATHLEEN MCCANDLESS: Okay. So in order to limit risk to the Basic claims' portfolio private debt was not included, or is --

MR. DAVID MAKARCHUK: That's probably not the right reason. If you notice from the efficient frontier piece anyway and perhaps stochastic showed me something different, but Basic 4 which includes private debt is actually to the left of Basic 3, which means it had less volatility compared to

liabilities then Basic 3. It was -- and I might need to look to MPI here for some help for my memory, perhaps, either for liquidity or for cost reasons.

Also the challenge on private debt is you don't know exactly what duration you're going to get until well into the implementation stage. And so I think that the way that MPI will ultimately deal with this on implementation is once they figure out what their private debt solution is, and it's going to take them a year or two (2) to really understand what duration they're getting out of the private debt piece, then they can use the provincials that they otherwise have to lengthened up or lengthened down to get to the duration objectives that are there.

So that's a long answer to no rather than yes.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. GLENN BUNSTON: Maybe I could clarify that we are not planning to invest in private debt within the Basic claims' portfolio, and that was a risk appetite decision made by our investment committee.

MS. KATHLEEN MCCANDLESS: And if we go to the next page of this document, which is Appendix -- it's still Appendix X, but it's with respect to the

rate stabilization reserves.

So this represents the efficient frontier for the RSR, yes?

MR. MARK GIESBRECHT: Yes, this is RSR.

MS. KATHLEEN MCCANDLESS: And the efficient frontier is based on an asset only approach?

MR. DAVID MAKARCHUK: Poss -- yes, because there's no -- there's no liability here.

MS. KATHLEEN MCCANDLESS: Right. And I understand that the line representing the blue efficient frontier includes all asset classes in current and current is in the table below.

MR. DAVID MAKARCHUK: Yes, this looks like probably something developed for the exact same time. There's a line with private debt and a line without private debt.

MS. KATHLEEN MCCANDLESS: And then the line representing the purple efficient frontier would include the classes shown in the table?

MR. DAVID MAKARCHUK: Probably, yes, with private debt probably being the only substantive addition. Oh, no, this is RSR. My apologies.

So -- okay, let me -- let me get back into my RSR space. Both lines include equities, the

purple one also includes private debt.

MS. KATHLEEN MCCANDLESS: Thank you. And I understand that after analyzing the projections and summary results, that portfolio RSE-1 was selected.

MR. DAVID MAKARCHUK: From memory, as I scan down it, that looks like the one, correct.

MS. KATHLEEN MCCANDLESS: And I understand that's in part because of the high sharp ratio?

MR. DAVID MAKARCHUK: I think that would be one of the considerate factors. I think we talked about the conservative, the balance, the growth orientations that were otherwise here. I think there was some qualitative trade-offs as MPI looked -- this is probably one of the stochastic projections were probably more helpful as well, in terms of the dollar implications. Because again, we know they have a duration target here.

The Sharpe ratio being the ratio of the return relative to risk, if that's on the next page, we might see that it was the highest. Is that on the next page, perhaps? No, it's not.

It's quite plausible that one had the highest Sharpe ratio, but I don't have that in front

of me at the moment.

MS. KATHLEEN MCCANDLESS: And so just to clarify for the record, the Sharpe ratio, because I did ask you about it, so the Sharpe ratio is the average return earned in excess of the risk-free rate per unit of volatility or total risk?

MR. DAVID MAKARCHUK: Right, it's the -- it's the ratio of return to risk. That technical definition is often times the one that's used. Occasionally it will just be the total return minus the total risk.

When we're doing things in an asset only space, we don't always subtract the risk-free return.

MS. KATHLEEN MCCANDLESS: Thank you. Now, with respect to the recommended portfolio for Basic, Mercer when it recommended the portfolio it was based on a -- based on a nominal interest rate, it found that the Basic 4 portfolio was preferred over Basic 3 from Mercer's perspective, yes?

MR. DAVID MAKARCHUK: Quantitatively Basic 4 was preferred over Basic 3, for sure.

MS. KATHLEEN MCCANDLESS: And that was because it provided similar levels of return to 3, but provided lower downside risk, is that right?

MR. DAVID MAKARCHUK: If you go up to the chart, just a little bit more, yes, similar level of return, a lower level of volatility.

MS. KATHLEEN MCCANDLESS: Thank you. So with respect to the stochastic modelling results, if we could go to Appendix 17 from the investment section, attachment B, which is Mercer's ALM phase II summary discussion. And page 19, which I believe is slide 18.

We heard from you this morning about a snapshot of MPI's basic liabilities, yes?

MR. DAVID MAKARCHUK: Correct, yes, we saw the slide.

MS. KATHLEEN MCCANDLESS: And so the approach followed by Mercer was to design a port -- a portfolio to meet liabilities with the characteristics that we see on the left-hand side of the page, yes?

MR. DAVID MAKARCHUK: Right, this is the nominal liability benchmark and so this was amongst the asset classes that were reasonable for the study.

We felt that a portfolio of 28 percent short provincial bonds, 18 percent midterm provincial bonds and 54 percent long-term provincial bonds would have a duration profile that was very similar to MPI's

Basic liabilities, assuming that they grow at 2 percent per annum, because of inflation.

MS. KATHLEEN MCCANDLESS: And at the bottom of the page at the right-hand side we see risk tolerance for Basic is very low if the RSR grows and future risk tolerance could increase.

Is that right?

MR. DAVID MAKARCHUK: Right, so that was a qualitative observation that MPI shared with us, was that given the overall capitalization of the Company at this point in time, the risk tolerance was very low.

If perhaps the Company had more capital to back, then perhaps there would be more risk tolerance going forward. But that was not reflected -- possible improvements in the RSR were not reflected in the asset recommendation from Basic, so far as I'm aware.

MS. KATHLEEN MCCANDLESS: Then if we turn to slide 19, which is page 20. These are the asset class objectives for Basic, and we heard a bit about this this morning as well. Yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And so I believe it's been well-established that the portfolio

is designed to meet a very low-risk tolerance threshold, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And there are blanks for the return targets for one (1) year -- and for the one (1) year investment loss, yes?

MR. DAVID MAKARCHUK: Correct, yes.

MS. KATHLEEN MCCANDLESS: And were those parameters discussed with MPI at all in designing the portfolio?

MR. DAVID MAKARCHUK: They were in and so this is a slide out of, I believe, our November 28th investment committee meeting. This was part of the facilitation that happened as well. And this was part of -- and I think I presented these slides personally, but in front of the strategic committee from my perspective -- and this is hard for all strategic inv -- institutional investors, but to say, if we can articulate as investors what an unacceptable one (1) year loss is, then we can retrofit that to a good asset allocation.

Or if we can say, all right, we need 2 1/2 percent per annum or we need 3 percent per annum or we need 4, or we need 50 million on 1.79 billion, then we can retrofit to what we actually need in terms

of a portfolio.

I think from memory we never actually filled those -- those blocks in. I have had this approach with many clients over the years. It's very rare that we can actually come up with a number here, but the point is to help make sure our strategic investors understand philosophically what we should be working toward, but these are really hard questions to answer sometimes, so. So no, they were never filled in, but you shouldn't feel bad about that, or you shouldn't -- everyone shouldn't feel bad about that.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, if we can go to slide 20, which is page 21 of the PDF on the same document.

So these are the asset mix options based on the stochastic modelling for the Basic portfolio, is that right?

MR. DAVID MAKARCHUK: Right, so these would have come out of the efficient frontier analysis. We talked about this a few minutes ago, these were the straw-dog portfolios that we did further analysis after the qualitative and quantitative learnings, and we did stochastic as well as efficient frontier analysis on these four (4) finalists, so to speak.

MS. KATHLEEN MCCANDLESS: And so the four (4) finalists are compared to the Basic portfolio which was currently held at the time?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And then Basic 1, Basic 2, Basic 3 and Basic 4?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: Basic 1, what does the minimum risk portfolio represent?

MR. DAVID MAKARCHUK: So this would be a portfolio and the reason it was chosen as a finalist where we said, all right, so if MPI wants to mitigate as much risk as possible, mitigate credit risk, mitigate liquidity risk, reasonably if you really want to mi -- mitigate liquidity risk you just go with federal bonds.

But if you want to have as little risk as possible, then that's why you might look at Basic .1. And then iteratively as we go across the page, we introduce additional levels of return enhancement and risk.

Do you want me to walk through the premise for each?

MS. KATHLEEN MCCANDLESS: That's fine, I'll have specific questions about some of these,

thank you.

So the minimum risk portfolio at Basic 1, that's based on nominal interest rates, is that right?

MR. DAVID MAKARCHUK: Correct, all of the work for the November 28th committee was based on a nominal liability benchmark.

MS. KATHLEEN MCCANDLESS: And why does Basic 1 exclude MUSH bonds?

MR. DAVID MAKARCHUK: Because it was an illustration of how little risk one could have if we lived in what was somewhat of a hypothetical world, and in theory there is a market for every single security out there.

You may not like the price you get, but if -- I don't know enough about the MUSH bonds practically, but if MPI really wanted to sell the MUSH bonds, presumably someone out there would take them off their hands at some price. It was an illustration. It wasn't really practical.

MS. KATHLEEN MCCANDLESS: So how did Mercer determine the relative weightings of the fixed income components across the different portfolio options?

MR. DAVID MAKARCHUK: So this would've

been a meeting with MPI management/staff shortly after the October 28 efficient frontier where we would have had a back-and-forth.

It's quite plausible that we actually gave an empty spreadsheet to MPI and said, so guys, what do you want to do? What do you want to include here? And it would've been a collaborative discussion. Glenn might recall. I don't know whether Mercer went first or MPI went first, but we agreed on these four (4) finalists shortly after that meeting.

MS. KATHLEEN MCCANDLESS: Thank you. If we go to slide 22, which is page 23 of the PDF. So this is a chart depicting the expected surplus growth for Basic one-year projections.

I believe that's based on the stochastic modelling that was undertaken?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And could you just at a very high level explain what this table represents?

MR. DAVID MAKARCHUK: Sure. So now we are extending a lot of the concepts for efficient frontier -- excuse me -- to a dollar-oriented world where we take the opening assets, the opening liabilities, we project each of them based on the

inherent assumptions for each asset class, as well as for each piece of the liability benchmark portfolio as well.

And so we have a distribution for the five (5) different options in terms of what we think the best estimate would be so the black square that you see on this page is the pictorial illustration of what we expect the one-year surplus growth to be. It is also highlighted in the purple box, or magenta box, near the bottom, in terms of the median or 50th percentile.

And so, across the different portfolios and I prefer the table, some people prefer the chart, but you see that the current surplus growth was expected at $27 million per annum. Basic 1 practically would be zero because the assets essentially are the liabilities. This is Basic 2, an increment of 2 million, 6.4 for Basic 3, 5.9 for Basic 4. So that one is actually a little bit lower. Once we got to the -- the stochastic projection.

We see in this chart also a dollar illustration of the downside, as well as the upside. And so you see in the current, while the current best estimate is higher, the downside is significantly lower.

And so different investors have different downsides they like to consider. The highlighted box here is on the 2 1/2 percentile range, so a 5th percentile is generally a 1:20 result, and 2 1/2 was kind of a 1:40 result.

But you see that in -- in -- in that downside there the current portfolio potentially could lose $119 million, relative to liabilities based on the assumptions that are inherent in the model.

The recommended portfolio, which is Basic 3, the downside is still negative, but a lot less at $38 1/2 million.

On the upside it's somewhat symmetric. It could be as strong as $46 million. But generally this puts into dollar context some of the considerations that -- and the learnings from the efficient frontier piece, so.

MS. KATHLEEN MCCANDLESS: And so we see at the table at the bottom, if we compare the results for Basic 3 and Basic 4.

MR. DAVID MAKARCHUK: Yep.

MS. KATHLEEN MCCANDLESS: At the median or 50th percentile the return for Basic 3 is $6.4 million, yes?

MR. DAVID MAKARCHUK: Expected growth

and surplus, correct.

MS. KATHLEEN MCCANDLESS: And for Basic 4 it's $5.9 million?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: So relatively close in expected growth?

MR. DAVID MAKARCHUK: Yes.

MS. KATHLEEN MCCANDLESS: And then for the 2.5 percentile at the bottom, so the downside risk, we see for Basic 3 it's a loss of 38.5 million?

MR. DAVID MAKARCHUK: M-hm.

MS. KATHLEEN MCCANDLESS: And compared to Basic 4, which is a loss of 23.9 million, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. DAVID MAKARCHUK: So this puts into dollar context what we saw in that efficient frontier page a little bit earlier, that Basic 4 probably is less risky in the modelling perspective, but it is a slightly lower return, I think it was pretty close on the efficient frontier.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: So, if we could go to slide 21, which is at page 22. I believe this is a table that is reflected in the graph that we just reviewed. Is that right?

MR. DAVID MAKARCHUK: Correct. There's some efficient frontier numbers in here and there's some stochastic numbers. Those kind of headline slide.

MS. KATHLEEN MCCANDLESS: Okay. Thank you. So, we can see at the top of the table for expected return, Basic 3 optimizes one-year return at 3.12 percent, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And so, when compared to the current mix, at the left-hand side of the table, it's lower. The current mix is 4.29 percent, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And the return is lower with respect to Basic 3 because they are no growth as -- assets in the proposed portfolio, as compared with what's in the current mix, yes?

MR. DAVID MAKARCHUK: That's the primary driver of the fixed income slightly different, as well.

MS. KATHLEEN MCCANDLESS: What is meant by one (1) year surplus volatilities, so the third line down in purple?

MR. DAVID MAKARCHUK: Sure. So, one (1) year surplus volatility is the -- when we considered the volatility of the assets in the Basic 1, 2, 3, or 4 portfolio, relative to the liabilities, the liability benchmark in this case, the nominal one in this case, it is the expected standard deviation of the surplus volatility one year out.

So, you'll see in Basic 1 that that number is zero, because it's the exact same asset portfolio as the liability benchmark. And you'll see that incrementally, there is slightly higher volatility. Those numbers probably should be the exact same as the efficient frontier chart that we saw maybe fifteen (15) minutes ago in the green and the blue bars there.

MS. KATHLEEN MCCANDLESS: And so with respect to Basic 3, the value is significantly lower than the current mix; 1.32 percent for Basic 3 versus 4.06 percent for the current mix, yeah?

MR. DAVID MAKARCHUK: Absolutely, yes.

MS. KATHLEEN MCCANDLESS: But it is the highest among the four (4) portfolio options

reviewed, yes?

MR. DAVID MAKARCHUK: Correct, like the expected return.

MS. KATHLEEN MCCANDLESS: Yes.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Kristen, could you please pull up PUB MPI 1-85, page 2?

So, in this IR, MPI was asked for a narrative description of the results of the asset mix analysis that was presented in the slides that we just reviewed, and the answer at page 2 under heading page 3 -- 23, is that MPI has indicated that Basic 3 portfolios, so the 1:40 downside -- year downside risks so the 2.5th percentile is tolerable.

From your perspective, Mr. Makarchuk, can you comment on what would be meant by tolerable when you consider the difference in risk with the Basic .4 portfolio?

MR. DAVID MAKARCHUK: I would suggest that it's for MPI, not for Mercer to opine on.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Bunston, can you provide any comment on that?

(BRIEF PAUSE)

MR. GLENN BUNSTON: Are you referring to the 97.5 percent VaR number?

MS. KATHLEEN MCCANDLESS: Pardon me, slide 22, so page 23 of the PDF. So, the 2.5th percentile.

MR. GLENN BUNSTON: That's probably technically the delta. If you go back up one slide, at 22. It's probably the -- I think specifically, it's the 45 million that you were referring to in the question, right? The difference between the median and the downside.

I only defer to MPI here because it's not for me to judge what's tolerable; I think it's for them.

MS. KATHLEEN MCCANDLESS: And that was why I asked the question as to whether you -- Mercer was able to comment. Thank you.

(BRIEF PAUSE)

MR. GLENN BUNSTON: So, to answer your question, the -- the Basic 4 portfolio includes an allocation of private debt, and our investment

committee decided they were uncomfortable with making allocations to private debt.

So, notwithstanding the -- the VaR numbers shown here being higher for the Basic 3 portfolio, they were just not comfortable with private debt as an asset class and making allocations to private debt. And so, the Basic 3 portfolio has the highest expected return here. It does have higher surplus volatility, and the VaR ratios are somewhat higher for the Basic 3 portfolio.

If we look over a longer term at the bottom of the page, we have five (5) year projections there. And so, it shows the probability of -- of a positive real return over five (5) years being slightly higher for the Basic 3 portfolio. And the probability of surplus in five (5) years being slightly lower for the Basic 3 portfolio.

So, it was a -- really a risk decision based on the -- the committee's appetite in terms of asset classes they were comfortable investing in.

MS. KATHLEEN MCCANDLESS: If we could please go to slide 23 from Appendix 17.

So, this is the expected surplus growth for Basic on a five (5) year projection. And so, just following on my question, Mr. -- or your answer, Mr.

Bunston, the table at the bottom I believe represents the downside risk on a five (5) year basis and we can compare Basic 3 and Basic 4. At the median we see the growth at 32.3 million for Basic 3 and 29.6 million for Basic 4, yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And then the downside risk at the very bottom of the table, we have a loss of $78.3 million for Basic 3 as compared to $43.1 million loss or Basic 4, yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And so, again, the downside risk with respect to Basic 3 from the Corporation's perspective is tolerable?

MR. GLENN BUNSTON: I think it is. Bec -- the downside there is a -- is a 9 -- at a 97.5 percent confidence interval, so this would be a -- an extreme event and a -- a very -- a rare event. So, I think it's something that they we're comfortable with.

MS. KATHLEEN MCCANDLESS: So, if we go back to the IR response that we were just reviewing.

So, the response here rege -- relates, pardon me, to the projected surplus in one (1) year, yes?

MR. GLENN BUNSTON: You're referring to the last line in the...

MS. KATHLEEN MCCANDLESS: Yes.

MR. GLENN BUNSTON: ...last paragraph?

MS. KATHLEEN MCCANDLESS: Yes.

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And so, the Corporation repeat the same comment with respect to the five (5) year projection then?

MR. GLENN BUNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Kristen, could you please pull up PUB MPI-1-34?

And at this IR, at the question, the Corporation was asked to provide any support for the Board's discussion, analysis conclusion, et cetera that resulted in private debt, leverage bond funds, and diversified growth funds being excluded from consideration of all portfolios, yes?

MR. GLENN BUNSTON: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And then if we go to the response at the very end, last paragraph,

it states that:

"The Board of Directors' risk tolerances is shaped by the regulatory environment, the purpose of each of the funds and the requirement to avoid negatively affecting the province's consolidated financial statements."

Yes?

MR. GLENN BUNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And so, can you outline, bearing this in mind, MPI's risk tolerance and how it was determined?

(BRIEF PAUSE)

MR. GLENN BUNSTON: So, our investment committee and Board of Directors, their priority in terms of the Basic claims' portfolio was to -- to ensure that we had the capital available to pay claims as they come due, and earning a return was secondary to -- to that goal.

And so, they -- they wanted to try to manage -- to minimize the nominal interest rate risk, which is why the portfolio's a hundred percent

invested in fixed income.

And, they just -- they weren't interested in investing in private debt. There was a perception that private debt pro -- provided -- was a risky asset class, and so despite the fact that the this analysis shows that possibly for correlation reasons that adding private debt may have been beneficial, the investment committee members were not comfortable with private debt as an asset class and so it was excluded.

MS. KATHLEEN MCCANDLESS: Thank you. My last few questions are for Mr. Makarchuk.

MPI's claims liabilities are indexed, so, there is some exposure to inflation there, yes?

MR. DAVID MAKARCHUK: Correct.

MS. KATHLEEN MCCANDLESS: And based on your knowledge of the -- MPI's current proposed claims liability portfolio, what is the level of protection from inflation that's afforded?

MR. DAVID MAKARCHUK: From memory, it's -- I'll need MPI to clarify. I believe that it's either tied to Manitoba CPI, sometimes average industrial wage. I believe it's -- where it's provided, it's pretty much full, CPI. Although I'd appreciate a refresher from MPI for the record.

MR. LUKE JOHNSTON: Yeah, a significant portion would be tied to Manitoba's CPI, but there's other benefits that are tied to industrial average wage, but I would say the -- the vast majority would be Manitoba's -- like, so, income replacement benefits indexation.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Makarchuk, then, bearing that in mind, to have some protection, would Mercer recommend some exposure to real estate or inf -- infrastructure?

MR. DAVID MAKARCHUK: If an investor indicated to me that protecting themselves to inflation risk was a priority, my first recommendation would be real return bonds as a starting point.

Real estate and infrastructure have some inflation-linked capacity, but not near as much as real return bonds do. They should provide it with some return enhancement as well, but especially for infrastructure, you're not going to find any infrastructure project that pays Manitoba CPI and tough to find anything with Canadian CPI. So, they're other global, and while there might be good inflation-linked global infrastructure projects out there, very few of them, practically probably none of them, are Canadian CPI linked.

So, the starting point would be real return bonds. If they were a growth-motivated investor, then I would tilt -- recommend tilting their growth portfolio towards real estate infrastructure, and things like that, but MPI and Basic, in particular, didn't fit a profile of an investor that was growth-oriented. So, we didn't really go very far with the real estate or infrastructure conversations.

MS. KATHLEEN MCCANDLESS: Thank you. Those are my questions for you, Mr. Makarchuk. Thank you very much.

It is now just about 4 past 5:00 and, I'll be moving into capital maintenance provision, RSR, and DCAT tomorrow so.

THE CHAIRPERSON: Thank you. We will adjourn right down 'til nine o'clock tomorrow morning. Thank you.

--- Upon adjourning at 4:03 p.m.

Certified correct,

_____

Cheryl Lavigne

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 17, 2018

Pages 483 to 715

APPEARANCES

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Robert Watchman)Board Counsel

Steven Scarfone)Manitoba Public
Anthony Guerra)Insurance

Byron Williams)CAC (Manitoba)
Katrine Dilay)

Raymond Oakes)CMMG

Erika Miller (np)) CAA Manitoba

TABLE OF CONTENTS

Page No.
List of Exhibits 486
List of Undertakings 487

RESUMED
MPI WITNESS PANEL 2 - MPI INVESTMENTS/CAPITAL MAINTENANCE PROVISION/RATE STABILIZATION RESERVE/DYNAMIC CAPITAL ADEQUACY TESTING PANEL
LUKE JOHNSTON, Previously Sworn
GLENN BUNSTON, Previously Affirmed
MARK GIESBRECHT, Previously Sworn
DAVE MAKARCHUK, Previously Sworn (np in a.m. portion)

Continued Cross-examination
by Ms. Kathleen McCandless 491
Cross-Examination by Mr. Raymond Oakes 561
Cross-Examination by Dr. Byron Williams 606
Re-Direct Examination by Mr. Steve Scarfone 655
Continued Cross-Examination by Dr. Byron Williams 658
Continued Re-Direct Examination
by Mr. Steve Scarfone 692
Re-Direct Examination by Mr. Anthony Guerra 711
Certificate of Transcript 715

LIST OF EXHIBITS

EXHIBIT NO. DESCRIPTION PAGE NO.
CAC-14 One (1) page speaking to the Bank of Canada raising overnight rate target to 1 1/2 percent. 657
CAC-15 Excerpt from a October 2016 PowerPoint of Dr. Sean Cleary titled Interest Rate Forecast Issues 657
CAC-16 Excerpts from PUB Board Orders 128/'15, 162/'16 and 130/'17 657
CAC-17 Board Order 151/00 658

LIST OF UNDERTAKINGS

NO. DESCRIPTION PAGE NO.
5 MPI to provide a table of the continuity of the capital maintenance provision over the forecast period. And included within that a breakout in PF-1, so pro forma 1, the annual written revenue being forecast to be collected in the net capital maintenance provision 555
6 MPI to make the correction re: on the Basic target capital upper threshold in Board Order 130-17, the Board based its finding on including only rate change actions and currently it includes building fees. 557
7 MPI to convert the MCT ratio of 75 percent to 100 percent, as depicted on page 2 of MPI Exhibit Number 24 to a dollar value As at August 31st, 2018 559
8 MPI to provide information on what claims reserves they have and what each purpose and amount is 581

LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
9	MPI to confirm that the amount spent on motorcycle-specific road safety initiatives in the coming application is still only the budgeted amount of 227,000 for Basic's share.	601
10	Mercer to provide the volatility assumption for the real liability benchmark prepared for Appendix 17, Attachment (a	629
11	Mr. Makarchuk to provide an explanation of what the inflation volatility assumption of 2.6 percent, what model it applies for and what it is used for	631
12	Mercer to confirm whether or not the stress tests portrayed on Slide 24 of Appendix 17, Attachment (a) were undertaken, and if so, to provide them. And if they weren't done, if Mercer is aware of the reasons why they were not done.	635

LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
13	MPI to provide the analysis as referred to in PUB-MPI-1-86, based upon use of Mercer's standard interest rate forecast rather than the forward curve	648

--- Upon commencing at 9:06 a.m.

THE CHAIRPERSON: Good morning everyone. If we could start, Ms. McCandless.

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair and members of the Panel. Just to give you an overview for today, we are continuing with the cross-examination of MPI panel number 2. I expect to complete my cross-examination sometime before lunch this morning. Mr. Oakes will then proceed with his cross-examination and Mr. Williams will then proceed. We expect that Mr. Williams' cross will go into tomorrow morning as well. Thank you.

MR. STEVE SCARFONE: And, Mr. Chair, just so the Panel's aware, Mr. Makarchuk asked if he could work from his hotel this morning given the subject matter of Mr. McCandless' cross-examination this morning. He'll return after the lunch break for the cross-examination from the Intervenor counsel, if that's fine.

THE CHAIRPERSON: Well, I guess the question is if Mr. Oakes has questions for him, he's going to be cross-examining this morning.

MR. STEVE SCARFONE: Yes and --

THE CHAIRPERSON: I don't know, Mr.

Oakes, have you got question -- will you have questions for Mr. Makarchuk.

MR. RAYMOND OAKES: I only had a couple and I can certainly work around that schedule.

THE CHAIRPERSON: Okay, thank you.

MR. STEVE SCARFONE: Thank you, Mr. Oakes.

THE CHAIRPERSON: We'll work around it, thank you, sir. Ms. McCandless...?

RESUMED

MPI WITNESS PANEL 2 - MPI INVESTMENTS/CAPITAL MAINTENANCE PROVISION/RATE STABILIZATION RESERVE/DYNAMIC CAPITAL ADEQUACY TESTING PANEL

LUKE JOHNSTON, Previously Sworn

GLENN BUNSTON, Previously Affirmed

MARK GIESBRECHT, Previously Sworn (np in a.m. portion)

DAVE MAKARCHUK, Previously Sworn

CONTINUED CROSS-EXAMINATION BY MS. MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. So, for the panel, I will be asking questions about the capital maintenance provision, Dynamic Capital

492

do have a couple of smaller areas to cover just following on yesterday and the filing of the second quarter financial report.

So first, if, Kristen, you could please pull up MPI Exhibit Number 22, and that's slide 30, with respect to interest rate forecasting. So with the recent ALM driven investment port -- portfolio changes in addition to significantly reducing interest rate risk, the exposure to a decline in equity investments has also been reduced, yes?

MR. LUKE JOHNSTON: Yes, it has.

MS. KATHLEEN MCCANDLESS: Does the Corporation consider the possibility of a favourable shift in interest rates to be a risk that needs to be kept low?

MR. LUKE JOHNSTON: I'm just thinking about your question here. So, we would model -- like, so, just to be clear, when we do the DCAT exercise we model every state in the world, not just the bad ones. So like, we would model the full spectrum of risk. Obviously there are favourable and unfavourable scenarios. Interest rates increasing, I think we've shown on the new ALM world it's not -- it's not as much volatility as there used to be. Before it used to be quite a bit favourable but -- yeah, I'm not

493

really sure how to answer that other than that we model everything and -- and our most -- most of focus on in terms of risk is on downside, but there -- there is always upsides to every scenario as well.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could you please pull up MPI Exhibit Number 24, and that's the second quarter financial report.

And, Mr. Giesbrecht, yesterday you had mentioned that the Corporation is ahead of forecast. Yes?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And at pro forma 1, which is at the book of documents, Tab 5, at line 31, we see the forecast for 2018/'19 of $135.6 million in net income. Yes?

MR. MARK GIESBRECHT: Correct,

MS. KATHLEEN MCCANDLESS: And so at the end of August Basic net income was $39.4 million, and that's back to the quarterly financial report at page 3?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: I think the PDF and the paper copy might have different page references so. So is MPI still expecting to earn a Basic net income of 135.6 million?

494

MR. MARK GIESBRECHT: Yeah, the -- the trends experienced so far this year would indicate that we are on track. The big number there that's driving that -- that large net income, again, comes back to the realized gains that we are expecting to happen later this year.

MS. KATHLEEN MCCANDLESS: Okay. And that's when MPI expects to dispose of its equity investments, yes?

MR. MARK GIESBRECHT: Right. In preparation for funding fixed income.

MS. KATHLEEN MCCANDLESS: Thank you. I will now move on to some questions about the capital maintenance provision. So I expect, Mr. Johnston, these will be directed to you primarily.

So first, what drives the need for a capital maintenance provision, assuming rate indications recognize the expected return on asset -- investment assets supporting Basic total equity?

MR. LUKE JOHNSTON: So it might be helpful to bring up our initial presentation from yesterday, not that I want to spend a lot of time on it, but towards the end there, I can't remember the slide number. If you could go to -- keep going, keep going. There -- there you go, that's the one. Thank

495

you.

So at least under current forecasts when we set rates based on accepted actuarial practice, we see explo -- well, especially if we return the investment income from the RSR as part of the rate calculation, we would see total equity stay approximately flat, which is what's shown in the second last row of this table.

And to most people they would say, okay, well, what's the problem? You -- you know, the RSR is staying at the same level. The issue right now is that the business continues to grow, so -- again, use the example, if your assets are growing you would have, all else equal, say more equities, which means if there is a stock market crash, you could lose more. So the MCT and the DCAT and other measures would say you have more risk, you should have more capital.

So that's what's -- that's what's being said by the MCT ratio on the -- on the very last row it's saying if we just set rates for the -- the 0.1, we would have a declining kind of strength in our -- in our RSR, as measured by the MCT ratio, and we're just saying that we would like capital to stay at a consistent strength level, for lack of a better word.

MS. KATHLEEN MCCANDLESS: Thank you.

496

So, Basic's capital position naturally is expected to decline over time, yes?

MR. LUKE JOHNSTON: That's right. And then when SGI came to the technical conference, they actually showed almost the exact same issue. So they -- they -- their public program has the same concern.

MS. KATHLEEN MCCANDLESS: And perhaps you could just elaborate on the reason for that decline over time?

MR. LUKE JOHNSTON: There's a -- there's a few reasons. We don't earn a profit on -- well, at least not on purpose, sometimes we do make profit by -- but by design we're supposed to be breakeven.

And the main reason right now is that assets and liabilities continue to grow, and based on that, they demand a -- a higher capital amount. As I mentioned yesterday, our liabilities are continuing to grow. We -- we expect that will plateau in the next five (5) to ten (10) years. But right now we're still seeing growth in the balance sheet.

And again, if capital stays the same absolute value relative to a growing balance sheet, it -- it would show these declining capitalization rates.

MS. KATHLEEN MCCANDLESS: If the need

497

for RSR rebates or rebuilding fees is determined annual -- annually through the GRA process, why the need for a CMP? In other words, why not just let each year unfold and then adjust rates after the fact as needed somewhat in the manner like the Corporation is proposing be done through the use of the naive interest rate forecast?

MR. LUKE JOHNSTON: So, going to the purpose of the RSR, a lot of this -- like, obviously, we want capital to protect the Corporation from adverse events, but the other purposes is to -- for rates -- rate stability. So even just talking about the RSR range itself, one -- one (1) way to look at this would be to say, okay, well, MPI has a 70 percent MCT, $250 million of RSR. It's in the range, don't worry about it, just let it go where it needs to go.

However, in -- in that scenario if all forecasts were no, we're going to watch it deteriorate until we get to that surcharge position and then we're going to ask those customers for money to fund it. And we're just saying that there is no reason to do that. We can maintain capital what we see as fairly, like, for all ratepayers over time, and instead of waiting for big trigger points, we can always be moving more gradually towards a consistent target.

498

In this case, this is more about maintaining the amount, but in the future, we -- we may want to talk about the build and release idea that SGI uses. And, again, same -- same idea. Let's always be moving slowly rather than waiting for really adverse events and asking people for a big -- a big increase.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could we please go to RM 4.2.7.

And I just put this in front of you, Mr. Johnston for your reference. This section describes the basis of estimation of the proposed net capital maintenance provision and to paraphrase, it appears that after estimating the negative 1.2 percent rate level impact of the expected return on investment assets supporting Basic total equity, which is the first component of net CMP, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: The resulting overall rate level change of negative 1.1 percent was put through the financial model to determine what rate level change was necessary in order to maintain the basic MCT ratio unchanged over the period from 2018/'19 year end to the 2019/'20 year end, yes?

499

MR. LUKE JOHNSTON: That's correct. One -- one (1) thing we said last year is that we would like to keep all those components separate so everybody can see them, like, as oppos -- you know, to just combining them all together.

So we know that investment income, the RSR, was a -- like a major topic so we -- we wanted to make sure that was separately shown.

MS. KATHLEEN MCCANDLESS: Thank you. And at lines 3 to 6, you can see that the modelling showed an overall rate change of increase of 2.2 percent was needed to meet this objective, which implies a net CMP of 3.3 percent. Yes?

MR. LUKE JOHNSTON: It -- just -- watching the lang -- the language here. It implies a capital maintenance provision of 3.3 percent and a net CMP of --

MS. KATHLEEN MCCANDLESS: Yes, pardon me. And so that's the difference between the 2.2 percent increase and the 1.1 percent decrease?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Now, presumably something other than the basic MCT ratio could have been used here? For example, Basic total equity?

500

MR. LUKE JOHNSTON: It's -- I'm trying to think of other options. So running future DCATs is -- is difficult. So even in the current DCAT report when we're assessing satisfactory financial condition, we take the DCAT indication and say, this is what that dollar amount equates to a MCT score.

And then we assume the DCAT would produce a similar MCT score in the future because we don't really know what the DCAT for four (4) years from now is going -- is going to show and we -- but we believe that it should, based on all the evidence we've seen running it, that it should stay at a relatively consistent MCT ratio.

So really, what we're saying is, even if we wanted to use and were able to, you know, project future DCATs, we think that the MCT -- you know, keeping the MCT the same would be the same as keeping the DCAT indication the same anyways.

So that -- I think we're talking about the same thing but four (4) years from now if we run the DCAT and it's still 250 million indication, or whatever the number is, that could mean a lot of things. We might of -- maybe we just --reduce risk further or whatever, but I think the MCT in the -- is the easiest and -- way to do this.

501

MS. KATHLEEN MCCANDLESS: So as I understand your evidence then one (1) of the advantages of using MCT is easiest or maybe most straightforward?

MR. LUKE JOHNSTON: Well, we -- as I think everyone is aware, we definitely support using the MCT for capital targets and measurement anyways, but it is a very easy way to -- to measure the capitalization rate. So we would support it.

MS. KATHLEEN MCCANDLESS: Are there any other advantages that you see from the use of the MCT ratio in this context?

MR. LUKE JOHNSTON: Nothing coming to mind other than all the other -- all the advantages that we've already spoke about about MCT in general as a -- as a tool.

MR. MARK GIESBRECHT: I'll just jump in quickly with a couple of comments on that. Firstly, the -- the MCT allows us to measure our capitalize -- capitalization level at any given month or quarter end; that it produces a dynamic number whereas a static number based on total equity or based on a DCAT modelling does not factor in market changes, growth in the business, if we've made changes to our lesson portfolio. And so, if we have a number to start any given year, that number may not be a fair representation of what we need to carry for adequate capital, six (6), nine (9) or twelve (12) months or eighteen (18) months down the road, given changes in the business or in the marketplace.

And so having a dynamic number that moves -- while it's always guided by DCAT modelling, it give us a better way to represent our capital level, and also gives comparability across our comparators and peer groups.

MS. KATHLEEN MCCANDLESS: Thank you. Are there any disadvantages to the use of the MCT ratio in this context?

MR. LUKE JOHNSTON: I'm not aware of any.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could you please pull up PUB-MPI-1-76.

And at question (f) the Corporation was asked to prepare an alternate overall rate indication with supporting documentation incorp -- incorporating the results from the part (d) above and the Board approved 50-50 interest rate forecast.

So the determination of the net CMP is sensitive to the interest rate forecast, yes?

MR. LUKE JOHNSTON: Yes.

503

MS. KATHLEEN MCCANDLESS: And this IR was asking, essentially, for a restatement of the overall rate indication from the 2.2 percent increase to reflect a Saskatchewan style CMP, in combination with the 50-50 interest rate forecast, yes?

MR. LUKE JOHNSTON: I'm -- that's my recollection. I'm going to bring the ques -- whole question up for myself, but that is my recollection, yes.

MS. KATHLEEN MCCANDLESS: And if we turn to the answer at (f). Can you confirm that the result of that calculation was an overall rate indication of 1.9 percent increase. So the 1.8 that we see here in front of you, plus the .1 percent increase for breakeven?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Thank you. Now, last year the Corporation proposed that the expected return on the investment assets supporting Basic total equity be excluded from the determination of the rate indications to provide a natural source of growth for Basic total equity, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Given the relative size of the two (2) components of the net

504

CMP, so, the 1.2 percent decrease for the RSR return and the 3.3 percent positive for the CMP, what does that suggest to the Corporation about its proposal last year?

MR. LUKE JOHNSTON: So, last year we were really stressing to the Board that we needed a way to -- to build the RSR. It couldn't just stay the same -- same number. The idea of -- of capital maintenance wasn't really brought forward in -- like, in terms of -- like the MCT ratio for example.

So what we -- and I'd have to look exactly at what we said last year, but my recollection is that we were saying, we need something to -- to build the RSR, and through these conversations we've probably admitted that maybe the investment income, the RSR, wasn't the perfect method because some years there may be more than you need or it might be not enough.

So that -- my recollection is that that's how the capital maintenance discussion happened and then we had some meetings with the SGI. And so -- so this approach we bucketed them together into something called net because we really feel they're both capital items, you know, one -- investment income's growing it, and then we're looking at a

505

separate provision to say is that enough, "yes" or "no." Sometimes it -- it might be more than enough and other times it won't.

MS. KATHLEEN MCCANDLESS: So essentially, based on the current estimates then it wasn't enough?

MR. LUKE JOHNSTON: That's correct. Thank you, Kristen. Could we please pull up pro forma PF-3. It's also found at Tab 7 of the book of documents.

And this pro forma shows the statement of changes in equity reflecting the applied for overall 2.2 percent rate level change, correct?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And looking at line 25 here on the table, this shows the actual and forecasted MCT ratios for Basic insurance operations, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: In the column for 2019 forecast budget, the 70 percent shown at line 25, that reflects the Corporation's expectation for the Basic MCT ratio at the end of the current fiscal year before the rates that are subject of this application take effect, yes?

506

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Staying on the same line, we can see that the forecasted MCT ratio twelve (12) months later remains unchanged at 70 percent in the column for 2020 forecast, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Am I right in understanding that this outcome is a direct result of the modelling done for the net CMP. So, for example, preserving Basic's capital position over the year of the application?

MR. LUKE JOHNSTON: That's correct. And -- and just to -- so everybody understands how and why we did that, they're -- in the '19/'20 fiscal year, there's two (2) sets of rates operating the '18/'19 -- the 2018 GRA rates are still earning through. So if -- so if we had a rate increase in that year, which we did, that's flowing through.

And then the outcome of this hearing is going to affect part of that '19/'20 year. We -- we did look and think about whether this should span over two (2) fiscal years because of how policies are earned, but the reason we said no, it shouldn't do that is because -- that the Board could still change 2020 rates which would affect that following year so

507

we want capital maintained over the fiscal year, which -- which rates are written and that -- that's really like a goal seek exercise on the '19/'20 fiscal year to make sure the MCT ratio stays at 70 percent.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. LUKE JOHNSTON: Were the same.

MS. KATHLEEN MCCANDLESS: And then continuing along the same line at 25, we can see that the forecasted MCT ratio remains at 70 percent for yet another twenty-four (24) months after that. So through to the end of the fiscal year 2021/'22, yes?

MR. LUKE JOHNSTON: Yes, and just to be again clear here, there is now a 2 -- a net 2.1 percent capital maintenance provision built into the rate. So we don't want to pretend that it's not there. It -- it's -- once it's in there it stays there until somebody takes it out.

So, we've assumed here that it is -- the rates haven't changed but our expectation would be we would come back next year, remind the PUB that there is a 2.1 percent net capital maintenance provision in the rate still and so that -- that example, let's say, our position improved, we would say okay, maybe -- it doesn't need to be 2.1 anymore, it can be a lower number.

508

But given that that is already in the rate it would come through as a rate decrease.

MS. KATHLEEN MCCANDLESS: So given then that no other rate level changes beyond that proposed in this application are being modelled here, what does -- what's before us here tell us about the apparent expected stability in the forecasted Basic -- pardon me, what does this apparent expected stability in the forecasted Basic MCT tell us?

MR. LUKE JOHNSTON: This would -- this would tell me at least in the short term that a net capital maintenance provision of around 2 percent is -- is what we -- what we need, and -- yeah, again, that will change over time, I would expect that -- as I talked about the plateauing of Basic liabilities, I would expect that to get smaller over time.

MS. KATHLEEN MCCANDLESS: So would it be appropriate to conclude then that -- that we could expect the net CMP or at least the CMP to remain relatively stable over time?

MR. LUKE JOHNSTON: We would definitely like to see that happen, but that would be my expectation for a couple reasons. Well, we all -- obviously have the monopoly advantage. So it's not like our -- our -- our business -- our volume of

509

business is changing, but we're always -- the intent will always be to come here and set breakeven rates, you know, every -- every year and -- and the capital maintenance provision will be just the -- the -- the additional provision, positive or negative to keep the MCT ratio the same so I wouldn't expect it to jump around much.

MS. KATHLEEN MCCANDLESS: And from the Corporation's perspective, stability in a capital maintenance provision over time, would that be desirable?

MR. LUKE JOHNSTON: Definitely would. It's part of the rate indication, so, from customer or government perspective, I don't think they really care what you call it, it's a -- it's a rate change. So we don't want that flying around all -- the up and down, yeah.

MS. KATHLEEN MCCANDLESS: So then, would it be correct to understand that if a capital maintenance provision is approved with this application for 2019/'20, that in future GRAs one could expect only minor adjustments to the prior years' CMP that would affect the rate level requirement?

MR. LUKE JOHNSTON: That would be our

510

expectation on the -- on terms of the maintenance provision. Should we get any shocks or -- or things like that, again, it would -- just by way of an example, let's say we had an adverse event. The stock market's trubulent right now and let's say it -- it lowered our MCT ratio to 50 percent. We would not be asking capital maintenance to bring it back up to 70, we would just be asking for it to stay at 50.

So on that basis, I would expect it to remain stable over time.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could you please pull up pro forma 10, PF-10, please.

So by comparison to the previous pro forma, this statement of changes in equity pro forma reflects continuation of the current rates throughout the forecast period, correct?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Now, looking at line 25 in PF-10, it shows the forecasted Basic MCT ratio falling over the course of fiscal year '19/'20, from 70 percent to 63 percent. Yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: What does the magnitude of this decline tell us?

511

MR. LUKE JOHNSTON: This tells us that -- actually just -- sorry, just stepping back for a sec. So, if we had included the investment income on the RSR, the rate indication would actually be about negative 1 percent. So these numbers would actually be even more declining.

But what this is saying if we just left rates the same, our risk level based on our balance sheet is growing faster than -- than the RSR. So the MCT ratio is declining.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could we please go back to PUB-MPI-1-76. And this time with respect to question (c).

And in this Information Request the Corporation was asked to compare its approach to determining the capital maintenance provision to that of the Saskatchewan Auto Fund.

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And just for your reference, we can put the answer before you. Thank you.

So, Mr. Johnston, could you please highlight the difference in the two (2) approaches so that proposed by the Corporation as compared to Saskatchewan Auto Fund and tell us why the

512

Corporation's approach is preferable?
MR. LUKE JOHNSTON: So the SGI approach -- I'm just going to quickly double check exactly what it does, here.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: At a high level, okay, the SGI approach is looking at an average of the capital maintenance requirement over a -- I believe a five (5) year period, or -- or prior years period. And -- and our approaches is -- is just saying, what is the capital maintenance needed to keep the MCT ratio the same in this -- for this group of policyholders?
The -- the reason we like our approach better is that it's specific to -- it's not looking at anything prior to the current policy year. It's just saying, as I mentioned yesterday, this group of policyholders came in. The MCT ratio was 70 percent. When they leave, it should still be 70 percent. They've contributed a fair, in our -- in our view, a -- a fair contribution to maintaining the RSR.
We didn't think it was appropriate to look back five (5) years and -- and look at average,

513

you know, up/down, and then charge current ratepayers that amount. But that's another -- that's another option that -- that SGI used.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: The Saskatchewan Auto Fund doesn't look back five (5) years. It's a five (5) year forecast. Is that your understanding?
MR. LUKE JOHNSTON: Okay. Sorry, my mistake. Yes, a five (5) year forecast.
MS. KATHLEEN MCCANDLESS: Thank you. Is it possible that some factors having a bearing on Basic's capital position in a given forecast year might be unusual and not routine in the normal course?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Yes. So, like, a -- a very good example that would be the implementation of the new investment portfolio. The -- in this case, the time -- the exact timing of the investment portfolio, we've talked about some things, you know, hopefully by Q4, if not, by -- by, you

514

know, by Q1 next year.
In terms of this forecast, there is stability in that -- in the '19/'20 on a forecasted basis. But you're right. If we were to change something dramatically in that year, we would have to try to normalize that in some way to -- to make it appropriate. But in this particular forecast, we're not -- at least in -- in the forecast, we're -- we're not suggesting that anything's changing dramatically to our -- to our risk profile.
MS. KATHLEEN MCCANDLESS: Why would it be appropriate to include any such unusual factors in the determination of a capital maintenance provision?
MR. LUKE JOHNSTON: So -- so ratepayers we're asking them to pay -- to contribute to the maintenance of capital. We're not asking them to fund a change in -- in our risk profile that we've made by choice. That's, I think, the best way I could think of it.
So if -- if we did something that deteriorated our -- our MCT ratio, it wouldn't be right to ask ratepayers to pay for that, like, in -- in the maintenance provision, because that's -- that's a conscious choice by us.
MS. KATHLEEN MCCANDLESS: Is it in

515

part because of this issue that a longer-term view of the Capital Maintenance Provision has been adopted in Saskatchewan, as far as you know?
MR. LUKE JOHNSTON: That could be one (1) of the -- one (1) of the reasons. It would make sense, yeah, but I -- I don't know.
MS. KATHLEEN MCCANDLESS: Would it be practical to build up an estimate of the Capital Maintenance Provision by modelling only the normal evolutionary forces having a bearing on Basic's capital position?
MR. LUKE JOHNSTON: I -- I believe that's what you're seeing right now. So the -- in the pro formas that you looked at, at least over the forecast period, where you saw the MCT ratio maintained at about 70 percent, that's suggesting that -- that average would -- would be around the 2 -- the net 2.1 percent, you know, maybe with the exception of that last year, I think the MCT ratio drops a bit. But that -- that could also be done.
But based on that -- that pro forma that we -- we looked at it, it appears that that 2.1 percent average is -- is about what it would be, anyways. But -- but again, you're -- the point -- your point is -- is taken. If there was a very

516

obvious thing in the forecast period that was creating volatility, we'd have to find a way to -- to normalize that.

MS. KATHLEEN MCCANDLESS: Thank you. In the recent past, rates were set to achieve an accounting break-even net income, yes?

MR. LUKE JOHNSTON: That used to be how rates were set, yes.

MS. KATHLEEN MCCANDLESS: And with the move to rate setting in accordance with accepted actuarial practice in Canada, one (1) of the expected advantages is improving stability in rate indications, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And that's because the indications are largely -- largely controlled by expected provisions rather than the ebb and flow of income statement accounting entries over a forecast period, yes?

MR. LUKE JOHNSTON: That -- that is one (1) of the reasons, yes.

MS. KATHLEEN MCCANDLESS: How do you respond to the observation that the Corporation's approach to the Capital Maintenance Provision is a move back towards rate setting based on accounting

517

results?

MR. LUKE JOHNSTON: No, I -- I understand the view. So now we're -- based on what we've just gone through, like, in -- in -- through these examples, what we're really trying to goal seek our match to our MCT ratio. That -- and -- and so that is an accounting view.

But again, if -- if we -- even under AAP, the big -- the big issue with our break-even rate-making methodology was largely related to interest rates. We were forecasting changes into the future, positive or negative, and then we were either giving people rate decreases or rate increases based on what was really prior years' experience. AAP fixed that issue.

In terms of capital, though, we have -- it's pretty clear through the MCT and the DCAT what our capital targets are, and I -- I think it's also pretty clear what we would need to maintain them. And so from that perspective, I -- I don't really know what other option we would use other than something like the MCT ratio.

So if -- yeah, I -- I can't think of a better option. I haven't seen one, but -- did you want to add something?

518

MR. MARK GIESBRECHT: I'll just add (1) -- one (1) comment. While the total equity would be based on, you know, accounting results, the required capital calculation under MCT is based on a number of actuarial, you know, computations based on the -- the risk charges that apply to different assets and different components. So it's not purely based on accounting. There are other factors.

MS. KATHLEEN MCCANDLESS: Thank you. So turning back to PUB/MPI-1-76, which is on the screen before you, at the answer (g), so in this section of the Information Request, the IR cited a reference from the application with respect to the Corporation's intent to bring forward a capital maintenance plan with the next GRA involving a CMP along with a capital build and release provision, yes?

MR. LUKE JOHNSTON: Unfortunately, these two (2) -- so these sets of words have the same abbreviation. So, the Cap -- Capital Management Plan will -- will have to find a better -- it just can't be called CMP, too, but anyways, we are -- we are coming with the Capital Management Plan.

MS. KATHLEEN MCCANDLESS: And what is the purpose of a capital build and release provision, and how might this work in conjunction with the target

519

capital range currently in use for Basic?

MR. LUKE JOHNSTON: Yeah. This is something that we want to get right, obviously. So there -- there's a -- there's a few different ways to think about it, and I'm sure there's other ones.

SGI model has a target, and when you have a target, it's -- it's a little easier to figure out how you want to move to that target, and what pace you want to move towards that target. When we -- we -- it's given that we have a range, now we have to ask the question, do we only trigger movements when we're out of the range? So that's one (1) view, or should we maybe target to be in the middle of the range would be another, I think, reasonable view.

So that -- that's one (1) of the big -- big questions to answer. So let's say that we decide that the middle was the best place to be. And the -- the reason I would say the middle of the range is logical because we're saying we don't want to trigger frequent rebuilding fees or rebates. So the farthest point away from either of those things should be the middle of our RSR range, in -- in theory.

So just through a hypothetical, use -- if we use something similar to SGI, we might say, how far are we away from the middle? Let's always move

520

towards that one-fifth (1/5) of the way. We might add a cap to that and say -- right? If -- if that one-fifth (1/5) away is, like, a 7 percent rate increase, well, that's a bit more than we can stomach. Let's, you know, one-fifth (1/5) of the way, subject to a cap of -- of some number. That -- those are some of the things that we're thinking about internally and -- and tend to bring forward.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Thank you. Is the Corporation able to share anything today with respect to its progress towards developing a capital maintenance plan proposal -- management, pardon me?

MR. LUKE JOHNSTON: A management plan? Well, I -- I shared some of these items. Other components of it would -- would relate to things like transfers between the lines of business, profitability of the other lines of business, the -- the conditions, you know, when -- when those -- when those things happen.

I don't really -- other than telling you that we're looking at those things, I don't know really what else I can say, but there are --

521

obviously, the decisions we make here are important, to know this is the -- these are the rules, and -- and they're clear. And when we have that clarity, or if we have that clarity, it's easier to move on the other lines as well, right?

So if we know that we have AAP break-even, we have a capital maintenance provision, this is the rules on how the targets are set, we can say, okay, given that we know that, you know, does -- do Extension profits need to be here? You know, when would we transfer money over for -- from the other lines? Things like that, and -- and our -- our hope would be that that could be something that we would share with everybody, so that's not -- so it's known that those discussions are -- are happening internally right now.

MS. KATHLEEN MCCANDLESS: Thank you. In his evidence, Mr. Graham indicated that he expects the Corporation to come forward in the future with a Basic target capital level rather than a range. Is this expectation tied to the intent to propose a capital management plan?

MR. LUKE JOHNSTON: So Mr. Graham is obviously stating his desired state. So that -- I think it's important that the Board hears what --

522

where he would -- or himself and the Board and -- and would like to go. But that can look a lot of different ways.

So if we -- if that's something that MPI as really -- having that target for the purposes of a capital management plan, again, maybe that's the middle of the range. Maybe we have some other ideas on how that would be determined, but that -- it'd be on -- within the confines of -- of what's been decided in the regulatory environment.

MS. KATHLEEN MCCANDLESS: Thank you. I -- I'm now going to move onto some questions about Dynamic Capital Adequacy Testing, and target capital.

First, I'd like to ask a few questions about capital adequacy as set out in the Q2 financial report. So, at page 2 -- it's page 2 of the report itself -- it may be different. Yes. In front of -- in front of you here, on the -- there's a graphic on the right-hand side of the page here, under the heading of organizational health. And we see the second graphic down is the capital adequacy minimum capital test for Basic. It's hard to see on the screen before you, but it does say "Basic" there.

And for a target for Q2 '18/'19, the stated target is an MCT of between 75 percent to a

523

hundred percent. Can you explain the basis for this target?

(BRIEF PAUSE)

MR. MARK GIESBRECHT: So this target range, which is published in the quarterly report is our -- our desired end state. It is not aligned to our current framework. It is a longer-term view towards what management and Board is looking for in terms of our -- our desired end state.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Then on page 3, for total equity, and page -- maybe page 4, pardon me, just at the top of the page, there, at the second line in the second paragraph, we see at the end of the second quarter, Basic insurance reported total equity of $253.5 million, yes?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And given the forecast for the remainder of the year, where does the Corporation expect its retained earnings and total

524

equity to land?
MR. MARK GIESBRECHT: Yeah. We'd have to pull up the -- the pro formas, the total equity section. That would be our -- our best place to -- to gather that number.
MS. KATHLEEN MCCANDLESS: That'd be PF-1, at tab 5 of the book of documents, or --
MR. MARK GIESBRECHT: That'd be PF-3 or 4, I believe.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Right under -- at line 13, in your 2019 forecast budget? Is that right?
MR. MARK GIESBRECHT: Yes.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Thank you. And then just back to the quarterly financial report, we see again at paragraph 2, under "total equity," with respect to Extension, we have -- at the end of the second quarter, Extension insurance reported total equity of $129.3 million, yes?

525

MR. MARK GIESBRECHT: Correct.
MS. KATHLEEN MCCANDLESS: And just above that, it says that Extension's current capital target level for total equity is $64 million, yes?
MR. MARK GIESBRECHT: Correct.
MS. KATHLEEN MCCANDLESS: So if operations unfold as planned for the second half of the year, does the Corporation anticipate having a significant balance above its needed capital target for Extension?
MR. MARK GIESBRECHT: As it pertained to Extension, there will be a surplus, yes.
MS. KATHLEEN MCCANDLESS: And then with respect to special risk Extension, we see that the current capital target level -- level for total equity is $65 million?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: And at the end of the second quarter, the special risk Extension insurance reported total equity of $93.6 million, yes?
MR. MARK GIESBRECHT: That's correct.
MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

526

MS. KATHLEEN MCCANDLESS: Now if we could pull up DCAT 1.2, and this is just here for your reference, Mr. Johnston. The base scenario financial forecast in the DCAT uses a significantly different modelling assumption from that of the GRA in the DCAT -- in that the DCAT base scenario does not include the Corporation's proposed Capital Maintenance Provision, yes?
MR. LUKE JOHNSTON: That's correct.
MS. KATHLEEN MCCANDLESS: And why is this difference made by the Corporation?
MR. LUKE JOHNSTON: So our view on -- so -- so there's a couple things happening, here. We want the -- the targets calculated from the DCAT to reflect what we've agreed to with the -- the Board, and from -- from previous hearings. The -- the minimum to be at least a requirement for a satisfactory financial condition, and then a range above that number for which we can manage capital.
If we -- so -- so that -- those two (2) numbers give us two (2) kind of risk -- risk measures, the absolute minimum, and then the operating level. The CMP is supposed to help us stay in that range. So we've calculated the -- the lower and the upper, and now we'll say we're in the range, and we don't want to

527

naturally deteriorate out of it. We want to stay within those targets.
If we put the CMP in the calculation of the lower and the upper target, well, then, it pulls all the targets down. It's contrary to the whole point of the -- of the CMP.
So in the same way -- so I'll -- I'll give a different parallel. If we had MCT based targets, and -- and it -- you don't want it to be between a hundred percent and 150 percent MCT, we wouldn't use the Capital Maintenance Provision to say, we need lower targets. We're using it to say, you know, we're at 120 percent MCT, and we want to stay there.
So that was our -- that's our explanation, here, and I think it -- it makes sense that the -- the maint -- maintenance of capital shouldn't reduce your capital targets, in our view.
MS. KATHLEEN MCCANDLESS: In the context of my question, we were referring to the DCAT, not -- so not targets.
MR. LUKE JOHNSTON: I'm sorry, can you repeat that, the --
MS. KATHLEEN MCCANDLESS: The question itself, or my clarification?

528

MR. LUKE JOHNSTON: The last question that you -- yeah.
MS. KATHLEEN MCCANDLESS: Yeah. So in the context of your response, you were talking about targets, but --
MR. LUKE JOHNSTON: M-hm.
MS. KATHLEEN MCCANDLESS: -- the question posed was -- was with respect to the DCAT.
MR. LUKE JOHNSTON: In -- in terms of the traditional form of the DCAT, not for target base purposes, it's -- it's not included in that -- in the test. We also have never had this approved either, so that's another reason that you may not con -- include it.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Kristen, could we please go to PUB/MPI-2-11.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: And the question posed to the Corporation here was whether if a suitably defined and Board-approved methodology for

529

determining the CMP is established, why would it be inappropriate to include the CMP in the DCAT base scenario as part of a best estimate forecast of Basic financial results, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And to summarize the Corporation's response, which is included at the bottom, here, of the page, and running onto the -- I believe onto -- no, it's all contained on one (1) page -- the response itself focuses on the target capital analysis rather than the DCAT, yes?
MR. LUKE JOHNSTON: That's correct.
MS. KATHLEEN MCCANDLESS: With this in mind, can the Corporation explain why it would not consider inclusion of an established, well-defined, and Board-approved capital maintenance provision to be part of a best estimate financial forecast for DCAT purposes?
MR. LUKE JOHNSTON: I think that's a -- a reasonable question. As you've mentioned, we've clearly focused that -- on the calculation of the -- the capital targets. And our view isn't -- hasn't changed on that. Like, this, like, we -- we definitely think capital maintenance should be left out of that calculation. Otherwise, to me, it defeats

530

the purpose.
But if there is an approved capital maintenance that we can confidently assume is in the forecast, I would agree with you that the -- the base DCAT scenario should -- should have it in there, and you would have in -- in theory, a lower requirement for a satisfactory financial condition.
MS. KATHLEEN MCCANDLESS: Would you agree that the inclusion of a capital maintenance provision in the DCAT base scenario would strengthen the forecasted Basic capital position?
MR. LUKE JOHNSTON: Yes, it -- if one (1) of the other reasons for excluding it, particularly this year, in -- in the measurement of the amount needed for satisfactory financial condition is that if it is in there, the -- the requirement wouldn't be less. So I can confidently say that -- that what is currently in the base is enough, even if we don't get it. Yeah.
MS. KATHLEEN MCCANDLESS: So in effect, would that make it easier for Basic to achieve a satisfactory financial condition?
MR. LUKE JOHNSTON: Yes. Yeah.
MS. KATHLEEN MCCANDLESS: Kristen, could we please pull up PUB/MPI-1-17, and question

531

(a).
This Information Request asked why the Corporation believes that the inclusion of the CMP in the DCAT would likely lead to a reduction in the assumption of the 2.0 percent maximum RSR rebuilding fee as a routine management regulatory response to an adverse scenario, yes?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Sorry. Our answer to part (a), yes.
MS. KATHLEEN MCCANDLESS: And in its response at page 2 of the Information Request, the Corporation stated -- I believe it's at the bottom of the second paragraph, about four (4) lines up from the bottom.

> "The need to reactively respond to adverse events with successive 2 percent surcharges and/or rate increases is reduced."

Which sounds like the modeling of RSR rebuilding fees as a routine management regulatory response will likely happen less frequently, rather than being modeled at something less than 2 percent.

532

Could you please clarify the Corporation's response?
MR. LUKE JOHNSTON: Yeah, so we're -- we're effectively proposing a transition between different rate setting capital environments here. So we're admitting that some of these past needs to do rebuilding fees and then the management action would be different.
So, if you have a capital maintenance automatically occurring and it's giving you about 2 percent, is it right -- appropriate to assume you're going to have these 2 percent rebuilding fees? May -- maybe not. Maybe not the same amount. So that would be another thing that would need to be flushed out of the capital management plan.
What -- what those rules are, again, we don't -- we don't have them, but that would further fine-tune the DCAT to reflect what would really happen if -- if an adverse scenario occurred. And as you know, that's an important part of determining the impact, right?
So when I spoke earlier, if we were to decide that it's okay to stay in the range and just maintain the capital, then the model would do that. But if we're always moving one-fifth towards the --

533

the target and we had a scenario way, that's how long it would take you to move. So, some of those things are to be determined, and we're essentially saying that here.
MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could we please go to PUB-MPI 1–19, question (a).
And there's a quote from the Corporation at the beginning of the question, and then the Corporation was asked to outline the direction and nature of the planned research with respect to the policy liabilities and indicate whether this would include a consideration of the DCAT prepared for Saskatchewan Auto Fund if made available.
And the Corporation's response is on page 2, and it makes reference to policy liability. What is policy liabilities' risk in the DCAT context?
MR. LUKE JOHNSTON: So we -- we've seen pretty big swings in policy liabilities come through the GRA, basically, the actuary has provision put up for policy liabilities and through changes and trends or -- or that -- that estimate it wasn't -- wasn't right.
So a good -- two (2) kind of extreme examples, I guess, would be the large rebate that

534

happened around 2010, there was a decision there that claimants weren't, you know, living as long as the -- the assumptions assumed and they needed to be changed. So those assumptions were changed and all the estimates were lowered; that triggered a major change in the policy liabilities.
In more recent times we talked about how there is more claimants becoming lifetime claimants. And you know, we used to have about 40 or 50 claimants becoming life and now all of a sudden it's 70 or 80. That was never assumed by the actuary to happen, so we had to increase our liabilities in the last few years.
That would be an unfavourable change in the estimation of liability. So there's a couple examples of how -- now -- so the DCAT, if it's doing its job, should try to estimate what those swings could look like and have a permission for that.
MS. KATHLEEN MCCANDLESS: Thank you. What has triggered the Corporation's intent to undertake further research into the modeling of policy liabilities risk?
So, is this being done in the spirit of continuous improvement or is it in response to a specific concern?

535

MR. LUKE JOHNSTON: This -- this question continues to come up, and it's -- it should be part of the DCAT, no question.
The -- there's a few things that have stalled the analysis. One, we struggle with how to create a model that can be approved in this -- in this realm. And what I mean by that is, how can we -- what evidence can we provide in the modeling that -- that would be approved through the collaborative exercise.
The -- the other issue that we have is the recent experience is extremely volatile. So again, I mentioned the really large rebate that we had and some of the recent experience. We don't believe that that experience reflects the go-forward risk of liability volatility.
So we wouldn't want to come to this Board and suggest that we need this enormous number for volatility that we don't think is going to continue.
And -- and then -- yeah, the last piece would just be how to model risk in a really unknown period. So, possibly one of the biggest risks that we have would be that -- that the lifetime claimants just live longer than we think they're going to live.
We don't -- we have 20 years of PIPP,

536

but some of these folks may live forty (40) years into the future, if there is medical technology changes and such we could be wrong.

But going back to my first point: How do we bring that to -- to this Board and say, well, we think we could be 10 percent wrong, so we'd better put up another 50 to 100 million in the RSR for that reason, and what's -- what's my evidence, right? And how do I prove that through the collaborative process that we've had. So that -- that's a big issue that we're trying to work through.

MS. KATHLEEN MCCANDLESS: So to clarify, the Corporation doesn't model policy liabilities risk in the current DCAT, yes?

MR. LUKE JOHNSTON: We, essentially, model the volatility of the experience and -- in given loss years and then risks related to interest rate impacts.

But we don't, for example, have a mortality risk provision or something like that, and that's -- that's what's being talked about here, that -- how do we use the data that we have to come up with something that could be approved and reasonable in this process.

MS. KATHLEEN MCCANDLESS: In the

537

current modeling you do not consider policy liabilities risk as significant adverse risk scenario, correct?

MR. LUKE JOHNSTON: Currently we do not.

MS. KATHLEEN MCCANDLESS: Thank you. Now, moving on to a couple portions of your presentation yesterday, Mr. Johnston, with respect to capital targets. So if we could pull up MPI Exhibit 22 of slide 29.

Now first, does the Corporation support the objective of setting Basic capital target lower and upper thresholds based on modeling of risk -- of Basic's risk profile?

MR. LUKE JOHNSTON: Sorry, there was a question just do we support the current methodology? Is that -- I -- sorry.

MS. KATHLEEN MCCANDLESS: No. Whether the Corporation supports the objective of setting the target capital lower and upper thresholds based on modeling of Basic's risk profile?

MR. LUKE JOHNSTON: In a general sense, we do. And I say "in a general sense" just because everybody knows we've come to this Board and asked for 100 percent MCT and -- and you've seen it in

538

other documents.

So there is still a concern that the capital targets that we're generating are not in line with other insurers and other Crowns, but as a -- in a general sense, yes, we want targets that reflect risk.

MS. KATHLEEN MCCANDLESS: Thank you. In this GRA, MPI's proposed Basic target capital range when -- when expressed in terms of the MCT, as we see on the table before you on the right-hand side, it goes from 34 percent to 85 percent, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And since this range is entirely below 100 percent, does the Corporation agree that an MCT ratio of 100 percent as either a target capital level, or an up -- upper threshold of a range is excessive based on current modeling?

MR. LUKE JOHNSTON: So that -- that's also an issue that we brought up at -- at these hearings. We have a model and we do our best to have that reflect MPI's reality as much as possible.

The -- the Made-in-Manitoba model has its limitations. It doesn't have, you know, the complete data available to, say, the federal regulator that might be used in a MCT test calculation.

539

That -- that has been our concern in the past, just to recognize that this is a Made-in Manitoba model, I think it does a pretty good job but to suggest that we know as much as the federal regulator would probably be a stretch.

MS. KATHLEEN MCCANDLESS: Thank you. Can we please go to slide 27.

Now, the MCT ratio for Saskatchewan is found in the middle of the graph for you, yes?

And the ratio shown for Saskatchewan is a target capital level for Saskatchewan Auto Fund and not a minimum, as labelled on this slide. Agreed?

MR. LUKE JOHNSTON: It is a target, yes.

MS. KATHLEEN MCCANDLESS: So unlike MPI, which goes through this annual GRA process, Saskatchewan Auto Fund only gets rate adjustments periodically when Cabinet directs that that process should occur, agreed?

MR. LUKE JOHNSTON: My understanding is that, yeah, they don't have to come every year. How it actually happens, I don't know. But it's not as -- not annual like us, it doesn't have to be.

MS. KATHLEEN MCCANDLESS: So Saskatchewan Auto Fund may be left at a given rate

540

level then for several years, yes?
MR. LUKE JOHNSTON: My understanding is that is actually what is currently happening. I think it's maybe 2014 since the last time that they've had a -- a rate hearing.
MS. KATHLEEN MCCANDLESS: And so Saskatchewan Auto Fund has no direct control to seek rate level adjustments, correct?
MR. LUKE JOHNSTON: Can you repeat that, sorry.
MS. KATHLEEN MCCANDLESS: So as a result of the process in Saskatchewan then, Saskatchewan Auto Fund may be left at a given rate level for several -- several years, as you noted, with no direct control to seek rate level adjustments?
MR. LUKE JOHNSTON: Correct.
MS. KATHLEEN MCCANDLESS: So would you agree that this creates a risk for Saskatchewan Auto Fund then that is not faced by MPI's Basic?
MR. LUKE JOHNSTON: Sorry, you're going to be annoyed with me, but I didn't hear that. Sorry.
MS. KATHLEEN MCCANDLESS: So given what we just discussed then, does that not create a risk for Saskatchewan Auto Fund that's not faced by

541

MPI's Basic insurance?
MR. STEVE SCARFONE: I just -- I want to just interject, Ms. McCandless, on this line of questioning, appreciating that it's difficult for Mr. Johnston to know what risks SGI might face or what situation SGI is in as it concerns their need for capital and the Cabinet approval that you mentioned earlier.
So just -- I wanted to make that -- not an objection, but just for the witness to appreciate that it's difficult for -- for you to suggest would -- what SGI may be faced with.
MR. LUKE JOHNSTON: I can com -- comment in general term -- like, how I would view this.
If SGI has an option about whether they would like to come and have a rate hearing or not, however that mechanism occurs, that, to me, is less risk for them. And I -- I'll explain why.
Because if they need a rate increase they can come. If they don't, they can ride out profitable business and -- and grow their capital. So I -- I think everyone understands what I'm saying.
So that -- I don't know if I necessarily see it as a risk that -- to them.

542

MR. MARK GIESBRECHT: Let me -- I'll just try to clarify a bit again.
My understanding is that SGI -- while they don't come forward every year for rate approval, they have the ability to, should they require one.
So if they have not come in -- in a number of years it's because they haven't had a requirement, given their financial condition and -- and the state of their pricing, but if they needed to, then that would be an option too, is my understanding.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: Thank you. Mr. Johnston, are you aware of whether or not Saskatchewan Auto Fund's target capital level was based on modeling of its risk profile?
MR. LUKE JOHNSTON: My understand -- my understanding is that modeling was done. Their DCAT at least to date for myself has been proprietary.
MS. KATHLEEN MCCANDLESS: Noting the time, I estimate, again, with the caveat that my estimation may not bear out to be accurate, roughly fifteen (15) to twenty (20) more minutes of questioning. So we can continue on or we could take a break.

543

THE CHAIRPERSON: Sorry. Let's continue.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: Thank you. So, continuing to look at slide 27 on the left-hand side of the page, there's a box that states "modify DCAT."
And to be clear, this is a reference to the Board's iterative target capital analysis approach, yes?
MR. LUKE JOHNSTON: That's correct.
MS. KATHLEEN MCCANDLESS: The second bullet there makes reference to a significant subjectivity in assumptions.
Is this statement trying to make a distinction from the related DCAT?
MR. LUKE JOHNSTON: Really what it's saying is so we -- there are different options here.
So let's say we -- we decided to use 100 percent MCT as the -- on the basis that it's well-established federal standard and what -- what makes MPI different. Okay, so that -- let's -- let's say that was the view.
There is no subjectivity in the MCT 100

544

percent calculation, just pull the information right off the balance sheet, compare it to other insurers, it's quick and it's ready. And I think everyone can trust that the federal regulator is doing a good job.

On the DCAT, it's our -- it's our Made-in-Manitoba solution. It is the models that we've created through the collaborative process. We've -- not everyone has been here but we've been in here and fought it out about what inflation should be and what part of the stock market history should be in and what should be out and things like that and, you know, how fast you should react to things, what the management action -- you know, we've heard people say just, you know, assume 10 percent management action and that kind of stuff.

So, we've had those kind of debates, which essentially lands on a level of subjectivity that isn't in the MCT 100 percent capital required calculation. So that -- that's all we're saying there.

MS. KATHLEEN MCCANDLESS: So to clarify then, it's not a distinction between the iterative approach the DCAT and the regular DCAT approach?

MR. LUKE JOHNSTON: We have -- we have

545

no objections to the iterative method being proposed. On the modified DCAT there was that one (1) piece that we -- we brought up a few times about not liking how the -- the assumption of capital transfers has to occur. Outside of that, no other issues.

MS. KATHLEEN MCCANDLESS: So then the assumption of capital transfers is -- is referenced here at the third bullet.

Is this then to clarify a reference to creating a modified base scenario to reflect a best estimate forecast of Basic operations working consistently at about a selected target capital threshold level?

MR. LUKE JOHNSTON: There's probably only a few people in the room that understand any of that. But yes, yes, that is what that -- that means.

MS. KATHLEEN MCCANDLESS: Is it fair to say that these capital transfers are the means by which the modified base scenario is modeled, rather than a working assumption?

MR. LUKE JOHNSTON: Okay, I think you said that this is the difference in the modified DCAT -- is that the main difference in the modified DCAT rather than using the -- the regular forecast? Is that...?

546

MS. KATHLEEN MCCANDLESS: The question is with respect to the capital transfers and whether it's a modeling approach or just an assumption?

MR. LUKE JOHNSTON: Oh, it's tough to say. It -- it is definitely part of a modeling approach, but then we also feel like it's an assumption as well, because you do have to create transfers and then we look at those statements and kind of wonder how they're -- how they're valid or if they're appropriate. So maybe a little of both.

MS. KATHLEEN MCCANDLESS: So is the source of the capital transfers of any relevance to the target capital analysis?

MR. LUKE JOHNSTON: The source? I guess we're saying any source is inappropriate because we want a capital target that purely reflects Basic, at least for -- in the presentation and calculation of that number.

And -- some -- very similar to the whole idea of capital maintenance, like, let's calculate the targets first in the absence of any kind of maintenance transfer, rebuild, release, and then after that consider those things, but don't change the targets themselves because of those items.

MS. KATHLEEN MCCANDLESS: Thank you.

547

Now, some more questions with respect to target capital analysis. And we expect that there will be a need for further questions with this -- in this area once we've received the response to PreAsk number 1.

But for the time being, so first, do the standards of practice of the Canadian Institute of Actuaries specifically address doing target capital analysis work?

MR. LUKE JOHNSTON: Not having that at my fingertips, nothings coming to mind. If you have a reference, I'll look at it.

MS. KATHLEEN MCCANDLESS: That's fine, thank you.

So what does it -- what would it mean then when an actuary says that they are carrying out this kind of work in accordance with accepted actuarial practice in Canada?

MR. LUKE JOHNSTON: Well, for me it would mean just that we're -- we're making best estimates and performing all these calculations in -- you know, within what you expect from actuarial standards on any ca -- calculation that an actuary would perform and sign their name behind.

MS. KATHLEEN MCCANDLESS: Now, if we could turn to PUB-MPI 1-16, question (c) of this

548

Information Request.

So in this question the Corporation was asked about what concerns it has with respect to the Board approved iterative methodology.

And with reference to this IR response is appropriate, could you please take us through the various concerns that the Corporation has with respect to the Board's iterative methodology for target capital purposes, so -- and not for DCAT purposes.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Okay, thank you for letting me have a look at this.

So, the first concern mentioned is just that we -- we would never want to suggest that we should have a lower target below the amount that we feel is necessary for the absolute minimum level needed for satisfactory financial condition. So, we think that's a reasonable position for any reason, like, we would never want that.

The second paragraph...

(BRIEF PAUSE)

549

MS. KATHLEEN MCCANDLESS: I think if we could scroll down to the answer to the question for the -- for Mr. Johnston's reference. Thank you.

MR. STEVE SCARFONE: Ms. McCandless, just to clarify, are you looking for concerns from the Corporation other than what's already been provided in the answer?

MS. KATHLEEN MCCANDLESS: Well, we would ask that Mr. Johnston illustrate for the Board or -- or elaborate on what's been provided here. So paraphrase and add to it as necessary.

But limited to target capital, not to DCAT.

MR. LUKE JOHNSTON: Yes, that's the -- sorry, it's a long answer here and I'm trying to just go through.

So the second one is that we don't think the target capital methodology should include anything other than a best estimate assumption.

So, the -- the whole issue with capital transfers in the methodology, whether that -- that's seen as a modeling item or not, we're struggling with including that in there. So that -- that's the second one.

On a similar topic, last year's RSR

550

target methodology was based on a 50-50 interest rate forecast and using the same logic, we -- we want the -- the targets to be set on what we feel are best estimates.

So if we are not comfortable using 50-50, that should be stated in the -- of course by MPI and we should always -- whether we agree or not, MPI should always propose what they believe is the best estimate for the -- for the capital calculation.

(BRIEF PAUSE)

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Would the Corporation's position on the reasonableness or appropriateness of the iterative methodology shift at all if, Mr. Johnston, you were aware that a fundamentally comparable iterative methodology is used by several property-casualty insurance companies in Canada for determining minimum benchmark capital levels?

MR. LUKE JOHNSTON: More -- more information helps, for sure.

I -- my caution with this and any other topic is a -- a -- to -- if we're really going to look

551

at what other people are doing, then let's look at it all, not just the things that lower the number, for example.

So there may be other things that those companies do that we're nowhere close to doing. So if -- if that's what we're going to talk about, let's open it all up.

MS. KATHLEEN MCCANDLESS: At PUB-MPI 1-17 (c), in its response to this Information Request at page 3, the Corporation states at the third line up from the bottom:

> "The inclusion of a capital maintenance provision will significantly lower the RSR capital targets in the Board approved RSR methodology."

Given that the Board approved iterative methodology using a modified base scenario that reflects a steady state Basic capital level, please explain why the Corporation has reached this conclusion?

MR. LUKE JOHNSTON: I -- I think the three (3) reasons that I just went through are the -- are the reasons. If that wasn't clear.

MS. KATHLEEN MCCANDLESS: Kristen,

552

could we please pill -- pull up PUB-MPI-1–16(b) and at this question on page 1 the Corporation was asked to provide the usual, excuse me, scenario statement exhibits resulting from the Board approved upper threshold iterative methodology relative to the lower threshold for the base scenario, the modified base scenario and the selected adverse scenario.

And that was before and after routine management and regulatory rate change actions. So, for example, excluding such RSR rebuilding fee actions. And the responses are provided in the appendices attached to -- to this IR response.

Now, is the Corporation aware that in its decision on the Basic ta -- cart -- target capital upper threshold in Board Order 130/'17 the Board based its finding on the selected adverse scenario after routine management and regulatory actions?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And so, bearing that in mind, why did the Corporation make this change?

MR. LUKE JOHNSTON: Why does the Corporation? Sorry.

MS. KATHLEEN MCCANDLESS: The Corporation made its determination on the basis before

553

routine management and regulatory actions.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Kristen, could you just scroll up to the question while they're caucusing? Thank you.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I -- I believe our take on this is that we don't know, like, really what other routine rate actions would be included in this -- in this analysis, other than what's already in there. That's the struggle. So if -- maybe we're missing something, but that's -- that's been our concern.

MS. KATHLEEN MCCANDLESS: Mr. Chair, I think this might be an appropriate time to break. I just need a few moments with the Board advisors and we'll have a couple of questions for Mr. Johnston after the break, if that suits.

THE CHAIRPERSON: That's fine. I have to deal with some administrative matters.

So we'll take 20 -- we'll come back at

554

10 to 11:00.

MS. KATHLEEN MCCANDLESS: Thank you.

THE CHAIRPERSON: Thank you.

--- Upon recessing at 10:32 a.m.
--- Upon resuming at 10:58 a.m.

MS. KATHLEEN MCCANDLESS: Thank you. I believe we're ready to resume now.

THE CHAIRPERSON: I was just going to say that -- our discussion reminded me of when our son tried to explain the movie The Matrix to me and after ten (10) minutes it didn't work so.

Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: So just some housekeeping. There were some off-line discussions over the break and I understand that there is an undertaking to be put on the record. I believe it's directed mainly to Mr. Giesbrecht.

And so could the Corporation undertake to please provide a table of the continuity of the capital maintenance provision over the forecast period.

MR. MARK GIESBRECHT: If that's helpful then, yes, we could provide that.

555

MS. KATHLEEN MCCANDLESS: Thank you. And included within that a breakout in PF-1, so pro forma 1, the annual written revenue being forecast to be collected in the net capital maintenance provision?

MR. MARK GIESBRECHT: Yes, we'll take that away.

MS. KATHLEEN MCCANDLESS: Thank you.

--- UNDERTAKING NO. 5: MPI to provide a table of the continuity of the capital maintenance provision over the forecast period. And included within that a breakout in PF-1, so pro forma 1, the annual written revenue being forecast to be collected in the net capital maintenance provision

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Now, back to the issue of target capital. If we could please pull out PUB-MPI-2-10, question (1) -- pardon me the

556

response at page 2.
So this Information Request response shows the assumed routine management regulatory actions made by the Corporation in its modelling of the Basic target capital upper threshold. And these assumed actions include both rate change actions and RSR rebuilding fee actions, correct?
MR. LUKE JOHNSTON: Correct.
MS. KATHLEEN MCCANDLESS: And is the Corporation aware that in its decision on the Basic target capital upper threshold in Board Order 130-17, the Board based its finding on including only rate change actions?
MR. LUKE JOHNSTON: That -- that would -- that would be my assumption, yes.
MS. KATHLEEN MCCANDLESS: And so, bearing that in mind, why make the change reflected here?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Based on what you've said, it does appear that we've included rebuilding fees in here. So if that needs to be corrected we'll have to do that.

557

MS. KATHLEEN MCCANDLESS: Provided that that can be corrected in the response to PreAsk 1, that would be sufficient?
MR. LUKE JOHNSTON: We'll undertake to do that.
MS. KATHLEEN MCCANDLESS: Thank you.

--- UNDERTAKING NO. 6: MPI to make the correction re: on the Basic target capital upper threshold in Board Order 130-17, the Board based its finding on including only rate change actions and currently it includes building fees.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: And just following on some other off-line discussions that, Mr. Johnston, you had with Mr. Pelli Anderson (phonetic) there are some outstanding issues to be discussed with respect to PreAsk 2, further discussions will be had over the next break. And so I may just have one -- one (1) follow-up question with respect to clarifying something on that issue. But with respect to target

558

capital, those are my questions with respect to the scenarios.
Now, I -- I do want to go back to something that, Mr. Giesbrecht, you mentioned this morning with respect to the Q2 financial. So the graphic that was at page 2 of the quarterly financial report and that was the 75 percent to 100 percent for capital adequacy for the minimum capital test for Basic.
I believe that your evidence was that that was the desired state, yes?
MR. MARK GIESBRECHT: Yes, those amounts do not today correlate to a prior PUB Order.
MS. KATHLEEN MCCANDLESS: And what is the dollar value of this desired state?
MR. MARK GIESBRECHT: I would have to take that away and it would depend on the date at which you are requesting that information. It would vary depending on what point in time you do that calculation. So there was no absolute dollar associated with -- with that range.
MS. KATHLEEN MCCANDLESS: So, could you undertake to provide that information with respect to the dollar value associated with the desired state as at the second-quarter?

559

MR. STEVE SCARFONE: Just to -- to interject, Ms. McCandless, I thought I heard Mr. Giesbrecht said there was no dollar amount associated with that range. So, are you asking now for MPIC to conduct that analysis?
MS. KATHLEEN MCCANDLESS: To convert the MTC ratio depicted here to a dollar value.
MR. MARK GIESBRECHT: It would not be difficult to do that. So we can convert it to a required capital amount, if that's helpful we can do that.
MS. KATHLEEN MCCANDLESS: Thank you. So that -- just to clarify for the record then, that is to undertake to convert the MCT ratio of 75 percent to 100 percent, as depicted on page 2 of MPI Exhibit Number 24 to a dollar value.
MR. STEVE SCARFONE: Yes.
MR. MARK GIESBRECHT: As at August 31st.
MS. KATHLEEN MCCANDLESS: As of August 31st, 2018. Thank you.
MR. STEVE SCARFONE: Thank you.

--- UNDERTAKING NO. 7: MPI to convert the MCT ratio of 75 percent to 100

percent, as depicted on page 2 of MPI Exhibit Number 24 to a dollar value As at August 31st, 2018

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And so the use of the terminology desired state, what is the difference between that desired state and the applied for proposed target capital levels that we've seen reflected in MPI's presentation?

And just for your reference, those target capital levels would be at slide 29 of MPI Number 21.

MR. MARK GIESBRECHT: So the Corporation continues to be of the belief that we are undercapitalized and we are when comparing to other comparable organizations, you know, vastly undercapitalized in comparison to those companies.

And while we want to continue to work with our regulators and -- and with Intervenors, you know, we have our -- our current framework, and that produced the ask of 34 to 85 percent in the application.

Longer term we do want to continue to look at ways to -- to build our capital to a level more comparable to industry norms.

MS. KATHLEEN MCCANDLESS: Okay, thank you. Those are my questions for the panel.

THE CHAIRPERSON: Thank you. Are we proceeding with Mr. Oakes?

MR. RAYMOND OAKES: That's correct, Mr. Chairman and I'm ready to go at this point.

At the outset I'd like to say to this panel even though you've been called the panel number 2, your first in our estimation, even despite the CMMG's position on the CEMP.

CROSS-EXAMINATION BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: But I'm going to deal first with rates and, Kristen, and if I could ask you to put up RM-13 which is contained in My Learned Friend's of documents to Tab 3.

And we'll talk about the major classification required rate changes as it relates to motorcycles. And I assume that this is Mr. Johnston if nothing but for old time sake, and I'd ask you to look at line item 22, the average -- I'm sorry, number 23, full credibility required rate change for

motorcycles. I'm looking at the 1.3 percent.

Do you see that, sir?

MR. LUKE JOHNSTON: I do.

MR. RAYMOND OAKES: And, of course, MPI doesn't use full credibility for motorcyclists given that they're only 17,600 units and it shows at line item 25 the credibility percentage would be 74.6 percent.

Do you see that, sir?

MR. LUKE JOHNSTON: I do.

MR. RAYMOND OAKES: And so with my limited math skills applying that credibility percentage, we would have a required rate of some .96, 98 or 97 percent; just under 1 percent.

Would you confirm that?

MR. LUKE JOHNSTON: Just loosely, we would give that -- about 75 percent of weight to the 1.3 percent and we would give the rest of the weight to the overall rate, which is pretty close to zero. So I would say around .9 to 1 percent would be reasonable.

MR. RAYMOND OAKES: Thank you for that. But then we have another line item and that is the line item number 24, and it's the applied for change 3.4 percent?

MR. LUKE JOHNSTON: I see that.

MR. RAYMOND OAKES: And this isn't an actuarially indicated rate based on the calculations that go before in line items 1 to 22, is it? This is a politically motivated management decision that's being featured there.

Would you agree with that, sir?

MR. LUKE JOHNSTON: Well, I can't agree with all of that. How about we start with the first part and say that -- that your statement that this is not part of the accepted actuarial practice rate calculation for the -- the line numbers above that, that's correct.

The additional amount is the capital maintenance provision that we're proposing.

MR. RAYMOND OAKES: All right. And management could've put any number into that applied for change, is that correct?

MR. LUKE JOHNSTON: I don't think that is correct. So what we've come forward with support for why we should have a net 2.1 percent capital maintenance provision, and that's the basis for that number.

This is a regulatory hearing so any number wouldn't -- wouldn't do. We'd have to support

564

it.
MR. RAYMOND OAKES: But if management in their -- in their wisdom said that Manitoba needs a 5 percent CMMP -- then -- CMP then they could've put that in as the applied for change in that column.
MR. LUKE JOHNSTON: So I think what -- what you're getting at is that there is a accepted actuarial practice calculation that it's gone to this Board many times and that give you the motorcycles the 1.3 percent and now there's this new piece called capital maintenance that's being proposed and that is proposed by the Corporation, it's 2.1. And it just is applied to the rate calculation, you know, on proportional basis and that is a management decision.
MR. RAYMOND OAKES: Just to answer the question. If the Corporation had decided that 5 percent was the right number, they could've put 5 percent in there?
MR. LUKE JOHNSTON: Okay. That -- but if -- if we had -- if that was the calculated capital maintenance provision and subject to every, you know, other management considerations that was the -- the number we thought was appropriate, sure, that could -- that could occur.
MR. RAYMOND OAKES: So just getting

565

back to what the actuarially indicated rate is, you indicated .9, roughly.
MR. LUKE JOHNSTON: Roughly, yeah.
MR. RAYMOND OAKES: So less than 1 percent. By way of undertaking, can the Corporation indicate what the amount of premium revenue would be raised by virtue of a 9 percent -- or a .9 percent increase to the motorcycle class?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: If you're willing to accept this: 10 percent of the $800 would be 80 -- $80, so I would assume 1 percent would be about 8 to $9. So if you -- if you would be willing to accept, you know, maybe 7 to $9 per -- per units and then we would have to say times the 17,000 motorcycles.
But if I could get my back row to do now and if that's a reasonable estimate, we could give you today.
MR. RAYMOND OAKES: That's fine. I would accept that at this point.
MR. STEVE SCARFONE: Yeah, we're -- we're -- yeah, it's not entirely clear. I believe we're going to provide an answer to Mr. Oakes in -- in

566

short order.
MR. LUKE JOHNSTON: That's correct.

CONTINUED BY MR. RAYMOND OAKES:
MR. RAYMOND OAKES: Just moving from that rate and looking at the overall financial picture for the Corporation, of course, the numbers get bandied around quite a bit over the course of the hearing, but just at a very high level, ending 2017/'18, the Corporation was reporting net income of about $91.1 million; is that in the range?
MR. MARK GIESBRECHT: That sounds correct for the total results of the Corporation.
MR. RAYMOND OAKES: Okay. And I'm taking these from the financial statement that was adduced in the application and I believe Kristen has the condensed financial statements handy.
But, again, we're going at a high level -- yes, the annual report at page 29.
MR. LUKE JOHNSTON: Mr. Oakes, can I just jump in quickly.
MR. RAYMOND OAKES: Sure.
MR. LUKE JOHNSTON: Just -- let's just -- to end that last line of questioning, .9 percent would be about $141,000 of additional premiums from

567

motorcycles.
MR. RAYMOND OAKES: Thank you, sir. So the Corporation has approximately $3.4 billion in assets. I think the exact numbers 3,000,480 -- or 3,482,000,857, roughly 3.4 billion?
MR. MARK GIESBRECHT: That's -- that's correct on a total consolidated basis, yes.
MR. RAYMOND OAKES: All right. And then we look at retained earnings and we're showing the growth from the number indicated in retained earnings for 2017 and we're showing 261,532,000 growing to 352,608,000 in 2018.
Is that correct, sir?
MR. MARK GIESBRECHT: That's correct.
MR. RAYMOND OAKES: And then there was Exhibit 24, Kristen, the one you had previously there, the quarterly financial report, and we've seen, again, this continued excellent growth in retained earnings, and we see those retained earnings going from 352,608,000 roughly to 425,464,000,000 as of August 31st, 2018.
Is that correct, sir?
MR. MARK GIESBRECHT: That's correct.
MR. RAYMOND OAKES: And then moving from that we've also heard that in the application

568

that the revenues have increased by over $65 million.
Is that correct?
MR. MARK GIESBRECHT: Sounds about right, yes.
MR. RAYMOND OAKES: And then CMMG-1-12 talked about the decrease of $5 million in the basic operating expenses for the Corporation.
Do you recall, sir?
MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: And then investment income, some other good news as well, we saw $38.2 million increases in investment income?
MR. MARK GIESBRECHT: If you could point to the reference then I can confirm that.
MR. RAYMOND OAKES: Okay. Would you accept that, subject to check, based on your knowledge?
MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: Okay. The benchmarking part of the application, page 16, we saw the 2016/'17 net investment yield increase to 6.08 percent?
MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: And all of this in a climate where we saw overall claims costs decreased

569

by $72.5 million?
MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: And then going -- sticking with the benchmarking part of the application, the observation at page 12.
MR. MARK GIESBRECHT: Just to back up one (1) second.
MR. RAYMOND OAKES: Sure.
MR. MARK GIESBRECHT: I do want to clarify. When we are looking at the claims costs and how they move, there -- there is an adjustment made to the actuarial reserves based on changes in interest rates and as interest rates move, it can -- there's a revaluation that's done.
And so, looking at the face of the statements if we don't factor in what that adjustment is, it -- it -- it can make it appear as though claims are, you know, dramatically reducing or there's less claims when, in fact, the actual incident of claims is -- is generally remaining similar or even growing as there are more cars and vehicles on the road.
So we do need to factor that in in terms of the actual incidents of claims versus interest rate effects on the valuation of long-term liabilities.

570

MR. RAYMOND OAKES: Thank you, sir. I do intend, as part of my cross-examination, to talk about the Corporation's conservatism in the selection of interest rates. So we'll perhaps talk about that at that juncture.
The observation at page 12, MPI's gross expenses and percentage of GPW rate has steadily decreased annually?
MR. MARK GIESBRECHT: Yes. We continue to very hard at -- to contain our expenses, and -- and gaining efficiencies.
MR. RAYMOND OAKES: The observation at page 17, MPI's claims experience as a percentage of GPW rate has decreased from 7.2 percent to 5.96 percent?
MR. MARK GIESBRECHT: I see that.
MR. RAYMOND OAKES: Observation at page 18, claims expenses per reported claim has decreased?
MR. MARK GIESBRECHT: I see that.
MR. RAYMOND OAKES: At page 22, there's been a decrease in MPI's staffing?
MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: And also a decrease in MPI's total gross expenses?

571

MR. MARK GIESBRECHT: Yes.
MR. RAYMOND OAKES: And then if, Kristen, if I could ask you to bring up CMMG-1-7. And that's figure 2 of that response to that interrogatory.
And -- and notice -- if you look at the loss ratios on the right-hand side, I noticed that the loss ratios seem to continue to decline for both vehicle classes, both motorcycles, and private passengers. Can you respond to that?
MR. LUKE JOHNSTON: I can. Can you just scroll just a little bit higher, so I can see the title?
Okay. One second. Just one moment, please.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: The -- I would -- I would suggest that we can really -- like, these are reported amounts, recognizing that the bigger claims aren't fully lifetime reserved until a couple years after they've been opened, I wouldn't put much weight into the most recent two (2) years, but maybe there's some decline observed in the period of 2007 to 2015,

572

I'll -- I'll give you that, yeah.
MR. RAYMOND OAKES: So I'm asking the Corporation whether it can understand the position of the CMMG that these are very good times for the Corporation, as evidenced by all of the increases in revenues, the retention of those revenues, and the decreases in expenses, both on the overhead and the claims expenses?
Can you understand that the Corporation thinks that this is not time for MPI feathering its nest? It's time, perhaps, to look at returning some of those premiums to its customers.
MR. MARK GIESBRECHT: I think it's important that we look at the -- the short-term history that MPI has gone through. And prior to last fiscal year, we had endured a sustained number of years with significant losses, and -- and we -- we continue to look at long-term assumptions and long-run expectations.
And so, we do not feel it would be in any way prudent to expect that, you know, twelve (12) months, while it is good experience, and we hope it does continue, and we continue to work hard at controlling expenses and paying the appropriate level of claims. However, it is not in our estimation a --

573

a reasonable or prudent approach to bake in, you know, the last twelve (12) months of favourable experience.
It will continue to roll into our long-term results, and our -- our forecasting. And the intent and the hope -- we -- we certainly hope that this will continue, but, you know, the -- the CMP is an integral part of our plan to manage stable and predictable rates for all Manitobans, which we feel is -- is paramount.
MR. RAYMOND OAKES: The Corporation enjoys a RSR of about 173.5 million, as indicated in PUB-1 point -- 1-16. Is that correct, sir?
MR. MARK GIESBRECHT: Subject to check, I think it might be a different value. If you give us one moment, or -- or if you can point us to that reference.

(BRIEF PAUSE)

MR. RAYMOND OAKES: Well, the oth -- the other reference I had was at was at 2017/'18, the amount was 170 million nine hundred and seventy-five (975), but this morning's testimony talked about a value of 173.5 million.
MR. LUKE JOHNSTON: Mayb -- maybe

574

could we just pull up the pro forma section? We'll -- we'll just take the actual number off of there for you.
MR. MARK GIESBRECHT: Yeah, like, PF-3 or 4?
MR. LUKE JOHNSTON: Do you have PF-3?

(BRIEF PAUSE)

MR. MARK GIESBRECHT: So you'll see total basic equity in the -- the year ending 27 (sic)/2018 was a total equity balance of two hundred and ten (210) -- eight forty-five (845) which was comprised of retained earnings of 170 million and total AOCI of 39.8 million.
MR. RAYMOND OAKES: And the amount of the RSR?
MR. MARK GIESBRECHT: Two hundred and ten (210) million.
MR. RAYMOND OAKES: All right. So a couple of days ago, in your testimony, you talked about Manitobans in terms of their reserves, living paycheque-to-paycheque.
And my question is: How many people living paycheque to paycheque do you know that have

575

over $200 million in a reserve?
MR. MARK GIESBRECHT: I am not aware of anyone who has $200 million in their reserves. That reference that I made was an analogy to emphasize the importance of having an appropriate level of -- of reserve, or call it a rainy day fund, for example. I do not purport that living paycheque-to-paycheque is an ideal state for individuals.
In the same manner, I do not purport that having an undercapitalized company is a desirable state, and will not enable us to manage rates, to keep them stable and predictable, which will in turn allow folks -- and -- and Manitobans to budget for those premiums.
MR. LUKE JOHNSTON: Just -- if -- if I can add to that, we're an insurance company. And based on the line 25, we had forty-four (44), let's say, dollars in our pocket, if -- if they want to use that, and every other public insurer had a hundred dollars ($100) as their target, at least, and the private insurers would have well over two hundred dollars ($200) in their pocket.
So we're by no means asking for a big number, or -- or currently hold a big number compared to anybody -- any other insurance company that I'm

576

aware.
MR. RAYMOND OAKES: I wonder, Kristen, if you could go to CMMG-1-7. And I'm just going to try and bring this back to the motorcycle experience.

(BRIEF PAUSE)

MR. RAYMOND OAKES: Actually, if you could go to 1-6, and figure 1 there, and -- and I just want to look at the actual loss ratios indicated in this table.
And Mr. Johnston, you'll see that 2009, the actual loss ratios for motorcycles was 66.67 percent?
MR. LUKE JOHNSTON: I do.
MR. RAYMOND OAKES: And then in 2011 to -- and 2012, it ranged from 50 percent, roughly, to 60 percent, roughly, in 2012?
MR. LUKE JOHNSTON: That's correct.
MR. RAYMOND OAKES: And we've spoken about this before. 2014, it was 51.76 percent as a loss ratio?
MR. LUKE JOHNSTON: Yeah. We've -- we've also spoken about that we have to read all the numbers, not just the good ones.

577

MR. RAYMOND OAKES: Right.
MR. LUKE JOHNSTON: Yeah.
MR. RAYMOND OAKES: But in those years, what would you anticipate would be the reaction of the motorcycle insured, where loss ratios are some 50 percent, or 60 percent, and the Corporation is -- if the Corporation sought to introduce at that time a CMP provision asking for another 2.1 percent in addition to that?
MR. STEVE SCARFONE: Mr. Oakes, I don't think it's fair to put to Mr. Johnston what the reaction of an insured might be to any particular decision made by the Corporation.

CONTINUED BY MR. RAYMOND OAKES:
MR. RAYMOND OAKES: All right. Not to be speculative, then, in situations such as the 50 or 60 percent, could they be characterized as a -- an unfair or inequitable rate that was applied in those years?
MR. LUKE JOHNSTON: No, and I'll explain why. So the -- the loss ratio on -- on this table clearly moves around quite a bit. The approximately 50 plus percent of motorcycle losses are from serious claims.

578

That said, Mr. Oakes, I would definitely recognize that there has been some better experience for motorcycles, and what happens in the rate-making methodology, as you know, is if -- if motorcycle had better experience, their -- their rate falls.
And if you look at that average rate, in -- on the -- I guess the third column, that would be, that has happened, and so we continue to include good and bad years in the experience, and continue to set rates with the objective that -- that they're break-even.
And of course, CMMG should and can come here and debate whether we've done that forecast correctly, like, for the -- for this policy year and any other policy year. But at least going into the rate-setting process, we are coming forward with the intention that those rates should, on average, be -- be break-even.
MR. RAYMOND OAKES: And you mentioned about the volatility. You can't, with any certainty, tell us in 2019, whether it's going to be a year of actual loss ratios of 50 percent, or 90 percent, can you, sir?
MR. LUKE JOHNSTON: I can -- I cannot.

579

MR. RAYMOND OAKES: In 2010, MPI -- and this is my words -- found approximately $250 million in its provision for unpaid claims in PIPP. And in 2010/'11, the Public Utility Board ordered two (2) rebates, the first of which being three hundred and twenty-one million six hundred and seventy-eight dollars ($321,000,678).
Do you remember those dark days, sir?
MR. LUKE JOHNSTON: The darkness, not so much, but the -- the approximate amounts and how you described where they -- where they came from, I can confirm that.
MR. RAYMOND OAKES: And so the Corporation has an RSR, and we spoke about it, roughly $200 million. It has claim reserves. It has these unpaid PIPP claim reserves, as one (1) example. It has investment reserves.
How many different types of reserves does the Corporation maintain?
MR. LUKE JOHNSTON: Well, there's different reasons and definitions for reserves, so on -- on the claim side, the reserves are there for known claims and -- and the reliability, and they're not -- by no -- they're by no means considered excess monies. They're -- like we talked on the investment side,

those are peoples' claims dollars, and we're going to protect them with -- with safe investments.

Their reserve that we've been talking about in terms of capital maintenance and things like that would be the rate stabilization reserve. That truly is intended to be additional funds to manage volatility, protecting its adverse scenarios, things of that nature. I believe that's what you mean by a reserve. Any other reserve that we have would be for a specific purpose related to, say, liability.

MR. RAYMOND OAKES: I wonder, sir, if by way of undertaking, you could indicate how many types of reserves the Corporation maintains.

MR. STEVE SCARFONE: Just for clarification, Mr. Oakes, are you talking about claims reserves or capital reserves?

MR. RAYMOND OAKES: All of them.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: We -- I'm trying to think about this request, but we'll do our best to perhaps label, you know, looking at -- say the balance sheet, and what these amounts are for, and whether they can be called reserves, and then the purpose of

the. We can try to -- to do that for you.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Thank you, sir. A provision for adverse deviation -- okay.

MR. LUKE JOHNSTON: I'll take a shot at it, and maybe don't write down until Mr. Oakes agrees with it. We will look at the items on the balance sheet, and -- and so as an example, the claims reserves, we will go through and explain what reserves we have, and what purpose they're for, and the amount.

MR. RAYMOND OAKES: I accept that.

--- UNDERTAKING NO. 8: MPI to provide information on what claims reserves they have and what each purpose and amount is

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: With respect to an item called provision for adverse deviation, or as the Corporation calls them, PFADs, are they different than the types of reserves that would be enumerated in that undertaking?

MR. LUKE JOHNSTON: Those provisions

would be part -- within the claims liability reserve, so those can -- those can be separated out as part of the understanding of the -- so there's about 1.8 billion in liabilities. A portion of that is -- is for provisions for adverse deviation. So we can split those out for you as well.

MR. RAYMOND OAKES: But there's a number of PFADs that the Corporation uses, for instance, PFADs on its receivables, and how collectible they are. Is that correct?

MR. MARK GIESBRECHT: I wouldn't call them PFADs, but there are allowances against those kinds of assets, yes.

MR. RAYMOND OAKES: If we could also -- - no, I think that's fine.

With respect to what we heard pre -- in previous years' applications, the Corporation came forward and claimed that it required an interest rate forecast risk. Do you recall that?

MR. LUKE JOHNSTON: Yes, I do.

MR. RAYMOND OAKES: And that was a sum to be collected that is an adjustment going forward.

Do you recall in -- I believe that was in last year's GRA?

MR. STEVE SCARFONE: I believe that

was two (2) years ago, Mr. Oakes, not last year.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: All right. Thank you for that correction. And the Corporation has explained in its testimony that as a result of ALM, and some other changes to the methodology employed by the Corporation, that it no longer needs this interest rate forecast risk collection. Is that accurate?

MR. LUKE JOHNSTON: Yeah. That would be inappropriate for us to ask for now, because we are basically asking for flat interest rates. We're not -- - we're not bearing the risk of a -- what I would call a fairly optimistic bank forecast.

MR. RAYMOND OAKES: Okay. And do you recall roughly what the Corporation was looking to add to its collection from consumers for the IRFR?

MR. LUKE JOHNSTON: Off the top my head, I don't, but I can talk to the back row, if you like, if -- or if you have it there.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: We're looking that up right now.

584

MR. RAYMOND OAKES: Yeah. All right. So now we have a new collection, the Capital Maintenance Provision.

Would you confirm the Corporation hasn't yet completed its Capital Management Plan?

MR. LUKE JOHNSTON: Confirmed.

MR. RAYMOND OAKES: And the effect of the Capital Maintenance Provision is going to be that the Corporation is looking for revenue from consumers of approximately 18 to $20 million. Is that correct?

MR. LUKE JOHNSTON: In -- in -- that's in the ballpark, yes.

MR. RAYMOND OAKES: Okay. And if interest rates rise, there will be, in addition to that 18 to $20 million, additional premium revenue collected from customers as a result of those increase -- interest rate rises after the time of this application and during the applied-for year?

MR. LUKE JOHNSTON: It wouldn't -- we wouldn't get additional premium revenue, but there are other items in terms of our costs that could -- or investment income that would change as a result of improved interest rates on -- on the net basis, it would be favourable to us. It depends on the size of the change how favourable we're talking.

585

MR. RAYMOND OAKES: Okay. And the Corporation doesn't use the rate established by the Bank of Canada, it uses the 10-year Government of Canada bond rate, isn't that correct?

MR. GLENN BUNSTON: Our goal is to try to forecast the yield on our investment portfolio, specifically our fixed income portfolio. And so we use the yield on the Government of Canada 10-year bond as a proxy and we had to spread to that to forecast the yield on our bond portfolio.

So we don't rely on the overnight rate from the Bank of Canada, no.

MR. RAYMOND OAKES: And what increases in the Government of Canada rate has the Corporation seen this year?

MR. GLENN BUNSTON: I believe the Bank of Canada has increased interest rates twice by 25 basis points each time, so far.

MR. RAYMOND OAKES: And is the Corporation aware of any pronouncement to increase that again this year?

MR. GLENN BUNSTON: Well, I don't think the Bank of Canada signals its intentions in advance of the -- the meeting dates.

I understand that market participants

586

do expect future increases from the Bank of Canada, potentially this year and in to 2019 though.

MR. RAYMOND OAKES: I guess they must be different than the Fed, which signalled in the States that interest rates would be increasing. They did that about ten (10) days ago, I think.

MR. GLENN BUNSTON: Well, I think both central banks have indicated they expect their administered overnight rates to increase gradually, but they -- they don't give specific dates and amounts in advance, no.

MR. RAYMOND OAKES: I wonder if the Corporation, just by way of undertaking, could indicate what the required premium for motorcycles would be given two (2) more 25 percent basis rate increases in that -- in that rate?

MR. GLENN BUNSTON: Well, there has been a lot of discussion on interest rate forecasting in -- in some of the Information Requests and I think that we've -- we've shown that there is not a direct correlation between the overnight rate and long-term rates, particularly in the short-term.

And so I think it would be difficult to make an assumption on that basis that if the Bank of Canada increased the overnight rate by 25 basis points

587

that that would immediately translate into a similar increase in the 10-year yield.

MR. RAYMOND OAKES: All right.

MR. LUKE JOHNSTON: Mr. Oakes, sorry to interrupt you. So the -- I believe the PreAsk will update the motorcycle rates and everyone else's based on what we have right now.

It is difficult to speculate how our discount rate will react to additional bank overnight rate changes, but at least you'll have some information with the PreAsk.

MR. RAYMOND OAKES: I accept that. You've talked in these hearings over the past couple of days of how MPI could provide additional calculations to this Board and adjustments in its rate application, should the interest rate go up.

Do you recall those discussions?

MR. LUKE JOHNSTON: I do.

MR. RAYMOND OAKES: So, how would that work if the interest rate goes up prior to the Board concluding its deliberations then presumably then the -- the Board Order could reflect that. But what happens to an increase in interest rates or Government of Canada 10-year bond rates that occur after that drop-dead date?

588

MR. LUKE JOHNSTON: Well, obviously a -- that is for the Board to decide. Like, we can make recommendations, but that's for the Board to decide.

What we -- what -- like, from our perspective what we would hope is that the application, in its entirety, with the exception of the -- you know, say the Government of Canada 10-year bond rate or the current interest rates kind of -- has been fully reviewed and still stands and that one (1) piece of the calculation can be updated as similar to how we're talking about updating it right now.

But that was kind of the idea behind the compliance filing last year. But of course, all parties had to be comfortable doing that.

We've -- we've tried to make it as clear as possible that we are quite happy to have the latest and most updated rates because, as you've heard, we are really -- you know, the tolerance for financial volatility is very low.

So a better rate, a more accurate interest rate as late as possible is good -- is good for us, it's good for ratepayers and I think the PUB would say it's good that -- if we set rates based on the best information.

MR. MARK GIESBRECHT: And just adding

589

to that, you know, the application, the process that we -- that we go through is -- it's at a point in time and we use the best information available to us at that point in time.

After the Order is -- is issued, there could be changes in claims experience, market factors, including interest rates. So, all those things would then be factored into a subsequent GRA process.

MR. RAYMOND OAKES: Just to bring those answers bra -- back to brass tacks, if I can, or exact examples, let's say that those rates are increased significantly, a basis -- 25 basis points or more on December 31.

The result would be that the Corporation would retain additional profit from selling its insurance in 2019, isn't that correct?

MR. LUKE JOHNSTON: Yes, and -- and -- the reason, as we've talked about, that we're -- we're at where we are today, is that the -- the assumption that these bank forecasts are -- are correct has turned out really horribly wrong. I don't know how else to describe that.

So we are, clearly, trying to find ways here to find a happy medium where all parties can be comfortable with what's going forward. We're clearly

590

not comfortable with really aggressive optimism in the interest rates, but we're definitely comfortable with updating the rates as late as possible to -- if we can, you know, somehow find a middle ground here.

MR. RAYMOND OAKES: Would you agree with me, sir, that this $18 to $20 million of the Corporation's hoping to raise called the CMM -- CMP is very handy for the Corporation's executive because once it's ordered to be paid, the Corporation can use it to offset unanticipated expenses, cost overruns, errors in program design or management, or any other problematic issue without having to come back to this Board for funds to address those problems?

MR. MARK GIESBRECHT: The CMP is -- is meant to be able to absorb events that are not -- are outside the norm, the -- the -- you know, the extreme weather events, the large hail events, all those kind of things which could include, you know, market changes, downgrades in market assumptions and equity returns and all these kinds of things.

It -- you know, it could absorb other things, a cost overrun potentially. We are working very diligently on our expenses, and -- and we have shown and you walked us through it earlier, how our costs have been coming down and we continue to work on

591

ensuring that we are having efficient operations.

And so the CMP, the purpose of it, is to be able to offer to Manitobans the ability to offer stable and predictable rates. That's part of our management, it's really -- it's core to our mandate and that is why we are requesting a CMP be introduced into our methodology.

MR. RAYMOND OAKES: I would ask you, sir, to respond to the assertion that this capital is not to protect the Manitoban, the insured from adverse events, but more to protect the Corporation from its own missteps potentially going forward, whether -- and the Corporation has spoken about how it can be wrong on a number of issues. That that's really what this comes down to, it protects the -- the Corporation from adverse events instead of its consumers.

MR. MARK GIESBRECHT: I would not agree with that, in terms of the -- the Corporation is Manitobans. So what we do with the Corporation, how we manage the funds, how we manage our rates ultimately will affect all Manitobans. And so we -- we work at these processes and this methodology with the intent to be able to appropriately manage and share the risks of the road and ensure that we are delivering value to Manitobans and ensuring that we

592

can maintain predictable and stable rates.
And so it is not to absolve management of poor -- poor choices or mistakes. That said, we are not perfect, we will make mistakes from time to time and we -- you know, we will learn from those things.
And we have seen examples in the past where we've had strategies or plans that maybe didn't work out as well as we would have hoped. However, the -- the intent of a CMP is by no means to take away the accountability or the responsibility of management. It is to manage appropriately as an insurance fund using best practice and ensure that we have the ability to manage capital to deliver on our mandate to Manitobans.
MR. RAYMOND OAKES: Thank you for the answer. I have some questions back to the RSR. Kristen, if I could ask you to bring up CMMG-1-11, Appendix 1.
And we're going to look right to the right-hand column, the PUB approved RSR range. And you'll see that before 2005/2006 the PUB approved range was 50 million to 80 million.
MR. LUKE JOHNSTON: Yes.
MR. RAYMOND OAKES: And during those

593

years before 2005/2006, the Corporation still carried out its mandate to provide insurance to Manitobans?
MR. LUKE JOHNSTON: That we did.
MR. RAYMOND OAKES: 2006 and '07 and 2007 and '08, the PUB approved range was 69 million to 105 million. Is that correct?
MR. LUKE JOHNSTON: That's correct.
MR. RAYMOND OAKES: And the Corporation still carried out its mandate to provide insurance to Manitobans?
MR. LUKE JOHNSTON: Yes.
MR. RAYMOND OAKES: 2008 to 2009, the range was 72 million 109 million.
MR. LUKE JOHNSTON: Yes. Sorry. Yes.
MR. RAYMOND OAKES: 2015/'16, saw that jump to 231 million to 366 million, is that correct?
MR. LUKE JOHNSTON: That's correct.
MR. RAYMOND OAKES: Was the provision of insurance in 2015/'16, very different than the provision of insurance in 2014 and prior?
MR. LUKE JOHNSTON: The insurance itself was not, the corporate risk profile was probably a little bit bigger than it was just from the growth in the business, but otherwise somewhat similar between the years.

594

MR. RAYMOND OAKES: When you say that, can you quantify that for me. The increase in the business generated, you know, what percentage changed in the Corporation's risk?
MR. LUKE JOHNSTON: Well the -- the issue here we have, I guess, is that you're going on the assumption that the, you know, 50 to 80 million was -- was it the right number or whatever that means, right.
So the -- the push in the last, you know, five (5) to ten (10) years has been to make the -- the -- the range based on the risks of MPI, that MPI has, and quantify that. So that led to some of these -- you can see it through the ranges at the end that we're -- we're working on that, coming to a consensus on that.
But the old years were basically -- most of those old years were a percentage of premium, so just taking 10 to 20 percent of the current premiums and using that as a range. But that really didn't reflect the risks in our -- that we had on the balance sheet. So we've been working to create new ranges that reflect that.
MR. RAYMOND OAKES: Okay, but I'd still like an answer to my question.

595

You indicated that there was a change to the Corporation in its risk profile and you indicated that -- and that was, I believe, as a result of growth in the units.
What are we talking about in terms of percentage?
MR. LUKE JOHNSTON: That's -- I would have to -- I would have to have a closer look, Mr. Oakes, but the -- the liabilities and growth, I would proxy probably around the 4 to 5 percent range and then the assets would -- would grow with it.
I would have to check for a more detailed number, but would -- it wouldn't be 10 percent, for example, and it wouldn't be 1 percent. I would peg it around 4 to 5 percent.
MR. RAYMOND OAKES: All right.
Well, certainly the range in the RSR didn't go up by 4 percent, it roughly doubled.
MR. LUKE JOHNSTON: Yeah, that -- I -- I can't remember everything about those years, but that was likely from a proposed methodology change to how to calculate that range.
So 366, my recollection was that that was 100 percent MCT target, which that was not ordered the year before.

596

MR. RAYMOND OAKES: Right. But even that 231 million minimum, that's an outlier in fourteen (14) of the fifteen (15) years that are shown there, isn't that correct?

MR. LUKE JOHNSTON: I agree, that's a -- that would reflect a methodology change.

So that -- the instability that you see is from methodology changes, not so much from changes in risk profile. So, this asset liability study is an example of a significant change in risk profile. But for most of this history there haven't been, like, really significant changes in risk profile.

So, you're correct in that our range has had some volatility when we've tried to change methodologies.

MR. RAYMOND OAKES: Would you agree with me, sir, during these fifteen (15) years there were not significant draw-downs on the RSR as a result of insurance issues?

MR. LUKE JOHNSTON: I -- I can agree to that. I think column C would -- would show you that there is quite a few transfers made from other lines to -- to prop up the Basic RSR, and then from 2012/'13 through 2016/'17, those are some rough years for Basic in terms of net losses, 63 million, 69

597

million, a breakeven year basically and then a loss of 56 million and a loss of 123 million.

So that -- that is very troubling when we're talking about RSR targets and the, you know, like our current RSR target, for example, a minimum is in the $120 to $140 million range, we've probably lost double that just in that period.

MR. RAYMOND OAKES: And none of those reflected one-time insurance risks that materialized and caused the Corporation to draw-down on the RSR?

MR. LUKE JOHNSTON: One (1) time extreme events would -- I would say no, if we're, say, talking 1:100. But as I mentioned in our presentation, what we found through a lot of the modelling is that combinations of events tend to be where we get hit the hardest.

So, it doesn't have to be a 30 percent decline in the stock market, but you know, a slight decline, some bad weather, movements on interest rates, a combination of things, a lot of this reflects interest rate changes of these losses.

But combine some interest rate declines with a bad winter, for example, and all of a sudden you've lost, you know, 60 plus million.

MR. RAYMOND OAKES: Now, I don't have

598

the reference for you, but I'm sure the number is familiar to you. MPI forecasts that as of February 28, 2020 it will have 280 million in the RSR.

Can you confirm that?

MR. LUKE JOHNSTON: If we bring up pro forma 3, that would give us what we need.

I believe you said at the end of '19/'20, so 280 million?

MR. RAYMOND OAKES: Right.

MR. LUKE JOHNSTON: Agree.

MR. RAYMOND OAKES: Thank you. And then the court -- the question I have is: If the Corporation does an excellent job of matching assets and liabilities, deciding well on its investment selection and has good investment performance and claims do not develop worse than predicted, then there would be additions to the RSR from the bottom line of the Corporation.

Can you confirm that?

MR. LUKE JOHNSTON: We -- so what -- I can't remember everything that you described, but if we do everything right as forecasted, traditionally we would make no money.

So -- and then if anything goes wrong, we would lose and -- and, right, and sometimes things

599

go well and we make money.

There is no buffer there for -- for error, and we get that, it's the public insurance program. And the -- all this forecast is saying is that with the inclusion of the capital maintenance we'll keep that buffer at a proportionately fair -- or sorry, not fair, but proportionately equal level at 70 percent MCT. That's all that's saying.

MR. RAYMOND OAKES: There's a number of years in which liabilities haven't outpaced growth in the RSR.

MR. LUKE JOHNSTON: I think you're meaning that there's -- there's been good years where we've -- is that fair, that we've had positive results and it's been more than we forecasted, if that's what you mean then for sure that's happened, yes.

MR. RAYMOND OAKES: All right.

Mr. Chairman, I was looking at taking us to the lunch hour and we're very close, I'll just ask a few more questions and then I think we have the morning.

THE CHAIRPERSON: Certainly. Thank you.

CONTINUED BY MR. RAYMOND OAKES:

600

MR. RAYMOND OAKES: The question I have is on road safety, recognizing that's the subject of the technical conference to come, but the list of issues talked about the amount of investment by the Corporation in road safety, asked the Corporation to confirm that it's still only $227,000 spent on motorcycle-specific initiatives in Basic.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Sorry, Mr. Oakes. So this panel, we don't have that at our fingertips. But I'll let Mr. Scarfone...

MR. STEVE SCARFONE: Yes, so Mr. Oakes, on the road safety questions, particularly the expenses, we could either defer that to -- to when our controller is available to answer questions on expenses, or the alternative would be to -- just to provide you with an undertaking at this point on that. Whatever you prefer.

MR. RAYMOND OAKES: I'll take the undertaking. We can adjourn for lunch.

MR. STEVE SCARFONE: Very good. So the undertaking then, just -- can you repeat it for the record? I'm sure you're going to be asked.

601

MR. RAYMOND OAKES: I'm looking for the Corporation to confirm that the amount spent on motorcycle-specific road safety initiatives in the coming GR -- in the coming application is still only the budgeted amount of 227,000 for Basic's share.

MR. STEVE SCARFONE: Very good. Thank you.

MR. RAYMOND OAKES: Thank you.

--- UNDERTAKING NO. 9: MPI to confirm that the amount spent on motorcycle-specific road safety initiatives in the coming application is still only the budgeted amount of 227,000 for Basic's share.

THE CHAIRPERSON: Thank you. We will adjourn until one o'clock.

--- Upon recessing at 12:00 p.m.
--- Upon resuming at 1:08 p.m.

THE CHAIRPERSON: Good afternoon.

602

We're going to resume now. We're going to deal with Mr. Makarchuk so that he get out -- get out of here early. So my understanding is Mr. Oakes has a question for him. And then, Mr. Williams has some questions and at that point you can be excused and we'll continue with Mr. Williams' cross-examination of the panel. I believe that's -- that's the way we're proceeding? Okay. Mr. Oakes...?

MR. RAYMOND OAKES: Thank you, Mr. Chairman.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Mr. Makarchuk -- Makarchuk?

MR. DAVID MAKARCHUK: Manitoba is Makarchuk. Everywhere else is Makarchuk.

MR. RAYMOND OAKES: All right, thank you, sir. Kristen has put up for us page 15 of your report, which is Exhibit 23, and I want to refer you to that middle paragraph, it says:

> "While we acknowledge the Canadian inflation rates have increased significantly since the beginning of the study, 2.8 percent at August 2018 versus 1.4 percent August 2017."

Do you see that, sir?

MR. DAVID MAKARCHUK: I do.

MR. RAYMOND OAKES: And my question is the effect of -- the likely effect of those inflation rates on interest rates.

With your background, can you comment on the fact that these are often a precursor to increased interest rates and the environment?

MR. DAVID MAKARCHUK: There certainly is some correlation between where short-term inflation is and short-term interest rates. Short of inflation to long-term in interest rates, for example, the yield curve certainly has not increased by 1.4 percent over the last twelve (12) month period.

MR. RAYMOND OAKES: And can you just confirm what you would anticipate seeing in the coming year relative to this doubling of the inflation rates that you refer to?

MR. DAVID MAKARCHUK: Our anticipation for inflation?

MR. RAYMOND OAKES: For interest rates.

MR. DAVID MAKARCHUK: For interest rates. Short interest rates or long interest rates?

603

604

MR. RAYMOND OAKES: Short.
MR. DAVID MAKARCHUK: Sure. So short interest rates don't have a lot of importance in the context of the asset liability study. They do have a little bit to the extent that MPI has short-term obligations. Short interest rates have definitely gone up. They haven't even gone up 1.4 percent either.
In terms of where they go from here? The market generally prices in a lot of future expectations. I have no -- I'm trying to think about our Mercer perspective. We probably expect a bit more of an increase in the yield curve, probably fairly parallel. It's plausible it flattens. But much of the increase that we've already seen is likely higher than what we will see going forward over the next year or so. If that was your question.
MR. RAYMOND OAKES: When you say "likely higher," are you talking again about inflation rates though?
MR. DAVID MAKARCHUK: No, I was thinking more of interest rates in answering your question. If anything, I expect inflation to find its way back down to the 2 percent level over the next twelve (12) months or so.

605

MR. RAYMOND OAKES: Thank you for that.
THE CHAIRPERSON: Mr. Williams...?
DR. BYRON WILLIAMS: Yes. And good afternoon, members of the panel.
Just in terms of one (1) preliminary matter, there was a couple questions that may have required us to go in camera with regard to confidential material. In conversations with My Learned Friend's legal counsel for Manitoba Public Insurance, what we're proposing is that we -- we present what would likely have been an undertaking in any event to Manitoba Public Insurance in writing restricting the -- the request only to those who have agreed to the confidential information.
They'll make a determination whether they can accept that undertaking and -- and we'll proceed by there rather than having to -- to go in camera for a couple minutes, if that is satisfactory with the Board? And I believe that's consistent with my conversation with Manitoba Public Insurance.
MR. STEVE SCARFONE: Yes, that's correct, Mr. Chairperson. We have no objection to proceeding in that manner if the Board sees fit.
THE CHAIRPERSON: Yes, we can proceed

606

in that direction. If we need to go into in camera, there's a process that we need to follow that will take about five (5) minutes I understand from the court reporter to set up. We need to create a tape and transcript and that so.
Let's -- let's see if we can proceed in this manner.

CROSS-EXAMINATION BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Thank you. And I can indicate that the -- the area of inquiry that I'll be starting with relates to asset liability issues. Most of my questions will be for Mr. Makarchuk, but some also will go to other members of the MPI panel. They're interrelated so.
And with that being said, Mr. Bunston I wonder if I could ask Kristen to pull up MPI Exhibit 13-3, being the supplemental affidavit of Mr. Bunston sworn September the 7th, 2018.
Do you have that before you, Mr. Bunston?
MR. GLENN BUNSTON: Yes, I do.
DR. BYRON WILLIAMS: And, sir, this was an -- just to backup for a second, you'll agree that in response or in part of a response to a motion

607

to compel certain Information Requests of CAC (Manitoba), you swore an affidavit on August 20th, 2018?
MR. GLENN BUNSTON: Yes, that's right.
DR. BYRON WILLIAMS: And in this document, being Exhibit MPI-13-3 dated September 7th, 2018 you amended that affidavit to eliminate certain errors relating to the spectrum of risk and return for the real liability benchmark; agreed?
MR. GLENN BUNSTON: Yes, that's right.
DR. BYRON WILLIAMS: And directing your attention to paragraph 3, sir, of that affidavit. Starting out in terms of the real liability portfolio, you indicate that initially you had indicated that its projected return was 1.9 percent, correct?
MR. GLENN BUNSTON: That's correct.
DR. BYRON WILLIAMS: Just before Mr. Bunston continues, and My Learned Friend, I'm sorry to interrupt you at this early stage, we may need some direction from the Board on this particular area of cross-examination.
And the reason I say that, Mr. Chairperson, is for this reason: There was, as you know, a motion that was brought and decided upon by the Board. No cross-examinations occurred on the

608

affidavits. There have been -- there's been further evidence produced as a result of that motion.

Certainly, it would be fair for My Learned Friend to cross-examine on the additional material that was produced by Mercer as a result of the motion, but I don't believe that would extend to a cross-examination on an affidavit for a motion that's already been decided.

DR. BYRON WILLIAMS: Mr. Chair, on behalf of our client, we would submit that this is relevant and necessary information and we'll start with this.

If you think of the case theory of Manitoba Public Insurance loudly proclaimed on -- on -- on Monday, it was that the nominal liability benchmarking and ultimate portfolio represented lower risk. And a central element in this hearing is whether Manitoba Public Insurance has misaligned and miss -- failed to account for a significant source of risk being real interest risk.

This information is -- is relevant to that dialogue as it goes to the actual -- and it also goes to the methodology which Manitoba Public Insurance adopted in rejecting the real liability benchmark approach at a very -- a relatively early

609

stage in its analysis.

THE CHAIRPERSON: We'll allow the questioning.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Mr. Bunston, directing your attention back to paragraph 3. In terms of the real liability benchmark, you had initially indicated it's -- it had a lower return of 1.9 percent; agreed?

MR. GLENN BUNSTON: That's correct.

DR. BYRON WILLIAMS: You amended that to show a return of 2.4 percent and that was in response to changed assumptions in terms of interest rates; agreed?

MR. GLENN BUNSTON: If I recall that was because we did analysis based on both Mercer standard interest rate forecast and the int --

DR. BYRON WILLIAMS: The forward.

MR. GLENN BUNSTON: -- interest rates based on the forward curve.

DR. BYRON WILLIAMS: Yes. So you're agreeing with me, sir?

MR. GLENN BUNSTON: Right. So this information that -- the 2.4 percent return is based on

610

the forward curve outlook.

DR. BYRON WILLIAMS: Thank you. And, sir, in your initial affidavit you had suggested that the ra -- rejected portfolio really being the real liability benchmark had a much higher risk of 3 perfect; agreed?

MR. GLENN BUNSTON: Agreed.

DR. BYRON WILLIAMS: And you subsequently amended that assessment to suggest that the real liability benchmark showed a risk of 0 percent; agreed?

MR. GLENN BUNSTON: Correct.

DR. BYRON WILLIAMS: And, sir, with that amended information when you compared the -- in this affidavit being paragraph 3, the estimated risk of the real liability benchmark of 0 percent as against the risk of the nominal portfolio selected of 1.32 percent, you concluded that the risk related to the real liability benchmark was lower?

MR. GLENN BUNSTON: It is lower, yes.

DR. BYRON WILLIAMS: Sir, just directing your attention to paragraph 5 for a second. Here again, sir, you're clarifying and correcting your suggestion that the MPI selected portfolio had lower risk when it -- what you're suggesting here, in fact,

611

it had higher risk?

MR. GLENN BUNSTON: That's correct.

DR. BYRON WILLIAMS: Okay. And the last point, sir -- and we'll get into minimum risk portfolios and liability benchmarks a bit later but in this analysis, when you're comparing, what you were doing was comparing a liability benchmark related to real liabilities versus the actual selected portfolio; agreed?

MR. GLENN BUNSTON: Yes, that's correct.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Makarchuk, I can indicate that I did follow the discussion yesterday and that to the extent that I trespass upon questions previously asked by Board counsel, it's for a different purpose, just so...

But in terms of real return bonds, sir, would it be fair to say, sir, that they have the components of a conventional bond be, namely, coupon payments and ret -- return of principal at maturity?

MR. DAVID MAKARCHUK: That's correct.

DR. BYRON WILLIAMS: And of course,

612

one (1) of the distinguishing features of real return bonds is that the return of principal at maturity is linked to the Consumer Price Index over the respective term; agreed?

MR. DAVID MAKARCHUK: Both the coupons along the way and the principal at the end are related to the increase in CPI along the way.

DR. BYRON WILLIAMS: And I was going to get there but you short-circuited the question so thank you.

In essence, what you're saying is that the coupon payments and adjusted principal repayment are dependent upon future inflation?

MR. DAVID MAKARCHUK: Absolutely.

DR. BYRON WILLIAMS: And so if I were to define the real yield as being the yield in excess of the Consumer Price Index, the real yield for real return bonds is known at the date of issue; correct?

MR. DAVID MAKARCHUK: Date of issue, and then the date of purchase if you're buying it mid way.

DR. BYRON WILLIAMS: Okay, thank you, fair enough. And by that way, real return bonds serve as a explicit hedge against inflation risk; agreed?

MR. DAVID MAKARCHUK: Yes, if an

613

investor wants to guarantee a real return then -- and a real return bond is an excellent way to ensure that they get that real return, that after inflation return.

DR. BYRON WILLIAMS: Thank you. I wonder if I can ask Ms. Schubert, Kristen, to turn to Part 6, Appendix 17, Attachment (a), Page 1753, just for a moment. Page 17. So this would to be slide 1 of this attachment for a second, Kristen. Slide 1. Thank you.

And Mr. Makarchuk, we're just going to this slide just to have you confirm that this was a -- a discussion paper or PowerPoint shared with Mercers -- with Manitoba Public Insurance on or about November 8th, 2017 --

MR. DAVID MAKARCHUK: Correct.

DR. BYRON WILLIAMS: -- agreed?

MR. DAVID MAKARCHUK: Yep.

DR. BYRON WILLIAMS: And it was for the purpose of a discussion to -- to -- to pursue the ongoing discussion related to asset liability matching; agreed?

MR. DAVID MAKARCHUK: Correct.

DR. BYRON WILLIAMS: And now, Kristen, if you wouldn't mind turning to Slide 21.

614

Mr. Makarchuk, I'll suggest to you that on this slide being Slide 21 of Appendix 17, Attachment (a), you're trying to provide some insight into the inflation protection of real return bonds by doing a breakeven inflation rate analysis; would that be fair, sir?

MR. DAVID MAKARCHUK: Yeah, there's a few things going on on this page, but that's one (1) of them.

DR. BYRON WILLIAMS: Okay. And the breakeven inflation rate is calculated as the difference between a conventional bond and a real return bond; agreed, sir?

MR. DAVID MAKARCHUK: Essentially, yes.

DR. BYRON WILLIAMS: And it's intended to capture the capital market's expectations as to future inflation; would that be fair, sir?

MR. DAVID MAKARCHUK: That's definitely one (1) way to interpret -- that's the way we'd interpret it, sure.

DR. BYRON WILLIAMS: And if I were to look at this calculation on page 20 -- 21. Well, let me back up. When we use the term "breakeven inflation rate," is it intended to suggest that you would

615

receive roughly the same total return on a real return bond as you would on a 30-year Long Canada bond if inflation averages the level of 1.6 percent over the next ten (10) years?

Is that what that -- that table is showing us?

MR. DAVID MAKARCHUK: Essentially, yes, and say -- we talked about this a bit yesterday because otherwise arbitrage opportunities, if the fair -- or the market price of a similar duration nominal Canadian bonds, say, a 30 year bond that has a price, there's also a market price of a real return bond. Let's say it's 30 years of duration as well.

We know, clearly, what the yield is on the regular bond. In this case, it was 2.3-ish percent. And we know that the yield when we look at the price of the real return model was at 2.2-ish percent. And so we also know that the real return bond has a real return of .6 percent. So that implies that the market is forecasting long term inflation to be 1.6 percent.

If the market was otherwise expecting inflation to be significantly higher or lower, then the price of the real return bonds would be lower or higher -- I'm pretty sure it flips -- to make sure

616

that there is equivalence.
Does that answer your question?
DR. BYRON WILLIAMS: That answered the question very well, sir. We may come back to this page.
And I know you did have a discussion about nominal and real interest rate again yesterday. But if my -- if I or my client expected inflation to be 2 percent and I needed to maintain purchasing power and earn a 1 percent real rate of return, the -- what I would -- return I would require from my nominal bond would be 3 percent.
Agreed, sir?
MR. DAVID MAKARCHUK: If you wanted 1 percent real, and you expected 2 percent inflation, you would need a yield of 3 percent. Yeah, that's correct.
DR. BYRON WILLIAMS: And of course, in simplistic terms, the real interest rate plus expected inflation allowed us to -- to calculate the nominal interest rate, or could allow us to calculate the nominal interest rate, agreed?
MR. DAVID MAKARCHUK: The yield.
DR. BYRON WILLIAMS: Yes, thank you. So let's say that if I earned 3 percent nominal, and

617

after I take -- I take away the 2 percent inflation, I have 1 percent real purchasing power, agreed?
MR. DAVID MAKARCHUK: Yes. If inflation turns out to be 2 percent, and you'd otherwise have 1 percent purchasing power. Correct.
DR. BYRON WILLIAMS: And if inflation exceeds that 2 percent, its expected assumption -- of course, I'll realize that after the fact -- then I'll lose relative purchasing power, agreed?
MR. DAVID MAKARCHUK: If you held the bond to maturity, sure.
DR. BYRON WILLIAMS: At a high level, sir, you're familiar with the -- the concept of the Fisher effect?
MR. DAVID MAKARCHUK: At a high level.
DR. BYRON WILLIAMS: And I'll suggest to you, sir, it's an economic theory that attempts to describe the relationship between inflation and both real and nominal interest rates, agreed?
MR. DAVID MAKARCHUK: Yeah.
DR. BYRON WILLIAMS: And in essence, it states that the real interest rate equals the nominal interest rate minus expected inflation?
MR. DAVID MAKARCHUK: That's my understanding.

618

DR. BYRON WILLIAMS: And in all that calculation, we're allowing for comp -- compounding as well, agreed?
MR. DAVID MAKARCHUK: Sure. Yeah.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And based upon the Fisher effect theory, it would be fair to say that real interest rates fall as inflation increases, unless nominal rates increase at the same rate as inflation, agreed?
MR. DAVID MAKARCHUK: I prefer to use the term real returns fall --
DR. BYRON WILLIAMS: I'll except that, sir.
MR. DAVID MAKARCHUK: -- as opposed to rates, but I'd otherwise agree.
DR. BYRON WILLIAMS: So if I substitute and suggest you that real interest returns fall as inflation increases unless nominal returns increase at the same rate as inflation. You'll accept that, sir?
MR. DAVID MAKARCHUK: Sure. Yeah.
DR. BYRON WILLIAMS: I want to use one

619

(1) further example, this time in a loan context, sir, perhaps at the risk of belabouring the Fisher effect to death.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Sir, if -- taking a loan example, if the loan has a 7 percent interest rate, and the inflation rate is 2 percent, then the real return on that loan would be 5 percent, sir?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: And you'll agree as well, sir, that at the time the loan agreement is made, the inflation rate that will occur in the future is not known with certainty, correct?
MR. DAVID MAKARCHUK: Any time you make a future investment, you don't know. Correct.
DR. BYRON WILLIAMS: So in this case, the borrower and the lender are using their expectations of future inflation to determine the interest rate on the loan, agreed?
MR. DAVID MAKARCHUK: There's probably multiple factors that go into the determination of the interest rate in loan -- or on the loan. That could be one (1) of them.

620

DR. BYRON WILLIAMS: And that would most likely be a -- a significant factor, sir?
MR. DAVID MAKARCHUK: If it's in today's environment, at 7 percent, there's probably some fairly significant credit things going on, but sure.
DR. BYRON WILLIAMS: Mr. Johnston, I wonder if I could direct your attention to figure DCAT 66. And, do you -- Mr. Johnston, you have that -- you -- you -- before you?
MR. LUKE JOHNSTON: I do. Thank you.
DR. BYRON WILLIAMS: And sir, this is -- for the purposes of the DCAT analysis, an analysis done by the Manitoba Public Insurance of Canadian consumer price index changes in two (2) different time periods, one (1) flowing from 1915 to 1991, and the second from 1992 to 2017, agreed?
MR. LUKE JOHNSTON: That's correct. Yeah.
DR. BYRON WILLIAMS: And this is one (1) of those -- it's a made-in-Manitoba innovation, in some ways, Mr. Johnston, in terms of how we undertake the DCAT analysis, agreed?
MR. LUKE JOHNSTON: This -- this piece, in particular, this was collaborated on, but

621

everybody has this data. So I suspect a lot of peop -- a lot of folks doing an inflation analysis would consider 1990 to 2017 more relevant in the history. Maybe not ignore all of it, but more relevant, for sure.
DR. BYRON WILLIAMS: Thank you. And sir, when we see the term 'standard deviation', would I be -- or would it be correct to suggest to you that that is a number used to tell how measurement -- measurements for a group are spread out from the average, or the mean?
MR. LUKE JOHNSTON: That's true. Yes.
DR. BYRON WILLIAMS: And sir, when I use the term 'mean', or 'average', or 'expected value', would I be correct in -- or would -- would it be correct to suggest that you calculate that by totalling all the values in the data set, and then dividing that total by the number of values that make up the data set, sir?
MR. LUKE JOHNSTON: Yes.
DR. BYRON WILLIAMS: And Mr. Johnston -- sorry, Mr. Johnston?
MR. LUKE JOHNSTON: Yeah, there's a 'T' in there. Yeah.
DR. BYRON WILLIAMS: There's a 'T' in

622

there?
MR. LUKE JOHNSTON: Yeah. There is one, yeah. Yeah.
DR. BYRON WILLIAMS: I -- I can't believe we've been doing this for years.
MR. LUKE JOHNSTON: Exactly. Yeah. It makes a big difference, actually, yeah. Yeah.
DR. BYRON WILLIAMS: Yes. Yes. So we'll amend the record, and you have my sincere apologies. Mr. Johnston -- I'm sure it does make a difference.
In terms of the term 'volatility', would it be correct to suggest that it measures the variance of outcomes from the average?
MR. LUKE JOHNSTON: That's fair.
DR. BYRON WILLIAMS: Okay. And it's -- and it -- we often do that analysis via square roots?
MR. LUKE JOHNSTON: Via, sorry, what?
DR. BYRON WILLIAMS: Square roots.
MR. LUKE JOHNSTON: Yes. Yeah.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Makarchuk,

623

hopefully I'm not brutalizing your last name as much as Mr. Johnston, but if I wanted to determine the volatility of nominal interest rates, sir, I'll suggest to you and ask you to agree that the volatility equation says that the volatility of nominal interest rates depends on three (3) factors, one (1) being the volatility of real interest rates, two (2) being the volatility of inflation, and three (3) being the correlation between real interest rates and inflation, agreed?
MR. DAVID MAKARCHUK: I prefer that we use the term 'volatility of returns' as opposed to rates, but otherwise, agree --
DR. BYRON WILLIAMS: Okay.
MR. DAVID MAKARCHUK: -- assuming we're talking about Government of Canada issues with no credits or other liquidity considerations.
DR. BYRON WILLIAMS: Thank you. If I could ask Ms. Schubert, Kristen, to -- to take us back to Appendix 17, Attachment A, slide 11.
And Mr. Makarchuk, I can take you back to the front page of this slide if you need it, but you'll accept, subject to check, that this is, again, an excerpt from the November 8th draft that we discussed earlier, sir?

624

MR. DAVID MAKARCHUK: It is.
DR. BYRON WILLIAMS: And sir, I'll suggest to you that what this page is -- is representing, at least in part, is an effort by Mercers to evaluate financial risk and find portfolios to minimize them by developing, in this case, fixed income portfolios that attempt to reproduce the fluctuations of the liabilities.
Would that be fair, sir?
MR. DAVID MAKARCHUK: Correct. At this stage, we had collected the cash flow information from MPI. We had done some analysis on that cash flow information, learned about their inflation sensitivities. If the inflation rate was to be fixed, then we had the nominal liability benchmark for their consideration. If the inflation rate was to be variable, then there was the real liability benchmark for their consideration.
DR. BYRON WILLIAMS: And so backing away from the specific liability benchmarks, first -- a -- a moment, sir. You are trying to establish here a proxy for liabilities for the purpose of identifying and measuring risk. Would that be fair?
MR. DAVID MAKARCHUK: That'd be fair.
DR. BYRON WILLIAMS: And whether one

625

was choosing the nominal liability benchmark, or the real liability benchmark at this stage of the analysis, the intent of the portfolio would be to take much of Manitoba Public Insurance's interest rate risk off the table. Would that be fair?
MR. DAVID MAKARCHUK: I think it was premature at this stage in the project to specifically say what they were trying to achieve. We were trying to find a liability benchmark that best represented the obligation so that subsequent to that, MPI could make a decision as to how much risk they did or did not want to retain, and whether they wanted to retain inflation risk or not.
DR. BYRON WILLIAMS: Fair enough, sir, and -- and thank you for that clarification.
When we look at both the nominal and real liability benchmarks, they both had a duration of ten point-three (10.3) years?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: Does that tell us that bonds, let's say under the nominal liability portfolio with a duration of ten point three (10.3) years, minimize the liability asset mismatch? Is that what this is telling us, sir?
MR. DAVID MAKARCHUK: It's telling us

626

that when we look at all of the aggregate cash flow data that MPI provided to us, and we project it out into the future, it has a duration measure of ten point-three (10.3) years. So it's not about the bonds yet. It's just about the obligation.
DR. BYRON WILLIAMS: Okay. Thank you. It's about the liabilities?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: And my apologies for my imprecision. Thank you for correcting me.
In footnote number 1, sir, you'll see a reference that nominal considers fixed future inflation at 2 percent, agreed?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: And footnote number 2 suggests that real reflects sensitivity to future inflation rates?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: I wonder if you could assist my client in understanding with regard to the nominal liability benchmark, what was the assumption of inflation volatility, sir?
MR. DAVID MAKARCHUK: The assumpt -- with regard to the nominal?
DR. BYRON WILLIAMS: The nominal.

627

MR. DAVID MAKARCHUK: It would be zero. No, and -- no volatility for inflation.
DR. BYRON WILLIAMS: And sir, in terms of the real liability benchmark, what was the assumption of inflation volatility?
MR. DAVID MAKARCHUK: It would be on a page that's probably a couple after this, or a couple before it. It's the volatility of the real liability benchmark. I'm not sure if you have that handy or if -- I can dig for it. It should be coming up here.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Your submissions --
MR. DAVID MAKARCHUK: Here --
DR. BYRON WILLIAMS: -- go ahead, sir.
MR. DAVID MAKARCHUK: -- I'm not sure if you're controlling the slides, or whether you just want to move on.
DR. BYRON WILLIAMS: I'm not controlling the slides.
MR. DAVID MAKARCHUK: Do we want to find that number? Is that -- it would be the minimum liability benchmark. I would go back in this

628

presentation.

(BRIEF PAUSE)

MR. DAVID MAKARCHUK: It's Wednesday.

DR. BYRON WILLIAMS: So -- so efficiency-wise, sir, I wonder, perhaps at the break, if we can -- rather than searching for that right now, if we can come back to that. Would that be satis ---

MR. DAVID MAKARCHUK: It would be most easily found in our file report to 84 and 85. It's definitely in there.

DR. BYRON WILLIAMS: Okay.

MR. DAVID MAKARCHUK: So...

DR. BYRON WILLIAMS: Mr. -- and I don't know if this will help you or not, sir, but if we can go to part 6 investment, Appendix 17, Technical Conference Responses, page 3. Go down to question 3, Kristen.

You will see here, sir, a reference to the inflation volatility assumption was 2.6 percent.

Is -- is this the volatility assumption that you were referring to, sir?

MR. DAVID MAKARCHUK: So I would prefer to check. This was back from March. It's

629

possible this is just the volatility assumption for real return bonds.

It's possible it's the inflation assumption -- or the volatility assumption for the liability benchmark, which is roughly two-thirds real return bonds.

DR. BYRON WILLIAMS: So what I'm going to ask, because we've had trouble identifying where this volatility assumption is, sir, for your real liability benchmark.

So I am going to ask by way of undertaking whether Mercer's can provide the volatility assumption for the real liability benchmark prepared for Appendix 17, Attachment (a).

MR. STEVE SCARFONE: Yes, Mr. Williams, we've made a note of that. We thought perhaps that we could point to a document right now, but I don't -- no. So we will make that undertaking.

--- UNDERTAKING NO. 10: Mercer to provide the volatility assumption for the real liability benchmark prepared for Appendix 17, Attachment (a)

630

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: And, sir, still staying with the -- page 3 of the Technical Conference response, if you could also either -- by -- verbally now or by way of undertaking provide an explanation of what the inflation volatility assumption of 2.6 percent referred to in page 3 of this response is related to, by way of undertaking, would you be prepared to do that as well?

MR. DAVID MAKARCHUK: Perhaps, although I will note that was a question for MPI and not for Mercer's. So, I might need some help from my friends.

MR. STEVE SCARFONE: Yes, Mr. Williams. So it will either be the inflation volatility or the reliability benchmark, one of the two. Is that...

DR. BYRON WILLIAMS: So what -- just for clarity for the court reporter, we have two (2) separate undertakings: One is for the -- the -- the volatility assumption used in attachment A to Appendix 17.

The second is an explanation --

MR. STEVE SCARFONE: Where that number came from.

631

DR. BYRON WILLIAMS: -- of what the inflation volatility assumption of 2.6 percent, what model it applies for and what -- what it is used for.

MR. STEVE SCARFONE: Yes.

--- UNDERTAKING NO. 11: Mr. Makarchuk to provide an explanation of what the inflation volatility assumption of 2.6 percent, what model it applies for and what it is used for

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Mr. Bunston I'm sure could do that more elegantly than I did, but...

In terms of the -- I have a reference for this if Manitoba Public Insurance requires it, but I'm going to suggest to you that this figure of 2.6 percent represents the model annualized volatility of future period increases, and that the 2.6 percent volatility corresponds to the compounded annualized volatility over the next ten (10) years. It's PUB 1–83, if you're looking for a reference.

(BRIEF PAUSE)

632

DR. BYRON WILLIAMS: In terms of trying to understand the derivation for this total, the 2.6 percent, I'm suggesting to you corresponds to the compounded annualized volatility projected over the next ten (10) years, agreed?

MR. STEVE SCARFONE: Perhaps just give Mr. Makarchuk an opportunity to review the answer that his firm provided there.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Makarchuk...?

MR. DAVID MAKARCHUK: Sorry, I've not found the 2.6 where I expected to find it...

MR. BYRON WILLIAMS: Okay.

MR. DAVID MAKARCHUK: ...in my background piece. I see that.

If that's something I could take away or deal with at the break, I'd appreciate that.

DR. BYRON WILLIAMS: Yes.

And we're not going to do this as an undertaking quite yet, because I think -- well, I'll leave it to MPI, can we just come back at the break with this answer without a formal undertaking?

MR. STEVE SCARFONE: Yes, it sounds as

633

though Mr. Makarchuk is going to be able to provide that.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Mr. Makarchuk, going back to that slot. Yes, thank you.

At a high level, can you outline the differences in the modeling exercise undertaken between the real liability benchmark and the nominal liability benchmark, leaving aside the assumption about inflation volatility, any other differences, sir?

MR. DAVID MAKARCHUK: Inflation assumption difference is the only difference between these two (2) liability benchmarks.

DR. BYRON WILLIAMS: Okay, thank you. If we can go to slide 24 of this same document.

And Mr. Makarchuk, I'm going to suggest to you that this slide contemplated Mercer's undertaking certain tests, stress tests, scenarios, including a market correction and inflation shock, among others. Agreed?

MR. DAVID MAKARCHUK: Yes, that was the next steps on this page.

DR. BYRON WILLIAMS: And sir, was that

634

analysis done?

MR. DAVID MAKARCHUK: I'm not 100 percent sure that it was. At this point there is a discussion of stress tests scenarios, but this was not the deck that delivered those results.

I believe it was done, from memory, it was not part of our final presentation. I know it was not part of our final presentation.

DR. BYRON WILLIAMS: So sir, could you, by way of undertaking, confirm whether or not these stress test scenarios were done?

MR. DAVID MAKARCHUK: Yes, I think we can add that to our list.

DR. BYRON WILLIAMS: And if they were done, subject to any proprietary information, could you undertake to provide those stress test analysis?

(BRIEF PAUSE)

MR. STEVE SCARFONE: Just for clarification, Mr. Williams, the undertaking is to provide the results of the stress tests if Mercer conducted them, correct?

DR. BYRON WILLIAMS: Yes. And so the undertaking is a) to confirm whether or not the stress

635

tests portrayed on Slide 24 of Appendix 17, Attachment (a) were undertaken, and if so, to provide them.

And I'll add a third element. If they weren't done -- if -- if -- if Mercer is aware of the reasons why they were not done.

MR. STEVE SCARFONE: To provide the reasons?

DR. BYRON WILLIAMS: Yes.

MR. STEVE SCARFONE: Yes.

--- UNDERTAKING NO. 12: Mercer to confirm whether or not the stress tests portrayed on Slide 24 of Appendix 17, Attachment (a) were undertaken, and if so, to provide them. And if they weren't done, if Mercer is aware of the reasons why they were not done.

MR. STEVE SCARFONE: To provide the reasons?

CONTINUED BY DR. BYRON WILLIAMS:

636

DR. BYRON WILLIAMS: Sir, just if we look at stress test scenario, the second one there described as inflation shock, you see reference to high inflation, higher yields.

Do you see that reference, sir?

MR. DAVID MAKARCHUK: I do.

DR. BYRON WILLIAMS: And when you suggest higher inflation would result in higher yields, would it be correct to presume you were referring to nominal yields?

MR. DAVID MAKARCHUK: That's what's implied here, yes.

DR. BYRON WILLIAMS: Would it also be fair to say -- suggest, sir, that in the high inflation scenario real yields might actually fall because of the inverse relation between yields and rises in prices?

MR. DAVID MAKARCHUK: They could fall or rise, depending on how you chose to define the scenario.

There's higher price to earning ratios. So this is a situation where we're trying to illustrate a significant shock to the economy because of runaway inflation or other factors.

DR. BYRON WILLIAMS: And does that

637

higher price to earning ratios, sir, refer to stock prices?

MR. DAVID MAKARCHUK: Yes, it's not referring to bonds.

DR. BYRON WILLIAMS: And is the inference that stock prices would -- would rise in that stocks offer some inflation protection over longer-term horizons?

MR. DAVID MAKARCHUK: Not necessarily. I think this is saying if there is a lot of inflation in the system, one (1) of the things that might happen is that there's higher price-to-earnings ratios, perhaps because earnings are going down for publicly traded stocks.

So there's a few different things I think one could infer drives that simulation.

DR. BYRON WILLIAMS: Thank you. If we could go back to Appendix 17, Attachment (a), Slide 11.

And sir, you -- we have already talked about the duration of about ten (10) years for nominal and -- and real liability benchmarks portrayed on this slide, agreed?

MR. DAVID MAKARCHUK: Yes.

DR. BYRON WILLIAMS: And duration

638

measures the impact of changes in interest rates on the market value of fixed income assets, correct?

MR. DAVID MAKARCHUK: Duration need not be a measure of the assets. In this case it was the liabilities.

DR. BYRON WILLIAMS: Yes, there I go again.

Generally, sir, it measures the impact of changes in interest rates on the liabilities?

MR. DAVID MAKARCHUK: That's right. It's sometimes implied that their average term is 10.3 years, that's technically not what it is, though that's not a bad approximation. It measures the relative percentage change that is associated with industry shift.

DR. BYRON WILLIAMS: And so what this would tell us, sir, in the context of a liability ---

MR. DAVID MAKARCHUK: Or any ---

DR. BYRON WILLIAMS: Yes, but lets focus on liabilities with the ten-year dur -- duration, is that a 1 percent change in interest rates roughly causes a 10 percent change in the Basic liability. Agreed?

MR. DAVID MAKARCHUK: Materially, yes, I agree.

639

DR. BYRON WILLIAMS: Sir, would it also be fair to suggest that duration is higher for liabilities and assets that have more distance cash flows into the future?

MR. DAVID MAKARCHUK: Yes, I would agree with that. Similar to the rule of thumb I just described so.

DR. BYRON WILLIAMS: And so, just for greater clarity on this point, and I thank you for that, if duration is a weighted average of the timing of cash flows, then a duration of 10 for Basic liabilities means that a lot of the clash -- cash flows we're worried about are longer than ten (10) years.

Would that be fair?

MR. DAVID MAKARCHUK: Right. In simple terms, this is not precise, but roughly half of them are shorter than ten (10) years, and roughly half of them are longer than ten (10). There would be a present value consideration in that regard.

DR. BYRON WILLIAMS: And some of them would be extending out well beyond ten (10) years, sir, in terms of cash flows?

MR. DAVID MAKARCHUK: Certainly, I assume there's probably some claimants who are still

640

quite young, probably some could be as long as fifty (50) years.

DR. BYRON WILLIAMS: And just for Mr. Johnston, I think it's CI-7-25 is the -- yes, just go down to the bottom of that page.

And Mr. Johnston, I'm directing your attention to figure CI-2, which discusses the percentage of total ultimate paid in each year.

Do you have that in front of you, sir?

MR. LUKE JOHNSTON: I do.

DR. BYRON WILLIAMS: And, Mr. Johnston, if we take line 1, accident benefits, weekly indemnity and head out all the way to the right, does that suggest that the percentage of total ultimate paid in terms of this particular cover 48 percent of it extends beyond ten (10) years?

MR. LUKE JOHNSTON: Yes, our -- that's our expectation on the -- what percentage of payments would be beyond ten (10) years, yes.

DR. BYRON WILLIAMS: And similarly, sir, if we took line number 2, accident benefit other indexed and moved all the way out to the extreme right, this suggest that your expectation is that 39 percent of the total ultimate paid will be beyond (10) years, ten (10) years and beyond?

641

MR. LUKE JOHNSTON: That's correct.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Makarchuk, when we're thinking of the exercise that Mercer's performs for its clients, one -- one -- one (1) element is the development of a liability benchmark portfolio as a proxy for liabilities to identify and measure the risks, agreed?

MR. DAVID MAKARCHUK: Agreed.

DR. BYRON WILLIAMS: And then an important second step is to optimize the portfolio, and that's about managing that risk, correct?

MR. DAVID MAKARCHUK: It's about identifying the risks and the opportunities and then making asset decisions, sure.

DR. BYRON WILLIAMS: And distinguishing between those separate steps, one, doing the liability benchmark, and secondly, optimizing the portfolio, the ultimate choice in optimizing the portfolio may be not to invest in the same assets as those in the liability benchmark portfolio. That's conceivable?

MR. DAVID MAKARCHUK: Yes, many

642

investors invest in assets, not in the liability benchmark.

DR. BYRON WILLIAMS: And so it's important to maintain analytic distinction between those two (2) steps, sir?

MR. DAVID MAKARCHUK: Right. The liability and modeling decision is separate from the asset class investment decisions.

DR. BYRON WILLIAMS: And the optimal asset allocations that flow from an optimizing process, in this case, could depend materially on whether a nominal or real liability benchmark is selected initially, agreed?

MR. DAVID MAKARCHUK: There's certainly a number of factors, return, risk, cost and time factors that ultimately decide or determine the -- the final portfolio. But otherwise, yes, the liability benchmark is an important foundation for that discussion.

DR. BYRON WILLIAMS: Kristen, if you could pull up the CAC second round Information Request 2-3, please.

And I wanted to direct you -- Kris, it's CAC-MPI 2-3. And I want to start on the first page under question, under tracking errors.

643

Mr. Makarchuk, do you see that?

MR. DAVID MAKARCHUK: I do.

DR. BYRON WILLIAMS: And generally, sir, can we agree that tracking errors measure the standard deviation of the return difference between two (2) groups of assets or liabilities?

MR. DAVID MAKARCHUK: It's not my preferred use of the term "tracking error," but it's the context in which the question was phrased.

DR. BYRON WILLIAMS: What term would you prefer, sir?

MR. DAVID MAKARCHUK: For --

DR. BYRON WILLIAMS: Well, let's try this again --

MR. DAVID MAKARCHUK: For the delta between the nominal liability benchmark and the real liability benchmark?

DR. BYRON WILLIAMS: Yes. For the anticipated volatility between the two (2) portfolios.

MR. DAVID MAKARCHUK: So they're both benchmarks on their own; neither of them is a portfolio, per se. They would have different characteristics in terms of future -- future returns and future volatility.

I don't mind calling it a tracking

644

error for the purpose of today's conversation.
DR. BYRON WILLIAMS: Okay, thank you. And going to the response to (a), when Mercers evaluated the tracking area -- sorry.
For the purposes of this conversation, the tracking error or the variation in future returns between the nominal liability benchmark and the real liability benchmark as summarized via the anticipated volatility, the anticipated volatility between these two (2) portfolios using forward rate assumptions is 4.5 percent; agreed?
MR. DAVID MAKARCHUK: Yes, that's what it says, yeah.
DR. BYRON WILLIAMS: And I take it Mercers never undertook such a calculation in terms of the anticipated volatility between these -- these two (2) portfolios using the standard in interest rate forecast?
MR. DAVID MAKARCHUK: I think the IR was to use the forward assumptions.
DR. BYRON WILLIAMS: Okay.
MR. DAVID MAKARCHUK: I doubt that we did it otherwise.
DR. BYRON WILLIAMS: And had you undertaken this analysis before it was requested by my

645

client, sir?
MR. DAVID MAKARCHUK: I don't believe so. We -- we did compare and contrast the real and liability in nominal liability benchmarks. You showed me some of those slides earlier. I don't believe we specifically calculated the difference in the volatility between the two (2).
DR. BYRON WILLIAMS: Okay. Thank you.
I wonder, Ms. Schubert, if you can turn to PUB-MPI 1–86.
And, Mr. Makarchuk, I know you were asked a few questions about some of these issues by My Learned Friend Ms. McCandless, yesterday.
But if we go to question B for a second, you'll see that an explanation is being sought in terms of why the forward curve interest rate was used rather than Mercer's standard interest rate forecast, agreed?
MR. DAVID MAKARCHUK: I see that, yeah.
DR. BYRON WILLIAMS: And actually, I think this question may be more properly put the MPI. I'm not sure so.
But going to -- in terms of the answer, Mr. Bunston, I don't know if this is you or Mr.

646

Makarchuk, but in terms of the answer no, why not, the -- directing your attention to the second and third line, the Corporation believed that the more modest increase in interest rates reflected in Mercer's forecast based upon the forward curve was more realistic; agreed?
MR. DAVID MAKARCHUK: That's correct, yes.
DR. BYRON WILLIAMS: And then the next line suggests that use of Mercer's standard interest rate forecast resulted in capital losses for the fixed income holdings. Agreed?
MR. DAVID MAKARCHUK: Correct.
DR. BYRON WILLIAMS: Now, Mr. Makarchuk or Mr. Bunston, can you explain why that -- that would've happened?
MR. STEVE SCARFONE: Just to be clear, why -- what would've happened? Capital losses for the fixed income holdings?
DR. BYRON WILLIAMS: Yes, why would capital losses for the fixed income holdings have flowed from use of Mercer's standard interest rate forecast?
MR. GLENN BUNSTON: Well, that was because Mercer's standard interest rate forecast

647

assumed that a reversion to mean. So long term interest rate to -- to the average long-term interest rate, just as the banks have forecasted for some time and rising interest rates cause the market value of bonds to fall.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Okay. And does Manitoba Public Insurance have the results of the implications for its portfolios in the event that Mercer's standard interest rate forecasts were used? These results were shared with you.
MR. GLENN BUNSTON: We had some preliminary results based on the standard interest rate forecast, yes.
DR. BYRON WILLIAMS: Would Manitoba Public Insurance be prepared to provide those by way of undertaking?
MR. STEVE SCARFONE: Yes. That's an undertaking we're prepared to make, provided Mercer doesn't have any concerns about any confidentiality issues that might arise from that undertaking.
MR. DAVID MAKARCHUK: I believe this was -- your question was somewhat a parallel analysis using our standard interest rate forecast as opposed

to the forward rates. Is that correct?
DR. BYRON WILLIAMS: That's right.
MR. DAVID MAKARCHUK: We would have no concerns specific to that point.
DR. BYRON WILLIAMS: So just in terms of clarifying the undertaking, we're asking for the analysis as referred to in PUB-MPI-1-86, based upon use of Mercer's standard interest rate forecast rather than the forward curve, agreed?
MR. STEVE SCARFONE: Agreed. To the -- Mr. Bunston said that he had some of those -- that analysis in his possession.

--- UNDERTAKING NO. 13: MPI to provide the analysis as referred to in PUB-MPI-1-86, based upon use of Mercer's standard interest rate forecast rather than the forward curve

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Mr. Makarchuk, I take it that for the purposes of this analysis Mercers would not recommend just assuming interest rates

stayed flat?
MR. DAVID MAKARCHUK: Could you repeat the question, please?
DR. BYRON WILLIAMS: In doing an analysis like this, as opposed to using the forward curve or the standard interest rate forecast, Mercers would not recommend using -- doing such analysis -- analysis, assuming that interest rates stayed flat?
MR. DAVID MAKARCHUK: We would not recommend doing analysis, assuming interest rates stay flat or constant.
DR. BYRON WILLIAMS: Why not?
MR. DAVID MAKARCHUK: The curve is made up of many different points, our expectation -- our standard interest rate forecast, which all of our investment professionals or actuarial professionals across Canada use are based on our national assumptions. They were part of the package. We assume as a firm that there will be a gentle rise in the yield curve over the next few years returning to equilibrium, at some point, that's our firm view.
DR. BYRON WILLIAMS: Thank you. MPI, if you need a reference for this, it's the second page of CAC-2-29. And just scroll down a bit more, Kristen, thank you.

Would it be accurate to suggest that MPI's investigations of the SAAQ investment portfolio as of December 31st, 2017, suggested that within their fixed income portfolio of -- that there was about 10 percent in real return bonds?
MR. LUKE JOHNSTON: Yes, that's -- we just asked the question and this is the information they gave, yeah.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Makarchuk, you'll recall our discussion of the liabilities of Manitoba Public Insurance and the reality that -- that a significant part of them, in terms of -- extend out beyond ten (10) years.
You remember that conversation, sir?
MR. DAVID MAKARCHUK: I do.
DR. BYRON WILLIAMS: And those liabilities, being those extending beyond ten (10) years, are inherently more challenging to predict just given the passage of time, sir.
What will happen to those liabilities?
MR. DAVID MAKARCHUK: Certainly it's mortality and other impacts that make them less

certain than those in the next year or two (2), yes.
DR. BYRON WILLIAMS: In Mercer's analysis was there any constraint imposed that would say some smaller allocations in terms of real return bonds couldn't be made to hedge the longest part of the liability cash flow stream?
MR. DAVID MAKARCHUK: There were no constraints on real return bonds in the asset liability work that we did.
DR. BYRON WILLIAMS: And was Mercers asked to consider a two-tiered duration policy, involving both real and nominal assets?
MR. DAVID MAKARCHUK: To model the liabilities or to determine asset portfolios?
DR. BYRON WILLIAMS: To model -- sorry, to determine asset portfolios.
MR. DAVID MAKARCHUK: Can you say the question again with the "determine asset portfolios," please.
DR. BYRON WILLIAMS: For the purpose of determining asset portfolios, was Mercers asked to consider a two-tiered duration policy involving real and nominal assets?
MR. DAVID MAKARCHUK: We never discussed a two-tiered duration policy.

652

DR. BYRON WILLIAMS: Mr. Chair and members the panel, subject to my review of notes, I think those are my questions for the witness from Mercers.

There was one (1) question that we were going to see if we could get an answer to over the break. So I'm just wondering if that might be an appropriate time to take a break?

THE CHAIRPERSON: So why don't we take twenty (20) minutes and you can discuss it with the witness and with MPI and see if we can get the answer on the record while he is here.

Then I assume that you're done with Mr. Makarchuk?

DR. BYRON WILLIAMS: There are undertakings, but I am -- we'll have to figure how to proceed if there's any cross-examination or --

THE CHAIRPERSON: Okay, we will adjourn for twenty (20) minutes.

--- Upon recessing 2:15 p.m.

--- Upon resuming at 2:46 p.m.

THE CHAIRPERSON: Okay, if we can resume. Mr. Williams, were you able to talk to MPI

653

about the issues?

DR. BYRON WILLIAMS: So, first of all, just in terms of the confidential, we'll do that via writing, and we'll see if --

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: -- the proposed undertaking is satisfactory.

There was one (1) question out -- outstanding relating to the source -- relating to the 2.6. And I don't know if, Mr. Makarchuk, you have any more information you can share with us.

MR. STEVE SCARFONE: If we could -- so I think what Mr. Williams is referring to is the Information Request MPI -- or sorry PUB-1-8-3.

DR. BYRON WILLIAMS: Yes, that's correct.

MR. STEVE SCARFONE: If we could pull that up just for a second so we have it before the witness. And just scroll down -- or scroll up, please.

So the question, as I understood it -- and I don't believe, Mr. Williams, that an official undertaking was given on this particular question that you had, but it reads:

"The inflation volatility assumption

654

was 2.6 percent."

And our understanding was you wanted confirmation from Mercer what that 2.6 entailed; is that correct?

DR. BYRON WILLIAMS: Yeah, and just -- if we can go really to the bottom of this -- this slide, I didn't -- I wanted confirmation that the 2.6 percent volatility estimated corresponds to the compounded annualized volatility estimated over the next ten (10) years.

MR. DAVID MAKARCHUK: Correct.

DR. BYRON WILLIAMS: Okay, that was easy.

MR. STEVE SCARFONE: And I do believe --

DR. BYRON WILLIAMS: -- do have undertakings related to this, in terms of how it was used in the models but that -- that was all we were trying to get at here.

MR. STEVE SCARFONE: Yes, and then -- so I wanted to -- that's exactly what I wanted to clarify, is that we've answered the question that wasn't provided by way of undertaking. The balance of the answers that Mercer will provide will come later.

DR. BYRON WILLIAMS: Yes, and there

655

are no -- yes, that's correct.

From our clients' perspective Mr. Makarchuk can be excused with thanks. We're not speaking for the Board.

MR. DAVID MAKARCHUK: Thank you.

THE CHAIRPERSON: I'll ask the Board if -- if the Board has any questions? No...?

Mr. Scarfone, do you have any redirect for Mr. Makarchuk?

MR. STEVE SCARFONE: I do have one (1) question on redirect. If Kristen could pull up CAC-2-2-9, please.

RE-DIRECT EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: And this, Mr. Makarchuk, if you can scroll down to the answer, Kristen, please.

This was the question, Mr. Makarchuk -- or a document that was shown to -- to us earlier about a profile that the Quebec jurisdiction has in its investment -- its fixed income portfolio specifically -- that shows a composition of real return bonds of 10 percent.

Do you see that, sir?

MR. DAVID MAKARCHUK: I do.

656

MR. STEVE SCARFONE: Would you agree, sir, that any particular investment portfolio, including a fixed income such as the one shown before us, will depend largely on the risk profile that that particular investor has?

MR. DAVID MAKARCHUK: I'd agree with that.

MR. STEVE SCARFONE: Thank you. And that was my only question on redirect.

THE CHAIRPERSON: Thank you, Mr. Makarchuk. Thank you for your assistance, you may be excused.

MR. DAVID MAKARCHUK: Thank you.

(WITNESS DAVE MAKARCHUK STANDS DOWN)

THE CHAIRPERSON: Mr. Williams, did you want to resume your cross-examination?

DR. BYRON WILLIAMS: I did. Thank you, Mr. Chair and members of the panel. I did want to introduce four (4) exhibits. The first which we would propose be marked as CAC Exhibit 14 is a one (1) page speaking of -- to the Bank of Canada raising overnight rate target to 1 1/2 percent.

657

--- EXHIBIT NO. CAC-14: One (1) page speaking to the Bank of Canada raising overnight rate target to 1 1/2 percent.

DR. BYRON WILLIAMS: The second is a excerpt from a October 2016 PowerPoint of Dr. Sean Cleary titled Interest Rate Forecast Issues and we would recommend that be marked as CAC Exhibit 15.

--- EXHIBIT NO. CAC-15: Excerpt from a October 2016 PowerPoint of Dr. Sean Cleary titled Interest Rate Forecast Issues

DR. BYRON WILLIAMS: Next are excerpts from PUB Board Orders 128/'15, 162/'16 and 130, should say, 17, excuse me, and that is CAC Exhibit 16.

And would just indicate that the tab 3 should say 130/'17 not 7.

--- EXHIBIT NO. CAC-16: Excerpts from PUB Board Orders 128/'15, 162/'16 and 130/'17

658

DR. BYRON WILLIAMS: And finally, is an exhibit from when I was young, CAC Exhibit 17, which is from Board Order 151/00.

--- EXHIBIT NO. CAC-17: Board Order 151/00

DR. BYRON WILLIAMS: If that's satisfactory to the Board, I'm ready to proceed.

THE CHAIRPERSON: Thank you.

CONTINUED CROSS-EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Just for MPI, I'm -- I'm now going to the interest rate forecast, and I don't know, Mr. Johnston, will that be you?

MR. LUKE JOHNSTON: It could really be anyone on the panel but, yeah.

DR. BYRON WILLIAMS: Then I'll just -- I'll direct it generally to the panel, then.

Defining monetary economics to include -- involve the study of the rule of money and the financial system in -- in the economy, including the role of interest, would it be fair to say that the MPI panel does not profess expertise in monetary economics?

MR. LUKE JOHNSTON: I -- I do not. I

659

won't for the rest but I would assume they would have a similar answer.

MR. GLENN BUNSTON: Well, I'm a chartered financial analyst but I'm not an economist.

DR. BYRON WILLIAMS: So you do not profess expertise in monetary economics as so defined, sir?

MR. GLENN BUNSTON: I do not.

DR. BYRON WILLIAMS: Mr. Giesbrecht...?

MR. MARK GIESBRECHT: I also do not.

DR. BYRON WILLIAMS: And defining time series econometrics as the use of statistical methods and estimates and test models of the evolution of economic outcomes such as interest rate, does anyone on the MPI panel profess expertise in time series econometrics?

MR. MARK GIESBRECHT: I do not.

MR. LUKE JOHNSTON: That specific topic, expertise no but actuarial science would -- involves, as you know, quite a bit of statistics and modelling so not that topic, but statistical concepts in general, yes.

DR. BYRON WILLIAMS: And in -- and including some time series analysis?

660

MR. LUKE JOHNSTON: That's right, yeah.
MR. GLENN BUNSTON: No, I do not profess to be an expert in time series economics or --
DR. BYRON WILLIAMS: Econometrics.
MR. GLENN BUNSTON: Econometrics. Thank you.
DR. BYRON WILLIAMS: Ms. Schubert, if we could turn to part 6, section 16.1 of investments, page 78. That's not the page. Just one (1) second. I'm just going to step away from the mic for a second.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: I'll just indicate Ms. Schubert has done a phenomenal job reading my messy handwriting. I take full ownership for the -- for the glitch.
Mr. Johnston, you've spoken a lot about interest rate risk during the course of this hearing, sir.
MR. LUKE JOHNSTON: I have, yes.
DR. BYRON WILLIAMS: And leaving aside issues related to the interest rate forecast, one (1) of the efforts that Manitoba Public Insurance has made

661

to address issues related to interest rate risks took place on or about 2014, when it changed the duration bandwidth from plus or minus two (2) years to plus or minus one (1) year. Do you recall that, sir?
MR. LUKE JOHNSTON: That was an evolution, but the -- the idea of just matching would have come before that, even, but -- so this is making that policy even -- even tighter, yeah.
DR. BYRON WILLIAMS: And then a -- a second element of that change, sir, in terms of addressing interest rate risk, was to attempt to match the duration of the fixed income portfolio to the corporate claims liability duration on or about 2015?
MR. LUKE JOHNSTON: That's right.
DR. BYRON WILLIAMS: And a third pending step relates to the segregation of the commingled investment portfolio, so the matching in terms of Basic liabilities becomes more precise, agreed?
MR. LUKE JOHNSTON: Agreed. If I'm -- and if -- if I could just add to that, predating even some of this work, we -- MPI didn't even have the capability to model interest rate impacts, and that was a concern of the -- the PUB and MPI, so the -- the models to even do -- do this work were probably around

662

the 2011/2012 period.
DR. BYRON WILLIAMS: And Mr. Johnston, just in -- you'll see the headline on this section relates to reducing interest rate risk has been a focus of MPI since 2014, agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And you'll agree that the Public Utilities Board and others have been partners with MPI in -- in seeking to address interest rate risk since at least that time, sir?
MR. LUKE JOHNSTON: I would -- I would assume so, important risk, yes.
DR. BYRON WILLIAMS: And sir, I want to direct your attention to CAC Exhibit 16, which is the excerpt from the Board Orders. And starting about tab 1, page 43 of 83 of Order number 128/'15. Yes, scroll down. That's perfect, Kristen. Thank you.
And Mr. Johnston, part of your duties in -- in your role at MPI are to follow up on issues relating to interest rate risk that may flow from PUB orders. Would that be fair, sir?
MR. LUKE JOHNSTON: That's fair.
DR. BYRON WILLIAMS: And in your duties, you have to be familiar with Public Utility Board Orders, as they may rely -- relate to -- to your

663

work, and to the extent that the Public Utilities Board provides advice that may be of interest to your duties, agreed?
MR. LUKE JOHNSTON: Yes.
DR. BYRON WILLIAMS: And you see here, sir, without -- go into the second paragraph, starting -- the Board started in Order 151 thir -- 13, the Board, expressing in that Order, the view that the Corporation's current approach to duration mismatching was making it too vulnerable to interest rate risk?
MR. LUKE JOHNSTON: I see that.
DR. BYRON WILLIAMS: And certainly, that was advice that was being provided by the Board to Manitoba Public Insurance?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And if we go down towards the bottom of that page, you'll see a reference from Board Order 135/'14, with the Public Utilities Board, in that Order, advising MPI to seek to substantially immunize itself from the impact of changing interest rates, agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And again, just towards the top of page 44, you see reference to an ALM Study and direction again from this 2014 Order for

664

MPI to take steps to substantially mitigate interest rate risk, agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: If we could go to the -- two (2) more pages in, under "Board findings," and to the third paragraph on that page.
Again, you see the express concern by the Public Utilities Board of the volatility and the value of the investment portfolio, and the concern about interest rate -- rate risk in the fact that Basic was not fully immunized, agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: If we can go to Order 162/'16, which is tab 2, and specifically to page 51.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And towards the bottom of that page, you'll see guidance from the Public Utilities Board and findings in the first paragraph under 4.7 of an ongoing concern with exposure to interest rate risk of Manitoba Public Insurance, sir?
MR. LUKE JOHNSTON: I see that.

665

DR. BYRON WILLIAMS: And at the bottom of that paragraph, the concern provided that, notwithstanding that the -- Aon recommended ALM strategy provide substantial protection from change in interest rates, that the risk to Basic and its ratepayers remain material, agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: If we can go to the third tab, Order 130/'17, page 63, under section 6.5, interest rate risk, the second and third paragraphs.
And sir, you see the Public Utilities Board noting again, from Order 162/'16, its concern with continued exposure to interest rate risk and a view that an ALM study should be conducted more frequently. Do you see that reference, sir?
MR. LUKE JOHNSTON: Yes, I do.
DR. BYRON WILLIAMS: And you'll agree, going down to the next paragraph, that Manitoba Public Insurance did not file an updated asset liability matching study for the purposes of last year's application?
MR. LUKE JOHNSTON: If -- I -- I didn't want to interrupt, because I know you're going to go through this, but if you're done, but if I can

666

just make a comment?
DR. BYRON WILLIAMS: I have one (1) last --
MR. LUKE JOHNSTON: Okay.
DR. BYRON WILLIAMS: -- thing --
MR. LUKE JOHNSTON: I'll let you do that. Yeah.
DR. BYRON WILLIAMS: -- Mr. Johnston, but certainly, thank you for your courtesy.
Just going to page 66 -- and Mr. Johnston, we don't even need to go to the page 63, but you'll agree that one (1) of the findings of the Board in this Order was that given that interest rates have began to rise in recent months, that it does not accept that the naive forecast should be relied on for rate-setting purposes? That's page 69, if you need it, sir.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I see that now. Yes. Yes.
DR. BYRON WILLIAMS: Okay. And Mr. Johnston, thank you.
MR. LUKE JOHNSTON: Thanks. So just

667

to be clear, we, the Corporation shares those concerns that the Board has.
To give a little bit of history, we have had a corporate duration matching strategy that matched fixed income assets to our claims liabilities. We did have an issue with how those portfolios were segregated, and that the created some problems on the -- on how -- how gains and losses were allocated by lines of business, which the Corporation admitted, and -- and segregating portfolios is one (1) of the ways to fix that.
For the most part, neutralizing interest rate risk to the claim liabilities themselves has been something that MPI's had in place for some time now, at least since 2014. That strategy does not shield us from the pricing risk of -- of optimistic interest rate forecasts.
So as I talked about yesterday, we can match assets and liabilities as much is we want. We can go right to the cash flow basis, but if we use a poor assumption for pricing, there is no escaping that price that you -- you set here. If it's based on a really high interest rate and priced too low, we will get the consequences of that, and of course, vice versa.

668

So just to be clear, we can't -- or at least we haven't found a way to -- to shield ourselves from pricing wrong in the first place, but we can definitely match better, as we've shown through the ALM study for the liabilities that we do have, so the prior year risk should be neutralized.

DR. BYRON WILLIAMS: And just where I was going, sir, Manitoba Public Insurance does not wish to leave any inference on the record that the Public Utilities Board has not been vigilant in addressing issues related to interest rate liability matching risk, agreed?

MR. LUKE JOHNSTON: Agreed. I just didn't want the impression that the Corporation didn't also care about this risk, and then do what it could to neutralize it.

DR. BYRON WILLIAMS: And sir, you and I, indeed, have gone through circumstances where it might appear where the Public Utilities Board was urging Manitoba Public Insurance to be more vigilant in terms of liability mis -- mismatches, agreed?

MR. LUKE JOHNSTON: It's -- yeah. It's very clear that this is a major concern to the Board.

MR. MARK GIESBRECHT: If I can also --

669

excuse me. If I can also just add, in my time with MPI for past year, it's -- it's been clear that both management and our Board do share this concern. It -- it is a -- it's a core fundamental issue of insurance, and especially when you have the long-term liabilities that we have.

And that there's been extensive work done on this in -- in the past number of months, as it is core to what we do. So it -- it -- by no means is it taken lightly. It -- it is a core issue to MPI.

DR. BYRON WILLIAMS: Thank you, Mr. Giesbrecht.

If we can turn, Kristen -- Ms. Schubert, to CAC-1-8, response (a). And Mr. Johnston, MPI is confirming in this response that it does not rely on any authority from the Bank of Canada or the United States Federal Reserve to provide support for the Government of Canada ten (10) year -- ten (10) year bond yield forecast, agreed?

MR. LUKE JOHNSTON: Agreed.

DR. BYRON WILLIAMS: And in terms of question -- you'll also see in answer (b) that MPI does rely upon Dr. Sean Cleary in support of the naive forecast, agreed?

MR. GLENN BUNSTON: That's correct.

670

DR. BYRON WILLIAMS: And if we could go to CAC Exhibit 15, being the excerpt from the interest rate forecast of -- sorry, the interest rate forecast issues PowerPoint of Dr. Cleary. And thank you, Mr. Bunston, for the -- the assistance.

Going to page 17 of that answer, it's Mr. Cleary's advice -- Mr. Bunston -- sorry -- let me try that again -- Dr. Cleary's advice to the Public Utilities Board back in 2015 was that a 50/50 approach should be employed in terms of interest rate forecasts, sir?

THE CHAIRPERSON: Mr. Williams, I believe it was 2016.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: 2016, I apologize.

MR. GLENN BUNSTON: But that's the title of the slide here, yes.

DR. BYRON WILLIAMS: And sir, if you go to page 18, at the bottom, the last bullet, you'll see Dr. Cleary describing his view that the 50/50 approach should be used to obtain the best estimate?

MR. GLENN BUNSTON: I -- I see that, and I also see the bullet point above that that says

671

that the naive would have improved the forecasting accuracy significantly, which is shown on the previous page as well, in terms of the -- the errors relative to actuals for SIRF, naive, and 50/50, with naive having the lowest error, at 39 1/2 percent.

DR. BYRON WILLIAMS: Thank you. And Dr. Cleary's advice was for forecasting purposes, 50/50, sir?

MR. GLENN BUNSTON: That was his recommendation at the time, yes.

DR. BYRON WILLIAMS: Do you have any evidence, sir, that his recommendation has changed?

MR. GLENN BUNSTON: I do not, no.

DR. BYRON WILLIAMS: Mr. Bunston, you had a bit of a discussion, I think, this morning with Mr. Oakes about the Bank of Canada.

Do you recall that conversation?

MR. GLENN BUNSTON: I do.

DR. BYRON WILLIAMS: It would be fair to say, sir, that given the nature of its liabilities, MPI must stay attuned to issues related to interest rates and inflation, agreed?

MR. GLENN BUNSTON: Agreed.

DR. BYRON WILLIAMS: And MPI, or you specifically, do not claim expertise with regard to

672

monetary policy, correct?
MR. GLENN BUNSTON: Well, my background as a chartered financial analyst covered economics, it covered investing in fixed-income assets, so I have some knowledge of that area, but I am not a -- I'm not -- not an economist. That's -- no.
DR. BYRON WILLIAMS: And sir, given the role of the Bank of Canada in terms of monetary policy and the economy generally, it's important for MPI to stay abreast of policy statements of the Bank of Canada? Would that be fair?
MR. GLENN BUNSTON: It's important for us to monitor the fixed income and interest rate markets, yes.
MR. LUKE JOHNSTON: That said, there's a lot of comments about expertise being thrown around here. I monitor, but rely completely without, you know, viewing any of, you know, the history or the accuracy of those -- that information would be foolish.
DR. BYRON WILLIAMS: And fair enough, Mr. Johnston. Either to you or Mr. Bun -- Bunston, but it is important for MPI to be aware of statements of the Bank of Canada as they may relate to interest

673

rates and inflation, agreed?
MR. GLENN BUNSTON: Certainly, the Bank of Canada has impacts on inflation and interest rates, so yes.
DR. BYRON WILLIAMS: And those statements may have exp -- effects on expectations in the marketplace, correct?
MR. GLENN BUNSTON: Yes, the Bank of Canada's actions have direct impact on inflation expectations, certainly.
DR. BYRON WILLIAMS: And as an ordinary course of business, MPI would monitor and review quarterly Bank of Canada statements, given concerns over interest rates and inflation, correct?
MR. GLENN BUNSTON: Correct.
DR. BYRON WILLIAMS: And just drawing your attention to CAC Exhibit 14, and in particular, the second paragraph, you see reference to the -- the American economy, the US economy, and reinforcing market expectations of higher policy rates.
Do you see that reference, sir? Line 2 and 3 of the second paragraph?

(BRIEF PAUSE)

674

MR. GLENN BUNSTON: Yes, I see that.
DR. BYRON WILLIAMS: And then just directing your attention to the last paragraph and the first sentence of this last paragraph on -- on the page, you'll see also, sir, reference of the governing council expecting that higher interest rates will be warranted to keep inflation your target.
Do you see that reference, sir?
MR. GLENN BUNSTON: Yes, I see that.
DR. BYRON WILLIAMS: And of course, you're aware that the Bank of Canada raised overnight rates in July of 2018?
MR. GLENN BUNSTON: I'm aware of that.
MR. LUKE JOHNSTON: Just a note here, this is, again, that forecast. I -- we could, maybe in theory, pull up the last five (5) or six (6) versions of this at the same time, over the last five (5) or six (6) years, and see how those forecasts and projections turned out. I'm guessing not very well. But that's -- again, that's -- that's our point. Regardless of what's being said in some of these documents, it -- it hasn't happened yet.
DR. BYRON WILLIAMS: You're not denying, sir, the two (2) overnight rate increases in -- in the last year. Obviously, that's happened?

675

MR. LUKE JOHNSTON: Yeah. Obviously anything that's actually occurred, I'm not denying that, nor -- nor are we suggesting that we shouldn't use that. But anything beyond that is a forecast, and pretty much every forecast that's been made by the Bank of Canada, particularly on interest rates in recent years, hasn't performed very well. There might be examples where it has, but in general, all we have to do is pull up that graphic and -- to show the performance.
DR. BYRON WILLIAMS: Okay. Thank you, sir. I wonder if we could turn -- we're switching to issues related to the Capital Maintenance Provision and CAC-2-20(b). And to the second page of that response, without asking MPI to elaborate, and focusing on part 2(b)(2), one (1) of the described purposes of maintaining a certain capital level associated with the Capital Maintenance Provi -- Provision is to protect ratepayers from potential rate shock from future unforeseen adverse events.
You see that reference?
MR. LUKE JOHNSTON: I do.
DR. BYRON WILLIAMS: And Mr. Johnston, for the purposes of this application, how is Manitoba Public Insurance defining rate shock?

676

(BRIEF PAUSE)

MR. LUKE JOHNSTON: We -- we don't have a -- a formal definition of what defines a rate shock for MPI. The one (1) source I could point to in the DCAT report, in terms of management actions, we assume that anything greater than 5 percent on an overall basis would -- would be not realistic for approval at the -- at the -- at this hearing. So that's -- that's one (1) gauge that we use, but we have no formal definition.

DR. BYRON WILLIAMS: Mr. Johnston, would it be fair to say that Manitoba Public Insurance does not consider a 2 percent rate increase to equate with rate shock?

MR. LUKE JOHNSTON: That -- that's fair, yes.

DR. BYRON WILLIAMS: Assuming a zero overall rate increase and a 2 percent RSR rebuilding fee, would it be fair to suggest that Manitoba Public Insurance does not consider that type of event to be rate shock?

MR. LUKE JOHNSTON: I would not consider a 2 percent combined rate increase and capital maintenance fee to be considered rate shock.

677

I think -- although we -- we -- we'll do our -- obviously, do our best to control costs, that is basically inflationary type increase.

MR. MARK GIESBRECHT: And just to clarify, there -- there is no rebuilding fee in our application. It is a -- a capital maintenance provision only.

DR. BYRON WILLIAMS: Thank you for that, Mr. -- Mr. Giesbrecht.

If we could go to CAC-2-18, towards the bottom of page 2 of 3, and then to the top of page 3 of 3.

Mr. Johnston, you see this Capital Maintenance Provision, or CMP, being advanced to -- for the purpose of ensuring that the actual capital position does not deteriorate with changes in Basic's risk profile -- file, as measured by the MCT ratio, agreed?

MR. LUKE JOHNSTON: Agreed.

DR. BYRON WILLIAMS: And sir, in terms of the...

(BRIEF PAUSE)

DR. BYRON WILLIAMS: In terms of the

678

Capital Maintenance Provision, it is not linked to the DCAT. It is linked exclusively to the MCT ratio.

Is that -- am I correct?

MR. LUKE JOHNSTON: That -- that is true, and one (1) of the benefits of that is, again, there is no subjectivity of any kind in that calculation. The -- it is, you know, essentially a financial reported number that can be confirmed and is completely objective. So that's one (1) -- one (1) of the reasons.

MR. MARK GIESBRECHT: If I can just add real quickly, the -- the MCT and the DCAT are not mutually exclusive. In -- in terms of target setting, the -- the DCAT is really what underpins the MCT, and they work hand-in-hand. And so they -- they are not two (2) different things, but they really work together to set your -- your target.

DR. BYRON WILLIAMS: Mr. Johnston, for Dynamic Capital Adequacy Testing purposes, do you model inadequate or failed management pro -- processes?

MR. LUKE JOHNSTON: We do not specifically model those in -- in the results. If there are any of those impacts embedded in claims results or other areas, it is possible that it would

679

feed into the models, but not -- not directly.

DR. BYRON WILLIAMS: If we could go to part 6 of the MPI application, RSR, Appendix 1, MCT. And it -- it should be a table headed "minimum capital test, capital margin required."

And I want to go down to line 30, if you would, Ms. Schubert. Line 30 -- sorry, go back. Yes. So -- this is -- you're on the wrong page, sorry, through -- through my fault. That's perfect, under "operational risk margin." Could you make that just a little bit bigger, Ms. Schubert, please.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Now for the purposes of the MCT calculation, Mr. Johnston, the Office of the Superintendent of Financial Institutions defines operational risk is the risk of loss resulting from inadequate or failed internal processes, people, and system, or from external events.

Would that be fair, sir -- sir?

MR. LUKE JOHNSTON: That's fair.

DR. BYRON WILLIAMS: And in terms of the calculation of the total minimum capital required of -- or the total capital margin required at target,

680

the operational risk margin contributes in the '17/'18 year $70 million. Is that right, sir?

MR. LUKE JOHNSTON: In the amount required at target, so that would be -- you'll see a few things there. There is operational risk margin. Right below it, there's a diversification credit that is approximately the same size. That's not -- not meant to mean that they're related. And then there's the total of about 500 million. That total is then divided by one point-five (1.5), essentially bringing it down to the one hundred percent ratio.

So it might be a more fair interpretation to say that 70 million divided by one point-five (1.5) would be more reflective of what's in the hundred percent MCT number, just to -- just to be fair. But -- but yes, there is a operational risk margin.

DR. BYRON WILLIAMS: And as we move along to the right, we see the operational risk margin ranging from 64.6 million to 77.3 million, recognizing your proviso of a divide by one point-five (1.5)?

MR. LUKE JOHNSTON: That's right.

(BRIEF PAUSE)

681

DR. BYRON WILLIAMS: Okay. Mr. Johnston, were you with the Corporation way back in -- in 2000?

MR. LUKE JOHNSTON: Perhaps as a student. I am -- I may have been working in -- in the States at that time, but full time, I think 2001, but as a student before that, so not a -- not a full-time employee.

DR. BYRON WILLIAMS: Okay. And if we could pull up Board Order 151 of 2000, and go to page 15 for a second. And Mr. Johnston, you had a bit of this discussion I think with Mr. Oakes this morning, but you'll agree with me generally that back in the 19 -- late 1990s, in terms -- in supporting the Manitoba Public Insurance Rate Stabilization Reserve target, the Corporation was proposing a statistical variance approach, considering a number of different risk factors. Do you recall that, sir?

MR. LUKE JOHNSTON: Yeah. In my recollection, this is one (1) of the early attempts to use a risk base targets instead of a percentage of premium targets.

DR. BYRON WILLIAMS: And sir, just directing your attention to page 16, the second -- the first full paragraph, actually, and starting at lines

682

-- line 4 and 5, you see reference to earlier Board Orders been 154/'98 and 177/'99 presented as -- the Board -- raising -- stating that the inclusion of all operating expenses was inappropriate, at least as they were partially con -- as -- as these were at least partially controllable by management.

Do you see that analysis, sir?

MR. LUKE JOHNSTON: I do. And -- and just -- I don't know if this is the parallel that you're drawing, but I -- so I don't want to assume that, but when we talk about operational risk in the -- - in the MCT test, for example, I don't think we're talking about the -- the risk of variation in your operating expenses. I don't think companies have, you know, the -- we can control our FTEs, and things like that, probably more so on the projects and the impacts of those projects when they don't work out as -- as planned.

So I -- I understand this point, but at that time, the -- the volatility and operating expenses themselves was excluded from the -- the risk analysis.

DR. BYRON WILLIAMS: So the -- as the MCT contemplates it, sir, operational risk is associated with a failed information technology

683

program? Would that be contemplated?

MR. LUKE JOHNSTON: At my fingertips, I don't recall everything included in there as described by OSFI. But my understanding is it would be for things like -- of that nature.

DR. BYRON WILLIAMS: So subject to check, sir, aspects like the failed customer claims reporting system, CCRS, might be contemplated by MCT and operational risk?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: All -- I think what OSFI's doing in the test is recognizing that all insurance companies have operational risk, and not recognizing it would be inappropriate in terms of assessing the risk of those companies. But there are, of course, examples at MPI where projects have -- have not turned out, and the example you gave is -- is one (1) of them where it did not -- did not turn out as planned.

DR. BYRON WILLIAMS: And arguably, sir -- well, we'll get to that next week.

In terms of a target confidence level, am I correct in suggesting to you that OSFI is elected

684

99 percent of the expected shortfall over a one (1) year time horizon as a target confidence level?

MR. LUKE JOHNSTON: That's correct.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And just the last couple of questions. Manitoba Public Insurance recalls that there was a technical conference in terms of the Capital Maintenance Provision and whether or not it should be incorporated into the rate-making process?

MR. LUKE JOHNSTON: I do recall the technical conference, yes.

DR. BYRON WILLIAMS: Using the word 'consensus' to include the perspective of Intervenors, PUB advisors, and Manitoba Public Insurance, would Manitoba Public Insurance suggest that there was consensus on the requirement for a capital maintenance provision flowing from that dialogue?

MR. STEVE SCARFONE: I just -- I want to interject, Mr. Williams. The materials filed by MPIC have MPIC stating its position as from the Corporation's viewpoint. There may have been a consensus reached on CMP. But having said that, there

685

is an issue squarely before the Public Utilities Board on the Capital Maintenance Provision. So to the extent that you're going to suggest there was no consensus, MPIC will concede that your client is not in agreement with the Capital Maintenance Provision.

MR. LUKE JOHNSTON: If -- if I -- if I could add, I -- the -- MPI's brought its proposal for a capital maintenance provision. We don't -- we haven't pretended that CAC agreed to the -- our proposal, but the fact that there was a technical conference on the topic and the need to discuss it, I think -- I think we'd all agree that -- that was, I would hope, agreed to by CAC that that conference should be had, and -- but we don't assume that CAC agrees with our proposal, necessarily.

DR. BYRON WILLIAMS: We thank MPI for that. And just to be clear, MPI is not suggesting flowing from that technical conference was consensus on the requirement?

MR. STEVE SCARFONE: Sorry, could you say that again, Mr. Williams?

DR. BYRON WILLIAMS: MPI is not suggesting that flowing from that technical conference was consensus on the requirement for a capital maintenance provision?

686

MR. STEVE SCARFONE: No. We understand that it's something that the Corporation is seeking in this application, and to the extent that there may be some opposition to its requirement, then I agree.

DR. BYRON WILLIAMS: Okay. Just if -- if I could just check with my clients, Mr. Chair, members of the panel.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: I told counsel for the Board that I would try and be done by 3:30. For the record, it's 3:32, so I apologize sincerely for my failures, among many. But thank you, MPI panel. And subject to the undertakings which exist -- I think exclusively relating to Mercers and asset liabilities, that closes our cross-examination of this panel.

THE CHAIRPERSON: Thank you. I'll ask the panel if they have any questions. M-hm.

Okay. I -- I have a few questions. Kristen, we had the chart we talked about yesterday, I can't remember, Exhibit 1. There's the -- I'm sorry, not -- there was the other one that showed the --

687

there was reference to the fact that BC and SGI had the MCT 100. I don't know what table that is. It doesn't really matter. Sorry?

MR. LUKE JOHNSTON: That would -- I think you're referencing the -- our opening presentation graph from MPI. Is that...

THE CHAIRPERSON: That one, yes. Sorry. In terms of this slide, Mr. Johnston, I take it you would agree that there are different factors in different jurisdictions?

MR. LUKE JOHNSTON: Absolutely.

THE CHAIRPERSON: And that each jurisdiction is looking for certainty and stability in it's in -- in -- in rates and financial stability?

MR. LUKE JOHNSTON: Agreed.

THE CHAIRPERSON: So when I look at this in terms of ICBC having an MCT 100, that's simply one (1) factor that may relate to the characteristics of the situation in BC.

MR. LUKE JOHNSTON: I think all we're stating here is that all the other public insurers have at least moved to this as a basis for their target. How they got there specifically, I don't know all the details, some of it's likely confidential.

The -- the -- the hundred percent MCT

688

itself, it does have the benefit stated on here that it is not subject to the same influences that maybe our methodology is subject to, right.

So there's a lot of the assumption making and best estimates and -- and should inflation be in or out, right, which can lead to very -- as you know, very long discussions here and all kinds of models and stuff being built.

And at least in recent years it's created quite a bit of volatility in some of the targets. We don't want that either.

THE CHAIRPERSON: Right. But, for example, B.C. is a tort province.

MR. LUKE JOHNSTON: Yes.

THE CHAIRPERSON: The risk factors may be higher in a tort province versus a non-tort province.

MR. LUKE JOHNSTON: I agree with that, but I will say that, as I mentioned earlier, most of the risk factors, particular with assets, if we hold less risky assets we'll have a lower dollar number.

And then, in terms of the claims, the liabilities that we hold, I would characterize MPI's as some of the most risky that -- in the industry, just because of the length and we talked about forty

689

(40) years of payments and the -- the -- you know, the likelihood of being right on that is -- is low, is very risky.

So ICBC I would say has more of a short-term forecasting risk in the sense that MPI's coverages and product is clearly defined. We have no fault injury benefits. The escalate -- the rapid escalation of severity on the injury side isn't -- doesn't exist in as great an extent as it would in B.C.

So, in terms of that risk I would say ours is definitely lower. That's one (1) of the benefits of the program. But we're looking more -- I would call that -- that pricing risk for -- for ICBC, as opposed to what's on the balance sheet.

MR. MARK GIESBRECHT: If I can just add to that and emphasize some of the points that Mr. Johnson raised.

While the tort system exists in B.C., which typically you would expect could lead to additional costs in the settlement of claims, what it does allow for the insurance companies there is to settle those claims and not carry long-term liabilities, which we have due to our PIPP program here in Manitoba.

690

So while we hope and we expect that we will have lower overall costs, which will allow us to deliver better value to Manitobans, the fact does remain that we do have long-term liabilities which does result in -- in that reserving risk, which is really the focus of our whole ALM program, to ensure that we have adequate funds in the proper matching of those liabilities.

THE CHAIRPERSON: Have either of you two (2) gentlemen spoken to people at ICBC in the past year?

MR. MARK GIESBRECHT: I have not.

THE CHAIRPERSON: Okay.

MR. LUKE JOHNSTON: I have had some conversations with -- it's Bill Carpenter, nothing in great depth, but obviously we had to share some data, but not in terms of, you know, how they count -- what their capital requirement or things like that.

THE CHAIRPERSON: Mr. Johnston, do you know the financial position of ICBC versus MPI at this time?

MR. LUKE JOHNSTON: In detail, no, but ICBC not -- apparently not very good position, yes.

THE CHAIRPERSON: Do you know what the current rate request is to the BC Utilities

691

Commission?

MR. LUKE JOHNSTON: My understanding, it's large. And -- and just to be clear, MPI is not, you know, through this graph objecting to any of the regulatory processes or design we have in this province. We think that we have a great product and a -- and a great regulatory process, right.

So we definitely are not wanting a tort environment or, you know, a hearing every four (4) years, like SGI or something like that. There's a lot of significant benefits here -- here in Manitoba, and that's likely why we have some of the lowest rates and most stable rates, at least, on -- on average.

We're -- we're really just focusing on what's the right capital so we can -- to us that's one of the remaining pieces to really make this a strong public insurance program.

THE CHAIRPERSON: Thank you. Those are my questions. I'm just wondering if we have any update on what the next step is in terms of the next panel and when we will start.

Mr. Scarfone...?

MR. STEVE SCARFONE: I understand that the next panel is ready to present beginning tomorrow morning at 9:00 a.m.

692

And -- but I do have a couple of questions on redirect, Mr. Chairperson, if the ---

THE CHAIRPERSON: Yes, I'm sorry, Mr. Scarfone, that was negligent on my part. Please, go ahead.

MR. STEVE SCARFONE: So then my expectation is after the redirect we would reconvene tomorrow with the next panel.

THE CHAIRPERSON: Good, thank you. Yes. Please proceed.

CONTINUED RE-DIRECT EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you. And it's just a couple of questions, Mr. Johnston.

Mr. Johnston, you may recall counsel for the Public Utilities Board, Ms. McCandless, was asking some questions this morning concerning the rate stabilization reserve and a rebuild provision for the reserve, as compared against the -- the proposed capital maintenance provision.

Do you recall those questions?

MR. LUKE JOHNSTON: In general, yes.

MR. STEVE SCARFONE: Okay, so a couple of follow-up questions on that, Mr. Johnston.

Would a rebuilding fee, and just to be

693

clear, MPIC, are they requesting a rebuilding fee for the RSR in this year's application?

MR. LUKE JOHNSTON: We're not requesting a capital maintenance fee, but I understand that other parties may see that as rebuilding. But that -- based on how we've define -- defined it, we're simply maintaining our capitalization, not rebuilding -- or not making it stronger.

MR. STEVE SCARFONE: Yes, and so that was my question. With the rebuild provision, if -- if adopted, would that prevent a decrease in the MCT percentage that the capital maintenance provision is designed to do?

MR. LUKE JOHNSTON: Just making sure I understand. So, capital maintenance would just keep the MCT level the same. A rebuild would make the MCT ratio increase. So we're not asking for that. We're asking just to keep it the same.

Was that your question?

MR. STEVE SCARFONE: Well, it kind of does. But if -- if there was a rebuild provision incorporated into the rate application, it could still be that the capital position, as it concerns MCT, could fall from fiscal year 2018/'19 to 2019/'20.

Maybe this is an easier way to approach

694

it.

Could you, following up on the questions of Ms. McCandless, explain the difference between a capital maintenance provision and a rebuilding fee for the RSR?

MR. LUKE JOHNSTON: Okay, so capital maintenance, again, we've -- we've used the MCT as the basis for determining maintenance. We think that's appropriate.

So, for the capital maintenance we're saying, again, that how -- the capital position that the policyholders come into the year with should be the same when they leave that policy year. And we do that by maintaining the MCT at the same level.

If we went into a situation where the Corporation had just suffered major losses, and so let's hypothetical say the -- the MCT ratio had fallen to 10 percent, step 1 would be to figure out the capital maintenance provision to keep the MCT at 10 percent and then step 2 would be to look at the capital management plan to decide how quickly and by how much we would want to rebuild capital per the rules of that -- of that plan.

So, if our lower target was 30 percent, we might have a rule that we want to get there 1/5 of

695

the time, to the lower or to the middle or something like that. We -- we haven't come forward, to PUB with those rules yet, but that would be -- that would be the idea.

MR. STEVE SCARFONE: Okay. Thank you. So I think -- I think you answered my question in that a rebuild provision, if I understand it, would increase the amount that's been held in reserve.

MR. LUKE JOHNSTON: It would -- the rebuild would -- the intent would be to increase the amount in dollar terms and the MCT ratio.

MR. STEVE SCARFONE: Thank you. Can we have pro forma 3 pulled up again, please. Thank you.

I understand from your evidence this morning, again in response to some questions for Ms. McCandless, Mr. Johnston, that at the bottom of that graphic we see the MCT ratio staying the same beginning 2019 forecast.

Do you see that, sir?

MR. LUKE JOHNSTON: I do.

MR. STEVEN SCARFONE: Could you explain what you meant by the inclusion of a 2.1 percent capital maintenance provision into those projections? Is that a one (1) time -- is that a one

696

(1) time inclusion?
MR. LUKE JOHNSTON: Yes. So, if -- if approved the rates will have the 2.1 percent provision built into that rate.
The -- if those rates -- what we're saying here, if those rates were to stay in -- in force, we would not expect to ask for any additional amount, but we would still report to the Board that -- that there is, in fact, the 2.1 percent provision in the rate, to make -- so that everyone is aware of that. But no -- at this time no additional amount is being implied by this forecast over the forecast period.
MR. STEVE SCARFONE: Okay, thank you. And next, Kristen, if you can pull up the -- the Board Order from June, which was the compliance Order that Ms. McCandless asked questions of Mr. Johnston on.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Thank you. If you can scroll down to the -- the -- the -- the issues list please. Thank you, right there.
Mr. Johnston, do you recall the questions put to you concerning the financial forecast

697

in the justification of the naive methodology being used this year?
MR. LUKE JOHNSTON: In general, yes.
MR. STEVE SCARFONE: Yes. Sir, in the Corporation's estimation is the use of the naive forecast for the 2019 GRA a best estimate?
MR. LUKE JOHNSTON: In my opinion and the Corporation's, it is.
MR. STEVE SCARFONE: And last year, sir, you will agree that the Corporation again used -- made use of the naive forecast in its forecasting?
MR. LUKE JOHNSTON: Yes, it did. And just -- just to clarify my original response. There were -- the nave forecast made at this time was our best estimate. When thing -- things happen over the next six (6) months, it's hard for me, I can't say, you know, the best estimate I made six (6) months ago was the same.
So we have new information. But we're suggesting to use that information and maintain a naive forecast as a best estimate. But if you asked me on February 28, 2018 if this was my best estimate, it would be, yes.
MR. STEVE SCARFONE: Thank you. And for the 2018 General Rate Application, Mr. Johnston,

698

do you recall if the use of the naive forecast was your best estimate?
MR. LUKE JOHNSTON: Yes, it was.
MR. STEVE SCARFONE: And that, sir, would have been a departure from the 2017 GRA, when MPIC took the position that the 50-50 forecast was the best estimate. Is that -- is that fair?
MR. LUKE JOHNSTON: That's correct. And just to be very clear here, MPI is struggling with this issue just as much as everyone else in the room.
As I mentioned on -- I don't know if it was yesterday, the higher interest rates mean -- likely mean rate decreases for us and the -- that obviously would be a good result for MPI, government, et cetera. We would all like interest rates to rise, but we've seen, you know, the consequences of making those kind of bold assumptions.
In some of those earlier years, when interest rates were just on the downturn for, kind of in these unprecedented territory, MPI was trying to find a balance between, you know, rapid mean reversion and increases versus the enormous amount of risk that -- the pricing risk that would occur if you were to use those assumptions.
So we've all seen how that as turned

699

out now, and again, we continue to try to find ways to minimize that risk as much as possible.
Compliance filing was one (1) of the ideas put forward. But at least in terms of the recent history, it's hard to justify using the bank's forecast as a -- as a best estimate. Naive has performed the best in -- in all of the comparisons that I've seen.
MR. MARK GIESBRECHT: If I could just elaborate and add to that response as well.
We know over the past number of years that we've had a lot of assumptions made on interest rates, and together the people in this room have done their best to, you know, estimate what those -- those changes will be. And what we've seen based on experience has -- we had banked on rising interest rates. We essentially swung from the fences and we struck out.
And what that meant was serious losses for the Basic line of business. And if not for available funds and other non-Basic lines of bus -- lines of business, it would have meant significant rate increases for ratepayers.
So I think a valid way or another way of looking at the decision around interest rate

700

forecasting is -- or put it -- put it this way, we have heard a lot about economic experts and all -- all these different terminologies and fancy terms that get thrown around.

The one (1) thing that is clear is that nobody can tell the future with any kind of consistency or with any kind of accuracy. And I think one (1) way to look at it may be: What is the outcome?

And so the outcome of banking on interest rates rising and not getting it right means that we are going to have a shortfall and we would have to go back to ratepayers in subsequent years and say, we need a rate increase because we didn't have the rates we thought materialized.

Alternatively, if we let rates materialize, and rates do rise, we can go back to ratepayers and -- and tell them you will have a -- a rate decrease.

And so, our position is that we do not want to go to ratepayers and ask for a significant increase. We would rather be in a position to allow a decrease.

THE CHAIRPERSON: If I could just ask Mr. Giesbrecht. Mr. Giesbrecht, it sounds like the

701

test is being changed from best estimate to least downside.

Would that be a fair comment? Best estimate connotes, here's the best estimate of what we think is going to happen based on rates rising, and least downside is, if we're really conservative, essentially, we -- we've got it -- and rates go up we haven't -- we've got the upside. We don't have much of a down -- we've reduced -- we've reduced our downside.

MR. MARK GIESBRECHT: Yes. I -- I can't speak to prior years and what was determined as a best estimate. Looking at the data and the support that we have, I think it's clear that a non-biased, naive forecast in the -- the -- the recent years is clearly the best estimate.

However, I agree with you. From -- from my perspective, it makes sense that you want to temper that with conservatism with the intent of managing stable and predictable rates.

MR. LUKE JOHNSTON: Just -- just some history here. I'm getting to be the old guy here.

The -- yeah -- so Ms. Reichert started here, I believe six (6) years ago, give or take. And one (1) of the big, initial tasks that -- that she had

702

was to build a new financial model, and that was one (1) of the things that the Public Utility Board also wanted to see for DCAT modeling and scenario testing.

One (1) of the big pieces of that was putting in modeling of interest rates and prior to that, every forecast MPI had ever made was naive interest rates, because we didn't even have the capability to do the modeling of liabilities and bonds, like right. So we would put in the forecasted new yields -- of -- of new money that we invested in. But the liabilities and assets themselves did not change.

When we put that functionality in, all of a sudden there -- you know, and we went into this weird interest rate environment, all of a sudden you saw these dramatic swings in the financial statements created by the interest rates, which is good information to have.

But at the same time, it -- especially in the low interest rate environment, it showed everybody here, well, that 3 percent rate increase all of a sudden is zero if we just use the bank forecast and all is good, right?

And I think that's got us into a little bit of -- of trouble, doing that. I can tell you that

703

the period of time when we weren't doing that, we enjoyed quite a long stretch of almost no rate changes or any, you know, significant amounts. We had about a fifteen (15) or sixteen (16) year stretch where we had one -- one (1) rate increase, not that the two (2) are perfectly correlated, but I believe is was a much safer assumption than making what are really pretty big bets in some of those bank forecasts.

They -- we were talking 200 plus basis points in some of those bank forecasts a few years ago. That's a pretty big -- pretty big bet.

CONTINUED BY MR. STAVE SCARFONE:

MR. STEVE SCARFONE: Thank you. Just one (1) more question for you, Mr. Johnston, then I have a couple questions for Mr. Bunston on investments and I think we're done, subject to my co-counsel's comments.

Kristen, if we could have put on the screen the -- the benchmarking comparisons in the investment returns. I think it's PUB-186, Information Request from the -- from the Board.

(BRIEF PAUSE)

704

MR. STEVE SCARFONE: Keep going down. No, I apologize. So this is on the efficient frontiers. But I can just, without pulling up the document and following up on Mr. Chairperson's comments about the uniqueness of the jurisdictions that have public auto insurer, Mr. Johnston, can you make any comments to the extent that SGI shows better returns than MPIC does in its investment portfolio, what, if any -- what if anything might contribute, in your view, to the difference that can be seen in those investment returns?

MR. LUKE JOHNSTON: Not professing to be an expert on SGI, but in terms of the matching of -- they're very similar in that they have a lot of long-term claim liabilities.

They use a -- a bucketing -- fixed income bucketing approach based on the -- the timing of the cash flows for the first twenty (20) years, and then beyond twenty (20) years the liabilities are matched to growth assets.

Obviously, growth assets are going to have a higher long, long run return, but also are going to have more risk. So, if MPI had followed such -- such an approach as that for this ALM study, you would've seen probably an opposite effect as the one I

705

described earlier in terms of the capital targets. A hundred percent MCT amount would've went up, but our return would've also increased.

So we would have probably came here and said that, okay, the rate indication is a little bit lower than we're asking for, but we need a bigger RSR.

Our direction from our Board and the government is that volatility is not -- we're not seeking greater volatility. So that's -- type of strategy wouldn't be pursued.

The other major concern that I'm sure SGI has with their strategy is this idea of matching equities to their claim liabilities. It's going to be somewhat of a concern when we flip over to IFRS. We don't know the exact mechanics of that yet, but if they're required to use a -- a discount rate based on a -- kind of a hypothetical bond portfolio, their liabilities are going to have to go up in value. The valuation on those is going to increase substantially, so that -- or at least that would be my expectation.

So we will not have that issue, because we're essentially already matched to the bonds. We might get a little bit of a hit, but anyways, does that answer your question?

MR. MARK GIESBRECHT: I'll just --

706

MR. LUKE JOHNSTON: Yeah.

MR. MARK GIESBRECHT: -- I'll just add quickly, if I could. When comparing against SGI, it's important to consider that we do have a different risk tolerance, and it was -- we'll walk through a number of Board Orders about interest rate risk management. And so SGI has taken a different approach where they match a -- a portion of their liabilities with equities, which would have a different effect in terms of interest rate risk management.

And so, given the approach in Manitoba in our risk tolerance, it's not a fair comparison to look at the peer portfolio returns without doing a -- a -- an adjustment that we have provided terms of re-weighting the portfolio to see if we had the same risk appetite, and same tolerance, then it's a fair comparison.

But just the -- the topline returns, given the -- the composition of their portfolio, is not a fair comparison, given our approach to interest rate risk management.

MR. LUKE JOHNSTON: I'm -- I'm just -- I -- I can tell you internally, and Mr. Bunston can attest to this, our Board wants no interest rate deviations of any kind, so we report every single

707

month the impact of the asset liability matching. If we are out by even a few million, we would explain every change in great detail. The goal is for that -- that zero all the time, and to have a -- it hasn't always been, but we're continuing to get, I guess, pushed by our Board to do everything we can to neutralize that risk to as close to zero as possible.

MR. STEVE SCARFONE: Thank you, gentlemen, and I -- I appreciate we're running close on time, here, but one (1) follow-up question to that, then, gentlemen.

Can you explain why it is that a -- a corporation that is better capitalized then a -- a -- another would be in a better position to invest in growth assets to obtain better yields?

MR. LUKE JOHNSTON: Well, I guess step -- step 1 of that is -- is actually really just a mathematical exercise. And what I mean by that is, if MPI had more money in the RSR, we would invest -- automatically invest more in growth assets in the segmented portfolio, because that portfolio has grow -- a percentage of growth assets. So we'd automatically have a higher allocation to -- to the stock market.

But obviously, if a company has --

708

right or wrong, if a company has a lower MCT target, say, of 30 percent, and they're operating around that range, I would expect that they would have to be more cautious than a company with a hundred percent MCT. I don't see how you can draw that -- that parallel.

The -- the implications of even minor -- - not -- we're not even talking about 1:40 deviations, just bad winters, you know, change in interest rates, and all of a sudden, as you've seen by some of our results, you could lose 50 or $60 million, no problem. You're immediately into asking ratepayers for rebuilding fees, and -- and things like that.

Our -- so -- so our -- our recent experience and our -- and our capital levels obviously drive our risk appetite decisions. I'm not saying that that's -- that's wrong, but hopefully, the Board can appreciate why MPI has a lower risk appetite, based on all the, you know, every -- considering everything in -- in its -- in the environment it operates.

MR. GLENN BUNSTON: Maybe I could just add to that. You know, I mean, obviously, growth assets are more volatile than fixed-income assets. So equities, real estate, and infrastructure in -- in our case, which we defined as growth assets, and so the --

709

the downside is much larger, when you invest in growth assets. And so you would require a larger capital reserve to protect you from the -- the downside scenario when you have significant allocation of growth assets.

So the reserves do matter, and you need reserves -- significant reserves to protect you from the downside that is associated with investing in those more volatile asset classes.

MR. STEVE SCARFONE: Thank you, Mr. Bunston. So one (1) quick question for you, Mr. Bunston.

Kristen, if we can have the invest -- the Appendix 17 from the investments chapter, Attachment B, slide 21, please.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Thank you. Mr. Bunston, we heard Mr. Makarchuk describe these portfolios, Basic 1, Basic 2, 3, and 4 as what he described as the -- as the front runners. You'll -- you'll note...

(BRIEF PAUSE)

710

MR. STEVE SCARFONE: Yes. That's fine. Yes. Perhaps scroll down -- or scroll up one (1) page. There we go. Thank you.

We know that MPIC selected the Basic 3. Mr. Bunston, are you able to -- to just provide some insight into why that particular portfolio was selected over Basic 4, which it seems also have some favourable characteristics?

MR. GLENN BUNSTON: Yes, I can. So yesterday, when we talked about this, we talked about Basic 3 relative to Basic 4, the different -- the major difference being that Basic 4 has a -- an allocation of private debt, while Basic 3 does not.

The strategy -- the interest rate risk management strategy for our Basic claims portfolio was duration management and duration matching of our fixed-income portfolio relative to our claims liabilities, and including an allocation of private debt would complicate that duration matching strategy in that the -- the duration of the private debt is -- is harder to control and harder to predict with the precision that we would need.

So there was that factor, and then secondly, yesterday we -- we looked at the risk and return metrics for Basic 3 relative to Basic 4. And I

711

-- the -- the one (1) comparison that we didn't talk about yesterday was comparing Basic 3 relative to the current mix. And there was question about the -- the risk associated with Basic 3, and whether that was acceptable.

We looked at the -- the 97.5 percent VaR, or value at risk measure, for Basic 3, which is $45 million, which means that we could lose $45 million in -- in one (1) year, with 97.5 percent confidence. But for the current portfolio, the -- the value at risk number was $147 million. So, yes, the $45 million -- the VaR risk estimate for Basic 3 is acceptable to us. It is a significant reduction of over a hundred million dollars from the current portfolio.

So it's not as low as Basic 4, but there were reasons that we did not want to invest in private debt, and so that's why we did not select Basic 4.

MR. STEVE SCARFONE: Thank you, Mr. Bunston. And Mr. Guerra, I understand you have one (1) or two (2) questions.

RE-DIRECT EXAMINATION BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: Yes. Thank you.

712

I just have a couple of questions. The first one relates to comparisons between MPI and SGI. We've heard some discussion today and earlier about SGI's use of a capital maintenance provision, and whether or not the -- the style of capital maintenance provision used by SGI is -- is appropriate for -- for use by MPI.

And I'd like further clarification on -- on MPI's position as to why MPI's own CMP is preferred over the SGI model.

MR. LUKE JOHNSTON: Yeah. So -- so our main -- what we see as the main benefit of -- of the MPI model is that it just focuses on the -- the one (1) year, and what is needed to maintain capital in that one (1) -- in one (1) -- that one (1) fiscal policy year, I guess we can call it. That, in our view, makes sense in terms of what's a fair contribution to capital maintenance for a group of policyholders.

If we start looking at the five (5) year forecast period, there are some questions on, you know, what if your risk profile changes, and -- or if there's things in the forecast that could cause swings up and down. To -- in -- in my view, that would be more difficult to normalize over a five (5) year

713

outlook period than it would be to understand the most recent year that you're going in, and at least providing evidence here that the Cap -- Capital Maintenance Provision for that particular fiscal year is approp -- is appropriate.

So not to say the SGI model is -- is bad. I think they're trying to maybe smooth out some of the volatility in it, but we -- we think the focus should be on the -- the test year for -- for that maintenance provision.

MR. ANTHONY GUERRA: Thank you. And one (1) further question. You were asked from the panel this afternoon about comparing the need for a 100 percent MC -- sorry, MCT ratio. There was reference made to the other public insurers, and some private insurers, suggesting that they all have at least 100 percent MCT ratios.

But my understanding, correct me if I'm wrong, is MPI isn't asking for a -- a hundred percent MCT ratio in this year's GRA. Is that correct?

MR. LUKE JOHNSTON: That's correct. The -- we're really just trying to get the -- the idea across, here, that some of these comments, or even reading the newspaper, suggests that MPI is taking people's money away and doing unreasonable things to

714

the public.

We consider our capital targets to be on the lower end, but by no means do we consider them excessive in -- in any way. So we've applied for the -- what equates to about a 35 percent to 85 percent range. That's -- that -- that is what we applied for. We want to maintain within that range.

But this characterization that, you know, MPI's asking for, you know, too much in its rainy day fund, or anything like that, really doesn't check out with a comparison to really any other insurer in the world. We would continue to be on the low end, based on that -- the methodology that -- that we've collaboratively developed, here.

MR. ANTHONY GUERRA: Okay. Thank you. Those are my questions.

THE CHAIRPERSON: Thank you. So we'll adjourn this morning and reconvene at 9:00 -- sorry. We'll adjourn right now and reconvene at 9:00 a.m. tomorrow morning. Thank you.

--- Upon adjourning at 4:11 p.m.

715

Certified Correct

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Cheryl Lavigne, Ms.

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$100 575:20

$120 597:6

$129.3 524:25

$135.6 493:14

$140 597:6

$141,000 566:25

$147 711:11

$18 590:6

$20 584:10,15 590:6

$200 575:1,3,22 579:15

$227,000 600:6

$250 497:15 579:2

$253.5 523:21

$3.4 567:3

$321,000,678 579:7

$38.2 568:12

$39.4 493:18

$45 711:8,12

$5 568:6

$60 708:10

$64 525:4

$65 525:16 568:1

$70 680:2

$72.5 569:1

$80 565:14

$800 565:13

$9 565:15,16

$91.1 566:11

$93.6 525:20

0

0 610:10,16

0.1 495:20

07 593:4

08 593:5

1

1 486:3,5 487:7 493:13 497:13 499:2 501:2 503:14 511:5 515:5 516:11,21 518:2 519:12,15 529:10 530:13 545:2 547:4 552:2 555:3,16,25 557:3,24 562:14,20 563:4 565:4,14 569:7 576:9 579:16 588:9 592:19 595:14 597:11 605:6 612:1 613:8,9 614:8,20 616:10,14 617:2,5 619:1,25 620:16,21 623:7 626:11 637:11 638:21 640:12 641:7 652:5 653:8 655:10 656:22,24 657:1,3 660:10,24 661:4 662:16 666:2,12 667:10 675:16 676:5,10 678:5,9 679:3 681:20 683:20 684:1 686:24 687:18 689:12 694:18 695:25 696:1 699:3 700:5,8 701:25 702:2,4 703:5,15 707:10,17 709:11,21 710:3 711:1,9,22 712:14,15 713:12

1.1 498:20 499:20

1.2 498:14 504:1 526:2

1.3 562:1,18 564:10

1.32 610:18

1.4 602:25 603:14 604:7

1.5 680:10,14,21

1.6 615:3,21

1.8 503:13 582:3

1.9 503:13 607:15 609:10

1/2 486:5 656:24 657:4 671:5

1/5 520:1,3,5 694:25

1:08 601:23

1:100 597:13

1:40 708:7

10 488:8 496:20 510:12 536:6 544:14 554:1,13 565:13 586:6 594:11,19 595:13 615:4 629:20 631:22 632:5 637:21 638:22 639:11,13 ,18,19,22 640:16,19,25 650:4,16,20 654:10 655:22 669:18 694:18,19

10.3 625:18,22 626:4 638:11

10:32 554:5

10:58 554:6

100 487:18 536:7 537:25 538:13,14 543:21,25 544:18 558:7 559:15,25 595:24 634:2 687:2,17 713:14,17

105 593:6

109 593:13

10-year 585:3,8 587:2,24 588:7

11 488:12 623:20 631:6 637:19

11:00 554:1

1-16 547:25 573:12

1-17 551:9

1-19 533:6

12 488:17 502:3 506:4 569:5 570:6

572:21
573:2
603:15
604:25
635:11

12:00
601:22

120 527:13

123 597:2

128/'15
486:11
657:18,24
662:16

13 489:3
524:14
648:14
663:7

130 657:18

130/'17
486:11
552:15
657:21,25
665:9

130-17
487:13
556:11
557:11

13-3 606:18

135.6
493:25

135/'14
663:18

14 596:3
673:17

15 542:23
596:3,17
602:18
657:9
670:2
681:11
703:4

150 527:10

151 663:7
681:10

151/00
486:12
658:3,5

154/'98
682:2

16 568:20
657:19
662:14
681:24
703:4

1-6 576:9

16.1 660:9

162/'16
486:11
657:18,24
664:14
665:13

17 483:23
488:10,19
570:13
613:7,8
614:2
623:20
628:17
629:14,24
630:22
635:1,14
637:18
657:19
658:2
670:6
709:14

17,000
565:17

17,600
562:6

17/'18
680:1

170 573:22
574:14

173.5
573:11,24

1753 613:7

177/'99
682:2

18 502:4
570:18
584:10,15
670:21

18/'19
506:16
522:24

1-83 631:23

1-86 645:10

19 681:13

19/'20
506:14,20
507:3
510:21
514:3
598:8

1915 620:16

1990 621:3

1990s
681:14

1991 620:16

1992 620:17

2

2 485:7
487:19
490:8
491:12
503:25
506:15,22
507:13
508:12
511:23
515:17
518:18
522:16
524:22
526:20,21
531:14,19
,25
532:10,12
533:16,24
556:1
557:22
558:6
559:15
560:2
561:12
571:4,24
579:5
583:1
586:15
604:24
616:9,15
617:1,4,7
619:9
620:15
623:8
626:13,16
630:19
633:15
640:21
642:5
643:6,19
644:10,17
645:7
651:1
661:3
664:5,14
673:21
674:24
676:14,19
,24
677:11
678:16
690:10
694:20
703:5
709:21
711:22

2(b)(2
675:16

2.0 531:5

2.1
507:13,21
,24
515:18,22
563:21
564:12
577:8
695:23
696:3,9

2.2
499:11,19
503:3
505:13

2.2-ish
615:17

2.3-ish
615:15

2.4
609:13,25

2.6 488:14
628:21
630:6
631:2,9,1
8,20
632:3,14
653:10
654:1,3,7

2.8 602:24

2:15 652:21

2:46 652:22

20 535:25
542:23
553:25
594:19
614:23
652:10,19
704:18,19

200 703:9

2000
681:3,10

2001 681:6

2005/2006
592:22
593:1

2006 593:4

2007 571:25
593:5

2008 593:12

2009 576:12
593:12

2010 534:1
579:1

2010/'11
579:4

2011 576:16

2011/2012
662:1

2012

576:17,18
2012/'13 596:24
2014 540:4 576:21 593:20 661:2 662:5 663:25 667:15
2015 571:25 661:13 670:9
2015/'16 593:15,19
2016 486:6 657:7,12 670:13,16
2016/'17 568:21 596:24
2017 567:11 603:1 613:15 620:17 621:3 650:3 698:5
2017/'18 566:10 573:21
2018 483:23 487:21 506:16 559:21 560:5 567:12,21 602:25 606:19 607:3,7 674:12 697:22,25
2018/'19 493:14 498:24 693:24
2019 505:21 524:14 578:22 586:2 589:16 695:19 697:6
2019/'20 498:24 509:21 693:24
2019/2020 483:6
2020 506:5,25 598:3
2021/'22 507:11
20th 607:2
21 560:15 613:25 614:2,23 709:15
210 574:13,19
22 492:5 561:24 563:4 570:21
227,000 488:7 601:5,16
23 561:25 602:19
2-3 642:22,24
231 593:16 596:2
24 487:19 488:18 493:7 507:10 559:16 560:3 562:24 567:16 633:17
635:1,13
25 505:16,22 507:8 510:20 562:7 575:17 585:17 586:15,25 589:12
250 500:21
261,532,000 567:11
27 539:7 543:6 574:11
28 598:3 697:22
280 598:3,8
29 537:10 560:14 566:19
2-9 655:12

3

3 493:20 499:10 523:17 551:10,23 561:19 598:6 607:12 609:7 610:5,15 616:12,16,25 623:6,9 628:18 630:3,7 657:20 673:22 677:11,12 695:13 702:21 709:21 710:4,11,13,25 711:2,4,7,12
3,000,480 567:4
3,482,000,857 567:5
3.3 499:13,16 504:2
3.4 562:25 567:5
3:30 686:13
3:32 686:14
30 492:5 597:17 615:11,13 679:6,7 694:24 708:2
30-year 615:2
31 493:14 589:13
31st 487:20 559:19,21 560:4 567:21 650:3
330 483:21
34 538:10 560:24
35 714:5
352,608,000 567:12,20
366 593:16 595:23
39 640:23 671:5
39.8 574:15

4

4 500:9,20 523:17 524:9 531:16 574:5 595:10,15,18 656:21 682:1 691:9 709:21 710:7,11,12,25 711:16,19
4.2.7 498:9
4.5 644:11
4.7 664:22
4:11 714:22
40 534:9 536:1 689:1
400 483:21
425,464,000,000 567:20
43 662:16
44 575:17 663:24
48 640:15
483 483:24
486 485:3
487 485:4
491 485:17

5

5 487:3 493:13 496:20 512:11,25 513:8,9,12 524:7 555:9 564:4,16,17 594:11 595:10,15 606:3 610:22 619:10 674:16,18

676:7
682:1
712:20,25

5.96 570:14

50 510:6,8
534:10
536:7
550:5,6
576:17
577:6,17,
24 578:23
592:23
594:7
640:2
708:10

50/50
670:9,22
671:4,8

500 680:9

50-50
502:22
503:5
550:1
698:6

51 664:15

51.76
576:21

555 487:10

557 487:16

559 487:21

56 597:2

561 485:18

581 487:24

6

6 487:11
499:10
502:3
557:8
613:7
615:19
628:17
660:9
674:16,18
679:3
697:16,17
701:24

6.08 568:21

6.5 665:10

60 576:18
577:6,18
597:24

601 488:7

606 485:19

629 488:11

63 510:22
596:25
665:9
666:11

631 488:16

635 488:23

64.6 680:20

648 489:7

655 485:20

657
486:5,9,1
1

658 485:21
486:12

66 620:9
666:10

66.67
576:13

69 593:5
596:25
666:16

692 485:23

7

7 487:17
505:9
520:3
559:24
565:16
619:8
620:4
657:21

7.2 570:14

70 497:14
505:21
506:4
507:4,9
510:7,22
512:20,21
515:16
534:11
599:7
680:13

711 485:24

715 483:24
485:25

72 593:13

74.6 562:7

75 487:17
522:25
558:7
559:14,25
562:17

77.3 680:20

78 660:10

7th 606:19
607:6

8

8 487:22
565:14
581:14

80 534:11
565:13
592:23
594:7

83 662:16

84 628:11

845 574:13

85 538:10
560:24
628:11
714:5

8th 613:15
623:24

9

9 488:3
502:3
562:20
565:2,7
566:24
601:10

9:00 691:25
714:18,19

9:06 490:1

90 578:23

96 562:13

97 562:14

97.5
711:6,9

975 573:23

98 562:14

99 684:1

A

a.m 485:14
490:1
491:18
554:5,6
691:25
714:19

AAP
517:9,14
521:6

abbreviatio n 518:19

ability
542:5
591:3
592:14

able 500:15
520:13
590:15
591:3,23
633:1
652:25
710:5

abreast
672:11

absence
546:21

absolute
496:23
526:22
548:18
558:20

Absolutely
612:14
687:11

absolve
592:2

absorb
590:15,21

accept
565:13,15
,22
568:16
581:12
587:12
605:17
618:22
623:23
666:15

acceptable
711:5,13

accepted
495:3
516:10
547:16
563:11
564:7

accident
640:12,21

accordance
516:10
547:16

account
608:19

accountabil ity
592:11

accounting
516:6,18,
25 517:7
518:3,8

accuracy
671:2
672:20

700:7

accurate
542:22
583:9
588:20
650:1

achieve
516:5
530:21
625:8

acknowledge
602:21

across
502:9
649:17
713:23

action
532:7
544:13,14

actions
487:15
552:9,11,17
553:1,13
556:4,6,7,13
557:14
673:9
676:6

actual
505:16
569:19,23
574:2
576:10,13
578:23
608:22
611:8
677:15

actually
496:5
511:2,4,5
539:22
540:3
576:8
622:7
636:15
645:21
675:2
681:25
707:17

actuals
671:4

actuarial
495:3
516:11
518:5
547:17,21
563:11
564:8
569:12
649:16
659:20

actuarially
563:3
565:1

Actuaries
547:7

actuary
533:20
534:11
547:15,22

add 517:25
518:1
520:1
549:11
575:16
583:16
634:13
635:3
661:21
669:1
678:12
685:7
689:17
699:10
706:2
708:22

adding
588:25

addition
492:8
577:9
584:14

additional
509:5
563:14
566:25
580:6
584:15,20
587:9,14
589:15
608:4
689:21
696:7,11

additions
598:17

address
547:7
590:13
661:1
662:9

addressing
661:11
668:11

adduced
566:16

adequacy
485:9
491:14,25
522:13,15,21 558:8
678:19

adequate
502:2
690:7

adjourn
600:22
601:20
652:19
714:18,19

adjourning
714:22

adjust
497:4

adjusted
612:12

adjustment
569:11,16
582:22
706:14

adjustments
509:22
539:17
540:8,15
587:15

administered 586:9

administrative
553:24

admitted
504:15
667:9

admitting
532:6

adopted
515:2
608:24
693:11

advance
585:24
586:11

advanced
677:14

advantage
508:24

advantages
501:3,11,14 516:12

adverse
497:11
498:6
510:4
531:7,19
532:19
537:2
552:7,16
580:7
581:5,21
582:5
591:10,16
675:20

advice
663:2,13
670:7,8
671:7

advising
663:19

advisors
553:20
684:17

affect
506:20,25
509:23
591:21

affidavit
606:18
607:2,7,12 608:7
610:3,15

affidavits
608:1

Affirmed
485:11
491:16

afternoon
601:25
605:5
713:13

against
582:12
610:17
612:24
692:19
706:3

aggregate
626:1

aggressive
590:1

ago 574:21
583:1
586:6
697:17
701:24
703:11

agreed
526:15
539:12,19
605:15
607:9
609:10,15
610:6,7,11 611:9
612:4,24
613:17,22

614:13
616:13,22
617:2,9,19
618:3,12
619:21
620:17,23
623:10
626:13
632:5
633:22
637:23
638:23
641:10,11
642:13
644:11
645:18
646:6,12
648:9,10
661:19,20
662:5,6
663:3,15,21,22
664:2,3,11,12
665:6,7
668:12,13,21
669:19,20,24
671:22,23
673:1
677:18,19
685:9,13
687:15

agreeing
609:23

agreement
619:13
685:5

ahead 493:9
627:17
692:5

aligned
523:8

allocated
667:8

allocation
707:23
709:4
710:13,18

allocations
642:10
651:4

allow
575:12
609:2
616:21
689:22
690:2
700:22

allowances
582:12

allowed
616:20

allowing
618:2

allows
501:19

ALM
492:7,23
583:6
663:25
665:3,15
668:5
690:6
704:24

already
501:15
508:1
549:6
553:14
604:15
608:8
637:20
705:22

alternate
502:19

alternative
600:18

Alternatively 700:16

am 506:7
575:2
629:11
652:16
672:6
678:3
681:5
683:25

amend 622:9

amended
607:7
609:12
610:9,14

American
673:19

among
633:22
686:15

amount
487:24
488:3,6
496:17
498:2
500:6
513:2
530:15
532:13
548:17
559:3,10
563:14
565:6
573:22
574:16
581:11,17
600:4
601:2,5,11,16
680:3
695:8,11
696:8,11
698:22
705:2

amounts
558:13
571:21
579:10
580:24
586:10
703:3

analogy
575:4

analysis
489:3
529:11
535:5
543:10
546:13
547:2,8
553:14
559:5
609:1,17
611:6
614:5
620:13,23
621:2
622:17
624:12
625:3
634:1,16
644:25
647:24
648:7,12,15,24
649:5,7,8,10 651:3
659:25
682:7,22

analyst
659:4
672:3

analytic
642:4

and/or
531:20

Anderson
557:20

annoyed
540:21

annual
487:7
497:2
539:16,23
555:3,16
566:19

annualized
631:19,21
632:4
654:9

annually
497:2
570:8

answer
493:1
503:11
511:20
518:11
519:16
531:11
549:2,7,15 564:15
565:25
592:17
594:25
600:17
616:2
632:7,24
645:24
646:1
652:6,11
655:16
659:2
669:22
670:6
705:24

answered
616:3
654:22
695:6

answering
604:22

answers
589:10
654:24

Anthony
484:7
485:24
711:24,25
713:11
714:15

anticipate
525:8
577:4
603:17

anticipated
643:19
644:8,9,16

anticipation 603:20
anybody 575:25
anymore 507:24
anyone 575:3 658:16 659:15
anything 512:18 520:13 549:19 598:24 604:23 675:2,4 676:7 704:9 714:10
anything's 514:9
anyways 500:18 501:7 515:24 518:21 705:23
AOCI 574:15
Aon 665:3
apologies 622:10 626:9
apologize 670:17 686:14 704:2
apparent 508:6,8
apparently 690:23
appear 556:23 569:17 668:19
APPEARANCES 484:1
appears 498:14 515:22
appendices 552:12
Appendix 488:10,19 592:19 613:7 614:2 623:20 628:17 629:14,24 630:21 635:1,14 637:18 679:3 709:14
appetite 706:16 708:15,17
application 483:6 488:5 505:25 506:11 508:5 509:21 518:13 560:25 566:16 567:25 568:20 569:5 584:18 587:16 588:6 589:1 601:4,14 665:22 675:24 677:6 679:3 686:3 693:2,22 697:25
application 582:17
applied 505:12 560:10 562:24 563:17 564:5,13 577:19 714:4,6
applied-for 584:18
applies 488:15 631:3,10
apply 518:6
applying 562:12
appreciate 541:10 632:19 707:9 708:17
appreciating 541:4
approach 504:22 511:15 512:1,3,9,16 516:24 543:11 544:23,24 546:3,6 573:1 608:25 663:9 670:9,23 681:17 693:25 704:17,24 706:7,11,20
approaches 511:23 512:12
approp 713:5
appropriate 508:18 512:24 514:7,12 532:11 546:10 548:6 553:19 564:23 572:24 575:5 652:8 694:9 712:6 713:5
appropriately 591:23 592:12
appropriateness 550:16
approval 541:7 542:4 676:9
approved 502:22 509:20 528:12 530:2 535:6,9 536:23 548:4 551:15,17 552:4 592:21,22 593:5 696:3
approximate 579:10
approximately 495:7 567:3 577:24 579:2 584:10 680:7
approximation 638:13
arbitrage 615:9
area 547:3 606:11 607:20 644:4 672:5
areas 492:1 678:25
aren't 571:22
arguably 683:22
arise 647:22
aside 633:10 660:23
aspects 683:7
assertion 591:9
assessing 500:4 683:17
assessment 610:9
asset 494:18 596:9 604:4 606:12 613:21 625:23 641:17 642:8,10 651:8,14,16,18,21 665:20 686:17 707:1 709:9
assets 494:19 495:13

496:16
498:16
503:19
518:6
567:4
582:13
595:11
598:13
638:2,4
639:3
641:23
642:1
643:6
651:12,23
667:5,19
672:5
688:20,21
702:11
704:20,21
707:15,20,22
708:23,25
709:2,5

assist
626:20

assistance
656:11
670:5

associated
558:21,24
559:3
638:14
675:18
682:25
709:8
711:4

assume
500:7
530:3
532:11
544:14
561:22
565:14
639:25
649:19
652:13
659:1
662:12
676:7
682:10
685:14

assumed
507:18
534:3,11
556:3,6
647:1

assuming
494:17
623:15
648:25
649:8,10
676:18

assumpt
626:23

assumption
488:9,14
526:5
531:5
545:4,7,20 546:3,7
549:19
556:15
586:24
589:19
594:7
617:7
626:22
627:5
628:21,22
629:1,4,9,13,21
630:6,21
631:2,9
633:10,14
653:25
667:21
688:4
703:7

assumptions
534:3,4
543:15
572:18
590:19
609:14
644:10,20
649:18
698:17,24
699:12

attached
552:12

attachment
488:11,19
613:7,9
614:3
623:20
629:14,24
630:21
635:1,14
637:18
709:15

attempt
624:7
661:11

attempts
617:17
681:20

attention
607:12
609:7
610:22
620:8
640:7
646:2
662:14
673:17
674:3
681:24

attest
706:24

attuned
671:21

August
487:20
493:18
559:18,20
560:4
567:20
602:24,25
607:2

authority
669:16

auto
511:17,25
513:8
533:14
539:11,17,25
540:7,13,18,25
542:15
704:6

automatically 532:10
707:20,23

available
533:14
538:24
589:3
600:17
699:21

Avenue
483:21

average
512:9,25
515:17,23
561:24
578:7,18
621:11,14
622:14
638:11
639:10
647:2
691:13

averages
615:3

aware
488:22
490:15
501:6
502:14
542:14
550:17
552:13
556:10
575:2
576:1
585:20
635:4,18
672:24
674:11,13
696:10

away
519:21,25
520:3
555:6
558:17
592:10
617:1
624:20
632:18
660:11
713:25

B

B.C 688:13
689:10,19

background
603:7
632:17
672:3

backing
624:19

backup
606:24

bad 492:19
578:10
597:19,23
638:13
708:8
713:7

bake 573:1

balance
496:21,23
511:8
525:9
544:2
574:12
580:23
581:9
594:22
654:23
689:15
698:21

ballpark
584:12

bandied
566:8

bandwidth
661:3

bank 486:3
583:14
585:3,12,

16,23
586:1,24
587:9
589:20
656:23
657:2
669:16
671:16
672:9,11,25
673:3,8,13 674:11
675:6
702:22
703:8,10

banked
699:16

banking
700:10

banks 586:8
647:3

bank's
699:5

base
526:3,6
528:10
529:2
530:4,10,18
545:10,19
551:18
552:6
681:21

based
487:14
489:4
495:3
496:16
500:11
501:22
505:5
511:8
515:21
516:25
517:3,13
518:3,4,5,7 527:8
537:13,20
538:16
542:16
550:1
552:15
556:12,22
557:12
563:3
568:16
569:12
575:17
587:6
588:23
594:12
609:17,21,25 618:8
646:5
647:14
648:7,16
649:17
667:22
693:6
699:15
701:5
704:17
705:16
708:18
714:13

basic
487:12
493:18,25
494:19
498:16,23
499:23,24
503:20,22
505:17,23
508:7,9,15 510:20
519:1
521:20
522:22,23
523:20
529:3
530:11,21
537:12
538:7
540:19
541:1
545:11
546:16
551:19
552:14
556:5,10
557:9
558:9
568:6
574:11
596:23,25
600:7
638:22
639:11
661:18
664:11
665:5
699:20
709:21
710:4,7,11,12,13,15,25
711:2,4,7,12,16,19

basically
533:20
583:12
594:17
597:1
677:3

Basic's
488:7
496:1
506:10
513:15
515:10
537:14,21
601:5,17
677:16

basis
498:12
510:9
514:4
523:1
543:21
552:25
563:22
564:14
567:7
584:23
585:18
586:15,24,25
589:12
667:20
676:8
687:22
694:8
703:9

BC 687:1,19
690:25

bear 542:22

bearing
513:14
515:10
552:20
556:17
583:13

becomes
661:18

becoming
534:8,10

beginning
533:9
602:23
691:24
695:19

behalf
608:10

behind
547:23
588:12

belabouring
619:2

belief
560:17

believe
500:11
512:10
515:12
524:9
529:9
531:15
535:13
550:8
553:11
554:9,18
558:10
565:24
566:16
580:8
582:23,25
585:16
587:5
595:3
598:7
602:7
605:20
608:6
622:5
634:6
645:2,5
647:23
653:22
654:14
670:13
701:24
703:6

believed
646:3

believes
531:3

benchmark
488:10
550:20
607:9
608:25
609:8
610:5,10,16,19
611:7
624:15,17
625:1,2,9
626:21
627:4,9,25
629:5,10,13,23
630:16
633:9,10
641:8,20,23
642:2,12,18
643:16,17
644:7,8

benchmarking 568:20
569:4
608:16
703:20

benchmarks

611:5
624:20
625:17
633:15
637:22
643:21
645:4

benefit
640:21
688:1
712:12

benefits
640:12
678:5
689:7,13
691:11

best 514:18
519:17
524:4
529:3,17
538:20
545:10
547:19
549:19
550:3,8
580:22
588:24
589:3
592:13
625:9
670:23
677:2
688:5
697:6,15,17,21,22
698:2,7
699:6,7,14
701:1,3,4,13,16

bet 703:11

bets 703:8

better
495:24
502:8
512:17
517:24
518:20
536:6
578:2,5
588:20
668:4
690:3
704:7
707:13,14,15

beyond
508:4
639:22
640:16,19,24,25
650:16,20
675:4
704:19

bigger
571:21
593:23
679:11
705:6

biggest
535:22

Bill 690:15

billion
567:3,5
582:4

bit 492:25
515:19
520:4
542:2
566:8
571:12
577:23
593:23
604:5,12
611:5
615:8
649:24
659:21
667:3
671:15
679:11
681:11
688:10
702:25
705:5,23

Board
483:1,12,13,14,15,16,20
484:3,4
486:10,12
487:13,14
502:21
504:6
506:24
521:25
522:1
523:10
526:15
535:17
536:5
537:24
548:4
549:9
551:15,17
552:4,15
553:20
556:11,12
557:11,12
564:9
579:4
587:15,20,22
588:2,3
590:13
605:20,24
607:20,25
611:18
655:4,6,7
657:18,23
658:3,5,8
662:8,15,25
663:2,7,8,13,18,19
664:5,8,21 665:13
666:12
667:2
668:10,19,24 669:3
670:9
681:10
682:1,3
685:1
686:13
692:16
696:8,15
702:2
703:22
705:7
706:6,24
707:6
708:16

Board-approved
528:25
529:16

Board's
543:10
548:8

bold 698:17

bond
585:4,8,10 587:24
588:8
611:22
613:2
614:12,13
615:2,11,12,15,19
616:11
617:11
669:19
705:17

bonds
611:20
612:2,18,23 614:4
615:11,24
625:21
626:4
629:2,6
637:4
647:5
650:5
651:5,8
655:22
702:9
705:22

book 493:13
505:9
524:7

borrower
619:19

bottom
529:8
531:15,17
551:11
598:17
640:5
654:6
663:17
664:20
665:1
670:21
677:11
695:17

box 543:7

bra 589:10

brass
589:10

break
490:18
521:6
542:25
553:19,22
554:17
557:23
628:7
632:19,23
652:7,8

breakeven
496:14
503:15
509:2
597:1
614:5,11,24

break-even
516:6
517:9
578:12,19

breakout
487:6
555:2,15

BRIEF 512:6
513:5,18
520:10
523:4,14
524:11,18
525:24
528:16,21
531:9

548:11,24
550:11
553:3,9
556:20
565:10
571:17
573:18
574:8
576:6
580:19
583:22
600:9
611:13
618:6
619:5
622:23
627:12
628:3
631:25
632:10
634:18
641:3
650:10
660:13
664:17
666:19
673:24
676:1
677:23
679:13
680:24
683:11
684:5
686:10
696:19
703:24
709:17,25

bring
494:21
503:7
510:7
518:14
520:8
536:5
571:3
576:4
589:9
592:18
598:5

bringing
680:10

brought
504:9
538:19
545:3
607:24
685:7

brutalizing
623:1

bucketed
504:22

bucketing
704:16,17

budget
505:21
524:14
575:13

budgeted
488:6
601:5,15

buffer
599:2,6

build 498:3
504:7,14
515:8
518:16,24
561:2
702:1

building
487:16
557:15

built
507:14
688:8
696:4

bullet
543:14
545:8
670:21,25

Bun 672:23

Bunston
485:11
491:16
585:5,16,22
586:7,17
606:16,18,21,22
607:4,10,16,18
609:6,11,16,20,24
610:7,12,20
611:2,10
631:14
645:25
646:15,24
647:13
648:11
659:3,8
660:3,6
669:25
670:5,7,18,24
671:9,13,14,18,23
672:2,13,23
673:2,8,15
674:1,9,13 703:16
706:23
708:21
709:11,12,20
710:5,9
711:21

bus 699:21

business
495:12
501:24
502:5
508:25
509:1
520:19,20
541:22
593:24
594:3
667:9
673:12
699:20,22

buying
612:20

Byron 484:9
485:19,21
605:4
606:9,10,23
607:5,11,17 608:9
609:5,6,12,19,22
610:2,8,13,21
611:3,15,25
612:8,15,22
613:5,17,19,24
614:10,16,22
616:3,18,24
617:6,12,16,21
618:1,8,15,19,25
619:7,12,18
620:1,7,12,20
621:6,13,21,25
622:4,8,16,20,25
623:14,18
624:2,19,25
625:14,20
626:6,9,15,19,25
627:3,14,17,21
628:6,13,15 629:7
630:1,2,18
631:1,13,14
632:1,12,15,20
633:4,5,16,25
634:9,14,24
635:8,25
636:1,7,13,25
637:5,17,25
638:6,16,19
639:1,8,21
640:3,11,20
641:5,12,18
642:3,9,20
643:3,10,13,18
644:2,14,21,24
645:8,21
646:9,14,20
647:7,8,16
648:2,5,22,23
649:4,12,22
650:12,19
651:2,10,15,20
652:1,15
653:2,6,15
654:5,12,16,25
656:19
657:6,17
658:1,7,11,12,17
659:5,9,12,24
660:5,8,15,23
661:9,15
662:2,7,13,23
663:5,12,16,23
664:4,13,

19
665:1,8,18
666:2,5,8,23
668:7,17
669:11,21
670:1,15,16,20
671:6,11,14,19,24
672:8,22
673:5,11,16
674:2,10,23
675:11,23
676:12,18
677:8,20,25 678:18
679:2,15,23 680:18
681:1,9,23 682:23
683:6,22
684:7,15
685:16,22
686:6,12

C

ca 547:22

CAA 484:14

Cabinet
539:18
541:7

CAC 484:9
607:1
642:21
656:22
657:9,19
658:2
662:14
670:2
673:17
685:9,13,14

CAC-14
486:3
657:1

CAC-15
486:6
657:11

CAC-16
486:10
657:23

CAC-17
486:12
658:5

CAC-1-8
669:14

CAC-2
655:11

CAC-2-18
677:10

CAC-2-20(b
675:14

CAC-2-29
649:24

CAC-MPI
642:24

calculate
546:21
595:22
616:20,21
621:16

calculated
526:14,24
564:20
614:11
645:6

calculation
495:6
503:12
518:4
527:3
529:21,25
538:25
544:1,19
546:17
547:22
550:9
558:20
563:12
564:8,13
588:10
614:23
618:2
644:15
678:7
679:16,24

calculations 547:20
563:3
587:15

camera
605:8,19
606:1

Canada
486:4
516:11
547:17
550:20
585:3,4,8,12,14,17,23
586:1,25
587:24
588:7
615:2
623:16
649:17
656:23
657:2
669:16,18
671:16
672:9,12,25
673:3,13
674:11
675:6

Canada's
673:9

Canadian
547:6
602:21
615:11
620:14

cap 518:19
520:2,5
713:3

capability
661:23
702:8

capital
485:9
487:4,9,12
491:14,24,25
494:13,17
495:17,23
496:1,17,22
497:10,22
498:13
499:16
501:7
502:3,8
504:8,20,24 506:10
507:1,14,21 508:12
509:3,9,19 510:7
511:16
512:10,13
513:15
514:13,16
515:2,8,11 516:24
517:16,18
518:4,14,16,19,22,24 519:1
520:14
521:7,20,22
522:6,13,15,21,22
525:3,9,15
526:7,19
527:11,17,18
529:11,16,22,24
530:2,9,11
532:5,9,15,24
537:9,12,20
538:3,7,15 539:11
541:7,22
542:15
543:10
544:18
545:4,7,12,18
546:2,12,13,16,20
547:2,7
548:9
549:12,18,20
550:9,20
551:12,14,19
552:14
554:22
555:4,11,19,24
556:5,11
557:10
558:1,8
559:10
560:11,14
561:2
563:14,21
564:11,20
580:4,16
584:2,5,8
591:9
592:14
599:5
614:17
646:11,18,21
675:13,17,18
676:25
677:6,13,15
678:1,19
679:4,5,24,25
684:10,19
685:2,5,8,24
690:18
691:15
692:20
693:4,12,15,23
694:4,6,1

0,11,19,21,22 695:24 705:1 708:14 709:2 712:4,5,14,18 713:3 714:2

capitalization 496:24 501:9,20 693:7

capitalize 501:20

capitalized 707:13

capture 614:17

care 509:14 668:15

Carol 483:15

Carpenter 690:15

carried 593:1,9

carry 502:2 689:23

carrying 547:15

cars 569:21

cart 552:14

case 498:1 513:23 608:13 615:15 619:18 624:6 638:4 642:11 708:25

cash 624:11,12 626:1 639:3,11,12,23 651:6 667:20 704:18

caucusing 553:7

cause 647:4 712:23

caused 597:10

causes 638:22

caution 550:24

cautious 708:4

caveat 542:21

CCRS 683:8

CEMP 561:13

central 586:8 608:17

certain 607:1,7 633:20 651:1 675:17

certainly 491:4 573:5 595:17 599:22 603:10,14 608:3 639:24 642:15 650:24 663:12 666:9 673:2,10

certainty 578:21 619:15 687:13

Certificate 485:25

Certified 715:3

cetera 698:15

Chair 490:6,14 553:18 608:9 652:1 656:20 686:7

Chairman 561:9 599:18 602:10

Chairperson 483:13 490:3,21,25 491:5,8 543:1 553:23 554:3,10 561:6 599:22 601:19,25 605:3,23,25 607:23 609:2 652:9,18,24 653:5 655:6 656:10,17 658:9 670:12 686:20 687:7,12,16 688:12,15 690:9,13,19,24 691:18 692:2,3,9 700:24 714:17

Chairperson's 704:4

challenging 650:21

change 487:15 498:20,22 499:11 505:13 506:24 508:14 509:15 514:4,17 534:5,14 546:23 552:9,21 556:6,13,17 557:13 561:25 562:25 563:18 564:5 584:22,25 595:1,21 596:6,10,14 638:14,21,22 661:10 665:4 702:12 707:3 708:8

changed 507:19 529:23 534:3,4 594:3 609:14 661:2 671:12 701:1

changes 492:8 501:23,24 502:4 505:12 508:4 510:15 517:11 533:21 536:2 561:21 569:12 583:7 587:10 589:6 590:19 596:8,12 597:21 620:15 638:1,9 677:16 699:15 703:2 712:22

changing 509:1 514:9 663:21

chapter 709:14

characteristics 643:23 687:18 710:8

characterization 714:8

characterize 688:23

characterized 577:18

charge 513:1

charges 518:6

chart 686:23

chartered 659:4 672:3

check 512:3 568:16 573:14

595:12
623:23
628:25
683:7
686:7
714:11

Cheryl
715:8

choice
514:18,24
641:21

choices
592:3

choosing
625:1

chose
636:19

CI-2 640:7

CI-7-25
640:4

circumstanc es 668:18

cited
518:12

claim
570:18
579:15,16 ,22
667:13
671:25
704:15
705:13

claimants
534:2,8,9 ,10
535:23
639:25

claimed
582:18

claims
487:23
568:25
569:10,17 ,19,23
570:13,18
571:21
572:8,25
577:25
579:3,23
580:1,15
581:9,15
582:1
589:6
598:16
661:13
667:5
678:24
683:7
688:22
689:21,23
710:15,17

clarificati on 527:25
580:15
625:15
634:21
712:8

clarify
532:1
536:13
542:2
544:22
545:9
549:5
559:13
569:10
654:22
677:5
697:13

clarifying
557:24
610:23
648:6

clarity
521:3,4
630:19
639:9

clash
639:12

class 565:8
642:8

classes
571:9
709:9

classificat ion
561:21

clear
492:18
507:13
517:17,19
521:3
543:9
551:24
565:24
588:16
646:17
667:1
668:1,23
669:2
685:17
691:3
693:1
698:9
700:5
701:14

clearly
529:21
577:23
589:23,25
615:14
689:6
701:16

Cleary
486:7
657:8,13
669:23
670:4,22

Cleary's
670:7,8
671:7

client
608:10
616:8
626:20
645:1
685:4

clients
641:7
655:2
686:7

climate
568:25

close 551:5
562:19
599:19
707:7,9

closer
595:8

closes
686:18

CMM 590:7

CMMG 484:12
572:4
578:13

CMMG-1-11
592:18

CMMG-1-12
568:5

CMMG-1-7
571:3
576:3

CMMG's
561:13

CMMP 564:4

CMP 497:3
498:17
499:13,17
502:23
503:4
504:1,2
506:9
508:19
509:23
518:15,21
526:23
527:3,6
529:1,2
531:3
564:4
573:6
577:8
590:7,14
591:2,6
592:10
677:14
684:25
712:9

co-counsel's
703:17

collaborate d 620:25

collaborati ve 535:9
536:9
544:7

collaborati vely
714:14

collected
487:9
555:4,18
582:22
584:16
624:11

collectible
582:10

collection
583:9,17
584:2

column
505:21
506:5
564:5
578:8
592:21
596:21

com 541:13

combination
503:4
597:20

combination s 597:15

combine
597:22

combined
676:24

combining
499:5

comes 494:4
591:15

comfortable

550:5
588:14
589:25
590:1,2

coming
488:5
501:13
518:21
547:10
578:17
590:25
594:15
601:4,14
603:17
627:10

commencing
490:1

comment
518:2
541:14
603:7
666:1
701:3

comments
501:18
672:17
703:18
704:5,7
713:23

commingled
661:17

Commission
691:1

comp 618:2

companies
550:19
551:5
560:20
682:14
683:15,17
689:22

company
575:10,16
,25
707:25
708:1,4

comparabili
ty 502:9

comparable
550:18
560:19
561:3

comparators
502:10

compare
511:15
544:2
645:3

compared
511:24
575:24
610:14
692:19

comparing
560:18
611:6,7
706:3
711:2
713:13

comparison
510:14
560:20
706:12,17
,20 711:1
714:11

comparisons
699:7
703:20
712:2

compel
607:1

complete
490:9
538:24

completed
584:5

completely
672:18
678:9

compliance
588:13
696:16
699:3

complicate
710:19

component
498:17

components
499:3
503:25
518:7
520:18
611:22

composition
655:22
706:19

compounded
631:21
632:4
654:9

compounding
618:2

comprised
574:14

computation
s 518:5

con 528:13
682:5

concede
685:4

conceivable
641:24

concept
617:13

concepts
659:22

concern
496:6
534:25
538:2
539:1
548:15
553:17
661:24
664:7,9,2
2
665:2,13
668:23
669:3
705:11,14

concerning
692:17
696:25

concerns
541:6
548:3,7
549:5
647:21
648:4
667:1
673:14
693:23

conclude
508:18

concluded
610:18

concluding
587:21

conclusion
551:21

condensed
566:17

condition
500:4
526:18
530:7,15,
22 542:8
548:19

conditions
520:20

conduct
559:5

conducted
634:23
665:15

conference
496:4
600:3
628:18
630:3
684:9,14
685:11,13
,18,23

confidence
683:24
684:2
711:10

confidentia
l
605:9,15
653:3
687:24

confidentia
lity
647:21

confidently
530:3,17

confines
522:9

confirm
488:3,17
503:11
562:15
568:14
579:12
584:4
598:4,19
600:6
601:2,10
603:17
613:12
634:10,25
635:11

confirmatio
n 654:3,7

confirmed
584:6
678:8

confirming
669:15

conjunction
518:25

connotes
701:4

conscious
514:24

consensus
594:16
684:16,19
,25
685:4,18,

24
consequences 667:24 698:16
conservatism 570:3 701:19
conservative 701:6
consider 492:13 529:15 537:1 546:23 621:3 651:11,22 676:14,21,24 706:4 714:2,3
consideration 533:13 624:16,18 639:20
considerations 564:22 623:17
considered 579:24 676:25
considering 681:17 708:18
considers 626:12
consistency 700:7
consistent 495:24 497:25 500:13 605:20
consistently 545:12
consolidated 567:7
constant 649:11
constraint 651:3
constraints 651:8
consumer 612:3,17 620:15
consumers 583:17 584:9 591:16
contain 570:10
contained 529:9 561:18
contemplated 633:19 683:1,8
contemplates 682:24
CONTENTS 485:1
context 501:12 502:13 527:20 528:4 533:17 604:4 619:1 638:17 643:9
continuation 510:16
continue 496:16 535:19 542:24 543:2 560:21 561:1 570:10 571:8 572:18,23 573:3,6 578:9,10 590:25 602:6 699:1 714:12
continued 485:16,21,22 491:21 542:12 543:4 550:13 555:22 557:17 560:7 566:4 567:18 577:15 581:3,19 583:3 599:25 602:12 609:5 630:1 631:13 633:4 635:25 647:7 648:22 658:11 665:14 670:15 692:12 703:13
continues 495:12 535:2 560:17 607:18
continuing 490:7 496:18 507:8 543:6 707:5
continuity 487:4 554:21 555:10
continuous 534:24
contrary 527:5
contrast 645:3
contribute 514:15 704:9
contributed 512:22
contributes 680:1
contribution 512:23 712:18
control 540:7,15 677:2 682:15 710:21
controllable 682:6
controlled 516:17
controller 600:17
controlling 572:24 627:19,22
conventional 611:22 614:12
conversation 605:21 644:1,5 650:17 671:17
conversations 504:14 605:9 690:15
convert 487:17 559:6,9,14,24
copy 493:23
core 591:5 669:4,9,10
corporate 593:22 661:13 667:4
corporation 483:5 492:13 493:9 497:5,10 502:18 503:18 504:3 511:15,24 520:13 521:19 523:25 525:8 526:11 528:24 529:14 531:3,15 533:9,10 536:13 537:11,19 538:14 548:2,7 549:6 551:10,20 552:2,13,20,23,25 554:20 556:4,10 560:17 564:12,16 565:5 566:7,10,13 567:3 568:7 572:3,5,9 573:10 577:6,7,13 579:14,19

580:13
581:22
582:8,17
583:5,8,16 584:4,9
585:2,14,20 586:13
589:15
590:9
591:11,13,15,18,19
593:1,9
595:2
597:10
598:13,18
600:5
601:2
646:3
667:1,9
668:14
681:2,16
686:2
694:16
697:10
707:13

Corporation's 505:22
509:9
512:1
516:23
518:14
526:7
529:7
532:2
533:15
534:20
550:15
570:3
590:7,8
594:4
663:9
684:24
697:5,8

correct
493:11,16
498:18
499:1,21
503:16,23
505:7,13,14
506:1,6,12 509:19
510:17,18,23
525:1,5,21 526:9
529:12
537:3
540:8,16
543:12
556:7,8
561:8
563:13,18,20
566:2,13
567:7,13,14,22,23
568:2
573:12
576:19
582:10
584:10
585:4
589:16,20
593:6,7,16,17
596:4,13
605:23
607:15,16
609:11
610:12
611:2,11,24 612:18
613:16,23
616:17
617:5
619:11,15,17
620:18
621:8,15,16 622:13
624:10
625:19
626:8,14,18 634:23
636:9
638:2
641:1,14
646:7,13
648:1
653:16
654:4,11
655:1
669:25
672:1
673:7,14,15 678:3
683:25
684:3
698:8
713:18,20,21 715:3

corrected
556:25
557:2

correcting
610:23
626:10

correction
487:11
557:8
583:5
633:21

correctly
578:15

correlate
558:13

correlated
703:6

correlation
586:21
603:11
623:9

corresponds
631:21
632:3
654:8

cost
590:10,22
642:15

costs
568:25
569:10
584:21
590:25
677:2
689:21
690:2

could've
563:17
564:4,17

council
674:6

counsel
484:3,4
490:19
605:10
611:18
686:12
692:15

count
690:17

couple
491:4
492:1
501:18
508:23
526:13
534:15
537:7
553:21
571:22
574:21
587:13
605:7,19
627:7
684:8
692:1,14,23 703:16
712:1

coupon
611:22
612:12

coupons
612:5

course
510:21
513:16
550:6
562:4
566:7,8
578:13
588:13
611:25
616:18
617:8
660:20
667:24
673:12
674:10
683:18

court
598:12
606:4
630:19

courtesy
666:9

cover 492:1
640:15

coverages
689:6

covered
672:3,4

CPI 612:7

crash
495:15

create
535:6
540:24
546:7
594:22
606:4

created
544:7
667:7
688:10
702:17

creates
540:18

creating
516:1
545:10

credibility
561:25
562:5,7,12

credit
620:5
680:6

credits
623:17

cross 490:12

cross-examination 485:16,18,19,21 490:8,9,11,17,19 491:21 561:15 570:2 602:6 606:9 607:21 608:7 652:17 656:18 658:11 686:18

cross-examinations 607:25

cross-examine 608:4

cross-examining 490:23

Crowns 538:4

current 495:2 500:3 505:5,24 510:16 512:18 513:1 523:9 525:3,15 536:14 537:1,16 538:16 560:23 588:8 594:19 597:5 663:9 690:25 711:3,10,14

currently 487:15 519:1 530:18 537:4 540:3 557:14 575:24

curve 489:7 603:14 604:13 609:21 610:1 645:16 646:5 648:9,20 649:6,13,20

customer 509:13 683:7

customers 497:20 572:12 584:16

D

dark 579:8

darkness 579:9

data 536:22 538:24 621:1,17,19 626:2 690:16 701:13

date 542:19 558:17 587:25 612:18,19,20

dated 607:6

dates 585:24 586:10

DAVE 485:13 491:19 656:15

DAVID 602:15 603:3,10,20,24 604:2,21 611:24 612:5,14,19,25 613:16,18,23 614:7,14,19 615:7 616:14,23 617:3,10,15,20,24 618:4,13,17,24 619:11,16,22 620:3 623:11,15 624:1,10,24 625:6,19,25 626:8,14,18,23 627:1,6,16,18,23 628:5,10,14,24 630:10 632:13,16 633:13,23 634:2,12 636:6,11,18 637:3,9,24 638:3,10,18,24 639:5,16,24 641:11,15,25 642:6,14 643:2,7,12,15,20 644:12,19,22 645:2,19 646:7,13 647:23 648:3 649:2,9,13 650:18,24 651:7,13,17,24 654:11 655:5,25 656:6,13

day 575:6 714:10

days 574:21 579:8 586:6 587:14

DCAT 492:18 495:16 500:3,5,7,9,18,21 501:23 502:7 517:17 526:2,4,5,6,14 527:20 528:8,10 529:2,11,17 530:5,10 531:4 532:18 533:13,17 534:16 535:3 536:14 542:19 543:8,17 544:5,23 545:2,22,23 548:9 549:13 620:8,13,23 676:6 678:2,12,14 702:3

DCATs 500:2,16

deal 553:24 561:17 602:1 632:19

death 619:3

debate 578:14

debates 544:16

debt 710:13,19,20 711:18

December 589:13 650:3

decide 519:16 532:23 588:2,3 642:16 694:21

decided 522:9 543:20 564:16 607:24 608:8

deciding 598:14

decision 534:1 552:14 556:10 563:5 564:14 577:13 625:11 642:7 699:25

decisions 521:1

641:17
642:8
708:15

deck 634:5

decline
492:9
496:2,9
510:25
571:8,25
597:18,19

declines
597:22

declining
495:21
496:24
511:6,10

decrease
499:20
504:1
508:2
568:6
570:22,25
693:11
700:19,23

decreased
568:25
570:8,14,19

decreases
517:13
572:7
698:13

defeats
529:25

defer
600:16

define
612:16
636:19
693:6

defined
528:25
659:6
689:6
693:6
708:25

defines
676:4
679:18

defining
658:19
659:12
675:25

definitely
501:6
508:22
509:12
529:24
546:5
578:2
590:2
604:6
614:20
628:12
668:4
689:12
691:8

definition
676:4,11

definitions
579:21

deliberations 587:21

deliver
592:14
690:3

delivered
634:5

delivering
591:25

delta
643:15

demand
496:17

denying
674:24
675:2

departure
698:5

depend
558:17
642:11
656:4

dependent
612:13

depending
558:19
636:19

depends
584:24
623:6

depicted
487:18
559:7,15
560:1

depth
690:16

derivation
632:2

describe
589:22
617:18
709:20

described
579:11
598:21
636:3
639:7
675:16
683:4
705:1
709:22

describes
498:12

describing
670:22

DESCRIPTION
486:2
487:2
488:2
489:2

design
496:13
590:11
691:5

designed
693:13

desirable
509:11
575:10

desired
521:24
523:8,11
558:11,15,24
560:9,10

despite
561:12

detail
690:22
707:3

detailed
595:13

details
687:24

deteriorate
497:18
527:1
677:16

deteriorated 514:21

determination 502:23
503:20
514:13
552:25
605:16
619:23

determine
498:22
619:20
623:2
642:16
651:14,16,18

determined
497:1
522:8
533:3
701:12

determining
511:16
529:1
532:20
550:20
651:21
694:8

develop
598:16

developed
714:14

developing
520:14
624:6

development
641:8

deviation
581:5,21
582:5
621:7
643:5

deviations
706:25
708:7

dialogue
608:22
684:20

difference
499:19
511:23
526:11
545:22,23
560:10
614:12
622:7,11
633:14
643:5
645:6
694:3
704:10
710:12

differences
633:8,11

different
493:23
518:6,7
519:4
522:3,17
526:4
527:8
532:5,8
543:19,23

573:14
579:18,21
581:22
586:4
593:19
611:19
620:15
637:15
643:22
649:14
678:16
681:17
687:9,10
700:3
706:4,7,9
710:11

difficult
500:3
541:4,11
559:9
586:23
587:8
712:25

dig 627:10

Dilay
484:10

diligently
590:23

direct
506:8
540:7,15
586:20
620:8
642:23
658:18
662:14
673:9

directed
494:15
554:19

directing
607:11
609:7
610:22
640:6
646:2
674:3
681:24

direction
533:10
606:1
607:20
663:25
705:7

directly
679:1

directs
539:18

disadvantages 502:12

discount
587:9
705:16

discuss
652:10
685:11

discussed
540:24
557:21
623:25
651:25

discusses
640:7

discussion
504:20
554:11
586:18
611:16
613:13,20,21 616:6
634:4
642:19
650:13
671:15
681:12
712:3

discussions
521:15
554:16
557:19,22
587:17
688:7

dispose
494:8

distance
639:3

distinction
543:17
544:22
642:4

distinguishing 612:1
641:19

diversification
680:6

divide
680:21

divided
680:10,13

dividing
621:18

document
607:6
629:17
633:17
655:19
704:4

documentation 502:20

documents
493:13
505:10
524:7
538:1
561:19
674:22

dollar
487:20
500:6
558:15,20,24
559:3,7,16 560:3
688:21
695:11

dollars
575:18,20,22 579:7
580:1
711:14

done
488:21,23
497:6
506:9
515:20
534:23
542:18
569:14
578:14
620:14
624:12
634:1,6,11,15
635:4,5,17,20
652:13
660:16
665:25
669:8
686:13
699:13
703:17

double
512:3
597:7

doubled
595:18

doubling
603:18

doubt
644:22

downgrades
590:19

downside
493:3
701:2,6,10
709:1,3,8

downturn
698:19

Dr
485:19,21
486:7
605:4
606:9,10,23
607:5,11,17 608:9
609:5,6,12,19,22
610:2,8,13,21
611:3,15,25
612:8,15,22
613:5,17,19,24
614:10,16,22
616:3,18,24
617:6,12,16,21
618:1,8,15,19,25
619:7,12,18
620:1,7,12,20
621:6,13,21,25
622:4,8,16,20,25
623:14,18
624:2,19,25
625:14,20
626:6,9,15,19,25
627:3,14,17,21
628:6,13,15 629:7
630:1,2,18
631:1,13,14
632:1,12,20
633:4,5,16,25
634:9,14,24
635:8,25
636:1,7,13,25
637:5,17,25

638:6,16,19
639:1,8,21
640:3,11,20
641:5,12,18
642:3,9,20
643:3,10,13,18
644:2,14,21,24
645:8,21
646:9,14,20
647:7,8,16
648:2,5,22,23
649:4,12,22
650:12,19
651:2,10,15,20
652:1,15
653:2,6,15
654:5,12,16,25
656:19
657:6,7,12,17
658:1,7,11,12,17
659:5,9,12,24
660:5,8,15,23
661:9,15
662:2,7,13,23
663:5,12,16,23
664:4,13,19
665:1,8,18
666:2,5,8,23
668:7,17
669:11,21,23
670:1,4,8,15,16,20,22
671:6,7,11,14,19,24
672:8,22
673:5,11,16
674:2,10,23
675:11,23
676:12,18
677:8,20,25 678:18
679:2,15,23 680:18
681:1,9,23 682:23
683:6,22
684:7,15
685:16,22
686:6,12

draft 623:24

dramatic 702:16

dramatically 514:5,9 569:18

draw 708:5

draw-down 597:10

draw-downs 596:18

drawing 673:16 682:10

drive 708:15

driven 492:7

drives 494:16

637:16

driving 494:4

drop-dead 587:25

drops 515:19

due 689:24

dur 638:20

duration 615:10,13 625:17,22 626:3 637:21,25 638:3,21 639:2,10,11 651:11,22,25 661:2,12,13 663:9 667:4 710:16,19,20

during 584:18 592:25 596:17 660:20

duties 662:18,24 663:3

dynamic 491:24 501:21 502:6 522:13 678:19

E

earlier 532:22 541:8 590:24 623:25 645:5 655:19

682:1 688:19 698:18 705:1 712:3

early 602:3 607:19 608:25 681:20

earn 493:24 496:11 616:10

earned 506:23 616:25

earning 506:16 636:21 637:1

earnings 523:25 567:9,11,18,19 574:14 637:13

easier 519:7 521:4 530:21 693:25

easiest 500:25 501:3

easily 628:11

easy 501:8 654:13

ebb 516:17

econometrics 659:13,17 660:5,6

economic 617:17 659:15 700:2

economics 658:19,24 659:6 660:4 672:4

economist 659:4 672:6

economy 636:23 658:21 672:10 673:19

effect 505:25 530:21 584:7 603:5 617:14 618:9 619:2 704:25 706:9

effectively 532:4

effects 569:24 673:6

efficiencies 570:11

efficiency-wise 628:7

efficient 591:1 704:2

effort 624:4

efforts 660:25

eight 574:13

eighteen 502:4

either 517:12

519:21
528:12
538:15
600:16
604:8
630:4,15
672:23
688:11
690:9

elaborate
496:8
549:10
675:15
699:10

elected
683:25

elegantly
631:15

element
608:17
635:3
641:8
661:10

eliminate
607:7

else 495:14
520:25
589:22
602:16
698:10

else's
587:6

embedded
678:24

emphasize
575:4
689:17

employed
583:7
670:10

employee
681:8

enable
575:11

endured
572:16

enjoyed
703:2

enjoys
573:11

enormous
535:17
698:22

ensure
591:24
592:13
613:2
690:6

ensuring
591:1,25
677:15

entailed
654:3

entirely
538:13
565:24

entirety
588:6

entries
516:18

enumerated
581:23

environment
522:10
603:9
620:4
691:9
702:15,20
708:19

environment s 532:5

equal
495:14
599:7

equals
617:22

equate
676:14

equates
500:6
714:5

equation
623:5

equilibrium
649:21

equities
495:14
705:13
706:9
708:24

equity
492:9
494:8,19
495:6
498:16
499:25
501:22
503:20,22
505:12
510:15
518:2
523:17,20
524:1,3,22,25
525:4,16,20
574:11,12
590:19

equivalence
616:1

Erika
484:14

error 599:3
643:8
644:1,6
671:5

errors
590:11
607:8
642:25
643:4
671:3

escalate
689:7

escalation
689:8

escaping
667:21

especially
495:4
669:5
702:19

essence
612:11
617:21

essentially
503:2
505:5
533:3
536:15
544:17
614:14
615:7
678:7
680:10
699:17
701:7
705:22

establish
624:21

established
529:1,15
543:22
585:2

estate
708:24

estimate
515:8
529:3,17
533:22
534:17
542:21
545:11
549:19
550:9
565:19
670:23
697:6,15,17,21,22
698:2,7
699:6,14
701:1,4,13,16
711:12

estimated
610:15
654:8,9

estimates
505:5
534:5
547:20
550:4
659:14
688:5

estimating
498:14

estimation
498:12
534:15
542:22
561:12
572:25
697:5

et 698:15

evaluate
624:5

evaluated
644:4

event 510:4
605:13
647:10
676:21

events
497:11
498:6
531:19
590:15,17
591:11,16
597:12,15
675:20
679:20

everybody
499:4
506:13
521:14
537:24
621:1
702:21

everyone
490:4
501:6
541:23
544:3,8

587:6
696:10
698:10

everything
493:2
595:20
598:21,22
683:3
707:6
708:19

Everywhere
602:16

evidence
500:11
501:2
521:18
535:8
536:8
558:10
608:2
671:12
695:15
713:3

evidenced
572:5

evolution
659:14
661:6

evolutionary 515:10

exact 496:5
513:23
567:4
589:11
705:15

exactly
504:12
512:4
622:6
654:21

Examination
485:20,22,24
655:14
692:12
711:24

example
495:13
499:24
504:10
506:10
507:23
510:4
513:21
536:19
551:3
552:10
575:6
579:16
581:9
595:14
596:10
597:5,23
603:13
619:1,8
682:12
683:19
688:13

examples
517:5
533:25
534:16
589:11
592:7
675:8
683:18

exceeds
617:7

excellent
567:18
598:13
613:2

except
618:15

exception
515:18
588:6

excerpt
486:6
623:24
657:7,11
662:15
670:2

excerpts
486:10
657:17,23

excess
579:24
612:16

excessive
538:16
714:4

excluded
503:20
682:21

excluding
530:13
552:10

exclusive
678:13

exclusively
678:2
686:17

excuse
552:3
657:19
669:1

excused
602:5
655:3
656:12

executive
590:8

exercise
492:18
507:3
535:9
633:8
641:6
707:18

exhibit
486:2
487:19
492:5
493:6
559:15
560:2
567:16
602:19
606:17
607:6
657:1,9,11,19,23
658:2,5
662:14
670:2
673:17
686:24

Exhibit 14
656:22

Exhibit 22
537:9

exhibits
485:3
486:1
552:4
656:21

exist
686:16
689:9

exists
689:19

exp 673:6

expect
490:8,12
494:14
496:19
508:14,16,19
509:6,22
510:9
523:25
547:2,21
572:21
586:1,8
604:12,23
689:20
690:1
696:7
708:3

expectation
505:23
507:19
508:23
510:1
521:21
640:18,23
649:14
692:7
705:20

expectations 572:19
604:11
614:17
619:20
673:6,10,20

expected
494:18
496:1
498:15
503:19
508:7,8
516:11,17
616:8,15,19
617:7,23
621:14
632:14
684:1

expecting
493:24
494:5
615:22
674:6

expects
494:8
521:18

expenses
568:7
570:7,10,18,25
572:7,8,24
590:10,23
600:16,18
682:4,14,21

experience
517:14
535:11,13,14
536:16
570:13
572:22
573:2
576:4
578:3,5,10 589:6

699:16
708:14

experienced
494:2

expert
660:4
704:13

expertise
658:23
659:6,16,20 671:25
672:17

experts
700:2

explain
523:1
529:14
541:19
551:20
554:12
577:22
581:10
646:15
694:3
695:23
707:2,12

explained
583:6

explanation
488:12
527:16
630:5,23
631:7
645:15

explicit
612:24

explo 495:4

exposure
492:9
664:23
665:14

express
664:7

expressed
538:8

expressing
663:8

extend
608:6
650:15

extending
639:22
650:20

extends
640:16

Extension
521:10
524:23,24
525:10,12,14,19

Extension's
525:3

extensive
669:7

extent
604:5
611:17
663:1
685:3
686:3
689:9
704:7

external
679:20

extreme
533:24
590:16
597:12
640:22

extremely
535:11

F

face 541:5
569:15

faced
540:19,25
541:12

fact 497:4
569:19
603:8
610:25
617:8
664:10
685:10
687:1
690:3
696:9

factor
501:23
569:16,22
620:2
687:18
710:23

factored
589:8

factors
513:14
514:12
518:8
589:6
619:23
623:6
636:24
642:15,16
681:18
687:9
688:15,20

failed
608:19
678:20
679:19
682:25
683:7

failures
686:15

fair 502:1
512:22,23
545:17
577:11
599:6,7,14 608:3
611:21
612:23
614:6,18
615:9
618:9
622:15
624:9,23,24
625:5,14
636:14
639:2,15
658:22
662:21,22
671:19
672:12,22
676:13,17,20
679:21,22
680:12,16
698:7
701:3
706:12,16,20
712:17

fairly
497:22
583:14
604:13
620:5

fall
618:10,14,21
636:15,18
647:5
693:24

fallen
694:17

falling
510:21

falls 578:6

familiar
598:2
617:13
662:24

fancy 700:3

farthest
519:20

fast 544:12

faster
511:9

fault 679:9
689:7

favourable
492:13,21,25 573:2
584:24,25
710:8

feathering
572:10

featured
563:6

features
612:1

February
598:2
697:22

Fed 586:4

federal
538:24
539:4
543:22
544:4
669:17

fee 531:6
552:10
556:7
676:20,25
677:5
692:25
693:1,4
694:5

feed 679:1

feel 504:23
546:6
548:18
550:3
572:20
573:8

fees 487:16
497:1
519:20
531:23
532:7,12
556:24
557:15
708:12

fences
699:17

fifteen
542:23
596:3,17

703:4
fifth 520:3
fifty 640:1
figure
519:7
571:4
576:9
620:8
631:18
640:7
652:16
694:18
file 628:11
665:20
677:17
filed
684:22
filing
492:2
588:13
699:3
final
634:7,8
642:17
finally
658:1
financial
492:3
493:7,19
498:21
500:4
522:15
524:21
526:3,18
529:4,17
530:7,15,
22 542:8
548:19
558:5,6
566:6,15,
17 567:17
588:19
624:5
658:21
659:4
672:3
678:8
679:17
687:14
690:20
696:25
702:1,16
finding
487:14
552:16
556:12
557:12
findings
664:5,21
666:12
fine 490:20
547:12
553:23
565:21
582:15
710:2
fine-tune
532:18
fingertips
547:10
600:12
683:2
firm 632:8
649:19,21
first 492:4
494:16
498:17
522:14
536:4
537:11
546:21
547:5
548:15
561:12,17
563:10
579:5
624:20
642:24
653:2
656:21
664:21
668:3
674:4
681:25
704:18
712:1
Firstly
501:19
fiscal
505:24
506:14,22
507:1,3,1
1 510:21
572:16
693:24
712:15
713:4
Fisher
617:14
618:9
619:2
fit 605:24
five 496:20
512:11,25
513:8,9,1
2 594:11
606:3
674:16,17
712:20,25
fix 667:11
fixed
494:11
517:14
585:7
624:6,14
626:12
638:2
646:11,19
,21 650:4
655:21
656:3
661:12
667:5
672:14
704:16
fixed-
income
672:4
708:23
710:17
flat 495:7
583:12
649:1,8,1
1
flattens
604:14
flip 705:14
flips
615:25
flow 516:18
624:11,12
626:1
642:10
651:6
662:20
667:20
flowed
646:22
flowing
506:18
620:16
684:20
685:18,23
flows
639:4,11,
13,23
704:18
fluctuation
s 624:8
flushed
532:14
flying
509:16
focus 493:2
638:20
662:5
690:6
713:8
focused
529:21
focuses
529:10
712:13
focusing
675:16
691:14
folks 536:1
575:13
621:2
follow-up
557:24
692:24
707:10
foolish
672:21
footnote
626:11,15
force 696:7
forces
515:10
forecast
486:8
487:5,8
489:6
493:9,14
497:7
502:22,24
503:5
505:21
506:5
510:17
513:9,12,
15
514:2,7,8
515:15
516:1,19
523:24
524:14
526:4
529:3,17
530:4
545:11,24
550:2
554:22
555:3,13,
18 578:14
582:19
583:9,14
585:6,9
599:4
609:18
644:18
645:18
646:5,11,
23,25
647:15,25
648:8,18
649:6,15

657:8,14
658:13
660:24
666:15
669:19,24
670:3,4
674:15
675:4,5
695:19
696:12,25
697:6,11,14,21
698:1,6
699:6
701:15
702:6,22
712:21,23

forecasted
505:17
506:3
507:9
508:7,9
510:20
514:3
530:11
598:22
599:15
647:3
702:9

forecasting
492:6
517:11
573:4
586:18
615:20
671:1,7
689:5
697:11
700:1

forecasts
495:2
497:18
589:20
598:2
647:11
667:17
670:11
674:18
703:8,10

form 528:10

forma 487:7
493:13
505:8,11
510:12,15
515:21
555:3,16
574:1
598:6
695:13

formal
632:24
676:4,11

formas
515:14
524:3

forty 536:1
688:25

forty-five
574:13

forty-four
575:17

forward
489:7
504:9
518:14
520:8
521:19
542:4
563:20
578:17
582:18,22
589:25
591:12
604:16
609:19,21
610:1
644:10,20
645:16
646:5
648:1,9,19 649:5
695:2
699:4

fought
544:9

foundation
642:18

fourteen
596:3

framework
523:9
560:23

frequent
519:20

frequently
531:24
665:16

Friend
607:18
608:4
645:13

friends
630:13

Friend's
561:19
605:10

front
498:10
503:14
522:17,18
623:22
640:9
709:22

frontiers
704:3

FTEs 682:15

full 492:20
561:25
562:5
660:17
681:6,25

full-time
681:7

fully
571:22
588:9
664:11

functionality 702:13

fund 497:20
511:17,25
513:8
514:17
533:14
539:11,17,25
540:7,13,19,25
575:6
592:12
714:10

fundamental
669:4

fundamentally 550:18

funding
494:11

funds 580:6
590:13
591:20
690:7
699:21

Fund's
542:15

future
498:2
500:2,8,16 509:21
517:12
521:19
536:2
586:1
604:10
612:13
614:18
619:14,17,20
626:3,12,17 631:20
639:4
643:23,24
644:6
675:20
700:6

G

Gabor
483:13

gaining
570:11

gains 494:5
667:8

gather
524:5

gauge
676:10

general
483:6
501:15
537:22,23
538:5
541:14
659:23
675:8
692:22
697:3,25

generally
569:20
604:10
638:8
643:3
658:18
672:10
681:13

generated
594:3

generating
538:3

gentle
649:19

gentlemen
690:10
707:9,11

gets 539:17

getting
564:7,25
700:11
701:22

Giesbrecht
485:12
491:17
493:8,11,16,21
494:1,10
501:17

518:1
523:6,22
524:2,8,16
525:1,5,11,17,21
542:1
554:19,24
555:5
558:4,12,16
559:3,8,18 560:16
566:12
567:6,14,23
568:3,9,13,18,23
569:2,6,9
570:9,16,20,23
571:1
572:13
573:13
574:4,10,18 575:2
582:11
588:25
590:14
591:17
659:10,11,18
668:25
669:12
677:4,9
678:11
689:16
690:12
699:9
700:25
701:11
705:25
706:2

given
490:16
501:20
502:1,4
503:24
508:1,3
513:15
519:10
521:9
523:23
536:16
539:25
540:13,23
542:8
551:17
562:6
586:15
650:22
653:23
666:13
671:20
672:8
673:13
706:11,19,20

gives 502:9

giving
517:13
532:10

GLENN
485:11
491:16
585:5,16,22
586:7,17
606:22
607:4,10,16
609:11,16,20,24
610:7,12,20
611:2,10
646:24
647:13
659:3,8
660:3,6
669:25
670:18,24
671:9,13,18,23
672:2,13
673:2,8,15
674:1,9,13 708:21
710:9

glitch
660:18

goal 507:3
517:5
585:5
707:3

go-forward
535:14

gone 517:4
564:8
572:15
604:7
668:18

governing
674:5

government
509:14
585:3,8,14 587:23
588:7
623:16
669:18
698:14
705:8

GPW
570:7,14

GR 601:4

GRA 497:2
506:16
518:15
526:5
533:20
538:7
539:16
582:24
589:8
697:6
698:5
713:20

gradually
497:25
586:9

Graham
521:18,23

graph 539:9
687:6
691:4

graphic
522:18,21
558:6
675:9
695:18

GRAs 509:21

great 689:9
690:16
691:6,7
707:3

greater
639:9
676:7
705:9

gross
570:6,25

ground
590:4

group
512:14,19
621:10
712:18

groups
502:10
643:6

grow 495:12
496:16,19
541:22
595:11
707:21

growing
495:13
496:23
504:25
511:9
567:12
569:20

growth
496:21
501:24
503:22
567:10,18
593:24
595:4,9
599:10
704:20,21
707:15,20
,22
708:22,25
709:1,5

guarantee
613:1

Guerra
484:7
485:24
711:21,24,25
713:11
714:15

guess
490:21
533:25
546:15
578:8
586:3
594:6
707:5,16
712:16

guessing
674:19

guidance
664:20

guided
502:7

guy 701:22

H

hail 590:17

Hainsworth
483:15

half 525:7
639:17,18

Hamilton
483:14

hand-in-hand
678:15

handwriting
660:17

handy
566:17
590:8

627:9

happen
494:6
508:22
520:22
531:24
532:18
534:12
637:11
650:23
697:15
701:5

happened
504:20
534:1
578:9
599:16
646:16,18
674:22,25

happens
539:22
578:3
587:23

happy
588:16
589:24

hard 522:22
570:10
572:23
697:16
699:5

harder
710:21

hardest
597:16

haven't
507:19
517:24
542:7
596:11
599:10
604:7
668:2
685:9
695:2
701:8

having
502:6
513:14
515:10
522:5
525:8
547:9
575:5,10
590:12
591:1
605:18
671:5
684:25
687:17

head 583:19
640:13

headed
679:4

heading
522:20

headline
662:3

health
522:20

hear 540:21

heard
544:13
559:2
567:25
582:16
588:18
700:2
709:20
712:3

hearing
483:7
506:19
540:5
541:17
563:24
566:9
608:17
660:21
676:9
691:9

hearings
526:16
538:20
587:13

hears
521:25

hedge
612:24
651:5

held 483:19
617:10
695:8

He'll
490:18

help 526:23
628:16
630:12

helpful
494:21
554:25
559:10

helps
550:23

here's
701:4

he's 490:22

high 512:8
566:9,18
617:12,15
633:7
636:4,14
667:23

higher
496:17
571:12
604:15,19
610:5
611:1
615:23,25
636:4,8,21
637:1,12
639:2
673:20
674:6
688:16
698:12
704:22
707:23

highlight
511:23

history
544:10
572:15
596:11
621:3
667:3
672:19
699:5
701:22

hit 597:16
705:23

hold 575:24
688:20,23

holdings
646:12,19,21

hope 521:12
572:22
573:5
588:5
685:13
690:1

hoped 592:9

hopefully
513:25
623:1
708:16

hoping
590:7

horizon
684:2

horizons
637:8

horribly
589:21

hotel
490:16

hour 599:19

housekeeping 554:16

hundred
523:1
527:10
573:22
574:12,18
575:19,21
579:5,6
680:11,15
687:25
705:2
708:4
711:14
713:19

hypothetical 519:23
694:17
705:17

I

ICBC 687:17
689:4,14
690:10,20,23

I'd 504:11
522:14
561:10,23
594:24
618:18
632:19
656:6
712:8

idea
498:3,4
504:8
546:20
588:12
661:6
695:4
705:12
713:22

ideal 575:8

ideas 522:7
699:4

identify
641:9

identifying
624:22
629:8
641:16

IFRS 705:14

ignore

621:4
I'll 501:17
518:1
527:7
541:19
542:1
547:11
572:1
577:21
581:6
599:19
600:13,21
606:11
614:1
617:8,16
618:15
623:3
624:2
632:22
635:3
655:6
658:17,18
660:15
666:6
686:20
705:25
706:2
illustrate
549:9
636:23
I'm
492:16,25
500:1
502:14
503:6,7
512:3
519:5
522:12
527:22
541:23
549:15
561:9,16,24 562:1
566:14
572:2
575:25
576:3
580:21
598:1
600:25
601:1
604:11
607:18
615:25
622:10
623:1
627:9,18,21 629:7
631:14,18
632:3
633:18
634:2
640:6
645:23
652:7
658:8,13
659:3,4
660:11
661:20
672:6
674:13,19
675:2
686:24
691:19
692:3
701:22
705:11
706:22
708:15
713:18
immediately
587:1
708:11
immunize
663:20
immunized
664:11
impact
498:15
532:21
638:1,8
663:20
673:9
707:1
impacts
536:18
650:25
661:23
673:3
678:24
682:16
implementation
513:22
implications 647:10
708:6
implied
636:12
638:11
696:12
implies
499:13,15
615:19
importance
575:5
604:3
important
521:1,25
532:20
572:14
641:13
642:4,18
662:12
672:10,13,24 706:4
imposed
651:3
imprecision
626:10
impression
668:14
improved
507:23
584:23
671:1
improvement
534:24
improving
516:12
inadequate
678:20
679:19
inappropriate 529:2
546:15
583:11
682:4
683:16
incident
569:19
incidents
569:23
include
514:12
526:6
528:13
529:2
533:13
549:18
556:6
578:9
590:18
658:19
684:16
included
487:6
511:3
528:11
529:8
553:13
555:2,14
556:23
683:3
includes
487:16
557:15
including
487:14
549:23
556:12
557:13
589:7
633:21
656:3
658:21
659:25
710:18
inclusion
529:15
530:9
531:3
551:12
599:5
682:3
695:23
696:1
income
493:15,18,25
494:4,11
495:5
499:6
504:15
511:3
516:6,18
566:10
568:11,12
584:22
585:7
624:7
638:2
646:12,19,21 650:4
655:21
656:3
661:12
667:5
672:14
704:17
income's
504:25
incorp
502:20
incorporated 684:11
693:22
incorporating 502:20
increase
498:7
499:11,20
503:3,13,15 506:17
520:3
534:12
541:20
565:8
568:21
584:16
585:20

586:9
587:2,23
594:2
604:13,15
612:7
618:11,22
646:4
676:14,19
,24 677:3
693:17
695:8,10
700:14,22
702:21
703:5
705:19

increased
568:1
585:17
586:25
589:12
602:22
603:9,14
705:3

increases
517:13
531:21
568:12
572:5
585:13
586:1,16
618:10,21
631:20
674:24
698:22
699:23

increasing
492:22
586:5

indeed
668:18

indemnity
640:13

index
612:3,17
620:15

indexed
640:22

indicate
494:2
533:12
565:6
580:12
586:14
606:11
607:14
611:16
657:20
660:16

indicated
521:18
563:3
565:1,2
567:10
573:11
576:10
586:8
595:1,3
607:14
609:9

indication
500:5,18,
21 502:19
503:3,13
509:13
511:4
705:5

indications
494:18
503:21
516:12,16

individuals
575:8

industry
561:3
638:15
688:24

inequitable
577:19

infer
637:16

inference
637:6
668:9

inflation
488:13
544:9
602:22
603:5,11,
12,18,21
604:19,23
612:13,24
613:3
614:4,5,1
1,18,24
615:3,20,
23
616:8,15,
20
617:1,4,6
,18,23
618:10,12
,21,22
619:9,14,
20 621:2
623:8,10
624:13,14
,16
625:13
626:13,17
,22
627:2,5
628:21
629:3
630:6,15
631:2,8
633:11,13
,21
636:3,4,8
,15,24
637:7,10
653:25
671:22
673:1,3,9
,14 674:7
688:5

inflationar y 677:3

influences
688:2

information
487:22
511:14
518:12
531:2,14
544:1
548:1
550:23
551:9
556:2
558:18,23
581:14
586:19
587:11
588:24
589:3
605:15
607:1
608:11,21
609:25
610:14
624:11,13
634:15
642:21
650:7
653:11,14
672:20
682:25
697:19,20
702:18
703:21

infrastruct ure
708:24

inherently
650:21

initial
494:21
610:3
701:25

initially
607:14
609:9
642:13

initiatives
488:5
600:7
601:3,13

injury
689:7,8

in-Manitoba
544:6

innovation
620:21

inquiry
606:11

insight
614:3
710:6

instability
596:7

instance
582:9

instead
497:23
591:16
681:21

Institute
547:6

Institution s 679:17

insurance
483:5
484:7
505:17
523:20
524:24
525:20
541:1
550:19
575:16,25
589:16
592:12
593:2,10,
19,20,21
596:19
597:9
599:3
605:11,13
,21
608:14,18
,24
613:14
620:14
631:17
647:9,17
650:14
660:25
663:14
664:24
665:20
668:8,20
669:4

675:25
676:13,21
681:15
683:15
684:8,17,
18 689:22
691:17

Insurance's
625:4

insured
577:5,12
591:10

insurer
575:19
704:6
714:12

insurers
538:4
544:2
575:21
687:21
713:15,16

int 609:18

integral
573:7

intend
570:2

intended
580:6
614:16,25

intent
509:1
518:14
521:21
534:20
573:5
591:23
592:10
625:3
695:10
701:19

intention
578:18

intentions
585:23

interest
486:8
489:6
492:6,8,1
4,22
497:7
502:22,24
503:5
517:11
536:17
550:1
569:12,13
,24 570:4
582:18
583:8,12
584:14,17
,23
585:17
586:5,18
587:16,20
,23
588:8,21
589:7
590:2
597:19,21
,22
603:6,9,1
2,13,22,2
4,25
604:3,6,2
2 608:20
609:14,18
,20
616:7,19,
21,22
617:19,22
,23
618:10,20
619:8,21,
24
623:3,6,7
,9 625:4
638:1,9,2
1 644:17
645:16,17
646:4,10,
22,25
647:2,4,1
1,14,25
648:8,18,
25
649:6,8,1
0,15
657:8,14
658:13,22
659:15
660:20,24
661:1,11,
23
662:4,9,2
0
663:2,10,
21
664:1,10,
23
665:5,10,
14 666:13
667:13,17
,23
668:11
670:3,10
671:21
672:14,25
673:3,14
674:6
675:6
698:12,15
,19
699:12,16
,25
700:11
702:5,7,1
5,17,20
706:6,10,
20,24
708:8
710:14

interject
541:3
559:2
684:22

internal
679:19

internally
520:7
521:15
706:23

interpret
614:20,21

**interpretat
ion**
680:13

**interrelate
d** 606:15

**interrogato
ry** 571:5

interrupt
587:5
607:19
665:24

Intervenor
490:19

Intervenors
560:22
684:16

introduce
577:7
656:21

introduced
591:6

inverse
636:16

invest
641:22
642:1
707:14,19
,20
709:1,13
711:17

invested
702:10

**investigati
ons** 650:2

investing
672:4
709:8

investment
492:7
494:19
495:5
498:15
499:6
503:19
504:15,24
511:3
513:22,24
568:11,12
,21
579:17,25
584:22
585:6
598:14,15
600:4
619:17
628:17
642:8
649:16
650:2
655:21
656:2
661:17
664:9
703:21
704:8,11

investments
492:10
494:9
580:2
660:9
703:16
709:14

**INVESTMENTS
/CAPITAL**
485:7
491:12

investor
613:1
656:5

investors
642:1

involve
658:20

involves
659:21

involving
518:15
651:12,22

IR 503:1
518:12
548:5
552:12
644:19

Irene
483:14

IRFR 583:17

isn't
529:22
544:18
563:2
585:4
589:16
596:4
689:8
713:19

issue
495:11
496:5
515:1
517:9,15
535:10
536:10
538:19
549:20
555:24
557:25
590:12
594:6
612:18,19
667:6
669:4,10
685:1
698:10
705:21

issued
589:5

issues
486:9
545:5
557:21
591:14
596:19
600:4
606:12
623:16
645:12
647:22
653:1
657:8,15
660:24
661:1
662:19
668:11
670:4
671:21
675:13
696:22

it'd 522:8

item 549:22
561:24
562:7,23,24 581:21

items
504:24
520:17
546:24
563:4
581:8
584:21

iterative
543:10
544:23
545:1
548:4,8
550:16,18
551:17
552:5

I've 632:13
699:8

J

job 534:17
539:3
544:4
598:13
660:16

Johnson
689:18

Johnston
485:10
491:15
492:11,16
494:14,20
496:3,10
497:8
498:11,18
499:1,14,21 500:1
501:5,13
502:14,25
503:6,16,23 504:5
505:7,14,19
506:1,6,12
507:6,12
508:10,21
509:12,25
510:18,23
511:1,18,22
512:2,8
513:11,20
514:14
515:4,12
516:7,14,20 517:2
518:17
519:2
520:16
521:23
526:3,9,12 527:22
528:1,6,9
529:5,12,19
530:12,23
531:11
532:3
533:18
535:1
536:15
537:4,8,15,22
538:11,18
539:13,20
540:2,9,16,20
541:5,13
542:14,17
543:12,18
544:25
545:14,21
546:4,14
547:9,18
548:13
549:9,14
550:17,22
551:22
552:18,22
553:11,21
556:8,14,22
557:4,20
561:22
562:3,10,16
563:1,8,19
564:6,19
565:3,12
566:2,20,23
571:11,19
573:25
574:6
575:15
576:12,15,19,23
577:2,11,21 578:25
579:9,20
580:21
581:6,25
582:20
583:10,18,24
584:6,11,19
587:4,18
588:1
589:17
592:24
593:3,7,11,14,17,21 594:5
595:7,19
596:5,20
597:11
598:5,10,20 599:12
600:11
620:7,9,11,18,22,24
621:12,20,21,22,23
622:2,6,10,15,19,21 623:2
640:4,6,10,12,17
641:1
650:6
658:14,15,25
659:19
660:1,19,22
661:5,14,20
662:2,6,11,18,22
663:4,11,15,22
664:3,12,25
665:7,17,23
666:4,6,8,11,21,24,25
668:13,22
669:14,20
672:16,23
674:14
675:1,22,23
676:3,12,16,23
677:13,19
678:4,18,22
679:16,22
680:3,22
681:2,4,11,19
682:8
683:2,13
684:3,13
685:6
687:4,8,11,15,20
688:14,18
690:14,19,22 691:2
692:14,15,22,24
693:3,14
694:6
695:9,17,21
696:2,17,24

697:3,7,12,25
698:3,8
701:21
703:15
704:6,12
706:1,22
707:16
712:11
713:21

Johnston's 549:3

July 674:12

jump 501:17
509:6
566:21
593:16

juncture 570:5

June 696:16

jurisdiction 655:20
687:13

jurisdictions 687:10
704:5

justification 697:1

justify 699:5

K

Kathleen
484:3
485:17
490:5
491:22
492:12
493:5,12,17,22
494:7,12
495:25
496:7,25
498:8,19
499:9,18,22
501:1,10
502:11,16
503:1,10,17,24
505:4,15,20
506:2,7
507:5,7
508:3,17
509:8,18
510:11,19,24
511:11,19
513:7,13
514:11,25
515:7
516:4,9,15,22
518:9,23
520:12
521:17
522:11
523:12,16,23
524:6,13,20
525:2,6,13,18,22
526:1,10
527:19,24
528:3,7,18,23
529:6,13
530:8,20,24 531:13
533:5
534:19
536:12,25
537:6,18
538:6,12
539:6,15,24
540:6,11,17,23
542:12,13,20
543:4,5,13 544:21
545:6,17
546:1,11,25
547:12,24
549:1,8
550:13,14
551:8,25
552:19,24
553:18
554:2,8,15
555:1,7,22,23
556:9,16
557:1,6,17,18
558:14,22
559:6,12,20
560:7,8
561:4

Katrine 484:10

kinds
582:13
590:20
688:7

knowledge
568:17
672:5

known
521:14
579:22
612:18
619:15

Kris 642:23

Kristen
492:4
493:6
498:9
502:17
505:8
510:12
511:12
528:18
530:24
533:6
551:25
553:5
561:17
566:16
567:16
571:3
576:2
592:18
602:18
606:17
613:6,9,24 623:19
628:19
642:20
649:25
655:11,17
662:17
669:13
686:23
696:15
703:19
709:13

L

label 580:23

labelled 539:12

lack 495:24

land 524:1

lands 544:17

lang 499:15

language 499:15

large 494:4
533:25
535:12
590:17
691:3

largely
516:16
517:10
656:4

larger 709:1,2

last
495:8,19
499:2
503:18
504:4,5,12 515:19
528:1
534:13
535:20
540:4
549:25
566:24
572:15
573:2
582:24
583:1
588:13
594:10
603:15
611:4
623:1
665:21
666:3
670:21
674:3,4,16,17,25
684:7
697:9

late 588:21
590:3
681:14

later 494:6
506:4
611:5
654:24

latest 588:17

Lavigne 715:8

lead 531:4
688:6
689:20

learn 592:5

learned
561:18
605:10
607:18
608:4
624:13
645:13

least 495:2
496:12
508:11,19
514:8
515:14

526:17
542:19
546:17
575:20
578:16
587:10
624:4
662:10
667:15
668:2
682:4,5
687:22
688:9
691:13
699:4
701:1,6
705:20
713:2,17

leave
512:21
632:23
668:9
694:13

leaving
633:10
660:23

led 594:13

left-hand
543:6

legal
605:10

lender
619:19

length
688:25

less 530:17
531:24,25
541:18
565:4
569:18
650:25
688:21

lesson
501:25

lets 638:19

let's 498:4
507:23

510:4,5
519:16,25
520:4
543:1,20,23 546:20
551:1,6
566:23
575:17
589:11
606:6
615:13
616:25
625:21
643:13
694:17

letting
548:14

level
495:11,24
498:15,20,22
501:20
502:9
505:13
508:4
509:23
511:8
512:8
521:20
525:4,15
526:22
538:15
539:11
540:1,8,14,15
542:15
544:17
545:13
548:18
551:19
561:2
566:9,18
572:24
575:5
599:7
604:24
615:3
617:12,15
633:7
675:17

683:24
684:2
693:16
694:14

levels
550:21
560:11,14
708:14

liabilities
496:16,18
508:15
533:12,17,19,21
534:6,12,22 536:14
537:2
569:25
582:4
595:9
598:14
599:10
611:8
624:8,22
626:7
638:5,9,20
639:3,12
641:9
643:6
650:13,20,23
651:14
661:18
667:5,13,19 668:5
669:5
671:20
686:18
688:23
689:24
690:4,8
702:8,11
704:15,19
705:13,18
706:8
710:18

liability
488:9
533:16
534:15

535:15
580:10
582:1
596:9
604:4
606:12
607:9,13
608:15,24
609:8
610:5,10,16,19
611:5,7
613:21
624:15,17,20
625:1,2,9,17,21,23
626:21
627:4,8,25
629:5,10,13,22
633:9,10,15 637:22
638:17,23
641:8,20,23
642:1,7,12,18
643:16,17
644:7,8
645:4
651:6,9
661:13
665:20
668:11,21
707:1

life 534:10

lifetime
534:8
535:23
571:22

lightly
669:10

likelihood
689:2

likely
531:4,24
595:21

603:5
604:15,19
605:12
620:2
687:24
691:12
698:13

limitations
538:23

limited
549:12
562:12

line 493:14
505:16,22
506:3
507:8
510:20
523:19
524:14
538:3
541:3
551:10
561:24
562:7,23,24
563:4,12
566:24
575:17
598:17
640:12,21
646:3,10
673:21
679:6,7
682:1
699:20

lines
499:10
520:19,20
521:5,12
531:16
596:23
667:9
681:25
699:21,22

linked
612:3
678:1,2

liquidity

623:17

list
485:3,4
486:1
487:1
488:1
489:1
600:3
634:13
696:23

little
519:7
546:10
571:12
593:23
604:5
667:3
679:11
702:24
705:5,23

live 535:24
536:1

living
534:2
574:22,25
575:7

loan
619:1,8,10,13,21,24

logic 550:2

logical
519:19

long 533:1
534:2
549:15
573:3
603:25
615:2,20
640:1
647:1
688:7
703:2
704:22

longer
535:24
561:1
583:8
639:13,19

longer-term
515:1
523:9
637:8

longest
651:5

long-run
572:18

long-term
569:24
572:18
586:21
603:13
647:2
669:5
689:23
690:4
704:15

loosely
562:16

lose 495:15
598:25
617:9
708:10
711:8

loss 536:17
571:7,8
576:10,13,22
577:5,22
578:23
597:1,2
679:18

losses
572:17
577:24
596:25
597:21
646:11,18,21 667:8
694:16
699:19

lost
597:6,24

lot 494:22
497:9
500:22
522:2
586:18
597:14,20
604:3,10
621:1,2
637:10
639:12
660:19
672:17
688:4
691:10
699:12
700:2
704:14

loudly
608:14

low 492:15
588:19
667:23
689:2
702:20
711:16
714:13

lower
507:25
526:24
527:4,12
530:6
537:12,20
548:17
551:2,14
552:5
608:16
609:9
610:19,20,24
615:23,24
688:21
689:12
690:2
694:24
695:1
705:6
708:1,17
714:3

lowered
510:6
534:5

lowest
671:5
691:12

LUKE 485:10
491:15
492:11,16
494:20
496:3,10
497:8
498:18
499:1,14,21 500:1
501:5,13
502:14,25
503:6,16,23 504:5
505:7,14,19
506:1,6,12
507:6,12
508:10,21
509:12,25
510:18,23
511:1,18
512:2,8
513:11,20
514:14
515:4,12
516:7,14,20 517:2
518:17
519:2
520:16
521:23
526:9,12
527:22
528:1,6,9
529:5,12,19
530:12,23
531:11
532:3
533:18
535:1
536:15
537:4,15,22
538:11,18
539:13,20
540:2,9,16,20
541:13
542:17
543:12,18
544:25
545:14,21
546:4,14
547:9,18
548:13
549:14
550:22
551:22
552:18,22
553:11
556:8,14,22 557:4
562:3,10,16
563:1,8,19
564:6,19
565:3,12
566:2,20,23
571:11,19
573:25
574:6
575:15
576:15,19,23
577:2,21
578:25
579:9,20
580:21
581:6,25
582:20
583:10,18,24
584:6,11,19
587:4,18
588:1
589:17
592:24
593:3,7,11,14,17,21 594:5
595:7,19
596:5,20
597:11
598:5,10,

20 599:12
600:11
620:11,18
,24
621:12,20
,23
622:2,6,1
5,19,21
640:10,17
641:1
650:6
658:15,25
659:19
660:1,22
661:5,14,
20
662:6,11,
22
663:4,11,
15,22
664:3,12,
25
665:7,17,
23
666:4,6,2
1,25
668:13,22
669:20
672:16
674:14
675:1,22
676:3,16,
23 677:19
678:4,22
679:22
680:3,22
681:4,19
682:8
683:2,13
684:3,13
685:6
687:4,11,
15,20
688:14,18
690:14,22
691:2
692:22
693:3,14
694:6
695:9,21
696:2
697:3,7,1
2 698:3,8
701:21
704:12
706:1,22
707:16
712:11
713:21

lunch
490:9,18
599:19
600:22

M

Made-in
539:2

made-in-manitoba
538:22

made-in-Manitoba
620:21

magnitude
510:25

main 496:15
545:23
712:12

mainly
554:19

maint
527:17

maintain
497:22
498:23
517:19
532:24
579:19
592:1
616:9
642:4
697:20
712:14
714:7

maintained
507:1
515:16

maintaining
498:2
512:23
675:17
693:7
694:14

maintains
580:13

maintenance
485:8
487:4,10
491:13,24
494:14,17
498:13
499:16
504:9,20
507:14,21
508:12
509:4,10,
20
510:1,7
511:16
512:10,13
514:13,16
,23
515:2,9
516:24
518:15
520:15
521:7
526:7
527:11,17
529:16,24
530:3,9
532:9
546:20,22
551:13
554:22
555:4,11,
20
563:15,22
564:11,21
580:4
584:3,8
599:5
675:13,18
676:25
677:6,14
678:1
684:10,19
685:2,5,8
,25
692:20
693:4,12,
15
694:4,7,8
,10,19
695:24
712:4,5,1
8
713:4,10

major 499:7
534:5
561:20
668:23
694:16
705:11
710:12

Makarchuk
485:13
488:12
490:15
491:2,19
602:2,13,
14,15,16
603:3,10,
20,24
604:2,21
606:13
611:15,24
612:5,14,
19,25
613:11,16
,18,23
614:1,7,1
4,19
615:7
616:14,23
617:3,10,
15,20,24
618:4,13,
17,24
619:11,16
,22 620:3
622:25
623:11,15
,21
624:1,10,
24
625:6,19,
25
626:8,14,
18,23
627:1,6,1
6,18,23
628:5,10,
14,24
630:10
631:6
632:7,12,
13,16
633:1,5,1
3,18,23
634:2,12
636:6,11,
18
637:3,9,2
4
638:3,10,
18,24
639:5,16,
24
641:5,11,
15,25
642:6,14
643:1,2,7
,12,15,20
644:12,19
,22
645:2,11,
19
646:1,7,1
3,15
647:23
648:3,23
649:2,9,1
3
650:12,18
,24
651:7,13,
17,24
652:14
653:10
654:11
655:3,5,9
,16,18,25
656:6,11,
13,15
709:20

manage
526:19
573:7

575:11
580:6
591:20,23
592:12,14

management
518:19,22
520:15,16
521:22
522:6
523:10
531:6,23
532:7,15
544:12,14
552:9,17
553:1
556:3
563:5,17
564:2,14,22 584:5
590:11
591:5
592:2,11
669:3
676:6
678:20
682:6
694:21
706:6,10,21
710:15,16

managing
641:14
701:20

mandate
591:5
592:14
593:2,9

Manitoba
483:1,5,22
484:6,9,14 539:3
564:3
602:15
605:10,13,21 607:2
608:14,18,23
613:14
620:14
625:4
631:17
647:9,16
650:14
660:25
663:14
664:23
665:19
668:8,20
675:24
676:13,20
681:14
684:8,17,18 689:25
691:11
706:11

Manitoban
591:10

Manitobans
573:8
574:22
575:13
591:3,19,21,25
592:15
593:2,10
690:3

manner
497:5
575:9
605:24
606:7

March
628:25

margin
679:5,10,25
680:1,5,17,19

MARK 485:12
491:17
493:11,16,21
494:1,10
501:17
518:1
523:6,22
524:2,8,16
525:1,5,11,17,21
542:1
554:24
555:5
558:12,16
559:8,18
560:16
566:12
567:6,14,23
568:3,9,13,18,23
569:2,6,9
570:9,16,20,23
571:1
572:13
573:13
574:4,10,18 575:2
582:11
588:25
590:14
591:17
659:11,18
668:25
677:4
678:11
689:16
690:12
699:9
701:11
705:25
706:2

marked
656:22
657:9

market
495:15
501:23
544:10
585:25
589:6
590:18,19
597:18
604:10
615:10,12,20,22
633:21
638:2
647:4
673:20
707:24

marketplace
502:5
673:7

markets
672:15

market's
510:5
614:17

match 517:6
661:11
667:19
668:4
706:8

matched
667:5
704:20
705:22

matching
598:13
613:22
661:6,17
665:21
667:4
668:12
690:7
704:13
705:12
707:1
710:16,19

material
605:9
608:5
665:6

materialize
700:17

materialized 597:9
700:15

materially
638:24
642:11

materials
684:22

math 562:12

mathematical 707:18

Matrix
554:12

matter
490:17
605:7
687:3
709:6

matters
553:24

maturity
611:23
612:2
617:11

maximum
531:5

may 498:3
502:1
504:17
522:17
528:13
532:12
536:1
539:25
540:13
541:12
542:22
551:4
557:23
605:7
607:19
616:4
641:22
645:22
656:11
662:20,25
663:2
672:25
673:6
681:5
684:24
686:4
687:18
688:16
692:15

693:5
700:8

Mayb 573:25

maybe
500:23
501:3
504:15
507:24
515:18
519:13
522:6,7
523:17
532:13
540:4
546:10
553:15
565:16
571:24
573:25
581:7
592:8
621:4
674:15
688:2
693:25
708:21
713:7

MC 713:14

McCandless
484:3
485:17
490:4,5,17
491:9,21,22 492:12
493:5,12,17,22
494:7,12
495:25
496:7,25
498:8,19
499:9,18,22
501:1,10
502:11,16
503:1,10,17,24
505:4,15,20
506:2,7
507:5,7
508:3,17
509:8,18
510:11,19,24
511:11,19
513:7,13
514:11,25
515:7
516:4,9,15,22
518:9,23
520:12
521:17
522:11
523:12,16,23
524:6,13,20
525:2,6,13,18,22
526:1,10
527:19,24
528:3,7,18,23
529:6,13
530:8,20,24 531:13
533:5
534:19
536:12,25
537:6,18
538:6,12
539:6,15,24
540:6,11,17,23
541:3
542:12,13,20
543:4,5,13 544:21
545:6,17
546:1,11,25
547:12,24
549:1,4,8
550:13,14
551:8,25
552:19,24
553:18
554:2,8,14,15
555:1,7,22,23
556:9,16
557:1,6,17,18
558:14,22
559:2,6,12,20
560:7,8
561:4
645:13
692:16
694:3
695:17
696:17

MCT 487:17
495:16,19,22
497:15
498:23
499:23
500:6,8,13,16,17,24
501:3,7,12,15,19
502:12
504:10
505:17,23
506:3
507:4,9
508:9
509:6
510:6,20
511:10
512:13,20
514:21
515:15,19
517:6,17,22 518:4
522:25
527:8,10,13 537:25
538:8,14,25 539:8
543:21,25
544:18
559:14,24
595:24
599:8
677:17
678:2,12,14
679:3,16
680:15
682:12,24
683:8
687:2,17,25
693:11,16,23
694:7,14,17,19
695:11,18
705:2
708:1,4
713:14,17,20

mean 500:22
535:7
547:14,19
580:8
599:16
621:11,14
647:1
680:8
698:12,13,21
707:18
708:22

meaning
599:13

means
495:14
545:16,18
575:23
579:24
592:10
594:8
639:12
669:9
700:11
711:8
714:3

meant
590:15
680:8
695:23
699:19,22

measure
501:8,19
626:3
638:4
641:10
643:4
711:7

measured
495:22
677:17

measurement
501:7
530:14
621:9

measurements 621:10

measures
495:16
526:21
622:13
638:1,8,13

measuring
624:23

mechanics
705:15

mechanism
541:18

medical
536:2

medium
589:24

meet 499:12

meeting
585:24

meetings
504:21

Member
483:14,15,16

members
490:6
605:5
606:14

652:2
656:20
686:8

memory
634:6

mentioned
493:9
496:18
512:19
529:20
535:12
541:7
548:15
558:4
578:20
597:13
688:19
698:11

Mercer
488:8,17,21 604:12
608:5
609:17
629:20
634:22
635:4,11,18 647:20
654:3,24

Mercers
613:13
624:5
644:3,15
648:24
649:6
651:10,21
652:4
686:17

Mercer's
489:5
629:12
630:12
633:19
641:6
645:17
646:4,10,22,25
647:11
648:8,17
651:2

messy
660:17

method
504:16
545:1

methodologies 596:15

methodology
517:10
528:25
537:16
548:4,8
549:18,21
550:1,16,18
551:16,18
552:5
578:4
583:7
591:7,22
595:21
596:6,8
608:23
688:3
697:1
714:13

methods
659:13

metrics
710:25

M-hm 528:6
686:21

mic 660:11

mid 612:20

middle
519:13,17,18,22,25
522:7
539:9
590:4
602:20
695:1

Miller
484:14

million
493:15,18,25
497:15
500:21
523:21
524:25
525:4,16,20 536:7
566:11
568:1,6,12 569:1
573:11,22,24
574:14,15,19
575:1,3
579:3,6,15
584:10,15
590:6
592:23
593:5,6,13,16
594:7
596:2,25
597:1,2,6,24
598:3,8
680:2,9,13,20
707:2
708:10
711:8,9,11,12,14

mind 501:14
529:14
547:10
552:20
556:17
613:25
643:25

minimize
624:6
625:23
699:2

minimum
522:21
526:17,22
539:12
548:18
550:20
558:8
596:2
597:5
611:4
627:24
679:4,24

minor
509:22
708:6

minus
617:23
661:3,4

minutes
542:23
554:13
605:19
606:3
652:10,19

mis 668:21

misaligned
608:18

mismatch
625:23

mismatches
668:21

mismatching
663:9

miss 608:19

missing
553:16

missteps
591:12

mistake
513:12

mistakes
592:3,4

mitigate
664:1

mix 711:3

model
488:14
492:17,19,20 493:2
498:21
519:6
532:24
535:6,21
536:13,16
538:20,22
539:3
615:17
631:3,10,19
651:13,15
661:23
678:20,23
702:1
712:10,13
713:6

modeled
531:25
545:19

modeling
531:22
534:21
535:8
537:1,13,21 538:17
542:16,18
546:3,5
549:22
633:8
642:7
702:3,5,8

modelled
508:5

modelling
499:10
501:23
502:7
506:9
515:9
526:5
556:4
597:15
659:22

models
544:6
654:18
659:14
661:25
679:1
688:8

modest

646:3
modified 545:2,10,19,22,23 551:18 552:6
modify 543:7
moment 571:14 573:15 613:8 624:21
moments 553:20
Monday 608:15
monetary 658:19,23 659:6 672:1,9
money 497:20 521:11 598:23 599:1 658:20 702:10 707:19 713:25
monies 579:24
monitor 672:14,18 673:12
monopoly 508:24
month 501:20 603:15 707:1
months 502:3,4 506:4 507:10 572:22
573:2 604:25 666:14 669:8 697:16,17
morning 490:3,6,10,13,16,18,23 491:25 558:5 599:21 671:15 681:12 691:25 692:17 695:16 714:18,20
morning's 573:23
mortality 536:20 650:25
motion 606:25 607:24 608:2,6,7
motivated 563:5
motorcycle 565:8 576:4 577:5,24 578:5 587:6
motorcycles 561:22 562:1 564:9 565:17 567:1 571:9 576:13 578:3 586:14
motorcycle-specific 488:4
600:7 601:3,12
motorcyclists 562:5
move 494:13 516:10,25 519:8,9,25 521:4 522:12 533:2 569:11,13 627:20 680:18
moved 640:22 687:22
movements 519:11 597:19
moves 502:7 577:23
movie 554:12
moving 497:25 498:5 532:25 537:7 566:5 567:24
MPI 483:5 485:7 487:3,11,17,19,22 488:3 489:3 490:8 491:12 492:5 493:6,24 494:8 497:14 522:5 537:9 539:16 543:23 550:6,7 555:9
557:8 559:15,24 560:2,14 562:5 572:10,15 579:1 581:14 587:14 594:12,13 598:2 601:10 604:5 606:14,17 610:24 624:12 625:10 626:2 630:11 632:23 645:22 648:14 649:22 652:11,25 653:14 658:12,22 659:16 661:22,24 662:5,9,19 663:19 664:1 669:2,10,15,22 671:21,24 672:11,24 673:12 675:15 676:5 679:3 683:18 685:16,17,22 686:15 687:6 690:20 691:3 698:9,14,20 702:6 704:23 707:19 708:17 712:2,7,1
3 713:19,24
MPI-13-3 607:6
MPIC 559:4 684:23 685:4 693:1 698:6 704:8 710:4
MPI's 538:7,21 540:19 541:1 560:12 570:6,13,22,25 650:2 667:14 685:7 688:23 689:5 712:9 714:9
MTC 559:7
multiple 619:23
mutually 678:13
myself 503:8 542:19

N

naive 497:6 666:15 669:23 671:1,4 697:1,5,11,21 698:1 699:6 701:15 702:6
namely 611:22

national 649:17
natural 503:21
naturally 496:1 527:1
nature 533:11 580:8 671:20 683:5
nave 697:14
necessarily 541:25 637:9 685:15
necessary 498:22 548:18 549:11 608:11
negative 498:14,20 509:5 511:5 517:12
negligent 692:4
neither 643:21
nest 572:11
net 487:9 493:15,18,25 494:4 498:12,17 499:13,16 502:23 503:25 504:23 506:9 507:13,21 508:11,19 515:18 516:6 555:4,19 563:21 566:10 568:21 584:23 596:25
neutralize 668:16 707:7
neutralized 668:6
neutralizing 667:12
news 568:11
newspaper 713:24
nine 502:3 573:22
nobody 700:6
nominal 608:15 610:17 615:10 616:7,11,20,22,25 617:19,23 618:11,21 623:3,6 624:15 625:1,16,21 626:12,21,24,25 633:9 636:10 637:21 642:12 643:16 644:7 645:4 651:12,23
non-Basic 699:21
non-biased 701:14
none 597:8
non-tort 688:16
nor 675:3
norm 590:16
normal 513:16 515:9
normalize 514:6 516:2 712:25
norms 561:3
note 629:16 630:11 674:14 709:23
noted 540:14
notes 652:2
nothing 501:13 561:23 690:15
nothings 547:10
notice 571:6
noticed 571:7
noting 542:20 665:13
notwithstanding 665:3
November 613:14 623:24
nowhere 551:5
np 484:14 485:13 491:17

O

Oakes 484:12 485:18 490:10,22 491:1,3,7 561:7,8,15,16 562:4,11,22 563:2,16 564:2,15,25 565:4,21,25 566:4,5,14,20,22 567:2,8,15,24 568:5,10,15,19,24 569:3,8 570:1,12,17,21,24 571:2 572:2 573:10,20 574:16,20 576:2,8,16,20 577:1,3,10,15,16 578:1,20 579:1,13 580:11,15,17 581:3,4,7,12,19,20 582:7,14,21 583:1,3,4,15 584:1,7,13 585:1,13,19 586:3,12 587:3,4,12,19 589:9 590:5 591:8 592:16,25 593:4,8,12,15,18 594:1,24 595:9,16 596:1,16 597:8,25 598:9,11 599:9,17,25 600:1,11,15,21 601:1,8 602:3,8,9,12,13,17 603:4,16,22 604:1,18 605:1 671:16 681:12
objecting 691:4
objection 541:10 605:23
objections 545:1
objective 499:12 537:12,19 578:11 678:9
obligation 625:10 626:5
obligations 604:6
observation 516:23 569:5 570:6,12,17
obtain 670:23 707:15
obvious

516:1
obviously 492:21 497:9 508:24 519:3 521:1,24 588:1 674:25 675:1 677:2 690:16 698:14 704:21 707:25 708:14,22
occur 539:19 545:5 564:24 587:24 619:14 698:23
occurred 532:19 607:25 675:2
occurring 532:10
occurs 541:18
o'clock 601:20
October 483:23 486:6 657:7,11
offer 591:3 637:7
Office 679:17
official 653:22
off-line 554:16 557:19
offset 590:10
Oh 546:4
okay 491:5 494:7 495:10 497:14 507:24 512:9 513:11 521:9 532:23 543:23 545:21 548:13 561:4 564:19 566:14 568:15,19 571:14 581:5 583:15 584:13 585:1 594:24 602:8 611:3 612:22 614:10 622:16 623:14 626:6 628:13 632:15 633:16 644:2,21 645:8 647:8 652:18,24 653:5 654:12 666:4,23 675:11 681:1,9 686:6,22 690:13 692:23 694:6 695:5 696:14 705:5 714:15
old 561:23 594:17,18 701:22
one-fifth 520:1,5 532:25
ones 492:19 519:5 576:25
one-time 597:9
ongoing 613:21 664:22
onto 522:12 529:9
open 551:7
opened 571:23
opening 687:5
operates 708:20
operating 506:15 526:22 568:7 682:4,14, 20 708:2
operational 679:10,18 680:1,5,1 6,19 682:11,24 683:9,15
operations 505:18 525:7 545:11 591:1
opinion 697:7
opportuniti es 615:9 641:16
opportunity 632:7
oppos 499:4
opposed 618:17 623:12 647:25 649:5 689:15
opposite 704:25
opposition 686:4
optimal 642:9
optimism 590:1
optimistic 583:14 667:16
optimize 641:13
optimizing 641:21,22 642:10
option 513:3 517:21,24 541:16 542:10
options 500:2 543:19
order 486:12 487:13 498:23 552:15 556:11 557:11 558:13 566:1 587:22 589:5 658:3,5 662:16 663:7,8,1 8,19,25 664:14 665:9,13 666:13 681:10 696:16
ordered 579:4 590:9 595:24
orders 486:10 657:18,24 662:15,21 ,25 682:2 706:6
ordinary 673:12
organizatio nal 522:20
organizatio ns 560:19
original 697:13
OSFI 683:4,25
OSFI's 683:14
oth 573:20
others 633:22 662:8
otherwise 529:25 593:24 615:9,22 617:5 618:18 623:13 642:17 644:23
ours 689:12

ourselves
668:2

outcome
506:8,19
700:9,10

outcomes
622:14
659:15

outlier
596:2

outline
533:10
633:7

outlook
610:1
713:1

outpaced
599:10

outset
561:10

outside
545:5
590:16

outstanding
557:21
653:9

overall
498:20
499:11
502:19
503:3,12
505:13
562:19
566:6
568:25
676:8,19
690:2

overhead
572:7

overnight
486:4
585:11
586:9,21,25 587:9
656:24
657:3
674:11,24

overrun
590:22

overruns
590:10

overview
490:7

ownership
660:17

P

p.m
601:22,23
652:21,22
714:22

pace 519:8

package
649:18

page 485:2
486:2,3
487:2,19
488:2
489:2
493:20,23
522:16,19
523:16,17,18
529:8,10
531:14
533:16
543:7
551:10
552:2
556:1
558:6
559:15
560:2
566:19
568:20
569:5
570:6,13,18,21
602:18
613:7,8
614:8,23
616:5
623:22
624:3
627:7
628:18
630:3,7
633:24
640:5
642:25
649:23
656:23
657:1
660:10
662:16
663:17,24
664:6,15,20 665:9
666:10,11,16
670:6,21
671:3
674:5
675:14
677:11
679:8
681:10,24
710:3

pages
483:24
664:5

paid 590:9
640:8,15,24

panel
483:12
485:7,9
490:6,8
491:12,14,23
561:5,11
600:12
602:7
605:5
606:14
652:2
656:20
658:16,18,23
659:16
686:8,16,19,21
691:21,24
692:8
713:13

Panel's
490:15

paper
493:23
613:13

paragraph
523:19
524:22
531:16
548:22
602:20
607:12
609:7
610:15,22
663:6
664:6,22
665:2,19
673:18,22
674:3,4
681:25

paragraphs
665:11

parallel
527:8
604:14
647:24
682:9
708:5

paramount
573:9

paraphrase
498:13
549:11

pardon
499:18
508:7
520:15
523:17
555:25

partially
682:5,6

participants 585:25

particular
514:7
577:12
607:20
620:25
640:15
653:23
656:2,5
673:17
688:20
710:6
713:4

particularly 530:14
586:22
600:15
675:6

parties
588:14
589:24
693:5

partners
662:9

passage
650:22

passengers
571:10

past 516:5
532:6
539:2
587:13
592:7
669:2,8
690:10
699:11

PAUSE 512:6
513:5,18
520:10
523:4,14
524:11,18
525:24
528:16,21
531:9
548:11,24
550:11
553:3,9
556:20
565:10
571:17
573:18
574:8

576:6
580:19
583:22
600:9
611:13
618:6
619:5
622:23
627:12
628:3
631:25
632:10
634:18
641:3
650:10
660:13
664:17
666:19
673:24
676:1
677:23
679:13
680:24
683:11
684:5
686:10
696:19
703:24
709:17,25

pay
514:15,22

paycheque
574:25

paycheque-to-paycheque
574:23
575:7

paying
572:24

payments
611:23
612:12
640:18
689:1

PDF 493:23

peer 502:10
706:13

peg 595:15

Pelli
557:20

pending
661:16

peop 621:1

people
495:9
498:6
517:13
544:13
545:15
551:1
574:24
679:19
690:10
699:13

peoples
580:1

people's
713:25

per 565:16
570:18
643:22
694:22

percent
486:5
487:18
488:14
497:14
498:14,21
499:12,13,16,20
503:3,13,14
504:1,2
505:13,21
506:5
507:4,9,14,21
508:12
510:6,22
511:5
512:20,21
515:16,18,23 520:3
522:25
523:1
527:10,13
531:5,20,25
532:11,12
536:6
537:25
538:10,13,14
543:21
544:1,14,18 558:7
559:14,15,25
560:1,24
562:1,8,14,17,18,20,25
563:21
564:4,10,17,18
565:5,7,13,14
566:24
568:22
570:14,15
576:14,17,18,21
577:6,8,18,24
578:23
586:15
594:19
595:10,14,15,18,24
597:17
599:8
602:24,25
603:14
604:7,24
607:15
609:10,13,25
610:11,16,18
615:3,16,18,19,21
616:9,10,12,15,16,25
617:1,2,4,5,7
619:8,9,10 620:4
626:13
628:21
630:7
631:2,9,19,20
632:3
634:3
638:21,22
640:15,24
644:11
650:5
654:1,8
655:23
656:24
657:4
671:5
676:7,14,19,24
680:11,15
684:1
687:25
694:18,20,24
695:24
696:3,9
702:21
705:2
708:2,4
711:6,9
713:14,17,19 714:5

percentage
562:7,13
570:7,13
594:3,18
595:6
638:14
640:8,14,18 681:21
693:12
707:22

perfect
504:16
592:4
610:6
662:17
679:9

perfectly
703:6

perform
547:23

performance
598:15
675:10

performed
675:7
699:7

performing
547:20

performs
641:7

perhaps
496:7
570:4
572:11
580:23
619:2
628:7
629:17
630:10
632:6
637:13
681:4
710:2

period
487:5
498:24
510:17
512:11
515:15
516:1,19
535:22
554:23
555:13
571:25
597:7
603:15
631:20
662:1
696:13
703:1
712:21
713:1

periodically 539:18

periods

620:16
permission 534:18
perspective 509:9,14 517:20 588:5 604:12 655:2 684:16 701:18
pertained 525:11
PF-1 487:7 524:7 555:2,15
PF-10 510:12,20
PF-3 505:9 524:8 574:4,6
PFADs 581:22 582:8,9,12
phenomenal 660:16
phonetic 557:20
phrased 643:9
picture 566:6
piece 535:20 545:2 564:10 588:10 620:25 632:17
pieces 691:16 702:4
pill 552:1
PIPP 535:25
579:3,16 689:24
plan 518:15,19,22 520:15,16 521:22 522:6 532:15 573:7 584:5 694:21,23
planned 525:7 533:11 682:18 683:21
plans 592:8
plateau 496:19
plateauing 508:15
plausible 604:14
please 492:4 493:6 498:9 502:17 505:8 510:12,13 511:12,22 528:19 530:25 532:1 533:6 539:7 548:6 551:19 552:1 554:21 555:24 571:15 642:22 649:3 651:19 653:20 655:12,17
679:11 692:4,10 695:13 696:23 709:15
plus 503:14 577:24 597:24 616:19 661:3 703:9
pocket 575:18,22
point 515:24,25 519:21 527:6 536:4 558:19 561:9 565:22 568:14 573:12,15 589:2,4 600:19 602:5 611:4 625:22 629:17 634:3 639:9 648:4 649:21 670:25 674:20 676:5 682:19
point-five 680:10,14,21
points 497:24 585:18 586:25 589:12 649:14 689:17 703:10
point-three 625:18 626:4
policies 506:22
policy 512:18 533:12,16,17,19,21 534:6,21 536:13 537:1 578:15,16 651:11,22,25 661:8 672:1,10,11 673:20 694:13 712:16
policyholders 512:15,20 694:12 712:19
politically 563:5
poor 592:3 667:21
port 492:7
Portage 483:21
portfolio 492:7 501:25 513:22,24 585:6,7,10 607:13 608:16 610:4,17,24 611:8 625:3,22 641:9,13,21,22,24 642:17 643:22 650:2,4 655:21 656:2 661:12,17
664:9 704:8 705:17 706:13,15,19 707:21 710:6,15,17 711:10,15
portfolios 611:5 624:5,7 643:19 644:10,17 647:10 651:14,16,18,21 667:6,10 709:21
portion 485:14 491:18 582:4 706:8
portions 537:7
portrayed 488:18 635:1,13 637:22
posed 528:8,24
position 496:1 497:19 506:10 507:23 513:15 515:11 530:11 548:20 550:15 561:13 572:3 677:16 684:23 690:20,23 693:23 694:11

698:6
700:20,22
707:14
712:9

positive
504:2
509:5
517:12
599:14

possession
648:12

possibility
492:13

possible
513:14
538:21
588:16,21
590:3
629:1,3
678:25
699:2
707:7

possibly
535:22

potential
675:19

potentially
586:2
590:22
591:12

power 616:9
617:2,5,9

PowerPoint
486:7
613:13
657:7,12
670:4

practical
515:8

practice
495:4
516:11
547:6,17
563:11
564:8
592:13

pre 582:16

PreAsk
547:4
557:2,22
587:5,11

precise
639:17
661:18

precision
710:22

precursor
603:8

predating
661:21

predict
650:21
710:21

predictable
573:8
575:12
591:4
592:1
701:20

predicted
598:16

prefer
600:20
618:13
623:11
628:25
643:11

preferable
512:1

preferred
643:8
712:10

preliminary
605:6
647:14

premature
625:7

premium
565:6
584:15,20
586:14
594:18
681:22

premiums
566:25
572:12
575:14
594:20

preparation
494:11

prepare
502:19

prepared
488:10
533:13
629:14,23
630:9
647:17,20

present
605:12
639:20
691:24

presentation 494:21
537:8
546:17
560:12
597:14
628:1
634:7,8
687:6

presented
682:2

preserving
506:10

presumably
499:23
587:21

presume
636:9

pretend
507:15

pretended
685:9

pretty
517:17,19
533:19
539:3
562:19
615:25
675:5
703:7,11

prevent
693:11

previous
510:14
526:16
582:17
671:2

previously
485:10,11,12,13
491:15,16,17,19
567:16
611:18

price
612:3,17
615:10,11,12,17,24
620:15
636:21
637:1
667:22

priced
667:23

prices
604:10
636:17
637:2,6

price-to-earnings
637:12

pricing
542:9
667:16,21
668:3
689:14
698:23

primarily
494:15

principal
611:23
612:2,6,12

prior
509:22
512:11,18
517:14
558:13
572:15
587:20
593:20
668:6
701:12
702:5

private
571:9
575:21
710:13,18,20
711:18
713:16

pro 487:7
493:12
505:8,11
510:12,14,15
515:14,21
524:3
555:2,15
574:1
598:5
678:20
695:13

probably
504:15
539:5
545:14
593:23
595:10
597:6
604:12,13
619:22
620:4
627:7
639:25
640:1
661:25
682:16
704:25
705:4

problem
495:10

708:10

problematic 590:12

problems 590:13 667:7

proceed 490:10,11 605:18,25 606:6 652:17 658:8 692:10

proceeding 561:7 602:8 605:24

process 497:2 536:9,24 539:16,18 540:12 544:7 578:17 589:1,8 606:2 642:11 684:12 691:7

processes 591:22 678:21 679:19 691:5

proclaimed 608:14

produce 500:8

produced 560:24 608:2,5

produces 501:21

product 689:6 691:6

profess 658:23 659:6,16 660:4

professing 704:12

professionals 649:16

profile 514:10,17 537:14,21 542:16 593:22 595:2 596:9,10,12 655:20 656:4 677:17 712:22

profit 496:11,13 589:15

profitability 520:19

profitable 541:22

profits 521:10

program 496:6 590:11 599:4 683:1 689:13,24 690:6 691:17

progress 520:14

project 500:16 625:7 626:2

projected 607:15 632:4

projections 674:19 695:25

projects 682:16,17 683:18

pronouncement 585:20

prop 596:23

proper 690:7

properly 645:22

property-casualty 550:19

proportional 564:14

proportionately 599:6,7

proposal 504:3 520:15 685:7,10,15

propose 521:21 550:8 656:22

proposed 498:12 503:18 508:4 511:24 526:7 538:7 545:1 560:11 564:11,12 595:21 653:6 692:19

proposing 497:6 532:4 563:15

605:11 681:16

proprietary 542:19 634:15

protect 497:10 580:2 591:10,11 675:19 709:3,7

protecting 580:7

protection 614:4 637:7 665:4

protects 591:15

prove 536:9

Provi 675:18

provide 487:3,22 488:8,12,20 489:3 503:21 535:8 552:3 554:21,25 555:9 558:23 565:25 581:14 587:14 593:2,9 600:19 614:3 629:12,20 630:5 631:6 633:1 634:16,22 635:2,6,16,22 647:17 648:14 654:24 665:4 669:17 710:5

provided 549:6,10 552:11 557:1 626:2 632:8 647:20 654:23 663:13 665:2 706:14

provides 663:2

providing 713:3

province 688:13,16,17 691:6

provision 487:5,10 491:24 494:14,17 498:13 499:16 505:1 507:14,22 508:12 509:4,5,10,20 510:2 511:16 514:13,23 515:2,9 516:24 518:16,24 521:7 526:7 527:11 529:16 530:10 533:20 536:20 551:13 554:22 555:4,12,20

563:15,22
564:21
577:8
579:3
581:5,21
584:3,8
593:18,20
675:13,19
677:7,14
678:1
684:10,20
685:2,5,8
,25
692:18,20
693:10,12
,21
694:4,19
695:7,24
696:3,9
712:4,5
713:4,10

PROVISION/ RATE
485:8
491:13

provisions
516:17
581:25
582:5

proviso
680:21

proxy 585:9
595:10
624:22
641:9

prudent
572:21
573:1

PUB 486:10
507:20
558:13
588:22
592:21,22
593:5
631:22
657:18,23
661:24
662:20
684:17
695:2

PUB/ MPI-1-17
530:25

PUB/ MPI-1-76
518:10

PUB/ MPI-2-11
528:19

PUB-1
573:12

PUB-1-8-3
653:14

PUB-186
703:21

public
483:1,5,20 484:6
496:6
575:19
579:4
599:3
605:10,13
,21
608:14,18
,23
613:14
620:14
625:4
631:17
647:9,17
650:14
660:25
662:8,24
663:1,14,
18
664:8,21,
23
665:12,19
668:8,10,
19,20
670:8
675:25
676:13,20
681:15
684:8,17,
18 685:1
687:21
691:17
692:16
702:2
704:6
713:15
714:1

publicly
637:13

published
523:7

PUB-MPI
533:6
547:25
551:8
645:10

PUB-MPI-1-16(b
552:1

PUB-MPI-1-76
502:17
511:12

PUB-MPI-1-86
489:4
648:7,16

PUB-MPI-2-10
555:25

pull 492:5
493:6
502:17
505:8
510:12
524:3
526:2
530:25
537:9
544:1
552:1
555:24
574:1
606:17
642:21
653:17
655:11
674:16
675:9
681:10
696:15

pulled
695:13

pulling
704:3

pulls 527:4

purchase
612:20

purchasing
616:9
617:2,5,9

purely
518:7
546:16

purport
575:7,9

purpose
487:24
496:12
497:9
518:24
530:1
580:10,25
581:11,17
591:2
611:19
613:20
624:22
644:1
651:20
677:15

purposes
497:11
522:5
528:11
529:18
548:9
620:13
644:5
648:24
665:21
666:16
671:7
675:17,24
678:19
679:16

pursue
613:20

pursued
705:10

push 594:10

pushed
707:6

putting
702:5

Q

Q.C 483:13

Q1 514:1

Q2
522:15,24
558:5

Q4 513:25

quantify
594:2,13

quarter
492:3
493:7
501:21
523:20
524:24
525:19

quarterly
493:19
523:7
524:21
558:6
567:17
673:13

Quebec
655:20

ques 503:7

question
490:22
491:1
492:17
502:18
503:8
511:13
519:11

527:20,24
528:1,8,24 529:20
530:25
533:6,9
535:2,3
537:16
546:1
547:25
548:2
549:2
552:2
553:6
555:25
557:24
564:16
574:24
594:25
598:12
600:1
602:4
603:4
604:17,23
612:9
616:2,4
628:18
630:11
642:25
643:9
645:14,22
647:24
649:3
650:7
651:18
652:5
653:8,21,23 654:22
655:11,18
656:9
669:22
693:10,19
695:6
703:15
705:24
707:10
709:11
711:3
713:12

questioning
541:4
542:24
566:24
609:3

questions
490:22
491:2,23
494:13
519:16
522:12,14
547:1,3
553:21
558:1
561:5
592:17
599:20
600:15,17
602:5
605:7
606:13
611:18
645:12
652:3
655:7
684:8
686:21,22
691:19
692:2,14,17,21,24
694:3
695:16
696:17,25
703:16
711:22
712:1,21
714:16

quick 544:3
709:11

quickly
501:18
512:3
566:21
678:12
694:21
706:3

quite
492:25
566:8
577:23
588:16
596:22
632:22
640:1
659:21
688:10
703:2

quote 533:8

R

ra 610:4

rainy 575:6
714:10

raise 590:7

raised
565:7
674:11
689:18

raising
486:4
656:23
657:2
682:3

range
497:13,15
519:1,10,12,13,18,22 521:20
522:7
523:7
526:18,23,25
532:23
538:7,13,16 558:21
559:4
566:11
592:21,23
593:5,13
594:12,20
595:10,17,22
596:13
597:6
708:3
714:6,7

ranged
576:17

ranges
594:14,23

ranging
680:20

rapid 689:7
698:21

rate 483:6
486:4,8
487:15
489:6
492:6,9
494:17
495:6
497:7,12
498:15,20,22
499:11
501:9
502:19,22,24
503:3,5,12,21
505:13
506:17
507:15,22
508:2,4
509:13,15,23 511:4
516:10,12,25
517:13
520:3
531:20
532:5
536:17
539:17,25
540:5,8,13,15
541:17,20
542:4
550:1
552:9
553:13
556:6,12
557:13
561:21,25
562:13,19
563:3,12
564:13
565:1
566:6
569:24
570:7,14
577:19
578:5,7
580:5
582:18
583:9
584:17
585:2,4,11,14
586:15,16,18,21,25
587:9,10,15,16,20
588:8,20,21
597:21,22
609:18
614:5,11,25
616:7,10,19,21,22
617:22,23
618:11,22
619:9,14,21,24
624:14,16
625:4
644:10,17
645:16,17
646:11,22,25
647:2,3,11,15,25
648:8,18
649:6,15
656:24
657:3,8,14 658:13
659:15
660:20,24
661:1,11,23
662:4,10,20 663:10
664:2,10,23
665:10,14
667:13,17,23
668:11
670:3,10

672:14
674:24
675:19,25
676:4,14,15,19,22,24,25
681:15
690:25
692:17
693:22
696:4,10
697:25
698:13
699:23,25
700:14,19
702:15,20,21
703:2,5
705:5,16
706:6,10,21,24
710:14

rate-making
517:10
578:4
684:11

ratepayers
497:23
513:1
514:15,22
588:22
665:6
675:19
699:23
700:13,18,21
708:11

rates
492:14,22
495:3,20
496:24
497:4,12
505:24
506:15,16,25
507:2,19
509:2
510:16
511:8
516:5,8
517:11
561:17
569:13
570:4
573:8
575:11
578:11,18
583:12
584:14,23
585:17
586:5,9,22
587:6,23,24
588:8,17,23
589:7,11
590:2,3
591:4,20
592:1
597:20
602:22
603:6,9,12,13,18,23,25
604:3,6,20,22
609:15,20
617:19
618:10,11,18
623:3,6,7,9,13
626:17
638:1,9,21 646:4
647:4
648:1,25
649:8,10
663:21
665:5
666:13
671:22
673:1,4,14,20
674:6,12
675:6
687:14
691:12,13
696:3,5,6
698:12,15
,19
699:13,17
700:11,15,16,17
701:5,7,20
702:5,7,17 708:8

rate-setting
578:17
666:16

rather
489:6
498:5
516:17
521:20
529:11
531:24
545:19,24
605:18
628:8
645:17
648:8,19
700:22

ratio
487:17
495:19,22
498:23
499:23
500:13
501:12
502:13
504:10
505:23
506:4
507:4,9
509:6
510:6,21
511:10
512:14,20
514:21
515:15,19
517:6,22
538:14
539:8,10
559:7,14,25 576:22
577:22
677:17
678:2
680:11
693:17
694:17
695:11,18
713:14,20

ratios
505:17
571:7,8
576:10,13
577:5
578:23
636:21
637:1,12
713:17

Raymond
484:12
485:18
491:3
561:8,15,16
562:4,11,22
563:2,16
564:2,15,25
565:4,21
566:4,5,14,22
567:2,8,15,24
568:5,10,15,19,24
569:3,8
570:1,12,17,21,24
571:2
572:2
573:10,20
574:16,20
576:2,8,16,20
577:1,3,15,16
578:20
579:1,13
580:11,17
581:3,4,12,19,20
582:7,14,21
583:3,4,15
584:1,7,13
585:1,13,19
586:3,12
587:3,12,19 589:9
590:5
591:8
592:16,25
593:4,8,12,15,18
594:1,24
595:16
596:1,16
597:8,25
598:9,11
599:9,17,25
600:1,21
601:1,8
602:9,12,13,17
603:4,16,22
604:1,18
605:1

re 483:5
487:11
557:9
706:14

reached
551:20
684:25

react
544:12
587:9

reaction
577:4,12

reactively
531:18

reading
660:17
713:24

reads

653:24
ready 544:3
554:9
561:9
658:8
691:24
real 488:9
607:9,13
608:20,24
609:8
610:4,10,16,19
611:8,20
612:1,16,17,23
613:1,2,3
614:4,12
615:1,12,17,18,19,24
616:7,10,15,19
617:2,19,22
618:10,14,20
619:10
623:7,9
624:17
625:2,17
626:16
627:4,8
629:2,5,9,13,22
633:9
636:15
637:22
642:12
643:16
644:7
645:3
650:5
651:4,8,12,22
655:22
678:12
708:24
realistic
646:6
676:8
reality
538:21
650:14
realize
617:8
realized
494:5
really
493:1
498:5
500:9,14
504:6,9,23 507:2
509:14
517:5,14,20
520:23,25
522:5
532:18
535:12,21
543:18
550:25
553:12
571:20
588:18
589:21
590:1
591:5,14
594:20
596:12
610:4
654:6
658:15
667:23
678:14,16
687:3
690:6
691:14,16
701:6
703:7
707:17
713:22
714:10,11
realm 535:7
reason
496:8,15
497:21
506:23
512:16
519:18
528:13
536:8
548:20
589:18
607:22,23
reasonable
519:14
529:20
536:23
548:20
562:21
565:19
573:1
reasonableness
550:15
reasons
488:22
496:11
508:23
515:5
516:21
530:13
551:23,24
579:21
635:5,7,19,23
678:10
711:17
rebate
533:25
535:12
rebates
497:1
519:20
579:5
rebuild
546:22
692:18
693:10,16,21
694:22
695:7,10
rebuilding
497:1
519:20
531:5,23
532:7,12
552:10
556:7,24
676:19
677:5
692:25
693:1,5,7
694:5
708:12
recall
568:8
582:19,23
583:16
587:17
609:16
650:13
661:4
671:17
681:18
683:3
684:13
692:15,21
696:24
698:1
recalls
684:9
receivables
582:9
receive
615:1
received
547:4
recent
492:7
516:5
534:7
535:11,13
571:24
666:14
675:7
688:9
699:5
701:15
708:13
713:2
recessing
554:5
601:22
652:21
recognize
494:18
539:2
578:2
recognizing
571:21
600:2
680:20
683:14,16
recollection 503:7,8
504:12,19
595:23
681:20
recommend
648:25
649:7,10
657:9
recommendation
671:10,12
recommendations
588:3
recommended
665:3
reconvene
692:7
714:18,19
record
554:18
559:13
600:25
622:9
652:12
668:9
686:14
redirect
655:8,11
656:9
692:2,7
Re-Direct
485:20,22,24
655:14
692:12

711:24

reduce
500:23
527:18

reduced
492:10
531:21
701:9

reducing
492:8
569:18
662:4

reduction
531:4
711:13

refer
602:19
603:19
637:1

reference
498:11
511:20
518:13
526:3
533:16
543:9,14
545:9
547:11
548:5
549:3
560:13
568:14
573:16,21
575:4
598:1
626:12
628:20
631:16,23
636:3,5
649:23
663:18,24
665:16
673:18,21
674:5,8
675:21
682:1
687:1
713:15

referenced
545:7

references
493:24

referencing
687:5

referred
489:4
630:7
648:7,15

referring
527:20
628:23
636:10
637:4
653:13

reflect
503:4
526:15
532:18
538:5,21
545:10
587:22
594:21,23
596:6

reflected
556:17
560:12
597:9
646:4

reflecting
505:12

reflective
680:14

reflects
505:22
510:16
535:14
546:16
551:19
597:20
626:16

regard
605:8
626:20,24
639:20
671:25

Regardless
674:21

regular
544:23
545:24
615:15

regulator
538:24
539:5
544:4

regulators
560:22

regulatory
522:10
531:6,23
552:9,17
553:1
556:3
563:24
691:5,7

Reichert
701:23

reinforcing
673:19

rejected
610:4

rejecting
608:24

relate
520:18
662:25
672:25
687:18

related
517:10
536:17
543:17
580:10
610:18
611:7
612:6
613:21
630:8
654:17
660:24
661:1
668:11
671:21
675:13
680:8

relates
561:21
606:12
661:16
662:4
712:2

relating
607:8
653:9
662:20
686:17

relation
636:16

relationship 617:18

relative
496:23
503:25
552:5
603:18
617:9
638:14
671:3
710:11,17,25 711:2

relatively
500:13
508:20
608:25

release
498:3
518:16,24
546:22

relevance
546:12

relevant
608:11,21
621:3,4

reliability
579:23
630:16

relied
666:15

rely 585:11
662:25
669:16,23
672:18

remain
508:19
510:10
665:6
690:4

remainder
523:24

remaining
569:20
691:16

remains
506:4
507:9

remember
494:23
579:8
595:20
598:21
650:17
686:24

remind
507:20

reminded
554:11

repayment
612:12

repeat
527:23
540:9
600:24
649:2

report
492:3
493:7,19
500:3
522:16
523:7
524:21
558:7
566:19
567:17
602:19
628:11

676:6
696:8
706:25

reported
523:20
524:24
525:20
570:18
571:21
678:8

reporter
606:4
630:19

reporting
566:10
683:8

represent
502:8

representation 502:2

represented
608:16
625:9

representing 624:4

represents
631:19

reproduce
624:7

request
511:14
518:12
531:2,14
548:1
551:9
556:2
580:22
605:14
642:21
653:14
690:25
703:22

requested
644:25

requesting
558:18
591:6
693:1,4

Requests
586:19
607:1

require
542:5
616:11
709:2

required
518:4
544:18
559:10
561:21,25
562:13
582:18
586:14
605:8
679:5,24,25 680:4
705:16

requirement
509:24
512:10
526:17
530:6,16
542:8
684:19
685:19,24
686:4
690:18

requires
631:17

research
533:11
534:21

reserve
575:1,6
580:3,5,9
582:1
669:17
681:15
692:18,19
695:8
709:3

RESERVE/ DYNAMIC
485:9
491:14

reserved
571:22

reserves
487:23
569:12
574:22
575:3
579:15,16,17,18,21,22
580:13,16,25
581:10,15,23
709:6,7

reserving
690:5

respect
492:6
511:13
518:13
520:14
524:23
525:14
528:8
533:11
537:8
546:2
547:1
548:3,7
557:22,24,25
558:1,5,23 581:20
582:16

respective
612:3

respond
516:23
531:18
571:10
591:9

response
528:4
529:7,10
531:6,14,24 532:2
533:15
534:24
547:4
548:5
551:9
552:12
556:1,2
557:2
571:4
606:25
609:14
630:4,7
644:3
669:14,15
675:15
695:16
697:13
699:10

responses
552:11
628:18

responsibility
592:11

rest 562:18
659:1

restatement
503:2

restricting
605:14

result
503:12
506:8
540:12
583:6
584:16,22
589:14
595:3
596:18
608:2,5
636:8
690:5
698:14

resulted
646:11

resulting
498:20
552:4
679:18

results
502:21
517:1
518:3
529:4
566:13
573:4
599:14
634:5,22
647:9,12,14
678:23,25
708:10

resume
554:9
602:1
652:25
656:18

RESUMED
485:6
491:11

resuming
554:6
601:23
652:22

ret 611:23

retain
589:15
625:12

retained
523:25
567:9,10,18,19
574:14

retention
572:6

return
490:18
494:18
495:5
498:15
503:19
504:1
607:8,15
609:9,13,25
611:20,23

612:1,2,18,23
613:1,2,3,4
614:4,13
615:1,12,17,18,19,24
616:10,11
619:10
629:2,6
642:15
643:5
650:5
651:4,8
655:22
704:22
705:3
710:25

returning
572:11
649:20

returns
590:20
618:14,20,21
623:12
643:23
644:6
703:21
704:8,11
706:13,18

revaluation
569:14

revenue
487:8
555:3,17
565:6
584:9,15,20

revenues
568:1
572:6

reversion
647:1
698:21

review
632:7
652:2
673:13

reviewed
588:9

ride 541:21

right-hand
522:19
538:9
571:7
592:21

rise 584:14
636:19
637:6
649:19
666:14
698:15
700:17

rises
584:17
636:17

rising
647:4
699:16
700:11
701:5

risk
492:9,14,20 493:3
495:17
500:23
511:8
514:10,17
518:6
525:14,19
526:21
533:17
534:22
535:14,21
536:14,20
537:2,13,14,21
538:5
540:18,25
541:19,25
542:16
582:19
583:9,13
593:22
594:4
595:2
596:9,10,12 607:8
608:17,20
610:5,10,15,17,18,25
611:1,4
612:24
619:2
624:5,23
625:4,11,13 641:14
642:15
656:4
660:20
661:11
662:4,10,12,20
663:10
664:2,10,23
665:5,10,14
667:13,16
668:6,12,15 677:17
679:10,18
680:1,5,16,19
681:17,21
682:11,13,21,24
683:9,15,17
688:15,20
689:5,11,14 690:5
698:22,23
699:2
704:23
706:4,6,10,12,15,21 707:7
708:15,17
710:14,24
711:4,7,11,12
712:22

risks
535:22
536:17
541:5
591:24
594:12,21
597:9
641:10,16
661:1

risky
688:21,24
689:3

RM 498:9

RM-13
561:18

road 488:4
502:4
569:21
591:24
600:2,5,15
601:3,12

Robert
483:13,16
484:4

role 658:22
662:19
672:9

roll 573:3

room 545:15
698:10
699:13

roots
622:18,20

rough
596:24

roughly
542:22
565:2,3
567:5,20
576:17,18
579:14
583:16
595:18
615:1
629:5
638:22
639:17,18

round
642:21

routine
513:16
531:6,23
552:8,17
553:1,13
556:3

row
495:8,19
565:18
583:19

RSR
495:5,11,22
497:1,9,13,15
499:7
504:1,7,14,16
511:4,9
512:23
519:22
531:5,22
536:7
549:25
551:14,15
552:10
556:7
573:11
574:17
579:14
592:17,21
595:17
596:18,23
597:4,5,10
598:3,17
599:11
676:19
679:3
693:2
694:5
705:6
707:19

rule 639:6
658:20
694:25

rules
521:2,8
532:16
694:23
695:3

run 500:20
704:22

runaway
636:24

runners
709:22

running
500:2,12
529:8
707:9

S

SAAQ 650:2

safe 580:2

safer 703:7

safety
488:4
600:2,5,15
601:3,13

sake 561:23

Saskatchewan 503:4
511:17,25
513:8
515:3
533:14
539:8,10,11,17,25
540:7,12,13,18,25
542:15

satis 628:9

satisfactory 500:4
526:18
530:7,15,22 548:19
605:19
653:7
658:8

saw 515:15
568:12,20,25
593:15
702:16

Scarfone
484:6
485:20,23
490:14,24
491:6
541:2
549:4
553:5
559:1,17,22 565:23
577:10
580:14
582:25
600:13,14,23 601:6
605:22
629:15
630:14,24
631:4
632:6,25
634:20
635:6,9,22 646:17
647:19
648:10
653:12,17
654:14,20
655:8,10,14,15
656:1,8
684:21
685:20
686:1
691:22,23
692:4,6,12,13,23
693:9,20
695:5,12,22
696:14,21
697:4,9,24 698:4
703:13,14
704:1
707:8
709:10,19
710:1
711:20

scenario
493:4
497:17
526:3,6
529:3
530:5,10
531:7
532:19
533:1
537:2
545:10,19
551:18
552:3,6,7,16
636:2,15,20 702:3
709:4

scenarios
492:22
558:2
580:7
633:20
634:4,11

schedule
491:4

Schubert
613:6
623:19
645:9
660:8,16
669:14
679:7,11

science
659:20

score
500:6,8

screen
518:11
522:23
703:20

scroll
549:2
553:6
571:12
649:24
653:19
655:16
662:17
696:22
710:2

se 643:22

Sean 486:7
657:7,13
669:23

searching
628:8

sec 511:3

second
492:2
493:7
495:8
522:21
523:18,19,20
524:24
525:7,19
531:16
543:13
548:22
549:17,23
569:7
571:14
606:24
610:22
613:9
620:17
630:23
636:2
641:13
642:21
645:15
646:2
649:23
653:18
657:6
660:10,11
661:10
663:6
665:10
673:18,22
675:14
681:11,24

secondly
641:20
710:24

second-quarter
558:25

section
498:11
518:12
524:4
574:1
660:9
662:3
665:9

seeing
496:21
515:13
603:17

seek 507:3
517:5
540:7,15
663:19

seeking
662:9
686:3
705:9

seem 571:8

seems 710:7

seen 500:12
517:24
533:19
537:25
549:22
560:11
567:17
585:15
592:7
604:15
698:16,25
699:8,15
704:10,25
708:9

sees 605:24

segmented
707:21

segregated
667:7

segregating

667:10
segregation 661:16
select 711:18
selected 545:12 552:7,16 610:17,24 611:8 642:13 710:4,7
selection 570:3 598:15
selling 589:16
sense 515:6 527:16 537:23 538:5 689:5 701:18 712:17
sensitive 502:24
sensitivities 624:14
sensitivity 626:16
sentence 674:4
separate 499:3 505:1 630:20 641:19 642:7
separated 582:2
separately 499:8
September 606:19 607:6
series 659:13,16,25 660:4
serious 577:25 699:19
serve 612:23
sets 506:15 518:18
setting 516:10,25 532:5 537:12,19 678:13
settle 689:23
settlement 689:21
seventy-eight 579:6
seventy-five 573:22
several 540:1,14 550:19
severity 689:8
SGI 496:4 498:4 504:21 512:2,9 513:3 519:6,24 541:5,6,12,16 542:3 687:1 691:10 704:7,13 705:12 706:3,7 712:2,6,10 713:6
SGI's 712:3
share 488:7 520:13 521:14 591:24 601:5,17 653:11 669:3 690:16
shared 520:17 613:13 647:12
shares 667:1
sheet 496:21,23 511:9 544:2 580:24 581:9 594:22 689:15
shield 667:16 668:2
shift 492:14 550:16 638:15
shock 633:21 636:3,23 675:20,25 676:5,15,22,25
shocks 510:2
short 508:11 566:1 603:12,25 604:1,2,6
short-circuited 612:9
shorter 639:18
shortfall 684:1 700:12
short-term 572:14 586:22 603:11,12 604:5 689:5
shot 581:6
showed 496:5 499:11 610:10 645:4 686:25 702:20
showing 567:9,11 615:6
shown 492:23 495:7 499:8 505:21 539:10 586:20 590:24 596:3 655:19 656:3 668:4 671:2
shows 505:11,16 510:20 556:3 562:6 655:22 704:7
sic)/2018 574:12
sign 547:23
signalled 586:4
signals 585:23
significant 525:9 537:2 543:14 572:17 596:10,12,18 608:19 620:2,5 636:23 650:15 691:11 699:22 700:21 703:3 709:4,7 711:13
significantly 492:8 526:4 551:14 589:12 602:23 615:23 671:2
similar 500:8 519:24 546:19 549:25 569:20 587:1 588:10 593:24 615:10 639:6 659:2 704:14
similarly 640:20
simple 639:17
simplistic 616:19
simply 687:17 693:7

simulation 637:16
sincere 622:9
sincerely 686:14
single 706:25
sir 491:9 562:2,9 563:7 567:2,13, 22 568:8 570:1 573:12 578:24 579:8 580:11 581:4 590:6 591:9 596:17 602:18 603:2 606:23 607:12 609:23 610:3,13, 21,23 611:4,20, 21 614:6,13, 18 616:4,13 617:13,17 618:16,23 619:1,7,1 0,13 620:2,12 621:7,13, 19 623:3,25 624:2,9,2 1 625:14,24 626:11,22 627:3,17 628:7,16, 20,23 629:9 630:2 633:12,25 634:9 636:1,5,1 4 637:1,20 638:8,17 639:1,23 640:9,21 642:5 643:4,11 645:1 650:17,22 655:24 656:2 659:7 660:21 661:4,10 662:10,13 ,21 663:6 664:24 665:12,16 666:17 668:8,17 670:11,20 671:8,12, 20 672:8 673:21 674:5,8,2 4 675:12 677:20 679:21 680:2 681:18,23 682:7,24 683:7,22 695:20 697:4,10 698:4
SIRF 671:4
situation 541:6 636:22 687:19 694:15
situations 577:17
six 502:3 579:6 674:16,18 697:16,17 701:24
sixteen 703:4
size 503:25 584:24 680:7
skills 562:12
slide 488:18 492:5 494:24 537:10 539:7,12 543:6 560:14 613:8,9,1 2,25 614:2 623:20,22 633:17,19 635:1,13 637:18,23 654:7 670:19 687:8 709:15
slides 627:19,22 645:5
slight 597:18
slot 633:6
slowly 498:5
smaller 492:1 508:16 651:4
smooth 713:7
solution 544:6
somebody 507:17
somehow 590:4
sometime 490:9
somewhat 497:5 593:24 647:24 705:14
son 554:11
sorry 511:2 513:11 527:22 531:11 537:15,17 540:10,20 ,22 543:1 549:15 552:23 561:24 587:4 593:14 599:7 600:11 607:18 621:22 622:19 632:13 644:4 651:16 653:14 670:3,7 679:7,9 685:20 686:24 687:3,8 692:3 713:14 714:18
sought 577:7 645:15
sounds 531:22 566:12 568:3 632:25 700:25
source 503:21 546:12,14 ,15 608:19 653:9 676:5
span 506:21
speak 701:12
speaking 486:3 655:4 656:23 657:1
special 525:14,19
specific 512:17 534:25 580:10 586:10 624:20 648:4 659:19
specificall y 547:7 585:7 625:7 645:6 655:21 664:14 671:25 678:23 687:23
spectrum 492:20 607:8
speculate 587:8
speculative 577:17
spend 494:22
spent 488:3

600:6
601:2,11

spirit
534:23

split 582:5

spoke
501:15
532:22
579:14

spoken
576:20,24
591:13
660:19
690:10

spread
585:9
621:10

square
622:17,20

squarely
685:1

stability
497:12
508:7,8
509:9
514:3
516:12
687:13,14

stabilizati on 485:8
491:13
580:5
681:15
692:18

stable
508:20
510:10
573:7
575:12
591:4
592:1
691:13
701:20

staffing
570:22

stage
607:19
609:1
624:11
625:2,7

stalled
535:5

standard
489:5
543:22
609:18
621:7
643:5
644:17
645:17
646:10,22
,25
647:11,14
,25
648:8,17
649:6,15

standards
547:6,22

stands
588:9
656:15

start 490:4
502:1
563:9
608:11
642:24
691:21
712:20

started
663:7
701:23

starting
606:12
607:13
662:15
663:6
681:25

state
492:19
521:24
523:8,11
542:9
551:19
558:11,15
,24
560:9,10
575:8,11

stated
522:25
531:15
550:6
688:1

statement
505:11
510:15
516:18
543:16
552:3
563:10
566:15

statements
546:8
566:17
569:16
672:11,24
673:6,13
702:16

states
543:7
551:10
586:5
617:22
669:17
681:6

static
501:22

stating
521:24
682:3
684:23
687:21

statistical
659:13,22
681:16

statistics
659:21

STAVE
703:13

stay
495:6,23
500:12
504:7
510:8
526:23
527:1,13
532:23
649:10
671:21
672:11
696:6

stayed
649:1,8

staying
495:11
506:2
630:3
695:18

stays
496:22
507:4,16

steadily
570:7

steady
551:19

step 641:13
660:11
661:16
691:20
694:18,20
707:16,17

stepping
511:2

steps
633:24
641:19
642:5
664:1

Steve
485:20,23
490:14,24
491:6
541:2
549:4
553:5
559:1,17,
22 565:23
577:10
580:14
582:25
600:14,23
601:6
605:22
629:15
630:14,24
631:4
632:6,25
634:20
635:6,9,2
2 646:17
647:19
648:10
653:12,17
654:14,20
655:10,14
,15
656:1,8
684:21
685:20
686:1
691:23
692:6,12,
13,23
693:9,20
695:5,12
696:14,21
697:4,9,2
4 698:4
703:14
704:1
707:8
709:10,19
710:1
711:20

Steven
484:6
695:22

sticking
569:4

stock
495:15
510:4
544:10
597:18
637:1,6
707:24

stocks
637:7,14

stomach

520:4
straightforward 501:4
strategies 592:8
strategy 665:4 667:4,15 705:10,12 710:14,15,19
stream 651:6
strength 495:21,24
strengthen 530:10
stress 488:18 633:20 634:4,11,16,22,25 635:12 636:2
stressing 504:6
stretch 539:5 703:2,4
strong 691:16
stronger 693:8
struck 699:18
struggle 535:5 553:15
struggling 549:22 698:9
student 681:5,7
stuff 544:15 688:8
style 503:4 712:5
subject 490:17 505:24 520:5 564:21 568:16 573:13 600:2 623:23 634:15 652:2 683:6 686:16 688:2,3 703:17
subjectivity 543:15,25 544:17 678:6
submissions 627:14
submit 608:10
subsequent 589:8 625:10 700:13
subsequently 610:9
substantial 665:4
substantially 663:20 664:1 705:19
substitute 618:20
successive 531:19
sudden 534:10 597:23 702:14,15,22 708:9
suffered 694:16
sufficient 557:3
suggest 504:3 535:17 539:4 541:11 548:16 571:20 610:9 614:1,25 617:16 618:20 621:8,16 622:13 623:4 624:3 631:18 633:18 636:8,14 639:2 640:14,23 650:1 676:20 684:18 685:3
suggested 610:3 650:3
suggesting 514:9 515:16 610:25 632:3 675:3 683:25 685:17,23 697:20 713:16
suggestion 610:24
suggests 626:16 646:10 713:24
suitably 528:25
suits 553:22
sum 582:21
summarize 529:7
summarized 644:8
Superintendent 679:17
supplemental 606:18
support 501:6,9 537:11,16 563:20,25 669:17,23 701:13
supporting 494:19 498:16 502:20 503:19 681:14
supports 537:19
supposed 496:13 526:23
surcharge 497:19
surcharges 531:20
sure 493:1 499:8 507:4 519:5 550:23 564:23 566:22 569:8 598:1 599:16 600:25 604:2 614:21 615:25 617:11 618:4,24 620:6 621:5 622:10 627:9,18 631:15 634:3 641:17 645:23 693:14 705:11
surplus 525:12
suspect 621:1
sustained 572:16
swings 533:19 534:17 702:16 712:23
switching 675:12
swore 607:2
sworn 485:10,12,13 491:15,17,19 606:19
swung 699:17
system 637:11 658:21 679:20 683:8 689:19

T

ta 552:14

tab 493:13
505:9
524:7
561:19
657:20
662:16
664:14
665:9

table 485:1
487:3
495:8
505:16
538:9
554:21
555:9
576:11
577:23
615:5
625:5
679:4
687:2

tacks
589:10

taking
566:15
594:19
599:18
619:7
713:24

talk 498:3
551:6
561:20
570:2,4
583:19
652:25
682:11
711:1

talked
508:15
513:24
534:7
536:21
568:6
573:23
574:21
579:25
587:13
589:18
600:4
615:8
637:20
667:18
686:23
688:25
710:10

talking
497:12
500:19
528:4
580:3,15
584:25
588:11
595:5
597:4,13
604:19
623:16
682:13
703:9
708:7

tape 606:4

target
486:5
487:12
491:25
497:25
518:25
519:6,7,8
,9,13
521:20
522:5,13,
24,25
523:2,6
525:4,9,1
5 527:4
528:10
529:11
533:1
537:12,20
538:7,15
539:11,13
542:15
543:10
545:12
546:13,16
547:1,7
548:8,17
549:12,18
550:1
552:14
555:24
556:5,11
557:9,25
560:11,14
575:20
595:24
597:5
656:24
657:3
674:7
678:13,17
679:25
680:4
681:15
683:24
684:2
687:23
694:24
708:1

targets
501:7
517:18
521:8
526:14
527:2,5,9
,12,18,21
528:5
529:22
537:9
538:3,5
546:21,24
550:3
551:15
597:4
681:21,22
688:11
705:1
714:2

tasks
701:25

technical
496:4
600:3
628:17
630:3
684:9,14
685:10,18
,23

technically
638:12

technology
536:2
682:25

temper
701:19

ten 496:20
554:13
574:13,19
586:6
594:11
615:4
625:18,22
626:3
631:22
632:5
637:21
639:13,18
,19,22
640:16,19
,25
650:16,20
654:10
669:18

tend 520:8
597:15

ten-year
638:20

term 508:11
541:14
561:1
573:4
612:4
614:24
615:20
618:14
621:7,14
622:12
623:12
638:11
643:8,10
647:1

terminologi
es 700:3

terminology
560:9

terms 493:3
504:10
510:1
514:2
517:16
523:11
528:9
538:8
569:23
574:22
580:4
584:21
591:18
595:5
596:25
604:9
605:6
607:13
609:8,14
611:20
616:19
620:22
622:12
627:3
631:16
632:1
639:17,23
640:15
643:23
644:15
645:16,24
646:1
648:5
650:15
651:4
653:3
654:17
661:10,18
668:21
669:21
670:10
671:3
672:9
676:6
677:20,25
678:13
679:23
681:14
683:16,24
684:9
687:8,17
688:22
689:11

690:17
691:20
695:11
699:4
700:3
704:13
705:1
706:9,14
712:17

territory
698:20

test 522:22
528:12
538:25
558:8
634:11,16
636:2
659:14
679:5
682:12
683:14
701:1
713:9

testimony
573:23
574:21
583:6

testing
485:9
491:14,25
522:13
678:19
702:3

tests
488:18
633:20
634:4,22
635:1,12

thank
490:13
491:5,6,9,22 493:5
494:12,25
495:25
498:8
499:9
502:11,16
503:17
505:8
507:5
510:11
511:11,21
513:13
516:4
518:9
520:12
521:17
522:11
523:12
524:20
525:22
533:5
534:19
537:6
538:6
539:6
542:13
543:5
546:25
547:13
548:13
549:3
553:7
554:2,3,8
555:1,7
557:6
559:12,21,22
561:4,6
562:22
567:2
570:1
581:4
583:4
592:16
598:11
599:22
601:6,8,19
602:9,17
605:1
606:10
610:2
612:10,22
613:5,10
616:24
620:11
621:6
623:18
625:15
626:6,10
633:6,16
637:17
639:9
644:2
645:8
649:22,25
655:5
656:8,10,11,13,19
658:9
660:7
662:17
666:9,24
669:11
670:4
671:6
675:11
677:8
685:16
686:15,20
691:18
692:9,13
695:5,12,13
696:14,21,23
697:24
703:14
707:8
709:10,19
710:3
711:20,25
713:11
714:15,17,20

thanks
655:3
666:25

That'd
524:6,8
624:24

themselves
546:24
667:13
682:21
702:11

theory
519:22
530:6
608:13
617:17
618:9
674:16

there's
496:10,11
506:15
519:4,5
522:18
526:13
533:8
534:15
535:4
543:7
545:14
564:10
569:13,18
570:22
571:24
579:20
582:3,7
599:9,13
606:2
608:1
614:7
615:12
619:22
620:4
621:23,25
636:21
637:12,15
639:25
642:14
652:17
669:7
672:16
680:6,8
686:24
688:4
691:10
712:23

They'll
605:16

they're
504:23
506:14
521:3
535:24
546:9,10
553:6
562:6
578:11
579:23,24,25
581:11
606:15
643:20
680:8
704:14
705:16
708:2
713:7

they've
512:22
540:4
571:23

thir 663:7

third 545:8
551:10
578:8
635:3
646:2
661:15
664:6
665:9,10

threshold
487:13
538:16
545:13
552:5,6,15
556:5,11
557:10

thresholds
537:13,20

throughout
510:16

thrown
672:17
700:4

thumb 639:6

tied 521:21

tighter
661:8

title
571:13

670:19
titled 486:8 657:8,13
today 490:7 520:13 558:13 565:20 589:19 712:3
today's 620:4 644:1
tolerance 588:18 706:5,12, 16
tomorrow 490:13 691:24 692:8 714:20
tool 501:16
top 523:18 583:18 663:24 677:11
topic 499:7 549:25 550:25 659:20,22 685:11
topline 706:18
tort 688:13,16 689:19 691:8
total 494:19 495:6 498:16 499:24 501:22 503:20,22 518:2 523:17,20 ,25 524:3,22, 24 525:4,15, 20 566:13 567:7 570:25 574:11,12 ,15 615:1 621:18 632:2 640:8,14, 24 679:24,25 680:9
totalling 621:17
tough 546:4
towards 494:23 497:25 516:25 519:9 520:1,14 523:10 532:25 663:17,24 664:19 677:10
track 494:3
tracking 642:25 643:4,8,2 5 644:4,6
traded 637:14
traditional 528:10
traditional ly 598:22
transcript 485:25 606:5
transfer 521:11 546:22
transfers 520:19 545:4,7,1 8 546:2,8,1 2 549:21 596:22
transition 532:4
translate 587:1
trends 494:2 533:22
trespass 611:17
tried 554:12 588:15 596:14
trigger 497:24 519:11,19
triggered 534:5,20
trouble 629:8 702:25
troubling 597:3
trubulent 510:5
true 621:12 678:5
truly 580:6
trust 544:4
try 514:6 534:17 542:2 576:4 581:1 585:5 643:13 670:8 686:13 699:1
trying 500:1 517:5 536:11 543:16 549:15 580:21 589:23 604:11 614:3 624:21 625:8 632:2 636:22 654:19 698:20 713:7,22
turn 503:11 547:25 575:12 613:6 645:9 660:9 669:13 675:12 683:20
turned 589:21 674:19 683:19 698:25
turning 518:10 613:25
turns 617:4
twelve 502:3 506:4 572:21 573:2 603:15 604:25
twenty 542:23 652:10,19 704:18,19
twenty-four 507:10
twenty-one 579:6
twice 585:17
two-thirds 629:5
two-tiered 651:11,22 ,25
type 676:21 677:3 705:9
types 579:18 580:13 581:23
typically 689:20

U

ultimate 608:16 640:8,14, 24 641:21
ultimately 591:21 642:16
unanticipat ed 590:10
unchanged 498:23 506:4
undercapita lized 560:18,20 575:10
underpins 678:14
understand 501:2 509:19 517:3 542:17 545:15 554:17 572:3,9

585:25
606:3
632:2
682:19
686:2
691:23
693:4,15
695:7,15
711:21
713:1

understanding 506:8
513:10
539:20
540:2
542:3,10,18 582:3
602:3
617:25
626:20
654:2
683:4
691:2
713:18

understands
506:13
541:23

understood
653:21

undertake
534:21
554:20
557:4
558:23
559:14
620:22
634:16

undertaken
488:20
633:8
635:2,15
644:25

undertaking
554:18
555:9
557:8
559:24
565:5
580:12
581:14,24
586:13
600:19,22,24
601:10
605:12,17
629:12,18,20
630:5,8
631:6
632:22,24
633:20
634:10,21,25
635:11
647:18,20,22
648:6,14
653:7,23
654:23

undertakings 485:4
487:1
488:1
489:1
630:20
652:16
654:17
686:16

undertook
644:15

unfair
577:19

unfavourable 492:21
534:14

unfold
497:4
525:7

unforeseen
675:20

Unfortunately 518:17

uniqueness
704:5

United
669:17

units 562:6
565:16
595:4

unknown
535:21

unless
618:11,21

unlike
539:15

unpaid
579:3,16

unprecedented 698:20

unreasonable 713:25

unusual
513:16
514:12

up/down
513:1

update
587:6
691:20

updated
588:10,17
665:20

updating
588:11
590:3

upon 489:5
490:1
554:5,6
601:22,23
607:24
611:17
612:13
618:8
646:5
648:7,16
652:21,22
669:23
714:22

upper
487:12
526:24
527:4
537:13,20
538:15
552:4,15
556:5,11
557:10

upside
701:8

upsides
493:4

urging
668:20

usual 552:3

Utilities
483:1,20
662:8
663:1,19
664:8,21
665:12
668:10,19
670:9
685:1
690:25
692:16

Utility
579:4
662:24
702:2

V

valid 546:9
699:24

valuation
569:24
705:19

value
487:20
496:23
558:15,24
559:7,16
560:4
573:14,24
591:25
621:15
638:2
639:20
647:4
664:9
690:3
705:18
711:7,11

values
621:17,18

Vandewater
483:16

VaR
711:7,12

variable
624:17

variance
622:14
681:16

variation
644:6
682:13

various
548:7

vary 558:19

vastly
560:19

vehicle
571:9

vehicles
569:21

verbally
630:4

versa
667:25

versions
674:17

versus
569:23
602:25
611:8
688:16
690:20
698:22

via
622:17,19
644:8
653:3

vice 667:24

view 512:22

515:1
517:3,7
519:12,14
523:9
526:12
527:18
529:22
541:14
543:24
649:21
663:8
665:15
670:22
704:10
712:17,24

viewing
672:19

viewpoint
684:24

vigilant
668:10,20

virtue
565:7

volatile
535:11
708:23
709:9

volatility
488:8,13
492:24
516:2
535:15,18
536:16
578:21
580:7
588:19
596:14
622:12
623:3,5,7
,8,12
626:22
627:2,5,8
628:21,22
629:1,4,9
,13,21
630:6,16,
21
631:2,8,1
9,21,22
632:4
633:11
643:19,24
644:9,16
645:7
653:25
654:8,9
664:8
682:20
688:10
705:8,9
713:8

volume
508:25

vulnerable
663:10

W

waiting
497:24
498:5

walk 706:5

walked
590:24

warranted
674:7

wasn't
504:9,16
505:6
533:22,23
551:24
654:23

watch
497:18

watching
499:15

Watchman
484:4

ways 519:4
522:3
561:2
589:23
620:22
667:10
699:1

weather
590:17
597:19

we'd 516:2
524:2
536:6
563:25
614:21
685:12
707:22

Wednesday
628:5

week 683:23

weekly
640:12

weight
562:17,18
571:23

weighted
639:10

weighting
706:15

weird
702:15

we'll 491:8
526:25
553:21,25
555:5
556:25
557:4
561:20
570:4
574:1,2
580:22
599:6
602:6
605:17
608:11
609:2
611:4
622:9
652:16
653:3,4
677:1
683:23
688:21
706:5
714:17,19

well-defined
529:15

we're
495:22
496:13,20
497:18,19
,21
500:4,14,
19 504:25
509:1
514:7,8,1
5,16
517:3,5
519:11,19
520:7,24
526:25
527:12,13
532:3,4,6
,25 533:3
536:11
538:3
544:19
546:15
547:19
549:22
550:25
551:5,6
553:15
554:9
563:15
565:23,24
,25
566:18
567:9,11
575:16,23
580:1
583:12,13
,24
584:25
588:11
589:18,25
590:2
592:20
594:15
597:4,12
599:19
602:1,7
605:11
613:11
618:2
623:16
632:21
636:22
639:13
641:6
647:20
648:6
655:3
675:12
682:12
687:20
689:13
691:14
693:3,6,1
7 694:10
696:5
697:19
701:6
703:17
705:6,8,2
2 707:5,9
708:7
713:22

we've
492:22
500:12
501:15,24
504:14
507:18
513:24
514:17
517:4
526:15,24
529:20
533:18
536:10
537:24
544:6,7,8
,13,16
547:4
556:23
560:11
563:20
567:17,25
576:20,23
,24
578:14
580:3
586:20
588:15
589:18

592:8
594:22
596:14
597:6
599:14
604:15
622:5
629:8,16
654:22
668:4
693:6
694:7
698:16,25
699:12,15
701:7,8,9
712:2
714:4,14

whatever
500:22,24
594:8
600:20

whereas
501:22

whether
488:17
506:21
528:24
533:12
537:18
541:16
542:14
546:2
549:21
550:7
572:3
578:14,22
580:24
591:12
605:16
608:18
624:25
625:12
627:19
629:12
634:10,25
635:11
642:12
684:10
711:4
712:4

whole 503:7
527:5
546:20
549:20
690:6

Williams
484:9
485:19,21
490:11,12
602:4,6
605:3,4
606:9,10,23
607:5,11,17 608:9
609:5,6,12,19,22
610:2,8,13,21
611:3,15,25
612:8,15,22
613:5,17,19,24
614:10,16,22
616:3,18,24
617:6,12,16,21
618:1,8,15,19,25
619:7,12,18
620:1,7,12,20
621:6,13,21,25
622:4,8,16,20,25
623:14,18
624:2,19,25
625:14,20
626:6,9,15,19,25
627:3,14,17,21
628:6,13,15
629:7,16
630:1,2,15,18
631:1,13,14
632:1,12,15,20
633:4,5,16,25
634:9,14,21,24
635:8,25
636:1,7,13,25
637:5,17,25
638:6,16,19
639:1,8,21
640:3,11,20
641:5,12,18
642:3,9,20
643:3,10,13,18
644:2,14,21,24
645:8,21
646:9,14,20
647:7,8,16
648:2,5,22,23
649:4,12,22
650:12,19
651:2,10,15,20
652:1,15,25
653:2,6,13,15,22
654:5,12,16,25
656:17,19
657:6,17
658:1,7,11,12,17
659:5,9,12,24
660:5,8,15,23
661:9,15
662:2,7,13,23
663:5,12,16,23
664:4,13,19
665:1,8,18
666:2,5,8,23
668:7,17
669:11,21
670:1,12,15,16,20
671:6,11,14,19,24
672:8,22
673:5,11,16
674:2,10,23
675:11,23
676:12,18
677:8,20,25 678:18
679:2,15,23 680:18
681:1,9,23 682:23
683:6,22
684:7,15,22
685:16,21,22
686:6,12

willing
565:12,15

Winnipeg
483:22

winter
597:23

winters
708:8

wisdom
564:3

wish 668:9

witness
485:7
491:12
541:10
652:3,11
653:19
656:15

wonder
546:9
576:2
580:11
586:12
606:17
613:6
620:8
626:19
628:7
645:9
675:12

wondering
652:7
691:19

work 490:16
491:4,8
518:25
536:11
547:8,16
554:13
560:21
572:23
587:20
590:25
591:22
592:9
651:9
661:22,25
663:1
669:7
678:15,16
682:17

working
545:11,20
590:22
594:15,22
681:5

world
492:19,23
714:12

worried
639:13

worry
497:16

worse
598:16

would've
646:16,18
704:25
705:2,3

write 581:7

writing
605:13
653:4

written
487:8
507:2
555:3,17

wrong
536:3,6
589:21
591:13
598:24
668:3
679:8
708:1,16
713:19

Y

year's
549:25
582:24
665:21
693:2
713:20

Yep 613:18

yesterday
492:2
493:8
494:22
496:18
512:19
537:8
611:17
615:8
616:7
645:13
667:18
686:23
698:12
710:10,24
711:2

yet 507:9
584:5
626:5
632:22
674:22
695:3
705:15

yield
568:21
585:6,8,10 587:2
603:13
604:13
612:16,17
615:14,16
616:16,23
649:20
669:19

yields
636:4,9,10,15,16
702:10
707:15

you'll
574:10
576:12
587:10
592:22
606:24
618:22
619:12
623:23
626:11
645:15
650:13
662:3,7
663:17
664:20
665:18
666:12
669:22
670:21
674:5
680:4
681:13
709:22,23

young 640:1
658:2

you've
529:20
537:25
556:23
561:11
587:13
588:17
597:24
660:19
708:9

Z

zero 562:19
627:2
676:18
702:22
707:4,7

MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 18, 2018

Pages 716 to 887

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APPEARANCES

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Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
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Byron Williams	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes (np)	)CMMG
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TABLE OF CONTENTS

	Page No.
List of Exhibits	719
List of Undertakings	720
MPI WITNESS PANEL 3 - REVENUE/EXPENSES/ RATEMAKING	
PANEL	
LUKE JOHNSTON, Previously Sworn	
MARK GIESBRECHT, Previously Sworn	
CYNTHIA CAMPBELL, Affirmed	
Examination-in-Chief by Mr. Anthony Guerra	721
Cross-Examination by Ms. Kathleen McCandless	755
Cross-Examination by Dr. Byron Williams	832
Re-Direct Examination by Mr. Anthony Guerra	880
Re-Direct Examination by Mr. Steve Scarfone	882
Certificate of Transcript	887

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
MPI-25	Presentations re MPI Panel No.3	727
PUB-18	Figure EXP-43 from the 2018 GRA	789

LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
14	MPI to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the 24 new positions	771
15	MPI to provide the increase in revenue associated from the higher DSR generic premiums in dollars, through Q2 of the current fiscal year, i.e., show what the revenue would've been if MPI didn't change the scale, and then what the actual revenue turned out to be. The difference would be the effect of the new rates.	783
16	MPI to provide the amount of the offsetting provision for investment expenses in the discount rate used for ratesetting	798

LIST OF UNDERTAKINGS

NO.	DESCRIPTION	PAGE NO.
17	MPI to provide a fiscal year-to-date account of the actual revenue impact of the change, the rate level change and how close it is to being in line with the original estimate of a million dollars per year. And provide the premium and claims information and loss ratio for the four (4) vehicle for hire categories, latest available information MPI has.	800
18	MPI to provide an update on the progress the Corporation has made with respect to its DSR public consultation	826

--- Upon commencing at 9:06 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair and members of the panel. Today we have the MPI Panel Number 3, which is revenue, expenses and ratemaking. We expect that this panel will be up and down today. I'm not sure if we'll be taking the full day or not, and then tomorrow we will not be sitting and we'll be returning on Monday for the IT panel. Thank you.

THE CHAIRPERSON: Thank you. Mr. Scarfone...?

MR. STEVE SCARFONE: Good morning, Mr. Chair, yes?

THE CHAIRPERSON: I'm just wondering before we start I believe that everybody's been sworn in except Ms. Campbell?

MR. STEVE SCARFONE: That's correct.

THE CHAIRPERSON: Okay, so if I could have the secretary swear in Ms. Campbell, please.

MR. STEVE SCARFONE: And Mr. Guerra will be conducting the direct examination this morning.

THE CHAIRPERSON: Thank you.

MR. ANTHONY GUERRA: Thank you.

MPI WITNESS PANEL 3 - REVENUE/EXPENSES/ RATEMAKING

PANEL

LUKE JOHNSTON, Previously Sworn

MARK GIESBRECHT, Previously Sworn

CYNTHIA CAMPBELL, Affirmed

THE CHAIRPERSON: Mr. Guerra...?

EXAMINATION-IN-CHIEF BY MR. ANTHONY GUERRA

MR. ANTHONY GUERRA: Thank you, Mr. Chair and good morning. Just for -- for purposes of introductions, we can state that this panel comprised -- is comprised rather, Mr. Johnston, our chief actuary and VP of Product and Risk Management, Mr. Giesbrecht, our VP of Finance and our Chief Financial Officer, and as -- as is indicated, Ms. Campbell, who is I understand our Corporate Controller.

Also in the back row this morning, Mr. Dean Dunstone, the Assistant Manager of Reinsurance and Forecasting, John Krupinski, the manager of budgeting and Tai Phoa, the Manager of Pricing.

Ms. Campbell, since we've already heard

about the credentials of the other two (2) members of the front row, I'd like to get into a bit of a review of your credentials.

Can you provide us with your background specifically with respect to your education.

MS. CYNTHIA CAMPBELL: Thank you. My education, I am a chartered professional accountant with a CA as my legacy designation. I have a Masters in Accountancy and a Bachelor of Commerce Honours.

MR. ANTHONY GUERRA: And when did you obtain your chartered accountant profession designation?

MS. CYNTHIA CAMPBELL: 1998.

MR. ANTHONY GUERRA: And I understand that you are employed with MPI?

MS. CYNTHIA CAMPBELL: Yes, I am.

MR. ANTHONY GUERRA: How long have you been employed with MPI for?

MS. CYNTHIA CAMPBELL: Just over six (6) years.

MR. ANTHONY GUERRA: And where were you employed before then?

MS. CYNTHIA CAMPBELL: I was with the Canadian Wheat Board.

MR. ANTHONY GUERRA: And what were you

doing with the Canadian Wheat Board?
MS. CYNTHIA CAMPBELL: I was the corporate controller at the Canadian Wheat Board.
MR. ANTHONY GUERRA: And I understand that you're the corporate controller for MPI?
MS. CYNTHIA CAMPBELL: Yes, I am.
MR. ANTHONY GUERRA: Have you held that position for the entire six (6) years you've been employed?
MS. CYNTHIA CAMPBELL: Yes, I have.
MR. ANTHONY GUERRA: And can you tell me of some of your responsibilities as the corporate controller.
MS. CYNTHIA CAMPBELL: It's typical controllership functions. I've got the payroll team, accounts payable, accounts receivable, banking, investment accounting, financial reporting, budgeting and purchasing and I've got a financial operations team as well. So essentially, anything corporate accounting.
MR. ANTHONY GUERRA: Okay. And can you tell me if you were involved with the preparation, review, or other functions related to the preparation of the General Rate Application?
MS. CYNTHIA CAMPBELL: I was.

MR. ANTHONY GUERRA: And what was your role?
MS. CYNTHIA CAMPBELL: Primarily reviewer of the expense section and I also composed and reviewed some of the Information Requests, both Round 1 and Round 2.
MR. ANTHONY GUERRA: And I understand that your panel has prepared a presentation on the topics of revenues, expenses and ratemaking; is that correct?
MS. CYNTHIA CAMPBELL: That is correct.
MR. ANTHONY GUERRA: And my understanding is that Mr. Giesbrecht will be providing the -- the presentation on the issue of revenues; is that correct, Mr. Giesbrecht?
MR. MARK GIESBRECHT: Yes.
MR. ANTHONY GUERRA: And, Ms. Campbell, you'll be providing the presentation on the issue of expenses; is that correct?
MS. CYNTHIA CAMPBELL: That's correct.
MR. ANTHONY GUERRA: And, Mr. Johnston, you'll be providing the presentation on the issue of ratemaking; is that correct?
MR. LUKE JOHNSTON: That's correct.

MR. ANTHONY GUERRA: And just to confirm that the presentations that you will be provided (sic) will be adopted as your evidence; is that fair to say?
MR. LUKE JOHNSTON: Yes, it will.
MR. ANTHONY GUERRA: Yes...?
MR. MARK GIESBRECHT: Yes, is.
MR. ANTHONY GUERRA: Ms. Campbell...?
MS. CYNTHIA CAMPBELL: Yes.
MR. ANTHONY GUERRA: Okay. Previously we've circulated the -- the presentations to the members of the panel, to PUB counsel and advisors and to the Intervenors and advisors. We just would like to make sure that this is marked as an exhibit.
So, if we could have this marked as Exhibit MPI Number 25, please.
MR. KURT SIMONSEN: Thank you very much.

--- EXHIBIT NO. MPI-25: Presentations re MPI Panel No.3

CONTINUED BY MR. ANTHONY GUERRA:
MR. ANTHONY GUERRA: And so with that said, I'll ask Mr. Giesbrecht to -- to begin his

presentation on the issue of revenues.
MR. MARK GIESBRECHT: Yes, thank you and good morning. So you have before you the agenda and as was mentioned, I will speak to revenues, Ms. Campbell will take us through expenses and then finally Mr. Johnston will take us through ratemaking.
These topics fit together nicely in that expenses are key input into our ratemaking methodology which then, ultimately, will flow into the end results in our revenues. As we know for this year MPI has applied for a .01 breakeven cost of policies.
This a good news story when compared to prior years and -- and a prior year rate application in that it's quite a bit lower on an AAP basis. And contributing to this nearly 0 percent rate ask are favourable expenses which contribute to about minus 1.5 percent for its component of the breakeven rate indication which we'll -- we'll hear from later.
If you can go back one (1) side to key issues, please. So a couple of key issues that we'll be discussing, firstly, we'll see under revenues there -- these really pertain not so much to this year's rate application, but more so to future years, but we will get a little bit into these, both service fees and the driver safety rating.

729

Within expenses, salaries and benefits is always a -- a critical item and we'll hear about that as it does represent over half of our total operating expenses. Also in 2017/2018, we did have a write-down of -- and some impairments and so we'll have some discussion on that.

And also with rate -- as it respects to ratemaking, there's no material changes to the methodology. However, we have heard about the CMP as it was discussed yesterday we won't speak at length. However, it will be brought up again briefly.

MR. ANTHONY GUERRA: And, Mr. Giesbrecht, just to confirm, because you're talking about the issue of revenues, just to be clear for everyone, is MPI seeking any changes to service fees or to the driver safety rating in this year's GRA?

MR. MARK GIESBRECHT: Not in this year's application, no.

MR. ANTHONY GUERRA: Thank you.

MR. MARK GIESBRECHT: Okay. On this slide before you you see a breakdown of the composition of MPI's revenues as it pertains to Basic and as we can see, the lion share represented is from motor vehicle premiums, about 93 percent while driver premium represent about 5 percent, and other fees and

730

service fees are 2 percent. So, that gives you a bit of grounding in terms of what makes up total revenues within the Basic line of business.

On to the next slide we'll see the factors that make up our premiums. They've made up of a couple of components; firstly, the rate, volume, upgrade and other factors, and we'll discuss what those -- what those items all are.

Starting with rate for the 2019/'20 application, we know we have a rate change of 2.2 percent requested. This is comprised of a 0.1 cost of breakeven policies and a 2.1 net -- net capital minutes provision. The 0.1 increase to the breakeven cost of policies indicates that the cost of claims and operating expenses has been kept in check, while the 2.1 percent cost of the CMP is necessary to ensure we do not deplete capitals -- that the capital position of Basic.

Volume. Changes in volume essentially are additions to new vehicles on the road. As we have more people come to the province of Manitoba we anticipate to have more vehicles on the road and we forecasted this at about 1.5 percent, which is in line with -- with the recent trending.

Upgrade. The upgrade components

731

forecasted in this application at 2.39 percent. Upgrade factors include changes to makes and models, insurance uses and different territories. And so what we see here is as people are buying and selling vehicles and purchasing new vehicles, there's a shift in the characteristics. So, for example, with an upgrade there could be the average age of the vehicle or for seeing a shift to purchase of SUVs versus small compact cars, that will make a change in the overall makeup and that will contribute to upgrades.

Under the other section we have anti-theft discounts and fleet rebates. The anti-theft discounts, they make about a $2.4 million rebate to customers for this application year. As this program is now in runoff, this will then diminish over the -- the future years going forward.

And fleet rebates, owners of ten (10) or more vehicles may qualify for a fleet rebate. Customers will then either be charged a surcharge or a rebate, depending on their actual claims experience. Historically, rebates have hovered around $16 million, surcharge is at $2 million for a net rebate of about $14 million and this represents about an average discount of 21 percent to fleet owners.

Now moving along, we see how this flows

732

into our pro formas and this is a schedule that shows our earned premiums by the different types. You'll see on the top line for motor vehicles we have anticipated $1.05 billion for this application year. Again, this represents about 93 percent of total revenues. And motor vehicle premiums are forecasted to grow 6.4 percent in this application year, compared to 7.4 percent last year; and that's based on all the factors we talked about in terms of upgrade, the rate, the rebates and -- and so on.

And this year will mark the first year that on an earned basis, we anticipate to be -- to eclipse the $1 billion mark for earned premiums. So, it's a bit of a milestone year for the Basic line of business.

Moving along to revenues from driver premiums. So a couple components here and this chart will depict the base fee of the $45 driver licensing charge, as well as the DSR impacts and surcharges. And this is on a net basis because on the merit and demerit side, there are either rebates or surcharges. On a net basis, what we see is about 43 percent of the total amount comes from those surcharges. And so this equates about $30 million of the total -- of about 70 million, and this serves as a really strong incentive

733

to improve driver behaviour which has been shown to lead to safer roads for Manitobans.

On to the next slide, we will see how that equates to dollars. As I mentioned for driver premiums for this application year at $69.8 million. And you'll notice a bit of a jump in the trend in the '20/'19 budget year and a '20/'20 year and that stems from the changes that were ordered last year as we had changes to the DSR's scale, that was the equivalent to a 1.8 percent rate increase. We're seeing that filter in and after that change will flow through the financials that is then expected to slow down to about a 2 to 3 percent change thereafter.

So you do see a bit of jump in the year over your numbers there, and then it comes down to a more steady growth.

On to reinsurance. Reinsurance, simply put, is insurance for insurance companies. There are two (2) primary reasons for reinsurance; one is to mitigate risk and to transfer that risk and, by default, that will help to reduce volatility. Secondly, it's used to manage capital requirements.

So our current strategy and our current program has two (2) main components: One is on catastrophic risk, where we have a limit of $15

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million. And a good example of this was in June we had a large hail event. We incurred about $30 million in losses; that was on one (1) single event. And so that triggered reinsurance where we recaptured about $14 million.

Also, we do reinsure large casualty events where we retain the first $5 million. And an example of this could be if one of our insured drivers were to, for example, hit a train, cause a large derailment, you know, a spill that may need to be cleaned up or loss of cargo, those kind of thing, there could be a large loss and we will cap that loss at $5 million.

Moving along, we'll now see how that flows into our financials. So the reinsurance seated. This is a charge. There is a charge to transfer this risk and we see here that it's forecasted to remain in around $11 or $12 million based on new changes to the program and in line with our -- our growth and our program.

Now, these numbers could change if we were to change the structure of the program. And as we heard on the opening day from our CEO and his opening remarks, we are reviewing different options; one (1) could be an aggregate cover which would allow

735

us to, you know, cap our losses in terms of, if we had a number of small storms that were to exceed a certain dollar amount, say, $15 million rather than one (1) large storm it would enable us to -- to manage those losses and -- and help their volatility. So that -- that will be one (1) thing that we'll be looking at that. That is not part of this application. It's not part of these numbers, but to just let you know that these numbers could change if we were to employ a strategy of that nature.

Next we have service fees and other revenues. So we do have various revenue sources that come from transactions and services offered to customers. These include financing and interest costs, late charges and NSF fees, driver's education course fees and other various transaction costs.

Over 50 percent of these fees come from interest revenues. The majority of the fees have not been changed or updated in the last twenty (20) years. So we have completed a jurisdictional scan to -- to evaluate those fees and compare against other areas.

Since this initial re -- review was completed, MPI's been working with government to assess the appropriateness of both the MPI and the government side of these fees. The results of the

736

analysis is currently sitting with government for consideration.

Now, in the next slide we'll see the dollar amounts associated with our service fees, and we can see that it -- that it ranges from a value of about 22.8 million and forecasted to grow to $31.6 million. Again, there are no changes or -- no changes in this application as it pertains to service fees.

The growth here is -- is all based on organic growth and the main driver continues to be from interest on premium financing.

So with that, I'll pass it over to Ms. Campbell to discuss expenses.

MS. CYNTHIA CAMPBELL: Thank you, Mr. Giesbrecht. Thank you for the opportunity to speak today. I'm going to take a couple of minutes and outline the operating expense forecast for the 2019 rate application and how it does not impact the rate request being made.

Prudent fiscal management is a priority at MPI. There is over a 2 percent reduction in operating expenses for the rate years compared to the prior year rate application and, as a result, the operating expenses do not factor into the increase in this application. So, prudent fiscal management is a

737

prominent activity and mindset at MPI. Expenses continue to be actively managed and they do not factor into any rate increase.

Annually, MPI needs to factor in contractually negotiated economic and merit increases associated to salaries. Generally, that's around 3.5 to 4.5 percent per annum. Also coming into play is the general price increases relating to inflation. Those are also contractually bound and they're generally around the CPI rate, which is around 2 percent. So despite these unavoidable increases, the Corporation is still showing normal operating expenses decreasing by approximately 1 percent for the '19/'20 year from the '18/'19 point.

The Corporation continues to seek ways to reduce expenses and one (1) of these is via building expenses. And we do that by either deferring expenses through synergies or avoidance. Other examples include reducing sponsorships or changing our fleet management.

Prudent fiscal management is also being demonstrated through approximately a fifty (50) FTE reduction of FTEs being expected over the next several years due to normal operating decreases and efficiencies related to improvement initiatives.

738

Basic operating expenses do not factor into the 0.1 percent rate increase outside -- which is outside of the CMP increase. In fact, the operating expenses, essentially, hold flat through 2022 to 2023.

On the next slide to illustrate MPI's prudent fiscal management, we've outlined operating expenses compared to net premiums earned. As you can see, this ratio decreases from 25.6 percent in 2014/'15 to 20.4 percent in 2019/'20. This is a 5.2 percent decrease in Basic operating expenses when compared to the growth in net premiums earned.

And if you're wondering about the small blip in '17'18, that has to do with the writeoff -- or the impairments of some of our projects. So there was an increase in expenses in '17/'18.

On slide 17 if you refer to the yellow highlighted line entitled "Total Basic Allocated Corporate Expenses", when you compare the current year rate application to the forecast from the prior year, we've demonstrated that Basic expenses have again reduced. The reduction is $5.1 million or 2.2 percent from the prior year application.

This decrease is due to continued concentration on expense management, as well as improvement initiative reductions. These reductions

739

are despite contractual expense increases embedded into our business.

On the next slide, this chart shows the forecasted basic expenses over the next several years in comparison to the previous two (2) rate applications.

MPI is continually finding new ways to reduce and manage expenses. The expense forecast reductions are part of a solution not driving any rate increases and it continues to demonstrate our corporate prudent fiscal management.

On slide 19, the largest single operating expense category that MPI deals with is compensation which is -- comprises approximately 58 percent of all corporate operating expenses. As I've -- as I've stated, MPI is faced with Manito -- mandatory annual increases relating to economic and merit compensation increases from our negotiated union contract.

Both the economic and the merit compensation increases combined range over 3 percent per annum, however, we've been able to keep our Basic salaries' expected growth on an annual average of 2.9 percent from 2018/'19 through to '20/'21.

Another factor that -- another factor

740

in compensation is overtime. That has reduced significantly over the last several years and it is expected to remain flat through the forecast. If we change to the next slide.

This shows that despite the 1.75 percent merit increase assumption, combined with the economic increase of upwards of 2 percent that the Corporation has managed compensation increases at below these levels. And again, one (1) of the tactics we've used is to reduce the FTEs by re-purposing our FTE need or by reducing it.

On the next slide -- another factor impacting 2019 application compared to the 2018 application are the project impairments which were recognized in '17/'18. We have listed the impairments on this slide and although they mainly impact the '17/'18 year, they will impact future years.

The decision to impair these projects was based on applied principles and standard internal practices. We determine whether a writeoff is applicable based on whether or not there is an absence of future value, or whether or not the work was not eligible to be capitalized such as research work or software investigation.

And as I noted, although the

741

impairments had primarily a negative impact on the '17/'18 year, they also have an offsetting favourable impact for '18/'19 and beyond by reducing the forecasted amortization expense.

THE CHAIRPERSON: Ms. Campbell, I'm sorry to interrupt you.

MS. CYNTHIA CAMPBELL: That's okay.

THE CHAIRPERSON: Impairment -- is that an analogy -- sorry -- the same as termination?

MS. CYNTHIA CAMPBELL: Impairments --

THE CHAIRPERSON: It's the first time I have ever heard this term used in this context.

MS. CYNTHIA CAMPBELL: Okay. An impairment of deferred development costs is actually probably more of an accounting terminology.

THE CHAIRPERSON: Okay.

MS. CYNTHIA CAMPBELL: So, if it's impaired, we've spent the money, we've put it -- cap -- we've capitalized it on our books and what we're saying is, it doesn't have future value -- so --

THE CHAIRPERSON: Okay. So you -- so you, you've terminated the project then, I would assume?

MS. CYNTHIA CAMPBELL: The majority were terminated projects. Some of them were deemed

742

not to be eligible for capitalization because they didn't have future value.

THE CHAIRPERSON: Okay.

MS. CYNTHIA CAMPBELL: Or they were research in nature. There were some that -- there was initial research done. It was capitalized because we thought we were going to take that approach and so it was base work but when we took a look at the final solution we were going to take on the project, it was deemed that it was research work and it wasn't the -- the approach we were going to take it, so, it didn't have the future value.

THE CHAIRPERSON: So this would be the accounting consequence of a decision made?

MS. CYNTHIA CAMPBELL: Correct.

THE CHAIRPERSON: Okay. Thank you. I've never the term used before in this context. Thank you.

MS. CYNTHIA CAMPBELL: My apologies for using --

THE CHAIRPERSON: No, no not your apology. It's something new. Thank you.

MS. CYNTHIA CAMPBELL: So overall what I was going to say was MPI has maintained effective control over expenses and the expense forecast is not

743

a primary driver in any rate increase in the 2019 rate application. I will now turn it over to Mr. Johnston who will be talking about ratemaking.

MR. LUKE JOHNSTON: Thank you. Okay. Basic ratemaking. The first bullet there talks about -- that our ratemaking methodology is -- is -- we consider it very -- proven and stable over time. We recognize that we recently moved to accepted actuarial practice, but as we said at the time, the majority of the ratemaking methodology did not change, just some of the calculations particular -- in particular, moving from a financial statement view to a typical accepted actuarial practice change, but the methodology has remained fairly consistent over time.

In the second points, you heard a little bit about some of the expense savings and obviously those translate into the rates so you'll -- expenses per vehicle are down by half a percent and claim costs growth was inflationary, essentially off -- offset by our natural upgrade.

So on the third bullet point, as you know, those are the -- the three (3) components of the re-ask 0.1 AAP rate indication and capital maintenance provision of 2.1.

Not -- I don't have a lot to say on

744

this chart. It's our major class rate indications. The -- the four (4) biggest major classes on -- on -- the vehicles on the road all have rate indications which I would say are relatively close to the overall average of around 2 percent. And you can see private passenger vehicles are currently paying an average of about $1138 with the other classes are shown there, motorcycles for example, about $822.

Oh, I'm sorry. If -- as mentioned, these numbers in the table don't mean that every vehicle in that class has the same rate change, we look at everything affecting vehicle rates each year -- insurance use, territory, things that -- rate group and -- and we update those -- those rating factors.

In this application, about 70 percent of vehicles have a rate change that's less than a $50 increase or less than a 5 percent increase, so, a rate decrease or -- or a moderate increase.

This table is a bit comp -- complicated looking, but I think it's a good one. What -- what is in the table here is the cost per vehicle of each of the items on -- on the left side. So we -- we men -- I mentioned before that really everything that flows through Basic financial statements likely has an impact on rates.

745

So I'll just use an example here, operating expenses in last year's GRA we were charging the equivalent of $63.44 per vehicle unit to cover the Corporation's operating expenses. Based on this year's updated forecast that's $62.48 for a 1.5 percent decrease.

So in this application we've talked about expense reductions. They flow-through obviously into the -- into the rate setting.

As everyone knows, claims would be the biggest portion of that -- those costs for -- and then -- then this year the -- the average cost of claims per vehicle unit increased by about 2 percent.

CONTINUED BY MR. ANTHONY GUERRA

MR. ANTHONY GUERRA: Mr. Johnston, just before you leave this slide, I wanted to ask you just about the -- the vehicle upgrade factor because, as been mentioned and is seen quite clearly on the slide, it -- it represents at 2.1 percent decrease in the rate ask for -- for breakeven rates.

Can you explain a little bit more about how that upgrade factor applies in this case?

MR. LUKE JOHNSTON: Yes. So, Mr. Giesbrecht spoke about it a little bit. When we set

746

rates every year, the intent is that not only on an overall basis our rates breakeven, but within each of the vehicle classes and -- and -- and really every rate we're hoping is breakeven. So it's not going to be perfect, but that's -- that's the idea.

If -- if a individual has a older vehicle, and has a eight hundred dollar ($800) premium, and they sell it, and buy a -- a new car and then obviously, they have a fourteen hundred dollar ($1,400) premium, that would be a premium upgrade for us. We -- we didn't change our rate -- anyone's rate, but they -- they pay more rate because they had a -- they got a new car. In the -- in the same way, their claim costs are also going to be higher, because our rates are supposed to be correct, and they're supposed to be correct if an eight hundred dollar ($800) car and a fourteen hundred dollar ($1,400) car.

So if -- in -- in this case, basically, what it's saying is claims costs have gone up by about 2 percent and our upgrade factor is about 2 percent. And really, there is a completely offsetting impact between people moving to a higher rate of vehicles and the cost of those vehicles. So really -- it's really a great news story, but really, we've kind of held the same -- we've held the line on collision costs

747

basically at the -- at the rate of the upgrade.

Okay. So that's a little bit hard to follow, but -- but that's -- that's good news. If -- if the cost of repairs, and -- and such are increasing faster than the national upgrade, we would need a rate increase unless we had big savings on the expense side, okay.

On the -- where it says "impact of discounting," all of the costs in the top half the table are discounted, and that's that discount rate interest rates that we talk about here all the time. What is the rate -- rate to discount the -- the cash flows? So in this year's application, the updated interest rates for discounting are lower than they were assumed in the 2018 application, so you see the effect of the -- the discounting is less eighty-one dollars ($81) this year, instead of ninety-three (93).

And so in total, all items that feed into the rate have -- have resulted in a need for a 2.3 percent increase in the required rate. However, 2.1 percent of that occurs naturally through the vehicle upgrades. We don't need to ask for that. It -- it -- we already expect that it's happening.

And then on the second last line from the bottom, there's something that says, "DSR discount

748

for vehicle for hire vehicles." This is the special taxi adjustment that we made. So for taxis, we recognized that there was a new vehicle for hire program being implemented. Obviously, MPI didn't know exactly how their market share was going to be impacted by that -- by that -- by that change.

I can tell you today, there's about as many passenger vehicle for hire vehicles on the road as there are taxis. So there's about four hundred (400) or so taxis, and there is about four hundred-ish (400) non-taxi vehicle for hire on the road. So that taxi group is very likely having a -- maybe losing some business.

But the way we accounted for that in our rating for year 1 was to say, Okay, taxi -- the taxi group can get vehicle -- DSR premium discounts. We expect that to cost us about a million dollars, and we took that off of the -- the rate indications. So that's the point -- the point-one (.1) reduction. Okay. Those items added up -- or how you get the break-even indication of 0.1 percent.

Okay. And so that -- pretty much everything I've just said is -- has been re-summarized on -- on this -- this slide. The three (3) items I just mentioned gives the point-one (.1). And then MPI

749

has requested a 2.1 percent Capital Maintenance Provision for the reasons that we talked about yesterday.

Okay, I'll summarize what -- what the -- the panel has talked about. Revenues continue to be stable, consistent volume, upgrade, and forecasted using the break-even rate-making methodology. On the expense side, we're -- we're definitely seeing some favourable changes to the forecast, and as I just showed you, those flow-through directly into rate-making to the benefit of ratepayers.

And then beyond the rating period, the expectation right now is to -- to attempt to hold the expenses relatively flat.

And then lastly, on the rate-making side, a very proven process, AAP rate indication basically at almost zero, 0.1 percent, and then MPI is asking, as you know, for the Capital Maintenance Provision of two point one (2.1), to bring the total indication to 2.2 percent.

MR. ANTHONY GUERRA: Thank you, Mr. Johnston. And just to confirm again, because I think it bears repeating, for this GRA, expenses are not being factored into -- or not -- are not a part of our request for additional amounts for the break-even

750

rate. Is that correct?

MR. LUKE JOHNSTON: Act -- actually quite -- quite the opposite. Yeah. Mr. Oakes actually went through a whole series of things that were -- I considered good news yesterday, when he was talking about the -- the rates. Really, my response to that would be that many of those things are in the rates, and that's why you're seeing them on -- expense ratios go down.

If we did not do those, you can reverse -- do the reverse math and -- and figure out what the rate indication would have been if not for those expense reductions. So that is -- that is good news.

MR. ANTHONY GUERRA: Sorry. That may be misspoken, or -- or maybe just speaking over each other. But what we're -- what you're saying at the day, though, is that expenses -- the 0.1 percent rate ask for Basic is not the result of additional expenses?

MR. LUKE JOHNSTON: What I'm saying, actually, is that we would have a bigger rate increase if not for expenses reducing that rate increase.

MR. ANTHONY GUERRA: Okay, correct. I think -- I think that's -- that's consistent. All right. Thank you. And I have no further questions.

751

So, subject to any questions you might have on cross-examination, thank you much for -- for your presentation this morning.

THE CHAIRPERSON: Thank you. Before we go to cross-examination, I just want to raise an issue so that we don't have it come up on Monday. On Monday, we have a panel dealing specifically with IT, on the impairment page, page 21, a lot of costs in relation to IT projects.

And I just -- I just want to ensure that everybody understands and counsel understands how we're going to be dealing with it, and which questions go where, because what I -- what I would really not like to see is, on Monday, when that panel is being cross-examined, the response is, well, you should have asked the panel -- the earlier panel the question.

So does everybody understand -- do counsel understand the sort of the scope of the cross-examination on this in terms of the costs and the numbers of the -- the programs here versus the questions that are going to be put to the panel on Monday? Because there may be some overlap, and I also don't want to have to bring back some people from this panel on Monday to ask -- answer those questions if we can avoid it.

752

MR. STEVE SCARFONE: Yes, absolutely, Mr. Chairperson. Indeed, you've identified a concern that Ms. Campbell raised with -- with counsel and MPI in our preparation for this application, because she recognized, as you have that there are number of expenses that she can speak to on a corporate -- on a corporate level, and is prepared to field the questions on that, but she will, to the extent that they involve information technology expertise to answer, she may be deferring some expense questions to the IT panel on Monday, but it would only be to the extent that she's unable to answer the technical aspects of those questions. And -- and that's an accurate representation of what we've game planned, then I -- we should make that clear for --

MR. MARK GIESBRECHT: Yeah. But if I -- if I can add, I -- I think we want to limit the discussion more to the -- the accounting of those transactions and how we came to the decision to impair or write down, not so much about the technical side of, you know, what the project entailed, and -- and, you know, maybe why were they not, you know, maybe deemed successful, like, those kind of questions. But the -- the accounting side, we can speak to today.

THE CHAIRPERSON: Right. And -- and

753

the -- the concern I had was -- and it was sort of in my earlier question -- a decision is made -- a decision may be made for a number of different reasons. There may be technical reasons, there may be financial reasons, which have accounting implications. I just -- what I -- what I want to do is ensure that we have a full cross-examination on all the issues related to that. So that's why I raised it. Mr. Williams...?

DR. BYRON WILLIAMS: I'll just say that we've certainly, even this morning, had some collegial --

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: -- discussions with MPI. Some questions that we might have asked today, we've deferred --

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: -- to next week, so I do expect there may be a -- some challenges. We're experimenting with the panel this year, so -- but I think there's been good faith efforts --

THE CHAIRPERSON: Yes. Though --

DR. BYRON WILLIAMS: -- by all parties.

THE CHAIRPERSON: -- I'm -- I'm sure

754

there is. I just want to -- I just wanted to, you know, I didn't know about the discussions between counsel, but I just wanted to sort of put on the record so we can avoid it, probably, and --

MS. KATHLEEN MCCANDLESS: And yes, just to add to that, Mr. Chair, not with Mr. Scarfone, but I did have discussion this morning with Mr. Crozier about cross-examination on IT issues. So it's my intention to table the majority of the IT questions for next week's panel. 0

My understanding is that -- and it's difficult to tease apart often some of the questions from the accounting side versus the more decision-making, or technical side, but I believe that the panel will be prepared to answer the questions that we've prepared in that regard.

MR. STEVE SCARFONE: And, Mr. Chair, just -- I've just confirmed with Ms. Campbell that she is available and prepared to be in the back row on Monday --

THE CHAIRPERSON: Okay.

MR. STEVE SCARFONE: -- to the extent that there's questions that we don't want the IT panel to say, well, you should have asked expenses.

THE CHAIRPERSON: Yes. Well, quite

755

frankly, if they did, I'd ask for Ms. Campbell to be brought forward, so.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: Having said all that, Ms. McCandless...?

CROSS-EXAMINATION BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Yes. Thank you. So when it comes to my cross-examination, just to give you a roadmap of where I intend to go this morning, and I likely will be finished by the lunch break, I'm going to start with operating expenses and capital expenditures, and I will have some questions about the Q2 financial report as well. Then I will have some questions about rate-making for you, Mr. Johnston, and some questions about the driver safety rating update and the service fee review as well.

So I expect my first series of questions would be directed to Ms. Campbell. Kristen, could you please pull up EXP figure 10. And this table shows the corporate normal operating expenses for -- on the left-hand side of the table for 2017/'18 actual results, and then through the forecast period, yes?

MS. CYNTHIA CAMPBELL: Correct.

756

That's what it shows.

MS. KATHLEEN MCCANDLESS: And if we look to line 28 of the table, we see that the actual -- - the total corporate expenses for 2017/'18 were $278.6 million, yes?

MS. CYNTHIA CAMPBELL: Sorry, did you to -- say two seventy-six (276)?

MS. KATHLEEN MCCANDLESS: Yes.

MS. CYNTHIA CAMPBELL: Yes, two seventy-six point-six (276.6).

MS. KATHLEEN MCCANDLESS: And then if we look to the top of the table there, under the compensation, so line items 1 to 6 -- or 1 to 5, pardon me, we see that -- so $165.5 million of those costs are essentially payroll costs, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And so, according to my math, that's roughly 59 percent of the total spend yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And then at line 28, again, to the bottom of the table for 2018/'19 forecast budget, we see total expenses of $297.6 million, yes?

MS. CYNTHIA CAMPBELL: Correct, two

ninety-seven point-six (297.6).
MS. KATHLEEN MCCANDLESS: And then up again to line 5, under 2018/'19, we have payroll costs of $174.9 million, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: And so according to my math again, that's approximately 58 percent of the total spend, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: And then just to confirm for the record, we have at the bottom of the table for 2019/'20, a forecast of total expenses for corporate of $293.2 million, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: Then if we go to figure EXP-32, and this is the cost allocation flowchart. So I understand this is the method by which the corporate expenses are allocated to Basic, yes?
MS. CYNTHIA CAMPBELL: Yes, it is.
MS. KATHLEEN MCCANDLESS: And we can see in the narrative below the graphic, there, if we scroll a little bit lower. Thank you. We see that of those $297.6 million in expenses for fiscal 2018/'19, that approximately $227.1 million is allocated to

Basic, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And my understanding is that there have been no changes in the methodology that would materially change the allocation of costs from corporate to Basic as compared to last year?
MS. CYNTHIA CAMPBELL: Correct. There's been no material changes.
MS. KATHLEEN MCCANDLESS: Thank you. If we could go to figure EXP-37. Now this figure here represents the percentage of corporate normal operating expenses allocated to Basic for '27/'18 (sic) through to 2022/'23, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And we see at line 1 that the expenses allocated to Basic are consistently around 76 percent, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: And forecasted to be 76.3 percent in 2018/'19, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: Thank you. And then to figure EXP-43, this table shows the Basic ongoing depreciation and amortization expenses, yes?

MS. CYNTHIA CAMPBELL: Yes, it does.
MS. KATHLEEN MCCANDLESS: And we see at line 43 for total that they increase from twenty-three point-five (23.5) -- pardon me -- they decrease from 23.5 million in 2018/'19, so at the top of the page, we would see 2018/'19 there. Perhaps we could just scroll quickly.
Thank you. And they are down to twenty point-nine (20.9) -- pardon me, twenty (20) point -- they're down from -- or up from twenty point-nine (20.9), pardon me, in 2017/'18, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And then there's a decrease in 2019/'20 to 20.1 million, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: Thank you. With respect to the increase from 2017/'18 to 2018/'19, what does that relate to?
MS. CYNTHIA CAMPBELL: If you take a look to lines -- about 22 to 27, those are new projects that came on and started to depreciate in the '18/'19 year. So those are -- those are the adds for the current year, which would take it from twenty point-nine (20.9) to twenty-three point-five (23.5).
I would have to -- I'd have to get out

my calculator -- and I'm an accountant, I like that and actually add those up, but it should -- it should -- those -- those lines there should represent the change.
MS. KATHLEEN MCCANDLESS: And I'll accept your evidence that -- there subject to check. Thank you. At line 40, we see disaster recovery HR management system, and phase 1 and 2. So HR management system phase 1 and 2 are expected to be completed in 2018/'19, yes?
MS. CYNTHIA CAMPBELL: The amortization of the disaster recovery and the HR management system phase 1 and 2, the -- and -- as well as IT optimization will all finish in '18/'19, correct.
MS. KATHLEEN MCCANDLESS: And are these -- as far as you're aware or able to answer, are these projects still expected to be completed on time?
MS. CYNTHIA CAMPBELL: This -- can you go up to the top, sorry, so I can see the heading on this? This is the amortization expense. So these are finishing the amortization. So that means that their useful life, the five (5) years that we would have amortized them over, that is finishing.
So those projects were well and truly

761

done, so yes, the amortization will finish in '18/'19.
MS. KATHLEEN MCCANDLESS: Thank you. Now if we go to figure EXP-6, and this shows total corporate operating expenses. At line 6, we see that compensation is expected to increase by 4.9 percent in 2018/'19, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: And then as we heard this morning already, it's going to continue to increase to 2.9 percent for 2019/'20, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And then for 2020/'21, we have two (2) point -- a 2.2 percent increase, yes?
MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And it appears from the table that the largest increase would be in salaries at line 1 and benefits at line 3. Is that correct?
MS. CYNTHIA CAMPBELL: Those are the two biggest components of compensation, yes.
MS. KATHLEEN MCCANDLESS: Thank you. Now if we could go to figure EXP-11. Now in the bullet below the figure here, there is a narrative about step in scale increases, yes?

762

MS. CYNTHIA CAMPBELL: Yes.
MS. KATHLEEN MCCANDLESS: And I understand that MPI has used the step up scale increase at a forecasted rate of 1.75 percent under the assumption that 50 percent of the employees will receive -- and the economic increase will be 2 percent. Is that right?
MS. CYNTHIA CAMPBELL: So which year are you referring to for the 2 percent? For '18/'19? Yes. You're -- you're correct that for '18/'19, the economic increase is 2 percent, and the step in scale increase is one point seven-five (1.75), which is the 50 percent of the 3.5 percent mandated under our union contract. Correct.
MS. KATHLEEN MCCANDLESS: Thank you. So can you reconcile the forecasted increase of 4.9 percent that we just reviewed in the previous table with the figure here, and the forecasting assumptions of the 2.2 percent and the 1.75 percent?
MS. CYNTHIA CAMPBELL: So the economic negotiated increases, the steps in scale, and the -- as well as the economic one -- so the 2 percent and the one point seven-five (1.75), those will relate to the compensation salary line. Included in the benefit lines are items that can be actually larger than those

763

percentages, such as our pension. The pension expense is in there, post-retirement health benefits are in there, and so those depend on other factors. They depend on the aging of the population, and right now, I'm at a loss. There's about four (4) different factors that impact. It's an actuarial calculation. And so our expense can actually be greater than what the economic increase is.
So that is approximately 3 million of the $9 million increase. So that's a large percentage of it. If I were to get the math done, and I'll actually ask for the math to get done...

(BRIEF PAUSE)

MS. CYNTHIA CAMPBELL: So the salary increase line is about 4 percent, which is the 2 percent and one point seven-five (1.75). So it is slightly greater than that. We have also changed, for '18/'19, the compensation model that we're looking at internally. I'd have to take a look and see what percentage increase that may have contributed to it.
So the other is in '17/'18, we actually ran below budget on an FTE level to a extremely large extent. It was a corporate initiative in order to be

764

able to reach our -- our strategic initiative of reducing our expenses. When we budget for '18/'19, we do budget presuming that all FTEs will be fully filled, and then we take a vacancy allowance against that.
MS. KATHLEEN MCCANDLESS: You mentioned -- thank you for your answer. You mentioned in the context of that explanation that the compensation model has changed?
MS. CYNTHIA CAMPBELL: For out-of-scope employees, yes, during the year.
MS. KATHLEEN MCCANDLESS: Okay. And are you able to elaborate on what that change is?
MS. CYNTHIA CAMPBELL: That's actually better spoken to by HR, which I don't believe we have any representatives here. What it was was they took a look -- there was seventeen (17) different pay bands, and they've actually decreased it to ten (10) pay bands. They did a market comparison, and they regraded all of the out-of-scope positions to ensure that they aligned with the compen -- the new compensation model.
And it's -- so during '18/'19, it's been rolled out to out of scope, and they are investigating it for in scope as well.

765

MS. KATHLEEN MCCANDLESS: And I think you mentioned in your response previously that the percentage of the change in the corp -- that compensation model is something that you would be able to determine, or the -- the extent to which it contributes to that increase of 4.9 percent?

MS. CYNTHIA CAMPBELL: Sorry. With some analysis, we would be able to take a look at where the positions previously stood to where they do stand in the new model. I am not suspecting it's going to be a significant contributor, might it be a .1, .2 percent, it may lead to some of the change, but I don't believe it will lead significantly to the change.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to figure EXP-17. And this table represents the variance in salaries between this year's forecast and last year's forecast, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And we see at line 1 that the actual results for 2017/'18 are approximately $2.65 million lower than the 2018 budgeted amount, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And we can

766

see in the first bullet under the table there that the decrease relates to less overtime than expected of about $720,000?

MS. CYNTHIA CAMPBELL: Yes. As I mentioned, there was active management of our payroll costs last year in order to meet our strategic stretch target. And one (1) of the things we did look at was overtime and whether or not we could control it.

It is absolutely also dependent on the weather and extreme -- extreme weather incidences, such as hail, but where possible, we did manage that to ensure that we were not -- we did not have excessive overtime.

MS. KATHLEEN MCCANDLESS: Thank you. And then at figure EXP-12, this table shows the five-year historical and five-year forecast of actual and budgeted staffing levels, yes?

MS. CYNTHIA CAMPBELL: Yes, it does.

MS. KATHLEEN MCCANDLESS: And at line 5, it appears that the actual full-time equivalent was 49.1 lower than budgeted for fiscal 2017/'18, yes?

MS. CYNTHIA CAMPBELL: Yes.

MS. KATHLEEN MCCANDLESS: And we can see in the asterisk under the table there that this table here shows an increase in thirteen (13) full-

767

time equivalents for 2018/'19 and onward, and that relates to the personal injury protection plan case managers, yes?

MS. CYNTHIA CAMPBELL: Yes, it does.

MS. KATHLEEN MCCANDLESS: And these positions are not taken into consideration for the compensation analysis, is that right?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And I also understand that it -- MPI is anticipating that it will reduce staff full-time equivalent counts by approximately fifty-one (51) positions by 2020 through -- 2020/'21, is that right?

I think if we scroll down the page it may assist you at lines 14 to 18 there?

MS. CYNTHIA CAMPBELL: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: Are you able to provide the breakdown of management positions in these cuts?

MS. CYNTHIA CAMPBELL: At this stage, I don't believe decisions have been finalized as to which positions.

What has happened is there's been position -- there has been numbers earmarked, they're

768

predominantly related to improvement efficiencies relating to projects.

And so there is the belief that we'll be able to reduce by three (3) or five (5) people when a project goes live and the new system is providing the efficiencies we're looking for. Which positions and -- is -- that has not been finalized.

MS. KATHLEEN MCCANDLESS: And do you know when you would expect that to be finalized?

MS. CYNTHIA CAMPBELL: It tends to be finalized closer to the end of a project. When -- when we actually see where the -- when the efficiencies start to come to fruition.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to PUB-MPI-1-38. And at page 2. So the figure, Figure 1 at the bottom of the page, shows that there are additional costs estimated to be about $930,000 per year, and that's in respect of the increased staffing resources of thirteen (13).

If we scroll to the top of the page, it may provide some assistance for you there. You see that information there?

MS. CYNTHIA CAMPBELL: Yes, I see it. Yes.

MS. KATHLEEN MCCANDLESS: Now, this

769

staff increase, is this a one-time staff increase or does MPI anticipate an increase in staffing levels for operational needs every year going forward?

MR. MARK GIESBRECHT: Right now we expect it to be a one-time increase, subject to growth in the business and we -- we would continue to evaluate the need to ensure we can deliver appropriate service and -- and manage our claims, so. But right now we would anticipate this is a one-off adjustment.

MS. KATHLEEN MCCANDLESS: Thank you. If we go to PUB-MPI-1-47. Now, in this Information Request, the Corporation was asked to explain why the number of management positions had decreased but the employee positions had increased, that's at question A there.

And if we scroll to the response, we see that by December 2017, the Corporation was able to reduce its management FTE count by 15 percent, yes?

MS. CYNTHIA CAMPBELL: Correct, that's what the response says, yes.

MS. KATHLEEN MCCANDLESS: And if we can scroll down to the top of the next page, we see here that the number of FTE positions increased by 24 non-management FTEs, which represents a 1.35 percent change overall in the total number of employees, yes?

770

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And we can go back up to the bottom of page 1, just for your reference, Ms. Campbell. I believe the increase in the non-management FTE positions by twenty-four (24) was to respond to various business needs?

MS. CYNTHIA CAMPBELL: Yes.

MS. KATHLEEN MCCANDLESS: Yes. And it's stated here that MPI -- MPI's information is that HR and business leaders had collaborated to identify opportunities to combine leadership portfolios and like functions in order to gain efficiencies and allow leaders to take on broader portfolios, yes?

MS. CYNTHIA CAMPBELL: With respect to the management decreases, correct.

MS. KATHLEEN MCCANDLESS: And these newly created positions, they're not just eliminated manager positions with title changes?

MS. CYNTHIA CAMPBELL: Not to my knowledge.

MS. KATHLEEN MCCANDLESS: And are you able to provide the cost savings between eliminating the 15 percent management count or the management count by 15 percent, and the twenty-four (24) new positions created?

771

(BRIEF PAUSE)

MR. STEVE SCARFONE: Can we provide that information by undertaking, Ms. McCandless?

MS. KATHLEEN MCCANDLESS: Yes, thank you.

So just to clarify for the record then, that would be to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the twenty-four (24) new positions.

MR. STEVE SCARFONE: Yes. Thank you.

--- UNDERTAKING NO. 14: MPI to provide information as to the cost savings realized between eliminating the management full-time equivalent count by 15 percent, and creating the twenty-four (24) new positions

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. Now, continuing down this IR response at B on page 2,

772

we see at Figure 1 here, improvement initiative staffing efficiencies at line 4 that MPI is anticipating $762,000 in savings a year for non-basic initiatives for staffing efficiencies for 2020/'21 and 2021/'22, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: Can you explain what these initiatives are?

MS. CYNTHIA CAMPBELL: They're initiatives in lines of businesses -- in lines of business that are not Basic.

So we do have three (3) other lines of business where we do take a look at our staffing requirements. And if there's a staffing reduction there, it will show up in our corporate members, but it doesn't relate specifically to Basic.

MS. KATHLEEN MCCANDLESS: Thank you. Now, Kristen I apologize because I didn't give you a heads-up for the next reference, but it's EXP-4.2.6.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: And my next few questions relate to road safety expenses, bearing in mind that in the context of this GRA that road

773

safety initiatives are not being reviewed in detail, but road safety expenses are part of the issues list approved by the Board.

So if we look to the bottom of the page that's before you here, part of the lot -- road safety and loss prevention co -- cost categories comprise of expenses, including the immobilizer program for 2018/'19 only.

I understand that the Corporation is -- has discontinued the immobilizer program for 2019/'20, yes?

MR. MARK GIESBRECHT: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And I appreciate that your information as to the reason for the discontinuation may not -- may be somewhat limited.

My understanding, though, is that it has to do with the fact that vehicles hitting the market now would have that built-in, so that there's no need for that program, is that right?

MR. MARK GIESBRECHT: I believe that to be correct, yes, it was a requirement of older vehicles, but it's really built into the -- the technology of new vehicles now.

774

MS. KATHLEEN MCCANDLESS: And does MPI have information as to the cost savings associated with the discontinuation of the immobilizer program?

(BRIEF PAUSE)

MR. MARK GIESBRECHT: So there would be savings in terms of no reimbursement of the installations of that equipment.

We're just trying to track down what that equates to in dollar terms.

So it's roughly a million dollars in savings.

MS. KATHLEEN MCCANDLESS: Thank you. And then, Kristen, at PUB-MPI-1-40, and Figure 1 in this IR response shows a breakdown of certain forecasted savings for 2018/'19.

At line 9 here we see a forecasted savings of $650,000 for the entry-level professional truck driver training, yes?

MS. CYNTHIA CAMPBELL: That's correct.

MS. KATHLEEN MCCANDLESS: And based on the information here that's the largest reduction on the Figure 1.

Are you able to provide the reason for

775

the -- that large reduction?

(BRIEF PAUSE)

MS. CYNTHIA CAMPBELL: Sorry, can you repeat the question, just so I'm clear. Sorry.

MS. KATHLEEN MCCANDLESS: Yes, what was the reason for the reduction of $650,000 in the entry-level professional truck driver training?

MS. CYNTHIA CAMPBELL: It was a cancellation of that program, so that program was -- we reimbursed people for taking the professional truck driver training, and we've cancelled that program.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Chair, I am moving into some questions regarding the Q2 financial report, it might take perhaps five (5) minutes. I could close that off and then we can take the break? Okay, thank you.

So Kristen, that's MPI Exhibit Number 24, and I have some questions about staffing.

So on the bottom of -- well, now it's -- it's the bottom of the page, but it's in the centre of the screen here before you, on the left-hand side we see the total full-time equivalent average for staffing at the end of Q2, yes?

776

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And then if we jump to expenses Appendix 10, and these are total corporate staffing levels.

At the very top of the page at line 12, we see actual full-time equivalents on the left-hand side of 1,878.1 full-time equivalents at the end of fiscal 2017/'18, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And then jumping back to the Q2 report, we see the actual staffing level full-time equivalent average is 1,762, as compared to a target of 1,889 as of Q2, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And 1,884 annual target for the year, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: Now, if we could jump to the AR section of the filing, Appendix 2, and this is the Q1 financial report. It's in part 8 of the application, Kristen. Thank you.

There's a graphic on page 3, it's a similar graphic, but it's for -- for the first quarter, yes?

MS. CYNTHIA CAMPBELL: Correct.

777

MS. KATHLEEN MCCANDLESS: And we see that for Q1 that MPI reported an average full-time equivalent of 1,762 as well, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: So as -- as at the end of the second quarter then there's been no change in the average reported FTE count from that experienced in the first quarter, as we see before us, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: Now, if we could go back to the second quarter financial report.
So the average staff level then, at the end of August 2018 is 1,762. Can you explain why it is lower than the target for Q2?
MS. CYNTHIA CAMPBELL: Our actuals often sit below our targeted levels because our target is full complement within the Corporation for all needed positions.
There is regular turnover such that people retire, people move on to other positions and they are not as -- as good as our HR team is, they -- you know, two (2) weeks is not a lot of time to be able to necessarily fill positions on a regular basis. So we will often run below our targeted amount.

778

Often when somebody also retires, you will take a look at how that position should look going forward. Sometimes it's a very short look, it's exactly the way the position was, and you need it to continue. Sometimes you can change the skill set needed, and that will take longer in order to be able to get somebody into the position.
MS. KATHLEEN MCCANDLESS: Now, when the Corporation compares its operations with the staffing level of Ia -- for last year, so past Q2, it was 1,901, in front of you, yes?
MS. CYNTHIA CAMPBELL: Correct.
MS. KATHLEEN MCCANDLESS: And to what extent is this lower level of staffing? So 1,762, as compared to 1,901 reflected in the quarterly results?
MS. CYNTHIA CAMPBELL: The decreased staffing will show lower operating expenses.
It will potentially also, though, drive up over time, depending on where the vacancies are, which I do not have detailed out in front of me. So those are the other impacts.
MS. KATHLEEN MCCANDLESS: Thank you. Now, with respect to the actual staffing level of 1,762, does the Corporation intend -- or expect to run the business at this level for the remainder of the

779

fiscal year?
MR. MARK GIESBRECHT: I would expect that we would have this number increase as we continue to -- to fill vacancies. So you can see that it is quite a great difference to the target, and as Ms. Campbell had discussed, there is always going to be a level of turnover. However, you know, we try to manage as best we can and fill those roles in an appropriate time frame.
And so I would say that would move closer to the actual target. But would expect it to remain under target given the nature of -- of turnover.
MS. KATHLEEN MCCANDLESS: So if it remains under target then we would expect that the payroll costs would be coming in at less than forecast ultimately, yes?
MR. MARK GIESBRECHT: But it depends on the level that it's under target, because we do build in a vacancy allowance, and that's meant -- we do understand to start the year that while we have about 1889, or 1884 planned positions, we know that over the course of the year, based on history and our experience that MPI, that there will be a level of turnover.

780

And then you multiply that by how long it takes to fill the position and that -- that then leads to a vacancy allowance, which is baked into the -- the forecasted and budgeted numbers.
The variance will be, do we have more turnover than we expected, or does it take longer to fill those positions than we had expected in that -- that computation.
MS. KATHLEEN MCCANDLESS: Thank you. If we could go to page 3 of this report, under Results of Operations, we see right at the first line there that the Corporation earned net income of $72.8 million for the -- to the end of the second quarter, yes?
MR. MARK GIESBRECHT: Yes, that's correct.
MS. KATHLEEN MCCANDLESS: And that includes net income of $39.4 million for Basic, yes?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: Now, I understand this would represent and shown before you here is an improvement of -- so it was 42.3 million for the same period last year, so that will be an improvement of roughly $48.6 million from last year, yes?

781

MR. MARK GIESBRECHT: So, it would be an improvement for the Basic line of business of about $30 million.
MS. KATHLEEN MCCANDLESS: We see that corporate net income increased from the previous year by 30.5 million, yes?
MR. MARK GIESBRECHT: Sorry, are you talking on a corporate basis or on --
MS. KATHLEEN MCCANDLESS: Corporate.
MR. MARK GIESBRECHT: Oh, I apologize. Yes.
MS. KATHLEEN MCCANDLESS: And at item (I) under the paragraph there, we see an increase in earned revenues of $44.8 million higher than last year, offset by an increase in total expenses of $6.7 million, yes?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: And that would include volume and upgrade factor?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: And as well, higher demerit DSR premiums, yes?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: How much of this increase in revenue would be related to the DSR

782

scale changes?

(BRIEF PAUSE)

MR. MARK GIESBRECHT: We would need to take this as an undertaking. We would estimate at a high level, but to give a -- a clear number, it would take some analysis.
MS. KATHLEEN MCCANDLESS: That would be appreciated. So if the Corporation could provide the increase in revenue associated from the higher DSR generic premiums.
MR. STEVE SCARFONE: Yes, we'll undertake to do that, Ms. McCandless. Is that a percentage or in dollars?
MS. KATHLEEN MCCANDLESS: I would say dollars.
MR. LUKE JOHNSTON: And can we -- I think the request is through Q2 of the current fiscal year?
MS. KATHLEEN MCCANDLESS: Yes, that's right. Thank you.
MR. LUKE JOHNSTON: So what we'll do, just to make sure our team understands, we will just show you what the revenue would've been if we didn't

783

change the scale, and then what the actual revenue turned out to be. The difference would be the effect of the new rates.
MS. KATHLEEN MCCANDLESS: Yes, thank you.

--- UNDERTAKING NO. 15: MPI to provide the increase in revenue associated from the higher DSR generic premiums in dollars, through Q2 of the current fiscal year, i.e., show what the revenue would've been if MPI didn't change the scale, and then what the actual revenue turned out to be. The difference would be the effect of the new rates.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: Now, the second paragraph under Current Year and Last Year, we see that MPI reported that it had a hail claim on June

784

14, 2018. Yes?
MR. MARK GIESBRECHT: Yes.
MS. KATHLEEN MCCANDLESS: And that was mitigated by reinsurance in the amount of $14.6 million?
MR. MARK GIESBRECHT: That's correct.
MS. KATHLEEN MCCANDLESS: And what was the total loss of the claim?
MR. MARK GIESBRECHT: I believe approximately 30 million.
MS. KATHLEEN MCCANDLESS: And roughly how many vehicles did that impact?
MR. MARK GIESBRECHT: I'm thinking 6,000, roughly, subject to check.
Yes, I just confirmed it's roughly 6,000.
MS. KATHLEEN MCCANDLESS: And has MPI put the reinsurance coverage back in place?
MR. MARK GIESBRECHT: Yes, we have.
MS. KATHLEEN MCCANDLESS: What was the cost to reset the reinsurance coverage?
MR. MARK GIESBRECHT: There's a reinstatement charge of $2 million.
MS. KATHLEEN MCCANDLESS: Thank you. In the same paragraph we see that there has -- appears

785

to have been a favourable decrease in PIPP claims, so bodily injury claims. That would be the fourth line from the bottom of the paragraph?

MR. MARK GIESBRECHT: Yes, I see that.

MS. KATHLEEN MCCANDLESS: And that -- there was a -- it was impacted by a $22.5 million favourable interest rate impact on unpaid claims offset by an increase in direct claims incurred of $25.7 million, yes?

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: What happened with interest rates that caused this positive variance?

MR. MARK GIESBRECHT: So, with the movement of interest rates, as they -- they rise, we'll see a decreasing in other liabilities. And conversely, as rates decrease, we would see a opposite effect.

And so it moves really in an inverse relationship to where interest rates go.

MS. KATHLEEN MCCANDLESS: Thank you. I think this would be an appropriate time to take the morning break.

THE CHAIRPERSON: Thank you. We will resume at quarter to 11:00. Thank you.

786

--- Upon recessing at 10:26 a.m.

--- Upon resuming at 10:47 a.m.

THE CHAIRPERSON: Ms. McCandless...?

CONTINUED BY MS. KATHLEEN MCCANDLESS

MS. KATHLEEN MCCANDLESS: My next set of questions relates to capital expenditures for Basic. If we could pull up PUB-MPI-1-45.

And the question here in the Information Request was to have the Corporation elaborate, where possible, on the root cause of differences noted for the decreased spending by expenditure type and if we scroll to the response, the significant differences in capital expenditure forecasting from the prior year's GRA are related to a number of factors.

So first we see that the Corporation replaced only three (3) of the twenty-nine (29) vehicles that were disposed of during the year. Yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And then on to page 2. There's reference to cancellation of redevelopment projects at CityPlace in low -- lower

787

level space re-developments at the main -- Bison and Gateway Service Centres. Yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: There's also a reference to reduce spending on data processing equipment?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And cancel or deferred building projects at CityPlace.

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And also lower level re-development at -- at the three (3) service centres that we discussed.

Just if you could advise, Ms. Campbell, that these are true cost savings and not deferred expenses to be incurred on at a later date?

MS. CYNTHIA CAMPBELL: The automobiles are a true cost savings in the fact that we've changed the way in which we're managing our fleet and the number of vehicles we need within our fleet. Office equipment, land and building, the majority of it is a cost savings. We are looking at how we -- how we -- deal with CityPlace on a going-forward basis. There is some strategic decisions being made so there may be future costs there, but the original planned

788

expenditures have been cancelled.

MS. KATHLEEN MCCANDLESS: Thank you. Next, if we could pull up Figure EXP-41?

And this table shows Basic capital expenditures for '27/'18 (sic) through the forecast period?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: I just have a question with respect to unassigned capital. So, at line 10 on the right-hand side of the -- the table there we see unassigned capital of six hundred and forty-eight thousand dollars ($648,000), yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: Now, if we jump to the same figure from last year's GRA at line 11 there -- so this is the 2018 GRA figure EXP-43, the unassigned capital is seven million -- or $7.1 Million approximately. Yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: Can you explain the variance there?

MS. CYNTHIA CAMPBELL: So unassigned capital is -- what ends up happening is there is a budget provided for some of the projects. They -- it is portioned out as to where it's going to be spent

789

within the project itself, and some of the budget remains unassigned at the times, so we don't know which year it's going to be spent in. We don't know exactly how it's going to be spent, and -- but we don't want to lose sight of it.

So it's gone from 7.1 million of an estimate down to less than a million dollars, and that is because we have changed some of the projects that had the unassigned capital and we've either changed, cancelled, stopped or have assigned the capital because we've got a further definition of it.

MS. KATHLEEN MCCANDLESS: Thank you. And I would suggest for the record then that we mark figure EXP-43 from the 2018 GRA as the next PUB exhibit. I believe that would be Exhibit 18.

--- EXHIBIT NO. PUB-18: Figure EXP-43 from the 2018 GRA

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And, Kristen, if we -- we could please go to EXP Appendix 16 and this figure shows Basic capital expenditures on a comparison basis between what was budgeted last year and actual results, yes?

790

MS. CYNTHIA CAMPBELL: Sorry, which year are you referring to?

MS. KATHLEEN MCCANDLESS: So on the left-hand side of the table we see the difference between what was budgeted and what the actual results were for last year's GRA as compared to this year's GRA?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And then on the right-hand side we have the forecast for last -- for 2018/'19, for -- that was filed in last year's GRA and the forecast budget for 2018/'19 that's been filed in this GRA and the difference between the two (2). Yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. So on the left-hand side of the table at line 1 we see the budget for land and buildings was $5.6 million and the actual was $3.6 million, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And so there's a difference there of approximately $2 million, yes?

MS. CYNTHIA CAMPBELL: Correct.

MS. KATHLEEN MCCANDLESS: And what's

791

the reason for that change?

MS. CYNTHIA CAMPBELL: As per the -- as PUB 1-45, we had explained that the land and buildings -- the main contributor there is the $1.3 million saved by -- by changing what we were doing with respect to the lower levels in Main Bison and Gateway as well as CityPlace.

MS. KATHLEEN MCCANDLESS: Thank you. And then at line 6 we see imp -- impairment of deferred development. The difference from the last year's budget to the actuals as filed in this GRA is approximately $18.7 million, yes?

MS. CYNTHIA CAMPBELL: Correct, that's the Basic component. Yes.

MS. KATHLEEN MCCANDLESS: And I understand that that relates mainly to IT projects, is that correct?

MS. CYNTHIA CAMPBELL: Correct. I believe we provided a listing of what they were. My presentation had it, and then it's also in an IR.

So in CAC 1-54, we list what the deferred development write-offs were and those are at a corporate level, so the 18.7 million is the Basic component.

MS. KATHLEEN MCCANDLESS: Thank you.

792

MR. ANTHONY GUERRA: Just to confirm for the record, when you reference IR, you are referring to Information Request and MPI's response to the Information Requests, when you cite the dash -- 1-45 or 1-54?

MS. CYNTHIA CAMPBELL: Correct. My apologies.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: That's fine. Thank you.

Mr. Johnston, now I'm going to have a series of questions for you. First, if we could pull up the presentation from this morning, so MPI Number 25, pardon me, at slide 25.

Now, as I understand it, the impact of discounting, the increased rate need was due to a decrease in the assumed discount rate from the 2018 GRA to 2019 GRA, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And in this table, what discount rate underlies the 2018 GRA impact of discounting of negative 93.12?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: The -- the 2018 column uses a discount rate of 3.82 percent per last year's Order. And the 2019 uses a 3.21 percent discount rate per MPI's application.

MS. KATHLEEN MCCANDLESS: Thank you. If we could pull up PUB-MPI-1-3, and it was the response to question (a) of this Information Request at page 2.

The Corporation provided support for the selected cash flow discount rate of 3.21 percent used in the derivation of the rate indications, which it describes as an estimate of the new money yield as of September 1, 2019, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Please walk us through this derivation, including what the values shown represent and why the September 2019 date is used.

MR. LUKE JOHNSTON: Okay, so the date used for discounting purposes was actually discussed at this hearing and probably a little bit on the side between Mr. Pelly and myself.

But September 1 would be the average written date of the policies, and it's the discount rate on that particular day that we're using as a

basis for calculating the discount rate.

So for a naive interest rate, that date really doesn't matter. It could be the beginning of the year or the middle because the rate is the same the whole time. But for any other interest rate forecasts, the date is relevant because rates could be rising or falling.

So, that's the 'as of date' of the -- of the assumed interest rates, and then in the table below what you're seeing is our assumed allocation to those bond categories at that point in time and the expected yields on -- on those bonds at that -- also at that point in time. And the weighted average of those yields is 3.21 percent.

MS. KATHLEEN MCCANDLESS: Thank you. And if we go back to the preamble of this Information Request, it quotes from the ratemaking section of the application and then where it's stated that:

> "The basis of the estimation of the cast -- cash flow discount rate is described as the market value weighted yield of MPI's marketable bonds portfolio."

Yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And then in the second paragraph here, the preamble also quotes from the response to PUB-MPI-1-12 (a) from last year's proceedings, where the Corporation stated at that time that the use of a portfolio yield rate was intended as an approximation of a new money yield rate, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Is that estimation approach still in use in this application?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Yes, there is a slight difference between what we've proposed in previous applications and -- and the new methodology.

So in prior applications we were tying the discount rate purely to the discount rate of the claims liability valuation. And that would include things like nonmarketable bonds. It could include other assets that, you know, we don't plan on purchasing anymore, non-marketable bonds again is another example of that.

So through this process we've changed the discount rate to reflect the actual new investments and allocations that we anticipate to make

relative to the -- the new money or -- that we're investing. So that's -- that's why it doesn't include something like non -- non-marketable bonds anymore.

MS. KATHLEEN MCCANDLESS: So why describe this as a forecasted portfolio yield when the bond portfolio includes investments made in the past, as well as new investments?

MR. LUKE JOHNSTON: Can you repeat that? Sorry.

MS. KATHLEEN MCCANDLESS: Why would the Corporation describe this as a forecasted portfolio yield when the bond portfolio includes investments made in the past, as well as new investments?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Perhaps the naming could -- could be reconsidered, but the basis for the allocations in the respective bond categories would be reflective of what we anticipate in the actual portfolio.

But the calculated discount rate will not reflect the actual bond portfolio, given that there is other types of assets in there that are not

being considered in this calculation. But we'll recognize your point and will consider maybe re-naming that.

MS. KATHLEEN MCCANDLESS: Thank you. Does the estimated cash flow discount rate of 3.21 percent include any offsetting provision for investment expenses?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I can't recall the exact provision for that, but we'll undertake to let you know what that number is.

MS. KATHLEEN MCCANDLESS: So I believe then the answer is yes, it does include an offsetting provision?

MR. LUKE JOHNSTON: My expectation is that it should. But I was looking for a reference in the ratemaking section, but there isn't one, so I'll get that for you.

MS. KATHLEEN MCCANDLESS: So to clarify for the record then, the Corporation will provide the amount of the offsetting provision for investment expenses?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. LUKE JOHNSTON: I'll maybe just add to the end of that, in the discount rate used for ratesetting.

MS. KATHLEEN MCCANDLESS: Right. 3.21 percent.

--- UNDERTAKING NO. 16: MPI to provide the amount of the offsetting provision for investment expenses in the discount rate used for ratesetting.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Now I have some questions with respect to the driver safety rating related revenue changes arising from vehicles for hire. So if we could go to RM 4.2.6. And if we scroll down the page a little bit, Kristen. Thank you.

So this section of the application indicates that the rate level change requirement for the breakeven cost of policies was reduced by .1 percent, or about a million dollars in anticipation of the revenue impact of introducing driver safety rating

for certain vehicles not previously eligible, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Does the Corporation have a means of providing the Board with a fiscal year-to-date account of the actual revenue impact of the change?

MR. LUKE JOHNSTON: Oh, sorry, I thought there was more to that.

The -- so we've been watching this closely. There's -- I think it's pretty clear that there's a lot of subjectivity and judgments we had to make and -- for a completely new class of vehicles and then -- and then in particular I talked to how the taxi mark -- market share would be affected.

So we can -- I've seen some data recently showing the loss ratios in the different groups. We can provide that.

So, to the -- if we just show you the revenue reduction, that wouldn't be fair if actually taxis were having a really low loss ratio too, because that would mean that their premiums are actually okay.

So we'll -- we'll provide the year to date observed loss ratio for the -- for the four (4) vehicle-for-hire categories.

Is that sufficient?

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Perhaps to re-state the undertaking that would be of assistance, Mr. Johnston. If it could be providing the Board with a fiscal year-to-date account of the actual revenue impact of the change, the rate level change and how close it is to being in line with the original estimate of a million dollars per year.

MR. LUKE JOHNSTON: We can do that. The -- the reason I was adding the additional context there was that I wouldn't want the Board to see, say, a bigger number than we thought and assume that that was inappropriate, because that pricing might be okay.

MS. KATHLEEN MCCANDLESS: Thank you.

--- UNDERTAKING NO. 17: MPI to provide a fiscal year-to-date account of the actual revenue impact of the change, the rate level change and how close it is to being in line with the original estimate of a million dollars per year. And provide the

premium and claims
information and loss ratio
for the four (4) vehicle
for hire categories,
latest available
information MPI has.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: Now, if we could go to the CI section of the filing 10.2.1, --
DR. BYRON WILLIAMS: Mr. Chair, just to I -- I apologize. Just for my understanding of the undertaking, is the loss ratio data contemplated to be included? Because it will assist me in -- in my future questioning. I do apologize for the...
MS. KATHLEEN MCCANDLESS: We can certainly add that to the undertaking, Mr. Johnston, if the Corporation is prepared to provide it?
MR. LUKE JOHNSTON: Well, I'm already going to look since I volunteered all the data.
But we do have it and I do want the Board to see what's actually happening. Even with the recognition that it's immature data and it's new, but it still gives us some information. So we can do that.

MS. KATHLEEN MCCANDLESS: Perhaps for the record then, you could just restate what that additional information would be.
MR. LUKE JOHNSTON: We'll provide the premium and claims information and loss ratio for the four (4) vehicle for hire categories through second quarter of -- or the latest available information we have.
MS. KATHLEEN MCCANDLESS: Thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: So, this section of the filing is just before you for your reference, Mr. Johnston, it relates to the paintless dent repair.
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And it references the technique of paintless dent repair as a relatively new industry standard adopted by the Corporation in 2017?
MR. LUKE JOHNSTON: That's right.
MS. KATHLEEN MCCANDLESS: What can you tell the Board about paintless dent repair techniques?
MR. LUKE JOHNSTON: I can't tell the Board a lot about -- about paintless dent repair

techniques.
The -- I do -- I was going to say earlier that the actuary is generally the -- the messenger, so if they want to do paintless dent repair and lower the claims cost and I get to tell the Board, then that's -- the good news, then it's good for me, but all I -- all I can really say to this section is at least preliminary data shows that repair claims are seeing some benefit in terms of severity reduction from paintless dent repair.
The business tells me that we've got to be cautious if it's a really bad -- like, a high severity storm, that the technique may not work as effectively or we won't be able to use it on as many vehicles.
But in the -- the last fiscal year we had fairly light hail and it apparently is very effective in -- in reducing severity.
MS. KATHLEEN MCCANDLESS: Do you happen to know when in 2017 that paintless dent repair was adopted?
MR. STEVE SCARFONE: Ms. McCandless, Mr. Wennberg, we're happy to have him answer all the questions concerning this topic on Monday, because he's -- he's the guy.

MS. KATHLEEN MCCANDLESS: All right, I will table some of these questions then for Mr. Wennberg. Thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: I believe this a -- an area that you may be able to speak to though, Mr. Johnston, with reference to figure CI-49.
How significant -- how significantly in terms of percentages does the cost of a typical hail damage claim decrease under paintless dent repair?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Yeah, I was looking for a reference. I'm sorry, we don't have one there. My recollection is around the 30 percent range, but it depends on the -- again, on the type of storm.
You can see in this -- in this graph that we are looking at -- so the blue line being the comprehensive hail severity for repairs. We have looked at the 2017 year and you can see a pretty substantial drop from about 4200 or so to about 3000.
We didn't think it was appropriate to

805

bank on the full benefits, there could be other things, just a lighter hail than usual, but we did give a pretty substantial portion of the weight to the 17-year, and that -- you see where the forecast is kind of in -- I believe it's about 67 percent weight to the -- to the recent experience.

MS. KATHLEEN MCCANDLESS: Thank you. In recent years prior to the adoption of paintless dent repair, about what level of total claims dollars related to hail damage?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Hail is a tough one to -- to -- to give a firm figure because it's kind of all over the place, one year you get almost nothing and then another year you get a lot.

But our budget is -- is in the $25-$30 million range for Basic, but there have been some recent years that it was 50 plus million, and then you see last year it was barely 5 million.

So, on average, we figure around 25 to 30 million of total -- if you see total Basic claims they're kind of in the $800 million range. I guess that would mean 5 percent or so.

806

MS. KATHLEEN MCCANDLESS: Thank you. Given that level of total hail claims, what would be the annual level of expected savings achievable using paintless dent repair?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: If you go to -- well, my first comment I think in the future years we'll actually have the -- incurred by coverage. I'm not sure why we don't have that in this document, actually.

But if you go to figure CI-60, that's the total comprehensive cost of all -- all perils. So the -- the -- the major driver of the reduction in the comprehensive forecast is hail. So you can see between this year and last year's forecast, comprehensive in total, the forecast dropped about 15 million.

I think a reasonable estimate at this time would be that the -- that that assumption that the decrease in repairs severity that we had would -- would probably fall in the -- around the 5 to $10 million a year range.

We'll have better information after

807

this year is complete. Because we've had quite a bit of hail this year, so the effectiveness of it will be a lot more clear.

MS. KATHLEEN MCCANDLESS: And does the -- or is the number of hail events generally increasing year after year, perhaps due to climate change?

MR. LUKE JOHNSTON: Well, I won't profess to be an expert on that topic, but we are definitely with the -- well, with the exception of the last fiscal year where we actually had a pretty good year, the frequency of small storms has been our main issue.

There used to be a time where we would either have a big hail storm or we would have pretty much nothing. But then I believe the '15/'16, '16/'17 year we had just really a peppering of a bunch of small storms that we weren't able to claim reinsurance on because none of them were more than $15 million, the amount needed to collect reinsurance. So maybe. But I -- I am not an expert on that.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to part 8 of the filing, attachment B, page 44. This references the external actuary -- appointed actuary's report on the valuation of Basic

808

policy liabilities, as of 31 October 27,(sic) yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Right at the bottom of the page, at the bullet there, the external -- external actuary states:

> "We switch from duration adjusted yield to market value weighted yield in selecting the discount rate. The Corporation's asset liability management policy strives to minimize the impact to its income statement due to a change in market interest rates. This change was made to reduce the mismatch between the Corporation's assets and liabilities from fluctuations in market yield."

You see that?

MR. LUKE JOHNSTON: Yes, I do.

MS. KATHLEEN MCCANDLESS: Thank you. From the last sentence here, does this mean this change was made to have the movement in assets due to a change in market interest rates better match the corresponding movement and liabilities?

MR. LUKE JOHNSTON: Yes, it was.

809

So as I mentioned I think yesterday, we report every month on -- to our Board and management the net impact of interest rate changes. One (1) of the most complicating factors of -- of the analysis is the nonmarketable bonds, because they're held at a book yield, and they're a pretty substantial portion of that portfolio.

So, those bonds don't move really with the -- with the interest rate changes. So we have to use the marketable bonds, essentially, to neutralize the -- the impact of interest rates and the duration weighted methodology was -- was creating problems for us to do that.

So, we did some research on it and the outcome was that we should use the market weighted yield as a -- to reduce the volatility.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: The Corporation is phasing out the use of MUSH bonds, yes?

MR. LUKE JOHNSTON: Yes. Yes, we are.

MS. KATHLEEN MCCANDLESS: So will the Corporation adjust its mess -- methodology as the use of MUSH bonds becomes phased out, back to what it was

810

prior?

MR. LUKE JOHNSTON: I'm hoping that we don't have to change anything, it will just -- it will just, you know, we'll have less and less in there and it will be less of an impact.

The history behind using the duration weighted yield is that sometimes we would have floating-rate notes or really short-term money in that portfolio and it would be getting weight in the calculation, even though it had a short-term focus and really low yield. So we didn't want to give -- have the discount rate be impacted by sudden -- sudden injections of things like that.

But now that we have a very clear ALM policy we didn't feel that that was a real concern anymore. So, this approach should serve us well given that the detail or retaking to match -- so I don't anticipate changing it.

MS. KATHLEEN MCCANDLESS: Thank you. Could we go to PUB-MPI-2-14. And Appendix 1, last page, that's page 19. We need to get to the bottom of the table, so if we could maybe minimize it a little bit. Thank you.

So as part of this Information Request response, the change in approach to the selection of

811

the valuation discount rate caused the selected claims discount rate to rise from 3.31 percent to 3.47 percent, yes? At the very bottom, on the left-hand side of the table?

MR. LUKE JOHNSTON: That was the impact, yes.

MS. KATHLEEN MCCANDLESS: Now, if we go to the response to the B question in this Information Request response, the -- this increase in the valuation discount had a one-time impact on fiscal 2017/'18 Basic results to reduce net claim -- claims liabilities by $25.8 million, and the internal loss adjustment expense provision by $2.7 million, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: With a total one-time decrease in liabilities of $28.5 million, this flows through the income statement to produce a one-time increase in net -- net income for the same year by the same amount, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Thank you. So just to confirm for the record, then at the bottom of paragraph B, we see that no further impact is anticipated on operational results on a go-forward basis, yes?

812

MR. LUKE JOHNSTON: No -- no significant impact is expected, yes.

MS. KATHLEEN MCCANDLESS: Thank you. I'm now going to ask some questions about the driver safety rating update. And of course, Mr. Johnston you're aware that in Order 130/'17, after last year's GRA, the Board had initially ordered a few things and they're found at the bottom of the DSR section.

So if we scroll a little farther. So yes, in the -- the Board had initially ordered that in this GRA the Corporation was to file proposed driver premium rates more statistically consistent with the estimated average claims cost per driver for each level on the demerit side of the DSR scale, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And we know that that ultimately was varied by the Board.

MR. LUKE MCCANDLESS: Yes, it was.

MS. KATHLEEN MCCANDLESS: And similarly, the Board had initially also ordered that in the '20/'21 GRA the Corporation would file proposed vehicle premium discounts that were actuarially indicated based on principal driver performance evaluation, yes?

MR. LUKE JOHNSTON: Yes, I -- I recall

813

that, yes.
MR. KATHLEEN MCCANDLESS: And then ultimately the Board did vary that. And I'm not sure we need to go to the reference, but just to set some context for my questions.
In Order 29/'18 the Board had ordered that the -- the two (2) directives that we just spoke about, 11.8 and 11.9, be held in abeyance until such time as the issues of driver premiums more statistically consistent with the average claims cost per driver by demerit side of the DSR scale and the vehicle premium discounts fully supported by actuarial indications based on principal driver performance evaluation had been fully considered and reviewed in this GRA, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And at DSR-4 we -- we see that a technical conference was held on March 20, 2018 on the driver safety rating, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And then below there we see MPI's position on its interpretation of the essence of the initial Order 130/'17?
MR. LUKE JOHNSTON: I do.

814

MS. KATHLEEN MCCANDLESS: And so MPI interpreted that Order to -- to mean that it needs to improve the actuarial soundness of the DSR-based driver premiums and vehicle premade -- premium discount calculations, which are currently set by policy, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And MPI does agree that actuarially sound rates should be the objective for rate-making?
MR. LUKE JOHNSTON: Agreed.
MS. KATHLEEN MCCANDLESS: And then MPI, its interpretation is also that any rating variable that is used in the determination of rates should be fully supported by MPI with a strong statistical framework, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And if we scroll below, MPI's position is that it does agree that rating variables should be supported with a strong statistical framework, similar to that used for rating territory insurance use rate group, et cetera, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And lastly,

815

that MPI interpreted the order to be that the improved DSR based ratemaking methodology should be based on principal driver performance evaluation.
MR. LUKE JOHNSTON: Agreed.
MS. KATHLEEN MCCANDLESS: But the Corporation, while it understands the rationale for the request, does not yet fully support the concept, yes?
MR. LUKE JOHNSTON: Correct, yes.
MS. KATHLEEN MCCANDLESS: So at DSR-4.3 we see a -- a list of the alternatives to the current registered owner model that's used by MPI for driver safety rating, that -- the alternatives that were discussed at the technical conference, yes?
MR. LUKE JOHNSTON: Yes.
MS. KATHLEEN MCCANDLESS: And perhaps at a high level, if you could just summarize each of the alternatives listed and MPI's position on the alternatives.
MR. LUKE JOHNSTON: Okay. So the first option listed here is called the primary driver model. As noted right now, the rate charged is based on the registered owner's driving record. So we've talked in here before that, you know, the common example is mom comes in and insures all four (4) cars

816

for the whole family and she has a 33 percent discount. So everybody wins. But we haven't asked or necessarily considered who else is in the household.
Driver safety rating, driver premiums would do some of that right now, but as we've admitted here, they're not actuarially sound so they're not doing the -- the job completely, maybe partially but not completely.
The -- so we -- could we just scroll back up for a second. This concept of asking people who the primary drivers are or listing all the drivers on their policy is not something that we currently record. It would be new. We'd have to build IT functionality to do that and all the associated ratemaking analysis that would be required to understand what that information even means.
So, we don't have it today, so there is no data. There might be some connections we can make, but there's no available data so it might take some time to collect. So one (1) option would be just to start asking people and not use it for anything. That's something we've considered. Okay.
The second option is something we're calling the forced assignment model. So, if we can go back to the example I just gave with the -- with the

817

mom in the house, MPI should know who lives at that address, and in theory you could say, well, mom, you can't insure all four (4) cars, because I'm pretty sure you're not driving all of them as the primary driver. Maybe mom can insure the highest rated car, get the discount, but then it falls to the next rated driver, the next rated driver.

So at least we're getting some recognition of the other people in the house. That model is a little bit easier to implement because it is somewhat automatic. We don't have to know anything other than who's in the house and the assignment of the discounts is essentially forced on -- based on who lives in each house, so we don't have to ask anything.

Oh, sorry. I think I confused 1 and 2 a little bit. So number 1 was the primary driver, so that would be really just asking who the primary driver is.

Number 3 is literally declaring all the drivers and -- and using that information to rate the policy. So if you -- there's many different ways you can do this. I won't pretend to know them all.

I know in some jurisdictions it seems like the worst or the riskiest driver is the basis for rating the policy, but in theory we could use, you

818

know, the average DSR level, or other means to -- as a basis for, you know, there's three (3) drivers declared using this vehicle, let's use some kind of average DSR, the worst DSR or whatever. Something like that.

MS. KATHLEEN MCCANDLESS: And just to stop you there, Mr. Johnston, and just to summarize MPI's views on the declared driver model.

MR. LUKE JOHNSTON: The -- the declared -- so the primary driver model, going back to the first one, in our view isn't going to be significantly different than the registered owner model. So right now registered owners come in and we expect that most households would want to register under the best driver.

So if there is a primary driver for sure that you might get some people say, okay, you know, let's split up the cars by primary driver, but we suspect that a lot of people would continue to register whoever, based on whoever is the best driver and it would probably be difficult for MPI to dispute that information if -- as long as that person is driving some of the time, likely, it would be hard to -- like, say for claims denial purposes or things like that.

819

The -- maybe I'll jump to 3. Declared driver model is more -- would be more accurate and more easier to enforce from a claims handling perspective, because if you list three (3) drivers and then someone is driving that's not one (1) of those people, that's pretty obvious. And it's more than just having information on primary driver, you actually know if there's a teenager driving or something like that. So it would be more accurate, but more costly to implement and -- and monitor.

The second one, just -- I can't remember which one -- oh, forced -- forced assignment is not as accurate as listing of the drivers, but more accurate than primary driver or registered owner model because at least you're getting some recognition of who the other individuals in the household. And -- although maybe not as accurate, again, you're getting a better reflection of the risk in the modeling. That one (1) is also easier to implement from an IT standpoint.

The fourth one, which we're calling residual risk model, so what we mean by this is if you -- we've likely shown this in these hearings. If you were to just ignore who registers the vehicle completely and -- and plot the costs of a driver by

820

DSR level, the -- we have our DSR scale from plus 15 to minus 20, the cost per driver increases in a very consistent fashion from that line. It -- it does the same thing whether you own a vehicle or not. So, having the license is see -- at least seems to be the main risk factor.

The ability to drive, not necessarily ownership of the vehicle seems to be the main driver. There is a slightly higher cost for people that own vehicles, but not significantly higher.

So, what this concept is -- is saying is that in theory you could get a lot of the -- the risk covered by purely charging people on the license, and then the incremental risk for -- you know, I have a Cadillac versus I have an old beater, would be the extra -- the extra piece that you would charge. And that would almost really be just a physical damage charge based on what -- what you have.

So that's that idea. But this concept is really dramatic in terms of its implications. CMMG has come and talked about this idea, why don't you charge for, you know PIPP on the license, something like that. So while this has -- definitely has merits, it would be real -- very dramatic in its implementation.

821

MS. KATHLEEN MCCANDLESS: Thank you. And among the models that you just discussed, Mr. Johnston, is MPI supportive of a particular model?

MR. LUKE JOHNSTON: So as -- as you know, we're -- we're still researching these topics. The current model is set up as a form of residual risk type model. So we're -- we've said, particularly on the demerit side, we, you know, that's where the -- those drivers create the risk. We need to collect more premium from that particular group. But the issue is that it's -- it's not actuarially sound.

So -- so we could move towards a model like this, but there is a -- and -- and decide at this hearing, like, how gradually or -- or how quickly we want to do that, but there's a lot of other players that would probably be interested in how we do this, like the government, the public, and others.

So this one is logical. It doesn't cause massive disruption in how people currently renew, and policies, and their driver's licence, but there's more work to be done to -- to have MPI fully make a recommendation.

MS. KATHLEEN MCCANDLESS: And just so that we're clear on the record, when you refer to this one, you're referring to the residual risk model, yes?

822

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And then from among the models discussed, is there one (1) or more that MPI would not be supportive of using?

MR. LUKE JOHNSTON: I don't want to -- I don't want to -- until this is fully surveyed, I -- I don't want to say too much about my particular views, but the primary -- as I mentioned, the primary driver model and registered owner model don't seem to -- I -- don't see a huge benefit to move to primary, but -- but all the other models do have merit, and they could be considered.

MS. KATHLEEN MCCANDLESS: Thank you. If we could just scroll, continuing down DSR strategy, we see at lines 6 through 8 that MPI believes that all options should be thoroughly considered and analyzed prior to transitioning from the current registered owner model to a primary driver, or to some other type model, yes?

MR. LUKE JOHNSTON: Agreed.

MS. KATHLEEN MCCANDLESS: And then directly under DSR 5.1, we see that the initial phase of MPI's DSR strategy is to develop a public consultation plan to invite Manitobans to share their views on the proposed changes to the driver and

823

vehicle rating models, yes?

MR. LUKE JOHNSTON: Yes.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: And we see that the plan will identify a variety of mediums to inform and educate Manitobans, and the qualitative and -- qualitative and quantitative research methodologies used to gather and tabulate feedback may include -- and then there are a number of methodologies below, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And then continuing down this section, we see that MPI, at lines 11 through 13, expects to plan and undertake this work through the balance of 2018 and tentatively plans to provide the Board with an update or results in the 2020 GRA, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And then at DSR.9 -- this is the conclusion and next steps -- at line 17 to 20, MPI anticipates that by next year's GRA, it'll be in a position to report on the results of the public consultation efforts, yes?

824

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And the primary research on no or low cost options, as well as on its decision on whether to proceed with data collection for higher cost options, yes?

MR. LUKE JOHNSTON: That's right. And may -- maybe if I could just add to this, you heard Mr. Graham speak at the -- on the first day about product suite review. So I believe his slide deck had deductibles, and maximum insured values, and -- and those types of things.

To me, driver safety rating, deductibles, those types of items are things that customers would actually want to be involved, and -- and be consulted on. The Capital Maintenance Provision -- I don't think they would know what that is. Things like that, but these are real things that customers will care about. So DSR is one (1) of the items that would be considered as part of that product review, so there may be some of these other topics also reported on to the -- to the Board.

MS. KATHLEEN MCCANDLESS: Thank you. I don't think I need to take you to the see -- this Information Response, but just -- the Corporation was asked in PUB/MPI-1-51 about the progress on its public

consultation process. And maybe so it's not a memory test, we could pull up for your reference, Mr. Johnston.

But essentially, the response there is that the DSR consultation process is in its initial stages and key dates, and expected timing of pub -- public consultation have not been determined at this time.

Is there any update or progress on public consultation?

MR. LUKE JOHNSTON: I don't have one, but that doesn't mean that it's not ongoing. The -- the product suite review team, of which DSR is a part of, has definitely been formed, and we're -- and looking at these topics. I'm not as involved in the public consultation media piece, but we -- we could get an up -- update, I suppose, on that. But I'm not aware of any major initiatives that have -- that have begun.

MS. KATHLEEN MCCANDLESS: Perhaps by way of undertaking, then, we could have an update on the progress that the Corporation has made with respect to its DSR public consultation?

MR. LUKE JOHNSTON: We can do that, yes.

--- UNDERTAKING NO. 18: MPI to provide an update on the progress the Corporation has made with respect to its DSR public consultation

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. And, Mr. Johnston, are you able to advise as to whether the Corporation is on track to provide the updated information on a -- or a proposal in the 2020 GRA on the DSR changes?

MR. LUKE JOHNSTON: Yes, we are.

MS. KATHLEEN MCCANDLESS: Thank you.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: No, Mr. Johnston provided the information. Thank you.

Now with respect to the service fee review, at last year's GRA, we heard from the Corporation that it would be conducting a review of service fees, and the Corporation was ordered to file the results in this year's GRA, and it -- it has done so. And we have heard that no changes are being

requested at this time, yes?

MR. MARK GIESBRECHT: That's correct.

MS. KATHLEEN MCCANDLESS: And I understand that the rationale for requesting no changes is that increasing fees will not result in increa1sed revenue because the net zero overall effect of the break-even rate-setting model will correspond as -- correspondingly reduce premium revenue, or at least in part, that's the rationale. Is that correct?

MR. MARK GIESBRECHT: Yes.

MS. KATHLEEN MCCANDLESS: And also that it would be premature to seek changes to the Basic service and transaction fees prior to the Corporation knowing the outcome of any change that might be made by the Government of Manitoba to the Driver and Vehicle Act service fees that are charged through MPI?

MR. MARK GIESBRECHT: That's right.

MS. KATHLEEN MCCANDLESS: Does the Corporation foresee any change to service fees in the future?

MR. MARK GIESBRECHT: It's -- it's a possibility for sure, yes.

MS. KATHLEEN MCCANDLESS: And if we turn to slide 12, at MPI Exhibit 25, in the evidence

this morning, you referred to the -- the review of service fees as a jurisdictional scan. In addition to a jurisdictional scan, will there be more to this review?

MR. MARK GIESBRECHT: Yes. As part of the review, we will undertake to understand what is the time required to offer these services, what is a reasonable charge at -- that should apply to those things, looking at whatever -- what are the prices that were charged in the past, and applying a -- CPI factor as another basis for what could be a reasonable cost of those. It'd be a number of factors that go into that, along with a comparison to other jurisdictions.

MS. KATHLEEN MCCANDLESS: Okay. And so that would include having fees che -- charged vary reasonable relationship to the underlying costs of the fees --

MR. MARK GIESBRECHT: Correct.

MS. KATHLEEN MCCANDLESS: -- services? Thank you.

All right. Thank you. Those are my questions for this panel.

THE CHAIRPERSON: Mr. Williams, I'm just wondering, do you have a timeframe for your

cross-examination?

DR. BYRON WILLIAMS: I think my original estimate was an hour. I'm thinking somewhere between forty-five (45) minutes and an hour and --

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: -- ten (10) minutes.

THE CHAIRPERSON: Thank you. So we'll break until one o'clock. Thank you.

--- Upon recessing at 11:44 a.m.

--- Upon resuming at 1:02 p.m.

THE CHAIRPERSON: Mr. Williams...?

MR. STEVE SCARFONE: Mr. Chairperson, just before Mr. Williams begins, over the lunch hour we did retrieve some information that the Corporation would like to read into the record, if -- if it pleases the Board. It's just with respect to the hail damage over the past five (5) years.

So, beginning with the fiscal year 2017 and '18 and -- and we'll move backwards; 2017/'18 the total hail damage was 8.3 million; 2016 and '17 45.1 million; 2015/'16 52.6 million; 2014/'15 13.8 million and, lastly, 2013/'14 23.5 million for combined damage

of $143.3 million over the past five (5) fiscal years.

And Mr. Johnston tells me that he can retrieve the information that Ms. McCandless is looking for, which is the effect of the paintless dent repair at least forecasted on those numbers.

MR. LUKE JOHNSTON: Thank you. We can provide this breakdown, if necessary, but I'll -- the hail repair forecast which that -- Ms. McCandless showed us the -- the slide where the severity was reduced dramatically, that forecast has been lowered by about -- about $5 million.

So on an approximate basis we've -- we've baked in about $5 million of savings; could be maybe more or less for sure, but that's --that's -- what we've taken in the -- in the forecast right now.

MS. KATHLEEN MCCANDLESS: Thank you. Just one (1) question of clarification for Mr. Scarfone.

The numbers that you read into the record, are those gross or net of reinsurance?

MR. STEVE SCARFONE: That's probably a better question for Mr. Johnston.

MR. LUKE JOHNSTON: I believe those are directly gross from the annual report, yeah.

MR. STEVE SCARFONE: Yes, and -- and

just so the Board is aware, those are cited from the 2017 annual report, which I believe is in section 8 of the application.

MR. LUKE JOHNSTON: Yeah, our last time using our re-insurance was 2011. So those numbers are all gross. So the example I gave you about is there a global warming or not, some of those numbers -- one (1) of them was over 50 million. We had no re-insurance recovery because they were all small storms. So, Mr. Graham talked about perhaps looking at new re-insurance options. An aggregate would say, if the total amount is more than 25 million kick in and that -- and you can see why that make sense.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. STEVE SCARFONE: The Corporation is trying to encourage its customers to park inside their garages but we don't know if that message is getting out.

Sorry, Mr. Williams, go ahead.

DR. BYRON WILLIAMS: Thank you and good afternoon, members of the panel. I'll just indicate further to the Chairperson's comments of first thing this morning, after discussions with My Learned Friends from Manitoba Public Insurance, there

were two (2) exhibits and some questions which are properly related to ratemaking but are most appropriately put to Mr. Graham.

So, I -- I think by agreement what we have dec -- we are recommending to the Board is that we -- we set those aside and come back to them when my cross-examination of the next Manitoba Public Insurance panel takes place.

MR. STEVE SCARFONE: That's correct. We have no objection to that, Mr. Chair.

CROSS-EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: And the good news for those hoping to get out earlier today is that will help us to get out earlier today.

Ms. Campbell, I don't know if we've really met in the regulatory process, so, please to meet you. I don't have many questions for you, but I do want us to just start with a couple.

You recall a conversation you had with the Chairperson regarding the impairment of deferred development costs in the range of $20 million?

MS. CYNTHIA CAMPBELL: Yes.

DR. BYRON WILLIAMS: And following that impairment those items are no longer assets of

Manitoba Public Insurance; agreed?
MS. CYNTHIA CAMPBELL: Correct.
DR. BYRON WILLIAMS: And, in essence, that is reflected in a writeoff or reduction of equity, correct?
MS. CYNTHIA CAMPBELL: Correct.
DR. BYRON WILLIAMS: Thank you. Ms. Schubert, if we can go to -- yes, thank you. It's amazing how you can anticipate me and read my messy handwriting.
Mr. Johnston, when we look at the -- under figure RM-15 Summary of Premium Increases and direct your attention to the private class, there's around 800,000 vehicles in the private class, sir?
MR. LUKE JOHNSTON: That's right.
DR. BYRON WILLIAMS: And in terms of this General Rate Application, if -- if Manitoba Public Insurance is successful, that class will experience a premium change in the range of 2.37 percent?
MR. LUKE JOHNSTON: Correct.
DR. BYRON WILLIAMS: And it's -- that's about $21 million higher, sir?
MR. LUKE JOHNSTON: That's right.
DR. BYRON WILLIAMS: And that would

account -- that class accounts for about 90 percent of the 2019 premiums, sir?
MR. LUKE JOHNSTON: That's correct. And -- and as you see almost all of the premium change.
DR. BYRON WILLIAMS: Ms. Schubert, if we could go to RM-16.
Mr. Johnston, this is an aggregation of the -- the impacts all in of the rate application on different vehicles; that's -- this is the estimate of what will happen; agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And if I draw your attention to line number 8, it would be correct to suggest that there will be almost 290,000 vehicles experiencing a premium increases of between 5 and 10 percent, sir?
MR. LUKE JOHNSTON: Yeah, that's true and it's not too surprising if -- if you consider the -- the average rate changes are, you know, 2.2 percent there's going to be somewhat of a -- a bell curve around that. Unfortunately, the range is 5 to 10 instead of maybe more detailed, five or six, seven but correct.
DR. BYRON WILLIAMS: So in that range

of increases of between 5 to 10 percent that will account for 25 percent of the vehicle population, sir?
MR. LUKE JOHNSTON: That's correct.
DR. BYRON WILLIAMS: And again, in terms of increases of between 10 to 15 percent that will be another 40 -- approximately 40,000 vehicles, sir?
MR. LUKE JOHNSTON: Correct.
DR. BYRON WILLIAMS: So well over 300,000 vehicles will have increases over 5 percent, sir?
MR. LUKE JOHNSTON: That's correct.
DR. BYRON WILLIAMS: And, sir, if we go up to figure RM-15, line 11, that line tells us, sir, that there will be over 200,000 vehicles experiencing premium increases of between 50 and $99; agreed?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: Accounting for between 17 1/2 and 18 percent of the -- of the vehicle population; agreed?
MR. LUKE JOHNSTON: That's correct.
DR. BYRON WILLIAMS: And again, going to line 12, an additional 98,000 vehicles experiencing premium increases of between a hundred and $149, sir?

MR. LUKE JOHNSTON: That's correct.
DR. BYRON WILLIAMS: Another 8 1/2 percent?
MR. LUKE JOHNSTON: Correct.
DR. BYRON WILLIAMS: So whether one looks in terms of the percent change or increases over $50 in terms of premium, sir, either way that accounts for over 25 percent of the vehicles?
MR. LUKE JOHNSTON: That's right.
DR. BYRON WILLIAMS: Mr. Johnston, yesterday you were kind enough to help me out with the Corporation's consideration of the concept of rate shock.
You recall that discussion, sir?
MR. LUKE JOHNSTON: Yes, I do.
DR. BYRON WILLIAMS: And as I recall that discussion and if you need a transcript reference, I'll give it to you, but as I recall that tran -- discussion, sir, you indicated that there was no definition of rate shock, but for Dynamic Capital Adequacy Testing the assumption was that the Board would not approve rate increases in excess of 5 percent?
MR. LUKE JOHNSTON: That's correct, and that -- that the intent of those comments were on

837

an overall basis. So, the graphic that we're still looking at on the -- on the screen does occur in every rate application whether it's 0 percent ask or 2 percent ask, this graphic here if -- so, let's say we didn't do the capital maintenance provision which maybe what you're interested in, would all shift down by 2 percent essentially.

So there is still -- be people that pay, you know, more than 5 percent or more than $50.

DR. BYRON WILLIAMS: And, Mr. Johnston, I don't want you to misunderstand the intent of my questions. I'll suggest to you that while our client fully understands the need to set driver and vehicle premiums in a manner that reflects the collective insurance risk they represent, would it be fair to say that if we were to look at rate shock from the perspectives of the bills of individual consumers rather than the overall rate increase, it is arguable that 25 percent of vehicles experience rate shock based -- based upon their individual bills?

MR. LUKE JOHNSTON: So that's a difficult question to answer. As the -- as the Board's aware, there are rules that we have, so, the experience adjustment rules plus or minus 15 percent, an overall cap of 20 percent, those in -- in some ways

838

are to control extreme rate shock, but I'm not going to pretend that, you know, 5 percent or a hundred dollar increase for a customer isn't a -- tough for them to swallow.

If we're talking about the need for perhaps a lower threshold or something like that to control those types of things, we would have to look at that in terms of the overall methodologies. It's 15 or 20 percent to high of a number, for example.

DR. BYRON WILLIAMS: And fair and I appreciate the thoughtfulness of that answer, Mr. Johnston.

It would be fair to say that as the Corporation currently looks at rate shock, it's a concept that applies to the collective average not to the individual consumers, sir?

MR. LUKE JOHNSTON: My -- my comments about the -- about 5 percent as being kind of a judgmental benchmark for rate shock on the overall basis, I -- that -- that would apply.

On the individual vehicles our historical threshold, at least in this regulatory process has been that 15 to 20 percent level. That was not set by me, obviously, but that's what it's been.

839

DR. BYRON WILLIAMS: Mr. Giesbrecht, I'm going to be coming to the Corporation's response to Information Request CAC-2-25 in a second but while we're going there, sir, to the extent that consumers are expressing concerns about rate stability, are they expressing concerns about their individual bills, sir, or some theoretical average?

Do you have an opinion on that?

MR. LUKE JOHNSTON: I can't speak for consumers but being a consumer I'm likely to compare -- look at my own rate and -- but I would in -- in some cases so, for example, if I heard MPI was going to have a 8 percent rate increase I would be very shocked by that, but at the same time, if I looked at my individual bill and it was zero, I would be like, well, lucky me right but...

So I would guess that consumers are most -- more concerned about their own bills.

DR. BYRON WILLIAMS: Mr. Giesbrecht, k recognizing that Manitoba Public Insurance employs quantitative opinion surveys as described in response to CAC-2-25 -- and we'll come to that in a second -- has Manitoba Public Insurance tested on a qualitative basis, i.e., through focus groups or similar tools whether consumer concerns about rate stability are

840

based upon individual rate changes, or the overall rate change to your knowledge, sir?

MR. MARK GIESBRECHT: I -- I'm not aware specifically around focus groups and speaking to those matters. I know we have a number of rolling polls and -- and surveys that assess a number of questions, including the appropriateness and reasonableness of rates and -- and what customers value.

But to your question specifically, I'm not aware of any.

DR. BYRON WILLIAMS: And I thank you for that, sir. To -- to your knowledge, in essence, Manitobans have told you they want stable rates, but you have not asked Manitobans to define what they mean by stable rates?

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And Mr. John -- or Mr. Giesbrecht, we are going to go through CAC-2-25, and in particular question 36.

But I -- my understanding is that to your knowledge through qualitative tools such as focus groups, Manitoba Public Insurance has not explored how

841

Manitobans define basic -- stable rates?
MR. MARK GIESBRECHT: I am not aware of any of that qualitative definition or understanding through focus groups. That doesn't mean it doesn't exist. I'm not aware.
I know in the Information Request that you mentioned, there is information in terms of the rolling poll that we can have a look at.
DR. BYRON WILLIAMS: Yes and we'll get right to that answer. And, sir, I'm not asking for an undertaking, but if someone downstairs or otherwise lets you know that there are stable rate definitions through focus groups we would love to -- we'd love to hear about it, but that is not an undertaking, just so I'm clear.
Directing your attention to the response to this Information Request. And the third paragraph. The fourth line, Mr. Giesbrecht, you'll see a reference that presently public comments are not subject to testing and do not assist the Public Utilities Board in making decisions relating to approving changes to the rates charged.
Do you see that, sir?
MR. MARK GIESBRECHT: I do.
DR. BYRON WILLIAMS: And -- and, sir,

842

and if you're not aware, this is -- we certainly won't hold it against you, but has Manitoba Public Insurance explored how, if at all, consumer presentations were treated during the last Manitoba Hydro General Rate Hearing?
MR. MARK GIESBRECHT: Not that I'm aware of.
DR. BYRON WILLIAMS: And, sir, are you aware whether or not rate peer panels have been employed by the Public Utilities Board in hearings relating to Manitoba Hydro or payday loans?
MR. ANTHONY GUERRA: Sorry, just with respect to this -- this line of questioning. This is the hearing before the Board on the application by Manitoba Public Insurance not Hydro.
So, to the extent that these questions relate to the situation before Hydro, MPI fails to see the relevance of further questioning on this issue.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: I don't explore -- intend to explore it at length, but certainly the Manitoba Public Insurance since the start of this hearing has talked about best practice and looking at - at consumer engagement and our client, we would

843

submit, is entitled to, at a light basis, explore what efforts it has made to -- to explore this concept.
MR. LUKE JOHNSTON: I -- I think in some cases, Mr. Giesbrecht and myself are not like the actuaries in conducting these type of polls, so, there may be work being done, but neither of us are deeply involved in -- in that work. So I know there's been talk of some of these E-panels and other -- other things that are happening in -- in MPI, but neither of us are intimately involved in that, that's all.
DR. BYRON WILLIAMS: Fair enough, and maybe taking this conversation outside this hearing to the next hearing, Mr. Giesbrecht, would Manitoba Public Insurance be open to a process prior to the filing of the next General Rate Application aimed at collectively collaboratively working with PUB advisors and stakeholders on key potential issues for public engagement such as, for example, the definition of stable rates.
MR. MARK GIESBRECHT: We currently have a project underway to work with our stakeholders and customers to understand their -- their needs and desires and expectations. And so I would want to defer and speak with that group in terms of the work that they're doing and how that could fit into that

844

project work.
DR. BYRON WILLIAMS: Sir, would you be prepared to come back after speaking to that group by way of undertaking and just share your thoughts?
MR. MARK GIESBRECHT: Yes, I would.
DR. BYRON WILLIAMS: So, the undertaking is to engage with the public engagement working group and provide feedback on whether or not Manitoba Public Insurance would be prepared to collaboratively engage with stakeholders such as my client as well as PUB advisors on potential tools of public engagement directly related to the ratesetting process.

(BRIEF PAUSE)

MR. STEVE SCARFONE: We're going to take a moment before we can make that undertaking, Mr. Williams. We want to check on -- the back row wants to check on some information.
DR. BYRON WILLIAMS: Yeah, that's -- that's fine. And we'll -- we'll move on. And Mr. Scarfone, because of my aging memory, if you can just -- I'll -- I'll ask you to come back with that response.

845

MR. STEVE SCARFONE: I -- I --
DR. BYRON WILLIAMS: Let's not trust me to --
MR. STEVE SCARFONE: Let's not trust me, either. Okay, no. I will -- I will remind you that we've promised you an answer on that undertaking.
DR. BYRON WILLIAMS: Okay.
THE CHAIRPERSON: Can I just ask a question on this? You're talking about that they would proceed with this, have a response back to you after talking to their group, before the end of this hearing. After -- I -- I'm trying to figure what the timing is on this. There -- there wasn't anything put forward, but they have to go through a process in order to respond to -- to you. I don't know how long their process going to take. I don't know if you're talking about -- you want a response prior to the end of this hearing or if we're going to have a response some time in the future.
The -- the other -- the other concern I have, Mr. Williams, is that your -- your suggestion essentially creates an obligation on the PUB, because you're -- the way you phrased it was in conjunction with the PUB, which doesn't have a policy in this --
DR. BYRON WILLIAMS: That's fine.

846

THE CHAIRPERSON: -- in this matter --
DR. BYRON WILLIAMS: Let me --
THE CHAIRPERSON: -- and -- and assumes that the PUB -- whether we would or not, but assumes that the PUB would be part of a process that we've never discussed.
DR. BYRON WILLIAMS: Let me rephrase my suggestion, then, sir. And I'm focused on the engagement with ratepayers -- with stakeholders.
MR. STEVE SCARFONE: Yes, and -- but the -- the reason --
DR. BYRON WILLIAMS: And in terms of the temporal -- okay. What I'll do, Mr. Chair, is I'll engage in some con -- conversations offline with Manitoba Public Insurance on this, and we'll see where it takes us, if it all.
THE CHAIRPERSON: Thank you.
MR. STEVE SCARFONE: Yeah. Thank you, Mr. Williams, because I think that the concerns that Mr. Chair raised were -- or what we're -- why we were reluctant to commit to that undertaking, because we don't know what time constraints -- or if that's going to be something that can be done before the end of the hearing, or next week, or next month.
DR. BYRON WILLIAMS: And I thank both

847

Manitoba Public Insurance and the Chair for his guidance.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Directing your attention to the -- the bottom paragraph on this page, Manitoba Public Insurance does see public opinion polling as guiding its corporate approach to rate setting at a strategic level, agreed?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: And one (1) of the insights from that polling that is important to Manitoba -- Manitoba Public Insurance is the desire of Manitobans expressed to maintain stable and fair rates, correct?
MR. MARK GIESBRECHT: Correct.
DR. BYRON WILLIAMS: And we've also agreed that your knowledge, it's not -- there's no definition of -- of what that means, whether it relates to the individual ratepayer, or -- or on average, agreed?
MR. MARK GIESBRECHT: I'm not aware of any, correct.
DR. BYRON WILLIAMS: If we could go now to Appendix 1 to CAC-2-25, and specifically page 1

848

of 8 for a second.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And just to the second bullet, sir, this is a summary of customer research flowing from the results of the twenty-seven (27) rolling -- 2017 rolling poll, but building on historic results, agreed?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: And the -- as the second bullet demonstrates, in terms of the value that Manitoba Public Insurance is perceived to provide to repay -- payers, price relating var -- price related varial -- variables have a strong impact, sir?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: As we've discussed, the strongest driver is stable and fair rates, correct?
MR. MARK GIESBRECHT: Correct.
DR. BYRON WILLIAMS: Another important driver is the cost of vehicle insurance?
MR. MARK GIESBRECHT: I see that.
DR. BYRON WILLIAMS: You're agreeing, sir?

849

MR. MARK GIESBRECHT: Yes.
DR. BYRON WILLIAMS: And sir, just in terms of -- going to the bottom of 2 -- of page 2 of 8, rate -- underneath rate, at the very bottom, please, Ms. Schubert. Sir, again, you'll see the reference to stable and fair rates. But I'll also suggest to you that in terms of the cost of vehicle insurance, it's described as being a moderate to key driver of perceptions of value consistently over time. Would that be fair, sir?
MR. MARK GIESBRECHT: That is fair.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: And sir, just to direct your attention to page 6 of 8, under -- underneath "price related independent variables," sir, in terms of how the polling tests the concept of maintaining stable and fair rates, under question 36, you'll -- this is how well that question is posed to ratepayers, agreed?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: There's no definition of what is meant by stable, agreed?
MR. MARK GIESBRECHT: Agreed.

850

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Ms. Schubert, if we can go to AR Appendix 4, section 2.32. Mr. Giesbrecht, captured in this -- this is the discussion from the Manitoba Public Insurance business plan, agreed, sir?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: And captured under section 2.32 are some discussion of public support, agreed?
MR. MARK GIESBRECHT: Agreed.
DR. BYRON WILLIAMS: And on the third line there, sir, you see a reference to a perceived lack of appeal options for unsatisfied customers. Do you see that reference, sir?
MR. MARK GIESBRECHT: I do.
DR. BYRON WILLIAMS: And sir, in terms of that perceived lack of appeal options for unsatisfied customers, does Manitoba Public Insurance possess research on the perceived lack of appeal options?
MR. MARK GIESBRECHT: I am not aware of any research that suggests a level of a perceived lack of options. I know there are number of options

851

available to customers that do exist. However, the -- the perception of that in the public, I am not aware of.
DR. BYRON WILLIAMS: Okay. In terms of -- in terms of the appeal process, are -- are you aware of what issues specifically you're talking about? Is it the no-fault plan? Is it the -- just for example, sir, what -- what are -- what is -- what is the Corporation talking about here?
MR. MARK GIESBRECHT: I believe what we're talking here is more on a -- a generalized basis, not specifically around a -- a particular portion or coverage of the policy that we offer to customers. It -- it is a potential risk that we have identified and want to ensure that we do mitigate and have things in place to address it. However, it was not put in place specifically to address an ongoing issue today.
DR. BYRON WILLIAMS: Okay. Thank you. So there's no research in the Corporation's poss -- possession suggesting that your -- your -- you have concerns at -- at a significant level from consumers on this issue?
MR. MARK GIESBRECHT: That will be subject to check. I -- I am not aware, but that

852

doesn't mean it does not exist, or others are not aware of information that could speak to that.
DR. BYRON WILLIAMS: Thank you. I want to turn to the issues relating to the management and reserving of long-tail claims, Mr. Johnston, and we're going to start with con -- CAC Information Request 1-57.
And just to the -- to the Board, we're focused on the claims, not on the BI3. But Mr. Johnston, just when one hears that acronym, BI3, can you generally and concisely describe what -- what is meant by that, to the Corporation's understanding?
MR. LUKE JOHNSTON: BI3, and correct me if I'm wrong, the Bodily Injury Improvement Initiatives are the three (3) 'I's. I haven't called it that probably since the first day it came out, but.
The -- it was a new claims management system for injury claims that was implemented in September 2010.
DR. BYRON WILLIAMS: And, Mr. Johnston, you'll agree that over the last number of hearings, our client, through -- through my commentary and -- and yourself, have been engaged in a discussion about adverse experiences the Corporation is experiencing in the post-BI3 era in terms of claims

853

that are longer than twenty-four (24) months?
MR. LUKE JOHNSTON: Yes, that's correct. We've -- we've seen a few issues, one (1) related to claims duration, so claims staying open longer, and the other one related to inadequate case reserving would be the other issue.
And just to be clear, obviously, a system doesn't cause these things to happen, but it's part of a -- a process where that occurred.
DR. BYRON WILLIAMS: And sir, whether it is claims -- well, when it's claims that lasts longer, whether through anyone's fault or not, all other things being equal, that means more costs to the Corporation, correct?
MR. LUKE JOHNSTON: Yes, it does. Yeah.
DR. BYRON WILLIAMS: And when it relates to issues such as inadequate reserves, sir, that has an influence in terms of the forecast of historic costs, as well as future costs, agreed?
MR. LUKE JOHNSTON: In a -- in a general sense, and I'll -- I'll explain what I mean. If -- in -- in today's world, if case managers suddenly stop putting reserves on the files, the actuaries would try to add IBNR reserves to cover for

854

that deficiency. New, or more pre -- like, more claims, or -- or increased persistence of claims is a different thing, that is you had an expectation, and I will say there is 20 percent more of them. That would, in normal course, not have been anticipated, and that would generate higher costs and increase the -- the forecast going forward.
DR. BYRON WILLIAMS: And if we can go to page 5 of 5, under subquestion (c) of CAC-1-57. And, sir, directing Mr. Johnston -- directing your attention to the second paragraph here, the Corporation provides its belief that their incremental claims costs that were incurred as a result of reducing case management employee base and the process changes, that created a more passive approach to injury management since 2010, agreed?
MR. LUKE JOHNSTON: Agreed. There's -- - there was -- there was very clear evidence that there were less employees in this area. There is a number of positions eliminated immediately on implementation of the system in 2010, and there some under -- other indicators that indicate that a more passive strategy, or less -- or the opposite, less aggressive claims management strategy was being employed at that time.

855

DR. BYRON WILLIAMS: And when we speak of a more passive approach to injury management, Mr. -- - Mr. Johnston, all other things being equal, that would tend to result in longer claims and more costs?
MR. LUKE JOHNSTON: As -- that's -- that's a -- a difficult one. Passive doesn't always mean bad, so mayb -- maybe if, by way of example, maybe there is a -- a large number of small claims where it makes more sense just to, you know, administratively deal with them through, you know, some kind of automated process.
But in this case, what we mean by passive is maybe more the claim wasn't maybe aggressively worked at the intake process, and it was allowed to maybe persist a bit longer, and -- and end up being a -- a longer-term claim than -- than necessary.
DR. BYRON WILLIAMS: And sir, if we could --
MR. ANTHONY GUERRA: Sorry, just to interrupt. And I don't mean to interrupt, but at the same time, this issue is going into the depth that we had suggested would be best explored by the IT, PDR, and value management panel. And so all I would suggest, Mr. Williams, is that some of these questions

856

may be best put to Mr. Wennberg.
DR. BYRON WILLIAMS: I -- I'm going to respectfully disagree. Absent guidance from the Board with -- because, Mr. Chair, from our perspective, these questions do not go to information technology. They go to the management of claims.
Now, if Manitoba Public Insurance would prefer us to -- so I'm not talking about the IT problems. I'm talking about the management problem, unless Manitoba Public Insurance is expressing a preference to have those questions which are properly part of the expense control put to Mr. Wennberg.
THE CHAIRPERSON: Quite frankly, I -- I think if this panel can answer it, then they can answer it. If this panel feels uncomfortable, or thinks that somebody is better qualified to answer it, then we can, you know, deal with it on Monday.
DR. BYRON WILLIAMS: And the challenge I'll pose, Mr. Chair, just to finish -- to finish the thought, is that some of the questions are -- I'm sure, go directly to Mr. Johnston. Other ones, you know, I can't.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: So, Mr. Johnston,

857

you'll advise me if you feel unable to answer them?
MR. LUKE JOHNSTON: Yeah. What I was going to say is that there are definitely questions related to the valuation of claims liabilities that I need to understand. If I think that the question is to deep into the claims management process, I'll defer that to Mr. Wennberg. And then if it's -- yeah, if that's IT related, I'll defer those as well.
DR. BYRON WILLIAMS: Going to page 3 of 5, and, Mr. Chair, I'm open to guidance on the Board on this. I -- going to page 3 of 5 --
THE CHAIRPERSON: I just want to make -- I just want to make it very clear, so that the panel understands, if you don't feel comfortable answering the question, and somebody is better able to answer, just say so. If you -- if you feel that you're the proper person, or you can answer it, I -- I think that's the way we should proceed.
MR. STEVE SCARFONE: Thank you for those comments, Mr. Chair.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Mr. Johnston, going to page 3 of 5, the first full paragraph, I guess this just reenforces the point, I'll suggest to

858

you, that some of the reduction in terms of long-tail claim -- or some of the increase in terms of long-tail claims that may be attributed partially to the reduction of employees, agreed?
MR. LUKE JOHNSTON: So that -- that is one (1) of the theories on why some of the increases occurred. So as I said, there's no question that staff were released, and that long-term claims increased, so we're investigating, I said, basically, whether that is, in fact, true.
DR. BYRON WILLIAMS: And sir, directing your attention to Information Response CAC-1-35(b), page 3 of 4, Mr. Johnston, you'll see a comment on the first two (2) lines of this that the reserving guidelines have not changed for PIPP claims open for twenty-four (24(months, but that the existing guidelines were not being followed post-BI3 implementation.
MR. LUKE JOHNSTON: Yes, I see that.
DR. BYRON WILLIAMS: And, Mr. Johnston, can you assist us in understanding for how long the existing guidelines were not being followed? Is this covering the period from 2010 to 2017, sir?
MR. LUKE JOHNSTON: In the actuarial valuation, pretty early in the process, I was clear

859

that case managers are having some difficulty putting reserves in the new system. So a pretty obvious result was that case reserving levels were down pretty dramatically. So, the response of the actuary in that case would be to add actuarial reserves or I -- IBNR reserves to -- to cover that.
And, yes, as the question states, one (1) of the reasons that the new Board decided to create the centralized reserving team and put it under -- under my accountability was to make sure that never happens again.
DR. BYRON WILLIAMS: And, Mr. Johnston, in terms of the failure to follow existing guidelines, how long did it endure til, sir?
MR. LUKE JOHNSTON: There were really issues from the date of implementation until last year was when we converted everything to centralized reserving. And by doing that, really, every claim more than twenty-four (24) months old on the income replacement side, I was -- the reserving was no longer in the hands of the -- the case manager and it was being reserved by the centralized reserving team.
So up until that point when those -- reserving was converted over, there were still not all, but -- but there were still claims that were

860

clearly not being fully reserved per guidelines.
DR. BYRON WILLIAMS: So, roughly, sir, we're talking a period of six and a half (6 1/2) years?
MR. LUKE JOHNSTON: Roughly.
DR. BYRON WILLIAMS: If we can go to attachment A to Information Requests CAC-1-36(a), and starting -- actually, that's perfect there, Ms. Schubert, in terms of the executive summary.
And -- and Mr. Johnston, this is a PowerPoint somewhat redacted, but which was presented to the Board of Directors of Manitoba Public Insurance in April of 2018, sir?
Subject to check, it's the page before.
MR. LUKE JOHNSTON: Okay, so this is a -- just look -- this is -- what IR is this?
DR. BYRON WILLIAMS: CAC-1-36(a), sir.
MR. LUKE JOHNSTON: I'm going to just go to that question, but yes, that's correct.
DR. BYRON WILLIAMS: And on the next page, the first bullet, you see the -- that this report or PowerPoint was in response to a request by the Board of MPI to examine the year-over-year variability in claims incurred in growth and reclaimed -- and retained claims? Agreed, sir?

861

MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And again, sir, when we speak of a growth in retained claims, that's a growth in cost to Manitoba Public Insurance ratepayers?
MR. LUKE JOHNSTON: That's correct.
DR. BYRON WILLIAMS: And the suggestion in this report is that that growth has been occurring since 2008, due to a variety of factors, sir?
MR. LUKE JOHNSTON: Yes. And I -- when we say a variety of factors, that's kind of getting to the point that there are other things happening in the world, like for example, you know, the treatment of mental health claims as an example of, you know, how maybe claims are handled differently. And this isn't necessarily all related to the system or number of staff that we have, some -- some of these issues may exist even without that. So we don't just throw all the blame on one (1) particular thing. So we'll do a proper deep dive and review those.
DR. BYRON WILLIAMS: And sir, if we go to slide 8, and direct your attention to the right-hand side, there is a suggestion on the fourth bullet

862

that one (1) of the challenges was that the majority of the case managers were ill-equipped to manage the complexity of claims. Agreed?
MR. LUKE JOHNSTON: I do see that at -- this area would start going on to Mr. Wennberg's expertise, because again, I know the general, yes, the general issues, but not the details.
DR. BYRON WILLIAMS: Okay, I'll reserve that question for the next witness.
Let's go to slide 11, sir. And was another of the concerns expressed that complex claims were only being actively managed in the later stages of the claim?
MR. LUKE JOHNSTON: Yes, that's true, and that again deals with -- with intake, the idea if you don't get on these claims early and immediately they -- they will become issues. So that -- that's surrounding that topic.
DR. BYRON WILLIAMS: And that again affects claim retention, agreed?
MR. LUKE JOHNSTON: That's the expectation, yes.
DR. BYRON WILLIAMS: And there is costs to claim retention. Agreed, sir?
MR. LUKE JOHNSTON: There is.

863

DR. BYRON WILLIAMS: On slide 12 there is a reference to a triage pilot project, agreed, sir?
MR. LUKE JOHNSTON: Agreed.
DR. BYRON WILLIAMS: And on slide 12 at the bottom, there is a suggestion that there was a small increase in claims closure rates so far.
Do you see that reference, sir?
MR. LUKE JOHNSTON: I do.
DR. BYRON WILLIAMS: And are you in a position to provide an update in terms of the analysis of claims closure rates?
MR. LUKE JOHNSTON: Well, I can tell you there's two (2) things working here, so on the actuarial side we monitor claims closure rates every month and monitor that.
I can tell you that at least in the area I'm most concern with the -- the longer term, I'm not seeing any substantial improvements, at least to date.
The -- the claims management area that's dealing with the -- we get about 17,000 injury claims per year. Obviously I'm not going to look at 17,000 claims, but -- so those are reserved more globally.
Once they become, you know, beyond a

864

year and they start falling to a few hundred claims, then I start tracking them a little more closer, but they -- this group may have -- have seen some small improvements in the -- in the minor claims coming in. So they would have to speak to that.
DR. BYRON WILLIAMS: And just so, and I thank you for that -- that delineation of duties, sir.
Just so that I understand your answer in terms of the longer-term claims, which are your focus, my understanding of the evidence is that you're not seeing a substantial improvement to date.
MR. LUKE JOHNSTON: I'm not the -- the recent years, right now, look very similar to the other years post at 2010. Obviously we're watching that very closely. The -- the intake staff or the additional thirteen (13) staff that are -- are being hired, that process just completed last month. So, obviously not reasonable to think that they would necessarily have an effect not being there.
But yeah, we do continue to watch that. And we obviously would be very happy to report if there was a change, but I haven't seen any yet.
DR. BYRON WILLIAMS: Slide 22, sir. You see reference on the last bullet to reviewing

865

overall progress quarterly with MPI actuarial department, agreed?

MR. LUKE JOHNSTON: Agreed. And I -- we actually meet every week.

DR. BYRON WILLIAMS: And are there reports prepared for that purpose, sir?

MR. LUKE JOHNSTON: There is a few different reports we look at, I mentioned one about tracking the claims persistence and -- and budgets would be another example.

We're working right now with -- a lot of the focus is on hiring the staff and making sure centralized reserving is working as intended. But our Board has made it pretty clear that we want to have regular reporting come to the Board in terms of compliance, tracking of persistency of claims types, things of that nature.

So those metrics and dashboards or whatever term you want to use are being developed with the intent of having them completely in place for next fiscal year.

But -- but that doesn't -- that's not to say there aren't -- there isn't regular reporting that we're monitoring, but a more formal kind of monitoring compliance, benchmarking framework is being

866

created.

DR. BYRON WILLIAMS: And that's a framework that will be in place for the next fiscal year, sir?

MR. LUKE JOHNSTON: That's correct.

DR. BYRON WILLIAMS: And Manitoba Public Insurance would be in a position to share that for the purposes of the next General Rate Application?

MR. LUKE JOHNSTON: We would.

DR. BYRON WILLIAMS: Mr. Johnston, I'm not sure if this is more properly put to the other MPI panel or not.

But you -- you would understand that Manitoba Public Insurance, in partnership with the Worker's Compensation Board, implemented an opioid medication policy on or about November of 2012?

MR. LUKE JOHNSTON: That one would definitely be better for the other witness. Thank you.

DR. BYRON WILLIAMS: Thank you.

Mr. Johnston, if -- if Ms. Schubert could pull up DSR page 10.

You'll recall a conversation that you had with My Learned Friend, counsel for the Public Utilities Board, regarding the residual risk model,

867

sir?

MR. LUKE JOHNSTON: Yes.

DR. BYRON WILLIAMS: And I'm going to be careful not to put words in your mouth, sir.

I understood you to say that you had some -- that in some ways that this model was attractive to you, but that -- but some of the consequences, and I wrote down the words "dramatic disruption."

Whether or not those are your exact words, sir, could you discuss the disruption, if any, that might be anticipated through this model to assist my clients to understand this?

MR. LUKE JOHNSTON: Okay. I guess I'll find out tomorrow if I said "dramatic disruption." I have now, I guess.

The -- so I guess the disclaimer output on -- on that, like the phrasing of the -- of the model is -- could create dramatic disruption if implemented, you know, just let's move right to the indicated numbers at a rapid speed.

So I understand that we wouldn't do that in this forum, at least that wouldn't be my expectation. But the -- the -- my comments were more around the -- the model so the -- the idea that maybe

868

more of the premium should be charged on an individual's driver's license, perhaps a lot more, would be pretty dramatic change to this model and it would -- you know, it would take some -- we would have to be very cautious in its implementation.

DR. BYRON WILLIAMS: And Mr. Johnston, in -- just -- it's dramatic in what way?

In the shift from -- from the vehicle premium to the driver premium? Is that what you're indicating?

MR. LUKE JOHNSTON: Yeah, well that's -- that's one (1) piece of it.

So, as you may or may not know, the -- the -- base driver's license is $45 right now and it's been that way for a long time, probably twenty (20) years, maybe -- maybe -- maybe more or less. But around that period.

I think regardless of what happens on the vehicle premium side, if we told everybody, you know, in a couple of years that that base driver premium was going to be $300 or $400, that might be a bit shocking to them, even though we wouldn't be asking for any more money, in total, so like the -- the revenue we're asking for today, that wouldn't change.

869

But the -- who is paying it and like, whether it's coming from the license or the vehicle insurance wouldn't dramatically change if you just blindly followed the indications of this model. That's where I think people would see the dramatic impact.

DR. BYRON WILLIAMS: And I appreciate that and just the last question on this, sir. And if you can't answer this, I totally understand.

But conceptually might go to a residual risk model have any implications for the magnitude or actual existence of the vehicle discount, sir?

MR. LUKE JOHNSTON: That would be a logical result, because if -- we do -- so these aren't hypotheticals that I'm talking about when I say that the driver DSR level is very predictive of the risk level regardless of whether you own a vehicle or not, that's factual, that's our own -- our own data.

So if you were getting at the driver ability through the license, then agreed that the need for a vehicle premium percentage discount would likely be dramatically reduced.

DR. BYRON WILLIAMS: And just conceptually, sir, in terms of the actual risks associated with the type of vehicle, you know, whether

870

it's more likely to be stolen or whether the consequences of someone injured in a crash, that is already addressed significantly through CLEAR and -- is that right, sir?

MR. LUKE JOHNSTON: That's correct.

DR. BYRON WILLIAMS: And again, the logic of the residual risk model is that it would be aimed at the risk associated with driver behaviour?

MR. LUKE JOHNSTON: Yes. The idea -- if we were to, as I mentioned, plot all drivers who are non-owners of vehicles on the costs -- cost per individual, in theory that could be the minimum that everybody should pay if -- just for having a license, because these, by definition, are several hundred thousand people that don't own a car, or at least not in their name.

That, in theory, could be the minimum that you charge those folks and the residual amount would be those additional things like what kind of car you bought, what territory you live in and things like that, that -- that said though, the territory and such as well may also apply to the license. It might -- in theory it could be cheaper to have a license in rural than in Winnipeg.

So DSR would just become a rating

871

variable in the same manner that the territory is today. Right now it's not. It's set by policy.

DR. BYRON WILLIAMS: There are some questions that -- from this conversation that I'm deferring to the other panel based upon Mr. Johnston's advice.

We have the two (2) exhibits that -- and discussion that I'm deferring as well to the discussion of Mr. Graham.

I don't think I have any undertaking, so Mr. Chair, with thanks to the MPI panel, that closes my discussion.

THE CHAIRPERSON: Thank you. I would ask the panel if they have any questions. Ms. Hamilton...?

BOARD MEMBER HAMILTON: To Ms. Campbell, you talked about the decrease in FTEs of 15, I believe, over four (4) fiscal years.

Can you tell me where those FTEs were vacant, or whether it required severing out existing incumbents.

MS. CYNTHIA CAMPBELL: There was probably a combination of both. In the fact that there would've been some vacant positions where they -- where it was restructured so that the position was

872

no longer needed.

There would have been, especially when it came to our management reductions, those were severed out.

BOARD MEMBER HAMILTON: Okay. Do you have an idea of what the cost -- the severance costs were and can you point to where they're reflected in your statements?

MS. CYNTHIA CAMPBELL: Severance is reflected within our compensation line. It is included in there. I would have to go to my detailed financials to be able to pull out a severance amount.

Yes, sorry. We don't know it off the top of our head.

BOARD MEMBER HAMILTON: Thank you. I have one (1) question for Mr. Johnston.

With regard to the vehicles for hire, my question is whether MPI at this point has enough claims experience for that group to determine whether the premium costs are appropriate for vehicles for hire or not.

MR. LUKE JOHNSTON: I would -- I would say no, but at the same time there -- we have that issue for a lot of other existing vehicle groups where there's a small sample.

873

So we're six (6) months in this -- this is clearly an evolving class of vehicles and it's -- the experience is probably going to change a little bit as we move.

But as you'll see in the undertaking, that we've -- we've agreed to do on the loss ratios, it at least appears right now that the -- the lowering of the premium for taxis appears to be reasonable. Again, very preliminary data. And there is a little bit of upward rate pressure on the passenger vehicle for hire.

So we -- we did the 20 percent increase on the -- on the -- on the all-purpose rate. Their loss ratio is above 100 percent right now, but it's not anywhere near the level that taxis are -- are operating at.

Could that all change? Maybe. But at least in the six (6) months, seven (7) months of data, it doesn't look like dramatic changes are needed.

And maybe just to expand a little bit more. MPI's intention was to follow the ratemaking model that we currently use, where, you know, we give a certain amount of credibility to the class's data and weigh that against their current rate and then gradually move that -- those classes to the indicated

874

rates. So they would be no different than how we treat anybody else.

BOARD MEMBER HAMILTON: Okay. Thank you.

THE CHAIRPERSON: I don't know if this is to Mr. Giesbrecht or Mr. Johnston.

Aggregate insurance, how long has it been in the marketplace? Sorry, for the re-insurance.

MR. LUKE JOHNSTON: We've talked about aggregate coverage for a -- for a while with our reinsurers. It's been more of a recent phenomenon for us in terms of why we need it. Prior to that, right. So in some of the previous years the recommendation from our re-insurance broker, Aon, was that the price ask was too much.

They were asking for, you know, maybe talking like $3 million to, you know, to get something that may be of questionable value. We're going to have to have that -- that conversation again this year.

So we have a particular -- what we would like to do is kind of lock in that hail budget at a maximum amount. But again, we have to evaluate the cost benefit of that. So we might be coming back and saying, for $2 million more, you know, we can lock

875

in the hail budget and take that volatility away. Is that worth the trade? So, it's always been available.

THE CHAIRPERSON: Kristen, could you go to page 25 of MPI's presentation?

Maybe I didn't catch it before, but right at the -- at the bottom you have this natural upgrade of the negative 2.1 percent.

Was that in last year's -- has this been -- this is the first time I can remember it. I'm just wondering if it was produced previously.

MR. LUKE JOHNSTON: Yeah, we have always included the upgrade. The intent of this table was to show everybody how this works and hopefully it achieved that. So you know, it's just a breakdown that per unit costs of everything, so --

THE CHAIRPERSON: But it has -- it was broken down previously as well?

MR. LUKE JOHNSTON: I don't know if we've ever presented the --

THE CHAIRPERSON: Part of just a big -- of a different category, because I -- I don't remember it actually sort of in this format where it was actually separated.

MR. LUKE JOHNSTON: It's quite possible that this -- this format has never been shown

876

to the Board, so the intent was to make it easier for everyone to understand. So hopefully that's -- that's been achieved.

THE CHAIRPERSON: Okay. The Professional Truck Driving Training Program was cancelled. Why?

(BRIEF PAUSE)

MR. MARK GIESBRECHT: We don't have the exact answer, but we'd be happy to get that back to you.

THE CHAIRPERSON: Yes, if you could. I mean, the world has changed since Humboldt. And I'm just wondering if MPI is -- if you could also find out if MPI is considered -- reconsidering it. I note that Alberta cancelled it and now they've gone to the Ontario model, which is actually an enhanced training program.

You know, I don't know, is there -- are there other training programs that are available or are -- are people able to get licenses to drive semi-trailers without the necessary training?

(BRIEF PAUSE)

877

MR. MARK GIESBRECHT: So, yeah, there is training in the marketplace. I mean, this was the -- MPI's subsidization of that training. I'm not aware of any plans that may have changed as a result of -- of the Humboldt tragedy.

THE CHAIRPERSON: Okay. Mr. Johnston, you -- you spoke about -- you were asked about rate shock and you mentioned that anything -- you thought anything over 5 percent would be considered rate shock. I'm just trying to go by memory, which is a dangerous thing.

Last year, the acting CFO made a comment as to what MPI thought rate shock was. Do you remember that discussion?

MR. LUKE JOHNSTON: I don't remember the details, no.

THE CHAIRPERSON: Okay.

MR. STEVE SCARFONE: I do, Mr. Chair.

THE CHAIRPERSON: Was it 3 percent?

MR. STEVE SCARFONE: Three percent.

THE CHAIRPERSON: Yes. So I'm just wondering last year Mr. Yien said 3 percent. This year you're saying 5 percent.

Has anything changed or is it just a different view or...?

878

MR. LUKE JOHNSTON: The context where I gave the original 5 percent was just -- we can check the transcript, but I believe what I said is in the Dynamic Capital Adequacy Test, we've -- we needed something that was considered -- there's a little bit of precedent in the past where past boards haven't asked for more than a 2 percent rebuilding fee at a time. And we also needed some sort of cap on the overall ask. We put in 5 percent in the DCAT.

So the only kind of guidance I have is that those DCAT assumptions, at least for approval of the range, have been approved by the Board through the approval of the DCAT, and so that's kind of my guide as to what seems reasonable.

THE CHAIRPERSON: Okay, thank you.

Any re-direct, Mr. Scarfone -- sorry, wrong counsel.

MR. ANTHONY GUERRA: Thank you, Mr. Chair. Actually, if we could, I know what we're getting close towards the end of this day, but we -- we really would like to have at least a five (5) minute break before.

THE CHAIRPERSON: Certainly, yes. That's fine.

So you know what, we'll adjourn until -

879

- we'll give you until 20 after and you can advise if there are any questions.

MR. ANTHONY GUERRA: Thank you.

THE CHAIRPERSON: Thank you.

--- Upon recessing at 2:08 p.m.

--- Upon resuming at 2:23 p.m.

THE CHAIRPERSON: So if we could resume. Is there any direct?

MR. STEVE SCARFONE: There is a few questions on re-direct, Mr. Chair. So, Mr. Guerra is going to start and then I'll have a couple of questions.

THE CHAIRPERSON: Okay. I just want to point out, because I was going to raise it before, the purpose of re-direct is to deal with issues raised for the first time in cross-examination or issues that couldn't be contemplated.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: They're not intended to reinforce your case.

I let it go the first time. There were, in the earlier re-direct, many issues which were raised in your direct, were dealt with in cross-

880

examination and then raised in re-direct. And it was simply repeating information put forward.

So I just -- I would like to just avoid that if we could.

MR. STEVE SCARFONE: Yes, thank you.

RE-DIRECT EXAMINATION BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: Thank you. Kristen, can I ask you to pull up the Information Request CAC-1-36, and in particular Appendix 1, slide 2? Yes, that's right. Thank you. This question I will pose to Mr. Giesbrecht or to Mr. Johnston.

You were asked questions on cross-examination about point number 3, the -- the modification of the PIPP claims reserving process in 2010, which resulted in a systemic under-reserving in operations and my understanding, based upon the questions being asked, was that it was being suggested that there was a deviation from -- from previously established guidelines or guidelines that had been established were not being followed.

Can you -- can you please explain further MPI's position on that? Were -- were guidelines actually not being followed, and if so, was there anything being done to respond to that?

881

MR. LUKE JOHNSTON: Yes, to be -- and Mr. Wennberg will talk a little bit about this, when I talk about these things I'm talking from the actuarial perspective, expecting reserves to be put in a certain way and they're not.

My understanding from the business is that the -- in particular the additional portion of claims, case managers had an optimistic view that they were going to return these folks to work and it was -- that was their expectation, and for that reason they didn't feel it was appropriate to put in the lifetime case reserves per the guidelines at -- at the twenty-four (24) month stage.

Obviously, as those claims didn't materialize as planned, they started having to put those reserves in, but it was -- it was delayed. So there -- there wasn't any sort of -- I don't know what, intent there to ignore the rules that we had there. It was an optimistic view, but it didn't turn out as they expected.

MR. ANTHONY GUERRA: Okay, thank you, Mr. Johnston.

My colleague will have some further questions on re-direct.

882

RE-DIRECT EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you. Kristen, could you please pull up rate-making figure 13, please?

Mr. Johnston, one (1) question concerning this figure that addresses some questions that Mr. Oakes put to you yesterday on ratemaking. Under the motorcycle column, you may recall he asked you to look first at line 23 and line 24.

As I understood your evidence, sir, where it reads 1.3 percent and underneath that at line 24, 3.4 percent, that reflects the inclusion of the capital maintenance provision. Is that correct?

MR. LUKE JOHNSTON: That's correct.

MR. STEVE SCARFONE: And you may recall from yesterday's testimony, that Mr. Oakes had suggested to you that that 3.4 percent could in fact be any number, whatever MPIC management may have deemed appropriate.

Do you recall that?

MR. LUKE JOHNSTON: I recall that, yes.

MR. STEVE SCARFONE: And he had suggested to you, sir, that for example, MPIC's management could include in that particular line a 5

883

percent increase if they so chose.

Do you recall that?

MR. LUKE JOHNSTON: I do.

MR. STEVE SCARFONE: If indeed we adopted what Mr. Oakes was suggesting and had a 5 percent number instead of the 2.1 percent, would that still, in your view, be a capital maintenance provision?

MR. LUKE JOHNSTON: No, it would not, for the -- well, we've laid out why we want the capital maintenance, but in that case, that really would be just an arbitrary number greater than the amount needed for capital maintenance. So I would call that a surcharge or a rebuilding fee, if -- if we did that.

MR. STEVE SCARFONE: Thank you. And then my last question, Mr. Chair, deals with CMMG 1-11, Appendix 1.

And again, Mr. Oakes asked you questions about the historical RSR ranges. Do you recall that, sir?

MR. LUKE JOHNSTON: I do.

MR. STEVE SCARFONE: And that there seemed to be a significant jump in those ranges in recent years.

884

Do you see that from the graphic?

MR. LUKE JOHNSTON: Yes, I do.

MR. STEVE SCARFONE: Is there anything other than the methodology that you mentioned yesterday that would account for those changes in your view?

MR. LUKE JOHNSTON: Yes, there is. So actually one -- one (1) particular item Mr. Oakes asked for, and I was only able to approximate. But I've since looked at the data.

So the one (1) question was at what kind of -- I believe this was Mr. Oakes -- at what rate are the li -- claim liabilities growing right now.

And using five-year averages they're growing at about 4 1/2 to 5 percent. This data could be provided to the Board, if necessary.

And so one (1) of the -- if we go back to, say, the beginning of this time period, 2003, the lia -- claim liabilities of the Corporation at that time were 883 million. And today they're 1.8 billion.

So, that's -- that's more than double. So the other reason that this would grow is for the reason we've talked about the -- we call -- and the growth in the -- in the business.

MR. STEVE SCARFONE: Thank you, Mr. Johnston.

So Mr. Chair, one (1) of the perils of not having Mr. Keith available is the -- that we don't have his expertise available, but Mr. Giesbrecht has -- has discussed with him on the break and has an answer to your question about the truck drivers.

MR. MARK GIESBRECHT: Yes. So, as provided by Mr. Ward Keith, MPI ended the program to support -- or with support of the MTA because of the framework had a well-established supported by industry and the funding was available from under -- other sources.

Also, this program of funding, it did relate directly to the SRE, the Special Risks Extension line of business.

And regarding Humboldt, the government has announced publically, they are looking at mandatory training for all class 1 drivers and MPI is a part of that working group.

The program we put in place and -- and framework we were fine with support of the MTA and industry carriers have been provided as one possible model for consideration by government.

MR. STEVE SCARFONE: Mr. Giesbrecht,

the acronyms that you're using?

MR. MARK GIESBRECHT: The MTA, I believe, is the Manitoba Trucking Association.

MR. STEVE SCARFONE: Thank you, those are all my questions.

THE CHAIRPERSON: Mr. Scarfone has been -- has been trained in the perils of acronyms, so. Thank you very much. That concludes our hearing today. We're going to adjourn now until 9:00 a.m. on Monday.

MS. KATHLEEN MCCANDLESS: Mr. Chair, if I could just pose one (1) question to MPI counsel.

Are there any updates on when PreAsk 1 might be responded to?

(BRIEF PAUSE)

MR. STEVE SCARFONE: So I'm told, Ms. McCandless, that we can have the -- the response to you on -- well, tomorrow, except for the scenarios that -- that Tyler will be running, which we expect to have by Monday.

MS. KATHLEEN MCCANDLESS: Thank you very much.

THE CHAIRPERSON: Thank you, we're

adjourned until Monday morning. Thank you, have a good weekend.

--- Upon adjourning at 2:33 p.m.

Certified Correct,

_____

Cheryl Lavigne, Ms.

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$1,400 746:10,17

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$14.6 784:4

$143.3 830:1

$149 835:25

$15 733:25 735:3 807:19

$16 731:21

$165.5 756:14

$174.9 757:4

$18.7 791:12

$2 731:22 784:23 790:22 874:25

$2.4 731:13

$2.65 765:22

$2.7 811:13

$20 832:22

$21 833:23

$22.5 785:6

$227.1 757:25

$25-$30 805:18

$25.7 785:9

$25.8 811:12

$278.6 756:5

$28.5 811:16

$293.2 757:13

$297.6 756:24 757:24

$3 874:17

$3.6 790:19

$30 732:24 734:2 781:3

$300 868:21

$31.6 736:6

$39.4 780:18

$400 868:21

$44.8 781:14

$45 732:18 868:14

$48.6 780:24

$5 734:7,13 830:11,13

$5.1 738:21

$5.6 790:18

$50 744:16 836:7 837:9

$6.7 781:15

$62.48 745:5

$63.44 745:3

$648,000 788:12

$650,000 774:19 775:8

$69.8 733:5

$7.1 788:17

$72.8 780:12

$720,000 766:3

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$800 746:7,16 805:24

$81 747:17

$822 744:8

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$930,000 768:18

$99 835:16

0

0 728:15 754:10 837:3

0.1 730:11,13 738:2 743:23 748:21 749:17 750:17

01 728:11

1

1 726:6 728:19 734:3,25 735:3,6 737:13,16 740:9 748:15,19,25 756:13 758:17 760:8,9,13 761:18 765:12,21 766:7 768:16 770:3 772:1 774:15,24 790:17 792:4 793:13,23 798:23 809:3 810:20 816:20 817:15,16 819:5,19 822:3 824:18 830:17 831:8 847:11,25 853:3 858:6 859:8 861:20 862:1 868:12 872:16 880:10 882:5 883:18 884:8,11,18 885:3,19 886:12,13

1,762 776:12 777:3,14 778:14,24

1,878.1 776:7

1,884 776:15

1,889 776:13

1,901 778:11,15

1.3 882:11

1.35 769:24

1.5 728:17 730:23 745:5

1.75 740:5 762:4,12,19,23 763:18

1.8 733:10 884:21

1/2 835:20 836:2 860:3 884:16

1:02 829:12

10 731:17 755:20 764:18 776:3 788:10 829:6 834:16,22 835:1,5 866:22

10.2.1 801:10

10:26 786:2

10:47 786:3

100 873:14

11 788:16 823:16 835:14 862:10

11.8 813:8

11.9 813:8

11:00 785:25

11:44 829:11

1-11 883:18

12 776:5 827:25 835:24

863:1,4
13 766:25 768:19 823:16 864:17 882:4
13.8 829:24
130/'17 812:6 813:24
1-35(b 858:13
14 720:3 767:15 771:14 784:1
1-45 791:3
15 720:6,8 769:18 770:23,24 771:10,19 783:7 806:18 820:1 835:5 837:24 838:9,23 871:17
15/'16 807:16
1-54 791:21 792:5
1-57 852:7
16 720:18 789:23 798:8
16/'17 807:16
17 721:3 738:16 764:17 800:17 823:23 829:23 835:20
17,000 863:1,4
17/'18 738:15 740:15,17 741:2 763:23
17'18 738:13
17-year 805:4
18 716:23 721:13 767:15 789:15 826:1 829:22 835:20
18.7 791:23
18/'19 737:14 741:3 759:22 760:14 761:1 762:9,10 763:20 764:2,23
1884 779:22
1889 779:22
19 739:12 810:21
19/'20 737:13
1998 724:13

2

2 724:1 726:6 730:1 733:13,19,24 736:21 737:10 739:5 740:7 744:5 745:13 746:20 760:8,9,13 761:13 762:6,9,11,22 763:17 765:12 768:15 771:25 776:20 777:23 786:24 790:13 793:8 813:7 817:15 832:1 837:3,7 849:3 858:14 863:13 871:7 878:7 880:11
2.1 730:12,16 743:24 745:20 747:21 749:1,19 875:7 883:6
2.2 730:10 738:21 749:20 761:13 762:19 834:20
2.3 747:20
2.32 850:4,10
2.37 833:19
2.39 731:1
2.9 739:23 761:10
2:08 879:6
2:23 879:7
2:33 887:4
20 735:19 759:9 813:19 820:2 823:23 837:25 838:9,23 854:4 868:15 873:12 879:1
20.1 759:14
20.4 738:9
20.9 759:9,11,24
20/'19 733:7
20/'20 733:7
20/'21 739:24 812:21
200,000 835:15
2003 884:19
2008 861:9
2010 852:19 854:16,21 858:23 864:15 880:16
2011 831:5
2012 866:16
2013/'14 829:25
2014/'15 738:9 829:24
2015/'16 829:24
2016 829:23
2017 769:17 802:20 803:20 804:23 829:21 831:2 848:8 858:23
2017/'18 755:22 756:4 759:11,17 765:21 766:21 776:8 811:11 829:22
2017/2018 729:4
2018 716:23 719:4 740:13 747:15 765:22 777:14 784:1 788:16 789:14,18 792:18,22 793:1 813:19 823:17 860:13
2018/'19 739:24 756:23 757:3,24 758:21 759:5,6,18 760:10 761:6 767:1 773:8 774:17 790:11,12
2019 736:17 740:13 743:1 792:19

793:3,13, 17 834:2
2019/'20 730:9 738:9 757:12 759:14 761:10 773:10
2019/2020 716:6
2020 767:12 823:19 826:11
2020/'21 761:13 767:13 772:4
2021/'22 772:5
2022 738:4
2022/'23 758:14
2023 738:4
21 731:24 751:8
22 759:20 864:24
22.8 736:6
23 882:9
23.5 759:4,5,24 829:25
24 720:7 769:23 770:5,24 771:11,21 775:20 853:1 858:16 859:19 881:13 882:9,12
25 727:16 792:15
805:22 827:25 831:12 835:2 836:8 837:19 840:22 875:4
25.6 738:8
27 759:20 848:8
27,(sic 808:1
27/'18 758:13 788:5
276 756:7
276.6 756:10
28 756:3,22
29 786:20
29/'18 813:6
290,000 834:15
297.6 757:1

3

3 718:6 722:7 723:4 733:13 739:21 743:22 748:24 761:18 763:9 768:4 772:12 776:22 780:10 786:20 787:12 817:19 818:2 819:1,4
852:15 857:9,11, 24 858:13 877:19,22 880:14
3.21 793:3,10 794:14 797:5 798:5
3.31 811:2
3.4 882:12,17
3.47 811:2
3.5 737:6 762:13
3.82 793:2
30 784:10 804:17 805:23
30.5 781:6
300,000 835:10
3000 804:24
31 808:1
33 816:1
330 716:21
36 840:22 849:19

4

4 721:10 744:2 763:5,17 772:2 799:23 801:3 802:6 815:25 817:3 850:4 858:13 871:18 884:16
4.2.6 798:18
4.3 815:11
4.5 737:7
4.9 761:5 762:16 765:6
40 760:7 835:6
40,000 835:6
400 716:21 748:10,11
42.3 780:22
4200 804:24
43 732:22 759:3
44 807:24
45 792:5 829:4
45.1 829:23
49.1 766:21

5

5 729:25 744:17 756:13 757:3 760:23 766:20 768:4 775:17 805:21,25 806:23 829:20 830:1 834:16,22 835:1,10 836:22 837:9 838:2,18 854:9 857:10,11 ,24 877:9,23 878:2,9,21 882:25
883:5 884:16
5.1 822:22
5.2 738:9
50 735:17 737:22 762:5,13 805:20 831:8 835:16
51 767:12
52.6 829:24
58 739:14 757:7
59 756:18

6

6 724:20 725:8 756:13 761:4 791:9 822:15 849:16 860:3 873:1,18
6,000 784:14,16
6.4 732:7
67 805:5

7

7 873:18
7.1 789:6
7.4 732:8
70 732:24 744:15
716 716:24
719 718:3
720 718:4
721 718:12
727 719:3
755 718:13

76 758:18
76.3 758:21
771 720:7
783 720:17
789 719:4
798 720:21

8

8 776:21 807:23 822:15 831:2 834:14 836:2 839:13 848:1 849:4,16 861:24
8.3 829:23
800 721:12
800,000 833:14
826 721:16
832 718:14
880 718:15
882 718:16
883 884:21
887 716:24 718:20

9

9 774:18
9:00 886:9
9:06 722:1
90 834:1
93 729:24 732:5 747:17
93.12 792:23
98,000 835:24

A

a.m 722:1 786:2,3 829:11 886:9
AAP 728:14 743:23 749:16
abeyance 813:8
ability 820:7 869:20
able 739:22 760:17 764:1,13 765:4,8 767:18 768:4 769:17 770:22 774:25 777:24 778:6 803:14 804:7 807:18 826:9 857:15 872:12 876:22 884:9
absence 740:21
Absent 856:3
absolutely 752:1 766:9
accept 760:6
accepted 743:8,13
according 756:18 757:7
account 721:4 799:5 800:6,18 834:1 835:2 884:5
accountability 859:10
Accountancy 724:9
accountant 724:7,11 760:1
accounted 748:14
accounting 725:17,20 741:15 742:14 752:18,24 753:5 754:13 835:19
accounts 725:16 834:1 836:7
accurate 752:14 819:2,9,13,14,17
achievable 806:3
achieved 875:14 876:3
acronym 852:10
acronyms 886:1,7
Act 750:2 827:16
acting 877:12
active 766:5
actively 737:2 862:12
activity 737:1
actual 720:14 721:4 731:20 755:23 756:3 765:21 766:16,20 776:6,11 778:23 779:11 783:1,16 789:25 790:5,19 795:24 796:21,24 799:5 800:6,19 869:12,24
actually 741:14 750:2,4,21 760:2 762:25 763:7,12,23 764:14,18 768:12 793:20 799:19,21 801:22 806:10,12 807:11 819:8 824:14 860:8 865:4 875:22,23 876:18 878:19 880:24 884:8
actuals 777:16 791:11
actuarial 743:8,13 763:6 813:12 814:3 858:24 859:5 863:14 865:1 881:3
actuarially 812:22 814:9 816:6 821:11
actuaries 843:5 853:25
actuary 723:17 803:3 807:24 808:5 859:4
actuary's 807:25
add 752:17 754:6 760:2 798:3 801:17 824:7 853:25 859:5
added 748:20
adding 800:11
addition 828:2
additional 749:25 750:18 768:17

800:11
802:3
835:24
864:17
870:19
881:7

additions
730:20

address
817:2
851:16,17

addressed
870:3

addresses
882:6

adds 759:22

Adequacy
836:21
878:4

adjourn
878:25
886:9

adjourned
887:1

adjourning
887:4

adjust
809:24

adjusted
808:6

adjustment
748:2
769:9
811:13
837:24

administratively
855:10

admitted
816:5

adopted
727:3
802:19
803:21
883:5

adoption
805:8

adverse
852:24

advice
871:6

advise
787:14
826:9
857:1
879:1

advisors
727:12,13
843:16
844:11

affected
799:14

affecting
744:12

affects
862:20

Affirmed
718:10
723:8

afternoon
831:22

against
735:21
764:4
842:2
873:24

age 731:7

agenda
728:3

aggregate
734:25
831:11
874:7,10

aggregation
834:8

aggressive
854:24

aggressively 855:14

aging 763:4
844:23

agreed
814:11
815:4
822:20
833:1
834:11,12
835:17,18,21
847:9,10,18,21
848:9,10,16
849:21,22,24,25
850:7,8,11,12
853:20
854:16,17
858:4
860:25
861:1
862:3,20,24
863:2,3
865:2,3
869:20
873:6

agreeing
848:24

agreement
832:4

ahead
831:20

aimed
843:15
870:8

Alberta
876:17

aligned
764:21

allocated
738:17
757:18,25
758:13,17

allocation
757:16
758:6
794:10

allocations
795:25
796:20

allow
734:25
770:12

allowance
764:4
779:20
780:3

allowed
855:15

all-purpose
873:13

ALM 810:14

already
723:25
747:23
761:9
801:19
870:3

alternatives
815:11,13,18,19

am 724:7,16
725:6
765:10
775:15
807:21
841:2
850:23
851:2,25

amazing
833:9

among 821:2
822:3

amortization 741:4
758:25
760:12,21,22 761:1

amortized
760:24

amount
720:18
732:23
735:3
765:23
777:25
784:4
797:23
798:8
807:20
811:19
831:12
870:18
872:12
873:23
874:23
883:13

amounts
736:4
749:25

analogy
741:9

analysis
736:1
765:8
767:7
782:8
809:4
816:15
863:10

analyzed
822:16

announced
885:18

annual
739:17,23
776:16
806:3
830:24
831:2

Annually
737:4

annum 737:7
739:22

answer
751:24
752:10,12
754:15

760:17
764:7
797:15
803:23
837:22
838:11
841:10
845:6
856:14,15,16
857:1,16,17 864:9
869:9
876:11
885:7

answering
857:15

Anthony
717:7
718:12,15
723:2,12,13
724:10,14,17,21,25
725:4,7,11,21
726:1,7,13,18,22
727:1,6,8,10,23,24
729:12,19
745:15,16
749:21
750:14,23
792:1
842:12
855:20
878:18
879:3
880:7,8
881:21

anti 731:11

anticipate
730:22
732:12
769:2,9
795:25
796:21
810:18
833:9

anticipated
732:4
811:24
854:5
867:12

anticipates
823:23

anticipating 767:10
772:3

anticipation 798:24

anti-theft
731:12

anybody
874:2

anymore
795:21
796:3
810:16

anyone's
746:11
853:12

anything
725:19
810:3
816:21
817:11,14
845:13
877:8,9,24 880:25
884:3

anywhere
873:15

Aon 874:14

apart
754:12

apologies
742:19
792:7

apologize
772:18
781:10
801:12,15

apology
742:22

apparently
803:17

appeal
850:15,19,21 851:5

APPEARANCES
717:1

appears
761:17
766:20
784:25
873:7,8

Appendix
776:3,19
789:22
810:20
847:25
850:4
880:10
883:18

applicable
740:21

application
716:6
725:24
728:13,23
729:18
730:10
731:1,14
732:4,7
733:5
735:7
736:8,18,23,25
738:19,22
740:13,14
743:2
744:15
745:7
747:13,15
752:4
776:21
793:4
794:18
795:9
798:21
831:3
833:17
834:9
837:3
842:14
843:15
866:8

applications 739:6
795:15,16

applied
728:11
740:19

applies
745:23
838:15

apply 828:8
838:20
870:22

applying
828:10

appointed
807:25

appreciate
773:15
838:11
869:7

appreciated
782:10

approach
742:7,11
795:9
810:16,25
847:8
854:15
855:2

appropriate
769:7
779:9
785:22
804:25
872:20
881:11
882:19

appropriately 832:3

appropriateness
735:24
840:7

approval
878:11,13

approve
836:22

approved
773:3
878:12

approving
841:22

approximate
830:12
884:9

approximately
737:13,22
739:14
757:7,25
763:9
765:22
767:12
784:10
788:18
790:22
791:12
835:6

approximation 795:6

April
860:13

AR 776:19
850:4

arbitrary
883:12

area 804:7
854:19
862:5
863:17,20

areas
735:21

aren't
865:23

869:14
arguable 837:18
arising 798:17
aside 832:6
aspects 752:13
assess 735:24 840:6
asset 808:9
assets 795:20 796:25 808:15,22 832:25
assigned 789:10
assignment 816:24 817:12 819:12
assist 767:15 801:14 841:20 858:21 867:12
assistance 768:21 800:4
Assistant 723:22
associated 720:9 736:4 737:6 774:2 782:11 783:9 816:14 869:25 870:8
Association 886:3
assume 741:23 800:13
assumed 747:15 792:18 794:9,10
assumes 846:4,5
assumption 740:6 762:5 806:21 836:21
assumptions 762:18 878:11
asterisk 766:24
attachment 807:23 860:7
attempt 749:13
attention 833:13 834:14 841:16 847:6 849:16 854:11 858:12 861:24
attractive 867:7
attributed 858:3
August 777:14
automated 855:11
automatic 817:11
automobiles 787:17
available 721:11 754:19 801:5 802:7 816:19 851:1 875:2 876:21 885:4,5,12
Avenue 716:21
average 731:7,23 739:23 744:5,6 745:12 775:24 776:12 777:2,7,13 793:23 794:13 805:22 812:13 813:10 818:1,4 834:20 838:15 839:7 847:21
averages 884:15
avoid 751:25 754:4 880:3
avoidance 737:18
aware 760:17 812:6 825:18 831:1 837:23 840:4,11 841:2,5 842:1,7,9 847:22 850:23 851:2,6,25 852:2 877:4
away 875:1

B

Bachelor 724:9
background 724:4
backwards 829:22
bad 803:12 855:7
baked 780:3 830:13
balance 823:17
bands 764:17,19
bank 805:1
banking 725:16
barely 805:21
base 732:18 742:8 854:14 868:14,20
based 732:8 734:18 736:9 740:19,21 745:4 774:22 779:23 812:23 813:13 815:2,22 817:13 818:20 820:18 837:20 840:1 871:5 880:17
basic 729:22 730:3,18 732:14 738:1,10,17,20 739:4,22 743:5 744:24 750:18 757:18 758:1,6,13,17,24 772:11,16 780:18 781:2 786:10 788:4 789:23 791:14,23 805:19,23 807:25 811:11 827:13 841:1
basically 746:18 747:1 749:17 858:9
basis 728:14 732:12,20,22 746:2 777:24 781:8 787:23 789:24 794:1,19 796:19 811:25 817:24 818:2 828:11 830:12 837:1 838:20

839:24
843:1
851:12

bearing
772:24

bears
749:23

beater
820:15

become
862:17
863:25
870:25

becomes
809:25

begin
727:25

beginning
794:3
829:21
884:19

begins
829:16

begun
825:19

behaviour
733:1
870:8

behind
810:6

belief
768:3
854:12

believe
722:18
754:14
764:15
765:13
767:22
770:4
773:22
784:9
789:15
791:19
797:14
804:6
805:5
807:16
824:9
830:23
831:2
851:10
871:18
878:3
884:12
886:3

believes
822:15

bell 834:21

benchmark
838:19

benchmarking 865:25

benefit
749:11
762:24
803:9
822:10
874:24

benefits
729:1
761:18
763:2
805:1

best 779:8
818:15,20
842:24
855:23
856:1

better
764:15
806:25
808:23
819:18
830:22
856:16
857:15
866:18

beyond
741:3
749:12
863:25

BI3
852:9,10,13

bigger
750:21
800:13

biggest
744:2
745:11
761:21

bill 839:15

billion
732:4,13
884:21

bills
837:17,20
839:6,18

Bison 787:1
791:6

bit 724:2
728:14,24
730:1
732:14
733:6,14
743:16
744:19
745:22,25
747:2
757:23
793:21
798:19
807:1
810:23
817:10,16
855:15
868:22
873:4,10,20 878:5
881:2

blame
861:20

blindly
869:4

blip 738:13

blue 804:21

Board
716:1,12,13,14,15,16,20
717:3,4
724:24
725:1,3
773:3
799:4
800:5,12
801:22
802:23,25
803:5
809:2
812:7,10,17,20
813:3,6
823:18
824:21
829:19
831:1
832:5
836:21
841:21
842:10,14
852:8
856:3
857:11
859:8
860:12,23
865:14,15
866:15,25
871:16
872:5,15
874:3
876:1
878:12
884:17

boards
878:6

Board's
837:23

bodily
785:2
852:14

bond 794:11
796:6,12,20,24

bonds
794:12,23
795:19,21
796:3
809:5,8,10,21,25

book 809:5

books
741:19

bottom
747:25
756:22
757:11
768:16
770:3
773:4
775:21,22
785:3
808:4
810:21
811:3,22
812:8
847:6
849:3,4
863:5
875:6

bought
870:20

bound 737:9

break
755:12
775:18
785:23
829:9
878:22
885:6

breakdown
729:21
767:19
774:16
830:7
875:14

breakeven
728:11,17
730:12,13
745:21
746:2,4
798:23

break-even
748:21
749:7,25

827:7
BRIEF
763:14
771:1
772:21
774:5
775:3
782:3
792:25
795:11
796:16
797:9
800:1
804:13
805:12
806:6
809:18
823:4
826:16
840:18
844:15
848:3
849:13
850:1
876:8,25
886:16
briefly
729:11
bring
749:19
751:23
broader
770:13
broken
875:17
broker
874:14
brought
729:11
755:2
budget
733:7
756:23
763:24
764:2,3
788:24
789:1
790:12,18
791:11
805:18
874:22
875:1
budgeted
765:23
766:17,21
780:4
789:24
790:5
budgeting
723:24
725:17
budgets
865:9
build
779:20
816:13
building
737:17
787:9,21
848:8
buildings
790:18
791:4
built
773:24
built-in
773:20
bullet
743:5,21
761:24
766:1
808:4
848:6,12
860:21
861:25
864:25
bunch
807:17
business
730:3
732:15
739:2
748:13
769:6
770:6,10
772:11,13
778:25
781:2
803:11
850:6
881:6
884:25
885:16
businesses
772:10
buy 746:8
buying
731:4
Byron 717:9
718:14
753:10,14,18,23
801:11
829:2,6
831:21
832:12,13,24
833:3,7,16,22,25
834:6,13,25
835:4,9,13,19,23
836:2,5,10,16
837:10
838:10
839:1,19
840:12,20
841:9,25
842:8,20,21 843:11
844:2,6,21
845:2,7,25
846:2,7,12,25
847:4,5,11,17,24
848:5,11,17,21,24
849:2,15,23
850:3,9,13,18
851:4,19
852:3,20
853:10,17
854:8
855:1,18
856:2,18,24,25
857:9,22,23
858:11,20
859:12
860:2,6,17,20
861:2,7,23
862:8,19,23
863:1,4,9
864:6,24
865:5
866:2,6,10,20
867:3
868:6
869:7,23
870:6
871:3

C

CA 724:8
CAA 717:14
CAC 717:9
791:21
852:6
858:12
CAC-1-36
880:10
CAC-1-36(a
860:7,17
CAC-1-57
854:9
CAC-2
840:21
CAC-2-25
839:3,22
847:25
Cadillac
820:15
calculated
796:23
calculating
794:1
calculation
763:6
797:1
810:10
calculations 743:11
814:5
calculator
760:1
Campbell
718:10
722:19,22
723:8,19,25
724:6,13,16,19,23
725:2,6,10,14,25
726:3,11,19,21
727:8,9
728:5
736:13,14
741:5,7,10,13,17,24
742:4,15,19,23
752:3
754:18
755:1,19,25
756:6,9,16,20,25
757:5,9,14,20
758:2,8,15,19,22
759:1,12,15,19
760:11,19
761:7,11,15,20
762:1,8,2

0 763:16 764:10,14 765:7,19, 24 766:4,18, 22 767:4,8,1 6,21 768:10,23 769:19 770:1,4,7 ,14,19 772:6,9 774:21 775:5,10 776:1,9,1 4,17,25 777:4,10, 16 778:12,16 779:6 786:22 787:3,7,1 0,14,17 788:7,13, 19,22 790:1,8,1 5,20,24 791:2,13, 18 792:6 832:16,23 833:2,6 871:17,22 872:9

Canadian 724:24 725:1,3

cancel 787:8

cancellatio n 775:11 786:24

cancelled 775:13 788:1 789:10 876:6,17

cap 734:12 735:1 741:18 837:25 878:8

capital 730:12,17 733:22 743:23 749:1,18 755:13 786:9,16 788:4,9,1 1,17,23 789:9,10, 23 824:15 836:20 837:5 878:4 882:13 883:7,11, 13

capitalizat ion 742:1

capitalized 740:23 741:19 742:6

capitals 730:17

captured 850:5,9

car 746:8,13, 16,17 817:5 870:15,19

care 824:18

careful 867:4

cargo 734:11

Carol 716:15

carriers 885:23

cars 731:9 815:25 817:3 818:18

case 745:23 746:18 767:2 853:5,23 854:14 855:12 859:1,3,5 ,21 862:2 879:22 881:8,12 883:11

cases 839:12 843:4

cash 747:12 793:10 794:20 797:5

cast 794:20

casualty 734:6

catastrophi c 733:25

catch 875:5

categories 721:11 773:6 794:11 796:20 799:24 801:4 802:6

category 739:13 875:21

cause 734:9 786:13 821:19 853:8

caused 785:12 811:1

cautious 803:12 868:5

centralized 859:9,17, 22 865:13

centre 775:22

centres 787:2,13

CEO 734:23

certain 735:2 774:16 799:1 873:23 881:4

certainly 753:11 801:17 842:1,22 878:23

Certificate 718:20

Certified 887:7

cetera 814:22

CFO 877:12

Chair 722:6,16 723:14 754:6,17 775:15 801:11 832:10 846:13,20 847:1 856:4,19 857:10,20 871:11 877:18 878:19 879:12 883:17 885:3 886:11

Chairperson 716:13 722:3,13, 17,21 723:1,10 741:5,8,1 1,16,21 742:3,13, 16,21 751:4 752:2,25 753:13,17 ,22,25 754:21,25 755:4 785:24 786:5 828:24 829:5,8,1 4,15 832:21 845:8 846:1,3,1 7 856:13 857:12 871:13 874:5 875:3,16, 20 876:4,13 877:6,17, 19,21 878:15,23 879:4,9,1 5,21 886:6,25

Chairperson 's 831:23

challenge 856:18

challenges 753:19 862:1

change 720:13 721:5 730:10 731:9 733:11,13 734:21,22

735:9
740:4
743:10,13
744:11,16
746:11
748:6
758:5
760:4
764:13
765:3,12,14 769:25
777:7
778:5
783:1,15
791:1
798:22
799:6
800:7,20,21 807:7
808:12,13,22,23
810:3,25
827:14,20
833:19
834:5
836:6
840:2
864:23
868:3,25
869:3
873:3,17

changed
735:19
763:19
764:9
787:18
789:8,9
795:23
858:15
876:14
877:4,24

changes
729:8,15
730:19
731:2
733:8,9
734:18
736:7
749:9
758:4,9
770:18
782:1
798:17
809:3,9
822:25
826:12,25
827:5,12
834:20
840:1
841:22
854:15
873:19
884:5

changing
737:19
791:5
810:18

characteristics
731:6

charge
732:19
734:16
784:23
820:16,18,22 828:8
870:18

charged
731:19
815:22
827:16
828:10,16
841:22
868:1

charges
735:15

charging
745:2
820:13

chart
732:17
739:3
744:1

chartered
724:7,11

che 828:16

cheaper
870:23

check
730:15
760:6
784:14
844:19,20
851:25
860:14
878:2

Cheryl
887:11

chief
723:16,18

chose 883:1

CI 801:10

CI-49 804:8

CI-60
806:13

circulated
727:11

cite 792:4

cited 831:1

CityPlace
786:25
787:9,23
791:7

claim
743:19
746:14
783:25
784:8
804:11
807:18
811:11
855:13,16
858:2
859:18
862:13,20,24
884:13,20

claims
721:9
730:14
731:20
745:10,12
746:19
769:8
785:1,2,7,8 795:18
801:1
802:5
803:5,8
805:9,23
806:2
811:1,11
812:13
813:10
818:24
819:3
852:5,9,17,18,25
853:4,11
854:2,13,24
855:4,8
856:6
857:4,6
858:3,8,15 859:25
860:24,25
861:3,15,16
862:3,11,16
863:6,11,14,20,22,23
864:1,4,10
865:9,16
872:19
880:15
881:8,14

clarification 830:17

clarify
771:7
797:22

class
744:1,11
799:12
833:13,14,18 834:1
873:2
885:19

classes
744:2,7
746:3
873:25

class's
873:23

cleaned
734:11

clear
729:14
752:15
775:6
782:7
799:10
807:3
810:14
821:24
841:15
853:7
854:18
857:13
858:25
865:14
870:3

clearly
745:19
860:1
873:2

client
837:13
842:25
844:11
852:22

clients
867:13

climate
807:6

close 721:6
744:4
775:17
800:8,21
878:20

closely
799:10
864:16

closer
768:11

779:11
864:2

closes
871:12

closure
863:6,11,14

CMMG 717:12
820:20
883:17

CMP 729:9
730:16
738:3

co 773:6

collaborated 770:10

collaboratively
843:16
844:10

colleague
881:23

collect
807:20
816:20
821:9

collection
824:5

collective
837:15
838:15

collectively 843:16

collegial
753:12

collision
746:25

column
793:2
882:8

combination
871:23

combine
770:11

combined
739:21
740:6
829:25

comes
732:23
733:15
755:9
815:25

comfortable
857:14

coming
737:7
779:16
839:2
864:4
869:2
874:24

commencing
722:1

comment
806:9
858:14
877:13

commentary
852:22

comments
831:23
836:25
838:17
841:19
857:20
867:24

Commerce
724:9

commit
846:21

common
815:24

comp 744:19

compact
731:9

companies
733:18

compare
735:21
738:18
839:10

compared
728:12
732:7
736:22
738:7,11
740:13
758:7
776:13
778:15
790:6

compares
778:9

comparison
739:5
764:19
789:24
828:13

compen
764:21

compensation
739:14,18,21
740:1,8
756:13
761:5,21
762:24
763:20
764:9,22
765:4
767:7
866:15
872:10

complement
777:18

complete
807:1

completed
735:20,23
760:10,18
864:18

completely
746:21
799:12
816:7,8
819:25
865:20

complex
862:11

complexity
862:3

compliance
865:16,25

complicated
744:19

complicating 809:4

component
728:17
791:14,24

components
730:6,25
732:17
733:24
743:22
761:21

composed
726:4

composition
729:22

comprehensive 804:22
806:14,16,18

comprise
773:6

comprised
723:15,16
730:11

comprises
739:14

computation
780:8

con 846:14
852:6

concentration 738:24

concept
815:7
816:10
820:11,19
836:12
838:15
843:2
849:18

conceptually
869:10,24

concern
752:2
753:1
810:15
845:20
863:17

concerned
839:18

concerning
803:24
882:6

concerns
839:5,6,25 846:19
851:22
862:11

concisely
852:11

concludes
886:8

conclusion
823:22

conducting
722:24
826:22
843:5

conference
813:18
815:14

confirm
727:2
729:13
749:22
757:11
792:1
811:22

confirmed
754:18

784:15
confused 817:15
conjunction 845:23
connections 816:18
consequence 742:14
consequences 867:8 870:2
consider 743:7 797:2 834:19
consideration 736:2 767:6 836:12 885:24
considered 750:5 797:1 813:14 816:3,22 822:12,16 824:19 876:16 877:9 878:5
consistent 743:14 749:6 750:24 812:12 813:10 820:3
consistently 758:18 849:9
constraints 846:22
consultation 721:16 822:24 823:25 825:1,5,7,10,16,23 826:5
consulted 824:15
consumer 839:10,25 842:3,25
consumers 837:17 838:16 839:4,10,17 851:22
contemplated 801:13 879:19
CONTENTS 718:1
context 741:12 742:17 764:8 772:25 800:11 813:5 878:1
continually 739:7
continue 737:2 749:5 761:9 769:6 778:5 779:3 818:19 864:21
continued 727:23 738:23 745:15 771:23 783:22 786:7 789:20 792:9 798:14 801:8 802:11 804:5 826:7 842:20 847:4 856:24 857:22
continues 736:10 737:15 739:10
continuing 771:25 822:14 823:15
contract 739:19 762:14
contractual 739:1
contractually 737:5,9
contribute 728:16 731:10
contributed 763:22
contributes 765:6
contributing 728:15
contributor 765:11 791:4
control 742:25 766:8 838:1,7 856:12
controller 723:20 725:3,5,13
controllers **hip** 725:15
conversation 832:20 843:12 866:23 871:4 874:19
conversations 846:14
conversely 785:17
converted 859:17,24
corp 765:3
corporate 723:20 725:3,5,12,19 738:18 739:11,15 752:6,7 755:21 756:4 757:13,18 758:6,12 761:4 763:25 772:15 776:4 781:5,8,9 791:23 847:8
Corporation 716:5 721:14 737:12,15 740:8 769:12,17 773:9 777:18 778:9,24 780:12 782:10 786:12,19 793:9 795:4 796:11 797:22 799:4 801:18 802:20 809:21,24 812:11,21 815:6 824:24 825:22 826:3,10,22,23 827:14,20 829:17 831:16 838:14 851:9 852:24 853:14 854:12 884:20
Corporation's 745:4 808:9,15 836:12 839:2 851:20 852:12
correct 722:20 726:10,12,16,20,21,24,25 742:15 746:15,16 750:1,23 755:25 756:16,20,25 757:5,9 758:8,19 760:15 761:7,19 762:10,14 765:19,24 767:8,17 769:19 770:1,15 772:6 773:13,23 774:21

776:1,9,14,17,25 777:4,10 778:12 780:16 784:6 785:10 786:22 787:3,7,10 788:7,13,19 790:8,15,20,24 791:13,17,18 792:6 793:14 794:25 797:25 811:14 815:9 824:1 827:2,9 828:19 832:9 833:2,5,6,21 834:3,14,24 835:3,8,12,22 836:1,4,24 847:15,16,23 848:19,20 852:13 853:3,14 860:19 861:6 866:5 870:5 882:13,14 887:7

correspond 827:7

corresponding 808:24

correspondingly 827:8

cost 720:4 728:11 730:11,14,16 744:21 745:12 746:23 747:4 748:17 757:16 770:22 771:8,15 773:6 774:2 784:21 787:15,18,22 798:23 803:5 804:10 806:14 812:13 813:10 820:2,9 824:3,5 828:12 848:22 849:7 861:4 870:11 872:6 874:24

costly 819:10

costs 735:15,16 741:14 743:19 745:11 746:14,19,25 747:9 751:8,19 756:15 757:3 758:6 766:6 768:17 779:16 787:25 819:25 828:17 832:22 853:13,20 854:6,13 855:4 862:24 870:11 872:6,20 875:15

counsel 717:3,4 727:12 751:11,18 752:3 754:3 866:24 878:17 886:12

count 720:6 769:18 770:23,24 771:10,18 777:7

counts 767:11

couple 728:20 730:6 732:17 736:16 832:19 868:20 879:13

course 735:16 779:23 812:5 854:5

cover 734:25 745:3 853:25 859:6

coverage 784:18,21 806:10 851:13 874:10

covered 820:13

covering 858:23

CPI 737:10 828:10

crash 870:2

create 821:9 859:9 867:19

created 770:17,25 854:15 866:1

creates 845:22

creating 720:7 771:10,20 809:12

credentials 724:1,3

credibility 873:23

critical 729:2

cross 751:1,18 879:25 880:13

cross-examination 718:13,14 751:5 753:7 754:8 755:7,9 829:1 832:7,12 879:18

cross-examined 751:15

Crozier 754:8

current 720:11 733:23 738:18 759:23 782:19 783:12,24 815:12 821:6 822:17 873:24

currently 736:1 744:6 814:5 816:12 821:19 838:14 843:20 873:22

curve 834:21

customer 838:3 848:6

customers 731:14,19 735:14 824:14,18 831:17 840:8 843:22 850:15,20 851:1,14

cuts 767:20

CYNTHIA 718:10 723:8 724:6,13,16,19,23 725:2,6,10,14,25 726:3,11,21 727:9 736:14

741:7,10,
13,17,24
742:4,15,
19,23
755:25
756:6,9,1
6,20,25
757:5,9,1
4,20
758:2,8,1
5,19,22
759:1,12,
15,19
760:11,19
761:7,11,
15,20
762:1,8,2
0 763:16
764:10,14
765:7,19,
24
766:4,18,
22
767:4,8,1
6,21
768:10,23
769:19
770:1,7,1
4,19
772:6,9
774:21
775:5,10
776:1,9,1
4,17,25
777:4,10,
16
778:12,16
786:22
787:3,7,1
0,17
788:7,13,
19,22
790:1,8,1
5,20,24
791:2,13,
18 792:6
832:23
833:2,6
871:22
872:9

D

damage
804:11
805:10
820:17
829:20,23
,25

dangerous
877:11

dash 792:4

dashboards
865:18

data 787:5
799:15
801:13,20
,23 803:8
816:18,19
824:4
869:18
873:9,18,
23
884:10,16

date 787:16
793:17,19
,24
794:2,6,8
799:23
859:16
863:19
864:12

dates 825:6

day 722:10
734:23
750:17
793:25
824:8
852:16
878:20

DCAT
878:9,11,
13

deal 787:23
855:10
856:17
879:17

dealing
751:7,12
863:21

deals
739:13
862:15
883:17

dealt
879:25

Dean 723:22

dec 832:5

December
769:17

decide
821:13

decided
859:8

decision
740:18
742:14
752:19
753:2,3
754:13
824:4

decisions
767:22
787:24
841:21

deck 824:9

declared
818:3,8,1
0 819:1

declaring
817:19

decrease
738:10,23
744:18
745:6,20
759:4,14
766:2
785:1,17
792:18
804:11
806:22
811:16
871:17

decreased
764:18
769:13
778:16
786:14

decreases
737:24
738:8
770:15

decreasing
737:13
785:16

deductibles
824:10,13

deemed
741:25
742:10
752:23
882:19

deep 857:6
861:21

deeply
843:6

default
733:21

defer
843:24
857:6,8

deferred
741:14
753:16
787:9,15
791:10,22
832:21

deferring
737:17
752:10
871:5,8

deficiency
854:1

define
840:15
841:1

definitely
749:8
807:10
820:23
825:14
857:3
866:18

definition
789:11
836:20
841:3
843:18
847:19
849:24
870:14

definitions
841:12

delayed
881:16

delineation
864:7

deliver
769:7

demerit
732:21
781:22
812:14
813:11
821:8

demonstrate
739:10

demonstrate
d 737:22
738:20

demonstrate
s 848:12

denial
818:24

dent
802:15,18
,23,25
803:4,10,
20 804:11
805:9
806:4
830:4

department
865:2

depend
763:3,4

dependent
766:9
depending
731:20
778:19
depends
779:18
804:18
depict
732:18
deplete
730:17
depreciate
759:21
depreciation 758:25
depth
855:22
derailment
734:10
derivation
793:11,16
describe
796:5,11
852:11
described
794:21
839:21
849:8
describes
793:12
DESCRIPTION
719:2
720:2
721:2
designation
724:8,12
desire
847:13
desires
843:23
despite
737:11
739:1
740:5
detail
773:1
810:17
detailed
778:20
834:23
872:11
details
862:7
877:16
determination 814:14
determine
740:20
765:5
872:19
determined
825:7
develop
822:23
developed
865:19
development
741:14
791:10,22
832:22
deviation
880:19
difference
720:16
779:5
783:2,18
790:4,13,22 791:10
795:14
differences
786:14,16
different
731:3
732:2
734:24
753:3
763:5
764:17
799:16
817:21
818:12
834:10
854:3
865:8
874:1
875:21
877:25
differently
861:17
difficult
754:12
818:21
837:22
855:6
difficulty
859:1
Dilay
717:10
diminish
731:15
direct
722:24
785:8
833:13
849:16
861:24
879:10,25
directed
755:19
directing
841:16
847:5
854:10
858:12
directives
813:7
directly
749:10
822:22
830:24
844:12
856:21
885:15
Directors
860:12
disagree
856:3
disaster
760:7,12
disclaimer
867:17
discontinuation
773:16
774:3
discontinued 773:10
discount
720:20
731:24
747:10,12,25
792:18,22
793:2,4,10,24
794:1,20
795:17,24
796:23
797:5
798:3,11
808:8
810:12
811:1,2,10 814:5
816:2
817:6
869:12,21
discounted
747:10
discounting
747:9,14,16
792:17,23
793:20
discounts
731:12,13
748:16
812:22
813:12
817:13
discuss
730:7
736:13
867:11
discussed
729:10
779:6
787:13
793:20
815:14
821:2
822:3
846:6
848:18
885:6
discussing
728:21
discussion
729:6
752:18
754:7
836:14,17,19
850:5,10
852:23
871:8,9,12 877:14
discussions
753:14
754:2
831:24
disposed
786:21
dispute
818:21
disruption
821:19
867:9,11,16,19
dive 861:21
document
806:11
dollar
735:3
736:4
746:7,9,16,17
774:11
838:3

dollars
720:10
721:8
733:4
747:17
748:17
774:12
782:15,17
783:11
788:12
789:7
798:24
800:9,24
805:9

done 742:6
761:1
763:11,12
821:21
826:24
843:6
846:23
880:25

double
884:22

downstairs
841:11

Dr 718:14
753:10,14,18,23
801:11
829:2,6
831:21
832:12,13,24
833:3,7,16,22,25
834:6,13,25
835:4,9,13,19,23
836:2,5,10,16
837:10
838:10
839:1,19
840:12,20
841:9,25
842:8,20,21 843:11
844:2,6,21
845:2,7,25
846:2,7,12,25
847:4,5,11,17,24
848:5,11,17,21,24
849:2,15,23
850:3,9,13,18
851:4,19
852:3,20
853:10,17
854:8
855:1,18
856:2,18,24,25
857:9,22,23
858:11,20
859:12
860:2,6,17,20
861:2,7,23
862:8,19,23
863:1,4,9
864:6,24
865:5
866:2,6,10,20
867:3
868:6
869:7,23
870:6
871:3

dramatic
820:20,24
867:8,15,19
868:3,7
869:5
873:19

dramatically 830:10
859:4
869:3,22

draw 834:13

drive
778:18
820:7
876:22

driver
728:25
729:16,24
732:16,18
733:1,4
736:10
743:1
755:16
774:20
775:9,13
798:16,25
806:15
812:4,11,13,23
813:9,11,13,19
814:4
815:3,13,21 816:4
817:5,7,16,18,24
818:8,10,15,16,18,20
819:2,7,14,25
820:2,8
822:9,18,25 824:12
827:16
837:13
848:18,22
849:9
868:9,20
869:16,19
870:8

drivers
734:8
816:11
817:20
818:2
819:4,13
821:9
870:10
885:7,19

driver's
735:15
821:20
868:2,14

driving
739:9
815:23
817:4
818:23
819:5,8
876:5

drop 804:24

dropped
806:18

DSR 720:10
721:15
732:19
747:25
748:16
781:22,25
782:11
783:10
812:8,14
813:11
815:2,10
818:1,4
820:1
822:14,22,23
824:18
825:5,13,23
826:4,12
866:22
869:16
870:25

DSR.9
823:22

DSR-4
813:17

DSR-based
814:3

DSR's 733:9

due 737:24
738:23
792:17
807:6
808:12,22
861:9

Dunstone
723:22

duration
808:6
809:11
810:6
853:4

during
764:11,23
786:21
842:4

duties
864:7

Dynamic
836:20
878:4

E

earlier
751:16
753:2
803:3
832:14,15
879:24

early
858:25
862:16

earmarked
767:25

earned
732:2,12,13
738:7,11
780:12
781:14

easier
817:10
819:3,19
876:1

eclipse
732:13

economic

737:5
739:17,20
740:7
762:6,11,
20,22
763:8

educate
823:8

education
724:5,7
735:15

effect
720:16
747:16
783:2,19
785:18
827:6
830:4
864:20

effective
742:24
803:18

effectively
803:14

effectiveness 807:2

efficiencies 737:25
768:1,6,13 770:12
772:2,4

efforts
753:21
823:25
843:2

eight
746:7,16

eighty-one
747:16

either
731:19
732:21
737:17
789:9
807:15
836:7

845:5

elaborate
764:13
786:13

eligible
740:23
742:1
799:1

eliminated
770:17
854:20

eliminating
720:5
770:22
771:9,17

else 816:3
874:2

embedded
739:1

employ
735:9

employed
724:15,18,22 725:9
842:10
854:25

employee
769:14
854:14

employees
762:5
764:11
769:25
854:19
858:4

employs
839:20

enable
735:4

encourage
831:17

endure
859:14

enforce
819:3

engage
844:7,10
846:14

engaged
852:23

engagement
842:25
843:18
844:7,12
846:9

enhanced
876:18

ensure
730:16
751:10
753:6
764:20
766:12
769:7
851:15

entailed
752:21

entire
725:8

entitled
738:17
843:1

entry-level
774:19
775:9

E-panels
843:8

equal
853:13
855:3

equates
732:24
733:4
774:11

equipment
774:9
787:6,21

equity
833:5

equivalent
720:6
733:9
745:3
766:20
767:11
771:10,18
775:24
776:12
777:3

equivalents
767:1
776:6,7

era 852:25

Erika
717:14

especially
872:2

essence
813:23
833:3
840:13

essentially
725:19
730:19
738:4
743:19
756:15
809:10
817:13
825:4
837:7
845:22

established
880:20,21

estimate
721:7
782:6
789:7
793:12
800:9,23
806:20
829:3
834:10

estimated
768:17
797:5
812:13

estimation
794:19
795:9

et 814:22

evaluate
735:21
769:7
874:23

evaluation
812:24
813:14
815:3

event
734:2,3

events
734:7
807:5

everybody
751:11,17
816:2
868:19
870:13
875:13

everybody's
722:18

everyone
722:4
729:15
745:10
876:2

everything
744:12,23
748:23
859:17
875:15

evidence
727:3
760:6
827:25
854:18
864:11
882:10

evolving
873:2

exact
797:12
867:10

876:11

exactly
748:5
778:4
789:4

examination
718:15,16
722:24
751:2,19
880:1,7,14 882:1

Examination-in-Chief
718:12
723:12

examine
860:23

example
731:6
734:1,8,9
744:8
745:1
795:22
815:25
816:25
831:6
838:9
839:12
843:18
851:8
855:7
861:14,15
865:10
882:24

examples
737:19

exceed
735:2

except
722:19
886:20

exception
807:10

excess
836:22

excessive
766:13

executive
860:9

exhibit
719:2
727:14,16,20
775:19
789:15,17
827:25

exhibits
718:3
719:1
832:1
871:7

exist 841:5
851:1
852:1
861:19

existence
869:12

existing
858:17,22
859:13
871:20
872:24

EXP 755:20
789:22

EXP-11
761:23

EXP-12
766:15

EXP-17
765:16

EXP-32
757:16

EXP-37
758:11

EXP-4.2.6
772:19

EXP-41
788:3

EXP-43
719:4
758:24
788:16
789:14,17

EXP-6 761:3

expand
873:20

expect
722:8
747:23
748:17
753:19
755:18
768:9
769:5
778:24
779:2,11,15 818:14
886:21

expectation
749:13
797:17
854:3
862:22
867:24
881:10

expectations 843:23

expected
733:12
737:23
739:23
740:3
760:9,18
761:5
766:2
780:6,7
794:12
806:3
812:2
825:6
881:20

expecting
881:4

expects
823:16

expenditure
786:15,16

expenditure
s 755:13
786:9
788:1,5
789:23

expense
726:4
736:17
738:24
739:1,8,13 741:4
742:25
743:16
745:8
747:6
749:8
750:8,13
752:10
760:21
763:1,7
811:13
856:12

expenses
720:20
722:7
726:9,20
728:5,8,16 729:1,4
730:15
736:13,22,24
737:1,12,16,17,18
738:1,4,7,10,15,18,20
739:4,8,15 742:25
743:18
745:2,4
749:14,23
750:17,19,22 752:6
754:24
755:12,21
756:4,23
757:13,18,24
758:13,17,25 761:4
764:2
772:24
773:2,7
776:3
778:17
781:15
787:16
797:7,24
798:11

experience
731:20
779:24
805:6
833:19
837:19,24
872:19
873:3

experienced
777:8

experiences
852:24

experiencing 834:16
835:16,24
852:25

experimenting 753:20

expert
807:9,21

expertise
752:9
862:6
885:5

explain
745:22
769:12
772:8
777:14
788:21
853:22
880:22

explained
791:3

explanation
764:8

explore
842:21,22

843:1,2
explored
840:25
842:3
855:23
expressed
847:14
862:11
expressing
839:5,6
856:10
Extension
885:16
extent
752:8,12
754:22
763:25
765:5
778:14
839:4
842:16
external
807:24
808:4,5
extra
820:16
extreme
766:10
838:1
extremely
763:24

F

faced
739:16
fact 738:3
773:19
787:18
858:10
871:23
882:17
factor
736:24
737:2,4
738:1
739:25
740:12
745:18,23
746:20
781:19
820:6
828:11
factored
749:24
factors
730:5,7
731:2
732:9
744:14
763:3,6
786:18
809:4
828:12
861:9,12
factual
869:18
fails
842:17
failure
859:13
fair 727:4
799:19
837:16
838:10,13
843:11
847:14
848:18
849:6,10,11,19
fairly
743:14
803:17
faith
753:21
fall 806:23
falling
794:7
864:1
falls 817:6
family
816:1
farther
812:9
fashion
820:3
faster
747:5
fault
853:12
favourable
728:16
741:2
749:9
785:1,7
fee 732:18
755:17
826:20
878:7
883:14
feed 747:18
feedback
823:10
844:8
feel 810:15
857:1,14,16 881:11
feels
856:15
fees 728:24
729:15,25
730:1
735:11,15,16,17,18,21,25
736:4,8
826:23
827:5,13,16,20
828:2,16,18
field 752:7
fifty
737:22
fifty-one
767:12
figure
719:4
750:11
755:20
757:16
758:11,24
761:3,23,24 762:18
765:16
766:15
768:16
772:1
774:15,24
788:3,15,16
789:14,17,23 804:8
805:15,22
806:13
833:12
835:14
845:12
882:3,6
file
812:11,21
826:23
filed
790:11,12
791:11
files
853:24
filing
776:19
801:10
802:13
807:23
843:15
fill 777:24
779:4,8
780:2,7
filled
764:4
filter
733:10
final 742:8
finalized
767:22
768:7,9,11
finally
728:6
Finance
723:18
financial
723:18
725:17,18
743:12
744:24
753:5
755:14
775:16
776:20
777:12
financials
733:12
734:15
872:12
financing
735:14
736:11
finding
739:7
fine 792:10
844:22
845:25
878:24
885:22
finish
760:14
761:1
856:19
finished
755:11
finishing
760:22,24
firm 805:15
first
732:11
734:7
741:11
743:5
755:18
766:1
776:23
777:8
780:11
786:19

792:13
806:9
815:21
818:11
824:8
831:24
852:16
857:24
858:14
860:21
875:9
879:18,23
882:9

firstly
728:21
730:6

fiscal
720:11
721:3
736:20,25
737:21
738:6
739:11
757:24
766:21
776:8
779:1
782:19
783:12
799:5
800:6,17
803:16
807:11
811:10
829:21
830:1
865:21
866:3
871:18

fit 728:7
843:25

five 760:23
766:15
768:4
775:16
829:20
830:1
834:23
878:21

five-year
766:16
884:15

flat 738:4
740:3
749:14

fleet
731:12,17
,18,24
737:20
787:19,20

floating-rate
810:8

flow 728:9
733:11
793:10
794:20
797:5

flowchart
757:17

flowing
848:7

flows
731:25
734:15
744:23
747:13
811:17

flow-through
745:8
749:10

fluctuations 808:16

focus
810:10
839:24
840:4,24
841:4,13
864:11
865:12

focused
846:8
852:9

folks
870:18
881:9

forced
816:24
817:13
819:12

forecast
736:17
738:19
739:8
740:3
742:25
745:5
749:9
755:23
756:23
757:12
765:18
766:16
779:16
788:5
790:10,12
805:4
806:16,17
,18
830:8,10,
15 853:19
854:7

forecasted
730:23
731:1
732:6
734:17
736:6
739:4
741:4
749:6
758:21
762:4,16
774:17,18
780:4
796:5,11
830:5

forecasting
723:23
762:18
786:17

forecasts
794:6

foresee
827:20

form 821:6

formal
865:24

formas
732:1

format
875:22,25

formed
825:14

forty-eight
788:12

forty-five
829:4

forum
867:23

forward
731:16
755:2
769:3
778:3
845:14
854:7
880:2

fourteen
746:9,17

fourth
785:2
819:21
841:18
861:25

frame 779:9

framework
814:16,21
865:25
866:3
885:11,22

frankly
755:1
856:13

frequency
807:12

Friend
866:24

Friends
831:25

front 724:2
778:11,20

fruition
768:13

FTE 737:22
740:11
763:24
769:18,23
770:5
777:7

FTEs 737:23
740:10
764:3
769:24
871:17,19

full 722:9
753:7
766:25
777:18
805:1
857:24

full-time
720:5
766:20
767:11
771:10,18
775:24
776:6,7,1
2 777:2

fully 764:3
813:12,14
814:15
815:7
821:21
822:6
837:13
860:1

functionality 816:14

functions
725:15,23
770:12

funding

885:12,14
future
728:23
731:16
740:17,22
741:20
742:2,12
787:25
801:15
806:9
827:21
845:19
853:20

G

Gabor
716:13
gain 770:12
game 752:14
garages
831:18
Gateway
787:2
791:7
gather
823:10
general
716:6
725:24
737:8
833:17
842:4
843:15
853:22
862:6,7
866:8
generalized
851:11
generally
737:6,10
803:3
807:5
852:11
generate
854:6
generic
720:10
782:12
783:10
getting
810:9
817:8
819:15,17
831:19
861:13
869:19
878:20
Giesbrecht
718:9
723:7,18
726:14,16,17
727:7,25
728:2
729:13,17,20
736:15
745:25
752:16
769:4
773:12,22
774:7
779:2,18
780:15,19
781:1,7,10,17,20,23 782:5
784:2,6,9,13,19,22
785:4,10,14
827:2,10,18,22
828:5,19
839:1,19
840:3,21
841:2,18,24 842:6
843:4,13,20 844:5
847:10,16,22
848:10,16,20,23
849:1,11,22,25
850:5,8,12,17,23
851:10,24
874:6
876:10
877:1
880:12
885:5,8,25 886:2
given
779:12
796:24
806:2
810:16
gives 730:1
748:25
801:24
global
831:7
globally
863:24
go-forward
811:24
going-forward
787:23
gone 746:19
789:6
876:17
government
735:23,25
736:1
821:17
827:15
885:17,24
GRA 719:4
729:16
745:2
749:23
772:25
786:17
788:15,16
789:14,18
790:6,7,11,13
791:11
792:19,22
812:7,11,21 813:15
823:19,24
826:12,21,24
gradually
821:14
873:25
Graham
824:8
831:10
832:3
871:9
graph
804:20
graphic
757:22
776:22,23
837:1,4
884:1
great
746:24
779:5
greater
763:7,19
883:12
gross
830:20,24
831:6
grounding
730:2
group
744:13
748:12,16
814:22
821:10
843:24
844:3,8
845:11
864:3
872:19
885:20
groups
799:17
839:24
840:4,25
841:4,13
872:24
grow 732:7
736:6
884:23
growing
884:13,16
growth
733:16
734:19
736:9,10
738:11
739:23
743:19
769:5
860:24
861:3,4,8
884:25
Guerra
717:7
718:12,15
722:23
723:2,10,12,13
724:10,14,17,21,25
725:4,7,11,21
726:1,7,13,18,22
727:1,6,8,10,23,24
729:12,19
745:15,16
749:21
750:14,23
792:1
842:12
855:20
878:18
879:3,12
880:7,8
881:21
guess
805:24
839:17
857:25
867:14,16,17
guidance
847:2

856:3
857:10
878:10

guide
878:13

guidelines
858:15,17,22
859:14
860:1
880:20,24
881:12

guiding
847:8

guy 803:25

H

hail 734:2
766:11
783:25
803:17
804:10,22
805:2,10,14
806:2,16
807:2,5,15
829:19,23
830:8
874:22
875:1

Hainsworth
716:15

half 729:3
743:18
747:9
860:3

Hamilton
716:14
871:15,16
872:5,15
874:3

hand 861:25

handled
861:16

handling
819:3

hands
859:21

handwriting
833:10

happen
803:20
834:11
853:8

happened
767:24
785:12

happens
859:11
868:18

happy
803:23
864:22
876:11

hard 747:2
818:23

haven't
816:2
852:15
864:23
878:6

having
748:12
755:4
799:20
819:7
820:5
828:16
859:1
865:20
870:13
881:15
885:4

head 872:14

heading
760:20

heads-up
772:19

health
763:2
861:15

hear 728:18
729:2
841:14

heard
723:25
729:9
734:23
741:12
743:15
761:9
824:7
826:21,25
839:12

hearing
716:7
793:21
821:14
842:5,14,24
843:12,13
845:12,18
846:24
886:8

hearings
819:23
842:10
852:22

hears
852:10

held 716:19
725:7
746:24,25
809:5
813:8,18

help 733:21
735:5
832:15
836:11

he's 803:25

high 782:7
803:12
815:17
838:9

higher
720:9
746:14,22
781:14,22
782:11
783:9
820:9,10
824:5
833:23
854:6

highest
817:5

highlighted
738:17

hire 721:10
748:1,3,8,11
798:18
801:4
802:6
872:17,21
873:11

hired
864:18

hiring
865:12

historic
848:9
853:20

historical
766:16
838:22
883:20

Historically 731:21

history
779:23
810:6

hit 734:9

hitting
773:19

hold 738:4
749:13
842:2

Honours
724:9

hopefully
875:13
876:2

hoping
746:4
810:2
832:14

hour
829:3,4,16

house
817:1,9,12,14

household
816:3
819:16

households
818:14

hovered
731:21

HR
760:7,8,12 764:15
770:10
777:22

huge 822:10

Humboldt
876:14
877:5
885:17

hundred
746:7,9,16,17
748:9
788:11
835:25
838:2
864:1
870:14

hundred-ish
748:10

Hydro
842:4,11,15,17

hypotheticals 869:15

I

i.e 720:12
783:12
839:24

IBNR 853:25
859:5
I'd 724:2
755:1
759:25
763:21
idea 746:5
820:19,21
862:15
867:25
870:9
872:6
identified
752:2
851:15
identify
770:10
823:7
ignore
819:24
881:18
I'll 727:25
736:12
745:1
749:4
753:10
760:5
763:11
797:19
798:2
819:1
830:7
831:22
836:18
837:12
844:24
846:13,14
849:6
853:22
856:19
857:6,8,25 862:8
867:15
879:13
ill-equipped
862:2
illustrate
738:5
I'm
722:9,17
736:16
741:5
744:9
750:20
753:25
755:12
760:1
763:5
775:6
784:13
792:12
801:19
804:16
806:10
810:2
812:4
813:3
817:3
825:15,17
828:24
829:3
838:1
839:2,10
840:3,10
841:5,10,15 842:6
845:12
846:8
847:22
852:14
856:2,8,9,20
857:10
860:18
863:17,22
864:13
866:10
867:3
869:15
871:4,8
875:9
876:14
877:3,10,21 881:3
886:18
immature
801:23
immediately
854:20
862:16
immobilizer
773:7,10
774:3
imp 791:9
impact
721:4
736:18
740:16,17
741:1,3
744:25
746:21
747:8
763:6
784:12
785:7
792:16,23
798:25
799:6
800:7,19
808:11
809:2,11
810:5
811:6,10,23 812:2
848:15
869:6
impacted
748:6
785:6
810:12
impacting
740:13
impacts
732:19
778:21
834:9
impair
740:18
752:19
impaired
741:18
impairment
741:8,14
751:8
791:9
832:21,25
impairments
729:5
738:14
740:14,15
741:1,10
implement
817:10
819:10,19
implementation
820:25
854:21
858:18
859:16
868:5
implemented
748:4
852:18
866:15
867:20
implications 753:5
820:20
869:11
important
847:12
848:21
improve
733:1
814:3
improved
815:1
improvement
737:25
738:25
768:1
772:1
780:22,24
781:2
852:14
864:12
improvements 863:18
864:4
inadequate
853:5,18
inappropriate 800:14
incentive
732:25
incidences
766:10
include
731:2
735:14
737:19
781:19
795:18,19
796:2
797:6,15
823:10
828:16
882:25
included
762:24
801:14
872:11
875:12
includes
780:18
796:6,12
including
773:7
793:16
840:7
inclusion
882:12
income
780:12,18
781:5
808:11
811:17,18
859:19
increa1sed
827:6
increase
720:8
730:13
733:10
736:24
737:3
738:2,3,1

5 740:6,7
743:1
744:17,18
747:6,20
750:21,22
759:3,17
761:5,10,14,17
762:4,6,11,12,16
763:8,10,17,22
765:6
766:25
769:1,2,5
770:4
779:3
781:13,15,25
782:11
783:8
785:8
811:9,18
837:18
838:3
839:13
854:6
858:2
863:6
873:12
883:1

increased
745:13
768:19
769:14,23
781:5
792:17
854:2
858:9

increases
737:5,8,11
739:1,10,17,18,21
740:8
761:25
762:21
820:2
833:12
834:16
835:1,5,10,16,25
836:6,22
858:6

increasing
747:4
807:6
827:5

incremental
820:14
854:12

incumbents
871:21

incurred
734:2
785:8
787:16
806:10
854:13
860:24

indeed
752:2
883:4

independent
849:17

indicate
831:23
854:22

indicated
723:19
812:23
836:19
867:21
873:25

indicates
730:14
798:22

indicating
868:10

indication
728:18
743:23
748:21
749:16,20
750:12

indications
744:1,3
748:18
793:11
813:13
869:4

indicators
854:22

individual
746:6
837:17,20
838:16,21
839:6,15
840:1
847:20
870:12

individuals
819:16

individual's 868:2

industry
802:19
885:11,23

inflation
737:8

inflationary 743:19

influence
853:19

inform
823:8

information
720:3
721:9,12
726:5
752:9
768:22
769:11
770:9
771:4,8,14 773:15
774:2,23
786:12
792:3,4
793:7
794:16
801:2,6,24
802:3,5,7
806:25
810:24
811:9
816:16
817:20
818:22
819:7
824:24
826:11,19
829:17
830:3
839:3
841:6,7,17 844:20
852:2,6
856:5
858:12
860:7
880:2,9

initial
735:22
742:6
813:23
822:22
825:5

initially
812:7,10,20

initiative
738:25
763:25
764:1
772:1

initiatives
737:25
772:4,8,10 773:1
825:18
852:15

injections
810:13

injured
870:2

injury
767:2
785:2
852:14,18
854:16
855:2
863:21

input 728:8

inside
831:17

insights
847:12

installations 774:9

instead
747:17
834:23
883:6

insurance
716:5
717:7
731:3
733:18
744:13
814:22
831:25
832:8
833:1,18
837:15
839:20,23
840:25
842:2,15,23 843:14
844:9
846:15
847:1,7,13
848:13,22
849:8
850:6,20
856:7,10
860:12
861:4
866:7,14
869:3
874:7

insure
817:3,5

insured
734:8
824:10

insures

815:25
intake 855:14 862:15 864:16
intend 755:10 778:24 842:22
intended 795:5 865:13 879:21
intent 746:1 836:25 837:11 865:20 875:12 876:1 881:18
intention 754:9 873:21
interest 735:14,18 736:11 747:11,14 785:7,12, 15,20 794:2,5,9 808:13,23 809:3,9,1 1
interested 821:16 837:6
internal 740:19 811:12
internally 763:21
interpretat ion 813:23 814:13
interpreted 814:2 815:1
interrupt 741:6 855:21
Intervenors 727:13
intimately 843:10
introducing 798:25
introductio ns 723:15
inverse 785:19
investigati ng 764:25 858:9
investigati on 740:24
investing 796:2
investment 720:19 725:17 797:7,24 798:10
investments 795:25 796:6,7,1 3,14
invite 822:24
involve 752:9
involved 725:22 824:14 825:15 843:7,10
IR 771:25 774:16 791:20 792:2 860:16
Irene 716:14
I's 852:15
isn't 797:19 818:11 838:3 861:17 865:23
issue 726:15,20 ,24 728:1 729:14 751:6 807:13 821:11 842:18 851:18,23 853:6 855:22 872:24
issues 728:20 753:7 754:8 773:2 813:9 843:17 851:6 852:4 853:3,18 859:16 861:19 862:7,17 879:17,18 ,24
It'd 828:12
item 729:2 781:12 884:8
items 730:8 744:22 747:18 748:20,24 756:13 762:25 824:13,19 832:25
it'll 823:24
it's 725:14 728:14 732:14 733:22 734:17 735:7 741:11,17 742:22 744:1,20 746:4,19, 23 747:23 754:8,11 761:9 763:6 764:23 765:10 770:9 772:19 773:24 774:12 775:21,22 776:20,22 ,23 778:3 779:19 784:15 788:25 789:3,4,6 791:20 793:24 794:18 799:10 801:23 803:6,12 805:5,15 819:6 821:11 825:1,12 827:22 829:19 833:8,22 834:19 837:3 838:8,14, 24 847:18 849:8 853:8,11 857:7 860:14 868:7,14 869:2 870:1 871:2 873:2,14 874:11 875:2,14, 24
I've 725:15,18 739:15,16 742:17 748:23 754:18 799:15 884:10

J

job 816:7
John 723:23 840:20
Johnston 718:8 723:6,16 726:23,25 727:5 728:6 743:2,4 745:16,24 749:22 750:2,20 755:16 782:18,23 792:12,20 793:1,14, 19 794:25 795:7,13 796:8,18 797:11,17 ,25 798:2 799:2,7 800:5,10 801:17,19 802:4,14, 16,21,24 804:8,15 805:14 806:8 807:8 808:2,19, 25 809:22

810:2
811:5,14,20
812:1,5,15,25
813:16,20,25
814:7,11,17,24
815:4,9,15,20
818:7,9
821:3,4
822:1,5,20
823:2,13,20
824:1,6
825:3,11,24
826:9,13,19
830:2,6,22,23
831:4
833:11,15,21,24
834:3,8,12,18
835:3,8,12,18,22
836:1,4,9,10,15,24
837:11,21
838:12,17
839:9
843:3
852:5,10,13,21
853:2,15,21
854:10,17
855:3,5
856:21,25
857:2,23
858:5,13,19,21,24
859:13,15
860:5,10,15,18
861:1,6,11
862:4,14,21,25
863:3,8,12 864:13
865:3,7
866:5,9,10,17,21
867:2,14
868:6,11
869:13
870:5,9
872:16,22
874:6,9
875:11,18,24
877:6,15
878:1
880:12
881:1,22
882:5,14,21
883:3,9,22 884:2,7
885:2

Johnston's 871:5

judgmental 838:19

judgments 799:11

jump 733:6,14 776:3,19 788:15 819:1 883:24

jumping 776:11

June 734:1 783:25

jurisdictional 735:20 828:2,3

jurisdictions 817:23 828:14

K

Kathleen 717:3 718:13 722:5 754:5 755:7,8 756:2,8,11,17,21 757:2,6,10,15,21 758:3,10,16,20,23 759:2,13,16 760:5,16 761:2,8,12,16,22 762:2,15 764:6,12 765:1,15,20,25 766:14,19,23 767:5,9,18 768:8,14,25 769:10,21 770:2,8,16,21 771:5,23,24 772:7,17,23 773:14 774:1,14,22 775:7,14 776:2,10,15,18 777:1,5,11 778:8,13,22 779:14 780:9,17,20 781:4,9,12,18,21,24 782:9,16,21 783:4,22,23 784:3,7,11,17,20,24 785:5,11,21 786:7,8,23 787:4,8,11 788:2,8,14,20 789:12,20,21 790:3,9,16,21,25 791:8,15,25 792:9,10,21 793:5,15 794:15 795:1,8 796:4,10 797:4,14,21 798:1,5,14,15 799:3 800:3,15 801:8,9,16 802:1,9,11,12,17,22 803:19 804:1,5,6 805:7 806:1 807:4,22 808:3,20 809:20,23 810:19 811:7,15,21 812:3,16,19 813:2,17,21 814:1,8,12,18,25 815:5,10,16 818:6 821:1,23 822:2,13,21 823:6,14,21 824:2,22 825:20 826:7,8,14,18 827:3,11,19,24 828:15,20 830:16 831:15 886:11,23

Katrine 717:10

Keith 885:4,9

key 728:8,19,20 825:6 843:17 849:8

kick 831:13

knowledge 770:20 840:2,13,24 847:18

Kristen 755:19 772:18 774:15 775:19 776:21 789:22 798:19 875:3 880:9 882:3

Krupinski 723:23

KURT 727:17

L

la 778:10

lack
850:15,19
,21,25

laid 883:10

land 787:21
790:18
791:3

large
734:2,6,9
,12 735:4
763:10,24
775:1
855:8

larger
762:25

largest
739:12
761:17
774:23

last 732:8
733:8
735:19
740:2
745:2
747:24
758:7
765:18
766:6
778:10
780:23,24
781:14
783:24
788:15
789:24
790:6,10,
11 791:10
793:2
795:3
803:16
805:21
806:17
807:11
808:21
810:20
812:6
826:21
831:4
842:4
852:21
859:16
864:18,25
869:8
875:8
877:12,22
883:17

lastly
749:15
814:25
829:25

lasts
853:11

late 735:15

later
728:18
787:16
862:12

latest
721:11
801:5
802:7

Lavigne
887:11

lead 733:2
765:12,13

leaders
770:10,13

leadership
770:11

leads 780:3

Learned
831:25
866:24

least 803:8
817:8
819:15
820:5
827:9
830:5
838:22
863:16,18
867:23
870:15
873:7,18
878:11,21

leave
745:17

left-hand
755:22
775:23
776:6
790:4,17
811:3

legacy
724:8

length
729:10
842:22

less
744:16,17
747:16
766:2
779:16
789:7
810:4,5
830:14
854:19,23
868:16

lets 841:12

let's
818:3,18
837:4
845:2,4
862:10
867:20

level 721:5
752:7
763:24
776:12
777:13
778:10,14
,23,25
779:7,19,
24 782:7
787:1,12
791:23
798:22
800:7,21
805:9
806:2,3
812:14
815:17
818:1
820:1
838:23
847:9
850:24
851:22
869:16,17
873:15

levels
740:9
766:17
769:2
776:4
777:17
791:6
859:3

li 884:13

lia 884:20

liabilities
785:16
808:1,16,
24
811:12,16
857:4
884:13,20

liability
795:18
808:9

licence
821:20

license
820:5,13,
22
868:2,14
869:2,20
870:13,22
,23

licenses
876:22

licensing
732:18

life 760:23

lifetime
881:11

light
803:17
843:1

lighter
805:2

likely
744:24
748:12
755:11
818:23
819:23
839:10
869:21
870:1

limit
733:25
752:17

limited
773:17

line 721:6
730:3,23
732:3,14
734:19
738:17
746:25
747:24
756:3,13,
22 757:3
758:17
759:3
760:7
761:4,18
762:24
763:17
765:21
766:19
772:2
774:18
776:5
780:11
781:2
785:2
788:10,15
790:17
791:9
800:8,22
804:21
820:3
823:23
834:14
835:14,24

841:18
842:13
850:14
872:10
882:9,11,25 885:16

lines
759:20
760:3
762:25
767:15
772:10,12
822:15
823:16
858:14

lion 729:23

list
718:3,4
719:1
720:1
721:1
773:2
791:21
815:11
819:4

listed
740:15
815:18,21

listing
791:19
816:11
819:13

literally
817:19

little
728:24
743:16
745:22,25
747:2
757:23
793:21
798:19
810:22
812:9
817:10,16
864:2
873:3,9,20 878:5
881:2

live 768:5
870:20

lives
817:1,14

loans
842:11

lock
874:22,25

logic 870:7

logical
821:18
869:14

long 724:17
780:1
818:22
845:15
858:22
859:14
868:15
874:7

longer
778:6
780:6
832:25
853:1,5,12
855:4,15
859:20
863:17
872:1

longer-term
855:16
864:10

long-tail
852:5
858:1,2

long-term
858:8

lose 789:5

losing
748:12

loss 721:9
734:11,12
763:5
773:6
784:8
799:16,20,23
801:2,13
802:5
811:12
873:6,14

losses
734:3
735:1,5

lot 743:25
751:8
773:5
777:23
799:11
802:25
805:17
807:3
818:19
820:12
821:15
865:11
868:2
872:24

love 841:13

low 786:25
799:20
810:11
824:3

lower
728:14
747:14
757:23
765:22
766:21
777:15
778:14,17
786:25
787:12
791:6
803:5
838:6

lowered
830:10

lowering
873:7

lucky
839:16

LUKE 718:8
723:6
726:25
727:5
743:4
745:24
750:2,20
782:18,23
792:20
793:1,14,19 794:25
795:7,13
796:8,18
797:11,17,25 798:2
799:2,7
800:10
801:19
802:4,16,21,24
804:15
805:14
806:8
807:8
808:2,19,25 809:22
810:2
811:5,14,20
812:1,15,18,25
813:16,20,25
814:7,11,17,24
815:4,9,15,20
818:9
821:4
822:1,5,20
823:2,13,20
824:1,6
825:11,24
826:13
830:6,23
831:4
833:15,21,24
834:3,12,18
835:3,8,12,18,22
836:1,4,9,15,24
837:21
838:17
839:9
843:3
852:13
853:2,15,21 854:17
855:5
857:2
858:5,19,24 859:15
860:5,15,18
861:1,6,11
862:4,14,21,25
863:3,8,12 864:13
865:3,7
866:5,9,17
867:2,14
868:11
869:13
870:5,9
872:22
874:9
875:11,18,24
877:15
878:1
881:1
882:14,21
883:3,9,22 884:2,7

lunch
755:11
829:16

M

magnitude
869:11

main 733:24
736:10

787:1
791:4,6
807:12
820:6,8

mainly
740:16
791:16

maintain
847:14

maintained
742:24

maintaining
849:19

maintenance
743:23
749:1,18
824:15
837:5
882:13
883:7,11,13

major
744:1,2
806:15
825:18

majority
735:18
741:24
743:9
754:9
787:21
862:1

makeup
731:10

manage
733:22
735:4
739:8
766:11
769:8
779:8
862:2

managed
737:2
740:8
862:12

management
720:5
723:17
736:20,25
737:20,21
738:6,24
739:11
760:8,9,13 766:5
767:19
769:13,18
770:15,23
771:9,17
808:10
809:2
852:4,17
854:14,16,24
855:2,24
856:6,9
857:6
863:20
872:3
882:18,25

manager
723:22,23,24
770:18
859:21

managers
767:3
853:23
859:1
862:2
881:8

managing
787:19

mandated
762:13

mandatory
739:17
885:19

Manito
739:16

Manitoba
716:1,5,22
717:6,9,14 730:21
827:15
831:25
832:7
833:1,17
839:20,23
840:25
842:2,4,11,15,23
843:13
844:9
846:15
847:1,7,13 848:13
850:6,20
856:7,10
860:12
861:4
866:6,14
886:3

Manitobans
733:2
822:24
823:8
840:14,15
841:1
847:14

manner
837:14
871:1

March
813:19

mark 718:9
723:7
726:17
727:7
728:2
729:17,20
732:11,13
752:16
769:4
773:12,22
774:7
779:2,18
780:15,19
781:1,7,10,17,20,23 782:5
784:2,6,9,13,19,22
785:4,10,14 789:14
799:14
827:2,10,18,22
828:5,19
840:3
841:2,24
842:6
843:20
844:5
847:10,16,22
848:10,16,20,23
849:1,11,22,25
850:8,12,17,23
851:10,24
876:10
877:1
885:8
886:2

marked
727:14,15

market
748:5
764:19
773:20
794:21
799:14
808:7,12,17,23
809:15

marketable
794:22
809:10

marketplace
874:8
877:2

massive
821:19

Masters
724:8

match
808:23
810:17

material
729:8
758:9

materialize
881:15

materially
758:5

math 750:11
756:18
757:7
763:11,12

matter
794:3
846:1

matters
840:5

maximum
824:10
874:23

may 731:18
734:10
750:14
751:22
752:10
753:3,4,19 763:22
765:12
767:15
768:21
773:16
787:24
803:13
804:7
823:10
824:7,20
843:6
856:1
858:3
861:19
864:3
868:13
870:22
874:18
877:4
882:8,15,18

mayb 855:7

maybe
748:12

750:15
752:22
797:2
798:2
807:20
810:22
816:7
817:5
819:1,17
824:7
825:1
830:14
834:23
837:6
843:12
855:7,8,13,15
861:16
867:25
868:16
873:17,20
874:16
875:5

McCandless
717:3
718:13
722:4,5
754:5
755:5,7,8
756:2,8,11,17,21
757:2,6,10,15,21
758:3,10,16,20,23
759:2,13,16
760:5,16
761:2,8,12,16,22
762:2,15
764:6,12
765:1,15,20,25
766:14,19,23
767:5,9,18
768:8,14,25
769:10,21
770:2,8,16,21
771:4,5,23,24
772:7,17,23 773:14
774:1,14,22
775:7,14
776:2,10,15,18
777:1,5,11
778:8,13,22 779:14
780:9,17,20
781:4,9,12,18,21,24
782:9,14,16,21
783:4,22,23
784:3,7,11,17,20,24
785:5,11,21
786:5,7,8,23
787:4,8,11
788:2,8,14,20
789:12,20,21
790:3,9,16,21,25
791:8,15,25
792:9,10,21
793:5,15
794:15
795:1,8
796:4,10
797:4,14,21
798:1,5,14,15
799:3
800:3,15
801:8,9,16
802:1,9,11,12,17,22
803:19,22
804:1,5,6
805:7
806:1
807:4,22
808:3,20
809:20,23
810:19
811:7,15,21
812:3,16,18,19
813:2,17,21
814:1,8,12,18,25
815:5,10,16 818:6
821:1,23
822:2,13,21
823:6,14,21
824:2,22
825:20
826:7,8,14,18
827:3,11,19,24
828:15,20
830:3,8,16 831:15
886:11,19,23

mean 744:10
799:21
805:25
808:21
814:2
819:22
825:12
840:15
841:4
852:1
853:22
855:7,12,21 876:14
877:2

means
760:22
799:4
816:16
818:1
847:19
853:13

meant
779:20
849:24
852:12

media
825:16

medication
866:16

mediums
823:7

meet 766:6
832:18
865:4

Member
716:14,15,16
871:16
872:5,15
874:3

members
722:6
724:1
727:12
772:15
831:22

memory
825:1
844:23
877:10

men 744:22

mental
861:15

mentioned
728:4
733:4
744:9,23
745:19
748:25
764:7
765:2
766:5
809:1
822:8
841:7
865:8
870:10
877:8
884:4

merit
732:20
737:5
739:18,20
740:6
822:11

merits
820:23

mess 809:24

message
831:18

messenger
803:4

messy 833:9

met 832:17

method
757:17

methodologies
823:9,11
838:8

methodology
728:9
729:9
743:6,10,14 749:7
758:5
795:15
809:12,24
815:2
884:4

metrics
865:18

middle 794:4
milestone 732:14
Miller 717:14
million 721:7 731:13,21,22,23 732:24,25 733:5 734:1,2,5,7,13,18 735:3 736:6,7 738:21 748:17 756:5,14,24 757:4,13,24,25 759:5,14 763:9,10 765:22 774:12 780:13,18,22,24 781:3,6,14,16 784:5,10,23 785:6,9 788:17 789:6,7 790:18,19,23 791:5,12,23 798:24 800:9,24 805:19,20,21,23,24 806:19,24 807:19 811:12,13,16 829:23,24,25 830:1,11,13 831:8,12 832:22 833:23 874:17,25 884:21
mind 772:25
mindset 737:1
minimize 808:11 810:22
minimum 870:12,17
minor 864:4
minus 728:16 820:2 837:24
minute 878:22
minutes 730:13 736:16 775:17 829:4,7
mismatch 808:14
misspoken 750:15
misunderstand 837:11
mitigate 733:20 851:15
mitigated 784:4
model 763:20 764:9,22 765:4,10 815:12,22 816:24 817:10 818:8,10,13 819:2,14,22 821:3,6,7,12,25 822:9,18,19 827:7 866:25 867:6,12,19,25 868:3 869:4,11 870:7 873:22 876:18 885:24
modeling 819:18
models 731:2 821:2 822:3,11 823:1
moderate 744:18 849:8
modification 880:15
mom 815:25 817:1,2,5
moment 844:18
Monday 722:11 751:6,7,14,22,24 752:11 754:20 803:24 856:17 886:10,22 887:1
money 741:18 793:12 795:6 796:1 810:8 868:23
monitor 819:10 863:14,15
monitoring 865:24,25
month 809:2 846:24 863:15 864:18 881:13
months 853:1 858:16 859:19 873:1,18
morning 722:3,5,15,25 723:14,21 728:3 751:3 753:11 754:7 755:11 761:9 785:23 792:14 828:1 831:24 887:1
motor 729:24 732:3,6
motorcycle 882:8
motorcycles 744:8
mouth 867:4
move 777:21 779:10 809:8 821:12 822:10 829:22 844:22 867:20 873:4,25
moved 743:8
movement 785:15 808:22,24
moves 785:19
moving 731:25 732:16 734:14 743:12 746:22 775:15
MPI 716:5 718:6 719:3 720:3,8,13,18 721:3,12,13 722:7 723:4 724:15,18 725:5 727:16,20 728:11 729:15 735:24 736:21 737:1,4 739:7,13,16 742:24 748:4,25 749:17 752:3 753:15 762:3 767:10 769:2 770:9 771:14 772:2 774:1 775:19 777:2 779:24 783:7,14,25 784:17 792:14 798:8 800:17 801:6

814:1,8,13,15
815:1,12
817:1
818:21
821:3,21
822:4,15
823:15,23
826:1
827:17,25
839:12
842:17
843:9
860:23
865:1
866:11
871:11
872:18
876:15,16
877:13
885:9,19
886:12

MPI-25
719:3
727:20

MPIC 882:18

MPIC's
882:24

MPI's
729:22
735:23
738:5
770:9
792:3
793:4
794:22
813:22
814:19
815:18
818:8
822:23
873:21
875:4
877:3
880:23

MTA
885:10,22
886:2

multiply
780:1

MUSH
809:21,25

myself
793:22
843:4

N

naive 794:2

narrative
757:22
761:24

national
747:5

natural
743:20
875:6

naturally
747:21

nature
735:10
742:5
779:12
865:17

nearly
728:15

necessarily
777:24
816:3
820:7
861:17
864:20

necessary
730:16
830:7
855:17
876:23
884:17

negative
741:1
792:23
875:7

negotiated
737:5
739:18
762:21

neither
843:6,9

net 730:12
731:22
732:20,22
738:7,11
780:12,18
781:5
809:2
811:11,18
827:6
830:20

neutralize
809:10

newly
770:17

news 728:12
746:24
747:3
750:5,13
803:6
832:13

nicely
728:7

ninety-seven
757:1

ninety-three
747:17

No.3 719:3
727:21

no-fault
851:7

non 796:3

non-basic
772:3

none 807:19

non-management 769:24
770:5

nonmarketable 795:19
809:5

non-marketable 795:21
796:3

non-owners
870:11

non-taxi
748:11

normal
737:12,24
755:21
758:12
854:5

note 876:16

noted
740:25
786:14
815:22

notes 810:8

nothing
805:17
807:16

notice
733:6

November
866:16

np
717:12,14

NSF 735:15

O

Oakes
717:12
750:3
882:7,16
883:5,19
884:8,12

objection
832:10

objective
814:10

obligation
845:22

obtain
724:11

obvious
819:6
859:2

obviously
743:17
745:8
746:9
748:4
838:24
853:7
863:22
864:15,19,22
881:14

occur 837:2

occurred
853:9
858:7

occurring
861:9

occurs
747:21

o'clock
829:9

October
716:23
808:1

offer 828:7
851:13

offered
735:13

Office
787:20

Officer
723:19

offline
846:14

offset
743:20
781:15
785:8

offsetting
720:19
741:2

746:21
797:6,15,
23 798:9

oh 744:9
781:10
799:7
817:15
819:12

okay 722:21
725:21
727:10
729:20
741:7,13,
16,21
742:3,16
743:4
747:2,7
748:15,20
,22 749:4
750:23
753:13,17
754:21
764:12
775:18
793:19
799:21
800:14
815:20
816:22
818:17
828:15
829:5
845:5,7
846:13
851:4,19
860:15
862:8
867:14
872:5
874:3
876:4
877:6,17
878:15
879:15
881:21

old 820:15
859:19

older 746:6
773:23

one-off
769:9

ones 856:21

one-time
769:1,5
811:10,16
,18

ongoing
758:25
825:12
851:17

Ontario
876:18

onward
767:1

open 843:14
853:4
857:10
858:16

opening
734:23,24

operating
729:4
730:15
736:17,22
,24
737:12,24
738:1,3,6
,10
739:13,15
745:2,4
755:12,21
758:13
761:4
778:17
873:16

operational
769:3
811:24

operations
725:18
778:9
780:11
880:17

opinion
839:8,21
847:7

opioid
866:15

opportuniti
es 770:11

opportunity
736:15

opposite
750:3
785:17
854:23

optimistic
881:8,19

optimizatio
n 760:14

option
815:21
816:20,23

options
734:24
822:16
824:3,5
831:11
850:15,19
,22,25

order
763:25
766:6
770:12
778:6
793:3
812:6
813:6,23
814:2
815:1
845:15

ordered
733:8
812:7,10,
20 813:6
826:23

organic
736:10

original
721:7
787:25
800:8,23
829:3
878:2

others
821:17
852:1

otherwise
841:11

outcome
809:15
827:14

outline
736:17

outlined
738:6

out-of
764:10

out-of-
scope
764:20

output
867:17

outside
738:2,3
843:12

overall
731:9
742:23
744:4
746:2
769:25
827:6
837:1,18,
25
838:8,19
840:1
865:1
878:9

overlap
751:22

overtime
740:1
766:2,8,1
3

owner
815:12
818:12
819:14
822:9,18

owners
731:17,24
818:13

owner's
815:23

ownership
820:8

P

p.m 829:12
879:6,7
887:4

page 718:2
719:2
720:2
721:2
751:8
759:6
767:14
768:15,16
,20
769:22
770:3
771:25
773:4
775:22
776:5,22
780:10
786:24
793:8
798:19
807:24
808:4
810:21
847:6,25
849:3,16
854:9
857:9,11,
24 858:13
860:14,21
866:22
875:4

Pages
716:24

paintless

802:14,18
,23,25
803:4,10,
20 804:11
805:8
806:4
830:4

panel
716:12
718:6,7
719:3
722:6,7,8
,11
723:4,5,1
5 726:8
727:12,20
749:5
751:7,14,
16,21,24
752:11
753:20
754:10,15
,23
828:23
831:22
832:8
855:24
856:14,15
857:14
866:12
871:5,11,
14

panels
842:9

paragraph
781:13
783:24
784:25
785:3
795:2
811:23
841:18
847:6
854:11
857:24

pardon
756:14
759:4,9,1
1 792:15

park 831:17

partially
816:7
858:3

particular
743:11
793:25
799:13
821:3,10
822:7
840:22
851:12
861:21
874:21
880:10
881:7
882:25
884:8

particularl
y 821:7

parties
753:24

partnership
866:14

pass 736:12

passenger
744:6
748:8
873:10

passive
854:15,23
855:2,6,1
3

past 778:10
796:6,13
828:10
829:20
830:1
878:6

PAUSE
763:14
771:1
772:21
774:5
775:3
782:3
792:25
795:11
796:16
797:9
800:1
804:13
805:12
806:6
809:18
823:4
826:16
840:18
844:15
848:3
849:13
850:1
876:8,25
886:16

pay 746:12
764:17,18
837:9
870:13

payable
725:16

payday
842:11

payers
848:14

paying
744:6
869:1

payroll
725:15
756:15
757:3
766:5
779:16

PDR 855:23

peer 842:9

Pelly
793:22

pension
763:1

people
730:21
731:4
746:22
751:23
768:4
775:12
777:21
816:10,21
817:9
818:17,19
819:6
820:9,13
821:19
837:8
869:5
870:15
876:22

peppering
807:17

per 721:8
737:7
739:22
743:18
744:21
745:3,13
768:18
791:2
793:2,4
800:9,24
812:13
813:11
820:2
860:1
863:22
870:11
875:15
881:12

perceived
848:13
850:14,19
,21,24

percent
720:6
728:15,17
729:24,25
730:1,11,
16,23
731:1,24
732:5,7,8
,22
733:10,13
735:17
736:21
737:7,11,
13
738:2,8,9
,10,21
739:15,21
,24
740:6,7
743:18
744:5,15,
17
745:6,13,
20 746:20
747:20,21
748:21
749:1,17,
20 750:17
756:18
757:8
758:18,21
761:5,10,
13
762:4,5,7
,9,11,13,
17,19,22
763:17,18
765:6,12
769:18,24
770:23,24
771:10,19
793:2,3,1
0 794:14
797:6
798:6,24
804:17
805:5,25
811:2,3
816:1
833:20
834:1,17,
20
835:1,2,5
,10,20
836:3,6,8
,23
837:3,4,7
,9,19,24,
25
838:2,9,1
8,23
839:13
854:4
873:12,14

875:7
877:9,19,20,22,23
878:2,7,9
882:11,12,17
883:1,6
884:16

percentage
758:12
763:10,22
765:3
782:15
869:21

percentages
763:1
804:10

perception
851:2

perceptions
849:9

perfect
746:5
860:8

performance
812:23
813:13
815:3

perhaps
759:6
775:16
796:18
800:3
802:1
807:6
815:16
825:20
831:10
838:6
868:2

perils
806:14
885:3
886:7

period
749:12
755:23
780:23
788:6
858:23
860:3
868:17
884:19

persist
855:15

persistence
854:2
865:9

persistency
865:16

person
818:22
857:17

personal
767:2

perspective
819:4
856:4
881:4

perspectives 837:17

pertain
728:22

pertains
729:22
736:8

phase
760:8,9,13 822:22

phased
809:25

phasing
809:21

phenomenon
874:11

Phoa 723:24

phrased
845:23

phrasing
867:18

physical
820:17

piece
820:16
825:16
868:12

pilot 863:2

PIPP 785:1
820:22
858:15
880:15

plan 767:2
795:20
822:24
823:7,16
850:6
851:7

planned
752:14
779:22
787:25
881:15

plans
823:18
877:4

play 737:7

players
821:15

please
722:22
727:16
728:20
755:20
789:22
793:15
832:17
849:5
880:22
882:3,4

pleases
829:19

plot 819:25
870:10

plus 805:20
820:1
837:24

point
737:14
743:21
748:19
749:19
759:9
761:13
762:12,23
763:18
794:11,13
797:2
857:25
859:23
861:13
872:7,18
879:16
880:14

point-five
759:4,24

point-nine
759:9,10,24

point-one
748:19,25

points
743:15

point-six
756:10
757:1

policies
728:11
730:12,14
793:24
798:23
821:20

policy
808:1,10
810:15
814:6
816:12
817:21,25
845:24
851:13
866:16
871:2

poll 841:8
848:8

polling
847:8,12
849:18

polls 840:6
843:5

population
763:4
835:2,21

Portage
716:21

portfolio
794:23
795:5
796:5,6,12,22,24
809:7
810:9

portfolios
770:11,13

portion
745:11
805:3
809:6
851:13
881:7

portioned
788:25

pose 856:19
880:12
886:12

posed
849:20

position
725:8
730:17
767:25
778:2,4,7
780:2
813:22
814:19
815:18
823:24
863:10
866:7
871:25
880:23

positions
720:7
764:20

765:9
767:6,12,19,23
768:6
769:13,14,23
770:5,17,18,25
771:11,21
777:19,21,24
779:22
780:7
854:20
871:24

positive 785:12

poss 851:20

possess 850:21

possession 851:21

possibility 827:23

possible 766:11
786:13
875:25
885:23

post 864:15

post-BI3 852:25
858:17

post-retirement 763:2

potential 843:17
844:11
851:14

potentially 778:18

PowerPoint 860:11,22

practice 743:9,13
842:24

practices 740:20

pre 854:1

preamble 794:16
795:2

PreAsk 886:13

precedent 878:6

predictive 869:16

predominantly 768:1

prefer 856:8

preference 856:11

preliminary 803:8
873:9

premade 814:4

premature 827:12

premium 721:9
729:25
736:11
746:8,10
748:16
801:1
802:5
812:12,22
813:12
814:4
821:10
827:8
833:12,19
834:4,16
835:16,25
836:7
868:1,9,19,21
869:21
872:20
873:8

premiums 720:10
729:24
730:5
732:2,6,13,17
733:5
738:7,11
781:22
782:12
783:10
799:21
813:9
814:4
816:4
834:2
837:14

preparation 725:22,23
752:4

prepared 726:8
752:7
754:15,16,19
801:18
844:3,9
865:6

presentation 726:8,15,19,23
728:1
751:3
791:20
792:14
875:4

presentations 719:3
727:2,11,20 842:3

presented 860:11
875:19

presently 841:19

pressure 873:10

presuming 764:3

pretend 817:22
838:2

pretty 748:22
799:10
804:23
805:3
807:11,15
809:6
817:3
819:6
858:25
859:2,3
865:14
868:3

prevention 773:6

previous 739:5
762:17
781:5
795:15
874:13

previously 718:8,9
723:6,7
727:10
765:2,9
799:1
875:10,17
880:19

price 737:8
848:14
849:17
874:14

prices 828:9

pricing 723:24
800:14

primarily 726:3
741:1

primary 733:19
743:1
815:21
816:11
817:4,16,17
818:10,16,18
819:7,14
822:8,10,18 824:3

principal 812:23
813:13
815:3

principles 740:19

prior 728:13
736:23
738:19,22
786:17
795:16
805:8
810:1
822:17
827:13
843:14
845:17
874:12

priority 736:20

private 744:5
833:13,14

pro 732:1

probably 741:15
754:4
793:21
806:23
818:21
821:16
830:21
852:16
868:15

871:23
873:3

problem
856:9

problems
809:12
856:9

proceed
824:4
845:10
857:18

proceedings
795:4

process
749:16
795:23
825:1,5
832:17
838:23
843:14
844:13
845:14,16
846:5
851:5
853:9
854:14
855:11,14
857:6
858:25
864:18
880:15

processing
787:5

produce
811:17

produced
875:10

product
723:17
824:9,19
825:13

profess
807:9

profession
724:11

professiona
l 724:7
774:19
775:9,12
876:5

program
731:14
733:24
734:19,20
,22 748:4
773:7,10,
21 774:3
775:11,13
876:5,19
885:9,14,
21

programs
751:20
876:21

progress
721:14
824:25
825:9,22
826:2
865:1

project
740:14
741:22
742:9
752:21
768:5,11
789:1
843:21
844:1
863:2

projects
738:14
740:18
741:25
751:9
759:21
760:18,25
768:2
786:25
787:9
788:24
789:8
791:16

prominent
737:1

promised
845:6

proper
857:17
861:21

properly
832:2
856:11
866:11

proposal
826:11

proposed
795:14
812:11,21
822:25

protection
767:2

proven
743:7
749:16

provide
720:3,8,1
8
721:3,8,1
3 724:4
767:19
768:21
770:22
771:3,8,1
4 774:25
782:10
783:7
797:23
798:8
799:17,22
800:17,25
801:18
802:4
823:18
826:1,10
830:7
844:8
848:13
863:10

provided
727:3
788:24
791:19
793:9
826:19
884:17
885:9,23

provides
854:12

providing
726:14,19
,23 768:5
799:4
800:5

province
730:21

provision
720:19
730:13
743:24
749:2,19
797:6,12,
16,23
798:10
811:13
824:16
837:5
882:13
883:8

prudent
736:20,25
737:21
738:6
739:11

pub 727:12
789:14
791:3
825:6
843:16
844:11
845:22,24
846:4,5

PUB/
MPI-1-51
824:25

PUB-18
719:4
789:17

public
716:1,5,2
0 717:6
721:15
821:17
822:23
823:25
824:25
825:7,10,
16,23
826:4
831:25
832:7
833:1,18
839:20,23
840:25
841:19,20
842:2,10,
15,23
843:14,17
844:7,9,1
2 846:15
847:1,7,1
3 848:13
850:6,10,
20 851:2
856:7,10
860:12
861:4
866:7,14,
24

publically
885:18

PUB-
MPI-1-12
795:3

PUB-MPI-1-3
793:6

PUB-
MPI-1-38
768:15

PUB-
MPI-1-40
774:15

PUB-
MPI-1-45
786:10

PUB-
MPI-1-47
769:11

PUB-MPI-2-14 810:20
pull 755:20 786:10 788:3 792:13 793:6 825:2 866:22 872:12 880:9 882:3
purchase 731:8
purchasing 725:18 731:5 795:21
purely 795:17 820:13
purpose 865:6 879:17
purposes 723:14 793:20 818:24 866:8
putting 853:24 859:1

Q

Q.C 716:13
Q1 776:20 777:2
Q2 720:11 755:14 775:16,25 776:11,13 777:15 778:10 782:19 783:11
qualified 856:16
qualify 731:18
qualitative 823:8,9 839:23 840:24 841:3
quantitative 823:9 839:21
quarter 776:24 777:6,8,12 780:13 785:25 802:7
quarterly 778:15 865:1
question 751:16 753:2 769:14 775:6 786:11 788:9 793:7 811:8 830:17,22 837:22 840:10,22 845:9 849:19,20 857:5,15 858:7 859:7 860:19 862:9 869:8 872:16,18 880:11 882:5 883:17 884:11 885:7 886:12
questionable 874:18
questioning 801:15 842:13,18
questions 750:25 751:1,12,21,24 752:8,10,13,23 753:15 754:9,12,15,23 755:13,15,16,19 772:24 775:15,20 786:9 792:13 798:16 803:24 804:2 812:4 813:5 828:23 832:1,18 837:12 840:7 842:16 855:25 856:5,11,20 857:3 871:4,14 879:2,12,14 880:13,18 881:24 882:6 883:20 886:5
quickly 759:7 821:14
quite 728:14 745:19 750:3 754:25 779:5 807:1 856:13 875:24
quotes 794:17 795:2

R

raise 751:5 879:16
raised 752:3 753:8 846:20 879:17,25 880:1
ran 763:24
range 739:21 804:18 805:19,24 806:24 832:22 833:19 834:22,25 878:12
ranges 736:5 883:20,24
rapid 867:21
rate 716:6 720:20 721:5 725:24 728:13,15,17,23 729:7 730:6,9,10 732:9 733:10 736:18,22,23 737:3,10 738:2,19 739:5,9 743:1,23 744:1,3,11,13,16,17 745:9,21 746:4,11,12,22 747:1,5,10,12,19,20 748:18 749:10,16 750:1,12,17,21,22 762:4 785:7 792:17,18,22 793:2,4,10,11,25 794:1,2,4,5,20 795:5,6,17,24 796:23 797:5 798:3,12,22 800:7,20 808:8 809:3,9 810:12 811:1,2 814:22 815:22 817:20 833:17 834:9,20 836:12,20,22 837:3,16,18,19 838:1,14,19 839:5,11,13,25 840:1,2 841:12 842:4,9 843:15 847:8 849:4 866:8 873:10,13

,24
877:7,9,13 884:13

rated
817:5,6,7

ratemaking
722:8
726:9,24
728:6,8
729:8
743:3,5,6,10
794:17
797:19
815:2
816:15
832:2
873:21
882:7

rate-making
749:7,15
755:15
814:10
882:3

ratepayer
847:20

ratepayers
749:11
846:9
849:21
861:5

rates
720:17
743:17
744:12,25
745:21
746:1,2,15
747:11,14
750:6,8
783:3,20
785:12,15,17,20
794:6,9
808:13,23
809:11
812:12
814:9,14
840:8,14,16
841:1,22
843:19
847:15
848:19
849:6,19
863:6,11,14 874:1

ratesetting
720:21
798:4,12
844:12

rate-setting
827:7

rather
723:16
735:3
837:18

rating
728:25
729:16
744:14
748:15
749:12
755:17
798:17,25
812:5
813:19
814:13,20,22
815:13
816:4
817:25
823:1
824:12
870:25

ratio
721:10
738:8
799:20,23
801:2,13
802:5
873:14

rationale
815:6
827:4,9

ratios
750:9
799:16
873:6

Raymond
717:12

re 716:5
719:3
727:20
735:22

reach 764:1

reads
882:11

real 810:15
820:24
824:17

realized
720:4
771:9,16

really
728:22
732:25
744:23
746:3,21,23,24
750:6
751:13
773:24
785:19
794:3
799:20
803:7,12
807:17
809:8
810:8,11
817:17
820:17,20
832:17
859:15,18
878:21
883:11

re-ask
743:23

reason
773:15
774:25
775:8
791:1
800:11
846:11
881:10
884:23,24

reasonable
806:20
828:8,11,17 864:19
873:8
878:14

reasonableness 840:8

reasons
733:19
749:2
753:4,5
859:8

rebate
731:13,18,20,22

rebates
731:12,17,21
732:10,21

rebuilding
878:7
883:14

recall
797:11
812:25
832:20
836:14,16,18
866:23
882:8,16,20,21
883:2,21

recaptured
734:4

receivable
725:16

receive
762:6

recent
730:24
805:6,8,20 864:14
874:11
883:25

recently
743:8
799:16

recessing
786:2
829:11
879:6

reclaimed
860:24

recognition
801:23
817:9
819:15

recognize
743:8
797:2

recognized
740:15
748:3
752:5

recognizing
839:20

recollection 804:17

recommendation
821:22
874:13

recommending 832:5

reconcile
762:16

reconsidered 796:19

reconsidering 876:16

record
754:4
757:11
771:7
789:13
792:2
797:22
802:2

811:22
815:23
816:13
821:24
829:18
830:20

recovery
760:7,12
831:9

redacted
860:11

redevelopment 786:25

re-development 787:12

re-developments 787:1

re-direct
718:15,16
878:16
879:12,17,24
880:1,7
881:24
882:1

reduce
733:21
737:16
739:8
740:10
767:11
768:4
769:18
787:5
808:14
809:16
811:11
827:8

reduced
738:21
740:1
798:23
830:10
869:22

reducing
737:19
740:11
741:3
750:22
764:2
803:18
854:14

reduction
736:21
737:23
738:21
748:19
772:14
774:23
775:1,8
799:19
803:9
806:15
833:4
858:1,4

reductions
738:25
739:9
745:8
750:13
872:3

reenforces
857:25

refer
738:16
821:24

reference
770:4
772:19
786:24
787:5
792:2
797:18
802:14
804:8,16
813:4
825:2
836:18
841:19
849:6
850:14,16
863:2,7
864:25

references
802:18
807:24

referred
828:1

referring
762:9
790:2
792:3
821:25

reflect
795:24
796:24

reflected
778:15
833:4
872:7,10

reflection
819:18

reflective
796:21

reflects
837:14
882:12

regard
754:16
872:17

regarding
775:15
832:21
866:25
885:17

regardless
868:18
869:17

register
818:14,20

registered
815:12,23
818:12,13
819:14
822:9,17

registers
819:24

regraded
764:20

regular
777:20,24
865:15,23

regulatory
832:17
838:22

reimbursed
775:12

reimbursement 774:8

reinforce
879:22

reinstatement 784:23

reinsurance
733:17,19
734:4,15
784:4,18,21
807:18,20
830:20

re-insurance
831:5,9,11
874:8,14

Reinsurance
723:22
733:17

reinsure
734:6

reinsurers
874:11

relate
759:18
762:23
772:16,24
842:17
885:15

related
725:23
737:25
753:8
768:1
781:25
786:17
798:17
805:10
832:2
844:12
848:14
849:17
853:4,5
857:4,8
861:17

relates
766:2
767:2
786:9
791:16
802:14
847:20
853:18

relating
737:8
739:17
768:2
841:21
842:11
848:14
852:4

relation
751:9

relationship 785:20
828:17

relative
796:1

relatively
744:4
749:14
802:19

released
858:8

relevance
842:18

relevant
794:6

reluctant
846:21

remain
734:17
740:3

779:12
remainder 778:25
remained 743:14
remains 779:15 789:2
remarks 734:24
remember 819:12 875:9,22 877:14,15
remind 845:5
re-naming 797:2
renew 821:20
repair 802:15,18,23,25 803:4,8,10,20 804:11 805:9 806:4 830:5,8
repairs 747:4 804:22 806:22
repay 848:14
repeat 775:6 796:8
repeating 749:23 880:2
rephrase 846:7
replaced 786:20
replacement 859:20
report 755:14 775:16 776:11,20 777:12 780:10 807:25 809:1 823:24 830:24 831:2 860:22 861:8 864:22
reported 777:2,7 783:25 824:21
reporting 725:17 865:15,23
reports 865:6,8
represent 729:3,25 760:3 780:21 793:17 837:15
representation 752:14
representatives 764:16
represented 729:23
represents 731:23 732:5 745:20 758:12 765:17 769:24
re-purposing 740:10
request 736:19 749:25 769:12 782:19 786:12 792:3 793:7 794:17 810:24 811:9 815:7 839:3 841:6,17 852:7 860:22 880:10
requested 730:11 749:1 827:1
requesting 827:4
Requests 726:5 792:4 860:7
required 747:20 816:15 828:7 871:20
requirement 773:23 798:22
requirements 733:22 772:14
research 740:23 742:5,6,10 809:14 823:9 824:3 848:7 850:21,24 851:20
researching 821:5
reserve 862:9
reserved 859:22 860:1 863:23
reserves 853:18,24,25 859:2,5,6 881:4,12,16
reserving 852:5 853:6 858:15 859:3,9,18,20,22,24 865:13 880:15
reset 784:21
residual 819:22 821:6,25 866:25 869:10 870:7,18
resources 768:19
respect 721:15 724:5 759:17 768:18 770:14 778:23 788:9 791:6 798:16 825:23 826:4,20 829:19 842:13
respectfully 856:3
respective 796:20
respects 729:7
respond 770:6 845:15 880:25
responded 886:14
response 750:6 751:15 765:2 769:16,20 771:25 774:16 786:15 792:3 793:7 795:3 810:25 811:8,9 824:24 825:4 839:2,21 841:17 844:25 845:10,17,18 858:12 859:4 860:22 886:19
responsibilities 725:12
restate 802:2
re-state 800:4
restructured 871:25
result 736:23

750:18
827:5
854:13
855:4
859:3
869:14
877:4

resulted
747:19
880:16

results
728:10
735:25
755:23
765:21
778:15
780:10
789:25
790:5
811:11,24
823:18,24
826:24
848:7,9

resume
785:25
879:10

resuming
786:3
829:12
879:7

re-summarized 748:23

retain
734:7

retained
860:25
861:3

retaking
810:17

retention
862:20,24

retire
777:21

retires
778:1

retrieve
829:17
830:3

return
881:9

returning
722:11

revenue
720:9,12,15 721:4
722:7
735:12
781:25
782:11,25
783:1,8,13,17
798:17,25
799:5,19
800:6,19
827:6,8
868:24

REVENUE/EXPENSES/RATEMAKING 718:6
723:4

revenues
726:9,15
728:1,4,10,21
729:14,22
730:2
732:6,16
735:12,18
749:5
781:14

reverse
750:10,11

review
724:2
725:23
735:22
755:17
824:9,20
825:13
826:21,22
828:1,4,6
861:22

reviewed
726:5
762:17
773:1
813:14

reviewer
726:4

reviewing
734:24
864:25

right-hand
788:10
790:10

rise 785:15
811:2

rising
794:7

risk 723:17
733:20,25
734:17
819:18,22
820:6,13,14
821:6,9,25 837:15
851:14
866:25
869:11,16
870:7,8

riskiest
817:24

risks
869:24
885:15

RM 798:18

RM-15
833:12
835:14

RM-16 834:7

road
730:20,22
744:3
748:8,11
772:24,25
773:2,5

roadmap
755:10

roads 733:2

Robert
716:13,16
717:4

role 726:2

roles 779:8

rolled
764:24

rolling
840:5
841:8
848:8

root 786:13

roughly
756:18
774:12
780:24
784:11,14,15
860:2,5

Round 726:6

row 723:21
724:2
754:19
844:19

RSR 883:20

rules
837:23,24
881:18

run 777:25
778:24

running
886:21

runoff
731:15

rural
870:23

S

safer 733:2

safety
728:25
729:16
755:16
772:24
773:1,2,5
798:16,25
812:5
813:19
815:13
816:4
824:12

salaries
729:1
737:6
739:23
761:18
765:17

salary
762:24
763:16

sample
872:25

saved 791:5

savings
720:4
743:16
747:6
770:22
771:9,15
772:3
774:2,8,13,17,19
787:15,18,22 806:3
830:13

scale
720:14
733:9
761:25
762:3,11,21 782:1
783:1,15
812:14
813:11
820:1

scan 735:20
828:2,3

Scarfone
717:6
718:16

722:14,15
,20,23
752:1
754:6,17,
22 755:3
771:3,12
782:13
803:22
829:15
830:18,21
,25
831:16
832:9
844:17,23
845:1,4
846:10,18
857:19
877:18,20
878:16
879:11,20
880:5
882:1,2,1
5,23
883:4,16,
23 884:3
885:1,25
886:4,6,1
8

scenarios
886:20

schedule
732:1

Schubert
833:8
834:6
849:5
850:3
860:9
866:21

scope
751:18
764:11,24
,25

screen
775:23
837:2

scroll
757:23
759:7
767:14
768:20
769:16,22
786:15
798:19
812:9
814:19
816:9
822:14

seated
734:15

second
743:15
747:24
777:6,12
780:13
783:24
795:2
802:6
816:10,23
819:11
839:3,22
848:1,6,1
2 854:11

Secondly
733:22

secretary
722:22

section
726:4
731:11
776:19
794:17
797:19
798:21
801:10
802:13
803:7
812:8
823:15
831:2
850:4,10

seeing
731:8
733:10
749:8
750:8
794:10
803:9
863:18
864:12

seek 737:15
827:12

seeking
729:15

seem 822:9

seemed
883:24

seems
817:23
820:5,8
878:14

seen 745:19
799:15
853:3
864:3,23

selected
793:10
811:1

selecting
808:8

selection
810:25

sell 746:8

selling
731:4

semi 876:22

sense
831:14
853:22
855:9

sentence
808:21

separated
875:23

September
793:13,17
,23
852:19

series
750:4
755:18
792:13

serve
810:16

serves
732:25

service
728:24
729:15
730:1
735:11
736:4,8
755:17
769:8
787:2,13
826:20,23
827:13,16
,20 828:2

services
735:13
828:7,21

setting
745:9
847:9

seven
788:17
834:23
873:18

seven-five
762:12,23
763:18

seventeen
764:17

seventy-six
756:7,10

several
737:23
739:4
740:2
870:14

severance
872:6,9,1
2

severed
872:4

severing
871:20

severity
803:9,13,
18 804:22
806:22
830:9

share
729:23
748:5
799:14
822:24
844:4
866:7

she's
752:12

shift
731:5,8
837:6
868:8

shock
836:13,20
837:16,19
838:1,14,
19
877:8,10,
13

shocked
839:13

shocking
868:22

short 778:3

short-term
810:8,10

showed
749:10
830:9

showing
737:12
799:16

shown 733:1
744:7
780:21
793:17
819:23
875:25

shows 732:1
739:3
740:5

755:21
756:1
758:24
761:3
766:15,25
768:16
774:16
788:4
789:23
803:8

sic 727:3
758:14
788:5

sight 789:5

significant
765:11
786:16
804:9
812:2
851:22
883:24

significantly 740:2
765:13
804:9
818:12
820:10
870:3

similar
776:23
814:21
839:24
864:14

similarly
812:20

SIMONSEN
727:17

simply
733:17
880:2

single
734:3
739:12

sir
833:14,23
834:2,17
835:2,7,11,13,15,25
836:7,14,19 838:16
839:4,6
840:2,13
841:10,23,25 842:8
844:2
846:8
848:6,15,25
849:2,5,10,15,17
850:7,14,16,18
851:8
853:10,18
854:10
855:18
858:11,23
859:14
860:2,13,17,25
861:2,10,23
862:10,24
863:2,7
864:8,24
865:6
866:4
867:1,4,11
869:8,12,24 870:4
882:10,24
883:21

sit 777:17

sitting
722:10
736:1

situation
842:17

six 724:19
725:8
788:11
834:23
860:3
873:1,18

skill 778:5

slide
729:21
730:4
733:3
736:3
738:5,16
739:3,12
740:4,12,16
745:17,20
748:24
792:15
824:9
827:25
830:9
861:24
862:10
863:1,4
864:24
880:10

slight
795:14

slightly
763:19
820:9

slow 733:12

small 731:8
735:2
738:12
807:12,18
831:10
855:8
863:6
864:3
872:25

software
740:24

solution
739:9
742:9

somebody
778:1,7
856:16
857:15

someone
819:5
841:11
870:2

somewhat
773:16
817:11
834:21
860:11

somewhere
829:3

sorry
741:6,9
744:9
750:14
756:6
760:20
765:7
775:5,6
781:7
790:1
796:9
799:7
804:16
817:15
831:20
842:12
855:20
872:13
874:8
878:16

sort 751:18
753:1
754:3
875:22
878:8
881:17

sound 814:9
816:6
821:11

soundness
814:3

sources
735:12
885:13

space 787:1

speak 728:4
729:10
736:15
752:6,24
804:7
824:8
839:9
843:24
852:2
855:1
861:3
864:5

speaking
750:15
840:4
844:3

special
748:1
885:15

specifically 724:5
751:7
772:16
840:4,10
847:25
851:6,12,17

speed
867:21

spend
756:19
757:8

spending
786:14
787:5

spent
741:18
788:25
789:3,4

spill
734:10

split
818:18

spoke
745:25
813:7
877:7

spoken
764:15

sponsorships 737:19

SRE 885:15

stability
839:5,25

stable
743:7
749:6
840:14,16
841:1,12
843:19
847:14
848:18
849:6,19,
24

staff
767:11
769:1
777:13
858:8
861:18
864:16,17
865:12

staffing
766:17
768:19
769:2
772:2,4,1
3,14
775:20,25
776:4,12
778:10,14
,17,23

stage
767:21
881:13

stages
825:6
862:12

stakeholder
s
843:17,21
844:10
846:9

stand
765:10

standard
740:19
802:19

standpoint
819:20

start
722:18
755:12
768:13
779:21
816:21
832:19
842:23
852:6
862:5
864:1,2
879:13

started
759:21
881:15

starting
730:9
860:8

state
723:15

stated
739:16
770:9
794:18
795:4

statement
743:12
808:12
811:17

statements
744:24
872:8

states
808:5
859:7

statistical
814:16,21

statistical
ly 812:12
813:10

staying
853:4

steady
733:16

stems 733:7

step 761:25
762:3,11

steps
762:21
823:22

Steve
718:16
722:15,20
,23 752:1
754:17,22
755:3
771:3,12
782:13
803:22
829:15
830:21,25
831:16
832:9
844:17
845:1,4
846:10,18
857:19
877:18,20
879:11,20
880:5
882:1,2,1
5,23
883:4,16,
23 884:3
885:1,25
886:4,18

Steven
717:6

stolen
870:1

stood 765:9

stop 818:7
853:24

stopped
789:10

storm 735:4
803:13
804:19
807:15

storms
735:2
807:12,18
831:10

story
728:12
746:24

strategic
764:1
766:6
787:24
847:9

strategy
733:23
735:10
822:14,23
854:23,24

stretch
766:6

strives
808:10

strong
732:25
814:15,21
848:15

strongest
848:18

structure
734:22

subject
751:1
760:6
769:5
784:14
841:20
851:25
860:14

subjectivit
y 799:11

submit
843:1

subquestion
854:9

subsidizati
on 877:3

substantial
804:24
805:3
809:6
863:18
864:12

successful
752:23
833:18

sudden
810:12

suddenly
853:24

sufficient
799:25

suggest
789:13
834:15
837:12
849:7
855:25
857:25

suggested
855:23
880:18
882:17,24

suggesting
851:21
883:5

suggestion
845:21
846:8
861:8,25
863:5

suggests
850:24

suite 824:9
825:13

summarize
749:4
815:17
818:7

summary
833:12
848:6
860:9

support
793:9
815:7

850:11
885:10,22
supported
813:12
814:15,20
885:11
supportive
821:3
822:4
suppose
825:17
supposed
746:15
surcharge
731:19,22
883:14
surcharges
732:19,21
,23
sure 722:9
727:14
753:25
782:24
806:11
813:3
817:4
818:17
827:23
830:14
856:21
859:10
865:12
866:11
surprising
834:19
surrounding
862:18
surveyed
822:6
surveys
839:21
840:6
suspect
818:19
suspecting
765:10
SUVs 731:8
swallow
838:4
swear
722:22
switch
808:6
sworn
718:8,9
722:18
723:6,7
synergies
737:18
system
760:8,9,1
3 768:5
852:18
853:8
854:21
859:2
861:18
systemic
880:16

T

table 718:1
744:10,19
,21
747:10
754:9
755:21,22
756:3,12,
22 757:12
758:24
761:17
762:17
765:16
766:1,15,
24,25
788:4,10
790:4,17
792:22
794:9
804:2
810:22
811:4
875:12
tabulate
823:10
tactics
740:9
Tai 723:24
taking
722:9
775:12
843:12
talk 747:11
843:8
881:2,3
talked
732:9
745:7
749:2,5
799:13
815:24
820:21
831:10
842:24
871:17
874:9
884:24
talking
729:13
743:3
750:6
781:8
838:5
845:9,11,
17
851:6,9,1
1 856:8,9
860:3
869:15
874:17
881:3
talks 743:5
target
766:7
776:13,16
777:15,17
779:5,11,
12,15,19
targeted
777:17,25
taxi
748:2,12,
15,16
799:14
taxis
748:2,9,1
0 799:20
873:8,15
team
725:15,19
777:22
782:24
825:13
859:9,22
tease
754:12
technical
752:12,20
753:4
754:14
813:18
815:14
technique
802:18
803:13
techniques
802:23
803:1
technology
752:9
773:25
856:5
teenager
819:8
temporal
846:13
ten 731:17
764:18
829:6
tend 855:4
tends
768:10
tentatively
823:17
term 741:12
742:17
863:17
865:19
terminated
741:22,25
termination
741:9
terminology
741:15
terms 730:2
732:9
735:1
751:19
774:8,11
803:9
804:10
820:20
833:16
835:5
836:6,7
838:8
841:7
843:24
846:12
848:12
849:3,7,1
8 850:18
851:4,5
852:25
853:19
858:1,2
859:13
860:9
863:10
864:10
865:15
869:24
874:12
territories
731:3
territory
744:13
814:22
870:20,21
871:1
test 825:2
878:4
tested
839:23
testimony

882:16

testing
836:21
841:20

tests
849:18

thank
722:12,13
723:1,2,13 724:6
727:17
728:2
729:19
736:14,15
742:16,18,22 743:4
749:21
750:25
751:2,4
755:8
757:23
758:10,23
759:8,16
760:7
761:2,22
762:15
764:7
765:15
766:14
768:14
769:10
771:5,12,24 772:17
774:14
775:14,18
776:21
778:22
780:9
782:22
783:4
784:24
785:21,24,25 788:2
789:12
790:16
791:8,25
792:11
793:5
794:15
797:4
798:1,19
800:15
802:9
804:3
805:7
806:1
807:22
808:20
810:19,23
811:21
812:3
821:1
822:13
824:22
826:8,14,19
828:21,22
829:8,9
830:6,16
831:15,21
833:7,8
840:12
846:17,18,25
851:19
852:3
857:19
864:7
866:18,20
871:13
872:15
874:3
878:15,18
879:3,4
880:5,8,11 881:21
882:2
883:16
885:1
886:4,8,23,25
887:1

thanks
871:11

that's
722:20
726:21,25
732:8
737:6
741:7
744:16
745:5
746:5
747:2,3,10 748:19
750:8,24
752:13
753:8
756:1,18
757:7
763:10
764:14
767:16
768:18
769:14,19
773:5,12
774:21,23
775:19
779:20
780:15
782:21
784:6
790:12
791:13
792:10,20
793:14
794:8,25
796:2
797:25
799:2
802:21
803:6
806:13
810:21
811:14
815:12
816:22
819:5,6
820:19
821:8
823:13,20
824:1,6
827:2,9,18
830:14,21
832:9
833:15,23,24
834:3,10,18
835:3,12,22
836:1,9,24 837:21
838:24
843:10
844:21,22
845:25
846:22
853:2
855:5,6
857:8,18
860:8,19
861:3,6,12
862:14,17,21
863:21
865:22
866:2,5
868:11,12
869:5,18
870:5
876:2
878:13,24
880:11
882:14
884:22

theft
731:12

theoretical
839:7

theories
858:6

theory
817:2,25
820:12
870:12,17,23

thereafter
733:13

there's
729:8
731:5
747:25
748:7,9
753:21
754:23
758:9
759:14
763:5
767:24
772:14
773:20
776:22
777:6
784:22
786:24
787:4
790:22
799:10,11
816:19
817:21
818:2
819:8
821:15,21
833:13
834:21
843:7
847:18
849:23
851:20
854:17
858:7
863:13
872:25
878:5

they're
737:9
746:15
759:10
767:25
770:17
772:9
805:24
809:5,6
812:8
816:6
843:25
872:7
879:21
881:5
884:15,21

they've
730:5
764:18
876:17

third
743:21
841:17

850:13
thirteen 766:25 768:19 864:17
thoroughly 822:16
thoughtfulness 838:11
thoughts 844:4
thousand 788:12 870:15
threshold 838:6,22
throw 861:20
til 859:14
timeframe 828:25
title 770:18
today 722:6,9 736:16 748:7 752:24 753:16 816:17 832:14,15 851:18 868:24 871:2 884:21 886:9
today's 853:23
tomorrow 722:10 867:15 886:20
tools 839:24 840:24
844:11
top 732:3 747:9 756:12 759:5 760:20 768:20 769:22 776:5 872:14
topic 803:24 807:9 862:18
topics 726:9 728:7 821:5 824:20 825:15
total 729:3 730:2 732:5,23,24 738:17 747:18 749:19 756:4,19,23 757:8,12 759:3 761:3 769:25 775:24 776:3 781:15 784:8 805:9,23 806:2,14,18 811:15 829:23 831:12 868:23
totally 869:9
tough 805:14 838:3
towards 821:12 878:20
track 774:10 826:10
tracking 864:2 865:9,16
trade 875:2
tragedy 877:5
trailers 876:23
train 734:9
trained 886:7
training 774:20 775:9,13 876:5,18,21,23 877:2,3 885:19
tran 836:19
transaction 735:16 827:13
transactions 735:13 752:19
transcript 718:20 836:17 878:3
transfer 733:20 734:16
transitioning 822:17
translate 743:17
treat 874:2
treated 842:4
treatment 861:15
trend 733:6
trending 730:24
triage 863:2
triggered 734:4
truck 774:20 775:9,12 876:5 885:7
Trucking 886:3
true 787:15,18 834:18 858:10 862:14
truly 760:25
trust 845:2,4
try 779:7 853:25
trying 774:10 831:17 845:12 877:10
turn 743:2 827:25 852:4 881:19
turned 720:15 783:2,17
turnover 777:20 779:7,13,25 780:6
twenty 735:19 759:3,8,9,10,23 868:15 881:12
twenty-four 770:5,24 771:11,20 853:1 858:16 859:19
twenty-nine 786:20
twenty-seven 848:7
twenty-three 759:24
tying 795:16
Tyler 886:21
type 786:15 804:18 821:7 822:18 843:5 869:25
types 732:2 796:25 824:11,13 838:7 865:16
typical 725:14 743:12 804:10

U

ultimately 728:9 779:17 812:17 813:3
unable 752:12

857:1
unassigned 788:9,11,17,22 789:2,9
unavoidable 737:11
uncomfortable 856:15
underlies 792:22
underlying 828:17
underneath 849:4,17 882:11
under-reserving 880:16
understand 723:20 724:14 725:4 726:7 751:17,18 757:17 762:3 767:10 773:9 779:21 780:21 791:16 792:16 816:16 827:4 828:6 843:22 857:5 864:9 866:13 867:13,22 869:9 876:2
understanding 726:14 754:11 758:4 773:18 801:12 840:23 841:3 852:12 858:21 864:11 880:17 881:6
understands 751:11 782:24 815:6 837:13 857:14
understood 867:5 882:10
undertake 782:14 797:12 823:16 828:6
undertaking 771:4,14 782:6 783:7 798:8 800:4,17 801:13,17 825:21 826:1 841:11,14 844:4,7,18 845:6 846:21 871:10 873:5
Undertakings 718:4 720:1 721:1
underway 843:21
Unfortunately 834:22
union 739:18 762:13
unit 745:3,13 875:15
unless 747:6 856:10
unpaid 785:7
unsatisfied 850:15,20
update 721:13 744:14 755:17 812:5 823:18 825:9,17,21 826:1 863:10
updated 735:19 745:5 747:13 826:11
updates 886:13
upgrade 730:7,25 731:2,7 732:9 743:20 745:18,23 746:10,20 747:1,5 749:6 781:19 875:7,12
upgrades 731:10 747:22
upon 722:1 786:2,3 829:11,12 837:20 840:1 871:5 879:6,7 880:17 887:4
upward 873:10
upwards 740:7
useful 760:23
usual 805:2
Utilities 716:1,20 841:21 842:10 866:25

V

vacancies 778:19 779:4
vacancy 764:4 779:20 780:3
vacant 871:20,24
valuation 795:18 807:25 811:1,10 857:4 858:25
value 736:5 740:22 741:20 742:2,12 794:21 808:7 840:9 848:12 849:9 855:24 874:18
values 793:16 824:10
Vandewater 716:16
var 848:14
variability 860:24
variable 814:14 871:1
variables 814:20 848:15 849:17
varial 848:15
variance 765:17 780:5 785:13 788:21
varied 812:17
variety 823:7 861:9,12
various 735:12,16 770:6
vary 813:3 828:16
vehicle 721:10 729:24 731:7 732:6 743:18 744:11,12,21 745:3,13,18 746:3,7 747:22 748:1,3,8,11,16 801:3 802:6 812:22 813:12

814:4
818:3
819:24
820:4,8
823:1
827:16
835:2,20
837:14
848:22
849:7
868:8,19
869:2,12,17,21,25
872:24
873:10

vehicle-for-hire 799:24

vehicles 730:20,22
731:5,18
732:3
744:3,6,16
746:22,23
748:1,8
773:19,24,25
784:12
786:21
787:20
798:17
799:1,12
803:15
820:10
833:14
834:10,15
835:6,10,15,24
836:8
837:19
838:21
870:11
872:17,20
873:2

versus 731:8
751:20
754:13
820:15

via 737:16

view 743:12
818:11
877:25
881:8,19
883:7
884:6

views 818:8
822:8,25

volatility 733:21
735:5
809:16
875:1

volume 730:6,19
749:6
781:19

volunteered 801:20

VP 723:17,18

W

walk 793:15

Ward 885:9

warming 831:7

wasn't 742:10
845:13
855:13
881:17

watch 864:21

watching 799:9
864:15

Watchman 717:4

ways 737:15
739:7
817:21
837:25
867:6

weather 766:10

we'd 816:13
841:13
876:11

week 753:18
846:24
865:4

weekend 887:2

weeks 777:23

week's 754:10

weigh 873:24

weight 805:3,5
810:9

weighted 794:13,22
808:7
809:12,15
810:7

we'll 722:9,11
728:18,20,21
729:2,5
730:4,7
734:14
735:6
736:3
768:3
782:13,23
785:16
797:1,12
799:22
802:4
806:10,25
810:4
829:8,22
839:22
841:9
844:22
846:15
861:21
878:25
879:1

well-established 885:11

Wennberg 803:23
804:3
856:1,12
857:7
881:2

Wennberg's 862:5

we're 733:10
741:19
746:4
749:8
750:16
751:12
753:20
763:20
768:6
774:10
787:19
793:25
796:1
803:23
816:23
817:8
819:21
821:5,7,24 825:14
837:1
838:5
839:4
844:17
845:18
846:20
851:11
852:6,8
858:9
860:3
864:15
865:11,24
868:24
873:1
874:18
878:19
886:9,25

we've 723:25
727:11
738:6,20
739:22
740:10
741:18,19
745:7
746:24,25
752:14
753:11,16
754:16
775:13
787:18
789:9,11
795:14,23
799:9
803:11
807:1
815:23
816:5,22
819:23
821:7
830:12,13,15
832:16
845:6
846:6
847:17
848:17
853:3
873:6
874:9
875:19
878:4
883:10
884:24

whatever 818:4
828:9
865:19
882:18

Wheat 724:24
725:1,3

whether 740:20,21,22 766:8
820:4
824:4

826:10
836:5
837:3
839:25
842:9
844:8
846:4
847:19
853:10,12
858:10
867:10
869:2,17,25 870:1
871:20
872:18,19

whoever
818:20

whole 750:4
794:5
816:1

who's
817:12

Williams
717:9
718:14
753:9,10,14,18,23
801:11
828:24
829:2,6,14,16
831:20,21
832:12,13,24
833:3,7,16,22,25
834:6,13,25
835:4,9,13,19,23
836:2,5,10,16
837:10
838:10
839:1,19
840:12,20
841:9,25
842:8,20,21 843:11
844:2,6,19,21
845:2,7,21,25
846:2,7,12,19,25
847:4,5,11,17,24
848:5,11,17,21,24
849:2,15,23
850:3,9,13,18
851:4,19
852:3,20
853:10,17
854:8
855:1,18,25
856:2,18,24,25
857:9,22,23
858:11,20
859:12
860:2,6,17,20
861:2,7,23
862:8,19,23
863:1,4,9
864:6,24
865:5
866:2,6,10,20
867:3
868:6
869:7,23
870:6
871:3

Winnipeg
716:22
870:24

wins 816:2

witness
718:6
723:4
862:9
866:18

wondering
722:17
738:12
828:25
875:10
876:15
877:22

work
740:22,23
742:8,10
803:13
821:21
823:17
843:6,7,21,24
844:1
881:9

worked
855:14

Worker's
866:15

working
735:23
843:16
844:8
863:13
865:11,13
885:20

works
875:13

world
853:23
861:14
876:14

worst
817:24
818:4

worth 875:2

would've
720:13
782:25
783:14
871:24

write
752:20

write-down
729:5

writeoff
738:13
740:20
833:4

write-offs
791:22

written
793:24

wrong
852:14
878:17

wrote 867:8

Y

year-over-year
860:23

year's
728:22
729:16,18
745:2,5
747:13
765:18
786:17
788:15
790:6,11
791:11
793:3
795:3
806:17
812:6
823:23
826:21,24
875:8

year-to-date
721:3
799:5
800:6,18

yellow
738:16

yesterday
729:10
749:3
750:5
809:1
836:11
882:7
884:5

yesterday's
882:16

yet 815:7
864:23

yield
793:12
794:22
795:5,6
796:5,12
808:7,17
809:6,16
810:7,11

yields
794:12,14

Yien 877:22

you'll
726:19,23
732:2
733:6
743:17
841:18
849:5,20
852:21
857:1
858:13
866:23
873:5

yourself
852:23

you've
725:8
741:22
752:2

Z

zero 749:17
827:6
839:15

MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

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TABLE OF CONTENTS

Page No.
List of Exhibits 891

MPI WITNESS PANEL 4 - IT/PHYSICAL DAMAGE RE-ENGINEERING PROJECT VALUE MANAGEMENT PANEL
BEN GRAHAM, Previously Sworn
CURTIS WENNBERG, Previously Sworn
BRAD BUNKO, Previously Sworn
LAWRENCE LAZARKO, Sworn
JOHN REMILLARD, Sworn
CHARLES HENRY, Sworn

Examination-in-Chief by Mr. Steve Scarfone 894
Cross-Examination by Ms. Kathleen McCandless 947

Certificate of Transcript 1100

LIST OF EXHIBITS

EXHIBIT NO. DESCRIPTION PAGE NO.
PUB-19 PDR (a) from the 2017 rate application. 1020
PUB-20 MPI Exhibit Number 17 from the 2018 GRA 1027

--- Upon commencing at 9:00 a.m.

THE CHAIRPERSON: Good morning, everyone, I hope you all had a good weekend.

Ms. McCandless, do you want to take us through today.

MS. KATHLEEN MCCANDLESS: Sure. Thank you. Good morning, Mr. Chair and members of the Panel. Today we have the MPI IT Physical Damage Re-engineering and Value Management Panel. We expect this panel will take us to the end of the day and into tomorrow and -- but we're not sure just how long tomorrow will take, so, thank you.

THE CHAIRPERSON: Mr. Scarfone...?

MR. STEVE SCARFONE: Good morning, Mr. Chairperson. Good morning, panel members. Yes, this morning, Mr. Chair, we have the information technology, physical damage re-engineering program and the value management panel. There's a lot of material that we'll cover here today and over the next day or two (2) perhaps.

So perhaps I'll begin with some introductions, because it has been a while since some of the panel members were before you. And there's some new people here as well. Beginning to my left is

893

Lawrence Lazarko. He's the director of Information Technology. Beside Mr. Lazarko is Brad Bunko, vice-president of Information Technology and Business Transformation. And he is the Corporation's Chief Information Officer. Beside Mr. Bunko is Curtis Wennberg. He returns again. He is vice-president of Customer Service and the Chief Operations Officer. Beside Mr. Wennberg John Remillard. Mr. Remillard is new to this proceeding. He is MPIC's Corporate Business Architect and then beside Mr. Remillard, of course, is Mr. Graham. Ben Graham is President and Chief Executive Officer of Manitoba Public Insurance.

And going down the back row beginning with -- behind Mr. Graham is Joe Riel. Mr. Riel is the senior value management specialist; beside Mr. Riel is Carol Hora offering back row support. She is the director of the Service Centre Operations and Claims Control. Beside Ms. Hora is Gary Dessler. He is the MPIC corporate system architect. Beside Mr. Dessler, of course, is Ms. Campbell who you saw last week, the Controller. Mr. Guerra beside Ms. Campbell. Mr. Crozier from Regulatory Affairs. And lastly, beside Mr. Crozier is Shayon Mitra. He is the Director of Physical Damage.

And sitting beside me to my right is

894

Charles Henry. Mr. Henry will be giving evidence after the panel members are done. He is here to give expert evidence and has been prequalified to speak to physical damage re-engineering report that's in evidence before the Board in this proceeding, and he comes from the Gartner Group.

THE CHAIRPERSON: Thank you. Perhaps I could ask the secretary to swear in those witnesses who haven't been sworn in yet.

MPI WITNESS PANEL 4 - IT/PHYSICAL DAMAGE RE-ENGINEERING PROJECT VALUE MANAGEMENT PANEL

BEN GRAHAM, Previously Sworn
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BRAD BUNKO, Previously Sworn
LAWRENCE LAZARKO, Sworn
JOHN REMILLARD, Sworn
CHARLES HENRY, Sworn

EXAMINATION-IN-CHIEF BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you, Mr. Christle. So if we can begin, just with some introductions and some background information on some of the panel members, Mr. Chair. I'll start firstly with Mr. Lazarko, to my left.

895

Mr. Lazarko, you are the Director of Information Technology at MPIC?

MR. LAWRENCE LAZARKO: That's correct.

MR. STEVE SCARFONE: And how long, sir, have you been the Director?

MR. LAWRENCE LAZARKO: In the current role, four (4) years?

MR. STEVE SCARFONE: All right, and how long have you been with MPIC, sir?

MR. LAWRENCE LAZARKO: It will be eight (8) Years in March.

MR. STEVE SCARFONE: All right. And briefly, could you describe for the -- for the panel members, what your role as Director of Information Technology involves.

MR. LAWRENCE LAZARKO: Certainly. As direct -- Director, Information Technology I have responsibility for IT infrastructure. This includes the IBM data centre and the assets within it, as well as personal computing, so, laptops, desktops, printers and related software. I have responsibility for IT vendor management, which includes major contracts, such as the DXC agreement and IBM agreement. I have responsibility for data and analytics. And I have responsibility partnering with John Remillard in the

896

delivery of the Technology Risk Management Program.

MR. STEVE SCARFONE: Thank you, sir. And just for the benefit of the panel members and for later when questions arise, what parts of the application did you have a hand in preparing or reviewing, Mr. Lazarko?

MR. LAWRENCE LAZARKO: Certainly. So I've authored and reviewed the IT chapter. I have participated in the authoring of the IT recommendations related to Gartner benchmarking. I have responded to IRs related to operational expense, IT capital, IRs related to technology, risk management and partnering with Brad and John paired parts of the IT strategy.

MR. STEVE SCARFONE: Okay, thank you very much.

MR. LAWRENCE LAZARKO: Thank you.

MR. STEVE SCARFONE: And, Mr. Bunko, sir, you're vice-president of Information Technology; is that correct?

MR. BRAD BUNKO: Yes, it is.

MR. STEVE SCARFONE: And the Chief Information Officer of MPIC?

MR. BRAD BUNKO: Yes.

MR. STEVE SCARFONE: And, how long,

897

sir, have you been in that role?
MR. BRAD BUNKO: Approximately four and a half year (4 1/2) years.
MR. STEVE SCARFONE: All right. And prior to that, were you working with the Corporation?
MR. BRAD BUNKO: Yes. I've worked with the Corporation for just over nine and a half (9 1/2) years.
MR. STEVE SCARFONE: Okay. And what did you do in your role prior to becoming the vice-president of Information Technology.
MR. BRAD BUNKO: Prior to this role, I had a rule that -- that is similar to Lawrence's that managed infrastructure components, and also the application services side.
MR. STEVE SCARFONE: I see, all right. And did you have a hand, sir, in the preparation of parts of the application before the Board this year?
MR. BRAD BUNKO: Yes, primarily oversight and review.
MR. STEVE SCARFONE: Okay and I understand, Mr. Bunko, that you have a presentation that you will be presenting to the Board momentarily?
MR. BRAD BUNKO: Yes.
MR. STEVE SCARFONE: Okay. And, Mr.

898

Bunko, do you adopt the presentation as part of your examination-in-chief here this morning?
MR. BRAD BUNKO: I do.
MR. STEVE SCARFONE: Thank you, sir. Mr. Wennberg, you're vice-president of Customer Service and the Chief Operations Officer of Manitoba Public Insurance?
MR. CURTIS WENNBERG: That's right.
MR. STEVE SCARFONE: And how long have you been in that role, sir?
MR. CURTIS WENNBERG: Roughly, two (2) years.
MR. STEVE SCARFONE: And have you worked for MPIC prior to becoming a vice-president?
MR. CURTIS WENNBERG: No, sir.
MR. STEVE SCARFONE: What did you do prior to arriving at MPIC two (2) years ago?
MR. CURTIS WENNBERG: I'm born and raised Manitoban, but I'd spent eighteen (18) years outside. I did a Masters in Business in London. Then went down to Australia, worked for a consulting company called Boston Consulting Group. Then five (5) years at GE Capital, switching the roles, and then vice-president roles in marketing, mainly. Then joined HSBC, ran the credit card business in Canada.

899

Then joined Toronto Stock Exchange and so a number of household brand types of companies at the executive level.
MR. STEVE SCARFONE: Okay, thank you for that. And, Mr. Wennberg, I understand you'll be also on the heels of Mr. Bunko's presentation presenting to the Board this morning; is that correct?
MR. CURTIS WENNBERG: That's correct, yeah.
MR. STEVE SCARFONE: And did you, sir, have a hand in preparing parts of the application before the Board?
MR. CURTIS WENNBERG: I did with my role, generally, it's -- it's related to about $75 million of our operating expense with a lot of the operations folks. It's also managing the -- 800 million or in our pro forma going up to close to a billion dollars in total claims cost. So, it's a big portfolio so different areas that touch that.
It also includes topics, whether it be paintless dent repair, the -- also the PDRs you see at CCRS and the business case related to that. Rodents, if there's any questions historically on that, of any other physical damage questions, repair shop negotiations, direct repair. PIPP, whether it's the

900

reserving or the changes we're making in PIPP. High school driver's ed and the drivers and licensing areas.
MR. STEVE SCARFONE: Okay. Thank you, sir. And so the presentation that you'll give, do you adopt that as part of your evidence of your examination-in-chief here this morning?
MR. CURTIS WENNBERG: Yes, I do.
MR. STEVE SCARFONE: Okay, thank you. And next to you, Mr. Wennberg, is John Remillard.
Mr. Remillard, you're the corporate business architect, correct?
MR. JOHN REMILLARD: That's correct.
MR. STEVE SCARFONE: And how long, sir, have you been in that role with MPIC?
MR. JOHN REMILLARD: Approximately eight (8) years.
MR. STEVE SCARFONE: Okay. And prior to that what did you -- I know that you were with MPIC prior to that. What did -- can of work did you do with the Corporation?
MR. JOHN REMILLARD: Sure. Prior to that I was the Director of the Business Process Review which was, in essence, the program of initiatives to oversee the integration of driver licensing with MPI.

901

MR. STEVE SCARFONE: Okay, thank you, sir. And, Mr. Remillard, what areas are you able to speak to today if questions are posed to you?

MR. JOHN REMILLARD: Certainly. The value management chapter and all the associated business cases. I participated in the production of the IT strategy and, ultimately, responded in partnership with Joe Riel to the interrogatories associated with value management.

MR. STEVE SCARFONE: All right. Thank you, Mr. Remillard.

And then lastly, Mr. Chairperson, of course, beside him is Mr. Graham who introduced himself to the panel last week.

So, subject any questions that the Chair has, I think we're ready to proceed with Mr. Bunko's presentation.

THE CHAIRPERSON: That's fine, let's go ahead.

MR. BRAD BUNKO: Good morning. Today we're here to talk to you about information technology, physical damage re-engineering and value management. On the IT side, you'll hear from me on our IT strategy. How it supports our business objectives and how we become -- compare to our peers

902

when it comes to IT performance.

Next, you will hear from Mr. Wennberg who will talk to you about value management processes and how it's shaping a robust and effective corporate decision-making process for large projects. Mr. Wennberg will also talk about the PDR project, some key learnings and how value management will help us implement what we've learned.

Finally, you'll hear from Dr. -- from sorry, Chuck Henry from Gartner. He's an expert witness who will talk to you about the PDR project.

As we go through the presentation, it should become clear how these topics are closely linked, more specifically, how business operations and IT need to work together for MPI to meet its business objectives.

First I'd like to talk about the IT strategy. Purpose of the IT strat -- strategy is to connect strategy to action at MPI and we have a new format this year, one that is clearer in how we start with a business objective found in the business plan, which is actually the anchor document for the IT strategy.

IT defines what business capabilities and IT capabilities are needed to meet our business

903

objectives. We've had Board guidance as part of this IT strategy. They wanted to be sure that we are clearly displaying how we have evolved our IT initiative practices.

The IT strategy focuses on the '18/'19 fiscal year, but needs to be updated annually to stay relevant. Now important consideration is legacy modernization. If approved, this will have a major impact on our IT strategy as it will significantly change our ability to create IT and business capabilities to meet the MPI's business objectives.

Here we just have a graphical represent -- representation of the IT strategy. I think what's important when you look at this is, starting on the far left is the business plan, which is essentially the -- as I mentioned, the anchor document or the driver of all other components of the IT strategy. With the business plan, we determine what business capabilities and IT capabilities are required. It also has a couple more boxes on there being projects at the top and operations on the bottom and those are essentially outputs from the IT strategy.

So once the business capabilities and IT capabilities are determined that need to be created, a project will be created and once that

904

execution is complete, it will be transitioned to operations, both a business operations and technology operations.

I mentioned earlier about, you know, where we were and -- and where we are now. This table is a description of how we've evolved over the last couple of years. And I'd just like to run through since they are quite important.

So where we were is on the left side and -- and where we are now headed on the right. Previously, we were leaders in creating innovation. Where we are headed now is we want to make sure we are adopting proven mainstream technology, very important. An example of that would have been our CCRS project, whereas now we would be looking for a more off-the-shelf mobile first notice of loss application.

Another point of where we were is executing high risk projects. Where we're headed is identifying all risk prior to project initiation and incorporate them into the project decision. This is going across the board on all of our new initiatives coming forward.

Customized out-of-the-box -- I'm sorry, project governance with nonbusiness project sponsors for all projects was what was done in the past, but in

905

the future we've changed that governance structure significantly where we have an operational business champion very much involved in the initiatives.

An example would be for our financial re-engineering we have our controller -- controller Cynthia Campbell acting as the operational business champion.

Another point of where we were is customized out-of-the-box software to suit our process. Where we're headed is to align, wherever possible, our processes to industry best practices that is incorporated in vendor provided software.

Customization can be expensive, both on the implementation but also very expensive ongoing. Every time you want to do an upgrade of that application you are -- you are experiencing a lot more cost than you would if it was just the out-of-the-box functionality that you're upgrading. A good example of where we're implementing that structure is with the analysis that we're doing for Legacy Modernization Assessment.

Another item where we were is candidate projects were not vetted through a detailed value management process. And where we're headed is value management discipline process becomes ingrained in MPI

906

process and culture. This again is applied to all new initiatives.

Where we were, technology driven change within the organization. Where we're headed, IT capabilities are created to support business capabilities. This is well articulated inside the IT strategy. An example of which would be customer self-serve.

The IT scorecard --

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Just be -- before you move on to your next -- thank you, Curtis.

Mr. Bunko, could you -- there's a lot of change there that's demonstrated on the slide, perhaps from a high level, could you just explain what was the impetus for the change that appears to be happening in the direction that the IT strategy is taking?

MR. BRAD BUNKO: Well, we don't like to see projects that fail and a lot of these things pertaining to proper preparation on decision-making for the initiative before we venture into them. Other things pertain to having an extra burden in a -- in technology debt that is not obviously necessary, such

907

as customization is a technology debt that you will put on yourself and you will continue to pay for a very long time to come. So, therefore, that would increase operational cost of IT ongoing and make it very difficult to -- to adopt new functionality that may be provided by the vendors.

MR. STEVE SCARFONE: Thank you.

MR. BRAD BUNKO: IT scorecard. Now Gartner has been doing this for us for a number of years, formerly called the CIO scorecard is now called IT scorecard and it is our independent assessment of MPI's IT progress in peer comparisons.

So we use this scorecard to continually improve. Gartner makes recommendations. We -- the recommendations that we agree with, we make plans to address. There are some recommendations that we are not aligned with, we will have conversations with Gartner and often it is getting to the -- to the clarity of what actually the crux of the problem may be.

But our MPI performance is -- has been improving over time quite consistently over the last five (5) years. Two (2) of the major benchmarks inside of the IT score is our IT spend as a percentage of operating expense, which has decreased 7.1 percent

908

year-over-year over the last five (5) years, that's a compounded annual growth rate of negative 7.1 percent.

MPI's IT maturity growth is 3.9 percent per year compounded annual growth rate over the last five (5) years. Interesting thing about that is that typically it's difficult to increase your maturity while decreasing your costs because increased maturity reflects a higher level of service delivery capability to the organization, and that typically just costs more.

As in one (1) categorization such as information security, if you want to become more capable increase your capacity in that area, you will have to incur expenses to get there to increase your maturity.

IT staffing strategy. So this has been going on for proximally three (3) years and it is the whole idea of making sure that we are making effective use of in-house versus external contractors for IT. Our target was seventy-seven (27) positions starting in '16/'17 and ending in '19/'20, with a projected savings of $2.4 million annually.

And where we are at right now is we have converted twenty (20) positions and the savings -- we anticipate savings by the end of '19/'20, after

909

we've converted all twenty-seven (27) to be between 2.4 million and $3 million in annual savings.

My last slide I -- I talk about the current financial year capital projects. Now these dollar amounts that you see here are just the dollar amounts for the '18/'19 fiscal year. Some of them are multi-year projects.

The business and IT capabilities that will be created through these projects are identified in the IT strategy which is another good thing about the IT strategy, not only is it -- it's defining what capabilities are required and then it does link them to the initiatives that are in flight. If there's capabilities that are required, and we do not yet have an initiative in flight that is an indication of where a new project may need to be created. And now I'd like to turn it over to Mr. Wennberg.

MR. CURTIS WENNBERG: Okay, thank you, Brad. So I've got four (4) pages that are fairly simple to present to everyone and -- and given my role it's -- it's -- it's -- need to be up here with Brad to show you how the IT strategy melds with the value management.

Value management is a cultural shift for MPI and maybe we'll describe that through some of

910

the examples big and small.

So in the -- in the first page here all big projects now go through some expected rigour where we look internally for all costs and all benefits to be -- to be explicit and even if there's soft benefits we want to make sure that we understand those. But we have a full picture of what something actually is.

To give you an example wi -- that can bring what Brad's testimony was, the before-and-after to what happens now, I'll give you a small example that is a microcosm.

We were working for a number of years on video-based estimating, so we were working with a local company. We were going to try and innovate to do -- take videos of a vehicle remotely and then have our estimators review that and hopefully it was going be efficient. But, put a person on it from Operations and really decided to -- to get the business case on this and see -- is our efforts worthwhile because we were out there. There was no others that were doing this in the market in North America.

And when we looked at it there were some benefits we could see. We don't have to do rural road runs. There is a benefit to some customers, but the use of videos, heavy data, intensive, no one's

911

doing this, we'd have to develop some stuff with our use of -- of -- of our own claim system CARS plus -- and Mitchell and it -- was complex. It's that innovator's curse of being the first to do something.

So in the end once we actually business-cased this thing, we -- we shut it down. And ten (10) months later, here I am at -- with Brad reviewing a room full of other insurance carriers who are using now photo-based estimating which is an industry standard that's come out, where they've got firms such as Mitchell or -- they're not the only ones doing it, but it'll allow you to take pictures of your vehicle and upload that to our estimators and we can actually do almost the same thing that we were anticipating doing and by signing on -- on this as a off-the-shelf type of application, we follow best practice, it should be more robust. We're not doing this now, but we're going to take a strong look at it.

So it's an example of where we were trying to be more innovative and more technology and -- and we're pulling back and we're using more best practices.

Point 2 is value-managed checkpoint -- is value management checkpoint is ingrained in the process. So high school driver's ed is -- is on your

912

slide as an example. High school driver's ed is, of course, a multiyear, multimillion dollar program, but we found as we looked at it with Joe and his team, at this point, we didn't have a full business case so, we've gone through and put a business case with the hard and soft benefits, and I think there'll be some more questions about that later. And -- and happy to get into it, but -- but through that process we also learned some of the positives and other things we -- we want to put on with high school driver's ed.

Third point is we know when we do this not everything that we invest in is going to have a positive NPV and we're going to still have to take that up to both our board and this Board and just be honest with ourselves and say that sometimes we'll need to invest in things that are just compliance related or that it's strategically important for us to do and -- and move on. But that's not unusual for other businesses and -- and we just -- we shouldn't be stretching out all the time to show a positive NPV.

And then the final one is even daily operational decisions are requiring business acumen to be done before we adopt something so some of my team that sit behind me will be -- knowing when I say we asked for a one pager sometimes and we're looking at a

913

process change or policy change or even a technology change to -- to do something, we really push on what's the business acumen. So that's -- that's the first page on value management.

To dive deeper on the bigger projects that are subject to this review heavily in IRs, there's the PDR and CCRS. The context for this -- the Board did request a new full NPV and -- and we provided that very early in 2018. The updated NPV, as you know, was -- it was 13 million for years and years and years and not really changed. And that went down to minus 53 million when -- when everything was -- was thrown in there.

There were some key costs that weren't included for various reasons. Some benefits were not negotiated into the Light Vehicle Accreditation Agreement that we had, like the loss of use or -- or how we basically pay for rental cars, for example, that we just didn't get in the Agreement what we had assumed would -- was in the business case and the positive NPV.

We'd -- we'd stopped doing some components of PDR like total loss and -- and some of the -- some of the aspects of it weren't -- weren't really ready from an operational sense to -- to -- to

914

through out there; and then some costs were added in on the LVA, like the eighty-one dollar ($81) direct repair premium. That was -- that was more a -- a new thing from 2016 that was added in but not assumed as part of the costs.

In the CCRS implications we -- we internally recommended another review of CCRS as a component. Historically, the culture was to determine an overall project NPV for a big project like PDR, CCRS being one (1) component. Don't look at it as an isolated unit but certainly it's a size that you would want to make sure that we're making our money from it or understand the cost and benefits.

It is a very innovative piece and we'll probably get into it later on, but -- but we want to take a look at that. And then in April after Ben joined, we finished our analysis of that and we decided to cancel that project for a number of reasons. And -- and that's all on the record already in terms of why, but -- so you can see that even for some of the smaller projects plus then these larger ones we're -- we're reviewing and doing a fairly full net present value and business casing to support decisions.

On lessons learned for PDR and CCRS

915

there's a few of them. One (1) is that corporate culture and the tone from the top is absolutely essential and -- and we need this, not just for the project budgeting upfront, but we need it for post-implementation reviews as it goes forward so that we really learn from what was rolled out and then you correct any mistakes.

Part of the business case on PDR, for example, is recognizing what we did with eighty-one dollars ($81) and the value it's giving us or not giving us in our current negotiations and public stuff that we've put out to our trade. They know that we -- we can't afford the eighty-one dollars ($81) and it's not industry standard practice. So we're working our way out of that as an example.

2. It's gotta stay open to revisiting weak assumptions. So if the assumption, for example, was that we could get direct repair out in shops and do it for nothing but then we had to the eighty-one dollars ($81), you -- you just have to put it in your business case.

Third is, third parties may not find all the weak assumptions or missing costs, so we -- we -- we internally have to be true to ourselves and put the right pieces out there. Gartner may not be able

916

to find everything.

Four is, MPI exec management have to be accountable for the NPV integrity. And...

Five is, you don't need technical skills or new technical skills to correct this historical issue in -- in -- once we effected the cultural shift with the teams we have in place, we produce very high quality business cases and the net present values and -- and so we've got the technical skills to be able to do this.

So the last page, in summary, and then I'll hand it off, the updated IT strategy is aligned with our corporate mission and the -- the operational business champion working the strategy through is -- is part of that cultural shift. It also allows us to build the right business cases. So the two (2) go hand-in-hand quite a bit and -- and really the following industry practices and not leading it -- is -- is quite useful for MPI.

Sometimes it's easy to think as a billion dollar company we have the size to be technology -- technologically leading but there's a lot of bigger players in North America and we can adopt a lot of good standards in a lot better way -- a lot cheaper way.

917

Improvements on IT is improving relative to our peers and there's a number benchmark studies to prove it. We've made some mistakes managing large IT and we're here to -- to talk about that, whether it's the BI3 or the PDR types of projects and the ramifications of those.

The new value management process is operational and we use it for large and small and legacy modernization is underway. One (1) of the things we want to make sure -- or -- or the -- or the feel we give to this Board is that we understand with BI3 and PDR, they were large, multi-year, heavy projects. Legacy modernization is another multi-year heavy project, and -- and we don't want -- we don't want you to think that some of the mistakes in the past are going to be on the future when we go through legacy modernization. We will adopt business cases and be doing with them upfront like what you've seen with -- with the reviews of PDR and others, and -- and work them through the process, and rework them.

So at this point, I'll hand off to -- to Chuck Henry from Gartner, who will complete his view of this, and then we'll be taking cross-examination and questions.

MR. STEVE SCARFONE: Thank you, Mr.

918

Wennberg, and -- and Mr. Bunko. Just before we turn to Mr. Henry, I just have a couple follow-up questions on the presentation. I think Mr. Wennberg or Mr. Bunko can probably answer these.

Relating to the value of some of the information technology projects, with the cancellation of CCRS, Mr. Wennberg, think I know the answer, but would MPIC describe the Physical Damage Reengineering Project as a good investment in the -- with the benefit of hindsight?

MR. CURTIS WENNBERG: PDR -- the overall PDR is -- is a $65 million project. I'd say the core of it was moving off a paper basis of estimating and faxes -- we're getting faxes back and forth from our repair shops, and that just didn't make sense. Most other companies and insurance companies has adopted the standards of -- there's three (3) of them, CCNC (phonetic), Mitchell, and AutoText (phonetic). They -- they do software-based estimating.

The core of PDR was really going and -- and doing that. We -- we also then pieced on or bolted on a few other -- a few other elements that, probably in hindsight, we wouldn't have done. We would have probably scoped down to more of getting a -

919

- a Mitchell system in, and then reviewed the other systems on their merits.

And this is easy to say as an armchair quarterback a few years later down into the road of this project, but -- but that's probably the summary of it, that the overall, it's a -- it's a very deep negative. It probably combined too many things over time, and -- but -- but at its core, there -- there made sense to do it.

MR. STEVE SCARFONE: Thank you. And then my second question was, as it concerns the cancellation of the customer claims reporting system, is anyone able to explain how the value management -- the new value management process was able to -- to capture, if you will, this project, and -- and what -- and lead to its cancellation?

MR. CURTIS WENNBERG: Yes. So -- so over the -- the beginning years, like I said, the -- the -- for right or wrong, and -- and we know better now, but PDR was just evaluated as a great big project, and CCRS was never evaluated on its own merits.

So as we went through this with the value management, and as it being the last big piece to get finalized, it -- it had to. You had to

920

actually split it out, and split out all the benefits, and all the cost structures related to CCRS.

But like I say, with PDR, you could have split out Mitchell, and you could have split CCRS. You -- we could -- we could we could do that. It wasn't -- it wasn't, like, mental gymnastics to be able to strip out the cost and benefits. So, you know, there was a -- there was a few that may have been a little tricky, but it really wasn't too bad, and so it was relatively easy to do.

With CCRS, the acronym is Customer Claims Reporting System, for those in the court that don't know. CCRS, just as a -- as a one (1) minute summary, was our ability to allow a customer in Manitoba to go online and register their first notice of loss, or register their claim online, and we would take them through a series of pictures of it -- of what could have been an accident, like a car turning right, and they be able to go online and -- and tell us what happened in the accident using these pictures and using some questions, and we would be able to adjudicate them, actually tell them, You are not responsible, or you're a hundred percent responsible for your accident. And then they could go on fairly seamlessly and book their car in for -- for both

921

estimating and then -- and then repair.
So the idea is good. The idea actually generally is where the industry is trying to think about, but the industry is also thinking about doing it in -- in slightly different ways as well. So in Australia, for example, you're looking at customers just writing free-form text and having artificial intelligence figure out within the text the probability of -- of liability in certain directions.
And -- and so what we have to do in MPI is just wait a little bit. We have a lot more things we can put online, as -- as Ben or as Brad's submissions have -- have stated, that is following best practice. Let's do that, and then watch where claims go, and adopt that best practice when we get there.
MR. STEVE SCARFONE: I see. So the -- the CCRS project, do I understand that to mean then that it hasn't been entirely abandoned, notwithstanding its cancellation?
MR. CURTIS WENNBERG: No, it hasn't. So there's some very good work done around the intellectual property of how we picture these accidents and -- and can visualize them to customers. So as we watch this develop in the marketplace, we

922

still have that body of work that we can rely on.
MR. STEVE SCARFONE: Thank you. And so now, Mr. Chair, we will have Mr. Henry present.
Kristen, if you could -- could you pull up for me, please, Exhibit number 4? Sorry to put you on the spot. I should have given you a heads-up, but that would be Mr. Henry's curriculum vitae.

(BRIEF PAUSE)

MR. STEVE SCARFONE: There we are. Good morning, Mr. Henry.
DR. CHARLES HENRY: Good morning.
MR. STEVE SCARFONE: Sir, you're with Gartner Consulting. Is that correct?
DR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And how long, sir, have you been consulting with Gartner?
DR. CHARLES HENRY: About seven and a half (7 1/2) years.
MR. STEVE SCARFONE: All right. And what is your title with Gartner, sir?
DR. CHARLES HENRY: Vice-president, solution and pricing.
MR. STEVE SCARFONE: Okay. And

923

briefly, if you could, your duties as -- as vice president of -- of consulting with Golt -- Gartner?
MR. STEVE SCARFONE: I -- I have two (2) roles. One (1) is an internal role. I look at all the jobs that we do in North America to make sure that we're maximizing the value to our country, and secondly, I am a practicing consultant looking at how people are using IT to advance their business.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Thank you. I will give you my mic.
DR. CHARLES HENRY: Okay. Thanks.
MR. STEVE SCARFONE: And sir, I understand that that you took a look at the Physical Damage Re-engineering Program for Manitoba Public Insurance and prepared a -- a report for the Corporation this past year, correct?
DR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And that, sir, was a -- a comparison as against the report prepared by your firm last year. Is that right?
DR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And, sir, you've

924

been prequalified in this proceeding to give expert evidence, which means, sir, that you're allowed to provide your opinion on certain matters. Two (2) areas in which you been so qualified is the use and planning of information technology. Is that right?
DR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And the second area of expertise is with respect to information technology governance. Is that your understanding?
DR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And the first one, it seems to me, is rather self-explanatory, but can you just elaborate a bit for the panel on what information technology governance means?
DR. CHARLES HENRY: For us, governance means making decisions around the investments in IT. So who has decision rights around spending money to use IT to advance your business interests.
So in the previous presentation, they were talking about changing the roles within an IT project to make sure that the business had a larger role. That's part of governance, and something that we -- we very heavily support, and I'll talk a little bit about that towards the end of my presentation.
MR. STEVE SCARFONE: Okay. Thank you.

925

And just before we begin your presentation, Mr. Henry, how long have you been working with Manitoba Pub -- Public Insurance?

DR. CHARLES HENRY: This engagement we started in -- in April. I was here in 2012, I believe, as part of kind of that year's iteration with my colleague Martin Geffen.

MR. STEVE SCARFONE: Yes, and I was just going to touch upon that. So last year, we heard from Mr. Geffen. Did you have consultations with Mr. Geffen in the preparation of this year's report?

DR. CHARLES HENRY: Yes, I did.

MR. STEVE SCARFONE: Okay. Thank you. And then lastly, sir, could you just confirm for me that the presentation that you are about to -- to give to the Board will form part of your examination-in-chief here this morning?

DR. CHARLES HENRY: Yes, it will.

MR. STEVE SCARFONE: Okay. Thank you. And if you're ready to go, we'll proceed with your presentation.

DR. CHARLES HENRY: All right. Thank you. So table of contents is kind of an outline of what I -- I hope to talk about this morning. I'm going to give you little kind of context and

926

background, talk about the team, which is me, primarily, and -- and the approach that we took, a little bit of PDR history and current state, a comparison between our 2017 and 2018 analysis, the lessons that we learned from doing this, our view of the CCRS cancellation decision, and a couple of perspectives from us in our research.

One (1) is on IT project success, so talking about what our database is around how to manage successful IT projects, and the second is what we view as the digitalization of property and casualty insurance, so what we see that MPI is going to be forced to look at over the next, you know, three (3), four (4), five (5) years, so that's some of the challenges that are coming to them going forward. So that's -- that's kind of an outline of what we want to talk about.

So, for context and background, we've been working with MPI for over seven (7) years, providing research and advisory insights. We've helped to benchmark the -- the IT organization. I haven't done it, but colleagues have, so help MPI just understand how it's spending money on IT relative to peers. And also the application of our PPM -- our program and portfolio management research to MPI.

927

In the last year, MPI has contracted with us as requested by the PUB to update the report and to provide an independent assessment of the development and rollout of the -- of the PDR project. So I'm -- I'm here to -- to help fulfill that.

The team -- we assigned some additional resources. So I continue to work with Martin, also a colleague, Rand Guy, who's the managing partner of -- for Gartner Consulting in Western Canada.

Myself, I'm a VP with Gartner Consulting. I'm sixty-five (65) years old, which means I've seen a lot of projects, good and bad, way too many bad. IT projects are hard, and we'll talk a bit about that as we go forward.

In previous roles, I was the chief technology officer of the Government of Canada. So I looked at the 5 billion a year that Canada spends on IT. That was before Phoenix, I might like to add.

We did project reviews of major Crown corporations. I'd helped develop the cloud strategy. We did a digital maturity model for Service Canada. We've done a application program management model just based on our time, which the Government of Canada uses. And I spent thirty (30) years at IBM, from 1975 to 2005. So I've -- I've seen lots of projects and I

928

hope be able to share some of that -- that background with you.

In terms of the approach, we started by reviewing a bunch of artifacts that MPI provided, plus the previous Gartner reports, including a management presentation on the PDR program that was dated April 19th, which happens to be the day we were -- or I'm -- I'm -- the -- Martin and Rand were in Winnipeg, physically present with MPI.

Following that day, we had a large number of conversations as I sought out clarifications on the information that I had been provided, and started writing my report, and I also wrote the report in consultation with Martin to make sure that I fully understood the previous reports that that -- that Gartner had provided.

Some history, over the -- it's been five (5) plus years the MPI's been on a journey to improve service to Manitobans in -- in basically three (3) areas: One (1) is physical damage, the second is loss prevention and road safety, the third is customer service.

And this evolved into a -- business case for PDR with projections for a $65 million cost and the identification of a high-level benefit stream.

929

And -- and what we've observed mainly in the last year, as -- as the program evolved, two (2) things came out, is MPI had difficulty measuring and breaking down those high-level estimates into detailed estimates for each element of the program, as was outlined earlier.

And I will say the Mitchell licence is complex. Parts of it are used and reused in different ways, so it's not completely straightforward how to -- how to do that analysis, but MPI had not done it until this year to start to look at where all the costs were, and how they should be aligned to -- to their use in the project.

And the second thing is that senior executives had been negotiating with the repair industry, which was a significant portion of the -- the savings for the -- for the project. And there was, quite frankly, limited engagement with the business at the business unit level about the impact of some of those negotiations. So the resulting agreements often made it difficult for MPI to realize the benefits that the -- the PDR project had been assuming would be achieved.

So it's a -- it's a complex program. Lots of external factors that affect the benefits, and

930

MPI had been at -- to that point in time, unable to bring all of that information together into an updated business case.

So currently, the overall business case has been analyzed and refined by MPI's value management team and the project team over the past year, and they've conducted a detailed assessment where they now have very current cost of expenditures to date. They understand the balance of the approved available budget, and they have a detailed evaluation of the benefits that could be achieved from the expenditure of the remaining funds, and they concluded that the benefits to be achieved would not be supported by the cost to achieve them. They recommended to the Board that CCRS be cancelled.

So now we talk about the difference between 2017 and '18. So our report from 2017 set a positive NPV of around $13.7 million. The MPI analysis this year says a negative NPV of about 49.9 million, with CCRS cancelled.

We did a discount rate of 3 percent. MPI was not using NPV as a project management technique or tool in -- in 2017, so we introduced NPV. We assumed a discount rate of 3 percent. MPI has adopted NPV as a project management tool, and has

931

actually a couple of different discount rates that they applied based on the risk associated with the project. The high risk of -- of projects like CCRS demands a discount rate of 9 1/2 percent.

We saw costs of $65 million. With CCRS cancelled, MPIC's cost of $57 million in our analysis period was '16/'17, the assumed first year of benefits to '25/'26, and their analysis shows '17/'18 to '26/'27. So basically, move forward a year to follow the benefits.

So obviously, there's a significant difference in some of the costs, and the benefits, and the overall NPV. And there's three (3) things: Obviously, some cost that should have been attributed to PDR in the past weren't.

Secondly, that new evidence shows that some of the benefits of the PDR were -- are going to be lower than what was projected.

And thirdly, that MPI's using this 6 1/2 or 9 1/2 percent discount rate, 9 1/2 percent for high risk projects, and that causes the NPV numbers to change. So those are the -- kind of the three (3) big changes between our '17 analysis and MPI's '18 analysis.

So some lessons learned for us. We

932

made a number of requests to MPI regarding operating cost and benefit projections in '17, and we reported a cost and benefit stream based on the high-level data that MPI provided. In retrospect, we should have highlighted a lot more firmly that the 2017 report were based on high-level numbers, and it not been validated through detailed analysis. That's on us.

And so we've agreed that all analysis going forward will include consideration of detail supporting data, and that the necessary level of detail was not available. That will be clearly defined. So that's the lesson learned for us in -- from our 2017 report.

So our view of the CCRS cancellation decision, we've reviewed the latest iteration of the PDR value management business case. First of all, I'd say it's great that MPI's followed Gartner's advice, and has applied a much more rigourous approach to the business case and the application of the value management framework. It's much more detailed than it was in the past. It's much more complete. It's a lot more sophisticated, and there's a lot more focus on value management as a cultural change in the organization, and we believe that's going to lead to higher project success.

933

So you'll see in some of the -- my subsequent presentation that -- that value management is a key element of successful IT project management. We'll talk a little bit more about that later from a -- from an industry perspective.

MPI has now continued to mature its value management capability. It is now formally tracking benefits with accountability, so that the business is accountable for delivering the benefits that these projects are supposed to deliver. If they can't deliver them, there's analysis to see if it was, you know, an assumption that the IT project perhaps isn't delivering the function that was required, or, you know, there's some process change that needs to be made in the business in order to achieve the -- the savings. So a lot more rigour around looking at the benefits of projects, which is also rate and an element of best practice for -- for project management.

So finally, we support MPI's decision to terminate CCR component and finish the few remaining elements of -- of the PDR program this year.

So Gartner's a -- a research company. We -- what we do is -- is go out and -- and look at what vendors and industry are doing with IT, collect

934

as much data about what they're doing and -- and present that back. We -- our core business is providing research around IT, HR, finance, supply management, material management, marketing, sales. That's -- that's our business.

And if you look at our project database, you'll see that even among those projects that are delivered at least 90 percent on time and on budget, the majority fail to deliver business outcomes. So the top-performing projects in terms of budget and schedule compliance attain an average of only 15 percent of their business outcome expectations.

IT projects are hard --

THE CHAIRPERSON: Sorry to interrupt. I just want to make sure the record's correct. I think you said 15 percent rather than 53 --

DR. CHARLES HENRY: Fifty-three (53) percent, yeah. Yeah. Sorry.

So IT projects are hard. I have personal opinions why, I which I'd be happy to share, but, I mean, the net of it is our database shows that -- that IT projects are hard. Delivering those benefits is difficult. That's why the governance around these projects and accountability for benefits

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is so important.

So some of our observations for MPI based on -- on what we've learned from our database is -- one (1) is -- big thing is continue to invest in value management. So MPI has made a lot of progress in applying value management principles to its project portfolio. We obviously recommended this focus be extended in the project management teams and to your project management methodology.

So a couple of things specifically emphasize that the general management skill required for project managers. So project managers aren't just experts in Gantt charts. They need to be really that utility outfielder, somebody who can play all the positions, understand the business, understand IT, and help the communications between IT and the business so everybody's on the same page around what's going to be required to deliver the benefits, and continue to explicitly link project objectives to organizational goals.

So it's very easy for a project to get wrapped up in itself and what its own definition of success is. It needs to be continually reminded and forced to look outside and make sure that its project outcomes are linked to the business outcomes that are

936

driving the success of the organization.

Further increase the focus of plans to business outcomes. So had I talked about the IT strategy is starting from the business strategy, which is exactly what we like to see. We like to see a resource management plan that include resources at project conceptualization and stay -- that include both business and IT resources, and that define project success in terms of business outcome.

Well, you know, we're not doing an IT project in order to put a PC on your desk. We're doing an IT project in order to give you a tool to make you more effective in doing your job, and what we should be measuring is, you know, have we helped you do your job more effectively?

And you need to make up-front investment that -- to try and create leading indicates of benefit realization. So as you incrementally go through a project, you'd like to see leading indicators that says that this project is actually going to start. We see good signs that this project will deliver the value that its anticipated it's delivered throughout its life.

And finally, want to talk about harnessing the power of stakeholders. So the people

937

that are in the business at the coal face, as we say, are the ones that have the -- the best possibility of defining what success is, what successful change will look like. If you do that early, that's the best time to foster the collaboration that's needed to drive a successful project and provide the delivery flexibility, because there's always going to be issues, and changes, and unexpected things that happen that need to be incorporated into the projects to make sure you can derive the benefits.

And we need to educate sponsors in what they need to know to take ownership and address issues throughout the course of the project. So just as we need to have, you know, very capable project managers, we need to have very capable sponsors. And we can't expect an executive with no background in, you know, in being an executive in charge of an IT outcome to be able to then manage it. We need to give them training and insights to make sure that they have all the capabilities needed to be a successful sponsor.

And the next thing I'd like to briefly mention is what we call the digitalization of property and casualty insurance. So digitalization is affecting every business, government, to manufacturing, to insurance, to banking. There's a

938

lot of changes coming, and MPI is going to be forced to look at these changes. This is a great time to be out looking at the industry and see what successful organizations are doing, and figure out how you can adopt those things.

The number 1 thing will be mobility. So as I said, I'm sixty-five (65) years old. I'm a PC guy. I've had, you know, a PC or a machine in front of me since the '80s. I have 34-year-old twin daughters that live in Alberta, they are not PC people, they're phone people. They live and die on their phones. That's the future.

So whatever MPI does going forward, they're not going to be -- you know, your customers are not going to be tethered to a -- to a laptop or a PC, they're going to expect mobile service on their phone through mobile devices, things like text messaging and social media.

This has already been mentioned today. Artificial intelligence is going to be moving into this business. So in areas such as claims handling, which is also being mentioned today, where the combinations of cognitive computing, things like chatbots are going to support touchless claims processing so that your client can have a conversation

939

potentially with a -- with a robot around what happened in the course of an accident. From there, the claim will be processed.

Cars are incredibly smart, hundreds of millions of lines of code in the modern car. We know exactly where it is. We know exactly how it's been driven. That's going to radically change your ability to make insurance decisions, to make claim's decisions, but also to change your insurance products.

So there is already companies out there that are offering insurance by the trip. So the actual very fabric of what insurance is going to be is going to evolve over -- over the coming years.

From an IT perspective, cloud-based services such as software as a service are -- are coming into being used by property and casualty firms. MPI is going to -- going to have to look at those, keeping in mind its requirements for security and integrity of -- of the data of Manitobans.

And there's lots of iterations around product development, different ways of doing product development, including on-demand insurance products and improvements in customer experience and management.

So, net of this is we see the next, you

940

know, five, (5) eight, (8), ten (10) years as a time of big change in the insurance business. MPI is going to have to -- to be a part of that change and figuring out the pace of change is going to be a key element of their -- both business and IT strategies going forward.

That's the end of my presentation. Back to you.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you, Mr. Henry. Just a couple questions following up on your presentation. Kristen, if you could pull up Mr. Henry's report, it's at Value Management, Appendix 6. And we'd have you scroll, when you find it, to the executive summary, page 4, please. Just back up a little bit. Thank you.

Sir, we see there in the executive summary of your report that, as you've indicated, there was a comparison done between last year and this year.

Reading that, the third paragraph, Mr. Henry, you state therein that there is a significant difference in some of the costs and the benefits and the overall net present value between this year and

941

last, correct?
MR. CHARLES HENRY: Correct.
MR. STEVE SCARFONE: And as we've heard, that significant difference, as I calculate it to be, about a $65 million swing in net present value?
MR. CHARLES HENRY: Yes.
MR. STEVE SCARFONE: And we heard Mr. Wennberg speak to some of these factors, if I can call them that.
Would you confirm that these factors would include understating the net present value of the project?
MR. CHARLES HENRY: I would say understating the -- the -- the inputs to the project. So, understating the costs and overstating the benefits. And that results in the change in NPV.
MR. STEVE SCARFONE: Yes, so some of the costs as we understand it were -- Gartner wasn't aware of some of the ongoing operating costs, including the Mitchell license and fees.
Is that correct?
MR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And that, as I understand it, amounted to about $30 million.
MR. CHARLES HENRY: Over the life of a

942

project, that's correct, yes.
MR. STEVE SCARFONE: And the -- the change of the discount rate, initially it was at 3 percent I think you said?
MR. CHARLES HENRY: Yes, that's correct. So, as I said, MPI was not using NPV as a -- as a project management tool. We used it as a way of introducing it, and we picked a discount rate of 3 percent and, you know, we should have gone back to MPI and worked harder with them to -- to determine a discount rate.
But as they weren't using NPV, they didn't have one (1) available to us.
MR. STEVE SCARFONE: Right, and so that's what I meant earlier, sir, when I said that the cost of capital was perhaps understated, because the discount rate was -- that was selected was too low, is that fair?
MR. CHARLES HENRY: Yes, that's fair.
MR. STEVE SCARFONE: And I understand that particular factor, if you will, as it concerns the $65 million swing, amounted to approximately $20 million. Is that your understanding?
MR. CHARLES HENRY: Yes. Although I didn't do that calculation, but...

943

MR. STEVE SCARFONE: And then lastly we heard Mr. Wennberg speak to an agreement with the light vehicle or the trades that had MPIC paying the shops a premium.
Is that your understanding?
MR. CHARLES HENRY: Yes, the $81 premium.
MR. STEVE SCARFONE: And that particular information wasn't known to Gartner when it prepared its report last year. Is that right?
MR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: And then lastly, Mr. Henry, the cancellation of the customer claims reporting system that we understand amounts to about $13 1/2 million dollars toward the $65 million swing?
MR. CHARLES HENRY: That's correct.
MR. STEVE SCARFONE: But as it concerns that, part of the physical damage reengineering program, that cancellation wouldn't have been known to Gartner at this time last year.
Is that correct?
MR. CHARLES HENRY: That's correct.
We -- that decision had not been made and -- and the contemplation of making that decision we were not aware of.

944

MR. STEVE SCARFONE: Are those the main factors, as I described them, but are those the main contributors, if you will, to the $65 million swing that we see this year from the last?
MR. CHARLES HENRY: Yes, that's -- those are the big ones.
MR. STEVE SCARFONE: So I asked Mr. Wennberg this and I'll ask you, sir. With consideration to the difficulties that you mentioned that large information technology projects face, the black swans and -- in your presentation, how would you describe the physical damage re-engineering program?
Would you describe it as a good investment or a poor investment for Manitoba Public Insurance?
MR. CHARLES HENRY: I can't comment on the -- on the whole program, but I can say that MPI had no choice but to get to some technology like Mitchell and standardize how estimating was being done across the project. Without that, things like fraud analysis is impossible because the -- the data wouldn't be reliable enough.
So there is a huge amount of value in getting to, you know, a platform like Mitchell and having this common standard in place with the repair

945

industry.
And from there, lots of things are possible going forward. So by having the standard in place, having good data, you know, there's lots of possibilities of what MPI and the industry together can do with this that -- that was not possible in the past.
So to me, that was essential. I can't comment on all the other components.
MR. STEVE SCARFONE: Very good. And those are my questions for Mr. Henry, Mr. Chair.
THE CHAIRPERSON: Thank you.
Ms. McCandless, did you want to start now or did you want to take the break and then start?
MS. KATHLEEN MCCANDLESS: Mr. Chair, I expect my first area of questioning to take twenty (20) minutes to half an hour, so.
THE CHAIRPERSON: Let's start now.
MS. KATHLEEN MCCANDLESS: And before we begin, I did steal something from Ms. Schubert before the MPI panel began this morning that I need to return to her before I start my questions, so I'll just return that now. Thank you.

(BRIEF PAUSE)

946

MS. KATHLEEN MCCANDLESS: So for the benefit of the MPI panel and for the panel itself, just to give a roadmap of where I intend to take my cross-examination, I will start with questions about value management. I will then move in to questions about specific IT projects. Later on, in to the physical damage re-engineering project and questions for Mr. Henry, and then I will conclude my questions with questions about IT benchmarking.
I will have some questions at the end, the very end, with respect to commercially sensitive information.
I spoke with Mr. Williams before we began the proceedings this morning. He also has some questions in that regard. So, our intention is for me to finish my cross-examination with the CSI questions and then immediately Mr. Williams will begin his cross-examination with those commercially-sensitive questions as well so that we don't need to go to a separate tape twice in the course of this panel.
And one (1) more comment for the benefit of the MPI panel. In the course of my questions this morning, I will -- I'm careful not to reference any commercially-sensitive information. It may be then responding to one (1) of my questions, you

947

do need to reference commercially-sensitive information. If that's the case, just please advise and I will table that question until later in the process. Thank you.
THE CHAIRPERSON: Ms. McCandless, if I could just add that for anybody watching the proceedings, when we get to commercially-sensitive information, the live streaming will be shut down.
MS. KATHLEEN MCCANDLESS: Thank you.

CROSS-EXAMINATION BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: So my first series of questions will relate to value management, and I would like to understand how the approval process of major projects and stages of major projects were handled previously within the Corporation and what is now different as a result of the implementation of the new value management process.
I understand that the Corporation established a business transformation office several years ago to manage IT projects, is that right?
MR. BRAD BUNKO: That is correct.
MS. KATHLEEN MCCANDLESS: And did the business transformation office manage all IT projects?
MR. BRAD BUNKO: Yes, over a certain

948

size they would be managing them.
MS. KATHLEEN MCCANDLESS: And what size would they manage?
MR. BRAD BUNKO: It was not always based upon a dollar amount, but it -- more based upon different areas of the organization that would be touched.
We could have had IT projects that were IT-specific and only impacted, say, infrastructure, within the IT. That project would have been done more from an operational perspective and not through a business transformation perspective.
MS. KATHLEEN MCCANDLESS: So is it more in the nature of what the project was rather than a specific dollar value that would move it to the business transformation office then?
MR. BRAD BUNKO: That is correct.
MS. KATHLEEN MCCANDLESS: And how was the business transformation office organized, what was the composition of that office?
MR. BRAD BUNKO: From a personnel perspective?
MS. KATHLEEN MCCANDLESS: Yes.
MR. BRAD BUNKO: So we had a -- or do have a director of the business transformation office,

949

who has the general responsibility for oversight, the business transformation office.

Reporting to them are a couple people, one (1) that is responsible for delivery of BTO, so they are a little more into the details as to what the projects are doing and their status.

We also have a manager of EPMO, Enterprise Project Management Office, who is also very involved in the initiatives to ensure that standards are being adhered to for the -- for the initiatives.

The structure of project managers will -- we'll have several project managers for the various initiatives. They will report to -- up into the EPMO office.

The EPMO office is also responsible for -- for reporting on the projects. And so between those two (2) things of reporting on projects and ensuring that the project managers are adhering to proper project standards, that is their responsibility. That's the bulk of the governance inside of there.

In addition to that, we've had for numerous years a project initiatives sponsor, that is the business liaison between the business and the technology that's being implemented.

950

And for many years that's been a single person, and it's been our corporate business architect, who is with us here today, John Remillard, and he played that role of interacting between the business and the technology in determining what the business requires to be successful. That is a rule where we've made that shift to more of an operational business champion that would come in and play that role.

Lots of benefits by having an operational business champion at the very beginning of the initiative through the project itself, and then accountable for the -- realizing the benefit streams that were indicated inside the business case.

MS. KATHLEEN MCCANDLESS: Thank you. So just to clarify, Mr. Bunko, the business transformation office is still an office that is up and running within the Corporation?

MR. BRAD BUNKO: Yes, it is.

MS. KATHLEEN MCCANDLESS: Now, prior to the implementation of the value management process, was the business -- business transformation office responsible for developing business cases for IT projects?

MR. BRAD BUNKO: They did produce some

951

business cases. It was not, as you've heard from previous testimony, it was not a well-defined process and often cannot be necessarily classified as a -- as a full-on business case.

There were various initiatives that had benefit streams that were indicated, but in my mind a -- a full business case needs to include all the associated initiative and ongoing costs for the program.

So where there were pieces of information throughout the organization prior to an initiative being struck, we did not have the rigour like we have now where all that information is being brought together into a single document.

MS. KATHLEEN MCCANDLESS: Thank you. Was the business transformation office responsible for monitoring the management of IT project costs?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: If we could go to VM section of the application, at -- I believe it's page 43, just towards the bottom of the screen at lines 9 to 12, we see historically all corporate initiative -- initiatives were led from a business perspective by the corporate initiatives sponsor, the corporate initiatives sponsor served as the champion

952

of all corporate projects and was the principal interface between the initiatives and the business community.

Do you see that there, Mr. Bunko?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: To give us an example, who was the sponsor for the physical damage re-engineering project?

MR. BRAD BUNKO: John Remillard.

MS. KATHLEEN MCCANDLESS: Thank you. And if we go to VM2. Now, I understand that this graph depicts the historical view of the project organizational structure and governance for IT projects, is that right?

MR. BRAD BUNKO: Correct.

MS. KATHLEEN MCCANDLESS: And so this is no longer in use, we'll see later on during my questioning that there is an updated org chart in that regard, yes?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: So, with -- perhaps you could just walk us through, at a high level, the process that would have been followed in prior years, forgetting specific IT projects approved to proceed.

953

MR. BRAD BUNKO: This -- this governance chart is -- is more about the running of the initiative than it is about the approval of the initiative to proceed.

MS. KATHLEEN MCCANDLESS: So with respect to approval then, I take it then that we wouldn't refer to this graphic.

What was the approval process then with respect to IT projects?

MR. BRAD BUNKO: Approvals of the initiatives to proceed could have happened in a couple of different ways. They may have just been directed from -- from executive to proceed with the various initiatives.

But you're correct, this is -- this is an operational perspective of the governance of the initiative once it has been approved.

MS. KATHLEEN MCCANDLESS: So what you said with respect to approval it -- of an IT project, it could be -- could have been directed by the executive.

So when you say "the executive," who within that team would you mean?

MR. BRAD BUNKO: I'm going to ask that John help out on this response.

954

MS. KATHLEEN MCCANDLESS: Sure.

MR. JOHN REMILLARD: Certainly. With respect to the approval process, traditionally speaking, prior to value management, the majority of our initiatives are brought forward as part of the budgetary -- budget setting process, which would've been built and of course, to our go-forward expenses from the Public Utility Board projections.

As part of that process, our executive team would review the candidate initiatives. They would agree to the initiatives that would be brought forward to our Board of Directors.

Those would traditionally have been brought forward in around the December timeframe and, ultimately, seeking approval of the Board of Directors in a January timeframe to start executing in March.

Does that provide a better...

MS. KATHLEEN MCCANDLESS: Somewhat, yes. Thank you.

But with respect to the -- so the executive team would bring forward a recommendation to the Board of Directors?

MR. JOHN REMILLARD: That is correct.

MS. KATHLEEN MCCANDLESS: And typically, who among those executives would bring forward the recommendation?

MR. JOHN REMILLARD: Traditionally speaking, it was the CEO.

MS. KATHLEEN MCCANDLESS: So that was Mr. Guimond?

MR. JOHN REMILLARD: That's correct.

MS. KATHLEEN MCCANDLESS: Was that the case prior to Mr. Guimond's tenure as CEO as well?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: Thank you. Now, with respect to the chart that's on the screen before us, this is the operational organizational chart, then.

For how long was this process in place, historically?

MR. JOHN REMILLARD: This was a genesis out of the business process review that the -- DBL integration initiative. In essence, it was the genesis and creation of the business transformation office.

And through there, we established the need for an enhanced enterprise project management office, the need for an ongoing change management discipline, as well as a multi-stream execution discipline, which is depicted in this chart.

955

956

So with that, and to answer the question as to the timing, it would've been around 2009-2010 that it was formalized, Ms. McCandless.

MS. KATHLEEN MCCANDLESS: Thank you. On the top left-hand side of the screen, we see a project steering committee, yes?

MR. JOHN REMILLARD: Correct.

MS. KATHLEEN MCCANDLESS: And who would be part of this project steering committee?

MR. JOHN REMILLARD: That would depend on the initiative, something as broad as the physical damage re-engineering, Mr. Bunko would traditionally be on all project steering committees, Mr. Wennberg and depending on the nature of the initiative, other executives, up to three (3).

MS. KATHLEEN MCCANDLESS: So with respect to physical damage re-engineering, that was you, Mr. Bunko and Mr. Wennberg?

MR. BRAD BUNKO: Yes, I was a member of the PDR steering committee for some point in time, and had had a variety of business owners through some of that journey.

MS. KATHLEEN MCCANDLESS: And just to clarify for the record, when you refer to "business owners," what do you mean?

957

MR. BRAD BUNKO: Representation from operational business units.
MS. KATHLEEN MCCANDLESS: Thank you. Now, the corporate initiatives sponsor just under the steering committee, would report to the steering committee, yes?
MR. BRAD BUNKO: Correct.
MS. KATHLEEN MCCANDLESS: Thank you. And if we go to VM4, again page 43, we see the responsibilities of the corporate initiatives sponsor, yes?
MR. JOHN REMILLARD: Yes.
MS. KATHLEEN MCCANDLESS: And was this individual responsible for ensuring the -- the IT project would remain within budget and scope?
MR. JOHN REMILLARD: Are you referring to PDR specifically, or any project?
MS. KATHLEEN MCCANDLESS: Well, any project and then specifically with respect to PDR?
MR. JOHN REMILLARD: Yes. Overall, yes.
MS. KATHLEEN MCCANDLESS: For both?
MR. JOHN REMILLARD: Both.
MS. KATHLEEN MCCANDLESS: Thank you. Where it says "authorize and approve adequate budget,"

958

the first bullet there, is that where major spending decisions were made or would those be day-to-day management of the project?
MR. JOHN REMILLARD: Both.
MS. KATHLEEN MCCANDLESS: And who ultimately -- ultimately would've been responsible for the success of a given IT project?
MR. JOHN REMILLARD: Ultimately that's a shared responsibility, between myself and the members of our business transmission office. So multiple leaders.
MS. KATHLEEN MCCANDLESS: Thank you. If we go back to the chart that we were just looking at. Thank you, Kristen. On -- again, on the left side of the screen, we see the corporate initiatives sponsor.
MR. Bunko or Mr. Remillard, could you explain how the corporate initiatives sponsor would have interacted with the director of the business transformation office?
MR. REMILLARD: Yes. On a day-to-day basis we would discuss project challenges and project issues, determine what we were comfortable with in deciding and, ultimately, things that were more complex in nature would ultimately be exe --

959

escalated, sorry, to our project steering committee for executive decision.
MS. KATHLEEN MCCANDLESS: And the director of project delivery, just below the director of the business transformation office, how would the director of project delivery and the program director, who is just below, interact with the business transformation office?
MR. JOHN REMILLARD: Ultimately due to the nature and -- and -- and size of the physical damage re-engineering, the multi layers of management there, you would have multiple projects being executed in parallel, ultimately reporting into the program director and the director of project delivery, each -- each with escalating authority and through the governance structure dealing with, at a lower level, the day-to-day issues, at a medium level, the longer term issue -- issues management, risk management and dialogue and then, ultimately, escalating to the director of BTO for things that are, in essence, a more serious nature.
MS. KATHLEEN MCCANDLESS: Now, with respect to the physical damage re-engineering project, who ultimately from management would've approved the PDR project?

960

MR. JOHN REMILLARD: From a -- can you maybe elaborate on what perspective, please?
MS. KATHLEEN MCCANDLESS: So, I suppose it was ultimately the Board of Directors that would've approved the go forward on the PDR?
MR. JOHN REMILLARD: That is correct, in July of 20 -- 2012.
MS. KATHLEEN MCCANDLESS: And again, just to clarify, that would've been a recommendation from the then Chief Executive Officer?
MR. JOHN REMILLARD: That's correct.
MS. KATHLEEN MCCANDLESS: Thank you. Now, if we go to PUB-MPI-1-66. This Information Request asked at A, the Corporation for information about the lessons learned in the course of the physical damage re-engineering project.
And in response -- in the response at page 2, under "lessons learned" we see that large capital programs like PDR should have iterated business cases with no longer than three-year project funding value management period assessments, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And we see reference to, under "Actions," just below there, value management office in the development of business

961

cases, yes?
MR. JOHN REMILLARD: Yes.
MS. KATHLEEN MCCANDLESS: Now, is that, in essence, a re-labelling of the business transformation office, or is that a completely different business unit?
MR. JOHN REMILLARD: It's a completely different business unit, an independent body.
MS. KATHLEEN MCCANDLESS: And who's in charge of the value management office?
MR. JOHN REMILLARD: Mr. Joe Riel, in the back row.
MS. KATHLEEN MCCANDLESS: What is its composition?
MR. JOHN REMILLARD: Joe, at this time, the -- the office is still growing. So it's Joe and one (1) other member at this time.
MS. KATHLEEN MCCANDLESS: And that member's title would be?
MR. JOHN REMILLARD: Value management coordinator.
MS. KATHLEEN MCCANDLESS: Thank you. Now, if we could go back to VM4, the very first paragraph here under the heading states:
"In recognition of the evolution and

962

increased maturity of the value management process, as well as the involvement of the value management office and the development, review and post-implementation reviews of business case realization, as well as the corporate objective of more actively and engaging operational management in the projects associated with their respective business cases, MPI management has decided to change key project leadership roles and responsibilities and introduce the new role, operational business champion."

And we heard about that being Ms. Campbell this morning, is that right?
MR. JOHN REMILLARD: For the finance re-engineering initiative? That's correct.
MS. KATHLEEN MCCANDLESS: And so I gather then from your response, Mr. Remillard, that the individual who will serve in that role will vary from project to project, is that right?
MR. JOHN REMILLARD: That is correct.

963

MS. KATHLEEN MCCANDLESS: And has there been an operational business champion appointed for the PDR project at this time?
MR. JOHN REMILLARD: At this time, the remaining piece is the parts project, and that is Mr. Mr. Shayon Mitra, to my right.
MS. KATHLEEN MCCANDLESS: Thank you. Now, if we go to page 46, and that's VM-3, this is what I understand is the new project organizational structure and governance for the operations of IT projects within the Corporation, is that right?
MR. JOHN REMILLARD: That's correct.
MS. KATHLEEN MCCANDLESS: And perhaps either Mr. Remillard or Mr. Bunko, at a very high-level, because there is a fair amount of detail here, just explain this organizational chart and some of the key differences between that and what we previously reviewed.
MR. JOHN REMILLARD: Certainly. I'll maybe start at the bottom. So basically, in essence, the -- the changes are highlighted, I'll say the fuschia -- fuschia and blue, the business relationship managers are ultimately a team of staff that report in to myself. And we -- what we provide is the -- we still provide that liaison between our business

964

transformation office, from project execution, and our business units.
The primary difference here is that the business relationship manager, on a day-to-day basis, is more effectively and more directly working what are operational business champions.
Myself, off to the left, is corporate business architect. I'm working in -- in partnership with our enterprise architecture committee, which is Mr. Gary Dessler, our corporate systems architect, as well as Colin McDonald, who is our corporate security information officer.
Ultimately, as corporate business architect, a lot of our operational business champions have not, to date, led large initiatives. And so in the short term I'm providing some -- some coaching or -- or some leadership and advice and -- and not direction. Advice to these -- to these operational business champions as to what things they may want to look out for, things they need to watch for as far as successfully executing that project.
The main difference here is that from a direct accountability perspective, the operational business champion is now ultimately accountable for the project success. So the outcomes that are stated

965

in the business case are ultimately under their purview.

Off to the -- the left is the value management office. The value management office is -- is basically offering multiple things. In the project infancy, validating the business case, they're not responsible for it, but what they do is review it from a quality assurance perspective.

Looking to ensure that all of our ongoing operating costs are accurately depicted; that the impact operations with respect to -- I don't want to say hidden costs, anticipated costs and/or the changes to software licensing, hardware infrastructure, recurring costs with respect to replacing said infrastructure into the future, as well as any impact to staffing.

So that's in the infancy. As the project is being executed, there will be net new learnings and with that the operational business champion is going to have to continue to -- continue to review their business case and determine whether it's still on track.

So, ultimately, they will work with the value management office to ensure that the -- the business case is still accurate on a day-to-day basis.

966

MS. KATHLEEN MCCANDLESS: Thank you. In the -- roughly the middle of the chart we see the executive steering committee?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: Yes. And what is that current role of the executive steering committee then?

MR. JOHN REMILLARD: The executive steering committee, very similar to the -- the prior chart that -- that we depicted and reviewed, ultimately, the operational business champion will report into the executive steering committee, again for decisions that are beyond, in essence, their purview, advising or seeking advise and/or direction from the executive steering committee where warranted and, ultimately, validating and demonstrating and proving to the executive sponsors that ultimately the project's still on track with respect to budget, benefits and delivery.

MS. KATHLEEN MCCANDLESS: Thank you. And just to clarify, there are two (2), pardon me, VP business owners at the very top of the chart there?

MR. JOHN REMILLARD: In this case, the reason that that's depicted is that for all IT projects, Mr. Bunko will be an active member and then

967

there may be one (1) or more operational business owners as part of that.

MS. KATHLEEN MCCANDLESS: And then on a -- for a given project, who would ultimately be responsible for the approval of submissions made to the Board of Directors?

MR. JOHN REMILLARD: That would be the executive steering committee.

MS. KATHLEEN MCCANDLESS: What size of projects would be required to get approval through the Board of Directors?

MR. JOHN REMILLARD: That's a good question.

Ultimately there -- there's the approval of the business case side of things, where we're adopting value management. But ultimately when we look at capital projects, it's anything that's going to require capital funding, and traditionally that's been anything in excess of 250,000 or so.

MS. KATHLEEN MCCANDLESS: Thank you. Once a project has been approved and when you get to major milestones within a project, are reports going to be prepared on the basis of how things are progressing?

MR. JOHN REMILLARD: Yes, we provide

968

weekly status reports to our executive sponsors and then there's a quarterly status report that's provided to our Board of Directors.

My apologies. There's a monthly report to our executive committee as well.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go back to the response to PUB-MPI 1-66.

And at the top of the page, again under "lesson learned," there's a reference to large capital programs requiring iterative business cases, yes?

MR. JOHN REMILLARD: Correct.

MS. KATHLEEN MCCANDLESS: Could you please explain what is meant by "iterative business cases" there?

MR. JOHN REMILLARD: Well, ultimately, when you're getting projects that tend to be over an 18-month period, things can change. Could be changes in technology, the assumptions that -- that are now getting validated because they were futuristic in the project execution.

And so the intent here is that the business case is a living document, it's -- and when you contrast that to physical damage re-engineering, I don't want -- I don't want to say it was a once and done. In essence we created a financial model and --

969

and forecasted benefits and impact to what it could mean for the organization as an opportunity.

But in this case, it's a living and breathing document, to the end, and actually post-implementation in the validation of said benefits.

MS. KATHLEEN MCCANDLESS: Thank you. And there should be no longer than three-year project funding value management period assessments there as well, yes?

MR. JOHN REMILLARD: Preferably. But when we look at something like a large spend that Mr. Bunko had in his opening, legacy will probably be -- a legacy modernization will be -- I don't want to say an anomaly, it will be another large program, but will require incremental rigour as well in that regard.

MS. KATHLEEN MCCANDLESS: Thank you. Something like a three-year project funding or value management assessment, that was not done for a PDR, is that right?

MR. JOHN REMILLARD: That is correct.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Chair, I maybe have five (5) more minutes of questioning under this area. Thank you.

Then we see that under "Actions," the first -- at the top of the page there, that the value

970

management office will be involved in active engagements of review and approval of -- in development of business cases, yes?

MR. JOHN REMILLARD: Correct.

MS. KATHLEEN MCCANDLESS: And active engagement of business operations in the development of business cases?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: And then formal application of BTO project, gating checkpoints and controls, yes?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: What does "gating" mean?

MR. JOHN REMILLARD: Yes. Ultimately, and I believe we described this in last year's Public Utility Board application, the gating aspect of it is each project is built into multiple phases. And what those phases, what we've implemented now are gates or checkpoints.

With these checkpoints, ultimately, we are expecting a certain level of completion with respect to certain deliverables, key aspects of the project to be complete. And then what we're doing now is incorporating the value management office into the

971

validation of that, and incrementally that the business case is still accurate at that checkpoint.

MS. KATHLEEN MCCANDLESS: Thank you. Then under "lesson learned," the second part of lesson learned, the page that we see before us here, the bullet says:

"Future software licensing, maintenance and operational support resource expenses need to be properly forecasted and included in financial analysis."

Yes?

MR. JOHN REMILLARD: Correct.

MS. KATHLEEN MCCANDLESS: Under the old organizational, I don't know that we need to go back there, but certainly, if you feel we need to let us know.

MR. JOHN REMILLARD: No, no.

MS. KATHLEEN MCCANDLESS: Who would have been responsible for making sure that this happened with respect to business cases?

MR. JOHN REMILLARD: With respect to business cases. I guess the -- the difficulty or -- in answering that question is that right or wrong, we weren't incorporating those costs. It was more of a -

972

- a benefits forecast and opportunity, so.

MS. KATHLEEN MCCANDLESS: And so I guess more generally then?

MR. JOHN REMILLARD: More generally? It was built into our budgeting aspect, so that was occurring and that the go-forward expenses were properly forecasted, but in evaluating projects it wasn't being done, formally.

MS. KATHLEEN MCCANDLESS: And that was more of a widespread issue, not specific to PDR, is that right?

MR. JOHN REMILLARD: Widespread yes.

MS. KATHLEEN MCCANDLESS: Thank you. So now the value management office, I understand, is going to ensure that these costs are properly forecast, is that right?

MR. JOHN REMILLARD: That is correct.

MR. CURTIS WENNBERG: Actually, in addition to that, we will expect as operational business champions, or my team that might be operational business champions, that if Shayon Mitra, for example, is -- is on a parts manager product -- project, he needs to be on top of the business case before it goes to value management office.

So value management office is a -- is a

973

checkpoint and they'll also assist, but -- but we're going to require our office people to -- to build the case properly from the beginning, and then it goes through that group. It's not like it's a complete cold hand-off, if you will.

MS. KATHLEEN MCCANDLESS: Thank you. What is meant at the bottom of page 2, the last bullet there with respect to:

"Active engagement of IT operations enterprise system support in the review of business case development"?

MR. JOHN REMILLARD: I can start and maybe I'll turn it over to Mr. Lazarko if I don't catch it all.

So ultimately, as part of preparing the business case, there are impacts to software licensing, maintenance, infrastructure, and ultimately that affects Mr. Lazarko's budget for the most part. He is responsible for creating the operational budget going forward, so he needs to be aware of said costs so that they're properly built into his budget.

And from the enterprise system support perspective, that is a unit that is responsible for supporting our applications. So ensuring that they

974

have the necessary staffing and support infrastructure to support a large program, there may be met -- new staff that are required in order to do so.

MR. LAWRENCE LAZARKO: Well said. Nothing to add.

MS. KATHLEEN MCCANDLESS: I just have one (1) question for clarification then.

So does that mean that IT operations and enterprise system support will be responsible or involved in the development of the business case, or in the review of business cases?

MR. CURTIS WENNBERG: It would be both, really, because what we want is we don't want ops business champions to recommend, let's say, a version of software that doesn't fit well within the IT architecture.

And so if we have something that -- that seems to make sense, we want to make sure that, architecturally, it -- it isn't going to be a -- a very expensive piece to integrate in.

So they would be both on creating the business case and making sure we got those costs in. And -- and -- and then the review of that.

MR. BRAD BUNKO: And I would add that very similarly to, you know, business impact, may --

975

may it be FTEs, you know, additional processes that are driving additional resources, the same perspective has to be applied to IT in general. And so from an infrastructure and an application services perspective.

MS. KATHLEEN MCCANDLESS: Just one (1) last question in this area then.

Is -- I take it the Corporation is stating that the new approval structure, the new operational structure, will ensure that there are no significant write-offs such as those experienced in the last fiscal year. Is that right?

MR. CURTIS WENNBERG: I think we have to go back to what Gartner presented before, and for us to be in a position where there will never be mistakes within a large project could be very difficult to promise.

What you see in this change though, is us adopting a bit more an industry standard approach to how ops will actually work on some of these projects and -- and work with our IT groups.

We will make sure that we champion the thing so that it makes sense what gets delivered, and then -- and then we'll work with the value management team to make sure that we actually account for

976

everything the way it should be done. That should reduce the probability of those types of eventualities to take place.

MS. KATHLEEN MCCANDLESS: Thank you.

I think this would be an appropriate time to break then.

THE CHAIRPERSON: Thank you.

We will reconvene at eleven o'clock.

--- Upon recessing at 10:40 a.m.

--- Upon resuming at 11:04 a.m.

THE CHAIRPERSON: Ms. McCandless...?

CONTINUED BY MS. KATHLEEN MCCANDLESS

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Remillard and Mr. Bunko, just one (1) follow-up question from my line of questioning earlier this morning -- for clarification.

So with respect to approval of IT projects before the van -- value management process was in place with the prior CEO, Mr. Guimond, can you just again reiterate or explain how IT projects got approved by the Board of Directors?

MR. JOHN REMILLARD: Yeah, I'll start.

977

So, ultimately, an issue is brought -- brought forward as part of our budget establishment process in the fall of each year, usually by the -- the cutoff that would be the Sep -- September timeframe.

Ultimately those we've built into the budget and capital funding which would be brought forward to the December planning session, and that would be the first that the -- the Board would hear about it, but -- the Board of Directors that is -- and then, ultimately, seeking approval from the Board of Directors of the actual budget in January of a -- of a calendar year with the -- with that approval would begin execution in the fiscal year as of March 1st.

MS. KATHLEEN MCCANDLESS: And when you say an issue would be brought forward, who would bring the issue forward?

MR. JOHN REMILLARD: Ultimately issues would be -- identified by the project, be it myself or the director of the business transformation office; that would be escalated to our executive steering committee and usually as a vi -- vice-president business owners and/or steering committee members, they would bring briefings and/or discussion papers and issues for escalation decision, et cetera to the Board of Directors. So it would be the executive

978

sponsors.

MS. KATHLEEN MCCANDLESS: And I believe you said in your evidence this morning that it was -- usually it was Mr. Guimond himself who would make the submission to the Board of Directors, is that right?

MR. JOHN REMILLARD: It would depend on -- on the project. I guess ultimately, with the physical damage re-engineering as a -- as an example, which began in -- in 2012 -- at that time Mr. Guimond was the vice-president so, was in essence, the Vice -- VP business owner.

MS. KATHLEEN MCCANDLESS: And typically was it Mr. Guimond who was -- who would make the recommendation with respect to the larger IT projects?

MR. BRAD BUNKO: Yes, it was. Yes. I think if you -- trying to contrast that to what we have now, a few years ago was -- or several years ago, there was much less business involvement in the initiative and building up of what the appropriate solution may be, and what the value from that solution could be and it was done more in isolation with, you know, as described by P -- IT that -- that Dan ran and -- and it was brought forward to executive committee

979

for -- for final approval -- but pretty much most of the solution was complete and it -- it was more of the formality of going through and having it approved and then having the Board approve it.

MR. JOHN REMILLARD: Ultimately, the organization was a -- we had a different organizational structure back then, as well. There was a division for Business Strategy and Innovation which Mr. Guimond lead, so, hence why a lot of the - net new initiatives are coming from that division and, in essence, why he was, in essence, a champion for them.

MS. KATHLEEN MCCANDLESS: And just to clarify something you said just now, Mr. Bunko. You said in isolation by PIT that Dan ran, so I believe Dan would be Mr. Guimond?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: And when you say "in isolation," what -- what would that mean?

MR. BRAD BUNKO: Well, as -- as John stated, the strategy area is something that -- that reported in through to Mr. Guimond and so between the strategy area and his business knowledge, he had less than maybe optimal business inclusion on -- on an initiative that would be brought forward.

980

MS. KATHLEEN MCCANDLESS: And P-I-T would mean?

MR. BRAD BUNKO: Pardon me?

MS. KATHLEEN MCCANDLESS: You -- yeah, I think you said something P-I-T in the course of your response.

MR. BRAD BUNKO: Not sure what I said.

MS. KATHLEEN MCCANDLESS: Okay. In isolation by P-I-T I think is what you said so I was just going to ask you to clarify with --

MR. BRAD BUNKO: Drop the 'P' and let's call it IT.

MS. KATHLEEN MCCANDLESS: Okay. And so I take it -- I -- I believe, just to clarify, again, from this morning, the approval process for these IT projects wouldn't of been reflected on VM2, the diagram that we see before us, right?

MR. BRAD BUNKO: No.

MS. KATHLEEN MCCANDLESS: Okay. Thank you. I just have -- some few -- a few questions with respect to the direct repair program. And first if you could just explain for the record what direct repair is.

MR. CURTIS WENNBERG: Direct repair is where we'll allow customers to bypass going to an MPI

981

service centre to have an MPI estimator look at their car and then we don't have hoists in those -- in those service centres, for example. So we do the best we can, take a look at the car and then it's up to the customer to take their car to any shop that they'd like to go after that.

Direct repair allows certain types of accidents hits for a customer to bypass that MPI service centre visit for an estimate, and they can go directly to certain shops that we've qualified to be able to do direct repair estimates for us.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to PUB-MPI-137. And at page 2 of this IR response towards the bottom of the page, this is with respect to DR is the acronym here, and towards the bottom of the response we see significant efficiency gains have not materialized with DR, so direct repair, and as such, the Corporation has announced its intent to dramatically alter the eighty-one dollar ($81) premium and other DR policies with its respect -- repair shop partner network. Yes?

MR. CURTIS WENNBERG: That's correct.

And again could you just explain what the eighty-one dollar ($81) premium reference here is?

MR. CURTIS WENNBERG: Yes. The

982

eighty-one dollar ($81) premium is given to these direct repair shops, but it was negotiated to be provided to them for all jobs they do. So, if it's -- it's -- if they're doing a direct repair estimate, they -- they -- they get eighty-one dollars ($81) for each of those estimates they do.

But then also, you know, those are only 20 percent -- that represent 20 percent of all the work that's out there. So, on the other 80 percent of their jobs they also then get eighty-one dollars ($81). So, MPI does the first estimate, the customer takes the car there, and they -- they follow-up with an estimate. So that's -- that's -- so it's all jobs that a DR shop does.

MS. KATHLEEN MCCANDLESS: Thank you. If we go to page 3 of the response. The very top of the page here there are a couple numbers referenced so at the very bottom of the first paragraph there's a variance from $6.3 million down to $3.63 million for 2018/'19 for direct repair, yes?

MR. CURTIS WENNBERG: Correct.

MS. KATHLEEN MCCANDLESS: And the original estimate of $6.3 million, are you able to explain how that number was arrived at?

MR. CURTIS WENNBERG: Yes. There was

983

some assumptions made around how much penetration, if you wi -- we'd have within our over two-hundred (200) shops which those would qualify for direct repair and we looked at the amount of volume that they did and it was relatively a straight-line view of how much money we'd be exposed to with this direct repair premium.

So -- so that was the end -- end result. The -- it -- it -- the second question that might be in your mind is how did you get down to 6.3 and -- and that's because of some of the restrictions that we had put in in terms of how you would get on to the eighty-one dollars ($81) if you're in probation as a shop or if you just got DR or if there's other modifying features you don't quite get it yet.

So it would be 3.6 million for this year, which is the first year that the eighty-one dollars ($81) gets turned on, but it would very naturally and easily grow to the 6 to $7 million in the -- in the next year or beyond.

MS. KATHLEEN MCCANDLESS: Thank you. And I -- I believe that the subparagraphs here provide some of the explanations for the decrease of 6.3 to 3.6 million.

Under (I), the very first paragraph -- subparagraph here there's a reference to thirteen

984

thousand thirty-one (13,031) in claims paid by the Corporation in Q1 being excluded from the eighty-one dollar ($81) payment due to the change in criteria. Yes?

MR. CURTIS WENNBERG: Yes.

MS. KATHLEEN MCCANDLESS: What's the timeline for the new direct repair policies or premium amount to be implemented to eliminate eighty-one dollars ($81) for every job?

MR. CURTIS WENNBERG: I'm sorry. Could you repeat that question?

MS. KATHLEEN MCCANDLESS: So it -- it appears that the eighty-one dollar ($81) payment will be slowly excluded, yes?

MR. CURTIS WENNBERG: So maybe -- maybe we'll go back on what (I) actually means. The -- at MPI you -- you can have -- you can have a date of loss and just not call us to -- to start a claim, and so what we did was we had to start -- get a starting point, which wasn't explicit in the light vehicle accreditation agreement, or the LVAA, we call it.

So there was no explicit start date. So what we agreed with our -- our trade partners is that, okay, we have to -- we have to just have a start on where you got your claim, or when you got your date

985

of loss. And so we said, okay, you're not going to get paid on -- eighty-one dollars ($81) on any -- any repair job where the customer had the date of loss before that December date. So it just sets a the starting point.

So there's a -- a number of claims, and -- in 2017, for example. Even if they go and get direct repaired tomorrow, we won't pay the eighty-one dollars ($81) on it. So it's just basically starting off the program.

MS. KATHLEEN MCCANDLESS: Thank you. At (3), the third subparagraph, there -- there is a reference to direct repair shops needing to be in good standing to be entitled to the direct repair premium, yes?

MR. CURTIS WENNBERG: That's correct.

MS. KATHLEEN MCCANDLESS: What does -- what's meant by "good standing"?

MR. CURTIS WENNBERG: So they could be in probation if they're starting up, or having -- having issues with our KPIs. We have new key performance indicators where we're measuring shops, and they have to be in -- in certain standing with us. So if -- if there's not -- and there's not many claims are in that bucket, but if a shop's not in good

986

standing, we -- we said they wouldn't get the eighty-one dollars ($81).

MS. KATHLEEN MCCANDLESS: Thank you. And that does take me to my next series of questions with respect the key performance indicators.

MR. CURTIS WENNBERG: M-hm.

MS. KATHLEEN MCCANDLESS: At PUB/MPI-2-18, and this Information Request asked the Corporation for details of the key performance indicators, or KPIs, for the repair shops. And we see the KPIs on the table at page 2, I believe.

Those are them there, Mr. Wennberg?

MR. CURTIS WENNBERG: Yes.

MS. KATHLEEN MCCANDLESS: What score on the scorecard is required in order for the direct repair premium to be applied to a given shop?

MR. CURTIS WENNBERG: To get into, correct -- to direct repair, there's really three (3) things that you needed to have historically. The ask/approve variance was over 2.63 percent. The total composite score that'd you have as a shop had to be over 60 percent, and you had to have an average five (5) jobs per week, so a certain volume size, to get in.

And only this summer, after a number of

987

our teams' review, plus some feedback from shops, we looked at the five (5) per week rule, and we relaxed that. A lot of the direct repair benefits we could see getting in rural areas, and we also didn't see a -- a reduction of quality in terms of writing a -- a direct repair estimate for smaller shops, which was an assumption that was made at the beginning. Really, really small shops do struggle a little bit with it, but we'll monitor that. We'll monitor that with -- with KPIs, and quality controls, and go forward.

MS. KATHLEEN MCCANDLESS: So is there a total composite score that the shops would need, then?

MR. CURTIS WENNBERG: Yeah. The composite score is 60 percent that they would need. And as you can see at the bottom -- so what a composite score means is that we would take percentages of each of these key measures and quality of repair, and we would build one (1) aggregate score, which we call a comp -- composite score.

So they have to do well enough in the all of the KPIs to get over 60 percent from a composite score, and the one (1) KPI that's a driver of KPI is an ask/approve variance. And just so everyone understands, that means that if -- if a shop

988

asked for eleven hundred dollars ($1,100) on every single estimate, and we only approve a thousand dollars ($1,000) on every single estimate, they would have a 10 percent ask/approve variance. So it's how much more they ask for, on average, and how much we say no, you can't have, to put it in -- in real simple terms.

MS. KATHLEEN MCCANDLESS: Thank you. And I understand that MPI is not actively promoting -- or has not actively promoted the Direct Repair Program in the twelve (12) months following its implementation date. Is that right?

MR. CURTIS WENNBERG: That's correct. And -- and there's a few reasons why. I should also note that the scorecard is not just done for direct repair shops. It -- it may be obvious, but we do it for every single shop that we do. And there are some shops who do have qualifying composite scores, and ask/approve variance, and just self select not to be in the Direct Repair Program. It's -- it's not a -- a large number, but it's a small number that -- that do that.

And -- and we find there's -- there's good value, and -- and it -- it's quite useful for us to have the -- the measurements within the shops. We

989

saw some beneficial improvement for all shops, those that were on DR, or even not DR, by just knowing that we're watching, and -- and we know what the ask/approve variances are, and some of the other things.

Part of these -- part of these is -- is what you would consider somewhat of an industry standard, and may have -- really benefit us in terms of average severity of our cars -- repair costs over the last roughly eighteen (18) months.

MS. KATHLEEN MCCANDLESS: Thank you. Does MPI have plans to promote the Direct Repair Program going forward?

MR. CURTIS WENNBERG: Not necessarily, no. So in the -- in the beginning stages, we wouldn't promote it because we had to build up and train people to write direct repair estimates in the way that we want them, so it wouldn't be fair to those shops that were in a pilot and already could do this, so this -- when we roll it out, they could advertise, but others just aren't even on the program yet. So we certainly wouldn't want our voice to be in their advertising it.

We -- we also think -- we've had some pressure from shops, too, in terms of advertising. It's -- it's a bit of a concern for some shops that

990

can't get on the program yet. So we want to make sure that we're really conscious on both the customer satisfaction and our own efficiency benefits out of this before we would ever go into any type of promotional campaign.

And we can also do promotion really simple, if we wanted to. We -- we could put shop performance and direct repair in when we're talking with first notice of loss on customers of the call -- contact centre. So just even making sure the customers got informed -- informed choice on what they could do. Some may consider that advertising, but it's really not. We're just educating the customer on options available to them.

MS. KATHLEEN MCCANDLESS: Thank you. Could we be please pull up PUB/MPI-1-46. And this Information Request asked for anticipated savings from the use of the predictive analytics tool.

And for the record, perhaps Mr. Wennberg -- I -- I'm -- you may be the appropriate person to just describe what pre -- predictive analytics is.

MR. CURTIS WENNBERG: Yes. Predictive analytics was our attempt at MPI to use more mathematics to try and predict what would be a fraud.

991

So today we get between, say, 6 and 8 million in the average year in terms of fraud in our -- in our business. And that's a -- usually a half and half of bodily injury types of fraud, or physical damage, or vehicle repair hits types of fraud.

What we do today, and -- and historically is -- is refer using our adjusters or estimators. They see a piece of damage just doesn't match what they would expect, and their -- their own antenna go up, and they, to their credit, would refer a -- a claim to our SI unit or special investigations unit, that would -- that would track that claim down and ask the customer what was happening.

Predictive analytics was going to give us what you would use very much in a financial services environment like a -- credit cards, for example. They have extremely deep algorithms and databases to determine what triggers you might see within a claim, or in -- in that case, a credit card purchase history, that -- that then triggers automatically whether something should be reviewed by the special investigations office.

We never had anything like this at MPI. There was a lot of talk in the market about these types of things. And so this part of the PDR, overall

992

big project, was looking at getting that algorithm into MPI.

MS. KATHLEEN MCCANDLESS: Thank you. And we see from the first paragraph in the response that the Corporation is applying the tool only to total loss claims, which account for less than 20 percent of all physical damage claims, yes?

MR. CURTIS WENNBERG: Correct.

MS. KATHLEEN MCCANDLESS: And the initial projected savings from the use of the tool was five hund -- five hundred thousand dollars ($500,000) annually, yes?

MR. CURTIS WENNBERG: That's right.

MS. KATHLEEN MCCANDLESS: And it's been amended to project an annual savings of two hundred and fifty thousand dollars ($250,000) by the end of this fiscal year?

MR. CURTIS WENNBERG: Yes.

MS. KATHLEEN MCCANDLESS: Are you able to comment on the cause of the decrease in projected savings?

MR. CURTIS WENNBERG: We've set up -- and it took a bit of work, but we have set up the models. We looked at some of the referrals. Our teams have worked them through, and this is basically

993

using the data in front of us on actual practice, and -- and actual hit rates, if you will, on true frauds within what the model is spitting out to determine that that's more -- roughly where we're going.

There's two (2) ways of combating fraud. It seems like there's a lot of insurance carriers that would go to a third party provider that may run their own black box or algorithm basis, and -- and they would get inputs. I think some would come from MPI. Some would come from the market. Or we could do it internally, like that was done here in MPI, and -- and this is what we've got at this point in time from the internal efforts.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, would we please pull up PUB -- pardon me, MPI Exhibit number 27. That's the presentation from this morning, and slide 9.

And I understand from the presentation this morning that these are the IT projects that are currently in flight, yes?

MR. BRAD BUNKO: That's correct.

MS. KATHLEEN MCCANDLESS: And could you, Mr. Bunko, just describe what in flight would mean?

MR. BRAD BUNKO: That they were --

994

they had funding budgeted for them for the '18/'19 fiscal year.

MS. KATHLEEN MCCANDLESS: So essentially, they're being worked on in the '18/'19 fiscal year?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: Yeah? Okay. And so with respect to technology risk management, that has the largest budget of the projects we see in front of us at $4.5 million for fiscal 2018/'19, yes?

MR. BRAD BUNKO: Correct.

MS. KATHLEEN MCCANDLESS: And when is the Technology Risk Management Project expect -- expected to be complete?

MR. BRAD BUNKO: This project is something that we do annually. So -- and it's hard. It's about keeping our technology up onto a -- supported platforms and addressing risk within the IT organization. So we have an annual budget of forty-five hundred dollars ($4,500). This specif -- I'm sorry, four mill -- $4.5 million.

The -- we do have, you know, sometimes we are challenged as far as fitting that twelve (12) months of work that we're hoping to perform within the twelve (12) months of the budget cycle. So some

995

things finish, you know, early in the year. Some things actually trickle over into the following year, but the next year, we are still bringing forward the initiatives that we believe are necessary, again, with a budget of forty-five (45) -- $4.5 million each and every year.

MS. KATHLEEN MCCANDLESS: Thank you. High School Driver Education phase 3 has a capital budget of 1.9 million for 2018/'19.

Mr. Bunko, could you just describe what phase 3 of that program is?

MR. BRAD BUNKO: It's primarily a curriculum redesign.

MS. KATHLEEN MCCANDLESS: And high school --

MR. BRAD BUNKO: That would be -- I'm sorry, but that would be understate -- if I only said that, that would be very much understating what it is doing. It is a redesigned -- that is built around much more student engagement, gamification of -- of the course itself, having the students get a lot more interest in learning how to drive the car correctly than most of the examples of regular driver education that you see out there.

MS. KATHLEEN MCCANDLESS: Thank you.

996

And so phase 3, is that something that will be complete within the fiscal year, or is that an ongoing --

MR. BRAD BUNKO: Predominantly finished through this year. There could be a small amount that goes into next year.

MR. JOHN REMILLARD: The majority of the spend, yes, will be in this fiscal year. We are expecting some residual to -- to go into early next year, yes.

MS. KATHLEEN MCCANDLESS: Thank you. Customer Self-service phase 1 has a capital budget for 2018/'19 of 1.5 million.

Again, Mr. Bunko, could you explain what that initiative is?

MR. BRAD BUNKO: Well, Customer Self-serve is in -- in general, putting functionality online so that our customers can directly access via a web portal and transact with us. That is at its highest level.

MS. KATHLEEN MCCANDLESS: And when you say "transact with us," that would involve, I imagine, any number of things.

MR. BRAD BUNKO: Sure.

MS. KATHLEEN MCCANDLESS: What's

997

contemplated by the work being done in this project for 2018/'19?

MR. BRAD BUNKO: I think I'll turn that to John.

MR. JOHN REMILLARD: Sure. My pleasure. Ultimately, the initial phase is just to -- to establish the -- a beginning infrastructure, as -- as Mr. Bunko alluded. We need to establish a -- an authentication means, so in essence, a customer portal to be able to access this type of technology via a mobile device, or a home computer.

To get into the specifics as to the types of transactions, initially, we're looking at things that are primarily driven from a -- an MPI-centric perspective. And what I mean by that is things that are causing customer delays within our service centres. Ultimately, customers are sitting there, waiting fifteen (15), twenty (20) minutes to -- to book and pay for a road test or a knowledge test.

These are high-volume transactions that -- that serve, in essence, low complexity and have high value from a customer as far as what they receive, but low value in the type of knowledge or capacity required in order to sell said service.

So those are the types of things that

998

we're looking at. A couple of other transactions, again, more from an MPI centric perspective versus how the Autopac agents come into the mix would be our driver abstracts and claims experience letters. So, high-volume, low complexity events.

MS. KATHLEEN MCCANDLESS: Thank you. And then we see "legacy systems modernization," second from the top of the table there. And I'm going to ask a series of questions about that initiative.

If we could refer to expenses, Appendix 19-3. And we heard about the legacy systems replacement in the presentation this morning, and I understand, essentially, what the project involves is replacing old IT systems, yes?

MR. BRAD BUNKO: Yes, our core systems.

MS. KATHLEEN MCCANDLESS: And Mr. Bunko or Mr. Remillard, what -- what programs are being considered for replacement?

MR. BRAD BUNKO: Applications.

MS. KATHLEEN MCCANDLESS: If there are many, maybe at a high-level.

MR. BRAD BUNKO: Sure. AOL, which is Autopac Online, the CARS system is being looked at. We also are looking at the bodily injury claim system

999

as a -- as a potential, and also looking at the driver and vehicle licensing system.

And then with all of that, we have to know that it will integrate correctly with our financial systems.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. STEVE SCARFONE: Just for the benefit of the Board members, CARS is the Claims Administration and Reporting System that the adjusters make use of in handling claims.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And if we look to the table that's on the screen before us now, these are the deferred development costs for corporate capital expenditures.

If we could scroll to the top of the table just for one (1) minute, so we can see 2019-2020 forecast there.

And then scroll down to line 44, we see that the anticipated costs to replace -- replace legacy systems is $10 million starting in 2019, yes?

MR. BRAD BUNKO: Correct.

MS. KATHLEEN MCCANDLESS: And that increases to $20 million in 2021 and following, yes?

1000

MR. BRAD BUNKO: Yes, these were the reserved amounts that were placed in. As you know, we're in the throes of our assessment to actually determine what that legacy modernization replacement would look like, what it would cost and over how many years.

So by next year's GRA, we would have a much better breakdown as -- as opposed to something as static like that. It's unlikely that it would be as neat and smooth as what is shown here.

MS. KATHLEEN MCCANDLESS: So it's expected that the numbers for 2020, 2021 and beyond will change in future GRAs?

MR. BRAD BUNKO: Absolutely, yes.

MS. KATHLEEN MCCANDLESS: And does the Corporation anticipate that there would be a continuation of modernization beyond the implementation of this particular project?

So would it be an ongoing venture on the part of the Corporation?

MR. BRAD BUNKO: No. The -- not for the scope of what we described now.

We would -- you know, through the business case process, which we are currently in right now, determine what makes sense and determine what

1001

order makes sense as well, and that would be the parameters for the scope of the initiative.

Other ongoing initiatives would be based on future business cases and I'm not sure exactly what those would be at this time.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to expenses, Appendix 17 please, Kristen.

And this table compares Basic capital expenditures for 2017/'18 as budgeted in last year's GRA, so on the left-side of the table, compared with the actuals, as reported this year, and then the difference between the two (2).

And then we see in the second column that we have the forecast for 2018/'19, as filed in last year's GRA and the forecast budget as filed in this year's GRA and the difference, yes?

MR. BRAD BUNKO: Yes.

MS. KATHLEEN MCCANDLESS: So for the last GRA, for 2018, at line 23 we see the budget for legacy systems modernization was $1.6 million for 2018/'19, yes?

In the middle of the page?

(BRIEF PAUSE)

1002

MR. BRAD BUNKO: I could translate the answer from Cynthia, or if it's okay with you guys, Cynthia could answer directly.

MS. KATHLEEN MCCANDLESS: I believe the Panel's okay with Ms. Campbell answering directly.

MS. CYNTHIA CAMPBELL: Yes. The amount for the 2018 GRA is $1.6 million for legacy systems modernization.

This is the Basic component of the project. So if you're wondering how come we said 2 million this year. It's 1.6 last year. This is 1.6 is a component of the total corporate. Some of it would've been allocated to our other lines of business.

The other question I'm thinking you're going to have and I'm going to explain, just so that it's fully transparent. In the 2018 GRA it is shown as a capital expenditure. In the 2019 it is not show as a capital expenditure because we are planning on expensing the project work in the current year, due to the nature of the work.

What the work is occurring this year is research. It is determining what we're going to go forward with, what it's going to look like, how it's going to be put together.

1003

That is an expense, that is not a capital item. Last year when we were taking a look at this when we first started down this path, we thought it might be capital in nature, and so we put it down as a capital expenditure. That has changed for the current year application.

MS. KATHLEEN MCCANDLESS: Thank you, Ms. Campbell.

And just to follow-up to that then, on the very right-hand side of the screen we have the 2019 forecast as reported in last year's GRA, compared to this year's GRA, and there's difference of $8.1 million. So a reduction -- or $8.2 million, roughly.

Can you explain what that variance is about?

MS. CYNTHIA CAMPBELL: Last year we thought we would start with a $20 million in '19/'20, and we're now saying that we would not spend that much in the first year, we would spend less.

So that 8.1 million ties to the 10 million that you were -- you saw on the other table, on Appendix 19, Appendix 19 being corporate and this appendix being Basic.

MS. KATHLEEN MCCANDLESS: Thank you. If we could turn to MPI Exhibit Number 9, and this is

1004

part of an exhibit that was filed by MPI to revise certain hires that were initially filed with the request for confidentiality.

This is now on the record and it's legacy system matters -- modernization. Here we see -- I believe that's a status or sort of charter with respect to the legacy systems modernization project.

Is that right, Mr...

MR. JOHN REMILLARD: That is correct.

MS. KATHLEEN MCCANDLESS: Thank you. And if we scroll to the bottom of the page, we see the total project budget as at March 1, 2018 is 17 -- $72 million, yes?

MR. JOHN REMILLARD: That's the forecasted spend, yes.

MS. KATHLEEN MCCANDLESS: And that's the forecasted spend to -- to what date?

MR. JOHN REMILLARD: That was based on the original projection that was built into our corporate financials, as Mr. Bunko had stated earlier.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. BRAD BUNKO: I would like to add it was -- it was the number prior to any of the -- this year's assessment that we've been doing.

And so essentially took what we

1005

believed would be a manageable amount from a capacity perspective and spread that over what we believe the duration of the project would be.

I think this is showing four (4) years of twenty (20), one (1) year of ten (10) and the -- one (1) year of a two-year assessment. I think if you look at the more detailed sheets. But in other words, it is a high-level forecast.

MS. KATHLEEN MCCANDLESS: Thank you. With respect to managing the budget, can it be reduced into smaller-sized projects or budgets so that implementation and financial risk would be minimized?

MR. JOHN REMILLARD: Are you referring to the -- the large spend ahead?

MS. KATHLEEN MCCANDLESS: Yes.

MR. JOHN REMILLARD: That would be something that we're looking at as part of developing the business case, as to how it should be executed, yes.

MS. KATHLEEN MCCANDLESS: And those business cases would be developed -- when is the Corporation looking to develop those business cases?

MR. JOHN REMILLARD: We are expecting to prepare the business case by end of fiscal year this year.

1006

MS. KATHLEEN MCCANDLESS: Thank you. I now have some questions about the IT staff internalization, we heard a little bit about that this morning in the presentation.

MPI capitalizes int -- internal labour for work on IT projects, is that right?

Maybe a question for Ms. Campbell.

MR. LAWRENCE LAZARKO: Correct.

MS. KATHLEEN MCCANDLESS: If we could go to IT 3, under the heading Effectively Managing IT Labour, we see the bullets there that MPI has transitioned twenty (20) positions from internal to ex -- external to internal with seven (7) more positions being converted by 2019/'20, is that right?

MR. LAWRENCE LAZARKO: That's correct.

MS. KATHLEEN MCCANDLESS: Thank you. And if we go to figure IT Appendix 1–1.

Now, in looking at this table, I understand that after the seven (7) consultant positions are converted into internal full-time equivalents, there is an additional decline of eighteen (18) consultants to eighty-two (82) consultants for 2018/'19, and that would be found at line 7. Is that right? For 2018/'19 budget?

MR. LAWRENCE LAZARKO: So -- sorry.

1007

Line 7 represents both the combination of reductions due to the external labour strategy, but also reductions to changes in project workload.

MS. KATHLEEN MCCANDLESS: So that's why we have -- so it would include the seven (7) consultant positions being internalized?

MR. LAWRENCE LAZARKO: That's correct.

MS. KATHLEEN MCCANDLESS: And then if we go just below, to the table below, IT personnel costs.

This shows a reduction or -- in our projected savings if we look to line 2 of --

MR. LAWRENCE LAZARKO: Sorry, I would like to make an amendment to the previous statement, if we could scroll back up, please.

MS. KATHLEEN MCCANDLESS: Sure.

MR. LAWRENCE LAZARKO: Right. So in 2018/'19, it would include five (5) reductions of the seven and 2019/'20 you would see the remaining two (2).

MS. KATHLEEN MCCANDLESS: Thank you for that clarification.

So at IT Appendix 1–2, if we compare the costs for consultants from 2017/'18 actual to 2018/'19 budgeted, we see a reduction or projected

1008

savings of roughly $3 million. Is that right?

MR. LAWRENCE LAZARKO: Subject to check, yes.

MS. KATHLEEN MCCANDLESS: And then if we go to figure IT Appendix 1–11. This is the average cost per full-time equivalent for consultants versus internal, yes?

MR. LAWRENCE LAZARKO: Correct.

MS. KATHLEEN MCCANDLESS: And this table estimates the actual and forecasted average cost over a ten-year period, is that right?

MR. LAWRENCE LAZARKO: That's correct.

MS. KATHLEEN MCCANDLESS: And if we look to lines 8 through 10, we see that the average cost per full-time equivalent consultant is expected to first increase in 2018/'19, to 140 -- or one forty-six seventy, yes?

MR. LAWRENCE LAZARKO: That's correct.

MS. KATHLEEN MCCANDLESS: And then to decrease to one thirty-four eighty-nine in 2019/'20?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And one thirty-four ninety in 2020/'21, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And what is

1009

the reason for such a reduction in the per consultant cost?

MR. LAWRENCE LAZARKO: In creation of the table we forecasted which potential positions could be converted, we've removed them from the amount and regenerated the averages.

That would be the reason. So the lower reduction -- sorry, the reductions you see in line 9 and line 10 are based on the anticipated conversions, the anticipated changes we at the time made, 2018, when we created this.

MS. KATHLEEN MCCANDLESS: Thank you. I'm now going to move into some questions of Mr. Henry, for the most part, on the PDR evaluation. It is 11:45. I expect that line of questioning will take well over fifteen (15) minutes, maybe an hour or something of that nature, so I could start now and break or we could break early for the lunch.

THE CHAIRPERSON: You know, we'll break early for the lunch. I don't -- I don't like breaking cross-examination, so we'll break early and -- how long do you think you'll be this afternoon, Ms. McCandless?

MS. KATHLEEN MCCANDLESS: That's a good question. Approximately an hour and a half, two

1010

(2) hours. Something like that.

THE CHAIRPERSON: Okay, we'll break until one o'clock. Thank you.

MS. KATHLEEN MCCANDLESS: Thank you.

--- Upon recessing at 11:45 a.m.

--- Upon resuming at 1:00 p.m.

THE CHAIRPERSON: Good afternoon. If we could start. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Just one (1) follow-up question to the -- to slide 9 from MPI Exhibit 27.

With respect to the capital budget for 2018/'19 for technology risk management of $4.5 million, is that an ongoing capital expense every year following?

MR. BRAD BUNKO: Yes, it is.

MS. KATHLEEN MCCANDLESS: And that will be at $4.5 million as a capital expenditure throughout the forecast period?

MR. BRAD BUNKO: It's -- yeah, go

1011

ahead.

MR. LAWRENCE LAZARKO: Sorry. In CAC-1-30 part (a), we explicitly talked about this being a multi-year program with annual review of investments, so, that would be what we're looking at doing with this and why it showed up in our capital master summary as an ongoing cost.

MR. BRAD BUNKO: But I believe would have the potential to have part of it expensed. Would that not be correct? Pieces could be expensed if the initiative was small enough?

MR. LAWRENCE LAZARKO: Absolutely correct.

MS. KATHLEEN MCCANDLESS: Thank you.

MR. STEVE SCARFONE: Ms. McCandless, just before you go on, before I lose sight of it, there was some testimony given by Mr. Remillard this morning that he'd like to correct if -- if now is an appropriate time because we are on the issue of capital projects.

MR. JOHN REMILLARD: Yes, there was a question regarding the threshold for capital approvals. My apologies, I had stated 250,000. The actual number is 500,000. My apologies.

1012

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And that was in the context of the approval process prior to the implementation of the value management process, is that right?

MR. JOHN REMILLARD: That's correct, yeah.

MS. KATHLEEN MCCANDLESS: Thank you. All right, Mr. Henry, I'm going to have some questions for you now with respect to your report or the PDR program evaluation.

MR. CHARLES HENRY: Okay.

MS. KATHLEEN MCCANDLESS: Thank you. And just by way of background, what is the role of Gartner within MPI on an annual basis?

MR. CHARLES HENRY: So we're a research and advisory company. So we -- our core business is selling research that we develop around how to do to -- or how to take advantage of IT technology and -- and -- and how to execute other business processes like HR, finance, et cetera.

We provide a consulting service on top of that, so that people can apply that research to -- to their context. MPI has hired us to do an annual look at the IT program to make sure that it's

1013

following best practices as we've defined to do things like the IT scorecard to look at their spending relative to peers based on our database.

MS. KATHLEEN MCCANDLESS: Now, we know that with respect to the PDR program evaluation that was filed in this year's GRA that you were the lead with respect to that report?

MR. CHARLES HENRY: Yes, I'm the lead author.

MS. KATHLEEN MCCANDLESS: With respect to the IT score which I believe used to be called the CIO scorecard?

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: Have you had any involvement in that in the past?

MR. CHARLES HENRY: I have not, not with MPI. I mean, I can talk to you about the Gartner process, but not about any of MPI's results.

MS. KATHLEEN MCCANDLESS: And with respect to the previous PDR program evaluations, there was one (1) filed in last year's GRA and one (1) filed in the GRA previous.

What was your level of involvement with those reports?

MR. CHARLES HENRY: I was not involved

1014

with those.

MS. KATHLEEN MCCANDLESS: I take it you are familiar with those -- the contents of those reports, however?

MR. CHARLES HENRY: I am, yes.

MS. KATHLEEN MCCANDLESS: Thank you. Now if we could go to the PDR program evaluation and that's value management Appendix 6 and just to start off at pages 14 and 15.

To reiterate what we heard from you this morning, Mr. Henry, at the top of the page we see that there is a significant difference in some of the costs and benefits in the overall net pre -- present value between the 2017 Gartner report and the 2018 MPI team restatement; yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And as we know, the key difference are an expected project cost of $57 million as opposed to the originally projected 65 million?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And now a negative net present value of 49.9 million as opposed to the Gartner projected 13.7 million; yes?

MR. CHARLES HENRY: That's correct.

1015

MS. KATHLEEN MCCANDLESS: Now, there's some wording in the second line of this paragraph that I would just like you to clarify. It's referred to in one (1) place as the 2017 Gartner report and then the 2018 MPI team restatement.

So, the way I read that is one (1) is - - was Gartner's findings and the second, the 2018, is based on MPI's information, is that the proper way to understand it?

MR. CHARLES HENRY: Correct. So MPI as they built up their value management went back and applied the principles to -- to the PDR program, went back and, you know, updated the costs, updated the benefits, that's what lead them to make a number of decisions, including the cancellation of CCRS so.

We'd done analysis in 2017 when -- when MPI was not using NPV as a project management tool. They are now starting to use NPV and have done their own calculations in 2018.

MS. KATHLEEN MCCANDLESS: And is there significance to the fact that one (1) is termed as, essentially, as Gartner's findings and the other is -- is now MPI's findings? Does that mean that Gartner itself did not make those findings?

MR. CHARLES HENRY: So I -- I checked

1016

the arithmetic, but I did not go in and -- we had a number of conversation so that I could understand the contents of those findings and I checked the arithmetic as it was when -- when I did the work, which is back in May.

MPI has continued to refine those numbers so they're -- you know, they would be a little bit different today than they would've been in -- in May but -- but I'd say they are directionally correct and precisely wrong.

MS. KATHLEEN MCCANDLESS: Thank you. And then we see the bullets here that describe the factors contributing to the change in the net present value.

So first, as we heard some cost that have been attributed to the program were not included in the analysis --

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: -- previously. And new evidence shows that some of the benefits of the PDR program without CCRS are plan to be lower than projected?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And of course, as we also heard the corporate cost of capital

1017

is now being used at -- at between 6.5 percent and 9.5 percent for NPV calculations; yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. Now, if we go to page 3 of your report, Mr. Henry, under "evaluation approach," we heard again from you this morning about this.

In this year's report, Gartner assigned additional senior resources to conduct an updated assessment, yes?

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: So perhaps you could just elaborate on what the change was in resources from last year as compared to this year?

MR. CHARLES HENRY: So last year the work was led by Martin who's had a long-standing relationship with MPI. Because of the restate, we wanted to have another set of eyes looking at the numbers. So, Martin asked me if I would participate, and I was, of course, happy to do that.

MS. KATHLEEN MCCANDLESS: Okay. So the additional resources was yourself being added to the team?

MR. CHARLES HENRY: Yes and Rand Guy who's the managing partner for Gartner Consulting in

1018

Western Canada. He attended the April the 19th meetings in -- here in Winnipeg and did some QA on the report, but I -- I wrote the report.

MS. KATHLEEN MCCANDLESS: Thank you. And I understand your evidence, just a few minutes ago, was that you were not involved in previous PDR program evaluations but you are aware that in 2015 that this Board did order an independent review of the PDR program?

MR. CHARLES HENRY: Yes.

MS. KATHLEEN MCCANDLESS: And then I believe your evidence was this morning that Gartner introduced the net present value calculation into the analysis in the 2017 version of the report?

MR. CHARLES HENRY: Yeah, last year, that's correct.

MS. KATHLEEN MCCANDLESS: Was it not actually introduced in the 2016 version of the report?

MR. CHARLES HENRY: I'd have to look at that vision. I think I have it here but I'm not positive.

MS. KATHLEEN MCCANDLESS: Kristen, would you mind pulling that report up. So that's -- if we just scroll to the top for -- for the record/

So that was the physical damage re-

1019

engineering attachment, PDR (a) --

MR. CHARLES HENRY: M-hm.

MS. KATHLEEN MCCANDLESS: -- from the 2017 General Rate Application?

MR. CHARLES HENRY: Okay.

MS. KATHLEEN MCCANDLESS: And if we go to page 4 under cost, we see that initially the overall program budget was consistently $65 million in 2012 dollars, yes?

MR. CHARLES HENRY: M-hm.

MS. KATHLEEN MCCANDLESS: And then we see at the bottom of that paragraph that Gartner -- and I take it that would be Mr. Geffen who was the author --

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: -- wrote that:

> "However, it also introduces the potential for additional cost, extended timeline and differed benefits realization."

Yes?

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: And then to the top of page 5, in this previous report:

1020

> "The program as planned and approved shows a lengthy payback period, an internal rate of return of 8 percent and a net present value of $18 million, using a 3 percent cost of capital over the period from inception 2010/2011 until ten (10) years after go live when benefits start to accrue in 2016/'17."

Yes?

MR. CHARLES HENRY: Okay, yeah, I'd forgotten this.

MS. KATHLEEN MCCANDLESS: Okay, thank you. Kristen, (sic) if we could please enter PDR (a) from the 2017 rate application as PUB Exhibit -- I believe it's Number 19.

--- EXHIBIT NO. PUB-19: PDR (a) from the 2017 rate application.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Now, Mr. Henry, I take it because you are familiar with this report, you would also know that the 2016 version of the PDR evaluation did not include an assessment of

1021

the operating and maintenance costs for the program?
MR. CHARLES HENRY: Yes.
MS. KATHLEEN MCCANDLESS: And then if we would go to the PUB Order 126/'16. And so for your benefit, Mr. Henry, this was the Order that the Board issued following the hearing in which the previous report that we just reviewed had been filed.
So if we go to page 29. We'll just skip ahead to the directives from the Order, then, if that's possible -- oh, now we do have the full Order. Twenty-nine (29), please.
So we see the paragraph that starts "with respect." We see:
"With respect to the savings and benefits of the PDR project, Mr. Geffen noted that Gartner had determined the net present value benefit overall, the project of $18 million. The cost benefit analysis by Gartner did not include the cost of maintaining the program. Gartner estimated the maintenance cost based on industry standards to be 18 to 20 percent per annum."
You see that?

1022

MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: Thank you. And then if we could jump to Directive 10.10.
Now, this is the section of the Order in which the Corporation was directed by this Board to file another independent assessment on the development and rollout of the PDR project. You see that there?
MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: And the last sentence of that directive states that this project cost benefit analysis -- analysis shall incorporate all maintenance costs in the program evaluation. Yes?
MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: Thank you and then, Kristen, if we could please jump to Order 130/'17, at page 55.
Now, this was the Order that this Board issued last year after having received in evidence the 2017 PDR program evaluation. If we go five (5) lines up from the bottom of this paragraph we see that the Board makes a finding which is:
"The Board further finds that the net present value and internal rate of return calculations for the PDR program are of limited value as they

1023

do not take into account the cost of operating and maintaining the program and utilize a 3 percent discount rate, which may not reflect the risks of the project. The Board also notes that there has been a deterioration in the assessed benefits of the PDR program since the Gartner analysis filed in the 2017 GRA."
Do you see that there?
MR. CHARLES HENRY: Yeah.
MS. KATHLEEN MCCANDLESS: So with -- with that in mind, having review those two (2) Board Orders, it appears then that MPI or Gartner did not include the cost of operating and maintaining the PDR program in the -- in the two (2) analyses filed previously to the one that you authored; is that right?
MR. CHARLES HENRY: Yeah, correct. We -- you know, as stated in the report we asked multiple times for -- for the breakdowns. MPI didn't have them available so we -- we did the analysis based on the high level data that was available to us.
MS. KATHLEEN MCCANDLESS: So I take it

1024

then that the reason why the operating costs were not included from Gartner's perspective was because the information was not provided to it by MPI previously?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: Thank you. And I take it the updated evaluation filed this year, which you authored, now includes all of the costs?
MR. CHARLES HENRY: Well, all the costs that we're aware of. So -- it's clear that MPI has got a much more holistic view of project management this year than they had in previous years and has done a lot of work at looking at costs.
To the point as I said where their cost documents are now living documents, so you can see the evolution and they can trace -- it will tell you why a number is different, you know, this month from last month which -- which they often couldn't do in the past. So it's a much more fulsome review available today than it was available a year ago.
MS. KATHLEEN MCCANDLESS: Thank you. If we could pull up Slide 17 from MPI Exhibit Number 27, and it's...
Now, I -- it was in the context of, I bel -- it was either Mr. Wennberg or Mr. Remillard's evidence this morning. In reviewing this slide, slide

1025

17.

Pardon me, Slide 13. At item 3 the lessons learned from PDR and CCRS is:

"Third parties may not find all the week assumptions or missing costs."

Yes?

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: So -- and this question I would direct to the MPI representatives.

What would be Gartner's role with respect to finding assumptions or missing costs? Is Gartner to audit MPI's information?

MR. JOHN REMILLARD: The role that Gartner's played to date is to review the available information. So, in essence, the project status reports, the issues, register, risk registers and so forth for the program. So they would provide an assessment and opinion whether they were deemed full, whether there was good mitigation strategies, et cetera.

MS. KATHLEEN MCCANDLESS: So it was the response -- pardon me.

MR. CHARLES HENRY: If I could add, we are not an audit firm.

1026

MS. KATHLEEN MCCANDLESS: So it's a -- it was the responsibility and continues to be the responsibility of MPI to provide the information that Gartner requires?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And historically within MPI who has been the main contact to provide Gartner with this information?

MR. JOHN REMILLARD: I have over the last three (3) years.

MS. KATHLEEN MCCANDLESS: Thank you. Now, in undertaking its review last year Gartner had reviewed a number of key program artifacts and interviewed a number of key individuals.

And are you aware of that Mr. Henry?

MR. CHARLES HENRY: In 2017?

MS. KATHLEEN MCCANDLESS: Yes.

MR. CHARLES HENRY: Yes.

MS. KATHLEEN MCCANDLESS: Okay. And I -- perhaps for your reference, Mr. Henry, if we could pull up MPI Exhibit 17 from the 2018 GRA. So that was the presentation that Mr. Geffen gave last year to this Board. And slide 5.

So we see here, Mr. Henry, at the second bullet that the initial initiative and it was

1027

made up of five (5) programs and twenty (20) projects within those programs. Eight (8) were completed, seven (7) were cancelled after determining they were not strategic and did not add to the business case and five (5) restructured projects were created which now comprised the remainder of the PDR program.

Are you familiar with this?

MR. CHARLES HENRY: Yeah.

MS. KATHLEEN MCCANDLESS: Thank you. And then at slide 9. These were the savings and benefits to be realized based on the 2017 PDR program evaluation and we see the second -- under the fourth bullet two (2) lines down we see:

"Ramping up to a steady state ongoing $13.65 million annual benefit."

Yes?

MR. CHARLES HENRY: Yep.

MS. KATHLEEN MCCANDLESS: And for the record, I would ask that this presentation be entered as PUB Exhibit Number 20 and that was MPI Exhibit Number 17 from the 2018 GRA.

--- EXHIBIT NO. PUB-20: MPI Exhibit Number 17 from the 2018 GRA.

1028

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: And we know, Mr. Henry, that the total budget historically had remained unchanged until this year when it was revised from $65 million to $57 million; yes?

MR. CHARLES HENRY: That's correct.

MS. KATHLEEN MCCANDLESS: And now the scope of what is being delivered by the PDR project has changed as a result of this reduction in the budget?

MR. CHARLES HENRY: Correct. I would probably phrase that the other way around. The reduction in scope of the project resulted in a reduction in the budget.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go back to evaluation approach at Appendix 6. So, the current PDR program evaluation.

I gather from your report and from your presentation this morning that the bulk of the analysis undertaken by Gartner was a review of an MPI management presentation dated April 19, 2018; yes?

MR. CHARLES HENRY: And a lot of spreadsheets and project status reports, but yes.

MS. KATHLEEN MCCANDLESS: Thank you. We do see here as well there was an MPI generated

1029

value management analysis. Yes? The second bullet.
MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: And project status reports, and interviews on site as well. Yes?
MR. CHARLES HENRY: correct.
MS. KATHLEEN MCCANDLESS: Now the refinements in the budget for the program from 65 million down to 57 million, did Gartner review the refinements with MPI management?
MR. CHARLES HENRY: Yes, we did.
MS. KATHLEEN MCCANDLESS: Now if we go to page 3 of your report, we -- there -- if we scroll down we see just above in items 1 and 2 there that the -- as the program involved Gartner found two (2) conditions developed; yes?
MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: And the first was that MPI had difficulties measuring and breaking out costs, especially licensing due to the complex license schemes that we heard you speak about this morning, yes?
MR. CHARLES HENRY: Yes.
MS. KATHLEEN MCCANDLESS: And then we also heard you speak about number 2, which was that the senior executives had lead negotiations with

1030

repair industry with limited engagement at the business -- at the business unit level, yes?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: Now if we go to page 4 under Gartner Perspective, we see that, second line down in the first paragraph there, that Gartner has found that MPI has followed the advice provided by Gartner and applied a much more rigourous approach to the PDR business case and application of value man -- management framework, yes?
MR. CHARLES HENRY: Yes.
MS. KATHLEEN MCCANDLESS: Had Gartner's independent analysis last year did not reflect this rigourous approach?
MR. CHARLES HENRY: Correct, the numbers in last year were much higher level numbers.
MS. KATHLEEN MCCANDLESS: So knowing that we have a much higher level of detail this year, are you able to speak -- appreciating that you were not involved in the previous PDR evaluations but are you able to speak as to how Gartner was able to have a level of comfort with its previous PDR evaluations?
MR. CHARLES HENRY: I mean, I cannot put words in Martin' mouth. I think you'll see in our comments that we repeatedly said that the information

1031

provided was at a high level, and the lesson learned for us is that we should have been much clearer in our conclusions that the high level numbers showed, you know, the 13.7 million NPV, but that further analysis was required, and we should have been stronger in making the point.
MS. KATHLEEN MCCANDLESS: Thank you. If we could go to page 8 of your report, Mr. Henry.
So we see at the top of the page here that there were a number of deliverables that the PDR program was expected to provide per its report in 2017, yes?
MR. CHARLES HENRY: Yep.
MS. KATHLEEN MCCANDLESS: And I won't review all of them. But if we scroll to the bottom of the page, we now see that based on the evaluation you conducted this year that there -- a number of benefits are now not going to be achieved; is that right?
MR. CHARLES HENRY: That's correct, but it's not just me, right? So this is part of the effect of the value management office having a much more rigourous look at the benefit stream and us reviewing what value management is said and comparing it to our previous reports and the various categories that we built to find benefit, so, it's not just us.

1032

It's us and value management.
MS. KATHLEEN MCCANDLESS: With respect to the second bullet "direction of nearly 85 percent of estimates to distributed estimating shops," that's a benefit that is no longer expected to be achieved?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: What percentage of estimates is currently included in the benefit stream?
MR. CHARLES HENRY: I think we'd have to ask M -- MPI for that.

(BRIEF PAUSE)

MR. CURTIS WENNBERG: We're going to have to take that away. We can bring that back this afternoon.
MS. KATHLEEN MCCANDLESS: Okay. You will be able to provide on the record this afternoon. We could also do it by way of undertaking and MPI could answer in writing if it prefers.
MR. JOHN REMILLARD: We'll attempt to to get to this afternoon. If we can't, we'll take it as an undertaking, though.
MS. KATHLEEN MCCANDLESS: Thank you.

1033

MR. CURTIS WENNBERG: If I can give context to you, it's at 20 percent now in terms of penetration of direct repair. It's -- it's probably going up around the 40 percent mark and that's --

MR. STEVE SCARFONE: But just -- I don't know if we should provide a conditional undertaking. Either we can provide the information later this afternoon or we'll provide an undertaking.

MR. CURTIS WENNBERG: We found it, it's 40 percent.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you. So no undertaking is required. Thank you.

So we also see the fourth bullet that once a vehicle is at a repair shop the claim is ready for repairs 98 percent of the time. No waiting for customer or shop.

So that's no longer expected to be achieved -- will not be achieved, correct?

MR. CHARLES HENRY: That's understanding, correct.

MS. KATHLEEN MCCANDLESS: Similarly, with respect to the fifth bullet:

"Less hands-on MPI involvement for

1034

most processes for simpler claims through a reduction in the amount of adjuster time and effort required for new first notice of loss claims."

Yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And then with respect to the sixth bullet, the lower overall claims spend in comparison to current operations which also preserve relative claims costs in relation to industry.

Are these benefits no longer achievable because of the cancellation of CCRS?

MR. CHARLES HENRY: I think the cancellation of CCRS is -- is part of that. But I also think, you know -- and again, I'm speaking for MPI. And I would like them to comment after but the cost of repair is going up year over year as automobiles get more com -- complex, so I think there's an element of that as well that I think MPI should -- should comment.

MR. CURTIS WENNBERG: Yeah, I think while generally cars are going to be more expensive to fix going forward, this is really related to: Are we

1035

going to be finding the RFP savings or our people savings as a result of some of the technology, what's anticipated, plus then some of the parts strategy savings, part of the loss of use of the rental car savings, and -- and total loss savings.

Some of the -- some of this -- the full-time employee reductions that we would get if we got people to put their claims online through the CCRS system just simply won't happen. We -- we're not going to put them out on line.

As some of the estimates around the savings from estimators that we wouldn't need anymore, if you put 85 percent of your estimates through to the body shops, purely, you'd be able to reduce a lot more of those roles than we have today. However, we are studying those and we want to make sure that we go -- we go reasonably and appropriately to -- to the higher number. Even at 40 percent we want to make sure that as shops or underwriting these -- these estimates that -- that they're appropriate and doesn't increase our severity beyond a level when we write our own estimate. So -- so we look at that.

As it -- as it relates in the business case to savings from, let's say, loss of use or rental car savings, we haven't given up, and we, you know,

1036

underneath everything, we pay a lot of money for our rental cars here in -- in MPI. On average it's about forty-nine dollars ($49) a day. And so we've undertaken to do an -- effort to try and reduce that spend anyway, regardless of our decision on PDR and so we just had an agreement with the Car and Truck Rental Association so that we're actually going to -- go after that rental agreement and reduce the amount that we paid.

And I don't think I'll make it public at this point. We just signed that agreement, but it's a fairly significant reduction for us. So, no IT spend's been required just more process change. So -- so while the business case is -- is -- it is going to have some lower spend in certain areas, it's going to have a little higher in -- from the FTEs that we're not able to get out but -- but we'll do the best we can with what we have.

MS. KATHLEEN MCCANDLESS: Thank you. At the very bottom of the page, Mr. Henry, you write that:

"The benefits below are projected to be achieved and have MPI's management commitment to track the achievement of the benefits."

1037

And then we have a number of bullets gain and this is written as MPI's management commitment to track the achievement.

Does Gartner have any view on whether these benefits will be achieved?

MR. CHARLES HENRY: So, we can't predict the future, but we can say is that for things like part saving, MPI has a dashboard so they can actually now accurately track the part savings that have come from using recycled or other kinds of used parts. So that what was conjectured in the past, now there's an actual dashboard in place to -- to -- to track and then you can start to compare your tracking to your assumptions and -- and if there were any flawed assumptions, fix them, make sure the business case is accurate.

So, I can't predict whether all of MPI's predictions will come true, but what I can say is that they have fact-based dashboards in place for -- - for most, if not all, of these commitments, and can accurately then say, Are our assumptions coming true and if they are coming true, are there savings coming as we predicted. If not, what's the flawed assumption? Are there changes we could make in the system in order to -- to recover that money or, you

1038

know, have we been conservative, in fact, we're getting more.

So I can't predict whether the claims will actually come through, but I can say that -- that they now have a fact-based capability upon which they can do the analysis to determine if the benefits are being achieved. If not, why not and -- and what -- what else is possible.

MS. KATHLEEN MCCANDLESS: Thank you. If we go on to page 9 in the middle of the page it stated that:

> "In addition, MPI is achieving other benefits to which it is not possible to assess a finan -- assess financial benefits. These are improved customer service, reduce technical risk and reduced fraud risk."

Yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And can you elaborate on each of these three (3) bullets and how the program will prov -- improve these areas?

MR. CHARLES HENRY: So, customer service is either the availability of multiple

1039

channels so, not just, you know, in person, but over the phone, over the web. So different channels that suit the -- the needs of different kinds of clients; the speed of service or getting service in, you know, seconds or minutes instead of hours or days; technical risk.

Part of what MPI has done and doing PDR is refresh a bunch of their infrastructure or move to infrastructure provided by third parties, which is more current, more reliable, also so that their technical risk is -- is going down across the platform. And -- and the Mitchell system gives them a basis of good and consistent information across the entire province around which now you can do the analytics for fraud detection that you couldn't do before 'cause you didn't have a strong information base.

So it's hard to figure out, you know, what is the impact of that other than good data means good data management means good analytics means the ability to come up with positive outcomes.

You know, is there more fraud happening in Manitoba than is being detected? Is fraud -- is Manitoba, you know, a less fraudulent place than Ontario or California? I can't comment on any of

1040

that. I'd like to think, yes, but I don't know.

MS. KATHLEEN MCCANDLESS: Thank you. Now the table that's just below the bullets here, this -- this schedule is now the updated benefits to be achieved from the PDR program; is that right?

MR. CHARLES HENRY: In our view of the benefits and as of that point in time which was, you know, when I wrote this which was, you know, May of -- of -- of this year. So as I said, MPI because they have a much more holistic and interactive, they probably have a, you know, a more up-to-date view of this dashboard than -- than I do.

They may have it in different buckets 'cause that's -- we did spend some time cross-referencing the way MPI tracked the savings versus the way Gartner tracked their savings because I tried to make it consistent with our 2017 report and MPI has moved on.

So -- so, you know, it's -- it's attempting to make the MPI numbers consistent from '17 to '18. They have a different level of granularity, but they've bucketized them somewhat differently. So as I said before, I believe they're directionally correct but probably precisely wrong.

MS. KATHLEEN MCCANDLESS: And from

1041

MPI's perspective, does it have any follow-up to Mr. Henry's comment that MPI may have more up-to-date information on the benefits stream?

MR. CURTIS WENNBERG: Like we mentioned, the predictive analytics is now down to more of a quarter of a million dollars ($250,000).

On the loss of use side, those numbers are still accurate as it relates to the work done through the -- the -- the PDR initiative, but the negotiated reductions in loss of use that we've -- we've secured are -- are to the tune of about a million and a half (1,500,000) a year roughly.

Again, in -- in pure form, though, we can't attribute that to the project. It was -- it -- it's -- it was a different approach entirely in terms of getting those numbers so -- so -- so being purist I wouldn't change that loss of use. The other pieces remain as they are.

In terms of defending the certain numbers, the biggest one there is the 3 million on the labour rate differential and that probably gets into some of the sensitive stuff where we can speak about a component of the Mitchell license that is related.

MS. KATHLEEN MCCANDLESS: Thank you. And if we scroll down to the tenth (10th) page under

1042

PDR Program Progress, we see -- we see that toward the end of fiscal 2016/'17, as reported by Gartner in the May 2017 report, that eight (8) PDR projects were completed, seven (7) were cancelled and five (5) comprised the remainder the PDR program, yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: And then if we scroll further down to completed projects, we see now appointment manager number 1, enhanced direct repair capabilities; number 2, and partner por -- portal number 3, yes?

MR. CHARLES HENRY: Yeah.

MS. KATHLEEN MCCANDLESS: And then continuing down the page we see in-flight projects that complete in 2018/'19 so the parts loss of use budgeted with an enhanced direct repair, yes?

MR. CHARLES HENRY: Yes.

MS. KATHLEEN MCCANDLESS: And then the cancelled projects of which we've heard already, the customer claims reporting system, CCRS and remote estimating, yes?

MR. CHARLES HENRY: Correct.

MS. KATHLEEN MCCANDLESS: Now you spoke, Mr. Henry, this morning about CCRS, among others, not being included in the net present value

1043

analysis that was provided last year; yes?

MR. CHARLES HENRY: I believe it was in the NPV analysis provided last year. I'd have to go back and check, but it's not in the NPV analysis that we did this year.

MS. KATHLEEN MCCANDLESS: Okay.

MR. CHARLES HENRY: 'Cause it was part -- CCRS was still part of PDR last year.

MS. KATHLEEN MCCANDLESS: If we go to PUB-MPI-1-68, so question (a) is -- asked the Corporation to identify which costs were excluded from the NPV of an analysis that was prepared by Gartner last year and --

MR. CHARLES HENRY: Like I said, I'd have to go back and -- and look at the report and check with -- and check with Martin, so.

MS. KATHLEEN MCCANDLESS: We -- we do see some bullets underneath (a) here: direct repair operations, direct repair premium, Mitch -- Mitchell software licensing, CCRS software licensing, Partner Portal software licensing; Car Part software licensing and Predictive Analytic software licensing and operations, yes?

MR. CHARLES HENRY: Yeah.

MS. KATHLEEN MCCANDLESS: And I gather

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based on what we've heard from you already, Mr. Henry, that the reason that these were not included as part of the NPV analysis was the information was not provided to Gartner?

MR. CHARLES HENRY: It -- it was not provided to Gartner and I don't think MPI could break it out as we -- we talked about earlier, assigning -- I'll use an analogy. You buy a ladder to paint a wall and then you use it to fix your roof. Who paid for the ladder? Right?

So, I -- I don't -- I think MPI was struggling with -- with appropriately allocating the costs of all of those things to all the various components that they're used for. I think value management has done a lot of work in order to figure out how to allocate those costs in an appropriate manner that wasn't available last year and -- and we didn't have the details so it wasn't included.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could we please go to Figure VM-1 from the Value Management section and this is likely a question for Mr. -- well, any of Mr. Bunko, Mr. Wennberg or Mr. Remillard.

So at the top of the figure here we see the forecasted benefit stream for the PDR as reported

1045

in the 2017/'18 GRA, is that right?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And then at the bottom under the heading April 19, 2018 those are the CCRS termination, MPI evaluation per the Gartner categories, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: Now, can you explain, Mr. Remillard, what is shown here at line 19?
MR. JOHN REMILLARD: Line 19 depicts the material differences between this year's volume and for projections from a benefits' perspective opposite last year's submission and evaluation.
MS. KATHLEEN MCCANDLESS: And so MPI had cancelled several projects last year and reallocated the funds spent to other projects, is that --
MR. JOHN REMILLARD: That's fair, yes.
MS. KATHLEEN MCCANDLESS: And then if we go to PUB-MPI-1-63 and at question (b). So the Corporation was asked to provide detail of the spending by year in each cancelled PDR project, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And on page 2 are paid -- yes, page 2 at Figure 1 we see the

1046

impairment of deferred development costs at approximately $20.3 million at a corporate level, yes?
MR. JOHN REMILLARD: At a corporate level, correct.
MS. KATHLEEN MCCANDLESS: And so I understand that if MPI determined that there was no future value related to the expenditure, or if the expenditure rate -- rate -- related to investigative platform or software the company had decided not to go forward with then it was part of the -- the differed or the impairment, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And so those were the primary reasons for the $20.3 million writeoff?
MR. JOHN REMILLARD: Overall, yes.
MS. KATHLEEN MCCANDLESS: And at Figure 2, we see the impairment of PDR projects, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And at line 6 on the far right-hand side of the table we see total impairment of $17.5 million, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And the vast majority of the writeoff at line 4 relates to customer

1047

claims reporting system, yes?
MR. JOHN REMILLARD: It does, yes.
MS. KATHLEEN MCCANDLESS: That's $15.6 million for the record, yes?
MR. JOHN REMILLARD: Correct.
MS. KATHLEEN MCCANDLESS: And then if we could scroll to the top of the page again, at line 5 under Figure 1, we see a writeoff for high school driver education Phase 2 of $2.1 million, yes?
MR. JOHN REMILLARD: That's correct.
MS. KATHLEEN MCCANDLESS: And can you explain the reason for that writeoff?
MR. JOHN REMILLARD: Sure. Phase 2 we were look -- we did a proof of concept on quite a few different technologies like Telematics is an example. Determining whether Telematics could serve as a meaningful assessment of how our young drivers were performing; as well, we did a proof of concept with respect to some simula -- simulation software with respect to road test simulations.
We were looking at evaluating that software from the context of (a) the highschool driver ed. program, but even a broader sense as to what it could mean for driver testing period.
What we had found with the Telematics

1048

is that interesting results can be interpreted and/or through that technology, however, it deemed to be a cost prohibitive to do on a large-scale. We are certainly still looking at it and looking at the marketplace as Mr. Wennberg's kind of expanded in his general testimony earlier today, and that we'll always watch what's happening as -- as these advancements occur but right now it's cost prohibitive.
On the simulator technology what we have found with that technology is, again, could -- could serve a meaningful purpose, however, what we are finding is that -- that there -- there was at least 25 percent of the population that was getting motion sickness due to the technology and with that, our concern was, is that they would actually perform this test, be it a preliminary test before getting into a -- performing a road test and, ultimately, they may not be in a state to properly drive.
And so from a road safety context perspective that presented a very large concern to us. So it wasn't necessarily the -- that -- whether the -- the software could provide a meaningful value. From a testing incompetency, it was the outcome that we were concerned about. So, therefore, we did not proceed.
MS. KATHLEEN MCCANDLESS: Thank you.

1049

If we could go to MPI Exhibit 9 and the response provided MPI -- PUB-MPI-1-61(d) at this Information Request, response the Corporation provided detail of the $15.6 million writeoff related to CCRS, yes?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: And we see at line 3, with respect to optimize adjusting a total write-off of $5.3 million, yes?

MR. JOHN REMILLARD: Correct.

MS. KATHLEEN MCCANDLESS: And are you able to tell us what the opt -- optimized adjusting expenditure is related to?

MR. JOHN REMILLARD: Certainly. In the early aspects of the Physical Damage Re-engineering Program, we weren't -- we were looking at different -- a different software alternative, and we were exploring the utilization of FINEOS as a platform for our first notice of loss.

And so we -- we explored that and worked with FINEOS on that -- on that front only to find that ultimately the advancements on that -- that platform could be meaningful, but there was probably a more strategic benefit of pursuing the Mitchell customer claims reporting system.

MS. KATHLEEN MCCANDLESS: And so you

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mentioned that was earlier on in the project, so that would explain why there is little to no spending after 2014/'15?

MR. JOHN REMILLARD: That is correct.

MS. KATHLEEN MCCANDLESS: And then at line 2, we see CCRS spending in 2017/'18 of $4.03 million, yes?

MR. JOHN REMILLARD: Yes, correct.

MS. KATHLEEN MCCANDLESS: Are you able to advise what the nature of that spending was?

MR. JOHN REMILLARD: Certainly. This is where we were looking at -- like I said, we -- we were partnering with Mitchell on -- on trying to establish that -- the platform, and a solution. This was ultimately broken down with our internal -- internal costs, as well as we have external labour consultants of the -- complementing our team to complete that project.

MS. KATHLEEN MCCANDLESS: Thank you. And then interim FNOL, that's first notice of loss, and we see a total write-off of approximately $6.3 million?

MR. JOHN REMILLARD: Yes.

MS. KATHLEEN MCCANDLESS: And can you advise as to the nature of the -- the project costs,

1051

there?

MR. JOHN REMILLARD: The nature of that project cost, again, was primarily consultant resources, as we were exploring the first notice of loss solution. So this is where we were transitioning from the FINEOS-based option, and starting to turn our eyes towards the Mitchell -- Mitchell solution. So we were working in the background to try and create the architecture for that, as well as the intellectual property that -- associated with our accident profiles that Mr. Wennberg provided the testimony to earlier today.

MS. KATHLEEN MCCANDLESS: And so the nature of the spending in 2017/'18, there is nearly a million dollars of spend there. Can you explain what that was for?

MR. JOHN REMILLARD: This is where -- ultimately, it was the -- I'm going to call it a rebranding between what -- what -- for what -- for all intents and purposes, one could lump in term -- FNOL and CCRS into one (1) overall solution. We'll call it a rebranding of sorts.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Henry, I'm going to have some more questions now for you. If we could go back to your report at page

1052

11.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: If we scroll up a little bit to cancelled projects, we see here that the cancellation of Customer Claims Reporting System had termination costs of $10.2 million, yes?

MR. CHARLES HENRY: Correct.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Now I'm not sure if this is a question that can be answered on the public record now, so MPI can advise, but the detail as to the termination costs of $10.2 million, is that something that can be provided, or that be deferred to...

MR. JOHN REMILLARD: Sorry, the breakdown of the ten point-two (10.2)? I -- I should be able to find that, if I could just have some time. Yeah.

(BRIEF PAUSE)

1053

MR. JOHN REMILLARD: Did you want me to get back to you in a little bit? My apologies. I don't want to keep you waiting if -- if --
MS. KATHLEEN MCCANDLESS: Why don't we just have that given by way of undertaking, then?
MR. JOHN REMILLARD: Okay.
MR. STEVE SCARFONE: That, I was going to suggest, Ms. McCandless, because I -- I believe Mr. Remillard is -- is -- once he finds the information, he's going to conduct a review of that to see if he has any confidentiality concerns, so maybe we could just defer it to the confidential session, because I understand our Friend Mr. Williams has some questions about the costs of the PDR project and stuff that he's waiting to ask on that -- in that panel. So maybe we just defer to the in-camera session.
MS. KATHLEEN MCCANDLESS: My suggestion would be perhaps over the afternoon break, the determination can be made as to whether or not it's confidential. If it's not, we will answer it on the public record, if not, defer it to the CSI. Thank you.

CONTINUED BY MS. KATHLEEN MCCANDLESS:
MS. KATHLEEN MCCANDLESS: So I'll move

1054

on, then. If we could just go to page 14 of your report, Mr. Henry, and this is just to summarize the analysis of the difference between the Gartner 2017 report and the April 2018 analysis, yes? And if we scroll down, there is a table here. So as we heard from you, the -- one (1) of the major differences was the --the discount rate, yes?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: And then scrolling onto the next page, we have the Mitchell licensing fees that were not included in the total cost of the program correct?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: And the eighty-one dollar ($81) premium, about which we heard this morning, yes?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: The next section is changes in the benefit stream. So we see internal efficiencies were revised by MPI from $2.65 million per year by '21/'22 to $1.65 million per year, yes?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: Part source savings were reduced to $2.05 million from the earlier

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$2.8 million by '21/'22?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: Loss prevention and predictive analytics, so that showed an initial increa -- savings of $.5 million, increasing to 1 million by 2019/'20, which was revised to $.5 million, and continuing at that level, yes?
MR. CHARLES HENRY: That's my analysis as of May, but I believe MPI has updated that so that it's now two hundred and fifty thousand (250,000).
MS. KATHLEEN MCCANDLESS: Right. And then from -- for loss of use, we've heard about loss of use benefit. So again, there's a reduction there, from 1.05 million down to a hundred thousand (100,000), yes?
MR. CHARLES HENRY: Correct.
MS. KATHLEEN MCCANDLESS: Total loss benefit was removed, yes?

(BRIEF PAUSE)

MR. CHARLES HENRY: Yes. Sorry.
MS. KATHLEEN MCCANDLESS: And --
MR. CHARLES HENRY: I'll be right back.

1056

MS. KATHLEEN MCCANDLESS: And then lastly, the claims audit recoveries --
MR. CHARLES HENRY: Yeah, so net new benefit.
MS. KATHLEEN MCCANDLESS: Right. That's a -- a new benefit?
MR. CHARLES HENRY: Yes.
MS. KATHLEEN MCCANDLESS: Thank you. Now with respect to Exhibit number 28, so your presentation, Mr. Henry, these are the questions actually for the representatives from MPI.
On slide 12, so there is the first observation for MPI which was to continue to invest in value management. And I take it from MPI's perspective, based on what we're seeing in this year's GRA, that MPI agrees with this recommendation and is continuing to implement it. Is that right?
MR. CURTIS WENNBERG: Yes.
MS. KATHLEEN MCCANDLESS: And slide 13, so the recommendations here include increasing the focus of plans to business outcomes and harnessing the power of stakeholders.
Could I just have some comment from MPI on those recommendations?

1057

(BRIEF PAUSE)

MR. BRAD BUNKO: I'm sorry, could you repeat the question, please?

MS. KATHLEEN MCCANDLESS: What are MPI -- from MPI's perspectives with respect -- or perspective with respect to the observations here, so the increase of focus of plans to business outcomes and harnessing the power of stakeholders, can MPI elaborate on what it is doing, and -- and whether it agrees with these recommendations?

MR. CURTIS WENNBERG: I -- I think -- I think basically, the observation here is -- is a little bit around the power of stakeholders. So when we think about our agreements, whatever we do have in the agreements, we have to go back and check our assumptions in the major business cases that we have, and also if there is implications for negotiations to come up as a result of some of the PDR things that we found through -- through real strong and proper NPV analysis, that we'll put them in and talk to our partners about them, and other stakeholders.

I think from the IT strategy that Brad presented this morning, we -- we are also trying to make sure that there's an operational business

1058

champion, so that if an idea comes up, it -- it -- there really is strong merits to it internally, and we don't end up cancelling it. Like, as we saw, the -- the degree of projects that were cancelled are PDR.

So the -- the new plan that -- that Brad and -- and all of us at MPI have -- have put in front of you is to try and make sure that the key stakeholders that know what's happening in the business or are definitely involved at the outset and -- and build the NPVs up.

MS. KATHLEEN MCCANDLESS: Thank you. And Mr. Wennberg, this morning in your presentation, you made a comment to the effect that sometimes, the -- a -- a given project may not have a positive net present value, but you still would recommend that the Corporation undertake the project. Do you recall saying that?

MR. CURTIS WENNBERG: Yes, that's right.

MS. KATHLEEN MCCANDLESS: And with respect to the PDR project, what's MPI's perspective on it?

MR. CURTIS WENNBERG: Well, we also covered that a little bit this morning, too, when the -- the question came up of -- of is this worthwhile

1059

doing? And the magnitude of the loss, would you do it as an armchair quarterback today? Would you do the exact same thing? No, I think the this executive team and -- and Board wouldn't do that, without putting words in their mouth.

But -- but the nuggets -- we have to understand that the nuggets of getting into a -- a Mitchell-based or an estimating-based system that's software instead of faxes and paper, that made sense to do. And -- and what we need to do is streamline and really double check on some of the other components of PDR, and -- and make sure before we -- we -- particularly as you heard Brad say, before we innovate in-house, given our size, do we -- do we know where industry best practice is that we can lift and shift back in here for all Manitobans?

MS. KATHLEEN MCCANDLESS: Thank you. I'm now going to move into the area of benchmarking in IT. Mr. Chair, I expect this will take, if my estimates bear out, roughly half an hour. So we'll continue.

THE CHAIRPERSON: Okay.

CONTINUED BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Thank you.

1060

Now we heard this morning that the -- the previous CIO scorecard that Gartner would provide for MPI on -- on a yearly basis is now -- they're called the IT scorecard. Is that right?

(BRIEF PAUSE)

MR. CHARLES HENRY: That is correct.

MS. KATHLEEN MCCANDLESS: And I understand that many of my questions will be directed to Mr. Lazarko in this regard. Is that right? And so, Mr. Lazarko, are you able to comment on or explain the -- the nature of the change from the CIO scorecard to the IT scorecard?

MR. LAWRENCE LAZARKO: Yes. One moment, please.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: Could you please bring up CAC-1-46(a).

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: With your

1061

leave, I'd like to walk through this, if you please.
MS. KATHLEEN MCCANDLESS: Yes.
MR. LAWRENCE LAZARKO: All right. So the -- there are two (2) different instruments provided by Gartner to measure the process maturity and compare MPI to benchmark groups. CIO scorecard is the measure -- the instrument we've been using for a number of years.
As part of our ongoing conversations with Gartner, they've indicated that the CIO scorecard was being discontinued, and some of the pure data which we rely upon to compare ourselves to would no longer be up-to-date. So as a result, we worked with Gartner to move from CIO scorecard to the IT scorecard.
What we prepared in this Information Request is Gartner's own words in terms of the differences between the two (2). So again, the key change is that we've moved from an unscored toolset to a newer toolset. We can retain the pure data, which we absolutely desire. The numbers are good, but numbers in context are better, so understanding how we compare to a peer group is a -- a real value for us.
We've also changed the different categories that are being measured so that if you

1062

scroll down, you can see specific ones covered in the assessment. So things like infrastructure and operations, and application organization are continuing. Things like business process management that has been captured and measured for years is no longer con -- continuing, and enterprise architecture, area that is deeply important to us, has changed. So when we talk with the actual benchmarking details, we can show scores before and after.
So to facilitate the change, we worked with Gartner to complete both score -- scorecards this year. So we used the CIO scorecard, completed those questionnaires, that information, complete the new scorecard for the purposes of comparison, then -- to ensure we make a smooth transition. The subsequent year, we'll only using the IT scorecard.
MS. KATHLEEN MCCANDLESS: Thank you. And if we go to Attachment A from the benchmarking section of the application. Now, this is prepared by Gartner, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: But I understand you're able to speak to the contents of the report. Is that right?
MR. LAWRENCE LAZARKO: Yes.

1063

MS. KATHLEEN MCCANDLESS: And it's -- it's called a Benchmark Findings and Recommendations Executive Report, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: So this incorporates findings from the CIO scorecard and the IT score. Is that --
MR. LAWRENCE LAZARKO: And the infrastructure and operations report, yes.
MS. KATHLEEN MCCANDLESS: Thank you. So if we go to slide 2, just at the second bullet here, we see that MPI had engaged Gartner to prepare CIO and IT budget scorecards using 2010/'11 budget data and repeated through the years, right?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And that this report is based on the 2016/'17 actual financial results, yes?
MR. LAWRENCE LAZARKO: That's right.
MS. KATHLEEN MCCANDLESS: And then going down to page 3, we see that the four (4) structure evaluation instruments are IT budget assessment, CIO dashboard survey, infrastructure and operations scorecard, and the IT score survey, yes?
MR. LAWRENCE LAZARKO: Correct.

1064

MS. KATHLEEN MCCANDLESS: If we go to page 6, and these are key findings on the left side of the page. With respect to some of the benchmarking, we see that the personnel spending and staffing levels remain higher for MPI than peers with a slight increase in IT to company full-time equivalent ratio of 16.7 percent to 17 percent, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: The fourth bullet, we see that similar to previous years, MPI spends 62 percent of the IT budget on personnel, as compared to 45 percent for peers?
MR. LAWRENCE LAZARKO: That's correct.
MS. KATHLEEN MCCANDLESS: And that 32 percent of MPI staff -- IT staff is made up of contractors versus 24 percent for the peers, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And higher staffing levels relative to peers is pem -- particularly evident in infrastructure and operations?
MR. LAWRENCE LAZARKO: That is what Gartner stated. We can review the details. There are some points that we need to talk about in regard to that one.
MS. KATHLEEN MCCANDLESS: If you could

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explain, that would be appreciated. Thank you.
MR. LAWRENCE LAZARKO: Right. So if you progress to slide 14, if you take a look at -- so this refers to the infrastructure and operation staffing as assessed by Gartner. Gartner has a specific method. They count the number of staff in the infrastructure and operations area.
For -- for context, infrastructure and operations is really focused on two (2) key pieces. It's the data centre, so managing server storage, which we have IBM do, but there are also some functions MPI retains, like some database activities, and then personal computing. So this is related to the service desk that takes calls, set up of printers, laptops, desktops, et cetera.
The assertion is that MPI's staffing compared to peer is higher. I would indicate that based on the method used by Gartner, we are actually within peer groups. If you take a look at the chart on the left, MPI 2016/'17, peer average is fifty (50). Peer 25th percentile, which is the bottom 25 percent is thirty-seven point-nine (37.9). Peer 75th percentile is fifty-eight (58). So we are within that range.
Gartner -- what they assert, though, is

1066

because we have some of our services provided by IBM, managed services, that there are additional staff that are included in that number. So while we are thirty-five point-seven (35.7), we are well under the peer average, it is only for a portion of that particular function. Does that help?
MS. KATHLEEN MCCANDLESS: Yes, thank you. If we could go to -- back to the previous slide, so page 6, the last bullet states that business process management and enterprise architecture maturity remains generally low and appears to be an opportunity for improvement, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And on the right-hand side of the page, we see at the fifth bullet, that MPI should continue its current -- the efforts currently underway to review the size of its retained staff and the number of contractors as it increases the use of third-party support for infrastructure services, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: Now with respect to the bullet we just reviewed, so the review of size of retained staff and number of contractors, is MPI making any progress with respect to a staffing

1067

strategy?
MR. LAWRENCE LAZARKO: Definitely. So we -- in 2016/'17, shared a staffing strategy to replace twenty (20) -- up to twenty-seven (27) external resources with internal resources. We outlined a process to do that, either through posting and potentially converting, or hiring and attracting the right level of talent and replacing over time or cross-training over time.
So as we've reported in this year's rate application, we have twenty (20) out of twenty-seven (27). That was as of May, 2018. We have an additional, I would say, two (2) to three (3) more in progress actively right now, within that twenty-seven (27), and we've increased the benefits from a projected 2.4 million to a range of two point-four (2.4) to three point-o (3.0). So yes, I would classify it actions in progress that are successful.
MR. BRAD BUNKO: I'm sorry, is your question pertaining more to the total number of staffing, or is it pertaining to consultant staffing versus FTEs?
MS. KATHLEEN MCCANDLESS: I would say essentially with respect to consulting versus FTEs.
MR. BRAD BUNKO: Okay. There are some

1068

conditions that drive up the number of consultants that we have -- that we have with the Organization, and it's often tied to the number of initiatives that you have -- that your organization is performing. They are usually staffed initiatives that are primarily staffed with consultants. So the more initiatives you have, the higher number of consultant staffing you have.
What we have done over the last few years is taken a very close look at that and said, well, okay, we do need some flexibility to be able to increase staffing for various initiatives, because we don't know when they're going to come, and how large they will be, but at the same time, what are the staff that we will have year in and year out that we find are supporting the baseline of projects and/or operational type activities? And that is where we've identified the twenty-seven (27) consultant conversions that we've previously identified, and are also investigating other potential consultant conversions from consultants to regular FTEs.
MS. KATHLEEN MCCANDLESS: Thank you. The next bullet down -- so second up from the bottom on the right side says internal skills development and training should be a priority.

1069

Can MPI comment on what types of training the IT staff might need?

MR. LAWRENCE LAZARKO: Absolutely. So one (1) of the areas that Gartner's highlighted has related to infrastructure and operations. So again, that's the personal and enterprise computing piece.

As we roll out new technologies, it's important that our staff are trained on them. So a different database technology or operating system technology has different support tools, different administrative tools. And it's, again, very important that we train our staff in these technologies as or before we roll them out. So that would be a -- a good example.

The other is new development languages, new platforms. That's an area that we continue to look at, especially as we talk about something like legacy. We want to make sure we have the right skills, not just for the platforms we have now, but the platforms in the future.

MS. KATHLEEN MCCANDLESS: Thank you. If we could go to page 10. And the graphic in the -- on the right-hand -- or pardon me, left-hand side of the screen shows that MPI's overall staffing level as a percentage of company employees for 2016/'17 is 17

1070

percent, an increase of the prior year at 16.7 percent, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And the peer average there is 13 percent, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: Okay. Now, on the right side of the screen, under observations, we see that Gartner has observed that MPI's staffing level is 33 percent higher than the peers, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And under implications, just down the page, it states that higher staffing levels may be due to business growth, which limits the ability to optimize costs, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: Can you explain the -- the need for higher staffing levels, bearing this in mind?

MR. BRAD BUNKO: I can. While every organization's IT structure is -- is different, we have legacy applications, and legacy applications takes more manpower to both maintain and to make changes to. We have, through some of the prelim -- preliminary feedback on our legacy modernization

1071

assessment, reviewed the potential reductions in IT staffing by adopting newer technology. It was a belief that we've had in the past, and it's been somewhat solidified through this year of assessment.

So it is -- it is dependent upon the actual organization and what it is that you're managing. Because we have that older legacy modernization, we do have higher staffing levels.

MS. KATHLEEN MCCANDLESS: This bullet references business growth, so perhaps you could explain how legacy modernization would play into business growth.

MR. BRAD BUNKO: Well, the business growth com -- compartment of that is -- is the initiatives that we would be doing. And when you have more initiatives, you are hiring more consultants to make the changes. I think if you compare -- and I'm not sure what page it's on -- the amount of initiatives that we have compared to our peers is considerably higher than the run the operation type activities.

So if we were doing probably the same kind of a ratio, you would see that our staffing would be more in line with our peer group.

MS. KATHLEEN MCCANDLESS: Thank you.

1072

The last bullet on the right-hand side, under implications, states that the move to third-party services comes with additional requirements for oversight and operational processes staff in managing the vendor. Mr. Bunko, this may be a question for you to answer.

Could you please explain or elaborate on the implications of -- of this bullet?

MR. BRAD BUNKO: Sure. So it's very interesting. Gartner is -- is -- when they measure, you know, your cost allocation for -- for IT at a corporation, they can't just leave it at, here's all the dollars and cents. They really have to look at what the service delivery capabilities are that you're providing to the organization, because there is a balance between the two (2).

As I mentioned earlier, a more mature service delivery typically costs more, right? And so in this -- what this bullet point is -- is referring to is that when you do have to outsource some -- some service that you're getting so that you can get a higher level of maturity with it, it will increase your maturity, but it will also increase some staffing that you have internally to manage that outside service.

1073

So it is a combination of those two (2) things, increasing maturity will help -- will increase your staff, in some instances -- actually, quite a few instances, and yeah, and -- and that's -- that's the reason for that.

But I'd also note that our IT spend as a percentage of Op Ex, we have been able to maintain it at a very reasonable level, and actually have shown a very steady decrease of the last five (5) years, again, a difficult thing to do while you're increasing your maturity.

MS. KATHLEEN MCCANDLESS: Thank you. Could we go to page 7. On the right side of the screen, there's a table at the bottom with MPI's maturity score from 2010 to 2011 through to 2016/'17 as compared to peers, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And we see from 2015/'16 to 2016/'17, that the overall maturity score has improved from 3.42 to 3.52, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And this is a composite score of seven (7) key criteria, which I believe are found at page 16?

MR. LAWRENCE LAZARKO: Yes.

1074

MS. KATHLEEN MCCANDLESS: And so, going from -- sorry, back to page 16, Kristen, thank you.

So, going from right to left, we see the change from 2011/'12 through to 2016/'17, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: With respect to business process management, which is the fourth line down in the table, we see that as of 2016/'17 MPI's score is 1.6 compared to the peer average of 1.76, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And to the extent you're able to comment, Mr. Lazarko, what do you know that's being measured when it comes to business process management?

MR. LAWRENCE LAZARKO: Going to move down to section 18 -- or page 18, section 1, which is Gartner's feedback on business process management.

One moment please.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: Sorry, I'll need a minute to find that in detail.

1075

(BRIEF PAUSE)

MR. STEVE SCARFONE: I'm watching them navigate the screens, we're almost there, Ms. McCandless.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: So the key -- key theme is how well does your IT organization understand the Company's critical business processes.

Key things Gartner considers in this, there are six (6) dimensions, culture, process -- sorry, organization and culture, process competencies, methodologies, technology and architecture, measures and metrics and governance.

These six (6) factors are scored based upon MPI responses to questions, Gartner reviews and compares those to industry averages, makes recommendations based upon where MPI could grow further or is below an industry peer.

So Gartner may make recommendations in cases where MPI is ahead of a peer to grow and improve. They don't just make recommendations related to things we are deficient or below.

1076

MS. KATHLEEN MCCANDLESS: And just to clarify for the record, Mr. Lazarko, the source of the information that you just provided?

MR. LAWRENCE LAZARKO: There's a -- so what we review on an annual basis is the executive summary.

Gartner has a supporting document to that which has additional details, including things like recommendations that flow up into the executive summary.

MS. KATHLEEN MCCANDLESS: Is that something that's on the record?

MR. LAWRENCE LAZARKO: It's not.

MS. KATHLEEN MCCANDLESS: Pardon me?

MR. LAWRENCE LAZARKO: It is not something we traditionally file.

MS. KATHLEEN MCCANDLESS: I see. Okay. Are there confidentiality concerns with it, or is it just...

MR. LAWRENCE LAZARKO: I would say there is, yes.

MR. CHARLES HENRY: I'd say that the methodology is Gartner's IP, so we would not want it on the public record, but I'm sure confidentially we would be okay with that.

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MS. KATHLEEN MCCANDLESS: Thank you. Now, with respect to page 7. So back to the scoring.

Pardon me, page 16. So back to business process management. We've got the insurance average of 1.76 and MPI score of 1.6, which has remained static since 2014/'15.

Mr. Lazarko, are you able to provide any information as to why that score has remained constant since 2014/'15?

If -- I'm not asking you to provide information that's not available, that you don't have yourself, if it's --

MR. LAWRENCE LAZARKO: No, the hesitation was we're preparing a report for review next year. It's still in progress. I was thinking through what exactly I could share about our interim findings in terms of -- I can tell you what we're doing next and how it would potentially improve things. But that's still draft in progress.

In terms of why we haven't moved on this area, I -- I would say we have had other priorities as shared in some of our responses to IRs. We focused on enterprise architecture extensively this year. It's a very important capability for both our IT strategy and legacy modernization. Business

1078

process maturity is also very important, but when we had to choose earlier in the year, we chose enterprise architecture to focus our efforts on.

MS. KATHLEEN MCCANDLESS: And then if we go down to enterprise architect -- architecture, we see that MPI is higher than peers at 3.18 as compared to insurance average of 2.53. But again, enterprise architect -- architecture has remained constant since 2014/'15.

And so again, my question would be the reason why it has remained constant for three (3) fiscal years?

MR. BRAD BUNKO: Again, I would say given all the other movements in -- in various things that we're trying to make, that was one (1) that did not come to the top as to high-priority.

We are 10 percent off of our insurance peer average, we're not that far off of what the mainstream peers are.

MS. KATHLEEN MCCANDLESS: Thank you. Can we go to page 17 now. This is the IT score, as you see on the right-hand side of the top of the page. This is the new scoring tool that we discussed?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And with

1079

respect to enterprise architecture, and again we see now that the insurance average is 3.0 as compared to MPI at 2.3 percent, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: So I -- I take it then that enterprise architecture scored something different in the IT score than it did in the previous CIO scorecard?

MR. LAWRENCE LAZARKO: That's right. So, when they transitioned from the CIO scorecard to the IT scorecard, Gartner focused on some different measures and metrics, things have changed significantly. Our -- specifically governance and metrics related to enterprise architecture.

So these are areas that are not fully matured MPI, and thus we received lower scores, and thus in the new scorecard it was a lower score than we'd seen previously.

MR. BRAD BUNKO: I think in summary, while the name has remained the same, the criteria for evaluating has changed.

MS. KATHLEEN MCCANDLESS: And can MPI explain how it plans to move forward on improving this score then?

MR. BRAD BUNKO: As part of our IT

1080

strategy, we actively used enterprise architecture concepts as part of our legacy modernization assessment.

We've actively leveraged enterprise architecture concepts as well, and it's an area that we continue to invest in operationally within the Corporation as we progress through the legacy modernization assessment, as we create our next version of the IT strategy next year.

MS. KATHLEEN MCCANDLESS: Thank you. And then with respect to applications organization, we see that MPI is on par with peers at 2.4. Yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And if we go back up to page 16 in the previous CIO scorecard, we see with respect to applications organization, that MPI was higher than peers so MPI score was 3.17, compared to the insurance average of 2.76, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: So I take it then that what goes into scoring applications organization has now changed from the CIO scorecard to the IT score, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And are you

able to provide any information as to how this differs?

MR. LAWRENCE LAZARKO: It would take me another minute or two (2), if that's all right.

THE CHAIRPERSON: I don't have a problem with the minute or two, (2) I'm just a little concerned about proprietary information coming out.

So I guess the -- you know, we'd like to have the answer. You need to look at it and see if there's proprietary information. If there is, we'll deal with it in CSI. If there's not, we'd be happy to hear from you.

MR. LAWRENCE LAZARKO: Absolutely.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: I would recommend that we review this one through the confidential portion.

MS. KATHLEEN MCCANDLESS: Thank you. Mr. Lazarko, are you able to provide any information as to how MPI intends to move forward on improving this score?

So if we go back to page 17 for applications organization.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: MPI has introduced a program called Application Portfolio Management. We've submitted a copy of the program earlier this year. That is a way that measures the health of applications using both business and IT measures and metrics.

So we're going to continue to evolve that program to identify the top applications that require remediation and prioritize those for business cases.

So that is a -- a discipline that we've been using for about a year and a half (1 1/2) to two (2) years, and there are some new ways we can involve that further, better including risks, security, for instance, and including that in business cases such as those that you see for the technology risk management program, application related projects.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, can we please go to BMK Appendix 1. And this appendix includes a listing of previous recommendations made by Gartner and MPI's status update.

And I understand that with the

transition to the new assessment tool from the CIO dashboard to the IT score, that changes have been made to the status update. Is that right?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: So if we look to the bullets here at lines 18 to 23, the changes are identified there, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And so if we go to page 5 of the update, recommendations 3.02 through to 3.07 start here.

And we see that they have now been consolidated into a recommendation 5.02, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And if we jump to page 9, that's where 5.02 is contained.

So on the left-hand side of the screen, we see the description of recommendation 5.02, which includes to continue to improve the enterprise architecture maturity, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And the second paragraph states that the recommendation or the description is to establish reporting for the enterprise architecture program using metrics to track

value delivered to the organization and business outcomes, as well as metrics to track continuous improvement of the EA practice itself, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And I understand that this recommendation is ongoing?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And it's tied to the current evaluation of the legacy modernization program?

MR. LAWRENCE LAZARKO: The recommendation itself is tied to general process maturity related to enterprise architecture. Our response is tied to legacy and strategic plan.

These are two (2) areas that we plan to use enterprise architecture fully and further.

MS. KATHLEEN MCCANDLESS: And we have the current status as reported at the time of filing of the GRA.

Is there a status update to this recommendation?

MR. LAWRENCE LAZARKO: It continues to be a work in progress in the area of focus, and as we've shared, we will have a great update for this one in GRA 2020/'22 -- or sorry, 2020.

1085

MS. KATHLEEN MCCANDLESS: Thank you.
MR. BRAD BUNKO: I can provide some feedback.
What we've seen is we've gone through the legacy modernization assessment is that it's required an enormous amount of individuals from the organization, quite a -- quite across the organization because we are impacting so many functionalities within the organization.
So we've had a lot of the directors involved in steering committees with both of the assessment vendors. It has been very well participated and very engaging from the employees. And that's an example of enterprise architecture in that they are coming together to describe their needs and to look towards a solution that is going to -- I don't want to say satisfy everybody, but will be the best solution for the Corporation.
So they are not just looking at it from a singular perspective of their own. They get to review everybody else's perspective and get an understanding of what everybody's needs are, and therefore, make a corporate decision as opposed to individual sideload decisions.
MS. KATHLEEN MCCANDLESS: Thank you.

1086

If we could go to page 10, and recommendation or description 5.03. This is to improve IT governance maturity, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And to summarize the first line, it would be to continue the existing process by matching IT services to business demand and by capturing better metrics to measure the achievement of business outcomes, is that right?
MR. LAWRENCE LAZARKO: That's right.
MS. KATHLEEN MCCANDLESS: And Gartner also indicated that the governance structure needs to be made more explicit and should incorporate multiple levels within the organization that are capable of resolving process and policy discrepancies, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: Now, under current status it's indicated that a further review of the recommendation would occur. Yes?
MR. LAWRENCE LAZARKO: That's correct.
MS. KATHLEEN MCCANDLESS: Has that taken place?
MR. LAWRENCE LAZARKO: It has not. It has not.
MS. KATHLEEN MCCANDLESS: And has the

1087

Corporation determined when that review might occur?
MR. LAWRENCE LAZARKO: I anticipate completion before the end of fiscal.
MS. KATHLEEN MCCANDLESS: Has the Corporation determined a cost -- the cost of complying with this recommendation?
MR. LAWRENCE LAZARKO: Not at this time.
MS. KATHLEEN MCCANDLESS: Is that something that it will cost at some point?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And prior to the end of fiscal or following?
MR. LAWRENCE LAZARKO: The plan would be prior to the end of fiscal.
MS. KATHLEEN MCCANDLESS: Thank you. If we could go to 5.05 at page 12. This is to improve the IT strategic plan, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: And it makes recommendations on the implement -- implementation of three (3) processes, yes?
MR. LAWRENCE LAZARKO: It does.
MS. KATHLEEN MCCANDLESS: On the right-hand side of the screen, under current status,

1088

it's indicated that the IT strategy and major corporate initiatives address the first and -- first and fourth parts of the further exploration of infrastructure operations, including operational plans linked to corporate strategy will be reviewed further in 2018/'19, with an update provided in 2020, GRA, yes?
MR. LAWRENCE LAZARKO: Yes.
MS. KATHLEEN MCCANDLESS: So what aspects of this recommendation are currently being explored then?
MR. LAWRENCE LAZARKO: The focus of this is talk about infrastructure and operations. As I shared earlier, this is the personal and enterprise computing and it's really looking at specific plans and activities related to the corporate business plan, the IT strategic plan. This would be another level of detail.
So we finished our IT strategic plan earlier in the year. This recommendation focuses on the creation of another level of planning.
The further exploration is to understand that -- the gaps between the current level of planning we do as part of our budgeting process and what Gartner recommends and look at the potential

1089

additional time, effort, cost associated with that and determine if there is additional value.

So there is work done as part of the budgeting process, but not to the level Gartner has recommended in this particular update, and that's what we want to explore further.

MS. KATHLEEN MCCANDLESS: Thank you. At Recommendation 5.07, this is to improve IT financial management disciplines and key performance indicators, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And under current status, it was indicated at the time of filing that MPI is reviewing to determine potential benefits associated with these changes and that review would be in 2018/'19, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And what is the current status of this recommendation?

MR. LAWRENCE LAZARKO: Outstanding. We will have an update for this by the end of fiscal.

MS. KATHLEEN MCCANDLESS: So, has MPI developed any key performance indicators at this time?

MR. LAWRENCE LAZARKO: The focus of this one is less about the key performance indicators

1090

and understanding how the costs of the IT organization are allocated. As we've seen in the Gartner benchmarking scorecard, there's a particular way that we've allocated those costs in order to facilitate benchmarking.

This recommendation indicates some additional ways or different ways of doing that. So that's what we want to explore further is -- is there an alternate way or a complementary way to what Gartner shared with us that we should do. The additional PPIs and metrics are a level above and beyond that.

Some of -- yeah.

MS. KATHLEEN MCCANDLESS: So at the very bottom on the left side of the page, there is a recommendation to develop KPIs for financial management of business applications, et cetera.

So, I take it from your response that MPI does not intend to develop KPIs or...

MR. LAWRENCE LAZARKO: To clarify. So, earlier this year MPI undertook a cost exercise to understand the key applications in its infrastructure -- sorry, its environment for the purposes of supporting the legacy modernization assessment activity.

1091

These -- this was a significant and positive step forward for MPI. The crux of this recommendation is expanding further still. So looking at the work that we did around cost modeling and saying, Are there additional ways to measure that, are there additional KPIs that could be put in place? We still need to do additional work on this one.

MR. BRAD BUNKO: If I could go a little further on that.

So, prior to us getting too far into the legacy modernization assessment, we did an in-depth review of all of our applications and what the ongoing cost of ownership of those applications were.

This is something that will feed into our financial management of these applications. It was also a baseline for going forward if -- if we are looking at replacing some of these applications, what is the true ROI on doing so.

MS. KATHLEEN MCCANDLESS: Next, with respect to 5.09, at page 16. This recommendation is to improve vendor management capabilities, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And we see under current status that in July 2017/'18 MPI consolidated IT vendor management into one (1) team,

1092

yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And who was the team comprised of?

MR. LAWRENCE LAZARKO: We'd previously created a team called IT managed services. This team was put in place to manage the IBM agreement when that first came into being.

So when we're talking about the scorecard or the Gartner scorecard earlier, where they recommended additional resources to support third-party agreements, this is an example of how we did it.

There was an -- a separate vendor management group that supported a number of different business-focused contracts, and we combined these two (2) groups into one (1) unit that managed all IT strategic contacts -- sorry, contracts going forward.

MS. KATHLEEN MCCANDLESS: One (1) of the recommendations is to put in place reporting capabilities for spending management. It's the very bottom on the left side of the page, the screen.

Has MPI implemented any of the vendor management performance metrics?

MR. LAWRENCE LAZARKO: So as part of many of our key agreements we have service-level

1093

agreements and our vendor management team will be responsible to work with our vendors to ensure these standards are met.

These could be levels of service, these could be reviews of levels of spend. There are different metrics by different contracts that are managed by that group.

MS. KATHLEEN MCCANDLESS: So I -- have they been implemented or are they in the planning stages at this time?

MR. LAWRENCE LAZARKO: It varies by contract. So there are some contracts that have very robust sets of measures, there are others that we're in the process of developing or working with our partners to create.

So it varies. That's why we want to focus on a strategy that talks about our approach to each one (1) and what timeframe these things can be reasonably completed in.

MR. BRAD BUNKO: Yes, we are in the process of standardization.

As -- as Lawrence indicated, we had one (1) department managing one (1) of our largest vendors and they were doing a great job. We wanted to be able to extrapolate from that and go across the

1094

organization for other strategic partners, but that requires a little bit of extra effort, certainly from a personnel perspective, and the standardization.

So, it is in the throes of it and we have not gone to the end of that yet.

MS. KATHLEEN MCCANDLESS: Thank you. And does MPI have particular areas on which it will be focusing that need attention with respect to vendor management?

MR. LAWRENCE LAZARKO: The key areas will be continual growth and development of the team. We have some new people with that group and we want to ensure they're exposed to both industry best practices, as well as practical hands-on training.

And we also want to continue to mature our partnerships and governance, specifically around key meetings and the outcomes of those meetings, key deliverables and the outcomes of those deliverables and ensure that's clear and consistent for our major agreements.

MS. KATHLEEN MCCANDLESS: Thank you. This is the last recommendation I will ask you about. It's 5.12 at page 18.

The recommendation on the left side of the screen is to explore the utilization of cloud

1095

services, yes?

MR. LAWRENCE LAZARKO: Yes.

MS. KATHLEEN MCCANDLESS: And on the right side of the screen, we see that the recommendation was reported as complete in the GRA 2018, but needs to be re-evaluated and 2018/'19 fiscal, yes.

MR. LAWRENCE LAZARKO: That's correct.

MS. KATHLEEN MCCANDLESS: And can you explain why the recommendation needs to be re-evaluated?

MR. LAWRENCE LAZARKO: As we explore our legacy modernization assessment, we may have one (1) or more new strategic partners that are cloud-based, and depending on the outcome of that assessment, we need to look at our -- our long-term strategy.

Our previous strategy was assessed when we had limited cloud offerings, so -- and also the markets change. This is an area that's rapidly evolving and we want to make sure that we understand the latest trends and we are leveraging -- leveraging them to the fullest.

MS. KATHLEEN MCCANDLESS: Does MPI have an -- a sense of what applications it might be

1096

using in the cloud?

MR. LAWRENCE LAZARKO: One moment.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: So we have ideas on different types of applications we can look at, but we can't go through the specifics due to our competitive process related to the upcoming RFP.

MS. KATHLEEN MCCANDLESS: Thank you. Are you able to advise as to what extent MPI currently uses cloud services?

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: There are three (3) applications that primarily come to mind. Mitchell, as we've talked about previously, an address validation service and -- a address validation service and a learning management platform.

MR. JOHN REMILLARD: If I could add. We also have a Microsoft portfolio project management service that was recently introduced in the last twelve (12) months.

MS. KATHLEEN MCCANDLESS: Thank you.

And does MPI plan to start investigating other cloud services this coming year or within -- within this fiscal year?

MR. LAWRENCE LAZARKO: Yeah.

MR. JOHN REMILLARD: I'll start the response.

Outside of legacy assessment and where we may go with that, there are no other in-flight initiatives that are pursuing a cloud option at this time.

MS. KATHLEEN MCCANDLESS: Thank you. The remainder of my questions are with respect to commercially sensitive information. So I appreciate that I've gone a while without a break. So I apologize.

THE CHAIRPERSON: We're going to take twenty (20) minutes now.

The reporter is going to switch the tapes. For those who are watching the live streaming that will end the session for today. I expect that the rest of today's session will be on commercially sensitive information.

MR. STEVE SCARFONE: Mr. Chairperson, there is one (1) response that Mr. Remillard can provide on the public record, and that was in response

to Ms. McCandless's question concerning the breakdown of the termination of CCRS.

MR. JOHN REMILLARD: So I'm not trying to test your patience with this response.

Ultimately, when you asked about the 10.6, specifically.

MS. KATHLEEN MCCANDLESS: 10.2, I believe, yes.

MR. JOHN REMILLARD: My apologies. The 10-ish of CCRS, are you looking for the definitive of that number or the overall termination of CCRS overall?

The reason being is that we -- when we evaluated the termination, it was on the basically cost to date. So that assessment, we didn't look at the micro cost, we could take -- certainly take that away and ultimately provide that, or we could show the breakdown of 15.6 when we get into the confidential matters.

MS. KATHLEEN MCCANDLESS: We would be looking for the full cost determination.

MR. JOHN REMILLARD: Okay, so including the historical, the other five (5) that was written up?

MS. KATHLEEN MCCANDLESS: Yes.

MR. JOHN REMILLARD: Is that fair? Then we have that.

MS. KATHLEEN MCCANDLESS: So we'll -- you'll provide it by way of?

MR. JOHN REMILLARD: It would be confidential.

MS. KATHLEEN MCCANDLESS: It would be? Okay, thank you.

MR. JOHN REMILLARD: Yes.

THE CHAIRPERSON: Okay, we will -- sorry, further to that, are we going to deal with that in CSI now?

MS. KATHLEEN MCCANDLESS: Yes.

THE CHAIRPERSON: Okay, good. So we will break for twenty (20) minutes and then we'll be back into commercially sensitive information.

I'm going to check and make sure that the live stream is terminated. Thank you. I will be -- 10 after.

--- Upon recessing at 2:48 p.m.

(CSI PORTION UNDER SEPARATE COVER)

Certified Correct,

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Cheryl Lavigne, Ms.

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$10.2 1052:8,16

$13 943:15

$13.65 1027:15

$13.7 930:18

$15.6 1047:3 1049:4

$17.5 1046:22

$18 1020:4 1021:18

$2.05 1054:25

$2.1 1047:9

$2.4 908:22

$2.65 1054:20

$2.8 1055:1

$20 942:22 999:25 1003:17

$20.3 1046:2,14

$250,000 992:16 1041:6

$3 909:2 1008:1

$3.63 982:19

$30 941:24

$4,500 994:20

$4.03 1050:6

$4.5 994:10,21 995:5 1010:18,23

$49 1036:3

$5.3 1049:8

$500,000 992:11

$57 931:6 1014:19 1028:5

$6.3 982:19,23 1050:21

$65 918:12 928:24 931:5 941:5 942:22 943:15 944:3 1019:8 1028:5

$7 983:18

$72 1004:12

$75 899:14

$8.1 1003:12

$8.2 1003:13

$81 914:2 915:10,13,20 943:6 981:20,24 982:1,5,11 983:12,17 984:3,9,13 985:2,9 986:2 1054:15

1

1 908:11 914:10 915:1 917:9 920:13 923:4 926:8 928:20 935:4 938:6 942:13 946:21,25 949:4 961:17 967:1 974:7 975:6 976:17 987:19,23 996:12 999:18 1004:12 1005:5,6 1010:14 1013:21 1015:4,6,21 1029:13 1042:9 1045:25 1047:8 1051:21 1054:6 1055:6 1069:4 1074:18 1078:15 1082:14,21 1091:25 1092:16,18 1093:18,23 1095:14 1097:24

1,500,000 1041:12

1.05 1055:14

1.5 996:13

1.6 1002:11 1074:10 1077:5

1.76 1074:11 1077:5

1.9 995:9

1/2 897:3,8 922:20 931:4,20 943:15 1082:14

1:00 1010:7

10 911:7 940:1 988:4 1003:20 1005:5 1008:14 1009:9 1020:7 1069:22 1078:17 1086:1 1099:19

10.10 1022:3

10.2 1052:20 1098:7

10.6 1098:6

10:40 976:10

100,000 1055:15

1020 891:4

1027 891:6

10-ish 1098:10

10th 1041:25

11 1052:1

1-1 1006:17

11:04 976:11

11:45 1009:15 1010:6

1100 888:24 890:21

1-11 1008:5

12 951:22 988:11 994:23,25 1056:12 1087:17 1096:24

1-2 1007:23

126/'16 1021:4

13 913:10 1025:2 1056:20 1070:5

13,031 984:1

13.7 1014:24 1031:4

1-30 1011:3

130/'17 1022:16

14 1014:9 1054:1 1065:3

140 1008:16

15 934:12,17 997:18 1009:16 1014:9

15.6

1098:18
16 1073:24 1074:2 1077:3 1080:15 1091:20
16.7 1064:7 1070:1
16/'17 908:21 931:7
1-66 968:7
17 891:5 931:23 932:2 1001:7 1004:12 1024:21 1025:1 1026:21 1027:22,24 1040:20 1064:7 1069:25 1078:21 1081:24
17/'18 931:8
18 898:19 930:17 931:23 989:10 1006:22 1021:23 1040:21 1074:18 1083:6 1094:23
18/'19 903:5 909:6 994:1,4
18-month 968:17
19 1003:22 1020:16 1028:21
1045:4,9,10
19/'20 908:21,25 1003:17
19-3 998:11
1975 927:24
19th 928:7 1018:1
1st 977:13

2

2 892:21 898:11,17 907:23 911:23 915:16 916:16 923:4 924:3 929:2 949:17 960:18 966:21 973:7 981:13 986:11 993:5 1001:13 1002:10 1007:12,20 1010:1 1023:14,17 1027:13 1029:13,14,24 1042:10 1045:25 1046:18 1047:9,13 1050:6 1061:4,18 1063:11 1065:9 1067:13 1072:16 1073:1 1081:4,6 1082:15
1084:15 1092:16
2.3 1079:3
2.4 909:2 1067:16,17 1080:12
2.53 1078:7
2.63 986:20
2.76 1080:18
2:48 1099:21
20 908:24 945:17 960:7 982:8 992:6 997:18 1005:5 1006:12 1021:23 1027:1,21 1033:2 1067:4,11 1097:17 1099:15
200 983:2
2005 927:25
2009-2010 956:3
2010 1073:15
2010/'11 1063:13
2010/2011 1020:7
2011 1073:15
2011/'12 1074:5
2012 925:5 960:7 978:10 1019:9
2014/'15 1050:3 1077:6,9 1078:9
2015 1018:7
2015/'16 1073:19
2016 914:4 1018:18 1020:24
2016/'17 1020:9 1042:2 1063:17 1065:20 1067:3 1069:25 1073:15,19 1074:5,9
2017 891:3 926:4 930:17,23 932:5,13 985:7 1014:14 1015:4,16 1018:14 1019:4 1020:15,18 1022:19 1023:10 1026:16 1027:11 1031:12 1040:17 1042:3 1054:3
2017/'18 1001:10 1007:24 1045:1 1050:6 1051:14 1091:24
2018 888:23 891:6 913:9
926:4 1001:20 1002:7,17 1004:12 1009:10 1014:14 1015:5,7,19 1026:21 1027:22,25 1028:21 1045:4 1054:4 1067:12 1095:6
2018/'19 982:20 994:10 995:9 996:13 997:2 1001:15,22 1006:23,24 1007:18,25 1008:16 1010:18 1042:15 1088:6 1089:16 1095:6
2019 999:22 1002:18 1003:11
2019/'20 1006:14 1007:19 1008:20 1055:6
2019/2020 888:6
2019-2020 999:18
2020 1000:12 1084:25 1088:6

2020/'21 1008:23
2020/'22 1084:25
2021 999:25 1000:12
21/'22 1054:21 1055:1
2-18 986:8
22 888:23
23 1001:20 1083:6
24 1064:16
25 1048:12 1065:21
25/'26 931:8
250,000 967:19 1011:23 1055:10
25th 1065:21
26/'27 931:9
27 908:20 909:1 993:16 1010:16 1024:22 1067:4,12,15 1068:18
28 1056:9
29 1021:8,11

3

3 908:17 918:17 926:13 928:20 930:21,24 931:13,22 942:3,8 956:15 982:16 985:12 986:18 995:8,11 996:1 1006:10 1017:5 1020:5 1023:3 1025:2 1026:10 1029:12 1038:22 1041:20 1042:11 1049:7 1063:21 1067:13 1078:11 1087:22 1096:17
3.0 1067:17 1079:2
3.02 1083:10
3.07 1083:11
3.17 1080:17
3.18 1078:6
3.42 1073:20
3.52 1073:20
3.6 983:15,23
3.9 908:3
30 927:24
32 1064:14
33 1070:10
330 888:21
34-year-old 938:9
35.7 1066:4
37.9 1065:22

4

4 890:5 894:11 895:7 897:3 909:19 922:5 926:14 940:16 1005:4 1019:7 1030:5 1046:25 1063:21
40 1033:4,10 1035:18
400 888:21
43 951:21 957:9
44 999:20
45 995:5 1064:12
46 963:8
49.9 930:19 1014:23

5

5 898:22 907:23 908:1,5 926:14 927:17 928:18 940:1 969:22 986:23 987:2 1007:18 1019:25 1022:19 1026:23 1027:1,5 1042:4 1047:8 1073:9 1083:10 1098:23
5.02 1083:13,16,18
5.03 1086:2
5.05 1087:17
5.07 1089:8
5.09 1091:20
5.12 1094:23
50 1065:20
500,000 1011:24
53 913:12 934:17,18
55 1022:16
57 1029:8
58 1065:23

6

6 931:19 940:14 983:18 991:1 1014:8 1028:17 1046:21 1064:2 1066:9 1075:13,17
6.3 983:9,22
6.5 1017:1
60 986:22 987:15,22
62 1064:11
65 927:11 938:7 1014:20 1029:7

7

7 922:20 926:19 1006:13,19,24 1007:1,5 1027:3 1042:4 1073:13,23 1077:2
7.1 907:25 908:2
75th 1065:22

8

8 895:11 900:17 940:1 991:1 1008:14 1020:3 1027:2 1031:8 1042:3
8.1 1003:20
80 982:9
800 899:16
80s 938:9
82 1006:22
85 1032:3 1035:13
888 888:24
891 890:3
894 890:14

9

9 897:7 931:4,20 951:22 993:17 1003:25

1009:8
1010:15
1027:10
1038:10
1049:1
1083:16

9.5 1017:1

9:00 892:1

90 934:8

947 890:15

98 1033:17

A

a.m 892:1
976:10,11
1010:6

abandoned
921:19

ability
903:10
920:14
939:7
1039:21
1070:15

able 901:2
915:25
916:10
919:13,14
920:7,19,
21 928:1
937:18
981:11
982:23
992:19
997:10
1030:19,2
1 1032:19
1035:14
1036:17
1049:11
1050:9
1052:21
1060:12
1062:23
1068:11
1073:7
1074:14
1077:7
1081:1,21
1093:24
1096:11

absolutely
915:2
1000:14
1011:12
1061:21
1069:3
1081:13

abstracts
998:4

access
996:18
997:10

accident
920:18,20
,24 939:2
1051:10

accidents
921:24
981:8

account
975:25
992:6
1023:1

accountabil
ity 933:8
934:25
964:23

accountable
916:3
933:9
950:13
964:24

accreditati
on 913:16
984:21

accrue
1020:9

accurate
965:25
971:2
1037:16
1041:8

accurately
965:10
1037:9,21

achievable
1034:13

achieve
930:14
933:15

achieved
929:23
930:11,13
1031:18
1032:5
1033:20
1036:23
1037:5
1038:7
1040:5

achievement
1036:25
1037:3
1086:9

achieving
1038:12

acronym
920:11
981:15

across
904:21
944:20
1039:11,1
3 1085:7
1093:25

acting
905:6

action
902:19

actions
960:24
969:24
1067:18

active
966:25
970:1,5
973:9

actively
962:8
988:9,10
1067:14
1080:1,4

activities
1065:12
1068:17
1071:21
1088:16

activity
1090:25

actual
939:12
977:11
993:1,2
1007:24
1008:10
1011:24
1037:12
1062:8
1063:17
1071:6

actually
902:22
907:19
910:7
911:5,14
920:1,22
921:2
931:1
936:20
969:4
972:18
975:20,25
984:16
995:2
1000:3
1018:18
1036:7
1037:9
1038:4
1048:15
1056:11
1065:18
1073:3,8

actuals
1001:12

acumen
912:22
913:3

add 927:18
947:6
974:5,24
1004:22
1025:24
1027:4
1096:21

added
914:1,4
1017:22

addition
949:22
972:19
1038:12

additional
927:6
975:1,2
1006:21
1017:9,22
1019:19
1066:2
1067:13
1072:3
1076:8
1089:1,2
1090:7,11
1091:5,6,
7 1092:11

address
907:16
937:12
1088:2
1096:18,1
9

addressing
994:18

adequate
957:25

adhered
949:10

adhering
949:18

adjudicate
920:22

adjuster

1034:3
adjusters 991:7 999:9
adjusting 1049:7,11
Administration 999:9
administrative 1069:11
adopt 898:1 900:6 907:5 912:23 916:24 917:17 921:15 938:5
adopted 918:17 930:25
adopting 904:13 967:16 975:19 1071:2
advance 923:8 924:18
advancements 1048:7 1049:21
advantage 1012:19
advertise 989:20
advertising 989:22,24 990:12
advice 932:17 964:17,18 1030:7
advise 947:2 966:14 1050:10,25 1052:15 1096:11
advising 966:14
advisory 926:20 1012:17
Affairs 893:22
affect 929:25
affecting 937:24
affects 973:19
afford 915:13
afternoon 1009:22 1010:9 1032:17,19,23 1033:8 1053:18
against 923:22
agents 998:3
aggregate 987:19
ago 898:17 947:21 978:19 1018:6 1024:19
agreed 932:8 984:23
agreement 895:23 913:17,19 943:2 984:21 1036:6,8,11 1092:7
agreements 929:21 1057:15,16 1092:12,25 1093:1 1094:20
ahead 901:19 1005:14 1011:1 1021:9 1075:23
Alberta 938:10
algorithm 992:1 993:8
algorithms 991:17
align 905:10
aligned 907:17 916:12 929:12
allocate 1044:16
allocated 1002:13 1090:2,4
allocating 1044:12
allocation 1072:11
allow 911:12 920:14 980:25
allowed 924:2
allows 916:15 981:7
alluded 997:8
already 914:19 938:19 939:10 989:19 1042:19 1044:1
alter 981:19
alternate 1090:9
alternative 1049:16
am 911:7 923:7 1014:5
amended 992:15
amendment 1007:14
America 910:21 916:23 923:5
among 934:7 954:25 1042:24
amount 944:23 948:5 963:15 983:4 984:8 996:6 1002:7 1005:1 1009:5 1034:2 1036:8 1071:18 1085:6
amounted 941:24 942:22
amounts 909:5,6 943:14 1000:2
analogy 1044:8
analyses 1023:17
analysis 905:20 914:17 926:4 929:10 930:19 931:6,8,23,24 932:7,8 933:11 944:21 971:11 1015:16 1016:17 1018:14 1021:19 1022:11 1023:9,23 1028:20 1029:1 1030:13 1031:4 1038:6 1043:1,3,4,12 1044:3 1054:3,4 1055:8 1057:21
Analytic 1043:22
analytics 895:24 990:18,22,24 991:14 1039:15,20 1041:5 1055:4

analyzed 930:5
anchor 902:22 903:16
and/or 965:12 966:14 977:22,23 1048:1 1068:16
announced 981:19
annual 908:2,4 909:2 992:15 994:19 1011:4 1012:15,24 1027:15 1076:5
annually 903:6 908:22 992:12 994:16
annum 1021:24
anomaly 969:14
answer 918:4,7 956:1 1002:2,3 1032:21 1053:20 1072:6 1081:9
answered 1052:14
answering 971:24 1002:5
antenna 991:10
Anthony 889:7
anticipate 908:25 1000:16 1087:2
anticipated 936:22 965:12 990:17 999:21 1009:9,10 1035:3
anticipating 911:15
anybody 947:6
anymore 1035:12
anyone 919:13
anything 967:17,19 991:23
anyway 1036:5
AOL 998:23
apologies 968:4 1011:23,24 1053:2 1098:9
apologize 1097:15
APPEARANCES 889:1
appears 906:17 984:13 1023:15 1066:11
appendix 940:14 998:10 1001:7 1003:22,23 1006:17 1007:23 1008:5 1014:8 1028:16 1082:21,22
application 888:6 891:4 896:5 897:15,18 899:11 904:16 905:16 911:16 926:24 927:22 932:19 951:20 970:10,17 975:4 1003:6 1019:4 1020:15,19 1030:9 1062:3,19 1067:11 1082:4,19
applications 973:25 998:20 1070:22 1080:11,16,21 1081:25 1082:7,10 1090:17,22 1091:12,13,15,17 1095:25 1096:7,17
applied 906:1 931:2 932:18 975:3 986:16 1015:12 1030:8
apply 1012:23
applying 935:6 992:5
appointed 963:2
appointment 1042:9
appreciate 1097:13
appreciated 1065:1
appreciating 1030:19
approach 926:2 928:3 932:18 975:19 1017:6 1028:16 1030:9,14 1041:15 1093:17
appropriate 976:5 978:21 990:20 1011:19 1035:20 1044:16
appropriately 1035:17 1044:12
approval 947:14 953:3,6,8,19 954:3,15 967:5,10,15 970:2 975:9 976:20 977:10,12 979:1 980:15 1012:3
approvals 953:10 1011:23
approve 957:25 979:4 988:2
approved 903:8 930:9 952:24 953:17 959:24 960:5 967:21 976:24 979:3 1020:1
approximately 897:2 900:16 942:22 1009:25 1046:2 1050:21
April 914:16 925:5 928:6 1018:1 1028:21 1045:4 1054:4
architect 893:10,19 900:12 950:3 964:8,10,14 1078:5,8
architecturally 974:19
architecture 964:9

974:16
1051:9
1062:6
1066:10
1075:15
1077:23
1078:3,5,8
1079:1,6,14
1080:1,5
1083:20,25
1084:13,16 1085:14

area 908:13
924:8
945:16
969:23
975:7
979:21,23
1059:18
1062:7
1065:7
1069:16
1077:21
1080:5
1084:23
1095:20

areas
899:19
900:3
901:2
924:4
928:20
938:21
948:6
987:4
1036:15
1038:23
1069:4
1079:15
1084:15
1094:7,10

aren't
935:12
989:21

arise 896:4

arithmetic
1016:1,4

armchair
919:3
1059:2

arrived
982:24

arriving
898:17

articulated
906:6

artifacts
928:4
1026:13

artificial
921:7
938:20

ask/approve
986:20
987:24
988:4,19
989:4

aspect
970:17
972:5

aspects
913:24
970:23
1049:14
1088:10

assert
1065:25

assertion
1065:16

assess
1038:14

assessed
1023:7
1065:5
1095:18

assessment
905:21
907:11
927:3
930:7
969:18
1000:3
1004:24
1005:6
1017:10
1020:25
1022:6
1025:19
1047:17
1062:2
1063:23
1071:1,4
1080:3,8
1083:1
1085:5,12
1090:24
1091:11
1095:13,16 1097:7
1098:15

assessments
960:21
969:8

assets
895:19

assigned
927:6
1017:8

assigning
1044:7

assist
973:1

associated
901:5,9
931:2
951:8
962:10
1051:10
1089:1,15

Association
1036:7

assumed
913:20
914:4
930:24
931:7

assuming
929:23

assumption
915:17
933:12
987:7
1037:24

assumptions
915:17,23
968:18
983:1
1025:5,12
1037:14,15,21
1057:17

assurance
965:8

attachment
1019:1
1062:18

attain
934:11

attempt
990:24
1032:22

attempting
1040:20

attended
1018:1

attention
1094:8

attracting
1067:7

attribute
1041:14

attributed
931:14
1016:16

audit
1025:13,25 1056:2

Australia
898:21
921:6

authentication 997:9

author
1013:9
1019:14

authored
896:8
1023:18
1024:7

authoring
896:9

authority
959:15

authorize
957:25

automatically 991:21

automobiles
1034:20

Autopac
998:3,24

AutoText
918:18

availability 1038:25

available
930:10
932:11
942:13
990:14
1023:23,24
1024:18,19 1025:15
1044:17
1077:11

Avenue
888:21

average
934:11
986:22
988:5
989:9
991:2
1008:5,10,14
1036:2
1065:20
1066:5
1070:5

1074:10
1077:5
1078:7,18
1079:2
1080:18

averages
1009:6
1075:19

aware
941:19
943:25
973:21
1018:7
1024:9
1026:15

away
1032:16
1098:17

B

background
894:23
926:1,18
928:1
937:16
1012:14
1051:8

bad 920:9
927:12,13

balance
930:9
1072:16

banking
937:25

base
1039:17

based
927:23
931:2
932:3,6
935:3
948:5
1001:4
1004:18
1009:9
1013:3
1015:8
1021:22
1023:23
1027:11
1031:16
1044:1
1056:15
1063:17
1065:18
1075:17,20 1095:15

baseline
1068:16
1091:16

Basic
1001:9
1002:9
1003:23

basically
913:18
928:19
931:9
963:20
965:5
985:9
992:25
1057:13
1098:14

basis
918:13
958:22
964:4
965:25
967:23
993:8
1012:15
1039:13
1060:3
1076:5

bear
1059:20

bearing
1070:19

become
901:25
902:13
908:12

becomes
905:25

becoming
897:10
898:14

before-and-after
910:9

begin
892:22
894:22
925:1
945:20
946:17
977:13

beginning
892:25
893:13
919:18
950:11
973:3
987:7
989:15
997:7

behind
893:14
912:24

bel 1024:24

belief
1071:3

believe
925:6
932:24
951:20
970:16
978:3
979:15
980:14
983:21
986:11
995:4
1002:4
1004:6
1005:2
1011:8
1013:11
1018:12
1020:16
1040:23
1043:2
1053:8
1055:9
1073:24
1098:8

believed
1005:1

Ben 890:7
893:11
894:13
914:16
921:12

benchmark
917:2
926:21
1061:6
1063:2

benchmarking 896:10
946:9
1059:18
1062:8,18
1064:3
1090:3,5

benchmarks
907:23

beneficial
989:1

benefit
896:3
910:24
918:10
928:25
932:2,3
936:18
946:2,22
950:13
951:6
989:8
999:8
1021:5,18,19
1022:11
1027:16
1031:22,25
1032:5,9
1044:25
1049:23
1054:19
1055:13,18
1056:4,6

benefits
910:4,5,23 912:6
913:15
914:13
920:1,7
929:22,25
930:11,13
931:7,10,12,17
933:8,9,17
934:24,25
935:18
937:10
940:24
941:16
950:10
966:19
969:1,5
972:1
987:3
990:3
1014:13
1015:14
1016:20
1019:21
1020:8
1021:15
1023:8
1027:11
1031:17
1034:13
1036:22,25 1037:5
1038:6,13,15
1040:4,7
1041:3
1045:12
1067:15
1089:14

beside
893:2,5,8,10,15,18,19,21,23,25

901:13

best 905:11
911:16,21
921:14,15
933:18
937:2,4
981:3
1013:1
1036:17
1059:15
1085:18
1094:13

better
916:24
919:19
954:17
1000:8
1061:22
1082:16
1086:8

beyond
966:13
983:19
1000:12,17 1035:21
1090:12

BI3
917:5,12

bigger
913:5
916:23

biggest
1041:20

billion
899:18
916:21
927:17

bit 916:17
921:11
924:13,24
926:3
927:14
933:4
940:17
975:19
987:8
989:25
992:23
1006:3
1016:8
1052:6
1053:2
1057:14
1058:24
1094:2

black
944:11
993:8

blue 963:22

BMK 1082:21

board
888:1,12,13,14,15,16,20
889:3,4
894:5
897:18,23
899:7,12
903:1
904:21
912:14
913:8
917:11
925:16
930:15
954:8,12,15,22
960:4
967:6,11
968:3
970:17
976:24
977:8,9,10,25
978:5
979:4
999:8
1018:8
1021:5
1022:5,17,21,22
1023:5,14
1026:23
1059:4

bodily
991:4
998:25

body 922:1
961:8
1035:14

bolted
918:23

book 920:25
997:19

born 898:18

Boston
898:22

bottom
903:21
951:21
963:20
973:7
981:14,16
982:18
987:16
1004:11
1019:12
1022:20
1031:15
1036:20
1045:4
1065:21
1068:23
1073:14
1090:15
1092:21

box 993:8

boxes
903:20

Brad 890:9
893:2
894:15
896:13,21,24
897:2,6,12,19,24
898:3
901:20
906:20
907:8
909:19,21
911:7
947:22,25
948:4,17,21,24
950:19,25
951:18
952:5,9,15,20
953:1,10,24 956:19
957:1,7
974:24
978:17
979:17,20
980:3,7,11,18
993:21,25
994:6,11,15
995:12,16
996:4,16,24 997:3
998:15,20,23
999:23
1000:1,14,21
1001:18
1002:1
1004:22
1010:21,25 1011:8
1057:3,23
1058:6
1059:13
1067:19,25 1070:20
1071:13
1072:9
1078:13
1079:19,25 1085:2
1091:8
1093:20

Brad's
910:9
921:12

brand 899:2

break
945:14
976:6
1009:18,20,21
1010:2
1044:6
1053:18
1097:14
1099:15

breakdown
1000:8
1052:20
1098:1,18

breakdowns
1023:22

breaking
929:3
1009:21
1029:19

breathing
969:4

BRIEF 922:9
923:10
945:25
1001:25
1032:13
1052:3,11,24
1055:20
1057:1
1060:6,18,23
1074:22
1075:1,7
1081:15
1082:1
1096:4,14

briefings
977:23

briefly
895:13
923:1
937:21

bring 910:9
930:2
954:21,25
977:15,23
1032:16
1060:21

bringing
995:3

broad

956:11
broader 1047:23
broken 1050:15
brought 951:14 954:5,11,14 977:1,6,15 978:25 979:25
BTO 949:4 959:20 970:10
bucket 985:25
bucketized 1040:22
buckets 1040:13
budget 930:10 934:9,11 954:6 957:15,25 966:18 973:19,20,22 977:2,6,11 994:9,19,25 995:5,9 996:12 1001:16,20 1004:12 1005:10 1006:24 1010:17 1019:8 1028:3,10,14 1029:7 1063:13,22 1064:11
budgetary 954:6
budgeted 994:1 1001:10 1007:25 1042:16
budgeting 915:4 972:5 1088:24 1089:4
budgets 1005:11
build 916:16 973:2 987:19 989:16 1058:10
building 978:21
built 954:7 970:18 972:5 973:22 977:5 995:19 1004:19 1015:11 1031:25
bulk 949:20 1028:19
bullet 958:1 971:6 973:7 1026:25 1027:13 1029:1 1032:3 1033:15,24 1034:9 1063:11 1064:10 1066:9,16,23 1068:23 1071:9 1072:1,8,19
bullets 1006:11 1016:12 1037:1 1038:22 1040:3 1043:18 1083:6
bunch 928:4 1039:8
Bunko 890:9 893:2,5 894:15 896:18,21,24 897:2,6,12,19,22,24 898:1,3 901:20 906:14,20 907:8 918:1,4 947:22,25 948:4,17,21,24 950:16,19,25 951:18 952:4,5,9,15,20 953:1,10,24 956:12,18,19 957:1,7 958:17 963:14 966:25 969:12 974:24 976:17 978:17 979:14,17,20 980:3,7,11,18 993:21,23,25 994:6,11,15 995:10,12,16 996:4,14,16,24 997:3,8 998:15,18,20,23 999:23 1000:1,14,21 1001:18 1002:1 1004:20,22 1010:21,25 1011:8 1044:22 1057:3 1067:19,25 1070:20 1071:13 1072:5,9 1078:13 1079:19,25 1085:2 1091:8 1093:20
Bunko's 899:6 901:17
burden 906:24
business 893:3,10 898:20,25 899:22 900:12,23 901:6,24 902:14,15,21,24,25 903:10,11,15,18,23 904:2 905:2,6 906:5 909:8 910:18 912:4,5,2 913:3,20 914:23 915:8,21 916:8,14,16 917:17 923:8 924:18,21 928:23 929:19 930:3,4 932:16,19 933:9,15 934:2,5,9,12 935:15,16,25 936:3,4,8,9 937:1,24 938:21 940:2,5 947:20,24 948:12,16,19,25 949:2,24 950:2,5,6,8,11,14,16,22,23 951:1,4,7,16,23 952:2 955:17,19 956:21,24 957:2 958:10,19 959:5,7 960:20,25 961:4,6,8 962:6,11,15 963:2,22,25 964:2,4,6,8,13,14,19,24 965:1,6,19,21,25 966:11,22 967:1,15 968:10,13

,22
970:3,6,7
971:2,21,
23
972:20,21
,23
973:11,17
974:10,11
,14,22,25
977:19,22
978:12,20
979:8,23,
24 991:3
1000:24
1001:4
1002:14
1005:18,2
1,22,24
1012:18,2
1 1027:4
1030:2,9
1035:23
1036:14
1037:15
1056:21
1057:8,17
,25
1058:9
1062:4
1066:9
1070:14
1071:10,1
2,13
1074:8,16
,19
1075:11
1077:4,25
1082:7,11
,17
1084:1
1086:7,9
1088:16
1090:17

business-cased 911:6

businesses 912:19

business-focused 1092:15

buy 1044:8

bypass 980:25 981:8

Byron 889:9

C

CAA 889:14

CAC 889:9 1011:2

CAC-1-46(a 1060:21

calculate 941:4

calculation 942:25 1018:13

calculations 1015:19 1017:2 1022:24

calendar 977:12

California 1039:25

campaign 990:5

Campbell 893:20,21 905:6 962:18 1002:5,6 1003:8,16 1006:7

Canada 898:25 927:9,16, 17,21,23 1018:1

cancel 914:18

cancellation 918:6 919:12,16 921:20 926:6 932:14 943:13,19 1015:15 1034:14,1 6 1052:7

cancelled 930:15,20 931:6 1027:3 1042:4,19 1045:15,2 2 1052:6 1058:4

cancelling 1058:3

candidate 905:22 954:10

capabilities 902:24,25 903:11,19 ,23,24 906:5,6 909:8,12, 14 937:20 1042:10 1072:14 1091:21 1092:20

capability 908:8 933:7 1038:5 1077:24

capable 908:13 937:14,15 1086:14

capacity 908:13 997:24 1005:1

capital 896:12 898:23 909:4 942:16 960:19 967:17,18 968:9 977:6 995:8 996:12 999:16 1001:9 1002:18,1 9 1003:2,4, 5 1010:17,1 9,23 1011:6,20 ,22 1016:25 1020:6

capitalizes 1006:5

capture 919:15

captured 1062:5

capturing 1086:8

car 920:18,25 939:5 981:2,4,5 982:12 995:22 1035:4,25 1036:6 1043:21

card 898:25 991:19

cards 991:16

careful 946:23

Carol 888:15 893:16

carriers 911:8 993:7

cars 911:2 913:18 939:4 989:9 998:24 999:8 1034:24 1036:2

case 899:22 910:18 912:4,5 913:20 915:8,21 928:24 930:3,4 932:16,19 947:2 950:14 951:4,7 955:8 962:6 965:1,6,2 1,25 966:23 967:15 968:22 969:3 971:2 972:23 973:3,11, 17 974:10,22 991:19 1000:24 1005:18,2 4 1027:4 1030:9 1035:24 1036:14 1037:16

cases 901:6 916:8,16 917:17 950:23 951:1 960:20 961:1 962:11

968:10,14
970:3,7
971:21,23
974:11
1001:4
1005:21,22 1057:17
1075:23
1082:12,17

casing
914:23

casualty
926:11
937:23
939:16

catch
973:15

categories
1031:24
1045:6
1061:25

categorization
908:11

cause
992:20
1039:16
1040:14
1043:7

causes
931:21

causing
997:16

CCNC 918:18

CCR 933:21

CCRS 899:22
904:14
913:7
914:6,7,10,25
918:7
919:21
920:2,5,11,13
921:18
926:6
930:15,20
931:3,5
932:14
1015:15
1016:21
1025:3
1034:14,16 1035:8
1042:20,24
1043:8,20
1045:5
1049:4
1050:6
1051:21
1098:2,10,11

centre
893:17
895:19
981:1,9
990:10
1065:10

centres
981:3
997:17

centric
997:15
998:2

cents
1072:13

CEO 955:3,8
976:22

certain
921:9
924:3
947:25
970:22,23
981:7,10
985:23
986:23
1004:2
1036:15
1041:19

certainly
895:16
896:7
901:4
914:11
954:2
963:19
971:16
989:21
1048:4
1049:13
1050:11
1094:2
1098:16

Certificate
890:21

Certified
1100:2

cetera
977:24
1012:21
1025:21
1065:15
1090:17

Chair
892:8,17
894:24
901:16
922:3
945:11,15
969:22
1059:19

Chairperson
888:13
892:3,14,16 894:7
901:12,18
934:15
945:12,18
947:5
976:7,13
1009:19
1010:2,9
1059:22
1081:5
1097:16,23
1099:10,14

challenged
994:23

challenges
926:15
958:22

champion
905:3,7
916:14
950:8,11
951:25
962:16
963:2
964:24
965:20
966:11
975:22
979:11
1058:1

champions
964:6,14,19
972:20,21
974:14

change
903:10
906:3,15,17
913:1,2
931:22
932:23
933:14
937:3
939:7,9
940:2,3,4
941:16
942:3
955:23
962:12
968:17
975:18
984:3
1000:13
1016:13
1017:13
1036:13
1041:17
1060:13
1061:19
1062:10
1074:5
1095:20

changed
905:1
913:11
1003:5
1028:9
1061:24
1062:7
1079:12,21 1080:22

changes
900:1
931:23
937:8
938:1,2
963:21
965:13
968:17
1007:3
1009:10
1037:24
1054:19
1070:24
1071:17
1083:2,7
1089:15

changing
924:20

channels
1039:1,2

chapter
896:8
901:5

charge
937:17
961:10

Charles
890:12
894:1,18
922:13,16,19,23
923:14,20,24
924:6,10,15
925:4,12,18,22
934:18
941:2,6,13,22,25
942:5,19,24

943:6,11,16,22
944:5,16
1012:12,16
1013:8,13,16,25
1014:5,16,21,25
1015:10,25
1016:18,23
1017:3,11,15,24
1018:10,15,19
1019:2,5,10,15,23
1020:11
1021:2
1022:1,8,13
1023:12,20
1024:4,8
1025:7,24
1026:5,16,18
1027:8,18
1028:6,11,22
1029:2,5,10,16,22
1030:3,11,15,23
1031:13,19
1032:6,10
1033:21
1034:7,15
1037:6
1038:20,24 1040:6
1042:6,12,17,22
1043:2,7,14,24
1044:5
1052:9
1054:8,13,17,23
1055:2,8,16,22,24
1056:3,7
1060:8
1076:22

chart 952:18 953:2 955:11,13,25 958:13 963:16 966:2,10,22 1065:19

charter 1004:6

charts 935:13

chatbots 938:24

cheaper 916:25

check 1008:3 1043:4,16 1057:16 1059:11 1099:17

checked 1015:25 1016:3

checkpoint 911:23,24 971:2 973:1

checkpoints 970:10,20,21

Cheryl 1100:7

chief 893:4,7,12 896:22 898:6 925:17 927:15 960:10

choice 944:18 990:11

choose 1078:2

chose 1078:2

Christle 894:22

Chuck 902:10 917:22

CIO 907:10 1013:12 1060:2,13 1061:6,10,14 1062:12 1063:6,13,23 1079:8,10 1080:15,22 1083:1

claim 911:2 920:16 939:3 984:18,25 991:11,12,19 998:25 1033:16

claims 899:18 919:12 921:15 938:21,24 943:13 984:1 985:6,24 992:6,7 998:4 999:10 1034:1,5,10,11 1035:8 1038:3 1042:20 1047:1 1049:24 1056:2

claim's 939:8

Claims 893:18 920:12 999:8 1052:7

clarification 974:7 976:19 1007:22

clarifications 928:11

clarify 950:16 956:24 960:9 966:21 979:14 980:10,14 1015:3 1076:2 1090:20

clarity 907:19

classified 951:3

classify 1067:18

clear 902:13 1024:9 1094:19

clearer 902:20 1031:2

clearly 903:3 932:11

client 938:25

clients 1039:3

close 899:17 1068:10

closely 902:13

cloud 927:20 1094:25 1095:14,19 1096:1,12 1097:2,9

cloud-based 939:14

CMMG 889:12

coaching 964:16

coal 937:1

code 939:5

cognitive 938:23

cold 973:5

Colin 964:11

collaboration 937:5

colleague 925:7 927:8

colleagues 926:22

collect 933:25

column 1001:14

com 1034:20 1071:14

combating 993:5

combination 1007:1

1073:1

combinations 938:23

combined 919:7 1092:15

comes 894:6 902:1 1058:1 1072:3 1074:15

comfort 1030:22

comfortable 958:23

coming 904:22 926:15 938:1 939:13,16 979:10 1037:21,22 1081:7 1085:15 1097:2

commencing 892:1

comment 944:16 945:9 946:21 992:20 1034:18,22 1039:25 1041:2 1056:23 1058:13 1060:12 1069:1 1074:14

comments 1030:25

commerciality 946:11 1097:13,21 1099:16

commerciality-sensitive 946:18,24 947:1,7

commitment 1036:24 1037:3

commitments 1037:20

committee 956:6,9,20 957:5,6 959:1 964:9 966:3,7,9,12,15 967:8 968:5 977:21,22 978:25

committees 956:13 1085:11

common 944:25

communications 935:16

community 952:3

comp 987:20

companies 899:2 918:16 939:10

company 898:22 910:14 916:21 933:23 1012:17 1046:9 1064:6 1069:25

Company's 1075:11

compare 901:25 1007:23 1037:13 1061:6,12,23 1071:17

compared 1001:11 1003:11 1017:14 1064:12 1065:17 1071:19 1073:16 1074:10 1078:6 1079:2 1080:18

compares 1001:9 1075:19

comparing 1031:23

comparison 923:22 926:4 940:20 1034:10 1062:14

comparisons 907:12

compartment 1071:14

competencies 1075:14

competitive 1096:9

complementary 1090:9

complementing 1050:17

complete 904:1 917:22 932:21 970:24 973:4 979:2 994:14 996:2 1042:15 1050:18 1062:11,13 1095:5

completed 1027:2 1042:4,8 1062:12 1093:19

completely 929:9 961:5,7

completion 970:22 1087:3

complex 911:3 929:8,24 958:25 1029:20 1034:20

complexity 997:21 998:5

compliance 912:16 934:11

complying 1087:5

component 914:8,10 933:21 1002:9,12 1041:23

components 897:14 903:17 913:23 945:9 1044:14 1059:12

composite 986:21 987:12,15,17,20,23 988:18 1073:23

composition 948:20 961:14

compounded 908:2,4

comprised 1027:6 1042:5 1092:4

computer 997:11

computing 895:20 938:23 1065:13 1069:6 1088:15

con 1062:6

concept 1047:14,18

concepts 1080:2,5

conceptualization 936:7

concern 989:25 1048:15,20

concerned 1048:24 1081:7

concerning 1098:1

concerns 919:11 942:21 943:18 1053:11 1076:18

conclude 946:8
concluded 930:12
conclusions 1031:3
conditional 1033:6
conditions 1029:15 1068:1
conduct 1017:9 1053:10
conducted 930:7 1031:17
confidential 1053:12,20 1081:19 1098:18 1099:6
confidentiality 1004:3 1053:11 1076:18
confidentially 1076:24
confirm 925:14 941:10
conjectured 1037:11
connect 902:19
conscious 990:2
conservative 1038:1
consider 989:7 990:12
considerably 1071:20
consideration 903:7 932:9 944:9
considered 998:19
considers 1075:12
consistent 1039:13 1040:17,20 1094:19
consistently 907:22 1019:8
consolidated 1083:13 1091:25
constant 1077:9 1078:8,11
consultant 923:7 1006:19 1007:6 1008:15 1009:1 1051:3 1067:21 1068:7,18,20
consultants 1006:22,23 1007:24 1008:6 1050:17 1068:1,6,21 1071:16
consultation 928:14
consultations 925:10
consulting 898:21,22 922:15,18 923:2 927:9,11 1012:22 1017:25 1067:24
contact 990:10 1026:7
contacts 1092:17
contained 1083:16
contemplated 997:1
contemplation 943:24
contents 890:1 925:23 1014:3 1016:3 1062:23
context 913:7 925:25 926:18 1012:3,24 1024:23 1033:2 1047:22 1048:19 1061:22 1065:8
continual 1094:11
continually 907:13 935:23
continuation 1000:17
continue 907:2 927:7 935:4,18 965:20 1056:13 1059:21 1066:16 1069:16 1080:6 1082:9 1083:19 1086:6 1094:15
continued 906:11 933:6 940:10 976:15 999:12 1010:13 1012:1 1016:6 1020:21 1028:1 1033:12 1053:24 1059:24
continues 1026:2 1084:22
continuing 1042:14 1055:7 1056:17 1062:4,6
continuous 1084:2
contract 1093:12
contracted 927:1
contractors 908:19 1064:16 1066:18,24
contracts 895:22 1092:15,17 1093:6,12
contrast 968:23 978:18
contributing 1016:13
contributors 944:3
Control 893:18
controller 893:21 905:5
controls 970:11 987:10
conversation 938:25 1016:2
conversations 907:17 928:11 1061:9
conversions 1009:9 1068:19,21
converted 908:24 909:1 1006:14,20 1009:5
converting 1067:7
coordinator 961:21
copy 1082:5
core 918:13,21 919:8 934:2 998:15 1012:17
corporate 893:9,19 900:11 902:4

915:1
916:13
950:2
951:22,24,25 952:1
957:4,10
958:15,18
962:7
964:7,10,11,13
999:15
1002:12
1003:22
1004:20
1016:25
1046:2,3
1085:23
1088:2,5,16

corporation
888:5
897:5,7
900:21
923:19
947:16,19
950:18
960:14
963:11
975:8
981:18
984:2
986:9
992:5
1000:16,20 1005:22
1022:5
1043:11
1045:21
1049:3
1058:16
1072:12
1080:7
1085:18
1087:1,5

corporations 927:20

Corporation's 893:4

correct
895:3
896:20
899:7,8
900:12,13
915:7
916:5
922:15,16
923:19,20,24
924:6,10
934:16
941:1,2,21,22
942:1,6
943:11,16,21,22
947:22
948:17
952:15
953:15
954:23
955:6
956:7
957:7
960:6,11,22
962:20,25
963:12
968:11
969:20
970:4
971:13
972:17
981:22
982:21
985:16
986:18
988:13
992:8
993:21
994:11
999:23
1004:9
1006:8,15
1007:7
1008:8,12,18
1011:10,13,18
1012:6
1014:16,21,25
1015:10
1016:9,18,23
1017:3
1018:16
1023:20
1024:4
1026:5
1028:6,11
1029:5
1030:3,15
1031:19
1032:6
1033:20,22 1034:7
1038:20
1040:24
1042:6,22
1045:2,7,23
1046:4,12,19,23
1047:5,10
1049:9
1050:4,8
1052:9
1054:8,12,13,17,23
1055:2,16
1060:8
1063:25
1064:13
1086:20
1095:8
1100:2

correctly
995:22
999:4

cost 899:18
905:17
907:4
914:13
920:2,7
928:24
930:8,14
931:6,14
932:2,3
942:16
1000:5
1008:6,10,15
1009:2
1011:7
1014:18
1016:15,25
1019:7,19
1020:5
1021:19,20,22
1022:11
1023:1,16
1024:13
1034:19
1048:3,8
1051:3
1054:12
1072:11
1087:5,10
1089:1
1090:21
1091:4,13
1098:15,16,21

costs
908:7,9
910:4
913:14
914:1,5
915:23
929:11
931:5,12
940:24
941:15,18,19
951:8,17
965:10,12,14
971:25
972:15
973:21
974:22
989:9
999:15,21
1007:10,24 1014:13
1015:13
1021:1
1022:12
1024:1,7,9,12
1025:5,12
1029:19
1034:11
1043:11
1044:13,16 1046:1
1050:16,25
1052:8,16
1053:14
1070:15
1072:18
1090:1,4

Counsel
889:3,4

count
1065:6

country
923:6

couple
903:20
904:7
918:2
926:6
931:1
935:10
940:12
949:3
953:11
982:17
998:1

course
893:11,20
901:13
912:2
937:13
939:2
946:20,22
954:7
960:15
980:5
995:21
1016:25
1017:20

court
920:12

cover

892:20
1099:23

covered
1058:24
1062:1

create
903:10
936:17
1051:8
1080:8
1093:15

created
903:25
906:5
909:9,16
968:25
1009:11
1027:5
1092:6

creating
904:11
973:20
974:21

creation
955:19
1009:3
1088:21

credit
898:25
991:10,16,19

criteria
984:3
1073:23
1079:20

critical
1075:11

cross
917:23
1040:14

cross-examination 890:15
946:4,16,18 947:11
1009:21

cross-training
1067:9

Crown
927:19

Crozier
893:22,23

crux 907:19
1091:2

CSI 946:16
1053:21
1081:11
1099:12,23

cultural
909:24
916:7,15
932:23

culture
906:1
914:8
915:2
1075:13,14

current
895:6
909:4
915:11
926:3
930:8
966:6
1002:20
1003:6
1028:17
1034:10
1039:10
1066:16
1084:9,18
1086:18
1087:25
1088:23
1089:13,19 1091:24

currently
930:4
993:20
1000:24
1032:8
1066:17
1088:10
1096:11

curriculum
922:7
995:13

curse 911:4

Curtis
890:8
893:5
894:14
898:8,11,15,18
899:8,13
900:8
906:13
909:18
918:11
919:17
921:21
972:18
974:12
975:13
980:24
981:22,25
982:21,25
984:5,10,15
985:16,19
986:6,13,17 987:14
988:13
989:14
990:23
992:8,13,18,22
1032:15
1033:1,9
1034:23
1041:4
1056:18
1057:12
1058:18,23

customer
893:7
898:5
906:7
919:12
920:11,14
928:21
939:23
943:13
981:5,8
982:11
985:3
990:2,13
991:13
996:12,16
997:9,16,22
1033:18
1038:16,24 1042:20
1046:25
1049:24
1052:7

customers
910:24
921:6,24
938:14
980:25
990:9,11
996:18
997:17

customization 905:13
907:1

customized
904:23
905:9

cutoff
977:3

cycle
994:25

Cynthia
905:6
1002:2,3,6 1003:16

D

daily
912:21

damage
890:5
892:9,18
893:24
894:4,11
899:24
901:22
918:8
923:17
928:20
943:18
944:12
946:7
952:8
956:12,17
959:11,23
960:16
968:23
978:9
991:4,8
992:7
1018:25
1049:14

Dan 978:24
979:15,16

dashboard
1037:8,12
1040:12
1063:23
1083:2

dashboards
1037:19

data
895:19,24
910:25
932:3,10
934:1
939:19
944:21
945:4
993:1
1023:24
1039:19,20
1061:11,20 1063:14
1065:10

database
926:9
934:7,22
935:3
1013:3
1065:12
1069:9

databases

991:18
date 930:9 964:15 984:17,22,25 985:3,4 988:12 1004:17 1025:15 1098:15
dated 928:6 1028:21
daughters 938:10
day 892:11,21 928:7,10 1036:3
days 1039:5
day-to-day 958:2,21 959:17 964:4 965:25
DBL 955:18
deal 1081:11 1099:11
dealing 959:16
debt 906:25 907:1
December 954:14 977:7 985:4
decided 910:18 914:18 962:12 1046:9
deciding 958:24
decision 904:20 924:17 926:6 932:15 933:20 943:23,24 959:2 977:24 1036:5 1085:23
decision-making 902:5 906:22
decisions 912:22 914:24 924:16 939:8,9 958:2 966:13 1015:15 1085:24
decline 1006:21
decrease 983:22 992:20 1008:20 1073:9
decreased 907:25
decreasing 908:7
deemed 1025:19 1048:2
deep 919:6 991:17
deeper 913:5
deeply 1062:7
defending 1041:19
defer 1053:12,16,21
deferred 999:15 1046:1 1052:17
deficient 1075:25
define 936:8
defined 932:12 1013:1
defines 902:24
defining 909:11 937:3
definitely 1058:9 1067:2
definition 935:22
definitive 1098:10
degree 1058:4
delays 997:16
deliver 933:10,11 934:9 935:18 936:22
deliverables 970:23 1031:10 1094:18
delivered 934:8 936:23 975:23 1028:8 1084:1
delivering 933:9,13 934:23
delivery 896:1 908:8 937:6 949:4 959:4,6,14 966:19 1072:14,18
demand 1086:8
demands 931:4
demonstrated 906:15
demonstrating 966:16
dent 899:21
department 1093:23
depend 956:10 978:7
dependent 1071:5
depending 956:14 1095:15
depicted 955:25 965:10 966:10,24
depicts 952:12 1045:10
depth 1091:12
derive 937:10
describe 895:13 909:25 918:8 944:12,13 990:21 993:23 995:10 1016:12 1085:15
described 944:2 970:16 978:24 1000:22
description 891:2 904:6 1083:18,24 1086:2
desire 1061:21
desk 936:11 1065:14
desktops 895:20 1065:15
Dessler 893:18,20 964:10
detail 932:9,11 963:15 1030:18 1045:21 1049:3 1052:15 1074:25 1088:18
detailed 905:23 929:4 930:7,10 932:7,20 1005:7
details 949:5 986:9 1044:18 1062:8 1064:22 1076:8
detected

1039:23
detection 1039:15
deterioration 1023:7
determination 1053:19 1098:21
determine 903:18 914:8 942:10 958:23 965:21 991:18 993:3 1000:4,25 1038:6 1089:2,14
determined 903:24 1021:17 1046:6 1087:1,5
determining 950:5 1002:23 1027:3 1047:16
develop 911:1 921:25 927:20 1005:22 1012:18 1090:16,19
developed 1005:21 1029:15 1089:23
developing 950:23 1005:17 1093:14
development 927:4 939:21,22 960:25 962:4 970:3,6 973:12 974:10 999:15 1022:6 1046:1 1068:24 1069:15 1094:11
device 997:11
devices 938:17
diagram 980:17
dialogue 959:19
die 938:11
differed 1019:20 1046:10
difference 930:16 931:12 940:24 941:4 964:3,22 1001:13,17 1003:12 1014:12,18 1054:3
differences 963:17 1045:11 1054:6 1061:18
different 899:19 921:5 929:8 931:1 939:21 947:17 948:6 953:12 961:6,8 979:6 1016:8 1024:16 1039:2,3 1040:13,21 1041:15 1047:15 1049:16 1061:4,24 1069:9,10 1070:21 1079:7,11 1090:7 1092:14 1093:6 1096:7
differential 1041:21
differently 1040:22
differs 1081:2
difficult 907:5 908:6 929:21 934:24 975:17 1073:10
difficulties 944:9 1029:18
difficulty 929:3 971:23
digital 927:21
digitalization 926:11 937:22,23
Dilay 889:10
dimensions 1075:13
direct 895:17 899:25 914:2 915:18 964:23 980:21,22,24 981:7,11,18 982:2,4,20 983:3,6 984:7 985:8,13,14 986:15,18 987:3,6 988:10,15,20 989:12,17 990:8 1025:9 1033:3 1042:9,16 1043:18,19
directed 953:12,20 1022:5 1060:10
direction 906:18 964:18 966:14 1032:3
directionally 1016:9 1040:23
directions 921:9
directive 1022:3,10
directives 1021:9
directly 964:5 981:10 996:18 1002:3,5
director 893:1,17,24 895:1,5,14,17 900:23 948:25 958:19 959:4,6,14,20 977:19
directors 954:12,15,22 960:4 967:6,11 968:3 976:24 977:9,11,25 978:5 1085:10
discipline 905:25 955:24,25 1082:13
disciplines 1089:9
discontinued 1061:11
discount 930:21,24 931:1,4,20 942:3,8,11,17 1023:4 1054:7
discrepancies 1086:15
discuss 958:22
discussed 1078:23
discussion 977:23
displaying

903:3
distributed 1032:4
dive 913:5
division 979:8,10
document 902:22 903:16 951:14 968:22 969:4 1076:7
documents 1024:14
dollar 909:5 912:2 914:2 916:21 948:5,15 981:20,24 982:1 984:3,13 1054:15
dollars 899:18 915:10,13,20 943:15 982:5,10 983:12,17 984:9 985:2,9 986:2 988:1,3 992:11,16 994:20 1019:9 1036:3 1041:6 1051:15 1072:13
done 894:2 904:25 912:23 918:24 921:22 926:22 927:22 929:10 940:20 944:19 948:10 968:25 969:18 972:8 976:1 978:23 988:15 993:11 997:1 1015:16,18 1024:12 1039:7 1041:8 1044:15 1068:9 1089:3
double 1059:11
Dr 902:9 922:13,16,19,23 923:14,20,24 924:6,10,15 925:4,12,18,22 934:18 981:15,17,20 982:14 983:13 989:2
draft 1077:19
dramatically 981:19
drive 937:5 995:22 1048:18 1068:1
driven 906:3 939:7 997:14
driver 900:25 903:17 987:23 995:8,23 998:4 999:1 1047:9,22,24
drivers 900:2 1047:17
driver's 900:2 911:25 912:1,10
driving 936:1 975:2
Drop 980:11
due 959:9 984:3 1002:20 1007:2 1029:19 1048:14 1070:14 1096:8
duration 1005:3
during 952:17
duties 923:1
DXC 895:23

E

EA 1084:3
earlier 904:4 929:6 942:15 976:18 1004:20 1044:7 1048:6 1050:1 1051:11 1054:25 1072:17 1078:2 1082:6 1088:14,20 1090:21 1092:10
early 913:9 937:4 995:1 996:9 1009:18,20,21 1049:14
easily 983:18
easy 916:20 919:3 920:10 935:21
ed 900:2 911:25 912:1,10 1047:23
educate 937:11
educating 990:13
education 995:8,23 1047:9
effect 1031:21 1058:13
effected 916:6
effective 902:4 908:18 936:13
effectively 936:15 964:5 1006:10
efficiencies 1054:20
efficiency 981:17 990:3
efficient 910:17
effort 1034:3 1036:4 1089:1 1094:2
efforts 910:19 993:13 1066:17 1078:3
eight 895:11 900:17 940:1 1027:2 1042:3
eighteen 898:19 989:10 1006:22
eighty 981:19 986:1
eighty-nine 1008:20
eighty-one 914:2 915:9,13,19 981:23 982:1,5,10 983:12,16 984:2,8,13 985:2,8 1054:15
eighty-two 1006:22
either

963:14
1024:24
1033:7
1038:25
1067:6

elaborate
924:13
960:2
1017:13
1038:22
1057:10
1072:7

element
929:5
933:3,18
940:4
1034:21

elements
918:23
933:22

eleven
976:8
988:1

eliminate
984:8

else 1038:8

else's
1085:21

emphasize
935:11

employee
1035:7

employees
1069:25
1085:13

engaged
1063:12

engagement
925:4
929:18
970:6
973:9
995:20
1030:1

engagements
970:2

engaging
962:8
1085:13

engineering
890:6
892:10
894:12
1019:1
1049:15

enhanced
955:22
1042:9,16

enormous
1085:6

ensure
949:9
965:9,24
972:15
975:10
1062:15
1093:2
1094:13,19

ensuring
949:18
957:14
973:25

enter
1020:14

entered
1027:20

enterprise
949:8
955:22
964:9
973:10,23
974:9
1062:6
1066:10
1069:6
1077:23
1078:2,5,7
1079:1,6,14
1080:1,4
1083:19,25
1084:13,16 1085:14
1088:14

entire
1039:14

entirely
921:19
1041:15

entitled
985:14

environment
991:16
1090:23

EPMO
949:7,13,15

equivalent
1008:6,15
1064:6

equivalents
1006:21

Erika
889:14

escalated
959:1
977:20

escalating
959:15,19

escalation
977:24

especially
1029:19
1069:17

essence
900:24
955:18
959:20
961:4
963:20
966:13
968:25
978:11
979:11
997:9,21
1025:16

essential
915:3
945:8

essentially
903:15,22
994:4
998:13
1004:25
1015:22
1067:24

establish
997:7,8
1050:14
1083:24

established
947:20
955:21

establishment 977:2

estimate
981:9
982:4,11,13,23
987:6
988:2,3
1035:22

estimated
1021:22

estimates
929:4,5
981:11
982:6
989:17
1008:10
1032:4,8
1035:11,13,19
1059:20

estimating
910:13
911:9
918:14,20
921:1
944:19
1032:4
1042:21

estimating-based
1059:8

estimator
981:1

estimators
910:16
911:13
991:8
1035:12

et 977:24
1012:21
1025:20
1065:15
1090:17

evaluated
919:20,21
1095:11
1098:14

evaluating
972:7
1047:21
1079:21

evaluation
930:10
1009:14
1012:11
1013:5
1014:7
1017:6
1020:25
1022:12,19 1024:6
1027:12
1028:16,17 1031:16
1045:5,13
1063:22
1084:9

evaluations
1013:20
1018:7
1030:20,22

events
998:5

eventualities 976:2

everybody

1085:17,21

everybody's 935:17 1085:22

everyone 892:4 909:20 987:25

everything 912:12 913:12 916:1 976:1 1036:1

evidence 894:1,3,5 900:6 924:2 931:16 978:3 1016:20 1018:5,12 1022:18 1024:25

evident 1064:20

evolution 961:25 1024:15

evolve 939:13 1082:9

evolved 903:3 904:6 928:23 929:2

evolving 1095:21

ex 1006:12 1073:7

exact 1059:3

exactly 936:5 939:6 1001:5 1077:16

examination 917:24

examination-in 925:16

examination-in-chief 890:14 894:20 898:2 900:7

example 904:14 905:4,18 906:7 910:8,10 911:19 912:1 913:18 915:9,15,17 921:6 952:7 972:22 978:9 981:3 985:7 991:17 1047:15 1069:14 1085:14 1092:12

examples 910:1 995:23

excess 967:19

Exchange 899:1

excluded 984:2,14 1043:11

exe 958:25

exec 916:2

execute 1012:20

executed 959:12 965:18 1005:18

executing 904:18 954:16 964:21

execution 904:1 955:24 964:1 968:20 977:13

executive 893:12 899:2 937:16,17 940:16,18 953:13,21,22 954:9,21 959:2 960:10 966:3,6,8,12,15,17 967:8 968:1,5 977:20,25 978:25 1059:3 1063:3 1076:5,9

executives 929:15 954:25 956:15 1029:25

exercise 1090:21

exhibit 891:2,5 922:5 993:16 1003:25 1004:1 1010:16 1020:15,18 1024:21 1026:21 1027:21,24 1049:1 1056:9

Exhibits 890:3 891:1

existing 1086:7

expanded 1048:5

expanding 1091:3

expect 892:10 937:16 938:16 945:16 972:19 991:9 994:13 1009:15 1059:19 1097:20

expectations 934:13

expected 910:3 994:14 1000:12 1008:15 1014:18 1031:11 1032:5 1033:19

expecting 970:22 996:9 1005:23

expenditure 930:12 1002:18,19 1003:5 1010:23 1046:7,8 1049:12

expenditures 930:8 999:16 1001:10

expense 896:11 899:15 907:25 1003:1 1010:19

expensed 1011:9,10

expenses 908:14 954:7 971:9 972:6 998:10 1001:7

expensing 1002:20

expensive 905:13,14 974:20 1034:24

experience 939:23 998:4

experienced 975:11

experiencing 905:16

expert 894:3 902:10 924:1

expertise 924:8

experts 935:13

explain 906:16 919:13 958:18 963:16

968:13
976:23
980:22
981:23
982:24
996:14
1002:16
1003:14
1045:9
1047:12
1050:2
1051:15
1060:12
1065:1
1070:18
1071:11
1072:7
1079:23
1095:10

explanations 983:22

explicit
910:5
984:20,22
1086:13

explicitly
935:19
1011:3

exploration
1088:3,22

explore
1089:6
1090:8
1094:25
1095:12

explored
1049:19
1088:11

exploring
1049:17
1051:4

exposed
983:6
1094:13

extended
935:8
1019:20

extensively
1077:23

extent
1074:14
1096:11

external
908:19
929:25
1006:13
1007:2
1050:16
1067:5

extra
906:24
1094:2

extrapolate
1093:25

extremely
991:17

eyes
1017:18
1051:7

F

fabric
939:12

face 937:1
944:10

facilitate
1062:10
1090:4

fact
1015:21
1038:1

fact-based
1037:19
1038:5

factor
942:21

factors
929:25
941:8,10
944:2
1016:13
1075:17

fail 906:21
934:9

fair
942:18,19
963:15
989:18
1045:18
1099:1

fairly
909:19
914:22
920:24
1036:12

fall 977:3

familiar
1014:3
1020:23
1027:7

faxes
918:14
1059:9

features
983:14

feed
1091:14

feedback
987:1
1070:25
1074:19
1085:3

feel 917:11
971:16

fees 941:20
1054:11

fifteen
997:18
1009:16

fifth
1033:24
1066:15

fifty
992:16
1055:10
1065:20

fifty-eight
1065:23

Fifty-three
934:18

figure
921:8
938:4
1006:17
1008:5
1039:18
1044:15,20,24
1045:25
1046:18
1047:8

figuring
940:3

file 1022:6
1076:16

filed
1001:15,16
1004:1,2
1013:6,21
1021:7
1023:9,17
1024:6

filing
1084:18
1089:13

final
912:21
979:1

finalized
919:25

finally
902:9
933:20
936:24

finan
1038:14

finance
934:3
962:19
1012:21

financial
905:4
909:4
968:25
971:11
991:15
999:5
1005:12
1038:15
1063:17
1089:9
1090:16
1091:15

financials
1004:20

finding
1022:21
1025:12
1035:1
1048:12

findings
1015:7,22,23,24
1016:3
1063:2,6
1064:2
1077:17

finds
1022:22
1053:9

fine 901:18

FINEOS
1049:17,20

FINEOS-based
1051:6

finish
933:21
946:16
995:1

finished
914:17
996:5
1088:19

firm 923:23
1025:25

firmly
932:5

firms

911:11
939:16

first
902:17
904:16
910:2
911:4
913:3
920:15
924:11
931:7
932:16
945:16
947:12
958:1
961:23
969:25
977:8
980:21
982:11,18
983:16,24
990:9
992:4
1003:3,19
1008:16
1016:15
1029:18
1030:6
1034:4
1049:18
1050:20
1051:4
1056:12
1086:6
1088:2
1092:8

firstly
894:24

fiscal
903:6
909:6
975:12
977:13
992:17
994:2,5,10 996:2,8
1005:24
1042:2
1078:12
1087:3,13
,15
1089:21
1095:7
1097:3

fit 974:15

fitting
994:23

five 898:22
907:23
908:1,5
916:4
926:14
928:18
940:1
969:22
986:22
987:2
992:11
994:20
1007:18
1022:19
1027:1,5
1042:4
1066:4
1073:9
1098:23

fix 1034:25
1037:15
1044:9

flawed
1037:15,23

flexibility
937:7
1068:11

flight
909:13,15
993:20,23

flow 1076:9

FNOL
1050:20
1051:20

focus
932:22
935:7
936:2
1056:21
1057:8
1078:3
1084:23
1088:12
1089:24
1093:17

focused
1065:9
1077:23
1079:11

focuses
903:5
1088:20

focusing
1094:8

folks
899:16

follow-up
918:2
976:17
982:12
1003:9
1010:15
1041:1

forced
926:13
935:24
938:1

forecast
972:1,16
999:19
1001:15,16 1003:11
1005:8
1010:24

forecasted
969:1
971:10
972:7
1004:15,17 1008:10
1009:4
1044:25

forgetting
952:24

forgotten
1020:12

form 925:16
1041:13

forma
899:17

formal
970:10

formality
979:3

formalized
956:3

formally
933:7
972:8

format
902:20

formerly
907:10

forth
918:15
1025:18

forty
994:19
1008:16

forty-five
995:5

forty-nine
1036:3

forward
904:22
915:5
926:15
927:14
931:9
932:9
938:13
940:6
945:3
954:5,12,14,21
955:1
960:5
973:21
977:1,7,15,16
978:25
979:25
987:10
989:13
995:3
1002:24
1034:25
1046:10
1079:23
1081:22
1091:2,16
1092:17

foster
937:5

fourth
1027:12
1033:15
1064:9
1074:8
1088:3

framework
932:20
1030:10

frankly
929:18

fraud
944:20
990:25
991:2,4,5
993:6
1038:17
1039:15,22,23

frauds
993:2

fraudulent
1039:24

free-form
921:7

Friend
1053:13

front 938:8
993:1
994:10
1049:20
1058:7

FTEs 975:1
1036:16
1067:22,2

4 1068:21
fulfill 927:5
full 910:7 911:8 912:4 913:8 914:22 951:7 1021:10 1025:19 1098:21
fullest 1095:23
full-on 951:4
full-time 1006:20 1008:6,15 1035:7 1064:6
fully 928:14 1002:17 1079:15 1084:16
fulsome 1024:18
function 933:13 1066:6
functionalities 1085:8
functionality 905:18 907:5 996:17
functions 1065:12
funding 960:21 967:18 969:8,17 977:6 994:1
funds 930:12 1045:16
fuschia 963:22
future 905:1 917:16 938:12 965:15 971:7 1000:13 1001:4 1037:7 1046:7 1069:20
futuristic 968:19

G

Gabor 888:13
gain 1037:2
gains 981:17
gamification 995:20
Gantt 935:13
gaps 1088:23
Gartner 894:6 896:10 902:10 907:9,14,18 915:25 917:22 922:15,18,22 923:2 927:9,10 928:5,16 941:18 943:9,20 975:14 1012:15 1013:17 1014:14,24 1015:4,23 1017:8,25 1018:12 1019:12 1021:16,20,21 1023:9,15 1025:13 1026:4,8,12 1028:20 1029:8,14 1030:5,7,8,21 1037:4 1040:16 1042:2 1043:12 1044:4,6 1045:5 1054:3 1060:2 1061:5,10,14 1062:11,20 1063:12 1064:22 1065:5,18,25 1070:9 1072:10 1075:12,18,22 1076:7 1079:11 1082:23 1086:11 1088:25 1089:4 1090:2,10 1092:10
Gartner's 932:17 933:23 1015:7,22 1024:2 1025:11,15 1030:12 1061:17 1069:4 1074:19 1076:23
Gary 893:18 964:10
gates 970:19
gather 962:22 1028:18 1043:25
gating 970:10,14,17
GE 898:23
Geffen 925:7,10,11 1019:13 1021:16 1026:22
general 888:6 935:11 949:1 975:3 996:17 1019:4 1048:6 1084:12
generally 899:14 921:3 972:3,4 1034:24 1066:11
generated 1028:25
genesis 955:17,19
gets 975:23 983:17 1041:21
getting 907:18 918:14,25 944:24 968:16,19 987:4 992:1 1038:2 1039:4 1041:16 1048:13,16 1059:7 1072:21 1091:10
given 909:20 922:6 958:7 967:4 982:1 986:16 1011:17 1035:25 1053:5 1058:14 1059:14 1078:14
gives 1039:12
giving 894:1 915:10,11
goals 935:20
go-forward 954:7 972:6
Golt 923:2
gone 912:5 942:9 1085:4 1094:5 1097:14
gotta 915:16
governance 904:24 905:1 924:9,14,15,22 934:24

949:20
952:13
953:2,16
959:16
963:10
1075:16
1079:13
1086:2,12
1094:16

government
927:16,23
937:24

GRA 891:6
1000:7
1001:11,16,17,20
1002:7,17
1003:11,12
1013:6,21,22
1023:10
1026:21
1027:22,25 1045:1
1056:16
1084:19,25 1088:6
1095:5

Graham
890:7
893:11,14
894:13
901:13

granularity
1040:21

graph
952:12

graphic
953:7
1069:22

graphical
903:12

GRAs
1000:13

great
919:20
932:17
938:2
1084:24
1093:24

group 894:6
898:22
973:4
1061:23
1071:24
1092:14
1093:7
1094:12

groups
975:21
1061:6
1065:19
1092:16

grow 983:18
1075:20,23

growing
961:16

growth
908:2,3,4
1070:14
1071:10,12,14
1094:11

Guerra
889:7
893:21

guess
971:23
972:3
978:8
1081:8

guidance
903:1

Guimond
955:5
976:22
978:4,10,14
979:9,16,22

Guimond's
955:8

guy 927:8
938:8
1017:24

guys 1002:2

gymnastics
920:6

H

Hainsworth
888:15

half
897:3,7
922:20
945:17
991:3
1009:25
1041:12
1059:20
1082:14

Hamilton
888:14

hand 896:5
897:17
899:11
916:12
917:21

hand-in-hand
916:17

handled
947:16

handling
938:21
999:10

hand-off
973:5

hands-on
1033:25
1094:14

happen
937:8
1035:9

happened
920:20
939:2
953:11
971:21

happens
910:10
928:7

happy 912:7
934:21
1017:20
1081:11

hard 912:6
927:13
934:14,20,23
994:16
1039:18

harder
942:10

hardware
965:13

harnessing
936:25
1056:21
1057:9

haven't
894:9
926:22
1035:25
1077:20

having
906:24
921:7
944:25
945:3,4
950:10
979:3,4
985:20,21
995:21
1022:18
1023:14
1031:21

headed
904:10,12,18
905:10,24
906:4

heading
961:24
1006:10
1045:4

heads-up
922:6

health
1082:7

hear 901:23
902:2,9
977:8
1081:12

heard 925:9
941:4,7
943:2
951:1
962:17
998:11
1006:3
1014:10
1016:15,25 1017:6
1029:20,24 1042:19
1044:1
1054:5,15
1055:12
1059:13
1060:1

hearing
888:7
1021:6

heavily
913:6
924:23

heavy
910:25
917:12,14

he'd
1011:18

heels 899:6

HELD 888:19

help 902:7
926:22
927:5
935:16
953:25
1066:6
1073:2

helped
926:21

927:20
936:14

hence 979:9

Henry
890:12
894:1,18
902:10
917:22
918:2
922:3,12,13,16,19,23
923:14,20,24
924:6,10,15
925:1,4,12,18,22
934:18
940:12,23
941:2,6,13,22,25
942:5,19,24
943:6,11,13,16,22
944:5,16
945:11
946:8
1009:14
1012:9,12,16
1013:8,13,16,25
1014:5,11,16,21,25
1015:10,25
1016:18,23
1017:3,5,11,15,24
1018:10,15,19
1019:2,5,10,15,23
1020:11,23
1021:2,5
1022:1,8,13
1023:12,20
1024:4,8
1025:7,24
1026:5,15,16,18,20,24
1027:8,18
1028:3,6,11,22
1029:2,5,10,16,22
1030:3,11,15,23
1031:8,13,19
1032:6,10
1033:21
1034:7,15
1036:20
1037:6
1038:20,24 1040:6
1042:6,12,17,22,24
1043:2,7,14,24
1044:1,5
1051:24
1052:9
1054:2,8,13,17,23
1055:2,8,16,22,24
1056:3,7,10 1060:8
1076:22

Henry's
922:7
940:14
1041:2

here's
1072:12

he's 893:1
902:10
1053:10,14

hesitation
1077:14

hidden
965:12

high 900:1
904:18
906:16
911:25
912:1,10
916:8
931:3,21
952:22
963:14
995:8,14
997:22
1023:24
1031:1,3
1047:8

higher
908:8
932:25
1030:16,18 1035:17
1036:16
1064:5,18
1065:17
1068:7
1070:10,14,18
1071:8,20
1072:22
1078:6
1080:17

highest
996:20

high-level
928:25
929:4
932:3,6
998:22
1005:8

highlighted
932:5
963:21
1069:4

high-priority
1078:16

highschool
1047:22

high-volume
997:20
998:5

hindsight
918:10,24

hired
1012:24

hires
1004:2

hiring
1067:7
1071:16

historical
916:6
952:12
1098:23

historically 899:23
914:8
951:22
955:15
986:19
991:7
1026:7
1028:3

history
926:3
928:17
991:20

hit 993:2

hits 981:8
991:5

hoists
981:2

holistic
1024:10
1040:10

home 997:11

honest
912:15

hope 892:4
925:24
928:1

hopefully
910:16

hoping
994:24

Hora
893:16,18

hour 945:17
1009:16,25 1059:20

hours
1010:1
1039:5

household
899:2

HR 934:3
1012:21

HSBC 898:25

huge 944:23

hund 992:11

hundred
920:23
988:1
992:11,16
994:20
1055:10,14

hundreds
939:4

I

IBM
895:19,23
927:24
1065:11
1066:1
1092:7

I'd 898:19
902:17
904:7
909:16
918:12
927:20
932:16
934:21
937:21
1016:9
1018:19

1020:11
1040:1
1043:3,14
1061:1
1073:6
1076:22

idea 908:18
921:2
1058:1

ideas
1096:7

identification
928:25

identified
909:9
977:18
1068:18,19 1083:7

identify
1043:11
1082:10

identifying
904:19

I'll 892:22
894:24
910:10
916:12
917:21
924:23
944:8
945:22
963:19,21
973:14
976:25
997:3
1036:10
1044:8
1053:25
1055:24
1074:24
1097:5

I'm 898:18
904:23
925:24
927:5,10,11
928:7,8
938:7
946:23
953:24
964:8,16
984:10
990:20
994:20
995:16
998:8
1001:4
1002:15,16 1009:13
1012:9
1013:8
1018:20
1034:17
1051:18,24 1052:13
1057:3
1059:18
1067:19
1071:17
1075:3
1076:24
1077:10
1081:6
1098:3
1099:17

imagine
996:22

immediately
946:17

impact
903:9
929:19
965:11,16
969:1
974:25
1039:19

impacted
948:9

impacting
1085:8

impacts
973:17

impairment
1046:1,11,18,22

impetus
906:17

implement
902:8
1056:17
1087:21

implementation
905:14
915:5
947:18
950:21
969:5
988:11
1000:18
1005:12
1012:4
1087:21

implemented
949:25
970:19
984:8
1092:22
1093:9

implementing 905:19

implications 914:6
1057:18
1070:13
1072:2,8

important
903:7,14
904:8,13
912:17
935:1
1062:7
1069:8,11
1077:24
1078:1

impossible
944:21

improve
907:14
928:19
1038:23
1075:24
1077:18
1083:19
1086:2
1087:17
1089:8
1091:21

improved
1038:16
1073:20

improvement
989:1
1066:12
1084:3

improvements 917:1
939:23

improving
907:22
917:1
1079:23
1081:22

in-camera
1053:16

inception
1020:7

include
932:9
936:6,7
941:11
951:7
1007:5,18
1020:25
1021:20
1023:16
1056:20

included
913:15
971:10
1016:16
1024:2
1032:8
1042:25
1044:2,18
1054:11
1066:3

includes
895:18,22
899:20
1024:7
1082:22
1083:19

including
928:5
939:22
941:20
1015:15
1076:8
1082:16,17 1088:4
1098:23

inclusion
979:24

incompetency 1048:23

incorporate
904:20
1022:11
1086:13

incorporated 905:12
937:9

incorporates 1063:6

incorporating 970:25
971:25

increa
1055:5

increase
907:4
908:6,13,14 936:2
1008:16
1035:20
1057:8
1064:6
1068:12
1070:1
1072:22,23 1073:2

increased
908:7
962:1
1067:15

increases
999:25

1066:19

increasing
1055:5
1056:20
1073:2,10

incredibly
939:4

incremental
969:15

incrementally 936:18
971:1

incur
908:14

independent
907:11
927:3
961:8
1018:8
1022:6
1030:13

indicate
1065:17

indicated
940:19
950:14
951:6
1061:10
1086:12,18 1088:1
1089:13
1093:22

indicates
936:17
1090:6

indication
909:15

indicators
936:20
985:22
986:5,10
1089:10,23,25

individual
957:14
962:23
1085:24

individuals
1026:14
1085:6

industry
905:11
911:10
915:14
916:18
921:3,4
929:16
933:5,25
938:3
945:1,5
975:19
989:7
1021:23
1030:1
1034:12
1059:15
1075:19,21 1094:13

infancy
965:6,17

in-flight
1042:14
1097:8

information
892:17
893:1,3,5
894:23
895:2,14,17
896:19,23
897:11
901:21
908:12
918:6
924:5,8,14 928:12
930:2
943:9
944:10
946:12,24
947:2,8
951:11,13
960:13,14
964:12
986:8
990:17
1015:8
1024:3
1025:13,16
1026:3,8
1030:25
1033:7
1039:13,16 1041:3
1044:3
1049:2
1053:9
1061:16
1062:13
1076:3
1077:8,11
1081:1,7,10,21
1097:13,22 1099:16

informed
990:11

infrastructure
895:18
897:14
948:9
965:14,15
973:18
974:1
975:4
997:7
1039:8,9
1062:2
1063:9,23
1064:20
1065:4,7,8 1066:20
1069:5
1088:4,13
1090:22

ingrained
905:25
911:24

in-house
908:19
1059:14

initial
992:10
997:6
1026:25
1055:5

initially
942:3
997:13
1004:2
1019:7

initiation
904:19

initiative
903:4
906:23
909:15
950:12
951:8,12,23
953:3,4,17 955:18
956:11,14
962:20
978:21
979:25
996:15
998:9
1001:2
1011:11
1026:25
1041:9

initiatives
900:24
904:21
905:3
906:2
909:13
949:9,10,13,23
951:5,23,24,25
952:2
953:11,14
954:5,10,11
957:4,10
958:15,18
964:15
979:10
995:4
1001:3
1068:3,5,7,12
1071:15,16,19
1088:2
1097:9

injury
991:4
998:25

innovate
910:14
1059:14

innovation
904:11
979:8

innovative
911:20
914:14

innovator's
911:4

inputs
941:14
993:9

inside
906:6
907:24
949:21
950:14

insights
926:20
937:19

instance
1082:17

instances
1073:3,4

instead
1039:5
1059:9

instrument
1061:7

instruments
1061:4
1063:22

insurance
888:5
889:7

893:12
898:7
911:8
918:16
923:18
925:3
926:12
937:23,25
939:8,9,11,12,22
940:2
944:15
993:6
1077:4
1078:7,17
1079:2
1080:18

int 1006:5

integrate
974:20
999:4

integration
900:25
955:18

integrity
916:3
939:19

intellectual 921:23
1051:9

intelligence 921:8
938:20

intend
946:3
1090:19

intends
1081:22

intensive
910:25

intent
968:21
981:19

intention
946:15

intents
1051:20

interact
959:7

interacted
958:19

interacting
950:4

interactive
1040:10

interest
995:22

interesting
908:5
1048:1
1072:10

interests
924:18

interface
952:2

interim
1050:20
1077:16

internal
923:4
993:13
1006:5,12,13,20
1008:7
1020:3
1022:23
1050:15,16 1054:20
1067:5
1068:24

internalization
1006:3

internalized 1007:6

internally
910:4
914:7
915:24
993:11
1058:2
1072:24

interpreted
1048:1

interrogatories
901:8

interrupt
934:15

interviewed
1026:14

interviews
1029:4

introduce
962:14

introduced
901:13
930:23
1018:13,18 1082:4
1096:23

introduces
1019:18

introducing
942:8

introductions 892:23
894:23

invest
912:12,16
935:4
1056:13
1080:6

investigating
1068:20
1097:2

investigations
991:11,22

investigative 1046:8

investment
918:9
936:17
944:14

investments
924:16
1011:4

involve
996:22
1082:15

involved
905:3
949:9
970:1
974:10
1013:25
1018:6
1029:14
1030:20
1058:9
1085:11

involvement
962:3
978:20
1013:15,23 1033:25

involves
895:15
998:13

IP 1076:23

IR 981:14

Irene
888:14

IRs
896:11,12
913:6
1077:22

isn't
933:13
974:19

isolated
914:11

isolation
978:23
979:15,19
980:9

issue 916:6
959:18
972:10
977:1,15,16
1011:19

issued
1021:6
1022:18

issues
937:8,12
958:23
959:17,18
977:17,24
985:21
1025:17

IT/PHYSICAL
890:5
894:11

item 905:22
1003:2
1025:2

items
1029:13

iterated
960:19

iteration
925:6
932:15

iterations
939:20

iterative
968:10,13

it'll
911:12

it's
899:14,16,18,25
902:4
908:6
909:11,21
911:3,19
912:17
914:11
915:10,13,16
916:20
917:5
919:6
926:23
928:17
929:9,24

932:17,20
,21
935:21
936:22
939:6
940:14
950:2
951:21
961:7,16
965:22
967:17
968:22
969:3
973:4
981:4
982:3,4,1
3 985:9
988:4,20,
21,24
989:25
990:13
992:14
994:16,17
995:12
1000:9,11
1002:2,11
,17,24
1004:4
1010:25
1012:25
1015:3
1020:16
1024:9,18
,22
1026:1
1031:20,2
5 1032:1
1033:2,3,
10
1036:2,12
,15
1039:18
1040:19
1041:15
1043:4
1048:8
1053:20
1055:10
1063:1,2
1065:10
1068:3
1069:7,11
1071:3,18
1072:9
1076:13
1077:12,1
5,24
1080:5
1084:8
1085:5
1086:18
1088:1,15
1092:20
1094:23

IT-specific
948:9

I've 896:8
897:6
909:19
927:12,25
938:8
1097:14

J

January
954:16
977:11

job
936:13,15
984:9
985:3
1093:24

jobs 923:5
982:3,10,
13 986:23

Joe 893:14
901:8
912:3
961:11,15
,16

John 890:11
893:8
894:17
895:25
896:13
900:10,13
,16,22
901:4
950:3
952:9
953:25
954:2,23
955:2,6,9
,16
956:7,10
957:12,16
,20,23
958:4,8
959:9
960:1,6,1
1,22
961:2,7,1
1,15,20
962:19,25
963:4,12,
19
966:4,8,2
3
967:7,12,
25
968:11,15
969:10,20
970:4,8,1
2,15
971:13,18
,22
972:4,12,
17 973:13
976:25
977:17
978:7
979:5,20
996:7
997:4,5
1004:9,14
,18
1005:13,1
6,23
1011:21
1012:6
1025:14
1026:9
1032:22
1045:2,7,
10,18,23
1046:3,12
,16,19,23
1047:2,5,
10,13
1049:5,9,
13
1050:4,8,
11,23
1051:2,17
1052:19
1053:1,6
1096:21
1097:5
1098:3,9,
22
1099:1,5,
9

joined
898:25
899:1
914:17

journey
928:18
956:22

July 960:7
1091:24

jump
1022:3,15
1083:16

K

Kathleen
889:3
890:15
892:7
945:15,19
946:1
947:9,11,
12,23
948:2,13,
18,23
950:15,20
951:15,19
952:6,10,
16,21
953:5,18
954:1,18,
24
955:4,7,1
0
956:4,8,1
6,23
957:3,8,1
3,18,22,2
4
958:5,12
959:3,22
960:3,8,1
2,23
961:3,9,1
3,18,22
962:21
963:1,7,1
3
966:1,5,2
0
967:3,9,2
0
968:6,12
969:6,16,
21
970:5,9,1
3
971:3,14,
19
972:2,9,1
3 973:6
974:6
975:6
976:4,15,
16 977:14
978:2,13
979:13,18
980:1,4,8
,13,19
981:12
982:15,22
983:20
984:6,12
985:11,17
986:3,7,1
4 987:11
988:8
989:11
990:15
992:3,9,1
4,19
993:14,22
994:3,7,1
2
995:7,14,
25
996:11,21
,25
998:6,17,

21
999:6,12,13,24
1000:11,15
1001:6,19
1002:4
1003:7,24
1004:10,16,21
1005:9,15,20
1006:1,9,16
1007:4,8,16,21
1008:4,9,13,19,22,25
1009:12,24
1010:4,11,13,14,22
1011:14
1012:1,2,8,13
1013:4,10,14,19
1014:2,6,17,22
1015:1,20
1016:11,19,24
1017:4,12,21
1018:4,11,17,22
1019:3,6,11,16,24
1020:13,21,22
1021:3
1022:2,9,14
1023:13,25
1024:5,20
1025:8,22
1026:1,6,11,17,19
1027:9,19
1028:1,2,7,15,24
1029:3,6,11,17,23
1030:4,12,17
1031:7,14
1032:2,7,18,25
1033:12,13,23
1034:8
1036:19
1038:9,21
1040:2,25
1041:24
1042:7,13,18,23
1043:6,9,17,25
1044:19
1045:3,8,14,19,24
1046:5,13,17,20,24
1047:3,6,11
1048:25
1049:6,10,25
1050:5,9,19,24
1051:13,23
1052:5,13
1053:4,17,24,25
1054:9,14,18,24
1055:3,11,17,23
1056:1,5,8,19
1057:5
1058:11,20
1059:17,24,25
1060:9
1061:2
1062:17,2
2
1063:1,5,10,16,20
1064:1,9,14,18,25
1066:7,14,22
1067:23
1068:22
1069:21
1070:4,7,12,17
1071:9,25
1073:12,18,22
1074:1,7,13
1076:1,11,14,17
1077:1
1078:4,20,25
1079:5,22
1080:10,14,20,25
1081:20
1082:20
1083:5,9,15,22
1084:5,8,17
1085:1,25
1086:5,11,17,21,25
1087:4,9,12,16,20,24 1088:9
1089:7,12,18,22
1090:14
1091:19,23
1092:3,18
1093:8
1094:6,21
1095:3,9,24
1096:10,25 1097:11
1098:7,20,25
1099:3,7,13

Katrine
889:10

key 902:7
913:14
933:3
940:4
962:12
963:17
970:23
985:21
986:5,9
987:18
1014:18
1026:13,14 1058:7
1061:18
1064:2
1065:9
1073:23
1075:9,10,12
1089:9,23,25
1090:22
1092:25
1094:10,17

kinds
1037:10
1039:3

knowledge
979:23
997:19,23

known
943:9,20

KPI
987:23,24

KPIs 985:21
986:10,11
987:10,22
1090:16,19 1091:6

Kristen
922:4
940:13
958:14
993:15
1001:8
1018:22
1020:14
1022:15
1044:20
1074:2
1082:21

L

labour
1006:5,11
1007:2
1041:21
1050:16

ladder
1044:8,10

languages
1069:15

laptop
938:15

laptops
895:20
1065:15

large 902:5
917:4,8,12 928:10
944:10
960:18
964:15
968:9
969:11,14
974:2
975:16
988:21
1005:14
1048:20
1068:13

larger
914:21
924:21
978:15

large-scale
1048:3

largest
994:9
1093:23

last 893:20
901:14
904:6
907:22
908:1,4
909:3
916:11
919:24
923:23
925:9
927:1
929:1
940:20
941:1
943:10,20
944:4
970:16
973:7
975:7,12
989:10
1001:10,16,20
1002:11
1003:2,11,16
1013:21
1017:14,15 1018:15
1022:9,18
1024:16
1026:10,12,22
1030:13,16
1043:1,3,8,13
1044:17
1045:13,15 1066:9
1068:9
1072:1
1073:9
1094:22
1096:23

lastly
893:22
901:12
925:14
943:1,12
1056:2

later 896:4
911:7
912:7
914:15
919:4
933:4
946:6
947:3
952:17
1033:8

latest
932:15
1095:22

Lavigne
1100:7

Lawrence
890:10
893:1
894:16
895:3,6,10,16
896:7,17
974:4
1006:8,15,25
1007:7,13,17
1008:2,8,12,18,21,24 1009:3
1011:2,12
1060:15,20,25
1061:3
1062:21,25
1063:4,8,15,19,25
1064:8,13,17,21
1065:2
1066:13,21 1067:2
1069:3
1070:3,6,11,16
1073:17,21,25
1074:6,12,17,24
1075:9
1076:4,13,15,20
1077:13
1078:24
1079:4,9
1080:13,19,24
1081:3,13,17
1082:3
1083:4,8,14,21
1084:4,7,11,22
1086:4,10,16,20,23
1087:2,7,11,14,19,23
1088:8,12
1089:11,17,20,24
1090:20
1091:22
1092:2,5,24
1093:11,22 1094:10
1095:2,8,12
1096:2,6,16 1097:4

Lawrence's
897:13

layers
959:11

Lazarko
890:10
893:1,2
894:16,25
895:1,3,6,10,16
896:6,7,17 973:14
974:4
1006:8,15,25
1007:7,13,17
1008:2,8,12,18,21,24 1009:3
1011:2,12
1060:11,12,15,20,25 1061:3
1062:21,25
1063:4,8,15,19,25
1064:8,13,17,21
1065:2
1066:13,21 1067:2
1069:3
1070:3,6,11,16
1073:17,21,25
1074:6,12,17,24
1075:9
1076:2,4,13,15,20
1077:7,13
1078:24
1079:4,9
1080:13,19,24
1081:3,13,17,21
1082:3
1083:4,8,14,21
1084:4,7,11,22
1086:4,10,16,20,23
1087:2,7,11,14,19,23
1088:8,12
1089:11,17,20,24
1090:20
1091:22
1092:2,5,24
1093:11
1094:10
1095:2,8,12
1096:2,6,16 1097:4

Lazarko's
973:19

lead 919:16
932:24
979:9
1013:6,8
1015:14
1029:25

leaders
904:11
958:11

leadership
962:13
964:17

leading
916:18,22
936:17,19

learn 915:6

learned
902:8
912:9
914:25
926:5
931:25
932:12
935:3
960:15,18
968:9
971:4,5
1025:3
1031:1

learning
995:22
1096:20

learnings
902:7
965:19

least 934:8
1048:12

leave
1061:1

1072:12

led 951:23
964:15
1017:16

left-hand
956:5
1069:23
1083:17

left-side
1001:11

legacy
903:7
905:20
917:9,13,17
969:12,13
998:7,11
999:22
1000:4
1001:21
1002:7
1004:5,7
1069:18
1070:22,25
1071:7,11
1077:25
1080:2,7
1084:9,14
1085:5
1090:24
1091:11
1095:13
1097:7

lengthy
1020:2

less 978:20
979:23
992:6
1003:19
1033:25
1039:24
1089:25

lesson
932:12
968:9
971:4
1031:1

lessons
914:25
926:5
931:25
960:15,18
1025:3

let's
901:18
921:14
945:18
974:14
980:12
1035:24

letters
998:4

level 899:3
906:16
908:8
929:19
932:10
952:23
959:16,17
963:15
970:22
996:20
1013:23
1023:24
1030:2,16,18,22
1031:1,3
1035:21
1040:21
1046:2,4
1055:7
1067:8
1069:24
1070:10
1072:22
1073:8
1088:17,21,23
1089:4
1090:11

levels
1064:4,19
1070:14,18 1071:8
1086:14
1093:4,5

leveraged
1080:4

leveraging
1095:22

liability
921:9

liaison
949:24
963:25

licence
929:7

license
941:20
1029:20
1041:23

licensing
900:2,25
965:13
971:7
973:18
999:2
1029:19
1043:20,21,22
1054:11

life 936:23
941:25

lift
1059:15

light
913:16
943:3
984:20

likely
1044:21

limited
929:18
1022:25
1030:1
1095:19

limits
1070:15

line 976:18
999:20
1001:20
1006:24
1007:1,12
1009:8,9,15 1015:2
1030:6
1035:10
1045:9,10
1046:20,25 1047:7
1049:7
1050:6
1071:24
1074:9
1086:6

lines 939:5
951:22
1002:13
1008:14
1022:19
1027:13
1083:6

link 909:12
935:19

linked
902:14
935:25
1088:5

List 890:3
891:1

listing
1082:22

little
920:9
921:11
924:23
925:25
926:3
933:4
940:17
949:5
987:8
1006:3
1016:7
1036:16
1050:2
1052:6
1053:2
1057:14
1058:24
1081:6
1091:9
1094:2

live
938:10,11
947:8
1020:8
1097:19
1099:18

living
968:22
969:3
1024:14

local
910:14

London
898:20

long 892:12
895:4,9
896:25
898:9
900:14
907:3
922:17
925:2
955:14
1009:22

longer
952:17
959:17
960:20
969:7
1032:5
1033:19
1034:13
1061:13
1062:6

long-standing
1017:16

long-term
1095:16

lose
1011:16

loss 904:16
913:17,23
920:16
928:21

984:18
985:1,3
990:9
992:6
1034:4
1035:4,5,24
1041:7,10,17
1042:15
1049:18
1050:20
1051:5
1055:3,12,17
1059:1

lot 892:19
899:15
905:16
906:14,21
916:23,24,25
921:11
927:12
932:5,21,22 933:16
935:5
938:1
964:14
979:9
987:3
991:24
993:6
995:21
1024:12
1028:22
1035:14
1036:1
1044:15
1085:10

lots 927:25
929:25
939:20
945:2,4
950:10

low 942:17
997:21,23
998:5
1066:11

lower
931:18
959:16
1009:7
1016:21
1034:9
1036:15
1079:16,17

lump
1051:20

lunch
1009:18,20

LVA 914:2

LVAA 984:21

M

machine
938:8

magnitude
1059:1

main
944:2,3
964:22
1026:7

mainly
898:24
929:1

mainstream
904:13
1078:19

maintain
1070:23
1073:7

maintaining
1021:21
1023:2,16

maintenance
971:8
973:18
1021:1,22
1022:12

major
895:22
903:8
907:23
927:19
947:15
958:1
967:22
1054:6
1057:17
1088:1
1094:19

majority
934:9
954:4
996:7
1046:25

man 1030:10

manage
926:10
937:18
947:21,24
948:3
1072:24
1092:7

manageable
1005:1

managed
897:14
1066:2
1092:6,16
1093:7

management
890:6
892:10,19
893:15
894:12
895:22
896:1,12
901:5,9,23 902:3,7
905:24,25
909:23,24
911:24
913:4
916:2
917:7
919:13,14,24
926:25
927:22
928:5
930:6,22,25
932:16,20,23
933:2,3,7,19 934:4
935:5,6,8,9,11
936:6
939:24
940:14
942:7
946:5
947:13,18
949:8
950:21
951:17
954:4
955:22,23
958:3
959:11,18,24
960:21,25
961:10,20
962:2,3,9,11
965:4,24
967:16
969:8,18
970:1,25
972:14,24,25
975:24
976:21
994:8,13
1010:18
1012:4
1014:8
1015:11,17 1024:11
1028:21
1029:1,9
1030:10
1031:21,23 1032:1
1036:24
1037:2
1039:20
1044:15,21 1056:14
1062:4
1066:10
1074:8,16,19
1077:4
1082:5,18
1089:9
1090:17
1091:15,21,25
1092:14,20,23
1093:1
1094:9
1096:20,22

manager
949:7
964:4
972:22
1042:9

managers
935:12
937:14
949:11,12,18
963:23

managing
899:16
917:4
927:8
948:1
1005:10
1006:10
1017:25
1065:10
1071:7
1072:4
1093:23

Manitoba
888:1,5,22
889:6,9,14 893:12
898:6
920:15
923:17
925:2
944:14
1039:23,24

Manitoban 898:19
Manitobans 928:19 939:19 1059:16
manner 1044:17
manpower 1070:23
manufacturing 937:25
March 895:11 954:16 977:13 1004:12
mark 1033:4
market 910:21 991:24 993:10
marketing 898:24 934:4
marketplace 921:25 1048:5
markets 1095:20
Martin 925:7 927:7 928:8,14 1017:16,19 1030:24 1043:16
master 1011:6
Masters 898:20
match 991:9
matching 1086:7
material 892:20 934:4 1045:11
materialized 981:17
mathematics 990:25
matters 924:3 1004:5 1098:19
mature 933:6 1072:17 1094:15
matured 1079:16
maturity 908:3,6,7,15 927:21 962:1 1061:5 1066:11 1072:22,23 1073:2,11,15,19 1078:1 1083:20 1084:13 1086:3
maximizing 923:6
may 907:6,19 909:16 915:22,25 920:8 946:25 953:12 964:19 967:1 974:2,25 975:1 978:22 988:16 989:8 990:12,20 993:8 1016:5,9 1023:4 1025:4 1040:8,13 1041:2 1042:3 1048:17 1055:9 1058:14 1067:12 1070:14 1072:5 1075:22 1095:13 1097:8
maybe 909:25 960:2 963:20 969:22 973:14 979:24 984:15,16 998:22 1006:7 1009:16 1053:11,15
McCandless 889:3 890:15 892:5,7 945:13,15,19 946:1 947:5,9,11,12,23 948:2,13,18,23 950:15,20 951:15,19 952:6,10,16,21 953:5,18 954:1,18,24 955:4,7,10 956:3,4,8,16,23 957:3,8,13,18,22,24 958:5,12 959:3,22 960:3,8,12,23 961:3,9,13,18,22 962:21 963:1,7,13 966:1,5,20 967:3,9,20 968:6,12 969:6,16,21 970:5,9,13 971:3,14,19 972:2,9,13 973:6 974:6 975:6 976:4,13,15,16 977:14 978:2,13 979:13,18 980:1,4,8,13,19 981:12 982:15,22 983:20 984:6,12 985:11,17 986:3,7,14 987:11 988:8 989:11 990:15 992:3,9,14,19 993:14,22 994:3,7,12 995:7,14,25 996:11,21,25 998:6,17,21 999:6,12,13,24 1000:11,15 1001:6,19 1002:4 1003:7,24 1004:10,16,21 1005:9,15,20 1006:1,9,16 1007:4,8,16,21 1008:4,9,13,19,22,25 1009:12,23,24 1010:4,10,11,13,14,22 1011:14,15 1012:1,2,8,13 1013:4,10,14,19 1014:2,6,17,22 1015:1,20 1016:11,19,24 1017:4,12,21 1018:4,11,17,22 1019:3,6,11,16,24 1020:13,21,22 1021:3 1022:2,9,14 1023:13,2

5
1024:5,20
1025:8,22
1026:1,6,
11,17,19
1027:9,19
1028:1,2,
7,15,24
1029:3,6,
11,17,23
1030:4,12
,17
1031:7,14
1032:2,7,
18,25
1033:12,1
3,23
1034:8
1036:19
1038:9,21
1040:2,25
1041:24
1042:7,13
,18,23
1043:6,9,
17,25
1044:19
1045:3,8,
14,19,24
1046:5,13
,17,20,24
1047:3,6,
11
1048:25
1049:6,10
,25
1050:5,9,
19,24
1051:13,2
3
1052:5,13
1053:4,8,
17,24,25
1054:9,14
,18,24
1055:3,11
,17,23
1056:1,5,
8,19
1057:5
1058:11,2
0
1059:17,2
4,25
1060:9
1061:2
1062:17,2
2
1063:1,5,
10,16,20
1064:1,9,
14,18,25
1066:7,14
,22
1067:23
1068:22
1069:21
1070:4,7,
12,17
1071:9,25
1073:12,1
8,22
1074:1,7,
13 1075:5
1076:1,11
,14,17
1077:1
1078:4,20
,25
1079:5,22
1080:10,1
4,20,25
1081:20
1082:20
1083:5,9,
15,22
1084:5,8,
17
1085:1,25
1086:5,11
,17,21,25
1087:4,9,
12,16,20,
24 1088:9
1089:7,12
,18,22
1090:14
1091:19,2
3
1092:3,18
1093:8
1094:6,21
1095:3,9,
24
1096:10,2
5 1097:11
1098:7,20
,25
1099:3,7,
13

McCandless's 1098:1

McDonald 964:11

mean 921:18
934:22
953:23
956:25
969:2
970:14
974:8
979:19
980:2
993:24
997:15
1013:17
1015:23
1030:23
1047:24

meaningful
1047:17
1048:11,2
2 1049:22

means
924:2,14,
16 927:12
984:16
987:17,25
997:9
1039:19,2
0

meant
942:15
968:13
973:7
985:18

measure
1061:5,7
1072:10
1086:8
1091:5

measured
1061:25
1062:5
1074:15

measurements 988:25

measures
987:18
1075:15
1079:12
1082:6,8
1093:13

measuring
929:3
936:14
985:22
1029:18

media
938:18

medium
959:17

meet
902:15,25
903:11

meetings
1018:2
1094:17

melds
909:22

member
888:14,15
,16
956:19
961:17
966:25

members
892:8,16,
24
894:2,24
895:14
896:3
958:10
977:22
999:8

member's
961:19

mental
920:6

mention
937:22

mentioned
903:16
904:4
938:19,22
944:9
1041:5
1050:1
1072:17

merits
919:2,22
1058:2

messaging
938:18

met 974:2
1093:3

method
1065:6,18

methodologies
1075:15

methodology
935:9
1076:23

metrics
1075:16
1079:12,1
4 1082:8
1083:25
1084:2
1086:8
1090:11
1092:23
1093:6

M-hm 986:6
1019:2,10

mic 923:13

micro
1098:16

microcosm
910:11

Microsoft
1096:22

middle
966:2
1001:23
1038:10

milestones
967:22

mill 994:21

Miller
889:14

million
899:15,17
908:22
909:2
913:10,12
918:12
928:24
930:18,20
931:5,6
941:5,24
942:22,23
943:15
944:3
982:19,23
983:15,18
,23 991:1
994:10,21
995:5,9
996:13
999:22,25
1001:21
1002:7,11
1003:13,1
7,20,21
1004:13
1008:1
1010:19,2
3
1014:19,2
0,23,24
1019:8
1020:5
1021:19
1027:15
1028:5
1029:8
1031:4
1041:6,12
,20
1046:2,14
,22
1047:4,9
1049:4,8
1050:7,22
1051:15
1052:8,16
1054:21,2
5
1055:1,5,
6,7,14
1067:16

millions
939:5

mind 939:18
951:6
983:9
1018:23
1023:14
1070:19
1096:17

minimized
1005:12

minus
913:12

minute
920:13
999:18
1074:25
1081:4,6

minutes
945:17
969:22
997:18
1009:16
1018:5
1039:5
1097:17
1099:15

missing
915:23
1025:5,12

mission
916:13

mistakes
915:7
917:3,15
975:16

Mitch
1043:19

Mitchell
911:3,11
918:18
919:1
920:4
929:7
941:20
944:19,24
1039:12
1041:23
1043:19
1049:23
1050:13
1051:7
1054:10
1096:18

Mitchell-based
1059:8

mitigation
1025:20

Mitra
893:23
963:6
972:21

mix 998:3

mobile
904:16
938:16,17
997:11

mobility
938:6

model
927:21,22
968:25
993:3

modeling
1091:4

models
992:24

modern
939:5

modernizati
on 903:8
905:20
917:9,13,
17 969:13
998:7
1000:4,17
1001:21
1002:8
1004:5,7
1070:25
1071:8,11
1077:25
1080:2,8
1084:10
1085:5
1090:24
1091:11
1095:13

modifying
983:14

moment
1060:16
1074:20
1096:2

momentarily
897:23

money
914:12
924:17
926:23
983:5
1036:1
1037:25

monitor
987:9

monitoring
951:17

month
1024:16,1
7

monthly
968:4

months
911:7
988:11
989:10
994:24,25
1096:24

morning
892:3,8,1
5,16,17
898:2
899:7
900:7
901:20
922:12,13
925:17,24
945:21
946:14,23
962:18
976:19
978:3
980:15
993:17,19
998:12
1006:4
1011:18
1014:11
1017:7
1018:12
1024:25
1028:19
1029:21
1042:24
1054:16
1057:24
1058:12,2
4 1060:1

motion
1048:13

mouth
1030:24
1059:5

move 906:13
912:18
931:9
946:5
948:15
1009:13
1039:8
1053:25
1059:18
1061:14
1072:2
1074:17
1079:23

1081:22

moved
1040:18
1061:19
1077:20

movements
1078:14

moving
918:13
938:20

MPI 888:5
890:5
891:5
892:9
894:11
900:25
902:15,19
905:25
907:21
909:25
916:2,19
921:10
926:12,19,22,25
927:1
928:4,9
929:3,10,21
930:1,18,22,24
932:1,4
933:6
935:2,5
938:1,13
939:17
940:2
942:6,9
944:17
945:5,21
946:2,22
962:11
980:25
981:1,8
982:11
984:17
988:9
989:12
990:24
991:23
992:2
993:10,12,15
997:14
998:2
1003:25
1004:1
1006:5,11
1010:15
1012:15,24 1013:17
1014:14
1015:5,10,17
1016:6
1017:17
1023:15,22
1024:3,9,21 1025:9
1026:3,7,21
1027:21,24
1028:20,25
1029:9,18
1030:7
1032:11,20 1033:25
1034:18,21 1036:2
1037:8
1038:12
1039:7
1040:9,15,17,20
1041:2
1044:6,11
1045:5,14
1046:6
1049:1,2
1052:15
1054:20
1055:9
1056:11,13,16,23
1057:5,9
1058:6
1060:3
1061:6
1063:12
1064:5,10,15
1065:12,20
1066:16,25 1069:1
1075:18,20,23
1077:5
1078:6
1079:3,16,22
1080:12,17 1081:22
1082:3
1089:14,22
1090:19,21
1091:2,24
1092:22
1094:7
1095:24
1096:11
1097:1

MPIC 893:19
895:2,9
896:23
898:14,17
900:15,19
918:8
943:3

MPIC's
893:9
931:6

MPI's
903:11
907:12
908:3
928:18
930:5
931:19,23
932:17
933:20
1013:18
1015:8,23
1025:13
1036:23
1037:2,18
1041:1
1056:14
1057:6
1058:21
1065:16
1069:24
1070:9
1073:14
1074:10
1082:23

multi
959:11

multimillion 912:2

multiple
958:11
959:12
965:5
970:18
1023:21
1038:25
1086:13

multi-stream
955:24

multiyear
912:2

multi-year
909:7
917:12,13
1011:4

myself
927:10
958:9
963:24
964:7
977:18

N

naturally
983:18

nature
948:14
956:14
958:25
959:10,21
1002:21
1003:4
1009:17
1050:10,25
1051:2,14
1060:13

navigate
1075:4

nearly
1032:3
1051:14

neat
1000:10

necessarily
951:3
989:14
1048:21

necessary
906:25
932:10
974:1
995:4

negative
908:2
919:7
930:19
1014:23

negotiated
913:16
982:2
1041:10

negotiating
929:15

negotiations 899:25
915:11
929:20
1029:25
1057:18

net 914:23
916:8
934:22
939:25
940:25
941:5,11
965:18
979:10
1014:13,23 1016:13

1018:13
1020:4
1021:17
1022:23
1042:25
1056:3
1058:14

network
981:21

newer
1061:20
1071:2

nine 897:7

ninety
1008:23

nonbusiness
904:24

North
910:21
916:23
923:5

note 988:15
1073:6

noted
1021:16

notes
1023:6

nothing
915:19
974:5

notice
904:16
920:15
990:9
1034:4
1049:18
1050:20
1051:4

notwithstanding
921:20

np 889:14

NPV
912:13,20
913:8,9,21 914:9
916:3
930:18,19,22,23,25
931:13,21
941:16
942:6,12
1015:17,18 1017:2
1031:4
1043:3,4,12 1044:3
1057:20

NPVs
1058:10

nuggets
1059:6,7

numerous
949:23

O

Oakes
889:12

objective
902:21
962:7

objectives
901:25
902:16
903:1,11
935:19

observation
1056:13
1057:13

observations 935:2
1057:7
1070:8

obvious
988:16

obviously
906:25
931:11,14
935:7

occur
1048:8
1086:19
1087:1

occurring
972:6
1002:22

o'clock
976:8
1010:3

October
888:23

offering
893:16
939:11
965:5

offerings
1095:19

office
947:20,24
948:16,19,20,25
949:2,8,14,15
950:17,22
951:16
955:20,23
958:10,20
959:5,8
960:25
961:5,10,16 962:4
964:1
965:4,24
970:1,25
972:14,24,25 973:2
977:19
991:22
1031:21

officer
893:5,7,12 896:23
898:6
927:16
960:10
964:12

off-the
904:15

off-the-shelf
911:16

oh 1021:10

okay 896:15
897:9,21,25 899:4
900:4,9,18 901:1
909:18
922:25
923:14
924:25
925:13,19
980:8,13,19 984:24
985:1
994:7
1002:2,5
1010:2
1012:12
1017:21
1019:5
1020:11,13 1026:19
1032:18
1043:6
1053:6
1059:22
1067:25
1068:11
1070:7
1076:18,25 1098:22
1099:8,10,14

old 927:11
938:7
971:15
998:14

older
1071:7

on-demand
939:22

ones 911:11
914:22
937:2
944:6
1062:1

one's
910:25

ongoing
905:14
907:4
941:19
951:8
955:23
965:10
996:2
1000:19
1001:3
1010:19
1011:7
1027:15
1061:9
1084:6
1091:13

online
920:15,16,19
921:12
996:18
998:24
1035:8

Ontario
1039:25

onto 994:17
1054:10

Op 1073:7

open 915:16

opening
969:12

operating
899:15
907:25
932:1
941:19
965:10
1021:1
1023:2,16
1024:1
1069:9

operation
1065:4
1071:20

operational
896:11

905:2,6
907:4
912:22
913:25
916:13
917:8
948:11
950:7,11
953:16
955:12
957:2
962:8,15
963:2
964:6,14,18,23
965:19
966:11
967:1
971:8
972:19,21
973:20
975:10
1057:25
1068:17
1072:4
1088:4

operationally 1080:6

operations
893:7,17
898:6
899:16
902:14
903:21
904:2,3
910:17
963:10
965:11
970:6
973:9
974:8
1034:10
1043:19,23 1062:3
1063:9,24
1064:20
1065:7,9
1069:5
1088:4,13

opinion
924:3
1025:19

opinions
934:21

opportunity
969:2
972:1
1066:12

opposed
1000:8
1014:19,23 1085:23

opposite
1045:13

ops 974:14
975:20

opt 1049:11

optimal
979:24

optimize
1049:7
1070:15

optimized
1049:11

option
1051:6
1097:9

options
990:14

order
933:15
936:11,12
974:3
986:15
997:24
1001:1
1018:8
1021:4,5,9,10
1022:4,15,17
1037:25
1044:15
1090:4

Orders
1023:15

org 952:18

organization 906:4
908:9
926:21
932:24
936:1
948:6
951:11
969:2
979:6
994:19
1062:3
1068:2,4
1071:6
1072:15
1075:10,14
1080:11,16,22
1081:25
1084:1
1085:7,9
1086:14
1090:1
1094:1

organizational
935:19
952:13
955:12
963:9,16
971:15
979:7

organizations 938:4

organization's
1070:21

organized
948:19

original
982:23
1004:19

originally
1014:19

others
910:20
917:19
989:20
1042:25
1093:13

ourselves
912:15
915:24
1061:12

outcome
934:12
936:9
937:17
1048:23
1095:15

outcomes
934:10
935:25
936:3
964:25
1039:21
1056:21
1057:8
1084:2
1086:9
1094:17,18

outfielder
935:14

outline
925:23
926:16

outlined
929:6
1067:6

out-of-the-box
904:23
905:9,17

outputs
903:22

outset
1058:9

outside
898:20
935:24
1072:24
1097:7

outsource
1072:20

Outstanding
1089:20

overall
914:9
918:12
919:6
930:4
931:13
940:25
957:20
991:25
1014:13
1019:8
1021:18
1034:9
1046:16
1051:21
1069:24
1073:19
1098:11,12

oversee
900:25

oversight
897:20
949:1
1072:4

overstating
941:15

owner
978:12

owners
956:21,25
966:22
967:2
977:22

ownership
937:12
1091:13

P

p.m 1010:7
1099:21

pace 940:4

page 890:2

891:2
910:2
913:4
916:11
935:17
940:16
951:21
957:9
960:18
963:8
968:8
969:25
971:5
973:7
981:13,14
982:16,17
986:11
1001:23
1004:11
1014:11
1017:5
1019:7,25
1021:8
1022:16
1029:12
1030:5
1031:8,9,16
1036:20
1038:10
1041:25
1042:14
1045:24,25 1047:7
1051:25
1054:1,10
1063:21
1064:2,3
1066:9,15
1069:22
1070:13
1071:18
1073:13,24
1074:2,18
1077:2,3
1078:21,22 1080:15
1081:24
1083:10,16 1086:1
1087:17
1090:15
1091:20
1092:21
1094:23

pager
912:25

pages
888:24
909:19
1014:9

paid 984:1
985:2
1036:9
1044:9
1045:25

paint
1044:8

paintless
899:21

paired
896:13

panel
888:12
890:5,6
892:9,10,11,16,19,24
894:2,11,12,24
895:13
896:3
901:14
924:13
945:21
946:2,20,22
1053:15

Panel's
1002:5

paper
918:13
1059:9

papers
977:23

par 1080:12

paragraph
940:22
961:24
982:18
983:24
992:4
1015:2
1019:12
1021:12
1022:20
1030:6
1083:23

parallel
959:13

parameters
1001:2

pardon
966:21
980:3
993:15
1025:2,23
1069:23
1076:14
1077:3

participate
1017:19

participated 896:9
901:6
1085:13

particular
942:21
943:9
1000:18
1066:5
1089:5
1090:3
1094:7

particularly 1059:13
1064:20

parties
915:22
1025:4
1039:9

partner
927:8
981:21
1017:25
1042:10
1043:20

partnering
895:25
896:13
1050:13

partners
984:23
1057:22
1093:15
1094:1
1095:14

partnership
901:8
964:8

partnerships 1094:16

party 993:7
1092:12

past 904:25
917:16
923:19
930:6
931:15
932:21
945:7
1013:15
1024:18
1037:11
1071:3

path 1003:3

patience
1098:4

PAUSE 922:9
923:10
945:25
1001:25
1032:13
1052:3,11,24
1055:20
1057:1
1060:6,18,23
1074:22
1075:1,7
1081:15
1082:1
1096:4,14

pay 907:2
913:18
985:8
997:19
1036:1

payback
1020:2

paying
943:3

payment
984:3,13

PC 936:11
938:7,8,10,16

PDR 891:3
902:6,11
913:7,23
914:9,25
915:8
917:5,12,19
918:11,12,21
919:20
920:3
926:3
927:4
928:6,24
929:22
931:15,17
932:16
933:22
956:20
957:17,19
959:25
960:5,19
963:3
969:18
972:10
991:25
1009:14
1012:10
1013:5,20
1014:7
1015:12
1016:21

1018:6,9
1019:1
1020:14,18,25
1021:15
1022:7,19,24
1023:8,16
1025:3
1027:6,11
1028:8,17
1030:9,20,22
1031:10
1036:5
1039:8
1040:5
1041:9
1042:1,3,5 1043:8
1044:25
1045:22
1046:18
1053:14
1057:19
1058:4,21
1059:12

PDRs 899:21

peer 907:12
1061:23
1065:17,19,20,21,22 1066:4
1070:4
1071:24
1074:10
1075:21,23 1078:18

peers
901:25
917:2
926:24
1013:3
1064:5,12,16,19
1070:10
1071:19
1073:16
1078:6,19
1080:12,17

pem 1064:19

penetration
983:1
1033:3

people
892:25
923:8
936:25
938:11
949:3
973:2
989:16
1012:23
1035:1,8
1094:12

per 908:4
986:23
987:2
1008:6,15
1009:1
1021:24
1031:11
1045:5
1054:21

percent
907:25
908:2,3
920:23
930:21,24
931:4,20
934:8,12,17,19
942:4,9
982:8,9
986:20,22
987:15,22
988:4
992:7
1017:1,2
1020:3,5
1021:24
1023:3
1032:3
1033:2,4,10,17
1035:13,18 1048:13
1064:7,11,12,15,16
1065:21
1070:1,2,5,10
1078:17
1079:3

percentage
907:24
1032:8
1069:25
1073:7

percentages
987:18

percentile
1065:21,23

perform
994:24
1048:15

performance
902:1
907:21
985:22
986:5,9
990:8
1089:9,23,25
1092:23

performing
1047:18
1048:17
1068:4

perhaps
892:21,22
894:7
906:16
933:12
942:16
952:22
963:13
990:19
1017:12
1026:20
1053:18
1071:10

period
931:7
960:21
968:17
969:8
1008:11
1010:24
1020:2,6
1047:24

person
910:17
950:2
990:21
1039:1

personal
895:20
934:21
1065:13
1069:6
1088:14

personnel
948:21
1007:9
1064:4,11
1094:3

perspective
933:5
939:14
948:11,12,22
951:24
953:16
960:2
964:23
965:8
973:24
975:2,5
997:15
998:2
1005:2
1024:2
1030:5
1041:1
1045:12
1048:20
1056:15
1057:7
1058:21
1085:20,21 1094:3

perspectives 926:7
1057:6

pertain
906:24

pertaining
906:22
1067:20,21

phase
995:8,11
996:1,12
997:6
1047:9,13

phases
970:18,19

Phoenix
927:18

phone
938:11,17
1039:2

phones
938:12

phonetic
918:18,19

photo-based
911:9

phrase
1028:12

physical
892:9,18
893:24
894:4
899:24
901:22
918:8
923:16
928:20
943:18
944:12
946:7
952:7
956:11,17
959:10,23
960:16
968:23
978:9
991:4
992:7

1018:25
1049:14

physically
928:9

picked
942:8

picture
910:7
921:23

pictures
911:12
920:17,20

piece
914:14
919:24
963:5
974:20
991:8
1069:6

pieced
918:22

pieces
915:25
951:10
1011:10
1041:17
1065:9

pilot
989:19

PIPP 899:25
900:1

PIT 979:15

P-I-T
980:1,5,9

placed
1000:2

plan 902:21
903:15,18
936:6
1016:21
1058:5
1084:14,15
1087:14,18
1088:16,17,19
1097:1

planned
1020:1

planning
924:5
977:7
1002:19
1088:21,24 1093:9

plans
907:15
936:2
989:12
1056:21
1057:8
1079:23
1088:4,15

platform
944:24
1039:12
1046:9
1049:17,22 1050:14
1096:20

platforms
994:18
1069:16,19,20

play 935:14
950:8
1071:11

played
950:4
1025:15

players
916:23

please
922:5
940:16
947:2
960:2
968:13
990:16
993:15
1001:7
1007:15
1020:14
1021:11
1022:15
1044:20
1057:4
1060:16,21 1061:1
1072:7
1074:20
1082:21

pleasure
997:6

plus 911:2
914:21
928:4,18
987:1
1035:3

point
904:17
905:8
911:23
912:4,11
917:21
930:1
956:20
984:20
985:5
993:12
1024:13
1031:6
1036:11
1040:7
1072:19
1087:10

point-four
1067:16

point-nine
1065:22

point-o
1067:17

points
1064:23

point-seven
1066:4

point-two
1052:20

policies
981:20
984:7

policy
913:1
1086:15

poor 944:14

population
1048:13

por 1042:10

Portage
888:21

portal
996:19
997:9
1042:11
1043:21

portfolio
899:19
926:25
935:7
1082:4
1096:22

portion
929:16
1066:5
1081:19
1099:23

posed 901:3

position
975:15

positions
908:20,24
935:15
1006:12,13,20
1007:6
1009:4

positive
912:13,20
913:21
930:18
1018:21
1039:21
1058:14
1091:2

positives
912:9

possibilities 945:5

possibility
937:2

possible
905:11
945:3,6
1021:10
1038:8,13

post 915:4
969:4

post-implementation
962:5

posting
1067:6

potential
999:1
1009:4
1011:9
1019:19
1068:20
1071:1
1088:25
1089:14

potentially
939:1
1067:7
1077:18

power
936:25
1056:22
1057:9,14

PPIs
1090:11

PPM 926:24

practical
1094:14

practice
911:17
915:14
921:14,15
933:18
993:1
1059:15

1084:3
practices 903:4 905:11 911:22 916:18 1013:1 1094:14
practicing 923:7
pre 990:21 1014:13
precisely 1016:10 1040:24
predict 990:25 1037:7,17 1038:3
predicted 1037:23
predictions 1037:18
predictive 990:18,21,23 991:14 1041:5 1043:22 1055:4
Predominantly 996:4
Preferably 969:10
prefers 1032:21
prelim 1070:24
preliminary 1048:16 1070:25
premium 914:3 943:4,7 981:20,24 982:1 983:6 984:7 985:14 986:16 1043:19 1054:15
preparation 897:17 906:22 925:11
prepare 1005:24 1063:12
prepared 923:18,22 943:10 967:23 1043:12 1061:16 1062:19
preparing 896:5 899:11 973:16 1077:14
prequalified 894:3 924:1
present 909:20 914:23 916:9 922:3 928:9 934:2 940:25 941:5,11 1014:13,23 1016:13 1018:13 1020:4 1021:17 1022:23 1042:25 1058:15
presentation 897:22 898:1 899:6 900:5 901:17 902:12 918:3 924:19,24 925:1,15,21 928:6 933:2 940:7,13 944:11 993:16,18 998:12 1006:4 1026:22 1027:20 1028:19,21 1056:10 1058:12
presented 975:14 1048:20 1057:24
presenting 897:23 899:7
preserve 1034:11
president 893:3,11 897:11 923:2
pressure 989:24
pretty 979:1
prevention 928:21 1055:4
previous 924:19 927:15 928:5,15 951:2 1007:14 1013:20,22 1018:6 1019:25 1021:6 1024:11 1030:20,22 1031:24 1060:2 1064:10 1066:8 1079:8 1080:15 1082:22 1095:18
previously 890:7,8,9 894:13,14,15 904:11 947:16 963:17 1016:19 1023:18 1024:3 1068:19 1079:18 1092:5 1096:18
pricing 922:24
primarily 897:19 926:2 995:12 997:14 1051:3 1068:6 1096:17
primary 964:3 1046:14
principal 952:1
principles 935:6 1015:12
printers 895:20 1065:14
prior 897:5,10,12 898:14,17 900:18,20,22 904:19 950:20 951:11 952:24 954:4 955:8 966:9 976:22 1004:23 1012:3 1070:1 1087:12,15 1091:10
priorities 1077:22
prioritize 1082:11
priority 1068:25
pro 899:17
probability 921:9 976:2
probably 914:15 918:4,24,25 919:5,7 969:12 1028:12 1033:3 1040:11,24 1041:21 1049:22 1071:22
probation 983:12 985:20
problem 907:19 1081:6
proceed 901:16 925:20

952:25
953:4,11,13
1048:24

proceeding
893:9
894:5
924:1

proceedings
946:14
947:7

process
900:23
902:5
905:10,24,25 906:1
911:25
912:8
913:1
917:7,20
919:14
933:14
947:4,15,18 950:21
951:2
952:23
953:8
954:3,6,9
955:14,17
962:2
976:21
977:2
980:15
1000:24
1012:3,4
1013:18
1036:13
1061:5
1062:4
1066:10
1067:6
1074:8,16,19
1075:13,14 1077:4
1078:1
1084:12
1086:7,15
1088:24
1089:4
1093:14,21 1096:9

processed
939:3

processes
902:3
905:11
975:1
1012:21
1034:1
1072:4
1075:11
1087:22

processing
938:25

produce
916:8
950:25

product
939:21
972:22

production
901:6

products
939:9,22

profiles
1051:10

program
892:18
896:1
900:24
912:2
923:17
926:25
927:22
928:6
929:2,5,24 933:22
943:19
944:12,17
951:9
959:6,13
969:14
974:2
980:21
985:10
988:10,20
989:13,21
990:1
995:11
1011:4
1012:11,25
1013:5,20
1014:7
1015:12
1016:16,21
1018:7,9
1019:8
1020:1
1021:1,21
1022:12,19,25
1023:3,8,17
1025:18
1026:13
1027:6,11
1028:17
1029:7,14
1031:11
1038:23
1040:5
1042:1,5
1047:23
1049:15
1054:12
1082:4,5,10,19
1083:25
1084:10

programs
960:19
968:10
998:18
1027:1,2

progress
907:12
935:5
1042:1
1065:3
1066:25
1067:14,18
1077:15,19 1080:7
1084:23

progressing
967:24

prohibitive
1048:3,8

project
890:6
894:12
902:6,11
903:25
904:14,19,20,24
909:16
914:9,18
915:4
917:14
918:9,12
919:5,15,21 921:18
924:21
926:8
927:4,19
929:13,17,22
930:6,22,25 931:3
932:25
933:3,12,18 934:6
935:6,8,9,12,19,21,24
936:7,9,11,12,19,20,21
937:6,13,14
941:12,14
942:1,7
944:20
946:7
948:10,14
949:8,11,12,18,19,23 950:12
951:17
952:8,12
953:19
955:22
956:6,9,13
957:15,17,19
958:3,7,22
959:1,4,6,14,23,25
960:16,20
962:12,24
963:3,5,9
964:1,21,25
965:5,18
967:4,21,22 968:20
969:7,17
970:10,18,24
972:23
975:16
977:18
978:8
992:1,15
994:13,15
997:1
998:13
1000:18
1002:10,20
1004:7,12
1005:3
1007:3
1014:18
1015:17
1021:15,18
1022:7,10
1023:5
1024:10
1025:16
1028:8,13,23
1029:3
1041:14
1045:22
1050:1,18,25
1051:3
1053:14
1058:14,16,21
1096:22

projected
908:21
931:18
992:10,20
1007:12,25
1014:19,24 1016:22
1036:22
1067:16

projection
1004:19

projections
928:24
932:2
954:8
1045:12

projects
902:5
903:20
904:18,25
905:23
906:21
909:4,7,9
910:3
913:5
914:21
917:6,13
918:6
926:10
927:12,13,25
931:3,21
933:10,17
934:7,10,14,20,23,25 937:9
944:10
946:6
947:15,21,24 948:8
949:6,16,17 950:24
952:1,14,24 953:9
959:12
962:9
963:11
966:25
967:10,17
968:16
972:7
975:21
976:21,23
978:16
980:16
993:19
994:9
1005:11
1006:6
1011:20
1027:1,5
1042:3,8,14,19
1045:15,16 1046:18
1052:6
1058:4
1068:16
1082:19

project's
966:18

promise
975:17

promote
989:12,16

promoted
988:10

promoting
988:9

promotion
990:6

promotional
990:5

proof
1047:14,18

proper
906:22
949:19
1015:8
1057:20

properly
971:10
972:7,15
973:3,22
1048:18

property
921:23
926:11
937:22
939:16
1051:10

proprietary
1081:7,10

prov
1038:23

prove 917:3

proven
904:13

provide
924:3
927:3
937:6
954:17
963:24,25
967:25
983:21
1012:22
1025:18
1026:3,8
1031:11
1032:19
1033:6,7,8 1045:21
1048:22
1060:2
1077:7,10
1081:1,21
1085:2
1097:25
1098:17
1099:4

provided
905:12
907:6
913:9
928:4,12,16 932:4
968:2
982:3
1024:3
1030:8
1031:1
1039:9
1043:1,3
1044:4,6
1049:2,3
1051:11
1052:17
1061:5
1066:1
1076:3
1088:6

provider
993:7

providing
926:20
934:3
964:16
1072:15

province
1039:14

proving
966:17

proximally
908:17

Pub 925:2
927:2
993:15
1020:15
1021:4
1027:21

PUB/MPI
986:7

PUB/MPI-1-46
990:16

PUB-19
891:3
1020:18

PUB-20
891:5
1027:24

public
888:1,5,20 889:6
893:12
898:7
915:11
923:17
925:3
944:14
954:8
970:16
1036:10
1052:15
1053:21
1076:24
1097:25

PUB-MPI
968:7

PUB-MPI-137
981:13

PUB-MPI-1-61 (d 1049:2

PUB-MPI-1-63
1045:20

PUB-MPI-1-66
960:13

PUB-MPI-1-68
1043:10

pull 922:4
940:13
990:16
993:15
1024:21
1026:21

pulling
911:21
1018:23

purchase
991:20

pure
1041:13
1061:11,20

purely
1035:14

purist
1041:16

purpose
902:18
1048:11

purposes
1051:20
1062:14
1090:23

pursuing
1049:23
1097:9

purview
965:2
966:14

push 913:2

putting
996:17
1059:4

Q

Q.C 888:13

Q1 984:2

QA 1018:2

qualified
924:4
981:10

qualify
983:3

qualifying
988:18

quality
916:8
965:8
987:5,10,18

quarter
1041:6

quarterback
919:4
1059:2

quarterly
968:2

question
919:11
947:3
956:2
967:13
971:24
974:7
975:7
976:18
983:8
984:11
1002:15
1006:7
1009:25
1010:15
1011:22
1025:9
1043:10
1044:21
1045:20
1052:14
1057:4
1058:25
1067:20
1072:5
1078:10
1098:1

questioning
945:16
952:18
969:23
976:18
1009:15

questionnaires
1062:13

questions
896:4
899:23,24
901:3,15
912:7
917:24
918:2
920:21
940:12
945:11,22
946:4,5,7,8,9,10,15,16,19,23,25
947:13
980:20
986:4
998:9
1006:2
1009:13
1012:9
1051:24
1053:13
1056:10
1060:10
1075:18
1097:12

quite 904:8
907:22
916:17,19
929:18
983:14
988:24
1047:14
1073:3
1085:7

R

radically
939:7

raised
898:19

ramifications 917:6

Ramping
1027:14

ran 898:25
978:24
979:15

Rand 927:8
928:8
1017:24

range
1065:24
1067:16

rapidly
1095:20

rate 888:6
891:3
908:2,4
930:21,24
931:4,20
933:17
942:3,8,11,17
1019:4
1020:3,15,18
1022:23
1023:4
1041:21
1046:8
1054:7
1067:11

rates 931:1
993:2

rather
924:12
934:17
948:14

ratio
1064:6
1071:23

Raymond
889:12

re 888:5
890:5
892:9
894:11
1018:25
1049:14
1095:10

Reading
940:22

ready
901:16
913:25
925:20
1033:16

real 988:6
1057:20
1061:23

realization
936:18
962:6
1019:21

realize
929:21

realized
1027:11

realizing
950:13

reallocated
1045:16

really
910:18
913:2,11,25 915:6
916:17
918:21
920:9
935:13
974:13
986:18
987:7,8
989:8
990:2,6,13 1034:25
1058:2
1059:11
1065:9
1072:13
1088:15

reason
966:24
1009:1,7
1024:1
1044:2
1047:12
1073:5
1078:11
1098:13

reasonable
1073:8

reasonably
1035:17
1093:19

reasons
913:15
914:19
988:14
1046:14

rebranding
1051:19,22

recall
1058:16

receive
997:23

received
1022:18
1079:16

recently 1096:23
recessing 976:10 1010:6 1099:21
recognition 961:25
recognizing 915:9
recommend 974:14 1058:15 1081:18
recommendation 954:21 955:1 960:9 978:15 1056:16 1083:13,18,23 1084:6,12,21 1086:1,19 1087:6 1088:10,20 1089:8,19 1090:6,16 1091:3,20 1094:22,24 1095:5,10
recommendations 896:10 907:14,15,16 1056:20,24 1057:11 1063:2 1075:20,22,24 1076:9 1082:23 1083:10 1087:21 1092:19
recommended 914:7 930:15 935:7 1089:5 1092:11
recommends 1088:25
reconvene 976:8
record 914:19 956:24 980:22 990:19 1004:4 1018:24 1027:20 1032:19 1047:4 1052:15 1053:21 1076:2,12,24 1097:25
record's 934:16
recover 1037:25
recoveries 1056:2
recurring 965:14
recycled 1037:10
redesign 995:13
redesigned 995:19
reduce 976:2 1035:14 1036:4,8 1038:16
reduced 1005:10 1038:17 1054:25
reduction 987:5 1003:13 1007:11,25 1009:1,8 1028:9,13,14 1034:2 1036:12 1055:13
reductions 1007:1,3,18 1009:8 1035:7 1041:10 1071:1
reengineering 943:19
re-engineering 892:18 894:4 901:22 905:5 944:12 946:7 952:8 956:12,17 959:11,23 960:16 962:20 968:23 978:9
Reengineering 918:8
Re-engineering 923:17
re-evaluated 1095:6
refer 953:7 956:24 991:7,10 998:10
reference 946:24 947:1 960:24 968:9 981:24 983:25 985:13 1026:20
referenced 982:17
references 1071:10
referencing 1040:15
referrals 992:24
referred 1015:3
referring 957:16 1005:13 1072:19
refers 1065:4
refine 1016:6
refined 930:5
refinements 1029:7,9
reflect 1023:4 1030:13
reflected 980:16
reflects 908:8
refresh 1039:8
regard 946:15 952:19 969:15 1060:11 1064:23
regarding 932:1 1011:22
regardless 1036:5
regenerated 1009:6
register 920:15,16 1025:17
registers 1025:17
regular 995:23 1068:21
Regulatory 893:22
reiterate 976:23 1014:10
re-labelling 961:4
relate 947:13
related 895:21 896:10,11,12 899:14,22 912:17 920:2 1034:25 1041:23 1046:7,8 1049:4,12 1065:13 1069:5 1075:24 1079:14 1082:19 1084:13 1088:16 1096:9

relates
1035:23
1041:8
1046:25

Relating
918:5

relation
1034:11

relationship 963:22
964:4
1017:17

relative
917:2
926:23
1013:3
1034:11
1064:19

relatively
920:10
983:5

relaxed
987:2

relevant
903:7

reliable
944:22
1039:10

rely 922:1
1061:12

remain
957:15
1041:18
1064:5

remainder
1027:6
1042:5
1097:12

remained
1028:4
1077:6,8
1078:8,11
1079:20

remaining
930:12
933:22
963:5
1007:19

remains
1066:11

remediation
1082:11

Remillard
890:11
893:8,10
894:17
895:25
900:10,11,13,16,22
901:2,4,11 950:3
952:9
954:2,23
955:2,6,9,16
956:7,10
957:12,16,20,23
958:4,8,17,21
959:9
960:1,6,11,22
961:2,7,11,15,20
962:19,22,25
963:4,12,14,19
966:4,8,23
967:7,12,25
968:11,15
969:10,20
970:4,8,12,15
971:13,18,22
972:4,12,17 973:13
976:17,25
977:17
978:7
979:5
996:7
997:5
998:18
1004:9,14,18
1005:13,16,23
1011:17,21 1012:6
1025:14
1026:9
1032:22
1044:23
1045:2,7,9,10,18,23
1046:3,12,16,19,23
1047:2,5,10,13
1049:5,9,13
1050:4,8,11,23
1051:2,17
1052:19
1053:1,6,9 1096:21
1097:5,24
1098:3,9,22
1099:1,5,9

Remillard's
1024:24

reminded
935:23

remote
1042:20

remotely
910:15

removed
1009:5
1055:18

rental
913:18
1035:4,24
1036:2,6,8

repair
899:21,24,25 914:3
915:18
918:15
921:1
929:15
944:25
980:21,23,24
981:7,11,18,21
982:2,4,20 983:3,6
984:7
985:3,13,14
986:10,16,18
987:3,6,19
988:10,16,20
989:9,12,17 990:8
991:5
1030:1
1033:3,16
1034:19
1042:10,16
1043:18,19

repaired
985:8

repairs
1033:17

repeat
984:11
1057:4

repeated
1063:14

repeatedly
1030:25

replace
999:21
1067:4

replacement
998:12,19
1000:4

replacing
965:15
998:14
1067:8
1091:17

report
894:4
923:18,22
925:11
927:2
928:13
930:17
932:5,13
940:14,19
943:10
949:13
957:5
963:23
966:12
968:2,4
1012:10
1013:7
1014:14
1015:4
1017:5,8
1018:3,14,18,23
1019:25
1020:24
1021:7
1023:21
1028:18
1029:12
1031:8,11
1040:17
1042:3
1043:15
1051:25
1054:2,4
1062:24
1063:3,9,17
1077:14

reported
932:2
979:22
1001:12
1003:11

1042:2
1044:25
1067:10
1084:18
1095:5

reporter
1097:18

reporting
919:12
920:12
943:14
949:3,16,17 959:13
999:9
1042:20
1047:1
1049:24
1052:7
1083:24
1092:19

reports
928:5,15
967:22
968:1
1013:24
1014:4
1025:17
1028:23
1029:4
1031:24

represent
903:12
982:8

representation
903:13
957:1

representatives
1025:10
1056:11

represents
1007:1

request
913:8
960:14
986:8
990:17
1004:3
1049:3
1061:17

requested
927:2

requests
932:1

require
967:18
969:15
973:2
1082:11

required
903:19
909:12,14
933:13
935:11,18
967:10
974:3
986:15
997:24
1031:5
1033:14
1034:3
1036:13
1085:6

requirements 939:18
1072:3

requires
950:6
1026:4
1094:2

requiring
912:22
968:10

research
926:7,20,25 933:23
934:3
1002:23
1012:17,18,23

reserved
1000:2

reserving
900:1

residual
996:9

resolving
1086:15

resource
936:6
971:9

resources
927:7
936:6,8
975:2
1017:9,14,22
1051:4
1067:5
1092:11

respect
924:8
946:11
953:6,9,19
954:3,20
955:11
956:17
957:19
959:23
965:11,14
966:18
970:23
971:21,22
973:8
976:20
978:15
980:21
981:15,21
986:5
994:8
1004:7
1005:10
1010:17
1012:10
1013:5,7,10,20
1021:13,14 1025:12
1032:2
1033:24
1034:9
1047:19,20 1049:7
1056:9
1057:6,7
1058:21
1064:3
1066:23,25 1067:24
1074:7
1077:2
1079:1
1080:11,16 1091:20
1094:8
1097:12

respective
962:10

responded
896:11
901:7

responding
946:25

response
953:25
960:17
962:22
968:7
980:6
981:14,16
982:16
992:4
1025:23
1049:1,3
1084:14
1090:18
1097:6,24,25
1098:4

responses
1075:18
1077:22

responsibilities
957:10
962:14

responsibility
895:18,21,24,25
949:1,20
958:9
1026:2,3

responsible
920:23
949:4,15
950:23
951:16
957:14
958:6
965:7
967:5
971:20
973:20,24
974:9
1093:2

rest
1097:21

restate
1017:17

restatement
1014:15
1015:5

restrictions 983:10

restructured 1027:5

result
947:17
983:8
1028:9
1035:2
1057:19
1061:13

resulted
1028:13

resulting
929:20

results
941:16
1013:18
1048:1
1063:18

resuming
976:11
1010:7

retain 1061:20
retained 1066:18,24
retains 1065:12
retrospect 932:4
return 945:22,23 1020:3 1022:24
returns 893:6
reused 929:8
review 897:20 900:23 910:16 913:6 914:7 954:10 955:17 962:4 965:7,21 970:2 973:11 974:11,23 987:1 1011:4 1018:8 1023:14 1024:18 1025:15 1026:12 1028:20 1029:8 1031:15 1053:10 1064:22 1066:17,23 1076:5 1077:14 1081:18 1085:21 1086:18 1087:1 1089:15 1091:12
reviewed 896:8 919:1 932:15 963:18 966:10 991:21 1021:7 1026:13 1066:23 1071:1 1088:5
reviewing 896:6 911:8 914:22 928:4 1024:25 1031:23 1089:14
reviews 915:5 917:19 927:19 962:5 1075:18 1093:5
revise 1004:1
revised 1028:4 1054:20 1055:6
revisiting 915:16
rework 917:20
RFP 1035:1 1096:9
Riel 893:14,16 901:8 961:11
right-hand 1003:10 1046:21 1066:15 1069:23 1072:1 1078:22 1087:25
rights 924:17
rigour 910:3 933:16 951:12 969:15
rigourous 932:18 1030:8,14 1031:22
risk 896:1,12 904:18,19 931:2,3,21 959:18 994:8,13,18 1005:12 1010:18 1025:17 1038:17,18 1039:6,11 1082:18
risks 1023:5 1082:16
road 910:24 919:4 928:21 997:19 1047:20 1048:17,19
roadmap 946:3
Robert 888:13,16 889:4
robot 939:1
robust 902:4 911:17 1093:13
Rodents 899:22
ROI 1091:18
role 895:7,14 897:1,10,12 898:10 899:14 900:15 909:20 923:4 924:22 950:4,9 962:15,23 966:6 1012:14 1025:11,14
roles 898:23,24 923:4 924:20 927:15 962:13 1035:15
roll 989:20 1069:7,13
rolled 915:6
rollout 927:4 1022:7
roof 1044:9
room 911:8
roughly 898:11 966:2 989:10 993:4 1003:13 1008:1 1041:12 1059:20
row 893:13,16 961:12
rule 897:13 950:6 987:2
run 904:7 993:8 1071:20
running 950:18 953:2
runs 910:24
rural 910:23 987:4

S

safety 928:21 1048:19
sales 934:4
satisfactio n 990:3
satisfy 1085:17
saving 1037:8
savings 908:22,24,25 909:2 929:17 933:16 990:17 992:10,15,21 1007:12 1008:1 1021:14 1027:10 1035:1,2,4,5,12,24,25 1037:9,22 1040:15,1

6 1054:25
1055:5

saw 893:20
931:5
989:1
1003:21
1058:3

Scarfone
889:6
890:14
892:14,15
894:20,21
895:4,8,12
896:2,15,18,22,25
897:4,9,16,21,25
898:4,9,13,16
899:4,10
900:4,9,14,18
901:1,10
906:11,12
907:7
917:25
919:10
921:17
922:2,11,14,17,21,25
923:3,12,15,21,25
924:7,11,25
925:8,13,19
940:10,11
941:3,7,17,23
942:2,14,20
943:1,8,12,17
944:1,7
945:10
999:7
1011:15
1033:5
1053:7
1075:3
1097:23

schedule
934:11
1040:4

schemes
1029:20

school
900:2
911:25
912:1,10
995:8,15
1047:8

Schubert
945:20

scope
957:15
1000:22
1001:2
1028:8,13

scoped
918:25

score
907:24
986:14,21
987:12,15,17,19,20,23
1013:11
1062:11
1063:7,24
1073:15,20,23
1074:10
1077:5,8
1078:21
1079:7,17,24
1080:17,23 1081:23
1083:2

scorecard
906:9
907:8,10,11,13
986:15
988:15
1013:2,12
1060:2,4,13,14
1061:6,10,14,15
1062:12,14,16
1063:6,24
1079:8,10,11,17
1080:15,22 1090:3
1092:10

scorecards
1062:11
1063:13

scored
1075:17
1079:6

scores
988:18
1062:9
1079:16

scoring
1077:2
1078:23
1080:21

screen
951:21
955:11
956:5
958:15
999:14
1003:10
1069:24
1070:8
1073:14
1083:17
1087:25
1092:21
1094:25
1095:4

screens
1075:4

scroll
940:15
999:17,20
1004:11
1007:15
1018:24
1029:12
1031:15
1041:25
1042:8
1047:7
1052:5
1054:5
1062:1

scrolling
1054:10

seamlessly
920:25

second
919:11
924:7
926:10
928:20
929:14
971:4
983:8
998:7
1001:14
1015:2,7
1026:25
1027:12
1029:1
1030:6
1032:3
1063:11
1068:23
1083:23

secondly
923:7
931:16

seconds
1039:5

secretary
894:8

section
951:20
1022:4
1044:21
1054:19
1062:19
1074:18

secured
1041:11

security
908:12
939:18
964:11
1082:16

seeing
1056:15

seeking
954:15
966:14
977:10

seems
924:12
974:18
993:6

seen 917:18
927:12,25
1079:18
1085:4
1090:2

select
988:19

selected
942:17

self 906:7
988:19
996:16

self-explanatory 924:12

Self-service
996:12

sell 997:24

selling
1012:18

senior
893:15
929:14
1017:9
1029:25

sense
913:25
918:16

919:9
974:18
975:23
1000:25
1001:1
1047:23
1059:9
1095:25

sensitive
946:11
1041:22
1097:13,22 1099:16

sentence
1022:10

Sep 977:4

separate
946:20
1092:13
1099:23

September
977:4

series
920:17
947:13
986:4
998:9

serious
959:21

serve 906:8
962:23
996:17
997:21
1047:16
1048:11

served
951:25

server
1065:10

service
893:7,17
898:6
908:8
927:21
928:19,22
938:16
939:15
981:1,3,9
997:17,24
1012:22
1038:16,25 1039:4
1065:14
1072:14,18,21,25
1093:4
1096:19,23

service-level
1092:25

services
897:15
939:15
975:4
991:16
1066:1,2,20 1072:3
1086:7
1092:6
1095:1
1096:12
1097:2

session
977:7
1053:12,16
1097:20,21

sets 985:4
1093:13

setting
954:6

seven
922:19
926:19
1006:13,19
1007:5,19
1027:3
1042:4
1067:12
1073:23

seventy
1008:17

seventy-seven
908:20

several
947:20
949:12
978:19
1045:15

severity
989:9
1035:21

shaping
902:4

share 928:1
934:21
1077:16

shared
958:9
1067:3
1077:22
1084:24
1088:14
1090:10

Shayon
893:23
963:6
972:21

sheets
1005:7

shelf
904:16

shift
909:24
916:7,15
950:7
1059:16

shop 899:24
981:5,21
982:14
983:13
986:16,21
987:25
988:17
990:7
1033:16,18

shops
915:18
918:15
943:4
981:10
982:2
983:3
985:13,22
986:10
987:1,6,8,12
988:16,18,25
989:1,18,24,25
1032:4
1035:14,19

shop's
985:25

short
964:16

showed
1011:6
1031:3
1055:4

showing
1005:4

shown
1000:10
1002:17
1045:9
1073:8

shows
931:8,16
934:22
1007:11
1016:20
1020:2
1069:24

shut 911:6
947:8

SI 991:11

sic 1020:14

sickness
1048:14

sideload
1085:24

sight
1011:16

signed
1036:11

significance 1015:21

significant
929:16
931:11
940:23
941:4
975:11
981:16
1014:12
1036:12
1091:1

significantly 903:9
905:2
1079:13

signing
911:15

signs
936:21

similar
897:13
966:9
1064:10

similarly
974:25
1033:23

simple
909:20
988:6
990:7

simpler
1034:1

simply
1035:9

simula
1047:19

simulation
1047:19

simulations

1047:20
simulator 1048:9
single 950:1 951:14 988:2,3,17
singular 1085:20
sir 895:5,9 896:2,19 897:1,17 898:4,10,15 899:10 900:5,15 901:2 922:14,18,22 923:15,21,25 924:2 925:14 940:18 942:15 944:8
sit 912:24
site 1029:4
sitting 893:25 997:17
six 1008:17 1075:13,17
sixth 1034:9
sixty-five 927:11 938:7
size 914:11 916:21 948:1,3 959:10 967:9 986:23 1059:14 1066:17,24
skill 935:11
skills 916:5,10 1068:24 1069:19
skip 1021:9
slide 906:15 909:3 912:1 993:17 1010:15 1024:21,25 1025:2 1026:23 1027:10 1056:12,19 1063:11 1065:3 1066:8
slight 1064:5
slightly 921:5
slowly 984:14
small 910:1,10 917:8 987:8 988:21 996:5 1011:11
smaller 914:21 987:6
smaller-sized 1005:11
smart 939:4
smooth 1000:10 1062:15
social 938:18
soft 910:5 912:6
software 895:21 905:9,12 939:15 965:13 971:7 973:17 974:15 1043:20,21,22 1046:9 1047:19,22 1048:22 1049:16 1059:9
software-based 918:19
solidified 1071:4
solution 922:24 978:22 979:2 1050:14 1051:5,7,21 1085:16,18
somebody 935:14
somewhat 954:18 989:7 1040:22 1071:4
sophisticated 932:22
sorry 902:10 904:23 922:5 934:15,19 959:1 984:10 994:21 995:17 1006:25 1007:13 1009:8 1011:2 1052:19 1055:22 1057:3 1067:19 1074:2,24 1075:14 1084:25 1090:23 1092:17 1099:11
sort 1004:6
sorts 1051:22
sought 928:11
source 1054:24 1076:2
speak 894:3 901:3 941:8 943:2 1029:20,24 1030:19,21 1041:22 1062:23
speaking 954:4 955:3 1034:17
special 991:11,22
specialist 893:15
specif 994:20
specific 946:6 948:15 952:24 972:10 1062:1 1065:6 1088:15
specifically 902:14 935:10 957:17,19 1079:13 1094:16 1098:6
specifics 997:12 1096:8
speed 1039:4
spend 907:24 969:11 996:8 1003:18,19 1004:15,17 1005:14 1034:10 1036:5,15 1040:14 1051:15 1073:6 1093:5
spending 924:17 926:23 958:1 1013:2 1045:22 1050:2,6,10 1051:14 1064:4 1092:20
spends 927:17 1064:11
spend's 1036:13
spent

898:19
927:24
1045:16

spitting
993:3

split
920:1,4

spoke
946:13
1042:24

sponsor
937:20
949:23
951:24,25
952:7
957:4,10
958:16,18

sponsors
904:24
937:11,15
966:17
968:1
978:1

spot 922:6

spread
1005:2

spreadsheets 1028:23

staff
963:23
974:3
1006:2
1064:15
1065:6
1066:2,18,24
1068:14
1069:2,8,12 1072:4
1073:3

staffed
1068:5,6

staffing
908:16
965:16
974:1
1064:4,19
1065:5,16
1066:25
1067:3,21
1068:8,12
1069:24
1070:9,14,18
1071:2,8,23
1072:23

stages
947:15
989:15
1093:10

stakeholders 936:25
1056:22
1057:9,14,22
1058:8

standard
911:10
915:14
944:25
945:3
975:19
989:8

standardization
1093:21
1094:3

standardize
944:19

standards
916:24
918:17
949:9,19
1021:23
1093:3

standing
985:14,18,23 986:1

start
894:24
902:20
929:11
936:21
945:13,14,18,22
946:4
954:16
963:20
973:13
976:25
984:18,19,22,24
1003:17
1009:17
1010:10
1014:8
1020:9
1037:13
1083:11
1097:1,5

started
925:5
928:3,13
1003:3

starting
903:14
908:20
936:4
984:19
985:5,9,20 999:22
1015:18
1051:6

starts
1021:12

state 926:3
940:23
1027:14
1048:18

stated
921:13
964:25
979:21
1004:20
1011:23
1023:21
1038:11
1064:22

statement
1007:14

states
961:24
1022:10
1066:9
1070:13
1072:2
1083:23

static
1000:9
1077:6

stating
975:9

status
949:6
968:1,2
1004:6
1025:16
1028:23
1029:4
1082:23
1083:3
1084:18,20 1086:18
1087:25
1089:13,19 1091:24

stay 903:6
915:16
936:7

steady
1027:14
1073:9

steal
945:20

steering
956:6,9,13,20
957:5
959:1
966:3,6,9,12,15
967:8
977:20,22
1085:11

step 1091:2

Steve
890:14
892:15
894:20,21
895:4,8,12
896:2,15,18,22,25
897:4,9,16,21,25
898:4,9,13,16
899:4,10
900:4,9,14,18
901:1,10
906:11,12
907:7
917:25
919:10
921:17
922:2,11,14,17,21,25
923:3,12,15,21,25
924:7,11,25
925:8,13,19
940:10,11
941:3,7,17,23
942:2,14,20
943:1,8,12,17
944:1,7
945:10
999:7
1011:15
1033:5
1053:7
1075:3
1097:23

Steven
889:6

Stock 899:1

stopped
913:22

storage
1065:10

straightforward

929:9
straight-line 983:5
strat 902:18
strategic 1027:4 1049:23 1084:14 1087:18 1088:17,19 1092:17 1094:1 1095:14
strategically 912:17
strategies 940:5 1025:20
strategy 896:14 901:7,24 902:18,19,23 903:2,5,9,13,17,22 906:7,18 908:16 909:10,11,22 916:12,14 927:20 936:4 979:8,21,23 1007:2 1035:3 1057:23 1067:1,3 1077:25 1080:1,9 1088:1,5 1093:17 1095:17,18
stream 928:25 932:3 1031:22 1032:9 1041:3 1044:25 1054:19 1099:18
streaming 947:8 1097:19
streamline 1059:10
streams 950:13 951:6
stretching 912:20
strip 920:7
strong 911:18 1039:16 1057:20 1058:2
stronger 1031:5
struck 951:12
structure 905:1,19 949:11 952:13 959:16 963:10 975:9,10 979:7 1063:22 1070:21 1086:12
structures 920:2
struggle 987:8
struggling 1044:12
student 995:20
students 995:21
studies 917:3
studying 1035:16
stuff 911:1 915:11 1041:22 1053:14
subject 901:15 913:6 1008:2
submission 978:5 1045:13
submissions 921:13 967:5
submitted 1082:5
subparagraph 983:25 985:12
subparagraphs 983:21
subsequent 933:2 1062:15
success 926:8 932:25 935:23 936:1,9 937:3 958:7 964:25
successful 926:10 933:3 937:3,6,20 938:3 950:6 1067:18
successfully 964:21
suggest 1053:8
suggestion 1053:18
suit 905:9 1039:3
summarize 1054:2 1086:6
summary 916:11 919:5 920:14 940:16,19 1011:7 1076:6,10 1079:19
summer 986:25
supply 934:3
support 893:16 906:5 914:23 924:23 933:20 938:24 971:8 973:10,23 974:1,2,9 1066:19 1069:10 1092:11
supported 930:14 994:18 1092:14
supporting 932:10 973:25 1068:16 1076:7 1090:24
supports 901:24
suppose 960:4
supposed 933:10
sure 892:7,12 900:22 903:2 904:12 908:18 910:6 914:12 917:10 923:5 924:21 928:14 934:16 935:24 937:10,19 954:1 971:20 974:18,22 975:22,25 980:7 990:1,10 996:24 997:5 998:23 1001:4 1007:16 1012:25 1035:16,18 1037:15 1047:13 1052:14 1057:25 1058:7 1059:12 1069:18 1071:18 1072:9 1076:24 1095:21 1099:17
survey 1063:23,24
swans 944:11
swear 894:8

swing 941:5
942:22
943:15
944:4

switch
1097:18

switching
898:23

sworn
890:7,8,9,10,11,12
894:9,13,14,15,16,17,18

system
893:19
911:2
919:1,12
920:12
943:14
973:10,23
974:9
998:24,25
999:2,9
1004:5
1035:9
1037:25
1039:12
1042:20
1047:1
1049:24
1052:8
1059:8
1069:9

systems
919:2
964:10
998:7,11,14,16
999:5,22
1001:21
1002:8
1004:7

T

table 890:1
904:5
925:23
947:3
986:11
998:8
999:14,18
1001:9,11
1003:21
1006:18
1007:9
1008:10
1009:4
1040:3
1046:21
1054:5
1073:14
1074:9

taking
906:19
917:23
1003:2

talent
1067:8

talk 901:21
902:3,6,11,17
909:3
917:4
924:23
925:24
926:1,17
927:13
930:16
933:4
936:24
991:24
1013:17
1057:21
1062:8
1064:23
1069:17
1088:13

talked
936:3
1011:3
1044:7
1096:18

talking
924:20
926:9
990:8
1092:9

talks
1093:17

tape 946:20

tapes
1097:19

target
908:20

team
912:3,23
926:1
927:6
930:6
953:23
954:10,21
963:23
972:20
975:25
1014:15
1015:5
1017:23
1050:17
1059:3
1091:25
1092:4,6
1093:1
1094:11

teams 916:7
935:8
987:1
992:25

technical
916:4,5,9
1038:17
1039:5,11

technique
930:23

technologically
916:22

technologies 1047:15
1069:7,12

technology
892:18
893:2,3
895:2,15,17
896:1,12,19 897:11
901:22
904:2,13
906:3,25
907:1
911:20
913:1
916:22
918:6
924:5,9,14 927:16
944:10,18
949:25
950:5
968:18
994:8,13,17 997:10
1010:18
1012:20
1035:2
1048:2,9,10,14
1069:9,10
1071:2
1075:15
1082:18

Telematics
1047:15,16,25

ten 911:7
940:1
1005:5
1020:7
1052:20

tend 968:16

tenth
1041:25

tenure
955:8

ten-year
1008:11

term 959:18
964:16
1051:20

termed
1015:21

terminate
933:21

terminated
1099:18

termination
1045:5
1052:8,16
1098:2,11,14

terms
914:20
928:3
934:10
936:9
983:11
987:5
988:7
989:8,24
991:2
1033:2
1041:15,19 1061:17
1077:17,20

test 997:19
1047:20
1048:16,17 1098:4

testimony
910:9
951:2
1011:17
1048:6
1051:11

testing
1047:24
1048:23

tethered
938:15

text
921:7,8
938:17

thank
892:7,13
894:7,21
896:2,15,17 898:4
899:4
900:4,9

901:1,10
906:13
907:7
909:18
917:25
919:10
922:2
923:12
924:25
925:13,19,22
940:11,17
945:12,23
947:4,9
950:15
951:15
952:10
954:19
955:10
956:4
957:3,8,24
958:12,14
960:12
961:22
963:7
966:1,20
967:20
968:6
969:6,16,21,23
971:3
972:13
973:6
976:4,7,16 980:19
981:12
982:15
983:20
985:11
986:3
988:8
989:11
990:15
992:3
993:14
995:7,25
996:11
998:6
999:6
1001:6
1003:7,24
1004:10,21 1005:9
1006:1,16
1007:21
1009:12
1010:3,4,11
1011:14
1012:8,13
1014:6
1016:11
1017:4
1018:4
1020:13
1022:2,14
1024:5,20
1026:11
1027:9
1028:15,24 1031:7
1032:25
1033:13,14 1036:19
1038:9
1040:2
1041:24
1044:19
1048:25
1050:19
1051:23
1053:21
1056:8
1058:11
1059:17,25 1062:17
1063:10
1065:1
1066:7
1068:22
1069:21
1071:25
1073:12
1074:2
1077:1
1078:20
1080:10
1081:20
1082:20
1085:1,25
1087:16
1089:7
1094:6,21
1096:10,25 1097:11
1099:8,18

Thanks
923:14

that'd
986:21

that's
894:4
895:3
898:8
899:8
900:13
901:18
906:15
908:1
911:10
912:18
913:3
914:19
919:5
922:16
923:20,24
924:6,10,22
926:14,16
932:7,12,24
934:5,24
937:4,5
938:12
939:7
940:7
941:22
942:1,5,15,19
943:11,16,22 944:5
947:2
949:20,25
950:1
955:6,11
958:8
960:11
962:20
963:8,12
965:17
966:24
967:12,17,19 968:2
981:22
982:9,13
983:10
985:16
987:23
988:13
991:3
992:13
993:4,16,21 999:14
1004:6,14,16
1006:15
1007:4,7
1008:12,18 1009:24
1012:6
1014:8,25
1015:14
1018:16,23 1021:10
1028:6
1031:19
1032:4
1033:4,19,21
1040:3,14
1045:18
1047:3,10
1050:20
1055:8
1056:6
1058:18
1059:8
1063:19
1064:13
1069:6,16
1073:4
1074:15
1076:12
1077:11,19 1079:9
1081:4
1083:16
1085:14
1086:10,20 1089:5
1090:8
1093:16
1094:19
1095:8,20

theme
1075:10

therefore
907:3
1048:24
1085:23

therein
940:23

there'll
912:6

there's
892:19,24
899:23
906:14
909:13
910:5
913:7
915:1
916:22
917:2
918:17
921:22
931:11,13
932:22
933:11,14
937:7,25
939:20
945:4
967:14
968:2,4,9
982:18
983:13,25
985:6,24
986:18
988:14,23
993:5,6
1003:12
1015:1
1034:21
1037:12
1055:13
1057:25
1073:14
1076:4
1081:10,11 1090:3

they'd

981:5
they'll 973:1
they're 911:11 934:1 938:11,14,16 965:6 973:22 982:4 985:20 994:4 1016:7 1035:20 1040:23 1044:14 1060:3 1068:13 1094:13
they've 911:10 930:7 1040:22 1061:10
third 912:11 915:22 928:21 940:22 985:12 993:7 1025:4 1039:9 1092:11
thirdly 931:19
third-party 1066:19 1072:2
thirteen 983:25
thirty 927:24 1066:3
thirty-four 1008:20,23
thirty-one 984:1
thirty-seven 1065:22
thousand 984:1 988:2 992:11,16 1055:10,14
three-year 960:20 969:7,17
threshold 1011:22
throes 1000:3 1094:4
throughout 936:23 937:13 951:11 1010:24
thrown 913:13
thus 1079:16,17
tied 1068:3 1084:9,12,14
ties 1003:20
timeframe 954:14,16 977:4 1093:18
timeline 984:7 1019:20
title 922:22 961:19
today 892:6,9,20 901:3,20 938:19,22 950:3 991:1,6 1016:8 1024:19 1035:15 1048:6 1051:12 1059:2 1097:20
today's 1097:21
tomorrow 892:12,13 985:8
tone 915:2
tool 930:23,25 936:12 942:7 990:18 992:5,10 1015:17 1078:23 1083:1
tools 1069:10,11
toolset 1061:19,20
top 903:21 915:2 956:5 966:22 968:8 969:25 972:23 982:16 998:8 999:17 1012:22 1014:11 1018:24 1019:25 1031:9 1044:24 1047:7 1078:16,22 1082:10
topics 899:20 902:13
top-performing 934:10
Toronto 899:1
total 899:18 913:23 986:20 987:12 992:6 1002:12 1004:12 1028:3 1035:5 1046:21 1049:7 1050:21 1054:11 1055:17 1067:20
touch 899:19 925:9
touched 948:7
touchless 938:24
toward 943:15 1042:1
towards 924:24 951:21 981:14,15 1051:7 1085:16
trace 1024:15
track 965:22 966:18 991:12 1036:24 1037:3,9,13 1083:25 1084:2
tracked 1040:15,16
tracking 933:8 1037:13
trade 915:12 984:23
trades 943:3
traditionally 954:3,13 955:2 956:12 967:18 1076:16
train 989:16 1069:12
trained 1069:8
training 937:18 1068:25 1069:2 1094:14
transact 996:19,22
transactions 997:13,20 998:1
Transcript 890:21
transformation 893:4

947:20,24
948:12,16
,19,25
949:2
950:17,22
951:16
955:19
958:20
959:5,8
961:5
964:1
977:19

transition
1062:15
1083:1

transitioned 904:1
1006:12
1079:10

transitioning 1051:5

translate
1002:1

transmission 958:10

transparent
1002:17

trends
1095:22

trickle
995:2

tricky
920:9

tried
1040:16

triggers
991:18,20

trip 939:11

Truck
1036:6

true 915:24
993:2
1037:18,21,22
1091:18

try 910:14
936:17
990:25
1036:4
1051:8
1058:7

trying
911:20
921:3
978:18
1050:13
1057:24
1078:15
1098:3

tune
1041:11

turn 909:17
918:1
973:14
997:3
1003:25
1051:6

turned
983:17

turning
920:18

twelve
988:11
994:23,25
1096:24

twenty
908:24
945:16
997:18
1005:5
1006:12
1027:1
1067:4,11
1097:17
1099:15

Twenty-nine
1021:11

twenty-seven
909:1
1067:4,14
1068:18

twice
946:20

twin 938:9

two-hundred
983:2

two-year
1005:6

type 911:16
990:4
997:10,23
1068:17
1071:20

types 899:2
917:5
976:2
981:7
991:4,5,25
997:13,25
1069:1
1096:7

typically
908:6,9
954:25
978:14
1072:18

U

ultimately
901:7
954:15
958:6,8,24,25
959:9,13,19,24
960:4
963:23
964:13,24
965:1,23
966:11,16,17
967:4,14,16 968:15
970:15,21
973:16,18
977:1,5,10,17
978:8
979:5
997:6,17
1048:17
1049:21
1050:15
1051:18
1098:5,17

unable
930:1

unchanged
1028:4

underneath
1036:1
1043:18

understand
897:22
899:5
910:6
914:13
917:11
921:18
923:16
926:23
930:9
935:15
941:18,24
942:20
943:14
947:14,19
952:11
963:9
972:14
988:9
993:18
998:13
1006:19
1015:9
1016:2
1018:5
1046:6
1053:13
1059:7
1060:10
1062:23
1075:11
1082:25
1084:6
1088:23
1090:22
1095:21

understanding 924:9
942:23
943:5
1033:22
1061:22
1085:22
1090:1

understands
987:25

understate
995:17

understated
942:16

understating
941:11,14,15
995:18

understood
928:15

undertake
1058:16

undertaken
1028:20
1036:4

undertaking
1026:12
1032:20,24
1033:7,8,14 1053:5

undertook
1090:21

underway
917:9
1066:17

underwriting 1035:19

unexpected
937:8

unit 914:11
929:19
961:6,8

973:24
991:11,12
1030:2
1092:16

units 957:2
964:2

unlikely
1000:9

unscored
1061:19

unusual
912:18

upcoming
1096:9

update
927:2
1082:24
1083:3,10
1084:20,24 1088:6
1089:5,21

updated
903:6
913:9
916:12
930:2
952:18
1015:13
1017:9
1024:6
1040:4
1055:9

upfront
915:4
917:18

up-front
936:16

upgrade
905:15

upgrading
905:18

upload
911:13

upon 892:1
925:9
948:5
976:10,11
1010:6,7
1038:5
1061:12
1071:5
1075:18,20 1099:21

up-to-date
1040:11
1041:2
1061:13

useful
916:19
988:24

usually
977:3,21
978:4
991:3
1068:5

Utilities
888:1,20

utility
935:14
954:8
970:17

utilization
1049:17
1094:25

utilize
1023:3

V

validated
932:7
968:19

validating
965:6
966:16

validation
969:5
971:1
1096:19

value 890:6
892:10,19
893:15
894:12
901:5,9,2 902:3,7
905:23,24
909:22,24
911:24
913:4
914:23
915:10
917:7
918:5
919:13,14,24 923:6
930:5
932:16,19,23
933:2,7
935:5,6
936:22
940:14,25
941:5,11
944:23
946:5
947:13,18
948:15
950:21
954:4
960:21,24
961:10,20
962:1,3
965:3,4,24 967:16
969:8,17,25 970:25
972:14,24,25
975:24
976:21
978:22
988:24
997:22,23
1012:4
1014:8,14,23
1015:11
1016:14
1018:13
1020:4
1021:17
1022:23,25 1029:1
1030:10
1031:21,23 1032:1
1042:25
1044:14,21 1046:7
1048:22
1056:14
1058:15
1061:23
1084:1
1089:2

value-managed
911:23

values
916:9

van 976:21

Vandewater
888:16

variance
982:19
986:20
987:24
988:4,19
1003:14

variances
989:4

varies
1093:11,16

variety
956:21

various
913:15
949:12
951:5
953:13
1031:24
1044:13
1068:12
1078:14

vary 962:23

vast
1046:24

vehicle
910:15
911:13
913:16
943:3
984:20
991:5
999:2
1033:16

vendor
895:22
905:12
1072:5
1091:21,25
1092:13,22 1093:1
1094:8

vendors
907:6
933:25
1085:12
1093:2,23

venture
906:23
1000:19

version
974:15
1018:14,18 1020:24
1080:9

versus
908:19
998:2
1008:6
1040:15
1064:16
1067:22,24

vetted
905:23

vi 977:21

via 996:18
997:10

vice 893:2
897:10
923:1
978:11

vice-president

893:6
896:19
898:5,14,
24 922:23
977:21
978:11

video-based
910:13

videos
910:15,25

view 917:23
926:5,11
932:14
952:12
983:5
1024:10
1037:4
1040:6,11

vision
1018:20

visit 981:9

visualize
921:24

vitae 922:7

VM 951:20

VM-1
1044:20

VM2 952:11
980:16

VM-3 963:8

VM4 957:9
961:23

voice
989:22

volume
983:4
986:23
1045:11

VP 927:10
966:21
978:12

W

wait 921:11

waiting
997:18
1033:17
1053:3,15

walk 952:22
1061:1

wall 1044:8

warranted
966:15

wasn't
920:6,9
941:18
943:9
972:8
984:20
1044:17,1
8 1048:21

watch
921:14,25
964:20
1048:7

watching
947:6
989:3
1075:3
1097:19

Watchman
889:4

ways 921:5
929:9
939:21
953:12
993:5
1082:15
1090:7
1091:5

weak
915:17,23

web 996:19
1039:2

we'd 911:1
913:22
940:15
983:2,6
1015:16
1032:10
1079:18
1081:8,11
1092:5

week 893:21
901:14
986:23
987:2
1025:5

weekend
892:4

weekly
968:1

we'll
892:20
909:25
912:15
914:14
917:23
925:20
927:13
933:4
949:12
952:17
975:24
980:25
984:16
987:9
1009:19,2
1 1010:2
1021:8
1032:22,2
3 1033:8
1036:17
1048:6
1051:21
1057:21
1059:20
1062:16
1081:10
1099:3,16

well-defined
951:2

Wennberg
890:8
893:6,8
894:14
898:5,8,1
1,15,18
899:5,8,1
3
900:8,10
902:2,6
909:17,18
918:1,3,7
,11
919:17
921:21
941:8
943:2
944:8
956:13,18
972:18
974:12
975:13
980:24
981:22,25
982:21,25
984:5,10,
15
985:16,19
986:6,12,
13,17
987:14
988:13
989:14
990:20,23
992:8,13,
18,22
1024:24
1032:15
1033:1,9
1034:23
1041:4
1044:22
1051:11
1056:18
1057:12
1058:12,1
8,23

Wennberg's
1048:5

we're
892:12
900:1
901:16,21
904:18
905:10,19
,20,24
906:4
911:17,18
,21
912:13,25
914:12,22
915:14
917:4
918:14
923:6
936:10,11
967:16
970:24
973:1
985:22
989:3
990:2,8,1
3 993:4
994:24
997:13
998:1
1000:3
1002:23
1003:18
1005:17
1011:5
1012:16
1024:9
1032:15
1035:9
1036:7,16
1038:1
1056:15
1075:4
1077:14,1
7
1078:15,1
8 1082:9
1092:9
1093:13
1097:16

Western
927:9
1018:1

we've 902:8
903:1
904:6
905:1
909:1
912:5
915:12
916:9
917:3

926:18,20
927:22
929:1
932:8,15
935:3
941:3
949:22
950:7
970:19
977:5
981:10
989:23
992:22
993:12
1004:24
1009:5
1013:1
1036:3
1041:10,11 1042:19
1044:1
1055:12
1061:7,19,24
1067:10,15
1068:17,19 1071:3
1077:4
1080:4
1082:5,13
1084:24
1085:4,10
1090:2,4
1096:18

whatever
938:13
1057:15

whereas
904:15

wherever
905:10

whether
899:20,25
917:5
965:21
991:21
1025:19,20
1037:4,17
1038:3
1047:16
1048:21
1053:19
1057:10

whole
908:18
944:17

who's 927:8
961:9
1017:16,25

wi 910:8
983:2

widespread
972:10,12

Williams
889:9
946:13,17
1053:13

Winnipeg
888:22
928:8
1018:2

witness
890:5
894:11
902:11

witnesses
894:8

wondering
1002:10

wording
1015:2

work 900:20
902:15
917:20
921:22
922:1
927:7
965:23
975:20,21,24 982:9
992:23
994:24
997:1
1002:20,21,22
1006:6
1016:4
1017:16
1024:12
1041:8
1044:15
1084:23
1089:3
1091:4,7
1093:2

worked
897:6
898:14,21
942:10
992:25
994:4
1049:20
1061:13
1062:10

working
897:5
910:12,13
915:14
916:14
925:2
926:19
964:5,8
1051:8
1093:14

workload
1007:3

worthwhile
910:19
1058:25

would've
954:6
956:2
958:6
959:24
960:5,9
1002:13
1016:8

wrapped
935:22

write
989:17
1035:21
1036:20

writeoff
1046:15,25
1047:8,12
1049:4

write-off
1049:8
1050:21

write-offs
975:11

writing
921:7
928:13
987:5
1032:21

written
1037:2
1098:24

wrong
919:19
971:24
1016:10
1040:24

wrote
928:13
1018:3
1019:16
1040:8

Y

yearly
1060:3

year-over-year
908:1

year's
925:6,11
970:16
1000:7
1001:10,16,17
1003:11,12 1004:24
1013:6,21
1017:8
1045:11,13 1056:15
1067:10

Yep 1013:13
1017:11
1019:15,23
1022:1,8,13 1025:7
1027:18
1029:2,16
1031:13

yet 894:9
909:14
983:14
989:21
990:1
1094:5

you'll
899:5
900:5
901:23
902:9
933:1
934:7
1009:22
1030:24
1099:4

young
1047:17

yourself
907:2
1017:22
1077:12

you've
917:18
923:25
940:19
951:1

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 23, 2018

Pages 1101 to 1161

APPEARANCES

Kathleen McCandless	)Board Counsel
Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
Anthony Guerra	)Insurance
Byron Williams	)CAC (Manitoba)
Katrine Dilay (np)	)
Raymond Oakes (np)	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

Page No.

List of Exhibits 1104

RESUMED:

MPI WITNESS PANEL 4 - IT/PHYSICAL DAMAGE RE-ENGINEERING PROJECT VALUE MANAGEMENT PANEL

BEN GRAHAM, Previously Sworn
CURTIS WENNBERG, Previously Sworn
BRAD BUNKO, Previously Sworn
LAWRENCE LAZARKO, Previously Sworn
JOHN REMILLARD, Previously Sworn
CHARLES HENRY, Previously Sworn

Continued Cross-Examination by Dr. Byron Williams 1108

Certificate of Transcript 1161

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
MPI-26	Final version of PreAsk 1	1106
MPI-27	Information technology and physical damage re-engineering presentation	1107
MPI-28	Mr. Chuck Henry's presentation on physical damage re-engineering from the Gartner Group	1107
MPI-29	Undertaking Number 3 response.	1107
MPI-30	Undertaking Number 4 response.	1108
CAC-18	Media release dated June 15th, 2016 regarding framework letters for Crown agencies.	1108
CAC-19	Actual mandate letter to Manitoba Public Insurance to the chair of their board	1109
CAC-20	Document dated May 20th, 2014 titled PD Re-engineering Program Charter	1109
CAC-21	PUB-MPI Information Response 1-75 revised September 5, 2014	1110
CAC-22	One-page excerpt from the minutes of the January 26th, 2017 Audit Finance and Risk Committee minutes	1110

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
CAC-23	Excerpt from the MPI board meeting dated February 2nd, 2017	1111
CAC-24	Excerpts from Board Orders from Order 151/'13 up to Order 130/'17.	1111
CAC-25	Gartner report from May 26 of 2017	1139

--- Upon commencing at 9:00 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair and members of the panel. Today we will continue the cross-examination of the IT value management and physical damage re-engineering panel, and that should be complete today.

MR. STEVE SCARFONE: Just before we begin, Mr. Chair, MPIC has some exhibits it would like to read into the record that have been previously filed.

MPIC has on Friday filed to Exhibit Number 26 which was PreAsk Number 1, circulated in draft form. The final version of PreAsk 1 we understand will be circulated and filed by the end of today which will include the pro formas and the DCAT modelling.

--- EXHIBIT NO. MPI-26: Final version of PreAsk 1.

MR. STEVE SCARFONE: MPI Exhibit Number 27 was the information technology and physical damage re-engineering presentation that was made to

the Board yesterday.

--- EXHIBIT NO. MPI-27: Information technology and physical damage re-engineering presentation

MR. STEVE SCARFONE: Exhibit Number 28, was Mr. Chuck Henry's presentation on physical damage re-engineering from the Gartner Group.

--- EXHIBIT NO. MPI-28: Mr. Chuck Henry's presentation on physical damage re-engineering from the Gartner Group

MR. STEVE SCARFONE: Exhibit Number 29, yesterday filed Undertaking Number 3 was responded to.

--- EXHIBIT NO. MPI-29: Undertaking Number 3 response.

MR. STEVE SCARFONE: And Exhibit Number 30, Undertaking Number 4 was responded to by MPIC.

--- EXHIBIT NO. MPI-30: Undertaking Number 4 response.

THE CHAIRPERSON: Thank you. Mr. Williams...?

RESUMED:

MPI WITNESS PANEL 4 - IT/PHYSICAL DAMAGE RE-ENGINEERING PROJECT VALUE MANAGEMENT PANEL

BEN GRAHAM, Previously Sworn
CURTIS WENNBERG, Previously Sworn
BRAD BUNKO, Previously Sworn
LAWRENCE LAZARKO, Previously Sworn
JOHN REMILLARD, Previously Sworn
CHARLES HENRY, Previously Sworn

CONTINUED CROSS-EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Good morning, members of the panel. Just by way of outline, there are a couple of questions for Mr. Graham that might properly have been asked last week, but by agreement with Manitoba Public Insurance we -- we moved them to -- to this part of the hearing.

So, I'll start off with those and then I'll move into areas of IT. We have a number of

exhibits, first, is a media release dated June 15th, 2016 regarding framework letters for Crown agencies which we are proposing be mark as CAC Exhibit 18.

--- EXHIBIT NO. CAC-18: Media release dated June 15th, 2016 regarding framework letters for Crown agencies.

DR. BYRON WILLIAMS: Next is the actual mandate letter to Manitoba Public Insurance to Mr. -- to the chair of their board which we're suggested be marked as CAC Exhibit 19.

--- EXHIBIT NO. CAC-19: Actual mandate letter to Manitoba Public Insurance to the chair of their board

DR. BYRON WILLIAMS: Next should be a document dated May 20th, 2014 titled PD Re-engineering Program Charter which we're suggesting be CAC-20.

--- EXHIBIT NO. CAC-20: Document dated May 20th, 2014 titled PD Re-

engineering Program
Charter

DR. BYRON WILLIAMS: PUB-MPI Information Response 1-75 revised September 5, 2014, we're asking be marked as CAC-21.

--- EXHIBIT NO. CAC-21: PUB-MPI Information Response 1-75 revised September 5, 2014

DR. BYRON WILLIAMS: The Board should then have before it a one-page excerpt from the minutes of the January 26th, 2017 Audit Finance and Risk Committee minutes which have -- we would recommend be marked as CAC-22.

--- EXHIBIT NO. CAC-22: One-page excerpt from the minutes of the January 26th, 2017 Audit Finance and Risk Committee minutes

DR. BYRON WILLIAMS: Then should be an excerpt from the MPI board meeting dated February 2nd, 2017, CAC-23.

--- EXHIBIT NO. CAC-23: Excerpt from the MPI board meeting dated February 2nd, 2017

DR. BYRON WILLIAMS: And finally, as CAC-24, excerpts from Board Orders from Order 151/'13 up to Order 130/'17.

--- EXHIBIT NO. CAC-24: Excerpts from Board Orders from Order 151/'13 up to Order 130/'17.

DR. BYRON WILLIAMS: And, Kristen, if you can pull up just from the transcript page 120 towards the bottom line 24.

And, Mr. Graham, a few questions for you. As a provincial Crown Corporation, you'll agree that it's important for Manitoba Public Insurance to be aware of government expectations for it; agreed?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And as part of that role, it is incumbent upon Manitoba Public Insurance to be aware -- aware of government statements as they relate to Manitoba Public Insurance; correct?

MR. BEN GRAHAM: Correct.

DR. BYRON WILLIAMS: And without asking you to elaborate, I'll ask you to confirm that on page 120 and 121 of the transcript, you have set out one (1) of the expectations of government to -- in terms of a reduction in volatility; agreed?

MR. BEN GRAHAM: Correct. If I can clarify that just a little bit. It would be remiss to think that I had not spoken about the volatility and the earnings of MPI over the last few years.

I can guarantee you that there has never been a discussion in relation to rights, what those rights should be and we are very much in compliance with the Crown Corporation Governance and Accountability Act.

DR. BYRON WILLIAMS: And I thank you for that clarification, sir. And on that theme, if we can go to MPI Exhibit 18, and specifically, paragraph 2. We'll just wait for that to come up, sir. I had misspoke, I meant CAC Exhibit 18. Paragraph 2.

And, sir, in the last sentence of that second paragraph you see the express intention of the government to work with the corporations without political interference.

Do you see that reference, sir?

MR. BEN GRAHAM: Yes.

DR. BYRON WILLIAMS: And that's consistent with what you've just indicated to me that you've received no direction from government in terms of rates?

MR. BEN GRAHAM: No, nothing in relation to rates. Remembering that it is the Minister responsible for, so, we obviously are going to discuss the financial outcomes of the Corporation.

DR. BYRON WILLIAMS: And referring you to CAC Exhibit 19, the framework letter sent by Minister Schuler to Mr. VanKoughnet.

MR. BEN GRAHAM: Yep.

DR. BYRON WILLIAMS: And specifically, paragraph 4, you see again in the last sentence the express need for government to find the right balance between performance and respecting the operational independence for Crown corporations.

You see that reference, sir?

MR. BEN GRAHAM: Yes, correct.

DR. BYRON WILLIAMS: And, sir, by your references to government expectations on the transcript, you were in no way suggest -- let me back up.

Speaking of independence, sir, you

1114

recognize the importance of the Public Utilities Board as an independent evidence base forum to test whether rates are just and reasonable?

MR. BEN GRAHAM: Absolutely.

DR. BYRON WILLIAMS: And, sir, by your references to government expectations, you were in no way suggesting that the PUB surrender its independent point of view to -- or subordinate its independent functions?

MR. BEN GRAHAM: No.

DR. BYRON WILLIAMS: Okay. Thank you. Mr. Bunko, was I right in -- well, it doesn't matter whether I was right, did you testify yesterday that in -- you've been in your current role for about four and a half (4 1/2 years), sir?

MR. BRAD BUNKO: Correct.

DR. BYRON WILLIAMS: And so that takes you back to 2015/2014, in that period, sir?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And you've been with Manitoba Public Insurance for about nine (9) years, sir?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And, sir, prior to joining Manitoba Public Insurance as an employee,

1115

did you have any relationship with it as an external consultant?

MR. BRAD BUNKO: No, I did not.

DR. BYRON WILLIAMS: I wonder if we can go to CAC Exhibit 22. And I'm not sure who's best entitled to speak to this or best suited.

Kristen, I wonder -- pull of that quote but then I wonder if you can go to, for a second, to the PUB exhibit from last year -- or it's PUB Information Response 1-2, Appendix 1, Slide 16.

To the MPI panel -- Kristen, yeah, go up just to the top of the page. You see that this is a -- minutes from the Audit, Finance and Risk Committee minutes that were filed as part of last year's hearing?

MR. BRAD BUNKO: Sure, yes.

DR. BYRON WILLIAMS: And in terms of attendance at the audit, finance and risk committee, would it be fair to suggest that it includes committee members as well as members of the Public Utilities Board?

THE CHAIRPERSON: Sorry, Mr. Williams, did you mean the MPI board rather Public Utilities --

DR. BYRON WILLIAMS: I totally misspoke.

1116

THE CHAIRPERSON: I don't remember us ever being there.

DR. BYRON WILLIAMS: It's early, Mr. Chair.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: In terms of who attends these minutes, you'll see at this particular one that there were board members present, Mr. Bunko?

MR. BRAD BUNKO: Yes, yes.

DR. BYRON WILLIAMS: As well as representatives from management? Scroll down a little bit, Ms. Schubert.

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And now if we can go back to CAC Exhibit 22. Mr. Bunko, you'll see a reference to Mr. Martin Geffen presenting a Gartner strategic assessment, which included advice on security and risk management of IT, along with the risk assessment of strategic initiatives.

Do you see that reference, sir?

MR. BRAD BUNKO: M-hm, yes.

DR. BYRON WILLIAMS: And Mr. Geffen was one (1) of the authors of the Gartner reports on the Physical Damage Re-engineering Project, sir?

1117

MR. BRAD BUNKO: Correct.

DR. BYRON WILLIAMS: And, sir, when we think of the Physical Damage Re-engineering Project, it's clear that it was an important strategic objective and initiative of Manitoba Public Insurance?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And so would it be fair to presume, sir, that Mr. Geffen and as part of his briefing to the audit, finance and risk committee, would have provided a brief -- a briefing in terms of the PDR in January of 2017, sir?

MR. BRAD BUNKO: That would've been one (1) of the components of his presentation. On an annual basis, Martin Geffen as -- as far as a risk service that he provides to the Corporation gives us an overview of the risk position of the majority of our initiative portfolio.

DR. BYRON WILLIAMS: And if we could pull up CAC Exhibit 23, being the excerpt from the Board minutes dated February 2nd, 2017.

And, sir, what you see here is a motion by members of the board to ratify the recommendation of the planning technology committee and directing your attention specifically to the second bullet, to finalize negotiations for coal development agreement

1118

to create a customer claims reporting system; is that fair, sir?
MR. BRAD BUNKO: Correct.
DR. BYRON WILLIAMS: And, sir, are you part of the planning and technology committee?
MR. BRAD BUNKO: I'm not a member, but I do attend the meetings.
DR. BYRON WILLIAMS: And would you have attended meetings of the planning and technology committee in 2017 as a -- or 2016 as it related to the customer claims reporting system?
MR. BRAD BUNKO: I believe I did.
DR. BYRON WILLIAMS: I'm going to turn to CAC Exhibit 20 which is the PD re-engineering program charter filed as part of the 2015 rate application as AI.10.
I'm not sure which MPI witness to -- to refer this to but I want to direct your attention to page 7 at the bottom and towards the top of page 8. So that's perfect, if you can leave optimized adjusting project at the top of the page, Kristen, that's -- that's great. Thank you.
Mr. Bunko, I see your mic's still on so I'm going to ask you -- oh, no, that was okay, I was going to ask you the question. Who should -- or is it

1119

you, Mr. Remillard?
MR. JOHN REMILLARD: Ask the question.
DR. BYRON WILLIAMS: Okay. In the 2014 program charter, I'll suggest that an important element of the charter is -- and the conception of PDR is it then stood was an optimized adjusting project; agreed?
MR. JOHN REMILLARD: Correct.
DR. BYRON WILLIAMS: And when we look at this dialogue relating to the optimized adjusting project, an important thing to understand, I'll suggest to you, is that on the bodily injury claim side of the business Manitoba Public Insurance as part of the BI3 initiative was using a product from FINEOS, F-I-N-E-O-S for the record.
MR. JOHN REMILLARD: That is correct.
DR. BYRON WILLIAMS: And what this -- MPI had also undertook a -- a fit assessment with FINEOS to determine it's fit both for a first notice of loss application, as well as replacement of the C-A-R-S, CARS, legacy system replacement; agreed?
MR. JOHN REMILLARD: At that time, that's correct.
DR. BYRON WILLIAMS: And directing your attention to the bottom of that paragraph, the --

1120

the hope of the Corporation, at that point in time, with that FINEOS would provide the Corporation with a common platform both for bodily injury and physical damage claims; agreed?
MR. JOHN REMILLARD: Correct.
DR. BYRON WILLIAMS: And at that point in time, FINEOS was also hoped to be a -- a good fit as a replacement for the CARS legacy system; agreed?
MR. JOHN REMILLARD: At that time, correct.
DR. BYRON WILLIAMS: And if we can pull up CAC Exhibit 21 being the ex -- the response to PUB-MPI-175 from the 2015 General Rate Application. And the second in page towards the bottom.
Mr. Remillard, you'll see that the intent at this early date was to provide a -- a breakdown of the project budget and forecast for the Physical Damage Re-engineering Project; agreed?
MR. JOHN REMILLARD: Agreed.
DR. BYRON WILLIAMS: And if we look to the bottom under "total project costs" we'll see a seven (7) year estimate in the range of $65 million, sir?
MR. JOHN REMILLARD: Correct.
DR. BYRON WILLIAMS: And if we look to

1121

the fourth (4th) line down from the top under Initiative, sir, you'll see reference to optimized adjusting, agreed?
MR. JOHN REMILLARD: Yes, I see it.
DR. BYRON WILLIAMS: And that's what we were just speaking of in terms of the intent to use it for first notification of loss, as well as the CARS legacy replacement, sir?
MR. JOHN REMILLARD: Yes.
DR. BYRON WILLIAMS: And if we go out to the extreme right we'll see that the estimate for -- for optimized adjusting at that point in time was around $32.6 million, sir?
MR. JOHN REMILLARD: Correct.
DR. BYRON WILLIAMS: Almost half of the total project cost?
MR. JOHN REMILLARD: Agreed.
DR. BYRON WILLIAMS: Mr. Remillard, if I could ask you to turn to MPI or the Public Utility -- sorry, let me back up. CAC Exhibit 24, tab 2, page 23.
And towards the bottom of the page that last paragraph and about five (5) or six (6) lines down, Mr. Remillard, you see the -- you'll agree that the Public Utilities Board was reporting back in 2014

1122

that Manitoba Public Insurance was expecting to realize 13 million in annual savings as a result of the PDR project to be offset by about 5 million in additional software licensing and other costs, correct?

MR. JOHN REMILLARD: Correct.

DR. BYRON WILLIAMS: And if we flip to page 33 of that decision, sir, towards the last two (2) paragraphs.

You'll see a reference, sir, in the second last paragraph to the Public Utilities Board in Order 151/'13 directing MPI a year previously to provide a five (5) year strategic plan and cost-benefit analysis for all IT -- IT projects having cost implications for Basic. Do you see that, sir?

MR. JOHN REMILLARD: I do.

DR. BYRON WILLIAMS: And just above that you'll see that the Public Utilities Board observing that MPI did not do so?

MR. JOHN REMILLARD: Agreed.

DR. BYRON WILLIAMS: And is that consistent with your recollection of the time, sir, subject to check?

MR. JOHN REMILLARD: Yes, subject to check.

1123

DR. BYRON WILLIAMS: And directing your attention, sir, to the second bullet on the last paragraph you see the Board ordering in 2014 MPI to file with regard to the PUB physical damage re-engineering or PDR project an updated estimate of projected costs and benefits associated with the project, sir?

MR. JOHN REMILLARD: Confirmed.

DR. BYRON WILLIAMS: I'd like to take you, Mr. Remillard, to tab 3 of this same Exhibit being Exhibit 24, slide -- or page 36 -- actually just page 37 at the top.

And again, sir, at -- at -- at -- on this page being an excerpt from 2015, you see the Board expressing concerns with the delay in implementing PDR, as well as the risks associated with the project, sir?

MR. JOHN REMILLARD: Yes.

DR. BYRON WILLIAMS: And it ordering MPI to file an independent assessment on the development and rollout of the PDR project, sir?

MR. JOHN REMILLARD: Yes.

DR. BYRON WILLIAMS: And that assessment was it to include the cost of the project and anticipated savings, as well, sir? Agreed.

1124

MR. JOHN REMILLARD: Agreed.

DR. BYRON WILLIAMS: Kristen, Ms. Schubert, if I could ask you to pull up PUB-MPI-2–25, figure 1, which is on page 2 of that Information Response.

Mr. Remillard, you'll agree that this figure sets out details of expenditures for certain impaired initiatives of Manitoba Public Insurance?

MR. JOHN REMILLARD: Confirmed.

DR. BYRON WILLIAMS: And if we can go down a bit farther on the page, Kristen, to the -- line 27 through 31 relating to the customer claims reporting system.

So, Mr. Remillard would it be fair to say that the expenditures set out in -- with regard to the '16/'17 year on customer claims reporting system or CCRS were in the range of $3.4 million, sir? 3. -- 3.385?

MR. JOHN REMILLARD: Oh yes. Thank you. Yes.

DR. BYRON WILLIAMS: And the expenditures in '17/'18 were in the range of $5 million, sir?

MR. JOHN REMILLARD: Yes.

1125

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Bunko, would you have read the commentary of the Public Utilities Board relating to information technology as set out in Order 128/'15 back in 2015, sir?

MR. BRAD BUNKO: I could say I would've, yes. I read each of the Orders as they come out.

DR. BYRON WILLIAMS: And, sir, would it be fair to say that before Gartner did its first report, i.e., the 2016 Report, concerns were being expressed about the PDR business case by the Public Utilities Board? Would that how you -- would that be how you interpret the decision, sir?

MR. BRAD BUNKO: I do see you requesting definitely more analysis on the project.

DR. BYRON WILLIAMS: And, sir, did you share those concerns in 2015?

MR. STEVE SCARFONE: Just -- can you -- help them with that question a little bit, Mr. Williams, share those concerns with --

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: All right, let me

1126

-- let me -- thank you. I appreciate that.
Mr. Bunko, in terms of the feasibility of the business case as it related to PDR globally, as well as indiveg -- individual aspects, did you have concerns with the business case as it stood in 2015?
MR. BRAD BUNKO: In 2015 we didn't have the wholesome business case that we have today. In fact, we did not have that thorough business case that contained all of the ongoing costs until very recently.
DR. BYRON WILLIAMS: So does that mean, sir, you were not concerned with the status of PDR in terms of the feasibility of its business case?
MR. BRAD BUNKO: That's correct.
DR. BYRON WILLIAMS: Mr. Remillard, in terms of --
MR. JOHN REMILLARD: What I would -- same question?
DR. BYRON WILLIAMS: Yes.
MR. JOHN REMILLARD: Ultimately, as Mr. Bunko, stated our business case at that time was focused on the benefit stream and the project costs. Ultimately, those were the areas of concern and -- and identified through the PUB.
At that time we had confidence that we

1127

would be able to deliver the project within said budget and that we were on track to deliver said benefits of the 13 million annually.
DR. BYRON WILLIAMS: Mr. Henry, I'd like to draw your attention to PUB Exhibit 19 which is the Gartner Report from 2016.
And, sir, I'm aware you had some conversation with My Learned Friend yesterday, so I'll try not to duplicate it --
MR. CHARLES HENRY: Thank you --
DR. BYRON WILLIAMS: -- too much, but I'm making no promises.
But, sir, when Gartner's commissioned to do such a report who is it preparing the report for; is it for MPI management, the MPI Board, the Public Utilities Board? Who does it -- Gartner see it -- it preparing the report for, sir?
MR. CHARLES HENRY: We see MPI management as our customer.
DR. BYRON WILLIAMS: And so, sir, you would not see, in this case, the Public Utilities Board as being the -- the body to whom you were presenting this report?
MR. CHARLES HENRY: We're working with MPI to help them satisfy their business requirements,

1128

so to the extent that this information is useful for the Public Utility Boards, then, yes, but MPI's the one who contracts with us, who pays our bills, who gives us our statement of work. So MPI's our customer.
MR. BRAD BUNKO: I -- I would like to add, the engagements that we have with Gartner and included in the statement of work is the specific Board Order that is produced by the PUB.
MR. CHARLES HENRY: Yeah, that -- that's correct.
DR. BYRON WILLIAMS: Okay.
MR. CHARLES HENRY: And you'll see that in the cover of my report.
DR. BYRON WILLIAMS: Now I want to direct your attention to -- in the -- page 2. Kristen, this is the PDF page 4 under Projected Program Schedule.
And, sir, in 2016 Gartner is characterizing progress on the progra -- program being the PDR program is steady but slow due to a number of changes in direction regarding the definition of the program and due to a number of shifts in the overall delivery structures, sir?
MR. CHARLES HENRY: That's correct.

1129

DR. BYRON WILLIAMS: And turning to page 21 which is probably PDF page 23, Kristen.
On the third bullet at the top of the page, Mr. Henry, you see Gartner expressing, I'll suggest to you, some -- articulating that there are some issues or there may be some issues regarding Mitchell's ability to develop and deploy the FNOL or first notification of loss product meeting MPI's requirements, sir?
MR. CHARLES HENRY: That's correct.
DR. BYRON WILLIAMS: And in the first full paragraph under those bullets you were advising Manitoba Public Insurance that one (1) of the key risks with the pro -- project was the ability of Mitchell's to deliver the expected outcomes of the FNOL project, sir?
MR. CHARLES HENRY: Yes, so Mitchell needs to build a product that would both meet MPI's requirements, but also be hopefully generally available to the marketplace so they had pressure on them to develop a product that would be extensible to the marketplace.
DR. BYRON WILLIAMS: And just to direct your attention to page 22, PDF page 24, at the top under Costs.

1130

Mr. Henry, you heard my earlier discussion with Mr. Bunko about the original desire to use pl -- FINEOS, F-I-N-E-O-S, to re-platform the CARS application, sir?

MR. CHARLES HENRY: I heard that, yes.

DR. BYRON WILLIAMS: And you -- you see that here in -- by 2016 Gartner's reporting that the re-platforming of the CARS application has been rejected, agreed?

MR. CHARLES HENRY: Sorry, I didn't write this report, my colleague did, so -- so, in fact, --

DR. BYRON WILLIAMS: That's not in your personal knowledge, sir?

MR. CHARLES HENRY: Correct.

DR. BYRON WILLIAMS: I want to direct your attention, again under Cost, to the bullets in the middle of the page under Key Risk.

The second bullet you see a description of the FNOL project as being innovative and fairly complex and new to the industry, sir?

MR. CHARLES HENRY: Yes.

DR. BYRON WILLIAMS: And, sir, you can take or reject this analogy, but when in law we use the word "innovative" or "novel argument," that's

1131

often a warning that -- that it's fairly risky.

When -- in your profession, when one uses the word of "innovative" and "new to the industry," what do those words mean?

MR. CHARLES HENRY: Risk is one, opportunity is another, right? So if -- if it's new to the industry then there is an opportunity to make more money, improve customer satisfaction, improve quality of service.

So, "innovative" carries lots of connotations around the ability to better serve clients, as well as a potential connotation of risk.

DR. BYRON WILLIAMS: Sir, on this page, just going down, still staying on the bullets, the fourth bullet you -- you flag a key risk area that there's no budget for ongoing support.

Do you see that, sir?

MR. CHARLES HENRY: Yes.

MR. STEVE SCARFONE: Mr. Williams, I just want to be careful when you're indicating "you." Just to make it clear, you're meaning Gartner, obviously, that Mr. Henry didn't author the report.

DR. BYRON WILLIAMS: And I -- I accept that, Mr. Scarfone. Thank you.

1132

(BRIEF PAUSE)

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: And ultimately, at page 24, PDF page 26 at the bottom, as you discussed with My Learned Friend yesterday, Gartner projected a positive net -- positive present value of -- in the range of $18 million for this program, sir. Agreed?

MR. CHARLES HENRY: Agreed.

DR. BYRON WILLIAMS: Now, directing your attention to page 27 -- sorry, PDF page 27, page 25, in actuality. And Kristen, down to the fourth bullet.

Sir, you again see a -- a reference to the fact that while there is a budget for one-time expense, there is not an estimate for ongoing support and maintenance costs.

Do you see that reference, sir?

MR. CHARLES HENRY: Yep.

DR. BYRON WILLIAMS: Now, Mr. Henry, you've described Gartner as a research firm?

MR. CHARLES HENRY: Correct.

DR. BYRON WILLIAMS: In your roles with Gartner, would you or -- does Gartner profess

1133

expertise in information technology, business analysis, or the conducting of net present value analysis, sir?

MR. CHARLES HENRY: Yes.

DR. BYRON WILLIAMS: Sir, in -- in your professional view, do you believe a credible net present value analysis can be conducted without ins -- insight into annual operating costs?

MR. CHARLES HENRY: Net present value is a tool to look at a project. There's many tools to look at a project.

So, the NPV of a project could focus on various elements of the project, but yes, to be a fulsome NPV analysis it -- it should include the ongoing operating costs.

DR. BYRON WILLIAMS: And sir, so as we look at the Gartner report in its totality, we have both observations about it, a net present value analysis, as well as warnings that -- that there is not an estimate for ongoing support and maintenance cost underlaying that analysis, would that be fair?

MR. CHARLES HENRY: Correct.

DR. BYRON WILLIAMS: Sir -- and if you cannot speak to this I'll -- I understand, but when presenting to the MPI risk and audit committee, what,

1134

if any, duty would Gartner have to flag the absence of operating and maintenance costs from the business analysis, sir?

MR. CHARLES HENRY: Yeah, I wasn't there. I don't know the contents of the report. So I -- I can't comment.

DR. BYRON WILLIAMS: And sir, I'm not speaking about what was actually done, but in that type of role, providing advice to MPI management.

MR. CHARLES HENRY: So I can say, yes, in other circumstances where I have been engaged we would say that there's elements missing of the analysis.

DR. BYRON WILLIAMS: Thank you for that.

MR. CHARLES HENRY: Which, if I might add, MPI is working on rectifying through their value of management process.

DR. BYRON WILLIAMS: Mr. Bunko, you read the Gartner 2016 report, sir?

MR. BRAD BUNKO: Yes, I did.

DR. BYRON WILLIAMS: And sir, after reviewing the Gartner group report from 2016, what, if any, concerns did you have with the viability of the business case for PDR, generally or FNOL specifically?

1135

MR. BRAD BUNKO: The benefit stream continued to look encouraging. The development that we had done on the CCRS project was still progressing. The project, in general, was -- still seemed very viable.

DR. BYRON WILLIAMS: I want to turn to CAC Exhibit 24, tab 4, being an excerpt from PUB Order 162/'16 and specifically to page 35. Towards the top of the page.

Now, Mr. Bunko, you indicated that you read the Public Utility Board Orders when they come in, sir?

MR. BRAD BUNKO: Correct.

DR. BYRON WILLIAMS: I take it -- I suspect that you read the Board's findings a little more closely than mo -- than the arguments of our clients, sir? I'm just teasing you, sir.

But you see here at the top of this page, our client arguing that the Board can have confidence in the cost benefit analysis conducted in support of the PDR because it didn't take into account the cost for maintaining the system.

You see that reference, sir?

MR. BRAD BUNKO: Yes, I see that.

DR. BYRON WILLIAMS: Turning to page

1136

37 of that same decision, Mr. Bunko, in the second paragraph there, you would -- you see the Board expressing concerns with the lack of business cases in the IT area, sir?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And at the top of that page you also saying -- see the Board expressing its understanding that the scope of the PDR has changed, yet there's no -- no change in the overall budget, sir? Do you see that reference?

MR. BRAD BUNKO: Yes.

DR. BYRON WILLIAMS: And Mr. Bunko, from your perspective the findings of the -- sorry, not the findings but the observations of the Board did not cause you to question the viability of the PDR business plan case, generally?

MR. BRAD BUNKO: Again, the -- the benefit stream still looked very positive, which was the -- culturally the focus at MPI.

The -- the need for improved business cases I believe had started to be evaluated and it was probably the early stages and us maturing business case methodology.

And pertaining to projects that were not continuing on, that had happened a couple times

1137

with the long duration of a project. It needs to be re-evaluated every so often to see what is still feasible, what -- what is still contributing to the overall project and -- and what is not.

DR. BYRON WILLIAMS: Mr. Henry, I wonder if I can take you to PUB Exhibit 20, which is the Gartner report from 2017, and specifically to page 2, which is PDF page 4, under PDR Program Costs.

Sorry, we've got the wrong document here. This is -- I may have misspoke. I'm referring to PUB Exhibit 20, from the 20 -- from the current GRA. Page 2. PDF page 4.

Mr. Chair, if I might step down for a minute, we just need to make sure we're on the correct page.

THE CHAIRPERSON: Certainly.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Chair and to MPI legal counsel, I may need some clarification. I'm -- I'm seeking to refer to the Gartner report from 20 -- the 26 of May, 2017.

My understanding was that that was referred to in the cross-examination yesterday and ---

1138

MS. KATHLEEN MCCANDLESS: It was Mr. Geffen's presentation.
DR. BYRON WILLIAMS: It was the presentation.
MS. KATHLEEN MCCANDLESS: Yes.
DR. BYRON WILLIAMS: So I -- so I would like to -- to bring forward the actual Gartner report from May 26 of 2017. I guess we'll have to make it an exhibit, sir.
THE CHAIRPERSON: Yes, we will.
DR. BYRON WILLIAMS: And my apologies for the -- the confusion.
THE CHAIRPERSON: Kristen, can you bring it up?
MS. KATHLEEN MCCANDLESS: I believe it's PDR A from the 2018 GRA.

(BRIEF PAUSE)

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Attachment A? Thank you. And -- and just before we get there, Mr. Bunko, just in terms of clarifying some terminology, then we'll come back to you, Mr. Henry.
When I was speaking to you about FNOL,

1139

you sometimes responded CCRS. And am I correct in suggesting that, in essence, that the program was re-branded to -- to -- to -- from FNOL to customer claims reporting service?
MR. JOHN REMILLARD: That is correct. If you want to go all the way back to the original charter, Mr. Williams, you could refer to it as optimized adjusting, because ultimately everything under that falls under that umbrella.
DR. BYRON WILLIAMS: Okay. And I thank you very much for that clarification.
So if we use the words "optimized adjusting," "FNOL," the acronym or the acronym "CCRS," we are, in essence, referring to the same concept?
MR. BRAD BUNKO: Maybe a little more refinement on CCRS specifically as to what its purpose was. A little more refined than the overall optimized adjusting term.
DR. BYRON WILLIAMS: Thank you. Mr. Henry, and I apologize to the Panel for the confusion, and this would be CAC Exhibit 25.

--- EXHIBIT NO. CAC-25: Gartner report from May 26 of 2017

1140

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: In terms of PD -- PDR program costs, the third paragraph, second line, at this point in time, being 2017, Gartner is expressing a high level of confidence in the projected spending of the program, sir?
MR. CHARLES HENRY: In the spending, correct.
DR. BYRON WILLIAMS: It's also suggesting prior concerns about deferred benefits realization or much reduced, sir?
MR. CHARLES HENRY: Correct.
DR. BYRON WILLIAMS: Going to PD -- to page 14, PDF page 16, under Overall Progress.
You'll see, Mr. -- Mr. Henry, that Gartner is still suggesting that MPI will need to monitor closely the CCRS product, and in particular the ability of Mitchell to develop and deploy this complex and innovative requirement. Agreed?
MR. CHARLES HENRY: Agreed.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: If we can go back to, Mr. Bunko, CAC Exhibit 24, tab 5, page 55 and 56.

1141

Mr. Bunko, I'm just going to give you a couple of seconds to look through that page. And when you're done let me know and then we'll flip -- flip to page 56.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Do you have that, sir? And then to page 20 -- 56. Just the first paragraph, sir.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Sir, you'll agree with me that by this time the Public Utilities Board is expressing a fair bit of concern with the PDR program?
MR. BRAD BUNKO: Yes, I would agree.
DR. BYRON WILLIAMS: And by this time, sir, did you share these concerns?
MR. BRAD BUNKO: I believe the -- part of what the Board's concerns were included the Gartner independent assessment.
DR. BYRON WILLIAMS: So you did not share these concerns, sir?

1142

MR. BRAD BUNKO: With whom?
DR. BYRON WILLIAMS: With the -- the business case for the PDR program? You did -- what I'm asking, sir, my question was imprecisely worded, so I apologize for that.
What was the level of your concern with the feasibility of the PDR business case at this point in time, sir?
MR. BRAD BUNKO: So the business case, as I'd previously mentioned, did not contain all of the operating costs. The business case was more on a value benefits case and that value benefits case continued to be positive, showing a return of $13 million per year.
The other indications as to why projects were being stomped was part of the re-evaluating of what would be beneficial to the project and what would not be beneficial to the project.
So, internally, it was determined that the project needs to continue on to realize the benefits stream that was identified.
DR. BYRON WILLIAMS: Mr. Wennberg, just a couple of questions for you, sir.
In terms of the eighty-one dollar ($81) premium related to the 2017 light vehicle

1143

accreditation agreement, you recall the discussion you had with My Learned Friend yesterday, sir?
MR. CURTIS WENNBERG: Yes.
DR. BYRON WILLIAMS: And without intending to repeat that conversation, sir, it would be fair to say that this type of premium payment is not undertaken by other Crown or private jurisdictions; would that be fair, sir?
MR. CURTIS WENNBERG: That's fair.
DR. BYRON WILLIAMS: And would it also be fair to say, sir, that prior to the March 2017 agreement, MPI did not pay estimating fees to repair shops when the repair shops were, indeed, conducting the repairs?
MR. CURTIS WENNBERG: No, and you could argue that that was also a part of them doing the pilot at that stage.
So we had a -- a number, seventeen (17) shops that were helping us by establishing this program and they were in pilot mode, so we weren't going to pay for them while they were in pilot mode.
And just to clarify that there was a two-year agreement for the eighty-one dollars ($81), the first year nobody got paid the eighty-one dollars ($81) at all, it would only be the second year that

1144

they get paid. And in that way we allow others to establish themselves to get into the program.
DR. BYRON WILLIAMS: Now, going to the value management Appendix 6, slide 15, Mr. Henry, which is a -- I'll suggest to you is a Gartner document.
You're familiar with that document, sir, I'm sure?
MR. CHARLES HENRY: Yes.
DR. BYRON WILLIAMS: And in terms of the reference to the eighty-one dollar ($81) premium, Gartner indicates that the cost was not reported to Gartner until after the 2017 reports, sir?
MR. CHARLES HENRY: That's correct.
DR. BYRON WILLIAMS: Do you know when it was reported, sir?
MR. CHARLES HENRY: I do not.
DR. BYRON WILLIAMS: Mr. Remillard, PUB MPI 1-69(c), on the second page, if we go there, Manitoba Public Insurance indicates that it did not share the repair shop agreement, but that it did share relevant aspects of the agreement, including the direct repair eighty-one dollar ($81) premium, agreed?
MR. JOHN REMILLARD: Agreed.
DR. BYRON WILLIAMS: Sir, do you know

1145

when Manitoba Public Insurance shared the eighty-one dollar ($81 premium information with Gartner Group?
MR. JOHN REMILLARD: My recollection it was part of this year's assessment.
DR. BYRON WILLIAMS: And if you're not able to answer this, Mr. Remillard, I understand, but is there some reason why this information would not have been shared with Gartner earlier?
MR. STEVE SCARFONE: I think the -- the answer is provided in (c), in the document that's on the screen, Mr. Williams.
DR. BYRON WILLIAMS: Well, I'm not sure it is, so Mr. Scarfone let me try this a different way.
MR. STEVE SCARFONE: Okay.

CONTINUED BY DR. BYRON WILLIAMS:
DR. BYRON WILLIAMS: Mr. Remillard, in terms of the assessment of the business case that Gartner Group was undertaking, was it the view of Manitoba Public Insurance that the direct repair eighty-one dollar ($81) premium was not relevant?
MR. CURTIS WENNBERG: I can take that. In some management discussions at that time, the culture and the review of the eighty-one dollar ($81)

1146

premium was that it was a tooling expense, it would be more of an operational expense for repair shops that -- that would be in the direct repair program.

And therefore, it wasn't necessarily related to direct repair. It was going to be just a source of funds that would be used to help those shops that are just going to have to increase their expense on tooling to get prepared for the new cars to come.

Obviously, you see by this point in time, our internal view of this is that it's far too directly tied to direct repair and, therefore, if we are going to be holistic and do these business cases in a way that any multinational would do it, we must assign this to PDR and -- and it must take place.

DR. BYRON WILLIAMS: Thank you for that answer. At benchmark attachment A, slide 17, and Mr. Lazarko, I have sadly neglected you today, sir.

Sir, this slide provides some insight into the -- the new Gartner benchmarking analysis that is going to be under -- undertaken for Manitoba Public Insurance, agreed?

MR. LAWRENCE LAZARKO: Correct.

DR. BYRON WILLIAMS: And one (1) of the elements of this analysis will be an executive view; agreed, sir?

1147

MR. LAWRENCE LAZARKO: That's correct.

DR. BYRON WILLIAMS: And, sir, would it be correct to suggest that the executive view does not provide benchmarks?

And let me -- if that question is imprecise let me try that a little more elegantly.

Would it be correct to suggest that the executive view does not -- not provide a peer comparison or benchmark similar to what we might see for other elements of the new Gartner analysis?

MR. LAWRENCE LAZARKO: That's my understanding, yes.

DR. BYRON WILLIAMS: And, Mr. Lazarko, you recall a conversation with My Learned Friend, PUB counsel, yesterday in terms of the business process management assessment under the previous Gartner assessment tool?

MR. LAWRENCE LAZARKO: Yes, that's correct.

DR. BYRON WILLIAMS: And sir, under the new Gartner tool would it be accurate to say that the business process management will, essentially, be rolled up into the executive view?

It won't be reported separately anywhere, sir?

1148

MR. LAWRENCE LAZARKO: Can you advance to slide 18?

DR. BYRON WILLIAMS: Yes, slide 18.

(BRIEF PAUSE)

MR. LAWRENCE LAZARKO: Based on the statements from Gartner in the first paragraph, I would say it's rolled up into multiple criteria and not specifically the executive view.

DR. BYRON WILLIAMS: Okay, thank you for that, sir, that helps with my understanding.

Mr. Chair, I want to assure you that yesterday at about this time I had about four and a half (4 1/2) hours of cross. We spent a lot of time trying to eliminate duplication with My Learned Friend, and that concludes our questions of this panel, sir.

THE CHAIRPERSON: Thank you.

Does the Board have any questions? No? Okay. I have some questions.

Mr. Graham, when you came on board to MPI and you took a look at the IT system in place, what were your initial thoughts?

MR. BEN GRAHAM: As mentioned on the

1149

first day, I felt that a number of things were a little initiative, a little bit too in-house, hence, my point around the fact that if we were to replace our legacy systems that it should be more off-the-shelf and tested in other jurisdictions before we decide to spend money on it.

THE CHAIRPERSON: We just heard that the business case didn't include operating costs. From your experience was that something you saw as normal, or did you find that surprising?

MR. BEN GRAHAM: I would find that surprising.

THE CHAIRPERSON: Were you surprised that in many instances there were no business cases done on these major projects?

MR. BEN GRAHAM: I -- yes.

THE CHAIRPERSON: Mr. Bunko, I believe in your testimony you talked about how the starting point for IT now is the business objective from the business plan, is that correct?

MR. BRAD BUNKO: That's correct.

THE CHAIRPERSON: What was it before? If the starting point is now, what was your starting point before?

MR. BRAD BUNKO: We lacked a starting

1150

point. That's where the difference came in, I would say, as to where the new technology ideas were being initiated from.

THE CHAIRPERSON: Well, I'm having problems with that.

I can understand where the starting point may not be a document, but there has to be a starting point. Is the starting point a -- a meeting of people, a directive from above? I mean, what's the starting point?

MR. BRAD BUNKO: Okay, the starting point previously then would have been the strategy department.

THE CHAIRPERSON: And at that point who was running the strategy department?

MR. BRAD BUNKO: I'm not sure, I don't recall the individual's name. But he reported to the CIO and eventually became the CEO.

THE CHAIRPERSON: And did you have any input into the IT strategy?

MR. BRAD BUNKO: It was a broader business strategy that they dealt with. When it translated into the IT strategy, I did have input.

THE CHAIRPERSON: You mentioned as well that the IT strategy is updated annually now.

1151

When did it start being updated annually?

MR. BRAD BUNKO: This will be the first -- first year we'll be updating it annually.

THE CHAIRPERSON: Thank you. And I can't remember if this was Mr. Bunko or Mr. Remillard, on the discussion of value management the testimony is there is rigourous review now.

Mr. Remillard, was that you?

MR. JOHN REMILLARD: That's correct, sir.

THE CHAIRPERSON: Since when is there rigorous review? When did this start?

MR. JOHN REMILLARD: This -- this year, sir.

THE CHAIRPERSON: So there were -- you would not view any previous review as a rigourous review prior to this year?

MR. JOHN REMILLARD: Not as thorough or involved, no.

THE CHAIRPERSON: Can we -- Kristen, I don't have the number, but it's the presentation, the MPI presentation from yesterday. Yes. Could you go to page 13?

There was some discussion on this. I'm

1152

interested -- I guess it was Mr. Remillard, corporate culture and tone from top is essential for the integrity of project budgets and post implementation reviews.

I don't know, was it Mr. Bunko or Mr. Remill -- oh.

MR. CURTIS WENNBERG: These are my slides.

THE CHAIRPERSON: Oh. Okay. What did you mean by that, "corporate culture and tone"?

MR. CURTIS WENNBERG: Well, I think what you've heard through some of the testimony here is that the culture was not one where we were looking either internally or externally at transparency in terms of what was happening with these larger projects.

And -- and sometimes we might've changed what was in scope, did things that you would say per Mr. Graham's testimony and mine, you wouldn't see in other multinationals. And the culture is critical to do this.

THE CHAIRPERSON: In your testimony as well you -- you stated that the new structure and governance is better now.

Is that the reason, because you're

1153

starting to look at these items now?

MR. CURTIS WENNBERG: Yes, I think -- I think there would've been an omission if we didn't realize that, at my level, or at Brad's level, back in, let's say, December of 2016, January 2017 one (1) of the late -- biggest issues we had to spend money on was CCRS. And we did take a look. We tried to understand what would be the business case of CCRS before we signed a Mitchell contract.

In -- in doing that, though, as an example, there was no appetite to review that and proceed further in an NPV, and I -- the culture at the time was, we have approval to proceed with PDR as it is and what's an unwritten assumption on top of PDR is that there's roughly a $30 million per year labour rate differential with what MPI pays our repair centre -- or shops here, versus to Saskatchewan.

It was not something that was expected to be on the public record, because we wouldn't want to highlight that difference so that we would be exposed to that in any negotiations.

But I can tell you that -- in this forum is that when we review our pay rates for repair shops across all of Canada, we are near the top, we're third or second in all of Canada, and therefore,

1154

that's probably not a valid assumption that I would put into a business case, and therefore, it's not protection for the overall PD as a project on a whole.

However, from a cultural standpoint that was something that would push down or -- or make people avoid doing any more NPV or specific NPV analysis on things, and that's just the way it was.

THE CHAIRPERSON: I believe that at the outset during your direct testimony there was a comment made that the mistakes were made in the past. I'm not sure if it was Mr. Graham or someone else's.

Is that one of the mistakes?

MR. CURTIS WENNBERG: We both said it.

And was that -- was what a mistake?

THE CHAIRPERSON: The -- on the NPV.

MR. CURTIS WENNBERG: Oh, absolutely.

THE CHAIRPERSON: Mr. Henry, Gartner, in your testimony, Gartner said -- Gartner -- sorry.

In your testimony, you indicated Gartner didn't receive requested details.

MR. CHARLES HENRY: Correct.

THE CHAIRPERSON: You also said that Gartner was not aware of some of the ongoing costs, is that correct?

MR. CHARLES HENRY: That's correct.

1155

THE CHAIRPERSON: Further, you weren't aware of the eighty-one dollar ($81) premium.

MR. CHARLES HENRY: In 2017, that's correct.

THE CHAIRPERSON: And you weren't aware of the pending CCRS decision?

MR. CHARLES HENRY: Not in 2017, no.

THE CHAIRPERSON: If Gartner had been aware of those matters, would it have changed your report?

MR. CHARLES HENRY: The report would have been firmer that more analysis needed to be done on the data to make sure that the project continued to make sense.

As I said in my presentation, IT projects are hard. The vast majority of IT projects don't deliver their expected benefits. So managing to benefits is one of our key best practices. So it's great to see value management in place and continued investments made in it because, you know, the fundamental success of IT projects means managing to benefits, which MPI is beginning to do.

THE CHAIRPERSON: If I could ask MPI, and I don't know -- I don't know if it's Mr. Bunko or Mr. Remillard, why was Gartner not provided that

1156

information? The requested details, ongoing costs, included eighty-one dollar ($81) premium impending CCRS decision. Those are pretty big items.

MR. JOHN REMILLARD: Mr. Chair, as Mr. Bunko and Mr. Wennberg have elaborated, but I'll go into greater detail and -- and reaffirm all -- all aspects of this.

Ultimately, when we looked at our -- our business case for PDR at that time, we were very benefit stream oriented. Right or wrong, that was how we were measuring success.

We did have some of the costs in the background available to us. Ultimately, there was some contractual aspects of the licensing agreements that at that time didn't allow us to -- to share it. We were trying to -- to work on that. Could that have been expedited? Potentially, sir.

But, ultimately, we were working through that. Nonetheless, to provide it from an aspect of performing a financial analysis versus public record are two (2) different things.

With respect to some of the ongoing costs, when I -- when we look at things from a value management perspective, we were not properly forecasting the said expenses or impact to operations.

1157

We were very focused on delivering the project, the benefits that we were trying to deliver, and we were working out the operating expenses as we work -- work through the project versus in advance.

In looking at it from an NPV analysis perspective and what a mature organization would do, that is not properly evaluating an opportunity, and I think that that was, as we've stated, one (1) of the mistakes in assessing the viability of PDR as a whole.

THE CHAIRPERSON: Thank you, Mr. Remillard.

Mr. Bunko, in a different area, you have -- MPI has a few major suppliers, is that correct? IBM and I guess the successor of Hewlett Packard and that, is that correct?

MR. BRAD BUNKO: That's correct.

THE CHAIRPERSON: How do you avoid being hostage to your major suppliers?

MR. BRAD BUNKO: Good prod -- prod -- vendor management, primarily.

THE CHAIRPERSON: In terms of the project management, you've got the split between employees and independent contractors.

Are most of the -- your project managers MPI employees or are most of them independent

1158

-- members of your suppliers?
MR. BRAD BUNKO: Most of our project managers are consultants.
THE CHAIRPERSON: And are you attempting to shift that?
MR. BRAD BUNKO: Yes, we are.
THE CHAIRPERSON: Okay. Do your contracts contain non-solicitation clauses? Can you try and retain people from your contractors?
MR. BRAD BUNKO: Then they do contain non-solicitation clauses.
THE CHAIRPERSON: And that's one (1) of your problems, I take it, in bringing people over to the Company?
MR. BRAD BUNKO: Correct.
THE CHAIRPERSON: The people who actually know the information and know your system, you can't hire?
MR. BRAD BUNKO: Correct. We cannot approach them.
THE CHAIRPERSON: Right. Right, okay. Thank you. Those are my questions. I appreciate -- sorry, is there any redirect?
MR. STEVE SCARFONE: I was just considering that. I don't believe we have any

1159

redirect for the panel members or Mr. Henry, Mr. Chair.
THE CHAIRPERSON: Mr. Henry, thank you very much for coming to Winnipeg.
We're going to adjourn until I believe Friday morning at 9:00 a.m.?
MS. KATHLEEN MCCANDLESS: Yes, Mr. Chair, I was just doing an inventory of outstanding undertakings, so there are a number, it's roughly a dozen or so.
I'm just wondering if MPI has a status update on answering undertakings?
MR. STEVE SCARFONE: I can confirm that the undertakings are in progress. So the -- the undertakings go to a particular business unit and then they are what the Corporation called workflow, so they get -- they go through an approval process by some members of the Corporation.
If I had to commit to a time by the end of tomorrow, Ms. McCandless, I think we can expect to have the majority, if not all of the undertakings circulated and provided to -- to both yourself and Mr. Williams.
THE CHAIRPERSON: So we're not going to be able to close MPI's case until you get the

1160

undertakings. And we're still waiting for the completion of the PreAsk.
MS. KATHLEEN MCCANDLESS: Yes.
THE CHAIRPERSON: Are we doing that on Friday?
MS. KATHLEEN MCCANDLESS: Yes, we had discussions, myself, Mr. Williams and Mr. Scarfone yesterday, and the suggestion is that we do the cleanup cross, cross arising from answers to undertakings, on Friday prior to Dr. Simpson and Ms. Sherry testifying.
THE CHAIRPERSON: Mr. Williams, do you have any idea how long Dr. Simpson and Ms. Sherry will take on Friday in direct?
DR. BYRON WILLIAMS: Their direct will be short. I would anticipate definitely less than an hour, or in the range of an hour at the most.
THE CHAIRPERSON: Okay, well, that's fine then.
Thank you, everyone, we'll adjourn until 9:00 a.m. Friday. Thank you.
MS. KATHLEEN MCCANDLESS: Thank you.

--- Upon adjourning at 10:22 a.m.

1161

Certified Correct,

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Cheryl Lavigne, Ms.

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$13 1142:13

$18 1132:8

$3.4 1124:17

$30 1153:15

$32.6 1121:13

$5 1124:22

$65 1120:22

$81 1142:24 1143:23,25 1144:11,23 1145:2,22,25 1155:2 1156:2

1

1 1104:3 1106:15,16,21 1112:5 1115:10 1116:24 1117:13 1124:4 1129:13 1146:23 1153:5 1157:8 1158:12

1/2 1114:15 1148:15

10:22 1160:24

1101 1101:24

1104 1103:3

1106 1104:3

1107 1104:5,8,9

1108 1103:15 1104:10,13

1109 1104:16,18

1110 1104:20,23

1111 1105:4,6

1139 1105:8

1161 1101:24 1103:20

1-2 1115:10

120 1111:14 1112:4

121 1112:4

128/'15 1125:6

13 1122:2 1127:3 1151:24

130/'17 1105:6 1111:7,11

14 1140:14

15 1144:4

151/'13 1105:6 1111:6,10 1122:12

15th 1104:11 1109:1,6

16 1115:10 1140:14

16/'17 1124:16

162/'16 1135:8

1-69(c 1144:19

17 1143:18 1146:16

17/'18 1124:22

1-75 1104:19 1110:5,9

18 1109:3 1112:18,20 1148:2,3

19 1109:13 1113:11 1127:5

2

2 1112:19,20 1121:20 1122:9 1124:4 1128:16 1137:8,12 1156:21

20 1118:14 1137:6,11,22 1141:9

2014 1104:17,20 1109:21,25 1110:5,10 1119:4 1121:25 1123:3

2015 1118:15 1120:13 1123:14 1125:6,19 1126:5,6

2015/2014 1114:18

2016 1104:11 1109:2,6 1118:10 1125:12 1127:6 1128:19 1130:7 1134:20,23 1153:5

2017 1104:22 1105:4,8 1110:14,20,25 1111:3 1117:11,20 1118:10 1137:7,23 1138:8 1139:24 1140:4 1142:25 1143:11 1144:13 1153:5 1155:3,7

2018 1101:23 1138:16

2019/2020 1101:6

20th 1104:17 1109:21,24

21 1120:12 1129:2

22 1115:5 1116:16 1129:24

23 1101:23 1117:19 1121:21 1129:2

24 1111:15 1121:20 1123:11 1129:24 1132:5 1135:7 1140:25

25 1132:13 1139:21

26 1105:7 1106:15 1132:5 1137:23 1138:8 1139:23

26th 1104:22 1110:14,20

27 1106:24 1124:12 1132:12

28 1107:8

29 1107:17

2nd 1105:4 1110:24 1111:3 1117:20

3

3 1104:9 1107:17,20 1123:10 1124:18

3.385 1124:18

30 1107:24

31 1124:12

33 1122:8

330 1101:21

35 1135:8

36 1123:11

37 1123:12 1136:1

4

4 1103:6 1104:10 1107:24

1108:1,8
1113:15
1114:15
1128:17
1135:7
1137:8,12
1148:15

400 1101:21

4th 1121:1

5

5 1104:20
1110:5,10
1121:23
1122:3,13
1140:25

55 1140:25

56 1140:25
1141:4,9

6

6 1121:23
1144:4

7

7 1118:19
1120:22

8

8 1118:19

9

9 1114:21

9:00 1106:1
1159:6
1160:21

A

a.m 1106:1
1159:6
1160:21,24

ability
1129:7,14
1131:11
1140:18

able 1127:1
1145:6
1159:25

absence
1134:1

absolutely
1114:4
1154:16

accept
1131:23

account
1135:21

Accountability
1112:15

accreditation 1143:1

accurate
1147:21

acronym
1139:13

across
1153:24

Act 1112:15

actual
1104:14
1109:11,15 1138:7

actuality
1132:13

actually
1123:11
1134:8
1158:17

add 1128:7
1134:17

additional
1122:4

adjourn
1159:5
1160:20

adjourning
1160:24

adjusting
1118:21
1119:6,10
1121:3,12
1139:8,13,18

advance
1148:1
1157:4

advice
1116:18
1134:9

advising
1129:12

agencies
1104:13
1109:2,8

agreed
1111:19
1112:6
1119:7,21
1120:4,8,18,19
1121:3,17
1122:20
1123:25
1124:1
1130:9
1132:9,10
1140:19,20
1144:23,24
1146:21,25

agreement
1108:21
1117:25
1143:1,12,23
1144:21,22

agreements
1156:14

AI.10
1118:16

allow
1144:1
1156:15

am 1139:1

analogy
1130:24

analysis
1122:14
1125:17
1133:2,3,7,14,19,21
1134:3,13
1135:20
1146:19,24 1147:10
1154:7
1155:12
1156:20
1157:5

annual
1117:14
1122:2
1133:8

annually
1127:3
1150:25
1151:2,4

answer
1145:6,10
1146:16

answering
1159:12

answers
1160:9

Anthony
1102:7

anticipate
1160:16

anticipated
1123:25

anywhere
1147:25

apologies
1138:11

apologize
1139:20
1142:5

APPEARANCES
1102:1

Appendix
1115:10
1144:4

appetite
1153:11

application
1101:6
1118:16
1119:20
1120:13
1130:4,8

appreciate
1126:1
1158:22

approach
1158:20

approval
1153:13
1159:17

area
1131:15
1136:4
1157:12

areas
1108:25
1126:23

argue
1143:16

arguing
1135:19

argument
1130:25

arguments
1135:16

arising
1160:9

A-R-S
1119:21

articulating 1129:5

aspect

1156:20
aspects 1126:4 1144:22 1156:7,14
assessing 1157:9
assessment 1116:18,20 1119:18 1123:20,24 1141:23 1145:4,19 1147:16,17
assign 1146:14
associated 1123:6,16
assumption 1153:14 1154:1
assure 1148:13
attachment 1138:21 1146:16
attempting 1158:5
attend 1118:7
attendance 1115:18
attended 1118:9
attends 1116:8
attention 1117:24 1118:18 1119:25 1123:2 1127:5 1128:16 1129:24 1130:17 1132:12
audit 1104:22 1110:14,20 1115:13,18 1117:9 1133:25
author 1131:22
authors 1116:24
available 1129:20 1156:13
Avenue 1101:21
avoid 1154:6 1157:17
aware 1111:19,23 1127:7 1154:23 1155:2,6,9

B

background 1156:13
balance 1113:16
base 1114:2
Based 1148:7
Basic 1122:15
basis 1117:14
became 1150:18
begin 1106:11
beginning 1155:22
believe 1118:12 1133:6 1136:21 1138:15 1141:21 1149:17 1154:8 1158:25 1159:5
BEN 1103:8 1108:10 1111:20 1112:1,7 1113:1,6,13,20 1114:4,10 1148:25 1149:11,16
benchmark 1146:16 1147:9
benchmarking 1146:19
benchmarks 1147:4
beneficial 1142:17,18
benefit 1122:14 1126:22 1135:1,20 1136:18 1156:10
benefits 1123:6 1127:3 1140:10 1142:12,21 1155:17,18,22 1157:2
best 1115:5,6 1155:18
better 1131:11 1152:24
BI3 1119:14
biggest 1153:6
bills 1128:3
bit 1112:8 1116:13 1124:11 1125:21 1141:16 1149:2
board 1101:1,12,13,14,15,16,20 1102:3,4 1104:16 1105:3,5 1107:1 1109:12,18 1110:12,24 1111:1,6,9 1114:1 1115:21,23 1116:9 1117:20,22 1121:25 1122:11,18 1123:3,15 1125:5,14 1127:15,16,22 1128:9 1135:11,19 1136:2,7,14 1141:15 1148:20,22
Boards 1128:2
Board's 1135:15 1141:22
bodily 1119:12 1120:3
body 1127:22
bottom 1111:15 1118:19 1119:25 1120:14,21 1121:22 1132:5
BRAD 1103:10 1108:12 1114:16,19,23 1115:3,16 1116:10,14,22 1117:1,6,12 1118:3,6,12 1125:7,16 1126:6,14 1128:6 1134:21 1135:1,13,24 1136:5,11,17 1139:15 1141:18,21 1142:1,9 1149:21,25 1150:11,16,21 1151:3 1157:16,19 1158:2,6,10,15,19
Brad's

1153:4

branded
1139:3

breakdown
1120:17

brief
1117:10
1125:1
1132:1
1137:18
1138:18
1140:22
1141:6,12
1148:5

briefing
1117:9,10

bring
1138:7,14

bringing
1158:13

broader
1150:21

budget
1120:17
1127:2
1131:16
1132:16
1136:10

budgets
1152:3

build
1129:18

bullet
1117:24
1123:2
1129:3
1130:19
1131:15
1132:14

bullets
1129:12
1130:17
1131:14

Bunko
1103:10
1108:12
1114:12,16,19,23
1115:3,16
1116:9,10,14,16,22
1117:1,6,12
1118:3,6,12,23
1125:3,7,16
1126:2,6,14,21
1128:6
1130:2
1134:19,21
1135:1,10,13,24
1136:1,5,11,12,17
1138:23
1139:15
1140:25
1141:1,18,21
1142:1,9
1149:17,21,25
1150:11,16,21
1151:3,6
1152:5
1155:24
1156:5
1157:12,16,19
1158:2,6,10,15,19

business
1119:13
1125:13
1126:3,5,7,8,13,21
1127:25
1133:1
1134:2,25
1136:3,16,20,22
1142:3,7,9,11
1145:19
1146:12
1147:15,22
1149:8,14,19,20
1150:22
1153:8
1154:2
1156:9
1159:15

Byron
1102:9
1103:15
1108:17,18
1109:10,20
1110:4,12,23
1111:5,13,21
1112:2,16
1113:2,10,14,21
1114:5,11,17,20,24
1115:4,17,24
1116:3,6,7,11,15,23
1117:2,7,18
1118:4,8,13
1119:3,9,17,24
1120:6,11,20,25
1121:5,10,15,18
1122:7,17,21
1123:1,9,19,23
1124:2,10,21
1125:3,10,18,24,25
1126:11,15,19
1127:4,11,20
1128:12,15
1129:1,11,23
1130:6,13,16,23
1131:13,23
1132:3,4,11,21,24
1133:5,16,23
1134:7,14,19,22
1135:6,14,25
1136:6,12
1137:5,20
1138:3,6,11,20,21
1139:10,19
1140:1,2,9,13,24
1141:8,14,19,24
1142:2,22
1143:4,10
1144:3,10,15,18,25
1145:5,12,17,18
1146:15,23
1147:2,13,20
1148:3,11
1160:15

C

CAA 1102:14

CAC 1102:9
1109:3,13
1112:20
1113:11
1115:5
1116:16
1117:19
1118:14
1120:12
1121:20
1135:7
1139:21
1140:25

CAC-18
1104:11
1109:5

CAC-19
1104:14
1109:15

CAC-20
1104:17
1109:22,24

CAC-21
1104:19
1110:6,8

CAC-22
1104:21
1110:16,18

CAC-23
1105:3
1110:25
1111:1

CAC-24
1105:5
1111:6,9

CAC-25
1105:7
1139:23

Canada
1153:24,25

careful
1131:20

Carol
1101:15

carries
1131:10

cars
1119:21
1120:8

1121:7
1130:3,8
1146:8

case
1125:13
1126:3,5,7,8,13,21
1127:21
1134:25
1136:16,23
1142:3,7,9,11,12
1145:19
1149:8
1153:8
1154:2
1156:9
1159:25

cases
1136:3,21
1146:12
1149:14

cause
1136:15

CCRS
1124:17
1135:3
1139:1,13,16
1140:17
1153:7,8
1155:6
1156:3

centre
1153:16

CEO 1150:18

certain
1124:7

Certainly
1137:16

Certificate
1103:20

Certified
1161:2

chair
1104:15
1106:6,11
1109:12,17 1116:4
1137:13,20 1148:13
1156:4
1159:2,8

Chairperson
1101:13
1106:3
1108:4
1115:22
1116:1
1137:16
1138:10,13 1148:19
1149:7,13,17,22
1150:4,14,19,24
1151:5,12,16,21
1152:9,22
1154:8,15,17,22
1155:1,5,8,23
1157:10,17,21
1158:4,7,12,16,21
1159:3,24
1160:4,12,18

change
1136:9

changed
1136:9
1152:18
1155:9

changes
1128:22

characterizing
1128:20

CHARLES
1103:13
1108:15
1127:10,18,24
1128:10,13,25
1129:10,17
1130:5,10,15,22
1131:5,18
1132:10,20,23
1133:4,9,22
1134:4,10,16
1140:7,12,20
1144:9,14,17
1154:21,25
1155:3,7,11

charter
1104:18
1109:22
1110:2
1118:15
1119:4,5
1139:7

check
1122:23,25

Cheryl
1161:7

Chuck
1104:6
1107:8,11

CIO 1150:18

circulated
1106:15,17 1159:22

circumstances
1134:11

claim
1119:12

claims
1118:1,11
1120:4
1124:12,16 1139:3

clarification
1112:17
1137:21
1139:11

clarify
1112:8
1143:22

clarifying
1138:23

clauses
1158:8,11

cleanup
1160:9

clear
1117:4
1131:21

client
1135:19

clients
1131:12
1135:17

close
1159:25

closely
1135:16
1140:17

CMMG
1102:12

coal
1117:25

colleague
1130:11

coming
1159:4

commencing
1106:1

comment
1134:6
1154:10

commentary
1125:4

commissioned 1127:13

commit
1159:19

committee
1104:23
1110:15,21
1115:14,18,19
1117:10,23
1118:5,10
1133:25

common
1120:3

Company
1158:14

comparison
1147:9

complete
1106:9

completion
1160:2

complex
1130:21
1140:19

compliance
1112:14

components
1117:13

concept
1139:14

conception
1119:5

concern
1126:23
1141:16
1142:6

concerned
1126:12

concerns
1123:15
1125:12,1

9,22
1126:5
1134:24
1136:3
1140:10
1141:20,22,25

concludes
1148:17

conducted
1133:7
1135:20

conducting
1133:2
1143:13

confidence
1126:25
1135:20
1140:5

confirm
1112:3
1159:13

Confirmed
1123:8
1124:9

confusion
1138:12
1139:21

connotation
1131:12

connotations 1131:11

considering
1158:25

consistent
1113:3
1122:22

consultant
1115:2

consultants
1158:3

contain
1142:10
1158:8,10

contained
1126:9

contents
1103:1
1134:5

continue
1106:7
1142:20

continued
1103:15
1108:17
1116:6
1125:24
1132:3
1135:2
1138:20
1140:1
1142:13
1145:17
1155:13,19

continuing
1136:25

contract
1153:9

contractors
1157:23
1158:9

contracts
1128:3
1158:8

contractual
1156:14

contributing 1137:3

conversation 1127:8
1143:5
1147:14

corporate
1152:1,10

Corporation
1101:5
1111:17
1112:14
1113:9
1117:15
1120:1,2
1159:16,18

corporations 1112:23
1113:18

correct
1111:25
1112:1,7
1113:20
1114:16
1117:1
1118:3
1119:8,16,23
1120:5,10,24
1121:14
1122:5,6
1126:14
1128:11,25 1129:10
1130:15
1132:23
1133:22
1135:13
1137:14
1139:1,5
1140:8,12
1144:14
1146:22
1147:1,3,7,19
1149:20,21 1151:10
1154:21,24,25
1155:4
1157:14,15,16
1158:15,19 1161:2

cost
1121:16
1122:13,14 1123:24
1130:17
1133:21
1135:20,22 1144:12

costs
1120:21
1122:4
1123:6
1126:9,22
1129:25
1132:18
1133:8,15
1134:2
1137:8
1140:3
1142:11
1149:8
1154:23
1156:1,12,23

counsel
1102:3,4
1137:21
1147:15

couple
1108:20
1136:25
1141:2
1142:23

cover
1128:14

create
1118:1

credible
1133:6

criteria
1148:9

critical
1152:21

cross
1148:15
1160:9

cross-examination
1103:15
1106:7
1108:17
1137:25

Crown
1104:12
1109:2,8
1111:17
1112:14
1113:18
1143:7

cultural
1154:4

culturally
1136:19

culture
1145:25
1152:2,10,13,20
1153:12

current
1114:14
1137:11

CURTIS
1103:9
1108:11
1143:3,9,15
1145:23
1152:7,11
1153:2
1154:13,16

customer
1118:1,11
1124:12,16 1127:19
1128:5
1131:8
1139:3

D

damage
1103:6
1104:5,7
1106:8,25
1107:4,9,13 1108:8
1116:25
1117:3
1120:4,18
1123:4

data
1155:13

date 1120:16
dated 1104:11,17 1105:4 1109:1,5,21,24 1110:24 1111:2 1117:20
day 1149:1
DCAT 1106:18
dealt 1150:22
December 1153:5
decide 1149:6
decision 1122:8 1125:15 1136:1 1155:6 1156:3
deferred 1140:10
definitely 1125:17 1160:16
definition 1128:22
delay 1123:15
deliver 1127:1,2 1129:15 1155:17 1157:2
delivering 1157:1
delivery 1128:24
department 1150:13,15
deploy 1129:7 1140:18
described 1132:22
description 1104:2 1105:2 1130:19
desire 1130:2
detail 1156:6
details 1124:7 1154:20 1156:1
determine 1119:19
determined 1142:19
develop 1129:7,21 1140:18
development 1117:25 1123:21 1135:2
dialogue 1119:10
difference 1150:1 1153:20
different 1145:14 1156:21 1157:12
differential 1153:16
Dilay 1102:10
direct 1118:18 1128:16 1129:24 1130:16 1144:23 1145:21 1146:3,5,11 1154:9 1160:14,15
directing 1117:23 1119:24 1122:12 1123:1 1132:11
direction 1113:4 1128:22
directive 1150:9
directly 1146:11
discuss 1113:9
discussed 1132:6
discussion 1112:12 1130:2 1143:1 1151:7,25
discussions 1145:24 1160:7
document 1104:17 1109:21,24 1137:9 1144:6,7 1145:10 1150:7
dollar 1142:24 1144:11,23 1145:2,22,25 1155:2 1156:2
dollars 1143:23,24
done 1134:8 1135:3 1141:3 1149:15 1155:12
dozen 1159:10
Dr 1103:15 1108:17,18 1109:10,20 1110:4,12,23 1111:5,13,21 1112:2,16 1113:2,10,14,21 1114:5,11,17,20,24 1115:4,17,24 1116:3,6,7,11,15,23 1117:2,7,18 1118:4,8,13 1119:3,9,17,24 1120:6,11,20,25 1121:5,10,15,18 1122:7,17,21 1123:1,9,19,23 1124:2,10,21 1125:3,10,18,24,25 1126:11,15,19 1127:4,11,20 1128:12,15 1129:1,11,23 1130:6,13,16,23 1131:13,23 1132:3,4,11,21,24 1133:5,16,23 1134:7,14,19,22 1135:6,14,25 1136:6,12 1137:5,20 1138:3,6,11,20,21 1139:10,19 1140:1,2,9,13,24 1141:8,14,19,24 1142:2,22 1143:4,10 1144:3,10,15,18,25 1145:5,12,17,18 1146:15,23 1147:2,13,20 1148:3,11 1160:10,13,15
draft 1106:16
draw 1127:5
due 1128:21,23
duplicate 1127:9

duplication 1148:16
duration 1137:1
during 1154:9
duty 1134:1

E

earlier 1130:1 1145:8
early 1116:3 1120:16 1136:22
earnings 1112:10
eighty-one 1142:24 1143:23,24 1144:11,23 1145:1,22,25 1155:2 1156:2
either 1152:14
elaborate 1112:3
elaborated 1156:5
elegantly 1147:6
element 1119:5
elements 1133:13 1134:12 1146:24 1147:10
eliminate 1148:16
else's 1154:11
employee 1114:25
employees 1157:23,25
encouraging 1135:2
engaged 1134:11
engagements 1128:7
engineering 1103:7 1107:5 1108:9 1110:1 1123:5
entitled 1115:6
Erika 1102:14
essence 1139:2,14
essential 1152:2
essentially 1147:22
establish 1144:2
establishing 1143:19
estimate 1120:22 1121:11 1123:5 1132:17 1133:20
estimating 1143:12
evaluated 1136:21
evaluating 1142:17 1157:7
eventually 1150:18
everyone 1106:4 1160:20
everything 1139:8
evidence 1114:2
ex 1120:12
example 1153:11
excerpt 1104:21 1105:3 1110:13,18,24 1111:1 1117:19 1123:14 1135:7
excerpts 1105:5 1111:6,9
executive 1146:24 1147:3,8,23 1148:10
exhibit 1104:2 1105:2 1106:14,21,23 1107:3,7,11,16,20,23 1108:1 1109:3,5,13,15,24 1110:8,18 1111:1,9 1112:18,20 1113:11 1115:5,9 1116:16 1117:19 1118:14 1120:12 1121:20 1123:10,11 1127:5 1135:7 1137:6,11 1138:9 1139:21,23 1140:25
exhibits 1103:3 1104:1 1105:1 1106:11 1109:1
expect 1159:20
expectations 1111:19 1112:5 1113:22 1114:6
expected 1129:15 1153:18 1155:17
expecting 1122:1
expedited 1156:17
expenditures 1124:7,15,22
expense 1132:17 1146:1,2,7
expenses 1156:25 1157:3
experience 1149:9
expertise 1133:1
exposed 1153:21
express 1112:22 1113:16
expressed 1125:13
expressing 1123:15 1129:4 1136:3,7 1140:5 1141:16
extensible 1129:21
extent 1128:1
external 1115:1
externally 1152:14
extreme 1121:11

F

fact 1126:8 1130:12 1132:16 1149:3
fair 1115:19 1117:8 1118:2 1124:14 1125:11 1133:21 1141:16 1143:6,8,9,11
fairly 1130:20 1131:1
falls 1139:9
familiar

1144:7
farther
1124:11
feasibility
1126:2,13
1142:7
feasible
1137:3
February
1105:4
1110:24
1111:2
1117:20
fees
1143:12
felt 1149:1
figure
1124:4,7
file
1123:4,20
filed
1106:13,14,17
1107:17
1115:14
1118:15
final
1104:3
1106:16,21
finalize
1117:25
finally
1111:5
finance
1104:22
1110:14,20
1115:13,18 1117:9
financial
1113:9
1156:20
findings
1135:15
1136:13,14
fine
1160:19
FINEOS
1119:14,19
1120:2,7
1130:3
F-I-N-E-O-S
1119:15
1130:3
firm
1132:22
firmer
1155:12
first
1109:1
1119:19
1121:7
1125:11
1129:8,11
1141:9
1143:24
1148:8
1149:1
1151:4
fit
1119:18,19 1120:7
five
1121:23
1122:13
flag
1131:15
1134:1
flip 1122:7
1141:3
FNOL
1129:7,16
1130:20
1134:25
1138:25
1139:3,13
focus
1133:12
1136:19
focused
1126:22
1157:1
forecast
1120:17
forecasting
1156:25
form
1106:16
formas
1106:18
forum
1114:2
1153:23
forward
1138:7
fourth
1121:1
1131:15
1132:13
framework
1104:12
1109:2,7
1113:11
Friday
1106:14
1159:6
1160:5,10,14,21
Friend
1127:8
1132:6
1143:2
1147:14
1148:17
full
1129:12
fulsome
1133:14
functions
1114:9
fundamental
1155:21
funds
1146:6

G

Gabor
1101:13
Gartner
1104:8
1105:7
1107:9,14
1116:17,24 1125:11
1127:6,16
1128:7,19
1129:4
1131:21
1132:6,22,25
1133:17
1134:1,20,23
1137:7,22
1138:7
1139:23
1140:4,16
1141:22
1144:5,12,13
1145:2,8,20
1146:19
1147:10,16,21
1148:8
1154:17,18,20,23
1155:8,25
Gartner's
1127:13
1130:7
Geffen
1116:17,23
1117:8,14
Geffen's
1138:2
general
1101:6
1120:13
1135:4
generally
1129:19
1134:25
1136:16
gives
1117:15
1128:4
globally
1126:3
governance
1112:14
1152:24
government
1111:19,23
1112:5,23
1113:4,16,22
1114:6
GRA 1137:12
1138:16
Graham
1103:8
1108:10,20
1111:16,20
1112:1,7
1113:1,6,13,20
1114:4,10
1148:22,25
1149:11,16 1154:11
Graham's
1152:19
great
1118:22
1155:19
greater
1156:6
group
1104:8
1107:9,14
1134:23

1145:2,20
guarantee 1112:11
Guerra 1102:7
guess 1138:8 1152:1 1157:14

H

Hainsworth 1101:15
half 1114:15 1121:15 1148:15
Hamilton 1101:14
happened 1136:25
hard 1155:16
having 1122:14 1150:4
heard 1130:1,5 1149:7 1152:12
hearing 1101:7 1108:23 1115:15
HELD 1101:19
help 1125:21 1127:25 1146:6
helping 1143:19
helps 1148:12
hence 1149:2
Henry 1103:13 1108:15 1127:4,10,18,24 1128:10,13,25 1129:4,10,17 1130:1,5,10,15,22 1131:5,18,22 1132:10,20,21,23 1133:4,9,22 1134:4,10,16 1137:5 1138:24 1139:20 1140:7,12,15,20 1144:4,9,14,17 1154:17,21,25 1155:3,7,11 1159:1,3
Henry's 1104:6 1107:8,11
Hewlett 1157:14
high 1140:5
highlight 1153:20
hire 1158:18
holistic 1146:12
hope 1120:1
hoped 1120:7
hopefully 1129:19
hostage 1157:18
hour 1160:17
hours 1148:15

I

i.e 1125:12
IBM 1157:14
I'd 1123:9 1127:4 1142:10
idea 1160:13
ideas 1150:2
identified 1126:24 1142:21
I'll 1108:24,25 1112:3 1119:4,11 1127:8 1129:4 1133:24 1144:5 1156:5
I'm 1115:5 1118:6,13,17,24 1127:7,12 1134:7 1135:17 1137:10,21,22 1141:1 1142:4 1144:8 1145:12 1150:4,16 1151:25 1154:11 1159:11
impact 1156:25
impaired 1124:8
impending 1156:2
implementation 1152:3
implementing 1123:16
implications 1122:15
importance 1114:1
important 1111:18 1117:4 1119:4,11
imprecise 1147:6
imprecisely 1142:4
improve 1131:8
improved 1136:20
include 1106:18 1123:24 1133:14 1149:8
included 1116:18 1128:8 1141:22 1156:2
includes 1115:19
including 1144:22
increase 1146:7
incumbent 1111:22
indeed 1143:13
independence 1113:18,25
independent 1114:2,7,8 1123:20 1141:23 1157:23,25
indicated 1113:3 1135:10 1154:19
indicates 1144:12,20
indicating 1131:20
indications 1142:15
indiveg 1126:4
individual 1126:4
individual's 1150:17
industry 1130:21 1131:4,7
information 1104:4,19 1106:24 1107:3 1110:5,8 1115:10 1124:4 1125:5 1128:1 1133:1 1145:2,7 1156:1

1158:17
in-house 1149:2
initial 1148:24
initiated 1150:3
initiative 1117:5,17 1119:14 1121:2 1149:2
initiatives 1116:20 1124:8
injury 1119:12 1120:3
innovative 1130:20,25 1131:3,10 1140:19
input 1150:20,23
ins 1133:7
insight 1133:8 1146:18
instances 1149:14
Insurance 1101:5 1102:7 1104:15 1108:22 1109:11,16 1111:18,23,25 1114:21,25 1117:5 1119:13 1122:1 1124:8
1129:13 1144:20 1145:1,21 1146:21
integrity 1152:3
intending 1143:5
intent 1120:16 1121:6
intention 1112:22
interested 1152:1
interference 1112:24
internal 1146:10
internally 1142:19 1152:14
interpret 1125:15
inventory 1159:8
investments 1155:20
involved 1151:20
Irene 1101:14
issues 1129:6 1153:6
IT/PHYSICAL 1103:6 1108:8
items 1153:1 1156:3
it's 1111:18 1115:9
1116:3 1117:4 1119:19 1131:1,6 1138:16 1140:9 1146:10 1148:9 1151:22 1154:2 1155:18,24 1159:9

J

January 1104:22 1110:14,19 1117:11 1153:5
JOHN 1103:12 1108:14 1119:2,8,16,22 1120:5,9,19,24 1121:4,9,14,17 1122:6,16,20,24 1123:8,18,22 1124:1,9,19,24 1126:17,20 1139:5 1144:24 1145:3 1151:10,14,19 1156:4
joining 1114:25
June 1104:11 1109:1,5
jurisdictions 1143:8 1149:5

K

Kathleen 1102:3 1106:5 1138:1,5,15 1159:7 1160:3,6,22
Katrine 1102:10
key 1129:13 1130:18 1131:15 1155:18
knowledge 1130:14
Kristen 1111:13 1115:7,11 1118:21 1124:2,11 1128:17 1129:2 1132:13 1138:13 1151:21

L

labour 1153:15
lack 1136:3
lacked 1149:25
larger 1152:15
last 1108:21 1112:10,21 1113:15 1115:9,14 1121:23 1122:8,11 1123:2
late 1153:6
Lavigne 1161:7
law 1130:24
LAWRENCE 1103:11 1108:13 1146:22 1147:1,11,18 1148:1,7
Lazarko 1103:11 1108:13 1146:17,22 1147:1,11,13,18 1148:1,7
Learned 1127:8 1132:6 1143:2 1147:14 1148:16
leave 1118:20
legacy 1119:21 1120:8 1121:8 1149:4
legal 1137:21
less 1160:16
let's 1153:5
letter 1104:14 1109:11,15 1113:11
letters 1104:12 1109:2,7
level 1140:5 1142:6 1153:4

licensing
1122:4
1156:14
light
1142:25
line
1111:15
1121:1
1124:12
1140:3
lines
1121:23
List 1103:3
1104:1
1105:1
little
1112:8
1116:12
1125:21
1135:15
1139:15,17 1147:6
1149:2
long 1137:1
1160:13
loss
1119:20
1121:7
1129:8
lot 1148:15
lots
1131:10

M

maintaining
1135:22
maintenance
1132:18
1133:20
1134:2
major
1149:15
1157:13,18
majority
1117:16
1155:16
1159:21
management
1103:7
1106:8
1108:9
1116:12,19
1127:15,19
1134:9,18
1144:4
1145:24
1147:16,22 1151:7
1155:19
1156:24
1157:20,22
managers
1157:25
1158:3
managing
1155:17,21
mandate
1104:14
1109:11,15
Manitoba
1101:1,5,22
1102:6,9,14
1104:14
1108:22
1109:11,16
1111:18,22,24
1114:21,25 1117:5
1119:13
1122:1
1124:8
1129:13
1144:20
1145:1,21
1146:20
March
1143:11
mark 1109:3
marked
1109:13
1110:6,16
marketplace
1129:20,22
Martin
1116:17
1117:14
matter
1114:12
matters
1155:9
mature
1157:6
maturing
1136:22
may 1104:17
1105:7
1109:21,24 1129:6
1137:10,21,23
1138:8
1139:23
1150:7
Maybe
1139:15
McCandless
1102:3
1106:4,5
1138:1,5,15
1159:7,20
1160:3,6,22
mean
1115:23
1126:12
1131:4
1150:9
1152:10
meaning
1131:21
means
1155:21
meant
1112:20
measuring
1156:11
media
1104:11
1109:1,5
meet
1129:18
meeting
1105:3
1110:24
1111:2
1129:8
1150:8
meetings
1118:7,9
member
1101:14,15,16
1118:6
members
1106:6
1108:19
1115:20
1116:9
1117:22
1158:1
1159:1,18
mentioned
1142:10
1148:25
1150:24
methodology
1136:23
M-hm
1116:22
mic's
1118:23
middle
1130:18
might've
1152:17
Miller
1102:14
million
1120:22
1121:13
1122:2,3
1124:17,23 1127:3
1132:8
1142:14
1153:15
mine
1152:19
Minister
1113:8,12
minute
1137:14
minutes
1104:21,23
1110:14,15,19,21
1115:13,14 1116:8
1117:20
missing
1134:12
misspoke
1112:20
1115:25
1137:10
mistake
1154:14
mistakes
1154:10,12 1157:9
Mitchell
1129:17
1140:18
1153:9
Mitchell's
1129:7,15
mo 1135:16
mode
1143:20,2

1
modelling 1106:19
money 1131:8 1149:6 1153:6
monitor 1140:17
morning 1106:3,6 1108:18 1159:6
motion 1117:21
move 1108:25
moved 1108:22
MPI 1101:5 1103:6 1105:3 1106:23 1108:8 1110:24 1111:1 1112:10,18 1115:11,23 1118:17 1119:18 1121:19 1122:12,19 1123:3,20 1127:15,18,25 1133:25 1134:9,17 1136:19 1137:21 1140:16 1143:12 1144:19 1148:23 1151:23 1153:16 1155:22,23 1157:13,25 1159:11
MPI-26 1104:3 1106:21
MPI-27 1104:4 1107:3
MPI-28 1104:6 1107:11
MPI-29 1104:9 1107:20
MPI-30 1104:10 1108:1
MPIC 1106:11,14 1107:25
MPI's 1128:2,4 1129:8,18 1159:25
multinational 1146:13
multinationals 1152:20
multiple 1148:9
myself 1160:7

N

necessarily 1146:4
neglected 1146:17
negotiations 1117:25 1153:21
net 1132:7 1133:2,6,9,18
nine 1114:21
nobody 1143:24
Nonetheless 1156:19
non-solicitation 1158:8,11
normal 1149:10
nothing 1113:6
notice 1119:19
notification 1121:7 1129:8
novel 1130:25
np 1102:10,12,14
NPV 1133:12,14 1153:12 1154:6,15 1157:5

O

Oakes 1102:12
objective 1117:5 1149:19
observations 1133:18 1136:14
obviously 1113:8 1131:22 1146:9
October 1101:23
offset 1122:3
off-the 1149:4
oh 1118:24 1124:19 1152:6,9 1154:16
okay 1114:11 1118:24 1119:3 1128:12 1139:10 1145:15 1148:11,21 1150:11 1152:9 1158:7,21 1160:18
omission 1153:3
one-page 1104:21 1110:13,18
one-time 1132:16
ongoing 1126:9 1131:16 1132:17 1133:15,20 1154:23 1156:1,22
operating 1133:8,15 1134:2 1142:11 1149:8 1157:3
operational 1113:17 1146:2
operations 1156:25
opportunity 1131:6,7 1157:7
optimized 1118:20 1119:6,10 1121:2,12 1139:8,12,17
Order 1105:5,6 1111:6,7,10,11 1122:12 1125:6 1128:9 1135:7
ordering 1123:3,19
Orders 1105:5 1111:6,9 1125:8 1135:11
organization 1157:6
oriented 1156:10
original 1130:2 1139:6
others 1144:1
outcomes 1113:9 1129:15
outline 1108:19
outset 1154:9
outstanding 1159:8
overall 1128:23 1136:9

1137:4
1139:17
1140:14
1154:3

overview
1117:16

P

Packard
1157:15

page 1103:2
1104:2
1105:2
1111:14
1112:4
1115:12
1118:19,21 1120:14
1121:20,22 1122:8
1123:11,12,14
1124:4,11
1128:16,17
1129:2,4,24
1130:18
1131:14
1132:5,12
1135:8,9,19,25
1136:7
1137:7,8,12,15
1140:14,25
1141:2,4,9 1144:19
1151:24

Pages
1101:24

paid
1143:24
1144:1

panel
1101:12
1103:6,7
1106:6,8
1108:8,9,19
1115:11
1139:20
1148:18
1159:1

paragraph
1112:18,20,22
1113:15
1119:25
1121:23
1122:11
1123:3
1129:12
1136:2
1140:3
1141:10
1148:8

paragraphs
1122:9

particular
1116:8
1140:17
1159:15

past
1154:10

PAUSE
1125:1
1132:1
1137:18
1138:18
1140:22
1141:6,12
1148:5

pay
1143:12,21 1153:23

payment
1143:6

pays 1128:3
1153:16

PD 1104:18
1109:21,25 1118:14
1140:2,13
1154:3

PDF 1128:17
1129:2,24
1132:5,12
1137:8,12
1140:14

PDR 1117:11
1119:5
1122:3
1123:5,16,21
1125:13
1126:3,13
1128:21
1134:25
1135:21
1136:8,15
1137:8
1138:16
1140:3
1141:16
1142:3,7
1146:14
1153:13,14 1156:9
1157:9

peer 1147:8

pending
1155:6

people
1150:9
1154:6
1158:9,13,16

per 1142:14
1152:19
1153:15

perfect
1118:20

performance
1113:17

performing
1156:20

period
1114:18

personal
1130:14

perspective
1136:13
1156:24
1157:6

pertaining
1136:24

physical
1104:4,7
1106:8,24
1107:4,8,12
1116:25
1117:3
1120:3,18
1123:4

pilot
1143:17,20,21

pl 1130:3

plan
1122:13
1136:16
1149:20

planning
1117:23
1118:5,9

platform
1120:3

point
1114:8
1120:1,6
1121:12
1140:4
1142:7
1146:9
1149:3,19,23,24
1150:1,7,8,10,12,14

political
1112:24

Portage
1101:21

portfolio
1117:17

position
1117:16

positive
1132:7
1136:18
1142:13

post 1152:3

potential
1131:12

Potentially
1156:17

practices
1155:18

PreAsk
1104:3
1106:15,16,21
1160:2

premium
1142:25
1143:6
1144:11,23
1145:2,22
1146:1
1155:2
1156:2

prepared
1146:8

preparing
1127:14,17

present
1116:9
1132:7
1133:2,7,9,18

presentation
1104:5,6
1106:25
1107:5,8,12
1117:13
1138:2,4
1151:22,23 1155:15

presenting
1116:17
1127:23
1133:25

pressure
1129:20

presume
1117:8

pretty
1156:3

previous
1147:16
1151:17

previously
1103:8,9,10,11,12,13
1106:12
1108:10,11,12,13,14,15
1122:12
1142:10
1150:12

primarily
1157:20

prior
1114:24
1140:10
1143:11
1151:18
1160:10

private
1143:7

pro 1106:18
1129:14

probably
1129:2
1136:22
1154:1

problems
1150:5
1158:13

proceed
1153:12,13

process
1134:18
1147:15,22 1159:17

prod
1157:19

produced
1128:9

product
1119:14
1129:8,18,21
1140:17

profess
1132:25

profession
1131:2

professional 1133:6

progra
1128:20

program
1104:18
1109:22
1110:1
1118:15
1119:4
1128:18,20,21,23
1132:8
1137:8
1139:2
1140:3,6
1141:17
1142:3
1143:20
1144:2
1146:3

progress
1128:20
1140:14
1159:14

progressing
1135:3

project
1103:7
1108:9
1116:25
1117:3
1118:21
1119:6,11
1120:17,18,21
1121:16
1122:3
1123:5,7,17,21,24
1125:17
1126:22
1127:1
1129:14,16 1130:20
1133:10,11,12,13
1135:3,4
1137:1,4
1142:17,18,20
1152:3
1154:3
1155:13
1157:1,4,22,24
1158:2

projected
1123:6
1128:17
1132:7
1140:5

projects
1122:14
1136:24
1142:16
1149:15
1152:16
1155:16,21

promises
1127:12

properly
1108:21
1156:24
1157:7

proposing
1109:3

protection
1154:3

provide
1120:2,16
1122:13
1147:4,8
1156:19

provided
1117:10
1145:10
1155:25
1159:22

provides
1117:15
1146:18

providing
1134:9

provincial
1111:17

PUB 1114:7
1115:9
1123:4
1126:24
1127:5
1128:9
1135:7
1137:6,11
1144:19
1147:14

public
1101:1,5,20 1102:6
1104:15
1108:22
1109:11,16
1111:18,22,24
1114:1,21,25
1115:20,23 1117:5
1119:13
1121:19,25
1122:1,11,18
1124:8
1125:4,13
1127:16,21 1128:2
1129:13
1135:11
1141:15
1144:20
1145:1,21
1146:20
1153:19
1156:21

PUB-MPI
1104:19
1110:4,8

PUB-MPI-175
1120:13

PUB-MPI-2-25 1124:3

pull
1111:14
1115:7
1117:19
1120:12
1124:3

purpose
1139:16

push 1154:5

Q

Q.C 1101:13

quality
1131:9

question
1118:25
1119:2
1125:21
1126:18
1136:15
1142:4
1147:5

questions
1108:20
1111:16
1142:23
1148:17,20,21
1158:22

quote

1115:7

R

range 1120:22 1124:17,22 1132:8 1160:17

rate 1101:6 1118:15 1120:13 1153:16

rates 1113:5,7 1114:3 1153:23

rather 1115:23

ratify 1117:22

Raymond 1102:12

re 1101:5 1103:6 1107:4 1108:8 1109:25 1123:4 1139:2 1142:16

reaffirm 1156:6

realization 1140:11

realize 1122:2 1142:20 1153:4

reason 1145:7 1152:25

reasonable 1114:3

recall 1143:1 1147:14 1150:17

receive 1154:20

received 1113:4

recently 1126:10

recognize 1114:1

recollection 1122:22 1145:3

recommend 1110:16

recommendation 1117:22

record 1106:12 1119:15 1153:19 1156:21

rectifying 1134:17

redirect 1158:23 1159:1

reduced 1140:11

reduction 1112:6

re-engineering 1104:5,7,18 1106:8,25 1107:9,13 1109:21 1116:25 1117:3 1118:14 1120:18

re-evaluated 1137:2

refer 1118:18 1137:22 1139:7

reference 1112:25 1113:19 1116:17,21 1121:2 1122:10 1132:15,19 1135:23 1136:10 1144:11

references 1113:22 1114:6

referred 1137:25

referring 1113:10 1137:10 1139:14

refined 1139:17

refinement 1139:16

regard 1123:4 1124:15

regarding 1104:12 1109:2,6 1128:22 1129:6

reject 1130:24

rejected 1130:9

relate 1111:24

related 1118:10 1126:3 1142:25 1146:5

relating 1119:10 1124:12 1125:5

relation 1112:12 1113:7

relationship 1115:1

release 1104:11 1109:1,5

relevant 1144:22 1145:22

remember 1116:1 1151:6

Remembering 1113:7

Remill 1152:6

Remillard 1103:12 1108:14 1119:1,2,8,16,22 1120:5,9,15,19,24 1121:4,9,14,17,18,24 1122:6,16,20,24 1123:8,10,18,22 1124:1,6,9,14,19,24 1126:15,17,20 1139:5 1144:18,24 1145:3,6,18 1151:6,9,10,14,19 1152:1 1155:25 1156:4 1157:11

remiss 1112:8

repair 1143:12,13 1144:21,23 1145:21 1146:2,3,5,11 1153:16,23

repairs 1143:14

repeat 1143:5

replace 1149:3

replacement 1119:20,21 1120:8 1121:8

re-platform 1130:3

re-platforming 1130:8

report 1105:7 1125:12 1127:6,14,17,23 1128:14 1130:11 1131:22 1133:17 1134:5,20,23 1137:7,22 1138:8 1139:23 1155:10,11

reported 1144:12,16 1147:24 1150:17
reporting 1118:1,11 1121:25 1124:13,16 1130:7 1139:4
reports 1116:24 1144:13
representatives 1116:12
requested 1154:20 1156:1
requesting 1125:17
requirement 1140:19
requirements 1127:25 1129:9,19
research 1132:22
respect 1156:22
respecting 1113:17
responded 1107:17,24 1139:1
response 1104:9,10,19 1107:21 1108:2 1110:5,9 1115:10 1120:12 1124:5
responsible 1113:8
result 1122:2
RESUMED 1103:5 1108:7
retain 1158:9
return 1142:13
review 1145:25 1151:8,13,17,18 1153:11,23
reviewing 1134:23
reviews 1152:4
revised 1104:20 1110:5,9
rights 1112:12,13
rigorous 1151:13
rigourous 1151:8,17
risk 1104:23 1110:15,21 1115:13,18 1116:19,20 1117:9,14,16 1130:18 1131:5,12,15 1133:25
risks 1123:16 1129:14
risky 1131:1
Robert 1101:13,16 1102:4
role 1111:22 1114:14 1134:9
roles 1132:24
rolled 1147:23 1148:9
rollout 1123:21
roughly 1153:15 1159:9
running 1150:15

S

sadly 1146:17
Saskatchewan 1153:17
satisfaction 1131:8
satisfy 1127:25
savings 1122:2 1123:25
saw 1149:9
Scarfone 1102:6 1106:10,23 1107:7,16,23 1125:20 1131:19,24 1145:9,13,15 1158:24 1159:13 1160:7
Schedule 1128:18
Schubert 1116:13 1124:3
Schuler 1113:12
scope 1136:8 1152:18
screen 1145:11
Scroll 1116:12
second 1112:22 1115:8 1117:24 1120:14 1122:11 1123:2 1130:19 1136:1 1140:3 1143:25 1144:19 1153:25
seconds 1141:2
security 1116:19
seeking 1137:22
seemed 1135:4
sense 1155:14
sent 1113:11
sentence 1112:21 1113:15
separately 1147:24
September 1104:20 1110:5,10
serve 1131:11
service 1117:15 1131:9 1139:4
sets 1124:7
seven 1120:22
seventeen 1143:18
share 1125:19,22 1141:20,25 1144:21 1156:15
shared 1145:1,8
shelf 1149:5
Sherry 1160:11,13
shift 1158:5
shifts 1128:23
shop 1144:21
shops 1143:13,19 1146:2,6 1153:17,24
short 1160:16
showing

1142:13
signed 1153:9
similar 1147:9
Simpson 1160:10,13
sir 1112:17,19,21,25 1113:19,21,25 1114:5,15,18,22,24 1116:21,25 1117:2,8,11,21 1118:2,4 1120:23 1121:2,8,13 1122:8,10,15,22 1123:2,7,13,17,21,25 1124:17,23 1125:6,10,15,18 1126:12 1127:7,13,17,20 1128:19,24 1129:9,16 1130:4,14,21,23 1131:13,17 1132:8,15,19 1133:3,5,16,23 1134:3,7,20,22 1135:12,17,23 1136:4,10 1138:9 1140:6,11 1141:9,10,14,20,25 1142:4,8,23 1143:2,5,8,11 1144:8,13,16,25 1146:17,18,25 1147:2,20,25 1148:12,18 1151:11,15 1156:17
six 1121:23
slide 1115:10 1123:11 1144:4 1146:16,18 1148:2,3
slides 1152:8
slow 1128:21
software 1122:4
someone 1154:11
sorry 1115:22 1121:20 1130:10 1132:12 1136:13 1137:9 1154:18 1158:23
source 1146:6
speak 1115:6 1133:24
speaking 1113:25 1121:6 1134:8 1138:25
specific 1128:8 1154:6
specifically 1112:18 1113:14 1117:24 1134:25 1135:8 1137:7 1139:16 1148:10
spend 1149:6 1153:6
spending 1140:6,7
spent 1148:15
split 1157:22
spoken 1112:9
stage 1143:17
stages 1136:22
standpoint 1154:4
start 1108:24 1151:1,13
started 1136:21
starting 1149:18,23,25 1150:6,8,10,11 1153:1
stated 1126:21 1152:23 1157:8
statement 1128:4,8
statements 1111:24 1148:8
status 1126:12 1159:11
staying 1131:14
steady 1128:21
step 1137:13
STEVE 1106:10,23 1107:7,16,23 1125:20 1131:19 1145:9,15 1158:24 1159:13
Steven 1102:6
stomped 1142:16
stood 1119:6 1126:5
strategic 1116:18,20 1117:4 1122:13
strategy 1150:12,15,20,22,23,25
stream 1126:22 1135:1 1136:18 1142:21 1156:10
structure 1152:23
structures 1128:24
subject 1122:23,24
subordinate 1114:8
success 1155:21 1156:11
successor 1157:14
suggest 1113:23 1115:19 1119:4,12 1129:5 1144:5 1147:3,7
suggested 1109:13
suggesting 1109:22 1114:7 1139:2 1140:10,16
suggestion 1160:8
suited 1115:6
suppliers 1157:13,18 1158:1
support 1131:16 1132:17 1133:20 1135:21
sure

1115:5,16
1118:17
1137:14
1144:8
1145:13
1150:16
1154:11
1155:13

surprised
1149:13

surprising
1149:10,12

surrender
1114:7

suspect
1135:15

Sworn
1103:8,9,10,11,12,13
1108:10,11,12,13,14,15

system
1118:1,11
1119:21
1120:8
1124:13,16 1135:22
1148:23
1158:17

systems
1149:4

T

tab 1121:20
1123:10
1135:7
1140:25

TABLE
1103:1

talked
1149:18

teasing
1135:17

technology
1104:4
1106:24
1107:3
1117:23
1118:5,9
1125:5
1133:1
1150:2

term
1139:18

terminology
1138:23

terms
1112:6
1113:4
1115:17
1116:7
1117:11
1121:6
1126:2,13,16
1138:23
1140:2
1142:24
1144:10
1145:19
1147:15
1152:15
1157:21

test 1114:2

tested
1149:5

testify
1114:13

testifying
1160:11

testimony
1149:18
1151:7
1152:12,19,22
1154:9,18,19

thank
1108:4
1112:16
1114:11
1118:22
1124:19
1126:1
1127:10
1131:24
1134:14
1138:22
1139:11,19 1146:15
1148:11,19 1151:5
1157:10
1158:22
1159:3
1160:20,21,22

that's
1113:2
1118:20,22 1119:23
1121:5
1126:14
1128:11,25 1129:10
1130:13,25 1143:9
1144:14
1145:10
1147:1,11,18
1149:21
1150:1
1151:10
1154:1,7,25 1155:3
1157:16
1158:12
1160:18

theme
1112:17

themselves
1144:2

therefore
1146:4,11
1153:25
1154:2

there's
1131:16
1133:10
1134:12
1136:9
1153:15

third
1129:3
1140:3
1153:25

thorough
1126:8
1151:19

thoughts
1148:24

tied
1146:11

titled
1104:17
1109:21,25

today
1106:6,9,18 1126:7
1146:17

tomorrow
1159:20

tone
1152:2,10

tool
1133:10
1147:17,21

tooling
1146:1,8

tools
1133:10

top 1115:12
1118:19,21 1121:1
1123:12
1129:3,25
1135:8,18
1136:6
1152:2
1153:14,24

total
1120:21
1121:16

totality
1133:17

totally
1115:24

towards
1111:15
1118:19
1120:14
1121:22
1122:8
1135:8

track
1127:2

transcript
1103:20
1111:14
1112:4
1113:23

translated
1150:23

transparency 1152:14

tried
1153:7

try 1127:9
1145:13
1147:6
1158:9

trying
1148:16
1156:16
1157:2

turn
1118:13
1121:19
1135:6

turning
1129:1
1135:25

two-year
1143:23

type 1134:9
1143:6

U

ultimately
1126:20,23 1132:4 1139:8 1156:8,13,18

umbrella
1139:9

underlaying
1133:21

understand
1106:17 1119:11 1133:24 1145:6 1150:6 1153:8

understanding 1136:8 1137:24 1147:12 1148:12

undertaken
1143:7 1146:20

undertaking
1104:9,10 1107:17,20,24 1108:1 1145:20

undertakings
1159:9,12,14,15,21 1160:1,10

undertook
1119:18

unit
1159:15

unwritten
1153:14

update
1159:12

updated
1123:5 1150:25 1151:1

updating
1151:4

upon 1106:1 1111:22 1160:24

useful
1128:1

Utilities
1101:1,20 1114:1 1115:20,23 1121:25 1122:11,18 1125:4,14 1127:16,21 1141:15

Utility
1121:19 1128:2 1135:11

V

valid
1154:1

value
1103:7 1106:7 1108:9 1132:7 1133:2,7,9,18 1134:17 1142:12 1144:4 1151:7 1155:19 1156:23

Vandewater
1101:16

VanKoughnet
1113:12

various
1133:13

vast
1155:16

vehicle
1142:25

vendor
1157:20

version
1104:3 1106:16,21

versus
1153:17 1156:20 1157:4

viability
1134:24 1136:15 1157:9

viable
1135:5

view 1114:8 1133:6 1145:20 1146:10,25 1147:3,8,23 1148:10 1151:17

volatility
1112:6,9

W

wait
1112:19

waiting
1160:1

warning
1131:1

warnings
1133:19

wasn't
1134:4 1146:4

Watchman
1102:4

week
1108:21

we'll
1112:19 1120:21 1121:11 1138:8,24 1141:3 1151:4 1160:20

Wennberg
1103:9 1108:11 1142:22 1143:3,9,15 1145:23 1152:7,11 1153:2 1154:13,16 1156:5

we're
1109:12,22 1110:6 1127:24 1137:14 1153:24 1159:5,24 1160:1

we've
1137:9 1157:8

whether
1114:2,13

whole
1154:3 1157:9

wholesome
1126:7

whom
1127:22 1142:1

who's
1115:5

Williams
1102:9 1103:15 1108:5,17,18 1109:10,20 1110:4,12,23 1111:5,13,21 1112:2,16 1113:2,10,14,21 1114:5,11,17,20,24 1115:4,17,22,24 1116:3,6,7,11,15,23 1117:2,7,18 1118:4,8,13 1119:3,9,17,24 1120:6,11,20,25 1121:5,10,15,18 1122:7,17,21 1123:1,9,19,23 1124:2,10,21 1125:3,10,18,22,24,25 1126:11,15,19 1127:4,11,20 1128:12,15 1129:1,11,23 1130:6,13,16,23 1131:13,19,23

1132:3,4,
11,21,24
1133:5,16
,23
1134:7,14
,19,22
1135:6,14
,25
1136:6,12
1137:5,20
1138:3,6,
11,20,21
1139:7,10
,19
1140:1,2,
9,13,24
1141:8,14
,19,24
1142:2,22
1143:4,10
1144:3,10
,15,18,25
1145:5,11
,12,17,18
1146:15,2
3
1147:2,13
,20
1148:3,11
1159:23
1160:7,12
,15

Winnipeg
1101:22
1159:4

witness
1103:6
1108:8
1118:17

wonder
1115:4,7,
8 1137:6

wondering
1159:11

worded
1142:4

work
1112:23
1128:4,8
1156:16
1157:3

workflow
1159:16

working
1127:24
1134:17
1156:18
1157:3

would've
1117:12
1125:8
1153:3

write
1130:11

wrong
1137:9
1156:10

Y

year's
1115:15
1145:4

Yep 1113:13
1132:20

yesterday
1107:1,17
1114:13
1127:8
1132:6
1137:25
1143:2
1147:15
1148:14
1151:23
1160:8

yet 1136:9

you'll
1111:17
1116:8,16
1120:15
1121:2,24
1122:10,1
8 1124:6
1128:13
1140:15
1141:14

yourself
1159:22

you've
1113:3,4
1114:14,2
0 1132:22
1152:12
1157:22

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 26, 2018

Pages 1162 to 1333

APPEARANCES

Kathleen McCandless	)Board Counsel
Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
Anthony Guerra	)Insurance
Byron Williams	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes (np)	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

	Page No.
List of Exhibits	1165
CAC WITNESS PANEL 1:	
WAYNE SIMPSON, Sworn	
ANDREA SHERRY, Sworn	
Examination-in-Chief by Dr. Byron Williams	1175
Cross-Examination by Mr. Anthony Guerra	1211
Cross-Examination by Mr. Robert Watchman	1267
Certificate of Transcript	1333

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
MPI-31	Response to Undertaking Number 1	1168
MPI-32	Response to Undertaking Number 2	1168
MPI-33	Response to Undertaking Number 15	1168
MPI-34	Response to Undertaking Number 5	1168
MPI-35	Response to Undertaking Number 7	1169
MPI-36	Response to Undertaking Number 9.	1169
MPI-37	Response to Undertaking Number 10.	1169
MPI-38	Response to Undertaking Number 11.	1169
MPI-39	Response to Undertaking Number 13.	1170
MPI-40	Response to Undertaking Number 18.	1170
MPI-41	Response to Undertaking Number 14.	1170
MPI-42	Response to Undertaking Number 6.	1170
MPI-43	Response to Undertaking Number 8.	1171
MPI-44	Response to Undertaking Number 12.	1171
MPI-45	Response to Undertaking Number 16.	1171
MPI-46	Response to Undertaking Number 17.	1171
MPI-47	Excerpt from Board Order 130/'17 from last year's GRA, page 29.	1172
CAC-26	PowerPoints titled the Role of the DCAT and Interest Rate Forecasting.	1175
CAC-27	Powerpoint titled Capital Maintenance Provision.	1175

--- Upon commencing at 10:03 a.m.

THE CHAIRPERSON: Good morning everyone, sorry for the delay. I was trying to ensure that the drilling would not start and we'll see how successful we are. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair and members of the panel. Just an update on the order of proceedings today.

We will hear from Dr. Wayne Simpson, Andrea Sherry, on behalf of CAC. We had some off-line communications with the parties yesterday late in the day as we were waiting for a number of undertakings to be answered by MPI. Those were answered I believe around 6:00 p.m. last night, but as a consequence, we have moved the panel number 2 of MPI which was the investments, DCAT, RSR, CMP panel to come back first thing on Monday to answer any questions arising from answers to undertakings; following that on Monday we'll hear from Mr. Viola. So, we are proceeding today with Dr. Simpson and Ms. Sherry and that will complete the day.

THE CHAIRPERSON: Thank you. Mr. Scarfone...?

MR. STEVE SCARFONE: Yes, good

morning, Mr. Chair, panel members. Yes, before My Learned Friend begins with the examination-in-chief of his expert witnesses, MPIC has, as Ms. McCandless's indicated, filed a number of undertaking, some of which were sent on Wednesday, a number of which were sent yesterday but we're happy to report that all of the undertakings have now been provided, as I understand it, with the exception of some schedules and supporting documentation for PreAsk 1.

PreAsk 1, Mr. Chair, you will recall, was the update that was requested of MPIC for the various forecasting based on different interest rate forecast methodologies, CEMP, that stuff. I can tell the -- the Board and My Learned Friends that we expect that documentation and those schedules to be provided in -- probably after lunch. So all of that -- all of that work has now been performed. I'm told it's in excess of six hundred (600) pages so that has to be compiled and formatted while we're here and we hope to circulate that after the lunch hour, if that -- if that leaves My Learned Friend enough time to look at it.

And then, lastly, before -- before I turn -- turn it over to My Learned Friend, there are a number of exhibits that we'd like to read into the

record, mainly, the undertakings that have been filed in the past couple of days.

Ms. Schubert tells me we're at Exhibit 31, which was Undertaking Number 1.

--- EXHIBIT NO. MPI-31: Response to Undertaking Number 1

MR. STEVE SCARFONE: Exhibit Number 32, is Undertaking Number 2.

--- EXHIBIT NO. MPI-32: Response to Undertaking Number 2

MR. STEVE SCARFONE: Exhibit 33 was Undertaking Number 15.

--- EXHIBIT NO. MPI-33: Response to Undertaking Number 15

MR. STEVE SCARFONE: Exhibit 34 was a response to Undertaking Number 5.

--- EXHIBIT NO. MPI-34: Response to Undertaking Number 5

MR. STEVE SCARFONE: Exhibit 35 was response to Undertaking Number 7.

--- EXHIBIT NO. MPI-35: Response to Undertaking Number 7

MR. STEVE SCARFONE: Exhibit 36 was response to Undertaking Number 9.

--- EXHIBIT NO. MPI-36: Response to Undertaking Number 9.

MR. STEVE SCARFONE: Exhibit 37 was the response to Undertaking Number 10.

--- EXHIBIT NO. MPI-37: Response to Undertaking Number 10.

MR. STEVE SCARFONE: Exhibit 38 the response to Undertaking Number 11.

--- EXHIBIT NO. MPI-38: Response to Undertaking Number 11.

MR. STEVE SCARFONE: Exhibit 39 was

the response to Undertaking Number 13.

--- EXHIBIT NO. MPI-39: Response to Undertaking Number 13.

MR. STEVE SCARFONE: MPI Exhibit Number 40 was the response to Undertaking Number 18.

--- EXHIBIT NO. MPI-40: Response to Undertaking Number 18.

MR. STEVE SCARFONE: Exhibit MPI-41 was response to Undertaking Number 14.

--- EXHIBIT NO. MPI-41: Response to Undertaking Number 14.

MR. STEVE SCARFONE: Exhibit MPI-42, the response to Undertaking Number 6.

--- EXHIBIT NO. MPI-42: Response to Undertaking Number 6.

MR. STEVE SCARFONE: MPI Exhibit 43, was the response to Undertaking Number 8.

--- EXHIBIT NO. MPI-43: Response to Undertaking Number 8.

MR. STEVE SCARFONE: Exhibit MPI Number 44 was the response to Undertaking Number 12.

--- EXHIBIT NO. MPI-44: Response to Undertaking Number 12.

MR. STEVE SCARFONE: MPI Exhibit 45, the response to Undertaking Number 16.

--- EXHIBIT NO. MPI-45: Response to Undertaking Number 16.

MR. STEVE SCARFONE: And Exhibit MPI-46, was the response to Undertaking Number 17.

--- EXHIBIT NO. MPI-46: Response to Undertaking Number 17.

MR. STEVE SCARFONE: And then, lastly, MPIC would like to mark as Exhibit 47 an excerpt from the Board Order 130/'17 from last year -- last year's GRA, page 29 of that particular Order will be filed as

Exhibit 47.

--- EXHIBIT NO. MPI-47: Excerpt from Board Order 130/'17 from last year's GRA, page 29.

MR. STEVE SCARFONE: And those -- that's all MPIC has at this moment.

THE CHAIRPERSON: If I could ask, Mr. Scarfone, I don't have a problem with almost all your exhibits. Explain Exhibit 47 to me. Is this -- was this referred to in -- in testimony?

MR. STEVE SCARFONE: I do. And I may, perhaps -- so Mr. Guerra will be asking questions of the CAC expert witnesses once they're done their examination-in-chief. I understand it --

THE CHAIRPERSON: So this is in relation to these -- that's why.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: That's fine. I just -- I was trying to figure out the -- the context.

MR. STEVE SCARFONE: The relevance, yes.

THE CHAIRPERSON: Yes, that's fine. Okay, thank you, Mr. Scarfone.

Mr. Williams...?

DR. BYRON WILLIAMS: Yes and I'll just indicate our client has no objection to Exhibit 47. It's certainly well within the Rules.

THE CHAIRPERSON: Certainly.

DR. BYRON WILLIAMS: Just perhaps if I might ask clarification. There was also one (1) response -- a confidential response filed by letter, which we received this morning and we thank Manitoba Public Insurance for it.

Is that marked as an exhibit or how -- how do we treat those documents?

THE CHAIRPERSON: I suspect it's marked as an exhibit in the CSI hearing. We're in public hearing now so it wouldn't be marked as an exhibit here.

We could -- once -- once we're finished here we could go back into the CSI or Monday morning or whatever, but it should be marked properly I would assume as an exhibit in that -- in that proceeding.

DR. BYRON WILLIAMS: And I'll just -- we may be referring to it so I just want to make sure I have the proper reference for it, Mr. Chair.

THE CHAIRPERSON: Sorry, you may be referring --

DR. BYRON WILLIAMS: Not today, not till Monday.

THE CHAIRPERSON: But if it's a confidential exhibit, are you proposing to refer to it in public hearing?

DR. BYRON WILLIAMS: Of course not, sir.

THE CHAIRPERSON: Okay, so we would go back to CSI, okay.

DR. BYRON WILLIAMS: I'll just note for the Board, they won't be surprised to see Dr. Wayne Simpson here and Ms. Andrea Sherry. Our client Ms. Gloria DeSorcy has -- is -- is here as well.

And I'd ask that the witnesses be sworn, please.

CAC WITNESS PANEL 1:

WAYNE SIMPSON, Sworn

ANDREA SHERRY, Sworn

DR. BYRON WILLIAMS: Mr. Chair, there are two (2) PowerPoints that -- in support of the direct evidence of the witnesses, one (1) is titled the Role of the DCAT and Interest Rate Forecasting. Dr. Simpson is always known for his snappy titles and

that we'd suggest be marked as CAC Exhibit 26.

--- EXHIBIT NO. CAC-26: PowerPoints titled the Role of the DCAT and Interest Rate Forecasting.

DR. BYRON WILLIAMS: And the other one is the Capital Maintenance Provision and we would ask that that be marked as CAC Exhibit-27.

THE CHAIRPERSON: Thank you.

--- EXHIBIT NO. CAC-27: Powerpoint titled Capital Maintenance Provision.

EXAMINATION-IN-CHIEF BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Dr. Simpson, and Ms. Sherry, the next couple of questions I'm going to ask you as a team, but I'd ask you to answer sequentially for the record.

Dr. Simpson, and Ms. Sherry, you were jointly responsible for the preparation of the report, the role of the DCAT and interest rate forecasting in the 2019 GRA, as well as for the report, the Capital Maintenance Provision Proposed by Manitoba Public Insurance?

MS. ANDREA SHERRY: Yes.

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And, Ms. Sherry, and, Dr. Simpson, you were jointly responsible for the preparation of information responses to the Public Utilities Board 1-1, 1-2, 1-8, 1-9, as well as to Manitoba Public Insurance 1-1 through 1-7?

MS. ANDREA SHERRY: Yes.

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And the information provided in those reports and Information Responses is accurate to the best of your knowledge and ability?

MS. ANDREA SHERRY: Yes.

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: Before turning to your presentations, I wonder if I could ask Ms. Schubert to go to Exhibit 10, Appendix B, B9, which is the evidence of the -- of rel -- regarding the Capital Maintenance Provision, and recognizing that you already have been prequalified, Ms. Sherry, you are a Fellow of the Casualty Actuarial Society and Fellow of the Canadian Institute of Actuaries?

MS. ANDREA SHERRY: I am.

DR. BYRON WILLIAMS: You also hold the

designation of Chartered Professional Accountant Certified Management Accountant?

MS. ANDREA SHERRY: Yeah.

DR. BYRON WILLIAMS: Currently you serve as Vice-President Insurance Solutions at the Wawanesa Mutual Insurance Company where you are responsible for actuarial pricing, product development and maintenance?

MS. ANDREA SHERRY: Yes.

DR. BYRON WILLIAMS: Your prior roles involved work insolvency and capital enterprise risk management and investments?

MS. ANDREA SHERRY: Yes.

DR. BYRON WILLIAMS: And while you currently work in the private sector you served with Manitoba Public Insurance as an Associate Actuary from 1991 to 1997?

MS. ANDREA SHERRY: Yes.

DR. BYRON WILLIAMS: You also served for four (4) years with Saskatchewan Government Insurance as Assistant Vice-President and Corporate Actuary?

MS. ANDREA SHERRY: Yes.

DR. BYRON WILLIAMS: And perhaps if we can just turn to page 10 of this same document. Ms.

Sherry, you were -- understand as a term of your retainer you're obliged to provide evidence that is fair, objective, and non-partisan; agreed?

MS. ANDREA SHERRY: Yes.

DR. BYRON WILLIAMS: Perhaps if we could go to Exhibit 9, page 9, "the Role of the DCAT and Interest Rate Forecasting".

Dr. Simpson, you are a full professor in the Department of Economics at the University of Manitoba and currently Acting Chair?

DR. WAYNE SIMPSON: Acting Head, yes.

DR. BYRON WILLIAMS: And you serve on the Editorial Board of Canadian Public Policy, which is Canada's foremost peer-reviewed academic journal for economic and social policy, sir?

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And you were a 2014 recipient of the McCracken Award for the Development and Analysis of Economic Statistics from the Canadian Economics Association?

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And whether on issues related to the Manitoba Public Insurance rate stabilization reserve or investment strategy, you have provided expert evidence to this Board in 2007, 2010,

2013, 2014, 2016, and 2017?

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And prior to joining the U of M, you worked both for the Bank of Canada and the Economic Council of Canada, sir?

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: And finally, you understand your duty to provide evidence that is fair, objective, and non-partisan?

DR. WAYNE SIMPSON: Yes.

DR. BYRON WILLIAMS: With that we'll turn it over to Dr. Simpson and CAC Exhibit 26.

And just for the panel's information, Dr. Simpson is going to go through the first ten (10) or so slides of this PowerPoint and then we'll turn things over to Ms. Sherry and then we'll go back to Exhibit 26, just to fin -- finish up the oral presentation.

Please proceed when you're ready, Dr. Simpson.

DR. WAYNE SIMPSON: Okay. Thank you. I hadn't thought of a snappy title, but I guess if I had, it would be something like looking back and looking forward, the role of the DCAT and Interest Rate Forecasting in the 2019 GRA. And I want to break

this up into the two (2) parts.

Looking back, in terms of the role of the DCAT, where I'm going to look at a chronology or a brief history of where this has been and where we're at and in specific reference to a question that was posed by the -- by the Board.

And then looking forward, thinking about the role of interest rate forecasting and the 2019 GRA. Next slide, please.

So, these are the -- to my mind two (2) of the significant features in the -- in the 2019 GRA. What appears to be a renewed emphasis on attaching the Minimum Capital Test to the determination of the RSR, and as I said, I'm going to look back on that from the beginning, which isn't that far back.

And then, secondly, look at the continued application of the naive forecast to interest rates to do the breakeven rate indication and the Dynamic Capital Adequacy Test, the DCAT, to inform the RSR range and what has happened to substantiate or invalidate the naive forecast in -- in terms of recent events. Next slide, please.

So, as I said, we don't have to look back very far, simply going back to the 1988 Autopac Review Commission, the Kopstein report. When I was

doing this, I was thinking that there are a number of historians who've been quoted as saying that you need to study history, because you don't want to repeat its errors. I went back and looked at the source of that which is not a historian at all, but a philosopher, George Santayana, an Italian, who said:

"Those who cannot remember the past are condemned to repeat it."

And so going through this I was trying to provide a brief background for, essentially, the -- the question that the Board had posed that Mr. Sherry and I tried to answer in -- in a brief form and now this is -- is in a sense a more elaborate response to that.

So the 1988 report, which lay the foundation I think for the modern proceedings on the -- on the GRA established, among other things, a retained surplus targetable 15 percent for premiums around breakeven income as the basis for what has come to be called the Rate Stabilization Reserve or RSR.

And it also established a range which would put this at plus or five (5) -- plus or minus 5 percent of that 15 percent target, if you will. That was a midpoint target and said, in fact, that MPI should -- should and would be expected to take

remedial action if these -- this range was -- if -- if the actual income breakeven net income fell outside this range.

And so this provided the foundation for the RSR in a range of 10 to 20 percent of annual premiums which would now be in a range as I -- I'm going to say from a hundred and eight to 215 million with a midpoint the 15 percent of 162 million.

And this was to protect motorists as we've often heard since from rate increase associated with unexpected events and losses arising from non-recurring events or factors.

This, of course, was during a period in the 1980s when inflation was a great deal higher and when rates were probably considerably more volatile than they've been recently as inflation has been relatively stable.

But it provided what I would characterize as a simple and transparent and, to use the term that's been used recently, objective mechanism index to the size of the operation of MPI, but one (1) which was not linked to the actual risks faced by MPI which was the problematic feature of it.

And these risks, of course, could be increasing or decreasing through time. The only thing

that the -- the percentage of premiums or Kopstein approach did was index it, essentially, to the growth in the operations of MPI itself.

DR. BYRON WILLIAMS: Dr. Simpson, before you leave this slide, you may have misspoke. You talked about taking remedial action if net income fell outside the range of 10 to 20 percent of premiums.

Did you mean to say "net income" or did you mean to say "surplus"?

DR. WAYNE SIMPSON: I'm sorry, I meant to say that if the surplus fell. Yes, I'm sorry.

DR. BYRON WILLIAMS: Thank you.

DR. WAYNE SIMPSON: And -- and I presume from those remedial actions that the action would be that if the -- the -- it fell outside of 10 percent of the surplus, in a sense below 10 percent of the surplus, that remedial action -- what we would now call an RSR build -- rebuild, and if it were above 20 percent surplus in terms of 20 percent of premiums, then there would be some form of rebate to ratepayers. Although that's not explicitly stated in the recommendation.

And those numbers, I should add, I actually took out the Kopstein report from the

Manitoba -- University of Manitoba library. I looked through it. There isn't a great deal of analysis to inform us of how those numbers came about but, as I suggest, they have been relatively consistent with what we -- we observe as an appropriate premium for -- for the -- for the RSR.

Okay. So then the second part of the chronology, which is when I became involved in 2007, is the risk analysis approach or the subsequently called the Operational and Risk -- Investment Risk Analysis, RA/VaR.

And this, essentially, tried to take the evidence that was available on underwriting income from year to year, so, it was only the annual income available with -- because we're annual proceedings and to try and analyse that to see the extent of its volatility and there to try to identify what is referred to in statistical terms as the 95 percent or the 97.5 percent confidence intervals around that. So, it wouldn't exclude all outcomes, but only those that are within a range of the -- of the trendline for underwriting income.

The value of this I think, as I say, is redirected the risk analysis to a more statistical or scientific approach specifying a particular risk

tolerance level, which corresponding to the confidence level used in the RA/VaR was the 97.5 percent confidence interval, which indeed would correspond to a 2.5 percent annual chance of occurring these adverse events or 1:40 year event.

So, essentially, all that it was excluding from the analysis of movements in underwriting income were events which were outside this range which would occur less frequently than once in every forty (40) years.

And this was endorsed by the Board in 2007, saying that the RSR should be large enough to withstand an unforeseen loss of a magnitude not anticipated to occur more than once in forty (40) years, and that has endured through the -- through this -- since 2007.

The problem here was that we didn't really have very much data. As I remember, when we first looked at this in the -- in 2007, there were only about eighteen (18) annual observations and that really isn't sufficient to give you much statistical reliability on -- on measuring the 97.5 percent confidence interval, and indeed on trying to see if the risks facing the Corporation were changing over time.

In principle, you can do that statistically, look at how the -- how the variation in underwriting income is changing through time; that's a fairly straightforward statistical procedure, but it wouldn't be very reliable when you've only got eighteen (18) annual observations. And so that wasn't entirely satisfactory, and this approach was never adopted as far as I can see by -- by the Board.

So, the third step then was in 2005 MPI introduced the Minimum Capital Adequacy Test, the MCT, and recommended an RSR range of 50 to 100 percent MCT in the 2007 GRA. It was pointed out then, and it's still pointed out, that it -- the MCT is recognized by OSFI to assess capital required for a private company in a competitive industry to forestall insolvency.

At that time, concerns were expressed and still are expressed that it's not clear how something that applies to private insurers in competitive markets has much to say about the risk profile faced MPI which is a Crown corporate monopoly.

In addition to that, the MCT does not address the specific risk faced by MPIC. It certainly doesn't itemize them and evaluate them.

And the Board Order in 2008 indicated a desire for some sort of consensus on an RSR range,

which can be accepted by all parties, and that led to the final step, if you will, which was the -- in 2010, the Dynamic Capital Adequacy Test. This had been already commissioned to assess future financial condition of Basic but was now beginning to be used in 2010 to substantiate the RSR target.

At that time the scenarios that were used, I've characterized as improbable catastrophe scenarios which weren't grounded in historical evidence and this was one (1) of the major objections. And there was attempts and subsequent disc -- technical conferences and proceedings to move towards plausible scenarios based on evidence and establish risk tolerance levels.

2010, there was a commitment by MPI to do the DCAT in-house and to closely integrate it with the risk identification process, which I think facilitated this kind of transformation towards these plausible scenarios.

The consensus was then built on this methodology that would be something that was transparent and consistent with established risk tolerance practices, again, centered around this 1:40 year standard. And the DCAT -- its strength, I think, is it provides a direct connection of specific and

justifiable risks posed as these adverse events that are based on the historical evidence to future financial condition. And I think we've had some very productive both technical conferences and exchanges in proceedings that have helped to clarify what evidence is useful and what evidence is not and where the best scenario constructions are -- are more compelling than in others.

Okay. But that didn't set the RSR range. It simply set what was referred to as an RSR target based on the 1:40 year standard. I've argued that the RSR range could be produced by setting low and high risk tolerance levels. For example, a 1:10 and a 1:200 year standard or a 1:20 and 1:100 year standard to establish the lower and upper RSR thresholds.

MPI suggested instead a hybrid approach, which would use the 1:40 year standard to -- in the DCAT to produce the lower RSR threshold and an MCT of 100 percent to set the upper threshold. Although the hundred percent MCT was subject to the same criticisms from before.

And the Board in 2016, said that it continued to favour the use of the scenario testing approach in the Basic DCAT for the purposes of setting

Basic target capital level -- levels expressed in terms of Basic total equity and for purposes of setting the upper threshold, the Board withdraws its support for the use of the MCT and the MCT threshold ratio of 100 percent. And that seems to be where we're at in terms of using the DCAT to set the R -- DC -- of the RSR, rather than the MCT.

So then why are we back using the MCT in terms of expressing the DCAT range. Again, the MCT is about the capital required for private companies in a competitive industry and not a monopoly Crown insurer to forestall insolvency. And it's difficult using MCT levels whether they be 50 and 100 percent or 35 percent and 85 percent to attach any meaning in terms of specific risks and associated risk tolerance levels that are consistent with some sort of a statistical or scientific approach to risk assessment.

The -- the DCAT, on the other hand, captures the specific financial risks, as they evolve according to the evidence and established risk assessment pract -- practices; something the MCT approach cannot do.

And the -- the DCAT has been built up using this collaborative process. It's involved a considerable amount of time. I think the process is

now reasonably transparent, and it seems to me that there is no compelling argument at all for abandoning the DCAT at this point in time.

So, that brings me to the -- the -- the PUB question to us. We said, Ms. Sherry and I, that the POP and DCAT methodology should continue to inform the setting of the RSR range.

Question posed by the Board was:

> "Please explain why Dr. Simpson and Ms. Sherry believe the POP methodology is currently informing the RSR range..."

And the POP doesn't come up a great deal anymore, I guess.

> "...and the rationale to understand the assertion that POP is currently used for setting the RSR range."

Our response was:

> "We are not aware of any PUB decision that explicitly asserts that the POP would no longer be used to set the RSR range. It certainly was used in the early days century, I guess] with and without the use of other information.

Although we would -- we would acknowledge that recent emphasis and discussion has concentrated on the use of the DCAT to inform, if not set the RSR range, and the DCAT has been valuable in identifying the risk facing the Corporation and indicating how those risks change over time."

For example, what we've seen in the proceedings using the DCAT is that the risk scenarios in terms of the most prominent individual risk scenarios have moved from the equity decline scenario to the interest rate decline scenario and now to the high loss ratio or claim scenario. And this is, I think, important information not only to the operations of MPI and to the Board, but also in terms of setting the Rate Stabilization Reserve as a protection against these kinds of risks.

DR. BYRON WILLIAMS: Dr. Simpson, before you leave this slide, can you just remind the Board what POP stands for, sir?

DR. WAYNE SIMPSON: POP is the Percentage Of Premiums approach established by the Kopstein report which was a RSR target of 15 percent with a range of 10 to 20 percent of net underwriting income.

So my final slide at this point is my first recommendation, which is that the current POP and DCAT methodology should -- and not the MCT level should continue to inform the setting of the RSR range. The lower RSR threshold is 120 million, according to the DCAT, the current DCAT report, and indicates a declining risk which the MCT can neither detect nor evaluate.

The lower POP threshold on the other hand, is 108 million based on net premiums written of 1.08 billion a little bit below the RSR threshold from the DCAT report, but not a lot.

The upper threshold using the PUB approved methodology, again based on the DCAT and established risk tolerance meth -- methods -- levels and statistical methods, risk assessment methods, is 251 million, and the upper POP threshold is 250 million. Again, a bit lower, but certainly the gap between the upper POP threshold and the approved methodology is less than, for example, the difference

between the approved methodology the 251 million, and the 85 percent MCT figure quoted in the GRA of 305 million.

DR. BYRON WILLIAMS: Ms. Sherry, over to you --

DR. WAYNE SIMPSON: Thank you.

MS. ANDREA SHERRY: Good morning, everyone. We can go to the next slide.

Just as an overview of our arguments in this paper. To start, I'm sure as everyone here is very well aware based on the naive forecast of interest rates, MPI has applied for a 2.2 percent overall increase, which is made up of a 1.9 percent decrease based on accepted actuarial practice in Canada and that includes the 1.2 percent decrease based on the investment income on the RSR and a 3.3 percent increase for the newly introduced Capital Maintenance Provision.

So the Capital Maintenance Provision suggested by MPI is calculated using the Minimum Capital Test. So what they did is set the Minimum Capital Test for the 9 -- 2019/'20 projection equal to the 2018/'19 projection to come up with the amount of capital they felt they needed to hold to keep their capital at a steady level, according to the MCT.

What we would argue is that every year MPI does a DCAT analysis, a very thorough DCAT analysis which comes to the PUB, it looks at the true capital need of the Corporation based on adverse scenario analysis and it determines -- it could determine the RSR range based on those adverse scenario results and MPI could hold capital within the RSR range determined that way, which we believe is actually prudent fiscal management and, therefore, the CMP is not necessary.

Through this yearly process, MPI comes to the PUB and presents the results of all of these analysis. If MPI needs capital through that yearly process, they can ask the PUB for a rate increase to bring their capital to the level it should be. Next slide.

So, from here I'm just -- I'm going to go through, basically, the arguments of the paper of why we don't believe that the CMP is necessary.

And one (1) thing that struck me when I first read the rate application this year was the suggestion that CMP was agreed to at the technical conference. And that again was repeated in Response to CAC(MPI)-172 where the Corporation states that the -- the Corporation agreed that it was appropriate to

include a Capital Maintenance Provision in the 2019 GRA.

I went through that transcript very carefully and nowhere in that transcript does it suggest that consensus was reached by all the stakeholders.

The next spot on the CMP was that it had not been vetted by the public. It is a very significant change to add the CMP to the requested rate change calculations and it's a theoretical change and approach from what we've discussed at prior GRA hearings. I believe -- we believe -- that the public deserves to have its voice heard on this significant change.

And it's not an overly complex suggestion or idea, and I'm -- I'm sure that the public could understand what's being suggested by the CMP if given the opportunity to hear it.

DR. BYRON WILLIAMS: I wonder if we could just stand down for a couple seconds til the noise ceases.

MS. ANDREA SHERRY: It could come on and off.

THE CHAIRPERSON: Let's wait five (5) minutes. I apologize.

(BRIEF PAUSE)

--- Upon recessing at 10:40 a.m.
--- Upon resuming at 10:49 a.m.

THE CHAIRPERSON: My apologies. We're trying to track this down, and I have met with the landlord. By the way, in the moment we were away, if anyone's interested, the FBI have arrested somebody in relation to the bombs in -- in the United States. They arrested somebody in Florida, so.

Anyways, sorry for the interruption, Ms. Sherry, if you could -- if you could continue.

MS. ANDREA SHERRY: Of course. So I think I have covered this slide, basically the CMP has not been vetted by the public. So I'm moving on to the next one.

The CMP does not align with accepted actuarial practice in Canada. The Actuarial Standards of Practice are silent on any addition of capital load into a rate indication. And we would argue that the Actuarial Standards of Practice are silent on this issue, because a capital load should not be part of a rate indication.

In response to CAC(MPI)-178, the Corporation made it clear that they were not aware of any literature in regards to a CMP. On to the next slide.

As Dr. Simpson alluded to as well, we feel that the use of an MCT target to set a Capital Maintenance Provision level is arbitrary, and it is Board approved. MPI is not regulated by OSFI so there is no set MCT level that MPI is required to be above and there's no way to determine one.

The Board has shown support for the determination of the RSR range based on the DCAT analysis. The MCT is formulaic with risk margins that are set to ensure private companies do not go insolvent and this is to protect the Canadian economy.

The risk margins within the MCT were not set for a monopoly Crown Corporation. Again, they were set for private companies to ensure they don't go insolvent.

The CMP does not align with the Board approved methodology for calculating the amount of capital the Corporation requires and is not consistent with work we have done to date.

We have done a lot of work on the DCAT analysis and the use of the DCAT to set the RSR range.

There's a yearly process where MPI comes before the Public Utilities Board with all of their analysis and looks at where their capital is, and whether it's within the RSR range. And at that time they can ask for rate changes if the capital is below the RSR range. The Board has shown support for this approach in the past.

The introduction and basis for a CMP in the 2019 GRA is incomplete and when we say this, we mean that they -- in the application and throughout the hearing process, there has been a lot of discussion about a capital plan which the Corporation does not have ready. If a CMP is something that the Public Utility Board feels should be within a rate application, it should come tied to a capital management plan.

On the next slide. We also feel that the introduction of a CMP increases the risk of intergenerational inequity and what we mean by that is that we're asking for more capital now because -- because the projections show that the capital of the Corporation could go down in future years. But again, due to the yearly process in Manitoba if that does occur, then they can ask -- MPI could ask for a rate increase at that time to increase their capital

instead of asking for it now which separates the capital need from the people -- the policies that would be in place in the year that the capital need is actually required.

And moving on to the recommendations. We ask or we suggest that the Public Utility Board order that the CMP be removed from the 2019 GRA and that the DCAT methodology be used to set the RSR range.

We also ask that the PUB approve a decrease in rates based on the 50-50 interest rate forecast and accepted actuarial practice in Canada which would include the investment income on the RSR.

That concludes mine.

(BRIEF PAUSE)

DR. WAYNE SIMPSON: So the last part of mine, the looking forward, is the interest rate forecasting and the 2019 DCAT report. Interest rate forecasting is important both in terms of the establishing the base scenario and in working through the adverse scenarios and their implications for the establishment of the RSR on the basis of satisfactory financial conditions.

The recent DCATs, of course, have been conducted under an unusual period of low interest rates, an unusual period that emanates from the 2008 recession. It wasn't as deep in Canada as it was in other parts of the world, our neighbours to the south, but it certainly was significant. The growth out of that was relatively slow and interest rates have been kept low by the Bank of Canada to stimulate the economy.

That has had two (2) consequences. One (1) was the -- that one (1) of the scenarios, the adverse scenarios that had been identified, interest rate declined scenario, necessarily lacked historical evidence and continues to be based on ad hoc assumptions, as discussed in previous GRAs; that has been less of an issue in this DCAT, essentially, because the interest rate declines scenario is no longer the most prominent individual adverse scenario. It's now the high loss ratio or claim scenario.

It's also been a challenging period for interest rate forecasting to establish the DCAT base scenario and set the dr -- the breakeven rate indication. It -- quick -- I would acknowledge hindsight is 20/20. It's not hard to acknowledge that the SIRF has been too optimistic about economic

recovery and rising interest rates since the 2008 great recession.

And MPI has advocated instead, the use of a naive interest rate forecast, which essentially says that interest rates will remain constant at some point; in this case initially February of 2018, the end of February and now I see updated now interest rate held constant at its September 30th level in the -- in the PreAsk 1 from the PUB.

And that goes up until the 2022 fourth quarter. The forecasting here is a four-year exercise. The Board Order in 2017 said that the 50/50 forecast should be used for rate setting in capital -- and target capital. The 50/50 forecast weights the SIRF at 50 percent and the naive fore -- interest rate forecast at 50 percent. So they get equal weighting to kind of moderate the interest the -- forecasts of the SIRF to reflect the fact that the SIRF has, in the past, consistently overestimated economic and interest rate recovery.

So the question then is: Why is the naive interest rate forecast being used in the -- in the current DCAT and GRA? Well, the standard forecast error is slightly lower for the naive forecast based on a historical period starting in 2005, which mostly

includes the period since 2008 and the period of low interest rates. Slightly lower than the 50/50 and the SIRF.

But if we look, for example, as I put it in here at the last two (2) years, the 2017/2018 GRAs, the SIRF has clearly outperformed the naive forecast which you would expect because this is the period when interest rates have begun to recover in the fashion that's been predicted for a long period of time by the SIRF and the result of that is going to be that naive forecast is going to be an understatement of interest rates.

And you can see that if you look at the difference. Under the SIRF in 2017, it was .12 percent, that is to say, it overestimated interest rates by .12 percent. In 2018 it underestimated interest rate -- interest rates by .14 percent.

Now, compare that to the naive, this is the figures from INV-11. The naive forecast consistently and significantly underestimated interest rate growth by .45 percent in the 2017 GRA and by .6 percent in the 2018 GRA.

So not only has the naive forecast being considerably -- the errors have been considerably larger, the forecast errors, but they've

also been consistently in the direction of underestimating interest rate growth as the economy recovers.

In addition to that, the naive forecast is deficient in the sense that it doesn't pay attention to other signs of economic recovery in the domestic policy response by the Bank of Canada in a fashion that forecasters would, and in particular, that's reflected in the standard interest rate forecast from the -- the five (5) banks and the -- and global insight.

So, what do we mean by monetary policy response? Well, if you read the Bank of Canada monetary policy reports, they always start with the following statement:

> "The bank carries out monetary policy through changes in the target for the overnight rate of interest. These changes are transmitted to the economy through their influence on the market interest rates and that overnight rate of interest for that reason is often referred to as the policy rate."

The bank has already raised the

overnight rate three (3) times now, this year, January, July and as recently as Wednesday following two (2) increases last year in July and September and this policy rate as of Wednesday stands at 1.75 percent as of July the 12th of -- July the 11th of 2017 it was at .5 percent.

And the recent statement from the September 5 release:

> "Recent data reinforced governing Council's assessment that higher interest rates would be warranted, not one (1) increase, higher interest rates will be warranted to achieve the inflation target."

And certainly much of the discussion subsequent to this rate increase on Wednesday is that future interest rate increases -- increases in the policy rate are forthcoming.

What is MPI's response to this? CAC(MPI)1-6, the Bank of Canada's policy rate is not material. However, the Government of Canada 10 year benchmark rate is tracking upward movement of -- very closely to the Bank of Canada policy rate.

And I would argue that the policy rate is, in fact, material and the naive forecast will

continue to be significantly biased downward if it -- if it is used for the DCAT and the breakeven rate indication.

THE CHAIRPERSON: Sorry, Dr. Simpson, I just want to make sure that the record is clear.

You said it would be "significantly biased downward," your presentation says "biased downward," which one is it? There's a difference --

DR. WAYNE SIMPSON: The nai --

THE CHAIRPERSON: -- between biased down and --

DR. WAYNE SIMPSON: The -- the -- what did I say --

THE CHAIRPERSON: Significantly biased downward. Sorry, in your oral testimony you said "would be significantly biased downward."

I just want to know if we are relying on the oral testimony or we're relying on the words in your presentation?

DR. WAYNE SIMPSON: Well, there's no statistical test here. So I'm not -- I'm not claiming statistical significance. I am simply saying that the -- the differences will be large.

THE CHAIRPERSON: Okay. The --

DR. WAYNE SIMPSON: And -- and -- and

the direction will be downward.

THE CHAIRPERSON: Okay. So we'll go on it will be biased downward then?

DR. WAYNE SIMPSON: Biased downward, that's right, yes.

THE CHAIRPERSON: Okay. I just want to -- I just want to make sure, because -- okay. Thank you.

DR. WAYNE SIMPSON: So here is the request to pro -- to track the policy rate changes, which is the red step function and the Government of Canada 10 year bond rate, which is the blue squiggly line and you can see from this the fairly strong evidence. This is the kind of evidence that you would use when, you know, simple visual evidence you'd start with if you were doing a -- a more complete analysis of the relationship between the policy rate and the -- and other interest rates, like the 10 year bond rate of the sort that the Bank of Canada and monetary policy people do on a regular basis.

And what you can see there is that the two (2) have moved pretty much in lockstep, that is to say, as the policy rate has gone up the Government of Canada 10 year bond rate has gone up. You can draw -- visually draw a line -- I haven't done that -- but you

can draw a line through that squiggly movement of the Government of Canada 10 year bond rate to upward level.

And, of course, what is missing from there is the most recent increase and prospective future increases that are anticipated but not yet realized which we think will also move that Government of Canada 10-year rate higher, and that's reflected in the standard interest rate forecast, but not in the naive forecast. In fact, the naive forecast, I suppose would take the Government of Canada 10-year rate as of September, which is the -- the bottom of that last increase and -- and move it across and say, this is going to remain stable from the current moment until the fourth quarter of 2022.

Okay then, finally, does the interest rate forecast matter? Yes and no? Yes. Looking at figure INV-12, the breakeven rate indication and the GRA is set at .1 percent under the naive forecast, but is only minus .5 percent under the 50/50 forecast, and minus 1 percent under the SIRF.

In the PreAsk, the figures now are that the naive forecast will provide a rate -- breakeven rate indication of minus .26 percent and the 50/50 forecast would provide a breakeven rate indication of

minus .6 percent.

But no in the sense that the -- the evidence to suggest that the -- provided by MPI suggests that total equity is higher under the 50/50 than under the naive forecast so that sat -- satisfactory financial condition for Basic in the DCAT report would not be adversely affect -- affected by the adoption of the 50/50 or indeed, the SIRF.

So, the first recommendation I had then -- and I'll repeat -- was that the current POP and DCAT methodologies not MCT level should continue to inform the setting of the RSR range and I would add to that that the 50/50 interest rate forecast should be used for the breakeven rate indication in the DCAT analysis.

The naive forecast is inferior to the 50/50 and SIRF forecasts recently, that is to say the last few years, and the naive forecast ignores recent monetary policy and economic events that indicate rising interest rates as forecast by the SIRF.

And I was thinking about the 50/50 forecast, which was simply said, let's take -- let's split the differences. Let's take the naive forecast and let's take the SIRF forecast to suggesting that, in fact, those are equally valid at this point in

time, and I suspect if I had to -- if I were questioned on this, I would say if you give me a choice between the SIRF and the naive forecast and don't allow for the 50/50, I would say, well, I'll take the SIRF. I think it's going to a better forecasting job, and I've indicated why based on the last couple of years, which suggest to me that maybe those weightings of 50/50 are wrong, that probably the weighting towards the SIRF should be higher than -- than 50 percent.

But, the Board Order that exists on 50/50 is what it is and -- and I think that is a reasonable compromise at this time while we assess the ongoing evidence not only on the forecasting ability of the 50/50, the SIRF and the naive, but also on the, you know, the actual performance of the economy and where interest rates have gone.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Just before we close, Dr. Simpson, you were referring to a PreAsk and would it be correct to suggest that that is MPI Exhibit 32, sir, or you'll accept that subject to check?

DR. WAYNE SIMPSON: I'll accept that

subject to check, yes.

DR. BYRON WILLIAMS: That concludes the direct presentation of Dr. Simpson and Ms. Sherry. There are available for cross-examination.

MS. KATHLEEN MCCANDLESS: Just to pop in and clarify something, I believe it's MPI Exhibit Number 26.

DR. BYRON WILLIAMS: Okay. So it's the first version, sorry, my apologies.

DR. WAYNE SIMPSON: Yeah, that -- that -- that was my recollection as well, but I didn't want to question Mr. Williams' fine memory and adequate -- more than adequate support.

THE CHAIRPERSON: Mr. Williams, you're done, then?

DR. BYRON WILLIAMS: That concludes our direct, sir.

THE CHAIRPERSON: Okay, thank you.

Mr. Scarfone...?

MR. STEVE SCARFONE: Yes, Mr. Guerra is going to conduct the cross-examination, Mr. Chair.

MR. ANTHONY GUERRA: Thank you, Mr. Chair.

THE CHAIRPERSON: Mr. Guerra...?

CROSS-EXAMINATION BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: And that good morning and thank you very much to you, Dr. Simpson and Ms. Sherry for presenting yourselves today and for your presentations. They're very helpful and I appreciate that you've taken some time out of your -- your day to spend with us this morning.

I do have some questions and I realize that you're presenting this morning as a panel. So I will do my best to try to direct the questions to who I think is the appropriate person, however, if -- if I have misdirected the question, if you could please let me know and jump in as appropriate, that would be greatly appreciated.

Mr. -- sorry, Dr. Simpson, just to confirm your background as it -- is as an economist and a professor; is that correct?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: You're not an actuary, is that correct?

DR. WAYNE SIMPSON: No.

MR. ANTHONY GUERRA: And for the purposes of this application, you've been retained by the CAC to provide critical review of -- in this case, the issue of interest rates; is that fair to say?

DR. WAYNE SIMPSON: Interest rate forecasting.

MR. ANTHONY GUERRA: Interest rate forecasting.

DR. WAYNE SIMPSON: And -- and in -- in the context of the DCAT, as well as -- most particularly the DCAT.

MR. ANTHONY GUERRA: But also the breakeven rate indication?

DR. WAYNE SIMPSON: Yeah, the GRA.

MR. ANTHONY GUERRA: And my understanding is that you are present today in your capacity as a -- an expert and professional, correct?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And you've expressed opinions and I expect that you will continue to express opinions as I question you and just to confirm, if you do express opinions, they will be your professional opinions, correct?

DR. WAYNE SIMPSON: Correct.

MR. ANTHONY GUERRA: And you will advise me if that's not the case. If you're expressing a, let's say for example, a personal opinion, correct?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: Thank you. And, Ms. Sherry, my understanding is that you are an actuary, correct?

MS. ANDREA SHERRY: I am and an accountant.

MR. ANTHONY GUERRA: And an accountant and I understand you're also a Fellow of the Chartered Insurance Professionals, correct?

MS. ANDREA SHERRY: Correct.

MR. ANTHONY GUERRA: And you're not an economist, though, correct?

MS. ANDREA SHERRY: No, I'm not.

MR. ANTHONY GUERRA: And my understanding is that you were retained by the CAC to provide a critical review of the issues regarding the Capital Maintenance Provision, correct?

MS. ANDREA SHERRY: Among other things, yes.

MR. ANTHONY GUERRA: What other things were you retained by the CAC to comment on?

MS. ANDREA SHERRY: I can't remember the exact words in my retainer letter, but I did do a critical review of the entire GRA from my perspective as an industry professional since -- for a long time and as an accountant and as an actuary and -- an

insurance experts, all of those things.

MR. ANTHONY GUERRA: Is -- I'm sorry, I don't mean to interrupt.

Is it fair to say that your -- your opinions, though, don't necessarily extend to issues like the interest rate forecasting, that's more Dr. Simpson's opinion in this case?

MS. ANDREA SHERRY: We corroborated on that. I do have experience with interest rates, and investments from my prior experience. I am not an economist and do not profess to be, however, I do have experience with that.

MR. ANTHONY GUERRA: And again, the opinions that you've expressed in your report and the opinions that you've expressed in your testimony before the -- the Board this morning, those are your professional opinions?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And when I go through some questions with you, if you are professing or expressing an opinion that is not your professional opinion, you'll advise me?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: Thank you. Is it fair to say that the report titled The Role of the

DCAT and Interest Rate Forecasting in the 2019 GRA that, Dr. Simpson, you were the lead author of that report?

DR. WAYNE SIMPSON: It was a joint effort of the two (2), of myself and Ms. Sherry, yes.

MR. ANTHONY GUERRA: Okay, so to confirm then that you're not saying -- there -- there wasn't a lead author for -- for -- for the purposes of either of those two (2) reports?

DR. WAYNE SIMPSON: You didn't use the term "lead author" before. If you say "lead author," yes, I was the lead author, but we -- we collaborated, just as Ms. Sherry was the lead author on the other report but we collaborated.

MR. ANTHONY GUERRA: Okay, well, now I guess my question, which is: Ms. Sherry, you were, in fact, lead author of the -- the report titled The Capital Maintenance Provision proposal by MPI; that's correct?

MS. ANDREA SHERRY: If you mean by "lead author" I did the first draft and then worked with Dr. Simpson to complete the paper then yes.

MR. ANTHONY GUERRA: Okay. And -- and just for ease of reference throughout the --throughout the questioning, I'm going to refer to the -- the Role

of the DCAT and Interest Rate Forecasting in the 2019 GRA report as the DCAT report, are you okay with that?

DR. WAYNE SIMPSON: Sure.

MR. ANTHONY GUERRA: Thank you. And I'm also going to refer to the -- the second report, the Capital Maintenance Provision Proposal by MPI as the CMP report.

You're okay with that as well?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: Thank you. So turning to the CMP report, there are a number of arguments made against the use of a CMP in the 2019 General Rate Application, you'd agree with me on that?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And, Ms. Sherry, you reviewed the General Rate Application for 2019 that was filed by MPI; correct?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And you understand in terms of the Capital Maintenance Provision what MPI is proposing; correct?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: You'd agree with me, Ms. Sherry, that the purpose of MPI's Capital Maintenance Provision in this case is to ensure that

it has the same ratio of capital available to the capital required in its rate stabilization reserve as at February 28th, 2020, as it had in February 28th, 2019?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And you'll agree with me that the CMP looks at the RSR balance at the end of a fiscal year?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And then when it looks at that balance, it estimates what it would -- the amount that it would need to keep that balance and the same capital position at the end of the next fiscal year; correct?

MS. ANDREA SHERRY: To keep the same MCT ratio.

MR. ANTHONY GUERRA: Yes. Thank you and I appreciate that because we -- we use the MCT ratio or the Minimal Capital Test to measure the relative strength of that capital; correct?

MS. ANDREA SHERRY: I'm not sure if you're asking if I agree with the premise or if I agree that MPI is suggesting that.

MR. ANTHONY GUERRA: What I'm suggesting is that the MCT ratio is used to measure

the relative strength of the capital between one fiscal year and the other?

MS. ANDREA SHERRY: By a private companies?

MR. ANTHONY GUERRA: By MPI in this case.

MS. ANDREA SHERRY: I'm not sure that I agree with the premise of the question. You're suggesting that MCT could be used to determine the strength of the capital position of MPI and I am actually arguing against that, that it shouldn't be used.

MR. ANTHONY GUERRA: I argue --

MS. ANDREA SHERRY: So I can't answer that question.

MR. ANTHONY GUERRA: Well, I appreciate that -- that you're arguing that it should not be used, but the question was, again, directed to what is being used and MPI's proposing that it measure the relative strength of its capital from one (1) fiscal year to another you with this MCT ratio.

You would agree with that?

MS. ANDREA SHERRY: I would agree that MPI is proposing that, yes.

MR. ANTHONY GUERRA: Okay. And you'd

agree that MCT is one (1) way of looking at the relative strength of that capital from one (1) year to another, correct?

MS. ANDREA SHERRY: Not for a Crown corp -- Crown monopoly Corporation, I would disagree with that.

MR. ANTHONY GUERRA: Okay, so but --

MS. ANDREA SHERRY: That's the whole premise.

MR. ANTHONY GUERRA: No, I appreciate that. But you're -- but what I would agree -- what you would agree with me on is that it is one (1) way to -- to look at the relative strength of capital from one (1) year to another?

MS. ANDREA SHERRY: For private companies that are regulated by OSFI.

MR. ANTHONY GUERRA: You would also agree with me, though, that a -- without a Capital Maintenance Provision MPI's Basic -- sorry MPI would expect that it's MCT ratio for Basic would decline over the next five (5) years.

MS. ANDREA SHERRY: That is what MPI's projections are showing.

MR. ANTHONY GUERRA: And you would agree that the Board, and in this case the Public

Utilities Board, has appreciated MPI's need to protect Basic's capital position from depletion?

MS. ANDREA SHERRY: Yes, but did not necessarily say how that would be done or how the capital would be determined. To my knowledge, and correct -- please correct me if I'm wrong, the Public Utility Board has never stated that the MCT should be the basis on which the capital of Manitoba Public Insurance should be judged, whether it's the right level.

MR. ANTHONY GUERRA: Is -- is it fair to say, Ms. Sherry, that a decline in the MCT ratio -- if -- if we're using that ratio, I appreciate that yo -- that your position is that it shouldn't be, but if it -- if it is used that the decline in the ratio or a depletion in the capital position of Basic isn't a bad thing necessarily?

MS. ANDREA SHERRY: Sorry, repeat the question.

MR. ANTHONY GUERRA: Is it fair to say that your position is that a decline in the MCT ratio -- if -- if that's the ratio that's used or a depletion in capital, if you consider the appreciation of the -- the Board in terms of the need to protect Basic's capital position is not necessarily a bad

thing from your perspective?

MS. ANDREA SHERRY: What I'm suggesting is that if you look at the risks of the Corporation through -- and I'm suggesting through a thorough DCAT analysis, you would be able to see how much capital the Corporation needs to hold in order to ensure it is covered for those risks.

So, certain moves by the Corporation, certain changes in the risk profile of the Corporation could change what the RSR range would be based on that DCAT analysis. So, if the -- the capital of the Corporation is within the RSR range that is determined through that thorough analysis, then I would say that they are adequately capitalized.

MR. ANTHONY GUERRA: Right. But you'd also say that, let's say, for example, the -- the -- the balance of the RSR translated into an MCT ratio of 35 percent, falls in the next year to 30 percent, but that doesn't necessarily translate or necessarily result in a -- in a -- in an unsatisfactory situation for MPI, correct?

MS. ANDREA SHERRY: Because the MCT just -- is not really applicable to MPI, I would agree with that.

MR. ANTHONY GUERRA: An -- and you'd

also agree --

MS. ANDREA SHERRY: It's not the relevant factor to be looked at.

MR. ANTHONY GUERRA: And you'd also agree, though, that -- that the capital depletion of Basic, if -- if it were to deplete from one (1) year to another, that -- that's not necessarily a bad thing either.

MS. ANDREA SHERRY: I think it depends on the risk profile of the Company at the time.

MR. ANTHONY GUERRA: Right. It -- it depends on where the RSR targets are, correct?

MS. ANDREA SHERRY: Correct.

MR. ANTHONY GUERRA: And that's really all that matters is whether or not the balance of the RSR is within the range established by the Dynamic Capital Adequacy Test, correct?

MS. ANDREA SHERRY: In terms of whether the Corporation is adequately capitalized, correct.

MR. ANTHONY GUERRA: If it's in -- within that range it's adequately capitalized and we don't need to worry about a rebate or rebuilding fee, correct?

MS. ANDREA SHERRY: Because the

process is yearly I believe it can be analysed every year and action taken if required based on the results.

MR. ANTHONY GUERRA: So if the RSR balance is within this target range, the upper and lower thresholds, MPI's holding sufficient capital and that's really the end of the story, correct?

MS. ANDREA SHERRY: Just one moment.

(BRIEF PAUSE)

MS. ANDREA SHERRY: Sorry. Sorry about that. I'm -- and again I'm sorry, could you please repeat the question?

MR. ANTHONY GUERRA: If the RSR balance is within the range, the upper and lower threshold targets for the RSR, as established by the Dynamic Capital Adequacy Test or DCAT, your position would be that MPI is holding sufficient capital and there's no need to talk about anything else in terms of a rebuilding fee or a rebate, end of story.

MS. ANDREA SHERRY: So, one (1) caveat to that would be that as long as the DCAT is performed thoroughly, properly, the adverse scenarios are accurate, adequate -- as long as the DCAT analysis is

-- is ver -- very robust and the RSR range determined from it, then I would agree with one (1) caveat and that is that the rates still may need to be changed depending on the rates determined based on accepted actuarial practice.

MR. ANTHONY GUERRA: If the RSR -- sorry --

DR. WAYNE SIMPSON: Could I just add something here?

MR. ANTHONY GUERRA: Absolutely.

DR. WAYNE SIMPSON: The -- one -- the initial pretext of the question revolved around a declining MCT and I think in the GRA that is projected based upon the interest rate forecast, a naive interest rate forecast.

In my view, I think, our view, that would -- that builds in a degree of pessimism about interest rates. It essentially builds in a portion of the interest rate decline scenario that properly belongs in the DCAT to set the RSR range because, as I think I've -- we've -- I've tried to point out in my presentation, the naive forecast is pretty pessimistic on interest rates, and that'll have some adverse effects on -- on MPI's capital position that would -- that I don't think will be realized.

MR. ANTHONY GUERRA: Right. But, Dr. Simpson, are you saying then that using the naive interest rate forecast if it were to result in a decrease in the MCT ratio from one (1) year to a next, that that would be an area that MP -- MPI should be concerned about?

DR. WAYNE SIMPSON: I think that a -- a better forecast of interest rates such as the 50/50 or SIRF would be the thing I would be more interested in in dealing with their projections when I'm -- I wouldn't want to build in the kind of adverse scenario that's implied by the naive forecast.

And I would reserve the pessimism about interest rates for the specific scenarios of the DCAT where the ad hoc interest rate decline forecast essentially mimics the -- the naive forecast.

MR. ANTHONY GUERRA: But getting back to my question about the MCT ratio -- declined in the MCT ratio from year to year is not necessarily concern for -- for you, Dr. Simpson?

DR. WAYNE SIMPSON: That's correct. I'm only questioning the pretext that it will decline under more realistic -- under better interest rate forecasts.

MR. ANTHONY GUERRA: I appreciate

that. Thank you.

And so just if I -- I have your position correctly, Ms. Sherry, if the RSR balance were to go below the DCAT and I appreciate that we're talking but a robust and detailed DCAT, but nonetheless a DCAT established RSR target, at that point in time, it might be appropriate for MPI to come to the Board and seek a rebuilding fee as part of its rate indication, correct?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: Is -- is it fair to say then, Ms. Sherry, that you -- you don't have a scenario in mind where it makes sense for -- for MPI to -- to be utilizing Capital Maintenance Provision?

MS. ANDREA SHERRY: No, I don't.

MR. ANTHONY GUERRA: And is it fair to say that a discussion about the inclusion of a build or release provision on a Capital Maintenance provision wouldn't change your opinion, which is CMP is not appropriate for MPI?

MS. ANDREA SHERRY: It would not change my opinion. I do you think that a proper capital management plan would be a good thing for MPI, but I do not think that the Capital Maintenance Provision as it's -- is now is part of that.

MR. ANTHONY GUERRA: Thank you. We heard you testify earlier today about the technical conference directed by the Board on the issue of CMP. Do you remember that?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And my understanding is that you have -- you went through the transcript of that technical conference very carefully, is that correct?

MS. ANDREA SHERRY: I did.

MR. ANTHONY GUERRA: I was there. I don't think you were there though.

MS. ANDREA SHERRY: I was not. I couldn't be, unfortunately.

MR. ANTHONY GUERRA: Not a problem. But you're confident that you were aware of the issues that were discussed at the technical conference, correct.

MS. ANDREA SHERRY: Yes. It has been a few months since I read it, but I did read it very carefully.

MR. ANTHONY GUERRA: And you're aware that there was a representative of SGI present at the technical conference?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: And that that representative was there to talk about the use of a Capital Maintenance Provision by SGI?

MS. ANDREA SHERRY: M-hm, I read that with great interest.

MR. ANTHONY GUERRA: Is it fair to say then, that despite the discussion that -- that -- that took place at that conference that you have made aware -- were made aware of by the transcript that there was nothing that was discussed at the -- at the conference that changed your opinion about the appropriateness of a CMP for MPI?

MS. ANDREA SHERRY: No.

THE CHAIRPERSON: Sorry, can we, instead of using the letters, can we indicate what's meant by CMP because we've got --

MR. ANTHONY GUERRA: Apologies --

THE CHAIRPERSON: Two (2) different CMPs in -- in reference in the hearing.

MR. ANTHONY GUERRA: Yes, I'm --

MS. ANDREA SHERRY: Sorry --

MR. ANTHONY GUERRA: I'll refer to CMP's as Capital Maintenance Provision from now on. Thank you, and I apologize for that.

CONTINUED BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: Sorry -- just to ans -- just to get back to the question, I believe your answer was yes, but do you want me to ask the question again?

MS. ANDREA SHERRY: Yes, please.

MR. ANTHONY GUERRA: Okay. So is it fair to say then that notwithstanding what you've read in the transcript of that technical conference and the discussion from the representative of SGI, that nothing in that transcript changed your opinion about the appropriateness of a CMP for MPI?

MS. ANDREA SHERRY: No.

THE CHAIRPERSON: All right. Once again --

MR. ANTHONY GUERRA: Oh, my apologies. I'm sorry --

THE CHAIRPERSON: Capital Maintenance Provision?

MR. ANTHONY GUERRA: Capital Maintenance Provision.

THE CHAIRPERSON: Or Capital Management Plan?

MS. ANDREA SHERRY: Okay.

THE CHAIRPERSON: Capital Maintenance

Provision. Okay. I just want to make sure for the transcript because --

MR. ANTHONY GUERRA: Hard knocks.

THE CHAIRPERSON: Okay.

CONTINUED BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: Now, I would like to take you to the report that was prepared -- the CMP report that I referred to earlier. I -- I define that as a term so I'm going to stick with that.

And, in particular, can I turn your attention to page 6? I believe that's CAC Exhibit Number 9, Ms. Schubert.

Now, I'm looking at -- looking under heading number 7, The Introduction of a CMP in the 2019 GRA.

MS. ANDREA SHERRY: M-hm.

MR. ANTHONY GUERRA: Now, the -- the first paragraph there says:

> "With a CMP in place, the Corporation is building capital by collecting extra premium from those policyholders in place during the rating year in question. The capital collected is built up until

a rebate is required."

Ms. Sherry, can you explain to -- to me and to -- to the Board how a CMP builds up capital until a rebate is required?

MS. ANDREA SHERRY: My understanding of the CMP was that it would be collected now and the RSR would be larger because the CMP was there and that it could be applied for up to a point where the RSR would actually be above the range calculated.

MR. ANTHONY GUERRA: Okay, but you'd agree with me that -- that scenario that you've talked about doesn't happen unless there's a change in the risk profile that lowers -- the -- the higher end -- the upper threshold RSR target, correct?

MS. ANDREA SHERRY: That could be unless a CMP was asked for in future rate applications as well.

MR. ANTHONY GUERRA: To -- to build up the RSR above the upper threshold?

MS. ANDREA SHERRY: Or just to get it close enough that it could potentially go above the thresholds.

MR. ANTHONY GUERRA: I want to draw your attention to CAC Exhibit Number 27, that's the presentation that you provided or -- or presented on

the -- on the Capital Maintenance Provision, and in particular slide number 8, Ms. Schubert?

(BRIEF PAUSE)

MR. ANTHONY GUERRA: Sorry. I may have given you the wrong indication here.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: It's the Capital Maintenance Provision presentation. It's the heading that is -- I have it as slide 8, but perhaps I'm wrong. And the CMP does not align with -- yes, that's right. Thank you.

So the heading says The CMP Does Not Align With the Board Approved Methodology for Calculating the Amount of Capital the Corporation Requires, nor is it consistent with the work to date.

And in point 1 you -- you go on to state:

> "A great deal of work has been done on the use of the DCAT to set the RSR range."

Ms. Sherry, you -- you're not saying

that MPI is seeking to replace the DCAT established targets with the CMP, are you?

MS. ANDREA SHERRY: What I'm saying is that a great deal of work has been done to use the DCAT so set the RSR range, which is the determination of whether the Corporation holds adequate capital.

MR. ANTHONY GUERRA: You're aware, however, though, that MPI does plan to continue using the DCAT analysis to confirm the most appropriate RSR targets, correct?

MS. ANDREA SHERRY: Correct. What I'm saying here is that the CMP or the Capital Maintenance Provision does not align with that. Does not align with all of the work that we've done to determine where the capital of the Corporation needs to be.

MR. ANTHONY GUERRA: Okay, I want to shift your attention now to the discussion about the Minimum Capital Test, or MCT, to determine the RSR, Rate Stabilization Reserve targets.

Ms. Sherry, you would agree with me -- or sorry, Dr. Simpson, this may also pertain to your evidence as well, you would agree with me, though, that absent significant changes in the risk profile of the Corporation, the Minimum Capital Test accurately estimates the RSR targets in future years based on

growth on the balance sheet.

MS. ANDREA SHERRY: I actually would not agree with that. I would say that the MCT, as I stated earlier, is an Office of the Superintendent of the Financial Institute to determine the capital adequacy of private companies and whether they are at risk of insolvency.

The risk margins set out in the MCT are set with that in mind, based on data from private companies. I cannot say that it applies to a monopoly Crown Corporation.

MR. ANTHONY GUERRA: I am going to draw your attention to the -- sorry, I'm sorry.

MR. WAYNE SIMPSON: I just thought I'd add that I think what the DCAT is showing in recent years is precisely that that's not correct.

In other words, you said other things held the same ceteris paribus assumption, but other things are not the same. The risk challenges facing MPI are changing and the claims scenario, the high loss ratio scenario has now become the most important scenario in place of the interest rate decline scenario, which in turn replaced the equity decline scenario.

And what we've seen, perhaps a pat on

the back to MPI's own operations in terms of asset liability management, is that they've reduced some of the risks in that area, so that the equities and interest rates are not as serious risks, with the result that overall the risks facing the Corporation appear to be declining and appear to be emphasizing more of the claims risk.

So the idea that the MCT could pick up any of this seems to me to be -- shown to be incorrect.

DR. BYRON WILLIAMS: Mr. Guerra, I apologize for interrupting.

Dr. Simpson did use a Latin term and just for the court reporter, I wonder if you could spell it, and then I do apologize for interrupting, sir.

MR. ANTHONY GUERRA: Not at all.

MR. WAYNE SIMPSON: Economists use the term ceteris paribus C-E-T-E-R-I-S space P-A-R-I-B-U-S or at least older economists like me, to simply mean that other things held constant, and that the statement essentially said, well, if nothing changes from year to year, you might use the MCT levels that you've established from the DCAT for the lower and upper threshold at one point in time to project

forward what the -- what the threshold should be at some future point in time.

Just as in exact parallel you could use the POP, the Percentage Of Premiums approach to do that. The -- the 10 percent, 20 percent of underwriting income of the POP approach again, could be projected forward and would give you some measure of, as the Company grows, how this presumed need for protection against risk would grow.

But it bears no relationship to the actual risks facing the Corporation that have been dented -- identified by the DCAT, and in fact those MCT levels associated with the upper and lower thresholds will be changing over time and have been changing, based on changes in the risk profile letter identified by the DCAT.

MR. ANTHONY GUERRA: Thank you, I appreciate your answer and certainly won't quarrel with you in any accolades to -- to MPI in terms of its asset management.

But I do want to bring your attention to the DCAT chapter of the application, and in particular figure number 10. Ms. Schubert, if you can pull that up and I apologize for not giving you that in advance.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: It should be on page 14 at the bottom of the -- yeah. There we go, thank you.

So, Dr. Simpson, my understanding is that this figure shows a comparison of the upper and lower DCAT targets for the 2018 and 2019 General Rate Application years. Do you see that?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And what I think you'll agree with me on is that the total equity position from those years does change quite dramatically between 2018 and 2019, but when comparing the lower RSR targets, both the MPI and the PUB proposed targets, there is a very minute shift in the MCT ratio, correct?

DR. WAYNE SIMPSON: In minute you mean 3 or 4 percent?

MR. ANTHONY GUERRA: Yes.

DR. WAYNE SIMPSON: Sure. Can I add something? Are you going further with this figure or is that the end of the question?

MR. ANTHONY GUERRA: That -- that was

the end of my question, Dr. Simpson.

DR. WAYNE SIMPSON: Could I point something else out?

MR. ANTHONY GUERRA: Yes.

DR. WAYNE SIMPSON: The -- the lower RSR target for both MPI and PUB is based on the DCAT methodology and is identifying declining risk.

The upper RSR target PUB is also identifying declining risk from 325 to 251, the MCT falls accordingly.

The upper RSR target from MPI also shows supposedly declining risk, but this -- the only reason it's doing that is because the MCT ratio has been arbitrarily adjusted from 100 percent to 85 percent.

I'm curious to know why that was done, but my obvious presumption is that as the DCAT identifies declining risk profile of the Corporation, they felt that the 100 percent MCT ratio didn't adequately reflect that. But that's -- that's a pretty arbitrary assumption, and it's only informed by the DCAT.

MR. ANTHONY GUERRA: I appreciate that. Thank you.

Ms. -- Ms. Sherry, if I can direct your

attention to the presentation that was provided on the DCAT, and in particular slide number 5, please.

So we -- we heard testimony this morning from -- from you that MCT is a test for -- for private insurance companies in a competitive industry, correct?

MS. ANDREA SHERRY: Correct.

MR. ANTHONY GUERRA: And my understanding is that your -- your position is that the MCT is not appropriate for -- for MPI because MPI has a different set of risk profiles or different risk profile than those private insurers?

MS. ANDREA SHERRY: To be clear...

MR. ANTHONY GUERRA: Yes.

MS. ANDREA SHERRY: ...I believe that MPI faces all of the risks of any other property and casualty insurer.

However, the calculation of the margins to determine how much capital should be held for those risks are not necessarily in line with the Minimum Capital Test calculation of the margins for those risks because the MCT was -- was set up or created to ensure that private companies do not go insolvent.

So the risk margin calculations are based on private company data and expectations that

are not necessarily applicable to a Crown monopoly.

MR. ANTHONY GUERRA: And fair enough. I'd like to draw your attention, Ms. Sherry, to MPI Exhibit Number 18, which was an Information Request that was made by MPI, it's MPI-CAC-1-1, and in particular I'm looking at page 3 of that Information Request.

So Ms. Sherry, you were asked to identify the specific risks facing MPI that are not captured in the MCT, and my understanding, your response is really the last sentence of that paragraph A, which is to say, the point is that the MCT is a solvency test and that is not applicable to monopoly Crown insurers. That's consistent with what I just heard you say, correct?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: So your concern is not necessarily that the MCT fails to capture the risks faced by MPI, but that it's a solvency test and MPI never really can be insolvent?

MS. ANDREA SHERRY: There's two (2) pieces to that.

The first is that the risks outlined in the MCT are those faced by property and casualty insurers in Canada. And those risks, MPI would have

those risks as well.

However, the calculation of the MCT and what it is -- the way it is calculated, the way the risk margins are determined and the purpose of that test is not for a monopoly Crown company such as MPI.

If MPI wants to use the MCT they would have to look at how all of the risk margins were calculated, what data they were based on, everything else. There are differences from a private to a public company.

MR. ANTHONY GUERRA: I would submit to you, though, that the risk margins are actually calculated in exactly the same way. So you -- you wouldn't agree with that, correct?

MS. ANDREA SHERRY: I think that the risk margins would have to be reviewed very carefully to be used for a Crown.

MR. ANTHONY GUERRA: And you agree with me that the private insurers who use the MCT test typically have ratios in excess of 150 percent?

MS. ANDREA SHERRY: Yes.

MR. ANTHONY GUERRA: You would also agree with me, though, that the Dynamic Capital Adequacy Test, or the DCAT, is -- is also in itself a test to assess the risk of insolvency for a

Corporation like MPI, correct?

MS. ANDREA SHERRY: Sorry. Can you repeat the question? I want to make sure I heard it properly.

MR. ANTHONY GUERRA: You'd agree with me that the DCAT or Dynamic Capital Adequacy Test is in it -- itself a test to assess the risk of insolvency for a Corporation like MPI?

MS. ANDREA SHERRY: I don't necessarily think of the DCAT as an insolvency test, I think of it as a way for a company to ensure that it knows where its risks are most prominent and that the company can take action to reduce their risk in a private environment.

MR. ANTHONY GUERRA: The DCAT, though, in this case, was commissioned to assess the future financial condition of Basic, was it not?

MS. ANDREA SHERRY: MPI built a DCAT model to look at where the RSR should be to ensure that the Company had enough capital to cover those risks.

MR. ANTHONY GUERRA: I.e., forestall insolvency.

MS. ANDREA SHERRY: Again, I don't think of MPI as going insolvent. That's not what I

would say.

MR. ANTHONY GUERRA: And that's because if MPI were to become insolvent or were to have insufficient capital to pay its debt as it arose, your position is that the Government of Manitoba would be able to swoop in and pay those debts, correct?

MS. ANDREA SHERRY: The reason I don't think of MPI going insolvent is because you have a yearly process where you come before the Public Utility Board, and that yearly process allows the review to occur and if there was the threat of insolvency of MPI, I'm sure that the Public Utility Board would allow them to take some rate in that year.

But ultimately, I don't think of MPI as having the ability to go insolvent in the same way as a private company would, because the private company would have such -- more of an economic impact on the Canadian economy, potentially, and again to your -- I agree with what you said in the sense that you are backed by the taxing authority of the Government of Manitoba.

MR. ANTHONY GUERRA: So, I mean really, at the end of the day, the insolvency position of MPI is really only a concern of -- if the solvency position of the Government of Manitoba became a

concern, correct?

MS. ANDREA SHERRY: I would certainly hope it doesn't get to that point.

And again, I would say because you come here every year, the Public Utility Board is not going to let MPI go insolvent. But I suppose if the absolute worst thing were to happen and the Government of Manitoba went insolvent, then yes, MPI would be insolvent.

MR. ANTHONY GUERRA: And I appreciate that, it's unlikely that that would happen, but...

MS. ANDREA SHERRY: Yes.

DR. WAYNE SIMPSON: These are the implausible catastrophe scenarios that I was referring to in my presentation.

MR. ANTHONY GUERRA: Implausible that the Government of Manitoba would come to the rescue of MPI?

DR. WAYNE SIMPSON: Well, you referred to the Government of Manitoba going insolvent. I was referring to that.

MR. ANTHONY GUERRA: I see. Dr. Simpson, do you know what the interest rates are going to be on September 1st, 2019?

DR. WAYNE SIMPSON: No.

MR. ANTHONY GUERRA: And I think I heard you speak earlier about the great recession of 2008. Is that how you characterized the global economic downturn of 2008?

DR. WAYNE SIMPSON: That's how it's often characterized. The actual dating of it varies from country to country, but the only dip in GDP in Canada was, I believe 2008, yes.

MR. ANTHONY GUERRA: So you would equate that with the great recession that I think most people understand from the 1930s?

DR. WAYNE SIMPSON: No, that was called the Great Depression.

MR. ANTHONY GUERRA: My apologies.

DR. WAYNE SIMPSON: But certainly significantly more severe, and as I pointed out in previous proceedings, the -- the difference between the two (2), in fact, demonstrates what we've learned from economics and from the Great Depression in the sense that I think the monetary policy responses, not so much of Canada, but around the world and in particular in the United States, quantitative easing, low interest rates was exactly the prevention of -- of large banks failing, too big to fail.

All were evidence that we weren't going

to repeat the same mistakes which made something like the Great Depression less likely to ever occur.

MR. ANTHONY GUERRA: So, going forward, are you okay then using the term "great recession" to describe the events of 2008?

DR. WAYNE SIMPSON: Yes, that's -- that's been used quite widely.

MR. ANTHONY GUERRA: And -- and you're okay with -- with that description or that title?

DR. WAYNE SIMPSON: Yes, with the -- perhaps the caveat that the -- in Canada the recession, and particularly in Manitoba, the recession was really neither particularly deep nor prolonged, both because of the nature of our banking system and the nature of the Manitoba economy.

MR. ANTHONY GUERRA: You would agree with me though, Doctor, that the great recession from 2008 resulted in a period where it was difficult for the major banks to accurately forecast interest rates, correct?

DR. WAYNE SIMPSON: They overestimated interest rates based on the -- their experience and their forecasting models, yes.

MR. ANTHONY GUERRA: And an overestimate of interest rates is -- is not an

accurate forecast, correct?

DR. WAYNE SIMPSON: No, it's biased -- it wasn't biased upward, it was -- it was inaccurate. Yes, that's correct.

MR. ANTHONY GUERRA: The banks forecast their rates through the standard interest rate forecast, or SIRF?

DR. WAYNE SIMPSON: That's right.

MR. ANTHONY GUERRA: And they look at the Government of Canada 10-year yield rates?

DR. WAYNE SIMPSON: Sorry, let me backtrack. The -- the bank interest rate forecasts are components of SIRF, five (5) of the six (6) components of SIRF.

SIRF is an -- an average of the forecasts of the five (5) banks and global insight. So it's -- it's a SIRF that relies on the bank forecasts. I think you stated it the other way around.

MR. ANTHONY GUERRA: And I appreciate the clarification. And specifically what we're looking at is the Government of Canada 10-year bond yield rates, correct?

DR. WAYNE SIMPSON: The benchmark rate, that's correct.

MR. ANTHONY GUERRA: I want to draw your attention to the investments chapter, figure number 11, if I may, Ms. Schubert. Thank you.

What I understand here is this is a table showing historical analysis of the standard interest rate forecast, the 50/50 interest rate forecast and naive interest rate forecast from 2005 to 2018 GRA years.

Do you see that, Dr. Simpson?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And would you agree with me, having reviewed the numbers here, and you can take a moment if you -- if you need to, that the SIRF forecasts in the 2005 to 2016 GRA years were less accurate than the forecasts of the naive interest rate forecast in those years?

DR. WAYNE SIMPSON: In every year? Is that what you're asking?

MR. ANTHONY GUERRA: Every year, 2005 to 2016.

DR. WAYNE SIMPSON: And you're comparing the SIRF to the naive?

MR. ANTHONY GUERRA: Correct.

DR. WAYNE SIMPSON: Not -- not in 2014.

MR. ANTHONY GUERRA: Right. You're right about that, 2014 it does appear that ---

DR. WAYNE SIMPSON: So my answer is, no, I disagree.

MR. ANTHONY GUERRA: Okay, let's stop there then and go back to 2005.

You would agree with me that the SIRF forecast in 2005 was less accurate than the naive forecast in 2005?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: 2006 it was the same, the SIRF forecast was ---

DR. WAYNE SIMPSON: Yes. I'll stipulate all years to 2013.

MR. ANTHONY GUERRA: And then 2015?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And then 2016?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And looking at the 5050 forecast, the 2005 GRA, 50/50 forecast is less accurate than naive forecast?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: 2006? Less accurate?

DR. WAYNE SIMPSON: I'll stipulate all

years up to 2000 -- probably 2014 again, yes. So 2005 to 2013 they were less accurate.

MR. ANTHONY GUERRA: And then they -- they aren't less accurate in 2014, as you've correctly mentioned, but 2015 and 2016, the 50/50 forecast is less accurate than naive, correct?

DR. WAYNE SIMPSON: Yes. I would also say that especially from 2008 to 2016 this is the period where the overnight rate, and the policy rate was driven down to a very low level, .5 percent, I'm not sure if it went lower than that, to stimulate recovery from the -- the great recession.

And it's only in 2017 that that into -- overnight rate or policy rate begins to rise. It rose twice in 2017, and three (3) times in 2018.

MR. ANTHONY GUERRA: You would agree with me though, Dr. Simpson, that in the years that we referenced where the -- the SIRF and the 50/50 forecasts were less accurate than the naive forecast, that those forecasts were biased forecasts in those years, correct?

DR. WAYNE SIMPSON: Well, bias -- to establish bias you would need more than one (1) year, you can't compare things year by year and establish bias.

To establish bias you would have to show that over an extended period of time a -- a forecast produced more positives than negatives or vice versa.

MR. ANTHONY GUERRA: So when we look at the SIRF forecast, for example, in the 2005 to 2013 GRA years, and we're seeing that in every one of those instances the SIRF is off, are you saying that that's not evidence of bias?

DR. WAYNE SIMPSON: Well, there's one negative in there. You're saying that they're all positive? No, there's one (1) negative. 2010.

MR. ANTHONY GUERRA: I wasn't asking questions about positive or negative. I was asking about the bias, but you're ---

DR. WAYNE SIMPSON: Bias is about positives and negatives, right? Bias is about -- about whether the forecast errors are consistently one (1) way or the other, positives being biased upward and negatives being biased downward.

MR. ANTHONY GUERRA: That's how you define a biased interest rate forecast?

DR. WAYNE SIMPSON: That's how -- a bias would be defined by a pattern, yes.

MR. ANTHONY GUERRA: And so your

evidence is that you don't see a pattern of bias in the SIRF forecast between the 2005 and 2013 GRA years?

DR. WAYNE SIMPSON: Oh, I didn't say that. I'm saying -- you said that -- that -- you were going year-by-year. I said well, there's a negative in 2010. But there are more positives than negatives in there, yes. I can stipulate to that.

MR. ANTHONY GUERRA: Is that evidence of a bias then, sir -- doctor -- Dr. Simpson?

DR. WAYNE SIMPSON: It's evidence of the bias that generated out of the -- out of the great recession, that's correct.

MR. ANTHONY GUERRA: And the same then would apply with the 50/50 forecast in those years as well? There is evidence of a bias in that forecast, correct?

DR. WAYNE SIMPSON: Right. Although, and interestingly, the naive forecast is also biased because if, on that basis, the pattern is almost all positives as well.

MR. ANTHONY GUERRA: So my understanding is ---

DR. WAYNE SIMPSON: So they're all biased, by that standard, although that's a pretty primitive both analysis of bias and a pretty small

sample in a very specific period out of which we have recovered.

DR. WAYNE SIMPSON: Okay. My understanding, Dr. Simpson, correct me if I'm wrong, is that your -- your evidence today, your position today is that the 2017 and 2018 GRA years, now the forecasts of the SIRF in those years, are -- are superior to the forecast the naive in those years?

DR. WAYNE SIMPSON: Yes. The difference -- the forecast error, if you will, is lower in both 2017 and 2018 and one (1) is positive and one (1)is negative. Whereas the naive forecasts are both negative.

MR. ANTHONY GUERRA: And if I can just draw your attention to the presentation you gave on the DCAT, which is CAC Exhibit Number 26, slide 12.

So the -- the last paragraph of your slide there says that:

> "SIRF also pays attention to other economic signs of recovery in domestic monetary policy response by the Bank of Canada."

Do you see that, sir?

DR. WAYNE SIMPSON: Right.

MR. ANTHONY GUERRA: And you'll agree

with me that your position is that the fact that the SIRF pays attention to those economic signs of recovery in domestic monetary policy are -- are what make it more superior to the naive forecast, for example, in the 2017 and 2018 GRA years?

DR. WAYNE SIMPSON: Yes, I mean, looking ahead is one (1) of the aspects of forecasting as opposed to being blind.

MR. ANTHONY GUERRA: You would agree with me, Dr. Simpson, that the SIRF has always paid attention to economic signs of recovery in domestic monetary policy though, correct?

DR. WAYNE SIMPSON: Yes, it -- I would presume so, yes.

MR. ANTHONY GUERRA: So it would've done so in the 2005 GRA -- GRA year, for example?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And it would have done so in the 2006 GRA year, for example?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And it would have done the same thing up until the 2013 GRA year, for example?

DR. WAYNE SIMPSON: Sure. I'm assuming they take all of the information, you know,

the banks have a large stake in getting interest rates right and I suspect they devote considerable resources and hired reasonably talented people to -- to do these things, and -- and, therefore, they would take into account all of the information available to them, including any signs from the Bank of Canada that they were changing their stance or position, which probably there weren't many signs during the period from 2008 through to 2016, although you'd have to go back through the -- the Bank of Canada's reports to substantiate that.

MR. ANTHONY GUERRA: Ms. Schubert, can you put back investment figure number 11, please? Yes, thank you.

The period before the 2008 recession, which is shown on this -- in this table, is the 2005 GRA to the 2007 GRA, 2008 GRA.

Would you agree with that, Dr. Simpson?

DR. WAYNE SIMPSON: Right.

MR. ANTHONY GUERRA: And you would agree with me at that point in time the SIRF forecast and the 50/50 forecasts are still less accurate than the naive forecast, correct?

DR. WAYNE SIMPSON: Yes, they are.

DR. BYRON WILLIAMS: I just -- I just

want to make sure that the premise isn't that Manitoba Public Insurance was using the SIRF premise, the SIRF forecast for the GRA's in 2005 through 2008, because I believe the evidence of Mr. Johnston would've been different then that.

So that's just the -- in -- I just want to make sure that that premise isn't being advanced.

MR. ANTHONY GUERRA: I have not advanced that premise, but thank you, I appreciate the -- the comment, Mr. Williams.

CONTINUED BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: My understanding, Dr. Simpson, is that you're not here today to advance or advocate MPI's use of the SIRF in the 2019 GRA, correct?

DR. WAYNE SIMPSON: I'm advocating that the SIRF -- I guess I'm advocating two (2) things. I'm advocating that the -- the SIRF is better than the naive forecast, and that it should be part of the interest rate forecast and that existing Board order for 50/50 is certainly better than the naive for that reason.

MR. ANTHONY GUERRA: But you're not -- your presentation does not say that you recommend that

the Board should apply the SIRF forecast in this rate application year, correct?

DR. WAYNE SIMPSON: That is correct.

MR. ANTHONY GUERRA: In fact, it advocates for the use of the 50/50 forecast, correct?

DR. WAYNE SIMPSON: I wasn't thinking of other alternatives, then, sir, 50/50 or naive, no.

MR. ANTHONY GUERRA: But it advocates for use of the 50/50 forecast, correct?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And that's because your opinion is still that the banks remain too optimistic about the growth of interest rates, correct?

DR. WAYNE SIMPSON: I think that's part responding to the existing conditions, which is, is the Board Order for 50/50.

And perhaps a little bit of caution, as I said in my presentation, if I were allowed to pick weights, that they probably wouldn't be 50/50. But I would give more weight to the SIRF than the naive because I think it -- I think it's a better forecast for the reasons I've indicated.

MR. ANTHONY GUERRA: Sorry, is it your evidence that the reason why 50/50 is recommended is

that that was contained in the Board Order from the last rate application year?

DR. WAYNE SIMPSON: Yes, I've taken that as one of the three (3) options.

MR. ANTHONY GUERRA: And is it your evidence then today, sir, that -- that despite the -- the Board Order, the better approach is actually the SIRF forecast?

DR. WAYNE SIMPSON: If I were given a choice between the SIRF and the naive that would -- that would definitely be the case, yes. I would -- I would say the SIRF is a better forecast than the naive under the current circumstances.

MR. ANTHONY GUERRA: Is the SIRF forecast, though, better than the 50/50 forecast for this rate application year?

DR. WAYNE SIMPSON: I have not made that claim.

MR. ANTHONY GUERRA: But you recommend it, sir?

DR. WAYNE SIMPSON: I'm sorry, I recommend?

MR. ANTHONY GUERRA: 50/50?

DR. WAYNE SIMPSON: I recommended 50/50, yes.

MR. ANTHONY GUERRA: Are you not then saying with your recommendation that you believe that that's the best interest rate forecast?

DR. WAYNE SIMPSON: Well, I -- I have -- I have stated that I recommend the 50/50 in part, simply because I don't think the naive forecast is a reasonable forecast to use under these circumstances.

I think I'll just leave it at that.

MR. ANTHONY GUERRA: So figure 11, which is on the -- on the screen right now, does reference the -- the last two (2) GRA years, so, 2017 and 2018.

And -- and when I look at the -- the comparison between the SIRF forecast and the 50/50 forecast, what I understand is that in the last two (2) GRA years the 50/50 forecast has, in fact, been less accurate than the SIRF forecast.

Is that not correct?

DR. WAYNE SIMPSON: You're correct.

MR. ANTHONY GUERRA: Is it my understanding, Dr. Simpson, that your position is that there was a correlation between the overnight interest rate from the Government of Canada, or the Bank of Canada, I should say, and increases in the Government of Canada's 10-year bond yields?

DR. WAYNE SIMPSON: Based on my reading of the bank's policy and -- and the evidence that they have before them, yes.

MR. ANTHONY GUERRA: Okay. And I would like to draw your attention to CAC Exhibit number 26, which is that the DCAT presentation, and in particular, slide number 14, Ms. Schubert. Thank you.

So what we see from your presentation is that there's a table showing the correlation between the overnight rates and the Government of Canada 10-year bond yields for the -- the last two (2) years.

Do you see that, Dr. Simpson?

DR. WAYNE SIMPSON: Yes. Since -- since the bank -- well, you can see where the bank started increasing the policy rate where the first step occurs.

MR. ANTHONY GUERRA: You would agree with me, though, that when establishing the break-even rate indication, MPI forecast interest rates for the twelve (12) to eighteen (18) month period in advance -- or sorry, that follows because of the new money yield that is used for setting rates that are calculated, in this case, September 1st, 2019.

DR. WAYNE SIMPSON: Right. And for

the DCAT they forecast out four (4) years, right?

MR. ANTHONY GUERRA: Right. So for the break-even rate indication the -- the important period to look at is the twelve (12) to eighteen (18) month period, correct?

DR. WAYNE SIMPSON: Okay.

MR. ANTHONY GUERRA: You would agree with that?

DR. WAYNE SIMPSON: Yes.

MR. ANTHONY GUERRA: And you would also agree, though, that it's possible for the overnight rate to increase and the Government of Canada 10-year bond yield to decrease within that twelve (12) to eighteen (18) month period, correct?

DR. WAYNE SIMPSON: I -- I don't see where you see that.

MR. ANTHONY GUERRA: Well, I'm going to draw your attention to CAC Exhibit Number 5, which is an Information Request response to CAC-MPI-2-1.

DR. WAYNE SIMPSON: I'm just eyeballing this -- this graph. What -- what period are you referring to?

The first step increase occurs, and if you look out twelve (12) or eighteen (18) months, the -- the blue line, squiggly line, is higher than it was

at that point.

I mean, where in that -- where in those two (2) lines are you -- are you -- even if you're cherry picking the numbers, which I suspect is what's happening, I don't see where that is happening, but you're going to tell me.

MR. ANTHONY GUERRA: Well, yeah, I'm going to tell you to look at CAC Exhibit Number 5.

DR. WAYNE SIMPSON: Okay.

MR. ANTHONY GUERRA: Which is the Information Request response to CAC-MPI-2-1, and in particular, figure number 2.

My understanding, Dr. Simpson, is those are the instances where the overnight rate increase resulted in a decrease in the Government of Canada 10-year bond yields in a twelve-month period.

Do you see that?

DR. WAYNE SIMPSON: So what -- what are we looking at? We're looking at specific instances where -- because the -- the 10-year bond rate moves around a great deal, and these are what; they're daily rates?

They're picking a specific date? Yes, it looks like they're specific daily rates. That's a lot of volatility in the 10-year bond yield, which I

wouldn't think would be the basis for a forecast.

As I said before, when you look at the data the blue line moves around a lot because it's -- it's very short -- high frequency data, and the -- the red line doesn't move very much, because it's policy data. It's the Bank of Canada settings, which are only a set number of times a year.

And there's a clear pattern to both of those, which is upward in -- recently, but because the -- the squiggly line, the blue, -- the blue line moves around a lot, you probably can find specific times and it looks like you're suggesting October 29 -- 2009 to October 2010, which is not in that graph, of course, where -- where that -- that may have occurred.

But I don't see anything there between -- well, whatever the start of that graph was, 2016/2017 and -- and the current date.

So I -- this is -- sure, this -- this can happen. It won't happen if you -- if you look longer term, lower frequency data, if you use monthly or annual averages, that will not happen. And, of course, we're looking forward in forecasting, you know, reasonably -- reasonably low frequency data, I would say.

In other words, monthly or annual. But

there's no -- there's no data there that refers to the -- the graph you were showing before.

MR. ANTHONY GUERRA: So your -- your position, though, is that in the case of interest rate forecast it's important to look forward, correct?

DR. WAYNE SIMPSON: Interest rate forecasts look forward, yes.

MR. ANTHONY GUERRA: We shouldn't consider the history, and in this case the history before the 2017 GRA, correct?

DR. WAYNE SIMPSON: Oh, forecasts are based -- are based on -- on more than just one (1) or two (2) years. They're based on experience.

Actually, the Bank of Canada's forecasts -- not Bank of Canada's. The Canadian Banks' forecasts and the Bank of Canada's forecasts would be based not only on historical record, but they'd be based on their modelling of the Canadian economy. And the modelling of the Canadian economy would include, among other things, the monetary policy and the Bank of Canada's responses to changes in economic conditions.

That would probably be more important than -- than data going back to 1994, but the structure of the economy would be estimated using a

large volume of past data, and then the models would generate what they think is the future progress of interest rates.

So it wouldn't be the kind of simplistic forecasting that is done by looking at -- at simply the pattern of rates that have occurred over some specified period, it's based on -- on modeling the Canadian economy.

MR. ANTHONY GUERRA: Thank you, Dr. Simpson.

Ms. Sherry, are you aware of any instances -- sorry, before I -- before I say that, do you recall how many times you've -- you've appeared before the Board to provide advice as an expert?

MS. ANDREA SHERRY: I believe this is my third (3rd) year at the hearing. I'm looking at Byron because -- is it three (3) years or four (4) years?

MR. ANTHONY GUERRA: So it's been a few years now, correct?

MS. ANDREA SHERRY: It's been a few years, yes.

MR. ANTHONY GUERRA: Ms. Sherry, are you aware of any instances where you have not challenged an assumption or made a recommendation and

a GRA, or Generate Rate Application, that would have supported a higher rate indication?

MS. ANDREA SHERRY: I know that there have been instances where I've found things in the GRA that could potent -- that I felt should be changed that might increase the indication, but not materially. And it certainly wasn't what I felt was the most important component of my review.

MR. ANTHONY GUERRA: Thank you. Just one moment, please.

(BRIEF PAUSE)

MR. ANTHONY GUERRA: Thank you, Dr. Simpson, Ms. Sherry, those are my questions.

MS. ANDREA SHERRY: Thank you.

THE CHAIRPERSON: Thank you.

We'll adjourn for lunch for an hour. Thank you.

--- Upon recessing at 12:15 p.m.

--- Upon resuming at 1:16 p.m.

THE CHAIRPERSON: If everyone's ready, Mr. Watchman...?

CROSS-EXAMINATION BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: Thank you, Mr. Chair. Good afternoon, Ms. Sherry, Dr. Simpson. I have a few questions for you about the two (2) reports that were filed, and please either feel free to respond to the question as you think appropriate.

And I would like to start with your report on the Capital Maintenance Provision. So if we could have that -- for the record, it's CAC Exhibit 10.

And just turning to the second page, we see the first -- halfway down the page, the first issue that's listed there:

> "The CMP was never approved by the PUB nor was consensus reached on it by the stakeholders."

You see that there?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And I'm just going to focus on the -- the first part of that title, the CMP or Capital Maintenance Provision was never approved by the PUB.

And why do you say that this is an issue with the introduction of a Capital Maintenance Provision in the 2019 GRA?

MS. ANDREA SHERRY: For me the issue was that I felt it was implied in the GRA that the Capital Maintenance Provision was approved and consensus was reached. And, I wanted to make it very clear that that was not the case. That was my right thought there.

MR. ROBERT WATCHMAN: All right. So approved as a result of the technical conference that was held?

MS. ANDREA SHERRY: No, I was thinking more of the Board Order where the Board says that it supports the Corporation's needs to keep its capital level where it should be and that that was not, in my mind, an approval.

MR. ROBERT WATCHMAN: So you're not aware of anything that would preclude to the Corporation from presenting a Capital Maintenance Provision in a GRA application?

MS. ANDREA SHERRY: No.

MR. ROBERT WATCHMAN: Now, at -- towards the bottom of the page, just about five (5) or six (6) lines down, there's a sentence that reads:

> "On review of the transcript of this technical conference and the notes distributed, it is clear that no

consensus was reached and the exchanges did not indicate that MPI would introduce a CMP in the 2019 GRA."

Can you tell us then what were your expectations with respect to a Capital Maintenance Provision in the 2019 GRA?

MS. ANDREA SHERRY: My impression from reading the transcript and Wayne can comment on that as well, was that it was still an idea, just an idea, potentially for discussion in relation to the RSR as part of this year's application.

But I did not expect there to be a Capital Maintenance Provision built into the application this year. That was my impression.

MR. ROBERT WATCHMAN: Yes, understood. Can you indicate what you anticipated would be the next steps in the process?

MS. ANDREA SHERRY: Potentially discussion at this year's hearing, and -- and perhaps another technical conference because I didn't feel -- I didn't interpret the transcript to show that it reached a point of clarity.

MR. ROBERT WATCHMAN: Now just skipping a few lines ahead. There's a sentence that

reads:

"The technical conference did not conclude that a CMP, or Capital Maintenance Provision, was required in addition to the RSR, Rate Stabilization Reserve."

Can you tell us in what respect the proposed Capital -- and Capital Maintenance Provision is in addition to or additive to the Rate Stabilization Reserve.

MS. ANDREA SHERRY: Sure. So the RSR range which we're not actually at a place of certainty with how that would be set, but the RSR if in the proper range would be enough to cover its purpose, what the purpose of the Rate Stabilization Reserve is. And that would stand on its own and then the Capital Maintenance Provision would be on top of that to maintain the minimum capital test ratio for the Corporation over the projected two (2) year period.

MR. ROBERT WATCHMAN: Okay. Now, and just for the sake of the record, when we referred to RSR range, more accurately, what we're talking about is the Basic total equity target capital range, correct?

MS. ANDREA SHERRY: Correct.

MR. ROBERT WATCHMAN: And just continuing over to the top of the next page, the second issue listed there is:

"The CMP has not been vetted by the public."

And I take it that you are advocating for public consultation before the Corporation came forward with the cap -- Capital Maintenance Provision -- provision -- proposal.

MS. ANDREA SHERRY: I am, yes.

MR. ROBERT WATCHMAN: And if we look down on that page, the third paragraph under Issue 2, and there is reference there to the Capital Maintenance Provision we understand is in use by Saskatchewan Government Insurance?

MS. ANDREA SHERRY: M'hm.

MR. ROBERT WATCHMAN: And in the second sentence there you say:

"This is not valid because SGI does not put through rate changes every year and their methodology has only been reviewed in one (1) rate program 2014."

Can you tell us why that's an issue with the introduction -- why you believe that that

would be an issue for the introduction of a Capital Maintenance Program in respect of the Manitoba...?

MS. ANDREA SHERRY: So really speaks to my main point is that MPI comes to the Public Utilities Board every year with the full analysis of their results, a full analysis of their capital position and can every year ask the Public Utility Board for a rate increase if they need more capital, or -- really, if they need more capital. So -- or their rates are inadequate at that time.

My point is that the SGI, the Saskatchewan Government Insurance, they do not go every year to any sort of Public Utility Board for a rate increase or to do a full analysis of their program. They don't have an application anywhere near of the -- anywhere near the thoroughness of MPI's and, again, they don't -- they don't produce any application every year.

So I can't speak to Saskatchewan Government Insurance's particular situation but they don't get that opportunity every year to ask for a rate increase. So, potentially, they need some sort of Capital Maintenance Provision because there are years between rate applications. It's -- it's two (2) very different situations.

MR. ROBERT WATCHMAN: Thank you. And you go on in that paragraph to state:

"It has -- it has not been put through Saskatchewan Capital -- Capital Maintenance Provision] -- it has not been put through any sort of public review in Saskatchewan."

But it -- was it -- is it not reviewed by the Saskatchewan Rate Review Panel.

MS. ANDREA SHERRY: It was in 2014, from what I understand, that was the only year and --

MR. ROBERT WATCHMAN: And --

MS. ANDREA SHERRY: -- and it was the first year that the idea was put forth.

MR. ROBERT WATCHMAN: And is that not a form of public review?

MS. ANDREA SHERRY: Yes, the Public Utility Board, this is a forum for public review hear and every attempt is made to make sure that the public knows about these hearings and can attend, can read the transcripts on line, et cetera.

What I was more alluding to was potentially focus groups; finding out what the public actually thinks prior to going forward with something

like this.

MR. ROBERT WATCHMAN: And, Kristen, if we could just scroll down to the bottom of that page under the third issue.

> "The CMP does not align with accepted actuarial practice in Canada."

And in the last sentence on that page you indicate that:

> "This response makes it clear that the use of a CMP, Capital Maintenance Provision, is not normal actuarial practice and is not supported by any type of analysis or research in the industry."

See that?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And I take it you based that conclusion on the response that was received from MPI to CAC(MPI)-178?

MS. ANDREA SHERRY: Partly, yes.

MR. ROBERT WATCHMAN: Partly. And were there other reasons for you to make that conclusion?

MS. ANDREA SHERRY: Well, it really

came out through the Information Requests received that when I gave it more thought in terms of the actuarial standards of practice and that's why I say it does not align because the standards of practice do not talk about any sort of capital load and no actuary doing actuarial rate indications based on the standards of practice would include a capital load, when they do that rate indication.

So, the fact that there is no -- nothing in the standards to say Add a capital load to your rate indication, to me, implies that adding one does not follow the actuarial standards of practice and I've never -- the comment here makes it very clear, I would never see that done.

MR. ROBERT WATCHMAN: Now, does the concept of a Capital Maintenance Provision arise or commonly arise in the competitive automobile indus -- insurance industry?

MS. ANDREA SHERRY: No.

MR. ROBERT WATCHMAN: And are you aware of any private sector automobile insurance company in Canada using a Capital Maintenance Provision.

MS. ANDREA SHERRY: No.

MR. ROBERT WATCHMAN: So then should

private sector practices, in this regard, necessarily dictate what would be an appropriate practice for MPI Basic?

MS. ANDREA SHERRY: We've done a lot of work moving towards rate making on accepted actuarial practice. It's only been one (1) or two (2) years where we've actually had that.

I think that that move was very important to help bring stability in terms of the projection period that you had to do to get to an indication. So, I think that to see -- adding a Capital Maintenance Provision just takes away from the progress that we've made in terms of moving to accepted actuarial practice.

MR. ROBERT WATCHMAN: Okay. Let me approach it from a different perspective.

Would normal actuarial practice in Canada with respect to a Capital Maintenance Provision more properly evolve from practices of public sector automobile insurers in Canada. So, namely, the four (4) that we know of: Insurance Corporation of British Columbia, Saskatchewan Autofund --

MS. ANDREA SHERRY: I think that the public companies, you just mentioned are -- are very different from MPI and that has to be taken into

consideration. I don't think just because one (1) of them does it MPI should do it.

I just talked about a difference with SGI in terms of their filing processes and that they don't have a rate application every year; that's a huge difference because they don't have that opportunity to come back.

ICBC is a very different product, completely different product than what MPI has and I'm not sure of their filing procedures to be honest with you, but I think that it -- your -- just because they're public companies doesn't mean that their processes should be the same, and I would say that MPI's processes are the most advanced if you look at the public companies so.

MR. ROBERT WATCHMAN: Okay but --

DR. WAYNE SIMPSON: Could I add something here?

MR. ROBERT WATCHMAN: Certainly.

DR. WAYNE SIMPSON: I think what we've tried to say elsewhere is that we don't think that the process is like -- well, the MCT, for example, should be applied to a Crown monopoly when it's appropriate for a -- a private insurer in a competitive setting. And I don't see anything in that distinction that

suggests that, you know, a Capital Maintenance Provision would more naturally come out of a -- a public setting than a private one.

The -- in the private setting, they can't make their own rates because they've got to be competitive and in a private setting they can go under if they are undercapitalized, but neither of those things really apply in a public setting and -- and those arguments, therefore, wouldn't be valid for the establishment of a CMP.

MR. STEVE SCARFONE: Sorry to interject to, Mr. Watchmen. Mr. Chairman, I just want to caution the Board in having the comments of Dr. Simpson tempered somewhat with -- remembering what he's been qualified to give expert evidence on.

I don't think the Board should entertain his comments as it concerns the proper capitalization of an insurance company.

THE CHAIRPERSON: That's fine, Mr. Scarfone, and, you know, quite frankly, if you want to bring that to our attention as well in final argument --

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: -- I think that would be appropriate.

MR. STEVE SCARFONE: Thank you.

DR. BYRON WILLIAMS: I just -- Mr. Chair, if I might, I'll just say that Dr. Simpson's expertise in applied econom -- econometrix speaks to risk and as they apply to firms in the marketplace and I think that's exactly the type of conversation that he's making.

THE CHAIRPERSON: Well --

DR. BYRON WILLIAMS: But we'll both speak to it at clos --

THE CHAIRPERSON: Well, there's two (2) ways of doing it, I can make a ruling on it now where we can move forward with the -- with the evidence and at the time of final submission, we can -- you can have the position of both parties because this may not be the final -- final argument on -- on the scope of testimony.

DR. WAYNE SIMPSON: Yeah, I'm sorry, if I was overstepping my bounds. I -- I intended it to be more comment about industrial organization and the difference between competitive firms and a private industry and -- and public monopolies which is a -- something economists talk about quite a bit.

CONTINUED BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: Thank you. Ms. Sherry, now you understand that the individual who provided information about the Saskatchewan Autofund Capital Maint -- Maintenance Provision was Mr. Chris McCullough.

MS. ANDREA SHERRY: M'hm.

MR. ROBERT WATCHMAN: And that he is an actuary?

MS. ANDREA SHERRY: Yes, I know Chris quite well.

MR. ROBERT WATCHMAN: Okay. And is it your position then that his work is not compliant with accepted actuarial practice in Canada because of -- because it includes a -- a Capital Maintenance Provision?

MS. ANDREA SHERRY: I don't want to say that it's not compliant because the standards of practice do not say anything about a capital load. I would say that it does not align. And I'm not sure how Saskatchewan Government Insurance, if they do their -- how they build that -- the CMP into that. I would have to look at that.

I certainly would never say Chris is not compliant.

MR. ROBERT WATCHMAN: Now -- but do

you accept that a normal practice could develop amongst the public automobile insurers in Canada as contrasted with the private sector automobile insurers in Canada?

MS. ANDREA SHERRY: It would definitely be possible to work on something that would apply to a Crown monopoly. It's difficult because, as I said, the product's difference in BC. Unless you had a process that was more similar, it would be very difficult to do that.

MR. ROBERT WATCHMAN: Thank you. If we could just scroll down then, Kristen, to the top of the next page, and the issue there:

> "The use of an MCT target to set a CMP level is arbitrary and not Board approved."

That was -- your -- the issue as you described it?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: Now, given that the MCT or minimal -- Minimum Capital Test is an established metric of a Canadian property-casualty insurance company's relative strength, why do you say its use in relation to a Capital Maintenance Provision is arbitrary?

MS. ANDREA SHERRY: Well, there's a few reasons. One is the setting of 100 percent is arbitrary because what the proper level should be if you were to use the MCT for a public auto insurer how do you know what that should be.

The second reason is because the MCT and -- and I've talked a lot about this today, so apologies if I'm being repetitive, but the MCT was created for private insurance companies to -- to prevent insolvency that would hurt the Canadian economy. So it's -- it's to set an MCT level that would be right for a public auto insurer, I -- I don't think that's relevant.

MR. ROBERT WATCHMAN: And if I could just go -- take a step back, your comment concerning alignment with actuarial practice.

Are you saying that work can be in compliance with accepted actuarial practice, but not aligned with accepted actuarial practice?

MS. ANDREA SHERRY: Well, I'm using the word "aligned" to mean -- or saying that something is not aligned to mean that it is not mentioned.

MR. ROBERT WATCHMAN: Thank you.

MS. ANDREA SHERRY: Noncompliance would be if it is actually laid out and you do

something directly against what the directions are.

MR. ROBERT WATCHMAN: In the second paragraph under Issue Number 4, you state:

"The application

second sentence] the application does not put forth a clear explanation for the use of an MCT ratio that would be appropriate to determine a rate increase."

Do you see that?

MR. ROBERT WATCHMAN: What additional explanation do you believe would be helpful in this regard?

MS. ANDREA SHERRY: I don't know if there is a clear explanation that could be given, to be quite honest with you. But how -- to just say that we need the MCT to be at the same level one (1) year after the other and say that that's any sort of clear explanation of why that would be required, I -- I don't think it is. And that's what I was referring to in that sentence.

MR. ROBERT WATCHMAN: If I could just then refer you down to the last paragraph under Issue Number 4.

"The determination of a required

rate increase to ensure a constant MCT is contrary to the PUB's preference that the DCAT analysis be used to determine rate need based on the Corporation's risk profile."

Can you expla -- can you explain for us why you make that observation?

MS. ANDREA SHERRY: I don't have the Board Orders in front of me but there was one (1) Board order that -- actually it was -- disallowed using the 100 percent MCT as the upper. Look at Board --

"The Board withdraws its support for the use of the MCT in an MCT threshold ratio."

And that was Order 162/'16. Thank you. I knew I saw it some where. So that would be one (1) area where I was drawing from that the Board has not endorsed the MCT as -- as -- the use of the MCT at least in setting the RSR range and has endorsed this adverse scenario analysis that the DCAT provides.

MR. ROBERT WATCHMAN: Okay. And yes, and perhaps I should have focused. It's the reference there to "rate need."

Would it be more fair to say that the

PUB's stated preference was for the establishment of the Basic target capital thresholds through the adaptation of the Dynamic Capital Adequate Test?

MS. ANDREA SHERRY: Yep, potentially I wasn't as clear as I should have been there. What I was alluding to was that if the RSR range is set, and the capital of MPI is below the lower -- the minimum, then would need rate; that's what I was basing that on.

MR. ROBERT WATCHMAN: Thank you. If we could then move to the next Issue Number 5, and it reads that:

> "The CMP does not align with the Board approved methodology for calculating the amount of capital the corporation requires, nor is it consistent with work to date."

Do you see that statement?

MS. ANDREA SHERRY: I do.

MR. ROBERT WATCHMAN: And...

THE CHAIRPERSON: Sorry, Mr. Watchman, could I interrupt for a second. I just want to look at the last sentence. This is I -- I had a little confusion and I'll go into it later.

But, the heading of your -- of your

previous page. Sorry, in -- in your presentation was:

"The CMP does not align with accepted actuarial practice."

And your comment was it's -- what you meant was, it does -- it wasn't mentioned. Can you go back, Kristen, to this screen where we were.

MS. ANDREA SHERRY: So to be clear, the actuarial standards of practice lay out very clearly what an actuarial rate indication includes. It doesn't specifically say, don't include these things, but it is very clear on what should be included.

THE CHAIRPERSON: Right, okay. But -- and this isn't the page, Kristen. I think it was number 5. And here, sorry, when you say:

"The proposed CMP does not align with this directive."

What are you saying? The directive does not include the words that would capture a CMP?

MS. ANDREA SHERRY: Good point.

THE CHAIRPERSON: Yes, I mean, I'm having trouble because use the word "align" --

MS. ANDREA SHERRY: Yeah.

THE CHAIRPERSON: -- and in my mind you're using it in two (2) completely different ways

and I -- I just want to -- you know, and that's why I interrupted. I want to understand how you're using "align" here versus how you use "align" previously.

MS. ANDREA SHERRY: So at some point during this process I was asked for the definition I used "align." I can't remember where it is. That would be very handy right now.

(BRIEF PAUSE)

THE CHAIRPERSON: Yes, sorry, I also notice it's in the title of Number 5:

"The CMP does not align with the Board approved methodology."

MS. ANDREA SHERRY: Right. So that's what you're talking about, though, is it not? The -- that --

THE CHAIRPERSON: Well, --

DR. BYRON WILLIAMS: Mr. Chair --

THE CHAIRPERSON: -- but what --

DR. BYRON WILLIAMS: -- just for Ms. Sherry's reference.

THE CHAIRPERSON: Yes.

DR. BYRON WILLIAMS: It's the response to PUB/CAC-1-8.

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: They provide the response that I think you were referring to. I -- I apologize for interrupting your conversation.

THE CHAIRPERSON: No, I appreciate it.

(BRIEF PAUSE)

THE CHAIRPERSON: And in my mind, if -- if what you're looking at is B -- Kristen, can you go down. Is there more to B or is that it? Sorry, can you go down to -- to page 28.

MR. ROBERT WATCHMAN: That -- that's the end of the --

THE CHAIRPERSON: That's the end of B. Sorry, well then go back to -- if -- if we're looking at B, does not contain section...

So that -- that would go into your arg -- your -- your question of it doesn't include it but later on when you say it doesn't align with the directive, is it that --

MS. ANDREA SHERRY: Well, the definition of "align" can mean a lot of things. So definition I --

THE CHAIRPERSON: Yes.

MS. ANDREA SHERRY: -- used or got off the internet was:

"To bring into agreement close cooperation."

So if something's not -- does not contain it that would not align. If something is not in agreement or close cooperation, it does not align. I think it's relevant in both.

THE CHAIRPERSON: Okay.

MS. ANDREA SHERRY: I could have chosen different words and said that it was not supported by or was not included in.

THE CHAIRPERSON: Okay. Okay, thank you. Sorry, to interrupt, Mr. Watchman.

CONTINUED BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: Kristen, if we could just return to -- right there.

So under Issue Number 5 in the first paragraph you reviewed the methodology that was approved by the Board and then you make that statement:

"The proposed CM -- CMP does not align with this directive."

Do you see that?

MS. ANDREA SHERRY: M-hm.

MR. ROBERT WATCHMAN: Now -- but the methodology that's referred to, again, is methodology for establishing lower and upper Basic target capital thresholds; correct?

MS. ANDREA SHERRY: Right.

MR. ROBERT WATCHMAN: So can you tell us what it -- what specifically about a proposed Capital Maintenance Provision in the 2019 GRA is not aligned with the Board's prior approved methodology for establishing Basic target -- target capital range?

MS. ANDREA SHERRY: My understanding of the Rate Stabilization Reserve and the path we've taken, to this point, is that we were working towards a methodology that could be used every year to determine what -- whether the Corporation's capital was sufficient. That's my understanding of what the Rate Stabilization Reserve and all of the work we've done on the DCAT was for; that was the goal.

Adding a Capital Maintenance Provision that would be in addition to the capital that is determined -- how the capital is determined to be sufficient or not and then we have this other piece on top, that, to me, does not align with the direction we were going, with the Rate Stabilization Reserve and

the DCAT and the determination of whether the Corporation's capital was sufficient.

MR. ROBERT WATCHMAN: All right but the -- the purpose of a cap -- Capital Maintenance Provision, as you've indicated, is to keep the available capital at a steady level relative to required capital based upon an MCT ratio?

MS. ANDREA SHERRY: Right.

MR. ROBERT WATCHMAN: So that's its purpose. The setting of Basic target capital range is something different; correct?

MS. ANDREA SHERRY: Yeah.

MR. ROBERT WATCHMAN: So -- so they're both related to the Rate Stabilization Reserve but they are two (2) different things; correct?

MS. ANDREA SHERRY: I'm not sure that the Capital Maintenance Provision relates to the Rate Stabilization Reserve. I think it's separate and on top.

MR. ROBERT WATCHMAN: Okay. Well, it maintain --

DR. WAYNE SIMPSON: I agree.

MR. ROBERT WATCHMAN: Okay, well --

MS. ANDREA SHERRY: It is -- the RSR is determined or the Rate Stabilization Reserve is one

(1) piece and it's where the Corporation's capital is right now. And whether it's sufficient is determined by a range.

The Capital Maintenance Provision that is suggesting is using an MCT ratio and keeping it consistent year-over-year and it is separate. From what I understand if -- well, I know this to be true, that the CMP is not even included in the DCAT. So they are separate.

DR. WAYNE SIMPSON: I -- I think the only overlap and this is what I objected to in the slides I presented was that this desire to express the upper and lower thresholds in terms of the MCT and, in fact, to use the MCT to establish the upper threshold in MPI's mind, in their methodology, and that kind of conflates the two (2) issues, but if you take that out and say that the DCAT establishes the RSR lower and upper thresholds in dollar terms or percent of premiums, or whatever you want to think of it, because that would be another way of doing it, then it -- it -- then there's no necessary -- there's no implied like, I think then between the RSR determination and the CMP.

(BRIEF PAUSE)

MR. ROBERT WATCHMAN: Now, turning the page still under the Issue Number 5 in the middle paragraph there, you review the forecasted levels of Basic total equity in the GRA and then towards the end of that paragraph state:

"This indicates that there is no urgency to implement any sort of capital build provision."

Do you see that?

MS. ANDREA SHERRY: M-hm.

MR. ROBERT WATCHMAN: And by "capital build provision," I take it you're referring to the Capital Maintenance Provision?

MS. ANDREA SHERRY: I am.

MR. ROBERT WATCHMAN: And are you advocate -- advocating more time to develop a broader consensus of stakeholders for a Capital Maintenance Provision or you think it should simply be deferred without any further action being taken?

MS. ANDREA SHERRY: I think from my commentary today, I would -- I feel that there is no place for the Capital Maintenance Provision and that I am hopeful that the Public Utility Board will agree with that and make it a nonissue going forward.

My point here is that -- sorry, actually it's my next point where -- where I was commenting that it's -- it's just a piece of a very big puzzle if they actually want to go forward with anything, it should be part of a complete robust capital management plan.

DR. WAYNE SIMPSON: I'd just add again, that where it says "capital build provision" there, in the past when -- when the surplus, as I called it elsewhere, lies below the lower threshold then we talk about a RSR rebuild provision; in other words, not relating it specifically to capital in any way -- to capital maintenance.

MR. ROBERT WATCHMAN: Now, in the -- continuing on in the next paragraph you refer to the Corporation's Capital Maintenance Provision request and about four (4) lines from the bottom a sentence that reads:

> "It is difficult to reconcile these assertions with the reality that the DCAT analysis has shown that the risk profile of the Corporation requires a decrease in the RSR range."

Do you see that?

MS. ANDREA SHERRY: M-hm.

MR. ROBERT WATCHMAN: And -- but is it fair to say that that decre -- decrease resulted from the implementation of the asset liability management study?

MS. ANDREA SHERRY: That would definitely be a part of it, yes.

MR. ROBERT WATCHMAN: Okay. So these -- that is not one -- one would consider a normal evolutionary type of change. It was a change that was specifically made by the -- by the Corporation consciously?

MS. ANDREA SHERRY: Yes. And it reduced the risk profile of the Company so that the RSR range could go down.

MR. ROBERT WATCHMAN: Now, you continue on saying that:

> "The RSR range will go up in dollar terms as the size of the Corporation increases. This negates the need for a CMP."

Do you see that?

MS. ANDREA SHERRY: I do.

MR. ROBERT WATCHMAN: And why do you say that the need for a Basic Capital Maintenance

Provision for a given fiscal year is negated by the fact that the approved total equity target range will adjust to respond to changes in risk profile in future fiscal years?

MS. ANDREA SHERRY: One (1) of the arguments that I've seen for a Capital Maintenance Provision is that the Corporation will grow, and therefore, they need more capital to ensure their stability.

But if the Corporation is growing and, for example, the high loss ratio adverse scenario in dollar terms that we'll go up because you have more people, more -- the loss ratio creates more losses, the adverse scenario dollar amount will go up. So, the RSR range will go up with that.

MR. ROBERT WATCHMAN: Now, in the absence of a CMP if the Basic capital -- capital level declines to the point where a Rate Stabilization Reserve rebuilding fee is triggered --

MS. ANDREA SHERRY: M-hm.

MR. ROBERT WATCHMAN: -- which would occur then in the next GR -- GRA --

MS. ANDREA SHERRY: Right.

MR. ROBERT WATCHMAN: -- does that not raise concerns with respect to intergenerational

equity?

MS. ANDREA SHERRY: When a rate -- an actuarial rate indication is done, you project everything to the rating year in question. So you're protecting what those people will cost the system, whoever is in that book, whoever's in that policyholder group in that year, that's what you're projecting for. So you're projecting losses, premium, expenses, everything in that year.

It doesn't matter what happened in prior years, it matters what happens in that year for the actuarial rate indication. So if the capital need, let's say, a horrible hail storm hits and the capital need of the Company changes significantly due to that one (1) event in the one (1) year, then their rating for that in the next year as part -- would have to be treated as a catastrophe load, et cetera, et cetera. But then they would be adding -- asking for an RSR rebuild at that point.

So that's pretty tightly connected, isn't it? Like from one (1) year to the next. What we're talking about is building up capital now for some -- for something that they might need in five (5) years, ten (10) years, or maybe never.

If -- if we treat every single year we

look at the RSR and we say, are you in a good place? We have our actuarial rate indication for the year in question, is your capital in a good place? Is it in with the RS -- is it the RSR range and we do that every year, that's pretty tightly connected to the group of policies as we move through time.

MR. ROBERT WATCHMAN: Now, my understanding in terms of the rationale that the Corporation has with respect to the request for a Capital Maintenance Provision is that, all things being equal, the capital levels will decrease over time, sort of naturally or by evolution.

Do you accept that rationale?

MS. ANDREA SHERRY: Capital is hard to predict. You don't know for sure what the investments are going to be, what your book of business is going to be, what your losses are going to be. You can't -- I mean, I can't predict that.

MR. ROBERT WATCHMAN: Okay. But is -- isn't that the very thing that a Capital Maintenance Provision is intending to address?

MS. ANDREA SHERRY: That would be my whole point is that they don't need that. If they have the RSR, and we watch from year to year if the capital does, in fact, really decrease and gets to

that minimum then they would need some capital at that time.

MR. ROBERT WATCHMAN: Now, if we just scroll down to the next heading, Introduction and Basis for CMP in the 2019 GRA is incomplete.

You see that?

MS. ANDREA SHERRY: I do, yeah.

MR. ROBERT WATCHMAN: And you observe at the bottom of the page, the last sentence:

> "Neither a capital release provision nor a capital management plan have been reviewed and analysed."

Correct?

MS. ANDREA SHERRY: Correct.

MR. ROBERT WATCHMAN: Now, is it your opinion that it's inappropriate to consider the introduction of the Capital Maintenance Provision outside of that overall Capital Management Plan?

MS. ANDREA SHERRY: I -- I don't want to implement a Capital Maintenance Provision at all, and therefore, I wouldn't think a capital release for -- I think that a Capital Management Plan would be a good thing to have.

It would lay out what would happen if the RSR drops below the minimum, what would the

response be, do we look at -- what kind of forecasts we would rely on to make those decisions or the public -- I think it would be good to have a plan.

I just -- I don't think that the Capital Maintenance Provision should be part of that time. And the fact -- my point here is the fact that it was thrown out with the -- without a full picture of what that means.

MR. ROBERT WATCHMAN: So I take it that it's your position that an overall plan that would have provisions for triggering rebuilding fees or rebates is sufficient to maintain Basic's capital position at the appropriate levels over time?

MS. ANDREA SHERRY: I do.

MR. ROBERT WATCHMAN: Scrolling down to the next section, Issue Number 7, the introduction of a CMP in the 2019 GRA would introduce intergenerational inequity.

And in the first paragraph, the second sentence reads:

> "The capital collected is built up until a rebate is required."

Do you see that? And I think in questioning by My -- My Friend Mr. Guerra, you indicated that such a provision or such a buildup

could trigger a rebate and our question, or my question more specifically, is whether you believe that the regular inclusion of a Capital Maintenance Provision in the approved rate will necessarily lead to an accumulation of Basic total equity and eventually Rate Stabilization Reserve rebate.

MS. ANDREA SHERRY: It won't necessarily. It's a possibility.

(BRIEF PAUSE)

MR. ROBERT WATCHMAN: Okay. So just -- if I could just review before leaving this area.

Do you accept that Basic actuarial liabilities still tend to naturally grow over time?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And they are accompanied by a comparable growth in investment assets?

MS. ANDREA SHERRY: M-hm. Yes.

MR. ROBERT WATCHMAN: Based on that, do you agree that Basic's capital position, as measured by the Minimum Capital Test, will therefore tend to naturally decline over time in the absence of a Capital Maintenance Provision, all other things

being equal?

MS. ANDREA SHERRY: If we're just looking at the MCT?

MR. ROBERT WATCHMAN: Yes.

MS. ANDREA SHERRY: I'm trying to think of all the risks and what could happen to them. But, I think that would be true.

DR. WAYNE SIMPSON: Can I just add on this point, because I interjected before on this.

I just wonder how much of that scenario is predicated on the use of the naive interest rate forecast? Which, as I said, seems to be quite a pessimistic forecast in the context, like -- like the interest rate declined scenario. Seems to be a similarly -- an adverse event.

In other words, on the context of this adverse event, the MCT might decline. Would the MCT decline under the 50/50 and SIRF forecasts? I don't know but I -- I would like to -- I would like to know.

(BRIEF PAUSE)

MR. ROBERT WATCHMAN: Now, just in that paragraph just before conclusion, the final part of that sentence reads that:

"Holding capital on top of what is held within the RSR range is improper use of ratepayer's money."

Correct?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And it seems that that would perhaps advocate more for a rebate mechanism than being a position contrary -- to contradict the request for the Capital Maintenance Provision.

MS. ANDREA SHERRY: I'm not sure I understand your question, sorry.

MR. ROBERT WATCHMAN: So that statement, isn't it more directed to the requirement or the need for a rebate mechanism, as opposed to the Capital Maintenance Provision?

MS. ANDREA SHERRY: No. What I meant by that statement was that you have, basically, what I was referring to earlier in the sense that you determine the RSR range, you know what capital -- what the total equity is of the Corporation, if it's within that range, then the Corporation is adequately capitalized.

My comment there is that if you take more from the tax -- from the ratepayers now, that MPI

does not actually need now, I feel that that is improper use of the ratepayers' money and potentially not good for the Manitoba economy.

MR. ROBERT WATCHMAN: Okay, I'm going to now change to the report on the role of DCAT and interest rate forecasting, for the record that's CAC Exhibit Number 9.

And again, just the first -- sorry, the second issue stated there is: How should the RSR be set and a chronology of proposals.

Do you see that?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: And just in terms of where we are now, is it true that in the General Rate Application, the -- the Corporation first determines the Basic total equity target capital range expressed in dollar terms?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: And then converts their proposed lower and upper threshold from the dollar equivalent into a Minimum Capital Test ratio?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: And just looking, if we could skip a few pages ahead to page 4,

starting in the third block there you -- you referred to the MCT methodology, and is that what you mean by the MCT methodology that the Corporation uses?

DR. WAYNE SIMPSON: Yes, at the level of the DCAT, that's right.

MR. ROBERT WATCHMAN: Right, sorry, and I should've pointed out, I'm talking about the last sentence in that block.

> "Indeed, there is little to recommend the MCT methodology over the long-standing percentage of premiums approach, since both approaches are indexed to the size of MPI's operations, but both lack any apparent link."

DR. WAYNE SIMPSON: Sorry, let me revise my answer then.

No, it's in -- the previous sentence talks about the MCT levels of 34 percent and 85 percent, which might be projected forward as the lower and upper RSR targets and that I -- that's what I'm referring to as using the MCT to set the lower and upper thresholds, that methodology.

And I'm -- I'm saying that that is in the respects that I'm talking about here, very much

similar to the percentage of premiums approach. I mean, you could -- you could express the targets in terms of percentage of premiums too and project that forward. And instead of using the 10 and 20 percent figures from Kopstein, you could use whatever that comes out of the DCAT.

That would be, in terms of objectivity, transparency and simplicity, pretty much the same thing.

MR. ROBERT WATCHMAN: Okay. So, but just in terms of how the target capital threshold might be set, you would agree that simply selecting an arbitrary MCT ratio level is less desirable than the approach that the Corporation has used in terms of first determining a dollar and then translating it into a percentage.

DR. WAYNE SIMPSON: Using -- using the DCAT and especially -- in particular for the lower threshold with 1:40 tolerance level, yes.

MR. ROBERT WATCHMAN: So you would agree that that's preferable?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: Thank you. Now, at the bottom of the page you -- the last sentence, you state:

"The absence of such events, the current POP, Percentage Of Premiums, and DCAT methodologies should continue to inform the setting of the RSR range."

And as you've indicated, one (1) of the shortcomings of the POP is it's not linked to risk, whereas DCAT is.

So can you just perhaps explain for the Board what role you recommend for the POP methodology in setting the target capital levels.

DR. WAYNE SIMPSON: What -- well, this is much like the -- the recommendation of the 50/50 interest rate forecast in the sense that -- that I take what is currently -- I incur -- interpret is current board operation, which is the consideration of the POP because it has never said it isn't using the POP and it's been discussed over and over again in -- in previous GRA's just as I opted for the 50/50, because it is part of an existing Board Order.

I think in that context until there is a, you know, a clear indication that the DCAT is the sole methodology to inform the setting of the RSR range, I would say that -- that the POP continues to be used.

That said, given all the effort that has been put into the DCAT and its apparent strength in identifying the actual risks of the Corporation and -- and how they should be incorporated into setting the RSR, I would favour using the DCAT to set the RSR, both the lower and the upper thresholds in the fashion that we seem to be moving towards.

MR. ROBERT WATCHMAN: Now, Ms. Sherry, would you say that the determination of target capital or capital targets or ranges is a requirement of the Dynamic Capital Adequacy Test generally?

MS. ANDREA SHERRY: No, it's not.

MR. ROBERT WATCHMAN: And would it be fair to say that the main objective of a Dynamic Capital Adequacy Test investigation is to test satisfactory financial condition of the insurer?

MS. ANDREA SHERRY: Yes, it is. It's definitely to find out where the company is at risk and then to respond to that risk.

MR. ROBERT WATCHMAN: Now, -- and it's fair to say that the target capital analysis that is done to estimate the Basic tar -- target capital range either as done in the GRA or by MPI using the iterative method as previously approved by the pope -- by the PUB is a -- is an adaptation of Dynamic Capital

Adequacy Testing?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: Now, in your work is a -- an actuary, you have occasion, though, to prepare an analysis or analyses supporting a benchmark Minimum Capital Test solvency ratio for private sector and automobile insurance, or private-sector insurance companies?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And that's for approval by the Office of the Superintendent of Financial Institutions?

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: And in broad terms, can you describe how the approach you will follow in that work compares with the Board's previously approved iterative methodology for estimating the Basic target capital threshold levels?

MS. ANDREA SHERRY: The Minimum Capital Test in a private company is a regulatory requirement. It doesn't actually feed the risk management of a company though.

The regulator is -- is moving to using a DCAT-like process where the company would create a DCAT.

I can get all into where ORSA and OFSI is going, but the DCAT itself is what actually would drive the risk management of a company more than the MCT. The MCT is a regulatory number we have to report to OSFI.

And yes, we care. A private company cares very much if their MCT drops, because it could have implications if it's a stockholder company on price of a stock, for example, or implications of wh
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or AAA or A and what your outlook is.

But the MCT in itself is just the one (1) number, right? And if it's a good number, then the company is happy. If it's not a good number then you have to go back to your risk management and find out what the issues are.

But in a company where the MCT is running well, that's where the DCAT comes in and you use that to actually analyze where are our biggest risks, what are they?

And we want to reduce that risk. So if it's BC earthquake or Alberta PPA or whatever it is we have to manage that so that our DCAT process -- that's what we use it for.

MR. ROBERT WATCHMAN: Thank you.

DR. BYRON WILLIAMS: Just for the record, and I do apologize. The acronym PPA?

MS. ANDREA SHERRY: I'm sorry, private passenger auto.

CONTINUED BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: But would it be fair to say that your work in this regard does adapt the Dynamic Capital Adequacy Testing to ensure a proper target capital analysis?

MS. ANDREA SHERRY: Sorry?

MR. ROBERT WATCHMAN: Does the -- in your work, do you also adapt -- are you not also adapting the Dynamic Capital Adequacy Test for the purposes of target capital determination?

MS. ANDREA SHERRY: Do we use the DCAT?

MR. ROBERT WATCHMAN: Yes.

MS. ANDREA SHERRY: Yes.

MR. ROBERT WATCHMAN: I'm going to now switch to the topic of interest rate forecasting, and that's Issue Number 3 in this report.

And I'm just going to go down to the -- scroll down to the fourth -- the fourth paragraph there, beginning almost -- approximately in the

middle, and this is in the context of discussion about the standard interest rate forecasts.

And the statements are made that since the 2008 recession, do you see that?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: The SIRF, or Standard Interest Rate Forecast, has predicted that interest rates will rise going forward as the economy recovers.

In hindsight, the SIRF has been too optimistic about economic recovery and has overestimated interest rates as now familiar in figure INV-10, or figure INV-10 illustrates.

"The foundation for rising interests remains solid."

And I'm just going to pause there. Did you intend to say "the foundation for rising interest rates remains solid"? Is that...

DR. WAYNE SIMPSON: Yes, thank you for correcting my typo. Sorry, I must've missed that in ten (10) readings. Sorry about that.

MR. ROBERT WATCHMAN: It happens.

DR. WAYNE SIMPSON: Interest rates.

MR. ROBERT WATCHMAN: So:

"The foundation for rising interest

rates remains solid as there are limitations on the extent to which interest rates can fall without severe monetary disruption and economic recovery has historically been associated with rising interest rates to prevent an excessively rapid economic expansion and undo inflationary pressure.

Those foundations remain and the SIRF continues to predict rising interest rates, albeit at a slower pace than earlier forecasts."

Can you, Dr. Simpson, elaborate on what the fundamentals of economic theory suggests is a best estimate interest rate forecast at the present time?

DR. WAYNE SIMPSON: Well, as I've said, these are not normal times. We think that -- economists think and Bank of Canada thinks, I think interest rate forecasters think that we're approaching something closer, more closely resembling normal times.

But we're coming out of a -- both a reasonably sharp recession, not a long-lasting reception, (sic) but reasonably sharp, which had a

fairly slow recovery by historical standards, and a period of low interest rates that probably is -- has not been observed, at least since the 1950s.

So, I think there has to be some caution in interest rate forecasting and to some extent I think the SIRF reflects this. I think the SIRF forecasts have become a little bit more cautious, I think that's evident in -- in the -- in the figure, in 10. But -- and I guess that's essentially what this statement says.

MR. ROBERT WATCHMAN: Now, if we could just scroll to the top of the next page, and that -- that following paragraph spoke about the Corporation's analysis of the standard error of competing interest rate forecasts.

And your comment at the end was that over the la -- latest two (2) GRAs you state that:

> "The SIRF has actually been quite close to the actual rate both years, while the naive forecast has consistently under estimated it."

Do you believe then that this latest pattern is a meaningful departure from that of the earlier periods?

DR. WAYNE SIMPSON: Yes, I think

there's no question in the sense that the long period of a low policy rate and low interest rates has ended and the last two (2) years the period where the -- the overnight rate or policy rate has begun to rise.

The economy has moved -- moved towards capacity and listening to the latest comments by the Bank of Canada Governor, Stephen Poloz, is pretty much considered to be at capacity now and inflationary pressures are beginning to drive concerns that interest rates need to be higher.

MR. ROBERT WATCHMAN: Now, the Corporation, in its rebuttal to your report, and for the record, we don't have to go there, but for the record, it's MPI Exhibit 19, the Corporation raises the concern of recency bias when giving consideration to this latest pattern.

What can you tell us about "recency bias" and can you share with the Board any limitations you believe might place on what considerations should be given to the most recent data?

DR. WAYNE SIMPSON: Well, I think there's always some degree of recency bias in the sense that we tend to rely on the recent past, as opposed to the distant past.

We don't go back very much to the great

depression anymore because it happened a long time ago. So there is some recency bias.

I think we've gotten embedded in some notion that, you know, forecasting interest rates is simply a simple timeseries extrapolation process, whereas what it actually is, is a sophisticated process of modelling economies to see what's happening.

And while that modelling is based upon the historical data, not only of interest rates, but of all the other things that they can measure in the economy, I think the outcomes they try to project are those which reflect the -- the more recent economic conditions.

And in this case, very much the -- the movement of the economy towards a full capacity and, for want of a better term, the natural unemployment rate -- or the non-accelerating inflation rate of unemployment, I think is the term that's often used nowadays.

MR. ROBERT WATCHMAN: Now, if we could turn to the next page, the second paragraph there, and this is a -- a discussion about forecast bias, and about halfway down that paragraph it reads, "but recent naive forecast." Do you see that?

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN:

"But recent naive forecasts which have under-predicted interest rates by 0.45 percent and 0.60 percent and recent economic events, all of which point towards higher interest rates as the economy approaches full capacity imply a much higher probability that the naive forgot -- forecast will under-predict then over-predict interest rates."

DR. WAYNE SIMPSON: Yes.

MR. ROBERT WATCHMAN: And can you tell us what the foundation is for the statement that it is a much higher probability, that the naive forecast will be bias relative to the ---

DR. WAYNE SIMPSON: Well, simply -- simply it's more likely to be -- to have -- to produce a low interest rate forecast than one that is equal to what is actually going to be observed. It's going to under-predict it. Higher probability, in other words, if you had to put odds on under-predict versus over-predict they would not be 50/50. They would be something much higher for under-prediction.

MR. ROBERT WATCHMAN: And just so we're clear, that -- that your view in that regard is based on economic theory or statistical analysis?

DR. WAYNE SIMPSON: It's based on an understanding of how monetary policy operates, how that transmits to other interest rates like the Government of Canada benchmark rate and how the economy is performing and how that informs the Bank of Canada and causes them to react.

MR. ROBERT WATCHMAN: And sorry, Kristen, if we just scroll up there to the bottom of the first paragraph on that page.

And the last sentence in that paragraph reads:

> "The naive interest rate forecast used by MPI explicitly ignores this important information from our central banking authority and other sources."

And with respect to the information, the central banking authority information, you're talking about the monetary policy reports, correct?

DR. WAYNE SIMPSON: From the Bank of Canada, that's right.

MR. ROBERT WATCHMAN: And ---

DR. WAYNE SIMPSON: And the -- and the increases in the policy rate. The actual decisions to increase the policy rate, which they justify.

MR. ROBERT WATCHMAN: And My Friend had asked you some questions about the correlation between the overnight lending rate and long-term bond yields.

And could you tell us then how closely you feel they are related and how does this inform the Board for purposes of interest rate forecasting for this GRA?

DR. WAYNE SIMPSON: Well, it would depend on the frequency which -- which measure the two (2) rates, because the -- the 10-year bond rate is going to move a lot. It's a market rate, and as a result it's quite volatile.

And if you look at the correlation between a volatile rate and a fair -- a very stable rate, which is the policy rate, then you're going to find fairly low correlation.

That correlation is going to go up as you measure the long-term bond rate less frequently. For example, as you go to monthly rates, quarterly rates, annual rates. Then you'll get a much higher correlation between the two (2) series, because the

policy rate can only change when the Bank of Canada meets to consider that, and that only happens once -- what is it, every second month, or I think maybe eight (8) times a year.

So it's infrequent and it's not going to -- it's only changed five (5) times in two (2) years, the bank -- the 10-year bond rate changes daily.

MR. ROBERT WATCHMAN: Now, Kristen if we go to the last page, under recommendations, and recommendation 2, you recommend the use of the 50/50 interest rate forecast. And that the -- the last sentence there reads:

> "The naive interest rate forecast ignores recent monetary policy and economic events that indicates rising interest rates that are more consistent with the standard interest rate forecast."

Can you tell us why that observation doesn't lead you then to advocate the use of the standard interest rate forecast as opposed to the 50/50.

DR. WAYNE SIMPSON: When I wrote this it was slightly less apparent to me that events were

moving towards a higher -- immediate higher interest rates.

Since then, we've had an actual rate increase. We've had some very good economic news in terms of growth and unemployment. We've also had some news that inflation is beginning to push the 3 percent boundary, at least the consumer price index.

And so that information wasn't available to me at the time, I suspect -- I can say that if I wrote this today I would -- I would argue for the standard interest rate forecast rather than the 50/50.

MR. ROBERT WATCHMAN: Okay, so in -- perhaps just ignoring for the moment or setting aside the Board's prior position on interest rate forecasting, what would your best estimate be for the interest rate forecast?

DR. WAYNE SIMPSON: The SIRF. I don't think I can do better than the banks. They spent a lot of money on this and they employ experienced and credible people.

MR. ROBERT WATCHMAN: Thank you, Dr. Simpson. Thank you, Ms. Sherry.

Mr. Chair, those are all my questions.

THE CHAIRPERSON: Okay, I would ask

the Board if they have any questions.

Ms. Sherry, maybe I can start with you. I take it from your testimony that we really can't compare MPI to anybody else?

MS. ANDREA SHERRY: Thank you. No, I don't think you can.

THE CHAIRPERSON: We can't compare them -- well, they can't use MCT because they're not a private sector company.

MS. ANDREA SHERRY: Agreed.

THE CHAIRPERSON: We can't compare them to BC because it's a different operation?

MS. ANDREA SHERRY: Product's different.

THE CHAIRPERSON: Product's different. We can't compare them to SGI because the process is different. SGI doesn't have annual -- annual hearings.

MS. ANDREA SHERRY: There is certain things that you can compare and look at, but one (1) of the differences between SGI and MPI is that they don't have rate hearings every year.

So their capital rate requirements, the process is completely different, but if you want to look at potentially loss development factors for

certain coverages, I think that would be relevant for SGI and MPI.

THE CHAIRPERSON: But in terms of MTC or -- I'm doing it myself, I apologize.

Or -- or the Capital Maintenance Provision circumstances are different, so we shouldn't be doing the comparisons.

MS. ANDREA SHERRY: I don't think -- yeah, I don't think -- my answer is yes.

THE CHAIRPERSON: For the -- for the Capital Maintenance Provision, you said that you thought from coming after the technical conference there would be a discussion raised that -- a discussion raised at this hearing, rather than having it part of the application, is that correct?

MS. ANDREA SHERRY: Unfortunately I wasn't able to attend the conference, so just reading the transcript, I came away from that feeling nothing had been decided or that further discussions would occur. When I read it, it was not to me -- there was nothing conclusive.

So I was surprised to see the Capital Maintenance Provision in the filing.

THE CHAIRPERSON: How would there be a discussion at this hearing other than if it was in the

application?

MS. ANDREA SHERRY: Honestly, I don't know. I was potentially thinking there would be another technical conference to further the discussion but...

THE CHAIRPERSON: In terms of the Capital Maintenance Provision, as I understand it, one (1) of the strong reasons you think it -- it would be inappropriate is because they appear before this Board every year.

The fact is, if there's a problem from year to year, they can always approach the Board as part of their General Rate Application and ask for a higher rate, is that correct?

MS. ANDREA SHERRY: They already have the RSR, so if the RSR is within the range set by the Public Utility Board, then yes, year to year you check where it is, you know what the capital position of the Company is and if they need a capital build.

THE CHAIRPERSON: In terms of -- of the RSR and a -- the use or need of a rebuilding fee, do you see a rebuilding fee as a last resort?

MS. ANDREA SHERRY: I see it as something that may be necessary if the capital is not within the range.

THE CHAIRPERSON: And how often would you see it being used? Is it something from year to year if they need it and they run out, you have a rebuilding fee and potentially a few years later you have a rebuilding fee, it would be better to have that then perhaps have a higher rate and money taken from consumers that -- that wasn't required?

MS. ANDREA SHERRY: My feeling is that if you look at it every single year, the requirement would be quite small, if you needed a capital rebuild.

And I don't think you would need it every year. I think it -- like I spoke to you a bit earlier, is that capital position is dependent on so many things. MPI could have a great year and their capital all of a sudden is better and that holds them for a few years.

It's -- there's so many things that could occur. It can drop suddenly because of a severe event or series of events, really bad winter, whatever. But the point is that every year you look at it and you analyze it and -- and you decide where your capital is and if it's sufficient. And if it's not, then you take a point or two (2).

THE CHAIRPERSON: Should we be -- should the Board be focusing on having the lowest fee

possible to keep money in the economy and with consumers recognizing the risk that we may need a rebuilding fee every -- once every four (4) or five (5) years?

MS. ANDREA SHERRY: To me, that would make more sense to keep the rebuilding fee closer to the year, yes.

THE CHAIRPERSON: Okay. Can we go, Kristen, can we go to Figure 1 of -- yes, it's CAC-26. It's the overnight and 10-year bond rate. Figure 1. Unfortunately, there is no page number. Sorry, is it page 14? Yes, that's the one. Thank you.

Dr. Simpson, I'm looking at the -- at the overnight rate, sorry, for 2016. Would I be correct -- the red line.

Would I be correct -- this isn't the right chart but if I -- would I be correct that if I went back about eight (8) years that line sitting, it's about that flat.

DR. WAYNE SIMPSON: Yes, subject to check, I would think that's pretty accurately describes. In other words, they didn't go below .5 --

THE CHAIRPERSON: Five, right.

DR. WAYNE SIMPSON: I think that is pretty -- as low as they felt they could go based --

because of monetary con -- considerations.

THE CHAIRPERSON: If we were looking at interest rates at that time, was the naive forecast the right rate?

DR. WAYNE SIMPSON: In hindsight, it was a -- it was a better forecast than the -- than the SIRF, just because of the -- of those circumstances described by that flat line, sure.

THE CHAIRPERSON: One (1) of the problems I'll admit I have is that in my first hearing here, which was in 2016, there was a lot of testimony that SIRF was the right rate because interest rates have to go up because they've been flat for so long.

And I believe my comment at the time was, that's fine, but I've gone through the transcript for the last five (5) years and I've heard the same statements made. They have to go up at some point and my question for you, like, I think my question to you at that time was, why?

I mean, they could be flat for another two (2) years. Why was -- SIRF -- why was everybody pushing SIRF at that time? Was this just hope?

DR. WAYNE SIMPSON: Well, it's more than hope, because as I said before, that -- there's -- there's money on the line with the banks and other

financial institutions in getting good forecasts to base their decisions on, and interest rate forecasts are one (1) of those.

So it isn't that they do this, you know, just based on hope. I mean, the -- the projections were that the economy would recover and as soon as the economy recovered to the -- certainly to the point we're at, but even the point we were at last year, then there would be -- the Bank of Canada would start to increase interest rates.

That didn't happen as quickly as people expected this, you know, this -- this was not a -- something that had a historical precedent.

THE CHAIRPERSON: I made note of your last comments, "banks spend a lot of money on this." They spend a lot of money on that and they got it wrong for eight years, is that right?

DR. WAYNE SIMPSON: That's right. That's right.

THE CHAIRPERSON: So, when -- when -- in the -- in the 2016 hearing, which I guess is a little early for the increase and MPI brought forward Dr. Cleary who said 50/50, the comment on some was well, no, but it's -- it's still SIRF.

That's when interest rates were flat.

Interest rates have now gone up and 50/50 is the -- until your comment today, 50/50 was the way to proceed, is that right?

DR. WAYNE SIMPSON: Yes. One (1) thing I'd say is that most of my comments are made in the context of the DCAT, which has the four-year horizon as opposed to the breakeven rate indication which has the twelve (12) to eighteen (18) month horizon.

I think there was more confidence, certainly in 2016, that interest rates would rise over the next four (4) years and that they'd rise in the next year.

THE CHAIRPERSON: Sir, what is the importance of having the four-year ri -- horizon versus the twelve (12) to eighteen (18) month horizon, considering that we are here every twelve (12) months?

DR. WAYNE SIMPSON: Well, the four-year horizon on the DCAT, and perhaps Ms. Sherry could speak to this as well, I take the one that says that -- that it's going to take time for management action and it's going to take time for these adverse scenarios to play out, and they want to capture them in a meaningful way that -- that can't necessarily be captured over twelve (12) months, even though the

initial signs of that could be there in twelve (12) months in the sense of the -- of the signs that point towards what's going to come.

For example, if you're talking about a claims forecast which will play out over a longer period of time, the next year you'll have the information on that claims foreca -- that claims outcome, that high-loss ratio adverse event, you'll have some of that information in twelve (12) months, even if it hasn't entirely played out.

And similarly with, say, the equity decline. You could have a drop, a sharp drop in equities, and we've had some kind of technical corrections of that, that sort of warn us that that could happen.

You can see evidence of that even though it's the final impacts of that haven't played themselves out in a twelve-month period.

So I think that's why the four-year period is there. Although most of the RSR is based on a two-year -- now on the two-year outcomes.

THE CHAIRPERSON: Ms. Sherry, did you want to add something? I see you --

MS. ANDREA SHERRY: I think he did a great job of it. Basically that's the answer, is that

you want to see how the scenario plays out and you want -- so if something happens now, how does that play out, how does the market respond, how does the Company respond. It takes time to see that.

THE CHAIRPERSON: In terms of the change in the way MPI has changed their asset liability management, and the fact that they're trying to relate liabilities to specific investments, does that lead to a change from four (4) years to a shorter period of time?

Does it have any -- sorry, I guess I should ask: Does it have any impact?

MS. ANDREA SHERRY: I don't believe it would, no.

THE CHAIRPERSON: But your long-term liabilities have been matched now.

MS. ANDREA SHERRY: Right.

THE CHAIRPERSON: So, does the interest rate factor play as big a role as it did before when you had equities and the liabilities all co-mingled?

DR. WAYNE SIMPSON: My general sense, and I profess no great expertise on the financial model, but as you run these scenarios through the financial model, these adverse scenarios, it will make

a difference. Yes.

They won't be as -- as severe as they would have been before, that's -- that's my sense of of the -- of the -- of some of the declining risk that's associated with the lower RSR thresholds.

MS. ANDREA SHERRY: If that -- if the asset liability management is within the model that is used to perform the DCAT, then yes, it would lower the risk and therefore have an impact.

THE CHAIRPERSON: Okay. What is the upside or downside if instead of going -- we're going to go naive or 50/50 or SIRF, that we just pick an interest rate of a specific point now and say that's the rate we're going to put into our projections, we'll be back here a year from now and we'll see whether we need to raise rates or lower rates to take into account the rate we selected.

MS. ANDREA SHERRY: That's essentially what you do when you do the rate indication, is you have to -- you project for the rate and year in question what the return would be.

But I think what you're suggesting wouldn't be necessarily possible for the DCAT and honestly, Luke would be able to answer this question much better than I can, in terms of how the projected

-- you have to pick which one you're going with so that you can project it for the four-year time horizon.

DR. WAYNE SIMPSON: That is the naive forecast.

THE CHAIRPERSON: That's the naive. Okay.

MS. ANDREA SHERRY: And that's why I guess it has a bigger impact on DCAT, yes.

THE CHAIRPERSON: Those are my questions.

Mr. Williams, did you have any redirect?

DR. BYRON WILLIAMS: No re-examination, Mr. Chair.

THE CHAIRPERSON: Thank you, everyone, I believe that we're adjourned until 9:00 a.m. on Monday morning. Thank you all, have a good weekend.

--- Upon adjourning at 2:46 p.m.

Certified Correct,

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Cheryl Lavigne, Ms.

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 29, 2018

Pages 1334 to 1597

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Robert Watchman	)Board Counsel
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Byron Williams	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

	Page No.
List of Exhibits	1337
RESUMED:	
MPI WITNESS PANEL 2 - MPI INVESTMENTS/CAPITAL MAINTENANCE PROVISION/RATE STABILIZATION RESERVE/DYNAMIC CAPITAL ADEQUACY TESTING PANEL	
LUKE JOHNSTON, Previously Sworn	
GLENN BUNSTON, Previously Affirmed	
MARK GIESBRECHT, Previously Sworn	
DAVE MAKARCHUK, Previously Sworn	
Cross-Examination by Ms. Kathleen McCandless	1339
Cross-Examination by Mr. Raymond Oakes	1360
Cross-Examination by Dr. Byron Williams	1382
Re-Direct Examination by Mr. Steve Scarfone	1385
CAC WITNESS PANEL 2	
VALTER VIOLA, Affirm	
Examination-in-Chief by Ms. Katrine Dilay	1389
Examination-in-Chief by Dr. Byron Williams	1431
Cross-Examination by Mr. Steve Scarfone	1494
Certificate of Transcript	1597

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
MPI-49	Errors and omissions filing re correction to MPI Exhibit Number 41, which was Undertaking Number 14. The correction is to figure 2 of Undertaking Number 14	1339
CAC-28	Mr. Viola's PowerPoint presentation	1389

--- Upon Commencing at 9:05 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless, do you want to take us through today.

MS. KATHLEEN MCCANDLESS: Sure, thank you. Good morning, Mr. Chair and members of the panel.

First thing this morning we have the MPI Investments/DCAT/RSR/CM Capital Maintenance Provision panel back for answering questions arising from answers to undertakings. We expect that will be relatively brief. I do have some questions. Mr. Oakes indicated he has some as well, and he's going to proceed before Mr. Williams, who also has some questions.

Once we conclude with that, panel, we will proceed into CAC's evidence of Mr. Viola and that should take us to the end of the day.

THE CHAIRPERSON: Thank you.

MR. ANTHONY GUERRA: And before we get there, MPI has a errors and omissions filing they'd like to present this morning, which is Exhibit Number 49, which will be a correction to MPI Exhibit Number 41, which was Undertaking Number 14. The correction

is to figure 2 of Undertaking Number 14, and that is now going to be reflected in Exhibit Number 49.

--- EXHIBIT NO. MPI-49: Errors and omissions filing re correction to MPI Exhibit Number 41, which was Undertaking Number 14. The correction is to figure 2 of Undertaking Number 14.

THE CHAIRPERSON: Thank you, Ms. McCandless...?

CONTINUED CROSS-EXAMINATION BY MS. KATHLEEN MCCANDLESS:

MS. KATHLEEN MCCANDLESS: Kristen, could you please pull up MPI Exhibit 45. This is the response to Undertaking 16, and this undertaking deals with the recognition of the expected investment expenses in determining the cash flow discount rate used for ratesetting purposes.

Mr. -- maybe Mr. Johnston or Mr. Bunston, from the undertaking response you indicated that expected investment expenses were not recognized

for this purpose in the GRA. Yes?

MR. GLENN BUNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And does the Corporation believes that expected investment expenses should properly be recognized in determining the cash flow discount rate for ratesetting purposes?

MR. LUKE JOHNSTON: Yes, we do. I was actually surprised, I -- I thought we did this. So we would recommend making that change in future applications.

MS. KATHLEEN MCCANDLESS: And recognition of investment expenses in this context does reduce the cash flow discount rate and increases the rate indication; is that right?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: In the last paragraph of this response, the Corporation indicates that:

"Had investment expenses been recognized in determining the cash flow discount rate, the breakeven rate indication from the GRA would increase by .12 percentage points from .13 up to .25 percent. Is that right?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Would you expect a change in the same order of magnitude if this adjustment was applied to the updated scenarios provided in the response to PreAsk Number 1?

MR. LUKE JOHNSTON: Yes, we would. Very loose rule of thumb, if -- at least right now, if the discount rate changes by X basis points, the impact on the rate indication is about double that. So this isn't quite that back seven (7) basis points converted to twelve (12) basis point increase, so roughly, that -- that proportion.

MS. KATHLEEN MCCANDLESS: Thank you. Next, could we please go to MPI Exhibit Number 46 and that's the response to Undertaking Number 17.

And this undertaking arose from the earlier cross-examination on the .1 percentage point reduction in the required rate change arising from the assumed $1 million reduction in premiums due to the extension of DSR discounts to certain vehicles not previously eligible following the enactment of the Local Vehicles For Hire Act, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Now, Mr. Johnson, could you explain why it is that a reduction of premium due to this change in DSR eligibility leads

to a reduction rather than an increase in the required rate change?

MR. LUKE JOHNSTON: Yes. So if there is nothing happening in the industry right now, so, let's say there is no vehicle for hire coming into the market and we had decided to start giving discounts to taxis, in -- in that scenario, we wouldn't expect -- we might -- actually I shouldn't say we wouldn't effect any but we probably wouldn't expect much change -- change in their claims experience. So, we would just be lowering the premium and, in theory, we would have to bring it right back up to cover the claims.

In this case, however, we were expecting that the market share would -- for taxis would decline with -- with vehicle for hire entering the -- the Manitoba market. So we made a judgmental assumption that the -- their claims experience of taxis would also fall, but that was very -- very subjective. We didn't have evidence about what that would look like when we made that assumption.

MS. KATHLEEN MCCANDLESS: Thank you. From the undertaking response in the first paragraph you indicate that to date, the actual DSR related reduction in prem -- on premiums is slightly larger than anticipated by MPI averaging 20.6 percent for

taxi vehicles for hire compared to an expected 17.5 percent. Is that right?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: So this suggests that the reduction in the required rate change of .1 percentage points, as done in the GRA, is slightly understated; is that right?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: In the undertaking response you go on to state that claims costs for taxi vehicles for hire have tracked closely with the premium reductions.

What is the importance of this observation in this context?

MR. LUKE JOHNSTON: So if you -- if you don't mind just scrolling down to the table. So, all the adjustments we're talking about are -- have been made with the intent of charging fair breakeven rates to -- to this use, but obviously, that was very difficult to do under the circumstances.

So, recognizing that this table is only partial year's experience, if you look at the taxicab vehicle for hire line their current -- their reported to date loss ratio is about 72 percent. So, we're not see any evidence that the -- at least the initial

rates were way off. So if the -- if we had reduced the premium by a million and the loss ratio was 150 percent, we would know that that probably was, you know, maybe not the right decision, but at least right now it's tracking relatively close to breakeven.

MS. KATHLEEN MCCANDLESS: Thank you. Now, could we please go to MPI Exhibit 26, and that's the response to PreAsk Number 1. And to start I'm going to focus on figure 3 from part B, which is on the screen before you.

Now, the table in this figure shows the updated overall rate indications which reflect updated naive and 50/50 interest rate forecasts, including actual Government of Canada 10-year bond yields -- yields as of the end of September 2018. Yes?

MR. LUKE JOHNSTON: Yes. September 28th I believe, yes.

MS. KATHLEEN MCCANDLESS: 28th would have been the last trading day in September?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: And the table in -- includes the breakeven indication -- the indication after recognizing the expected return on investment assets supporting Basic total equity and the indication reflecting inclusion of the net Capital

Maintenance Provision, yes?

MR. LUKE JOHNSTON: Yes, it does.

MS. KATHLEEN MCCANDLESS: So we see that the breakin -- the breakeven indication declines from the .1 percent proposed in the GRA using a naive forecast down to, at line 2, we see .26 percent reduction using a naive interest rate forecast or .6 percent reduction, using a 50/50 forecast. Yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And similarly, the indication included in net Capital Maintenance Provision declines from the 2.2 percent, which was proposed in the GRA using a naive forecast down to 1.8 percent using a naive forecast or 1 percent using a 50/50 forecast that's shown on line 5, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And that assumes MPI's approach to estimating the Capital Maintenance Provision, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And again, the indication including a net Capital Maintenance Provision declines from the 2.2 percent proposed in the GRA using a naive forecast down to 1.54 percent

using a naive forecast or 1.2 percent using a 50/50 forecast and that's shown on line 7, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And that assumes Saskatchewan Autofund's approach to estimating the Capital Maintenance Provision, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: Thank you. The approach to estimating the Capital Maintenance Provision following either MPI's approach, or Saskatchewan Autofund's approach works from a forecasted MCT ratio as at the end of the current fiscal year. So, for example, as at February 28, 2019, yes?

MS. KATHLEEN MCCANDLESS: Does this mean that the estimate of the Capital Maintenance Provision, and therefore, the rate indication, including the net Capital Maintenance Provision is sensitive to the forecasted level of the MCT ratio as at February 28, 2019?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: The reason I'm -- I'm hesitating so -- as everyone knows we're -- we're

using forecasted MCTs to figure out the -- the Capital Maintenance Provision. The reason for my hesitation is that we're looking at the amount needed to maintain MCT at the current level. So, while the forecast is dependent on -- sorry, the MCT scores are obviously changed based on whatever forecast we have. I would not expect the amount required to maintain whatever MCT ratio we end up at to be much different.

So, for example, if -- if -- we're forecasting a 70 percent MCT ratio and we needed a 2 percent capital maintenance to stay there, if it turned out that the MCT was only 60 percent, I would still expect it would be about a 2 percent Capital Maintenance Provision to stay at 60 percent.

So, sensitive yes, but the -- the magnitude of the Capital Maintenance Provision likely wouldn't change much if we -- actually even in the -- the scenarios we've run where some of the -- the forecast changed, the Capital Maintenance Provision seems to be relatively consistent.

MS. KATHLEEN MCCANDLESS: So then the sensitivity, is that a potential source of instability in the estimated net Capital Maintenance Provision going from one (1) GRA to the next?

MR. LUKE JOHNSTON: I don't believe

so. We talked a little bit a couple weeks ago about the importance of adjusting for any significant changes in our risk profile. So, if we implemented a new investment portfolio, we'd have to be cautious about -- about using it in that sense, but assuming we have a stable risk pro -- profile over whatever period we're using, I wouldn't expect a highly volatile CMP.

One (1) of things we did mention about the SGR method, although averaging over a five (5) year period has some benefits for stability, it becomes harder to make long-term assumptions like that about that, you know, nothing's going to change at MPI or five (5) years versus the -- the MPI method is jus -- just looking at the one (1) rating year and saying, are we going to stay, you know, consistent over that year?

So to answer your question, I -- I don't think either method would create significant volatility.

MS. KATHLEEN MCCANDLESS: Nevertheless, could stability be improved by estimating the net CMP at a target level of MCT ratio instead of the MCT ratio from the financial forecast?

MR. LUKE JOHNSTON: I don't -- I don't know. We might -- maybe we've done that but maybe.

So, I don't think the current method is highly volatile, but it's possible that doing it that way could -- could maybe improve volatility, but I -- I don't know the answer right now.

MS. KATHLEEN MCCANDLESS: Thank you. I'm now going to focus on Figure 7 from Part G, it's on page 8.

And the Table in this Figure shows the upper or lower Basic total equity thresholds expressed in dollars and MCT ratios for a number of different scenarios, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And all of the scenarios reflect updated interest rate forecasts using actual Government of Canada ten-year bond yields as of the end of September, 2018?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: I see here that the first block of scenarios deal with the PUB lower target and in the next two (2) blocks deal with the PUB upper target, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And the target capital analyses done for each of the PUB target scenarios in these first three (3) blocks, they

all apply to the Board's previously approved iterative me -- methodology, is that right?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: The PUB lower target scenario results are all after assumed routine management and regulatory actions including RSR rebuilding fees and rate changes, as appropriate?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And the PUB upper target scenario results are -- are also after all assumed routine management and regulatory actions, but, here, including only rate changes, as appropriate. Is that right?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And are you supportive of the distinction of assuming no RSR rebuilding fees as routine management regulatory actions in the context of the PUB upper target analysis?

MR. LUKE JOHNSTON: Yes, we are.

MS. KATHLEEN MCCANDLESS: Can you explain, please, what is the modelling distinction between -- that's being made between the PUB upper dollar value target and the upp -- PUB upper percentage target analyses?

MR. LUKE JOHNSTON: Yes, I can. So, when we model the upper RSR target we're doing it -- a somewhat similar exercise as a lower, except we're determining what amount is needed at -- as an upper until we fall to the lower target.

So in one -- in one (1) approach we are using the irit -- iterative methodology to model a dollar, a lower dollar threshold and in the percentage approach, we're using the MCT target as the basis for that iterative kind of goal-seek type of adjustment that -- that -- that we're doing.

So, we -- our original approach that we've provided for the PUB target was assuming that the MCT target was the appropriate measure because that was seen as a dynamic target that moved regardless of the scenario, but we provided both here for -- for the Board to understand.

MS. KATHLEEN MCCANDLESS: Thank you. Now for the PUB target capital analyses, it appears that the 50/50 forecast results are consistently a little higher than those of the corresponding naive forecast, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And is this because there is increased risk of interest rate

decline under the 50/50 forecast, or is it due to other considerations?

MR. LUKE JOHNSTON: Yeah. So, looking at this chart it seems like the -- you know, that the scenarios when they're -- so the first set of examples, naive, and 50/50, the -- the targets and the MCT scores all seem about the -- the same, like it's almost no impact.

One (1) of the reasons for that is the -- the new bank forecasts actually don't increase nearly as much as they did in previous years. So there -- three (3), four (4) years ago we were coming here and talking about the bank's assuming two hundred (200), three hundred (300) basis point increases in interest rates. I believe now we're talking more about forty (40) fifty (50) basis point increases in interest rates.

So, what you said is true. If we assume aggressive rising interest rate forecast, there's obviously more risk that it could fall especially when we're at levels that are considered some of the lowest of all time. We would -- we wouldn't have assumed that interest rates could fall a hundred basis points from today's levels if they're already at the lowest levels ever.

So, I believe that's the reason, and as we get to higher interest rates that risk will likely increase.

MS. KATHLEEN MCCANDLESS: Thank you. Now, from the PUB -- or looking at the PUB target capital analyses, it appears that there's not much significance in -- or not much of a difference whether the Capital Maintenance Provision is included or excluded, yes?

MR. LUKE JOHNSTON: That's true, yes.

MS. KATHLEEN MCCANDLESS: It also appears that the PUB percentage target results are a little higher than the corresponding PUB dollar value target results, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: Can you explain why that's the case?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Sorry. Can you re -- repeat that, so that the -- sorry, the PUB percentage target is a little -- if you could just repeat that please? Sorry, the whole string?

MS. KATHLEEN MCCANDLESS: Sure. When

we -- first of all when we looked at total equity the PUB upper dollar value targets appear to be slightly -- - or -- or lower than the percentage value targets, yes? And perhaps you could just explain why that -- that's the case?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: I may have to come back to you on that one. I'm trying to think of my -- why that is. Maybe I can answer later on this morning, yeah.

MS. KATHLEEN MCCANDLESS: With respect to the -- the inclusion of the Capital Maintenance Provision, again, there doesn't appear to be a significant difference whether or not it's included.

Are you able to explain why that would be the case?

MR. LUKE JOHNSTON: Yeah, that -- so that -- the -- the fact that it doesn't change with or without the CMP was a little bit of a surprise to us, but it appears the iterative methodology that we're using, by its -- by its nature of, essentially, goal seeking to discern target capital level, that -- that appears to be neutralized, or not -- not -- doesn't

affect the outcome, which is good, because that's the same logic that -- that MPI is using, that we don't want Capital Maintenance Provisions, or rebuilding fees, or things like that a the particular year's GRA to dramatically change the target. So the stability being produced by the method is a -- is definitely seen as a good thing from MPI.

MS. KATHLEEN MCCANDLESS: Thank you. Now, the Corporation's also provided MPI lower and upper target levels following the same Basic methodology from the GRA, but with updated naive and 50/50 interest rate forecasts, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And from the updated MPI lower target using the naive forecast, the total equity target has risen to $146 million from the 143 million in the GRA, and the corresponding MCT ratio has risen from -- or to 35 percent from 34 percent in the GRA, yes?

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: And from the updated MPI upper target using the naive forecast, the total equity target has risen to $315 million from the $305 million in the GRA, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: And the corresponding MCT ratio target has risen to 88 percent from the 85 percent in the GRA, yes?

MR. LUKE JOHNSTON: That's correct.

MS. KATHLEEN MCCANDLESS: Now, in response to these updates, does the Corporation intend to change its proposal to the PUB with respect to the Basic target capital range?

MR. LUKE JOHNSTON: One (1) -- one (1) of the reasons that we propose MCT percentage based targets is specifically for -- for this reason. I know you've noted that they've changed slightly in our answer, but to the extent that the -- the MCT ratio dynamically changes to reflect the current state of the Corporation's finances, we would stand -- stand by the percentages proposed in the application. Again, that's one (1) of the reasons why we propose using the MCT percentage rather than dollar amounts.

MS. KATHLEEN MCCANDLESS: Thank you. Now, it appears that the MPI lower target results under the 50/50 forecast are lower than under the naive forecast, contrary to all of -- all the other scenario results, including the MPI upper target results. Why is that the case?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Just to make sure I understand the question, MPI lower target, why does the 50/50 scenario have a lower total equity target than the naive?

MS. KATHLEEN MCCANDLESS: Yes.

MR. LUKE JOHNSTON: I'd have to look into that. Intuitively, that doesn't make sense to me, so I'll -- I'll investigate that.

MS. KATHLEEN MCCANDLESS: So I believe there are couple of takeaways, then, from my questions. Perhaps they could be provided later this morning.

MR. LUKE JOHNSTON: Yes, we're looking at it right now. Yeah.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, if we could please go to MPI Exhibit 31. And in this undertaking response, the Corporation provided the Government of Canada ten-year bond rate at the end of September, yes?

MR. LUKE JOHNSTON: Yes.

MS. KATHLEEN MCCANDLESS: And we see from the response that the rate of two point four-three (2.43) would be -- that would be as of the last

trading day in the month, so Friday, September 28th, is --

MR. LUKE JOHNSTON: Correct.

MS. KATHLEEN MCCANDLESS: -- is that. And the nine -- there's a nineteen (19) basis point increase from February 28, 2018, to September 30, 2018, yes?

MR. LUKE JOHNSTON: Correct. Correct.

MS. KATHLEEN MCCANDLESS: And the nineteen (19) basis point increase resulted in the claims discount rate changing from 3.21 percent to 3.4 percent, yes?

MR. LUKE JOHNSTON: That's right.

MS. KATHLEEN MCCANDLESS: Now I appreciate that the -- your answer is probably only directional, not detailed in this regard.

But what would the implications of this change be on claims liabilities?

MR. LUKE JOHNSTON: So -- implications. So what happens with our Asset Liability Management Program, I guess there's today, and then when we move to the new ALM. Once we have the liabilities on the books, they would be matched to fixed income assets, and the intent there would be -- from that point going forward, there would be no

impact from interest rate changes on the net -- on the net income of the Corporation. So wherever interest rates move, the two (2) are supposed to offset and -- and have the -- not creating volatility for us.

Looked at in isolation, a ten (10) basis point increase in the discount rate for claims liabilities would equate to a 15 to $20 million favourable adjustment to liabilities. As mentioned, we would expect the -- the opposite effect on the fixed income portfolio to offset that favourable change.

MS. KATHLEEN MCCANDLESS: Thank you. Kristen, could we please go to MPI Exhibit 37, which is the response to Undertaking Number 10.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: And in this undertaking response. The Corporation provided the volatility assumption for the real liability benchmark, yes?

MR. GLENN BUNSTON: Yes, that's correct.

MS. KATHLEEN MCCANDLESS: And the response shows that Mercer's inflation volatility, in

its analysis, was 5 percent, yes?

MR. GLENN BUNSTON: No, that's not the inflation volatility assumption. That's the volatility of the real liability benchmark.

MS. KATHLEEN MCCANDLESS: Thank you. Just bear with me for one (1) second.

(BRIEF PAUSE)

MS. KATHLEEN MCCANDLESS: Thank you. I -- I have no further questions. Yes.

THE CHAIRPERSON: Thank you. Mr. Oakes...?

CROSS-EXAMINATION BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Thank you, Mr. Chairman. I'd like to look first at Pre-ask 1 at page 6, and this is figure number 6, as well.

And, Mr. Johnston or other witnesses, if you could just confirm this table, figure 6, shows the effect of the updated interest rate forecast, reflecting information as of September 28th, 2018.

Is that correct?

MR. LUKE JOHNSTON: That's correct.

MR. RAYMOND OAKES: I would expect

that the Corporation hasn't done any other calculations based on last week's increases by the Bank of Canada.

There's no further update available at this time?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: This response doesn't have that, but obviously, that information is available. I can't remember what -- what the specific numbers are, but MPI has said several times that, you know, we're -- we're most interested in making the most accurate forecast possible. So if the -- if it would help the Board to have more -- more current numbers, we could do that.

MR. RAYMOND OAKES: If I could ask for that as an undertaking, then.

MR. LUKE JOHNSTON: Just to be clear, I think the undertaking is just what's the latest Government of Canada ten (10) year bond rate? If -- if that's -- if that's the appropriate.

MR. RAYMOND OAKES: If there has been a change, could we also have figure 6 recalculated and provided, please.

MR. LUKE JOHNSTON: Just for my -- there's not much of a back row today, but if -- it would be helpful for MPI if -- if we could do that on a somewhat approximate basis. Obviously, if the Board wants a full, updated rate change scenario, we could talk about that.

But we talked earlier about approximately what a -- a ten (10) basis point change is for the rate indication. We could approximate that and then leave it up to the Board if they'd like anything further, that is, if that's okay with you.

MR. RAYMOND OAKES: The -- the approximation would work for my purposes.

MR. STEVE SCARFONE: So it -- I think we'd need to be clear, Mr. Chair, on exactly what the undertaking will be, in part because Pre-ask 1, as the Board will appreciate, was a -- a large undertaking comprising six hundred and thirty-one (631) pages of updates, modelling. I -- I don't -- I don't hear Mr. Oakes asking for that, but we just want to be clear what the takeaway is for our actuarial people.

THE CHAIRPERSON: Well, as I understand it, the ask is for a new figure 6, amended by the Bank of Canada rate change last week.

Is that right, Mr. Oakes?

MR. LUKE JOHNSTON: And may -- maybe we can settle this, like, today if -- if -- so we're just looking at the screen -- or the latest Government of Canada ten-year bond rate is 2.41 percent, and our Pre-ask 1 is assuming two point four-three (2.43).

So if we can accept that as being relatively immaterial, so what we're saying is we're not seeing any dramatic change in the numbers that we've provided in the pre-ask.

MR. STEVE SCARFONE: So -- and so I think what the -- last week's interest rate hike hasn't had much of an impact on the ten-year Government of Canada ten-year bond yield is what -- at -- not to this point, at least.

THE CHAIRPERSON: It's -- it's Mr. Oakes's request, not -- not the Board's. I mean, it -- I don't know if couns -- other counsel want to get involved or not.

MS. KATHLEEN MCCANDLESS: Well, procedurally, I'm -- I just wonder if we are approaching the close of MPI's case. If this produces new evidence, then there would need to be an opportunity for further questioning on it, so my suggestion would be: Is there a way to have the information provided that would not necessitate

bringing everyone back?

MR. LUKE JOHNSTON: And what --

DR. BYRON WILLIAMS: What -- what I've heard, Mr. Chair, with your permission, is that currently the number is -- is relati -- is almost exactly the same. So I might question the materiality of this.

THE CHAIRPERSON: Well, I -- I guess the question is, if we're talking the difference of two-four-one (241) versus two-four-three (243), Mr. Johnston, do you want to talk --

MR. LUKE JOHNSTON: MPI is, again, if -- we've said we're committed to using the latest rate. If that -- if that rate had increased by twenty (20) basis points or something, it'd be hard for me to say that's nonmaterial. But as of today. It's very similar to September 28th, so I -- I wouldn't suggest changing it.

THE CHAIRPERSON: Okay. We'll go ahead. There's -- Mr. Oakes?

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Thank you, Mr. Chair. And when you say not materially different, are we talking about .1 or .2, roughly, percent?

MR. LUKE JOHNSTON: Yeah, pro -- about .3, point -- .4 percent. And while that's maybe meaningful to a ratepayer, there is going to be constant movement to this, and it's hard for us to adjust every day for -- for movements like that.

MR. RAYMOND OAKES: Is the Corporation --

MS. KATHLEEN MCCANDLESS: Sorry -- sorry to interrupt. I believe that the court reporter would just like to know whether or not there is an undertaking, or whether now the information is satisfactory to Mr. Oakes.

MR. RAYMOND OAKES: I think given the comments about materiality, I won't insist on the undertaking, but I would like -- I will be asking some other questions relative to this area, certainly.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: And -- and we'll come back to that. In terms of what happens going forward to the date that a decision is reached by this Board, does the Corporation intend to do further calculations and updates between now and the time of the Board Order?

(BRIEF PAUSE)

MR. STEVE SCARFONE: Just discussing with the -- with the panel, Mr. Chair. I think the more appropriate thing would be if, in the Board's Order, they were interested in having such an update provided, the Corporation would, of course, comply with that directive.

THE CHAIRPERSON: I appreciate that. You have to understand the position we're in. We make decisions based on evidence.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: We have to have evidence to make the Order.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: Now what's being proposed is that we come up -- that we look at a number that isn't into evidence and hasn't been subject to cross-examination by the parties.

MR. STEVE SCARFONE: And -- and this was the exact situation that we dealt with last year and -- and the difficulties that the Board had with the suggestion that the compliance filing be made an updated --

THE CHAIRPERSON: Yeah, but the --

MR. STEVE SCARFONE: -- forecast.

THE CHAIRPERSON: -- but the problem is, Mr. Scarfone, the suggestion for compliance filing after a hearing is over --

MR. STEVE SCARFONE: Is a procedural --

THE CHAIRPERSON: -- puts forward a number that has not been tested in the hearing, that is not based on evidence prior to the Board -- prior to the hearing closing.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: It's a real, you know, and I know it -- it was suggested before, and certainly, you can put it forward and file submission, but we make decisions based on evidence before us prior to the closing of the hearing.

So I'll -- I'll just leave it at that. You know, Mr. Oakes, if you want to ask more questions you can ask more questions. It appears that we're not going to have, you know, further undertakings on this point. Please feel free to -- to ask your questions.

MR. RAYMOND OAKES: Thank you, Mr. Chairman.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Now I'm going to

be even more of a devil's advocate this morning and ask what happens with interest rate increases and Government of Canada ten-year bond rate increases that happen, say, in the early part of next year?

Would you agree with me that the result is that MPI receives more premium revenue than their break-even rate indication would be?

MR. LUKE JOHNSTON: So similar to prior years, the -- as we've discussed here, a discounting assumption is needed to set rates, and something other than that assumption will likely happen. So the last stretch of time -- we've had some unfavourable results. They could go unfavourable or favourable, and -- but were always probably going to be wrong.

But if they go up, like you said, and we use the lower discount rate in our pricing assumption, then yes, all else equal, we would have charged more than we would have if we used the higher rate.

MR. RAYMOND OAKES: And, sir, I think you can confirm for me, that the motorcycle consumers of insurance are more affected by changes in interest rates than other consumers because of the fact that they have large case reserves. Is that correct?

MR. LUKE JOHNSTON: They'd be more affected because about 85 percent of their claims are personal injury, and about -- about half of those are -- are longer-term injury. So the effect of -- of discounting is greater for them, yes.

MR. RAYMOND OAKES: Do you have any idea of the magnitude of the difference?

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Fig -- well, figure 6 is on the screen right now, so you can see under the latest interest rate assumptions that the naive forecast is two -- a .2 percent rate increase, and a 50/50 -- sorry, on the break-even rate indication, and the 50/50 breakeven rate indication for motorcycles is zero point six (0.6). So in this example, it -- it's a .8 percent difference.

If you move over to the private passenger class, you see there's a .3 percent change. So just on this example, it looks like motorcycles are about twice as sensitive, maybe a little more than -- than passenger vehicles.

MR. RAYMOND OAKES: Right. Thank you for that. I'm going to direct your attention, first,

to the naive calculations and just with respect to the motorcycle experience, showing a bright -- breakeven rate indication of .2 percent, is that correct, sir?

MR. LUKE JOHNSTON: That's right.

MR. RAYMOND OAKES: And given your testimony a few minutes ago about what the change would be as at the last week, would you expect this then to be a zero percent rate indication as of the changes last week?

MR. LUKE JOHNSTON: Sorry. What -- what changes are you referring to with interest rates?

MR. RAYMOND OAKES: The Government of Canada interest rate yields which you indicated the effect likely is somewhere around .2 percent.

MR. LUKE JOHNSTON: Oh, my apologies. So the -- the 10-year bond yield has declined by a couple of basis points, so that would -- that would increase the motorcycle indication on the naive but slightly, maybe .4 or .5 percent.

MR. RAYMOND OAKES: I'm sorry, I -- I didn't understand that.

How would it change the .2 percent breakeven rate indication?

MR. LUKE JOHNSTON: So the -- the latest government bond field that we have is slightly

lower than assumed in this PreAsk. So, the lower discount rate on the naive basis would -- would mean a higher rate indication for motorcycles has effect on the other way then would be lower.

MR. RAYMOND OAKES: I see. So it wasn't in lockstep with the interest rate increase then?

MR. LUKE JOHNSTON: No.

MR. RAYMOND OAKES: Now, when we come down to the rate indication, including net CMP for motorcyclists, it shows the sum of 2.2 percent increase. Is that correct, sir?

MR. LUKE JOHNSTON: That's correct.

MR. RAYMOND OAKES: And the Corporation wishes to have this Board adopt the naive methodology.

So, is the Corporation's application for increase for motorcycles decreased from 3.1 percent, down to this 2.2 percent for this application?

MR. LUKE JOHNSTON: These would be the indications that, yes, the Corporation would calculate based on the latest interest rates using the -- the naive interest rate forecasting model, correct.

MR. RAYMOND OAKES: So, the

Corporation is asking for 2.2 percent increase for motorcyclists this year?

MR. LUKE JOHNSTON: The -- the Corporation, yes, is committed to using the latest interest rates for improving the accuracy of pricing and these are the latest and the new indication for motorcycles is now 2 -- sorry, pardon me, 2.2 based on the MPI's CMP methodology.

MR. RAYMOND OAKES: Thank you. And when we look at the 50/50 methodology, then it shows that there is a reduction in premiums attributable to the breakeven rate indication for motorcycles, being a reduction of .6 percent. Is that correct, sir?

MR. LUKE JOHNSTON: That's right.

MR. RAYMOND OAKES: And that rate indication, including the net CMP, would rise to the Corporation seeking only 1 percent increase for motorcycles. Is that correct, sir?

MR. LUKE JOHNSTON: Correct.

MR. RAYMOND OAKES: Thank you. Moving from the area of the interest rate forecast to Undertaking Number 8, and this was a question I had asked on cross-examination, seems like a very long time ago, but it related to the reserves that MPI has and the purpose and the amount.

I see some discussion of the types of reserves, I don't see any amounts indicated there.

Would you agree with that, sir?

MR. LUKE JOHNSTON: Yes, Mr. Oakes. So, it was -- well, as shown here it was me who took this undertaking and when returning to the office I was told that listing every provision on any -- every project or outstanding debt or anything like that would be quite the exercise.

So to -- what I believe your point was in this particular discussion is that MPI holds large provisions as part of -- particularly on the claim side. So if it's helpful to put on the record in the February actuarial report, which is a EAR attachment A, maybe we could just go there brief -- briefly, just -- sorry for...

So that would be page 20 of the -- I think just scroll down. So, if you look at -- under section 2, the third line, so there is a -- you see $210 million of claims provisions and another 23.7 million related to expenses.

So approximately 234 million of actuarial provisions, which -- which are required under standards of practice, I'm hoping that that's sufficient for -- for your question, just to recognize

that -- that there are large provisions on -- on -- on unpaid claims.

This would be the vast majority of those types of provisions that we hold.

MR. RAYMOND OAKES: Thank you for that. So the 230 million, that's for claims liabilities, or what we call case reserves, is that correct?

MR. LUKE JOHNSTON: It would be really for unpaid claims liabilities, so the actuary makes a best estimate, and then per actuarial standards of practice risk margins have to be applied on those reserves, based on how risky they are seen to be.

So income replacement reserves, for example, that are -- could be for a lifetime would have a higher provision than collision claims, which are paid within two (2) to three (3) months.

MR. RAYMOND OAKES: Thank you for that. And then the second part of your answer talks about the other provisions, margins and contingencies used for such things as recut -- as accounts receivable.

In truth, there's a number of other Pfads and margins in other areas, not just Accounts Receivable, isn't that correct, sir?

MR. LUKE JOHNSTON: There are other -- so this was the difficulty in answering the question the way I accepted it, and my apologies for that.

You know, anything from a project might have some sort of contingency on it. Receivables, you know, there's different things required under accounting practices.

What I'm hoping to get with -- with the numbers we've just discussed is that those other provisions are -- are very immaterial relative to the provisions held on the claims side, which are in the hundreds of millions of dollars. But yes, there are others. Yes.

MR. RAYMOND OAKES: I wonder, Kristen, if you could bring up the reference found there, page 19, universal compulsory automobile insurance annual financial statements.

And just wondering if, at a high level, Mr. Palmer, (sic) you can put something on the record that just flushes out your answer a little better.

MR. LUKE JOHNSTON: You still remember Mr. Palmer.

MR. RAYMOND OAKES: Oh, I'm sorry, Mr. Johnston, sorry. I'm showing my twenty-six (26) years here, unfortunately.

MR. LUKE JOHNSTON: I hope I'm not starting to look like Mr. Palmer, it -- maybe that's the effect of doing this for...

Okay, so, I think this -- the -- the section you're seeing here is consistent with what I've -- what I've just said. There are other types of provisions, but the actuarial provisions are definitely the most significant and -- and the -- the key part of our answer there is that we don't -- although we have allowances and provisions required by -- by accounting or actuarial practice, these aren't amounts that we can use to stabilize rates or things. I can't release the provisions, you know, when we have a stock market crash or something like that.

So, we do recognize that we hold provisions like this, but they're not used for the purposes of -- in the way the RSR reserves are used.

MR. RAYMOND OAKES: And I wonder if, when you talk about they're not as material as the claims liability provisions, what are we talking about in terms of numbers?

MR. MARK GIESBRECHT: In terms of allowance for doubtful accounts, if we look at amounts that relate to customers, just ballpark terms, you're probably in around a million dollars.

We do hold larger allowances for our subrogation and so this would be for other insurance carriers or people outside the province of Manitoba, typically. That would be around 30 million, again that's just a -- a ballpark figure.

But in terms of specific customers, about a $1 million of allowance for doubtful accounts.

MR. RAYMOND OAKES: And similarly, how about the other items, deferred development costs.

MR. MARK GIESBRECHT: I don't have those numbers at my fingertips.

In terms of deferred development costs, I would not expect a material amount of any kind allowances set against those.

MR. RAYMOND OAKES: Are you aware, sir, of other Pfads or other margins, contingencies that aren't indicated here?

MR. MARK GIESBRECHT: I am not typically a Pfad is -- more relates to the actuarial reserving, so it would not apply typically to other balance sheet items.

MR. RAYMOND OAKES: Mr. Johnston, going back to a historical issue, and this related to an exchange at page 583 of the transcript and it looks like I neglected to get an undertaking, because you

indicated you're going to advise of the money impact of the IRFR in a few minutes, and you've come back and given me some information that I'd like to put on the record as to the amount of the IRFR that the Corporation sought in the 2017 GRA.

MR. LUKE JOHNSTON: Just one (1) moment, I -- we did ask for that, I've just got to find the number.

MR. RAYMOND OAKES: If it assists, I have what you provided by way of email.

MR. LUKE JOHNSTON: I didn't realize that, but yes, please, if -- I can confirm that if you like.

MR. RAYMOND OAKES: The response I received from the Corporation by e-mail is:

> "The IRFR is explained in the overview in the 2017 GRA, and also in the 2017 PUB Order.
>
> The Corporation's alternate proposal was for a 2.3 percent IRFR in that application."

Do you adopt that, sir?

MR. LUKE JOHNSTON: I do.

MR. RAYMOND OAKES: And so going back to my question: How much money was the Corporation

seeking from its consumers?

MR. LUKE JOHNSTON: Approximate basis, 2.3 percent would be in the $20 to $23 million range. And I'd have to look at that particular year, but as you know, for that, several rate applications the -- the actual discount rate we used or assumed didn't materialize.

So, I don't know exactly what happened in that particular case, but it's possible that -- that month those funds were needed. So we talk about the $160 million of deficiencies, the Corporation was trying to set a -- a different forecast to protect itself from those types of changes.

MR. RAYMOND OAKES: So, just to confirm then, in the 2017 GRA the Corporation was looking for a factor to add another $20-$23 million to the premium revenue, is that correct?

MR. LUKE JOHNSTON: Yeah, it was called interest rate forecasting risk factor, but really the effect of it was to, essentially, not assume as aggressive of interest rate forecast, which would increase the premium required in that GRA. But those -- the dollar numbers you quoted are -- are correct.

MR. RAYMOND OAKES: All right. So you

would agree that the 2017 GRA Corporation comes with -- up with something called IRFR, not previously used or known before that application.

Is that correct, sir?

MR. LUKE JOHNSTON: In -- in those particular -- in that naming convention, no.

But we can go back to probably the 2014 or so rate application where a Corporation has proposed a lot of different objectives -- or proposals related to interest rates, including things like the low growth forecasts, 50/50, interest rate forecasting risk -- risk factor.

These are all similar ideas where we're trying to use caution in the aggressiveness of the interest rate forecast at the time.

MR. RAYMOND OAKES: In 2017 that was the first time the Corporation asked for this type of surcharge on top of the rates?

MR. LUKE JOHNSTON: That's correct.

MR. RAYMOND OAKES: And in the 29 -- 2019 application, the Corporation has now created a new type of surcharge called the Capital Maintenance Provision. Is that correct, sir?

MR. STEVE SCARFONE: I'm just going to interject at this point. That evidence was fully

canvassed during his -- during this panel's original testimony. And canvassing the capital maintenance provision is not the subject of an undertaking that was provided by the investments panel.

THE CHAIRPERSON: That's fine, I'll allow the question.

MR. RAYMOND OAKES: Thank you.

CONTINUED BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: Is that correct, sir. Do you want me to restate the question?

MR. LUKE JOHNSTON: I believe the question was: Is the Corporation proposing a capital maintenance provision in this application? We are, yes.

MR. RAYMOND OAKES: And you've told this Board that the amount to be raised from this new surcharge called the Capital Maintenance Provision is roughly 18 to $20 million. Is that correct, sir?

MR. LUKE JOHNSTON: That's right.

MR. RAYMOND OAKES: Is that a coincidence that the 18 to $20 million new surcharge is very similar to the range of -- sought by the Corporation in 2017 of 20 to $23 million?

MR. LUKE JOHNSTON: This -- that would

be coincidental. The interest rate forecasting issue is -- is -- is a different topic.

The capital maintenance provision is a -- is a different calculation, basically calculating the amount needed to -- to maintain our capitalization rate the same.

MR. RAYMOND OAKES: But the effect, you would agree, is the same that the Corporation is seeking another roughly $20 million from its consumers?

MR. LUKE JOHNSTON: The same effect but the -- that is a coincidence, that's not -- the two (2) aren't related.

MR. RAYMOND OAKES: Mr. Chairman, those are my questions. I thank you for your indulgence.

THE CHAIRPERSON: Thank you.

Mr. Williams...?

CROSS-EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Just a few questions for Mr. Bunston. If we -- we can go to MPI Exhibit 39, please?

Mr. Bunston, in response to where the analysis was in terms of the use of Mercers standard

interest rate forecast, Manitoba Public Insurance directed my clients to Appendix 17, Attachment E, in terms of the work done by Mercers.

Is that right, sir?

MR. GLENN BUNSTON: Yes, that's correct.

DR. BYRON WILLIAMS: And sir, I just want to -- to take you, if I might, to Appendix 17, Attachment E, and direct your attention to the nominal liability portfolio, which is the third column over.

Do you see that, sir?

MR. GLENN BUNSTON: Yes, I do.

DR. BYRON WILLIAMS: And there you see the -- the benchmark portfolio comprised of short-term bonds, mid-term bonds and long-term bonds, sir?

MR. GLENN BUNSTON: Yes, I see that.

DR. BYRON WILLIAMS: And if we go down under the risk return metrics to the expected ten-year return for the benchmark nominal liability portfolio, it's 2.1 percent, sir?

MR. GLENN BUNSTON: Yes, that's correct.

DR. BYRON WILLIAMS: Okay. And just if we could now turn to Appendix A, investments -- sorry. Investments, Appendix 17, Attachment A, Slide

13. So Kristen, it's Slide 13, please. Go down to slide 14. Thank you.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Bunston, when I direct your attention to investments, Appendix 17, Attachment A, PDF Slide 14, Slide 13 on the right-hand side.

Again, if we go over to the nominal benchmark, the third column over, you'll see it's comprised of the same bond composition, sir?

MR. GLENN BUNSTON: Yes, it is.

DR. BYRON WILLIAMS: And if we go down to the risk return metrics and expected ten-year return, we see a 2.8 percent return, sir?

MR. GLENN BUNSTON: Yes, that's correct.

DR. BYRON WILLIAMS: And in essence, if we were to compare the two (2) slides, being Attachment E, Slide 13 versus Attachment A, Slide 13, the sole difference in terms of the nominal liability benchmark is whether the Mercers standard forecast is used or the forward yield. Is that correct, sir?

MR. GLENN BUNSTON: Yes, that's right.

DR. BYRON WILLIAMS: Thank you. No further questions, Mr. Chair.

THE CHAIRPERSON: Thank you.

Mr. Scarfone, any re-examination?

MR. STEVE SCARFONE: Just one (1) question, Mr. Chair, for Mr. Johnston. Thank you.

RE-DIRECT EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Mr. Johnston, My Friend Mr. Oakes asked you about the interest rate forecasting risk that was advanced by the Corporation in the 2017 General Rate Application.

MR. LUKE JOHNSTON: Yes.

MR. STEVE SCARFONE: Can you explain, if you can, sir, the impact of the asset liability matching study on whether the interest rate forecasting risk that was sought two (2) years ago would be impacted by that in any way?

MR. LUKE JOHNSTON: Yes. So we, as the Board is aware, we used to use a net income methodology for -- for setting the rates. So basically just set rates to -- so the net income equals zero.

We also had a ALM program that was not optimal. It was done on a corporate basis, so there

was unfavourable impacts to Basic.

So we had, as an example, a -- we had one (1) application. I believe it was the -- I can't remember if it was the 2017 or 2018, but a naive forecast was a 7 percent rate increase and a standard interest rate forecast was a 2 percent rate increase. So that's a pretty dramatic difference. So at that time we had proposed the -- the interest rate forecasting risk factor to -- as a precaution there.

So -- now under with the asset liability program being proposed and the segregated portfolios, the risk for all prior years essentially neutralized, and we're talking about much smaller differences from interest rates as -- as we've shown in PreAsk 1 with the impacts of the two (2) forecasts.

MR. STEVE SCARFONE: Thank you. That was my only question Mr. Chair.

THE CHAIRPERSON: Thank you. That concludes this panel. I believe we're proceeding with Mr. Viola next. I'm just wondering if we should -- let's take a fifteen (15) minute break now and we'll set up for that.

MR. STEVE SCARFONE: Mr. Chair, just -- sorry, I was remiss in reminding the Board that there are a couple follow-up questions that Mr.

Johnston would like to respond to -- to Ms. McCandless's questions about that table that she went through.

THE CHAIRPERSON: Certainly.

MR. STEVE SCARFONE: So perhaps we should do that after the break, as I under ---

THE CHAIRPERSON: Do you have the answers now?

MR. LUKE JOHNSTON: My back row actually fell down the stairs and broke his leg, so that's why he's not here today.

So -- that's not funny. But yes -- so we'll -- he's -- I'm messaging him at home and these are some detailed questions from the model, I'll -- I'll get answers as soon as I can and let you know.

THE CHAIRPERSON: No, that's fine. Then we'll get the answers at that point.

Mr. Williams...?

DR. BYRON WILLIAMS: Mr. Chair, I'll just indicate, as I indicated to Board counsel off -- offline, in terms of Mr. Viola's presentation, most of it's for the public record.

What we're proposing, because the public record information and the confidential is closely linked, that he do the public record

information, we stand down for a couple minutes and then he -- to allow the court reporter to change her materials, and then proceed with the -- the confidential material because it -- analytically it's closely linked.

THE CHAIRPERSON: Yes, that's fine. I just want to put to the parties, unfortunately, I have a commitment at lunch that I can't miss.

So we're going to break from 12:00 to 1:30 today, I've been called away for a meeting. But we'll -- we'll break now for fifteen (15) minutes and then proceed with Mr. Viola.

--- Upon recessing at 10:10 a.m.

--- Upon resuming at 10:31 a.m.

THE CHAIRPERSON: If we could resume. Ms. Dilay...?

MR. KATRINE DILAY: Thank you very much, Mr. Chair.

So as -- as mentioned, we will be hearing the evidence from Mr. Valter Viola and it's our understanding that Mr. Viola has already been prequalified as an expert witness in this proceeding, but if it's okay with the Board we would like to take

a few minutes to confirm the exhibits that form his evidence, as well as briefly go through his qualifications.

In terms of exhibits, we would ask that Mr. Viola's PowerPoint presentation for today be marked as Exhibit CAC-28. And that is the public version of his PowerPoint presentation. It has been distributed electronically to the distribution list.

We do note that Mr. Viola also has a portion of his presentation that contains confidential information. We would propose that those slides only be introduced as exhibits once we go into the incamera portion of the hearing today.

We will now ask Board secretary to swear or affirm Mr. Viola.

--- EXHIBIT NO. CAC-28: Mr. Viola's PowerPoint presentation.

CAC WITNESS PANEL 2

VALTER VIOLA, Affirm

EXAMINATION-IN-CHIEF BY MS. KATRINE DILAY:

MR. KATRINE DILAY: Thank you. And so I just like to go through the exhibits that form Mr.

Viola's evidence today.

Mr. Viola, do you confirm that you were responsible for preparing the report entitled MPI's Investment Portfolio, Asset Liability Analysis and Previous Recommendations --

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Sorry, which is filed as Exhibit CAC-11 on the record of this proceeding?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And you confirm that two (2) revisions to the report were filed subsequently and are marked as Exhibits CAC-11-1 and CAC-11-2?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: You were also responsible for responding to certain Information Requests from MPI, namely, MPI-CAC-1-8, 1-9, 1-10 and 1-11 which are marked as Exhibit MPI-18?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And you were also responsible for responding to certain Information Requests from the Public Utilities Board, namely, PUB-CAC-1-3, 1-4, 1-5, 1-6, and 1-7 which are marked as Exhibit PUB-16?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And you also prepared a revised answer to PUB-CAC-1-5 which is filed as Exhibit CAC-12. Correct?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Can you confirm that the information provided in those reports and information responses is accurate to the best of your knowledge and ability?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Now, in terms of your qualifications, Kristen, I'd like to move to Exhibit CAC-11 which is the report by Valter Viola, Appendix 1, page 27 of the PDF.

Now, Mr. Viola, in terms of your education, you received a chartered accountant designation in 1989, correct?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: You also received your Masters of Business Administration in 1990?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And you became a chartered financial analyst in 1995?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Now, if we go a

bit higher on page 27, in terms of your experience, Mr. Viola, you have twenty-five (25) years of experience in the institutional fund management sector?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And more specifically, you have twelve (12) years of combined executive senior management and other professional investment experience at two (2) of Canada's largest institutional investors?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And that would include the Ontario Teachers Pension Plan from 1993 to 2000?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And that is a fund that has $176 billion today?

MR. VALTER VIOLA: Yeah. Probably a little higher today but big.

MR. KATRINE DILAY: Now, if we go to page 26, towards the bottom of that page.

Your experience also includes the CPP Investment Board from 2000 to 2005?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And that's a fund

that has approximately $367 billion today?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And a bit higher on page 26, Kristen. Thank you.

More recently, you have more than a decade of consulting experience as an advisor to some of North America's largest institutional investors on various aspects of investment and risk management -- risk measurement and governance?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: And some examples of clients have included Canadian Pension funds with assets under management that are about the same as those managed by MPI?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: To confirm your specific areas of expertise, they include investment research, economics and risk -- risk management, portfolio management and quantitative asset liability modelling?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Kristen, could we go to page 2 of this same document.

And, Mr. Viola, when you were retained as an independent expert you were advised of your duty

to provide evidence that is fair, objective, and nonpartisan, is related only to matters that are within your area of expertise and provide such additional assistance as the Public Utilities Board may reasonably require to determine an issue?

MR. VALTER VIOLA: Yes.

MR. KATRINE DILAY: Thank you, Mr. Viola. Mr. Viola will now proceed with his PowerPoint presentation.

If agreeable to the Board, we would request that any questions of clarification during his presentation could be asked either by myself or by Mr. William. Thank you.

MR. VALTER VIOLA: Good morning and I'm happy to be back. I understand that you got into some Latin discussions the other day and I was warned not to get into the -- too much of the Greek math, so, I've kept the formulas to a minimum but there are, I think, two (2) Greek letters that are -- I'm going to have to refer to.

The plan, from my perspective, is just to have -- really go through two (2) parts of this deck. There's twenty-two (22) pages. The first half really sets the stage and provides a rationale for the recommendations which are on the last slide summarized

on page 22.

And a lot of the material in the first part is really similar to or identical in some cases to the material I presented two (2) years ago. So, the foundational concepts, some of the terminology with some additional comments given the focus of this year's review -- my review this year. I thought it would be better to start with those rather than get into the recommendations right at the onset. So if I jump to slide 3 really quickly.

This is the slide that I presented two (2) years ago and going down the middle column, I broke out the issues into two (2) parts. The bottom was really my sort of diagnosis of the problem which I framed in a very general sense. I, basically, identified focus and process as two (2) common problems for all institutional investors whether it's a pension fund or another large institutional investor that manages insurance risk, such as MPI, but they're common problems and they'll always be there, focusing on both sides of the balance sheet, assets and liability as the Mercer study and the work that MPI did this past year is clear that there is a big emphasis on that. So that's the good news.

That's not the case with many funds so

it frames the issues and differentiated between the symptoms that I saw two (2) years ago, and the problems that underlie it.

So, going down the middle column, two (2) years ago we identified the fact that there were no real return bonds in the portfolio, which I found surprising given the nature of the obligations of the -- of MPI which consist primarily of the basic insurance obligations and then a pension plan that roughly represents around 20 percent, plus or minus of the financial value of the liabilities for example.

And I raise the issue that the duration management was not as effective as it could be because the nature of the assets that were backing them were nominal in nature and I'll go into the distinction between nominal and real instruments and interest rates and risks in a moment.

We noted that Canadian equities, there's natural home bias for all institutions, whether you're Canadian or not, but in this particular case, we noted that the bias -- the concentration in Canada was particularly large and that was particularly concerning from my perspective simply because Canada has a highly concentrated sector. Certain sectors like energy, et cetera and the banks.

The other one (1) was there were no stocks exposure beyond Canada and the US and so there were missed opportunities to further diversify the portfolio and get better risk-adjusted returns. So those are the observations back then.

In terms of the focus -- and, again, this is sort of a broad general statement about all institutional investors but, in particular, as it related to MPI we noted that there seemed to be a focus more on the short-term, as opposed to the long-term, and -- and particular concern about rate stability at the expense of a longer-term horizon that perhaps had a focus of the full portfolio designed to mitigate longer horizon risks and get higher returns by taking different kinds of risks in a prudent fashion.

Back then we noted that AON had done a study that the GRA was based on that study, to a large extent, and when I looked at the risk and return metrics in that paradigm from the AON study, it was clear to me that it was -- it was less reliable as a means for optimizing the portfolio, making sure risk -- return risks, trade-offs were appropriate because the metrics on the risk basis, for example, were based more on accounting metrics.

And I'm an accountant by background, but I don't practice, but I knew enough that one (1) of the first principles accountants should ask themselves is what's the purpose for which these accounting numbers are being used?

And sometimes the accounting should reflect better or differently the purposes. So there's not one set of numbers, even though the actuaries, the accountants and the risk managers all call certain things assets and liabilities, the basis for evaluation and risk management are very different.

And so the notion of sleuthing accounting numbers, having very different accounting treatments for MUSH bonds versus nominal bonds versus real estate equities, et cetera and what triggered the recognition of gains and losses, whether it was to other comprehensive income or net income, those things made differences -- they -- they resulted in different metrics and therefore different behaviours and measures and assessments of risk.

So that was of a concern of mine, but ultimately, from my perspective, I sort of identified two (2) broad categories that would help remedy the underlying problems, the first one being a framework on the right.

And the framework to my way of thinking is simply just a paradigm that an -- answers key questions like, what is your goal as distinct from an objective? Are we trying to manage assets and liabilities in a way that minimizes the surplus volatility or the excess return volatility as Mercer had indi -- described it in the recent asset liability study or is it to be benchmarks and look better than our peers?

Because those are all possible goals and objectives and the framework, if articulated well, makes it clear what are the primary goals as distinct from secondary goals, and therefore, the opposite side of that coin, what is the risk inherent in meeting these multiple objectives or goals. We can go to the next slide.

So fast forward to what happened over the past two (2) years. Mercer was engaged to do a study and I've -- I've cr -- crossed out the items that were addressed based on the eighteen (18) recommendations that were put forth two (2) years ago.

I indicated back then that -- I -- I - I'd like to think of portfolio management as a hockey game and if you think there's six (6) players on the ice, if there's one (1) goalie, two (2) defence and

three (3) forwards typically and a whole bench that backs it up.

So wh -- sometimes when I think about the 60/40 typical asset mix between risky assets and less risky assets, two (2) buckets that I'll talk about soon, that's really a hockey game.

You've got usually a goalie and a backup on the bench so there's two (2). You've got three (3) lines of defencemen, so that's six (6). There's four (4) forwards -- sorry three (3) forwards but four (4) lines. You add it all up and there's twenty-six (26) on the ice, the rest on the bench. Two (2) goalies out of twenty (20) players is about 10 percent.

And the goalie, to my way of thinking, the better goalie is one that is in the net stopping the puck and the puck that we're trying to stop is being shot at us by the opposing team who I think of as the liability.

So if our team of portfolio assets consists of six (6) players on the ice, some on the bench designed to achieve our objectives, the way the Mercer study's done and MPI's framed the question, they're really in the business of designing a portfolio of assets, players on the ice and on the

bench, on a roster, that are trying to outperform the liabilities.

And those liabilities have certain characteristics that really have nothing to do with what the assets look like, us. They are what they are and at any point in time, we could look at those liabilities and say, they're long-term in nature, they're inflation sensitive or not, they may not be perfectly re -- correlated with CPI, but they've got some inflation-like characteristics.

And so when I look at what's changed, they're still, I would say, a shaky goalie in the net. So we've got nominal bonds in the portfolio or being proposed whether that's implemented or not. We don't have real return bonds in the portfolio, so there's a -- there's a worry that inflation will turn out to be different than expected.

If inflation were not volatile it wouldn't be -- it wouldn't be much of a sig -- there wouldn't be any significance between owning real return bonds and nominal bonds, but that's not the case; even though we're in a low inflation environment we're thinking decades out and we're not very good generally, people investors, about forecasting interest rates.

And while inflation on the horizon might be reasonably stable at a certain level, say 2 percent, with a little plus or minus a little bit, when you go beyond three (3) five, (5), ten (10) years, it becomes harder and harder to predict whether the Bank of Canada and other factors will continue to be benign. So, I continue to worry about the shaky goalie.

And in terms of the accounting at the bottom, I'm less worried about that now because the Mercer study made it clear that MPI has decided that the basis for the optimization is based on market value. So we mark to market the value of the liabilities, they have a long duration and they're sensitive. And so, the matching assets of that have similar properties in accounting book value cost. Those are less important or worrisome to me, but they may still be of concern for other purposes.

But again, what's still on the -- on the -- of concern, I would suggest, is this focus on more shorter horizon as opposed to long-term and the stability of rates in the short term and if we go to the next slide, this brings us to today.

And again, the carryover on the left is the shaky goalie and the focus at the bottom as a

problem in terms of the short -- shorter horizon as opposed to longer horizon focus. The additional ones and the symptoms, again thinking hockey wise, we've got fewer strong defencemen, at least proposed. We are -- what I've heard is that we're going to have fewer real assets in the portfolio, real estate and infrastructure which gives less inflation protection where currently there is not a lot 'cause there are no real return bonds in the net playing goal and we've got a crowded net.

And so when we say -- I say that, I think of different types of fixed income bonds in the portfolio; some have credit risk, they're not just federal or they're not pr -- federal, they're provincial and corporate. For example, they've got inflation risk; they've got credit risk; they've got some illiquidity, not overly concerning, except for the fact that all of the risk that is being taken for presumably higher return is really concentrated in the basic portfolio which represents 80 percent of the total, pension being about 20, being concentrated in that area and I -- and to my way of thinking, it seems like, you know, a more balanced portfolio regardless of where you are in the risk spectrum, going across the bottom -- we'll look at a graph in a minute -- the

composition of the portfolio in the risky bucket and a less risky bucket, which I'll describe in a minute, there's some concerns about where things are concentrated or not.

And I think, again, I think we're underestimating the opponent, again the liabilities. When we look out decades, it's pretty hard to predict interest rates and the components that make up a nominal interest rate, i.e., inflation and while in -- interest -- inflation, rather, is benign in the short term reasonably, who knows what's going to happen longer horizon.

And the more important points are at the bottom and we jump to the -- the very bottom, which is this liability benchmark portfolio, which is a proxy for what the liabilities look like from a financial risk perspective.

And the key point there is that, I'll say it again, I think I said it once, that the liabilities are what they are. They either have inflation protection. They're either long time -- or they either have a long ti -- time horizon or they don't and those are the facts.

Quite separate from that, is our view on what's going to make that hurt us from a portfolio

performance point of view, net of the liabilities. So managing assets and liabilities, we only can control the assets. The liabilities are what they are and, of course, we have to look at capital market expectations about inflation, interest rates, market corrections, and equities, all -- all those things, liquidity, credit risk.

But, the decision to accept risk in the portfolio moving along that bottom axis to either the low end where there's very little risk, but we can never get rid of it completely to higher risk where we might have mo -- more equities in certain portfolios than others, or at certain times, that decision is quite separate from the reference point from which you measure risk and return. The liability benchmark portfolio, in my estimation, has a long duration and has some inflation sensitivity to it.

If we could jump to the -- sorry, there's one (1) point I missed there on the focus. The new item there in terms of a problem is, given the explicit recognition which is a -- a great one, not all funds explicitly recognize a liability benchmark portfolio, but MPI has and I commend them for that.

It's the composition of that portfolio that's of concern to me. And the way it's structured

now, defined, all nominal bonds, no real return bonds, there is a risk to longer term instability to premiums, what consumers would pay to fully fund the plan -- or appropriately fund the plan. Go to the next slide 6, please.

So, I'll go -- the next two (2) slides have some terminology. I won't go through all of them. We all know that risk is a forward-looking concept. We all are familiar with the concept of duration. The duration concept has two (2) elements or two (2) -- well, there's -- it -- it applies to both assets and liabilities, fixed income products.

And in the case of Basic pent -- Basic liabilities, for example, we've seen through the GRA that the duration of the Basic liabilities is about ten (10) and the pension is even longer at about sixteen (16), which is to say, for the Basic pension when interest rates change by 1 percent, the liability will change by ten (10) times that, roughly speaking.

So this duration is just a rough estimate of the sensitivity to interest rates as it relates to the liability. The assets again they -- they are -- they are sensitive or not and there's a policy to match the assets and liability duration within, I think, a quarter point. So a very tight

discretion -- low discretion for being different from what's deemed to be the duration of the liability.

The other important concept about duration mathematically is that it actually represents this notion of time and so, if you think of the cash flows related to the liabilities as being long -- long horizon, think of a distribution around ten (10) in the case of the Basic liability.

So the duration of the Basic liability is ten (10), which is to say, if you took all the cash flows out that you have to pay out, as best as we can figure out, and you discounted them back to today and you came up with a "X" billion dollars worth of a liability, duration represents the weighted average using the time value of money -- of the timing of those cash flows.

So if interest rates were zero, there is no discounting. Ten (10) would represent the average time -- the average maturity profile of the cash flows. The actual duration is shorter than the term to maturity because of that discounting process, but think of ten (10) as an average. So ten (10) is a long number. It's a high number. It's not one (1) year.

So the liabilities are an inherently

risky proposition to put out there. By setting up a pension plan with a sixteen (16) year duration, you make a promise that you'll pay those cash flows and you have assets to back them, same with the insurance for basic insurance, except that it's a ten (10) year, but the important thing to remember is that the -- the ten (10) is the average.

So, roughly, other things equal, unless it's -- it's not symmetric around that average, half of the portfolio or cash flows, at least, on the ten (10) year basic duration are well beyond ten (10) years or fifteen (15), twenty (20), longer years and there is a weight to that.

And so when we develop duration policies and think of matching, matching to ten (10) is the average and that's, you know -- but there's a recognition that I can at least notionally think of what the two (2) halves represent and what's my forecasting ability in the next ten (10) years versus the ten (10) years that follow that, for example.

And I certainly have more confidence about my forecast as about inflation and interest rates for tomorrow or the next year rather than those that go out twenty (20) years.

I'll move a lot faster on the

definitions, or that's an important one 'cause -- 'cause my recommendations really stem from that basic principle or understanding.

So inflation, we all know what that is. Nominal and real interest rates, the difference represents inflation expectations after the fact that's a realization and there's this thing called the Fisher equation, a famous economist who basically said, you know, roughly speaking, if inflation is 2 percent and I really want to maintain my purchasing power, my real value of what I buy at the grocery store, if inflation is 2 percent, I'd better earn all my assets at least 2 percent nominally, to at least stay flat. I can still buy that apple, bananas, my whole basket of goods out the door, if I earn enough to cover the 2 percent inflation.

If I actually want to do better by investing in more risky assets, or not even risky assets, let's just say cover inflation, I'll want a real rate of return, so that my purchasing power actually I can buy some dessert next time, not just have meat and potatoes, say.

So that's a simple difference. Again, the two (2) Greeks, I apologize, volatility and correlation, standard deviation, they're two (2)

statistical concepts. We won't go into the details, of course, but they're, you know, volatility is simply the dispersion around an average. The distinction between an average and a -- and a volatility around that average is important, especially as it relates to inflation, in this case.

And the other important one is correlation. And this is what makes investing a team sport, because what kind of a goalie you put in the net, or whether I have a goalie or pull him out of the net, really depends on what's going on in the game and who's on the ice. If I've got a really strong goalie, he'll stop inflation risk, or what other kind of risks are -- are hitting me, or potentially hitting me. It allows me to actually take more risks with forwards, and the defenceman can cheat. They can pinch at the blue line.

If I don't have a great goalie, I can't afford to take those other risks. And so the question is really about shifting assets completely. I'm -- I'm taking risk off the table, and I have to do it in a silo mentality, and assign different tasks and say, you do this; you do that.

We all have -- they're all correlated. The defencemen generally are defensive, but they do

score goals. Bobby Orr was a great scorer, right? And the goalies rarely score, right? We don't expect them to score.

So when we look at the return on low-risk assets, it's kind of unfair to say, they give us a lousy return. The question is, did they give us a lousy return to the next best alternative, and do they allow us to take more risks with our defenceman and equities that, in aggregate, allow us to outscore the liabilities of the opponent?

So those are the questions that come to mind. The equation at the bottom is very important. And in the simplistic form, you can just think of this vol -- and these are yields. This is the volatility of nominal interest rates.

So a nominal interest rate, let's call it 3 percent, consists of, let's say, a 2 percent inflation rate and a 1 percent real return. Those are the averages. What really -- what we really -- really worry about is the volatility of inflation, and that's that -- the term that says standard deviation or sigma, and there's the letter pi, for inflation. Pi stands for inflation.

If that term is zero, there's no inflation volatility, those second and third terms

drop out, which means that the volatility of real rates is the same as the volatility of nominal. And so will the returns. The returns will be identical.

So we're only talking about this equation, because inflation is not -- inflation volatility is not zero. Inflation level -- the mean can be 2 percent, 10 percent. If investors expect that it will be maintained at that level, we don't really have to worry about inflation risk, because they'll price that into the instruments that they buy for their purposes. But when inflation is -- volatility is not zero percent, we have to worry about whether the assets that we're buying are managing the risks in a way that's most efficient.

And again, from my perspective -- we'll see the data later -- it's easier to forecast the volatility of inflation over the next one (1), two (2), three (3), four (4) years, but if you look at the history and what's happened, we're certainly in a very low -- a -- a stable inflation environment. It's low and stable, which is great, but if it ever becomes higher and unstable, having nominal assets rather than real ones could result in some pain.

You can go the next slide, 7. So I've already talked about the distinction between the

nominal bond and a real bond. A real bond simply protects the principal by inflation. So if you buy a real bond for hundred dollars ($100), inflation is 2 percent, your hundred dollars ($100) actually gets indexed -- it's as if you put in a hundred and two (102), but they don't ask you for the extra two (2) to cover inflation. And so the hundred and two (102) principal amount is inflation hedged, and the coupon will apply to that higher amount.

So basically, real return bonds are the best hedge, regardless of your time horizon, because they fully index the cash flows, whether the cash flow was due in a year or thirty (30) years. And the longest real return bonds are outstanding. They've got another thirty (30) years to go.

Now the liability benchmark portfolio can be confusing, but the liability benchmark portfolio is the proxy for the liabilities. And in the past, prior to Mercer doing their asset liability study, my recommendations from two (2) years ago referred to this thing called a minimum risk portfolio. I -- I refrained from using the term 'risk-free portfolio', which you typically see in the literature, because there's nothing really risk free. The Government of Canada -- the Government of

Manitoba, they can default on a -- on a bond. So I prefer the use of minimum risk portfolio rather than risk-free. I'll talk about risky buckets and non-risky buckets later, but we'll -- I'll generally refer to the liability benchmark portfolio as a proxy for liabilities.

And as we'll see in the next slide, and maybe we could jump to it, those are the buckets I'm referring to. So up at the top right quadrant --

DR. BYRON WILLIAMS: Mr. Viola, just--

MR. VALTER VIOLA: Yeah.

DR. BYRON WILLIAMS: -- and I apologize for this.

MR. VALTER VIOLA: Of course.

DR. BYRON WILLIAMS: I know you're anxious to move on, but just to go back to slide 7 --

MR. VALTER VIOLA: Sure.

DR. BYRON WILLIAMS: -- one (1) definition --

MR. VALTER VIOLA: Yeah.

DR. BYRON WILLIAMS: -- tracking error?

MR. VALTER VIOLA: Yeah. I was going to come back to it in a minute, Byron, so when --

DR. BYRON WILLIAMS: And then -- go

ahead.

MR. VALTER VIOLA: -- go -- go -- let me -- so go to the slide, and then I'll come back to those definitions. So that I was referring to the risky bucket and non-risky bucket. These are the -- these are the concepts I wanted to introduce. And if we can think of it as an efficient frontier in, I call it surplus place -- sur -- surplus space, or assets minus liabilities.

So the bottom axis, if you look, my upper quadrant with the bucket says risk without defining the metric. The bottom axis is the one actually used in the Mercer study, and Mercer defines risk as the excess return volatility -- excess return of the asset portfolio in question could be, you know, 30 percent this, 60 percent that, and 10 percent something else in relation to this liability benchmark portfolio.

So that's kind of, in -- in investment terms, they call that the tracking error. It's the volatility of the performance difference expected, measured as standard deviation, between an actual aggregate portfolio -- total portfolio and this minimum risk portfolio, or the liability benchmark.

So it's -- it's -- so this basically

says 3.8 percent is the number -- if you look at the vertical number, this is assuming a real liability benchmark, and it basically says that two thirds (2/3s) of the time, you should expect the current assets -- in this case, the dot -- could have a performance that is different from the expectation -- in this case, growing surplus, having assets grow faster than the liabilities by -- it looks like mean is about -- eyeballing it, about one point eight (1.8), but it could vary from that two thirds (2/3s) of the time by as much is 3.8 percent.

So that's the risk, and it's because you've got a long-term promise, and you -- you haven't got assets that fully immunize that risk, because it would cost more to do so. So the fund needs to take risk, and the question is really, is that the most efficient way to do it? And we'll -- then we'll talk about the different curves.

So let's go back to the previous slide, and I'll talk about the two (2) last definitions. I mentioned tracking error against the standard deviation or the risk of two (2) things. And if you want, typically it's talked about as the tracking error against the S&P 500. So somebody who's trying to beat the S&P, they take tracking error, because

they don't buy all the five hundred (500) stocks in the S&P 500.

They buy -- only buy a hundred, and depending on how the hundred do versus the five hundred (500) that they're benchmarked against, they could underperform, but they're picking only a hundred instead of five hundred (500), because they think that those are the better hundred, and they'll do better. So the goal is to outperform that benchmark, and in the surplus context that we're managing assets and liabilities, it's the same concept, and that's the metric across the bottom.

Basis risk is really related to tracking error in the context of the two (2) liability benchmark portfolios that Mercer put forth as possible alternatives on how one would characterize the liabilities for MPI -- for both the Basic and the pension portfolio, and -- and the other portfolios, is my belief. I'll focus on just the Basic and the pension.

And so there's no basis risk if the portfolios look identical. Just -- they're -- they're mirror images of them. The Basis risk for tracking error exists to the extent that they look different. And in the case of the liability benchmark portfolios

that were put forth by Mercer, one (1) consisted a lot of nominal bonds, and the other one consisted of a lot of real return bonds, with some nominal ones as well.

And so the question is, how big is that basis risk? We'll show later Mercer's number, but it's a big number. It's about 4.6 percent, as I recall. So we can -- we can move on. I'll -- I'll move a little bit faster, but I thought those concepts were important, because I'll be referring to them again.

So those are the big picture items. This happens to be a graph of the Basic pension return and risk profile from Mercer from the two (2) questions that were posed by us and subsequently and answered by MPI and Mercer.

If we could go to the next slide, 9, please. I'll fly through these. The -- this is a slide that I put up two (2) years ago, and I've just noted a few updates. And -- and the sad and inconvenient truth, there's three (3) of them, and -- that are important to take into account. I'll only focus on the first one on the left. We don't know very much. And the last one, correlations are not perfect. The one in the middle is really about governance, which is not really what's in scope for

me.

But the truth is the truth. I mean, there's no -- there's no -- there's an alternative truth. We've heard about that terminology south of the border. We also call those myths or lies. But in -- in between is beliefs, right? We kind of believe they're truthful, but we only have empirical evidence or common economic sense that would suggest that's more true than an alternative fact.

And those are important in investments, because in the first column, we say we don't know very much. This is -- this is not the -- a world of Newton and the apple falling from the tree at 9.8 metres per second squared. This is the world of thinking about inflation expectations in the future, and we don't have a crystal ball, or at least, I haven't found one yet.

And the reality is, though, we have to make important decisions about how much risk to take, where to take it, what levels to set for rates, et cetera. So we don't know very much, but we have to inform our judgement based on some stuff.

So I've articulated beliefs that I thought were relevant two (2) years ago. I relied upon them again this year to make some

recommendations, and I borrowed them from the beliefs that we developed when I was at CPP Investment Board, which is, as Katrine said, is, you know, roughly, it's going to be about 400 billion, if it's not already there.

But I was there for (5) five years, head of research and risk, working with the gentleman, Don Raymond, who is -- who led the -- this formulation of beliefs. And I didn't really fully appreciate the importance of beliefs until you come across people with divergent views about how to define risk and strategy.

So you can't have a really coherent, cogent strategy and consensus on it unless the beliefs are shared. And so it's very important to focus on those, because otherwise, you -- you could run into trouble, and it makes for difficult management oversight. So the beliefs are important, and I articulated some.

Forget about the middle column for now, other than to note that the frameworks are important, and -- and as I understand it when I read the GRA, one (1) of the recommendations I recall was related to the framework, and having -- having one. And I think the response we heard back from MPI was, I believe, and

I'm just saying it in general terms, I -- I think one (1) of their advisors -- and I can't remember -- I do believe it was Mercer who indicated -- was Mercer -- that it is very important, time-consuming, should be done, and as I understand it, I thought it was a corporate priority to be done, so that's great to hear.

The last column, correlations are not per -- perfect. This is what makes investment management a team sport. So it's -- I believe it's not appropriate to look at any asset, whether it's real return bonds, stocks, or anything in isolation. The question isn't, you know, rate volt (sic) or real return bonds. There's a graph that I show later. They used to earn almost 5 percent real, net of inflation. Great. We had Terry Sawchuk in the net, right? Terry's from Winnipeg; anybody remembers Terry Sawchuk. Great goalie.

We don't have Terry Sawchuk today. We don't have 5 percent real interest rates. We have 1 percent, if we're lucky. So we have lousier goalies today. I shouldn't say that. We had goalies who could actually score back then. That's what -- that's the difference. They still -- they're as good today at stopping the puck as they were back then. It's

just that they used to actually score goals and have higher returns. That's the story.

But the point here is that you can never look at an asset in isolation without having -- without looking at the other assets that are in the portfolio or could be in the portfolio. And so this notion of beta or correlation is very important. It's not in marginal concepts, and we'll -- we'll talk about it in a -- in a minute, but that's very important.

So we can't look at RRBs, or nominal bonds in isolation. It's what contribution do they have, given that you've already got some other assets in the plan? So if you've already got a great goalie, you don't need another one. You might need a forward. So that's kind of the story.

If we can go to the next slide, please. I'll jump through these next slides again. This was a common barrier to excellence. Whenever I have an engagement with clients, the symptoms are always different. The -- the problems are always the same, and it's simply because of the fact that the people who manage the money aren't the owners of the money, so there's governance issues, there's measurement issues. But the punchline is -- this first one is the

focus.

And the good news is Manitoba Public Insurance explicitly acknowledges that the liabilities are important, they want to hedge them to the extent that it makes sense. That's great. A lot of people spend their life trying to beat benchmarks, and they actually have really wrong benchmarks, because some -- in some cases, they're easier to beat, and they're the wrong policy portfolio. They spend their life in active management. That's not the case here, and so that's good.

I won't go into the other issues, but they're always the same across the funds. Processes can always be improved, communication can be improved. People may think they have great ideas, but there have to be institutional capabilities to actually execute on them, and resources beyond my scope, but obviously, you need systems people, all that kind of stuff.

If we could jump to eleven (11). So briefly, again, these were -- this is a summary -- a Reader's Digest version of beliefs that were developed. There's five (5) of them here at CPP Investment, where we developed lucky thirteen (13). We had thirteen (13) of them, but these were the important ones. They weren't designed to be risk

related at all, but risk is embedded in everything we do in investments, so risk pops up everywhere, even though they were investment beliefs, not risk beliefs, per se.

So this is the brief version. I'll expand on a few of them that are relevant for this year. The first one is really saying, you know, we're in it for the long term, and sustainability is important. The second one is this notion of the minimum risk portfolio is really defining the rules of the game. It's saying: Are we trying to score goals? Are we trying to win the period? Are -- you know, are we trying to beat benchmarks?

The guy in Saskatchewan, or the fund in Saskatchewan, or are we trying to look at the liabilities as the main opponent and have few goals on us, but to score on them, have higher returns and less risk of funding deterior -- deterioration? So this notion of a liability benchmark portfolio is pretty fundamental, because it really dictates how you play the rest of the game, where you put your assets to win the game.

The additional risk, obviously, if you decide you wanted -- and again, risk tolerance is a function of a lot of things. Moving along the bottom

axis on that risk/return axis, obviously we would take more risk if we thought the return was high enough. So that's a discussion that needs to be done. We probably don't need it as a belief.

The fourth one is really important. It's this notion of a marginal concept. Again, it's a team sport. Correlations matter. So depending on who the opponent is, and the correlation between my players and their ability to track them, and shadow them, or do whatever, play the game, that's important. In correlations, unfortunately, the math gets a little hairy, and models are better at figuring out the implications of these nonzero correlations than -- than I certainly am, and then most people are.

And then the last one, really, isn't a -- isn't a belief, but we think it's still important, because a lot of funds don't appreciate the cost of constraints. So when we think about the efficient frontier being curved like this and not a straight line, it's curved because correlations aren't perfect, and it's a line because it has certain assumptions embedded in it, the capital market assumptions about the returns on equity stocks, bonds, and correlations among them, and the liabilities, and the volatilities of all these things.

Constraints serve to shift the curve up or down. So when you relax the constraint that was constraining, it shifts the curve up. For any given level of risk, you can get a higher return. If it's not binding, the curve doesn't shift.

In some of the Mercer analysis, where they go through the step process, both for the nominal liability assumption in the real one, you can see the cost of those constraints, and that first graph that I showed really shows the impact of imposing a constraint that says, I'm not going to buy real return bonds in my portfolio when my liabilities are inflation sensitive. And I quantified that number at the current level of risk, and I said that cost is .8 percent per year, using Mercer's assumptions.

So that's a -- that's a big number. And we did another number for the pension, but was it was -- it was smaller. And I think my first estimate -- I grabbed the wrong curves, where I revised the statement that we put forth initially, and I think it was twenty (20) basis points at a cost of that constraint, for example.

So if -- jump to -- qui -- slide 12. This is where I start to drill into a couple of the beliefs only to support the recommendations. And by

the time I get to the recommendations, I said, there's only eight (8). A couple of them I'll skip over quickly, so we'll probably address a lot of them as we talk about the beliefs that support them.

So the minimum risk portfolio is the liability benchmark portfolio. It's saying, what is -- how do we measure risk for this fund? And I think rightfully, Mercer and MPI concurred that the liability benchmark portfolio has a long duration. The question really is about what's the nature of that duration? Does it arise from changes and risk to interest rates changing that are real or nominal? And that's the issue.

And just to be clear, this definition of how we characterize the liabilities is not dependent on our current view about inflation, volatility, or level in the next year, five (5) years, or ten (10) years. The liabilities are what they are. They're either long, which they are, ten (10) years, in the case of Basic, sixteen (16) for pensions, and they're inflation sensitive or not.

And -- and my understanding is they may not be perfectly correlated with CPI, can't -- can -- the Consumer Price Index, but they're highly correlated, and there's nothing better than real

return bonds to hedge that risk.

T-bills can do it over the short horizon, but not as well as real return bonds, actually, because with T-bills, you buy them at a discount, and they mature, and then you reinvest them. The RRBs, you lock it in from the day you get it. Our -- with real return bonds, they have some real interest rate exposure, but you do have that with T-bills as well. The question is one of duration. So T-bills are short. RRBs are long. Both inflation protect.

Nominal bonds don't. Nominal bonds expose you to unexpected inflation, and the pricing of nominal bonds, a regular bond without inflation protection, we embed in that some notion of risk that says inflation could be higher. So there might be this premium risk that I should impose on them, and therefore earn a higher return on nominal bonds than infla -- than real return bonds.

Real return bonds shouldn't give you -- you shouldn't expect the goalie to score goals. They're there to stop the puck. That's -- that's as simple as I can put it.

Now, this is a big simplification that both MPI and Mercer have made. And in the case of

MPI, they said that there -- they based in defining the minimum risk portfolio, the liability benchmark portfolio, MPI said they based in -- in the CAC/MPI-2.2 -- 2-2, they said that they based their low risk assessment of inflation primarily on the expected level.

I underlined the word "level." So that has to do with the average. The Bank of Canada has a target average of 2 percent inflation, but there's volatility around it. They can't control it perfectly. They may have some control over inflation, but there's some volatility around it, and it -- and in the current environment, that volatility is very low, and we can show that in some of the Canadian Institute of Actuaries data that I -- that I included in some of the IRs.

Mercer's language, and I believe this bullet is a direct quote from CAC/MPI-2-4, is that they supported hedging the nominal risk before the real, and that that was driven by their views of the expected level of future level and inflation, as distinct from the volatility. And that's important.

And again, if inflation is 2 percent or ten (10), if they're both nonvolatile, they're stable, people will price that in when they price fixed income

bonds, nominal bonds. If -- the question really is about volatility inflation, not the level.

And it's the -- and again, when -- when asked through a question of ours what the tracking error of picking one (1) liability benchmark over the other, the number was 4 1/2 percent. I did not check it, but I knew it would be big, because if you look at one of the slides -- and let me see if it's on the next one.

Later on, we'll show the composition, but the two (2) different liability proxies for the true liabilities are very different. They have the same duration, ten (10) for Basic, but their exposure is different. One (1) is exposed to inflation risk and drops or changes in real interest rates. The other one's exposed just to nominal interest rate risk.

And the difference is -- is not only large, four and a half (4 1/2), in absolute terms, but when you measure it in relation to the risk level that you're operating at, which, in the real liability benchmark paradigm, is 3.8 percent, that's the graph number at the bottom -- at least that was the current number, it may be lower based on the plan -- I think it would be, because there's less equities in it --

then the -- this tracking error, the term is called, that error is -- is a big proportion of the underlying base that we're trying to manage, 118 percent. So that's not trivial.

Let me go to slide 13.

EXAMINATION-IN-CHIEF BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Mr. Viola --

MR. VALTER VIOLA: Yeah.

DR. BYRON WILLIAMS: -- just before you leave this slide, when you talk about a 4.5 percent tracking error --

MR. VALTER VIOLA: Sure.

DR. BYRON WILLIAMS: -- that is between what and what?

MR. VALTER VIOLA: Yes. So that's -- that's the -- that's the difference in -- that's the -- that's -- that's -- let's say that that's the mismeasurement, I would say, between the -- by picking the wrong reference point. I -- I believe that the liabilities have inflation sensitivity, and Mercer pushed the numbers, and they defined the least risky portfolio that proxies the liabilities. But that four and a half (4 1/2) says, that's the performance difference between what I think is a better

characterization of the behaviour of the liabilities than what's being modelled. And so it's kind of a -- it's a measurement issue.

DR. BYRON WILLIAMS: Okay. So -- so just to -- to finish so that's a 4.5 percent between the nominal liability --

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: -- portfolio and --

MR. VALTER VIOLA: And the --

DR. BYRON WILLIAMS: -- the real liability portfolio?

MR. VALTER VIOLA: Yes. Yes.

So jumping to 13, we're coming to the end of the -- the beliefs, and then we'll jump into quickly the -- the meat of the matter, although we'll have covered a lot of it through this exercise. Beliefs 3 and 4, related to the marginal concept of risk and taking a total portfolio or team approach.

And -- and again, this comes back to the inconvenient truth earlier that says, you know, risk math is messy. Correlations matter. The curve is curved. It's not a straight line, otherwise we would just simply say you take more risk, you get a linear increase in return. It's -- it's bent.

Unfortunately, correlations are harder to interpret, we'll see what some of the numbers say, but they're critical, so better to be approximately right than ignore them altogether. And it's particularly important given the number I just talked about, 4 1/2 percent, in the context of defining the liability benchmark portfolio.

And it's especially true when you think even though the duration is ten (10) years for the liability, we really have cash flows, half of which follow beyond ten (10). And -- you know, I had a quote from the actuary who says none of us are any good at forecasting interest rates and the longer horizon we get out there, the more difficult it becomes. So, those are the concerns I have.

Go to slide 14, please. Thank you. And in terms of market efficiency, this is a legacy one. You'll recall that two (2) years ago when I -- my focus was really on the risky bucket -- I've got the buckets at the bottom here on the -- on the left. And, again, that's an efficient frontier in your space, which is assets versus liabilities, and it's basically saying, you know, if you think of a capital asset pricing model, I talked about this two (2) years ago, the insights of capital market theory, when they

-- when you're just talking about assets and not polluting it with liabilities, the conclusion is this thing called the separation theorem.

It basically says, in that case where its assets only, it's not a curved line, it's straight and it basically says beta is the measure of risk, marginal contribution to risk. And it basically says investors, if we all have the same expectations, if we have -- we will only differ in our portfolio choices by deciding to allocate different amounts of water in each of the risk year or risk-free bucket.

What we won't do is when you look down into those portfolios, in terms of the risky bucket, the equities, you should see roughly the same mix between Canadian equity, US equity, foreign equity -- international equity. You might have a smaller amount of liquid in that bucket, because you don't like risky assets, you want to take less risks, so you put more water into your risk-free assets. But the characterization, the mix of it, the composition of those buckets should be the same.

So two (2) years ago I focused on the risky bucket, the white one. This year we're focusing on the other one, which is the composition of the liability benchmark portfolio. And when you look at

that bucket, across investors you should see a different composition because this is an insurance company that operates a pension plan, or has a pension plan as well and has to manage the assets in it.

That's very different from a Worker's Comp. fund or a pension plan that just does the pension assets, or you're in my RRSP and my RESP for my children. Those are all very different. We have different objectives and therefore a different risk-free bucket.

So if my time horizon is tomorrow, I'm not going to invest in the stock market, my least risky portfolio is T-bills, probably. But my least risky portfolio for this plan, for the two (2) portfolios that are the big ones, the Basic and the pension, that portfolio has certain characterizations. So the question really boils down to: Is there inflation risk in that or not? It's as simple as that. And we know the duration is long, and that's -- that's the issue that's on the table this year.

And again, for my perspective, I mentioned it earlier, but I think it's questionable, very questionable, to link your forecast about inflation, either the level or the volatility, with how you define what that risky bucket is. That's an

important point.

The liabilities are what they are. The opponent shows up and they're -- and you're playing them. And they are who they are. They either have skill or they don't. They're strong or they're weak. And you do your best to figure out how to outscore them. That's the strategy. That's who you put on the ice and who you keep on your roster, whether you trade at the deadline or not.

But that's a decision that depend -- that -- that's a decision about where you are along that spectrum and where you're pouring the water in and out of the bucket. But the actual composition of the bucket is -- should be -- should be the same for any bucket. Hopefully that's clear.

Fifteen (15), again, this is -- Katrine mentioned that I was at two (2) funds for a dozen years. CPP was -- I was there for 2000 to 2005, just for context, again, this is unchanged from two (2) years ago and it's just meant to be kept in here for completeness.

And again, as I said, my understanding is that MPI has an -- an undertaking to develop a framework and address some issues that were outstanding from two (2) years ago, and that it's not

a trivial exercise to be more explicit about these important issues about how one defines risk, how much tolerance of risk they have, et cetera.

The second slide, 16. It was -- just elaborates on what the Canada Pension Plan Investment Board did while I was there. And -- and again, as I said earlier, I think MPI has -- should be commended on explicitly defining with Mercer what constitutes their liabilities, and it's really a question of measurement that concerns me, not the fact that they're doing it. I think it's commendable that they're doing that.

So, if we go to page 17 and 18, this is really just, again, prior to joining CPP, I was at Ontario Teachers and I extracted this two (2) years ago and it stands the test of time today and it'll -- I think it'll always stand the test of time, only the numbers will change.

But what they've said is basically that they're in the business of managing surplus. Mercer and MPI call it the excess return volatility assets versus liability. And the -- these are their words, so they're focused on real interest rates, they're focused on inflation. You don't see them talking about nominal interest rate risk, because that falls

out of those two (2) components.

And the one (1) thing to recognize, I don't show it here, I'll show it later. But they have a really good goalie and they have really good forwards. And so, even though they have a higher tolerance for risk than MPI, they still have a goalie that's really good in the net, and that's the key point from that.

If you look at slide 18, again, this was roughly the period that I was, yes, roughly I was -- I was at Ontario Teachers. So this was the annual report at 2000, just before I went to CPP, and these were the good old days. Real interest rates. This is a real return bond shown here, unchanged from two (2) years ago.

It was not -- it reached almost 5 percent real. Those were great. If you could lock in 5 percent real and be inflation protected, you could shut a lot of -- a lot of plans are shutting them down. Defined benefit plans are shooting them down -- shutting them down.

They would've liked -- they would have loved to see these rates. And that was just the point that, despite the fact that today real interest rates are a lot lower, when you fast-forward maybe you could

jump to slide 21 right now. Please. Thank you.

This is a time series, which hasn't been updated. It's from two (2) years ago, but this is the timeline of the asset mix of the Ontario Teachers plan, when we were focused primarily back then about the concentration in Canadian equity.

But the point -- thing to note here, the green box, is that they have 19 percent real rate products. So, I believe that excludes real estate and infrastructure. So that's really real return bonds. Some of them are US, some of them are private, they're not federal issues or provincial, but they've got $1 dollar in 5 at the end of 2015 in real return bonds.

And they have a lot more equities. They've got forty-four (44) in non-Canadian. This is back then, 2 percent in Canada, very small weight reflected in the global market cap.

But the point there is that they have a strong goalie, despite the fact that they're trying to score a lot of goals with a high equity content portfolio.

I looked at the annual report. The most recent one. They've reclassified some stuff. They've reduced -- and you can see as the -- as the -- as the time series goes from left to right from 2005

for the -- over the next decade, they rebalance and they find more opportunities.

The reason it -- it's blown out a lot is because they created opportunities. When I was there and I was actually the manager of this portfolio, the Bank of Canada restricted us from buying more than a quarter of the issue. We're a big fund and they wouldn't allow us to bid at the auction because they wanted RRBs to be distributed more widely.

So we went out and we backed up the truck and bought them in the US and then we created private opportunities, so we funded the 407 toll road in Toronto, for example, which is a real return bond.

So they basically said -- they went out of their way, not just to find the instruments that were on the table, because they were restricted from buying more, they actually went out and created more product. And despite that fact, they still take a lot of equity risk.

So you can have, again, from a total portfolio perspective, low-risk assets and really risky assets together usually give -- not usually, they do give better risk return trade-offs than being concentrated in either one (1) bucket -- within a

bucket, a risky bucket.

Let's go back one slide, and this is the CPP investment Board, and again, this -- I was there in 2000 and this was probably the first annual report that we published, 2001, March, so I just joined. And I put a red box around here noting again for fixed income assets, we've got real return bonds, they're on the vertical axis, i.e., low risk. They give a slightly higher expected return back then, versus treasury bills. They were longer duration. In other words, the yield curve was upward sloping.

But the government bonds, corporate bonds, because they don't offer real inflation protection, they should command a higher rate of return, because they are riskier in the context of our fund. This is the risk for our fund, which was our fund, literally our -- our Canada Pension Plan, which is we promised pensions to you, once you turned a certain age, and -- and there's some indexation of the inflation risk.

So -- so that's just for perspective that the things I'm talking about are not made up. These are the two (2) big funds that define risk a certain way, the liability benchmark portfolio, and it's -- it's clearly got inflation-sensitive risks.

So if we can jump to slide 22, we're finally to the recommendations.

MS. KATRINE DELAY: And, Mr. Viola, maybe I'll just interrupt, but I don't believe you talked about slide 19 and I'm just wondering if you wanted to do that one.

MR. VALTER VIOLA: Slide 19. I apologize, I skipped one.

Yes, so this one is identical to, I believe, the slide I presented two (2) years ago. I coloured it just to focus on the issues related to today. So this was in the context of real return bonds being an asset class you could invest in and the liability benchmark that your -- is your opponent.

And -- and what we said two (2) years ago was that some liabilities resemble real return bonds in terms of the nature of the flows. They're inflation sensitive in their long horizon, which real return bonds are. If you buy the TMX index, it has a duration of fifteen (15), that assumes you take no tracking error against that index. There's fourteen (14) issues. It assumes you're fully indexed, so you're not taking tracking error against that. But that's a long duration vehicle you could invest in.

So the real return bonds close -- I say

close, could closely match. There is some question is -- you know, isn't it how close are they, we can always beat them up. They're better than the alternative. You're not going to stick a forward in net and play goal. So they're better than the -- any next alternative, hands -- hands down.

And the insurance cost of buying real return bonds to hedge long-term inflation risk and real rate risk varies through time. All interest rates do and so does the cost of insurance, what you give up compared to taking more risk.

And nominal bonds are only a good fit if inflation is stable. Again, not the level 2 percent, it's 2 percent plus or minus X. And again, long-term, over ten (10) years it's hard to predict. So nominal bonds are much riskier in the long horizon because inflation volatility is more uncertain the longer horizon -- the longer the horizon we take into account.

And again, this is a carryforward. There's a tendency to ignore portfolio risk interdependence, again, not a silo approach, it's a team approach, correlations matter.

And again, assets that look risky in isolation or those that look low volatile, like T-

bills, for example, have low volatility. They mature in ninety (90) days and they're backed by the Government of Canada. Government of Canada is going to cut you a cheque and -- well, they're going to make good on the promise when that T-bill matures.

However, you have reinvestment rate risk. If interest rates stay low, you reinvest at maturity every ninety (90) days at a very low rate. With T-bills, rising interest rates really good, because when you get the money in ninety (90) days you get to reinvest not a 2, but a 3, then a 4, then a 5. Nominal bonds it's the opposite. If interest rates go up, you're taking a haircut because the capital gain -- the capital loss.

Anyways, that was -- that was the point of slide 19. I apologize for skipping over it.

So now we're into the recommendations and I'll go through again. I won't -- I won't talk about -- there's a couple that I'll just go through quickly. We talked a lot about the reliability benchmark, and I'll finish with number 8, the -- the use of quantitative models.

So if we jump to 23, for example, high level we already talked about the duration difference between Basic and pensions. Pensions has a longer

duration, i.e., the inherent risk and the liability is more volatile. It's harder to hedge that risk than something that matures on average at ten (10) years. So the pension plan is inherently higher risk.

If you look at the assets that make up the liability benchmark portfolio, I've included only the ones that were in the response to the two (2) questions we posed. So this is the real liability benchmark. So this says that in the case of Basic, if you said I want to take risk off the table because my infla -- because my liabilities are inflation sensitive and I'm exposed to real interest rate risk, this is the least risky portfolio according to Mercer's. Two-thirds of the portfolio would be in real return bonds, a quarter of the portfolio would be in T-bills that mature in ninety (90) days. The balance of eight (8) would be in short-term nominal provincial bonds, and that sums to 100 percent.

And again, the thing to note here is that it's heavily weighted to real return bonds and T-bills. And again, T-bills has a low duration, less than one (1) year, say ninety (90) days. RRBs average duration of fifteen (15) years and you net all those things out, the duration is ten (10) years. So that's the matching asset, according to Mercer.

In the case of the pension one, the next box below, it's got a longer duration and not surprising -- not surprisingly, the RRB allocation goes from sixty-six (66) to eighty-one (81). The -- the T-bills actually go short, you actually synthetically, if you could borrow money at 90-day T-bill rates, you would do so so that you could buy more real return bonds and you would have some provincial bonds as well.

Again, these are Mercer's number -- numbers, and I'm not sure if the short position is really a self-imposed constraint that they have to be indexed to the FTSE TMX Canada RB index, which is the last item. But as I think I will say shortly, there's fourteen (14) bonds in the real return bond index. And so there's a profile when you add all those fourteen (14) up with the weights that they are in the marketplace. The duration of the RB index. They're exchange traded funds that you could buy that basically you get all fourteen (14) real return bonds or whatever makes them up, maybe it's not all fourteen (14), in the weights that they exist.

There's no constraint that says if you decide to buy them or you decide to model the liability, that you have to use all fourteen (14) to

invest in or to designate them as the proxy for the liability.

You could weight them differently. And I don't know to what extent that negative 11 percent in the short is a function of the constraint to use the index with no tracking error, versus the fact that, no, that is the true economic profile.

But the punch-line is there's a lot of real return bonds in this portfolio, this least risky liability benchmark portfolio. If you look at the GRA and the one (1) that was proposed by MPI to use, its nominal bonds. So the issue is: What's the most appropriate reference point for measuring risk?

I talked about the fact that RRBs, regardless of the time horizon, measure -- sorry. They hedge the risk over the term to maturity that you worry about perfectly, in terms of inflation risk. And if you match then a duration basis, then you've got the price risk by changing real interest rates hedged as well.

There is a convexity effect, which is secondary, won't get into it, but it's the rate of change of the rate of change and -- but that convexity effect, as opposed to duration, is smaller and tends to work its way out.

Punch-line is RRBs are a good goalie, T-bills had shorter horizon inflation risk. But again, they have reinvestment rate risk because their duration is so low, less than one year, not ten (10) or sixteen (16). We can go to the next slide, please.

This is the tracking error I talked about, it's the difference. So if you look at the box in the bottom, this is -- this was in a lot of the preambles, or at least one (1) preamble of one of the questions we posed.

We've got two (2) portfolio -- liability benchmark portfolios. These are not actual portfolios, these are the liabilities, and there's two (2) types of liabilities. The basic one's on the left and the pension one's on the right.

And the columns within the basic one, say, is if you thought or characterized the liability as having characteristics that were real with inflation sensitivity, the bolded thing, you would say -- and again, these are the same numbers as the slide before, real return bonds at the very bottom says you would have 66 percent.

If you wanted to take risk off the table, what would you invest in? You would hedge most of the risk, recognizing you can't completely hedge

all risk, financial risk, you would put two-thirds (2/3)of your assets in real return bonds. And again, the duration of all of these things is either ten (10) or sixteen (16) depending on which portfolio you're talking about.

The difference the first set of colours, blue and red, shows how different those liability proxies are. The one (1) that MPI has proposed to use as a reference point for measuring their risk consists all of -- entirely of fixed income assets with nominal interest rate risk.

So they are exposed to differences in the yield curve between real and nominal shifts and inflation that turns out to be higher than perhaps expected.

So that's the difference in terms of the portfolio that least -- takes the least amount of risk in relation to the liability, and as I said, the tracking error, Mercer's number's 4 1/2.

And -- and we didn't get a number, we didn't ask what it would be for pensions, it's probably higher, but that's a guess. But it's material, given the differences in the colours on the right. There is more differences on the right they're on -- they're on the left, and they seem to be in one

(1) or two (2) rather than four (4) buckets. So other things equal that more concentrated nature and bigger gap would suggest that maybe that 4 1/2 might be a little higher in the case of pension, but pension is only 20 percent of the total.

So net/net the bigger the risk is probably in the Basic, the mismatch risk, if you will. The definition.

If we go to 25, we had raised this, I think in the evidence I've written that the focus on inflation horizon over the short horizon. Sorry, inflation risk over the short horizon as opposed to worrying about the inflation risk over the longer horizon, beyond ten (10) years in the case of Basic, and the real interest rate risks over that longer than ten (10) year horizon was -- was kind of equivalent to, in a dividend discount model looking at the equation of how a stock return gets its return from two (2) components. One (1) is the dividend yield, which is pretty stable, 1 or 2 or 3 percent, plus or minus a few basis points, versus the capital gain, which goes up and down a lot.

So again, this goes to our point of, you know, focusing more on shorter horizon, more predictable risks at the expense of thinking about the

instruments that we should think about buying even though they're not as good as they used to be, to hedge those longer horizon risks that we are not as well-equipped, because we don't have a crystal ball to forecast.

Page 26, there's a question from MPI that we answered, and I just wanted to summarize it because it wasn't in the GRA, it was subsequent to the filing.

The question was: Can you provide some documentation that supports the -- the notion that real yields are really risky on the heels of the prior slide? And so, if you jump to the next slide, for example, we blow that up, it's even hard to read here.

But if you look at -- I've highlighted in yellow, and this is from the Canadian Institute of Actuaries. I've highlighted in yellow -- yes, just leave it there, please. Thank you. So we can see the headers at the top.

I've highlighted the CPI, the inflation, these are annual -- these are annualized numbers over different periods. Five (5) years, ten (10) years, going down the left column, fifteen (15) years, twenty-five (25), fifty (50) years, seventy-five (75), all years.

You have to be careful because some of the series don't go back that far. If you look across to the real return bond column, the yellow on the right that's highlighted, if you look at the very bottom in the twenty-five (25) year matrix, they've only been issued since 1991 or '92. So they've only got a 26-year history.

So there's only a one 25-year line item and what it says is that the -- and these are standard deviations, so this is volatility. This is the measure of dispersion, how volatile are these things. And the three (3) things of interest are: inflation, long bonds from -- issued by the Government of Canada, and real return bonds, mostly Canada bonds, some provincials.

Not strictly comparable because the duration might be a little different between the long bonds and the real return bonds, but order in magnitude you get the story.

So if you look at the bottom right yellow, you'll see in the real return bond over the last twenty-five (25) years, from 1993 to 2017, real return bonds has a volatility of 10 percent, that's what it was.

If you look left you say, okay, what

was the volatility of long bonds, and it was nine -- actually it's bad, 9.5. So not hugely different, and part of it could be that the RRBs have a longer duration. If they have a longer duration they should have a higher volatility. I don't know exactly what the Canada long bond duration is, but it's a long bond.

And so that makes sense when you look further left and you say: Well, how stable is the inflation environment? That's the first column, bottom left, and it's .8 percent.

So, if you look above the .8 it shows you over the prior twenty-five (25) year periods how it -- how volatile was inflation over that quarter century period ending in 2017, 1992, and I believe when my wife was born, in 1967.

And what you'll see is that inflation volatility has certainly come down, it's come down from 3 3/4 to 3 percent to .8. So we're living in unique times, inflation is not volatile. It hasn't been historically, but the question then is if you had to -- do you have a crystal ball to say it's going to stay like that in the future.

And the one (1) thing we know is that we're not very good at forecasting interest rates and

components, even though the Bank of Canada says we're going to stay in this ban, their ability to stay there is questionable.

But to the more important point, the question is: Is it worth taking the extra risk when the cost of insuring to hedge it seems like it's fair, even though it's more costly than it used to be? That's the relevant question.

So those are the key points from that. Let me just make sure that I've covered the points on slide 26.

I guess we'll just focus at the bottom of page 26, those points, I guess in the last five (5) year period, we will note again, this is the data so what from the table I just went through for the -- from the Canadian Institute of Actuaries on volatility, I didn't mention it, we can go back to it in a minute.

But the bond volatility has gone down from 14 1/2 to 8.8. So that's a dramatic drop, not quite half. Inflation volatility I said went down to .8 from close to 3 and 4 percent per year. And there's no trend in our -- our real return bond volatility, which -- which to me makes sense.

Real yields have come down, but they're

still volatile.

And again, the top two (2) points falling volatility in bonds and falling inflation volatility go hand-in-hand. And again, the only reason we care about all of this is that if inflation volatility is not zero, nominal bonds and real return bonds behave differently, and your liabilities depend really on -- there's a tracking year based on which one you believe to be more accurate.

28 is -- this was when we may just sort of need to break after this slide, if we want to go into something more confidential. The -- this shows correlations. This was in -- this is the preamble to one of the questions and this is -- this is Mercers data.

Column 5 represents the correlation of real return bond returns with other assets. Here I've shown only the debt instruments, fixed income, no equities in here. And what you'll see, the important thing to note is the difference in the column, the box in column 5, which is saying how do real return bonds returns correlate or vary with other bonds.

And so if you look at column 5 and you go up from the bottom, the .7 at the bottom right says that real return bonds have a .7 correlation with

provincial long-term bonds. And the -- and the -- and the correlation will fall as you go to midterm and short-term bonds, because the duration gap between the real return bonds, which have a fifteen (15) year duration and these other provincial bonds which have long been mid and short bonds, it's not surprising that the correlation will be different.

So it's falling. When you go from right to left, starting at .7 at the bottom right, what you're saying is, let's look at the column 4, where column 4 is federal bonds and long-term, so they're comparable to the real return bonds because they're long-term, similar credit risk because the real return bonds, although they have about 10 percent provincials, they don't have a lot of them. So it's a little bit of apples and bananas, but not much, still fruit.

If you compare that and you look down -- if you go starting at the bottom of the fourth column at .89, row 8, you will see that those numbers are all higher than the right column. So when you're talking about federal bonds, it has a high correlation with long-term provincial because they both don't have inflation protection, and they're both long. And when you go to mid term, it's still high and it's still

pretty high with short term.

But when you look to the right, those two (2) columns are quite different. The left column is always higher than the -- the right. In other words, the punch-line of this is to say if your liability benchmark portfolio has a significant component of RRBs, this is where the basis risk or tracking error arises in part, because that liability portfolio has a good chunk of the column 5 characteristics.

But if you have assets -- well basically, if you pick a liability benchmark that thinks it's more like the 4 column, it's going to be very different. So this is the source of the tracking error, if you will.

So that's -- the next -- the next -- so that was issue number 1, which is the most important issue, I believe, recommendation 1. So I've covered that.

The next one is a leverage constraint. I don't think it's a particularly big issue that -- and we can skip it --

THE CHAIRPERSON: You know, Mr. Viola, I'm sorry to interrupt, but you can decide if you want to skip it or not, but I think maybe we'll break for

lunch now until 1:30 and then we'll resume your -- your direct evidence.

And we will be doing the CSI, as I understand it, after the completion of Mr. Viola's evidence in cross-examination.

DR. BYRON WILLIAMS: That's our plan unless Mr. Viola advises me otherwise. But that's what I'm going to recommend to him.

THE CHAIRPERSON: Thank you. We'll adjourn till 1:30. Thank you.

--- Upon recessing at 11:51 a.m.

--- Upon resuming at 1:31 p.m.

THE CHAIRPERSON: Good afternoon. If we could resume.

CONTINUED BY DR. BYRON WILLIAMS:

MR. VALTER VIOLA: All set, thank you. Good afternoon. I just want to go back to slide 28, because I think I was not as focused on the one (1) column that I perhaps should have focused on.

If we look back at 28. These are forward -- these are Mercer's estimates of correlations and, as I said earlier today,

correlations are important, but they're hard to take into account.

And in the fifth column that relates the correlation of real return bond returns to other fixed income assets. Those other fixed income assets don't have a protection against inflation risk. So other things equal, if inflation turns out to be higher, those nominal bonds whether they're provincial, federal or corporate, short, mid or long they'll do worse because of expected -- inflation turning out to be higher than otherwise.

Real return bonds, of course, hedge that risk. And the thing to note in column 5 is that those numbers are not one (1). In other words, if you look at the bottom right number of .7, that's the correlation between real return bonds and provincial long-term bonds. And while .7 is not zero uncorrelated it's not 100 percent either, which means that's where the bulk of the tracking error between the liability benchmark portfolios arises. The selection of a nominal liability benchmark by MPI as distinct from one that I think is more appropriate, which is one that consists primarily of real return bonds.

So that 4 1/2 percent tracking error

that -- that I described arises because the correlation between RRBs in column 5 and the other assets in say, row 8, at .7 is 100 percent. So that's where that comes from.

And then a related or unrelated thing is the fact that, given that the real -- the liability I believe truly has inflation risk in it by not investing in assets that protect against inflation risk, the measured risk using the adopted liability benchmark portfolio by not capturing this inflation risk properly we're not properly measuring the true risk of having nominal bonds support real liabilities.

So that mismeasurement is I believe important to correct by re-specifying or thinking about the liability benchmark portfolio differently. Hopefully that makes the key points I wanted to make with less confusion potentially.

We're going to skip over the leverage constraint slide 30, because it wasn't a major point. On slide 30, this is the third recommendation of 8 and relates to the duration policy. And the issue there is the suggestion that perhaps the duration policy which uses nominal bonds to hedge what I believe to be a real liability benchmark portfolio should be revisited to take into a fact -- into account the fact

that inflation volatility while it has been lower the last five (5) years may not over the time horizon that we are contemplating making asset mix decisions, policy decision should take into account very long horizons, decades, that assuming that inflation will remain non-volatile over a very long period of time is -- is a potentially risky thing to do or assume.

The view that MPI took two (2) years ago, they agreed that duration matching, as their policy is written, and implemented, is not as effective if inflation, in fact, differs from what we expect it to be. And they said that they accepted the short-term inflation risk and accounted for that risk through margins and reserves, and this excess portfolio was designed to provide some protection if, in fact, inflation were to become a problem.

The next box refers to the rate risk, interest rate risk, and again, this is the formula that I indicated in the terminology at the front and the important point to note here is that unless that third term, where it says Sigma, the last -- the very last term with the subscript pi, that's the inflation volatility. Unless that thing is zero and if that is -- that second term is also zero, other than that, if -- unless those two (2) things are zero inflation

volatility impacts the volatility of nominal interest rates.

And so, in other words, nominal rates and real rates will not go up and down together. It may be highly correlated but they're not perfectly correlated, and in the next slide we'll talk about -- which we won't go to yet -- we'll talk about the scenarios, three (3) of them that could give rise to significantly different performances for three (3) kinds of assets: T-bills, nominal bonds and real return bonds.

We talked about the 4 1/2 percent tracking error and that arises again because of that lack of perfect correlation between real return bonds and other nominal bonds of different varying durations or maturities.

Again, just throwing out on the table. Simplicity is great, but sometimes we put some constraints in the policies that we develop and those constraints I've argued in the past have some real cost potentially.

One (1) thought if this does get revisited is thinking about the duration risks that are inherent in the liabilities and, again, recognizing that when we say that Basic liability

duration has a mean or average of ten (10) years, and that's the policy that you're setting bounds around that, the duration of the fixed income portfolio has to be plus or minus one-quarter year or .25 within that ten (10) or 10.3 -- I forget the exact number -- one might think about, again, thinking differently about, well, what duration are we talking about; nominal interest rate risk or real; shorter horizon where I have more predictability about the stability and level of inflation the next five (5) years as distinct from ten (10), fifteen (15) and twenty (20) years, and maybe you use different instruments in a two-tiered sort of policy.

But those are the things that come to mind to suggest that, you know, simplicity is great but a little bit of complication while still not being overly complicated may sort of enable you to better manage the true risks that are underlying the portfolio in relation to the liabilities without a lot of effort.

And again, I had mentioned this earlier, the FTSE TMX Canada real return bond index is an index that consists of I believe fourteen -- there are fourteen (14) issues that are out there. I believe they're all in there, but I'm not sure. They're

mostly federal bond issues, and whether the fund decides to invest in real return bonds at some point or at least use them as a proxy for what the least risky portfolio is representing the liabilities. There's no requirement per se to presume that you have to hold them or model them as liabilities in proportion that they exist.

In other words, if there's fourteen (14) bonds, you don't have to hold them all in this liability benchmark portfolio and you could, again, in a blended fashion where you rethink the duration policy consisting of both nominal and real rate risks that you are managing in an integrated fashion, it could be that you sort of view RRBs as the core holding or the core instrument that takes most of the risk off the table and the nominal bonds may be the substitute that's the backup goalie that serves as a supplement, but not the primary means to mitigate that kind of risk. So those are my thoughts on duration policy.

If we go to slide 31. A related point is what's going on in the actual portfolio at fixed income resulting from the asset liability study. And to my way of thinking, I'll only talk about the top panel, in particular, for now.

But, we can go through a couple of scenarios. I've done three (3) across the top. Green is good; red is bad in terms of actual performance of instruments or liabilities. And so the issue here is to really rethink the decision to lengthen nominal bond duration to this 10 percent in Basic -- or 10, recognizing that there were various reasons that had caused the measurement of the liability duration to go longer.

But again, if you're using nominal bonds to manage duration against a real liability lengthening duration creates more inflation risk in the nominal bond portfolio. So even though the view might be that in the next few years, you don't have a lot of concerns about inflation, we're really talking about a ten (10) year matching which contemplates the average. So you're really hedging things beyond ten (10) years with nominal products that are exposed to inflation risk.

If you go through this -- some scenario analysis, and say, well, what if inflation turns out to be higher than expected, recognizing that people factor that in to the pricing of the bonds that they buy, nominal bonds. Well, if inflation goes higher than expected, real return bonds they're hedge.

That's -- by definition they're -- they're okay. So if inflation turns out to be higher than expected, that is a good thing in a relative sense compared to the alternative of buying bonds, nominal bonds.

Not only do you get the inflation protection and don't suffer the losses that you would otherwise get because nominal bonds would go down in value, the real yields may actually fall because there might be a flight to those real return protecting assets. People won't want to buy that insurance and with real yields going down, the cost of buying it will go down -- will go up. There's an inverse relationship and if you happen to hold those, you get the POP.

In staying in that single column, again, inflation greater than expected, T-bills will actually do well because, again, T-bills will mature within the next year. Let's say you have ninety (90) day T-bills, as they mature and if inflation turns out to be higher and people go, oh, this is here to stay or it's more volatile and I need to put a margin of safety in, then when you reinvest your T-bill when it matures in three (3) months or six (6) months, you're going to reinvest it at a higher and higher and higher rate.

And because you're turning the portfolio over twelve (12) times a year, say, or six (6) times a year or quarterly, four (4) times a year, you're going to capture that increasing rate and actually earn that return because of the short duration of T-bills.

That's not true when you go to the bottom where it says "bonds." How do bonds do when inflation turns out to be higher than expected because of the long duration if inflation expectations -- if inflation becomes higher than it was expected, and people believe that, oh, all in the future it's going to stay at that high level or be more volatile, bonds will do poorly because people need to be compensated for the extra risks they're taking for bearing inflation risk. And so bonds will go down in price. And they'll do worse the longer the duration.

And so that begs the question: Well, what's our view over the next little while? Do we think nominal interest rates are going to continue to start creeping up, in which case, bonds will not do very well and the more interest rates go up nominal, the worst those bonds will do and the worse they'll do the longer the term they are. So if you're going to ten (10) years lengthening it's not going to do as

well.

And then again in the other -- the far two (2) right quadrants I do the scenario, of course, and this is just the relationship between bond prices and yields. If -- if yields fall in the first category with -- are real yields falling, how do -- will real return bonds do they -- they do better. (sic) And that's -- that's what we mentioned earlier and the opposite should be true with the nominal bonds.

We won't talk about the middle box in the public forum because there's confidential information there, but the conclusion again, as I said, just to reiterate, is that the lengthening of the nominal duration in the fixed income portfolio creates greater risk of long-term instability in rates funding because the liabilities happen to be inflation sensitive.

So we can continue on and skip Slides 32 and 33 and 34. And so then we're back to now where we're not talking about the liability benchmark portfolio but the instruments that could be buying -- that you could be buying there. And again, we talked about the risk-free bucket versus the market or risky bucket. Here we're talking about potentially thinking

about the decision to exclude real return bonds from a portfolio, given the fact that the liabilities truly really have inflation risk.

And again, this is not something that surprising when you look at the analysis that Mercer did and it's on the following pages and we could flip to those right away. There's a cost to imposing a constraint, in this case, not having a dollar in real return bonds and the actual portfolios.

So if you slip -- skip to slide 36. This one is for Basic and the next slide which we'll jump to in a minute if for the pension portfolios. So back to Basic on slide 36. This is Mercer's data and my eyesight's going to fail me. And in this case, they didn't -- they normally put the box up there with the actual statistics. So this is why we've put in here this is -- the 80 basis points cost here is my estimate based on a visual of the graph.

And so I had to pick one (1) point, but that -- that's -- I guess it's a brown coloured bar, is it? Let's call it brown at the bottom that crosses the dot at the current, at that point, that was the current portfolio, whatever it was when the GRA was filed. And what that says is that at that current portfolio, there was a certain amount of risk, 3.8

percent.

And at -- and at that point, there are no real return bonds in there and -- and it's -- it's actually -- the dot seems to be a little bit below that brown line. But there's no real return bonds in that portfolio.

You will recall that the request for the analysis that we made to MPI was related to the analysis using a real liability benchmark portfolio. I thought Mercer and MPI did a great job of describing the impact of different constraints and additions of new asset classes for the nominal liability benchmark portfolio through the GRA.

And our question simply said, What if you did that same analysis, added real return bonds, and took them out, put more into private equity, what have you, what would that look like?

This graph shows the impact of doing -- I think doing all those steps and -- and the last one was: What if you took real return bonds out?

So that upper efficient frontier, that upper graph, actually includes real return bonds across the spectrum and that's the key point.

And remember what we are trying to do, we're trying to go northwest to Alaska from Winnipeg,

which is where we are currently. We would like to go up higher return for any given level of risk and left, less risk for any given level return.

We'd like to get way up to the top left quadrant, but given our capital market assumptions and the fact that -- well, just reality is we can't get all the way where we'd like to do, returns don't just get us there.

So the best we can do is get along in efficient frontier and we can choose to be somewhere along that efficient frontier, but we generally don't go -- not generally, we'd never want to be below the efficient frontier.

And so the vertical distance between the top line measured at the current level of risk, and -- not the dot current, but that brown curve which is close to the dot, that represents the opportunity cost, the ha -- the lower return for the same level of risk by not allowing MPI -- or choosing not to put real return bonds in your portfolio.

And again, I don't have the actual number that corresponds with how many RRBs would be in that portfolio 'cause Mercer didn't put the table down, but that's okay, but we can go into what the -- some of the numbers might be along the curve ranging

from low to high.

And as you'll see the top curve, if you follow it along, the difference between the brown curve lower one and the top one narrows because as you go along from left to right, you're taking more risks so you're putting more into equities; real estate; infrastructure, away from fixed income.

Along the top curve you're taking money away from real return bonds.

Along the bottom curve you're taking money away from nominal bonds.

And as you'll see, the difference between the curve will get narrower and narrower. In other words, when you are prepared to take a lot of risk, not being able to invest in a better hedge doesn't cost you as much 'cause you're prepared to take the risk.

But when you move to the left and you say, I have a lower tolerance for risk, that cost becomes higher and you can measure the cost two (2) ways: Foregone return vertically or for a given level of return that you required, what's the extra volatility I'm going to expect in my funding?

And what you should look at is perhaps this vertical distance -- sorry -- this distance

moving from right to left of the dot, and you'll see that -- that's kind of a big rectangle and -- and if you flip to the next slide, you compare it to the next slide, the numbers change a fair bit.

In this case, this is the pension fund and recall that the pension fund has a duration for the liability of sixteen (16) years, not ten (10). So the pension obligation is inherently riskier to fund and -- but at the current level, as I understand it, it has riskier assets in it compared to Basic, for example.

And so given that your farther along the right, it's not strictly comparable 'cause they're different basis for measurement, but you're actually farther along the risk spectrum moving from left to right in the pension fund space.

So the cost is a little smaller. Originally I -- I -- I had a -- a mental break. I ya -- I did the dist -- I -- I calculated the distance wrong. I grabbed the wrong curve. It should have been the top two (2) curves, and I think I grabbed one of the bottom ones by accident.

So my initial filing said that the cost of not being able to invest in RRBs was 1.8 percent, and that's not -- that wasn't correct, so that the

cost is only twenty (20) basis points, again, eye-balling it because I don't have the numbers in front of me.

DR. BYRON WILLIAMS: Mr. Viola, just from this point, when you say twenty (20) basis points ---

MR. VALTER VIOLA: Yeah.

DR. BYRON WILLIAMS: You're referring to the pension portfolio, sir?

MR. VALTER VIOLA: Correct.

DR. BYRON WILLIAMS: And the -- the eighty (80) basis points relates to the classic portfolio.

MR. VALTER VIOLA: Correct. Yeah, and again by roughly in size, as I, again I didn't look at the numbers this year, but when I did it two (2) years ago, roughly the Basic portfolio the size of the liability was about 80 percent of the total liability with the pensions being about 20 percent. So it's kind of an 80/20 split in terms of the obligations, the cop -- the present value of the liabilities on the balance sheet.

So that's -- so that slide -- going back to slide 36, please. That is -- again, these are Mercer's numbers. They're forward-looking and the

point that they make, they're observations, I'll repeat, it says that, assuming a real liability benchmark, which was the question we posed saying, no, we believe the liabilities are real. They have inflation risk. So what would the risk return trade-offs look like in that environment?

And their conclusion or observation was that, assuming a reliability benchmark removing real return bonds significantly reduces an opportunity for improvement at lower risk levels, and that you'll see that again.

The distance, moving from right to left if you said, I really don't have a lot of tolerance for risk and I'm moving from the current portfolio and I want to go left, if you're not allowed to get to that upper curve, you're really forcing -- you're forced to take some, I would say, undue risk, more risk than you could otherwise, if you were allowed to invest in this real return bond.

And, again, when you -- when you're moving the portfolio and removing a constraint, not allowing one (1) asset to be in, it -- it should cause you to re-balance based on all the other assets.

So, for example, if we constrain real a -- real return bonds not to be in here, it matters if

you have real estate or not in the portfolio in terms of what the model will tell you is the next optimal decision.

So it's not a pair wise comparison if I take RRBs out and substitute nominal bonds, you kinda have to hit the reset button and go, what does that due to the whole portfolio that's left when you put these constraints on 'cause there's shifts between risky assets, as well.

So that's -- so now if we could jump to question, slide 38. These are, again, I'm -- I've addressed these here because they weren't in the original GRA filing. They were questions from the Utilities Board.

This question was posed to us regarding the availability of real return bonds for the MPI portfolio now or in the future. And so my response to that was factual as I understood it. So the current market size of the real return bonds is roughly fourteen (14) in the index, there's about $84 billion based on just the review of, I think, sometime in October of what the issue of market value was.

The average term to maturity of these fourteen (14) bonds is about twenty-five (25) years, and again, the term to maturity and the duration are

related, but the duration is always lower than the average term because of the discounting process.

So it's roughly a fifteen (15) year duration, so if you were to buy the index you would get a blended average real duration sensitivity of fifteen (15) on your now -- on your real return bonds. It's certainly not a big market compared to the more liquid publicly-traded -- the nominal bonds, government bonds, prov -- provincials, corporate, et cetera.

The turnover on real return bonds will be low. These are just kind of like, you know, it's like, you know, it's like you -- you buy house insurance and you hold it for ten (10) years. You buy term life insurance and -- and/or home insurance.

It's -- it's -- it's an insurance policy and so you buy and hold it. You don't flip it every day and buy -- substitute and change providers. And so if you said, well, yeah, there might be a, you know, a premium cost to get in because there's not a lot of them, the good news is, even if you had to pay a little bit of extra, and this is the argument I -- I used to manage a portfolio at Ontario Teachers and the traders hated me because they knew I was going one (1) way.

We were buying them and he actually -- one (1) of the traders actually said, can I -- can I sell 300 million today? I mean, they had a big book, and I'm like -- we -- we need them and it's because he was getting hosed on the price.

So he's -- he -- they're making a market and the traders want to beat the benchmark. They're not interested in necessarily acquiring them. That's why we took over the -- the -- the portfolio and said we're going to take the haircut. We're going to pay a little bit more, but we want to back up the truck and get more.

If we're going to hold them for twenty (20) years paying -- paying a few basis points today amortized over twenty (20) years is peanuts. It's a rounding error.

If you have a mental trading model in mind or trading -- trading mentality, then, yes, it's a -- it's a -- it's a cost, but if you're just going -- if you're using it to properly better manage the risk in the portfolio, it's a cost worth paying.

And the cost doesn't seem to me to be huge given the breakeven inflation rates that I've seen quoted by Mercer in the -- in the -- in the GRA, as well as the fact that, again, we're not doing a

pairs trade between real return bonds and nominal bonds.

We're saying if they make sense from a -- for the portfolio and they free up a lot of risk, it allows you to take other kinds of risk not just inflation risk cause you've tied that up. You could take credit risk, you could take equity risk and let the Optimizer tell you what that does and those efficient frontiers that I showed you, that's what Mercer's analysis is designed to do.

So -- so buying these products releases a risk. It frees it up to take it where it can be more attractively deployed from a return perspective. Right now, the -- the -- the deployment of risk is concentrated on fixed income for credit, a little bit more illiquidity through private debt, potentially at some point, I don't -- they're not implemented yet, but I think there's plans to do so.

I was also asked about the future size of the real return mark -- market. Again, I don't follow the market so I don't know -- I don't talk to provinces or the government in terms of their funding programs, so I can't comment on whether there will be an appetite to issue more.

I will say, however, that future demand

for it once you get into your first -- if you decide that you -- that's what you want to do, all you have to do after that is to top it up to re-balance to portfolio weights. If real return bonds, say, underperform equities and other assets you have in your asset class -- in your asset mix, you have to re-balance target unless you have a view that they're under valued or overvalued which means you have to invest a little bit more each year just to keep them at the target weight whatever that happens to be.

The other thing, of course, is if you get new cash flows coming in that need to be deployed in the asset classes, that is a small -- usually the -- the new capital coming into the fund is a small percentage of the assets under management. Again, not a huge concern.

Slide 39. The question was, do I have any concerns about including RRBs in either of the portfolios? And the quick answer is no. And again, Mercer's -- I'm not saying anything that Mercer didn't show in the analysis.

Constraining the RRBs made the curve shift down, and we said there was a one (1) point -- one (1) point -- sorry, what was the -- sorry, eighty (80) basis points cost in the case of the Basic and

twenty (20) basis points cost of not allowing real return bonds in the portfolio, recognizing that it's not a pairs trade.

We're not just substituting nominal bonds and taking real return bonds and buying them, if you were to buy them. I think you'd revisit the whole portfolio and in -- in that context, I don't have concerns because that -- the model shifts for those allocations and those -- those quantitative metrics that Mercer pushed, I have no reason to believe that they're not accurate.

So across the risk spectrum ri -- risk-adjusted returns should improve by including real return bonds. That's -- that's the end of that slide.

Slide 40 we're -- we're in the home stretch here. The other real ass -- the other real assets I think the Utilities Board asked about -- well, first of all, let's talk about the issue.

The issue is the proposal by MPI is to reduce the exposure to real a -- estate and infrastructure, and those are really the only assets that are providing any inflation protection. They don't have real return bonds in the portfolio, so that's doing two (2) things. One, it's creating more unhedged risk of a longer time horizon nature and --

and it's less diversified as well. So you've got more concentration of assets in one (1) bucket called fixed income.

I think I was asked by the Utilities Board in a question about the size of real estate and infrastructure. I don't comment on -- on it here. But again, if you let the model optimize it'll -- it'll look at that risky bucket and say real estate is not risk-free. It's got some risk, so does infra -- infrastructure and what you say, you know, theory would suggest that if you look in that risky bucket and you look and say, what does it consists of, you should see the mix staying roughly the same regardless of the tolerance for risk.

So it's -- you really have -- somebody one said it and I'll repeat and I'm sure I said it two (2) years ago. There was a colleague of mine, he said an optimizer has never seen an asset class it hasn't loved. If -- if there's a new asset class being introduced and you push it into the model, the -- the op -- optimizer will always say, unless there's some -- unless there's a perfect correlation, I'm going to like that for a little bit.

So by not having these assets, real return bonds in the portfolio, you really have to have

strong views about them. You either constrain them for a reason that may not be appropriate, or you really must be -- you really must think they're terrible assets. And real return bonds are not terrible assets, and other assets like real estate and infrastructure have desirable properties. I have some concern that lightening up on those results is, again, less diversification and more inflation risk.

Jumping to slide 41, I've talked about the fixed-income conc -- concentration. There's nothing wrong with taking credit risk. There's nothing talk -- nothing wrong with taking liquidity risk, even in the private debt. Absolutely nothing. It's just that, given the low tolerance for risk, all of the risk is now being more concentrated in these things. And of course, nominal bonds create the biggest risk of inflation risk long term.

And the -- that slide 41 -- 42, rather, just compares different current portfolio C, using the terminology that Mercer used in their asset liability study -- studies. This shows just for -- well, it breaks out all the asset classes. The top asset classes in the top half of the panel show a fixed-income. It says that the current portfolio in column C has 70 percent fixed income. And you go from left

to right.

If you -- if -- using Mercer's data, if you said, well, what if -- what is -- what does the portfolio look like, like, if I want to take the same amount of risk? It says portfolio B has about the same, so there's not a lot, and the proposal is to -- obviously, to move and -- and put a hundred percent in fixed income, and have no equities, no real estate, no infrastructure.

So if you look at the far right column, the difference between the proposed one by MPI, and the one with the same risk, B, the red shows you the big changes negatively of what they're being proposed. So they're -- they're basically, relative to the -- to the portfolio, that would be optimal had they just said, let the optimizer tell me what I want.

So there's a few moving parts in the sense that 'P' minus 'B' does not have the same level of risk. That's why the bottom right quadrant, I didn't put the numbers in, because they weren't provided, so I can't tell you whether the -- the -- what the difference in the return and volatility is between the proposed portfolio and the one that would have the same risk. The only thing I would note is that, again, it's -- it's cont -- the proposed one has

a hundred percent of the risk concentrated in bonds that have inflation risk, and that may not be efficient. Well, we know that Mercer's numbers show that it's not efficient.

And then the last penultimate slide is 43, quantitative models. In the evidence, I just -- I'd like the observation by the actuary. I think Mr. Cheng -- Cheng is right, that over a very long horizon -- well, I don't know, but nobody -- somebody might, but they might be lucky -- can forecast interest rates. And interest rates, the two (2) important components are the real and the inflation.

And so when we have a long time horizon beyond ten (10) years, the question is, do you really want to build your portfolio with so much confidence about these things that are less predictable, or do you want to take a bit of risk off the table and maybe move it into another bucket? And maybe -- and then you definitely have higher risk-adjusted return, same level of risk, a bit more return. That's the vertical shift of the cont -- of the efficient frontiers that we talked about earlier.

The -- the lower box is just a lift out of the evidence that I provided two (2) years ago, and it just -- and again, this notion that models, by

definition, are not reality, they're representations of reality, but there's errors in models, and there's a lot of assumptions that go into this. And one (1) of the points I made two (2) years ago that I wanted to reiterate this year is that the models really tell you what you tell them to tell you.

And so if you put in capital market assumptions that favour certain asset classes, the model's going to like them. If you make assumptions about the liabilities that don't truly reflect the nature of the liabilities, it's gonna like assets that look like the thing that you propose looks like the liability.

So it's very important to define the liability components accurately, because the model is very sensitive to that, and you see that in the different liability benchmark portfolios. Under the nominal one that was adopted, it came up with a certain set of outcomes. Mercer told us what those liability benchmark constituents were, all nominal instruments, all duration ten (10) years for Basic.

When asked about the real return assumption for the liability, they said it's 66 percent real return bonds for Basic, and 81 percent for pensions. That's very different. So that's

important.

And the final slide is really just a recap. We could have started with this first and just left it at that, but we -- we thought we'd go through all the rationale first, which is the right way to do it, but the punchline is this: there's eight (8) recommendations. The first one is really important.

So I suggest that we revisit the -- the -- MPI revisit the nominal liability benchmark, describe it more accurately. And I think it understates the true long-term risk of inflation and changes in real interest rates. And again, that -- that's just not me. Although I worked at two (2) funds for a dozen years, and who knows what they say today, but when I was there, the leaders of the fund, the executives, the staff, the Board, they all had the long horizon surplus management, and real interest rates matter, inflation matters.

And they still had long nominal bonds in the portfolio. But if you look back at the teachers time series, they've got one dollar ($1) in five (5) in real return bonds at the end of -- that was two (2) years ago, but it's not changed materially. They've gone down a little bit lately. They don't have 0 percent. They have strong --

believe very strongly -- you have to have very strong views to -- to not have those things in your portfolio.

The leverage constraint's not a big thing. The duration policy I talked about, and the lengthening, number 3 and 4, those are related. So the fact that we've got nominal bonds in the portfolio, not real ones, but the liabilities are real, and you lengthen nominal bonds to a longer duration, you run the risk, given their high -- greater sensitivity, that if inflation turns out to be more volatile than expected, or at a -- operating at a higher level, not 2 percent, but three (3), or -- or worse, your nominal bonds are going to do very poorly. Your real return bonds will do very well, will maintain purchasing power. And then they actually go up in value, because there might be a flight to quality, real return bonds and hedge risk, and you'll get a POP.

It would be nice to look back at the early '90s, when these real return bonds were issued. They were yielding almost 5 percent real. The reality is, we -- we can, and we can complain all we want about the low levels of real rates, but that's -- that's a -- that's not really very productive. The

question is, how much worse could it be, not how bad is it. It could be a lot worse by not having these things in the portfolio.

And so the cost of insuring against this risk has gone up, because the returns have gone down, because now we're reinvesting at lower yields, but that's just the -- that's just -- things get more expensive over time.

Real return bonds, number 5, and we think they're a great asset class, from a hedging point of view. And given the short term interest rate outlook that I see in the GRA, I think a case can be made that real return bonds will actually score some goals, despite being a goalie, better than nominal bonds. So they may actually outperform nominal bonds and cash, and so I think the worst asset class, if you believe the forecasts, whether they're naive or otherwise, RRBs don't look as bad as -- as perhaps some might suggest.

The other assets -- we talked about real estate and infrastructure. Again, some concern about lightening up on them when you don't have inflation protection to begin with. Concentration of fixed income -- there's always going to be concentration somewhere, and because you don't have

equities, it's going to be there.

And the only point there I was saying was that, you know, when you put -- when you take risk -- if you do a pairs trade between real return bonds and nominal, and you trade one off for whenever, and you -- and you only count the goals, but not the risk reduction, you're crowding out real return bonds. In a total portfolio context, when you look at it that way, it's hard not to have real return bonds in the portfolio. And then commensurate changes around in the other portfolios that, basically, with the freed-up risk capital, allow you to take more risk and have higher returns.

Those cons -- those cons -- those efficient frontiers that Mercer put together tell the whole story. When you put constraints on or take them off, for any given level of risk, you can do better.

That -- that's my story, our story.

DR. BYRON WILLIAMS: Mr. Chair, thank you. Mr. Viola, there are some confidential slides that we suggest we move to now.

THE CHAIRPERSON: I'm wondering how are we going to do this? So we're going to have to go off tape, and we're going to have to come back for cross-examination. I -- I'm just wondering if we

shouldn't just conclude -- do the cross-examination, finish that, then go CSI, and you can go direct with Mr. Viola, and -- and we'll conclude that way.

DR. BYRON WILLIAMS: We could -- we could do that. It depends on Mr. -- My Learned Friend's cross-examination order in terms of -- but if the -- well, certainly, we -- we can work with that as well, Mr. Chair.

MR. STEVE SCARFONE: Whatever the Board prefers, Mr. Chair, I'm happy to do. I can do my cross now. I can defer it until after CSI. But I was just reminded by my co-counsel that we also have to squeeze in Mr. Johnston, who has some answers to Ms. McCandless's questions.

(BRIEF PAUSE)

THE CHAIRPERSON: Mr. Johnston, do you have the answers to the questions?

MR. LUKE JOHNSTON: That's as far as that goes? I do. They're -- I would just read them quickly if --

THE CHAIRPERSON: Yeah, if you could. Well, let's -- let's just deal with it right now, and --

MR. LUKE JOHNSTON: Okay.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: If we -- if you could bring up Pre-ask 1, just so I can see the data.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: And I believe it's the table with all the targets, towards the end of the question.

MS. KATHLEEN MCCANDLESS: I believe it's figure 7.

MR. LUKE JOHNSTON: Thanks.

(BRIEF PAUSE)

MR. LUKE JOHNSTON: Okay. So the first question was, Why are the PUB upper targets as a percentage basis higher than the dollar targets? The reason being is because we're performing the iterative methodology on MCT percentage targets, and those targets grow with the size of the business, whereas the dollar targets stay fixed, and we -- we don't need

as much to stay at a fixed 120 million, for example, if that's sufficient.

MS. KATHLEEN MCCANDLESS: Yes. Thank you.

MR. LUKE JOHNSTON: The second one -- question was in regards to the MPI lower target. Why is the naive number higher than the 50/50 number. And unfortunately, I'm told that -- that the naive, there appears to be a mistake in the -- in the calculation. Unfortunately, running that again takes some time, but an -- an estimate of what the correction would entail would be a target of approximately 140 million, and the MCT ratio of probably rounding up to 34 percent.

So yes, that's unfortunate that that number is not correct. But that said, I believe MPI's application is for 34 percent MCT, so our recommendation would be that MPI continues to support that -- that proposal. But that number would have to be corrected.

And again, we estimate it -- we estimate it at about 140 million, and approximately 34 percent.

MS. KATHLEEN MCCANDLESS: Thank you.

DR. BYRON WILLIAMS: And, Mr. Chair, we're happy to do either way, whi -- whichever the

Board decides. So either we can stay on the public record and complete our cross --

THE CHAIRPERSON: I think -- I think I'd rather stay on the public record and complete that. I -- I'm really concerned about the CSI, and I don't want to see us drifting in. If he's -- if Mr. Viola is dealing with CSI now, I -- I don't want to see an accident whereby we end up with CSI on the record.

So what I -- what I propose is, Mr. Scarfone, if you could start with the cross-exam, we'll finish the cross-examine in -- on the public record. Then we will shut it down, cut the livestream, and then we'll go separate -- with the separate record for -- to protect the CSI.

The other thing is, if we are going off and on, the livestream goes off and on, and we have to check it out and make sure we're off. So, Mr. Scarfone, if you could -- could start, please.

CROSS-EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you, Mr. Chair. Kristen, could you pull up -- and I apologize. I didn't give you this one. It's CAC Exhibit number 5, which is Mr. Viola's CV.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Mr. Viola, thank you for attending here today. Some preliminary questions about your qualifications and your work experience, beginning firstly, sir, with Cortex Applied Research.

That's your consulting company, I gather?

MR. VALTER VIOLA: It's not mine. I am an employee there, but I work closely with the principal there. I'm a managing director there.

MR. STEVE SCARFONE: Yes. I didn't mean yours in terms of ownership, but that's where you're --

MR. VALTER VIOLA: Yes. Yes. Yes.

MR. STEVE SCARFONE: And we see there, sir, that part of that your duties would be advising clients, including institutional investors on governance matters. Do you see that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And what does governance in this context mean?

MR. VALTER VIOLA: Governance is board governance, roles and responsibilities of boards of

directors, trustees, investment committees, staff external advisors such as general consultants, risk consultants. We do fidu -- fiduciary education around that. Sometimes it creeps into things of this nature. So we've got an engagement right now that is addressing many of the same issues rela -- related to the liability benchmark portfolio, and how one defines risk, and how one prioritizes goals, for example.

MR. STEVE SCARFONE: I see.

MR. VALTER VIOLA: Broadly governance, but it's focused primarily -- our -- our business has evolved. I've been there two (2) years, but the business has been in operation for about twenty-five (25) years. It's probably the -- the single most recognized governance consulting practice in the US. A lot of our clients are US defined benefit pension plans, mostly on the West Coast.

We -- our roots are in Canada. We're based in Toronto, but we find the -- the Americans really appreciate the knowledge that Canadians bring to pension governance.

MR. STEVE SCARFONE: All right. Thank you. And so I see there as well that your investment advice and duties also include educating your clients on fiduciary matters, correct?

MR. VALTER VIOLA: The quick answer is yes, but my partner is more -- doing more of that work. I tend to do different aspects of that work.

MR. STEVE SCARFONE: Okay. But I expect you would understand the basic concept of the fiduciary duty that's owed to an investor --

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: -- by someone that is managing that investor's money?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And the fiduciary being the person to whom the money is entrusted, correct?

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: And sir, are you aware -- and for the lawyers in the room, they would be, that that fiduciary relationship is a -- is a special relationship that recognizes that one (1) of the parties in that relationship is in a vulnerable position, to the extent that they have entrusted their money to another?

MR. VALTER VIOLA: Right. Yes.

MR. STEVE SCARFONE: And so that -- that duty -- that fiduciary duty that's owed to that vulnerable person is -- is greater than the normal

duty of care. Is that your understanding?

MR. VALTER VIOLA: I can't disagree with that. I have no reason to arg -- yeah.

MR. STEVE SCARFONE: But at least you'd agree that part of that duty, if you would, sir, is -- is to always act on the advice and the instructions of the person that has entrusted the fiduciary with their money?

MR. VALTER VIOLA: Sorry, can you say that again, please?

MR. STEVE SCARFONE: Yes. The -- the -- part of that duty --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- would always include acting on the advice and the instructions of the person that has entrusted the fiduciary with his or her money?

MR. VALTER VIOLA: Well, I -- when you're saying "acting," that's not -- that's not compelling them to act. It's taking their advice into account?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Yes. I -- I would agree with that.

MR. STEVE SCARFONE: And not acting

without their instructions?

MR. VALTER VIOLA: That would seem prudent to take that into account, yes.

MR. STEVE SCARFONE: And -- and so following up on that, the -- the investment firm -- the investment advis -- advisor, if you will, is not allowed to make investment decisions that are contrary to the advice received from the investor?

MR. VALTER VIOLA: Sorry, can we be more specific in terms of relating it -- I'm getting -- this is not my -- I'm not focused on fiduciary duties. That's my partner's --

MR. STEVE SCARFONE: No, and I'm -- I'm -- I've kind of moved away from that now. Just in a general sense, for -- for financial advisors, investment firms --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- it -- it's important --

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: -- that they don't act contrary to the advice received from the investor?

MR. VALTER VIOLA: As a -- as an advis -- as the client, you mean?

MR. STEVE SCARFONE: No, as -- as the person given the advice --

MR. VALTER VIOLA: Right, okay. The institutions?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: It's important that they act -- they don't act contrary to the advice that they received from the investor?

MR. VALTER VIOLA: Of course. Of course. Yes, listen to your -- listen to your -- your client, yes.

MR. STEVE SCARFONE: Yes, or know your client --

MR. VALTER VIOLA: Know your client.

MR. STEVE SCARFONE: -- different vernacular.

MR. VALTER VIOLA: Sorry. Yeah.

MR. STEVE SCARFONE: The KYC form?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes. Yes. And so that, of course, sir, knowing your client would include purchasing securities outside of the investor-stated risk tolerance, correct?

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: And these important directions, sir --

MR. VALTER VIOLA: Well, can I qualify that?

MR. STEVE SCARFONE: Absolutely.

MR. VALTER VIOLA: So you say -- you -- you specifically said "specific securities and risk tolerance." And for me, specific securities and risk tolerance, again, just to clarify, risk, for me, tolerance is measured at the total fund level. Some people may not measure it that way. When we talk about individual securities, they have to be in the context of a total portfolio.

But it's hard to judge an individual's securities risk and appropriateness without knowing more about the rest of the portfolio. And I think I made the point in my slides that an individual security may look risky in isolation, but in the context of playing a team sport, it may not look as risky.

MR. STEVE SCARFONE: I understand.

MR. VALTER VIOLA: But I don't disagree that that factor would be taken into account as you -- if you want to repeat it, I'm happy to --

MR. STEVE SCARFONE: No. And it was

simply having you confirm that the investor stated risk tolerance --

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: -- is an important factor --

MR. VALTER VIOLA: For sure.

MR. STEVE SCARFONE: -- in deciding which investments to purchase --

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: -- for that investor?

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: Okay. And -- and we've canvassed this. Some investments -- investment firms call it the KYC, or the know your client --

MR. VALTER VIOLA: Yes. Sure.

MR. STEVE SCARFONE: -- form, and it helps set the roadmap, if you will, for that investor. Is that fair?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And then so moving down, I'm not going to go as far back to your Ontario teacher days, but while working with the CPP Investment Board, sir, that's the Canadian Pension Plan, correct?

MR. VALTER VIOLA: Canada Pension Plan.

MR. STEVE SCARFONE: Canada Pension Plan.

MR. VALTER VIOLA: Yes. Yes.

MR. STEVE SCARFONE: Part of your duties, I see, included investment portfolio design?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And this, I expect, would necessarily include advice to the CPP Investment Board on what the portfolio should contain?

MR. VALTER VIOLA: Absolutely. Asset allocation, and risk tolerance, risk appetite, all that kind of stuff. Yes.

MR. STEVE SCARFONE: And your duties also included, sir, managing investment risk for the CPP Investment Board, correct?

MR. VALTER VIOLA: Yes. I was the chief risk officer as vice -- executive vice president reporting directly to the CEO.

MR. STEVE SCARFONE: And this, I expect, sir, would necessarily include advice as it concerned the identified risk profile of the CPP Investment Board?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And am I right to say, sir, that this risk profile would include as its major component the risk tolerance of the CPP Investment Board?

MR. VALTER VIOLA: Yes, it would take that into account, yes.

MR. STEVE SCARFONE: And in fact, that would be its major component, would it not, of the risk profile?

MR. VALTER VIOLA: Sorry, component of what? Just --

MR. STEVE SCARFONE: Of the risk profile?

MR. VALTER VIOLA: The risk profile, that's a vague term. So I would define the risk profile as net exposure, assets and liabilities, yes. And so that profile has a profile. There is a characterization of it. It can be measured, and it's either high or low, and it has to be said in a way that takes into account the risk tolerance of the -- the stakeholders --

MR. STEVE SCARFONE: Of -- of the investors?

MR. VALTER VIOLA: -- being represented by the Board, yes.

MR. STEVE SCARFONE: Yes. And just scrolling up, after the CPP Investment Board, you were at Holland Park in Toronto, sir?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And again, advice to various institutional advisors?

MR. VALTER VIOLA: Advice to institutions, like smaller --

MR. STEVE SCARFONE: Or sorry, institutional investors, I'm sorry.

MR. VALTER VIOLA: Investors, correct.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Yes. So my clients were funds about this size. I was providing an outsourced risk measurement/management advisory function, so I would actually measure risks on their behalf and report them to some clients for mega funds.

Larger funds, they would engage me to give them advice on investment policies, risk policies, and the like, but they'd have their own staff and do their own measurement. They were engaging me just on advice in Canada and the US.

MR. STEVE SCARFONE: And so the advice to these various institutional investors, sir, that would again include managing their investment risk,

correct?

MR. VALTER VIOLA: Advising on their investment policies related to investment risk management, yes. And in some cases, we actually were outsourced to actually measure risks on their behalf.

MR. STEVE SCARFONE: Yes, and I see that, sir.

MR. VALTER VIOLA: I --

MR. STEVE SCARFONE: I use -- I use the language managing investment risk, but in the CV, it's -- it's described as investment risk governance?

MR. VALTER VIOLA: Which aspect -- governance as it relates to that Cortex? Yes.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Yes. Okay, gov -- in Cortex, we're just advising. I didn't provide an outsourced solution to actually measure it -- measure risks. I don't measure risks right now.

MR. STEVE SCARFONE: And again, developing investment/risk frameworks would include advice to your clients about what a portfolio might look like, given the client's risk tolerance. Is that fair?

MR. VALTER VIOLA: I would say that the framework was more literally defining, answering -

- I always defined a framework as answering five (5) key questions, the first being how you define risk? Is it assets versus liabilities or surplus? Is it beating benchmarks, or not being able to? So it's more conceptual.

And to be -- I would recommend those frameworks are institutionalized through adoption of investment policies. And the five (5) questions they answer are: How do you define risk, how do you limit it, how do you control it, that kind of stuff. How do you define the liability benchmark portfolio? That was the second one. So it's what we're talking about today.

MR. STEVE SCARFONE: Okay. So is -- I think that's a yes, that the --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- that the advice would include what the portfolio might look like, given the client's risk tolerance?

MR. VALTER VIOLA: Correct me if I'm wrong, are you talking about my scope of work at Holland Park, or just generally with --

MR. STEVE SCARFONE: No, we're still on Holland Park.

MR. VALTER VIOLA: At Holland Park, I

would -- I would not advise on asset allocation.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: It was on policy on the framework or process to follow to ensure you had good governance and good measurement tools. But those funds typically had their own advisors. I was supplementing the general consultant with more specialized risk management background that I had.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: So I wasn't telling them that they should have 60 percent in equities, or 40 percent. I was just giving them transparency on what the real risks were on the portfolio, and making sure they answered -- that I asked the right questions for them to answer, and coached them on better answers. So it was more advisory work.

MR. STEVE SCARFONE: And -- but in that advisory work, and I think you had indicated --

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: -- yes, that there would be a -- a consideration to the risk tolerance of the investor?

MR. VALTER VIOLA: Yes. That would be consideration.

MR. STEVE SCARFONE: And earlier in

this proceeding, Mr. Viola, we did hear from Mr. Makarchuk, of -- as you know, from Mercer, and his firm also provides institutional investment advice. At the outset of his evidence, he stated that not all investors are the same. Not every investor believes the same thing, invests the same way, or ends up with the same result. Would you agree with those -- those words?

MR. VALTER VIOLA: Yeah. Yes.

MR. STEVE SCARFONE: But he did say, and I -- I believe he might characterize this as his framework, that decisions are made for four (4) main reasons, in his view, one (1) of which is returns. Would you agree with that, that that's a -- that's a factor in each investment decision?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And more is better, I would expect?

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Going north.

MR. STEVE SCARFONE: And a second -- a second reason he said that decisions are made is for risk? You'd agree with that?

MR. VALTER VIOLA: Yes. Yes.

MR. STEVE SCARFONE: And I would expect you to agree that low is better than high?

MR. VALTER VIOLA: That is correct.

MR. STEVE SCARFONE: The third factor he described is one of cost. He said cost is a factor in making investment decisions. Would you agree with that?

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: And again, cheaper is preferred over expensive?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And lastly, he said a factor that his clients always turn to is time, and the --

MR. VALTER VIOLA: I'm sorry?

MR. STEVE SCARFONE: -- time, or duration --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- how long an investment is going to be held?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And I think you described a scenario earlier today about T-bills, for example.

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: And so these four (4) factors -- could this, in your view, be a framework for an investor?

MR. VALTER VIOLA: Could they be a framework? Potentially yes. Those are the considerations, I would agree, that are factors, yes.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: The other one that you didn't mention there might be -- when you say "risk," I'm assuming that's market risk? And --

MR. STEVE SCARFONE: He didn't specify, and if you're asking me, I can't comment.

MR. VALTER VIOLA: No, that's fine.

MR. STEVE SCARFONE: Yeah.

MR. VALTER VIOLA: I'm just -- there's different levels, different types of risk, but --

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: -- I'm trying to think -- we always go by FRICTO. That's the -- that's in the books. So flexibility, risk, income, control, timing, and other. So you've got the core ones, here. I can't -- I can't argue with any of them. They're all important.

MR. STEVE SCARFONE: Okay. Thank you. And so as it concerns the MPIC investment fund, having

reviewed the application, you'll be aware, sir, that a number of investment decisions have been made?

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: One (1) of which is a decision to segregate the co-mingled portfolio into what is described as buckets? You'll agree that that was an investment decision?

MR. VALTER VIOLA: Yes. Yes.

MR. STEVE SCARFONE: And there was also a decision made to de-risk the Basic claims liability portfolio? That, too, would be an investment decision?

MR. VALTER VIOLA: Correct, yes.

MR. STEVE SCARFONE: A decision was made, as we've heard, to lengthen the fixed income portfolio. That too, sir, would be an investment decision?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And a decision to diversify MPI's equity portfolio. That, too, would be an investment decision?

MR. VALTER VIOLA: Yes. And can I just ask a question? Sorry. When you say those are all investment decisions, as opposed to -- what's my other 'B', 'C', and 'D' choice? I don't -- like,

they're all investment decisions, sure.

MR. STEVE SCARFONE: That -- that's why I'm putting them to you.

MR. VALTER VIOLA: That's all good.

MR. STEVE SCARFONE: Yeah. And lastly, sir, there was a decision to reduce the Corporation's allocation to real estate.

That, I think you'll confirm, was an investment decision?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And these, sir, I would suggest to you, are the decisions made by an investor on the advice of firms like Holland Park and Mercer, correct?

MR. VALTER VIOLA: Taking those things into account, yes, among -- among other things, yes.

MR. STEVE SCARFONE: And I'm going to suggest to you as well, sir, that this advice that you provide to your clients in helping make these decisions, these aren't made in a vacuum, are they, sir?

MR. VALTER VIOLA: I would agree with that.

MR. STEVE SCARFONE: There is ongoing dialogue with the investor, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And there is in-person meetings?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And there's data sharing?

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: So for example, data to calculate the duration for matching purposes?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Data for interest rate sensitivity?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: In addition to the ongoing dialogue and the in-person meetings, sir, there is educational presentations, perhaps, by investment firms like Mercer and Holland?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And perhaps presentations on, for example, different asset classes and the merits of each asset class?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And a discussion is had on the investor's objectives.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Those are very important?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: A discussion is also had on certain assumptions that are made going forward, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: A discussion is had on risk measures?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Discussion is had on risk philosophies?

MR. VALTER VIOLA: Yes. It can me. Usu-- usually not, but yes.

MR. STEVE SCARFONE: And then following up on that, further decisions are made following the dialogue between the investor and the investment firm and advisor, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Decisions concerning investment return objectives?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Decisions concerning investment risk objectives?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And you're aware, sir, that these decisions that we've just described as it concerns MPIC, were not made once, but for each bucket under the newly segregated portfolio?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And one (1) of the decisions, as we've heard, that had to be made before selecting asset classes for the Basic claim liability portfolio, was whether to model the liabilities using a real liability benchmark versus using a nominal liability benchmark.

That too was an investment decision.

MR. VALTER VIOLA: I disagree.

MR. STEVE SCARFONE: Okay. You won't go with me on that one?

MR. VALTER VIOLA: That goes back to the framework, I would suggest. It's -- it's -- in my words, the liabilities are what they are, regardless of how you decide to take risk in relation to them.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: So I think that's partially, I would argue, a governance question or a regulatory question or...

MR. STEVE SCARFONE: Well, let me put it this way to you then. Before the asset classes for

purchase can be decided upon --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- we need a liability benchmark selected. Is that true?

MR. VALTER VIOLA: Yes, if you're managing surplus, which MPI is doing, yes.

MR. STEVE SCARFONE: And again, that decision, which liability benchmark you want to go with, is made in cult -- consultation with the investor, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: It's not done unilaterally by the advisor?

MR. VALTER VIOLA: No. I think all decisions are not -- correct.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: Agreed.

MR. STEVE SCARFONE: And -- and would you agree with me, sir, that many of the decisions that we've just canvassed here come down to one (1) basic element and that is of investor's risk tolerance.

DR. BYRON WILLIAMS: Just for precision...

MR. VALTER VIOLA: Yeah.

DR. BYRON WILLIAMS: ...you've put a number of propositions to him. He's expressly disagreed with one (1), so you've use the word "many."

MR. STEVE SCARFONE: Yes.

DR. BYRON WILLIAMS: Are you asking him many or all --

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Yes, the majority -- the majority of the -- of the -- of the decisions that we've just canvassed with you, Mr. Viola --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- I would suggest to you come down to what is the investor's risk tolerance in making those decisions.

MR. VALTER VIOLA: Well, as -- as I go back through your list, you -- well, you started off with four (4) things. I said FRICTO, flexibility, risk, income control, timing and other. You mentioned return, risk, cost, time and I said those are all criteria to inform the decisions to invest one (1) way or another.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: But you're now asking me a specific question about risk.

MR. STEVE SCARFONE: Risk tolerance, correct.

MR. VALTER VIOLA: So reframe your question, if you will, because I think you're sort of -- you're asking me a question I can't answer because I'm not clear on what you're asking.

MR. STEVE SCARFONE: Okay, so --

MR. VALTER VIOLA: Risk is an important consideration.

MR. STEVE SCARFONE: It is.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes. And I would suggest to you perhaps that it's the single most important consideration when giving investment advice.

MR. VALTER VIOLA: Well, it's a very important one, but it's not the only one. We're not just trying to take risk off the table, we're trying to move northwest, so we want higher returns as well. We want to deploy our capital in a risk-adjusted efficient way.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: So return and risk both need to be -- you can't talk about one (1) in isolation. So it's ---

MR. STEVE SCARFONE: Absolutely not.

And -- and the returns that you're forecasting will depend a lot on your risk tolerance, correct?

MR. VALTER VIOLA: Well, the returns I forecast don't depend on my risk tolerance, they depend on my forecast and the ways -- so, if you're talking about equities, for example, I may have a lower high tolerance for taking equity risk, but I'll have a forecast whether I think the S&P 500 is going to go up or down. And that doesn't really depend on whether I can tolerate being in it.

MR. STEVE SCARFONE: I see.

MR. VALTER VIOLA: So the -- I differentiate between an expectation for the market, the return expectation, the risk I might expect and the tolerance to pursue a strategy that takes returns and risks in those areas.

MR. STEVE SCARFONE: And I appreciate those comments. So the -- the risk tolerance that -- that you said is a -- is an important factor --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- is a decision that rests solely with the investor.

MR. VALTER VIOLA: Yes, it's their decision, absolutely.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Can I clarify one (1) thing?

MR. STEVE SCARFONE: Sure.

MR. VALTER VIOLA: If that's all right. When we talk about risk tolerance, the only thing I mentioned during the -- my presentation was the movement from right to left along that curve.

If you wanted to draw a graph of what risk tolerance looks like, those are indifference curves which weren't drawn. It would be -- being somewhere along the efficient frontier asking yourself is the slope of that line -- do I want to be here or there. And the risk tolerance really is how steep is that curve.

And when it's really steep I need a huge return for just a little bit more risk that says I'm really risk intolerant, and that's why you tend to be more to the left side of the risk spectrum.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: Whereas if it's flat, it says I could take this much risk as long as I get .3 percent more. That's why you end up being at the far right of that spectrum.

So the -- so the notion of indifference curves being indifferent, return risk, those curves

weren't included in any of my presentation, just for simplicity but...

MR. STEVE SCARFONE: Oh, so you're not speaking of the efficient frontier curves?

MR. VALTER VIOLA: The efficient -- the efficient frontier is what the opportunities you can get, the tolerance can't be answered.

Like, I can't -- you can't -- I can't say if somebody were to ask me where should we be along the efficient frontier, because it depends on the slope of the indifference curve, which I did not draw.

If the indifference curve is steep, you're going to be more to the left, because you need a huge return for a little bit more risk.

If you -- if they're flat, the tangent along the efficient frontier is to the far right and you'll take equity risk because you need -- you could take this much risk just if you get that extra 1 percent.

And it sounds like if -- if I had to describe it, MPI would have very steep indifference curves based on what they've indicated. They're steeper for the Basic and they're flatter for pension.

MR. STEVE SCARFONE: Pension.

MR. VALTER VIOLA: That's why they have more, that's how I would characterize it.

MR. STEVE SCARFONE: I think you just indicated earlier that you have, in fact, provided investment advice to institutional investors like MPIC, with the same number of assets under management.

MR. VALTER VIOLA: I have given them -- and again, it's -- it's more policy-driven on processes because I wasn't engaged to do asset liability studies for them through Holland Park nor -- nor today through Cortex.

The work -- sorry, ask your ques -- the work that I've done on this stuff is -- it was working with the pension funds act -- sorry, I'll ask -- I'll ask you to rephrase the question.

MR. STEVE SCARFONE: Sure. No, and the question wasn't a complicated one. It's really just to confirm that you provided investment advice, either in a governance role or otherwise to institutional investors like MPI.

MR. VALTER VIOLA: Investment advice -- when you say "investment advice," the decision-making process as distinct from what mixed to have 60/40. I would say that as a -- working at CPP Investment Board and Teachers, my job was to advise my

bosses, the Board, on asset classes, whether to be 60/40 or not.

But as an advisor, consultant, it was not specifically to -- like, I didn't undertake economic research to suggest equities were undervalued, for example.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: It was more on the process. The structures around that and the frameworks to use how one measured risk.

MR. STEVE SCARFONE: And you know what, you've kind of answered my next question, because the decision-makers for these institutions, I'm going to suggest, is either the Board of Directors --

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: -- or management, for example, the executive that are running the company, correct?

MR. VALTER VIOLA: Yes. Yes.

MR. STEVE SCARFONE: So to borrow from your hockey analogy, sir, one (1) important part of that that I think was missing would be the coach. The coach certainly has a role to play in a hockey game, correct?

MR. VALTER VIOLA: Absolutely, the coach plays a role.

MR. STEVE SCARFONE: And while employed with the CPP Investment Board you would've taken your instructions on portfolio design and investment risk management from a Board of Directors, correct?

MR. VALTER VIOLA: Ask the question again, sorry, taken my...?

MR. STEVE SCARFONE: Instructions.

MR. VALTER VIOLA: Instructions? They would set the parameters, but I was an advisor to the Board on -- you know, for example, discussions about risk tolerance. We had to define -- develop a framework, which I described briefly, on how we defined risk and how we measured risk and had discussions and dialogue, as I said, education with the Board.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: But ultimately they said yes, after hearing feedback from staff, including me as their chief risk officer, on asset classes that would bring them efficient frontiers that would say, if you have a high stomach for risk, having this mix of assets with this roast -- risk profile and return

expectation seems like what we would, as a management team, recommend. And the Board of course, through investment policy, would approve it just like an MPI.

MR. STEVE SCARFONE: Yes. And -- and don't get me wrong, I understand that there's this on -- back-and-forth dialogue.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: But ultimately, when I say instructions from the -- from the Board of Directors --

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: -- it goes back to the Board of Directors having the ultimate say --

MR. VALTER VIOLA: Yes, absolutely.

MR. STEVE SCARFONE: -- in what ultimately is selected for.

MR. VALTER VIOLA: Yes, correct.

MR. STEVE SCARFONE: And -- and again, I don't want to bog us down in the risk tolerance question again, but that would have included advice or instructions on the risk tolerance for investing the CPP monies.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And we heard evidence from Mr. Macarchuk earlier in this proceeding

that he had to get to know management and their perspective and what risks the Board of Directors would accept and -- and what they wouldn't.

That is similar to, I think, what you've described with your work with the CPP?

MR. VALTER VIOLA: Yes. But I want to clarify one (1) thing, if that's all right.

Just when we talk about risk, it's a -- we're generally talking about market risk. The risk of bad outcomes.

But one (1) of the things we haven't talked about is the attribution of risk, where it comes from. And so when we have these discussions about risk, there's an aggregate risk number, but it comes because you take inflation risk, credit risk, equity risk, et cetera.

If you ask -- so there is a dialogue that goes on with the types of risk that you're prepared to take that aggregate to a whole, and in this case, in the MPI file -- file for example, for example leverage was an issue that I didn't address, but clearly the Board was not comfortable with leverage, which is essentially borrowing money --

MR. STEVE SCARFONE: Money to invest, yes.

MR. VALTER VIOLA: So there's a more levered, more volatile outcome. And so they're not on for that source of risk that aggregates to the whole risk.

MR. STEVE SCARFONE: Yes. And I would suggest to you that, you know, having decided against leveraging --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- the Board of Directors would be in line with its selection of a low risk profile.

Would you agree with that? That's consistent with a -- with a low-risk tolerance.

MR. VALTER VIOLA: On the surface it would seem consistent, but I would argue that in the context of the material that I presented, any constraint shifts the curve.

And so this is why I said -- and Mercer even shows that, that leverage causes the curve to shift a little bit.

So while the intention is to -- the intention is to not take that type of risk because it seems inconsistent with risk tolerance, the model will suggest otherwise, that by having that constraint in place, you're worse off in a risk-adjusted.

So -- so that's why, you know, you rely on models you don't put 100 percent. But they're smarter than we are in terms of we tend to manage things as silos because it's easier to manage pieces.

The correlations that it -- between them is hard to manage. And so that's why when you talk about total fund risk, risks don't add. You know, this might be volatile in isolation, and this one is too, but it's the relationship, the correlation.

If this one, for example, leverage. What if I borrowed IBM to buy IBM. This one -- I shorted here in portfolio A and I go long portfolio B and C is the sum of the two (2). There's no exposure. Whatever I lose here, I make here.

So I'm just cautious about the ---

MR. STEVE SCARFONE: And I expect that it frustrates you to no end, and other advisors, that perhaps the modeling that you're speaking of doesn't fit with the perception of the investor, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And -- but ultimately, if an investor is -- is of the view that they just don't want to borrow money to invest in securities --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- that's their decision.

MR. VALTER VIOLA: Right. And as an advisor you just say that's fine. And here are the pros and cons of doing that. Yes, you can sleep at night because of that, but here's what the efficient frontiers suggest X.

MR. STEVE SCARFONE: Yes, you lay out the options --

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: -- let them make an informed decision, and then they decide, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And -- and I don't expect, sir, that you're in a position here today to challenge the Board of Directors for MPIC and the risk tolerance.

MR. VALTER VIOLA: No.

MR. STEVE SCARFONE: And -- and I'm going to suggest to you, sir, that that's in part because you didn't meet with the MPIC Board of Directors.

MR. VALTER VIOLA: In part, but there's other reasons too.

MR. STEVE SCARFONE: Yes. You didn't get to know their perspective, correct?

MR. VALTER VIOLA: No, I don't know their perspective.

MR. STEVE SCARFONE: You didn't have that important dialogue with them that's essential before providing investment advice, correct?

MR. VALTER VIOLA: Did not have the dialogue.

MR. STEVE SCARFONE: And -- but more importantly, as we've just canvassed, you're not in a position to challenge their risk tolerance because, again, that decision lies solely with the investors group -- or sorry, with the MPIC Board of Directors.

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: Are you aware, sir, that the -- the MPIC Board of Directors has an investment committee?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And you're aware, sir, that it's comprised of three (3) individuals from the investment industry, much like yourself?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And you're also not here to challenge the credentials of those three

(3) individuals, are you?

MR. VALTER VIOLA: No.

MR. STEVE SCARFONE: Kristen, could you find for me, please, investment Appendix 8. It's the investment committee terms of reference. Thank you. You can just stop there at the mandate.

I'll just give you an opportunity to -- to look at that, Mr. Viola.

(BRIEF PAUSE)

MR. STEVE SCARFONE: I'm going to paraphrase what we see before us in the mandate. The mandate has the strategies and policies of the Corporation's investment fund addressing the needs and objectives of both Manitoba Public Insurance and the Government of Manitoba.

Do you see that there, sir?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And scrolling down. Keep going, please. The role of the committee. Thank you.

You'll see there, sir, that the investment committee must recommend investment policies and strategies to the Board of Directors for

subsequent consideration by the Minister of Finance.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And that once these investment policies and strategies are approved by the Board of Directors and the Minister of Finance, the investment committee must ensure they're implemented.

Do you see that?

MR. VALTER VIOLA: If you could refer to the number. It don't -- it seems reasonable, but I ---

MR. STEVE SCARFONE: 4.14, I believe, and scroll down to the role of the department. So it -- that doesn't -- that accords with your understanding of how the governance structure would work?

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: And so I'm suggesting to you, sir, that this dynamic when government is -- is involved, and I expect that you experienced some of this with the Canadian Pension Plan and the Board, it complicates things somewhat to the extent that MPIC is a Crown corporation, meaning the Government also has some input in these decision-making processes.

MR. VALTER VIOLA: Well, the CPP was unique in their Crown corp. structure with the independence of the Board. I would argue that my experience with Canada Pension Plan was ve -- if you look at how they're set up, their -- the board members are independent of government and at arm's length is a big deal for them.

So this is -- this is not consistent with my experience with Canada Pension Plan investment, for example.

MR. STEVE SCARFONE: Okay, sir.

MR. VALTER VIOLA: But I'm not disagreeing that that -- this is not --

MR. STEVE SCARFONE: In place here?

MR. VALTER VIOLA: Yes, this is --

MR. STEVE SCARFONE: At least with the CPP then, this federal government had no real oversight over ---

MR. VALTER VIOLA: No, they were set up at arm's length and that's a -- and that model has been copied around the world in some places, as really good governance as an example, they -- they put that up as a -- anyways.

MR. STEVE SCARFONE: Yes. No, absolutely.

And having not had any dialogue with the -- with the Corporation and its Board, you're not in a position, Mr. Viola, to know the reasons why MPIC has a low risk tolerance.

MR. VALTER VIOLA: Well, I've read some stuff, I have some -- I've heard some rationale for it and I understand --

MR. STEVE SCARFONE: I'm reading the rate application.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes, yes, yes. So assuming that you read certain parts of it, you'll be aware, sir, that the Corporation suffered net income losses of $250 million between 2013 and 2017.

MR. VALTER VIOLA: I don't recall it, but I don't dispute it.

MR. STEVE SCARFONE: No reason to dispute that.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And of that $250 million, sir, 160 million was due to inaccurate interest rate forecasting. Any reason to dispute that?

DR. BYRON WILLIAMS: On the -- I'm not sure -- on this issue, I'm not sure this witness

should be accepting that as a factual -- as factually established.

We'll accept the first premise --

MR. STEVE SCARFONE: Yes.

DR. BYRON WILLIAMS: -- but I'm not sure the re -- record is conclusive on that.

MR. STEVE SCARFONE: Okay. It's in the rate stabilization reserve at chapter 4.2 if we need to turn to it.

DR. BYRON WILLIAMS: I know where the assertion is.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Okay. And then we've also heard some evidence at this proceeding, sir, that the Basic program had transferred into it over the past four (4) years $214 million from the Corporation's other lines of business.

Do you recall reading that?

MR. VALTER VIOLA: I don't recall, no. And again, my area of focus is the portfolio design and its efficiency --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- rather than related activities, like reserves and the like.

MR. STEVE SCARFONE: No, no. And this is more towards the risk tolerance and the selection of a low risk tolerance --

MR. VALTER VIOLA: Sure, sure.

MR. STEVE SCARFONE: -- that the Corporation has made.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: So with that background information, sir, I'm going to suggest to you that selecting a low risk tolerance is not at all unreasonable in those circumstances.

Would you agree with that?

MR. VALTER VIOLA: Well, let me caveat my answer. You're asking me if it was unreasonable to base the low tolerance of risk based on what happened, and I would suggest that the tolerance for risk, because risk is a forward-looking thing, should be based on what one expects, not what happened yesterday.

That's what I would suggest. So I would argue that while some outcomes sound, on the surface, that they were adverse and informed perhaps tolerance for risk in the future because someone just suffered some pain, it's the expected future pain that is the most relevant thing for assessing risk

tolerance going forward.

We can learn from experience, but whether it was a good or bad experience is --

MR. STEVE SCARFONE: Irrelevant in your view?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes, but -- but notwithstanding those comments, and I appreciate that, the looking forward, it -- it's still the investors decision --

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: -- to decide on a risk tolerance.

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: And I'm going to suggest to you, sir, as well, you're aware that the -- the Basic claims liability portfolio has a head ratio of 100 percent against interest rate risk?

MR. VALTER VIOLA: That's the policy, yes.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: And -- sorry, yes. Against nominal interest rate risk, yes.

MR. STEVE SCARFONE: It's nominal, not real?

MR. VALTER VIOLA: Well, yes it's -- you -- just to be clear it's the way it's being managed in the way -- yes, implicit is the -- you're managing the nominal interest rate risk, yes.

MR. STEVE SCARFONE: And that -- that protection from interest rate risk moved from 85 percent to 100 percent under the new investment strategy?

MR. VALTER VIOLA: I don't disagree with that, yes. I know it's 100 percent, that's the new policy, yes, sir.

MR. STEVE SCARFONE: And -- and you're aware, Mr. Viola, that MPIC ---

MR. VALTER VIOLA: Certainly, yes.

MR. STEVE SCARFONE: You're aware, Mr. Viola, that MPI selected a portfolio that, as we've heard, was derived from a nominal liability benchmark?

MR. VALTER VIOLA: Yes, that's my understanding.

MR. STEVE SCARFONE: And that benchmark, I understand is one (1) that assumes inflation to be at 2 percent going forward?

MR. VALTER VIOLA: I'll have to be careful on how to answer that, because I think even in the Mercer submissions one (1) of the recent responses

is that they didn't -- while they have an assumption going forward that inflation is 2 percent -- sorry, your question is about the level of inflation.

I believe that embedded in all their capital market assumptions.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: So even in the return inequities, for example, there is an embedded inflation assumption and I believe it's 2 percent as a level on all asset classes, yes.

MR. STEVE SCARFONE: Per annum?

MR. VALTER VIOLA: Yes. That's my understanding.

MR. STEVE SCARFONE: And if I understood your presentation, I think you indicated this a couple times, you would've had MPI's liabilities assuming variable levels of inflation as part of their modeling, correct?

MR. VALTER VIOLA: Could you rephrase that, please?

MR. STEVE SCARFONE: Sure. Well I can't rephrase it, I can repeat it.

MR. VALTER VIOLA: Okay, sure. Please repeat it.

MR. STEVE SCARFONE: You would have

had MPI's liabilities assuming variable levels of inflation as part of the liability modeling.

MR. VALTER VIOLA: Yes, for the -- yes. And to be clear, I would suggest using the terms we had, the liability benchmark portfolio would consist of assets that reflected the inflation and real interest rate sensitivity of the liabilities, rather than the nominal interest rate sensitivity and liabilities.

MR. STEVE SCARFONE: And that, as I understand your evidence, is use of a real liability benchmark as a proxy.

MR. VALTER VIOLA: Well, that's one (1) component. It's -- if you look at the actual composition of the real liability benchmark in the case of Basic, it was 66 -- two-thirds (2/3s) of the asset, 66 percent were real, and then there were some T-bills, treasury bills, and some provincial long-term bonds, I believe, with a lower weight.

And then for the ba -- for the pension it had up to 81 percent, so it wasn't fully a hundred percent real return bonds.

MR. STEVE SCARFONE: But ultimately, MPIC, as you know, made use of a nominal liability benchmark --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- in deriving their portfolio.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And again, that's one (1) of those -- well, you disagreed with me on this point, but I -- I called that an investment decision. You'd quarrel with me on that.

MR. VALTER VIOLA: I didn't quarrel, I disagreed, yes. I suggested that -- yes, we -- we disagreed. I said that the cap -- I forget exactly how, but I -- yes.

MR. STEVE SCARFONE: Okay. But that -- that particular decision, whether it's an investment decision or a framework decision --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- that's one that's ultimately made by the investor after education.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: After in-person meetings.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: After consultation.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Dialogue with the investment firm advisor.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And you won't disagree that MPIC, based on what you've seen, had a clear investment objective that they wanted to hedge nominal risk rather than real risk.

MR. VALTER VIOLA: I see that.

MR. STEVE SCARFONE: Yes. And that, sir, I think you'd agree is a decision that belongs to MPIC, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: They, in other words, chose to accept inflation risk as a trade-off for the better asset classes available to them on the nominal risk side.

DR. BYRON WILLIAMS: Can I just, in terms of the question, sir --

MR. STEVE SCARFONE: Yes.

DR. BYRON WILLIAMS: -- are you referring to the liabilities benchmark or are you now moving from the liabilities benchmark to the optimization of the portfolio?

MR. STEVE SCARFONE: You mean the

selection of the asset classes?

DR. BYRON WILLIAMS: In term -- for the purposes of your question, yes.

MR. STEVE SCARFONE: Yes. No, I'm still on the -- on the benchmark.

MR. VALTER VIOLA: Yes. Sorry, if you could repeat your question, please.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Yes. So we heard evidence from Mr. Macarchuk that before you can select -- and I think you agreed with this -- before you can select the asset classes --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- you've got to select the benchmark.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: All right. And so I'm suggesting to you that -- that the objective that the Corporation had was, firstly, wanting to hedge nominal risk rather than real risk, and thereby selecting the nominal liability benchmark.

Is that fair?

MR. VALTER VIOLA: That's what -- I -- my understanding is what they did, yes, and decided.

MR. STEVE SCARFONE: And in doing so, because I understand you could still purchase inflation protection under the nominal liability benchmark, is that -- is that true, sir?

MR. VALTER VIOLA: You could purchase inflation protection -- yes, you could.

MR. STEVE SCARFONE: You could have real return bonds under the nominal.

MR. VALTER VIOLA: You could, but if you put it in the model, it probably wouldn't like them very much.

MR. STEVE SCARFONE: It would fall off rather quickly, correct.

MR. VALTER VIOLA: It probably would put zero because it's got a lower return.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: And it's hedging a different risk.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: So I would be surprised if the model would like it at all.

MR. STEVE SCARFONE: So, in choosing to go with a nominal liability benchmark, the Corporation, I'm going to suggest to you, chose to accept some inflation risk as a trade-off for the

better asset classes that were available under the nominal pathway.

MR. VALTER VIOLA: Okay, so I want to be clear on the question.

Is your -- are you -- are you asking me whether the Corporation was prepared to take true inflation risk in the portfolio, or in the measurement of the risk?

MR. STEVE SCARFONE: In the portfolio itself.

MR. VALTER VIOLA: So the Board -- right, regardless of how they made their decision, they decided not to buy real return bonds and, therefore, they are taking inflation risk, yes.

MR. STEVE SCARFONE: Correct.

MR. VALTER VIOLA: That was a decision.

MR. STEVE SCARFONE: Yes. And just, you know, I don't -- I'm not going to engage you, sir, in a discussion on the merits of the different asset classes under the benchmarks, because I'll lose that every day.

But I do want to try and understand some very basic concepts.

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: The normal returns, as I understand it, are the total return an investor receives from an investment.

MR. VALTER VIOLA: Normal or nominal? Sorry.

MR. STEVE SCARFONE: Sorry, nominal returns, yes.

MR. VALTER VIOLA: So the nominal return. The nominal return on a bond, say?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Is -- it's not adjust -- it's the return that we normally think of in -- in today's dollars. It's not -- you're not adjusting for the fact that inflation was X.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: So it's -- it's the return we normally think of.

MR. STEVE SCARFONE: So can I call it the "total return", or is that inaccurate?

MR. VALTER VIOLA: It could be potentially misleading, because -- I'm trying to think, you're talking about a particular asset?

I just don't want it to be confused with -- you can call it what you want.

MR. STEVE SCARFONE: Okay. No, I want

to get this correct, so.

MR. VALTER VIOLA: Yes, absolutely. A total return on that asset class is the nominal return, you could say the same, sure.

MR. STEVE SCARFONE: Okay, and the real returns then I think it follows, are the after inflation returns?

MR. VALTER VIOLA: Correct. And you're talking about returns as opposed to yields, yes, but -- yes.

MR. STEVE SCARFONE: And -- and so the Board, in deciding which way to go decided to hedge only nominal interest rate risk.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And by doing so, they chose to accept the lesser threat, in their view, of inflation volatility risk.

MR. VALTER VIOLA: I don't know how to answer that. That's what they said. I don't disagree with it.

MR. STEVE SCARFONE: Well, that's -- and that's why I prefaced it "in their view", you may not agree with that, but in their view at least they -- - they -- by doing so they chose to accept some inflation risk.

MR. VALTER VIOLA: They accept -- I don't disagree with that first part, I have a hard time understanding the second part.

So if you could say the whole thing again, I will suggest some language that maybe makes it clear.

MR. STEVE SCARFONE: My suggestion to you was that they decided to hedge only nominal interest rate risk.

MR. VALTER VIOLA: Right. Then I've read and you've said the lesser. I don't know what "the lesser" refers to. What is the other --

MR. STEVE SCARFONE: The lesser -- so they chose to accept the lesser threat of inflation volatility risk, meaning there were other factors or other benefits that they decided in favour of, rather than protect against rising inflation.

DR. BYRON WILLIAMS: Can I -- can I, just in terms of the question, sir?

MR. STEVE SCARFONE: Yes.

DR. BYRON WILLIAMS: Are you suggesting the question that inflation volatility is a lesser threat? I think that's the -- the cause of the confusion.

MR. STEVE SCARFONE: And I have

described it as such. The threat of inflation volatility.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Because you indicated in your direct examination, right, it's not the level of inflation.

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: But it's the volatility that concerns you.

MR. VALTER VIOLA: I don't disagree -- right. But I've read both and I put it in the -- we can pull it up on the screen if you'd like, if that's okay.

MR. STEVE SCARFONE: Sure.

MR. VALTER VIOLA: Just to clarify the point. Both Mercer and MPI, if you could pull up my presentation, please.

I underlined it to -- to clarify this exact point. Let's see here. It's under the liability benchmark, so it will be slide -- it's the--

(BRIEF PAUSE)

MR. VALTER VIOLA: I apologize for the

delay.

DR. BYRON WILLIAMS: It's slide --

MR. VALTER VIOLA: It's slide 23. Please.

So slide 23 where it says -- sorry, I'm on the wrong one. Where it says Mercer and ---

DR. BYRON WILLIAMS: Slide 12.

MR. VALTER VIOLA: Thank you. It was early. Slide 12.

So the big simplification here and now I'm going to use the terms of "volatility" and "averages,: because I want it to be clear.

So MPI said -- and this is in the context of selecting the liability benchmark portfolio that you mentioned. They based their decision on a low risk assessment of inflation, primarily based upon the expected level.

So they didn't refer to the volatility, which is my point. And Mercer, in supporting the hed -- the decision to hedge nominal rather than real, in their words, was driven more by their views on the level rather than volatility.

I don't know if there's a so what behind that, because Mercer didn't elaborate, but I would suspect that if I were a consultant, I would be

telling my client to say the level is important, but the volatility is what factors into that equation about risk. The level doesn't factor into the equation, so it's the volatility that is really important.

And Mercer here is saying, our views are supportive of what MPI is doing, but it's driven based on their expectation, and ours too, that future inflation level won't be 9 percent inflation rather than volatility.

And again, from -- I could make another point, but...

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: No, no. And so I -- I don't know if -- if the question as I put it to you, or if that changes the question as I put it to you, because as I understand it, your concern with the portfolio as selected is -- is about volatility.

MR. VALTER VIOLA: The liability benchmark portfolio is about the fact that inflation volatility is not exactly 0 percent.

MR. STEVE SCARFONE: Yes. And so my question to you was -- and perhaps the use of the word "threat" threw everyone, but MPIC chose --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- to accept some volatility risk.

MR. VALTER VIOLA: In inflation, yes, they did.

MR. STEVE SCARFONE: Yes. And in your view --

MR. VALTER VIOLA: Well, two (2) things, sorry. They accepted the fact that there is a mismeasurement, and they -- they decided in their portfolio design to accept the risk that the nominal bonds do have inflation risk in relation to liability, they do have some inflation exposure.

MR. STEVE SCARFONE: Yes. And -- and so long as -- I think you'll agree with me -- so long as they did so after sufficient education and made an informed decision, Mr. Viola, that is ultimately a decision, again, that lies with the investor, correct?

MR. VALTER VIOLA: And just to be clear, yes, the decision to do what, adopt the liability benchmark portfolio to hold only nominal bonds?

MR. STEVE SCARFONE: Correct.

MR. VALTER VIOLA: That is their decision. Yes.

MR. STEVE SCARFONE: Yes. And the decision not to protect the -- the Basic portfolio against rising inflation above 2 percent.

Again that's ---

MR. VALTER VIOLA: Right. That's -- that's their decision as well.

MR. STEVE SCARFONE: Yes. You might not agree with it, but that's their decision, correct?

MR. VALTER VIOLA: Correct.

THE CHAIRPERSON: Mr. Scarfone, I'm sorry to interrupt, but are you near a place where we could take a break for -- for a few minutes?

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: If you are, we'll continue to that point. I don't want to disrupt it, but we should have a break at some point this afternoon.

MR. STEVE SCARFONE: I agree with you, Mr. Chair, and I think maybe, you know, this is as good a time as any.

THE CHAIRPERSON: Okay, so we'll -- we'll break for fifteen (15) minutes right now. Thank you.

--- Upon recessing at 3:05 p.m.

--- Upon resuming at 3:26 p.m.

THE CHAIRPERSON: Mr. Scarfone, sorry.

MR. STEVE SCARFONE: Sorry, Mr. Chair. I didn't see you sit down there. Thank you.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: So before the break, Mr. Viola was awkwardly trying to understand the concepts of -- of real return versus nominal returns, but I think if I understood your testimony from earlier today, the issue comes down to -- to this, and that is should MPIC -- should MPIC's liabilities have assumed variable levels of inflation as part of the liability modelling, that, I think, is the issue, you would say yes. Is that fair?

MR. VALTER VIOLA: Yes. The composition of the least -- that liability benchmark portfolio --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- which is how they modelled it, yes.

MR. STEVE SCARFONE: And -- and that protection, if -- if I can call it that, would come in the form of real return bonds, in -- in your --

MR. VALTER VIOLA: The bulk -- the bulk of the composition of the liability benchmark portfolio, under the real modelling, would consist 66 percent for the Basic of real return bonds, and 81 percent for pensions.

MR. STEVE SCARFONE: And -- and that, in your view, would adequately -- perhaps even more than adequately hedge MPIC against the -- the variation that might occur in the future on the inflation front?

MR. VALTER VIOLA: Well, that's Mercer's -- those are Mercer's numbers, not mine, but --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- I believe that their -- I have no reason to doubt that their development of that mix, I think, better reflects the true risks inherent in the liabilities compared to the one that was actually adopted.

MR. STEVE SCARFONE: Okay. Would you agree with me, though, Mr. Viola, that most investors accept inflation risk, and those that -- that do hedge inflation only hedge a portion of it?

MR. VALTER VIOLA: I -- I wouldn't disagree with that. You're talking about the -- on

the asset side, deciding -- you're talking about the actual investment activity as opposed to how they characterize the liabilities?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Okay. Yes. A lot of people take inflation risk. I don't know what the mix is, but --

MR. STEVE SCARFONE: Okay. And -- and in your presentation, I don't know if I need to take you there, because --

MR. VALTER VIOLA: Well, sorry, but some funds, like Ontario Teachers, for example --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- they really do -- all they talk about is real interest rate risk and long-term inflation risk. So they are a leading -- they were the number 1 pension fund in the world globally. They're recognized as the thought leader. I happened to be there at a time, learning from very smart people.

Who knows what they do today, but back then, I think that's probably still manifested in a -- in a portfolio that includes a lot of these long-term real inflation-sensitive assets to hedge their risk that are real and long-term inflation sensitive. So

there is a very sophisticated investor that I think sets a standard.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: What other investors do --

MR. STEVE SCARFONE: You don't -- you can't speak to it.

MR. VALTER VIOLA: Well, the -- I know the average investor -- institutional investor probably worries a lot more about what the next -- the peer is doing than the nature of the liabilities, for example.

MR. STEVE SCARFONE: Now, but what -- but when you speak to the Teachers' Group --

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: -- those, as I understood from your presentation, that'S back in the day when the RRBs were offering 4 and 5 percent.

MR. VALTER VIOLA: Correct. But even today, when real interest rates are very low, they continue to have a significant -- like, one dollar ($1) in five (5), roughly --

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: -- I looked the other day at the annual report, and it's dated. It's

a year old. But they haven't gone to zero. They've got maybe 15, 16 percent still in real rate products, plus other inflation-sensitive. So it's not zero, and they have a lot of equity. So they have a high tolerance for risk, and yet they buy real return bonds as well.

MR. STEVE SCARFONE: And so it stands to reason with that equity and -- and they have more assets under management than MPIC does, obviously, they would be exposed to greater loss, relatively speaking, than MPIC would if inflation was to rise as you've suggested?

MR. VALTER VIOLA: Well, they have more assets, so they have more assets at risk. But proportionally, I would say that they have less inflation risk in managing their surplus than MPI does, because they have inflation backing assets, like, real estate and infrastructure.

MR. STEVE SCARFONE: Yes, like real -- they have real assets in their portfolio.

MR. VALTER VIOLA: Yeah, but they're proportionally much bigger, so they're going to have bigger absolute -- bigger absolute adverse outcomes when those adverse outcomes happen.

But from an inflation perspective,

there'll be less. They won't be as hurt as badly.

MR. STEVE SCARFONE: Yeah, well, be -- because of the real assets that they have in the portfolio?

MR. VALTER VIOLA: Yeah. Yeah. Including real return bonds, yeah.

MR. STEVE SCARFONE: Okay. Slide 21 of Mr. Viola's presentation. So here's the -- the Teachers, showing 19 percent in real rate products.

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: Does that, I expect, sir, include real estate and infrastructure?

MR. VALTER VIOLA: No. No.

MR. STEVE SCARFONE: No.

MR. VALTER VIOLA: So the green -- on the slide, it shows up. The -- you'll see the green on the top right in the legend at the bottom.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: That's real rate products. So that's 90 percent. The yellow is real estate, and eyeballing it, looks like it's smaller than the real rates.

MR. STEVE SCARFONE: Oh, I see your key down there, sorry.

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: That -- my apologies.

MR. VALTER VIOLA: That's okay. That's okay. And infrastructure's above that.

MR. STEVE SCARFONE: I see. So the 19 percent real rate products, that -- that's all real return bonds? Is that correct?

MR. VALTER VIOLA: I believe so. And it's probably got some US treasury inflation linked product as well, not just Canada.

MR. STEVE SCARFONE: And that -- that, as I see, sir, was from 2015. Do we know if that allocation still exists today?

MR. VALTER VIOLA: It's not materially different. They're not at zero. They've gone down a little bit, but I looked the other day, and they've reclassified things. So they've got -- they've actually got an explicit line item now called -- do you have the paper? They actually have a new line item called inflation hedge. So they've got 9 billion, and in prior years, they didn't have that.

What that consists of, I don't know, but they break out real rate products and include it under real estate, real assets, and fixed income. So they're -- the punchline is they've still got a lot of

real rate products, but they may classify it little differently.

MR. STEVE SCARFONE: Okay. I -- I see. So real rate products could include something other than real return bonds, then. Is that fair?

MR. VALTER VIOLA: For this number, I'm pretty sure it's most -- it wouldn't be materially different from -- I can check it, but it's basically Canadian provincial private sector, like the four seven (47), which I -- was in my portfolio back then, and they probably still have that, plus some US Treasury inflation and products. So I'm -- I am pretty sure they're all bonds.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: If -- if not -- not materially different from that.

MR. STEVE SCARFONE: So my understanding is that -- that the Teachers Group has approximately $185 billion to manage? Does that sounds about right?

MR. VALTER VIOLA: Yeah, about two hundred (200), yes.

MR. STEVE SCARFONE: Two hundred (200)?

MR. VALTER VIOLA: Something like

that.

MR. STEVE SCARFONE: Would it -- would it surprise you to learn that today, they have just $1.5 billion in real return bonds?

MR. VALTER VIOLA: Would it surprise me if that's what they have today?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: It probably would.

MR. STEVE SCARFONE: But we don't know what they have today?

MR. VALTER VIOLA: Well, as I said, they only publish an annual report once a year. They do have a semiannual. I haven't looked at it, but it would -- I'd be surprised if they were anywhere close to that. But again, when you look at any asset class, it depends on their outlook, right?

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: So -- and without all the other things that are going on there.

MR. STEVE SCARFONE: So when you indicated earlier in your recommendation, sir, at the last page of your presentation, that the -- number 1 on your list would be the understatement of long -- of long-term risk of inflation and real interest rates.

Do you see that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: But you'd agree with me, sir, that inflation is, in fact, covered up to 2 percent in the MPIC Basic claims liability portfolio?

MR. VALTER VIOLA: I'm not sure how to interpret that. When you say it's covered --

MR. STEVE SCARFONE: It's -- it -- there's protection up to 2 percent. So it -- to the extent that inflation doesn't --

MR. VALTER VIOLA: Right. Right.

MR. STEVE SCARFONE: -- and -- and the nominal interest rate risk is -- is covered as well. I know you don't like that word, but --

MR. VALTER VIOLA: No, no. That's fine. No. So it's -- the -- quick -- the -- you're -- you're suggesting that the liabilities aren't perfectly sensitive to a hundred percent of the change in the CPI?

MR. STEVE SCARFONE: Correct.

MR. VALTER VIOLA: Yeah. I'm not disagreeing with that.

MR. STEVE SCARFONE: Okay. Would you agree, Mr. Viola, that in general, real return bonds are relatively expensive compared to the best estimate

expectations of inflation?

MR. VALTER VIOLA: I -- I would not make that conclusion.

MR. STEVE SCARFONE: Okay. Would you agree that most investors --

MR. VALTER VIOLA: In fact, I would -- in fact, I would -- I would argue that they represent fair value relative to the relevant alternative. Mercer and MPI, one (1) or both, talked about a break-even inflation rate, not a term I use, but when -- when I see break-even inflation of something south of two (2), that means that if you actually get inflation of two (2), which is what the Bank of Canada assumes, you're actually doing better by buying the real return bonds, as I understand their definition of break-even.

So while it's not turning 4 percent or 5 percent real, it's the spread between nominal that matters, and the break-even tells you that issue. And it -- to me it looks like it's not a huge cost for taking risk off the table and taking it elsewhere, and getting better returns.

MR. STEVE SCARFONE: And would you agree with me that matching duration with real return bonds is -- is challenging?

MR. VALTER VIOLA: Relative to the

liabilities, it's harder than nominal bonds, but yes. But that's not the only part of --

MR. STEVE SCARFONE: The --

MR. VALTER VIOLA: -- interest rate risk. Yeah.

MR. STEVE SCARFONE: Real ret -- return bonds, sir, I'm going to suggest to you, haven't increased in price, even with the higher inflation over this past summer.

Would you agree with that?

MR. VALTER VIOLA: I wouldn't dispute it.

MR. STEVE SCARFONE: Okay. And so we see that inflation rose to a high of, I think, 3 percent this past year in the summertime?

MR. VALTER VIOLA: Yeah.

MR. STEVE SCARFONE: And it's now decreased again to two point two (2.2), I believe, after September, correct?

MR. VALTER VIOLA: I don't dispute that.

MR. STEVE SCARFONE: How about the market for real return bonds? Are they generally available out there for investors to purchase?

MR. VALTER VIOLA: As I said in -- in

the response to the Utility Board's -- Public Utility Board's questions, it's about an $85 billion market. So it's -- it's big, but it's not massive. It's not -- it's much smaller than the nominal bond.

But I'm not a fixed-income expert. All I know is that a fund like Teachers, you know, they managed to acquire the product, and they're a big fund, so for a smaller fund, it's more. A couple billion dollars is not small, but it's not 200 billion. It's -- it's not a -- it's not a -- an insurmountable task.

MR. STEVE SCARFONE: We heard evidence from Mr. Makarchuk that had MPIC wanted to completely hedge inflation risk beyond the -- the nominal part that they did, the expected returns on the portfolio -- the Basic portfolio would have been materially lower. Do you agree with that?

MR. VALTER VIOLA: I -- I don't know what he said, but I would -- the Mercer studies would suggest that investing in real return bonds would improve for all levels of risk, the expected return. So not sure what he said, but the analysis would suggest otherwise. By putting a constraint on real return bonds, it -- it costs you money in the context of a total portfolio and rebalancing everything.

MR. STEVE SCARFONE: Yes, and -- and that was the key point, I think, the rebalancing everything. Because if we pull up slide 36 to your deck, it shows here a slide that was, in fact, taken from the Mercer presentation, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And this shows, as I understand it, the difference between a portfolio that contains real return bonds and one that does not. Is that fair?

MR. VALTER VIOLA: There's several lines, but my understanding, again, the -- it's very -- it's hard to read, but the bottom one, I believe, is the -- call it a brown.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: That one is the constrained portfolio, so it does not include real return bonds.

MR. STEVE SCARFONE: Correct. And the one above it --

MR. VALTER VIOLA: And the one at the highest --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- I believe has whatever -- remember -- sorry, not remember -- Mercer

went through an exercise --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: I don't have access the model, so I only worked with the reports that were given --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- so I'm sort of reverse engineering and making conclusions based on what was given -- provided. That top graph, I can't remember what is in it exactly other than the next step going from the top to the bottom is this constraint of the real return bonds.

So that difference is -- is taking out real return bonds, so making the return go lower because of the constraint --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: -- and I don't know what the compositions are of those two (2) portfolios, but to me -- and again, you have to make a ref -- a judgment. If you were to go left -- I -- I picked the ones that were easy to read, and I said, If you maintained the current level of risk -- and this is forward-looking.

So this is -- this is Mercer's projected stuff, saying if -- taking your current

level of risk, if you took their advice, i.e., the upper efficient frontier as based on their analysis, whatever's in that bucket, and then you set whatever's in that mix, and you said, you can't have any real return bonds, the cost of taking real return bonds out at that level is .8 percent return deterioration per year as a result of that.

And again, along all these curves, and when you shift up the curve, you've got lots of changes in the portfolio. There might be -- you know, when you take real return bonds out, maybe it'll try to put some real estate in, because it wants an inflation protection.

MR. STEVE SCARFONE: Well, and -- and that, I think, was leading to my next question, because during the course of your presentation and while explaining this particular slide, you said that the key point here is that it includes real return bonds.

And so we see that -- that basis point move in favour of the portfolio that contains real return bonds, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: But it would be important, I think another key point for sure, to know

what other asset classes might be contained within that efficient frontier, would you agree with that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And -- and to the extent that that efficient frontier that we're looking at that has the real return bond frontier outperforming the current one, that is the one (1) with no real return bonds --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- if it had in it private debt, private equity and some diversified growth funds, that might impact upon performance as well, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And so having real return bonds alone, in that particular portfolio, may not fully account for the 80 basis point increase.

MR. VALTER VIOLA: Well, again, this is the correlation effect. So, this is why you have to do it in aggregate. It's why -- again, try to think of the hockey analogy, but the punch-line is, you know, Mercer does this for a living, and this is the way I would do it as well is, you have to sort of say with and without what is the effect on the total portfolio.

We can't look at things in isolation, and the fact of the matter is, and Mercer would repeat it in a different way, but it's the same conclusion.

By taking return -- RRBs out along any point along this makes you worse off. In fact, when you go further to the left, you will note that the curve really drops off a cliff, and that's maybe the more important point.

At lower levels of risk tolerance, as you move to the left, the difference between the top efficient one and the constrained one below actually becomes much bigger.

So this is why I'm particularly concerned with the absence of real return bonds because I believe they very well protect against the risk of long-term inflation and real interest rates, and given the lower tolerance for risk, as I defined by the decision to be to the left part of the risk spectrum, if you look at that vertical distance, it becomes a bigger opportunity cost by not investing in real return bonds the further left you go.

And so that's -- that's really the nature of the biggest concern I have with this. It wouldn't be such a big difference if you look out far -- far out and said, This fund can take a lot of risk

and -- invested, and it can tolerate the risk of equities.

There the cost of not having real return bonds is very small, because you wouldn't invest in them because you're not worried about those risks. But at the lower level of risk that you're wanting to accept, that movement along there, that cliff drops off on that brown curve.

MR. STEVE SCARFONE: But to the extent, Mr. Viola, that that -- that purple frontier line --

MR. VALTER VIOLA: The top one?

MR. STEVE SCARFONE: Yes, contains assets that were excluded, then --

MR. VALTER VIOLA: That were excluded ultimately, yes.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: So you could do the same analysis and say it's not .8 percent, it's something else. But those other curves, it's still -- it's still a cost relative to some other less constrained one that would have real return bonds. So absolutely.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: And in fact, you

could put this -- and I can't remember if the -- the hedge -- the leverage constraint was in or not in this.

So we can argue about whether it's 80 basis points or 20 or 40. The point is, it's always lower.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: By putting a constraint of not having RRBs in it.

MR. STEVE SCARFONE: Yes. And that exactly was my point, because if you go to Exhibit 15, MPI Exhibit 15, we see there that that proposition on -- it would be page 5, that proposition that -- that purple frontier line included --

MR. VALTER VIOLA: Sorry, is this the right exhibit we're supposed to be looking at?

MR. STEVE SCARFONE: Yes, yes.

MR. VALTER VIOLA: Where am I looking?

MR. STEVE SCARFONE: There's the proposal by Mercer, you see in the red?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes, and so the purple line that they -- that they indicated there which was the -- the efficient frontier, the one that you said outperformed the current asset mix, included

some excluded assets.

MR. VALTER VIOLA: Okay.

MR. STEVE SCARFONE: So it -- you'll see there that listed there are private equity. Do you see that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: That was not an asset class that MPIC was prepared to -- to purchase.

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: Growth fixed income, that -- that as well was included.

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: And in addition to that, a private debt, as we've heard.

MR. VALTER VIOLA: Right. And I could have drawn the cost relative to one of the other curves, I just picked the one that was the easiest one to -- again, less constrained.

MR. STEVE SCARFONE: So that 80 basis point out performance, if I can, might be lower.

MR. VALTER VIOLA: Right. Some of it will come from the other constr -- I shouldn't say it.

Well, sorry, the 80 basis points would be lower for a more constrained portfolio that was illustrated by Mercer.

MR. STEVE SCARFONE: Yes. And -- and again, as we canvassed before the break, these investment decisions whether to include private debt, to growth fix, these are decisions ultimately --

MR. VALTER VIOLA: Sure.

MR. STEVE SCARFONE: -- that lie with the investor, correct?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And that's based again on the risk tolerance.

MR. VALTER VIOLA: In part, yes.

MR. STEVE SCARFONE: Rightly or wrongly, the investor can decide that.

And so we -- we heard some evidence earlier anecdotically private debt just wasn't something the Board of Directors was comfortable with, that may frustrate the advisor --

MR. VALTER VIOLA: No, no, that's all great. I can't disagree with that.

I will note that .8 percent is a big number, but when we're compounding over decades, even .2 percent is a big number.

So we can question that magnitude, whether it's 80 basis points, 20 or 30, it's kind of like a free lunch, being inefficient below the

frontier is -- it costs you something. We -- we can debate how big it is. But...

MR. STEVE SCARFONE: So the purchase of real return bonds in the -- in the Basic claims liability portfolio is one -- is -- is something that you've suggested or recommended occur.

But, as I understand it, that would only properly be included to hedge against rising inflation, is that fair?

MR. VALTER VIOLA: Sorry, can you repeat that, is it relating to the actual portfolio or the bench portfolio?

MR. STEVE SCARFONE: The actual portfolio.

MR. VALTER VIOLA: Can you rephrase the question, sorry?

DR. BYRON WILLIAMS: Yeah, because the question was actually -- was speaking about purchasing real return bonds for the liability portfolio. And that's not -- I -- so are you talking about the liabilities portfolio?

MR. STEVE SCARFONE: The Basic claims liability portfolio.

MR. VALTER VIOLA: So can you rephrase the question, sorry.

CONTINUED BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: So one (1) of the recommendations, or I think you'd agree with me that you would have the Basic claims liabilities portfolio includes some allocation to real return bonds?

MR. VALTER VIOLA: Yes, yes. It -- well, 66 percent. This is what Mercer says. They said 66 and 81 percent would be in the pension, yes.

MR. STEVE SCARFONE: Yes. And the -- the return on that investment is -- is more beneficial to the investor if inflation rises.

MR. VALTER VIOLA: Sorry, now we're talking about investing as opposed to the liability benchmark.

MR. STEVE SCARFONE: Yes, and I may be confusing the two (2) concepts but --

MR. VALTER VIOLA: No, that's okay.

Now we're talking about the portfolio, not the liability benchmark.

MR. STEVE SCARFONE: No, we're not.

MR. VALTER VIOLA: We're talking about the liability benchmark.

MR. STEVE SCARFONE: We're talking about the Basic claims liability portfolio.

So, the portfolio that has investments

to match against MPIC's obligations under Basic.

MR. VALTER VIOLA: Okay.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: You would have that part -- portfolio include real return bonds.

MR. VALTER VIOLA: Mercer has suggested that that best characterizes the liabilities, and I don't know the portfolio -- the liability char -- characteristics under -- a hundred percent. But Mercer has said that --

MR. STEVE SCARFONE: I see.

MR. VALTER VIOLA: 66 percent --

MR. STEVE SCARFONE: You want to stay on the benchmarking, on the -- the liability, the real liability port -- benchmark portfolio, is that where I'm losing you?

MR. VALTER VIOLA: No, I'm trying to figure out -- I -- I apologize. It's -- I thought your question was -- is your question that the liability benchmark portfolio for Basic should include 66 percent real return bonds?

MR. STEVE SCARFONE: No, I haven't indicated a percentage, just that right now --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- the -- the asset classes don't include real return bonds.

MR. VALTER VIOLA: In the liability benchmark portfolio?

MR. STEVE SCARFONE: No, in the Basic claim -- in the actual portfolio.

MR. VALTER VIOLA: You're talking about the portfolio. Sorry. In the Basic bucket for --

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Sorry. They don't include a nominal fixed-income. I apologize. Yes. Sorry.

MR. STEVE SCARFONE: No, it's probably my question.

MR. VALTER VIOLA: No, because we haven't -- you're correct in defining individual portfolios, there's five (5) of them to manage.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: Now we're talking about portfolios.

MR. STEVE SCARFONE: Yes, and I'm talking about the Basic claims liability por -- the one that -- that -- that is designed to meet the obligations of the --

MR. VALTER VIOLA: Of the Basic liability.

MR. STEVE SCARFONE: The Basic program.

MR. VALTER VIOLA: We're talking about the assets now, not the liability.

MR. STEVE SCARFONE: Yes. The assets. Yes. Thank you.

MR. VALTER VIOLA: Does not have real return bonds in it.

MR. STEVE SCARFONE: Correct.

So, if the portfolio, the Basic claims liability portfolio contained real return bonds --

MR. VALTER VIOLA: Let's call it the Basic portfolio, because as soon as you say liability portfolio I'm talking -- you're talking about the right side of the balance sheet.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: And we're talking about the left side. The assets.

MR. STEVE SCARFONE: Yes, yes, yes.

MR. VALTER VIOLA: Okay, left side of the balance sheet we're talking about.

MR. STEVE SCARFONE: Okay, and we are, we're talking about the assets --

MR. VALTER VIOLA: I just want to be clear.

MR. STEVE SCARFONE: -- in the Basic portfolio.

MR. VALTER VIOLA: Got it.

MR. STEVE SCARFONE: Yes. So those assets, sir, if they included real return bonds --

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: -- they would offer some protection against long-term rising inflation.

MR. VALTER VIOLA: And decline -- yes, unexpected inflation and declining real interest rates. Yes.

MR. STEVE SCARFONE: Yes. And if we look to investments 14.2.1, Kristen.

This, as part of the rate application, Mr. Viola, that sets out the interest or the inflation forecasts over the next few years.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And you'll see that -- that the forecast for Canadian CPI is at 2.2 percent. Do you see that in the far right column?

MR. VALTER VIOLA: For 2018. Yes.

MR. STEVE SCARFONE: 2018. Yes.

And for 2019, 2.1 percent?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And for the next year, 2 percent and thereafter, do you see that?

MR. VALTER VIOLA: Yes. These are, just to be clear, these are averages, not volatilities.

MR. STEVE SCARFONE: Correct. And if we go to DCAT, figure 66, please. And these levels, again, not volatility, are historical inflation numbers that we see a significant difference in the two (2) time periods there.

One between 1915 and 1991, do you see that, sir?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And again between 1992 and 2015, the mean at 1.8 percent. Do you see that?

MR. VALTER VIOLA: Yes. And those are consistent with materials I presented, line 2 with the time horizon since real return bonds had been issued.

MR. STEVE SCARFONE: Yes. And so I think you'll agree with me that from 1992 forward the -- the mean level has been below 2 percent.

MR. VALTER VIOLA: I can't disagree

with that.

MR. STEVE SCARFONE: And would you also agree that in order to accurately forecast inflation, either tomorrow or in the long-term, it -- it might be important to look at the historical data?

MR. VALTER VIOLA: I'm not disagreeing, but there's other things I would look at as well.

MR. STEVE SCARFONE: Okay.

MR. VALTER VIOLA: Forward-looking, not backward-looking.

MR. STEVE SCARFONE: But backward-looking would be one (1) consideration that a prudent investor should -- should turn to, correct?

MR. VALTER VIOLA: Yes, but taking into account the circumstances back then. Yes. And how they might be different.

Can I elaborate, for example? No?

MR. STEVE SCARFONE: Sure. No, no --

MR. VALTER VIOLA: I'm just saying as an example, equity returns in the future may be lower because there's better ability to diversify equity risk today than back in the '0s.

MR. STEVE SCARFONE: Yes.

MR. VALTER VIOLA: You can buy a

basket of stocks at 500 with the click of a button. Before you had to buy them piecemeal and there were only thirty (30) of them you could buy. Industrials and banks, for examples.

MR. STEVE SCARFONE: So history doesn't help --

MR. VALTER VIOLA: The world changes.

MR. STEVE SCARFONE: Yes, the world has changed.

MR. VALTER VIOLA: Absolutely.

MR. STEVE SCARFONE: So -- but in addition to the historical data, you might also look to what the Bank of Canada is forecasting into the future.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: That might be another factor that one would consider.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And if we look to MPI Exhibit Number 18, please, Kristen. And it would be all the way to the bottom at page 25.

And this, sir, was a question that was put to you by Manitoba Public Insurance asking that you elaborate or -- or provide your thoughts on inflation expectations. Do you recall this question?

MR. VALTER VIOLA: There were a lot of questions. I don't dispute it. Yes, I remember it.

MR. STEVE SCARFONE: Okay, and if you could scroll down to Mr. Viola's response, please.

And you'll see there, sir, that you don't have what you've described as a view --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- unexpected inflation or even inflation volatility per se --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- but you're just making a general observation that investors should have less confidence about their inflation forecast the further out we go.

Is that fair?

MR. VALTER VIOLA: Yep. Yes.

MR. STEVE SCARFONE: Okay. And you don't have any evidence or you haven't presented anything that would refute the Bank of Canada forecasts that inflation over the next few years will be contained to within 2 percent?

MR. VALTER VIOLA: I don't have any challenge to their view or ability to do that over a short horizon, no.

MR. STEVE SCARFONE: And you'll also

agree with me, sir, that the Bank of Canada uses interest rate hikes as a -- as an effective tool at keeping inflation low.

MR. VALTER VIOLA: That's one (1) of the tools -- one (1) of the few tools, I guess, they have. But there's a lot of things that impact inflation. I'm not an economist, so.

MR. STEVE SCARFONE: No.

MR. VALTER VIOLA: I'm just...

MR. STEVE SCARFONE: But you're able -- you're able to agree, I think, that the Bank of Canada is able to effectively manage inflation.

MR. VALTER VIOLA: Well, historically they've done -- and again, I don't know how, I'm not a monetarist, policy guy, I'm not an economist, but the reality is to the extent that they've influenced it, they can get a pat on the back for saying they stuck to the 2 percent target plus or minus a little bit, so.

MR. STEVE SCARFONE: And in that comment that you make there, Mr. Viola, that you would suggest that investors should have less confidence about their inflation forecast the father out they go.

That, I expect, is advice that is sometimes heeded by investors, correct?

MR. VALTER VIOLA: I would hope so.

MR. STEVE SCARFONE: Like the Teacher's group, for example.

MR. VALTER VIOLA: Yes, that's why they buy real return bonds.

MR. STEVE SCARFONE: And again, that's advice that sometimes isn't heeded by the investor, correct?

MR. VALTER VIOLA: I'm not disagreeing.

MR. STEVE SCARFONE: And ultimately, again, I know we've gone over this, that final decision rests with the investor, correct?

MR. VALTER VIOLA: Correct.

MR. STEVE SCARFONE: And so long as the investors made an educated and informed decision not to hedge long-term inflation, that really nothing more need be said on that issue?

MR. VALTER VIOLA: The investment decision, as long as it's informed, and the risks are transparent and the outcomes are described and reasonable, then it's their money, they can do what they want.

And -- but the issue is are they taking into account fully all the risks that need to be taken

into account, yes.

MR. STEVE SCARFONE: Kristen, could you, please, pull up investments Appendix 12, please.

(BRIEF PAUSE)

MR. STEVE SCARFONE: This, Mr. Viola, is -- is the ALM study that Mercer prepared.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: If we can turn to page 16, please. And scroll down. I'm looking for the projected cash flow chart to -- keep going, it might be the other 16. I see two 16s there, or two (2) numbers. Yes, that's the one. Thank you.

So, Mr. Viola, as I understand the matching that occurs in a study like this, there -- the Mercer group is trying to match MPIC's obligations to the assets that it purchases in its portfolio.

Is that too simple an explanation?

MR. VALTER VIOLA: No, that's --

MR. STEVE SCARFONE: That's fair? And so we see here that MPIC, and again, this is it's -- you'll see in the preamble above the -- above the chart that it's for claim payment. So this is the Basic claims portfolio.

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: That -- the liabilities are heavily front end -- or heavy in the front end. Do you see that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Three hundred million. And they decrease quite dramatically after the first bar, before increasing again at the very end outside about forty (40) years from now.

Do you see that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And are you familiar, Mr. Viola, with the obligations that the Basic claims liability portfolio has?

MR. VALTER VIOLA: I have a basic understanding of the Basic liabilities, yes.

MR. STEVE SCARFONE: Okay. You're aware that at the front end at least some of the liabilities would include, you know, replacing cars, fixing cars that are in accidents?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: And also repairing the occupants of the people in those cars when they're in an accident on the injury side, correct?

MR. VALTER VIOLA: Sure. High level. I'm not -- again, my background isn't in insurance, but I understand the nature of the liabilities.

MR. STEVE SCARFONE: Yes. And so would you have any reason to disagree with me that the long-term liabilities out there in 2057 are only injury benefits.

MR. VALTER VIOLA: I can't -- I can't, I'm not an expert in the liability side, I just rely on what has been -- but I understand what the nature of those is, yes. It's not fixing cars.

MR. STEVE SCARFONE: Okay, no. Not fixing a car in 2057 for an accident in 2010.

MR. VALTER VIOLA: Now, it's unfortunate, it's another incident.

MR. STEVE SCARFONE: And so when -- when the matching exercise is undertaken, that particular obligation out there in 2057, could only be met, as I understand it, with the purchase of a bond that is in excess of thirty (30) years. Is that fair?

MR. VALTER VIOLA: Yes, ideally that's the perfect hedge, but you never get that, right. Tough to do.

MR. STEVE SCARFONE: And -- and so as we move along back towards today, you would need mid-

term bonds and short-term bonds to cover those other obligations. Is that fair?

MR. VALTER VIOLA: You need a portfolio of bonds and whether it's the principal amount or the coupon to match whatever you're trying to match in the case of the liabilities.

So it's a portfolio of bonds, they get cash flows from two (2) sources, the redemption of the principal, plus the coupons, yes.

MR. STEVE SCARFONE: Plus the coupons. And so a real return bond, if held to maturity, wouldn't necessarily address the liabilities in the first ten (10) years, is that -- is that true?

MR. VALTER VIOLA: Well, you're just -- you're differentiating between a real and a nominal bond. Could you not make the same argument about nominal bonds?

MR. STEVE SCARFONE: You could, but -- but the real return bond --

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: -- if held to maturity, because as I understand --

MR. VALTER VIOLA: Fourteen (14) of them so.

MR. STEVE SCARFONE: Right.

MR. VALTER VIOLA: Some of them mature sooner, the furthest one out matures in thirty (30) years.

MR. STEVE SCARFONE: Thirty (30) years and --

MR. VALTER VIOLA: The average is twenty-five (25) years.

MR. STEVE SCARFONE: Twenty-five (25) years.

MR. VALTER VIOLA: And the duration is fifteen (15).

MR. STEVE SCARFONE: And the shortest duration, as I understand it, is ten (10). Is that correct?

MR. VALTER VIOLA: You may -- I have it on file, I could check, but I don't dispute it.

MR. STEVE SCARFONE: So to the extent that some event occurred that would require MPIC to have available cash flow for something under ten (10) years, the real return bond is of no value to the Corporation, is that --

MR. VALTER VIOLA: I wouldn't say that. Well, first of all, you're assuming 100 percent -- you're assuming the real return bond would hedge 100 percent of the risk, which it wouldn't.

Rephrase your question, sorry, I want to answer it properly.

MR. STEVE SCARFONE: Well, I'm -- I'm looking at the cash flows here.

MR. VALTER VIOLA: Right.

MR. STEVE SCARFONE: And we see that they're heavily weighted to the -- to the present, you agree with that?

MR. VALTER VIOLA: Yes.

MR. STEVE SCARFONE: Yes. And so the purchase of a bond that doesn't mature for thirty-five (35) years of -- is of no real assistance in dealing with most of the liabilities.

MR. VALTER VIOLA: Well, that's not true. You can always sell a bond.

MR. STEVE SCARFONE: And strip it down?

MR. VALTER VIOLA: Well, no, not strip it. Sell it. You could have a hundred -- hundred dollars and if you need twenty (20) to pay some bills, you sell it.

So it doesn't mean you have to buy and hold it forever, you can hedge your risk by having a pool of capital, bonds in this case. And if you need the cash flow you simply turn the portfolio over and

the transaction costs are what they are.

MR. STEVE SCARFONE: It could be a capital loss though, in that situation -- it could be a capital loss of interest --

MR. VALTER VIOLA: It could be a capital gain as well, but it's a transaction costs. Transaction costs today are -- are insignificant. I mean, they're not insignificant, but you don't want to turn it over every day.

And this is not to say that you -- I'll --

MR. STEVE SCARFONE: Leave it at that.

MR. VALTER VIOLA: I'm trying to avoid the extreme of going from no hedging to 100 percent hedging. There's always something in-between. So I'm being careful about how -- any conclusions that are drawn from extreme scenarios of fully hedging or not hedging with different kinds of instruments and sometimes there's a balance.

I think I alluded to that in the duration policy issue, I said that, you know, the duration policy issue is that you're matching nominal -- using nominal assets to hedge real liabilities and there may be a simple approach that is duration-based, not cash flow matched, that uses real return bonds on

the asset side to hedge those really bad outcomes unfortunate that aren't fixing cars in 20-whatever, and that probably have inflation risk and maybe using the other nominal bonds that aren't as good a goalie to manage some of the shorter horizon ones that have maturities of one (1) year where the predictability is low, volatility is low and inflation and nominal bonds are fine. You don't need real return bonds for next year, you need them for beyond ten (10).

MR. STEVE SCARFONE: Just give me one (1) moment, Mr. Chair, and Mr. Viola, thank you for your patience.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Mr. Viola, thank you. Those are my questions for cross-examination.

MR. VALTER VIOLA: Thank you. You're welcome.

THE CHAIRPERSON: Thank you. I've just spoken to counsel for the Board and their cross-examination's going to take longer than a half an hour.

So we're going to adjourn until 9:00 a.m. tomorrow morning, where we will conclude their --

we will conclude cross-examination, if CAC has further questions and re-examination, then we're going to move into the CSI, and then we'll move into closing argument tomorrow.

So we'll adjourn until nine o'clock tomorrow morning. Thank you.

--- Upon adjourning at 4:07 p.m.

Certified Correct,

_____

Cheryl Lavigne, Ms.

MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 30, 2018

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TABLE OF CONTENTS

	Page No.
List of Exhibits	1601
RESUMED:	
CAC WITNESS PANEL 2	
VALTER VIOLA, Affirmed	
Cross-Examination by Mr. Robert Watchman	1603
Re-Direct Examination by Dr. Byron Williams	1658
CSI PORTION UNDER SEPARATE COVER	
Continued Re-direct Examination by Dr. Byron Williams	1662
Re-Cross-examination by Mr. Steve Scarfone	1665
Closing comments by Ms. Kathleen McCandless	1668
Final submissions by Mr. Steve Scarfone	1697
Final submissions by Mr. Anthony Guerra	1738
Final submissions by Mr. Raymond Oakes	1751
Certificate of Transcript	1762

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
CAC-29	Excerpt from the Ontario Teachers Pension Plan Annual Report the eleven (11) year financial review just one (1) page, being page 95 and then from the Ontario Pension Plan's website an excerpt relating to the performance of its Pension Plan, pages 1 and 2 of that.	1662
MPI-50	MPIC'S closing submissions for the 2019 GRA.	1697
MPI-51	PowerPoint Presentation	1697

--- Upon Commencing at 9:06 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless, would you like to take us through today.

MS. KATHLEEN MCCANDLESS: Yes, good morning. Thank you, Mr. Chair and members of the panel.

This morning we're going to complete the cross-examination of Mr. Viola and Mr. Watchmen will be conducting the cross-examination on behalf of the Board.

We will then move into a CSI portion of Mr. Viola's evidence followed by closing submissions. So, I will proceed with my closing submission before lunch. We will break for lunch and then at around one o'clock MPI will return to give their closing submission. Thank you.

THE CHAIRPERSON: Thank you. Mr. Watchmen...?

MR. ROBERT WATCHMAN: Thank you, Mr. Chair.

RESUMED:

CAC WITNESS PANEL 2

VALTER VIOLA, Affirm

CROSS-EXAMINATION BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: Good morning, Mr. Viola.

MR. VALTER VIOLA: Good morning.

MR. ROBERT WATCHMAN: Now, I just am going to go through a number of the exhibits and I'm going to refer primarily to the written materials that were filed earlier, namely, your report that was -- is entered as exhibits -- I'm going to refer to revert -- revis -- revision number 2, which is CAC Exhibit 11-2, and some of the Information Requests that you responded to.

But if there's any difference between those references, and anything that was provided in your presentation yesterday, feel free to refer to that as well.

I'm going to start Exhibit CAC-11-2 on page 6, where you set out an executive summary of your recommend -- of your eight (8) recommendations. And I want to start with the first recommendation concerning the real liability benchmark.

MR. VALTER VIOLA: Okay.

MR. ROBERT WATCHMAN: And your

recommendation is for re -- to re-examine the reliance on the nominal liability benchmark rather than a real liability benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and pension liabilities.

Correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And I want to focus on the issue of inflation, long-term inflation, and in particular, the distinction that has been made in these proceedings concerning the expected level of inflation over the outlook period and inflation volatility.

MR. VALTER VIOLA: Okay.

MR. ROBERT WATCHMAN: And it's my understanding that if we look at -- actually Slide 12 of your presentation yesterday, Exhibit 28 -- sorry, CAC-28, and this is where you noted the distinction between the expected level of inflation and volatility of inflation, correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And I take it your view is that MPI is exposed to inflation vol -- volatility risk, is that correct?

MR. VALTER VIOLA: Correct.

MR. ROBERT WATCHMAN: And that the proposed Basic and pension portfolios provide little or no protection from inflation volatility?

MR. VALTER VIOLA: That's correct.

MR. ROBERT WATCHMAN: And effectively what MPI has assumed, and Mercer used in its modelling, is effectively 0 percent inflation volatility over the outlook period?

MR. VALTER VIOLA: If I could just clarify that. It's -- I found it a little confusing the way they wrote it because when you look at the Mercer capital market assumptions -- I'm not sure if it's easy to pull that up anywhere -- but they specifically put inflation assumptions in a box up in the right -- in the middle panel and what they say is inflation is assumed to be 2 percent.

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: And in both the nominal liability benchmark portfolio and the real liability benchmark portfolio, when they actually do the modelling, I think the inflation assumption is that they have -- I'm assuming this is the case -- that they have a 2 percent inflation assumption embedded in all of the returns, including equities, et

cetera.

So under both situations where they're measuring -- you're quantifying the efficient frontiers, it is my understanding that both scenarios have a 2 percent level in that, and that the capital market assumptions underlying them reflect it all. The difference in the analysis or the outcomes is reflected in the fact that the definition of the liability benchmark portfolios, that characterize the liabilities, are significantly different.

So that -- so the frontiers that get printed off under the real versus the nominal are very different because they're measuring risk relative to something in the one (1) case that assumes that nominal bonds rep -- describe the liabilities accurate accurately, whereas the other one includes real return bonds that capture this inflation sensitivity that's embedded in the return profile of all assets.

So just to clarify, so.

MR. ROBERT WATCHMAN: Okay and -- and without getting too far ahead of myself is -- is that what's referred to as basis risk?

MR. VALTER VIOLA: Yes. So the -- so, yes. So the 4.5 percent that Mercer quantified as the basis risk represents, in my opinion, the

mismeasurement of the total risk that is being managed by the fund as measured under the scenario that they do versus the scenario that I believe is a more appropriate one in that Mercer offered as one (1) alternative to them as a suggestion of how to measure risk. That's my understanding, yes.

MR. ROBERT WATCHMAN: Okay. Again, I'm going to come back to that in just a minute, because in their rebuttal evidence and this is now MPI Exhibit 19 -- sorry, apparently that -- that is actually Exhibit 20. Thank you.

Starting at page 20. And if we scroll down to the bottom of the page, under the section -- right to the bottom, under the section 4.1, the difference between a nominal liability benchmark and a real liability benchmark.

And you will see the submissions that the MPI provided, and at line 16 to 18, it's stated:

> "A nominal liability benchmark assumes a 2 percent inflation rate that is static throughout the modelling exercise, that is, it assumes no variability in inflation over time."

And is "inflation variability" the same

thing as in -- in inflation volatility?

MR. VALTER VIOLA: Yes. But when I read that I -- I believe that's not a correct -- that's MPI's language. And I -- let me read it again. But that's where I was confused, because that's the first time I interpreted the analysis differently. So I believe -- I believe this is MPI's written interpretation which I don't believe is accurate compared to what Mercer actually did. So let me read it again.

And that's what I just -- those -- the language that I just described in my prior response that was addressing specifically this.

It's my understanding that if I were to rewrite that, I would suggest that the nominal liability benchmark -- I would say instead of describing the inflation behaviour that's in it, I would say the liability benchmark has no real assets in it.

And that the real liability benchmark has some -- a significant component of real asset, 66 percent in the Basic liability benchmark portfolio and 81 percent for pension. So I don't believe those three (3) statements are accurate. But again, I think you should get MPI and Mercer to clarify.

MR. ROBERT WATCHMAN: Thank you.

MR. VALTER VIOLA: Because there is a statement by Mercer that contradicts that -- that statement about the zero -- no variability inflation rate because I think somewhere they do state -- they clarify that. I found it confusing when I read it. I wasn't sure which one was right.

MR. ROBERT WATCHMAN: Okay, thank you for that explanation. If we can turn the page and at lines 3 and 4 it provides:

> "The degree to which inflation is expected to vary, matters in the selection of a liability benchmark and is the core issue from MPI's perspective."

I take it you would agree with that?

MR. VALTER VIOLA: I would agree with that.

MR. ROBERT WATCHMAN: And then it carries on:

"Based on MPI's review of inflation forecasts from the chart -- Canadian chartered banks, Mercer, the Bank of Canada and breakeven inflation rates currently implied by real return bonds,

all data indicates that inflation will be approximately 2 percent over the outlook period."

MR. VALTER VIOLA: Yeah, and just to be clear that 2 percent refers to the level, not the volatility.

MR. ROBERT WATCHMAN: Correct.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. -- Mr. Chair, and excuse me, Mr. Watchman. I -- Mr. Viola may be looking for a -- a response from Mercers that I just want to stand down for second to see if that's the proper response if...

THE CHAIRPERSON: Certainly.

DR. BYRON WILLIAMS: I'm sorry, Mr. Watchman.

(BRIEF PAUSE)

MR. VALTER VIOLA: If I could have a look at MPI Exhibit 38, please? Thank you.

(BRIEF PAUSE)

MR. VALTER VIOLA: Yeah, so it's the very bottom of the page, please.

So, I'll read -- I'll read the sentence. It says:

> "The inflation volatility assumption of 2.6 percent is implicitly related to the capital market volatility assumptions outlined in Appendix 17, Attachment C, page 18 for each asset class. The inflation volatility assumption was not explicitly used in our modeling."

And just, if I so -- that last sentence contradicts the -- the statement that we referred to earlier. I would make a point -- anyways, we'll leave it at that. Thank you.

CONTINUED BY MR. ROBERT WATCHMAN:

MR. ROBERT WATCHMAN: If we just scroll down the page a bit wh -- a little bit, too -- too much on page 21, see that Section 4.2 is titled MPI Chose to Accept the Threat of Inflation Volatility with good reason.

And from there on continuing for -- over the next couple of pages you will see that they

provide the rationale for what is described as the inflation volatility threat.

And I want to go to page 23, lines 7 and 8 and again, they say:

> "All evidence points to the view that inflation will return to approximately 2 percent whether one looks at the markets, the Bank of Canada or the Canadian chartered banks."

And so again, I take it your position is th -- that's the level but not the volatility.

MR. VALTER VIOLA: Correct.

(BRIEF PAUSE)

MR. ROBERT WATCHMAN: And if we scroll down a little bit to lines 13 to 19 and the last portion of that -- that paragraph reads...

(BRIEF PAUSE)

MR. VALTER VIOLA: Sorry, the las -- line 20.

MR. ROBERT WATCHMAN: Correct, yes.

I'm going down to line 20. I'm just -- I was going to paraphrase, and -- and their position is that their assumption with respect to the nominal liability benchmark is very reason -- is a very reasonable approach, particularly given the fact that the breakeven inflation rate implied by real return bond prices as of August 2018 was approximately 1.75 percent.

Do you agree with that statement?

MR. VALTER VIOLA: Well, I don't agree with -- I agree with perhaps -- well, I don't disagree with it except for the conclusion. Sorry, it's a -- let me just read it. It -- it indicates that the modeling approach is based on the nominal liability benchmark is a very reasonable approach, particularly given the fact that the breakeven inflation rate...

Well, again, I think it's inconsistent as far as my understanding of the way they calculate the breakeven inflation rate.

If 2 percent is the average expected level of inflation and the breakeven inflation rate was -- is below that, it means that if the bank hits its target and inflation turns out to be 10 -- 2 percent, real return bonds look like a good deal because they're beating the 1.75 that makes them

breakeven. Anything north of 1.75, according to this, would suggest real return bonds look cheap.

MR. ROBERT WATCHMAN: And --

MR. VALTER VIOLA: Relative to nominal bonds.

MR. ROBERT WATCHMAN: And is that difference the -- between the 2 percent level expected and the 1.75 being the breakeven inflation rate, does that represent volatility?

MR. VALTER VIOLA: The -- any difference between a -- a mean and average is volatility, yes. The true measure of volatility is a little more complicated, but it's referring to the variance of the outcomes, yes.

MR. ROBERT WATCHMAN: And -- and while --

MR. VALTER VIOLA: If I could just make a point. This is a quarter percentage difference. The Bank of Canada saying at 2 percent average.

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: Within a range of 1 to 3, that range of 2 percent -- around 2 percent may seem like not a lot and I think I've minimized how small it might be in passing, but it's a big number

because of the implications of the change of real rates, given the duration formula.

Because we're talking about long horizon liabilities in the case of Basic pension portfolios with an average duration of ten (10), meaning half the cash was roughly -- are beyond a decade.

A 1 percent change of inflation be -- on average from 2 percent level to up to three (3) would otherwi -- other things equal cause nominal interest rates, bonds, to do poorly because nominal interest rates would go up, other things equal by 1 percent and have a 10 percent decline impact on the bond portfolio which is matched to the ten-year duration.

In the case of the pension, it's worse. It's a 16 percent adverse outcome, but it doesn't have 100 percent dedicated to bonds. So it's less -- it's a bigger impact percentage-wise, but it's got less of a portfolio and fixed income.

So I didn't want to minimize the fact that, you know, it sounds like these are small numbers, but over a long horizon they are big numbers.

One (1) of the other things I noted in -- in the writing here was over the horizon. The

horizon, as I understand it, is fairly short given the ten (10) year and sixteen (16) year duration time horizons that we're talking about on the liability side, these numbers have a bigger impact.

So again, getting to the point of predictability of interest rates, these are estimates and they are -- they have a leverage effect because the liabilities are leveraged.

MR. ROBERT WATCHMAN: And would it be correct to say that the volatility that we're concerned about is only volatility in which the actual rate of inflation is greater than 2 percent?

MR. VALTER VIOLA: It -- it's greater than what's expected -- is -- as priced in fixed income markets, but I think to the extent that the breakeven inflation is 1.75 or the Bank of Canada is 2, yeah, it's anything higher than those things realized.

MR. ROBERT WATCHMAN: Yes and then the -- sorry, the distinction I was trying to make was that so if -- if the volatility is that inflation is less than 2 percent that actually --

MR. VALTER VIOLA: Level or volatility?

MR. ROBERT WATCHMAN: Sorry, yes, so

that -- that the -- well, the volatility that's created --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- is in -- actual inter -- inflation being less than 2 percent.

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: Does that not benefit the proposed portfolios for Basic and pension?

MR. VALTER VIOLA: Yes. If inflation turns out to be lower than what's expected, let's say it's 1.5 percent, then, and that's a good scenario because we're expecting it to be worse. It turns out to be better and so bonds will do better than -- than expected, nominal bonds, yeah.

MR. ROBERT WATCHMAN: And just so I'm clear, so -- so volatility that's, if I can describe it as negative --

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: -- is -- is not a concern?

MR. VALTER VIOLA: Correct, yeah.

MR. ROBERT WATCHMAN: It's only volatility that's a positive --

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: -- in terms of

inflation.

MR. VALTER VIOLA: Right. Inflation higher than the average is -- yes.

MR. ROBERT WATCHMAN: Now, you were asked some questions IRs so I'm going to turn to MPI Exhibit 18, which were the MPI Information Requests and responses and I'm going to turn to page 25. This is MPI-CAC-1-11.

And you were asked some questions with respect to part (a) and I just have a couple of questions with respect to your response to part (b). It was on page 26.

And your response was that:

> "My comment about the understatement of the long-term interest risk of inflation and changing real interest rates that are inherent in the Basic and Pension liabilities, related specifically to MPI's determination of the constituents of the Basic and Pension liability benchmark portfolios. As such, there is no industry or academic article that I am aware of that addresses my claim about basis risk."

And so I wanted to come back to that concept of "basis risk". And in particular basis risk from the perspective of inflation. And so if we could just turn back in that same exhibit to CAC -- sorry, MPI-CAC-1-8. It's on page 17.

Now, this relates to lengthening the nominal duration but I want to just put that on the back burner for now and I wanted to focus on the question of inflation.

And if we could turn to the next page and your response to re-examining lengthening nominal bond duration. You indicate what basis risk is. It say:

> "Unless the basis, normal versus real, are the same for assets and liabilities there is a basis risk from using one (1) type of nominal asset to hedge real interest rate risk and inflation risk in the liabilities."

And you provide an example and can you just flesh that out for us and -- and again, with respect to the concern about inflation risk.

MR. VALTER VIOLA: Sure. Could we just scroll up a little bit so I can see it. So the

four (4) examples of the top. Thank you. Let me just take a minute to read it, please.

(BRIEF PAUSE)

MR. VALTER VIOLA: Yeah and, in fact, this is the scenario that we'll talk about later. So essentially -- so the basis risk arises -- if you look at the -- in various parts of my presentation I've described the difference between the composition of the liability benchmark portfolios.

So the one (1) that was used in the GRA and the AL, asset liability study, assumed a nominal liability benchmark that consisted 100 percent of nominal fixed income assets with a duration of ten (10) years in the case of the Basic, sixteen (16) years in the case of the pension liability.

On the other hand, on the heels of the two (2) questions that we asked, Mercer developed an analysis that reflected a different liability benchmark folio that was based on -- that included a significant component of real return bonds.

In the case of the Basic pension liability the real return bond component as a proxy for the liabilities represented 66 percent or two

thirds (2/3s) of -- of the liability characteristic.

In the case of pension, given the longer duration of sixteen (16) versus ten (10) in the case of Basic, the composition of the liability benchmark portfolio had 81 percent real return bonds.

So those are very two (2) different benchmark portfolios. If you a -- if you said, okay, Mercer go out and draw us a similar curve, assets and liabilities -- not asset and liability, but relative to those two (2) benchmark portfolios and say, what would the return on risk look like? The quick answer is, there is a basis risk or a measurement risk called tracking error in the industry that is 4.5 percent, which says that -- that's a volatility number. So statistically, it means that two thirds (2/3s) of the time -- well, I won't get into the statistics. It's a big number. It's a big mismeasurement number.

And given -- given the long horizon we're talking about, even small differ -- differences and this is not a small one, will have a big long-term impact, given the fact that we're looking out decades, not three (3), four (4), five (5) years.

So, in that case, given certain scenarios, if inflation turns out to be higher than average, what will happen -- we'll talk about what

happens to T-bills, treasury bills, which have a short duration, real return bonds and nominal bonds.

So if inflation turns out to be not 2 percent but 3 percent, on average. So that's different, it's more volatile -- not more volatile but it's higher than expected. That 1 percent difference would -- other things equal cause nominal interest rates to rise by 1 percent and nominal bonds to fall by 10 percent in the case of Basic because that's what the portfolio looks like.

And -- and 16 percent in the case of -- sorry, I shouldn't say that. I'm assuming the -- the pension portfolio is -- has -- has a duration matching policy as well, but let's just focus on Basic.

So nominal bonds in the Basic portfolio would do poorly in that environment because bonds will -- bonds will go down and there's -- they're a hundred percent of the portfolio.

If, on the other hand, real return bonds were in that portfolio, they would maintain purchasing power. By definition, real return bonds hedge 100 percent of the inflation risk over all time horizons that the bond is outstanding. So, when you buy a real return bond worth a hundred dollars, if inflation turns out to be 3 percent, it's as if you

bought a bond worth 103 and the coupon that you agreed to receive would apply to the hundred and three next year, et cetera. So the principal component gets indexed to inflation.

So, real return -- return bonds will do well for two (2) reasons. One (1), they're protected against inflation risk so they'll get a higher coupon because it's applying to a higher principal index based to inflation.

And, secondly, investors may wake up and say aha, instead of expecting 2 percent now inflation's 3 percent, and therefore, maybe it's time to buy more real return bonds because I think maybe the inflation will be higher. So they would otherwise bid up real return bonds, yields will fall, and that's where the -- that volatility equation of the inflation risk, where inflation -- not inflation risk, but interest rate risk depends on the volatilities between inflation and real rate bonds.

So when inflation volatility's higher than normal, it's gone up to 3 from 2, it is the case probably that real yields will fall. So hopefully that elaborates enough.

MR. ROBERT WATCHMAN: Thank you.

MR. VALTER VIOLA: You're welcome.

MR. ROBERT WATCHMAN: Now, I just -- I just wanted to go back to the MPI rebuttal evidence, which is MPI Exhibit 20 and page 24, the bottom half of that page, at 4.2.3.

And the subject there is the cost of inflation variability is low. And you will see in the second sentence of the first paragraph, it states:

> "Given the Bank of Canada's inflation target range of 1 to 3 percent, it was assumed that a plausible worst-case scenario for inflation was sustained 3 percent inflation over a four (4) year forecast period."

You see that?

MR. VALTER VIOLA: I do.

MR. ROBERT WATCHMAN: I have a couple questions and -- and first of all, I guess the question is whether you would consider that to be a plausible worst-case scenario?

MR. VALTER VIOLA: Worst-case is by definition worst, so, I would not say that's a worst-case. Having said that, they're saying "sustained 3 percent," and it's only looking four (4) years. So it's saying, at worst, it will be 3 percent, 3

percent, 3 percent, 3 percent. I can think of worse. And in fact -- well, we just had an experience in August that was touching on that. So it's not the worst. It's plausible and it could be a lot worse. And the time horizon is really short.

So even if it is the worst one, I'd worry about even a less severe change, but sustained over a longer period than four (4) years.

MR. ROBERT WATCHMAN: And -- but just looking at that example in --

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: -- in terms of the vol -- inflation volatility that we're concerned about --

MR. VALTER VIOLA: Yep.

MR. ROBERT WATCHMAN: -- so that -- that positive volatility from 2 percent to 3 percent, does that effectively represent 100 basis points?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And that's the volatility.

MR. VALTER VIOLA: Well, I just want to be careful. Volatility is a -- a statistical measure.

MR. ROBERT WATCHMAN: Yes, yes.

MR. VALTER VIOLA: But that's the change --

MR. ROBERT WATCHMAN: But that's the change that would be -- form part of the volatility?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And if I could ask you to refer to Slide 27 of your presentation, that's CAC Exhibit 28. Sorry, the next -- the next page 27 -- oh, sorry, Slide 27. The next page. Thank you.

And so if we could just -- so under Consumer Price Index is this where we would look for inflation volatility?

MR. VALTER VIOLA: Yes. If you look at -- yes.

MR. ROBERT WATCHMAN: And so if we compare that 1 percent to the volatility, especially that that's highlighted in yellow under the column Consumer Price Index, we'll see that it's -- 1 percent is greater than the volatility expressed -- or highlighted in yellow under each of the five (5) years, ten (10) years, fifteen (15) years, and twenty-five (25) years, with the one (1) exception being under five (5) year 1998 to 2002.

MR. VALTER VIOLA: And we're going to

have to be careful, here. That's why I was clarifying my understanding of your use of the term "volatility."

So standard deviation -- this table shows standard deviation, which is the same as volatility. So we can use the word "volatility." So that first column, Consumer in -- Price Index, yes, so if we looked at the very bottom yellow, for example, that's highlighted where it says 0.8 percent, for example?

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: So that 0.8 percent is a volatility measure, which says if the average were -- let's say the Bank of Canada -- let's say this -- I don't have the average here. This is just volatility. So let's say the -- the Bank of Canada 2 percent level is the average.

If that were the average that was consistent with this .8 percent volatility, what that would say is, think of a bell curve. The average is 2 percent inflation and two-thirds (2/3) of the time, the inflation, if this were to repeat itself, would say that the inflation would be 2 percent plus or minus .8 percent, two thirds (2/3s) of the time.

So it will go from two (2), to two point eight (2.8), to one point two (1.2). So that

point eight (.8) is almost -- is in this period of, in this case, the last twenty-five (25) years is -- is consistent with, say, the Bank of Canada's range in that context. So the 1 percent change is not slight -- is not exactly comparable to this.

MR. ROBERT WATCHMAN: But very close?

MR. VALTER VIOLA: It's bigger than a -- a 1 percent change on 2 percent level is bigger than a -- a point eight (.8) standard deviation. So it's -- sorry. That's -- it's --

MR. ROBERT WATCHMAN: It's very confusing, I know.

MR. VALTER VIOLA: It's confusing for me I have to say, that's why we like math.

MR. ROBERT WATCHMAN: Which is why we have to ask you the questions.

MR. VALTER VIOLA: That's okay.

MR. ROBERT WATCHMAN: If I could turn now to the application itself, the DCAT page 68, and you recall that Mr. Scarfone asked you questions about this page yesterday. Do you recall that?

MR. VALTER VIOLA: I do.

MR. ROBERT WATCHMAN: And -- and so he was referring in DCAT 66 -- sorry, figure DCAT 66, he was referring to the mean for the period set out there

for 1915 through 1991, and then again, 1992 --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- and 2017, and pointed out that the mean was 1.8 percent?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: But in terms of volatility, I take it what we should be looking at is that standard deviation column?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And so the standard deviation, or inflation volatility, between 1915 and 1991 --

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: -- was 5.4 percent?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And for 1992 to 19 -- to 2017, .7 percent --

MR. VALTER VIOLA: Right. Yes.

MR. ROBERT WATCHMAN: -- or seventy (70) basis points?

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: All right. Getting away from inflation for the moment, I just wanted to turn back to your recommendations at CAC

Exhibit 11-2, on page 6. And the next recommendation that I was looking at is number 4, lengthening of the nominal duration.

MR. VALTER VIOLA: Yes. Yeah.

MR. ROBERT WATCHMAN: Do you see that? And your recommendation is to re-examine the decision to lengthen the nominal duration in the Basic portfolio, given MPI's defensive lower risk strategy, Mercer's return assumption for bonds and RRBs, and concerns about the effectiveness of the duration policy noted above. And then you put in brackets, "(basis risk)."

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: So we're back to basis risk again.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And I had directed you to MPI -- the Information Request -- MPI/CAC-1-8, which is found at page 17 of that exhibit, and your response on the second page to (b).

And I -- I asked you to go through that basis risk, specifically with reference to inflation. Is there anything to add to what you've explained already flowing from the lengthening of the nominal bond duration?

MR. VALTER VIOLA: Yes. So -- so let me take a step back. I don't want to be repetitive. Can you just rephrase the last part so I'm hitting your question directly again, please?

MR. ROBERT WATCHMAN: Yeah.

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: So I -- because I had asked you to --

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: -- and the last time we re-looked at --

MR. VALTER VIOLA: Yeah.

MR. ROBERT WATCHMAN: -- basis risk, I asked you to focus on the issue of inflation --

MR. VALTER VIOLA: Right. Okay. Got it.

MR. ROBERT WATCHMAN: -- so now I'm asking if there's anything --

MR. VALTER VIOLA: Perfect. Okay. So let's -- I may ask to pull up one (1) of the slides, if you don't mind, from the other day --

MR. ROBERT WATCHMAN: No, of course.

MR. VALTER VIOLA: -- yesterday. It's the one that shows -- slide 25, please.

MR. ROBERT WATCHMAN: And that -- for

the record, that's Exhibit CAC-28.

MR. VALTER VIOLA: So in this slide, it -- it's to the point of the focus of concern. So again, we -- I believe strongly that changes in real interest rates, which we're about to talk about, and chain -- and unexpected inflation, both are very long horizon risks to worry about that are captured in the nominal liability benchmark portfolio.

And I said in this slide here, the -- the failure to focus on those two (2) risks is like focusing in a stock portfolio on concerns about the dividend yield on a stock.

Dividend yield on a stock is 1 or 3 percent, but it's not very volatile. It's always going to be in that range, because dividend policies tend to be predictable, stable, and when you divide dividends by price, it's a -- it's a reasonably stable number.

What you worry about when you buy stocks is the fact that stocks go up and down every day, and that's the volatility component. So that's the left side of the bottom panel here in the dividend discount model.

And -- and what I said was in the context of the Fisher equation, interest rate risk

management, changes in real yields above it are very important because of the long duration that we're talking about, ten (10) years in the case of Basic, sixteen (16) years in the case of pension.

So when we go back to your question, maybe you could flip back to it, the fact that we've got a longer duration fixed income portfolio that's all nominal gives me concerns, because if either inflation turns out to be higher than expected, or -- or real yields don't behave the same way as nominal ones, nominal bonds may do very poorly in that environment. Does that ans -- does that --

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: -- address the question, sir?

MR. ROBERT WATCHMAN: Thank you. I'm now going to go to the next recommendation that I want to ask questions about. And again, if we look at Exhibit CAC-11-2, page 6, and going down to Recommendation Number 7, fixed income risk concentration. Do you see that?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And your recommendation in that regard was to re-examine the decision to concentrate risk in fixed income rather

than better diversify the sources of risk across the whole portfolio and avoid crowding out risk-reducing real return bonds, correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And now I'll -- PUB provided or asked some -- provided some Information Requests concerning that. And if we could turn to PUB Exhibit 16, PUB/CAC-1-4.

And you were asked to explain how MPI -- you believe MPI should design its portfolio for Basic to diversify the sources of risk across -- across the board -- the whole portfolio.

And if we turn the page, about halfway down and just above that graph, you state:

> "In other words, the attractiveness of any asset class should be assessed not in isolation but in the context of the other assets that are in the portfolio or contemplate -- contemplated to be in the portfolio."

And I take it that's -- that's the sort of crux of your position?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And I won't ask

you to explain the -- the graph, but we understand that that's how the efficient frontier is determined.

And if I turn to the next page, the second paragraph there, MPI has stated that it has low tolerance for risk in the Basic portfolio, and therefore, MPI has decided to allocate 100 percent to fixed income in that portfolio. I would argue that the decision to impose a constraint, 0 percent to other asset classes as a cost, i.e., lower risk-adjusted returns.

And so we -- when we heard you speak yesterday about constraint, this is what you were referring to?

MR. VALTER VIOLA: This is one (1) example of it, yes.

MR. ROBERT WATCHMAN: Now if we could just turn two (2) pages, and there's a table there. Can you just advise us who -- who created this table?

MR. VALTER VIOLA: I created the table based on data from the GRA or one (1) of the Information Requests. It -- and it's from the Mercer study. So either the two (2) responses that came from our request for information, or the GRA.

MR. ROBERT WATCHMAN: And so -- so just to be clear, this --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- this -- this doesn't represent your recommendation --

MR. VALTER VIOLA: No, the --

MR. ROBERT WATCHMAN: -- this is what you gleaned from the information --

MR. VALTER VIOLA: Correct. Right.

MR. ROBERT WATCHMAN: -- provided?

MR. VALTER VIOLA: So the current is my -- is the current portfolio as defined by Mercer by the letter 'C'. 'B' is one (1) scenario in the -- in the real analysis, so my -- in response to my two (2) questions, 85, is it, 'G', I think. And the proposed is what actually MPI proposes, not me, in the final columns, the difference between the proposed and the one (1) with the same risk.

MR. ROBERT WATCHMAN: And now -- and to the left of the table, the second paragraph there says:

> "In other words, the sources of risk in the current and MPI proposed portfolios -- portfolios have concentrated risk in inflation and credit."

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: Can you show where that --

MR. VALTER VIOLA: Okay. So that's -- let's look at the -- the proposed. The proposed has -- so that's the (P) column, second to the -- it's the (P) column. It says it has 20 percent allocation to corporate bonds, and 80 percent to provincial. So the whole portfolio is fixed-income, a hundred percent, and the corporate bond portfolio as distinct from, say, a federal bond portfolio, means that there's credit risk.

Corporate bonds are issued by corporations, and they're more likely to default on the -- their ability to pay than a Government of Canada or provincial, and therefore, those -- anyways, that's a fact. And provincial bonds also have a small credit risk relative to less risky federal bonds.

That's in the proposed portfolio. And because they're both nominal bonds, in other words, there's no federal RRBs in there -- in that proposal, there's a zero allocation to real return bonds -- everything else has inflation risk. T-bills don't, but there's no allocation to that, either.

MR. ROBERT WATCHMAN: Now, am I to understand that the asset class breakdown that would

best reduce concentrated risk would be the (B) column?

MR. VALTER VIOLA: Well, yes. So again -- well, sorry, let me make sure I answer your question correctly. Could you rephrase it again, please.

MR. ROBERT WATCHMAN: Yes, the concern expressed there that was that the MPI proposed portfolio, or current portfolio have concentrated risk and inflation and credit.

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: So, relative to those would be reduced that concentrate --

MR. VALTER VIOLA: Yes because you can see it's better diversified.

In other words, if you look at just the fixed income, the upper-half of the panel, it's only got 68 percent in bonds and it's -- it's better diversified.

Now, it takes other kinds of risk in that portfolio because it's got 23 1/2 percent in equities, so the -- the risk is spread out across asset classes, not just fixed income, and -- and this was a -- this was a difficult table to put together because I didn't have the numbers to fully populate it.

But the interesting -- anyways, we'll leave it at that. It's -- there's less concentration of risk in the B portfolio, but to be fair, the P, the proposed in the same risk portfolio are not strictly comparable because of the -- I don't have the numbers, but there's different return and volatility assumptions in those second -- the B and the P column.

MR. ROBERT WATCHMAN: And if --

MR. VALTER VIOLA: Mercer could quantify those effects, but...

MR. ROBERT WATCHMAN: And as it relates to your bucket analogy yesterday --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- about a top -- top down view would have --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- similar asset mix, different levels of water.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: Again, does B best represent what you were saying in terms of that bucket analogy?

MR. VALTER VIOLA: Yes, so B -- B I would say yes. B is reflective of that. So when Mercer does their asset liability study, they have a

minimum risk portfolio, that risk-free bucket, and it consists of, in the case of Basic, two-thirds (2/3s) real return bonds.

And now what we're questioning is how far along the efficient frontier does this B column go. It's not the least risky. It doesn't look like the minimum -- the liability benchmark portfolio, which is not shown here because it has some equities in it.

But it is basically saying -- and it's -- yes, is the quick answer. You're going along and you're moving the allocations of the size of the pails, but the mix should be roughly the same, yes.

MR. ROBERT WATCHMAN: Thank you.

MR. VALTER VIOLA: That's how models work.

MR. ROBERT WATCHMAN: Okay, thank you. And if we could turn to the next page, and this is in response to part B of that Information Request, and the question was: What level of RRBs and Basic -- or should be in Basic and pension portfolios.

And you defined risk and tolerance for risk. And at the bottom of the page you indicate the allocation to real return bonds based upon risk tolerance for each of the Basic and pension

portfolios.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And again, this is based on Mercer's analysis. This isn't necessarily your recommendation?

MR. VALTER VIOLA: Correct.

MR. ROBERT WATCHMAN: And I just want to clarify something here for the record. In your written responses and in your report, which is now CAC Exhibit 11 -- 11-2, you refer a number of times to MPI Exhibit 12.

And just to clarify, for the record, at the time that MPI Exhibit 12, which was the further analysis conducted by Mercer pursuant to Board Order 124/'18, that was -- it was anticipated that that would be Exhibit 12.

By the time the -- these hearings started, it was determined that the exhibit number had already been used and this exhibit is now Exhibit 15 in these proceedings.

So whenever we see a reference to Exhibit 12, MPI Exhibit 12 in your written materials, we now read that as MPI Exhibit 15, correct?

MR. VALTER VIOLA: That is correct. And so this just goes to the point of how hard it is

to forecast even just a couple of weeks.

MR. ROBERT WATCHMAN: Moving on then, I wanted to refer to again your CAC Exhibit 11-2, at this time, page 23, in which you -- you set out a bit of a scorecard there as to the response to your recommendations from two (2) years ago.

And if we look at the first block there, the last item number 10, minimum risk portfolio.

MR. VALTER VIOLA: Yes. Yes.

MR. ROBERT WATCHMAN: And -- and again, just for the record, minimum risk portfolio equates to liability benchmark portfolio as used in the application and in the Mercer study.

MR. VALTER VIOLA: That's correct.

MR. ROBERT WATCHMAN: And the indication there is that the minimum risk portfolio has only been partially addressed.

And if we turn the page we see there the -- your comment is, well, minimum risk portfolios were clearly defined for each segment, for example, Basic and pensions.

The final definitions used by MPI were based on nominal definitions rather than real ones, as discussed in part one. Accordingly, this issue is

only partially addressed.

And can I ask you: So was this not addressed in MPI Exhibit 15, the further analysis conducted by Mercer?

MR. VALTER VIOLA: It was, from an analytical point of view. But in terms of taking action on it, that's where the outstanding issue is.

MR. ROBERT WATCHMAN: Thank you. Now, again, PUB provided Information Requests with respect to the minimum risk portfolio, and we will find that question at PUB Exhibit 16, starting at page 5. And if we could just scroll down. Actually, to the top of the nest -- next page.

And the point that you made there, in bold, is that the minimum risk portfolio should include at least some long-duration real return bonds given the nature of MPI's liabilities, long-term and with some inflation exposures, correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And if we scroll down a little bit further, we see another table, so I'll ask you again where this table comes from.

MR. VALTER VIOLA: This comes from the GRA. So I simply extracted data that was provided by MPI or Mercer. And it was included as a preamble to

some of my questions.

MR. ROBERT WATCHMAN: And -- okay. So this is the table where, when we look at the left-hand part of the table, it's dealing with the Basic portfolio, or the --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: Yes. And this is where the reference to 66 percent real return bonds comes from?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And again, so that's not your recommendation, that's what you ---

MR. VALTER VIOLA: That's what Mercer said was the liability benchmark portfolio if you took inflation and real interest rate risk into account explicitly in their model.

MR. ROBERT WATCHMAN: And we -- when we look at the transition from nominal to real under Basic, we see that what is being given up in order to provide for more real return bonds and more treasury bills, is first the long-term provincial bonds, then the mid-term bonds and some but not all of the short-term bonds, correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: So -- and that's

the -- the -- does that correspond with your concern that those bonds don't guard against inflation risk?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And so similarly, when we look at the pension side of the table, that's where we -- we see under the real that's where the 81 percent real return bonds comes from.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And so again, that's not -- that's not your recommendation. That's what you determined from the Mercer analysis.

MR. VALTER VIOLA: Correct. And if I could just make one (1) elaborating point, if that's okay?

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: In the -- the first set of colour columns under "Basic", that difference -- that column of difference which sums to zero shows the difference in the market value exposure of the liability benchmark portfolio under the two (2) scenarios, and it is the source of that 4 1/2 percent basis risk.

If those columns summed to zero, they were all zero, there would be no basis risk because the first two (2) columns would be the same. There

would be no difference.

And this is -- perhaps it's probably visual, I think I said it verbally yesterday, but if you look at the far right column there's greater difference between the bottom two (2) panels, 81 and negative 1-17, and that's why I suggested that perhaps in the case of pension the basis risk might be higher than 4.5 percent, although Mercer didn't quantify it.

MR. ROBERT WATCHMAN: Thank you.

MR. VALTER VIOLA: You're welcome.

(BRIEF PAUSE)

MR. ROBERT WATCHMAN: I'm going to turn now to PUB -- PUB-CAC-1-6, beginning at page 17.

And here you were asked, with respect to the level of other inflation hedging assets, such as real estate and infrastructure, you believe should be maintained.

And you begin by -- your response by referring to certain information beliefs, if we go to page 18 and -- and if we go scroll down we see a belief number 3. And I believe these were reviewed yesterday, the additional risk -- taking additional risk beyond the minimum risk portfolio should be done

only if the expected additional returns justify doing so.

And secondly, below -- belief 4, the total portfolio. The additional risk to the to -- total portfolio is relevant to risk if considered beyond the minimum risk portfolio is taken.

And then you say:

> "Together, beliefs 3 and 4 imply that the attractiveness of any asset class should be assessed not in isolation, but in the context of the other assets that are in the portfolio or contemplated to be in the portfolio."

And that was, if I'm correct, was that sort of the definition of the efficient frontier?

MR. VALTER VIOLA: Yes, an efficient frontier always measures it this way. It always takes a total portfolio context and it makes those trade-offs that we will mathematically find difficult to -- to take into account because of the correlation effects.

MR. ROBERT WATCHMAN: And if we turn the page. So there is reference there specifically to real estate and infrastructure.

So is my understanding correct that what you're saying is that in addition to real return bonds, real estate and infrastructure investment can also provide a hedge against inflation risk?

MR. VALTER VIOLA: Yes. And you have to be careful because there are different types of real estate and infrastructure, for example. Some -- depending on the nature of the underlying, they provide more or less inflation protection, yes.

MR. ROBERT WATCHMAN: And if we could turn the page, please. And so now this is a table taken from the Mercer report, correct?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And we -- we refer to that as the asset mix? Yes?

MR. VALTER VIOLA: Yes. Yes.

MR. ROBERT WATCHMAN: And -- and if we scroll down to the bottom of that box, the conclusion underneath, from your analysis, or sorry, I shouldn't say that, your analysis of Mercer's analysis, if I can put it that way --

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: -- was that optimal allocation to real estate infrastructure would be something like 16 percent to 20 percent of the RRB

allocation for Basic.

Is that correct?

MR. VALTER VIOLA: Correct. And again, I can't be precise because if you think about the efficient frontier, that shows return risk trade-offs, it would be nice to have underneath that the table that shows the asset mix and how that allocation shifts. And what you don't see is things falling off a cliff and going randomly. Things are always smooth transitions.

And -- and that's why when I talk about the buckets and looking down, in the riskier bucket, what you're seeing is more allocations typically, basically looking into the bigger pail as you go from left to right in the risky bucket.

MR. ROBERT WATCHMAN: So now if we could turn the page, please, to page 21.

And now, this is the -- the same analysis done in respect of the pension portfolio?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And if we go to the next page, to the conclusion, my understanding is that your understanding of the Mercer analysis is that for the pension portfolio, real estate and -- and infrastructure investment should be about 6 percent to

8 1/2 percent of the real return bonds.

MR. VALTER VIOLA: Yes. And again, I'm sort of using a rough rule of thumb, but based on the numbers that I see in the tables.

MR. ROBERT WATCHMAN: Now, if I could -- I should have asked when we were looking at real return bonds and the analysis there was based upon what Mercer had determined.

Do you have any opinion as to what level of investment should be made for Basic portfolio and the pension portfolio in real return bonds?

MR. VALTER VIOLA: I -- I think we put up one (1) of the earlier IR requests. There was a table at the bottom with a bunch of bullet points, if we could pull that up again, it did provide a range because the answer would depend on tolerance for risk.

MR. ROBERT WATCHMAN: Yes, and I believe it was ---

MR. VALTER VIOLA: It was a question from the utilities -- Public Utilities Board. If you pull up the slide, I could just --

MR. ROBERT WATCHMAN: Yes, and I believe that would be PUB Exhibit 16, page 13.

MR. VALTER VIOLA: At the very bottom. There you go.

So in the case of Basic and -- would you like me to read it, and that might answer the question?

MR. ROBERT WATCHMAN: Yes, I just -- I guess what I want to do is draw the distinction between the Mercer analysis and what you --

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: -- would say would be the optimal --

MR. VALTER VIOLA: Right. And again, and -- and this does sort of answer it because a) I don't have the asset liability model in front of me. I have no reason to doubt that it was -- I mean, I'm sure it was done accurately reflecting all the assumptions.

What I don't know is what level of risk, tolerance for risk, along the bottom axis and the efficient frontier, where you want to go.

So I set a range here. So I'll say number B, for example, in B in the case of pension and E in the case of -- sorry.

The letter B, where it says 60 percent; that's the allocation if MPI, in the Basic portfolio, had zero tolerance for risk. They wanted to minimize it because that's the allocation of the liability

benchmark portfolio, by definition that's the least risky.

So if you want to -- if you have a very low, i.e., zero tolerance for risk in Basic and you used the real analysis that Mercer did, then you would put 60 percent in real return bonds.

And if you were in the pension fund and you said I want to take no risk, recognizing that inflation risk exists in real interest rate risk, you would have 81 percent.

Now, those are extremes, that says taking no risk. No risk being in aggregate, including -- well, minimum risk, let's call it minimum risk. That's why I defined it as minimum risk portfolio rather than zero risk.

If you were to move from left to right along that spectrum of risk from low tolerance to higher, the allocation would fall. So let's talk about Basic.

So instead of 66 percent in answer B, you would say, again, I'm just relying on the graphs that Mercer gave us because I don't have an asset liability model in front of me.

If you chose to keep the same risk as they defined it as (c), I believe, current risk, or B,

I can't recall, but they used the consistent lettering for the current risk level with new capital market assumptions.

Then the allocation would be less than 66, it will fall to 40 percent. And if -- if -- if you have low tolerance for risk, somewhere between where the current portfolio's risk profile was to the least possible, it would be somewhere between 40 and 66 percent.

MR. ROBERT WATCHMAN: Now, in the earlier part of your response there, I think you might have said in respect of Basic, 60 percent, but I think you --

MR. VALTER VIOLA: I meant 66. Sorry, I apologize for that.

MR. ROBERT WATCHMAN: Thank you. Now, I want to turn now to --

MR. VALTER VIOLA: Can I make one (1) additional comment, just for context, because this is -- there's a lot of numbers.

You will recall that yesterday I showed the time series of the allocations of the Ontario Teachers Pension Plan?

MR. ROBERT WATCHMAN: Yes.

MR. VALTER VIOLA: This is a fund that

takes a lot of risk, and yet it has about -- a few years ago, two (2) years ago when I presented it had 19 percent in these kinds of assets.

So almost 20 percent, 1 in 5 dollars, despite the fact that it was -- so it was further along the risk spectrum. It's a different level of risk, it's a pension fund, not an insurance company with a pension plan as well. That -- that just provides context for, you know.

MR. ROBERT WATCHMAN: Thank you. I want to turn now to -- to your slides from yesterday, CAC Exhibit 28. And I want to look at Slides 36 and 37. And starting with slide 36.

Now -- so my understanding is -- is that the Basic graph itself was provided by Mercer in their further analysis?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: What is now exhibit -- MPI Exhibit 15.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And then you just superimposed the dotted lines and commentary in red.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: Which

highlighted what you referred to as opportunity cost?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And you spoke too about the opportunity cost, perhaps in terms of Basic, being only .8 percent, but you have to look at that over a long period of time.

MR. VALTER VIOLA: It's per year. So this is an expectation over the time horizon, yeah, so it's an annualized opportunity cost.

MR. ROBERT WATCHMAN: So is there any way of quantifying that opportunity cost?

MR. VALTER VIOLA: Multiply it -- in dollars, multiply it by the assets under management, and that's the foregone increase in value.

MR. ROBERT WATCHMAN: And when we -- when these slides were introduced yesterday, I think you made the comment that it doesn't -- doesn't contain the usual table that the Mercer graphs provided?

MR. VALTER VIOLA: Yes. The -- as you recall, the Mercer did a step type of approach and this was the last step I think that they took it out, so it was the only basis from which I could draw some conclusions so.

MR. ROBERT WATCHMAN: Okay. And so

perhaps we should turn then to MPI Exhibit 15, starting at what is page 6, slide -- so it ends up being Slide 5.

And so this is the analysis for the real liability benchmark for Basic?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And we see in the -- if we turn the page and in the next five (5) pages we have the graphic representation and then we have the table on the side.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And if we turn to page 12.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: Okay, so this is the slide that you took that didn't have the table.

MR. VALTER VIOLA: Correct.

MR. ROBERT WATCHMAN: And that's what became your slide -- what number was that last one?

MR. VALTER VIOLA: 36.

MR. ROBERT WATCHMAN: 36.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And so if we -- we can look at the same if we go later in the report, starting at page 18 and the pages following, we have

that same analysis in respect of pension?

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And then we get to page 24. And this is the slide that you used for pension, which became your Slide 37 --

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: -- correct? Now, if we could just go back to Slide 36 from CAC Exhibit 28, and you recall yesterday that Mr. Scarfone asked you some questions about the difference between the -- the top line and the current.

MR. VALTER VIOLA: Yes.

MR. ROBERT WATCHMAN: And the point that Mr. Scarfone was making is that -- so with the removal of RRBs we don't know what happens -- how those monies are reinvested.

Do you recall that question?

MR. VALTER VIOLA: Yes. Yes, I do.

MR. ROBERT WATCHMAN: And -- and the point that Mr. Scarfone was was well they could -- they might be invested in private equity or private debt, some more riskier.

MR. VALTER VIOLA: Right.

MR. ROBERT WATCHMAN: And the question that was asked of you was well, but you -- you can't

say how the monies were reinvested in the preparation of this chart.

MR. VALTER VIOLA: Correct.

MR. ROBERT WATCHMAN: And is the reason you can't say is because Mercer didn't provide that information?

MR. VALTER VIOLA: The quick answer is yes. Yeah, what's -- what's nice to have when these are done is underneath it is the asset allocations that correspond to various dots along the efficient frontiers.

If you recall in prior studies, those were -- I think -- I believe those were available, but I'm not sure.

MR. ROBERT WATCHMAN: Thank you, Mr. Viola. Thank you, Mr. Chair, those are all our questions.

THE CHAIRPERSON: Thank you. We're going to take a break for fifteen (15) minutes and then go into CS -- sorry, re-examination. Pardon me, Mr. Williams, sorry.

RE-DIRECT EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Just a couple of questions.

Mr. Viola, you recall a conversation with My Learned Friend, Mr. Scarfone, from Manitoba Public Insurance in terms of the Ontario Teachers Fund Composition yesterday?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: Do you have access to the most recent annual report of the Ontario Teachers --

MR. VALTER VIOLA: Yes. We --

DR. BYRON WILLIAMS: Okay. If requested by the Public Utilities Board, would you be able to provide an up-to-date analysis based upon the most recent annual report?

MR. VALTER VIOLA: Certainly, yes.

DR. BYRON WILLIAMS: No further questions.

THE CHAIRPERSON: Thank you.

We'll take a fifteen (15) minute break and then we will go into CSI.

Kristen, if you could cut off the live stream at this point. Thank you.

--- Upon recessing at 10:14 a.m.

(CSI PORTION UNDER SEPARATE COVER)

--- Upon resuming at 11:05 a.m.

THE CHAIRPERSON: Okay, we're back into open session, but I guess we're not ready.

(BRIEF PAUSE)

MR. STEVE SCARFONE: Mr. Chair, could I speak to an exhibit that needs some clarification?

THE CHAIRPERSON: Is this the same exhibit Mr. --

MR. STEVE SCARFONE: No.

THE CHAIRPERSON: Okay. Certainly, Mr. Scarfone.

MR. STEVE SCARFONE: Okay. Thank you. So, I just was asked by the Board Secretary to bring to the Board's attention that MPI Exhibit 48, previously filed, is the same exhibit that MPI filed apparently as CSI-7 -- just as -- it's a little unorthodox to have two (2) exhibit numbers for the same thing, but that's -- that's what occurred, I'm told by Mr. Christle.

THE CHAIRPERSON: Okay. So Exhibit 48 then is -- is -- is a public document?

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: Okay. Thank you.

MR. STEVE SCARFONE: Thank you.

THE CHAIRPERSON: Appreciate that. Mr. -- Mr. Williams, are we ready or...

(BRIEF PAUSE)

DR. BYRON WILLIAMS: So, Ms. -- I just for the record I want to indicate that Ms. Dilay's more efficient than Mr. Viola.

But, Mr. Chair, this is a collaborative exhibit jointly being -- like MP -- based upon collaborative discussions with MPI and CAC Manitoba.

And you'll recall in -- in cross-examination yesterday, MPI asked for commentary regarding the Ontario Teachers' Pension Fund, their composition of real assets, and I just want to indicate, we are going to be providing in -- in a full exhibit, first of all, an excerpt from the Ontario Teachers Pension Plan Annual Report the eleven (11) year financial review just one (1) page, being page 95 and then, as well, from the Ontario Pension Plan's website an excerpt relating to the performance of its Pension Plan, pages 1 and 2 of that.

As I said, this was based upon

conversation with MPI, so I -- I'm -- I'm going to ask --

THE CHAIRPERSON: So -- sorry. Are we giving this an -- an exhibit number?

DR. BYRON WILLIAMS: Yes. We'll give it, I'll suggest CAC-29.

THE CHAIRPERSON: Thank you.

--- EXHIBIT NO. CAC-29: Excerpt from the Ontario Teachers Pension Plan Annual Report the eleven (11) year financial review just one (1) page, being page 95 and then from the Ontario Pension Plan's website an excerpt relating to the performance of its Pension Plan, pages 1 and 2 of that.

CONTINUED RE-DIRECT EXAMINATION BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: And perhaps we'll go to the -- referring to the website page -- the second page of it. Yeah, the second page, please,

Kristen.

Okay, Mr. -- we'll -- Mr. Viola, I'll direct your attention -- this is fine, Kristen, right -- right where -- where it is -- to under real assets, you'll see a line saying "real rate products."

Do you see that, Mr. Viola,

MR. VALTER VIOLA: Yes. Yes.

DR. BYRON WILLIAMS: It's about two-thirds (2/3s) of the way down the page

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: And you recall a question from MPI asking if you'd be surprised if there was -- if you were told that teachers had 1.5 billion in real product, real rate products?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: Okay, so you see the 1.5 billion there, sir.

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: I wonder if you could go up under "fixed income," on the same page up to "real rate products" and you'll see another figure there, sir, of -- I'll suggest to you 20 billion?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: And then if we can go down under "inflation sensitive," you'll also

see reference to an inflation hedge, sir, of 8.9 billion?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: And finally, sir, you'll see reference under real assets to real estate of 25.5 billion, and infrastructure of 18.7 billion?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: And just to the bottom line of this net investment of the fund, it's in the range of 185 billion, sir?

MR. VALTER VIOLA: Yes.

DR. BYRON WILLIAMS: Is there anything you want to add in terms of explanation?

MR. VALTER VIOLA: Sure. The -- so when you add those inflation sensises -- sensitive and real rate products up, I think the number you come up with is about 16 percent of the portfolio, if I'm not mistaken.

And if we go to one (1) of the exhibits that I showed yesterday, Slide 21, again, that's the exhibit unaltered from two (2) years ago, which was designed to support discussion about the asset mix that a fund like a big fund had, and noting that $1 in five, 19 percent was in what we called, real rate products.

It looks like Teachers in the last year or so has reclassified things, but at the end of the day, they still have a lot of interest rate -- sorry, inflation and real rate protection through but they've just classified things a little differently.

So -- so the 19 percent that you saw at the end of 2015, if we go two (2) years now to the end of 2017 for the website and the finan -- and the annual report, it looks like the number's down a little bit by 3 percent.

DR. BYRON WILLIAMS: Okay. And I thank you and -- and Mr. Chair, we do appreciate the collaborative efforts of MPI just because we were jointly concerned with the record, and we appreciate that My Learned Friends approaching us on this issue.

THE CHAIRPERSON: Thank you. Mr. Scarfone, did you have any questions in relation to this? Certainly.

MR. STEVE SCARFONE: Just one (1) , Mr. Chair, and -- and I too thank My Learned Friend for allowing us to clarify. Perhaps I do have two (2) questions.

RE-CROSS-EXAMINATION BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Is there any

particular reason that you're aware of, Mr. Viola, why the -- why your former employer breaks down their -- the real rate products in the manner they do?

MR. VALTER VIOLA: The quick answer is I don't, but I can have a couple hypotheses, different benchmarks for different components and different accountability for actually managing the underlying assets.

MR. STEVE SCARFONE: I see.

MR. VALTER VIOLA: And it could be that some are just meant to be buy and hold and park them and sit there and -- and basically don't try to beat the benchmark and -- but I don't know. Those -- those are just two (2) theories.

MR. STEVE SCARFONE: Okay. My -- my second question, excuse me. So of those three (3) components, the 20 billion, the 1.5 billion and the 9 billion in the inflation hedge, do we know what percentage of the -- that total would constitute real return bonds?

MR. VALTER VIOLA: The quick answer is no, I don't have it. I mean, I -- I -- I skimmed the annual report briefly. It was hard to figure it out. I suspect that, you know what, you could look at the index. They usually list the big holdings. I haven't

looked at those, but --

DR. BYRON WILLIAMS: Okay.

MR. VALTER VIOLA: -- but we could.

MR. STEVE SCARFONE: But I gather you would expect that a large majority of that would comprise real return bonds?

MR. VALTER VIOLA: I'd be surprised if they sold a big chunk of them, but again, who knows, in the context of the whole portfolio, who knows what they could've done. But we could -- we could look at -- of the long listing and compare years over years or we could -- we could probably do that very -- fairly quickly. I haven't done it though.

MR. STEVE SCARFONE: Okay. Thank you. Those are my questions.

THE CHAIRPERSON: Thank you. Mr. Watchman, any questions?

MR. ROBERT WATCHMAN: No questions, Mr. Chair.

THE CHAIRPERSON: Mr. Williams, any re-exam?

DR. BYRON WILLIAMS: No, re-exam, Mr. Chair, and Members of the Panel. We thank you for your courtesy.

THE CHAIRPERSON: Thank you very much

and thank you very much, Mr. Viola.

MR. VALTER VIOLA: My pleasure. Thank you.

(WITNESS STANDS DOWN)

THE CHAIRPERSON: Okay, that concludes the -- the evidence portion of the hearing. We're now going to proceed to closing submissions and we'll start with Board Counsel.

(BRIEF PAUSE)

THE CHAIRPERSON: Thank you. Ms. McCandless...?

CLOSING COMMENTS BY MS. KATHLEEN MCCANDLESS

MS. KATHLEEN MCCANDLESS: Thank you. We have now completed the evidentiary portion of this public hearing with respect to the 2019 General Rate Application or GRA filed by Manitoba Public Insurance.

The Board will soon deliberate on the application for base rates and premiums charged for compulsory vehicle and driver vehicle insurance to take effect on March 1, 2019.

As counsel to the Board, I do not take any position on the merits of any part of the Application or the positions taken by any of the parties. My role is to summarize the matters that are before the Board and outline issues that it may wish to consider in making its decisions.

In its Application the Corporation has requested a 2.2 percent overall increase in Basic premium revenue comprised of .1 percent increase, reflecting the break-even cost of policies, and a 2.1 percent increase for a net capital maintenance provision to maintain Basic's capital position through the rating year.

This is the first time the Corporation has sought a Capital Maintenance Provision. This step is being taken further to PUB Order 130/'17, which required that a technical conference take place, seeking a consensus approach to estimating a Capital Maintenance Provision, and which technical conference took place on March 2nd, 2018.

MPI seeks no changes to vehicle premium discounts, and does not propose any changes to service or transaction fees, permit and certificate fees, fleet rebates, or surcharges, or the discount for aftermarket, and manufacturer or dealer installed

antitheft devices.

The breakdown by major vehicle class of the overall average rate adjustment of 2.2 percent, as proposed by MPI is as follows:

For private passenger, an overall increase of 2.4 percent.

For the commercial class, an overall increase of 2.4 percent.

For the public class, an overall increase of .6 percent.

For motorcycles, an overall increase of 3.1 percent.

For trailers, an overall decrease of 4.7 percent.

And for off-road vehicles, an overall decrease of 20 percent.

After consideration of insurance use and territory, and capping and balancing for experience rate adjustments, the results were modelled by the Corporation to assess the impact of various rate and classification changes.

In total, the vehicle population for the year of the application is one million one hundred and forty-nine thousand one hundred forty (1,149,140) vehicles, to which the proposed rate would be applied

as follows:

Six hundred and one thousand three hundred and twenty-four (601,324) vehicles, or 52.3 percent of the overall fleet would receive a rate increase, the majority of which would be ninety-nine dollars ($99) or less.

Four hundred and sixty-two thousand one hundred and ninety-six (462,196) vehicles, or 40.2 percent of the overall fleet, would receive a rate decrease.

And eighty-five thousand six hundred and twenty (85,620) vehicles, or 7.5 percent of the overall fleet, would receive no change in rates.

The Corporation's estimate of its overall rate requirement is sensitive to the methods and assumptions used in its derivation. Apart from the introduction by MPI of the net Capital Maintenance Provision with this year's application, the Corporation indicated that no significant methodological changes nor any changes in the basis of selection of assumptions for the determination of the rate indications were otherwise introduced this year. Nevertheless, considerable attention was paid through the interrogatory and hearing process to the matter of interest rate forecasting, along with the new proposed

net Capital Maintenance Provision.

With respect to interest rate forecasting, in this application, the Corporation has, again, adopted a naive interest rate forecast, in effect, assuming no change in market rates from current levels, all linked to a Government of Canada ten-year bond yield of 2.24 perc -- percent.

As the application was prepared in the spring, the Application's original naive interest rate forecast reflected market interest rates from that time. Since the spring market, interest rates have moved upward by 19 basis points, such that a Government of Canada ten-year bond yields 2.43 percent as at the end of September 2018.

Based on this update alone, and continuing with a naive interest rate forecast, the Corporation determined that the indicated rate increase dropped from 2.2 percent to 1.8 percent, including the net Capital Maintenance Provision.

The Corporation also provided an estimate of the impact of instead forecasting interest rates based on an average of the naive forecast and the consensus of bank forecasts, the so-called 50/50 forecast. Based on market rates to the end of September, 2018, the Corporation estimates its overall

rate requirement would fall to 1 percent, based on the 50/50 interest rate forecast.

In defence of its proposal to use the naive interest rate forecast, the Corporation provided a new statistical analysis comparing the bias and efficiency of the naive forecast as compared to the 50/50 forecast, as well as the consensus bank forecast. This analysis concluded that over the recent historical period spanning the 2005 GRA to the 2018 GRA, the naive out -- forecast outperformed the alternatives, showing less bias and less variance compared to actual interest rates.

With respect to the Capital Maintenance Provision, MPI has proposed a net Capital Maintenance Provision, or a net CMP, to recognize the expected return on investment assets supporting Basic total equity, and to maintain Basic's capital position. Specifically, the net CMP is designed such that -- that the minimum capital test ratio forecasted at fiscal year-end 2019/'20 remains the same as the level forecasted at fiscal year-end 2018/'19.

MPI proposes a net Capital Maintenance Provision of 2.1 percent, which represents collecting $22.6 million in 2019/'20, $23.6 million in 2020/'21, and similar amounts in subsequent years, all assuming

continuation of the current proposed net CMP totaling to approximately $96 million over the next four (4) years to maintain Basic's capital position. The Corporation indicated that it will review -- review adjusting the level of the net CMP with each successive GRA.

With respect to financial results, the Corporation has provided to the Board its actual financial results with respect to the 2017/'18 year, as well as for the first six (6) months of the current year, 2018/'19.

For the 2017/'18 fiscal year, Basic incurred net income of $34.4 million, compared with forecasted net income of $57.5 million at last year's GRA, a negative variance of $23.1 million. This negative variance was attributed by the Corporation to an increase of $27.8 million in net claims incurred cost, primarily due to higher write-down and deferred policy acquisition cost, premium defic -- deficiency than forecasted of $16 million, lower physical damage claims of $34.8 million, and lower than forecasted interest rates of $59.8 million.

Overall, there was a negative variance of $37.6 million in underwriting results from that presented last year. Offsetting this, the positive

variances were attributed, in part, to investment income, which was $116.3 million, $14.5 million higher than the $101.8 million forecast last year. The higher level of investment income was attributable primarily due to higher than expected alternative investment income of $13.9 million.

With respect to the current year, 2018/'19, the subject of last year's GRA, MPI forecasts for Basic a net loss of $21.3 million for rating purposes revised to a net income of $135.6 million in this GRA. This positive change was primarily due to higher than expected equity investment income of $106.1 million, higher forecast growth in interest rates of $16.7 million, lower forecast for physical damage claims, $18.5 million, and lower forecasted write-down deferred policy acquisition costs, premium deficiency, $19 million, which resulted in a forecast reduction in net claims incurred of $47.1 million.

MPI filed its second quarter report as MPI Exhibit Number 24. For the first six (6) months of 2018/'19, the Corporation reported a net income of $72.8 million, an improvement of $42.3 million from last year for the same period. Of the $72.8 million in reported net income, MPI reported $39.4 million

related to Basic, compared to a net income of $9.2 million for the same period last year, an improvement of $30.2 million for the six (6) month period.

MPI reports that claims costs increased by $5 million, or .9 percent, compared to last year due to an increase of $11.8 million, or 4.1 percent in physical damage claims incurred, offset by a decrease of $5.6 million, or 3.2 percent in bodily injury claims incurred. This increase in physical damage claims was primarily due to a major hail event which occurred June 14, 2018, which was mitigated by reinsurance in the amount of $14.6 million. The $5.6 million increase in bodily injury claims was due to a $22.5 million favourable interest rate impact on unpaid claims, offset by an increase in direct claims incurred by $25.7 million.

MPI reported that it was currently ahead of its planned forecast for the 2018/'19 year, based on results for the first six (6) months, due to favourable claims experience. MPI forecasts net income of $17.9 million for 2019/'20, and $17.7 million for 2020/'21, based on the proposed 2.2 percent applied for rate increase.

In establishing Basic rates, the Board has stated in -- in the past that it looks to the

overall financial wellness of the Corporation. MPI's Board of Directors directed that $37.3 million be transferred from the Extension line of business to the Basic Rate Stabilization Reserve, as at February 28, 2018, to raise the rate stabilization reserve, or RSR, to $211 million. MPI reported that this transfer was made to ensure that Basic total equity was above the amount required for Basic to be in satisfactory financial condition of $201 million as per the 2017 Dynamic Capital Adequacy Testing, or DCAT report.

This is the fourth -- the fourth consecutive year in which the Board of Directors has directed a transfer to the Basic rate stabilization reserve. Prior transfers include $27.8 million in 2016/'17, $75.7 million in 2015/'16, and $72.7 million in 2014/'15. The Corporation has, as of year-end 2017/'18, $352 million -- .6 million in retained earnings, including 171 million in Basic, 100 and -- 102.5 million in Extension, and $81.7 million in Special Risk Extension, or SRE.

Overall corporate total equity as at February 8, 28 -- February 28, 2018, including accumulated other comprehensive income, was $399 million, of which $210.8 million relates to Basic operations, 102.9 million to Extension, and 85.3

million to SRE.

With respect to the Rate Stabilization Reserve and Dynamic Capital Adequacy Testing, by Order 162/'16, the Board approved the following definition of the purpose of the RSR:

> "To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results, and due to events and losses arising from nonrecurring events or factors."

The Dynamic Capital Adequacy Testing, or DCAT report, was prepared internally by MPI's chief actuary, Mr. Luke Johnston, in accordance with the Canadian Institute of Actuary Standards of Practice and accepted actuarial practice in Canada. The DCAT report reflects that Basic's future financial condition will be satisfactory if, throughout the forecast period, it is able to meet all its future obligations under all plausible adverse scenarios, and under the base scenario that it meets the minimum regulatory capital requirement.

Based on this definition, Mr. Johnston concluded that Basic's future financial condition is

satisfactory based on the proposed regulatory minimum RSR target level of $143 million. The DCAT has been prepared using a base -- base scenario financial forecast consistent with that of the GRA, including the use of a naive interest rate forecast, but specifically excluding the net CMP, which the Corporation believes should not be included.

With respect to the total equity target capital range, in Order 130/'17, the Board stated that it continues to favour scenario-based testing for the setting of both the lower and upper Basic total equity thresholds, including the iterative approach, which has evolved from the collaborative process.

The Board ordered that the lower Basic total equity threshold be set at $180 million, based on the iterative mod -- modelling of a 1:40 year or 97.5th percentile scenario over a two (2) year time horizon after routine management or regulatory actions.

The Board further directed that the upper threshold for Basic total equity be set at $325 million, established on the same basis.

Determination of the target range for Basic total equity is based upon the risks facing MPI's Basic insurance operations. MPI noted that

recent changes in how the Corporation manages investments has significantly reduced the risk -- risks it faces. MPI put forward that applying this methodology in the context of this year's GRA results in a lower threshold of $120 million and an upper threshold of $251 million.

In this GRA, the Corporation is seeking approval for a low -- lower total equity threshold of a 34 percent MCT, equivalent to a forecasted Basic total equity balance of $143 million, based on a 1:40 year probability Dynamic Capital Adequacy Test adverse scenario after routine management and regulatory actions over a two (2) year time horizon.

The Corporation argues that the $143 million represents the lowest amount required for satisfactory financial condition. In this regard, the Corporation has deviated from the Board-approved methodology set out in PUB Order 130/'17.

The Corporation also proposes a Basic total equity target range with an upper threshold based on a minimum capital test ratio of 85 percent, which was determined to equate to a -- a forecasted Basic total equity of $305 million based on a 1:40 DCAT adverse scenario, with no management or regulatory actions over a two (2) year time horizon.

Assuming no management or regulatory actions is a deviation from the Board-approved methodology as set out in Board Order 130/'17. The Corpor -- Corporation has calculated the lower and upper Basic total equity thresholds based on modelling before the inclusion of the proposed net Capital Maintenance Provision. Since the CMP is intended to maintain or adjust capital within the calculated range, the Corporation -- Corporation believes its inclusion in the target capital analysis would distort the calculation of the Basic total equity targets and reduce their consistency and stability.

The Corporation indicated that it will be bringing forward a Capital Management Plan in the 2020 GRA. The Corporation anticipates that this plan will include build-and-release provisions designed to ensure that Basic would operate within the limits of the established Basic total equity range. The Corporation believes the introduction of a net Capital Maintenance Provision in this application can be introduced without a Capital Management Plan.

With respect to investment income in the investment portfolio. The funds available for investment are primarily unearned premium reserves and unpaid claims reserves. The investment portfolio

supports both the payment of accident claims, as well as the pension obligations of the Corporation. The size of the Basic investment portfolio for the year of the application is prese -- projected to be $2.45 billion for 2018/'19, growing to 2.93 billion in 2020/'23 -- pardon me, 2022/'23.

Historically, the Corporation's investment income has been a major component of its income, and has offset its annual underwriting losses. Last year, total Basic investment income was forecasted to be $101.8 million. Actual base -- actual investment income for Basic was $116.3 million against an underwriting loss of $81.9 million, for a net income of $34.4 -- 4 million. The positive variance of $14.5 million in investment income from forecast can be primarily attributed to higher than expected real estate pooled fund returns.

In the current forecast, using a naive interest rate forecast, corporate invested -- investment income is presen -- projected to be $223.5 million for 2018/'19, of which Basic's share is $191.8 million. Based on the September 30, 2018 naive interest rate forecast of 2.43 percent for a Government of Canada ten-year bond, which reflects an increase of 19 basis points from the 2.24 percent used

in the GRA filing, the Corporation is now projecting investment income of $171.4 million for Basic to offset a revised underwriting loss now forecast at $28.3 million. Net income for 2018/'19 is now forecast to be $143 million. Investment income is forecast to be $84.8 million in 2019/'20, offsetting an underwriting loss of $65.9 million, for a net income of $18.9 million for the year.

MPI is part of an Investment Committee Working Group, which is comprised of representatives of the Department of Finance and of the Corporation, which prepares an annual work plan for the investment fund, and annually reviews the investment policy statement. The investment policy statement discusses aspects of the Corporation's investment portfolio, including investment policy, investment income, investment rebalancing, and the retainer and monitoring of extern -- external investment managers.

Mercer was retained by the Corporation to assist with conducting an Asset Liability Management, or ALM study. The ALM study was completed in late 2017, and filed in this GRA.

Resulting from the ALM study will be the separation of the Corporation's co-mingled investment portfolio into five (5) unique portfolios

that back the Corporation's liabilities and surplus. The transition into five (5) unique portfolios is planned to occur at the end of Q4 2018/'19, with the complete transition expected to be by Q4 2019/'20.

The five (5) unique portfolios include: Basic claims, Basic rate stabilization reserve, pension, extension and special risk extension.

The current allocation of 70 percent in bonds and 30 percent in growth assets will be effective until February 28, 2019 and the five (5) new investment port -- portfolios will be effective after February 28, 2019 as a result of the ALM study.

As a result of the implementation of the changes arising from the ALM study, Basic net income is forecasted to increase by $95 million in 2018/'19, primarily as a result of the realization of accumulated other comprehensive income on equity assets due to the separation of assets into unique portfolios.

The new ALM strategy will require the Corporation to liquidate all of its US holdings and Canadian equity holdings in order to make the necessary asset allocation changes required for the five (5) distinct portfolios.

Total equity is forecasted to be lower

because investment asset returns are forecasted to be lower with fewer growth assets.

The MCT, or Minimum Capital Test, ratio will increase by roughly 16 percent at the end of 2018/'19, from 54 percent to 69 percent, due to lower capital requirements on the Basic line of business investment assets. These projections are based on a naive interest rate forecast.

With respect to operating expenses, total corporate expenses were $299.2 million in 2017/'18, and are forecast to grow to $301.7 million in the current fiscal year. MPI forecasts total corporate extended -- expenditures to be $298.8 million in 2019/'20 and $306.7 million in 2020/'21.

MPI's global corporate costs are to be allocated among the insurance and non-insurance categories of business and by automated -- automobile insurance lines of business, so as not to give rise to cross subsidies -- subsidization.

Costs are allocated to Basic through an integrated cost allocation methodology, which was approved by the Board in Order 157/'12. There have been no material changes to the integrated cost allocation methodology in this application.

Upon the completion of the allocation

process, expenses attributable to the Basic program are ex -- are established for normal operations and improvement initiatives. Total Basic expenses were $231.1 million in 2017/'18 or 77.3 percent of corporate expenses and are forecast to be $230.5 million in 2018/'19, 17 -- pardon me, 76.4 percent of corporate.

Thereafter, Basic expenses are forecasted to decrease to $226.6 million in 2019/'20 or 75.8 percent of corporate, and $233.3 million or 76.1 percent of corporate in 2020/'21.

Salaries and benefits are a major component of the operating expenses of Basic, representing over 58 percent of the total operating expenses in the year of the application.

Since 2014/'15, the Corporation has experienced a compound annual growth of salaries and benefits of 2.6 percent with compensation that has grown from $113 million in 2014/'15 to $124.4 million in 2017/'18. Salaries and ben -- benefits are forecast to be $130.5 million in the current year and are forecast to be $133.5 million in 2019/'20.

MPI is now forecasting an increase in compensation expenses, net a vacancy allowance, of 4.52 percent in 2018/'19 and an increase of 3.18

percent in 2019/'20.

Staffing for 2017/'18 was 1,878.1 full-time equivalents overall and the Corporation is projecting a staffing level of 1,902.5 full-time equivalents for 2018/'19. Normal operations were 1,860.9 full-time equivalents in 2017/'18, and were forecast to grow by 13.2 to 1,874.1 full-time equivalents in normal operations. Initiatives staffing levels increased from 14.7 full-time equivalents to 18.5 full-time equivalents.

MPI reported in its Q2 report that its actual staffing level for the first two (2) quarters of this year was 1,762 full-time equivalents. MPI indicated that it expects the level of staffing to increase through the remainder of this year as it fills vacancies. The Corporation builds into its financial forecast a vacancy allowance to account for staff turnover.

MPI's 2018/'19 budget and staff complement includes 368.2 full-time equivalents to support its infa -- IT infrastructure and projects, of which 286.2 full-time equivalents are internal staff and 82 full-time equivalents are external IT contractors.

MPI has indicated that 20 positions

have been converted to date in its external labour strategy, which plan to internalize 27 IT positions over the 2016/'17 to 2019/'20 fiscal years. With this approach, MPI expects to achieve between 2.4 and $3 million in annual savings.

With respect to capital expenditures, MPI projected Basic capital expenditures to be $17.5 million for 2018/'19, $26.2 million for 2019/'20 and $31.7 million for 2020/'21. So over $75 million in the next three (3) years.

The majority of the capital expenditure or $110.9 million, is an ongoing and future IT projects, including the future IT project legacy systems modernization, which relates to the replacement of legacy systems at a budgeted cost of $58.6 million.

The Board has heard at this hearing that the -- that MPI has implemented a value management process to support the need for capital spending decisions.

MPI described this approach as a cultural shift for the organization, where major projects require a business case, including looking internally at all costs and benefits for a project.

The mal -- value management process

identifies IT costs that are required to maintain the functionality of software, licensing fees and insure -- insurance costs as ongoing costs to support operations.

MPI has created business cases for business transformation office manage projects of $500,000 or more in the 2018/'19 capital budget. As part of its overall value management process review, MPI wrote off $20.5 million in deferred development projects, of which $18.5 million related to Basic projects.

MPI reported the customer claims reporting system component of the physical damage re-engineering program was cancelled with a write-off of costs of $15.6 million.

With respect to physical damage re-engineering, Mr. Chuck Henry from Gartner appeared as a witness with the Corporation on its information technology, physical damage, re-engineering and value management panel.

Mr. Henry presented Gartner's update of the cost benefit analysis for the multi-year physical damage re-engineering project. Gartner stated in its report filed in last year's GRA that the initial initiative was made up of five (5) programs and twenty

(20) projects within these programs. Eight (8) were completed, seven (7) were cancelled after determining they were not strategic and did not meet the business case, and five (5) were restructured projects which then comprised the remainder of the PDR program.

The overall budget remained unchanged at $65 million and showed sustained benefits of $13 million and reflected a net present value of the project as a positive $13.7 million.

MPI management undertook a review of the physical damage re-engineering, or PDR project, in early 2018, applying its value management process. The Corporation restated the PDR costs and benefit projections. The total budget of the physical damage re-engineering project has changed to $57 million from the originally projected $65 million, based on the reduction in scope of the project.

The net present value reported by Gartner last year at $13.7 million was revised to a negative $49.9 million, based on the MPI re-evaluation of the project costs and benefits.

With respect to benchmarking, Gartner's evaluation of the Corporation's information technology showed that MPI spends 63 percent of its IT budget on personnel, versus 44 percent for its peers and that

MPI IT staff composition is 34 percent made up by contractors, verses 17 percent for its peers.

MPI improved its overall maturity rating from 3.42 in 2015 and '16 to 3.52 in 2016/'17.

The CIO scorecard, which was -- has been used by Gartner in the past to assess MPI's process maturity, has since been discontinued by Gartner. The current recommendation for IT maturity assessments is Gartner's IT score. In 2016/'17 MPI's overall maturity level was assessed by Gartner at 3.1, using the IT score methodology.

The Corporation presented its information technology strategy for 2018/'19. In it the Corporation indicated that significant changes and practices have been adopted moving forward. In particular, six (6) main streams were discussed that were changed from the prior technology approach:

Move toward proven technologies;

Identify all risks of a project prior to project initiation;

Use of a project sponsor;

Align where possible to industry best practices in vendor provided software;

Have the net value management process become ingrained in MPI culture and the project life

cycle;

And create IT capabilities to support business capabilities to solve a business objective.

With respect to road safety spending, MPI is forecasting to spend $12.7 million in Basic road safety and loss prevention programs in 2019/'20. The largest component is spent on driver education, including the high school driver education program, which is approximately $3.9 million, or 31 percent of the overall budget.

Impaired driving prevention strategies are the second last -- second largest expenditure at $2.3 million, or 18 percent of the overall budget. Auto crime prevention strategies are forecast at $0.7 million, or 5 percent of the overall budget. The balance of the road safety programs are advertising and sponsorships, road safety programming and RoadWatch, which is increased enforcement.

MPI has discontinued the immobilizer program for 2019/'20 as a result of all new vehicles now having built-in electronic immobilizer technology. MPI estimates the savings related to the discontinuation of this program to be $1 million.

MPI also discontinued the entry-level professional truck driving training course, which

reimbursed individuals for taking the professional truck driver training. MPI reported that it cancelled the program with the support of the Manitoba Trucking Association because the framework was well established and funding was available from other sources.

Mr. Chair, members of the panel, I have attempted to comment on the main issues that arose this year. I would like to thank MPI and the Intervenors for their cooperation extended throughout this hearing, and this concludes my submissions. Thank you.

THE CHAIRPERSON: Thank you, Ms. McCandless.

We're going to adjourn until one o'clock, when MPI will present its submission. I would indicate that there will be a -- I will be making a short statement at the beginning in -- in relation to Mr. Ward Keith, who is resigning at the end of this year but we'll adjourn until one o'clock. Thank you.

--- Upon recessing at 11:48 a.m.

--- Upon resuming at 1:27 p.m.

THE CHAIRPERSON: Good afternoon.

Before we start with the submission of MPI, I'd like to say a few words on behalf of the Board to Ward Keith, who is, we understand, retiring from MPI at the end of the year and is appearing on behalf of MPI before the Board for the last time.

Some thirty-four (34) years ago, Ward started in the mail room of MPI. At the end of this year he will retire as vice-president. Ward gained tremendous experience climbing the MPI corporate ladder: Ten (10) years in the bodily injury claims department, staff trainer for the personal injury protection plan, member of the Autopac online implementation team, manager of strategic relationships with insurance brokers, director of customer service, member of the executive team as executive director driver safety and regulatory control, as well as registrar of motor vehicles. Finally, the vice-president Business Development and Communications and Chief Administrative Officer for MPI.

He was the go-to person for the tough assignments, the trusted advisor, the humble colleague and transformative leader. Ward has been recognized for his achievements by other organizations including the Canadian Council of Motor Transport Administrators

and the American Association of Motor -- Motor Vehicle Administrators as Manitoba's chief representative.

MADD Canada presented him with a Citizenship Distinction Award for his dedication to road safety and loss prevention. He was also the president of the Insurance Institute of Manitoba. Ward has been actively involved within the community through a number of voluntary positions at the United Way and as a fundraiser for cancer research.

While I was in private legal practice, which some days feels like a generation ago, I was involved in the introduction of two (2) major projects with Ward: CARFAX and Slingshot, both involved new initiatives. There was no template. So we started from scratch. Throughout both initiatives, Ward was always forthright, he set out realistic targets and found a way for MPI to introduce the initiatives within a reasonable timeframe.

It was a consummate pro and someone I learned could be trusted. Ward's word has always been his bond.

Ward, on behalf of the Public Utilities Board of Manitoba, I would like to thank you for your ongoing dedication to MPI and for your service to the people of Manitoba. We wish you great health and

happiness as you enjoy the fruits of your labour in the many years ahead. Thank you.

If you have -- please, if you got any words.

MR. WARD KEITH: If I can, thank you, Mr. Gabor. First of all, thank you for those very kind words. You know, in the thirty-four (34) years that I've been with MPI I've had the real privilege of being involved in a number of strategic initiatives that have helped to define the organization and the value that the organization brings to Manitobans, and I'm talking about value both in terms of the products and services that we provide, but also in terms of our broader involvement with stakeholders when it comes to road safety and loss prevention and keeping our roads as safe as possible.

And as -- as part of this process for many years, I truly do believe that the value that Manitoba Public Insurance brings under this public insurance framework that we have here has been not only validated but often enhanced as a result of the overview of this Board and the involvement of people like Mr. Oakes on behalf of CMMG and Dr. Williams on behalf of the CAC. So, for that I thank you for your kind words. I thank you and -- for letting me part --

be part of this entire process. I thank you for that as well. It has truly been one (1) of the highlights of my career. Thank you.

THE CHAIRPERSON: Thank you very much, sir. We appreciate it.

Mr. Scarfone, tough act to follow.

FINAL SUBMISSIONS BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Yes. When I signed up for this, I did not realize that this would be the case, but yes.

So, Mr. Chairperson, we are ready to proceed with MPIC's closing submissions for the 2019 General Rate Application. Just before doing so just to formalize things, MPIC Exhibit 50 will be the written closing argument and the slide deck that is up before you on the screen will be marked as MPI Exhibit Number 51.

--- EXHIBIT NO. MPI-50: MPIC'S closing submissions for the 2019 GRA.

--- EXHIBIT NO. MPI-51: PowerPoint Presentation

MR. STEVE SCARFONE: And so before

beginning, Mr. Chair and panel members, I just want to remind the panel that there are, in fact, these two (2) presentations, the slide presentation was -- as you might expect put together in a rather accelerated manner, so, we encourage the Board to turn their attention to the written submission, but the slide deck will, as you might expect, hit the high points, if you will, with some commentary by myself and Mr. Guerra along the way.

But the written closing is the one that we encourage the Board to -- to read and deliberate upon.

So the second slide, please Ms. Hubert (sic). So, we're going to begin by going through a framework -- just past the introduction, Kristen, please. Going through the -- the framework for the 2019 general application. When I say "the framework," it sets out really what Ms. McCandless identified in her closing remarks, and that is, what the Corporation is seeking in this year's General Rate Application. I think we're all familiar with that. the .1 percent rate increase, the 2.1 percent for a net Capital Maintenance Provision, the RSR targets the Corporation is seeking, 85 percent MCT, and lower target of 34 percent MCT.

We're asking that the Board make a finding that the naive interest rate forecast should be the methodology used in -- in forecasting interest rates if -- wherever they might to be forecasted and there's a couple of situations where that applies and, of course, we're asking that the interim vehicle for hire rates, that Order that was issued earlier, be finalized on -- on -- on a final basis.

That the Board knows that there was an updating of the --of the rate indication that was the result of a PreAsk and as of September 30th, 2018, there has been an adjustment to the rate indication whereby there is now a .2 percent -- .26 percent decrease in rates and the net Capital Maintenance Provision has been accordingly adjusted to 1.80 percent.

The targets have adjusted as well as a result of the -- the updated interest rate figure. The upper target is now $315 million, and that's 88 percent MCT. The Corporation would like to emphasize that this particular target makes use of the PUB approved methodology.

The Corporation would also emphasize that, as you've heard, Mr. Chair, the Corporation does not agree with the methodology used, but has made use

of the -- the Board approved methodology as directed.

The Corporation, of course, is ultimately seeking to have in place 100 percent minimal capital target rates, which MPIC believes is the best insurance practice for the industry.

And we maintain that the naive interest rate forecast should apply, but of course, that's based on the Government of Canada ten-year bond yield. And next slide, please.

So the first point there is -- is the just and reasonable rate requirement that MPIC must bring before this Board and, of course, which the Board if -- if it accepts would MPIC has proposed will approve.

The net Capital Maintenance Provision we say will result in greater stability, predictability and less volatility for Manitobans. The Corporation says that the approach is accurate and fair.

The Rate Stabilization Reserve, Mr. Chair, sets the targets using the collaborative DCAT approach, the Dynamic Capital Adequacy Testing approach. And those targets we say are based on best estimates and are important to maintain prudent fiscal management across the Corporation. The Corporation in

short, demands adequate capital for its operations.

The interest rate forecasting issue, Mr. Chair, was a big issue again this year. There was a lot of discussion about the naive interest rate, the 50/50 forecast methodology, the standard interest rate forecasting methodology. MPIC, as Mr. Johnston has indicated, believes that the naive forecast is the best estimate for setting rates, and that's because it allows the Corporation to base its forecasts on unbiased interest rate forecasting.

We say the 50/50, as ordered by the Board last year, is not a compromise. We have shown evidence that it is biased and inaccurate over the past number of years and has cost the Corporation millions of dollars when departing from the naive.

And lastly, the Bank of Canada overnight rate we say is not a proxy for the Government of Canada ten-year bond yield, which is what the Corporation uses in its forecasting.

I'll also speak to the area of investments. We've heard a lot of evidence in the last couple of days about how MPIC has moved away from a co-mingled portfolio and is now using segregated portfolios, five (5) separate buckets of portfolios, including the Basic portfolio. The investment

decisions that were made were done so by a government appointed Board of Directors on which certain experts sit as part of an investment committee, and moreover, it was informed by the results of an independent study that was ordered by this -- by this Board, the Mercer Group.

The next bullet point there, Mr. Chair, is an important one. Basic -- the Basic portfolio, plus the low capitalization that we say exists and is a continuing problem for MPIC, along with the historic losses that we've made the Board aware of time and again has equalled no appetite for risk, where it concerns investments.

Yesterday you -- you would've heard Mr. Viola suggest that the losses, the net income losses the Corporation has experienced in the past number of years should not have been a factor in their investment strategy. He said the Corporation should only look forward in making its investment decisions.

I would suggest to you, Mr. Chair, that an outside observer would disagree with that and would fully understand the Corporation's risk aversion, if you will, given the millions of dollars -- hundreds of millions of dollars the Corporation has lost over the past four (4) or five (5) years. And so that why --

is why we say there that it equals no appetite for risk.

And then lastly, the investment strategy, as we've seen, will result in a change in the risk profile of Basic and the amounts in the RSR have been accordingly reduced by about 30 percent. So the strategy has shown immediate positive results as it concerns the capital that the Corporation requires on an ongoing basis. Next slide, please.

Following my investments, Mr. Guerra will speak to revenues, expenses and ratemaking and he'll also speak to information technology, so I'll just leave those two (2) topics that for my colleague to the speak to. Next slide, please.

And as well as the vehicles for hire and any ongoing topics that Mr. Guerra wants to canvass with the Board in closing. Next slide, please.

Just and reasonable rates. In the closing written submission, there's more comprehensive detail for the Board to consider under what MPIC characterizes as the new statutory framework that's in place. This, MPI says, is the first general application under this new framework and include consideration to two (2) statutes, one (1) of which is

the Manitoba Public Insurance Corporation Act, that's not new, but the Crown Corporations Governance and Accountability Act is and those two (2) statutes, if you will, work in concert, MPIC says, along with the Board of Directors for Manitoba Public Insurance.

So those Acts define the roles for MPI and its Board to establish and maintain reserves; that's an important mandatory provision under MPIC's home statute. Section 18 would say that the Corporation shall establish and maintain adequate capital reserves.

Secondly, those two (2) statutes and the Board make and introduce new rates and changes and that's pursuant to Section 25(1) of the Crown Corporations Governance and Accountability Act.

And lastly, you'll see there that the Crown Corporation Governance and Accountability Act also defines the role of the Public Utilities Board under that same subsection.

The -- the Act defines the role of the Public Utilities Board to review applications for new rates and changes to existing rates and, of course, the Act also sets out that the Public Utilities Board must approve a just and reasonable rates. Next slide, please.

And there, sir, is the provision that the Board I'm sure is well familiar with that sets out the -- the approval process and the mandate that Public Utilities Board has when considering MPIC's rate application. But the second bullet point we say is important because MPIC and the Public Utilities Board, in MPIC's view, have distinct but complementary roles to play to ensure the success of the Basic compulsory insurance program.

What makes rates just and reasonable? The Crown Corporations Act under Section 25(4) provides a list of suggested considerations. We -- that there must be a balance between the impact of rate increases on consumers with the fiscal health of the Utility.

Lowest rates are not always just and reasonable. We must also consider the impact of unstable rates, i.e., rate shock. And there was some evidence canvassed on what exactly that might mean, but I think everybody is -- is in agreement that this Board and MPIC should do what it can to avoid rate shock. And that, we would say, would include having the Corporation properly capitalized.

MPIC makes rates that it considers to be just and reasonable and the General Rate

Application balances the interests of ratepayers with MPI's requirement to cover the cost of the 2019/2020 policies. And this, as the slide, indicates is where, with all due respect, we say that the Intervenors fall short.

The positions advanced by the Intervenors often times do not strike this balance and recommendations are -- are usually made that focus only on reducing rates. And -- and just before we move to that next slide, we did hear evidence in this proceeding, Mr. Chairperson, from Andrea Sherry and she confirmed on cross-examination that she has never before appeared before this Board and made a recommendation for either increased capital or reduction in the rate indication.

And we say that part of the difficulty that the Corporation has with the evidence, in particular of -- of Ms. Sherry, is that although she was qualified to give opinion evidence as an expert before this tribunal, she appeared to be advocating and, that is, she would make reference during her submissions to arguing for this or arguing for that. And I would argue that the Corporation doesn't need capital.

With all due respect to Ms. Sherry, her

role before this Board is not to argue. Her role is to present the facts that this Board needs to determine what's just and reasonable for the Corporation. And so we would suggest that to the extent that the Board is going to rely on her evidence, it do so with some caution and perhaps give it not as much weight as -- as the evidence heard from some of the other witnesses in the proceeding.

The Crown Corporations and Governance Act also requires MPIC to prepare an annual business plan. This is part of the statutory framework that I referred to earlier, Mr. Chair, and it's mandatory. The Corporation has to prepare the annual business plan. The business plan is approved by the Minister responsible for MPIC and it's a roadmap for the achievement of Mission Statement objectives.

As you heard from Mr. Graham a couple weeks ago, MPIC has a new Mission Statement and that is to provide exceptional coverage in service, affordable rates and safer roads through public automobile insurance. The direction for this plan, if you will, or for this direct -- or for this new Mission Statement is set by the MPIC Board of Directors and approved by the Government of Manitoba.

Some key priorities of MPIC, as defined

by the annual business plan. The first and most important of which and -- and you've heard this refrain for the past number of years, is to make the Basic program self-sustaining. And that, of course, in our view, goes directly to the Corporation's reluctance to have continued capital transferred from the other lines of business. That, the Corporation would say, is not in line with having Basic self-sustained.

Some of the other key priorities of MPI as set out in the Annual Business Plan include the establishments of rates in accordance with AAP, Accepted Actuarial Practice, to keep Basic rates stable, predictable and affordable. That is a clear mandate from the Government of Manitoba. Evolve products and services to meet the needs of Manitobans and not to impair the consolidated financial statement of Manitoba.

Other key priorities are capital projects and IT initiatives that support the core business function. You heard evidence from Mr. Graham that there will be a transition of sorts; that the Corporation will go back to its core business functions of providing insurance products and driving services. They will not be engaging in risky

information technology programs to the extent that they don't support the core business functions.

And, lastly, the annual business plan would say that the Corporation has to continue to demonstrate fiscal prudence and you'll hear from Mr. Guerra on this point, but the expenses evidence that was advanced and tested at this hearing, I think, would support the contention that the Corporation has continued to demonstrate fiscal prudence on that front.

The new relief being sought in this year's Application is called the Net Capital Maintenance Provision. There's a lot of evidence heard, a lot of questions asked about what the CMP is. The Capital Main -- Maintenance Provision, Mr. Chair, is an additional amount collected from ratepayers to maintain the capital level of Basic in a particular fiscal year.

And for the purposes of this Application, it's the fiscal year beginning 2019/2020. Treated separately by MPI from the breakeven rate indication, MPIC considers what is needed after factoring in income earned on the Rate Stabilization Reserve, the investments, the investment income specifically from the Rate Stabilization Reserve.

So you'll see there, the -- the -- the CMP proposal and how it result -- results in the -- the initial rate indication that was sought when the Application was filed in June.

There was a 3.3 percent increase needed to maintain the capital in 2019/2020, but from that the interest or the investment income that was earned on the RSR was subtracted to come up with what Mr. Johnston refers to as the net Capital Maintenance Provision.

And this year, Mr. Chair, will appreciate that the ratepayers are, in fact, seeing the benefit of the investment income from the Rate Stabilization Reserve. Last year the Corporation was before this Board asking that -- that income not be offset against rates and that MPIC be allowed to retain the RSR investment income to build the RSR; that is not reflected in the application this year. In fact, you can see before you that but for making use of that investment income, there would be a 3.3 percent ask, if you will, for a Capital Maintenance Provision.

And these numbers you'll see below there is based on the September 30th, 2018 Government of Canada ten-year bond yield and that has

accordingly, as I set out at the beginning, reduced the CMP to 1.8 percent.

This particular paragraph for Order or Directive from last year's Order, Mr. Chair, was -- was repeated throughout the Application and you have it there before you. But MPIC took this to mean that the -- the Board last year recognized that without some type of provision in place to prevent the depletion of capital, that the RSR would continue to decline, all else being equal, with the continued growth of the Corporation.

I spoke of Ms. Sherry's evidence concerning the net Capital Maintenance Provision. Firstly, it's important to remember that Ms. Sherry comes from the private insurance world where her company has profit provisions in place that would help maintain, perhaps even build, capital reserves.

Ms. Sherry testified that in her opinion MPIC does not need a Capital Maintenance Provision. She said that if MPIC holds capital within the Rate Stabilization Range, it is adequately capitalized. She said that if MPIC needs capital, it can come back here year after year and simply seek a rate increase which is precisely what the mandate of the Board of Directors is not, and that is, to have

the Corporation impose upon its customers what might be characterized as rate shock, depending on what events might present themselves to MPIC in the future.

That is not best practices, in our view, and the Corporation says they do, in fact, need capital and that would avoid the rate increases that Ms. Sherry has advanced as a -- as a solution to the problem.

And Ms. Sherry also testified that, and incorrectly claimed, that the Capital Maintenance Provision builds RSL -- RSR capital until it exceeds the upper target; that, we say, is contrary to the evidence that Mr. Johnston provided and ignores the purpose of the Rate Stabilization Reserve which, as I've said, is to prevent rate shock.

And I might add before we move to the next slide again, and I don't mean to take aim at Ms. Sherry, but her evidence seems to display a fundamental misunderstanding of Manitoba Public Insurance's rate application, generally speaking. And -- and I say that for a couple of reasons, but I'll provide one (1) example.

You may remember her testimony or her report wherein she recommended that the end of her report, she made three (3) recommendations. The

second recommendation made by Ms. Sherry was that, and I'm quoting from the report:

> "The DCAT methodology should be used to set the Rate Stabilization Reserve range."

That was the recommendation that she was making to this Board; that the DCAT methodology be used to set the RSR range. That is precisely what the Corporation has done throughout its entire Application.

You heard evidence from Mr. Johnston the DCAT was used, the targets were set, the RSR range was -- was established, and then as -- as you heard from Mr. Johnston, converted to a minimum capital test percentage. But the DCAT was never abandoned through this entire exercise. Mr. Johnston relies on it exclusively in establishing targets.

So for Ms. Simpson (sic) to suggest that we use the DCAT -- or Ms. -- Ms. Sherry. Thank you. From -- for Ms. Sherry to suggest that we use the DCAT to establish the RSR range, in my view, as I've said, it shows a fundamental misunderstanding of -- of the of the application.

The Corporation says that a Capital Maintenance Provision is accurate and fair, accurate

in that it determines the capital required to maintain Basic in the rating year. And you heard Mr. Johnston say it's fair, because the policyholders at the end of the year -- at -- or, sorry, end the year with Basic having the same capitalization as it did at the start of the year. The policyholders in this year are the ones who pay for the capital maintenance requirements of that year, and that to me, and to Mr. Johnston, and to the Corporation, seems eminently fair.

There was some consideration to -- perhaps -- next slide, please, Ms. Schubert. There was some consideration, perhaps, to making use instead of the approach taken by the Saskatchewan Government Insurance on capital; that approach, we say, is -- is more complex. It has a five (5) year forecast versus a one (1) year forecast that's being proposed by Manitoba Public Insurance, and is less fair to the customers, in our view, than the Manitoba model. The ratepayers are not paying the full cost to maintain capital in that year, and the growth in the business is not static.

In short, the outlook in the Saskatchewan model is too long. And so to the extent that Ms. Sherry said, We're back here every year, that is, in fact, how we are different from Saskatchewan

Government Insurance. We're back on a yearly basis, and any adjustments that need be made that can be made on a yearly basis.

On the Rate Stabilization Reserve, as I've just indicated, Mr. Johnston uses the Dynamic Capital Adequacy Test to establish the Rate Stabilization Reserve targets. The targets reflect the results of a collaborative process that was in place -- or that was entered into a couple years ago, as I understand it. And MPIC, to be clear, is not asking the Public Utilities Board to replace the Dynamic Capital Adequacy Test with the minimum capital test.

The DCAT produces a dollar value for each target, which MPIC then expresses as an MCT ratio. Converting the -- the monetary targets from the DCAT to the MCT allows Mr. Johnston and MPIC to forecast more accurately. The MCT, we say, is simple, objective, and it works, and it's industry wide.

The Rate Stabilization Reserve targets must be based on best estimates. The lower target must be minimum for satisfactory financial condition, and it's obviously of more concern than the upper target, because falling below that target, as we've seen, results in the actuary requiring a transfer of

capital from the Extension line of business to maintain the Corporation in satisfactory financial condition.

The Corpor -- the Corporation says the current approach of the Public Utilities Board is not based on the best estimate, and with all due respect, sets the Rate Stabilization Reserve at a lower target, too low, and -- and we saw the result of that last year with a further transfer as directed by the MPIC Board of Directors.

Basic remains the most thinly capitalized insurer in Canada; that proposition was put to Dr. Simpson last year, and he didn't deny it. You may recall, Mr. Chair, his response, I believe was, Well, that's not necessarily such a bad thing. Well, the Corporation vehemently disagrees with that assertion.

The rate stabilization range remains below the level of MPIC's peers, and if MPIC were a private insurer, it would be insolvent. And it's important to remember, Mr. Chair, that but for the $214 million that were transferred from the Extension line of business, there would be no money in the Rate Stabilization Reserve except for the 12 million that this Board saw fit to allow MPIC to keep last year.

MPIC does not seek 100 percent minimum capital target upper RSR target, and does not ask to be treated like a private insurer. MPIC seeks rate stabilization targets to ensure that it is adequately capitalized, and this, the Corporation says, is prudent fiscal management.

Before I -- I move on to rate -- before interest rate forecasting, I just wanted to add about capital, Mr. Chair, that it seems to me, and I've said this, you know, about trials and hearings of this nature, that when you do them, you soon realize what the main issue is. And I said in my opening statement that the story that MPIC would be presenting here in the past three (3) weeks was one of capital. Capital is the story. And there's a number of issues that were canvassed during this hearing that all revolve around capital.

Interest rate forecasting, you know, we can debate again and again whether the naive, or the 50/50, or the SIRF is the appropriate forecasting model. But if the Corporation had sufficient capital in place, it might be willing to concede that interest rates are forecasting to rise, and -- and accept, perhaps, a 50/50 model.

But as it stands, you've heard Mr.

Johnston say, We're not prepared to take that bet, given the net income losses that the Corporation has suffered based on improper and inaccurate interest rate forecasting. So that, we say, capital would -- would deal with that -- with that issue once and for all.

Investments. You've heard a lot of evidence in the last couple days about how the Corporation has adopted a low risk tolerance in its new investment strategy. And the result of that is not lost on the Corporation and the impact that has on its ratepayers.

And you heard evidence from Mr. Bunston that the projected returns under the new investment strategy have lowered, where before, we used to project returns of 4.29 percent, under the new investment strategy, the returns are now forecasted to be 3.12 percent, more than a hundred basis points.

And so with low risk comes low returns. There's no growth assets in the Basic portfolio anymore. And so we see that reflected in the returns that are forecasted under the new investment strategy. I would suggest to you, Mr. Chairperson, that if the Corporation had proper capital in place, it might be willing to have more growth assets in its Basic

portfolio, but as we've heard in the last couple days, that's simply not at the direction from the Board of Directors. And it's enticed -- it's -- it's comprised entirely of fixed income as a result, no equities.

On the DCAT, if the Corporation was properly capitalized, I would suggest that Mr. Luke would no longer have to make use of a modified Dynamic Capital Adequacy Test; that is, he wouldn't have to assume capital transfers from the Extension line of business. So some of the issues that surround the DCAT and its modelling would go away as well.

And lastly, on the Rate Stabilization Reserve, there would be no further capital transfers from the Extension line of business. And again, it bears repeating, $214 million over the past four (4) years have been transferred from the Extension line of business.

And, Mr. Chair, you asked Mr. Graham, well, what -- what would MPIC be doing with that money? Well, perhaps, as described by Mr. Graham, it would result in cheaper Extension products for Manitobans; that would be one (1) result that Mr. Graham envisioned. But again, if -- if the Corporation was properly capitalized, the Rate Stabilization Reserve, we say, wouldn't be an ongoing

issue. The targets would be set, and the MPIC would do what it needs to to stay within that range.

And -- and on that, we'll move to interest rate forecasting.

(BRIEF PAUSE)

MR. STEVE SCARFONE: The Corporation wants to ensure that there's this distinction drawn between the two (2) forecasting benchmarks, if you will. I don't know quite the right terminology to use, but the -- the rates that MPIC presents to this Board and all the forecasting measures that Mr. Johnston takes are based on the Government of Canada ten-year bond yield. It is not a prediction of what the Bank of Canada's overnight lending rate will be, and that refers to the interest rate hike that we heard a lot of evidence about from last week. That is not what MPIC's forecasts are based on, and they are not, in the Corporation's view, interchangeable.

And they can -- you heard a lot of evidence back and forth about whether there's some correlation between the two (2). MPIC would say there isn't, especially over the short term. The Intervenors would say there absolutely is. But in our

view, they're not interchangeable, and it's the Government of Canada ten-year bond yields that matters for this Board, in our view.

Next slide, please. Some of the lessons learned is that forecasting interest rates is hard to do. It's impossible to do it accurately, and we're bound to get it wrong. And you heard Mr. Johnston say that, quite candidly, a couple of times during this proceeding. We're going to be wrong. We are going to be wrong. Nobody gets these things right. None of us are clairvoyants, and there's a quote there from the cross-examination of Dr. Simpson, and he, too, candidly admitted, no idea what interest rates will be on September 1, 2019. They may go up. They may go down.

The difficulty that MPIC has is that future ratepayers will pay if we forecast wrong. And there's that number again, often repeated, the losses that occurred as a result of basing our forecasts on the SIRF, and interest rates didn't rise as the banks predicted. And those losses, as we've heard, depleted the rate stabilization reserve, and the impact of rate stability, predictability, and volatility, and they made the Basic program less self-sufficient.

The three (3) forecasting options are

set out there, and as you well know, MPIC is of the view that the naive interest rate forecast is the best forecast, and offers the less -- the least amount of speculation going forward. You go with what you know, is essentially the message there. It also impacts or has an influence on how much MPIC needs to collect from its ratepayers to break even. That's important. That's why we're all here.

We need to figure out what rate is indicated to allow for break-even ratemaking. And it also influences the targets that are to be set for the Rate Stabilization Reserve. And lastly, as we've seen, and it's not listed there, it impacts upon the forecasting of how much investment income the Corporation can expect to receive.

Standard Interest Rate Forecast, or the SIRF, uses forecast of the five (5) major banks. It uses a mean reversion model, considers economic factors, and you know where I'm going to go, here. It has a history of being biased and being wrong.

And the 50/50 interest rate forecast awaits the results of the SIRF, and the naive, and is a compromise of sorts, but only half as accurate as the naive, the results would show. And recent history, as we've heard, would suggest that it

performs worse than the Standard Interest Rate Forecasting methodology.

And so there's that slide which Mr. Crozier calls the spaghetti graph, but it's important to know what this means. I know that it's been -- it's been up on this screen several times, but it's a compelling graphic, because that black line is the actual interest rate, and all those other lines are the forecasted interest rates by the banks. And you can see how that would result in a big problem for Manitoba Public Insurance.

And so -- and I'm going to suggest you that in an analysis of this particular graphic, beginning about February 2 -- 2017, you will see that the banks are starting to recognize the problem, and that their forecasts are kind of leveling out, where before, from February 2008 to about February 2016, the forecasts are showing a gradual increase. And now they're showing that increase, but then a flattening. It's more in line with where interest rates have been for the past couple years.

And so this -- this particular graphic is one that the Corporation points to again and again to -- to -- as a -- as a -- an argument in favour of going with what you know. And that is picking the

interest rate on a certain date and forecasting everything using that particular rate. Next slide.

It's another graphic; not as compelling, but it's in there nonetheless. And I'll explain what it does. So on the very left is the standard interest rate forecasting methodology, and in the middle is the 50/50, and on the right-hand side is the naive, the -- the methodology being proposed by Manitoba Public Insurance and then you'll see on the left-hand side, where it reads "differential from actual," well, the zero is where you want to be. Zero means you're right on a point. It's as accurate as one can get.

And so when you look at the history of how the SIRF has performed, it's not anywhere near that zero line. And inside that box is the black line that you should look at. So inside the box for SIRF, there's a black line that runs horizontal. That's the line that measures how close we should be to zero for forecasting accuracy.

And you'll see that the SIRF is above a half a percent, and that the 50/50 is just below half a percent, and the naive is as nearest to that zero line when compared to the other two (2). And so that's the best I can explain that graphic, but that's

-- that, we say, is -- there's another representation for support of going with the naive interest rate forecast methodology.

So just to be clear, the naive interest rate forecast takes the current actual interest rate and assumes no change. So it's also called the no-change model. And the forecast period is short versus long term. The short term naive is the least biased and more accurate, and the long term not relevant to rate making or the Dynamic Capital Adequacy Test. So we're only concerned with the short-term forecast period.

So we've quoted there from our Chairperson. At the end of the evidence that was presented by Dr. Simpson, the Chair asked:

> "Okay. What is the upside or downside if, instead of going -- we're going to go naive, or 50/50, or SIRF, that we just pick an interest rate at a specific point now, and say, that's the rate we're going with, and that's what we're going to put into our projections, and we'll be back here a year from now, and we'll see whether we need

to raise rates, or lower rates, to take into account that rate that we selected."

And -- and Dr. Simpson, he responded:

"Well, that's the naive forecast. That's exactly what MPIC is proposing, and has proposed."

MPIC forecasts to September 1, 2019. Shortening the forecast period obviously improves accuracy and limits the risk. So as we've seen, the rate indication has gone down since the Corporation filed its Application in June. And that was a result of updating the Government of Canada ten-year bond yield, as at September 30th, 2018. So that's more accurate, obviously, than -- than what was in the application in June.

So we have some options that are available to the Board. We could stay with the February 28th, 2018 rate, when the application was prepared, and we see the results of that, that it would be a .1 percent rate indication with a 2.1 percent Capital Maintenance Provision, or we could use the updated numbers, which I think the Corporation is inclined to do by using the September 30th, 2018, Government of Canada ten-year bond yield.

And you've heard Mr. Johnston say again and again that he wants to get it right. He is happy to come here and present a lower rate indication if it means his numbers are more accurate, and so he's happy to have his people provide to the Board six hundred and thirty-one (631) pages of modelling last week, so that the Board has before it the most accurate numbers available.

Now there's a third option there, and at the risk of annoying the Chairperson, we could use another rate that's closest to the rating period in the form of a compliance filing. And I understand -- the Corporation understands the concerns -- the procedural concerns the Board has with this, but by virtue of a fall hearing -- we're here in October -- the rate year starts March 1. Just by virtue of the calendar, this the best we can do. The next slide, please.

The Government of Canada ten-year bond yield. As I've said, MPI uses this forecast for the new money yield. It is not the Bank of Canada's overnight rate. The Corporation, and Mr. Bunston, and others that know of these matters would say there's no meaningful link between the Government of Canada ten-year bond yield and the Bank of Canada overnight rate

in the short term, and that's the outlook period that we're concerned with, twelve (12) to eighteen (18) months.

Sometimes the Bank of Canada overnight rate goes up, and the Government of Canada ten-year bond yields goes down in the short-term. And now here's a good example of that. So the Bank of Canada, just last week, increased its overnight rate, and the Government of Canada ten-year bond yield is presently down .2 basis points lower than the forecast. And when I say "the forecast," it's -- it's down from the February date that we used when preparing the application.

And a good -- just one (1) back, Kristen, just -- a good example of that you may recall from earlier this week was when we had the Pre-ask numbers before the Board, and the Intervenors were asking Mr. Johnston questions about it. Mr. Oakes asked Mr. Johnston, Well, the interest rates just went up last week. How does that affect my motorcycle people?

Well, those rates are going up. That was his response. And the -- the reason that the motorcycle rates would -- were -- were going to go up even though interest rates had gone up is because the

Bank of Canada overnight rate -- the Bank of Canada ten-year bond yield -- Government of Canada ten-year bond yield, I apologize -- went down. So interest rates went up last week. The ten-year bond yield went down, which meant for Mr. Oakes's motorcycle people, those rates were forecasted to go up.

As I said at the outset, MPIC has a -- a new investment strategy for 2018/2019 that, in the Corporation's view, materially reduces risk. It's now a -- gone from a co-mingled portfolio to five (5) segregated portfolios. The Basic claims liability reserve, the Rate Stabilization Reserve, and the pension reserve are the three (3) reserves that fall within the jurisdiction of this Board.

The risk tolerance was determined, as you've heard, by the Board of Directors. It's a low risk tolerance. And that was in step with the -- the investment committee, and the experts that are on that committee, along with the Department of Finance. We say, notwithstanding the evidence that you heard from Mr. Viola, that MPIC, having lost what it did in recent years, is it -- is -- had an influence or had a direct impact upon the -- the risk tolerance that was selected by the Board of Directors.

And the investment decisions in the new

investments strategy, as we've heard, were informed by the results of Mercer's ALM study, and you heard from Mr. Makarchuk on that front. The result of the new investment strategy is this: A 30 percent reduction in the equity required for the Corporation.

So, the rate -- the targets have gone down. And more importantly, I would suggest, there's 100 percent protection against interest rate risk with the new fixed-income portfolio. And that's only -- that's only available, according to Mr. Bunston and others, with the removal of some of those growth assets. So by having a hundred percent fixed income, we have protection against interest rate risk. And -- and Ms. Sherry and Dr. Simpson both confirmed this for the Chair, as I recall.

There is a big issue here, at least from the Intervenor perspective, of MPIC not selecting to include in its new portfolio real return bonds. MPIC does not view inflation volatility as a real risk, and the ALM study modelling does not support the selection of real return bonds based on MPIC's objectives and its risk profile.

As -- just before moving onto that, Ms. Schubert, I went through yesterday a number of investment decisions that MPIC would have had to make

in -- in arriving at its new investment strategy. There were a number of investment decisions, you know, the biggest of which, Mr. Makarchuk would say, was moving from a co-mingled to the buckets. That's a big investment decision. Lengthening the -- the portfolio, another one. I won't go through them all, but there were a numb -- we -- we've reduced our -- our holdings in real estate. We're not having any equity in -- in the Basic portfolio. We're diversifying in -- in the RSR.

There's a whole host of investment decisions, as you might expect, that went into the new investment strategy, and the only decision, as far as I can tell, that the Intervenors took aim at, was the failure to include real return bonds; that is the only decision, as far as I can tell.

So you heard evidence yesterday that, you know, well, perhaps we should have modelled the liabilities on the real liability benchmark. We went with the nominal liability benchmark. That, too, I would suggest, is an investment decision, one that's within the bailiwick of the Board of Directors.

Mr. Viola would say, Well, that's not even really a -- that's not even really an investment decision, that's just a frameworking thing. Okay. So

the only investment decision, then, is what asset classes should be in the portfolio. And he would say yes, you need real return bonds, and we said, No, we don't.

And it's not as though it wasn't considered by MPIC. That was modelled by Mercer and rejected by the Corporation. And that was based primarily on inflation projections. The evidence was simply not there to justify the inclusion of real return bonds at the risk of lower yields, lower returns. And that evidence, I think, was clear that if we were to replace some of the provincial bonds and some of the corporate bonds with the federal bonds, we would have even lower returns than we're now getting under the new investment strategy.

And so the goal of the -- of the investment strategy, according to Mr. Bunston, was not -- it was not seeking returns. It was to avoid risk. And so the risk to the Corporation is significantly lowered as a result.

(BRIEF PAUSE)

MR. STEVE SCARFONE: So I don't want to go too long on -- on the -- on the failure and I

don't even know if it's a failure of the -- MPIC's decision not to include some investments that would protect against rising inflation. But as you've heard, it was based on a couple things, one of which was looking at the historical data.

And you heard Mr. Johnston and Mr. Bunston say that this is from his DCAT report, that from 1992 to 2017, the mean inflation rate was 1.80 percent. And I know Mr. Viola will say, well, you know, you have to pay attention to that standard deviation. But -- and I'm not a statistician guy, but the mean, in my view, is what's important, because that's what the actual inflation rate was, 1.8 percent from 1992 to 2017. That was the mean.

And you heard Mr. Viola admit yesterday under cross-examination that MPIC is in fact covered, that was -- those were my words, but there is protection against inflation up to 2 percent. The concern he has is if inflation rises above that 2 percent and the volatility that inflation has. And the volatility is -- would just mean inflation going up and down.

And it's important to note here that if inflation was a real and genuine concern, then the Dynamic Capital Adequacy Test should reflect that.

And what I mean by that is, Mr. Johnston will tell you that when he's running the DCAT he puts in these adverse -- adverse scenarios and he has a top three (3), which is, you know, we've heard that a decline in -- in equities is one (1), that can result in significant losses. Another one is a really bad winter where there's a whole -- a whole host of car accidents and insurance claims.

These are scenarios that Mr. Johnston runs in his DCAT, as what he calls adverse scenarios. High inflation isn't one (1) of them. And the reason it isn't one (1) of them is because it was written off as not being a plausible adverse scenario. And that was done in collaboration with the Public Utilities Board and the Intervenors. They decided that -- that it wasn't a significant concern, not enough at least to -- to attract the attention of the DCAT.

And so accordingly, I would suggest as a result, investment decisions were made on the basis that inflation outlook would be low and stable. So it -- it shouldn't come as a surprise to the Board that the investment strategy doesn't protect the Corporation, Mr. Viola's view, against rising inflation, especially in the long term, when we have collaborative -- collaboratively agreed that it's not

a concern. And -- and it -- and we don't even have to run it through the DCAT.

So in the result, MPIC, I would say that its assumptions, particularly on inflation and the investment decisions that have been made are reasonable.

And this just touches upon the -- the evidence that we've heard from the two (2) experts, both Mr. Viola and Mr. Makarchuk indicated that, as anyone in the room will appreciate, the factors to be considered when making investment decisions are risk and reward and cost and time.

And in Mr. Makarchuk's view the expected returns would have been materially lower had the real return bonds been included in the portfolio, in the Basic claims portfolio. Next slide, please.

So this particular slide we saw yesterday and again today, and this was the result of some further modeling, Mr. Chair, you'll be well aware of the motion that the Consumers Association of Canada brought that compelled MPIC to have the Mercer Group conduct further modeling and specifically with respect to real return bonds.

So, Mercer was asked by Mr. Viola, through the Intervenor, to model the -- an investment

strategy that included a real return bonds and other asset classes. And you heard Mr. Viola say, as a result, you can see that on the modeling that we -- that was done by Mercer, when you remove the real return bonds, you're losing 80 basis points in returns.

But I'm going to suggest to you that it's not a very useful model to the extent that we know there was some cherry picking of sorts, and they were building a -- a portfolio that included asset class -- classes that the Corporation just wasn't prepared to purchase.

So this particular modeling that shows a decrease of .8 percent when you remove real return bonds, also included private debt. The Corporation wasn't interested in private debt. Included private equity. The Corporation wasn't interested in private equity. And growth fixed income.

So it -- it's not, in our view, a fair representation, deliberate or not, to say that this shows that real return bonds would've been of some benefit to MPIC and the ratepayers, because it specifically includes asset classes that Corporation said no to.

And I would suggest to you that those

three (3) categories are -- are largely inconsistent with the low risk tolerance that the Corporation has now in place.

And the last slide on investments is -- is one (1) that just sets out the -- the issues that I think that were canvassed by both Mr. Makarchuk and later by Mr. Viola. So should the liabilities, that is MPIC's obligations under the Basic program, have been modeled with a real benchmark, of course, they weren't. They were modeled with a nominal benchmark, as we know.

And the important thing there, and you heard this yesterday, that's a decision that lies with the investor. That's the decision that the Board of Directors is -- is entitled to make and it would be under their mandate to make these investment decisions.

They've been appointed by the Government of Manitoba, and so they are responsible. The Government of Manitoba has identified these members of the Board of Directors, specifically the Investment Committee, to do what's right and make investment decisions on behalf of the ratepayers of Manitoba Public Insurance. That's their job.

And the second question there, should

the recommended asset mix hedge inflation risk? Well, it does to some extent. It hedges nominal inflation risk, but not real.

And so there is some protection against inflation, but only up to 2 percent. And there was no evidence adduced before this Board that showed inflation is expected to rise above 2 percent. That's the bottom line. There's no evidence.

And I'll leave the remainder of the closing to Mr. Guerra.

FINAL SUBMISSIONS BY MR. ANTHONY GUERRA:

MR. ANTHONY GUERRA: Thank you, Mr. Scarfone.

So now we're going to be moving on to ratemaking expenses and revenues. The -- the next series of topics are -- are going to be discussed not in as much detail, because as I agree with Mr. Scarfone, the -- the focus of this year's GRA is really on -- on capital. Capital touches upon these issues, not nearly as much, though, as the issues that were canvassed by Mr. Scarfone. Nonetheless, they are important to discuss and I will -- I will do so.

On the issue of ratemaking, we know that rates are now established in accordance with AAP.

There are no new changes to the way in which we plan to make rates this year, but it's important to remember that breakeven rates are separate from the capital maintenance provision.

Breakeven rates mean that the revenue and costs associated with the new policies are properly costed. The Capital Maintenance Provision, on the other hand, is to ensure that there's an amount in place to maintain the capital of Basic in that policy year. So in this GRA, MPI only seeks a 0.1 percent increase in breakeven rates.

Now, we've updated that to 2000 -- sorry, to September 28th, 2018, and that results in a decrease of 0.26 percent, if those are the numbers that are ultimately preferred by the -- by the Board. Next slide, please.

This chart we say highlights the success that MPI has achieved in really making expenses a non-issue or non-factor in rate applications. And -- and as we see from the chart, we were projecting in 2017 for a steady increase in expenses.

And up until today's date, what we're seeing now is for the 2018, 2019 and 2021 years, a -- a reduction in expenses. And -- and the -- the

members of the Corporation who were involved in the -- the -- the different aspects of the business that -- that contribute to that should be commended for their efforts. It really does say a lot that over such a small period of time, the expenses position could -- could change so dramatically. Next slide.

We heard about MPI's new position on managing longtail body -- bodily injury claims. And in specific we heard about the two (2) topics of -- of claims intake and triage and centralized reserving.

On the issue of intake and triage, we now have a process to identify what we call complex claims earlier on. What we do is we now -- we now manage those claims in a way that improves the outcome for the customer, and also improves the resolution time for the Corporation which -- which has a tendency to decrease expenses as well.

While there will be an increase -- or there has been an increase in full-time employees which just very recently happened, we are expecting that -- that this will -- will improve the claims cost approach, and we look forward to providing a further update on -- on that process in the next GRA.

With respect to centralized reserving, we now have a centralized reserving unit and -- and we

submit that that solves the problem that we incurred in previous GRAs with respect to, perhaps, optimistic reserving practices. So again, we would expect that in the next GRA, we would be able to provide an update suggesting that the centralized reserving practice has also been beneficial.

Information technology was a -- a focus of this year's Application. I would submit more so in the -- in the phases that -- that preceded the -- the hearing. And I think that's a -- a testament to the -- the job that MPI did in becoming very transparent about its IT projects and how it costed them, or perhaps did not cost them in the way it should have and -- and how it's -- how it structured its practices moving forward to address some of the past issues that it -- it experienced.

So I'd like to approach the topic of information technology in the past, present and future. Past meaning the two (2) projects that MPI considers to be -- to have lacked the -- the -- the business perhaps value that it expected. So we have the customer claims reporting system and the property damage re-engineering project.

The present, where we are right now, which is the development and information -- excuse me,

implementation of a new IT strategy, our development and implementation of a new value management strategy, Gartner's assessment on where MPI's stacks up against its peers on issues relating to information technology, and the ongoing implementation of MPI's staffing strategy.

In the future we've heard some evidence about where MPI is hoping to take its legacy modernization project.

Focusing at this moment on the past, the customer claims reporting system. This was really MPI's failed attempt to be an innovator. It was cancelled in April of 2018 after it was reviewed using the value management process.

But as we've heard, MPI retains the intellectual prop -- property from that project, and it may rely upon that in the future to its benefit. And I -- I say that only because although MPI considers this to be a failed project, even failed projects do have some silver linings and some benefits that may be realized in the future.

The same may be said about the property damage re-engineering project. This failed because MPI failed to adequately cost the project, and was too focused on the benefits. But the program has

standardized and improved the estimating process and has opened up future possibilities for MPI.

The present, where are we now? We have a new IT strategy which ensures that the business needs of the Corporation are met by IT and business capabilities. It's a shift and an approach -- or it's a shift in the approach of MPI to IT. And we say it now aligns better with industry best practice. As you heard from Mr. Bunko, it's a difference now between where we were and where we're heading.

And I would like to turn over to the next slide, please, as this box, perhaps not as -- as clear as I would've liked to have had it, but regardless, it's important I think to restate where we were verses where we were headed -- or where we are headed, rather.

We were leaders in creating innovation, we're no longer that. We are now about adopting proven mainstream technology. We used to execute high-risk projects. We now identify all the risks prior to initiation and incorporate that into the project decision.

We used to have project governance with nonbusiness project sponsors for all projects. We now have the operational business champion, who testified

before the Board this year, Ms. Campbell.

We customized -- we used to customize out-of-the-box software to suit our processes. Now we will align wherever possible with -- our processes with the industry best practice and incorporate vendor software as provided.

We used to candidate projects that were not vetted through the detailed van -- value management process. This year we heard lots about the new value management process and how it has become ingrained in the MPI process, and in fact, its culture.

And we used to have technology drive change within the organization. Now, it's the other way around. IT capabilities are created to support the business capabilities.

Going back to the topic of value management. The process now ensures that projects are -- are properly informed and costed. It was applied, as we mentioned, to both the CCRS and PDR projects, and the results show its potential for success in measuring the adequacy and the costs and benefits of those projects.

It required a culture -- sorry, a change in MPI's culture, but as I mentioned, it is now

something that we consider to be ingrained in that culture.

We're now still implementing the staff strategy. You've heard evidence that twenty (20) of the twenty-seven (27) external IT consultants were successfully transitioned to full-time employee status, and you also heard that MPI continues to make progress towards its goal of -- or transitioning the remaining twenty-seven (27) consultants with an updated savings of approximately $3 million, I believe is what the -- the total was now.

And finally, we heard evidence from Mr. Henry about where MPI stacks up against its peers with Gartner's assessment or IT score. So if I could ask you to change the slide, Ms. Schubert.

And -- and what this really looks at is the new IT score, which measures MPI against the industry average. Oh, that's much better. Thank you.

And as we can see here, in almost every case either MPI aligns completely or exceeds the -- the -- the other established peers and -- and there -- although there are always room for -- there's always room for improvement and MPI will continue to focus on improving and -- and satisfying the recommendations made, it should be noted that there have been

improvements, including with respect to improving its maturity and reducing its costs.

And I think Mr. Bunko testified that it's very difficult for -- for one to improve maturity at the expense of -- of reducing costs and so that should also be noted as well.

The future, where are we going? Well, we heard again a bit of testimony about the legacy modernization project. It's still an ongoing project in its infancy. MPI so determined the approach to take, but has assured and will continue to ensure all the stakeholders that it will apply the new value management process to that project, and will be open and transparent about where its direction is headed.

Vehicles for hire. Vehicles for hire was not a -- a significant issue in this application, but it does form part of the rate ask. And so it needs to be addressed.

So MPI has applied for final approval of the 2017, 2018 and 2018/2019 vehicle for hire -- excuse me, it should be vehicle for hire rates for service, and also applies for the rates for 2019, 2020 using the same methodology.

What you heard in terms of testimony on the issue of vehicles for hire was that it's time band

model or the time band model complies with the existing regulatory process and appears to be working. MPI continues to amass data that it will continue to analyze to determine whether or not future rates should be modified.

The DSR incentives and loss prevention strategies should help close the gap between the taxicab vehicle-for-hire category and the passenger vehicle-for-hire categories as well. MPI will continue to look at those two (2) to determine whether or not there should be additional measures taken in regards to those rates.

And finally, ongoing topics. These are items that were -- will -- will be forming probably a bigger portion of GRAs in future years. Obviously, there were some questions asked about the -- the position of MPI on its driver safety rating. We know that last year the Board approved a 1.8 percent increase in driver premiums through the demerit side of the DR -- excuse me, the DSR scale and that we held a technical conference on the issue on March 20th, 2018.

The issue was whether -- sorry, the issue is not whether a DSR premium should be actuarially sound. I think MPI would agree with the

Board that that's a nonissue. What really appears to be the issue is what is the appropriate model or alternative model to be used, and the evidence is that MPI is consulting with the public on the issue and plans to provide an update of the results of its analysis in the upcoming rate application for 2020.

Service fees. We heard that MPI is not asking for a change in its service fees in this General Rate Application, and nor is it seeking to introduce any new service fees this year as well. As we know, a service fee review was conducted in the 2017/2018 fiscal year and the results were shared with the Board in this year's GRA.

We are waiting, however, a decision from the Government of Manitoba on the service fees under the Driver and Vehicles Act, and at this point in time Manitoba Public Insurance is not prepared to -- - to seek a change in the non-DVA service fees until the results of that decision are -- are made known. We expect that we'll be able to provide an update on this issue as well in the upcoming GRA.

So to -- to close off again, the issue here is whether or not MPI's application is -- presents rates that are just and reasonable. That's the test.

MPI submits that its conducted countless hours trying to balance, coming to a balance between the -- the interests of maintaining the -- the financial adequacy of the Corporation, versus making sure that the -- the rates charged to consumers are no more than what is absolutely necessary.

We feel that we've -- we've struck that right balance. There is a decision to be made, though, by the -- by the Board as to how we structure this. Do we use the rates, the interest rates as -- as at February 28th, 2018, as at September 28th, 2018, or at some date in the future through a compliance filing?

MPI is prepared to -- to cede some discre -- discretion to the Board as to what is the appropriate approach. It should be based, though, on the naive interest rate as that is, at least in the short term, we're talking about twelve (12) to eighteen (18) months, that is the most accurate way of predicting those interest rates.

2018/2019 vehicle-for-hire rates should be approved based on the current methodology, and final approval should be given to 2017/2018 and 2018/2019 vehicle-for-hire rates as well.

Subject to any questions, those are our

submissions. Thank you.

THE CHAIRPERSON: Thank you to both of you. I'll ask the panel if they have any questions.

Any questions...?

Okay, Mr. Scarfone, I've just got a question. Can we go to, Kristen, page 20 -- I can't read my notes, 28.

Mr. Scarfone, can you confirm with me that 50/50 was proposed by MPI two (2) years ago?

MR. STEVE SCARFONE: Yes. It was a proposition put forward by MPI. That was when Dr. Cleary gave some evidence from MPIC.

THE CHAIRPERSON: Correct.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: And at the time, interest rates had been flat for -- for a considerable period of time?

MR. STEVE SCARFONE: For almost five (5) years.

THE CHAIRPERSON: Okay, I just want to confirm that.

That's the only question. Gentlemen, I appreciate the submission, especially given that it occurred so quickly after Mr. Viola finished his testimony.

Mr. Oakes, we have a time constraint, I'm just wondering how long your submission would be.

MR. RAYMOND OAKES: Mr. Chairman, I plan on being very direct and to the point and concluding in less than ten (10) minutes.

THE CHAIRPERSON: Oh well, we love to hear that, Mr. Oakes, thank you. If you'd like to proceed with your submission now. Thank you.

MR. RAYMOND OAKES: Thank you, Mr. Chairman.

FINAL SUBMISSIONS BY MR. RAYMOND OAKES:

MR. RAYMOND OAKES: MPI comes to this public utility rate hearing this year after a year of superlative financial performance and condition. To put it very simply, income is up and both claims costs and administrative costs are down.

Retained earnings for the Corporation grew from 261 million in 2017 to 352 million by February 28th, 2018, and then 425 million as of August 31st, 2018.

Operating expenses decreased $5 million for Basic and overall claims costs decreased by $72.5 million.

Investment income -- income increased

38.2 million, and the 2016/'17 net investment yield increased to two -- 6.08 percent. The superlative results are indicated in my cross-examination from pages 567 through 571, and also demonstrated a very significant trend in the loss ratios where they declined in the period from 2007 to 2015, that nine (9) out of eleven (11) years, as confirmed by Mr. Johnston at page 571 of the transcript at lines 19 to 25 and following.

We saw the Corporation apply for rates for motorcyclists. The actuarially indicated rate was between .9 and 1 percent, that was indicated by Mr. Johnston at page 562 of the transcript, lines 20 and 21.

The best evidence of the Corporation could bring, the most recent, was September 28th and that dropped the required actuarially indicated rate down to some .2 percent for motorcycles, which we would suggest should be rounded down to zero.

This is, of course, based on the naive interest rate forecast and we'll speak more about that in a few minutes.

MPI then, based on that September 28th financial information, was seeking a 2.2 percent overall rate increase for motorcyclists due to their

very creative creation of a new cash cow that they call the Capital Maintenance Provision, or CMP. This additional percentage increase attributable to this new grab is not part of the accepted actuarial practice rate calculation, and that's admitted by Mr. Johnston at page 563, lines 10 to 13.

Mr. Johnston finally concedes at page 564 of the transcript, lines 15 to 24, that the Corporation can use what I had termed its arbitrary management decision to re -- arrive at whatever number they feel is justified for this new CMP.

As we know, this new provision is politically motivated. The president of the Corporation confirmed that his Board of Directors and the government of the day have directed that the Corporation should collect as much money as possible in order to provide smooth sailing for the government and the Corporation, irrespective of their mandate to provide breakeven equitable affordable auto insurance in this province.

And of course, those are my words, but that's what I see and understand the position to be.

The advantage to the Corporation in collecting 18 million to 20 million, that is not actuarially determined to be necessary at this point,

is obvious. In the case of missteps made by this Corporation's executive, such as the race -- recent PDR and other IT initiatives, results in unanticipated waste of money and the Corporation doesn't have to come back to this Board to justify receiving funds for that folly.

Mr. Scarfone said today that there was no more risky IT initiatives, unless they are necessary for core business functions. And that gives me quite a bit of concern as certainly the history of those projects would indicate.

So the -- the CMMG is an example, I would say, of the talent that they have and especially their creative genius. It's a -- calls to mind when I think of how this might work to -- to MPI and the executive, how they came up with this. I think of the Cow Brand Baking Soda company. There, that company makes and sells a baking ingredient, but they're not content with that and they invite -- invent new uses and -- for sales.

Imagine if you will these talented geniuses are sitting in a boardroom, and one (1) executive says, tell you what, here's an idea, we'll tell the people to open it, put the baking soda in the fridge and then throw it out after two (2) or three

(3) weeks. The other executive turns to him and says, I've got a better one. I'm going to get the consumers to buy it, pour it immediately into the garbage to make it smell better. So that type of creativity certainly has some rewards, and this Corporation certainly has some talented geniuses on their side.

Two (2) years ago they came up with a IRFR. This surcharge would generate about $20 million. Create a slush fund in addition to the other revenues, if things don't go the way the Corporation forecasts.

This year it will be the CMP, again, about $20 million. Mr. Johnston says at page 1382, it's a coincidence, but I believe the motivation comes from the same creativity, surcharge using a newly created acronym that the Corporation tries to convince everyone in the room was necessary. Just like putting baking soda into your fridge or the garbage, but it turns into this $20 million cushion for the Corporation.

I'd suggest that if the Corporation uses its best estimates, then there's no need for these slush funds or cushions in the event of negative performance.

The CMMG would submit that the CMP is

not actuarially sound, it's not justified on the basis of the recent financial performance, that it would result in fair and inequitable rates, and it would provide no incentive for the Corporation to continue to tighten its -- its belt and be thrifty with his expenditures.

We would submit that -- respectfully that the Public Utility Board should continue to hold the Corporation's feet to the fire, so to speak, to ensure it does a diligent job of matching assets and liabilities, making good investment selections and managing its claims and administration prudently.

This type of performance will result in additions to the RSR from the bottom line of the Corporation, and not require the Corporation to creatively develop new ways of skimming money off the premiums to be paid by its Manitoba insured.

This all, as well, leads us to the RSR, and at pages 592 of the transcript and following we reviewed the PUB approved ranges of the RSR from 2005 to present. Although the Corporation was able to carry out its mandate as conceded by MPI in years where the RSR approved range was as low as $50 million, the Corporation was somehow able, in 2015/'16 to convince this Board that the appropriate range was

231 million to 366 million.

Even Mr. Johnston of MPI acknowledges that the corporate risk profile was only 4 or 5 percent higher than in years previous, and the reference is page 595 of the transcript, lines 9 to 11.

But somehow that RSR target range is still doubled from the previous year. Mr. Johnston also conceded at page 593 that the provision of insurance was likely unchanged from the previous year. But again, these targets still reach fantastic levels without any need in the view of the CMMG.

At page 596 of the transcript, Mr. Johnston agrees that during the 15 years of the RSR approved range, which we reviewed, there were not significant drawdowns on the RSR as a result of insurance issues.

The Corporation has forecasted that at the end of the year 2019/20 the RSR is going to be some $280 million. It is currently sitting somewhere in excess of 200 million. I would submit that the RSR is already far larger than what is needed, given the history of the Corporation in providing its mandate to Manitobans, and this supports our contention there is no need for CMP at this time.

The Corporation's creativity also plays out in the number of claims reserves and other reserves that it maintains, it -- for example it maintains 234 million in claims reserves as subrogation reserves of some $30 million, doubtful accounts another million dollars. And then there's the provisions for adverse deviations to cover what I would think are every possible eventuality.

In looking at all of these reserves and Pfads, one (1) similarity is evident, despite the fact that deviations and results can be either positive or negative, the Corporation deals with all of these by collecting more money and developing all of these pools of funds to feather the nest going forward.

The Corporation's approach when it comes to the interest rate methodology, again, is directed at selecting the approach which would most likely produce a large financial cushion for the Corporation at the expense of fair and equitable rates for its Manitoba insured.

Mr. Makarchuk at page 604 of the transcript indicates that short interest rates have definitely gone up. His evidence at page 15 of his report, Exhibit 23, says that:

"While we acknowledge the Canadian

inflation rates have increased significantly since the time of the study, 2.8 percent at August 2018 versus 1.4 percent at August 2017 [and confirms at page 603] that there is correlation between where the short-term inflation is and the short-term interest rates."

The interest rate methodology is an extremely important issue for motorcyclists. Mr. Johnston at page 1369 of the transcript, lines 21 to 23, says that it looks like motorcyclists are about twice as sensitive. Perhaps -- maybe a little more than passenger vehicles.

Under the 50/50 methodology, the breakeven rate indication is a .6 reduction in motorcycle premiums. Even if the Board endorses the CMP, then it would only be a 1 percent increase.

The Corporation confirms at page 1368 of the transcript that if interest rates rise in 2019, then, all things being equal, we would have changed more than we would have if we had used the lower rate, which I submit is not equitable, the Corporation would collect those additional premiums. It isn't fair. It isn't in keeping with breakeven rates.

As per CMMG Interrogatory 1-4, we've already had three (3) years since 2010 were the loss ratio was under 56 percent.

When we look to what's happening in the marketplace and the economy, we've already seen the increases in the Government of Canada ten-year bond rates, and more recently in the Bank of Canada interest rates.

At page 586 of the transcript, Mr. Bunston says:

> "While I think both central rates have indicated they expect their administered overnight rates to increase gradually."

As previously indicated, considering all of that, I respectfully submit that it would be naive for this Board to accept a naive interest rate formula at this time.

I do understand and recognize how various of the parties have gone back and forth over the past few years in either selecting the naive or the 50/50 interest rate methodology, but I think to not acknowledge the recent environment of increases in interest rates at this time is kinda like the Board being on guard duty for the night. And sometime

before dawn, they walk away and say this is silly to be on guard anymore, and nothing's happened in the past few hours.

In all, the CMMG is calling on this Board to ensure that the excellent financial climate that the Corporation has enjoined during the past year is reflected in rates that are fair and equitable and actuarially sound. This necessity excludes a collection from CMP.

CMMG is not in favour of a rebate, but that even would be more appropriate than the Corporation's attempts to gird the piggy bank a little more.

Before the Board should look at -- I suggest that the Board should look at the Application directionally, look at the recent financial experience, look at the recent interest rates on the move. The rates should be flat without the insurance consumers of Manitoba paying more than they should have to. A discount based on the 50/50 interest rate methodology is indicated and is justified given the Corporation's financial performance.

I'd like to, at this time, thank the Corporation and its witnesses for their skill and presentation of the Application. They did so with

candor and with great knowledge.

I join the Board in wishing Mr. Ward Keith his -- best wishes on his retirement. The CMMG was very pleased to work with him for several years and was always impressed by his competence and skill.

And lastly to the Board, I thank you for the consideration of our intervention.

THE CHAIRPERSON: Thank you very much, Mr. Oakes.

This concludes today's session. We will adjourn until 9:00 a.m. tomorrow morning, when we will hear from counsel for the Consumers Association of Canada and a reply, if any, of MPI.

Thank you very much.

--- Upon adjourning at 3:10 p.m.

Certified Correct,

_____

Cheryl Lavigne, Ms.

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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA PUBLIC INSURANCE CORPORATION (MPI)

2019/2020 GENERAL RATE APPLICATION

HEARING

Before Board Panel:

Robert Gabor, Q.C. - Board Chairperson

Irene Hamilton - Board Member

Carol Hainsworth - Board Member

Robert Vandewater - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

October 31, 2018

Pages 1763 to 1890

APPEARANCES

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Robert Watchman	)Board Counsel
Steven Scarfone	)Manitoba Public
Anthony Guerra	)Insurance
Byron Williams	)CAC (Manitoba)
Katrine Dilay	)
Raymond Oakes (np)	)CMMG
Erika Miller (np)	) CAA Manitoba

TABLE OF CONTENTS

	Page No.
List of Exhibits	1766
Final submissions by Dr. Byron Williams	1767
Final submissions by Ms. Katrine Dilay	1851
Reply by Mr. Steve Scarfone	1872
Certificate of Transcript	1890

LIST OF EXHIBITS

EXHIBIT NO.	DESCRIPTION	PAGE NO.
CAC-30	CAC PowerPoint Presentation	1768

--- Upon commencing at 9:05 a.m.

THE CHAIRPERSON: Good morning, everyone. Ms. McCandless...?

MS. KATHLEEN MCCANDLESS: Good morning, Mr. Chair, members of the panel.

Today we are going to hear from CAC for their closing submissions and then we will have any reply from MPI and that will conclude our proceedings.

THE CHAIRPERSON: Thank you. Mr. Williams...?

FINAL SUBMISSIONS BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Thank you and good morning -- morning, members of the panel. Just a couple of introductions, our client Ms. DeSorcy, who's been a regular fan of these proceedings is -- is behind us and out in the -- the huge audience to -- to my right is our colleague Ms. Amanda Beaumont who is -- - is responsible largely for the presentation, the PowerPoint that's -- that's before.

THE CHAIRPERSON: Could you point her out, Mr...

I just like the -- all of the people on line to understand the depth of that.

DR. BYRON WILLIAMS: Yeah, it -- it is hard to pick her out.

I also just on -- just by preliminary comments, our clients do want to thank the Public Utilities Board for this opportunity. The Intervenor support program is -- is very important to the dialogue and our client truly appreciates the -- the opportunity that they have.

Just as we go through the documents, I'll indicate we've got a lot of the references from the record, from the transcript. If they're in italicized font, those are direct quotes. If they're not in italicized fonts those are paraphrases and certainly we've put the page reference there so if you don't trust my paraphrases, you can always go back to the record.

And finally, there are two (2) confidential slides that -- that we -- we may get to a bit later. I believe our PowerPoint would be CAC Exhibit 30 and I'm getting the nod from the Board secretary.

--- EXHIBIT NO. CAC-30: CAC PowerPoint Presentation.

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: So the title is Cushion, Comfort and Accountability, Regulatory Independence and Captive Ratepayers.

And our clients certainly in this hearing is going to focus on the -- the importance of the independent regulatory process as signalling to Manitoba Public Insurance what are efficient choices that -- that best protect both itself and consumers.

And I want to start with just a discussion on irony. And our client certainly considers this to be an ironic application. Irony Element 1, we have a corporation seeking a roughly $20 million rate cushion, the Capital Maintenance Provision. During the same General Rate Application is announcing roughly a $20 million write-off of imprudent information technology expenditures.

Ironically, we have a corporation that claims a commitment to fiscal prudence but calculating that $20 million Capital Maintenance Provision via a minimum capital target that expressly provides an eight (8) figure cushion for, in quotation marks, "inadequate or failed internal processes."

And ironic this application because we have a Crown monopoly entering a new age of

accountability and transparency. But then think back to the IT -- the information technology pane, the it wasn't me information technology panel, where corporate culture was blamed for the -- the decisions -- the imprudent decisions that were made.

The irony does not escape our clients in this hearing. That we have external experts presented by MPI who consumers trust to be independent, but these external experts, in the case of Gartner, for -- did not apply basic elements of a fulsome, in quotation marks, "net present value calculation."

And we also have an expert, Mercer, who allowed their best estimates of future interest rates to be sub -- suborned by their clients' choices, materially suborned.

From our clients' perspective, there is an irony in this hearing where we have a Crown monopoly professing a low risk tolerance for investment risk, yet, assuming away long term inflation and real interest rate risk in the portfolio, generally, and bond specifically and not testing the consequences of its decision, whether by its failure to test for a material tracking error -- basis risk is another phrase for that -- or choosing

not to undertake the stress tests recommended by Mercers. And you'll see that in Exhibit 44, filed by Manitoba Public Insurance late in the hearing, and which has kind of gone under the radar.

Finally, our client finds it ironic when in an era where mandate letters are talking about operational independence and freedom from political interference to have, in this hearing, overt hints to the Public Utilities Board of the will of the government.

Our clients are captive ratepayers. They are highly vulnerable; not only with the legal, the statutory monopoly on Basic but with the factual market dominance of Manitoba Public Insurance in Extension. And there are two (2) key consequences of that monopoly. One (1) is, our clients, that Basic consumer right of choice, has been effectively nullified and, secondly, efficiency signals for a Crown monopoly as compared to publicly traded private sector companies in a competitive marketplace are significantly muted. MPI does not face the risk of ratepayer flight, unlike the entities regulated by the Office of the Superintendent of Financial Institutions.

No efficiency signals are sent to

Manitoba Public Insurance through the price of shares in the marketplace, unlike publicly traded companies. And its sole shareholder is subject to many political pressures.

In this context, our clients rely upon this Board to ensure that monopoly power is not abused through rates that are unjust or unreasonable and to protect future ratepayers by sending efficiency signals that the marketplace cannot, by virtue of the monopoly.

Slide 8 presents the Board's statutory jurisdiction and highlights its independent nature. We all know the Board's mandate is -- is to set just and reasonable rates.

And on slide 9, our clients outline the four (4) elements of the -- the five (5) elements of that just and reasonable test as historically applied by the Board:

Ensuring that forecasts are reasonable and that, of course, is important when we look at the interest rate forecast;

Ensuring that actual and projected costs and behaviours are necessary and prudent and that is a critical element of this hearing;

Assessing the reasonable revenue needs

of the application -- of the applicant in the context of its overall health and that certainly goes to issues such as the reserves and the CMP, Capital Maintenance Provision;

Less prominent in this hearing is the allocation of costs between classes or between ratepayers;

And ultimately, setting just and reasonable rates.

Our client admits to being puzzled by what it understands to be the Manitoba Public Insurance case theory. Our client understands, at least when it relates to infor -- information technology, it is to acknowledge past errors and to plead for forgiveness.

But then, the Corporation goes on to suggest that it be insulated from accountability for future mistakes by the $20 million rate cushion and it asked for a cushion for stable rates because it tells us, as Mr. Graham did later in the hearing on October 23rd, that the provincial government has concerns about net income volatility.

And that's all very fine and good, and that's important. But when we set just and reasonable rates, rate stability is only one (1) consideration.

Prudence, reliability of forecasts, the overall health of the Corporation, fairness between ratepayers, fairness between different generations of ratepayers are critical. And certainly our client sees the Capital Maintenance Provision as inconsistent and we'll get to this after the coffee break with long-term principles of intergenerational equity.

MPI is also asking this Board to take a hands-off approach to its investment portfolio because its Board claims to have low risk tolerance.

And our client acknowledges that Crown corporations are entitled to make imprudent mistakes. They are entitled to rely on the BI3 technology and take a passive approach to complex claims management with long -- long-standing rate cost to consumers.

On the second bullet, they're entitled to have IT staffing -- the word should be inserted "budget levels" -- far higher than the industry average. They are entitled to enter into technology adventures relating to physical damage re-engineering including the customer claims reporting service assistant.

They're entitled to do that without appropriate business cases and they're entitled to do so without disclosing material information to external

third-party advisors, with the Public Utilities Board and consumers are trusting to provide intent -- independent advice.

Manitoba Public Insurance is entitled to assume away real interest rate risk in the design of its minimum risk portfolio, the nominal lia -- liability benchmark. And to do so without testing for tracking error or undertaking stress tests. They're entitled to do that.

And they are entitled to cherry pick an interest rate forecast other than the preferred estimate of its external third-party advisor.

But the Board has its own privileges, its own responsibilities, its own rights and the Board -- this Public Utilities Board is not obliged to pass on these imprudent cost to ratepayers. It is not obliged to build a cushion for imprudence into the rates or to pass on imprudent and unreasonable costs.

In the sections that follow, we're going to talk a little bit about the rate implications for individual consumers and then to seek to apply that just and reasonable analysis that the Board is set out for us in -- in prior Orders, have a little conversation towards the second last bullet on slide 13 in terms of consumer engagement and that's when

you'll be relieved to hear that you no longer hear from me after that second last bullet and I'll turn it over to my colleague Ms. Dilay, and she will take you home with our clients' recommendations.

Our client does want to talk about the implications of the rate application for individuals. And my client Ms. DeSorcy always reminds me that it's about people. It's not about theory. It's about the real live impacts on ratepayers.

Manitoba Public Insurance historical and current opinion polling tells us that the value proposition for ratepayers relates to price. It tells us that the strongest driver is stable and fair rates, but interestingly, and surprisingly, Manitoba Public Insurance has not tested with Manitobans, how they define stable rates and whether the concern for stable rates relates to rates on average, or to the experience of individual ratepayers.

MPI polling both historic and current tells us that another important driver of the value proposition is the cost of vehicle insurance.

Interestingly, given the avowed purpose of the RSR, and one (1) of the stated purposes of the Capital Maintenance Provision, i.e., to avoid rate shock, Manitoba Public Insurance has no formal

definition of rate shock. Mr. Johnston puts the -- a 5 percent assumption into the DCAT but was quite frank that there's no formal corporate definition.

Mr. Johnston was also frank, and our clients share his view, that rate shock is an individual experience. It's not an average. And he tells us at transcript page 838 and 839 most consumers are concerned about their own bills, a 5 percent increase, he can relate to may be tough to swa -- swallow for consumers.

So using that proxy for rate shock, that 5 percent rate increase proxy, we can conclude based upon the record of this hearing that over three hundred thousand (300,000) vehicles will increase their rates by over 5 percent. Twenty-five -- about two hundred and ninety thousand (290,000) will experience a premium increase of between 5 and 10 percent. Another forty thousand (40,000) between 10 and 15.

And whether you look at it in percentage terms or increases over $50, either perspective, that accounts for more than 25 percent of vehicles.

And the Capital Maintenance Provision is making a significant contribution to the rate shock

experienced by those three hundred thousand (300,000) vehicles. And Mr. Johnston -- I didn't even have to ask him, he volunteered, let's say we didn't do the Capital Maintenance Provision which may be what -- which may be what you're interested in, that would shift down premiums by about 2 percent.

So in this section of our submissions, our client recommends two (2) findings to this Board; one (1) that rate shock is an individual experience not an average; and two (2), that over three hundred thousand (300,000) vehicles where -- will experience rate shock level increases if the rate -- rate application is approved with the CMP or Capital Maintenance Provision load being a significant factor.

In part 3 of our submissions, we turn to ensuring that forecasts are reasonably reliable. There's all sorts of forecasts that go into the MPI application, but not surprisingly, our focus will be on the interest rate forecast.

And My Learned Friend, I'm not mentioning whose birthday it is today, but My Learned Friend Ms. McCandless asked the -- the critical question in this hearing on interest rates. Recognizing that the Board last year rejected a fifth -- naive forecasts and approved a 50/50 forecast, she

asked, on or about transcript page 365, What change in circumstances or new evidence is the Corporation aware of that would support its position in the use of the naive interest rate forecast, what has changed since last year?

And there was a brief pause, as reflected in the transcript, and then Mr. Johnston candidly said, I'm struggling with the right answer. And Mr. Giesbrecht suggested that there is not really any significant change, in terms of the environment of the marketplace.

Our client megs to differ. In our clients' view there have been significant changes in the marketplace, which cast additional doubt on the naive interest rate forecast.

First, there's been a maintenance and an enhancement of rapid US growth. Over the last two (2) years, the Bank of Canada also has moved up its overnight rate, its policy rate has moved upwards five (5) times and twice in the last four (4) months.

There is general acknowledgment, thirdly, that the Canadian economy is approaching full capacity. There's also lowered trade tensions with United States and as the Bank of Canada has made palpable and evident both in its conversations in

September and its overnight policy change in October, its concern about inflation has been made more palpable as is its willingness to increase rates.

And take a look at -- if -- if you have the chance and they're both referenced on the record, those Bank of Canada news releases, whether in July or whether in October and see the word "gradually" disappear from July to October. There's a message there for ratepayers and for forecasters.

Dr. Simpson has not tres -- tested for a structural break in the statistical information, but he was asked by PUB counsel whether this latest pattern is a meaningful departure from that of earlier periods. And he said, yes, there's no question the period of low policy rate and low interest rates has ended. The overnight rate or policy rate has begun to rise. The economy is moving towards capacity.

And listen to the comments of Stephen Poloz, P-O-L-0-Z. It's pretty much considered to be at capacity now and underlying tier inflationary pressures are beginning to drive concerns that interest rates need to be higher. And it's bounced around a bit, but we know in July it was 3, 2.8 in August, down to 2.2 in -- in September, but there's been some bouncing around in terms of inflation and

the actual level has been higher as well.

And as Dr. Simpson observes, this material change in circumstances is actually been reflected in the forecasting performance of the -- the different approaches, whether it's standard interest rate forecast, the naive or the 50/50.

Again, not testing statistically for a structural break, but it's palpably apparent that the SIRF, Standard Interest Rate Forecast, has clearly outperformed the naive. And his expectation that the naive going forward is going to be an understatement of interest rates.

And at the bottom of this slide, being slide 35, he underlines two (2) important points about the results of the naive forecast over the last couple of years. One (1) is that its errors have been considerably larger, but also -- he didn't use the word bias -- but they've also been consistently in one (1) direction, in the direction of underestimating interest rate growth.

It's interesting to look in terms of the advice of MPI external officials -- not officials, but external advisors on interest rates. Before this Board, we've actually only had one (1) external expert from M -- presented by MPI who spoken to the issue of

interest rate forecast and that was Dr. Cleary -- Cleary, C-L-E-A-R-Y, in 2016. And his advice was to adopt the 50/50 approach and that's found in a CAC exhibit with Slide 17 and 18 repeating that advice.

Dr. Chang has spoken of the naive forecast, but only in the context of his DCAT or Dynamic Capital Adequacy Testing investigation. And he specifically, in response to Information Requests of the Board, indicated that he was not speaking in terms of the naive on a basic ratesetting context.

Mercers also had an interesting comment about the naive forecast. Again, I want to be clear, this is not in the rate-setting context, it is not in the Dynamic Capital Adequacy Testing comment, it is in the context of the asset liability matching context.

And I asked Mercers perhaps the silliest question on the record of this hearing. When you're doing asset liability matching, why aren't you doing that analysis, assuming that interest rates stay flat? And certainly if the Board was observing the Mercer's witness they could observe his facial reaction to my silly suggestion. But he responded:

> "We would not recommending (sic) doing analysis assuming interest rates stay flat or constant."

And I asked him why not? And he shared with us the expectation, the consensus, of Mercers their standard interest rate forecast which all their investment professionals or actuarial professionals rely upon and which is assuming that there will be a gentle rise in the yield curve over the next few years returning to equilibrium. That's the Mercer's view.

I do want to be clear that this standard forecast of Mercers, their national assumptions, were not what Manitoba Public Insurance used or Mercers performed for Manitoba Public Insurance in the context of its asset liability analysis, but that's the Mercer's consensus. It's definitely not naive.

Both Mr. Guerra and Mr. Watchman pressed Dr. Simpson on his recommendation; that's at Slide 28 of the PowerPoint. And generally, Dr. Simpson concluded that the SIRF, the Standard Interest Rate Forecast, is better than the naive and that it should be -- certainly be part of the interest rate forecast. He also concluded that the existing Board Order for 50/50 is certainly better than the naive,

Dr. Simpson did make -- express some caution in his -- in his recommendation, reflecting a bias to the Board's Order from last year, which was

50/50, not standard interest rate. And as he says in the second bullet on this page:

"If I were allowed to pick weights, they probably wouldn't be 50/50. I'd give more weight to the SIRF."

And, again, on transcript pages 1320 to 1321, he also notes the impact of the most recent Bank of Canada change in the over -- overnight rate and -- and indicated, again, an increasing affection analytically for the Standard Interest Rate Forecast.

During this hearing we've heard a lot from Manitoba Public Insurance about its alertness to interest rates, whether it's duration mismatch risk or -- or pricing risk. And if one were not familiar with the history of this Board with Manitoba Public Insurance on interest rate issues, one might form the impression erroneous, in our clients' submission, that MPI has vigorously been responding to interest rate risk.

The evidence of Mr. Johnston on this point is helpful. One (1) of the things he pointed out at about page 661 of the transcript was when the great recession hit, as we start to struggle with -- with challenges relating to historically low interest rates or certainly historically low outside of the

great depression, that Manitoba Public Insurance was ill-equipped from a financial modelling perspective to confront the unexpected changes to interest rates.

And in fact, up until certainly 2010, '11 or '12 didn't even have the capacity to model interest rate impacts. Our client believes that based on the record of this hearing and prior Board Orders, it is reasonable for this Board to conclude, and appropriate to conclude, that unlike the implicit assertion of a vigorous response to interest rates that it's reasonable to conclude that the PUB has had to push MPI over the years to address the asset liability mismatch;

To cease gambling on that mismatch in the hopes that interest rates would rise;

To improve protection specifically for Basic as opposed to a corporate portfolio;

To provide a new and regular asset liability manage study -- asset liability management study, rather than the compromised Aon study;

And to provide a new asset liability study on a timely basis.

And that history of those efforts by the Board are captured in CAC Exhibit 16.

But if you look at slide 31, you see

the Board expressing the view in 2013 that Hy -- Manitoba Public Insurance's approach to duration mismatching was making it too vulnerable to interest rate risk.

2014, advising MPI to substantially imus -- immunize itself from changing interest rate risk.

Ongoing concerns in 2016 and in 2017 expressing frustration with the failure by Manitoba Public Insurance to produce an updated asset liability matching study as ordered by the Board.

In the area of forecasting, our client recommends two (2) findings to this Board. First, that Manitoba Public Insurance has not discharged its onus to demonstrate that the naive forecast should replace the 50/50 forecast for ratesetting purposes.

Secondly, that there has been a material change in circumstances over the last two (2) years, suggesting that greater reliance should be placed on the Standard Interest Rate Forecast than the naive forecast.

In the discussion of ensuring that actual and projected costs incurred are necessary and prudent, our client is going to address four (4) issues and, certainly, Mr. Chair, just from a timing

perspective, I expect to be done with my colleague Ms. Dilay this morning. What I would recommend is once we get done Section 4(a), we take a look at the clock and 4(b) would take about fifteen (15) minutes, I suspect, but we take a look after 4(a).

From our clients' perspective, there are four (4) critical issues relating to prudence and reasonableness in this hearing.

First, and most importantly, is the proposed Manitoba Public Insurance investment portfolio for Basic and for pensions biased in favour of short-term rate stability at the risk of higher long-term rate instability and at a cost to consumers in terms of foregone opportunities and in -- in -- and in terms of higher rates.

Secondly, are Manitoba ratepayers facing current and ongoing pressures as a consequence of the Corporation's passive approach to long term -- in brackets -- (complex claims management) in the aftermath of the BI3 project.

Three. Are information technology staffing budget levels excessive as compared to relevant peers.

And finally, did MPI imprudently manage large invest -- information technology projects

related to physical da -- damage re-engineering and the customer claims reporting service, which is a subset of that PDR initiative.

Starting with asset liability matching. I want to start out by being agreeable and there are certain things in which there is consensus from our clients' perspective, at least between Mr. Viola and Mercer and, in some cases, even with -- I see I've misspelled Mr. Johnston's name here and I apologize for that, Luke, on slide 36. I've got it right almost every time.

(BRIEF PAUSE)

THE CHAIRPERSON: Sorry, to interrupt, Mr. Williams.

DR. BYRON WILLIAMS: And I want to start with liability risk because good practice, best practice, tells us that modern portfolio management starts not with the assets, but with recognizing the risk inherent in the liabilities and seeking to measure those risks. So what is the liability risk associated with the Basic and pension liabilities?

And one (1) of them highlighted both by Mr. Viola and by Mercer, by Mr. Makarchuk, relates to

the fact of the long duration -- the -- the long cash flow timeframe of many of these liabilities.

And at slide 36 I -- I -- I pulled statements -- quotes, as well as paraphrases, for Mr. Makarchuk. A lot of the cash flows we're worried about are longer than ten (10) years. Roughly half of them are shorter than ten (10) years, and roughly half of them are longer than ten (10). Some claimants are still quite young. Tragically, some of these claims could last as long as fifty (50) years.

Mr. Johnston affirmed Mr. Makarchuk's rough math, pointing out that 48 percent of total ultimates paid for accident benefits weekly indemn -- indemnity and, indexed in some fashion, element of the personal injury protect -- protection plan extend beyond ten (10) years, 48 percent.

And then when we -- if we look at accident benefit Other which is indexed, 39 percent of the total ultimate paid is ten (10) years and beyond. And it's not just the cash flow well out in the future ten (10), twenty (20), thirty (30) years that is concerning, it is the relationship that they're linked to inflation.

And Mr. Makarchuk points out, it's at page 313 of the transcript, many of these obligations

were linked to future inflation and Mr. Johnston confirmed that. A significant portion would be tied to Manitoba CPI. Some are tied to the industrial average weight -- wage, but I would say the vast majority would be income replacement benefits indexation.

Long cash flows well beyond ten (10) years, inflation indexed, a central concern about -- of Mr. Viola in terms of defining the liabilities. His conclusions affirmed here by both Mercer and by Mr. Johnston.

How do we go about appropriately addressing these risks? There is agreement by Mr. Viola, by Mercer, and by the Canada Pension Plan Investment Board that a critical first step is that minimum risk or, for the purposes of this conversation, the liability benchmark port -- portfolio.

The first bullet on this page, we quo - - we quote from Mr. Viola's PowerPoint saying that this is the first step. In the second bullet, we note the approach of the Canada Pension Plan Investment Board. MRP, the Minimum Risk Portfolio, otherwise known in this hearing as liability benchmark and -- and how they do that, interestingly, with the RRB

index.

And then we have Mr. Makarchuk. One (1) element is development of a liability benchmark portfolio as a proxy for liabilities and perhaps the most important five (5) words in this conversation, six (6), "to identify and measure the risks" because that is the purpose of this liability benchmark, expressly said by Mr. Viola and by Mr. Makarchuk.

Identifi -- identify and measure the risks of the liabilities. It is not a trivial exercise, it is not an exercise to be conflated with capital mark -- market exc -- assumptions, it is the exercise to identify and properly measure to the best of our ability the risk, the liabilities.

Mr. Viola says that risk-free assets should reflect risks in the liabilities, duration and inflation. Makarchuk says, and this is the same point but at a -- at a different transcript page, page 624 now:

> "The liability benchmark portfolio is for the purpose of identifying and measuring risk."

This is not an investment decision. This exercise is intended to be a reflection to the best of our abilities of reality. What does Mr.

Makarchuk say? We are trying to find a liability benchmark that best represents the obligation, not a simplified assumption that best represents the obligation.

Mr. Viola and Mr. Makarchuk warn us. Do not conflate the design of the liability benchmark with the ultimate portfolio selected. And that was the source of some confusion in My Learned Friend's cross-examination of Mr. Viola on -- on Monday because the questions -- it was unclear whether they were being directed to the liability benchmark, or the ultimate portfolio. Those are two (2) distinct analytical steps, both critical, but both about different things.

Mr. Viola adamantly confirms that the liability benchmark composition should not depend on capital market expectations. And in my conversation with Mr. Makarchuk he pointed out, set out the liability benchmark portfolio and then realized that the ultimate choice in optimizing the portfolio may not be to invest in the same assets, but you've got to go through that distinct exercise, identify and measure your risk, then optimize.

And I put to him at pages 641 and 642, it's important to maintain analytic distinction and he

confirmed that. The liability and moder -- modelling decision is separate from the asset class investment decisions. It's not an investment decision. I'm putting my words on his statement that -- that last statement, just -- just so I'm clear.

But you can see the careful distinction he draws in this sentence being a quote from pages 641 and 42 of the transcript.

> "The liability and mode -- modeling decision is separate from the asset class investment decision."

Both Mr. Makarchuk for Mercer and Mr. Viola confirm that this benchmark is critical to the outcome of the optimizing exercise. Makarchuk says it's an important foundation. We're paraphrasing Mr. Viola here, but on a number of occasions in his conversation with My Learned Friend on Monday, he noted that the optimal asset allocations that flow from an optimizing process depend materially on whether a nominal or real liability benchmark is selected.

Our clients' view buttressed heavily by the evidence of Mr. Viola which we rely upon, is that risk has been mis-identified and mis-measured in the nominal liability portfolio, and that -- that mis-

measurement of risk is material.

Mr. Viola highlighted in his PowerPoint and oral comments that big simplifications, using his words, of MPI and Mercer. MPI focusing on the expected level of inflation rather than the volatility of inflation and Mercer's carefully hedging its support by saying it was driven by its views of expected level of future inflation than volatility.

But as Mr. Viola points out, and as -- as Mercer implicitly pointed out when they went through the volatility calculation with me, risk depends on volatilities and correlations, not levels and averages.

And, surprisingly, given the importance of this decision, MPI did not ask Mercer to test the basis risk, the tracking error that might in er -- that might flow from this material simplification. When pressed by our client in CAC-MPI-2-3, Second Round Information Response, Mercer confirmed a 4.5 percent tracking error and admitted it was material.

And that materiality, that 4.5 percent, can be juxtaposed at the volatility or risk in -- in MPI's current portfolio of 3.8 percent. A 4.5 percent error is significantly larger, a hun -- 18 percent larger.

One can profess to have a low risk tolerance but suggesting what has a low risk tolerance by assuming away real interest rate risk or long-term inflation risk, does not demonstrate fidelity to the id -- the idea or the value of less risk.

Mr. Viola says at page 1460 of the transcript:

> "By not con -- capturing this inflation risk properly, we're not properly measuring the true risk of having nominal bonds support real liabilities."

He describes the MPI process for defining contents of its risk-free bus -- bucket as very questionable.

And if you look to his PowerPoint Slide 17, you'll see the conclusion of Ontario Teachers again, albeit about a deck -- a decade and a half ago in terms of inflation linked assets of long duration. What is their main source of liability risk; a drop in real interest rate risks -- rates? It was true fifteen (15) years ago. It's true today. And when we have long-lived inflation linked assets, it will be true twenty (20) years from now. So is our clients' submission.

A critical conversation in this hearing was the conversation of Manitoba Public Insurance with Mr. Viola about modelling liabilities. And at page 15/16 of the transcript, a very important quote. You see a suggestion by Mr. Scarfone, My Learned Friend, that the decision to model liabilities using a real liability benchmark versus a nominal was an investment decision. And Mr. Viola vehemently disagreed.

The liabilities are what they are, regardless of how you decide to take risk to them. It's not an investment decision. It's a reflection of reality. Again, I'm paraphrasing or sharing my inference from that -- that statement.

And Mr. Viola -- and this was highlighted in his conversation with Board Counsel, highlights the fact that the focus on nominal interest rate risks misses the greater risk of real interest rate risk and long-term inflation risk. He draws the analogy to an investor in stocks focused on the dividend rather than the really risky issue related to the capital gain.

He highlights the changes in real yields are important because of the longer horizon, and that nominal bonds would do poorly if inflation is more volatile or higher than expected.

I want to go back to the issue of risk basis or tracking error basis risk, excuse me, and highlight the fact that until our client made this inquiry, tracking error was not considered. And tracking error, as I understand the concept, and as confirmed by Mr. Makarchuk, measures the variation in future returns. In this case, Mercer was asked to measure that variation in the future returns between the nominal liability benchmark and the real liability benchmark as via the anticipated volatility.

And when we put to him on behalf of our clients, whether he had conducted that analysis for MPI, Mr. Makarchuk candidly agreed. I don't believe we specifically calculated the difference in the volatility between the two (2). Tracking errors were not analyzed or presented until the response to CAC Information Request 2-3.

As Mr. Viola confirmed, that 4.5 percent is a big number. And in our client's respectful submission, recognizing the long-term risk associated with long-duration inflation linked assets, Manitoba Public Insurance is taking a material gamble in the design of its liability benchmark portfolio by ignoring real interest rate risk and long-term inflation risk. It is misidentifying and mis-

measuring risk associated with its liabilities.

This is an excerpt pulled from MPI Exhibit 44. It's a response of Mercer's. And if you'll recall our conversation with Mercer, we -- we took them to one (1) of the many attachments to Appendix 17. And this is the basis of the November 8 conversation that Mercer had with Manitoba Public Insurance. And you recall the slide, they talked about next steps being stress testing.

And during our cross-examination, we asked Mercer, did you do these stress tests? And they couldn't recall. So they did an undertaking, and what they indicate was that they were planning to first proceed with three (3) of the six (6) scenarios. Unfortunately, we were unable to complete the stress tests in advance of the meeting November 28th, and there were some quality control issues with the first three (3) stress tests. So given that the investment committee meeting had occurred, and given concerns regarding overall modelling cost -- costs, peer reviews of the results were not completed, and the results were not finalized.

Now, for the purpose of the Exhibit 44, some additional analysis was completed a year -- almost a year after the time when it would have been

useful. And certainly, our client would invite the Board to look at the inflation shock scenario. But the important point, from our clients' perspective, is that important due diligence, that important peer review, that important stress test was not enter -- undertaken.

And if you couple the failure to test for tracking error, given the monumental importance of this decision, and the failure to undertake stress test scenarios as recommended by Mercers, in our clients' view, that demonstrates an imprudent, unreasonable approach to the asset liability assessment, and it represents the undue haste in which this study was conducted.

And if the Board directs its mind back to last year's Order, or the year before that, there was considerable tension around the fact that an Asset Liability Management study was not conducted. MPI didn't have time. And then lo and behold, September, October, November of 2017, when it didn't have time previously, it acted in haste and did this analysis. It acted in haste, and it did shortcuts, material shortcuts inconsistent with good practice.

Real return bonds. I'm moving now from the liability benchmark, which is really the -- that

mis-measurement -- that misidentification of risk is fundamental to our concerns, but we've set our liability benchmark. Now we're moving to optimization.

On slide 49, our clients are simply trying to make the point that real return bonds are not a dirty word. We see Teachers, probably the best-regarded pension fund definitely in Canada, but earning worldwide renown. A long-standing commitment between -- to -- between a significant portion of real return bonds, the last two (2) or three (3) years between 60 and 19 percent.

And in Exhibit 29, which was filed collaboratively with MPI yesterday, if you -- if you get a chance to go back to that couple of pages from the Teachers' annual report in their website, take a look at what they have done with that $185 billion portfolio. There's a significant commitment to real return bonds in the range of $20 billion.

We'll look at the other inflation hedges there, as well, the not 8.9 million -- 8.9 billion inflation hedge, the very significant real assets in addition. Do the math. We suggest you'll probably come up in the range of $40 million in terms of inflation hedges, some real rib -- return bonds,

some the inflation hedge, some the real assets.

A sophisticated investor, not wishing away real return risk, but recognizing that it's a fundamental risk to portfolios that are indexed and that have long duration. That doesn't mean that's the right mix for Manitoba Public Insurance, but it raises questions.

We point out as well that the SAAQ, I can't pronounce the acronym, perhaps My Friend, Ms. Dilay, will tell me over the coffee break, but that's the public insurer in Quebec. Their investment portfolio has about 10 percent as of December of 2017, if memory serves me right.

And we have the advice of Mr. Makarchuk. Real return bonds are an excellent way to ensure you get real return, if you're worried about real return. And if you're running a portfolio of a significant duration with significant indexing risk, why wouldn't you want to have at least some protection for real returns?

And when we turn to the Mercer model, when we returned to MPI Exhibit 15, when it modelled upon an appropriate measurement of risk the real liability benchmark, Mercers concludes, assuming a real liability benchmark for modelling, removing real

return bonds significantly reduces an opportunity for improvement at lower risk levels. Opportunity for improvement at lower risk levels.

And Mr. Viola estimates that at the current risk levels, that volatility of plus or minus -- or excuse -- that volatility of 3.8 percent, Mercer's efficient frontiers suggest that the expected excess return above the liability benchmark drops by around .8 percent when RRBs, real return bonds, are removed. Point eight (.8) percent on a portfolio of the size of Manitoba Public Insurance's is a big deal.

And when pressed on the value of a real return bond, Mr. Viola commented:

> "With a break-even inflation of something south of two (2), even if you're getting inflation of two (2), which is what the Bank of Canada assumes, you're actually doing better by buying the real return bonds."

And that break-even inflation rate, you may recall in my cross-examination of Mr. Makarchuk on that point, we looked to the -- how they calculated that break-even inflation rate, and comparing real return bonds to long federal bonds, the thirty (30)

year bonds.

The diligent work of Board advisors in their Information Requests also highlighted another very significant concern with the current MPI approach to asset liability matching, and their expectations for the investment portfolio.

In our clients' view, Manitoba Public Insurance is gambling that its external experts' preferred interest rate forecast is wrong. Mercer's Standard Interest Rate Forecast, which we talked about earlier, the one (1) used by its experts and actuaries across Canada, was not accepted by Manitoba Public Insurance. Instead, a forecast based upon the fore -- forward curve was substituted to be more in line with MPI's business model, in the words of Mercers. I'm not quoting them directly.

And as I suggested in my discussion with Mr. Makarchuk, use of Mercer's Standard Interest Rate Forecast por -- portrayed capital losses for the fixed income holdings. And that information is best indicated at slide 52. Again, at the top of that slide, we're talking about what Mercers prefers, their Standard Interest Rate Forecast.

And Monday, we had a conversation with Mr. Bunston. I think it's Appendix 17, Attachment E,

slide 14 or 13. The expected ten-year return about -- of the nominal liability portfolio, assuming Mercer's best estimate, was 2.1 percent. Take out the external expert's best estimate, substitute the forward yield, and the expected ten-year return of the nominal liability portfolio -- this is in 17, Attachment A -- with MPI's substi -- with MPI's substitute view grows to 2.8 percent. If you look at that difference in expected outcomes, point seven (.7) divided by two point one (2.1), a 33 percent difference, flowing from that rejection of the external experts' preferred view.

That is concerning to our client. Ultimately, Mr. Viola questioned the premise that the so-called risk-free bucket of MPI was risk-free, and concludes that it has material risk over the long term.

There are two (2) key challenges, the first being the minimum risk portfolio, the nominal liability benchmark, is fundamentally compromised by misidentification, and mis-estimate of risk. The portfolio understates the risk of inflation and real interest rate risk.

And secondly, that liability benchmark analysis was compromised by MPI introducing capital

market expectations into the analysis.

As Mr. Viola pointed out, liabilities define themselves. They are what they are. They are not a function of risk tolerance. The decision to accept or hedge risk is a separate decision. That's for part 2, the optimization process. He describes that portfolio, and that approach is questionable, very questionable.

In terms of why our client concerns -- concludes that the MPI bucket is a risky bucket over the long term, remember the simple truism of Mr. Viola that any constraint shifts the curve. What are the elements of higher risk? No real return bonds leads to poor liability protection against unexpected inflation, real -- real rate risk, and less effective duration management.

And in this context, Mr. Viola makes an important point. And this was in his discussion with My Learned Friend, I believe on -- on Monday -- it might have been with Mr. Watchman yesterday. MPI, in its rebuttal, did do some stress testing, pulling from a -- a DCAT analysis, a 3 percent inflation assumption for four (4) years. And our client, in the context of the DCAT, actually thinks that's a good, solid analysis, because the DCAT isn't about whether we

compare our liabilities twenty (20), or thirty (30), or forty (40), or fifty (50) years from now. The DCAT is simply about: Do we have enough reserves to prevent rate shock? And it's only over a short time horizon. We're looking out to 2022 appro -- so that kind of a modelling assumption for the DCAT is quite good.

But Mr. Viola, in conversation with Mr. Watchman, said, It's not -- the risk isn't in 3 percent inflation for four (4) years. The real risk for an inflation-sensitive portfolio with roughly half its liabilities beyond ten (10) years is over a longer duration, even at a lesser amount.

Another element of high risk with the Basic portfolio is the absence of other real assets, such as real estate and infrastructure, and therefore, less diversification. Instead, what we have is real rate risk, inflation risk, credit risk, and some illiquidity risk through the MUSH bonds, concentrated in the fixed income portfolio.

From the big picture, from the total portfolio perspective, Mr. Viola points out that they're -- that instead of concentrating risks in fixed incomes, a combination of low risk assets and other risky assets gives better risk/return trade-offs

than being concentrated in either one (1) of the buckets. Excuse me. Thank you.

(BRIEF PAUSE)

DR. BYRON WILLIAMS: Mr. Viola again flags the concern that MPI's focus on short terms -- rate stability, and that their opportunity cost with the short-term rates focus in terms of better returns over the long run, but also that there are risks of higher long-term rate instability.

Just a couple of last points on investment issues. It is open to this Board to -- to ask itself whether in the course of this hearing, Manitoba Public Insurance has demonstrated a mastery of these complex issues. And Mr. Viola yesterday pointed out the inconsistency between the MPI explanation of its modelling exercise, of Mercer's modelling exercise in its rebuttal, versus the Mercer response found in Exhibit 38.

And at slide 57, we had a conversation with one (1) of the MPI witnesses, again, over the affidavit filed in support of our motion for better disclosure. And again, you see some challenges in terms of grasping some of the issues.

Initially, the real liability benchmark was described as having a much higher risk of three (3) -- three (3) -- it says here "perfect," but it should say 3 percent, and that assessment was amended in a subsequent affidavit to suggest real liability benchmark with the risk of zero percent. And again, you see MPI correcting its conclusion originally that the real liability benchmark was -- was higher, but suggesting in its subsequent analysis that, as compared to the selected nominal portfolio, the real liability benchmark was lower.

Frankly, our client has a bit of a challenge with this whole conversation, because in essence, one was comparing a liability benchmark based upon real interest rate risk versus a optimized portfolio based up -- flowing from the nominal liability benchmark. So that suggests a conflation of the issues that our -- our client is -- is quite uncomfortable with.

Finally, I want to go to expertise. Mr. Viola is a -- a well-known leader in this field. It's instructed that many of the recommendations he made back in 2016 have been accepted, and the idea of segregating between Basic and -- and pension is certainly something that he promoted. He comes out of

great roots, out of Teachers in the 1990s, and then as a young vice-president at the Canada Pension Plan Investment -- Investment Board; very sophisticated investors. And their current firm, Cortex, obviously is a highly regarded North American practice.

Mercer certainly has good qualifications, but their role in this process has been circumscribed. Their best estimate of future interest rate risks were rejected. They did not test for tracking error, or basis risk, and the scenario testing was not undertaken. And if you look at their careful hedging of their words, in terms of the nominal liability portfolio, their analysis was compromised by assuming away long -- long-term inflation risk and real interest rate risk based upon the inflation level rather than inflation volatility.

Our client has no doubt about the -- the capabilities of the MPI Board, but they were cons -- clearly constrained in the inputs, in the haste in which this exercise was conducted, in the challenges that Manitoba Public Insurance demonstrated in coming to grips with the purpose of the liability benchmark portfolio, and with the ultimate mis-measure and misidentification of risk. So certainly, while our clients greatly respect the members of the MPI Board,

they were not here testifying, and they are limited by the quality of information and the quality of the asset liability analysis.

Ultimately, our client concludes that the proposed approach by Manitoba Public Insurance is a significant gamble. Again, the assumption to assume away real interest rate risk, and also substituting MPI's judgment for the best judgment of Mercer in terms of future interest rate forecasts.

Our client recommends the following findings: Ultimately, that -- that the asset liability management analysis was not conducted in a reasonable and prudent manner, first of all, in terms of its assumptions, the assuming away of -- of real interest rate risk and long-term inflation risk;

The failure to test for tracking error between the real and nominal benchmark portfolios;

The insertion of capital market assumptions into the liability benchmark analysis, when that properly belongs in the second stage of the analysis;

The optimization, and the failure to undertake the Mercer-proposed risk scenarios, at least the three (3) prioritized ones.

In terms of the construction of the

analysis, our clients submit that it is not prudent to substitute the opinion of MPI for the best estimates of its experts regarding future interest rate risk, and it is not prudent to concentrate risk, inflation, credit, and illiquidity within the fixed incomes in the Basic portfolio rather than to diversify the sources of risk via real assets as well as equities.

Ultimately, our client observes that there are significant risks of long-term rate instability, as well as the likely prospect of lower returns associated with MPI's preferred approach.

Mr. Chair and members the panel, I think that's a -- a useful break point, but I can -- I could proceed for another twenty (20) minutes, if you would prefer.

THE CHAIRPERSON: No. We'll take fifteen (15) minutes. Yeah. Thank you.

--- Upon recessing at 10:20 a.m.

--- Upon resuming at 10:42 a.m.

MR. STEVE SCARFONE: My apologies, Mr. Williams, I was stuck waiting for an elevator for ten (10) minutes.

THE CHAIRPERSON: Oh, that's -- that's

unimaginable in this building, Mr. Scarfone.

I don't know if I'm supposed be looking at Mr. Williams or Ms. Dilay? Mr. Williams, okay.

(BRIEF PAUSE)

CONTINUED BY DR. BYRON WILLIAMS:

DR. BYRON WILLIAMS: Question 4(b) at Slide 61 of the PowerPoint is whether MPI ratepayers facing current and -- are facing current and ongoing rate pressures as a consequence of the Corporation's passive approach to long terms claim management in the aftermath of BI3.

And before we leave this slide, I'll cut to the chase and the answer is yes. And our -- our client does have concerns with how the Corporation has addressed complex claims, but we also should acknowledge the role of the MPI actuary in candidly flagging this concern to the Board and for those who have been at this Board for years, this certainly has been candidly discussed and -- and raised by the MPI actuary and our client acknowledges his -- his role in -- in identifying this issue so that stakeholders and the Board could better understand it.

On slide 62, these -- these bullets are

from an appendix to CAC Information Request 1-36(a). It's the response to the -- that Information Request and that I can't do justice to the issues as well as this briefing to MPI management in April 2018 does but I want to flag some of the observations that our client has, or that -- that -- that are captured in this briefing note.

We date the BI3 era to about 2010 and the narrative that has played out in hearings over the last few years is that claims -- there's -- as compared to expectations prior to 2010 or so, there's an increase in these complex claims. These claims under the personal injury protection plan lasting more than two (2) years.

There are a number of factors influencing this growth in retain clams -- claims; one (1) is the world outside, which is be -- to some degree beyond the control of MPI. Another is the implementation of the BI3 initiative and the challenges MPI experienced in delivering it. And finally, there was a reduction in staff because BI3 was supposed to relieve the burden of claims management using technology but in -- indeed, the challenges have been twofold since then.

One (1) is that claims managers weren't

-- were struggling to properly reserve claims but, more fundamentally, there was also struggles in managing claims.

One (1) of those external factors, at least to some degree, is also a very significant increase in claims with psychological factors by 10 percent. And we flagged this because this is one (1) of the critical sources of ongoing rate pressure for Manitobans.

The briefing note found at Appendix -- to CAC-1-36, Slide 8, flags challenges in claims management, and reserving flowing from the BI3 initiative. Claim staff were cut and also were not proactive in recoveries.

And as Mr. Johnston confirmed with me in our conversation on -- on October 18th, claims that last longer, all other things being equal, mean more cost to the Corporation. And one (1) of the challenges MPI faced and has faced since 2010 were process char -- changes as outlined in the first paragraph on Slide 65 that created a more passive approach to injury management.

And Mr. Johnston, again, at the bottom this -- this slide talks about less agre -- aggressive claims management being employed.

And as he pointed out in a conversation around page 862 of this transcript, instead of being addressed it inta -- intake complex claims were only being actively managed in the later stages of the claim. And again, highlighting the cost to ratepayers and to the individuals affected of this passive approach.

On slide 67, this is again an excerpt from the briefing of the to -- to MPI leadership, noting that the majority of the current case matters came from a physical damage background and were challenged to manage the complexity of claims.

Now, there have been efforts by Manitoba Public Insurance to respond to these challenges in terms of the reserving challenge. There was the centralized reserving unit and there also have been efforts to more assertively manage claims and at an earlier time.

One (1) of the important elements coming out of our conversation with Mr. Johnston on October 18th was, to date, in terms of those long-term claims, despite the efforts of Manitoba Public Insurance, in terms of the concerns that the actuary is most concerned, with the longer-term, I'm not seeing any substantial improvements at least to date.

From our clients' perspective, this is an important issue to monitor to ensure that MPI continues to try to be proactive and also to acknowledge that a passive approach dating back to 2010, at least to 2017, it -- has imposed injuring costs for Manitoba ratepayers.

One (1) of the important initiatives that Manitoba Public Insurance is undertaking is -- is -- is how to better track and benchmark these claims. And they indicated that -- that benchmarking framework was being created and would -- could be shared for the next General Rate Application.

And so our client on this issue is recommending that the Board find that Manitoba Public Insurance ratepayers are facing current and ongoing rate pressures as a consequence of the Corporation's passive approach to long-term claims management in the aftermath of BI3.

I hasten to add, as we've noted in an earlier slide, that there are other factors in play, including the growth and challenges with psychological issues, but that passive approach, the evidence, on this record, is suggestive of an adverse finding in this regard.

We're going to skip Slide 71, because I

don't want to steal Ms. Dilay's thunder when it comes to making recommendations.

We asked the very simple question at Slide 72 whether information technology staffing budgets are excessive as compared to relevant peers, and certainly rely upon the bar -- Gartner Group benchmarking exercise and as outlined in the cross of Board counsel, at least as we understand it, MPI spends about 62 percent of its IT budget on personnel as compared to 45 percent for peers.

Similarly, there is a disproportionate amount of contractors within the MPI IT staff. So this will be the shortest section I ever comment upon, our recommended finding in this section is that as compared to peers Manitoba Public Insurance information technology staffing budgets appear excessive.

We turn at slide 74 to a larger -- a longer section relating to physical damage re-engineering and a subset of that project, the Customer Claims Reporting Service, CCRS. And our client would acknowledge and was pleased to note that we are starting to see at Slide 75 a modernization in terms of the approach that MPI is attempting to bring to man -- management of complex projects.

But our client cautions about offering too many plaudits for this. Coming to decent good practice in 2018 when that insight should have been available long before that is encouraging but it -- it's not like that the approach that Manitoba Public Insurance is currently seeking to employ is -- is -- is excellent as compared to industry standards.

Indeed, Mr. Wennberg candidly pointed out that they're basically trying to get to an industry standard approach in terms of these big projects; that there's going to be some rigour and that MPI executive management have to be accountable for the net present value integrity in that -- for the integrity of that analysis. Those are all laudable but certainly should have been in place long ago.

Our client observes that failed projects have real impacts on retained earnings, on foregone opportunities and in the waste of ratepayer money. And in our discussion with Ms. Campbell on October 18th, she talked and made the point that when we use words like "impairment" and "write-offs," what that means is a reduction of equity. And we have seen focus in the '17/'18 year an impairment of deferred development costs in the range of $20 million equity, all other things being equal, is 20 million lower.

And this connection may not have been made in Manitoba Public Insurance's mind, but I assure you that our client has noted the -- the figure associated with the Capital Maintenance Provision of $20 million.

And in our clients' mind approving the Capital Maintenance Provision would be holding Manitoba Public Insurance equal for its mismanagement of important information technology projects. And I'll come to that more later.

Are these projects a failure? Well, the CCRS definitely is a failure. It has been written off. And Ms. McCandless noticed in her discussion with Mr. Remillard, on Slide 77, that's a $15.6 million write-off.

And Mr. Wennberg, moving from the CCRS to the broader project, a project that went from an estimated net present value of $18 million positive in 2016 to an estimated negative net present value, certainly, in the range of fif -- negative $50 million in 2018 described the PDR, the Physical Damage Re-engineering, as a very deep negative. In his conversation with My Learned Friend Mr. Scarfone. And that very deep negative quote can be found at transcript slide 9 -- Page 9 -- 19.

Another unreasonable imprudent element of current cost for Manitoba Public Insurance ratepayers in the 2018/'19 year is the eighty-one dollar ($81) premium for direct repair shops.

And as Mr. Wennberg noted, this type of premium payment is not undertaken by the Crown or private jurisdictions, and then when other Crowns and private jurisdictions proceeded MPI in implementing similar programs to direct repair, they did so without these premium payments. This is not the industry standard and -- and it is not a prudent expenditure. That agreement is up for renegotiation with the new agreement scheduled to take place early -- or at the start of the next fiscal year for Manitoba Public Insurance.

And I want to stay with the physical damage re-engineering because I spoke about how that failed project, that deeply negative project, takes money out of ratepayers' pockets, takes money out of retained earnings, but it also is about lost opportunities around. Around page 1119 of the transcript, I have -- I started a conversation with Mr. Remillard, going back to 2014, because back in 2014, the magic -- the big -- the big ticket item within the Physical Damage Re-engineering Project was

going to be this first notification of loss, now known as CCRS, as well as a replacement for the CARS, the CARS legacy system.

And you'll see a -- a quote at the top of this page from Mr. Graham saying we need to update our system. It's in dire need. With the -- initial conception of PDR back in 2014 was it -- it was going to take care of -- of the need to replace CARS. And if you go to the next slide, you'll see back in 2014 there was about 32.6 million in terms of optimize adjusting which included the first notification of loss and the CARS replacement. So about half of the total project cost.

So not only is it the money down the drain but the foregone years where Manitoba Public Insurance could have been addressing its challenges with CARS or legacy where in our clients' submission frittered away in this failed project.

Board counsel did an excellent job of forensically examining some of the roots of the challenges with the Physical Damage Re-engineering Project. And as we try to figure out what happened, which I think is important for today's ratepayers and future ratepayers, it's important to acknowledge that there seems to be a consensus, hardly a radical

consensus, that when you're doing a net present value calculation, it should include operating costs,

And you see, Mr. Kenry (sic) for Gartner saying:

> "To do a fulsome MPV analysis, it should include operating costs."

And Mr. Graham, Chief Executive Officer of MPI, saying:

> "To the extent that business cases didn't include operating costs, he would find that surprising."

And the Chief Information Officer Mr. Bunko saying:

> "A full business case needs to include all the associate initiative, and ongoing cost for the program."

That begs the question. This is not radical. We could had this same conversation ten (10) years ago, frankly, twenty (20) years ago -- we might not have used the words "MPV analysis," but we would have known that operating costs had to be included.

So the question becomes: Were not concerns flagged within Manitoba Public Insurance in looking at these purported business cases and the

absence of operating costs?

Mr. Remillard confirmed that major capital projects, many of them, did not include an evaluation of operating costs as part of the evaluation of the total cost of the operation.

And certainly Mr. Henry, on behalf of Gartner Group, observed that in the 2016 Gartner report, as well as the 2017 Gartner report, the net present value calculation was conducted but did not include operating and ongoing costs.

And our client suggests that this goes to a bit of a deeper question in terms of the relationship of external experts retained by Crown monopolies when they come before the Public Utilities Board. We can answer this question, but we wonder whether Gartner Group should have filed the MPV analysis knowing that a fundamental building block was -- was incomplete.

Gartner did acknowledge in the conversation with Public Utilities Board legal counsel that they should have been stronger in making the point that future analysis was required, and that was especially in the context of the operating costs.

Slide 87, and I'm not going to go through this because I think PUB counsels have done a

very strong job of -- of doing that, but we've inserted it, just to look at the big picture reason to explain the mystery of how what looked like a relatively positive business case has gone so highly negative.

And in that conversation as captured at page 931 of the transcript, the big three (3) reasons are flagged there, and I simply, on behalf of our clients, put it forward for your consideration.

One (1) of the challenges the Gartner Group faced is identified in a conversation with the PUB Chairperson is that Manitoba Public Insurance unreasonably and imprudently failed to identify and disclose relevant information to Gartner Group; information relating to the ongoing costs, information relating to the eighty-one dollar ($81) premium.

And Gartner Group, at least, is -- is clear in its view that the obligation to provide the information given that it is not an audit firm rests with MPI and that's a reasonable conclusion from our -- our client.

The Chairperson explored this again as -- as captured in the conversation at page 90 and we see the efforts by Manitoba Public Insurance to explain the failure to provide this important

information relating to ongoing costs, the eighty-one dollar ($81) premium, et cetera.

Our client wants to go back to the big picture. Witnesses for Manitoba Public Insurance testified that they regularly review Board Orders. The footprints for the significant concerns with this project are palpably evident certainly by Board Order starting in 2015. And here you see at pages 1126 and 1127 of the transcript, on slide 91, conversation with the Chief Information Officer of the Corporation flagging the concerns that were presented even before the first Gartner report by the Public Utilities Board in its decision.

And we put the question to this Chief Information Officer whether given that insight, given that he had read the report whether -- we suggested to him you were not concerned with the status of PDR in terms of the feasibility of its business case in 2015 and he confirmed he was not. And that is difficult for our client to fathom and to understand.

And it becomes more pressing in 2016 and we, again, took the MPI witnesses through the Chief Information Officer through the Board Order and refer them to page 37 with the PUB expressing its concern with the lack of business case and how met --

materially the scope of the PDR had changed.

And at the bottom of this slide being Slide 92, again, you see the Chief Information Officer indicating that those observations of the Board did not question -- cause him to question the viability of the PDR business plan, generally.

And to our clients that is difficult to understand. There were limits in the Gartner Group report, both in 2016 and 2017, but there were also important warnings. And as you see in our conversation with Mr. Henry at Slide 33, there were warnings in the 2016 and 2017 Gartner reports that ongoing support and maintenance costs were not included in the MP ev -- analysis.

And from our clients' perspective, certainly, the Board of Directors of Manitoba Public Insurance and senior executive had the opportunity to become knowledgeable about the PDR. The PUB decisions are publicly available. Certainly by 2015, definitely in 2016, there were significant warnings about PDR.

On slide 94 we've captured some of the warnings that were presented in the Gartner Group 2016 and 2017 reports about PDR. One (1) of the key risks is Mitchell's ability to deliver the expected outcomes of the FNOL project, now known as the failed CCRS

project.

It entails the implementation of innovative and fairly complex accident file -- profiling approach new to the industry. Also, flagging concern are the reality that there was no estimate for ongoing support and maintenance costs.

Our client notes that Mr. Geffen on behalf of Gartner Group made a presentation to the audit, finance and risk committee in 2017 and as Mr. Henry confirmed, or Mr. Bunko I forget which, the status of the PDR project would have been an element of that discussion.

Board of Directors minutes from February of 2017, that's the last bullet on slide 95, also captured that there was a presentation and an endorsement of the agreement related to CCRS or -- the agreement -- or the authority to enter into an agreement with Mitchell rely -- regarding CCRS back in February of 2017.

From our clients' perspective, there were significant warnings in the public domain, as well as in the bo -- in the briefings prior to important significant expenditures related to this project. And I'm speaking in terms of CCRS. There was an additional 3.4 million spent in '16/'17 and 5

million in '17/'18.

Finally, in this subject area, our clients note the observation from the Gartner Group benchmarking report that there is a need to improve business process management, to improve the efficiency and effectiveness both of I -- information technology and of Manitoba Public Insurance generally.

In terms of this error -- error -- area, at slide 98, our client makes the following recommendations in terms of findings.

First, that there was a failure to adhere to standard could business practices in the development and evolution of the PDR business case.

Secondly, and as a consequence, the CCRS was a failed project and PDR is best characterized as a deep negative project, with a significant negative net present value.

Third, that the eighty-one dollar ($81) premium for the 2018/'19 year payable to the repair industry is not consistent with industry standard and you can stroke out the words "and is inconsistent" at the end of the third bullet.

Fourth, that the quality of the NPV analysis presented to the Board by MPI and by the Gartner Group was not consistent with the expectations

of the Board.

And from our clients' perspective, this is something we would recommend when you -- you hear our recommendations for -- for other utilities or Crown monopolies appearing before this Board and relying upon expert evidence, external evidence, it would be useful and helpful to have a notification or indication from these external witnesses whether their analysis is consistent with good practice in all regards.

External experts retained by these corporations, it's a challenging role. They have a business relationship. They want to maintain that business relationship but no doubt they want to assist the Board.

And from our clients' perspectives, heightening the expectations for these external advisors will be well recommended.

It also is important to note that in the last year to year and a half to two (2) years in terms of the value management process that Manitoba Public Insurance has taken a number of steps to introduce standard good business practices. Whether we'll see the application of those practices over the years, and certainly next year when we get to the

legacy investments, but -- those steps should be acknowledged.

The last lengthy section of our analysis relates to the -- issues relating to the Rate Stabilization Reserve and the Capital Maintenance Program, and it's really assessing the reasonable revenue needs of an applicant in the course of its overall general health.

And it won't surprise you to know that our client really admires Mr. Viola, and they think it's his expli -- explanation of his beliefs is often useful. Our clients' analysis as we approach the issues under this topic is informed by client beliefs.

And belief Number 1 is that this Corporation is strong. It's got a legal monopoly on the Basic side, a de facto or -- or practical monopoly on the Extension side. In the event it has concerns about material adverse developments in the marketplace, it has ready access to members of the legislature given its Crown status. This Corporation has significant reserves in Basic and its reserves are significantly over target in Extension and SRE and one needs only to look at the quarterly reports or the annual reports to get a sense of the magnitude of those excess reserves.

And while in the context of this hearing we tend to focus on the Basic program, from a ratepayer perspective Basic and Extension are intimately connected and the health of Basic and Extension is intimately connected. And Mr. Graham the CEO for MPI at the bottom of page 100 makes that point himself when he highlights the market dominance of MPI in terms of Extension and relates it to its connection to the Basic program.

Belief Number 2 of our clients is that another Manitoba Public Insurance advantage is vigourous independent regulation. We have regular evidence-based hearings, which offer annually self-correcting mechanisms for the overall revenue requirement. Unlike Saskatchewan, they're regular and as the Board can take judicial notice of with regard to British Columbia, they are less politicized by government directives as they flow from -- in British Columbia.

This regular evidence-based mechanism is not only self-correcting at the revenue level, it also is self-correcting in terms of the relationship between classes of vehicle owners and between individual drivers and individual vehicles.

There is dislocation annually because

of driver safety rating and the CLEAR, C-L-E-A-R, assessment of vehicle risk, but that also is -- from our client's perspective, evidence-based and gives the Board and this process and MPI a defensible position for consumer volatility concerns to be able to argue that they're based upon risk; either the risk we bring to the system because of our driving behaviour or the risk that our vehicles bring to the system.

Our client believes a third essential element of this vigourous independent regulatory process is the dynamic -- use of the Dynamic Capital Adequacy Testing to set the Basic Rate Stabilization Reserve, based upon Manitoba data, based upon Board directed risk tolerances and responsive to Manitoba risks. And this Board's well-known aversion to rewarding bad management decisions is also an advantage from our client's perspective.

Our client believes strongly that ratesetting stays healthy when government stays out of ratesetting and our client, to be frank, was uncomfortable with the messaging that appeared to be sent by Manitoba Public Insurance on the first day of the hearing about the government's wishes.

They were relieved on October 23rd when the CEO of Manitoba Public Insurance confirmed that

there had never been a discussion in relation to rates and what those rates should be.

But our client is appreciative of the direction from government to respect the independence of as set out in the many layers of these organizations and of these -- and of the PUB itself.

A driving element of our clients' submissions in this subject area is their belief that a well cushioned Crown monopoly is bad for efficiency. And in one (1) more slide, I'm going to talk to you about the erra -- the era of over-collection from ratepayers.

But from our clients' perspective, many of the challenges Manitoba Public Insurance experienced in the early 2010s stem from the fact that it was a very comfortable Corporation and some of those challenges are reflected in the absence of financial models. Can you imagine back in 2010, a modern Crown Corporation unbee -- being unable to model investment -- our interest rate risk?

Some of the symptoms were the profound asset liability duration mismatch in the early 2010s, a two (2) year tolerated mismatch. Some of the Corporation's struggles in terms of responding to the great recession, our client attribute to that comfort

and certainly our client suggests that the ill-managed BI3 and PDR initiatives are byproducts of the over-collection era, as were the absence of standard value management protocols. Imagine not introducing that value management proposition until 2017.

On slide 104, Manitoba Public Insurance has been quite forceful in talking about the challenges it experienced in the years since 2012/'13 certainly between 2012/'13 and 2016/'17, and certainly the -- the Board knows our clients' position that many of those challenges were of its own making.

We certainly see the recovery in '17/'18 but it's notable if you go back to '04/'05 and look at 2010 to 2011, the over-collection era. And in this hearing you heard Mr. Johnston talk about that '15 to '16 year period and when -- in which there was only one (1) rate increase.

And there's a reason for that. It's because Manitoba Public Insurance was over-collecting from Manitoba ratepayers and that over-collection, you look at the net income for '04/'05 fifty-nine (59). The next year eighty-five (85); '07/'08 sixty-nine (69); '09/'10 eighty-seven (87). Then you see the results for 2010/'11, when there was a massive relief of over conservative reserves with -- with -- of

283,000 thousand -- 283 million, I mis-spoke.

While Manitoba Public Insurance may have been very comfortable during this era, and you certainly heard Mr. Johnston yearning for it, the concerns -- the symptoms our clients' flagged at Slide 103, from our clients' perspective, many of those concerns stemmed from this lack of -- from this comfort. The lack of -- of agility, the lack of good business processes were encouraged by the ongoing over-collection from ratepayers.

There's been a lot of talk in this hearing about volatility, but not a lot of definition. Our clients will suggest to you that from a ratepayer perspective, volatility is what they see in their bill from year to year, hence, the three hundred thousand (300,000) vehicles this year experiencing rate shock.

The MPI perspective seems more focused on the optics of an overall average rate increase, and certainly our client submits that's -- that's why they conflate issues of rate increases to rebuild reserves and real issues of rate shock. And at least as Mr. Graham expressed to me, the government concerns a volatility that he talked about so much during the -- the first day of the hearing were the annual results -- the -- the accounting results of the -- of the

Utility.

From our clients' perspective, our client believes that rate stability is important, but in the context of Manitoba Public Insurance, it's inescapable and our client believes that the best response to volatility is good management.

Volatility in terms of individual rates is a natural result of CLEAR and the DSR adjustments. As long as we want consumers to be paying a rate that -- that res -- res -- reflects the relative risk, there's going to be that volatility in the bills that consumers expe -- experience. We look to cap it because that's very dangerous and difficult for many consumers excessive stability, but it is a reality of how we set rates.

Our client strongly believes that an over-collection of rates from present-day consumers to dampen or avoid volatility will be unsuccessful and is not an appropriate response and that good management practice, good forecasting, is the best answer to volatility.

We're going to turn more directly to the Rate Stabilization Reserve. And again, our clients want to -- wish to remind Manitoba Public Insurance that the Rate Stabilization Reserve was

never intended to prevent rate change. Coming out of the Klopstein Commission, coming out of the overt politicization of Manitoba Public Insurance, the 1980s, coming over the real rate shock out of that time, that RSR is there. It was intended to prevent rate shock, not rate volatility.

And in terms of teske -- testing the risks that ratepayers face, not in terms of insolvency, not in terms of volatility, but in terms of preventing rate shock, we have been engaged as Dr. Simpson pointed out in a more than a decade-long conversation about how do we best estimate that risk with the purpose of avoiding rate shock?

And there's been a fabulous collaborative exercise built upon the -- the DCAT addressing issues of our -- what are plausible scenarios? What are our risk tolerances? And the Board has directed our clients and MPI that the appropriate risk tolerance is that 1:40 year standard?

So imagine our clients' puzzlement after the Board, which has expressly rejected the MCT previously, after the collaborative effort to develop the DCAT and to link it to the real risks faced by Manitoba ratepayers in terms of rate shock that the Capital Maintenance Provision in this proceeding is

expressly tied to an MCT, a formulaic MCT calculation, 70 percent MCT.

And Mr. Johnston confirmed that the Capital Maintenance Provision is not linked to the DCAT, it's linked exclusively to the MCT.

And from our clients' perspective that MCT calculation is not appropriate for the purposes of the RSR, and it is not appropriate for any CMP. It addresses a different problem for a different marketplace. It's about insolvency tests. It's about the real reality that in the private sector in a competitive marketplace, if there is a massive call to increase rates for a firm, consumers are going to leave that firm and put its solvency into question and that insolvency, or that insolvency risk, can bring real risk to the entire economy.

So that MCT calculation, given those solvency concerns, addresses issues that our clients' question should be part of the considerations for the Rate Stabilization Reserve. Given the insolvency concern, it -- it ensh -- it shields imprudent behaviour such as operational risks which are cont -- controllable with good management.

Given that solvency concern, it sets a very different risk tolerance. If you think of the

DCAT, the Dynamic Capital Adequacy Testing analysis, it's focused on 1:40 year events over a time horizon, really between two (2)years and four (4) years. Look at what OSFI has elected with re -- regard to the MCT, conditional tale expectation or CT of 99 percent over a one (1) year time horizon, very different risk tolerances.

And the MCT as compared to the Dynamic Capital Adequacy Testing does not dynamically respond to evolving Manitoba risks or provide insight into the evolutions of those risks.

Slide 111 highlights the co -- the comments by Dr. Simpson in terms of why this Board rejected the MCT. Again that linked to insolvency in a competitive industry, and that it does not address the specific risks faced by MPI to this extent, it doesn't itemize and evaluate them in the dyna -- dynamic evolutionary way that the DCAT has done.

Ms. Sherry chimes in describing the MCT as formulaic with risk margins set to ensure private companies don't go insolvent, not tailored, not synchronized to a monopoly Crown corporation.

And as Dr. Simpson goes on to conclude and to ask: What is a 35 or 85 percent MCT mean? What does that tell us about the specific risks, the

associated risk tolerance levels? What does that mean?

On slide 114, we've included an insert from the Office of the Superintendent of Financial Institutions, discussed with Mr. Johnston at page 679 of the -- the transcript.

Part of that MCT calculation is about operational risk and how is that defined?

> "The risk of a loss resulting from inadequate or failed internal processes, people and system or from external events."

And at slide 680, we went through a conversation with them at -- at the magnitude of that operational risk calculation and the MCT calculation.

It's not insignificant. In the years that we looked at, it was between 64.6 million and 77.3 million. Less Mr. Johnston chastise me, I will -- will note that he said you would have to divide that by 1.5 to see how it actually figures out on the bottom calculation, but that's still a big number, a big shield, to shield inadequate or failed internal processes.

And in the context of a solvency calculation that is a perfectly reasonable

calculation. But that's not with the DCAT is about. That's not what the RSR is about. It's about rate shock.

Being a little puzzled by this shield for incompetence found in the -- in the MCT, we put Mr. Johnston at page 682 and 683 of the transcript. As the MCT contemplates it, operational risk is associated with the failed information technology project, would that be contemplated?

No, Mr. Johnston, to my surprise didn't have the entire document at his fingertips, but he said:

> "But my understanding is it would be for things like that or of that nature."

He candidly admitted that. Given this shield in the MCT for bad management, our client cannot reconcile that with the state -- and given the link between the Capital Maintenance Provision and the MCT, our client cannot reconcile that reality with these statements by Manitoba Public Insurance saying that the RSR should not go to funding bad choices.

The intent of the CMP is by no means to take away the accountability or the responsibility of management, Mr. Giesbrecht suggests, yet they select a

calculation, a ratio that puts in a bad management shield. Mr. Johnston goes, If we did something that deteriorated our MCT ratio, it wouldn't be right to us ratepayers to -- to pay for that. Yet, failed information technology projects appear to be shielded by the operational risk calculation.

The PUB also chimed in on this way back -- well, both Mr. Oakes and I were here -- in terms of what the RSR should be intended to protect against. And going back to the old risk analysis that was being promoted by Manitoba Public Insurance in the time, the Board found both in '98 and '99 that operating expenses that were controllable were not properly part of the calculation of the risk analysis. It was inappropriate, as -- as these expenses were at least partially controllable by management, to use their words, and our client agrees.

There's been a lot said about how the MCT is objective. From our clients' perspective, that's lovely, but objectivity with limited relevance is of limited value. And this Board, in Order 59/'18, in the Hydro context, provided some really interesting insight into debt/equity analysis.

You could look at Manitoba Hydro, with its debt/equity ratio at a certain level, and compare

it to a private company, which is at 50/50, or compare it to the well-managed Bonneville Power at a different ratio. And unless you dig deeper, what's the insight?

By themselves, these objective measures offer little insight unless we dig deeper. Telling us that BC has an MCT target of a hundred percent doesn't tell us much about the health of the Corporation, or whether it's ratepayers are vulnerable to rate shocks, i.e., have they been setting rates properly, or setting them politically?

And is there any evidence in this proceeding about the process by which the MCT targets in Saskatchewan, BC, and Quebec were adopted?

Were they evidence-based processes, such as before the PUB, or were there political processes and cabinet directives?

The evidence on this record is unclear. In Information Response CAC-2-20(b), CAC/MPI, our client, noting that one (1) of the described purposes of maintaining a certain capital level was to protect -- protect ratepayers from potential rate shock, thought it would put to the question, MPI, How do you define rate shock? And MPI doesn't have a definition.

And so from our clients' perspective, the credibility of the assertion that the CMP is

intended to address rate shock is -- is curious, given that MPI has not taken the trouble to define it.

What we do know, based upon our conversation with Mr. Johnston, is presented at page 121 -- or Slide 121, is that a 2 percent rate increase, from the Corporation's perspective, does not equate with rate shock, and even a 2 percent RSR rebuilding fee does not equate to rate shock, in his view.

Yet a lot of the conversation about the Capital Maintenance Program was about avoiding volatile rebuilding fees. Our clients have gone through voli -- through rebuilding fees before. They didn't embrace them enthusiastically. But if faced with the choice between having a healthy RSR, and from time to time, having to have rebuilding fees, or from over-collecting, our clients know what that choice would be, and it would not be to over-collect.

Ms. Sherria -- Ms. Sherry argues, and -- and based upon her understanding of intergenerational equity, concludes that pre-collecting for the Capital Maintenance Program is inconsistent with intergenerational equity. And obliging consumers to pay today -- when the RSR is well within target range for some future cost, or

pressures on the RSR that may or may not occur, in her view, is inconsistent with the principle of intergenerational equity, and that it would be better to have a rebuilding fee at a time frame, if necessary, where there is less separation from -- from those in which the event occurred.

The hypotheses of this Capital Maintenance Provision is that the MPI portfolio risk is ever increasing. Dr. Simpson, in our clients' view, successfully rebuffed that hypothesis by noting the many moving parts in terms of the risk profile of Manitoba Public Insurance, and -- and suggesting that that hypothesis has not been demonstrated, and our clients conclude -- concur.

The last point on the CMP our client wishes to make is regard to the Saskatchewan CMP. And our client does not consider that analogous. We have an evidence-based, DCAT-driven RSR selection process in Manitoba, and an annual, evidence-based, independent rate-setting process, where Manitoba Public Insurance, in the event that rates are inadequate, or if they can make the case that they need more capital, can come before this Board, and if they can make the case, this independent Board will meet the need.

The urgency and the necessity of the Saskatchewan CMP, to the extent that it was required, comes out of a very different context, where there aren't annual reviews. And Ms. Sherry makes this point eloquently at slide 124. And my -- our clients' understanding of the record is that Saskatchewan has not been back in for a rate increase, although there may be one (1) pending since that CMP was introduced back in 2014. And from our clients' con -- perspective, that raises a concern of over-collection.

Was that CMP so generous that the -- the Corporation did not need to come back in for four (4) years? We don't know the -- the facts, but that is a red flag for our client, and that brings back uncanny and unhealthy echoes of that era of over-collection that our clients, between 2004 and 2011/'12, that our clients do not wish to revisit.

Finally, I wish to speak about the quality of the CAC (Manitoba) witnesses in this regard. Dr. Simpson and Ms. Sherry brought an interdisciplinary approach, the insight of the actuarial sciences and of Ms. Sherry's practical, lived experience in the insur -- property and casualty world, and then applied micro-economics and econometrics from Dr. Sim -- Simpson, as well as the

experience of Dr. Simpson with risk analysis with other regulated industries.

On point 3, we note Ms. Sherry's extensive and senior experience, both with Crown monopolies, as you saw her role with SGI and MPI, and also with firms that are not shielded from the marketplace, like Wawanesa, firms that actually have to face insolvency and consumer risk, and that is an important insight that our clients believe is valuable to this perspective.

Ms. Sherry also brings actuarial experience, not just in Manitoba, not just in Canada, but with the broader North American marketplace and with private-sector property and casualty firms that are bigger than MPI. And in our clients' submission, significant weight should be given to their findings.

Ultimately, our client recommends with regard to the overall health of the Corporation, a finding that a shield for bad management is not appropriate for the RSR, that given the purposes of the RSR, the MCT analysis should not be linked to any determination of rates associated with the RSR, a finding that the CMP cushion developed for Saskatchewan was developed in a very different context for a very different regulatory process, and that the

goals of efficiency and intergenerational equity are better served by rejecting the CMP cushion.

Just in terms of the allocation of costs between classes, our clients note the headline on slide 80 -- 128 speaks of the DSR review and dramatic disruption. This is not a -- a fear of the DSR review, but just to highlighting the fact that if the resi -- residual risk model and the logic of it is adopted, in the words of Mr. Johnston in the second bullet, that could mean some pretty dramatic changes to the model, and on the third bullet, where he agreed that the need for a vehicle premium percentage discount would likely be dramatically reduced under the hypothesis that the residual risk model was brought forward.

This is not an issue to be fearful of or concerned about. Our clients just note this is a very significant issue on the horizon as we seek to make rates increasingly actuarially indicated. And that highlights the need for engagement, espec -- both with stakeholders and consumers.

Speaking of engagement with consumers, slide 131, in this discussion, our client wants to separate engagement with stakeholders, like our clients, versus stakeholders with folks on the

streets, the good folks of North Kildonan, where I live. While there is room for improvement, as it relates to stakeholders, the rate-setting process and accompanying technical conferences are an important part of accountability and good practice engagement. What is missing, in our clients' submissions, in Manitoba, is ratepayer engagement as well as stakeholder engagement outside of the -- prior to the rate application.

From our clients' perspective, engagement means more than an opinion poll. It means more than a fifteen (15) minute consumer presentation after that poor consumer has tried to make sense of the five thousand (5,000) page rate filing. And our client asked whether evolving good practices in other jurisdictions that we collectively could look to to better involve stakeholders, but -- at -- at least as importantly, to better involve consumers.

And a perfect example of this is what do consumers mean when they respond to MPI polling about stable rates? Is it their bill, which our clients suspect, or is it the overall average rate, or is it the net income? Our clients have our own hypothesis, but our clients observe that in our discussions with MPI, it indicated that while it has

an ambitious examination of the customer experience, engaging with its ratepayers in terms of the rate-setting process and application is not a primary part of that application.

Our clients will cert -- simply point out that if Manitoba Public Insurance wishes advice on how to engage with ratepayers on issues related to rates, that advice is just a phone call away, from our clients or from others, and is certainly an integral element of how our clients prepare for these proceedings.

I'm going to turn it over to my colleague Ms. Dilay. Mr. Chair and members the panel, just one (1) point. We have two (2) confidential slides. We're not obviously going to talk about them online. Our clients -- I -- I think we're proposing -- the slides are well-prepared by my colleague, Ms. Dilay. They're fail -- fairly self-explanatory. Our client was contemplating that rather than kind of go offline, we could just submit those in writing to the Board on -- but that -- I guess there's three (3) slides, but that is up to the Board. I'm happy to speak to them.

THE CHAIRPERSON: I'd like Mr. Scarfone maybe to take a look at them. The problem is

if that they're submitted and he wants to comment on them -- just -- let me just think this through. We -- we have a problem, because we're going to have it in confidence. Mr. Scarfone may want to comment in reply on them.

DR. BYRON WILLIAMS: Yeah.

THE CHAIRPERSON: So maybe what we'll --

DR. BYRON WILLIAMS: Okay.

THE CHAIRPERSON: -- we'll do -- I -- I'm trying to figure out whether we're going to conclude this morning, or if we're going to break, and -- and go this afternoon.

DR. BYRON WILLIAMS: So I can indicate on the public portion, we have about ten (10) minutes left.

THE CHAIRPERSON: No, I -- I appreciate -- I -- I can see that.

DR. BYRON WILLIAMS: And -- and I suspect only about six (6) minutes, if we go through the slides. And so we'll -- we'll just finish the public's portion, and then we'll be at the -- at the -- we'll respond to the will of the Board.

FINAL SUBMISSIONS BY MS. KATRINE DILAY:

MS. KATRINE DILAY: Thank you. So as Mr. Williams mentioned, I will be going through the recommendations of CAC (Manitoba). Mr. Williams has already pointed to a number of recommended finding, and so those will build -- our recommendations will build upon that.

The first recommendation is that the Public Utilities Board adopt a standard interest rate forecast, SIRF, or a 50/50 interest rate forecast. Our clients' submission is that that issue was settled by the Public Utilities Board last year in the 2018 GRA, and was supplemented by expert evidence in the year, the 2019 GRA.

In terms of our clients' recommendation for the recommended range for the rate stabilization reserve -- sorry for the -- the typo, there -- they would recommend a range of 122 million to 250 million, and those numbers can be found in Exhibit MPI-26, figure 7, if we look at the PUB-approved methodology using the 50/50 interest rate forecast.

Our clients' recommendations regarding the ALM study, or the Asset Liability Management study. The MPI Board should be asked to revise the current ALM study in light of Mr. Viola's eight (8) recommendations to this Public Utilities Board. If

MPI chooses not to revise the current ALM study, our clients would propose, on a forward-looking basis, a 0.5 percent annual reduction in rates until such time as MPI can establish a selected investment portfolio in a reasonable and prudent matter (sic). And we note that the 0.5 percent does not reflect the opportunity cost at comparable risk in the evidence presented before this Board.

Thirdly, with regards to the ALM study, our clients recommend that further external experts retained by MPI who are testifying before the Public Utilities Board should be directed to identify whether, in their professional judgment, the methodology used is consistent with professional best practice.

Our clients' recommendation regarding the Capital Maintenance Provision is that it be rejected. In our clients' view, the CMP provides an appropriate cushion for a monopoly Crown corporation, which is inconsistent with prior regulatory direction. The MCT, or the Minimum Capital Test is expressly linked in part to a formulaic allocation that is solvency measure, to hold management accountable, and to protect consumers, in the context of private P&C companies.

The CMP would effectively allow the MCT, the Minimum Capital Test, to replace the DCAT as the primary driver of rates relating to capital reserves, notwithstanding the express direction of the -- sorry, the express rejection of the MCT by the Public Utilities Board.

Our clients note that for the 2019/2020 fiscal year, total equity is forecasted to be above the RSR range, which our client propose to be based on PUB-approved -- approved methodology, and a 50/50 interest rate forecast if we consider a zero percent rate increase, and we would direct your attention to pro forma 10. With a zero percent rate increase, total equity is projected to be $257 million.

Our clients' recommendations regarding complex claims is that MPI provide an update for the gen -- the next General Rate Application on steps to improve the handling, including adjudicating, reserving, and managing the return to health process of complex PIPP claims, and the status of complex PIPP claims, as measured against pre-BI3 benchmarks, or existing benchmarks.

Our clients also recommend that MPI provide the PIPP claim benchmarking framework relating to complex claims discussed at transcript pages 865 to

866 as part of its next GRA filing.

Our clients' recommendation regarding information technology is that, given material challenges with the implementation of major IT programs, including BI3 and PDR, as well as ongoing effects on ratepayers, MPI be directed to report to a technical conference on the business case for legacy IT systems, in other words, AOL, CARS, and including the interfaces to other systems, to the renewal of those legacy IT systems prior to the next GRA filing. The legacy IT systems renewal business case should include examples of net present value analysis demonstrating adherence to good business practice.

On slide 140, our clients recommend that MPI be directed to report back to the PUB on efforts to bring IT staffing budgets in line with peers. So we would recommend adding the words "IT staffing budgets."

Our clients' recommendation regarding the driver safety rating, or DSR, is that given the potential dramatic changes to DSR which could result from the residual risk approach, MPI should be directed to engage with stakeholders, including CAC Manitoba, CMMG, CAA, and Bike Winnipeg regarding best practices for consumer engagement, as well as their

recommendations and views on the DSR.

The recommendation regarding experts, which Mr. Williams alluded to in his presentation. In the future, any external expert retained by MPI and providing evidence to the Public Utilities Board should be directed to expressly identify any aspect of their evidence that does not conform with best practice.

On slide 141, our clients recommend -- certain -- make certain recommendations, pardon me, regarding engagement with consumers. Prior to the next GRA, MPI should be directed to consult with stakeholders, including CAC (Manitoba), and CMMG, who are both active Intervenors in this proceeding, on potential tools to better engage ratepayers outside of the formal hearing process. In other words, such as focus groups on pricing issues such as stable rates.

Our clients note that good practice consumer engagement includes engagement before, such as when an issue arises, during, by that we mean that ideas are put to consumers on how to resolve the issues, as well as after, when feedback is sought on how the solution is performing. Consumer and stakeholder input should be recorded, and where ideas are not or cannot be used, explanations of why not

should be made publicly available for accountability and transparency purposes.

Our clients would also recommend that budget approvals for Intervenors could contemplate costs for public engagement presented to the Public Utilities Board as evidence.

And our clients' last recommendation, on slide 142, relates to the recommended rate in this proceeding. Our clients recommend a rate decrease of 1.75 percent. And for their calculation of this recommendation, we would direct your attention to Exhibit MPI-26, and specifically, figure 3. That figure shows the break-even rate indication using a 50/50 interest rate forecast, and including the RSR investment income, would be negative 1.75 percent.

We note that this recommended rate in -- takes into account the rejection of the Capital Maintenance Provision, the use of the Standard Interest Rate Forecast, or the 50/50 interest rate forecast, as well as the inclusion of the RSR investment income.

Our clients also note that a further rate reduction, on a forward-looking basis, could be ordered based on foregone investment opportunities. And on a forward-looking basis, we mean for -- for

future years, as we noted in our recommendation for -- regarding the Asset Liability Management study.

Now, subject to any questions, that would be the conclusion of CAC (Manitoba)'s closing submissions on the public record. Thank you.

THE CHAIRPERSON: Thank you. In terms of the CSI, I think that we're prepared to take the document, but subject to Mr. Scarfone reviewing it -- and if Mr. Scarfone wishes reply, then we're going to have to go with the CSI, and we'll have the document put in as CSI, Mr. Scarfone's comments in reply at that point. So I'd leave it to him.

I'm going to put him on a tough spot. Mr. Scarfone, I guess the question is, how you want -- I don't know if you've had an opportunity to review it, and can take a position on it right now. I don't know how long your reply will be.

I just want to remind you the reply is intended for any new issues raised in their submission that were not covered in your submission, or were sort of brought forward for the first time. And so that should be the focus of it. So I don't know how long your reply would be.

So I'm going to put you on the spot right now, and -- and ask you. And I guess the

question is whether you're prepared to proceed now, or whether you would want a -- a break.

MR. STEVE SCARFONE: Well, I have a couple comments with respect -- with respect to that, Mr. Chair. So first -- firstly and foremost, looking at the hour, it's -- it's -- we're approaching lunch, so that is a factor to consider.

The second is, I haven't had a full opportunity to review the proposed material on the CSI front.

And -- and lastly, and probably more importantly than the others, is I have some colleagues that are working diligently on some arguments, or some reply points that the Corporation would like to make, and so I would -- I would probably want to confer with Mr. Guerra, my co-counsel, and perhaps Mr. Crozier, my client, to discuss what we'd like to say in reply.

But having noted your comment, I would like to ask if the Corporation could have some latitude when making its reply on the -- in the area of investments. And the reason I say that is because when, as I indicated yesterday -- and we won't take too much liberty, but when preparing our closing, we were doing so well, there was still evidence being given by Mr. Viola. And so there -- there would be, I

expect, some areas that might not be new in our reply, but that's -- that's obviously in the Board's discretion.

THE CHAIRPERSON: But the -- the problem -- the problem is reply is not intended to simply repeat arguments --

MR. STEVE SCARFONE: No --

THE CHAIRPERSON: -- in your submission.

MR. STEVE SCARFONE: -- and -- and that's not what --

THE CHAIRPERSON: If you have additional arguments raised as a result of their submission --

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: -- that's appropriate. But the panel doesn't want to hear the same arguments again simply reinforcing -- reinforcing previous arguments. And that -- I -- and I just put it to you because if that -- if that starts happening, I tend to lend -- let a little leeway, but as -- as you probably have discovered, there's a line, and when you cross the line --

MR. STEVE SCARFONE: I'll hear from you.

THE CHAIRPERSON: Yeah. You will.

MR. STEVE SCARFONE: Yes.

THE CHAIRPERSON: The -- the other thing, as well, is I want to give the panel an opportunity to ask questions in relation to your submission. There may be some questions.

So we're going -- is -- I -- I want to be fair in this. An hour would be sufficient, Mr. Scarfone?

MR. STEVE SCARFONE: Yeah, I think so. Yes.

THE CHAIRPERSON: Okay, so we'll adjourn for an hour.

MR. STEVE SCARFONE: Yeah. Thank you.

THE CHAIRPERSON: Mr. Williams, you have a quizzical look on your face.

DR. BYRON WILLIAMS: Only -- I'm just wondering where I'm going to move to if -- if there are any questions for us. Well, I guess we'll sit here. We'll find out when we come back at 1:00.

THE CHAIRPERSON: Well, quite frankly, in -- give -- given the -- the demand for seats here now, I don't think it really matters. So we'll adjourn until 1:00. Thank you.

DR. BYRON WILLIAMS: I'll move.

--- Upon recessing at 12:02 p.m.
--- Upon resuming at 1:03 p.m.

THE CHAIRPERSON: Before we go to reply, I'll ask the panel if they have any questions.

BOARD MEMBER HAMILTON: Thank you, Mr. Williams. I have one (1) question in relation to the recommendations that were made in the last few pages of your submission. I note that there's nothing specific in relation to the position of CAC related to the asset mix in the Basic portfolio, and I wondered whether the references to the ALM study cover that off in terms of what your recommendations for our findings are?

DR. BYRON WILLIAMS: We didn't make recommendations on that in -- in the sense that at least our understanding of the regulatory process is that the role -- the role of -- of the Board is to determine the rates that flow from the -- the Application.

If we were -- rather than to direct MPI in terms of the actual composition of its -- of its portfolio, if -- if from our clients' perspective, Mr. Viola tried to address that when he was talking about

the -- at a general level, he made the point that while MPI has concentrated its risk in this portfolio, it could diversify the risk by having some composition of real return bonds and with the portfolio diversifying its risks through real equities -- sorry, through equities and other real assets, but we didn't have a specific recommendation.

Our -- our observation was that the MPI application was unreasonable and imprudent and -- and we thought that should, if MPI chose it -- chooses to persist in it, then that should be reflected in rates. So I'm not sure if I'm helping you or not Board member.

BOARD MEMBER HAMILTON: Yeah. Thank you, Mr. Williams.

THE CHAIRPERSON: Kristen, could you pull up page 25 of the CAC presentation?

Mr. Williams, the first paragraph for the last two (2) years SIRF has clearly outperformed the naive forecast. Is that correct? I mean, I know the last year, but for the last two (2) years?

DR. BYRON WILLIAMS: I'd have to look at Dr. Simpson's -- this is his statement. But I think if -- I -- I don't have his PowerPoint right with me, but I -- I think he looked at the results

from two (2) different years. We could look that up, Mr. Chair, while you're...

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: But I -- I believe that was presented in his PowerPoint. Yeah and I'm -- I'm quite confident that was his conclusion.

THE CHAIRPERSON: Okay. We heard evidence that I guess the concern of the -- of -- of CAC is that if interest rates go up, and we have a naive forecast, MPI will receive too much money.

Is that correct?

DR. BYRON WILLIAMS: All other things being equal.

THE CHAIRPERSON: Okay. And what happens in a situation where the -- there's a projection for SIRF but, in fact, interest rates haven't gone up?

DR. BYRON WILLIAMS: And that -- that experience has happened. In -- in that case, the -- the results would be, all other things being equal, lower revenues than MPI -- or lower net income than MPI would expect.

That's why collectively we're trying to come up with a best estimate. The information

suggests that the SIRF is the best performing given the material change in circumstances.

If you note our clients' recommendations, the rates that flow out of them are based on a 50/50. That's that element of caution that Dr. Simpson endorsed last year. And -- and if you look at the rate numbers --

THE CHAIRPERSON: Correct.

DR. BYRON WILLIAMS: -- that's what our client has done.

THE CHAIRPERSON: Because interest rates are going up?

DR. BYRON WILLIAMS: Yes and there's -- interest rates are going up, but it's not just that they're going up, it's that the fundamentals that would tend to drive interest rates are -- are going up as well in terms of the capot -- capacity of the economy.

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: And, sir --

THE CHAIRPERSON: Yes.

DR. BYRON WILLIAMS: CAC-26, Slide 12, shows where Dr. Sim -- Simpson drew those conclusions from.

THE CHAIRPERSON: Okay. Thank you.

Two (2) years ago we were here and we had flat interest rates and I had a series of economists appear before the Board, indicating that we should be moving forward with -- with SIRF. MPI's position was it should be 50/50 and interest rates were flat.

Kristen, can you pull up CAC-27? I believe this is the position of CAC two (2) years ago that 50/50 was -- should be rejected at a time that interest rates were -- had been flat for eight (8) years. I -- I guess the concern I have is we're -- and -- and I'd like your comment.

We're trying to put precision in an area where there seems to be nothing more than imprecision. I just remember somebody being interviewed and asked what it could -- in -- interest rates were going to be a year from now. An economist and he -- he said if I knew what interest rates were going to be a year from now, I wouldn't be doing this, I'd be putting my money in -- into the market and making millions of dollars.

I'm just wondering if we're trying to, you know, fore -- you know, forecast something based on something that changes so quickly.

DR. BYRON WILLIAMS: Everything's a forecast, sir, whether you go naive, 50/50 or the

Standard Interest Rate Forecasts. So if you think of the advice of Mercers, which is definitely not to do -- to do naive or otherwise, it's all a -- we're not -- you have -- you can't abdicate your responsibility there. There has to be a choice made, we would submit.

The position in -- our client amended its position last year and tried to inject some caution into its position and it's maintaining that caution, even though events are suggesting that the Standard Interest Rate Forecast is probably the best going ahead. It's not like we don't have insights, sir, in terms of the market fundamentals and the five (5) changes in the overwrite -- overnight changes or the language of the bank.

So, it would be quite justifiable from our clients' perspective to pick the Standard Interest Rate Forecast, but out of some caution and in recognition of the challenges, that's why the numbers that flowed out of our clients' recommendations are based on 50/50.

And so I don't know -- our client ha -- has been struggling with these issues as well. Two (2) years ago we took the standard. Th -- last year, certainly, Dr. Simpson was the 50/50 and our client

said that was acceptable and this year, even though the evidence tends to suggest that the standard would be the better result, given the material change in circumstances, our client in terms of the rate numbers is picking 50/50. That to us is appropriately cautious. That's trying to balance the risk of under estimation with -- with the real risk that we're -- that we're going to over collect from ratepayers.

THE CHAIRPERSON: Thank you. I believe Ms. Sherry said that one (1) of the reasons we don't need a Capital Maintenance Provision is that because unlike Saskatchewan where -- where they do not have rate hearings, we'll be back here in a year. And if we need a rate rebuilding fee, we can deal with it at that point.

Am I correct in that being her position?

DR. BYRON WILLIAMS: Within -- within a broader context of, we already have a process to set an appropriate range of targets and that the financial dynamics due change. Yes, I -- I think that is one (1) of the points she made.

And she argued that -- that you would be rather than over collecting when you're in --within your target range, it would be better from a temporal

context to be close -- more closely related to the event but, yes.

THE CHAIRPERSON: So -- so if we under collect in a -- if we under collect for a year, we're not in that difficult situation because one (1) year later we'll have a -- we'll have a rate hearing and either introduce a rebuilding fee or introduce higher rates?

DR. BYRON WILLIAMS: Yeah. Although, like, there's natural variants, sir, in the results right? It -- it's an inherently risky business. If you're within your target range for reserves and in this one, toward healthily within your target range, why would one put an extra surcharge on to -- to collect when you're in that state?

We -- we are already pre-collecting from ratepayers through Basic and Extension, to some degree, why would one add a surcharge on -- on a -- on a -- on a reserve? It's what are our clients struggle with.

THE CHAIRPERSON: Believe me, the panel struggles with it -- it every year on the -- we're hearing the same issues every year. And -- and we struggle with it every year.

The problem I have is -- I -- I just

wonder if the same issues cut both ways. You know, if you're reviewing everything every year, do you make the adjustments every year, up and down, or do you -- do you lean one (1) way and then -- and then make the adjustment only in one (1) direction at the hearing? I can see everybody's confused with it.

So, Ms. Sherry's position is, it's better to lean towards having a lower rate and bringing a rebuilding fee. So I put it to her, so if you did it once every three (3) or four (4) years, you would -- would you see it as a normal -- a normal thing and I believe she said yes.

So it -- it would be better to be under and have rebuilding fees than potentially having too much and re-adjusting the following year.

DR. BYRON WILLIAMS: This is how our clients would see it. Just so -- let's -- our clients would say that you should be setting rates based upon actuary -- like future rates based upon expected future costs.

In the context when your reserves are already well within target, there's no need to build into the reserves at a -- a fund to over build the reserves. That's -- that's it is -- is simplest as we can say it.

Like -- if -- if we come back next year and MPI's at 110 million, then -- then your expected future costs would include the rate indication, plus a reserve rebuilding fee.

From our clients; perspective looking at actuarially indicated rates, the appropriate rate is the -- the future rates. There is no need to rebuild the reserves. We're in -- we're within target and healthily within target.

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: That's the perspective, I think.

THE CHAIRPERSON: Thank you. Final question. You raised the issue of inter-generational equity and you raise the issue of Manitoba Hydro. I think you talked about Manitoba Hydro and how there had been an argument of inter-generational equity.

DR. BYRON WILLIAMS: I -- I think in the context of Manitoba Hydro, I was actually make a different point.

THE CHAIRPERSON: Okay.

DR. BYRON WILLIAMS: If I -- what I was trying to say is the insight we had from the Hydro hearing is -- is that there's very little insight at looking at debt/equity targets in isolation unless you

drilled down into the realities of the Corporation. So a company that looks like it's got 80/20 versus 75/25, those fundamentals may be very different. So, that's the point I was trying to make.

THE CHAIRPERSON: I see. Okay. Thank you very much. Thank you, Mr. Williams.

Mr. Scarfone ...?

DR. BYRON WILLIAMS: Mr. -- Mr. Chair...?

THE CHAIRPERSON: Sure, Mr. Williams.

DR. BYRON WILLIAMS: I apologize. I do have to -- I've got a class I've gotta teach so --

THE CHAIRPERSON: Go teach 'em, Mr. Williams. Thank you very much.

REPLY BY MR. STEVE SCARFONE:

MR. STEVE SCARFONE: Thank you, Mr. Williams. Thank you, Mr. Chair.

So the Corporation has some comments in reply. I do believe, Ms. Schubert -- yes, thank you, Kristen. We expect if -- if the panel will oblige the Corporation to be about fifteen (15) minutes in its reply this afternoon, generally speaking, and I'm aware of the Board's concerns about the purpose of reply submissions.

I can say perhaps to shortcut some of these, that we have replied to some direct argument that we heard, but generally speaking, I think it's important that the Board remember to review the evidence in all its context when relying and reviewing the submissions of the Intervenors. And so I say that.

I'll give just one (1) example. I won't deal too much with Mr. Oakes's defence, or his closing argument yesterday. You know well, Mr. Oakes is entertaining, and uses colourful language. We do take us some exception with what he said, and some of it, with respect, is taken out of context.

So for just one (1) example, and I appreciate the Board will review the evidence in this regard, you know, he brought to the Board's attention yesterday the fact that Mr. Johnston, the chief actuary, admitted that the CMP could really just be any number. That, you know, he admitted under cross-examination that that could just be 5 percent, and they could insert any number they wanted for the CMP.

What Mr. Oakes didn't to bring your attention to, or remind the Board of, was that on redirect, Mr. Johnston and said, Would it still be a CMP if it was 5 percent? And the answer to that, of

course, was no, because the only number that can be supported for the CMP was the two point one (2.1).

So if -- yeah, management can say 5 percent, but it's no longer a CMP. It's now a two (2) per -- 2.1 percent CMP, and a -- a 2.9 percent rebuilding fee, or surcharge, or whatever it was that Mr. Johnston said. So just be careful with some of the -- the evidence or the argument that you heard in that regard for Mr. Oakes, and we won't go any further on that.

And -- and the same applies, to some extent, on the -- on the argument you heard this morning. You know, Mr. Williams is more careful in this regard, and we appreciate that. But the stress tests on the ALM, this is an example of -- for -- for this purpose. The stress tests on the ALM were, in fact, done, and three (3) of them were produced by way of undertaking, including the inflation stress test.

And the tests, quite candidly in that response, were said to have been flawed in some respects, and weren't presented initially. But in the spirit of the Corporation's openness and transparency, the tests were produced. The easy answer to that undertaking would have been, The stress tests weren't done, or they weren't done, but no.

Mercer redid them, and we provided them to everyone involved to review, in the -- in the spirit of openness and transparency. So I just want to make those comments, to be careful with -- with the interpretation of some of the evidence, and some of the argument that the Board has heard.

On the first slide, Ms. Schubert, this deals, to a large extent, with some of the recommendations that the Intervenor CAC has been making, including, perhaps, for the Board's consideration, some technical conferences. The Board -- sorry, the Corporation just wants to reiterate that Mr. Williams has already claimed that this process is robust. But now they want to appear -- it appears that they want to expand the process to include additional technical conferences.

I would remind Mr. Chair and the panel members that there was a technical conference on the Capital Maintenance Provision. One (1) of the expert witnesses that were heard from that this hearing didn't show up for that technical conference, and so the Board should be mindful of the costs associated with expanding the process. The Corporation would like to move in the other direction in trying to streamline the process.

And -- and as it concerns the ratepayer engagement, we think that's what this process is for, is this is a public forum. The -- the Consumers' Association participates year after year, and they are granted standing on the grounds that they represent those consumers that Mr. Williams would have the Corporation now engage before the public hearing. And that, to us, again, as -- does not seem economical. That's what this process is for.

And reiterating there at the third bullet, particularly with this rate application, MPIC has opened its books. Under the new regime, there is an increased transparency, and we saw that this year in the form of a number of motions to have information that, in past years, would not have been shared. But we had confidential orders made whereby all the documents in the Corporation's possession on all information technology projects and other matters were shared with everyone involved. And we think that's the -- the correct way to do it, and that's the direction the Corporation is moving.

So again, on that -- on some of the recommendations, more processes is not the solution, in -- in our view. The -- the CAC proposes a tech con -- tech conference on legacy modernization. The

Corporation feels strongly that this is within the domain of management and the Board of Directors. Of course, the Board will be kept informed as it relates to revenue requirements and rate approvals, and that's no different than what's happened in years prior, what's happening this year, and what will happen next year. There will be full disclosure, full transparency, and openness on all spending associated with the proposed legacy modernization.

And on that front, you heard from Mr. Bunko, there's no -- there's been no decision made on that. There's been an assessment, and when that assessment is completed, it will be reviewed. A decision will be made.

And next slide, please, Ms. -- Ms. -- thank you. Mr. Williams implied that the IT department has mismanaged some projects. The only comments that the Corporation would to make in reply to that is at the time, as Mr. Bunko indicated in his evidence, certain assumptions remain relevant. The net present value of that project were current, and decisions were made when the new Gartner report was provided.

You've heard the evidence of the executive that mistakes will be made. The Corporation

is no different than any other private corporations, but -- but the Corporation was here taking responsibility for the mistakes that have been made, and we're doing their best to prevent those mistakes from recurring.

Contradictions on the Asset Liability Management study. The Intervenor Consumer Associations of -- Group of Canada has no apparent objection to de-risking the portfolio and, as you heard yesterday, and I don't want to repeat what I've indicated already, a direct result of that was a reduction in the capital that was required, but they can't have it, in our view, both ways.

The -- Mr. Williams and his client reject the conclusion that the de-risking must be accomplished through lower risk investments, and they recommended, as a result, a -- a reduction -- an ongoing reduction for foregone investment opportunities. This, we say, is clearly at odds with the approval of the prudent costs in the regulatory context.

The Asset Liability Management study, in MPI's view, was eminently reasonable. Mercer did detailed work. They met with the investor. They conducted their due diligence, and they explored a

suite of alternatives.

I might add that Mr. Williams, in his argument this morning, Mr. Chair, took aim at the nominal liability benchmark that MPIC and its Board of Directors preferred over the real liability benchmark. Comment with respect to that, Mr. Chair, is this: Of course, we all live in the real world. We live in a world where there is inflation. We live in a world where there's interest rate risk.

Having said that, why, then, would there exist a nominal liability benchmark? Why wouldn't every investor, given those facts of inflation and interest rate risk, go with the real liability benchmark? And that's a rhetorical question. I don't have the answer to that, but the industry seems to have presented two (2) benchmarks that investors can go with, and MPIC and its Board of Directors chose the nominal route.

And you heard Mr. Makarchuk indicate that that's not uncommon for investors to hedge inflation only partially, or perhaps maybe not -- not at all. That, again, was a decision made by the Board of Directors.

Mr. Viola -- and while we appreciate Mr. Viola's input and recommendations that we heard

from him that this week, ultimately, the decision lies with the Corporation and its Board of Directors. And highlighting that point are some quotes from his testimony this week:

> "My background is not in insurance, but I understand the nature of the liabilities."

But when pressed on that, in cross, he said, "I'm not an expert on the liability side." And so we have here an expert from Toronto that is purporting to give advice on how MPIC and its Board of Directors have decided to invest the money. And I'm going to suggest to you, Mr. Chair, that Mr. Viola is no slouch; eminently qualified. Toronto, and even to some extent, Alberta, where Mr. -- Mr. Makarchuk comes from, two (2) vastly different economies than Manitoba. In fact, those two (2) are the most robust and strongest economies in the country. That's not Manitoba.

And what you have on the investment committee are Manitoba investment -- investment experts that have made decisions in the best interests of the Corporation and the Manitobans that pay the rates. And so we ask again that you give careful thought to that and defer to the expertise of the

Board of Directors.

Mr. Williams would have this Board substitute its opinion for that of the investment committee. There are a number reasonable outcomes that can be had with respect to any investment strategy, and this, we say, MPI's is as reasonable as any other. And lastly, MPIC's Board of -- of Directors has jurisdiction over investments, its clear mandate in the annual business plan.

Lastly on investments, and I -- I don't want to go too deeply into it, because we've canvassed much of this, but remember this. All of the criticism of -- of the investment strategy fall away if the inflation forecasts hold true. If inflation stays at 2 percent, around that level, all of these criticisms fall away.

And with all due respect to Mr. Williams, these issues, real return bonds, nominal versus real benchmark, inflation, interest rate risk, these, with respect -- and these are Mr. Williams's words -- these are not a significant gamble. And I don't want to undermine the importance of these issues, but it's -- it's much ado about nothing.

And the reason I say that is for two (2) reasons, Mr. Chair. Mr. Makarchuk said two (2)

things: 1) that a sophisticated institutional client like MPIC should have an ALM study done every five (5) years, and 2) he said that the portfolio is sufficiently liquid to allow for a re-mixing, if necessary.

So if, for example, inflation started skyrocketing, there's nothing that would prevent the Corporation from engaging another firm to conduct an ALM study re-mixing its portfolio to protect it against rising inflation. We're not locked in to these -- to these matches that have occurred under the ALM.

And I agree with Mr. Williams that the Corporation isn't the master of its investments. Of course we're not a master. But I -- I'm going to speak to Mr. Graham after this and see if next year, we can retain Warren Buffett for some advice, because I would submit that there are no masters in this field.

The investment industry, generally speaking, is based on projections, forecasting, hedging, and predictions. It's far too speculative for anyone to suggest that someone should be a master in the field of investments. And so we go back to the question that I put the Board in my opening statement:

"Is the investment strategy that's adopted by MPIC a reasonable one? And if the answer to that question is yes, then it should be left alone."

On the net Capital Maintenance Provision, there's a couple of small points, here. Firstly, the Capital Maintenance Provision is not, as Mr. Williams suggested, used to prevent rate shock. That's not what it's for. That's the job of the Rate Stabilization Reserve. The Capital Maintenance Provision, as we indicated over and over, is to do one (1) thing. It's to maintain capital at the level it is from the start of the fiscal year to the end. That's it, so we don't have a depletion in capital.

And so that's a little strong, that first bullet, but I do agree that Ms. Sherry misunderstood parts of the application, the -- but the purpose of the CMP is unrelated to operational risk, and the -- the Minimum Capital Test is the appropriate measure for setting -- for setting the Capital Maintenance Provision.

The Minimum Capital Test does not in any way replace the Dynamic Capital Adequacy Test, not in any way. The -- the MCT comes in at the very end

of the analysis, after Mr. Luke has performed his -- his adverse scenarios. Again, the Capital Maintenance Provision is not to prevent rate shock. We want to be clear on that.

The last bullet bears mentioning that MPI's approach is prudent fiscal management, and is consistent with industry best practice. Mr. Williams said, Well, let's look at the other jurisdictions. We have SGI, we have ICBC, we have Quebec, and MPIC repeats over and over again that these jurisdictions, not unlike ours, all have 100 percent MCT. And he says, Well, we don't know how they got there. How did they arrive there?

And we say, It doesn't matter. That is standard industry best practice. It doesn't matter how they got there. It -- it appears to us, at least, that this jurisdiction is the only undercapitalized public insurer in the country.

On rate shock, one (1) of the rec -- recommendations that Mr. Williams makes on rate shock is that if there's going to be any departure from best practices recommended by an expert, that those departures by MPIC should be brought to the attention of the Public Utilities Board in -- in the report. So, for example, Mercer would say, We'd like you to

use our standard interest rate forecast, and MPIC says, No, you know what, we're going to do it on a curve.

And so Mr. Williams would have Mercer bring to your attention in its report MPIC's defiance, if you will, of its recommendation. That, we say, is completely inappropriate. What should happen instead, as happened this year, is the report is subject to a cross-examination, like in any proceeding.

Subject to a cross-examination, Mr. Williams can make his arguments, MPIC can make its arguments, and the Board decides on the weight that it needs to attribute to that particular issue, based on the evidence. So we don't agree that that's a -- a recommendation that has any application in this -- in this proceeding.

On rate shock, at first bullet, this is a General Rate Application, and why I say that is because it's a little unfair for Mr. Williams to cherry pick different passenger vehicle classes, versus motorcycles, versus trailers and say, Some of them are in excess of 5 percent, some of them might be between five (5) and ten (10). Some of them are under -- this is a General Rate Application.

The capping rules from the PUB have

been in place for years, and now they'd like this Board to take a look at what the individual pays, and we think that's entirely inappropriate in a general rate application. The ratepayers need to pay the cost of their insurance, and the premium should match the exposure.

I just want to -- before I read this conclusion slide, I just want to go through my own notes and make sure that I've canvassed everything that is properly put before the Board in reply, Mr. Chair.

(BRIEF PAUSE)

MR. STEVE SCARFONE: One (1) of the questions that Ms. McCandless put to Mr. Johnston was, What's changed from last year that led MPIC to adopt the use of the naive? The short end to that is nothing changed, because last year, MPIC was recommending that this Board make use of the naive forecast. We are again this year. Nothing changed.

We fully appreciate that the Board didn't accept MPIC's recommendation last year, ordered the 50/50. The Corporation felt it was compliant with that Order, but returned to what we feel is the best

estimate, the naive forecast. So nothing has changed.

And so with respect to that, Mr. Williams said, Well, MPIC hasn't discharged its onus that naive should replace the SIRF, or the 50/50? What Mr. Williams conveniently ignores are the net income losses, the -- the money that the Corporation lost in making use of the wrong forecast, in my view, is a full answer to the onus. That should discharge the onus, $165 million in losses would discharge the onus.

Mr. Williams said with the current investment strategy, there are significant indexing risk in the MPIC portfolio. Those were his words, Significant indexing risk. There was no evidence -- no evidence that there's indexing risk. Indexing risk, as I understand it, is -- is attributable to rising inflation, then there would be indexing risk. No evidence that inflation is going up.

(BRIEF PAUSE)

MR. STEVE SCARFONE: And lastly, I -- just for my own selfish reasons, Mr. Williams said that I kept mixing up terminology yesterday. I just want to clarify, when I make use of the term 'the

Basic claims liability portfolio,' that's the name the Corporation gives its Basic claims portfolio.

I think what was throwing Mr. Viola was the word 'liability,' because he's like, You're on the wrong side of the sheet, whatever the accounting sheet was called. But we call it the Basic claims liability portfolio that contains the assets that match against the liabilities. So we've probably confused everybody here, but that's just the name that we give it, and -- and I've been trained in that regard, to call it the Basic claims liability portfolio. But for your purposes, Mr. Chair, it's just the Basic portfolio, the one that, you know, we've canvassed here repeatedly.

So in conclusion, MPIC has presented the facts and -- and evidence. That -- that's obvious, and -- but we do want to reiterate that this particular General Rate Application, Mr. Chair, has been one that's been open and transparent. And I don't think anybody could quarrel with us on that.

We may not have a fancy title to our closing argument about cushioning, and skimming premiums; that's not what this Corporation is about. And we say that this Board cannot ret -- reject the application on these trivial objections.

That concludes the Corporation's reply.

THE CHAIRPERSON: Thank you, Mr. Scarfone. This concludes the 2019 Manitoba Public Insurance Corporation General Rate Application hearing.

On behalf of the Board panel, I would like to thank everyone for their cooperation throughout this hearing. This includes, during the hearing, the MPI front row, including: Mr. Graham, Mr. Scarfone, Mr. Guerra, Mr. Johnston, Mr. Wennberg, Mr. Bunko, Mr. Giesbrecht, Mr. Bunston, Ms. Campbell, Mr. Lazarko, and Mr. Remillard. The MPI back row, including, from time to time: Mr. Triggs, Mr. Keith, and Mr. Crozier, Mr. -- Mr. Sprenger, Ms. Jetana (phonetic), Mr. Mira, Mr. Clearwater, Mr. Dressler (sic), Ms. Hora, Ms. Mitra, Mr. Dunstone, Mr. Krupinski, and Mr. Phoa.

The Intervenors and their respective counsel: for CAC, Mr. Williams and Ms. Dilay, and for CMMG, Mr. Oakes.

The witnesses who testified before the board: Mr. Makarchuk, pardon me, Mr. Henry, Dr. Simpson, Ms. Sherry, and Mr. Viola.

The presenters who made submissions this year, I would also like to thank the Secretary of

the Board Mr. Christle, and our document manager Ms. Schubert.

Our court reporter, Digi-Tran, including Cheryl -- Ms. Cheryl Lavigne and Ms. Wendy Woodworth; our advisors, Mr. Cathcart and Ms. Martyszenko, and Mr. Pelly; and our counsel, Ms. McCandless, and Mr. Watchman.

The Board also appreciates the members of the public who took time to sit during the course of the hearings, and to follow the proceedings via our livestreaming on the PUB website. The panel will be meeting in the very near future to deliberate and make our final determinations on this matter before us.

This concludes our hearing. Thank you.

MR. STEVE SCARFONE: Thank you.

--- Upon concluding at 1:44 p.m.

Certified Correct,

_____

Cheryl Lavigne

Manitoba Public Insurance
Société d'assurance publique du Manitoba

June 19, 2018

Via Mail

RE: Manitoba Public Insurance – 2019 General Rate Application

Please find enclosed Manitoba Public Utilities Board Notice of Public Hearing for the Manitoba Public Insurance 2019 General Rate Application.

The General Rate Application was filed with the Public Utilities Board on Friday June 15th, 2018. This notice is being provided to you at the direction of the Public Utilities Board.

Yours truly,

Michael Triggs
General Counsel and Corporate Secretary

MT/st

Encl.

cc: Interested Parties per PUB Appendix A

Executive Offices 912-234 Donald Street / Box 6300 / Winnipeg MB / R3C 4A4 / Telephone: 204-985-8770 extension 7525 / Facsimile: 204-942-1133
Bureau de la direction 234, rue Donald, bureau 912 / C.P. 6300 / Winnipeg (MB) / R3C 4A4 / Téléphone : 204-985-8770 poste 7525 / Télécopieur : 204-942-1133
mpi.mb.ca

Public Utilities Board

Régie des services publics

Notice of Public Hearing and Pre-Hearing Conference

Applicant: Manitoba Public Insurance Corporation

HEARING:

The Public Utilities Board (Board) anticipates holding a public hearing of an application from Manitoba Public Insurance Corporation (MPI) for approval of rates and premiums for compulsory vehicle and driver insurance as of March 1, 2019. The hearing would take place at the Board's Hearing Room, 4th Floor, 330 Portage Avenue, Winnipeg, MB (commencing at 9:00 a.m.) on October 15, 2018. A Pre-Hearing Conference is to be convened by the Board in its offices at 9:00 a.m. on June 25, 2018.

RATE IMPACT:

The Corporation is requesting approval for Basic Autopac vehicle insurance rates and premiums effective March 1, 2019, which, if approved, will result in 2.2% overall increase in MPI's Basic vehicle premium revenue (in addition to the revenue impact of vehicle upgrades and an increased overall driver and vehicle population).

MPI proposes that this rate increase be comprised of two elements: i) a 0.1% increase to the break-even cost of policies, and ii) a 2.1% increase for a Net Capital Maintenance Provision to maintain Basic's capital position through the rating year, as measured by the Minimum Capital Test. The Capital Maintenance Provision recognizes the impact of investment income on Basic's Rate Stabilization Reserve, and collects only the residual amount required to maintain Basic's capital position.

MPI is also seeking final approval of 2017/18 and 2018/19 Vehicles for Hire rates, approved by the Board on an interim basis by Order 11/18 on January 15, 2018. MPI is not proposing any changes to the Driver Safety Rating system in the 2019 General Rate Application.

Individual vehicle and driver premiums would vary depending on claim and driving experience, insurance use, territory and vehicle rate group. Full particulars, including the rate impact and application, can be found on the Manitoba Public Insurance website www.mpi.mb.ca.

PRE-HEARING CONFERENCE:

Those seeking Intervener status should notify the Board of their intention, by applying to the Board Secretary before the now scheduled Pre-Hearing Conference of June 25, 2018. Interveners may be entitled to financial assistance, and the Board's Rules of Practice and Procedure (Rules) provide the related guidelines, which can be seen at the Board's website: www.pubmanitoba.ca or obtained on request to the Board, by either emailing (publicutilities@gov.mb.ca), writing or calling the Board Secretary (204-945-2638 or 1-866-854-3698, toll free). Parties wishing to submit a brief or to express comments at the hearing should also contact the PUB via the Board's on-line comment tool.

GENERAL INFORMATION:

Interested parties should take note that the Board does not have jurisdiction over the MPI lines of business denoted as Extension or SRE, or as to MPI's Driver and Vehicle Licensing operation.

Persons seeking further information as to MPI's application, or with respect to the Board's process, and/or wishing to address the public hearing in French should notify the Board Secretary by September 1st, 2018. As well, interested parties may examine MPI's application and supporting materials, either at the offices of the Corporation, on its website, or in the Board's office.

The Manitoba Ombudsman has recently issued privacy guidelines for administrative tribunals. The Board is mindful of its obligations under those guidelines. Its decisions in respect of the application being considered will be sensitive to the guidelines. Personal information will not be disclosed unless it is appropriate and necessary to do so. However, the Board advises participants that these proceedings are public and that as a result, personal information protections are reduced.

CONTACT INFORMATION:

The Public Utilities Board
400 - 330 Portage Avenue
Winnipeg, MB R3C 0C4
Website: www.pubmanitoba.ca
Telephone: 204-945-2638
Toll-Free: 1-866-854-3698
Email: publicutilities@gov.mb.ca

DATED this 15th day of June, 2018.

D. Christle
Secretary and Executive Director
The Public Utilities Board

Five days notice required.

Wheelchair access is available.

Manitoba

APPENDIX "A"

Manitoba Chambers of Commerce
Chuck Davidson, President & CEO
227 Portage Avenue
Winnipeg, MB R3B 2A6
cdavidson@mbchamber.mb.ca

Brandon Chamber of Commerce
Ms. Carolynn Cancade, General Manager
1043 Rosser Avenue
Brandon, MB R7A 0L5
gm@brandonchamber.ca

Winnipeg Chamber of Commerce
Mr. Loren Remillard, President and CEO
100 – 259 Portage Avenue
Winnipeg, MB R3B 2A9
dangus@winnipeg-chamber.com

Association of Manitoba Municipalities
Joe Masi, Executive Director
1910 Saskatchewan Avenue W.
Portage la Prairie, MB R1N 0P1
jmasi@amm.mb.ca

Manitoba Association for Rights and Liberties
Michelle Falk, Executive Director
507 - 294 Portage Avenue
Winnipeg, MB R3C 0B9

Manitoba Motor Dealers Association
Mr. Geoff Sine, Executive Director
Ste. 230, 530 Century
Winnipeg, MB R3H 0Y4
gsine@mmda.mb.ca info@mmda.mb.ca

Automotive Trades Association (Man) Inc.
Mr. Rick De Dominicis, President
112 – 1790 Wellington Avenue
Winnipeg, MB R3H 1B2
ata@atamb.ca

Manitoba Used Car Dealers Association
Mr. Nick Roberts
110 Alburg Drive
Winnipeg, MB R2N 1L9
info@mucda.mb.ca

Bike Winnipeg Inc.
contact@bikewinnipeg.ca
Mr. Mark Cohoe, Executive Director
3rd Floor, 303 Portage Avenue
Winnipeg, MB R3B 2B4
executivedirector@bikewinnipeg.ca

CUPW - Red River Local
Mr. George McCall
P.O. Box 1
Winnipeg, MB R3C 2G1

Mr. Doug Houghton
Box 1120
Beausejour, MB R0E 0C0

Manitoba Bar Association
Ms. Sofia Mirza, President
1020-444 St. Mary Avenue
Winnipeg, MB R3C 3T1

Mr. Andrew Chimko
302 – 119 Swindon Way
Winnipeg, MB R3P 0W3

Mr. Virgilio C. Ramos
369 Banning Street
Winnipeg, MB R3G 2E6

Eduard Hiebert
2186 Hwy 26
St. Francois Xavier, MB R4L 1B3

David Gurvey
35 Duncan Norrie Drive
Winnipeg, MB R3P 2K1

Manitoba Association of Automobile Clubs
Mr. Jim Penziwol
chairman@maac.cc

Mr. Grant Parson
gjparson@mts.net

Adrian Halpert
157 Foxmeadow Drive
Winnipeg, MB R3P 1T7

Headingley Sport Shop Ltd
Ms. Jill Ruth
5160 Portage Avenue Winnipeg, MB R4H 1E1
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Mr. Bruce Zeemel
59 Cambie Road
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zeemel@shaw.ca

Automotive Recyclers of Manitoba (ARM) Ltd.
c/o Mr. Greg Lane Box 43049 RPO
Kildonan Place
Winnipeg, MB R2C 5G5
greg@progressiveautoparts.ca

Insurance Brokers Association of Manitoba
Mr. David Schioler
600-1445 Portage Avenue
Winnipeg, MB R3G 3P4
davidschioler@ibam.ca

Sunshine Limo and Transit Service
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info@sunshinetransit.ca

Wheelchair Service of Manitoba
Gerry Maeren
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The Winnipeg Community Taxi Coalition,
Scott McFayden
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Small Owners/Operators Coalition
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Uber
chris.schafer@uber.com

Lyft
Daniel Moulton from Crestview Strategy
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ss@albertacounsel.com

Public Utilities Board

Régie des services publics

June 29, 2018

Mr. Mike Triggs
Director, Legal Services
Manitoba Public Insurance Corporation
702 – 234 Donald Street
P.O. Box 6300, Stn. Main
Winnipeg, MB R3C 4A4

Dear Mr. Triggs:

Re: Manitoba Public Insurance Corporation: Procedural Order (2019/20 Rates and Premiums for Compulsory Driver and Vehicle Insurance), Timetable for a Public Hearing, Approval of Interveners and Approval of Issues

---

In the above matter, please find enclosed two certified copies of Order No. 82/18.

Yours truly,



Kurt Simonsen
Associate Secretary
KS/kls

cc: Registered Interveners (per attached list)
Kathleen McCandless, Board Counsel
Brian Pelly, Board Advisor
Roger Cathcart, Board Advisor

400 – 330 Portage Avenue
Winnipeg, MB R3C 0C4
T 204-945-2638 / 1-866-854-3698
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Téléc. 945-2643
Courriel : publicutilities@gov.mb.ca
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Public Utilities Board

Régie des services publics

July 12, 2018

Mr. Mike Triggs
Director, Legal Services
Manitoba Public Insurance Corporation
702 – 234 Donald Street
P.O. Box 6300, Stn. Main
Winnipeg, MB R3C 4A4

Dear Mr. Triggs:

Re: Motion by Manitoba Public Insurance – Seeking Confidential Treatment of Certain Information in the 2019/2020 General Rate Application

---

In the above matter, please find enclosed two certified copies of Order No. 89/18.

Yours truly,

"Original signed by"

Darren Christle, MPA, B.A., CCLP, P. Log., MCIT
Secretary/ Executive Director
DC/kls

cc: Registered Interveners (per attached list)
Kathleen McCandless, Board Counsel
Brian Pelly, Board Advisor
Roger Cathcart, Board Advisor

400 – 330 Portage Avenue
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Courriel : publicutilities@gov.mb.ca
Site Web: www.pub.gov.mb.ca

December 11, 2018 ***Via E-Mail***

The Public Utilities Board
400 - 330 Portage Avenue
Winnipeg, MB R3C 0C4

Attention: Darren Christle, Board Secretary and Executive Director

Dear Mr. Christle:

RE: Manitoba Public Insurance (MPI) 2019 General Rate Application Compliance Filing

Enclosed herewith please find the revised Compliance Filing, with a corrected Figure 4 - Summary of Premium Increases/Decreases by Major Class, Territory and Vehicle Type (2019 GRA Ratemaking Figure RM-15.

We await the final order confirming acceptance of 2019/20 premium rates as outlined in this compliance filing.

Yours truly,

Michael Triggs
General Counsel and Corporate Secretary

MT/sk

Encl.

cc: K. McCandless and PUB Advisors
2019 GRA Registered Interveners

December 14, 2018

Mr. Mike Triggs
Director, Legal Services
Manitoba Public Insurance Corporation
702 – 234 Donald Street
P.O. Box 6300, Stn. Main
Winnipeg, MB R3C 4A4

Dear Mr. Triggs:

Re: Manitoba Public Insurance Corporation (MPI or The Corporation): Order Approving Specific Compulsory Driver and Vehicle Insurance Premiums Pursuant to Board Order 159/18

In the above matter, please find enclosed two certified copies of Order No. 165/18.

Yours truly,

"Original Signed By:"

Darren Christle, MPA, B.A., CCLP, P. Log., MCIT
Secretary/ Executive Director

DC/aw

cc: Registered Interveners (per attached list)
Kathleen McCandless, Board Counsel
Brian Pelly, Board Advisor
Roger Cathcart, Board Advisor

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MANITOBA PUBLIC INSURANCE
2019 GENERAL RATE APPLICATION
ORDERS

PUB Order 61-18

PUB Order 82-18

PUB Order 89-18

PUB Order 159-18

PUB Order 159-18 Compliance Filing

Figure 1 Major Class Summary Report
Figure 2 Pro-forma Financial Statements
Figure 3 Major Classification Required Rate Changes
Figure 4 Summary of Premium Increases/Decreases by Major Class, Territory and Vehicle Type
Figure 5 Dollar Distribution – All Classification and Rate Adjustments
Figure 6 Percent Distribution – All Classification and Rate Adjustments
Figure 7 Schedule of Driver Premiums

PUB Order 165-18

Order No. 61/18

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION):

INTERIM PROCEDURAL ORDER RESPECTING PRELIMINARY ISSUES LIST FOR 2019 GENERAL RATE APPLICATION FOR COMPULSORY 2019/2020 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

May 7, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene A. Hamilton, Member
Michael Watson, Member
Robert Vandewater, B.A., FCSI, CPA (Hon), CA (Hon), KStJ., C.D.,Member
Carol Hainsworth, Member

Table of Contents

1. SUMMARY 3

2. PROCEDURAL HISTORY 3

3. PRELIMINARY ISSUES LIST 4

4. MPI COMMENTS 6

5. CAC COMMENTS 7

6. BOARD FINDINGS 8

7. IT IS THEREFORE ORDERED THAT: 9

1. SUMMARY

By this Order, the Public Utilities Board of Manitoba (Board) establishes, on an interim basis, the Preliminary Issues List for the anticipated General Rate Application (GRA) of Manitoba Public Insurance Corporation (MPI or Corporation) for the review and approval of base rates and premiums for compulsory driver and vehicle insurance to take effect March 1, 2019.

2. PROCEDURAL HISTORY

By letter to MPI dated April 11, 2018, copied to interested parties and prospective interveners, the Board advised that it is seeking to streamline its procedure for the anticipated 2019 GRA. As part of the process, the Board would be advancing the consideration of the scope of issues to be considered at the 2019 GRA hearing to earlier in the GRA hearing process.

Included with the letter of April 11, 2018 was a preliminary Issues List for the 2019 GRA. The Board invited MPI and the interested parties and prospective interveners to provide their comments on the scope of the issues, following which this Interim Order would issue. In addition, the Minimum Filing Requirements (MFRs) for the 2019 GRA would be provided to MPI following the issuance of this Order.

The Board further advised MPI and the interested parties and prospective interveners that following this Interim Order, a final Issues List would be approved by the Board in its Procedural Order, which will follow the Pre-Hearing Conference.

The Board received comments on the Preliminary Issues List from MPI, and from one of the Interveners of record, Consumers' Association of Canada (Manitoba) Inc. (CAC).

3. PRELIMINARY ISSUES LIST

The Preliminary Issues List as determined by the Board and circulated to MPI and the Interveners of record on April 11, 2018, set out the following issues as those to be considered in the 2019 GRA.

First, the following issues would be considered to be in scope of the 2019 GRA in the normal course:

1. Requested vehicle rate and any changes to other fees and discounts;

2. Rate indication based on accepted actuarial practice in Canada;

3. Compliance with Board Orders 130/17, 11/18 and 29/18;

4. Financial forecast:

    a. financial forecast accuracy (2017/18 forecast versus actual results);

    b. changes in projected financial results;

5. Cost allocation methodology changes;

6. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;

7. Performance of the investment portfolio and the composition of the portfolio;

8. Cost of operations and cost containment measures;

9. Claims forecasting (including PIPP);

10. Operational benchmarking, including with comparison to other provinces;

11. Run-off of prior year claims during 2017/18;

12. Long tail experience from other jurisdictions;

13. Results of the Service Fees review; and

14. Other issues that may arise (depending upon the nature and scope of the issue) based on a review of the application.

In addition, the Board determined that the following issues would require more detailed consideration in the 2019 GRA:

15. Driver Safety Rating ("DSR") with further assessment on having "*driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation*" [Board Order 29/18].

16. Final rates for service for Vehicles for Hire (VFH) for the 2017/2018 and 2018/2019 insurance years and the directives from Board Order 11/18.

17. Current IT Strategic Plan and IT Expenses and Projects, including the Physical Damage Re-engineering Project, Distributed Estimating Technology Modernization and other initiatives planned for or ongoing in the rating years.

18. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.

19. Asset Liability Management Study, including review of all aspects of the Study recommendations and implementation thereof, the evaluation of risk and return, alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s), forecast investment performance and changes to the Investment Policy Statement.

Lastly, the Board determined that certain issues would be deferred from the 2019 to future applications, or would be the subject of a technical conference or another process:

1. Road Safety;

2. Interest Rate Forecast (any changes and updates based on Board approved methodology not deferred);

3. Target Capital Methodology (any changes and updates based on Board approved methodology not deferred);

4. Integrated Cost Allocation Methodology (other than changes referred to in item 5 above).

4. MPI COMMENTS

MPI advised that it was supportive of the Board's initiative to streamline procedures to improve the focus and efficiency of the hearing process. MPI also agreed that "Core Issues" need to be considered each year.

MPI stated that Core Issues should be the basis for the MFRs which should be consistent from one year to the next. However, MPI was also of the view that there should be "Additional Issues" which should be the basis for "Additional Filing Requirements" (AFRs) which would vary from year to year depending on which issues the Board wishes to examine in greater detail in any given GRA.

MPI provided a revised Preliminary Issues List which largely tracked the issues set out in the Preliminary Issues List distributed by the Board, but which reorganized the listing to identify what it considered to be Core Issues as the basis for MFRs and Additional Issues as the basis for AFRs.

MPI also provided a Proposed Minimum and Additional Filing Requirements table classifying various requirements based upon the identified Core or Additional Issue. The filing requirements set out in the table again largely tracked the MFRs from previous GRAs though reorganized based upon classification as either a Core or an Additional Issue.

5. CAC COMMENTS

CAC also provided a revised version of the Preliminary Issues List distributed by the Board.

CAC suggested the addition of some further items, including a Corporate Strategic Plan, Risk Assessment which had been addressed in previous GRAs, and Accounting practice changes which are expected to be implemented as a result of changing requirements under International Financial Reporting Standards (IFRS). In addition, CAC suggested a more detailed description of some issues, relating primarily to the Asset Liability Management Study which had been filed with the Board by the Corporation pursuant to the Board Order 130/17.

It was also CAC's position that a detailed review of Road Safety and Loss Prevention not be deferred.

As well, CAC suggested changes to the MFRs corresponding to their submissions on the Preliminary Issues List.

6. BOARD FINDINGS

The Board appreciates the submissions made by MPI and CAC and is of the view that identifying and emphasizing those issues which will require more detailed consideration in the upcoming GRA will improve the efficiency of the public hearing and the Information Request process.

The Board accepts CAC's suggested inclusion of a Corporate Strategic Plan and Risk Assessment as issues to be considered in the normal course in the upcoming GRA.

While the Board accepts that some additional detail could be provided to the issues identified as performance and composition of the investment portfolio and the consideration of IT issues, not all of the suggested changes have been adopted.

In addition, the Board appreciates the importance of Road Safety and Loss Prevention to the public and ratepayers. This underlies the Board's direction in Board Order 130/17, that a detailed and comprehensive review by way of a Technical Conference take place in early 2019. As a result, while costs and budgeting of Road Safety programming will be considered in the 2019 GRA, the substantive issues identified in Board Order 130/17 will be deferred to the upcoming Technical Conference.

Lastly, the Board finds that issues relating to the anticipated changes to accounting practices under IFRS would be more effectively reviewed at a Technical Conference prior to the implementation of such changes. Accordingly, the terms of such a Technical Conference will be the subject matter of future Board consideration and Order.

The Board has taken into account the comments of MPI and CAC, and has approved the Preliminary Issues List as set out below.

7. IT IS THEREFORE ORDERED THAT:

1. The following issues will be considered within the scope of the 2019 GRA in the normal course:

1.Requested vehicle rate and any changes to other fees and discounts;

2. Rate indication based on accepted actuarial practice in Canada;

3. Compliance with Board Orders 130/17, 11/18 and 29/18;

4. Financial forecast:

a. financial forecast accuracy (2017/18 forecast versus actual results);

b. changes in projected financial results; and

c. update of the Interest Rate Forecast based upon methodology approved in Board Order 130/17;

5. Corporate Strategic Plan

6. Changes, if any, to integrated cost allocation methodology;

7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;

8. Performance of the investment portfolio and the composition of i) the portfolio, ii) benchmark portfolio(s) on a market value basis (e.g. asset mix);

9. Cost of operations and cost containment measures;

10. Claims forecasting (including PIPP);

11. Operational benchmarking, including with comparison to other provinces;

12. Run-off of prior year claims during 2017/18;

13. Long tail experience from other jurisdictions;

14. Risk Assessment and Risk Management;

15. Results of the Service Fees review and

16. Other issues that may arise (depending upon the nature and scope of the issue) based on a review of the application.

2. The following issues will require more detailed consideration at the 2019 GRA:

17. Driver Safety Rating ("DSR") with further assessment on having "*driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation*" [Board Order 29/18].

18. Final rates for service for Vehicles for Hire (VFH) for the 2017/2018 and 2018/2019 insurance years and the directives from Board Order 11/18.

19. Current IT Strategic Plan and IT Expenses and Projects, including the Physical Damage Re-engineering Project, Distributed Estimating Technology Modernization, the Value Management Process and other initiatives planned for or ongoing in the rating years.

20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.

21. Asset Liability Management Study, including review of all aspects of the Study recommendations and implementation thereof, the basis for and evaluation of risk and return, alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s), forecast investment performance and changes to the Investment Policy Statement.

3. The following issues will be deferred from the 2019 to future applications, or will be the subject of a technical conference or another process:

22. Road Safety (other than costs and budget of Road Safety programs);

23. Interest Rate Forecast (other than update referred to in item 4c above);

24. Target Capital Methodology (other than update referred to in item 7 above); and

25. Integrated Cost Allocation Methodology (other than changes referred to in item 6 above).

4. A final Issues List will be approved by the Board in the Procedural Order following the Pre-Hearing conference for the 2019 GRA.

Board decisions may be appealed in accordance with the provisions of Section 58 of *The Public Utilities Board Act*, or reviewed in accordance with Section 36 of the Board's Rules of Practice and Procedure. The Board's Rules may be viewed on the Board's website at www.pub.gov.mb.ca.

THE PUBLIC UTILITIES BOARD

"Robert Gabor, Q.C."
Chair

"Rachel McMillin"
Assistant Associate Secretary

Certified a true copy of Order 61/18
issued by the Public Utilities Board

_____
Assistant Associate Secretary

Order No. 82/18

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION):

PROCEDURAL ORDER
(2019/20 RATES AND PREMIUMS FOR COMPULSORY DRIVER AND VEHICLE INSURANCE)
TIMETABLE FOR A PUBLIC HEARING, APPROVAL OF INTERVENERS and APPROVAL OF ISSUES

June 29, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene A. Hamilton, Member
Robert Vandewater, Member
Carol Hainsworth, Member

Table of Contents

Summary 4

1.0 Introduction 4

2.0 Applications for Intervener Status 10

2.1 CAC 10

2.2 CMMG 12

2.3 CAA 13

2.4 Uber Canada Inc. 13

2.5 Manitoba Used Car Dealers Association 14

2.6 MPI 14

3.0 Preliminary Issues List and Procedural Matters 14

4.0 Pre-Qualification of Expert Witnesses 16

4.1 MPI 17

4.2 CAC 17

5.0 Board Comments and Decisions 18

5.1 Timetable 21

IT IS THEREFORE ORDERED THAT: 22

SCHEDULE “A” 27

SCHEDULE “B” 29

SCHEDULE "C" 31

SCHEDULE "D" 34

Summary

By this Order, the Public Utilities Board of Manitoba (Board) accepts Interveners to the Board's public hearing of the General Rate Application (GRA) of Manitoba Public Insurance Corporation (MPI or Corporation), for the review and approval of base rates and premiums for universal compulsory driver and vehicle insurance to take effect March 1, 2019. The Board also provides Interveners with direction, establishes the Final Issues List, approves the pre-qualification of certain expert witnesses, and establishes a timetable pertaining to the proceeding.

1.0 Introduction

The Board held a Pre-Hearing Conference (PHC) at its offices in Winnipeg on Wednesday, June 25, 2018, for the purposes of:

- Considering applications from prospective interveners ("Interveners") and matters related thereto;
- Considering procedural matters and the issues to be decided by the Board in the GRA, and more particularly, any variations to the Preliminary Issues List approved in Board Order 61/18;
- Hearing requests from MPI and prospective Interveners for pre-qualification of expert witnesses; and
- Establishing a timetable for the hearing.

This Order arises from the PHC.

At the PHC, the following exhibits were entered into the record of this proceeding by Board counsel:

1. Notice of Public Hearing and PHC, dated June 15, 2018;
2. The Board's Rules of Practice and Procedure;
3. Proposed hearing timetable, circulated June 18, 2018;
4. Letter issued by the Board Secretary to MPI and prospective Interveners dated June 18, 2018, with attachments;
5. Letter issued by the Board Secretary to MPI and prospective Interveners dated June 22, 2018, in respect of the process for pre-qualification of expert witnesses; and
6. Interim Procedural Order 61/18, which established a Preliminary Issues List for the GRA.

At the PHC, the following exhibits were entered into the record of this proceeding by MPI:

1. GRA (two volumes);
2. MPI Customer Self Service Business Case;
3. Blackline version of IT Appendix 1 of the GRA;
4. *Curriculum vitae* of Charles E. (Chuck) Henry;
5. *Curriculum vitae* of Dave Makarchuk; and
6. Proposed hearing timetable, circulated June 25, 2018.

The parties seeking Intervener status were asked to:

1. Indicate their constituency and interests;

2. Outline the areas of the GRA that they intended to test;

3. Provide their reasons for requesting Intervener status;

4. Specify their plans to call evidence/witnesses; and

5. Indicate their interest with respect to seeking an award of costs, and, if interest was expressed, to provide a draft budget.

The Board advised prospective Interveners that it intends to apply the criteria set out in the Board's Rules in determining the awarding of costs, such decisions being at the sole discretion of the Board. In reviewing applications for costs awards, the Board will consider a number of different factors including, without limitation, whether the Intervener participated in the hearing process in a responsible manner and whether the Intervener made a significant contribution that assisted the Board in achieving a better understanding of the issues before it.

The following parties applied for Intervener status within the GRA proceeding:

(a) Consumers' Association of Canada (Manitoba) Inc. (CAC), represented in person at the PHC by counsel, Mr. Byron Williams and Ms. Katrine Dilay;

(b) Coalition of Manitoba Motorcycle Groups (CMMG), represented in person at the PHC by counsel, Mr. Raymond Oakes, and Articling Student, Ms. Charlotte Meek;

(c) Canadian Automobile Association Manitoba (CAA), represented in person at the PHC by Ms. Erika Miller;

(d) Uber Canada Inc. (Uber), represented at the PHC by teleconference by counsel Ms. Diane Rodgers and Mr. Joe Messina, and by Mr. Chris Schafer; and

(e) The Manitoba Used Car Dealers Association, with no one appearing on its behalf at the PHC.

At the PHC, MPI was represented by Mr. Michael Triggs, General Counsel and Corporate Secretary, Mr. Anthony Lafontaine Guerra, MPI Legal Counsel, Mr. Mark Giesbrecht, Vice-President, Finance and Chief Financial Officer, and Mr. Jeff Crozier, Director of Regulatory Affairs.

Prior to the filing of the GRA, on May 7, 2018, the Board issued Interim Procedural Order 61/18. The purpose of Order 61/18 was to establish a Preliminary Issues List for the GRA. By letter to MPI dated April 11, 2018, copied to interested parties and prospective interveners, the Board advised that it was seeking to streamline its procedure for the 2019 GRA. The Board invited MPI and the interested parties and prospective interveners to provide their comments on the scope of the issues, following which Order 61/18 issued. In addition, the Minimum Filing Requirements (MFRs) for the 2019 GRA were provided to MPI following the issuance of Order 61/18. Of those invited to comment on the scope of the issues, the Board heard from MPI and CAC. The Board held in Order 61/18 that a Final Issues List would be approved by the Board in this Procedural Order.

The Preliminary Issues List approved by the Board in Order 61/18 was as follows:

The following issues will be considered within the scope of the 2019 GRA in the normal course:

1. Requested vehicle rate and any changes to other fees and discounts;

2. Rate indication based on accepted actuarial practice in Canada;

3. Compliance with Board Orders 130/17, 11/18 and 29/18;

4. Financial forecast:

    a. financial forecast accuracy (2017/18 forecast versus actual results);

    b. changes in projected financial results; and

    c. update of the Interest Rate Forecast based upon methodology approved in Board Order 130/17;

5. Corporate Strategic Plan;

6. Changes, if any, to integrated cost allocation methodology;

7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;

8. Performance of the investment portfolio and the composition of i) the portfolio, ii) benchmark portfolio(s) on a market value basis (e.g. asset mix);

9. Cost of operations and cost containment measures;

10. Claims forecasting (including PIPP);

11. Operational benchmarking, including with comparison to other provinces;

12. Run-off of prior year claims during 2017/18;

13. Long tail experience from other jurisdictions;

14. Risk Assessment and Risk Management;

15. Results of the Service Fees review; and

16. Other issues that may arise (depending upon the nature and scope of the issue) based on a review of the application.

The following issues will require more detailed consideration at the 2019 GRA:

17. Driver Safety Rating ("DSR") with further assessment on having "*driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation*" [Board Order 29/18].

18. Final rates for service for Vehicles for Hire (VFH) for the 2017/2018 and 2018/2019 insurance years and the directives from Board Order 11/18.

19. Current IT Strategic Plan and IT Expenses and Projects, including the Physical Damage Re-engineering Project, Distributed Estimating Technology Modernization, the Value Management Process and other initiatives planned for or ongoing in the rating years.

20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.

21. Asset Liability Management Study, including review of all aspects of the Study recommendations and implementation thereof, the basis for and evaluation of risk and return, alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s), forecast investment performance and changes to the Investment Policy Statement.

The following issues will be deferred from the 2019 to future applications, or will be the subject of a technical conference or another process:

22. Road Safety (other than costs and budget of Road Safety programs);

23. Interest Rate Forecast (other than update referred to in item 4c above);

24. Target Capital Methodology (other than update referred to in item 7 above);

25. Integrated Cost Allocation Methodology (other than changes referred to in item 6 above).

Prior to the PHC, on June 18, 2018, the Board issued a letter with respect to both the GRA and processes implemented by the Board, including Minimum Filing Requirements to be followed by MPI, and the scheduling of an Application Overview Workshop. ("the Workshop"). At the Workshop, any variations from the Preliminary Issues List to the Final Issues List proposed by the parties were to be discussed and identified.

2.0 Applications for Intervener Status

2.1 CAC

CAC is a volunteer, non-profit independent organization, which represents the interests of consumers and aims to protect and reconcile the interests of all MPI consumers with a particular emphasis on the private passenger class. CAC intends to present an evidence-based intervention guided by a principled consideration of the consumer interest.

The areas in which CAC advised it intends to test the evidence of MPI include, among others:

- The appropriateness of the 2.2% requested overall rate increase;

- Ratemaking in accordance with accepted actuarial practice;
- The overall health of MPI, including reserves;
- The various operating, capital, revenue, claims and investment income forecasts;
- Cost control, operating and claims expenses, staffing and cost containment;
- The Information Technology direction to be taken by MPI in 2019 and beyond;
- The methodology and appropriateness of the proposed Rate Stabilization Reserve (RSR);
- Issues related to MPI's investment portfolio;
- The proposed rates for Vehicles for Hire; and
- Issues related to the Driver Safety Rating.

CAC advised that it intends to appear throughout the hearing, to participate in the production of evidence, to participate in the testing of evidence, and to present final argument. CAC advised that it intends to call Valter Viola to present evidence with reference to investment related issues, including the Asset Liability Management Study conducted by Mercer Canada for MPI, changes to MPI's asset mix and MPI's overall investment portfolio.

CAC indicated that it may also call expert witnesses with respect to actuarial issues including the Capital Maintenance Provision proposed by MPI, as well as evidence related to the implications for the reliability of the GRA forecast and Dynamic Capital Adequacy Testing (DCAT) modelling of MPI's reliance on the naïve interest rate forecast.

CAC advised that it will seek a costs award, and provided an intervention budget in the amount of $219,166.75 – $219,666.75, including legal fees, accounting consulting fees, actuarial consulting fees, expert witness consulting fees and disbursements.

2.2 CMMG

CMMG is a volunteer, non-profit organization that was formed in 1992 in response to motorcycle rate increases. It is comprised of several hundred paid members along with a larger social media and other community of approximately 2000.

CMMG stated that it will seek to assist the Board in critically evaluating the GRA, testing the evidence and raising issues of concern and interest to the motorcycling public specifically and Manitoba ratepayers generally. CMMG indicated that it intends to examine the following issues:

- Rate methodology;
- Loss experience;
- Investment returns;
- Road safety; and
- New initiatives for motorcycle insurance.

CMMG advised that it intends to appear throughout the hearing, to participate in the testing of evidence and to present final argument. CMMG will seek a costs award, and provided an intervention budget of $54,314.40 inclusive of tax, fees and disbursements. CMMG will not be producing any witnesses in connection with its intervention.

2.3 CAA

CAA represents over 200,000 Manitobans. CAA advised that it intends to intervene in the GRA as its members expect it to advocate on their behalf with respect to fair insurance rates, as well as on road safety issues.

CAA advised that it does not intend to call any witnesses or present evidence at the GRA, nor will it seek an award of costs.

2.4 Uber Canada Inc.

Uber and its affiliates leverage a proprietary digital platform to connect ride-sharing drivers with individuals requesting transportation services. Uber sought intervention in the GRA to address the insurance product developed by MPI for ride-sharing, or Vehicles for Hire. Uber commented as follows:

- That MPI's Vehicles for Hire insurance product would make it difficult for ride-sharing companies to assess compliance by its drivers with the product; and
- The product will create friction for drivers by requiring them to make changes to their personal insurance.

Uber advised that it intends to appear throughout the hearing and present final argument, and would not be seeking costs. Uber also indicated that it would be prepared to call a witness to speak to a comparison of Vehicles for Hire insurance products available in other jurisdictions.

2.5 Manitoba Used Car Dealers Association

The Manitoba Used Car Dealers Association seeks to protect the interests of automobile dealers in Manitoba by ensuring that forecasts are reasonably reliable, and ensuring that actual and projected costs incurred are necessary and prudent.

The Association indicated that it does not intend to appear throughout the hearing, participate in the production or testing of evidence or present final argument, nor would it be seeking costs.

2.6 MPI

MPI did not take issue with the applications for intervention of CAC, CMMG, or CAA.

MPI opposed the application for intervention of Uber. MPI commented that the issues raised by Uber were with respect to the structure of the Vehicles for Hire insurance product, which is a policy issue, not a rating issue. MPI argued that the structure of its insurance product is not something to be addressed in the GRA.

MPI also opposed the application for intervention of the Manitoba Used Car Dealers' Association, on the basis that the Association was not proposing any participation in the hearing by the calling of evidence or participation in the hearing.

3.0 Preliminary Issues List and Procedural Matters

MPI and the prospective Interveners provided comment on the Preliminary Issues List.

MPI did not suggest any changes to the Preliminary Issues List, but did suggest that a Pre-Hearing Conference take place in September of 2018, with a view to further narrowing the issues to be addressed in the public hearings. MPI's proposal was that a "Hearing Issues List" be developed, to be approved by the Board, which would list those issues that could be spoken to or challenged in the public hearings. MPI commented that

there would be merit in conducting a further review of the issues once Information Request responses and Intervener evidence was filed. In MPI's view, it would be clear to the parties which issues have been adequately addressed by that stage of the proceedings.

CAC's position was that as a result of the Application that has been filed by MPI, certain issues which had been determined by the Board to be deferred to other proceedings are now required to be included within the Final Issues List. In particular, CAC's position was that:

1. Issue 23 on the Preliminary Issues List, the Interest Rate Forecast, should be before the Board in this GRA. In Board Order 130/17, the Board required that MPI use the 50/50 interest rate forecast for target capital and rate setting purposes. In this Application, MPI has applied for rates on the basis of a Naïve interest rate forecast.

2. Issue 24, Target Capital Methodology, would also be before the Board, for three reasons. First, the upper target for the Rate Stabilization Reserve (RSR) based on the Dynamic Capital Adequacy Testing (DCAT) proposed no management action. CAC's position is this is not in keeping with Order 130/17, which required an upper target for the DCAT taking management action into account. Second, with respect to the lower target for the RSR, CAC would seek to understand whether the target, based on a Minimum Capital Test (MCT) of 34%, is consistent with the Board's approved methodology in Order 130/17. Lastly, given MPI's use of the Naïve interest rate forecast, there would be an issue as to the implications of the interest rate forecast on the DCAT.

CAC was in general agreement with the objective of making the public hearings more efficient but was of the view that an additional Pre-Hearing Conference would not be efficient. CAC suggested that a meeting of legal counsel to discuss intended areas of cross-examination would suffice to serve the purpose of making the hearing more efficient.

CMMG did not propose any variations from the Preliminary Issues List to the Final Issues List, although the focus of its intervention would not cover all of the issues. CMMG took the position that there should not be a further narrowing of the issues prior to the public hearings to restrict areas of cross-examination, as the principles of fundamental justice require a full hearing.

CAA did not propose any variations from the Preliminary Issues List to the Final Issues List. Uber proposed that an additional issue be added, namely, the structure of the Vehicles for Hire insurance product and alternate insurance models.

4.0 Pre-Qualification of Expert Witnesses

In the 2018 GRA, the Board instituted a new process for the pre-qualification of expert witnesses at the PHC. This process was employed again at the PHC, which was as follows:

1. MPI or a prospective Intervener intending to call an expert witness in the GRA hearings provided notice to the Board of the intention to have the witness qualified, and provided the *curriculum vitae* of the witness to the Board, along with the proposed area(s) of qualification.

2. At the PHC, the party seeking pre-qualification made submissions to the Board as to the qualifications of the witness and made the request for pre-

qualification. The witness was not called to be examined on his or her qualifications.

3. The other parties were canvassed as to their positions on the request for pre-qualification.

4.1 MPI

MPI requested pre-qualification of two expert witnesses it is prepared to produce to testify at the public hearings:

- Charles E. (Chuck) Henry: Mr. Henry is Vice President, Solutions and Pricing with Gartner Group and has over 40 years of executive and consulting experience with public and private sector organizations. MPI requested that he be pre-qualified as an expert in the area of the use and planning of information technology, and information technology governance.

- Dave Makarchuk: Mr. Makarchuk is a partner with Mercer Investments, and is Sales and Strategic Growth Leader with the Canada's National Wealth Leadership Team. Mr. Makarchuk is a Fellow of the Canadian Institute of Actuaries. MPI requested that he be pre-qualified as an expert in the area of institutional investment planning and asset and liability matching.

4.2 CAC

CAC requested pre-qualification of three expert witnesses:

- Dr. Wayne Simpson: Dr. Simpson is a Professor of Economics at the University of Manitoba. CAC requested that he be pre-qualified as an expert in applied econometrics, applied microeconomics, and quantitative methods.

Dr. Simpson has been qualified as an expert witness in previous hearings before the Board.

- Andrea Sherry: Ms. Sherry is Vice-President, Insurance Solutions with The Wawanesa Mutual Insurance Company. CAC requested that she be pre-qualified as an expert in actuarial analysis with a particular focus on pricing, rate-making, and risk related to automobile insurers generally, including Crown-owned automobile insurers. Ms. Sherry has been qualified as an expert witness in previous GRA hearings.

- Valter Viola: Mr. Viola is a Chartered Financial Analyst and has 25 years of institutional portfolio management, investment research and risk management experience. CAC requested that he be pre-qualified as an expert in in investment portfolio management, investment portfolio research economics and risk management, and quantitative asset liability modelling. Mr. Viola was previously qualified as an expert witness before the Board in the 2017 GRA.

Consensus was reached among MPI and the prospective Interveners with respect to each of the requests for pre-qualification, and no objections were noted.

5.0 Board Comments and Decisions

After considering all of the submissions with respect to Intervener applications, the Board grants Intervener status to each of CAC, CMMG and CAA.

The Board declines to grant intervener status to Uber and the Manitoba Used Car Dealers' Association.

With respect to the application for intervention of Uber, the Board notes that in its submissions Uber acknowledged that it was not intending to test the rate applied for by

MPI or the rationale behind the rates, but rather to discuss the structure of the Vehicles for Hire insurance product more generally. On this basis, the Board finds that the area of intervention proposed by Uber would be of limited assistance to it in its determination of just and reasonable rates. While the Board has a broad jurisdiction to examine policy issues affecting rates, the Board does not view its role as regulator to include directing MPI's business practices. The Board reminds Uber, however, of its ability to appear as a presenter in the public hearings should it wish to make submissions.

With respect to the application of the Manitoba Used Car Dealers Association, the Board point**s** out that it did not request that it appear at the public hearings, nor to present evidence or final argument. Further, no one from the Association appeared at the Pre-Hearing Conference. Accordingly, the Board finds that the Association would more appropriately participate in the GRA as a presenter in the public hearings, should it wish to do so.

As always, the Board expects a high degree of co-operation among all Interveners and with Board counsel to avoid duplication and restrain regulatory costs.

Attached to this Order as **Schedule "A"** is the rate sheet by which Board counsel and counsel for the Interveners shall have their rates set, according to years of seniority at the Bar.

With respect to applications for costs by approved Interveners, the Board will review the detailed budgets and provide preliminary approval. Final approval will only be granted with the Board determination of the cost awards application after the hearing. In reviewing the cost awards application the Board will consider a number of different factors including, without limitation, whether the Intervener participated in the hearing process in a responsible manner and whether the Intervener made a significant contribution that assisted the Board in achieving a better understanding of the issues before it. Interveners

should review Part IV - Awarding Costs of the Board under the Board's Rules of Practice and Procedures that can be found on the Board web site.

Should any approved Intervener seeking an award of costs determine that their approved preliminary budget will be exceeded by 10% or more, that Intervener is to immediately notify the Board before exceeding the preliminary budget, explain the reason for the need to revise the budget and also propose the amount of additional funding being sought. The Board has the discretion to reject all additional costs above the preliminary budget where prior approval is not first obtained.

With respect to the Final Issues List, the Board has taken into consideration the submissions made by MPI and the Interveners. The purpose of the Preliminary Issues List was to streamline the GRA process, with a view to making it more efficient. The Board remains of the view that the parties should work to create efficiencies within the hearing process, but also recognizes that by virtue of the GRA filed by MPI, certain areas which were not to be a focus of this hearing are again in issue. Although MPI did not propose any variations from the Preliminary Issues List to the Final Issues List, the Board accepts the position of CAC, that the issues of the Interest Rate Forecast and the DCAT Methodology be examined in this GRA. The Board orders, however, that the focus of these issues be limited, given the repeated examination these issues have undergone in prior GRAs. Accordingly, the Board orders that (1) the justification for the use of the Naïve interest rate forecast, and (2) the justification for changes to the DCAT methodology from that approved in Order 130/17 be added to the Final Issues List, which is set out in Directive 3 of this Order.

Both CMMG and CAA in their applications for intervention indicated that they would be focusing on the issue of Road Safety; however, the examination of that issue is to be limited to costs and budget of Road Safety programs.

The Board has also considered the proposal put forward by MPI for a second Pre-Hearing Conference to take place, and for the Board to approve a Hearing Issues List. The Board is of the view that a second Pre-Hearing Conference is not warranted. The Board is concerned that reducing the issues to be examined in the public hearings by way of a Pre-Hearing Conference and a Hearing Issues List would require the Board to pre-judge the evidence in the GRA without the benefit of the public hearing. The Board does expect, however, that the Information Request process will be thorough, resulting in efficient cross-examination in the public hearings. The Board will also require that legal counsel for the Board, MPI and the Interveners meet following completion of the Information Request process to discuss areas for cross-examination in the public hearings, thereby ensuring that the hearings are conducted as efficiently as possible.

The Board has reviewed and considered the qualifications of the proposed expert witnesses put forward by MPI and CAC, and accepts that they are qualified as experts on the terms as proposed by MPI and CAC respectively. Therefore, the Board will not require that they be examined on their expertise should they be called to testify in the public hearings.

5.1 Timetable

At the PHC, MPI put forward a proposed timetable which incorporated a second PHC to take place on September 21, 2018, along with other changes to the proposed timetable circulated by the Board on June 18, 2018. Given the Board's findings as above, the Board declines to order that a second PHC take place. Instead, as part of the timetable, the Board will require a meeting of all counsel on September 21, 2018 to discuss areas for cross-examination in the public hearings, in order to ensure that the hearings are conducted as efficiently as possible.

The Board has adopted some of the changes to the proposed timetable, and the timetable approved by the Board is attached hereto as **Schedule "B"**.

Also at the PHC, MPI indicated its intent to file a motion for certain information to be filed confidentially pursuant to Rule 13 of the Rules. The Board will determine the process and timetable for the motion once it is filed, and accordingly, this information is not contained within **Schedule "B"**.

The Board has set as hearing dates with respect to the GRA the following: October 15 - 19, 2018, October 22 - 26, 2018, and October 29 - November 2, 2018 (a total of 15 hearing days). It is the Board's expectation that some of these hearing dates will not be utilized, but all days were reserved to permit flexibility in scheduling.

Attached hereto as **Schedule "C"** are the procedures to be followed over the course of the GRA process, and attached hereto as **Schedule "D"** is the Information Request template to be utilized by all parties to the GRA. As provided for within the template, the party submitting an Information Request must reflect the rationale for the question. Similarly, and as also provided for within the template, should a full or partial answer be refused, the party refusing to answer or fully answer the question must reflect the rationale for the refusal.

IT IS THEREFORE ORDERED THAT:

1. Interveners to the hearing shall be:

    (a) Consumers' Association of Canada (Manitoba) Inc.;

    (b) Coalition of Manitoba Motorcycles Groups Inc.; and

    (c) Canadian Automobile Association (Manitoba).

2. The applications for Intervener Status of Uber Canada Inc. and the Manitoba Used Car Dealers Association are hereby dismissed.

3. The Final Issues List for the GRA shall be as follows:

The following issues will be considered within the scope of the 2019 GRA in the normal course:

1. Requested vehicle rate and any changes to other fees and discounts;
2. Rate indication based on accepted actuarial practice in Canada;
3. Compliance with Board Orders 130/17, 11/18 and 29/18;
4. Financial forecast:
    a. financial forecast accuracy (2017/18 forecast versus actual results);
    b. changes in projected financial results;
    c. update of the Interest Rate Forecast based upon methodology approved in Board Order 130/17; and
    d. justification for the use of the Naïve interest rate forecast for rate-setting and target capital purposes; in particular, any change of circumstances since the issuance of Order 130/17 that would warrant the use of the Naïve interest rate forecast.
5. Corporate Strategic Plan
6. Changes, if any, to integrated cost allocation methodology;

7. Update of DCAT, target capital analysis and the target Basic total equity threshold levels based upon methodology approved in Board Order 130/17;

   7.1 Any change in circumstances since the issuance of Order 130/17 that would justify changes to the DCAT methodology from that approved by the Board in Order 130/17;

8. Performance of the investment portfolio and the composition of i) the portfolio, ii) benchmark portfolio(s) on a market value basis (e.g. asset mix);

9. Cost of operations and cost containment measures;

10. Claims forecasting (including PIPP);

11. Operational benchmarking, including with comparison to other provinces;

12. Run-off of prior year claims during 2017/18;

13. Long tail experience from other jurisdictions;

14. Risk Assessment and Risk Management;

15. Results of the Service Fees review; and

16. Other issues that may arise (depending upon the nature and scope of the issue) based on a review of the application.

The following issues will require more detailed consideration at the 2019 GRA:

17. Driver Safety Rating ("DSR") with further assessment on having "*driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium*

discounts that are fully supported by actuarial indications based on principal driver performance evaluation" [Board Order 29/18].

18. Final rates for service for Vehicles for Hire (VFH) for the 2017/2018 and 2018/2019 insurance years and the directives from Board Order 11/18.

19. Current IT Strategic Plan and IT Expenses and Projects, including the Physical Damage Re-engineering Project, Distributed Estimating Technology Modernization, the Value Management Process and other initiatives planned for or ongoing in the rating years.

20. Capital Maintenance Provision with further assessment of developing a pricing approach which accounts for the natural growth of Basic's risk profile and protects against the natural depletion of Basic Total Equity.

21. Asset Liability Management Study, including review of all aspects of the Study recommendations and implementation thereof, the basis for and evaluation of risk and return, alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s), forecast investment performance and changes to the Investment Policy Statement.

The following issues will be deferred from the 2019 to future applications, or will be the subject of a technical conference or another process:

22. Road Safety (other than costs and budget of Road Safety programs);

23. Interest Rate Forecast (other than areas referred to in items 4c and 4d above);

24. Target Capital Methodology (other than areas referred to in items 7 and 7.1 above);

25. Integrated Cost Allocation Methodology (other than changes referred to in item 6 above).

4. **Schedule "B"**, as attached, shall be the timetable for the orderly exchange of information by the participating parties.

5. **Schedule "C"**, as attached, shall apply with respect to the hearing of the GRA.

THE PUBLIC UTILITIES BOARD

"Robert Gabor, Q.C."
Chair

"Kurt Simonsen"
Acting Secretary

Certified a true copy of Order No. 82/18 issued by The Public Utilities Board

Acting Secretary

SCHEDULE "A"

PUBLIC UTILITIES BOARD OF MANITOBA

RATE STRUCTURE

(Effective as of January 1, 2016)

LEGAL COUNSEL:

20 or more years of relevant experience	$285/hr
15-19 years	Up to $240/hr
10-14 years	Up to $190/hr
5-9 years	Up to $140/hr
Base salary (new lawyer)	$100/hr

ACCOUNTANTS:

20 or more years of relevant experience	$240/hr
15-19 years	Up to $205/hr

10-14 years	Up to $170/hr
5-9 years	Up to $135/hr
Base fee (new accountant)	$100/hr

ENGINEEERING SERVICES:

20 or more years of relevant experience	$200/hr
15-19 years	Up to $175/hr
10-14 years	Up to $150/hr
5-9 years	Up to $125/hr
Base fee	$100/hr

SCHEDULE "B"

	ITEM	2018 DATES	Day of the Week	2018 Elapsed Working Days
1.	Application filed and served	June 15, 2018	Friday	0
2.	Notice of Public hearing to be published	June 16, 2018	Saturday	0
3.	PUB Workshop	June 22, 2018	Friday	5
4.	Interveners complete Registration	June 22, 2018	Friday	5
5.	Pre-hearing Conference	June 25, 2018	Monday	6
6.	Procedural Order Issued	July 04, 2018	Wednesday	12
7.	Round One Information Requests Filed	July 11, 2018	Wednesday	17
8.	Round One Information Responses Filed	August 08, 2018	Wednesday	36
9.	Parties to file motions on Round One IRs	August 09, 2018	Thursday	37
10.	Board to hear motions	August 10, 2018	Friday	38
11.	Round Two Information Requests Filed	August 20, 2018	Monday	44
12.	Round Two Information Responses Filed	September 14, 2018	Friday	62

13.	Reminder Notice of Public Hearing Published	September 15, 2018	Saturday	62
14.	Parties to File any Motions	September 17, 2018	Monday	63
15.	Board to hear all Motions	September 19, 2018	Wednesday	65
16.	Meeting of Legal Counsel	September 21, 2018	Friday	67
17.	Interveners to file pre-filed testimony to all parties	September 24, 2018	Monday	68
18.	Information Requests on Intervener Evidence	September 27, 2018	Thursday	71
19.	Interveners Information Responses	October 3, 2018	Wednesday	75
20.	MPI Rebuttal Evidence	October 9, 2018	Tuesday	78
21.	Hearing commences	October 15 to 19	Monday to Friday	5 days
		October 22 to 26	Monday to Friday	5 days
		October 29 to November 2	Monday to Friday	5 days
	Board Issues Order	December 3, 2018		

SCHEDULE "C"

PROCEDURES TO BE FOLLOWED AT THE

MANITOBA PUBLIC INSURANCE CORPORATION

2019 RATE APPLICATION

1.	Hearing and Rural Meetings:	(a) Winnipeg hearing will be held at the Board's office, 4th Floor, 330 Portage Avenue, Winnipeg, commencing on October 15, 2018 at 9:00 a.m. and continuing thereafter as necessary. (b) Rural Meetings (if necessary) – time, location and place to be identified.
2.	Hearing Times Each Day:	9:00 a.m. to 12:00 Noon 1:15 p.m. to 4:00 p.m. (amendments may be made by the Board at the hearing)
3.	Assigned Sittings:	Presenters will be heard commencing at 1:15 p.m. on Monday, October 15, 2018 and continuing that day as necessary.

4. Opening Statements by Board Counsel, Counsel for MPI and Counsel or representatives of registered Interveners.

5. (a) MPI to file its application and supporting evidence.

(b) MPI to introduce witnesses. Board counsel and Interveners to cross-examine the Corporation's witnesses (order to be determined).

6. (a) Leading of testimony by witnesses for Interveners, if any, will be in alphabetical order by name of Interveners and updated as necessary.

(b) Witnesses to be available for cross-examination by all parties following each presentation.

7. All information requests are to be filed in the prescribed form (attached hereto as **Schedule "D"**) and responded to using the prefixes as assigned by the Board when Interveners are registered (set out in the body of the Order). The party requesting information is to use firstly their prefix followed by the prefix of the party being asked e.g. PUB/MPI, etc. Interrogatories are to be numbered sequentially through 1st and 2nd rounds, e.g. PUB/MPI 1-3, PUB/MPI 2-7.

8. All pre-filed evidentiary material to be filed at the commencement of the hearing by Board Counsel using assigned prefixes.

9. All witnesses to highlight their evidence.

10. All witnesses to be sworn or affirmed.

11. Daily transcripts will be available. Transcripts can be found at www.pub.gov.mb.ca at no charge.

12. It is the Board's request that all motions be dealt with pursuant to the Board's Timetable.

13. The Board's Rules of Practice and Procedure (available on the Board's website) dealing with the awarding of costs will apply to all matters before the Board.

14. The Board indicates its willingness to be available for any problems that may arise during the exchange of information at any time, such time to be arranged through Board Counsel.

15. Seven (7) paper copies of material are to be submitted to the Board's offices and three (3) copies are to be submitted to Board Counsel at the following address:

    Attention:

    Kathleen McCandless and Robert Watchman, Pitblado LLP, 2500 – 360 Main Street, Winnipeg, MB R3C 4H6.

16. Electronic copies of all material including the evidence of parties, are required to be submitted to the Board's e-mail address: publicutilities@gov.mb.ca. Where schedules or other attachments accompany an electronic file, that filing must be discrete and include only the item and schedules to which each refers. The electronic files shall be named in accordance with their parties prefix as per #7. All electronic filings shall be in Adobe Acrobat format, with protection securities allowing printing, content copying, content copying for accessibility and page extraction.

SCHEDULE "D"

INFORMATION REQUEST TEMPLATE

Manitoba Public Insurance 2019/20 General Rate Application

Optional Applicant Logo

XXX/XXX X-X

Part and Chapter:		**Page No.:**	
PUB Approved Issue No.:			
Topic:			
Subtopic:			

PREAMBLE TO IR (IF ANY):

QUESTION:

RATIONALE FOR QUESTION:

RESPONSE:

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

Order No. 89/18

MOTION BY MANITOBA PUBLIC INSURANCE SEEKING CONFIDENTIAL TREATMENT OF CERTAIN INFORMATION IN THE 2019/2020 GENERAL RATE APPLICATION

July 12, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene A. Hamilton, Member
Robert Vandewater, Member

Table of Contents

1. SUMMARY 3

1.0 Overview 3

2. PARTIES' POSITIONS AND BOARD FINDINGS 5

2.0 *MPI* 5

2.1 *CAC* 7

2.2 *Board Findings* 7

3. IT IS THEREFORE ORDERED THAT: 11

SCHEDULE "A" 14

SCHEDULE "B" 25

1. SUMMARY

By this Order, the Public Utilities Board ("Board") grants the Motion of Manitoba Public Insurance (MPI or the Corporation) seeking confidential receipt by the Board of certain documents and information to be filed in the 2019/2020 General Rate Application (GRA or the Application). The Board provides direction on the treatment of Information Requests and Responses and any Intervener evidence arising out of the documents. The Board also establishes a timetable pertaining to the Information Requests and Responses arising out of the documents.

1.0 *Overview*

On June 15, 2018, MPI filed the GRA with the Board. Contained within the GRA is reference to certain documents, which MPI has requested the Board receive in confidence. Those documents are:

1) The business case for MPI's Five Year Strategic Plan (Space Plan Business Case);

2) A document identified as Attachment "C" to Appendix 17 of the Investment Chapter under Part IV of the GRA (Mercer Methodology); and

3) The response by Mercer (Canada) Limited (Mercer) to MPI's Request for Proposals (Response to RFP).

(the Documents)

The Documents relate to issues first reviewed in the 2018 GRA. With respect to the Space Plan Business Case, the Board heard from MPI in the 2018 GRA about a new Value Management Process (VMP) employed by MPI. As noted by the Board in Order 130/17

following the 2018 GRA, the VMP requires that business cases be prepared for new initiatives valued at or above $500,000. The 2019 GRA contains information about the VMP, as well as information about a number of projects for which business cases have been prepared. The Space Plan Business Case is referred to in the Application, but the business case itself is not contained therein. The reason for this, according to MPI, is because the details of the Space Plan Business Case are confidential.

Also in Order 130/17, the Board directed that a Technical Conference take place to review the results of an Asset Liability Management (ALM) Study performed by Mercer for MPI. The Technical Conference took place on March 14, 2018, following which requests for additional information were made to MPI on behalf of the Board. The Mercer Methodology and the Response to RFP would serve to fulfill some of the requests for additional information; however, MPI has indicated that they contain third party confidential information and accordingly must be filed in confidence with the Board.

On June 29, 2018, MPI filed a Motion with the Board, in which it sought leave to file the Documents in confidence with the Board, on any terms the Board considers appropriate and in the public interest. MPI electronically served the Notice of Motion and a Motion Brief on the Board and the Interveners in the GRA. MPI also filed an Affidavit with the Board only, containing confidential information, in hard copy format.

On July 5, 2018, the Board received a written response on the Motion from one of the Interveners in the GRA, Consumers' Association of Canada (Manitoba) Inc. (CAC). The parties were invited to provide replies, if any, to CAC's response. No replies were received by the Board.

The other Interveners in the GRA, Coalition of Manitoba Motorcycle Groups (CMMG) and Canadian Automobile Association Manitoba (CAA), did not file any response to the Motion.

The Board did not require an oral hearing on the Motion.

2. PARTIES' POSITIONS AND BOARD FINDINGS

2.0 *MPI*

MPI took the position that the Documents contain personal, financial, commercial, scientific or technical information, have been consistently treated as confidential, and that the interest in maintaining the confidentiality of the Documents outweighs the public interest in their disclosure.

In the Application, MPI described the Space Plan Business Case as a multi-phase, multi-year project focusing on the redevelopment of MPI's physical facilities. In the first phase, a budget of $2.065 million was approved for 2018/19. However, according to MPI, details of the business case are commercially sensitive. MPI argued in its Motion that the Space Plan Business Case contains financial and commercial information which would influence a number of the key assumptions underpinning its analysis. MPI stated that since the preparation of the Space Plan Business Case in January 2018, it has been maintained in confidence. It is not publicly available and it has only shared its details outside MPI with its consultant. MPI further stated that release of the information in the Space Plan Business Case would defeat the purpose of increasing revenue-generating opportunities for MPI, which benefits all ratepayers. Public release of the information in the Space Plan Business Case would cause harm to MPI's competitive position.

With respect to the Mercer Methodology, MPI submitted that it is commercial/technical in nature, and is proprietary to Mercer. Mercer constrains the use of the information by MPI, and its public release could reasonably be expected to result in undue financial loss to Mercer or to harm its competitive position. MPI also stated that it believes it is obligated

to maintain the Mercer Methodology in confidence due to its contractual obligations to Mercer.

Lastly, with respect to the Response to RFP, MPI submitted that it has not been authorized by Mercer to release the information on the public record. The Response to RFP also contains information about the Mercer Methodology and other information which is proprietary to Mercer.

MPI would not oppose the circulation of the Space Plan Business Case, under certain restrictions. MPI also advised that Mercer has authorized MPI to disclose the Mercer Methodology and the Response to RFP, also subject to restrictions. Those restrictions would be as follows:

1) The persons eligible to receive the Space Plan Business Case would be representatives, consultants or professional advisors of the Board, or those Interveners who have been granted standing to intervene on an issue or issues falling within the ambit of the matters raised in the business case;

2) The persons eligible to receive the Mercer Methodology and the Response to RFP would be representatives, consultants or professional advisors of the Board or representatives, legal counsel or consultants to CAC;

3) The Documents would not be provided to an eligible person unless or until they execute Undertakings of Confidentiality and Confidentiality Agreements (forms of which were provided to the Board by MPI); and

4) No use could be made of the Documents, or reference made to their content, at any time where doing so would place the information contained therein on the public record, or make the information available to persons other than those

eligible who have executed an Undertaking of Confidentiality and a Confidentiality Agreement.

2.1 *CAC*

CAC advised that it does not object to the conditions requested by MPI for the distribution of the Documents. CAC acknowledged that treating the Documents as confidential would impair the public interest in disclosure of the information; however, the proposed conditions on access would be a minimal impairment to the public interest.

CAC requested one amendment to the approach requested by MPI, which according to it would clarify the process for the treatment of the Documents and the information arising therefrom. CAC requested that if it, or another Intervener, were to file a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence should be filed in confidence with the Board and MPI on the date required (September 24, 2018, per Order 82/18). In consultation with MPI, the Intervener would then determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by September 26, 2018.

2.2 *Board Findings*

Proceedings before the Board are public, and documents filed with the Board by a party to a proceeding are placed on the public record. However, the Board may receive information in confidence on any terms it considers appropriate in the public interest, when the test under Rule 13(2) is met:

(a) If the Board is of the opinion that disclosure of the information could reasonably be expected

i. to result in undue financial loss or gain to a person directly or indirectly affected by the proceeding; or

ii. to harm significantly that person's competitive position

or

(b) if

i. the information is personal, financial, commercial, scientific or technical in nature; or

ii. the information has been consistently treated as confidential by a person directly affected by the proceeding; and

iii. the Board considers that the person's interest in confidentiality outweighs the public interest in the disclosure of the information.

On hearing a motion under Rule 13, the Board may order the information in question be placed on the public record, order the document not be placed on the public record with such conditions on access imposed as the Board considers appropriate, order an abridged version of the document be placed on the public record, or make any other order the Board finds to be in the public interest. Rule 13(5) allows the filing party to request that the document be withdrawn prior to being placed on the public record where the Board has determined to place any part of the document on the public record.

The Board has reviewed and considered all of the information filed by MPI, as well as the submissions of CAC, and is satisfied that the Documents fall within the ambit of Rule 13(2). The restrictions requested on the distribution of the Documents are necessary in order to protect the commercial interests of MPI and Mercer.

With respect to the Space Plan Business Case, the Board accepts that public disclosure of the information contained therein could affect MPI's competitive position and harm a revenue-generating opportunity for MPI, which could in turn have a negative impact on ratepayers. Therefore, the interest in maintaining the confidentiality of the business case outweighs the interest of public disclosure.

The Board also accepts that the Mercer Methodology and the Response to RFP contain confidential and proprietary information of Mercer, and that MPI is not authorized to reproduce or redistribute those documents or the information contained therein. The Board finds that Mercer's interest in confidentiality outweighs the public interest in the release of the information on the public record. Placing the conditions requested on the distribution of the Mercer Methodology and the Response to RFP will serve to uphold the general commercial interest of preserving confidential information.

Accordingly, the Board grants MPI's Motion to receive the Documents in confidence. The Board accepts the conditions imposed on the receipt of the Documents as outlined in MPI's Motion materials, and orders that the Documents be distributed only on the terms as set out in Section 3 below.

The Board notes that MPI has requested that only those Interveners who have been granted standing to intervene on an issue or issues falling within the ambit of the matters raised in the Space Plan Business Case be eligible to receive the Space Plan Business Case. While the Board did not place any restrictions on approved Interveners as to the issues that they may review in the GRA, based on the applications for intervener status filed with the Board, it appears that only CAC intends to address issues related to the Space Plan Business Case. Therefore, the Board will restrict the distribution of the Space Plan Business case to its representatives, consultants and professional advisors, and to those of CAC.

The Board recognizes that further evidence containing confidential information from the Documents may be generated as a result of the distribution of the Documents to Interveners and the Board. Therefore, the Board will require that any Information Requests or other evidence arising out of the information contained in the Documents be subject to the same restrictions as the Documents themselves.

The Board further accepts the amendments proposed by CAC are necessary in order to preserve the confidentiality of the Documents and the information contained therein, and therefore orders that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence shall be filed in confidence with the Board and MPI on September 24, 2018, per Procedural Order 82/18. The Intervener shall then consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by September 26, 2018.

Finally, in Order 82/18, the Board fixed a Timetable for the GRA, but stated that it would determine the process and timetable for this Motion once filed. Therefore, the Timetable did not contain information regarding deadlines or dates for the Motion or Information Requests arising out of the Documents. The Board hereby orders that any First Round Information Requests arising out of the Documents shall be served on MPI on **Wednesday, July 25, 2018**. MPI shall provide responses to the First Round Information Requests in accordance with the Timetable attached as **Schedule "B"** to Order 82/18, on August 8, 2018. Second Round Information Requests and Responses arising out of the Documents shall also follow the Timetable attached as **Schedule "B"** to Order 82/18.

3. IT IS THEREFORE ORDERED THAT:

3.1 The Board grants MPI's Motion, and hereby grants leave to MPI to file the following documents in confidence with the Board:

a. The business case for MPI's Five Year Strategic Plan (Space Plan Business Case);

b. A document identified as Attachment "C" to Appendix 17 of the Investment Chapter under Part IV of the GRA (Mercer Methodology); and

c. The response by Mercer (Canada) Limited (Mercer) to MPI's Request for Proposals (Response to RFP).

(the Documents)

3.2 The following persons shall be eligible to receive a copy of the Documents:

a. The Space Plan Business Case: representatives, consultants or professional advisors of the Board, or of Consumers' Association of Canada (Manitoba) Inc. (CAC);

b. The Mercer Methodology and the Response to RFP: representatives, consultants or professional advisors of the Board, or representatives, legal counsel or consultants of CAC.

3.3 Any eligible person as set out in Directive 3.2 intending to receive the Documents shall execute an Undertaking of Confidentiality and a Confidentiality Agreement prior to the receipt of any of the Documents.

3.4 **Schedule "A"**, as attached, shall be the form of Undertaking of Confidentiality and Confidentiality Agreement to be executed by any eligible person for the receipt of the Space Plan Business Case.

3.5 **Schedule "B"**, as attached, shall be the form of Undertaking of Confidentiality and Confidentiality Agreement to be executed by any eligible person for the receipt of the Mercer Methodology and/or the Response to RFP.

3.6 No use shall be made of the Documents, or reference made to their contents, at any time where doing so would place the Documents or the information contained therein on the public record or make them available to persons other than those authorized as set out herein who have executed the required Undertakings of Confidentiality and Confidentiality Agreements.

3.7 The terms and conditions placed on the receipt of the Documents as set out in Directives 3.2 to 3.6 shall apply to the receipt of Information Requests and Information Request Responses arising out of the Documents and the information contained therein.

3.8 First Round Information Requests arising out of the Documents shall be served on MPI on Wednesday, July 25, 2018. MPI shall provide responses to the First Round Information Requests in accordance with the Timetable attached as **Schedule "B"** to Order 82/18, on August 8, 2018.

3.7 Second Round Information Requests and Responses arising out of the Documents shall be filed in accordance with the Timetable attached as **Schedule "B"** to Order 82/18.

3.9 If any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence shall be filed in

confidence with the Board and MPI on September 24, 2018. The Intervener shall consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by September 26, 2018.

3.9 The terms and conditions placed on the receipt of the Documents as set out in Directives 3.2 to 3.6 shall apply to the receipt of any of those portions of Intervener evidence containing information from the Documents.

THE PUBLIC UTILITIES BOARD

"Robert Gabor, Q.C."
Chair

"Darren Christle MPA, BA, CCLP, P.Log, MCIT"
Secretary

Certified a true copy of Order No. 89/18
issued by The Public Utilities Board

Darren Christle
Secretary

SCHEDULE "A"

UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on July xx, 2018, in Order xxx/18 (the "**Order**"), issued in the course of The Manitoba Public Insurance Corporation's ("**MPI**") 2019/2020 General Rate Application ("**2019 GRA**"), the Public Utilities Board of Manitoba (the "**Board**") ordered that a document described therein as the "Space Plan Business Case" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Document**").

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Document to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role - legal counsel, consultant, etc.] to [insert name of entity - the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of the Confidential Document, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Document:

1. I understand and agree:

    (a) that the term 'Confidential Information" means:

        (i) any information contained in the Confidential Document (including the Confidential Document itself);

        (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

        (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Document or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2018 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

    (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

(c) that this Undertaking will be filed with the Board;

(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Board-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board and MPI that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board and MPI,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board and MPI,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board and MPI, and

(i) to promptly report any violation of the recipient of this undertaking to the Board and MPI, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board and to MPI.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board and MPI are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] _____, _____ [Province] this _____ day of July xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

APPENDIX "A"

STATUTORY DECLARATION

I, _____ (recipient) of the _____ (city/town) of _____, in the _____ (province/state) of _____ do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment ("Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared (related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of _____, in the Province of Manitoba, this _____ day of _____, 20__.

_____
(Recipient)

_____
A Notary Public / Commissioner for Oaths
in and for the Province of Manitoba
My commission expires: _____

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of July, 2018

BETWEEN:

THE MANITOBA PUBLIC INSURANCE CORPORATION,

(called "MPI")

of the first part,

- and -

(Insert name of Individual],

(called the Confidant")

of the second part

WHEREAS on July xx, 2018, in Order xxx/18 (the "**Order**"), the Public Utilities Board of Manitoba (the "**Board**") ordered, within the course of considering MPI's 2019/2020 General Rate Application ("**2019 GRA**"), that a document described as the Space Plan Business Case" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Document**").

AND WHEREAS the Confidential Document contains information that is confidential and commercially sensitive.

AND WHEREAS the Order directs MPI to provide a non-redacted copy of the Confidential Document to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the "**Agreement**").

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Document, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1 DEFINITIONS

In this Agreement:

"**Authorized Person**" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"**Confidential Information**" means any information contained in the Confidential Document (and includes the Confidential Document itself) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"**Permitted Uses**" has the meaning set forth in Article 2 below.

"**Person**" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"**Proceeding**" means the proceeding before the Board in respect of the 2019 GRA.

"**Reverse Engineer**" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"**Unauthorized Person**" means any Person other than MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called "**Permitted Uses**"):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying in camera where Confidential Information is discussed.

ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence;

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of MPI;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of MPI, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and MPI, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit MPI's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide MPI with prompt notice so that MPI may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with MPI protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to MPI in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that MPI waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of MPI, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by MPI may not be compensable by monetary damages alone and, accordingly, that MPI shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **MPI**

Executive Offices
912-234 Donald Street
Winnipeg, Manitoba R3C 4A4
Attn: General Counsel
and Corporate Secretary

b) **Confidant**:

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent

by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by MPI in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of MPI. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MANITOBA PUBLIC INSURANCE

Per: _____
Name:
Title:

CONFIDANT

_____
WITNESS [PRINTED NAME]

_____ _____
WITNESS [SIGNATURE] **[SIGNATURE]**

SCHEDULE "B"

UNDERTAKING OF CONFIDENTIALITY

TO: THE PUBLIC UTILITIES BOARD OF MANITOBA

WHEREAS on July xx, 2018, in Order xxx/18 (the "**Order**"), issued in the course of The Manitoba Public Insurance Corporation's ("**MPI**") 2019/2020 General Rate Application ("**2019 GRA**"), the Public Utilities Board of Manitoba (the "**Board**") ordered that documents described therein as the Mercer Methodology" and the Mercer Response to RFP," be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Documents**").

AND WHEREAS the Order directs MPI to provide, non-redacted copies of the Confidential Documents to certain select individuals following their execution of this Undertaking and a prescribed confidentiality agreement.

AND WHEREAS the Order permits me, [insert name of individual entitled], in my capacity as [insert role - legal counsel, consultant, etc.] to [insert name of entity - the Board, the Canadian Association of Consumers, etc.], to receive non-redacted copies of all or some of the Confidential Documents, subject to certain conditions and restrictions.

NOW THEREFORE, in consideration of receiving access to the Confidential Documents:

1. I understand and agree:

   (a) that the term Confidential Information" means:

      (i) any information contained in the Confidential Documents (including the Confidential Documents themselves);

      (ii) any information that has been filed by MPI with the Board in confidence pursuant to the Order and; and

      (iii) all evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Documents or any information contained therein, that I receive, review or prepare (related materials) during the course of the 2018 GRA or any appeal, review or rehearing of the Board's decision in the proceeding for the purpose of participating in the 2019 GRA or any appeal, review or rehearing from the Board's decision in the proceeding,

   (b) that the execution of this Undertaking is a condition of my being granted access to the Confidential Information;

   (c) that this Undertaking will be filed with the Board;

(d) to observe any terms and conditions imposed by MPI as they relate to the access, use and protection of the Confidential Information; and

(e) that, in the event that I breach this Undertaking, there may be consequences which could include, without limitation, the following:

(i) a denial or reduction of costs to, or a cost award against, my client, my principals or me personally; and

(ii) an immediate and absolute revocation of my right to receive and/or retain all or some of the Confidential Information.

2. I hereby undertake:

(a) to use Confidential Information exclusively for and within the scope of my client/principal/employer's Board-approved intervention in the 2019 GRA proceeding;

(b) to maintain all of the Confidential Information in confidence and not to divulge it to any person save and except for panel members of the Board or to any person who has been authorized by the Board to receive such information and who has executed and filed with the Board this undertaking and the Confidentiality Agreement, unless otherwise required by law, in which case, I will promptly give written notice to the Board, MPI and Mercer that such disclosure has been required;

(c) not to copy, reproduce, in any manner, the Confidential Information except for purposes described in paragraphs (a) and (b) above;

(d) to take prudent, reasonable steps to keep confidential and to protect the Confidential Information from unauthorized disclosure;

(e) to indemnify and save harmless the Board from and against all claims, actions, proceedings, demands, losses, damages, costs, and expenses which may be brought against the Board or which the Board may suffer, sustain, pay or incur, resulting from, or arising in connection with, the unauthorized use or disclosure by me of the Confidential Information or the related materials;

(f) subject to subparagraphs (g) and (h) below, within 30 days of the expiration of any appeal or review period of the Board's decision in respect of the 2019 GRA, unless otherwise directed by the Board, to:

(i) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

(ii) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

(iii) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board, MPI and Mercer,

(g) in the event that any Board decision in respect of the 2019 GRA is the subject of a review application, to:

(i) within 30 days following the release of the Board's final disposition of any review application;

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board, MPI and Mercer,

(h) In the event that any Board decision in respect of the 2019 GRA is the subject of a leave to appeal application or appeal, to:

(i) unless otherwise directed by a court of competent jurisdiction, within 30 days following the release of a final decision disposing of the appeal (a decision dismissing the application for permission to appeal or a final decision on appeal):

1) expunge all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession and under my direction and control;

2) deliver to MPI or destroy all paper copies of the Confidential Information and related materials in my possession or under my direction and control; and

3) provide an executed statutory declaration (**in the form attached as Appendix "A"**), to the Board, MPI and Mercer, and

(i) to promptly report any violation of the recipient of this undertaking to the Board, to MPI and to Mercer, and shall take all reasonable steps to retract any unauthorized disclosure and report such activities to the Board, MPI and Mercer.

3. The obligations created herein shall not preclude my:

(a) using or disclosing the Confidential Information at a time when Confidential Information is generally available to the public, other than as a direct or indirect result of any disclosure by me which is prohibited hereunder; and

(b) disclosing the Confidential Information to the extent such disclosure is required by law, Court order or competent authority of any governmental body or professional discipline body, provided that, other than in respect of a mandated disclosure to the signatory's governing law society or legal professional liability insurer, the Board, MPI and Mercer are provided with notice promptly upon my becoming aware that such notice is required.

Dated at [City] _____, _____ [Province] this _____ day of July xx, 2018.

Signature: _____

Name (please print): _____

Address: _____

Telephone: _____

Fax: _____

Email: _____

APPENDIX "A"

STATUTORY DECLARATION

I, _____, (recipient) of the _____ (city/town) of _____, in the _____(province/state) of _____ do solemnly declare as follows:

1) I had in my possession and under my direction and control records, reports, documents or information, or portions thereof, that were granted confidential treatment (Confidential Information") by the Board pursuant Rule 13 of the Board's Rules of Practice and Procedure, and had in my possession and under my direction and control evidence, transcripts, notes, working papers, calculations, analysis or other materials based on or using the Confidential Information that I received, reviewed or prepared (related materials").

2) I executed an undertaking in accordance with Rule 13 of the Board's Rules of Practice and Procedure to have access to the Confidential Information and related materials (the "Undertaking").

3) I have made no use of the Confidential Information or related materials except as permitted pursuant to the Undertaking.

4) I have not disclosed the Confidential Information or related materials in any manner except as permitted by the Undertaking.

5) I have expunged all electronic copies of the Confidential Information and related materials from all electronic apparatus and data storage media in my possession or under my direction and control.

6) I have delivered to MPI or have destroyed all paper copies of the Confidential Information and related materials in my possession or under my direction and control.

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED BEFORE ME at the _____ of _____, in the Province of Manitoba, this _____ day of _____, 20__.)

_____
(Recipient)

_____
A Notary Public / Commissioner for Oaths
in and for the Province of Manitoba
My commission expires: _____

THIS CONFIDENTIALITY AGREEMENT made this xxxx day of July, 2018

BETWEEN:

MERCER (CANADA) LIMITED,

(called MERCER")

of the first part,

- and -

[Insert name of Individual],
(called the 'Confidant")

of the second part

WHEREAS on July xx, 2018, in Order xxx/18 (the "**Order**"), the Public Utilities Board of Manitoba (the "**Board**") ordered, within the course of considering Manitoba Public Insurance's ("**MPI**") 2019/2020 General Rate Application ("2019 **GRA**"), that documents described as the 'Mercer Methodology" and the "Mercer Response to RFP" be received in confidence, pursuant to Rule 13 of the Board's Rules of Practice and Procedure (the "**Confidential Documents**").

AND WHEREAS the Confidential Documents contain information that is confidential and proprietary in nature and which is the lawful property of Mercer.

AND WHEREAS the Order directs MPI to provide non-redacted copy of the Confidential Documents to the Confidant, following their execution of a prescribed undertaking and this Confidentiality Agreement (the "**Agreement**").

NOW THEREFORE IN CONSIDERATION OF receiving access to the Confidential Documents, the sum of one ($1.00) dollar and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1 DEFINITIONS

In this Agreement:

"**Authorized Person**" means any person permitted by the Order to receive the Confidential Information, who is in compliance with the conditions on the receipt and use of the Confidential Information, as set out in the Order.

"**Confidential Information**" means any information contained in the Confidential Documents (and includes the Confidential Documents themselves) and any information that has been filed by MPI with the Board in confidence pursuant to the Order.

"**Permitted Uses**" has the meaning set forth in Article 2 below.

"**Person**" shall be broadly interpreted to include, without limitation, any corporation, partnership, other entity, or individual.

"**Proceeding**" means the proceeding before the Board in respect of the 2019 GRA.

"**Reverse Engineer**" means to discover, synthesize or otherwise recreate the Confidential Information following a detailed examination.

"**Unauthorized Person**" means any Person other than Mercer, MPI, the Confidant or an Authorized Person.

ARTICLE 2 PERMITTED USES

The Confidant may use Confidential Information for the following purposes (called "**Permitted Uses**"):

(a) To give instructions to, carry out critical analysis, form conclusions and/or advise an Authorized Person; and

(b) To prepare a report suitable for filing on the public record of the Proceeding and testify on the public record of the Proceeding. Without the consent of the Board obtained in advance, the Confidant shall not include in the report or testimony any Confidential Information or any information that would enable an Unauthorized Person to Reverse-Engineer Confidential Information. To the extent that the Confidant relies upon Confidential Information to arrive at a conclusion, the Confidant may include in the Report or testimony information at a level of summary and aggregation which will not disclose Confidential Information or enable an Unauthorized Person to reverse-engineer the Confidential Information, subject always to the Confidant providing a redacted Report on the public record and a complete report in confidence to the Board and/or testifying in camera where Confidential Information is discussed.

ARTICLE 3 CONFIDENTIALITY

Except as specifically provided in Article 2 above (Permitted Uses), the Confidant shall:

(a) Keep the Confidential Information in the strictest confidence,

(b) Not disclose Confidential Information to any Unauthorized Person without the prior written consent of Mercer;

(c) In the case of a disclosure to an Unauthorized Person with the prior written consent of Mercer, obtain from the Unauthorized Person an undertaking or confidentiality agreement satisfactory in form to the Board and Mercer, on terms no less restrictive than those in this Agreement;

(d) Take prudent, reasonable steps to protect Confidential Information in its possession from inadvertent disclosure to an Unauthorized Person; and

(e) Destroy or return the Confidential Information (if so permitted) when required and in the manner required by the Board.

If the Confidant so chooses, they may solicit Mercer's comments on particular documents that are in the process of being prepared in the interests of avoiding inadvertent disclosures to an Unauthorized Person.

ARTICLE 4 COMPELLED DISCLOSURE

In the event that the Confidant, or an Unauthorized Person referred to in Article 3(c) above, receives notice indicating that they may or shall be legally compelled to disclose any of the Confidential Information, the Confidant shall provide Mercer with prompt notice so that Mercer may, at its sole discretion, seek a protective order or other appropriate remedy.

The Confidant and any such Unauthorized Person referred to in Article 3(c) above shall cooperate fully with Mercer protecting the confidential and proprietary nature of the Confidential Information sought to be compelled to be disclosed, including providing assistance to Mercer in the prosecution and defence of any action(s) or proceeding(s) brought or made in respect of such matters.

In the event that such protective order or other remedy is not obtained, or that Mercer waives compliance with the provisions of this Agreement, the Confidant or Unauthorized Person referred to in Article 3(c) above shall furnish only that portion of the Confidential Information in respect of which it shall be legally required to disclose.

ARTICLE 5 FURTHER COVENANTS

The Confidant shall:

(a) use the Confidential Information only for the Permitted Uses and for no other purpose whatsoever; and

(b) not use or reverse engineer Confidential Information for personal gain in any fashion, other than for the receipt of compensation for his or her participation in this proceeding.

ARTICLE 6 NO LICENCE

The Confidant agrees that the Confidential Information is the property of Mercer, its contractual counterparties and domestic customers, and the Confidant shall not contest or challenge any of their rights in or to any Confidential Information. The Confidant does not receive any right, title or interest of any nature whatsoever in or to any Confidential Information.

ARTICLE 7 CONTINUING OBLIGATION

This Agreement is effective upon execution by both parties, and the obligations of the Confidant under this Agreement shall not terminate but shall continue without limitation of time.

ARTICLE 8 EQUITABLE REMEDIES

In the event of a breach, or threatened breach, of this Agreement by the Confidant, the parties agree that the harm suffered by Mercer may not be compensable by monetary damages alone and, accordingly, that Mercer shall, in addition to any other available legal or equitable remedies, be entitled to seek an injunction against such breach or threatened breach.

ARTICLE 9 NOTICES

Any notice or other communication required or permitted to be given under this Agreement must be in writing and shall be delivered to:

a) **Mercer**

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

b) **Confidant**:

[Insert Address]
[Insert Address]
[City] [Province] [Postal Code]
Attn: [Insert Name]

or such other addresses as either party may notify the other of in writing. Notices may be given by personal service or fax transmission. Any notice given by personal service shall be deemed to have been effectually given and received at the date and time of actual delivery. Any notice sent by fax transmission shall be deemed to have been effectually given and received on the next business day following transmission.

ARTICLE 10 INTERPRETATION AND ENFORCEMENT

This Agreement shall be subject to, interpreted, performed and enforced in accordance with the laws of Manitoba and the applicable laws of Canada without regard to Manitoba or federal Canadian law governing conflicts of law, even if one or more of the parties to this Agreement is resident of or domiciled in any other province, state, or country. The parties hereby irrevocably attorn to the exclusive jurisdiction of the Court of Queen's Bench of Manitoba, Winnipeg Centre. The recitals hereof form an integral part of this Agreement. Section headings in this Agreement are for the convenience of the parties only, and shall not affect the interpretation of this Agreement.

ARTICLE 11 SEVERABILITY

If any provision in this Agreement is illegal, invalid or unenforceable at law, it shall be deemed to be severed from this Agreement and the remaining provisions shall continue in full force and effect. The parties agree that they shall endeavor to replace any such severed provision with a new provision which achieves substantially the same practical effect and which is valid and enforceable.

ARTICLE 12 WAIVER

No failure or delay by Mercer in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power or privilege hereunder. No waiver of any provision of this Agreement, or a breach thereof, shall be effective unless it is in writing and signed by the party waiving the provision or the breach thereof.

ARTICLE 13 ASSIGNMENT

The Confidant shall not assign this Agreement without the prior written consent of Mercer. No assignment of this Agreement shall operate to relieve the Confidant from any obligation of this Agreement.

ARTICLE 14 FURTHER ACTS AND ASSURANCES

Each of the parties shall, from time to time, do all acts and things and execute from time to time all such further documents and assurances as may be necessary to carry out and give effect to the terms and conditions of this Agreement.

ARTICLE 15 FAX EXECUTION

This Agreement may be executed in any number of counterparts, including counterparts signed by fax, each of which shall be deemed an original and all of which together shall constitute one in the same instrument. A photocopied and/or fax copy of this Agreement bearing the signature of each party, in a single document or counterparts thereof as provided herein, shall be deemed an original execution version of this Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement on the date first above written.

MERCER (CANADA) LIMITED

Per: _____
Name:
Title:

CONFIDANT

WITNESS [PRINTED NAME]

WITNESS [SIGNATURE]

[SIGNATURE]

Public Utilities Board

Régie des services publics

Order No. 123/18

MOTION BY MANITOBA PUBLIC INSURANCE SEEKING CONFIDENTIAL TREATMENT OF CERTAIN RESPONSES TO INFORMATION REQUESTS IN THE 2019/2020 GENERAL RATE APPLICATION

September 12, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene A. Hamilton, Member
Robert Vandewater, Member
Carol Hainsworth, Member

Table of Contents

1. SUMMARY 3

1.0 Overview 3

2. PARTIES' POSITIONS AND BOARD FINDINGS 5

2.0 *MPI* 5

2.1 *CAC* 6

2.2 *Board Findings* 7

3. IT IS THEREFORE ORDERED THAT: 10

Schedule A 13

1. SUMMARY

By this Order, the Public Utilities Board (Board) grants the Motion of Manitoba Public Insurance (MPI or the Corporation) seeking confidential receipt by the Board of certain responses to Information Requests (the IR Responses), filed in the 2019/2020 General Rate Application (GRA or the Application). The Board provides direction on the treatment of any Intervener evidence and further Information Requests (IRs) arising out of the IR Responses. The Board also issues revisions to the timetable approved in Order 82/18, which are required as a consequence of the Motion.

1.0 *Overview*

MPI filed the GRA on June 15, 2018. On June 29, 2018, following the Pre-Hearing Conference, the Board issued Procedural Order No. 82/18. Order 82/18 permitted two rounds of IRs to be issued to MPI by the Board and approved Interveners.

The First Round of IRs was filed on July 11, 2018, and responses were filed by MPI on August 8, 2018. The Second Round of IRs, which arose out of responses provided by MPI to the First Round IRs, was filed on August 20, 2018.

On August 8, 2018, concurrently with its filing of responses to First Round IRs, MPI filed a Notice of Motion with the Board in which it sought leave to file certain of the First Round IR responses in confidence with the Board, on any terms the Board considered appropriate and in the public interest. On August 19, 2018, MPI electronically served a Motion Brief on the Board and the Interveners in the GRA. MPI also filed supporting Affidavits with the Board only, containing confidential information, in hard copy format.

In its Notice of Motion of August 8, 2018, MPI requested the following IR Responses, or portions thereof, be filed confidentially with the Board:

- PUB (MPI) 1-27
- PUB (MPI) 1-49
- PUB (MPI) 1-55
- PUB (MPI) 1-57
- PUB (MPI) 1-58
- PUB (MPI) 1-59
- PUB (MPI) 1-61
- PUB (MPI) 1-62
- PUB (MPI) 1-67
- PUB (MPI) 1-72
- CAC (MPI) 1-56
- CAC (MPI) 1-60
- CAC (MPI) 1-63
- CAC (MPI) 1-66

In its Motion Brief of August 19, 2018, MPI stated that it had determined, upon further review, that certain of the IR Responses for which it initially requested confidential treatment could be in fact placed on the public record.

Accordingly, on August 20, 2018, MPI filed with the Board revised IR Responses, which placed on the public record certain information it had initially sought to be kept confidential. Following this filing, MPI's request for confidential treatment affected the following IR Responses only:

- PUB (MPI) 1-27 (Attachment C)
- PUB (MPI) 1-49 (Part C)
- PUB (MPI) 1-55
- PUB (MPI) 1-57 (Portion of response)

- PUB (MPI) 1-58 (Attachment A)
- PUB (MPI) 1-61 (Appendices 1-6)
- PUB (MPI) 1-62 (Attachment A, Appendices 1, 2, 5)
- PUB (MPI) 1-67 (Appendix 1)
- PUB (MPI) 1-72 (Portions of Appendix 1)
- CAC (MPI) 1-56 (Portions of Appendix 1)
- CAC (MPI) 1-60 (Attachment 1)
- CAC (MPI) 1-63 (Parts A and C)
- CAC (MPI) 1-66 (Part B)

On August 22, 2018, the Board received a written response to the Motion from one of the Interveners in the GRA, Consumers' Association of Canada (Manitoba) Inc. (CAC).

The other Interveners in the GRA, Coalition of Manitoba Motorcycle Groups (CMMG) and Canadian Automobile Association Manitoba (CAA), did not file any response to the Motion.

The Board did not require an oral hearing on the Motion.

2. PARTIES' POSITIONS AND BOARD FINDINGS

2.0 *MPI*

MPI took the position that the following IR Responses, or portions thereof, for which it sought confidential treatment, contain third-party proprietary, confidential or commercially sensitive information: PUB (MPI) 1-27, PUB (MPI) 1-49, PUB (MPI) 1-58, and CAC (MPI) 1-60.

In addition, certain IR Responses, or portions thereof, contain MPI confidential or commercially sensitive information: PUB (MPI) 1-55, PUB (MPI) 1-57, PUB (MPI) 1-61, PUB (MPI) 1-62, PUB (MPI) 1-67, PUB (MPI) 1-72, CAC (MPI) 1-56, CAC (MPI) 1-63, and CAC (MPI) 1-66.

MPI would not oppose the circulation any of the IR Responses by the Board provided the following conditions were to be imposed:

a) That a person eligible to receive the IR Responses be:

   i. a representative, a consultant or a professional advisor of a registered intervener granted standing to intervene on an issue or issues falling within the ambit of matters raised in each of the respective documents; or

   ii. representative, a consultant or a professional advisor of the Board.

b) That the IR Responses not be provided until or unless the person executed an Undertaking of Confidentiality and a Confidentiality Agreement (forms of which were appended to MPI's Motion Brief); and

c) That no use could be made of the IR Reponses, or reference made to their content, at any time where doing so would place the confidential information on the public record or make it available to persons other than individuals who had complied with the requirement to execute the Undertaking of Confidentiality and a Confidentiality Agreement.

2.1 *CAC*

CAC advised did not object to the conditions requested by MPI for the distribution of the IR Responses. CAC acknowledged that treating the IR Responses as confidential would impair the public interest in disclosure of the information; however, the proposed conditions on access would be a minimal impairment to the public interest.

CAC requested one amendment to the approach requested by MPI: that if it, or another Intervener, were to file a report as evidence in the GRA based upon or referring to the confidential information contained in the IR Responses, that evidence be filed in confidence with the Board and MPI on the date required (September 24, 2018, per Order 82/18). In consultation with MPI, the Intervener would then determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by September 26, 2018.

2.2 *Board Findings*

Proceedings before the Board are public, and documents filed with the Board by a party to a proceeding are placed on the public record. However, the Board may receive information in confidence on any terms it considers appropriate in the public interest, when the test under Rule 13(2) is met:

(a) If the Board is of the opinion that disclosure of the information could reasonably be expected

i. to result in undue financial loss or gain to a person directly or indirectly affected by the proceeding; or

ii. to harm significantly that person's competitive position

or

(b) If

i. the information is personal, financial, commercial, scientific or technical in nature; or

ii. the information has been consistently treated as confidential by a person directly affected by the proceeding; and

iii. the Board considers that the person's interest in confidentiality outweighs the public interest in the disclosure of the information.

On hearing a motion under Rule 13, the Board may order the information in question be placed on the public record, order the document not be placed on the public record with such conditions on access imposed as the Board considers appropriate, order an abridged version of the document be placed on the public record, or make any other order the Board finds to be in the public interest. Rule 13(5) allows the filing party to request that the document be withdrawn prior to being placed on the public record where the Board has determined to place any part of the document on the public record.

The Board has reviewed and considered all of the information filed by MPI, as well as the submissions of CAC. The Board has taken into account the evidence filed confidentially by MPI in support of its Motion, and is satisfied that the IR Responses, or portions thereof, identified as confidential by MPI should be received in confidence, as they meet test under Rule 13(2). The restrictions requested on the distribution of the IR Responses are necessary in order to protect third party proprietary information, confidential, proprietary or commercially sensitive information.

Accordingly, the Board grants MPI's Motion. The Board accepts the conditions imposed on the receipt of the Documents as outlined in MPI's Motion materials, and orders that the IR responses be distributed only on the terms as set out in Section 3.

The Board notes that the documents to be treated in confidence respond to IRs issued on behalf of the Board or of CAC. Therefore, the Board will restrict the distribution of the IR Responses to its representatives, consultants and professional advisors, and to those of CAC.

The Board recognizes that further evidence containing confidential information from the IR Responses may be generated as a result of the distribution of the IR Responses to CAC and the Board. Therefore, the Board will require that any Second Round IRs or other evidence arising out of the information contained in the IR Responses be subject to the same restrictions as the IR Responses themselves.

The Board further accepts the procedure proposed by CAC is necessary in order to preserve the confidentiality of the IR Responses and the information contained therein, and therefore orders that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the IR Responses, that evidence shall be filed in confidence with the Board and MPI.

The Timetable approved in Order 82/18 required that second round IRs be filed on August 20, 2018, at which time MPI's Motion was pending. Given MPI's Motion and the need for this Order, however, any Second Round IRs arising out of the IR Responses have yet to be filed. This necessitates that the Board direct a filing date for any Second Round IRs arising out of the IR Responses, as well as for those IR responses for which the request for confidential treatment was ultimately withdrawn by MPI.

The Board therefore orders that any Second Round IRs arising out of the IRs affected by this Order shall be served on MPI by **Thursday, September 20, 2018.** MPI shall provide responses to the Second Round IRs by **Monday, October 1, 2018.** The Board recognizes that in the Timetable approved in Order 82/18, Intervener evidence was to be filed by September 24, 2018, and that in order to file their evidence, Interveners may require MPI's responses to Second Round IRs. Accordingly, the Board has ordered certain revisions to the Timetable which was approved in Order 82/18, to permit

Intervener evidence to be filed following receipt of responses to Second Round IRs which arise out of the IR Responses. The Revised Timetable is attached as **Schedule "A"**, with revisions underlined.

As set out in the Revised Timetable, Intervener evidence is to be filed with the Board on October 3, 2018. As a result, the dates in Directive 3.9 of Order 89/18 are revised such that if any Intervener files a report as evidence in the GRA based upon or referring to the confidential information contained in the IR Responses, that evidence shall be filed in confidence with the Board on October 3, 2018. In consultation with MPI, the Intervener shall then determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by October 9, 2018.

3.0 IT IS THEREFORE ORDERED THAT:

3.1 The Board grants MPI's Motion, and hereby grants leave to MPI to file the following IR Responses, or portions thereof as identified by MPI, in confidence with the Board:

a. PUB (MPI) 1-27 (Attachment C)
b. PUB (MPI) 1-49 (Part C)
c. PUB (MPI) 1-55
d. PUB (MPI) 1-57 (Portion of response)
e. PUB (MPI) 1-58 (Attachment A)
f. PUB (MPI) 1-61 (Appendices 1-6)
g. PUB (MPI) 1-62 (Attachment A, Appendices 1, 2, 5)
h. PUB (MPI) 1-67 (Appendix 1)
i. PUB (MPI) 1-72 (Portions of Appendix 1)
j. CAC (MPI) 1-56 (Portions of Appendix 1)
k. CAC (MPI) 1-60 (Attachment 1)
l. CAC (MPI) 1-63 (Parts A and C)
m. CAC (MPI) 1-66 (Part B) (the IR Responses)

3.2 The following persons shall be eligible to receive a copy of the IR Responses:

a. Representatives, consultants or professional advisors of the Consumers' Association of Canada (Manitoba) Inc. (CAC); or
b. Representatives, consultants or professional advisors of the Board.

3.3 Any eligible person as set out in Directive 3.2 intending to receive the IR Responses shall execute the Undertakings of Confidentiality and a Confidentiality Agreements as set out in Tabs 1-6 of the Motion Brief filed by MPI, prior to the receipt of any of the IR Responses.

3.4 No use shall be made of the IR Responses, or reference made to their contents, at any time where doing so would place the IR Responses or the information contained therein on the public record or make them available to persons other than those authorized as set out herein who have executed the required Undertakings of Confidentiality and Confidentiality Agreements.

3.5 The terms and conditions placed on the receipt of the IR Responses, as set out in Directives 3.2 to 3.4, shall apply to the receipt of Second Round Information Requests and Second Round Information Request Responses arising out of the IR Responses and the information contained therein.

3.7 Second Round Information Requests arising out of the IR Responses shall be served on MPI by Thursday, September 20, 2018.

3.8 MPI shall provide responses to the Second Round Information Requests arising out of the IR Responses by Monday, October 1, 2018.

3.9 Directive 3.9 of Order 89/18 is revised such that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the IR Responses or the documents or information designated as confidential in Order 89/18, that evidence shall be filed in confidence with the Board and MPI on

October 3, 2018. The Intervener shall consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by October 9, 2018.

4.0 The terms and conditions placed on the receipt of the IR Responses, as set out in Directives 3.2 to 3.4, shall apply to the receipt of any of those portions of Intervener evidence containing information from the IR Responses.

4.0 **Schedule "A"** is the Revised Timetable for this GRA, with revisions underlined.

THE PUBLIC UTILITIES BOARD

"*Robert Gabor, Q.C.*"
Chair

"*Darren Christle*"
Secretary

Certified a true copy of Order No. 123/18
issued by The Public Utilities Board

Darren Christle
Secretary

SCHEDULE "A"

REVISED HEARING TIMETABLE

	ITEM	2018 DATES	Day of the Week	2018 Elapsed Working Days
1.	Application filed and served	June 15, 2018	Friday	0
2.	Notice of Public hearing to be published	June 16, 2018	Saturday	0
3.	PUB Workshop	June 22, 2018	Friday	5
4.	Interveners complete Registration	June 22, 2018	Friday	5
5.	Pre-hearing Conference	June 25, 2018	Monday	6
6.	Procedural Order Issued	July 04, 2018	Wednesday	12
7.	Round One Information Requests Filed	July 11, 2018	Wednesday	17
8.	Round One Information Responses Filed	August 08, 2018	Wednesday	36
9.	Parties to file motions on Round One IRs	August 09, 2018	Thursday	37
10.	Board to hear motions	August 10, 2018	Friday	38
11.	Round Two Information Requests Filed	August 20, 2018	Monday	44
12.	Round Two Information Responses Filed	September 14, 2018	Friday	62

13.	Reminder Notice of Public Hearing Published	September 15, 2018	Saturday	62
14.	Parties to File any Motions	September 17, 2018	Monday	63
15.	Board to hear all Motions	September 19, 2018	Wednesday	65
16.	Round Two Information Requests Filed for Confidential IR Responses	September 20, 2018	Thursday	66
17.	Meeting of Legal Counsel	September 21, 2018	Friday	67
18.	Round Two Confidential Information Responses Filed	October 1, 2018	Monday	73
19.	Interveners to file pre-filed testimony to all parties	October 3, 2018	Wednesday	75
20.	Information Requests on Intervener Evidence	October 5, 2018	Friday	77
21.	Interveners Information Responses	October 10, 2018	Wednesday	79
22.	MPI Rebuttal Evidence	October 12, 2018	Friday	81
23.	Hearing commences	October 15 to 19	Monday to Friday	5 days
		October 22 to 26	Monday to Friday	5 days
		October 29 to November 2	Monday to Friday	5 days
	Board Issues Order	December 3, 2018		

Order No. 124/18

MOTION BY CONSUMERS' ASSOCIATION OF CANADA (MANITOBA) INC. FOR AN ORDER COMPELLING CERTAIN RESPONSES TO INFORMATION REQUESTS IN THE 2019/2020 GENERAL RATE APPLICATION

September 14, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene A. Hamilton, Member
Robert Vandewater, Member
Carol Hainsworth, Member

Table of Contents

1. SUMMARY 3

1.0 *Overview* 3

1.1 *Asset Liability Management* 4

1.2 *Information Requests CAC (MPI) 1-84(f) and 1-85(g)* 7

2. PARTIES' POSITIONS AND BOARD FINDINGS 8

2.1 *CAC* 8

2.2 *MPI* 10

2.3 *CAC Reply* 12

2.4 *Board Findings* 13

3. IT IS THEREFORE ORDERED THAT: 19

Appendix A 21

1. SUMMARY

By this Order, The Public Utilities Board (Board) grants the Motion of Consumers' Association of Canada (Manitoba) Inc. (CAC) to compel Manitoba Public Insurance (MPI or the Corporation) to provide responses to certain Information Requests (IRs) made by CAC in the 2019/2020 General Rate Application (Application or GRA).

1.0 *Overview*

MPI filed the Application on June 15, 2018. On June 29, 2018, the Board issued Procedural Order 82/18 granting CAC intervener status in the 2019 GRA and establishing a timetable which included two rounds of IRs.

Order 82/18 also established a Final Issues List for the 2019 GRA which included, as an issue requiring more detailed consideration:

> *21. Asset Liability Management Study, including review of all aspects of the [Mercer ALM] Study recommendations and implementation thereof, the basis for evaluation of risk and return, alternative portfolio compositions, proposed portfolio segregation and recommended composition of the investment portfolio(s), forecast investment performance and changes to the Investment Policy Statement.*

The Mercer Asset Liability Management Study referred to in Order 82/18 was the result of a directive issued in Board Order 162/16, following the 2017 GRA.

1.1 *Asset Liability Management*

The Board has reviewed the issue of MPI's asset liability management in recent General Rate Applications. In Order 151/13, issued following the 2014 GRA, the Board directed MPI to have the composition of its investment portfolio reviewed by an external expert consultant, with a view to determining whether the current asset mix should continue, or should be revised. MPI engaged Aon to complete the ALM Study in 2014 (Aon ALM Study), and filed the study in the 2016 GRA.

A significant portion of the 2017 GRA was dedicated to reviewing MPI's Investment Portfolio and the Aon ALM Study. In the 2017 GRA, a witness from Aon provided testimony on the Aon ALM Study. CAC called Mr. Valter Viola as an expert in (1) investment portfolio management; (2) investment portfolio research, economics and risk management; and (3) quantitative asset liability modeling.

In Order 162/16, issued following the 2017 GRA, the Board ordered MPI to obtain an updated asset liability management study, to be filed with the 2018 GRA. That study was to address each of the recommendations made by Mr. Viola in the 2017 GRA hearings.

On June 15, 2017, MPI filed the 2018 GRA but did not file an updated asset liability management study as directed, stating that it was not "logistically possible" to do so within the time frame provided and that, secondly, an updated study could not be usefully and purposefully completed in the absence of Board approved Basic Rate Stabilization Reserve Targets.

Notwithstanding this, during the 2018 GRA hearings, the Corporation advised the Board that it had issued a Request for Proposals for the updated asset liability management study on September 12, 2017 and had engaged Mercer Canada (Mercer) to deliver the study by November 30, 2017, having put in place an accelerated process to have the study produced.

In Board Order 130/17, issued after the 2018 GRA, the Board expressed its dismay that MPI had failed to comply with the Board's directive in Order 162/16 concerning an updated asset management liability study, and that the timing of Mercer Canada's engagement rendered any study of limited utility in the 2018 GRA. The Board directed the Corporation to file the study to be prepared by Mercer Canada (Mercer ALM Study) with the Board concurrently with its delivery to the MPI Board of Directors, and to provide an update of the Mercer ALM study as necessary to: (a) take into account the directives issued in Order 130/17; and (b) address each of the 18 recommendations made by Mr. Viola as set out in Order 162/16.

In Order 130/17 the Board also ordered that a Technical Conference be held to review the Mercer ALM Study, with the information shared at the Technical Conference to be included in the 2019 GRA. The Technical Conference took place on March 2, 2018 with MPI, CAC and Board Advisors participating.

The Mercer ALM Study was prepared in three phases, the last being filed with the Board on February 2, 2018. Additional information concerning the Mercer ALM Study was filed with the Board as part of the current GRA.

The Mercer ALM Study identifies unique investment portfolios for each class of MPI's liability, including Basic Claims, Basic's Rate Stabilization Reserve and Future Employee Benefits (primarily pension), and develops efficient frontiers for each portfolio based on modelling utilizing multiple combinations of asset classes.

MPI filed an ALM Implementation Plan in the GRA, in which it reported on the Technical Conference. MPI reported that Board Advisors and CAC had expressed concern about the level of detail and analysis provided in the Mercer ALM Study. The Board expected to see the details of the assumptions supporting the analysis conducted by Mercer, the frontiers and options considered along the frontiers, and additional justification for duration matching approach in the 2019 GRA. During the Technical Conference, CAC focused on the assumptions adopted by Mercer, particularly the interest rate forecast, inflation correlations, risks associated with heavy emphasis on fixed income and the foregone returns to ratepayers resulting from the selected reduction of risks.

1.2 *Information Requests CAC (MPI) 1-84(f) and 1-85(g)*

On July 11, 2018, CAC filed and served its First Round IRs. On August 8, 2018, MPI filed and served responses to the First Round IRs in which it refused to respond to CAC (MPI) 1-84(f) and 1-85(g) (attached as Appendix A to this Order). In summary, the IRs in question sought further analysis from Mercer. MPI's reasons for the refusal were that:

a) The requested analyses were predicated on inflation forecast assumptions that Mercer and the Corporation rejected in the early stages of the Mercer ALM Study as not probable;

b) CAC had not provided any evidence that the inflation forecast used in the Mercer ALM Study was sufficiently inaccurate, or flawed in some way, so as to call into doubt the results;

c) The requested analyses would not add any meaningful evidence to the record; and

d) The costs of re-running the modeling as requested would be in excess of $30,000.00 and it would not be prudent to incur those costs. MPI later revised this estimate, to be in excess of $46,000.

CAC filed the within Motion on August 8, 2018, seeking an Order compelling MPI to answer CAC (MPI) 1-84(f) and 1-85(g).

On August 15, 2018, CAC filed further submissions in support of its Motion consisting primarily of previously filed evidence and information from Mr. Viola in the 2017 GRA,

asserting the importance of accurately determining estimated risk based upon modelling using real, rather than nominal, interest rate and inflation risk.

On August 20, 2018, MPI filed its Motion Brief, together with the affidavit of Glenn Bunston, Manager of Investments for MPI, in response to the CAC Motion. On August 28, 2018, CAC filed a Reply to MPI's Motion Brief.

On September 7, 2018, MPI filed a supplemental affidavit of Glenn Bunston, to correct errors in the Bunston affidavit filed August 20, 2018.

The Board did not require an oral hearing on the Motion.

2.0 PARTIES' POSITIONS AND BOARD FINDINGS

2.1 CAC

CAC took the position that MPI should be compelled to respond to the IRs in question on the basis that they are relevant to the Board's assessment of the Mercer ALM Study, as the information goes to the overall credibility of the Mercer ALM Study and whether it was biased by choices made by MPI.

CAC pointed out that there has been an ongoing debate over successive GRAs as to whether MPI is assuming an undue level of risk, resulting in an inadequate return, due to its failure to appropriately hedge against real interest and inflation risks in its portfolio. According to CAC, the IRs in question relate to the same or similar issues reviewed in the

2017 GRA in respect of the Aon ALM Study; namely, the sensitivity of optimization models to their base assumptions, including assumptions relating to interest rates.

CAC indicated that CAC (MPI) 1-84(f) relates to Mr. Viola's Recommendation 13, and CAC (MPI) 1-85(g) relates to Mr. Viola's Recommendation 7. It was CAC's position that the responses to these recommendations, as set out in the Mercer ALM Study, are not complete, as directed by Order 130/17.

CAC stated that the IRs in question asked Mercer to re-run the efficient frontier model under different assumptions, arguing that the modelling of efficient frontiers for the purposes of investment decisions can be highly susceptible to key assumptions, including assumptions relating to interest rates. The purpose of the IRs is to test MPI's decisions regarding key assumptions on which the Mercer ALM Study is based, to understand the implications of those assumptions, and to determine whether the assumptions and constraints imposed in the Mercer ALM Study were appropriate. According to CAC, the Mercer ALM study is potentially vulnerable given the simplifying assumption about the nature of the liabilities (Nominal vs. Real), and it is important to understand the implications of that assumption. If different liability assumptions were used, it is possible that alternative portfolio compositions would have been recommended. This is central to the issue being examined by the Board in the GRA.

CAC stated that while its consultants might be able to prepare a comparable analysis, MPI would likely challenge the calculations requiring Mercer to undertake a similar

analysis itself in order to compare results. In addition, CAC stated that its consultants could not replicate multi-period scenarios. CAC therefore argued that it would be more cost efficient to have Mercer re-run its modelling based on the assumptions provided.

2.2 *MPI*

MPI made five points as to why the Board should not issue the Order requested:

a) The IRs are not proper questions;

b) MPI's decision-making and investment strategy are reasonable;

c) The IRs cannot be answered as the information does not exist and cannot be obtained with reasonable efforts;

d) The effort and cost of obtaining the information required to answer the IRs exceeds the anticipated value of that information; and

e) CAC can obtain the information sought without the assistance of MPI.

MPI objected to the imperative nature of the IRs, arguing that they were not proper questions, because they demand new evidence and do not seek to provide a party with a satisfactory understanding of the matters to be considered. While recognizing that rate application proceedings are somewhat different than court proceedings, MPI nevertheless urged the Board to equate IRs to interrogatories in the context of litigation.

MPI submitted that, in the litigation context, it is not proper to demand that a third party create or produce new evidence through an interrogatory.

MPI further argued that the costs and anticipated benefits of creating information in order to respond to an IR ought to be considered, and that one of the costs associated with compelling the production of new evidence is that it would imply that the decisions made by the MPI Board of Directors and its Investment Committee, which has significant expertise in investments, were not reasonable. MPI argued that the Board should measure MPI's decision-making on the basis of a standard of review of reasonableness as used by courts in the administrative law context. MPI argued that it was reasonable for MPI to rely upon the recommendations of Mercer, including Mercer's recommendations as to the modelling used in the Mercer ALM Study. In addition, MPI argued that CAC provided no evidence to either refute the inflation assumptions underpinning the investment strategy adopted, or demonstrate that it was unreasonable for MPI to rely upon Mercer's recommendations.

MPI further pointed out that Rule 16(b) of the Board's Rules of Practice and Procedure provides that a party may refuse to provide a full and adequate response "where the information necessary to provide an answer is not available or cannot be provided with a reasonable effort." At a cost of over $46,000, MPI submitted that it could not provide the information with reasonable effort. MPI further argued that the cost of obtaining the information requested would exceed its expected benefits.

MPI argued that Mercer's inflation forecast is consistent with the mid-point of the Bank of Canada's inflation target band, and that CAC had not established some credible deficiency in the forecast or provided any evidence to refute the inflation assumptions underpinning the investment strategy it adopted.

MPI further stated that the analysis requested by CAC would extend the current analysis in a direction, the results of which are already known, and that such an analysis was abandoned at the early stage of the Mercer ALM Study.

Finally, MPI submitted that CAC could obtain the information sought without the assistance of MPI and that CAC conceded that it has access to the tools and expertise required to perform the analysis.

2.3 *CAC Reply*

In its reply, CAC argued that the record currently before the Board raises the concern that MPI's understanding of the liability risk it faces in unsatisfactory, and that both the decision-making standard and process used by MPI for selecting its asset allocations is unreasonable.

Accordingly, CAC argued that the responses to the IRs in question would clarify the current record, and therefore, the understanding of the effectiveness of MPI's interest rate risk management practices and decision making standard and processes.

2.4 *Board Findings*

Rule 14(1) of the Board's Rules of Practice and Procedure provides that IRs are to be directed to a party for the purpose of a satisfactory understanding of the matters to be considered. IRs must be relevant to the proceeding.

Rule 15(1) provides, among other things, that where an IR has been directed to a party and served on that party in accordance with the Board's directions, the party shall provide a full and adequate response to the IR.

Pursuant to Rule 16, a party who is unable or unwilling to provide a full and adequate response to an IR (referred to as an "interrogatory" in the Rule) shall file and serve a response:

a) Where the party contends that the interrogatory is not relevant, setting out specific reasons in support of that contention;

b) Where the party contends that the information necessary to provide an answer is not available or cannot be provided with reasonable effort, setting out the reasons for the unavailability of such information, as well as any alternative available information in support of the response that the party considers would be of assistance to the party making the information requests;

c) Where the party contends that the information sought is of a confidential nature, setting out the reasons why it is considered confidential and any harm that would be caused by making it public; or

d) Otherwise explaining why such a response cannot be given.

The object of every General Rate Application is to obtain Board approval for rates that are just and reasonable. The onus is on MPI throughout as applicant to demonstrate that the rates requested are just and reasonable. Just and reasonable rates are those which strike the appropriate balance between the interests of ratepayers to pay no more than necessary for the services they receive and ensuring that the applicant, in the case of a public service provider, is financially able to fulfill its statutory mandate.

Essential to a determination as to whether rates requested are just and reasonable is a review of the Corporation's management practices. In particular, this includes a review of management decisions which affect rates, such as operating expenses and investments. Such practices and decisions are reviewed on the basis of a prudence evaluation, which requires the Corporation to demonstrate that it has taken into account the best interests of its ratepayers.

In order for there to be meaningful consultation with and input from Interveners, the Board must maintain a robust pre-hearing inquiry process for the benefit of all concerned. The IR process not only assists the Board and interveners to understand all aspects of the

GRA, but also develops a complete and unbiased record upon which the determination of just and reasonable can be made.

In the circumstances of the present Motion, concern with the performance of MPI's investment portfolio has been the subject of review over successive GRAs, resulting in of the Aon and Mercer ALM studies. From the outset of the present Application, the Mercer ALM Study was identified in the Final Issues List as an issue requiring more detailed consideration.

CAC's challenge to MPI's investment policy has also been consistent through successive GRAs. A central theme of Mr. Viola's review of MPI's investment policy in the 2017 GRA was that it demonstrated poor liability protection against real rate risk and unexpected inflation. Ultimately, the Board decided in Order 162/16, and confirmed in Order 130/17, that a further asset liability study was needed to specifically address each of Mr. Viola's 18 recommendations.

The Board has carefully considered MPI's rationale for refusing to fully respond to the IRs in question but respectfully disagrees that the refusal is justified in the circumstances of the present case.

With respect to the propriety of the IRs, the imperative nature of the IRs in question does not make them invalid. The Board would point out that IRs in applications frequently require MPI to undertake further modelling and the running of scenarios based on alternatives not previously adopted or applied by MPI in preparing the application. While

IRs do bear similarities to interrogatories as utilized in the court process, the Board does not agree with MPI's argument that they serve the same purpose. IRs are far more significant in terms of building a full and unbiased record and must be broader in scope to permit the proper determination of the Application.

In addition, the Board does not accept MPI's submission that the purpose of IRs in Rules 14 to 16 ought to be narrowly interpreted to permit only information requests which may provide a party with a satisfactory understanding of the "material filed". The Rules clearly provide that the purpose of IRs is to permit a satisfactory understanding "of the matters to be considered" in the Application.

With respect to MPI's submissions on the reasonableness of MPI's decision-making and investment strategy, the Board does not accept the approach MPI has advocated. First, the Board does not accept that the Board should adopt and apply a standard of review to MPI's decision-making which mirrors that used by the courts in the review of administrative decisions. The standard of review in the administrative law context presumes a deferential standard of reasonableness or, in limited instances, correctness. However, it has long been established that a prudence evaluation is the appropriate method of review for regulators when assessing whether or not the rates requested are just and reasonable. While reasonableness is certainly a factor in a prudence evaluation, it is a broader concept of reasonableness than that applied in the context judicial review by the courts of administrative decisions.

In essence, MPI argues that there ought to be a presumption of prudence. Such a presumption, however, would amount to an abdication of the Board's duty to assess the prudence of the Corporation's decision-making to the extent those decisions affect rates.

The Board does not agree with MPI's submission that in order for the IRs at issue to be answered, the onus is on CAC to prove or provide evidence that there was some credible deficiency in the inflation forecast used by Mercer in the preparation of the Mercer ALM Study. As stated above, the onus is on MPI throughout to prove that the rate requested is just and reasonable. This is not to say that Interveners bear no onus to justify an IR. The party making the IR bears the onus of satisfying the Board that the IR falls within the scope of the Rules, and is of sufficient probative value to justify a response.

In the circumstances of the present case, the Board has determined that the information requested in the IRs at issue is relevant and material, and would be of probative value. The Board notes as well that the information requested has been a key element of CAC's previous challenges to MPI's investment policy. The information requested is necessary to continue the examination of the issue.

The Board does not accept MPI's contentions that the granting of CAC's Motion implies that decisions of Mercer, MPI's Board of Directors and its Investment Committee were not reasonable, or calls into question the competency of the individuals involved. The Board makes no finding in that regard at this time; the Board is simply providing for a

complete and unbiased record to allow the GRA to be satisfactorily understood and fully examined.

The Board does share MPI's concern as to the additional costs associated with providing responses to the IRs in question. While CAC acknowledges that it may be able to provide some analysis in response, the Board accepts CAC's argument that such evidence would result in further study and analysis by MPI, potentially utilizing further analysis from Mercer at additional cost. Accordingly, on balance, the Board is of the view that although the costs are not insignificant, compelling responses to the IRs will not be cost-inefficient.

The Board also notes that the direction in Order 162/16 and Order 130/17 was to obtain an ALM Study which addressed each of the 18 recommendations made by Mr. Viola during the 2017 GRA. Although MPI initially stated that it was logistically impossible to provide such a study in time for the 2018 GRA, it embarked upon the process in an accelerated fashion during the 2018 GRA without prior consultation or input from the Board or CAC in respect of the scope of that study or any clarification of Mr. Viola's 18 recommendations.

The IRs in question raise issues and request modelling based on some of the same or similar criticisms contained within Mr. Viola's 18 recommendations. As MPI has not obtained or carried out the analysis contemplated by these IRs, CAC's rationale claims that the Mercer ALM Study does not provide a complete response to Mr. Viola's recommendations. The Board notes that such consultation prior to obtaining the Mercer

ALM Study may well have ameliorated the issues and costs associated with now providing responses to the IRs in question.

Accordingly, the Board hereby grants CAC's motion and orders that MPI file and serve responses to IRs CAC (MPI) 1-84(f) and 1-85(g), on or before September 24, 2018. CAC shall file and serve any Second Round IRs arising out of the responses to IRs CAC (MPI) 1-84(f) and 1-85(g) on or before September 26, 2018. MPI shall file and serve the Responses to Second Round IRs arising out of CAC (MPI) 1-84(f) and 1-85(g) on or before October 3, 2018.

3.0 IT IS THEREFORE ORDERED THAT:

3.1 The Motion filed by the Consumers' Association of Canada (Manitoba) Inc. (CAC) for an Order requiring MPI to file responses to Information Requests CAC (MPI) 1-84(f) and CAC (MPI) 1-85(g) is hereby granted.

3.2 MPI shall file and serve responses to CAC (MPI) 1-84(f) and 1-85(g), attached hereto as Appendix A, on or before September 24, 2018.

3.3 CAC shall file and serve any Second Round Information Requests arising out of the responses to IRs CAC (MPI) 1-84(f) and 1-85(g) on or before September 26, 2018.

3.4 MPI shall file and serve responses to Second Round Information Requests arising out of the responses to IRs CAC (MPI) 1-84(f) and 1-85(g) on or before October 3, 2018.

THE PUBLIC UTILITIES BOARD

"Robert Gabor, Q.C."
Chair

"Darren Christle"
Secretary

Certified a true copy of Order No. 124/18
issued by The Public Utilities Board

Secretary

APPENDIX A

CAC (MPI) 1-84(f)

f) **More Detailed Analysis for Real Scenarios:** Was the same "stepped" analysis that was performed using the Nominal Liability Benchmark (e.g. pages 1,749 to 1,753) also performed using the Real Liability Benchmark?

i. If so, provide the analysis and commentary (at least for Basic and Pensions).

ii. If not, could a similar analysis and commentary be provided, showing the effect of including RRBs ("minimally" constrained)? (at least for Basic and Pensions).

CAC (MPI) 1-85(g)

g) Can Mercer show efficient frontiers, similar to the Capital Market Line shown above, except that risk is to be defined to take into account liabilities (surplus, not assets only), and the "risk-free" asset is the Minimum Risk Portfolio (**Real** Liability Benchmark, **not Nominal** Liability Benchmark, and not TBills)?

i. The analysis should show the effects of allowable leverage **for fixed income assets only** (e.g. bond overlays, including RRBs). Other constraints can be added in a "stepped approach", starting from the "minimally constrained" scenario, in the same way such "steps" were shown on pages 1,749 to 1,753 of the GRA to illustrate the effects of adding new asset classes.

ii. The steps should include, at a minimum, the imposition of various constraints that were actually imposed, directly or indirectly, or which would illustrate the return/risk tradeoffs arising from various "steps" taken (or decisions made) as listed below:

1) Set 0% maximum in RRBs
2) Restrict the weight to the "final MPI recommended" weight, rather than the global market cap, in three (3) **individual steps** for:
    (1) Canadian Equity
    (2) Emerging Markets Equity
    (3)Other Equity

iii. The analysis should clearly show a portfolio ("Privates + ACWI") that consists of 0% fixed income, with a private/public split below:

1) Real estate, infrastructure, and private equity using MPI's recommended weights.
2) Public equity in Canada, US, Emerging Markets, and other regions at their global market cap weights (e.g., All Country World Index Equities (ACWI)).

iv. Mercer's "Observations" would facilitate the interpretation of results, as would Mercer's "Asset Mix Options" and "Expected Surplus Growth", similar to the observations and other reporting Mercer provided on pages 1,749 to 1,753 and 1,790 to 1,793 respectively of the GRA.

v. The scope of the above analysis could be limited to Basic and Pension.

Order No. 130/18

MOTION BY MANITOBA PUBLIC INSURANCE SEEKING CONFIDENTIAL TREATMENT OF CERTAIN RESPONSES TO INFORMATION REQUESTS IN THE 2019/2020 GENERAL RATE APPLICATION

September 24, 2018

BEFORE: Irene A. Hamilton, Panel Chair
Robert Vandewater, Member
Carol Hainsworth, Member
Mike Watson, Member

Table of Contents

1. SUMMARY 3

1.0 Overview 3

2. PARTIES' POSITIONS AND BOARD FINDINGS 4

2.0 *MPI* 4

2.1 *Intervener Responses* 5

2.2 *Board Findings* 6

3. IT IS THEREFORE ORDERED THAT: 8

1. SUMMARY

By this Order, the Public Utilities Board (Board) grants the Motion of Manitoba Public Insurance (MPI or the Corporation) seeking confidential receipt by the Board of certain responses to Information Requests (IRs) filed in the 2019/2020 General Rate Application (GRA or the Application). The Board provides direction on the treatment of Intervener evidence arising out of the IR responses.

1.0 *Overview*

MPI filed the GRA on June 15, 2018. On June 29, 2018, following the Pre-Hearing Conference, the Board issued Procedural Order No. 82/18. Order 82/18 permitted two rounds of IRs to be issued to MPI by the Board and approved Interveners.

The First Round of IRs was filed on July 11, 2018, and responses were filed by MPI on August 8, 2018. The Second Round of IRs, which arose out of responses provided by MPI to the First Round IRs, was filed on August 20, 2018. The Responses to the Second Round of IRs was filed on September 14, 2018.

On September 14, 2018, concurrently with its filing of responses to Second Round IRs, MPI filed a Notice of Motion with the Board in which it sought leave to file one of the Second Round IR responses in confidence with the Board, on any terms the Board considered appropriate and in the public interest. On September 17, 2018, MPI electronically served a Motion Brief on the Board and the Interveners in the GRA. MPI also filed a supporting Affidavit with the Board only, containing confidential information, in hard copy format.

In its Notice of Motion of September 14, 2018, MPI requested that the Appendices to PUB (MPI) 2-24 be filed confidentially with the Board.

On September 18, 2018, the Board received written responses to the Motion from two of the Interveners in the GRA, Consumers' Association of Canada (Manitoba) Inc. (CAC), and Coalition of Manitoba Motorcycle Groups (CMMG).

The other Intervener in the GRA, Canadian Automobile Association Manitoba (CAA), did not file any response to the Motion.

The Board did not require an oral hearing on the Motion.

2. PARTIES' POSITIONS AND BOARD FINDINGS

2.0 *MPI*

MPI took the position that Appendices 1 to 5 of PUB (MPI) 2-24 (the Documents) contain information that is commercial and proprietary to the third party who created them. MPI is not authorized to make the information contained in the Documents available for public use. MPI stated that the public release of the Documents could reasonably be expected to result in financial loss or significant harm to the competitive position of the third party.

MPI further stated that it is contractually bound to maintain the Documents in confidence, and that maintaining the confidence of the Documents outweighs the public interest in their disclosure.

MPI would not oppose the circulation of any of the Documents by the Board provided the following conditions were to be imposed:

a) That a person eligible to receive the Documents be:

i. a representative, a consultant or a professional advisor of a registered intervener granted standing to intervene on an issue or issues falling within the ambit of matters raised in each of the respective Documents; or

ii. a representative, a consultant or a professional advisor of the Board.

b) That the Documents not be provided until or unless the person executed an Undertaking of Confidentiality and a Confidentiality Agreement (forms of which were appended to MPI's Motion Brief); and

c) That no use could be made of the Documents, or reference made to their content, at any time where doing so would place the confidential information on the public record or make it available to persons other than individuals who had complied with the requirement to execute the Undertaking of Confidentiality and a Confidentiality Agreement.

2.1 ***Intervener Responses***

CAC did not object to the conditions requested by MPI for the distribution of the Documents. CAC acknowledged that treating the Documents as confidential would impair the public interest in disclosure of the information; however, the proposed conditions on access would be a minimal impairment to the public interest.

CAC requested that if it, or another Intervener, were to file a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence would be filed in confidence with the Board and MPI on the date required (October 3, 2018, per Order 123/18). In consultation with MPI, the Intervener would then determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by October 9, 2018.

CMMG advised that it was in agreement with CAC's position and did not take issue with the confidential treatment of the Documents.

2.2 *Board Findings*

Proceedings before the Board are public, and documents filed with the Board by a party to a proceeding are placed on the public record. However, the Board may receive information in confidence on any terms it considers appropriate in the public interest, when the test under Rule 13(2) is met:

(a) If the Board is of the opinion that disclosure of the information could reasonably be expected

i. to result in undue financial loss or gain to a person directly or indirectly affected by the proceeding; or

ii. to harm significantly that person's competitive position

or

(b) If

i. the information is personal, financial, commercial, scientific or technical in nature; or

ii. the information has been consistently treated as confidential by a person directly affected by the proceeding; and

iii. the Board considers that the person's interest in confidentiality outweighs the public interest in the disclosure of the information.

On hearing a motion under Rule 13, the Board may order the information in question be placed on the public record, order the document not be placed on the public record with

such conditions on access imposed as the Board considers appropriate, order an abridged version of the document be placed on the public record, or make any other order the Board finds to be in the public interest. Rule 13(5) allows the filing party to request that the document be withdrawn prior to being placed on the public record where the Board has determined to place any part of the document on the public record.

The Board has reviewed and considered all of the information filed by MPI, as well as the submissions of CAC and CMMG. The Board has taken into account the evidence filed confidentially by MPI in support of its Motion, and is satisfied that the Documents should be received in confidence, as they meet the test under Rule 13(2). The restrictions requested on the distribution of the Documents are necessary in order to protect third party proprietary information, confidential, proprietary or commercially sensitive information.

Accordingly, the Board grants MPI's Motion. The Board accepts the conditions imposed on the receipt of the Documents as outlined in MPI's Motion materials, and orders that the Documents be distributed only on the terms as set out in Section 3 below.

The Board notes that the Documents respond to an IR in respect of Issue 19 as set out in Order 82/18, Current IT Strategic Plan and IT Expenses and Projects. Issue 19 has been examined only by the Board and CAC in the course of the IR process in this GRA. Therefore, the Board will restrict the distribution of the Documents to its representatives, consultants and professional advisors, and to those of CAC.

The Board recognizes that further evidence containing confidential information from the Documents may be generated as a result of the distribution of the Documents to CAC and the Board. Therefore, the Board will require that any other evidence arising out of the Documents or the information contained in the Documents be subject to the same restrictions as the Documents themselves.

The Board further accepts the procedure proposed by CAC is necessary in order to preserve the confidentiality of the Documents and the information contained therein, and therefore orders that if any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence shall be filed in confidence with the Board and MPI, in accordance with the dates previously set out in Order 123/18.

3.0 IT IS THEREFORE ORDERED THAT:

3.1 The Board grants MPI's Motion and hereby grants leave to MPI to file Appendices 1 to 5 of PUB (MPI) 2-24 (the Documents) in confidence with the Board.

3.2 The following persons shall be eligible to receive a copy of the Documents:

a. Representatives, consultants or professional advisors of the Consumers' Association of Canada (Manitoba) Inc. (CAC); or
b. Representatives, consultants or professional advisors of the Board.

3.3 Any eligible person as set out in Directive 3.2 intending to receive the Documents shall execute the Undertaking of Confidentiality and Confidentiality Agreements as set out in Tabs 1-3 of the Motion Brief filed by MPI on September 17, 2018, prior to the receipt of any of the Documents.

3.4 No use shall be made of the Documents, or reference made to their contents, at any time where doing so would place the Documents or the information contained therein on the public record or make them available to persons other than those authorized as set out herein who have executed the required Undertaking of Confidentiality and Confidentiality Agreements.

3.5 If any Intervener files a report as evidence in the GRA based upon or referring to the information contained in the Documents, that evidence shall be filed in

confidence with the Board and MPI on October 3, 2018. The Intervener shall consult with MPI and determine the need for, and prepare, a redacted version for public disclosure, if applicable, to be filed by October 9, 2018.

3.6 The terms and conditions placed on the receipt of the Documents, as set out in Directives 3.2 to 3.4, shall apply to the receipt of any of those portions of Intervener evidence containing information from the Documents.

THE PUBLIC UTILITIES BOARD

"Irene A. Hamilton"
Panel Chair

"Darren Christle"
Secretary

Certified a true copy of Order No. 130/18
issued by The Public Utilities Board

Darren Christle
Secretary

Order No. 159/18

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): COMPULSORY 2019/2020 DRIVER AND VEHICLE INSURANCE PREMIUMS AND OTHER MATTERS

December 3, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene Hamilton, Member
Robert Vandewater, Member
Carol Hainsworth, Member

Table of Contents

EXECUTIVE SUMMARY 5

1. THE RATE APPLICATION 12

1.1. Procedural History 12

1.2. The Application 13

2. PROGRAM REVENUE 19

2.1. Basic Revenue Requirement 19

2.2. Vehicle Premiums 20

2.3. Driver Premiums 21

2.4. Investment Income 22

2.5. Service Fees and Other Revenues 22

3. RATE INDICATIONS 23

3.1. Accepted Actuarial Practice in Canada 23

3.2. Vehicle Classification System 25

3.3. Interest Rate Forecasting 26

3.4. Capital Maintenance Provision 28

3.4.1. Basic Concept 28

3.5. Interveners' Positions 30

3.6. Board Findings 34

4. VEHICLES FOR HIRE (VFH) 38

4.1. Board Findings 43

5. DRIVER SAFETY RATING (DSR) 43

5.1. Interveners' Positions 47

5.2. Board Findings 47

6. PROGRAM COSTS 48

6.1. Basic Claims Incurred 48

6.2. Basic Expenses Overview 51

6.3. Claims Expenses 51

6.4. Operating Expenses 52

6.5. Information Technology Expenses 56

6.6. Benchmarking 65

6.7. Interveners' Positions 69

6.8. Board Findings 70

7. INVESTMENTS 74

7.1. Investment Portfolio 74

7.2. Investment Management 75

7.3. Asset Liability Management (ALM) 76

7.4. Investment Returns 81

7.5. Interveners' Positions 84

7.6. Board Findings 88

8. RATE STABILIZATION RESERVE AND TARGET CAPITAL RANGE 91

8.1. Purpose of the RSR 91

8.2. Basic RSR and Total Equity Balances 91

8.3. Dynamic Capital Adequacy Testing (DCAT) 92

8.4. Target Capital Analysis 94

8.5. Interveners' Positions 97

8.6. Board Findings 98

9. ROAD SAFETY 101

10. PRESENTERS 102

11. IT IS THEREFORE ORDERED THAT: 105

EXECUTIVE SUMMARY

The Public Utilities Board (Board or PUB) hereby orders an overall 1.8% rate increase to Basic compulsory motor vehicle premiums (Basic or Basic Insurance) for the 2019/20 insurance year, effective March 1, 2019, for all major classes combined. There will be no change in permit and certificate rates, vehicle premium discounts, service and transaction fees, or fleet rebates or surcharges.

The Board's order for a rate increase of 1.8% results from the Board's approval of rates calculated in accordance with Accepted Actuarial Practice in Canada, based on a Naïve interest rate forecast (as defined below), taking into account actual interest rates as at September 30, 2018, and the inclusion of a Net Capital Maintenance Provision.

The Board's order for an increase of 1.8% does not mean that rates for all motorists within each major vehicle class increase by that amount. Rates paid by individual policyholders within each Major Class will be determined based on their driving record, the kind of vehicle (make and model and year) registered, the purpose for which the vehicle is driven, and the territory in which the policyholder resides. Policyholders' premiums will also be affected by actual claims experience.

The Board’s approval of the use of the Naïve interest rate forecast is for this year only, and applies for rate-setting and target capital purposes. In the 2020 GRA, the Corporation will be required to report back on its tracking of interest rate movements and how this has informed its decision on interest rate forecasting. In reaching its decision on interest rate forecasting, the Board has moved from its position on interest rate forecasting as set out in Order 130/17. However, the Board finds that the Naïve interest rate forecast represents a best estimate for rate-setting purposes, if it reflects the evidence led on the latest available market information at the time of the hearing, as was the case in this GRA. The Board has considered all of the evidence with respect to interest rate forecasting, and bases its decision on the acknowledged and consistently evident uncertainty inherent in

forecasting interest rates. The Board finds that building that uncertainty into the rate indication is not reasonable for ratepayers at this time.

In Order 130/17, the Board recognized MPI's need to protect against the natural depletion of Basic's capital position, and found that a Capital Maintenance Provision (CMP) could be considered a legitimate necessary Basic expense for rate-setting purposes. The Board notes that in each of the last four years, the Corporation has had to transfer funds from the Extension line of business to the Basic Rate Stabilization Reserve. While it was premature in Order 130/17 for the Board to base its decision on the inclusion of a CMP, the Board directed that a Technical Conference be held on the issue, and any findings therefrom be incorporated into this General Rate Application (GRA). A Technical Conference on the CMP was held on March 2, 2018. MPI reported on the Technical Conference in this GRA and incorporated information therefrom into its proposal for a Net Capital Maintenance Provision (Net CMP). In this GRA, the Board heard from MPI that it is considering an overall capital management plan for the Corporation, which would include the Net CMP. The Board will consider this approach when it has further information. While it is prepared to include the Net CMP in the rate in this GRA, the approval of the Net CMP is for this GRA only. In the next GRA, the Corporation must come forward with its capital management plan for the entire Corporation. Further, MPI shall be required to participate in a Technical Conference on a capital management plan, prior to the 2020 GRA, such that the information from the Technical Conference shall be included in the 2020 GRA.

By Order 11/18, issued on January 15, 2018, the Board granted to MPI approval of its rates for Vehicles for Hire (VFH), on an interim basis only, recognizing the urgency of the need for rates to be in place when *The Local Vehicles for Hire Act* was to come into force on February 28, 2018. In Order 11/18, the Board issued a number of directives to MPI, with the expectation that MPI would be in a position to provide further information and experience following the interim approval of the VFH rates. In this Application, the

Corporation applied for final approval of the VFH rates, which were approved in Order 11/18. The Board has approved the VFH rates on a final basis.

In the 2018 GRA, the Corporation applied for an increase to the premiums on the demerit side of the Driver Safety Rating (DSR) system. The Board approved the Corporation's application in that regard but directed the Corporation to undertake further work toward the implementation of more actuarially sound DSR premiums and vehicle premium discounts. In this Application, the Corporation provided an update on its progress in that regard and reported that its work will involve public consultation efforts, along with further investigation and analysis of alternative rating models. It reported that it anticipates that by the 2020 GRA, it will be in a position to report on the results of its public consultation efforts and its preliminary research. The Board has directed that the Corporation provide an update on its progress in that regard in the 2020 GRA.

The Board continues to support the Corporation's cost containment efforts, including the steps taken to reduce operating expenses and optimize staffing levels. The Board finds that the Corporation is continuing to take positive steps towards containing its costs.

In this Application, the Board received the Corporation's 2018/19 Information Technology (IT) Strategy, and heard significant evidence on the issue of IT. IT has been of concern to the Board in recent years' Applications. The Board is encouraged by the Corporation's continued efforts to continue to reduce reliance on IT consultants and reduce the number of IT staff overall.

In Order 130/17, the Board commented that it expected that MPI's new Value Management Process would bring in valuable controls and contribute to better business process management in IT. The Board also expressed concern in Order 130/17 that the Corporation had not disclosed the costs to operate the Physical Damage Re-Engineering (PDR) program, which the Board viewed as a critical component in assessing the costs and benefits associated with the program.

The information filed in this Application made clear that the Board's concerns about IT spending were well-founded, particularly with respect to the PDR program. While in the 2018 GRA, the evaluation of PDR prepared by Gartner concluded that it had a net present value of $13.7 million, Gartner's evaluation in this Application concluded that the program has a net present value of ($49.9) million. This dramatic change was the result of MPI providing Gartner with information that had previously been withheld from Gartner about program costs. Given the history of the PDR program, the Board finds that it is important that the Corporation continue to evaluate and report on the program and therefore the Board has directed that in the 2020 GRA, the Corporation file an update, prepared by Gartner, to its 2018 PDR Program Evaluation.

Notwithstanding the Board's concern about the PDR program, the Board finds that the information filed by MPI in this Application with respect to IT was thorough and comprehensive. The Board acknowledges the openness with which the Corporation provided information on IT in this Application, and is of the view that the Corporation has demonstrated progress in its efforts to rein in spending on IT, and to make strategic IT investments in the future. The Board anticipates receiving information from the Corporation in the 2020 GRA as to the progress it has made in the implementation of the Value Management Process and the IT Strategy. The Board expects the Corporation to show that its new approach to investing in IT is producing results. Given the Board's ongoing interest in IT, the Board has directed that the Corporation provide updates on all Business Transformation Office-managed IT projects in the 2020 GRA. The Board has also directed that an ongoing dialogue take place between it and MPI in advance of the 2020 GRA, with respect to progress on the Legacy Modernization project, any business cases created for the initiative, and the establishment of higher-level key performance indicators. The Board has also directed that in the 2020 GRA, the Corporation provide an update of its progress on the Legacy Modernization initiative, file any business cases created for the Legacy Modernization initiative, and any higher-level key performance indicators.

The Board finds that the Corporation continues to rely much more heavily on consultants than do its peers in the area of IT. The Board appreciates that the Corporation has challenges in reducing the ratio of consultants to staff given the non-solicitation clauses in its contracts with vendors. The Board understands that these contracts provide a valuable service to MPI, but is concerned that MPI could become overly dependent on vendors. The Board has therefore directed the Corporation, in the 2020 GRA, to report on its progress in reducing the ratio of IT consultants to staff, and in managing relationships with IT vendors.

The Board did not receive an updated Asset Liability Management (ALM) study in the 2018 GRA. The Board was able to review the ALM study, prepared by Mercer Canada, in depth this year. The Board also heard about MPI's decision to segregate its investment portfolio into five distinct portfolios, as a result of the Mercer ALM study recommendations.

When it comes to the Corporation's overall investment strategy, the Board recognizes that its oversight role does not extend to directing the Corporation as to the particulars of its portfolio management. The Board finds that the Corporation has selected from a range of reasonable options for its portfolios as a result of the Mercer ALM study.

That said, the Board recognizes that it may be the case that the Corporation has foregone an opportunity to hedge against long-term risks by rejecting Real Return Bonds and reducing real assets in its new portfolio. To that end, the Board has directed that the Corporation run shadow portfolios to be evaluated against the portfolios selected by the Corporation. First, the Board has directed the Corporation to run shadow portfolios for the Basic and Pension portfolios, effective March 1, 2019, with the inclusion of Real Return Bonds as part of an optimal bond portfolio mix. Second, the Board has directed the Corporation to immediately engage Mercer to run shadow portfolios for Basic and Pension effective March 1, 2019, without the constraints imposed by the Corporation. Reports on the results of the shadow portfolios are to be filed in the 2020 GRA. As well, the Board has directed the Corporation to file a post-implementation review of its ALM strategy. The Board will review the shadow portfolios and the post-implementation review

in the 2020 GRA. The Board expects that the shadow portfolios and the post-implementation review will serve to inform it, and the Corporation, as to whether the Corporation's ALM strategy is reasonable. If a review in the 2020 GRA indicates that the Corporation did not employ a reasonable strategy, the Board will comment further at that time.

The Board again deliberated on the appropriate level of and methodology for setting MPI's Rate Stabilization Reserve (RSR) and Total Equity target capital range. The purpose of the RSR is to protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors.

In the 2018 GRA, the Corporation requested a Basic Total Equity target capital range of $201 million to $438 million, and the Board ordered that the range be $180 million to $325 million. In this GRA, the Board has approved a Basic Total Equity target capital range of $140 million to $315 million, based on the results of the Corporation's target capital analysis updated to reflect market interest rates as of the end of September 2018, using the Naïve interest rate forecast. The Board directs, however, that in the 2020 GRA, the Dynamic Capital Adequacy Testing base scenario forecast must fully reflect any expected capital adjustments arising from the thorough capital management plan, which the Board has directed to be presented in the next GRA.

The Board acknowledges the Corporation's view that adequate capital in the RSR is required in order to permit MPI to provide stable and predictable Basic rates, and recognizes the risks associated with Basic being undercapitalized, leaving MPI and ratepayers in a vulnerable position in the event of severe adverse events. The Board recognizes, however, that considerable work has been devoted and progress made over many previous GRAs and through a collaborative process with stakeholders on the issue of the appropriate methodology to be used to establish the Basic Total Equity target capital range. The Board is concerned, however, that it is receiving the same positions from the parties year after year and would like to avoid re-visiting the same

arguments. The Board would prefer to establish a standard so that the issue can be determined for a longer period than one year, and then the results of a standard methodology can be evaluated. To this end, the Board intends to engage the services of an independent consulting actuary with experience in target capital analysis to engage stakeholders in discussion to understand their preferred approaches to Basic target capital analysis and prepare expert evidence for the 2020 GRA, setting out the expert's opinion on best practices in that regard.

The Board's approval of the Corporation's target capital methodology in this Order should not be seen as a specific endorsement or rejection of any particular approach to the Basic target capital analysis going forward, as the Board intends to examine this issue further, following receipt of the independent consulting actuary's expert evidence in the 2020 GRA.

The Board has, in past Orders, expressed the view that the Corporation's non-compulsory Extension line of business should be regulated. One of the reasons for this is the Board's concern that the level of Basic Total Equity could be depleted at a time when the Extension line of business contains significant reserves. However, the Board's concern is alleviated somewhat given that the Corporation intends to bring forward a capital management plan with rules for transfers from other lines of business. The Board will withhold comment in this Order that it be given the jurisdiction to regulate Extension, and will await the review of the capital management plan at the next GRA.

In Order 130/17, in providing its rationale for directing a wide-ranging Technical Conference on road safety to take place in early 2019, the Board commented that road safety and loss prevention is a complex, multi-faceted area involving multiple stakeholders. The Board directed that the issue of road safety would not be reviewed in the same level of detail in this GRA as it had in prior years. Therefore, in the public hearings for this GRA, the Board heard evidence on the Corporation's road safety expenditures, but not on specific initiatives and programs. The Board expects that all aspects of road safety will be thoroughly reviewed in the forthcoming Technical

Conference and looks forward to receipt of the information shared in the Technical Conference in the 2020 GRA.

In this GRA, the Board implemented a process change whereby the issues to be reviewed were identified and approved by the Board on an interim basis prior to the preparation of the GRA, and then finalized after the Pre-Hearing Conference. The Board will seek comments from the parties as to whether this process was beneficial in focusing the areas to be reviewed in detail in this Application.

The Board has made a number of directives in this Order. The Board hereby directs the Corporation to file with the Board, on or before April 1, 2019, a report advising as to the status of its compliance with each of the directives contained herein.

This Order reflects the Board's findings on matters which arose over the course of the proceeding through oral testimony and documentary evidence. Public access to the full transcripts of the public portions of the hearing, including cross-examination, presentations and closing statements, as well as documentary evidence are available on the Board's website (www.pub.gov.mb.ca).

Interested parties may also review MPI's Annual Report and quarterly financial statements on MPI's website (www.mpi.mb.ca).

1. THE RATE APPLICATION

1.1. Procedural History

On June 15, 2018, the Corporation filed with the Board the 2019 General Rate Application (GRA or Application) seeking approval of premiums for Basic, for the fiscal year commencing March 1, 2019 and ending February 29, 2020. The Application was filed in accordance with the provisions of *The Crown Corporations Governance and Accountability Act* and *The Public Utilities Board Act*.

Prior to the filing of the Application, the Board issued Interim Procedural Order 61/18, in which it approved an Issues List for the Application, on a preliminary basis. The Board's intention with this procedure was to streamline the process in this GRA. In doing so, the issues in the Issues List were placed in one of three categories: issues to be considered in the scope of the GRA in the normal course; issues requiring more detailed examination in the 2019 GRA; and issues deferred from the 2019 GRA to future applications, or which would be the subject of a technical conference or another process.

Following the pre-hearing conference which took place on June 25, 2018, by Order 82/18, dated June 29, 2018, the Board approved the Issues List on a final basis, and granted intervener status to the following parties:

- Consumers' Association of Canada (Manitoba) Inc. (CAC);
- Coalition of Manitoba Motorcycle Groups (CMMG); and
- Canadian Automobile Association (CAA).

While CAA was granted Intervener status, it advised the Board prior to the commencement of the public hearings that it would not be appearing, given that the Board did not intend to review the issue of road safety in these proceedings, having deferred it to a Technical Conference to take place in early 2019.

Ten days of public hearings took place, during which the Board heard evidence from witnesses appearing on behalf of MPI and CAC, and submissions from presenters. The public hearings began on October 15, 2018, and concluded on October 31, 2018.

1.2. The Application

The Corporation reported that in 2018, the Board of Directors adopted a new Corporate Mission Statement: *Exceptional coverage and service, affordable rates and safer roads through public auto insurance*. The Corporation advised that the new mission statement would guide its actions going forward.

In addition, MPI defined new corporate values, articulating how it will fulfill its mission:

> *As a public auto insurer, we hold ourselves accountable to all Manitobans to deliver value by fostering a culture of excellence. We achieve this through our four core values:*
>
> - *Doing What's Right: We act with integrity and accountability. We strive to be open and transparent*
> - *Investing in People: We empower our employees to provide excellent service. We work together with business, community and road safety partners to fulfil our mission.*
> - *Striving for Excellence: We provide exceptional coverage and service. We adapt to meet evolving customer and industry needs, focusing on continuous improvement.*
> - *Providing Value to Manitobans: We maintain affordable rates and ensure accessible coverage. As a public auto insurer, fiscal responsibility is at the forefront of everything we do.*

The Corporation explained that everything contained within the Application was based on carrying out the mission statement.

The Board's jurisdiction applies to rate-setting for MPI's Basic insurance line of business, and not to MPI's other optional lines of business, Extension and Special Risk Extension (SRE).

The Corporation requested an overall 2.2% increase in Basic vehicle premium revenue (including Vehicles for Hire rates for service), comprised of a 0.1% increase to the break-even cost of policies in accordance with Accepted Actuarial Practice in Canada, and a

2.1% increase for a Net Capital Maintenance Provision, to maintain the Corporation's capital position through the rating year, as measured by the Minimum Capital Test.

The vehicle premium rates put forward by MPI included experience-based rate adjustments largely ranging from -15% to +15%, based on adjustment rules. In addition, the Corporation combined classification offsets for all vehicles except off-road vehicles, to achieve revenue neutrality and implemented rate group, rate line and classification changes for 2020.

According to the Corporation's rate design, the change to Basic compulsory motor vehicle premiums for each major vehicle class at the rate requested by MPI would have the following average vehicle premium changes:

Major Class	**2.2% Experience Rate Change**
Private Passenger	2.4
Commercial	2.4
Public	0.6
Motorcycle	3.1
Trailers	(4.7)
Off-road vehicles	(20.0)
Total	**2.2**

Rates paid by individual policyholders within each Major Class are determined by their driving record, the kind of vehicle (make and model and year) registered, the purpose for which the vehicle is driven and the territory in which the policyholder resides. Policyholders' premiums are also affected by actual claims experience. As a result, some individuals would experience increases in insurance rates, and others would experience decreases.

The Corporation sought no change to permit and certificate rates, vehicle premium discounts, service and transaction fees, or fleet rebates or surcharges.

The Corporation characterized the rate applied for as stable and the result of the implementation of best practices and prudent fiscal management, leading to stable, affordable rates. The Corporation stated that it is pursuing its mandate by focusing on smaller incremental increases, which support long term stability. The Corporation maintained that it had brought a rate request that is just and reasonable. Although the Corporation did not seek to amend its Application, it advised the Board that it would endorse having the Application varied by the Board, to reflect the actual Government of Canada 10-year bond yield as at September 30, 2018, of 2.43%.

A history of the percentage rate changes applied for by the Corporation and ordered by the Board is as follows:

Year	Applied For	Ordered
2019/20	2.2	1.8
2018/19	2.7	2.6
2017/18	4.3	3.7
2016/17	0.0	0.0
2015/16	3.4	3.4
2014/15	1.8	0.9
2013/14	0.0	0.0
2012/13	-6.8	-8.0
2011/12	-4.0	-4.0
2010/11	0.0	0.0
2009/10	-1.0	-1.0
2008/09	0.0	0.0
2007/08	-2.6	-2.6
2006/07	0.0	0.0
2005/06	0.0	-1.0
2004/05	2.5	3.7
2003/04	0.0	-1.0
2002/03	-1.2	0.0
2001/02	0.0	0.0

There have also been $597 million in premium rebates ordered by the Board over the last 17 years, as follows:

Year	Total ($ millions)	Percent of Premiums
2011	$336	45.0%
2008	$63	10.0%
2007	$60	10.0%
2006	$58	10.0%
2001	$80	16.6%

2. PROGRAM REVENUE

2.1. Basic Revenue Requirement

The Corporation derives revenue from four main sources to fund Basic: vehicle premiums; driver premiums; service and transaction fees; and investment income. The Corporation's projected operating results for 2019/20 and 2020/21, the years affected by the applied for 2.2% rate increase, are as follows:

	2019/20 Applied for Rate Per Application ($ millions)	**2020/21 Projection Per Application ($ millions)**
Motor Vehicle Premiums	**$1,054.6**	**$1,109.2**
Drivers' Licence Premiums	**69.9**	**71.9**
Reinsurance ceded	**(11.4)**	**(11.7)**
Total Net Premiums Earned	**1,113.1**	**1,169.4**
Investment Income	**82.1**	**84.9**
Service Fees & Other Revenues	**25.8**	**27.6**
Total Earned Revenues	**$1,221.0**	**$1,281.9**
Claims Incurred	**$900.2**	**$950.7**
Claims Expenses	**135.4**	**139.2**
Road Safety Expenses	**12.7**	**12.8**
Operating Expenses	**73.6**	**76.3**
Commissions	**42.7**	**44.8**
Premium Taxes	**33.7**	**35.4**
Regulatory/Appeal expenses	**4.8**	**5.0**
Total Claims and Expenses	**$1,203.1**	**$1,264.2**
Net income (loss) – Basic	**$17.9**	**$17.7**

The projected results were based on an assumed Naïve interest rate forecast (assuming no changes in current interest rates) as at the time of the filing of the application, which MPI requested the Board utilize for rate-setting purposes. The Corporation took the position that the 50/50 interest rate forecast (representing the midpoint between the Naïve and the Standard Interest Rate Forecast), which the Board directed the Corporation to use for rate-setting and target capital purposes in the 2018/19 GRA, not be used in this Application.

In the course of the public hearings, at the request of the Board, the Corporation filed an update to its forecast based on interest rates as at September 30, 2018. As a result of this updated forecast, Basic's projected net income in 2019/20 would increase from a net income of $17.9 million, to a net income of $143.0 million, and its net result in 2019/20 would be a net income of $18.8 million.

2.2. Vehicle Premiums

Total written premiums earned are forecast to be $1,019.3 million in 2019/20, and to grow to $1,085.1 million in 2020/21. The revenue earned by Basic in respect of vehicle premiums may change due to four factors: rate changes as ordered by the Board; growth in the number of vehicles in the fleet (Volume Factor); changes in the average premium per vehicle caused by factors other than rate changes, such as the gradual upgrade of the fleet as older vehicles are replaced with newer ones (Upgrade Factor); and the impact on vehicle insurance premiums from changes in the average Driver Safety Rating (DSR) level of registered vehicle owners (DSR Upgrade Factor).

The Volume Factor is based upon the historical growth rate of *The Highway Traffic Act* (HTA) vehicles only (including the private passenger, commercial, public and motorcycle major classes, and excluding trailers and off-road vehicles), which account for 76% of the fleet and over 98% of MPI's total Basic written premiums. MPI is forecasting Volume Factor growth to be 1.50% for each of 2019/20, 2020/21 and beyond. The Corporation is

forecasting Upgrade Factor growth to be 2.54% for 2019/20, 2.58% for 2020/21, and 2.51% for 2021/22.

The combined impact of the forecast premium revenue growth due to Volume Factor, Upgrade Factor and DSR Upgrade Factor is as follows:

Year	Vehicle Upgrade Factor	DSR Upgrade Factor	Total Upgrade Factor	Volume Factor	Total Volume & Upgrade Factor
2017/18 (Actual)	2.32%	0.08%	2.40%	1.44%	3.84%
2018/19	2.45%	(0.06%)	2.39%	1.50%	3.89%
2019/20	2.45%	0.09%	2.54%	1.50%	4.04%
2020/21	2.45%	0.13%	2.58%	1.50%	4.08%
2021/22	2.45%	0.06%	2.51%	1.50%	4.01%
2022/23	2.45%	0.09%	2.54%	1.50%	4.04%

2.3. Driver Premiums

The level of Driver Premiums paid by licensed drivers is based on the DSR scale. Until Order 130/17, issued after the 2018 GRA, the DSR scale ranged from $15 at level 15 to $2,500 at level -20. In the 2018 GRA, the Corporation applied, and the Board approved, an increase to driver premium revenues by $17.5 million, by increasing the driver premiums to the demerit side of the DSR scale only, such that the scale now ranges from $15 at level 15 to $3000 at level -20.

The Corporation reported in this GRA that the estimated annualized impact of the increase in DSR demerit premiums is $16.8 million, with the increase in revenue associated with the higher DSR premiums having been approximately $8.4 million through the second quarter of fiscal year 2018/19.

Driver Premiums are forecast to be $70.9 million in 2019/20, and to increase to $72.9 million in 2020/21. The forecast considers five components: the number of earned driver units by DSR level; the expected movement of drivers on the DSR scale; the average

number of earned driver units by DSR level; the driver premiums by DSR level; and a percentage reduction in drivers' premiums from appeals.

2.4. Investment Income

The Corporation's funds available for investment are primarily the assets supporting the unearned premium reserves and unpaid claims reserves. The funds within the portfolio support both the payment of accident claims and the pension obligations of the Corporation. The Corporation had short and long-term investments, including cash and equities, for the Basic Line of Business totalling $2.4 billion in 2017/18, which is forecast to grow to over $2.5 billion by 2022/23.

Investment income earned from the Corporation's investment portfolio reduces the revenue that it is required to collect through premiums. The Corporation's investment income is allocated to the Basic Insurance line of business based on a monthly averaging of the funds available within each division. MPI realized $134.8 million in investment income in 2017/18, of which 86.28%, or $116.3 million, was allocated to Basic. This was a $33.4 million improvement from the $82.9 million income allocated to Basic in 2016/17.

Based on the September 30, 2018 Naïve interest rate forecast, MPI is forecasting investment income allocated to Basic of $171.4 million in 2018/19, $84.9 million in 2019/20 and $88.3 million in 2020/21. Further discussion on MPI's investment portfolio and returns is found in Section 7 of this Order.

2.5. Service Fees and Other Revenues

The Corporation reported that service fees and other revenues account for approximately 2.0% to 2.5% of annual revenues for the Basic program, and that there are approximately 25 to 30 service fees and revenue types allocated to Basic. These fees and other revenues include revenue from quarterly and monthly pre-authorized payment plans, late payment fees, motor vehicle transaction fees, dishonoured payment fees, pre-authorized

default fees and other fee-related items. Some Basic Service Fees are collected by MPI on behalf of the Government.

Basic projects income from Service Fees and Other Revenues of $23.8 million in 2018/19, $25.8 million in 2019/20, and $27.6 million in 2020/21.

In the 2018 GRA, the Corporation advised that a Basic Service Fees review was under way and close to completion. The Board, in Order 130/17, directed the Corporation to report on the results of the Service Fees Review in this Application. In this Application, the Corporation reported that it had completed the Service Fee Review in 2017/18, which consisted of a jurisdictional scan, comparing its service fees to those of the Insurance Corporation of British Columbia (ICBC), Saskatchewan General Insurance (SGI), as well as with those of Manitoba Hydro. The Corporation determined that no changes were yet required, explaining that it would be premature to seek changes to the Basic service and transaction fees prior to it knowing the outcome of any changes that might be made by the Government of Manitoba to *The Drivers and Vehicle Act* service fees.

3. RATE INDICATIONS

3.1. Accepted Actuarial Practice in Canada

Ratemaking in accordance with Accepted Actuarial Practice in Canada (AAP) involves determining the indicated rate level such that, for a given future rating year, the present value of expected future revenue cash flows (e.g., premiums and fees) is equal to the present value of expected future expense cash flows (e.g., claims, adjusting expenses and non-claims-related costs, including any profit provision).

In Order 162/16, the Board approved the rate indication prepared by the Corporation based on AAP, and directed that the Corporation follow AAP as the basis for its rate indications in future rate applications. The Corporation commenced using AAP as the basis for its rate indications in the 2018 GRA, and continued to do so in this Application.

In Order 130/17, the Board ordered that a Technical Conference be held prior to this GRA, the scope of which included seeking consensus on the following matters relating to rate-setting in accordance with AAP:

- Basing the cash flow discount rate assumption on the expected new money rate averaged over the full proposed rating year rather than as at the start of that rating year;

- Segregating the pension liabilities and the related supporting investment assets from the determination of the cash flow discount rate and the expected return on investment assets supporting Basic Total Equity; and

- Improving recognition of investment fees in the determination of the cash flow discount rate and the expected return on investment assets supporting Basic Total Equity.

The Application addressed all but the last of these three matters either directly or as a consequence of the Corporation's new Asset Liability Management strategy, which is discussed in detail later in this Order. The Corporation noted an oversight, that it did not address the last of these three matters in this Application, which will be properly addressed in future GRAs.

The Corporation's estimate of its overall rate requirement is sensitive to the methods and assumptions used in its derivation. In the Application, the basis for the Corporation's rate proposal is an AAP overall rate indication comprised as follows:

Break even overall rate indication	+0.1%
Impact of expected return on investment assets supporting Basic Total Equity	-1.2%
Impact of Capital Maintenance Provision	+3.3%
Total overall rate indication	**+2.2%**

The underlying analysis for this rate indication used a Naïve interest rate forecast (which assumes no change in market interest rates going forward), based on market interest rates as of the end of February 2018. The assumed AAP new money cash flow discount rate based on this interest rate forecast was 3.21%.

In the course of the public hearings, the Corporation provided an update to its interest rate forecast to the end of September 2018, which increased the assumed AAP new money cash flow discount rate by 19 basis points, up to 3.40%. This, in turn, reduced its estimate of the total overall rate indication to an increase of 1.8%. In its testimony, the Corporation acknowledged the relevance of recognizing this forecast update and the resulting impacts on assumptions and the overall rate indication.

3.2. Vehicle Classification System

The Corporation classifies vehicle risk by considering insurance use, rating territories, and rate groups. Insurance use classifications categorize vehicles by the nature of the vehicle and its intended insurance use, which now includes rates for Vehicles for Hire, further to Order 11/18. There have been no changes in insurance use classifications in this Application.

Vehicles are assigned to one of five territories in Manitoba, including a commuter territory in the areas adjacent to the City of Winnipeg, based on the primary residence of the registered vehicle owner. There have been no changes to the rating territories in this Application.

For passenger vehicles and light trucks, the Corporation uses the Canadian Loss Experience Automobile Rating system (CLEAR) promulgated by the Insurance Bureau of Canada (IBC), which amalgamates data from Canadian insurers and creates rate groups (up to 99) by vehicle make, model and model year, for each of collision, comprehensive and accident benefits coverages. The Corporation combines those rate groups to produce a smaller number of rate groups for the single Basic coverage package. It then adjusts for its own experience by rate group, thereby re-calibrating the CLEAR indications.

The Corporation reported that for 2019/20, the following changes were applied:

- CLEAR rated passenger vehicles and light trucks;
- Rate group changes for heavy trucks and heavy-rated–as-light trucks; and
- Rate line changes for passenger vehicles, light trucks, heavy trucks, motorcycles, mopeds and mobility vehicles, motorhomes, trailers, and buses.

3.3. Interest Rate Forecasting

This Application included considerable discussion of the appropriate basis for interest rate forecasting, as in previous years. The Naïve interest rate forecast, which was proposed by the Corporation, assumes no change in market interest rates going forward from the starting forecast date (in the Application, filed the end of February 2018). The Standard Interest Rate Forecast (SIRF) bases the assumed forecast on a consensus of independent forecasts from the major Canadian banks, plus Global Insight, an economics organization that specializes in economic forecasting and market outlook. The

compromise between these alternatives is the 50/50 interest rate forecast, which adopts the average of the Naïve and SIRF at each point over the forecast period. It was first formally introduced by MPI in the 2017 GRA.

In Order 130/17, the Board directed that the 50/50 interest rate forecast be used for rate-setting and target capital purposes.

In support of its use of the Naïve forecast in the Application, the Corporation noted that it is required to base its rate application on best estimates, and that for this Application, the Corporation's management and Board of Directors continued to maintain that the Naïve interest rate forecast is the best estimate. MPI defended its position with an analysis of the standard error (actual vs. forecast) of the competing forecasts (which speaks to the forecast efficiency), from the 2005 GRA up to the 2018 GRA. This analysis showed that the Naïve forecast had the lowest standard error relative to either the SIRF or the 50/50 forecast.

The Corporation also undertook a paired sample t-test on the sample mean, to test if the 50/50 forecast and the Naïve forecast produced a statistically significant difference in results. This analysis indicated that the Naïve forecast produced a forecast with less bias than, and with a statistically significant difference from, the 50/50 forecast at the 99th percentile.

The Corporation also cited the evidence of its external appointed actuary, that a Naïve forecast is the most common approach in the Dynamic Capital Adequacy Testing (DCAT) base scenario financial forecasts his firm reviews, and that it constitutes a reasonable base forecast because of the uncertainty in forecasting how interest rates may change. The external actuary acknowledged that this evidence was provided in a DCAT context, and not a rate-setting context.

MPI's adoption of the Naïve forecast reflects its reluctance to "betting" on how interest rates will move in the near term.

In MPI Exhibit #26, filed in the course of the public hearings, the Corporation provided an updated alternative overall rate indication based on a 50/50 forecast, reflecting market interest rates as of the end of September 2018. Relative to the 1.8% overall rate indication noted above and based on the Naïve forecast as at the same date, the alternative overall rate indication would fall to 1.0% under the 50/50 forecast.

3.4. Capital Maintenance Provision

3.4.1. Basic Concept

The concept of a Capital Maintenance Provision (CMP) was first reviewed before the Board in the 2018 GRA, as a possible means of recognizing in the rate-setting process the expected growth of Basic's risk profile and depletion of Basic's capital position that naturally arises from the expected growth of Basic's actuarial liabilities and its supporting investment portfolio.

In Order 130/17, the overall rate change approved by the Board was based on permitting the expected return on investment assets supporting Basic Total Equity to be retained by Basic, and not passed through to ratepayers in the form of lower rates. This approval was temporary pending further examination of the CMP concept. Permitting the expected return on investment assets supporting Basic Total Equity to be retained by Basic acts, in effect, as a proxy for the CMP.

In Order 130/17 the Board also directed that a Technical Conference be held to seek a consensus approach to estimating a CMP. The Technical Conference was held on March 2, 2018.

In the Application, the Corporation proposed a Net Capital Maintenance Provision (Net CMP) which is added to the break-even overall rate indication, and consisted of two distinct parts:

- A first component to recognize the expected return on investment assets

supporting Basic Total Equity; and

- A second component representing a CMP.

The Corporation's proposed approach to estimating the CMP consisted of determining what magnitude of overall rate level change to take effect on March 1, 2019 was needed in order to maintain Basic's forecasted Minimum Capital Test (MCT) ratio as at February 28, 2019 unchanged over the ensuing twelve months. The Corporation acknowledged that, in some respects, this would represent a shift back from rate-setting in accordance with AAP to again set rates based on expected Basic financial results from the Basic financial forecast, although the Corporation's approach does quantify the rate level contribution of the component parts.

In the course of the Information Request process in this GRA, MPI provided alternative estimates of a CMP based on its understanding of the approach followed by the Saskatchewan Auto Fund. While the Corporation made its best efforts in providing these alternative estimates, these estimates could not be thoroughly tested as evidence, as the Saskatchewan Auto Fund methodology was not a part of the evidentiary record.

3.5. Interveners' Positions

CAC

CAC called two expert witnesses to give evidence on interest rate forecasting and the CMP. Dr. Wayne Simpson is a professor of economics at the University of Manitoba and was qualified as an expert in applied econometrics, applied microeconomics and quantitative methods. Dr. Simpson has testified as an expert in previous hearings before the Board.

Andrea Sherry is Vice-President, Insurance Solutions with the Wawanesa Mutual Insurance Company and was pre-qualified as an expert in actuarial analysis with a focus of pricing, rate-making and risk related to automobile insurers generally including crown owned automobile insurers. Ms. Sherry has been qualified as an expert witness in previous GRA hearings.

While Dr. Simpson and Ms. Sherry were called by CAC to provide evidence in this Application, their evidence is given independent of the positions advanced by CAC, and is intended to assist the Board in making its decision.

With respect to interest rate forecasting, Dr. Simpson and Ms. Sherry co-authored a report entitled *The Role of the DCAT and Interest Rate Forecasting* (DCAT/IRF Report).

The DCAT/IRF Report indicated the authors had two significant concerns with respect to the 2019 GRA:

- A renewed emphasis on attaching the MCT to the determination of the Rate Stabilization Reserve (RSR); and
- The continued use of the Naïve interest rate forecast to determine the break-even rate indication and in the DCAT to determine the RSR target range.

The DCAT/IRF Report acknowledged that the era of low interest rates in the aftermath of the recession of 2008 has been a challenging period for interest rate forecasting. The SIRF had been too optimistic about economic recovery and, until recently, overestimated forecasted interest rates.

However, in Dr. Simpson and Ms. Sherry's opinion, the Corporation's argument for the adoption of a Naïve forecast based upon the ten-year Government of Canada benchmark bond yield should not be accepted.

The DCAT/IRF Report set out that the foundation for rising interest rates remains solid, and that the historical evidence is no longer as important. According to Dr. Simpson and Ms. Sherry, the Naïve forecast used by the Corporation explicitly ignores recent economic information from the Bank of Canada and other sources. Moreover, the report dismissed the Corporation's claim that the Naïve forecast is unbiased. Recent Naïve forecasts have under-predicted interest rate increases and recent economic events, including inflationary pressure, which all point toward higher interest rates as the economy approaches full capacity. Accordingly, this information would imply that there is a much higher probability that the Naïve forecast will under-predict, rather than over-predict, interest rates. In this sense, in their opinion, the Naïve forecast was likely to be more biased in the current economic environment than forecasts of modestly rising interest rates as provided by the SIRF and 50/50 forecasts.

Although the DCAT/IRF report concluded that the 50/50 interest rate forecast should be used for determination of the rate indication and the DCAT analysis, in his testimony in the public hearings, Dr. Simpson testified that the weighting should actually be more in favour of SIRF rather than Naïve and, ultimately, his best estimate was that the SIRF would prove to be most accurate for the 2019/2020 fiscal year.

Dr. Simpson and Ms. Sherry also co-authored a report entitled *The Capital Maintenance Provision Proposal by Manitoba Public Insurance* (CMP Report). Dr. Simpson and Ms. Sherry were of the opinion that a CMP is not necessary. In their view, the procedure that

has been adopted in previous GRAs determines the true capital need of the Corporation, based on adverse scenario analysis through a modified DCAT. That analysis determines the amount of capital needed to be held by the Corporation for prudent fiscal management of plausible adverse scenarios and, in turn, determines the RSR range. Since that analysis is carried out yearly, any capital deficiency or surplus could be dealt with through rebuilding fees or rebates on a year to year basis.

In the CMP Report, Dr. Simpson and Ms. Sherry expressed concern that a CMP was not agreed to at the Technical Conference, nor had a CMP been approved by the Board. Dr. Simpson and Ms. Sherry also expressed the concern that the introduction of the CMP is a significant change, given its effect on the requested rate change, and therefore the public should have an opportunity to express its views before such a significant change be implemented.

Further, in Ms. Sherry's view, the CMP would constitute an addition of capital load into the rate indication. The Actuarial Standards of Practice are silent on such an approach and, therefore, in Ms. Sherry's opinion, the CMP would not be "aligned" with AAP. Moreover, the authors noted that the Corporation advised that it is not aware of the existence of any industry, gray or peer-reviewed literature regarding the need or the methodology for establishing a CMP for non-profit, monopoly, public auto insurers.

In addition, because the stated purpose of the CMP is to maintain capital at a steady level based upon a projected MCT ratio, the authors believe the use of an MCT ratio to set a CMP level would be arbitrary. Furthermore, the Board had shown support for the determination of the RSR range based on the DCAT analysis, not an MCT ratio.

Dr. Simpson and Ms. Sherry stated that the introduction and basis for the CMP in the 2019 GRA was incomplete. That is, the Corporation had advised that it is currently developing a capital management plan to more comprehensively deal with the calculation of lower and upper RSR targets, as well as rebuilding fees and rebates.

Finally, Dr. Simpson and Ms. Sherry were of the opinion that the introduction of a CMP would cause intergenerational inequity, by introducing an increase in rates for policy holders in the 2019/20 rating year to the benefit of policy holders in future years.

Accordingly, Dr. Simpson and Ms. Sherry recommended that the proposed CMP not be approved by the Board.

When questioned by the Board concerning the risk that maintaining capital too close to the lower target capital threshold could result in frequent (every four or five years) requests for rebuilding fees, Ms. Sherry expressed the opinion that it would make more sense to keep the rebuilding fee closer to the year in which the capital deficiency was determined. She also expressed preference for the use of rebuilding fees rather than a larger lower target capital threshold as the Corporation's capital position is reviewed annually.

CAC argued that MPI had not discharged its onus to demonstrate that the Naïve forecast should replace the 50/50 forecast for rate-setting purposes, and that a material change in circumstances over the last two years suggests that greater reliance should be placed on the SIRF than the Naïve forecast. CAC also reminded the Board of the evidence of the Corporation’s own expert witness, Dr. Sean Cleary, in the 2017 GRA, recommending use of the 50/50 forecast.

CAC took the position that the CMP should not be approved by the Board and argued that the Board is not obliged to build a cushion for imprudence into the rates, or to pass on imprudent and unreasonable costs on to ratepayers. CAC recommended a rate decrease of -1.75%, the rate resulting from the inclusion of the expected return on the investment assets supporting Basic Total Equity in the rate indication, the rejection of the CMP, and the use of the SIRF or the 50/50 interest rate forecast. CAC also took the position that a further rate reduction could be ordered, based on foregone investment opportunities.

CMMG

CMMG expressed the view that it appears that the intent of the Corporation is to collect as much premium as possible in order to provide "smooth sailing" for the Government and the Corporation, irrespective of the Corporation's mandate.

CMMG also commented that interest rate methodology is extremely important to the motorcycle class as their rate indication is more sensitive to the assumed interest rate than is the case for the other Major Use classes. Considering the upward movement in market interest rates already observed, and the acknowledged Bank of Canada expectation for further increases to come in the overnight rate, CMMG recommended rejection of the Naïve interest rate forecast in favour of the 50/50 forecast.

Using the 50/50 interest rate forecast, excluding the CMP, the breakeven rate indication would be a rate reduction of -0.6% in motorcycle premiums, and should the Board approve the CMP, the rate indication would then only be a 1% increase. While CMMG was not endorsing a rebate, it expressed the view that a rebate would be more appropriate than the Corporation's attempts to collect additional premium. CMMG observed that the increases in the Government of Canada ten-year bond rates and in the Bank of Canada interest rates would not justify the use of the Naïve interest rate formula at this time.

3.6. Board Findings

The Board hereby approves an overall rate increase of 1.8%, based on the Naïve interest rate forecast updated to the end of September 2018, and inclusive of the Corporation’s proposed Net Capital Maintenance Provision, as estimated by the Corporation in MPI Exhibit #26.

In Order 82/18, the Board asked that the Corporation justify the use of the Naïve interest rate forecast and in particular, any change of circumstances since the issuance of Order 130/17 that would warrant the use of the Naïve interest rate forecast. Nevertheless, through the evolution of the Information Request process and in the public hearings,

ultimately, significant evidence was devoted to the issue of the interest rate forecast, both from the Corporation and from CAC.

The Board's approval of the use of the Naïve interest rate forecast is for this year only, and applies to rate-setting and the target capital analysis. In the 2020 GRA, the Corporation shall report back on its tracking of interest rate movements and how this informs its decision on interest rate forecasting.

In reaching its decision, the Board recognizes that it has deviated from its position on interest rate forecasting as set out in Order 130/17. However, the Board finds that the Naïve interest rate forecast represents a best estimate for rate-setting purposes, provided that it reflects the evidence led on the latest available market information at the time of the hearing, as was the case in this GRA. The Board has considered all of the evidence with respect to interest rate forecasting in this and previous GRAs, and it bases its decision on the acknowledged and consistently evident uncertainty inherent in forecasting interest rates. The Board acknowledges the comment in the report of Dr. Simpson and Ms. Sherry, that the aftermath of 2008 has been a challenging period for interest rate forecasting. The Board notes that prior to the 2017 GRA, the parties applied the SIRF, notwithstanding eight years of flat interest rates. In the 2017 GRA, when interest rates continued to be flat, MPI's expert witness supported the 50/50 forecast, while CAC's expert supported the SIRF. For this GRA, the parties again changed their positions. The reality is that there is no certainty in predicting interest rates as the correctness of the forecast only becomes obvious in hindsight. The Board finds that building that uncertainty into the rate indication is not reasonable for ratepayers at this time. The Board is prepared to err on the side of caution in determining the best estimate, especially when the Corporation has found it necessary to transfer funds from Extension to fund the Basic RSR in each of the four previous years, which transfers were due, in part, to inaccurate interest rate forecasts.

The Board acknowledges that the Corporation's Asset Liability Management strategy, which is discussed in detail later in this Order, has led to Basic's financial results being

considerably less sensitive to interest rate shifts. As a result, any error made with respect to interest rate forecasting will be of much less financial consequence, whether positive or negative, to Basic's operating results and capital position. The Board also notes that, with the adoption of rate-setting in accordance with AAP, interest rate forecasting risk has been reduced by virtue of the shorter forecast horizon required by AAP, relative to that needed previously when setting rates based on forecasted Basic net income. The Board will revisit this issue in less than one year, in the 2020 GRA.

The Board hereby approves the Corporation's proposed Net Capital Maintenance Provision for one year only at this time, accepting the argument in the interim that it is appropriate to provide protection against forecasted natural depletion of Basic's capital position, as measured by the MCT over the coming rating year.

However, the Board's approval of the Net Capital Maintenance Provision is conditional on the Corporation bringing forward, in the 2020 GRA, a capital management plan. The Board therefore directs that in the 2020 GRA, the Corporation bring forward a thorough capital management plan, encompassing the entire Corporation and including the following:

- Minimum, maximum, and/or target capital level for all lines of business;
- A Capital Maintenance Provision built into ratemaking;
- A capital build and release methodology based on the capital targets;
- Clearly defined policy-based constraints on the speed and magnitude of the combined rate impact of rate changes, capital maintenance, capital build, and capital release provisions;
- Clearly defined rules on the transfer of capital from other lines of business; and

- Evolving the basis of estimating Basic's Net Capital Maintenance Provision in a manner consistent with the objective of promoting stability over time in this estimate.

To this end, the Board also directs that a Technical Conference be held, to be facilitated by the Board at a mutually convenient time and in sufficient time to allow any findings from the Technical Conference to be fully reflected in the 2020 GRA, with the objective of developing a stakeholder consensus around a capital management plan, through discussion of the Corporation's draft proposal.

With respect to Ms. Sherry's opinion that the CMP is not "aligned" with AAP, the Board notes that the Actuarial Standards of Practice are silent on this approach, and silence should not be assumed to be non-alignment. Therefore, Board finds there is no evidence to indicate that the use of the CMP would contradict Actuarial Standards of Practice.

The Board acknowledges Ms. Sherry's testimony that RSR rebuilding fees are available if the Corporation falls below the lower target capital threshold, and fee can be introduced when the range is reviewed at the GRA each year. The Board further understands that the Government of Manitoba is always available as a backstop. Notwithstanding, the Board disagrees with the position that it is preferable to contemplate the use of rebuilding fees on a regular basis in the normal operation of the Corporation. Rebuilding fees should be used as an urgent measure when unexpected results are realized. Government interventions should only be required when extraordinary events, beyond the control of the Corporation, occur. Anything less would reflect a fundamental flaw in the Corporation's business model and/or the regulatory system.

Lastly, the Board acknowledges the Corporation's new mission statement, and looks forward to being updated in the 2020 GRA on its progress in implementation of the corporate values in MPI's business model.

4. VEHICLES FOR HIRE (VFH)

By Order 11/18, issued on January 15, 2018, the Board granted to MPI approval of its rates for Vehicles for Hire (VFH), on an interim basis only, recognizing the urgency of the need for rates to be in place, as *The Local Vehicles for Hire Act* was to come into force on February 28, 2018. In Order 11/18, the Board issued a number of directives to MPI, with the expectation that MPI would be in a position to provide further information and experience following the interim approval of the VFH rates in order for MPI to refine its rating model and rates.

MPI sought final approval of the rates approved on an interim basis in this GRA. In the interim Application, which was included in the Corporation's materials filed in this GRA, the Corporation sought interim approval of the following rates for service effective March 1, 2018:

- The premiums charged with respect to compulsory VFH rates for service, effective March 1, 2018.
- Interim VFH rates for service were requested for both the 2017/18 and 2018/19 insurance year, based on rates approved in Board Orders 162/16 and 130/17.
- Changes to eligibility for vehicle premium discounts for VFH.
- Waiving of service fees for change of insurance for VFH.
- A mechanism for refunding/collecting any variance between interim and final approved VFH rates for service, as determined through the 2019 GRA.

The Corporation proposed no changes to miscellaneous permits and certificates, driver license premiums, or fleet rebates and surcharges.

The Corporation stated that, where possible, pricing of its policies was based on known experience, and that pricing of future policies would incorporate claims experience to

ensure that customers are paying appropriate premiums. VFH policies would be tracked in a separate pool to ensure there is no impact on other Basic customers.

MPI advised that it evaluated several rating models within the context of the compulsory nature of the Basic insurance program. It reviewed rating models and pricing in Ontario, Alberta and Quebec, and performed an initial scan of rating models used in the United States. According to MPI, no industry standard had yet been developed on insurance rating models across jurisdictions for Transportation Network Companies (TNC). The Corporation had determined that the rating models it reviewed, and which are used in other Canadian jurisdictions, were not suitable to MPI given the compulsory nature of the Basic insurance program.

MPI deemed passenger vehicles and light trucks as eligible for VFH uses in Manitoba.

The Corporation also advised that, to streamline the registration process and system, it would discontinue the registration classes used for existing Taxis, Limousines and Liveries. In the previous scheme, the "X-Plate" registration class was comprised of four classes, and issued licence plates beginning with X: Taxicabs, City Liveries, Limousine Liveries, and Country Liveries. The Corporation advised that the X-Plate registration classes would expire and no longer be issued after April 30, 2018. All VFH vehicles would be issued standard plates.

In the interim Application, MPI proposed four categories for the VFH Rating Model:

- Taxicab VFH
- Limousine VFH
- Accessible VFH
- Passenger VFH

The premiums for each category of VFH were established separately. The insurance premiums would be based on four defined time bands, also referred to as "Levels". Each of the four categories of VFH would have the same four time bands available to them, with customers being able to self-select any combination of the four time bands. Customers would have anywhere from Level 1 coverage to Level 4 coverage, depending on the number of time bands purchased.

Premiums would be based on the number of time bands selected. Upon purchasing four time bands, VFH drivers would have the ability to operate during on selected days and times, up to 24 hours a day, seven days a week. The time bands are as follows:

Time Bands	Time of Insured Commercial Operation
A	Monday through Friday 10:00 am to 3:00 pm and Sunday through Thursday from 7:00 pm to 11:00 pm
B	Nightly 11:00 pm to 7:00 am
C	Monday through Friday 7:00 am to 10:00 am and 3:00 pm to 7:00 pm
D	Friday 6:00 pm through Sunday 11:00 pm

When a VFH is operated outside of its insured VFH time band, it would be insured for non-commercial operation. If a VFH fare originated during an insured time band, but the ride extended beyond the time band and was completed during a non-commercial operation time, the insurance coverage for VFH operation would extend to cover the duration of that fare.

The Corporation also proposed that there be no charge when changing the insurance on a passenger vehicle or light truck to a VFH, although it might re-evaluate this approach in future GRAs.

All VFH would have the following Basic insurance coverage, consistent with Basic's all-purpose Passenger Vehicle Coverage:

- $200,000.00 Third Party Liability
- $50,000.00 Minimum Insured Value
- $500.00 deductible

Therefore, Taxicabs, Limousines and Livery Vehicles would have their Basic deductible reduced by $100.00, from their previous deductible level of $600.00.

In this Application, MPI sought final approval of 2017/2018 and 2018/2019 VFH rates for service, and applied for approval of VFH rates for 2019/2020. The Corporation also reported on certain items about which the Board in Order 11/18 had directed the Corporation to report.

The Corporation advised that the primary means of limiting cross subsidization between VFH and the rest of Basic was through the creation of a new pool to track the VFH claims experience. It reported that it is collecting the same information on VFH policy claims as it does for all other policies, and claims experience for VFH classes will be tracked separately, which will form the VFH pool used to set actuarially sound rates for VFH policies. In addition to establishing a separate pool, MPI will continue to employ its processes to ensure that claimants are correctly insured at the time of a claim.

MPI reported that it had conducted an ongoing review of rating models used in other Canadian jurisdictions. Those other models were not considered suitable with Manitoba's public insurance environment given the compulsory nature of Basic. At the time of the Application, neither British Columbia nor Saskatchewan had permitted the operation of TNCs; accordingly, MPI's review of other jurisdictions could not include comparable public insurers.

MPI had assumed that the Taxi class of VFH would experience a $1 million reduction in premiums, relative to a written premium base of $5.7 million, reflecting an approximately 17.5% reduction in premium. To date, the Corporation reported, the average Taxi VFH has received a DSR discount of approximately 20.6%, and the claims costs for Taxi VFH have tracked closely with the premium reductions.

As of April 30, 2018, MPI reported a total of 872 vehicles insured as VFH, with the vast majority being comprised of the Taxi (497 vehicles insured) and Passenger (304 vehicles insured) classes. As of May 22, 2018, there were a total of 191 VFH-related claims.

4.1. Board Findings

The Board hereby grants final approval of the rates applied for by the Corporation in its Vehicles For Hire Rate Application, filed with the Board on December 15, 2017, and approved on an interim basis by the Board in Order 11/18. The Board recognizes that TNCs are a relatively new phenomenon in Manitoba and as such it will take time for claims experience to be gathered and tracked for the VFH pool. The Board directs that in the 2020 GRA, the Corporation file information as to its claims experience to date for the VFH class.

5. DRIVER SAFETY RATING (DSR)

As set out above, in the 2018 GRA, the Corporation applied for an increase to the demerit premiums for the DSR system. The Board approved the Corporation's application in that regard, but required that the Corporation undertake further work such that in the future, DSR rates and vehicle premium discounts would be based on principal driver rating than the registered driver rating. To that end, the Board directed in Order 130/17 that a Technical Conference take place on the availability and practicality of other analytical tools and ratemaking methodologies to better determine DSR rates and vehicle premium discounts based on principal driver rating rather than registered driver rating. The Board also directed the Corporation to file proposed driver premium rates more statistically consistent with the estimated average claims cost per driver for each level on the demerit side of the DSR scale in this Application, and, in the 2021 GRA, file proposed vehicle premium discounts that are actuarially indicated based on principal driver performance evaluation.

The Corporation applied for a review and variance of those aspects of Order 130/17, on the basis that the foundational structure and purpose of the DSR program and the vehicle premium discounts were only given a cursory review in the 2018 GRA, and there was insufficient evidence or consideration given to justify changes to the structure and

implementation of the DSR program. MPI took the position that while it might be appropriate to change the framework for the DSR scale, this should only be done after consideration is given to a complete evidentiary record.

By Order 29/18, the Board granted MPI's application in part. First, with respect to the requirement for a Technical Conference, the Board directed that it be undertaken in order to review the availability and practicality of other analytical tools and ratemaking methodologies to better determine DSR rates and vehicle premium discounts based on principal driver rating rather than simply registered driver rating. The information shared in the Technical Conference was to be included in this Application. Further, in this Application, MPI was required to file information as to how it would proceed to implement driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium discounts fully supported by actuarial indications based on principal driver performance evaluation. If MPI's position was that it is not possible to implement driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale and/or vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation, MPI was to advise the Board in this Application, and file information as to why that is the case.

The Board also varied those aspects of Order 130/17 that required the Corporation to file proposed driver premium rates more statistically consistent with the estimated average claims cost per driver for each level on the demerit side of the DSR scale in this Application, and, in the 2021 GRA, file proposed vehicle premium discounts that are actuarially indicated based on principal driver performance evaluation. In Order 29/18 the Board varied those directives such that they were to be held in abeyance until such time as the issues of driver premiums more statistically consistent with the average claims cost per driver for each level on the demerit side of the DSR scale, and vehicle premium discounts that are fully supported by actuarial indications based on principal driver performance evaluation, were reviewed and considered in the this Application.

The Technical Conference on the DSR took place on March 20, 2018.

In this Application, the Corporation stated that DSR-based driver premiums should be actuarially sound, and that it is considering options for alternative models. This includes engagement with the public, as well as gathering of data. MPI advised that it plans to provide an update on or the results of its analysis in the 2020 GRA. MPI did acknowledge that it needs to improve the actuarial soundness of the DSR-based driver premiums and vehicle premium discount calculations, which are currently set by policy.

The Corporation also stated that it can improve the DSR model, to ensure that risk is better reflected in driver premiums and vehicle premium discounts under the DSR scale. These improvements will result in further disincentives for engaging in high-risk driving behavior and customers at the top and bottom of the DSR scale will pay rates that better align to their driving behavior. MPI has not yet determined that DSR ratemaking methodology should be based on principal driver performance evaluation.

The Corporation reported on certain models for driver premiums and vehicle premium discounts that might be considered in determining what changes should be made to the DSR rating system, and provided its views on each of the models. The models reviewed include: Primary Driver, Declared Driver, Forced Assignment, and Residual Risk.

Primary Driver would require policyholders to identify the primary driver of the each vehicle in the household. The Declared Driver model would require the policyholders to identify the regular drivers of the vehicle, and the Corporation could determine vehicle discounts based on some variable (i.e., average, lowest DSR rating) of the listed drivers of the vehicle. Forced Assignment would require MPI to develop the ability to easily and accurately identify all licensed drivers in a given household, and then determine vehicle discounts on the basis of the DSR data gathered about those drivers, or to assign specific vehicles to certain drivers for rating purposes. The Residual Risk model would ensure that drivers who do not register vehicles pay an actuarially determined driver premium based on their historic risk, and driver premium collected from non-owners would be used

to lower vehicle premiums, and/or improve the actuarial soundness of the vehicle premium discounts.

The Corporation is in the process of researching these models. With respect to the demerit side of the DSR scale, the Corporation noted that is where drivers create risk; accordingly, it needs to collect more premiums from that particular group, but the current model that is used is not actuarially sound.

The Corporation reported that the next steps towards the implementation of more actuarially sound DSR premiums and vehicle premium discounts will involve its public consultation efforts, along with further investigation and analysis of those rating models having limited or no additional IT costs (Primary Driver and Residual Risk). It reported that it anticipates by the 2020 GRA, it will be in a position to report on the results of its public consultation efforts, its preliminary research on the no or low cost options, and whether it intends to proceed with data collection for higher cost options (Declared Driver and Forced Assignment).

5.1. Interveners' Positions

CAC

While CAC did not advocate for a particular rating model, it did express the view that, given the potential dramatic changes to DSR which could result from the Residual Risk approach, MPI should be directed to engage with stakeholders, including CAC, CMMG, CAA and Bike Winnipeg, regarding best practices for consumer engagement and recommendations on DSR.

5.2. Board Findings

The Board recognizes that MPI is continuing to do work necessary in order to assess, and ultimately implement, a DSR system that is more actuarially sound. Accordingly, the Board directs that in the 2020 GRA, the Corporation report on the progress of its public consultation efforts, its preliminary research on the no or low cost options for rating models, as well as on its decision on whether to proceed with data collection for the higher cost options.

As to the recommendation made by CAC, the Board is not prepared to direct the Corporation as to the manner in which the Corporation is to conduct its public consultation on the DSR. The Board anticipates that in the 2020 GRA, the Corporation will provide a full report as to its engagement with the public, which can be fully assessed and considered in the course of the 2020 GRA.

6. PROGRAM COSTS

The costs associated with providing Basic Insurance to Manitoba motorists fall into the following major categories:

	Total Estimated Expense 2019/20 ($ millions)	Percentage of Total Program Costs
Net Claims Incurred	**$900.2**	**74.8%**
Claims Expenses	**135.4**	**11.3**
Road Safety/Loss Prevention	**12.7**	**1.1**
Operating Expenses	**73.6**	**6.1**
Commissions	**42.7**	**3.5**
Premium Taxes	**33.7**	**2.8**
Regulatory/Appeal expenses [1]	**4.8**	**0.4**
Total Program Costs	**$1,203.1**	**100.0%**

6.1. Basic Claims Incurred

Claims Incurred represent the costs that are paid or forecast to be paid to claimants for the various benefits provided under the Basic Insurance program. Net Claims Incurred were $767.2 million in 2017/18, which was $27.8 million or 3.76% over the budget presented at last year's GRA.

[1] Regulatory and appeal expenses relate to: Public Utilities Board, Crown Corporations Council and Automobile Injury Claims Appeal Commission.

The 2019/20 Net Claims Incurred Forecast decreased by $12.6 million from the forecast presented in the 2018 GRA, primarily as a result of the following:

- A decrease of $18.9 million due to a lower forecast for Physical Damage claims;
- A decrease of $7.9 million from a lower forecasted Write Down DPAC/Premium Deficiency; and
- An offsetting increase of $13.2 million from a forecasted decrease in claims discount rate and higher forecasted Unallocated Loss Adjustment Expense.

Claims Incurred for the fiscal years 2014 - 2018 for the major coverages were as follows:

For years ending February 28/29 ($ millions)	2014	2015	2016	2017	2018	5 Year Change	
Physical Damage - All Perils							
Collision	374	315	354	409	426	52	14%
Comprehensive	77	70	123	118	67	(10)	(13%)
Property damage	48	38	41	43	49	1	2%
Sub-total	**499**	**423**	**518**	**570**	**542**	**43**	**9%**
PIPP Accident Benefits	245	317	142	284	220	(25)	(10%)
Public Liability	3	6	6	5	5	2	67%
Total Claims Incurred	**747**	**746**	**666**	**860**	**767**	**20**	**3%**

Overall Total Claims Incurred were $767.2 million in 2017/18, and are forecast to be $817.1 million in 2018/19, $900.2 million in 2019/20, and $950.7 million in 2020/21, for an overall increase of $183.5 million or almost 24% from 2017/18.

A major component of Total Claims Incurred are collision claims costs, which were $426.5 million in 2017/18. The Corporation indicated that, relative to the long-term average, the last four accident years have had below average collision frequency. Some of the reduction in frequency can be attributed to mild winters although there has also been a reduction in summer collision frequency over the last six years.

The Corporation also advised that collision total loss frequency has been increasing over the past decade. As vehicles become increasingly complex and more expensive to repair, there has been an increase in the percentage of collision claims resulting in total losses. The largest component of Total Claims Incurred is Accident Benefits, which are payable to claimants regardless of fault for a collision, including medical expenses, rehabilitation expenses, funeral expense reimbursement, death payments, impairment benefits, income replacement indemnity and personal care assistance. The estimated cost of Accident Benefits under the Personal Injury Protection Plan (PIPP) program are updated based upon actuarial reserving practices taking into account changes in interest rates on long term claims liabilities.

The following table compares actual PIPP Accident Benefit costs with those previously forecast by the Corporation:

Year Ended February 28/29	**Original Forecast**	**Revised Forecast**	**Actual Cost**	**Difference Original/ Actual *Favourable (Unfavourable)***
2009	$242.1	$239.3	$186.1	$56.0
2010	$249.8	$236.2	$175.0	$74.8
2011	$252.9	$244.6	($59.7)	($312.6)
2012	$253.3	$197.3	$222.8	($30.5)
2013	$203.5	$204.2	$224.2	($20.7)
2014	$210.9	$208.5	$243.9	($33.0)
2015	$184.4	$148.9	$314.5	($130.1)
2016	$166.1	$90.6	$143.0	$23.1
2017	$148.7	$117.9	$283.9	($135.2)
2018	$150.4	$242.6	$281.9	($68.5)

Current fiscal period Claims Incurred are affected by the current year's claims activity, as well as prior years' claims activity. When a claim is first incurred, claims adjusters estimate the ultimate cost of that claim. Over time, as more is learned about the nature of the underlying injury and as partial claim payments are made, adjustments are made to the prior estimate of the ultimate cost of the claim. These adjustments, sometimes called

"runoff", flow through Claims Incurred in the fiscal year in which the adjustments are made.

6.2. Basic Expenses Overview

Operating expenses incurred by the Corporation are allocated to Basic pursuant to a cost allocation methodology approved by the Board in Order 157/12. The cost allocation methodology distributes Corporate expenses to four lines of business, and then further segregates them into four expense categories: Claims, Road Safety/Loss Prevention, Operating and Regulatory/Appeal.

The details of Basic Operating expenses are as follows:

	For the Years Ended February 28/29 ($ millions)				
	2018A	**2019B**	**2020P**	**2021P**	**2022P**
Total Corporate Expenses	**$299.2**	**$301.7**	**$298.8**	**$306.7**	**$319.0**
Basic Allocated Corporate Expenses					
Claims Expense	143.3	137.2	135.4	139.2	144.3
Road Safety/Loss Prevention	13.2	13.6	12.7	12.8	13.0
Operating	70.2	75.1	73.6	76.3	80.0
Regulatory/Appeal	4.4	4.7	4.8	5.0	5.1
Total Basic Allocated Corporate Expenses	**$231.1**	**$230.6**	**$226.5**	**$233.3**	**$242.4**
Percentage of Corporate Operating Expenses	77.3%	76.4%	75.8%	76.1%	76.0%
** A = Actual B = Budget P = Projected					

6.3. Claims Expenses

Claims expenses represent the administrative costs associated with processing and settling claims. Claims expenses were $120.9 million in 2016/17, $143.3 million in 2017/18, budgeted to be $137.2 million in 2018/19, and are projected to be $135.2 million in 2019/20.

6.4. Operating Expenses

The Corporation reported that it has been diligent in controlling and reducing expenses, stating that it had taken the following steps to contain costs:

- An expected reduction in Full Time Equivalent (FTE) staffing counts equating to 3.6% from 2020/21 as compared to the 2017/18 budgeted levels;
- An overall reduction in 2017/18 normal operating expenses of approximately 1% as compared to 2016/17;
- Achievement of a 2017/18 management-controlled reduction of more than $2.6 million;
- A 2018/19 budget which includes the achievement of the 15% management reductions from 2016/17, and committed staff reductions through improvement initiative efficiencies;
- A reduction in implementation expenses in the rating years and throughout the forecast, mainly due to an enhanced focus on Value Management related to projects and a zero budget for insertions of work; and
- Continued reduction of building expenses via identification of efficiencies/synergies, which has led to further building closures.

Operating expenses allocated to Basic were $231.1 million in 2017/18, budgeted at $230.5 million in 2018/19, and projected to be $226.6 million in 2019/20 and $233.3 million in 2020/21, equivalent to compounded annual growth of 0.3% over the three-year forecast period.

MPI reported that it continues to prioritize and control day-to-day operational expenses and project expenses. MPI is committed to providing value to Manitobans through cost

containment, which has become firmly embedded into MPI's culture. For the years 2018/19 and outward, forecasted expenses overall are lower, most notably in the 2019 GRA rating years (2019/20 and 2020/21).

Compensation expenses (salary and benefits) represent 58% of MPI's total operating costs. The Corporation incurred $172.6 million in compensation expenses in 2017/18, and budgeted for compensation to grow to $176.4 million in 2018/19, $181.8 million in 2019/20, and $186.5 million in 2020/21. The Corporation adjusts the gross salary budget by a vacancy allowance, on an overall basis, to reflect what it anticipates will be the actual salary expenditures in a given year. The Corporation has stated that, at any given time, there are vacant positions within its staff complement, referred to as a vacancy provision, which reduce salary expenses. The Corporation incurred a vacancy allowance of $7.1 million in 2017/18 and budgeted for a vacancy allowance of $1.5 million for years 2018/19 through to 2020/21.

MPI incurred net compensation costs of $165.6 million in 2017/18, and has forecasted net compensation costs of $174.9 million in 2018/19, $180.0 million in 2019/20, and $183.9 million in 2020/21.

Basic is allocated all operating expenses, including compensation costs, through the Corporation's integrated cost allocation methodology. Basic is allocated approximately 76% of Corporate compensation expenses. In the case of both the allocation of operating expenses and compensation expenses, the Board is unable to consider the appropriateness of the allocations as it lacks the jurisdiction over the Extension line of business. The allocation of compensation expenses to Basic has increased from $116.0 million in 2014/15 to $124.4 million in 2017/18, a compounded annual growth rate of 2.4% over the four-year period. Basic compensation expenses are forecast to be $130.5 million in 2018/19, and projected to be $133.7 million in 2019/20 and $138.0 million in 2020/21. This represents a compound growth rate of 3.2% over the forecast period.

The five-year Collective Agreement between MPI and the Manitoba Government and

General Employees' Union is in effect for the period from September 18, 2016 to September 26, 2020 and includes general economic increases of 1.50% effective September 17, 2017 and 2.00% effective September 16, 2018. The agreement will see a further 2.00% increase in 2019 and a 0.0% increase for the final two years of the agreement.

In addition to the economic increase, the Collective Agreement also specifies a pay plan with six "step" salary ranges for each in-scope position in the Corporation. An employee will be eligible for up to five annual 3.5% increases until the employee reaches the maximum salary (step) for the position. Upon reaching the maximum salary, the employee will only be eligible to receive general economic wage increases. MPI estimates that 50% of its employees are eligible for these annual "step" increases, which is the equivalent of an overall additional 1.75% salary cost increase. MPI is forecasting an annual increase in salary costs of 4.9% for 2018/19.

MPI's total Corporate staff complement has decreased from 1,946.8 FTEs in 2009/10 to 1,878.1 in 2017/18, and is forecast to grow to 1,902.5 FTEs in 2018/19. The composition of MPI's staffing dedicated to operations and improvement initiatives is as follows:

Year	Normal Operations	Special Initiatives	Total Corporate
2009/10	1,752.9	193.9	1,946.8
2010/11	1,822.8	48.6	1,871.4
2011/12	1,862.9	15.4	1,878.3
2012/13	1,894.7	17.1	1,911.8
2013/14	1,890.3	15.0	1,905.3
2014/15	1,874.8	10.7	1,885.4
2015/16	1,866.7	15.7	1,882.4
2016/17	1,898.9	21.2	1,920.1
2017/18 Actual	1,860.9	17.3	1,878.1
2018/19 Budget	1,874.1	28.4	1,902.5

MPI’s Normal Operations staffing levels increased from 1,752.9 FTEs in 2009/10 to 1,860.9 in 2017/18. MPI committed to a permanent staffing reduction associated to improvement initiative efficiencies. Taking into account targeted staff reductions, the Corporation is budgeting for 1,874.1 FTEs in 2018/19 and 1,877.1 FTEs in 2019/20 and 1,859.1 FTEs each subsequent year through 2022/23.

MPI's actual Normal Operations staffing levels have been consistently below budgets as follows:

Fiscal Year	Actual	Budget	Over/(Under) Variance
2008/09	1,732.9	1,796.3	(63.4)
2009/10	1,752.9	1,783.8	(30.9)
2010/11	1,822.8	1,850.1	(27.3)
2011/12	1,862.9	1,926.5	(63.6)
2012/13	1,894.7	1,936.7	(42.0)
2013/14	1,890.3	1,934.7	(44.4)
2014/15	1,874.8	1,927.7	(52.9)
2015/16	1,866.7	1,898.7	(32.0)
2016/17	1,898.9	1,927.5	(28.6)
2017/18	1,860.9	1,910.0	(49.1)
2018/19 Budget		1,874.1	

The consistent under budget variance is a reflection of the Corporation's Vacancy Management Program, which as discussed above, is used as a means to control costs and to ensure proper workforce composition to meet operational demands.

6.5. Information Technology Expenses

The Corporation spent $85.1 million in total Information Technology (IT) expenses in 2017/18, has budgeted to spend $76.2 million in 2018/19, and is forecasting to spend $70.8 million in 2019/20.

The majority of the capital expenditures in IT relate to ongoing and future IT projects, including Legacy Systems Modernization, which relates to the replacement of dated legacy systems, Autopac On-line, Claims Administration and Reporting System, and the Driver Licensing System. These systems support both the Basic competitive lines of business at a budgeted cost of $58.6 million.

Through the Corporation's Value Management Process, it has created business cases for Business Transformation Office-managed projects of $500,000 or more in the 2018/19 Capital Budget. Those budget items are as follows:

- Technology Risk Management: $4.5 million
- Legacy Systems Modernization: $2 million
- High School Driver Education Phase 3: $1.9 million
- Customer Self-Service Phase 1: $1.5 million
- BI^3 / Fineos Upgrade: $1.26 million
- Credit Card Strategy: $ 1 million
- Finance Re-Engineering: $500,000

In the 2018 GRA, the Corporation reported that it was expecting strategic direction from its Board of Directors in December of 2017, after which it would in a position to implement a new IT strategic plan. The Corporation filed the 2018/19 IT Strategy in this GRA, and reported that it focuses less on specific projects and more on bridging strategy and action. The Corporation also reported that the IT Strategy will be updated annually. MPI indicated that significant changes and practices have been adopted through the new IT Strategy. In particular, six main streams were discussed that were changed from the prior technology approach, which are to:

- Move toward proven technologies;
- Identify all risks of a project prior to project initiation;
- Use a Project Sponsor;
- Align when possible to industry best practices in vendor provided software;
- Engrain the Value Management process in MPI culture and the project lifecycle; and

- Create IT capabilities to support business capabilities, in order to solve a business objective.

With respect the Corporation's IT approach in the past, it conceded that certain attempts to be an innovator were not successful, including the Customer Claims Reporting System (CCRS), which was cancelled in April 2018 - although the Corporation retains intellectual property upon which it can rely in the future. As well, the Physical Damage Re-Engineering (PDR) Program, which is discussed in detail below, was a large, multi-year project for which the Corporation acknowledged it failed to adequately project costs, instead focussing on benefits. The Corporation maintained, however, that the PDR program has standardized and improved estimating process and opened up future possibilities for the Corporation.

In addition, with respect to the Corporation's Value Management Process, it also conceded that it was not consistently applied to projects, resulting in projects moving forward without having been evaluated through the Value Management Process.

MPI described the significant changes it has made in how projects are managed and approved, including process changes, and the addition of an Operational Business Champion (OBC), who will now be accountable for the project success, with outcomes stated in the business case for a given project under the purview of the OBC. Each IT project will now contain multiple phases, with identifiable checkpoints, where there is an expected level of completion with respect to certain deliverables and key aspects of the project to be completed.

The Value Management office will validate a business case, and will review it from a quality assurance perspective. The Value Management office will work with the OBC, to determine whether the project is still on track. For any given project, the Executive Steering Committee is responsible for the approval of submissions made to the Board of Directors. Weekly status reports are to be provided to the Executive sponsors of a project

and monthly status reports are to be provided to the Executive Steering Committee, along with quarterly status reports to be provided to the Board of Directors.

Prior to 2018, major IT capital projects did not have complete business cases. The Corporation has implemented a new Value Management Process, pursuant to which, all IT projects of $500,000 will require business cases. The Corporation has reported that, if a project does not have a positive return on investment, there will need to be a strong justification to proceed with the expenditure.

With respect to the Corporation's present IT approach, the Corporation maintained that the use of the IT Strategy and the Value Management Process will ensure best practice is followed and will ensure that new IT projects are properly costed. Applying Value Management to CCRS and PDR resulted in a change of direction with respect to those projects, demonstrating the potential of the Value Management Process. To date, MPI's IT staffing strategy has resulted in 20 of 27 external IT consultants being transitioned to employees and, the Corporation reported, it continues to make progress towards its goal of IT staff internalization.

With respect to the future for MPI's IT, one of the primary focuses will be on Legacy Modernization. The Corporation's Planning and Technology Committee intends to authorize management, following negotiations, to engage a consultant with the purpose of undertaking a Legacy Modernization assessment, in order to determine how best to proceed related to the replacement of the legacy computer systems. The Corporation has established a budget of $2 million to do exploratory work on options to address the replacement of the Legacy Systems, and a preliminary budget of $70 million for the Legacy Modernization project. It is anticipated a detailed business case will be created and provided to the MPI Board. Currently, MPI is forecasting to spend $8.1 million on Legacy Systems Modernization in 2019/20, and $16.3 million in 2020/21. It is anticipated that this will be the Corporation's largest IT initiative.

A significant portion of this Application involved a review of the PDR program. As reported in Order 130/17, the program has been in progress since 2010/11. The Corporation reported in the 2018 GRA that it was scheduled for completion in 2019/20, and, in the 2018 GRA filed an evaluation of the PDR project prepared by Gartner Consulting, the Physical Damage Re-Engineering (PDR) Program Evaluation (2017 Gartner Report). The Corporation had also previously filed an evaluation of the PDR program, prepared by Gartner, in the 2017 GRA.

The 2017 Gartner Report found that in the previous year the program had "made significant strides in completing some projects, and reevaluating and cancelling others that would provide low value." It also found that a number of significant components had been put into place over the previous year. At that time, there were five IT projects required to complete the PDR project, with four scheduled to be completed in 2017/18 and the fifth and final project, CCRS, to be completed in 2019/20. The original PDR program contained 20 projects, seven of which Gartner found had been cancelled. Eight of the IT projects contained within the PDR program were completed.

The 2017 Gartner Report found that the overall program budget had been consistent at $65.5 million, with $43.4 million spent to date and $18.1 million remaining to complete the program. The total projected spending would be $61.5 million, or $4 million less than the approved budget amount. According to that report, the program was expected to generate an internal rate of return of 7%, with a Net Present Value (NPV) of $13.7 million over the period from inception until ten years after full implementation when benefits start to accrue. The Gartner Report found that the PDR program was starting to produce measurable benefits.

As also reported in Order 130/17, in the 2017 GRA, Gartner had assessed that the PDR program had a NPV benefit overall of $18 million, with an internal rate of return of 8%. Gartner prepared the NPV analysis for the 2017 GRA, when MPI was not using NPV as a project management tool. The cost/benefit analysis conducted by Gartner for the 2017 GRA did not include the cost of maintaining the program. The evidence in the 2018 GRA

was that the calculation of the NPV of $13.7 million was conducted by MPI, and provided to Gartner.

In Order 130/17, the Board directed the Corporation to have Gartner prepare an update of the PDR program, along with a breakdown by the Corporation of its analysis on the costs to operate and maintain the program, and a cost/benefit analysis of the five remaining projects to be completed as part of the PDR program, with the discount rate used in the cost/benefit analysis to be higher than the 3% previously used in the PDR project cost benefit evaluation.

In this Application, the Corporation reported that management undertook a review of the PDR program in early 2018, applying the Value Management Process, resulting in a restatement of the PDR costs and benefit projections. The total budget of the PDR program was changed to $57 million, from the originally projected $65 million, based on the reduction in scope of the project.

Further, the updated analysis prepared by Gartner, the *Physical Damage Re-Engineering (PDR) Program Evaluation* (2018 Gartner Report), revised the capital costs to $57 million from the previous estimate and drastically reduced the NPV of the project from $13.7 million previously reported to a NPV of ($49.9) million. The Corporation made the decision to cancel the CCRS project, finding that the benefits of the project would not be supported by the costs to achieve them. There remained some smaller projects within the overall PDR program, all of which were forecast to be completed within fiscal year 2018/19. Gartner, based on its evaluation of the program, was supportive of the decision to complete those remaining projects.

The 2018 Gartner Report provided an explanation for the significant variance in the NPV of the PDR program:

- Some costs that should have been attributed to the program were not included in the analysis (for example, the Mitchell licence fee, and an $81 premium paid to repair shops for each claim processed);

- Some of the benefits related to the program are not achievable without CCRS, which was cancelled; accordingly, the annual benefits were reduced to under $8 million from the previous $13 million; and

- Higher discount rates were used for the cost of capital - 6.5% and 9.5% - as compared to the 3% previously used by Gartner.

In addition to the foregoing, as part of its overall Value Management Process review, MPI wrote off $20.5 million in deferred development projects, of which $18.5 million related to Basic projects. MPI-reported a write-off of $15.6 million in deferred project costs associated with the cancellation of CCRS.

Charles E. (Chuck) Henry, Vice President, Solutions and Pricing with Gartner, testified as an expert witness in the public hearings. He was qualified by the Board in Order 82/18 as an expert in the area of the use and planning of information technology, and information technology governance. Mr. Henry was the author of the 2018 Gartner Report and provided testimony on the report. The 2018 Gartner Report indicated that the decision to cancel the CCRS included the cancellation of Optimized Adjusting, co-development of the Mitchell solution, building out the Claims Administration Reporting Solution, managing the change management for the delivered solutions, and building out the analytics tools to monitor and manage the new service delivery channel. The total write off related to these projects amounted to $16.08 million.

Mr. Henry testified that the significant difference noted in some of the costs and the benefits and the overall net present value between the 2017 Gartner Report and the 2018 Gartner Report was due to both understating the costs and overstating the benefits of the program. Gartner was not aware of some of the ongoing operating costs, as they had not

been provided to Gartner by MPI. Mr. Henry's evidence was that it would have been the responsibility of MPI to provide Gartner with all relevant information. With respect to the cost of capital, MPI was not using NPV as a project management tool. Gartner had selected a discount rate of 3% and, as MPI was not using NPV, Gartner did not have a rate available to it.

Neither the Corporation nor Gartner had included the cost of operating and maintaining the PDR program in the analyses filed with the Board previously. Mr. Henry's evidence was that Gartner had asked multiple times for that information, but MPI did not make it available, so Gartner proceeded with the high-level information available to it. Mr. Henry acknowledged that Gartner's independent analysis last year did not reflect the more rigorous approach utilized by MPI management this year, and represented a more high-level estimate. Mr. Henry conceded that Gartner should have qualified in prior reports that, while the high-level numbers showed a $13.7 million NPV, further analysis was required. If Gartner had been aware of the operating costs, the report would have been firmer that more analysis needed to be done on the data to make sure that the project continued to make sense.

MPI utilizes both internal FTEs and external consultants to maintain MPI's IT systems and deliver on IT capital projects. MPI's IT actual and forecast staffing levels including consultants are as follows:

IT Staff Complement

	Actual					**Forecast**		
Year Ended February 28/29	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Internal FTE	212	210	223	236*	272*	286*	290*	290*
Consultants	120	110	114	107	107	82	80	80
Total	332	320	337	343	379	368	370	370
% IT Consultants	36%	34%	34%	31%	28%	22%	22%	22%

* rounded.

In Board Order 128/15, the Board directed MPI to assess opportunities for savings relative to external IT consultants, including bringing consultants in-house. In response, MPI undertook a comprehensive review and developed an approach to transition up to 27 positions from external to internal over the 2016/17 to 2019/20 fiscal years. MPI provided an update on this strategy, reporting that:

- To date, 20 positions have been successfully converted from external to internal;
- Cost savings are in line with amounts that were previously estimated;
- Potential positions to be converted continue to be assessed, and the Corporation remains committed to converting the remaining seven positions by 2019/20;
- Once the external labour strategy has been fully executed, the annual cost savings are expected to be between $2.4 and $3.0 million;

- MPI continues to explore opportunities to reduce the volume of and costs related to the use of external labour and anticipates additional measures in place in Q4 2018/19; and

- An update on the results of the external labour strategy and the additional measures taken in 2018/19 will be included in the 2020 GRA.

MPI reported that most of its project managers are consultants rather than employees. MPI is attempting to shift the split from being mostly consultants, to more MPI employees. One challenge to this approach is that MPI's contracts contain non-solicitation clauses, so the Corporation cannot approach consultants working under contract with it to attempt to hire them to work internally.

6.6. Benchmarking

The Corporation again filed with the Board its benchmarking framework, reflecting four subject areas: Operational Efficiency, IT Service Delivery, Serving Manitobans and Community Impact. MPI uses the benchmarking results to identify opportunities to reduce costs, measure effective management approaches, and measure efficient resource allocation.

MPI engaged the Ward Group, as it has done previously, to provide an independent perspective on how the Corporation compares to other companies and monitor performance. The Ward benchmarking process involves on-site best practice analyses at MPI, and on-site meetings with MPI management to review customized results developed for MPI. The Corporation advised that after the second year of collecting information, a trend analysis report is prepared annually to assist MPI management in monitoring year-to-year performance improvement. Ward compared MPI to three benchmark groups:

- 10 Canadian insurers for the Canadian Personal Auto Benchmark Group;

- 10 Canadian insurers for the Canadian Benchmark Group; and

- 7 US insurers for the US Personal Auto Benchmark Group.

The Ward Group's 2016/17 comparison showed that the Corporation performs well against the benchmark groups in many of the Operational Efficiency measures. The Corporation's total gross expenses, both as a percentage of gross premiums written and per policy in force, are below the comparators including the three benchmark groups list. MPI's performance on FTEs per $100 million of Gross Premiums Written (GPW) has improved since 2012/13 moving from 153.25 in 2012/13 to 128.30 in 2016/17; however, it remains materially higher than its peers, which range from 102.78 to 107.79. The Corporation explained that this is due to its business model, where customer service is performed end-to-end by MPI employees. MPI therefore provides more comprehensive customer service than its peers, but this results in more staff.

MPI reported that its staff to management ratio increased from 6.83 in 2012/13 to 7.52 in 2013/14, and then decreased to 7.04 in 2014/15 and to 6.64 in 2015/16. It has since increased to 6.95 in 2016/17, due to a decrease in management. Based on the Ward analysis, MPI's staff to management ratios are higher than the Canadian and US benchmark groups, and the Corporation's overall personnel expenses per FTE and Management personnel expense per FTE are lower than those of the benchmark groups.

In prior GRAs, the Corporation has filed the Gartner CIO Scorecard, which provides a comparison of certain of the Corporation's IT benchmarks to those of its peers. In this Application, the Corporation filed information from Gartner which included the CIO Scorecard as well as Gartner's IT Score, the latter of which will be used for future IT benchmarking purposes. The CIO Scorecard has been discontinued and will no longer be used.

The Corporation reported that overall, Gartner benchmarking results indicate that MPI continues to improve its IT Maturity and IT spending relative to operating expenses, which have continued to decrease annually. The Corporation advised that, with its planned reduction in the current project portfolio, it is expected that going forward, personnel

spending will also decrease, particularly with respect to consultants. MPI also reported that its IT Strategy has evolved from an earlier state to reflect improved maturity in key areas of Enterprise Architecture, Information Security and Value Management.

Specifically, Gartner's CIO Scorecard indicated that MPI spends 62% of its IT budget on personnel, compared to its peers, at 45%. Contractors comprise 32% of MPI's IT staff, compared to 24% for its peers. MPI improved its overall IT Maturity rating from 3.42 in 2015/16 to 3.52 in 2016/17.

The IT Score employs a different methodology than the CIO Scorecard, with additional elements and weightings that vary based on the capability being assessed. All capabilities are rated on a five-point scale with higher scores indicating better performance. In 2016/17, MPI's overall IT Maturity level was assessed at 3.1 using the IT Score methodology. Overall, MPI scored above the insurance average in all but two capabilities: MPI was on par with the insurance average in Applications Organization with a score of 2.4; and its Enterprise Architecture score was lower than insurance average at 2.3, compared to 3.0 for its peers.

Historically, the Corporation has filed information as to recommendations made by Gartner for MPI to improve its process maturity, and MPI's progress on those recommendations. With the transition from the CIO Scorecard to the IT Score, Gartner conducted a review of all outstanding recommendations provided using the CIO Dashboard tool and updated the recommendations as applicable. This resulted in some recommendations being withdrawn, and some new recommendations being introduced.

In Order 128/15, the Board directed MPI to seek to gain insight on longer tail experience from outside the Province of Manitoba, and in particular, from the Société de l'assurance automobile du Québec (SAAQ). In the 2017 GRA, the Corporation advised that it did not undertake the review as directed, and indicated that it would conduct a review of mortality assumptions in the next year. As a result, in Order 162/16 the Board again directed the Corporation seek to gain insight on longer tail experience from SAAQ, and report back on

the results of its efforts in the 2018 GRA. The Corporation did not comply with this directive in the 2018 GRA. Accordingly, in Order 130/17, the Board directed the Corporation to report back on its efforts to seek insight on longer tail experience from other jurisdictions, and in particular from the SAAQ.

In this Application, the Corporation provided the information as directed by the Board. MPI reported that it contacted both Saskatchewan Government Insurance (SGI) and SAAQ, and requested their paid loss experience for Income Replacement benefits for the history of their public insurance programs, which they provided. Based on its analysis of the information provided, MPI concluded as follows:

- MPI has a well-established, effective, and transparent methodology for selecting its tail factors for Income Replacement coverage;

- MPI's long-tail experience cannot be directly compared to the long tail experience at SGI or SAAQ in absolute terms because of differences in coverage, reserving practices, and other potential unknown factors, however, MPI's claims experience behaves very similarly to SGI and SAAQ; and

- While a jurisdictional comparison is informative, MPI did not see any value in changing its current long-tail reserving process. In MPI's view, a more beneficial use of the jurisdictional comparison would be to use this information to model policy liability mis-estimation risk as part of the Dynamic Capital Adequacy Testing (DCAT) exercise.

6.7. Interveners' Positions

CAC

CAC commented that, as compared to peers, MPI's IT staffing budgets appear excessive. CAC recommended that MPI be required to report back to the Board on its efforts to bring staffing budgets in line with peers.

CAC also commented on what it characterized as material challenges with the implementation of major IT programs, such as BI^3 and PDR. Given the potential for ongoing effects on ratepayers, CAC recommended that MPI be required to hold a Technical Conference on the business cases for Legacy Modernization prior to the next GRA filing. The Legacy Modernization business case should include examples of net present value analysis, demonstrating adherence to good business practice.

CAC did comment that MPI had taken a number of steps to introduce standard good business practices to its management of IT expenditures, including the application of a more robust net present value analysis to the PDR, including the CCRS. However, given the limitations with Gartner's prior years' PDR evaluations, CAC would recommend that in the future, any external expert retained by MPI and providing evidence to the PUB should be directed to expressly identify any aspects of their evidence that do not conform with best practice.

CAC also expressed that MPI, as a Crown monopoly, might make imprudent mistakes, such as:

- To rely on BI^3 technology and take a passive approach to complex claims management;
- To have IT staffing levels far higher than the industry average;
- To enter into lengthy information technology "adventures" relating to Physical Damage Re-engineering without appropriate business cases and without disclosing material information to Gartner;

CAC argued that the Board is not required to build a cushion in the rates to account for imprudence, or to pass on unreasonable or imprudent mistakes to ratepayers.

CMMG

CMMG argued that the Corporation is in excellent financial condition, with operating and claims expenses both having decreased. Therefore, the Board should hold the Corporation's "feet to the fire," to ensure it manages its claims and administrations costs prudently.

6.8. Board Findings

The Board has in the past characterized one of the key elements of its independent review function and rate-setting role as ensuring that actual and projected costs incurred are necessary and prudent, in the context of setting just and reasonable Basic rates. The Board's jurisdiction to do so is derived from *The Crown Corporations Public Review and Accountability Act*, and in particular, s. 26 thereof. The Board continues to hold a keen interest in the Corporation's efforts to reduce and contain costs.

The Board acknowledges that the Corporation complied with its directive to seek information on longer tail claims experience from SAAQ, after failing to do so for a number of years.

The Board continues to support the Corporation's cost containment efforts, including its steps taken to reduce operating expenses and optimizing staff levels. The Board finds that the Corporation is continuing to move in a positive direction.

The Board is encouraged by the Corporation's continued efforts to continue to reduce reliance on IT consultants and reduce the number of IT staff overall. The Board acknowledges the new IT Strategy, and understands that it will be updated annually going forward. Accordingly, the Board directs the Corporation to file its updated IT Strategy in the 2020 GRA.

More generally, with respect to IT, previous Board Orders make clear that this has been an issue of concern to the Board for some time. In Order 162/16, the Board expressed concern at the lack of business cases in the IT area.

In Order 130/17, the Board commented that it expected that the Value Management Process would bring in valuable controls and contribute to better business process management in IT. With respect to PDR, the Board found that MPI had not clearly established that the program was in fact operating within its original budget and that the Corporation was challenged in controlling the spending on the program. The Board also commented that the NPV and internal rate of return calculations for the PDR program were of limited value as they did not take into account the costs of operating and maintaining the program, and utilized a 3% discount rate.

The Board also expressed concern in Order 130/17 that the Corporation had not disclosed the costs to operate the PDR program, which the Board viewed as a critical component in assessing the costs and benefits associated with the program.

With the information that was filed by the Corporation in this Application, and with the 2018 Gartner Report, it appears that the Board's concerns about the PDR program were well-founded. The Corporation failed to provide Gartner with all the relevant information and also failed to include the cost of operating and maintaining the PDR program, notwithstanding multiple requests from Gartner. If Gartner had been provided with all relevant information regarding the PDR program, in order for it to prepare its evaluations for the 2017 and 2018 GRAs, it is likely that a more realistic appraisal of the PDR program would have been available sooner. Unfortunately, MPI pursued the PDR program over many years with the result that significant funds were spent on a program which has a NPV of ($49.9) million. The Board does not understand why, in previous years, MPI did not provide Gartner with all relevant information such that Gartner would have been able to perform an accurate and realistic appraisal of the program. The Board is also concerned with the fact that, until this year, business cases were not prepared for the PDR program; what was considered by the Corporation was the "benefits stream."

Given the history of the PDR program, the Board finds that it is important that the Corporation continue to evaluate and report on the program. Accordingly, the Board directs that in the 2020 GRA, the Corporation file an update, prepared by Gartner, to its 2018 PDR Program Evaluation. The Corporation shall provide to Gartner all relevant information such that Gartner will be able to fully evaluate the PDR program's benefits and the costs to operate and maintain the PDR program.

The Board finds that the information filed with respect not only to PDR, but to IT overall, was more thorough and comprehensive in this Application than in previous years. The Board appreciates the openness with which the Corporation provided information on IT in this Application, and is of the view that the Corporation has demonstrated progress in its efforts to rein in spending on IT and to make future strategic IT investments. The Board anticipates receiving information from the Corporation in the 2020 GRA as to the progress it has made in the implementation of the Value Management Process and the IT Strategy.

With respect to Legacy Modernization, the Board declines to order, as was recommended by CAC, that a Technical Conference take place to review this initiative. The Board finds that the Corporation has the capability to proceed with this initiative without the need for a Technical Conference; however, the Board directs that in advance of the 2020 GRA, the Corporation engage in discussions on an ongoing basis with the Board, with respect to progress on the Legacy Modernization project, any business cases created for the initiative, and the establishment of higher-level key performance indicators. The Board directs that in the 2020 GRA, the Corporation provide an update of its progress on the Legacy Modernization initiative, file any business cases created for the Legacy Modernization initiative, and any higher-level key performance indicators

Given the Board's ongoing interest in IT, the Board directs that in the 2020 GRA, the Corporation update all Business Transformation Office-managed projects of $500,000 or more in the 2018/19 Capital Budget.

With respect to staffing in IT, the Board notes that the Corporation continues to rely much more heavily on consultants than its peers. The Board appreciates that the Corporation has challenges in reducing the ratio of consultants to staff given the non-solicitation clauses in its contracts with vendors. The Board understands that these contracts provide a valuable service to MPI, but is concerned that MPI could become overly dependent on its vendors. The Board is of the view that the key to success in this area is effective IT vendor management. The Board therefore directs the Corporation, in the 2020 GRA, to report on its progress in reducing the ratio of IT consultants to internal staff, in particular project management roles, and provide an update as to measures taken by the Corporation to improve the management of its relationships with IT vendors.

Lastly, the Board finds that the benchmarking information provided by Gartner on an annual basis is of great assistance in informing the Board as to MPI's progress in its IT maturity. The Board anticipates receiving an update on the Corporation's IT benchmarking and therefore directs that in the 2020 GRA, MPI file an update to the

Gartner Benchmark Findings and Recommendations Executive Report, including an update to its IT Score with the Board.

7. INVESTMENTS

7.1. Investment Portfolio

The funds available for investment by the Corporation are primarily the assets supporting the unearned premium reserves and unpaid claims reserves. The Corporation's overall investment portfolio was over $2.7 billion as at February 28, 2018. MPI's assets must be managed in accordance with the Investment Policy Statement approved by its Board of Directors.

The recent actual and forecast composition of the Basic investment portfolio is summarized below.

Basic Investment Portfolio				
	2017/18 Actual		2018/19 Forecast	
	Ending Asset Values (C$ millions)	Portfolio Composition	Ending Asset Values (C$ millions)	Portfolio Composition
Cash/Short Term Investments	76	3.2%	-	0.0%
Canadian Fixed Income	1,083	45.5%	1,462	67.1%
MUSH Non-Marketable Bonds*	527	22.1%	554	25.4%
Total Long Term Bonds	**$1,686**	**70.8%**	**$2,016**	**92.5%**
Canadian Equities	226	9.5%	40	1.8%
US Equities/Global Equities	124	5.2%	43	2.0%
Global LV Equities	0	0.0%	33	1.5%
Real Estate	259	10.9%	33	1.5%
Infrastructure & Venture Capital	87	3.6%	16	0.8%
Total	**$2,381**	**100.0%**	**$2,181**	**100.0%**

** MUSH bonds are Manitoba rural municipality, school division and healthcare facility bonds and debentures which are not tradable in the fixed income market. MUSH bonds are held at book value and the portfolio's value does not vary with changes in interest rates.*

7.2. Investment Management

Basic premiums are not set to fully recover claims costs; instead MPI typically depends on investment income to break even. MPI's substantial investment portfolio is managed jointly by the Corporation and the Province of Manitoba, through a committee known as the Investment Committee Working Group (ICWG), which is co-chaired by MPI's Vice President of Finance and Chief Financial Officer, and the Assistant Deputy Minister (ADM), Treasury Division, Manitoba Department of Finance.

In the course of this Application, the Corporation filed its Transitional Investment Policy Statement, which was prepared as a result of the changes to be made to the Corporation's Investment Portfolio to be implemented following the completion of the Mercer Asset Liability Management Study.

7.3. Asset Liability Management (ALM)

Issues concerning MPI's asset liability management extend back over several GRAs. In Order 151/13, issued following the 2014 GRA, the Board directed MPI to have the composition of its investment portfolio reviewed by an external expert consultant, with a view to determining whether the current asset mix should continue, or should be revised. MPI engaged Aon to complete the ALM Study in 2014 (Aon ALM Study), and filed the study in the 2016 GRA.

A significant portion of the 2017 GRA was dedicated to reviewing MPI's Investment Portfolio and the Aon ALM Study. In the 2017 GRA, a witness from Aon provided testimony on the Aon ALM Study. CAC called Mr. Valter Viola as an expert in investment portfolio management, investment portfolio research, economics and risk management, and quantitative asset liability modeling. In Order 162/16, issued following the 2017 GRA, the Board ordered MPI to obtain an updated ALM study, to be filed with the 2018 GRA. That study was to address each of the recommendations made by Mr. Viola in the 2017 GRA hearings.

MPI did not file an updated ALM study with the 2018 GRA. Rather, in the course of the 2018 GRA hearings, the Corporation advised the Board that it had issued a Request for Proposals for the updated ALM study and engaged Mercer Canada (Mercer) to deliver the study by November 30, 2017, after the conclusion of the 2018 GRA hearing.

In Board Order 130/17, issued following the 2018 GRA, the Board directed the Corporation to file the Mercer ALM Study with the Board concurrently with its delivery to the MPI Board of Directors, and to provide an update of the Mercer ALM Study as

necessary to: (a) take into account the directives issued in Order 130/17; and (b) address each of the 18 recommendations made by Mr. Viola as set out in Order 162/16.

The Mercer ALM Study was prepared in three phases, the last of which was submitted in February, 2018, and reports in respect of each phase were filed with the Board as part of the 2019 GRA, together with additional information concerning the Mercer ALM Study and plans for its implementation.

At the hearing, MPI called Dave Makarchuk as a witness to provide evidence on the Mercer ALM Study. Mr. Makarchuk is a partner with Mercer Investments and is Sales and Strategic Growth Leader with the Canada's National Wealth Leadership Team. Mr. Makarchuk is also a Fellow of the Canadian Institute of Actuaries. Mr. Makarchuk was qualified as an expert in the area of institutional investment planning and asset and liability matching.

The three phases of the Mercer ALM study were broken down as follows:

- Phase 1 analyzed the merits of adopting unique asset allocations and investment policy statements for segregated investment portfolios for each of the Corporation's classes of liability, namely, Basic claims liabilities (Basic Portfolio), the RSR (RSR Portfolio), employee future benefits - primarily pension (Pension Portfolio) and Extension coverage claims liabilities (Extension or EXT) and Special Risk Extension claims liabilities (SRE);

- Phase 2 included a discussion of new asset classes along with the rationale for inclusion and exclusion, proposed asset allocations for each portfolio, including estimates of risk and return, and implementation considerations; and

- Phase 3 finalized the responses to Mr. Viola's eighteen (18) recommendations.

In his testimony, Mr. Makarchuk outlined the process by which Mercer undertook the study. Mercer focused on four key factors: 1) expectation of return; 2) tolerance for risk;

3) cost; and 4) time. A review of MPI's objectives clarified the purpose of the assets which, in turn, prioritized the relative importance of each of these four factors.

Two of the Corporation's primary investment goals were to mitigate risk resulting from interest rate variations and to minimize short-term premium volatility. In addition, MPI chose to hedge against nominal, as opposed to real, inflation expectations and interest rate risk.

The key strategic recommendations flowing from Mercer's analysis and MPI's objectives were:

- Segregate the assets based upon each class of MPI's liability;
- Significantly de-risk the assets backing MPI's Basic claims liability;
- Diversify and lengthen MPI's fixed income portfolio;
- Diversify MPI's equity portfolio; and
- Reduce MPI's allocation to real estate assets.

The key expectations flowing from these recommendations were an expected decline in returns (estimated at $11 million/annum) but with an expected decline in risk (estimated at $67 million/annum) as well. Further, it was recommended that the changes to assets and allocation be implemented over a 24-month period.

Modelling to optimize asset allocations was developed based upon conclusions and constraints made by the Corporation which, though not necessarily recommended by Mercer, were supported by Mercer, including decisions to accept the risk as to inflation, hedge against nominal rather than real interest rate risk over the outlook period and accept, reduce and reject certain classes of assets.

In order to evaluate financial risks and to find portfolios that minimize interest rate and inflation risks, Mercer developed a fixed income portfolio that reproduced the fluctuations of the liabilities of the portfolio (Liability Benchmark Portfolio or LBP). Accordingly, the LBP portfolio used by Mercer accepted inflation volatility, assuming a 2% inflation rate that was static throughout the modelling exercise, and hedged against nominal interest rate risk. Efficient frontiers for each of the Basic, RSR and Pension Portfolios were developed to identify optimal asset allocations at each respective level of risk.

The implementation of the recommendations from the Mercer ALM Study will result in the separation of the Corporation's commingled investment portfolio into the five unique portfolios indicated above: Basic, RSR, Pension, Extension and Special Risk Extension. The transition into five unique portfolios is planned to commence at the end of the 2018/19 fiscal year, with the transition expected to be completed by 2019/20. The current portfolio allocation of 70% in fixed income assets (bonds) and 30% in growth assets (equities, real estate and infrastructure) will be in place until February 28, 2019, and the five new investment portfolios will be effective March 1, 2019.

The new allocations based upon the Mercer ALM Study will result in the Basic Portfolio becoming 100% fixed income, the RSR Portfolio becoming a balanced portfolio with a 50% allocation in fixed income, 50% allocation in growth assets, and the Pension Portfolio becoming 40% in fixed income and 60% allocation in growth assets. This results, on a consolidated basis, to 84% in fixed income and 16% in growth assets.

Target asset mixes for these portfolios are:

- Basic Portfolio – (100% Fixed Income) 60% Provincial Bonds, 20% Corporate Bonds, 20% Non-Marketable Bonds (MUSH) (Hedge Ratio to increase from 85% to 100%);

- RSR Portfolio - (50/50 split between bonds and growth assets) 50% Fixed Income, 35% Public Equities, 15% Alternative Investments; and

- Pension Portfolio - (40/60 split between bonds and growth assets) 40% Fixed Income, 35% Public Equities, 25% Alternative Investments.

New asset classes accepted for the RSR and Pension Portfolios were:

- Private Debt – investment grade North American debt;
- Global Equities – includes developed market equities and no emerging-markets; and
- Global Equities (Low Volatility) – less volatility than the standard global equity securities to reduce overall risk of equity portfolio.

As indicated above, real estate assets were to be reduced, and the following assets classes were rejected:

- Diversified Growth Funds;
- Private Equity;
- High Yield Bonds;
- Emerging Market Debt;
- Mortgages;
- Leverage; and
- Real Return Bonds (RRBs).

The Corporation's rationale for rejecting investment in RRBs was because: 1) they are very low yield; 2) a 2% inflation rate was assumed and RRBs will only add value if inflation significantly exceeds 2% for sustained period of time; 3) dollar and duration matching is difficult with RRBs because there are so few available to properly duration match; and 4)

RRBs are linked to Canadian Consumer Price Index while Basic claims liabilities are indexed to the Manitoba Consumer Price Index and industrial average wage.

While acknowledging that a real liability benchmark would better reflect inflation volatility and real interest rate risk, MPI submitted that accepting those risks was a choice made by it as an investor. The Corporation argued that the objectives, risk tolerance and accompanying investments selected by it were patently reasonable.

The Corporation's review of inflation forecasts from the Canadian chartered banks, Mercer, the Bank of Canada, and break-even inflation rates currently implied by RRBs all indicated that inflation will be approximately 2.0% over the outlook period. MPI argued that its Board had established the risk appetite for the Corporation and through the ALM process, decided to hedge nominal interest rate risk, choosing to accept the lesser threat of inflation volatility risk. The Corporation submitted that the Board should defer to the investment decisions of the MPI Board of Directors.

MPI further emphasized that, based on the ALM strategy being implemented by the Corporation, the impact of interest rates on Basic will be significantly reduced going forward.

7.4. Investment Returns

The size of the Corporate investment portfolio was projected to be $2.5 billion for 2018/19, increasing to $2.9 billion for 2022/23. For 2017/18, MPI had investment income for Basic of $116.3 million. Based on the Corporation's proposed use of a Naïve interest rate forecast, the Corporation’s investment income is projected to be $223.5 million for 2018/19, of which Basic’s share is $191.8 million or 85.8%.

As noted above, following the Naïve interest rate forecast as at September 30, 2018, of 2.43% (which reflected an increase of 19 basis points from 2.24%, which was used by the Corporation in the GRA filing), the Corporation updated its projected investment

income of $171.4 million for Basic, to offset a revised underwriting income forecast at $28.3 million.

MPI realized a $134.8 million return in investment income in 2017/18, of which Basic's share was 86.28%, totaling $116.3 million in income. The investment returns can be primarily attributed to higher than expected real estate pooled fund returns. MPI's projected allocation to Basic from investment income has not changed materially since last year's application. The actual and projected allocations for Basic are as follows:

Allocation of Investment Income ($ millions) to Basic					
	2017/18	**2018/19**	**2019/20**	**2020/21**	**2021/22**
2019 GRA	$116.3	$191.8	$82.1	$84.9	$87.8
2018 GRA	$101.8	$78.1	$80.0	$85.9	$84.4
Difference	$14.5	$113.7	$2.1	($1.0)	$3.4

The Corporation provided a five-year comparison of its investment returns with those of the Workers' Compensation Boad (WCB), the Teachers' Retirement Allowance Fund (TRAF), and the Civil Service Superannuation Board of Manitoba (CSSB). The comparison indicated that MPI had underperformed the average return for WCB, TRAF and CSSB in 2017 by 2.8%. However, the asset allocations of these funds are very different than the asset allocation of MPI's fund as these funds have much larger allocations to growth assets. In order to make a direct and accurate comparison the asset allocations were adjusted so that they are on the same basis. When the asset allocations of other funds were adjusted to match MPI's, their average return fell to 4.0% in 2016 and 5.9% in 2017, underperforming MPI by 2.5% and .04% respectively.

MPI also provided a comparison of its investment results with those of Saskatchewan Auto Fund (SAF), a comparable public insurer with an investment portfolio of $2.3 billion (versus $2.6 billion for MPI). For the last completed fiscal year March 31, 2018, SAF reported investment income of $162.8 million and $173.8 million for its prior fiscal year, higher returns than those reported by MPI.

As a result of the implementation of the changes arising from the Mercer ALM study, Basic net income is forecasted to increase by $95 million in 2018/19, primarily as a result of the realization of Accumulated Other Comprehensive Income (AOCI) on equity assets due to the sale of assets required to create the unique portfolios. The new ALM strategy will require the Corporation to liquidate all of its US holdings and Canadian equity holdings, in order to make the necessary asset allocation changes required for the five distinct portfolios.

Total equity is forecasted to be lower, as investment asset returns are forecasted to be lower with fewer growth assets. Based on a Naïve interest rate forecast, the Minimum Capital Test ratio will increase by roughly 16% at the end of 2018/19, from 54% to 69%, due to lower capital requirements on the Basic line of business investment assets.

7.5. Interveners' Positions

CAC

Valter Viola appeared again in this GRA as an expert witness on behalf CAC, to provide evidence relating to the Mercer ALM Study. Mr. Viola is a Chartered Financial Analyst and has 25 years of institutional portfolio management, investment research and risk management experience. He was qualified as an expert in investment portfolio management, investment portfolio research economics and risk management, and quantitative asset liability modelling.

In his report entitled *MPI's Investment Portfolio: Asset/Liability Analysis and Previous Recommendations* (Viola Report), Mr. Viola set out his views based upon his review of the Mercer ALM Study and MPI's changes to its investment portfolios based on the study.

The Viola Report sets out eight recommendations, summarized as follows:

- Real Liability Benchmark - Re-examine the reliance on a Nominal Liability Benchmark, rather than a Real Liability Benchmark, given the understatement of the long-term risk of inflation and changing real interest rates that are inherent in the Basic and Pension Liabilities.

- Leverage Constraint - Re-examine the constraint prohibiting the use of “leverage”, given the lower risk adjusted returns that would result.

- Duration Policy “Basis” Risk - Re-examine the effectiveness of the duration policy, which uses (nominal) bonds as the basis for matching the inflation and real interest rate sensitivity of Basic and Pension Liabilities, since inflation volatility is not zero.

- Lengthening Nominal Duration - Re-examine the decision to lengthen the nominal duration in the Basic Portfolio, given: MPI’s “defensive” (lower risk) strategy;

Mercer's return assumptions for bonds and RRBs; and concerns about the effectiveness of the duration policy noted above ("basis" risk).

- Real Return Bonds - Re-examine the decision to exclude RRBs from both the Basic and Pension portfolios, given the better hedging characteristics of RRBs (compared to bonds), recognizing the long-term inflation and real interest rate risks inherent in the liabilities.

- Other Real Assets - Re-examine MPI's recommended reduction in other real assets (real estate and infrastructure), given the low inflation protection that exists in the current portfolio and lower diversification that would result.

- Fixed Income Risk Concentration - Re-examine the decision to concentrate risk in fixed income, rather than better diversify the sources of risk across the whole portfolio, and avoid "crowding out" risk-reducing RRBs. See Duration Policy "Basis" Risk Oversight

- Quantitative Models - Continue to be vigilant about placing too much reliance on quantitative considerations, particularly if risk tolerances are low, given the high sensitivity of optimal asset allocations to capital market assumptions and the large number of inputs involved.

Mr. Viola's primary criticisms of the Mercer ALM Study were the use of a nominal, rather than real, liability benchmark, the rejection of RRBs, and the reduction of real assets as a hedge against inflation and interest rate risk. Mr. Viola expressed his concern as to the constraint MPI had imposed on the Basic Portfolio in particular, i.e. 100% fixed income and no RRBs, came at too high of a cost.

In Mr. Viola's opinion, determining a Minimum Risk Portfolio (MRP) (what Mercer referred to as the LBP) is the first step towards responsible long-term management of the portfolio. The purpose of developing a liability benchmark is to identify and measure the risk of the

liabilities and, therefore, it must reflect the true risks inherent in those liabilities (e.g., duration, inflation).

As well, Mr. Viola emphasized that the liabilities of the portfolios define themselves and are not a function of risk tolerance. That is, modeling liabilities is not an investment choice. In his view, the LBP adopted by Mercer conflated the design of a true liability benchmark with the ultimate portfolio selected, and was compromised by assumed capital market expectations, i.e. expected level, as opposed to volatility, of inflation.

In Mr. Viola's opinion, the LBP adopted by Mercer, based on the Corporation's investment constraints, understated the significance of inflation volatility and real interest rate risk, which makes duration management less effective. As such, risk had been misidentified and mismeasured in the Nominal Liability Benchmark utilized by Mercer.

By not capturing this inflation risk, in Mr. Viola's view, the true risk of having nominal bonds support real liabilities was not properly measured. Mr. Viola described this mismatch as "basis risk" resulting in "tracking error". Based upon Mercer's data, Mr. Viola calculated this tracking error between the Real and Nominal Liability Benchmark Portfolios in the Mercer ALM Study to be 4.5% for the Basic Portfolio, which is material given the Corporation's very low risk tolerance of ~3.8% surplus volatility.

Further, the asset allocations that flow from an optimizing process depend materially on whether a nominal or real liability benchmark is selected. In Mr. Viola's opinion, MPI's "free risk" bucket placed unnecessary constraints on the investments and actually resulted in material risk over the long term. According to Mr. Viola a mix of low-risk and risky assets together provides a better risk versus return trade-off than assets concentrated in either one. MPI's determination of short-term rate stability would come at cost of long-term opportunity and create a risk of higher long-term rate instability. In Mr. Viola's view, the focus should be on a full portfolio designed to mitigate longer horizon risks and achieve higher returns by taking different kinds of risks in a prudent fashion. In

his opinion, RRBs, which were rejected, and real assets, which were reduced by MPI, are the best hedge against long-term risks.

Based upon the further modelling conducted by Mercer pursuant to Order 124/18, at current risk levels (i.e. a surplus volatility of 3.8%), Mercer's efficient frontier analysis suggested that the expected excess return above the liability benchmark drops by ~0.8% when RRBs are excluded from the Basic Portfolio, and ~0.2% when excluded from the Pension Portfolio. Mr. Viola acknowledged that, for modelling purposes, the excluded RRBs would have been reinvested in other asset classes which might affect the performance of the portfolio and, therefore, the exclusion of RRBs might not fully account for the reduction in the expected return. Further, the reinvestment of the excluded RRBs might be in asset classes MPI had rejected as too risky, such as private equity; however, this could not be determined as Mercer had not provided this information.

Mr. Viola referred to the difference in the expected return for portfolios without RRBs as the "opportunity costs" of rejecting RRBs which, when extended over the outlook period, are significant. Accordingly, Mr. Viola did not share the concerns of the Corporation in rejecting RRBs.

Mr. Viola also testified that, based on Mercer's analysis, the real liability benchmark indicates that the optimal allocation to RRBs for the Basic Portfolio would be ~40% at the current risk (3.8%), increasing to 66% for no tolerance for risk; and for the Pension Portfolio, the optimal allocation would be ~45% at the current risk level and 81% for minimum risk. As well, the Mercer analysis indicates that the optimal allocation to real estate and infrastructure would be ~16% to 20% of the RRB allocation for the Basic Portfolio and 6.5% to 8% for the Pension Portfolio.

Based on the foregoing, CAC argued that the Mercer ALM study was not conducted or implemented by MPI in a reasonable or prudent manner. CAC submitted that there are significant risks of long-term rate instability as well as the likely prospect of lower returns associated with MPI's proposed asset allocation.

Accordingly, CAC recommended that:

- MPI should be asked to revise the current ALM study in light of Mr. Viola's eight recommendations;
- If MPI chooses not to revise current ALM study, a 0.5% annual reduction in rates should be ordered until such time as MPI can establish it selected investment portfolios in a reasonable and prudent manner (noting that this does not reflect the opportunity cost at comparable risk); and
- Further external experts retained by MPI who are testifying before PUB should be directed to identify whether in their professional judgment the methodology is consistent with professional best practice.

CMMG

CMMG also argued that the Board should continue to hold the Corporation's "feet to the fire" to ensure it does a diligent job of matching assets and liabilities, making good investment selections, and managing its claims and administration prudently.

7.6. Board Findings

The Board did not receive the Mercer ALM study until after the 2018 GRA had concluded and reviewed it as part of this GRA.

When it comes to the Corporation's overall investment strategy, the Board recognizes that its oversight role does not extend to directing the Corporation as to the particulars of its portfolio management.

In this Application, the Board received considerable and detailed information regarding the steps it is taking to improve its asset liability management. Based on the evidence presented to the Board, the Corporation had a range of options available to it with respect

to its portfolio composition. It appears to the Board that the Corporation has selected from a range of reasonable options for its portfolios as a result of the Mercer ALM study.

The Board received with interest Mr. Viola's critical analysis of the Mercer ALM Study and recognizes the merit in his opinion that the Corporation should have a full portfolio designed to mitigate longer horizon risks and achieve higher returns by taking on different risks in a prudent fashion. It may be the case that the Corporation has foregone an opportunity to hedge against long-term risks by rejecting RRBs and reducing real assets. To that end, to test the reasonableness of the Corporation's portfolio, the Board directs that the Corporation set up and run shadow portfolios for the Basic and Pension portfolios effective March 1, 2019, with the inclusion of Real Return Bonds as part of an optimal bond portfolio mix. Given the numerous variables attributable to such shadow portfolios, the Board directs the Corporation to consult with the Board on the selection and management of the assets chosen for the shadow portfolios. The Board further orders the Corporation to file, in the 2020 GRA, a report comparing the returns of the shadow portfolios with those selected by MPI. The Board expects that the results of that comparison will be of assistance in determining whether the portfolio selected by the Corporation provided optimal returns.

The Board would point out that as set out above, while the Corporation sought Mercer's advice through the Mercer ALM Study, the Corporation then proceeded to put constraints on the Mercer ALM study. The Board is of the view that it would be beneficial for the Corporation to inform itself and the Board as to how the Basic and Pension portfolios would perform had the Corporation not imposed those constraints. Therefore, the Board directs that the Corporation immediately engage Mercer to run shadow portfolios for the Basic and Pension portfolios effective March 1, 2019, without the constraints imposed by the Corporation, and file Mercer's report in that regard in the 2020 GRA.

As is clear from the foregoing, the Board intends to review the results of the Corporation's new Asset Liability Management strategy in the 2020 GRA. Therefore, the Board directs that in the 2020 GRA, the Board file a post-implementation review of the Corporation's

new Asset Liability Management strategy. The review should provide an update on the progress of implementation of the new portfolios, the disposition of the existing portfolio to fund new investment classes, interest rate risk exposure changes, investment income reporting changes including the allocation methodology for balance sheet and investment income and Investment Policy Statement changes.

The Board expects that the shadow portfolios and the post-implementation review will serve to inform it, and the Corporation, as to whether the Corporation's Asset Liability Management strategy is reasonable.

8. RATE STABILIZATION RESERVE AND TARGET CAPITAL RANGE

8.1. Purpose of the RSR

By Order 162/16, the Board approved the following definition of the purpose of the Rate Stabilization Reserve (RSR):

> *To protect motorists from rate increases that would otherwise have been necessary due to unexpected variances from forecasted results and due to events and losses arising from non-recurring events or factors.*

8.2. Basic RSR and Total Equity Balances

In its Application, the Corporation requested a Basic Total Equity target capital range of $143 million to $305 million. The lower threshold of $143 million was found to be equivalent to a 34% Minimum Capital Test (MCT) ratio, and was based on an adaptation of the Dynamic Capital Adequacy Testing (DCAT) analysis based on a 1-in-40-year probability level, with routine management / regulatory action, over a two-year time horizon. The upper threshold of $305 was found to be equivalent to an 85% MCT ratio, based on a two-year, 1-in-40 DCAT scenario with no management action.

A summary of the recent actual and expected future, composition of Basic total equity is provided below:

	Actual		Forecast	Projected	Outlook
Years Ending 28/29 February	**2017**	**2018**	**2019**	**2020**	**2021**
Basic RSR Opening Balance	194	99	171	306	324
Basic Net Income (Loss)	(123)	35	135	18	18
Basic RSR Before Transfers	71	134	306	324	342
Transfer in from Non-Basic Retained Earnings	27.8	37	-	-	-
Basic RSR	**99**	**171**	**306**	**324**	**342**
Basic AOCI	82	40	(52)	(44)	(35)
Basic Total Equity	**181**	**211**	**254**	**280**	**307**

As in the past, the Board also looks to the overall financial strength of the Corporation in establishing rates. On an overall basis, as at February 28, 2017 the Corporation reported retained earnings of $261.5 million (including $162.3 million in Extension and SRE) and total equity of $357.2 million (including $176.2 million in Extension and SRE).

8.3. Dynamic Capital Adequacy Testing (DCAT)

The requirements for an actuary undertaking a DCAT investigation for a Canadian property-casualty insurance company are set out in the Standards of Practice promulgated by the Canadian Institute of Actuaries, along with additional guidance provided in Educational Notes. DCAT was developed by the Canadian Institute of Actuaries to address a private sector regulatory requirement for a financial condition report to be prepared annually by the appointed actuary for those insurers subject to that regulation. DCAT tests the forecasted financial strength of an insurer's capital position under a series of plausible adverse scenarios addressing a number of specified, different risk factors.

The Standards of Practice specify that an insurer's financial condition will be deemed satisfactory "*if throughout the forecast period, under the base scenario and all plausible adverse scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities, and under the base scenario, the insurer meets the supervisory target capital requirement.*"

The annual Basic DCAT investigation undertaken by the Corporation's Chief Actuary and Vice President, Product and Risk Management is done because it reflects prudent best practices in Canada, as a means to identify plausible threats to the Corporation's satisfactory financial condition, actions which lessen the likelihood of those threats, and actions that would mitigate a threat if it materialized.

In general, the DCAT base scenario financial forecast would reflect the best estimate financial forecast of insurance operations. In a Basic context, this generally means the DCAT base scenario financial forecast matches the financial forecast for the contemporaneous GRA.

In the current GRA, this is true in all respects (including the use of a Naïve interest rate forecast) except that the DCAT base scenario financial forecast excludes the expected revenue arising from the Corporation's proposed Net CMP, which gradually rises from about $22.7 million up to $25.6 million on a written premium basis from 2019/20 to 2022/23.

In defending its decision to exclude the Net CMP from the DCAT, the Corporation argued that:

- If Basic has a satisfactory financial condition without a CMP, it should also have a satisfactory financial condition with a CMP;
- It is appropriate to exclude any assumed capital adjustments in the best estimate base scenario forecast until such time that the Corporation brings forward and gets approval for a capital management plan;

- It is not appropriate to include the CMP in the estimation of the Basic target capital range, which is adapted from the DCAT; and

- Exclusion of any proposed capital adjustments in the estimate of the Basic target capital range will result in more consistent year-to-year assessments of the capital targets.

The DCAT investigation included in the current application was otherwise prepared in a manner consistent with prior years. Because Basic's financial forecast, and the DCAT base scenario, both reflect the expected impact of the Corporation's proposed ALM strategy, sensitivity to shifting interest rates and any decline in the market value of equity investments has been significantly reduced for Basic. Nevertheless, a Combined Scenario, reflecting adverse changes to interest rates, equity investments and loss ratios which are estimated to be plausible in aggregate, continues to be identified as the most significant plausible adverse scenario tested in the DCAT investigation, as in prior years.

The Corporation's Chief Actuary concluded that the future financial condition of Basic is satisfactory as at February 28, 2018. In its evidence, the Corporation also indicated that it is presently working on enhancements to its modelling of the risk associated with the misestimation of Basic's policy liabilities, the benefits of which will be reflected in future Basic DCAT investigations.

8.4. Target Capital Analysis

In recent years, through an extensive collaborative process, an approach to estimating a Basic target capital range was developed as an adaptation of the DCAT investigation. At a very high level, the Basic target capital analysis uses the most significant plausible adverse scenario identified in the DCAT investigation to estimate what level of Basic Total Equity is needed at the start of the forecast period such that:

- For the lower threshold, Basic Total Equity remains above $0; and

- For the upper threshold, Basic Total Equity remains above the lower threshold.

In each instance, the modelling is done at a specified probability level for the adverse scenario over a specified time horizon. Over the course of recent years, a consensus had been reached that a 1-in-40-year (or 97.5th percentile) probability level and a two-year time horizon are appropriate for Basic for both the lower and upper thresholds of the Basic target capital range.

In the 2018 GRA, the Corporation requested a target capital range of $201 million to $438 million. In Order 130/17, the Board set a Basic target capital range of $180 million to $325 million for the 2017/18 fiscal year following the consensus approach described above, using an iterative modelling approach and assuming:

- For the lower threshold, the adverse scenario be considered after routine management / regulatory actions (including rate changes and RSR rebuilding fees); and

- For the upper threshold, the adverse scenario be considered after routine management / regulatory actions (including only rate changes and not including RSR Rebuilding Fees).

The previously Board-approved iterative modelling approach tests a specified target capital level against specified adverse circumstances.

In the current application, the Corporation did not follow the iterative methodology, citing the following reasons:

- The lower threshold must be greater than or equal to the minimum capital required to achieve satisfactory financial condition;

- Any target capital methodology must be based on best estimates;

- The target capital analysis must reflect an appropriate time horizon for which the

Corporation can respond to adverse financial events;

- The lower and upper thresholds are calculated before the inclusion of capital maintenance or capital build/release provisions; and

- For the RSR to be effective and reduce the incidence of RSR rebuilding fees, the Basic Total Equity balance cannot be at or about the lower threshold for a material period of time.

The Corporation's proposed modelling approach tests the current Basic financial forecast (in this instance, excluding the proposed Net CMP), shifted to a specified target capital level at the start of the forecast period, against specified adverse circumstances.

The Corporation also elected to estimate the upper threshold based on modelling of the adverse scenario before routine management / regulatory actions.

In the Application as originally submitted, and based on the foregoing approach, the Corporation proposed a Basic Total Equity target capital range of $143 million to $305 million, which it indicated was equivalent to a range of 34% to 85% when expressed in terms of the MCT.

In MPI Exhibit #26, filed in the course of the public hearings, the Corporation provided an updated estimate of the Basic target capital range reflecting market interest rates as of the end of September 2018. This updated Basic Total Equity target capital range was $140 million to $315 million (or an MCT range of 34% to 88%), after correction of a calculation error with respect to the lower threshold was provided in oral testimony.

MPI Exhibit #26 also provided the estimated Basic target capital range following the previously Board-approved iterative modelling approach using a 50/50 interest rate forecast reflecting market interest rates as of the end of September 2018. This alternative Basic Total Equity target capital range was $122 million to $250 million.

8.5. Interveners' Positions

CAC

Dr. Simpson and Ms. Sherry's report, *The Role of the DCAT and Interest Rate Forecasting* (DCAT/IRF Report), addressed the role of DCAT in determining the Basic Total Equity target capital range.

The DCAT/IRF Report reviewed the chronology of various proposals for setting target capital, which ultimately resulted in the current modified DCAT analysis. Of particular note, was the initial establishment of an RSR Range based on a range of Percentage of Premiums (PoP), and later reliance on the MCT ratio. The major shortcoming of those methodologies, according to Dr. Simpson and Ms. Sherry, was that they are not directly linked to the actual risks facing the Corporation. The benefit of the DCAT methodology is that it has a direct connection between specific and justifiable risks posed as adverse events grounded in historical evidence, and the future financial condition of the Corporation.

Dr. Simpson and Ms. Sherry expressed concern that MPI is using an MCT approach to set the lower and upper threshold. Dr. Simpson's criticism of the approach requested by the Corporation was that it is difficult to attach meaning to any specific MCT level in terms of specific risks and associated tolerance levels. The DCAT methodology, on the other hand, captures specific financial risks as they evolve based on analysis of historical evidence and using established risk assessment practices.

The DCAT/IRF Report recommended that the setting of the RSR continue to be informed by the DCAT methodology and PoP. Although the PoP methodology has not been referred to in any recent Board Orders, Dr. Simpson and Ms. Sherry were of the view that they are not aware of any Board Order that explicitly asserts that PoP would no longer be used to set the RSR Range.

Dr. Simpson and Ms. Sherry recommended that the 50/50 interest rate forecast be used to determine the DCAT analysis to establish the RSR Range, as well as the break-even rate indication.

CAC suggested that a distinction needs to be made between rate volatility and rate shock, and argued that the purpose of the RSR is to prevent rate shock, adding that the Corporation agreed that moderate RSR rebuilding fees do not constitute rate shock. CAC also reminded the Board of its earlier conclusion that the RSR should not provide protection against variances on matters within the control of management, such as certain categories of operating expenses.

CAC ultimately recommended approval of a Basic Total Equity target capital range of $122 million to $250 million, based on the previously Board-approved iterative methodology using a 50/50 interest rate forecast updated to the end of September 2018, as reflected in MPI Exhibit #26.

CMMG

CMMG reminded the Board of the significant growth in Basic's target capital range since 2005, a period over which the Corporation confirmed that there were no significant drawdowns of the RSR as a result of insurance issues. CMMG argued that the RSR is already in excess of $200 million, a level far larger than what is needed, given the history of the Corporation in meeting its mandate to Manitobans.

8.6. Board Findings

The Board hereby approves a Basic Total Equity target capital range for 2018/19 fiscal year of $140 million to $315 million, based on the Corporation's target capital analysis updated to reflect market interest rates as of the end of September 2018 (again using the Naïve interest rate forecast). The Board also directs that, for the next GRA, the DCAT base scenario forecast, also used in the Basic target capital analysis, must

fully reflect any expected capital adjustments arising from the thorough capital management plan which the Board will also direct to be proposed in the next GRA.

With this decision, the Board recognizes that is has departed from Order 130/17 with respect to the Basic target capital modeling approach. In that GRA, MPI requested a lower target capital threshold of $201 million and an upper threshold of $438 million. The Board approved a Basic Total Equity target capital range of $180 million to $325 million based on an iterative modeling approach designed to test specific target capital levels. The Board acknowledges the concerns again raised by the Corporation with respect to this approach, including:

- That the resulting lower threshold to the Basic target capital range is below the level it believes is required for Basic to have a satisfactory financial condition;
- That the upper threshold to the Basic target capital range should be modeled before routine management / regulatory actions;
- That inclusion of the Net Capital Maintenance Provision in the base scenario financial forecast is not appropriate for Basic target capital purposes; and
- That the assumed capital transfers from the Extension line of business are problematic because they represent amounts that the MPI Board of Directors may be unable, or unwilling to transfer, and assume a subsidization of Basic that is inconsistent with the principle that Basic should be self-supporting.

All other things being equal, the lower the Basic Total Equity target capital lower threshold, the more likely that the need for an RSR rebuilding fee will be deferred. This is because Basic Total Equity needs to fall farther before triggering that outcome. In a similar manner, the lower the upper threshold is set for the Basic Total Equity target capital range, the more likely that the need for an RSR rebate will come sooner, as Basic Total Equity does not need to rise as far before triggering that outcome.

Furthermore, in general terms, and all other things being equal, the narrower the width of the Basic Total Equity target capital range, the more likely that a given GRA will need to request either an RSR rebuilding fee or an RSR rebate, as the narrower range permits less volatility in actual versus expected Basic financial results before triggering one of these outcomes.

These general observations speak to the importance of setting the Basic target capital range to reflect modeling of the risks faced by Basic over an appropriate time horizon and considering the Corporation's appetite for risk.

The Board acknowledges the Corporation's view that adequate capital in the RSR is required in order to permit MPI to provide stable and predictable Basic rates, and recognizes the risks associated with Basic being undercapitalized, leaving MPI and ratepayers in a vulnerable position in the event of severe adverse events. The question facing the Board every year is what constitutes "adequate capital" as the Board is also concerned that rates should not be increased simply to provide the Corporation with a financial cushion. What is required are just and reasonable rates. The Board recognizes, however, that considerable work has been devoted and progress made over many previous GRAs and through a collaborative process with stakeholders on the issue of the appropriate methodology to be used to establish the Basic Total Equity target capital range. The Board is concerned that it is receiving the same positions from the parties year after year, that the level of capital is either inadequate or too generous. The Board would like to avoid re-visiting the same arguments and, rather, would prefer to establish a standard so that the issue can be determined for a longer period than one year and then the results of a standard methodology can be evaluated. To this end, the Board intends to engage the services of an independent consulting actuary with experience in target capital analysis to:

- Engage stakeholders in discussion to understand their respective preferred Basic target capital analysis approaches; and

- Prepare expert evidence for the next GRA setting out their opinion on best practices for Basic target capital analysis purposes.

The Board's approval of a Basic Total Equity target capital range of $140 million to $315 million, reduced from that approved in Order 130/17, takes into account the clear evidence that the Corporation's risk profile has been favourably affected by the ALM initiative. The Board's acceptance of the results of the Corporation's methodology in this Order should not be seen as a specific endorsement or rejection of any particular approach to the Basic target capital analysis going forward, as the Board intends to examine this issue further, following receipt of the independent consulting actuary's expert evidence in the 2020 GRA.

The Board has, in past Orders, expressed the view that the Corporation's non-compulsory Extension line of business should be regulated. One of the reasons for this is the Board's concern that the level of Basic Total Equity could be depleted at a time when the Extension line of business contains significant reserves. However, the Board's concern is alleviated somewhat given that the Corporation intends to bring forward a capital management plan with rules for transfers from other lines of business. The Board will withhold comment in this Order that it be given the jurisdiction to regulate Extension, and will await the review of the capital management plan at the next GRA.

9. ROAD SAFETY

In Order 130/17, the Board indicated that the issue of road safety would not form a significant part of this Application, as the Board had ordered that a Technical Conference take place in early 2019, addressing in depth a number of road-safety related issues. The Board commented that, in addition to the Interveners to the 2018 GRA, Technical Conference would benefit from the involvement of the membership of the Provincial Road Safety Committee and the Board intends to invite those members to participate in the conference.

The Board further commented that it expects that addressing road safety and loss prevention matters in this venue will invite productive discussion and collaboration, such that significant progress in that regard will be demonstrated in the 2020 General Rate Application.

Accordingly, apart from an examination of operating expenses, road safety was not reviewed in this GRA. With respect to road safety expenditures, MPI forecasted to spend $12.7 million in Basic Road Safety and Loss Prevention Programs in 2019/20. The largest component is to be spent on Driver Education, including the High School Driver Education program, followed by Impaired Driving prevention strategies, Auto-Crime prevention strategies, followed by Advertising and Sponsorships, Road Safety Programming, and Road Watch.

The Board did hear from the Corporation that it has discontinued its immobilizer program for 2019/20 as a result of all new vehicles now having built-in electronic immobilizer technology, and that it estimates the related savings to be approximately $1 million. MPI also discontinued the Entry-Level Professional Truck Driving training course, because, it reported, the framework was well-established, and funding was available from other sources.

10. PRESENTERS

The Board heard from a series of presenters at the hearing of the Application. The presenters are not sworn witnesses and were not cross-examined. As such, although the content of the presentations is not evidence, the Board, MPI and the interveners received the information presented for consideration only. As always, MPI will respond to each presenter in writing, with respect to the presentation made to the Board and file a copy of the response with the Board

Nick Roberts - Manitoba Used Car Dealers' Association (MUCDA)

The MUCDA was founded in 1992. The majority of the largest used car dealers from across Manitoba, as well as some new car dealers, are members of the MUCDA, which is the largest trade association representing the automobile dealers Manitoba. The MUCDA is involved in the development of consumer protection legislation, working at both the Ministerial and administrative levels to advocate for the interests of used car purchasers.

Mr. Roberts commented on what is taken into account when policyholders make a claim on a used vehicle. His concern was that, after a collision, while MPI provides coverage for the cost of repairing the vehicle, there is no indemnity for the associated decrease in value when a vehicle has an accident history. From his perspective, buyers will not want to pay the same amount for a vehicle with an accident history as for one that is accident-free.

Mr. Roberts took issue with MPI's policy that the reduction in value to a vehicle after an accident is not a loss that it should cover. He acknowledged that section 50(1) of the Automobile Insurance Coverage Regulation limits coverage to direct and accidental loss or damage, but argued that MPI has wrongly interpreted "direct loss" to mean only the physical damage to a vehicle. He argued that it is the expectation of policyholders that they will be indemnified for the loss of market value to the vehicle, because the loss of market value is a foreseeable consequence of a collision.

Mr. Roberts took the position that the Board can test the impact upon MPI's bottom line that would result if MPI began to pay out claims on the basis that vehicle owners likely expect, which includes the loss in market value.

Jonathan Westcott and Shane Saskiw - TappCar

Mr. Westcott and Mr. Saskiw are the founders of TappCar, a Transportation Network Company (TNC) operating in Manitoba. They appeared before the Board to make submissions about MPI's Vehicles for Hire (VFH) insurance model.

TappCar has been in operation for approximately two and a half years and has completed over three million rides. It has been operating in Winnipeg since March of 2018 and has completed over 100,000 rides. It has also run a pilot project in Steinbach, Manitoba.

Mr. Westcott and Mr. Saskiw described the VFH insurance model implemented by MPI as a "leading product." They advised that they have researched insurance products for TNCs in other jurisdictions, and the MPI product is advantageous for the TNCs and their drivers. In particular, drivers appreciate the flexibility of the four time bands available. Many of TappCar's drivers have purchased all four time bands, but those with lower incomes or those with more demanding full-time jobs appreciate the ability to pay the lower premiums associated with purchasing fewer time bands. The average premium paid by a TappCar driver is $200-$300 per year, which is affordable. Further, they were of the view that requiring the driver to place insurance results in the driver taking better care of the vehicle than if the TNC was required to place all of the insurance. As a result, TappCar's loss ratios are substantially higher in Alberta than they are in Manitoba. In summary, they characterized MPI's product as unique, successful, and affordable. Further, that affordability has fostered a competitive TNC marketplace in Winnipeg.

Charles Reesinck

Mr. Reesinck is a current resident of Winnipeg, who advised that he has also lived in New York City and in Paris. He raised concerns about the issue of noise pollution in Winnipeg, describing it as an epidemic. He advised that Paris has taken action against noise pollution and is not as noisy as New York.

Mr. Reesinck recommended that MPI should collect a premium from ratepayers to account for noise pollution caused by vehicles. He also expressed the view that MPI management should engage in discussions with the Government of Manitoba to address the issue of noise pollution and noise awareness.

11. IT IS THEREFORE ORDERED THAT:

11.1 There shall be an overall 1.8% rate increase in compulsory Motor Vehicle Premiums for the 2018/19 insurance year, effective March 1, 2019 for all major classes combined, which rate increase BE AND HEREBY IS APPROVED. This rate increase is as derived by the Corporation in accordance with Accepted Actuarial Practice in Canada, based on a Naïve interest rate forecast taking into account interest rates as at September 30, 2018, and taking into account the Net Capital Maintenance Provision applied for by the Corporation.

11.2 The Corporation shall file for approval by the Board, within five business days from the date of this Order or such other time as may be agreed to by the Corporation and the Board, a table of indicated rate changes and approved rate changes (i.e., after capping and rebalancing) by Major Class (and overall) reflecting the approved overall 1.8% rate increase.

11.3 MPI's requests that there be no change in Permit and Certificate rates, Vehicle Premium Discounts, Service and Transaction Fees, or Fleet Rebates or Surcharges BE AND HEREBY ARE APPROVED.

11.4 In the 2020 GRA, the Corporation shall report back on its tracking of interest rate movements and how this has informed its decision on interest rate forecasting.

11.5 In the 2020 GRA, the Corporation bring forward a thorough capital management plan, encompassing the entire Corporation and including the following:

a. Minimum, maximum, and/or target capital level for all lines of business;

b. A Capital Maintenance Provision built into ratemaking;

c. A capital build and release methodology based on the capital targets;

d. Clearly defined policy-based constraints on the speed and magnitude of the combined rate impact of rate changes, capital maintenance, capital build, and capital release provisions;

e. Clearly defined rules on the transfer of capital from other lines of business; and

f. Evolving the basis of estimating Basic's Net Capital Maintenance Provision in a manner consistent with the objective of promoting stability over time in this estimate.

11.6 There shall be a Technical Conference, to be facilitated by the Board at a mutually convenient time and in sufficient time to allow any findings from the Technical Conference to be fully reflected in the 2020 GRA, with the objective of developing a stakeholder consensus around a capital management plan, through discussion of the Corporation's draft proposal.

11.7 The rates applied for by the Corporation in its Vehicles For Hire Rate Application, filed with the Board on December 15, 2017, and approved on an interim basis by the Board in Order 11/18, are hereby approved on a final basis.

11.8 In the 2020 GRA, the Corporation shall report on its claims experience to date for the Vehicles for Hire class.

11.9 In the 2020 GRA, with respect to the Driver Safety Rating system, the Corporation shall report on the progress of its public consultation efforts, its preliminary research on the no or low cost options for rating models, as well as on its decision on whether to proceed with data collection for the higher cost options.

11.10 In the 2020 GRA, the Corporation shall file its updated IT Strategy.

11.11 In the 2020 GRA, the Corporation shall file an update, prepared by Gartner, to its 2018 PDR Program Evaluation. The Corporation shall provide to Gartner all relevant information such that Gartner will be able to fully evaluate the PDR program's benefits and the costs to operate and maintain the PDR program.

11.12 In advance of the 2020 GRA, the Corporation shall engage in discussions on an ongoing basis with the Board, with respect to progress on the Legacy Modernization project, any business cases created for the initiative, and the establishment of higher-level key performance indicators.

11.13 In the 2020 GRA, the Corporation shall provide an update of its progress on the Legacy Modernization initiative, file any business cases created for the Legacy Modernization initiative, and any higher-level key performance indicators.

11.14 In the 2020 GRA, the Corporation shall provide updates on all Business Transformation Office-managed projects of $500,000 or more in the 2018/19 Capital Budget.

11.15 In the 2020 GRA, the Corporation shall report on its progress in reducing the ratio of IT consultants to internal staff, in particular project management roles, and provide an update as to measures taken by the Corporation to improve the management of its relationships with IT vendors.

11.16 In the 2020 GRA, the Corporation shall file an update to the Gartner Benchmark Findings and Recommendations Executive Report, including an update to its IT Score, with the Board.

11.17 The Corporation shall run shadow portfolios for the Basic and Pension portfolios, effective March 1, 2019, with the inclusion of Real Return Bonds as part of an optimal

bond portfolio mix. The Corporation shall consult with the Board on the selection and management of the assets chosen for the shadow portfolios.

11.18 In the 2020 GRA, the Corporation shall file a report comparing the returns of the shadow portfolios as set out in Directive 11.17, with those implemented by the Corporation.

11.19 The Corporation shall immediately engage Mercer to run shadow portfolios for Basic and Pension effective March 1, 2019, without the constraints imposed by the Corporation, and file Mercer's report in that regard in the 2020 GRA.

11.20 In the 2020 GRA, the Board shall file a post-implementation review of the Corporation's Asset Liability Management strategy. The review shall provide an update on the progress of implementation of the new portfolios, the disposition of the existing portfolio to fund new investment classes, interest rate risk exposure changes, investment income reporting changes including the allocation methodology for balance sheet, investment income and Investment Policy Statement changes.

11.21 The Naïve interest rate forecast shall be used for rate-setting and the target capital analysis purposes.

11.22 For fiscal year 2018/19, the lower threshold for the Basic Total Equity target capital will be $140 million, based on the results of the Corporation's methodology updated to reflect market interest rates at the end of September 2018 BE AND IS HEREBY APPROVED.

11.23 For fiscal year 2018/19, the upper threshold for Basic Total Equity target capital will be $315 million, based on the results of the Corporation's methodology updated to reflect market interest rates at the end of September 2018 BE AND IS HEREBY APPROVED.

11.24 In the 2020 GRA, the Dynamic Capital Adequacy Testing base scenario forecast must fully reflect any expected capital adjustments arising from the Corporation's capital management plan.

11.25 On or before April 1, 2019, the Corporation shall file with the Board an update on the status of its compliance with all directives in this Order.

Board decisions may be appealed in accordance with the provisions of Section 58 of *The Public Utilities Board Act*, or reviewed in accordance with Section 36 of the Board's Rules of Practice and Procedure. The Board's Rules may be viewed on the Board's website at www.pub.gov.mb.ca.

THE PUBLIC UTILITIES BOARD

"Robert Gabor Q.C."
Chair

"Darren Christle MPA, BA, CCLP, P. Log, MCIT
Secretary

Certified a true copy of Order No. 158/18
issued by The Public Utilities Board

Darren Christle
Secretary

Appendix A

Glossary of Acronyms and Terms

AAP	Accepted Actuarial Practice
Application	2019 General Rate Application
AOCI	Accumulated Other Comprehensive Income
Basic	Compulsory motor vehicle insurance
Board	Public Utilities Board
BW	Bike Winnipeg
CAA	Canadian Automobile Association
CAC	Consumers' Association of Canada (Manitoba) Inc.
CLEAR	Canadian Loss Experience Automobile Rating
CMMG	Coalition of Manitoba Motorcycle Groups
CMP	Capital Maintenance Provision
Corporation	Manitoba Public Insurance Corporation
DART	Driving Ahead in Real Time
DCAT	Dynamic Capital Adequacy Testing
DSR	Driver Safety Rating
Extension	Optional motor vehicle insurance
FTE	Full-Time Equivalent

Government	Government of Manitoba
GRA	General Rate Application
HRMS	Human Resource Management System
HTA	Highway Traffic Act
ICWG	Investment Committee Working Group (MPI)
IT	Information Technology
MGEU	Manitoba Government Employees' Union
Monopoly	Policies that can only be sold by one corporation (MPI)
MPI	Manitoba Public Insurance Corporation
Naïve Forecast	Interest rate forecast reflecting no change in interest rates from current levels
No-fault	Accident benefits not related to the fault of the driver
NPV	Net present value
PDR	Physical Damage Re-engineering
PIPP	Personal Injury Protection Plan
Province	Government of Manitoba
RoadWatch	MPI Initiative to target impaired driving through deterrence and detection including the use of enhanced enforcement
RSR	Rate Stabilization Reserve

SIRF	Standard Interest Rate Forecast
SRE	Optional Special Risk Extension motor vehicle insurance
TNC	Transportation Network Company
VMP	Value Management Process

Appendix B

Appearances

K. McCandless / R. Watchman	Counsel for the Public Utilities Board ("the Board")
S. Scarfone / A. Guerra	Counsel for Manitoba Public Insurance Corporation ("the Corporation")
B. Williams / K. Dilay	Counsel for the Consumers' Association of Canada (Manitoba) Inc. ("CAC")
R. P. Oakes	Counsel for the Coalition of Manitoba Motorcycle Groups ("CMMG")

Appendix C

Witnesses

Witnesses for the Corporation

B. Graham	President and CEO
M. Giesbrecht	VP, Finance
L. Johnston	Chief Actuary and VP, Product and Risk Management
C. Wennberg	VP, Customer Service and COO
B. Bunko	VP, Information Technology
G. Bunston	Manager, Investments
C. Campbell	Director, Finance and Corporate Controller
J. Remillard	Corporate Business Architect
L. Lazarko	Director, Information Technology
D. Makarchuk	Mercer Canada

C. Henry	Gartner Consulting

Witnesses for CAC

Dr. W. Simpson	Professor of Economics, University of Manitoba
A. Sherry	Actuary
V. Viola	Investment Risk and Management Consultant

Appendix D

Interveners

Canadian Automobile Association (“CAA”)

Coalition of Manitoba Motorcycle Groups Inc. (“CMMG”)

Consumers’ Association of Canada (Manitoba) Inc. (“CAC”)

In-person Presenters

Nick Roberts	Manitoba Used Car Dealers' Association (MUCDA)
Jonathan Westcott and Shane Saskiw	TappCar
Charles Reesinck	Private Citizen

Figure 1: Major Class Summary Report (2019 GRA Ratemaking RM.6 Figure RM-14)

Line No.	Major Class	Vehicle Count	Current Average Rate	Approved Average Rate	Approved Rate Change	Experience Rate Change
1	**Private Passenger**	801,726	$1,111	$1,133	2.0%	2.0%
2	**Commercial**	46,246	$780	$795	1.9%	2.1%
3	**Public**	12,630	$2,003	$2,006	0.1%	-0.6%
4	**Motorcycles**	17,023	$797	$814	2.1%	2.2%
5	**Trailers**	200,677	$81	$77	-4.9%	-4.8%
6	**Off-Road Vehicles**	70,838	$10	$8	-20.0%	-36.4%
7	**Overall**	1,149,140	$855	$871	1.8%	1.8%

Figure 2: PF.1 Statement of Operations

Line No.	*2019/20 Basic Rates +1.8% Rate Increase using September 30, 2018 Naive Interest Rate Forecast* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Motor Vehicles	1,019,281	1,080,765	1,125,627	1,171,549	1,219,625
4	Drivers	68,902	70,903	72,885	74,723	76,565
5	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
6	Total Net Premiums Written	1,076,987	1,140,248	1,186,864	1,234,391	1,284,071
7	Net Premiums Earned					
8	Motor Vehicles	991,058	1,052,323	1,104,874	1,150,306	1,197,386
9	Drivers	59,546	69,896	71,887	73,798	75,638
10	Reinsurance Ceded	(11,196)	(11,420)	(11,648)	(11,881)	(12,119)
11	Total Net Premiums Earned	1,039,408	1,110,799	1,165,113	1,212,223	1,260,905
12	Service Fees & Other Revenues	23,832	25,761	27,528	29,431	31,515
13	Total Earned Revenues	1,063,240	1,136,560	1,192,641	1,241,654	1,292,420
14	Claims Incurred	853,862	896,227	942,762	991,755	1,043,925
15	DPAC \ Premium Deficiency Adjustment	(29,722)	(3,604)	(4,316)	3,963	7,900
16	(a) Claims Incurred - Interest Rate Impact	(34,905)	7,261	10,174	8,904	8,217
17	Total Claims Incurred	789,235	899,884	948,620	1,004,622	1,060,042
18	Claims Expense	137,168	135,301	139,089	144,204	146,654
19	Road Safety/Loss Prevention	13,606	12,680	12,805	12,990	13,266
20	Total Claims Costs	940,009	1,047,865	1,100,514	1,161,816	1,219,962
21	Expenses					
22	Operating	75,060	73,545	76,250	79,935	82,844
23	Commissions	40,338	42,630	44,692	46,461	48,288
24	Premium Taxes	31,518	33,667	35,303	36,723	38,191
25	Regulatory/Appeal	4,669	4,839	4,998	5,114	5,233
26	Total Expenses	151,585	154,681	161,243	168,233	174,556
27	Underwriting Income (Loss)	(28,354)	(65,986)	(69,116)	(88,395)	(102,098)
28	Investment Income	192,209	84,843	88,397	91,818	94,798
29	(b) Investment Income - Interest Rate Impact	(20,781)	11	4	5	3
30	Net Investment Income	171,428	84,854	88,401	91,823	94,801
31	Net Income (Loss)	143,074	18,868	19,285	3,428	(7,297)
32	Total net Impact due to interest rate change (b) - (a)	14,124	(7,249)	(10,170)	(8,898)	(8,214)

Figure 2: PF.2 Statement of Financial position

Line No.	*2019/20 Basic Rates +1.8% Rate Increase using September 30, 2018 Naive Interest Rate Forecast* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Assets					
4	Cash and cash equivalents	28,746	62,107	72,269	77,490	69,218
5	Investments	2,487,626	2,578,532	2,688,168	2,802,186	2,918,049
6	Investment property	13,906	13,548	13,553	13,760	15,246
7	Accounts receivable	354,564	374,252	389,061	404,206	420,047
8	Deferred policy acquisition costs	18,310	23,693	29,306	26,672	20,163
9	Property and equipment	89,855	91,050	88,996	88,335	90,227
10	Deferred development costs	43,654	47,117	59,170	61,184	63,217
11		3,036,661	3,190,299	3,340,523	3,473,833	3,596,167
12	Liabilities					
13	Due to other insurance companies	144	144	144	144	144
14	Accounts payable and accrued liabilites	40,996	40,602	41,678	43,356	44,182
15	Financing lease obligation	2,925	2,843	2,743	2,634	2,518
16	Unearned premiums and fees	547,303	580,129	605,535	631,663	659,116
17	Provision for employee current benefits	17,155	17,865	18,583	19,310	20,046
18	Provision for employee future benefits	341,796	358,128	374,220	390,321	406,734
19	Provision for unpaid claims	1,824,404	1,901,848	1,980,404	2,055,933	2,129,113
20		2,774,723	2,901,559	3,023,307	3,143,361	3,261,853
21	Equity					
22	Retained Earnings	314,049	332,917	352,202	355,630	348,333
23	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,158)	(14,019)
24	Total Equity	261,938	288,740	317,216	330,472	334,314
25	Total Liabilities & Equity	3,036,661	3,190,299	3,340,523	3,473,833	3,596,167

Figure 2: PF.3 Statement of Changes in Equity

Line No.	*2019/20 Basic Rates +1.8% Rate Increase using September 30, 2018 Naive Interest Rate Forecast* *(C$ 000s, rounding may affect totals)*	*For the Years Ended February,*				
1		2019FB	2020F	2021F	2022F	2023F
2	BASIC	2018/19FB	2019/20F	2020/21F	2021/22F	2022/23F
3	Total Equity					
4	Retained Earnings					
5	Beginning Balance	170,975	314,049	332,917	352,202	355,630
6	Net Income (Loss) from annual operations	143,074	18,868	19,285	3,428	(7,297)
7	Transfer (to) / from Non-Basic Retained Earnings	-	-	-	-	-
8	Total Retained Earnings	314,049	332,917	352,202	355,630	348,333
9	Total Accumulated Other Comprehensive Income					
10	Beginning Balance	39,870	(52,111)	(44,177)	(34,986)	(25,158)
11	Other Comprehensive Income for the Year	(91,981)	7,934	9,191	9,828	11,139
12	Total Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,158)	(14,019)
13	Total Equity Balance	261,938	288,740	317,216	330,472	334,314
14	Total Equity					
15	Rate Stabilization Reserve					
16	Retained Earnings	314,049	332,917	352,202	355,630	348,333
17	Accumulated Other Comprehensive Income	(52,111)	(44,177)	(34,986)	(25,158)	(14,019)
18	Total Rate Stabilization Reserve	261,938	288,740	317,216	330,472	334,314
19	Retained Earnings	-	-	-	-	-
20	Total Equity Balance	261,938	288,740	317,216	330,472	334,314
21	RATE STABILIZATION RESERVE TARGETS					
22	Lower Target (@33% MCT Ratio)	140,000	157,000	175,000	182,000	191,000
23	Upper Target (@88% MCT Ratio)	315,000	346,000	373,000	390,000	408,000
26	MCT RATIO (%)	72.3%	72.4%	73.6%	73.2%	70.1%

Figure 3: Rating Year 2019/20 Major Classification Required Rate Changes – Breakeven Rates (2019 GRA Ratemaking RM. 4.3 Figure RM-12)

Line No.	Coverage	Overall	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	712.10	937.37	639.30	1,678.42	654.88	56.94	4.84
3	Claims Expense	114.19	150.32	102.52	269.15	105.02	9.13	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.18	83.47	83.47	83.47	83.47	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.60	38.92	26.87	68.54	26.58	2.58	0.19
8	Prem Tax: Vehicle	27.41	36.04	24.88	63.46	24.62	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.24	17.83	17.83	17.83	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.08	79.38	79.38	79.38	79.38	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	913.52	1,201.33	829.35	2,115.35	820.52	79.55	5.99
19	Req Rate (Bal)	898.34	1,181.36	815.56	2,080.19	806.88	78.23	5.89
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
24	Applied for Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		-0.1%	0.0%	1.1%	0.1%	-6.7%	-37.7%
27	Cred Wtd Req Rate		1,181.36	815.41	2,068.48	806.02	78.38	6.18
28	Cred Wtd Req Rate (Bal)	898.34	1,181.50	815.50	2,068.73	806.12	78.39	6.18
29	Cred Wtd Change (Bal)		-0.1%	0.0%	1.1%	0.2%	-6.7%	-37.7%
	Selected Req Rate	897.49	1,181.50	815.50	1,990.96	806.12	78.39	6.18
	Selected Change	-0.3%	-0.1%	0.0%	-2.7%	0.2%	-6.7%	-37.7%

Figure 3: Rating Year 2019/20 Major Classification Required Rate Changes – Breakeven Rates Including Net CMP (2019 GRA Ratemaking RM. 4.3 Figure RM-13)

Line No.	Coverage	Overall	Private Pass	Comm	Public	Motor-Cycle	Trailer	ORV
1	19/20 Units	1,200,000	829,700	47,900	13,100	17,600	215,600	76,100
2	Claims	712.10	937.37	639.30	1,678.42	654.88	56.94	4.84
3	Claims Expense	114.19	150.32	102.52	269.15	105.02	9.13	0.78
4	Road Safety	10.63	14.05	14.05	14.05	14.05	0.00	0.00
5	Operating Expense	63.18	83.47	83.47	83.47	83.47	0.00	0.00
6	Regulatory/Appeal	4.10	5.42	5.42	5.42	5.42	0.00	0.00
7	Commission: Vehicle	29.60	38.92	26.87	68.54	26.58	2.58	0.19
8	Prem Tax: Vehicle	27.41	36.04	24.88	63.46	24.62	2.39	0.18
9	Comm & Prem Tax: Driver	3.75	4.95	4.95	4.95	4.95	0.00	0.00
10	Commission Flat Fee	5.70	7.53	7.53	7.53	7.53	0.00	0.00
11	Reins: Casualty	1.76	2.32	2.32	2.32	2.32	0.00	0.00
12	Reins: Catastrophe	7.86	8.52	8.52	8.52	0.00	8.52	0.00
13	Fleet Rebates	13.24	17.83	17.83	17.83	0.00	0.00	0.00
14	Anti-Theft Discount	2.01	2.90	0.00	0.00	0.00	0.00	0.00
15	Driver Prem	60.08	79.38	79.38	79.38	79.38	0.00	0.00
16	Service Fees	21.90	28.94	28.94	28.94	28.94	0.00	0.00
17	Inv Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Req Rate (Raw)	913.52	1,201.33	829.35	2,115.35	820.52	79.55	5.99
19	Req Rate (Bal)	898.34	1,181.36	815.56	2,080.19	806.88	78.23	5.89
20	18/19 Average Rate	857.67	1,113.45	779.74	2,082.92	796.66	80.73	9.92
21	Major Class Drift	4.9%	6.2%	4.6%	-1.8%	1.0%	4.1%	0.0%
22	19/20 Average Rate Without Rate Change	899.87	1,182.16	815.49	2,046.38	804.86	84.01	9.92
23	Full Cred Req Change	-0.2%	-0.1%	0.0%	1.7%	0.3%	-6.9%	-40.6%
24	Applied for Change	1.9%	2.0%	2.1%	3.8%	2.3%	-5.0%	-39.4%
25	Credibility		99.3%	88.9%	68.6%	74.6%	97.3%	92.7%
26	Cred Wtd Change		2.0%	2.1%	3.2%	2.2%	-4.8%	-36.4%
27	Cred Wtd Req Rate		1,205.73	832.23	2,111.16	822.66	80.00	6.31
28	Cred Wtd Req Rate (Bal)	916.88	1,205.88	832.33	2,111.41	822.75	80.01	6.31
29	Cred Wtd Change (Bal)		2.0%	2.1%	3.2%	2.2%	-4.8%	-36.4%
	Selected Req Rate	916.03	1,205.88	832.33	2,033.65	822.75	80.01	6.31
	Selected Change	1.8%	2.0%	2.1%	-0.6%	2.2%	-4.8%	-36.4%

Figure 4: Summary of Premium Increases/Decreases by Major Class, Territory and Vehicle Type (2019 GRA Ratemaking Figure RM-15)

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
MAJOR CLASS								
Private Passenger	801,726	1,111	1,133	890,827,584	908,460,447	17,632,863	1.98	90.80
Commercial	46,246	780	795	36,057,118	36,747,143	690,025	1.91	3.67
Public	12,630	2,003	2,006	25,298,788	25,334,960	36,172	0.14	2.53
Motorcycle	17,023	797	814	13,569,983	13,859,862	289,879	2.14	1.39
Trailer	200,677	81	77	16,323,142	15,529,419	-793,723	-4.86	1.55
Off-Road Vehicle	70,838	10	8	708,380	566,704	-141,676	-20.00	0.06
TOTAL - ALL MAJOR CLASSES	1,149,140	855	871	982,784,995	1,000,498,535	17,713,540	1.80	100.00

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
TERRITORY								
1	525,647	1,050	1,069	551,826,729	562,135,723	10,308,994	1.87	56.19
2	540,758	639	651	345,805,936	352,273,096	6,467,160	1.87	35.21
3	16,706	753	771	12,578,813	12,887,545	308,732	2.45	1.29
4	25,953	707	707	18,361,160	18,337,452	-23,708	-0.13	1.83
Commuter	40,076	1,353	1,369	54,212,357	54,864,719	652,362	1.20	5.48
TOTAL - ALL TERRITORIES	1,149,140	855	871	982,784,995	1,000,498,535	17,713,540	1.80	100.00

	NO. OF VEHICLES	2018 AVG RATE	2019 AVG RATE	2018 PREMIUM	2019 PREMIUM	PREMIUM CHANGE $	PREMIUM CHANGE %	% OF 2019 PREMIUM
VEHICLE TYPE								
BUS	4,476	963	981	4,311,116	4,391,218	80,102	1.86	0.44
MCYCL	15,413	846	863	13,039,350	13,301,405	262,055	2.01	1.33
MHOME	4,813	688	724	3,312,616	3,485,605	172,989	5.22	0.35
MOPED	1,707	319	335	544,218	572,094	27,876	5.12	0.06
ORV	70,838	10	8	708,380	566,704	-141,676	-20.00	0.06
PASVE	592,527	1,183	1,206	701,007,083	714,358,092	13,351,009	1.90	71.40
SNOVE	49	261	255	12,812	12,509	-303	-2.36	0.00
TRAIL	200,677	81	77	16,323,142	15,529,419	-793,723	-4.86	1.55
TRUCK	252,002	937	955	236,124,290	240,668,675	4,544,385	1.92	24.05
VARIA	6,638	1,115	1,147	7,401,988	7,612,814	210,826	2.85	0.76
TOTAL - ALL VEHICLE TYPES	1,149,140	855	871	982,784,995	1,000,498,535	17,713,540	1.80	100.00

Figure 5: Dollar Distribution - All Classification and Rate Adjustments (2019 GRA Ratemaking Figure RM-16)

Line No.		All Vehicles - 2019			Private Passenger Vehicles - 2019			Commercial Vehicles - 2019			Public Vehicles - 2019		
		# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
1	**Decreasing**												
2	$300 or more	81	0.01	0.01	0	0.00	0.00	5	0.01	0.01	71	0.56	0.56
3	$250 to $300	185	0.02	0.02	0	0.00	0.00	4	0.01	0.02	180	1.43	1.99
4	$200 to $250	289	0.03	0.05	92	0.01	0.01	22	0.05	0.07	170	1.35	3.33
5	$150 to $200	2,411	0.21	0.26	2,065	0.26	0.27	67	0.14	0.21	270	2.14	5.47
6	$100 to $150	22,365	1.95	2.20	21,487	2.68	2.95	201	0.43	0.65	654	5.18	10.65
7	$90 to $100	10,605	0.92	3.13	10,521	1.31	4.26	32	0.07	0.72	28	0.22	10.87
8	$80 to $90	17,800	1.55	4.68	17,563	2.19	6.45	113	0.24	0.96	74	0.59	11.46
9	$70 to $80	23,959	2.08	6.76	23,536	2.94	9.39	251	0.54	1.50	120	0.95	12.41
10	$60 to $70	28,212	2.46	9.22	27,782	3.47	12.85	136	0.29	1.80	153	1.21	13.62
11	$50 to $60	31,898	2.78	11.99	31,116	3.88	16.73	289	0.62	2.42	352	2.79	16.41
12	$40 to $50	38,331	3.34	15.33	37,901	4.73	21.46	163	0.35	2.77	86	0.68	17.09
13	$30 to $40	53,151	4.63	19.95	36,435	4.54	26.01	1,042	2.25	5.03	144	1.14	18.23
14	$20 to $30	46,084	4.01	23.96	33,904	4.23	30.24	2,020	4.37	9.40	1,704	13.49	31.72
15	$10 to $20	65,700	5.72	29.68	42,325	5.28	35.51	2,243	4.85	14.25	498	3.94	35.66
16	$1 to $10	141,142	12.28	41.96	34,842	4.35	39.86	8,615	18.63	32.87	1,579	12.50	48.16
17	**Total Decreasing**	***482,213***	***41.96***		***319,569***	***39.86***		***15,203***	***32.87***		***6,083***	***48.16***	
18	**No change**	87,137	***7.58***	***49.55***	5,021	***0.63***	***40.49***	286	***0.62***	***33.49***	714	***5.65***	***53.82***
19	**Increasing**												
20	$1 to $10	106,231	9.24	58.79	55,185	6.88	47.37	3,319	7.18	40.67	623	4.93	58.75
21	$10 to $20	45,523	3.96	62.75	33,837	4.22	51.59	3,103	6.71	47.38	1,865	14.77	73.52
22	$20 to $30	44,379	3.86	66.61	26,778	3.34	54.93	11,437	24.73	72.11	176	1.39	74.91
23	$30 to $40	36,384	3.17	69.78	26,676	3.33	58.26	6,574	14.22	86.33	966	7.65	82.56
24	$40 to $50	30,834	2.68	72.46	27,327	3.41	61.67	1,725	3.73	90.06	299	2.37	84.92
25	***ecrease or less than $50***	***832,701***	***72.46***		***494,393***	***61.67***		***41,647***	***90.06***		***10,726***	***84.92***	
26	$50 to $60	34,537	3.01	75.47	30,391	3.79	65.46	2,910	6.29	96.35	161	1.27	86.20
27	$60 to $70	39,939	3.48	78.94	38,781	4.84	70.29	375	0.81	97.16	59	0.47	86.67
28	$70 to $80	55,078	4.79	83.74	54,061	6.74	77.04	219	0.47	97.63	375	2.97	89.64
29	$80 to $90	37,389	3.25	86.99	36,880	4.60	81.64	212	0.46	98.09	104	0.82	90.46
30	$90 to $100	43,632	3.80	90.79	43,339	5.41	87.04	149	0.32	98.41	55	0.44	90.89
31	***ecrease or less than $100***	***1,043,276***	***90.79***		***697,845***	***87.04***		***45,512***	***98.41***		***11,480***	***90.89***	
32	$100 to $150	82,512	7.18	97.97	81,378	10.15	97.19	519	1.12	99.54	552	4.37	95.27
33	$150 to $200	15,985	1.39	99.36	15,764	1.97	99.16	178	0.38	99.92	21	0.17	95.43
34	***ecrease or less than $200***	***1,141,773***	***99.36***		***794,987***	***99.16***		***46,209***	***99.92***		***12,053***	***95.43***	
35	$200 to $250	6,891	0.60	99.96	6,738	0.84	100.00	22	0.05	99.97	123	0.97	96.41
36	$250 to $300	225	0.02	99.98	1	0.00	100.00	8	0.02	99.98	213	1.69	98.09
37	***ecrease or less than $300***	***1,148,889***	***99.98***		***801,726***	***100.00***		***46,239***	***99.98***		***12,389***	***98.09***	
38	$300 or more	251	0.02	100.00	0	0.00	100.00	7	0.02	100.00	241	1.91	100.00
39	**Total Increasing**	***579,790***	***50.45***		***477,136***	***59.51***		***30,757***	***66.51***		***5,833***	***46.18***	
40	**Grand Total**	**1,149,140**	**100.00**		**801,726**	**100.00**		**46,246**	**100.00**		**12,630**	**100.00**	

Figure 5: Dollar Distribution - All Classification and Rate Adjustments (2019 GRA Ratemaking Figure RM-16)

Line No.		Motorcycles - 2019 # of Vehicles	Motorcycles - 2019 % of Vehicles	Motorcycles - 2019 Cumulative % of Vehicles	Trailers - 2019 # of Vehicles	Trailers - 2019 % of Vehicles	Trailers - 2019 Cumulative % of Vehicles	Off-Road Vehicles - 2019 # of Vehicles	Off-Road Vehicles - 2019 % of Vehicles	Off-Road Vehicles - 2019 Cumulative % of Vehicles
	Decreasing									
1	$300 or more	5	0.03	0.03	0	0.00	0.00	0	0.00	0.00
2	$250 to $300	1	0.01	0.04	0	0.00	0.00	0	0.00	0.00
3	$200 to $250	5	0.03	0.06	0	0.00	0.00	0	0.00	0.00
4	$150 to $200	9	0.05	0.12	0	0.00	0.00	0	0.00	0.00
5	$100 to $150	23	0.14	0.25	0	0.00	0.00	0	0.00	0.00
6	$90 to $100	24	0.14	0.39	0	0.00	0.00	0	0.00	0.00
7	$80 to $90	50	0.29	0.69	0	0.00	0.00	0	0.00	0.00
8	$70 to $80	52	0.31	0.99	0	0.00	0.00	0	0.00	0.00
9	$60 to $70	141	0.83	1.82	0	0.00	0.00	0	0.00	0.00
10	$50 to $60	141	0.83	2.65	0	0.00	0.00	0	0.00	0.00
11	$40 to $50	181	1.06	3.71	0	0.00	0.00	0	0.00	0.00
12	$30 to $40	369	2.17	5.88	15,161	7.55	7.55	0	0.00	0.00
13	$20 to $30	262	1.54	7.42	8,194	4.08	11.64	0	0.00	0.00
14	$10 to $20	851	5.00	12.42	19,783	9.86	21.50	0	0.00	0.00
15	$1 to $10	2,722	15.99	28.41	22,546	11.23	32.73	70,838	100.00	100.00
16	**Total Decreasing**	***4,836***	***28.41***		***65,684***	***32.73***		***70,838***	***100.00***	
17	**No change**	281	***1.65***	***30.06***	80,835	***40.28***	***73.01***	0	***0.00***	***100.00***
18	**Increasing**									
19	$1 to $10	2,448	14.38	44.44	44,656	22.25	95.27	0	0.00	100.00
20	$10 to $20	1,917	11.26	55.70	4,801	2.39	97.66	0	0.00	100.00
21	$20 to $30	2,163	12.71	68.41	3,825	1.91	99.56	0	0.00	100.00
22	$30 to $40	1,292	7.59	76.00	876	0.44	100.00	0	0.00	100.00
23	$40 to $50	1,483	8.71	84.71	0	0.00	100.00	0	0.00	100.00
24	***ecrease or less than $50***	***14,420***	***84.71***		***200,677***	***100.00***		***70,838***	***100.00***	
25	$50 to $60	1,075	6.31	91.02	0	0.00	100.00	0	0.00	100.00
26	$60 to $70	724	4.25	95.28	0	0.00	100.00	0	0.00	100.00
27	$70 to $80	423	2.48	97.76	0	0.00	100.00	0	0.00	100.00
28	$80 to $90	193	1.13	98.90	0	0.00	100.00	0	0.00	100.00
29	$90 to $100	89	0.52	99.42	0	0.00	100.00	0	0.00	100.00
30	***crease or less than $100***	***16,924***	***99.42***		***200,677***	***100.00***		***70,838***	***100.00***	
31	$100 to $150	63	0.37	99.79	0	0.00	100.00	0	0.00	100.00
32	$150 to $200	22	0.13	99.92	0	0.00	100.00	0	0.00	100.00
33	***crease or less than $200***	***17,009***	***99.92***		***200,677***	***100.00***		***70,838***	***100.00***	
34	$200 to $250	8	0.05	99.96	0	0.00	100.00	0	0.00	100.00
35	$250 to $300	3	0.02	99.98	0	0.00	100.00	0	0.00	100.00
36	***crease or less than $300***	***17,020***	***99.98***		***200,677***	***100.00***		***70,838***	***100.00***	
37	$300 or more	3	0.02	100.00	0	0.00	100.00	0	0.00	100.00
38	**Total Increasing**	***11,906***	***69.94***		***54,158***	***26.99***		***0***	***0.00***	
39	**Grand Total**	**17,023**	**100.00**		**200,677**	**100.00**		**70,838**	**100.00**	

Figure 6: Percent Distribution - All Classification and Rate Adjustments (2019 GRA Ratemaking Figure RM-17)

Line No.		All Vehicles - 2019			Private Passenger Vehicles - 2019			Commercial Vehicles - 2019			Public Vehicles - 2019		
		# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles	# of Vehicles	% of Vehicles	Cumulative % of Vehicles
	Decreasing												
1	20% or more	70,851	6.17	6.17	0	0.00	0.00	5	0.01	0.01	2	0.02	0.02
2	19 to 20%	5	0.00	6.17	3	0.00	0.00	2	0.00	0.02	0	0.00	0.02
3	18 to 19%	56	0.00	6.17	1	0.00	0.00	3	0.01	0.02	52	0.41	0.43
4	17 to 18%	76	0.01	6.18	43	0.01	0.01	7	0.02	0.04	26	0.21	0.63
5	16 to 17%	113	0.01	6.19	86	0.01	0.02	5	0.01	0.05	22	0.17	0.81
6	15 to 16%	130	0.01	6.20	103	0.01	0.03	8	0.02	0.06	19	0.15	0.96
7	14 to 15%	461	0.04	6.24	389	0.05	0.08	31	0.07	0.13	41	0.32	1.28
8	13 to 14%	23,520	2.05	8.29	892	0.11	0.19	32	0.07	0.20	50	0.40	1.68
9	12 to 13%	3,784	0.33	8.61	3,684	0.46	0.65	44	0.10	0.30	48	0.38	2.06
10	11 to 12%	6,062	0.53	9.14	5,648	0.70	1.35	325	0.70	1.00	80	0.63	2.69
11	10 to 11%	19,468	1.69	10.84	5,601	0.70	2.05	65	0.14	1.14	95	0.75	3.44
12	9 to 10%	22,937	2.00	12.83	11,984	1.49	3.55	56	0.12	1.26	76	0.60	4.05
13	8 to 9%	44,186	3.85	16.68	28,870	3.60	7.15	126	0.27	1.53	121	0.96	5.00
14	7 to 8%	33,853	2.95	19.62	29,769	3.71	10.86	248	0.54	2.07	233	1.84	6.85
15	6 to 7%	29,528	2.57	22.19	28,864	3.60	14.46	563	1.22	3.29	77	0.61	7.46
16	5 to 6%	38,301	3.33	25.53	36,925	4.61	19.07	567	1.23	4.51	484	3.83	11.29
17	4 to 5%	34,773	3.03	28.55	33,421	4.17	23.24	776	1.68	6.19	346	2.74	14.03
18	3 to 4%	33,460	2.91	31.46	32,163	4.01	27.25	774	1.67	7.86	219	1.73	15.76
19	2 to 3%	34,531	3.00	34.47	32,259	4.02	31.27	1,597	3.45	11.32	368	2.91	18.68
20	1 to 2%	43,830	3.81	38.28	36,544	4.56	35.83	3,941	8.52	19.84	2,028	16.06	34.73
21	0 to 1%	42,288	3.68	41.96	32,320	4.03	39.86	6,028	13.03	32.87	1,696	13.43	48.16
22	**Total Decreasing**	***482,213***	***41.96***		***319,569***	***39.86***		***15,203***	***32.87***		***6,083***	***48.16***	
23	**No change**	87,137	***7.58***	***49.55***	5,021	***0.63***	***40.49***	286	***0.62***	***33.49***	714	***5.65***	***53.82***
24	**Increasing**												
25	0 to 1%	46,025	4.01	53.55	41,777	5.21	45.70	1,756	3.80	37.29	536	4.24	58.06
26	1 to 2%	54,752	4.76	58.32	48,591	6.06	51.76	3,417	7.39	44.68	1,415	11.20	69.26
27	2 to 3%	39,726	3.46	61.77	35,179	4.39	56.15	1,620	3.50	48.18	1,545	12.23	81.50
28	3 to 4%	40,981	3.57	65.34	33,951	4.23	60.38	5,635	12.18	60.37	902	7.14	88.64
29	4 to 5%	46,486	4.05	69.38	34,946	4.36	64.74	3,567	7.71	68.08	504	3.99	92.63
30	***Decrease or less than + 5%***	***797,320***	***69.38***		***519,034***	***64.74***		***31,484***	***68.08***		***11,699***	***92.63***	
31	5 to 6%	91,442	7.96	77.34	74,786	9.33	74.07	9,503	20.55	88.63	692	5.48	98.11
32	6 to 7%	77,821	6.77	84.11	70,261	8.76	82.83	601	1.30	89.93	190	1.50	99.61
33	7 to 8%	45,144	3.93	88.04	42,707	5.33	88.16	86	0.19	90.11	9	0.07	99.68
34	8 to 9%	48,525	4.22	92.26	42,876	5.35	93.51	4,116	8.90	99.01	7	0.06	99.74
35	9 to 10%	13,203	1.15	93.41	12,485	1.56	95.06	192	0.42	99.43	21	0.17	99.90
36	***Decrease or less than +10%***	***1,073,455***	***93.41***		***762,149***	***95.06***		***45,982***	***99.43***		***12,618***	***99.90***	
37	10 to 11%	3,423	0.30	93.71	3,265	0.41	95.47	146	0.32	99.74	2	0.02	99.92
38	11 to 12%	16,449	1.43	95.14	16,389	2.04	97.51	33	0.07	99.82	1	0.01	99.93
39	12 to 13%	10,138	0.88	96.03	10,122	1.26	98.78	11	0.02	99.84	0	0.00	99.93
40	13 to 14%	9,809	0.85	96.88	9,795	1.22	100.00	12	0.03	99.87	0	0.00	99.93
41	14 to 15%	57	0.00	96.88	0	0.00	100.00	51	0.11	99.98	3	0.02	99.95
42	***Decrease or less than +15%***	***1,113,331***	***96.88***		***801,720***	***100.00***		***46,235***	***99.98***		***12,624***	***99.95***	
43	15 to 16%	13	0.00	96.88	3	0.00	100.00	5	0.01	99.99	5	0.04	99.99
44	16 to 17%	35,765	3.11	100.00	2	0.00	100.00	6	0.01	100.00	0	0.00	99.99
45	17 to 18%	0	0.00	100.00	0	0.00	100.00	0	0.00	100.00	0	0.00	99.99
46	18 to 19%	2	0.00	100.00	0	0.00	100.00	0	0.00	100.00	0	0.00	99.99
47	19 to 20%	3	0.00	100.00	0	0.00	100.00	0	0.00	100.00	0	0.00	99.99
48	***Decrease or less than +20%***	***1,149,114***	***100.00***		***801,725***	***100.00***		***46,246***	***100.00***		***12,629***	***99.99***	
49	20% or more	26	0.00	100.00	1	0.00	100.00	0	0.00	100.00	1	0.01	100.00
50	**Total Increasing**	***579,790***	***50.45***		***477,136***	***59.51***		***30,757***	***66.51***		***5,833***	***46.18***	
51	**Grand Total**	**1,149,140**	**100.00**		**801,726**	**100.00**		**46,246**	**100.00**		**12,630**	**100.00**	

Figure 6: Percent Distribution - All Classification and Rate Adjustments (2019 GRA Ratemaking Figure RM-17)

Line No.		Motorcycles - 2019 # of Vehicles	Motorcycles - 2019 % of Vehicles	Motorcycles - 2019 Cumulative % of Vehicles	Trailers - 2019 # of Vehicles	Trailers - 2019 % of Vehicles	Trailers - 2019 Cumulative % of Vehicles	Off-Road Vehicles - 2019 # of Vehicles	Off-Road Vehicles - 2019 % of Vehicles	Off-Road Vehicles - 2019 Cumulative % of Vehicles
	Decreasing									
1	20% or more	6	0.04	0.04	0	0.00	0.00	70,838	100.00	100.00
2	19 to 20%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
3	18 to 19%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
4	17 to 18%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
5	16 to 17%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
6	15 to 16%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
7	14 to 15%	0	0.00	0.04	0	0.00	0.00	0	0.00	100.00
8	13 to 14%	0	0.00	0.04	22,546	10.91	10.91	0	0.00	100.00
9	12 to 13%	8	0.05	0.08	0	0.00	10.91	0	0.00	100.00
10	11 to 12%	9	0.05	0.14	0	0.00	10.91	0	0.00	100.00
11	10 to 11%	16	0.09	0.23	13,691	6.62	17.53	0	0.00	100.00
12	9 to 10%	21	0.12	0.35	10,800	5.23	22.76	0	0.00	100.00
13	8 to 9%	10	0.06	0.41	15,059	7.29	30.05	0	0.00	100.00
14	7 to 8%	15	0.09	0.50	3,588	1.74	31.78	0	0.00	100.00
15	6 to 7%	24	0.14	0.64	0	0.00	31.78	0	0.00	100.00
16	5 to 6%	325	1.91	2.55	0	0.00	31.78	0	0.00	100.00
17	4 to 5%	230	1.35	3.90	0	0.00	31.78	0	0.00	100.00
18	3 to 4%	304	1.79	5.69	0	0.00	31.78	0	0.00	100.00
19	2 to 3%	307	1.80	7.49	0	0.00	31.78	0	0.00	100.00
20	1 to 2%	1,317	7.74	15.23	0	0.00	31.78	0	0.00	100.00
21	0 to 1%	2,244	13.18	28.41	0	0.00	31.78	0	0.00	100.00
22	**Total Decreasing**	***4,836***	***28.41***		***65,684***	***31.78***		***70,838***	***100.00***	
23	**No change**	281	***1.65***	***30.06***	80,835	***39.11***	***70.90***	0	***0.00***	***100.00***
24	**Increasing**									
25	0 to 1%	1,956	11.49	41.55	0	0.00	70.90	0	0.00	100.00
26	1 to 2%	1,329	7.81	49.36	0	0.00	70.90	0	0.00	100.00
27	2 to 3%	1,382	8.12	57.48	0	0.00	70.90	0	0.00	100.00
28	3 to 4%	493	2.90	60.37	0	0.00	70.90	0	0.00	100.00
29	4 to 5%	1,427	8.38	68.75	6,042	2.92	73.82	0	0.00	100.00
30	***Decrease or less than + 5%***	***11,704***	***68.75***		***152,561***	***73.82***		***70,838***	***100.00***	
31	5 to 6%	2,196	12.90	81.65	6,042	2.92	76.74	0	0.00	100.00
32	6 to 7%	1,263	7.42	89.07	4,265	2.06	78.81	0	0.00	100.00
33	7 to 8%	505	2.97	92.04	5,506	2.66	81.47	0	0.00	100.00
34	8 to 9%	824	4.84	96.88	1,837	0.89	82.36	0	0.00	100.00
35	9 to 10%	456	2.68	99.56	702	0.34	82.70	0	0.00	100.00
36	***Decrease or less than +10%***	***16,948***	***99.56***		***170,913***	***82.70***		***70,838***	***100.00***	
37	10 to 11%	10	0.06	99.62	0	0.00	82.70	0	0.00	100.00
38	11 to 12%	26	0.15	99.77	0	0.00	82.70	0	0.00	100.00
39	12 to 13%	5	0.03	99.80	0	0.00	82.70	0	0.00	100.00
40	13 to 14%	2	0.01	99.81	0	0.00	82.70	0	0.00	100.00
41	14 to 15%	3	0.02	99.83	0	0.00	82.70	0	0.00	100.00
42	***Decrease or less than +15%***	***16,994***	***99.83***		***170,913***	***82.70***		***70,838***	***100.00***	
43	15 to 16%	0	0.00	99.83	0	0.00	82.70	0	0.00	100.00
44	16 to 17%	0	0.00	99.83	35,757	17.30	100.00	0	0.00	100.00
45	17 to 18%	0	0.00	99.83	0	0.00	100.00	0	0.00	100.00
46	18 to 19%	2	0.01	99.84	0	0.00	100.00	0	0.00	100.00
47	19 to 20%	3	0.02	99.86	0	0.00	100.00	0	0.00	100.00
48	***Decrease or less than +20%***	***16,999***	***99.86***		***206,670***	***100.00***		***70,838***	***100.00***	
49	20 to 21%	24	0.14	100.00	0	0.00	100.00	0	0.00	100.00
50	**Total Increasing**	***11,906***	***69.94***		***60,151***	***29.10***		***0***	***0.00***	
51	**Grand Total**	**17,023**	**100.00**		**206,670**	**100.00**		**70,838**	**100.00**	

Figure 7: 2019/20 Driver License Premiums and Vehicle Premium Discounts (2019 GRA Application Rate Tables Figure ART-2)

Line No.	Driver's License Premium and Vehicle Premium Discount Table	DSR Level	2019 Driver License Premium	2019 Vehicle Premium Discount
1		15	$15	33%
2		14	$20	30%
3		13	$20	29%
4		12	$20	28%
5		11	$20	27%
6		10	$20	26%
7		9	$25	25%
8	**Merits**	8	$30	25%
9		7	$30	25%
10		6	$30	20%
11		5	$30	15%
12		4	$30	15%
13		3	$35	10%
14		2	$35	10%
15		1	$40	5%
16	**Base**	**0**	**$45**	**0%**
17		-1	$200	0%
18		-2	$200	0%
19		-3	$300	0%
20		-4	$400	0%
21		-5	$450	0%
22		-6	$500	0%
23		-7	$650	0%
24		-8	$800	0%
25		-9	$900	0%
26	**Demerits**	-10	$1,000	0%
27		-11	$1,200	0%
28		-12	$1,400	0%
29		-13	$1,600	0%
30		-14	$1,800	0%
31		-15	$2,000	0%
32		-16	$2,200	0%
33		-17	$2,400	0%
34		-18	$2,600	0%
35		-19	$2,800	0%
36		-20	$3,000	0%

Order No. 165/18

MANITOBA PUBLIC INSURANCE CORPORATION (MPI OR THE CORPORATION): AN ORDER APPROVING SPECIFIC COMPULSORY DRIVER AND VEHICLE INSURANCE PREMIUMS PURSUANT TO BOARD ORDER 159/18

December 14, 2018

BEFORE: Robert Gabor, Q.C., Chair
Irene Hamilton, Member
Robert Vandewater, Member
Carol Hainsworth, Member

WHEREAS

By Order 159/18 the Public Utilities Board (Board) varied the Application of Manitoba Public Insurance (MPI) for Basic premiums and fees for the Basic Automobile Insurance Program for the year ending February 29, 2020, and provided specific directions;

AND WHEREAS

On December 7, 2018, MPI filed with the Board a Basic Rate table and other documentation with the Board (filing) seeking the review and approval of the Board. On December 11, 2018, MPI filed with the Board certain revisions to the filing, following which the filing was consistent with the direction of the Board;

AND WHEREAS

The Board, on review of the said filing, finds the filing to be in accordance with the Board Directives of Order 159/18;

AND WHEREAS

Board decisions may be appealed in accordance with the provisions of Section 58 of *The Public Utilities Board Act*, or reviewed in accordance with Section 36 of the Board's Rules of Practice and Procedure (Rules). The Board's Rules may be viewed on the Board's website at www.pubmanitoba.ca.

IT IS THEREFORE ORDERED THAT:

The filing of MPI, being in accordance with the directives of Board Order 159/18, and as attached hereto, BE AND IS HEREBY APPROVED for premiums and fees to be charged effective March 1, 2019.

THE PUBLIC UTILITIES BOARD

"Robert Gabor, Q.C."
Chair

"Darren Christle"
Secretary

Certified a true copy of Order 165/18
issued by the Public Utilities Board

Secretary

2019 BASIC RATE TABLE ($)

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	0	Accessible Vehicle-for-Hire 1	1300	1341	1414	1487	1566	1641	1716	1791	1874	1949	2026	2103	2179	2257																													
1	5	Accessible Vehicle-for-Hire 1	1235	1274	1343	1413	1488	1559	1630	1701	1780	1852	1925	1998	2070	2144																													
1	10	Accessible Vehicle-for-Hire 1	1170	1207	1273	1338	1409	1477	1544	1612	1687	1754	1823	1893	1961	2031																													
1	15	Accessible Vehicle-for-Hire 1	1105	1140	1202	1264	1331	1395	1459	1522	1593	1657	1722	1788	1852	1918																													
1	20	Accessible Vehicle-for-Hire 1	1040	1073	1131	1190	1253	1313	1373	1433	1499	1559	1621	1682	1743	1806																													
1	25	Accessible Vehicle-for-Hire 1	975	1006	1060	1115	1174	1231	1287	1343	1405	1462	1519	1577	1634	1693																													
1	26	Accessible Vehicle-for-Hire 1	962	992	1046	1100	1159	1214	1270	1325	1387	1442	1499	1556	1612	1670																													
1	27	Accessible Vehicle-for-Hire 1	949	979	1032	1086	1143	1198	1253	1307	1368	1423	1479	1535	1591	1648																													
1	28	Accessible Vehicle-for-Hire 1	936	966	1018	1071	1128	1182	1236	1290	1349	1403	1459	1514	1569	1625																													
1	29	Accessible Vehicle-for-Hire 1	923	952	1004	1056	1112	1165	1218	1272	1331	1384	1438	1493	1547	1602																													
1	30	Accessible Vehicle-for-Hire 1	910	939	990	1041	1096	1149	1201	1254	1312	1364	1418	1472	1525	1580																													
1	33	Accessible Vehicle-for-Hire 1	871	898	947	996	1049	1099	1150	1200	1256	1306	1357	1409	1460	1512																													
1	0	Accessible Vehicle-for-Hire 2	1370	1413	1490	1567	1650	1729	1809	1888	1975	2054	2135	2216	2297	2379																													
1	5	Accessible Vehicle-for-Hire 2	1301	1342	1415	1489	1567	1643	1719	1794	1876	1951	2028	2105	2182	2260																													
1	10	Accessible Vehicle-for-Hire 2	1233	1272	1341	1410	1485	1556	1628	1699	1777	1849	1921	1994	2067	2141																													
1	15	Accessible Vehicle-for-Hire 2	1164	1201	1266	1332	1402	1470	1538	1605	1679	1746	1815	1884	1952	2022																													
1	20	Accessible Vehicle-for-Hire 2	1096	1130	1192	1254	1320	1383	1447	1510	1580	1643	1708	1773	1838	1903																													
1	25	Accessible Vehicle-for-Hire 2	1027	1060	1117	1175	1237	1297	1357	1416	1481	1540	1601	1662	1723	1784																													
1	26	Accessible Vehicle-for-Hire 2	1014	1046	1103	1160	1221	1279	1339	1397	1461	1520	1580	1640	1700	1760																													
1	27	Accessible Vehicle-for-Hire 2	1000	1031	1088	1144	1204	1262	1321	1378	1442	1499	1559	1618	1677	1737																													
1	28	Accessible Vehicle-for-Hire 2	986	1017	1073	1128	1188	1245	1302	1359	1422	1479	1537	1596	1654	1713																													
1	29	Accessible Vehicle-for-Hire 2	973	1003	1058	1113	1171	1228	1284	1340	1402	1458	1516	1573	1631	1689																													
1	30	Accessible Vehicle-for-Hire 2	959	989	1043	1097	1155	1210	1266	1322	1382	1438	1494	1551	1608	1665																													
1	33	Accessible Vehicle-for-Hire 2	918	947	998	1050	1105	1158	1212	1265	1323	1376	1430	1485	1539	1594																													
1	0	Accessible Vehicle-for-Hire 3	1426	1471	1551	1631	1718	1801	1883	1966	2056	2139	2223	2307	2391	2477																													
1	5	Accessible Vehicle-for-Hire 3	1355	1397	1473	1549	1632	1711	1789	1868	1953	2032	2112	2192	2271	2353																													
1	10	Accessible Vehicle-for-Hire 3	1283	1324	1396	1468	1546	1621	1695	1769	1850	1925	2001	2076	2152	2229																													
1	15	Accessible Vehicle-for-Hire 3	1212	1250	1318	1386	1460	1531	1601	1671	1748	1818	1890	1961	2032	2105																													
1	20	Accessible Vehicle-for-Hire 3	1141	1177	1241	1305	1374	1441	1506	1573	1645	1711	1778	1846	1913	1982																													
1	25	Accessible Vehicle-for-Hire 3	1069	1103	1163	1223	1288	1351	1412	1474	1542	1604	1667	1730	1793	1858																													
1	26	Accessible Vehicle-for-Hire 3	1055	1089	1148	1207	1271	1333	1393	1455	1521	1583	1645	1707	1769	1833																													
1	27	Accessible Vehicle-for-Hire 3	1041	1074	1132	1191	1254	1315	1375	1435	1501	1561	1623	1684	1745	1808																													
1	28	Accessible Vehicle-for-Hire 3	1027	1059	1117	1174	1237	1297	1356	1416	1480	1540	1601	1661	1722	1783																													
1	29	Accessible Vehicle-for-Hire 3	1012	1044	1101	1158	1220	1279	1337	1396	1460	1519	1578	1638	1698	1759																													
1	30	Accessible Vehicle-for-Hire 3	998	1030	1086	1142	1203	1261	1318	1376	1439	1497	1556	1615	1674	1734																													
1	33	Accessible Vehicle-for-Hire 3	955	986	1039	1093	1151	1207	1262	1317	1378	1433	1489	1546	1602	1660																													
1	0	Accessible Vehicle-for-Hire 4	1496	1543	1627	1711	1802	1889	1976	2062	2157	2244	2332	2420	2509	2598																													
1	5	Accessible Vehicle-for-Hire 4	1421	1466	1546	1625	1712	1795	1877	1959	2049	2132	2215	2299	2384	2468																													
1	10	Accessible Vehicle-for-Hire 4	1346	1389	1464	1540	1622	1700	1778	1856	1941	2020	2099	2178	2258	2338																													
1	15	Accessible Vehicle-for-Hire 4	1272	1312	1383	1454	1532	1606	1680	1753	1833	1907	1982	2057	2133	2208																													
1	20	Accessible Vehicle-for-Hire 4	1197	1234	1302	1369	1442	1511	1581	1650	1726	1795	1866	1936	2007	2078																													
1	25	Accessible Vehicle-for-Hire 4	1122	1157	1220	1283	1351	1417	1482	1546	1618	1683	1749	1815	1882	1948																													
1	26	Accessible Vehicle-for-Hire 4	1107	1142	1204	1266	1333	1398	1462	1526	1596	1661	1726	1791	1857	1923																													
1	27	Accessible Vehicle-for-Hire 4	1092	1126	1188	1249	1315	1379	1442	1505	1575	1638	1702	1767	1832	1897																													
1	28	Accessible Vehicle-for-Hire 4	1077	1111	1171	1232	1297	1360	1423	1485	1553	1616	1679	1742	1806	1871																													
1	29	Accessible Vehicle-for-Hire 4	1062	1096	1155	1215	1279	1341	1403	1464	1531	1593	1656	1718	1781	1845																													
1	30	Accessible Vehicle-for-Hire 4	1047	1080	1139	1198	1261	1322	1383	1443	1510	1571	1632	1694	1756	1819																													
1	33	Accessible Vehicle-for-Hire 4	1002	1034	1090	1146	1207	1266	1324	1382	1445	1503	1562	1621	1681	1741																													
1	0	All Purpose Mobility Vehicle	65	66	67	69	72	75	79	83	87	92																															
1	5	All Purpose Mobility Vehicle	62	63	64	66	68	71	75	79	83	87																															
1	10	All Purpose Mobility Vehicle	58	59	60	62	65	67	71	75	78	83																															
1	15	All Purpose Mobility Vehicle	55	56	57	59	61	64	67	71	74	78																															
1	20	All Purpose Mobility Vehicle	52	53	54	55	58	60	63	66	70	74																															
1	25	All Purpose Mobility Vehicle	49	49	50	52	54	56	59	62	65	69																															
1	26	All Purpose Mobility Vehicle	48	49	50	51	53	55	58	61	64	68																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	27	All Purpose Mobility Vehicle	47	48	49	50	53	55	58	61	64	67																															
1	28	All Purpose Mobility Vehicle	47	48	48	50	52	54	57	60	63	66																															
1	29	All Purpose Mobility Vehicle	46	47	48	49	51	53	56	59	62	65																															
1	30	All Purpose Mobility Vehicle	45	46	47	48	50	52	55	58	61	64																															
1	33	All Purpose Mobility Vehicle	44	44	45	46	48	50	53	56	58	62																															
1	0	All Purpose Moped	550	560	567	581	608	637	667	700	736	775																															
1	5	All Purpose Moped	522	532	539	552	578	605	634	665	699	736																															
1	10	All Purpose Moped	495	504	510	523	547	573	600	630	662	697																															
1	15	All Purpose Moped	467	476	482	494	517	541	567	595	626	659																															
1	20	All Purpose Moped	440	448	454	465	486	510	534	560	589	620																															
1	25	All Purpose Moped	412	420	425	436	456	478	500	525	552	581																															
1	26	All Purpose Moped	407	414	420	430	450	471	494	518	545	573																															
1	27	All Purpose Moped	401	409	414	424	444	465	487	511	537	566																															
1	28	All Purpose Moped	396	403	408	418	438	459	480	504	530	558																															
1	29	All Purpose Moped	390	398	403	413	432	452	474	497	523	550																															
1	30	All Purpose Moped	385	392	397	407	426	446	467	490	515	542																															
1	33	All Purpose Moped	368	375	380	389	407	427	447	469	493	519																															
1	0	All Purpose Motorcycle - Motorscooter 500 cc or less	550	560	567	581	608	637	667	700	736	775																															
1	5	All Purpose Motorcycle - Motorscooter 500 cc or less	522	532	539	552	578	605	634	665	699	736																															
1	10	All Purpose Motorcycle - Motorscooter 500 cc or less	495	504	510	523	547	573	600	630	662	697																															
1	15	All Purpose Motorcycle - Motorscooter 500 cc or less	467	476	482	494	517	541	567	595	626	659																															
1	20	All Purpose Motorcycle - Motorscooter 500 cc or less	440	448	454	465	486	510	534	560	589	620																															
1	25	All Purpose Motorcycle - Motorscooter 500 cc or less	412	420	425	436	456	478	500	525	552	581																															
1	26	All Purpose Motorcycle - Motorscooter 500 cc or less	407	414	420	430	450	471	494	518	545	573																															
1	27	All Purpose Motorcycle - Motorscooter 500 cc or less	401	409	414	424	444	465	487	511	537	566																															
1	28	All Purpose Motorcycle - Motorscooter 500 cc or less	396	403	408	418	438	459	480	504	530	558																															
1	29	All Purpose Motorcycle - Motorscooter 500 cc or less	390	398	403	413	432	452	474	497	523	550																															
1	30	All Purpose Motorcycle - Motorscooter 500 cc or less	385	392	397	407	426	446	467	490	515	542																															
1	33	All Purpose Motorcycle - Motorscooter 500 cc or less	368	375	380	389	407	427	447	469	493	519																															
1	0	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	911	926	939	962	1006	1054	1104	1159	1219	1283																															
1	5	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	865	880	892	914	956	1001	1049	1101	1158	1219																															
1	10	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	820	833	845	866	905	949	994	1043	1097	1155																															
1	15	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	774	787	798	818	855	896	938	985	1036	1091																															
1	20	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	729	741	751	770	805	843	883	927	975	1026																															
1	25	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	683	694	704	721	754	790	828	869	914	962																															
1	26	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	674	685	695	712	744	780	817	858	902	949																															
1	27	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	665	676	685	702	734	769	806	846	890	937																															
1	28	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	656	667	676	693	724	759	795	834	878	924																															
1	29	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	647	657	667	683	714	748	784	823	865	911																															
1	30	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	638	648	657	673	704	738	773	811	853	898																															
1	33	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	610	620	629	645	674	706	740	777	817	860																															
1	0	All Purpose Motorcycle - Motorscooter 1001 cc or more	949	965	979	1002	1048	1098	1151	1208	1270	1336																															
1	5	All Purpose Motorcycle - Motorscooter 1001 cc or more	902	917	930	952	996	1043	1093	1148	1206	1269																															
1	10	All Purpose Motorcycle - Motorscooter 1001 cc or more	854	868	881	902	943	988	1036	1087	1143	1202																															
1	15	All Purpose Motorcycle - Motorscooter 1001 cc or more	807	820	832	852	891	933	978	1027	1079	1136																															
1	20	All Purpose Motorcycle - Motorscooter 1001 cc or more	759	772	783	802	838	878	921	966	1016	1069																															
1	25	All Purpose Motorcycle - Motorscooter 1001 cc or more	712	724	734	751	786	823	863	906	952	1002																															
1	26	All Purpose Motorcycle - Motorscooter 1001 cc or more	702	714	724	741	776	813	852	894	940	989																															
1	27	All Purpose Motorcycle - Motorscooter 1001 cc or more	693	704	715	731	765	802	840	882	927	975																															
1	28	All Purpose Motorcycle - Motorscooter 1001 cc or more	683	695	705	721	755	791	829	870	914	962																															
1	29	All Purpose Motorcycle - Motorscooter 1001 cc or more	674	685	695	711	744	780	817	858	902	949																															
1	30	All Purpose Motorcycle - Motorscooter 1001 cc or more	664	675	685	701	734	769	806	846	889	935																															
1	33	All Purpose Motorcycle - Motorscooter 1001 cc or more	636	647	656	671	702	736	771	809	851	895																															
1	0	All Purpose Motorcycle - Other 500 cc or less	849	864	876	897	939	983	1030	1081	1137	1197																															
1	5	All Purpose Motorcycle - Other 500 cc or less	807	821	832	852	892	934	978	1027	1080	1137																															
1	10	All Purpose Motorcycle - Other 500 cc or less	764	778	788	807	845	885	927	973	1023	1077																															
1	15	All Purpose Motorcycle - Other 500 cc or less	722	734	745	762	798	836	875	919	966	1017																															
1	20	All Purpose Motorcycle - Other 500 cc or less	679	691	701	718	751	786	824	865	910	958																															
1	25	All Purpose Motorcycle - Other 500 cc or less	637	648	657	673	704	737	772	811	853	898																															
1	26	All Purpose Motorcycle - Other 500 cc or less	628	639	648	664	695	727	762	800	841	886																															
1	27	All Purpose Motorcycle - Other 500 cc or less	620	631	639	655	685	718	752	789	830	874																															
1	28	All Purpose Motorcycle - Other 500 cc or less	611	622	631	646	676	708	742	778	819	862																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	29	All Purpose Motorcycle - Other 500 cc or less	603	613	622	637	667	698	731	768	807	850																															
1	30	All Purpose Motorcycle - Other 500 cc or less	594	605	613	628	657	688	721	757	796	838																															
1	33	All Purpose Motorcycle - Other 500 cc or less	569	579	587	601	629	659	690	724	762	802																															
1	0	All Purpose Motorcycle - Other 501 to 1000 cc	1648	1676	1699	1741	1820	1907	1998	2097	2205	2321																															
1	5	All Purpose Motorcycle - Other 501 to 1000 cc	1566	1592	1614	1654	1729	1812	1898	1992	2095	2205																															
1	10	All Purpose Motorcycle - Other 501 to 1000 cc	1483	1508	1529	1567	1638	1716	1798	1887	1984	2089																															
1	15	All Purpose Motorcycle - Other 501 to 1000 cc	1401	1425	1444	1480	1547	1621	1698	1782	1874	1973																															
1	20	All Purpose Motorcycle - Other 501 to 1000 cc	1318	1341	1359	1393	1456	1526	1598	1678	1764	1857																															
1	25	All Purpose Motorcycle - Other 501 to 1000 cc	1236	1257	1274	1306	1365	1430	1498	1573	1654	1741																															
1	26	All Purpose Motorcycle - Other 501 to 1000 cc	1220	1240	1257	1288	1347	1411	1479	1552	1632	1718																															
1	27	All Purpose Motorcycle - Other 501 to 1000 cc	1203	1223	1240	1271	1329	1392	1459	1531	1610	1694																															
1	28	All Purpose Motorcycle - Other 501 to 1000 cc	1187	1207	1223	1254	1310	1373	1439	1510	1588	1671																															
1	29	All Purpose Motorcycle - Other 501 to 1000 cc	1170	1190	1206	1236	1292	1354	1419	1489	1566	1648																															
1	30	All Purpose Motorcycle - Other 501 to 1000 cc	1154	1173	1189	1219	1274	1335	1399	1468	1543	1625																															
1	33	All Purpose Motorcycle - Other 501 to 1000 cc	1104	1123	1138	1166	1219	1278	1339	1405	1477	1555																															
1	0	All Purpose Motorcycle - Other 1001 cc or more	1783	1814	1840	1884	1971	2064	2163	2270	2387	2512																															
1	5	All Purpose Motorcycle - Other 1001 cc or more	1694	1723	1748	1790	1872	1961	2055	2156	2268	2386																															
1	10	All Purpose Motorcycle - Other 1001 cc or more	1605	1633	1656	1696	1774	1858	1947	2043	2148	2261																															
1	15	All Purpose Motorcycle - Other 1001 cc or more	1516	1542	1564	1601	1675	1754	1839	1929	2029	2135																															
1	20	All Purpose Motorcycle - Other 1001 cc or more	1426	1451	1472	1507	1577	1651	1730	1816	1910	2010																															
1	25	All Purpose Motorcycle - Other 1001 cc or more	1337	1360	1380	1413	1478	1548	1622	1702	1790	1884																															
1	26	All Purpose Motorcycle - Other 1001 cc or more	1319	1342	1362	1394	1459	1527	1601	1680	1766	1859																															
1	27	All Purpose Motorcycle - Other 1001 cc or more	1302	1324	1343	1375	1439	1507	1579	1657	1743	1834																															
1	28	All Purpose Motorcycle - Other 1001 cc or more	1284	1306	1325	1356	1419	1486	1557	1634	1719	1809																															
1	29	All Purpose Motorcycle - Other 1001 cc or more	1266	1288	1306	1338	1399	1465	1536	1612	1695	1784																															
1	30	All Purpose Motorcycle - Other 1001 cc or more	1248	1270	1288	1319	1380	1445	1514	1589	1671	1758																															
1	33	All Purpose Motorcycle - Other 1001 cc or more	1195	1215	1233	1262	1321	1383	1449	1521	1599	1683																															
1	0	All Purpose Motorcycle - Sport 500 cc or less	1450	1475	1496	1532	1602	1678	1759	1846	1941	2043																															
1	5	All Purpose Motorcycle - Sport 500 cc or less	1377	1401	1421	1455	1522	1594	1671	1754	1844	1941																															
1	10	All Purpose Motorcycle - Sport 500 cc or less	1305	1327	1346	1379	1442	1510	1583	1661	1747	1839																															
1	15	All Purpose Motorcycle - Sport 500 cc or less	1232	1254	1272	1302	1362	1426	1495	1569	1650	1737																															
1	20	All Purpose Motorcycle - Sport 500 cc or less	1160	1180	1197	1226	1282	1342	1407	1477	1553	1634																															
1	25	All Purpose Motorcycle - Sport 500 cc or less	1087	1106	1122	1149	1201	1258	1319	1384	1456	1532																															
1	26	All Purpose Motorcycle - Sport 500 cc or less	1073	1091	1107	1134	1185	1242	1302	1366	1436	1512																															
1	27	All Purpose Motorcycle - Sport 500 cc or less	1058	1077	1092	1118	1169	1225	1284	1348	1417	1491																															
1	28	All Purpose Motorcycle - Sport 500 cc or less	1044	1062	1077	1103	1153	1208	1266	1329	1398	1471																															
1	29	All Purpose Motorcycle - Sport 500 cc or less	1029	1047	1062	1088	1137	1191	1249	1311	1378	1451																															
1	30	All Purpose Motorcycle - Sport 500 cc or less	1015	1032	1047	1072	1121	1175	1231	1292	1359	1430																															
1	33	All Purpose Motorcycle - Sport 500 cc or less	971	988	1002	1026	1073	1124	1179	1237	1300	1369																															
1	0	All Purpose Motorcycle - Sport 501 to 1000 cc	2585	2630	2666	2731	2856	2991	3135	3291	3459	3641																															
1	5	All Purpose Motorcycle - Sport 501 to 1000 cc	2456	2498	2533	2594	2713	2841	2978	3126	3286	3459																															
1	10	All Purpose Motorcycle - Sport 501 to 1000 cc	2326	2367	2399	2458	2570	2692	2821	2962	3113	3277																															
1	15	All Purpose Motorcycle - Sport 501 to 1000 cc	2197	2235	2266	2321	2428	2542	2665	2797	2940	3095																															
1	20	All Purpose Motorcycle - Sport 501 to 1000 cc	2068	2104	2133	2185	2285	2393	2508	2633	2767	2913																															
1	25	All Purpose Motorcycle - Sport 501 to 1000 cc	1939	1972	1999	2048	2142	2243	2351	2468	2594	2731																															
1	26	All Purpose Motorcycle - Sport 501 to 1000 cc	1913	1946	1973	2021	2113	2213	2320	2435	2560	2694																															
1	27	All Purpose Motorcycle - Sport 501 to 1000 cc	1887	1920	1946	1994	2085	2183	2289	2402	2525	2658																															
1	28	All Purpose Motorcycle - Sport 501 to 1000 cc	1861	1894	1920	1966	2056	2154	2257	2370	2490	2622																															
1	29	All Purpose Motorcycle - Sport 501 to 1000 cc	1835	1867	1893	1939	2028	2124	2226	2337	2456	2585																															
1	30	All Purpose Motorcycle - Sport 501 to 1000 cc	1809	1841	1866	1912	1999	2094	2194	2304	2421	2549																															
1	33	All Purpose Motorcycle - Sport 501 to 1000 cc	1732	1762	1786	1830	1914	2004	2100	2205	2318	2439																															
1	0	All Purpose Motorcycle - Sport 1001 cc or more	3335	3393	3441	3524	3685	3860	4045	4246	4463	4698																															
1	5	All Purpose Motorcycle - Sport 1001 cc or more	3168	3223	3269	3348	3501	3667	3843	4034	4240	4463																															
1	10	All Purpose Motorcycle - Sport 1001 cc or more	3001	3054	3097	3172	3316	3474	3640	3821	4017	4228																															
1	15	All Purpose Motorcycle - Sport 1001 cc or more	2835	2884	2925	2995	3132	3281	3438	3609	3794	3993																															
1	20	All Purpose Motorcycle - Sport 1001 cc or more	2668	2714	2753	2819	2948	3088	3236	3397	3570	3758																															
1	25	All Purpose Motorcycle - Sport 1001 cc or more	2501	2545	2581	2643	2764	2895	3034	3184	3347	3523																															
1	26	All Purpose Motorcycle - Sport 1001 cc or more	2468	2511	2546	2608	2727	2856	2993	3142	3303	3477																															
1	27	All Purpose Motorcycle - Sport 1001 cc or more	2435	2477	2512	2573	2690	2818	2953	3100	3258	3430																															
1	28	All Purpose Motorcycle - Sport 1001 cc or more	2401	2443	2478	2537	2653	2779	2912	3057	3213	3383																															
1	29	All Purpose Motorcycle - Sport 1001 cc or more	2368	2409	2443	2502	2616	2741	2872	3015	3169	3336																															
1	30	All Purpose Motorcycle - Sport 1001 cc or more	2334	2375	2409	2467	2579	2702	2831	2972	3124	3289																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	33	All Purpose Motorcycle - Sport 1001 cc or more	2234	2273	2305	2361	2469	2586	2710	2845	2990	3148																															
1	0	All Purpose Motorcycle - Sport Touring 500 cc or less	1032	1050	1064	1090	1140	1194	1251	1313	1381	1453																															
1	5	All Purpose Motorcycle - Sport Touring 500 cc or less	980	997	1011	1035	1083	1134	1188	1247	1312	1380																															
1	10	All Purpose Motorcycle - Sport Touring 500 cc or less	929	945	958	981	1026	1075	1126	1182	1243	1308																															
1	15	All Purpose Motorcycle - Sport Touring 500 cc or less	877	892	904	926	969	1015	1063	1116	1174	1235																															
1	20	All Purpose Motorcycle - Sport Touring 500 cc or less	826	840	851	872	912	955	1001	1050	1105	1162																															
1	25	All Purpose Motorcycle - Sport Touring 500 cc or less	774	787	798	817	855	895	938	985	1036	1090																															
1	26	All Purpose Motorcycle - Sport Touring 500 cc or less	764	777	787	807	844	884	926	972	1022	1075																															
1	27	All Purpose Motorcycle - Sport Touring 500 cc or less	753	766	777	796	832	872	913	958	1008	1061																															
1	28	All Purpose Motorcycle - Sport Touring 500 cc or less	743	756	766	785	821	860	901	945	994	1046																															
1	29	All Purpose Motorcycle - Sport Touring 500 cc or less	733	745	755	774	809	848	888	932	981	1032																															
1	30	All Purpose Motorcycle - Sport Touring 500 cc or less	722	735	745	763	798	836	876	919	967	1017																															
1	33	All Purpose Motorcycle - Sport Touring 500 cc or less	691	703	713	730	764	800	838	880	925	974																															
1	0	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1738	1768	1793	1836	1920	2011	2108	2213	2326	2448																															
1	5	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1651	1680	1703	1744	1824	1910	2003	2102	2210	2326																															
1	10	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1564	1591	1614	1652	1728	1810	1897	1992	2093	2203																															
1	15	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1477	1503	1524	1561	1632	1709	1792	1881	1977	2081																															
1	20	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1390	1414	1434	1469	1536	1609	1686	1770	1861	1958																															
1	25	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1303	1326	1345	1377	1440	1508	1581	1660	1744	1836																															
1	26	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1286	1308	1327	1359	1421	1488	1560	1638	1721	1812																															
1	27	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1269	1291	1309	1340	1402	1468	1539	1615	1698	1787																															
1	28	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1251	1273	1291	1322	1382	1448	1518	1593	1675	1763																															
1	29	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1234	1255	1273	1304	1363	1428	1497	1571	1651	1738																															
1	30	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1217	1238	1255	1285	1344	1408	1476	1549	1628	1714																															
1	33	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1164	1185	1201	1230	1286	1347	1412	1483	1558	1640																															
1	0	All Purpose Motorcycle - Sport Touring 1001 cc or more	1974	2009	2037	2086	2182	2285	2394	2514	2642	2781																															
1	5	All Purpose Motorcycle - Sport Touring 1001 cc or more	1875	1909	1935	1982	2073	2171	2274	2388	2510	2642																															
1	10	All Purpose Motorcycle - Sport Touring 1001 cc or more	1777	1808	1833	1877	1964	2056	2155	2263	2378	2503																															
1	15	All Purpose Motorcycle - Sport Touring 1001 cc or more	1678	1708	1731	1773	1855	1942	2035	2137	2246	2364																															
1	20	All Purpose Motorcycle - Sport Touring 1001 cc or more	1579	1607	1630	1669	1746	1828	1915	2011	2114	2225																															
1	25	All Purpose Motorcycle - Sport Touring 1001 cc or more	1480	1507	1528	1564	1636	1714	1795	1885	1981	2086																															
1	26	All Purpose Motorcycle - Sport Touring 1001 cc or more	1461	1487	1507	1544	1615	1691	1772	1860	1955	2058																															
1	27	All Purpose Motorcycle - Sport Touring 1001 cc or more	1441	1467	1487	1523	1593	1668	1748	1835	1929	2030																															
1	28	All Purpose Motorcycle - Sport Touring 1001 cc or more	1421	1446	1467	1502	1571	1645	1724	1810	1902	2002																															
1	29	All Purpose Motorcycle - Sport Touring 1001 cc or more	1402	1426	1446	1481	1549	1622	1700	1785	1876	1975																															
1	30	All Purpose Motorcycle - Sport Touring 1001 cc or more	1382	1406	1426	1460	1527	1599	1676	1760	1849	1947																															
1	33	All Purpose Motorcycle - Sport Touring 1001 cc or more	1323	1346	1365	1398	1462	1531	1604	1684	1770	1863																															
1	0	All Purpose Motorcycle - Touring 500 cc or less	734	747	757	775	811	849	890	934	982	1034																															
1	5	All Purpose Motorcycle - Touring 500 cc or less	697	710	719	736	770	807	845	887	933	982																															
1	10	All Purpose Motorcycle - Touring 500 cc or less	661	672	681	697	730	764	801	841	884	931																															
1	15	All Purpose Motorcycle - Touring 500 cc or less	624	635	643	659	689	722	756	794	835	879																															
1	20	All Purpose Motorcycle - Touring 500 cc or less	587	598	606	620	649	679	712	747	786	827																															
1	25	All Purpose Motorcycle - Touring 500 cc or less	550	560	568	581	608	637	667	700	736	775																															
1	26	All Purpose Motorcycle - Touring 500 cc or less	543	553	560	573	600	628	659	691	727	765																															
1	27	All Purpose Motorcycle - Touring 500 cc or less	536	545	553	566	592	620	650	682	717	755																															
1	28	All Purpose Motorcycle - Touring 500 cc or less	528	538	545	558	584	611	641	672	707	744																															
1	29	All Purpose Motorcycle - Touring 500 cc or less	521	530	537	550	576	603	632	663	697	734																															
1	30	All Purpose Motorcycle - Touring 500 cc or less	514	523	530	542	568	594	623	654	687	724																															
1	33	All Purpose Motorcycle - Touring 500 cc or less	492	500	507	519	543	569	596	626	658	693																															
1	0	All Purpose Motorcycle - Touring 501 to 1000 cc	1460	1486	1506	1543	1614	1690	1771	1859	1954	2057																															
1	5	All Purpose Motorcycle - Touring 501 to 1000 cc	1387	1412	1431	1466	1533	1605	1682	1766	1856	1954																															
1	10	All Purpose Motorcycle - Touring 501 to 1000 cc	1314	1337	1355	1389	1453	1521	1594	1673	1759	1851																															
1	15	All Purpose Motorcycle - Touring 501 to 1000 cc	1241	1263	1280	1312	1372	1436	1505	1580	1661	1748																															
1	20	All Purpose Motorcycle - Touring 501 to 1000 cc	1168	1189	1205	1234	1291	1352	1417	1487	1563	1646																															
1	25	All Purpose Motorcycle - Touring 501 to 1000 cc	1095	1114	1129	1157	1210	1267	1328	1394	1465	1543																															
1	26	All Purpose Motorcycle - Touring 501 to 1000 cc	1080	1100	1114	1142	1194	1251	1311	1376	1446	1522																															
1	27	All Purpose Motorcycle - Touring 501 to 1000 cc	1066	1085	1099	1126	1178	1234	1293	1357	1426	1502																															
1	28	All Purpose Motorcycle - Touring 501 to 1000 cc	1051	1070	1084	1111	1162	1217	1275	1338	1407	1481																															
1	29	All Purpose Motorcycle - Touring 501 to 1000 cc	1037	1055	1069	1096	1146	1200	1257	1320	1387	1460																															
1	30	All Purpose Motorcycle - Touring 501 to 1000 cc	1022	1040	1054	1080	1130	1183	1240	1301	1368	1440																															
1	33	All Purpose Motorcycle - Touring 501 to 1000 cc	978	996	1009	1034	1081	1132	1187	1246	1309	1378																															
1	0	All Purpose Motorcycle - Touring 1001 cc or more	1659	1688	1712	1753	1834	1920	2012	2113	2221	2337																															

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

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TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	15	Pleasure Moped	326	331	336	343	360	377	394	414	435	458																															
1	20	Pleasure Moped	306	311	316	323	338	354	371	390	410	431																															
1	25	Pleasure Moped	287	292	296	303	317	332	348	365	384	404																															
1	26	Pleasure Moped	283	288	292	299	313	328	343	360	379	399																															
1	27	Pleasure Moped	280	284	288	295	309	323	339	356	374	393																															
1	28	Pleasure Moped	276	280	284	291	305	319	334	351	369	388																															
1	29	Pleasure Moped	272	276	280	287	300	315	329	346	364	383																															
1	30	Pleasure Moped	268	272	276	283	296	310	325	341	358	377																															
1	33	Pleasure Moped	257	261	265	271	283	297	311	326	343	361																															
1	0	Pleasure Motorcycle - Motorscooter 500 cc or less	383	389	395	404	423	443	464	487	512	539																															
1	5	Pleasure Motorcycle - Motorscooter 500 cc or less	364	370	375	384	402	421	441	463	486	512																															
1	10	Pleasure Motorcycle - Motorscooter 500 cc or less	345	350	355	364	381	399	418	438	461	485																															
1	15	Pleasure Motorcycle - Motorscooter 500 cc or less	326	331	336	343	360	377	394	414	435	458																															
1	20	Pleasure Motorcycle - Motorscooter 500 cc or less	306	311	316	323	338	354	371	390	410	431																															
1	25	Pleasure Motorcycle - Motorscooter 500 cc or less	287	292	296	303	317	332	348	365	384	404																															
1	26	Pleasure Motorcycle - Motorscooter 500 cc or less	283	288	292	299	313	328	343	360	379	399																															
1	27	Pleasure Motorcycle - Motorscooter 500 cc or less	280	284	288	295	309	323	339	356	374	393																															
1	28	Pleasure Motorcycle - Motorscooter 500 cc or less	276	280	284	291	305	319	334	351	369	388																															
1	29	Pleasure Motorcycle - Motorscooter 500 cc or less	272	276	280	287	300	315	329	346	364	383																															
1	30	Pleasure Motorcycle - Motorscooter 500 cc or less	268	272	276	283	296	310	325	341	358	377																															
1	33	Pleasure Motorcycle - Motorscooter 500 cc or less	257	261	265	271	283	297	311	326	343	361																															
1	0	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	592	603	611	626	655	686	718	754	793	835																															
1	5	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	562	573	580	595	622	652	682	716	753	793																															
1	10	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	533	543	550	563	589	617	646	679	714	751																															
1	15	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	503	513	519	532	557	583	610	641	674	710																															
1	20	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	474	482	489	501	524	549	574	603	634	668																															
1	25	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	444	452	458	469	491	514	538	565	595	626																															
1	26	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	438	446	452	463	485	508	531	558	587	618																															
1	27	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	432	440	446	457	478	501	524	550	579	610																															
1	28	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	426	434	440	451	472	494	517	543	571	601																															
1	29	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	420	428	434	444	465	487	510	535	563	593																															
1	30	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	414	422	428	438	458	480	503	528	555	584																															
1	33	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	397	404	409	419	439	460	481	505	531	559																															
1	0	Pleasure Motorcycle - Motorscooter 1001 cc or more	766	780	791	810	847	887	929	976	1026	1080																															
1	5	Pleasure Motorcycle - Motorscooter 1001 cc or more	728	741	751	769	805	843	883	927	975	1026																															
1	10	Pleasure Motorcycle - Motorscooter 1001 cc or more	689	702	712	729	762	798	836	878	923	972																															
1	15	Pleasure Motorcycle - Motorscooter 1001 cc or more	651	663	672	688	720	754	790	830	872	918																															
1	20	Pleasure Motorcycle - Motorscooter 1001 cc or more	613	624	633	648	678	710	743	781	821	864																															
1	25	Pleasure Motorcycle - Motorscooter 1001 cc or more	574	585	593	607	635	665	697	732	769	810																															
1	26	Pleasure Motorcycle - Motorscooter 1001 cc or more	567	577	585	599	627	656	687	722	759	799																															
1	27	Pleasure Motorcycle - Motorscooter 1001 cc or more	559	569	577	591	618	648	678	712	749	788																															
1	28	Pleasure Motorcycle - Motorscooter 1001 cc or more	552	562	570	583	610	639	669	703	739	778																															
1	29	Pleasure Motorcycle - Motorscooter 1001 cc or more	544	554	562	575	601	630	660	693	728	767																															
1	30	Pleasure Motorcycle - Motorscooter 1001 cc or more	536	546	554	567	593	621	650	683	718	756																															
1	33	Pleasure Motorcycle - Motorscooter 1001 cc or more	513	523	530	543	567	594	622	654	687	724																															
1	0	Pleasure Motorcycle - Other 500 cc or less	591	601	610	625	653	684	717	753	791	833																															
1	5	Pleasure Motorcycle - Other 500 cc or less	561	571	579	594	620	650	681	715	751	791																															
1	10	Pleasure Motorcycle - Other 500 cc or less	532	541	549	562	588	616	645	678	712	750																															
1	15	Pleasure Motorcycle - Other 500 cc or less	502	511	518	531	555	581	609	640	672	708																															
1	20	Pleasure Motorcycle - Other 500 cc or less	473	481	488	500	522	547	574	602	633	666																															
1	25	Pleasure Motorcycle - Other 500 cc or less	443	451	457	469	490	513	538	565	593	625																															
1	26	Pleasure Motorcycle - Other 500 cc or less	437	445	451	462	483	506	531	557	585	616																															
1	27	Pleasure Motorcycle - Other 500 cc or less	431	439	445	456	477	499	523	550	577	608																															
1	28	Pleasure Motorcycle - Other 500 cc or less	426	433	439	450	470	492	516	542	570	600																															
1	29	Pleasure Motorcycle - Other 500 cc or less	420	427	433	444	464	486	509	535	562	591																															
1	30	Pleasure Motorcycle - Other 500 cc or less	414	421	427	437	457	479	502	527	554	583																															
1	33	Pleasure Motorcycle - Other 500 cc or less	396	403	409	419	438	458	480	505	530	558																															
1	0	Pleasure Motorcycle - Other 501 to 1000 cc	987	1004	1018	1043	1091	1142	1197	1257	1321	1390																															
1	5	Pleasure Motorcycle - Other 501 to 1000 cc	938	954	967	991	1036	1085	1137	1194	1255	1320																															
1	10	Pleasure Motorcycle - Other 501 to 1000 cc	888	904	916	939	982	1028	1077	1131	1189	1251																															
1	15	Pleasure Motorcycle - Other 501 to 1000 cc	839	853	865	887	927	971	1017	1068	1123	1181																															
1	20	Pleasure Motorcycle - Other 501 to 1000 cc	790	803	814	834	873	914	958	1006	1057	1112																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	25	Pleasure Motorcycle - Other 501 to 1000 cc	740	753	763	782	818	856	898	943	991	1042																															
1	26	Pleasure Motorcycle - Other 501 to 1000 cc	730	743	753	772	807	845	886	930	978	1029																															
1	27	Pleasure Motorcycle - Other 501 to 1000 cc	721	733	743	761	796	834	874	918	964	1015																															
1	28	Pleasure Motorcycle - Other 501 to 1000 cc	711	723	733	751	786	822	862	905	951	1001																															
1	29	Pleasure Motorcycle - Other 501 to 1000 cc	701	713	723	741	775	811	850	892	938	987																															
1	30	Pleasure Motorcycle - Other 501 to 1000 cc	691	703	713	730	764	799	838	880	925	973																															
1	33	Pleasure Motorcycle - Other 501 to 1000 cc	661	673	682	699	731	765	802	842	885	931																															
1	0	Pleasure Motorcycle - Other 1001 cc or more	1060	1078	1093	1120	1171	1227	1285	1350	1419	1493																															
1	5	Pleasure Motorcycle - Other 1001 cc or more	1007	1024	1038	1064	1112	1166	1221	1282	1348	1418																															
1	10	Pleasure Motorcycle - Other 1001 cc or more	954	970	984	1008	1054	1104	1156	1215	1277	1344																															
1	15	Pleasure Motorcycle - Other 1001 cc or more	901	916	929	952	995	1043	1092	1147	1206	1269																															
1	20	Pleasure Motorcycle - Other 1001 cc or more	848	862	874	896	937	982	1028	1080	1135	1194																															
1	25	Pleasure Motorcycle - Other 1001 cc or more	795	808	820	840	878	920	964	1012	1064	1120																															
1	26	Pleasure Motorcycle - Other 1001 cc or more	784	798	809	829	867	908	951	999	1050	1105																															
1	27	Pleasure Motorcycle - Other 1001 cc or more	774	787	798	818	855	896	938	985	1036	1090																															
1	28	Pleasure Motorcycle - Other 1001 cc or more	763	776	787	806	843	883	925	972	1022	1075																															
1	29	Pleasure Motorcycle - Other 1001 cc or more	753	765	776	795	831	871	912	958	1007	1060																															
1	30	Pleasure Motorcycle - Other 1001 cc or more	742	755	765	784	820	859	899	945	993	1045																															
1	33	Pleasure Motorcycle - Other 1001 cc or more	710	722	732	750	785	822	861	904	951	1000																															
1	0	Pleasure Motorcycle - Sport 500 cc or less	862	877	889	910	952	997	1045	1097	1153	1214																															
1	5	Pleasure Motorcycle - Sport 500 cc or less	819	833	845	864	904	947	993	1042	1095	1153																															
1	10	Pleasure Motorcycle - Sport 500 cc or less	776	789	800	819	857	897	940	987	1038	1093																															
1	15	Pleasure Motorcycle - Sport 500 cc or less	733	745	756	773	809	847	888	932	980	1032																															
1	20	Pleasure Motorcycle - Sport 500 cc or less	690	702	711	728	762	798	836	878	922	971																															
1	25	Pleasure Motorcycle - Sport 500 cc or less	646	658	667	682	714	748	784	823	865	910																															
1	26	Pleasure Motorcycle - Sport 500 cc or less	638	649	658	673	704	738	773	812	853	898																															
1	27	Pleasure Motorcycle - Sport 500 cc or less	629	640	649	664	695	728	763	801	842	886																															
1	28	Pleasure Motorcycle - Sport 500 cc or less	621	631	640	655	685	718	752	790	830	874																															
1	29	Pleasure Motorcycle - Sport 500 cc or less	612	623	631	646	676	708	742	779	819	862																															
1	30	Pleasure Motorcycle - Sport 500 cc or less	603	614	622	637	666	698	731	768	807	850																															
1	33	Pleasure Motorcycle - Sport 500 cc or less	578	588	596	610	638	668	700	735	773	813																															
1	0	Pleasure Motorcycle - Sport 501 to 1000 cc	1465	1490	1511	1548	1619	1695	1776	1865	1960	2063																															
1	5	Pleasure Motorcycle - Sport 501 to 1000 cc	1392	1415	1435	1471	1538	1610	1687	1772	1862	1960																															
1	10	Pleasure Motorcycle - Sport 501 to 1000 cc	1318	1341	1360	1393	1457	1525	1598	1678	1764	1857																															
1	15	Pleasure Motorcycle - Sport 501 to 1000 cc	1245	1266	1284	1316	1376	1441	1510	1585	1666	1754																															
1	20	Pleasure Motorcycle - Sport 501 to 1000 cc	1172	1192	1209	1238	1295	1356	1421	1492	1568	1650																															
1	25	Pleasure Motorcycle - Sport 501 to 1000 cc	1099	1117	1133	1161	1214	1271	1332	1399	1470	1547																															
1	26	Pleasure Motorcycle - Sport 501 to 1000 cc	1084	1103	1118	1146	1198	1254	1314	1380	1450	1527																															
1	27	Pleasure Motorcycle - Sport 501 to 1000 cc	1069	1088	1103	1130	1182	1237	1296	1361	1431	1506																															
1	28	Pleasure Motorcycle - Sport 501 to 1000 cc	1055	1073	1088	1115	1166	1220	1279	1343	1411	1485																															
1	29	Pleasure Motorcycle - Sport 501 to 1000 cc	1040	1058	1073	1099	1149	1203	1261	1324	1392	1465																															
1	30	Pleasure Motorcycle - Sport 501 to 1000 cc	1025	1043	1058	1084	1133	1186	1243	1305	1372	1444																															
1	33	Pleasure Motorcycle - Sport 501 to 1000 cc	982	998	1012	1037	1085	1136	1190	1250	1313	1382																															
1	0	Pleasure Motorcycle - Sport 1001 cc or more	1796	1827	1853	1897	1984	2078	2178	2286	2403	2530																															
1	5	Pleasure Motorcycle - Sport 1001 cc or more	1706	1736	1760	1802	1885	1974	2069	2172	2283	2403																															
1	10	Pleasure Motorcycle - Sport 1001 cc or more	1616	1644	1668	1707	1786	1870	1960	2057	2163	2277																															
1	15	Pleasure Motorcycle - Sport 1001 cc or more	1527	1553	1575	1612	1686	1766	1851	1943	2043	2150																															
1	20	Pleasure Motorcycle - Sport 1001 cc or more	1437	1462	1482	1518	1587	1662	1742	1829	1922	2024																															
1	25	Pleasure Motorcycle - Sport 1001 cc or more	1347	1370	1390	1423	1488	1558	1633	1714	1802	1897																															
1	26	Pleasure Motorcycle - Sport 1001 cc or more	1329	1352	1371	1404	1468	1538	1612	1692	1778	1872																															
1	27	Pleasure Motorcycle - Sport 1001 cc or more	1311	1334	1353	1385	1448	1517	1590	1669	1754	1847																															
1	28	Pleasure Motorcycle - Sport 1001 cc or more	1293	1315	1334	1366	1428	1496	1568	1646	1730	1822																															
1	29	Pleasure Motorcycle - Sport 1001 cc or more	1275	1297	1316	1347	1409	1475	1546	1623	1706	1796																															
1	30	Pleasure Motorcycle - Sport 1001 cc or more	1257	1279	1297	1328	1389	1455	1525	1600	1682	1771																															
1	33	Pleasure Motorcycle - Sport 1001 cc or more	1203	1224	1242	1271	1329	1392	1459	1532	1610	1695																															
1	0	Pleasure Motorcycle - Sport Touring 500 cc or less	587	598	606	621	649	680	712	748	786	828																															
1	5	Pleasure Motorcycle - Sport Touring 500 cc or less	558	568	576	590	617	646	676	711	747	787																															
1	10	Pleasure Motorcycle - Sport Touring 500 cc or less	528	538	545	559	584	612	641	673	707	745																															
1	15	Pleasure Motorcycle - Sport Touring 500 cc or less	499	508	515	528	552	578	605	636	668	704																															
1	20	Pleasure Motorcycle - Sport Touring 500 cc or less	470	478	485	497	519	544	570	598	629	662																															
1	25	Pleasure Motorcycle - Sport Touring 500 cc or less	440	448	454	466	487	510	534	561	589	621																															
1	26	Pleasure Motorcycle - Sport Touring 500 cc or less	434	443	448	460	480	503	527	554	582	613																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	27	Pleasure Motorcycle - Sport Touring 500 cc or less	429	437	442	453	474	496	520	546	574	604																															
1	28	Pleasure Motorcycle - Sport Touring 500 cc or less	423	431	436	447	467	490	513	539	566	596																															
1	29	Pleasure Motorcycle - Sport Touring 500 cc or less	417	425	430	441	461	483	506	531	558	588																															
1	30	Pleasure Motorcycle - Sport Touring 500 cc or less	411	419	424	435	454	476	498	524	550	580																															
1	33	Pleasure Motorcycle - Sport Touring 500 cc or less	393	401	406	416	435	456	477	501	527	555																															
1	0	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	1045	1063	1078	1104	1154	1209	1267	1330	1398	1472																															
1	5	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	993	1010	1024	1049	1096	1149	1204	1263	1328	1398																															
1	10	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	940	957	970	994	1039	1088	1140	1197	1258	1325																															
1	15	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	888	904	916	938	981	1028	1077	1130	1188	1251																															
1	20	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	836	850	862	883	923	967	1014	1064	1118	1178																															
1	25	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	784	797	808	828	865	907	950	997	1048	1104																															
1	26	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	773	787	798	817	854	895	938	984	1035	1089																															
1	27	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	763	776	787	806	842	883	925	971	1021	1075																															
1	28	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	752	765	776	795	831	870	912	958	1007	1060																															
1	29	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	742	755	765	784	819	858	900	944	993	1045																															
1	30	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	731	744	755	773	808	846	887	931	979	1030																															
1	33	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	700	712	722	740	773	810	849	891	937	986																															
1	0	Pleasure Motorcycle - Sport Touring 1001 cc or more	1213	1234	1252	1282	1341	1404	1472	1545	1624	1709																															
1	5	Pleasure Motorcycle - Sport Touring 1001 cc or more	1152	1172	1189	1218	1274	1334	1398	1468	1543	1624																															
1	10	Pleasure Motorcycle - Sport Touring 1001 cc or more	1092	1111	1127	1154	1207	1264	1325	1390	1462	1538																															
1	15	Pleasure Motorcycle - Sport Touring 1001 cc or more	1031	1049	1064	1090	1140	1193	1251	1313	1380	1453																															
1	20	Pleasure Motorcycle - Sport Touring 1001 cc or more	970	987	1002	1026	1073	1123	1178	1236	1299	1367																															
1	25	Pleasure Motorcycle - Sport Touring 1001 cc or more	910	925	939	961	1006	1053	1104	1159	1218	1282																															
1	26	Pleasure Motorcycle - Sport Touring 1001 cc or more	898	913	926	949	992	1039	1089	1143	1202	1265																															
1	27	Pleasure Motorcycle - Sport Touring 1001 cc or more	885	901	914	936	979	1025	1075	1128	1186	1248																															
1	28	Pleasure Motorcycle - Sport Touring 1001 cc or more	873	888	901	923	966	1011	1060	1112	1169	1230																															
1	29	Pleasure Motorcycle - Sport Touring 1001 cc or more	861	876	889	910	952	997	1045	1097	1153	1213																															
1	30	Pleasure Motorcycle - Sport Touring 1001 cc or more	849	864	876	897	939	983	1030	1081	1137	1196																															
1	33	Pleasure Motorcycle - Sport Touring 1001 cc or more	813	827	839	859	898	941	986	1035	1088	1145																															
1	0	Pleasure Motorcycle - Touring 500 cc or less	552	562	570	584	610	639	670	703	739	778																															
1	5	Pleasure Motorcycle - Touring 500 cc or less	524	534	541	555	579	607	636	668	702	739																															
1	10	Pleasure Motorcycle - Touring 500 cc or less	497	506	513	526	549	575	603	633	665	700																															
1	15	Pleasure Motorcycle - Touring 500 cc or less	469	478	484	496	518	543	569	598	628	661																															
1	20	Pleasure Motorcycle - Touring 500 cc or less	442	450	456	467	488	511	536	562	591	622																															
1	25	Pleasure Motorcycle - Touring 500 cc or less	414	421	427	438	457	479	502	527	554	583																															
1	26	Pleasure Motorcycle - Touring 500 cc or less	408	416	422	432	451	473	496	520	547	576																															
1	27	Pleasure Motorcycle - Touring 500 cc or less	403	410	416	426	445	466	489	513	539	568																															
1	28	Pleasure Motorcycle - Touring 500 cc or less	397	405	410	420	439	460	482	506	532	560																															
1	29	Pleasure Motorcycle - Touring 500 cc or less	392	399	405	415	433	454	476	499	525	552																															
1	30	Pleasure Motorcycle - Touring 500 cc or less	386	393	399	409	427	447	469	492	517	545																															
1	33	Pleasure Motorcycle - Touring 500 cc or less	370	377	382	391	409	428	449	471	495	521																															
1	0	Pleasure Motorcycle - Touring 501 to 1000 cc	932	949	962	985	1030	1079	1131	1187	1248	1314																															
1	5	Pleasure Motorcycle - Touring 501 to 1000 cc	885	902	914	936	978	1025	1074	1128	1186	1248																															
1	10	Pleasure Motorcycle - Touring 501 to 1000 cc	839	854	866	886	927	971	1018	1068	1123	1183																															
1	15	Pleasure Motorcycle - Touring 501 to 1000 cc	792	807	818	837	875	917	961	1009	1061	1117																															
1	20	Pleasure Motorcycle - Touring 501 to 1000 cc	746	759	770	788	824	863	905	950	998	1051																															
1	25	Pleasure Motorcycle - Touring 501 to 1000 cc	699	712	721	739	772	809	848	890	936	985																															
1	26	Pleasure Motorcycle - Touring 501 to 1000 cc	690	702	712	729	762	798	837	878	924	972																															
1	27	Pleasure Motorcycle - Touring 501 to 1000 cc	680	693	702	719	752	788	826	867	911	959																															
1	28	Pleasure Motorcycle - Touring 501 to 1000 cc	671	683	693	709	742	777	814	855	899	946																															
1	29	Pleasure Motorcycle - Touring 501 to 1000 cc	662	674	683	699	731	766	803	843	886	933																															
1	30	Pleasure Motorcycle - Touring 501 to 1000 cc	652	664	673	689	721	755	792	831	874	920																															
1	33	Pleasure Motorcycle - Touring 501 to 1000 cc	624	636	645	660	690	723	758	795	836	880																															
1	0	Pleasure Motorcycle - Touring 1001 cc or more	1016	1033	1048	1073	1122	1175	1232	1293	1359	1431																															
1	5	Pleasure Motorcycle - Touring 1001 cc or more	965	981	996	1019	1066	1116	1170	1228	1291	1359																															
1	10	Pleasure Motorcycle - Touring 1001 cc or more	914	930	943	966	1010	1057	1109	1164	1223	1288																															
1	15	Pleasure Motorcycle - Touring 1001 cc or more	864	878	891	912	954	999	1047	1099	1155	1216																															
1	20	Pleasure Motorcycle - Touring 1001 cc or more	813	826	838	858	898	940	986	1034	1087	1145																															
1	25	Pleasure Motorcycle - Touring 1001 cc or more	762	775	786	805	841	881	924	970	1019	1073																															
1	26	Pleasure Motorcycle - Touring 1001 cc or more	752	764	776	794	830	869	912	957	1006	1059																															
1	27	Pleasure Motorcycle - Touring 1001 cc or more	742	754	765	783	819	858	899	944	992	1045																															
1	28	Pleasure Motorcycle - Touring 1001 cc or more	732	744	755	773	808	846	887	931	978	1030																															

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	0	Accessible Vehicle-for-Hire 2	713	735	775	815	858	900	941	982	1028	1069	1111	1153	1195	1238																												
2	5	Accessible Vehicle-for-Hire 2	677	698	736	774	815	855	894	933	977	1016	1055	1095	1135	1176																												
2	10	Accessible Vehicle-for-Hire 2	642	661	697	733	772	810	847	884	925	962	1000	1038	1075	1114																												
2	15	Accessible Vehicle-for-Hire 2	606	625	659	693	729	765	800	835	874	909	944	980	1016	1052																												
2	20	Accessible Vehicle-for-Hire 2	570	588	620	652	686	720	753	786	822	855	889	922	956	990																												
2	25	Accessible Vehicle-for-Hire 2	535	551	581	611	643	675	706	736	771	802	833	865	896	928																												
2	26	Accessible Vehicle-for-Hire 2	528	544	573	603	635	666	696	727	761	791	822	853	884	916																												
2	27	Accessible Vehicle-for-Hire 2	520	537	566	595	626	657	687	717	750	780	811	842	872	904																												
2	28	Accessible Vehicle-for-Hire 2	513	529	558	587	618	648	678	707	740	770	800	830	860	891																												
2	29	Accessible Vehicle-for-Hire 2	506	522	550	579	609	639	668	697	730	759	789	819	848	879																												
2	30	Accessible Vehicle-for-Hire 2	499	514	542	570	601	630	659	687	720	748	778	807	836	867																												
2	33	Accessible Vehicle-for-Hire 2	478	492	519	546	575	603	630	658	689	716	744	773	801	829																												
2	0	Accessible Vehicle-for-Hire 3	742	765	807	848	893	936	979	1022	1069	1112	1156	1200	1244	1288																												
2	5	Accessible Vehicle-for-Hire 3	705	727	767	806	848	889	930	971	1016	1056	1098	1140	1182	1224																												
2	10	Accessible Vehicle-for-Hire 3	668	688	726	763	804	842	881	920	962	1001	1040	1080	1120	1159																												
2	15	Accessible Vehicle-for-Hire 3	631	650	686	721	759	796	832	869	909	945	983	1020	1057	1095																												
2	20	Accessible Vehicle-for-Hire 3	594	612	646	678	714	749	783	818	855	890	925	960	995	1030																												
2	25	Accessible Vehicle-for-Hire 3	556	574	605	636	670	702	734	766	802	834	867	900	933	966																												
2	26	Accessible Vehicle-for-Hire 3	549	566	597	628	661	693	724	756	791	823	855	888	921	953																												
2	27	Accessible Vehicle-for-Hire 3	542	558	589	619	652	683	715	746	780	812	844	876	908	940																												
2	28	Accessible Vehicle-for-Hire 3	534	551	581	611	643	674	705	736	770	801	832	864	896	927																												
2	29	Accessible Vehicle-for-Hire 3	527	543	573	602	634	665	695	726	759	790	821	852	883	914																												
2	30	Accessible Vehicle-for-Hire 3	519	535	565	594	625	655	685	715	748	778	809	840	871	902																												
2	33	Accessible Vehicle-for-Hire 3	497	513	541	568	598	627	656	685	716	745	775	804	833	863																												
2	0	Accessible Vehicle-for-Hire 4	778	803	846	890	937	982	1027	1073	1122	1167	1213	1259	1305	1351																												
2	5	Accessible Vehicle-for-Hire 4	739	763	804	845	890	933	976	1019	1066	1109	1152	1196	1240	1283																												
2	10	Accessible Vehicle-for-Hire 4	700	723	761	801	843	884	924	966	1010	1050	1092	1133	1174	1216																												
2	15	Accessible Vehicle-for-Hire 4	661	683	719	756	796	835	873	912	954	992	1031	1070	1109	1148																												
2	20	Accessible Vehicle-for-Hire 4	622	642	677	712	750	786	822	858	898	934	970	1007	1044	1081																												
2	25	Accessible Vehicle-for-Hire 4	583	602	634	667	703	736	770	805	841	875	910	944	979	1013																												
2	26	Accessible Vehicle-for-Hire 4	576	594	626	659	693	727	760	794	830	864	898	932	966	1000																												
2	27	Accessible Vehicle-for-Hire 4	568	586	618	650	684	717	750	783	819	852	885	919	953	986																												
2	28	Accessible Vehicle-for-Hire 4	560	578	609	641	675	707	739	773	808	840	873	906	940	973																												
2	29	Accessible Vehicle-for-Hire 4	552	570	601	632	665	697	729	762	797	829	861	894	927	959																												
2	30	Accessible Vehicle-for-Hire 4	545	562	592	623	656	687	719	751	785	817	849	881	913	946																												
2	33	Accessible Vehicle-for-Hire 4	521	538	567	596	628	658	688	719	752	782	813	844	874	905																												
2	0	All Purpose Mobility Vehicle	65	66	67	69	72	75	79	83	87	92																																
2	5	All Purpose Mobility Vehicle	62	63	64	66	68	71	75	79	83	87																																
2	10	All Purpose Mobility Vehicle	58	59	60	62	65	67	71	75	78	83																																
2	15	All Purpose Mobility Vehicle	55	56	57	59	61	64	67	71	74	78																																
2	20	All Purpose Mobility Vehicle	52	53	54	55	58	60	63	66	70	74																																
2	25	All Purpose Mobility Vehicle	49	49	50	52	54	56	59	62	65	69																																
2	26	All Purpose Mobility Vehicle	48	49	50	51	53	55	58	61	64	68																																
2	27	All Purpose Mobility Vehicle	47	48	49	50	53	55	58	61	64	67																																
2	28	All Purpose Mobility Vehicle	47	48	48	50	52	54	57	60	63	66																																
2	29	All Purpose Mobility Vehicle	46	47	48	49	51	53	56	59	62	65																																
2	30	All Purpose Mobility Vehicle	45	46	47	48	50	52	55	58	61	64																																
2	33	All Purpose Mobility Vehicle	44	44	45	46	48	50	53	56	58	62																																
2	0	All Purpose Moped	516	525	532	545	570	597	626	657	690	727																																
2	5	All Purpose Moped	490	499	505	518	541	567	595	624	655	691																																
2	10	All Purpose Moped	464	472	479	490	513	537	563	591	621	654																																
2	15	All Purpose Moped	439	446	452	463	484	507	532	558	586	618																																
2	20	All Purpose Moped	413	420	426	436	456	478	501	526	552	582																																
2	25	All Purpose Moped	387	394	399	409	427	448	469	493	517	545																																
2	26	All Purpose Moped	382	388	394	403	422	442	463	486	511	538																																
2	27	All Purpose Moped	377	383	388	398	416	436	457	480	504	531																																
2	28	All Purpose Moped	372	378	383	392	410	430	451	473	497	523																																
2	29	All Purpose Moped	366	373	378	387	405	424	444	466	490	516																																
2	30	All Purpose Moped	361	367	372	381	399	418	438	460	483	509																																
2	33	All Purpose Moped	346	352	356	365	382	400	419	440	462	487																																
2	0	All Purpose Motorcycle - Motorscooter 500 cc or less	516	525	532	545	570	597	626	657	690	727																																
2	5	All Purpose Motorcycle - Motorscooter 500 cc or less	490	499	505	518	541	567	595	624	655	691																																

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	10	All Purpose Motorcycle - Motorscooter 500 cc or less	464	472	479	490	513	537	563	591	621	654																															
2	15	All Purpose Motorcycle - Motorscooter 500 cc or less	439	446	452	463	484	507	532	558	586	618																															
2	20	All Purpose Motorcycle - Motorscooter 500 cc or less	413	420	426	436	456	478	501	526	552	582																															
2	25	All Purpose Motorcycle - Motorscooter 500 cc or less	387	394	399	409	427	448	469	493	517	545																															
2	26	All Purpose Motorcycle - Motorscooter 500 cc or less	382	388	394	403	422	442	463	486	511	538																															
2	27	All Purpose Motorcycle - Motorscooter 500 cc or less	377	383	388	398	416	436	457	480	504	531																															
2	28	All Purpose Motorcycle - Motorscooter 500 cc or less	372	378	383	392	410	430	451	473	497	523																															
2	29	All Purpose Motorcycle - Motorscooter 500 cc or less	366	373	378	387	405	424	444	466	490	516																															
2	30	All Purpose Motorcycle - Motorscooter 500 cc or less	361	367	372	381	399	418	438	460	483	509																															
2	33	All Purpose Motorcycle - Motorscooter 500 cc or less	346	352	356	365	382	400	419	440	462	487																															
2	0	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	934	950	963	986	1032	1080	1132	1188	1249	1315																															
2	5	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	887	902	915	937	980	1026	1075	1129	1187	1249																															
2	10	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	841	855	867	887	929	972	1019	1069	1124	1183																															
2	15	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	794	807	819	838	877	918	962	1010	1062	1118																															
2	20	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	747	760	770	789	826	864	906	950	999	1052																															
2	25	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	700	712	722	739	774	810	849	891	937	986																															
2	26	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	691	703	713	730	764	799	838	879	924	973																															
2	27	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	682	693	703	720	753	788	826	867	912	960																															
2	28	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	672	684	693	710	743	778	815	855	899	947																															
2	29	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	663	674	684	700	733	767	804	843	887	934																															
2	30	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	654	665	674	690	722	756	792	832	874	920																															
2	33	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	626	636	645	661	691	724	758	796	837	881																															
2	0	All Purpose Motorcycle - Motorscooter 1001 cc or more	1071	1090	1105	1132	1184	1240	1299	1364	1434	1509																															
2	5	All Purpose Motorcycle - Motorscooter 1001 cc or more	1017	1035	1050	1075	1125	1178	1234	1296	1362	1434																															
2	10	All Purpose Motorcycle - Motorscooter 1001 cc or more	964	981	994	1019	1066	1116	1169	1228	1291	1358																															
2	15	All Purpose Motorcycle - Motorscooter 1001 cc or more	910	926	939	962	1006	1054	1104	1159	1219	1283																															
2	20	All Purpose Motorcycle - Motorscooter 1001 cc or more	857	872	884	906	947	992	1039	1091	1147	1207																															
2	25	All Purpose Motorcycle - Motorscooter 1001 cc or more	803	817	829	849	888	930	974	1023	1075	1132																															
2	26	All Purpose Motorcycle - Motorscooter 1001 cc or more	793	807	818	838	876	918	961	1009	1061	1117																															
2	27	All Purpose Motorcycle - Motorscooter 1001 cc or more	782	796	807	826	864	905	948	996	1047	1102																															
2	28	All Purpose Motorcycle - Motorscooter 1001 cc or more	771	785	796	815	852	893	935	982	1032	1086																															
2	29	All Purpose Motorcycle - Motorscooter 1001 cc or more	760	774	785	804	841	880	922	968	1018	1071																															
2	30	All Purpose Motorcycle - Motorscooter 1001 cc or more	750	763	773	792	829	868	909	955	1004	1056																															
2	33	All Purpose Motorcycle - Motorscooter 1001 cc or more	718	730	740	758	793	831	870	914	961	1011																															
2	0	All Purpose Motorcycle - Other 500 cc or less	827	841	853	874	914	957	1003	1053	1106	1165																															
2	5	All Purpose Motorcycle - Other 500 cc or less	786	799	810	830	868	909	953	1000	1051	1107																															
2	10	All Purpose Motorcycle - Other 500 cc or less	744	757	768	787	823	861	903	948	995	1048																															
2	15	All Purpose Motorcycle - Other 500 cc or less	703	715	725	743	777	813	853	895	940	990																															
2	20	All Purpose Motorcycle - Other 500 cc or less	662	673	682	699	731	766	802	842	885	932																															
2	25	All Purpose Motorcycle - Other 500 cc or less	620	631	640	655	685	718	752	790	829	874																															
2	26	All Purpose Motorcycle - Other 500 cc or less	612	622	631	647	676	708	742	779	818	862																															
2	27	All Purpose Motorcycle - Other 500 cc or less	604	614	623	638	667	699	732	769	807	850																															
2	28	All Purpose Motorcycle - Other 500 cc or less	595	606	614	629	658	689	722	758	796	839																															
2	29	All Purpose Motorcycle - Other 500 cc or less	587	597	606	621	649	679	712	748	785	827																															
2	30	All Purpose Motorcycle - Other 500 cc or less	579	589	597	612	640	670	702	737	774	815																															
2	33	All Purpose Motorcycle - Other 500 cc or less	554	563	572	586	612	641	672	706	741	781																															
2	0	All Purpose Motorcycle - Other 501 to 1000 cc	1408	1433	1453	1488	1556	1630	1708	1793	1884	1984																															
2	5	All Purpose Motorcycle - Other 501 to 1000 cc	1338	1361	1380	1414	1478	1548	1623	1703	1790	1885																															
2	10	All Purpose Motorcycle - Other 501 to 1000 cc	1267	1290	1308	1339	1400	1467	1537	1614	1696	1786																															
2	15	All Purpose Motorcycle - Other 501 to 1000 cc	1197	1218	1235	1265	1323	1385	1452	1524	1601	1686																															
2	20	All Purpose Motorcycle - Other 501 to 1000 cc	1126	1146	1162	1190	1245	1304	1366	1434	1507	1587																															
2	25	All Purpose Motorcycle - Other 501 to 1000 cc	1056	1075	1090	1116	1167	1222	1281	1345	1413	1488																															
2	26	All Purpose Motorcycle - Other 501 to 1000 cc	1042	1060	1075	1101	1151	1206	1264	1327	1394	1468																															
2	27	All Purpose Motorcycle - Other 501 to 1000 cc	1028	1046	1061	1086	1136	1190	1247	1309	1375	1448																															
2	28	All Purpose Motorcycle - Other 501 to 1000 cc	1014	1032	1046	1071	1120	1174	1230	1291	1356	1428																															
2	29	All Purpose Motorcycle - Other 501 to 1000 cc	1000	1017	1032	1056	1105	1157	1213	1273	1338	1409																															
2	30	All Purpose Motorcycle - Other 501 to 1000 cc	986	1003	1017	1042	1089	1141	1196	1255	1319	1389																															
2	33	All Purpose Motorcycle - Other 501 to 1000 cc	943	960	974	997	1043	1092	1144	1201	1262	1329																															
2	0	All Purpose Motorcycle - Other 1001 cc or more	1528	1554	1576	1614	1688	1768	1853	1945	2045	2152																															
2	5	All Purpose Motorcycle - Other 1001 cc or more	1452	1476	1497	1533	1604	1680	1760	1848	1943	2044																															
2	10	All Purpose Motorcycle - Other 1001 cc or more	1375	1399	1418	1453	1519	1591	1668	1750	1840	1937																															
2	15	All Purpose Motorcycle - Other 1001 cc or more	1299	1321	1340	1372	1435	1503	1575	1653	1738	1829																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	20	All Purpose Motorcycle - Other 1001 cc or more	1222	1243	1261	1291	1350	1414	1482	1556	1636	1722																															
2	25	All Purpose Motorcycle - Other 1001 cc or more	1146	1165	1182	1210	1266	1326	1390	1459	1534	1614																															
2	26	All Purpose Motorcycle - Other 1001 cc or more	1131	1150	1166	1194	1249	1308	1371	1439	1513	1592																															
2	27	All Purpose Motorcycle - Other 1001 cc or more	1115	1134	1150	1178	1232	1291	1353	1420	1493	1571																															
2	28	All Purpose Motorcycle - Other 1001 cc or more	1100	1119	1135	1162	1215	1273	1334	1400	1472	1549																															
2	29	All Purpose Motorcycle - Other 1001 cc or more	1085	1103	1119	1146	1198	1255	1316	1381	1452	1528																															
2	30	All Purpose Motorcycle - Other 1001 cc or more	1070	1088	1103	1130	1182	1238	1297	1361	1431	1506																															
2	33	All Purpose Motorcycle - Other 1001 cc or more	1024	1041	1056	1081	1131	1185	1242	1303	1370	1442																															
2	0	All Purpose Motorcycle - Sport 500 cc or less	1305	1327	1346	1378	1441	1510	1582	1661	1746	1838																															
2	5	All Purpose Motorcycle - Sport 500 cc or less	1240	1261	1279	1309	1369	1434	1503	1578	1659	1746																															
2	10	All Purpose Motorcycle - Sport 500 cc or less	1174	1194	1211	1240	1297	1359	1424	1495	1571	1654																															
2	15	All Purpose Motorcycle - Sport 500 cc or less	1109	1128	1144	1171	1225	1283	1345	1412	1484	1562																															
2	20	All Purpose Motorcycle - Sport 500 cc or less	1044	1062	1077	1102	1153	1208	1266	1329	1397	1470																															
2	25	All Purpose Motorcycle - Sport 500 cc or less	979	995	1009	1033	1081	1132	1186	1246	1309	1378																															
2	26	All Purpose Motorcycle - Sport 500 cc or less	966	982	996	1020	1066	1117	1171	1229	1292	1360																															
2	27	All Purpose Motorcycle - Sport 500 cc or less	953	969	983	1006	1052	1102	1155	1213	1275	1342																															
2	28	All Purpose Motorcycle - Sport 500 cc or less	940	955	969	992	1038	1087	1139	1196	1257	1323																															
2	29	All Purpose Motorcycle - Sport 500 cc or less	927	942	956	978	1023	1072	1123	1179	1240	1305																															
2	30	All Purpose Motorcycle - Sport 500 cc or less	913	929	942	965	1009	1057	1107	1163	1222	1287																															
2	33	All Purpose Motorcycle - Sport 500 cc or less	874	889	902	923	965	1012	1060	1113	1170	1231																															
2	0	All Purpose Motorcycle - Sport 501 to 1000 cc	2231	2270	2301	2357	2465	2582	2705	2840	2985	3143																															
2	5	All Purpose Motorcycle - Sport 501 to 1000 cc	2119	2156	2186	2239	2342	2453	2570	2698	2836	2986																															
2	10	All Purpose Motorcycle - Sport 501 to 1000 cc	2008	2043	2071	2121	2218	2324	2434	2556	2686	2829																															
2	15	All Purpose Motorcycle - Sport 501 to 1000 cc	1896	1929	1956	2003	2095	2195	2299	2414	2537	2672																															
2	20	All Purpose Motorcycle - Sport 501 to 1000 cc	1785	1816	1841	1886	1972	2066	2164	2272	2388	2514																															
2	25	All Purpose Motorcycle - Sport 501 to 1000 cc	1673	1702	1726	1768	1849	1936	2029	2130	2239	2357																															
2	26	All Purpose Motorcycle - Sport 501 to 1000 cc	1651	1680	1703	1744	1824	1911	2002	2102	2209	2326																															
2	27	All Purpose Motorcycle - Sport 501 to 1000 cc	1629	1657	1680	1721	1799	1885	1975	2073	2179	2294																															
2	28	All Purpose Motorcycle - Sport 501 to 1000 cc	1606	1634	1657	1697	1775	1859	1948	2045	2149	2263																															
2	29	All Purpose Motorcycle - Sport 501 to 1000 cc	1584	1612	1634	1673	1750	1833	1921	2016	2119	2232																															
2	30	All Purpose Motorcycle - Sport 501 to 1000 cc	1562	1589	1611	1650	1725	1807	1893	1988	2089	2200																															
2	33	All Purpose Motorcycle - Sport 501 to 1000 cc	1495	1521	1542	1579	1652	1730	1812	1903	2000	2106																															
2	0	All Purpose Motorcycle - Sport 1001 cc or more	3175	3230	3276	3355	3509	3675	3851	4043	4250	4473																															
2	5	All Purpose Motorcycle - Sport 1001 cc or more	3016	3068	3112	3187	3334	3491	3658	3841	4037	4249																															
2	10	All Purpose Motorcycle - Sport 1001 cc or more	2857	2907	2948	3019	3158	3307	3466	3639	3825	4026																															
2	15	All Purpose Motorcycle - Sport 1001 cc or more	2699	2745	2785	2852	2983	3124	3273	3437	3612	3802																															
2	20	All Purpose Motorcycle - Sport 1001 cc or more	2540	2584	2621	2684	2807	2940	3081	3234	3400	3578																															
2	25	All Purpose Motorcycle - Sport 1001 cc or more	2381	2422	2457	2516	2632	2756	2888	3032	3187	3355																															
2	26	All Purpose Motorcycle - Sport 1001 cc or more	2349	2390	2424	2483	2597	2719	2850	2992	3145	3310																															
2	27	All Purpose Motorcycle - Sport 1001 cc or more	2318	2358	2391	2449	2562	2683	2811	2951	3102	3265																															
2	28	All Purpose Motorcycle - Sport 1001 cc or more	2286	2326	2359	2416	2526	2646	2773	2911	3060	3221																															
2	29	All Purpose Motorcycle - Sport 1001 cc or more	2254	2293	2326	2382	2491	2609	2734	2871	3017	3176																															
2	30	All Purpose Motorcycle - Sport 1001 cc or more	2222	2261	2293	2348	2456	2572	2696	2830	2975	3131																															
2	33	All Purpose Motorcycle - Sport 1001 cc or more	2127	2164	2195	2248	2351	2462	2580	2709	2847	2997																															
2	0	All Purpose Motorcycle - Sport Touring 500 cc or less	833	848	859	880	921	964	1010	1061	1115	1174																															
2	5	All Purpose Motorcycle - Sport Touring 500 cc or less	791	806	816	836	875	916	959	1008	1059	1115																															
2	10	All Purpose Motorcycle - Sport Touring 500 cc or less	750	763	773	792	829	868	909	955	1003	1057																															
2	15	All Purpose Motorcycle - Sport Touring 500 cc or less	708	721	730	748	783	819	858	902	948	998																															
2	20	All Purpose Motorcycle - Sport Touring 500 cc or less	666	678	687	704	737	771	808	849	892	939																															
2	25	All Purpose Motorcycle - Sport Touring 500 cc or less	625	636	644	660	691	723	757	796	836	880																															
2	26	All Purpose Motorcycle - Sport Touring 500 cc or less	616	628	636	651	682	713	747	785	825	869																															
2	27	All Purpose Motorcycle - Sport Touring 500 cc or less	608	619	627	642	672	704	737	775	814	857																															
2	28	All Purpose Motorcycle - Sport Touring 500 cc or less	600	611	618	634	663	694	727	764	803	845																															
2	29	All Purpose Motorcycle - Sport Touring 500 cc or less	591	602	610	625	654	684	717	753	792	834																															
2	30	All Purpose Motorcycle - Sport Touring 500 cc or less	583	594	601	616	645	675	707	743	780	822																															
2	33	All Purpose Motorcycle - Sport Touring 500 cc or less	558	568	576	590	617	646	677	711	747	787																															
2	0	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1453	1479	1499	1536	1606	1682	1762	1850	1945	2047																															
2	5	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1380	1405	1424	1459	1526	1598	1674	1757	1848	1945																															
2	10	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1308	1331	1349	1382	1445	1514	1586	1665	1750	1842																															
2	15	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1235	1257	1274	1306	1365	1430	1498	1572	1653	1740																															
2	20	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1162	1183	1199	1229	1285	1346	1410	1480	1556	1638																															
2	25	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1090	1109	1124	1152	1204	1261	1321	1387	1459	1535																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	26	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1075	1094	1109	1137	1188	1245	1304	1369	1439	1515																															
2	27	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1061	1080	1094	1121	1172	1228	1286	1350	1420	1494																															
2	28	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1046	1065	1079	1106	1156	1211	1269	1332	1400	1474																															
2	29	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1032	1050	1064	1091	1140	1194	1251	1313	1381	1453																															
2	30	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1017	1035	1049	1075	1124	1177	1233	1295	1361	1433																															
2	33	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	974	991	1004	1029	1076	1127	1181	1239	1303	1371																															
2	0	All Purpose Motorcycle - Sport Touring 1001 cc or more	1897	1930	1957	2005	2096	2195	2301	2415	2539	2672																															
2	5	All Purpose Motorcycle - Sport Touring 1001 cc or more	1802	1833	1859	1905	1991	2085	2186	2294	2412	2538																															
2	10	All Purpose Motorcycle - Sport Touring 1001 cc or more	1707	1737	1761	1804	1886	1975	2071	2173	2285	2405																															
2	15	All Purpose Motorcycle - Sport Touring 1001 cc or more	1612	1640	1663	1704	1782	1866	1956	2053	2158	2271																															
2	20	All Purpose Motorcycle - Sport Touring 1001 cc or more	1518	1544	1566	1604	1677	1756	1841	1932	2031	2138																															
2	25	All Purpose Motorcycle - Sport Touring 1001 cc or more	1423	1447	1468	1504	1572	1646	1726	1811	1904	2004																															
2	26	All Purpose Motorcycle - Sport Touring 1001 cc or more	1404	1428	1448	1484	1551	1624	1703	1787	1879	1977																															
2	27	All Purpose Motorcycle - Sport Touring 1001 cc or more	1385	1409	1429	1464	1530	1602	1680	1763	1853	1951																															
2	28	All Purpose Motorcycle - Sport Touring 1001 cc or more	1366	1390	1409	1444	1509	1580	1657	1739	1828	1924																															
2	29	All Purpose Motorcycle - Sport Touring 1001 cc or more	1347	1370	1389	1424	1488	1558	1634	1715	1803	1897																															
2	30	All Purpose Motorcycle - Sport Touring 1001 cc or more	1328	1351	1370	1403	1467	1536	1611	1690	1777	1870																															
2	33	All Purpose Motorcycle - Sport Touring 1001 cc or more	1271	1293	1311	1343	1404	1471	1542	1618	1701	1790																															
2	0	All Purpose Motorcycle - Touring 500 cc or less	747	760	771	789	825	864	906	951	1000	1052																															
2	5	All Purpose Motorcycle - Touring 500 cc or less	710	722	732	750	784	821	861	903	950	999																															
2	10	All Purpose Motorcycle - Touring 500 cc or less	672	684	694	710	742	778	815	856	900	947																															
2	15	All Purpose Motorcycle - Touring 500 cc or less	635	646	655	671	701	734	770	808	850	894																															
2	20	All Purpose Motorcycle - Touring 500 cc or less	598	608	617	631	660	691	725	761	800	842																															
2	25	All Purpose Motorcycle - Touring 500 cc or less	560	570	578	592	619	648	679	713	750	789																															
2	26	All Purpose Motorcycle - Touring 500 cc or less	553	562	571	584	610	639	670	704	740	778																															
2	27	All Purpose Motorcycle - Touring 500 cc or less	545	555	563	576	602	631	661	694	730	768																															
2	28	All Purpose Motorcycle - Touring 500 cc or less	538	547	555	568	594	622	652	685	720	757																															
2	29	All Purpose Motorcycle - Touring 500 cc or less	530	540	547	560	586	613	643	675	710	747																															
2	30	All Purpose Motorcycle - Touring 500 cc or less	523	532	540	552	577	605	634	666	700	736																															
2	33	All Purpose Motorcycle - Touring 500 cc or less	500	509	517	529	553	579	607	637	670	705																															
2	0	All Purpose Motorcycle - Touring 501 to 1000 cc	1240	1262	1279	1310	1370	1435	1504	1579	1660	1747																															
2	5	All Purpose Motorcycle - Touring 501 to 1000 cc	1178	1199	1215	1244	1301	1363	1429	1500	1577	1660																															
2	10	All Purpose Motorcycle - Touring 501 to 1000 cc	1116	1136	1151	1179	1233	1291	1354	1421	1494	1572																															
2	15	All Purpose Motorcycle - Touring 501 to 1000 cc	1054	1073	1087	1113	1164	1220	1278	1342	1411	1485																															
2	20	All Purpose Motorcycle - Touring 501 to 1000 cc	992	1010	1023	1048	1096	1148	1203	1263	1328	1398																															
2	25	All Purpose Motorcycle - Touring 501 to 1000 cc	930	946	959	982	1027	1076	1128	1184	1245	1310																															
2	26	All Purpose Motorcycle - Touring 501 to 1000 cc	918	934	946	969	1014	1062	1113	1168	1228	1293																															
2	27	All Purpose Motorcycle - Touring 501 to 1000 cc	905	921	934	956	1000	1048	1098	1153	1212	1275																															
2	28	All Purpose Motorcycle - Touring 501 to 1000 cc	893	909	921	943	986	1033	1083	1137	1195	1258																															
2	29	All Purpose Motorcycle - Touring 501 to 1000 cc	880	896	908	930	973	1019	1068	1121	1179	1240																															
2	30	All Purpose Motorcycle - Touring 501 to 1000 cc	868	883	895	917	959	1004	1053	1105	1162	1223																															
2	33	All Purpose Motorcycle - Touring 501 to 1000 cc	831	846	857	878	918	961	1008	1058	1112	1170																															
2	0	All Purpose Motorcycle - Touring 1001 cc or more	1472	1498	1519	1556	1627	1704	1785	1874	1970	2074																															
2	5	All Purpose Motorcycle - Touring 1001 cc or more	1398	1423	1443	1478	1546	1619	1696	1780	1871	1970																															
2	10	All Purpose Motorcycle - Touring 1001 cc or more	1325	1348	1367	1400	1464	1534	1606	1687	1773	1867																															
2	15	All Purpose Motorcycle - Touring 1001 cc or more	1251	1273	1291	1323	1383	1448	1517	1593	1674	1763																															
2	20	All Purpose Motorcycle - Touring 1001 cc or more	1178	1198	1215	1245	1302	1363	1428	1499	1576	1659																															
2	25	All Purpose Motorcycle - Touring 1001 cc or more	1104	1123	1139	1167	1220	1278	1339	1405	1477	1555																															
2	26	All Purpose Motorcycle - Touring 1001 cc or more	1089	1109	1124	1151	1204	1261	1321	1387	1458	1535																															
2	27	All Purpose Motorcycle - Touring 1001 cc or more	1075	1094	1109	1136	1188	1244	1303	1368	1438	1514																															
2	28	All Purpose Motorcycle - Touring 1001 cc or more	1060	1079	1094	1120	1171	1227	1285	1349	1418	1493																															
2	29	All Purpose Motorcycle - Touring 1001 cc or more	1045	1064	1078	1105	1155	1210	1267	1331	1399	1473																															
2	30	All Purpose Motorcycle - Touring 1001 cc or more	1030	1049	1063	1089	1139	1193	1249	1312	1379	1452																															
2	33	All Purpose Motorcycle - Touring 1001 cc or more	986	1004	1018	1043	1090	1142	1196	1256	1320	1390																															
2	0	All Purpose Motorhome	470	579	704	822	934	1039	1149	1243	1346	1413	1529																															
2	5	All Purpose Motorhome	446	550	669	781	887	987	1092	1181	1279	1342	1453																															
2	10	All Purpose Motorhome	423	521	634	740	841	935	1034	1119	1211	1272	1376																															
2	15	All Purpose Motorhome	399	492	598	699	794	883	977	1057	1144	1201	1300																															
2	20	All Purpose Motorhome	376	463	563	658	747	831	919	994	1077	1130	1223																															
2	25	All Purpose Motorhome	352	434	528	616	700	779	862	932	1009	1060	1147																															
2	26	All Purpose Motorhome	348	428	521	608	691	769	850	920	996	1046	1131																															
2	27	All Purpose Motorhome	343	423	514	600	682	758	839	907	983	1031	1116																															

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

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TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	26	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645	645																							
2	27	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637																							
2	28	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		628	628	628	628	628	628	628	628	628	628	628	628	628	628	628	628	628																							
2	29	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619																							
2	30	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610																							
2	33	Common Carrier Truck Within 161 km in MB 16,331 kg or more GVW		584	584	584	584	584	584	584	584	584	584	584	584	584	584	584	584	584																							
2	0	Common/Private/Contract Passenger Vehicle Over 161 km outside MB	0																																							
2	0	Common/Private/Contract Truck Over 161 km outside MB	0																																							
2	0	Dealer All Uses except Motorcycles	1168																																							
2	0	Dealer Moped	406																																							
2	0	Dealer Motorcycle	897																																							
2	0	Dealer Trailer	660																																							
2	0	Disabled Persons/Private/Business Bus 20 seats or less	572	590	622	654	689	722	755	789	825	858	892	926	959	994																											
2	0	Disabled Persons/Private/Business Bus 21 to 35 seats	621	641	676	711	748	784	820	856	896	932	968	1005	1042	1079																											
2	0	Disabled Persons/Private/Business Bus 36 to 50 seats	673	694	732	770	810	849	888	927	970	1009	1049	1088	1128	1168																											
2	0	Disabled Persons/Private/Business Bus 51 seats or more	719	742	782	822	866	908	949	991	1037	1078	1121	1163	1206	1249																											
2	0	Driveaway Over 161 km outside MB	170																																							
2	0	Driveaway Within MB	370																																							
2	0	Farm Passenger Vehicle	488	526	545	562	580	597	614	632	649	666	682	690	711	736	763	795	828	860	896	929	965	1000	1033	1068	1102	1141	1178	1214	1252	1289	1325	1361	1395	1429	1461	1501	1537	1573	1610	1646	1682
2	5	Farm Passenger Vehicle	464	500	518	534	551	567	583	600	617	633	648	655	675	699	725	755	787	817	851	883	917	950	981	1015	1047	1084	1119	1153	1189	1225	1259	1293	1325	1358	1388	1426	1460	1494	1529	1564	1598
2	10	Farm Passenger Vehicle	439	473	490	506	522	537	553	569	584	599	614	621	640	662	687	715	745	774	806	836	868	900	930	961	992	1027	1060	1093	1127	1160	1192	1225	1255	1286	1315	1351	1383	1416	1449	1481	1514
2	15	Farm Passenger Vehicle	415	447	463	478	493	507	522	537	552	566	580	586	604	626	649	676	704	731	762	790	820	850	878	908	937	970	1001	1032	1064	1096	1126	1157	1186	1215	1242	1276	1306	1337	1368	1399	1430
2	20	Farm Passenger Vehicle	390	421	436	450	464	478	491	506	519	533	546	552	569	589	610	636	662	688	717	743	772	800	826	854	882	913	942	971	1002	1031	1060	1089	1116	1143	1169	1201	1230	1258	1288	1317	1346
2	25	Farm Passenger Vehicle	366	394	409	421	435	448	460	474	487	499	511	517	533	552	572	596	621	645	672	697	724	750	775	801	826	856	883	910	939	967	994	1021	1046	1072	1096	1126	1153	1180	1207	1234	1261
2	26	Farm Passenger Vehicle	361	389	403	416	429	442	454	468	480	493	505	511	526	545	565	588	613	636	663	687	714	740	764	790	815	844	872	898	926	954	980	1007	1032	1057	1081	1111	1137	1164	1191	1218	1245
2	27	Farm Passenger Vehicle	356	384	398	410	423	436	448	461	474	486	498	504	519	537	557	580	604	628	654	678	704	730	754	780	804	833	860	886	914	941	967	994	1018	1043	1067	1096	1122	1148	1175	1202	1228
2	28	Farm Passenger Vehicle	351	379	392	405	418	430	442	455	467	480	491	497	512	530	549	572	596	619	645	669	695	720	744	769	793	822	848	874	901	928	954	980	1004	1029	1052	1081	1107	1133	1159	1185	1211
2	29	Farm Passenger Vehicle	346	373	387	399	412	424	436	449	461	473	484	490	505	523	542	564	588	611	636	660	685	710	733	758	782	810	836	862	889	915	941	966	990	1015	1037	1066	1091	1117	1143	1169	1194
2	30	Farm Passenger Vehicle	342	368	381	393	406	418	430	442	454	466	477	483	498	515	534	556	580	602	627	650	675	700	723	748	771	799	825	850	876	902	927	953	976	1000	1023	1051	1076	1101	1127	1152	1177
2	33	Farm Passenger Vehicle	327	352	365	377	389	400	411	423	435	446	457	462	476	493	511	533	555	576	600	622	647	670	692	716	738	764	789	813	839	864	888	912	935	957	979	1006	1030	1054	1079	1103	1127
2	0	Farming All Purpose Truck 4,540 kg or less GVW	425	473	500	518	531	543	556	570	583	596	616	633	651	668	686	707	724	744	764	785	812	842	874	906	938	973	1005	1051	1084	1127	1181	1228	1277	1326	1369	1434	1487	1541	1597	1654	1713
2	5	Farming All Purpose Truck 4,540 kg or less GVW	404	449	475	492	504	516	528	541	554	566	585	601	618	635	652	672	688	707	726	746	771	800	830	861	891	924	955	998	1030	1071	1122	1167	1213	1260	1301	1362	1413	1464	1517	1571	1627
2	10	Farming All Purpose Truck 4,540 kg or less GVW	382	426	450	466	478	489	500	513	525	536	554	570	586	601	617	636	652	670	688	706	731	758	787	815	844	876	904	946	976	1014	1063	1105	1149	1193	1232	1291	1338	1387	1437	1489	1542
2	15	Farming All Purpose Truck 4,540 kg or less GVW	361	402	425	440	451	462	473	484	496	507	524	538	553	568	583	601	615	632	649	667	690	716	743	770	797	827	854	893	921	958	1004	1044	1085	1127	1164	1219	1264	1310	1357	1406	1456
2	20	Farming All Purpose Truck 4,540 kg or less GVW	340	378	400	414	425	434	445	456	466	477	493	506	521	534	549	566	579	595	611	628	650	674	699	725	750	778	804	841	867	902	945	982	1022	1061	1095	1147	1190	1233	1278	1323	1370
2	25	Farming All Purpose Truck 4,540 kg or less GVW	319	355	375	388	398	407	417	427	437	447	462	475	488	501	514	530	543	558	573	589	609	631	655	679	703	730	754	788	813	845	886	921	958	994	1027	1075	1115	1156	1198	1240	1285
2	26	Farming All Purpose Truck 4,540 kg or less GVW	314	350	370	383	393	402	411	422	431	441	456	468	482	494	508	523	536	551	565	581	601	623	647	670	694	720	744	778	802	834	874	909	945	981	1013	1061	1100	1140	1182	1224	1268
2	27	Farming All Purpose Truck 4,540 kg or less GVW	310	345	365	378	388	396	406	416	426	435	450	462	475	488	501	516	529	543	558	573	593	615	638	661	685	710	734	767	791	823	862	896	932	968	999	1047	1086	1125	1166	1207	1250
2	28	Farming All Purpose Truck 4,540 kg or less GVW	306	341	360	373	382	391	400	410	420	429	444	456	469	481	494	509	521	536	550	565	585	606	629	652	675	701	724	757	780	811	850	884	919	955	986	1032	1071	1110	1150	1191	1233
2	29	Farming All Purpose Truck 4,540 kg or less GVW	302	336	355	368	377	386	395	405	414	423	437	449	462	474	487	502	514	528	542	557	577	598	621	643	666	691	714	746	770	800	839	872	907	941	972	1018	1056	1094	1134	1174	1216
2	30	Farming All Purpose Truck 4,540 kg or less GVW	297	331	350	363	372	380	389	399	408	417	431	443	456	468	480	495	507	521	535	549	568	589	612	634	657	681	703	736	759	789	827	860	894	928	958	1004	1041	1079	1118	1158	1199
2	33	Farming All Purpose Truck 4,540 kg or less GVW	285	317	335	347	356	364	373	382	391	399	413	424	436	448	460	474	485	498	512	526	544	564	586	607	628	652	673	704	726	755	791	823	856	888	917	961	996	1032	1070	1108	1148
2	0	Farming All Purpose Truck 4,541 to 16,330 kg GVW		446	516	560	603	647	693	737	781	824	869	914	959	1003	1049	1095	1133	1179																							
2	0	Farming All Purpose Truck 16,331 kg or more GVW		426	491	532	574	615	659	700	742	783	825	868	911	952	997	1040	1076	1119																							
2	0	Fishing All Purpose Truck 4,540 kg or less GVW	535	595	629	652	667	683	700	717	734	749	774	796	818	840	863	889	911	936	960	987	1021	1058	1099	1139	1180	1224	1263	1322	1364	1417	1486	1545	1606	1667	1722	1804	1870	1938	2009	2081	2154
2	5	Fishing All Purpose Truck 4,540 kg or less GVW	508	565	598	619	634	649	665	681	697	712	735	756	777	798	820	845	865	889	912	938	970	1005	1044	1082	1121	1163	1200	1256	1296	1346	1412	1468	1526	1584	1636	1714	1776	1841	1909	1977	2046
2	10	Fishing All Purpose Truck 4,540 kg or less GVW	481	535	566	587	600	615	630	645	661	674	697	716	736	756	777	800	820	842	864	888	919	952	989	1025	1062	1102	1137	1190	1228	1275	1337	1390	1445	1500	1550	1624	1683	1744	1808	1873	1939
2	15	Fishing All Purpose Truck 4,540 kg or less GVW	455	506	535	554	567	581	595	609	624	637	658	677	695	714	734	756	774	796	816	839	868	899	934	968	1003	1040	1074	1124	1159	1204	1263	1313	1365	1417	1464	1533	1589	1647	1708	1769	1831
2	20	Fishing All Purpose Truck 4,540 kg or less GVW	428	476	503	522	534	546	560	574	587	599	619	637	654	672	690	711	729	749	768	790	817	846	879	911	944	979	1010	1058	1091	1134	1189	1236	1285	1334	1378	1443	1496	1550	1607	1665	1723
2	25	Fishing All Purpose Truck 4,540 kg or less GVW	401	446	472	489	500	512	525	538	550	562	580	597	613	630	647	667	683	702	720	740	766	793	824	854	885	918	947	991	1023	1063	1114	1159	1204	1250	1291	1353	1402	1453	1507	1561	1615
2	26	Fishing All Purpose Truck 4,540 kg or less GVW	396	440	465	482	494	505	518	531	543	554	573	589	605	622	639	658	674	693	710	730	756	783	813	843	873	906	935	978	1009	1049	1100	1143	1188	1234	1274	1335	1384	1434	1487	1540	1594
2	27	Fishing All Purpose Truck 4,540 kg or less GVW	391	434	459	476	487	499	511	523	536	547	565	581	597	613	630	649	665	683	701	721	745	772	802	831	861	894	922	965	996	1034	1085	1128	1172	1217	1257	1317	1365	1415	1467	1519	1572
2	28	Fishing All Purpose Truck 4,540 kg or less GVW	385	428	453	469	480	492	504	516	528	539	557	573	589	605	621	640	656	674	691	711	735	762	791	820	850	881	909	952	982	1020	1070	1112	1156	1200	1240	1299	1346	1395	1446	1498	1551
2	29	Fishing All Purpose Truck 4,540 kg or less GVW	380	422	447	463	474	485	497	509	521	532	550	565	581	596	613	631	647	665	682	701	725	751	780	809	838	869	897	939	968	1006	1055	1097	1140	1184	1223	1281	1328	1376	1426	1478	1529
2	30	Fishing All Purpose Truck 4,540 kg or less GVW	374	416	440	456	467	478	490	502	514	524	542	557	573	588	604	622	638	655	672	691	715	741	769	797	826	857	884	925	955	992	1040	1081	1124	1167	1205	1263	1309	1357	1406	1457	1508
2	33	Fishing All Purpose Truck 4,540 kg or less GVW	358	399	421	437	447	458	469	480	492	502	519	533	548	563	578	596	610	627	643	661	684	709	736	763	791	820	846	886	914	949	996	1035	1076	1117	1154	1209	1253	1298	1346	1394	1443
2	0	Fishing All Purpose Truck 4,541 to 16,330 kg GVW		406	469	509	549	589	631	671	710	750	790	832	872	912	955	997	1031	1073																							
2	0	Fishing All Purpose Truck 16,331 kg or more GVW		417	480	521	562	602	645	686	726	766	808	850	891	932	976	1018	1054	1096																							
2	0	Funeral Passenger Vehicle	234	252	261	269	278	286	294	303	311	319	327	330	341	352	366	381	397	412	429	445	462	479	495	512	528	547	565	582	600	618	635	652	668	685	700	719	737	754	771	789	806
2	0	Limousine Vehicle-for-Hire 1	1458																																							
2	5	Limousine Vehicle-for-Hire 1	1385																																							
2	10	Limousine Vehicle-for-Hire 1	1312																																							

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

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| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	29	Pleasure Motorcycle - Motorscooter 500 cc or less	256	261	264	271	283	297	311	327	343	361																															
2	30	Pleasure Motorcycle - Motorscooter 500 cc or less	253	257	260	267	279	293	307	322	338	356																															
2	33	Pleasure Motorcycle - Motorscooter 500 cc or less	242	246	249	255	267	280	293	308	324	341																															
2	0	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	544	553	561	574	601	629	659	692	727	766																															
2	5	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	517	525	533	545	571	598	626	657	691	728																															
2	10	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	490	498	505	517	541	566	593	623	654	689																															
2	15	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	462	470	477	488	511	535	560	588	618	651																															
2	20	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	435	442	449	459	481	503	527	554	582	613																															
2	25	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	408	415	421	430	451	472	494	519	545	574																															
2	26	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	403	409	415	425	445	465	488	512	538	567																															
2	27	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	397	404	410	419	439	459	481	505	531	559																															
2	28	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	392	398	404	413	433	453	474	498	523	552																															
2	29	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	386	393	398	408	427	447	468	491	516	544																															
2	30	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	381	387	393	402	421	440	461	484	509	536																															
2	33	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	364	371	376	385	403	421	442	464	487	513																															
2	0	Pleasure Motorcycle - Motorscooter 1001 cc or more	674	685	695	712	744	780	817	858	901	949																															
2	5	Pleasure Motorcycle - Motorscooter 1001 cc or more	640	651	660	676	707	741	776	815	856	902																															
2	10	Pleasure Motorcycle - Motorscooter 1001 cc or more	607	616	625	641	670	702	735	772	811	854																															
2	15	Pleasure Motorcycle - Motorscooter 1001 cc or more	573	582	591	605	632	663	694	729	766	807																															
2	20	Pleasure Motorcycle - Motorscooter 1001 cc or more	539	548	556	570	595	624	654	686	721	759																															
2	25	Pleasure Motorcycle - Motorscooter 1001 cc or more	505	514	521	534	558	585	613	643	676	712																															
2	26	Pleasure Motorcycle - Motorscooter 1001 cc or more	499	507	514	527	551	577	605	635	667	702																															
2	27	Pleasure Motorcycle - Motorscooter 1001 cc or more	492	500	507	520	543	569	596	626	658	693																															
2	28	Pleasure Motorcycle - Motorscooter 1001 cc or more	485	493	500	513	536	562	588	618	649	683																															
2	29	Pleasure Motorcycle - Motorscooter 1001 cc or more	479	486	493	506	528	554	580	609	640	674																															
2	30	Pleasure Motorcycle - Motorscooter 1001 cc or more	472	479	486	498	521	546	572	601	631	664																															
2	33	Pleasure Motorcycle - Motorscooter 1001 cc or more	452	459	466	477	498	523	547	575	604	636																															
2	0	Pleasure Motorcycle - Other 500 cc or less	539	549	556	570	596	624	654	687	722	760																															
2	5	Pleasure Motorcycle - Other 500 cc or less	512	522	528	541	566	593	621	653	686	722																															
2	10	Pleasure Motorcycle - Other 500 cc or less	485	494	500	513	536	562	589	618	650	684																															
2	15	Pleasure Motorcycle - Other 500 cc or less	458	467	473	484	507	530	556	584	614	646																															
2	20	Pleasure Motorcycle - Other 500 cc or less	431	439	445	456	477	499	523	550	578	608																															
2	25	Pleasure Motorcycle - Other 500 cc or less	404	412	417	427	447	468	490	515	541	570																															
2	26	Pleasure Motorcycle - Other 500 cc or less	399	406	411	422	441	462	484	508	534	562																															
2	27	Pleasure Motorcycle - Other 500 cc or less	393	401	406	416	435	456	477	502	527	555																															
2	28	Pleasure Motorcycle - Other 500 cc or less	388	395	400	410	429	449	471	495	520	547																															
2	29	Pleasure Motorcycle - Other 500 cc or less	383	390	395	405	423	443	464	488	513	540																															
2	30	Pleasure Motorcycle - Other 500 cc or less	377	384	389	399	417	437	458	481	505	532																															
2	33	Pleasure Motorcycle - Other 500 cc or less	361	368	373	382	399	418	438	460	484	509																															
2	0	Pleasure Motorcycle - Other 501 to 1000 cc	885	900	913	935	978	1024	1073	1127	1184	1247																															
2	5	Pleasure Motorcycle - Other 501 to 1000 cc	841	855	867	888	929	973	1019	1071	1125	1185																															
2	10	Pleasure Motorcycle - Other 501 to 1000 cc	796	810	822	841	880	922	966	1014	1066	1122																															
2	15	Pleasure Motorcycle - Other 501 to 1000 cc	752	765	776	795	831	870	912	958	1006	1060																															
2	20	Pleasure Motorcycle - Other 501 to 1000 cc	708	720	730	748	782	819	858	902	947	998																															
2	25	Pleasure Motorcycle - Other 501 to 1000 cc	664	675	685	701	733	768	805	845	888	935																															
2	26	Pleasure Motorcycle - Other 501 to 1000 cc	655	666	676	692	724	758	794	834	876	923																															
2	27	Pleasure Motorcycle - Other 501 to 1000 cc	646	657	666	683	714	748	783	823	864	910																															
2	28	Pleasure Motorcycle - Other 501 to 1000 cc	637	648	657	673	704	737	773	811	852	898																															
2	29	Pleasure Motorcycle - Other 501 to 1000 cc	628	639	648	664	694	727	762	800	841	885																															
2	30	Pleasure Motorcycle - Other 501 to 1000 cc	619	630	639	654	685	717	751	789	829	873																															
2	33	Pleasure Motorcycle - Other 501 to 1000 cc	593	603	612	626	655	686	719	755	793	835																															
2	0	Pleasure Motorcycle - Other 1001 cc or more	946	963	976	1000	1046	1095	1148	1205	1267	1333																															
2	5	Pleasure Motorcycle - Other 1001 cc or more	899	915	927	950	994	1040	1091	1145	1204	1266																															
2	10	Pleasure Motorcycle - Other 1001 cc or more	851	867	878	900	941	985	1033	1084	1140	1200																															
2	15	Pleasure Motorcycle - Other 1001 cc or more	804	819	830	850	889	931	976	1024	1077	1133																															
2	20	Pleasure Motorcycle - Other 1001 cc or more	757	770	781	800	837	876	918	964	1014	1066																															
2	25	Pleasure Motorcycle - Other 1001 cc or more	709	722	732	750	784	821	861	904	950	1000																															
2	26	Pleasure Motorcycle - Other 1001 cc or more	700	713	722	740	774	810	850	892	938	986																															
2	27	Pleasure Motorcycle - Other 1001 cc or more	691	703	712	730	764	799	838	880	925	973																															
2	28	Pleasure Motorcycle - Other 1001 cc or more	681	693	703	720	753	788	827	868	912	960																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	29	Pleasure Motorcycle - Other 1001 cc or more	672	684	693	710	743	777	815	856	900	946																															
2	30	Pleasure Motorcycle - Other 1001 cc or more	662	674	683	700	732	766	804	843	887	933																															
2	33	Pleasure Motorcycle - Other 1001 cc or more	634	645	654	670	701	734	769	807	849	893																															
2	0	Pleasure Motorcycle - Sport 500 cc or less	784	798	809	829	867	908	951	998	1050	1105																															
2	5	Pleasure Motorcycle - Sport 500 cc or less	745	758	769	788	824	863	903	948	997	1050																															
2	10	Pleasure Motorcycle - Sport 500 cc or less	706	718	728	746	780	817	856	898	945	994																															
2	15	Pleasure Motorcycle - Sport 500 cc or less	666	678	688	705	737	772	808	848	892	939																															
2	20	Pleasure Motorcycle - Sport 500 cc or less	627	638	647	663	694	726	761	798	840	884																															
2	25	Pleasure Motorcycle - Sport 500 cc or less	588	598	607	622	650	681	713	748	787	829																															
2	26	Pleasure Motorcycle - Sport 500 cc or less	580	591	599	613	642	672	704	739	777	818																															
2	27	Pleasure Motorcycle - Sport 500 cc or less	572	583	591	605	633	663	694	729	766	807																															
2	28	Pleasure Motorcycle - Sport 500 cc or less	564	575	582	597	624	654	685	719	756	796																															
2	29	Pleasure Motorcycle - Sport 500 cc or less	557	567	574	589	616	645	675	709	745	785																															
2	30	Pleasure Motorcycle - Sport 500 cc or less	549	559	566	580	607	636	666	699	735	773																															
2	33	Pleasure Motorcycle - Sport 500 cc or less	525	535	542	555	581	608	637	669	703	740																															
2	0	Pleasure Motorcycle - Sport 501 to 1000 cc	1306	1329	1348	1380	1444	1512	1584	1663	1748	1840																															
2	5	Pleasure Motorcycle - Sport 501 to 1000 cc	1241	1263	1281	1311	1372	1436	1505	1580	1661	1748																															
2	10	Pleasure Motorcycle - Sport 501 to 1000 cc	1175	1196	1213	1242	1300	1361	1426	1497	1573	1656																															
2	15	Pleasure Motorcycle - Sport 501 to 1000 cc	1110	1130	1146	1173	1227	1285	1346	1414	1486	1564																															
2	20	Pleasure Motorcycle - Sport 501 to 1000 cc	1045	1063	1078	1104	1155	1210	1267	1330	1398	1472																															
2	25	Pleasure Motorcycle - Sport 501 to 1000 cc	979	997	1011	1035	1083	1134	1188	1247	1311	1380																															
2	26	Pleasure Motorcycle - Sport 501 to 1000 cc	966	983	998	1021	1069	1119	1172	1231	1294	1362																															
2	27	Pleasure Motorcycle - Sport 501 to 1000 cc	953	970	984	1007	1054	1104	1156	1214	1276	1343																															
2	28	Pleasure Motorcycle - Sport 501 to 1000 cc	940	957	971	994	1040	1089	1140	1197	1259	1325																															
2	29	Pleasure Motorcycle - Sport 501 to 1000 cc	927	944	957	980	1025	1074	1125	1181	1241	1306																															
2	30	Pleasure Motorcycle - Sport 501 to 1000 cc	914	930	944	966	1011	1058	1109	1164	1224	1288																															
2	33	Pleasure Motorcycle - Sport 501 to 1000 cc	875	890	903	925	967	1013	1061	1114	1171	1233																															
2	0	Pleasure Motorcycle - Sport 1001 cc or more	1601	1629	1651	1692	1769	1853	1941	2038	2143	2255																															
2	5	Pleasure Motorcycle - Sport 1001 cc or more	1521	1548	1568	1607	1681	1760	1844	1936	2036	2142																															
2	10	Pleasure Motorcycle - Sport 1001 cc or more	1441	1466	1486	1523	1592	1668	1747	1834	1929	2029																															
2	15	Pleasure Motorcycle - Sport 1001 cc or more	1361	1385	1403	1438	1504	1575	1650	1732	1822	1917																															
2	20	Pleasure Motorcycle - Sport 1001 cc or more	1281	1303	1321	1354	1415	1482	1553	1630	1714	1804																															
2	25	Pleasure Motorcycle - Sport 1001 cc or more	1201	1222	1238	1269	1327	1390	1456	1528	1607	1691																															
2	26	Pleasure Motorcycle - Sport 1001 cc or more	1185	1205	1222	1252	1309	1371	1436	1508	1586	1669																															
2	27	Pleasure Motorcycle - Sport 1001 cc or more	1169	1189	1205	1235	1291	1353	1417	1488	1564	1646																															
2	28	Pleasure Motorcycle - Sport 1001 cc or more	1153	1173	1189	1218	1274	1334	1398	1467	1543	1624																															
2	29	Pleasure Motorcycle - Sport 1001 cc or more	1137	1157	1172	1201	1256	1316	1378	1447	1522	1601																															
2	30	Pleasure Motorcycle - Sport 1001 cc or more	1121	1140	1156	1184	1238	1297	1359	1427	1500	1578																															
2	33	Pleasure Motorcycle - Sport 1001 cc or more	1073	1091	1106	1134	1185	1242	1300	1365	1436	1511																															
2	0	Pleasure Motorcycle - Sport Touring 500 cc or less	513	522	529	542	567	594	622	653	687	723																															
2	5	Pleasure Motorcycle - Sport Touring 500 cc or less	487	496	503	515	539	564	591	620	653	687																															
2	10	Pleasure Motorcycle - Sport Touring 500 cc or less	462	470	476	488	510	535	560	588	618	651																															
2	15	Pleasure Motorcycle - Sport Touring 500 cc or less	436	444	450	461	482	505	529	555	584	615																															
2	20	Pleasure Motorcycle - Sport Touring 500 cc or less	410	418	423	434	454	475	498	522	550	578																															
2	25	Pleasure Motorcycle - Sport Touring 500 cc or less	385	391	397	406	425	445	466	490	515	542																															
2	26	Pleasure Motorcycle - Sport Touring 500 cc or less	380	386	391	401	420	440	460	483	508	535																															
2	27	Pleasure Motorcycle - Sport Touring 500 cc or less	374	381	386	396	414	434	454	477	502	528																															
2	28	Pleasure Motorcycle - Sport Touring 500 cc or less	369	376	381	390	408	428	448	470	495	521																															
2	29	Pleasure Motorcycle - Sport Touring 500 cc or less	364	371	376	385	403	422	442	464	488	513																															
2	30	Pleasure Motorcycle - Sport Touring 500 cc or less	359	365	370	379	397	416	435	457	481	506																															
2	33	Pleasure Motorcycle - Sport Touring 500 cc or less	344	350	354	363	380	398	417	438	460	484																															
2	0	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	928	944	957	980	1025	1074	1125	1181	1242	1307																															
2	5	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	882	897	909	931	974	1020	1069	1122	1180	1242																															
2	10	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	835	850	861	882	922	967	1012	1063	1118	1176																															
2	15	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	789	802	813	833	871	913	956	1004	1056	1111																															
2	20	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	742	755	766	784	820	859	900	945	994	1046																															
2	25	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	696	708	718	735	769	805	844	886	931	980																															
2	26	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	687	699	708	725	758	795	832	874	919	967																															
2	27	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	677	689	699	715	748	784	821	862	907	954																															
2	28	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	668	680	689	706	738	773	810	850	894	941																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	29	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	659	670	679	696	728	763	799	839	882	928																															
2	30	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	650	661	670	686	717	752	787	827	869	915																															
2	33	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	622	632	641	657	687	720	754	791	832	876																															
2	0	Pleasure Motorcycle - Sport Touring 1001 cc or more	1042	1060	1075	1101	1152	1206	1264	1327	1395	1468																															
2	5	Pleasure Motorcycle - Sport Touring 1001 cc or more	990	1007	1021	1046	1094	1146	1201	1261	1325	1395																															
2	10	Pleasure Motorcycle - Sport Touring 1001 cc or more	938	954	967	991	1037	1085	1138	1194	1255	1321																															
2	15	Pleasure Motorcycle - Sport Touring 1001 cc or more	886	901	914	936	979	1025	1074	1128	1186	1248																															
2	20	Pleasure Motorcycle - Sport Touring 1001 cc or more	834	848	860	881	922	965	1011	1062	1116	1174																															
2	25	Pleasure Motorcycle - Sport Touring 1001 cc or more	781	795	806	826	864	904	948	995	1046	1101																															
2	26	Pleasure Motorcycle - Sport Touring 1001 cc or more	771	784	795	815	852	892	935	982	1032	1086																															
2	27	Pleasure Motorcycle - Sport Touring 1001 cc or more	761	774	785	804	841	880	923	969	1018	1072																															
2	28	Pleasure Motorcycle - Sport Touring 1001 cc or more	750	763	774	793	829	868	910	955	1004	1057																															
2	29	Pleasure Motorcycle - Sport Touring 1001 cc or more	740	753	763	782	818	856	897	942	990	1042																															
2	30	Pleasure Motorcycle - Sport Touring 1001 cc or more	729	742	752	771	806	844	885	929	976	1028																															
2	33	Pleasure Motorcycle - Sport Touring 1001 cc or more	698	710	720	738	772	808	847	889	935	984																															
2	0	Pleasure Motorcycle - Touring 500 cc or less	458	465	472	483	506	529	555	582	612	644																															
2	5	Pleasure Motorcycle - Touring 500 cc or less	435	442	448	459	481	503	527	553	581	612																															
2	10	Pleasure Motorcycle - Touring 500 cc or less	412	418	425	435	455	476	499	524	551	580																															
2	15	Pleasure Motorcycle - Touring 500 cc or less	389	395	401	411	430	450	472	495	520	547																															
2	20	Pleasure Motorcycle - Touring 500 cc or less	366	372	378	386	405	423	444	466	490	515																															
2	25	Pleasure Motorcycle - Touring 500 cc or less	343	349	354	362	379	397	416	436	459	483																															
2	26	Pleasure Motorcycle - Touring 500 cc or less	339	344	349	357	374	391	411	431	453	477																															
2	27	Pleasure Motorcycle - Touring 500 cc or less	334	339	345	353	369	386	405	425	447	470																															
2	28	Pleasure Motorcycle - Touring 500 cc or less	330	335	340	348	364	381	400	419	441	464																															
2	29	Pleasure Motorcycle - Touring 500 cc or less	325	330	335	343	359	376	394	413	435	457																															
2	30	Pleasure Motorcycle - Touring 500 cc or less	321	325	330	338	354	370	388	407	428	451																															
2	33	Pleasure Motorcycle - Touring 500 cc or less	307	312	316	324	339	354	372	390	410	431																															
2	0	Pleasure Motorcycle - Touring 501 to 1000 cc	829	843	855	876	916	959	1005	1055	1109	1168																															
2	5	Pleasure Motorcycle - Touring 501 to 1000 cc	788	801	812	832	870	911	955	1002	1054	1110																															
2	10	Pleasure Motorcycle - Touring 501 to 1000 cc	746	759	769	788	824	863	904	949	998	1051																															
2	15	Pleasure Motorcycle - Touring 501 to 1000 cc	705	717	727	745	779	815	854	897	943	993																															
2	20	Pleasure Motorcycle - Touring 501 to 1000 cc	663	674	684	701	733	767	804	844	887	934																															
2	25	Pleasure Motorcycle - Touring 501 to 1000 cc	622	632	641	657	687	719	754	791	832	876																															
2	26	Pleasure Motorcycle - Touring 501 to 1000 cc	613	624	633	648	678	710	744	781	821	864																															
2	27	Pleasure Motorcycle - Touring 501 to 1000 cc	605	615	624	639	669	700	734	770	810	853																															
2	28	Pleasure Motorcycle - Touring 501 to 1000 cc	597	607	616	631	660	690	724	760	798	841																															
2	29	Pleasure Motorcycle - Touring 501 to 1000 cc	589	599	607	622	650	681	714	749	787	829																															
2	30	Pleasure Motorcycle - Touring 501 to 1000 cc	580	590	598	613	641	671	703	738	776	818																															
2	33	Pleasure Motorcycle - Touring 501 to 1000 cc	555	565	573	587	614	643	673	707	743	783																															
2	0	Pleasure Motorcycle - Touring 1001 cc or more	900	916	929	951	995	1042	1092	1146	1205	1268																															
2	5	Pleasure Motorcycle - Touring 1001 cc or more	855	870	883	903	945	990	1037	1089	1145	1205																															
2	10	Pleasure Motorcycle - Touring 1001 cc or more	810	824	836	856	895	938	983	1031	1084	1141																															
2	15	Pleasure Motorcycle - Touring 1001 cc or more	765	779	790	808	846	886	928	974	1024	1078																															
2	20	Pleasure Motorcycle - Touring 1001 cc or more	720	733	743	761	796	834	874	917	964	1014																															
2	25	Pleasure Motorcycle - Touring 1001 cc or more	675	687	697	713	746	781	819	859	904	951																															
2	26	Pleasure Motorcycle - Touring 1001 cc or more	666	678	687	704	736	771	808	848	892	938																															
2	27	Pleasure Motorcycle - Touring 1001 cc or more	657	669	678	694	726	761	797	837	880	926																															
2	28	Pleasure Motorcycle - Touring 1001 cc or more	648	660	669	685	716	750	786	825	868	913																															
2	29	Pleasure Motorcycle - Touring 1001 cc or more	639	650	660	675	706	740	775	814	856	900																															
2	30	Pleasure Motorcycle - Touring 1001 cc or more	630	641	650	666	696	729	764	802	843	888																															
2	33	Pleasure Motorcycle - Touring 1001 cc or more	603	614	622	637	667	698	732	768	807	850																															
2	0	Pleasure Motorhome	444	547	666	777	883	982	1086	1175	1272	1335	1445																															
2	5	Pleasure Motorhome	422	520	633	738	839	933	1032	1116	1208	1268	1373																															
2	10	Pleasure Motorhome	400	492	599	699	795	884	977	1057	1145	1201	1300																															
2	15	Pleasure Motorhome	377	465	566	660	751	835	923	999	1081	1135	1228																															
2	20	Pleasure Motorhome	355	438	533	622	706	786	869	940	1018	1068	1156																															
2	25	Pleasure Motorhome	333	410	499	583	662	736	814	881	954	1001	1084																															
2	26	Pleasure Motorhome	329	405	493	575	653	727	804	869	941	988	1069																															
2	27	Pleasure Motorhome	324	399	486	567	645	717	793	858	929	975	1055																															
2	28	Pleasure Motorhome	320	394	480	559	636	707	782	846	916	961	1040																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	29	Pleasure Motorhome	315	388	473	552	627	697	771	834	903	948	1026																														
2	30	Pleasure Motorhome	311	383	466	544	618	687	760	822	890	934	1011																														
2	33	Pleasure Motorhome	297	366	446	521	592	658	728	787	852	894	968																														
2	0	Pleasure Passenger Vehicle	526	567	587	606	625	644	663	681	700	719	736	744	767	793	823	857	893	928	966	1002	1040	1078	1113	1151	1189	1230	1270	1309	1350	1390	1429	1467	1504	1541	1575	1619	1658	1697	1736	1774	1813
2	5	Pleasure Passenger Vehicle	500	539	558	576	594	612	630	647	665	683	699	707	729	753	782	814	848	882	918	952	988	1024	1057	1093	1130	1168	1206	1244	1282	1320	1358	1394	1429	1464	1496	1538	1575	1612	1649	1685	1722
2	10	Pleasure Passenger Vehicle	473	510	528	545	562	580	597	613	630	647	662	670	690	714	741	771	804	835	869	902	936	970	1002	1036	1070	1107	1143	1178	1215	1251	1286	1320	1354	1387	1417	1457	1492	1527	1562	1597	1632
2	15	Pleasure Passenger Vehicle	447	482	499	515	531	547	564	579	595	611	626	632	652	674	700	728	759	789	821	852	884	916	946	978	1011	1045	1079	1113	1147	1181	1215	1247	1278	1310	1339	1376	1409	1442	1476	1508	1541
2	20	Pleasure Passenger Vehicle	421	454	470	485	500	515	530	545	560	575	589	595	614	634	658	686	714	742	773	802	832	862	890	921	951	984	1016	1047	1080	1112	1143	1174	1203	1233	1260	1295	1326	1358	1389	1419	1450
2	25	Pleasure Passenger Vehicle	394	425	440	454	469	483	497	511	525	539	552	558	575	595	617	643	670	696	724	751	780	808	835	863	892	922	952	982	1012	1042	1072	1100	1128	1156	1181	1214	1243	1273	1302	1330	1360
2	26	Pleasure Passenger Vehicle	389	420	434	448	462	477	491	504	518	532	545	551	568	587	609	634	661	687	715	741	770	798	824	852	880	910	940	969	999	1029	1057	1086	1113	1140	1165	1198	1227	1256	1285	1313	1342
2	27	Pleasure Passenger Vehicle	384	414	429	442	456	470	484	497	511	525	537	543	560	579	601	626	652	677	705	731	759	787	812	840	868	898	927	956	985	1015	1043	1071	1098	1125	1150	1182	1210	1239	1267	1295	1323
2	28	Pleasure Passenger Vehicle	379	408	423	436	450	464	477	490	504	518	530	536	552	571	593	617	643	668	696	721	749	776	801	829	856	886	914	942	972	1001	1029	1056	1083	1110	1134	1166	1194	1222	1250	1277	1305
2	29	Pleasure Passenger Vehicle	373	403	417	430	444	457	471	484	497	510	523	528	545	563	584	608	634	659	686	711	738	765	790	817	844	873	902	929	958	987	1015	1042	1068	1094	1118	1149	1177	1205	1233	1260	1287
2	30	Pleasure Passenger Vehicle	368	397	411	424	437	451	464	477	490	503	515	521	537	555	576	600	625	650	676	701	728	755	779	806	832	861	889	916	945	973	1000	1027	1053	1079	1102	1133	1161	1188	1215	1242	1269
2	33	Pleasure Passenger Vehicle	352	380	393	406	419	431	444	456	469	482	493	498	514	531	551	574	598	622	647	671	697	722	746	771	797	824	851	877	904	931	957	983	1008	1032	1055	1085	1111	1137	1163	1189	1215
2	0	Pleasure Truck 4,540 kg or less GVW	443	493	521	540	552	565	579	593	607	620	641	659	677	695	714	736	754	775	795	817	845	876	910	943	976	1013	1046	1094	1129	1173	1230	1279	1329	1380	1426	1493	1548	1605	1663	1722	1783
2	5	Pleasure Truck 4,540 kg or less GVW	421	468	495	513	524	537	550	563	577	589	609	626	643	660	678	699	716	736	755	776	803	832	864	896	927	962	994	1039	1073	1114	1168	1215	1263	1311	1355	1418	1471	1525	1580	1636	1694
2	10	Pleasure Truck 4,540 kg or less GVW	399	444	469	486	497	508	521	534	546	558	577	593	609	625	643	662	679	697	715	735	760	788	819	849	878	912	941	985	1016	1056	1107	1151	1196	1242	1283	1344	1393	1444	1497	1550	1605
2	15	Pleasure Truck 4,540 kg or less GVW	377	419	443	459	469	480	492	504	516	527	545	560	575	591	607	626	641	659	676	694	718	745	773	802	830	861	889	930	960	997	1045	1087	1130	1173	1212	1269	1316	1364	1414	1464	1516
2	20	Pleasure Truck 4,540 kg or less GVW	354	394	417	432	442	452	463	474	486	496	513	527	542	556	571	589	603	620	636	654	676	701	728	754	781	810	837	875	903	938	984	1023	1063	1104	1141	1194	1238	1284	1330	1378	1426
2	25	Pleasure Truck 4,540 kg or less GVW	332	370	391	405	414	424	434	445	455	465	481	494	508	521	535	552	565	581	596	613	634	657	682	707	732	760	784	820	847	880	922	959	997	1035	1069	1120	1161	1204	1247	1291	1337
2	26	Pleasure Truck 4,540 kg or less GVW	328	365	386	400	408	418	428	439	449	459	474	488	501	514	528	545	558	573	588	605	625	648	673	698	722	750	774	810	835	868	910	946	983	1021	1055	1105	1146	1188	1231	1274	1319
2	27	Pleasure Truck 4,540 kg or less GVW	323	360	380	394	403	412	423	433	443	453	468	481	494	507	521	537	550	566	580	596	617	639	664	688	712	739	764	799	824	856	898	934	970	1007	1041	1090	1130	1172	1214	1257	1302
2	28	Pleasure Truck 4,540 kg or less GVW	319	355	375	389	397	407	417	427	437	446	462	474	487	500	514	530	543	558	572	588	608	631	655	679	703	729	753	788	813	845	886	921	957	994	1027	1075	1115	1156	1197	1240	1284
2	29	Pleasure Truck 4,540 kg or less GVW	315	350	370	383	392	401	411	421	431	440	455	468	481	493	507	523	535	550	564	580	600	622	646	670	693	719	743	777	802	833	873	908	944	980	1012	1060	1099	1140	1181	1223	1266
2	30	Pleasure Truck 4,540 kg or less GVW	310	345	365	378	386	395	405	415	425	434	449	461	474	486	500	515	528	542	556	572	591	613	637	660	683	709	732	766	790	821	861	895	930	966	998	1045	1084	1123	1164	1205	1248
2	33	Pleasure Truck 4,540 kg or less GVW	297	330	349	362	370	379	388	397	407	415	429	442	454	466	478	493	505	519	533	547	566	587	610	632	654	679	701	733	756	786	824	857	890	925	955	1000	1037	1075	1114	1154	1195
2	0	Police/Emergency Passenger Vehicle	645	695	720	743	767	790	813	835	859	881	902	912	941	973	1009	1051	1095	1138	1185	1229	1276	1322	1366	1412	1458	1509	1558	1606	1655	1704	1753	1800	1845	1890	1932	1985	2033	2081	2129	2176	2224
2	0	Police/Emergency Truck 4,540 kg or less GVW	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899	899
2	0	Police/Emergency Truck 4,541 to 16,330 kg GVW		525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525	525																								
2	0	Police/Emergency Truck 16,331 kg or more GVW		504	504	504	504	504	504	504	504	504	504	504	504	504	504	504	504	504																								
2	0	Repairer	251																																									
2	0	Sand/Gravel Truck 10,891 to 16,330 kg GVW		602	696	755	814	873	935	994	1053	1112	1172	1233	1293	1353	1416	1478	1529	1590																								
2	0	Sand/Gravel Truck 16,331 kg or more GVW		702	702	702	702	702	702	702	702	702	702	702	702	702	702	702	702	702																								
2	0	School Bus 20 seats or less	220	227	240	252	265	278	291	304	318	330	343	356	369	382																												
2	0	School Bus 21 to 35 seats	244	252	266	279	294	308	322	336	352	366	380	395	409	424																												
2	0	School Bus 36 to 50 seats	272	280	296	311	327	343	359	375	392	408	424	440	456	472																												
2	0	School Bus 51 seats or more	293	302	318	335	353	369	386	403	422	439	456	473	491	508																												
2	0	Taxicab Vehicle-for-Hire 1	2520																																									
2	5	Taxicab Vehicle-for-Hire 1	2394																																								
2	10	Taxicab Vehicle-for-Hire 1	2268																																								
2	15	Taxicab Vehicle-for-Hire 1	2142																																								
2	20	Taxicab Vehicle-for-Hire 1	2016																																								
2	25	Taxicab Vehicle-for-Hire 1	1890																																								
2	26	Taxicab Vehicle-for-Hire 1	1865																																								
2	27	Taxicab Vehicle-for-Hire 1	1840																																								
2	28	Taxicab Vehicle-for-Hire 1	1814																																								
2	29	Taxicab Vehicle-for-Hire 1	1789																																								
2	30	Taxicab Vehicle-for-Hire 1	1764																																								
2	33	Taxicab Vehicle-for-Hire 1	1688																																								
2	0	Taxicab Vehicle-for-Hire 2	3395																																								
2	5	Taxicab Vehicle-for-Hire 2	3225																																								
2	10	Taxicab Vehicle-for-Hire 2	3055																																								
2	15	Taxicab Vehicle-for-Hire 2	2886																																								
2	20	Taxicab Vehicle-for-Hire 2	2716																																								
2	25	Taxicab Vehicle-for-Hire 2	2546																																								
2	26	Taxicab Vehicle-for-Hire 2	2512																																								
2	27	Taxicab Vehicle-for-Hire 2	2478																																								
2	28	Taxicab Vehicle-for-Hire 2	2444																																								
2	29	Taxicab Vehicle-for-Hire 2	2410																																								

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	30	Taxicab Vehicle-for-Hire 2	2376																																								
2	33	Taxicab Vehicle-for-Hire 2	2275																																								
2	0	Taxicab Vehicle-for-Hire 3	4269																																								
2	5	Taxicab Vehicle-for-Hire 3	4056																																								
2	10	Taxicab Vehicle-for-Hire 3	3842																																								
2	15	Taxicab Vehicle-for-Hire 3	3629																																								
2	20	Taxicab Vehicle-for-Hire 3	3415																																								
2	25	Taxicab Vehicle-for-Hire 3	3202																																								
2	26	Taxicab Vehicle-for-Hire 3	3159																																								
2	27	Taxicab Vehicle-for-Hire 3	3116																																								
2	28	Taxicab Vehicle-for-Hire 3	3074																																								
2	29	Taxicab Vehicle-for-Hire 3	3031																																								
2	30	Taxicab Vehicle-for-Hire 3	2988																																								
2	33	Taxicab Vehicle-for-Hire 3	2860																																								
2	0	Taxicab Vehicle-for-Hire 4	5144																																								
2	5	Taxicab Vehicle-for-Hire 4	4887																																								
2	10	Taxicab Vehicle-for-Hire 4	4630																																								
2	15	Taxicab Vehicle-for-Hire 4	4372																																								
2	20	Taxicab Vehicle-for-Hire 4	4115																																								
2	25	Taxicab Vehicle-for-Hire 4	3858																																								
2	26	Taxicab Vehicle-for-Hire 4	3807																																								
2	27	Taxicab Vehicle-for-Hire 4	3755																																								
2	28	Taxicab Vehicle-for-Hire 4	3704																																								
2	29	Taxicab Vehicle-for-Hire 4	3652																																								
2	30	Taxicab Vehicle-for-Hire 4	3601																																								
2	33	Taxicab Vehicle-for-Hire 4	3446																																								
2	0	Tow Truck 4,540 kg or less GVW	757	842	890	922	944	966	990	1014	1038	1060	1096	1127	1158	1188	1221	1258	1289	1324	1359	1397	1445	1497	1555	1611	1669	1731	1788	1871	1929	2005	2102	2186	2272	2359	2437	2542	2614	2686	2758	2820	2867
2	0	Tow Truck 4,541 to 16,330 kg GVW		834	963	1045	1127	1208	1294	1376	1458	1539	1623	1707	1790	1873	1959	2045	2117	2202																							
2	0	Tow Truck 16,331 kg or more GVW		905	905	905	905	905	905	905	905	905	905	905	905	905	905	905	905	905																							
2	0	Transit Bus 20 seats or less	825	851	897	943	993	1041	1089	1136	1189	1237	1285	1334	1383	1432																												
2	0	Transit Bus 21 to 35 seats	883	910	960	1009	1063	1114	1165	1216	1272	1323	1375	1428	1480	1532																												
2	0	Transit Bus 36 to 50 seats	941	971	1023	1076	1133	1188	1242	1297	1357	1411	1467	1522	1578	1634																												
2	0	Transit Bus 51 seats or more	1028	1060	1118	1176	1238	1297	1357	1416	1482	1541	1602	1663	1723	1785																												
2	0	U Drive Bus	1063																																								
2	0	U Drive Moped	516	525	532	545	570	597	626	657	690	727																																
2	0	U Drive Motorhome	1029																																								
2	0	U Drive Passenger Vehicle	417	449	465	480	495	510	525	539	555	569	583	589	607	628	652	679	707	735	765	794	824	854	882	912	942	974	1006	1037	1069	1101	1132	1162	1191	1221	1248	1282	1313	1344	1375	1405	1436
2	0	U Drive Truck 4,540 kg or less GVW	397	442	467	484	496	507	520	532	545	557	575	592	608	624	641	661	677	696	714	734	759	786	817	846	877	909	939	983	1013	1053	1104	1148	1193	1239	1280	1340	1390	1440	1493	1546	1601
2	0	U Drive Truck 4,541 to 16,330 kg GVW		376	434	471	508	545	584	621	657	694	732	770	807	844	883	922	954	993																							
2	0	U Drive Truck 16,331 kg or more GVW		408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408	408																							
3	0	Accessible Vehicle-for-Hire 1	741	764	806	847	892	935	978	1021	1068	1111	1155	1199	1242	1287																												
3	5	Accessible Vehicle-for-Hire 1	704	726	766	805	847	888	929	970	1015	1055	1097	1139	1180	1223																												
3	10	Accessible Vehicle-for-Hire 1	667	688	725	762	803	841	880	919	961	1000	1039	1079	1118	1158																												
3	15	Accessible Vehicle-for-Hire 1	630	649	685	720	758	795	831	868	908	944	982	1019	1056	1094																												
3	20	Accessible Vehicle-for-Hire 1	593	611	645	678	714	748	782	817	854	889	924	959	994	1030																												
3	25	Accessible Vehicle-for-Hire 1	556	573	604	635	669	701	733	766	801	833	866	899	931	965																												
3	26	Accessible Vehicle-for-Hire 1	548	565	596	627	660	692	724	756	790	822	855	887	919	952																												
3	27	Accessible Vehicle-for-Hire 1	541	558	588	618	651	683	714	745	780	811	843	875	907	940																												
3	28	Accessible Vehicle-for-Hire 1	534	550	580	610	642	673	704	735	769	800	832	863	894	927																												
3	29	Accessible Vehicle-for-Hire 1	526	542	572	601	633	664	694	725	758	789	820	851	882	914																												
3	30	Accessible Vehicle-for-Hire 1	519	535	564	593	624	654	685	715	748	778	808	839	869	901																												
3	33	Accessible Vehicle-for-Hire 1	496	512	540	567	598	626	655	684	716	744	774	803	832	862																												
3	0	Accessible Vehicle-for-Hire 2	781	806	850	894	941	986	1031	1077	1126	1172	1218	1264	1310	1357																												
3	5	Accessible Vehicle-for-Hire 2	742	766	807	849	894	937	979	1023	1070	1113	1157	1201	1244	1289																												
3	10	Accessible Vehicle-for-Hire 2	703	725	765	805	847	887	928	969	1013	1055	1096	1138	1179	1221																												
3	15	Accessible Vehicle-for-Hire 2	664	685	722	760	800	838	876	915	957	996	1035	1074	1113	1153																												
3	20	Accessible Vehicle-for-Hire 2	625	645	680	715	753	789	825	862	901	938	974	1011	1048	1086																												
3	25	Accessible Vehicle-for-Hire 2	586	604	637	670	706	739	773	808	844	879	913	948	982	1018																												
3	26	Accessible Vehicle-for-Hire 2	578	596	629	662	696	730	763	797	833	867	901	935	969	1004																												
3	27	Accessible Vehicle-for-Hire 2	570	588	620	653	687	720	753	786	822	856	889	923	956	991																												

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	Accessible Vehicle-for-Hire 2	562	580	612	644	678	710	742	775	811	844	877	910	943	977																													
3	29	Accessible Vehicle-for-Hire 2	555	572	603	635	668	700	732	765	799	832	865	897	930	963																													
3	30	Accessible Vehicle-for-Hire 2	547	564	595	626	659	690	722	754	788	820	853	885	917	950																													
3	33	Accessible Vehicle-for-Hire 2	523	540	569	599	630	661	691	722	754	785	816	847	878	909																													
3	0	Accessible Vehicle-for-Hire 3	813	838	884	929	979	1026	1073	1120	1171	1218	1266	1314	1362	1411																													
3	5	Accessible Vehicle-for-Hire 3	772	796	840	883	930	975	1019	1064	1112	1157	1203	1248	1294	1340																													
3	10	Accessible Vehicle-for-Hire 3	732	754	796	836	881	923	966	1008	1054	1096	1139	1183	1226	1270																													
3	15	Accessible Vehicle-for-Hire 3	691	712	751	790	832	872	912	952	995	1035	1076	1117	1158	1199																													
3	20	Accessible Vehicle-for-Hire 3	650	670	707	743	783	821	858	896	937	974	1013	1051	1090	1129																													
3	25	Accessible Vehicle-for-Hire 3	610	628	663	697	734	769	805	840	878	913	949	985	1021	1058																													
3	26	Accessible Vehicle-for-Hire 3	602	620	654	687	724	759	794	829	867	901	937	972	1008	1044																													
3	27	Accessible Vehicle-for-Hire 3	593	612	645	678	715	749	783	818	855	889	924	959	994	1030																													
3	28	Accessible Vehicle-for-Hire 3	585	603	636	669	705	739	773	806	843	877	912	946	981	1016																													
3	29	Accessible Vehicle-for-Hire 3	577	595	628	660	695	728	762	795	831	865	899	933	967	1002																													
3	30	Accessible Vehicle-for-Hire 3	569	587	619	650	685	718	751	784	820	853	886	920	953	988																													
3	33	Accessible Vehicle-for-Hire 3	545	561	592	622	656	687	719	750	785	816	848	880	913	945																													
3	0	Accessible Vehicle-for-Hire 4	853	880	927	975	1027	1077	1126	1175	1230	1279	1329	1380	1430	1481																													
3	5	Accessible Vehicle-for-Hire 4	810	836	881	926	976	1023	1070	1116	1168	1215	1263	1311	1358	1407																													
3	10	Accessible Vehicle-for-Hire 4	768	792	834	877	924	969	1013	1057	1107	1151	1196	1242	1287	1333																													
3	15	Accessible Vehicle-for-Hire 4	725	748	788	829	873	915	957	999	1045	1087	1130	1173	1215	1259																													
3	20	Accessible Vehicle-for-Hire 4	682	704	742	780	822	862	901	940	984	1023	1063	1104	1144	1185																													
3	25	Accessible Vehicle-for-Hire 4	640	660	695	731	770	808	844	881	922	959	997	1035	1072	1111																													
3	26	Accessible Vehicle-for-Hire 4	631	651	686	721	760	797	833	869	910	946	983	1021	1058	1096																													
3	27	Accessible Vehicle-for-Hire 4	623	642	677	712	750	786	822	858	898	934	970	1007	1044	1081																													
3	28	Accessible Vehicle-for-Hire 4	614	634	667	702	739	775	811	846	886	921	957	994	1030	1066																													
3	29	Accessible Vehicle-for-Hire 4	606	625	658	692	729	765	799	834	873	908	944	980	1015	1052																													
3	30	Accessible Vehicle-for-Hire 4	597	616	649	682	719	754	788	822	861	895	930	966	1001	1037																													
3	33	Accessible Vehicle-for-Hire 4	572	590	621	653	688	722	754	787	824	857	890	925	958	992																													
3	0	All Purpose Mobility Vehicle	65	66	67	69	72	75	79	83	87	92																															
3	5	All Purpose Mobility Vehicle	62	63	64	66	68	71	75	79	83	87																															
3	10	All Purpose Mobility Vehicle	58	59	60	62	65	67	71	75	78	83																															
3	15	All Purpose Mobility Vehicle	55	56	57	59	61	64	67	71	74	78																															
3	20	All Purpose Mobility Vehicle	52	53	54	55	58	60	63	66	70	74																															
3	25	All Purpose Mobility Vehicle	49	49	50	52	54	56	59	62	65	69																															
3	26	All Purpose Mobility Vehicle	48	49	50	51	53	55	58	61	64	68																															
3	27	All Purpose Mobility Vehicle	47	48	49	50	53	55	58	61	64	67																															
3	28	All Purpose Mobility Vehicle	47	48	48	50	52	54	57	60	63	66																															
3	29	All Purpose Mobility Vehicle	46	47	48	49	51	53	56	59	62	65																															
3	30	All Purpose Mobility Vehicle	45	46	47	48	50	52	55	58	61	64																															
3	33	All Purpose Mobility Vehicle	44	44	45	46	48	50	53	56	58	62																															
3	0	All Purpose Moped	398	404	410	420	439	460	482	506	532	560																															
3	5	All Purpose Moped	378	384	389	399	417	437	458	481	505	532																															
3	10	All Purpose Moped	358	364	369	378	395	414	434	455	479	504																															
3	15	All Purpose Moped	338	343	348	357	373	391	410	430	452	476																															
3	20	All Purpose Moped	318	323	328	336	351	368	386	405	426	448																															
3	25	All Purpose Moped	298	303	307	315	329	345	361	379	399	420																															
3	26	All Purpose Moped	295	299	303	311	325	340	357	374	394	414																															
3	27	All Purpose Moped	291	295	299	307	320	336	352	369	388	409																															
3	28	All Purpose Moped	287	291	295	302	316	331	347	364	383	403																															
3	29	All Purpose Moped	283	287	291	298	312	327	342	359	378	398																															
3	30	All Purpose Moped	279	283	287	294	307	322	337	354	372	392																															
3	33	All Purpose Moped	267	271	275	281	294	308	323	339	356	375																															
3	0	All Purpose Motorcycle - Motorscooter 500 cc or less	398	404	410	420	439	460	482	506	532	560																															
3	5	All Purpose Motorcycle - Motorscooter 500 cc or less	378	384	389	399	417	437	458	481	505	532																															
3	10	All Purpose Motorcycle - Motorscooter 500 cc or less	358	364	369	378	395	414	434	455	479	504																															
3	15	All Purpose Motorcycle - Motorscooter 500 cc or less	338	343	348	357	373	391	410	430	452	476																															
3	20	All Purpose Motorcycle - Motorscooter 500 cc or less	318	323	328	336	351	368	386	405	426	448																															
3	25	All Purpose Motorcycle - Motorscooter 500 cc or less	298	303	307	315	329	345	361	379	399	420																															
3	26	All Purpose Motorcycle - Motorscooter 500 cc or less	295	299	303	311	325	340	357	374	394	414																															
3	27	All Purpose Motorcycle - Motorscooter 500 cc or less	291	295	299	307	320	336	352	369	388	409																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	All Purpose Motorcycle - Motorscooter 500 cc or less	287	291	295	302	316	331	347	364	383	403																															
3	29	All Purpose Motorcycle - Motorscooter 500 cc or less	283	287	291	298	312	327	342	359	378	398																															
3	30	All Purpose Motorcycle - Motorscooter 500 cc or less	279	283	287	294	307	322	337	354	372	392																															
3	33	All Purpose Motorcycle - Motorscooter 500 cc or less	267	271	275	281	294	308	323	339	356	375																															
3	0	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	534	543	550	564	590	618	647	679	714	752																															
3	5	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	507	516	522	536	560	587	615	645	678	714																															
3	10	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	481	489	495	508	531	556	582	611	643	677																															
3	15	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	454	462	467	479	501	525	550	577	607	639																															
3	20	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	427	434	440	451	472	494	518	543	571	602																															
3	25	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	400	407	412	423	442	463	485	509	535	564																															
3	26	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	395	402	407	417	437	457	479	502	528	556																															
3	27	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	390	396	401	412	431	451	472	496	521	549																															
3	28	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	384	391	396	406	425	445	466	489	514	541																															
3	29	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	379	386	390	400	419	439	459	482	507	534																															
3	30	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	374	380	385	395	413	433	453	475	500	526																															
3	33	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	358	364	368	378	395	414	433	455	478	504																															
3	0	All Purpose Motorcycle - Motorscooter 1001 cc or more	534	543	550	564	590	618	647	679	714	752																															
3	5	All Purpose Motorcycle - Motorscooter 1001 cc or more	507	516	522	536	560	587	615	645	678	714																															
3	10	All Purpose Motorcycle - Motorscooter 1001 cc or more	481	489	495	508	531	556	582	611	643	677																															
3	15	All Purpose Motorcycle - Motorscooter 1001 cc or more	454	462	467	479	501	525	550	577	607	639																															
3	20	All Purpose Motorcycle - Motorscooter 1001 cc or more	427	434	440	451	472	494	518	543	571	602																															
3	25	All Purpose Motorcycle - Motorscooter 1001 cc or more	400	407	412	423	442	463	485	509	535	564																															
3	26	All Purpose Motorcycle - Motorscooter 1001 cc or more	395	402	407	417	437	457	479	502	528	556																															
3	27	All Purpose Motorcycle - Motorscooter 1001 cc or more	390	396	401	412	431	451	472	496	521	549																															
3	28	All Purpose Motorcycle - Motorscooter 1001 cc or more	384	391	396	406	425	445	466	489	514	541																															
3	29	All Purpose Motorcycle - Motorscooter 1001 cc or more	379	386	390	400	419	439	459	482	507	534																															
3	30	All Purpose Motorcycle - Motorscooter 1001 cc or more	374	380	385	395	413	433	453	475	500	526																															
3	33	All Purpose Motorcycle - Motorscooter 1001 cc or more	358	364	368	378	395	414	433	455	478	504																															
3	0	All Purpose Motorcycle - Other 500 cc or less	587	597	605	620	648	679	712	747	785	827																															
3	5	All Purpose Motorcycle - Other 500 cc or less	558	567	575	589	616	645	676	710	746	786																															
3	10	All Purpose Motorcycle - Other 500 cc or less	528	537	544	558	583	611	641	672	706	744																															
3	15	All Purpose Motorcycle - Other 500 cc or less	499	507	514	527	551	577	605	635	667	703																															
3	20	All Purpose Motorcycle - Other 500 cc or less	470	478	484	496	518	543	570	598	628	662																															
3	25	All Purpose Motorcycle - Other 500 cc or less	440	448	454	465	486	509	534	560	589	620																															
3	26	All Purpose Motorcycle - Other 500 cc or less	434	442	448	459	480	502	527	553	581	612																															
3	27	All Purpose Motorcycle - Other 500 cc or less	429	436	442	453	473	496	520	545	573	604																															
3	28	All Purpose Motorcycle - Other 500 cc or less	423	430	436	446	467	489	513	538	565	595																															
3	29	All Purpose Motorcycle - Other 500 cc or less	417	424	430	440	460	482	506	530	557	587																															
3	30	All Purpose Motorcycle - Other 500 cc or less	411	418	423	434	454	475	498	523	549	579																															
3	33	All Purpose Motorcycle - Other 500 cc or less	393	400	405	415	434	455	477	500	526	554																															
3	0	All Purpose Motorcycle - Other 501 to 1000 cc	890	905	918	940	983	1030	1079	1133	1191	1253																															
3	5	All Purpose Motorcycle - Other 501 to 1000 cc	845	860	872	893	934	978	1025	1076	1131	1190																															
3	10	All Purpose Motorcycle - Other 501 to 1000 cc	801	814	826	846	885	927	971	1020	1072	1128																															
3	15	All Purpose Motorcycle - Other 501 to 1000 cc	756	769	780	799	836	875	917	963	1012	1065																															
3	20	All Purpose Motorcycle - Other 501 to 1000 cc	712	724	734	752	786	824	863	906	953	1002																															
3	25	All Purpose Motorcycle - Other 501 to 1000 cc	667	679	688	705	737	772	809	850	893	940																															
3	26	All Purpose Motorcycle - Other 501 to 1000 cc	659	670	679	696	727	762	798	838	881	927																															
3	27	All Purpose Motorcycle - Other 501 to 1000 cc	650	661	670	686	718	752	788	827	869	915																															
3	28	All Purpose Motorcycle - Other 501 to 1000 cc	641	652	661	677	708	742	777	816	858	902																															
3	29	All Purpose Motorcycle - Other 501 to 1000 cc	632	643	652	667	698	731	766	804	846	890																															
3	30	All Purpose Motorcycle - Other 501 to 1000 cc	623	633	643	658	688	721	755	793	834	877																															
3	33	All Purpose Motorcycle - Other 501 to 1000 cc	596	606	615	630	659	690	723	759	798	840																															
3	0	All Purpose Motorcycle - Other 1001 cc or more	1005	1022	1036	1062	1110	1163	1218	1279	1345	1415																															
3	5	All Purpose Motorcycle - Other 1001 cc or more	955	971	984	1009	1054	1105	1157	1215	1278	1344																															
3	10	All Purpose Motorcycle - Other 1001 cc or more	904	920	932	956	999	1047	1096	1151	1210	1273																															
3	15	All Purpose Motorcycle - Other 1001 cc or more	854	869	881	903	943	989	1035	1087	1143	1203																															
3	20	All Purpose Motorcycle - Other 1001 cc or more	804	818	829	850	888	930	974	1023	1076	1132																															
3	25	All Purpose Motorcycle - Other 1001 cc or more	754	766	777	796	832	872	913	959	1009	1061																															
3	26	All Purpose Motorcycle - Other 1001 cc or more	744	756	767	786	821	861	901	946	995	1047																															
3	27	All Purpose Motorcycle - Other 1001 cc or more	734	746	756	775	810	849	889	934	982	1033																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	All Purpose Motorcycle - Other 1001 cc or more	724	736	746	765	799	837	877	921	968	1019																															
3	29	All Purpose Motorcycle - Other 1001 cc or more	714	726	736	754	788	826	865	908	955	1005																															
3	30	All Purpose Motorcycle - Other 1001 cc or more	703	715	725	743	777	814	853	895	941	990																															
3	33	All Purpose Motorcycle - Other 1001 cc or more	673	685	694	712	744	779	816	857	901	948																															
3	0	All Purpose Motorcycle - Sport 500 cc or less	848	863	875	896	937	981	1028	1079	1135	1194																															
3	5	All Purpose Motorcycle - Sport 500 cc or less	806	820	831	851	890	932	977	1025	1078	1134																															
3	10	All Purpose Motorcycle - Sport 500 cc or less	763	777	787	806	843	883	925	971	1021	1075																															
3	15	All Purpose Motorcycle - Sport 500 cc or less	721	734	744	762	796	834	874	917	965	1015																															
3	20	All Purpose Motorcycle - Sport 500 cc or less	678	690	700	717	750	785	822	863	908	955																															
3	25	All Purpose Motorcycle - Sport 500 cc or less	636	647	656	672	703	736	771	809	851	895																															
3	26	All Purpose Motorcycle - Sport 500 cc or less	628	639	647	663	693	726	761	798	840	884																															
3	27	All Purpose Motorcycle - Sport 500 cc or less	619	630	639	654	684	716	750	788	829	872																															
3	28	All Purpose Motorcycle - Sport 500 cc or less	611	621	630	645	675	706	740	777	817	860																															
3	29	All Purpose Motorcycle - Sport 500 cc or less	602	613	621	636	665	697	730	766	806	848																															
3	30	All Purpose Motorcycle - Sport 500 cc or less	594	604	612	627	656	687	720	755	794	836																															
3	33	All Purpose Motorcycle - Sport 500 cc or less	568	578	586	600	628	657	689	723	760	800																															
3	0	All Purpose Motorcycle - Sport 501 to 1000 cc	1717	1747	1771	1814	1897	1987	2082	2186	2298	2419																															
3	5	All Purpose Motorcycle - Sport 501 to 1000 cc	1631	1660	1682	1723	1802	1888	1978	2077	2183	2298																															
3	10	All Purpose Motorcycle - Sport 501 to 1000 cc	1545	1572	1594	1633	1707	1788	1874	1967	2068	2177																															
3	15	All Purpose Motorcycle - Sport 501 to 1000 cc	1459	1485	1505	1542	1612	1689	1770	1858	1953	2056																															
3	20	All Purpose Motorcycle - Sport 501 to 1000 cc	1374	1398	1417	1451	1518	1590	1666	1749	1838	1935																															
3	25	All Purpose Motorcycle - Sport 501 to 1000 cc	1288	1310	1328	1360	1423	1490	1561	1639	1723	1814																															
3	26	All Purpose Motorcycle - Sport 501 to 1000 cc	1271	1293	1311	1342	1404	1470	1541	1618	1701	1790																															
3	27	All Purpose Motorcycle - Sport 501 to 1000 cc	1253	1275	1293	1324	1385	1451	1520	1596	1678	1766																															
3	28	All Purpose Motorcycle - Sport 501 to 1000 cc	1236	1258	1275	1306	1366	1431	1499	1574	1655	1742																															
3	29	All Purpose Motorcycle - Sport 501 to 1000 cc	1219	1240	1257	1288	1347	1411	1478	1552	1632	1717																															
3	30	All Purpose Motorcycle - Sport 501 to 1000 cc	1202	1223	1240	1270	1328	1391	1457	1530	1609	1693																															
3	33	All Purpose Motorcycle - Sport 501 to 1000 cc	1150	1170	1187	1215	1271	1331	1395	1465	1540	1621																															
3	0	All Purpose Motorcycle - Sport 1001 cc or more	2336	2376	2410	2468	2581	2703	2833	2974	3126	3290																															
3	5	All Purpose Motorcycle - Sport 1001 cc or more	2219	2257	2289	2345	2452	2568	2691	2825	2970	3125																															
3	10	All Purpose Motorcycle - Sport 1001 cc or more	2102	2138	2169	2221	2323	2433	2550	2677	2813	2961																															
3	15	All Purpose Motorcycle - Sport 1001 cc or more	1986	2020	2048	2098	2194	2298	2408	2528	2657	2796																															
3	20	All Purpose Motorcycle - Sport 1001 cc or more	1869	1901	1928	1974	2065	2162	2266	2379	2501	2632																															
3	25	All Purpose Motorcycle - Sport 1001 cc or more	1752	1782	1807	1851	1936	2027	2125	2230	2344	2467																															
3	26	All Purpose Motorcycle - Sport 1001 cc or more	1729	1758	1783	1826	1910	2000	2096	2201	2313	2435																															
3	27	All Purpose Motorcycle - Sport 1001 cc or more	1705	1734	1759	1802	1884	1973	2068	2171	2282	2402																															
3	28	All Purpose Motorcycle - Sport 1001 cc or more	1682	1711	1735	1777	1858	1946	2040	2141	2251	2369																															
3	29	All Purpose Motorcycle - Sport 1001 cc or more	1659	1687	1711	1752	1833	1919	2011	2112	2219	2336																															
3	30	All Purpose Motorcycle - Sport 1001 cc or more	1635	1663	1687	1728	1807	1892	1983	2082	2188	2303																															
3	33	All Purpose Motorcycle - Sport 1001 cc or more	1565	1592	1615	1654	1729	1811	1898	1993	2094	2204																															
3	0	All Purpose Motorcycle - Sport Touring 500 cc or less	967	983	997	1021	1068	1119	1172	1231	1294	1362																															
3	5	All Purpose Motorcycle - Sport Touring 500 cc or less	919	934	947	970	1015	1063	1113	1169	1229	1294																															
3	10	All Purpose Motorcycle - Sport Touring 500 cc or less	870	885	897	919	961	1007	1055	1108	1165	1226																															
3	15	All Purpose Motorcycle - Sport Touring 500 cc or less	822	836	847	868	908	951	996	1046	1100	1158																															
3	20	All Purpose Motorcycle - Sport Touring 500 cc or less	774	786	798	817	854	895	938	985	1035	1090																															
3	25	All Purpose Motorcycle - Sport Touring 500 cc or less	725	737	748	766	801	839	879	923	970	1021																															
3	26	All Purpose Motorcycle - Sport Touring 500 cc or less	716	727	738	756	790	828	867	911	958	1008																															
3	27	All Purpose Motorcycle - Sport Touring 500 cc or less	706	718	728	745	780	817	856	899	945	994																															
3	28	All Purpose Motorcycle - Sport Touring 500 cc or less	696	708	718	735	769	806	844	886	932	981																															
3	29	All Purpose Motorcycle - Sport Touring 500 cc or less	687	698	708	725	758	794	832	874	919	967																															
3	30	All Purpose Motorcycle - Sport Touring 500 cc or less	677	688	698	715	748	783	820	862	906	953																															
3	33	All Purpose Motorcycle - Sport Touring 500 cc or less	648	659	668	684	716	750	785	825	867	913																															
3	0	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1308	1331	1349	1382	1445	1514	1586	1665	1751	1843																															
3	5	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1243	1264	1282	1313	1373	1438	1507	1582	1663	1751																															
3	10	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1177	1198	1214	1244	1300	1363	1427	1498	1576	1659																															
3	15	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1112	1131	1147	1175	1228	1287	1348	1415	1488	1567																															
3	20	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1046	1065	1079	1106	1156	1211	1269	1332	1401	1474																															
3	25	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	981	998	1012	1036	1084	1135	1189	1249	1313	1382																															
3	26	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	968	985	998	1023	1069	1120	1174	1232	1296	1364																															
3	27	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	955	972	985	1009	1055	1105	1158	1215	1278	1345																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	942	958	971	995	1040	1090	1142	1199	1261	1327																															
3	29	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	929	945	958	981	1026	1075	1126	1182	1243	1309																															
3	30	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	916	932	944	967	1011	1060	1110	1165	1226	1290																															
3	33	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	876	892	904	926	968	1014	1063	1116	1173	1235																															
3	0	All Purpose Motorcycle - Sport Touring 1001 cc or more	1565	1592	1614	1654	1729	1811	1898	1992	2094	2205																															
3	5	All Purpose Motorcycle - Sport Touring 1001 cc or more	1487	1512	1533	1571	1643	1720	1803	1892	1989	2095																															
3	10	All Purpose Motorcycle - Sport Touring 1001 cc or more	1408	1433	1453	1489	1556	1630	1708	1793	1885	1984																															
3	15	All Purpose Motorcycle - Sport Touring 1001 cc or more	1330	1353	1372	1406	1470	1539	1613	1693	1780	1874																															
3	20	All Purpose Motorcycle - Sport Touring 1001 cc or more	1252	1274	1291	1323	1383	1449	1518	1594	1675	1764																															
3	25	All Purpose Motorcycle - Sport Touring 1001 cc or more	1174	1194	1210	1240	1297	1358	1423	1494	1570	1654																															
3	26	All Purpose Motorcycle - Sport Touring 1001 cc or more	1158	1178	1194	1224	1279	1340	1405	1474	1550	1632																															
3	27	All Purpose Motorcycle - Sport Touring 1001 cc or more	1142	1162	1178	1207	1262	1322	1386	1454	1529	1610																															
3	28	All Purpose Motorcycle - Sport Touring 1001 cc or more	1127	1146	1162	1191	1245	1304	1367	1434	1508	1588																															
3	29	All Purpose Motorcycle - Sport Touring 1001 cc or more	1111	1130	1146	1174	1228	1286	1348	1414	1487	1566																															
3	30	All Purpose Motorcycle - Sport Touring 1001 cc or more	1095	1114	1130	1158	1210	1268	1329	1394	1466	1543																															
3	33	All Purpose Motorcycle - Sport Touring 1001 cc or more	1049	1067	1081	1108	1158	1213	1272	1335	1403	1477																															
3	0	All Purpose Motorcycle - Touring 500 cc or less	888	904	916	938	981	1028	1077	1131	1189	1251																															
3	5	All Purpose Motorcycle - Touring 500 cc or less	844	859	870	891	932	977	1023	1074	1130	1188																															
3	10	All Purpose Motorcycle - Touring 500 cc or less	799	814	824	844	883	925	969	1018	1070	1126																															
3	15	All Purpose Motorcycle - Touring 500 cc or less	755	768	779	797	834	874	915	961	1011	1063																															
3	20	All Purpose Motorcycle - Touring 500 cc or less	710	723	733	750	785	822	862	905	951	1001																															
3	25	All Purpose Motorcycle - Touring 500 cc or less	666	678	687	703	736	771	808	848	892	938																															
3	26	All Purpose Motorcycle - Touring 500 cc or less	657	669	678	694	726	761	797	837	880	926																															
3	27	All Purpose Motorcycle - Touring 500 cc or less	648	660	669	685	716	750	786	826	868	913																															
3	28	All Purpose Motorcycle - Touring 500 cc or less	639	651	660	675	706	740	775	814	856	901																															
3	29	All Purpose Motorcycle - Touring 500 cc or less	630	642	650	666	697	730	765	803	844	888																															
3	30	All Purpose Motorcycle - Touring 500 cc or less	622	633	641	657	687	720	754	792	832	876																															
3	33	All Purpose Motorcycle - Touring 500 cc or less	595	606	614	628	657	689	722	758	797	838																															
3	0	All Purpose Motorcycle - Touring 501 to 1000 cc	888	904	916	938	981	1028	1077	1131	1189	1251																															
3	5	All Purpose Motorcycle - Touring 501 to 1000 cc	844	859	870	891	932	977	1023	1074	1130	1188																															
3	10	All Purpose Motorcycle - Touring 501 to 1000 cc	799	814	824	844	883	925	969	1018	1070	1126																															
3	15	All Purpose Motorcycle - Touring 501 to 1000 cc	755	768	779	797	834	874	915	961	1011	1063																															
3	20	All Purpose Motorcycle - Touring 501 to 1000 cc	710	723	733	750	785	822	862	905	951	1001																															
3	25	All Purpose Motorcycle - Touring 501 to 1000 cc	666	678	687	703	736	771	808	848	892	938																															
3	26	All Purpose Motorcycle - Touring 501 to 1000 cc	657	669	678	694	726	761	797	837	880	926																															
3	27	All Purpose Motorcycle - Touring 501 to 1000 cc	648	660	669	685	716	750	786	826	868	913																															
3	28	All Purpose Motorcycle - Touring 501 to 1000 cc	639	651	660	675	706	740	775	814	856	901																															
3	29	All Purpose Motorcycle - Touring 501 to 1000 cc	630	642	650	666	697	730	765	803	844	888																															
3	30	All Purpose Motorcycle - Touring 501 to 1000 cc	622	633	641	657	687	720	754	792	832	876																															
3	33	All Purpose Motorcycle - Touring 501 to 1000 cc	595	606	614	628	657	689	722	758	797	838																															
3	0	All Purpose Motorcycle - Touring 1001 cc or more	888	904	916	938	981	1028	1077	1131	1189	1251																															
3	5	All Purpose Motorcycle - Touring 1001 cc or more	844	859	870	891	932	977	1023	1074	1130	1188																															
3	10	All Purpose Motorcycle - Touring 1001 cc or more	799	814	824	844	883	925	969	1018	1070	1126																															
3	15	All Purpose Motorcycle - Touring 1001 cc or more	755	768	779	797	834	874	915	961	1011	1063																															
3	20	All Purpose Motorcycle - Touring 1001 cc or more	710	723	733	750	785	822	862	905	951	1001																															
3	25	All Purpose Motorcycle - Touring 1001 cc or more	666	678	687	703	736	771	808	848	892	938																															
3	26	All Purpose Motorcycle - Touring 1001 cc or more	657	669	678	694	726	761	797	837	880	926																															
3	27	All Purpose Motorcycle - Touring 1001 cc or more	648	660	669	685	716	750	786	826	868	913																															
3	28	All Purpose Motorcycle - Touring 1001 cc or more	639	651	660	675	706	740	775	814	856	901																															
3	29	All Purpose Motorcycle - Touring 1001 cc or more	630	642	650	666	697	730	765	803	844	888																															
3	30	All Purpose Motorcycle - Touring 1001 cc or more	622	633	641	657	687	720	754	792	832	876																															
3	33	All Purpose Motorcycle - Touring 1001 cc or more	595	606	614	628	657	689	722	758	797	838																															
3	0	All Purpose Motorhome	454	560	680	794	902	1003	1109	1199	1298	1363	1475																															
3	5	All Purpose Motorhome	431	532	646	754	857	953	1054	1139	1233	1295	1401																															
3	10	All Purpose Motorhome	409	504	612	715	812	903	998	1079	1168	1227	1327																															
3	15	All Purpose Motorhome	386	476	578	675	767	853	943	1019	1103	1159	1254																															
3	20	All Purpose Motorhome	363	448	544	635	722	802	887	959	1038	1090	1180																															
3	25	All Purpose Motorhome	340	420	510	595	676	752	832	899	973	1022	1106																															
3	26	All Purpose Motorhome	336	414	503	588	667	742	821	887	961	1009	1091																															
3	27	All Purpose Motorhome	331	409	496	580	658	732	810	875	948	995	1077																															

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TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	Pleasure Moped	192	195	197	202	212	222	232	244	256	270																															
3	29	Pleasure Moped	189	192	195	200	209	219	229	241	253	266																															
3	30	Pleasure Moped	186	190	192	197	206	216	225	237	249	262																															
3	33	Pleasure Moped	178	182	184	188	197	206	216	227	239	251																															
3	0	Pleasure Motorcycle - Motorscooter 500 cc or less	266	271	274	281	294	308	322	339	356	375																															
3	5	Pleasure Motorcycle - Motorscooter 500 cc or less	253	257	260	267	279	293	306	322	338	356																															
3	10	Pleasure Motorcycle - Motorscooter 500 cc or less	239	244	247	253	265	277	290	305	320	337																															
3	15	Pleasure Motorcycle - Motorscooter 500 cc or less	226	230	233	239	250	262	274	288	303	319																															
3	20	Pleasure Motorcycle - Motorscooter 500 cc or less	213	217	219	225	235	246	258	271	285	300																															
3	25	Pleasure Motorcycle - Motorscooter 500 cc or less	199	203	205	211	220	231	241	254	267	281																															
3	26	Pleasure Motorcycle - Motorscooter 500 cc or less	197	201	203	208	218	228	238	251	263	277																															
3	27	Pleasure Motorcycle - Motorscooter 500 cc or less	194	198	200	205	215	225	235	247	260	274																															
3	28	Pleasure Motorcycle - Motorscooter 500 cc or less	192	195	197	202	212	222	232	244	256	270																															
3	29	Pleasure Motorcycle - Motorscooter 500 cc or less	189	192	195	200	209	219	229	241	253	266																															
3	30	Pleasure Motorcycle - Motorscooter 500 cc or less	186	190	192	197	206	216	225	237	249	262																															
3	33	Pleasure Motorcycle - Motorscooter 500 cc or less	178	182	184	188	197	206	216	227	239	251																															
3	0	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	422	430	436	446	467	489	512	538	565	595																															
3	5	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	401	408	414	424	444	465	486	511	537	565																															
3	10	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	380	387	392	401	420	440	461	484	508	535																															
3	15	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	359	365	371	379	397	416	435	457	480	506																															
3	20	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	338	344	349	357	374	391	410	430	452	476																															
3	25	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	316	322	327	334	350	367	384	403	424	446																															
3	26	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	312	318	323	330	346	362	379	398	418	440																															
3	27	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	308	314	318	326	341	357	374	393	412	434																															
3	28	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	304	310	314	321	336	352	369	387	407	428																															
3	29	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	300	305	310	317	332	347	364	382	401	422																															
3	30	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	295	301	305	312	327	342	358	377	395	416																															
3	33	Pleasure Motorcycle - Motorscooter 501 to 1000 cc	283	288	292	299	313	328	343	360	379	399																															
3	0	Pleasure Motorcycle - Motorscooter 1001 cc or more	422	430	436	446	467	489	512	538	565	595																															
3	5	Pleasure Motorcycle - Motorscooter 1001 cc or more	401	408	414	424	444	465	486	511	537	565																															
3	10	Pleasure Motorcycle - Motorscooter 1001 cc or more	380	387	392	401	420	440	461	484	508	535																															
3	15	Pleasure Motorcycle - Motorscooter 1001 cc or more	359	365	371	379	397	416	435	457	480	506																															
3	20	Pleasure Motorcycle - Motorscooter 1001 cc or more	338	344	349	357	374	391	410	430	452	476																															
3	25	Pleasure Motorcycle - Motorscooter 1001 cc or more	316	322	327	334	350	367	384	403	424	446																															
3	26	Pleasure Motorcycle - Motorscooter 1001 cc or more	312	318	323	330	346	362	379	398	418	440																															
3	27	Pleasure Motorcycle - Motorscooter 1001 cc or more	308	314	318	326	341	357	374	393	412	434																															
3	28	Pleasure Motorcycle - Motorscooter 1001 cc or more	304	310	314	321	336	352	369	387	407	428																															
3	29	Pleasure Motorcycle - Motorscooter 1001 cc or more	300	305	310	317	332	347	364	382	401	422																															
3	30	Pleasure Motorcycle - Motorscooter 1001 cc or more	295	301	305	312	327	342	358	377	395	416																															
3	33	Pleasure Motorcycle - Motorscooter 1001 cc or more	283	288	292	299	313	328	343	360	379	399																															
3	0	Pleasure Motorcycle - Other 500 cc or less	402	409	415	425	444	465	488	512	538	567																															
3	5	Pleasure Motorcycle - Other 500 cc or less	382	389	394	404	422	442	464	486	511	539																															
3	10	Pleasure Motorcycle - Other 500 cc or less	362	368	373	382	400	418	439	461	484	510																															
3	15	Pleasure Motorcycle - Other 500 cc or less	342	348	353	361	377	395	415	435	457	482																															
3	20	Pleasure Motorcycle - Other 500 cc or less	322	327	332	340	355	372	390	410	430	454																															
3	25	Pleasure Motorcycle - Other 500 cc or less	301	307	311	319	333	349	366	384	403	425																															
3	26	Pleasure Motorcycle - Other 500 cc or less	297	303	307	314	329	344	361	379	398	420																															
3	27	Pleasure Motorcycle - Other 500 cc or less	293	299	303	310	324	339	356	374	393	414																															
3	28	Pleasure Motorcycle - Other 500 cc or less	289	294	299	306	320	335	351	369	387	408																															
3	29	Pleasure Motorcycle - Other 500 cc or less	285	290	295	302	315	330	346	364	382	403																															
3	30	Pleasure Motorcycle - Other 500 cc or less	281	286	290	297	311	325	342	358	377	397																															
3	33	Pleasure Motorcycle - Other 500 cc or less	269	274	278	285	297	312	327	343	360	380																															
3	0	Pleasure Motorcycle - Other 501 to 1000 cc	592	602	611	626	654	685	718	754	792	834																															
3	5	Pleasure Motorcycle - Other 501 to 1000 cc	562	572	580	595	621	651	682	716	752	792																															
3	10	Pleasure Motorcycle - Other 501 to 1000 cc	533	542	550	563	589	616	646	679	713	751																															
3	15	Pleasure Motorcycle - Other 501 to 1000 cc	503	512	519	532	556	582	610	641	673	709																															
3	20	Pleasure Motorcycle - Other 501 to 1000 cc	474	482	489	501	523	548	574	603	634	667																															
3	25	Pleasure Motorcycle - Other 501 to 1000 cc	444	451	458	469	490	514	538	565	594	625																															
3	26	Pleasure Motorcycle - Other 501 to 1000 cc	438	445	452	463	484	507	531	558	586	617																															
3	27	Pleasure Motorcycle - Other 501 to 1000 cc	432	439	446	457	477	500	524	550	578	609																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	Pleasure Motorcycle - Other 501 to 1000 cc	426	433	440	451	471	493	517	543	570	600																															
3	29	Pleasure Motorcycle - Other 501 to 1000 cc	420	427	434	444	464	486	510	535	562	592																															
3	30	Pleasure Motorcycle - Other 501 to 1000 cc	414	421	428	438	458	479	503	528	554	584																															
3	33	Pleasure Motorcycle - Other 501 to 1000 cc	397	403	409	419	438	459	481	505	531	559																															
3	0	Pleasure Motorcycle - Other 1001 cc or more	634	645	654	670	701	734	769	807	849	893																															
3	5	Pleasure Motorcycle - Other 1001 cc or more	602	613	621	636	666	697	731	767	807	848																															
3	10	Pleasure Motorcycle - Other 1001 cc or more	571	580	589	603	631	661	692	726	764	804																															
3	15	Pleasure Motorcycle - Other 1001 cc or more	539	548	556	569	596	624	654	686	722	759																															
3	20	Pleasure Motorcycle - Other 1001 cc or more	507	516	523	536	561	587	615	646	679	714																															
3	25	Pleasure Motorcycle - Other 1001 cc or more	475	484	490	502	526	550	577	605	637	670																															
3	26	Pleasure Motorcycle - Other 1001 cc or more	469	477	484	496	519	543	569	597	628	661																															
3	27	Pleasure Motorcycle - Other 1001 cc or more	463	471	477	489	512	536	561	589	620	652																															
3	28	Pleasure Motorcycle - Other 1001 cc or more	456	464	471	482	505	528	554	581	611	643																															
3	29	Pleasure Motorcycle - Other 1001 cc or more	450	458	464	476	498	521	546	573	603	634																															
3	30	Pleasure Motorcycle - Other 1001 cc or more	444	451	458	469	491	514	538	565	594	625																															
3	33	Pleasure Motorcycle - Other 1001 cc or more	425	432	438	449	470	492	515	541	569	598																															
3	0	Pleasure Motorcycle - Sport 500 cc or less	605	615	624	639	668	700	734	770	809	852																															
3	5	Pleasure Motorcycle - Sport 500 cc or less	575	584	593	607	635	665	697	731	769	809																															
3	10	Pleasure Motorcycle - Sport 500 cc or less	544	553	562	575	601	630	661	693	728	767																															
3	15	Pleasure Motorcycle - Sport 500 cc or less	514	523	530	543	568	595	624	654	688	724																															
3	20	Pleasure Motorcycle - Sport 500 cc or less	484	492	499	511	534	560	587	616	647	682																															
3	25	Pleasure Motorcycle - Sport 500 cc or less	454	461	468	479	501	525	550	577	607	639																															
3	26	Pleasure Motorcycle - Sport 500 cc or less	448	455	462	473	494	518	543	570	599	630																															
3	27	Pleasure Motorcycle - Sport 500 cc or less	442	449	456	466	488	511	536	562	591	622																															
3	28	Pleasure Motorcycle - Sport 500 cc or less	436	443	449	460	481	504	528	554	582	613																															
3	29	Pleasure Motorcycle - Sport 500 cc or less	430	437	443	454	474	497	521	547	574	605																															
3	30	Pleasure Motorcycle - Sport 500 cc or less	423	430	437	447	468	490	514	539	566	596																															
3	33	Pleasure Motorcycle - Sport 500 cc or less	405	412	418	428	448	469	492	516	542	571																															
3	0	Pleasure Motorcycle - Sport 501 to 1000 cc	878	893	906	928	970	1016	1065	1118	1175	1237																															
3	5	Pleasure Motorcycle - Sport 501 to 1000 cc	834	848	861	882	921	965	1012	1062	1116	1175																															
3	10	Pleasure Motorcycle - Sport 501 to 1000 cc	790	804	815	835	873	914	958	1006	1057	1113																															
3	15	Pleasure Motorcycle - Sport 501 to 1000 cc	746	759	770	789	824	864	905	950	999	1051																															
3	20	Pleasure Motorcycle - Sport 501 to 1000 cc	702	714	725	742	776	813	852	894	940	990																															
3	25	Pleasure Motorcycle - Sport 501 to 1000 cc	658	670	679	696	727	762	799	838	881	928																															
3	26	Pleasure Motorcycle - Sport 501 to 1000 cc	650	661	670	687	718	752	788	827	869	915																															
3	27	Pleasure Motorcycle - Sport 501 to 1000 cc	641	652	661	677	708	742	777	816	858	903																															
3	28	Pleasure Motorcycle - Sport 501 to 1000 cc	632	643	652	668	698	732	767	805	846	891																															
3	29	Pleasure Motorcycle - Sport 501 to 1000 cc	623	634	643	659	689	721	756	794	834	878																															
3	30	Pleasure Motorcycle - Sport 501 to 1000 cc	615	625	634	650	679	711	745	783	822	866																															
3	33	Pleasure Motorcycle - Sport 501 to 1000 cc	588	598	607	622	650	681	714	749	787	829																															
3	0	Pleasure Motorcycle - Sport 1001 cc or more	1360	1384	1403	1437	1503	1574	1649	1731	1820	1916																															
3	5	Pleasure Motorcycle - Sport 1001 cc or more	1292	1315	1333	1365	1428	1495	1567	1644	1729	1820																															
3	10	Pleasure Motorcycle - Sport 1001 cc or more	1224	1246	1263	1293	1353	1417	1484	1558	1638	1724																															
3	15	Pleasure Motorcycle - Sport 1001 cc or more	1156	1176	1193	1221	1278	1338	1402	1471	1547	1629																															
3	20	Pleasure Motorcycle - Sport 1001 cc or more	1088	1107	1122	1150	1202	1259	1319	1385	1456	1533																															
3	25	Pleasure Motorcycle - Sport 1001 cc or more	1020	1038	1052	1078	1127	1180	1237	1298	1365	1437																															
3	26	Pleasure Motorcycle - Sport 1001 cc or more	1006	1024	1038	1063	1112	1165	1220	1281	1347	1418																															
3	27	Pleasure Motorcycle - Sport 1001 cc or more	993	1010	1024	1049	1097	1149	1204	1264	1329	1399																															
3	28	Pleasure Motorcycle - Sport 1001 cc or more	979	996	1010	1035	1082	1133	1187	1246	1310	1380																															
3	29	Pleasure Motorcycle - Sport 1001 cc or more	966	983	996	1020	1067	1118	1171	1229	1292	1360																															
3	30	Pleasure Motorcycle - Sport 1001 cc or more	952	969	982	1006	1052	1102	1154	1212	1274	1341																															
3	33	Pleasure Motorcycle - Sport 1001 cc or more	911	927	940	963	1007	1055	1105	1160	1219	1284																															
3	0	Pleasure Motorcycle - Sport Touring 500 cc or less	615	625	634	649	679	711	745	782	822	866																															
3	5	Pleasure Motorcycle - Sport Touring 500 cc or less	584	594	602	617	645	675	708	743	781	823																															
3	10	Pleasure Motorcycle - Sport Touring 500 cc or less	553	562	571	584	611	640	670	704	740	779																															
3	15	Pleasure Motorcycle - Sport Touring 500 cc or less	523	531	539	552	577	604	633	665	699	736																															
3	20	Pleasure Motorcycle - Sport Touring 500 cc or less	492	500	507	519	543	569	596	626	658	693																															
3	25	Pleasure Motorcycle - Sport Touring 500 cc or less	461	469	475	487	509	533	559	586	616	649																															
3	26	Pleasure Motorcycle - Sport Touring 500 cc or less	455	462	469	480	502	526	551	579	608	641																															
3	27	Pleasure Motorcycle - Sport Touring 500 cc or less	449	456	463	474	496	519	544	571	600	632																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	Pleasure Motorcycle - Sport Touring 500 cc or less	443	450	456	467	489	512	536	563	592	624																															
3	29	Pleasure Motorcycle - Sport Touring 500 cc or less	437	444	450	461	482	505	529	555	584	615																															
3	30	Pleasure Motorcycle - Sport Touring 500 cc or less	430	437	444	454	475	498	521	547	575	606																															
3	33	Pleasure Motorcycle - Sport Touring 500 cc or less	412	419	425	435	455	476	499	524	551	580																															
3	0	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	650	662	671	687	719	753	789	828	870	916																															
3	5	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	617	629	637	653	683	715	750	787	826	870																															
3	10	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	585	596	604	618	647	678	710	745	783	824																															
3	15	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	552	563	570	584	611	640	671	704	739	779																															
3	20	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	520	530	537	550	575	602	631	662	696	733																															
3	25	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	487	496	503	515	539	565	592	621	652	687																															
3	26	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	481	490	497	508	532	557	584	613	644	678																															
3	27	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	474	483	490	502	525	550	576	604	635	669																															
3	28	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	468	477	483	495	518	542	568	596	626	660																															
3	29	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	461	470	476	488	510	535	560	588	618	650																															
3	30	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	455	463	470	481	503	527	552	580	609	641																															
3	33	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	435	444	450	460	482	505	529	555	583	614																															
3	0	Pleasure Motorcycle - Sport Touring 1001 cc or more	786	800	811	831	869	910	954	1001	1052	1108																															
3	5	Pleasure Motorcycle - Sport Touring 1001 cc or more	747	760	770	789	826	864	906	951	999	1053																															
3	10	Pleasure Motorcycle - Sport Touring 1001 cc or more	707	720	730	748	782	819	859	901	947	997																															
3	15	Pleasure Motorcycle - Sport Touring 1001 cc or more	668	680	689	706	739	773	811	851	894	942																															
3	20	Pleasure Motorcycle - Sport Touring 1001 cc or more	629	640	649	665	695	728	763	801	842	886																															
3	25	Pleasure Motorcycle - Sport Touring 1001 cc or more	589	600	608	623	652	682	715	751	789	831																															
3	26	Pleasure Motorcycle - Sport Touring 1001 cc or more	582	592	600	615	643	673	706	741	778	820																															
3	27	Pleasure Motorcycle - Sport Touring 1001 cc or more	574	584	592	607	634	664	696	731	768	809																															
3	28	Pleasure Motorcycle - Sport Touring 1001 cc or more	566	576	584	598	626	655	687	721	757	798																															
3	29	Pleasure Motorcycle - Sport Touring 1001 cc or more	558	568	576	590	617	646	677	711	747	787																															
3	30	Pleasure Motorcycle - Sport Touring 1001 cc or more	550	560	568	582	608	637	668	701	736	776																															
3	33	Pleasure Motorcycle - Sport Touring 1001 cc or more	527	536	543	557	582	610	639	671	705	742																															
3	0	Pleasure Motorcycle - Touring 500 cc or less	334	340	344	353	369	386	405	425	447	470																															
3	5	Pleasure Motorcycle - Touring 500 cc or less	317	323	327	335	351	367	385	404	425	446																															
3	10	Pleasure Motorcycle - Touring 500 cc or less	301	306	310	318	332	347	364	382	402	423																															
3	15	Pleasure Motorcycle - Touring 500 cc or less	284	289	292	300	314	328	344	361	380	399																															
3	20	Pleasure Motorcycle - Touring 500 cc or less	267	272	275	282	295	309	324	340	358	376																															
3	25	Pleasure Motorcycle - Touring 500 cc or less	250	255	258	265	277	289	304	319	335	352																															
3	26	Pleasure Motorcycle - Touring 500 cc or less	247	252	255	261	273	286	300	314	331	348																															
3	27	Pleasure Motorcycle - Touring 500 cc or less	244	248	251	258	269	282	296	310	326	343																															
3	28	Pleasure Motorcycle - Touring 500 cc or less	240	245	248	254	266	278	292	306	322	338																															
3	29	Pleasure Motorcycle - Touring 500 cc or less	237	241	244	251	262	274	288	302	317	334																															
3	30	Pleasure Motorcycle - Touring 500 cc or less	234	238	241	247	258	270	283	297	313	329																															
3	33	Pleasure Motorcycle - Touring 500 cc or less	224	228	230	237	247	259	271	285	299	315																															
3	0	Pleasure Motorcycle - Touring 501 to 1000 cc	540	550	557	571	597	625	655	688	723	761																															
3	5	Pleasure Motorcycle - Touring 501 to 1000 cc	513	522	529	542	567	594	622	654	687	723																															
3	10	Pleasure Motorcycle - Touring 501 to 1000 cc	486	495	501	514	537	562	589	619	651	685																															
3	15	Pleasure Motorcycle - Touring 501 to 1000 cc	459	467	473	485	507	531	557	585	615	647																															
3	20	Pleasure Motorcycle - Touring 501 to 1000 cc	432	440	446	457	478	500	524	550	578	609																															
3	25	Pleasure Motorcycle - Touring 501 to 1000 cc	405	412	418	428	448	469	491	516	542	571																															
3	26	Pleasure Motorcycle - Touring 501 to 1000 cc	400	407	412	423	442	462	485	509	535	563																															
3	27	Pleasure Motorcycle - Touring 501 to 1000 cc	394	401	407	417	436	456	478	502	528	556																															
3	28	Pleasure Motorcycle - Touring 501 to 1000 cc	389	396	401	411	430	450	472	495	521	548																															
3	29	Pleasure Motorcycle - Touring 501 to 1000 cc	383	390	395	405	424	444	465	488	513	540																															
3	30	Pleasure Motorcycle - Touring 501 to 1000 cc	378	385	390	400	418	437	458	482	506	533																															
3	33	Pleasure Motorcycle - Touring 501 to 1000 cc	362	368	373	383	400	419	439	461	484	510																															
3	0	Pleasure Motorcycle - Touring 1001 cc or more	588	598	607	621	650	681	713	749	787	828																															
3	5	Pleasure Motorcycle - Touring 1001 cc or more	559	568	577	590	617	647	677	712	748	787																															
3	10	Pleasure Motorcycle - Touring 1001 cc or more	529	538	546	559	585	613	642	674	708	745																															
3	15	Pleasure Motorcycle - Touring 1001 cc or more	500	508	516	528	552	579	606	637	669	704																															
3	20	Pleasure Motorcycle - Touring 1001 cc or more	470	478	486	497	520	545	570	599	630	662																															
3	25	Pleasure Motorcycle - Touring 1001 cc or more	441	448	455	466	487	511	535	562	590	621																															
3	26	Pleasure Motorcycle - Touring 1001 cc or more	435	443	449	460	481	504	528	554	582	613																															
3	27	Pleasure Motorcycle - Touring 1001 cc or more	429	437	443	453	474	497	520	547	575	604																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
3	28	Pleasure Motorcycle - Touring 1001 cc or more	423	431	437	447	468	490	513	539	567	596																															
3	29	Pleasure Motorcycle - Touring 1001 cc or more	417	425	431	441	461	484	506	532	559	588																															
3	30	Pleasure Motorcycle - Touring 1001 cc or more	412	419	425	435	455	477	499	524	551	580																															
3	33	Pleasure Motorcycle - Touring 1001 cc or more	394	401	407	416	435	456	478	502	527	555																															
3	0	Pleasure Motorhome	452	558	678	792	900	1001	1107	1197	1296	1361	1473																														
3	5	Pleasure Motorhome	429	530	644	752	855	951	1052	1137	1231	1293	1399																														
3	10	Pleasure Motorhome	407	502	610	713	810	901	996	1077	1166	1225	1326																														
3	15	Pleasure Motorhome	384	474	576	673	765	851	941	1017	1102	1157	1252																														
3	20	Pleasure Motorhome	362	446	542	634	720	801	886	958	1037	1089	1178																														
3	25	Pleasure Motorhome	339	418	508	594	675	751	830	898	972	1021	1105																														
3	26	Pleasure Motorhome	334	413	502	586	666	741	819	886	959	1007	1090																														
3	27	Pleasure Motorhome	330	407	495	578	657	731	808	874	946	994	1075																														
3	28	Pleasure Motorhome	325	402	488	570	648	721	797	862	933	980	1061																														
3	29	Pleasure Motorhome	321	396	481	562	639	711	786	850	920	966	1046																														
3	30	Pleasure Motorhome	316	391	475	554	630	701	775	838	907	953	1031																														
3	33	Pleasure Motorhome	303	374	454	531	603	671	742	802	868	912	987																														
3	0	Pleasure Passenger Vehicle	510	550	570	588	606	625	642	661	679	697	713	721	744	769	798	831	866	900	937	972	1009	1046	1080	1116	1153	1193	1232	1270	1309	1348	1386	1423	1459	1494	1528	1570	1607	1645	1683	1721	1759
3	5	Pleasure Passenger Vehicle	484	522	541	559	576	594	610	628	645	662	677	685	707	731	758	789	823	855	890	923	959	994	1026	1060	1095	1133	1170	1206	1244	1281	1317	1352	1386	1419	1452	1491	1527	1563	1599	1635	1671
3	10	Pleasure Passenger Vehicle	459	495	513	529	545	562	578	595	611	627	642	649	670	692	718	748	779	810	843	875	908	941	972	1004	1038	1074	1109	1143	1178	1213	1247	1281	1313	1345	1375	1413	1446	1480	1515	1549	1583
3	15	Pleasure Passenger Vehicle	433	467	484	500	515	531	546	562	577	592	606	613	632	654	678	706	736	765	796	826	858	889	918	949	980	1014	1047	1079	1113	1146	1178	1210	1240	1270	1299	1334	1366	1398	1431	1463	1495
3	20	Pleasure Passenger Vehicle	408	440	456	470	485	500	514	529	543	558	570	577	595	615	638	665	693	720	750	778	807	837	864	893	922	954	986	1016	1047	1078	1109	1138	1167	1195	1222	1256	1286	1316	1346	1377	1407
3	25	Pleasure Passenger Vehicle	382	412	427	441	454	469	481	496	509	523	535	541	558	577	598	623	649	675	703	729	757	784	810	837	865	895	924	952	982	1011	1039	1067	1094	1120	1146	1177	1205	1234	1262	1291	1319
3	26	Pleasure Passenger Vehicle	377	407	422	435	448	462	475	489	502	516	528	534	551	569	591	615	641	666	693	719	747	774	799	826	853	883	912	940	969	998	1026	1053	1080	1106	1131	1162	1189	1217	1245	1274	1302
3	27	Pleasure Passenger Vehicle	372	401	416	429	442	456	469	483	496	509	520	526	543	561	583	607	632	657	684	710	737	764	788	815	842	871	899	927	956	984	1012	1039	1065	1091	1115	1146	1173	1201	1229	1256	1284
3	28	Pleasure Passenger Vehicle	367	396	410	423	436	450	462	476	489	502	513	519	536	554	575	598	624	648	675	700	726	753	778	804	830	859	887	914	942	971	998	1025	1050	1076	1100	1130	1157	1184	1212	1239	1266
3	29	Pleasure Passenger Vehicle	362	390	405	417	430	444	456	469	482	495	506	512	528	546	567	590	615	639	665	690	716	743	767	792	819	847	875	902	929	957	984	1010	1036	1061	1085	1115	1141	1168	1195	1222	1249
3	30	Pleasure Passenger Vehicle	357	385	399	412	424	437	449	463	475	488	499	505	521	538	559	582	606	630	656	680	706	732	756	781	807	835	862	889	916	944	970	996	1021	1046	1070	1099	1125	1151	1178	1205	1231
3	33	Pleasure Passenger Vehicle	342	368	382	394	406	419	430	443	455	467	478	483	498	515	535	557	580	603	628	651	676	701	724	748	773	799	825	851	877	903	929	953	978	1001	1024	1052	1077	1102	1128	1153	1179
3	0	Pleasure Truck 4,540 kg or less GVW	369	411	434	450	461	471	483	495	506	517	534	550	565	580	595	614	629	646	663	681	705	731	759	786	814	845	872	913	941	978	1025	1066	1109	1151	1189	1245	1291	1338	1387	1436	1487
3	5	Pleasure Truck 4,540 kg or less GVW	351	390	412	427	438	447	459	470	481	491	507	522	537	551	565	583	598	614	630	647	670	694	721	747	773	803	828	867	894	929	974	1013	1054	1093	1130	1183	1226	1271	1318	1364	1413
3	10	Pleasure Truck 4,540 kg or less GVW	332	370	391	405	415	424	435	445	455	465	481	495	508	522	535	553	566	581	597	613	634	658	683	707	733	760	785	822	847	880	922	959	998	1036	1070	1120	1162	1204	1248	1292	1338
3	15	Pleasure Truck 4,540 kg or less GVW	314	349	369	382	392	400	411	421	430	439	454	467	480	493	506	522	535	549	564	579	599	621	645	668	692	718	741	776	800	831	871	906	943	978	1011	1058	1097	1137	1179	1221	1264
3	20	Pleasure Truck 4,540 kg or less GVW	295	329	347	360	369	377	386	396	405	414	427	440	452	464	476	491	503	517	530	545	564	585	607	629	651	676	698	730	753	782	820	853	887	921	951	996	1033	1070	1110	1149	1190
3	25	Pleasure Truck 4,540 kg or less GVW	277	308	325	337	346	353	362	371	379	388	400	412	424	435	446	460	472	484	497	511	529	548	569	589	610	634	654	685	706	733	769	799	832	863	892	934	968	1003	1040	1077	1115
3	26	Pleasure Truck 4,540 kg or less GVW	273	304	321	333	341	349	357	366	374	383	395	407	418	429	440	454	465	478	491	504	522	541	562	582	602	625	645	676	696	724	758	789	821	852	880	921	955	990	1026	1063	1100
3	27	Pleasure Truck 4,540 kg or less GVW	269	300	317	328	337	344	353	361	369	377	390	401	412	423	434	448	459	472	484	497	515	534	554	574	594	617	637	666	687	714	748	778	810	840	868	909	942	977	1013	1048	1086
3	28	Pleasure Truck 4,540 kg or less GVW	266	296	312	324	332	339	348	356	364	372	384	396	407	418	428	442	453	465	477	490	508	526	546	566	586	608	628	657	678	704	738	768	798	829	856	896	930	963	999	1034	1071
3	29	Pleasure Truck 4,540 kg or less GVW	262	292	308	319	327	334	343	351	359	367	379	390	401	412	422	436	447	459	471	484	501	519	539	558	578	600	619	648	668	694	728	757	787	817	844	884	917	950	985	1020	1056
3	30	Pleasure Truck 4,540 kg or less GVW	258	288	304	315	323	330	338	346	354	362	374	385	395	406	416	430	440	452	464	477	493	512	531	550	570	591	610	639	659	685	717	746	776	806	832	871	904	937	971	1005	1041
3	33	Pleasure Truck 4,540 kg or less GVW	247	275	291	301	309	316	324	332	339	346	358	368	379	389	399	411	421	433	444	456	472	490	509	527	545	566	584	612	630	655	687	714	743	771	797	834	865	896	929	962	996
3	0	Police/Emergency Passenger Vehicle	884	952	987	1018	1050	1082	1113	1144	1176	1207	1236	1249	1288	1332	1382	1440	1500	1559	1623	1684	1747	1811	1870	1934	1997	2067	2134	2199	2267	2334	2401	2465	2527	2589	2646	2719	2785	2850	2916	2981	3047
3	0	Police/Emergency Truck 4,540 kg or less GVW	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959	959
3	0	Police/Emergency Truck 4,541 to 16,330 kg GVW		587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587																							
3	0	Police/Emergency Truck 16,331 kg or more GVW		503	503	503	503	503	503	503	503	503	503	503	503	503	503	503	503	503																							
3	0	Repairer	250																																								
3	0	Sand/Gravel Truck 10,891 to 16,330 kg GVW		425	491	533	575	616	660	702	744	785	828	871	913	955	1000	1043	1080	1123																							
3	0	Sand/Gravel Truck 16,331 kg or more GVW		697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697	697																							
3	0	School Bus 20 seats or less	247	255	269	283	298	312	327	341	357	371	386	400	415	430																											
3	0	School Bus 21 to 35 seats	274	282	298	313	330	345	361	377	395	410	426	443	459	475																											
3	0	School Bus 36 to 50 seats	312	322	340	357	376	394	412	430	450	468	487	505	524	542																											
3	0	School Bus 51 seats or more	320	330	348	366	385	403	422	440	461	479	498	517	536	555																											
3	0	Taxicab Vehicle-for-Hire 1	2922																																								
3	5	Taxicab Vehicle-for-Hire 1	2776																																								
3	10	Taxicab Vehicle-for-Hire 1	2630																																								
3	15	Taxicab Vehicle-for-Hire 1	2484																																								
3	20	Taxicab Vehicle-for-Hire 1	2338																																								
3	25	Taxicab Vehicle-for-Hire 1	2191																																								
3	26	Taxicab Vehicle-for-Hire 1	2162																																								
3	27	Taxicab Vehicle-for-Hire 1	2133																																								
3	28	Taxicab Vehicle-for-Hire 1	2104																																								

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	Accessible Vehicle-for-Hire 1	579	597	630	663	698	731	765	798	835	869	903	937	971	1006																													
4	28	Accessible Vehicle-for-Hire 1	571	589	621	654	688	721	755	787	824	857	891	924	958	992																													
4	29	Accessible Vehicle-for-Hire 1	563	581	613	645	679	711	744	776	812	845	878	912	944	978																													
4	30	Accessible Vehicle-for-Hire 1	555	573	604	636	669	701	734	765	801	833	866	899	931	965																													
4	33	Accessible Vehicle-for-Hire 1	531	548	578	608	641	671	702	732	766	797	829	860	891	923																													
4	0	Accessible Vehicle-for-Hire 2	836	862	909	956	1007	1056	1104	1152	1205	1254	1303	1353	1402	1452																													
4	5	Accessible Vehicle-for-Hire 2	794	819	864	908	957	1003	1049	1094	1145	1191	1238	1285	1332	1379																													
4	10	Accessible Vehicle-for-Hire 2	752	776	818	860	906	950	994	1037	1084	1129	1173	1218	1262	1307																													
4	15	Accessible Vehicle-for-Hire 2	711	733	773	813	856	898	938	979	1024	1066	1108	1150	1192	1234																													
4	20	Accessible Vehicle-for-Hire 2	669	690	727	765	806	845	883	922	964	1003	1042	1082	1122	1162																													
4	25	Accessible Vehicle-for-Hire 2	627	646	682	717	755	792	828	864	904	940	977	1015	1051	1089																													
4	26	Accessible Vehicle-for-Hire 2	619	638	673	707	745	781	817	852	892	928	964	1001	1037	1074																													
4	27	Accessible Vehicle-for-Hire 2	610	629	664	698	735	771	806	841	880	915	951	988	1023	1060																													
4	28	Accessible Vehicle-for-Hire 2	602	621	654	688	725	760	795	829	868	903	938	974	1009	1045																													
4	29	Accessible Vehicle-for-Hire 2	594	612	645	679	715	750	784	818	856	890	925	961	995	1031																													
4	30	Accessible Vehicle-for-Hire 2	585	603	636	669	705	739	773	806	843	878	912	947	981	1016																													
4	33	Accessible Vehicle-for-Hire 2	560	578	609	641	675	708	740	772	807	840	873	907	939	973																													
4	0	Accessible Vehicle-for-Hire 3	870	897	946	995	1047	1098	1148	1198	1254	1304	1355	1407	1458	1510																													
4	5	Accessible Vehicle-for-Hire 3	826	852	899	945	995	1043	1091	1138	1191	1239	1287	1337	1385	1434																													
4	10	Accessible Vehicle-for-Hire 3	783	807	851	895	942	988	1033	1078	1129	1174	1219	1266	1312	1359																													
4	15	Accessible Vehicle-for-Hire 3	739	762	804	846	890	933	976	1018	1066	1108	1152	1196	1239	1283																													
4	20	Accessible Vehicle-for-Hire 3	696	718	757	796	838	878	918	958	1003	1043	1084	1126	1166	1208																													
4	25	Accessible Vehicle-for-Hire 3	652	673	709	746	785	823	861	898	940	978	1016	1055	1093	1132																													
4	26	Accessible Vehicle-for-Hire 3	644	664	700	736	775	813	850	887	928	965	1003	1041	1079	1117																													
4	27	Accessible Vehicle-for-Hire 3	635	655	691	726	764	802	838	875	915	952	989	1027	1064	1102																													
4	28	Accessible Vehicle-for-Hire 3	626	646	681	716	754	791	827	863	903	939	976	1013	1050	1087																													
4	29	Accessible Vehicle-for-Hire 3	618	637	672	706	743	780	815	851	890	926	962	999	1035	1072																													
4	30	Accessible Vehicle-for-Hire 3	609	628	662	696	733	769	804	839	878	913	948	985	1021	1057																													
4	33	Accessible Vehicle-for-Hire 3	583	601	634	667	701	736	769	803	840	874	908	943	977	1012																													
4	0	Accessible Vehicle-for-Hire 4	912	941	992	1043	1099	1152	1204	1257	1315	1368	1422	1476	1530	1584																													
4	5	Accessible Vehicle-for-Hire 4	866	894	942	991	1044	1094	1144	1194	1249	1300	1351	1402	1453	1505																													
4	10	Accessible Vehicle-for-Hire 4	821	847	893	939	989	1037	1084	1131	1183	1231	1280	1328	1377	1426																													
4	15	Accessible Vehicle-for-Hire 4	775	800	843	887	934	979	1023	1068	1118	1163	1209	1255	1300	1346																													
4	20	Accessible Vehicle-for-Hire 4	730	753	794	834	879	922	963	1006	1052	1094	1138	1181	1224	1267																													
4	25	Accessible Vehicle-for-Hire 4	684	706	744	782	824	864	903	943	986	1026	1066	1107	1147	1188																													
4	26	Accessible Vehicle-for-Hire 4	675	696	734	772	813	852	891	930	973	1012	1052	1092	1132	1172																													
4	27	Accessible Vehicle-for-Hire 4	666	687	724	761	802	841	879	918	960	999	1038	1077	1117	1156																													
4	28	Accessible Vehicle-for-Hire 4	657	678	714	751	791	829	867	905	947	985	1024	1063	1102	1140																													
4	29	Accessible Vehicle-for-Hire 4	648	668	704	741	780	818	855	892	934	971	1010	1048	1086	1125																													
4	30	Accessible Vehicle-for-Hire 4	638	659	694	730	769	806	843	880	920	958	995	1033	1071	1109																													
4	33	Accessible Vehicle-for-Hire 4	611	630	665	699	736	772	807	842	881	917	953	989	1025	1061																													
4	0	All Purpose Mobility Vehicle	65	66	67	69	72	75	79	83	87	92																															
4	5	All Purpose Mobility Vehicle	62	63	64	66	68	71	75	79	83	87																															
4	10	All Purpose Mobility Vehicle	58	59	60	62	65	67	71	75	78	83																															
4	15	All Purpose Mobility Vehicle	55	56	57	59	61	64	67	71	74	78																															
4	20	All Purpose Mobility Vehicle	52	53	54	55	58	60	63	66	70	74																															
4	25	All Purpose Mobility Vehicle	49	49	50	52	54	56	59	62	65	69																															
4	26	All Purpose Mobility Vehicle	48	49	50	51	53	55	58	61	64	68																															
4	27	All Purpose Mobility Vehicle	47	48	49	50	53	55	58	61	64	67																															
4	28	All Purpose Mobility Vehicle	47	48	48	50	52	54	57	60	63	66																															
4	29	All Purpose Mobility Vehicle	46	47	48	49	51	53	56	59	62	65																															
4	30	All Purpose Mobility Vehicle	45	46	47	48	50	52	55	58	61	64																															
4	33	All Purpose Mobility Vehicle	44	44	45	46	48	50	53	56	58	62																															
4	0	All Purpose Moped	432	440	446	457	478	500	524	550	579	609																															
4	5	All Purpose Moped	410	418	424	434	454	475	498	522	550	579																															
4	10	All Purpose Moped	389	396	401	411	430	450	472	495	521	548																															
4	15	All Purpose Moped	367	374	379	388	406	425	445	467	492	518																															
4	20	All Purpose Moped	346	352	357	366	382	400	419	440	463	487																															
4	25	All Purpose Moped	324	330	334	343	358	375	393	412	434	457																															
4	26	All Purpose Moped	320	326	330	338	354	370	388	407	428	451																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	All Purpose Moped	315	321	326	334	349	365	383	401	423	445																															
4	28	All Purpose Moped	311	317	321	329	344	360	377	396	417	438																															
4	29	All Purpose Moped	307	312	317	324	339	355	372	390	411	432																															
4	30	All Purpose Moped	302	308	312	320	335	350	367	385	405	426																															
4	33	All Purpose Moped	289	295	299	306	320	335	351	368	388	408																															
4	0	All Purpose Motorcycle - Motorscooter 500 cc or less	432	440	446	457	478	500	524	550	579	609																															
4	5	All Purpose Motorcycle - Motorscooter 500 cc or less	410	418	424	434	454	475	498	522	550	579																															
4	10	All Purpose Motorcycle - Motorscooter 500 cc or less	389	396	401	411	430	450	472	495	521	548																															
4	15	All Purpose Motorcycle - Motorscooter 500 cc or less	367	374	379	388	406	425	445	467	492	518																															
4	20	All Purpose Motorcycle - Motorscooter 500 cc or less	346	352	357	366	382	400	419	440	463	487																															
4	25	All Purpose Motorcycle - Motorscooter 500 cc or less	324	330	334	343	358	375	393	412	434	457																															
4	26	All Purpose Motorcycle - Motorscooter 500 cc or less	320	326	330	338	354	370	388	407	428	451																															
4	27	All Purpose Motorcycle - Motorscooter 500 cc or less	315	321	326	334	349	365	383	401	423	445																															
4	28	All Purpose Motorcycle - Motorscooter 500 cc or less	311	317	321	329	344	360	377	396	417	438																															
4	29	All Purpose Motorcycle - Motorscooter 500 cc or less	307	312	317	324	339	355	372	390	411	432																															
4	30	All Purpose Motorcycle - Motorscooter 500 cc or less	302	308	312	320	335	350	367	385	405	426																															
4	33	All Purpose Motorcycle - Motorscooter 500 cc or less	289	295	299	306	320	335	351	368	388	408																															
4	0	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	565	575	583	597	624	654	685	719	756	796																															
4	5	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	537	546	554	567	593	621	651	683	718	756																															
4	10	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	508	517	525	537	562	589	616	647	680	716																															
4	15	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	480	489	496	507	530	556	582	611	643	677																															
4	20	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	452	460	466	478	499	523	548	575	605	637																															
4	25	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	424	431	437	448	468	490	514	539	567	597																															
4	26	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	418	425	431	442	462	484	507	532	559	589																															
4	27	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	412	420	426	436	456	477	500	525	552	581																															
4	28	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	407	414	420	430	449	471	493	518	544	573																															
4	29	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	401	408	414	424	443	464	486	510	537	565																															
4	30	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	395	402	408	418	437	458	479	503	529	557																															
4	33	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	379	385	391	400	418	438	459	482	507	533																															
4	0	All Purpose Motorcycle - Motorscooter 1001 cc or more	565	575	583	597	624	654	685	719	756	796																															
4	5	All Purpose Motorcycle - Motorscooter 1001 cc or more	537	546	554	567	593	621	651	683	718	756																															
4	10	All Purpose Motorcycle - Motorscooter 1001 cc or more	508	517	525	537	562	589	616	647	680	716																															
4	15	All Purpose Motorcycle - Motorscooter 1001 cc or more	480	489	496	507	530	556	582	611	643	677																															
4	20	All Purpose Motorcycle - Motorscooter 1001 cc or more	452	460	466	478	499	523	548	575	605	637																															
4	25	All Purpose Motorcycle - Motorscooter 1001 cc or more	424	431	437	448	468	490	514	539	567	597																															
4	26	All Purpose Motorcycle - Motorscooter 1001 cc or more	418	425	431	442	462	484	507	532	559	589																															
4	27	All Purpose Motorcycle - Motorscooter 1001 cc or more	412	420	426	436	456	477	500	525	552	581																															
4	28	All Purpose Motorcycle - Motorscooter 1001 cc or more	407	414	420	430	449	471	493	518	544	573																															
4	29	All Purpose Motorcycle - Motorscooter 1001 cc or more	401	408	414	424	443	464	486	510	537	565																															
4	30	All Purpose Motorcycle - Motorscooter 1001 cc or more	395	402	408	418	437	458	479	503	529	557																															
4	33	All Purpose Motorcycle - Motorscooter 1001 cc or more	379	385	391	400	418	438	459	482	507	533																															
4	0	All Purpose Motorcycle - Other 500 cc or less	726	739	749	767	802	840	881	924	972	1023																															
4	5	All Purpose Motorcycle - Other 500 cc or less	690	702	712	729	762	798	837	878	923	972																															
4	10	All Purpose Motorcycle - Other 500 cc or less	653	665	674	690	722	756	793	832	875	921																															
4	15	All Purpose Motorcycle - Other 500 cc or less	617	628	637	652	682	714	749	785	826	870																															
4	20	All Purpose Motorcycle - Other 500 cc or less	581	591	599	614	642	672	705	739	778	818																															
4	25	All Purpose Motorcycle - Other 500 cc or less	544	554	562	575	601	630	661	693	729	767																															
4	26	All Purpose Motorcycle - Other 500 cc or less	537	547	554	568	593	622	652	684	719	757																															
4	27	All Purpose Motorcycle - Other 500 cc or less	530	539	547	560	585	613	643	675	710	747																															
4	28	All Purpose Motorcycle - Other 500 cc or less	523	532	539	552	577	605	634	665	700	737																															
4	29	All Purpose Motorcycle - Other 500 cc or less	515	525	532	545	569	596	626	656	690	726																															
4	30	All Purpose Motorcycle - Other 500 cc or less	508	517	524	537	561	588	617	647	680	716																															
4	33	All Purpose Motorcycle - Other 500 cc or less	486	495	502	514	537	563	590	619	651	685																															
4	0	All Purpose Motorcycle - Other 501 to 1000 cc	1024	1042	1057	1082	1132	1186	1242	1304	1371	1443																															
4	5	All Purpose Motorcycle - Other 501 to 1000 cc	973	990	1004	1028	1075	1127	1180	1239	1302	1371																															
4	10	All Purpose Motorcycle - Other 501 to 1000 cc	922	938	951	974	1019	1067	1118	1174	1234	1299																															
4	15	All Purpose Motorcycle - Other 501 to 1000 cc	870	886	898	920	962	1008	1056	1108	1165	1227																															
4	20	All Purpose Motorcycle - Other 501 to 1000 cc	819	834	846	866	906	949	994	1043	1097	1154																															
4	25	All Purpose Motorcycle - Other 501 to 1000 cc	768	781	793	811	849	889	931	978	1028	1082																															
4	26	All Purpose Motorcycle - Other 501 to 1000 cc	758	771	782	801	838	878	919	965	1015	1068																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	All Purpose Motorcycle - Other 501 to 1000 cc	748	761	772	790	826	866	907	952	1001	1053																															
4	28	All Purpose Motorcycle - Other 501 to 1000 cc	737	750	761	779	815	854	894	939	987	1039																															
4	29	All Purpose Motorcycle - Other 501 to 1000 cc	727	740	750	768	804	842	882	926	973	1025																															
4	30	All Purpose Motorcycle - Other 501 to 1000 cc	717	729	740	757	792	830	869	913	960	1010																															
4	33	All Purpose Motorcycle - Other 501 to 1000 cc	686	698	708	725	758	795	832	874	919	967																															
4	0	All Purpose Motorcycle - Other 1001 cc or more	1202	1223	1240	1270	1329	1391	1458	1531	1609	1694																															
4	5	All Purpose Motorcycle - Other 1001 cc or more	1142	1162	1178	1206	1263	1321	1385	1454	1529	1609																															
4	10	All Purpose Motorcycle - Other 1001 cc or more	1082	1101	1116	1143	1196	1252	1312	1378	1448	1525																															
4	15	All Purpose Motorcycle - Other 1001 cc or more	1022	1040	1054	1079	1130	1182	1239	1301	1368	1440																															
4	20	All Purpose Motorcycle - Other 1001 cc or more	962	978	992	1016	1063	1113	1166	1225	1287	1355																															
4	25	All Purpose Motorcycle - Other 1001 cc or more	901	917	930	952	997	1043	1093	1148	1207	1270																															
4	26	All Purpose Motorcycle - Other 1001 cc or more	889	905	918	940	983	1029	1079	1133	1191	1254																															
4	27	All Purpose Motorcycle - Other 1001 cc or more	877	893	905	927	970	1015	1064	1118	1175	1237																															
4	28	All Purpose Motorcycle - Other 1001 cc or more	865	881	893	914	957	1002	1050	1102	1158	1220																															
4	29	All Purpose Motorcycle - Other 1001 cc or more	853	868	880	902	944	988	1035	1087	1142	1203																															
4	30	All Purpose Motorcycle - Other 1001 cc or more	841	856	868	889	930	974	1021	1072	1126	1186																															
4	33	All Purpose Motorcycle - Other 1001 cc or more	805	819	831	851	890	932	977	1026	1078	1135																															
4	0	All Purpose Motorcycle - Sport 500 cc or less	1326	1349	1368	1401	1465	1535	1608	1688	1775	1868																															
4	5	All Purpose Motorcycle - Sport 500 cc or less	1260	1282	1300	1331	1392	1458	1528	1604	1686	1775																															
4	10	All Purpose Motorcycle - Sport 500 cc or less	1193	1214	1231	1261	1318	1381	1447	1519	1597	1681																															
4	15	All Purpose Motorcycle - Sport 500 cc or less	1127	1147	1163	1191	1245	1305	1367	1435	1509	1588																															
4	20	All Purpose Motorcycle - Sport 500 cc or less	1061	1079	1094	1121	1172	1228	1286	1350	1420	1494																															
4	25	All Purpose Motorcycle - Sport 500 cc or less	994	1012	1026	1051	1099	1151	1206	1266	1331	1401																															
4	26	All Purpose Motorcycle - Sport 500 cc or less	981	998	1012	1037	1084	1136	1190	1249	1313	1382																															
4	27	All Purpose Motorcycle - Sport 500 cc or less	968	985	999	1023	1069	1121	1174	1232	1296	1364																															
4	28	All Purpose Motorcycle - Sport 500 cc or less	955	971	985	1009	1055	1105	1158	1215	1278	1345																															
4	29	All Purpose Motorcycle - Sport 500 cc or less	941	958	971	995	1040	1090	1142	1198	1260	1326																															
4	30	All Purpose Motorcycle - Sport 500 cc or less	928	944	958	981	1025	1074	1126	1182	1242	1308																															
4	33	All Purpose Motorcycle - Sport 500 cc or less	888	904	917	939	982	1028	1077	1131	1189	1252																															
4	0	All Purpose Motorcycle - Sport 501 to 1000 cc	1951	1985	2013	2062	2156	2258	2366	2484	2611	2749																															
4	5	All Purpose Motorcycle - Sport 501 to 1000 cc	1853	1886	1912	1959	2048	2145	2248	2360	2480	2612																															
4	10	All Purpose Motorcycle - Sport 501 to 1000 cc	1756	1786	1812	1856	1940	2032	2129	2236	2350	2474																															
4	15	All Purpose Motorcycle - Sport 501 to 1000 cc	1658	1687	1711	1753	1833	1919	2011	2111	2219	2337																															
4	20	All Purpose Motorcycle - Sport 501 to 1000 cc	1561	1588	1610	1650	1725	1806	1893	1987	2089	2199																															
4	25	All Purpose Motorcycle - Sport 501 to 1000 cc	1463	1489	1510	1546	1617	1693	1774	1863	1958	2062																															
4	26	All Purpose Motorcycle - Sport 501 to 1000 cc	1444	1469	1490	1526	1595	1671	1751	1838	1932	2034																															
4	27	All Purpose Motorcycle - Sport 501 to 1000 cc	1424	1449	1469	1505	1574	1648	1727	1813	1906	2007																															
4	28	All Purpose Motorcycle - Sport 501 to 1000 cc	1405	1429	1449	1485	1552	1626	1704	1788	1880	1979																															
4	29	All Purpose Motorcycle - Sport 501 to 1000 cc	1385	1409	1429	1464	1531	1603	1680	1764	1854	1952																															
4	30	All Purpose Motorcycle - Sport 501 to 1000 cc	1366	1389	1409	1443	1509	1581	1656	1739	1828	1924																															
4	33	All Purpose Motorcycle - Sport 501 to 1000 cc	1307	1330	1349	1382	1445	1513	1585	1664	1749	1842																															
4	0	All Purpose Motorcycle - Sport 1001 cc or more	2334	2375	2408	2466	2579	2701	2831	2972	3124	3288																															
4	5	All Purpose Motorcycle - Sport 1001 cc or more	2217	2256	2288	2343	2450	2566	2689	2823	2968	3124																															
4	10	All Purpose Motorcycle - Sport 1001 cc or more	2101	2137	2167	2219	2321	2431	2548	2675	2812	2959																															
4	15	All Purpose Motorcycle - Sport 1001 cc or more	1984	2019	2047	2096	2192	2296	2406	2526	2655	2795																															
4	20	All Purpose Motorcycle - Sport 1001 cc or more	1867	1900	1926	1973	2063	2161	2265	2378	2499	2630																															
4	25	All Purpose Motorcycle - Sport 1001 cc or more	1750	1781	1806	1849	1934	2026	2123	2229	2343	2466																															
4	26	All Purpose Motorcycle - Sport 1001 cc or more	1727	1757	1782	1825	1908	1999	2095	2199	2312	2433																															
4	27	All Purpose Motorcycle - Sport 1001 cc or more	1704	1734	1758	1800	1883	1972	2067	2170	2281	2400																															
4	28	All Purpose Motorcycle - Sport 1001 cc or more	1680	1710	1734	1776	1857	1945	2038	2140	2249	2367																															
4	29	All Purpose Motorcycle - Sport 1001 cc or more	1657	1686	1710	1751	1831	1918	2010	2110	2218	2334																															
4	30	All Purpose Motorcycle - Sport 1001 cc or more	1634	1662	1686	1726	1805	1891	1982	2080	2187	2302																															
4	33	All Purpose Motorcycle - Sport 1001 cc or more	1564	1591	1613	1652	1728	1810	1897	1991	2093	2203																															
4	0	All Purpose Motorcycle - Sport Touring 500 cc or less	924	940	953	976	1021	1069	1120	1176	1236	1301																															
4	5	All Purpose Motorcycle - Sport Touring 500 cc or less	878	893	905	927	970	1016	1064	1117	1174	1236																															
4	10	All Purpose Motorcycle - Sport Touring 500 cc or less	832	846	858	878	919	962	1008	1058	1112	1171																															
4	15	All Purpose Motorcycle - Sport Touring 500 cc or less	785	799	810	830	868	909	952	1000	1051	1106																															
4	20	All Purpose Motorcycle - Sport Touring 500 cc or less	739	752	762	781	817	855	896	941	989	1041																															
4	25	All Purpose Motorcycle - Sport Touring 500 cc or less	693	705	715	732	766	802	840	882	927	976																															
4	26	All Purpose Motorcycle - Sport Touring 500 cc or less	684	696	705	722	756	791	829	870	915	963																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	All Purpose Motorcycle - Sport Touring 500 cc or less	675	686	696	712	745	780	818	858	902	950																															
4	28	All Purpose Motorcycle - Sport Touring 500 cc or less	665	677	686	703	735	770	806	847	890	937																															
4	29	All Purpose Motorcycle - Sport Touring 500 cc or less	656	667	677	693	725	759	795	835	878	924																															
4	30	All Purpose Motorcycle - Sport Touring 500 cc or less	647	658	667	683	715	748	784	823	865	911																															
4	33	All Purpose Motorcycle - Sport Touring 500 cc or less	619	630	639	654	684	716	750	788	828	872																															
4	0	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1288	1311	1329	1361	1424	1491	1562	1640	1724	1815																															
4	5	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1224	1245	1263	1293	1353	1416	1484	1558	1638	1724																															
4	10	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1159	1180	1196	1225	1282	1342	1406	1476	1552	1633																															
4	15	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1095	1114	1130	1157	1210	1267	1328	1394	1465	1543																															
4	20	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1030	1049	1063	1089	1139	1193	1250	1312	1379	1452																															
4	25	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	966	983	997	1021	1068	1118	1171	1230	1293	1361																															
4	26	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	953	970	983	1007	1054	1103	1156	1214	1276	1343																															
4	27	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	940	957	970	994	1040	1088	1140	1197	1259	1325																															
4	28	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	927	944	957	980	1025	1074	1125	1181	1241	1307																															
4	29	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	914	931	944	966	1011	1059	1109	1164	1224	1289																															
4	30	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	902	918	930	953	997	1044	1093	1148	1207	1270																															
4	33	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	863	878	890	912	954	999	1047	1099	1155	1216																															
4	0	All Purpose Motorcycle - Sport Touring 1001 cc or more	1623	1651	1674	1714	1793	1878	1968	2066	2171	2286																															
4	5	All Purpose Motorcycle - Sport Touring 1001 cc or more	1542	1568	1590	1628	1703	1784	1870	1963	2062	2172																															
4	10	All Purpose Motorcycle - Sport Touring 1001 cc or more	1461	1486	1507	1543	1614	1690	1771	1859	1954	2057																															
4	15	All Purpose Motorcycle - Sport Touring 1001 cc or more	1380	1403	1423	1457	1524	1596	1673	1756	1845	1943																															
4	20	All Purpose Motorcycle - Sport Touring 1001 cc or more	1298	1321	1339	1371	1434	1502	1574	1653	1737	1829																															
4	25	All Purpose Motorcycle - Sport Touring 1001 cc or more	1217	1238	1255	1285	1345	1408	1476	1549	1628	1714																															
4	26	All Purpose Motorcycle - Sport Touring 1001 cc or more	1201	1222	1239	1268	1327	1390	1456	1529	1607	1692																															
4	27	All Purpose Motorcycle - Sport Touring 1001 cc or more	1185	1205	1222	1251	1309	1371	1437	1508	1585	1669																															
4	28	All Purpose Motorcycle - Sport Touring 1001 cc or more	1169	1189	1205	1234	1291	1352	1417	1488	1563	1646																															
4	29	All Purpose Motorcycle - Sport Touring 1001 cc or more	1152	1172	1189	1217	1273	1333	1397	1467	1541	1623																															
4	30	All Purpose Motorcycle - Sport Touring 1001 cc or more	1136	1156	1172	1200	1255	1315	1378	1446	1520	1600																															
4	33	All Purpose Motorcycle - Sport Touring 1001 cc or more	1087	1106	1122	1148	1201	1258	1319	1384	1455	1532																															
4	0	All Purpose Motorcycle - Touring 500 cc or less	757	770	781	800	837	876	918	964	1014	1067																															
4	5	All Purpose Motorcycle - Touring 500 cc or less	719	731	742	760	795	832	872	916	963	1014																															
4	10	All Purpose Motorcycle - Touring 500 cc or less	681	693	703	720	753	788	826	868	913	960																															
4	15	All Purpose Motorcycle - Touring 500 cc or less	643	654	664	680	711	745	780	819	862	907																															
4	20	All Purpose Motorcycle - Touring 500 cc or less	606	616	625	640	670	701	734	771	811	854																															
4	25	All Purpose Motorcycle - Touring 500 cc or less	568	577	586	600	628	657	688	723	760	800																															
4	26	All Purpose Motorcycle - Touring 500 cc or less	560	570	578	592	619	648	679	713	750	790																															
4	27	All Purpose Motorcycle - Touring 500 cc or less	553	562	570	584	611	639	670	704	740	779																															
4	28	All Purpose Motorcycle - Touring 500 cc or less	545	554	562	576	603	631	661	694	730	768																															
4	29	All Purpose Motorcycle - Touring 500 cc or less	537	547	555	568	594	622	652	684	720	758																															
4	30	All Purpose Motorcycle - Touring 500 cc or less	530	539	547	560	586	613	643	675	710	747																															
4	33	All Purpose Motorcycle - Touring 500 cc or less	507	516	523	536	561	587	615	646	679	715																															
4	0	All Purpose Motorcycle - Touring 501 to 1000 cc	1003	1020	1035	1060	1108	1161	1216	1277	1342	1413																															
4	5	All Purpose Motorcycle - Touring 501 to 1000 cc	953	969	983	1007	1053	1103	1155	1213	1275	1342																															
4	10	All Purpose Motorcycle - Touring 501 to 1000 cc	903	918	931	954	997	1045	1094	1149	1208	1272																															
4	15	All Purpose Motorcycle - Touring 501 to 1000 cc	853	867	880	901	942	987	1034	1085	1141	1201																															
4	20	All Purpose Motorcycle - Touring 501 to 1000 cc	802	816	828	848	886	929	973	1022	1074	1130																															
4	25	All Purpose Motorcycle - Touring 501 to 1000 cc	752	765	776	795	831	871	912	958	1006	1060																															
4	26	All Purpose Motorcycle - Touring 501 to 1000 cc	742	755	766	784	820	859	900	945	993	1046																															
4	27	All Purpose Motorcycle - Touring 501 to 1000 cc	732	745	756	774	809	848	888	932	980	1031																															
4	28	All Purpose Motorcycle - Touring 501 to 1000 cc	722	734	745	763	798	836	876	919	966	1017																															
4	29	All Purpose Motorcycle - Touring 501 to 1000 cc	712	724	735	753	787	824	863	907	953	1003																															
4	30	All Purpose Motorcycle - Touring 501 to 1000 cc	702	714	724	742	776	813	851	894	939	989																															
4	33	All Purpose Motorcycle - Touring 501 to 1000 cc	672	683	693	710	742	778	815	856	899	947																															
4	0	All Purpose Motorcycle - Touring 1001 cc or more	1071	1090	1105	1132	1184	1240	1299	1364	1434	1509																															
4	5	All Purpose Motorcycle - Touring 1001 cc or more	1017	1035	1050	1075	1125	1178	1234	1296	1362	1434																															
4	10	All Purpose Motorcycle - Touring 1001 cc or more	964	981	994	1019	1066	1116	1169	1228	1291	1358																															
4	15	All Purpose Motorcycle - Touring 1001 cc or more	910	926	939	962	1006	1054	1104	1159	1219	1283																															
4	20	All Purpose Motorcycle - Touring 1001 cc or more	857	872	884	906	947	992	1039	1091	1147	1207																															
4	25	All Purpose Motorcycle - Touring 1001 cc or more	803	817	829	849	888	930	974	1023	1075	1132																															
4	26	All Purpose Motorcycle - Touring 1001 cc or more	793	807	818	838	876	918	961	1009	1061	1117																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	All Purpose Motorcycle - Touring 1001 cc or more	782	796	807	826	864	905	948	996	1047	1102																															
4	28	All Purpose Motorcycle - Touring 1001 cc or more	771	785	796	815	852	893	935	982	1032	1086																															
4	29	All Purpose Motorcycle - Touring 1001 cc or more	760	774	785	804	841	880	922	968	1018	1071																															
4	30	All Purpose Motorcycle - Touring 1001 cc or more	750	763	773	792	829	868	909	955	1004	1056																															
4	33	All Purpose Motorcycle - Touring 1001 cc or more	718	730	740	758	793	831	870	914	961	1011																															
4	0	All Purpose Motorhome	525	647	788	920	1045	1163	1286	1391	1505	1580	1711																														
4	5	All Purpose Motorhome	499	615	749	874	993	1105	1222	1321	1430	1501	1625																														
4	10	All Purpose Motorhome	472	582	709	828	940	1047	1157	1252	1354	1422	1540																														
4	15	All Purpose Motorhome	446	550	670	782	888	989	1093	1182	1279	1343	1454																														
4	20	All Purpose Motorhome	420	518	630	736	836	930	1029	1113	1204	1264	1369																														
4	25	All Purpose Motorhome	394	485	591	690	784	872	964	1043	1129	1185	1283																														
4	26	All Purpose Motorhome	388	479	583	681	773	861	952	1029	1114	1169	1266																														
4	27	All Purpose Motorhome	383	472	575	672	763	849	939	1015	1099	1153	1249																														
4	28	All Purpose Motorhome	378	466	567	662	752	837	926	1002	1084	1138	1232																														
4	29	All Purpose Motorhome	373	459	559	653	742	826	913	988	1069	1122	1215																														
4	30	All Purpose Motorhome	367	453	552	644	731	814	900	974	1053	1106	1198																														
4	33	All Purpose Motorhome	352	433	528	616	700	779	862	932	1008	1059	1146																														
4	0	All Purpose Passenger Vehicle	597	643	666	688	709	731	752	773	795	815	835	844	870	900	934	972	1013	1053	1096	1137	1180	1223	1263	1306	1349	1396	1441	1485	1531	1577	1621	1665	1707	1749	1787	1837	1881	1925	1969	2013	2058
4	5	All Purpose Passenger Vehicle	567	611	633	654	674	694	714	734	755	774	793	802	826	855	887	923	962	1000	1041	1080	1121	1162	1200	1241	1282	1326	1369	1411	1454	1498	1540	1582	1622	1662	1698	1745	1787	1829	1871	1912	1955
4	10	All Purpose Passenger Vehicle	537	579	599	619	638	658	677	696	715	733	751	760	783	810	841	875	912	948	986	1023	1062	1101	1137	1175	1214	1256	1297	1336	1378	1419	1459	1498	1536	1574	1608	1653	1693	1732	1772	1812	1852
4	15	All Purpose Passenger Vehicle	507	547	566	585	603	621	639	657	676	693	710	717	739	765	794	826	861	895	932	966	1003	1040	1074	1110	1147	1187	1225	1262	1301	1340	1378	1415	1451	1487	1519	1561	1599	1636	1674	1711	1749
4	20	All Purpose Passenger Vehicle	478	514	533	550	567	585	602	618	636	652	668	675	696	720	747	778	810	842	877	910	944	978	1010	1045	1079	1117	1153	1188	1225	1262	1297	1332	1366	1399	1430	1470	1505	1540	1575	1610	1646
4	25	All Purpose Passenger Vehicle	448	482	499	516	532	548	564	580	596	611	626	633	652	675	700	729	760	790	822	853	885	917	947	979	1012	1047	1081	1114	1148	1183	1216	1249	1280	1312	1340	1378	1411	1444	1477	1510	1543
4	26	All Purpose Passenger Vehicle	442	476	493	509	525	541	556	572	588	603	618	625	644	666	691	719	750	779	811	841	873	905	935	966	998	1033	1066	1099	1133	1167	1200	1232	1263	1294	1322	1359	1392	1424	1457	1490	1523
4	27	All Purpose Passenger Vehicle	436	469	486	502	518	534	549	564	580	595	610	616	635	657	682	710	739	769	800	830	861	893	922	953	985	1019	1052	1084	1118	1151	1183	1215	1246	1277	1305	1341	1373	1405	1437	1469	1502
4	28	All Purpose Passenger Vehicle	430	463	480	495	510	526	541	557	572	587	601	608	626	648	672	700	729	758	789	819	850	881	909	940	971	1005	1038	1069	1102	1135	1167	1199	1229	1259	1287	1323	1354	1386	1418	1449	1482
4	29	All Purpose Passenger Vehicle	424	457	473	488	503	519	534	549	564	579	593	599	618	639	663	690	719	748	778	807	838	868	897	927	958	991	1023	1054	1087	1120	1151	1182	1212	1242	1269	1304	1336	1367	1398	1429	1461
4	30	All Purpose Passenger Vehicle	418	450	466	482	496	512	526	541	556	570	584	591	609	630	654	680	709	737	767	796	826	856	884	914	944	977	1009	1039	1072	1104	1135	1165	1195	1224	1251	1286	1317	1347	1378	1409	1441
4	33	All Purpose Passenger Vehicle	400	431	446	461	475	490	504	518	533	546	559	565	583	603	626	651	679	706	734	762	791	819	846	875	904	935	965	995	1026	1057	1086	1116	1144	1172	1197	1231	1260	1290	1319	1349	1379
4	0	All Purpose Snow Vehicle (HTA)	247																																								
4	0	All Purpose Trailer $2500 or less	3																																								
4	0	All Purpose Trailer $2501 or more		16	46	77	108	139	156	167	180	192	205	217	229	242																											
4	0	All Purpose Truck 4,540 kg or less GVW	458	510	539	559	572	585	600	614	629	642	664	682	701	720	739	762	781	802	823	846	875	907	942	976	1011	1049	1083	1133	1169	1215	1273	1324	1377	1429	1476	1546	1603	1661	1722	1783	1846
4	5	All Purpose Truck 4,540 kg or less GVW	435	484	512	531	543	556	570	583	598	610	631	648	666	684	702	724	742	762	782	804	831	862	895	927	960	997	1029	1076	1111	1154	1209	1258	1308	1358	1402	1469	1523	1578	1636	1694	1754
4	10	All Purpose Truck 4,540 kg or less GVW	412	459	485	503	515	526	540	553	566	578	598	614	631	648	665	686	703	722	741	761	787	816	848	878	910	944	975	1020	1052	1093	1146	1192	1239	1286	1328	1391	1443	1495	1550	1605	1661
4	15	All Purpose Truck 4,540 kg or less GVW	389	433	458	475	486	497	510	522	535	546	564	580	596	612	628	648	664	682	700	719	744	771	801	830	859	892	921	963	994	1033	1082	1125	1170	1215	1255	1314	1363	1412	1464	1516	1569
4	20	All Purpose Truck 4,540 kg or less GVW	366	408	431	447	458	468	480	491	503	514	531	546	561	576	591	610	625	642	658	677	700	726	754	781	809	839	866	906	935	972	1018	1059	1102	1143	1181	1237	1282	1329	1378	1426	1477
4	25	All Purpose Truck 4,540 kg or less GVW	343	382	404	419	429	439	450	460	472	481	498	511	526	540	554	571	586	601	617	634	656	680	706	732	758	787	812	850	877	911	955	993	1033	1072	1107	1159	1202	1246	1291	1337	1384
4	26	All Purpose Truck 4,540 kg or less GVW	339	377	399	414	423	433	444	454	465	475	491	505	519	533	547	564	578	593	609	626	647	671	697	722	748	776	801	838	865	899	942	980	1019	1057	1092	1144	1186	1229	1274	1319	1366
4	27	All Purpose Truck 4,540 kg or less GVW	334	372	393	408	418	427	438	448	459	469	485	498	512	526	539	556	570	585	601	618	639	662	688	712	738	766	791	827	853	887	929	967	1005	1043	1077	1129	1170	1213	1257	1302	1348
4	28	All Purpose Truck 4,540 kg or less GVW	330	367	388	402	412	421	432	442	453	462	478	491	505	518	532	549	562	577	593	609	630	653	678	703	728	755	780	816	842	875	917	953	991	1029	1063	1113	1154	1196	1240	1284	1329
4	29	All Purpose Truck 4,540 kg or less GVW	325	362	383	397	406	415	426	436	447	456	471	484	498	511	525	541	555	569	584	601	621	644	669	693	718	745	769	804	830	863	904	940	978	1015	1048	1098	1138	1179	1223	1266	1311
4	30	All Purpose Truck 4,540 kg or less GVW	321	357	377	391	400	409	420	430	440	449	465	477	491	504	517	533	547	561	576	592	612	635	659	683	708	734	758	793	818	850	891	927	964	1000	1033	1082	1122	1163	1205	1248	1292
4	33	All Purpose Truck 4,540 kg or less GVW	307	342	361	375	383	392	402	411	421	430	445	457	470	482	495	511	523	537	551	567	586	608	631	654	677	703	726	759	783	814	853	887	923	957	989	1036	1074	1113	1154	1195	1237
4	0	Antique Vehicle - Bus	99																																								
4	0	Antique Vehicle - Motorcycle	99																																								
4	0	Antique Vehicle - Passenger Vehicle	99																																								
4	0	Antique Vehicle - Truck	99																																								
4	0	Artisan Truck 4,540 kg or less GVW	472	526	555	576	589	603	618	633	648	661	684	703	722	741	762	785	804	826	848	872	901	934	970	1005	1041	1080	1115	1167	1204	1251	1312	1364	1418	1472	1520	1586	1632	1676	1722	1759	1790
4	5	Artisan Truck 4,540 kg or less GVW	448	500	527	547	560	573	587	601	616	628	650	668	686	704	724	746	764	785	806	828	856	887	921	955	989	1026	1059	1109	1144	1188	1246	1296	1347	1398	1444	1507	1550	1592	1636	1671	1700
4	10	Artisan Truck 4,540 kg or less GVW	425	473	499	518	530	543	556	570	583	595	616	633	650	667	686	706	724	743	763	785	811	841	873	904	937	972	1003	1050	1084	1126	1181	1228	1276	1325	1368	1427	1469	1508	1550	1583	1611
4	15	Artisan Truck 4,540 kg or less GVW	401	447	472	490	501	513	525	538	551	562	581	598	614	630	648	667	683	702	721	741	766	794	824	854	885	918	948	992	1023	1063	1115	1159	1205	1251	1292	1348	1387	1425	1464	1495	1521
4	20	Artisan Truck 4,540 kg or less GVW	378	421	444	461	471	482	494	506	518	529	547	562	578	593	610	628	643	661	678	698	721	747	776	804	833	864	892	934	963	1001	1050	1091	1134	1178	1216	1269	1306	1341	1378	1407	1432
4	25	Artisan Truck 4,540 kg or less GVW	354	394	416	432	442	452	463	475	486	496	513	527	541	556	571	589	603	619	636	654	676	700	727	754	781	810	836	875	903	938	984	1023	1063	1104	1140	1189	1224	1257	1291	1319	1342
4	26	Artisan Truck 4,540 kg or less GVW	349	389	411	426	436	446	457	468	480	489	506	520	534	548	564	581	595	611	628	645	667	691	718	744	770	799	825	864	891	926	971	1009	1049	1089	1125	1174	1208	1240	1274	1302	1325
4	27	Artisan Truck 4,540 kg or less GVW	345	384	405	420	430	440	451	462	473	483	499	513	527	541	556	573	587	603	619	637	658	682	708	734	760	788	814	852	879	913	958	996	1035	1075	1110	1158	1191	1223	1257	1284	1307
4	28	Artisan Truck 4,540 kg or less GVW	340	379	400	415	424	434	445	456	467	476	492	506	520	534	549	565	579	595	611	628	649	672	698	724	750	778	803	840	867	901	945	982	1021	1060	1094	1142	1175	1207	1240	1266	1289
4	29	Artisan Truck 4,540 kg or less GVW	335	373	394	409	418	428	439	449	460	469	486	499	513	526	541	557	571	586	602	619	640	663	689	714	739	767	792	829	855	888	932	968	1007	1045	1079	1126	1159	1190	1223	1249	1271
4	30	Artisan Truck 4,540 kg or less GVW	330	368	388	403	412	422	433	443	454	463	479	492	505	519	533	549	563	578	594	610	631	654	679	703	729	756	780	817	843	876	918	955	993	1030	1064	1110	1142	1173	1205	1231	1253
4	33	Artisan Truck 4,540 kg or less GVW	316	352	372	386	395	404	414	424	434	443	458	471	484	496	511	526	539	553	568	584	604	626	650	673	697	724	747	782	807	838	879	914	950	986	1018	1063	1093	1123	1154	1179	1199

| TERR | DISC % | INSURANCE USE DESCRIPTION | RATING GROUPS | | |

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TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	Pleasure Motorcycle - Other 500 cc or less	293	299	303	310	324	339	356	374	393	413																															
4	28	Pleasure Motorcycle - Other 500 cc or less	289	294	299	306	320	335	351	369	387	408																															
4	29	Pleasure Motorcycle - Other 500 cc or less	285	290	295	302	315	330	346	364	382	402																															
4	30	Pleasure Motorcycle - Other 500 cc or less	281	286	290	297	311	325	341	358	377	396																															
4	33	Pleasure Motorcycle - Other 500 cc or less	269	274	278	285	297	312	326	343	360	379																															
4	0	Pleasure Motorcycle - Other 501 to 1000 cc	658	670	679	695	727	762	798	838	881	927																															
4	5	Pleasure Motorcycle - Other 501 to 1000 cc	625	636	645	660	691	724	758	796	837	881																															
4	10	Pleasure Motorcycle - Other 501 to 1000 cc	592	603	611	625	654	686	718	754	793	834																															
4	15	Pleasure Motorcycle - Other 501 to 1000 cc	559	569	577	591	618	648	678	712	749	788																															
4	20	Pleasure Motorcycle - Other 501 to 1000 cc	526	536	543	556	582	610	638	670	705	742																															
4	25	Pleasure Motorcycle - Other 501 to 1000 cc	493	502	509	521	545	571	598	628	661	695																															
4	26	Pleasure Motorcycle - Other 501 to 1000 cc	487	496	502	514	538	564	591	620	652	686																															
4	27	Pleasure Motorcycle - Other 501 to 1000 cc	480	489	496	507	531	556	583	612	643	677																															
4	28	Pleasure Motorcycle - Other 501 to 1000 cc	474	482	489	500	523	549	575	603	634	667																															
4	29	Pleasure Motorcycle - Other 501 to 1000 cc	467	476	482	493	516	541	567	595	626	658																															
4	30	Pleasure Motorcycle - Other 501 to 1000 cc	461	469	475	486	509	533	559	587	617	649																															
4	33	Pleasure Motorcycle - Other 501 to 1000 cc	441	449	455	466	487	511	535	561	590	621																															
4	0	Pleasure Motorcycle - Other 1001 cc or more	727	740	750	768	804	842	882	926	973	1024																															
4	5	Pleasure Motorcycle - Other 1001 cc or more	691	703	712	730	764	800	838	880	924	973																															
4	10	Pleasure Motorcycle - Other 1001 cc or more	654	666	675	691	724	758	794	833	876	922																															
4	15	Pleasure Motorcycle - Other 1001 cc or more	618	629	637	653	683	716	750	787	827	870																															
4	20	Pleasure Motorcycle - Other 1001 cc or more	582	592	600	614	643	674	706	741	778	819																															
4	25	Pleasure Motorcycle - Other 1001 cc or more	545	555	562	576	603	631	661	694	730	768																															
4	26	Pleasure Motorcycle - Other 1001 cc or more	538	548	555	568	595	623	653	685	720	758																															
4	27	Pleasure Motorcycle - Other 1001 cc or more	531	540	547	561	587	615	644	676	710	748																															
4	28	Pleasure Motorcycle - Other 1001 cc or more	523	533	540	553	579	606	635	667	701	737																															
4	29	Pleasure Motorcycle - Other 1001 cc or more	516	525	532	545	571	598	626	657	691	727																															
4	30	Pleasure Motorcycle - Other 1001 cc or more	509	518	525	538	563	589	617	648	681	717																															
4	33	Pleasure Motorcycle - Other 1001 cc or more	487	496	502	515	539	564	591	620	652	686																															
4	0	Pleasure Motorcycle - Sport 500 cc or less	589	599	608	623	651	682	714	750	788	830																															
4	5	Pleasure Motorcycle - Sport 500 cc or less	560	569	578	592	618	648	678	712	749	788																															
4	10	Pleasure Motorcycle - Sport 500 cc or less	530	539	547	561	586	614	643	675	709	747																															
4	15	Pleasure Motorcycle - Sport 500 cc or less	501	509	517	530	553	580	607	637	670	705																															
4	20	Pleasure Motorcycle - Sport 500 cc or less	471	479	486	498	521	546	571	600	630	664																															
4	25	Pleasure Motorcycle - Sport 500 cc or less	442	449	456	467	488	511	535	562	591	622																															
4	26	Pleasure Motorcycle - Sport 500 cc or less	436	443	450	461	482	505	528	555	583	614																															
4	27	Pleasure Motorcycle - Sport 500 cc or less	430	437	444	455	475	498	521	547	575	606																															
4	28	Pleasure Motorcycle - Sport 500 cc or less	424	431	438	449	469	491	514	540	567	598																															
4	29	Pleasure Motorcycle - Sport 500 cc or less	418	425	432	442	462	484	507	532	559	589																															
4	30	Pleasure Motorcycle - Sport 500 cc or less	412	419	426	436	456	477	500	525	552	581																															
4	33	Pleasure Motorcycle - Sport 500 cc or less	395	401	407	417	436	457	478	502	528	556																															
4	0	Pleasure Motorcycle - Sport 501 to 1000 cc	1014	1032	1046	1072	1121	1174	1230	1291	1357	1429																															
4	5	Pleasure Motorcycle - Sport 501 to 1000 cc	963	980	994	1018	1065	1115	1168	1226	1289	1358																															
4	10	Pleasure Motorcycle - Sport 501 to 1000 cc	913	929	941	965	1009	1057	1107	1162	1221	1286																															
4	15	Pleasure Motorcycle - Sport 501 to 1000 cc	862	877	889	911	953	998	1045	1097	1153	1215																															
4	20	Pleasure Motorcycle - Sport 501 to 1000 cc	811	826	837	858	897	939	984	1033	1086	1143																															
4	25	Pleasure Motorcycle - Sport 501 to 1000 cc	760	774	784	804	841	880	922	968	1018	1072																															
4	26	Pleasure Motorcycle - Sport 501 to 1000 cc	750	764	774	793	830	869	910	955	1004	1057																															
4	27	Pleasure Motorcycle - Sport 501 to 1000 cc	740	753	764	783	818	857	898	942	991	1043																															
4	28	Pleasure Motorcycle - Sport 501 to 1000 cc	730	743	753	772	807	845	886	930	977	1029																															
4	29	Pleasure Motorcycle - Sport 501 to 1000 cc	720	733	743	761	796	834	873	917	963	1015																															
4	30	Pleasure Motorcycle - Sport 501 to 1000 cc	710	722	732	750	785	822	861	904	950	1000																															
4	33	Pleasure Motorcycle - Sport 501 to 1000 cc	679	691	701	718	751	787	824	865	909	957																															
4	0	Pleasure Motorcycle - Sport 1001 cc or more	1343	1366	1386	1419	1484	1554	1629	1710	1798	1892																															
4	5	Pleasure Motorcycle - Sport 1001 cc or more	1276	1298	1317	1348	1410	1476	1548	1624	1708	1797																															
4	10	Pleasure Motorcycle - Sport 1001 cc or more	1209	1229	1247	1277	1336	1399	1466	1539	1618	1703																															
4	15	Pleasure Motorcycle - Sport 1001 cc or more	1142	1161	1178	1206	1261	1321	1385	1453	1528	1608																															
4	20	Pleasure Motorcycle - Sport 1001 cc or more	1074	1093	1109	1135	1187	1243	1303	1368	1438	1514																															
4	25	Pleasure Motorcycle - Sport 1001 cc or more	1007	1024	1039	1064	1113	1165	1222	1282	1348	1419																															
4	26	Pleasure Motorcycle - Sport 1001 cc or more	994	1011	1026	1050	1098	1150	1205	1265	1331	1400																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	Pleasure Motorcycle - Sport 1001 cc or more	980	997	1012	1036	1083	1134	1189	1248	1313	1381																															
4	28	Pleasure Motorcycle - Sport 1001 cc or more	967	984	998	1022	1068	1119	1173	1231	1295	1362																															
4	29	Pleasure Motorcycle - Sport 1001 cc or more	954	970	984	1007	1054	1103	1157	1214	1277	1343																															
4	30	Pleasure Motorcycle - Sport 1001 cc or more	940	956	970	993	1039	1088	1140	1197	1259	1324																															
4	33	Pleasure Motorcycle - Sport 1001 cc or more	900	915	929	951	994	1041	1091	1146	1205	1268																															
4	0	Pleasure Motorcycle - Sport Touring 500 cc or less	490	498	505	517	541	567	594	623	655	690																															
4	5	Pleasure Motorcycle - Sport Touring 500 cc or less	465	473	480	491	514	539	564	592	622	655																															
4	10	Pleasure Motorcycle - Sport Touring 500 cc or less	441	448	454	465	487	510	535	561	589	621																															
4	15	Pleasure Motorcycle - Sport Touring 500 cc or less	416	423	429	439	460	482	505	530	557	586																															
4	20	Pleasure Motorcycle - Sport Touring 500 cc or less	392	398	404	414	433	454	475	498	524	552																															
4	25	Pleasure Motorcycle - Sport Touring 500 cc or less	367	373	379	388	406	425	445	467	491	517																															
4	26	Pleasure Motorcycle - Sport Touring 500 cc or less	363	369	374	383	400	420	440	461	485	511																															
4	27	Pleasure Motorcycle - Sport Touring 500 cc or less	358	364	369	377	395	414	434	455	478	504																															
4	28	Pleasure Motorcycle - Sport Touring 500 cc or less	353	359	364	372	390	408	428	449	472	497																															
4	29	Pleasure Motorcycle - Sport Touring 500 cc or less	348	354	359	367	384	403	422	442	465	490																															
4	30	Pleasure Motorcycle - Sport Touring 500 cc or less	343	349	353	362	379	397	416	436	458	483																															
4	33	Pleasure Motorcycle - Sport Touring 500 cc or less	328	334	338	346	362	380	398	417	439	462																															
4	0	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	663	674	684	700	732	767	804	844	887	933																															
4	5	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	630	640	650	665	695	729	764	802	843	886																															
4	10	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	597	607	616	630	659	690	724	760	798	840																															
4	15	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	564	573	581	595	622	652	683	717	754	793																															
4	20	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	530	539	547	560	586	614	643	675	710	746																															
4	25	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	497	505	513	525	549	575	603	633	665	700																															
4	26	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	491	499	506	518	542	568	595	625	656	690																															
4	27	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	484	492	499	511	534	560	587	616	648	681																															
4	28	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	477	485	492	504	527	552	579	608	639	672																															
4	29	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	471	479	486	497	520	545	571	599	630	662																															
4	30	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	464	472	479	490	512	537	563	591	621	653																															
4	33	Pleasure Motorcycle - Sport Touring 501 to 1000 cc	444	452	458	469	490	514	539	565	594	625																															
4	0	Pleasure Motorcycle - Sport Touring 1001 cc or more	901	916	929	952	995	1042	1092	1147	1205	1269																															
4	5	Pleasure Motorcycle - Sport Touring 1001 cc or more	856	870	883	904	945	990	1037	1090	1145	1206																															
4	10	Pleasure Motorcycle - Sport Touring 1001 cc or more	811	824	836	857	895	938	983	1032	1084	1142																															
4	15	Pleasure Motorcycle - Sport Touring 1001 cc or more	766	779	790	809	846	886	928	975	1024	1079																															
4	20	Pleasure Motorcycle - Sport Touring 1001 cc or more	721	733	743	762	796	834	874	918	964	1015																															
4	25	Pleasure Motorcycle - Sport Touring 1001 cc or more	676	687	697	714	746	781	819	860	904	952																															
4	26	Pleasure Motorcycle - Sport Touring 1001 cc or more	667	678	687	704	736	771	808	849	892	939																															
4	27	Pleasure Motorcycle - Sport Touring 1001 cc or more	658	669	678	695	726	761	797	837	880	926																															
4	28	Pleasure Motorcycle - Sport Touring 1001 cc or more	649	660	669	685	716	750	786	826	868	914																															
4	29	Pleasure Motorcycle - Sport Touring 1001 cc or more	640	650	660	676	706	740	775	814	856	901																															
4	30	Pleasure Motorcycle - Sport Touring 1001 cc or more	631	641	650	666	696	729	764	803	843	888																															
4	33	Pleasure Motorcycle - Sport Touring 1001 cc or more	604	614	622	638	667	698	732	768	807	850																															
4	0	Pleasure Motorcycle - Touring 500 cc or less	410	418	423	434	454	475	498	523	549	578																															
4	5	Pleasure Motorcycle - Touring 500 cc or less	389	397	402	412	431	451	473	497	522	549																															
4	10	Pleasure Motorcycle - Touring 500 cc or less	369	376	381	391	409	427	448	471	494	520																															
4	15	Pleasure Motorcycle - Touring 500 cc or less	348	355	360	369	386	404	423	445	467	491																															
4	20	Pleasure Motorcycle - Touring 500 cc or less	328	334	338	347	363	380	398	418	439	462																															
4	25	Pleasure Motorcycle - Touring 500 cc or less	307	313	317	325	340	356	373	392	412	433																															
4	26	Pleasure Motorcycle - Touring 500 cc or less	303	309	313	321	336	351	369	387	406	428																															
4	27	Pleasure Motorcycle - Touring 500 cc or less	299	305	309	317	331	347	364	382	401	422																															
4	28	Pleasure Motorcycle - Touring 500 cc or less	295	301	305	312	327	342	359	377	395	416																															
4	29	Pleasure Motorcycle - Touring 500 cc or less	291	297	300	308	322	337	354	371	390	410																															
4	30	Pleasure Motorcycle - Touring 500 cc or less	287	293	296	304	318	332	349	366	384	405																															
4	33	Pleasure Motorcycle - Touring 500 cc or less	275	280	283	291	304	318	334	350	368	387																															
4	0	Pleasure Motorcycle - Touring 501 to 1000 cc	592	602	610	625	654	685	718	753	792	834																															
4	5	Pleasure Motorcycle - Touring 501 to 1000 cc	562	572	579	594	621	651	682	715	752	792																															
4	10	Pleasure Motorcycle - Touring 501 to 1000 cc	533	542	549	562	589	616	646	678	713	751																															
4	15	Pleasure Motorcycle - Touring 501 to 1000 cc	503	512	518	531	556	582	610	640	673	709																															
4	20	Pleasure Motorcycle - Touring 501 to 1000 cc	474	482	488	500	523	548	574	602	634	667																															
4	25	Pleasure Motorcycle - Touring 501 to 1000 cc	444	451	457	469	490	514	538	565	594	625																															
4	26	Pleasure Motorcycle - Touring 501 to 1000 cc	438	445	451	462	484	507	531	557	586	617																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	27	Pleasure Motorcycle - Touring 501 to 1000 cc	432	439	445	456	477	500	524	550	578	609																															
4	28	Pleasure Motorcycle - Touring 501 to 1000 cc	426	433	439	450	471	493	517	542	570	600																															
4	29	Pleasure Motorcycle - Touring 501 to 1000 cc	420	427	433	444	464	486	510	535	562	592																															
4	30	Pleasure Motorcycle - Touring 501 to 1000 cc	414	421	427	437	458	479	503	527	554	584																															
4	33	Pleasure Motorcycle - Touring 501 to 1000 cc	397	403	409	419	438	459	481	505	531	559																															
4	0	Pleasure Motorcycle - Touring 1001 cc or more	691	703	712	730	763	799	838	879	924	973																															
4	5	Pleasure Motorcycle - Touring 1001 cc or more	656	668	676	693	725	759	796	835	878	924																															
4	10	Pleasure Motorcycle - Touring 1001 cc or more	622	633	641	657	687	719	754	791	832	876																															
4	15	Pleasure Motorcycle - Touring 1001 cc or more	587	598	605	620	649	679	712	747	785	827																															
4	20	Pleasure Motorcycle - Touring 1001 cc or more	553	562	570	584	610	639	670	703	739	778																															
4	25	Pleasure Motorcycle - Touring 1001 cc or more	518	527	534	547	572	599	628	659	693	730																															
4	26	Pleasure Motorcycle - Touring 1001 cc or more	511	520	527	540	565	591	620	650	684	720																															
4	27	Pleasure Motorcycle - Touring 1001 cc or more	504	513	520	533	557	583	612	642	675	710																															
4	28	Pleasure Motorcycle - Touring 1001 cc or more	498	506	513	526	549	575	603	633	665	701																															
4	29	Pleasure Motorcycle - Touring 1001 cc or more	491	499	506	518	542	567	595	624	656	691																															
4	30	Pleasure Motorcycle - Touring 1001 cc or more	484	492	498	511	534	559	587	615	647	681																															
4	33	Pleasure Motorcycle - Touring 1001 cc or more	463	471	477	489	511	535	561	589	619	652																															
4	0	Pleasure Motorhome	480	591	720	840	955	1062	1174	1270	1375	1444	1563																															
4	5	Pleasure Motorhome	456	561	684	798	907	1009	1115	1206	1306	1372	1485																															
4	10	Pleasure Motorhome	432	532	648	756	859	956	1057	1143	1237	1300	1407																															
4	15	Pleasure Motorhome	408	502	612	714	812	903	998	1079	1169	1227	1329																															
4	20	Pleasure Motorhome	384	473	576	672	764	850	939	1016	1100	1155	1250																															
4	25	Pleasure Motorhome	360	443	540	630	716	796	880	952	1031	1083	1172																															
4	26	Pleasure Motorhome	355	437	533	622	707	786	869	940	1017	1069	1157																															
4	27	Pleasure Motorhome	350	431	526	613	697	775	857	927	1004	1054	1141																															
4	28	Pleasure Motorhome	346	426	518	605	688	765	845	914	990	1040	1125																															
4	29	Pleasure Motorhome	341	420	511	596	678	754	834	902	976	1025	1110																															
4	30	Pleasure Motorhome	336	414	504	588	668	743	822	889	962	1011	1094																															
4	33	Pleasure Motorhome	322	396	482	563	640	712	787	851	921	967	1047																															
4	0	Pleasure Passenger Vehicle	512	551	571	589	608	626	644	662	681	699	715	723	746	771	800	833	868	902	940	974	1011	1048	1083	1119	1156	1196	1235	1273	1312	1351	1390	1427	1463	1498	1532	1574	1612	1650	1688	1725	1763
4	5	Pleasure Passenger Vehicle	486	523	542	560	578	595	612	629	647	664	679	687	709	732	760	791	825	857	893	925	960	996	1029	1063	1098	1136	1173	1209	1246	1283	1320	1356	1390	1423	1455	1495	1531	1567	1604	1639	1675
4	10	Pleasure Passenger Vehicle	461	496	514	530	547	563	580	596	613	629	643	651	671	694	720	750	781	812	846	877	910	943	975	1007	1040	1076	1111	1146	1181	1216	1251	1284	1317	1348	1379	1417	1451	1485	1519	1552	1587
4	15	Pleasure Passenger Vehicle	435	468	485	501	517	532	547	563	579	594	608	615	634	655	680	708	738	767	799	828	859	891	921	951	983	1017	1050	1082	1115	1148	1181	1213	1244	1273	1302	1338	1370	1402	1435	1466	1499
4	20	Pleasure Passenger Vehicle	410	441	457	471	486	501	515	530	545	559	572	578	597	617	640	666	694	722	752	779	809	838	866	895	925	957	988	1018	1050	1081	1112	1142	1170	1198	1226	1259	1290	1320	1350	1380	1410
4	25	Pleasure Passenger Vehicle	384	413	428	442	456	469	483	496	511	524	536	542	559	578	600	625	651	676	705	730	758	786	812	839	867	897	926	955	984	1013	1042	1070	1097	1123	1149	1180	1209	1237	1266	1294	1322
4	26	Pleasure Passenger Vehicle	379	408	423	436	450	463	477	490	504	517	529	535	552	571	592	616	642	667	696	721	748	776	801	828	855	885	914	942	971	1000	1029	1056	1083	1109	1134	1165	1193	1221	1249	1276	1305
4	27	Pleasure Passenger Vehicle	374	402	417	430	444	457	470	483	497	510	522	528	545	563	584	608	634	658	686	711	738	765	791	817	844	873	902	929	958	986	1015	1042	1068	1094	1118	1149	1177	1204	1232	1259	1287
4	28	Pleasure Passenger Vehicle	369	397	411	424	438	451	464	477	490	503	515	521	537	555	576	600	625	649	677	701	728	755	780	806	832	861	889	917	945	973	1001	1027	1053	1079	1103	1133	1161	1188	1215	1242	1269
4	29	Pleasure Passenger Vehicle	364	391	405	418	432	444	457	470	484	496	508	513	530	547	568	591	616	640	667	692	718	744	769	794	821	849	877	904	932	959	987	1013	1039	1064	1088	1118	1145	1171	1198	1225	1252
4	30	Pleasure Passenger Vehicle	358	386	400	412	426	438	451	463	477	489	500	506	522	540	560	583	608	631	658	682	708	734	758	783	809	837	864	891	918	946	973	999	1024	1049	1072	1102	1128	1155	1182	1207	1234
4	33	Pleasure Passenger Vehicle	343	369	383	395	407	419	431	444	456	468	479	484	500	517	536	558	582	604	630	653	677	702	726	750	775	801	827	853	879	905	931	956	980	1004	1026	1055	1080	1105	1131	1156	1181
4	0	Pleasure Truck 4,540 kg or less GVW	386	429	453	470	481	492	504	517	529	540	558	574	590	605	622	641	657	675	692	712	736	763	792	821	850	882	911	953	983	1022	1071	1114	1158	1202	1242	1300	1348	1398	1448	1500	1553
4	5	Pleasure Truck 4,540 kg or less GVW	367	408	430	446	457	467	479	491	503	513	530	545	560	575	591	609	624	641	657	676	699	725	752	780	807	838	865	905	934	971	1017	1058	1100	1142	1180	1235	1281	1328	1376	1425	1475
4	10	Pleasure Truck 4,540 kg or less GVW	347	386	408	423	433	443	454	465	476	486	502	517	531	544	560	577	591	607	623	641	662	687	713	739	765	794	820	858	885	920	964	1003	1042	1082	1118	1170	1213	1258	1303	1350	1398
4	15	Pleasure Truck 4,540 kg or less GVW	328	365	385	399	409	418	428	439	450	459	474	488	501	514	529	545	558	574	588	605	626	649	673	698	722	750	774	810	836	869	910	947	984	1022	1056	1105	1146	1188	1231	1275	1320
4	20	Pleasure Truck 4,540 kg or less GVW	309	343	362	376	385	394	403	414	423	432	446	459	472	484	498	513	526	540	554	570	589	610	634	657	680	706	729	762	786	818	857	891	926	962	994	1040	1078	1118	1158	1200	1242
4	25	Pleasure Truck 4,540 kg or less GVW	289	322	340	352	361	369	378	388	397	405	418	430	442	454	466	481	493	506	519	534	552	572	594	616	637	661	683	715	737	766	803	835	868	901	931	975	1011	1048	1086	1125	1165
4	26	Pleasure Truck 4,540 kg or less GVW	286	317	335	348	356	364	373	383	391	400	413	425	437	448	460	474	486	499	512	527	545	565	586	608	629	653	674	705	727	756	793	824	857	889	919	962	998	1035	1072	1110	1149
4	27	Pleasure Truck 4,540 kg or less GVW	282	313	331	343	351	359	368	377	386	394	407	419	431	442	454	468	480	493	505	520	537	557	578	599	620	644	665	696	718	746	782	813	845	877	907	949	984	1021	1057	1095	1134
4	28	Pleasure Truck 4,540 kg or less GVW	278	309	326	338	346	354	363	372	381	389	402	413	425	436	448	462	473	486	498	513	530	549	570	591	612	635	656	686	708	736	771	802	834	865	894	936	971	1007	1043	1080	1118
4	29	Pleasure Truck 4,540 kg or less GVW	274	305	322	334	342	349	358	367	376	383	396	408	419	430	442	455	466	479	491	506	523	542	562	583	603	626	647	677	698	726	760	791	822	853	882	923	957	993	1028	1065	1103
4	30	Pleasure Truck 4,540 kg or less GVW	270	300	317	329	337	344	353	362	370	378	391	402	413	423	435	449	460	472	484	498	515	534	554	575	595	617	638	667	688	715	750	780	811	841	869	910	944	979	1014	1050	1087
4	33	Pleasure Truck 4,540 kg or less GVW	259	287	304	315	322	330	338	346	354	362	374	385	395	405	417	429	440	452	464	477	493	511	531	550	569	591	610	639	659	685	718	746	776	805	832	871	903	937	970	1005	1041
4	0	Police/Emergency Passenger Vehicle	847	912	945	975	1006	1037	1066	1096	1127	1157	1184	1197	1234	1277	1325	1380	1437	1493	1555	1613	1674	1735	1792	1853	1913	1980	2045	2107	2172	2237	2300	2362	2421	2481	2535	2605	2668	2731	2794	2856	2919
4	0	Police/Emergency Truck 4,540 kg or less GVW	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025
4	0	Police/Emergency Truck 4,541 to 16,330 kg GVW		777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777																							
4	0	Police/Emergency Truck 16,331 kg or more GVW		674	674	674	674	674	674	674	674	674	674	674	674	674	674	674	674	674																							
4	0	Repairer	248																																									
4	0	Sand/Gravel Truck 10,891 to 16,330 kg GVW		508	586	635	685	734	786	836	885	934	985	1036	1087	1137	1189	1241	1285	1336																							
4	0	Sand/Gravel Truck 16,331 kg or more GVW		691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691																							

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	0	School Bus 20 seats or less	260	269	283	298	314	329	344	359	375	391	406	421	437	452																													
4	0	School Bus 21 to 35 seats	284	293	309	325	342	358	375	391	409	426	443	459	476	493																													
4	0	School Bus 36 to 50 seats	323	333	351	369	389	408	426	445	466	484	503	522	542	561																													
4	0	School Bus 51 seats or more	332	342	361	380	400	419	438	457	478	498	517	537	556	576																													
4	0	Taxicab Vehicle-for-Hire 1	2976																																									
4	5	Taxicab Vehicle-for-Hire 1	2827																																									
4	10	Taxicab Vehicle-for-Hire 1	2678																																									
4	15	Taxicab Vehicle-for-Hire 1	2530																																									
4	20	Taxicab Vehicle-for-Hire 1	2381																																									
4	25	Taxicab Vehicle-for-Hire 1	2232																																									
4	26	Taxicab Vehicle-for-Hire 1	2202																																									
4	27	Taxicab Vehicle-for-Hire 1	2172																																									
4	28	Taxicab Vehicle-for-Hire 1	2143																																									
4	29	Taxicab Vehicle-for-Hire 1	2113																																									
4	30	Taxicab Vehicle-for-Hire 1	2083																																									
4	33	Taxicab Vehicle-for-Hire 1	1994																																									
4	0	Taxicab Vehicle-for-Hire 2	4140																																									
4	5	Taxicab Vehicle-for-Hire 2	3933																																									
4	10	Taxicab Vehicle-for-Hire 2	3726																																									
4	15	Taxicab Vehicle-for-Hire 2	3519																																									
4	20	Taxicab Vehicle-for-Hire 2	3312																																									
4	25	Taxicab Vehicle-for-Hire 2	3105																																									
4	26	Taxicab Vehicle-for-Hire 2	3064																																									
4	27	Taxicab Vehicle-for-Hire 2	3022																																									
4	28	Taxicab Vehicle-for-Hire 2	2981																																									
4	29	Taxicab Vehicle-for-Hire 2	2939																																									
4	30	Taxicab Vehicle-for-Hire 2	2898																																									
4	33	Taxicab Vehicle-for-Hire 2	2774																																									
4	0	Taxicab Vehicle-for-Hire 3	5304																																									
4	5	Taxicab Vehicle-for-Hire 3	5039																																									
4	10	Taxicab Vehicle-for-Hire 3	4774																																									
4	15	Taxicab Vehicle-for-Hire 3	4508																																									
4	20	Taxicab Vehicle-for-Hire 3	4243																																									
4	25	Taxicab Vehicle-for-Hire 3	3978																																									
4	26	Taxicab Vehicle-for-Hire 3	3925																																									
4	27	Taxicab Vehicle-for-Hire 3	3872																																									
4	28	Taxicab Vehicle-for-Hire 3	3819																																									
4	29	Taxicab Vehicle-for-Hire 3	3766																																									
4	30	Taxicab Vehicle-for-Hire 3	3713																																									
4	33	Taxicab Vehicle-for-Hire 3	3554																																									
4	0	Taxicab Vehicle-for-Hire 4	6468																																									
4	5	Taxicab Vehicle-for-Hire 4	6145																																									
4	10	Taxicab Vehicle-for-Hire 4	5821																																									
4	15	Taxicab Vehicle-for-Hire 4	5498																																									
4	20	Taxicab Vehicle-for-Hire 4	5174																																									
4	25	Taxicab Vehicle-for-Hire 4	4851																																									
4	26	Taxicab Vehicle-for-Hire 4	4786																																									
4	27	Taxicab Vehicle-for-Hire 4	4722																																									
4	28	Taxicab Vehicle-for-Hire 4	4657																																									
4	29	Taxicab Vehicle-for-Hire 4	4592																																									
4	30	Taxicab Vehicle-for-Hire 4	4528																																									
4	33	Taxicab Vehicle-for-Hire 4	4334																																									
4	0	Tow Truck 4,540 kg or less GVW	375	417	441	457	468	478	490	502	514	525	543	558	573	588	605	623	638	656	673	692	716	742	770	798	827	857	885	927	956	993	1041	1083	1125	1168	1207	1264	1311	1358	1408	1458	1510
4	0	Tow Truck 4,541 to 16,330 kg GVW		927	1069	1159	1250	1340	1435	1526	1616	1706	1799	1892	1984	2075	2171	2266	2345	2439																							
4	0	Tow Truck 16,331 kg or more GVW		1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012	1012																							
4	0	Transit Bus 20 seats or less	941	971	1023	1076	1134	1188	1243	1297	1357	1411	1467	1522	1578	1634																													
4	0	Transit Bus 21 to 35 seats	1061	1095	1154	1214	1278	1340	1401	1463	1530	1592	1654	1717	1780	1843																													
4	0	Transit Bus 36 to 50 seats	1076	1110	1170	1230	1296	1358	1420	1483	1551	1613	1676	1740	1804	1868																													
4	0	Transit Bus 51 seats or more	1213	1251	1319	1388	1461	1532	1602	1672	1749	1819	1891	1962	2034	2107																													
4	0	U Drive Bus	1126																																									

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4	0	U Drive Moped	432	440	446	457	478	500	524	550	579	609																															
4	0	U Drive Motorhome	925																																								
4	0	U Drive Passenger Vehicle	426	458	475	490	505	521	536	551	566	581	595	601	620	641	666	693	722	750	782	811	841	872	901	931	961	995	1028	1059	1092	1124	1156	1187	1217	1246	1274	1309	1341	1372	1404	1435	1467
4	0	U Drive Truck 4,540 kg or less GVW	420	467	494	512	524	536	549	563	576	588	608	625	643	659	677	698	715	735	754	775	802	831	863	894	926	961	992	1038	1071	1113	1167	1213	1261	1309	1353	1416	1469	1522	1577	1634	1692
4	0	U Drive Truck 4,541 to 16,330 kg GVW		405	467	507	546	586	627	667	706	745	786	827	867	907	949	990	1025	1066																							
4	0	U Drive Truck 16,331 kg or more GVW		305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305																							
Commute	0	All Purpose Motorcycle - Motorscooter 500 cc or less	475	483	490	501	524	549	576	604	635	669																															
Commute	5	All Purpose Motorcycle - Motorscooter 500 cc or less	451	459	465	476	498	522	547	574	603	636																															
Commute	10	All Purpose Motorcycle - Motorscooter 500 cc or less	427	435	441	451	472	494	518	544	571	602																															
Commute	15	All Purpose Motorcycle - Motorscooter 500 cc or less	404	411	416	426	445	467	490	513	540	569																															
Commute	20	All Purpose Motorcycle - Motorscooter 500 cc or less	380	386	392	401	419	439	461	483	508	535																															
Commute	25	All Purpose Motorcycle - Motorscooter 500 cc or less	356	362	367	376	393	412	432	453	476	502																															
Commute	26	All Purpose Motorcycle - Motorscooter 500 cc or less	351	357	363	371	388	406	426	447	470	495																															
Commute	27	All Purpose Motorcycle - Motorscooter 500 cc or less	347	353	358	366	383	401	420	441	464	488																															
Commute	28	All Purpose Motorcycle - Motorscooter 500 cc or less	342	348	353	361	377	395	415	435	457	482																															
Commute	29	All Purpose Motorcycle - Motorscooter 500 cc or less	337	343	348	356	372	390	409	429	451	475																															
Commute	30	All Purpose Motorcycle - Motorscooter 500 cc or less	332	338	343	351	367	384	403	423	444	468																															
Commute	33	All Purpose Motorcycle - Motorscooter 500 cc or less	318	324	328	336	351	368	386	405	425	448																															
Commute	0	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	756	770	780	799	836	875	917	963	1012	1066																															
Commute	5	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	718	731	741	759	794	831	871	915	961	1013																															
Commute	10	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	680	693	702	719	752	787	825	867	911	959																															
Commute	15	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	643	654	663	679	711	744	779	819	860	906																															
Commute	20	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	605	616	624	639	669	700	734	770	810	853																															
Commute	25	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	567	577	585	599	627	656	688	722	759	799																															
Commute	26	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	559	570	577	591	619	647	679	713	749	789																															
Commute	27	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	552	562	569	583	610	639	669	703	739	778																															
Commute	28	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	544	554	562	575	602	630	660	693	729	768																															
Commute	29	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	537	547	554	567	594	621	651	684	719	757																															
Commute	30	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	529	539	546	559	585	612	642	674	708	746																															
Commute	33	All Purpose Motorcycle - Motorscooter 501 to 1000 cc	507	516	523	535	560	586	614	645	678	714																															
Commute	0	All Purpose Motorcycle - Motorscooter 1001 cc or more	947	963	977	1001	1046	1096	1148	1206	1267	1334																															
Commute	5	All Purpose Motorcycle - Motorscooter 1001 cc or more	900	915	928	951	994	1041	1091	1146	1204	1267																															
Commute	10	All Purpose Motorcycle - Motorscooter 1001 cc or more	852	867	879	901	941	986	1033	1085	1140	1201																															
Commute	15	All Purpose Motorcycle - Motorscooter 1001 cc or more	805	819	830	851	889	932	976	1025	1077	1134																															
Commute	20	All Purpose Motorcycle - Motorscooter 1001 cc or more	758	770	782	801	837	877	918	965	1014	1067																															
Commute	25	All Purpose Motorcycle - Motorscooter 1001 cc or more	710	722	733	751	784	822	861	904	950	1000																															
Commute	26	All Purpose Motorcycle - Motorscooter 1001 cc or more	701	713	723	741	774	811	850	892	938	987																															
Commute	27	All Purpose Motorcycle - Motorscooter 1001 cc or more	691	703	713	731	764	800	838	880	925	974																															
Commute	28	All Purpose Motorcycle - Motorscooter 1001 cc or more	682	693	703	721	753	789	827	868	912	960																															
Commute	29	All Purpose Motorcycle - Motorscooter 1001 cc or more	672	684	694	711	743	778	815	856	900	947																															
Commute	30	All Purpose Motorcycle - Motorscooter 1001 cc or more	663	674	684	701	732	767	804	844	887	934																															
Commute	33	All Purpose Motorcycle - Motorscooter 1001 cc or more	634	645	655	671	701	734	769	808	849	894																															
Commute	0	All Purpose Motorcycle - Other 500 cc or less	826	841	853	873	913	956	1002	1052	1106	1164																															
Commute	5	All Purpose Motorcycle - Other 500 cc or less	785	799	810	829	867	908	952	999	1051	1106																															
Commute	10	All Purpose Motorcycle - Other 500 cc or less	743	757	768	786	822	860	902	947	995	1048																															
Commute	15	All Purpose Motorcycle - Other 500 cc or less	702	715	725	742	776	813	852	894	940	989																															
Commute	20	All Purpose Motorcycle - Other 500 cc or less	661	673	682	698	730	765	802	842	885	931																															
Commute	25	All Purpose Motorcycle - Other 500 cc or less	619	631	640	655	685	717	751	789	829	873																															
Commute	26	All Purpose Motorcycle - Other 500 cc or less	611	622	631	646	676	707	741	778	818	861																															
Commute	27	All Purpose Motorcycle - Other 500 cc or less	603	614	623	637	666	698	731	768	807	850																															
Commute	28	All Purpose Motorcycle - Other 500 cc or less	595	606	614	629	657	688	721	757	796	838																															
Commute	29	All Purpose Motorcycle - Other 500 cc or less	586	597	606	620	648	679	711	747	785	826																															
Commute	30	All Purpose Motorcycle - Other 500 cc or less	578	589	597	611	639	669	701	736	774	815																															
Commute	33	All Purpose Motorcycle - Other 500 cc or less	553	563	572	585	612	641	671	705	741	780																															
Commute	0	All Purpose Motorcycle - Other 501 to 1000 cc	1279	1302	1320	1352	1414	1481	1552	1629	1712	1802																															
Commute	5	All Purpose Motorcycle - Other 501 to 1000 cc	1215	1237	1254	1284	1343	1407	1474	1548	1626	1712																															
Commute	10	All Purpose Motorcycle - Other 501 to 1000 cc	1151	1172	1188	1217	1273	1333	1397	1466	1541	1622																															
Commute	15	All Purpose Motorcycle - Other 501 to 1000 cc	1087	1107	1122	1149	1202	1259	1319	1385	1455	1532																															
Commute	20	All Purpose Motorcycle - Other 501 to 1000 cc	1023	1042	1056	1082	1131	1185	1242	1303	1370	1442																															
Commute	25	All Purpose Motorcycle - Other 501 to 1000 cc	959	976	990	1014	1060	1111	1164	1222	1284	1351																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Commute	26	All Purpose Motorcycle - Other 501 to 1000 cc	946	963	977	1000	1046	1096	1148	1205	1267	1333																															
Commute	27	All Purpose Motorcycle - Other 501 to 1000 cc	934	950	964	987	1032	1081	1133	1189	1250	1315																															
Commute	28	All Purpose Motorcycle - Other 501 to 1000 cc	921	937	950	973	1018	1066	1117	1173	1233	1297																															
Commute	29	All Purpose Motorcycle - Other 501 to 1000 cc	908	924	937	960	1004	1052	1102	1157	1216	1279																															
Commute	30	All Purpose Motorcycle - Other 501 to 1000 cc	895	911	924	946	990	1037	1086	1140	1198	1261																															
Commute	33	All Purpose Motorcycle - Other 501 to 1000 cc	857	872	884	906	947	992	1040	1091	1147	1207																															
Commute	0	All Purpose Motorcycle - Other 1001 cc or more	1438	1463	1483	1519	1589	1664	1744	1830	1924	2025																															
Commute	5	All Purpose Motorcycle - Other 1001 cc or more	1366	1390	1409	1443	1510	1581	1657	1738	1828	1924																															
Commute	10	All Purpose Motorcycle - Other 1001 cc or more	1294	1317	1335	1367	1430	1498	1570	1647	1732	1822																															
Commute	15	All Purpose Motorcycle - Other 1001 cc or more	1222	1244	1261	1291	1351	1414	1482	1555	1635	1721																															
Commute	20	All Purpose Motorcycle - Other 1001 cc or more	1150	1170	1186	1215	1271	1331	1395	1464	1539	1620																															
Commute	25	All Purpose Motorcycle - Other 1001 cc or more	1078	1097	1112	1139	1192	1248	1308	1372	1443	1519																															
Commute	26	All Purpose Motorcycle - Other 1001 cc or more	1064	1083	1097	1124	1176	1231	1291	1354	1424	1498																															
Commute	27	All Purpose Motorcycle - Other 1001 cc or more	1050	1068	1083	1109	1160	1215	1273	1336	1405	1478																															
Commute	28	All Purpose Motorcycle - Other 1001 cc or more	1035	1053	1068	1094	1144	1198	1256	1318	1385	1458																															
Commute	29	All Purpose Motorcycle - Other 1001 cc or more	1021	1039	1053	1078	1128	1181	1238	1299	1366	1438																															
Commute	30	All Purpose Motorcycle - Other 1001 cc or more	1007	1024	1038	1063	1112	1165	1221	1281	1347	1417																															
Commute	33	All Purpose Motorcycle - Other 1001 cc or more	963	980	994	1018	1065	1115	1168	1226	1289	1357																															
Commute	0	All Purpose Motorcycle - Sport 500 cc or less	1182	1202	1219	1248	1306	1367	1433	1504	1581	1664																															
Commute	5	All Purpose Motorcycle - Sport 500 cc or less	1123	1142	1158	1186	1241	1299	1361	1429	1502	1581																															
Commute	10	All Purpose Motorcycle - Sport 500 cc or less	1064	1082	1097	1123	1175	1230	1290	1354	1423	1498																															
Commute	15	All Purpose Motorcycle - Sport 500 cc or less	1005	1022	1036	1061	1110	1162	1218	1278	1344	1414																															
Commute	20	All Purpose Motorcycle - Sport 500 cc or less	946	962	975	998	1045	1094	1146	1203	1265	1331																															
Commute	25	All Purpose Motorcycle - Sport 500 cc or less	886	901	914	936	979	1025	1075	1128	1186	1248																															
Commute	26	All Purpose Motorcycle - Sport 500 cc or less	875	889	902	924	966	1012	1060	1113	1170	1231																															
Commute	27	All Purpose Motorcycle - Sport 500 cc or less	863	877	890	911	953	998	1046	1098	1154	1215																															
Commute	28	All Purpose Motorcycle - Sport 500 cc or less	851	865	878	899	940	984	1032	1083	1138	1198																															
Commute	29	All Purpose Motorcycle - Sport 500 cc or less	839	853	865	886	927	971	1017	1068	1123	1181																															
Commute	30	All Purpose Motorcycle - Sport 500 cc or less	827	841	853	874	914	957	1003	1053	1107	1165																															
Commute	33	All Purpose Motorcycle - Sport 500 cc or less	792	805	817	836	875	916	960	1008	1059	1115																															
Commute	0	All Purpose Motorcycle - Sport 501 to 1000 cc	2148	2186	2216	2270	2374	2486	2605	2735	2875	3026																															
Commute	5	All Purpose Motorcycle - Sport 501 to 1000 cc	2041	2077	2105	2156	2255	2362	2475	2598	2731	2875																															
Commute	10	All Purpose Motorcycle - Sport 501 to 1000 cc	1933	1967	1994	2043	2137	2237	2344	2461	2587	2723																															
Commute	15	All Purpose Motorcycle - Sport 501 to 1000 cc	1826	1858	1884	1929	2018	2113	2214	2325	2444	2572																															
Commute	20	All Purpose Motorcycle - Sport 501 to 1000 cc	1718	1749	1773	1816	1899	1989	2084	2188	2300	2421																															
Commute	25	All Purpose Motorcycle - Sport 501 to 1000 cc	1611	1639	1662	1702	1780	1864	1954	2051	2156	2269																															
Commute	26	All Purpose Motorcycle - Sport 501 to 1000 cc	1590	1618	1640	1680	1757	1840	1928	2024	2127	2239																															
Commute	27	All Purpose Motorcycle - Sport 501 to 1000 cc	1568	1596	1618	1657	1733	1815	1902	1997	2099	2209																															
Commute	28	All Purpose Motorcycle - Sport 501 to 1000 cc	1547	1574	1596	1634	1709	1790	1876	1969	2070	2179																															
Commute	29	All Purpose Motorcycle - Sport 501 to 1000 cc	1525	1552	1573	1612	1686	1765	1850	1942	2041	2148																															
Commute	30	All Purpose Motorcycle - Sport 501 to 1000 cc	1504	1530	1551	1589	1662	1740	1823	1914	2012	2118																															
Commute	33	All Purpose Motorcycle - Sport 501 to 1000 cc	1439	1465	1485	1521	1591	1666	1745	1832	1926	2027																															
Commute	0	All Purpose Motorcycle - Sport 1001 cc or more	2696	2742	2781	2848	2979	3120	3269	3432	3607	3797																															
Commute	5	All Purpose Motorcycle - Sport 1001 cc or more	2561	2605	2642	2706	2830	2964	3106	3260	3427	3607																															
Commute	10	All Purpose Motorcycle - Sport 1001 cc or more	2426	2468	2503	2563	2681	2808	2942	3089	3246	3417																															
Commute	15	All Purpose Motorcycle - Sport 1001 cc or more	2292	2331	2364	2421	2532	2652	2779	2917	3066	3227																															
Commute	20	All Purpose Motorcycle - Sport 1001 cc or more	2157	2194	2225	2278	2383	2496	2615	2746	2886	3038																															
Commute	25	All Purpose Motorcycle - Sport 1001 cc or more	2022	2056	2086	2136	2234	2340	2452	2574	2705	2848																															
Commute	26	All Purpose Motorcycle - Sport 1001 cc or more	1995	2029	2058	2108	2204	2309	2419	2540	2669	2810																															
Commute	27	All Purpose Motorcycle - Sport 1001 cc or more	1968	2002	2030	2079	2175	2278	2386	2505	2633	2772																															
Commute	28	All Purpose Motorcycle - Sport 1001 cc or more	1941	1974	2002	2051	2145	2246	2354	2471	2597	2734																															
Commute	29	All Purpose Motorcycle - Sport 1001 cc or more	1914	1947	1975	2022	2115	2215	2321	2437	2561	2696																															
Commute	30	All Purpose Motorcycle - Sport 1001 cc or more	1887	1919	1947	1994	2085	2184	2288	2402	2525	2658																															
Commute	33	All Purpose Motorcycle - Sport 1001 cc or more	1806	1837	1863	1908	1996	2090	2190	2299	2417	2544																															
Commute	0	All Purpose Motorcycle - Sport Touring 500 cc or less	771	784	795	814	851	892	934	981	1031	1085																															
Commute	5	All Purpose Motorcycle - Sport Touring 500 cc or less	732	745	755	773	808	847	887	932	979	1031																															
Commute	10	All Purpose Motorcycle - Sport Touring 500 cc or less	694	706	715	733	766	803	841	883	928	976																															
Commute	15	All Purpose Motorcycle - Sport Touring 500 cc or less	655	666	676	692	723	758	794	834	876	922																															
Commute	20	All Purpose Motorcycle - Sport Touring 500 cc or less	617	627	636	651	681	714	747	785	825	868																															
Commute	25	All Purpose Motorcycle - Sport Touring 500 cc or less	578	588	596	610	638	669	700	736	773	814																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Commute	26	All Purpose Motorcycle - Sport Touring 500 cc or less	571	580	588	602	630	660	691	726	763	803																															
Commute	27	All Purpose Motorcycle - Sport Touring 500 cc or less	563	572	580	594	621	651	682	716	753	792																															
Commute	28	All Purpose Motorcycle - Sport Touring 500 cc or less	555	564	572	586	613	642	672	706	742	781																															
Commute	29	All Purpose Motorcycle - Sport Touring 500 cc or less	547	557	564	578	604	633	663	697	732	770																															
Commute	30	All Purpose Motorcycle - Sport Touring 500 cc or less	540	549	556	570	596	624	654	687	722	759																															
Commute	33	All Purpose Motorcycle - Sport Touring 500 cc or less	517	525	533	545	570	598	626	657	691	727																															
Commute	0	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1408	1432	1452	1488	1556	1629	1707	1792	1884	1983																															
Commute	5	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1338	1360	1379	1414	1478	1548	1622	1702	1790	1884																															
Commute	10	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1267	1289	1307	1339	1400	1466	1536	1613	1696	1785																															
Commute	15	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1197	1217	1234	1265	1323	1385	1451	1523	1601	1686																															
Commute	20	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1126	1146	1162	1190	1245	1303	1366	1434	1507	1586																															
Commute	25	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1056	1074	1089	1116	1167	1222	1280	1344	1413	1487																															
Commute	26	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1042	1060	1074	1101	1151	1205	1263	1326	1394	1467																															
Commute	27	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1028	1045	1060	1086	1136	1189	1246	1308	1375	1448																															
Commute	28	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1014	1031	1045	1071	1120	1173	1229	1290	1356	1428																															
Commute	29	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	1000	1017	1031	1056	1105	1157	1212	1272	1338	1408																															
Commute	30	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	986	1002	1016	1042	1089	1140	1195	1254	1319	1388																															
Commute	33	All Purpose Motorcycle - Sport Touring 501 to 1000 cc	943	959	973	997	1043	1091	1144	1201	1262	1329																															
Commute	0	All Purpose Motorcycle - Sport Touring 1001 cc or more	1717	1747	1771	1814	1897	1987	2082	2186	2298	2419																															
Commute	5	All Purpose Motorcycle - Sport Touring 1001 cc or more	1631	1660	1682	1723	1802	1888	1978	2077	2183	2298																															
Commute	10	All Purpose Motorcycle - Sport Touring 1001 cc or more	1545	1572	1594	1633	1707	1788	1874	1967	2068	2177																															
Commute	15	All Purpose Motorcycle - Sport Touring 1001 cc or more	1459	1485	1505	1542	1612	1689	1770	1858	1953	2056																															
Commute	20	All Purpose Motorcycle - Sport Touring 1001 cc or more	1374	1398	1417	1451	1518	1590	1666	1749	1838	1935																															
Commute	25	All Purpose Motorcycle - Sport Touring 1001 cc or more	1288	1310	1328	1360	1423	1490	1561	1639	1723	1814																															
Commute	26	All Purpose Motorcycle - Sport Touring 1001 cc or more	1271	1293	1311	1342	1404	1470	1541	1618	1701	1790																															
Commute	27	All Purpose Motorcycle - Sport Touring 1001 cc or more	1253	1275	1293	1324	1385	1451	1520	1596	1678	1766																															
Commute	28	All Purpose Motorcycle - Sport Touring 1001 cc or more	1236	1258	1275	1306	1366	1431	1499	1574	1655	1742																															
Commute	29	All Purpose Motorcycle - Sport Touring 1001 cc or more	1219	1240	1257	1288	1347	1411	1478	1552	1632	1717																															
Commute	30	All Purpose Motorcycle - Sport Touring 1001 cc or more	1202	1223	1240	1270	1328	1391	1457	1530	1609	1693																															
Commute	33	All Purpose Motorcycle - Sport Touring 1001 cc or more	1150	1170	1187	1215	1271	1331	1395	1465	1540	1621																															
Commute	0	All Purpose Motorcycle - Touring 500 cc or less	715	728	738	756	791	828	868	911	957	1008																															
Commute	5	All Purpose Motorcycle - Touring 500 cc or less	679	692	701	718	751	787	825	865	909	958																															
Commute	10	All Purpose Motorcycle - Touring 500 cc or less	643	655	664	680	712	745	781	820	861	907																															
Commute	15	All Purpose Motorcycle - Touring 500 cc or less	608	619	627	643	672	704	738	774	813	857																															
Commute	20	All Purpose Motorcycle - Touring 500 cc or less	572	582	590	605	633	662	694	729	766	806																															
Commute	25	All Purpose Motorcycle - Touring 500 cc or less	536	546	553	567	593	621	651	683	718	756																															
Commute	26	All Purpose Motorcycle - Touring 500 cc or less	529	539	546	559	585	613	642	674	708	746																															
Commute	27	All Purpose Motorcycle - Touring 500 cc or less	522	531	539	552	577	604	634	665	699	736																															
Commute	28	All Purpose Motorcycle - Touring 500 cc or less	515	524	531	544	570	596	625	656	689	726																															
Commute	29	All Purpose Motorcycle - Touring 500 cc or less	508	517	524	537	562	588	616	647	679	716																															
Commute	30	All Purpose Motorcycle - Touring 500 cc or less	500	510	517	529	554	580	608	638	670	706																															
Commute	33	All Purpose Motorcycle - Touring 500 cc or less	479	488	494	507	530	555	582	610	641	675																															
Commute	0	All Purpose Motorcycle - Touring 501 to 1000 cc	1234	1256	1273	1304	1364	1428	1497	1571	1652	1739																															
Commute	5	All Purpose Motorcycle - Touring 501 to 1000 cc	1172	1193	1209	1239	1296	1357	1422	1492	1569	1652																															
Commute	10	All Purpose Motorcycle - Touring 501 to 1000 cc	1111	1130	1146	1174	1228	1285	1347	1414	1487	1565																															
Commute	15	All Purpose Motorcycle - Touring 501 to 1000 cc	1049	1068	1082	1108	1159	1214	1272	1335	1404	1478																															
Commute	20	All Purpose Motorcycle - Touring 501 to 1000 cc	987	1005	1018	1043	1091	1142	1198	1257	1322	1391																															
Commute	25	All Purpose Motorcycle - Touring 501 to 1000 cc	925	942	955	978	1023	1071	1123	1178	1239	1304																															
Commute	26	All Purpose Motorcycle - Touring 501 to 1000 cc	913	929	942	965	1009	1057	1108	1163	1222	1287																															
Commute	27	All Purpose Motorcycle - Touring 501 to 1000 cc	901	917	929	952	996	1042	1093	1147	1206	1269																															
Commute	28	All Purpose Motorcycle - Touring 501 to 1000 cc	888	904	917	939	982	1028	1078	1131	1189	1252																															
Commute	29	All Purpose Motorcycle - Touring 501 to 1000 cc	876	892	904	926	968	1014	1063	1115	1173	1235																															
Commute	30	All Purpose Motorcycle - Touring 501 to 1000 cc	864	879	891	913	955	1000	1048	1100	1156	1217																															
Commute	33	All Purpose Motorcycle - Touring 501 to 1000 cc	827	842	853	874	914	957	1003	1053	1107	1165																															
Commute	0	All Purpose Motorcycle - Touring 1001 cc or more	1372	1396	1415	1449	1516	1588	1664	1746	1836	1932																															
Commute	5	All Purpose Motorcycle - Touring 1001 cc or more	1303	1326	1344	1377	1440	1509	1581	1659	1744	1835																															
Commute	10	All Purpose Motorcycle - Touring 1001 cc or more	1235	1256	1273	1304	1364	1429	1498	1571	1652	1739																															
Commute	15	All Purpose Motorcycle - Touring 1001 cc or more	1166	1187	1203	1232	1289	1350	1414	1484	1561	1642																															
Commute	20	All Purpose Motorcycle - Touring 1001 cc or more	1098	1117	1132	1159	1213	1270	1331	1397	1469	1546																															
Commute	25	All Purpose Motorcycle - Touring 1001 cc or more	1029	1047	1061	1087	1137	1191	1248	1309	1377	1449																															

TERR	DISC %	INSURANCE USE DESCRIPTION	RATING GROUPS 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Commute	26	All Purpose Motorcycle - Touring 1001 cc or more	1015	1033	1047	1072	1122	1175	1231	1292	1359	1430																															
Commute	27	All Purpose Motorcycle - Touring 1001 cc or more	1002	1019	1033	1058	1107	1159	1215	1275	1340	1410																															
Commute	28	All Purpose Motorcycle - Touring 1001 cc or more	988	1005	1019	1043	1092	1143	1198	1257	1322	1391																															
Commute	29	All Purpose Motorcycle - Touring 1001 cc or more	974	991	1005	1029	1076	1127	1181	1240	1304	1372																															
Commute	30	All Purpose Motorcycle - Touring 1001 cc or more	960	977	990	1014	1061	1112	1165	1222	1285	1352																															
Commute	33	All Purpose Motorcycle - Touring 1001 cc or more	919	935	948	971	1016	1064	1115	1170	1230	1294																															
Commute	0	All Purpose Motorhome	672	828	1008	1177	1337	1488	1645	1779	1926	2022	2189																															
Commute	5	All Purpose Motorhome	638	787	958	1118	1270	1414	1563	1690	1830	1921	2080																															
Commute	10	All Purpose Motorhome	605	745	907	1059	1203	1339	1480	1601	1733	1820	1970																															
Commute	15	All Purpose Motorhome	571	704	857	1000	1136	1265	1398	1512	1637	1719	1861																															
Commute	20	All Purpose Motorhome	538	662	806	942	1070	1190	1316	1423	1541	1618	1751																															
Commute	25	All Purpose Motorhome	504	621	756	883	1003	1116	1234	1334	1444	1516	1642																															
Commute	26	All Purpose Motorhome	497	613	746	871	989	1101	1217	1316	1425	1496	1620																															
Commute	27	All Purpose Motorhome	491	604	736	859	976	1086	1201	1299	1406	1476	1598																															
Commute	28	All Purpose Motorhome	484	596	726	847	963	1071	1184	1281	1387	1456	1576																															
Commute	29	All Purpose Motorhome	477	588	716	836	949	1056	1168	1263	1367	1436	1554																															
Commute	30	All Purpose Motorhome	470	580	706	824	936	1042	1151	1245	1348	1415	1532																															
Commute	33	All Purpose Motorhome	450	555	675	789	896	997	1102	1192	1290	1355	1467																															
Commute	0	All Purpose Passenger Vehicle	722	777	805	831	857	883	909	934	960	985	1009	1020	1052	1088	1129	1175	1224	1272	1325	1374	1426	1479	1527	1579	1630	1687	1742	1796	1851	1906	1960	2012	2063	2113	2160	2220	2273	2327	2380	2434	2487
Commute	5	All Purpose Passenger Vehicle	686	738	765	789	814	839	864	887	912	936	959	969	999	1034	1073	1116	1163	1208	1259	1305	1355	1405	1451	1500	1548	1603	1655	1706	1758	1811	1862	1911	1960	2007	2052	2109	2159	2211	2261	2312	2363
Commute	10	All Purpose Passenger Vehicle	650	699	724	748	771	795	818	841	864	886	908	918	947	979	1016	1057	1102	1145	1192	1237	1283	1331	1374	1421	1467	1518	1568	1616	1666	1715	1764	1811	1857	1902	1944	1998	2046	2094	2142	2191	2238
Commute	15	All Purpose Passenger Vehicle	614	660	684	706	728	751	773	794	816	837	858	867	894	925	960	999	1040	1081	1126	1168	1212	1257	1298	1342	1385	1434	1481	1527	1573	1620	1666	1710	1754	1796	1836	1887	1932	1978	2023	2069	2114
Commute	20	All Purpose Passenger Vehicle	578	622	644	665	686	706	727	747	768	788	807	816	842	870	903	940	979	1018	1060	1099	1141	1183	1222	1263	1304	1350	1394	1437	1481	1525	1568	1610	1650	1690	1728	1776	1818	1862	1904	1947	1990
Commute	25	All Purpose Passenger Vehicle	541	583	604	623	643	662	682	700	720	739	757	765	789	816	847	881	918	954	994	1030	1069	1109	1145	1184	1222	1265	1306	1347	1388	1429	1470	1509	1547	1585	1620	1665	1705	1745	1785	1825	1865
Commute	26	All Purpose Passenger Vehicle	534	575	596	615	634	653	673	691	710	729	747	755	778	805	835	869	906	941	980	1017	1055	1094	1130	1168	1206	1248	1289	1329	1370	1410	1450	1489	1527	1564	1598	1643	1682	1722	1761	1801	1840
Commute	27	All Purpose Passenger Vehicle	527	567	588	607	626	645	664	682	701	719	737	745	768	794	824	858	894	929	967	1003	1041	1080	1115	1153	1190	1232	1272	1311	1351	1391	1431	1469	1506	1542	1577	1621	1659	1699	1737	1777	1816
Commute	28	All Purpose Passenger Vehicle	520	559	580	598	617	636	654	672	691	709	726	734	757	783	813	846	881	916	954	989	1027	1065	1099	1137	1174	1215	1254	1293	1333	1372	1411	1449	1485	1521	1555	1598	1637	1675	1714	1752	1791
Commute	29	All Purpose Passenger Vehicle	513	552	572	590	608	627	645	663	682	699	716	724	747	772	802	834	869	903	941	976	1012	1050	1084	1121	1157	1198	1237	1275	1314	1353	1392	1429	1465	1500	1534	1576	1614	1652	1690	1728	1766
Commute	30	All Purpose Passenger Vehicle	505	544	563	582	600	618	636	654	672	689	706	714	736	762	790	822	857	890	927	962	998	1035	1069	1105	1141	1181	1219	1257	1296	1334	1372	1408	1444	1479	1512	1554	1591	1629	1666	1704	1741
Commute	33	All Purpose Passenger Vehicle	484	521	539	557	574	592	609	626	643	660	676	683	705	729	756	787	820	852	888	921	955	991	1023	1058	1092	1130	1167	1203	1240	1277	1313	1348	1382	1416	1447	1487	1523	1559	1595	1631	1666
Commute	0	All Purpose Truck 4,540 kg or less GVW	550	612	647	670	686	702	719	737	754	770	796	819	841	863	887	914	937	963	987	1015	1050	1088	1130	1171	1213	1258	1299	1360	1402	1457	1528	1589	1651	1714	1771	1855	1923	1993	2065	2139	2215
Commute	5	All Purpose Truck 4,540 kg or less GVW	522	581	615	636	652	667	683	700	716	731	756	778	799	820	843	868	890	915	938	964	997	1034	1073	1112	1152	1195	1234	1292	1332	1384	1452	1510	1568	1628	1682	1762	1827	1893	1962	2032	2104
Commute	10	All Purpose Truck 4,540 kg or less GVW	495	551	582	603	617	632	647	663	679	693	716	737	757	777	798	823	843	867	888	913	945	979	1017	1054	1092	1132	1169	1224	1262	1311	1375	1430	1486	1543	1594	1669	1731	1794	1858	1925	1993
Commute	15	All Purpose Truck 4,540 kg or less GVW	467	520	550	569	583	597	611	626	641	654	677	696	715	734	754	777	796	819	839	863	892	925	960	995	1031	1069	1104	1156	1192	1238	1299	1351	1403	1457	1505	1577	1635	1694	1755	1818	1883
Commute	20	All Purpose Truck 4,540 kg or less GVW	440	490	518	536	549	562	575	590	603	616	637	655	673	690	710	731	750	770	790	812	840	870	904	937	970	1006	1039	1088	1122	1166	1222	1271	1321	1371	1417	1484	1538	1594	1652	1711	1772
Commute	25	All Purpose Truck 4,540 kg or less GVW	412	459	485	502	514	526	539	553	565	577	597	614	631	647	665	685	703	722	740	761	787	816	847	878	910	943	974	1020	1051	1093	1146	1192	1238	1285	1328	1391	1442	1495	1549	1604	1661
Commute	26	All Purpose Truck 4,540 kg or less GVW	407	453	479	496	508	519	532	545	558	570	589	606	622	639	656	676	693	713	730	751	777	805	836	867	898	931	961	1006	1037	1078	1131	1176	1222	1268	1311	1373	1423	1475	1528	1583	1639
Commute	27	All Purpose Truck 4,540 kg or less GVW	401	447	472	489	501	512	525	538	550	562	581	598	614	630	648	667	684	703	721	741	766	794	825	855	885	918	948	993	1023	1064	1115	1160	1205	1251	1293	1354	1404	1455	1507	1561	1617
Commute	28	All Purpose Truck 4,540 kg or less GVW	396	441	466	482	494	505	518	531	543	554	573	590	606	621	639	658	675	693	711	731	756	783	814	843	873	906	935	979	1009	1049	1100	1144	1189	1234	1275	1336	1385	1435	1487	1540	1595
Commute	29	All Purpose Truck 4,540 kg or less GVW	390	435	459	476	487	498	510	523	535	547	565	581	597	613	630	649	665	684	701	721	745	772	802	831	861	893	922	966	995	1034	1085	1128	1172	1217	1257	1317	1365	1415	1466	1519	1573
Commute	30	All Purpose Truck 4,540 kg or less GVW	385	428	453	469	480	491	503	516	528	539	557	573	589	604	621	640	656	674	691	710	735	762	791	820	849	881	909	952	981	1020	1070	1112	1156	1200	1240	1298	1346	1395	1445	1497	1550
Commute	33	All Purpose Truck 4,540 kg or less GVW	368	410	433	449	460	470	482	494	505	516	533	549	563	578	594	612	628	645	661	680	703	729	757	785	813	843	870	911	939	976	1024	1065	1106	1148	1187	1243	1288	1335	1384	1433	1484
Commute	0	Artisan Truck 4,540 kg or less GVW	546	608	643	666	682	698	715	732	749	765	791	814	836	858	881	909	931	956	981	1009	1043	1081	1123	1164	1205	1250	1291	1351	1393	1448	1518	1578	1641	1703	1760	1843	1911	1981	2052	2126	2201
Commute	5	Artisan Truck 4,540 kg or less GVW	519	578	611	633	648	663	679	695	712	727	751	773	794	815	837	864	884	908	932	959	991	1027	1067	1106	1145	1187	1226	1283	1323	1376	1442	1499	1559	1618	1672	1751	1815	1882	1949	2020	2091
Commute	10	Artisan Truck 4,540 kg or less GVW	491	547	579	599	614	628	643	659	674	688	712	733	752	772	793	818	838	860	883	908	939	973	1011	1048	1084	1125	1162	1216	1254	1303	1366	1420	1477	1533	1584	1659	1720	1783	1847	1913	1981
Commute	15	Artisan Truck 4,540 kg or less GVW	464	517	547	566	580	593	608	622	637	650	672	692	711	729	749	773	791	813	834	858	887	919	955	989	1024	1062	1097	1148	1184	1231	1290	1341	1395	1448	1496	1567	1624	1684	1744	1807	1871
Commute	20	Artisan Truck 4,540 kg or less GVW	437	486	514	533	546	558	572	586	599	612	633	651	669	686	705	727	745	765	785	807	834	865	898	931	964	1000	1033	1081	1114	1158	1214	1262	1313	1362	1408	1474	1529	1585	1642	1701	1761
Commute	25	Artisan Truck 4,540 kg or less GVW	409	456	482	499	511	523	536	549	562	574	593	610	627	643	661	682	698	717	736	757	782	811	842	873	904	937	968	1013	1045	1086	1138	1183	1231	1277	1320	1382	1433	1486	1539	1594	1651
Commute	26	Artisan Truck 4,540 kg or less GVW	404	450	476	493	505	517	529	542	554	566	585	602	619	635	652	673	689	707	726	747	772	800	831	861	892	925	955	1000	1031	1072	1123	1168	1214	1260	1302	1364	1414	1466	1518	1573	1629
Commute	27	Artisan Truck 4,540 kg or less GVW	399	444	469	486	498	510	522	534	547	558	577	594	610	626	643	664	680	698	716	737	761	789	820	850	880	912	942	986	1017	1057	1108	1152	1198	1243	1285	1345	1395	1446	1498	1552	1607
Commute	28	Artisan Truck 4,540 kg or less GVW	393	438	463	480	491	503	515	527	539	551	570	586	602	618	634	654	670	688	706	726	751	778	809	838	868	900	930	973	1003	1043	1093	1136	1182	1226	1267	1327	1376	1426	1477	1531	1585
Commute	29	Artisan Truck 4,540 kg or less GVW	388	432	457	473	484	496	508	520	532	543	562	578	594	609	626	645	661	679	697	716	741	768	797	826	856	887	917	959	989	1028	1078	1120	1165	1209	1250	1309	1357	1407	1457	1509	1563
Commute	30	Artisan Truck 4,540 kg or less GVW	382	426	450	466	477	489	500	512	524	535	554	570	585	601	617	636	652	669	687	706	730	757	786	815	843	875	904	946	975	1014	1063	1105	1149	1192	1232	1290	1338	1387	1436	1488	1541
Commute	33	Artisan Truck 4,540 kg or less GVW	366	407	431	446	457	468	479	490	502	513	530	545	560	575	590	609	624	641	657	676	699	724	752	780	807	837	865	905	933	970	1017	1057	1099	1141	1179	1235	1280	1327	1375	1424	1475
Commute	0	Artisan Truck 4,541 to 16,330 kg GVW		673	777	842	908	973	1042	1109	1174	1239	1306	1374	1441	1507	1577	1646	1703	1772																							
Commute	5	Artisan Truck 4,541 to 16,330 kg GVW		639	738	800	863	924	990	1054	1115	1177	1241	1305	1369	1432	1498	1564	1618	1683																							
Commute	10	Artisan Truck 4,541 to 16,330 kg GVW		606	699	758	817	876	938	998	1057	1115	1175	1237	1297	1356	1419	1481	1533	1595																							
Commute	15	Artisan Truck 4,541 to 16,330 kg GVW		572	660	716	772	827	886	943	998	1053	1110	1168	1225	1281	1340	1399	1448	1506																							
Commute	20	Artisan Truck 4,541 to 16,330 kg GVW		538	622	674	726	778	834	887	939	991	1045	1099	1153	1206	1262	1317	1362	1418																							
Commute	25	Artisan Truck 4,541 to 16,330 kg GVW		505	583	631	681	730	781	832	880	929	979	1030	1081	1130	1183	1234	1277	1329																							

| | | | RATING GROUPS | | |

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